

PROPOSED DEVELOPMENT
(No.13-19) CANBERRA AVENUE, ST LEONARDS
STORMWATER MANAGEMENT PLANS

LEGEND
DENOTES ON-SITE DETENTION TANK
DENOTES ON-SITE RETENTION TANK
DENOTES DWELLING FOOTPRINT
DENOTES 100mm DIA. STORMWATER/SURFACE WATER SYSTEM PIPE AT 1% MIN. GRADE U.N.O.
DENOTES 100mm DIA. FULLY SEALED RAINWATER SYSTEM PIPE U.N.O.
DENOTES RAINWATER PIPE AND DIA. WHEN PIPE EXCEEDS 100mm DIA.
DENOTES STORMWATER/SURFACE WATER PIPE AND DIA. WHEN PIPE EXCEEDS 100mm DIA.
DENOTES RISING MAIN AND PIPE DIA. U.N.O.
DENOTES SUBSOIL DRAINAGE LINE AND DIA. WRAPPED IN GEOFABRIC U.N.O.
DENOTES DOWNPIPE
DENOTES INSPECTION OPENING WITH SCREW DOWN LID AT FINISHED SURFACE LEVEL
DENOTES INSPECTION OPENING WITH SCREW DOWN LID AT FINISHED SURFACE LEVEL FOR SYSTEM FLUSHING PURPOSES
STORMWATER PIT - SOLID COVER
STORMWATER PIT - GRATED INLET
DENOTES GRATED DRAIN
DENOTES ABSORPTION TRENCH
NON RETURN VALVE
PUMP
STOP VALVE (ISOLATION VALVE)
240v REQUIRED
DENOTES LEVEL OF INLET /OUTLET OF STORMWATER PIPE. NOTE: UNLESS NOTED OTHERWISE, THE BASE OF THE PIT IS THE SAME AS THE PIPE INLET/OUTLET.

DIAL BEFORE YOU DIG
IMPORTANT: THE CONTRACTOR IS TO MAINTAIN A CURRENT SET OF "DIAL BEFORE YOU DIG" DRAWINGS ON SITE AT ALL TIMES.

GENERAL NOTES
1. THESE PLANS SHALL BE READ IN CONJUNCTION WITH OTHER RELEVANT CONSULTANTS' PLANS, SPECIFICATIONS, CONDITIONS OF DEVELOPMENT CONSENT AND CONSTRUCTION CERTIFICATE REQUIREMENTS. WHERE DISCREPANCIES ARE FOUND ACOR CONSULTANTS (CC) MUST BE CONTACTED IMMEDIATELY FOR VERIFICATION
2. WHERE THESE PLANS ARE NOTED FOR DEVELOPMENT APPLICATION PURPOSES ONLY, THEY SHALL NOT BE USED FOR OBTAINING A CONSTRUCTION CERTIFICATE NOR USED FOR CONSTRUCTION PURPOSES
3. SUBSOIL DRAINAGE SHALL BE DESIGNED AND DETAILED BY THE STRUCTURAL ENGINEER. SUBSOIL DRAINAGE SHALL NOT BE CONNECTED INTO THE STORMWATER SYSTEM IDENTIFIED ON THESE PLANS UNLESS APPROVED BY ACOR CONSULTANTS (CC)

STORMWATER CONSTRUCTION NOTES
1. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH AS/NZS 3500 (CURRENT EDITION) AND THE REQUIREMENTS OF THE LOCAL COUNCIL'S POLICIES AND CODES
2. THE MINIMUM SIZES OF THE STORMWATER DRAINS SHALL NOT BE LESS THAN DN90 FOR CLASS 1 BUILDINGS AND DN100 FOR OTHER CLASSES OF BUILDING OR AS REQUIRED BY THE REGULATORY AUTHORITY
3. THE MINIMUM GRADIENT OF STORMWATER DRAINS SHALL BE 1%, UNLESS NOTED OTHERWISE
4. COUNCIL'S TREE PRESERVATION ORDER IS TO BE STRICTLY ADHERED TO. NO TREES SHALL BE REMOVED UNTIL PERMIT IS OBTAINED
5. PUBLIC UTILITY SERVICES ARE TO BE ADJUSTED AS NECESSARY AT THE CLIENT'S EXPENSE
6. ALL PITS TO BE BENCHED AND STREAMLINED. PROVIDE STEP IRONS FOR ALL PITS OVER 1.2m DEEP
7. MAKE SMOOTH JUNCTION WITH ALL EXISTING WORK
8. VEHICULAR ACCESS AND ALL SERVICES TO BE MAINTAINED AT ALL TIMES TO ADJOINING PROPERTIES AFFECTED BY CONSTRUCTION
9. SERVICES SHOWN ON THESE PLANS HAVE BEEN LOCATED FROM INFORMATION SUPPLIED BY THE RELEVANT AUTHORITIES AND FIELD INVESTIGATIONS AND ARE NOT GUARANTEED COMPLETE NOR CORRECT. IT IS THE CLIENT & CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL PRIOR TO CONSTRUCTION
10. ANY VARIATION TO THE WORKS AS SHOWN ON THE APPROVED DRAWINGS ARE TO BE CONFIRMED BY ACOR CONSULTANTS (CC) PRIOR TO THEIR COMMENCEMENT

RAINWATER RE-USE SYSTEM NOTES
1. RAINWATER SUPPLY PLUMBING TO BE CONNECTED TO OUTLETS WHERE REQUIRED BY BASIX CERTIFICATE (BY OTHERS)
2. TOWN WATER CONNECTION TO RAINWATER TANK TO BE TO THE SATISFACTION OF THE REGULATORY AUTHORITY. THIS MAY REQUIRE PROVISION OF:
2.1. PERMANENT AIR GAP
2.2. BACKFLOW PREVENTION DEVICE
3. NO DIRECT CONNECTION BETWEEN TOWN WATER SUPPLY AND THE RAIN WATER SUPPLY
4. AN APPROVED STOP VALVE AND/OR PRESSURE LIMITING VALVE AT THE RAINWATER TANK
5. PROVIDE AT LEAST ONE EXTERNAL HOSE COCK ON THE TOWN WATER SUPPLY FOR FIRE FIGHTING
6. PROVIDE APPROPRIATE FLOAT VALVES AND/OR SOLENOID VALVES TO CONTROL TOWN WATER SUPPLY INLET TO TANK IN ORDER TO ACHIEVE THE TOP-UP INDICATED ON THE TYPICAL DETAIL
7. ALL PLUMBING WORKS ARE TO BE CARRIED OUT BY LICENSED PLUMBERS IN ACCORDANCE WITH AS/NZS3500.1 NATIONAL PLUMBING AND DRAINAGE CODE
8. PRESSURE PUMP ELECTRICAL CONNECTION TO BE CARRIED OUT BY A LICENSED ELECTRICIAN
9. ONLY ROOF RUN-OFF IS TO BE DIRECTED TO THE RAINWATER TANK. SURFACE WATER INLETS ARE NOT TO BE CONNECTED
10. PIPE MATERIALS FOR RAINWATER SUPPLY PLUMBING ARE TO BE APPROVED MATERIALS TO AS/NZS3500 PART 1 SECTION 2 AND TO BE CLEARLY AND PERMANENTLY IDENTIFIED AS 'RAINWATER'. THIS MAY BE ACHIEVED FOR BELOW GROUND PIPES USING IDENTIFICATION TAPE (MADE IN ACCORDANCE WITH AS2648) OR FOR ABOVE GROUND PIPES BY USING ADHESIVE PIPE MARKERS (MADE IN ACCORDANCE WITH AS1345)
11. EVERY RAINWATER SUPPLY OUTLET POINT AND THE RAINWATER TANK ARE TO BE LABELED 'RAINWATER' ON A METALLIC SIGN IN ACCORDANCE WITH AS1319
12. ALL INLETS AND OUTLETS TO THE RAINWATER TANK ARE TO HAVE SUITABLE MEASURES PROVIDED TO PREVENT MOSQUITO AND VERMIN ENTRY


SHEET INDEX
COVER SHEET & NOTES SHEET C1
STORMWATER MANAGEMENT PLAN - GROUND SHEET C2
STORMWATER MANAGEMENT PLAN - BASEMENT B1 SHEET C3
STORMWATER MANAGEMENT PLAN - BASEMENT B2 SHEET C4
STORMWATER MANAGEMENT PLAN - BASEMENT B3 SHEET C5
STORMWATER MANAGEMENT PLAN - BASEMENT B4 SHEET C6
STORMWATER MANAGEMENT DETAILS SHEET No.1 SHEET C7
STORMWATER MANAGEMENT DETAILS SHEET No.2 SHEET C8
EROSION & SEDIMENT CONTROL NOTES SHEET C9
EROSION & SEDIMENT CONTROL PLAN SHEET C10
EROSION & SEDIMENT CONTROL DETAILS SHEET C11
STORMWATER MANAGEMENT PLAN - PART 1 GREEN SPINE SHEET C12
STORMWATER MANAGEMENT PLAN - PART 2 CHILDCARE OUTDOOR PLAY SHEET C13


LANE COVE COUNCIL REQUIREMENTS
SITE AREA (m²)..... 2629 (A)
TOTAL NEW IMPERVIOUS AREA (m²)..... 1634 (B)
TOTAL AREA DRAINING TO STORAGE FACILITY (m²)..... 1544 (C)
NEW IMPERVIOUS AREA BYPASSING THE STORAGE FACILITY (m²) ..... 90 (D)
(B) + (D) / (B) = ..... 1.0 (E)
PSD = 0.014 x (E) ^ -1.37 L/sec/m² ..... 0.014 (F)
PERMITTED SITE DISCHARGE (l/s) = (F) x (C) ..... 21.6
STORAGE VOLUME PER m² = 0.025 m³
SITE STORAGE REQUIREMENT (m³) = ((C) + (D)) x (G) ..... 41 (G)
OUTLET CONTROL - ORIFICE DIAMETER (mm)..... 105 dia
DESIGN BASED ON LANE COVE COUNCIL'S DEVELOPMENT CONTROL PLAN - PART 0 STORMWATER MANAGEMENT, AS/NZS 3500 & AR&R



DEVELOPMENT APPLICATION ISSUE
NOT FOR CONSTRUCTION
DRAWINGS MUST BE PRINTED IN COLOUR

1. TOP OF GRATE LEVELS HAVE BEEN DETERMINED FROM THE SURVEY DETAIL PROVIDED. FOLLOWING EARTHWORKS AND BENCHING, VALIDITY OF GRATE LEVELS SHOULD BE ASSESSED AND ADJUSTED AS REQUIRED TO MEET THE INTENT OF THE DESIGN. WHERE IN DOUBT CONTACT THE DESIGN ENGINEER.
2. FOR CHARGED/SEALED LINES PROVIDE APPROPRIATE CLEAN OUT FACILITY AT LOW POINTS OF SYSTEM, TYP.
3. ALL PLANTER BEDS TO HAVE ATLANTIS DRAINAGE CELL COMPLETE WITH PLANTER DRAIN OUTLET.
4. THE LOCATIONS OF DOWNPIPES SHOWN ON THIS DRAWING ARE INDICATIVE AND WILL NEED TO BE SITE VERIFIED BY THE BUILDER.
5. STORMWATER PIPES WITHIN CEILING SPACES OVER HABITABLE AREAS AND THE ADJACENT VERTICAL STACK TO BE ACOUSTICALLY LAGGED. REFER TO ACOUSTIC ENGINEERS REPORT FOR FURTHER DETAIL.

 DENOTES 225  
 WIDE, 150 DEEP GRATED BOX  
 DRAIN, SHOWN TYPICAL.  
 GRATE RL 56.90

 DENOTES 225  
WIDE, 150 DEEP GRATED BOX  
DRAIN, SHOWN TYPICAL.  
GRATE RL 57.57

OUTLINE OF BASEMENT  
FLOOR BELOW SHOWN THUS:

PIT P2  
600 SQUARE PIT WITH MEDIUM  
DUTY GRATED INLET WITH  
HEELPROOF GRATE  
TOP OF GRATE - 57.15 nom  
INVERT OF OUTLET - 56.00 nom


**PIT P1 - GROSS POLLUTANT TRAP**  
900 SQUARE PIT WITH HEAVY  
DUTY GRATED INLET WITH HEELPROOF  
GRATE & FRAME. CONSTRUCT TRASH SCREEN  
OVER OUTLET PRIOR TO DISCHARGE TO  
COUNCIL'S SW SYSTEM  
TOP OF GRATE - 56.80 nom  
INVERT OF OUTLET- IL 55.80 nom

150 DIA DROPPER TO BELOW  
TYP UNO

ALLOW TO CONVEY TRUCK  
TURNING BAY AREA RL 56.90  
TO BASEMENT PUMPOUT  
BELOW

**ALLOW TO CONVEY SURFACE WATER RUNOFF GENERATED FROM ALL IMPERVIOUS AREAS TO THE ON SITE DETENTION TANK ie. STORMWATER OUTLETS / GRATES WITH A FINISHED SURFACE LEVEL OF RL 58.20 AND ABOVE INCLUDING DOWNPIPES UNLESS NOTED OTHERWISE**

**WARNING**  
LOCATION AND DEPTH OF ALL  
UNDERGROUND SERVICES TO BE  
INVESTIGATED WITH THE  
RELEVANT AUTHORITIES PRIOR  
TO COMMENCING WORK

 DENOTES 200  
 WIDE, 150 DEEP GRATED BOX  
 DRAIN, SHOWN TYPICAL.  
 GRATE RL 56.90

**COMBINED ON-SITE DETENTION  
(OSD) & ON-SITE RETENTION (OSR)**

ON-SITE DETENTION TANK  
SHOWN HATCHED BLUE :  
INTERNAL FOOTPRINT :50m<sup>2</sup>  
STORAGE VOLUME PROVIDED: 41m<sup>3</sup>  
TOP WATER STORAGE LEVEL RL 57.125

ON-SITE RETENTION TANK  
SHOWN HATCHED GREEN :  
INTERNAL FOOTPRINT :3m<sup>2</sup>  
STORAGE VOLUME PROVIDED: 3.0m<sup>3</sup>  
TOP WATER STORAGE LEVEL RL 57.225  
REFER TO SHEET C7 FOR DETAILS

CROSSOVER AND DRIVEWAY TO BE IN ACCORDANCE WITH COUNCIL REQUIREMENTS. THE LEVELS AND DESIGN OF THE CROSSOVER AND DRIVEWAY SHALL BE BY OTHERS.

CONSTRUCT 150 WIDE GRATED BOX DRAIN  
MIN 100 DEEP. GRADE FROM INVERT TO  
OUTLET AT A MINIMUM GRADE OF 2%.  
TOP OF GRATE RL 57.60 NOM.  
GRADE LEVEL TO BE CONFIRMED FROM  
CROSS OVER LEVELS PROVIDED BY COUNCIL.

CANBERRA AVENUE

**STORMWATER MANAGEMENT PLAN**  
SCALE - 1:100/A1, 1:200/A3



Drawing Title
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# STORMWATER MANAGEMENT

PLAN - GROUND FLOOR

Drawn	Date	Scale	A1	Q.A. Check
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RH	JUN 21	AS NOTED	-
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Designed RM	Project No. CC310163	Dwg. No. 00
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BK	CC210167	C2
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	Client
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F	ISSUED FOR DEVELOPMENT APPROVAL	15.10.21	RH	BK	North	HPG GEN
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E	ON SITE DETENTION / RETENTION TANK AMENDED TO SUIT LATEST ARCHITECTURAL PLANS	07.10.21	RH	BK		HIR & S PTV LTD
F	ON SITE DETENTION / RETENTION TANK AMENDED TO SUIT LATEST ARCHITECTURAL PLANS	07.10.21	RH	BK		

D	DRAFT ISSUE FOR DEVELOPMENT APPROVAL	05.10.21	RH	BK
C	ISSUED FOR CLIENT REVIEW & COMMENT	24.06.21	RH	BK

C	ISSUED FOR CLIENT REVIEW & COMMENT	24.06.21	RH	BR
Issue	Description	Date	Drawn	Approved

Issue	Description	Date	Drawn	Approved
1	0 1cm at full size			



Client

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PTY LTD

Architect



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Project	
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## PROPOSED RESIDENTIAL DEVELOPMENT

(No. 13 - 19)  
CANBERRA AVENUE  
ST LEONARDS

Drawing Title  
**SEWAGE TREATMENT PLANT**

## STORMWATER MANAGEMENT PLAN, GROUND FLOOD

PLAN - GROUND FLOOR

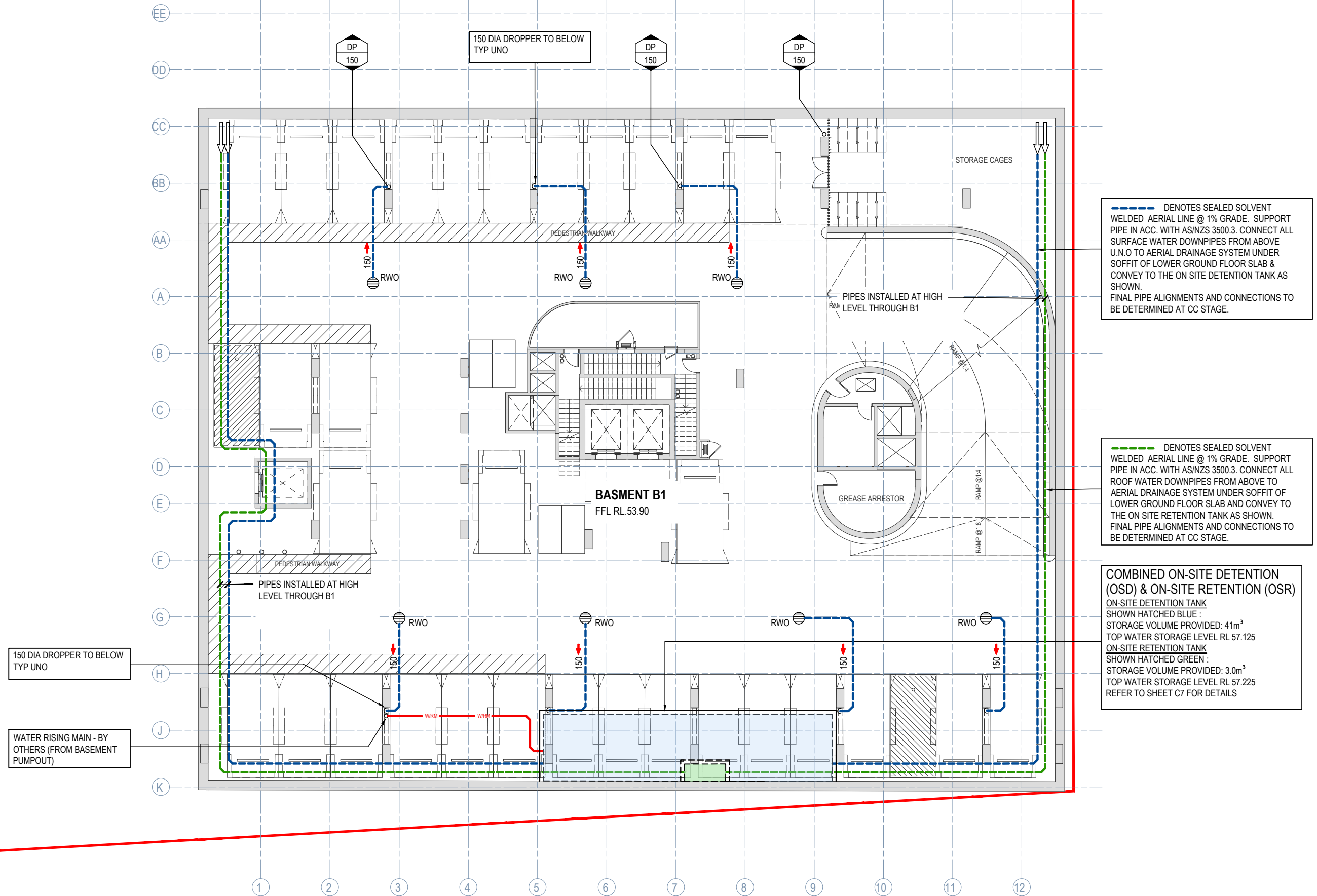
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RH	JUN 21	AS NOTED		-

Designed	Project No.	Dwg. No.
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BK	CC210167	C2
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----- DENOTES SEALED SOLVENT WELDED AERIAL LINE @ 1% GRADE. SUPPORT PIPE IN ACC. WITH AS/NZS 3500.3. CONNECT ALL SURFACE WATER DOWNPIPES FROM ABOVE U.N.O TO AERIAL DRAINAGE SYSTEM UNDER SOFFIT OF LOWER GROUND FLOOR SLAB & CONVEY TO THE ON SITE DETENTION TANK AS SHOWN. FINAL PIPE ALIGNMENTS AND CONNECTIONS TO BE DETERMINED AT CC STAGE.

----- DENOTES SEALED SOLVENT WELDED AERIAL LINE @ 1% GRADE. SUPPORT PIPE IN ACC. WITH AS/NZS 3500.3. CONNECT ALL ROOF WATER DOWNPIPES FROM ABOVE TO AERIAL DRAINAGE SYSTEM UNDER SOFFIT OF LOWER GROUND FLOOR SLAB AND CONVEY TO THE ON SITE RETENTION TANK AS SHOWN. FINAL PIPE ALIGNMENTS AND CONNECTIONS TO BE DETERMINED AT CC STAGE.

**COMBINED ON-SITE DETENTION (OSD) & ON-SITE RETENTION (OSR)**  
ON-SITE DETENTION TANK  
SHOWN HATCHED BLUE :  
STORAGE VOLUME PROVIDED: 41m³  
TOP WATER STORAGE LEVEL RL 57.125  
ON-SITE RETENTION TANK  
SHOWN HATCHED GREEN :  
STORAGE VOLUME PROVIDED: 3.0m³  
TOP WATER STORAGE LEVEL RL 57.225  
REFER TO SHEET C7 FOR DETAILS


**STORMWATER MANAGEMENT PLAN**  
SCALE - 1:100/A1, 1:200/A3  
0 1 2 4 6 8 10m

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Issue	Description	Date	Drawn	Approved	

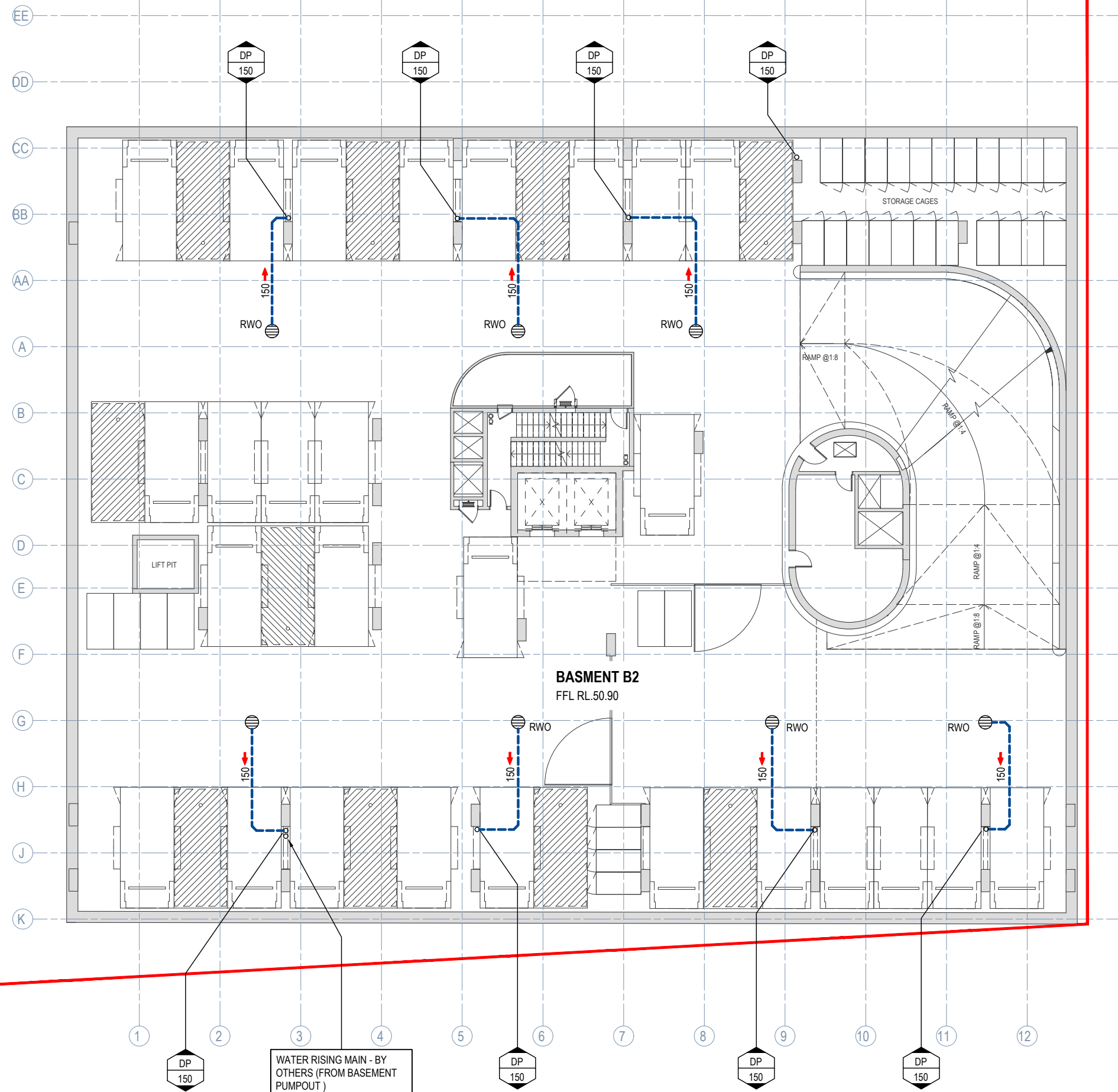
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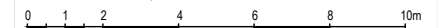
Project  
**PROPOSED RESIDENTIAL DEVELOPMENT**  
(No. 13 - 19)  
CANBERRA AVENUE  
ST LEONARDS

Drawing Title <b>STORMWATER MANAGEMENT PLAN - BASEMENT B1</b>					
Drawn	Date	Scale	A1	Q.A. Check	Date
RH	JUN 21	AS NOTED	-	-	-
Designed	Project No.	Dwg. No.	Issue		
BK	CC210167	C3	F		



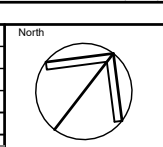
STORMWATER MANAGEMENT PLAN

SCALE - 1:100/A1, 1:200/A3



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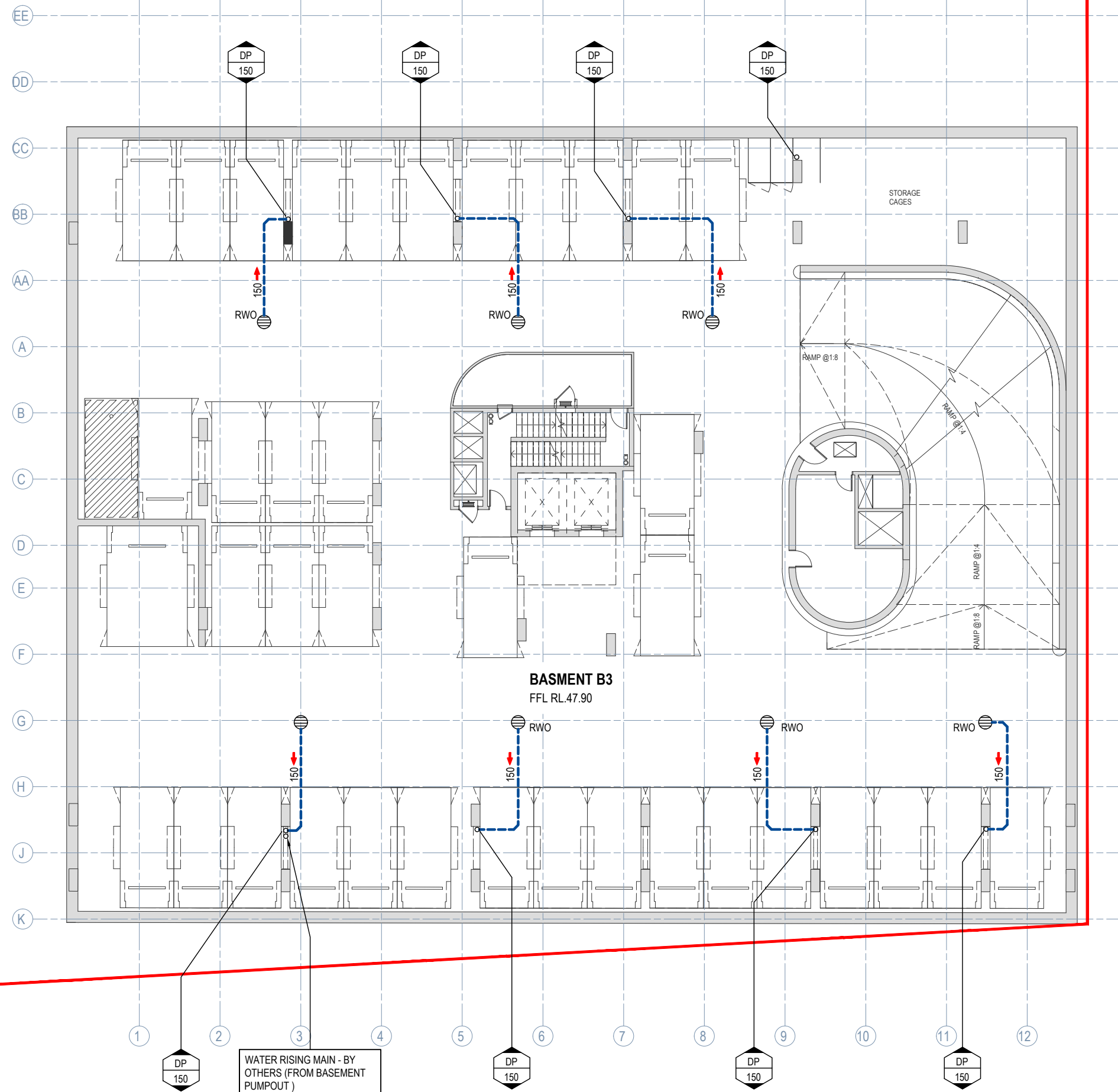
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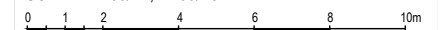
Project  
**PROPOSED RESIDENTIAL  
DEVELOPMENT**  
(No. 13 - 19)  
CANBERRA AVENUE  
ST LEONARDS

Drawing Title <b>STORMWATER MANAGEMENT PLAN - BASEMENT B2</b>					
Drawn	Date	Scale	A1	Q.A. Check	Date
RH	JUN 21	AS NOTED	-	-	-
Designed	Project No.	Dwg. No.	Issue		
BK	CC210167	C4	F		



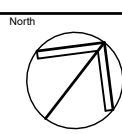
STORMWATER MANAGEMENT PLAN

SCALE - 1:100/A1, 1:200/A3



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C	ISSUED FOR CLIENT REVIEW & COMMENT	24.06.21	RH	BK
Issue	Description	Date	Drawn	Approved



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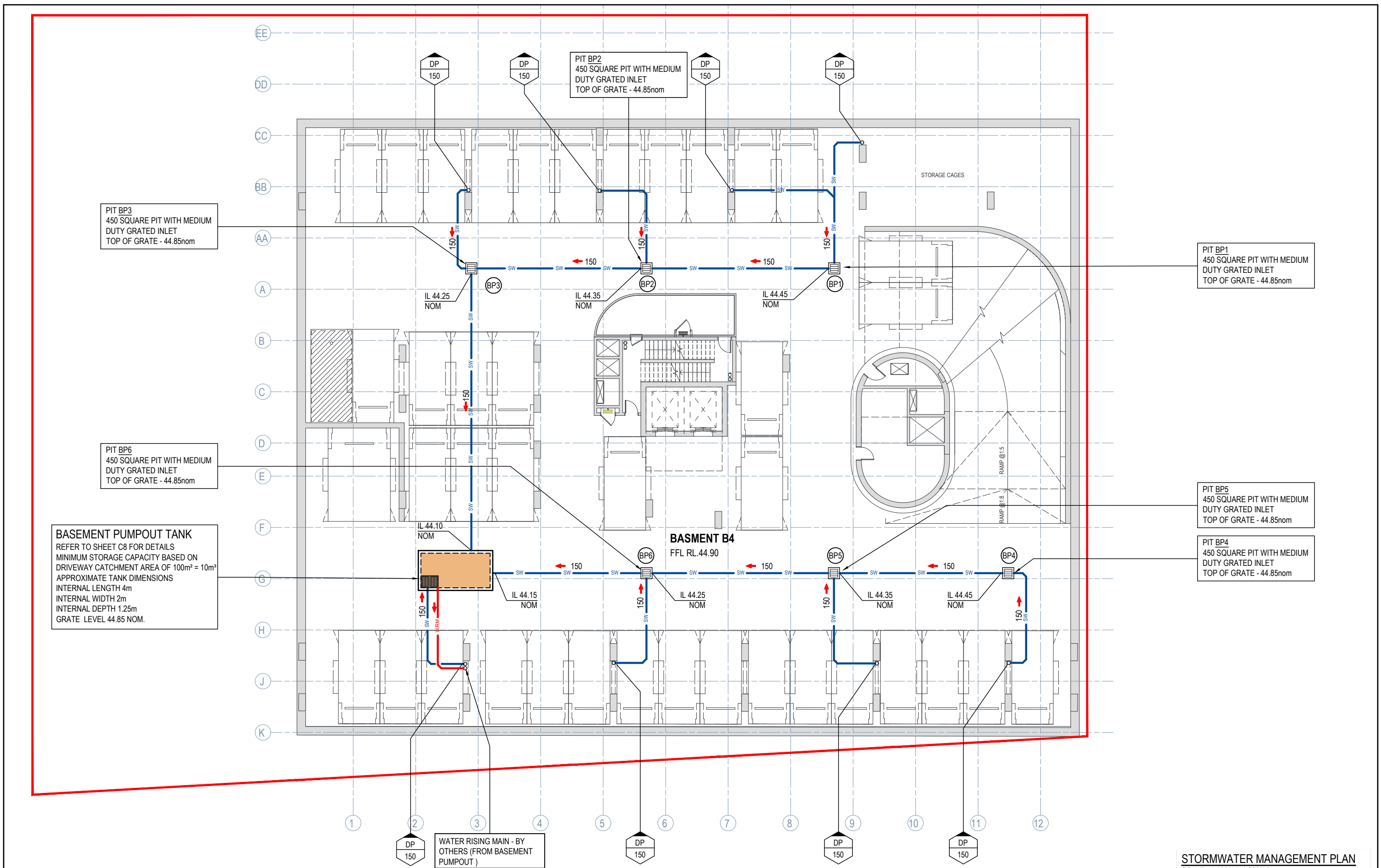
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**PROPOSED RESIDENTIAL  
DEVELOPMENT**  
(No. 13 - 19)  
CANBERRA AVENUE  
ST LEONARDS

Drawing Title

**STORMWATER MANAGEMENT  
PLAN - BASEMENT B3**

Drawn	Date	Scale	A1	Q.A. Check	Date
RH	JUN 21	AS NOTED	-	-	-
Designed	Project No.	Dwg. No.	Issue		
BK	CC210167	C5	F		



STORMWATER MANAGEMENT PLAN

SCALE - 1:100/A1, 1:200/A3



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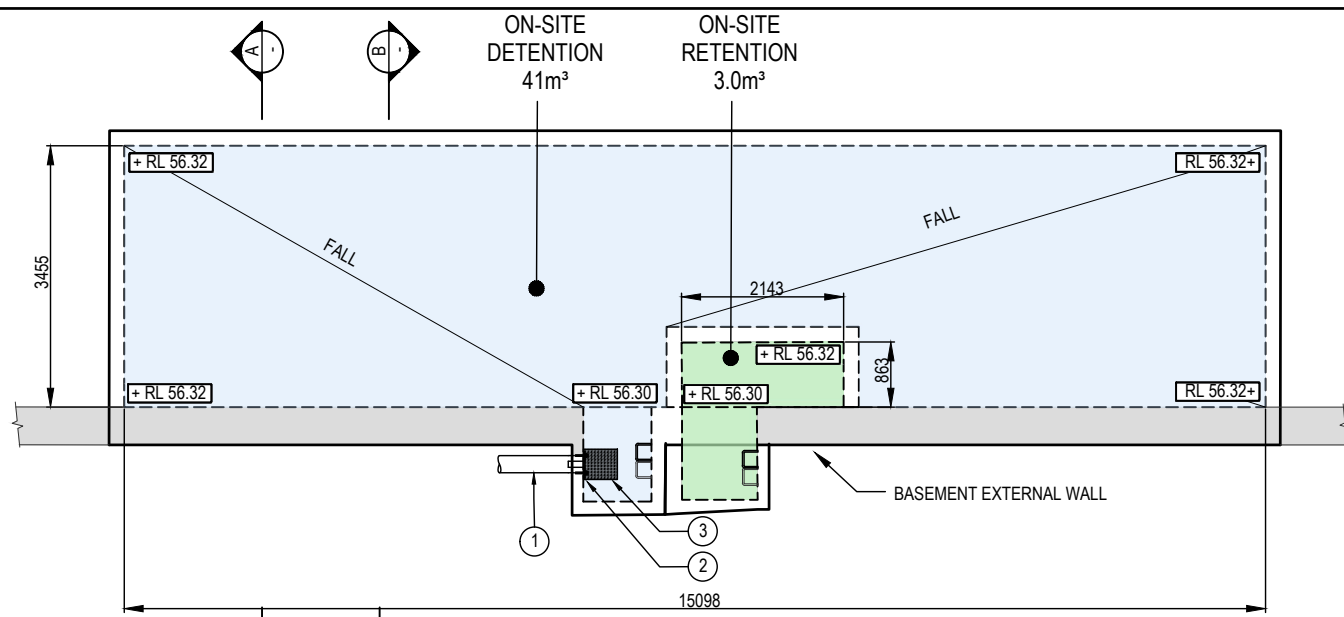
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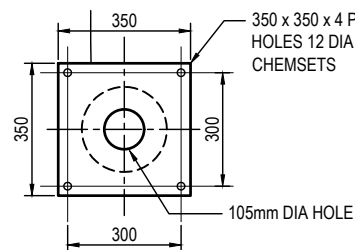
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**PROPOSED RESIDENTIAL  
DEVELOPMENT**  
(No. 13 - 19)  
CANBERRA AVENUE  
ST LEONARDS

Drawing Title <b>STORMWATER MANAGEMENT PLAN - BASEMENT B4</b>					
Drawn	Date	Scale	A1	Q.A. Check	Date
RH	JUN 21	AS NOTED	-	-	-
Designed	Project No.	Dwg. No.	Issue		
BK	CC210167	C6	F		



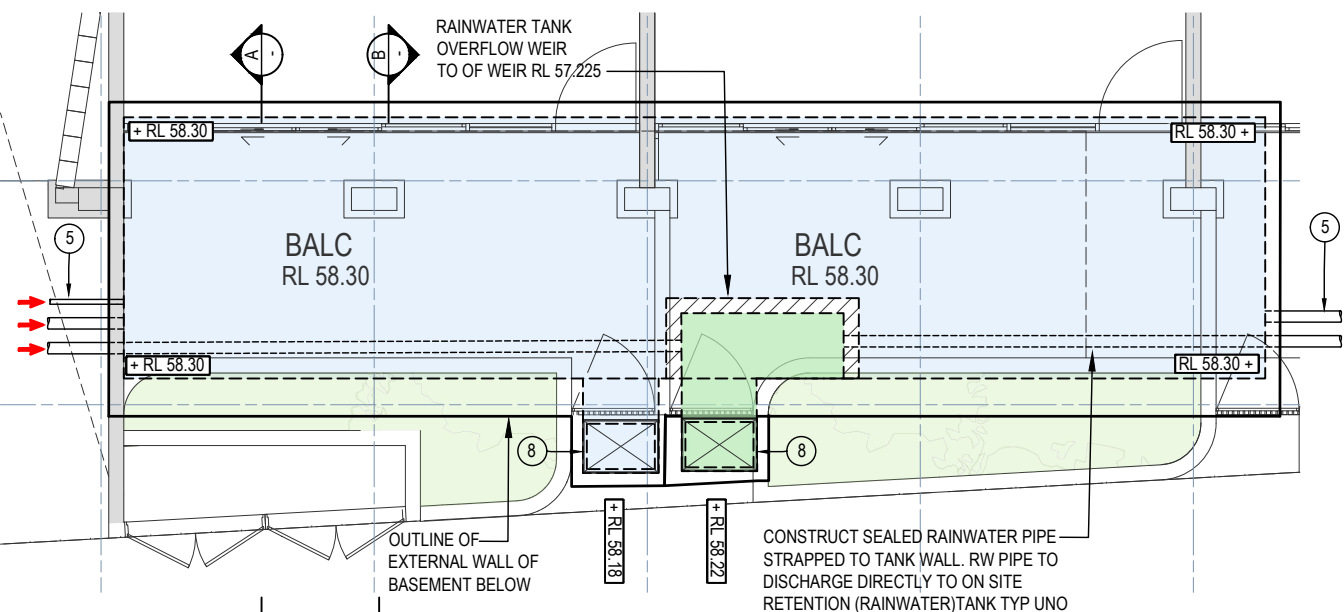
ON-SITE DETENTION / RETENTION BASE PLAN  
SCALE - 1:50/A1, 1:100/A3



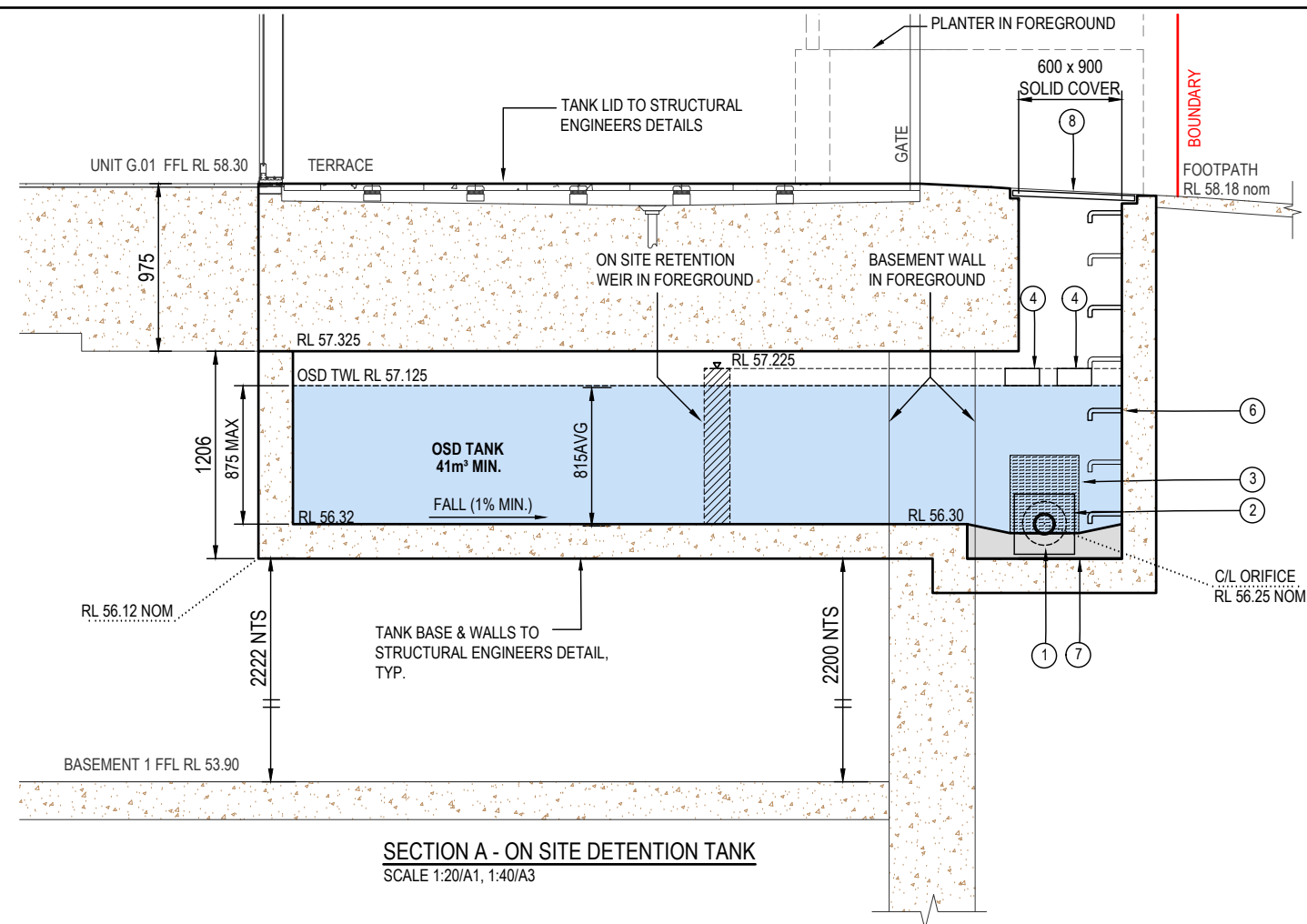
DETAIL 1 - ORIFICE PLATE  
NTS

NON POTABLE WATER TO  
BE REUSED FOR LANDSCAPE  
IRRIGATION & CAR WASH BAY

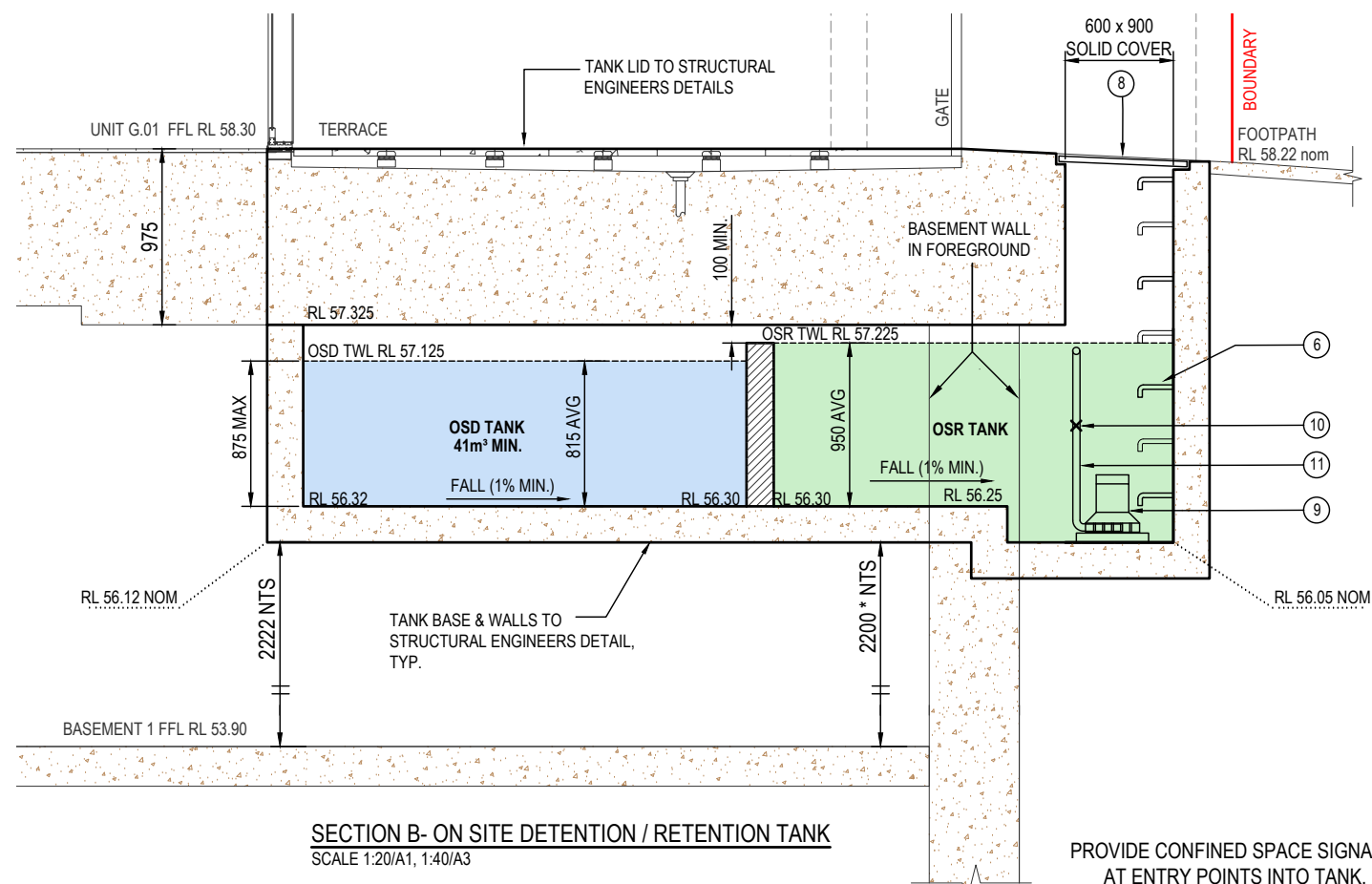
LEGEND			
①	225 DIA OUTLET PIPE	⑥	PROVIDE GALVANISED STEP IRONS AT 300mm CENTRES WHERE DEPTH EXCEEDS 1100mm IN ACCORDANCE WITH THE AUST. STANDARDS AT ALL ACCESS POINTS OF THE TANK, TYP.
②	350 x 350 x 4 PL 316SS 4 HOLES 12 DIA FOR M10 CHEMSETS REFER TO DETAIL 1	⑦	MASS CONCRETE BENCHING
③	TRASH SCREEN LYSAGHT RH3030 GALV. REMOVABLE WITH HANDLE	⑧	900 x 600 SOLID BOLTED DOWN WATERTIGHT COVER
④	200 x 100 GALV RHS OVERFLOW PIPE	⑨	RE-USE PUMP TO MANUFACTURERS SPECIFICATIONS
⑤	INLET PIPE/S	⑩	NON-RETURN VALVE
		⑪	PVC PIPE CLASS '16' RISING MAIN - BY OTHERS



ON-SITE DETENTION / RETENTION ROOF PLAN  
SCALE - 1:50/A1, 1:100/A3



SECTION A - ON SITE DETENTION TANK  
SCALE 1:20/A1, 1:40/A3



SECTION B - ON SITE DETENTION / RETENTION TANK  
SCALE 1:20/A1, 1:40/A3

PROVIDE CONFINED SPACE SIGNAGE  
AT ENTRY POINTS INTO TANK.

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F	ISSUED FOR DEVELOPMENT APPROVAL	15.10.21	RH	BK	North
E	ON SITE DETENTION / RETENTION TANK AMENDED TO SUIT LATEST ARCHITECTURAL PLANS	07.10.21	RH	BK	
D	DRAFT ISSUE FOR DEVELOPMENT APPROVAL	05.10.21	RH	BK	
C	ISSUED FOR CLIENT REVIEW & COMMENT	24.06.21	RH	BK	
Issue	Description	Date	Drawn	Approved	

Client	HPG GENERAL PTY LTD
Architect	

ACOR Consultants (CC) Pty Ltd	Platinum Building, Suite 2.01, 4 Ilya Avenue ERINA NSW 2250, Australia T +61 2 4324 3499
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Project	PROPOSED RESIDENTIAL DEVELOPMENT (No. 13 - 19) CANBERRA AVENUE ST LEONARDS
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Drawn	Date	Scale	A1	Q.A. Check	Date
RH	JUN 21	AS NOTED	-	-	-
Designed	Project No.	Dwg. No.	Issue		
BK	CC210167	C7	F		

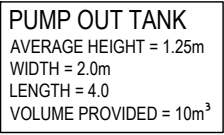
Drawing Title	STORMWATER MANAGEMENT DETAIL SHEET (No. 1)
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## INSTALL CONFINED SPACE WARNING SIGN

1. THE PUMPS SHALL BE PROGRAMMED TO WORK ALTERNATELY TO ALLOW BOTH PUMPS TO HAVE AN EQUAL OPERATION LOAD AND PUMP LIFE
2. A FLOAT SHALL BE PROVIDED TO ENSURE THAT THE MINIMUM REQUIRED WATER LEVEL IS MAINTAINED WITHIN THE SUMP AREA OF THE BELOW GROUND TANK. IN THIS REGARD THIS FLOAT WILL FUNCTION AS AN OFF SWITCH FOR THE PUMPS AT THE MINIMUM WATER LEVEL. THE SAME FLOAT SHALL BE SET TO TURN ONE OF THE PUMPS ON UPON WATER LEVEL IN THE TANK RISING TO APPROXIMATELY 300mm ABOVE THE MINIMUM WATER LEVEL. THE PUMP SHALL OPERATE UNTIL THE TANK IS DRAINED TO THE MINIMUM WATER LEVEL.
3. A SECOND FLOAT SHALL BE PROVIDED AT A HIGH LEVEL, WHICH IS APPROXIMATELY THE ROOF LEVEL OF THE BELOW GROUND TANK. THIS FLOAT SHALL START THE OTHER PUMP THAT IS NOT OPERATING AND ACTIVATE THE ALARM.
4. AN ALARM SYSTEM SHALL BE PROVIDED WITH A FLASHING STROBE LIGHT AND A PUMP FAILURE WARNING SIGN WHICH ARE TO BE LOCATED AT THE DRIVEWAY ENTRANCE TO THE BASEMENT LEVEL. THE ALARM SYSTEM SHALL BE PROVIDED WITH A BATTERY BACK-UP IN CASE OF POWER FAILURE.
5. A CONFINED SPACE DANGER SIGN SHALL BE PROVIDED AT ALL ACCESS POINTS TO THE PUMP OUT STORAGE TANK.



THE CONTRACTOR SHALL PROVIDE A NAME PLATE STATING NAME, WORKING HOURS, TELEPHONE NUMBER AND OUT OF HOURS NUMBER AND SUCH NAME PLATE SHALL BE FIXED TO THE FRONT OF THE CONTROL PANEL.

Drawing Title				
STORMWATER MANAGEMENT				
DETAIL SHEET (No. 2)				
Drawn	Date	Scale	A1	Q.A. Check
RH	JUN 21	AS NOTED	-	Date
Designed	Project No.	Dwg. No.	Issue	
BK	CC210167	C8	F	



EROSION AND SEDIMENT CONTROL NOTES

GENERAL INSTRUCTIONS

- 1. THIS SOIL AND WATER MANAGEMENT PLAN IS TO BE READ IN CONJUNCTION WITH OTHER ENGINEERING PLANS RELATING TO THIS DEVELOPMENT.
- 2. CONTRACTORS WILL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE UNDERTAKEN AS INSTRUCTED IN THIS SPECIFICATION AND CONSTRUCTED FOLLOWING THE GUIDELINES OF "MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION", DEPT OF HOUSING, 1998 (BLUE BOOK).
- 3. ALL SUBCONTRACTORS WILL BE INFORMED OF THEIR RESPONSIBILITIES IN REDUCING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSLOPE AREAS.

LAND DISTURBANCE INSTRUCTIONS

- 4. DISTURBANCE TO BE NO FURTHER THAN 5 (PREFERABLY 2) METRES FROM THE EDGE OF ANY ESSENTIAL ENGINEERING ACTIVITY AS SHOWN ON APPROVED PLANS. ALL SITE WORKERS WILL CLEARLY RECOGNISE THESE ZONES THAT, WHERE APPROPRIATE, ARE IDENTIFIED WITH BARRIER FENCING (UPSLOPE) AND SEDIMENT FENCING (DOWNSLOPE) OR SIMILAR MATERIALS.
- 5. ACCESS AREAS ARE TO BE LIMITED TO A MAXIMUM WIDTH OF 10 METRES THE SITE MANAGER WILL DETERMINE AND MARK THE LOCATION OF THESE ZONES ON-SITE. ALL SITE WORKERS WILL CLEARLY RECOGNISE THESE BOUNDARIES THAT, WHERE APPROPRIATE, ARE IDENTIFIED WITH BARRIER FENCING (UPSLOPE) AND SEDIMENT FENCING (DOWNSLOPE) OR SIMILAR MATERIALS.
- 6. ENTRY TO LANDS NOT REQUIRED FOR CONSTRUCTION OR ACCESS IS PROHIBITED EXCEPT FOR ESSENTIAL THINNING OF PLANT GROWTH.
- 7. WORKS ARE TO PROCEED IN THE FOLLOWING SEQUENCE:
  - A) INSTALL ALL BARRIER AND SEDIMENT FENCING WHERE SHOWN ON THE PLAN.
  - B) CONSTRUCT THE STABILISED SITE ACCESS.
  - C) CONSTRUCT DIVERSION DRAINS AS REQUIRED.
  - D) INSTALL MESH AND GRAVEL INLETS FOR ANY ADJACENT KERB INLETS.
  - E) INSTALL GEOTEXTILE INLET FILTERS AROUND ANY ON-SITE DROP INLET PITS.
  - F) CLEAR SITE AND STRIP AND STOCKPILE TOPSOIL IN LOCATIONS SHOWN ON THE PLAN.
  - G) UNDERTAKE ALL ESSENTIAL CONSTRUCTION WORKS ENSURING THAT ROOF AND/OR PAVED AREA STORMWATER SYSTEMS ARE CONNECTED TO PERMANENT DRAINAGE AS SOON AS PRACTICABLE.
  - H) GRADE LOT AREAS TO FINAL GRADES AND APPLY PERMANENT STABILISATION (LANDSCAPING) WITHIN 20 DAYS OF COMPLETION OF CONSTRUCTION WORKS.
  - I) REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER THE PERMANENT LANDSCAPING HAS BEEN COMPLETED.
- 5. ENSURE THAT SLOPE LENGTHS DO NOT EXCEED 80 METRES WHERE PRACTICABLE. SLOPE LENGTHS ARE DETERMINED BY SILTATION FENCING AND CATCH DRAIN SPACING.
- 6. ON COMPLETION OF MAJOR WORKS LEAVE DISTURBED LANDS WITH A SCARIFIED SURFACE TO ENCOURAGE WATER INFILTRATION AND ASSIST WITH KEYING TOPSOIL LATER.

SITE MAINTENANCE INSTRUCTIONS

- 7. THE SITE SUPERINTENDENT WILL INSPECT THE SITE AT LEAST WEEKLY AND AT THE CONCLUSION OF EVERY STORM EVENT TO:
  - A) ENSURE THAT DRAINS OPERATE PROPERLY AND TO EFFECT ANY NECESSARY REPAIRS.
  - B) REMOVE SPILLED SAND OR OTHER MATERIALS FROM HAZARD AREAS, INCLUDING LANDS CLOSER THAN 5 METRES FROM AREAS OF LIKELY CONCENTRATED OR HIGH VELOCITY FLOWS ESPECIALLY WATERWAYS AND PAVED AREAS.
  - C) REMOVE TRAPPED SEDIMENT WHENEVER THE DESIGN CAPACITY OF THAT STRUCTURE HAS BEEN EXCEEDED.
  - D) ENSURE REHABILITATED LANDS HAVE EFFECTIVELY REDUCED THE EROSION HAZARD AND TO INITIATE UPGRADING OR REPAIR AS NECESSARY.
  - E) CONSTRUCT ADDITIONAL EROSION AND/OR SEDIMENT CONTROL WORKS AS MIGHT BECOME NECESSARY TO ENSURE THE DESIRED PROTECTION IS GIVEN TO DOWNSLOPE LANDS AND WATERWAYS. MAKE ONGOING CHANGES TO THE PLAN WHERE IT PROVES INADEQUATE IN PRACTICE OR IS SUBJECTED TO CHANGES IN CONDITIONS ON THE WORK-SITE OR ELSEWHERE IN THE CATCHMENT.
  - F) MAINTAIN EROSION AND SEDIMENT CONTROL STRUCTURES IN A FULLY FUNCTIONING CONDITION UNTIL ALL EARTHWORK ACTIVITIES ARE COMPLETED AND THE SITE IS REHABILITATED.
- 8. THE SITE SUPERINTENDENT WILL KEEP A LOGBOOK MAKING ENTRIES AT LEAST WEEKLY, IMMEDIATELY BEFORE FORECAST RAIN AND AFTER RAINFALL. ENTRIES WILL INCLUDE:
  - A) THE VOLUME AND INTENSITY OF ANY RAINFALL EVENTS.
  - B) THE CONDITION OF ANY SOIL AND WATER MANAGEMENT WORKS.
  - C) THE CONDITION OF VEGETATION AND ANY NEED TO IRRIGATE.
  - D) THE NEED FOR DUST PREVENTION STRATEGIES.
  - E) ANY REMEDIAL WORKS TO BE UNDERTAKEN.THE LOGBOOK WILL BE KEPT ON-SITE AND MADE AVAILABLE TO ANY AUTHORISED PERSON UPON REQUEST. IT WILL BE GIVEN TO THE PROJECT MANAGER AT THE CONCLUSION OF THE WORKS.

SEDIMENT CONTROL INSTRUCTIONS

- 9. SEDIMENT FENCES WILL BE INSTALLED AS SHOWN ON THE PLAN AND ELSEWHERE AT THE DISCRETION OF THE SITE SUPERINTENDENT TO CONTAIN SOIL AS NEAR AS POSSIBLE TO THEIR SOURCE.
- 10. SEDIMENT FENCES WILL NOT HAVE CATCHMENT AREAS EXCEEDING 900 SQUARE METRES AND HAVE A STORAGE DEPTH OF AT LEAST 0.6 METRES.
- 11. SEDIMENT REMOVED FROM ANY TRAPPING DEVICES WILL BE RELOCATED WHERE FURTHER POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS CANNOT OCCUR.
- 12. STOCKPILES ARE NOT TO BE LOCATED WITHIN 5 METRES OF HAZARD AREAS INCLUDING AREAS OF HIGH VELOCITY FLOWS SUCH AS WATERWAYS, PAVED AREAS AND DRIVEWAYS.
- 13. WATER WILL BE PREVENTED FROM DIRECTLY ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR WATER HAS BEEN TREATED BY AN APPROVED DEVICE.
- 14. TEMPORARY SEDIMENT TRAPS WILL REMAIN IN PLACE UNTIL AFTER THE LANDS THEY ARE PROTECTING ARE COMPLETELY REHABILITATED.
- 15. ACCESS TO SITES SHOULD BE STABILISED TO REDUCE THE LIKELIHOOD OF VEHICLES TRACKING SOIL MATERIALS ONTO PUBLIC ROADS AND ENSURE ALL-WEATHER ENTRY/EXIT.

SOIL EROSION CONTROL INSTRUCTIONS

- 16. EARTH BATTERS WILL BE CONSTRUCTED WITH AS LOW A GRADIENT AS PRACTICABLE BUT NO STEEPER, UNLESS OTHERWISE NOTED, THAN:
  - 2(H):1(V) WHERE SLOPE LENGTH LESS THAN 12 METRES
  - 2.5(H):1(V) WHERE SLOPE LENGTH BETWEEN 12 AND 16 METRES.
  - 3(H):1(V) WHERE SLOPE LENGTH BETWEEN 16 AND 20 METRES.
  - 4(H):1(V) WHERE SLOPE LENGTH GREATER THAN 20 METRES.
- 17. ALL WATERWAYS, DRAINS, SPILLWAYS AND THEIR OUTLETS WILL BE CONSTRUCTED TO BE STABLE IN AT LEAST THE 1:20 YEAR ARI, TIME OF CONCENTRATION STORM EVENT.
- 18. WATERWAYS AND OTHER AREAS SUBJECT TO CONCENTRATED FLOWS AFTER CONSTRUCTION ARE TO HAVE A MAXIMUM GROUNDCOVER C-FACTOR OF 0.05 (70% GROUND COVER) WITHIN 10 WORKING DAYS FROM COMPLETION OF FORMATION. FLOW VELOCITIES ARE TO BE LIMITED TO THOSE SHOWN IN TABLE 5-1 OF "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION", DEPT OF HOUSING 1998 (BLUE BOOK). FOOT AND VEHICULAR TRAFFIC WILL BE PROHIBITED IN THESE AREAS.
- 19. STOCKPILES AFTER CONSTRUCTION ARE TO HAVE A MAXIMUM GROUND-COVER C-FACTOR OF 0.1 (60% GROUND-COVER) WITHIN 10 WORKING DAYS FROM COMPLETION OF FORMATION.
- 20. ALL LANDS, INCLUDING WATERWAYS AND STOCKPILES, DURING CONSTRUCTION ARE TO HAVE A MAXIMUM GROUND-COVER C-FACTOR OF 0.15 (50% GROUND COVER) WITHIN 20 WORKING DAYS FROM INACTIVITY EVEN THOUGH WORKS MAY CONTINUE LATER.
- 21. FOR AREAS OF SHEET FLOW USE THE FOLLOWING GROUND COVER PLANT SPECIES FOR TEMPORARY COVER: JAPANESE MILLET 20 KG/HA AND OATS 20 KG/HA.
- 22. PERMANENT REHABILITATION OF LANDS AFTER CONSTRUCTION WILL ACHIEVE A GROUND-COVER C-FACTOR OF LESS THAN 0.1 AND LESS THAN 0.05 WITHIN 60 DAYS. NEWLY PLANTED LANDS WILL BE WATERED REGULARLY UNTIL AN EFFECTIVE COVER IS ESTABLISHED AND PLANTS ARE GROWING VIGOROUSLY. FOLLOW-UP SEED AND FERTILISER WILL BE APPLIED AS NECESSARY.
- 23. REVEGETATION SHOULD BE AIMED AT RE-ESTABLISHING NATURAL SPECIES. NATURAL SURFACE SOILS SHOULD BE REPLACED AND NON-PERSISTANT ANNUAL COVER CROPS SHOULD BE USED.

WASTE CONTROL INSTRUCTIONS

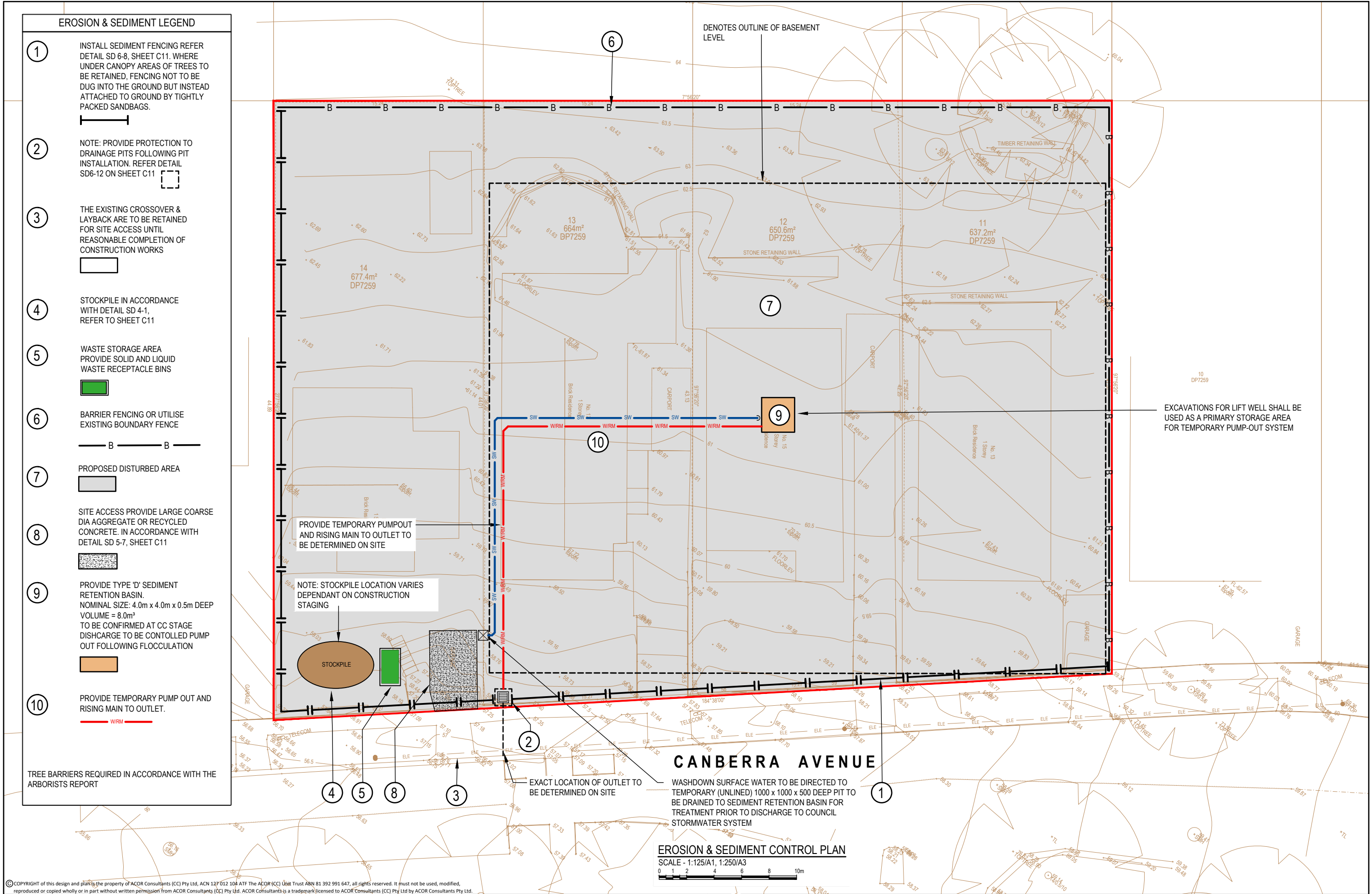
- 24. ACCEPTABLE BINS WILL BE PROVIDED FOR ANY CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHING, LIGHTWEIGHT WASTE MATERIALS AND LITTER. CLEARANCE SERVICES WILL BE PROVIDED AT LEAST WEEKLY. DISPOSAL OF WASTE WILL BE IN A MANNER APPROVED BY THE SITE SUPERINTENDENT.
- 25. ALL POSSIBLE POLLUTANT MATERIALS ARE TO BE STORED WELL CLEAR OF ANY POORLY DRAINED AREAS, FLOOD PRONE AREAS, STREAMBANKS, CHANNELS AND STORMWATER DRAINAGE AREAS. STORE SUCH MATERIALS IN A DESIGNATED AREA UNDER COVER WHERE POSSIBLE AND WITHIN CONTAINMENT BUNDS.
- 26. ALL SITE STAFF AND SUB-CONTACTORS ARE TO BE INFORMED OF THEIR OBLIGATION TO USE WASTE CONTROL FACILITIES PROVIDED.
- 27. ANY DE-WATERING ACTIVITIES ARE TO BE CLOSELY MONITORED TO ENSURE THAT WATER IS NOT POLLUTED BY SEDIMENT, TOXIC MATERIALS OR PETROLEUM PRODUCTS.
- 28. PROVIDE DESIGNATED VEHICULAR WASHDOWN AND MAINTENANCE AREAS WHICH ARE TO HAVE CONTAINMENT BUNDS.

PROCEDURE FOR DE-WATERING

- 1. ENSURE PERMISSION FOR DE-WATERING IS RECEIVED FROM AUTHORITIES BEFORE PUMPING OUT.
- 2. AN ON-SITE TREATMENT PROCESS DISCHARGING TO THE STORMWATER SYSTEM WILL BE IMPLEMENTED. ALL SITE WATERS DURING CONSTRUCTION WILL BE CONTAINED ON SITE AND RELEASED ONLY WHEN pH IS BETWEEN 8.5 & 6.5, SUSPENDED SOLIDS ARE LESS THAN 50mg/L, TURBIDITY LESS THAN 100 NTU'S, OIL AND GREASE LESS THAN 10mg/L AND BIOCHEMICAL OXYGEN DEMAND (BOD5) LESS THAN 30mg/L (FOR STORMS LESS INTENSE THAN 1 IN 5 YEAR EVENTS).
- 3. METHODS OF SAMPLING AND ANALYSIS OF WATER QUALITY WILL BE IN ACCORDANCE WITH THE APPLICABLE METHOD LISTED IN THE EPA PUBLISHED APPROVED METHODS FOR THE SAMPLING ANALYSIS OF WATER POLLUTANTS IN NEW SOUTH WALES.
- 4. WHERE LABORATORY ANALYSIS IS REQUIRED AS INDICATED BY IN-SITU TESTING, APPROPRIATE SAMPLE BOTTLES AND PRESERVATIVES WILL BE USED AND GUIDANCE FOR THE SAMPLING METHOD OBTAINED FROM APPLICABLE PARTS OF AS5667.1 AND AS5667.6. ANALYSIS WILL BE UNDERTAKEN WHERE PRACTICAL BY A NATA REGISTERED LABORATORY CERTIFIED TO PERFORM THE APPLICABLE ANALYSIS.
- 5. A FURTHER INSPECTION WILL BE CARRIED OUT DURING A STORM EVENT (DURING WORK HOURS WHERE POSSIBLE) TO ENSURE CONTROLS ARE COPING WITH THE EVENT. THIS APPLIES TO ANY RAIN EVENT AS WELL.
- 6. AS EXCAVATION TO TOP SOIL PROGRESSES, ANY WATER COLLECTED AT THE BOTTOM OF EXCAVATIONS WILL BE DIVERTED TO A TEMPORARY SEDIMENTATION BASIN OR SETTLEMENT TANK. IF THE WATER CONTAINS ONLY SEDIMENTS, IT WILL BE FILTERED AND PUMPED TO STORMWATER. BEFORE THIS CAN HAPPEN IT MUST CONTAIN LESS THAN 50mg/L TOTAL SUSPENDED SOLIDS.
- 7. POLLUTED WATER MUST NOT ENTER THE STORMWATER SYSTEM. IN SOME CIRCUMSTANCES, A LIQUID WASTE COMPANY MAY BE REQUIRED TO COLLECT CONTAMINATED WATER FOR DISPOSAL AT A LICENSED TREATMENT FACILITY

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F				ISSUED FOR DEVELOPMENT APPROVAL				15.10.21	RH	BK	North
E				ON SITE DETENTION / RETENTION TANK AMENDED TO SUIT LATEST ARCHITECTURAL PLANS				07.10.21	RH	BK	
D				DRAFT ISSUE FOR DEVELOPMENT APPROVAL				05.10.21	RH	BK	
C				ISSUED FOR CLIENT REVIEW & COMMENT				24.06.21	RH	BK	
Issue				Description				Date	Drawn	Approved	
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D	DRAFT ISSUE FOR DEVELOPMENT APPROVAL	05.10.21	RH	BK	
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Issue	Description	Date	Drawn	Approved	

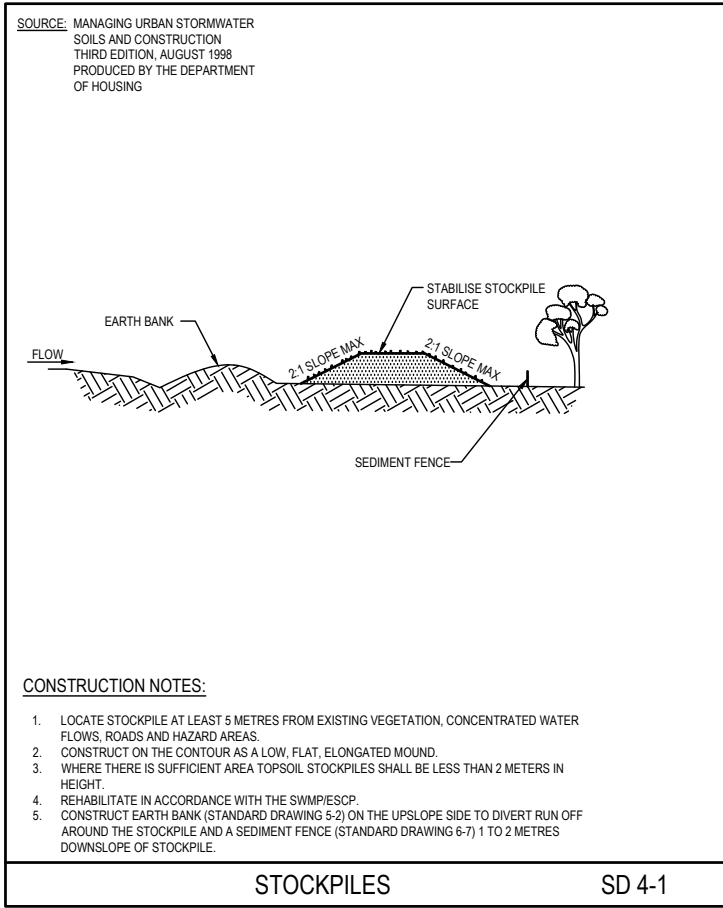
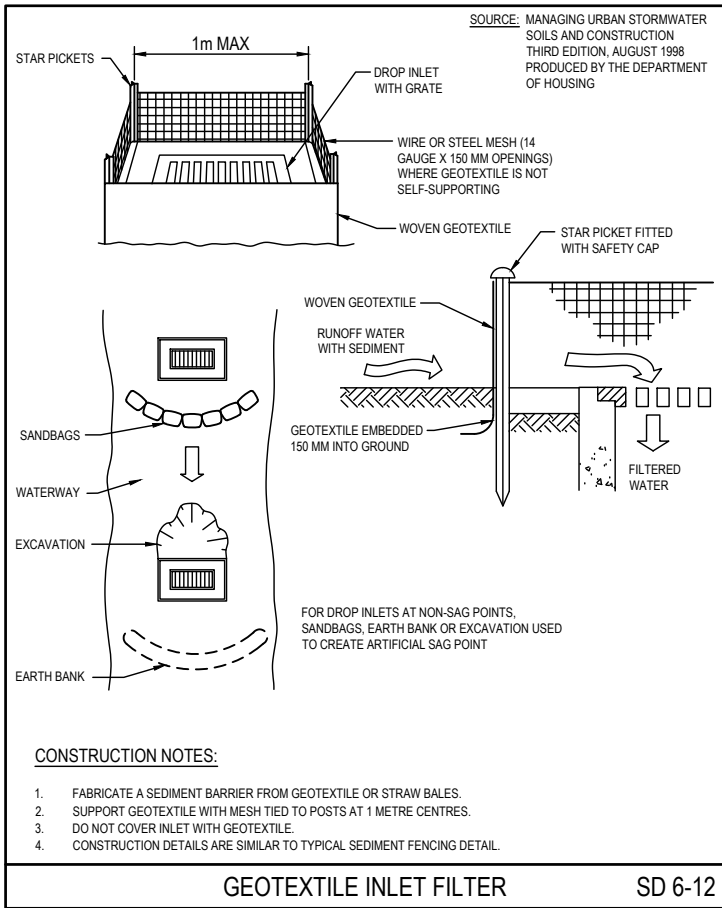
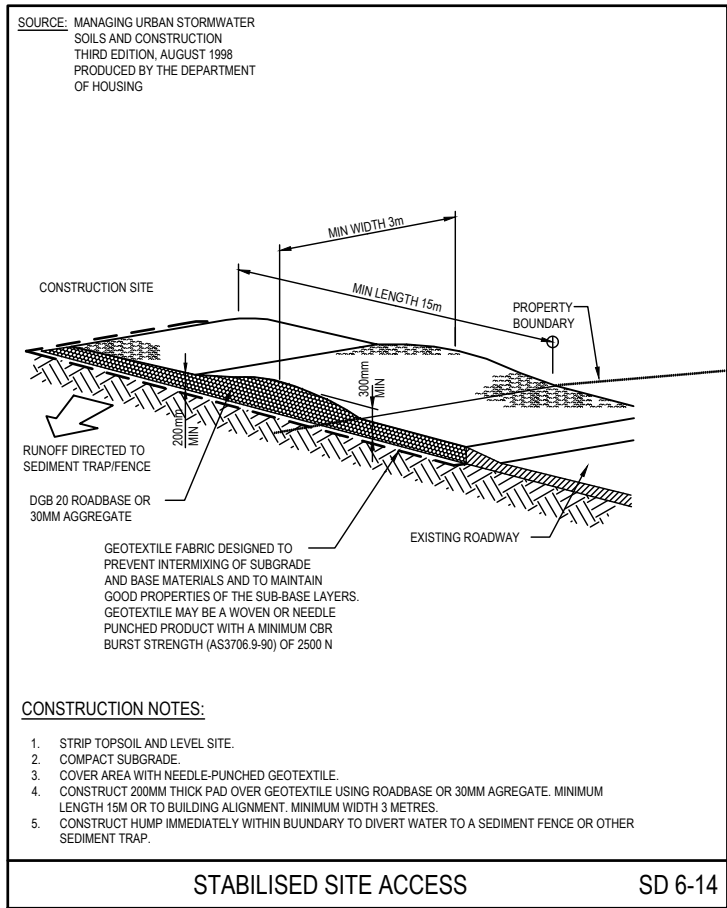
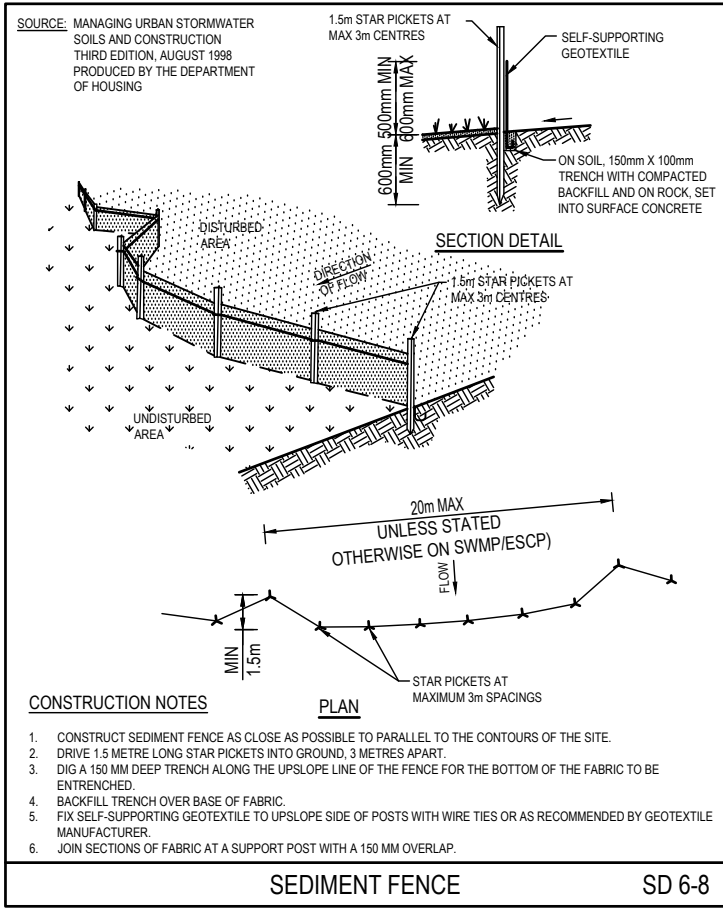
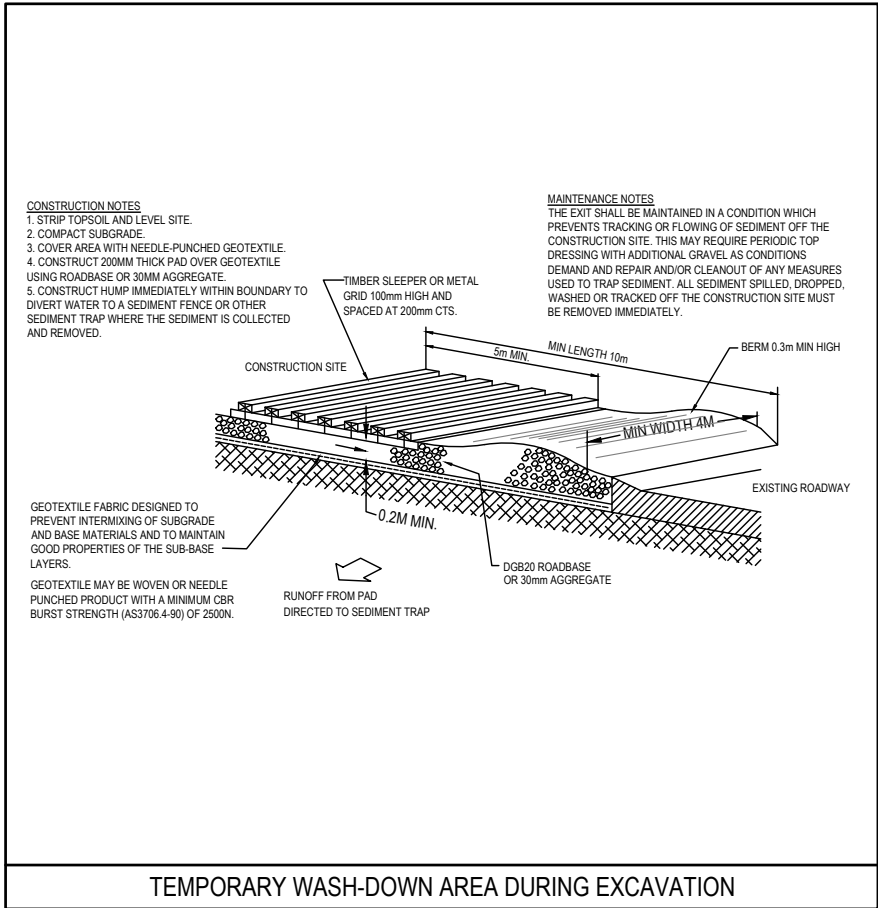
Client  
**HPG GENERAL PTY LTD**

Architect

**AcOR CONSULTANTS**  
ENGINEERS | MANAGERS | INFRASTRUCTURE PLANNERS | DEVELOPMENT CONSULTANTS

Project  
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Drawing Title <b>EROSION &amp; SEDIMENT CONTROL PLAN</b>					
Drawn	Date	Scale	A1	Q.A. Check	Date
RH	JUN 21	AS NOTED	-	-	-
Designed	Project No.	Dwg. No.	Issue		
BK	CC210167	C10	F		

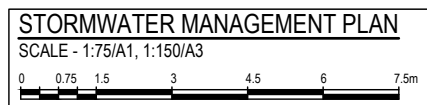


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F					ISSUED FOR DEVELOPMENT APPROVAL					15.10.21	RH	BK	North
E					ON SITE DETENTION / RETENTION TANK AMENDED TO SUIT LATEST ARCHITECTURAL PLANS					07.10.21	RH	BK	
D					DRAFT ISSUE FOR DEVELOPMENT APPROVAL					05.10.21	RH	BK	
C					ISSUED FOR CLIENT REVIEW & COMMENT					24.06.21	RH	BK	
Issue		Description								Date	Drawn	Approved	
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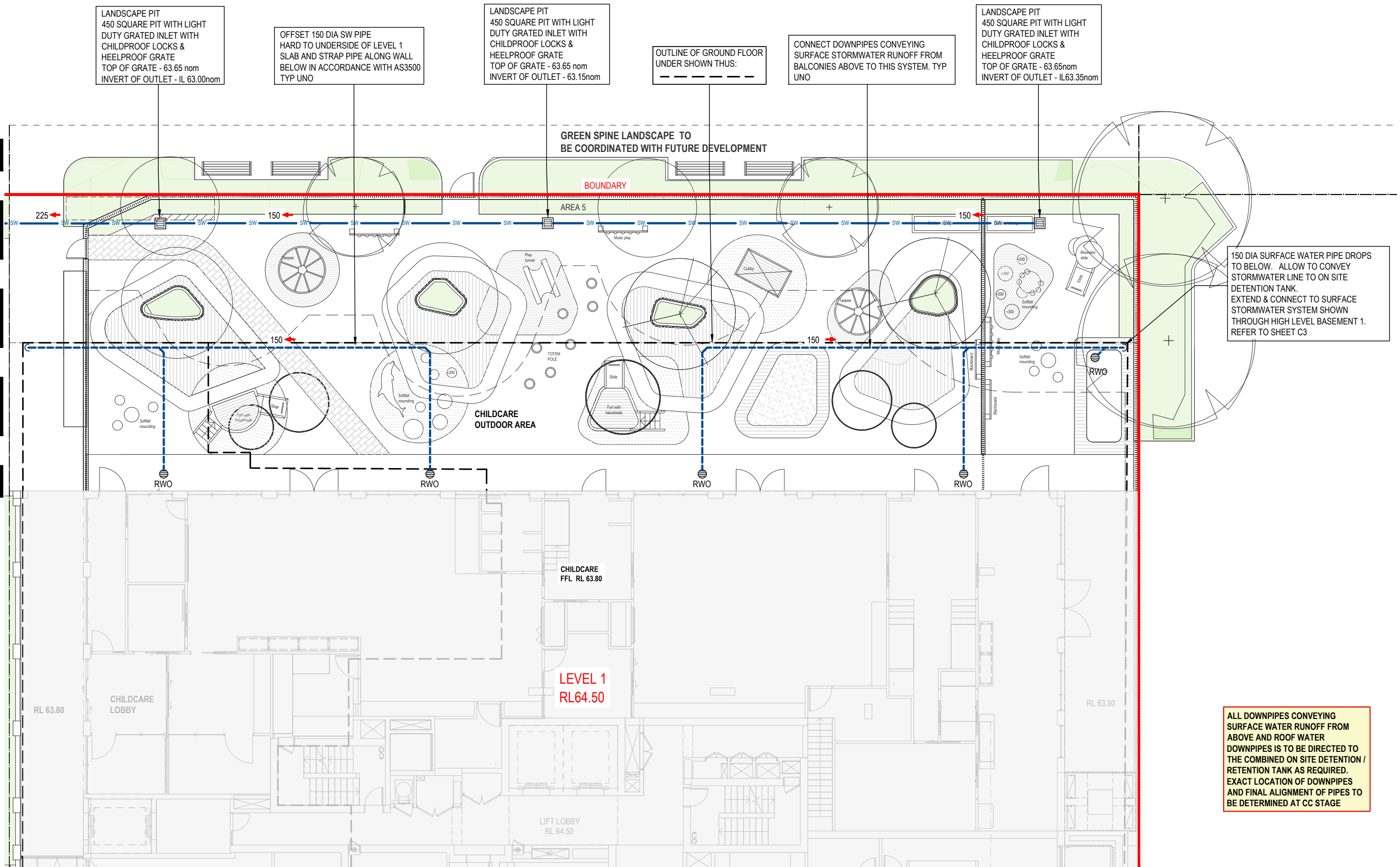
Client		Architect		ACOR Consultants (CC) Pty Ltd		Project		Drawing Title	
HPG GENERAL PTY LTD				Platinum Building, Suite 2.01, 4 Ilya Avenue ERINA NSW 2250, Australia T +61 2 4324 3499		PROPOSED RESIDENTIAL DEVELOPMENT (No. 13 - 19) CANNERRA AVENUE ST LEONARDS		EROSION & SEDIMENT CONTROL DETAIL SHEET	
Drawn		Date		Scale		A1		Q.A. Check	
RH		JUN 21		AS NOTED		-		Date	
Designed		Project No.		Dwg. No.		Issue			
BK		CC210167		C11		F			





Drawing Title				
STORMWATER MANAGEMENT PLAN				
PART 1 - GREEN SPINE				
Drawn RH	Date JUN 21	Scale AS NOTED	A1 -	Q.A. Check -
Designed BK	Project No. CC210167		Dwg. No. C12	Issue F

FOR CONTINUATION REFER TO SHEET C12



ALL DOWNPIPES CONVEYING SURFACE WATER RUNOFF FROM ABOVE AND ROOF WATER DOWNPIPES IS TO BE DIRECTED TO THE COMBINED ON SITE DETENTION / RETENTION TANK AS REQUIRED. EXACT LOCATION OF DOWNPIPES AND FINAL ALIGNMENT OF PIPES TO BE DETERMINED AT CC STAGE

STORMWATER MANAGEMENT PLAN  
SCALE - 1:75/A1, 1:150/A3

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North				
F	ISSUED FOR DEVELOPMENT APPROVAL	15.10.21	RH	BK
B-E	NIL ISSUE	-	-	-
A	ISSUED FOR CLIENT REVIEW & COMMENT	14.10.21	RH	BK
Issue	Description	Date	Drawn	Approved
1cm at full size				

Client  
**HPG GENERAL PTY LTD**

Architect

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Project  
**PROPOSED RESIDENTIAL DEVELOPMENT**  
(No. 13 - 19)  
CANBERRA AVENUE  
ST LEONARDS

Drawing Title <b>STORMWATER MANAGEMENT PLAN PART 2 - CHILDCARE OUTDOOR PLAY</b>				
Drawn RH	Date JUN 21	Scale AS NOTED	A1 Q.A. Check -	Date -
Designed BK	Project No. <b>CC210167</b>	Dwg. No. <b>C13</b>	Issue <b>F</b>	