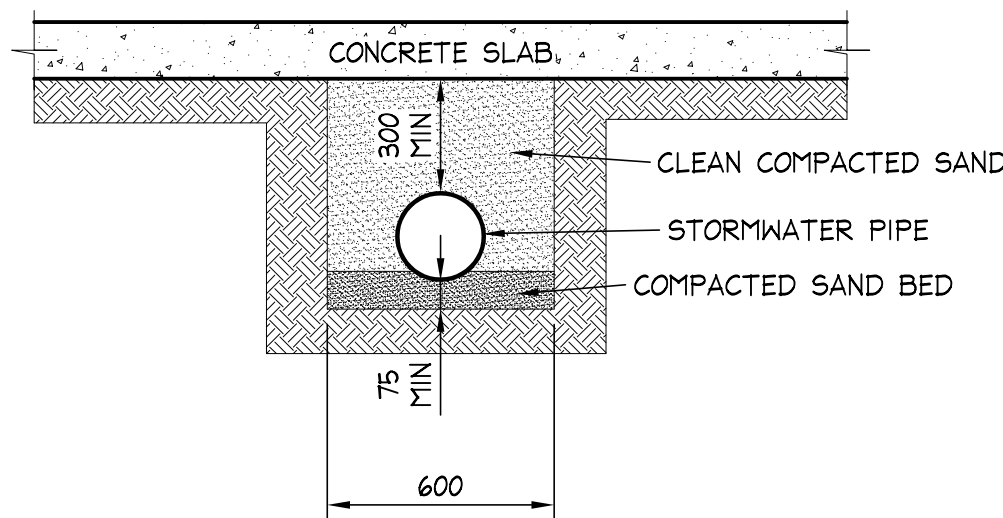
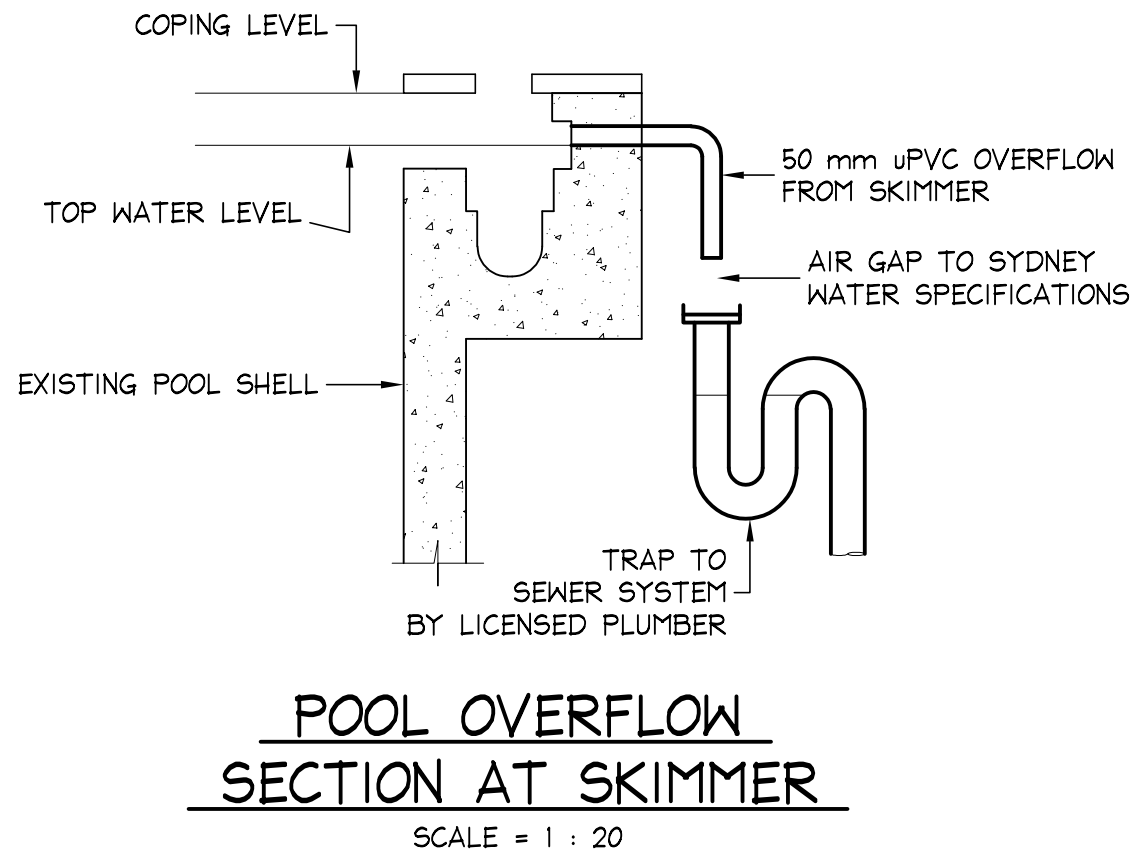


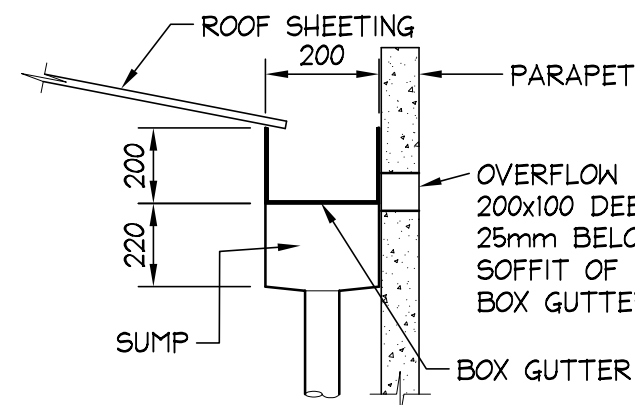
STORMWATER NOTES:

- 1 - ALL PIPES TO BE 100mm ϕ SEWER GRADE uPVC UNLESS NOTED OTHERWISE.
- 2 - ALL PIPES TO BE uPVC TO AS 1254-2002 UNLESS NOTED OTHERWISE.
- 3 - ALL PIPES TO BE LAID AT 1 % MINIMUM GRADE UNLESS NOTED OTHERWISE.
- 4 - ALL PIPES SHALL BE LAID ON A 75mm SAND BED, COMPACTED TO 100% S.M.D.D. BELOW PAVEMENTS.
(NO COMPACTION REQUIRED BELOW LANDSCAPING)
COVER TO SURFACE FROM TOP OF PIPE TO BE AS PER AS3500.
BACKFILL TO BE ADEQUATELY CONSOLIDATED AROUND PIPES BY METHOD OF RAMMING AND WATERING IN. TRENCHES TO BE FILLED WITH GRANULAR MATERIAL AS SPECIFIED.
- 5 - DOWN PIPE LOCATIONS ARE INDICATIVE ONLY. LOCATIONS TO BE CONFIRMED WITH ARCHITECT PRIOR TO COMMENCEMENT WITH WORK.
- 6 - PROVIDE CLEANING EYES AT ALL DOWNPIPES.
- 7 - ALL PITS TO BE PRECAST, PREFORMED OR HDPE, IN ACCORDANCE WITH LOCAL COUNCIL SPECIFICATIONS.
- 8 - ALL PITS GREATER THAN 1000mm DEEP SHALL HAVE STEP IRONS AS PER COUNCIL STANDARDS.
- 9 - ALL WORK TO BE IN ACCORDANCE WITH LOCAL COUNCIL STANDARDS AND SPECIFICATIONS.
- 10 - PRIOR TO COMMENCING ANY SITE WORKS THE CONTRACTOR SHALL IMPLEMENT EROSION CONTROL MEASURES TO EPA GUIDELINES AND COUNCIL SPECIFICATIONS. ALL MEASURES TO REMAIN IN PLACE UNTIL COMPLETION AND STABILIZATION OF THE SITE TO COUNCIL SATISFACTION.
- 11 - ALL LEVELS SHOWN ARE TO AHD
- 12 - ENSURE THAT ALL PITS AND STORMWATER PIPES ARE LOCATED CLEAR FROM TREE ROOT SYSTEMS.
- 13 - ALL EXISTING EARTHENWARE PIPES TO BE UPGRADED TO uPVC.
- 14 - ALL WORKS TO BE IN ACCORDANCE WITH AS 3500-2015 NATIONAL PLUMBING DRAINAGE CODE PART 3 - STORMWATER DRAINAGE. AND ALL WORKS TO BE IN ACCORDANCE WITH AS 3500-2012 NATIONAL PLUMBING DRAINAGE CODE PART 5 - HOUSING INSTALLATIONS.




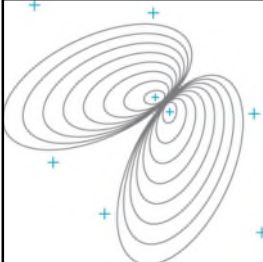
ONSITE DETENTION SYSTEM - SUMMARY NOTES NORTHERN BEACHES COUNCIL - REGION 3

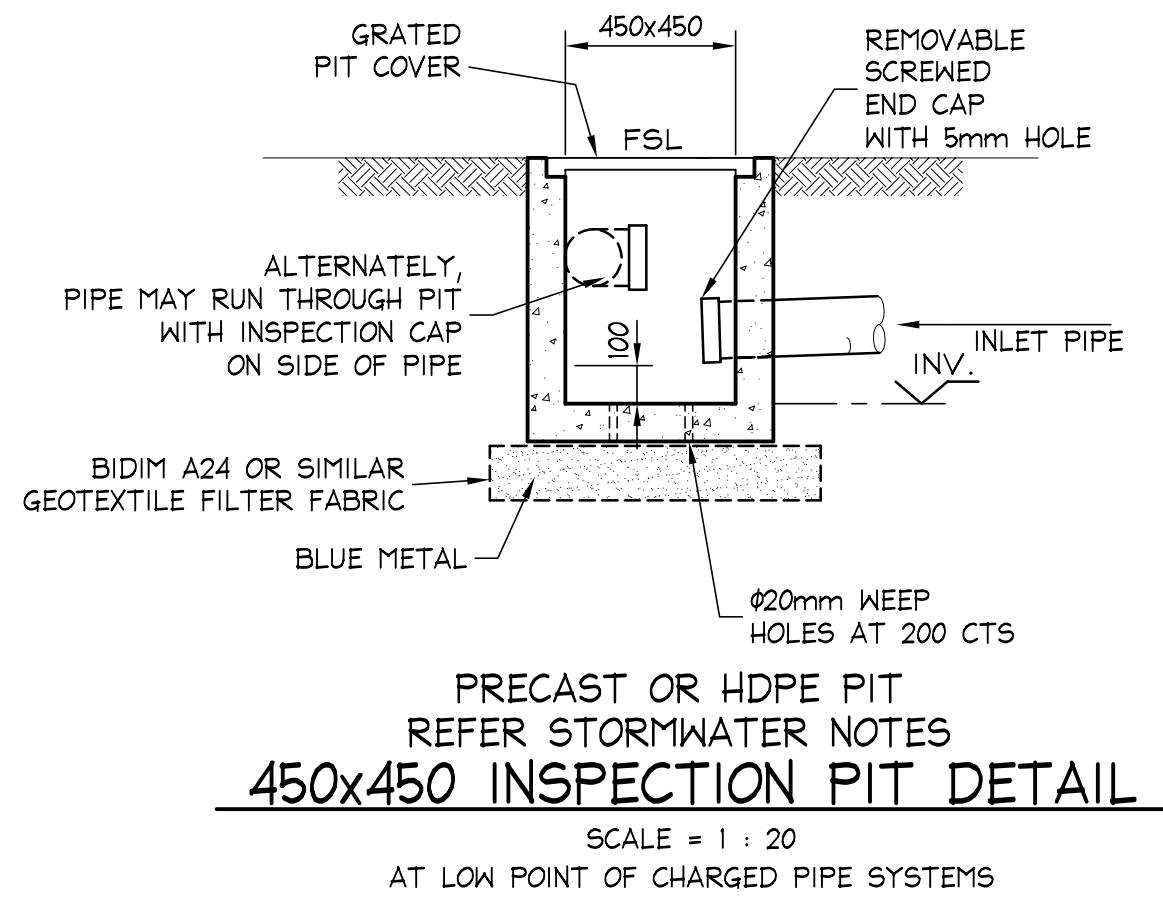
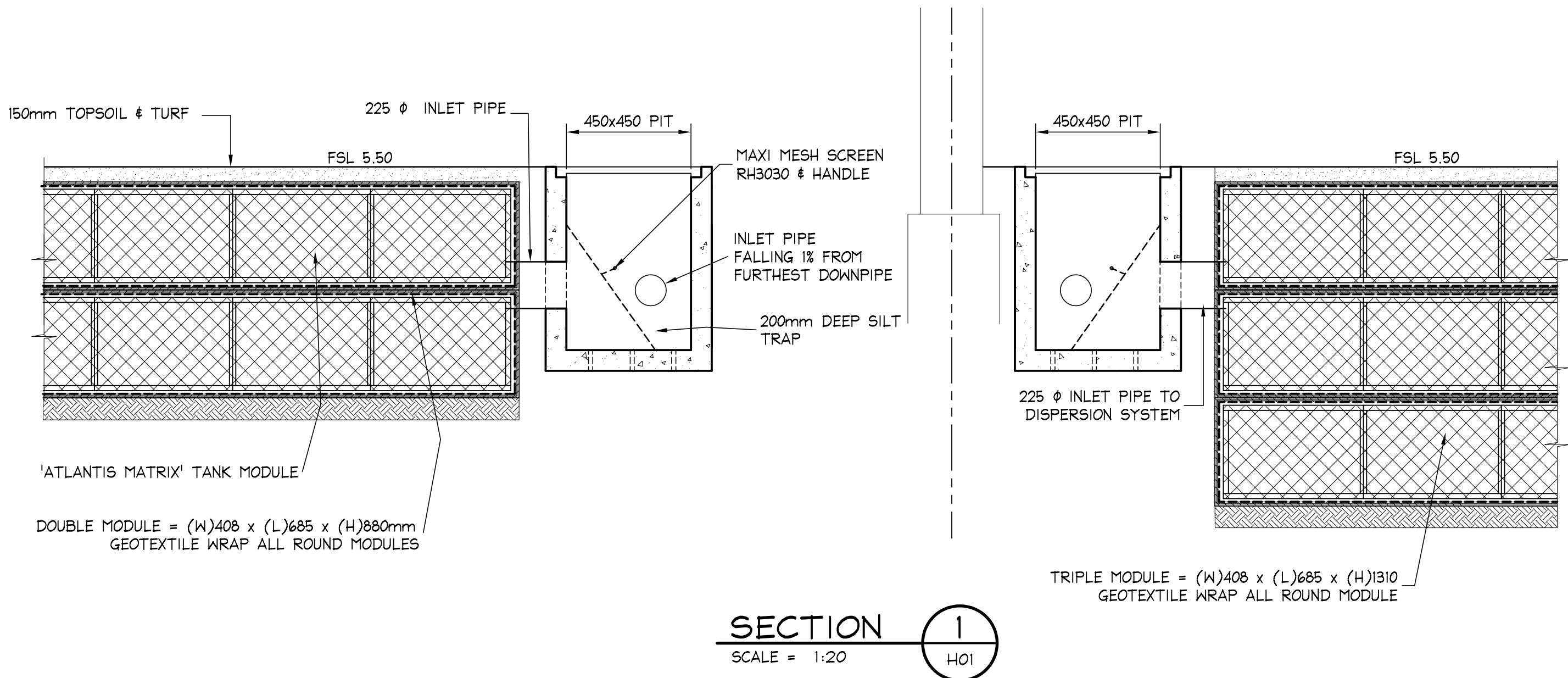
STORMWATER CONTROL ZONE	ZONE 1
RESIDENTIAL DENSITY SUB-ZONE	ZONE 3
TOTAL SITE AREA	717.7 m ²
PRE DEVELOPMENT IMPERVIOUS AREA	583.7 m ²
POST DEVELOPMENT IMPERVIOUS AREA	454.7 m ²
INCREASE (DECREASE) IN IMPERVIOUS AREA	[129] m ²
UNDER NORTHERN BEACHES COUNCIL REGION 3 CONDITIONS- "WATER MANAGEMENT FOR DEVELOPMENT POLICY" 26/02/2021	
THIS SITE IS IN STORMWATER CONTROL ZONE 1, BUT PERFORMS SIMILARLY TO SITES IN STORMWATER CONTROL ZONE 2. THEREFORE WE HAVE DESIGNED THE WORKS AS PER STORMWATER CONTROL ZONE 2. WE HAVE OBTAINED A GEOTECHNICAL INFILTRATION TEST BY WHITE GEOTECHNICAL GROUP TO CONFIRM THE ABSORPTION RATE.	
THE ABSORPTION AREA IS IN REAR YARD, CONSISTING OF ATLANTIS CELLS WITH A DESIGN INFILTRATION RATE OF 0.17 LITRES PER SQUARE METRES PER SECOND. ABSORPTION AREA IS HOLDING A TOTAL OF 30.4 CUBIC METRES. ALL IMPERVIOUS SURFACE AREAS WILL BE ABSORBED BY ADJACENT PERVIOUS AREAS. OVERFLOW FROM ABSORPTION AREA WILL RUN TO STREET. CALCULATIONS CARRIED OUT WITH DRAINS PROGRAM.	



Gutter Calculations -20 & 100 yr ARI Storm								
Northern Beaches [Manly] Council								
Alterations & Additions to Residence at								
35 Pine Street Manly								
to AS 3500 - 2015 & AS 3500.5 2012 & BCA 2016								
	Horizontal	Slope	Area A _c	Gutter	¹⁰⁰ I _s	From	Downpipe	Flow in
Eaves	Area A _n	Factor		Slope	&	Figure 3.5a	From	Box Gutters
Gutters		From		steeper	²⁰ I _s	gutter	Table 5.6.4.7.1	in
& Box		Fig 5.6.3.2		than	from	area reqd	size reqd	¹⁰⁰ I _s
Gutters					Appendix A1			
	m ²		m ²	1 in	mm/hr	mm ²	mm	L/sec
DP1	12	1.01	12.1	500	207	3000	100x50 or 90 dia	
DP2	17.5	1.14	20.0	500	207	4500	100x50 or 90 dia	
DP3	17.5	1.14	20.0	500	207	4500	100x50 or 90 dia	
RWH/DP4	5.7	NA	NA	200	266	NA	100x50 or 90 dia	0.4
DP5	26.2	1.14	29.9	500	207	6300	100x50 or 90 dia	
EXDP6	26.2	1.42	37.2	500	207	7500	100x75 or 100dia	
DP7	26.2	1.42	37.2	500	207	7500	100x75 or 100dia	
EXDP8	26.2	1.42	37.2	500	207	7500	100x75 or 100dia	
DP9	22.6	1.42	32.1	500	207	6500	100x75 or 100dia	
DP10	22.6	1.42	32.1	500	207	6500	100x75 or 100dia	
DP11	5.2	1.42	7.4	500	207	3000	100x50 or 90 dia	
EXDP12	26.2	1.42	37.2	500	207	7500	100x75 or 100dia	
DP13	26.2	1.42	37.2	500	207	7500	100x75 or 100dia	
EXDP14	26.2	1.42	37.2	500	207	7500	100x75 or 100dia	
DP15	26.2	1.42	37.2	500	207	7500	100x75 or 100dia	
RWH/DP16	5.7	NA	NA	200	266	NA	100x50 or 90 dia	0.4
RWH/DP17	17.5	1.14	20.0	500	207	4500	100x50 or 90 dia	
DP18	17.5	1.14	20.0	500	207	4500	100x50 or 90 dia	
DP19	12	1.01	12.1	500	207	3000	100x50 or 90 dia	
total	365.4							
Replace all existing Gutters with new Eaves Gutters								
to be - 150mm Lysaght Half Round -Area							9440	mm ²
Box Gutters to Detail								
Replace Existing Downpipes with new to size as shown in table above								
Run all Downpipes to new Absorption Area								

GUTTER CALCULATIONS

NOTES: 1. ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WITH WORK. 2. FOR GENERAL NOTES AND DRAWING SCHEDULE REFER TO DRAWING NUMBER: S01.		DOCUMENT CERTIFICATION		Peninsula Consulting Engineers		The copyright of this drawing remains with Peninsula Consulting Engineers.		Drawing Title:		
		Date : MARCH 2022		PO Box 6491, Frenchs Forest, NSW, 2086 Ph: 0424 253 818 Fax: (02) 9982 4722 E: bruce@peninsulaconsulting.com.au A.B.N. 60 493 390 399		Project:		CONCEPT STORMWATER MANAGEMENT PLAN & DETAILS		
		Bruce Lewis				PROPOSED WORKS at: 35 PINE STREET, MANLY for: MR & MRS DUNNACHIE				
		BE(Civil), CPEng, MIEAust., NPER Institute of Engineers Membership No. 879131		16-03-2022 A FOR COUNCIL SUBMISSION 8-03-2022 PI DRAFT		Date: Rev: Amendment:		Job No: 22-0203 Drawing No: H01 Rev: A		



Northern Beaches [Manly] Council								
Stormwater Assumptions								
Alterations & Additions to Residence at								
35 Pine Street Manly								
DRAINS Results 1% AEP								
SUB-CATCHMENT DETAILS								
Name	Max Flow Q	Paved Max Q	Grassed Max Q	Paved Tc	Grassed Tc	Supp. Tc	Due to Storm	
	(cu.m/s)	(cu.m/s)	(cu.m/s)	(min)	(min)	(min)		
Cat1	0.023	0.015	0.008	5	5	5	AR&R 100 year, 1.5 hours storm, average 74 mm/h, Zone 1	
Cat2	0.023	0.015	0.008	5	5	5	AR&R 100 year, 1.5 hours storm, average 74 mm/h, Zone 1	
OVERFLOW ROUTE DETAILS								
Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OF1	0.006	0.006	0	0.019	0.01	1.92	0.3	AR&R 100 year, 1.5 hours storm, average 74 mm/h, Zone 1
OF2	0.007	0.007	0	0.022	0.01	4	0.23	AR&R 100 year, 1.5 hours storm, average 74 mm/h, Zone 1
DETENTION BASIN DETAILS								
Name	Max WL	MaxVol	Max Q Total	Max Q Low Level	Max Q High Level			
Basin1	5.32	14.3	0.006	0	0.006			
Basin2	5.36	13.5	0.007	0	0.007			
CONTINUITY CHECK for AR&R 100 year, 1.5 hours storm, average 74 mm/h, Zone 1								
Node	Inflow (cu.m)	Outflow (cu.m)	Storage Change (cu.m)	Difference %				
Basin1	32.88	32.34	0.54	0				
N1	0.97	0.97	0	0				
Basin2	32.88	32.86	0	0.1				
N2	1.29	1.29	0	0				

DRAINS RESULTS

Northern Beaches [Manly] Council									
Stormwater Assumptions									
Alterations & Additions to Residence at									
35 Pine Street Manly									
DRAINS Data									
PIT / NODE DETAILS			Version 13						
Name	Type	Surface Elev (m)							
N1	Node	5							
N2	Node	5							
DETENTION BASIN DETAILS									
Name	Elev	Surf. Area	Outlet Type						
Basin1	4.04	11.18	None						
	5.35	11.18							
Basin2	4.47	15.1	None						
	5.35	15.1							
SUB-CATCHMENT DETAILS									
Name	Pit or Node	Total Area	Paved Area	Grass Area	Supp Area	Paved Time	Grass Time	Supp Time	
		(ha)	%	%	%	(min)	(min)	(min)	
Cat1	Basin1	0.0328	63	37	0	5	5	5	
Cat2	Basin2	0.0328	63	37	0	5	5	5	
OVERFLOW ROUTE DETAILS									
Name	From	To	Travel Time	Spill Level	Crest Length	Weir Coeff. C			
			(min)	(m)	(m)				
OF1	Basin1	N1	0.1	5.35	2	2			
OF2	Basin2	N2	0.1	5.35	2	2			

DRAINS DATA

Northern Beaches [Manly] Council				
Stormwater Assumptions				
Alterations & Additions to Residence at				
35 Pine Street Manly				
Area Calculation - Existing	m ²		Area Calculation -Proposed	m ²
Block	717.7		New Main Roofs	365.4
Main Roofs	376.7		Balconies	6.5
Rear Paving	14.1		Timber Deck 50% Impervious	8.4
Clothes Line	10.8			
Paving	73.1			
Front Paving & Side Paving	81.1		Paths	22
Metal Building	27.9		Pool Surround	52.4
All Impervious	583.7		All Impervious	454.7
Pervious	134.0		Pervious	263.0
Percent Impervious Existing	81.3		Percent Impervious Proposed	63.4
Under Northern Beaches [Manly] Council Conditions, "Water Management for Development Policy 26/2/2021"				
This property is in Density Sub Zone 3			Stormwater Zone 1	
Increase [actual decrease] in Impervious Area [m ²]		129.0		
Block falls to SE from RL 5.76 to 5.18 over		46.5	m	
Therefore slope is		1%		
4.4 Permissible Site Discharge - Peak 5 Year Predevelopment				
Existing Site Impervious Area				
Impervious Percentage	81.3	%		
From Design Graph at Appendix 14- PSD		14.0	L/sec	
Therefore OSD is required, as greater than 60% impervious				
Permitted Site Discharge -				
Refer Appendix 3 - On Site Absorption Design Guidelines				
Areas not flowing to OSD Absorption Area - to street				
Driveway	22.2	m ²		
Front Paths	17	m ²		
Front Landscaping	23.2	m ²		
Total	62.4	m ²		
Net Area to OSD Adsorption Area - each unit	328	m ²		
Percent Impervious	63%			
All Downpipes will be directed to Absorption Area and the result determined in the DRAINS program				
Overflow in 2% AEP Storm	0	L/sec		
Overflow in 1% AEP Storm	13	L/sec		
equal to PSD - Satisfactory				

ON SITE DETENTION ASSUMPTIONS

AI

NOTES:

1. ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WITH WORK.

2. FOR GENERAL NOTES AND DRAWING SCHEDULE REFER TO DRAWING NUMBER: S01.

CHARTERED MEMBER

DOCUMENT CERTIFICATION

Date : MARCH 2022

Bruce Lewis

(Principal : Peninsula Consulting Engineers)

BE(Civil), CPEng, MIEAust., NPER

Institute of Engineers Membership No. 879131

16-03-2022

A

FOR COUNCIL SUBMISSION

8-03-2022

PI

DRAFT

Date:

Rev:

Amendment:

Peninsula Consulting Engineers

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A.B.N. 60 493 390 399

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Project:

PROPOSED WORKS

at: 35 PINE STREET,

MANLY

for: MR & MRS DUNNACHIE

Drawing Title:

CONCEPT STORMWATER CALCULATIONS & DETAILS

Job No:

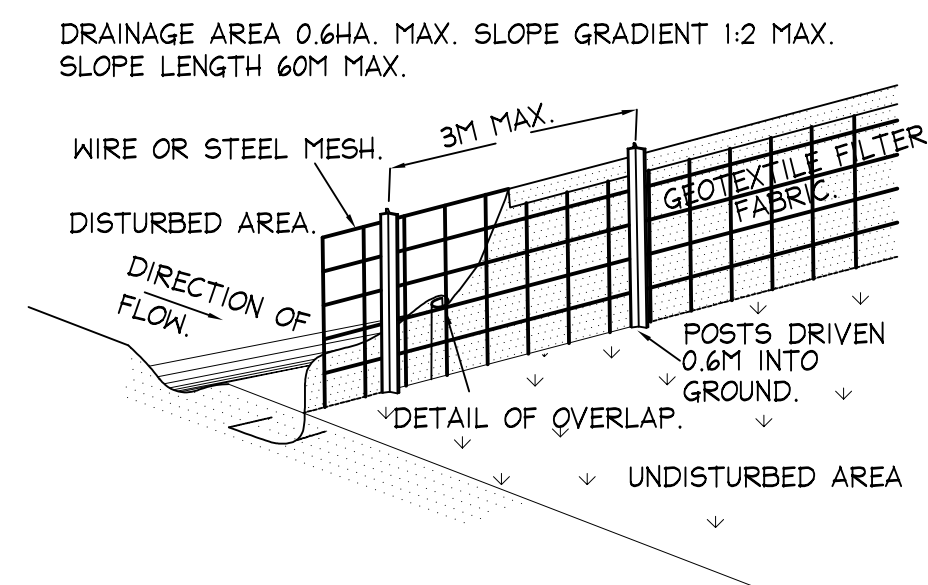
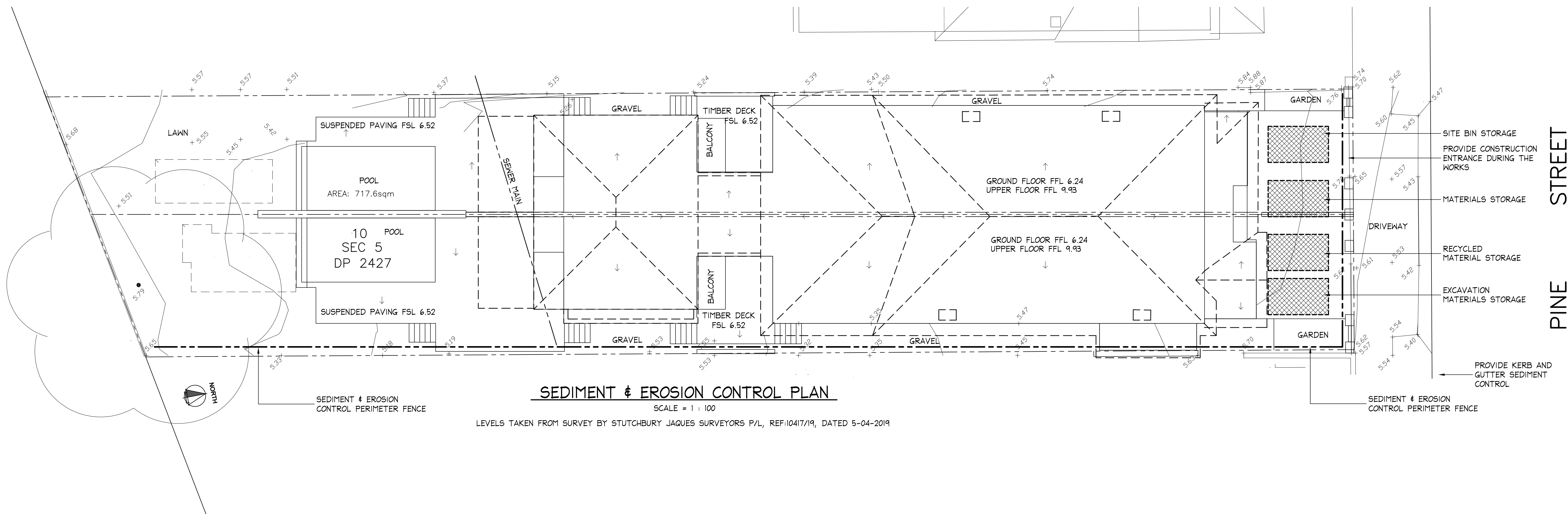
22-0203

Drawing No:

H02

Rev:

A



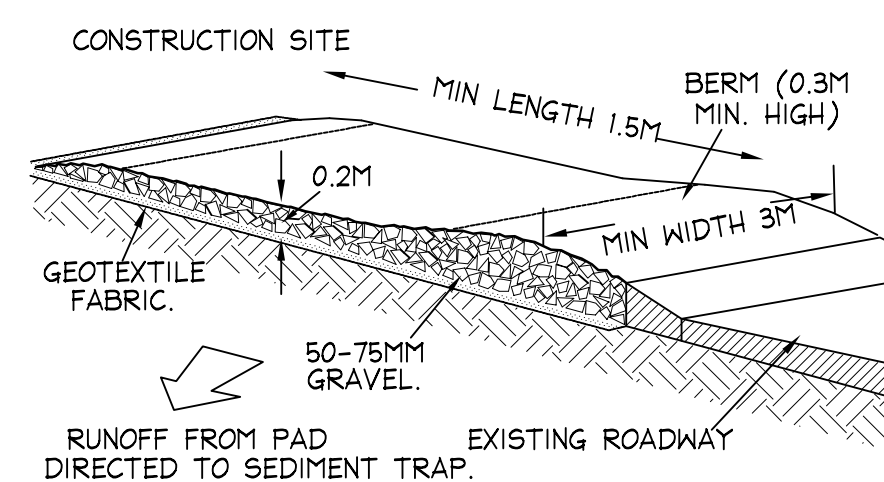
SEDIMENT FENCE

CONSTRUCTION NOTES:

- CONSTRUCT SEDIMENT FENCE AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE.
- DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND, 3 METRES APART.
- DIG A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
- BACKFILL TRENCH OVER BASE OF FABRIC.
- FIX SELF-SUPPORTING GEOTEXTILE TO UPSLOPE SIDE OF POSTS WITH WIRE TIES or AS RECOMMENDED BY GEOTEXTILE MANUFACTURER.
- JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.

SEDIMENT CONTROL:

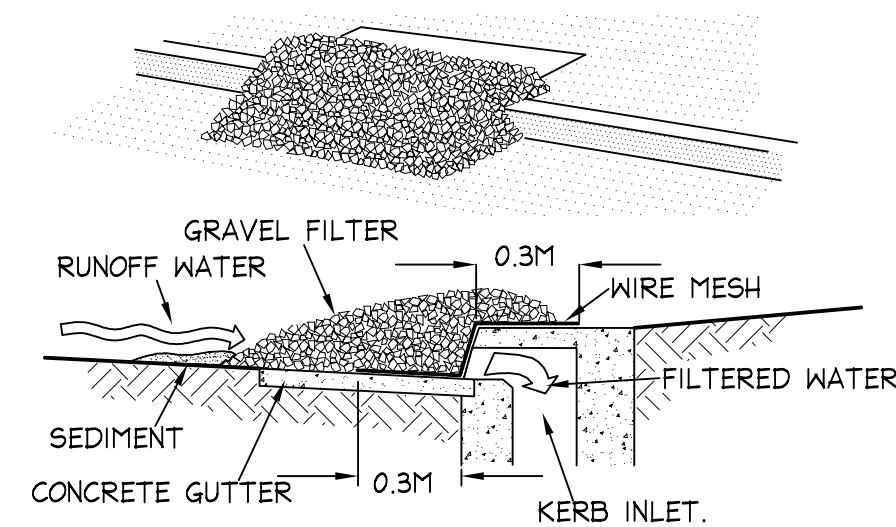
- INSTALL SEDIMENT CONTROL STRUCTURES IN LOCATIONS INDICATED ON DRAWINGS AND AS OTHERWISE REQUIRED TO CONTROL SEDIMENT DURING ALL EXCAVATIONS AND WHILST AREAS OF THE SITE ARE EXPOSED TO EROSION.
- CONTROL STRUCTURES TO BE AS DETAILED OR AS OTHERWISE REQUIRED BY CERTIFYING AUTHORITY.
- REVIEW CONTROL MEASURES AND MAINTAIN STRUCTURES DURING CONSTRUCTION.
- IF ADDITIONAL MEASURES ARE REQUIRED FOR EROSION CONTROL OR BY COUNCIL REQUIREMENTS REFER TO "URBAN EROSION AND SEDIMENT CONTROL" GUIDELINES PREPARED BY THE DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT.



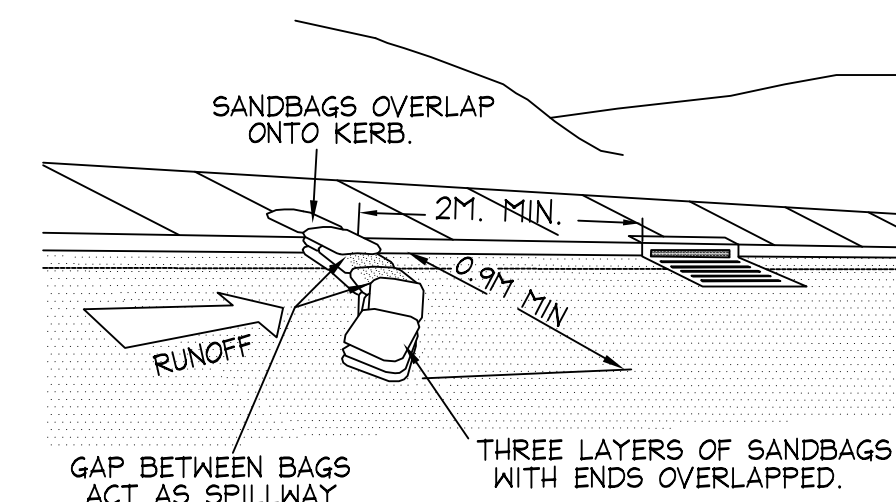
TYPICAL TEMPORARY CONSTRUCTION ENTRY/EXIT DETAIL

CONSTRUCTION NOTES:

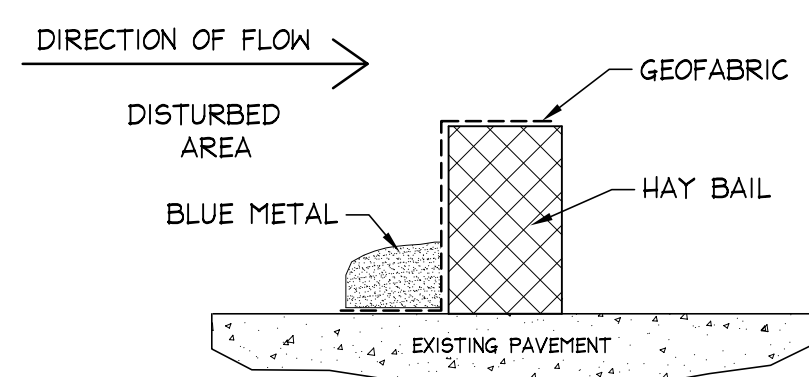
- STRIP TOPSOIL AND LEVEL SITE.
- COMPACT SUBGRADE.
- COVER AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
- CONSTRUCT 200mm THICK PAD OVER GEOTEXTILE USING ROADBASE or 30mm AGGREGATE. MINIMUM LENGTH 15 METRES OR TO BUILDING ALIGNMENT. MINIMUM WIDTH 3 METRES.
- CONSTRUCT HUMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT FENCE or OTHER SEDIMENT TRAP.



GRAVEL KERB INLET SEDIMENT TRAP

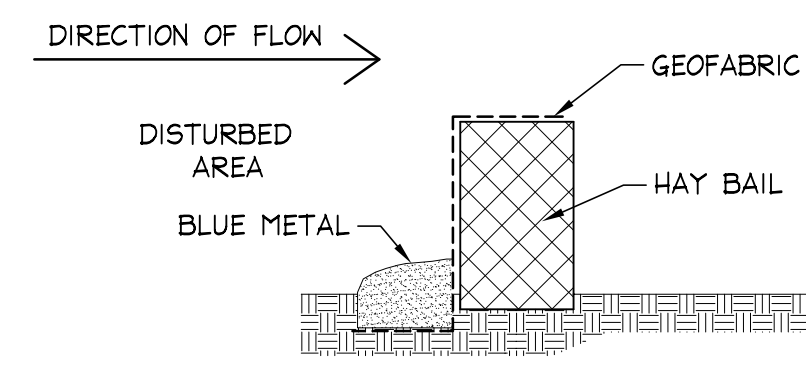


SANDBAG KERB INLET SEDIMENT TRAP



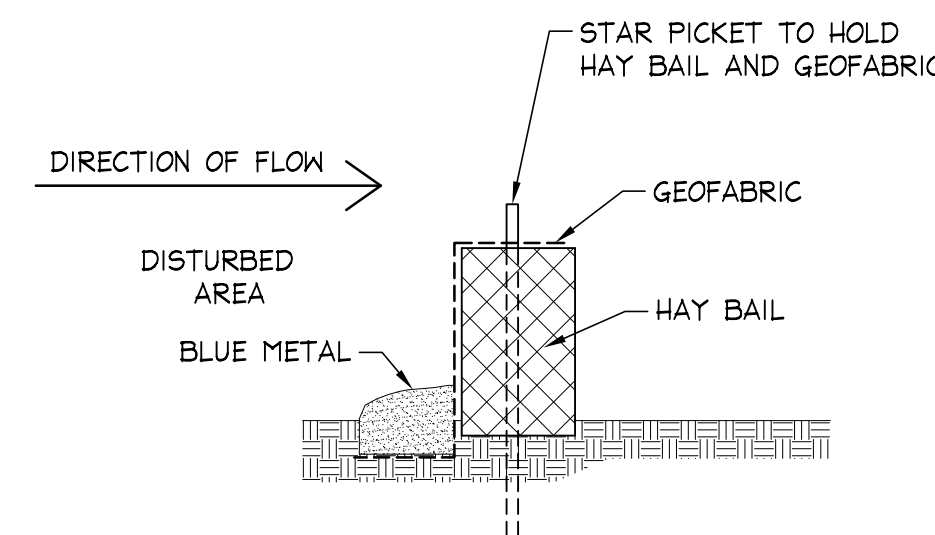
REMOVABLE HAY BAIL DETAIL

SCALE = N.T.S.



REMOVABLE HAY BAIL DETAIL

SCALE = N.T.S.



SILT FENCE DETAIL - OPTION 2

SCALE = N.T.S.

NOTES:

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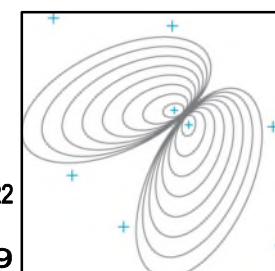
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Project:
PROPOSED WORKS
at: 35 PINE STREET,
MANLY
for: MR & MRS DUNNACHIE

Drawing Title:

SEDIMENT & EROSION CONTROL PLAN & DETAILS

Job No:
22-0203

Drawing No:
H03

Rev:
A