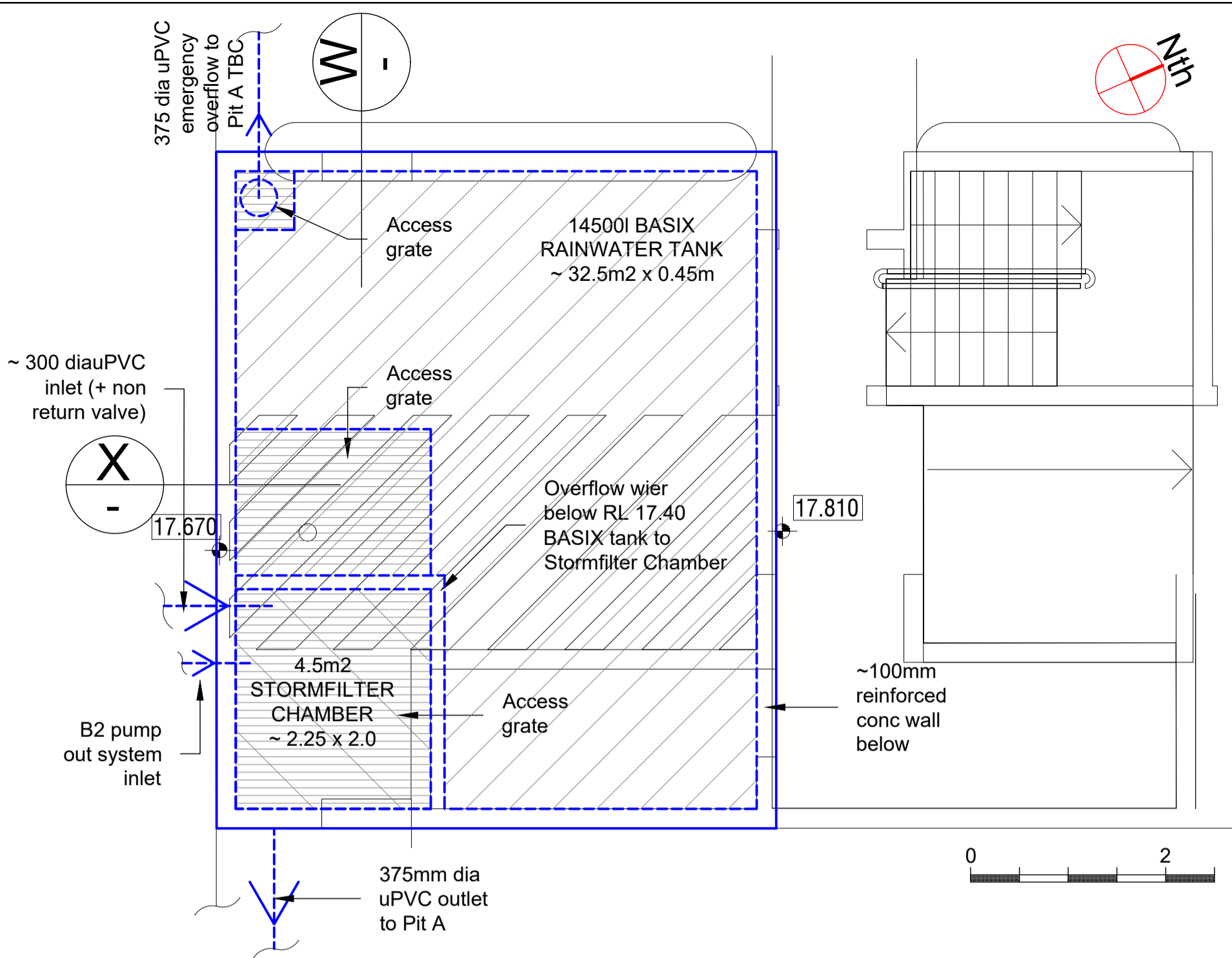


SITE STORMWATER MANAGEMENT PLAN

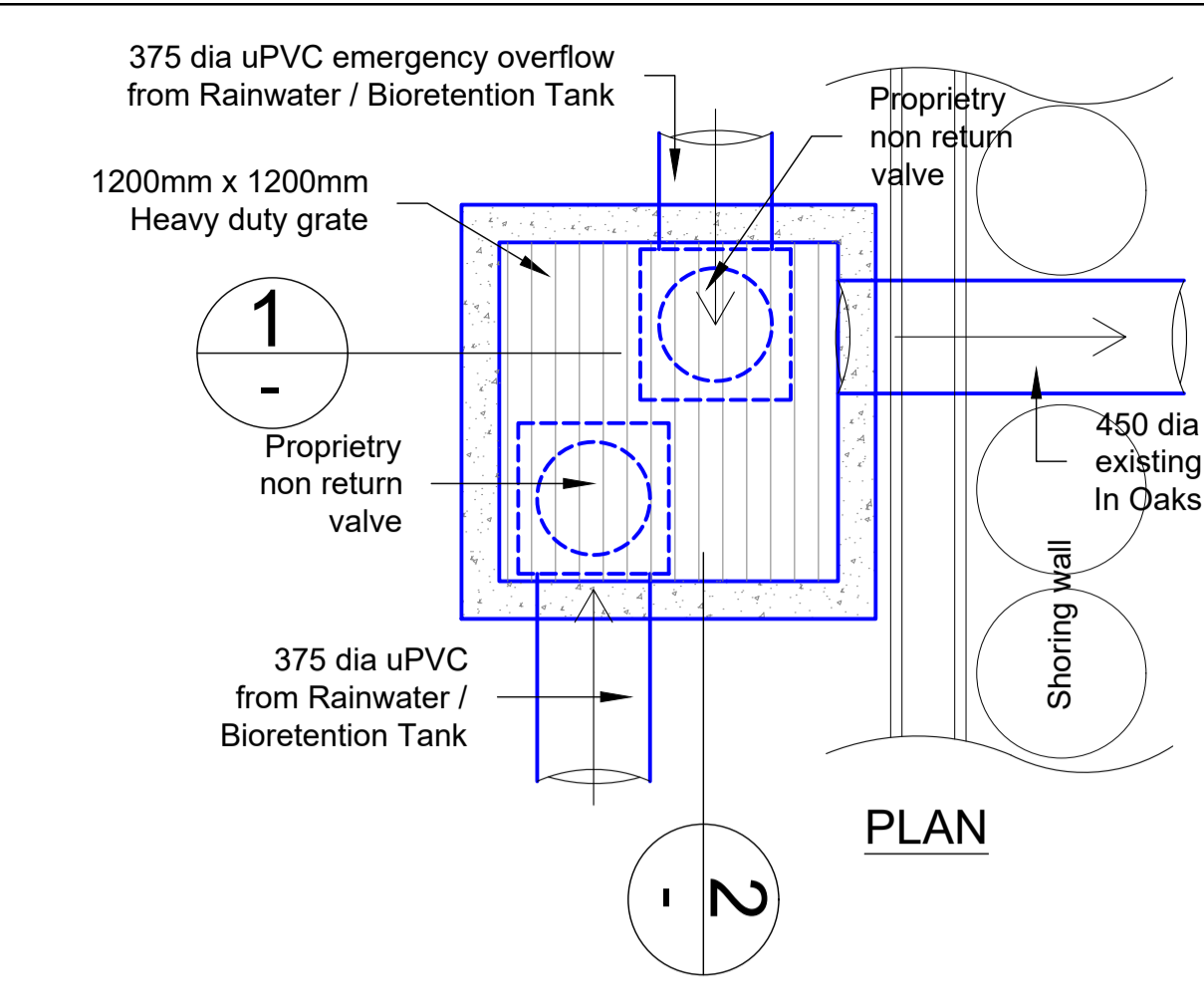
1:100

Proposed shop top housing development refer to plans by Gartner Trovato Architects for details.
 Hatching indicates 14500l Rainwater tank and 4.5m² BioRetention area.
 Noting onsite stormwater detention is NOT required as per Council PLM2023/0087 Notes 7 September 2023.
 Trunk Drainage system only shown, detailed drainage/hydraulic system to be issued by a hydraulic consultant for Construction Certificate documentation.
 BioRetention/StormFilter system design (see *OceanProtect* analysis/modeling) to meet Councils 4.1.1 Stormwater Quality Requirements.
 Variations to layout to be reviewed and approved by Barrenjoey Consulting Engineers before construction.

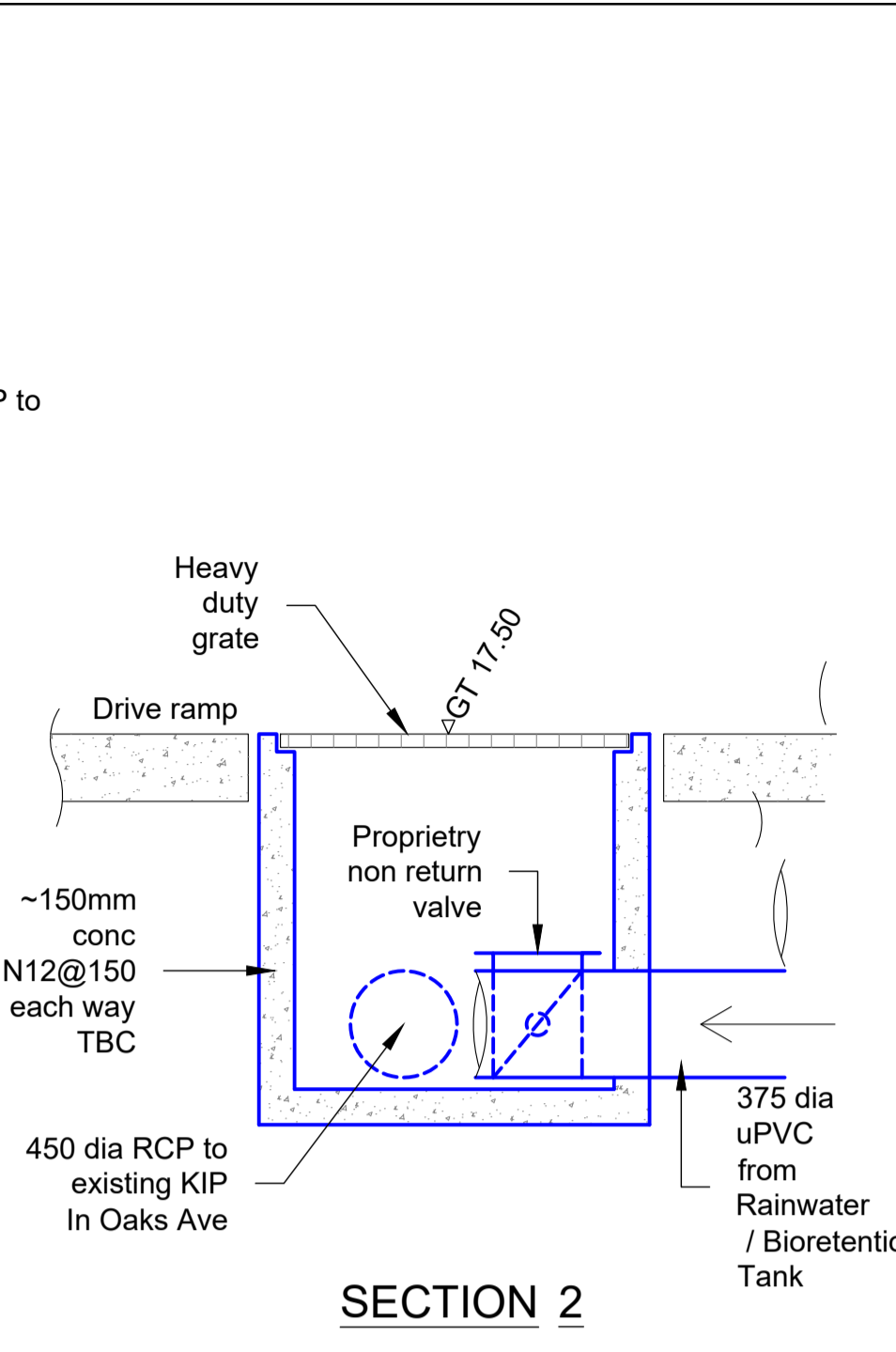
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|--|---|---|---|---------------------------|---------------------------------|
| ISSUE: Prelim 14.03.24 Issued for comment | Barrenjoey Consulting Engineers ptj ltd Stormwater Structural Civil PO Box 672 Avalon NSW 2107 M: 0418 620 350 E: lucas@oceandesign.com.au ABN: 13124694917 ACN: 124694917 | PROJECT: PROPOSED SHOP TOP HOUSING 21 OAKS AVE DEE WHY | DRAWING : STORMWATER MANAGEMENT PLAN | Job No : 231103 | Drawing No SW1 PreLim |
| Document Certification Barrenjoey Consulting Engineers ptj ltd per Lucas Molloy MEA CPEng NER Director | | | | | |



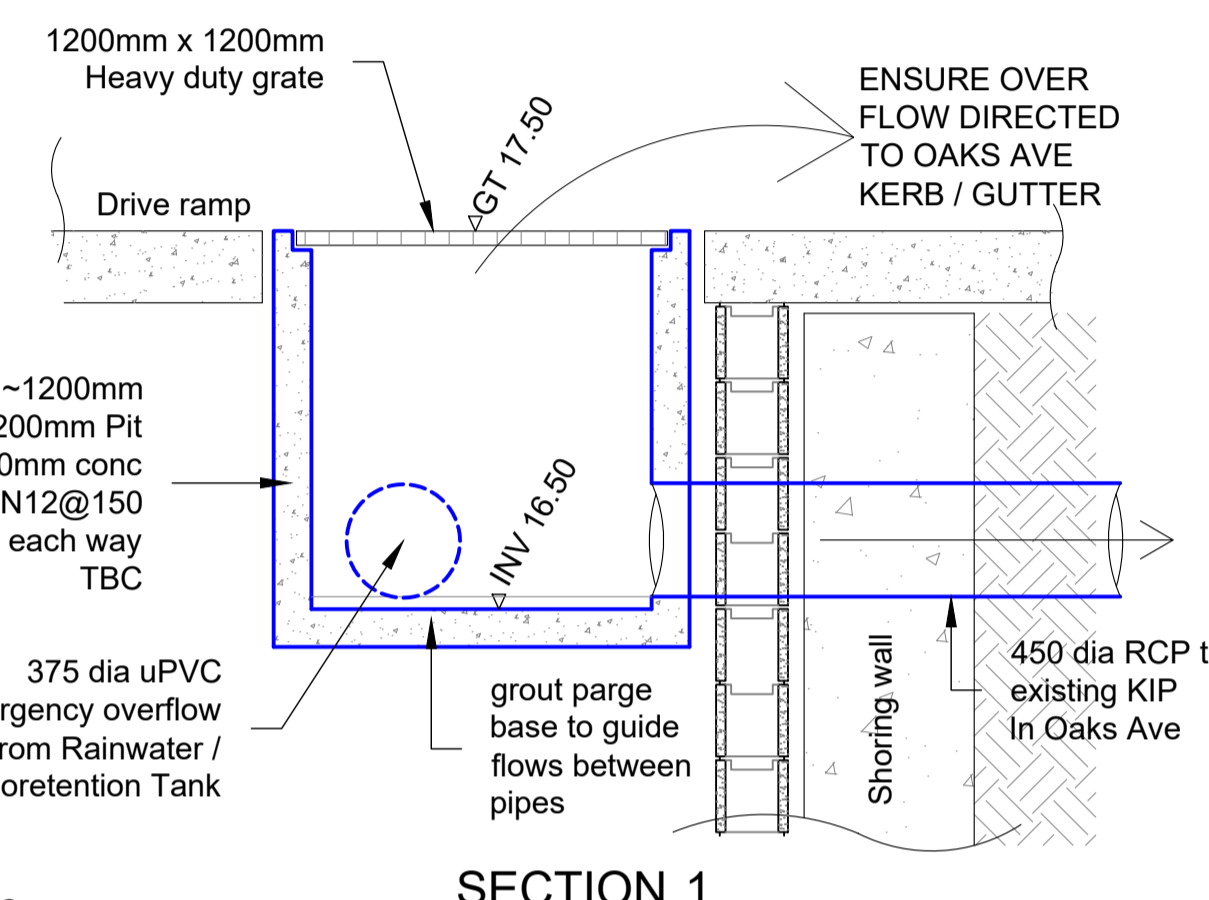
STORMFILTER / BIORETENTION / BASIX STORAGE TANK PLAN
~ 1:50



PIT A DETAILS
~ 1:20

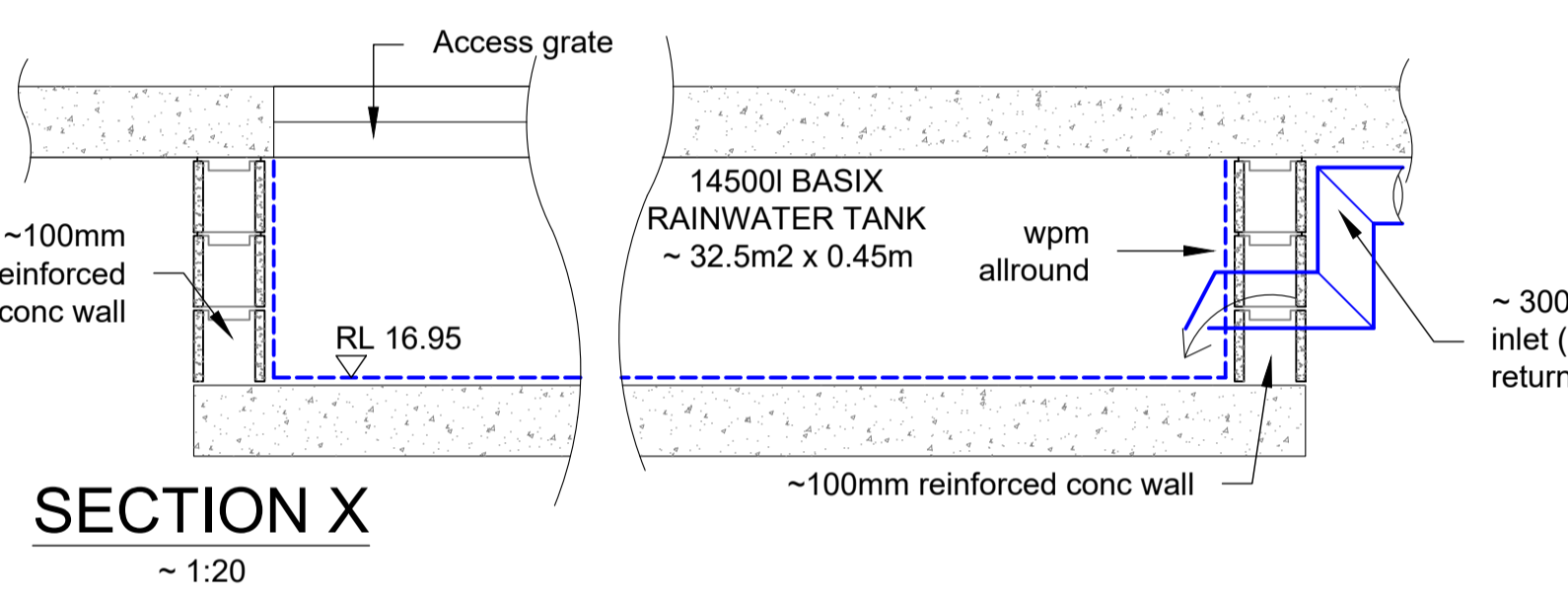


SECTION 2

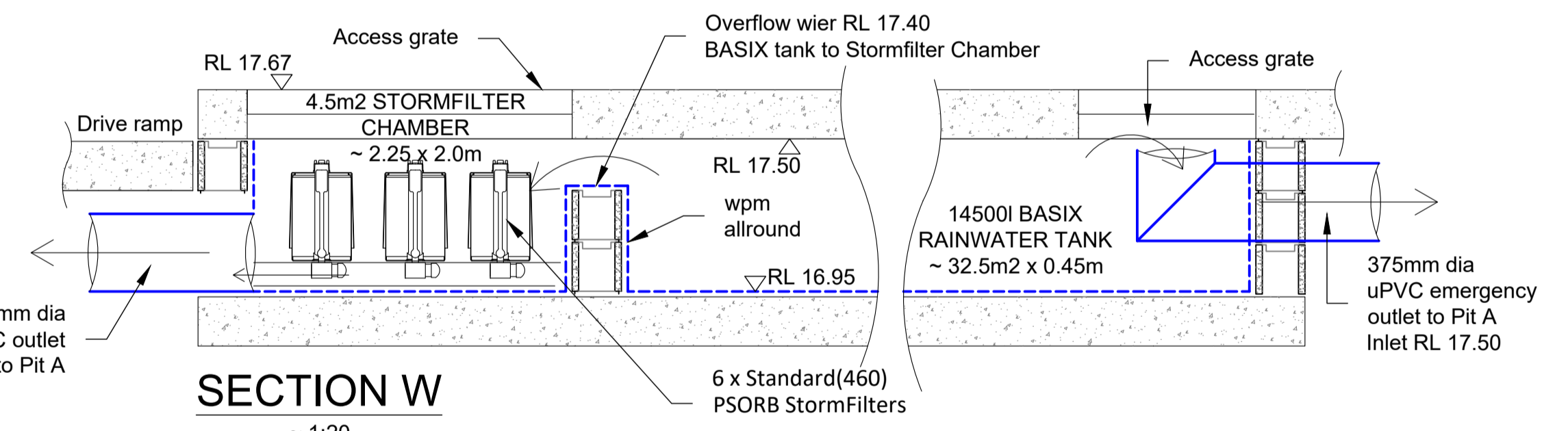


SECTION 1

PIT A DETAILS
~ 1:20



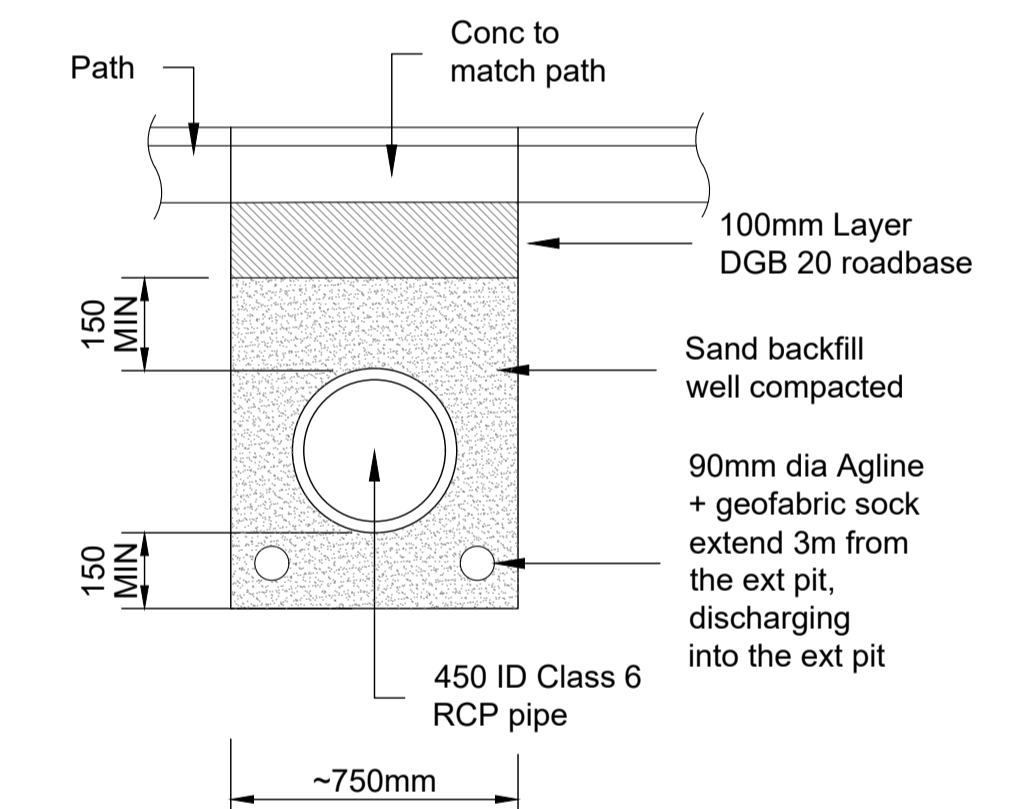
SECTION X
~ 1:20



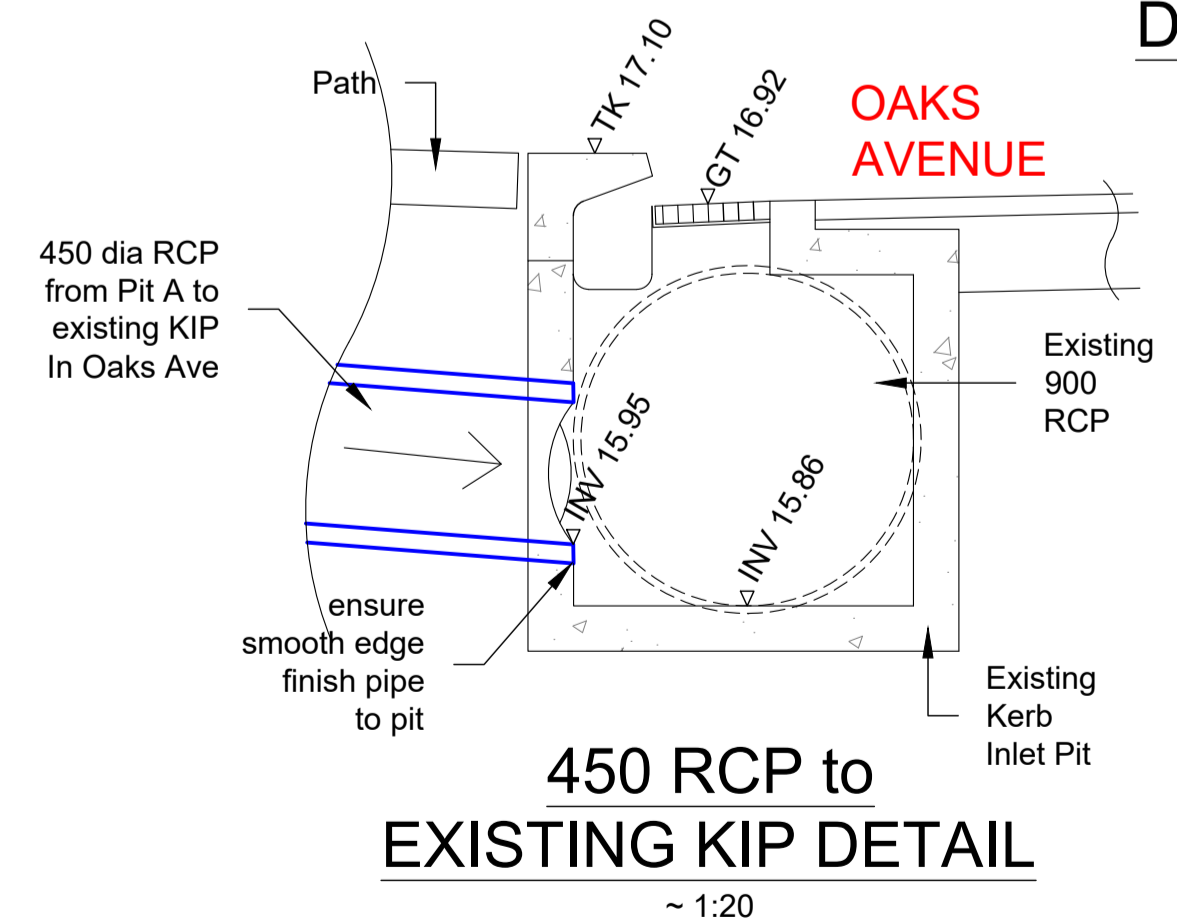
SECTION W
~ 1:20

STORMWATER NOTES

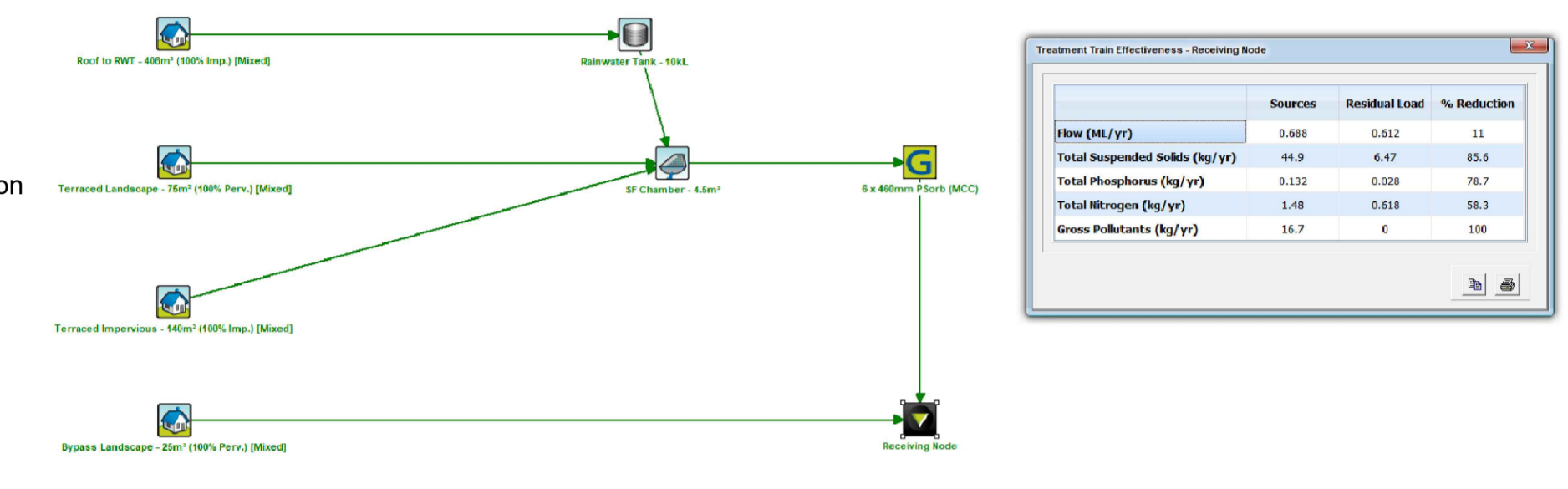
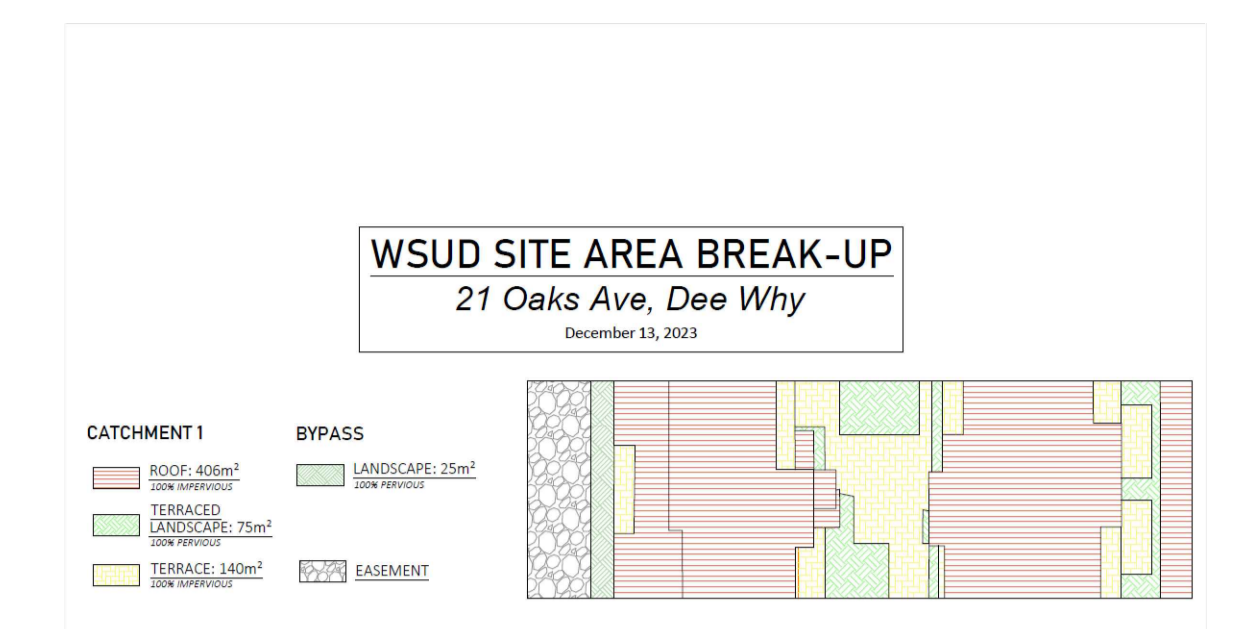
- All roof collection components (ie gutters / DPs etc) are to be located / sized by the Developments Hydraulic Consultant to BCA / NCC requirements.
- All Trunk Drainage pipes, as shown on this plan are to be minimum of 300mm dia uno.
- All pipes to be uPVC to AS 1254:2002.
- All pipes to be laid at the grade required to match pit invert levels.
- All pipes to be installed and laid in accordance with AS 3500.3:2003.
- Thrust blocks to be installed to the trunk drainage pipes in accordance with AS 3500.3:2003.
- All roof guttering/ down pipes / valley gutters / box gutters etc are to be sized and installed in accordance with AS 3500.3:2003.
- All pits are to be proprietary uv resistant polypropylene or similar unless noted (approved by the Engineer) and are to include a min 50mm sediment trap in the base and a maximesh screen laid at 45° across the pit to protect the outlet pipe.
- All pits greater than 600mm in depth are to be proprietary precast concrete (approved by the Engineer).
- All pits greater than 1000mm in depth are to have adequate access requirements in accordance with OH&S/Workcover requirements (ie; minimum dimensions 900x600mm with step irons).
- All works are to be inspected and certified by the Principle Certifying Authority prior to backfilling.
- All works requiring certification by the Engineer will require a works as executed survey prepared by a registered Surveyor detailing all levels etc as on the Engineering plans.
- The system is too be flushed and cleaned of all sediment and debris annually.
- The system will require regular cleaning and maintenance to ensure its ability to function is maintained.
- To ensure the system's ability to function is maintained it is to be inspected and certified as operating effectively by a licensed plumber every 5 years, and an engineer every 20yrs.



PIPE TRENCH DETAIL
~ 1:20

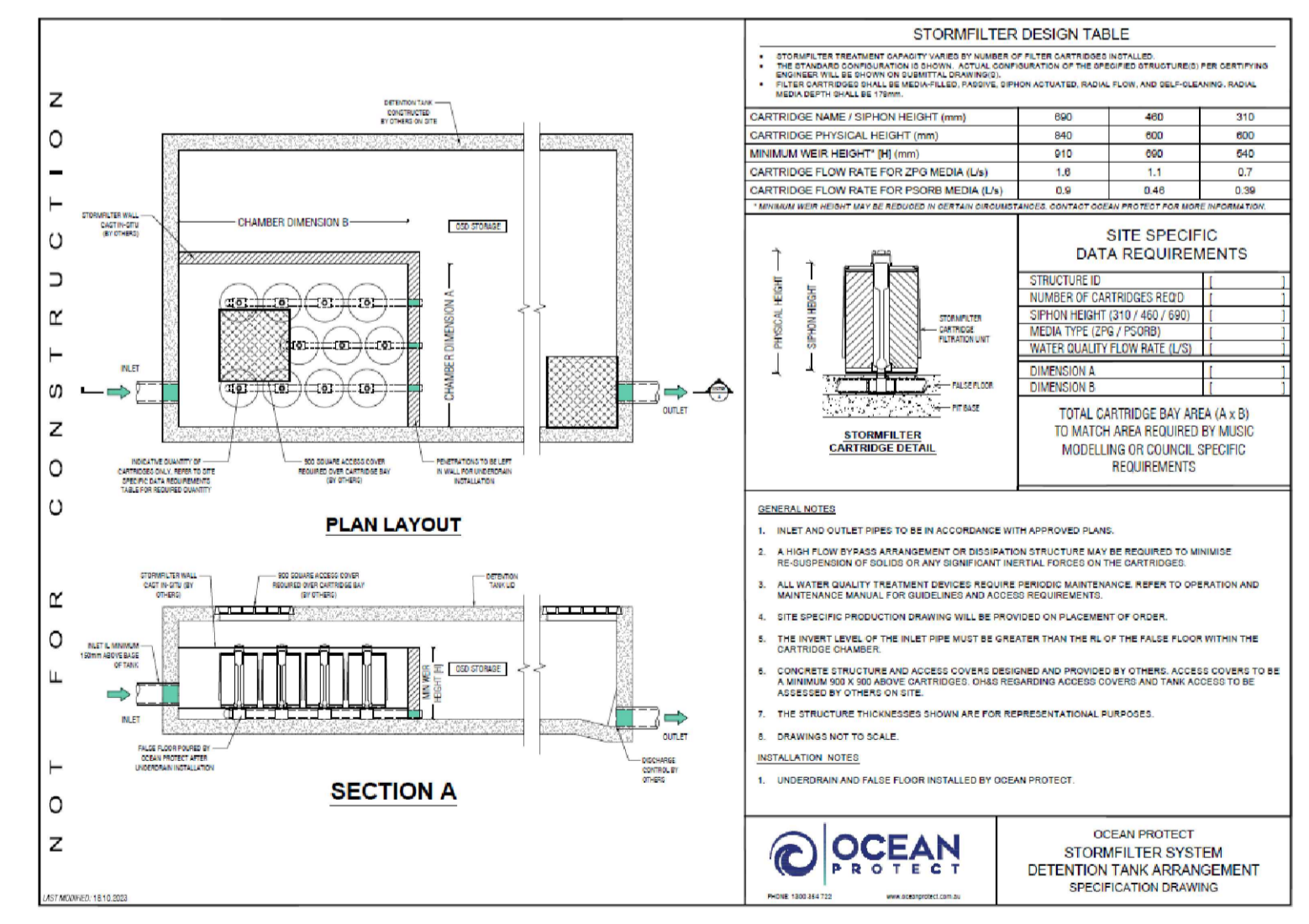


450 RCP to EXISTING KIP DETAIL
~ 1:20



MUSIC MODEL SUMMARY

by OCEAN PROTECT MUSIC Version 6.3.0
Rainfall Station 66062 Sydney Observatory Hill, 6 Minute Time Step 1981 To 1985 utilizing modified % impervious area, rainfall threshold, soil properties & pollutant concentration
No drainage routing between nodes.
85% Total Suspended Solids Reduction
65% Total Phosphorus Reduction
45% Total Nitrogen Reduction
90% Gross Pollutant Reduction



STORMFILTER SYSTEM
by OCEAN PROTECT

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| Prelim | | |

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ACN: 124694917

PROJECT:
PROPOSED SHOP TOP HOUSING
21 OAKS AVE
DEE WHY

DRAWING :
STORMWATER MANAGEMENT
DETAILING 1

Job No :
231103
Drawing No
SW2PreLim
Document Certification
Barrenjoey Consulting Engineers Pty Ltd
per
Lucas Molloy MEA OPEng NER Director

AS 3500.3 PUMP SYSTEM REQUIREMENTS

Nth

SECTION 9 PUMPED SYSTEMS

9.1 SCOPE OF SECTION
This Section specifies criteria for pumped systems.

9.2 GENERAL
Pumped systems are for areas normally less than 2000 m² where it is not possible for the stormwater to be discharged by gravity through the available gravitational point of connection. The pumping equipment shall include a wet well, pumps and motors, pipework and electrical equipment and be located to facilitate easy connection to either the surface water system or the pumped point of connection.
NOTE: An illustration of the application of this Section is given in Appendix L.

9.3 WET WELLS

9.3.1 General
Wet wells, for submersible or non-submersible type pumps, shall be installed in accessible locations.

9.3.2 Construction and materials
The structure shall be sound and constructed of materials that will resist corrosion from ground water and aggressive soils.
Authorized materials include pre-cast or cast in situ reinforced concrete, corrosion-resistant metals, brickwork or glass-reinforced plastics.

9.3.3 Base
The base shall be constructed of materials compatible with the walls and shall maintain a self-cleansing gradient towards the pump inlet. The base shall be supported on stable ground.

9.3.4 Cover
The cover shall be constructed of similar materials to that of the wet well and shall have removable access openings sized for maintenance purposes. If the access opening is airtight, a breather pipe with a non-corrodible screen shall be installed.

9.3.5 Ladders
Where a wet well exceeds a depth of 1.2 m, a ladder, in accordance with Clause 8.6.5.4, shall be installed.

9.3.6 Combined effective storage
The capacity of the pumped system shall be achieved by a combination of pump capacity and wet well storage between the high and low working levels of the wet well. The combined effective storage comprising the volume able to be pumped in 30 min plus the wet well storage shall not be less than the volume of the run-off from the storm of ARI = 10 years and duration of 120 min, or as otherwise directed by the authority having jurisdiction. The maximum pump capacity shall be as detailed in Clause 9.4(a). The minimum wet well storage between the high and low working levels expressed in cubic metres shall be 1% of the catchment area in m² but in any case shall not be less than 3 m³. NOTE: The minimum pump capacity should be 10 L/s.

9.3.7 Alarm
High-level and low-level alarms shall be installed in each wet well and located clear of the discharge from the inlet pipe so that false alarms are prevented. The high level alarm should be set no higher than 100 mm above the invert of the inlet pipe, provided that flooding of habitable or storage areas and vehicle garages shall be avoided. Where flooding could occur the overflow and high-level alarm shall be lowered accordingly to prevent flooding.

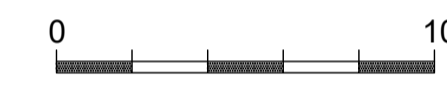
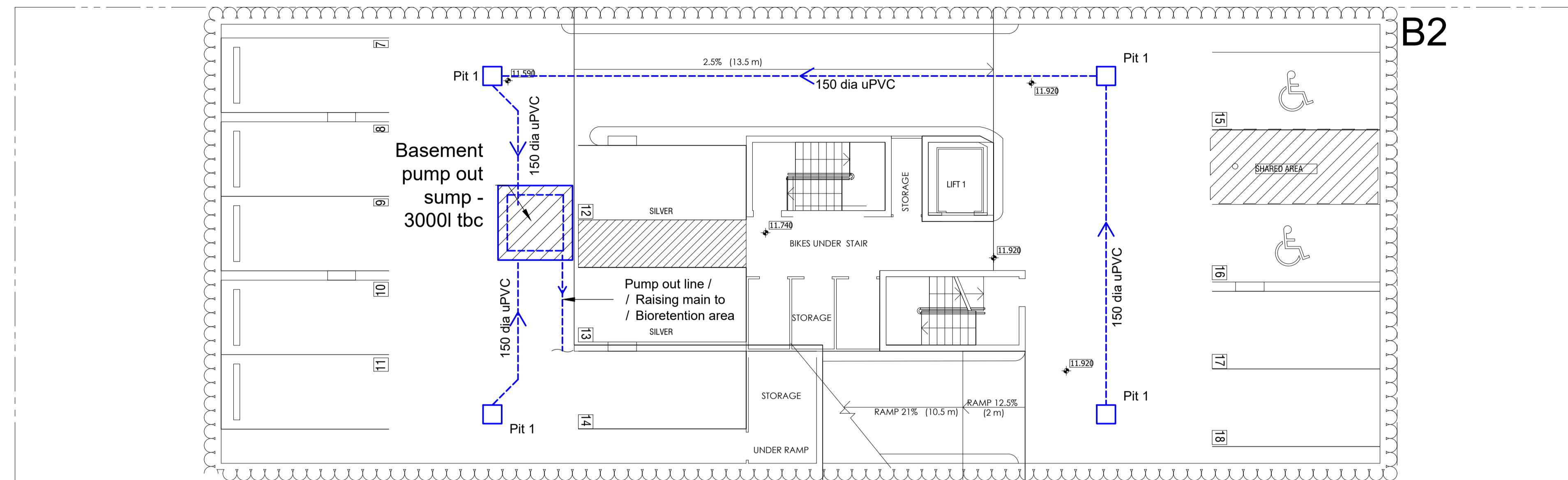
9.3.8 Inlet
The invert of the inlet pipe to the wet well shall be located at least 100 mm above the level of the Design Top Water Level.

9.3.9 Sealing
All pipes or apparatus passing through a wall or cover of a wet well shall be sealed with a compatible material.

9.4 PUMPS
The pumps shall be suitable for unscreened stormwater and shall be installed as follows:
(a) Pumps shall be in duplicate. The maximum capacity of each pump shall be selected so that the capacity of the system receiving the discharge is not exceeded. The pump controls shall be set up to enable alternate pump operation at each start. In the event that a pump fails to operate when the water level in the wet well reaches the pump start, the other pump shall be activated and a visible alarm initiated. In the event that both pumps fail to operate, an audible alarm shall be initiated.
(b) Pumping equipment shall be securely fixed to the wet well using corrosion-resistant fixings.
(c) Pumps shall be fitted with a gate valve and non-return valve on the delivery side of each pump.
(d) Pumps shall have flanges or unions installed to facilitate removal.
(e) Pumps shall be controlled so as to limit the number of starts per hour to within the capacity of the electrical motors and equipment, and shall, as far as practicable, empty the contents of the wet well at each operation.
(f) The required pumping rate shall be calculated based on an assessment of the expected inflow and, where appropriate, the allowable discharge rate.

9.5 RISING MAINS
Rising mains shall comply with the relevant Sections of AS/NZS 3500.1 and this Standard, and connect to—
(a) a stormwater or inlet pit; or
(b) direct to a stormwater drain.

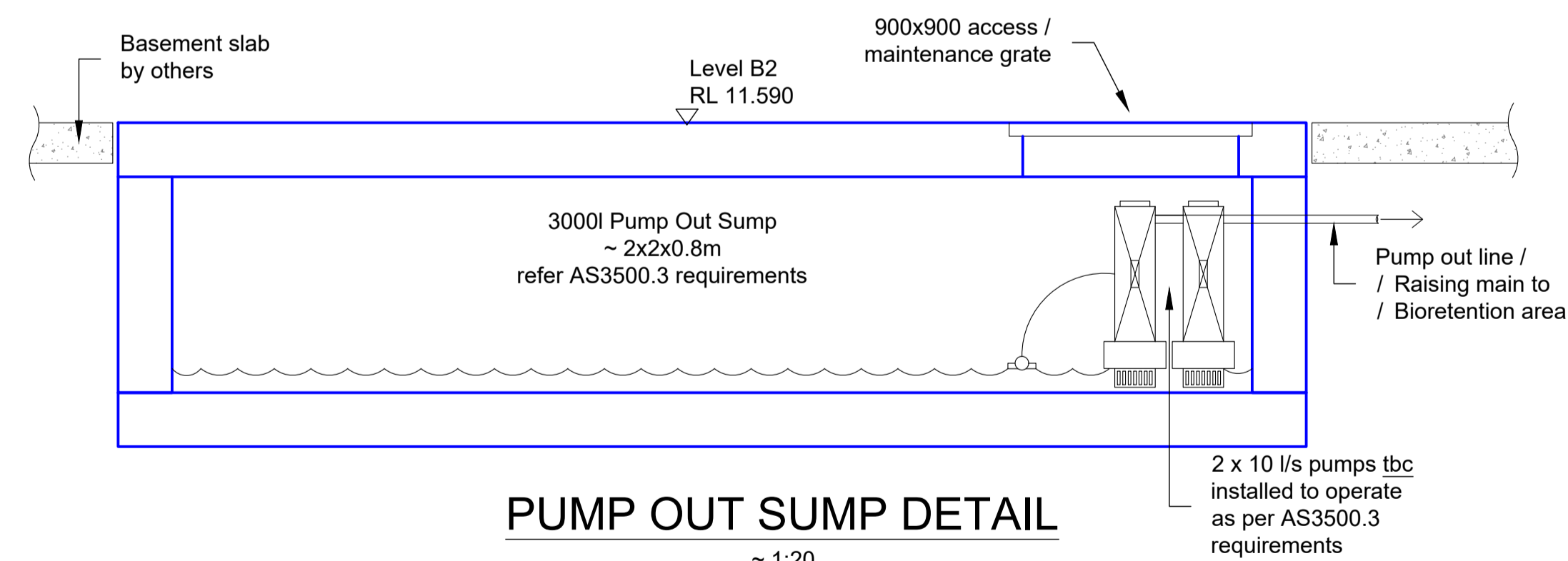
9.6 ELECTRICAL CONNECTION
All electrical motors and equipment shall be installed in accordance with AS/NZS 3000.



BASEMENT DRAINAGE PLAN

~ 1:100

Pit 1 - 600x600x600 Pit collecting seepage lines etc
NOTE - Specialist Geotechnical advice is to be undertaken with CC documentation re substrata conditions / seepage etc to confirm basement pump out system



PUMP OUT SUMP DETAIL

~ 1:20

Sump to collect seepage (tbc), drive / parking area runoff.
System to include a proprietary oil and grease separator (+ continuing service/cleaning schedule).
refer to AS3500.3 requirements re pump out capacity, volume and alarm requirements etc.
All to be reviewed / confirmed during construction based on site conditions encountered

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PROJECT:
PROPOSED SHOP TOP HOUSING 21 OAKS AVE DEE WHY

DRAWING :
STORMWATER MANAGEMENT DETAILING 2

Job No :
231103

Drawing No
SW3PreLim

Document Certification
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per
Lucas Molloy MEA CPEng NER Director