SITE STORMWATER MANAGEMENT PLAN

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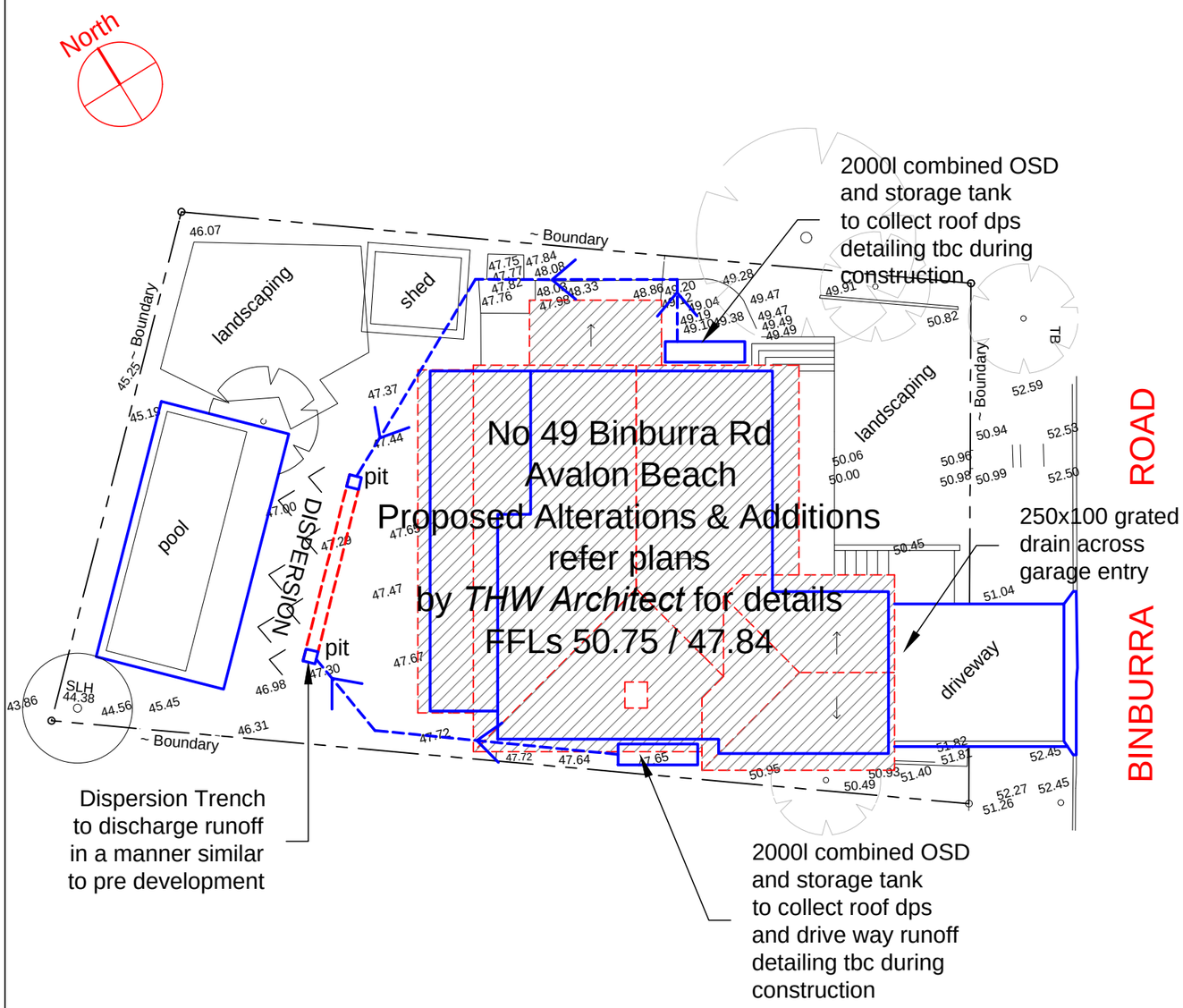

System to collect all roof and drive run off and be directed to an OSD / storage tank.The OSD is to reduce peak off site flow rates to that of an un developed 'greenfields' site. Tank outlets are to be discharged to a Dispersion Trench located in the rear yard in a manner to mimic pre developed conditions and as not to adversely effect downstream properties.

Pittwater 21 DCP Section B5 Water Management Compliance -

B5.1 Water Management Plan

- storm water addressed within this plan, rainwater, grey water and waste water details by others as per industry standards

B5.4 Storm Water Harvesting

- refer BASIX certificate by others

B5.5 Rainwater Tanks

- not applicable

B5.6 Rainwater Tanks - Water Supply

- not applicable

B5.7 Storm Water Management Onsite Detention

- approx 68m2 increase in impervious (hard) surfaces, using DRAINs software 2000l OSD storage required

B5.8 Stormwater Management Water Quality Low Density Residential

- pre screening to BASIX Rainwater Tank and SQID treatment system detailed within 450x450x450 Service Pit

B5.9 Stormwater Management Water Quality Other than Low Density Residential

- not applicable

B5.10 Stormwater Discharge into Public Drainage system

- discharge via dispersion (to mimic existing conditions)

B5.11 Stormwater Discharge into Waterways and Coastal areas

- not applicable

B5.12 Stormwater Drainage systems and Natural watercourse

- not applicable

B5.13 Development on Waterfront land

- not applicable

B5.14 Stormwater Drainage Easements

- not applicable

Detailed drainage is to be sized for Construction Certificate submission / Tender documentation by the contracting builder / plumber to NCC and Australian Standards. Indicates down pipe / rain water head location tbc , Variations to layout to be reviewed and approved by Barrenjoey Consulting Engineers before construction.

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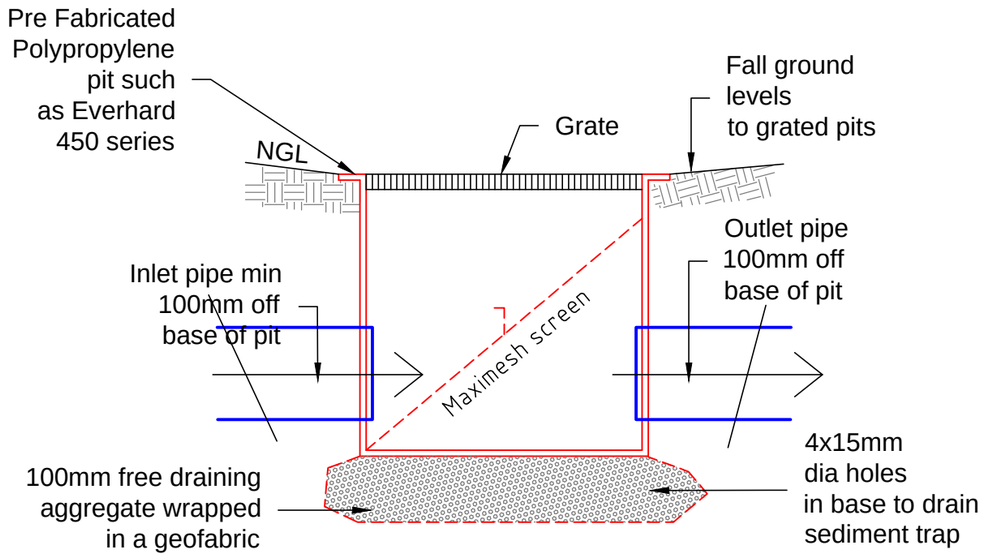
PROJECT:
PROPOSED
ALTERATIONS & ADDITIONS
49 BINBURRA RD
AVALON BEACH
for ~ W. KILOH

DRAWING :
SITE STORM WATER
MANAGEMENT PLAN

Job No : 210205

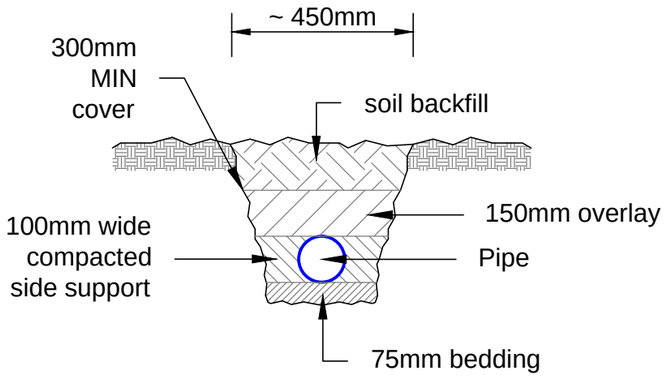
Drawing No : SW1

Document Certification
Barrenjoey Consulting Engineers pty ltd
per
Lucas Molloy MIEA CPEng NER Director



TYPICAL PIT DETAIL

NTS



TYPICAL PIPE & TRENCH DETAIL

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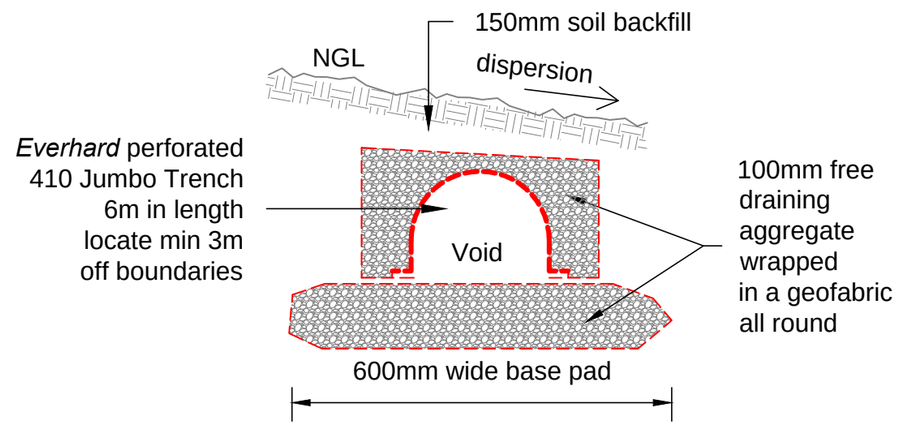
Note -
Bedding / overlay to be -
a) sand, free from rock, hard or sharp objects
b) max 14mm crushed rock or gravel
c) the excavated material free of rock, hard or sharp objects and broken up with no soil lumps > 75mm dia



DISPERSION TRENCH DETAIL

NTS

TO BE LAID PARALLEL AND ALONG THE NATURAL CONTOUR OF THE SITE

STORMWATER NOTES

1. All roof collection components (ie gutters / DPs etc)are to be located / sized by the Developments contracting Plumber for a **5% AEP** event capacity.
2. Trunk lines shown on plan to be 150mm dia uPVC.
3. All pipes to be uPVC to AS 1254:2002.
4. All pipes to be laid at the grade required to match pit invert levels.
5. All pipes to be installed and laid in accordance with AS 3500.3:2003.
6. All roof guttering/ down pipes / valley gutters / box gutters etc are to be sized and installed in accordance with AS 3500.3:2003.
7. 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 oulet pipe .
8. All pits greater than 600mm in depth are to be proprietary precast concrete (approved by the Engineer).
9. All pits greater than 1000mm in depth are to have adequate access requirements in accordance with OH&S/Workcover requirements (ie; minimum dimensions 900x900mm with step irons).
10. All works are to be inspected and certified by the Principle Certifying Authority prioir to backfilling.
11. 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.
12. The system is too be flushed and cleaned of all sediment and debris annually.
13. The system will require regular cleaning and maintenance to ensure its ability to function is maintained.
14. 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 a engineer every 20yrs.
15. All existing predevelopment catchment area run-off conditions exiting the site are to be maintained with no run-off flows being diverted from the predevelopment condition.
16. Flows from upstream properties entering the site are to be monitored during construction and diverted about the OSD system / residence etc as required.

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DRAWING :
SITE STORM WATER
MANAGEMENT
DETAILING 1

Job No :
210205

Drawing No :
SW2

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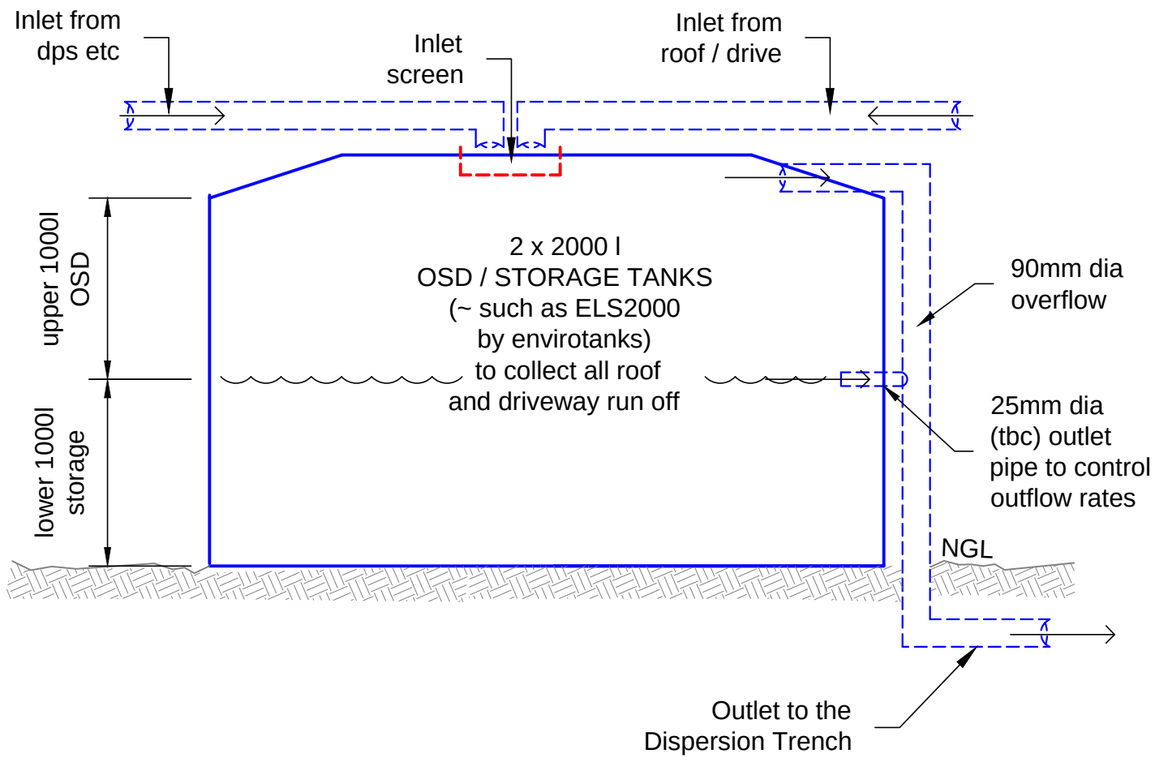

OSD / STORAGE TANK SYSTEM / CONTROL DETAIL

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NOTE - 2 OF REQUIRED 4000L IN TOTAL

ONSITE DETENTION REPORT (*DRAINS* ANALYSIS)

Site area	- 588 m2
Existing impervious area	- 200 m2
	note 0m2 modeled
Proposed impervious area	- 268 m2
Area modeled to OSD	- 188 m2
Detention Volume modeled	- 2000l
Existing Site Discharge	
5yr ARI Storm	- 26 l/s
100yr ARI Storm	- 42 l/s
Post Development Site Discharge	
5yr ARI Storm	- 26 l/s TOTAL (8 l/s via OSD, 18 l/s uncontrolled)
100yr ARI Storm	- 42 l/s TOTAL (13 l/s via OSD, 29 l/s uncontrolled)

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SITE STORM WATER
MANAGEMENT
DETAILING 2

Job No : 210205

Drawing No : SW3

Document Certification
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