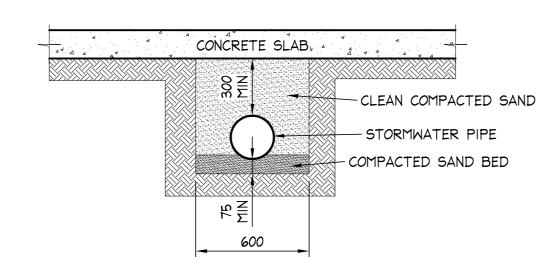


STORMWATER NOTES:

- 1 ALL PIPES TO BE 100mm & 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.

EXCAVATE 300 INTO ROCK. PROVIDE A GEOTEXTILE WRAPPED AGG LINE WITH SURFACE FALLS TO PIT LEVEL 300

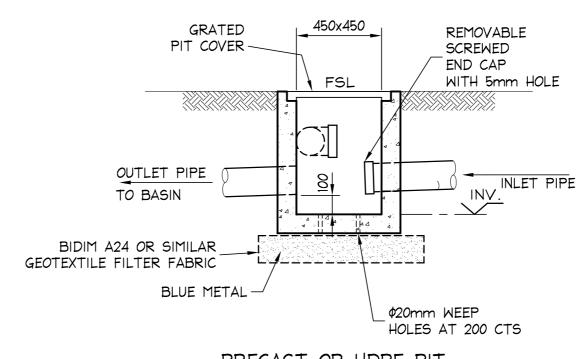
SUBSURFACE WATER DIVERSION TRENCH SECTION SCALE = 1 : 20



TYPICAL TRENCHING DETAIL SCALE = 1 : 20

NORTHERN BEACHES [WARRINGAH] COUNCIL

COUNCIL'S "STORMWATER DRAINAGE FROM LOW LEVEL PROPERTIES TECHNICAL SPECIFICATION" USED 792.7 m^2 TOTAL SITE AREA DESIGN METHOD USED COUNCIL SPEC 792.7 m^2 POST DEVELOPMENT IMPERVIOUS AREA WITH DISCHARGE TO EASEMENT USING COUNCIL'S "STORMWATER DRAINAGE FROM LOW LEVEL PROPERTIES TECHNICAL SPECIFICATION" - STEP 1 - CONNECTION INTO AN INTER-ALLOTMENT STORMWATER PIPELINE IS



PRECAST OR HDPE PIT REFER STORMWATER NOTES 450x450 INSPECTION PIT DETAIL SCALE = 1 : 20

Horizontal slope Gutter Figure From in Area A_h factor Area A_c Slope from 5.6.4.1.a Table 5.6.4.7.1 Box DRAINS From gutter size read Gutters Fig 5.6.3.2 than area regd mm L/sec m^2 mm^2 mm/hr 1 in 29.4 500 201 6000 90 dia or 100x50 1.15

EXDP1 25.6 18.7 500 201 4600 90 dia or 100x50 EXDP2 1.15 21.5 22.2 1.05 23.3 500 201 5000 90 dia or 100x50 DP3 EXDP4 20.8 1.15 23.9 500 201 5200 90 dia or 100x50 500 DP5 1.15 23.9 201 5200 90 dia or 100x50 20.8 DP6 500 20.8 1.15 23.9 201 5200 90 dia or 100x50 DP7 23.9 500 201 5200 90 dia or 100x50 20.8 1.15 DP8 25.6 1.15 29.4 500 201 6000 90 dia or 100x50 RWH/DP9 13.3 NA NA 200 267 NA 90 dia or 100x50 1.0 500 201 DP10 22.6 26.0 5600 90 dia or 100x50 1.15 DP11 22.6 1.15 26.0 500 201 5600 90 dia or 100x50 total 233.8

Box Gutter to Detail - graded 1 in 200 All New Eaves Gutters to be graded at 1 in 500 to Downpipes All Downpipes to be connected to new underground system New Eaves Gutters 115mm Quad - Area $6000 \, \text{mm}^2$ Additional Downpipes on existing Residence DP5, 6, 7,& 8 Required to comply with current standards

GUTTER CALCULATIONS

NOTES:

- ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WITH WORK
- 2. FOR GENERAL NOTES AND DRAWING SCHEDULE REFER TO DRAWING NUMBER: SOI.

DOCUMENT CERTIFICATION

Date: OCT '20

Bruce Lewis	
(Principal : Peninsula Consu	ulting Engineers)
BE(Civil), CPEng, MIEAust., N	NPER.
Institute of Engineers Mem	bership No. 879131

	1				
	4-11-2020	В	MODIFY ROOF OUTLINE	Engineers	/
	7-10-2020	А	FOR COUNCIL SUBMISSION	PO Box 6491, Frenchs Forest, NSW, 2086	/
⊷	2-10-2020	P2	DRAFT	Ph: 0424 253 818 Fax: (02) 9982 4722	
31	Date:	Rev:	Amendment:	E:bruce@peninsulaconsulting.com.au A.B.N. 60 493 390 399	_

SUITABLE.

Peninsula Consulting Engineers PO Box 6491, Ph: 0424 253 818 Fax: (02) 9982 4722 E : bruce@peninsulaconsulting.com.au

PROPOSED WORKS at: 28 DAREEN STREET, BEACON HILL for: MR & MRS HOLST

Eaves

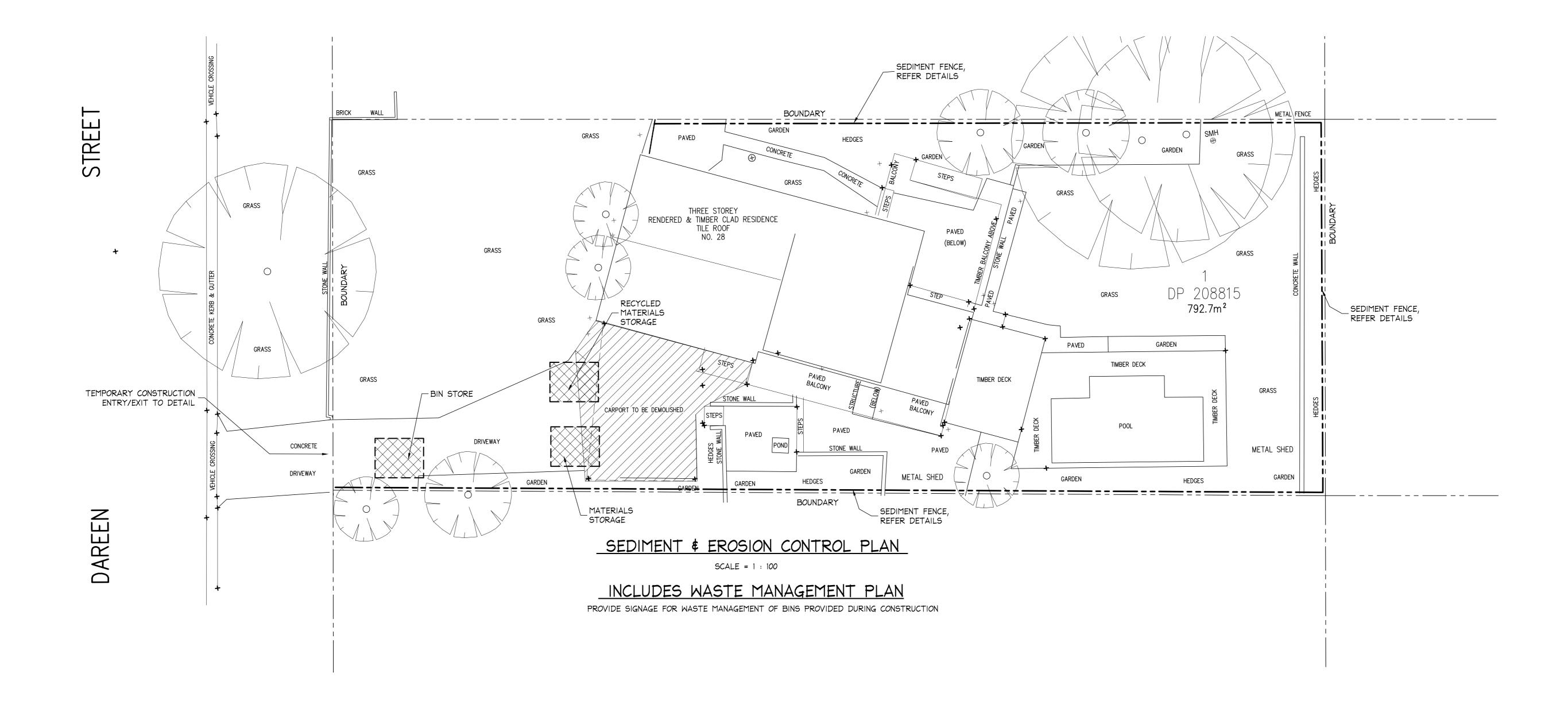
& Box

Gutters

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CONCEPT STORMWATER MANAGEMENT PLAN & DETAILS Drawing No: Rev:

20-0616



SEDIMENT FENCE

CONSTRUCTION NOTES:

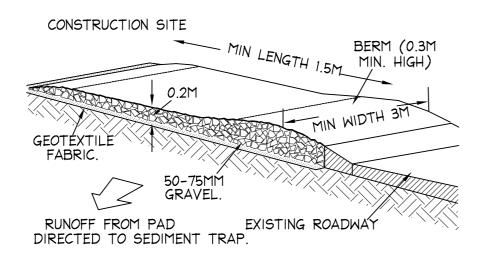
CONSTRUCT SEDIMENT FENCE AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE.

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:

- 1. 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.
- 2. CONTROL STRUCTURES TO BE AS DETAILED OR AS OTHERWISE REQUIRED BY CERTIFYING AUTHORITY.
- 3. REVIEW CONTROL MEASURES AND MAINTAIN STRUCTURES DURING CONSTRUCTION.
- 4. 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.



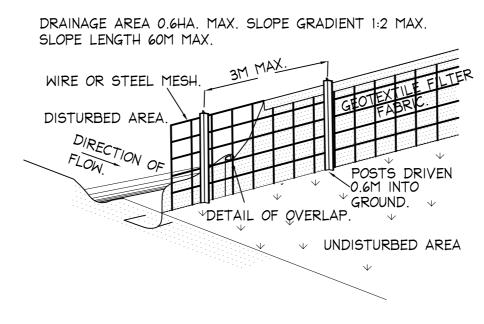
TYPICAL TEMPORARY CONSTRUCTION

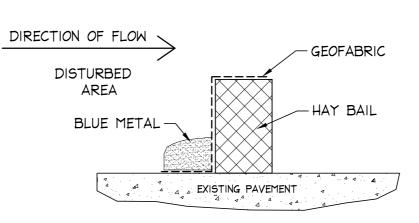
ENTRY/EXIT DETAIL

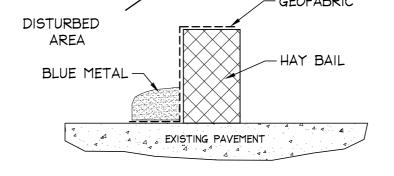
ALIGNMENT. MINIMUM WIDTH 3 METRES.

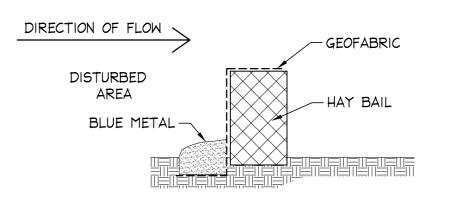
CONSTRUCTION NOTES:

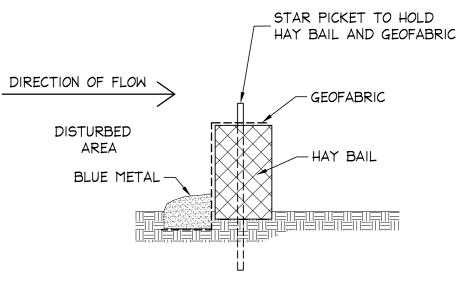
- 1. STRIP TOPSOIL AND LEVEL SITE.
- 2. COMPACT SUBGRADE.
- 3. COVER AREA WITH NEEDLE-PUNCHED GEOTEXTILE. 4. CONSTRUCT 200mm THICK PAD OVER GEOTEXTILE USING ROADBASE or 30mm AGGREGATE. MINIMUM LENGTH 15 METRES OR TO BUILDING
- 5. CONSTRUCT HUMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT FENCE or OTHER 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:

- COMMENCING WITH WORK 2. FOR GENERAL NOTES AND DRAWING SCHEDULE REFER TO DRAWING NUMBER: SOI.

1. ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE

DOCUMENT CERTIFICATION

Date: OCT 120 Bruce Lewis

(Principal : Peninsula Consulting Engineers) BE(Civil), CPEng, MIEAust., NPER. Institute of Engineers Membership No. 879131

	Date:	Rev:	Amendment:
··· [2-10-2020	P2	DRAFT
	6-10-2020	A	FOR COUNCIL SUBMISSION

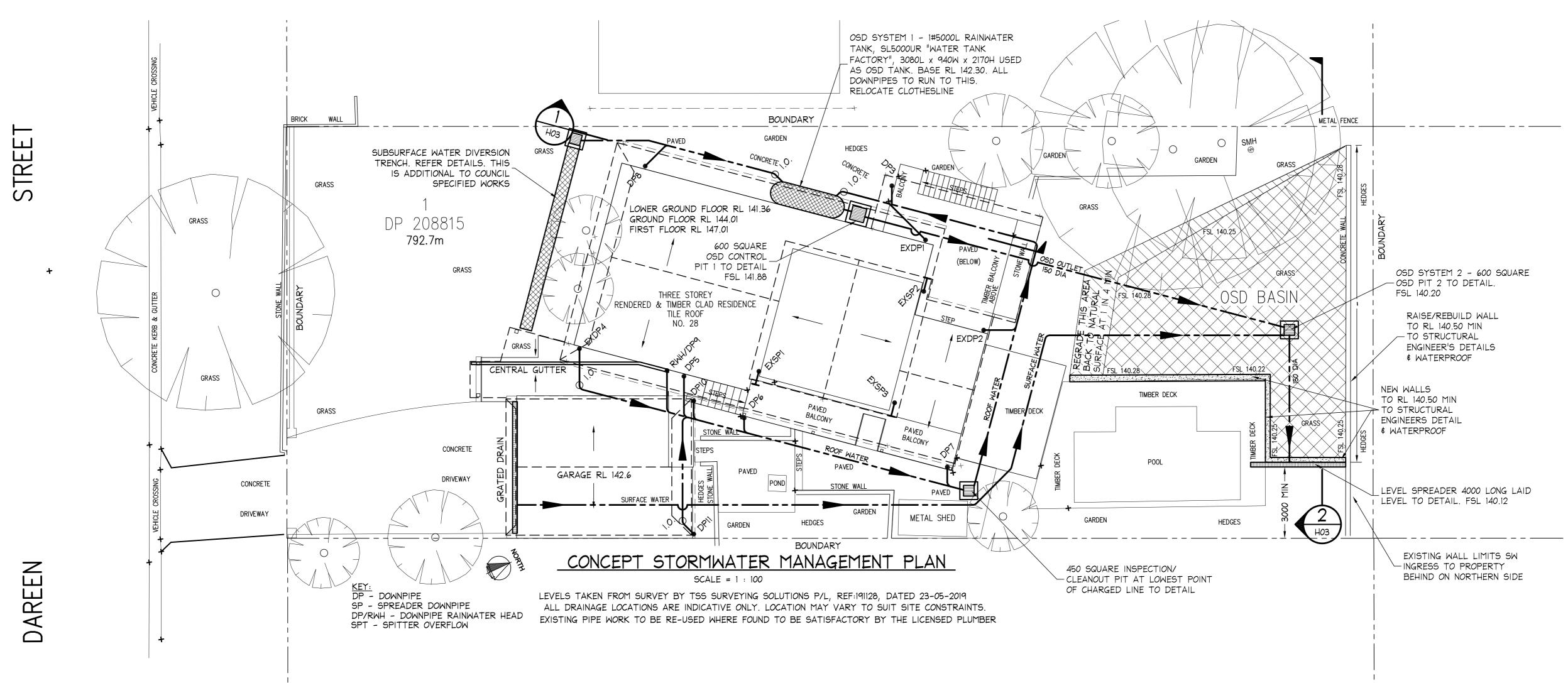
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SEDIMENT & EROSION & WASTE MANAGEMENT PLAN & DETAILS

20-0616

Drawing No:



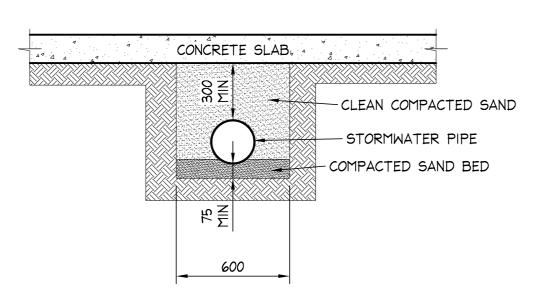
THIS ALTERNATIVE OSD PLAN IS TO BE USED IF CONNECTION TO THE EASEMENT IS NOT SUITABLE

STORMWATER NOTES:

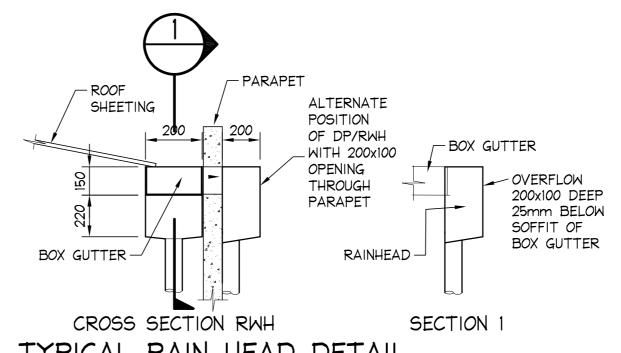
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ONSITE DETENTION SYSTEM SUMMARY NOTES -NORTHERN BEACHES [WARRINGAH] COUNCIL

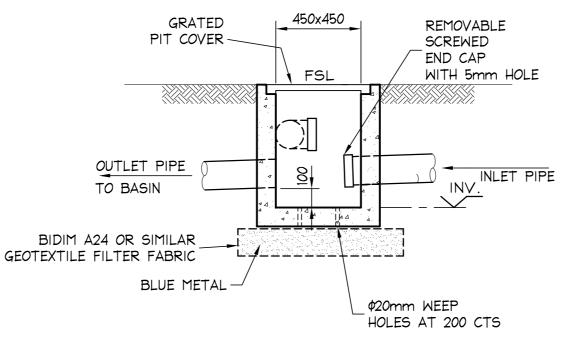
COUNCIL'S " STORMWATER DRAINAGE FROM LOW LEVEL PROPERTIES TECHNICAL SPECIFICATION" USED TOTAL SITE AREA DESIGN METHOD USED DRAINS POST DEVELOPMENT IMPERVIOUS AREA WITH DISCHARGE TO REAR 792.7 m² PRE DEVELOPMENT PERMISSIBLE SITE DISCHARGE TO REAR 20 l/s POST DEVELOPMENT PERCENTAGE IMPERVIOUS 49 % POST DEVELOPMENT SITE DISCHARGE TO REAR 17 l/s 19.5 m³ TOTAL VOLUME OF OSD REQUIRED ORIFICE DIAMETER - TANK 61 mm 120 mm ORIFICE DIAMETER - BASIN TANK & ABOVE GROUND BASIN USED TO MINIMISE OUTFLOW OFFSITE AS PSD IS 5 YEAR "STATE OF NATURE" THE POST DEVELOPMENT FLOWS IN ANY STORM UP TO 100YR ARI WILL NOT EXCEED THIS



TYPICAL TRENCHING DETAIL SCALE = 1 : 20



TYPICAL RAIN HEAD DETAIL SCALE = 1 : 20



PRECAST OR HDPE PIT REFER STORMWATER NOTES 450x450 INSPECTION PIT DETAIL SCALE = 1 : 20

Gutter Calculations - 20 & 100 yr ARI Storm	
Northern Beaches [Warringah] Council	
Alteration & Additions	
28 Dareen St Beacon Hill	

to AS 3500 -	2015 & AS 3	500.5 2012 8	& BCA2016	5				
					²⁰ I ₅	From	Downpipe	Flow
Eaves	Horizontal	slope		Gutter		Figure	From	in
& Box	Area A _h	factor	Area A _c	Slope	from	5.6.4.1.a	Table 5.6.4.7.1	Вох
Gutters		From		steeper	DRAINS	gutter	size reqd	Gutters
		Fig 5.6.3.2		than		area reqd	mm	L/sec
	m ²		m ²	1 in	mm/hr	mm ²		
EXDP1	25.6	1.15	29.4	500	201	6000	90 dia or 100x50	
EXDP2	18.7	1.15	21.5	500	201	4600	90 dia or 100x50	
DP3	22.2	1.05	23.3	500	201	5000	90 dia or 100x50	
EXDP4	20.8	1.15	23.9	500	201	5200	90 dia or 100x50	
DP5	20.8	1.15	23.9	500	201	5200	90 dia or 100x50	
DP6	20.8	1.15	23.9	500	201	5200	90 dia or 100x50	
DP7	20.8	1.15	23.9	500	201	5200	90 dia or 100x50	
DP8	25.6	1.15	29.4	500	201	6000	90 dia or 100x50	
RWH/DP9	13.3	NA	NA	200	267	NA	90 dia or 100x50	1.0
DP10	22.6	1.15	26.0	500	201	5600	90 dia or 100x50	
DP11	22.6	1.15	26.0	500	201	5600	90 dia or 100x50	
total	233.8							
Box Gutter t	to Detail - gra	ded 1 in 200)					
All New Eav	es Gutters to	be graded	at 1 in 500	to Down	pipes			
All Downpip	es to be con	nected to ne	ew underg	round sys	tem			
New Eaves	Gutters 115n	nm Quad - /	Area			6000	mm ²	
Additional D	ownpipes or	n existing Re	sidence D	P5, 6, 7,&	8			
D								

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: SOI.

DOCUMENT CERTIFICATION

Date: OCT '20 Bruce Lewis (Principal : Penins

Date: OCT '20	1 DRUCE
Bruce Lewis	
(Principal : Peninsula Cons	ulting Engineers)
BE(Civil), CPEng, MIEAust., I	NPER.
Institute of Engineers Mem	

S 1	Date:	Rev:	Amendment:	,
→•••	2-10-2020	P2	DRAFT	Ę
	6-10-2020	А	FOR COUNCIL SUBMISSION	F
	4-11-2020	В	MODIFY ROOF OUTLINE	
7				

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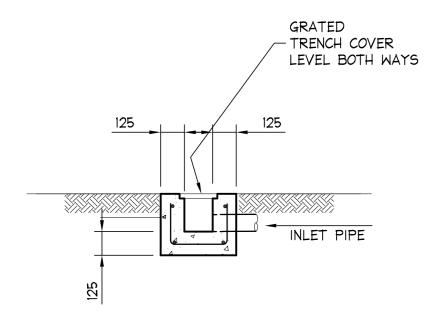
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Required to comply with current standards

ALTERNATIVE OSD STORMWATER MANAGEMENT PLAN & DETAILS

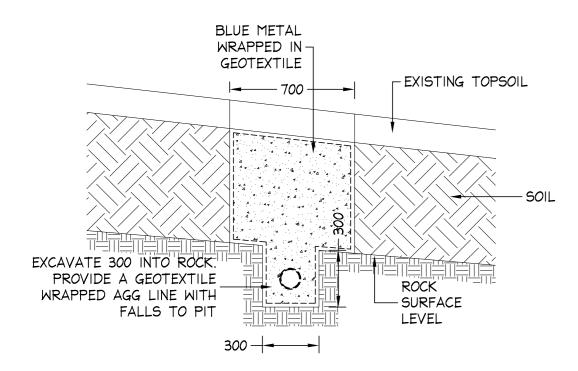
Drawing No: H03 20-0616

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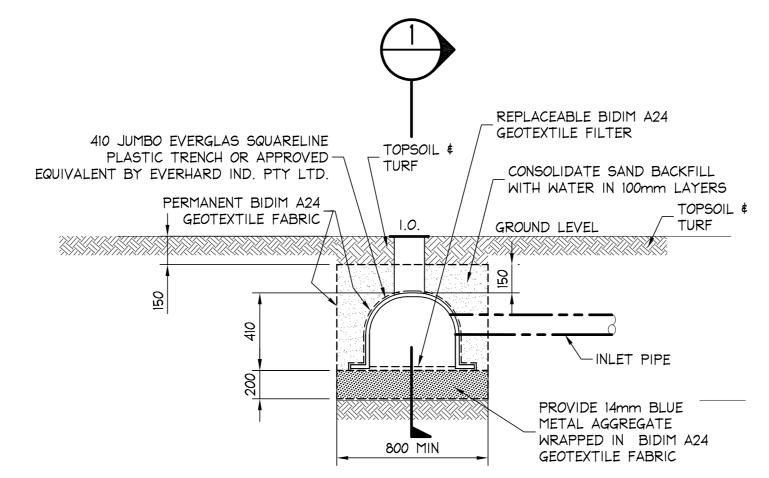
LEVEL SPREADER SECTION

SCALE = 1 : 20 FIBRE-CRETE OR HDPE ALTERNATIVES ARE SUITABLE.

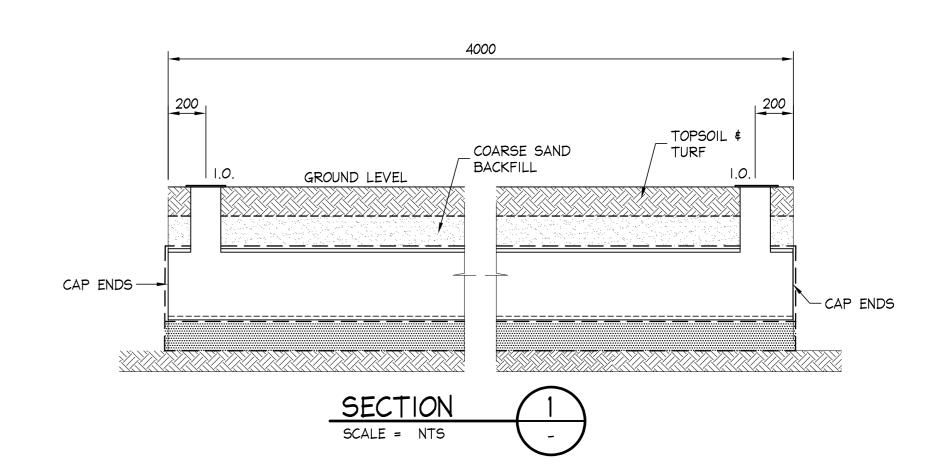


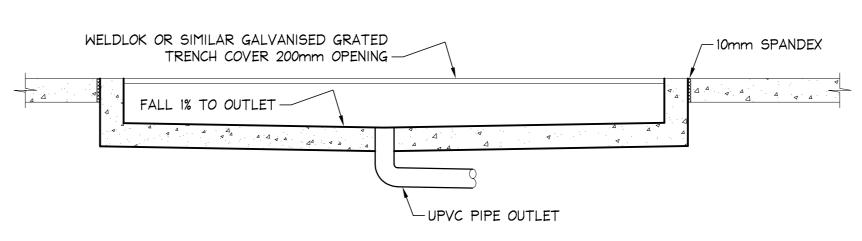
SUBSURFACE WATER DIVERSION TRENCH SECTION

SCALE = 1 : 20









LONGITUDINAL SECTION TYPICAL GRATED DRAIN SCALE = 1 : 20

		North	nern Beache	es [Warri	ngah] Co	uncil		
			28 Daree	n St Beac	on Hill			
		C	n Site Dete	ntion Ca	lculations	5		
		DI	RAINS Data	Post De	velopmer	nt		
PIT / NOD	E DETAILS							
Name	Type	Surface						
		Elev (m)						
N1	Node	140.12						
DETENTIO	N BASIN D	ETAILS						
Name	Elev	Surf. Area	Outlet Type	Dia(mm)	Centre RL			
Tank 1	141.45	1	Orifice	61	141.65			
	142.29	1						
	142.3	2.3						
	144.47	2.3						
Basin1	140	1	Orifice	120	140.07			
	140.2	1						
	140.26	63						
	140.5	63						
SUB-CATC	HMENT DE	ETAILS						
Name	Pit or	Total	Paved	Grass	Supp	Paved	Grass	Supp
	Node	Area	Area	Area	Area	Time	Time	Time
		(ha)	%	%	%	(min)	(min)	(min)
Cat1	Tank 1	0.0234	100	0	0	5	5	5
Cat2	Basin1	0.0559	28	72	0	5	5	5
PIPE DETA	ILS							
Name	From	То	Length	U/S IL	D/S IL	Slope	Type	Dia
			(m)	(m)	(m)	(%)		(mm)
Pipe 1	Tank 1	Basin1	18	142.58	140	14.33	uPVC	150
Pipe 2	Basin1	N1	5.3	140	139.4	11.32	uPVC	150

GRATED

TRENCH COVER -

-10mm SPANDEX

TYPICAL GRATED DRAIN

ALTERNATIVE

SCALE = 1 : 20 PRECAST OR HDPE GRATED DRAIN

DRAINS DATA

			INO				h] Council
				28 Da	reen St E	Beacon I	Hill
				On Site [Detentior	n Calcula	ations
				<i>RAINS</i> Re	sults Pos	st Devel	opment
NODE DET	TAILS						
Name	Max HGL						
N1	140.12						
SUB-CATC	HMENT DETAI	IS					
Name	Max	Paved	Grassed	Paved	Grassed	Supp.	Due to Storm
-	Flow Q	Max Q	Max Q	Тс	Тс	Tc	
	(cu.m/s)	(cu.m/s)	(cu.m/s)	(min)	(min)	(min)	
Cat1	0.017	0.017	0	5	5	5	AR&R 100 year, 1.5 hours storm, average 74.0 mm/h, Zone
Cat2	0.035	0.011	0.023	5	5	5	AR&R 100 year, 1.5 hours storm, average 74.0 mm/h, Zone
DIDE DETA							
PIPE DETA		MaxV	May 11/C	May D/C	Due to Cte	- FIG.	
Name	Max Q	Max V	Max U/S		Due to Sto	OFFF	
Dina 1	(cu.m/s)	(m/s)	HGL (m)	HGL (m)	A D 0 D 100	1 []	h o una ata mas a usa ma sa 74 0 mana /h - 7a n a 1
Pipe 1	0.01	3	142.615			•	hours storm, average 74.0 mm/h, Zone 1
Pipe 2	0.017	0.92	140.195	140.12	AK&K 100	year, 1 nc	our storm, average 95.0 mm/h, Zone 1
DETENTIO	N BASIN DETA	AILS					
Name	Max WL	MaxVol	Max Q	Max Q	Max Q		
			Total	Low Level	High Level		
Tank 1	144.14	5.1	0.01	0.01	0		
Basin1	140.46	14.4	0.017	0.017	0		
CONTINUI	TY CHECK for	AR&R 100 vea	r, 1.5 hours storr	n, average 7	4.0 mm/h. 7	7one 1	
Node	Inflow	Outflow	Storage Chang				
	(cu.m)	(cu.m)	(cu.m)	%			
Tank 1	25.74	25.6	1.5	-5.3			
Basin1	58.4	58.64	-0.05	-0.3			
N1	58.64	58.64	0	0			

DRAINS RESULTS

NOTES:
 ALL DIMENSIONS TO BE VERIFIED ON SITE COMMENCING WITH WORK.

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

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

MEMBER DOCUMENT CERTIFICATION Date: OCT 120

> Bruce Lewis (Principal : Peninsula Consulting Engineers) BE(Civil), CPEng, MIEAust., NPER. Institute of Engineers Membership No. 879131

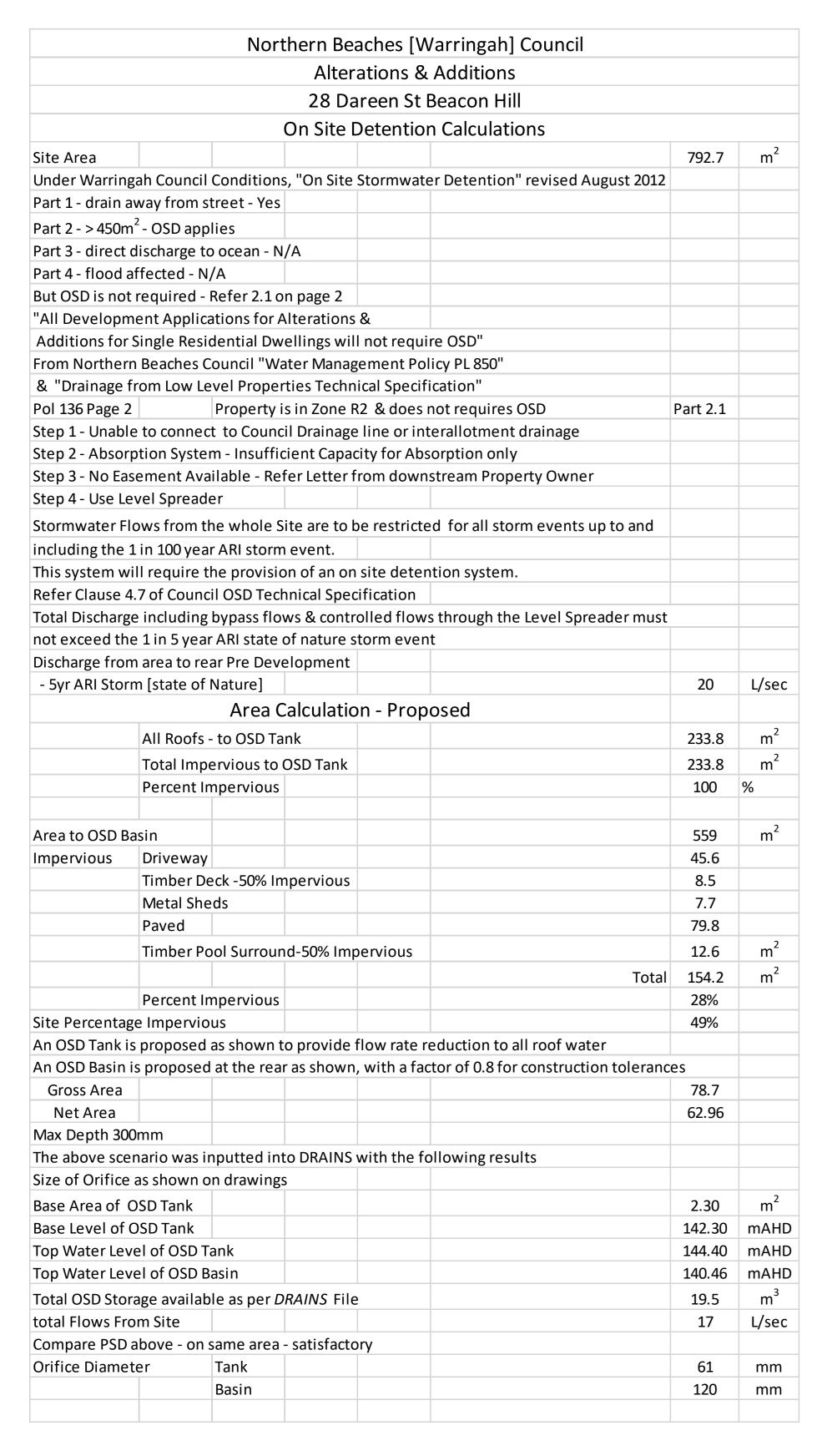
	Date:	Rev:	Amendment:	E:I A .
•	2-10-2020	P2	DRAFT	Ph:
	6-10-2020	А	FOR COUNCIL SUBMISSION	PO Frei

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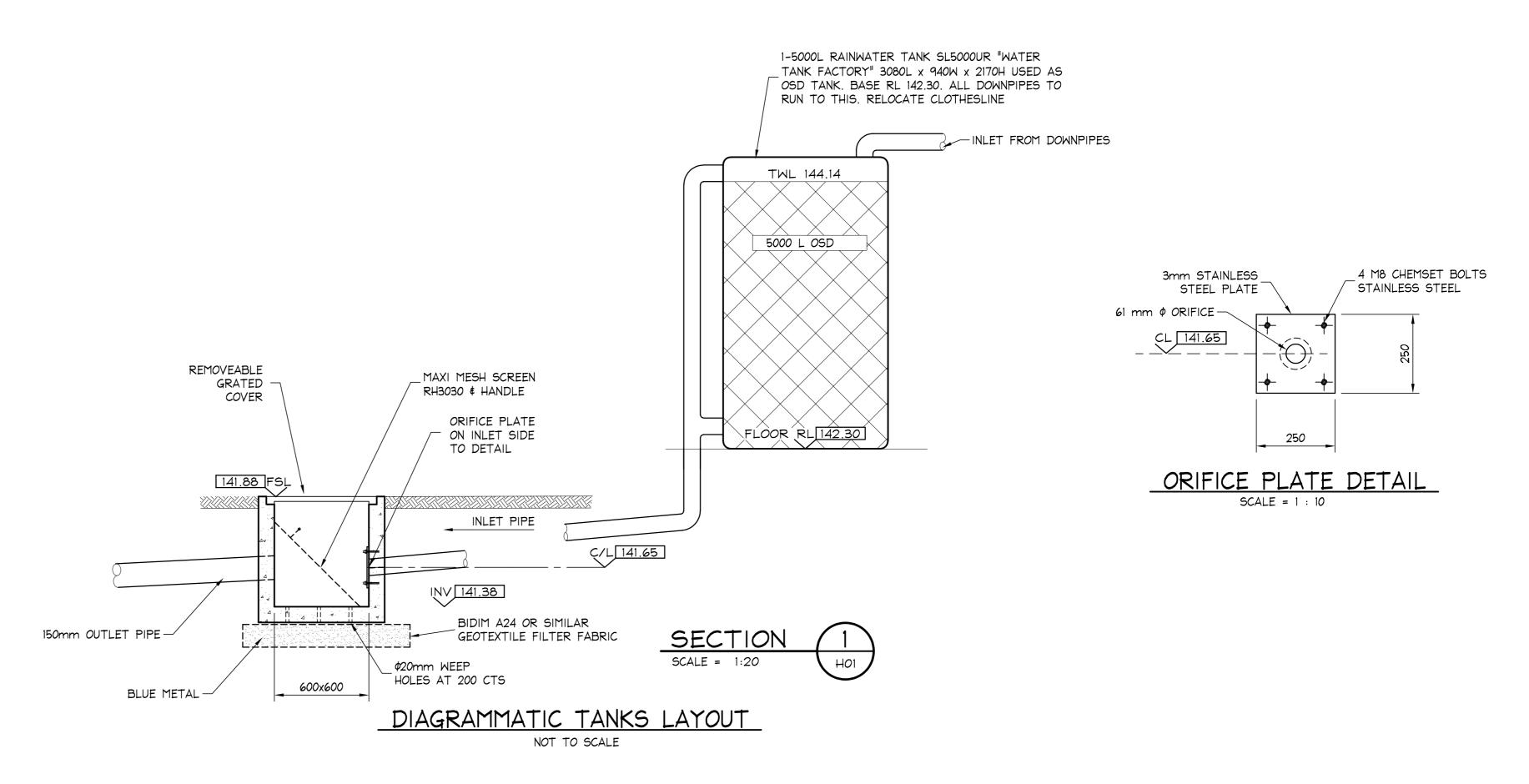
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ALTERNATIVE OSD STORMWATER CALCULATIONS & DETAILS SHT 1

Drawing No: H04 20-0616

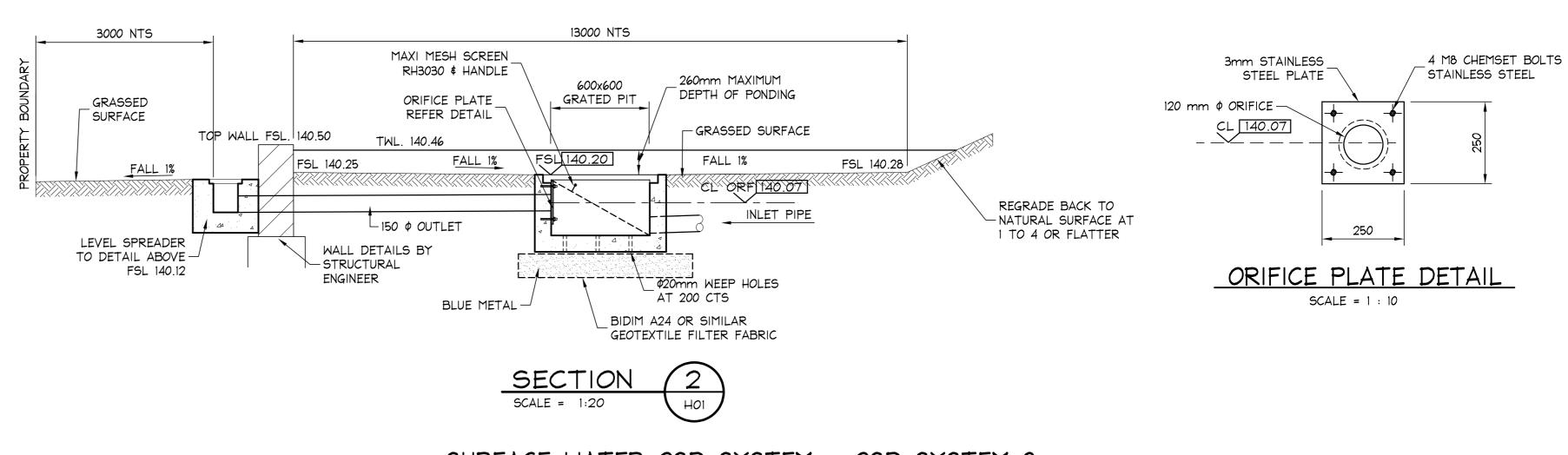


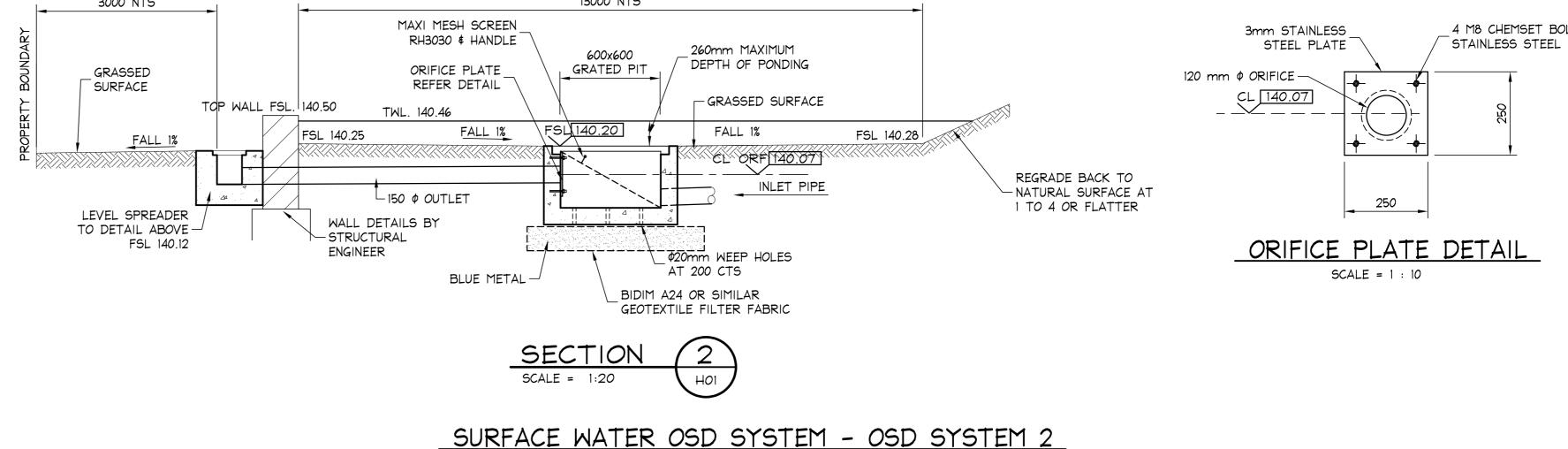
ON SITE DETENTION ASSUMPTIONS



ROOF WATER OSD SYSTEM - OSD SYSTEM 1

SCALE = 1 : 20





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4 November 2020

#20-0616

Mr & Mrs Holst 28 Dareen Street BEACON HILL, NSW, 2100

HYDRAULIC DESIGN CERTIFICATE FOR WORKS At: 28 Dareen Street, Beacon Hill

I, Bruce Lewis, of Peninsula Consulting Engineers hereby certify that:

I am a Civil Engineer with 'The Institute of Engineers Australia' membership number 879131 & NPER Registration. BE CPEng MIE (Aust).

I am currently practising as a Structural & Civil Design Engineer with Peninsula Consulting Engineers.

The design for the above project (being Job No.20-0616, Drawing No's 20-0616-H01B, H02A, H03B, H04A & H05A) complies with SAA Codes & Standards and the Local Council's Stormwater Specification.

We trust that this certificate meets with your requirements. Please contact the author if further clarification is required.

Yours Faithfully,

Bruce Lewis

Principal BE(Civil) Cpeng NPER

Peninsula Consulting Engineers

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