

# 78 Hudson Parade, Clareville

## Concept Stormwater Drainage

### LEGEND:

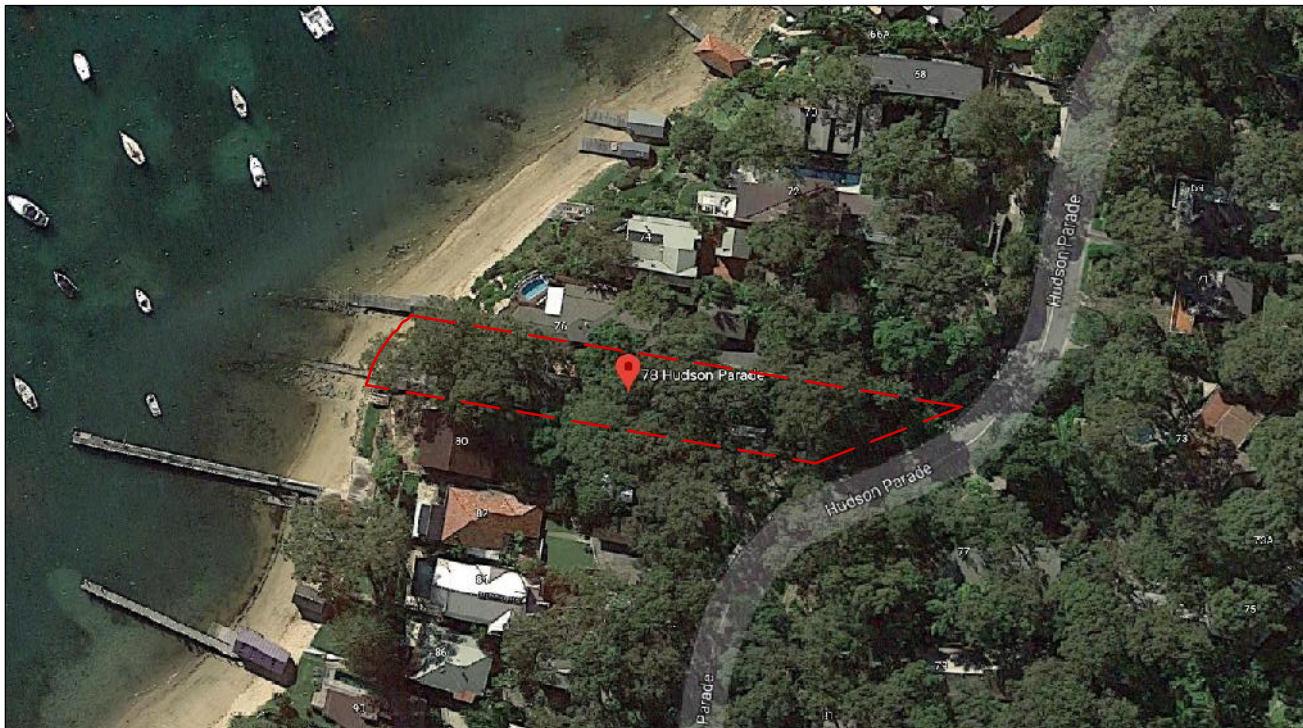
	Stormwater pipe
	Charged stormwater Pipe
	Sub Soil / Agricultural Pipe
	Pumped Line
	Existing Pipe
	Disused / Redundant Pipe
	Sediment Fence
	Site Fence
	Conduit by others
	Electrical Wiring by others
	Existing Authority Stormwater Main
	Existing Authority Sewer Main
	Existing Authority Water Main
	Existing Authority Gas Main
	Existing Authority Electrical Cabling
	Existing Telstra Cabling
	Stormwater pit (Grated / Solid Cover)
	Drainage Outlet
	Downpipe / Riser
	Dropper
	Direction of flow
	Pipe continuation
	Pipe continuation not shown
	Spreader
	Surface Fall
	Overland Flow

### ABBREVIATIONS:

AP	Aerial Pipe
BG	Box Gutter
BO	Balcony Outlet
CO	Clearout
CP	Charged Pipe
DP	Downpipe
EG	Eave Gutter
Galv.	Galvanised
HD	Heavy Duty
HP	High Point
IL	Invert Level
IO	Inspection Opening
L	Litres
L/s	Litres Per Second
LD	Light Duty
m	Meters
m <sup>2</sup>	Square Meters
m <sup>3</sup>	Cubic Meters
O/F	Overflow
OLF	Overland Flow
OSD	On Site Detention
PDO	Planter Drain Outlet
SP	Subterranean Pipe
RWH	Rainwater Head
RHS	Rectangular Hollow Section
RL	Reduced Level
RW	Rainwater
RWO	Rainwater Outlet
SS	Subsoil
SW	Stormwater
PVC	Poly Vinyl Chloride





### GENERAL NOTES:

- All work is to be performed in accordance with AS3500.3 and council codes where applicable.
- The Plumber/ Drainer shall inspect the site and confirm the existing site structures, services and conditions prior to proceeding. If any discrepancies found, contact the engineer for further instructions.
- All pipes shall be sewer grade P.V.C. laid at min. 1:100, unless noted otherwise.
- All connections to P.V.C. pipes are to be solvent welded to manufacturers specification
- All prefabricated pits, drains etc. are to be of heavy duty concrete construction unless noted other.
- Precise location of down pipes shall be nominated by others. Locations shown are for hydraulic design purposes only.
- Precise location of pits shall be nominated by others. Locations shown are for hydraulic design purposes only.
- All eaves gutters shall be of minimum cross sectional area of 8500mm<sup>2</sup> unless noted otherwise.
- This design covers the collection and disposal of rainwater from ROOF AREAS ONLY. Any paved areas not noted on the supplied architectural drawings are not included, unless shown.
- This design does not cover sub surface hydraulic flows.
- The installer is encouraged to use the 'Dial Before You Dig' service prior to excavation. No underground services have been noted or surveyed in this design. Dig at your own risk.
- IF IN DOUBT ASK. Consult the design engineer for any changes, omissions and discrepancies.
- System design has been produced to reflect reduced levels shown on architect supplied drawings.
- Pipe cover for uPVC pipes:
  - Single dwellings, no vehicular loading- 100mm
  - Single dwellings, vehicular loading on concrete- 450mm
  - Single dwellings, vehicular loading, un-reinforced concrete-100mm below underside of concrete
- Silt arrestor pit and rain guards must be regularly inspected and cleaned.
- Location of Stormwater Systems, including downpipes, pipes pits and rainwater tank are indicative only. Exact locations shall be determined on site to suit site conditions.
- Sub-soil drains for retaining wall shall be installed by the builder and connected to Stormwater lines. All Agg Lines shall be 100mm DIA, unless noted otherwise.
- Levels are approximate only. The plumber/drainers shall confirm the levels prior to proceeding. If any discrepancies found, contact the engineer for further instructions.
- Inspection and certification, if required, shall be done prior to backfilling, allow 24 hour notice for the engineer to carry out the inspection.
- Any damage to services during construction shall be repaired immediately at the plumber/drainers own expense.
- Areas & Geometry calculated are approximate and dependent on Surveyors & Architects drawings.
- It is essential that areas calculated are within plus/minus 5% range.
- Provide adequate access and overland flow routes out of property and not into adjoining properties
- Provide minimum 75mm clearance under all gates and operable external doors as to not impede overland flow
- Water entry and backflow into buildings should be prevented at all times
- All finished ground surfaces should fall away from structures
- Charged lines are to be flushed regularly and flush/arrestor pits are to be regularly inspected and cleaned
- All pipes entering a water tank shall have a first flush device installed
- All water tanks will be insect proofed by other
- If tanked water is being reused for drinking or sanitary purposes, appropriate disinfecting by others should be considered.
- Schedule of calculations is based on plan areas
- Plumber to provide 'leaf guard' or similar over all gutter, rainheads & sumps



LOCALITY PLAN  
Not to scale

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	Rev	Date	Amendment Description	By	App	Rev	Date	Amendment Description	By	App			ARCHITECT:  Marker Architecture & Design Studio	CLIENT:  Pam & Danny Nemeny	PREPARED BY:  HARRISON & MORRIS CONSULTANCY PTY LTD. (A.C.N. 122 191 499 A.B.N. 94 122 191 499) CONSULTING STRUCTURAL & CIVIL ENGINEERS SUITE 63, 99-101 MARLBOROUGH ST. SURRY HILLS 2159 Tel: 9490 2547 Email: admin@harrismorris.com.au	PROJECT:  78 Hudson Parade Clareville NSW 2107	Project Information Sheet			
DATE:		February, 2019		SCALE:		Not to scale		DES / DRN:		JR / JL		APPROVED:		BM						
JOB No:		1819-152		SHEET No:		1 of 6		REV:		--		SIGNED:								

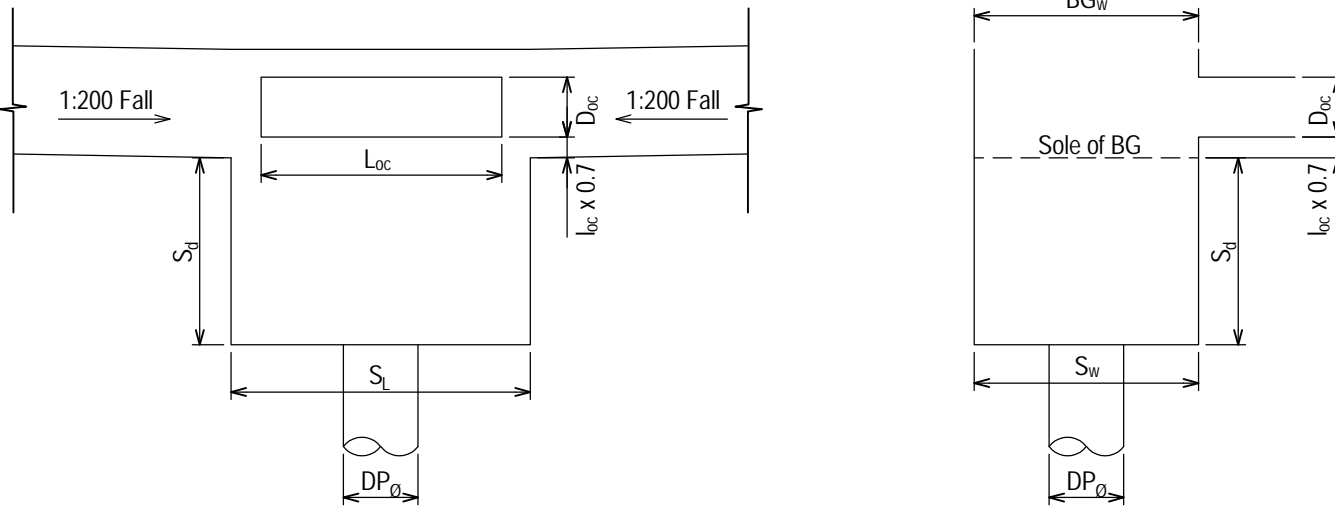
FOR GENERAL NOTES, REFER TO SHEET 1

SCHEDULE OF CALCULATIONS		
ITEM	VALUE	UNITS
CATCHMENT DATA		
100 <sub>y</sub> Rainfall Intensity - BOM 24/1/19	287	mm/h
20 <sub>y</sub> Rainfall Intensity - BOM 24/1/19	210	mm/h
5 <sub>y</sub> Rainfall Intensity - BOM 24/1/19	151	mm/h
Site Area	1456.3	m <sup>2</sup>
Existing		
Total Roof Area	197.4	m <sup>2</sup>
Total Additional Impervious Area	118.6	m <sup>2</sup>
Total Pervious Area	1140.3	m <sup>2</sup>
Total Runoff for Existing Catchment Q <sub>100</sub>	69.7	L/s
Total Runoff for Existing Catchment Q <sub>20</sub>	51.0	L/s
Total Runoff for Existing Catchment Q <sub>5</sub>	36.7	L/s
Proposed		
Total Roof Area	498.0	m <sup>2</sup>
Total Additional Impervious Area	123.0	m <sup>2</sup>
Total Pervious Area	835.3	m <sup>2</sup>
Total Runoff for Proposed Catchment Q <sub>100</sub>	81.8	L/s
Total Runoff for Proposed Catchment Q <sub>20</sub>	59.9	L/s
Total Runoff for Proposed Catchment Q <sub>5</sub>	43.0	L/s
Proposed Water Tank Size	6160	L
Required Water Tank Size (BASIX)	6000	L
Roof Area Drained to Tank	205.0	m <sup>2</sup>
Required Roof Area Drained to Tank (BASIX)	198.0	m <sup>2</sup>

GARAGE ROOF DRAINAGE PLAN

Downpipes: DP1 = 100Ø u-P.V.C  
Box Gutter BG1 = 300Wx145D @ min. 1:200 fall  
Sump S1 = 300Wx400L min x 145D min, proved overflow channel of minimum dimension 320Wx80D, refer to detail

Note:  
- HP denotes high point of gutter  
- Max. fall of roofs to be determined from architecturals.



SUMP SCHEDULE - All values are minimum values in mm

Number	BG <sub>w</sub>	BG <sub>d</sub>	S <sub>w</sub>	S <sub>d</sub>	S <sub>d</sub>	W <sub>oc</sub>	L <sub>oc</sub>	D <sub>gc</sub>	DP <sub>0</sub>
S1	300	145	300	400	250	320	40	80	100

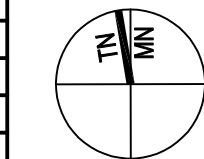
ROOF DRAINAGE PLAN

Downpipes: DP3 & DP4 = 100Ø u-P.V.C  
DP5 & DP11 = 100x100 Colorbond or u-P.V.C  
DP6, DP7, DP8, DP9, DP10, DP12, DP13 & DP14 = 100x75 Colorbond or u-P.V.C  
Eave Gutter EG1 = 200 Half-Round or equivalent, min. area 9900mm<sup>2</sup> @ min. 1:500 fall  
EG2 = 150 Half-Round or equivalent, min. area 5500mm<sup>2</sup> @ min. 1:500 fall

Note:  
- HP denotes high point of gutter  
- Where spreaders are used, the roof sheets are to be sealed for 1800mm either side of discharge point.  
- Max. fall of roofs to be determined from architecturals.



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Marker Architecture & Design Studio

CLIENT:

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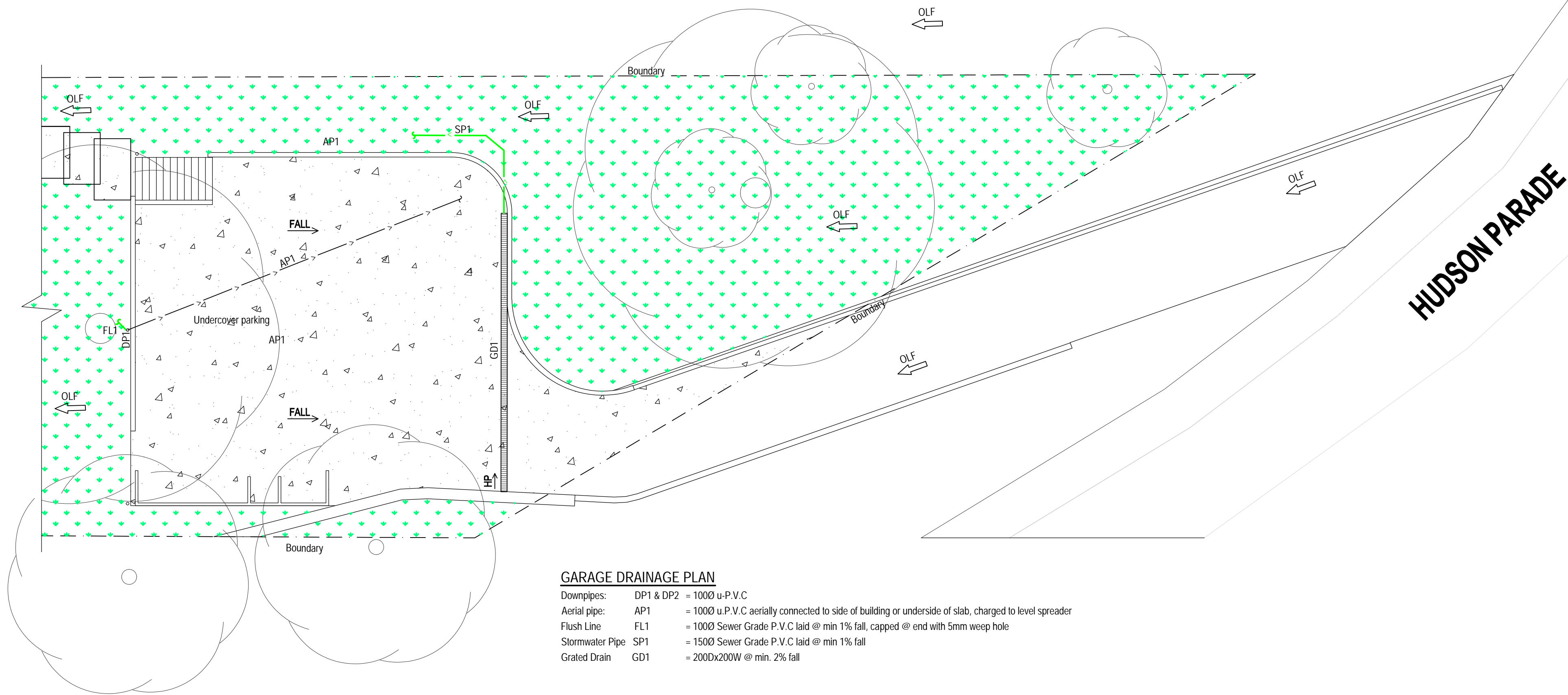
PROJECT:

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Clareville NSW 2107

Roof Drainage Plan

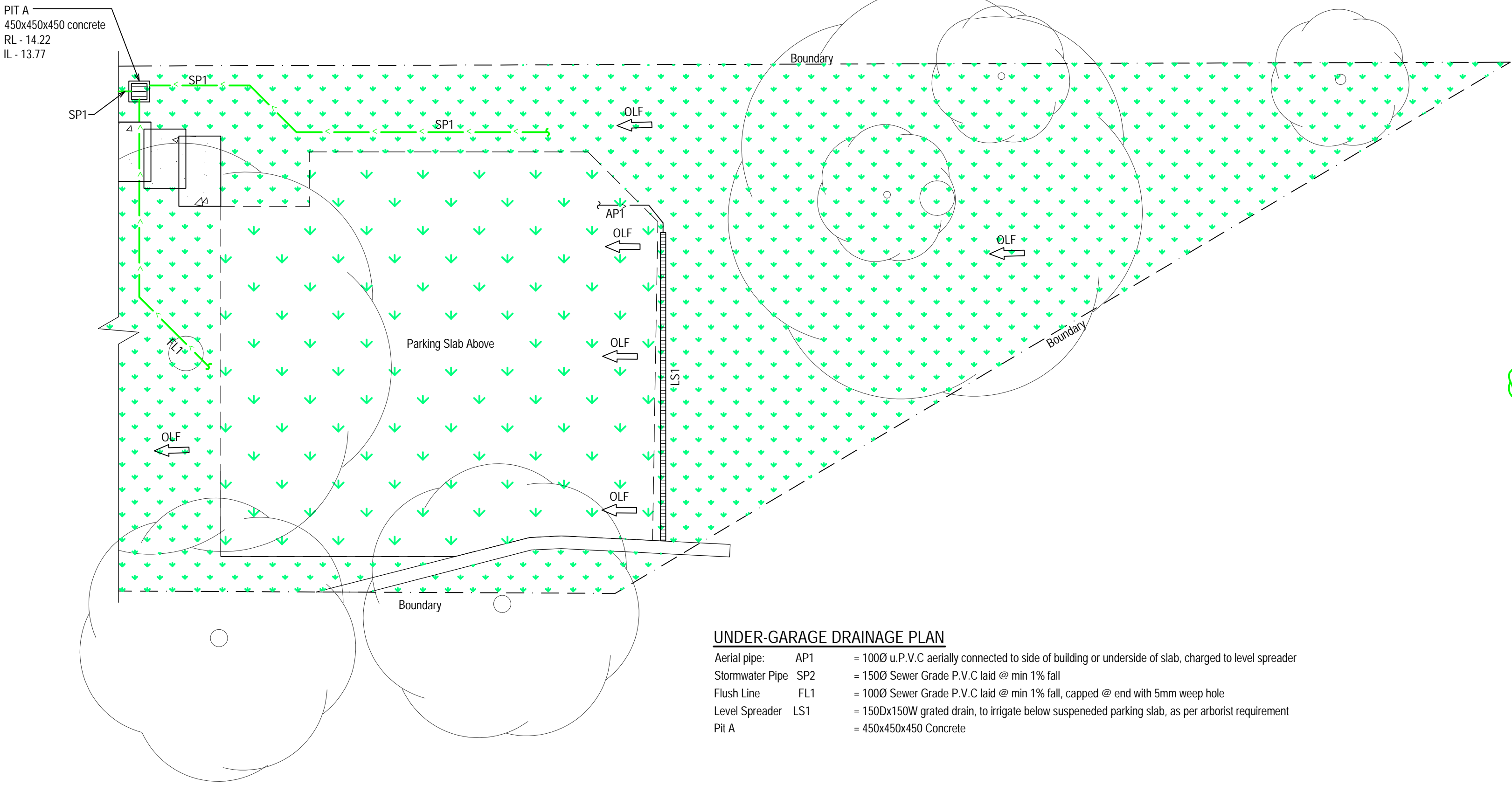
DATE: February, 2019	SCALE: 1:100 @ A1	DES/DRN: JR/JL	APPROVED: BM
2019/02/19	2 of 6	REV --	SIGNED

FOR GENERAL NOTES, REFER TO SHEET 1



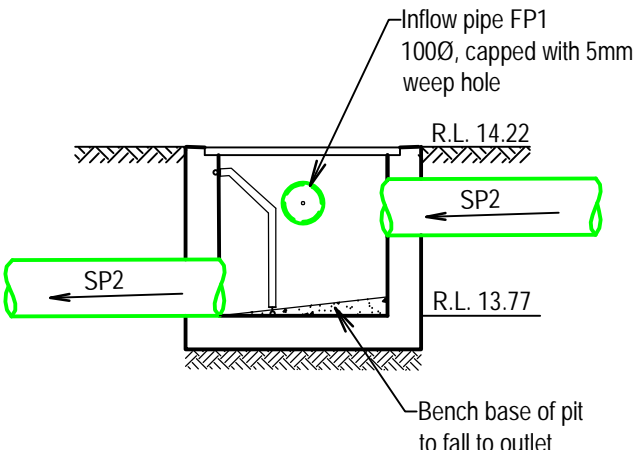
**GARAGE DRAINAGE PLAN**

Downpipes: DP1 & DP2 = 1000 u.P.V.C  
Aerial pipe: AP1 = 1000 u.P.V.C aerially connected to side of building or underside of slab, charged to level spreader  
Flush Line: FL1 = 1000 Sewer Grade P.V.C laid @ min 1% fall, capped @ end with 5mm weep hole  
Stormwater Pipe: SP1 = 1500 Sewer Grade P.V.C laid @ min 1% fall  
Grated Drain: GD1 = 200Dx200W @ min. 2% fall



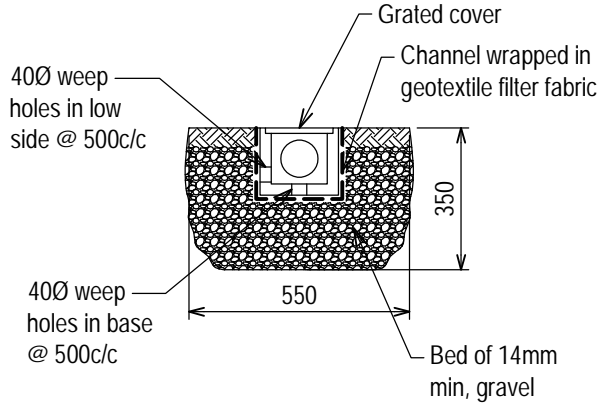
**UNDER-GARAGE DRAINAGE PLAN**

Aerial pipe: AP1 = 1000 u.P.V.C aerially connected to side of building or underside of slab, charged to level spreader  
Stormwater Pipe: SP2 = 1500 Sewer Grade P.V.C laid @ min 1% fall  
Flush Line: FL1 = 1000 Sewer Grade P.V.C laid @ min 1% fall, capped @ end with 5mm weep hole  
Level Spreader: LS1 = 150Dx150W grated drain, to irrigate below suspended parking slab, as per arborist requirement  
Pit A = 450x450x450 Concrete



**PIT A DETAIL**

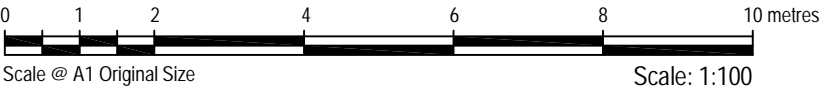
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**LEVEL SPREADER LS1 DETAIL**

Scale 1:20

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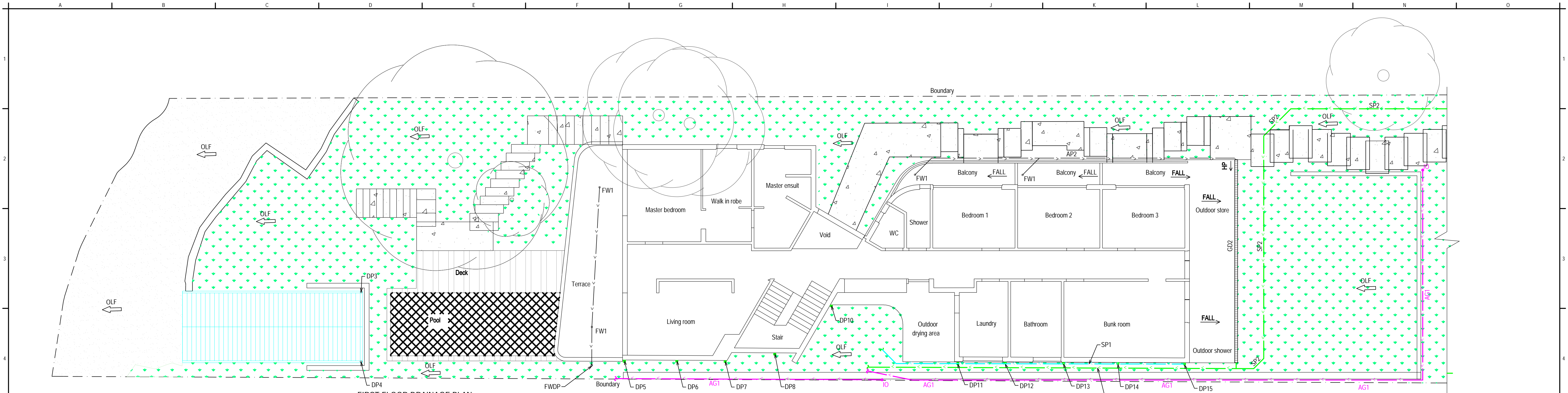
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Clareville NSW 2107

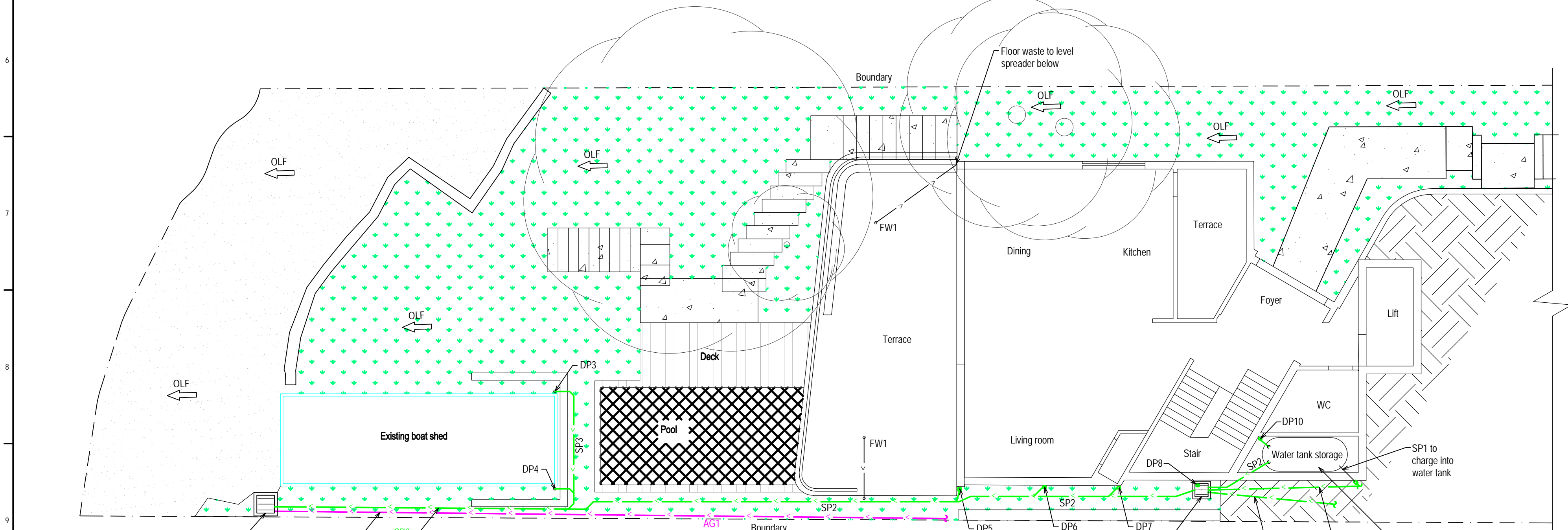
First Floor Drainage Plan

DATE:	SCALE:	DES / DRN:	APPROVED:
February, 2019	1:100 @ A1	JR / JL	BM
1819-152	3 of 6	REV	SIGNED



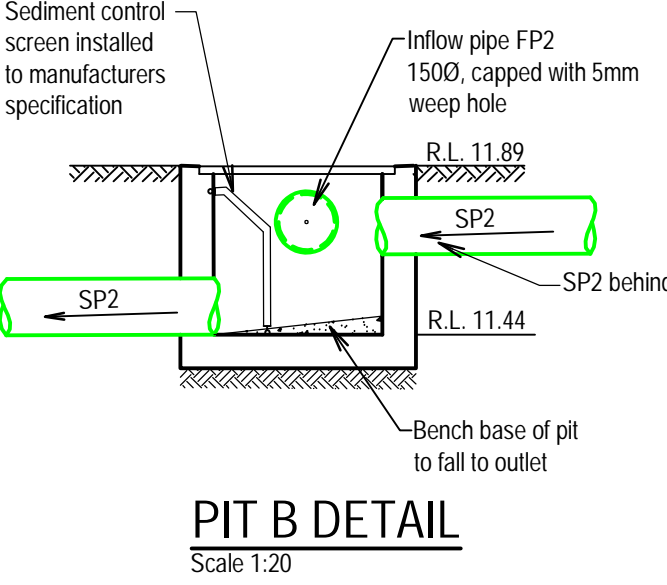
FIRST FLOOR DRAINAGE PLAN

- Downpipes: DP3 & DP4 = 100Ø u.P.V.C  
DP5 & DP11 = 100x100 Colorbond or u.P.V.C  
DP6, DP7, DP8, DP9, DP10, DP12, DP13 & DP14 = 100x75 Colorbond or u.P.V.C  
FW1 = 90Ø Grated floor faste, all falls to waste  
FWPD = 90Ø u.P.V.C  
SP1 = 150Ø Sewer Grade P.V.C, charge to tank  
SP2 = 150Ø Sewer Grade P.V.C laid @ min 1% fall  
AP1 = 90Ø u.P.V.C @ min. 1% fall to GD2  
AG1 = Ø100 Slotted AG Line, min. 1% fall, Wrapped in geotech fabric, bedded in coarse gravel  
IO = Cap raised to finished ground level marked 'IO'  
GD2 = 150Wx150D @ min 1% fall
- Floor Waste  
Floor Waste Downpipe  
Stormwater Pipe  
Aerial Pipe  
Agricultural Line  
Inspection Opening  
Grated Drain



GROUND FLOOR DRAINAGE PLAN

- Downpipes: DP3 & DP4 = 100Ø u.P.V.C  
DP5 = 100x100 Colorbond or u.P.V.C  
DP6, DP7 & DP8 = 100x75 Colorbond or u.P.V.C  
FW1 = 90Ø Grated floor faste, all falls to waste  
SP1 = 150Ø Sewer Grade P.V.C, charge into tank  
SP2 = 150Ø Sewer Grade P.V.C, laid @ min. 1% fall  
SP3 = 100Ø Sewer Grade P.V.C, laid @ min. 1% fall  
FL2 = 150Ø Sewer Grade P.V.C, laid @ min. 1% fall from lowest point of SP1, capped with 5mm weep hole  
AG1 = Ø100 Slotted AG Line, min. 1% fall, Wrapped in geotech fabric, bedded in coarse gravel  
IO = Cap raised to finished ground level marked 'IO'  
Pit B = 450x450x450 Concrete Pit  
Pit D = 600x600x600 Concrete Pit
- Flush Pipe  
Agricultural Line  
Inspection Opening  
Pit B  
Pit D



PIT B DETAIL  
Scale: 1:20

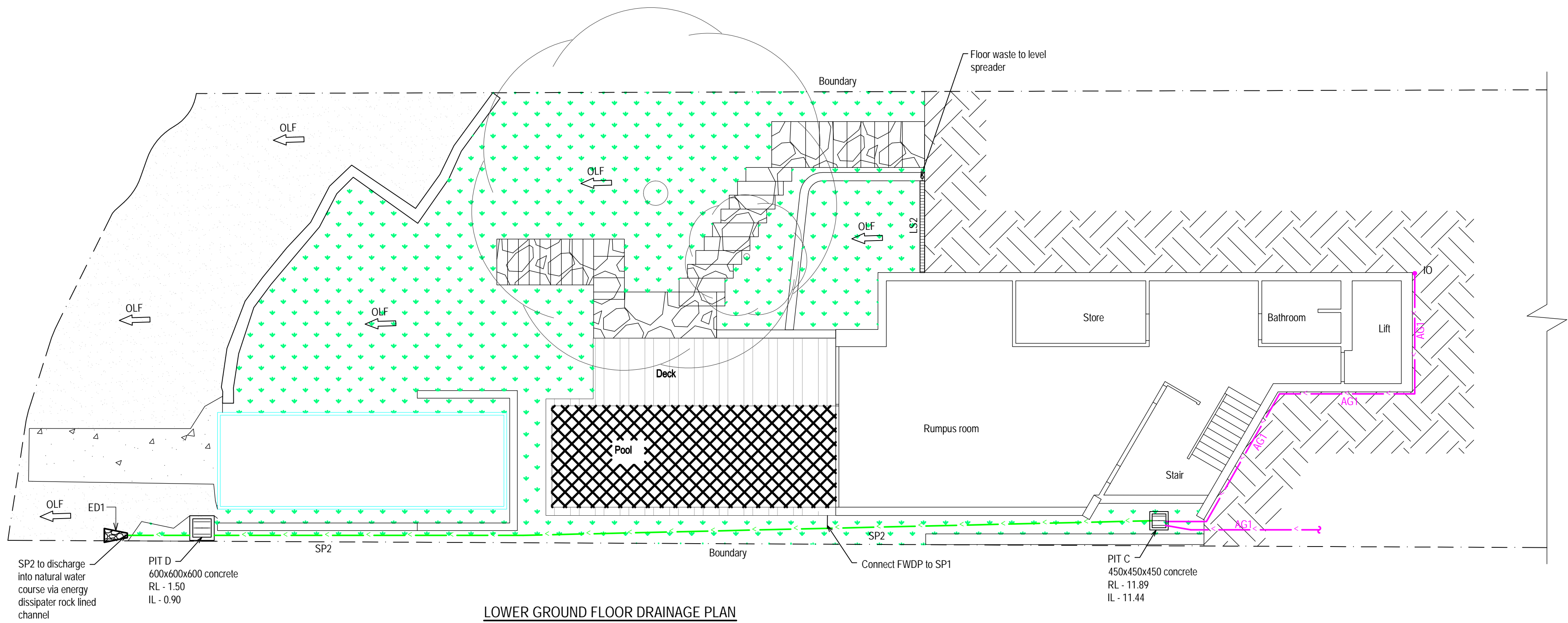
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FOR GENERAL NOTES, REFER TO SHEET 1



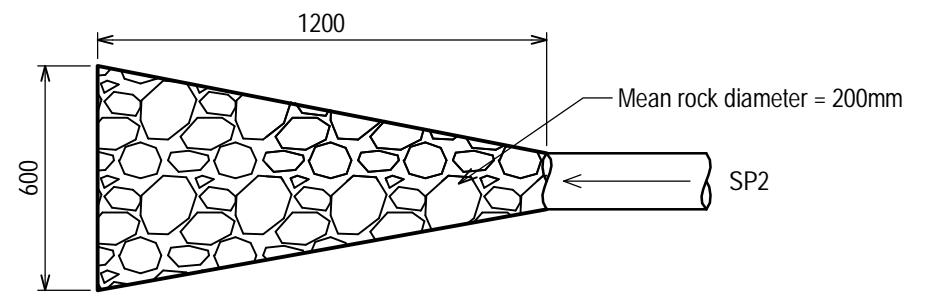
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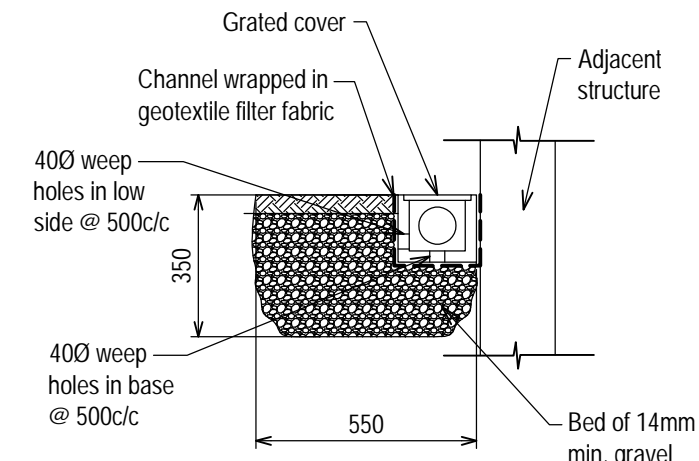
LOWER GROUND FLOOR DRAINAGE PLAN

- |                      |      |  |
|----------------------|------|--|
| Floor Waste Downpipe | FWDP | = 900 u.P.V.C  |
| Stormwater Pipe      | SP2  | = 1500 Sewer Grade P.V.C laid @ min 1% fall  |
| Agricultural Line    | AG1  | = 1000 Slotted AG Line, min. 1% fall, Wrapped in geotech fabric, bedded in coarse gravel |
| Inspection Opening   | IO   | = Cap raised to finished ground level marked '10'  |
| Level Spreader       | LS2  | = 1500x150W grated drain, to irrigate below ground floor terrace                         |



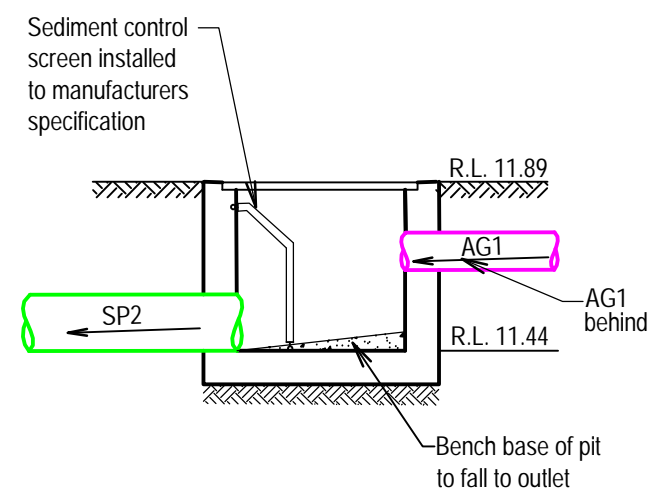
ENERGY DISSIPATOR 'ED1' DETAIL

NOT TO SCALE



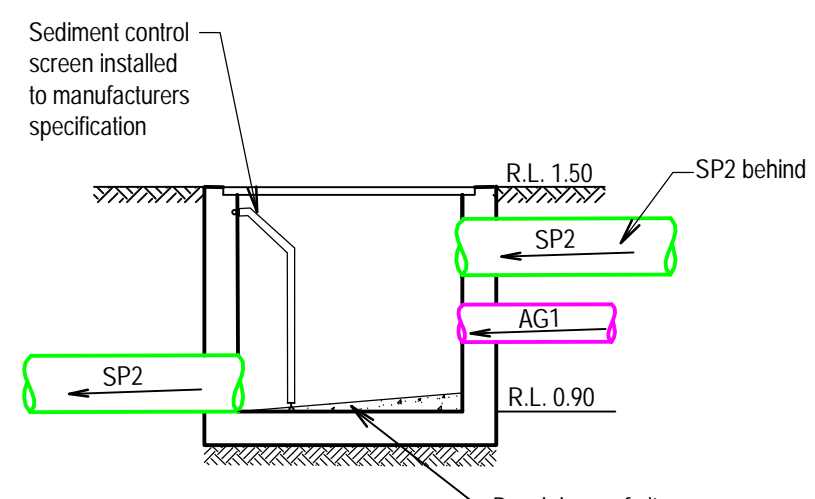
LEVEL SPREADER LS2 DETAIL

Scale 1:20



PIT C DETAIL

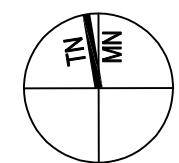
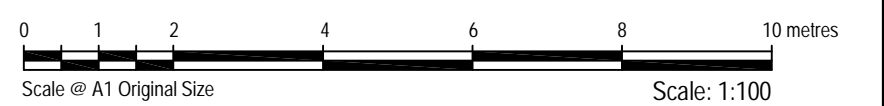
Scale 1:20



PIT D DETAIL

Scale 1:20

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CLIENT:

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PREPARED BY:



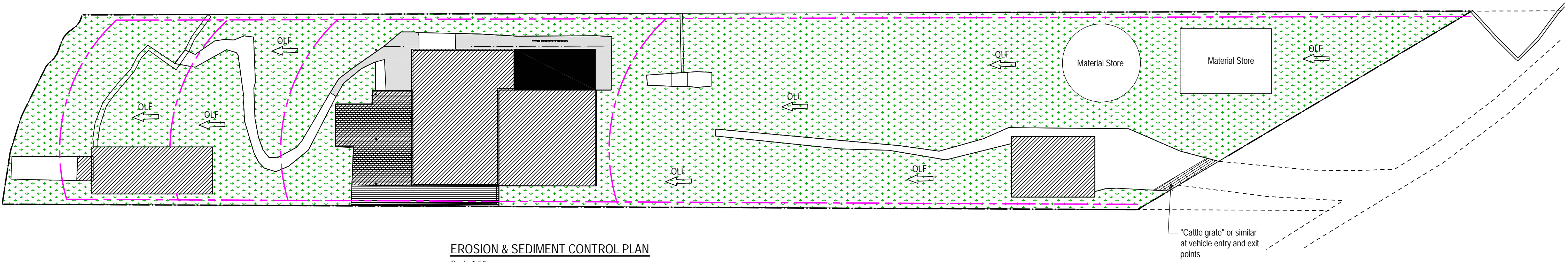
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Ground Floor Drainage Plan &  
Lower Ground Floor Drainage Plan

DATE:	SCALE:	DES / DRN:	APPROVED:
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1819-152	5 of 6	REV	SIGNED

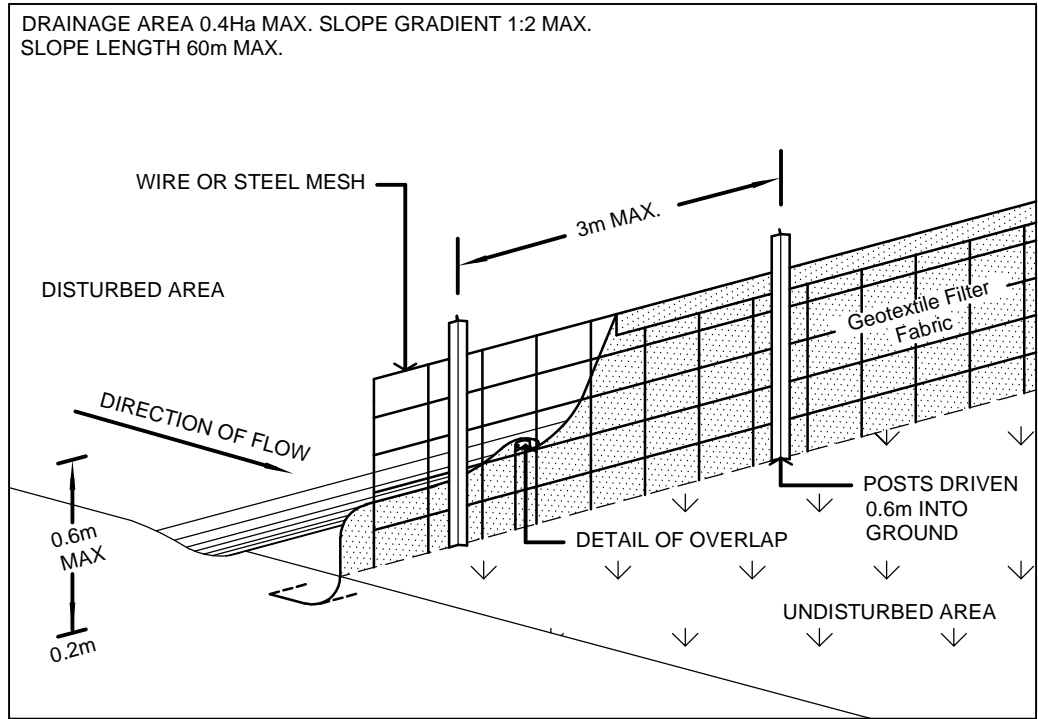


**EROSION & SEDIMENT CONTROL PLAN**  
Scale 1:50

Sediment Control Fence ———

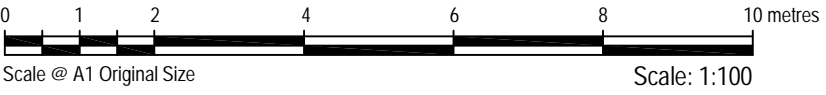
Sediment control fencing can be repositioned as required during construction and should be positioned in a manner that prevents excessive sediment and silt from entering Pittwater Bay. The lowest sediment control fence shall remain in position for the duration of construction.

fences should be cleared of silt and sediment build up regularly.



**SEDIMENT FENCE** ———  
NOT TO SCALE

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DATE: February, 2019		SCALE: 1:100 @ A1		DES / DRN: JR / JL		APPROVED: BM		DATE: 1819-152		SCALE: 6 of 6		REV: -		SIGNED:						