

PROPOSED GRANNY FLAT DWELLING AT
36 ALLAWAH AVENUE, ELANORA HEIGHTS
CONCEPT STORMWATER DRAINAGE PLAN



SITE LOCALITY

Table with 4 columns: DRAWING #, DRAWING NAME, REV, DATE. It lists three drawings: COVER PAGE (Rev 01, 16.10.2019), STORMWATER DESIGN PLAN (Rev 01, 16.10.2019), and RWT/OSD DETAILED SECTIONS (Rev 01, 16.10.2019).

LEGEND table listing various symbols and their corresponding descriptions for stormwater and utility lines, including discharge, runoff, over flow, rising main, existing lines, authority lines, sewer, water, gas, electricity, fibre optic, comms, fence, pits, drains, junctions, kerbs, manholes, valves, power poles, and boundary traps.

FOOTPATH AND KERB AND GUTTER:

CONTRACTOR TO CONNECT ALL ROOF OUTLETS TO NEW KERB OR TO ADJACENT STORMWATER SYSTEM. THE DRAINAGE OUTLETS TO BE EXTENDED BEHIND THE KERB MUST HAVE A MINIMUM SLOPE OF 1%.

DAMAGED STORMWATER OUTLETS TO BE REPLACED IN ACCORDANCE WITH SWD 6.1.1 WITH A 150x50x4mm/6mm THICK RHS GALVANISED PIPE OR WITH PIPES THAT PROVIDE EQUIVALENT CROSS SECTIONAL AREA. MAKE GOOD CONNECTION TO EXISTING STORMWATER DOWN PIPE AND ENSURE THE FACE OF THE OUTLET IS FINISHED FLUSH WITH THE NEW KERB FACE.

ALTERNATIVE SAFE ACCESS WAY SHALL BE PROVIDED IF FOOTPATH IS BARRICADED COMPLETELY DURING WORKS.

CONCRETE SURFACE SHALL BE BROOM FINISHED. STROKES TO BE IN ONE DIRECTION PERPENDICULAR TO LINE OF TRAVEL. ALL EDGES TO BE FINISHED WITH 20-40mm EDGING TOOL.

EXISTING SERVICES

UNDERGROUND SERVICES SHOWN ON THE DRAWING ARE INDICATIVE ONLY. CIVIL STORMWATER ENGINEERING GROUP WILL NOT ACCEPT ANY LIABILITY FOR INACCURACIES IN THE SERVICES INFORMATION SHOWN.

CONTRACTOR TO OBTAIN UNDERGROUND SERVICES INFORMATION FROM DIAL BEFORE YOU DIG 1100 AND VERIFY THE LOCATION AND DEPTH OF UNDERGROUND SERVICES IN ACCORDANCE WITH AS 5488.

THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING SERVICES FROM CONSTRUCTION LOADINGS AND PROVIDING TEMPORARY SERVICES IF NECESSARY DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE TO RECTIFY ANY DAMAGE TO EXISTING SERVICES.

THE CONTRACTOR SHALL COORDINATE WITH RELEVANT UTILITY AUTHORITIES WITH RESPECT TO ANY TEMPORARY DIVERSIONS OR SUPPLY IF NECESSARY.

ALL UTILITY SERVICE COVERS SHALL BE RAISED OR LOWERED TO FINISH FLUSH WITH FINISHED SURFACE AND COMPLY WITH ALL RELEVANT SERVICE AUTHORITY REQUIREMENT. NO UTILITY SERVICE COVER ARE TO BE COVERED OR BURIED.

ANY CONFLICTS WITH EXISTING UNDERGROUND SERVICES SHALL BE REFERRED TO AUTHORITIES SUPERINTENDENT FOR CLARIFICATION.

LEGEND table listing symbols for first flush, downpipe, overland flow path, rainwater outlet, clear out point, dish drain outlet, planter drain, capping, pit tag/number, rainhead, downpipe drop, non return valve, wall penetration, downpipe spreader, warning light, spot levels, and benchmark.

DRAINAGE NOTES:

ALL PIPES TO BE LAID ON 75mm SAND BED WITH THE BARRELS FULLY SUPPORTED

100mm AND 150mm DIAMETER PIPES TO BE LAID ON MINIMUM 1% GRADE

MINIMUM DEPTH OF COVER FOR PIPES NOT SUBJECT TO VEHICULAR LOADING TO BE 300mm

ALL DRAINAGE PIPES LAID UNDER PAVEMENT SHALL BE REINFORCED CONCRETE WITH RUBBER RING JOINTS

BACKFILL TRENCHES WITH COMPACTED SAND OR APPROVED AGGREGATE MATERIAL

ALL PITS TO HAVE 600x600mm INTERNAL DIMENSIONS (U.N.O.)

SILT ARRESTORS TO HAVE 900x900mm INTERNAL DIMENSIONS

HEAVY DUTY GRATES AND COVERS ARE TO BE PROVIDED IN TRAFFICABLE AREAS

PIT GRATE TO BE TYPE WELDLOK OR APPROVED EQUIVALENT

ALL PITS SHALL BE PROVIDED WITH A LOCKING CLIP

ALL PITS SHALL BE MAINTAINED REGULARLY

TOP OF BENCHING SHALL BE TO THE HALF OF THE OUTLET PIPE DIAMETER

MAXIMUM FRONT ENTRY PIPE:-  
STRAIGHT ENTRY - Ø750  
SKEW ENTRY 45° - Ø525

Ø100 SUBSOIL DRAINAGE PIPE 3000mm LONG WRAPPED IN FABRIC SOCK TO BE PROVIDED ADJACENT TO INLET PIPES

COMPRESSIVE STRENGTH f<sub>c</sub> FOR CAST IN SITU CONCRETE TO BE A MINIMUM OF 20MPa AT 28 DAYS

PROVIDE CLEANING EYES TO ALL DOWNPIPES NOT DIRECTLY CONNECTED TO PITS

ISOLATED JOINTS TO BE PROVIDED TO ISOLATE CONCRETE PAVEMENTS FROM PITS

ALL TRENCH GRATES PROVIDED SHALL HAVE A MINIMUM CLEAR WIDTH OF 200mm

STORMWATER DRAINAGE CONNECTIONS TO THE MAIN SYSTEM SHALL BE TO THE REQUIREMENTS AND THE SATISFACTION OF LOCAL COUNCIL

STORMWATER PIPE BEDDING/PAVING NOTES:

WHERE TRENCH BASE IS ROCK A MINIMUM OF 75mm BEDDING TO BE PROVIDED UNDER PIPE COLLARS.

STORMWATER PIPE BEDDING DETAIL TO BE IN ACCORDANCE WITH LOCAL COUNCIL REQUIREMENTS. BEDDING DETAILS TO BE CONFIRMED UPON EXCAVATION & PRIOR TO INSTALLATION OF PIPEWORK.

EROSION & SEDIMENT CONTROL NOTES:

PROVIDE SILT FENCE/HAY BAIL BARRIERS TO THE LOW SIDE OF ALL EXPOSED EARTH EXCAVATIONS (TYPICAL).

ISOLATE EXISTING STORMWATER PITS WITH HAY BALES TO FILTER ALL INCOMING FLOWS.

DO NOT STOCK PILE EXCAVATED MATERIAL ON THE ROAD WAY.

WARNING:  
EXISTING SERVICES HAVE BEEN PLOTTED FROM RECORDS SUPPLIED BY THE PUBLIC UTILITY AUTHORITIES. LOCATIONS HAVE BEEN INTERPRETED FROM THESE RECORDS AND ARE APPROXIMATE ONLY. EXTREME CAUTION SHOULD BE TAKEN WHEN EXCAVATING

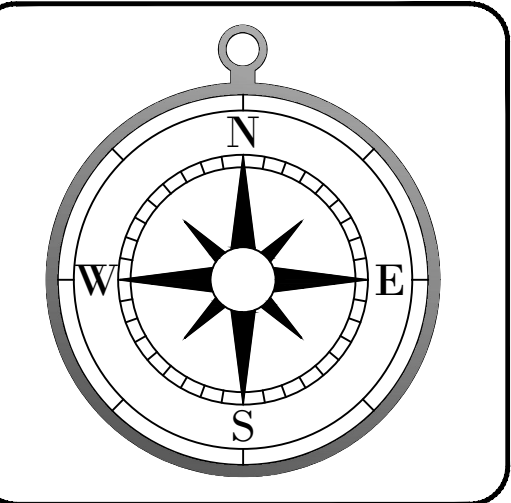


Revision table with 5 columns: Rev., Description, By., Chk., App., Date. It shows five revisions, with the final one being 'FOR APPROVAL' dated 16/10/2019.

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Client: MR & MRS LONNEN  
Project: 36 ALLAWAH AVE, ELANORA HEIGHTS

Title: COVER PAGE

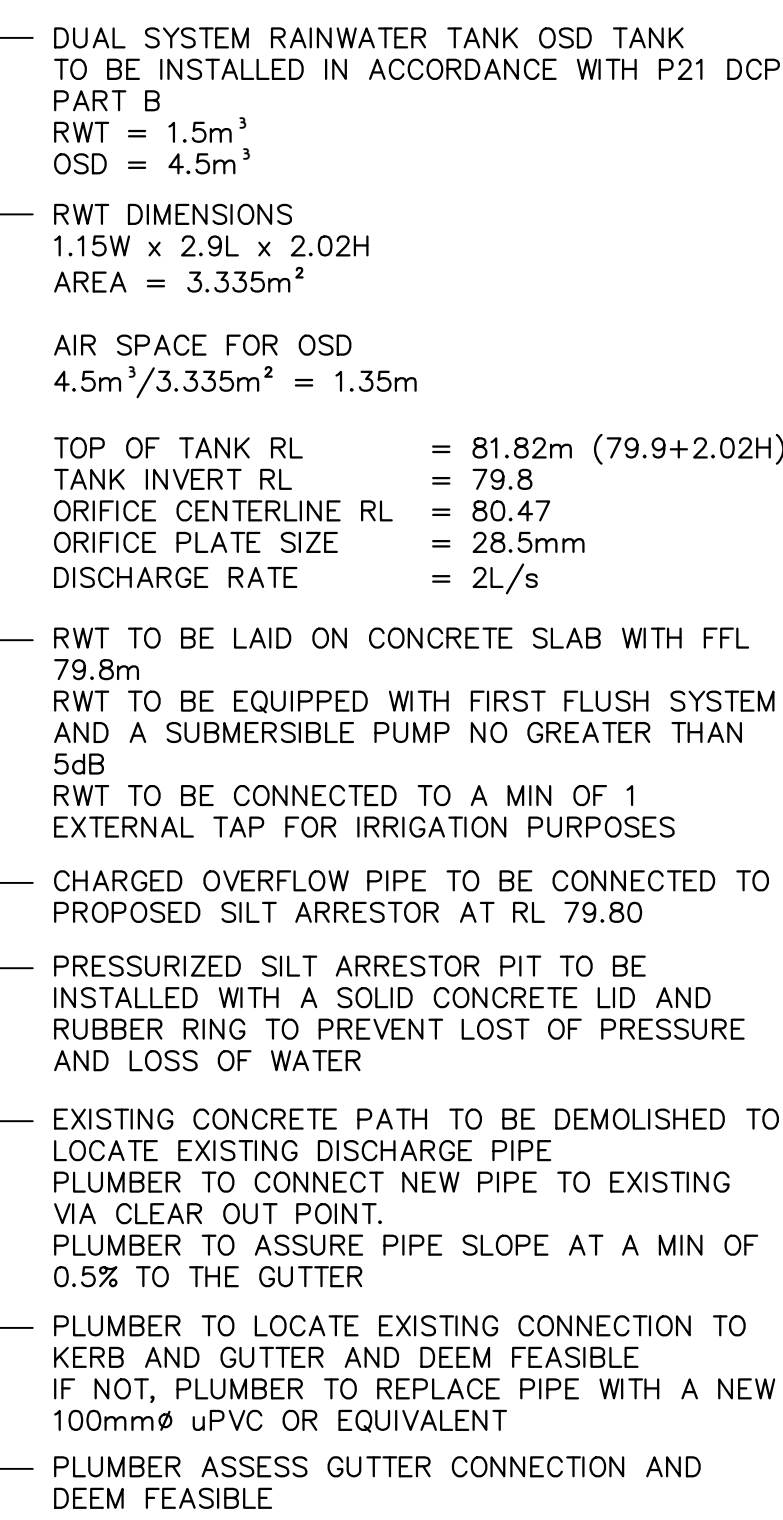


Approval stamps for Date (16.10.2019), Design (S.C.H), Approved (S.C.H), Scale (1:100@A1, 1:200@A3), Drawn (S.C.H), Checked (S.C.H), Project Number (CSW034), Drawing Number (1), and Revision (1).

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DEVELOPMENT APPLICATION (DA)  
FOR APPROVAL NOT FOR CONSTRUCTION





THE SITE IS GOVERNED BY PITTWATER CITY COUNCIL DEVELOPMENT CONTROL PLAN

SITE AREA = 804.2m<sup>2</sup> (BY CALCULATION)

ON-SITE DETENTION TANK/BASIN IS REQUIRED FOR THIS SITE AS PER PITTWATER 21 DCP APPENDICES – (ANY PROPERTY THAT HAS AN INCREASE IN IMPERVIOUS AREA GREATER THAN 40m<sup>2</sup> – FOR SINGLE DWELLING)

TOTAL ADDITIONAL IMPERVIOUS AREA INCLUDING ROOF 74.8m<sup>2</sup>

IN ACCORDANCE WITH PITTWATER COUNCIL DCP PART B AND C THE FOLLOWING CONDITIONS NEED TO BE ADDRESSED FOR PROPERTIES THAT HAVE AN ADDITIONAL IMPERVIOUS AREA BETWEEN 50m<sup>2</sup> AND 75m<sup>2</sup>:

RAINWATER TANK VOLUME	= 1500L
OSD TANK VOLUME	= 4500L

OSD DISCHARGE RATE TO BE LIMITED TO 2L/S

OSD ORIFICE PLATE SIZE FOR GOVERNED BY A HEIGHT OF 1.35m IS 28.5MM

AN ABOVE GROUND DUAL SYSTEM HAS BEEN ADOPTED.

INSTALL RAINWATER TANKS TO COLLECT ALL THE ROOF AREA

RAINWATER TANKS TO BE EQUIPPED WITH FIRST FLUSH AND MOSQUITO PREVENTION DEVICES.

LOCATION OF ALL STORMWATER PIPES, PITS & TRENCHES TO BE CO-ORDINATED WITH EXISTING TREES TO BE RETAINED (TYP).

DOWNPIPE LOCATIONS ARE INDICATIVE AND TO BE CONFIRMED DURING CONSTRUCTION.

ALL NEW STORMWATER PIPES TO HAVE A MINIMUM OF 300mm TOPSOIL COVER OR 100mm CONCRETE COVER U.N.O.

RUBBER RING JOINT

450x450

450 SQ. SOLID CONCRETE GRATE

RL: 80.00

HANDLE TO ALLOW EASY REMOVAL

Ø100 UPVC INFLOW PIPE DIRECTED ACROSS SCREEN TO PROMOTE SELF CLEANING

OL: 79.60

CL: 79.55

100MM uPVC TO GUTTER

TWO 1/2 BRICK KEEPERS

200

100

PERMANENT GEOTEXTILE FILTER FABRIC SURROUNDING 14mm AGGREGATE

OL: 79.7

IL: 79.60

LYSAGHT GALVANIZED MAXIMESH RH 3030 SCREEN IN GALVANIZED GUIDE CHANNELS

SMALL AIR HOLE TO PREVENT SYPHONING

REPLACEABLE GEOTEXTILE FILTER FABRIC

BASE RL: 79.45

4x100 DIAMETER SEEPAGE HOLES

PIT WALLS & SLABS TO STRUCTURAL ENGINEER DETAILS

THE R.C. STORMWATER PIPE SHALL BE PIERCED BY A NEAT OPENING AS SHOWN TO ALLOW THE CONNECTION OF A SQUARE, SLOPED JUNCTION OR BEND WHICH SHALL NOT PROTRUDE BEYOND THE INNER SURFACE OF THE R.C. STORMWATER PIPE

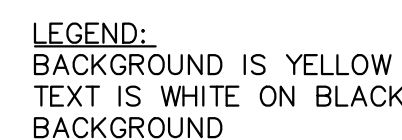
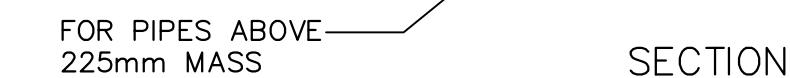
THE INTERNAL JUNCTION SHALL BE SMOOTHLY FINISHED WITH 2:1 CEMENT MORTAR OR EPOXY CEMENT SO AS TO PRESENT NO OBSTRUCTION WITHIN THE INTERNAL SURFACE OF THE R.C. STORMWATER PIPE. THE LINE IS NOT TO EXTEND BEYOND POINT 1 UNTIL APPROVED BY COUNCIL

THE HOLE IN COUNCIL'S PIPE IS TO BE FORMED BY CAREFUL DRILLING TO NEATLY ACCEPT THE OUTSIDE DIAMETER OF THE PIPE

ANY DAMAGE TO THE STRUCTURE OF COUNCIL'S PIPE IS TO BE MADE GOOD TO THE SATISFACTION OF COUNCIL'S ENGINEER, IF NECESSARY BY THE REPLACEMENT OF THE PIPE

PIPE FITTINGS ARE TO BE VITRIFIED CLAY OR SEWER QUALITY UPVC

COUNCIL PIPELINE IS TO BE LEFT FREE OF DROPPED CLAY, CONCRETE, MORTAR, ETC...



RAINWATER SIGN  
SCALE 1:10

Rev.	Description	By.	Chk.	App.	Date
6		SCH	SCH		
5		SCH	SCH		
4		SCH	SCH		
3		SCH	SCH		
2		SCH	SCH		
1	FOR APPROVAL	SCH	SCH	SCH	16/10/2019

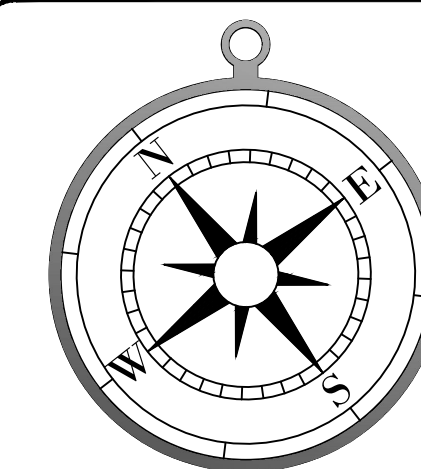


Client  
**MR & MRS LONNEN**

Project  
**36 ALLAWAH AVE, ELANORA HEIGHTS**

Title

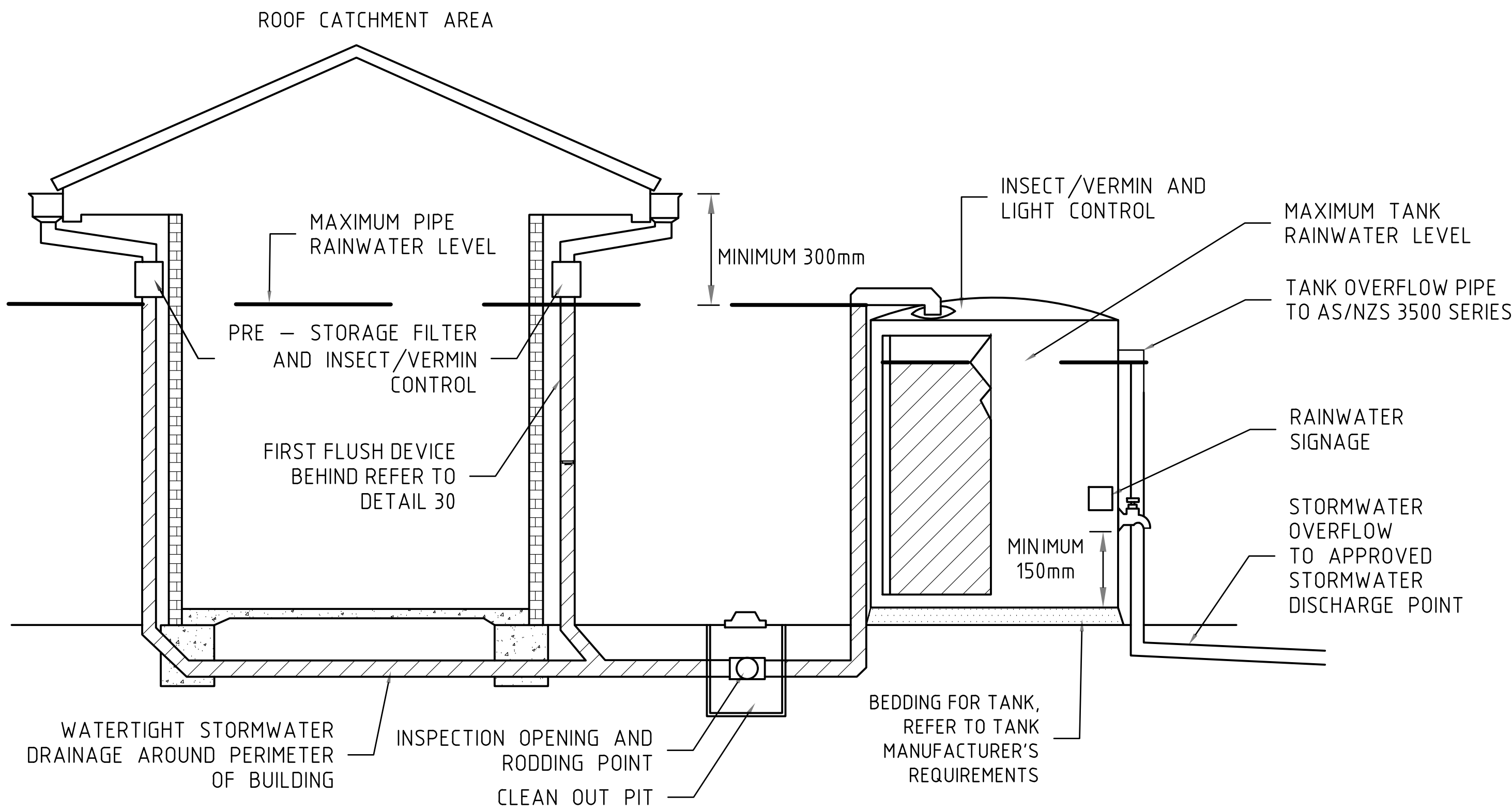
STORMWATER  
DESIGN  
PLAN



Date 16.10.2019	Design S.C.H	Approved S.C.H _____ SAMIR C HAKIM B.E., M.E. (civil/construction), ADV. DILPOMA (civil design), M.I.E. Aust. Peng	
Scale 1:100@A1 1:200@A3	Drawn S.C.H	Checked S.C.H	
	Project Number CSW034	Drawing Number 02	Revision 1







DETAIL 32  
RAINWATER TANK WITH CHARGED LINE  
NTS

DESIGN NOTES FOR CHARGED SYSTEMS:

1. CHARGE LINES ARE TO USE TYPE 'P' PRESSURE RATED SOLVENT.
2. SOLVENT SEALED TO UNDERSIDE OF EAVES. PAINT ALL EXPOSED SURFACES OR USE UV STABILISED PIPES.

NOTES FOR RAINWATER TANKS:

GENERAL:

1. THE TANK MAY SUPPLY TOILET, LAUNDRY, HOT WATER & ALL OUTDOOR TAPS.
2. OFF TAKE POINT IS TO BE A MINIMUM OF 150mm ABOVE THE BASE OF THE TANK.
3. FLOAT SWITCH SHALL BE SET TO ACTIVATE MAINS SUPPLY WHEN WATER LEVEL IS 200mm ABOVE BASE OF TANK.

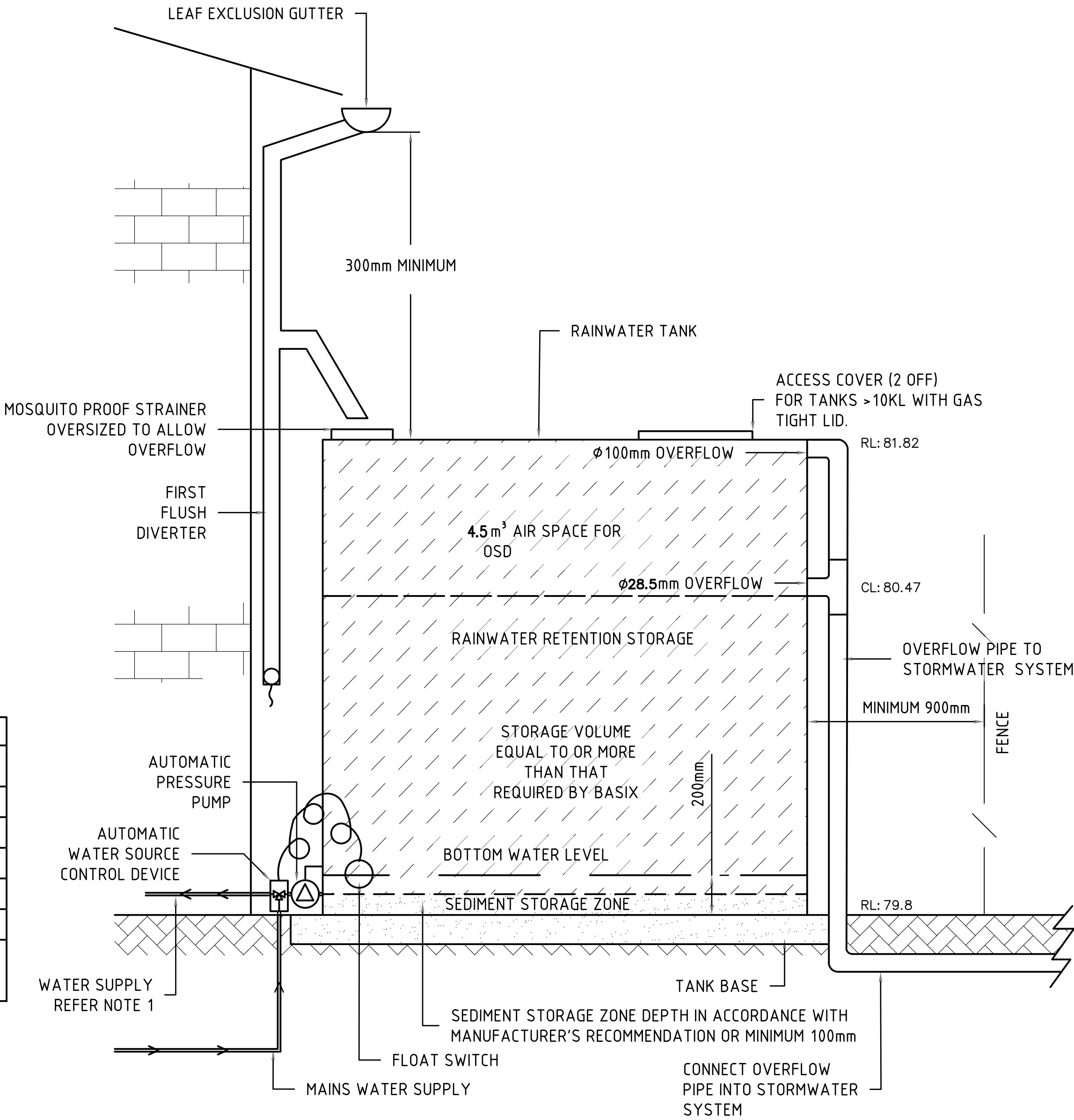
GENERAL MODELLING REQUIREMENTS:

- THE FOLLOWING POINTS STIPULATE HOW RAINWATER TANKS ARE TO BE MODELLED IN MUSIC
4. WHERE IRRIGATION IS PROPOSED, IT IS TO BE SCALED USING POTENTIAL EVAPOTRANSPIRATION (PET) MINUS RAINFALL.
  5. ALLOW FOR A LOSS OF 250mm FROM THE BASE OF EACH RAINWATER TANK TO ALLOW FOR SEDIMENT STORAGE SPACE, LOW LEVEL TOP UP AND OVERFLOW.

RESIDENTIAL MODELLING REQUIREMENTS:

6. RESIDENTIAL DEVELOPMENT IS SUBJECT TO BASIX AND HAS NO MINIMUM REUSE TARGET.
7. A MINIMUM OF 50% OF RUN OFF FROM THE ROOF AREA IS TO BE DIRECTED TO THE RAINWATER TANK UNLESS THE BASIX CERTIFICATE NOTES OTHERWISE.

RESIDENTIAL RAINWATER REUSE		
TYPE OF DWELLING & LAND SIZE	INDOOR (L/DAY)	OUTDOOR (kL/YEAR)
DETACHED HOUSE >730m <sup>2</sup>	100	55
DETACHED HOUSE >520m <sup>2</sup> , <730m <sup>2</sup>		45
DETACHED HOUSE >320m <sup>2</sup> , <520m <sup>2</sup>		32
DETACHED HOUSE <320m <sup>2</sup>		25
ROW HOUSES	20	20
TOWN HOUSES		0.4kL/YEAR/m <sup>2</sup> OF LANDSCAPED AREA
APARTMENTS / HOME UNITS		



DETAIL 31  
DEEMED TO COMPLY ON SITE STORMWATER  
DETENTION SOLUTION FOR ATTACHED HOUSING  
NTS

REQUIREMENTS FOR SIZE AND ALLOWABLE DISCHARGE FROM ON-SITE  
DETENTION SYSTEMS

Additional Hard (Impervious)Surface Area (square metres)	Minimum Rainwater Tank Storage Capacity
0 - 50	Nil
50 - 75	1,500 litres
75 - 100	2,000 litres

Additional Hard (Impervious) Surface Area (square metres)	Minimum Capacity of On-Site Detention Tank (Litres)	Discharge Rate Litres/Sec
0 -50	Nil	Nil
>50 - 75	4,500	2
>75 - 100	6,000	3

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DEVELOPMENT APPLICATION (DA)

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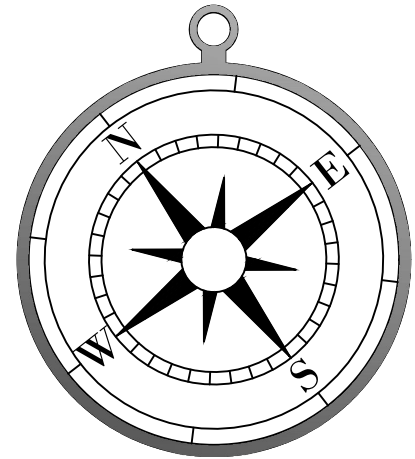
Rev.	Description	By.	Chk.	App.	Date
6		SCH	SCH		
5		SCH	SCH		
4		SCH	SCH		
3		SCH	SCH		
2		SCH	SCH		
1	FOR APPROVAL	SCH	SCH	SCH	16/10/2019



Client  
**MR & MRS LONNEN**

Project  
**36 ALLAWAH AVE, ELANORA HEIGHTS**

Title  
**RWT/OSD  
DETAILED  
SECTIONS**



Date  
**16.10.2019**

Scale  
**1:100@A1  
1:200@A3**

Design  
**S.C.H**

Drawn  
**S.C.H**

Checked  
**S.C.H**

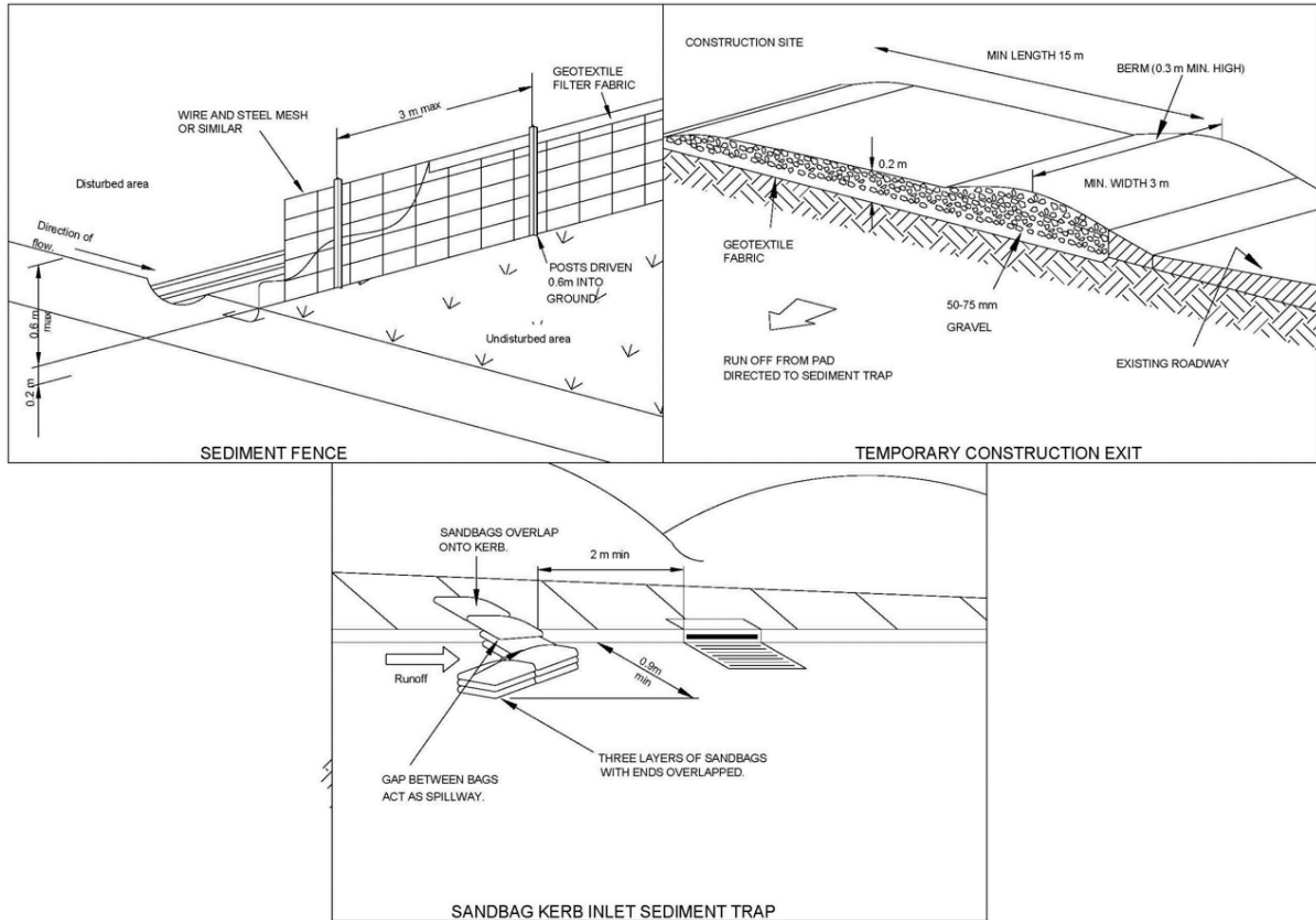
Project Number  
**CSW034**

Approved  
**S.C.H**

SAMIR C HAKIM  
B.E., M.E.(civil/construction), ADV. DIPLOMA  
(civil design), M.J.E. Aust, Peng

Drawing Number  
**03**

Revision  
**1**



#### GENERAL NOTES

- All dimensions are to be confirmed on site by the builder/subcontractor, any incongruencies must be reported to the Designer before commencement of any work.
- No Survey has been made on the boundaries, all bearings, distances and areas have been taken from the contour survey plan. A Survey must be carried out to confirm the exact boundary locations.
- No construction work shall commence until a site survey confirming the site boundaries has been completed. The contractor is to ensure that the boundary setbacks are confirmed and used, the boundary setbacks take precedence over all other dimensions. The Survey work must be performed by a registered Surveyor.
- In the event of encountering any discrepancies on these drawings, specification or subsequent instructions issued, the Builder/Subcontractor shall contact the designer before proceeding further with any work.
- All construction, control joints and expansion joints in the wall, floors, other locations shall be in strict accordance with the Structural Engineering details. No joints or breaks other than specified, are allowed without written permission from the Engineer.
- Measurements for the fabrication of secondary components such as, windows, doors, internal frames, structural steel components and the like, are not to be taken from these documents. Measurements must be taken on site to suit the work as constructed.
- All structural components shall be in strict accordance to details and specifications as prepared by a structural engineer.
- All existing structures need to be examined for structural adequacy, and it is the Contractor's responsibility to ensure that a certificate of structural adequacy is available prior to the start of any work.

drawn	date	issue	amendment
RK	20/08/19	A	ISSUE FOR DA

project  
**PROPOSED CONSTRUCTION OF A GRANNY FLAT AT 36 ALLAWAH AVENUE ELANORA HEIGHTS NSW 2101 LOT 214 DP 13643**

client  
**ALEX LONNEN**

true north

drawing

**EROSION AND SEDIMENT CONTROL**

PLAN	date	sheet no.	scale @ A3	issue	drawn
19-68	20/08/19	1 of 1	A	RK	



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DESIGNS