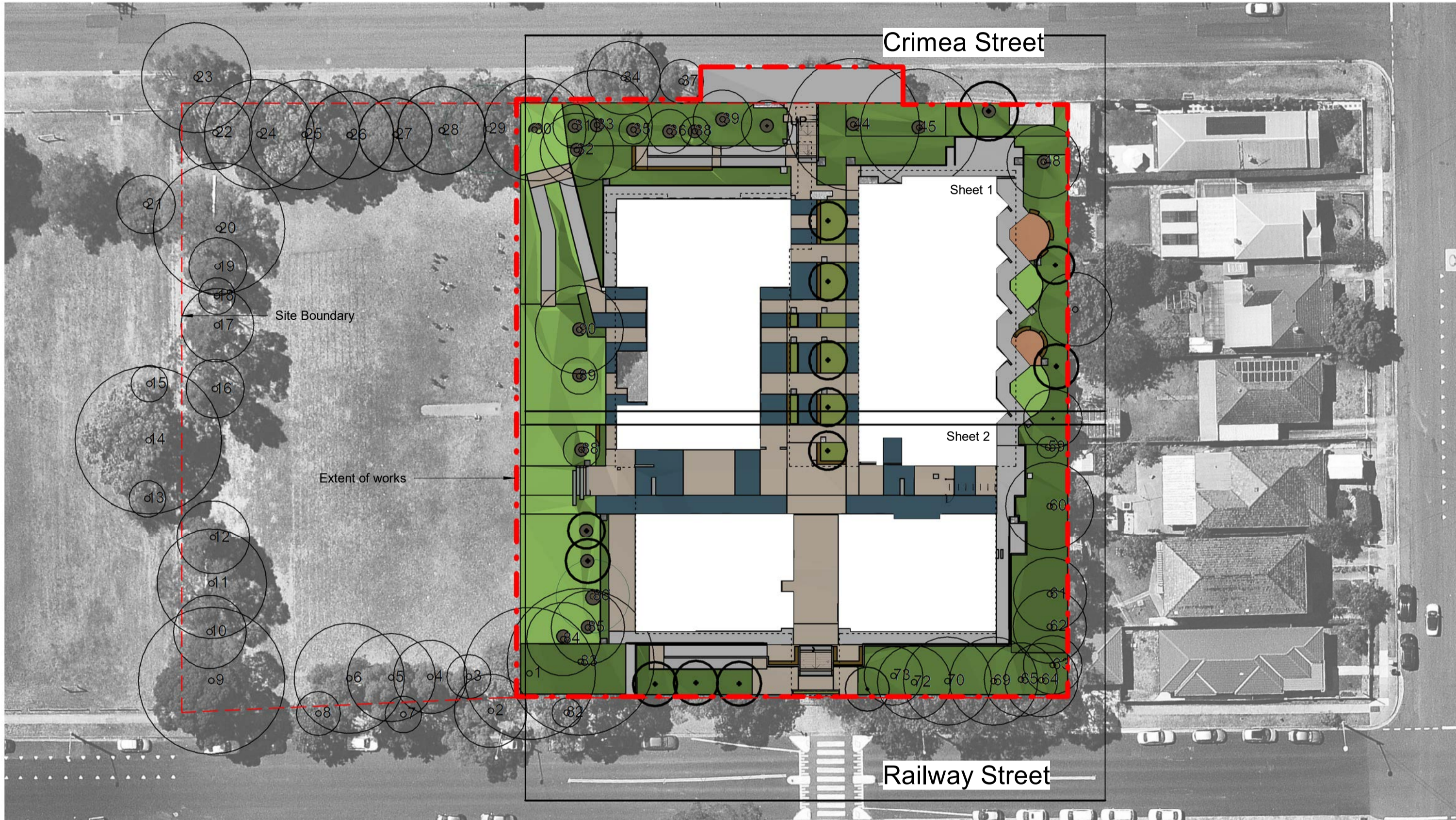


# PARRAMATTA REGION SCHOOLS - PACKAGE 2 (418)

## PARRAMATTA WEST PUBLIC SCHOOL

### Railway Street - Parramatta West NSW

### LANDSCAPE ARCHITECTURAL PACKAGE



Landscape Drawing List	
Sheet Number	Sheet Name
0001	Cover Sheet
0002	Landscape Legend & Finishes Schedule
0003	Tree Removal and Retention Plan
0004	Landscape Masterplan
0005	Irrigation Extent
0007	Plant Schedule - Trees & Shrubs
0101	Surface Finishes Plan - Sheet 1
0102	Surface Finishes Plan - Sheet 2
0201	Levels and Set Out Plan - Sheet 1
0202	Levels and Set Out Plan - Sheet 2
0301	Planting Plan Sheet 1
0302	Planting Plan Sheet 2
0401	Landscape Sections - Section 1
0402	Landscape Sections - Section 2
0501	Landscape Details Sheet 1
0502	Landscape Details Sheet 2
0503	Landscape Details Sheet 3



DRAIN



A diagram of a single processor, represented by a grey rectangle with a white box in the center containing the text "P1".

P2b

P2c

MAPA1

PA2

T1	T2
T3	T4

CE

ME

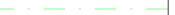
TER1



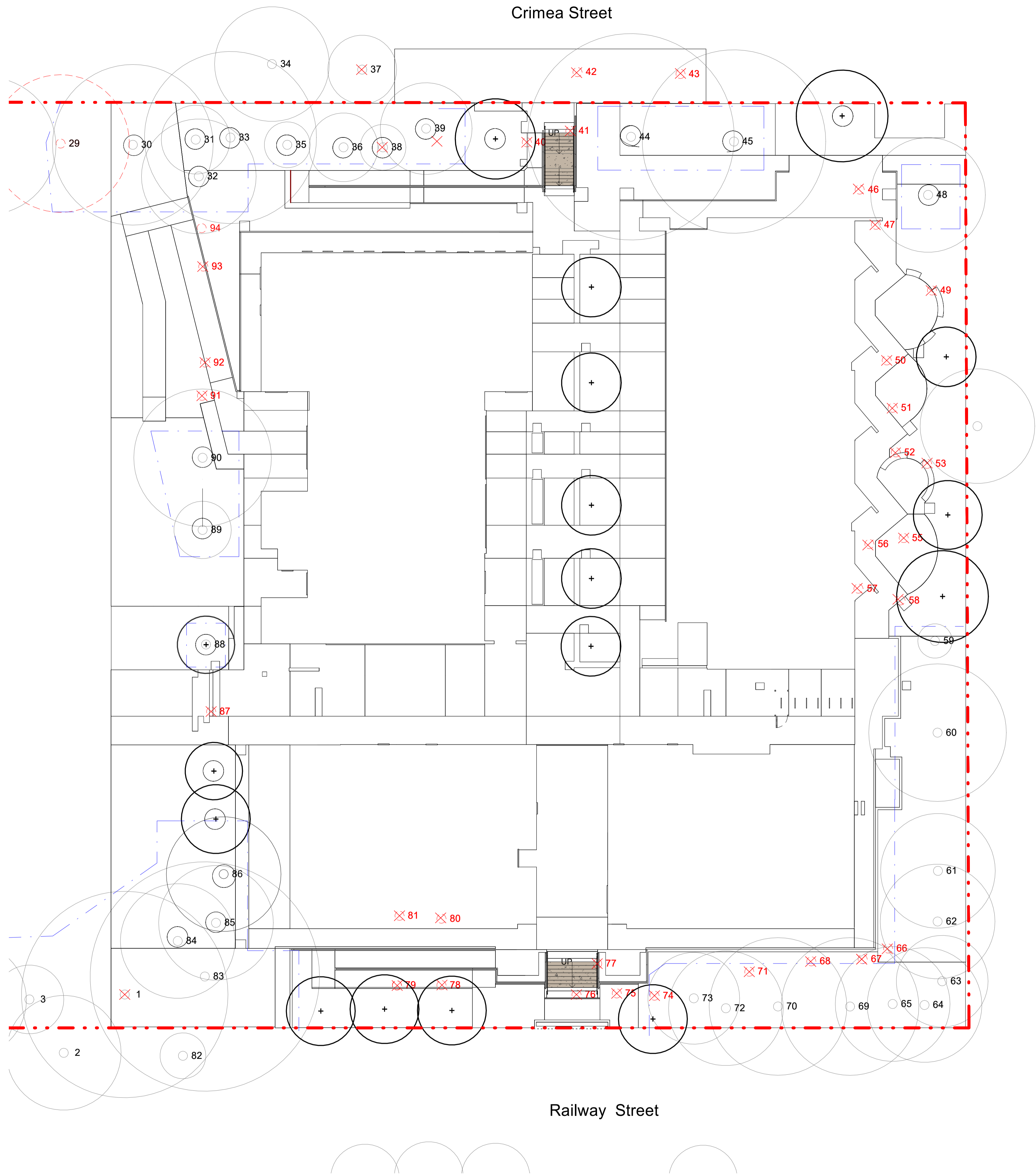
W3

A diagram of a single neuron. It consists of a rectangular box labeled "W5" representing the weight, connected to a small circle representing the bias.

1. Refer to built earthworks drawings for topsoil/landscape set-down in soft landscape areas provided by civil trade.
2. Prior to excavations dial before you dig and check combined services drawings for the location of existing and new services. Services on landscape drawing shown for reference only.
3. All landscape surfaces to finish flush with adjacent surfaces unless otherwise noted.
4. All landscape surfaces adjacent to pits are to finish flush. Ensure no ponding in landscape areas, ensure flow of water to civil trade drainage pit.
5. For construction details of pedestrian pavement refer civil/structural drawings. For finishes and colour refer landscape surface finishes drawings.
6. Refer to civil engineer's drawings for finished surface levels, unless noted otherwise on the landscape drawings.
7. Pedestrian pavement set-out from landscape drawings.
8. The surface abutting either side of a pathway of widths less than 2200 mm to follow the gradient of the pathway and extend horizontally for not less than 600 mm.
9. Maximum incline on grass is 1:4.
10. Provide a minimum fall of 1:100 away from buildings on hardstand areas unless otherwise shown.
11. All levels are finished surface level (FSL) unless otherwise noted.
12. All planting to be installed a minimum 600 mm clear of buildings.
13. Grated drainage pits in planted areas to have 1 m x 150 mm deep gravel surround.
14. External lighting drawings refer to Electrical drawings.
15. Jute matting is required for steeper than 1:3 planting areas.
16. Pavement colour & finishes as shown on the landscape documents.
17. Landscape contractor to allow ± 50mm for landscape trimming across the site, in some areas this will increase to 300mm - particularly around building edges.
18. Note that landscape levels and set-out drawings are to be read in conjunction between civil and landscape and were discrepancies exist please contact landscape and civil team for further instructions.

Symbol	Type	Pavement Type	Supplier (or equivalent)	Size	Colour / Finish	Sealer	Reference
	Extent of Works						
	Expansion Joint	Dowelled Expansion Joint	Connolly Expansion Joint	EXJ 125' & 'EXJ 150' Dependant on thickness on concrete. Lengths to match pathway widths.	With Permanent Capping Strip - Grey	Capping Strip - Permanent - Black/Grey	Refer To Civil Drawings and Specification
	Control Joint	Saw Cut Joint		Saw cut 3mm wide and 25mm deep saw cut to locations shown on plan. Lengths to match pathway widths.	Neat and Clean Saw Cut Straight Line	N/A	Refer To Civil Drawings and Specification
	Isolation Joint	Isolation Joint		10mm Compressible material & coloured sealant as specified	Grey	Mastic Joint Seal - As	Refer To Civil Drawings and Specification
	Proposed Sub Surface Drainage						Refer To Hydraulic and Civil drawings
	Earthmound lines						N/A
	Proposed Tree						Refer To Planting Plan & Surface finish Plan
	Proposed Tree With Mulch Ring						Refer To Planting Plan & Surface Finish Plan
	Existing Tree to be Retained						Refer To Tree Retention and Removal Plan
	Tree to be Removed						Refer To Tree Retention and Removal Plan

<div> <div>  <div> <div>NSW</div> <div>GOVERNMENT</div> </div> </div> <div> <div>Education</div> <div>School Infrastructure</div> </div> </div>	<div>CLIENT</div> <div>PROJECT MANAGER</div> <div>CONTRACTOR</div>	<div>  <div> <div>blueVisions</div> <div>certainly. innovation. excellence</div> </div> </div> <div>  </div>	<div>ARCHITECT</div> <div>  </div>	<div>PROJECT</div> <div> <div>Parramatta Region Schools - Package 2 (418)</div> <div>Parramatta West Public School</div> </div> <div> <div>INTERNAL PROJECT No:</div> <div>16461</div> </div> <div> <div>DATE:</div> <div>17/01/2019</div> </div> <div> <div>© CONRAD GARGETT</div> <div> <div>mail@conradgargett.com.au</div> <div>ABN 49 325 121 350</div> </div> <div>DO NOT SCALE DRAWING &amp; VERIFY ALL DIMENSIONS AND LEVELS ON SITE</div> <div>NOMINATED ARCHITECT: LAWRENCE TOALDO NSW Reg. 10255</div> </div>	<div>NORTH</div> <div>  </div>	<div>DRAWING</div> <div> <div>Landscape Legend &amp; Finishes Schedule</div> </div>	<table border="1"> <tr> <th>REV</th> <th>DESCRIPTION</th> <th>DATE</th> <th>APPD</th> </tr> <tr> <td>G</td> <td>100% DD Endorsement</td> <td>06/12/2019</td> <td>KNN</td> </tr> <tr> <td>H</td> <td>Crown Certification</td> <td>17/01/2019</td> <td>KNN</td> </tr> </table>	REV	DESCRIPTION	DATE	APPD	G	100% DD Endorsement	06/12/2019	KNN	H	Crown Certification	17/01/2019	KNN	<div> <div> <div>10</div> <div>0</div> <div>10</div> <div>20</div> <div>30</div> <div>40</div> <div>50</div> </div> <div>SCALE 1: 1 @ A1 mm</div> </div> <div> <div>SCHOOL ID</div> <div>PAC ID</div> <div>STAGE</div> <div>DISCIPLINE</div> <div>DOC TYPE</div> <div>DRAWING No:</div> <div>REV:</div> </div> <div> <div>PW - 02-DD-LA - DR -0002 -H</div> </div>
	REV	DESCRIPTION	DATE	APPD																
G	100% DD Endorsement	06/12/2019	KNN																	
H	Crown Certification	17/01/2019	KNN																	

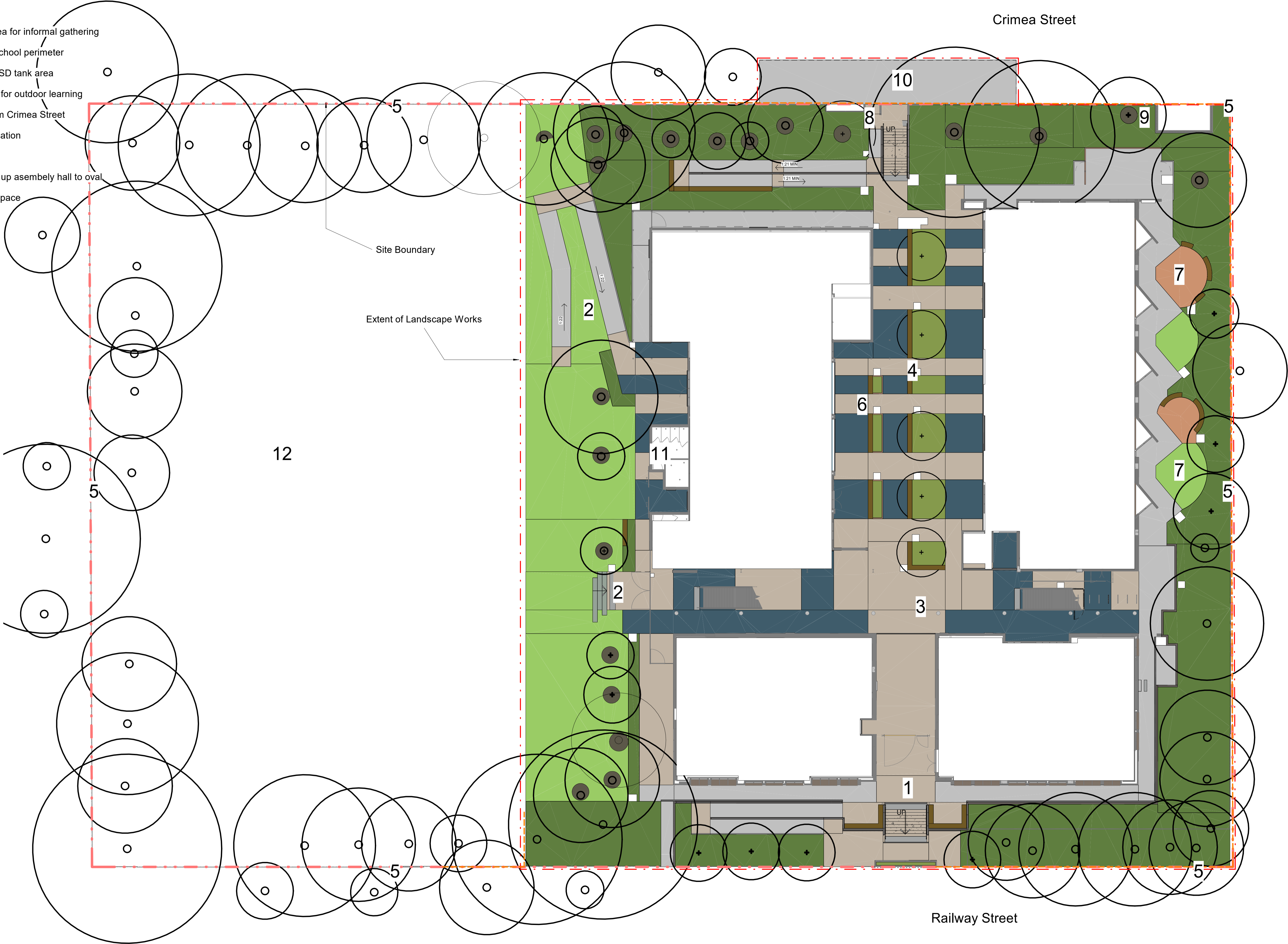


DEMOLITION LEGEND

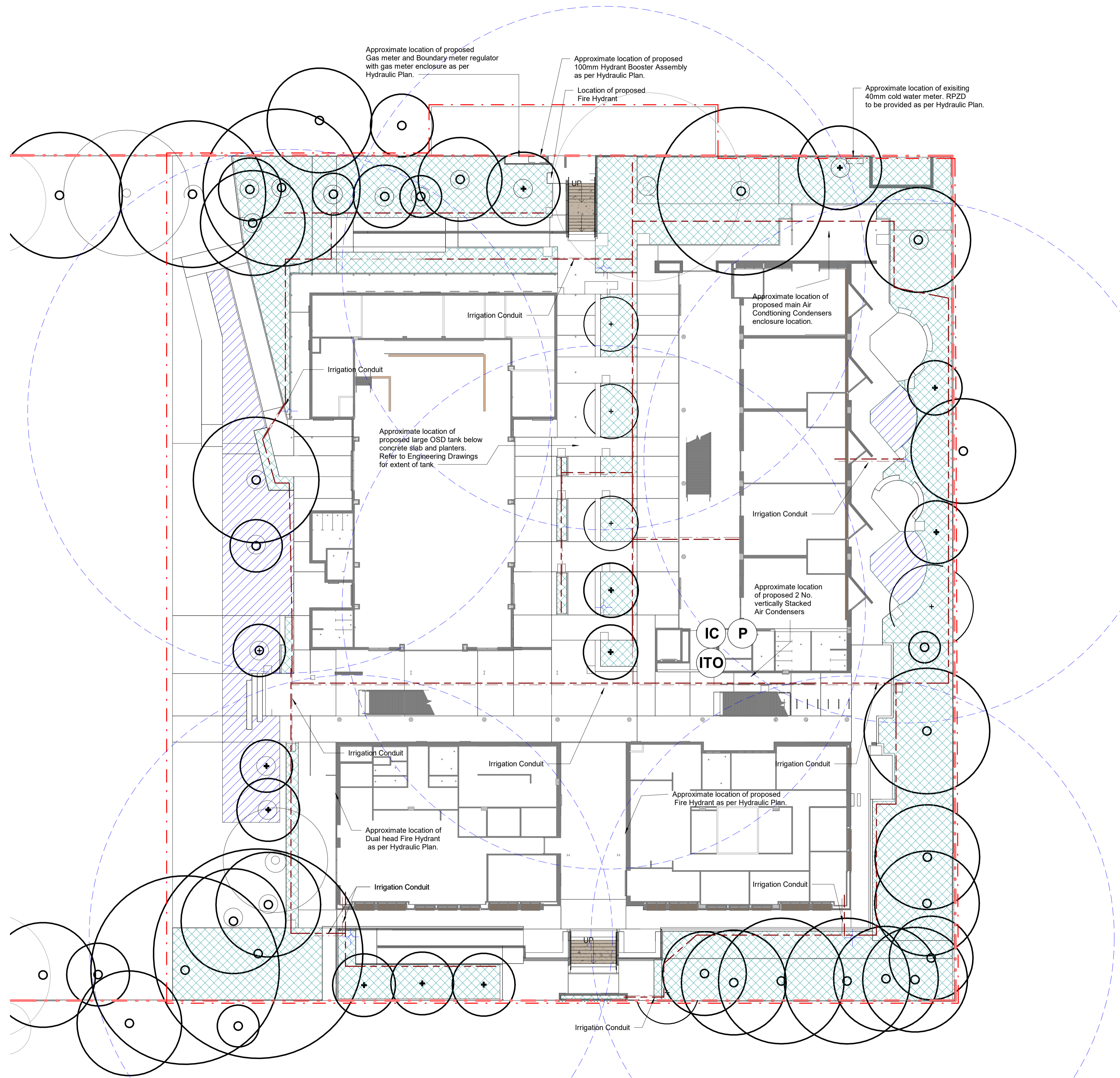
- Extent of works.
- Tree Protection Fence indicatively shown, the arborist report will clarify the full extent of fencing required. Tree protection fencing is to be installed prior to any demolition works including trees to be removed.
- Tree to be removed
- Tree to be retained and protected as per AS 4970-2009. Refer to Tree Retention and Removal Plan L003 and arborist report for specific tree information.

PRELIMINARY

- 1 Formalised entry on Railway Street
- 2 Accessible link to school oval
- 3 Covered walkways
- 4 Seating and planting area for informal gathering
- 5 Security fence around school perimeter
- 6 Kitchen gardens over OSD tank area
- 7 Informal Yarning circles for outdoor learning
- 8 Accessible walkway from Crimea Street
- 9 Proposed substation location
- 10 Pupil drop-off zone
- 11 Panel lift doors opening up aseembly hall to oval
- 12 Existing retained open space



PRELIMINARY



IRRIGATION LEGEND

- Extent of Works
- Spray Irrigation
- Drip Irrigation
- Inverted Tap in Inground box for maintenance (Approx. 25m Diameter Coverage)
- Irrigation Conduit
- Indicative Main Line
- IC Irrigation Controller  
Irrigation take-off point to be visible from controller
- ITC Irrigation Water Take-off
- P Power Supply

Refer to Hydraulic Plan for further information on Coordination of tap connections.

PRELIMINARY

# IRRIGATION REQUIREMENTS

## General extent of irrigation works:

- The shop drawings, supply, installation and commissioning of an irrigation system to the designated landscaped areas.
- Irrigation extents and treatment generally include but may not be limited to the following:
  - Water supply to accommodate potable and non-potable water source (Lilac pipework standard)
  - Popup sprinkler irrigation to playing fields
  - Popup sprinklers to general turf areas
  - Sub surface drip line to gardens and podium planters
  - Sub surface drip line to trees in paving
  - Irrigation controller to provide web based communication for smart watering and monitoring
  - Rain sensor for automatic over-ride of system during rain events
  - Establishment - 25mm per week
  - Post Establishment - 20mm per week (maximum) with seasonal adjustment to suit climatic conditions.

## Unless otherwise advised:

- The equipment and installation processes described in this drawing requirements and accompanying landscape/ irrigation drawings are intended to produce an irrigation system which complies with all applicable industry and local authority and Australian standards.
- The Irrigation Contractor will inspect the site and verify the available water flow and pressure, prior to lodgement of design and Tender.
- The Irrigation Contractor shall provide shop drawings for the irrigation system for the site detailing the following as a minimum:
  - Irrigation water connection point and system duty information
  - All conduits and penetrations
  - Irrigation controller location, power supply requirements and controller capacity
  - Irrigation mainline and control cables network
  - Mainline isolation, air release, quick coupling, and solenoid valves
  - All zones of irrigation and valve information
  - Sprinkler layout, Dripline layout
  - Lateral pipework for sprinklers, dripline header / collector manifolds
  - Irrigation zone operational matrix indicating operation within allowable water windows
  - Water usage figures for all irrigation
- The Contractor will be responsible for all works required. Items not specifically described in this requirements, but which would normally be required to produce a fully functioning irrigation system are to be considered part of the required works.
- This requirement sets a minimum standard required for the shop drawings, works, materials, installation, equipment and labour necessary for the complete and proper implementation of the irrigation works. It is the Irrigation Contractor's responsibility to bring to the principals representative attention any concerns, potential obstacles or possible improvements before construction commences.
- Contractors are required to comply with all the relevant local and Australian standards.

## GENERAL SCOPE:

All Equipment and pipe work is to be LILAC in colour or identified as "Non-potable" water supply in accordance with Australian standards for use of potential Non potable water for all sites.

## AUSTRALIAN STANDARDS:

Unless recommended otherwise by the Manufacturer, all work will be carried out using equipment and installation process as outlined in the relevant Australian Standards. The list of relevant standards is at the end of this document.

## EXISTING WORKS:

Where existing works are to be modified, connected to, removed and or re-installed, it is the Irrigation Contractor's responsibility to verify that the equipment is working correctly at the commencement of the works. At the completion of the works, the Irrigation Contractor will ensure that the existing works are working as well as, or better than, originally found.

## DAMAGE TO EXISTING WORKS:

Minimise the disturbance to existing vegetation. Should damage occur rectify any disturbance or damage as directed. Locate existing services prior to commencement of work, hand-excavate trenches to expose existing services, do not use machinery for excavation within 1 metre of services. Any damage caused by the Irrigation Contractor to previously identified services, will be repaired without delay and at no expense to the Client. Protect all structures against damage during installation.

## WARRANTY:

The Irrigation Contractor will warrant both materials and installation against fault, and repair or replace without delay and at no cost to the Client. The duration of the warranty is to be 12 months after completion of Maintenance period. Details of any extended Warranty Periods offered by the Manufacturer are to be provided to the principals representative at time of Tender.

## MAINTENANCE PERIOD:

Unless otherwise nominated the period shall be 12 weeks following Completion.

## AS-CONSTRUCTED DRAWINGS:

As Constructed Drawings of the installed irrigation system are to include **triangulated dimensions** of all relevant data re location of Valves, Automatic control wiring, Field wire joints, Controllers, Rain switches, Mains Connections, Backflow Prevention Devices, Pumps and Filters. All changes to the construction drawings shall be noted. This data is to be submitted to the principals representative prior to Completion.

## SHOP DRAWING REQUIREMENTS ARE BASED ON THE FOLLOWING.

### WATER SUPPLY

It is assumed that the site shall be connected to a typically sized town mains connection 50mm providing a minimum of 4.0L/sec at 450kPa. The irrigation contractor is to confirm site available pressure after the RP2V and Water Meter assembly to determine usable flow and pressure for the proposed irrigation system. If the water supply pressure is not sufficient for the proposed irrigation works then the contractor shall bring this to the attention of the principals representative immediately to determine if alternative water source is required, ie pumps and tanks.

## IRRIGATION STATIONS FLOW SIZING & OPERATION

If the available site flow and pressure is 4.0L/sec @ 450kPa or better, then the following minimum station operational combination is recommended:

- 1 x 40mm solenoid valve @ 4.0L/sec (typical sports field station sizing)
- OR
- 2 x 25mm solenoid valves @ 2.0L/sec (typical landscape turf sprinkler station sizing)
- OR
- 1 x 25mm solenoid valves @ 2.0L/sec (typical landscape turf sprinkler station sizing) and 2 x 25mm solenoid valves @ 1.0L/sec (typical landscape garden dripline station sizing)
- Or a combination of the above not exceeding the available system duty
- The System design presumes an Operating Window of: 8.0 hours / night x 7 nights / week

## IRRIGATION MAINLINE & CONTROLS

- The irrigation mainline shall be designed in a ring main arrangement to aid hydraulic limitations if the site is suitable to do so.
- Control cables shall be design to accommodate a minimum of (3) spare wires on each wire run if multicore cable is used.
- If decoder cable is to be used then all grounding requirements according to manufacturer's specifications are to be met.
- The Irrigation System will be fully automatic and 240 / 24 VAC in operation. It is presumed that a 240VAC x 10 Amp GPO will be provided at each nominated controller location

## VALVE ARRANGEMENTS

- A minimum of (4) isolation valves shall be incorporated into the mainline system for logical isolation of the mainline for future maintenance
- Typical isolation points would be as follows (minimum of 4):
  - 1 x Isolation valve at Sporting Field take off point
  - 1 x Isolation valve at half way point of system ring main
  - 2 x Isolation valves at water source point to allow half shut down of rain main in either direction.
  - Quick coupling valves to be located at logical wash down points for general site maintenance and additional watering.
  - 1 x Air valve to be located at high point on ring main, and 1 x Air valve at end of each dead end mainline run.
  - 1 x Isolation valve with open end discharging to nearest drain shall be located at the system lowest point for mainline flushing.

## TYPICAL IRRIGATION ZONING

Irrigation sizing shall follow the general guidelines of the following

- Sports Field stations shall comprise of 4 x 3600 gear drive sprinklers (16m-18m) with typical flow of 60L/min each totalling 240L/min (4.0L/sec) maximum
- If part circle radius (900 or 1800) sprinklers are required then they shall be designed on separate stations to the full circle (3600) and not exceeding the maximum flow of 4.0L/sec
- Landscape turf areas to be irrigation with popup gear drive or rotary nozzle sprinklers. General spacing shall vary from 4.0m to 12.0m. Station sizing shall typically be limited to 120L/min (2.0L/sec) to accommodate practical landscape turf zones
- Landscape gardens and podium planters to be irrigated with sub surface inline drip tube, with a typical emitter grid layout of 0.4m x 0.4m spacing. Emitter output shall be chosen to suit planting and soil infiltration requirements. Station sizing shall typically be limited to 60L/min (1.0L/sec) or 120L/min (2.0L/sec) to accommodate practical landscape turf zones

## MATERIALS AND INSTALLATION:

## HEADWORKS

## BACKFLOW PREVENTION DEVICE:

For the prevention of possible irrigation water backflow into the potable supply the Backflow Prevention Device shall meet the Level of Protection and Hazard Rating requirement as per Local Authority Regulations. Connection to town mains shall be by others.

## TRENCHING AND BACKFILLING:

The trench width is to have a minimum of 25 horizontal clearance around the pipe work. Minimum cover over Mains pipe work is to be 450 and 300 for Laterals.

## PIPING

## PIPE WORK - ABOVE GROUND:

Should it be necessary to install pipe work above ground, all exposed pipe work shall be copper or suitable HDPE. uPVC is not acceptable in exposed positions.

## MAINLINE PIPEWORK AND FITTINGS:

All mainline pipe work is to be either **uPVC**, Class 12 to AS 1477 or **M.D.P.E.**, PE 80, PN 12.5 to AS / NZS. 4131. Poly Pipe Fittings shall be a minimum Class 12, compression / screwed joints. Solvent Weld uPVC pipe Fittings shall be a minimum Class 12, all fittings shall be joined utilising both priming fluid and solvent cement as per the manufacturer's recommendation. Tapping Saddles are to be Gunmetal or Poly, Tapping saddle nuts, bolts and washers will be Stainless Steel. Fittings for screwed isolation valves shall be line sized and installed utilizing appropriate thread seal as recommended by the manufacturer. **Lilac** pipe to be used throughout for future non-potable water usage.

## MAINLINE PIPEWORK FLOWS AND SIZING

Material: M.D.P.E. PN 12.5		Material: M.D.P.E. PN 12.5	
Diameter	Flow (l/min.)	Diameter	Flow (l/min.)
100	380	110	360
80	320	90	300
65	250	75	240
50	200	63	180
40	130	50	120

## LATERAL LINE PIPEWORK AND FITTINGS:

All Lateral pipe work will be **M.D.P.E.**, PE 80, PN 12.5, to AS / NZS. 4131 Fittings shall be minimum Class 12, Poly, compression / screwed joints; Gunmetal or Poly Tapping Saddles, Tapping saddle nuts, bolts and washers will be Stainless Steel. **Lilac** pipe to be used throughout for future non-potable water usage.

## LATERAL LINE PIPEWORK FLOWS AND SIZING

Material: M.D.P.E. PN 12.5		Material: M.D.P.E. PN 12.5	
Diameter	Flow (l/min.)	Diameter	Flow (l/min.)
50	200	63	180
40	130	50	120
32	100	40	60
25	50	32	50
20	30	25	20

## DRIP LINE HEADER/ COLLECTOR PIPEWORK AND FITTINGS:

All Header / Collector pipe work within gardens/ planters shall be **L.D.P.E.** 19 & 25mm. Fittings shall be selected and sized to suit the selected drip line. **Stainless steel clips** shall be utilised rather than plastic ratchet clips. Connection pipes between solenoid valves and planted areas, and linking between planted areas is referred to as the **Feeder** pipe and shall be **MDPE PN10** with compression fittings. Connections between feeder pipes and header pipes shall be via threaded tee or tapping saddle and director fittings.

## FEEDER LINE PIPEWORK FLOWS AND SIZING

Material: M.D.P.E. PN 10		Material: LDPE	
Diameter	Flow (l/min.)	Diameter	Flow (l/min.)
50	120	32	54-84
40	60	25	40-54
32	50	19	20-40
25	20	13	0-20

## VALVES

## ISOLATING GATE VALVES:

Isolation of mainline sections for staged installation and ease of maintenance. All Isolation Valves are to be rated to minimum 1033 kPa. Installation is to be in a dedicated, lockable valve box

## MAINLINE AIR VALVES:

Exhaust of air and made-up gases from mainline high-points. Installation of the Air Valve is to be off **TOP** of pipe.

## BALL VALVES:

Isolation of Sundry Control Valves such as Quick Coupling Valves, Air valves, Size of the ball valve is to suit inlet diameter of Sundry Valve, Pressure rating to be 1600 kPa. Installation is to be between the base of the nominated valve and the valve riser.

## QUICK COUPLING VALVES:

Access to mains water for manual irrigation or wash down of designated areas. QCV's are to have **LILAC** cap installed to indicate Non-Potable water source. Installation is to be vertically, in a dedicated, lockable valve box. Valve boxes shall be Minimum 250 diameter round to permit ready access to all internal components. Installation is to be as shown on Drawings.

## CHECK VALVES:

Protection of outlets against low-head drainage; where an outlet does not have an integral check valve supplied by the manufacturer. Installation is to the base of supply risers between the base of the nominated outlet and the riser

## AUTOMATIC SOLENOID VALVES:

Solenoid valves are to be 24 VAC, allowing remote actuation by the irrigation controller. Solenoid valves are to be sized to suit flow rate, and suitable for a working pressure of 1033 kPa. Installation is to be in a dedicated, lockable valve box. Poly ball valve to be installed upstream of solenoid valve assembly for isolation under maintenance.

## PRESSURE REGULATION MODULE:

On valve regulation of lateral line pressure downstream of the Automatic Valve

## DRIPLINE AIR / VACUUM RELIEF VALVE:

Evacuation of air from In-Line Drip Tube laterals Installation is to be at high points in In-Line Drip Tube, as per the relevant Manufacturer's instructions

## DRIPLINE FLUSHING VALVE:

A flushing valve is required for reduction of sediment build-up within In-Line Drip Tube. Install as recommended by the tubing manufacturer

## DRIPLINE SECONDARY FILTER:

Secondary filtration of water source to reduce maintenance to Drip-Line, Filter to be minimum 120 mesh, 20 diameter

## DOUBLE O-RING RISERS:

Articulated 'O' ring risers are to provide Flexible connection between pressurised mainline and outlets. They are to consist of a minimum of 4 elbow, Schedule 80 PVC riser, minimum of 250 long and of a diameter to suit inlet of the designated Valve. Installation is to be to Automatic Valves, Air Valves and Quick Coupling Valves.

## VALVE BOXES:

All valves shall be installed in a Green PVC valve box. Minimum size required is to permit ready access to all internal components. Installation is to be so as to contain each valve with fittings. Do not support valve box on valve or pipe work, provide brick course and or a PVC sleeve of suitable diameter to bring the box to grade.

## VALVE BOX IDENTIFICATION:

Requirement: Identification of the contents of the valve box shall be by either Laser-engraving or attached tag to the valve box lid with the following Identification:

- Solenoid Valve: S.V.
- Air Valve: A.V.
- Quick Coupling Valve: QC.V.
- Isolating Gate Valve: I.V.
- Hydrometer: HYD.
- Wiring Joints: W.J.

## SOLENOID VALVE IDENTIFICATION:

Requirement: Identification of the solenoid within the valve box shall be by tag attached to either the solenoid or the lower section of the valve box. Solenoid valve I.D. shall include the following Identification:

- Solenoid Valve Number
- Wiring Run Identification (If multiple runs utilised on project)
- Controller Identification (If multiple controllers utilised on project)

## CONTROLS

## CONTROL WIRE CONDUITS: (Where not provided by others)

Requirement: Conduit for low voltage cables is required for protection of exposed irrigation control cabling, or where the control cabling is run separately from the main line. Where installed above-ground, saddle to permanent structures, to AS 3000. Provide draw-wire if conduit installed before cables. Ensure conduit is installed clear of concrete thrust blocks

## AUTOMATIC CONTROL UNIT:

**Requirement:** Automatic control will provide unattended operation of the irrigation system. It shall be a stand-alone controller with integral 240 VAC power source, Multi start times, multi independent programs, 'Cycle and Soak' capability, and have provision for Sensor input override. Installation is to be strictly to Manufacturer's instructions, in a location as shown on irrigation extents plan. Internal installation is to include connection to the 240VAC double outlet GPO. All wiring to access via PVC conduit sweep bends. Connect 24 AC control wire from controller to 24 AC solenoid valves, access from external points to be via conduit through sleeves and or penetrations.

## AUTOMATIC CONTROLS ENCLOSURE WALL MOUNT: (Where required)

Should the selected Control Unit not have a suitable secure enclosure, a secure, internal or external enclosure for stand-alone Automatic Controller/s, Associated Equipment, and power supply is required. This enclosure is required to have a Mechanical Rating 9, Minimum Rating: IP65, be of glass reinforced Polyester construction, complete with neoprene one-piece sealing gasket, include a hinged, insulated mounting-pan, including Slide Rails for varying depth and be of minimum dimensions to suit Controller GPO and meter (if required)

Installation of the enclosure is to include a double outlet GPO inside the enclosure, and to be in a nominated location and at suitable height for operational access. Mount enclosure level, with centre 1500 above F.S.L.

## AUTOMATIC CONTROLLER OVER-RIDE (RAIN):

Automatic over-ride of the irrigation programme in the event of excessive rainfall. Install as directed, min. 2400 above ground, Install wiring in PVC Conduit. Rain switch sensor to be compatible with the Automatic Controller selected

## 24 VOLT AC CONTROL CABLING:

**Active: control cabling:** 5 core, 7, 9 and 13 core 1.5 or 2.5 sq mm. PVC insulated POLYETHYLENE sheathed wire  
**Common control cabling:** Single core, 2.5 or 4.0 sq.mm PVC insulated, POLYETHYLENE sheathed wire  
The smaller wire sizes outlined apply to Control Wiring runs up to a maximum of 400m, the larger wire sizes outlined apply to Control Wiring runs over 400m, the maximum voltage drop between the Irrigation Controller and the solenoid valve shall be less than 10% of coil operating voltage. Installation is to be in the mainline trench, beside and below the pipe work. Provide a 250mm loop of control wiring at each valve box. Run the cables with extreme care in unbroken lengths from controller to solenoid valves. All joins are to be made within a valve box.

## OUTLETS

## IN-LINE DRIP-TUBE:

Drip tube shall be generally installed to ensure adequate coverage is provided to the Landscape. Outlets are to be pressure compensated with anti-siphon feature. Tubing is to be installed without kinks at all times. Tubing is to be placed at the soil and mulch interface and staked at 500 centres. Tubing is to remain buried at all times Drip tube shall be sized / selected to ensure a minimum precipitation rate of 10mm per hour Drip Tube is to provide localised, low-flow, low precipitation irrigation of landscaped turf and/or garden areas as designated on the layout drawings. The In-Line Drip Emitters are to be pressure-compensated to 250 kPa. The Drip Emitter tubing is to be LDPE with anti root intrusion ability and to conform to Australian standards. Drip line is to have Anti-Siphon with self flush and Anti-Drain feature. Drip Tubing rings around advanced trees are to have minimum 8 outlets per tree and be installed so that the tubing will not restrict root growth.

## DRIP EMITTERS:

Individual drips may be required to specific pots and or plant locations. They shall supply low volume, low pressure, adjustable flow. Drip outlets Operating at 150 kPa (nominally) Installation is to be at a nominal spacing to be 0.20 metres from planting. Drip Emitter is to be connected to the lateral line by 4mm low density poly pipe. Drip Emitter to be stake mounted.

## SPRAY HEADS (FIXED NOZZLE):

Where indicated on the drawings; the Landscape shall be irrigated by fixed spray, pop-up and shrub head outlets. The outlets shall be adjusted to minimise overspray onto hard surfaces. All sprinklers shall feature arc and radius adjustment, fixed arcs between 00 and 3600 Operating at 200 kPa (nominally). All sprinklers to have Lilac coloured collars and / or caps fitted to conform to Non-Potable water usage.

## SPRAY HEADS (ROTARY NOZZLE):

Where indicated on the drawings; the Landscape shall be irrigated by fixed spray, pop-up and shrub head outlets fitted with "Rotary" nozzles to minimise wind drift. The outlets shall be adjusted to minimise overspray onto hard surfaces. All sprinklers shall feature arc adjustment operating at 200 kPa (nominally), pressure compensation, matched precipitation. All sprinklers to have Lilac coloured collars and / or caps fitted to conform to Non-Potable water usage.

## MEDIUM ROTOR HEADS (SMALL GEAR DRIVE):

Where indicated on the drawings; the Landscape shall be irrigated by Rotary Pop-up and Shrub-Head Irrigation. The outlets shall be adjusted to minimise overspray onto hard surfaces. All sprinklers shall feature single nozzle configuration, adjustable arcs between 00 and 3600, and radius adjustment. Operating at 240 kPa (nominally). Selected sprinkler nozzles are to suit individual valve operating pressure and produce "Large" droplet performance to minimise wind drift. All sprinklers to have Lilac coloured collars and / or caps fitted to conform to Non-Potable water usage.

## GENERAL ROTARY HEADS (MEDIUM GEAR DRIVE):

Where indicated on the drawings; the Landscape shall be irrigated by Rotary, Pop-up and Shrub-Head Irrigation. The outlets shall be adjusted to minimise overspray onto hard surfaces. All sprinklers shall feature, single or multiple nozzle configuration, arcs adjustable between 150 and 3600, radius adjustment. Operating at 275 kPa. (nominally) Selected sprinkler nozzles are to suit individual valve operating pressure and produce "Large" droplet performance to minimise wind drift. All sprinklers to have Lilac coloured collars and / or caps fitted to conform with Non-Potable water usage.

## SPORTS ROTARY HEADS (LARGE GEAR DRIVE):

Where indicated on the drawings; the Landscape shall be irrigated by Rotary, Pop-up Irrigation. The outlets shall be adjusted to minimise overspray onto hard surfaces. All sprinklers shall feature, single nozzle configuration, arcs adjustable between 150 and 3600, radius adjustment, 5" popup riser. Operating at 275 kPa. (nominally) Selected sprinkler nozzles are to suit individual valve operating pressure and produce "Large" droplet performance to minimise wind drift. All sprinklers to have Lilac coloured collars and / or caps fitted to conform to Non-Potable water usage.

## SPRINKLER INSTALLATION DETAILS:

Unless otherwise shown on Drawings the following details apply to the installation of all sprinklers. Within designated turf areas the sprinkler shall be a 100 pop up sprinkler, install flush with surrounding grade. At the designated edge between garden and turf areas the sprinkler shall be a 300 pop up sprinkler install minimum of 20 above mulch level. Within designated garden and to wall and garden interfaces areas the sprinkler shall be a shrub head sprinkler install so that nozzle clears existing foliage. Should it not be possible to install 300 Hi pop due to foundations or impenetrable surface then 150 pop up may be substituted. This must be marked on the As Constructed and suitable notification given.

## ARTICULATED RISERS:

Articulated risers are to provide flexible connection between the lateral pipe work and sprinkler outlets. Pop-Ups are to be installed on a 3 elbow Schedule 80 PVC, riser which is a minimum of 250 long, and of a diameter to match the inlet size of the relevant sprinkler. Shrub-Heads are to be installed on a Schedule 80 PVC, riser of a suitable length to ensure clearance of landscape min 250 long, and of a diameter to match the inlet size of the relevant sprinkler.

## COMMISSIONING AND INSPECTIONS:

## TESTING:

Thoroughly flush the irrigation system by removing end caps or sprinklers before the system is made operational or before any testing commences. The system will be considered flushed after clear water flows from every outlet tested. All mainlines will be pressure tested to 1200 kPa, a mainline will be considered as having passed after having held the nominated pressure for no less than 30 minutes. A written report of all tests will be submitted to the principals representative. Irrigation Operation will be tested by operating each station in turn, checking and adjusting outlets to ensure that all landscaping is adequately watered and that coverage is within its designated area. Testing is to include repairs to any system faults, blockages, and adjustment preventing overspray onto hard surfaces.

## INSPECTIONS:

Give suitable notice to the principals representative so that inspection may be made. Without Notice random inspections may be carried out at the following stages:

- Trench excavation as specified and ready for pipe laying
- Following equipment installation in trenches and immediately before backfill
- Valve box installation and identification
- Controller operation and programming
- All watering outlets in operation

## COMMISSIONING:

The Contractor shall commission the system, prior to Completion. Commission Works will include:

- Provide the principals representative with the As Constructed date as specified.
- Provide the principals representative with the warranty details as specified.
- Provide the principals representative with the name, address and telephone number of the Contractor
- The irrigation system has been operationally trouble free for 5 days.
- Programme the system to precipitate minimum of 25 mm (nominally) weekly to suit Summer period in consultation with the principals representative
- Provide personal operating instructions to personnel nominated by the principals representative
- The Contractor shall provide written operational instructions to the principals representative
- Programme the system to precipitate minimum of 25 mm (nominally) weekly to suit Summer period in consultation with the principals representative.

Commission the system in the presence of the principals representative, and/or the Irrigation Consultant, prior to Completion.

## OPERATIONAL INSTRUCTIONS:

Provide personal and written operational instructions to personnel nominated by the principals representative. Timing of Instructions : In the within 30 days of the Date of Completion. Give 2 working days notice of the proposed date for these instructions.

Provide the following items to personnel nominated by the principals representative

- As Constructed data as per the specification
- All manuals and associated operating instructions for the relevant equipment installed on site.
- All keys labelled to indicate nominated lock
- Log book: Provide a log book in the controller unit enclosure recording the program selected and operating. Include in the log book a program to apply 25mm weekly to each zone.

## MAINTENANCE & WARRANTIES

## MAINTENANCE PERIOD:

Unless otherwise nominated the period shall be 12 weeks following Completion

## GENERAL IRRIGATION SYSTEM MAINTENANCE

In conjunction with the person nominated by the SR and responsible for ongoing area maintenance, undertake the following:

- establish the designed watering pattern;
- select the appropriate days for operation of the system;
- establish the number of start times each day;
- determine the duration of each watering cycle;
- carry out additional flushing of the system as required;
- ensure all pipe work remains buried and soil covered;
- ensure system is free from leaks and blockages;
- ensure system if fully operational.

## PUMP & TANK MAINTENANCE (if applicable):

- 3 Months: General check
- First flush devices (if fitted)
- Pump equipment status
- 6 Months: Debris Cleanout
- Inlet area / screen clear of debris
- Overflow pipe clear of debris
- Clean gutters if harvesting for roof structure
- Clean bird / animal debris from harvesting surfaces / equipment
- 12 Months:
- Tank fittings and pump fittings for leaks / blockages
- Back flow prevention valves checked by a licensed plumber (if fitted)
- Area where overflow is directed is not showing signs of erosion
- 24 Months:
- Tank sediment level to be checked / cleaned
- General corrosion inspection
- Check tank footings and general structural integrity

## FINAL PROGRAMME SELECTION

At the end of the Maintenance Period, inform the principals representative of the final programme selected and operating.





## WARRANTY:

The Contractor will warrant both materials and installation against fault, and repair or replace without delay and at no cost to the Client. The duration of the warranty is to be 12 months after completion. Details of any extended Warranty Periods offered by the Manufacturer are to be provided to the principals representative at time of Tender.

## WARRANTY PERIOD:

Unless otherwise nominated the period shall be 12 months following Completion




# PRELIMINARY

CLIENT		PROJECT MANAGER		ARCHITECT		PROJECT		DRAWING		REV		DESCRIPTION		DATE		APPD			
 Education School Infrastructure		 CONTRACTOR				Parramatta Region Schools - Package 2 (418) Parramatta West Public School		Irrigation Requirements		G H		100% DD Endorsement Crown Certification		06/12/2019 17/01/2019		KNW KNW		@ A1	
						© CONRAD GARGETT mail@conradgargett.com.au ABN 49 325 121 350 DO NOT SCALE DRAWING & VERIFY ALL DIMENSIONS AND LEVELS ON SITE NOMINATED ARCHITECT: LAWRENCE TOLALDO NSW Reg. 10255												SCHOOL ID PAC ID STAGE DISCIPLINE DOC TYPE DRAWING No: REV: PW - 02 -DD -LA - DR -0006 -H	

Planting Schedule - Trees & Shrubs								
Code	Botanical Name	Common Name	Count	Centres	Description	Caliper	Clear Trunk	Stakes And Guys
75L								
TRI lau	Tristaniopsis laurina	Water Gum	5	As Per Planting Plan	75L	60	1.8m	2
			5					
200L								
ACA mel	Acacia melanoxylon	Black Wattle	2	As Per Planting Plan	200L	60	1.8m	2
BAN mar	Banksia marginata	Silver Banksia	1	As Per Planting Plan	200L	60	1.8m	2
ELA ret	Elaeocarpus reticulatus	Blueberry Ash	9	As Per Planting Plan	200L	60	1.8m	2
LOP con	Lophostemon confertus	Brush Box	1	As Per Planting Plan	200L	60	1.8m	2
SYZ aus	Syzygium australe	Brush Cherry	1	As Per Planting Plan	200L	60	1.8m	2
TRI lau	Tristaniopsis laurina	Water Gum	2	As Per Planting Plan	200L	60	1.8m	2
			16					
Grand total			21					

Planting Schedule - Shrub & Ground Covers						
CW	Botanical Name	Common Name	Minimum Pot Size	No Of Plants Required	Density	Area
AGA ori	Agapanthus orientalis	Agapanthus 'Cloudy days'	140	121	4	29.33 m²
AJU aus	Ajuga australis	Australian Bulge	140	8	6	1.33 m²
AST hum	Astroloma humifusum	Native Cranberry	140	26	5	5.08 m²
BAN spi	Banksia spinulosa cv. Birthday Candles	Hairpin Banksia	300	178	3	58.53 m²
BOU spp	Bougainvillea spp	Bougainvilleas	300	8	2	3.37 m²
BRA ang	Brachycome angustifolia	Rock Daisy	140	76	5	14.54 m²
BRA mul	Brachyscome multifida	Native Daisy	140	303	6	49.51 m²
CAL cit	Callistemon citrinus	Crismon Bottlebrush	300	48	2	23.35 m²
CAL sal	Callistemon salignus	Willow Bottle Brush	140	123	3	39.90 m²
CAL vim	Callistemon viminalis 'Slim	Bottlebrush	300	155	3	49.66 m²
CALL vlj	Callistemon viminalis Little John'	Dwarf Bottlebrush	300	193	4	47.54 m²
CAR gla	Carpobrotus glaucescens	Pig Face	140	7	6	1.16 m²
CLE ari	Clematis aristata	Old Man's beard	140	29	4	6.96 m²
CLE mon	Clematis Montana Rubens	Clematis Montana	300	12	2	5.01 m²
COR ref	Correa reflexa	Native fushsia	140	36	3	11.25 m²
CYM cit	Cymbopogon citratus	Lemon Grass	140	9	6	1.40 m²
DAV uli	Daviesia ulicifolia	Gorse bitter Pea	140	28	3	9.03 m²
DIA cae	Dianella caerulea	Blue flax lily	140	73		15.10 m²
DIA rev	Dianella revoluta	Native Blueberry	140	327	5	63.03 m²
DIA arc	Dianella tasmanica	Dianella Emerald Arch	140	92	5	17.74 m²
Dic rep	Dichondra repens	Kidney Weed	140	29	4	6.94 m²
DIC ant	Dicksonia antarctica	Soft Tree-fern	300	7	3	2.21 m²
DOR exc	Doryanthes excelsa	Gymea Lily	300	55	3	17.94 m²
ERE gla	Eremophila glabra postrate 'Blue Horizon'	Blue Horizon Emu bush	140	167	4	41.17 m²
EXO cup	Exocarpos cupressiformis	Native Cherry	300	81	6	13.28 m²
GLY gla	Glycyrrhiza glabra	Liquorice plant	140	16	5	2.94 m²
GRE oli	Grevillea Olivacea x thelemanniana	Grevillea winiparra gem	300	248	3	79.91 m²
GRE poo	Grevillea Poorinda 'Royal Mantle'	Grevillea Royal Mantle	300	238	3	77.28 m²
HAR vio	Hardenbergia violacea	Purple Coral pea	200	46	3	14.13 m²
HEL pet	Helichrysum petriolare 'Limelight'	Licorice	140	53	6	8.17 m²
HIB sca	Hibbertia scandens	Golden Guinea Flower	300	8	2	3.44 m²
HYD mac	Hydrangea macrophylla 'Endless Summer	Hydrangea Endless Summer	140	320	3	102.22 m²
LAM mac	Lamium maculatum	Spotted Dead Nettle	140	144	5	28.44 m²
LAV ang	Lavandula angustifolia	True Lavander	140	327	4	78.93 m²
LOM lim	Lomandra confertifolia	Lomandra Lime Divine	140	67	4	16.18 m²
	Lomandra longifolia	Mat rush	140	223	4	53.73 m²
LOM tan	Lomandra longifolia 'Tanika'	Lomandra tanika	140	64	4	15.45 m²
LOM mul	Lomandra multiflora ssp multiflora	Many Flowered Matt Rush	140	39	4	9.36 m²
MEM spi	Mentha spicata	Spear Mint	140	31	6	4.82 m²
MYO par	Myoporum parvifolium	Creeping Boobialla	140	15	5	2.56 m²
OCI ten	Ocimum tenuiflorum	Holy Basil	140	17	6	2.53 m²
ORG vul	Organum vulgare	Oregano	140	27	6	4.29 m²
PER lin	Persoonia linearis	Narrow leaf geebung	300	50	3	15.96 m²
PIM lin	Pimelea linifolia	Rice flowers	140	35	5	6.86 m²
PUL off	Pulmonaria officinalis	Lungwort	140	121	5	23.52 m²
ROS off	Rommarinus officinalis	Rosemary	140	104	5	20.10 m²
RUB par	Rubus parvifolius 'R. triphyllus	Native Raspberry	140	19	5	3.35 m²
SAL syl	Salvia x sylvestris 'Mainacht'	May Night	140	29	6	4.35 m²
STE flo	Stephanotis Floribunda	Madagascar Jamine	300	14	2	5.52 m²
SYZ aus	Syzygium australe 'Elite'	Lilly Pilly	300	198	4	48.59 m²
THY cit	Thymus citridorous 'Creeping Lemon'	Creeping Lemon Thyme	140	25	5	4.66 m²
THY vul	Thymus vulgaris	Thyme	140	46	6	7.41 m²
TIA cor	Tiarella cordifolia	Foam flower	140	129	5	25.30 m²
VIO hed	Viola hederacea	Native violet	140	47	4	11.26 m²
WES fru	Westringia fruticosa Wynabbie Gem	Coastal Rosemary Wynabbie Gem	300	180	4	44.04 m²
XAN pre	Xanthorrhoea preissii	Grass tree	450	7	3	2.17 m²
Grand total				5078		1261.81 m²

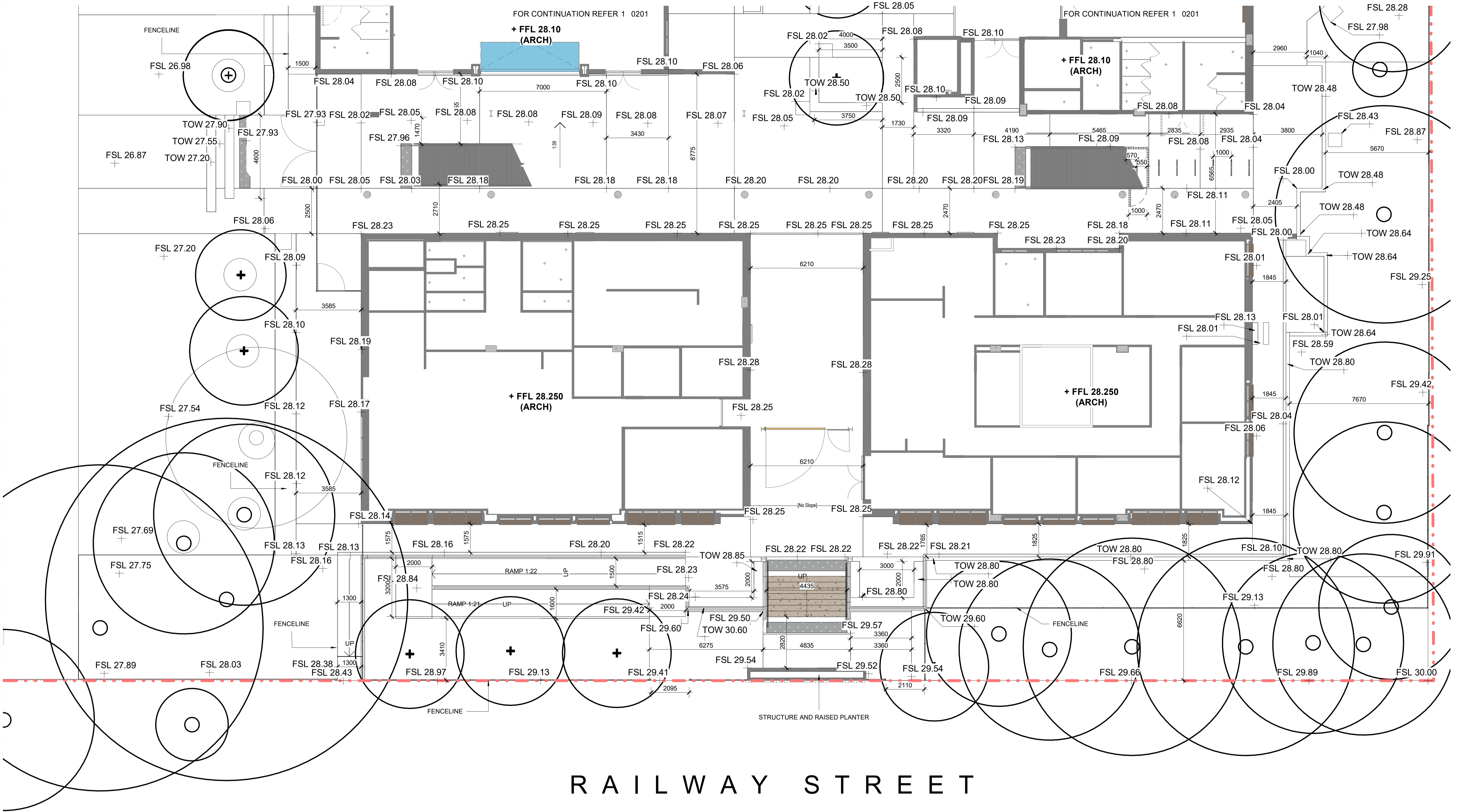
PRELIMINARY

<div> <b>Education</b> School Infrastructure</div>	PROJECT MANAGER		ARCHITECT	PROJECT			NORTH	DRAWING	REV	DESCRIPTION	DATE	APPD	SCHOOL ID	PAC ID	STAGE	DISCIPLINE	DOC TYPE	DRAWING No: REV:
	CONTRACTOR			Parramatta Region Schools - Package 2 (418) Parramatta West Public School														
				INTERNAL PROJECT No: 16461														
				DATE: 17/01/2019														
				© CONRAD GARGETT mail@conradgargett.com.au DO NOT SCALE DRAWING & VERIFY ALL DIMENSIONS AND LEVELS ON SITE NOMINATED ARCHITECT: LAWRENCE TOLDO NSW Reg. 10255														
				ABN 49 325 121 350														
				@ A1														
				PW - 02 -DD -LA - DR -0007 -H														



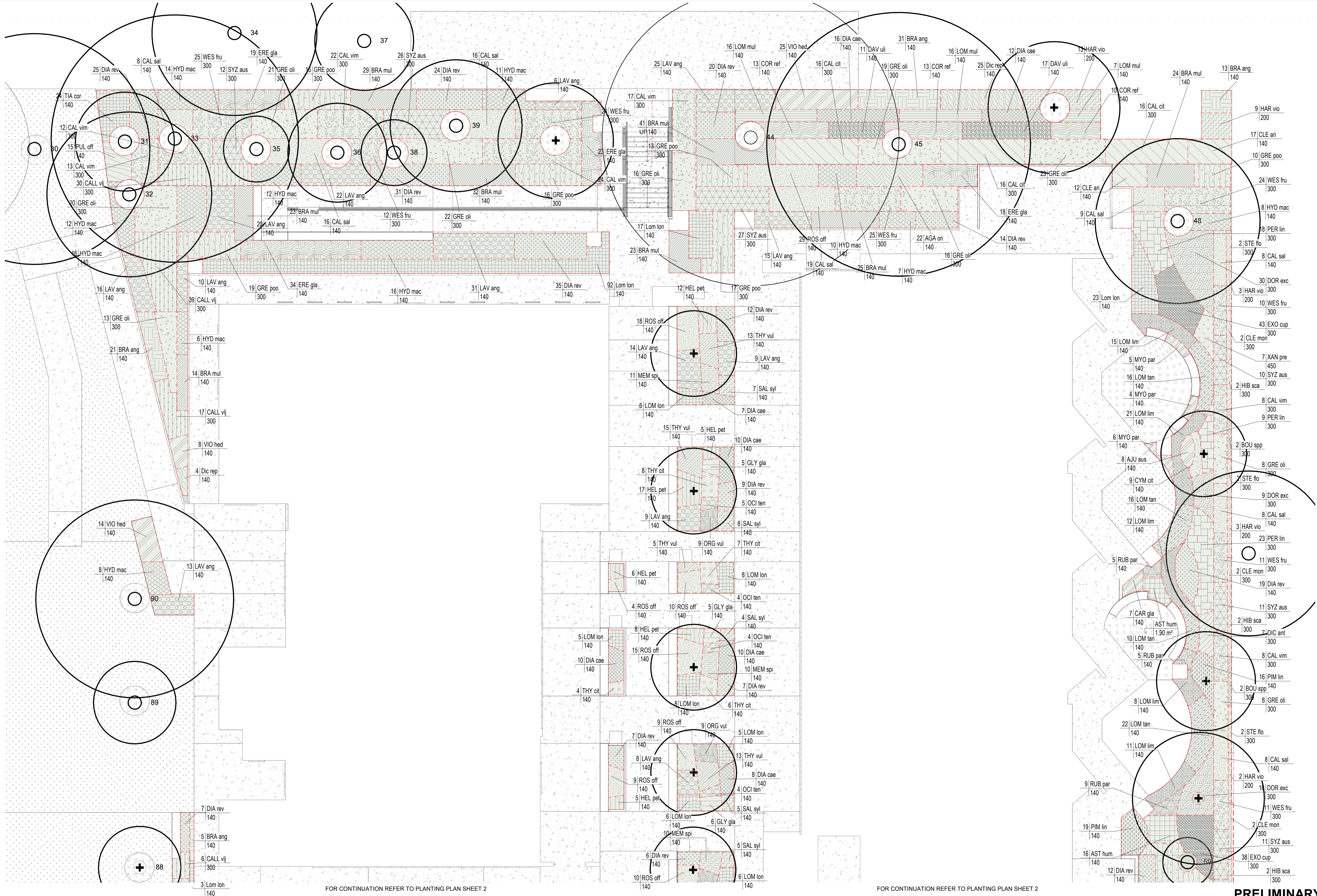






RAILWAY STREET

PRELIMINARY



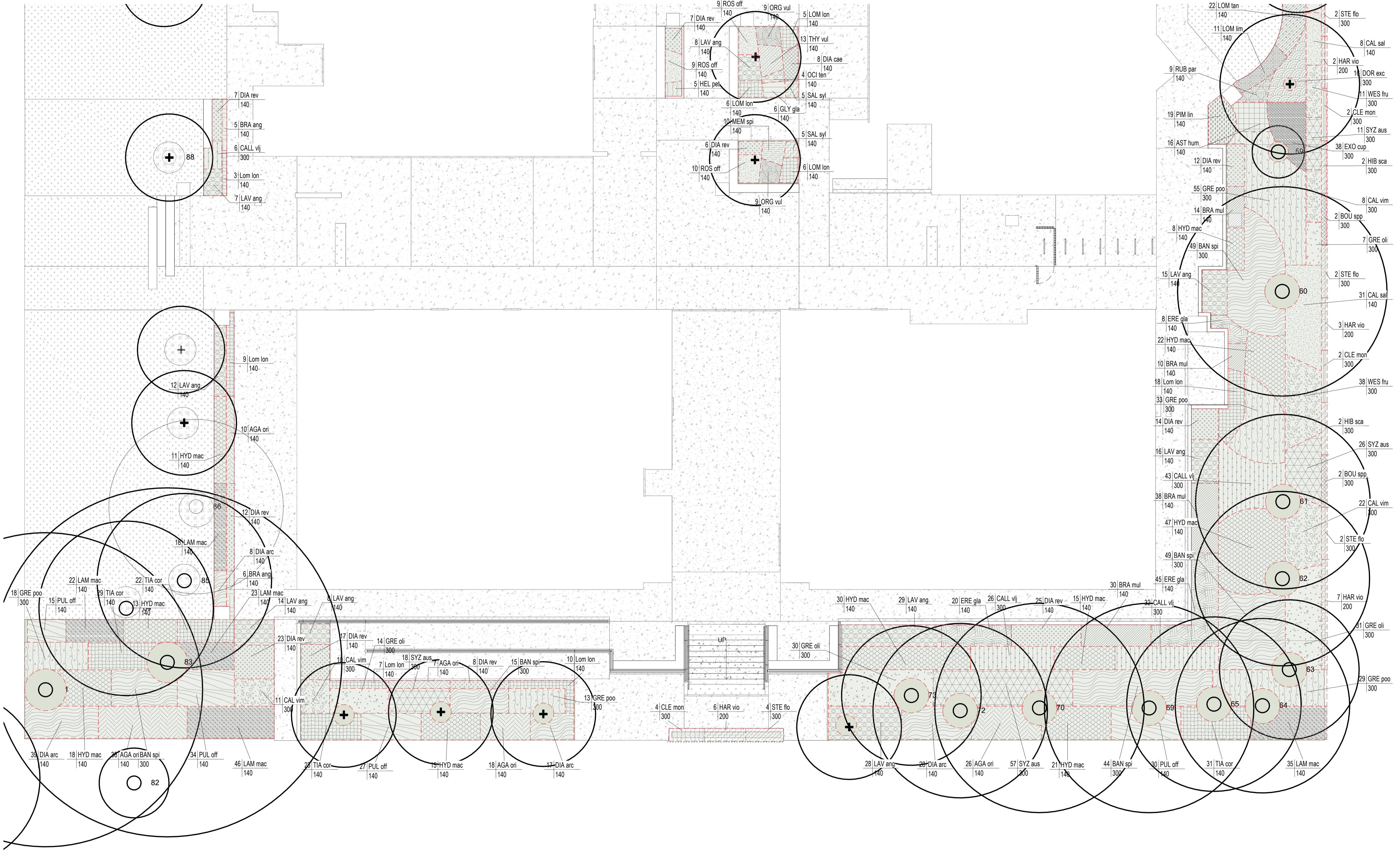
FOR CONTINUATION REFER TO PLANTING PLAN SHEET 2

FOR CONTINUATION REFER TO PLANTING PLAN SHEET 2

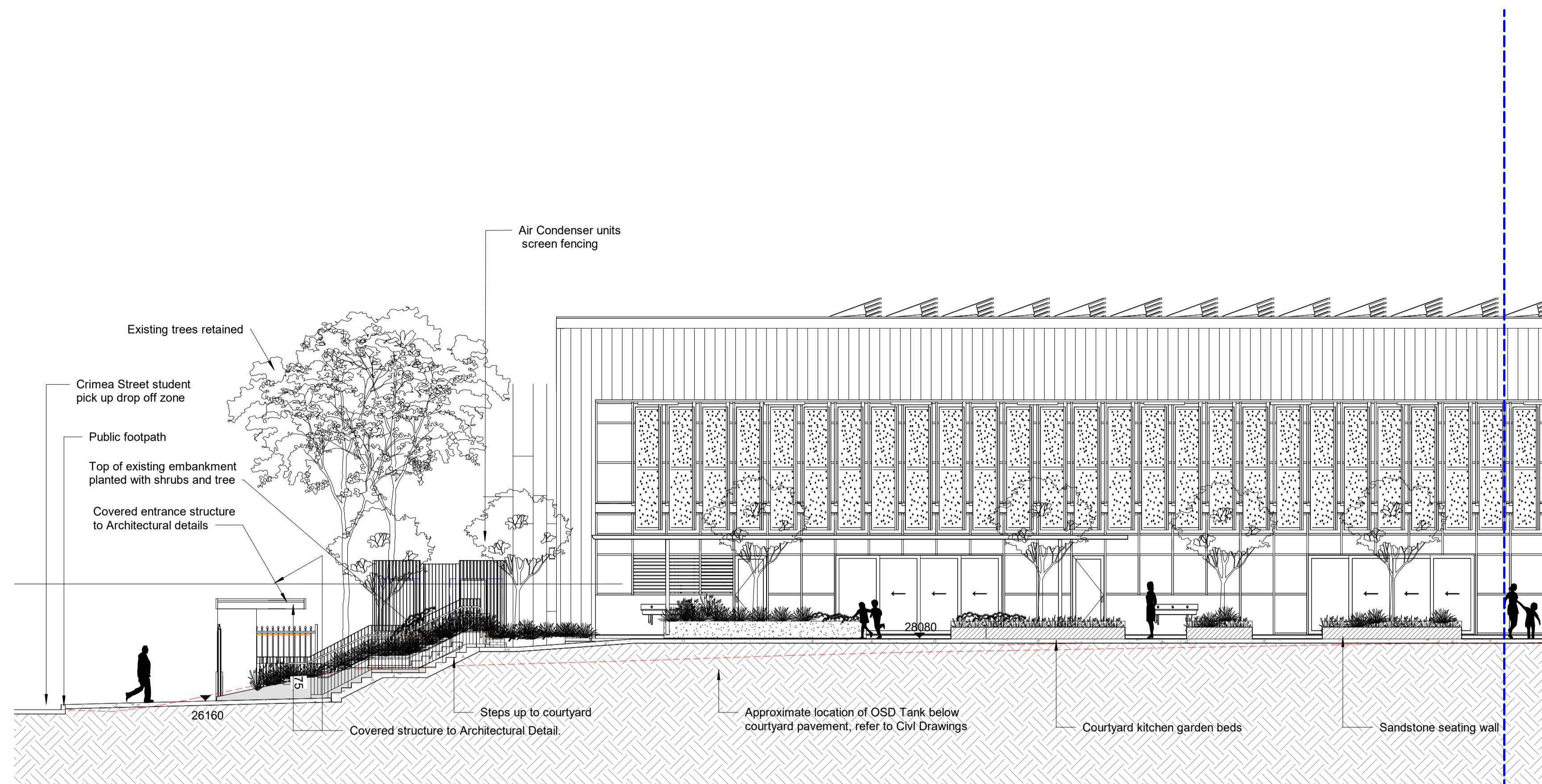
PRELIMINARY

FOR CONTINUATION REFER TO PLANTING PLAN SHEET 1

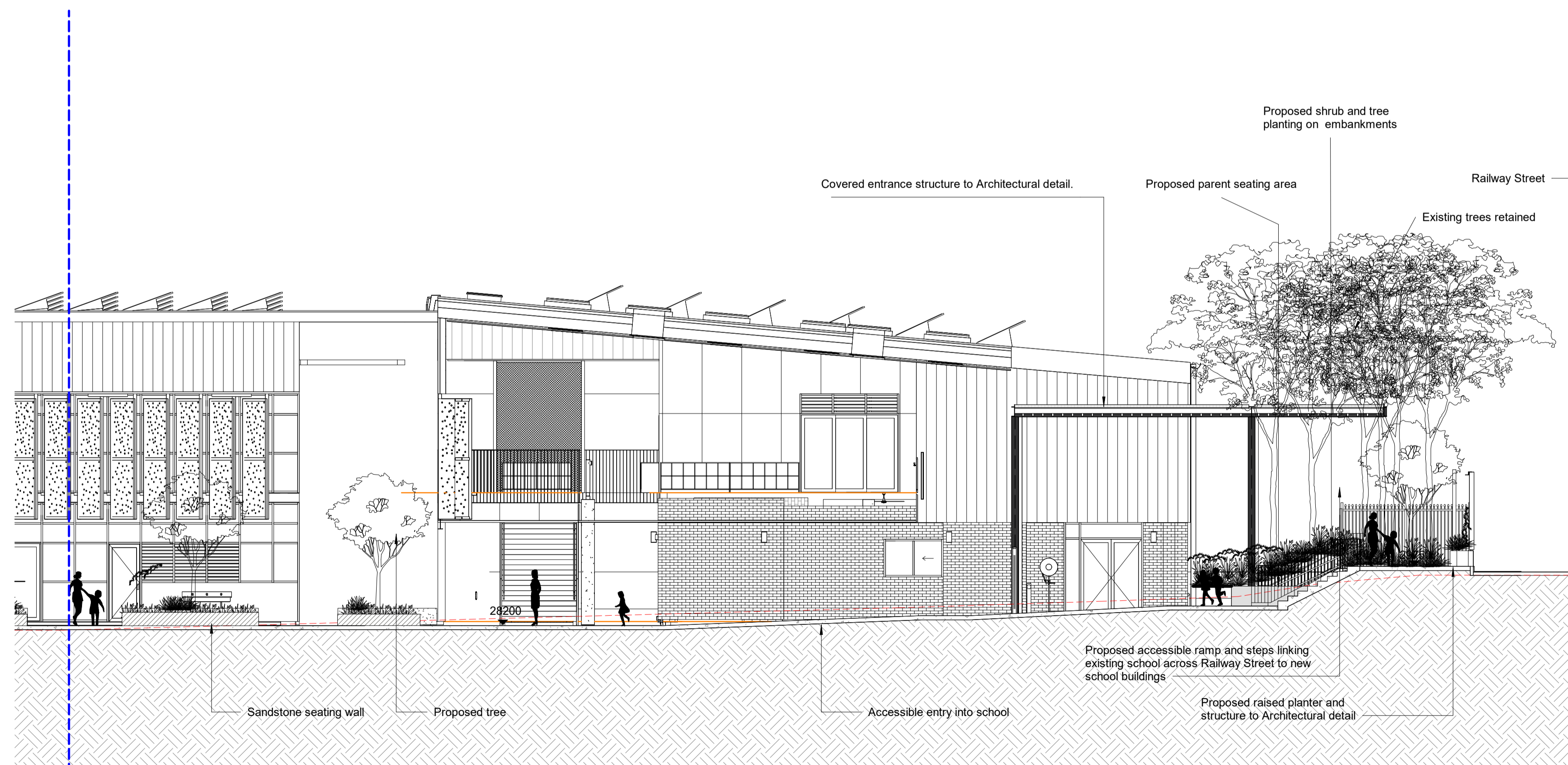
FOR CONTINUATION REFER TO PLANTING PLAN SHEET 1



PRELIMINARY



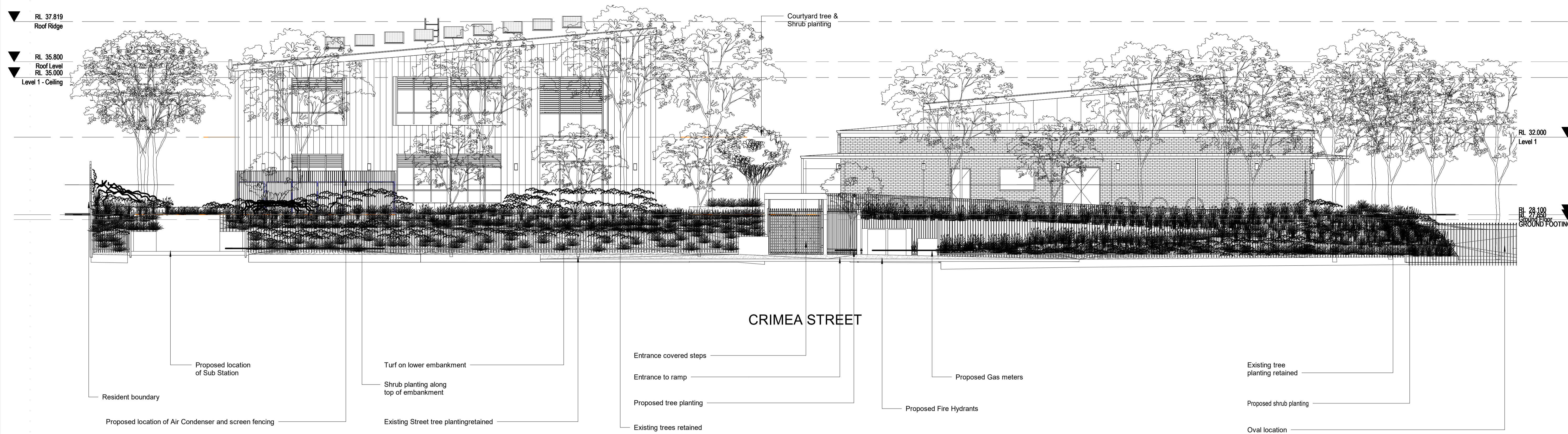
**1** Section 1 - Part 1  
0102 1:100



**2** Section 1 - Part 2  
1:100

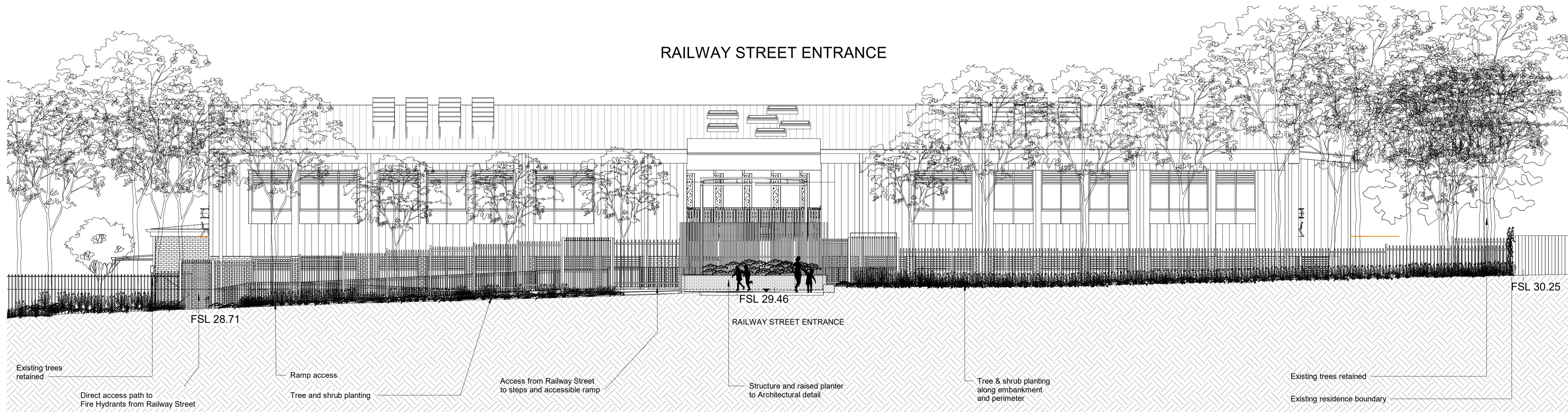
**PRELIMINARY**

CRIMEA STREET ENTRNACE



2 Crimea Street Elevation  
1:100

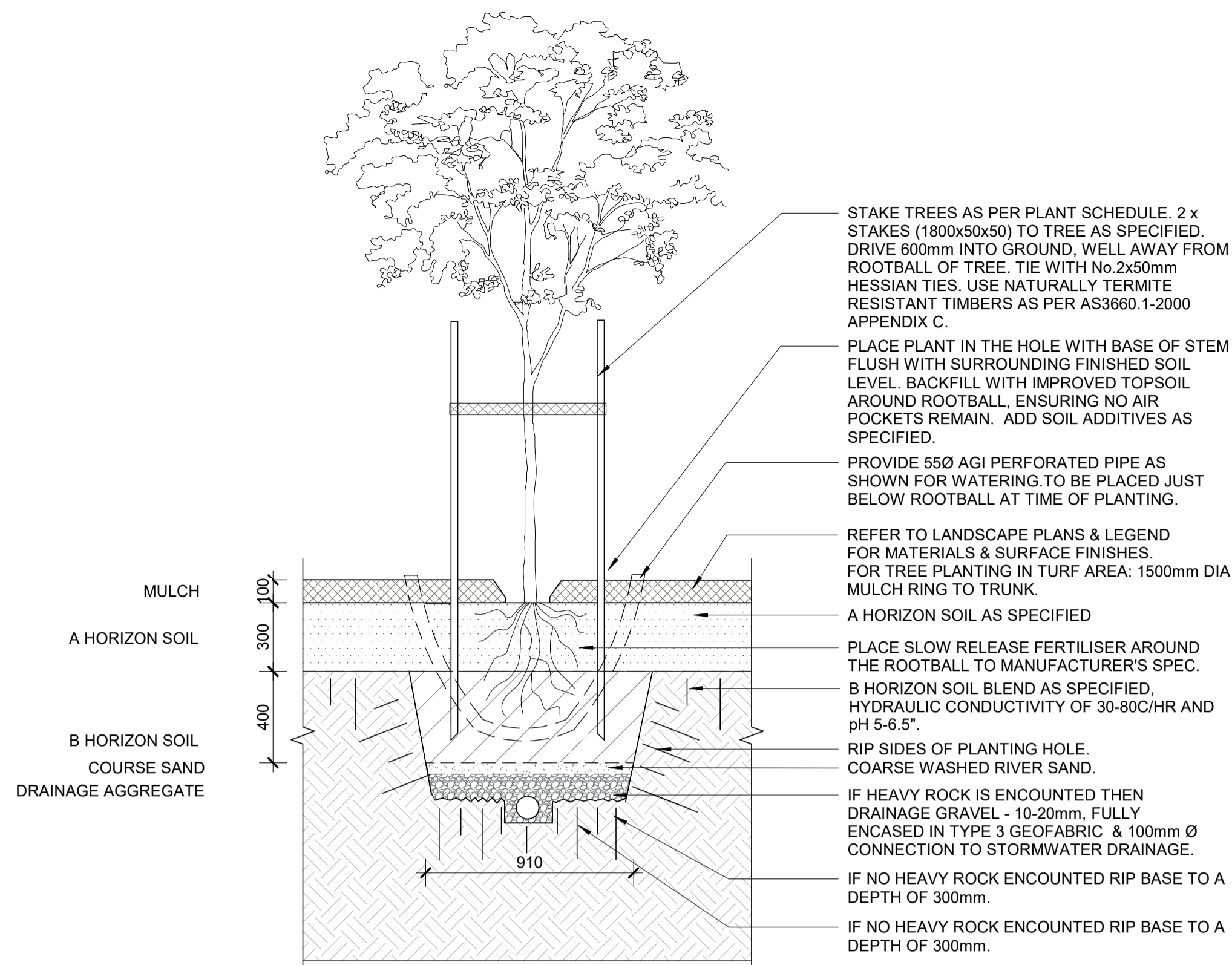
RAILWAY STREET ENTRANCE



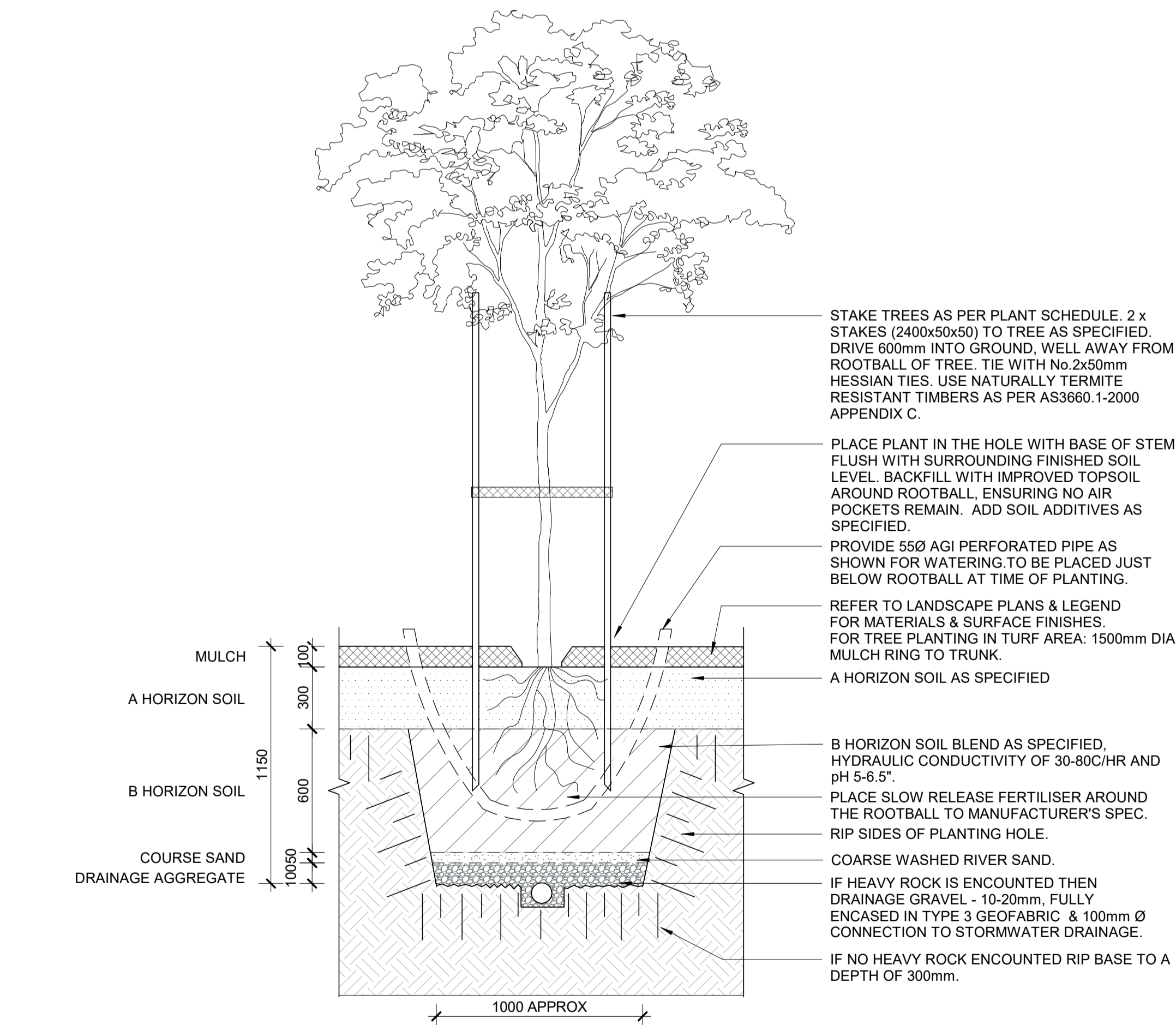
1 Railway Street Elevation  
1:100

RAILWAY STREET ENTRANCE

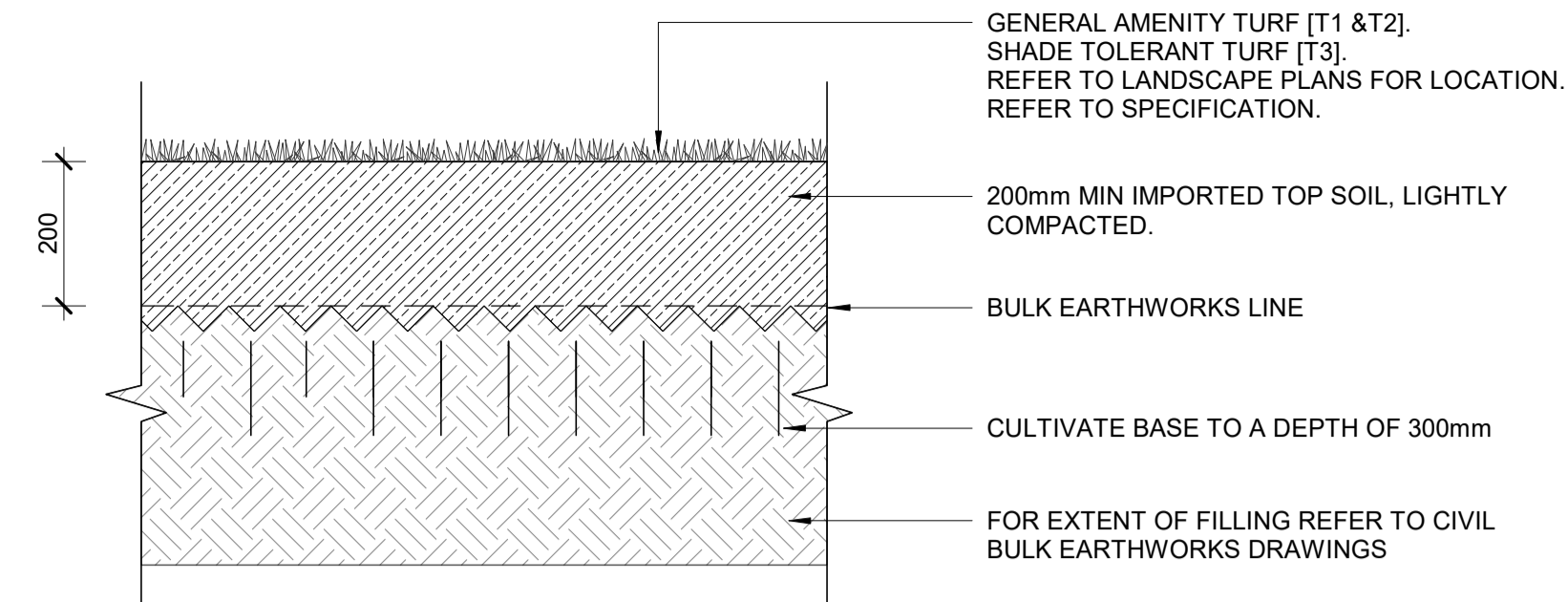
PRELIMINARY



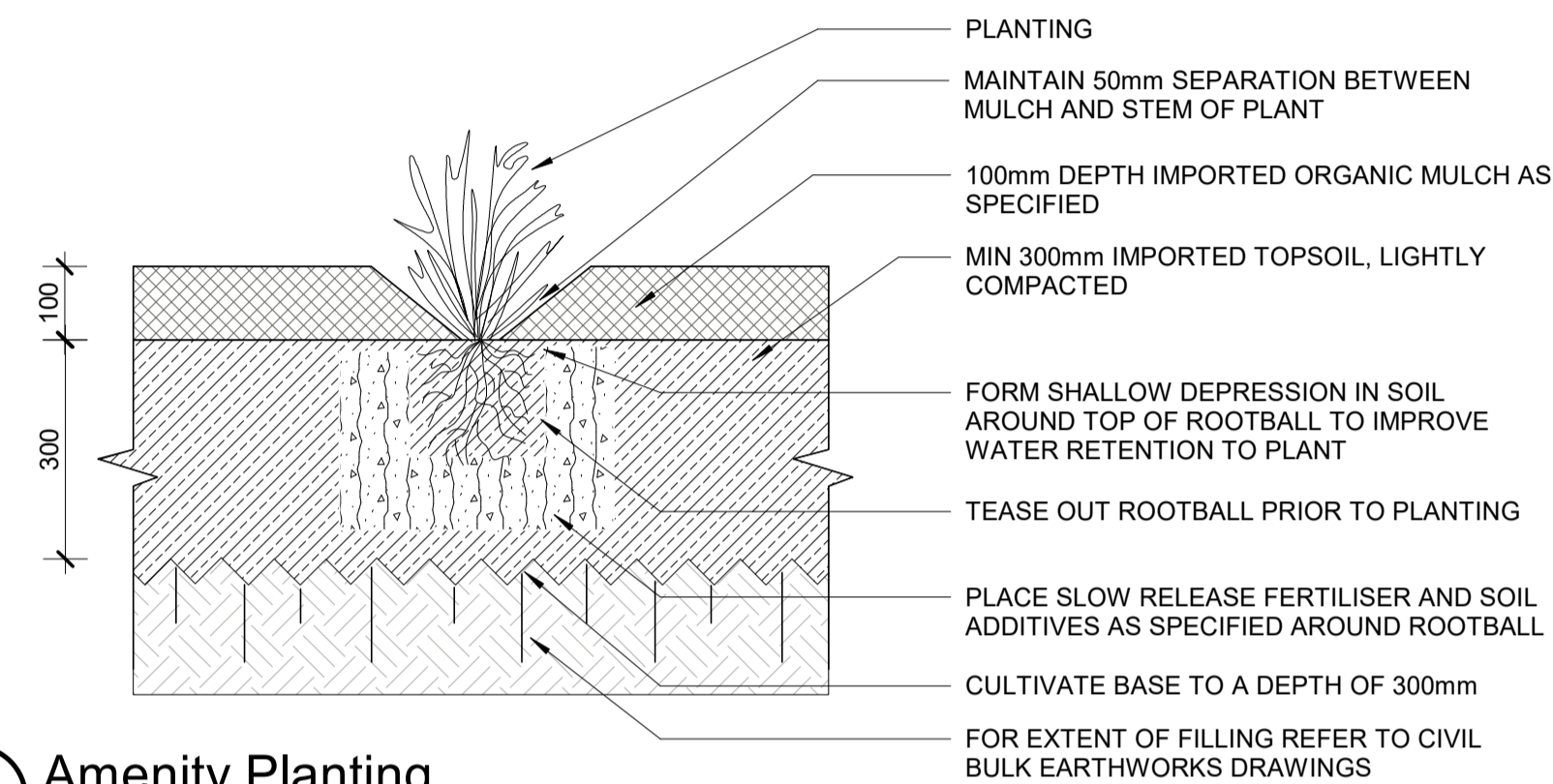
**1 Advanced Tree Planting - 75L**  
1:20



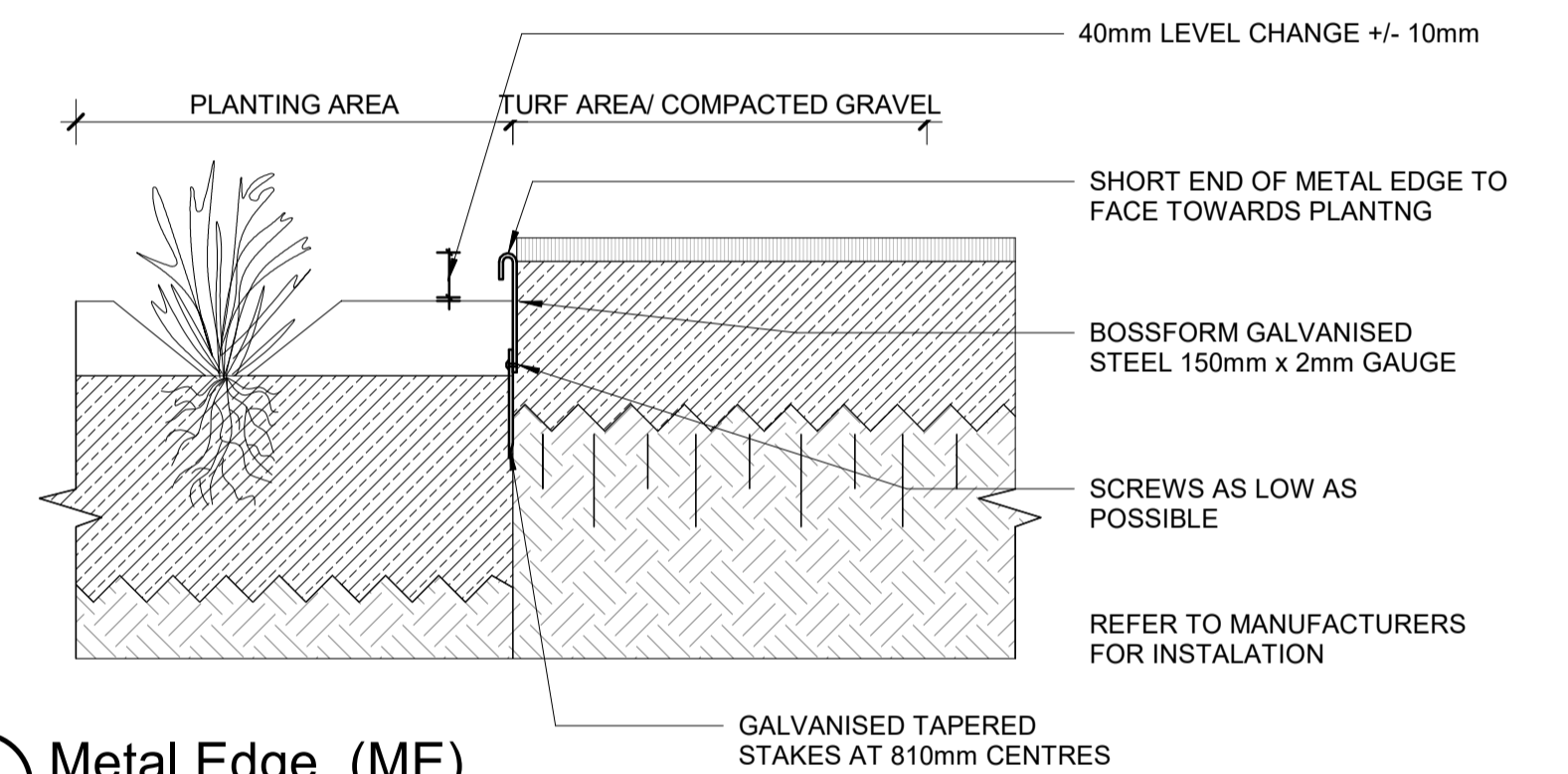
**2 Advanced Tree Planting - 200L**  
1:20



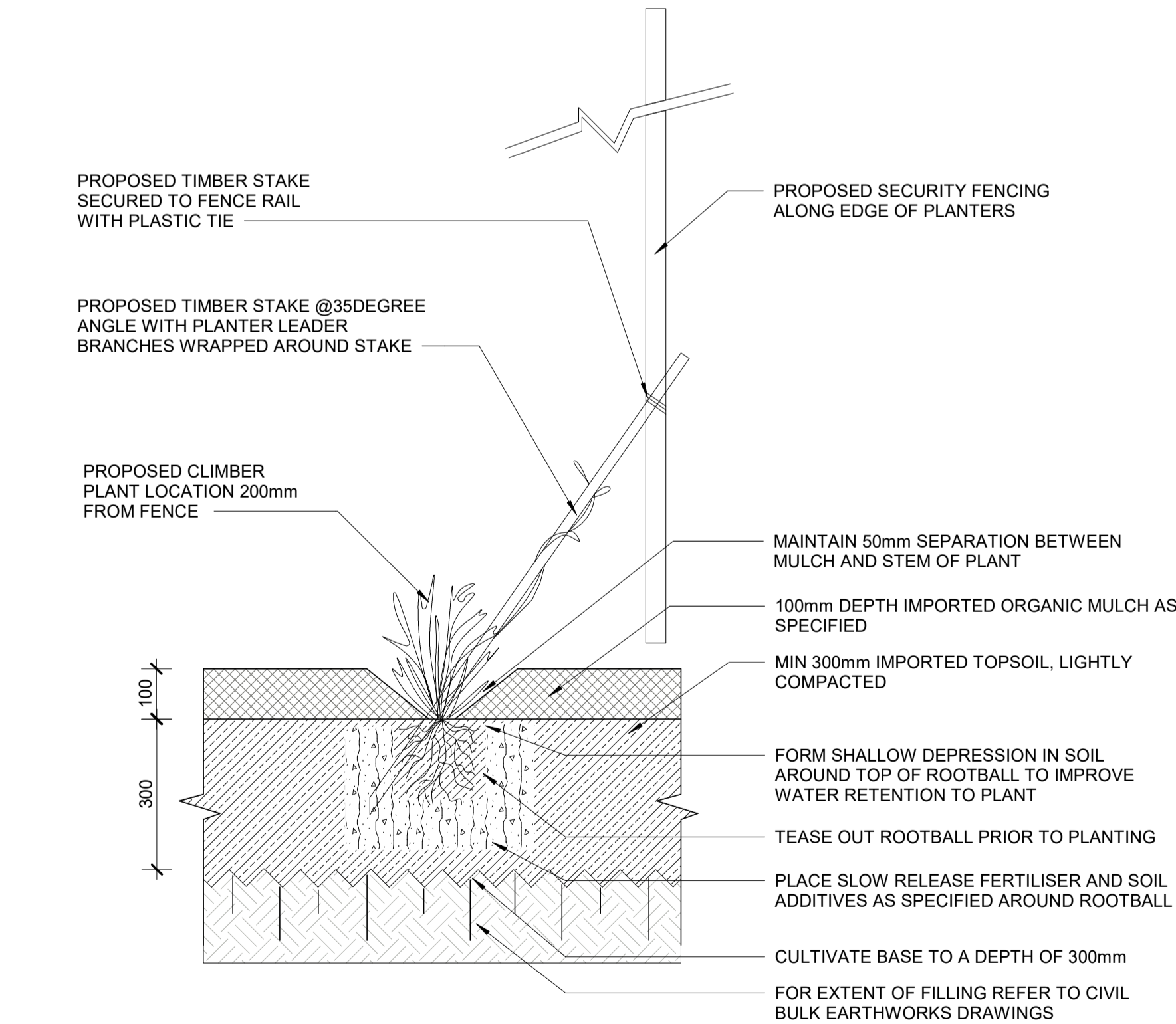
**3 Amenity Turf**  
1:10



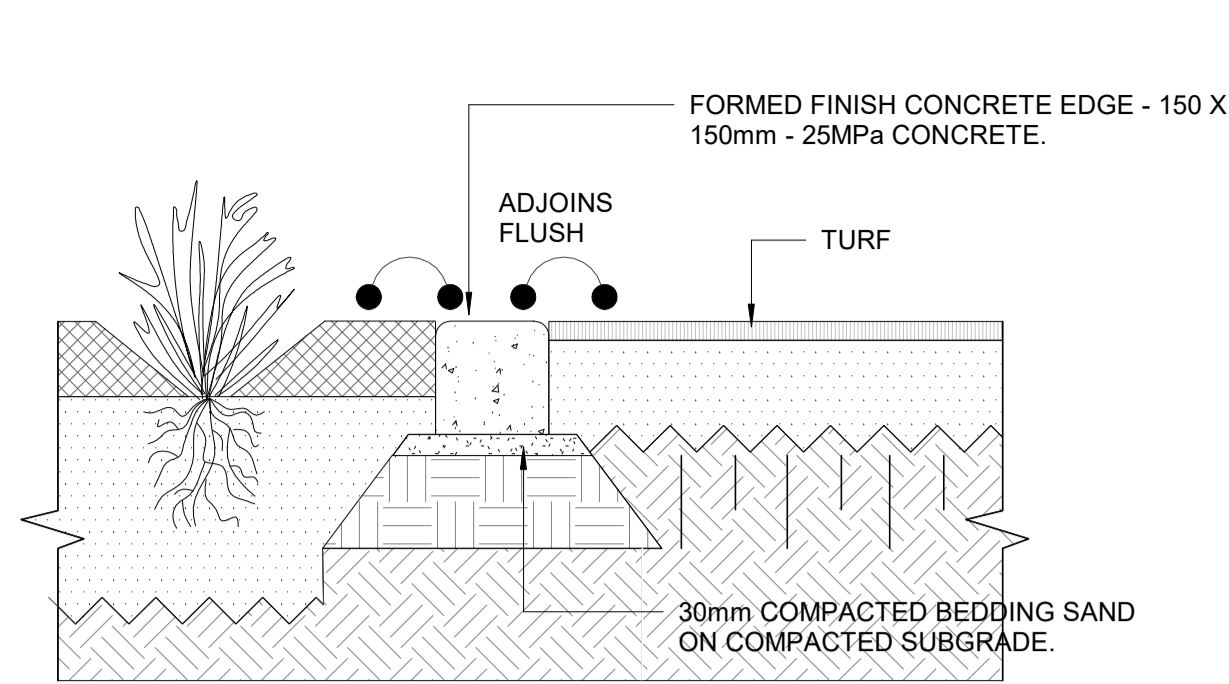
**4 Amenity Planting**  
1:10



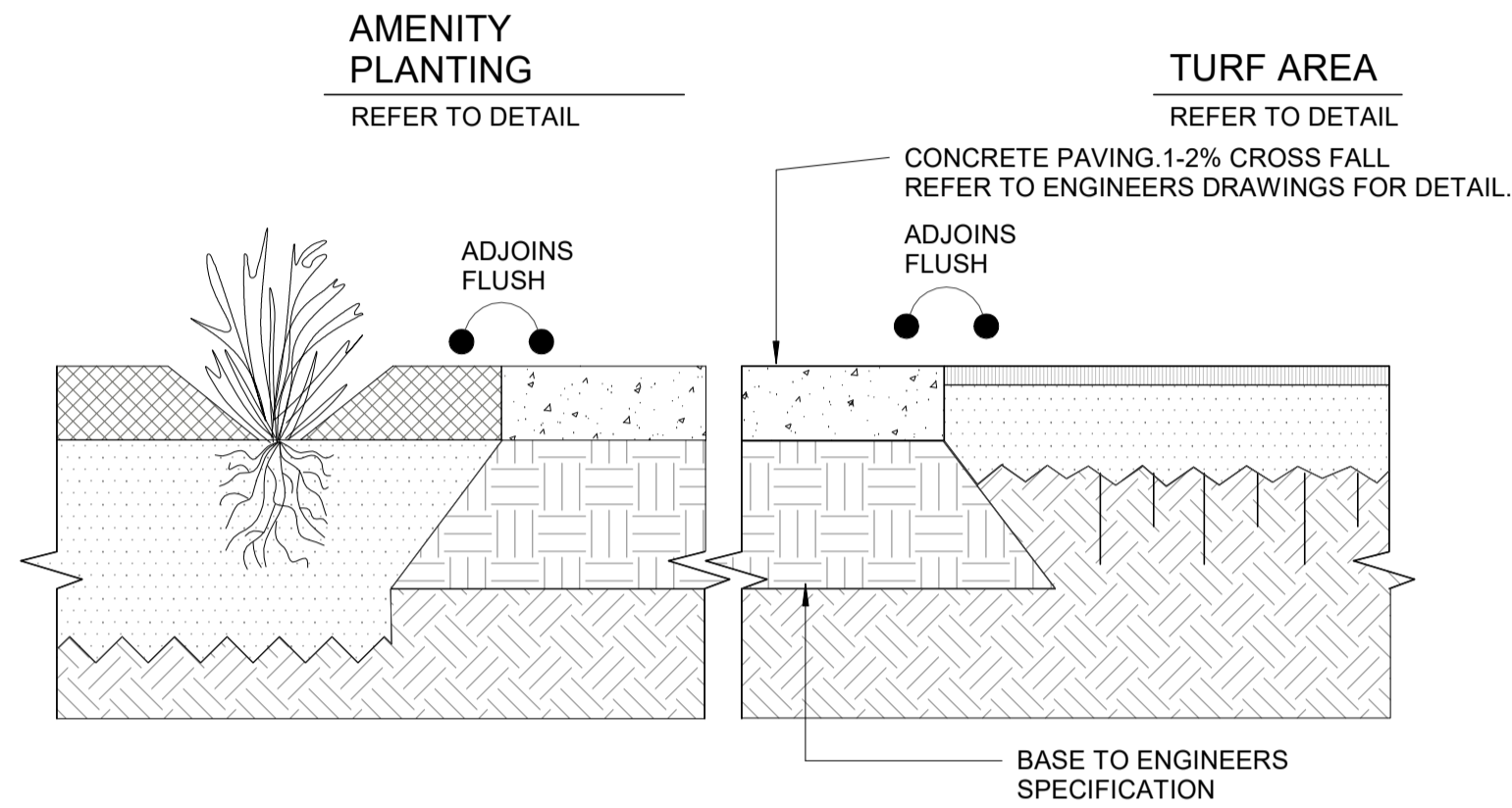
**6 Metal Edge. (ME)**  
1:10



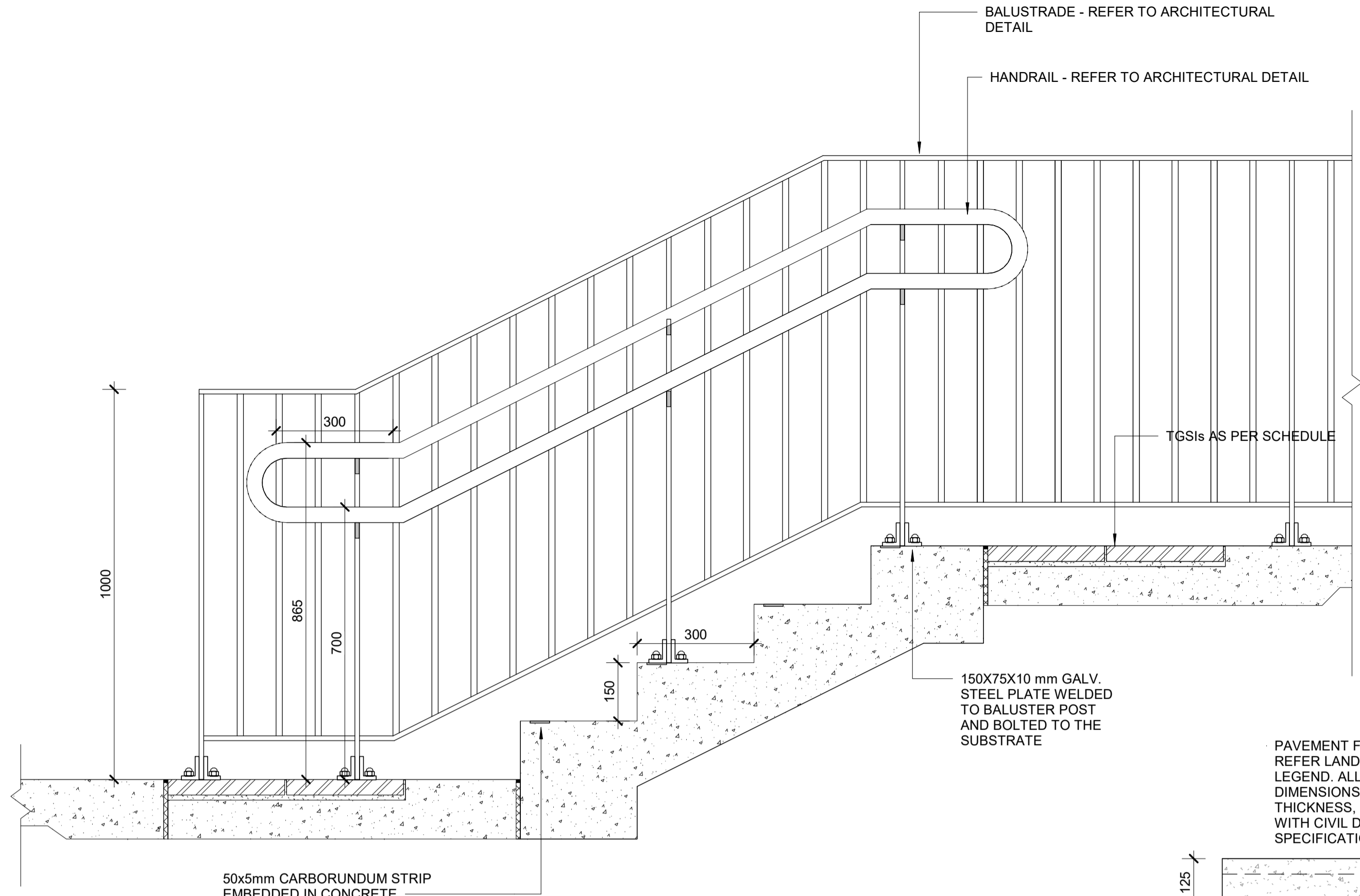
**5 Amenity Climber to Fence Establishment Detail**  
1:10



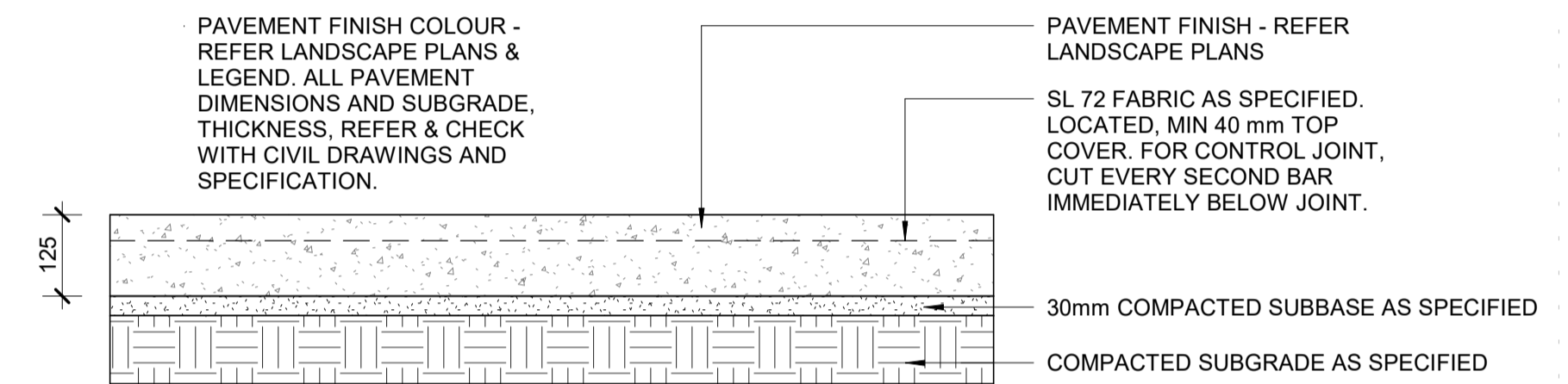
1 CE - Concrete Edge



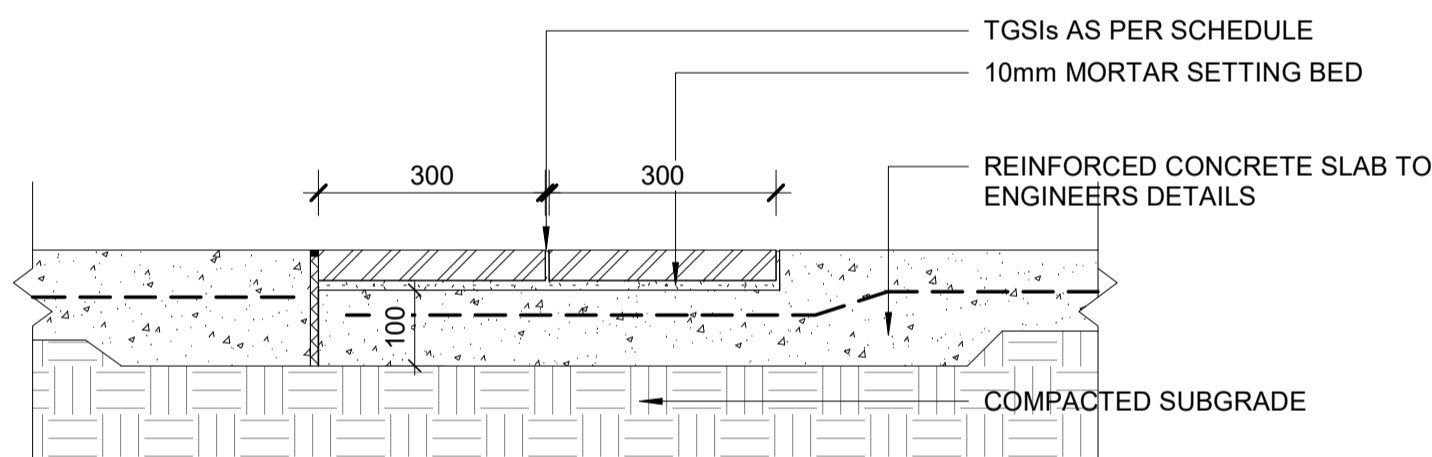
2 Pavement to Planting and Turf Interface



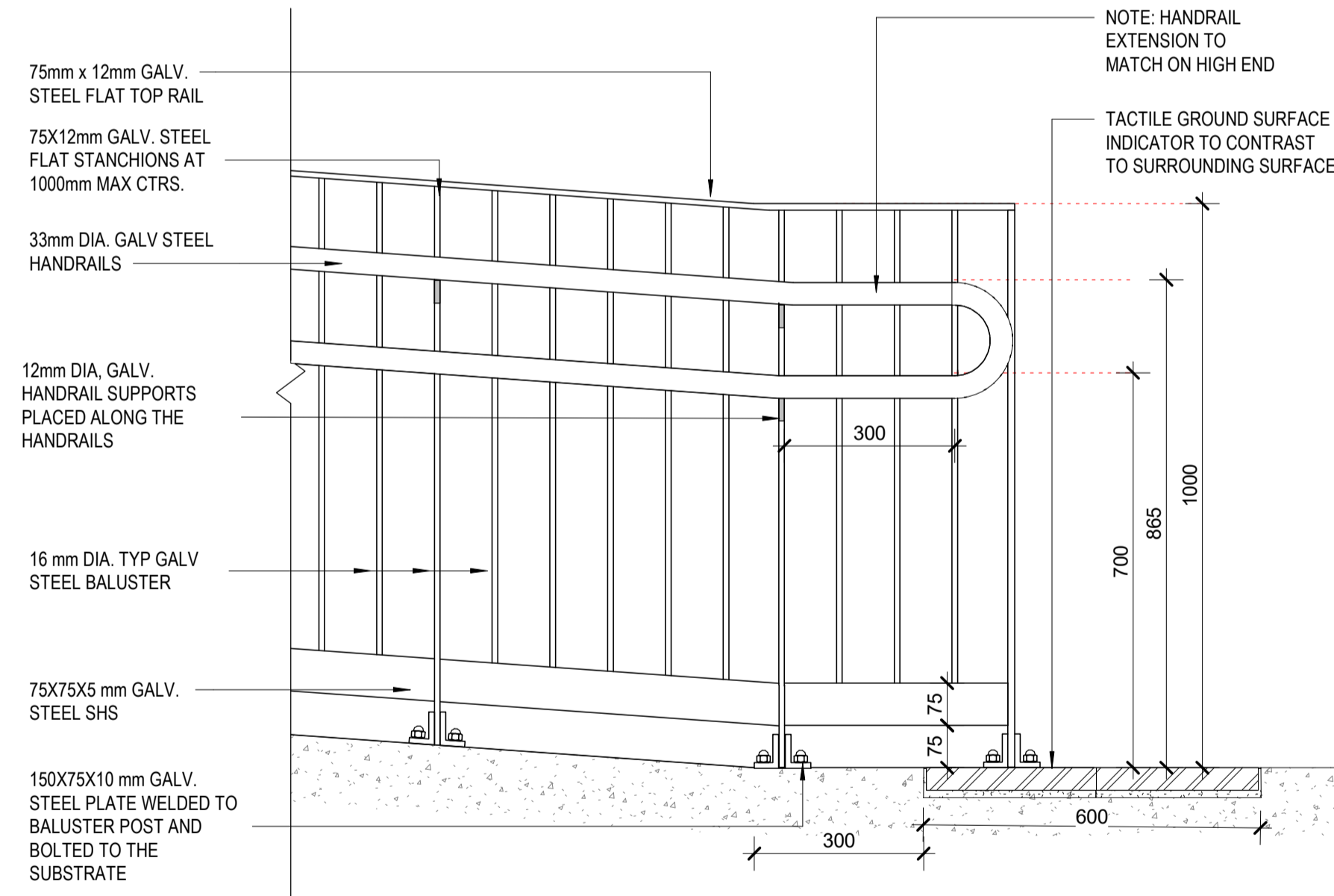
5 ST2, 3 Stairs



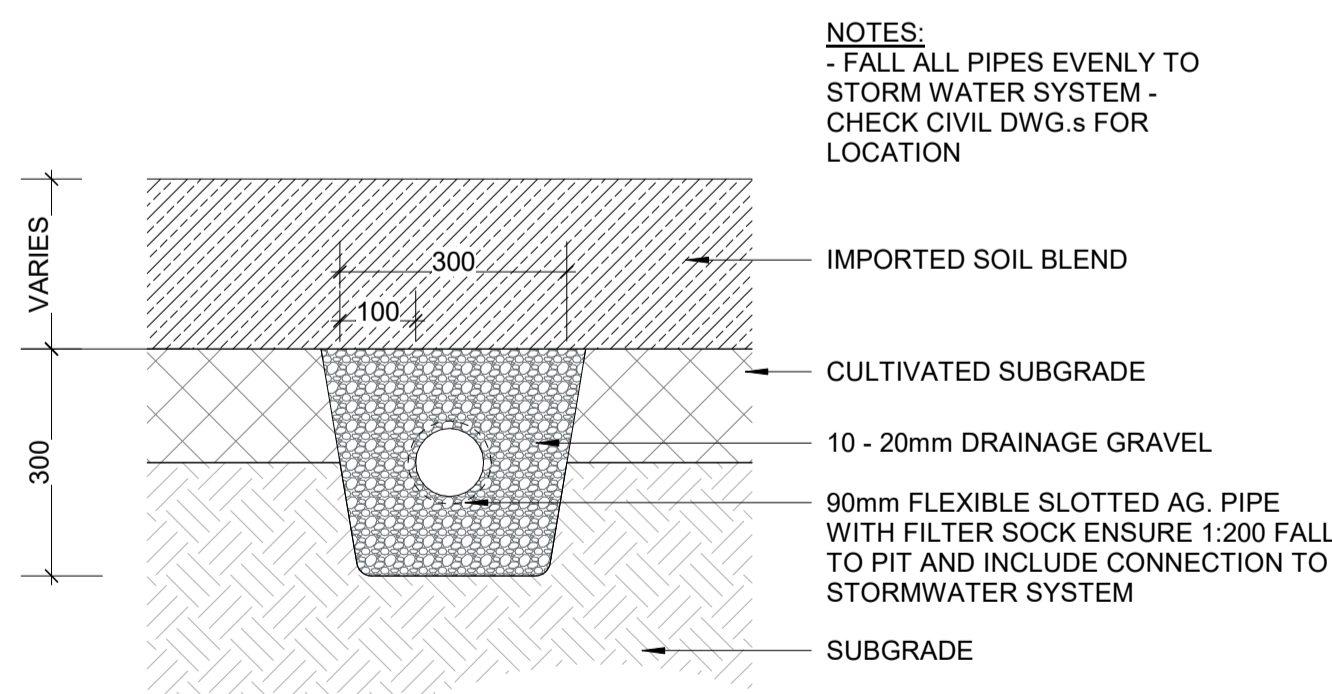
7 Concrete Pavement - 125mm Thick



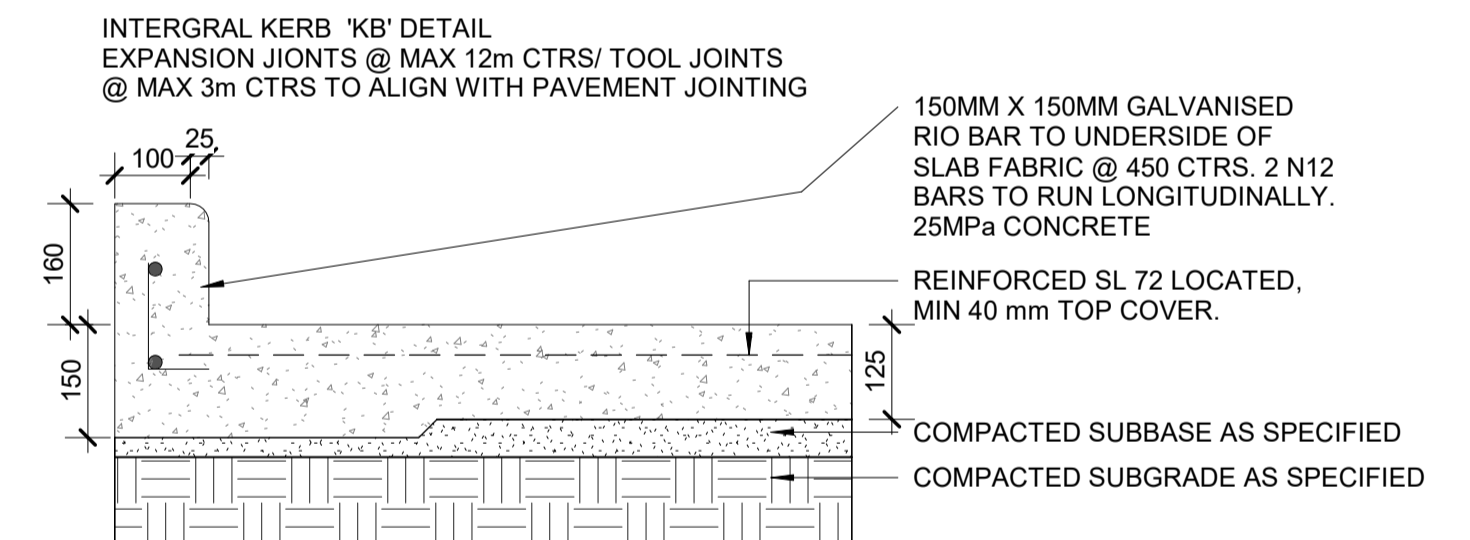
3 TSGI - Tactile Indicators



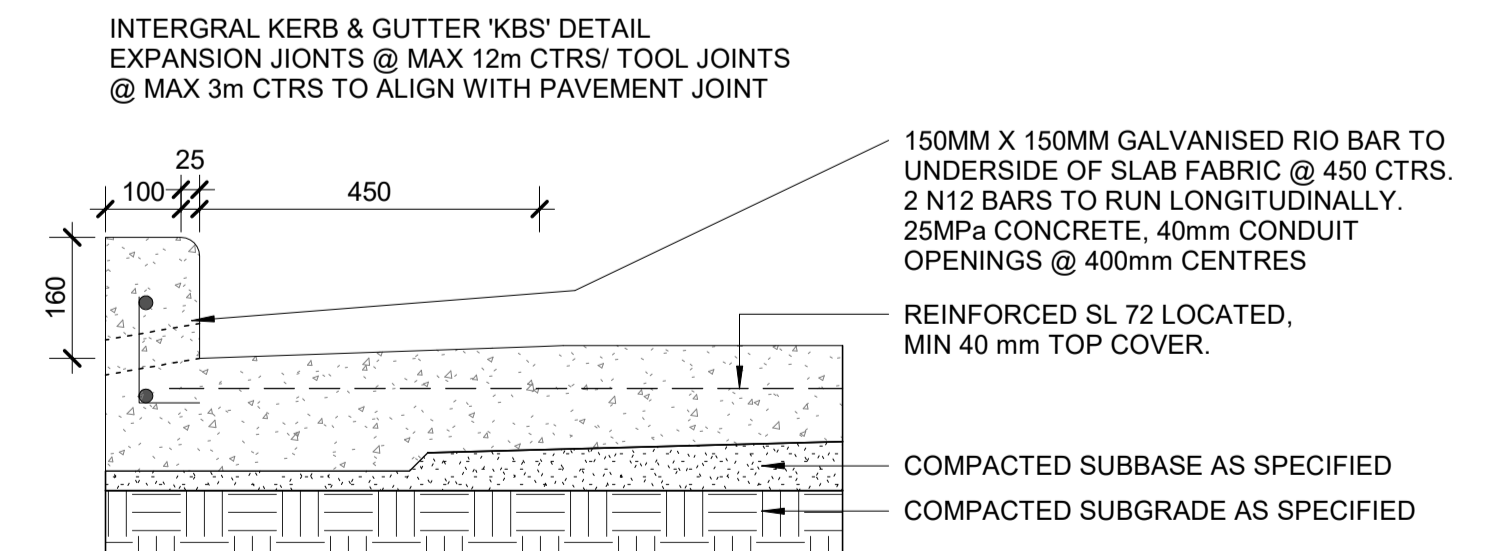
6 BA1/HA1 Balustrade Detail with Ramp



4 SSD - Subsoil Drain

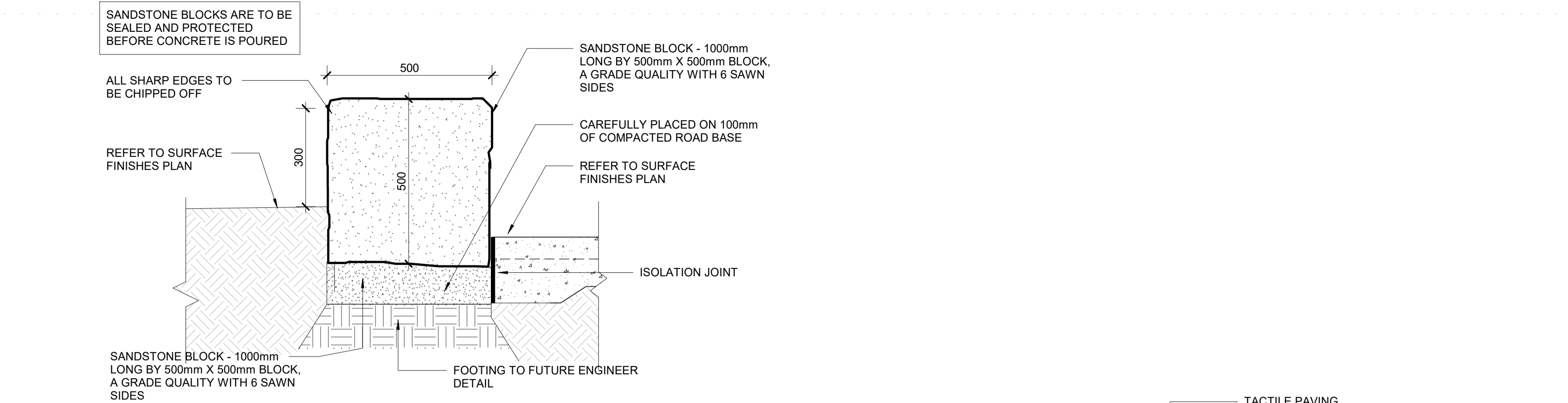


8 KB Concrete Pavement Kerb - 125mm Thick

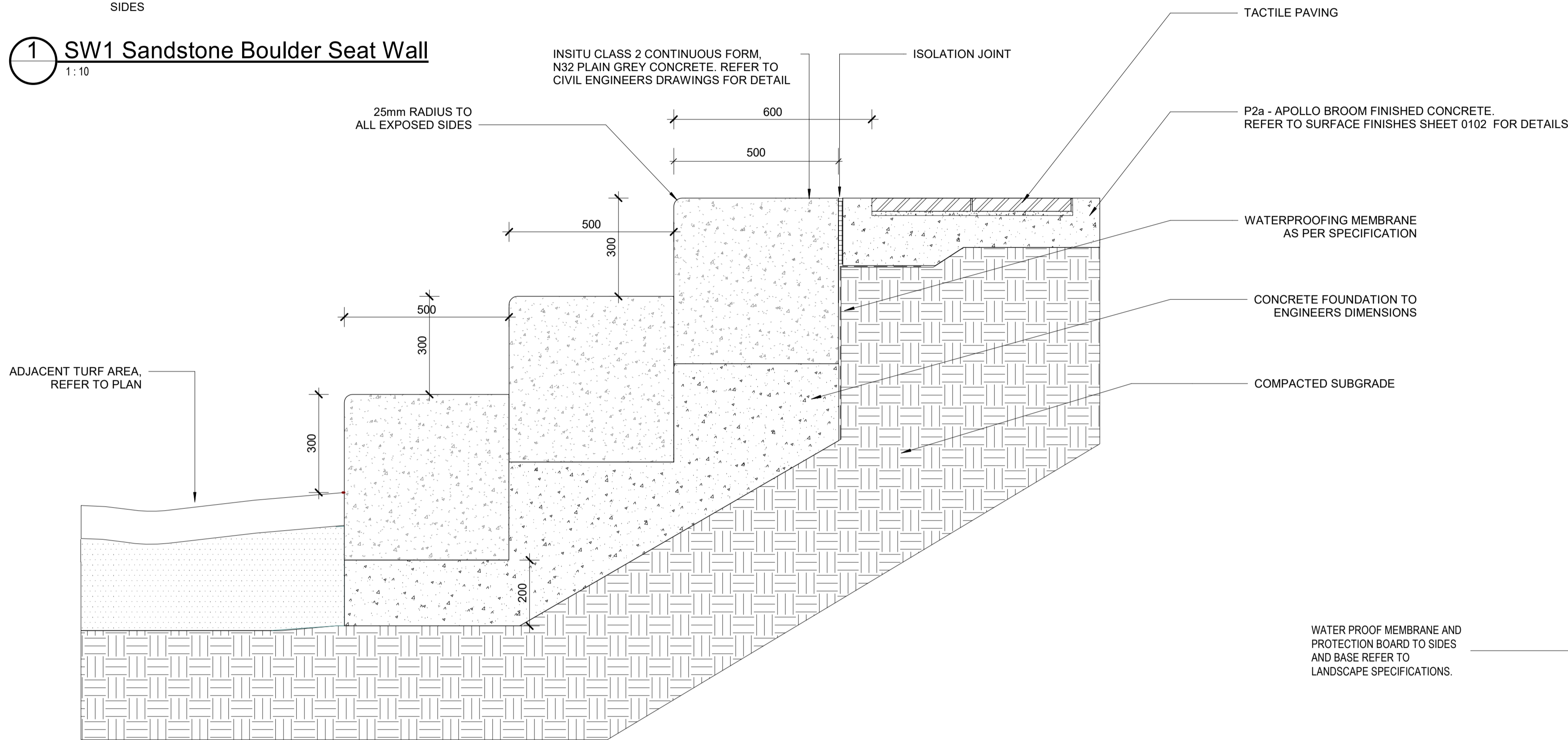


9 KBS Concrete Pavement Kerb - 125mm Thick

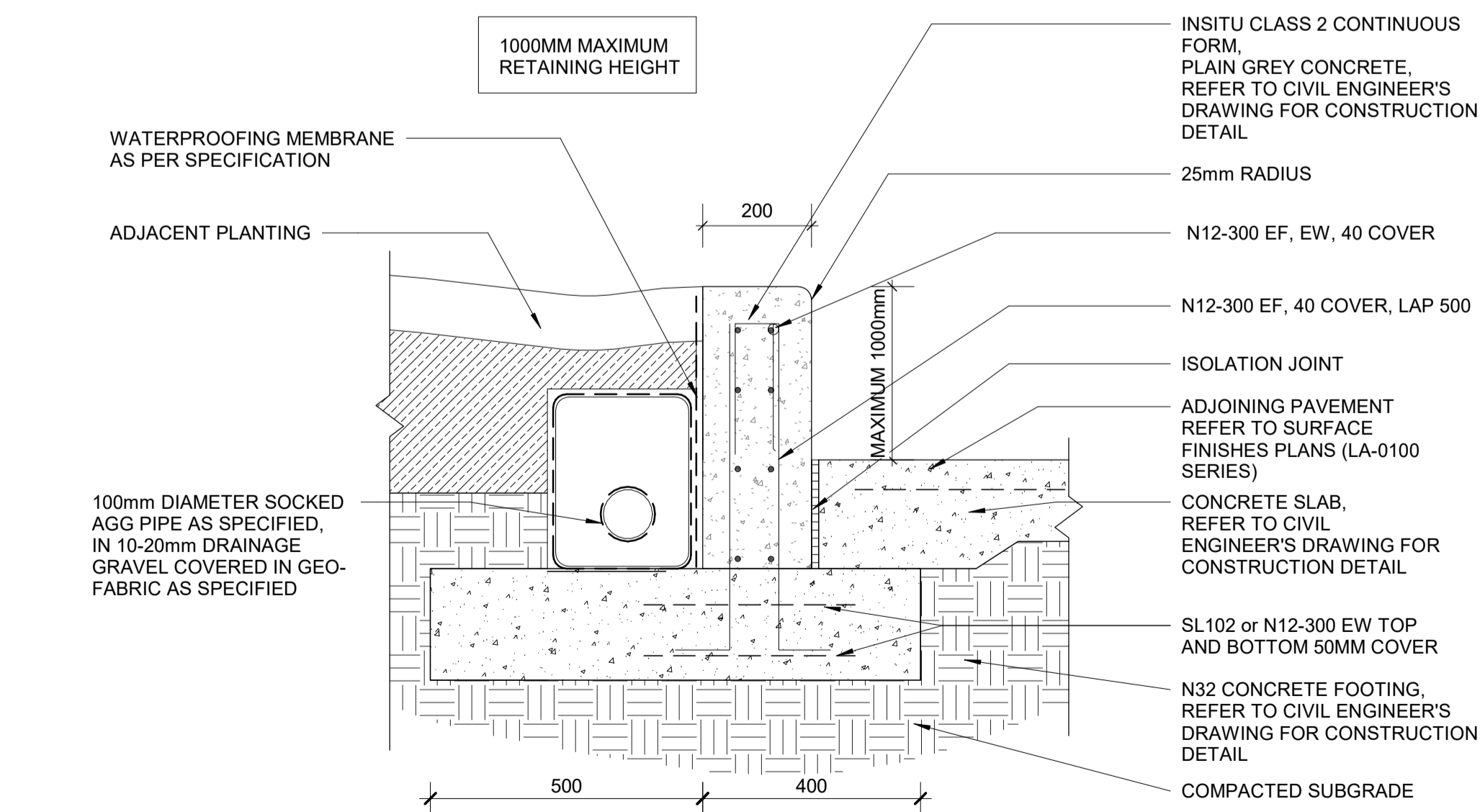
PRELIMINARY



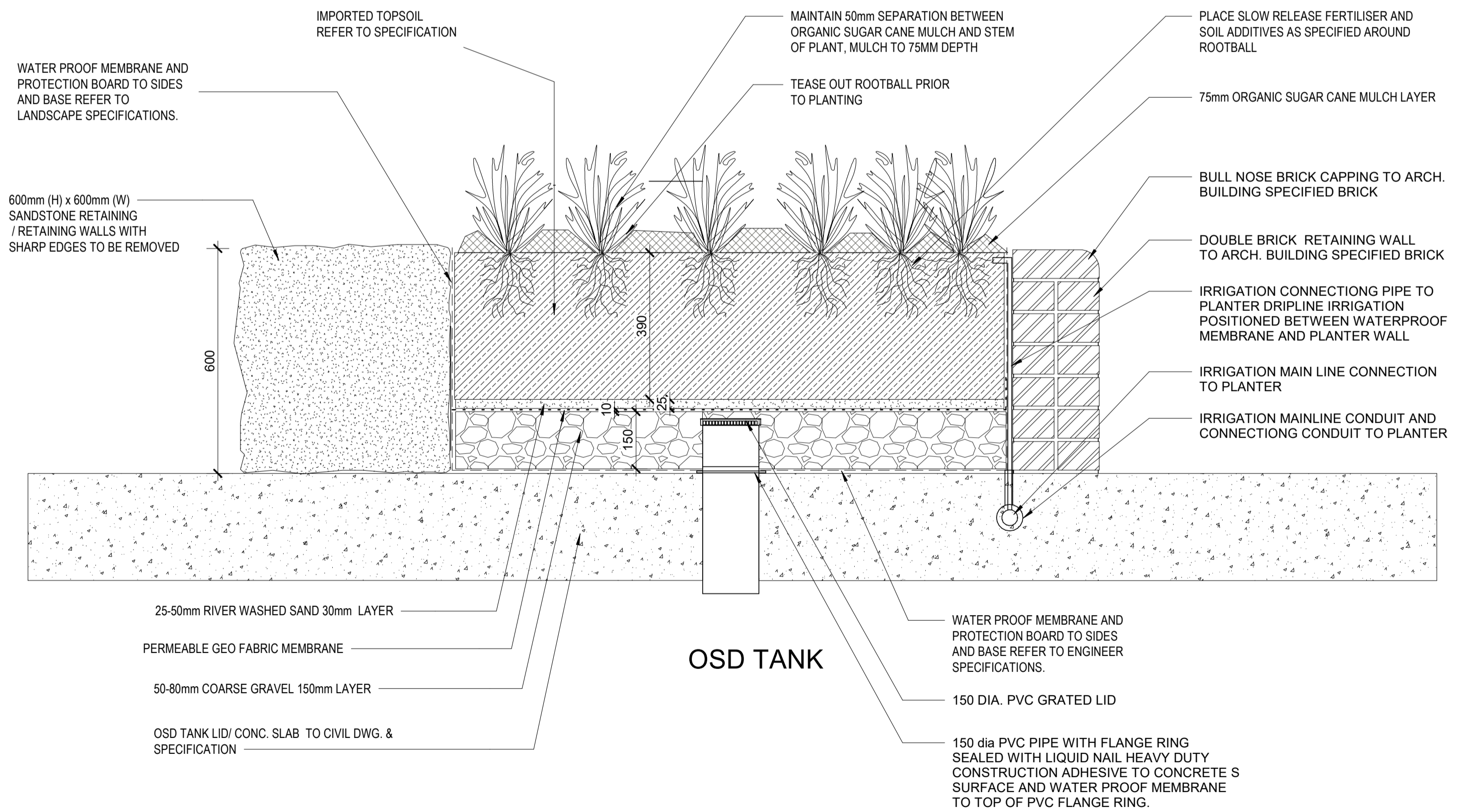
1 SW1 Sandstone Boulder Seat Wall  
1:10



2 TER1 - Concrete Terrace Seating - Typical Detail  
1:10



3 Concrete Retaining Wall (W3)  
1:10



4 Raised planter section in central courtyard above OSD Tank  
1:10

PRELIMINARY