
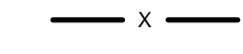
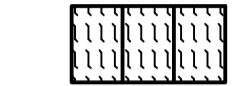







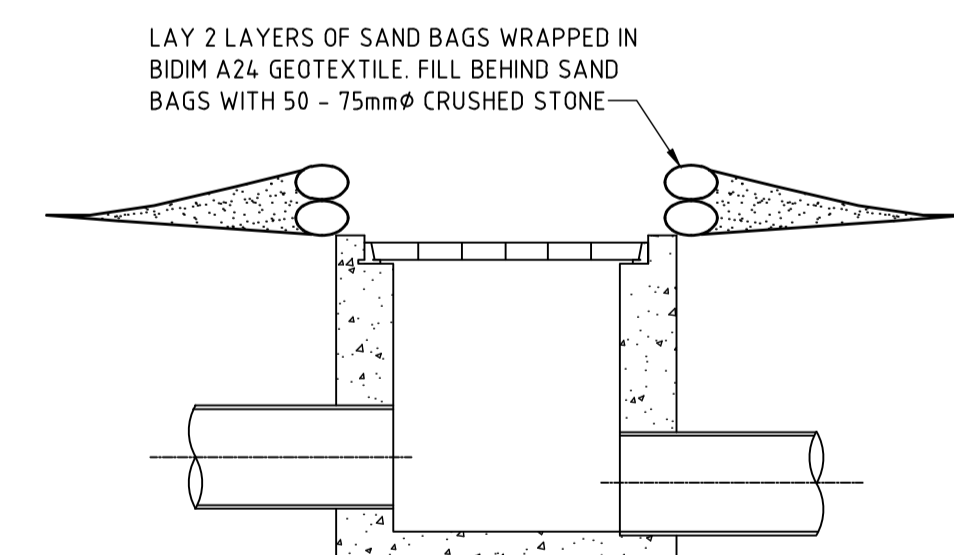
**LEGEND**

-  DENOTES CUT OFF SWALE.
-  DENOTES SITE & SEDIMENT CONTROL FENCE.
-  DENOTES STABILISED SITE ACCESS.
-  DENOTES PROPOSED STORMWATER PIT.
-  DENOTES PROPOSED IMPERMEABLE LID. DETAILS TO BE PROVIDED AT CC STAGE.
-  DENOTES INDICATIVE STOCKPILE LOCATION.
-  DENOTES SANDBAG OR GEOTEXTILE SOCK FILLED WITH NO FINES GRAVEL, PLACED IN INVERT OF GUTTER.
-  DENOTES PROPOSED GRATED TRENCH DRAIN.

**SEDIMENT AND EROSION CONTROL NOTES**

1. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH RELEVANT ORDINANCES AND REGULATIONS; NOTE IN PARTICULAR THE REQUIREMENTS OF LANDCOMS MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION (THE 'BLUE BOOK').
2. INSTALL SEDIMENT PROTECTION FILTERS ON ALL NEW AND EXISTING STORMWATER INLET PITS IN ACCORDANCE WITH EITHER THE MESH AND GRAVEL INLET FILTER DETAIL SD6-11 OR THE GEOTEXTILE INLET FILTER DETAIL SD6-12 OF THE 'BLUE BOOK'.
3. ESTABLISH ALL REQUIRED SEDIMENT FENCES IN ACCORDANCE WITH DETAIL SD6-8 OF THE 'BLUE BOOK'.
4. INSTALL SEDIMENT FENCING AROUND INDIVIDUAL BUILDING ZONES/AREAS AS REQUIRED AND AS DIRECTED BY THE SUPERINTENDENT.
5. ALL TRENCHES INCLUDING ALL SERVICE TRENCHES AND SWALE EXCAVATION SHALL BE SIDE-CAST TO THE HIGH SIDE AND CLOSED AT THE END OF EACH DAY'S WORK.
6. THE CONTRACTOR SHALL ENSURE THAT ALL VEGETATION (TREE, SHRUB & GROUND COVER) WHICH IS TO BE RETAINED SHALL BE PROTECTED DURING THE DURATION OF CONSTRUCTION. REFER ARCHITECTS PLANS FOR TREES TO BE KEPT.
7. ALL VEGETATION TO BE REMOVED SHALL BE MULCHED ONSITE AND SPREAD/STOCKPILED AS DIRECTED BY THE SUPERINTENDENT.
8. STRIP TOPSOIL IN AREAS DESIGNATED FOR STRIPPING AND STOCKPILE FOR RE-USE AS REQUIRED. ANY SURPLUS MATERIAL SHALL BE REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH EPA GUIDELINES.
9. CONSTRUCT AND MAINTAIN ALL MATERIAL STOCKPILES IN ACCORDANCE WITH DETAIL SD4-1 OF THE 'BLUE BOOK' (INCLUDING CUT-OFF SWALES TO THE HIGH SIDE AND SEDIMENT FENCES TO THE LOW SIDE).
10. ENSURE STOCKPILES DO NOT EXCEED 2.0m HIGH. PROVIDE WIND AND RAIN EROSION PROTECTION AS REQUIRED IN ACCORDANCE WITH THE 'BLUE BOOK'.
11. PROVIDE WATER TRUCKS OR SPRINKLER DEVICES DURING CONSTRUCTION AS REQUIRED TO SUPPRESS DUST.
12. ONCE CUT/FILL OPERATIONS HAVE BEEN FINALIZED ALL DISTURBED AREAS THAT ARE NOT BEING WORKED ON SHALL BE RE-VEGETATED AS SOON AS IS PRACTICAL.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING A DETAILED WRITTEN RECORD OF ALL EROSION & SEDIMENT CONTROLS ON-SITE DURING THE CONSTRUCTION PERIOD. THIS RECORD SHALL BE UPDATED ON A DAILY BASIS & SHALL CONTAIN DETAILS ON THE CONDITION OF CONTROLS AND ANY/ALL MAINTENANCE, CLEANING & BRACINGS. THIS RECORD SHALL BE KEPT ON-SITE AT ALL TIMES AND SHALL BE MADE AVAILABLE FOR INSPECTION BY THE PRINCIPAL CERTIFYING AUTHORITY AND THE SUPERINTENDENT DURING NORMAL WORKING HOURS.

THE CONTRACTOR SHALL ENSURE COUNCIL ASSETS AND THE UTILITIES ARE PROTECTED AT ALL TIMES. ANY AND ALL DAMAGES TO COUNCIL ASSETS AND/OR UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR TO THE SPECIFICATION OF COUNCIL AND THE UTILITIES AUTHORITY AND AT NO COST TO THE PRINCIPAL OR NORTHPROP CONSULTING ENGINEERS.



**PIT PROTECTION DETAIL**  
(ALTERNATIVE DETAIL SD6-11 OR SD6-12 OF THE BLUE BOOK AS APPROPRIATE)

INSTALL PIT PROTECTION TO ALL NEW & EXISTING STORMWATER PITS

DRAWN: A. SALAMON, DESIGNED: J. HOEY, JOB MANAGER: C. KIRKAGE, VERIFIER: C. SMITH

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	ISSUED FOR DA APPROVAL	JH	CS	CS	24.09.15
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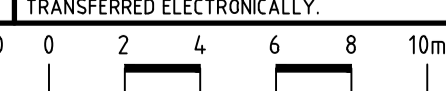
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PLANS 1:200



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PROJECT: **POLITIS HUNTER DEVELOPMENT**  
**CNR HUNTER ST & STEWART AVENUE**  
**NEWCASTLE WEST**  
**N.S.W 2302**

DRAWING TITLE: **SEDIMENT AND EROSION CONTROL PLAN**






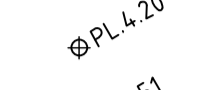

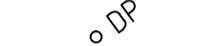



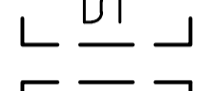
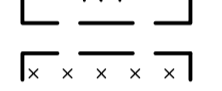
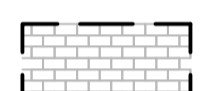

JOB NUMBER: **NL150030**

DRAWING NUMBER: **C01DA** REVISION: **B**

DRAWING SHEET SIZE ± A1

**DA APPROVAL**

**LEGEND**

- PIT  DENOTES PROPOSED STORMWATER PIT AND COVER LEVEL. DETAILS & PIT SCHEDULE TO BE PROVIDED AT CC STAGE.
- PIT  DENOTES PROPOSED IMPERMEABLE LID. DETAILS TO BE PROVIDED AT CC STAGE.
- EX PIT  DENOTES EXISTING STORMWATER PIT.
-  DENOTES PROPOSED STORMWATER DRAINAGE PIPE.
-  DENOTES EXISTING STORMWATER DRAINAGE PIPE.
- FFL 4.20** DENOTES PROPOSED FINISHED FLOOR LEVEL.
-  DENOTES PROPOSED FINISHED SURFACE LEVEL.
-  DENOTES EXISTING FINISHED SURFACE LEVEL.
-  DENOTES PROPOSED DIRECTION OF FALL IN FINISHED SURFACE.
-  DENOTES INDICATIVE LOCATION OF DOWN PIPES. REFER TO ARCHITECT'S & HYDRAULIC ENGINEERS PLANS FOR FINAL LOCATIONS. DETAILS TO BE PROVIDED AT CC STAGE.
-  DENOTES INDICATIVE LOCATION OF DOWN PIPES. REFER TO ARCHITECT'S & HYDRAULIC ENGINEERS PLANS FOR FINAL LOCATIONS. DETAILS TO BE PROVIDED AT CC STAGE.
-  DENOTES PROPOSED DOWNPIPE LINE, Ø150 UNLESS NOTED OTHERWISE. PROVIDE MIN COVER OF 200mm & LAY WITH MIN 1% GRADE TO OUTLET.
- GTD DENOTES CAST INSITU OR PRECAST GRATED TRENCH DRAIN (ACO OR SIMILAR) WITH HEEL GUARD CLASS A GALVANISED STEEL GRATE AND FRAMES.
-  DENOTES BELOW GROUND DETENTION TANK INCLUDING SAND FILTER AND OUTLET CHAMBER. REFER TO DRAWING C04DA FOR DETAILS.
-  DENOTES BELOW GROUND REUSE TANK. REFER TO DRAWING C04DA FOR DETAILS.
-  DENOTES PROPOSED PERVIOUS AREA.
-  DENOTES EXTENT OF PROPOSED FOOTPATH PAVEMENT. DETAILS TO BE PROVIDED AT CC STAGE.

**STORMWATER MANAGEMENT PHILOSOPHY**

NORTHROP CONSULTING ENGINEERS HAVE PREPARED A STORMWATER DRAINAGE DESIGN FOR A PROPOSED MULTI STOREY COMMERCIAL DEVELOPMENT AT 4-10 STEWART AVENUE, NEWCASTLE (DP 1919992). THIS DESIGN HAS BEEN CONDUCTED IN ACCORDANCE WITH NEWCASTLE CITY COUNCIL (NCC) DCP (2012). THIS CAN BE READ IN CONJUNCTION WITH THE STORMWATER MANAGEMENT PHILOSOPHY PREPARED BY NORTHROP CONSULTING ENGINEERS (REF:NL150049 DRAWING C03DA) FOR THE PROPOSED MULTI STOREY CAR PARK ADJACENT TO THE PROPOSED COMMERCIAL DEVELOPMENT. SEPARATE DETENTION AND WATER TREATMENT DEVICES HAVE BEEN PROPOSED FOR THE CARPARK DEVELOPMENT.

THE SITE IS CURRENTLY PREDOMINANTLY VACANT WITH THE EXCEPTION OF TWO CONCRETE DRIVEWAYS. THE TOTAL SITE AREA IS 4,372m<sup>2</sup>, WHICH FALLS TOWARDS STEWART AVENUE AT APPROXIMATELY A 1% GRADE.

THE PROPOSED DEVELOPMENT INCLUDES THE CONSTRUCTION OF A MULTISTOREY COMMERCIAL FACILITY AND ASSOCIATED DRAINAGE WORKS FRONTING BOTH STEWART AVENUE AND HUNTER STREET. THE DEVELOPMENT FOOTPRINT IS APPROXIMATELY 2,368.5m<sup>2</sup> WITH 2268m<sup>2</sup> (95.8 %) OF IMPERVIOUS AREA.

- THE PHILOSOPHY OF STORMWATER MANAGEMENT ON-SITE IS SUMMARISED AS FOLLOWS:
- RUNOFF FROM THE ROOF WILL BE CAPTURED AND CONVEYED TO THE PROPOSED 21m<sup>3</sup> UNDERGROUND REUSE RAINWATER TANK VIA DOWN PIPES. RUNOFF WILL THEN BE USED INTERNALLY FOR TOILET FLUSHING AND EXTERNALLY FOR IRRIGATION.
  - OVERFLOW FROM THE REUSE TANK AS WELL AS RUNOFF FROM THE LANDSCAPED AREAS IS TO BE DIRECTED INTO THE PROPOSED 39m<sup>3</sup> DETENTION TANK WHICH HAS BEEN SIZED TO MAINTAIN PRE-DEVELOPED FLOWS FROM THE SITE. THE BELOW TABLE SHOWS THE MODELLED PRE TO POST PEAK FLOWS FOR THE DEVELOPMENT.

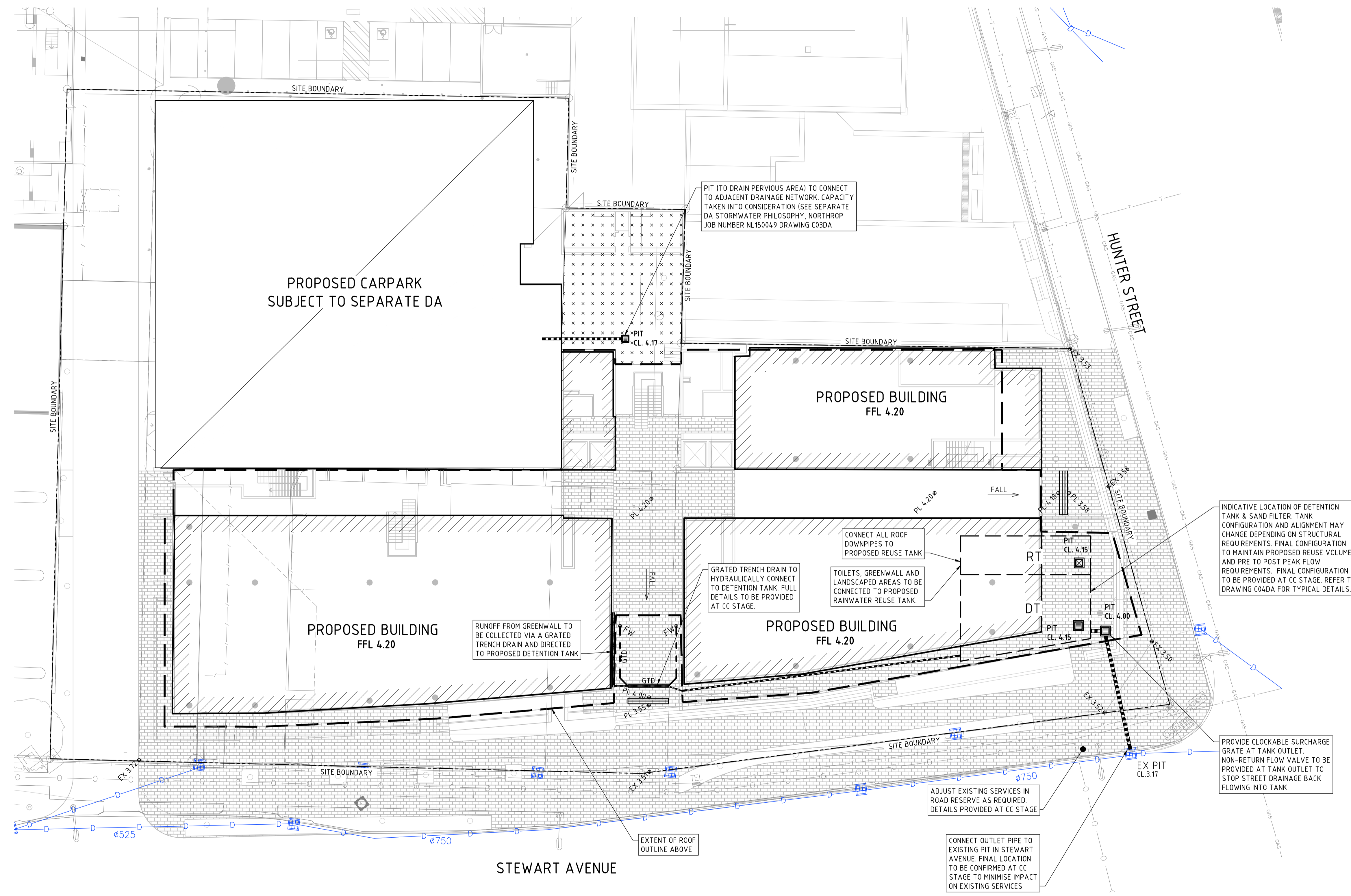
**OUTLET FLOW RATE Q (m<sup>3</sup>/s)**

ARI (YRS)	PRE-DEVELOPED PEAK FLOW (L/s)	POST-DEVELOPED PEAK FLOW (L/s)
0.2EY	58	57
10% AEP	67	62
5% AEP	79	68
2% AEP	92	72
1% AEP	103	102

- THE DETENTION TANK WILL OUTLET TO A PIT NEAR THE SITE BOUNDARY. THIS PIT WILL DISCHARGE TO AN EXISTING STORMWATER PIT IN STEWART AVENUE.
- THE REUSE VOLUME HAS BEEN SIZED TO PROVIDE A COMBINED REUSE AND DETENTION STORAGE VOLUME IN ACCORDANCE WITH SECTION 6B OF NCC DCP SECTION 7.06. A RATE OF 25mm PER SQUARE METRE OF IMPERVIOUS AREA HAS BEEN USED ASSUMING THE DEVELOPMENT IS 100% IMPERVIOUS. THE RESULTS ARE SHOWN BELOW.  
 $(25/1000) \times 2368.5 = 60m^3$

- DETENTION VOLUME = 39m<sup>3</sup> (REFER ABOVE)  
THEREFORE, REUSE VOLUME = 60 - 39 = 21m<sup>3</sup>
- A SAND FILTER AREA HAS BEEN PROVIDED AT A RATE OF 0.8m<sup>2</sup>/PER 100m<sup>2</sup>/OF CONTRIBUTING CATCHMENT (IN ACCORDANCE WITH NCC STORMWATER AND WATER EFFICIENCY FOR DEVELOPMENT TECHNICAL MANUAL 2013):  
 $0.8 \times (2368.5/100) = 18.95 m^2$

**DA APPROVAL**



DRAWN: A. SALAMON  
 DESIGNED: J. HOEY  
 JOB MANAGER: C. KIRKAGE  
 VERIFIER: C. SMITH

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	ISSUED FOR DA APPROVAL	JH	CS	CS	24.09.15
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ARCHITECT: **CKOS ARCHITECTURE**

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PROJECT: **POLITIS HUNTER DEVELOPMENT**  
**CNR HUNTER ST & STEWART AVENUE**  
**NEWCASTLE WEST**  
**N.S.W 2302**

DRAWING TITLE: **GROUND FLOOR**  
**STORMWATER MANAGEMENT PLAN**

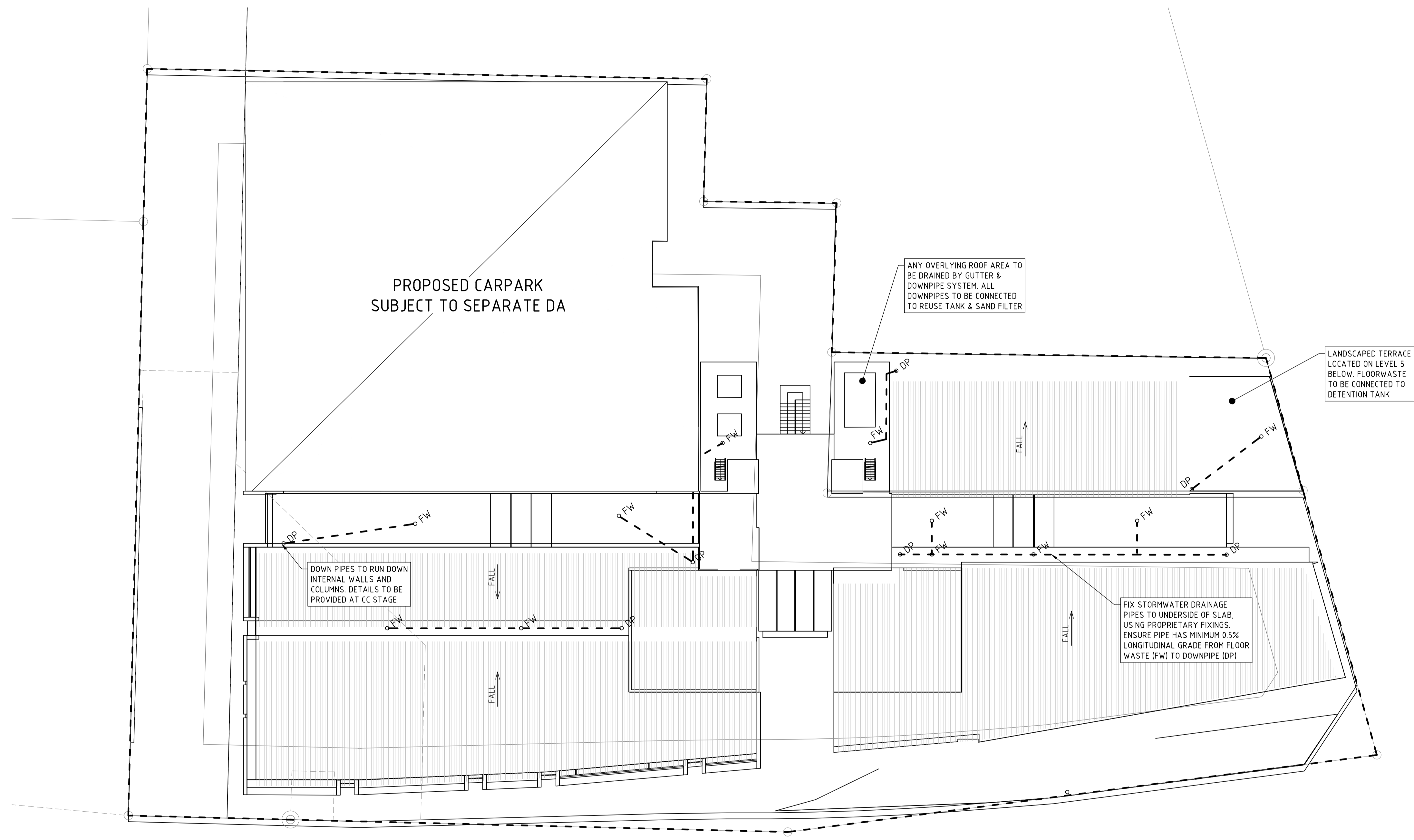
JOB NUMBER: **NL150030**

DRAWING NUMBER: **C02DA** REVISION: **B**

DRAWING SHEET SIZE ± A1

REFER TO DRAWING C02DA FOR LEGEND

**NOTE:**  
 - LOCALLY SHAPE ROOF AREA TOWARDS FLOOR WASTE (FW) AT MINIMUM 1% GRADE  
 - ALL ROOF AREA TO BE COLLECTED IN FLOOR WASTES (FW)/GUTTERS & DRAINED TO REUSE TANK  
 - ALL DOWNPIPES (DP) TO BE CONNECTED TO REUSE TANK ON GROUND LEVEL.



DRAWN: A. SALAMON  
DESIGNED: J. HOEY  
JOB MANAGER: C. KIRKAGE  
VERIFIER: C. SMITH

**DA APPROVAL**

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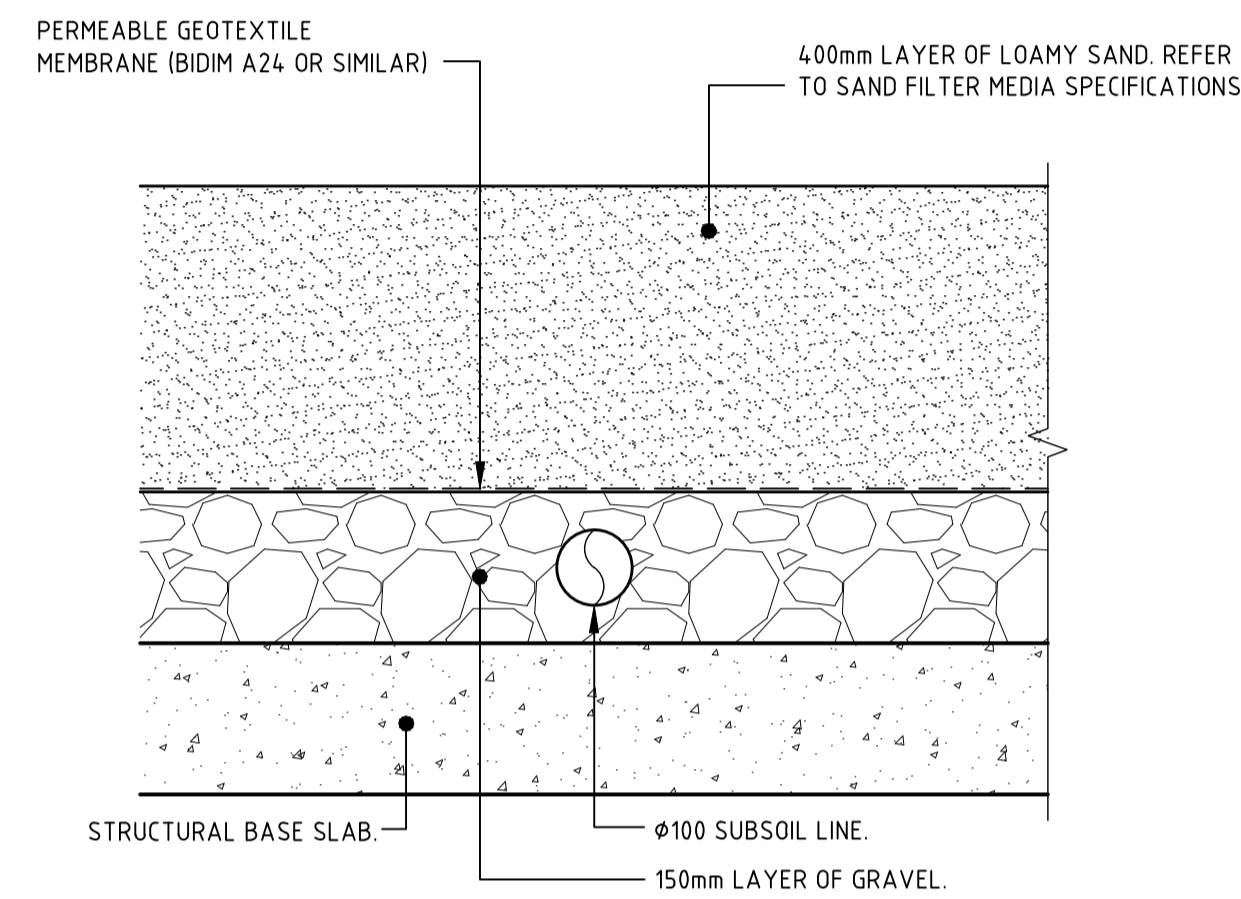
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PROJECT  
**POLITIS HUNTER DEVELOPMENT  
 CNR HUNTER ST & STEWART AVENUE  
 NEWCASTLE WEST  
 N.S.W 2302**

DRAWING TITLE  
**ROOF LEVEL  
 STORMWATER MANAGEMENT PLAN**

JOB NUMBER <b>NL150030</b>	
DRAWING NUMBER <b>C03DA</b>	REVISION <b>B</b>
DRAWING SHEET SIZE ± A1	

DRAWN: A. SALAMON  
DESIGNED: J. HOEY  
JOB MANAGER: C. KIRKAGE  
VERIFIER: C. SMITH



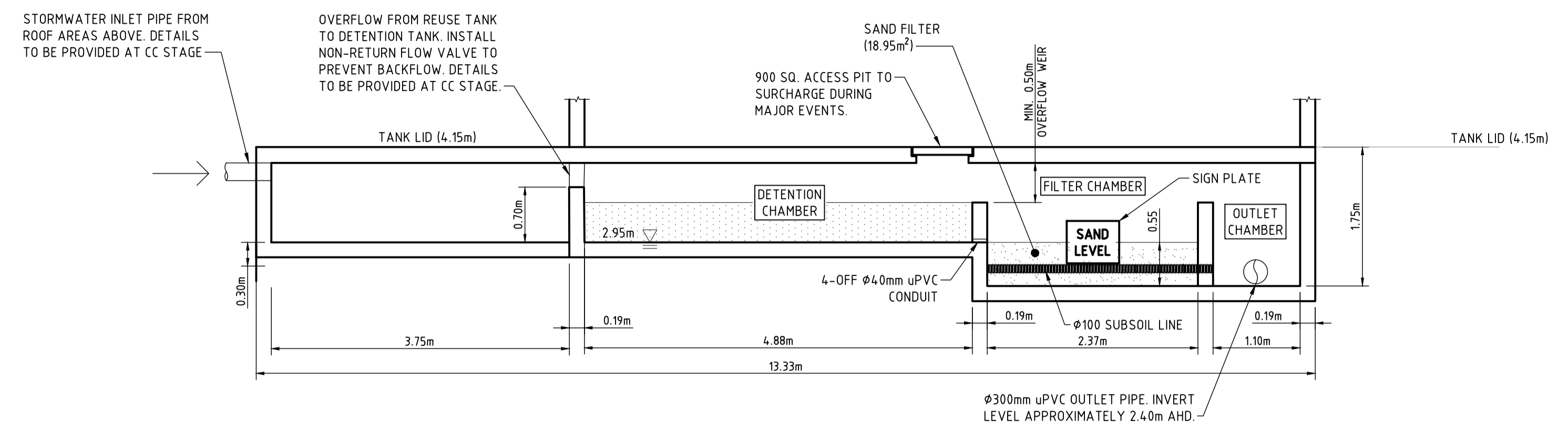
**TYPICAL SAND FILTER DETAIL**  
SCALE 1:10

**SAND FILTER MEDIA SPECIFICATIONS**

1. FILTER MEDIA TO BE BENEDICTS "BIO-RETENTION FILTER MEDIA (M165)" OR SIMILAR COUNCIL APPROVED PRODUCT WITH THE FOLLOWING CHARACTERISTICS.

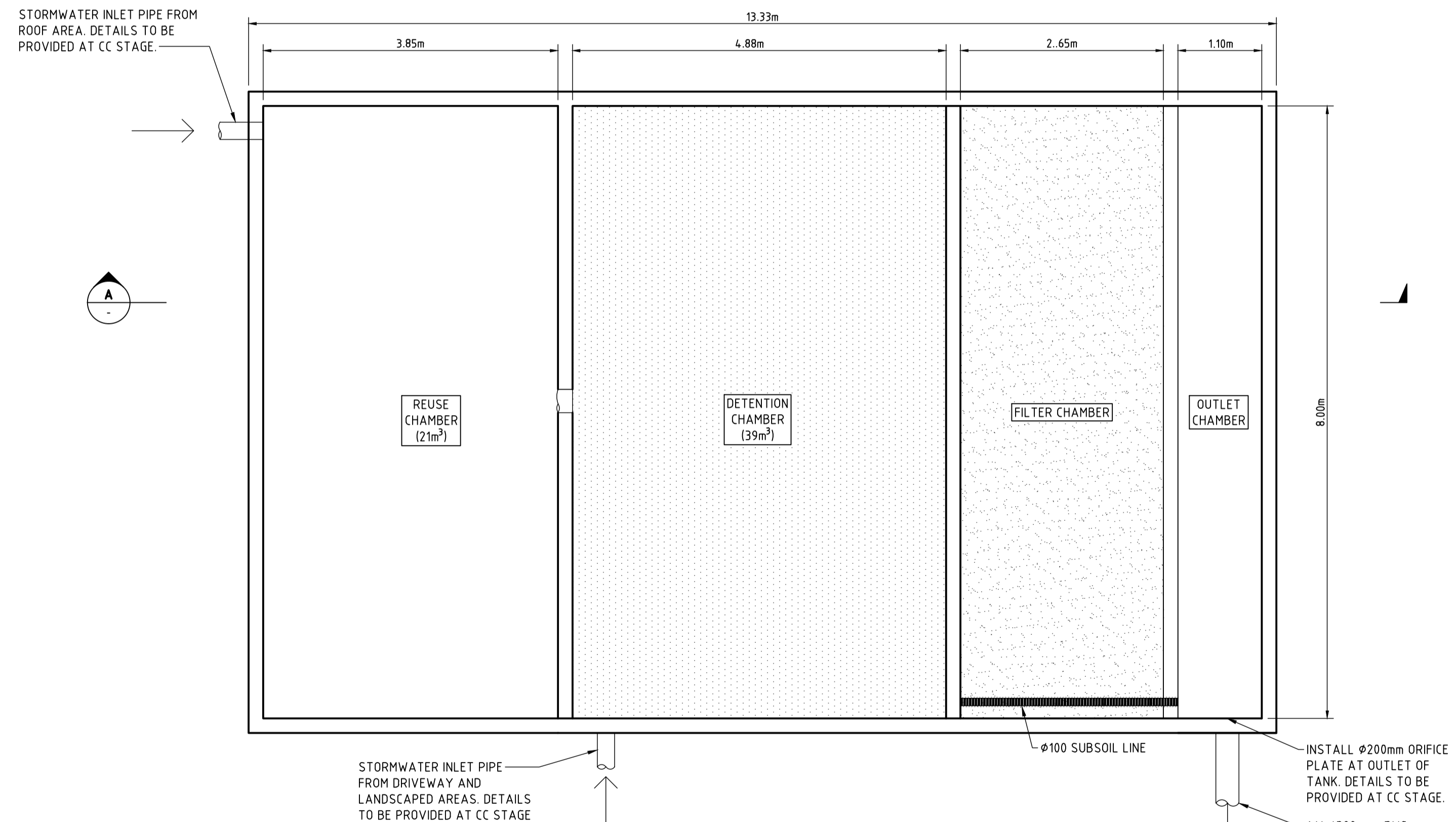
%PASSING	9.5mm	100%
	6.3mm	95-100%
	3.17mm	80-100%
	1.5mm	50-85%
	0.8mm	25-60%
	0.5mm	10-30%
	0.25mm	2-10%

THIS GRADING IS BASED ON TP10 (ARC2003)



**TYPICAL TANK CONFIGURATION - SECTION A**  
SCALE 1:50

- NOTE:
- TOTAL VOLUME OF STORAGE AND FILTER CHAMBERS TO BE GREATER THAN REQUIRED STORAGE VOLUME (60kL).
  - STRUCTURAL DETAILS TO ENGINEER'S DESIGN.
  - STEP IRONS REQUIRED WHERE INTERNAL DROP IS GREATER THAN 1.2m



**TYPICAL TANK CONFIGURATION - PLAN VIEW (INDICATIVE)**  
SCALE 1:50

NOTE: TANK CONFIGURATION MAY CHANGE DEPENDING ON STRUCTURAL REQUIREMENTS AND POSITIONING. FINAL CONFIGURATION TO MAINTAIN PROPOSED REUSE VOLUME AND PRE TO POST PEAK FLOW REQUIREMENTS. FINAL CONFIGURATION TO BE PROVIDED AT CC STAGE.

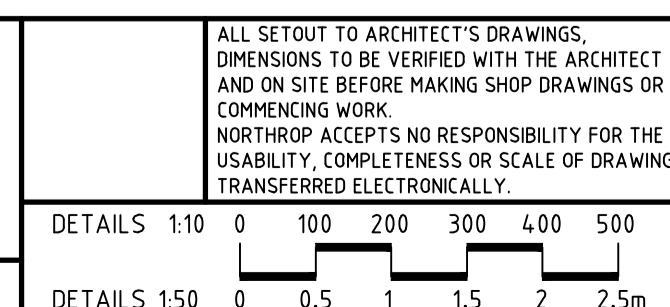
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**NEWCASTLE WEST**  
**N.S.W 2302**

DRAWING TITLE: **CIVIL DETAILS SHEET 1**

JOB NUMBER: **NL150030**

DRAWING NUMBER: **C04DA** REVISION: **B**

DRAWING SHEET SIZE ± A1

**DA APPROVAL**