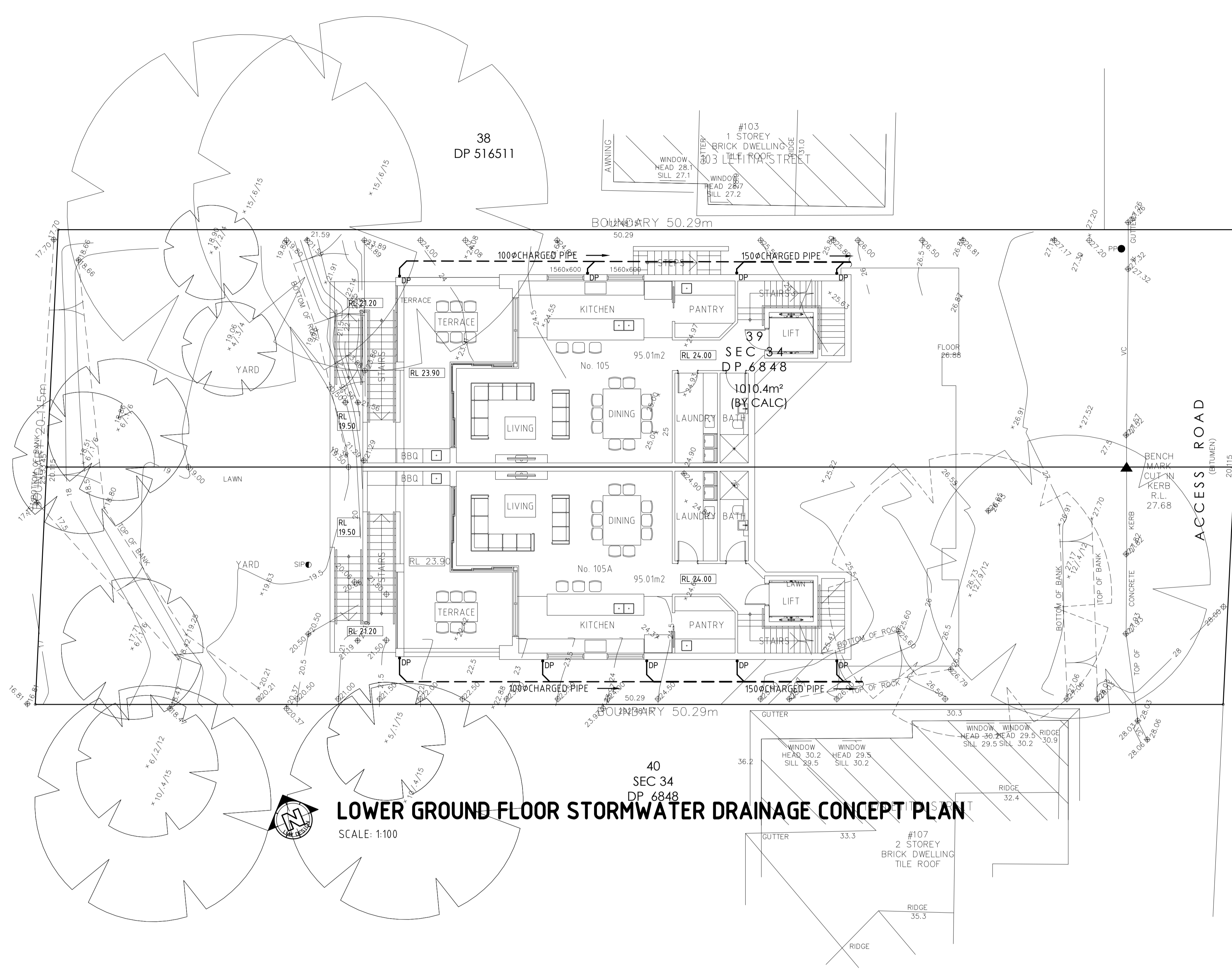


**ABBREVIATIONS**

- AH----ACCESS HATCH
- DDO----DISH DRAIN OUTLET
- CO----CLEAR OUT
- DCP----DISCHARGE CONTROL PIT
- DP----DOWNPIPE
- FFL----FINISH FLOOR LEVEL
- FW----FLOOR WASTE
- GL----GROUND FLOOR LEVEL
- IL----INVERT LEVEL
- OSD----ON SITE DETENTION
- PD----PLANTERS DRAIN
- PFO----PLANTER FLOOR OUTLET
- PP----PLANTER PIT
- RH----RAINWATER HEAD
- RP----RELN PIT
- RO----ROOF OUTLET
- SDO----STRIP DRAIN OUTLET
- SIP----SURFACE INLET PIT
- STP----SILT TRAP PIT
- SP----SPREADER
- TD----TUN DISH



**LOWER GROUND FLOOR STORMWATER DRAINAGE CONCEPT PLAN**

SCALE: 1:100

**STORMWATER DRAINAGE NOTES**

1. PROVIDE INSPECTION OPENINGS TO ALL DOWNPIPES NOT DIRECTLY CONNECTED TO PITS.
2. ALL PIPES TO BE 100mm UPVC SEWER GRADE UNO, LAID ON A MIN 1% GRADE, MINIMUM 300mm COVER UNO.
3. PIT SIZE
  - TO BE 450x450mm, PITS ARE 600mm OR LESS DEEP TO BE 450x450mm.
  - TO BE 600x600mm, PITS ARE GREATER THAN 600mm BUT LESS THAN 1000mm DEEP.
4. ALL PIPES TO BE ADVISED.
5. ALL PIT FLOORS TO HAVE A MINIMUM OF 20mm FALL, PROFILED AND STEAMLINED (FOR HALF OF THE DEPTH OF THE PIPE) IN THE DIRECTION OF FLOW.
6. ALL GRATES ON THE DRIVEWAY TO BE HEAVY DUTY.
7. ALL GUTTERS, PITS, PIPES AND DOWNPIPES TO BE INSTALLED IN ACCORDANCE WITH AS3500.3.2.1 2018.
8. THE CONNECTION TO COUNCIL'S DRAINAGE SYSTEM SHALL BE CONSTRUCTED PRIOR TO THE CONSTRUCTION OF ALL INTERNAL DRAINAGE. THE COUNCIL ENGINEER BEING GIVEN 48 HOURS NOTICE PRIOR TO CONSTRUCTION.
9. DRIVEWAY BOUNDARY LEVEL'S MUST BE CONFIRMED PRIOR TO CONSTRUCTION.

REV.	DATE	BY	CHECKED	AMENDMENTS
A	26 JUN 23	M.W.	S.W.W.	PRELIMINARY ISSUE

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Job Name  
**PROPOSED NEW DEVELOPMENT AT 105 LETITIA AT OATLEY**

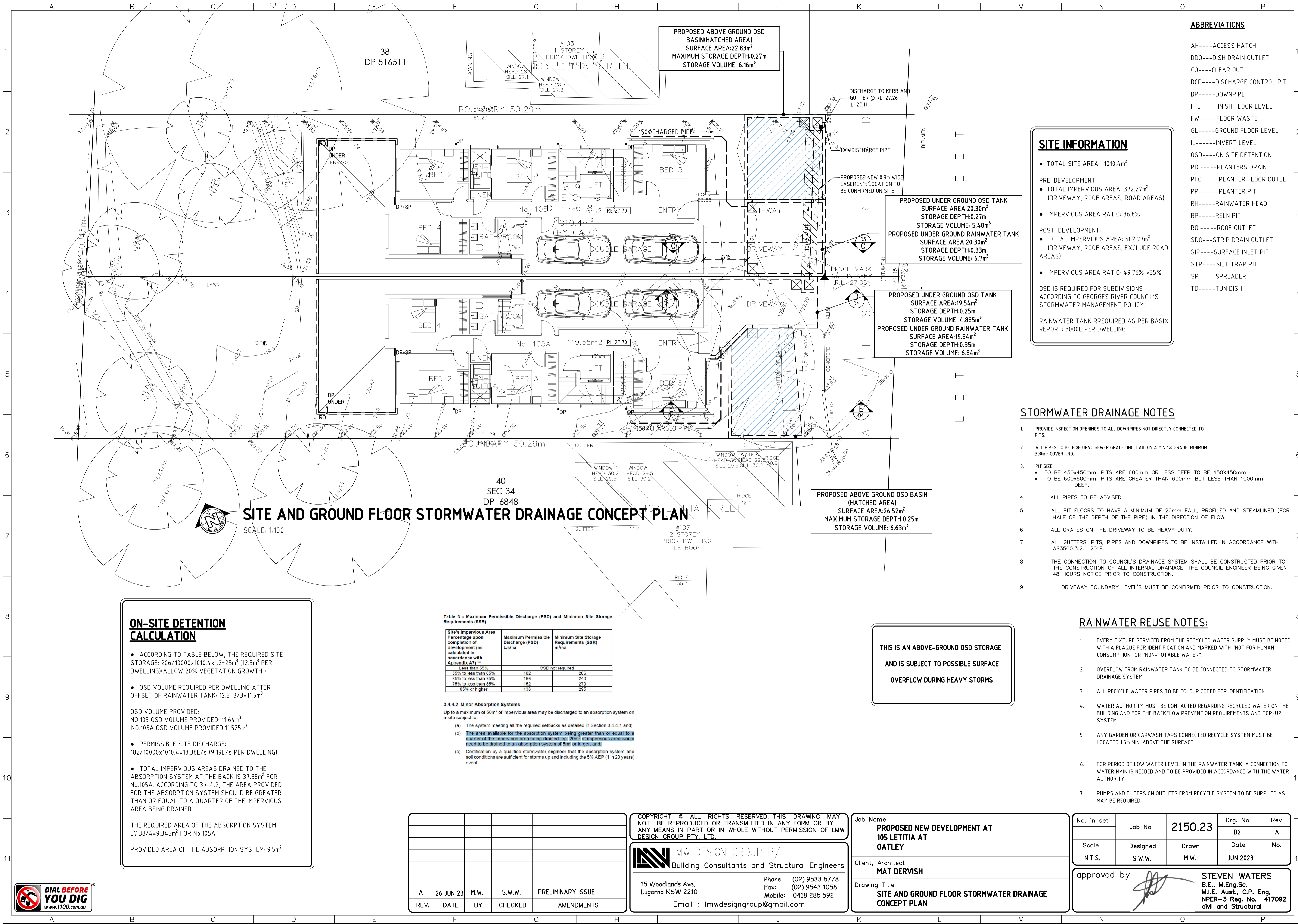
Client, Architect  
**MAT DERVISH**

Drawing Title  
**LOWER GROUND FLOOR STORMWATER DRAINAGE CONCEPT PLAN**

No. in set	Job No	2150.23	Drw. No	Rev
	Designed	Drawn	D1	A
N.T.S.	S.W.W.	M.W.	DATE	No.
			JUNE 2023	

approved by **STEVEN WATERS**  
B.E., M.Eng.Sc.  
M.I.E. Aust., C.P. Eng.  
NPER-3 Reg. No. 417092  
civil and Structural





**SITE AND GROUND FLOOR STORMWATER DRAINAGE CONCEPT PLAN**

SCALE: 1:100

**ABBREVIATIONS**

- AH----ACCESS HATCH
- DDO---DISH DRAIN OUTLET
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- SIP---SURFACE INLET PIT
- STP---SILT TRAP PIT
- SP-----SPREADER
- TD----TUN DISH

**SITE INFORMATION**

- TOTAL SITE AREA: 1010.4m²
- PRE-DEVELOPMENT:
  - TOTAL IMPERVIOUS AREA: 372.27m² (DRIVEWAY, ROOF AREAS, ROAD AREAS)
  - IMPERVIOUS AREA RATIO: 36.8%
- POST-DEVELOPMENT:
  - TOTAL IMPERVIOUS AREA: 502.77m² (DRIVEWAY, ROOF AREAS, EXCLUDE ROAD AREAS)
  - IMPERVIOUS AREA RATIO: 49.76% -55%
- OSD IS REQUIRED FOR SUBDIVISIONS ACCORDING TO GEORGES RIVER COUNCIL'S STORMWATER MANAGEMENT POLICY.
- RAINWATER TANK RREQUIRED AS PER BASIX REPORT: 3000L PER DWELLING

**STORMWATER DRAINAGE NOTES**

1. PROVIDE INSPECTION OPENINGS TO ALL DOWNPIPES NOT DIRECTLY CONNECTED TO PITS.
2. ALL PIPES TO BE 100Ø UPVC SEWER GRADE UNO, LAID ON A MIN 1% GRADE, MINIMUM 300mm COVER UNO.
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  - TO BE 600x600mm, PITS ARE GREATER THAN 600mm BUT LESS THAN 1000mm DEEP.
4. ALL PIPES TO BE ADVISED.
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9. DRIVEWAY BOUNDARY LEVEL'S MUST BE CONFIRMED PRIOR TO CONSTRUCTION.

**RAINWATER REUSE NOTES:**

1. EVERY FIXTURE SERVICED FROM THE RECYCLED WATER SUPPLY MUST BE NOTED WITH A PLAQUE FOR IDENTIFICATION AND MARKED WITH "NOT FOR HUMAN CONSUMPTION" OR "NON-POTABLE WATER".
2. OVERFLOW FROM RAINWATER TANK TO BE CONNECTED TO STORMWATER DRAINAGE SYSTEM.
3. ALL RECYCLE WATER PIPES TO BE COLOUR CODED FOR IDENTIFICATION.
4. WATER AUTHORITY MUST BE CONTACTED REGARDING RECYCLED WATER ON THE BUILDING AND FOR THE BACKFLOW PREVENTION REQUIREMENTS AND TOP-UP SYSTEM.
5. ANY GARDEN OR CARWASH TAPS CONNECTED RECYCLE SYSTEM MUST BE LOCATED 15m MIN. ABOVE THE SURFACE.
6. FOR PERIOD OF LOW WATER LEVEL IN THE RAINWATER TANK, A CONNECTION TO WATER MAIN IS NEEDED AND TO BE PROVIDED IN ACCORDANCE WITH THE WATER AUTHORITY.
7. PUMPS AND FILTERS ON OUTLETS FROM RECYCLE SYSTEM TO BE SUPPLIED AS MAY BE REQUIRED.

**THIS IS AN ABOVE-GROUND OSD STORAGE AND IS SUBJECT TO POSSIBLE SURFACE OVERFLOW DURING HEAVY STORMS**

**ON-SITE DETENTION CALCULATION**

- ACCORDING TO TABLE BELOW, THE REQUIRED SITE STORAGE: 206/10000x1010.4x1.2=25m³ (12.5m³ PER DWELLING)(ALLOW 20% VEGETATION GROWTH )
- OSD VOLUME REQUIRED PER DWELLING AFTER OFFSET OF RAINWATER TANK: 12.5-3/3=11.5m³
- OSD VOLUME PROVIDED:
  - NO.105 OSD VOLUME PROVIDED: 11.64m³
  - NO.105A OSD VOLUME PROVIDED:11.525m³
- PERMISSIBLE SITE DISCHARGE: 182/10000x1010.4=18.38L/s (9.19L/s PER DWELLING)
- TOTAL IMPERVIOUS AREAS DRAINED TO THE ABSORPTION SYSTEM AT THE BACK IS 37.38m² FOR No.105A. ACCORDING TO 3.4.4.2, THE AREA PROVIDED FOR THE ABSORPTION SYSTEM SHOULD BE GREATER THAN OR EQUAL TO A QUARTER OF THE IMPERVIOUS AREA BEING DRAINED.
- THE REQUIRED AREA OF THE ABSORPTION SYSTEM: 37.38/4=9.345m² FOR No.105A
- PROVIDED AREA OF THE ABSORPTION SYSTEM: 9.5m²

Table 3 - Maximum Permissible Discharge (PSD) and Minimum Site Storage Requirements (SSR)

Site's Impervious Area Percentage upon completion of development (as calculated in accordance with Appendix A7) **	Maximum Permissible Discharge (PSD) L/s/ha	Minimum Site Storage Requirements (SSR) m³/ha
Less than 55%	OSD not required	OSD not required
55% to less than 65%	182	206
65% to less than 75%	166	240
75% to less than 85%	152	270
85% or higher	136	295

**3.4.4.2 Minor Absorption Systems**

- Up to a maximum of 50m² of impervious area may be discharged to an absorption system on a site subject to:
- (a) The system meeting all the required setbacks as detailed in Section 3.4.4.1 and;
  - (b) The area available for the absorption system being greater than or equal to a quarter of the impervious area being drained; eg: 20m² of impervious area would need to be drained to an absorption system of 5m² or larger; and;
  - (c) Certification by a qualified stormwater engineer that the absorption system and soil conditions are sufficient for storms up and including the 5% AEP (1 in 20 years) event.

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Job Name  
**PROPOSED NEW DEVELOPMENT AT 105 LETITIA AT OATLEY**

Client, Architect  
**MAT DERVISH**

Drawing Title  
**SITE AND GROUND FLOOR STORMWATER DRAINAGE CONCEPT PLAN**

No. in set	Job No	2150.23	Drq. No	Rev
	Designed	Drawn	Date	No.
N.T.S.	S.W.W.	M.W.	JUN 2023	

approved by **STEVEN WATERS**  
B.E., M.Eng.Sc.  
M.I.E. Aust., C.P. Eng.  
NPER-3 Reg. No. 417092  
civil and Structural

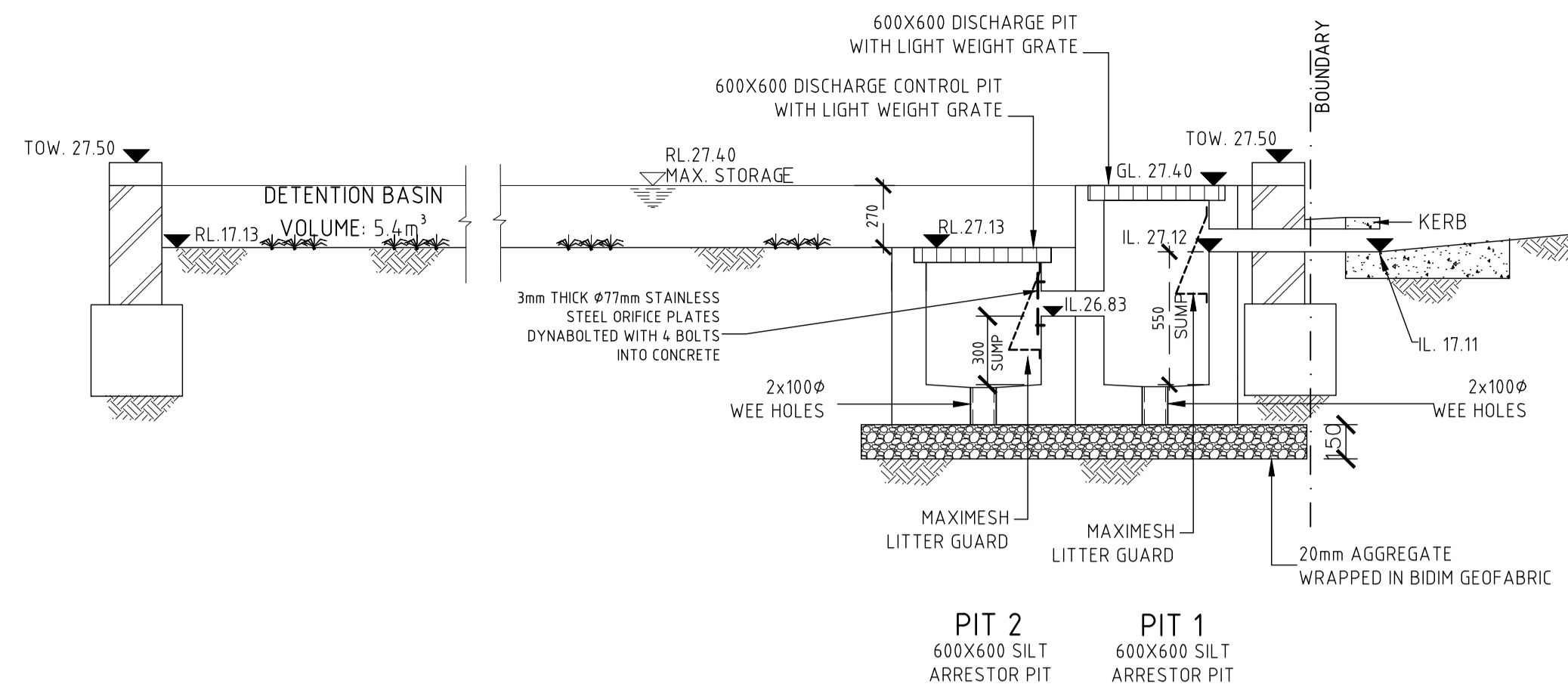
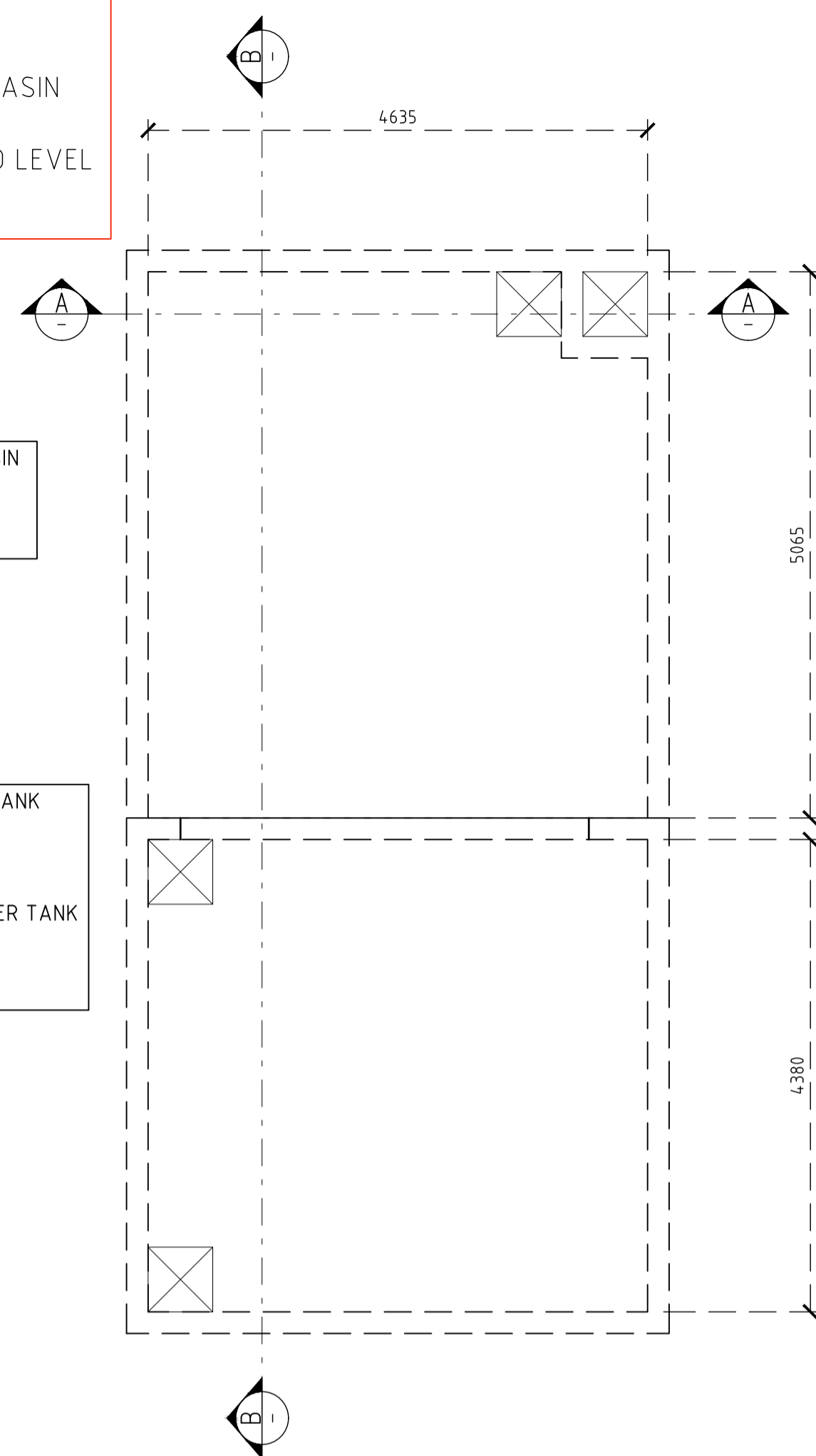


**NOTE:**

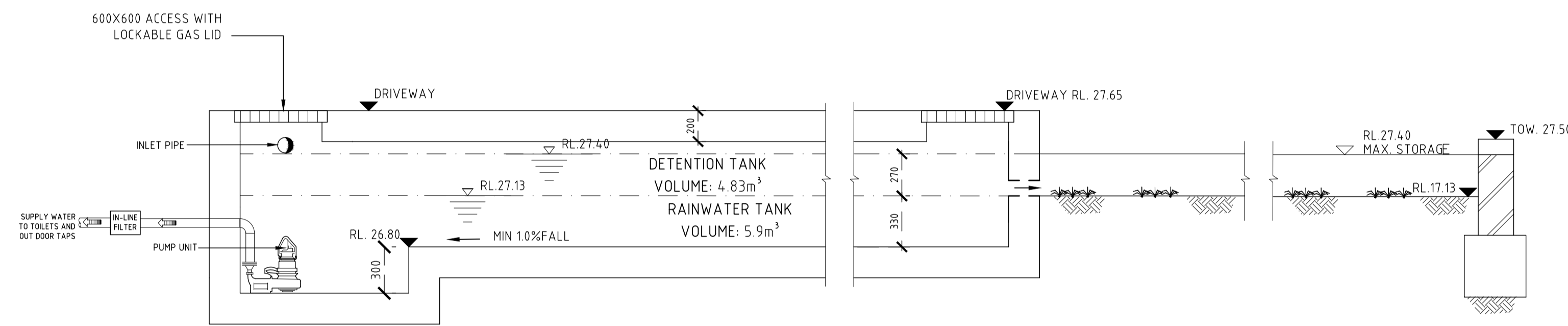
FOR NO.105, THE ABOVE GROUND BASIN NEEDS TO BE EXCAVATED AND BACKFILLED TO MAKE THE GROUND LEVEL TO BE RL.27.13.

PROPOSED ABOVE GROUND OSD BASIN  
SURFACE AREA: 22.83m<sup>2</sup>  
MAXIMUM STORAGE DEPTH: 0.27m  
STORAGE VOLUME: 6.16m<sup>3</sup>

PROPOSED UNDER GROUND OSD TANK  
SURFACE AREA: 20.30m<sup>2</sup>  
STORAGE DEPTH: 0.27m  
STORAGE VOLUME: 5.48m<sup>3</sup>  
PROPOSED UNDER GROUND RAINWATER TANK  
SURFACE AREA: 20.30m<sup>2</sup>  
STORAGE DEPTH: 0.33m  
STORAGE VOLUME: 6.7m<sup>3</sup>



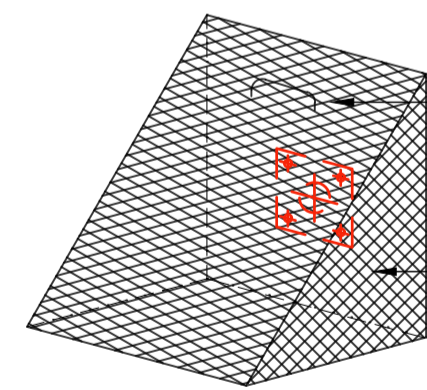
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SCALE: 1:25



SECTION B  
SCALE: 1:25

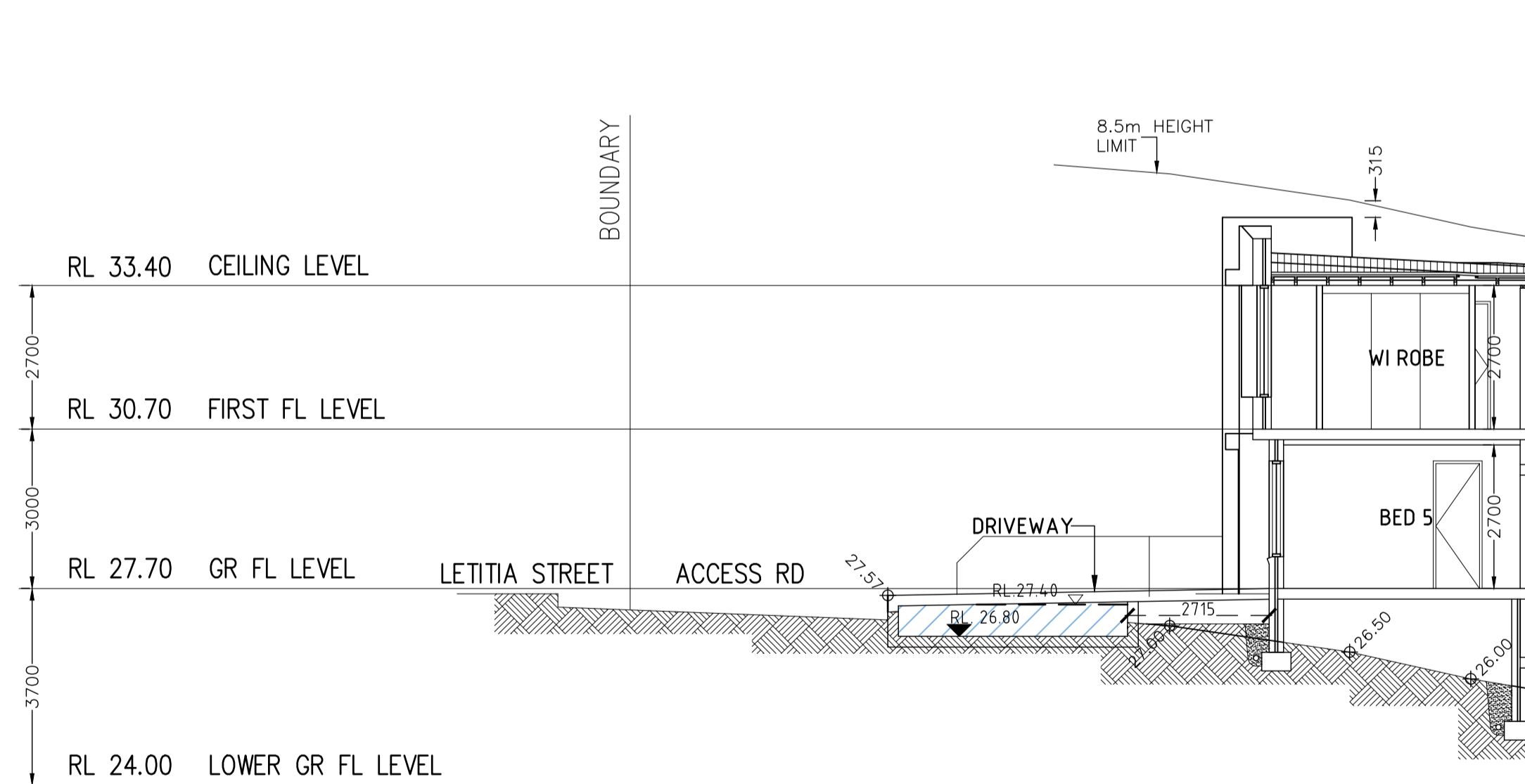
**DETAILS OF OSD AND RAINWATER TANK FOR No. 105**

SCALE: 1:50



HANDLE  
ORIFICE PLATE BEHIND  
TRASH SCREEN TO PROTECT THE ORIFICE AND DOWNSTREAM DRAINAGE SYSTEM. (MAXIMESH RH3030 OR EQUIVALENT) SCREEN MUST BE PLACED SO THAT THE LONG AXIS OF THE OVAL SHAPED HOLES ARE HORIZONTAL WITH THE PROTRUDING LIP ANGLED UPWARDS AND FACING DOWNSTREAM.

TYPICAL TRASH SCREEN  
NTS



SECTION C  
SCALE: 1:100

ORIFICE SIZING	
Input	
Address:	105 LETITIA ST OATLEY
Dia. Of Orifice	0.077m
Dia. Of Outlet Pipe	0.1m
Coef. (C)	0.61 for a circle
Area (A)	0.004657 sq.m
Gravity (G)	9.81 m/s
Depth between ponding and invert level	0.57m
Head (H)	0.52m
Required max flow rate	9.19 L/s
Output	
Flow Rate (Q)	9.07303 L/s
Comments:	Adoptable

ORIFICE SIZING

**ABBREVIATIONS**

- AH----ACCESS HATCH
- DDO----DISH DRAIN OUTLET
- CO----CLEAR OUT
- DCP----DISCHARGE CONTROL PIT
- DP----DOWNPIPE
- FFL----FINISH FLOOR LEVEL
- FW----FLOOR WASTE
- GL----GROUND FLOOR LEVEL
- IL----INVERT LEVEL
- OSD----ON SITE DETENTION
- PD----PLANTERS DRAIN
- PFO----PLANTER FLOOR OUTLET
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- RH----RAINWATER HEAD
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- STP----SILT TRAP PIT
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- TD----TUN DISH

**RAINWATER REUSE NOTES:**

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Job Name  
**PROPOSED NEW DEVELOPMENT AT 105 LETITIA AT OATLEY**

Client, Architect  
**MAT DERVISH**

Drawing Title  
**DETAILS OF ON-SITE DETENTION FOR NO.105**

No. in set	Job No	2150.23	Drg. No	Rev
			D3	A
Scale	Designed	Drawn	Date	No.
N.T.S.	S.W.W.	M.W.	JUN 2023	

approved by **STEVEN WATERS**  
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**NOTE:**

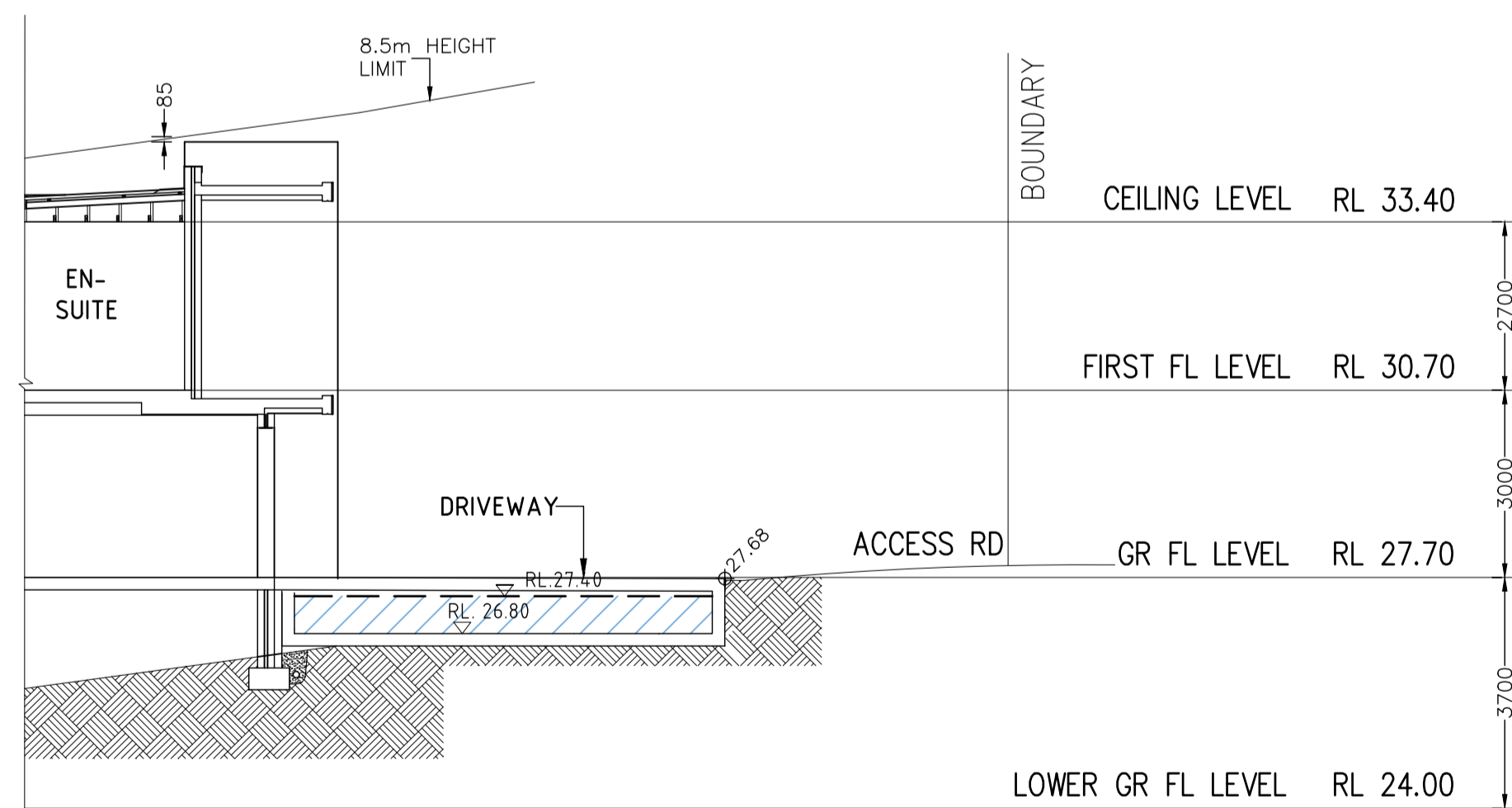
FOR NO.105A, THE ABOVE GROUND BASIN NEEDS TO BE BACKFILLED TO MAKE THE GROUND LEVEL TO BE RL.27.15.

PROPOSED UNDER GROUND OSD TANK  
 SURFACE AREA: 19.54m<sup>2</sup>  
 STORAGE DEPTH: 0.25m  
 STORAGE VOLUME: 4.885m<sup>3</sup>  
 PROPOSED UNDER GROUND RAINWATER TANK  
 SURFACE AREA: 19.54m<sup>2</sup>  
 STORAGE DEPTH: 0.35m  
 STORAGE VOLUME: 6.84m<sup>3</sup>

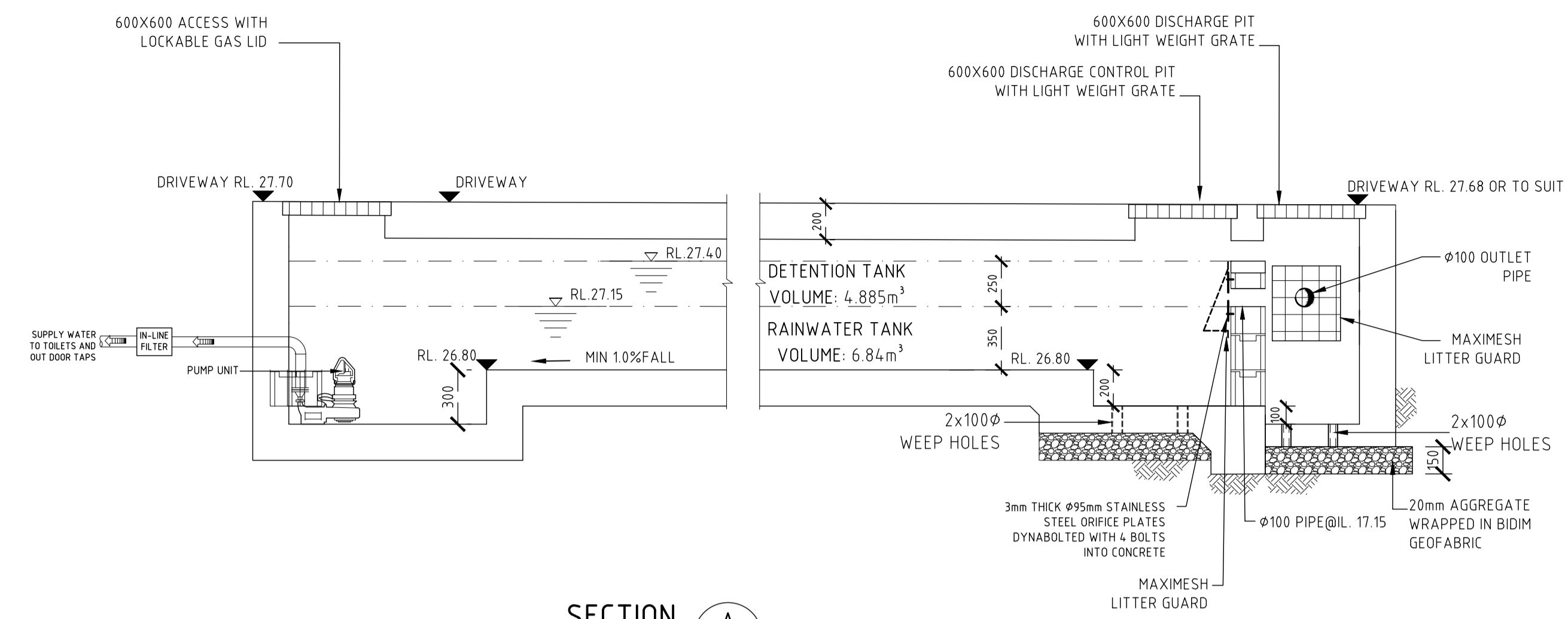
PROPOSED ABOVE GROUND OSD BASIN  
 (HATCHED AREA)  
 SURFACE AREA: 26.52m<sup>2</sup>  
 MAXIMUM STORAGE DEPTH: 0.25m  
 STORAGE VOLUME: 6.63m<sup>3</sup>

**DETAILS OF OSD AND RAINWATER TANK FOR No. 105A**

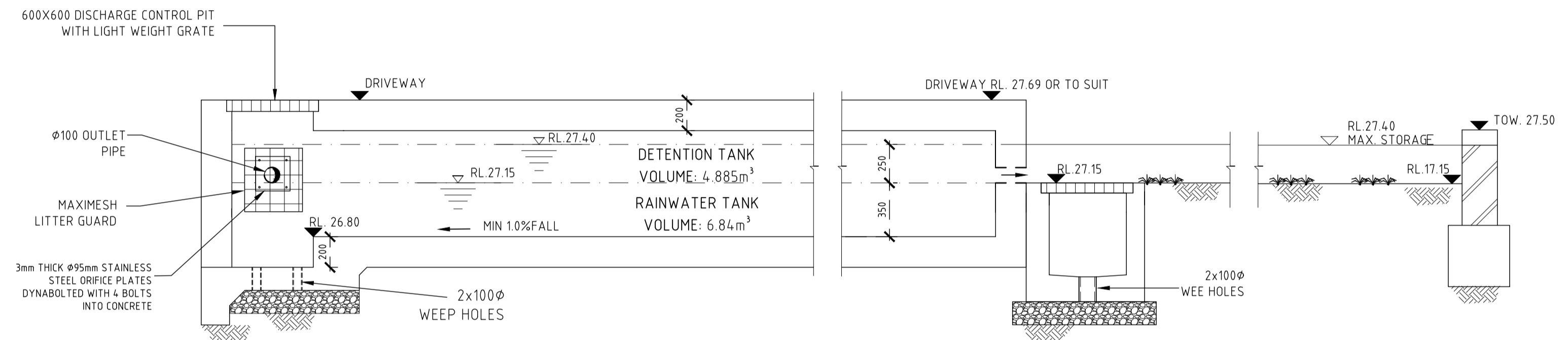
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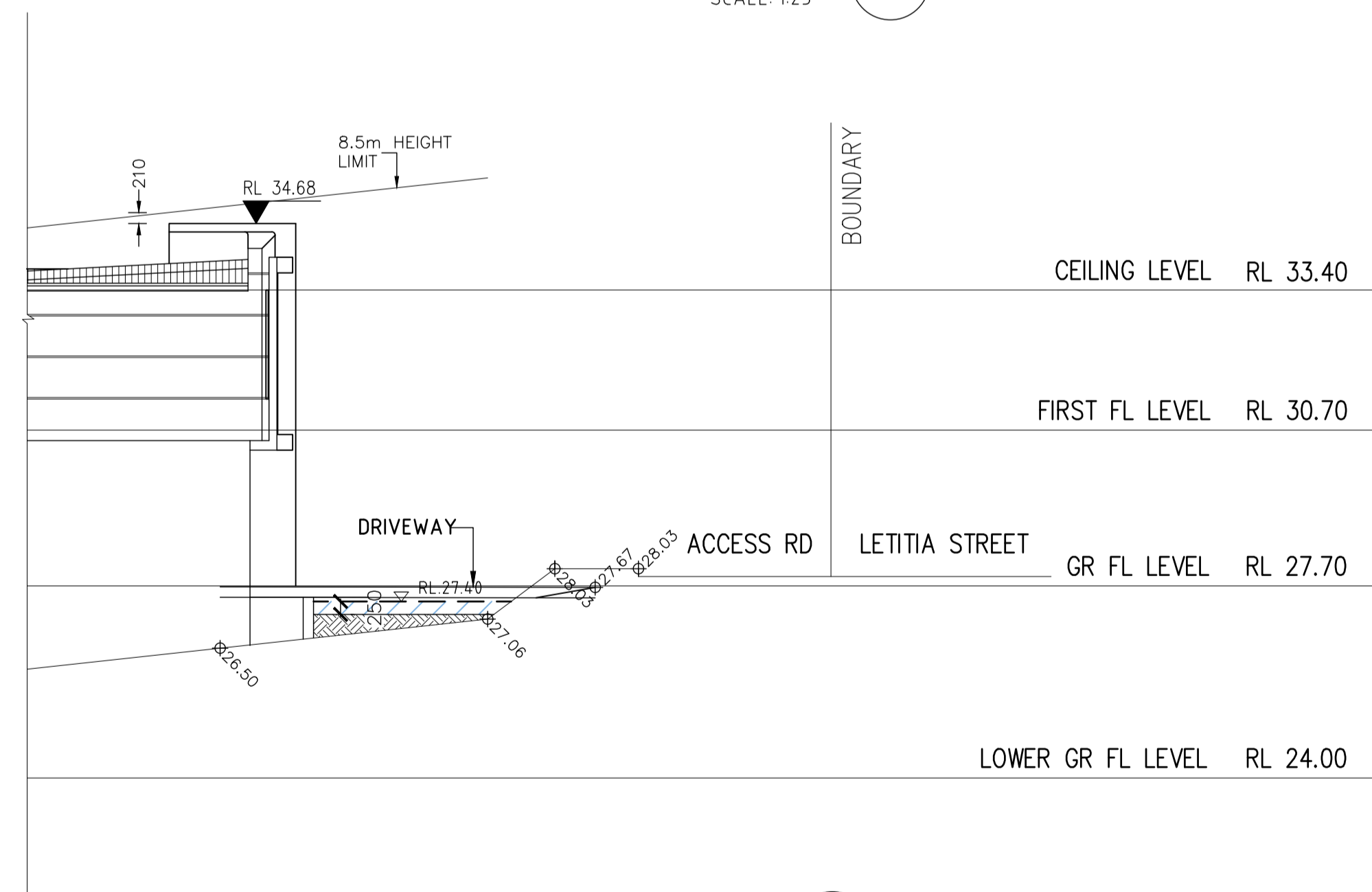
**SECTION D**  
 SCALE: 1:100



**SECTION A**  
 SCALE: 1:25



**SECTION B**  
 SCALE: 1:25



**SECTION E**  
 SCALE: 1:100

**ABBREVIATIONS**

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- OSD----ON SITE DETENTION
- PD----PLANTERS DRAIN
- PF0----PLANTER FLOOR OUTLET
- PP----PLANTER PIT
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- RP----RELN PIT
- RO----ROOF OUTLET
- SDO---STRIP DRAIN OUTLET
- SIP---SURFACE INLET PIT
- STP---SILT TRAP PIT
- SP----SPREADER
- TD----TUN DISH

ORIFICE SIZING	
Input	
Address:	105A LETITIA ST OATLEY
Dia. Of Orifice	0.095 m
Dia. Of Outlet Pipe	0.1 m
Coef. ( C )	0.61 for a circle
Area (A)	0.007088 sq.m
Gravity (G)	9.81 m/s
Depth between ponding and invert level	0.25 m
Head (H)	0.2 m
Required max flow rate	9.19 L/s
Output	
Flow Rate (Q)	8.56508 L/s
Comments:	Adoptable

**ORIFICE SIZING**

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Job Name  
**PROPOSED NEW DEVELOPMENT AT 105 LETITIA AT OATLEY**

Client, Architect  
**MAT DERVISH**

Drawing Title  
**DETAILS OF ON-SITE DETENTION FOR NO.105A**

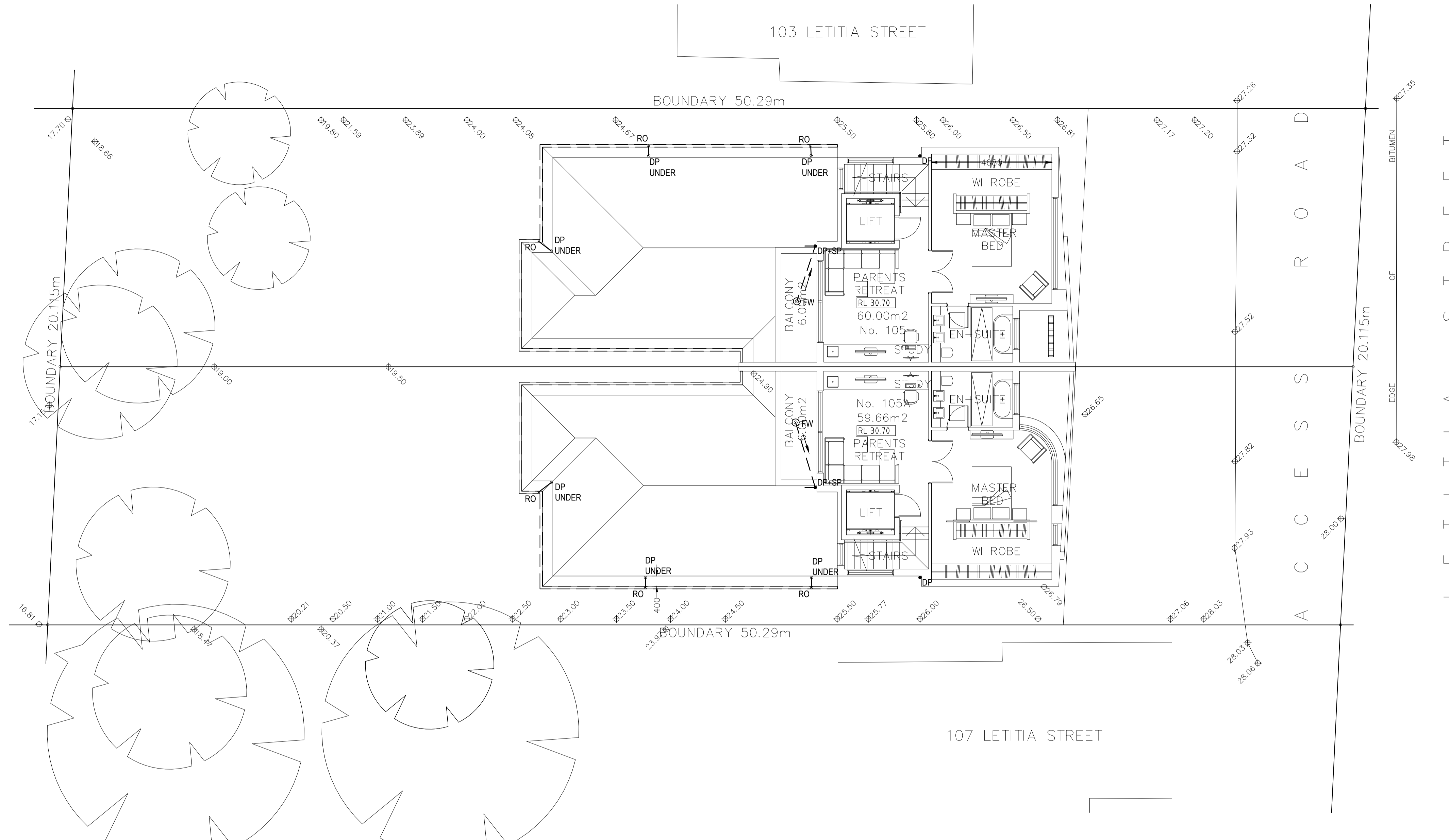
No. in set	Job No	<b>2150.23</b>	Drg. No	Rev
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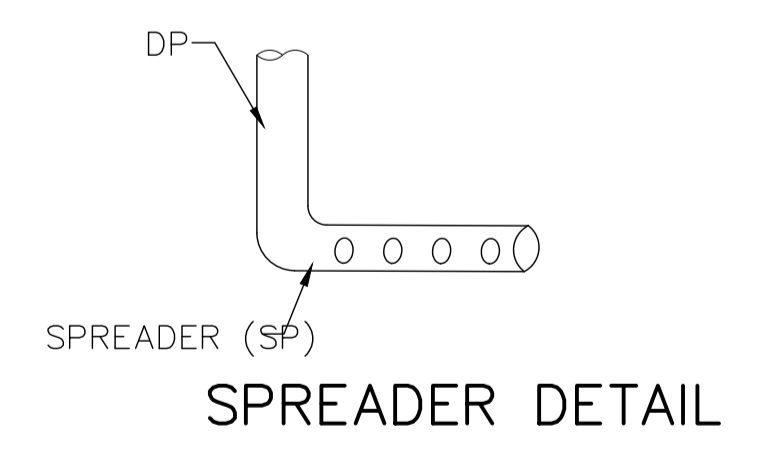
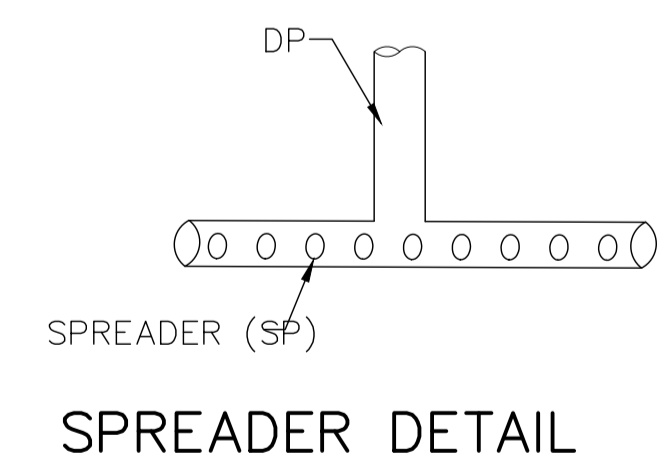


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**FIRST FLOOR STORMWATER DRAINAGE CONCEPT PLAN** SCALE: 1:100



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Job Name  
**PROPOSED NEW DEVELOPMENT AT 105 LETITIA AT OATLEY**

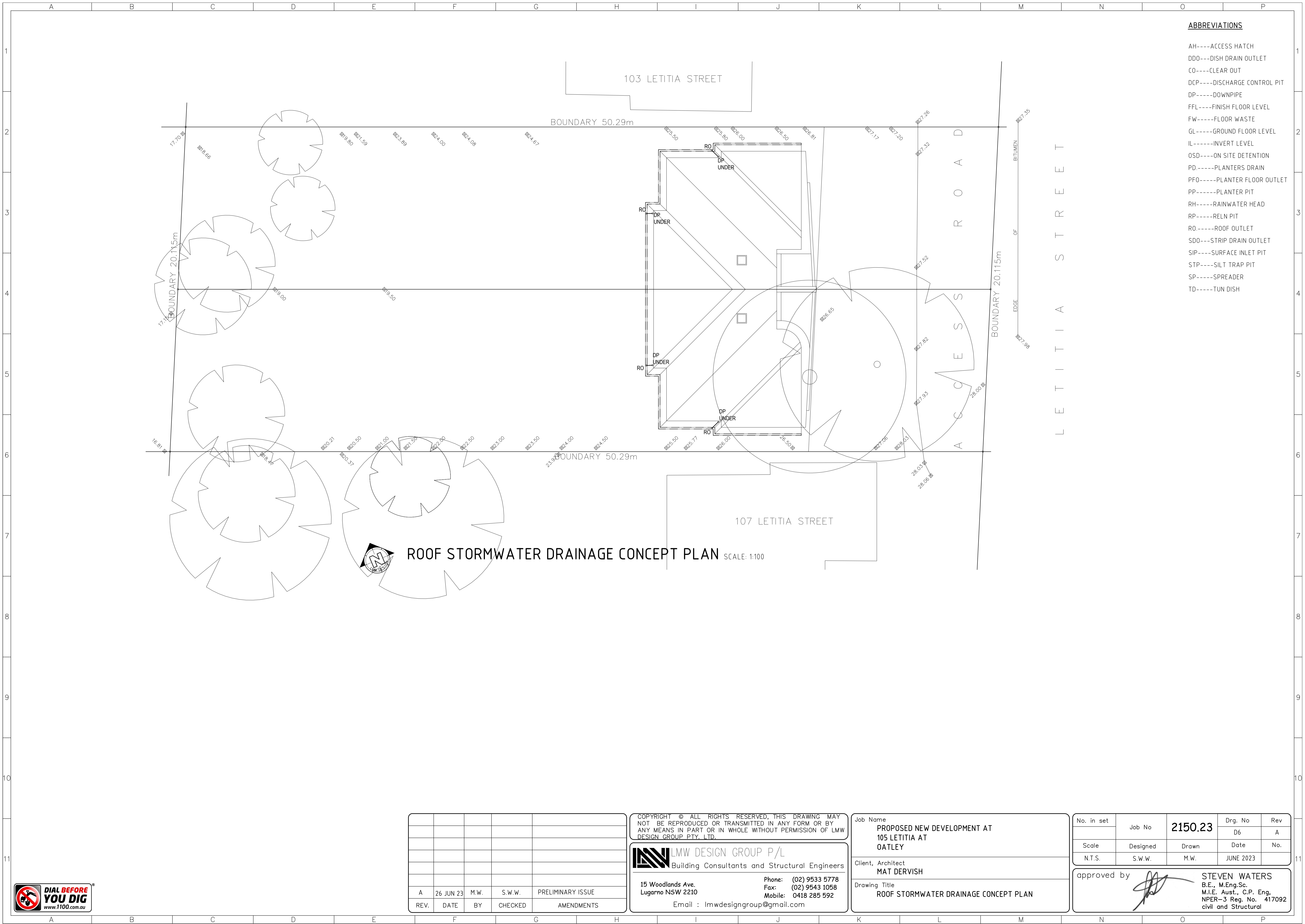
Client, Architect  
**MAT DERVISH**

Drawing Title  
**FIRST FLOOR STORMWATER DRAINAGE CONCEPT PLAN**

No. in set	Job No	2150.23	Drng. No	Rev
	Designed	Drawn	D5	A
Scale	N.T.S.	M.W.	Date	No.
	S.W.W.		JUNE 2023	

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NPER-3 Reg. No. 417092  
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- PP-----PLANTER PIT
- RH----RAINWATER HEAD
- RP-----RELN PIT
- RO----ROOF OUTLET
- SDO---STRIP DRAIN OUTLET
- SIP----SURFACE INLET PIT
- STP----SILT TRAP PIT
- SP-----SPREADER
- TD-----TUN DISH

**ROOF STORMWATER DRAINAGE CONCEPT PLAN** SCALE: 1:100

REV.	DATE	BY	CHECKED	AMENDMENTS
A	26 JUN 23	M.W.	S.W.W.	PRELIMINARY ISSUE

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Job Name  
**PROPOSED NEW DEVELOPMENT AT 105 LETITIA AT OATLEY**

Client, Architect  
**MAT DERSVISH**

Drawing Title  
**ROOF STORMWATER DRAINAGE CONCEPT PLAN**

No. in set	Job No	<b>2150.23</b>	Drg. No	Rev
			D6	A
Scale	Designed	Drawn	Date	No.
N.T.S.	S.W.W.	M.W.	JUNE 2023	

approved by  **STEVEN WATERS**  
B.E., M.Eng.Sc.  
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civil and Structural

