

WOLLONDILLY SHIRE COUNCIL

WATER SENSITIVE URBAN DESIGN (WSUD)

STANDARD DRAWING SET

DRAWING SCHEDULE			
SHEET NO.	DRAWING NO.	DRAWING TITLE	VERSION
1	SD01-COVER-01	COVER PAGE	1.0
2	SD02-GENNOT-01	GENERAL NOTES	1.0
3	SD03-RES-S+ScA	STREETSCAPE - CONNECTOR STREET	1.4
4	SD04-RES-S+ScB	STREETSCAPE - YIELD STREET	1.4
5	SD05-RES-S+ScC	STREETSCAPE - DESTINATION HIGH STREET	1.3
6	SD06-IND-S+ScD	STREETSCAPE - ENTERPRISE STREET	1.3
7	SD07-RES-SB-01	PRECINCT DEVELOPMENT - SEDIMENT BASIN WITHIN WETLAND	1.2
8	SD08-RES-WETL-01	PRECINCT DEVELOPMENT - WETLAND AND DETENTION	1.2
9	SD09-RES-SWALE-01	MEDIAN STRIP SWALE - VEGETATED SWALE FLAT SITE (< 4% GRADE)	1.3
10	SD10-RES-SWALE-02	ROAD RESERVE SWALE - STEEP SITES (> 4% GRADE)	1.3
11	SD11-RES-SWALE-03	ROAD RESERVE SWALE - STEEP SITES (> 4% GRADE)	1.2
12	SD12-RES-TREE-01	LOCAL STREET PASSIVELY WATERED TREES - TRENCH DETAILS	1.3
13	SD13-RES-TREE-02	LOCAL STREET PASSIVELY WATERED TREES - STEEP SYSTEMS & GENERAL NOTES	1.2
14	SD14-RES-TREE-03	HIGH STREET PASSIVELY WATERED TREES	1.3
15	SD15-IND-TREE-04	INDUSTRIAL/COMMERCIAL PASSIVELY WATERED TREES	1.2
16	SD16-RES-INFIL-01	INFILTRATION TRENCH AND PURPLE PIPE - LOT SCALE	1.2
17	SD17-RES-INFIL-02	INFILTRATION TRENCH STREET SCALE RESIDENTIAL	1.3
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19	SD19-RES-RWT-01	RAINWATER TANK - LOT SCALE	1.2
20	SD20-IND-RWT-02	RAINWATER TANK - INDUSTRIAL LOTS	1.2
21	SD21-RES-RG-01	RAINGARDEN - LOT SCALE	1.3
22	SD22-RES-RG-02	RAINGARDEN - STREET SCALE	1.4
23	SD23-RES-PAV-01	PERMEABLE PAVING - TYPE 1 - STRUCTURED GRASS/GRAVEL	1.2
24	SD24-RES-PAV-02	PERMEABLE PAVING - TYPE 2 - POROUS PAVERS	1.2
25	SD25-IND-PAV-03	PERMEABLE PAVING - TYPE 3 - POROUS ASPHALT	1.2
26	SD26-RES-GPT-01	GPT - UNDERGROUND PRECINCT SCALE	1.2
27	SD27-RES-GPT-02	GPT - IN-LINE PIPE TRASH RACK - STREET SCALE	1.2
28	SD28-RES-PARK-01	IMPLEMENTATION OF WSUD IN CAR PARKS	1.2
29	SD29-SPECS-01	ROOT BARRIER & IMPERMEABLE LINER SPECIFICATIONS	1.1

GENERAL NOTES

- THE PURPOSE OF THESE DRAWINGS IS TO PROVIDE GENERAL DESIGN GUIDANCE ON KEY DETAILS HOWEVER THEY ARE NOT A STAND ALONE DESIGN RESOURCE. THEY SHOULD BE READ IN CONJUNCTION WITH OTHER WOLLONDILLY DESIGN & PLANNING DOCUMENTATION, INCLUDING BUT NOT LIMITED TO:
 - WOLLONDILLY SHIRE COUNCIL'S WATER SENSITIVE URBAN DESIGN GUIDELINES
 - WOLLONDILLY SHIRE COUNCIL'S DEVELOPMENT CONTROL PLAN
 - WOLLONDILLY SHIRE COUNCIL'S DESIGN SPECIFICATION
 - WOLLONDILLY SHIRE COUNCIL'S CONSTRUCTION SPECIFICATION
 - WOLLONDILLY SHIRE COUNCIL'S STANDARD DRAWINGS
 - WESTERN SYDNEY PLANNING PARTNERSHIP'S WESTERN SYDNEY STREET DESIGN GUIDELINES
- PRIOR TO COMMENCING DESIGN AND PLANNING OF WSUD SYSTEMS, DESIGNERS MUST REFER TO WOLLONDILLY'S WATER SENSITIVE URBAN DESIGN GUIDELINE AND THE WESTERN SYDNEY PLANNING PARTNERSHIP'S WESTERN SYDNEY STREET DESIGN GUIDELINES TO ENSURE ENSURE THAT WSUD IS BEING PROPERLY IMPLEMENTED AND ACHIEVING THE TARGET OUTCOMES SET OUT BY WOLLONDILLY SHIRE COUNCIL.
- THESE DRAWINGS ARE INTENDED TO PROVIDE A LIST OF COMPLYING SOLUTIONS THAT COUNCIL ACCEPTS. THEY SHALL NOT BE USED TO STIFLE INNOVATION OR REPLACE SOUND ENGINEERING JUDGEMENT. ALTERNATIVE SOLUTIONS WILL BE ADDRESSED BY COUNCIL ON A MERITS BASED APPROACHED.
- WHERE THERE IS A CLASH BETWEEN THESE DRAWINGS AND ANY OTHER APPLICABLE PLANNING DOCUMENT RECOGNISED BY WOLLONDILLY, THE CONTRACTOR SHALL SEEK CLARIFICATION FROM COUNCIL
 - ANY SPECIFICATIONS BEYOND THE SCOPE OF WSUD (EG. CIVIL INFRASTRUCTURE SUCH AS KERBS) ARE TO BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE RELEVANT DOCUMENTATION ENDORSED BY WOLLONDILLY SHIRE COUNCIL
- WSUD SYSTEMS WITH STRUCTURAL OR GEOTECHNICAL ELEMENTS (E.G. RETAINING WALLS, CLAY LINERS) REQUIRE SITE SPECIFIC STRUCTURAL OR GEOTECHNICAL DESIGN INPUT
- ALL WATER QUALITY AND QUANTITY MANAGEMENT MEASURES SHALL BE DESIGNED TO ENSURE:
 - EASE OF MAINTENANCE
 - ACCESSIBLE FOR MAINTENANCE
 - SAFE WORK PRACTICES FOLLOWED
 - PUBLIC HEALTH AND SAFETY IS MAINTAINED
 - COMPLIANCE WITH DESIGN CRITERIA SEPCIFIED IN RELEVANT WOLLONDILLY ENDORSED DOCUMENTATION
 - COMPLIANCE WITH UNIVERSAL DOCUMENTATION (EG. RELEVANT AUSTRALIAN AND AUSTRROADS STANDARDS ETC.)
 - CONSIDERS THE BROADER LANDSCAPE CONTEXT OF THE SITE AND LGA
 - CONSIDERS OTHER ENVIRONMENTAL OUTCOMES (EG. SUSTAINABILITY & CLIMATE CHANGE ETC., PARTICULARLY WITH REGARDS TO MATERIALS AND CONSTRUCTION PRACTICES
 - CONSIDERS COMMUNITY OUTCOMES AND MAKES AND OVERALL POSITIVE IMPACE (EG LIVEABILITY & URBAN HEAT ETC.)

ADDITIONAL RESOURCES AND REFERENCE DOCUMENTS

- CRC FOR WATER SENSITIVE CITIES' ADOPTION GUIDELINES FOR STORMWATER BIOFILTRATION SYSTEMS: CITIES AS A WATER SUPPLY FOR CATCHMENTS - SUSTAINABLE TECHNOLOGIES (2015)
- MELBOURNE WATER'S WETLAND DESIGN MANUAL (2020) & CORRESPONDING MELBOURNE WATER STANDARD DRAWINGS
- MELBOURNE WATER & CSIRO'S WSUD ENGINEERING PROCEDURES: STORMWATER (2005)
- WATER BY DESIGN SENSITIVE URBAN DESIGN & EROSION AND SEDIMENT CONTROL FACT SHEETS

×× NOTE: WSUD IS A RAPIDLY DEVELOPING FIELD WITH CONSTANT INNOVATION. AS A RESULT THE INDUSTRY STANDARD WITHIN DESIGN CAN CHANGE REGULARLY. THE PURPOSE OF THE ABOVE GUIDELINES ARE INCLUDE TO PROVIDE GUIDANCE TO PLANNERS AND DESIGNERS WITH REGARDS TO WSUD. DESIGN SPECIFICATOIN SHOULD BE MADE IN ACCORDANCE WITH THIS WSUD STANDARD DRAWING SET OR ANY OTHER RELEVANT ENDORSED DOCUMENATION BY WOLLONDILLY. WOLLONDILLY SHIRE COUNCIL ARE NOT RESPONSIBLE FOR ANY CONTRADICTIONS BETWEEN THESE REFERENCE DOCUMENTS AND WHAT IS INCLUDING IN THE ENDORSED DOCUMENTATION ××

LEGEND

	GEOFAB LINER
	IMPERMEABLE LINER
	INSPECTION POINT
	IN-SITU SOIL
	GRAVEL TRENCH WITH 20mm OR 40mm WASHED SCREENINGS
	TOP SOIL
	CONCRETE
	CLAY LINER AS DESIGNED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER
	DESIGNED TREE PLANTING MEDIA
	PROPOSED WATER TABLE/NORMAL WATER LEVEL
	TOP WATER LEVEL
	EXISTING/ TRADITIONAL STORMWATER INFRASTRUCTURE
	PROPOSED STORMWATER INFRASTRUCTURE
	CAPTURED STORMWATER
	CAPTURED STORMWATER DISTRIBUTED FOR REUSE
	FILTER MEDIA AS PER SD02-NOTES-01
	TRANSITION LAYER AS PER SD02-NOTES-01
	DRAINAGE LAYER AS PER SD02-NOTES-01

×REFER SD22-SD24 FOR PERMEABLE PAVING LEGEND

DRAFT STANDARD DRAWING
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NOT FOR CONSTRUCTION

	DRAWN F.O DATE:30.09.2025	SCALE VARIES @ A1
	DRAWING TITLE COVER PAGE APPROVED BY TBA DATE: 12.06.2024	DRAWING NO. SD01-COVER-01 SHEET 1 OF 29

DEFINITIONS

AS SET OUT IN WOLLONDILLY SHIRE COUNCIL'S 'WSUD DESIGN GUIDELINES', WOLLONDILLY REQUIRES DEVELOPERS, PLANNERS AND DESIGNER TO ACHIEVE VOLUME REDUCTION TARGETS, NOT POLLUTANT REDUCTION TARGETS. AS A RESULT, SYSTEMS HAVE BEEN DESIGNED WITH THE INTENT TO MAXIMUM THE VOLUME LOST FROM CAPTURED STORMWATER. STANDARD DRAWINGS HAVE ALSO BEEN PRODUCED WITH THE INTENT FOR SYSTEMS TO BE EASILY IMPLEMENTED WITHIN THE STREET TYPES SPECIFIED IN THE WESTERN SYDNEY PLANNING PARTNERSHIP'S 'WESTERN SYDNEY STREET DESIGN GUIDELINES'. SD03 TO SD06 PROVIDE A FRAMEWORK OF HOW WSUD CAN BE INPLMENTATED INTO THE DESIGN STREETSAPES FROM THIS GUIDELINE. THESE ARE NOT AN EXHAUSTIVE LIST AND DEVELOPERS, PLANNERS & DESIGNERS CAN RECOMMEND ASSETS OUTSIDE OF THIS LIST.

- FOR THE PURPOSE OF THIS DESIGN SET AND ALL RELEVANT WOLLONDILLY WSUD DOCUMENTATION. THE FOLLOWING DEFINITIONS APPLY:
- SWALES REFER TO SHALLOW VEGETATED CHANNEL THAT COLLECTS AND TRANSFERS STORMWATER RUNOFF. SWALES SLOW FLOWS, SCREEN OUT SEDIMENT AND ALLOW FOR STORMWATER TO INFILTRATE INTO SOILS.
 - INFILTRATION GARDENS REFER TO SYSTEMS THAT REDIRECT STORMWATER GENERATED ON NEIGHBOURING IMPERVIOUS SURFACES WITH THE SOLE INTENT OF EXFILTRATION TO THE SOIL WITH SHORT-TERM SUBSURFACE STORAGE
 - PASSIVELY WATERED STREET TREES REFER TO SYSTEMS THAT REDIRECT STORMWATER GENERATED ON NEIGHBOURING IMPERVIOUS SURFACES WITH THE SOLE INTENT OF PROVIDE ADDITIONAL WATER TO STREET TREES AND PROMOTE INFILTRATION
 - RAINGARDENS REFER TO DESIGNED VEGETATED GARDENS THAT FILTER STORMWATER RUNOFF GENERATED ON SURROUNDING IMPERVIOUS SURFACES
 - PERMEBALE PAVING REFERS TO PAVEMENT CONSTRUCTED WITH A POROUS MATERIAL THAT ALLOWS RAINWATER TO PASS THROUGH AND INFILTRATE THE GROUND BELOW
 - GROSS POLLUTANT TRAPS (GPTs) REFER TO ENGINEERED STRUCTURES DESIGNED TO SEPARATE GROSS POLLUTANTS FROM STORMWATER

IN WOLLONDILLY ALL BIOFILTRATION/FILTRATION SYSTEMS, LISTED ABOVE, ARE REQUIRED TO HAVE A 'SATURATED ZONE'. THE CONFIGURATION OF THE OUTLET IS SUCH THAT THE SYSTEM RETAINS WATER IN A 'SATURATED' ZONE. IT IS ALSO FORBIDDEN FOR SYSTEM TO HAVE AN IMPERMEABLE LINER ALONG THE SYSTEMS BASE, TO ENSURE EXFILTRATION IS MAXIMISED.

WETLAND AND SEDIMENT BASINS ARE PERMITTED WITHIN WOLLONDILLY, HOWEVER, THESE SYSTEMS DO REQUIRE CLAY LINERS AND DO UNDER PERFORM BIOFILTRATION/FILTRATION SYSTEMS IN TERMS OF VOLUME REDUCTION. THESE ASSETS DO PROVIDE SIGNIFICANT BIODIVERSITY, URBAN COOLING AND CAN BE USED AS PART OF A BROADER STORMWATER DETENTION STRATEGY

SCOUR PROTECTION

ALL DIRECT SURFACE LEVEL INLETS REQUIRE SCOUR PROTECTION. SUITABLE SCOUR PROTECTION INCLUDES FOREBAYS & MIXED ROCK WORK

SUB-SURFACE DRAINAGE PIPES

PERFORATED PVC PIPES ARE THE ONLY SUITABLE 'LEAKY' SUB-SURFACE DRAINAGE PIPE PERMITTED IN WOLLONDILLY. CORRUGATED PLASTIC PIPE (I.E. 'AG' PIPE) IS NOT ACCEPTABLE DUE TO THE RISK OF COMPRESSION FAILURE AND ROOT PENETRATION. ALL PERFORATED PVC PIPE WITHIN THE STREETSCAPE MUST NOT HAVE A DIAMETER SMALLER THEN 100mm. LOT SCALE DEVELOPMENTS MAY USE SMALLER PIPE.

ACCESS & MAINTENANCE

ALL ASSETS WITHIN THE STREETSCAPE (NOT WITHIN LOT BOUNDARIES) MUST HAVE SHALL ENSURE EASE OF ACCESS WITHOUT UNDUE RISK TO MAINTENANCE PERSONNEL. DEEP BIORETENTION SYSTEMS SHALL INCLUDE AN ACCESS SYSTEM THAT ENSURES MAINTENANCE CREWS CAN EASILY AND SAFELY CARRY OUT REMOVAL OF LITTER, DEBRIS, SEDIMENT, REPLANTING, WEEDING AND REPLACEMENT OF THE FILTER MEDIA. ALL SUB-SURFACE SYSTEMS SHALL INCLUDE A FLUSHING OUT POINT, AS PER THE DETAILS SPECIFIED WITHIN THIS DRAWING SET. ANY SUBSURFACE PIPE>60m WILL REQUIRE ADDITIONAL INTERMEDIATE FLUSHING POINTS

VEGETATION, SHADING & MULCHING

PLANTS ARE AN ESSENTIAL COMPONENT OF MANY WSUD SYSTEM, REMOVING POLLUTANTS AND MAINTAINING THE HYDRAULIC CONDUCTIVITY OF THE FILTER MEDIA. PLANTS MUST BE CAPABLE OF SURVIVING IN THE FILTER MEDIA ENVIRONMENT (SANDY SOIL, DRY PERIODS WITH INTERMITTENT INUNDATION). A LIST OF SUITABLE SPECIES IS INCLUDED IN WOLLONDILLY SHIRE COUNCIL'S WSUD DESIGN GUIDELINES.. PLANTS IN 50mm TUBES OR HIKO CELLS ARE SUITABLE FOR PLANTING IN BIORETENTION SYSTEMS. ESTABLISHMENT WATERING WILL BE REQUIRED. PLANTS WILL NEED TO BE PRE-ORDERED EARLY IN THE DESIGN PROCESS TO ENSURE THEY ARE AVAILABLE AT THE DESIRED TIME. ALL PLANTS SHALL BE VIGOROUS AND HEALTHY AND FREE FROM ROOT BALLING AND WEEDS. THE PLANTS SHALL BE POTTED ON IF A DELAY OCCURS. DESIGNS MUST CONSIDER SUNLIGHT AVAILABILITY FOR THE PLANTS. THE ORIENTATION OR DEPTH OF THE SYSTEM CAN

CAUSE EXCESSIVE PLANT SHADING, ESPECIALLY IN WINTER. RAINGARDEN AND SWALES SYSTEMS SHALL NOT BE MULCHED IN ANY PART OF THE SYSTEM. IF MULCH IS USED ON ADJACENT LANDSCAPED AREAS IT SHALL BE PLACED & PROVISIONS SHALL BE MADE SO THAT IT WILL NOT BE WASHED INTO THESE SYSTEMS

ESTABLISHMENT & STAGING OF WORKS

IT IS RECOMMENDED THAT ALL WSUD SYSTEMS BE ESTABLISHED OFF-LINE, PARTICULARLY IN GREENFIELD DEVELOPMENTS. THIS ALLOWS VEGETATION TO ESTABLISH WITHOUT BEING IMPACTED BY HIGH STORMWATER FLOWS & ELEVATED SEDIMENT LOADS. DESIGN DRAWINGS SHALL SHOW TEMPORARY WORKS FOR THE ESTABLISHMENT PHASE, SUCH AS A TEMPORARY COVER ON AN INLET, TEMPORARY IRRIGATION AND TEMPORARY EROSION CONTROL. WHEN INCORPORATING WATER QUALITY CONTROLS IN A SUBDIVISION DEVELOPMENT, COUNCIL REQUIRES A STAGED IMPLEMENTATION. STAGES TYPICALLY INCLUDED ARE:

1. DURING/BEFORE BULK EARTHWORKS PHASE A SEDIMENT BASIN IN PLACE OF THE FINAL BIORETENTION.
2. FOLLOWING COMPLETION OF BULK EARTHWORKS A SACRIFICIAL BASIN SHOULD BE CONSTRUCTED TO HAVE THE SUBDIVISION CERTIFICATE / LINEN PLANS RELEASED.
3. ONCE 90% OF CATCHMENT DEVELOPMENT IS COMPLETE A FULLY FUNCTIONAL WSUD SYSTEM IS MADE OPERATIONAL. THIS IS AT THE DISCRETION OF COUNCIL WHO MAY VARY THIS REQUIREMENT. IT IS THE DEVELOPERS REQUIREMENT TO TRANSITION THE TEMPORARY SYSTEM INTO THE FINAL WSUD

DURING CONSTRUCTION, IT IS CRITICAL THAT THE DESIGNER UNDERTAKE INSPECTIONS AT KEY POINTS, TO ENSURE THAT WSUD SYSTEMS ARE INSTALLED ACCORDING TO THEIR DESIGN INTENT. THESE HOLD POINTS& INSPECTION POINTS VARY DEPENDING ON ASSET TYPE. A LIST OF ASSET SPECIFIC HOLD POINTS MUST BE APPROVED BY COUNCIL PRIOR TO WORKS COMMENCING & A SIGNED COPY OF THE HOLD POINTS AND DATE COMPLETED MUST BE PROVIDED TO COUNCIL PRIOR TO ASSET HANDOVER.

TESTING REQUIREMENTS

PRIOR TO DELIVERY THE CONTRACTOR IS TO PROVIDE NATA ACCREDITED TEST RESULTS OF EACH MATERIAL FOR EVERY 1000m² OF POROUS MATERIAL AREA FOR COMPLIANCE WITH ALL SPECIFIED CRITERIA IN THE MATERIAL SPECIFICATIONS TABLE. POROUS MATERIAL INCLUDES FILTER MEDIA, INFILTRATION TRENCH MATERIAL, PWST TRENCH MATERIAL ETC. IF THE RESULTS ARE NOT WITHIN THE ACCEPTABLE RANGES THE DELIVERY SHALL NOT BE APPROVED UNTIL THE MATERIAL IS APPROVED BY COUNCIL.

1 MONTH PRIOR TO HAND OVER OF RAINGARDENS, SWALES, INFILTRATION GARDENS & PWST SYSTEMS THE CONTRACTOR SHALL ARRANGE FOR IN SITU TESTING OF THE SPECIFIED HYDRAULIC CONDUCTIVITY AT A RATE OF 1 TESTS PER 250m² OF FILTER MEDIA AREA FOR COMPLIANCE WITH THE ABOVE SPECIFICATION.

UNDERGROUND SERVICE CHECK

DURING THE DESIGN PHASE, A BEFORE YOU DIG AUSTRALIA ENQUIRY SHOULD BE UNDERTAKEN, WITH ALL LOCAL EXISTING AND PROVIDE ASSETS TO BE SHOWN ON DESIGN DRAWINGS. WSUD ASSETS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH UNDERGROUND SERVICE OWNERS REQUIREMENTS. CONTRACTORS, DEVELOPERS AND DESIGNERS MAY BE REQUIRED TO UNDERTAKE SERVICE LOCATION ON SITE TO ENSURE LOCATIONS CAN BE CONFIRMED.

GEOTECHNICAL

THESE DRAWINGS ARE SUBJECT TO GEOTECHNICAL ADVICE WITH REGARDS TO IMPACTS ON ROAD PAVEMENT. ADDITIONAL PROTECTIONS TO ROAD PAVEMENT MAY BE REQUIRED SUBJECT TO LOCAL GEOLOGY/SOIL CONDITIONS AND DUE CONSIDERATION OF SUBGRADE SATURATION FROM INFILTRATION TREATMENTS. SPECIFIC SITE CONDITIONS SHOULD BE CONSIDERED PRIOR TO SELECTING APPROPRIATE TREATMENTS. THE LEVEL OF INFILTRATION AND STORMWATER DISPOSAL SHOULD BE CONSIDERED BY THE GEOTECHNICAL ENGINEER IN AREAS OF CUT & FILL

LINERS

ALL BIORETENTION SYSTEMS ARE TO BE LINED TO RETAIN WATER. CLAY IS AN ACCEPTABLE LINING MATERIAL SUBJECT TO COUNCIL APPROVAL OF A SPECIFICATION PREPARED BY A GEOTECHNICAL ENGINEER. LINERS SHOULD HAVE A SATURATED HYDRAULIC CONDUCTIVITY VALUE LOWER THAN 1 x 10⁻⁹. HDPE WATERTIGHT MEMBRANE 1.5mm THICK, GEOSYNTHETIC CLAY LINERS (E.G. BENTOFIX ARE ALSO ACCEPTABLE). THE LINER IS TO EXTEND TO THE SURFACE OF THE MEDIA LAYER. TO MINIMISE THE RISK OF DAMAGE CAUSED BY ROCKS IN THE SUBSOIL INSTALL A LAYER OF NON-WOVEN NEEDLE PUNCHED GEOFABRIC, SUCH AS BIDIM A34 OR APPROVED EQUIVALENT, UNDER AND OVER HDPE LINERS. ALL HDPE LINERS SHALL HAVE WELDED WATER TIGHT JOINTS. IMPERMABLE LINERS MUST BE PLACED A MINIMUM 150mm AWAY FROM SIGNIFICANT INFRASTRUCTURES, SUCH AS ROAD SUBGRADES ETC. IMPERMEABLE LINERS ARE TO BE 'KEYED IN' BY ANCHORING THE LINER INTO A TRENCH OR KEYWAY AT THE EDGE OF THE INSTALLATION. LINERS ARE TO BE SECURE AND UNABLE TO MOVE PRIOR TO BEING COVERED WITH MATERIAL.

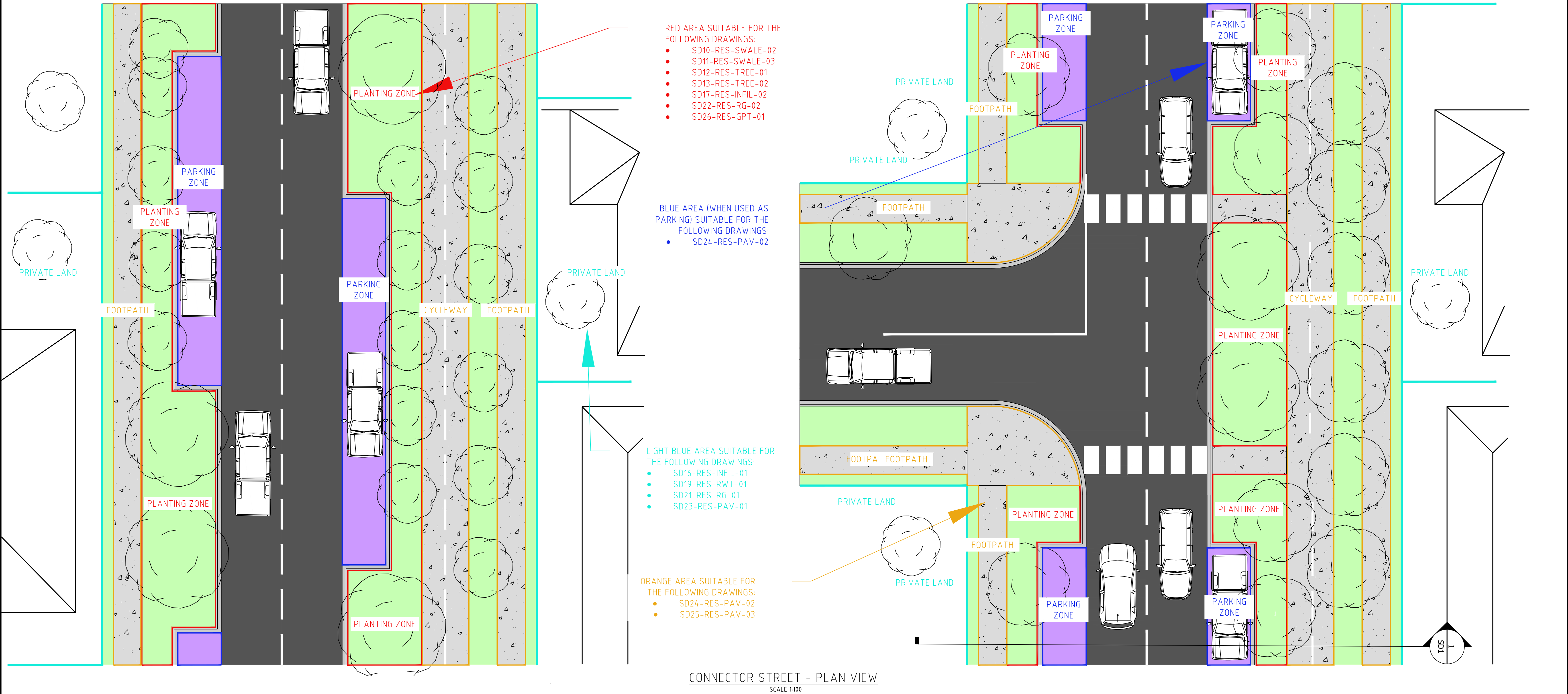
MATERIAL SPECIFICATIONS~		
PROPERTY	SPECIFICATION	METHOD SOURCE
FILTER MEDIA		
MATERIAL	EITHER AN ENGINEERED MATERIAL (A WASHED WELL GRADED SAND) OR NATURALLY OCCUR SAND OR MIXTURE	
PARTICLE GRADING	CLAY & SILT (<0.05mm) <3% VERY FINE SAND (0.05-0.15mm) 5-30% FINE SAND (0.15-0.25mm) 10-30% MEDIUM SAND (0.25-0.5mm) 40-60% COARSE SAND (0.5-1.0mm) <25% VERY COARSE SAND (1.0-2.0mm) 0-10% FINE GRAVEL (2.0-3.4mm) <3%	ASTMF1632-03 (2010)
HYDRAULIC CONDUCTIVITY	100-300 mm/hr	ASTM F1815-11 METHOD
NUTRIENT & ORGANIC MATTER CONTENT	LOW NUTRIENT CONTENT (TN < 1000 mg/kg, PHOSPHATE (COLWELL) <80 mg/kg) ORGANIC MATTER CONTENT < 5%	AS4454-2012, AS4419:2017 (CROMWELL), AS1289.4.1:2019 AS PER AS4419:2018
pH	5.5-7.5	AS4419-2003
ELECTRICAL CONDUCTIVITY	<1.2 dS/m	AS4419-2003
ONCE-OFF NUTRIENT AMELIORATION	ADDED MANUALLY TO TOP 100mm ONCE ONLY	
TRANSITION LAYER		
MATERIAL	CLEAN WELL-GRADED SAND (EG. A2 FILTER SAND)	
PARTICLE GRADING	BRIDGING CRITERIA D ₁₅ (TRANSITION) < 5 x D ₈₅ (FILTER)	ASTMF1632-03 (2010)
HYDRAULIC CONDUCTIVITY	1.25x HC OF FILTER MEDIA	ASTM F1815-11 METHOD
DRAINAGE LAYER		
MATERIAL	CLEAN, FINE AGGREGATE - 2-7mm WASHED SCREENING	
PARTICLE GRADING^	BRIDGING CRITERIA D ₁₅ (DRAINAGE) < 5 x D ₈₅ (TRANSITION)	ASTMF1632-03 (2010)
HYDRAULIC CONDUCTIVITY	> HC OF TRANSITION LAYER	ASTM F1815-11 METHOD
PERFORATIONS IN UNDERDRAIN	D85 (DRAINAGE) > UNDERDRAIN PERFORATIONS	ASTMF1632-03 (2010)
GRAVEL TRENCH		
MATERIAL	GRAVEL WITH TRIPLE WASHED SCREENINGS	
PARTICLE GRADING^	CLEAN, FINE AGGREGATE - 2-7mm WASHED SCREENING	
POROSITY	MATERIAL TO HAVE A FINISHED POROSITY OF 35%	

MATERIAL SPECIFICATION NOTES

- ^ BRIDGING CRITERIA REFERS TO THE SMALLEST 15% OF UNDER LAYER PARTICLES MUST BRIDGE WITH THE LARGEST 15% OF PARTICLES IN THE UPPER LAYER
- ~ REQUIRED SPECIFICATION OF PASSIVELY WATERED STREET AND INFILTRATION GARDEN TRENCH MATERIAL ARE DESCRIBED ON THE SPECIFIC DRAWING

DRAFT STANDARD DRAWING
NOT FOR DISTRIBUTION
NOT FOR CONSTRUCTION

	DRAWN F.O DATE:29.09.2025	SCALE VARIES @ A1
DRAWING TITLE GENERAL NOTES	APPROVED BY TBA DATE: 12.06.2024	DRAWING NO. SD02-NOTES-01 SHEET 2 OF 29



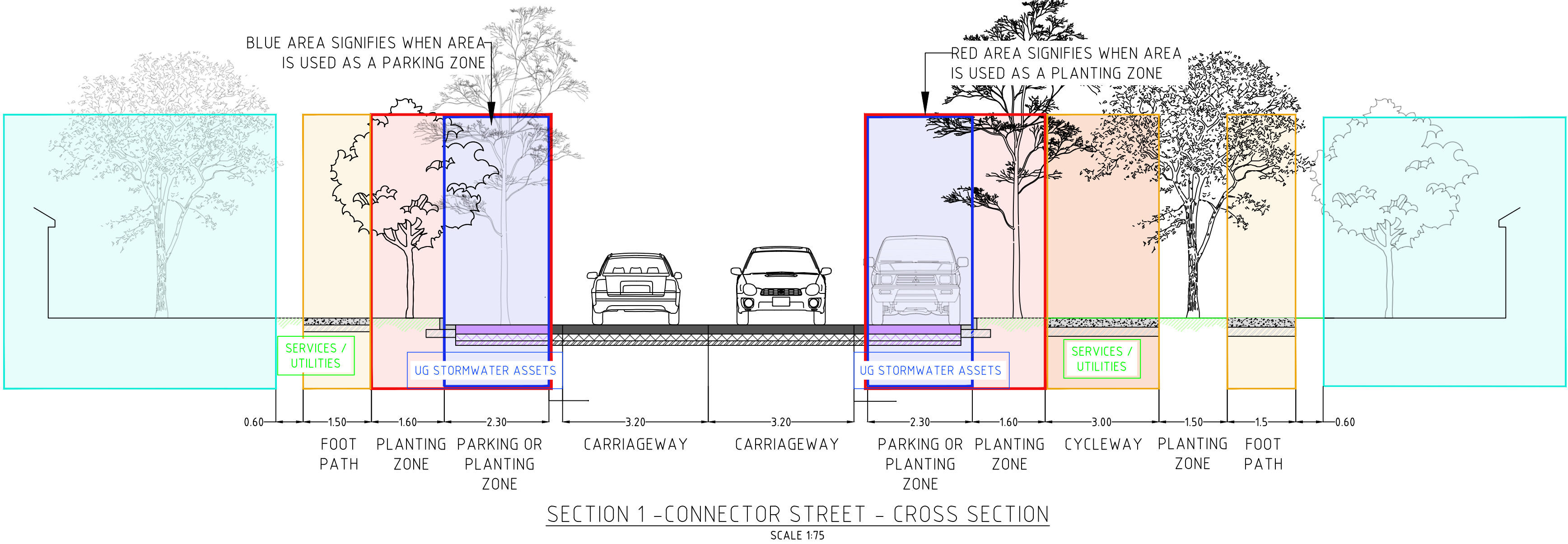
- NOTES**
- STREETSCAPE DRAWING TO BE READ IN CONJUNCTION WITH WESTERN SYDNEY STREET DESIGN GUIDELINES
 - ALL MEASUREMENTS ARE IN METERS
 - ALL ASPECTS OF THESE STREETSCAPE PLANS ARE SOURCED FROM THE WESTERN SYDNEY STREET DESIGN GUIDELINES - SUPPLEMENTARY REPORT (2024) DIRECTLY REFERENCING THE CONNECTOR STREETS (PAGE 28-33)
 - DRAWINGS SHOULD BE USED AS A GUIDE ONLY. ALL STREETSCAPES AND WSUD ASSETS SHOULD BE DESIGN IN ACCORDANCE WITH THE ALL RELEVANT COUNCIL DOCUMENTATION
 - ZONES ARE AS FOLLOWS: **RED** ZONES ARE SUITABLE FOR VERGES, **BLUE** ZONES ARE SUITABLE FOR PARKING AREAS, **ORANGE** ZONE ARE SUITABLE FOR FOOTPATHS AND **LIGHT BLUE** ZONES ARE SUITABLE FOR PRIVATE LOTS

WOLLONDILLY'S SUBDIVISION ASSET PREFERENCE HIERARCHY

- INFILTRATION TRENCHES~
- TREE PITS~
- SWALES
- RAINGARDENS
- WETLANDS~
- GPTS~
- PERMEABLE PAVING~

~SUBJECT TO GEOTECHNICAL CONFIRMATION REGARDING SOIL POROSITY
~DOESN'T ACHIEVE VOLUME REDUCTION

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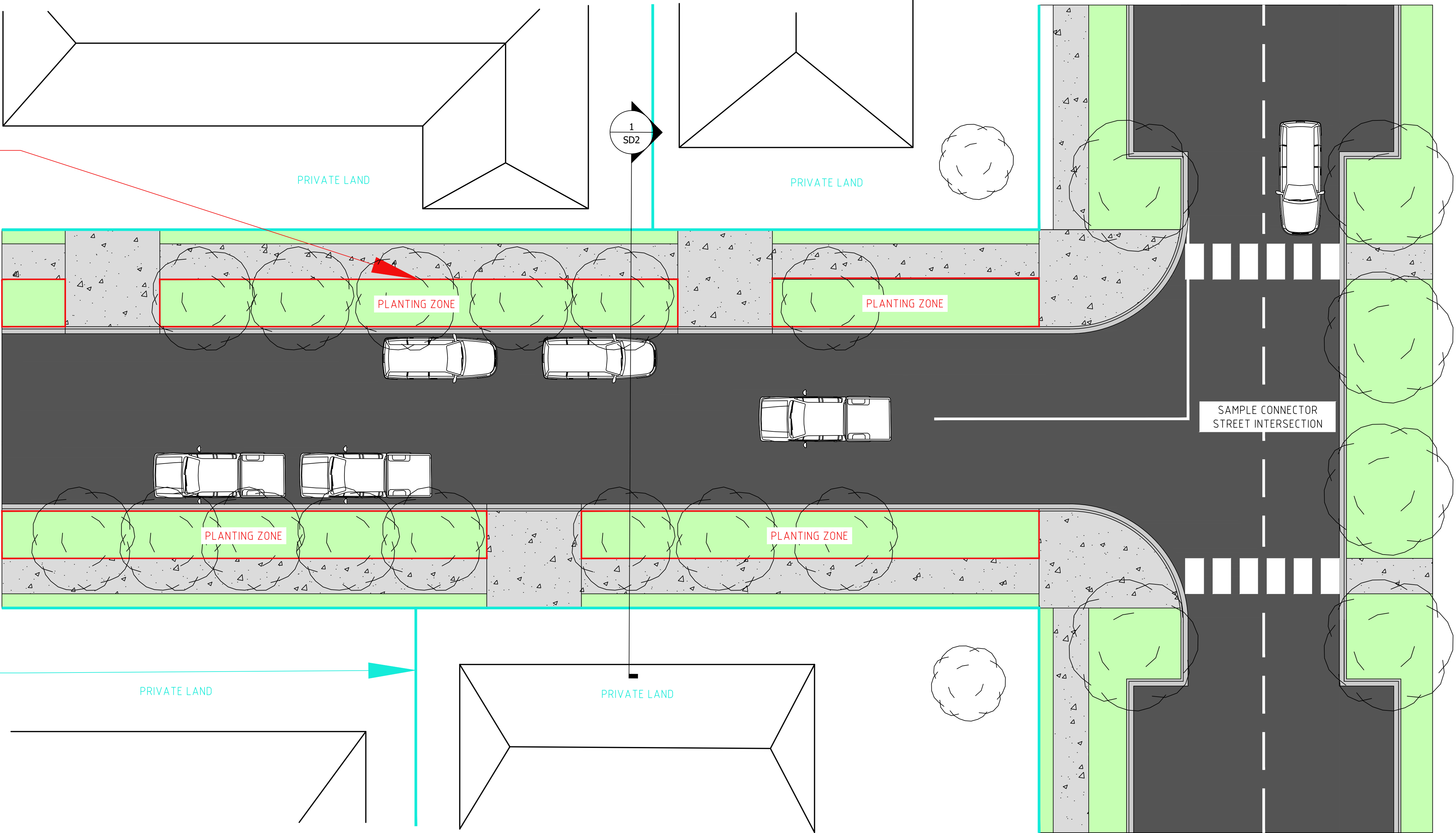
 DRAWING TITLE CONNECTOR STREET STREETSCAPE - WSUD	DRAWN F.O DATE: 17.10.2024	SCALE VARIES @ A1
	APPROVED BY TBA DATE: 12.06.2024	DRAWING NO. SD03-RES-StScA SHEET 3 OF 29

RED AREA SUITABLE FOR THE FOLLOWING DRAWINGS:

- SD10-RES-SWALE-02
- SD11-RES-SWALE-03
- SD12-RES-TREE-01
- SD13-RES-TREE-02
- SD17-RES-INFIL-02
- SD22-RES-RG-02
- SD26-RES-GPT-01

LIGHT BLUE AREA SUITABLE FOR THE FOLLOWING DRAWINGS:

- SD16-RES-INFIL-01
- SD19-RES-RWT-01
- SD21-RES-RG-01
- SD23-RES-PAV-01



YIELD STREET - PLAN VIEW
SCALE 1:100

NOTES

- STREETSCAPE DRAWING TO BE READ IN CONJUNCTION WITH WESTERN SYDNEY STREET DESIGN GUIDELINES
- ALL MEASUREMENTS ARE IN METERS
- ALL ASPECTS OF THESE STREETSCAPE PLANS ARE SOURCED FROM THE WESTERN SYDNEY STREET DESIGN GUIDELINES - SUPPLEMENTARY REPORT (2024) DIRECTLY REFERENCING THE YIELD STREET (PAGE 38-41)
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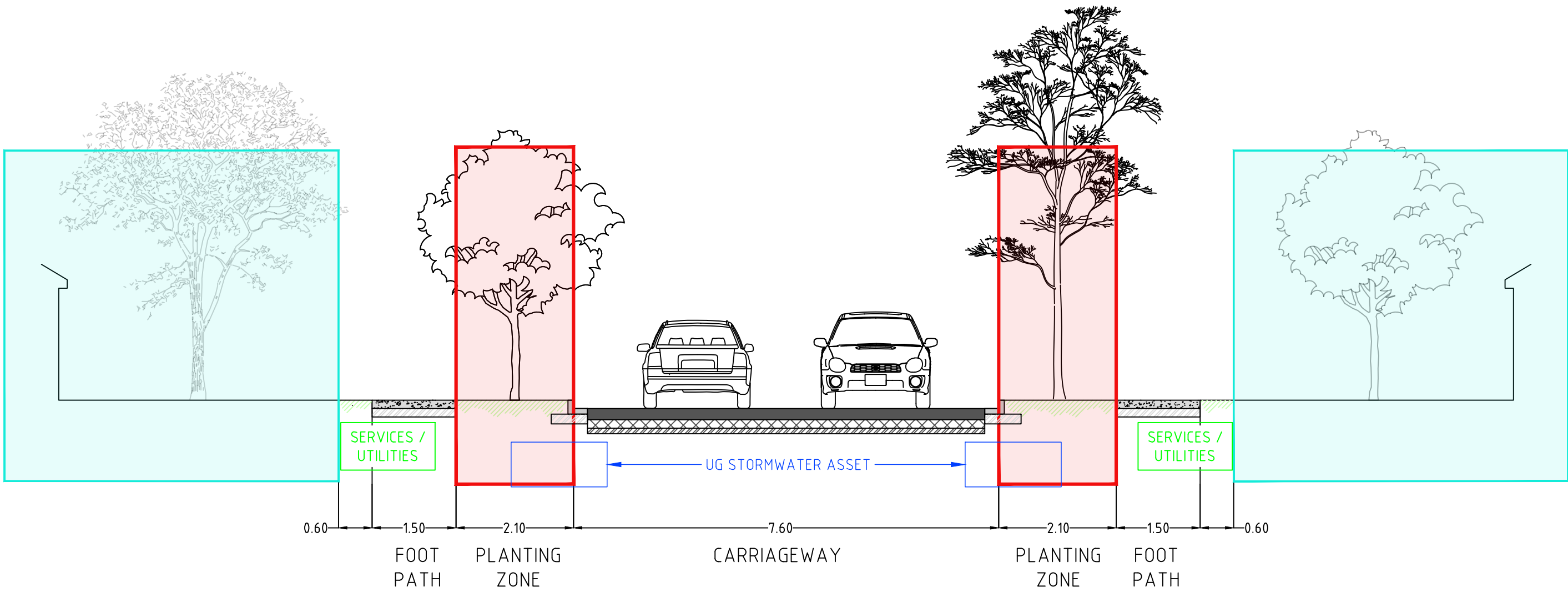
WOLLONDILLY'S SUBDIVISION ASSET PREFERENCE HIERARCHY

1. INFILTRATION TRENCHES[^]
2. TREE PITS[^]
3. SWALES
4. RAINGARDENS
5. WETLANDS[~]
6. GPTs[~]
7. PERMEABLE PAVING[^]

WOLLONDILLY'S RESIDENTIAL ASSET PREFERENCE HIERARCHY (ON PRIVATE LAND)

1. INFILTRATION TRENCHES[^]
2. TREE PITS[^]
3. RAINWATER TANKS[^]
4. PERMEABLE PAVING[^]
5. RAINGARDENS
6. SWALES[~]
7. GPTs[~]

[^]-SUBJECT TO GEOTECHNICAL CONFIRMATION REGARDING SOIL POROSITY
[~]-DOESN'T ACHIEVE VOLUME REDUCTION



SECTION 1 - YIELD STREET - CROSS SECTION
SCALE 1:75

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NOT FOR DISTRIBUTION
NOT FOR CONSTRUCTION



DRAWING TITLE
YIELD STREET STREETSCAPE - WSUD

DRAWN
F.O
DATE: 17.10.2024

APPROVED BY
TBA
DATE: 12.06.2024

SCALE
VARIES @ A1
DRAWING NO.
SD04-RES-StScB
SHEET 4 OF 29

ORANGE AREA SUITABLE FOR THE FOLLOWING DRAWINGS:

- SD14-RES-TREE-03
- SD17-RES-INFIL-02
- SD22-RES-RG-02
- SD24-RES-PAV-02
- SD26-RES-GPT-01

BLUE AREA (WHEN USED AS PARKING AND/OR CYCLEWAY) SUITABLE FOR THE FOLLOWING DRAWINGS:

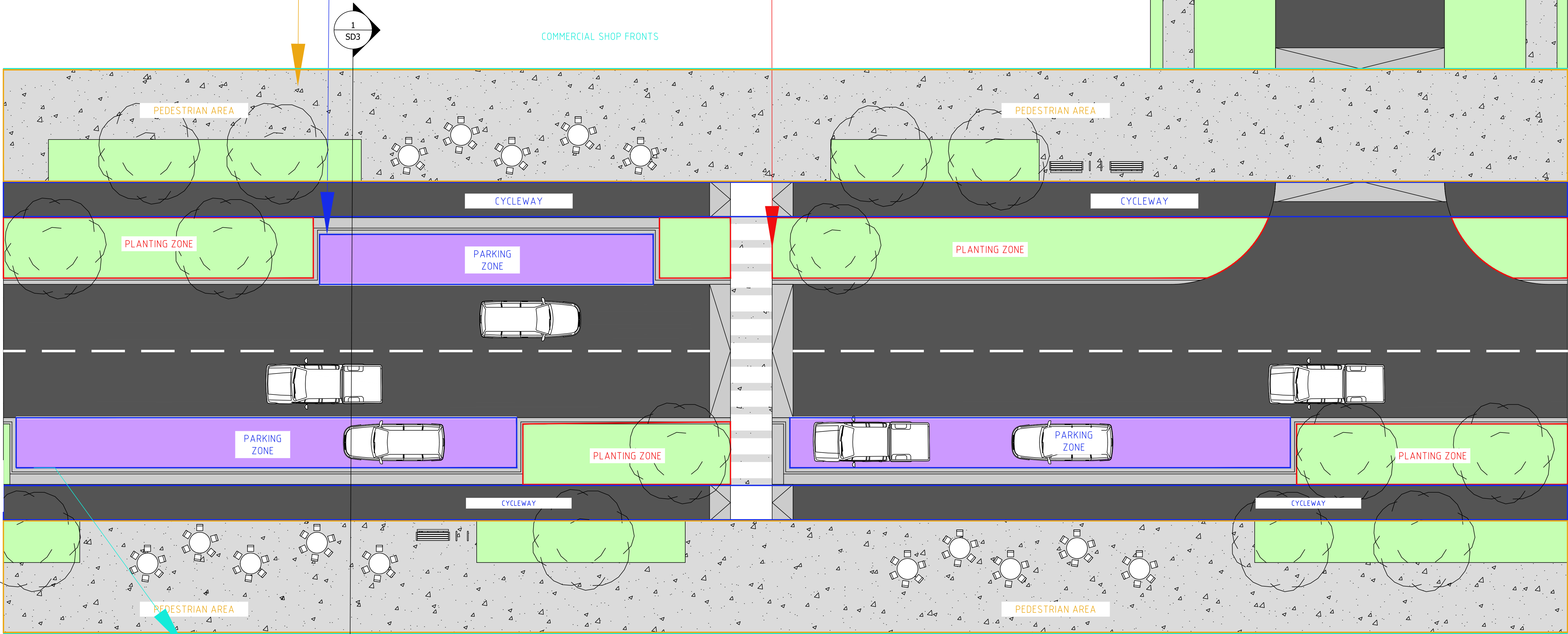
- SD24-RES-PAV-02
- SD26-RES-GPT-01

RED AREA SUITABLE FOR THE FOLLOWING DRAWINGS:

- SD12-RES-TREE-01
- SD14-RES-TREE-03
- SD17-RES-INFIL-02
- SD22-RES-RG-02
- SD26-RES-GPT-01

LIGHT BLUE AREA SUITABLE FOR THE FOLLOWING DRAWINGS:

- SD19-RES-RWT-01



DESTINATION HIGH STREET - PLAN VIEW
SCALE 1:100

NOTES

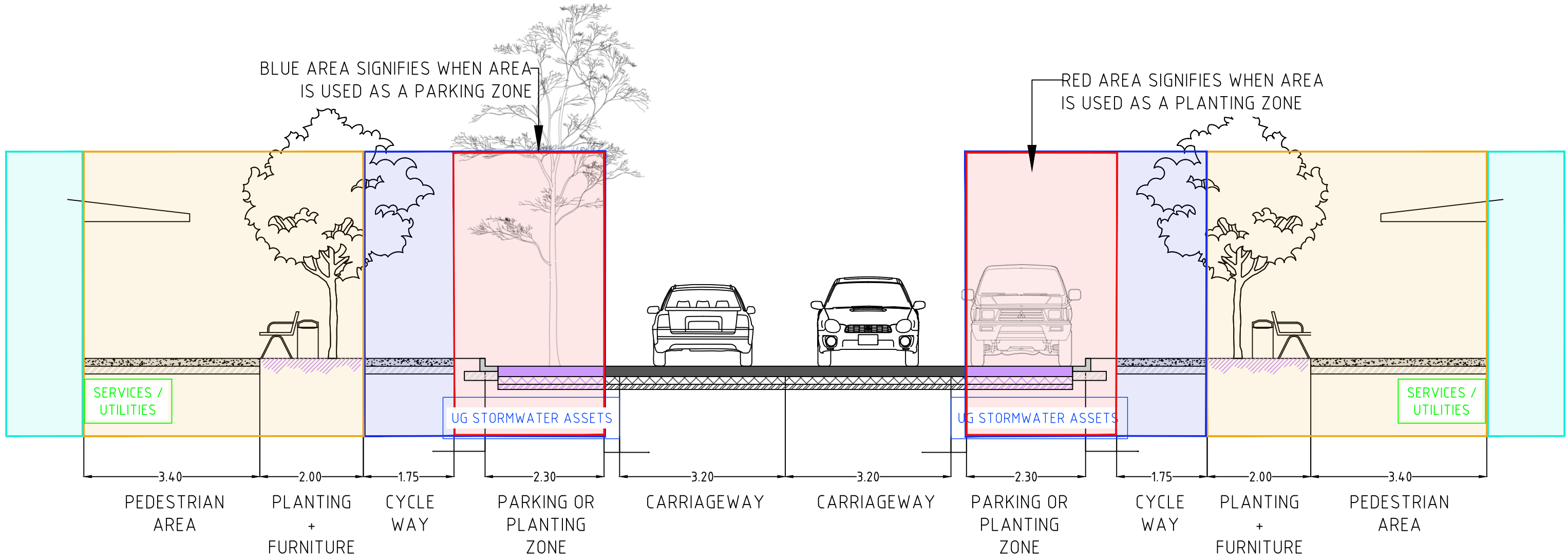
- STREETSCAPE DRAWING TO BE READ IN CONJUNCTION WITH WESTERN SYDNEY STREET DESIGN GUIDELINES
- ALL MEASUREMENTS ARE IN METERS
- ALL ASPECTS OF THESE STREETSCAPE PLANS ARE SOURCED FROM THE WESTERN SYDNEY STREET DESIGN GUIDELINES - SUPPLEMENTARY REPORT (2024) DIRECTLY REFERENCING THE CONNECTOR STREET (PAGE 28-33)
- DRAWINGS SHOULD BE USED AS A GUIDE ONLY. ALL STREETSCAPES AND WSUD ASSETS SHOULD BE DESIGN IN ACCORDANCE WITH THE ALL RELEVANT COUNCIL DOCUMENTATION
- ZONES ARE AS FOLLOWS: RED ZONES ARE SUITABLE FOR VERGES, BLUE ZONES ARE SUITABLE FOR PARKING AREAS AND CYCLEWAYS, ORANGE ZONE ARE SUITABLE FOR PEDESTRIAN AREAS AND LIGHT BLUE ZONES ARE SUITABLE FOR PRIVATE LOTS

WOLLONDILLY'S COMMERCIAL ASSET PREFERENCE HIERARCHY

1. INFILTRATION TRENCHES^
2. TREE PITS^
3. PERMEABLE PAVING^ (WHEN ON PRIVATE LAND)
4. RAINWATER TANKS
5. RAINGARDENS
6. SWALES
7. GPTS~

^SUBJECT TO GEOTECHNICAL CONFIRMATION REGARDING SOIL POROSITY
~DOESN'T ACHIEVE VOLUME REDUCTION

DRAFT STANDARD DRAWING
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SECTION 1 - DESTINATION HIGH STREET - CROSS SECTION
SCALE 1:75

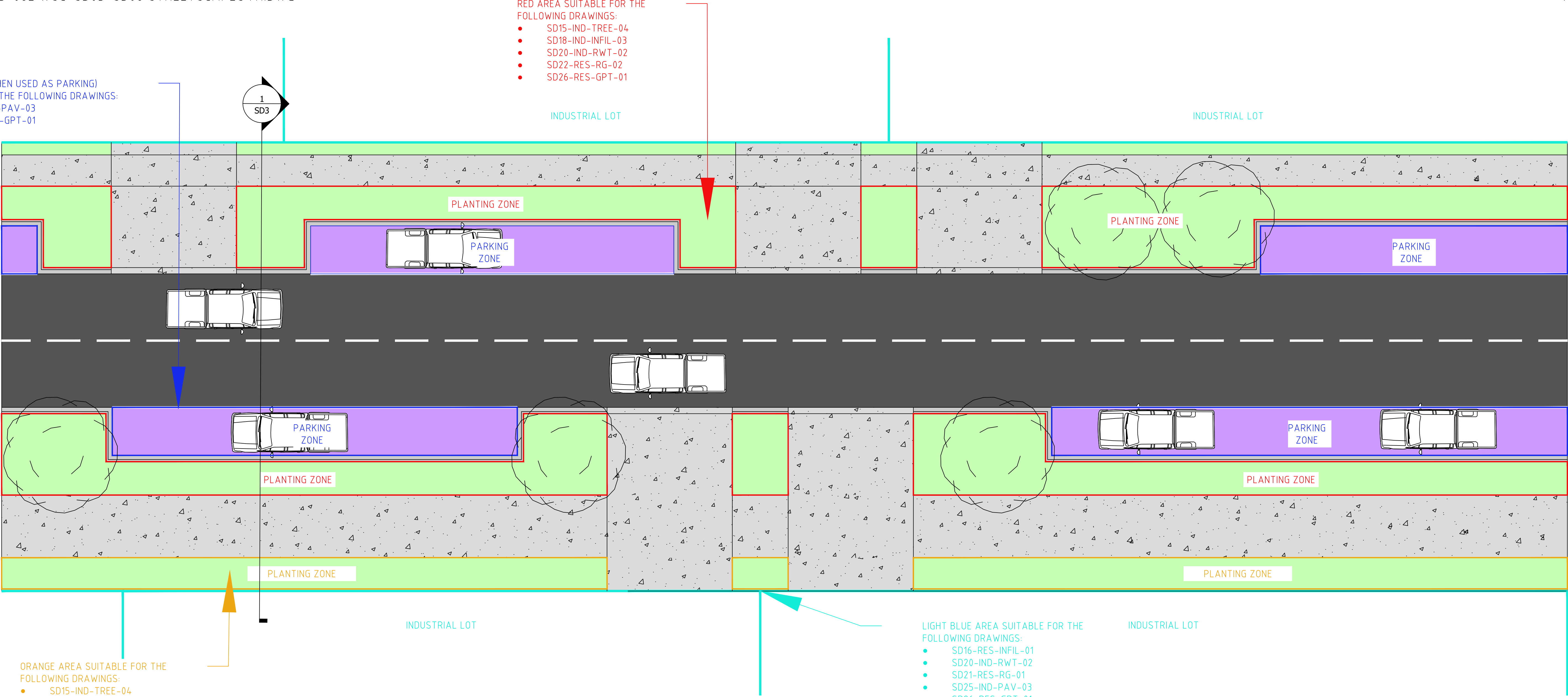
 DRAWING TITLE DESTINATION HIGH STREET STREETSCAPE - WSUD	DRAWN F.O DATE: 17.10.2024	SCALE VARIES @ A1
	APPROVED BY TBA DATE: 12.06.2024	DRAWING NO. SD05-RES-S+SCC SHEET 5 OF 29

BLUE AREA (WHEN USED AS PARKING)
SUITABLE FOR THE FOLLOWING DRAWINGS:

- SD25-IND-PAV-03
- SD26-RES-GPT-01

RED AREA SUITABLE FOR THE
FOLLOWING DRAWINGS:

- SD15-IND-TREE-04
- SD18-IND-INFIL-03
- SD20-IND-RWT-02
- SD22-RES-RG-02
- SD26-RES-GPT-01



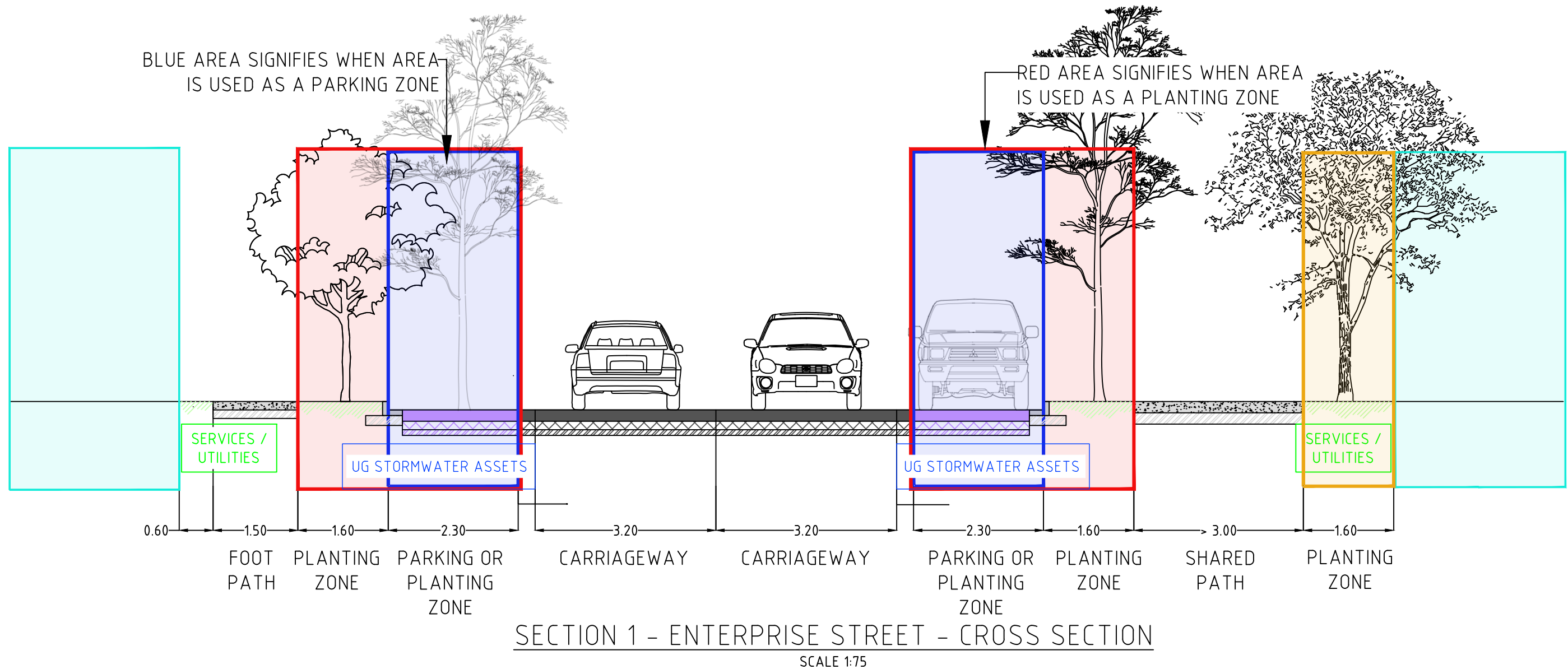
ORANGE AREA SUITABLE FOR THE
FOLLOWING DRAWINGS:

- SD15-IND-TREE-04
- SD18-IND-INFIL-03

LIGHT BLUE AREA SUITABLE FOR THE
FOLLOWING DRAWINGS:

- SD16-RES-INFIL-01
- SD20-IND-RWT-02
- SD21-RES-RG-01
- SD25-IND-PAV-03
- SD26-RES-GPT-01

ENTERPRISE STREET – PLAN VIEW
SCALE 1:100



- NOTES
- STREETSCAPE DRAWING TO BE READ IN CONJUNCTION WITH WESTERN SYDNEY STREET DESIGN GUIDELINES
 - ALL MEASUREMENTS ARE IN METERS
 - ALL ASPECTS OF THESE STREETSCAPE PLANS ARE SOURCED FROM THE WESTERN SYDNEY STREET DESIGN GUIDELINES – SUPPLEMENTARY REPORT (2024) DIRECTLY REFERENCING THE CONNECTOR STREET (PAGE 28-33)
 - DRAWINGS SHOULD BE USED AS A GUIDE ONLY. ALL STREETSCAPES AND WSUD ASSETS SHOULD BE DESIGN IN ACCORDANCE WITH THE ALL RELEVANT COUNCIL DOCUMENTATION
 - ZONES ARE AS FOLLOWS: RED ZONES ARE SUITABLE FOR VERGES, BLUE ZONES ARE SUITABLE FOR PARKING AREAS, ORANGE ZONE ARE SUITABLE FOR FOOTPATHS AND LIGHT BLUE ZONES ARE SUITABLE FOR PRIVATE LOTS

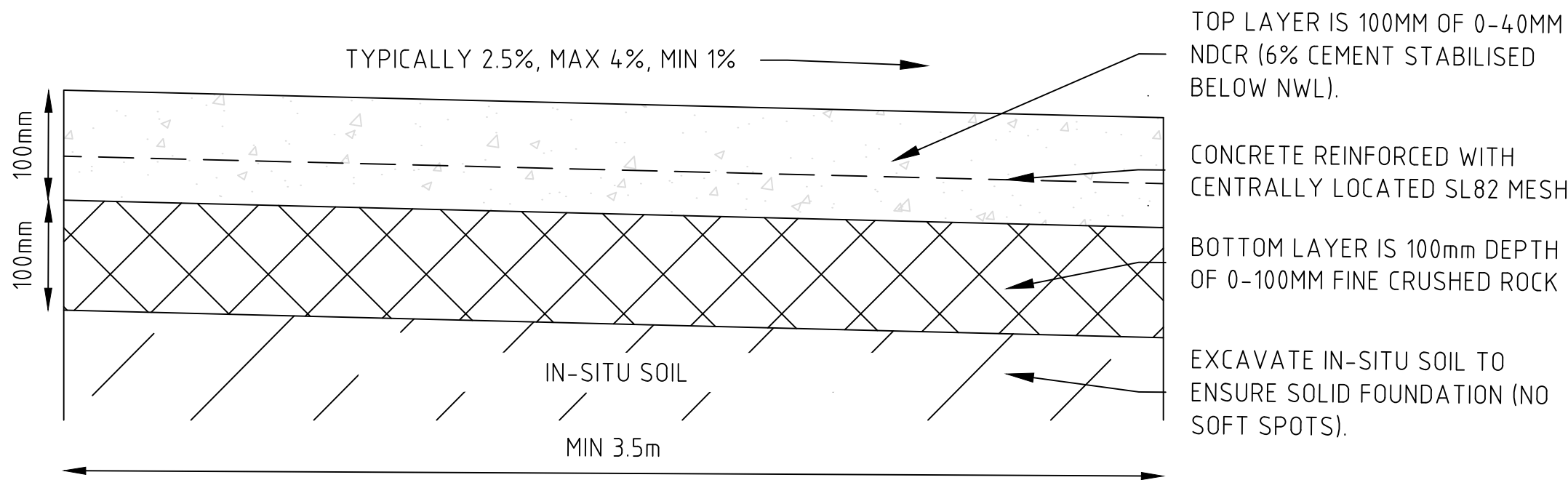
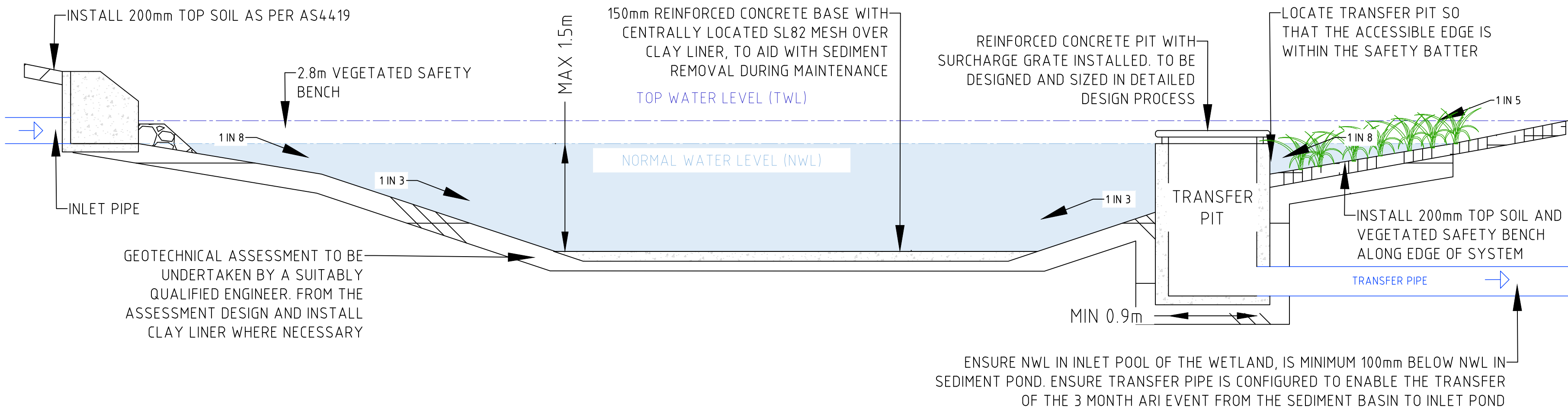
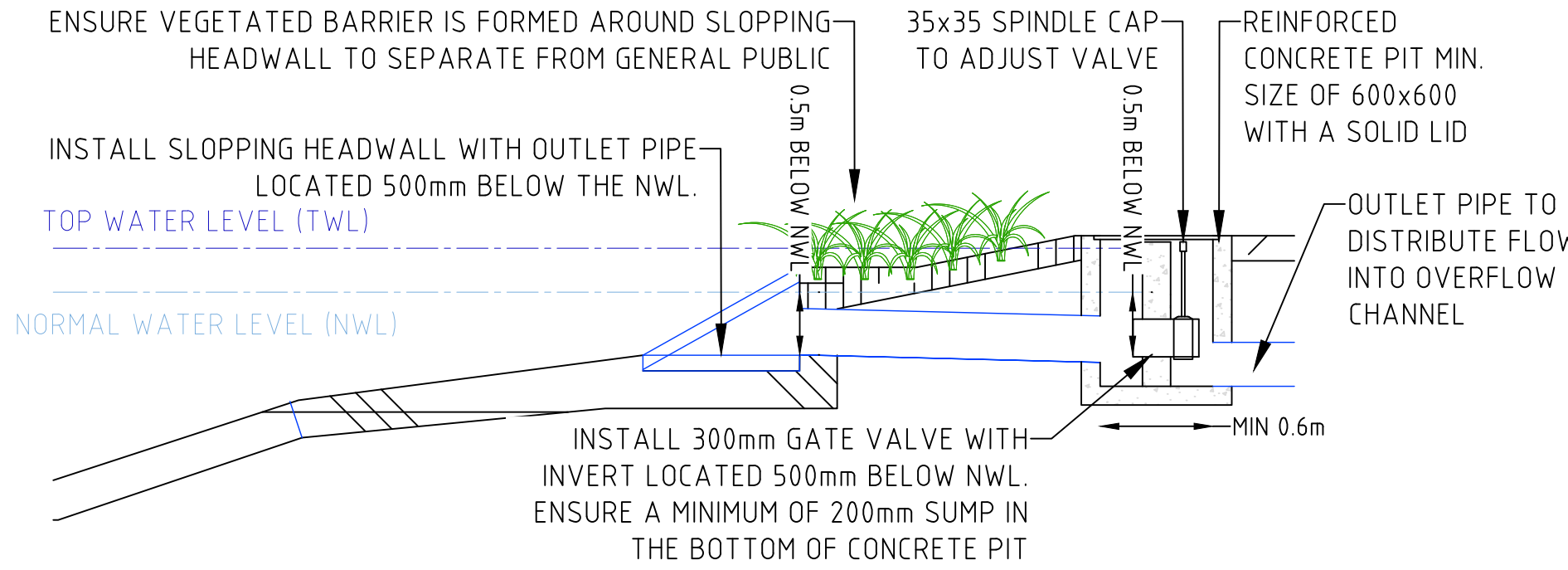
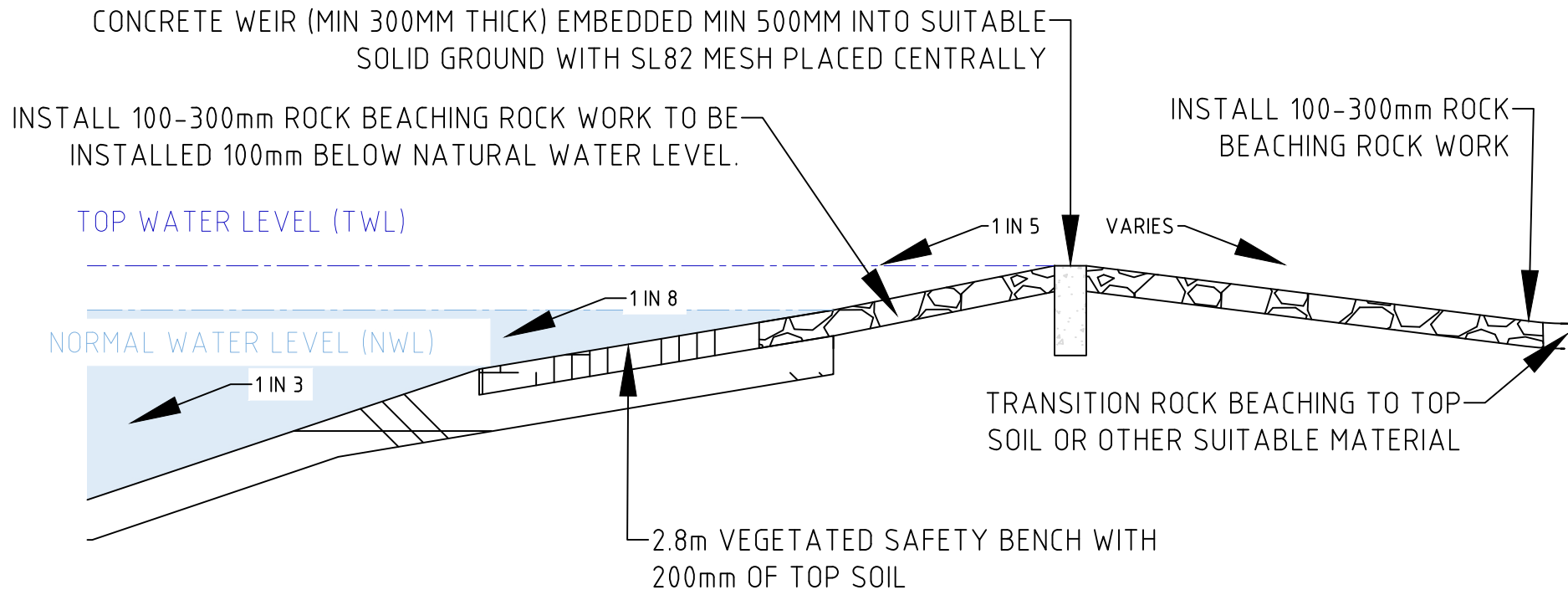
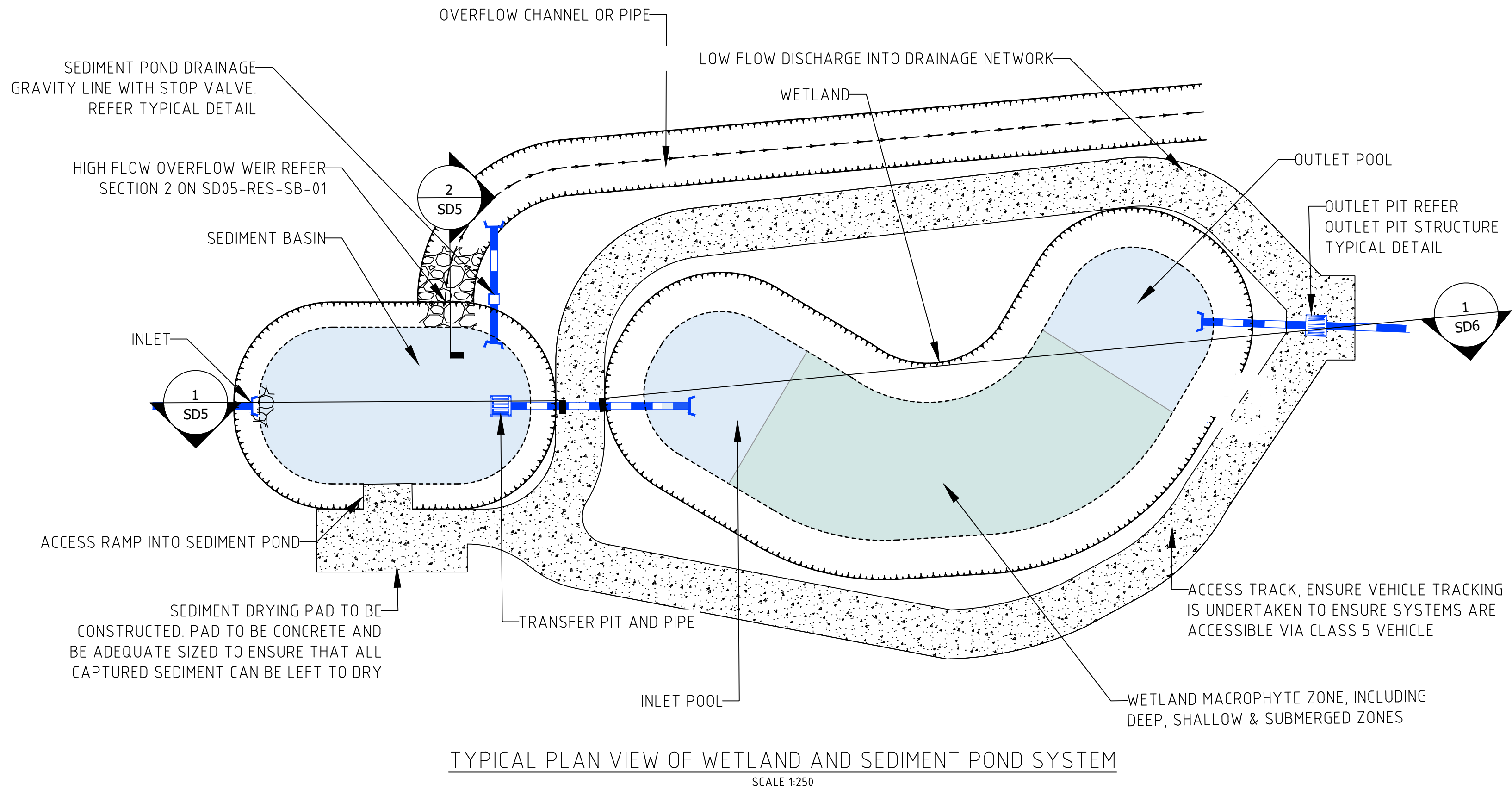
WOLLONDILLY'S COMMERCIAL ASSET PREFERENCE HIERARCHY

1. INFILTRATION TRENCHES^
2. TREE PITS^
3. PERMEABLE PAVING^ (WHEN ON PRIVATE LAND)
4. RAINWATER TANKS
5. RAINGARDENS
6. SWALES
7. GPTS^

^ -SUBJECT TO GEOTECHNICAL CONFIRMATION REGARDING SOIL POROSITY
~-DOESN'T ACHIEVE VOLUME REDUCTION

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 DRAWING TITLE ENTERPRISE STREET STREETSCAPE – WSUD	DRAWN F.O DATE: 17.10.2024	SCALE VARIES @ A1
	APPROVED BY TBA DATE: 12.06.2024	DRAWING NO. SD06-RES-StScD SHEET 6 OF 29



NOTES

- SEDIMENT BASINS SHOULD BE DESIGNED TO INCLUDE A HIGH FLOW OVERFLOW WITHIN THE SYSTEM. THIS WILL ALLOW FOR SEDIMENT TO BE CAPTURED WITHIN THE POND, RATHER THAN SILTING UP AN UPSTREAM DIVERSION
 - HIGH FLOW OVERFLOWS CAN BE OVERFLOW WEIRS INTO OPEN CHANNEL OR A WEIR INTO A PIT AND PIPE NETWORK. ENSURE THAT ANY WEIRS ARE EITHER CONSTRUCTED FROM CONCRETE OR INCLUDE ROCK BEACHING TO LIMIT EROSION ONCE ACTIVATED. ROCK BEACHING SHOULD USE ROCKS WITH A DIAMETER EXCEEDING 100mm
- SEDIMENT PONDS SHOULD BE LOCATED ONLINE, MEANING THAT 1% AEP FLOWS WON'T BYPASS THE PONDS
- IT IS THE RESPONSIBILITY OF A SUITABLY QUALIFIED ENGINEER TO PROVE THAT A SEDIMENT BASINS IS ADEQUATELY SIZED TO:
 - CAPTURE 95% OF ALL COARSE SUSPENDED SOLIDS (125 MICRO METRE DIAMETER) FOR THE PEAK 3 MONTH STORM EVENT USING THE FAIR AND GEYER EQUATION
 - ENSURE ENOUGH CAPACITY FOR A MINIMUM CLEAN-OUT FREQUENCY OF 10 YEARS.
 - SEDIMENT BASINS ARE DEEMED AS FULL WHEN SEDIMENT LEVEL IS 500mm BELOW NORMAL WATER LEVEL
- SYSTEMS SHOULD BE RESTRICTED TO ONE SEDIMENT POND PER WETLAND, IN ORDER TO REDUCE THE COSTS OF MAINTENANCE, SPECIFICALLY TRAFFIC MANAGEMENT
- SEDIMENT PONDS MUST BE ABLE TO BE DRAINED DURING MAINTENANCE. IT IS ESSENTIAL THAT WHEN DRAINED SEDIMENT PONDS DO NOT REDUCE THE WATER LEVEL IN THE MACROPHYTE ZONE OF THE CORRESPONDING WETLAND. THE PROPOSED SEDIMENT POND CAN BE DRAINED BY OPENING STOP VALVE ON SEDIMENT POND DRAINAGE LINE, LOWER THE WATER LEVEL BELOW THE NWL. ENSURE THE NWL IN THE DOWNSTREAM WETLAND IS MINIMUM 100mm BELOW NWL OF THE SEDIMENT POND.
 - ENSURE DRAINAGE LINE IS GRAVITY FED AND INVERT LEVEL IS AT THE DESIGN SEDIMENT STORAGE CAPACITY OF THE SYSTEM TO ENSURE SYSTEM CAN BE PROPERLY DRAINED WHEN THE SEDIMENT POND IS FULL. STOP VALVE TO BE INSTALLED IN A JUNCTION PIT OUTSIDE OF THE SEDIMENT BASIN.
- SEDIMENT PONDS MUST BE DESIGNED WITH A VEGETATED SAFETY BENCH MARGINALLY BELOW NORMAL WATER LEVEL, IN ORDER TO PROVIDE A SAFETY BARRIER AROUND THE EXTERIOR OF THE POND
 - A 4m WIDE ACCESS RAMP WILL NEED TO BE INSTALLED TO THE BASE OF THE SEDIMENT POND EXCEPT ON SMALLER SYSTEMS WHERE THE DESIGNERS CAN PROVE THAT THE SYSTEM CAN BE ADEQUATELY CLEANED FROM THE BANK. THE ACCESS TRACK MUST BE SUITABLY DESIGNED AS PER SPECIFICATIONS DETAILED IN SD25-RES-GPT-01
- ENSURE ALL HYDRAULIC STRUCTURES, INCLUDING BUT NOT LIMITED TO WEIRS, PITS, OVERFLOWS ETC, ARE ACCESSIBLE AND CAN BE EASILY REACHED FOR MAINTENANCE PURPOSES
- BASE OF THE SEDIMENT POND TO BE CONSTRUCTED OF CONCRETE TO ENSURE THE BASE CAN BE DETECTED DURING MAINTENANCE
- ENSURE THAT DURING CONSTRUCTION APPROPRIATE STEPS ARE TAKEN TO PROTECT THE SITE FROM UPSTREAM SEDIMENT AND PROTECT DOWNSTREAM OF THE SIGNIFICANT SEDIMENT LOAD CAUSED BY CONSTRUCTION. NO WORK SHOULD BE UNDERTAKEN WITHOUT AN APPROVED ENVIRONMENTAL MANAGEMENT PLAN
- PROVISIONS SHOULD BE MADE WITHIN THE DEVELOPMENT SITE REGARDING THE IDENTIFICATION OF A 'DRY-OUT AREA' FOR THE STORAGE OF REMOVED SEDIMENT. ALLOWING SEDIMENT TO DRY WILL DRASTICALLY REDUCE DISPOSAL COSTS
- REFER TO D3.08.2 OF WSC DESIGN SPECIFICATIONS ON WHETHER FENCING IS REQUIRED

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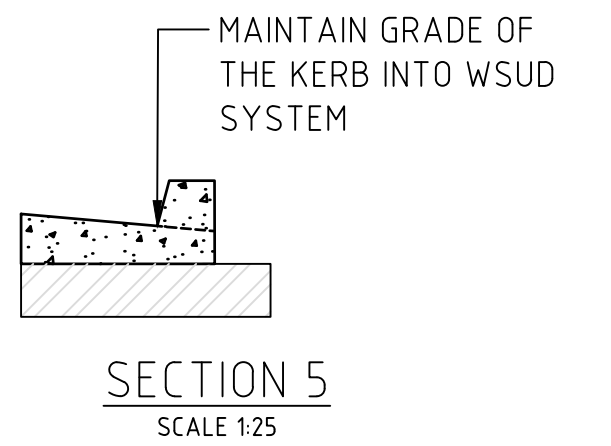
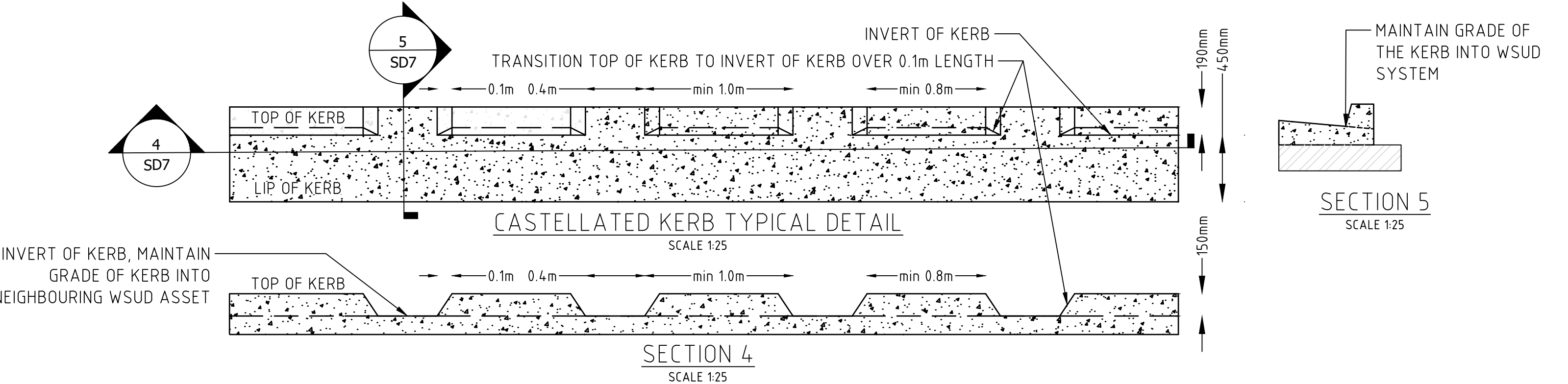
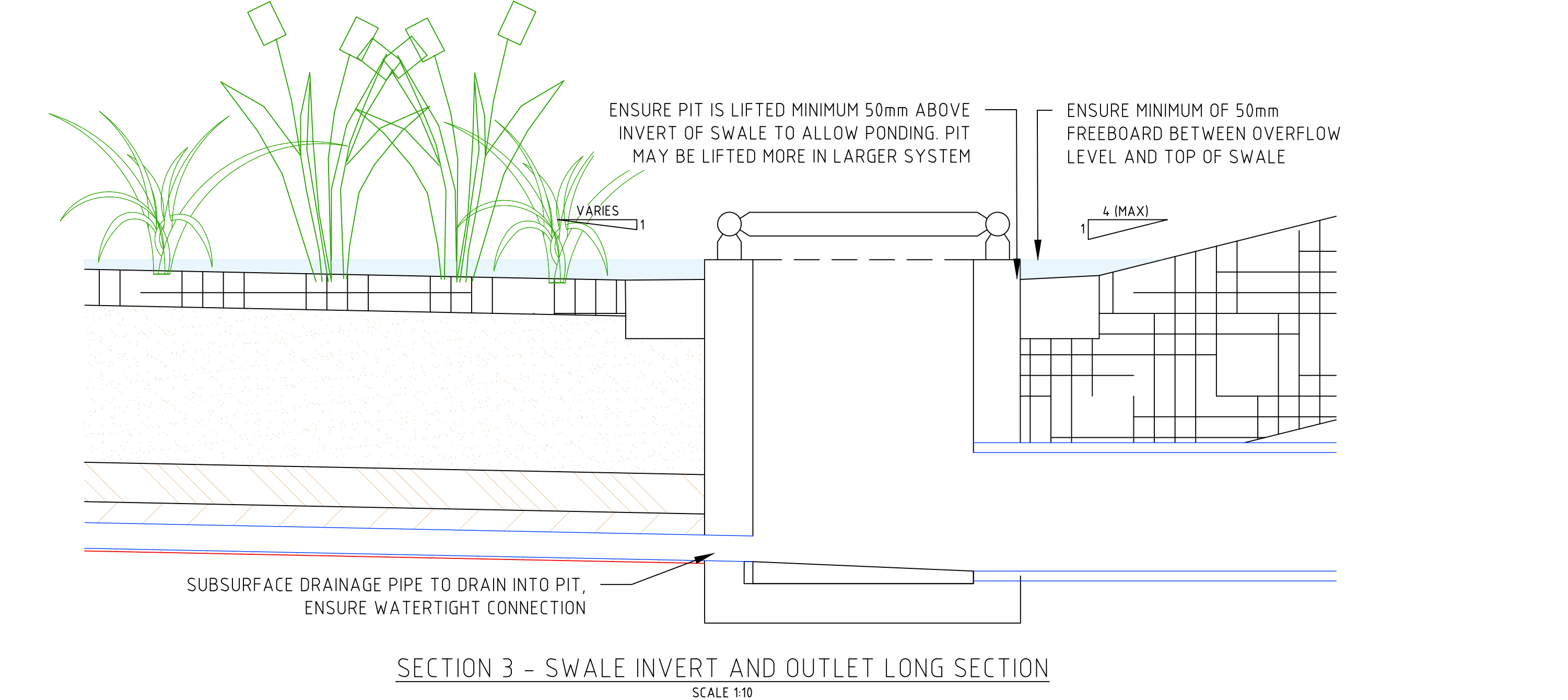
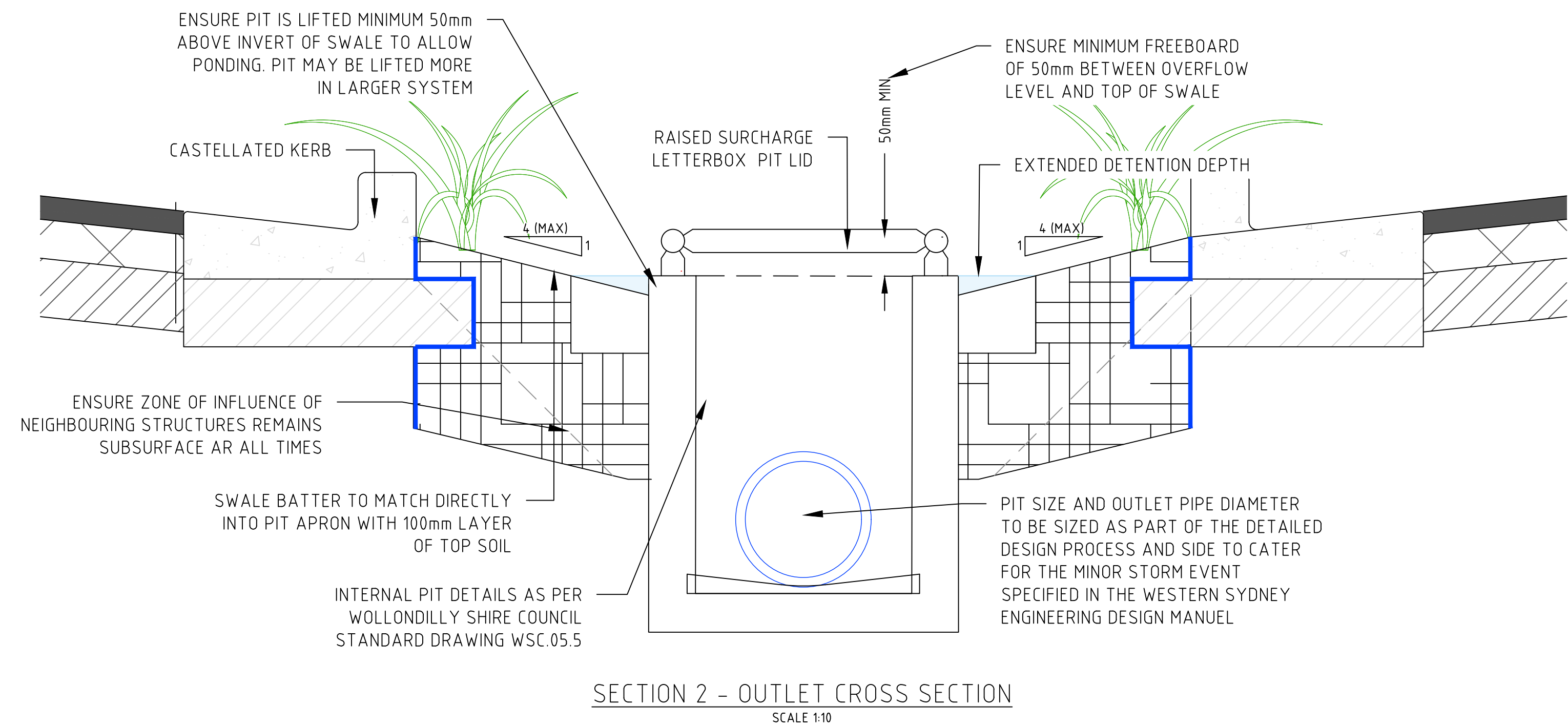
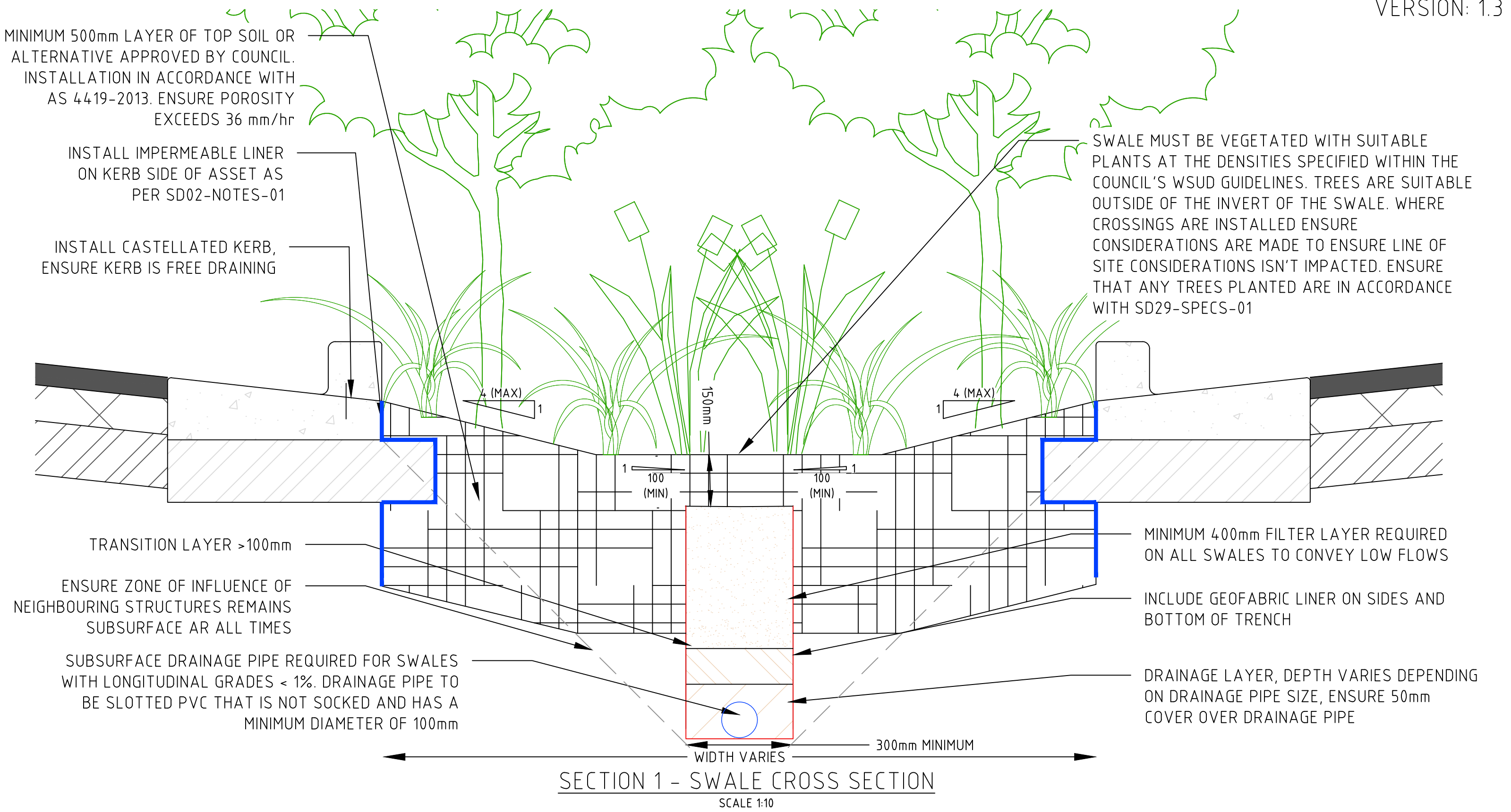
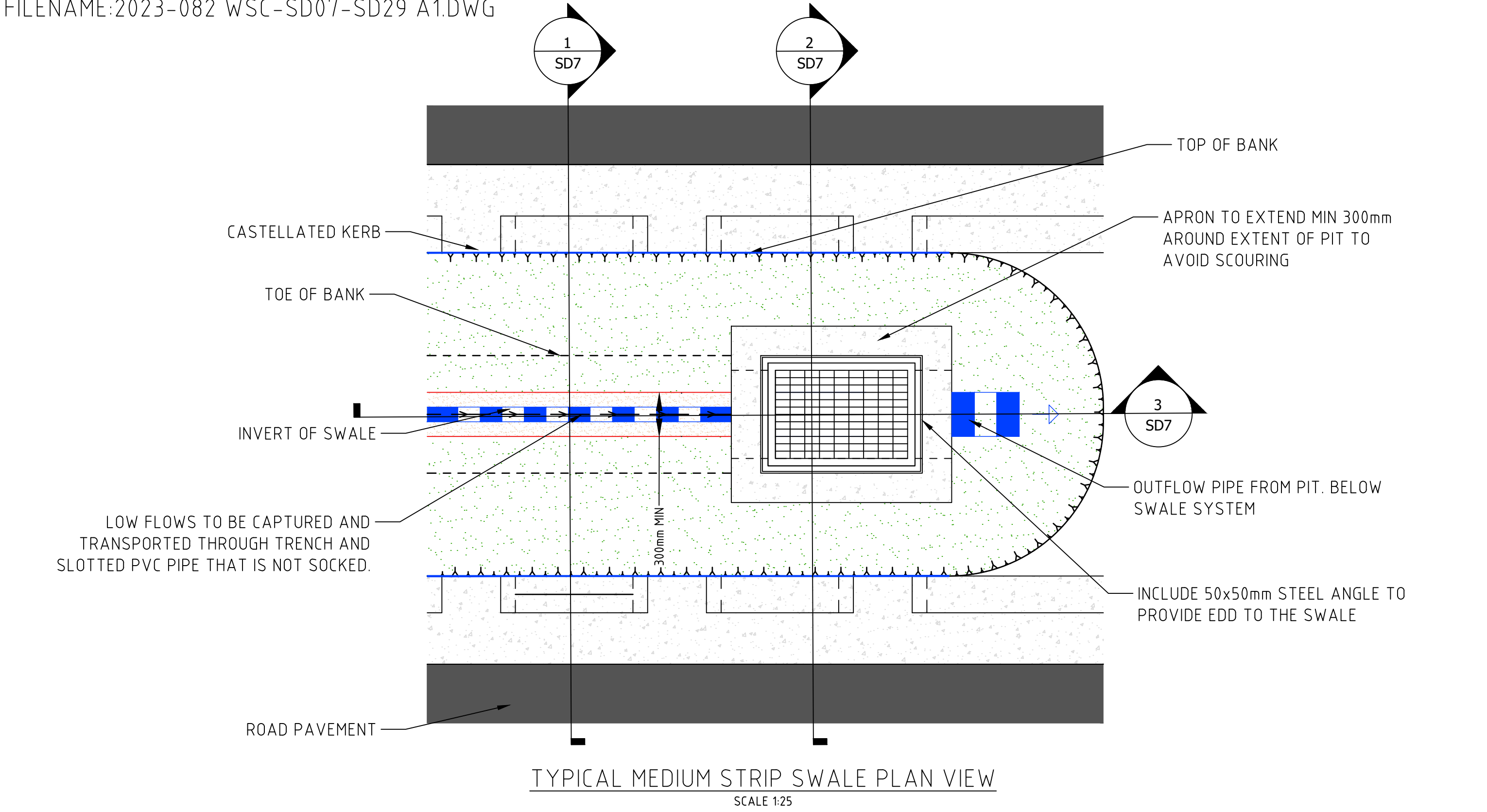
DRAWING TITLE
PRECINCT DEVELOPMENT
SEDIMENT BASIN WITHIN WETLAND

DRAWN
F.O
DATE: 25.11.2025

APPROVED BY
TBA
DATE: 12.06.2024

SCALE
VARIES @ A1

DRAWING NO.
SD07-RES-SB-01
SHEET 7 OF 29

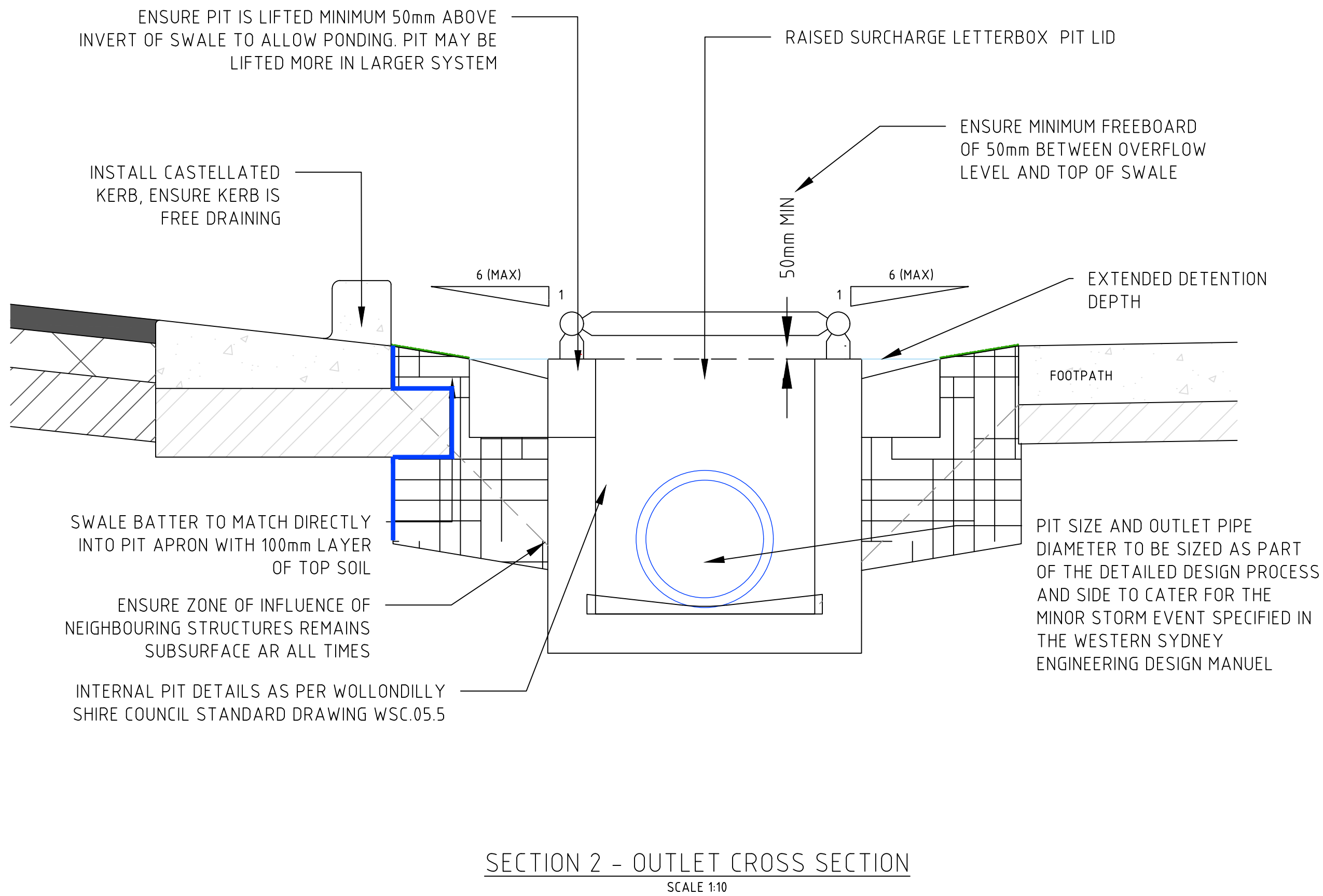
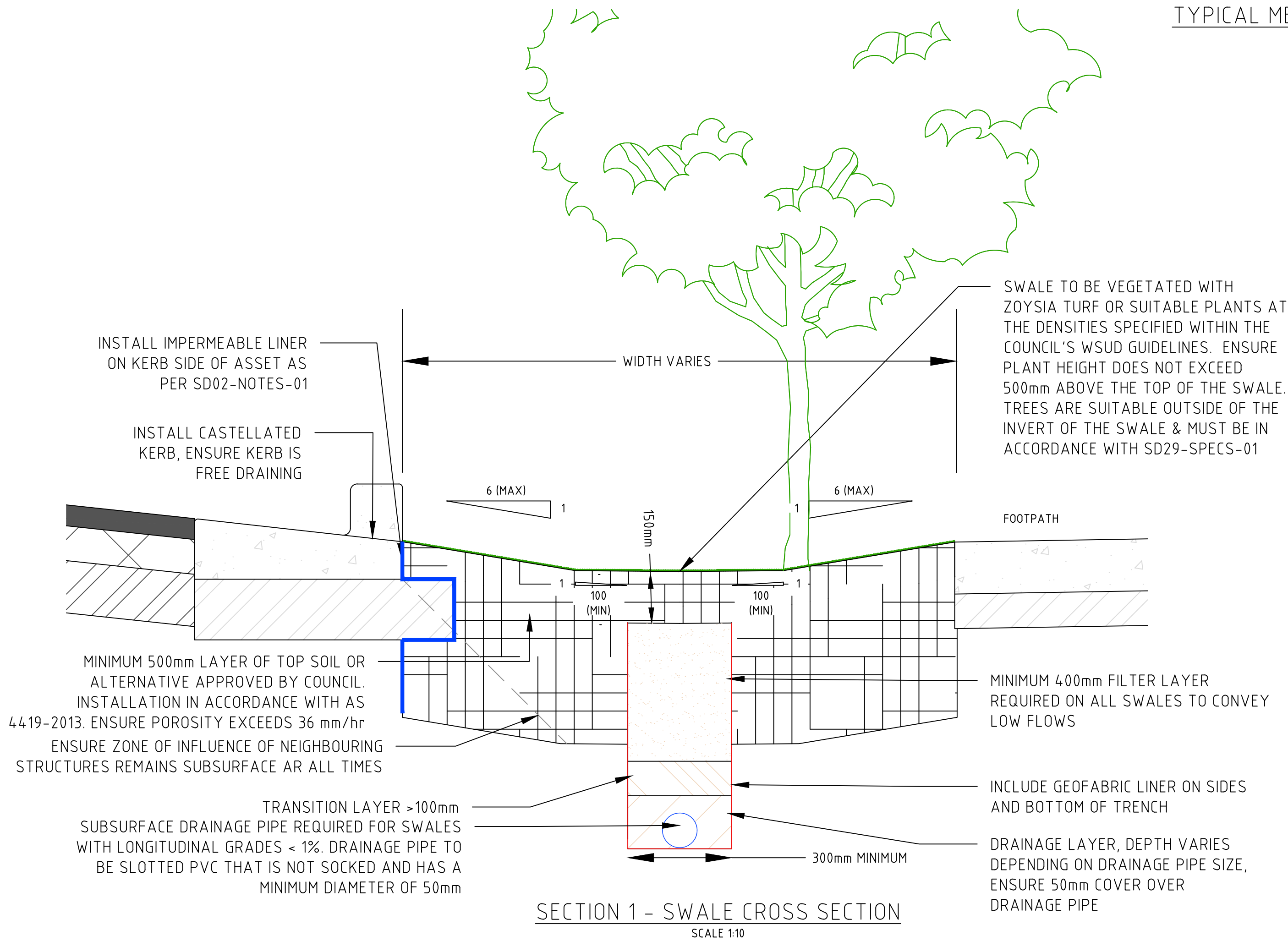
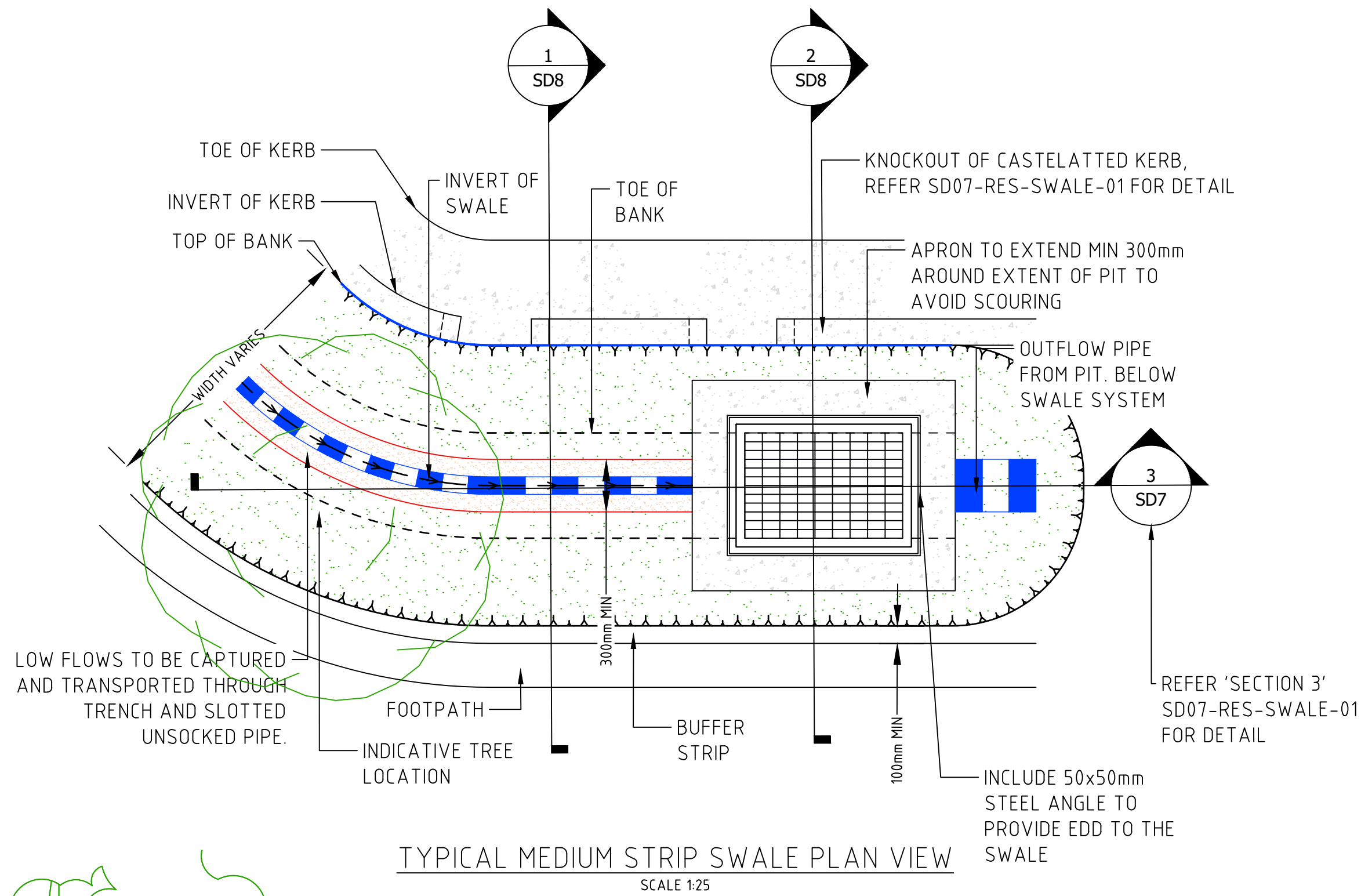


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NOTES

1. FILTER, TRANSITION AND DRAINAGE LAYERS TO COMPLY WITH DETAILS SPECIFIED IN ON WSUD STANDARD DRAWINGS SHEET SD02-NOTES-01
2. PERMANENT PONDING AND WATERLOGGING CAN BE AN ISSUE IN FLAT SWALES, HENCE, WHERE THE LONGITUDINAL SLOPE IS 1% OR LESS, LOW FLOW DRAINAGE PIPES SHALL BE INCLUDED, CONSIDERATIONS SHOULD BE MADE FOR MULTIPLE LOW FLOW PIPES IN LARGE SWALES (BASE WIDTH EXCEEDING 750mm)
3. ANY CROSSING OVER SWALES WILL REQUIRE THE INSTALLATION OF A CULVERT IN ACCORDANCE WITH WESTERN SYDNEY PLANNING PARTNERSHIP SD-R63. VEHICLE CROSSING TO BE CONSTRUCTED WITH CULVERT IN ACCORDANCE WITH THE RELEVANT WESTERN SYDNEY PLANNING PARTNERSHIP VEHICLE CROSSING
4. PROVISIONS NEED TO BE MADE TO ENSURE ADEQUATE CROSSING POINTS ARE PROVIDED AS PER THE WESTERN SYDNEY STREET DESIGN GUIDELINES
5. FOR GRASSED MEDIAN STRIP SWALES, ENSURE BATTERS DO NOT EXCEED 1 IN 6 TO ALLOW FOR MOWING OF BATTER, GRASSED SWALES TO BE PLANTED USING COUCH GRASS AND ENSURE CASTELLATED KERB IS USED TO PROTECT ASSET FROM BEING CROSSED OUTSIDE OF DESIGNATED AREAS
6. OTHER PROVISIONS MAY NEED TO BE MADE TO LIMIT THE ABILITY OF VEHICLES TO ACCESS AND DAMAGE THE SWALE ASSET. PROVISIONS COULD INCLUDE, BUT ARE NOT LIMITED TO BARRIER KERBS, BARRIERS, BOLLARDS ETC
7. PROVISIONS MAY NEED TO BE MADE REGARDING INFLOWS FROM NEIGHBORING ALLOTMENTS
8. FLOWS SHOULD REMAIN BELOW 1 m/s FOR THE 100 YEAR ARI TO AVOID SCOURING
9. GRASSED SWALES WILL REQUIRE MORE REGULAR MAINTENANCE (6-8 TIMES A YEAR) THEN VEGETATED SWALES (ANNUAL MAINTENANCE ONCE PLANTS HAVE ESTABLISHED)
10. REFER TO SD10-RES-SWALE-04 FOR DETAILS RELEVANT TO SWALES IN AREAS WHERE GRADES EXCEED 4%

	DRAWN F.O DATE: 25.11.2025	SCALE VARIES @ A1
	APPROVED BY TBA DATE: 12.06.2024	DRAWING NO. SD09-RES-SWALE-01 SHEET 9 OF 29
DRAWING TITLE MEDIAN STRIP VEGETATED SWALE FLAT SITE (< 4% GRADE)		

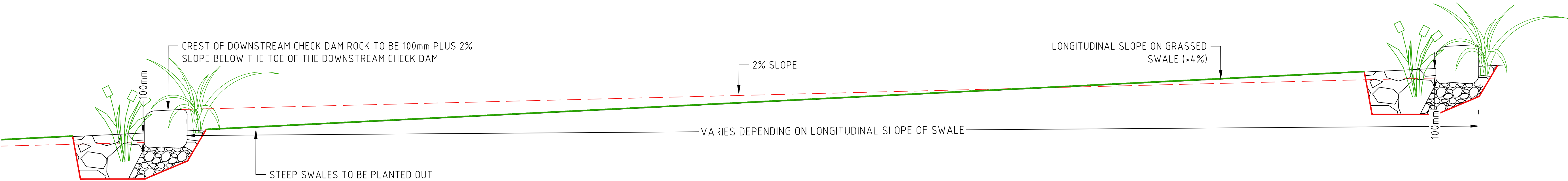


NOTES

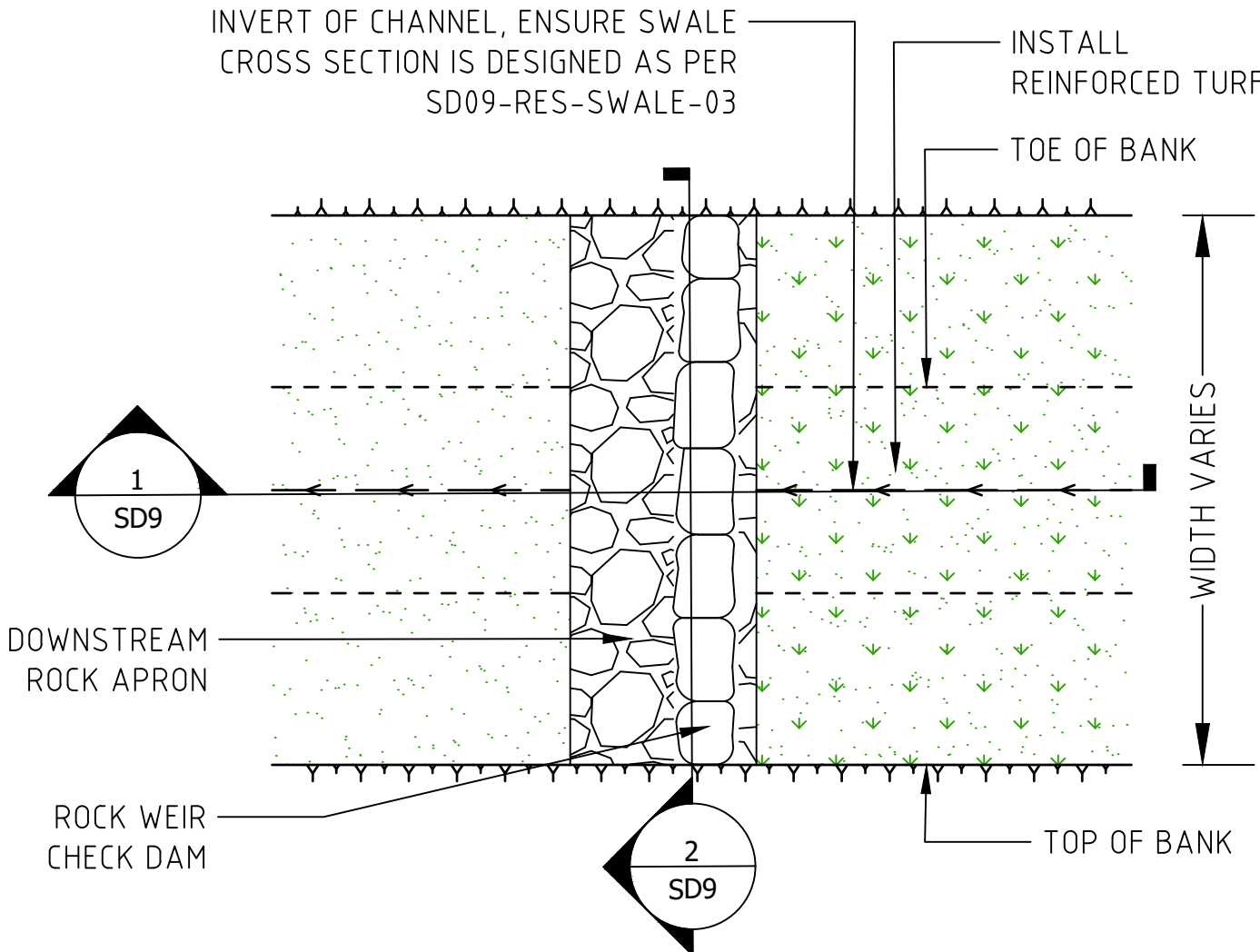
1. FILTER, TRANSITION AND DRAINAGE LAYERS TO COMPLY WITH DETAILS SPECIFIED IN ON WSUD STANDARD DRAWINGS SHEET SDTBA
2. PERMANENT PONDING AND WATERLOGGING CAN BE AN ISSUE IN FLAT SWALES, HENCE, WHERE THE LONGITUDINAL SLOPE IS 1% OR LESS, LOW FLOW DRAINAGE PIPES SHALL BE INCLUDED, CONSIDERATIONS SHOULD BE MADE FOR MULTIPLE LOW FLOW PIPES IN LARGE SWALES (BASE WIDTH EXCEEDING 750mm)
3. SWALES ARE NOT SUITED IN THE ROAD RESERVE FOR GRADES GREATER THEN 4%. SWALES MAY BE USED IN THE MEDIAN STRIP WHEN GRADES EXCEED 4% AS PER SD10-RES-SWALE-04
4. ANY CROSSING OVER SWALES WILL REQUIRE THE INSTALLATION OF A CULVERT IN ACCORDANCE WITH WESTERN SYDNEY PLANNING PARTNERSHIP SD-R63. VEHICLE CROSSING TO BE CONSTRUCTED WITH CULVERT IN ACCORDANCE WITH THE RELEVANT WESTERN SYDNEY PLANNING PARTNERSHIP VEHICLE CROSSING
5. IF THE SWALE IS LOCATED WITHIN THE ROAD VERGE THEN PROVISIONS NEED TO BE MADE TO ENSURE ADEQUATE CROSSING POINTS ARE PROVIDED AS PER THE WESTERN SYDNEY STREET DESIGN GUIDELINES
6. PROVISIONS MAY NEED TO BE MADE TO LIMIT THE ABILITY OF VEHICLES TO ACCESS AND DAMAGE THE SWALE. PROVISIONS COULD INCLUDE BOLLARDS, KERB ETC.
7. PROVISIONS SHOULD BE MADE REGARDING INFLOWS FROM NEIGHBORING ALLOTMENTS
8. FLOWS SHOULD REMAIN BELOW 1m/s FOR THE 100 YEAR ARI TO AVOID SCOURING
9. GRASS SWALES WILL NEED TO BE PLANTED WITH COUCH GRASS.
10. GRASSED SWALES WILL REQUIRE MORE REGULAR MAINTENANCE (6-8 TIMES A YEAR) THEN VEGETATED SWALES (ANNUAL MAINTENANCE ONCE PLANTS HAVE ESTABLISHED)

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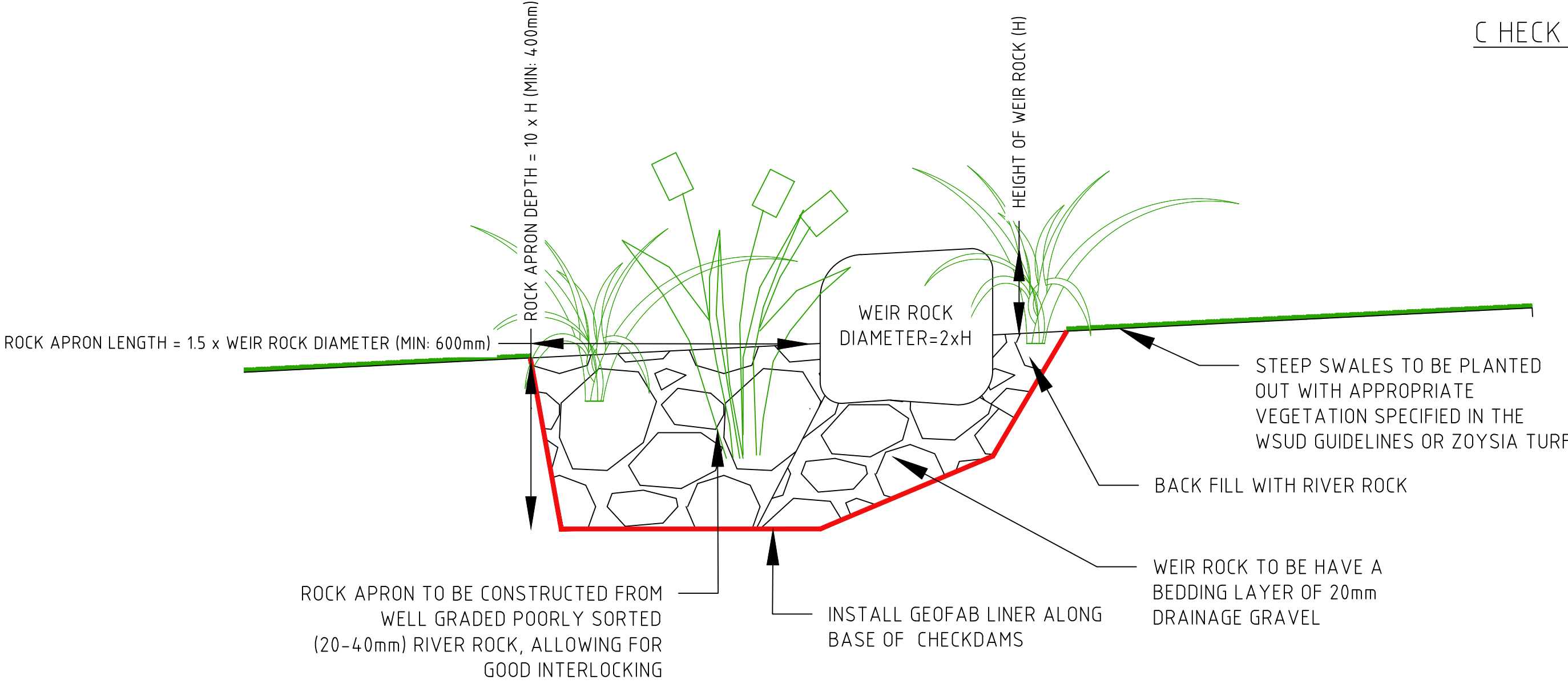
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	APPROVED BY TBA DATE: 12.06.2024	DRAWING NO. SD10-RES-SWALE-02 SHEET 10 OF 29
DRAWING TITLE ROAD RESERVE SWALE FLAT SITE (< 4% GRADE)		



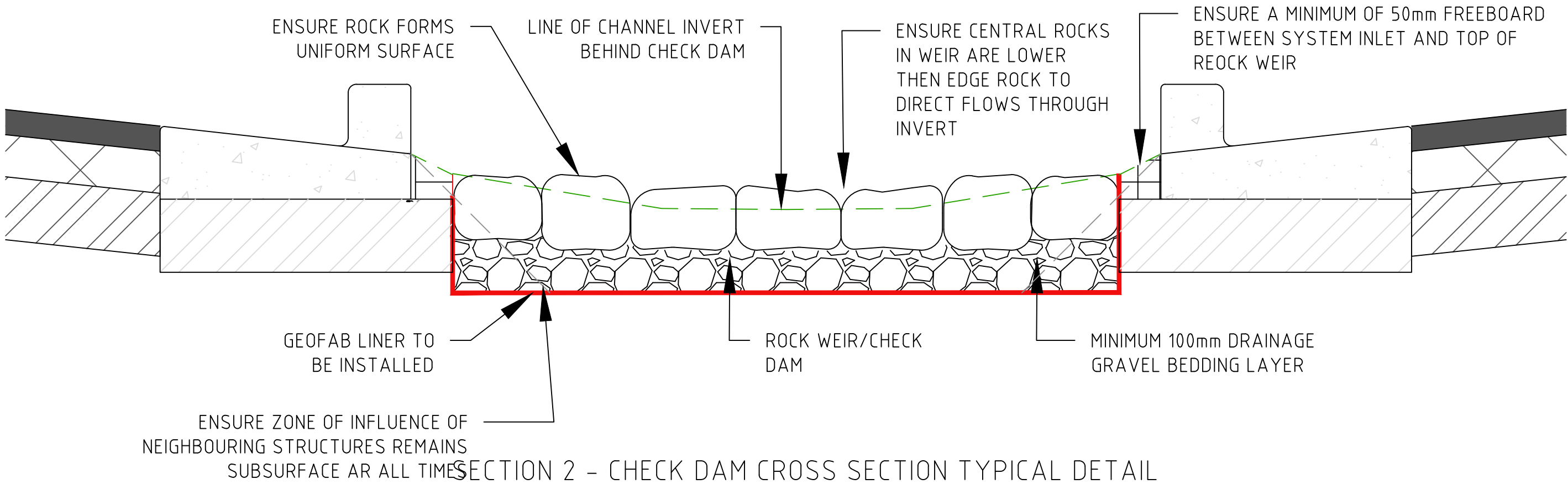
TYPICAL LONGITUDINAL DISTRIBUTION OF CHECK DAMS
SCALE 1:20



C CHECK DAM TYPICAL DETAIL PLAN VIEW
SCALE 1:20



SECTION 1 - CHECK DAM LONG SECTION TYPICAL DETAIL
SCALE 1:10



SECTION 2 - CHECK DAM CROSS SECTION TYPICAL DETAIL
SCALE 1:10

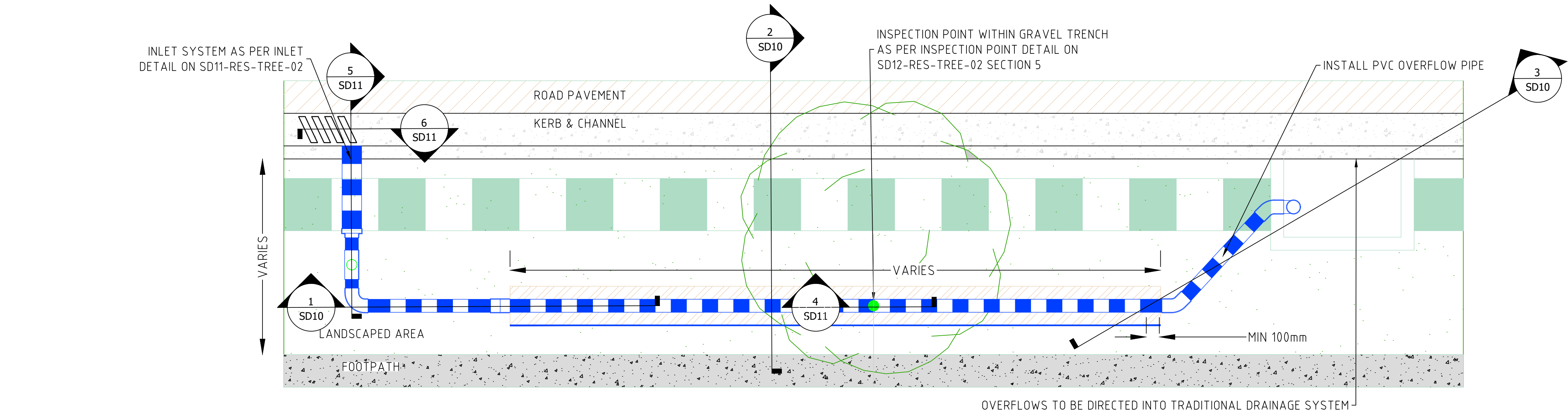
NOTES

1. FILTER, TRANSITION AND DRAINAGE LAYERS TO COMPLY WITH DETAILS SPECIFIED IN ON WSUD STANDARD DRAWINGS SHEET SDTBA
2. TYPICAL INLET, OUTLET/OVERFLOW & CROSS SECTIONAL LAYOUT AS PER SD08-RES-SWALE-02
3. SCOURING AND EROSION CAN BE AN ISSUE IN STEEP SWALES, WHERE LONGITUDINAL SLOPE EXCEEDS 4%, CHECK DAMS SHOULD BE USED TO MINIMISE THIS PROBLEM. CHECK DAMS ARE ONLY SUITABLE IN MEDIUM STRIP SWALES
4. SWALES USING CHECK DAMS SHOULD NOT BE CONSTRUCTED AT GRADES STEEPER THEN 7%
5. ALL CHECK DAMS REQUIRE CAREFUL INSTALLATION. IT IS INTEGRAL THAT ALL LEVELS ARE CORRECTLY INSTALLED AND THAT CHECK DAMS WILL BE STABLE UNDER DESIGN FLOW CONDITIONS.
6. ROCK APRON DEPTHS IS TO BE EQUAL TO THE WEIR ROCK DIAMETER WITH A MIN OF 400mm, LENGTH = 10 x H
7. ROCK APRON LENGTH IS EQUAL TO 15 x WEIR ROCK DIAMETER. MIN LENGTH 600mm
8. WEIR HEIGHT SHALL BE SUFFICIENT TO CONVEY THE 1 IN 10 YEAR STORM EVENT AND SHALL NOT EXCEED 200mm
9. ANY CROSSING OVER SWALES WILL REQUIRE THE INSTALLATION OF A CULVERT IN ACCORDANCE WITH WESTERN SYDNEY PLANNING PARTNERSHIP SD-R63.
10. SWALES LOCATED WITHIN THE ROAD VERGE WILL NEED PROVISIONS TO BE MADE TO ENSURE ADEQUATE CROSSING POINTS ARE PROVIDED AS PER THE WESTERN SYDNEY STREET DESIGN GUIDELINES
11. PROVISIONS MAY NEED TO BE MADE TO LIMIT THE ABILITY OF VEHICLES TO ACCESS AND DAMAGE THE SWALE. PROVISIONS COULD INCLUDE BOLLARDS, KERB ETC.
12. PROVISIONS SHOULD BE MADE REGARDING INFLOWS FROM NEIGHBORING ALLOTMENTS
13. GRASSED SWALES WILL NEED TO BE PLANTED WITH COUCH GRASS
14. GRASSED SWALES WILL REQUIRE MORE REGULAR MAINTENANCE (6-8 TIMES A YEAR) THEN VEGETATED SWALES (ANNUAL MAINTENANCE ONCE PLANTS HAVE ESTABLISHED)
15. REINFORCED TURF TO BE PLACED 10 x H UPSTREAM OF WEIR

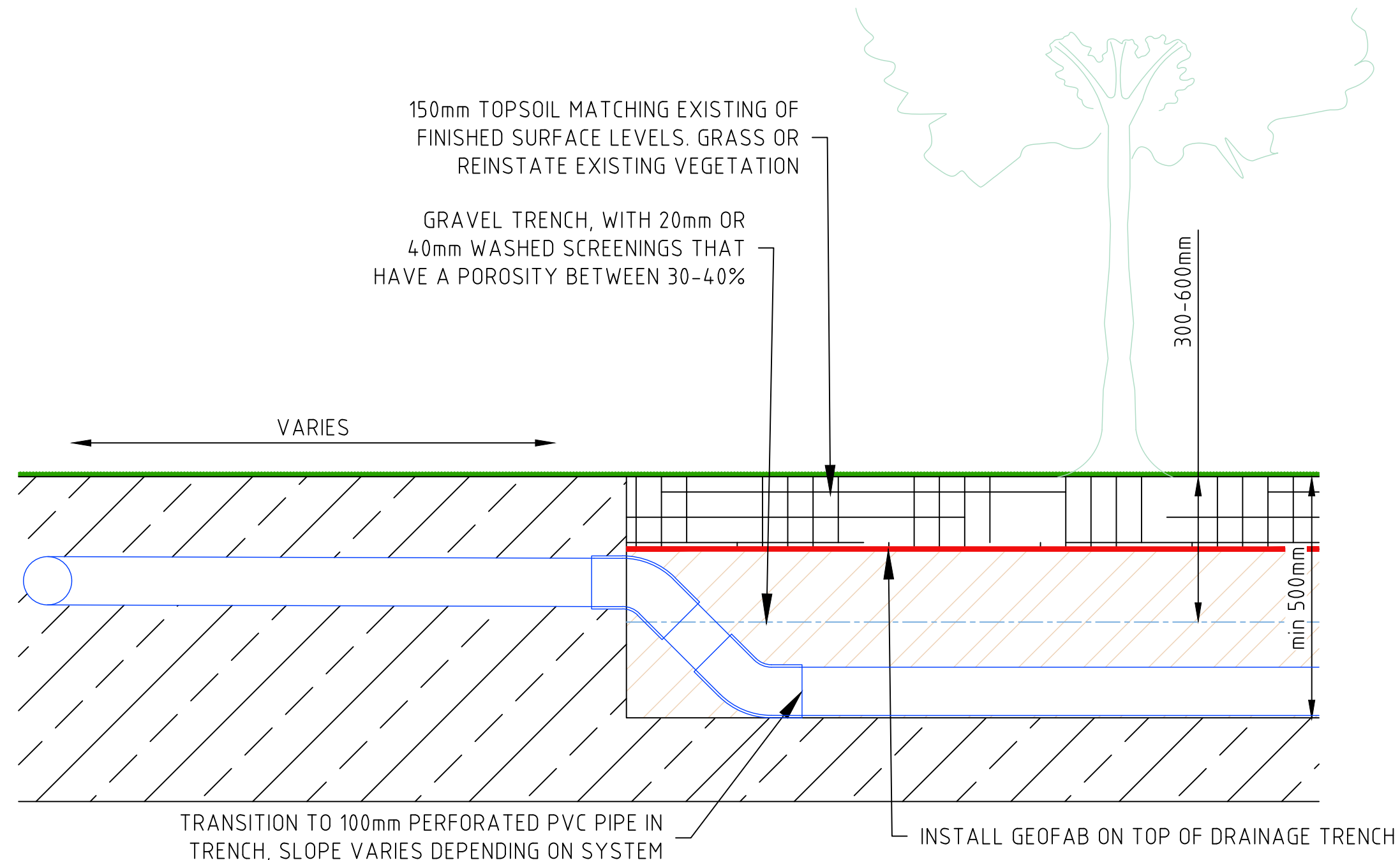
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	DRAWN F.O DATE: 01.11.2024	SCALE VARIES @ A1
	APPROVED BY TBA DATE: 12.06.2024	DRAWING NO. SD11-RES-SWALE-03 SHEET 11 OF 29
DRAWING TITLE ROAD RESERVE SWALE STEEP SITE (> 4% GRADE)		

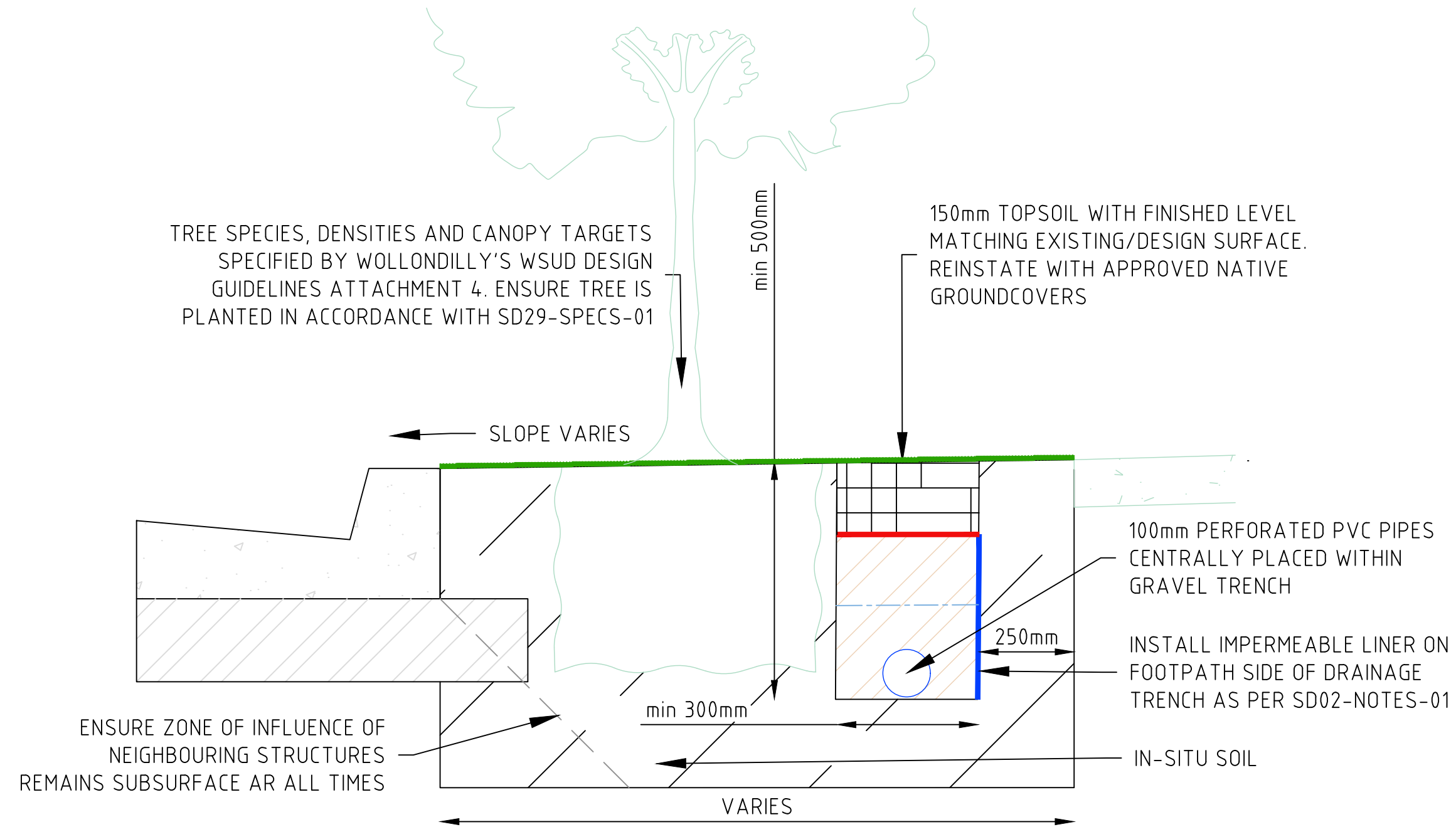
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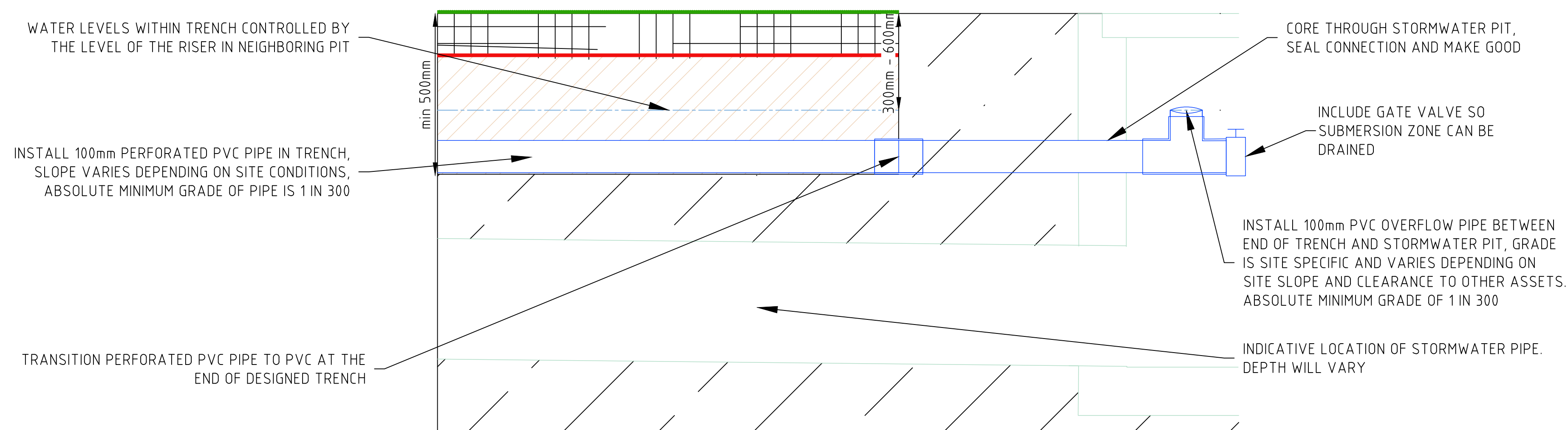
PASSIVELY WATERED STREET TREE PLAN VIEW
SCALE 1:20



SECTION 1 - TRENCH INLET TYPICAL DETAIL
SCALE 1:10



SECTION 2 - PASSIVELY WATERED STREET TREE CROSS SECTION
SCALE 1:20



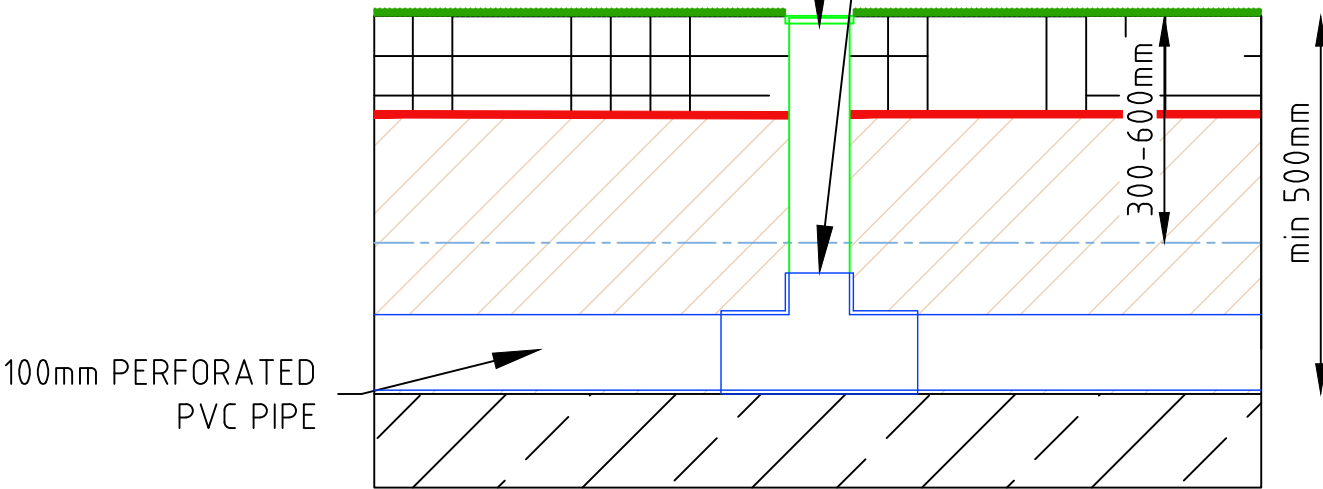
SECTION 3 - TRENCH OUTLET AND OVERFLOW TYPICAL DETAIL
SCALE 1:10

- LEGEND
- GEOFAB LINER
 - IMPERMEABLE LINER
 - INSPECTION POINT
 - IN-SITU SOIL
 - GRAVEL TRENCH WITH 20mm OR 40mm WASHED SCREENINGS
 - TOP SOIL
 - PROPOSED WATER TABLE
 - TRADITIONAL STORMWATER INFRASTRUCTURE
 - PROPOSED STORMWATER INFRASTRUCTURE WITHIN STREET TREE SYSTEM

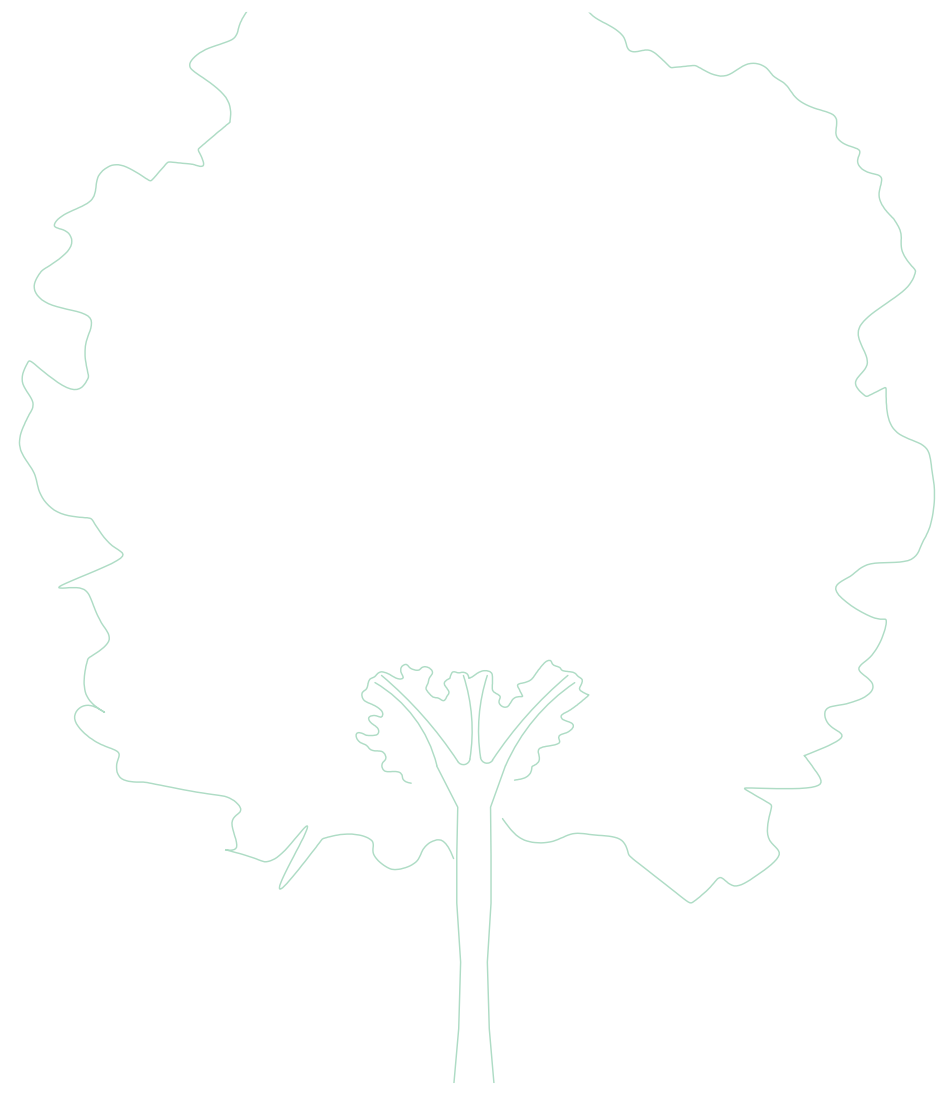
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	APPROVED BY TBA DATE: 12.06.2024	DRAWING NO. SD12-RES-TREE-01 SHEET 12 OF 29
DRAWING TITLE LOCAL STREET PASSIVELY WATERED STREET TREE - TRENCH DETAILS		

80mm PVC INSPECTION VALVE, CAPPED AND
INSTALLED TO MATCH EXISTING SURFACE LEVEL

100mm TO 80mm REDUCING TEE,
ENSURE WATER TIGHT CONNECTION



SECTION 4 - INSPECTION POINT TYPICAL DETAIL
SCALE 1:10



WATER LEVEL CONTROLLED BY
LEVELS OF DOWNSTREAM
CHECK DAM

INSTALL GEOFAB ON
TOP OF DRAINAGE
TRENCH

TRANSITION 100mm PERFORATED PVC PIPE TO
STANDARD PVC PIPE FOR PLUMBING WORK
OVER CHECK DAM. ONCE CHECK DAM IS PASSED,
TRANSITION PVC PIPE TO PERFORATED PVC
PIPE ALONG BASE OF TRENCH

min 500mm

300-600mm

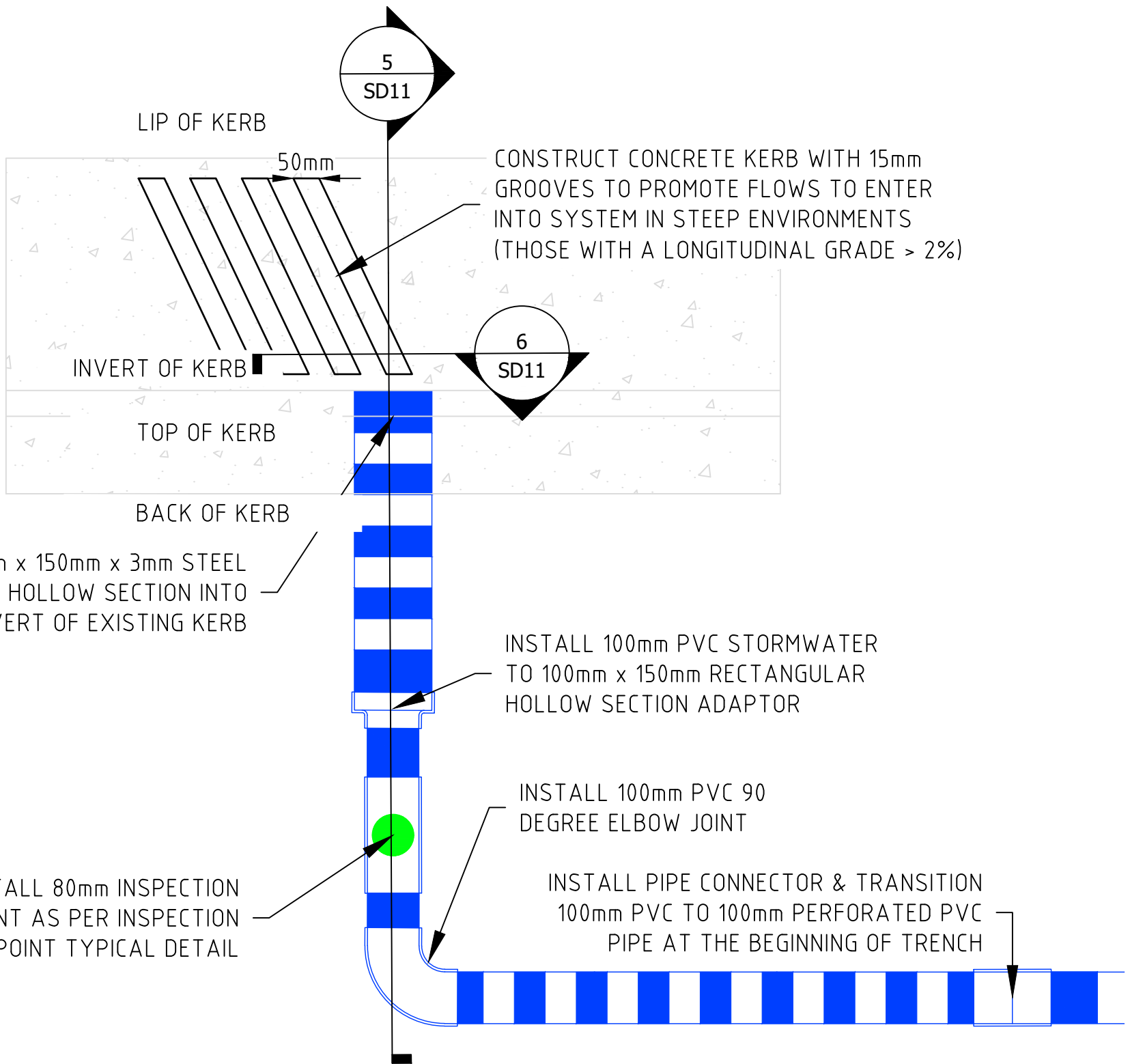
VARIES

CHECK DAMS TO BE CONSTRUCTED FROM SANDBAGS
WRAPPED IN BUILDERS PLASTIC WITH A MINIMUM WIDTH OF
300mm AND HEIGHT OF 400mm.

CHECK DAM TYPICAL DETAIL
SCALE 1:10

LEGEND

- GEOFAB LINER
- IMPERMEABLE LINER
- INSPECTION POINT
- IN-SITU SOIL
- GRAVEL TRENCH WITH 20mm OR 40mm WASHED SCREENINGS
- TOP SOIL
- PROPOSED WATER TABLE
- TRADITIONAL STORMWATER INFRASTRUCTURE
- PROPOSED STORMWATER INFRASTRUCTURE WITHIN STREET TREE SYSTEM



INLET PLUMBING DETAIL
SCALE 1:10

100mm TO 80mm REDUCING TEE, ENSURE
WATER TIGHT CONNECTION

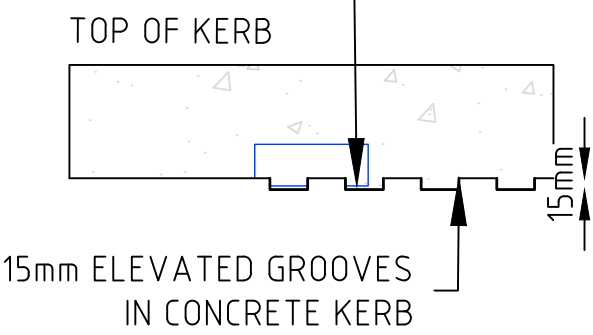
TRANSITION 100mm x 150mm RECTANGULAR HOLLOW
SECTION TO 100mm PVC PIPE. SECTION SLOPE IS SITE
DEPENDANT, ABSOLUTE MINIMUM GRADE IS 1 IN 300.

80mm PVC INSPECTION VALVE,
CAPPED AND INSTALLED TO
MATCH EXISTING SURFACE LEVEL

ENSURE INVERT OF HOLLOW SECTIONS SITS 5mm BELOW INVERT
OF KERB, ENSURE FREE DRAINING AND REGULAR MAINTENANCE
SCHEDULE IS MAINTAINED TO PROTECT INLET FROM BLOCKAGE

SECTION 5 - INLET PLUMBING CROSS SECTIONAL DETAIL
SCALE 1:10

ENSURE INVERT OF HOLLOW SECTIONS SITS 5mm BELOW INVERT
OF KERB, ENSURE FREE DRAINING AND REGULAR MAINTENANCE
SCHEDULE IS MAINTAINED TO PROTECT INLET FROM BLOCKAGE



SECTION 6 - KERB INLET DETAIL CROSS SECTIONAL VIEW
SCALE 1:10

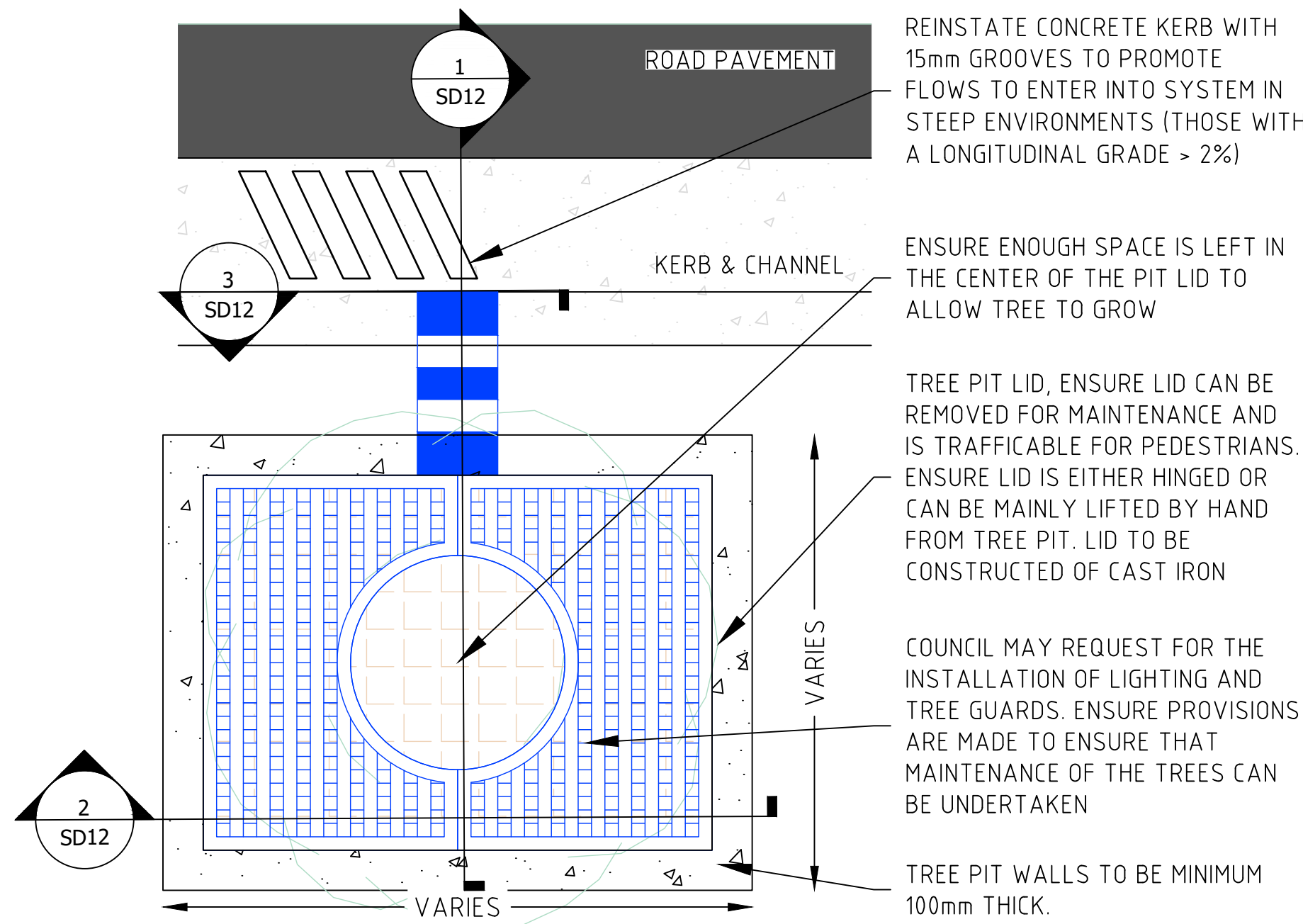
DRAFT STANDARD DRAWING
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NOT FOR CONSTRUCTION

- NOTES
- TREES TO BE SPACED AS PER SPECIES REQUIREMENTS AND APPROVAL FROM COUNCIL ARBORIST, MULTIPLE TREES MAY BE PLANTED ALONG EACH INLET/OUTLET SYSTEM
 - CHECK DAMS TO BE USED WHEN WATER TABLE LEVEL CAN NOT BE MAINTAINED WITHIN 300-600mm OF SURFACE LEVEL DUE TO THE LONGITUDINAL GRADE OF THE SITE
 - INSPECTION POINTS TO BE INSTALLED AT MULTIPLE POINTS WHEN PIPES EXCEEDING 10m
 - AGI LINES ARE NOT TO BE LAID WITH ANY DRAINAGE SOCKS, SYSTEMS TO REMAIN UNSOCKED
 - DEVELOPERS WILL NEED TO UNDERTAKE AND PROVIDE A GEOTECHNICAL REPORT TO DETERMINE THE SUITABILITY OF THE NATIVE SOIL'S INFILTRATION CAPACITY

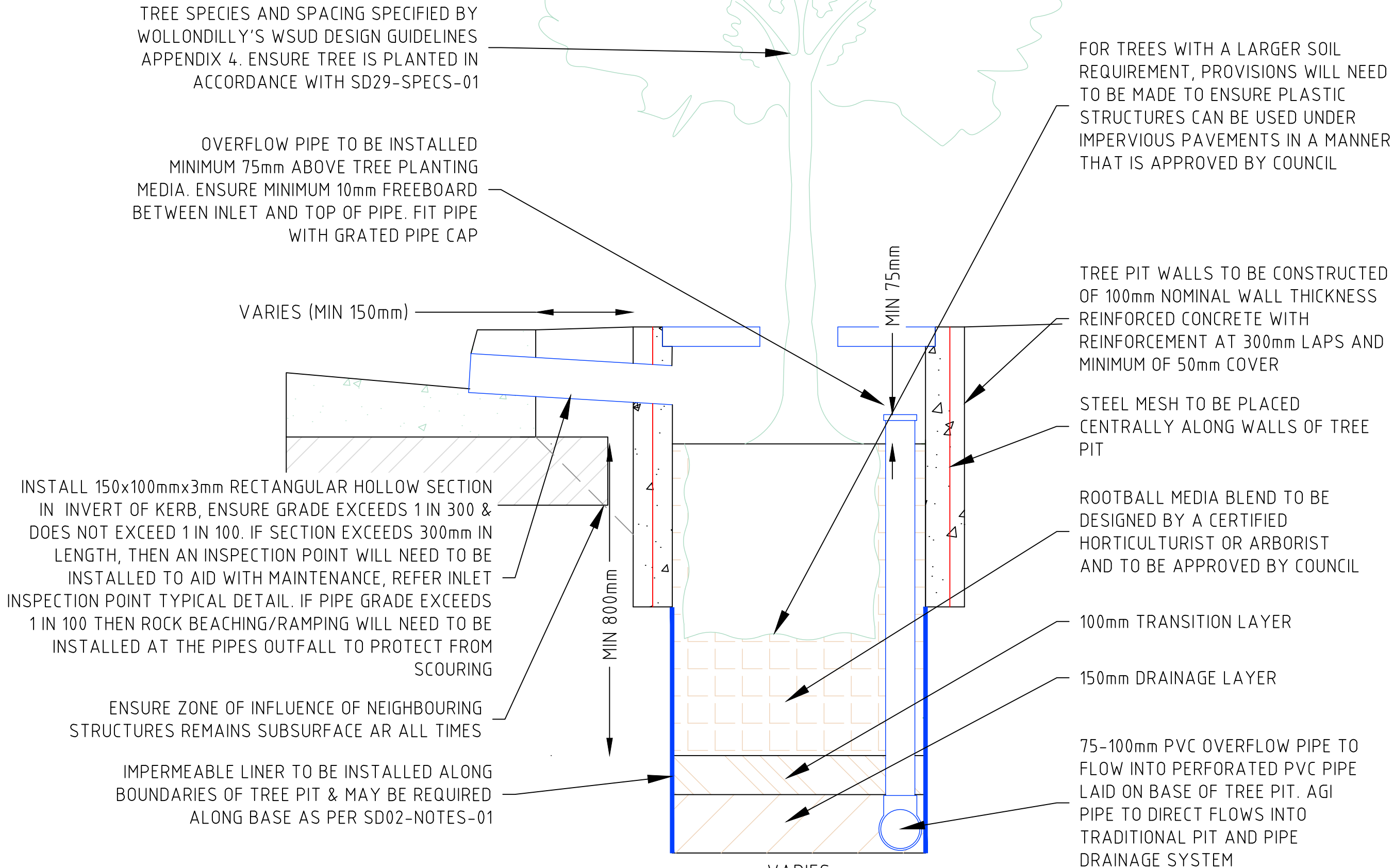


DRAWING TITLE
LOCAL STREET PASSIVELY WATERED STREET
TREE - STEEP SYSTEMS & GENERAL NOTES

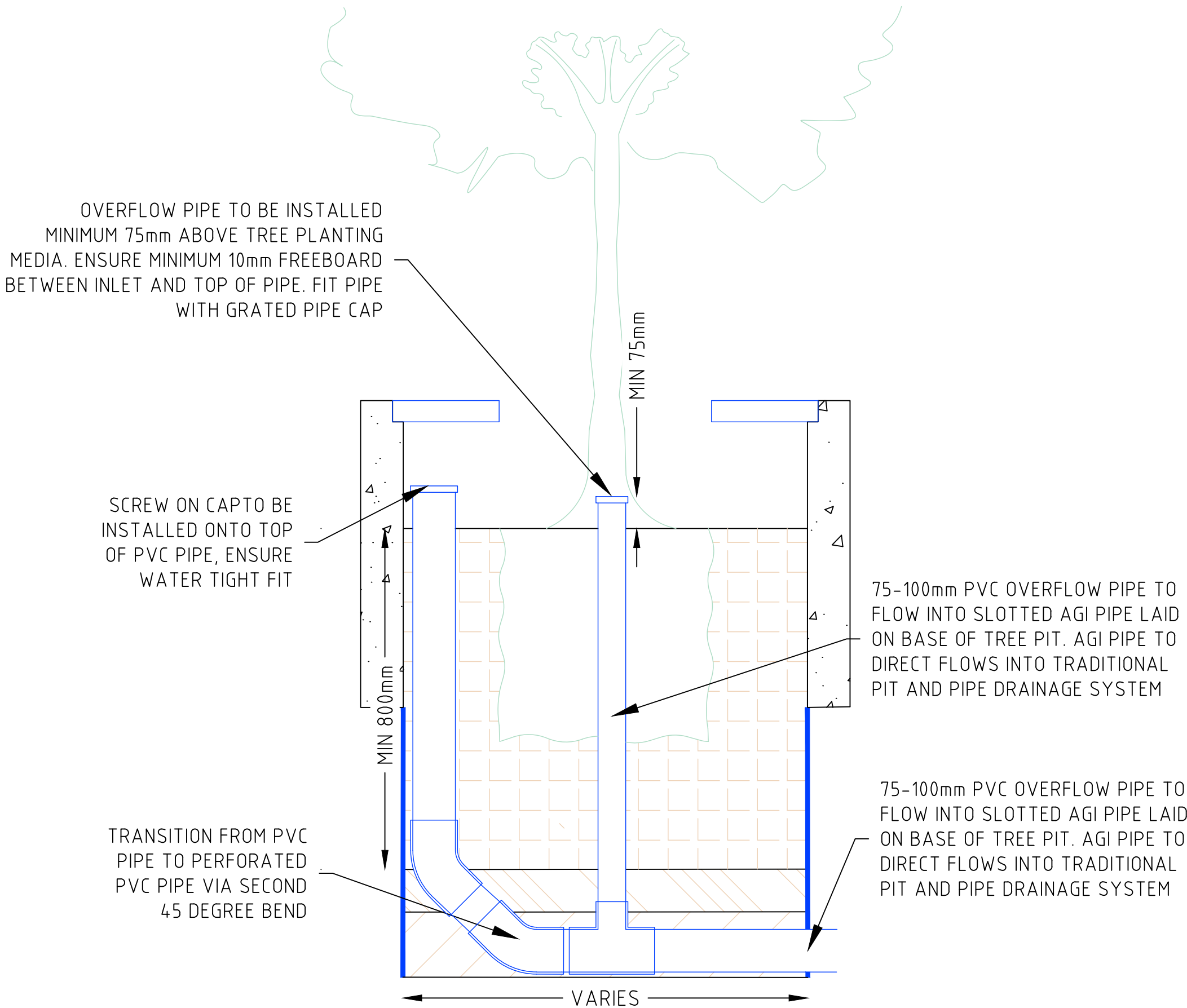
DRAWN F.O DATE:29.10.2024	SCALE VARIES @ A1
APPROVED BY TBA DATE: 12.06.2024	DRAWING NO. SD13-RES-TREE-02 SHEET 13 OF 29



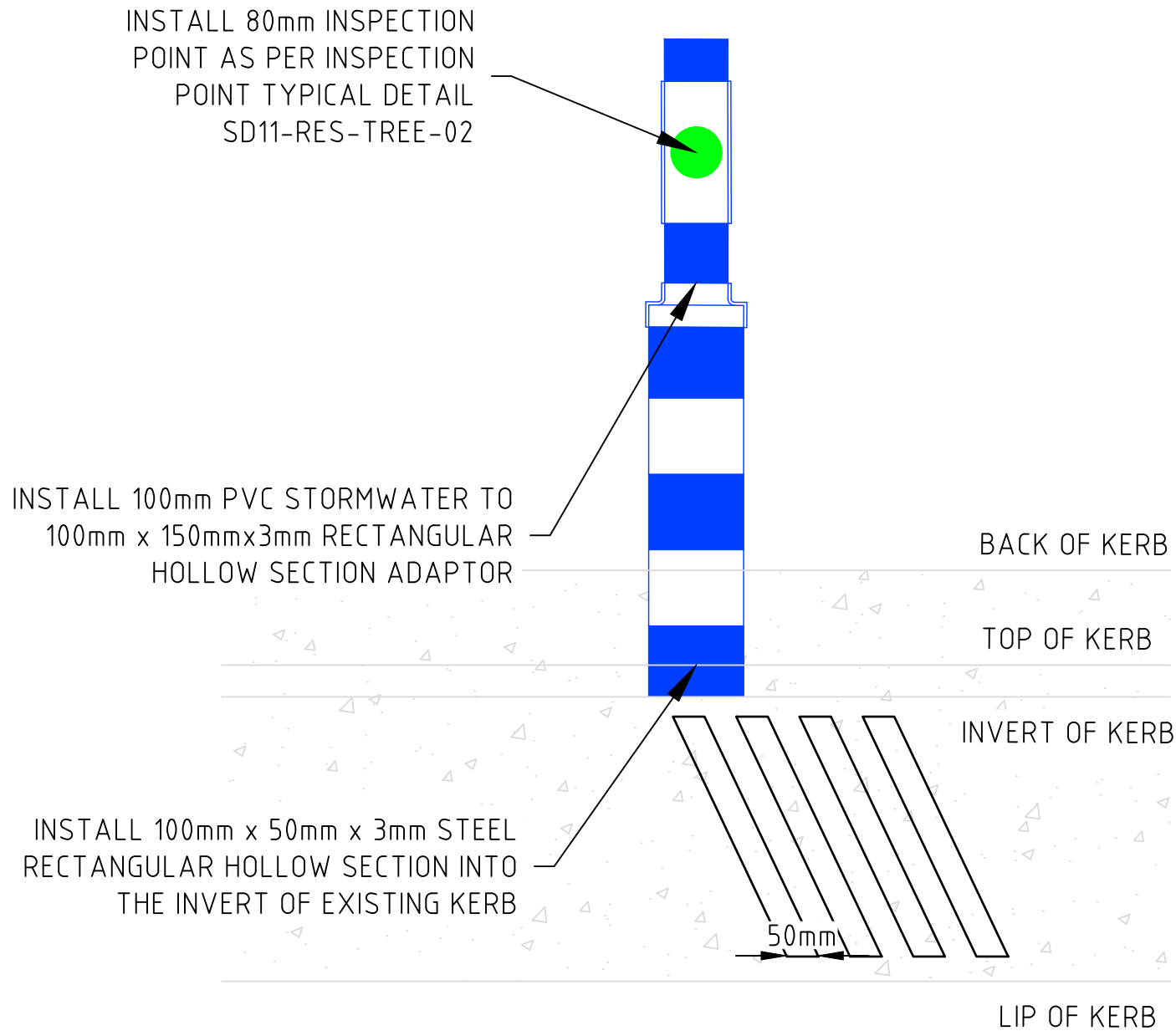
HIGH STREET PASSIVELY WATERED STREET TREE PLAN VIEW
SCALE 1:10



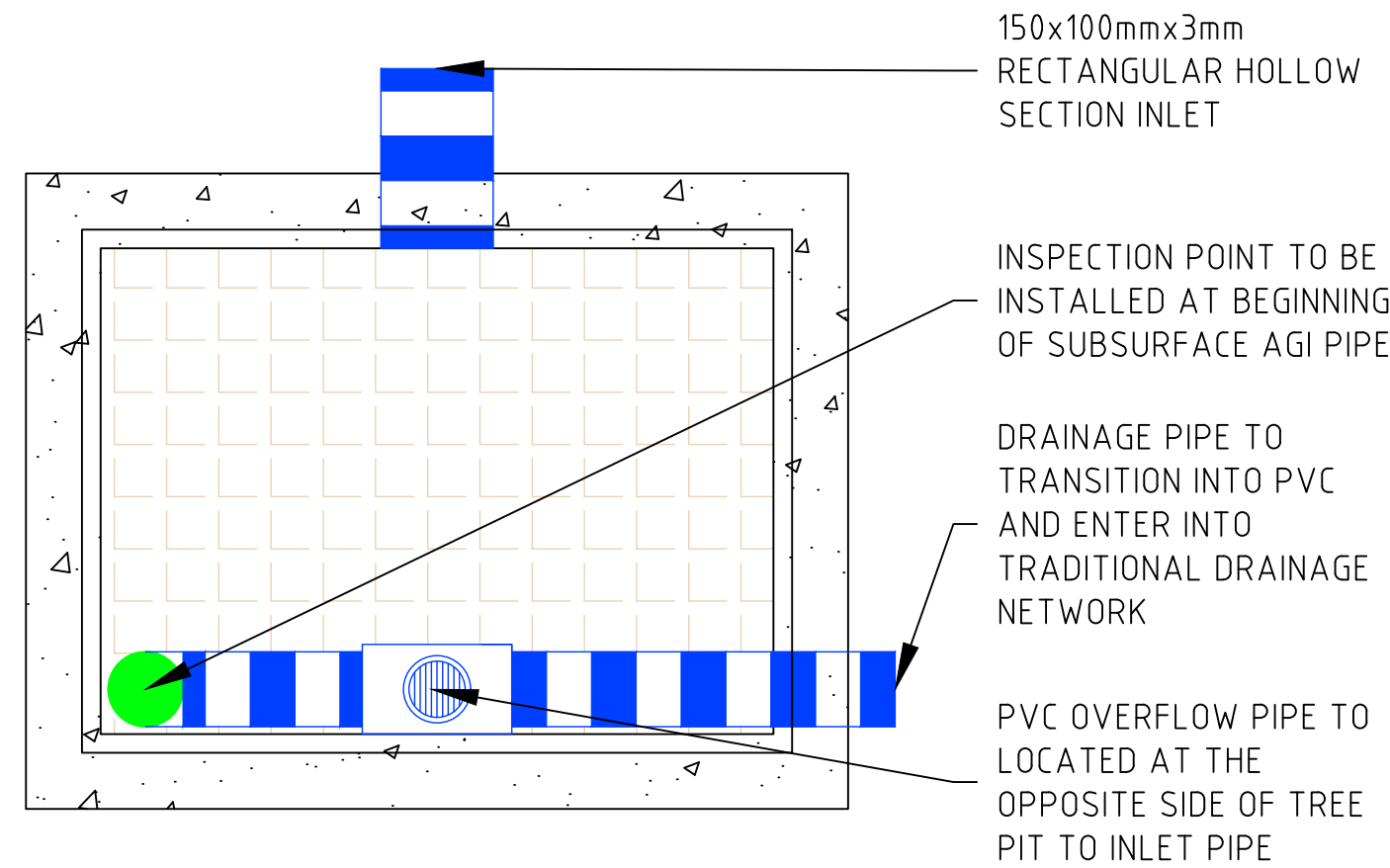
SECTION 1 - HIGH STREET PASSIVELY WATERED STREET TREE CROSS SECTION
SCALE 1:10



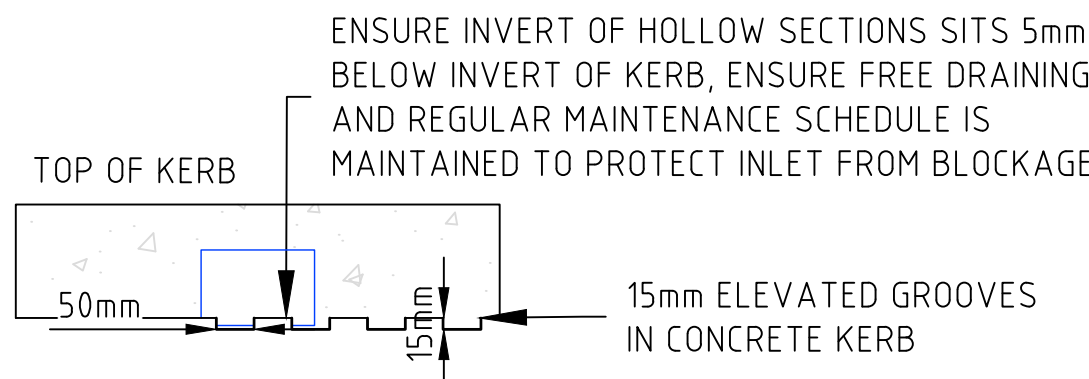
SECTION 2 HIGH STREET PASSIVELY WATERED STREET TREE - INSPECTION POINT DETAIL
SCALE 1:20



HIGH STREET PASSIVELY WATERED STREET TREE - INLET PLUMBING DETAIL
SCALE 1:10



HIGH STREET PASSIVELY WATERED STREET TREE - TREE PIT INTERNAL PLAN VIEW
SCALE 1:10



SECTION 3 - HIGH STREET PASSIVELY WATERED STREET TREE INLET CROSS SECTIONAL DETAIL
SCALE 1:10

- NOTES
1. ENSURE SUITABLE SOIL MEDIA AND TREES ARE CHOSEN GIVEN THE ENVIRONMENTAL AND SPACIAL CONDITIONS THE TREE WILL EXPERIENCE
 2. IF INLET PIPE EXCEEDS 300mm THEN INSPECTION POINT SHOULD BE INCLUDED. TRANSITION RECTANGULAR HOLLOW SECTION TO 100mm PVC PIPE
 3. AGI LINES ARE NOT TO BE LAID WITH ANY DRAINAGE SOCKS, SYSTEMS TO REMAIN UNSOCKED
 4. TRANSITION AND DRAINAGE LAYERS TO COMPLY WITH DETAILS SPECIFIED IN ON WSUD STANDARD DRAWINGS SHEET SD02-NOTES-01. TREE PLANTING MEDIA TO BE DESIGNED BY A SUITABLY QUALIFIED HORTICULTURIST
 5. DEVELOPERS WILL NEED TO UNDERTAKE AND PROVIDE A GEOTECHNICAL REPORT TO DETERMINE THE SUITABILITY OF THE NATIVE SOIL'S INFILTRATION CAPACITY

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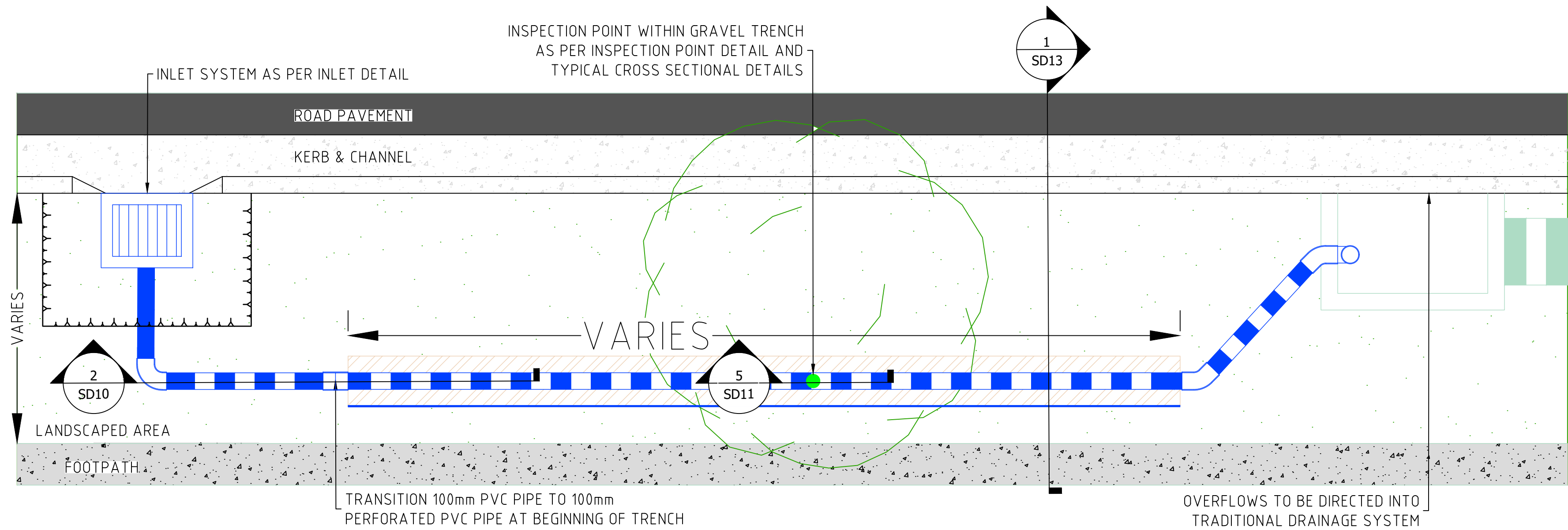
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HIGH STREET PASSIVELY WATERED STREET
TREE

DRAWN
F.O
DATE: 06.11.2024

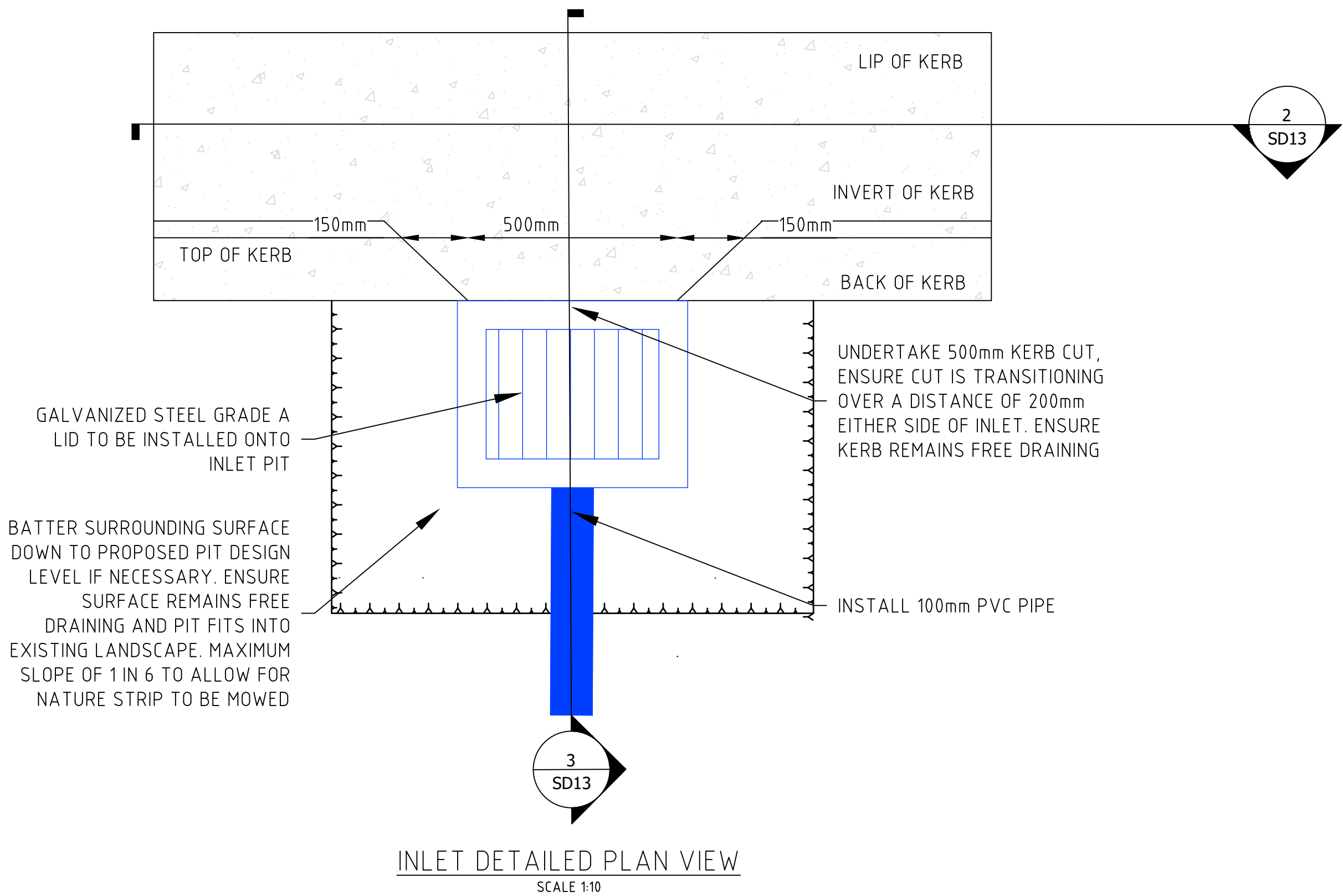
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TBA
DATE: 12.06.2024

SCALE
VARIES @ A1

DRAWING NO.
SD14-RES-TREE-03
SHEET 14 OF 29



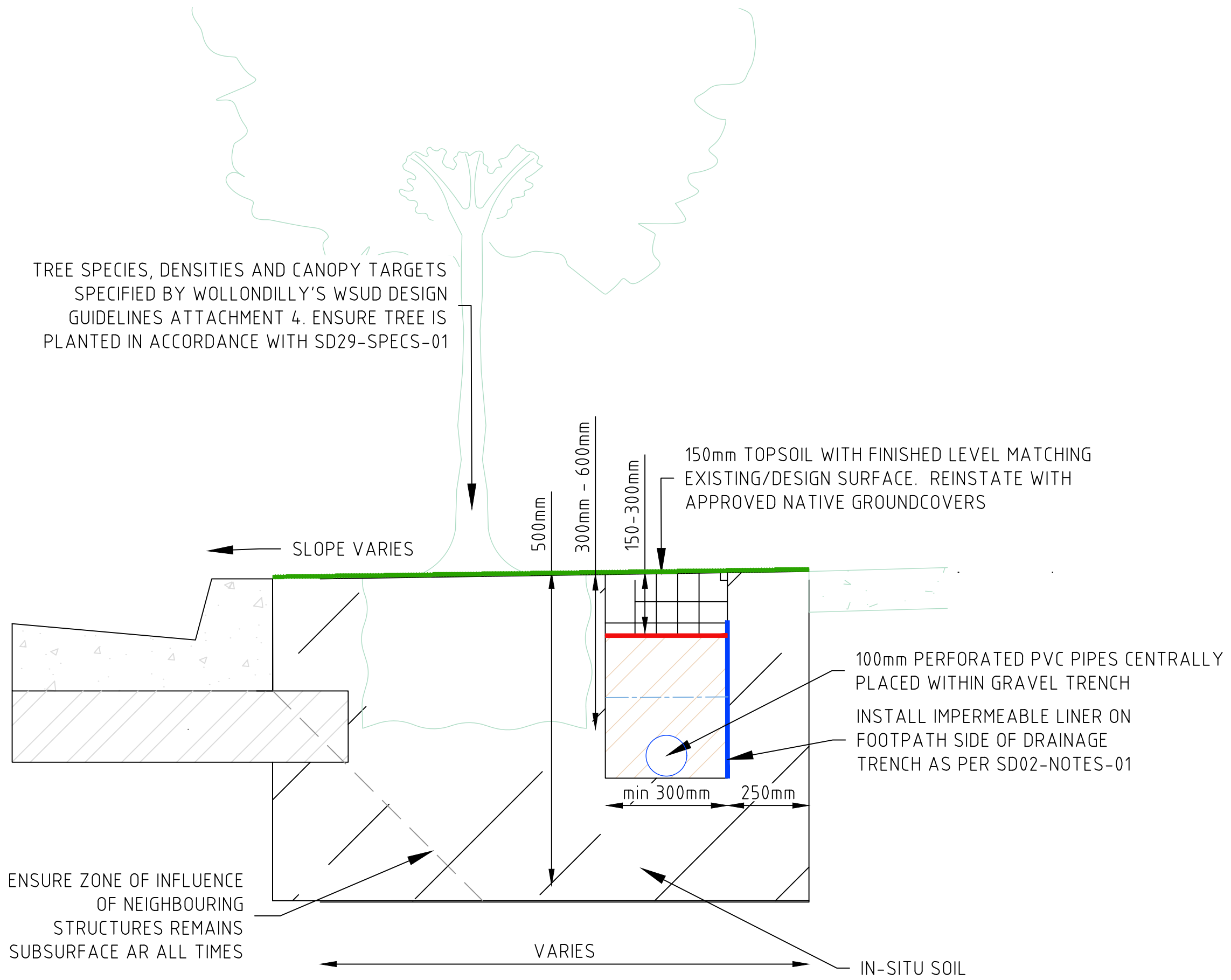
PASSIVELY WATERED STREET TREE PLAN VIEW
SCALE 1:20



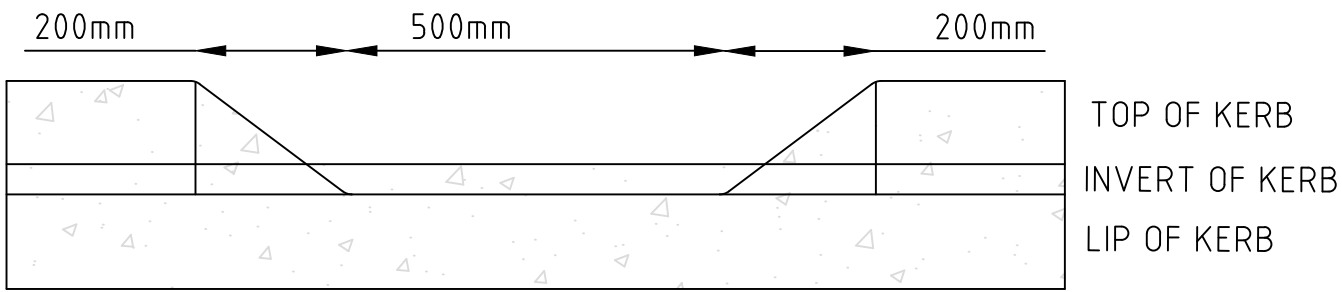
INLET DETAILED PLAN VIEW
SCALE 1:10

- NOTES
1. TREES TO BE SPACED AS PER SPECIES REQUIREMENTS AND APPROVED BY COUNCIL ARBORIST, MULTIPLE TREES MAY BE PLANTED ALONG EACH INLET/OUTLET SYSTEM
 2. REFER TO SD11-RES-TREE-01 & SD12-RES-TREE-02 FOR DETAILS REGARDING TRENCH INLET, OVERFLOW, INSPECTION POINTS AND CHECK DAMS
 3. INSPECTION POINTS TO BE INSTALLED AT MULTIPLE POINTS WHEN PIPES EXCEEDING 10m
 4. CHECK DAMS TO BE USED WHEN WATER TABLE LEVEL CAN NOT BE MAINTAINED WITHIN 300-600mm OF SURFACE LEVEL DUE TO THE LONGITUDINAL GRADE OF THE SITE
 5. AGI LINES ARE NOT TO BE LAID WITH ANY DRAINAGE SOCKS, SYSTEMS TO REMAIN UNSOCKED
 6. DEVELOPERS WILL NEED TO UNDERTAKE AND PROVIDE A GEOTECHNICAL REPORT TO DETERMINE THE SUITABILITY OF THE NATIVE SOIL'S INFILTRATION CAPACITY

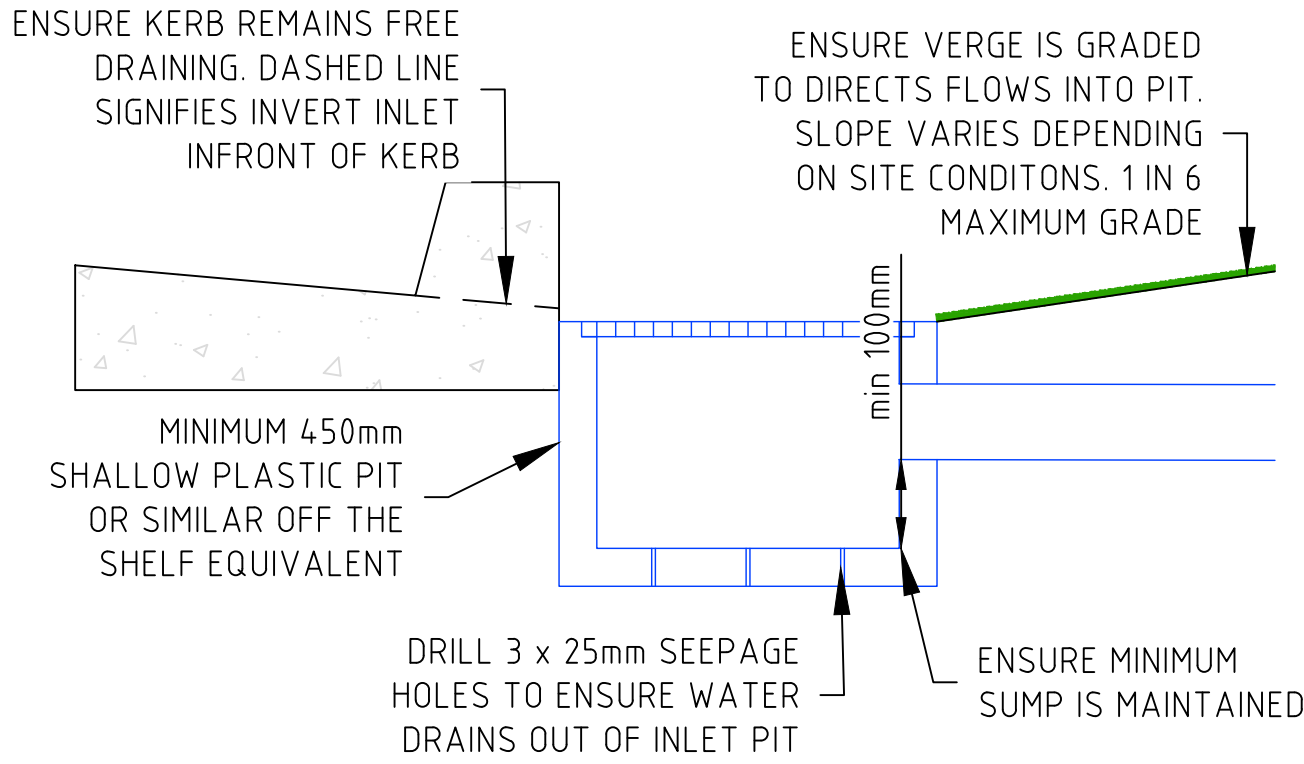
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SECTION 1 - PASSIVELY WATERED STREET TREE CROSS SECTION
SCALE 1:10



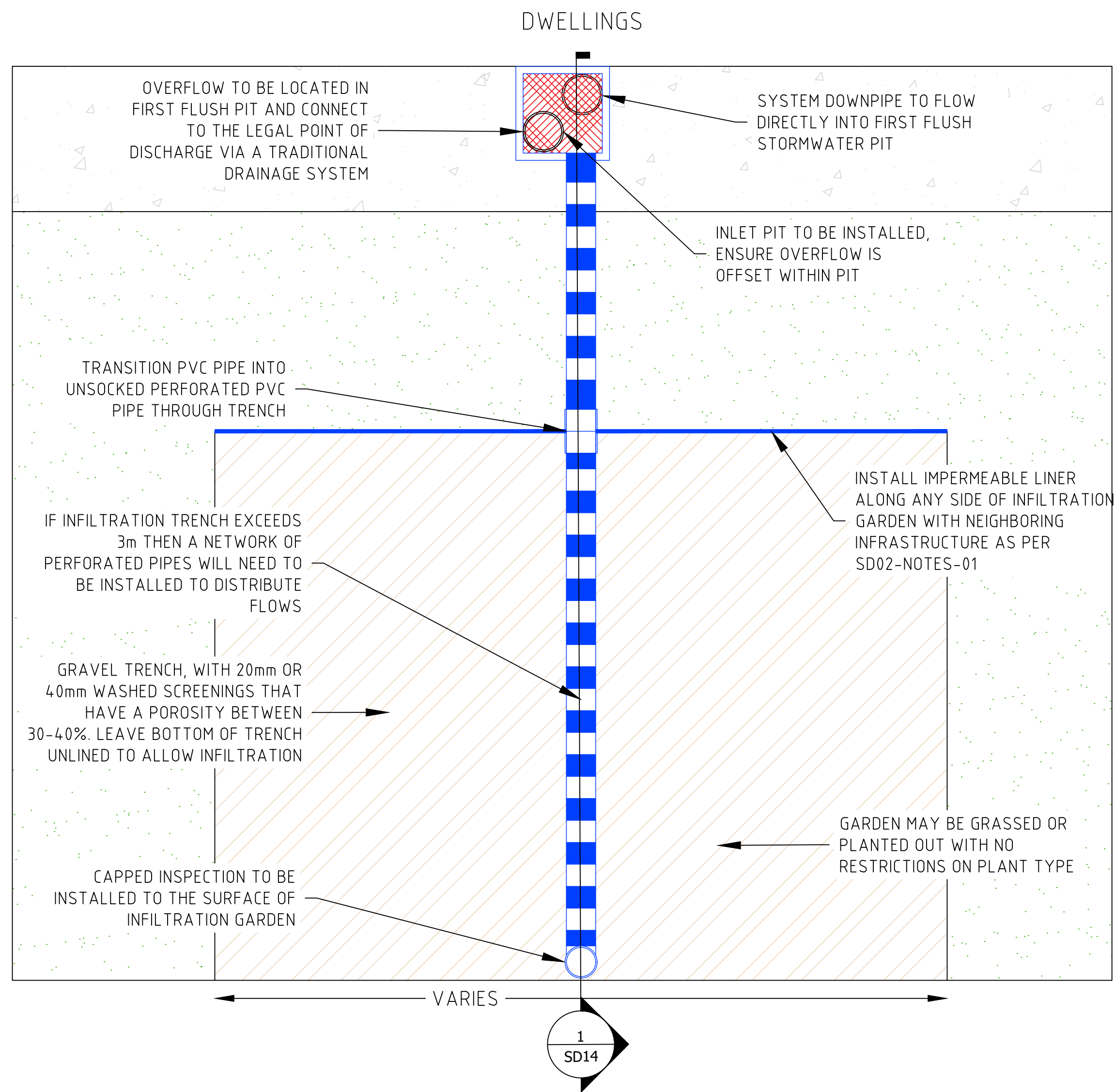
SECTION 2 - INSUDTRIAL/COMMERCIAL PASSIVELY WATERED STREET TREE INLET KERB DETAIL
SCALE 1:10



SECTION 3 - INSUDTRIAL/COMMERCIAL PASSIVELY WATERED STREET TREE INLET CROSS SECTION
SCALE 1:10

	DRAWN F.O DATE:12.11.2024	SCALE VARIES @ A1
	APPROVED BY TBA DATE: 12.06.2024	DRAWING NO. SD15-RES-TREE-04 SHEET 15 OF 29

DRAWING TITLE
INDUSTRIAL/COMMERCIAL PASSIVELY
WATERED STREET TREE



LOT SCALE INFILTRATION TRENCH PLAN VIEW

MINIMUM DISTANCE OF INFILTRATION TRENCH FROM DWELLING FOOTING	
STRUCTURE FOOTING DEPTH (mm)	GARDEN MINIMUM DISTANCE TO FOOTING (mm)
150	800
250	700
350	600
450	500
550	400
650	300

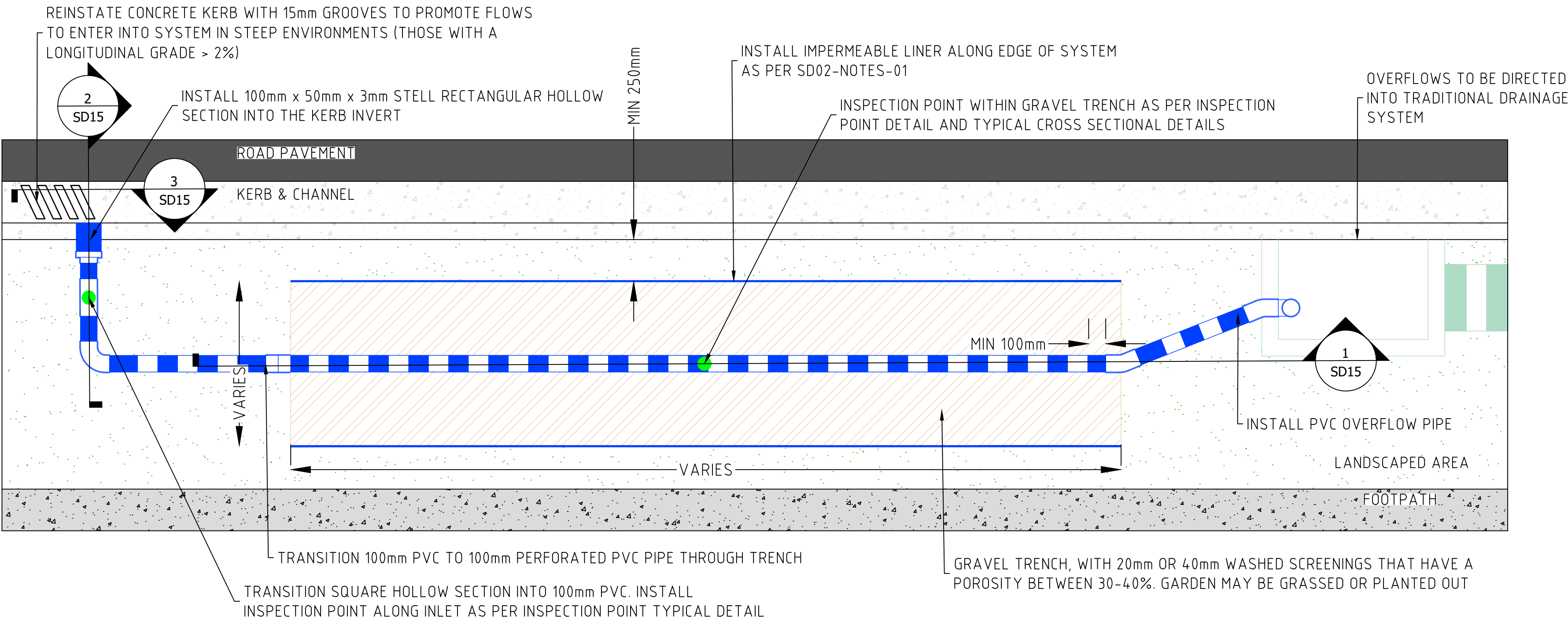


SCALE
VARIES @ A1

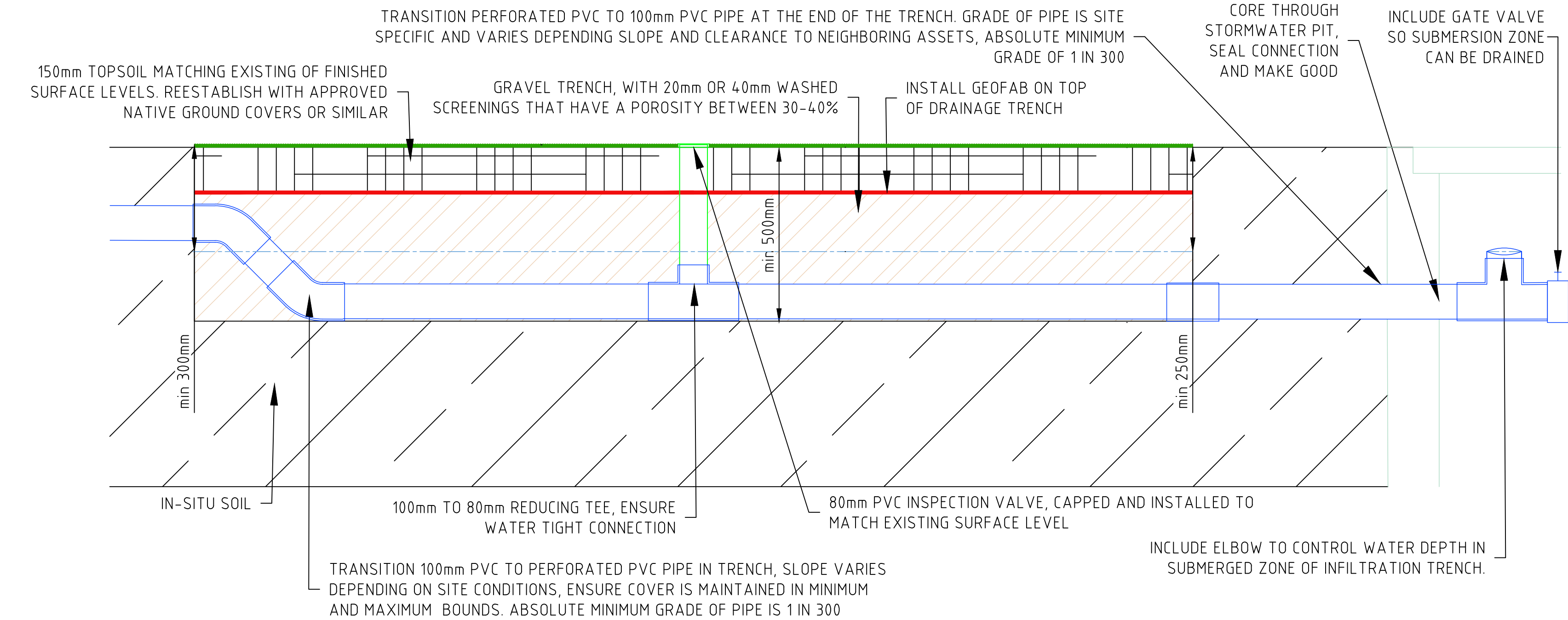
DRAWING NO.
SD16-RES-INFIL-01
SHEET 16 OF 29

NOTES

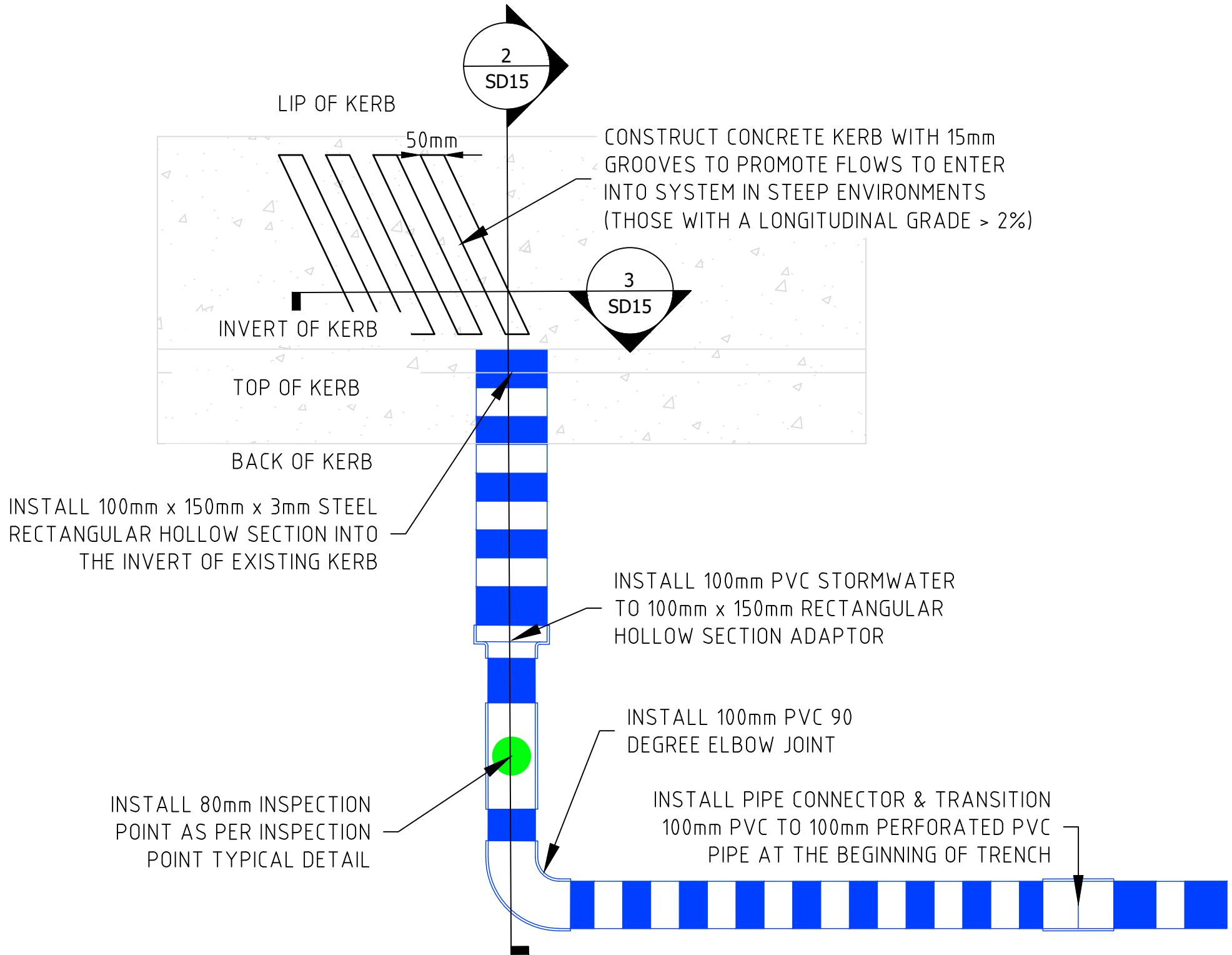
1. ENSURE CONSIDERATIONS HAVE BEEN MADE FOR THE POTENTIAL IMPACT OF UNDERGROUND ASSETS AND ENSURE ALLOWANCES HAVE BEEN MADE TO ENSURE THESE ASSETS ARE PROTECTED INLINE WITH THE REQUIREMENTS OF OTHER ASSET OWNERS
2. ENSURE ADEQUATE SPACING IS GIVEN TO STRUCTURE FOUNDATIONS WHEN USING AN IN-GROUND SYSTEM. MINIMUM DISTANCE TO FOOTING SHOULD BE MAINTAINED AS PER TABLE 1
3. THERE ARE NO RESTRICTIONS ON SYSTEMS SIZING. PIPES AND PITS SHOULD BE ADEQUATELY SIZED TO ENSURE THEY CAN EFFECTIVELY TRANSFER FLOWS. ENSURE NETWORK OF PERFORATED SUBSURFACE PIPES ARE IMPLEMENTED ON SYSTEMS EXCEEDING 3m² AREA. NETWORK TO ENSURE ENTIRE TRENCH SYSTEM IS ACTIVATED BY GENERATED STORMWATER
4. ENSURE A MINIMUM 75mm SUMP IS PROVIDED IN THE BOTTOM OF INLET PIT. STEPS SHOULD BE TAKEN TO ENSURE THAT BUILT UP SEDIMENT WITHIN THIS PIT IS REGULARLY MAINTAINED AS PART OF THE ASSETS MAINTENANCE REGIME



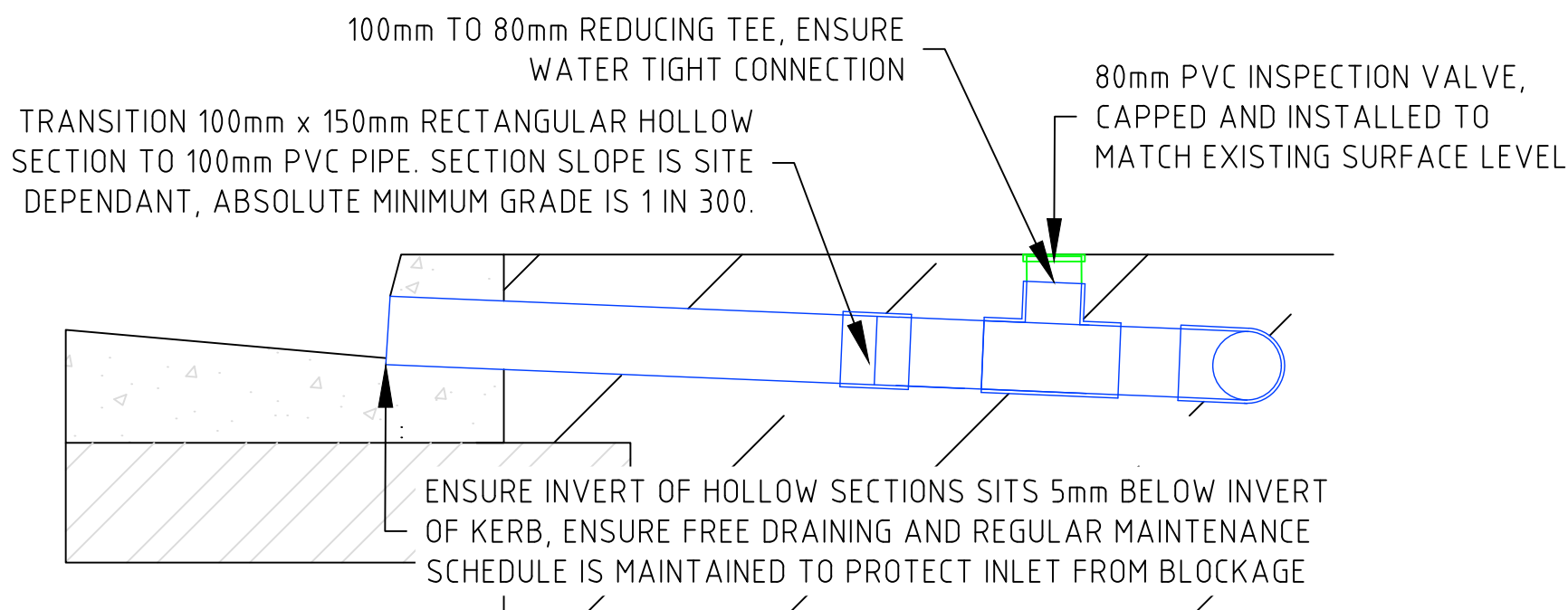
RESIDENTIAL INFILTRATION TRENCH PLAN VIEW
SCALE 1:20



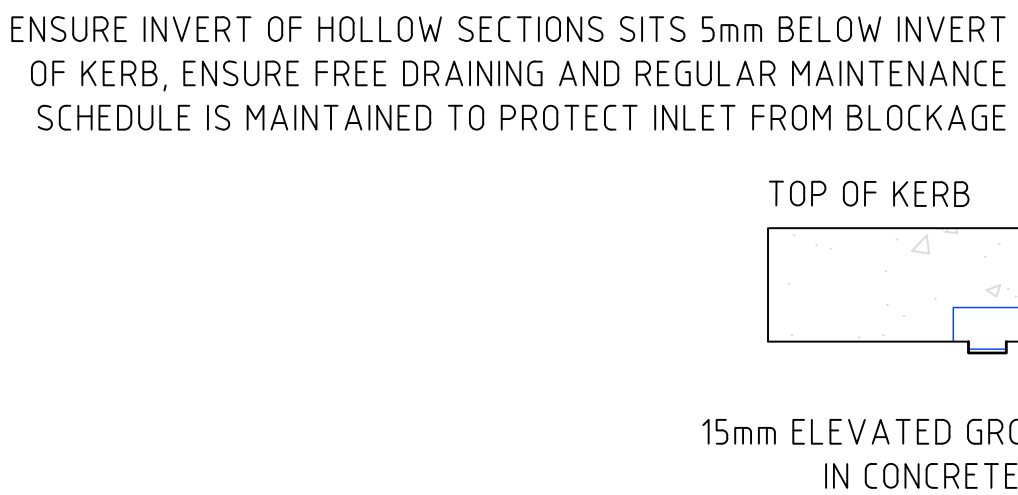
SECTION 1 - INFILTRATION TRENCH LONG SECTION
SCALE 1:10



INLET PLUMBING PLAN VIEW DETAIL
SCALE 1:10



SECTION 2 - INLET PLUMBING CROSS SECTIONAL DETAIL
SCALE 1:10



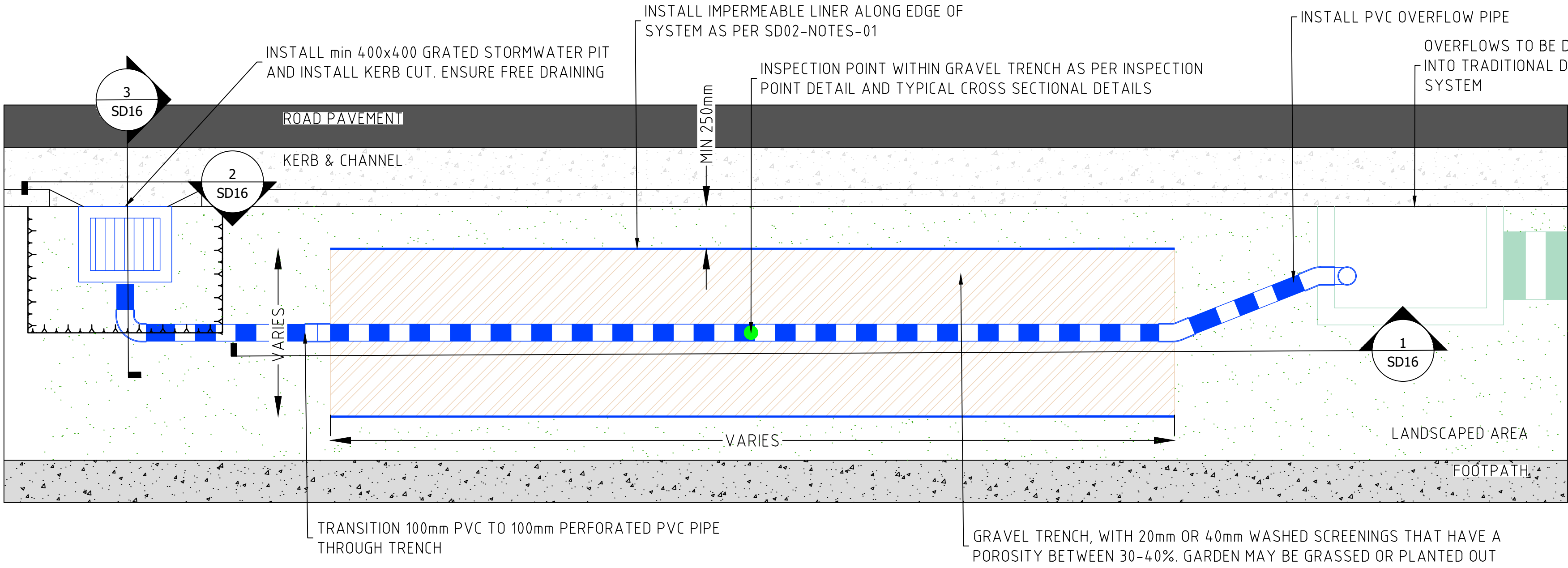
SECTION 3 - KERB INLET DETAIL CROSS SECTIONAL VIEW
SCALE 1:10

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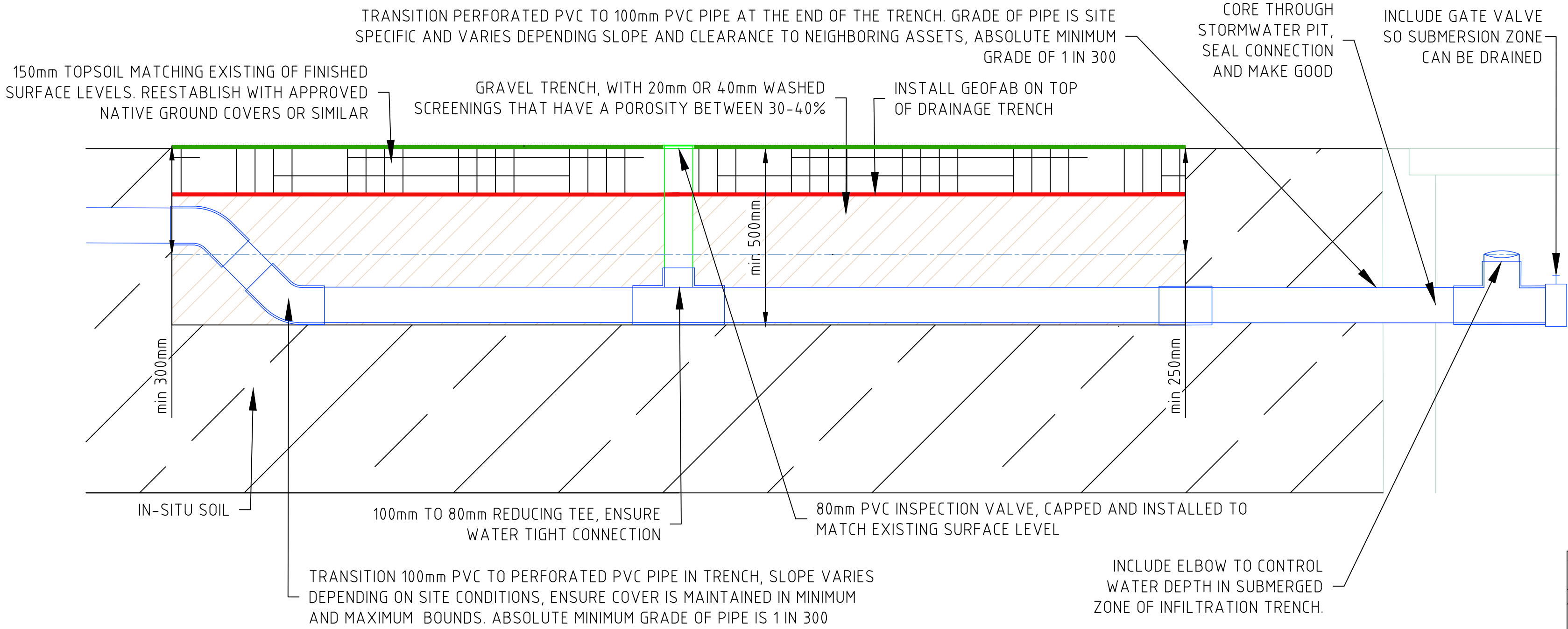
- NOTES
1. ENSURE CONSIDERATIONS HAVE BEEN MADE FOR THE POTENTIAL IMPACT OF UNDERGROUND ASSETS AND ENSURE ALLOWANCES HAVE BEEN MADE TO ENSURE THESE ASSETS ARE PROTECTED
 2. ENSURE ADEQUATE SPACING IS GIVEN TO STRUCTURE FOUNDATIONS OR PAVEMENT SUBGRADES WHEN USING SYSTEM. MINIMUM DISTANCE SHOULD BE MAINTAINED AS SPECIFIED UNLESS APPROVED BY A SUITABLY QUALIFIED ENGINEER
 3. THERE ARE NO RESTRICTIONS ON SYSTEMS SIZING. PIPES AND PITS SHOULD BE ADEQUATELY SIZED TO ENSURE THEY CAN EFFECTIVELY TRANSFER FLOWS. SIZES USED ARE FOR A STANDARD STREET SCALE SYSTEM
 4. ENSURE SYSTEM IS MAINTAINED AS PART OF A REGULAR MAINTENANCE REGIME
 5. DEVELOPERS WILL NEED TO UNDERTAKE AND PROVIDE A GEOTECHNICAL REPORT TO DETERMINE THE SUITABILITY OF THE NATIVE SOIL'S INFILTRATION CAPACITY & MINIMUM OFFSET

	DRAWN F.O DATE:14.11.2024	SCALE VARIES @ A1
	APPROVED BY TBA DATE: 12.06.2024	DRAWING NO. SD17-RES-INFIL-02 SHEET 17 OF 29
DRAWING TITLE INFILTRATION TRENCH STREET SCALE RESIDENTIAL		

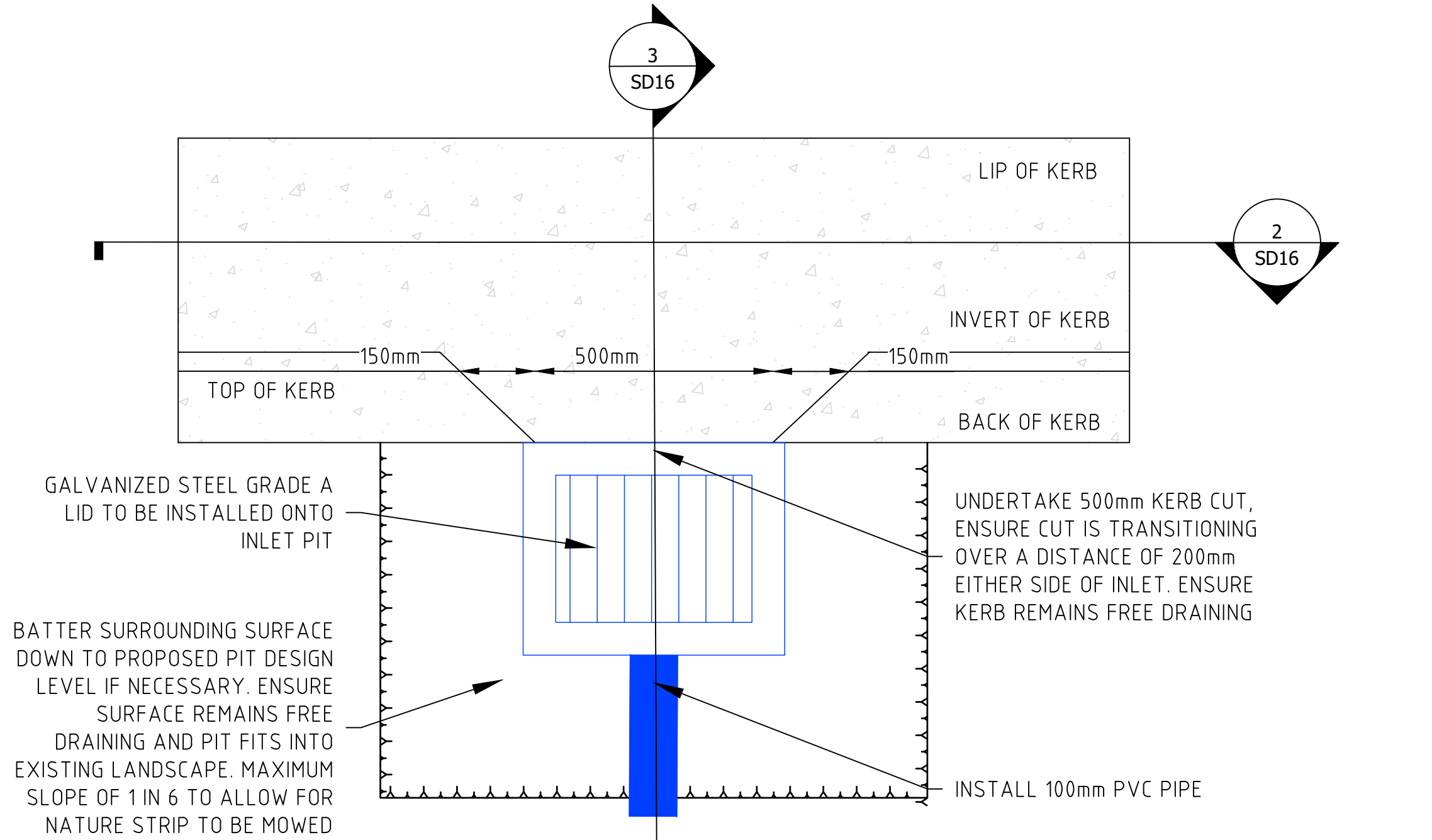
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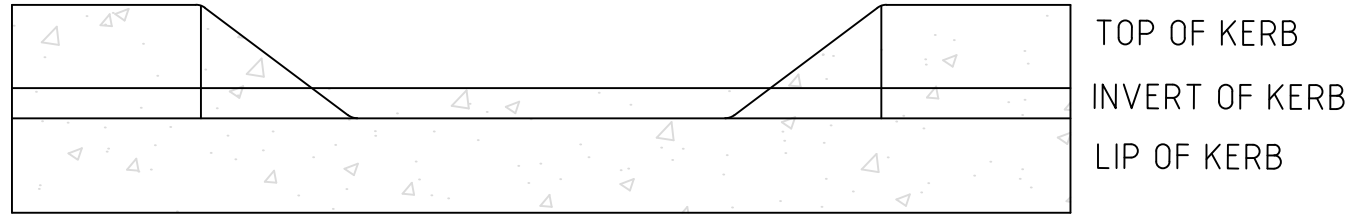
INDUSTRIAL INFILTRATION TRENCH PLAN VIEW
SCALE 1:20



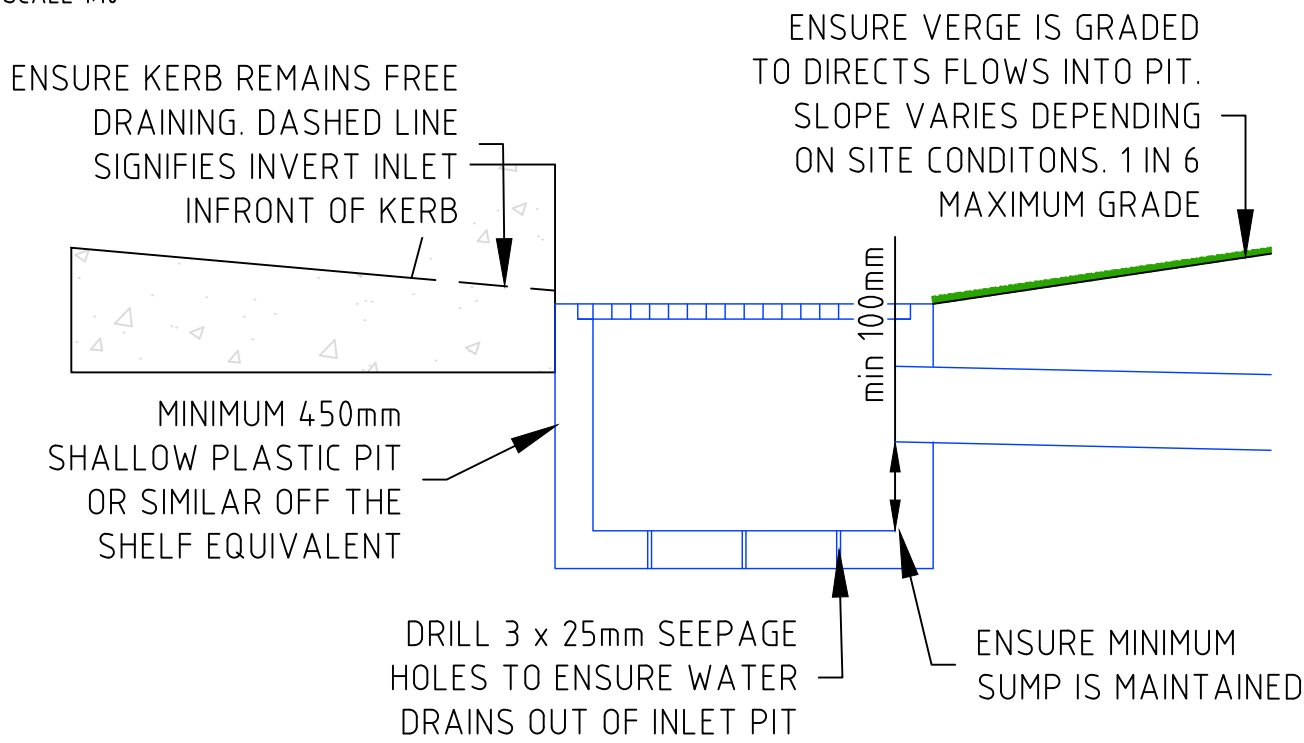
SECTION 1 - INFILTRATION TRENCH LONG SECTION
SCALE 1:10



INLET DETAILED PLAN VIEW
SCALE 1:10



SECTION 2 - INDUSTRIAL/COMMERCIAL PASSIVELY WATERED STREET TREE INLET KERB DETAIL
SCALE 1:10



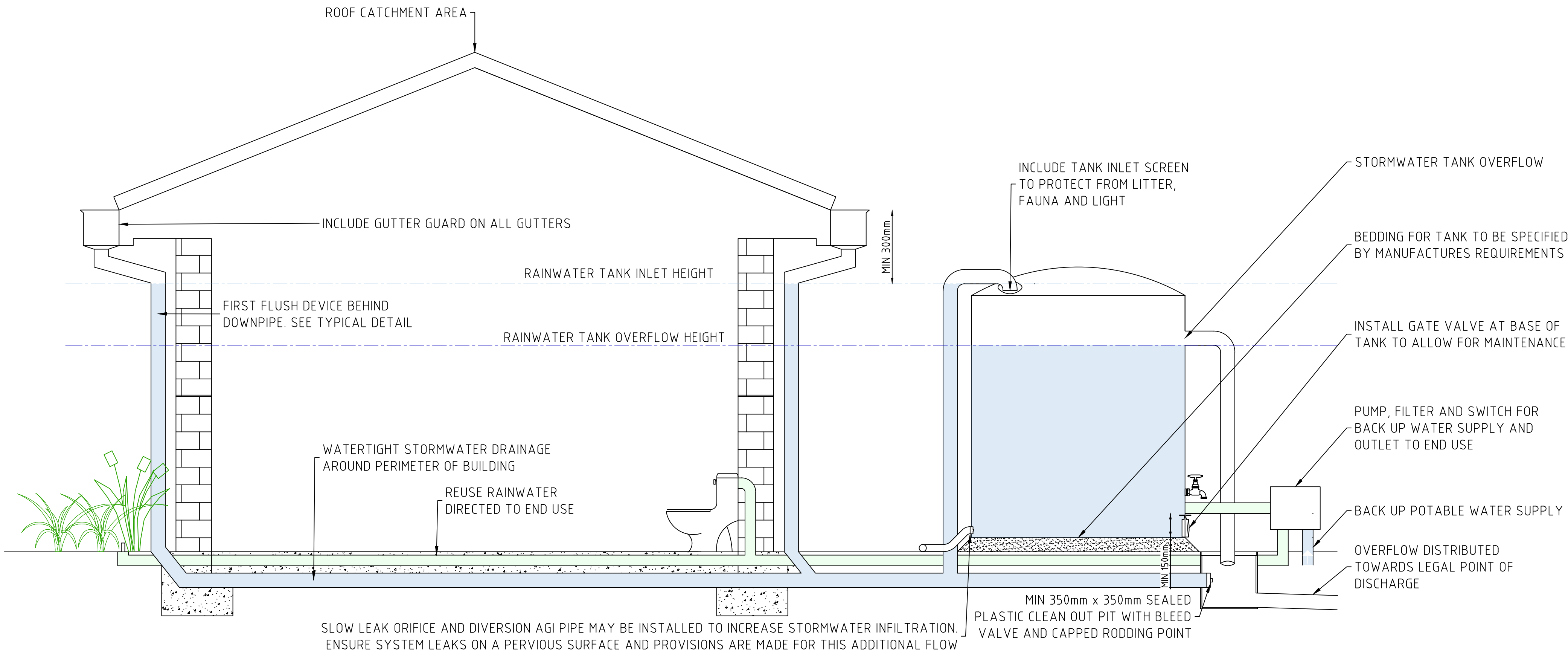
SECTION 3 - INDUSTRIAL/COMMERCIAL PASSIVELY WATERED STREET TREE INLET LONGITUDINAL SECTION
SCALE 1:10

NOTES

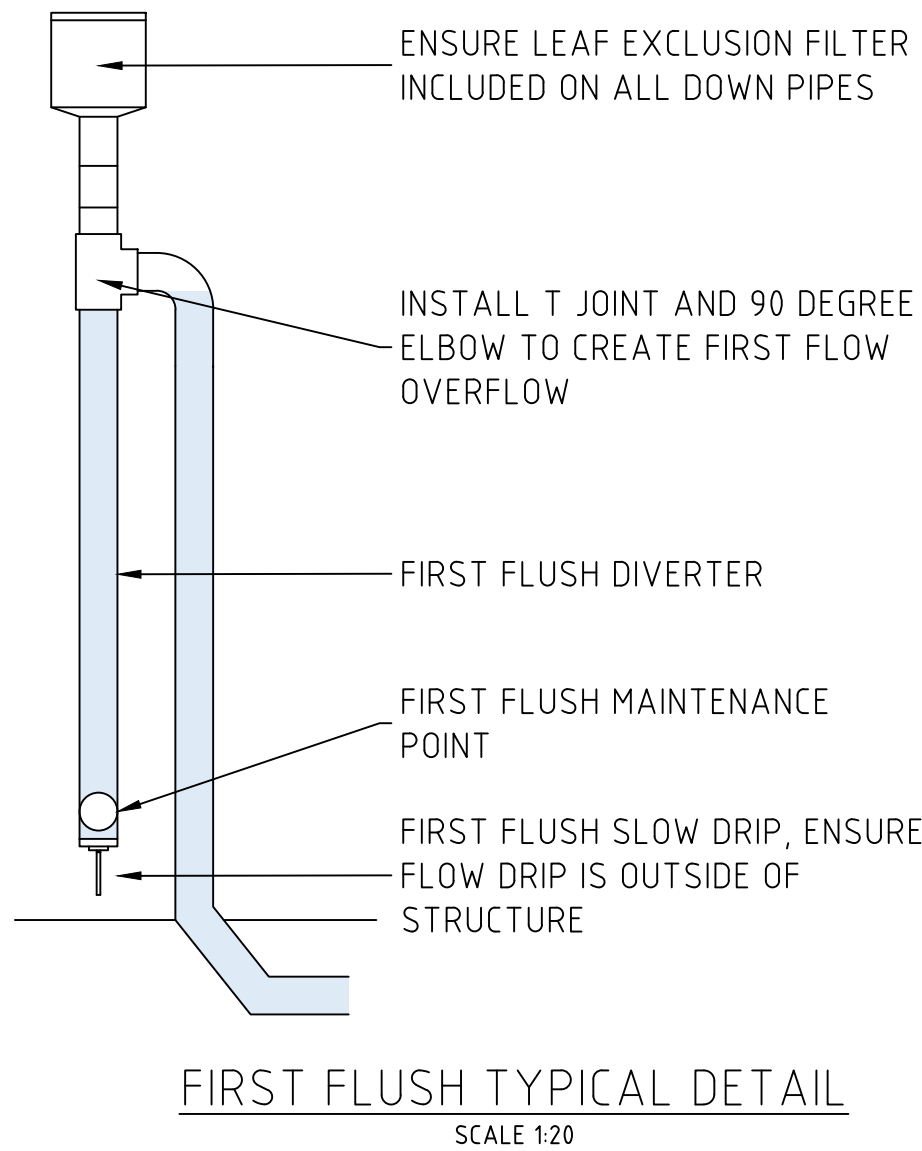
1. ENSURE CONSIDERATIONS HAVE BEEN MADE FOR THE POTENTIAL IMPACT OF UNDERGROUND ASSETS AND ENSURE ALLOWANCES HAVE BEEN MADE TO ENSURE THESE ASSETS ARE PROTECTED
2. ENSURE ADEQUATE SPACING IS GIVEN TO STRUCTURE FOUNDATIONS OR PAVEMENT SUBGRADES WHEN USING AN SYSTEM. MINIMUM DISTANCE SHOULD BE MAINTAINED AS SPECIFIED UNLESS APPROVED BY A SUITABLY QUALIFIED ENGINEER
3. THERE ARE NO RESTRICTIONS ON SYSTEMS SIZING. PIPES AND PITS SHOULD BE ADEQUATELY SIZED TO ENSURE THEY CAN EFFECTIVELY TRANSFER FLOWS. SIZES USED ARE FOR A STANDARD STREET SCALE SYSTEM
4. ENSURE A MINIMUM 75mm SUMP IS PROVIDED IN THE BOTTOM OF INLET PIT. STEPS SHOULD BE TAKEN TO ENSURE THAT BUILT UP SEDIMENT WITHIN THIS PIT IS REGULARLY MAINTAINED AS PART OF THE ASSETS MAINTENANCE REGIME
5. DEVELOPERS WILL NEED TO UNDERTAKE AND PROVIDE A GEOTECHNICAL REPORT TO DETERMINE THE SUITABILITY OF THE NATIVE SOIL'S INFILTRATION CAPACITY & MINIMUM OFFSET OF SYSTEM

 DRAWING TITLE INFILTRATION TRENCH STREET SCALE INDUSTRIAL	DRAWN F.O DATE:14.11.2024	SCALE VARIES @ A1
	APPROVED BY TBA DATE: 12.06.2024	DRAWING NO. SD18-RES-INFIL-03 SHEET 18 OF 29

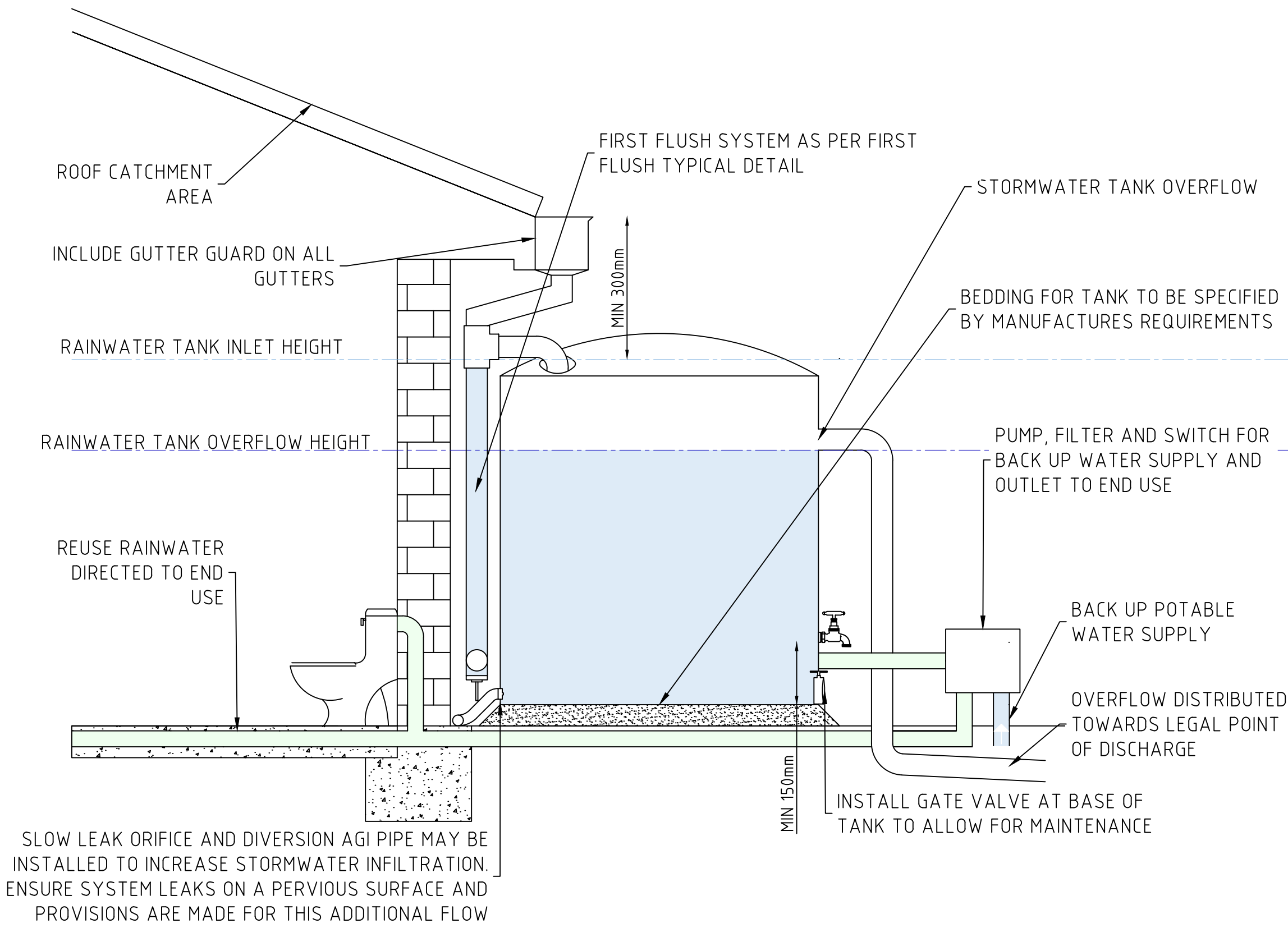
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RAINWATER TANK WITH CHARGED LINES
SCALE 1:20



FIRST FLUSH TYPICAL DETAIL
SCALE 1:20



GRAVITY FED RAINWATER TANK
SCALE 1:20

CHARGED SYSTEM NOTES

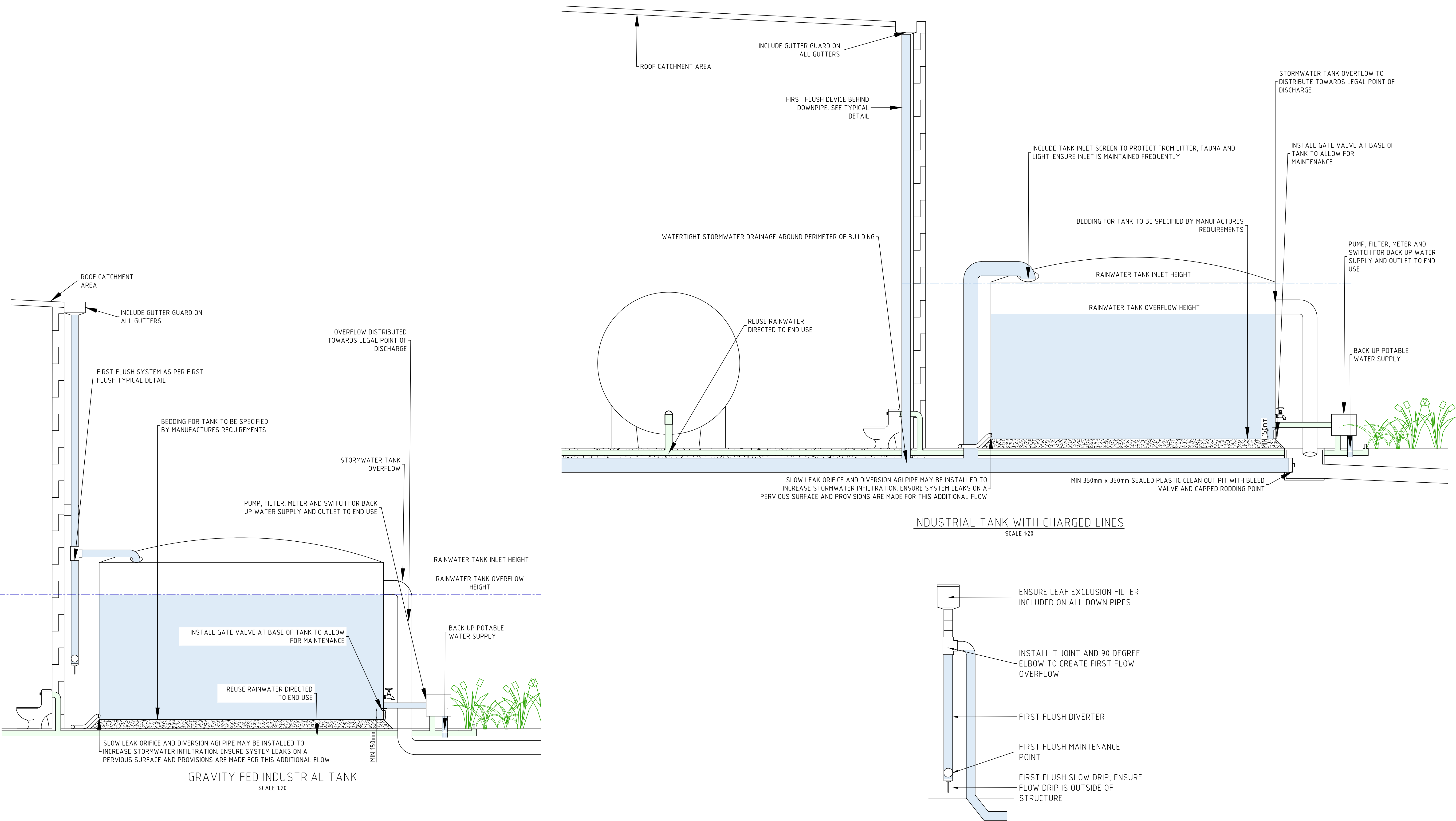
- 1. CHARGED LINES ARE TO USE 'P' PRESSURE RATED SOLVENTS
- 2. FORCE LOW POINT IN CHARGE LINE TO CLEAN OUT PIT
- 3. FOR ISOLATED PIT WITHOUT OUTLET PIPES PROVIDE 4 5mm DIAMETER SEEPAGE HOLES IN BASE WITH GRAVEL LAYER BELOW PIT
- 4. THIS SYSTEM IS DESIGNED AS A REUSE TANK AND DOES NOT PROVIDE ANY DETENTION
- 5. THE END USES FOR WATER FROM RAINWATER TANKS ARE: IRRIGATION, FLUSHING OF WATER, LAUNDRY USAGE, CAR WASHING, OUTDOOR TAPS AND OTHER NON-POTABLE USES

GENERAL NOTES

- 6. SOLVENT SEALED TO UNDERSTAND OF EAVES, PAINT ALL EXPOSED SURFACES OR USE UV STABILISED PIPES
- 7. OFF TAKE POINT IS TO BE MINIMUM 150mm ABOVE BASE OF TANK
- 8. FLOAT SWITCH SHALL BE SET TO ACTIVATE MAINS SUPPLY WHEN WATER LEVEL IS 200mm ABOVE TANK BASE
- 9. ENSURE FIRST FLUSH SYSTEM'S SLOW DRIP DISCHARGES IS CONTROLLED AND IDEALLY DIRECTED TOWARDS A PERVIOUS SURFACE

	DRAWN F.O DATE: 25.11.2025	SCALE VARIES @ A1
	APPROVED BY TBA DATE: 12.06.2024	DRAWING NO. SD19-RES-RWT-01 SHEET 19 OF 29

DRAWING TITLE
RAINWATER TANK - LOT SCALE



CHARGED SYSTEM NOTES

- 1. CHARGED LINES ARE TO USE 'P' PRESSURE RATED SOLVENTS
- 2. FORCE LOW POINT IN CHARGE LINE TO CLEAN OUT PIT
- 3. FOR ISOLATED PIT WITHOUT OUTLET PIPES PROVIDE 4 5mm DIAMETER SEEPAGE HOLES IN BASE WITH GRAVEL LAYER BELOW PIT
- 4. THIS SYSTEM IS DESIGNED AS A REUSE TANK AND DOES NOT PROVIDE ANY DETENTION

GENERAL NOTES

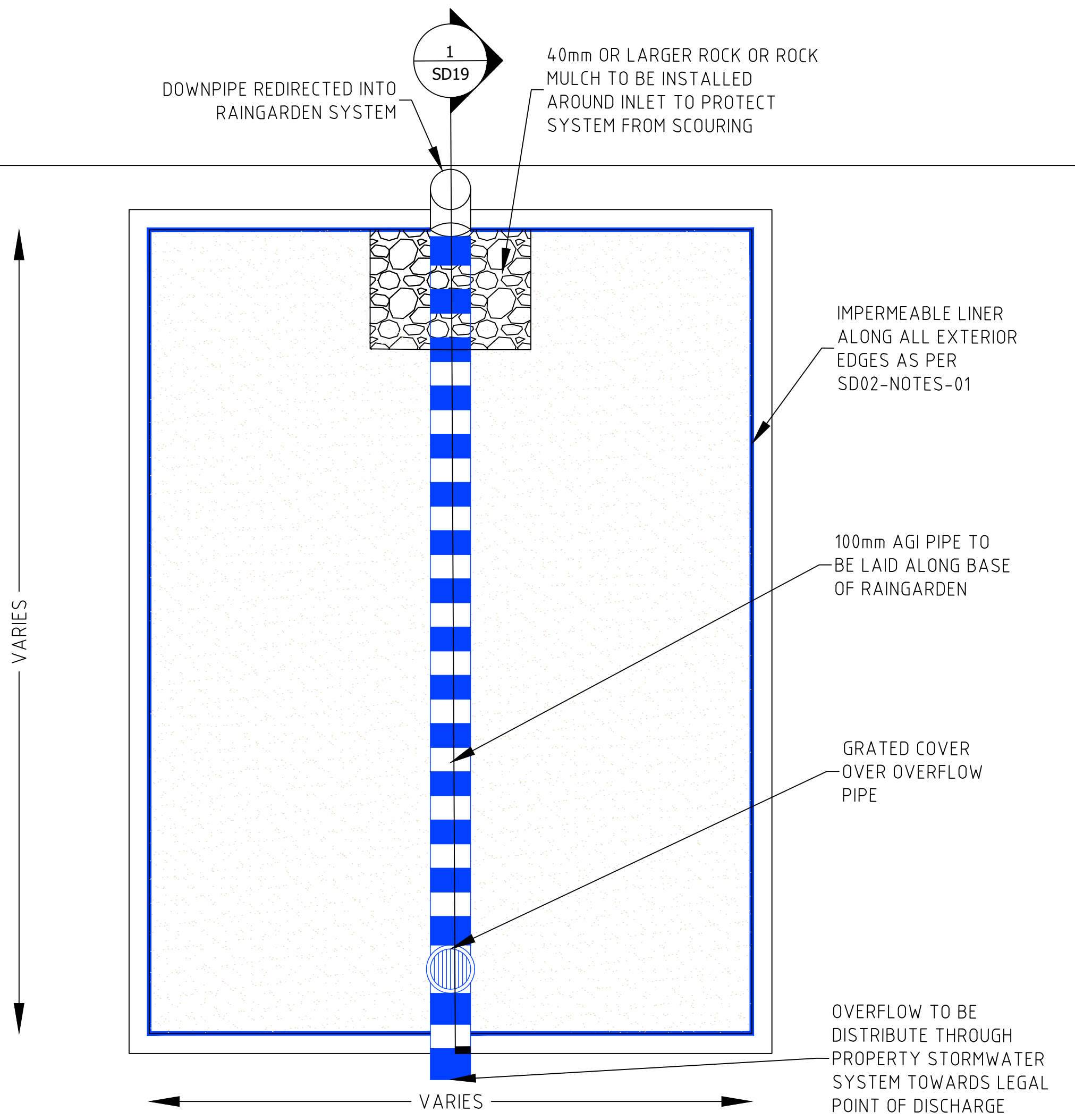
- 5. THE END USES FOR WATER FROM INDUSTRIAL RAINWATER TANKS ARE: IRRIGATION, FLUSHING OF TOILETS, WASH BAYS, INDUSTRIAL ACTIVITIES, MANUFACTURING PROCESSES, LAUNDRY ACTIVITIES, COOLING AND OTHER SUITABLE COMMERCIAL AND INDUSTRIAL ACTIVITIES
- 6. SOLVENT SEALED TO UNDERSTAND OF EAVES, PAINT ALL EXPOSED SURFACES OR USE UV STABILISED PIPES
- 7. OFF TAKE POINT IS TO BE MINIMUM 150mm ABOVE BASE OF TANK
- 8. FLOAT SWITCH SHALL BE SET TO ACTIVATE MAINS SUPPLY WHEN WATER LEVEL IS 200mm ABOVE TANK BASE
- 9. ENSURE FIRST FLUSH SYSTEM'S SLOW DRIP DISCHARGES IS CONTROLLED AND MUST BE DIRECTED TOWARDS A PERVIOUS SURFACE

GENERAL MODELING REQUIREMENTS

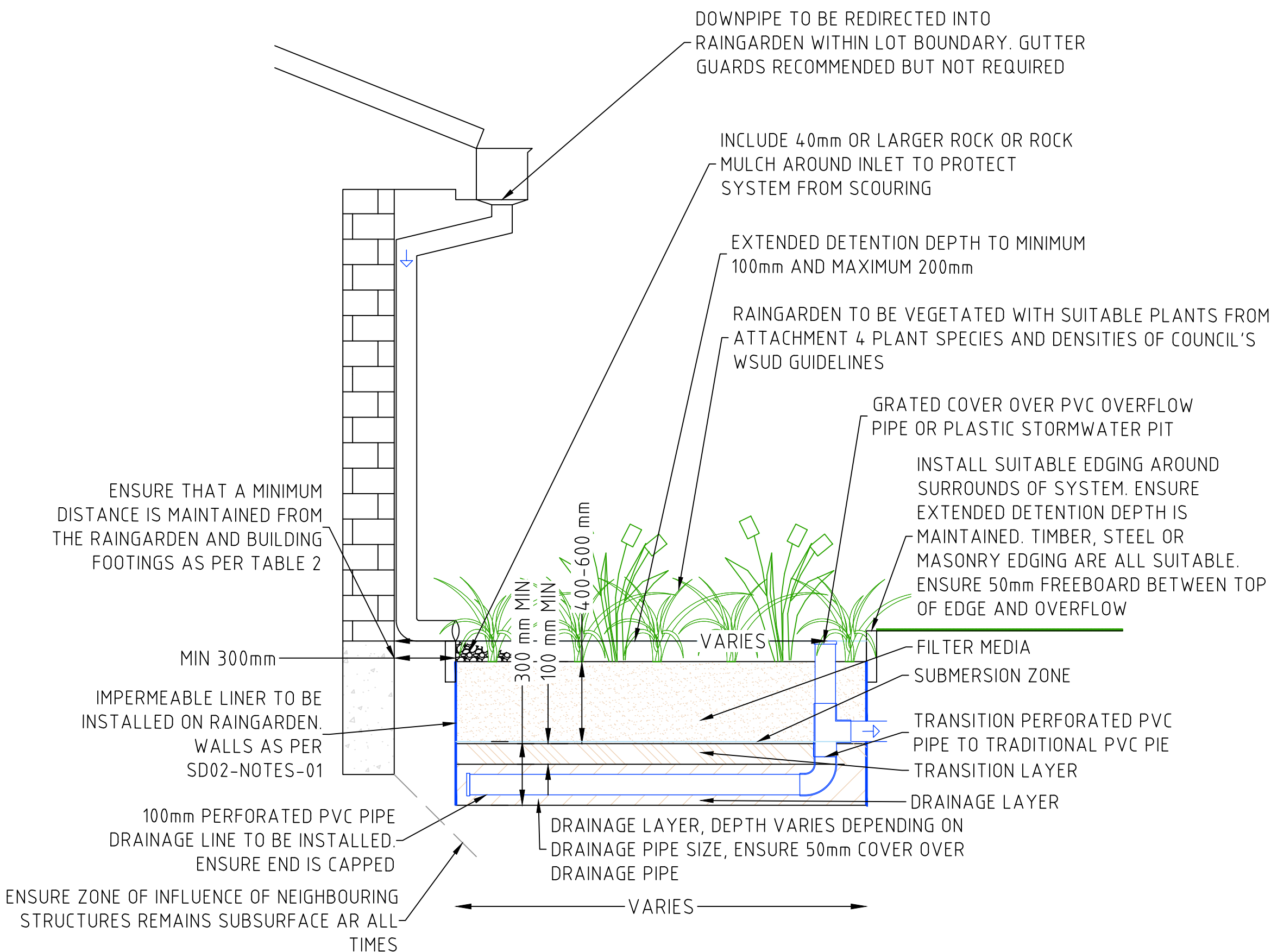
- 10. TO BE UPDATED IN A LATER VERSION
- 10.1. TO BE DEVELOPED IN CONJUNCTION WITH WSC

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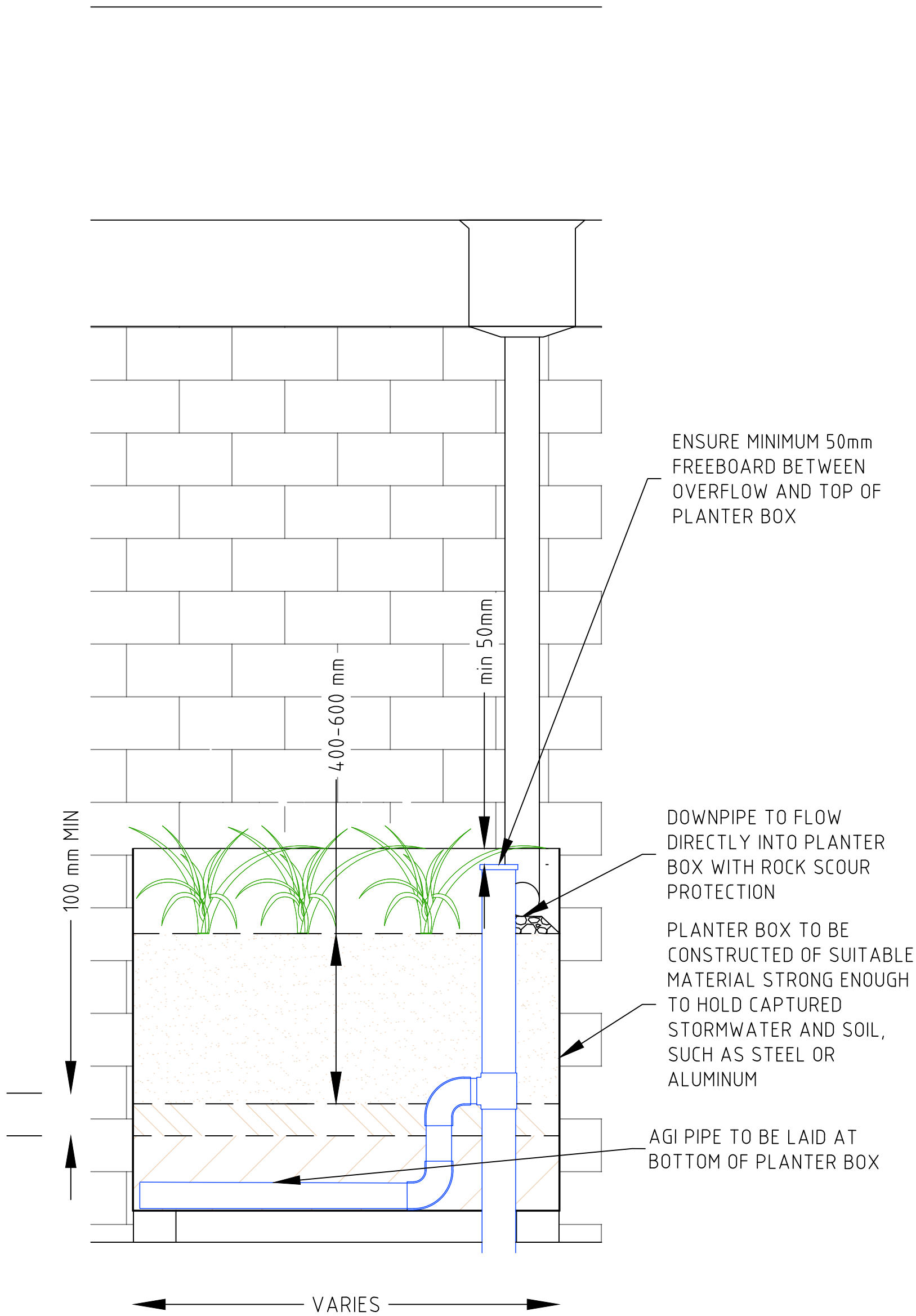
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	APPROVED BY TBA DATE: 12.06.2024	DRAWING NO. SD20-RES-RWT-02 SHEET 20 OF 29
DRAWING TITLE RAINWATER TANK - INDUSTRIAL LOT		



LOT SCALE RAINGARDEN PLAN VIEW
SCALE 1:10



SECTION 1 - LOT SCALE RAINGARDEN LONGITUDINAL CROSS SECTION
SCALE 1:20



LOT SCALE RAINGARDEN PLANTER BOX CROSS SECTION DETAIL
SCALE 1:10

NOTES

1. FILTER, TRANSITION AND DRAINAGE LAYERS TO COMPLY WITH DETAILS SPECIFIED IN ON WSUD STANDARD DRAWINGS SHEET SDTBA
2. THIS LAYOUT CAN BE MODIFIED USING A ELEVATED PLANTER BOX METHOD, ALL SPECIFICATION DETAILS IN THE PLANTER BOX SYSTEM WILL REMAIN THE SAME AS THE IN-GROUND SYSTEM UNLESS OTHERWISE STATED IN THE PLANTER BOX DETAIL
3. ENSURE CONSIDERATIONS HAVE BEEN MADE FOR THE POTENTIAL IMPACT OF UNDERGROUND ASSETS AND ENSURE ALLOWANCES HAVE BEEN MADE TO ENSURE THESE ASSETS ARE PROTECTED
4. PLANTING DENSITY SHOULD BETWEEN 4 & 10 PLANTS/m² - DEPENDANT ON SPECIES SELECTION AND MATURITY - REQUIRES COUNCIL APPROVAL
5. SYSTEM WILL REQUIRE QUARTERLY MAINTENANCE, ENSURING SEDIMENT AND WEEDS ARE REMOVED AND THAT PLANTS ARE HEALTHY. IT IS THE RESPONSIBILITY OF DEVELOPERS TO ENSURE AN APPROPRIATE MAINTENANCE REGIME IS APPROVED BY COUNCIL AND MAINTENANCE OBLIGATIONS ARE MET
6. ENSURE ADEQUATE SPACING IS GIVEN TO STRUCTURE FOUNDATIONS WHEN USING AN IN-GROUND SYSTEM. MINIMUM DISTANCE TO FOOTING SHOULD BE MAINTAINED AS PER TABLE 2 UNLESS APPROVED BY A QUALIFIED STRUCTURAL ENGINEER
7. IN BUSHFIRE PRONE LAND, RAINGARDENS SHOULD BE SEPARATED FROM BUILDING BY TWICE THE HEIGHT OF SHRUBS AND GRASSES WITHIN THE GARDEN
8. IF SYSTEM EXCEEDS A WIDTH OF 4m THEN ADDITIONAL SUBSURFACE PERFORATED DRAINAGE LINES TO BE INSTALLED AT MAXIMUM SPACING OF 3m

TABLE 1

RAINGARDEN SIZING ESTIMATE	
IMPERMEABLE AREA OF RUNOFF (m ²)	SIZE (m ²)
50	1
100	2
150	3
200	4
250	5
300	6
350	7
400	8
450	9

TABLE 2

MINIMUM DISTANCE FROM FOOTING	
STRUCTURE FOOTING DEPTH (mm)	GARDEN MINIMUM DISTANCE TO FOOTING (mm)
150	800
250	700
350	600
450	500
550	400
650	300

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DRAWING TITLE
RAINGARDEN - LOT SCALE

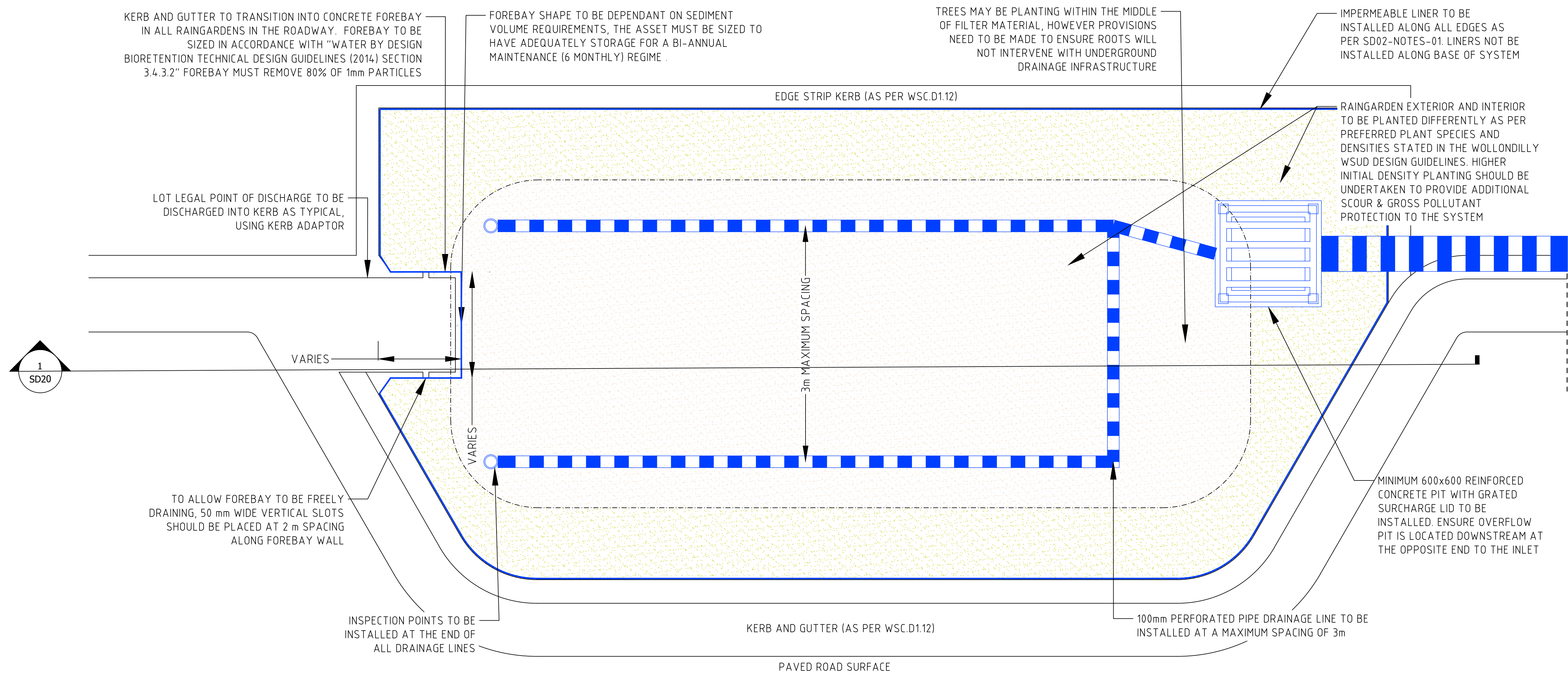
DRAWN
F.O
DATE: 04.11.2025

APPROVED BY
TBA
DATE: 12.06.2024

SCALE
VARIES @ A1

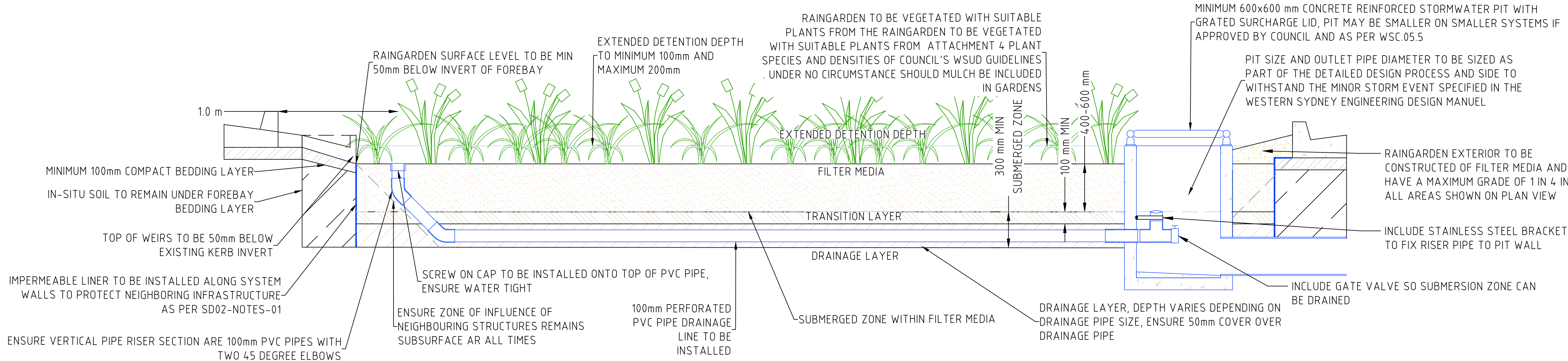
DRAWING NO.
SD21-RES-RG-01

SHEET 21 OF 29



STREET SCALE RAINGARDEN PLAN VIEW

SCALE 1:20



SECTION 1 - STREET SCALE RAINGARDEN LONGITUDINAL SECTION

SCALE 1:20

NOTES

1. FILTER, TRANSITION AND DRAINAGE LAYERS TO COMPLY WITH DETAILS SPECIFIED IN ON WSUD STANDARD DRAWINGS SHEET SD00
2. THIS LAYOUT CAN BE MODIFIED FOR STREET SCALE RAINGARDENS THAT ARE OUTSIDE OF THE ROADWAY
3. CONSIDERATIONS NEED TO BE MADE REGARDING HOW VEGETATION MAY IMPACT SIGHT DISTANCES
4. ENSURE CONSIDERATIONS HAVE BEEN MADE FOR THE POTENTIAL IMPACT OF UNDERGROUND ASSETS AND ENSURE ALLOWANCES HAVE BEEN MADE TO ENSURE THESE ASSETS ARE PROTECTED
5. ALL CONCRETE WORKS WITHIN THE ROADWAY MUST BE DESIGNED TO WITHSTAND VEHICLE IMPACT
6. ENSURE ALL INFRASTRUCTURE IS BICYCLE FRIENDLY
7. PLANTING DENSITY SHOULD BETWEEN 4 & 10 PLANTS/m² - DEPENDANT ON SPECIES SELECTION AND MATURITY
8. ENSURE MINIMUM OFFSETS ARE MAINTAINED TO EXISTING OR PROPOSED UNDERGROUND SERVICES. REFER TO THE REQUIREMENTS OF INDIVIDUAL SERVICE PROVIDERS
9. KERB ONLY REQUIRED WHEN ASSET IS LOCATED WITHIN OR NEXT TO THE ROADWAY. WHEN OUTSIDE OF THE ROADWAY, IT IS SUITABLE FOR SYSTEM INLET TO BE AN INLET PIPE WITH A FOREBAY
7. IN BUSHFIRE PRONE LAND, RAINGARDENS SHOULD BE SEPARATED FROM BUILDING BY TWICE THE HEIGHT OF SHRUBS AND GRASSES WITHIN THE GARDEN

LEGEND

- INSPECTION POINT
- ▨ FILTER MEDIA
- ▨ TRANSITION LAYER
- ▨ DRAINAGE LAYER
- ▨ PROPOSED WATER TABLE
- ▨ ROADWAY INFRASTRUCTURE
- ▨ PROPOSED STORMWATER INFRASTRUCTURE WITHIN SYSTEM
- ▨ RAINGARDEN INTERIOR - REGION OF HIGHER PERMANENT MOISTURE
- ▨ RAINGARDEN EXTERIOR - REGION OF LOWER PERMANENT MOISTURE

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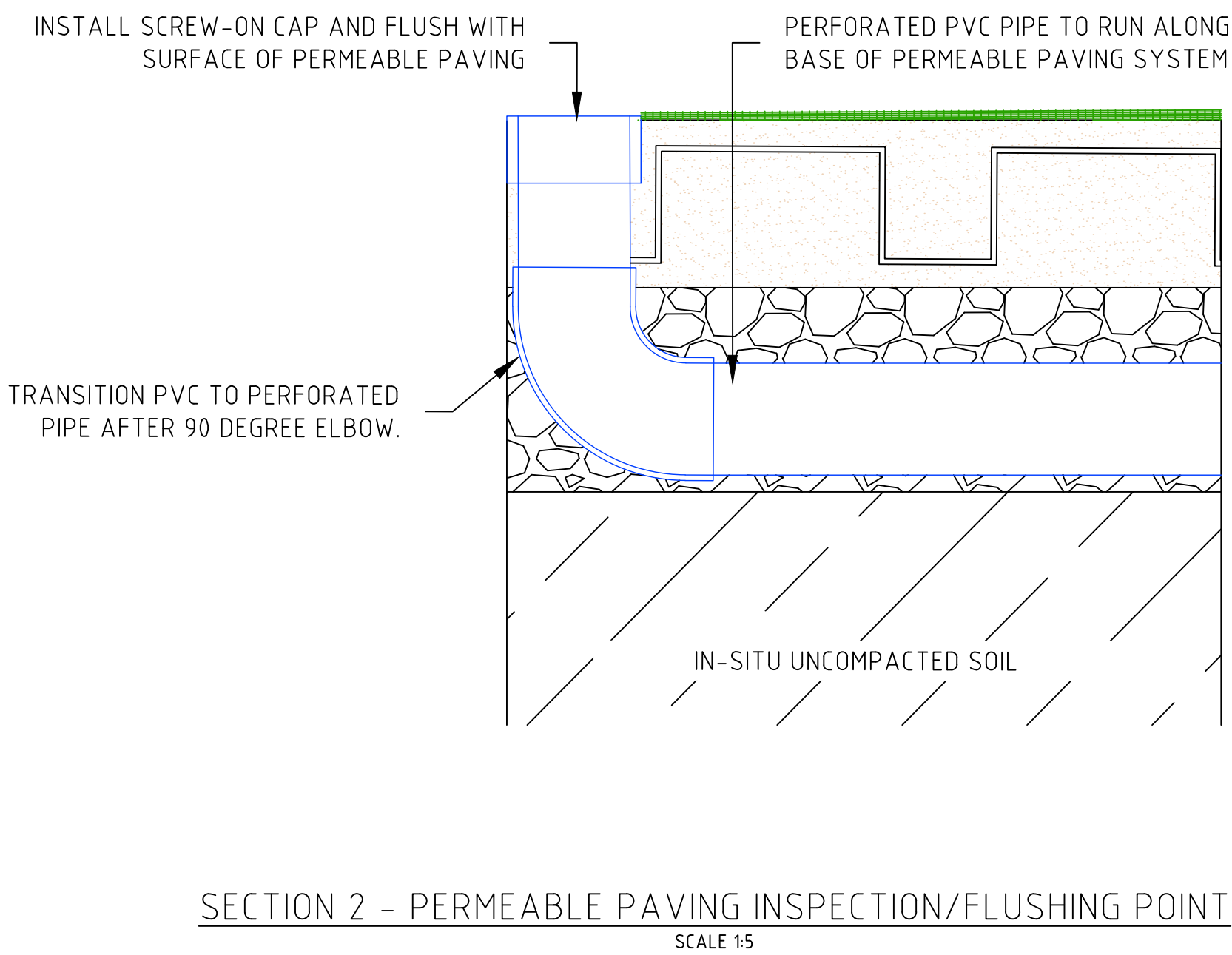
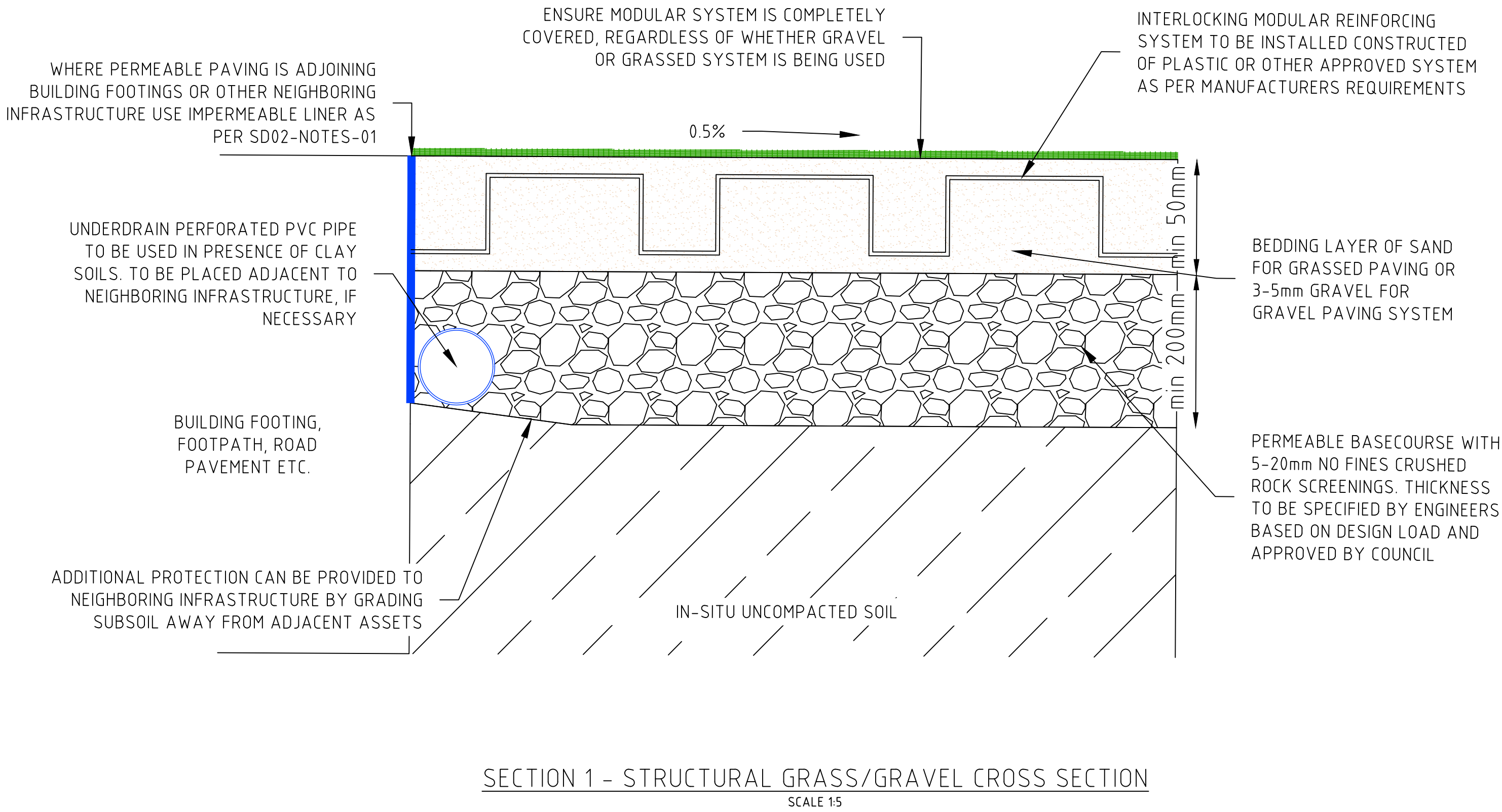
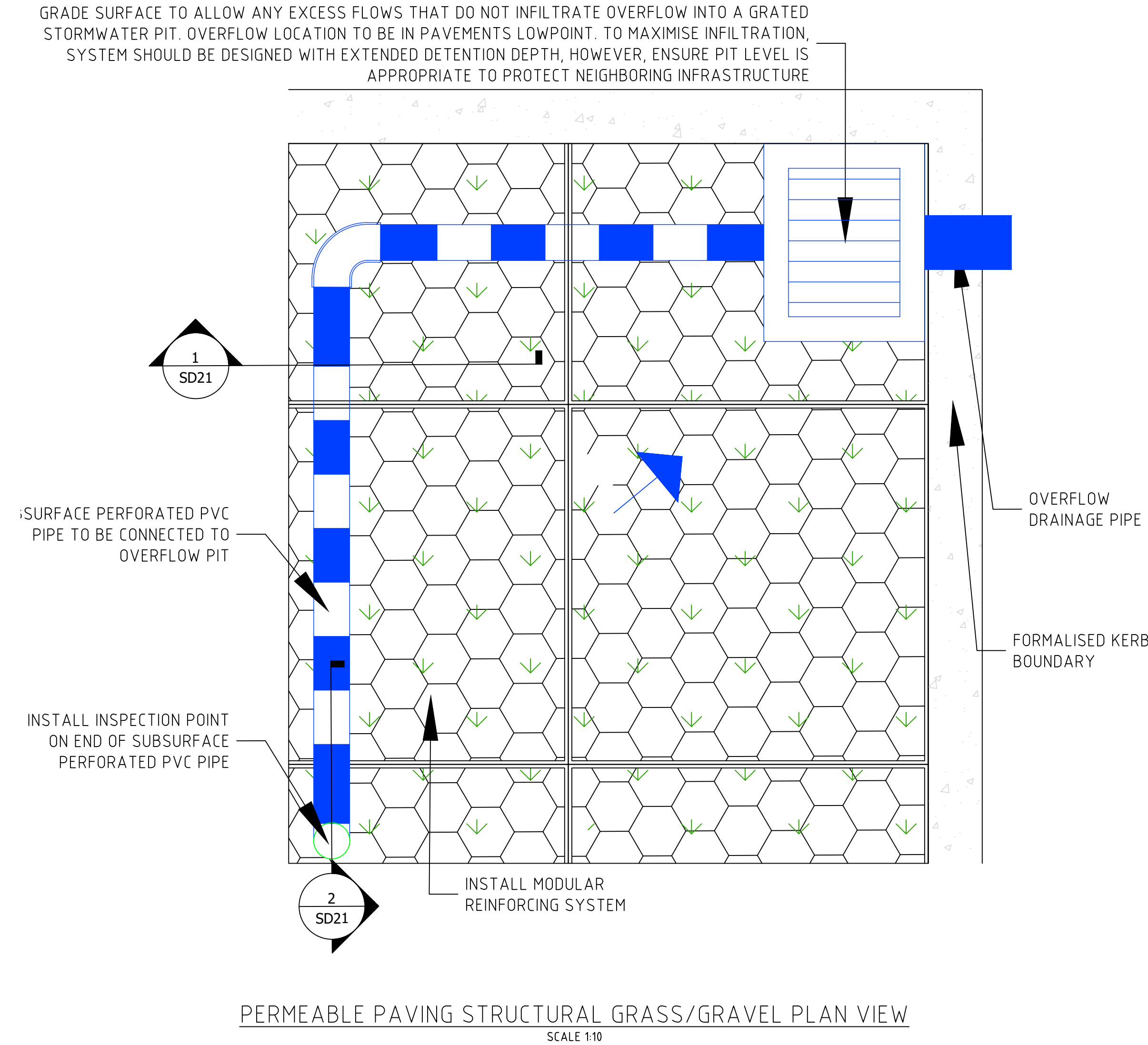
DRAWING TITLE
RAINGARDEN - STREET SCALE

DRAWN
F.O
DATE: 08.10.2024

APPROVED BY
TBA
DATE: 12.06.2024

SCALE
VARIES @ A1

DRAWING NO.
SD22-RES-RG-02
SHEET 22 OF 29



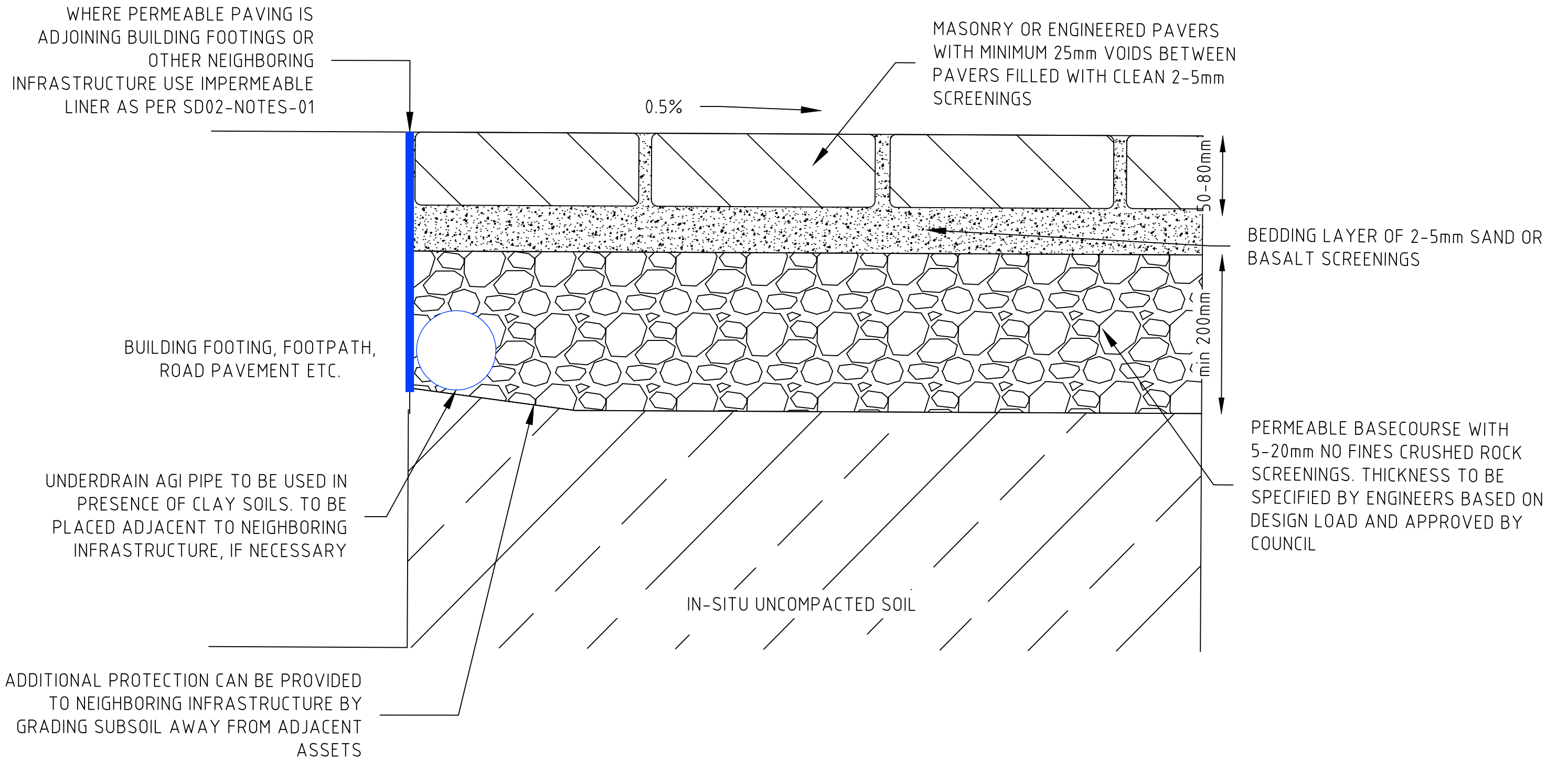
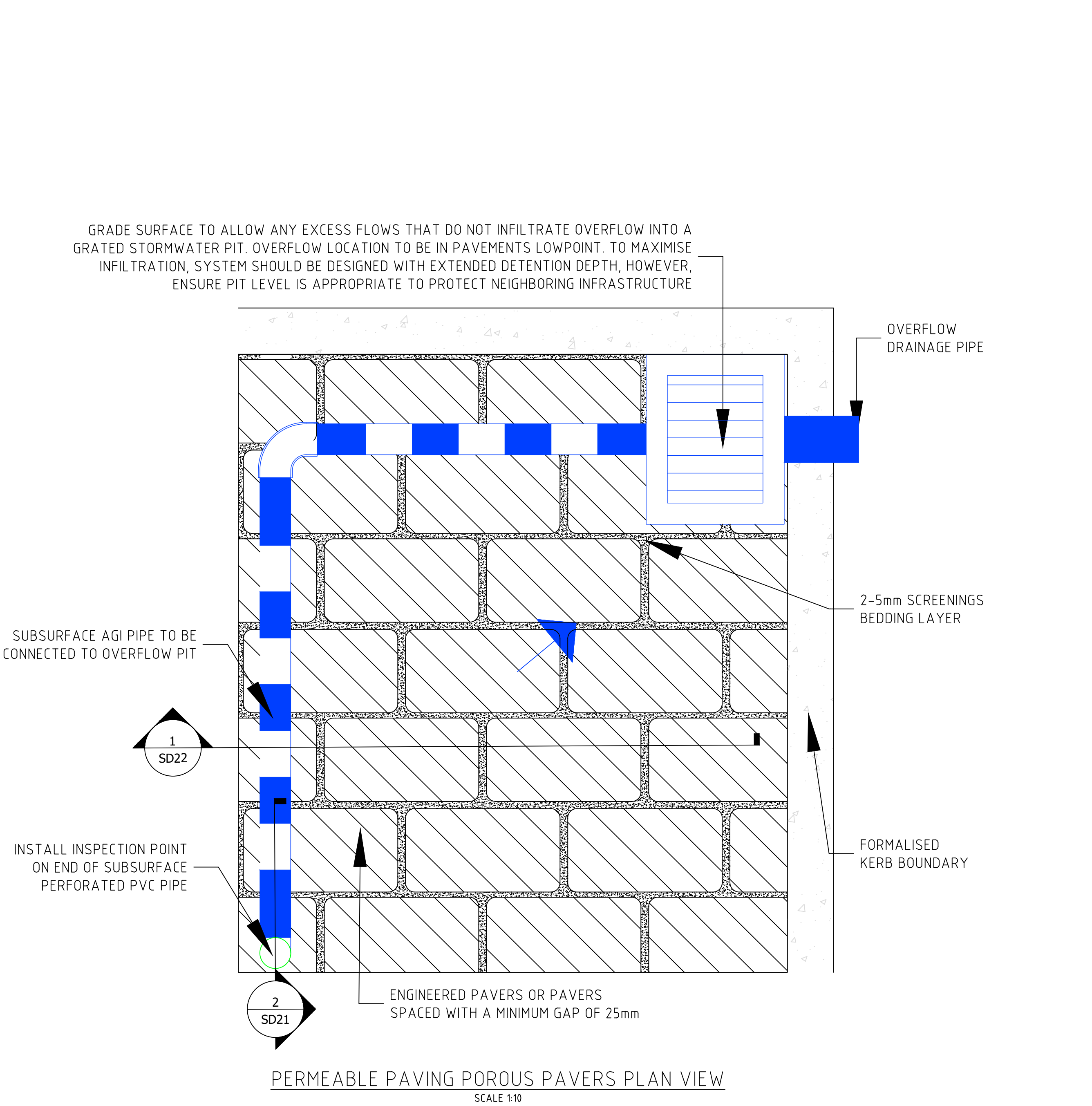
LEGEND

- IMPERMEABLE LINER
- AGI PIPE
- SAND BEDDING LAYER FOR GRASSED SYSTEM OR GRAVEL BEDDING LAYER FOR GRAVEL SYSTEM
- PERMEABLE BASE COURSE
- IN-SITU SOIL
- MODULAR REINFORCING SYSTEM
- GRATED STORMWATER PIT

- NOTES
- POROUS PAVEMENT IS MOST SUITABLE TO PEDESTRIAN OR LOW TRAFFIC AREAS (SUCH AS URBAN LOCAL ROADS, DRIVEWAYS/CROSSING, CAR PARKS AND/OR AUSTRROADS CLASS 4 & 5 ROADS) THAT TYPICALLY ONLY SERVICE LIGHT VEHICLES (AUSTRROADS CLASS 1 OR 2 VEHICLES).
 - POROUS PAVING SHOULD NOT BE USED ON SURFACES WERE VEHICLES ARE EXPECTED TO TURN FREQUENTLY AT SPEEDS OVER 20 KM/H. POROUS PAVING IS SUITABLE FOR CAR PARKS.
 - WHEN INSTALLED IN CLAY SOILS, ENSURE SUBSOIL DRAINAGE IS ALSO UTILISED
 - SUBSOIL DRAIN LINES ARE TO HAVE FLUSHING POINTS EVERY 20m NOMINAL
 - CLEANING OR RENEWAL IS REQUIRED WHERE WATER PONDS ON THE SYSTEMS SURFACE FOR MORE THAN AN 1 HOUR AFTER RAINFALL. ENSURE ADEQUATE STEPS ARE TAKEN TO ENSURE THAT REGULAR MAINTENANCE IS UNDERTAKEN ON PERMEABLE PAVEMENT. SYSTEM SHOULD BE REGULARLY PRESSURE WASHED AND SWEEPED WITH A STIFF BROOM TO ENSURE ACCUMULATED SEDIMENT IS REMOVED AND TO AVOID FURTHER BLOCKAGE
 - PERVIOUS PAVEMENT SHOULD NOT HAVE SURROUNDING SURFACES DRAINING ONTO THE SYSTEM. TO EXTEND DESIGN LIFE THE SYSTEM SHOULD ONLY CAPTURE DIRECT RAINWATER AND NOT BE USED TO CAPTURE FLOWS FROM NEIGHBOURING IMPERVIOUS SURFACES. THIS PAVEMENT SHOULD ONLY CAPTURE DIRECT RAINFALL AS IT IS A ONE TO ONE TREATMENT

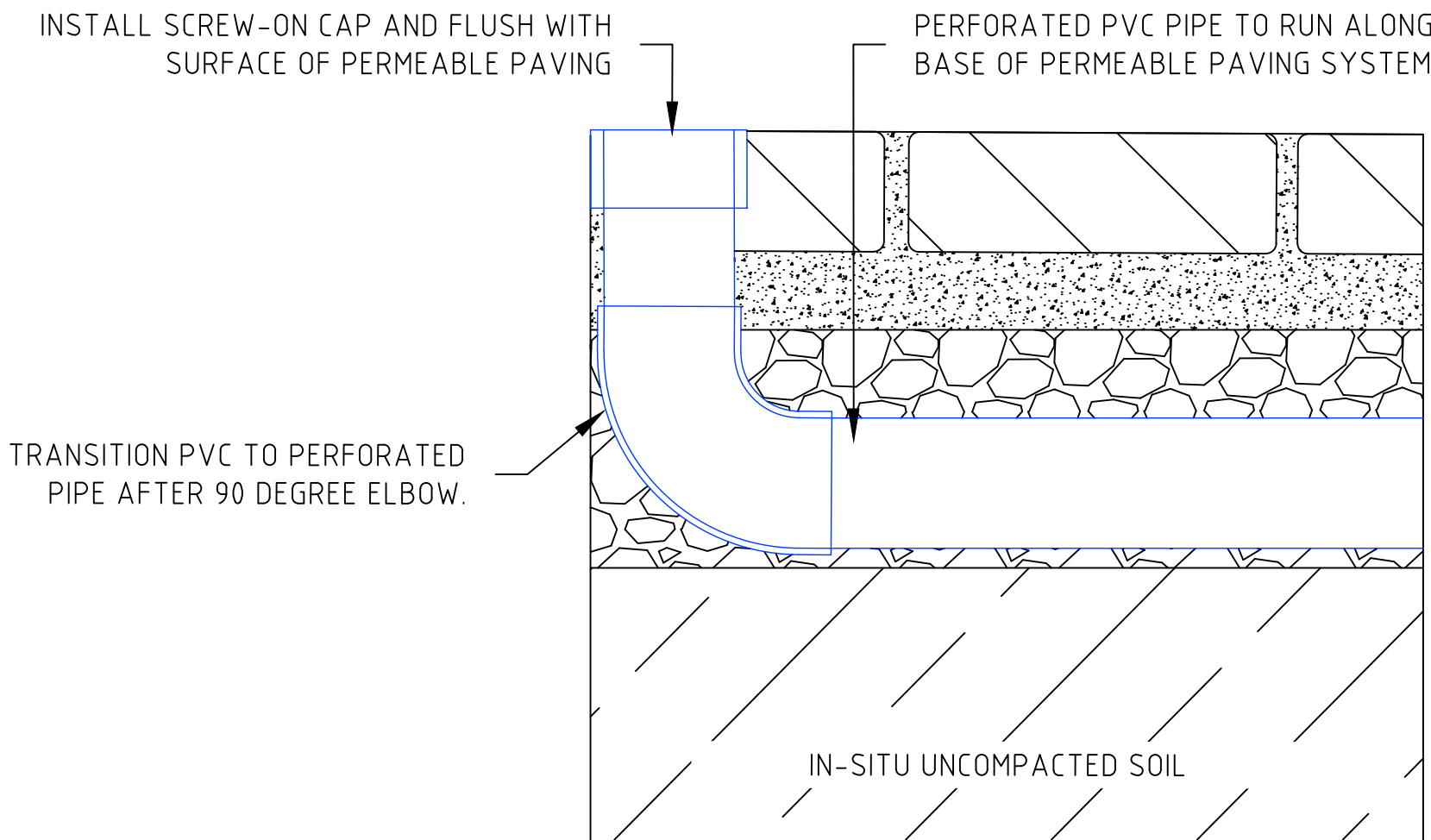
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DRAWING TITLE PERMEABLE PAVING - TYPE 1 STRUCTURAL GRASS/GRAVEL		

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SECTION 1 - POROUS PAVERS CROSS SECTION

SCALE 15



SECTION 2 - PERMEABLE PAVING INSPECTION/FLUSHING POINT

SCALE 15

LEGEND

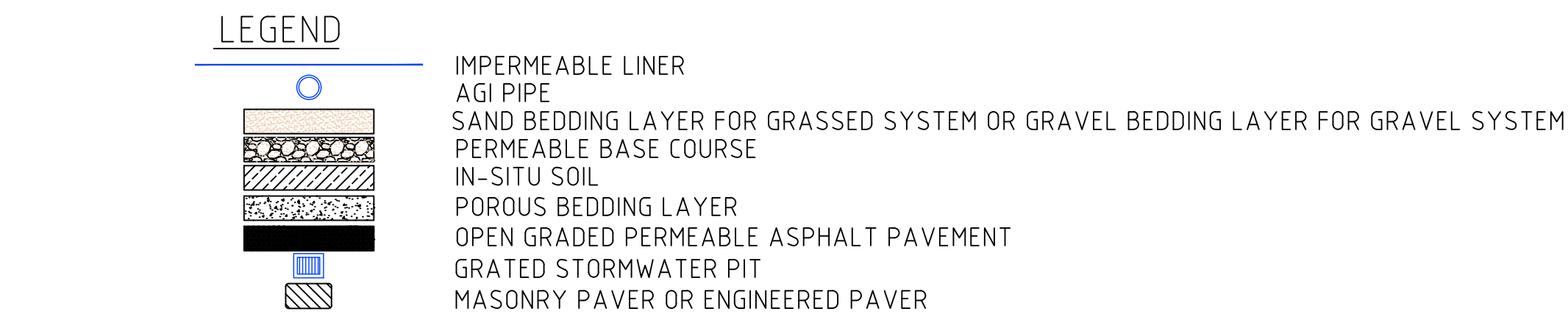
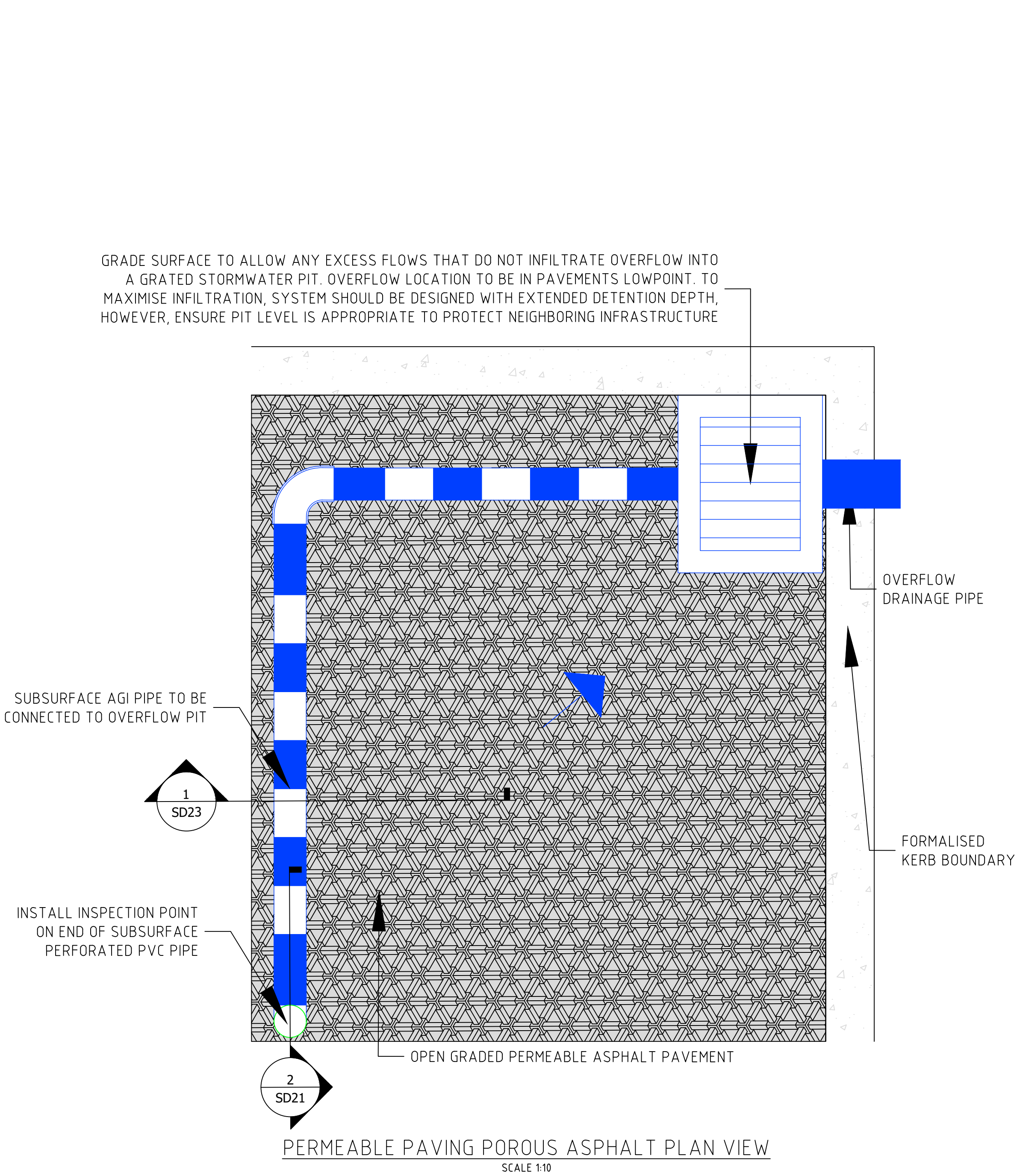
- IMPERMEABLE LINER
- AGI PIPE
- SAND BEDDING LAYER FOR GRASSED SYSTEM OR GRAVEL BEDDING LAYER FOR GRAVEL SYSTEM
- PERMEABLE BASE COURSE
- IN-SITU SOIL
- POROUS BEDDING LAYER
- GRATED STORMWATER PIT
- MASONRY PAVER OR ENGINEERED PAVER

NOTES

- POROUS PAVEMENT IS MOST SUITABLE TO PEDESTRIAN OR LOW TRAFFIC AREAS (SUCH AS URBAN LOCAL ROADS, DRIVEWAYS/CROSSING, CAR PARKS AND/OR AUSTRROADS CLASS 4 & 5 ROADS) THAT TYPICALLY ONLY SERVICE LIGHT VEHICLES (AUSTRROADS CLASS 1 OR 2 VEHICLES).
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- PERVIOUS PAVEMENT SHOULD NOT HAVE SURROUNDING SURFACES DRAINING ONTO THE SYSTEM. TO EXTEND DESIGN LIFE THE SYSTEM SHOULD ONLY CAPTURE DIRECT RAINWATER AND NOT BE USED TO CAPTURE FLOWS FROM NEIGHBOURING IMPERVIOUS SURFACES. THIS PAVEMENT SHOULD ONLY CAPTURE DIRECT RAINFALL AS IT IS A ONE TO ONE TREATMENT

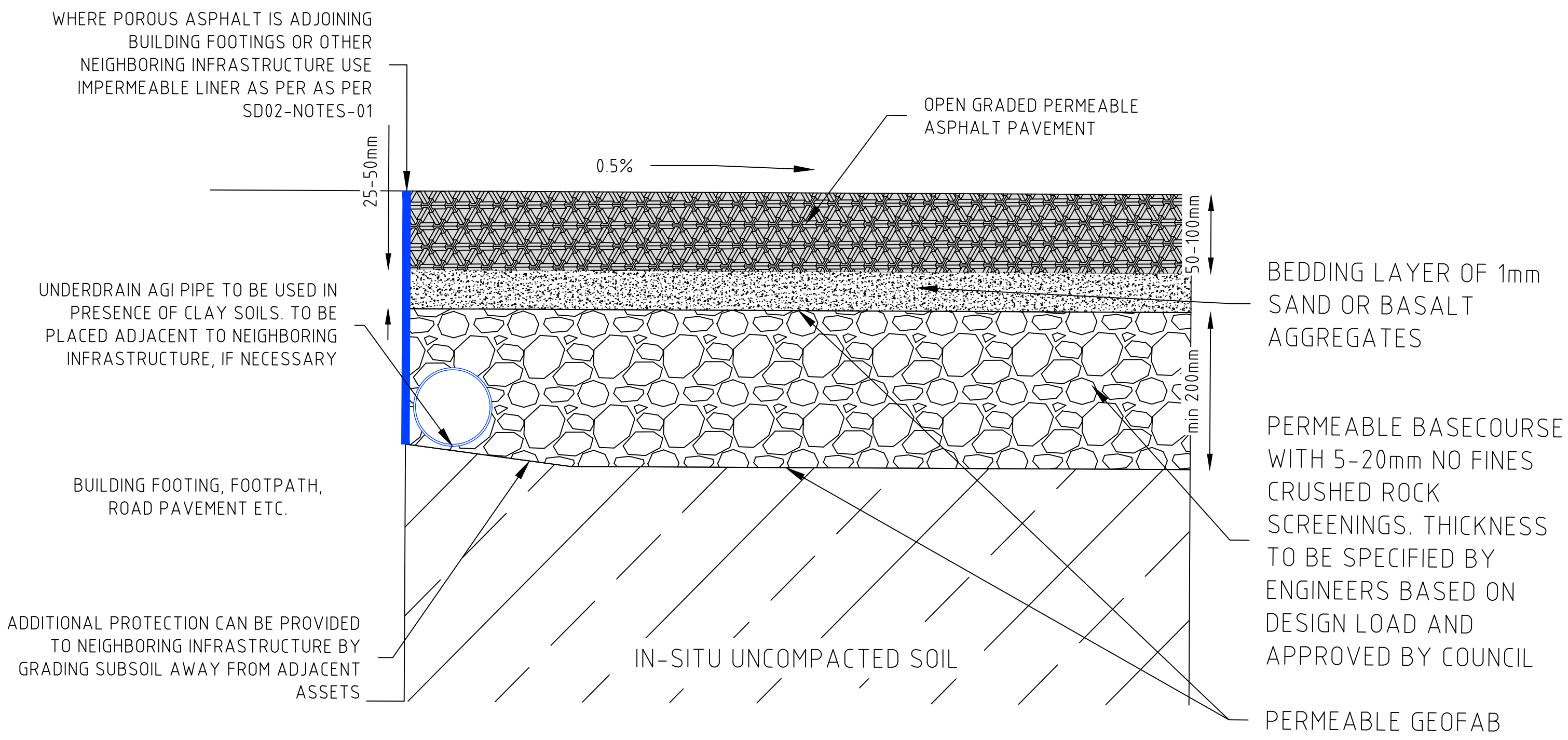
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	APPROVED BY TBA DATE: 12.06.2024	DRAWING NO. SD24-RES-PAV-02 SHEET 24 OF 29
DRAWING TITLE PERMEABLE PAVING - TYPE 2 POROUS PAVERS		



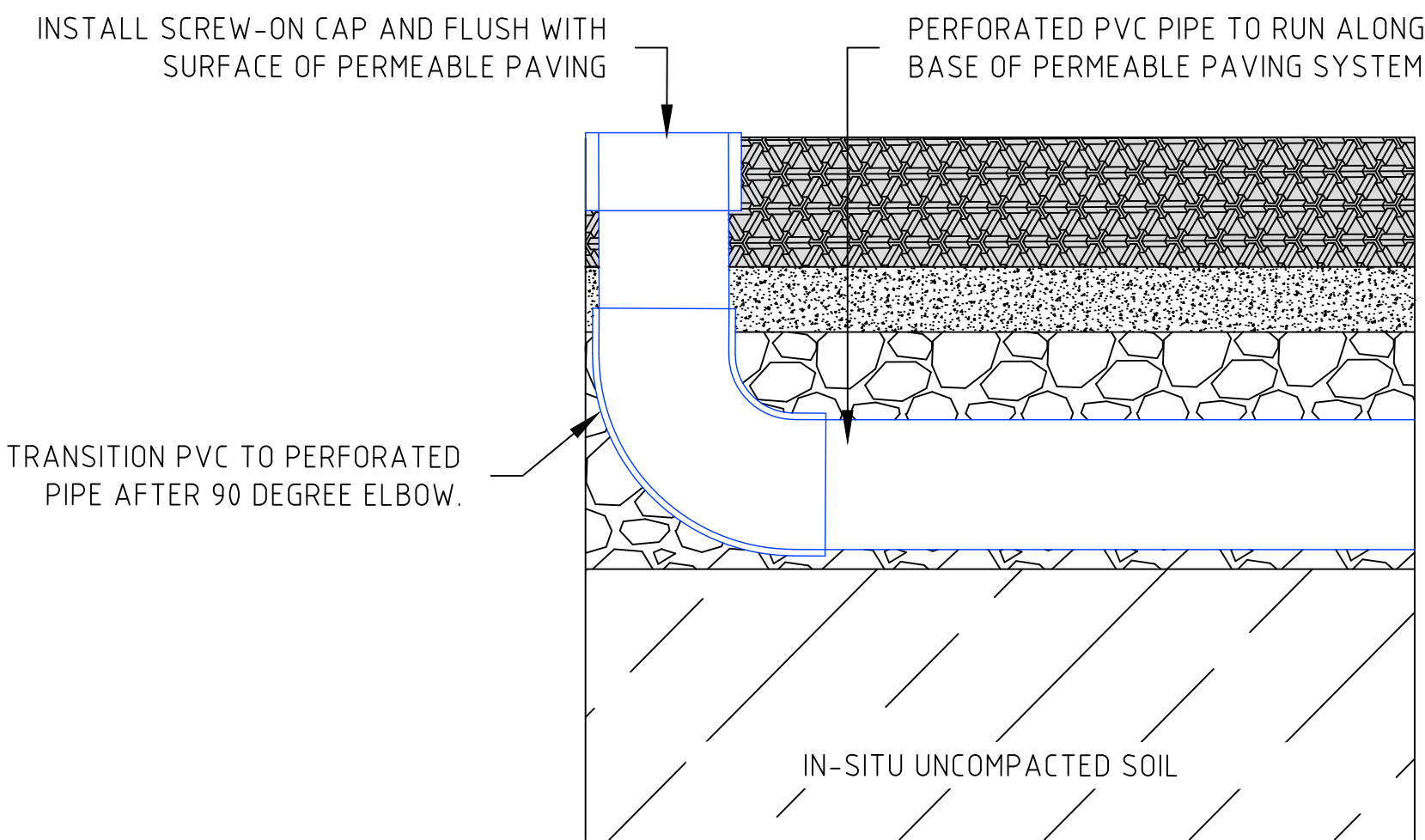
NOTES

- POROUS PAVEMENT IS MOST SUITABLE TO PEDESTRIAN OR LOW TRAFFIC AREAS (SUCH AS URBAN LOCAL ROADS, DRIVEWAYS/CROSSING, CAR PARKS AND/OR AUSTRROADS CLASS 4 & 5 ROADS) THAT TYPICALLY ONLY SERVICE LIGHT VEHICLES (AUSTRROADS CLASS 1 OR 2 VEHICLES).
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- PERVIOUS PAVEMENT SHOULD NOT HAVE SURROUNDING SURFACES DRAINING ONTO THE SYSTEM. TO EXTEND DESIGN LIFE THE SYSTEM SHOULD ONLY CAPTURE DIRECT RAINWATER AND NOT BE USED TO CAPTURE FLOWS FROM NEIGHBOURING IMPERVIOUS SURFACES. THIS PAVEMENT SHOULD ONLY CAPTURE DIRECT RAINFALL AS IT IS A ONE TO ONE TREATMENT



SECTION 1 - POROUS ASPHALT CROSS SECTION

SCALE 15

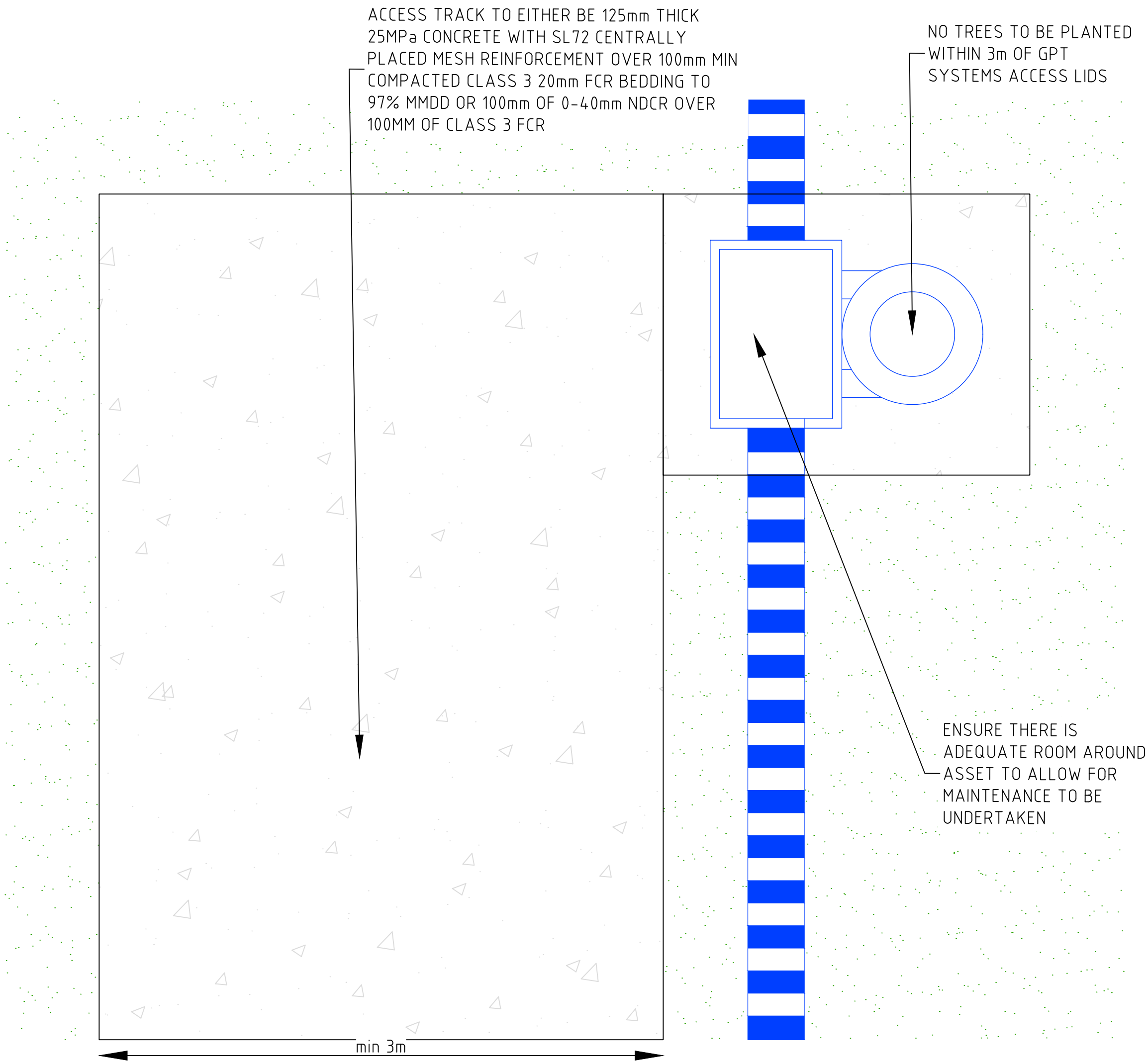


SECTION 2 - PERMEABLE PAVING INSPECTION/FLUSHING POINT

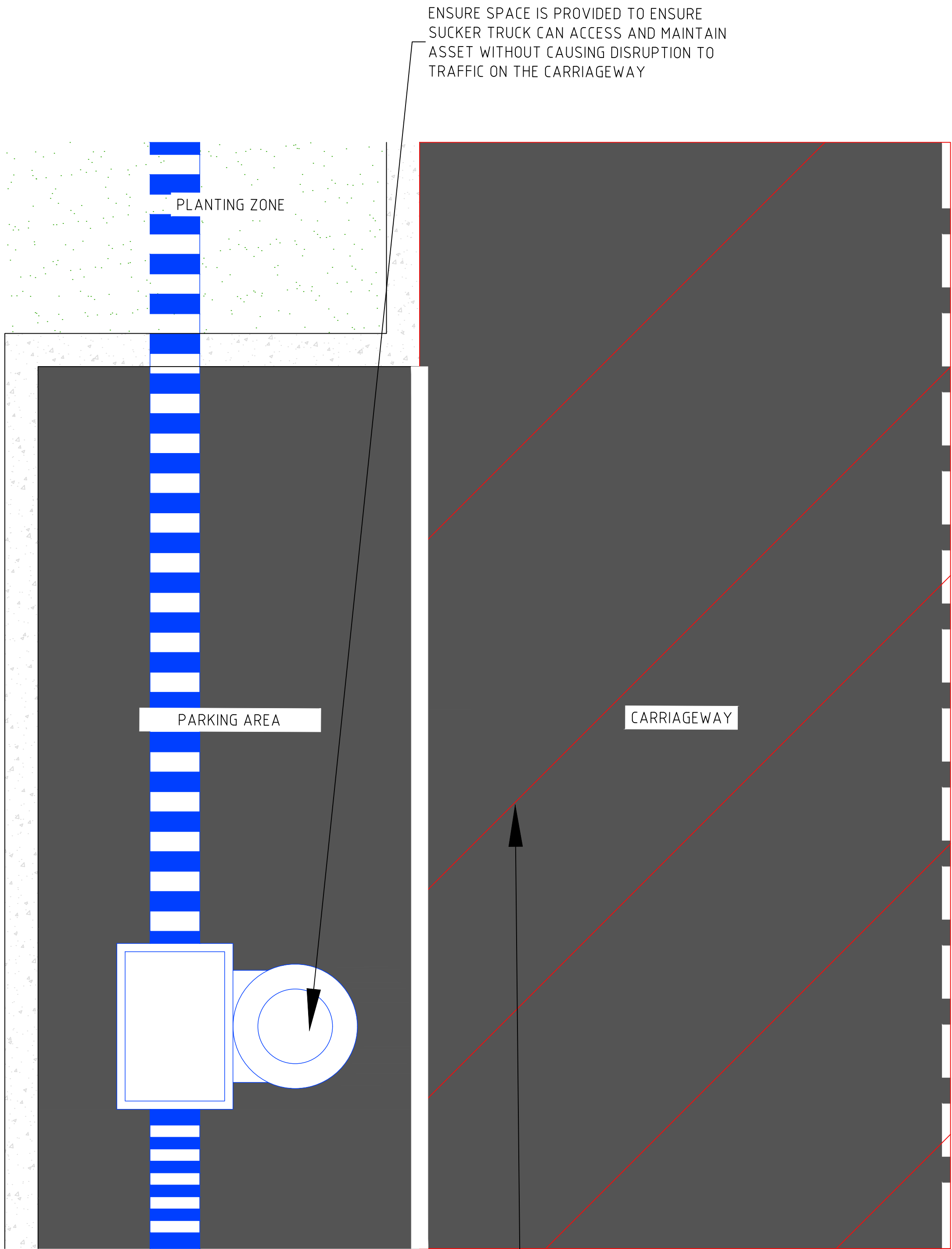
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DRAWING TITLE PERMEABLE PAVING - TYPE 3 POROUS ASPHALT		



GPT ACCESSIBILITY OUTSIDE OF ROAD RESERVE
SCALE 1:20



GPT ACCESSIBILITY WITHIN ROAD RESERVE
SCALE 1:20

GPT PRECINCT SCALE SPECIFICATION REQUIREMENTS

- PRECINCT SCALE GPTs TO BE NON-BLOCKING AND MAY BE VORTEX SYSTEMS, DIRECT SCREENING, DIFFERENCE IN SPECIFIC GRAVITY TRAPS OR A COMBINATION OF THESE TREATMENT TECHNIQUES THAT ARE APPROVED BY COUNCIL. HIGH PERFORMANCE VORTEX SYSTEMS ARE THE PREFERRED PROPRIETARY PRODUCT
- GPTs THAT REQUIRE THE REPLACEMENT OF PROPRIETARY PARTS AS PART OF GENERAL MAINTENANCE (EG. REPLACEMENT OF TREATMENT CARTRIDGES) WILL NOT BE APPROVED BY COUNCIL
- THE GPT IS REQUIRED TO HAVE A DIVERSION WEIR TO DIRECT LOW FLOWS INTO THE GPT FOR TREATMENT, ALLOWING HIGH FLOWS TO OVERTOP THE WEIR DURING TIMES OF BYPASS.
 - DEVICES SHOULD BE DESIGNED TO TREAT A 4EY RAIN EVENT. THE DIVERSION SHOULD NOT ACTIVATE FOR ANY EVENT SMALLER THAN THE 4EY
 - DIVERSION CHAMBERS SHOULD HAVE A CAPPED LOWFLOW BYPASS
- GPTs NEED TO BE DESIGNED TO ENSURE THAT THEY DO NOT RESULT IN UNACCEPTABLE NEGATIVE HYDRAULIC IMPACTS THAT MAY RESULT IN REDUCED WORK HEALTH AND SAFETY OUTCOMES OR RESULT IN INCREASED COUNCIL LIABILITY
- GPT ARE NOT TO BE USED AS THE ONLY TREATMENT MEASURE THAT TARGETS NITROGEN AND PHOSPHORUS, OTHER TREATMENTS METHODS WILL NEED TO BE UNDERTAKEN AT THE PRECINCT SCALE TO ENSURE ADEQUATE TREATMENT OF NITROGEN AND PHOSPHOROUS. GPTS SHOULD ONLY BE USED TO SPECIFICALLY TARGET GROSS POLLUTANTS AND SOME SUSPENDED SOLIDS.
- SYSTEMS SHOULD BE APPROPRIATELY DESIGNED AND SIZED BY A SUITABLY QUALIFIED ENGINEER
 - GPT SYSTEMS NEED TO BE MAINTAINED QUARTERLY OR AFTER ANY MAJOR RAIN EVENT AND HENCE MUST BE ADEQUATELY SIZED TO HAVE A MINIMUM STORAGE OF THE 3 MONTHS POLLUTANT LOAD
 - DEVICES MUST REMOVE 95% OF GROSS POLLUTANT THAT ARE GREATER THAN 5mm

MAINTENANCE AND ACCESSIBILITY

- ENSURE GPTs ARE PLACED IN A LOCATION THAT IS ACCESSIBLE FOR MAINTENANCE VEHICLES AND CAUSE AS LITTLE DISRUPTION AS POSSIBLE FOR LOCAL TRAFFIC AND RESIDENTS.
 - SYSTEMS SHOULD NOT BE INSTALLED WITHIN THE CARRIAGEWAY OF ROADS UNLESS ABSOLUTELY NECESSARY. ROAD OR LANE CLOSURES SHOULD NOT BE REQUIRED IN ORDER FOR MAINTENANCE TO BE UNDERTAKEN.
 - COUNCIL MAY ALLOW FOR A GPT TO INSTALLED IN THE CARRIAGEWAY IF A DEVELOPER CAN PROVIDE CONCLUSIVE EVIDENCE AND DETAILS THAT THIS LOCATION IS THE ONLY FEASIBLE SOLUTION. THE APPROVAL OF THIS LOCATION IS AT THE COUNCIL'S DISCRETION.
 - ORIENTATION OF ACCESS LIDS SHOULD BE SUCH THAT THEY ARE EASILY AND SAFELY REMOVABLE (CONCRETE SURROUND PREFERRED)
- SYSTEMS SHOULD BE SELECTED THAT ONLY REQUIRE MAINTENANCE BY A SUCKER TRUCK AND HAVE LIDS THAT CAN BE LIFTED BY A GATIC LIFTER.
 - LIDS SHOULD BE TRAFFICABLE AND CLASS D OR ABOVE AND SHOULD NOT EXCEED 900mm x 600mm TO ENSURE THEY CAN BE OPENED BY 1 PERSON
 - SYSTEMS WITH LIDS THAT NEED TO BE LIFTED BY CRANE TRUCKS OR OTHER LIFTING EQUIPMENT ARE NOT SUITABLE WITHIN WOLLONDILLY
 - STEP IRONS ARE TO BE INCLUDED FOR ACCESS TO THE DIVERSION CHAMBER
- ALL SYSTEMS REQUIRE APPROPRIATE ACCESS. ASSETS LOCATED OUTSIDE THE ROAD RESERVE WILL REQUIRE AN ACCESS TRACK SUITABLE FOR A 30-TONNE SUCKER TRUCK.
 - ACCESS TRACKS SHOULD EITHER BE PAVED OR A FORMALISED GRAVEL TRACK
- DEVICES REQUIRE IFC/WAE DRAWING AND A SITE SPECIFIC DATA SHEET AND ONE-PAGE-CLEANING-SPECIFICATION AS PER THE GUIDELINES FOR THE MAINTENANCE OF STORMWATER TREATMENT MEASURES

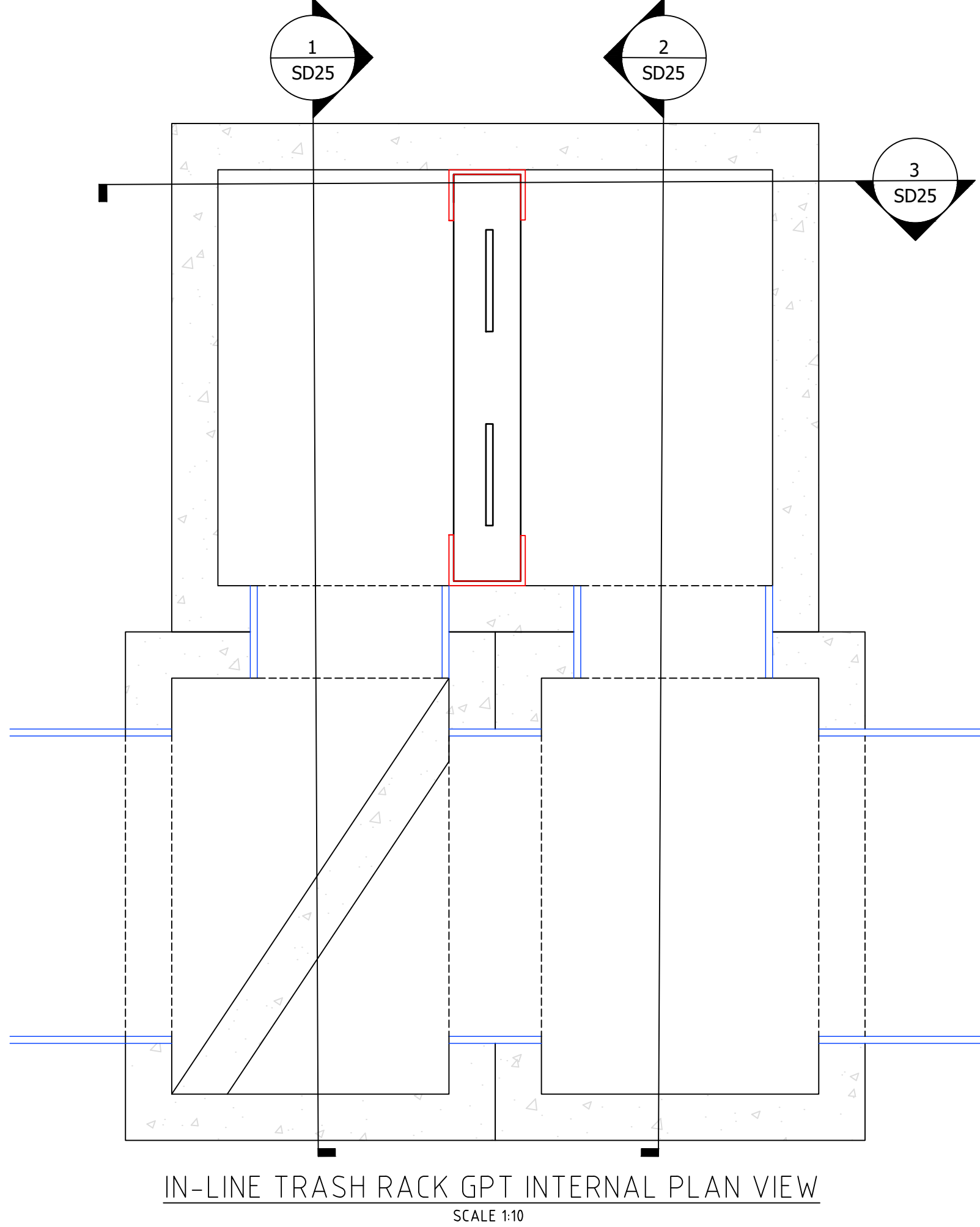
MUSIC MODELING REQUIREMENTS

- GPTs SHOULD BE INCLUDED AS PART OF THE TREATMENT TRAIN OF ANY DEVELOPMENT PRECINCT. ENSURE OTHER TREATMENT METHODS ARE USED TO TARGET STORMWATER VOLUME REDUCTION.
- TREATMENT NODES DEVELOPED BY MANUFACTURERS OF PROPRIETARY PRODUCTS MAY BE USED WITHIN THE PRECINCTS TREATMENT TRAIN

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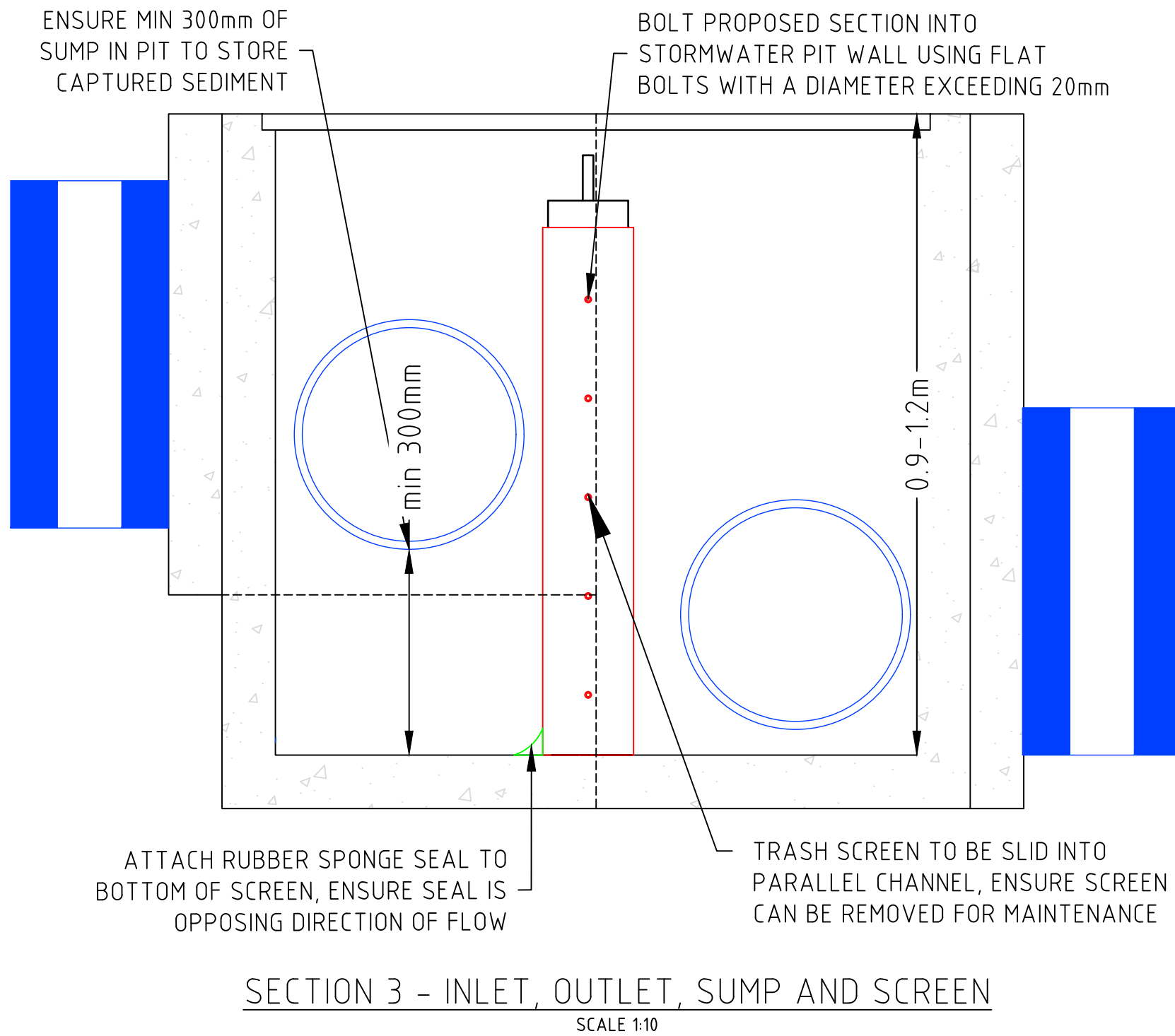
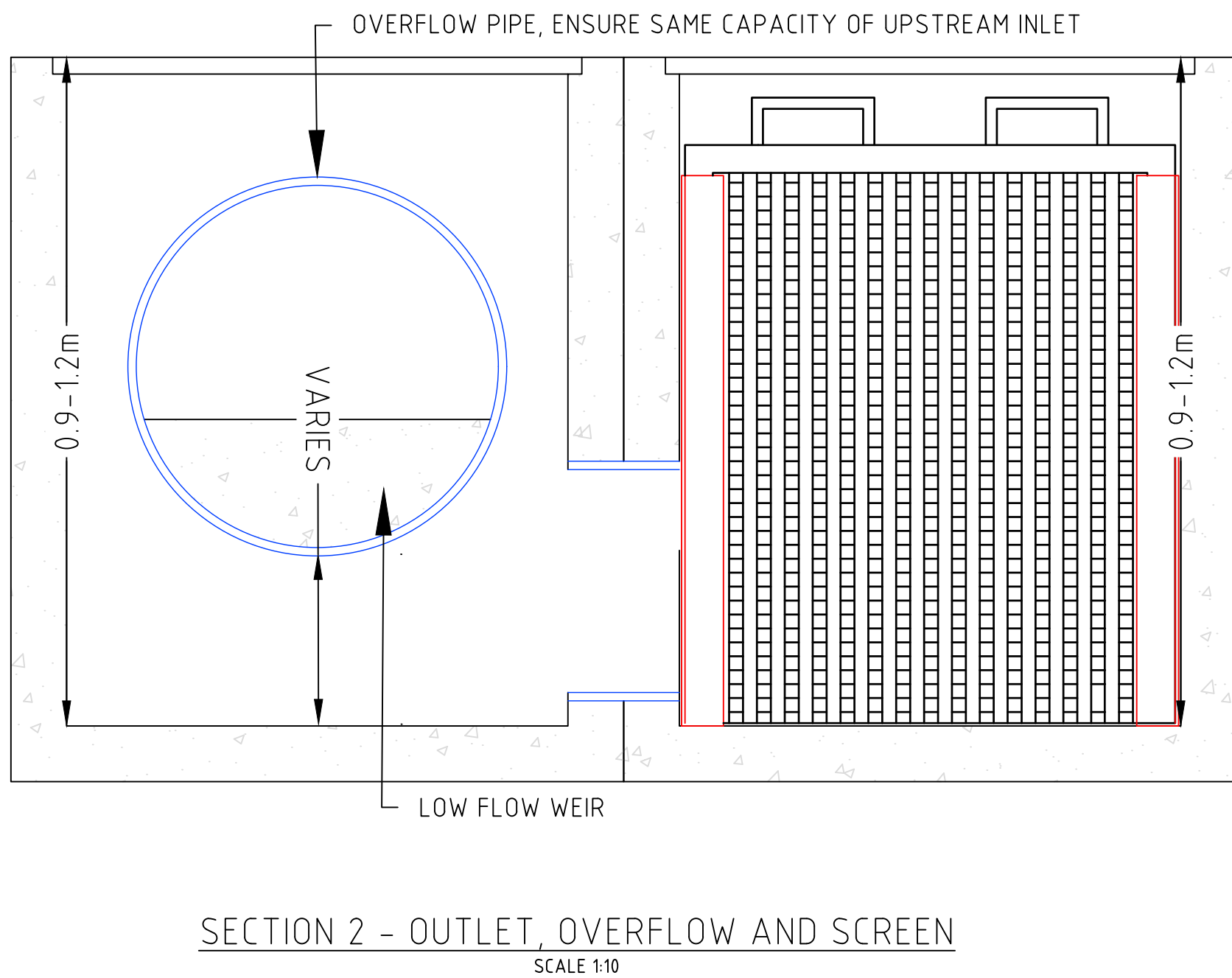
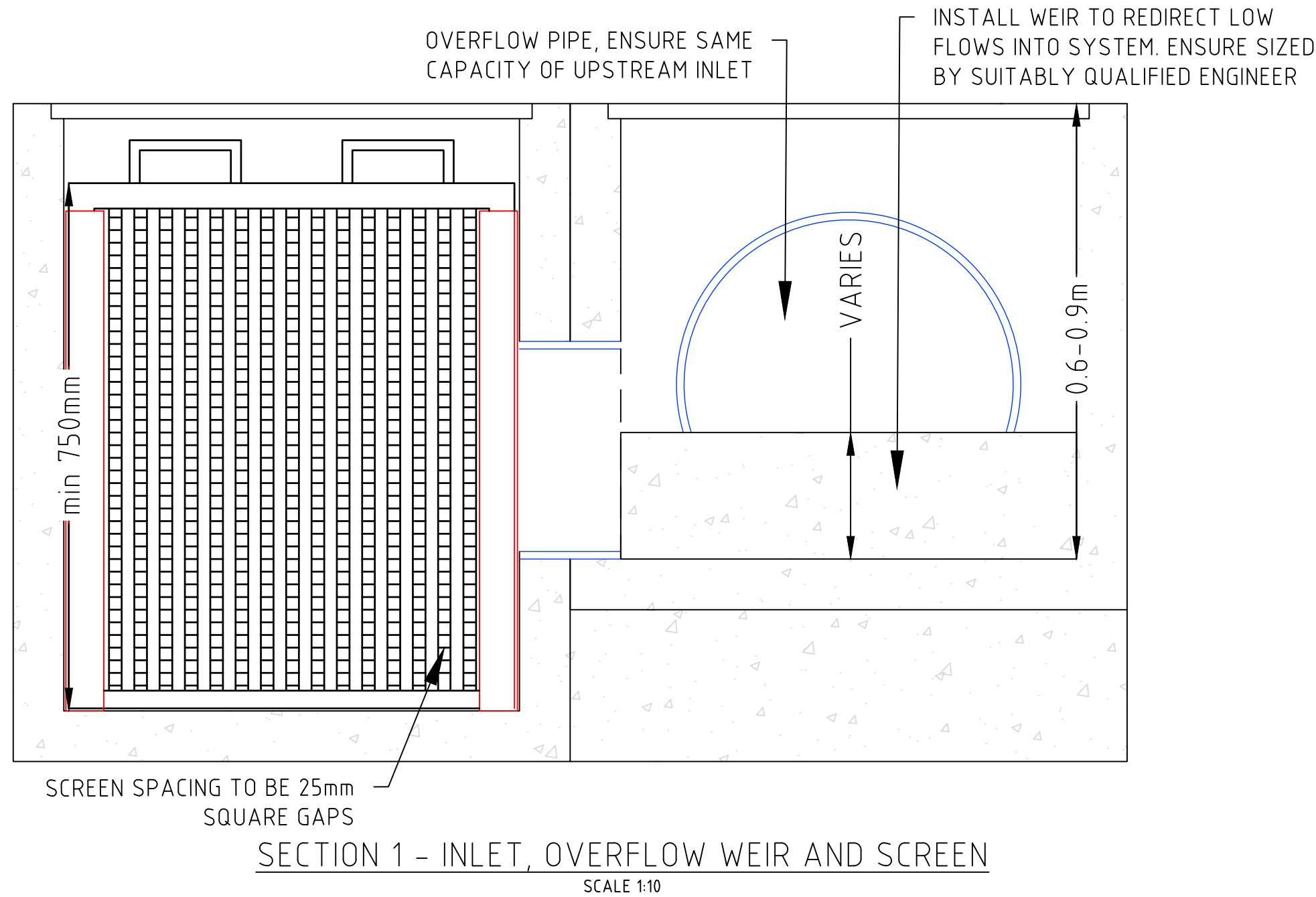
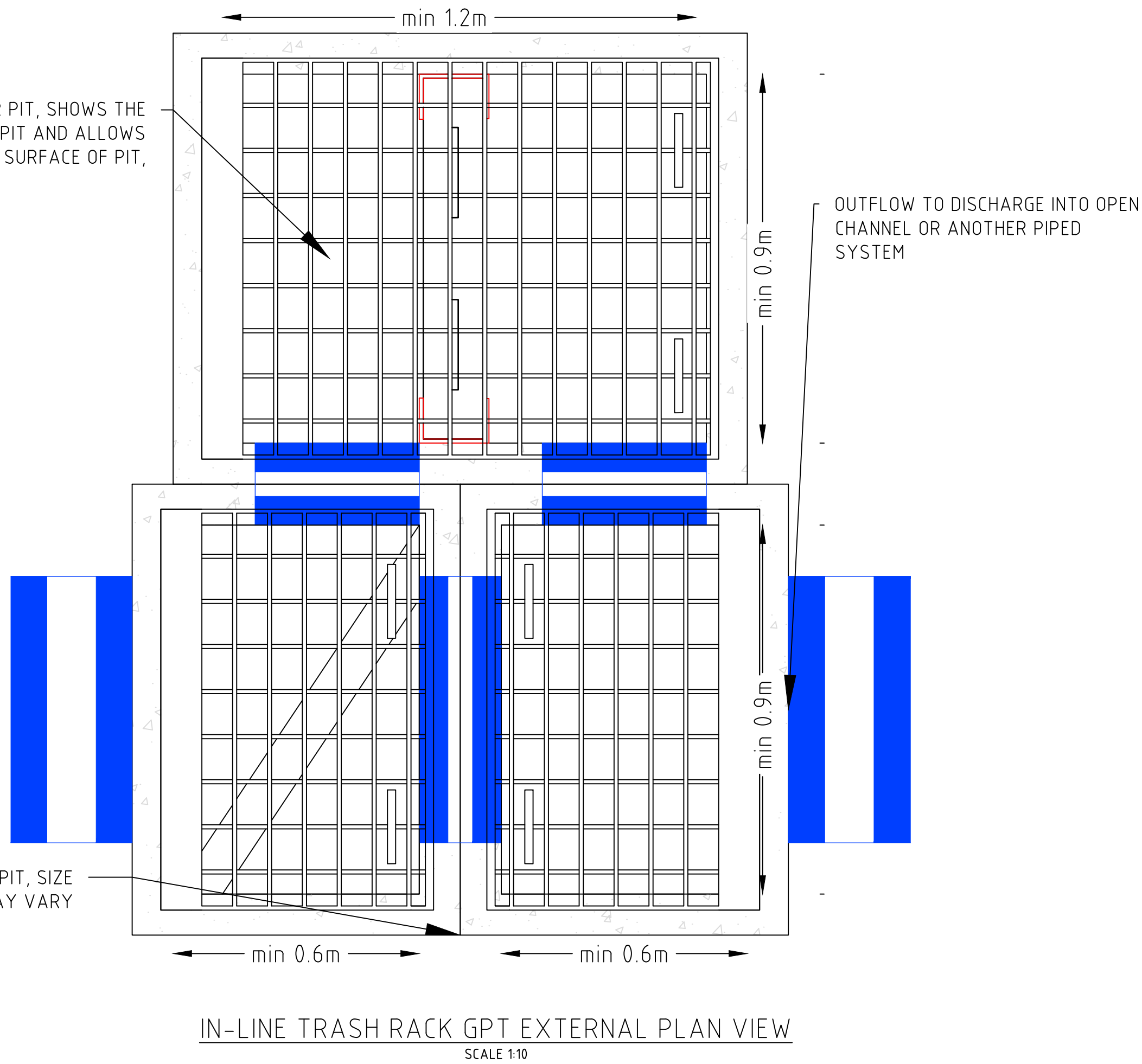
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	APPROVED BY TBA DATE: 12.06.2024	DRAWING NO. SD26-RES-GPT-01 SHEET 26 OF 29

DRAWING TITLE
GPT - UNDERGROUND PRECINCT SCALE



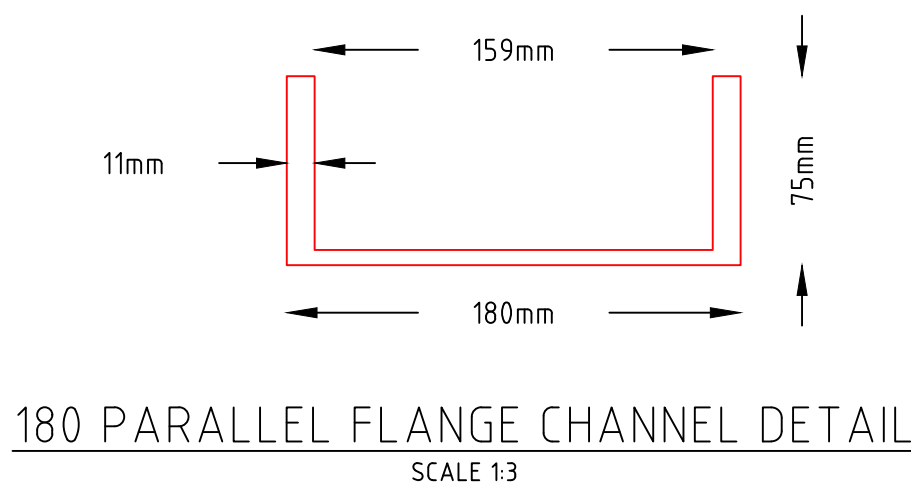
HINGED GRATED STORMWATER PIT, SHOWS THE INTERNAL CONDITION OF PIT AND ALLOWS OVERFLOW THROUGH THE SURFACE OF PIT,

REINFORCED CONCRETE STORMWATER PIT, SIZE MAY VARY



GPT SCREEN SPECIFICATIONS

1. SCREENS TO BE CONSTRUCTED FROM STAINLESS STEEL TO ENSURE SUPERIOR PROTECTION FROM WATER
2. ENSURE SCREENS ARE FIT FIRMLY. SCREEN SHOULD BE EASILY REMOVED FROM PARALLEL FLANGE CHANNEL SUPPORTING STRUCTURE BUT SHOULD NOT BE FREELY MOVING WHEN LOCKED INTO PLACE
3. MESH GRATE OF SCREEN TO BE CONSTRUCTED IN ACCORDANCE WITH TECHNIQUES TYPICAL TO THE CONSTRUCTION OF GRATED PIT LIDS FOR STORMWATER INFRASTRUCTURE
4. ENSURE REGULAR MAINTENANCE IS UNDERTAKEN AT MINIMUM QUARTERLY ON ASSET AND MAINTENANCE IS RECOMMENDED AFTER ANY MAJOR RAIN EVENT.
5. LOW FLOW WEIR WILL NEED TO BE PROPERLY SIZED AND DESIGNED BY A SUITABLY QUALIFIED ENGINEER
6. SYSTEMS SHOULD BE DESIGNED TO TREAT A 4EY RAIN EVENT. THE DIVERSION SHOULD NOT ACTIVATE FOR ANY EVENT SMALLER THAN THE 4EY
7. IT IS NOT SUITABLE FOR PITS THAT ARE DEEPER THEN 1.2m. REFER TO SD23-RES-GPT-01 FOR LARGER SYSTEMS.
- 6.1. GPT SYSTEMS NEED TO BE MAINTAINED QUARTERLY AND HENCE THE SYSTEM'S SUMP MUST BE ADEQUATELY SIZED TO HAVE A MINIMUM STORAGE OF THE 3 MONTHS POLLUTANT LOAD. LARGER PITS WILL BE REQUIRED FOR SYSTEMS WITH LARGER POLLUTANT LOADS

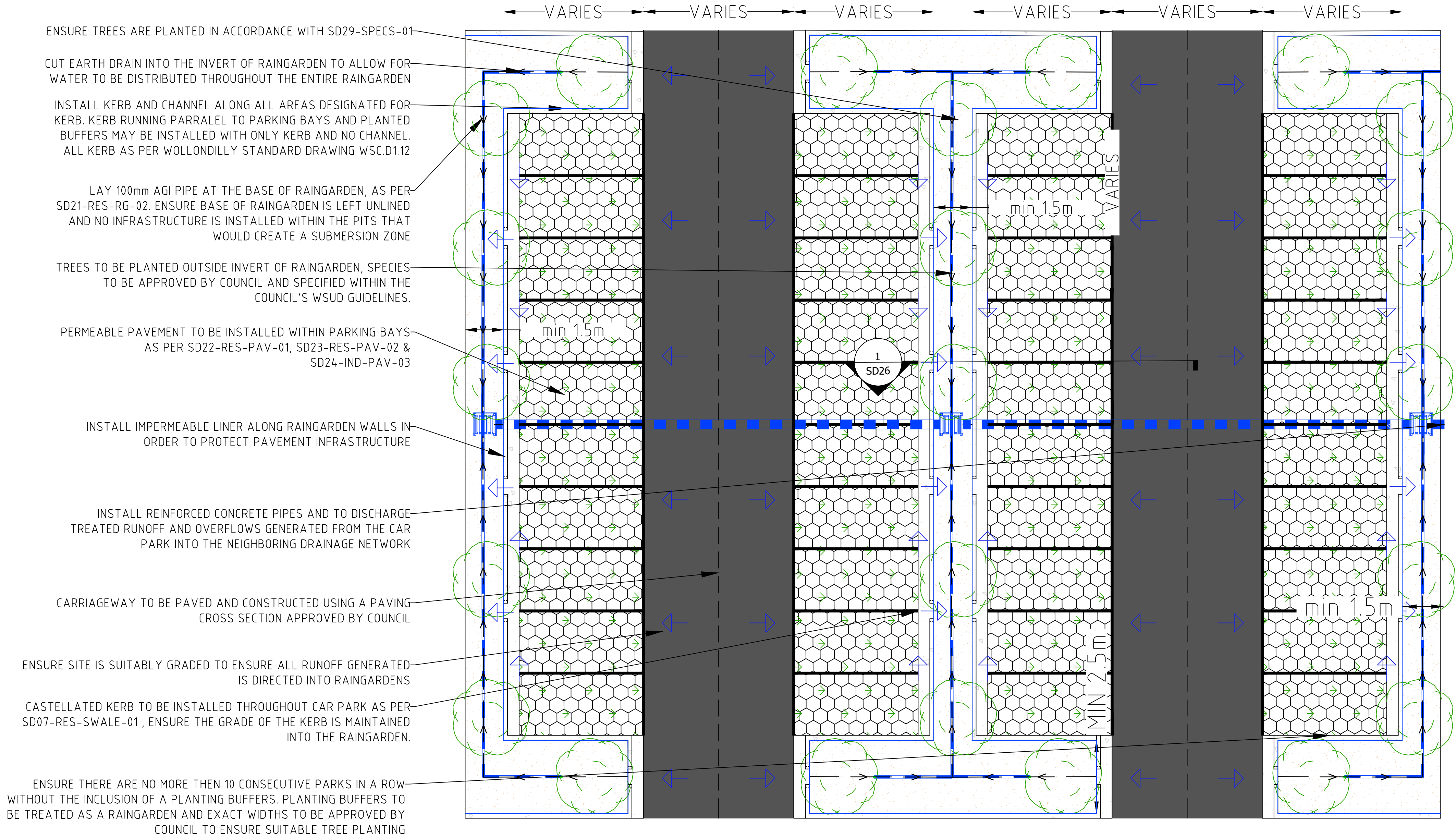


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DRAWING TITLE
IN-LINE PIPE TRASH RACK GPT
STREET SCALE

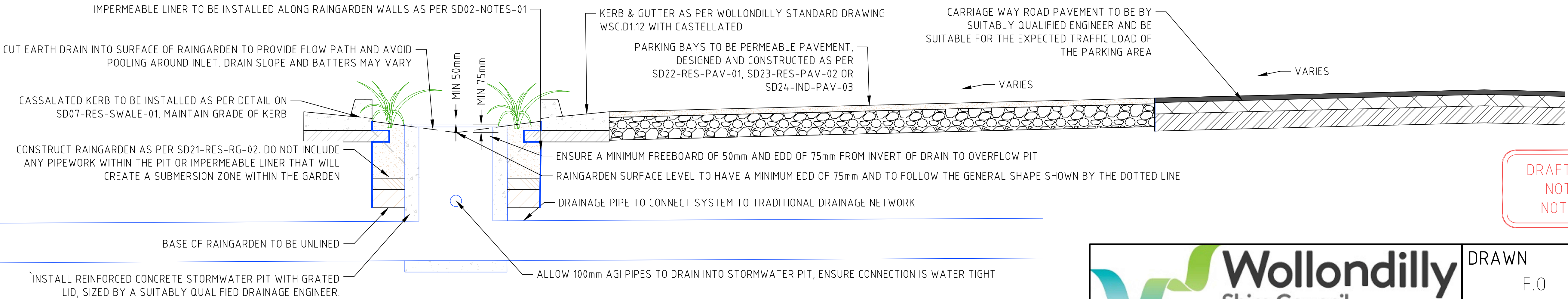
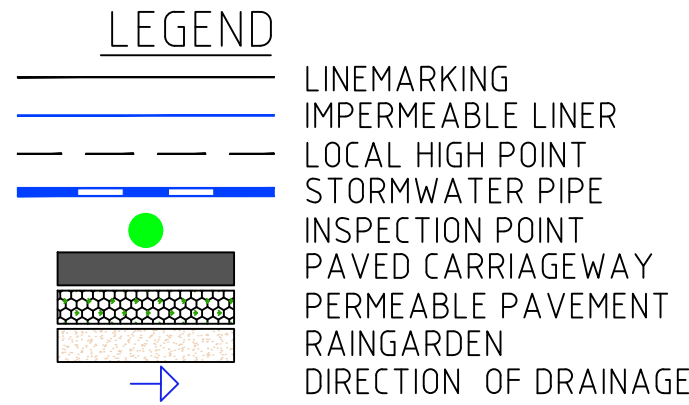
DRAWN F.O DATE:25.10.2024	SCALE VARIES @ A1
APPROVED BY TBA DATE: 12.06.2024	DRAWING NO. SD27-RES-GPT-02 SHEET 27 OF 29



TYPICAL CARPARK LAYOUT WITH WSUD IMPLEMENTATION
SCALE 1:100

GENERAL NOTES

- CARPARK DIMENSIONS AND AISLE WIDTHS ARE TO BE DESIGNED IN ACCORDANCE WITH AS2890
- RAINGARDEN ARE TO BE DESIGNED AS PER SD21-RES-RG-02, WITH NO SUBMERGED ZONE AND NO IMPERMEABLE LINER ON THE BASE
- ALL PERMEABLE PAVEMENTS ARE TO BE DESIGNED AS PER SD21-RES-PAV-01, SD22-RES-PAV-02 OR SD23-RES-PAV-03 & SHOULD ONLY BE USED WHEN ANTICIPATED LOADING IS SUITABLE FOR PERMEABLE PAVING
- COUNCIL HAVE THE RIGHT TO DEEM SOME PERMEABLE PAVEMENT TYPES UNSUITABLE IN CERTAIN LOCATIONS, DEPENDANT ON EXPECTED TRAFFIC LOADS AND SITE CONDITIONS
- WHEEL STOPS AND EDGE STRIP KERB MAY BE USED AS AN ALTERNATIVE TO CASTELLATED KERB AS LONG AS CAR PARK DIMENSIONS MEET AS2890.1
- DCP VOLUME 5 SECTION 2.10 SPECIFIES THAT ONE TREE MUST BE PLANTED FOR EVERY 4 CAR PARKS. TREES SPECIES ARE TO BE APPROVED BY COUNCIL'S ARBORIST.



SECTION 1 - CROSS SECTIONAL VIEW OF CAR PARK LAYOUT WITH WSUD IMPLEMENTATION
SCALE 1:20

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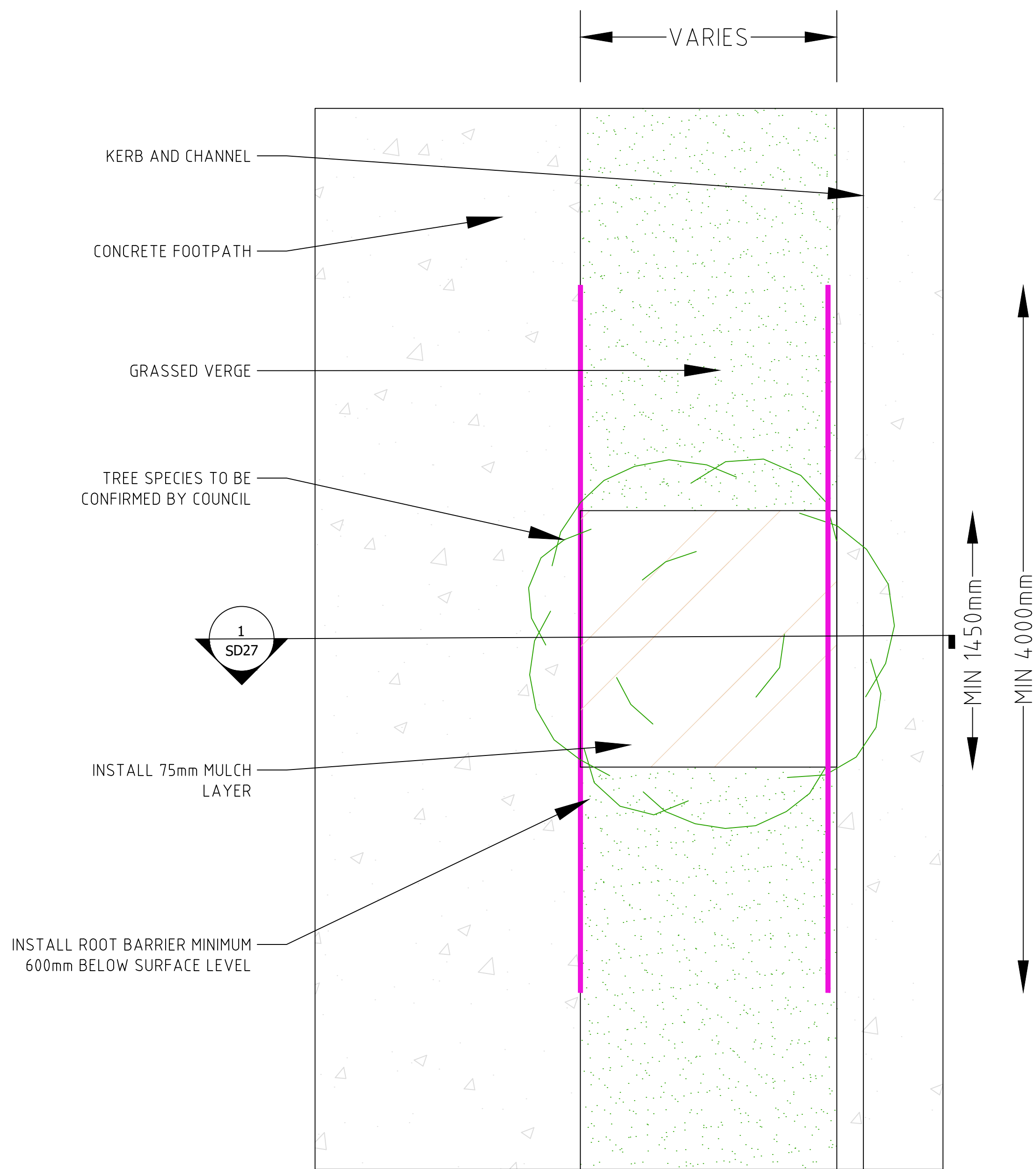
DRAWING TITLE
IMPLEMENTATION OF WSUD IN CAR PARKS

DRAWN
F.O
DATE: 28.11.2024

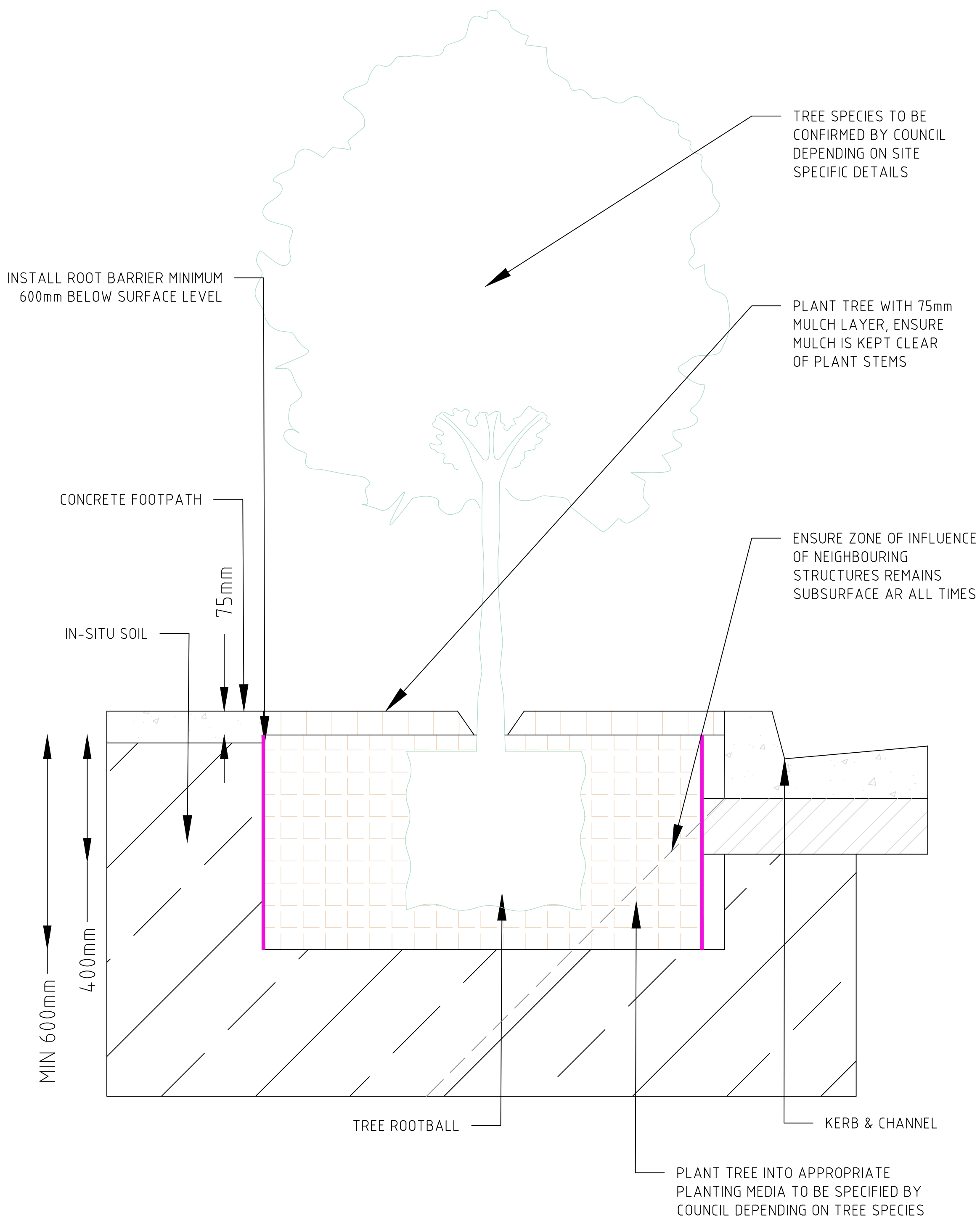
APPROVED BY
TBA
DATE: 12.06.2024

SCALE
VARIES @ A1

DRAWING NO.
SD28-RES-PARK-01
SHEET 28 OF 29



TYPICAL TREE PLAN VIEW WITH ROOT BARRIER
SCALE 1:10



SECTION 1 - TYPICAL TREE CROSS SECTION WITH ROOT BARRIER
SCALE 1:20

- ROOT PROTECTION SPECIFICATIONS**
1. ROOT BARRIER TO EXTEND A MINIMUM OF 2M EITHER SIDE OF MEDIUM SIZED TREE (8-12 M) AND 3.5M TO EITHER SIDE OF TREE FOR LARGER TREES.
 2. IF NO IMPERMEABLE LINERS ARE USED AND TREES ARE PLANTED WITHIN 3m OF ANY INFRASTRUCTURE THAN ROOT BARRIERS ARE REQUIRED
 3. TREES WITHIN STREET VERGES TO PLANTED 850mm FROM BACK OF KERB UNLESS OTHERWISE NOTED IRRESPECTIVE OF IF THERE IS A FOOTPATH IN THE VERGE OR NOT.
 4. ROOT BARRIERS MUST BE OF SUFFICIENT DIAMETER FOR TREES TO REACH MATURE GROWTH WITHOUT RESTRICTION

TABLE 1 MINIMUM SOIL DEPTH REQUIREMENTS	
PLANTING TYPE	MINIMUM SOIL DEPTH (mm)
GROUND COVER/TURF	300
TREES SHRUBS	500

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	DRAWN F.O DATE: 17.03.2025	SCALE VARIES @ A1
	APPROVED BY TBA DATE: 12.06.2024	DRAWING NO. SD29-SPECS-01 SHEET 29 OF 29

DRAWING TITLE
ROOT BARRIER & IMPERMEABLE LINER
SPECIFICATIONS