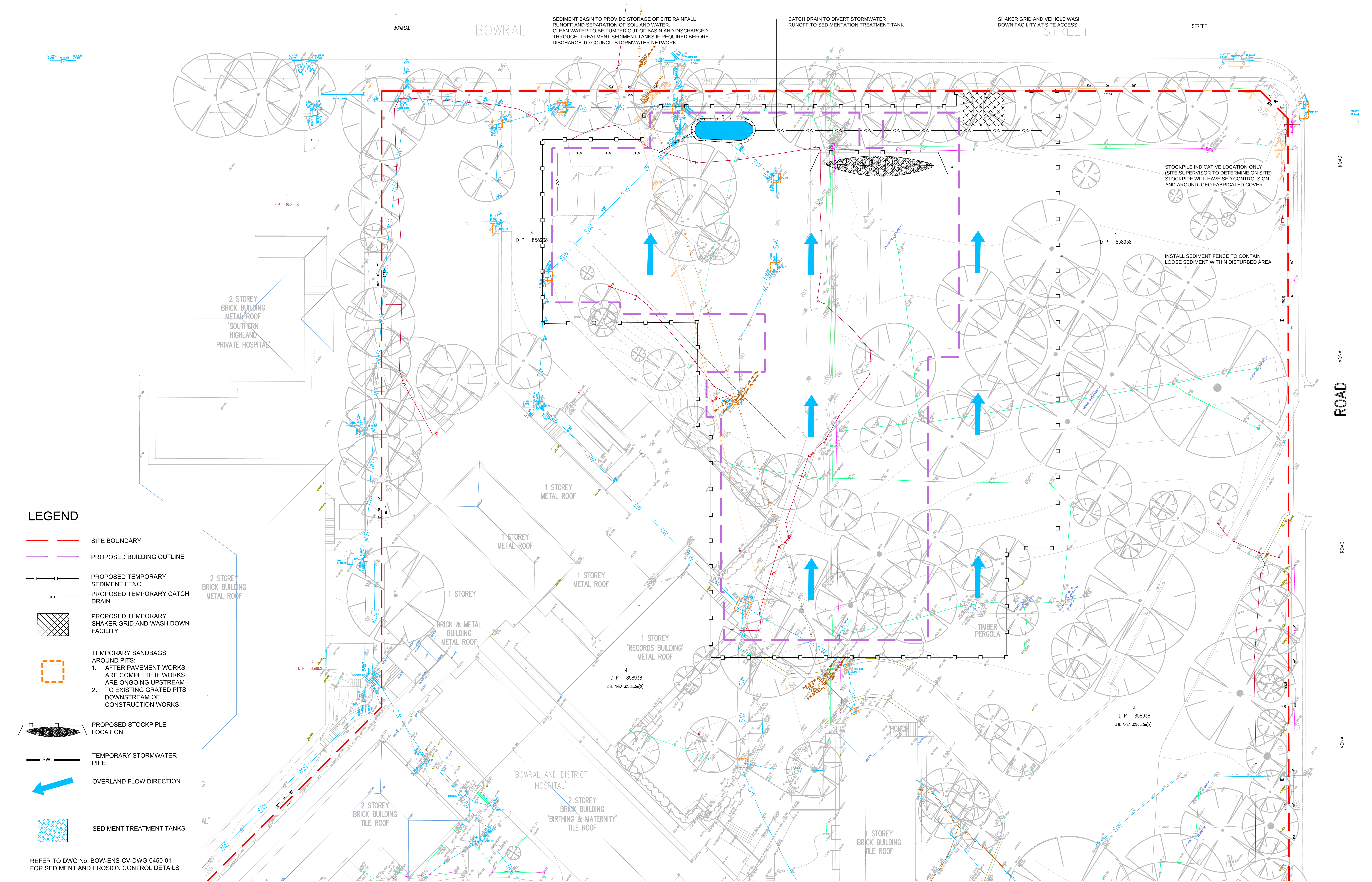


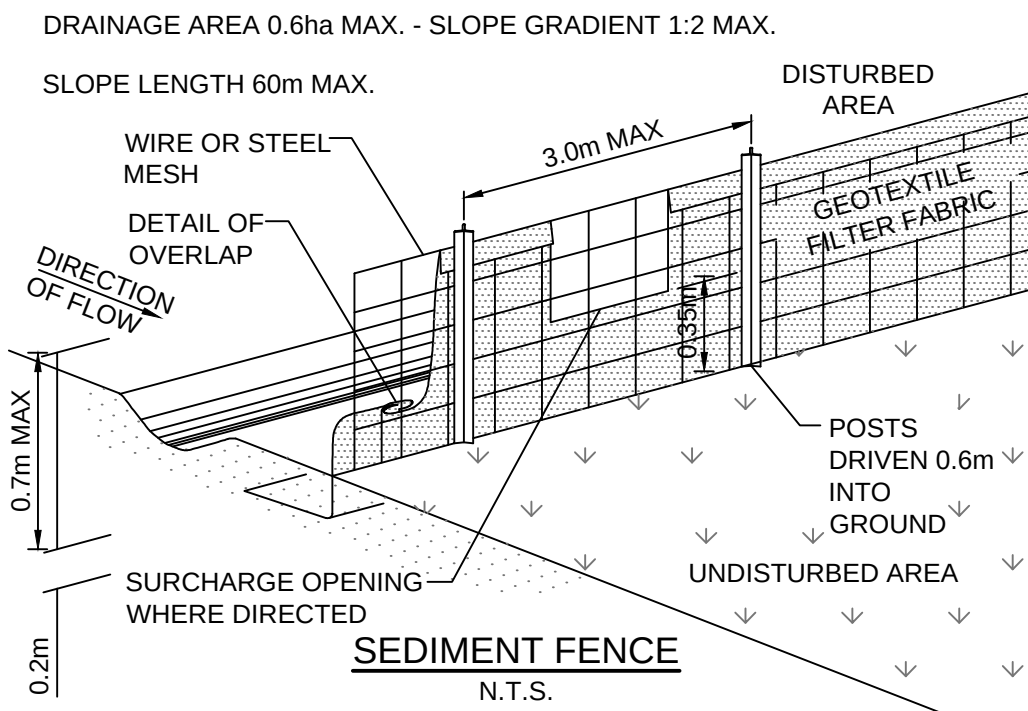


EROSION AND SEDIMENT CONTROL:

1. THE CONTRACTOR SHALL PROVIDE ADEQUATE TRUCK WASH FACILITIES AT THE SITE EXIT AND SHALL CLEAN ALL VEHICLES EXITING THE SITE TO ENSURE MATERIALS AND MUD IS NOT TRANSPORTED AND DEPOSITED OFF SITE. WATER FROM ANY WASHBAY IS TO BE DIVERTED TO THE SEDIMENT FENCE OR TO THE SEDIMENT BASIN PRIOR TO DISCHARGE.
2. NOTWITHSTANDING THE EROSION AND SEDIMENT CONTROL NOTES THE CONTRACTOR SHALL NOTE THEIR OVERARCHING OBLIGATION WITH THE CITY OF RYDE COUNCIL IN RESPECT OF ENVIRONMENTAL CONTROLS. PARTICULARLY ONGOING TESTING OF DISCHARGE, MAINTENANCE, DREDGING OF SEDIMENTATION PONDS AND FINAL FILTRATION AT OUTLETS.
3. THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO PROTECT THE ENVIRONMENT AND IN PARTICULAR SHALL CONTROL EROSION, SEDIMENTATION AND POLLUTION DURING CONSTRUCTION IN ACCORDANCE WITH THE REQUIREMENTS OF THE EPA, DEC, COUNCIL, AND THE EROSION AND SEDIMENT CONTROL PLAN.
4. EROSION AND SEDIMENT CONTROL DEVICES ARE TO BE CONSTRUCTED IN ACCORDANCE WITH 'MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION' (2004 - BLUE BOOK), AND CITY OF RYDE COUNCIL'S DCP.
5. EROSION AND SEDIMENT CONTROL DEVICES SHALL BE CONFIRMED IN THE QUALITY PLAN PRODUCED BY THE CONTRACTOR AND SHALL BE IMPLEMENTED AND ADJUSTED TO SUIT CONSTRUCTION ACCESS AND STAGING.
6. FOLLOWING EVERY RAINFALL EVENT EXCEEDING 10mm OR WHEN BASINS ARE GREATER THAN 50% FULL, WATER SHALL BE TESTED FOR COMPLIANCE WITH EPA'S STANDARDS AND, IF FOUND NOT TO COMPLY, WATER SHALL BE TREATED BY APPROPRIATE FLOCCULATION, FILTRATION OR OTHER APPROVED METHODS.
7. WATER SHALL NOT BE REMOVED FROM SEDIMENT BASIN UNTIL TESTED WATER MEETS EPA WATER QUALITY REQUIREMENTS e.g <50 MG/L SUSPENDED SOLIDS.
8. CONTRACTOR TO PROVIDE ALL PERIMETER SITE FENCING FOR SECURITY & SAFETY PURPOSES AS REQUIRED.
9. PUMP TO SYDNEY WATER SEWER ONLY WHEN WATER QUALITY MEETS EPA GUIDELINES (E.G. TSS < 50mg/L).
10. OBTAIN APPROVALS FROM SYDNEY WATER OR COUNCIL TO PUMP TO RECEIVING PIT.
11. EMPTY SEDIMENT BASIN WITHIN 72 HOURS OF RAINFALL. TREAT WATER AS NECESSARY TO ACHIEVE REQUIRED WATER QUALITY STANDARDS.
12. THE EARLY WORKS ARE OUTSIDE THE 100 YEAR ARI FLOOD EXTENTS OF UNIVERSITY CREEK; HENCE WILL NOT IMPACT THE FLOODING REGIME OF THE CREEK.

STOCKPILE NOTES:

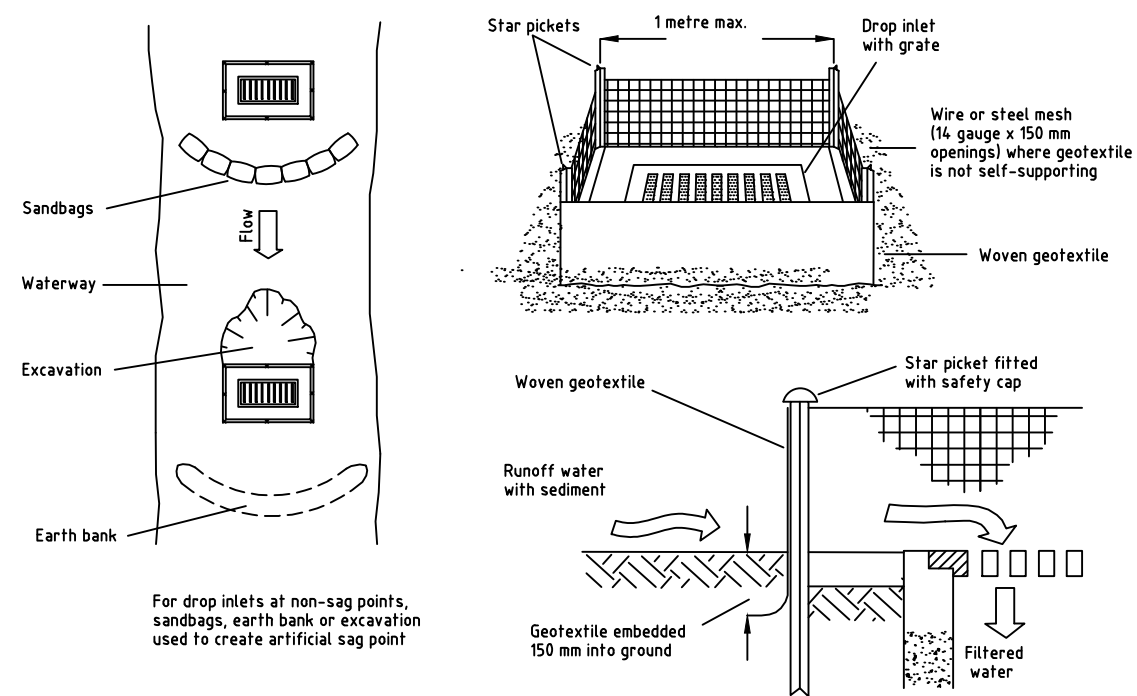
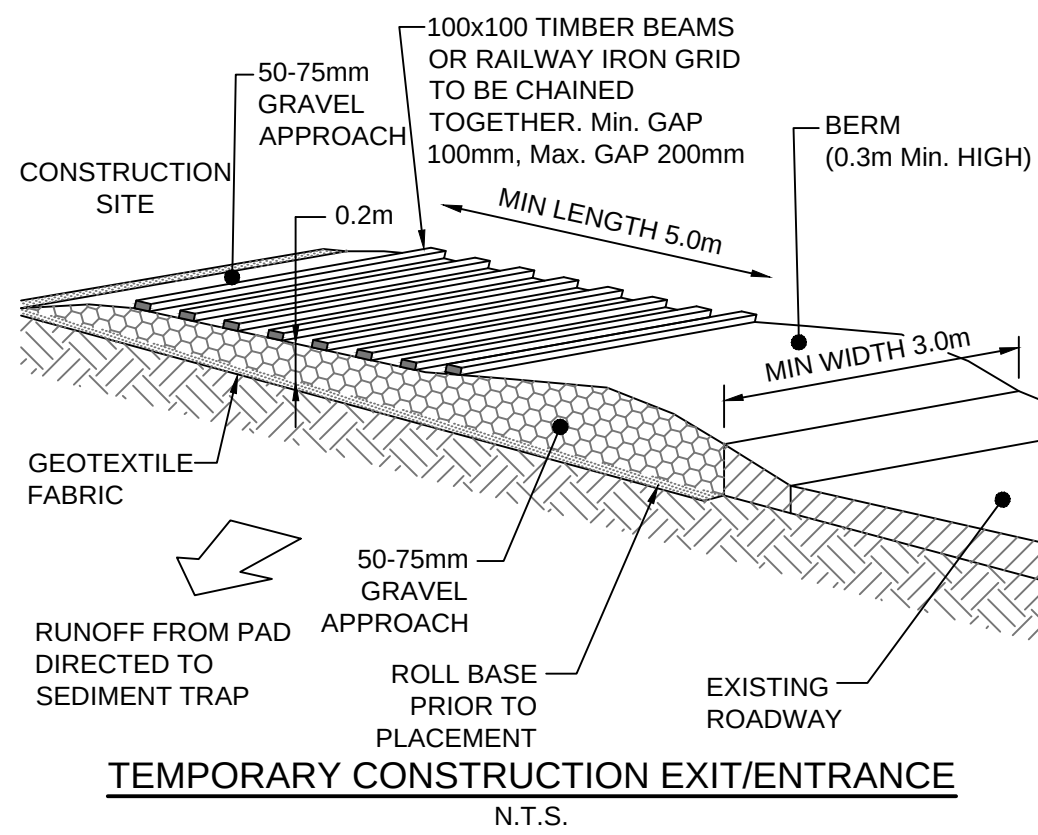
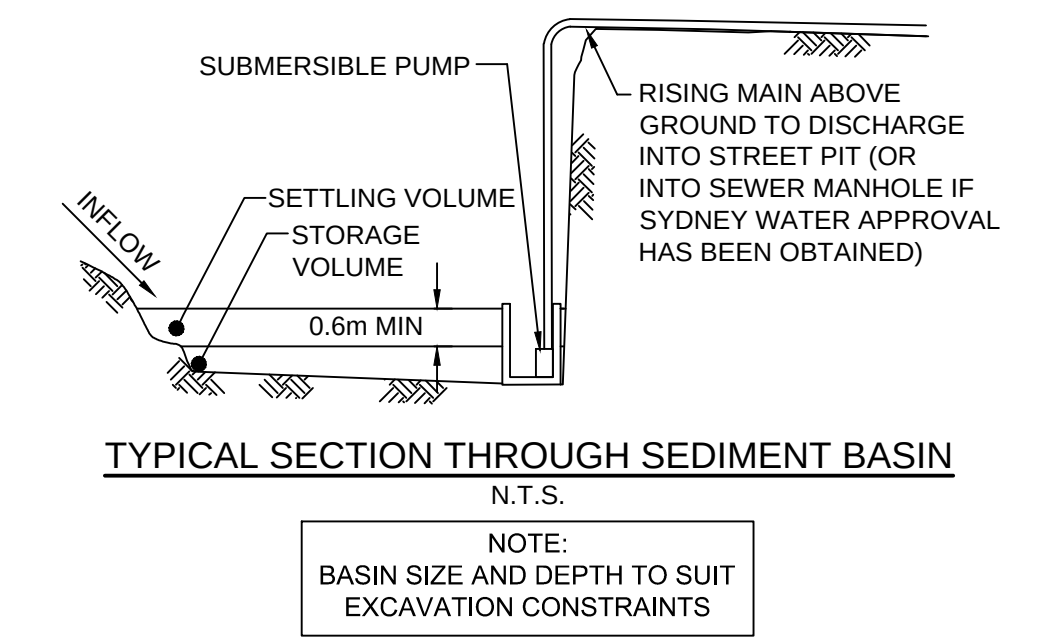
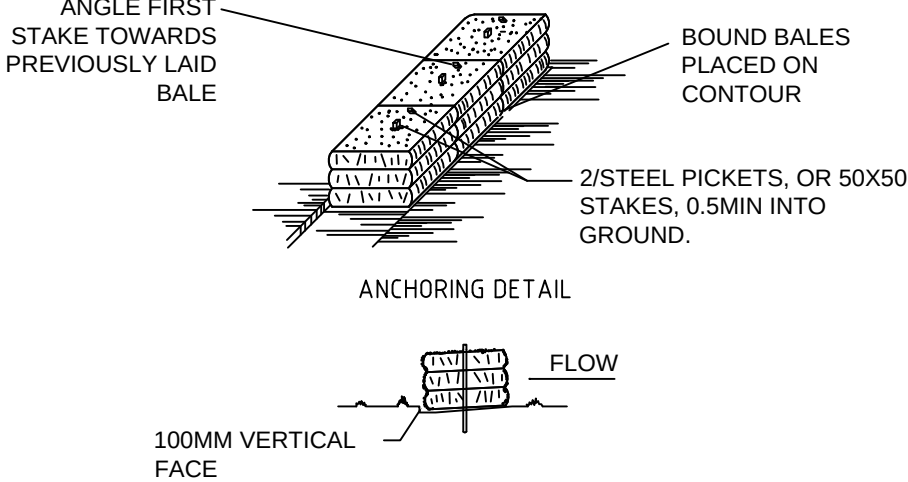
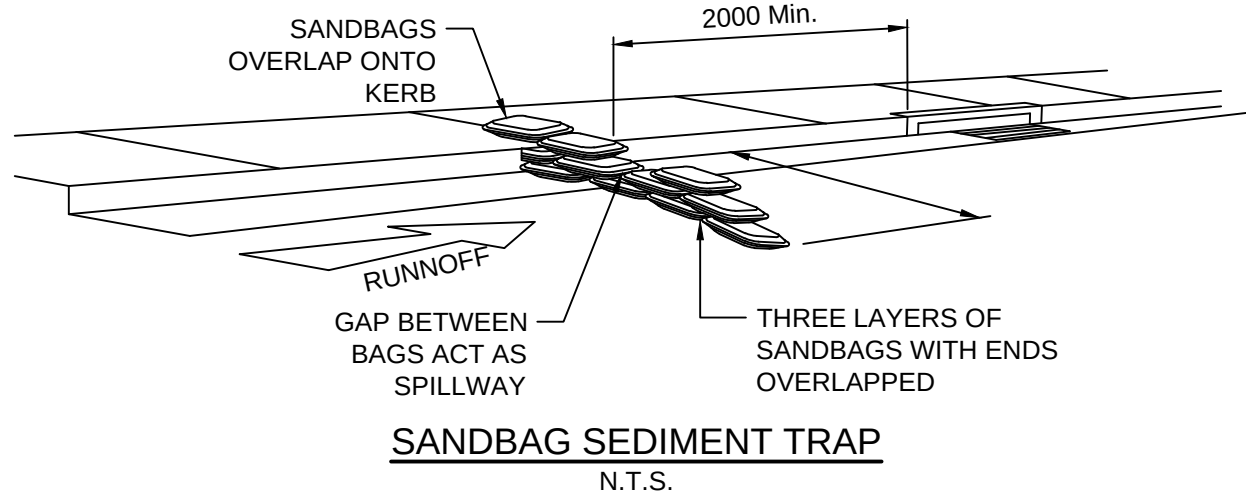
1. PROTECT ALL STOCKPILES FROM SCOUR AND EROSION. DO NOT STOCKPILE LOOSE MATERIAL IN ROADWAYS, NEAR DRAINAGE PITS OR IN WATERCOURSES.
2. SPOIL & TOPSOIL STOCKPILES SHALL BE LOCATED AWAY FROM DRAINAGE LINES AND AREAS WHERE WATER MAY CONCENTRATE. STOCKPILES ARE TO BE SURROUNDED BY SEDIMENT FENCE.
3. IF STOCKPILES ARE TO BE IN PLACE FOR LONGER THAN 30 DAYS THEN THEY SHALL BE STABILIZED BY COVERING WITH MULCH OR WITH TEMPORARY VEGETATION.
4. FOLLOWING CONSTRUCTION, TOPSOIL SHALL BE RESPREAD TO A MINIMUM DEPTH OF 100mm ON BARE SOIL SURFACES AND REVEGETATED.



INSTALLATION

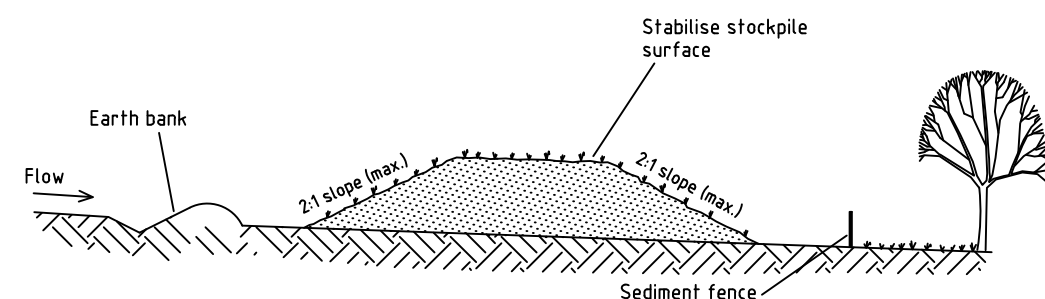
1. EXCAVATE A TRENCH 200mm DEEP.
2. DRIVE POSTS 500-700mm INTO GROUND AT A MAXIMUM SPACING OF 3.0m CENTRES.
3. PLACE AND FIX SUPPORT MESH (F52) TO POST.
4. LAY BIDIM GEOTEXTILE (SF 2000) AGAINST THE SUPPORT MESH AND FIX BY TIE WIRE, STAPLES OR HOG RINGS.
5. PLACE BIDIM IN TRENCH AND BACKFILL WITH SOIL.

NOTE:
POSITION OF SEDIMENT FENCE AS DIRECTED BY SUPERINTENDENT. FENCE TO REMAIN IN PLACE UNTIL EXCAVATION IS BELOW FOOTPATH LEVEL.



Construction Notes

1. Fabricate a sediment barrier made from geotextile or straw bales.
2. Follow Standard Drawing 6-8 for installation procedures for geofabric. Reduce the picket spacing to 1 metre centres.
3. In waterways, artificial sag points can be created with sandbags or earth banks as shown in the drawing.
4. Do not cover the inlet with geotextile unless the design is adequate to allow for all waters to bypass it.



Construction Notes

1. Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.
2. Construct on the contour as low, flat, elongated mounds.
3. Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
4. Where they are to be in place for more than 10 days, stabilise following the approved ESCP or SWMP to reduce the C-factor to less than 0.10.

STOCKPILES

N.T.S.

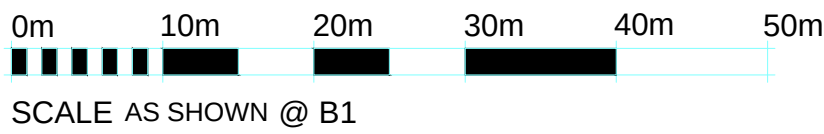
AMENDMENTS				
NO.	DATE	REVISION	BY	APP.
1	20/01/2018	SCHEMATIC DESIGN ISSUE	MSI	



PROJECT
BOWRAL DISTRICT HOSPITAL REDEVELOPMENT - MAIN WORKS
97-103 Bowral St, Bowral
NSW 2576

DRAWING NUMBER
BOW-ENS-CV-DWG-1450
DRAWING NAME
SEDIMENT AND EROSION CONTROL DETAILS

REV
01



ISSUE DATE
FEB 18

APPENDIX B

DRAINS MODEL DATA

DRAINS File Path:	P:\j1-5200\5266\00 - Enstruct Documents\0.3 - Analysis\Civil\Stormwater\Drains\Bowral Hospital - OSD_v8
DRAINS Version:	DRAINS Version 2017.11 - 18 October 2017
Modeller's Name:	Will Wright
Description:	Developed Model with OSD

PIT / NODE DETAILS			Version 13																					
Name	Type	Family	Size	Ponding Volume	Pressure Change	Surface Elev (m)	Max Pond Depth (m)	Base Inflow	Blocking Factor	x	y	Bolt-down lid	id	Part Full Shock Loss	Inflow Hydrograph	Pit is								
				(cu.m)	Coeff. Ku	Elev (m)		(cu.m/s)																
N2	Node					679		0		263464.9	6181165.7		161413		No									
Existing	Node					680		0		263516.6	6181166.4		490779		No									
Grassed Bypass	Node					679		0		263489	6181156.8		743322		No									
F13 DP	OnGrade	Downpipe	Downpipe		5.9	680.5		0	0	263425	6181119.6	No	2284956	1 x Ku	No	New								
PIT F13	OnGrade	Grated Inlet Pit	600 x 600		4.2	680.4		0	0.3	263417.8	6181121.1	No	12	1 x Ku	No	New								
PIT F12	OnGrade	Grated Inlet Pit	600 x 600		2.4	680.3		0	0.3	263415.5	6181132.5	No	6	1 x Ku	No	New								
PIT F11	OnGrade	Grated Inlet Pit	600 x 600		0.2	680.35		0	0.3	263407	6181136.3	No	10652983	1 x Ku	No	New								
PIT F10	OnGrade	Grated Inlet Pit	900 x 900		2	680.1		0	0.3	263397.8	6181140.5	No	3	1 x Ku	No	New								
PIT F9	OnGrade	Grated Inlet Pit	900 x 900		2	680		0	0.3	263400.6	6181162.1	No	2	1 x Ku	No	New								
PIT F8	OnGrade	Junction Pit or Manhole (sealed)	Junction Pit or Manhole		1.1	679.75		0	0.3	263408	6181165.9	Yes	23	1 x Ku	No	New								
PIT F7	Sag	Grated Inlet Pit	900 x 900	2.5	0.7	680.4		0.5	0	0.5	263418.7	6181164.9	No	15	1 x Ku	No	New							
PIT F6	Sag	Grated Inlet Pit	900 x 900	2.5	1.2	680.4		0.5	0	0.5	263446.5	6181160.9	No	166	1 x Ku	No	New							
Pit F5	OnGrade	Junction Pit or Manhole (sealed)	Junction Pit or Manhole		1.1	680.4		0	0.3	263457.4	6181155.9	Yes	16804060	1 x Ku	No	New								
Pit F3	OnGrade	Grated Inlet Pit	900 x 900		0.2	679.55		0	0.3	263475	6181150.6	No	16804054	1 x Ku	No	New								
PIT F2	OnGrade	Junction Pit or Manhole (sealed)	Junction Pit or Manhole		1.9	679		0	0.3	263498.5	6181148.1	Yes	10	1 x Ku	No	New								
EX PIT F1	Node					678.65		0		263502	6181161		63		No									
Pit F12 DP	OnGrade	Downpipe	Downpipe		5	680.4		0	0	263418.9	6181139.6	No	2284993	1 x Ku	No	New								
Pit F10 DP	OnGrade	Downpipe	Downpipe		3.5	680.2		0	0	263404.3	6181143.1	No	2471906	1 x Ku	No	New								
Pit F9 DP	OnGrade	Downpipe	Downpipe		3.3	680.1		0	0	263406.9	6181159.6	No	2472191	1 x Ku	No	New								
Pit F7 DP	OnGrade	Downpipe	Downpipe		2.7	680.5		0	0	263418.6	6181157.8	No	3063871	1 x Ku	No	New								
Pit F6 DP	OnGrade	Downpipe	Downpipe		2.6	680.5		0	0	263445.1	6181154.6	No	3064157	1 x Ku	No	New								
Pit G1 DP	OnGrade	Downpipe	Downpipe		2.6	679.7		0	0	263453.6	6181146.5	No	3172995	1 x Ku	No	New								
Pit G1	OnGrade	Grated Inlet Pit	900 x 900		0.6	679.62		0	0.3	263461.9	6181146	No	16804179	1 x Ku	No	New								
Pit G2 DP	OnGrade	Downpipe	Downpipe		5.1	680.1		0	0	263453.3	6181136.4	No	3173280	1 x Ku	No	New								
PIT G2	OnGrade	Grated Inlet Pit	900 x 900		0.9	680.05		0	0.3	263460.3	6181135.7	No	13	1 x Ku	No	New								
Pit G3 DP	OnGrade	Downpipe	Downpipe		5.9	680.5		0	0	263446.9	6181116.7	No	3173373	1 x Ku	No	New								
PIT G3	OnGrade	Grated Inlet Pit	900 x 900		0.9	680.45		0	0	263456.7	6181115.5	No	8	1 x Ku	No	New								
Pit G4 DP	OnGrade	Downpipe	Downpipe		5.9	681		0	0	263444.1	6181099.9	No	3173465	1 x Ku	No	New								
PIT G4	OnGrade	Grated Inlet Pit	900 x 900		2	680.95		0	0.3	263454.2	6181098.1	No	9	1 x Ku	No	New								
Pit G5 DP	OnGrade	Downpipe	Downpipe		5.9	681.3		0	0	263442.2	6181090.1	No	3173557	1 x Ku	No	New								
PIT G5	OnGrade	Grated Inlet Pit	900 x 900		2.3	681.25		0	0.3	263446.3	6181083.8	No	5	1 x Ku	No	New								
Pit G6 DP	OnGrade	Downpipe	Downpipe		3.1	681.1		0	0	263422.4	6181093.4	No	3173649	1 x Ku	No	New								
PIT G6	OnGrade	Grated Inlet Pit	600 x 600		2	681		0	0.3	263415.2	6181088.2	No	4	1 x Ku	No	New								
PIT E1	OnGrade	Grated Inlet Pit	600 x 600		5.8	680.05		0	0.3	263388.5	6181162.2	No	5790426	1 x Ku	No	New								
B1	OnGrade	Channel Drain	6000 x 300		5.2	680		0	0.3	263395.8	6181167.5	No	10653125	1 x Ku	No	New								
A1	Node					679.81		0		263397.5	6181177.1		10653152		No									
CH Drain	OnGrade	Channel Drain	6000 x 300		4	680.31		0	0.3	263391.5	6181143.4	No	5790538	1 x Ku	No	New								
Pit B3	OnGrade	Junction Pit or Manhole (sealed)	Junction Pit or Manhole		7.9	680.3		0	0.3	263393.6	6181143.2	Yes	13789757	1 x Ku	No	New								
Pit B2	OnGrade	Junction Pit or Manhole (sealed)	Junction Pit or Manhole		0.3	680.1		0	0.3	263396	6181161	Yes	13789752	1 x Ku	No	New								
Bowral St N1	Node					678.65		0		263511.4	6181160		6877405		No									
Developed	Node					678.65		0		263518.3	6181159.3		6877409		No									
Pit D2	OnGrade	Grated Inlet Pit	900 x 900		5.9	681.58		0	0.3	263477.9	6181063.9	No	14747917	1 x Ku	No	New								
Pit D1	OnGrade	Grated Inlet Pit	900 x 900		3.7	681		0	0.3	263490.6	6181081.8	No	14747915	1 x Ku	No	New								
Pit C4	OnGrade	Grated Inlet Pit	900 x 900		1.6	680.45		0	0.3	263494.6	6181097.2	No	14747907	1 x Ku	No	New								
Pit C3	OnGrade	Grated Inlet Pit	900 x 900		0.8	680.05		0	0.3	263499.8	6181101.3	No	14747905	1 x Ku	No	New								
Pit R2	OnGrade	Grated Inlet Pit	900 x 900		1.9	679.7		0	0.3	263502.8	6181126.2	No	14747901	1 x Ku	No	New								
Pit R1	OnGrade	Grated Inlet Pit	900 x 900		5.9	679.6		0	0.3	263503.3	6181130	No	14747899	1 x Ku	No	New								
Pit C2	OnGrade	Hornsby Council Inlets (KI+grate), 3% crossfall, all grades	Hornsby 1.8 m lintel		1.6	679.3		0	0.3	263508.4	6181132.8	No	14747894	1 x Ku	No	New								
EX PIT C1	Node					678.92		0		263511	6181154.3		743333		No									
Pit C6	OnGrade	Grated Inlet Pit	900 x 900		5.9	681.28		0	0.3	263463.3	6181083.2	No	14748020	1 x Ku	No	New								
Pit 5	OnGrade	Grated Inlet Pit	900 x 900		5.9	680.83		0	0.3	263483.6	6181091.9	No	14747912	1 x Ku	No	New								
Pit B4	OnGrade	Junction Pit or Manhole (sealed)	Junction Pit or Manhole		0.6	680.35		0	0.3	263393.2	6181137.7	Yes	16624266	1 x Ku	No	New								

DETENTION BASIN DETAILS																								
Name	Elev	Surf. Area	Not Used	Outlet Type	K	Dia(mm)	Centre RL	Pit Family	Pit Type	x	y	HED	Crest RL	Crest Length	id									
OSD TANK	677.905	0		Orifice		430	678.12			263462.4	6181149.8	No			68									
	678.048	164																						
	678.905	164																						
	679.105	3																						
	679.6	3																						

SUB-CATCHMENT DETAILS																							
Name	Pit or Node	Total Area	Paved Area	Grass Area	Supp Area	Paved Time	Grass Time	Supp Time	Paved Length	Grass Length	Supp Length	Paved Slope(%)	Grass Slope	Supp Slope	Paved Rough	Grass Rough	Supp Rough	Lag Time or Factor	Gutter Length	Gutter Slope	Gutter FlowFactor	Rainfall Multiplier	
		(ha)	%	%	%	(min)	(min)	(min)	(m)	(m)	(m)	%	%	%					(m)	%			
CAT N2	N2	0.0179	87.3	12.7	0	5		5	5									0				1	
Cat Existing	Existing	1.2298	34.8	65.2	0	5		5	0									0				1	
Cat Grassed Bypass	Grassed Bypass	0.3467	0	100	0	5		5	0									0				1	
Cat F13 DP	F13 DP	0.03	100	0	0	5		0	5									0				1	
CAT F13	PIT F13	0.0467	52.7	47.3	0	5		5	5									0				1	
CAT F12	PIT F12	0.0255	100	0	0	5		0	5									0				1	
CAT F10	PIT F10	0.0248	100	0	0	5		5	5									0				1	
CAT F9	PIT F9	0.0452	100	0	0	5		0	5									0				1	
CAT F7	PIT F7	0.0078	39	61	0	5		5	5									0				1	
CAT F6	PIT F6	0.0115	42.6	57.4	0	5		5	5									0				1	
Cat F12 DP	Pit F12 DP	0.0192	100	0	0	5		0	5									0				1	
Cat F10 DP	Pit F10 DP	0.0091	100	0	0	5		0	5									0				1	
Cat F9 DP	Pit F9 DP	0.0162	100	0	0	5		0	5									0				1	
Cat F7 DP	Pit F7 DP	0.0233	100	0	0	5		0	5									0				1	
Cat F6 DP	Pit F6 DP	0.0434	100	0	0	5		0	5									0				1	
Cat G1 DP	Pit G1 DP	0.011	100	0	0	5		0	5									0				1	

[illegible]

[illegible]



DRAINS File Path:	P:\j1-5200\5266\00 - Enstruct Documents\0.3 - Analysis\Civil\Stormwater\Drains\Bowral Hospital - OSD_v8
DRAINS Version:	DRAINS Version 2017.11 - 18 October 2017
Modeller's Name:	Will Wright
Description:	Developed Model with OSD

DRAINS results prepared from Version 2018.01

PIT / NODE DETAILS				Version 8					RESULTS 20% AEP		
Name	Max HGL	Max Pond	Max Surface	Max Pond	Min	Overflow	Constraint				
		HGL	Flow Arriving	Volume	Freeboard	(cu.m/s)					
			(cu.m/s)	(cu.m)	(m)						
F13 DP	679.79		0.011		0.71		None				
PIT F13	679.68		0.014		0.72	0.002	Inlet Capacity				
PIT F12	679.51		0.011		0.79	0.001	Inlet Capacity				
PIT F11	679.36		0		0.99		None				
PIT F10	679.25		0.01		0.85	0	None				
PIT F9	679.07		0.016		0.93	0.001	Inlet Capacity				
PIT F8	678.93		0		0.82		None				
PIT F7	678.81	680.4	0.002	0	1.59		Inlet Capacity				
PIT F6	678.66	680.41	0.003	0	1.74		Inlet Capacity				
Pit F5	678.38		0		2.02		None				
Pit F3	678.1		0		1.45		None				
PIT F2	678.06		0		0.94		None				
EX PIT F1	678		0.107								
Pit F12 DP	679.63		0.007		0.77		None				
Pit F10 DP	679.35		0.003		0.85		None				
Pit F9 DP	679.36		0.006		0.74		None				
Pit F7 DP	679.07		0.008		1.43		None				
Pit F6 DP	678.8		0.016		1.7		None				
Pit G1 DP	678.74		0.004		0.96		None				
Pit G1	678.74		0.007		0.88	0	None				
Pit G2 DP	679.35		0.004		0.75		None				
PIT G2	678.91		0.011		1.14	0	None				
Pit G3 DP	679.69		0.014		0.81		None				
PIT G3	679.17		0.013		1.28	0	None				
Pit G4 DP	679.97		0.007		1.03		None				
PIT G4	679.48		0.02		1.47	0.001	Inlet Capacity				
Pit G5 DP	680.17		0.007		1.13		None				
PIT G5	679.74		0.009		1.51	0	None				
Pit G6 DP	680.43		0.007		0.67		None				
PIT G6	680.33		0.01		0.67	0.001	Inlet Capacity				
PIT E1	679.46		0.007		0.59	0	Inlet Capacity				
B1	679.1		0.004		0.9	0	None				
A1	679		0								
CH Drain	679.54		0.011		0.77	0	None				
Pit B3	679.25		0		1.05		None				
Pit B2	679.1		0		1		None				
Developed	678		0.263								
Pit D2	680.89		0.017		0.69	0.001	Inlet Capacity				
Pit D1	680.2		0.017		0.8	0	Inlet Capacity				
Pit C4	679.79		0.005		0.66	0	None				
Pit C3	679.73		0.003		0.32	0	None				
Pit R2	679.7		0		0	0.028	Outlet System				
Pit R1	678.66		0.038		0.94	0.003	Inlet Capacity				
Pit C2	678.53		0.005		0.77	0	None				
EX PIT C1	678.4		0								
Pit C6	680.57		0.013		0.71	0	None				
Pit 5	680.01		0.013		0.82	0	None				
Pit B4	679.25		0		1.1		None				

SUB-CATCHMENT DETAILS													
Name	Max	Paved	Grassed	Paved	Grassed	Supp.	Due to Storm						
	Flow Q	Max Q	Max Q	Tc	Tc	Tc							
	(cu.m/s)	(cu.m/s)	(cu.m/s)	(min)	(min)	(min)							
CAT N2	0.005	0.005	0	5	5	5	20% AEP, 10 min burst, Storm 3						
Cat Existing	0.257	0.111	0.146	5	5	5	20% AEP, 10 min burst, Storm 8						
Cat Grassed Bypass	0.063	0	0.063	5	5	5	20% AEP, 10 min burst, Storm 8						
Cat F13 DP	0.009	0.009	0	5	0	5	20% AEP, 5 min burst, Storm 1						
CAT F13	0.01	0.006	0.004	5	5	5	20% AEP, 10 min burst, Storm 8						
CAT F12	0.007	0.007	0	5	0	5	20% AEP, 5 min burst, Storm 1						
CAT F10	0.007	0.007	0	5	5	5	20% AEP, 5 min burst, Storm 1						
CAT F9	0.013	0.013	0	5	0	5	20% AEP, 5 min burst, Storm 1						
CAT F7	0.002	0.001	0.001	5	5	5	20% AEP, 10 min burst, Storm 8						
CAT F6	0.002	0.001	0.001	5	5	5	20% AEP, 10 min burst, Storm 8						
Cat F12 DP	0.005	0.005	0	5	0	5	20% AEP, 5 min burst, Storm 1						
Cat F10 DP	0.003	0.003	0	5	0	5	20% AEP, 5 min burst, Storm 1						
Cat F9 DP	0.005	0.005	0	5	0	5	20% AEP, 5 min burst, Storm 1						
Cat F7 DP	0.007	0.007	0	5	0	5	20% AEP, 5 min burst, Storm 1						
Cat F6 DP	0.012	0.012	0	5	0	5	20% AEP, 5 min burst, Storm 1						
Cat G1 DP	0.003	0.003	0	5	0	5	20% AEP, 5 min burst, Storm 1						
Cat G1	0.006	0.006	0	5	5	5	20% AEP, 10 min burst, Storm 10						
Cat G2 DP	0.003	0.003	0	5	0	5	20% AEP, 5 min burst, Storm 1						
CAT G2	0.009	0.008	0	5	5	5	20% AEP, 10 min burst, Storm 10						
Cat G3 DP	0.011	0.011	0	5	0	5	20% AEP, 5 min burst, Storm 1						
CAT G3	0.009	0.009	0	5	5	5	20% AEP, 5 min burst, Storm 1						
Cat G4 DP	0.005	0.005	0	5	0	5	20% AEP, 5 min burst, Storm 1						
CAT G4	0.015	0.015	0.001	5	5	5	20% AEP, 10 min burst, Storm 3						
Cat G5 DP	0.006	0.006	0	5	0	5	20% AEP, 5 min burst, Storm 1						
CAT G5	0.007	0.007	0.001	5	5	5	20% AEP, 10 min burst, Storm 3						
Cat G6 DP	0.006	0.006	0	5	0	5	20% AEP, 5 min burst, Storm 1						
CAT G6	0.008	0.007	0.001	5	5	5	20% AEP, 10 min burst, Storm 3						
Cat E1	0.005	0.004	0.001	5	5	0	20% AEP, 10 min burst, Storm 8						
Cat B1	0.002	0.002	0	5	5	0	20% AEP, 5 min burst, Storm 1						
Cat CH Drain	0.009	0.008	0.001	5	5	0	20% AEP, 10 min burst, Storm 3						
Cat D2	0.013	0.01	0.003	5	5	5	20% AEP, 10 min burst, Storm 8						
Cat D1	0.012	0.012	0	5	5	5	20% AEP, 5 min burst, Storm 1						
Cat C4	0.003	0.002	0.001	5	5	5	20% AEP, 10 min burst, Storm 8						
Cat C3	0.002	0.002	0	5	5	5	20% AEP, 10 min burst, Storm 3						
Cat C6	0.01	0.008	0.002	5	5	5	20% AEP, 10 min burst, Storm 8						
Cat C5	0.01	0.009	0.001	5	5	5	20% AEP, 10 min burst, Storm 3						
PIPE DETAILS													
Name	Max Q	Max V	Max U/S	Max D/S	Due to Storm								
	(cu.m/s)	(m/s)	HGL (m)	HGL (m)									
F13D-F13	0.009	4.15	679.72	679.672	20% AEP, 5 min burst, Storm 1								
F13 - F12	0.017	4.58	679.583	679.532	20% AEP, 10 min burst, Storm 8								
F12 - F11	0.029	2.91	679.427	679.369	20% AEP, 10 min burst, Storm 3								
F11 - F10	0.029	1.2	679.348	679.271	20% AEP, 10 min burst, Storm 3								
F10 - F9	0.04	1.79	679.177	679.065	20% AEP, 10 min burst, Storm 3								
F9 - F8	0.055	3.05	678.963	678.935	20% AEP, 10 min burst, Storm 3								
F8 - F7	0.054	1.6	678.879	678.803	20% AEP, 10 min burst, Storm 1								
F7 - F6	0.063	1.33	678.771	678.662	20% AEP, 10 min burst, Storm 3								
F6 - F5	0.077	2.4	678.575	678.507	20% AEP, 10 min burst, Storm 3								
F5 - OSD	0.077	1.73	678.32	678.309	20% AEP, 10 min burst, Storm 3								
OSD - F3	0.109	1.15	678.143	678.099	20% AEP, 15 min burst, Storm 4								
F3 - F2	0.11	0.97	678.09	678.057	20% AEP, 15 min burst, Storm 4								
F2 - F1	0.11	0.78	678.012	678	20% AEP, 15 min burst, Storm 4								
F12 DP-F12	0.005	4.4	679.576	679.513	20% AEP, 5 min burst, Storm 1								
F10 DP-F10	0.003	0.9	679.328	679.251	20% AEP, 5 min burst, Storm 1								
F9 DP-F9	0.005	3.77	679.316	679.249	20% AEP, 5 min burst, Storm 1								
F7 DP-F7	0.007	3.19	679.023	678.959	20% AEP, 5 min burst, Storm 1								
F6 DP-F6	0.012	2.8	678.738	678.681	20% AEP, 5 min burst, Storm 1								
G1 DP-G1	0.003	0.12	678.736	678.736	20% AEP, 10 min burst, Storm 10								
G1 - OSD	0.084	1.31	678.699	678.693	20% AEP, 10 min burst, Storm 3								
G2 DP-G2	0.003	2.73	679.316	679.242	20% AEP, 5 min burst, Storm 1								

G2 - G1	0.076	1.78	678.85	678.735	20% AEP, 10 min burst, Storm 3							
G3 DP-G3	0.011	4.79	679.604	679.555	20% AEP, 5 min burst, Storm 1							
G3 - G2	0.063	1.72	679.109	678.909	20% AEP, 10 min burst, Storm 3							
G4 DP-G4	0.005	4.07	679.916	679.852	20% AEP, 5 min burst, Storm 1							
G4 - G3	0.043	2.6	679.387	679.172	20% AEP, 10 min burst, Storm 1							
G5 DP-G5	0.006	4.37	680.116	680.053	20% AEP, 5 min burst, Storm 1							
G5 - G4	0.025	2.65	679.66	679.484	20% AEP, 10 min burst, Storm 3							
G6 DP-G6	0.006	0.76	680.403	680.335	20% AEP, 10 min burst, Storm 7							
G6 - G5	0.012	2.53	680.267	679.759	20% AEP, 10 min burst, Storm 1							
E1 - B1	0.005	1.38	679.402	679.095	20% AEP, 10 min burst, Storm 3							
B1 -A1	0.015	1.27	679.018	679.003	20% AEP, 10 min burst, Storm 3							
CH Drain - B3	0.009	1.31	679.469	679.475	20% AEP, 10 min burst, Storm 3							
B3 - B2	0.009	6.26	679.171	679.103	20% AEP, 10 min burst, Storm 3							
B2 - B1	0.008	0.48	679.1	679.095	20% AEP, 10 min burst, Storm 3							
D2 - D1	0.012	1.45	680.81	680.196	20% AEP, 10 min burst, Storm 8							
D1 - C4	0.025	2.44	680.089	679.789	20% AEP, 10 min burst, Storm 10							
C4 - C3	0.049	0.69	679.761	679.739	20% AEP, 10 min burst, Storm 10							
C3 - R2	0.051	0.46	679.732	679.7	20% AEP, 10 min burst, Storm 10							
R2 - R1	0.024	2.72	679.068	678.672	20% AEP, 45 min burst, Storm 10							
R1 - C2	0.048	1.45	678.537	678.529	20% AEP, 10 min burst, Storm 10							
C2 - C1	0.049	1.5	678.466	678.401	20% AEP, 10 min burst, Storm 3							
C6 - C5	0.01	1.22	680.506	680.011	20% AEP, 10 min burst, Storm 8							
C5 - C4	0.019	1.87	679.921	679.793	20% AEP, 10 min burst, Storm 3							
B4 - B3	0	0	679.253	679.252	20% AEP, 10 min burst, Storm 3							
CHANNEL DETAILS												
Name	Max Q	Max V			Due to Storm							
	(cu.m/s)	(m/s)										
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				
OF N2-EX PIT F1	0.005	0.005	0.307	0.038	0.02	0.44	0.57	20% AEP, 10 min burst, Storm 3				
OF Grassed Bypass-F1	0.063	0.063	1.284	0.037	0.03	4	0.72	20% AEP, 10 min burst, Storm 8				
OF F12-F11	0.002	0.002	0.908	0.011	0	1.13	0.24	20% AEP, 10 min burst, Storm 8				
OF F11-F10	0.001	0.001	0.908	0.009	0	0.94	0.2	20% AEP, 10 min burst, Storm 3				
OF F10-F9	0	0	0.642	0	0	0	0					
OF F9-B1	0.001	0.001	0.908	0.007	0	0.74	0.19	20% AEP, 5 min burst, Storm 1				
Bowral St 1	0.184	0.184	1.284	0.057	0.06	4	1.1	20% AEP, 10 min burst, Storm 10				
OF G1-N2	0	0	0.532	0	0	0	0					
OF G2-G1	0	0	0.532	0	0	0	0					
OF G3-G2	0	0	0.532	0	0	0	0					
OF G4-G3	0.001	0.001	0.532	0.017	0.01	0.19	0.57	20% AEP, 10 min burst, Storm 3				
OF G5-G4	0	0	0.532	0	0	0	0					
OF G5-F12	0.001	0.001	1.284	0.008	0	0.84	0.23	20% AEP, 10 min burst, Storm 3				
OF E1-B1	0	0	1.431	0	0	0	0					
OF B1-A1	0	0	0.908	0	0	0	0					
OF N1-Bowral St	0.015	0.015	0.336	0.055	0.04	0.95	0.79	20% AEP, 10 min burst, Storm 3				
OF CH D-B1	0	0	0.908	0	0	0	0					
Bowral St 3	0.229	0.229	1.284	0.063	0.08	4	1.2	20% AEP, 10 min burst, Storm 10				
OF D2-D1	0.001	0.001	1.431	0.006	0	0.64	0.25	20% AEP, 10 min burst, Storm 8				
OF D1-C4	0	0	1.412	0	0	0	0					
OF C4-C3	0	0	1.412	0	0	0	0					
OF C3-R2	0	0	1.112	0	0	0	0					
OF R2-R1	0.028	0.028	1.431	0.027	0.02	4	0.58	20% AEP, 10 min burst, Storm 10				
OF R1-C2	0.003	0.003	1.4	0.01	0.01	1.04	0.53	20% AEP, 10 min burst, Storm 10				
OF C2-C1	0	0	0.434	0	0	0	0					
Bowral St 2	0.049	0.049	1.284	0.034	0.02	4	0.65	20% AEP, 10 min burst, Storm 3				
OF C6-C5	0	0	1.3	0	0	0	0					
OF C5-C4	0	0	1.412	0	0	0	0					
DETENTION BASIN DETAILS												
Name	Max WL	MaxVol	Max Q	Max Q	Max Q							
			Total	Low Level	High Level							
OSD TANK	678.24	39.3	0.109	0.109	0							
Run Log for Bowral Hospital run at 15:07:49 on 14/5/2018												

Upwelling occurred at: Pit R2												
Flows were safe in all overflow routes.												



PROJECT

BOWRAL AND DISTRICT HOSPITAL

TITLE

5% AEP - RESULTS

JOB No

5266

PREPARED

ER

DATE

27/10/2017

CHECKED

ER

DATE

27/10/2017

DRAINS File Path:	P:\j1-5200\5266\00 - Enstruct Documents\0.3 - Analysis\Civil\Stormwater\Drains\Bowral Hospital - OSD_v8
DRAINS Version:	DRAINS Version 2017.11 - 18 October 2017
Modeller's Name:	Will Wright
Description:	Developed Model with OSD

DRAINS results prepared from Version 2018.01												
PIT / NODE DETAILS												
Name	Max HGL	Max Pond HGL	Max Surface Flow Arriving (cu.m/s)	Version 8 Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint					
F13 DP	679.82		0.015		0.68		None					
PIT F13	679.72		0.025		0.68	0.003	Inlet Capacity					
PIT F12	679.56		0.018		0.74	0.002	Inlet Capacity					
PIT F11	679.39		0		0.96		None					
PIT F10	679.31		0.015		0.79	0	None					
PIT F9	679.13		0.024		0.87	0.001	Inlet Capacity					
PIT F8	678.99		0		0.76		None					
PIT F7	678.87	680.41	0.004	0	1.53		Inlet Capacity					
PIT F6	678.72	680.41	0.005	0	1.68		Inlet Capacity					
Pit F5	678.5		0		1.9		None					
Pit F3	678.3		0		1.25		None					
PIT F2	678.27		0		0.73		None					
EX PIT F1	678.2		0.188									
Pit F12 DP	679.66		0.01		0.74		None					
Pit F10 DP	679.37		0.005		0.83		None					
Pit F9 DP	679.37		0.008		0.73		None					
Pit F7 DP	679.09		0.012		1.41		None					
Pit F6 DP	678.83		0.022		1.67		None					
Pit G1 DP	678.8		0.006		0.9		None					
Pit G1	678.79		0.012		0.83	0	None					
Pit G2 DP	679.37		0.006		0.73		None					
PIT G2	678.96		0.017		1.09	0	Inlet Capacity					
Pit G3 DP	679.72		0.019		0.78		None					
PIT G3	679.22		0.019		1.23	0	None					
Pit G4 DP	679.99		0.009		1.01		None					
PIT G4	679.53		0.03		1.42	0.002	Inlet Capacity					
Pit G5 DP	680.19		0.01		1.11		None					
PIT G5	679.77		0.013		1.48	0	None					
Pit G6 DP	680.45		0.01		0.65		None					
PIT G6	680.36		0.015		0.64	0.002	Inlet Capacity					
PIT E1	679.48		0.011		0.57	0.001	Inlet Capacity					
B1	679.15		0.007		0.85	0	None					
A1	679.03		0									
CH Drain	679.63		0.017		0.68	0	None					
Pit B3	679.3		0		1		None					
Pit B2	679.16		0		0.94		None					
Developed	678.2		0.414									
PiT D2	680.93		0.027		0.65	0.001	Inlet Capacity					
Pit D1	680.25		0.025		0.75	0.001	Inlet Capacity					
Pit C4	679.89		0.009		0.56	0	None					
Pit C3	679.76		0.004		0.29	0	None					
Pit R2	679.7		0		0	0.052	Outlet System					
Pit R1	678.72		0.071		0.88	0.009	Inlet Capacity					
Pit C2	678.58		0.016		0.72	0	None					
EX PIT C1	678.43		0									
Pit C6	680.6		0.02		0.68	0.001	Inlet Capacity					
Pit 5	680.05		0.021		0.78	0.001	Inlet Capacity					
Pit B4	679.29		0		1.06		None					

SUB-CATCHMENT DETAILS													
Name	Max	Paved	Grassed	Paved	Grassed	Supp.	Due to Storm						
	Flow Q	Max Q	Max Q	Tc	Tc	Tc							
	(cu.m/s)	(cu.m/s)	(cu.m/s)	(min)	(min)	(min)							
CAT N2	0.007	0.006	0.001	5	5	5	5% AEP, 15 min burst, Storm 10						
Cat Existing	0.414	0.175	0.245	5	5	0	5% AEP, 15 min burst, Storm 4						
Cat Grassed Bypass	0.106	0	0.106	5	5	0	5% AEP, 15 min burst, Storm 4						
Cat F13 DP	0.012	0.012	0	5	0	5	5% AEP, 5 min burst, Storm 1						
CAT F13	0.017	0.01	0.007	5	5	5	5% AEP, 15 min burst, Storm 5						
CAT F12	0.011	0.011	0	5	0	5	5% AEP, 5 min burst, Storm 1						
CAT F10	0.01	0.01	0	5	5	5	5% AEP, 5 min burst, Storm 1						
CAT F9	0.019	0.019	0	5	0	5	5% AEP, 5 min burst, Storm 1						
CAT F7	0.003	0.001	0.001	5	5	5	5% AEP, 15 min burst, Storm 4						
CAT F6	0.004	0.002	0.002	5	5	5	5% AEP, 15 min burst, Storm 4						
Cat F12 DP	0.008	0.008	0	5	0	5	5% AEP, 5 min burst, Storm 1						
Cat F10 DP	0.004	0.004	0	5	0	5	5% AEP, 5 min burst, Storm 1						
Cat F9 DP	0.007	0.007	0	5	0	5	5% AEP, 5 min burst, Storm 1						
Cat F7 DP	0.01	0.01	0	5	0	5	5% AEP, 5 min burst, Storm 1						
Cat F6 DP	0.018	0.018	0	5	0	5	5% AEP, 5 min burst, Storm 1						
Cat G1 DP	0.005	0.005	0	5	0	5	5% AEP, 5 min burst, Storm 1						
Cat G1	0.008	0.008	0	5	5	5	5% AEP, 5 min burst, Storm 1						
Cat G2 DP	0.005	0.005	0	5	0	5	5% AEP, 5 min burst, Storm 1						
CAT G2	0.013	0.012	0	5	5	5	5% AEP, 5 min burst, Storm 1						
Cat G3 DP	0.016	0.016	0	5	0	5	5% AEP, 5 min burst, Storm 1						
CAT G3	0.013	0.013	0	5	5	5	5% AEP, 5 min burst, Storm 1						
Cat G4 DP	0.008	0.008	0	5	0	5	5% AEP, 5 min burst, Storm 1						
CAT G4	0.023	0.02	0.003	5	5	5	5% AEP, 15 min burst, Storm 10						
Cat G5 DP	0.008	0.008	0	5	0	5	5% AEP, 5 min burst, Storm 1						
CAT G5	0.01	0.009	0.001	5	5	5	5% AEP, 15 min burst, Storm 10						
Cat G6 DP	0.008	0.008	0	5	0	5	5% AEP, 5 min burst, Storm 1						
CAT G6	0.012	0.01	0.002	5	5	5	5% AEP, 15 min burst, Storm 4						
Cat E1	0.008	0.007	0.002	5	5	0	5% AEP, 15 min burst, Storm 4						
Cat B1	0.003	0.003	0	5	5	0	5% AEP, 5 min burst, Storm 1						
Cat CH Drain	0.013	0.012	0.002	5	5	0	5% AEP, 15 min burst, Storm 4						
Cat D2	0.021	0.015	0.005	5	5	5	5% AEP, 15 min burst, Storm 4						
Cat D1	0.018	0.018	0	5	5	5	5% AEP, 5 min burst, Storm 1						
Cat C4	0.004	0.003	0.001	5	5	5	5% AEP, 15 min burst, Storm 4						
Cat C3	0.003	0.003	0	5	5	5	5% AEP, 15 min burst, Storm 10						
Cat C6	0.015	0.012	0.003	5	5	5	5% AEP, 15 min burst, Storm 4						
Cat C5	0.015	0.013	0.003	5	5	5	5% AEP, 15 min burst, Storm 4						
PIPE DETAILS													
Name	Max Q	Max V	Max U/S	Max D/S	Due to Storm								
	(cu.m/s)	(m/s)	HGL (m)	HGL (m)									
F13D-F13	0.012	1.16	679.762	679.719	5% AEP, 5 min burst, Storm 1								
F13 - F12	0.026	5.68	679.588	679.556	5% AEP, 15 min burst, Storm 4								
F12 - F11	0.044	2.68	679.452	679.397	5% AEP, 15 min burst, Storm 4								
F11 - F10	0.044	1.34	679.376	679.305	5% AEP, 15 min burst, Storm 4								
F10 - F9	0.058	1.43	679.231	679.126	5% AEP, 15 min burst, Storm 4								
F9 - F8	0.08	2.31	679.012	678.991	5% AEP, 15 min burst, Storm 4								
F8 - F7	0.08	1.56	678.928	678.869	5% AEP, 15 min burst, Storm 4								
F7 - F6	0.09	1.31	678.828	678.719	5% AEP, 15 min burst, Storm 9								
F6 - F5	0.108	2.27	678.619	678.547	5% AEP, 15 min burst, Storm 9								
F5 - OSD	0.108	0.83	678.489	678.487	5% AEP, 15 min burst, Storm 9								
OSD - F3	0.157	0.85	678.32	678.303	5% AEP, 15 min burst, Storm 6								
F3 - F2	0.156	0.76	678.297	678.269	5% AEP, 15 min burst, Storm 6								
F2 - F1	0.156	0.72	678.218	678.2	5% AEP, 15 min burst, Storm 6								
F12 DP-F12	0.008	1.34	679.606	679.556	5% AEP, 5 min burst, Storm 1								
F10 DP-F10	0.004	0.68	679.344	679.307	5% AEP, 5 min burst, Storm 1								
F9 DP-F9	0.007	3.86	679.32	679.259	5% AEP, 5 min burst, Storm 1								
F7 DP-F7	0.01	3.05	679.03	678.971	5% AEP, 5 min burst, Storm 1								
F6 DP-F6	0.018	2.04	678.761	678.721	5% AEP, 5 min burst, Storm 1								
G1 DP-G1	0.004	0.12	678.796	678.795	5% AEP, 15 min burst, Storm 10								
G1 - OSD	0.122	1.51	678.746	678.738	5% AEP, 15 min burst, Storm 9								
G2 DP-G2	0.005	3.9	679.316	679.251	5% AEP, 5 min burst, Storm 1								

G2 - G1	0.11	1.96	678.886	678.795	5% AEP, 15 min burst, Storm 9							
G3 DP-G3	0.016	4.78	679.611	679.572	5% AEP, 5 min burst, Storm 1							
G3 - G2	0.094	1.87	679.145	678.961	5% AEP, 15 min burst, Storm 4							
G4 DP-G4	0.008	5.89	679.916	679.863	5% AEP, 5 min burst, Storm 1							
G4 - G3	0.067	3.42	679.398	679.215	5% AEP, 15 min burst, Storm 4							
G5 DP-G5	0.008	5.7	680.117	680.064	5% AEP, 5 min burst, Storm 1							
G5 - G4	0.036	3.71	679.662	679.526	5% AEP, 15 min burst, Storm 10							
G6 DP-G6	0.008	0.85	680.415	680.358	5% AEP, 5 min burst, Storm 1							
G6 - G5	0.018	2.26	680.288	679.788	5% AEP, 15 min burst, Storm 7							
E1 - B1	0.007	1.54	679.411	679.153	5% AEP, 15 min burst, Storm 4							
B1 -A1	0.024	1.29	679.046	679.028	5% AEP, 15 min burst, Storm 9							
CH Drain - B3	0.013	0.99	679.557	679.501	5% AEP, 15 min burst, Storm 4							
B3 - B2	0.012	1.73	679.207	679.153	5% AEP, 15 min burst, Storm 5							
B2 - B1	0.012	0.4	679.158	679.154	5% AEP, 15 min burst, Storm 10							
D2 - D1	0.019	1.64	680.826	680.245	5% AEP, 15 min burst, Storm 4							
D1 - C4	0.037	2.28	680.117	679.894	5% AEP, 15 min burst, Storm 4							
C4 - C3	0.072	1.02	679.826	679.777	5% AEP, 15 min burst, Storm 4							
C3 - R2	0.075	0.68	679.768	679.7	5% AEP, 15 min burst, Storm 4							
R2 - R1	0.024	2.73	679.106	678.734	5% AEP, 5 min burst, Storm 1							
R1 - C2	0.065	1.75	678.549	678.576	5% AEP, 15 min burst, Storm 4							
C2 - C1	0.07	1.54	678.502	678.433	5% AEP, 15 min burst, Storm 4							
C6 - C5	0.014	1.37	680.519	680.05	5% AEP, 15 min burst, Storm 4							
C5 - C4	0.029	2.1	679.935	679.894	5% AEP, 15 min burst, Storm 4							
B4 - B3	0	0	679.287	679.287	5% AEP, 15 min burst, Storm 2							
CHANNEL DETAILS												
Name	Max Q	Max V			Due to Storm							
	(cu.m/s)	(m/s)										
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				
OF N2-EX PIT F1	0.007	0.007	0.307	0.044	0.03	0.58	0.64	5% AEP, 15 min burst, Storm 10				
OF Grassed Bypass-F1	0.106	0.106	1.284	0.045	0.04	4	0.89	5% AEP, 15 min burst, Storm 4				
OF F12-F11	0.003	0.003	0.908	0.015	0	1.53	0.27	5% AEP, 15 min burst, Storm 5				
OF F11-F10	0.002	0.002	0.908	0.012	0	1.23	0.23	5% AEP, 15 min burst, Storm 4				
OF F10-F9	0	0	0.642	0	0	0	0					
OF F9-B1	0.001	0.001	0.908	0.01	0	1.04	0.21	5% AEP, 15 min burst, Storm 4				
Bowral St 1	0.281	0.281	1.284	0.069	0.09	4	1.31	5% AEP, 15 min burst, Storm 4				
OF G1-N2	0	0	0.532	0	0	0	0					
OF G2-G1	0	0	0.532	0	0	0	0					
OF G3-G2	0	0	0.532	0	0	0	0					
OF G4-G3	0.002	0.002	0.532	0.021	0.01	0.24	0.68	5% AEP, 15 min burst, Storm 10				
OF G5-G4	0	0	0.532	0	0	0	0					
OF G5-F12	0.002	0.002	1.284	0.01	0	1.04	0.31	5% AEP, 15 min burst, Storm 4				
OF E1-B1	0.001	0.001	1.431	0.008	0	0.84	0.28	5% AEP, 15 min burst, Storm 4				
OF B1-A1	0	0	0.908	0	0	0	0					
OF N1-Bowral St	0.024	0.024	0.336	0.063	0.05	1.22	0.84	5% AEP, 15 min burst, Storm 9				
OF CH D-B1	0	0	0.908	0	0	0	0					
Bowral St 3	0.347	0.347	1.284	0.075	0.11	4	1.43	5% AEP, 10 min burst, Storm 7				
OF D2-D1	0.001	0.001	1.431	0.009	0	0.94	0.31	5% AEP, 15 min burst, Storm 4				
OF D1-C4	0.001	0.001	1.412	0.008	0	0.84	0.33	5% AEP, 10 min burst, Storm 7				
OF C4-C3	0	0	1.412	0	0	0	0					
OF C3-R2	0	0	1.112	0	0	0	0					
OF R2-R1	0.052	0.052	1.431	0.032	0.02	4	0.77	5% AEP, 15 min burst, Storm 4				
OF R1-C2	0.009	0.009	1.4	0.016	0.01	1.63	0.68	5% AEP, 15 min burst, Storm 4				
OF C2-C1	0	0	0.434	0	0	0	0					
Bowral St 2	0.07	0.07	1.284	0.038	0.03	4	0.77	5% AEP, 15 min burst, Storm 4				
OF C6-C5	0.001	0.001	1.3	0.008	0	0.84	0.25	5% AEP, 15 min burst, Storm 4				
OF C5-C4	0.001	0.001	1.412	0.007	0	0.74	0.35	5% AEP, 15 min burst, Storm 4				
DETENTION BASIN DETAILS												
Name	Max WL	MaxVol	Max Q	Max Q	Max Q							
			Total	Low Level	High Level							
OSD TANK	678.48	78.3	0.157	0.157	0							
Run Log for Bowral Hospital run at 15:14:12 on 14/5/2018												

Upwelling occurred at: Pit R2												
Flows were safe in all overflow routes.												



DRAINS File Path:	P:\j1-5200\5266\00 - Enstruct Documents\0.3 - Analysis\Civil\Stormwater\Drains\Bowral Hospital - OSD_v8
DRAINS Version:	DRAINS Version 2017.11 - 18 October 2017
Modeller's Name:	Will Wright
Description:	Developed Model with OSD

DRAINS results prepared from Version 2018.01												
PIT / NODE DETAILS				Version 8						RESULTS 1% AEP		
Name	Max HGL	Max Pond HGL	Max Surface Flow Arriving (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint					
F13 DP	680.21		0.022		0.29		None					
PIT F13	680.2		0.05		0.2	0.006	Inlet Capacity					
PIT F12	680.06		0.043		0.24	0.003	Inlet Capacity					
PIT F11	679.96		0		0.39		None					
PIT F10	679.92		0.023		0.18	0.001	Inlet Capacity					
PIT F9	679.84		0.037		0.16	0.002	Inlet Capacity					
PIT F8	679.75		0		0		Outlet System					
PIT F7	679.68	680.41	0.005	0	0.72		Inlet Capacity					
PIT F6	679.56	680.41	0.008	0	0.84		Inlet Capacity					
Pit F5	679.42		0		0.98		None					
Pit F3	678.93		0		0.62		None					
PIT F2	678.83		0		0.17		None					
EX PIT F1	678.65		0.278									
Pit F12 DP	680.1		0.014		0.3		None					
Pit F10 DP	679.91		0.007		0.29		None					
Pit F9 DP	679.85		0.012		0.25		None					
Pit F7 DP	679.7		0.017		0.8		None					
Pit F6 DP	679.62		0.031		0.88		None					
Pit G1 DP	679.44		0.008		0.26		None					
Pit G1	679.45		0.017		0.17	0.003	Inlet Capacity					
Pit G2 DP	679.52		0.009		0.58		None					
PIT G2	679.57		0.024		0.48	0.001	Inlet Capacity					
Pit G3 DP	679.76		0.027		0.74		None					
PIT G3	679.67		0.029		0.78	0.001	Inlet Capacity					
Pit G4 DP	680.01		0.013		0.99		None					
PIT G4	679.87		0.043		1.08	0.004	Inlet Capacity					
Pit G5 DP	680.21		0.014		1.09		None					
PIT G5	680.1		0.019		1.15	0.001	Inlet Capacity					
Pit G6 DP	681.01		0.014		0.09		None					
PIT G6	680.98		0.021		0.02	0.004	Inlet Capacity					
PIT E1	679.51		0.016		0.54	0.002	Inlet Capacity					
B1	679.3		0.043		0.7	0	None					
A1	679.05		0.001									
CH Drain	679.75		0.024		0.56	0.001	Inlet Capacity					
Pit B3	679.4		0		0.9		None					
Pit B2	679.3		0		0.8		None					
Developed	678.65		0.658									
PiT D2	680.96		0.039		0.62	0.003	Inlet Capacity					
Pit D1	680.5		0.037		0.5	0.002	Inlet Capacity					
Pit C4	680.05		0.017		0.4	0	None					
Pit C3	679.82		0.006		0.23	0	None					
Pit R2	679.7		0		0	0.08	Outlet System					
Pit R1	678.8		0.109		0.8	0.019	Inlet Capacity					
Pit C2	678.63		0.032		0.67	0.001	Inlet Capacity					
EX PIT C1	678.47		0.005									
Pit C6	680.63		0.028		0.65	0.001	Inlet Capacity					
Pit 5	680.17		0.031		0.66	0.002	Inlet Capacity					
Pit B4	679.4		0		0.95		None					

SUB-CATCHMENT DETAILS													
Name	Max	Paved	Grassed	Paved	Grassed	Supp.	Due to Storm						
	Flow Q	Max Q	Max Q	Tc	Tc	Tc							
	(cu.m/s)	(cu.m/s)	(cu.m/s)	(min)	(min)	(min)							
CAT N2	0.01	0.009	0.001	5	5	5	1% AEP, 5 min burst, Storm 1						
Cat Existing	0.568	0.243	0.347	5	5	0	1% AEP, 10 min burst, Storm 1						
Cat Grassed Bypass	0.15	0	0.15	5	5	0	1% AEP, 10 min burst, Storm 1						
Cat F13 DP	0.017	0.017	0	5	0	5	1% AEP, 5 min burst, Storm 1						
CAT F13	0.023	0.014	0.01	5	5	5	1% AEP, 10 min burst, Storm 1						
CAT F12	0.015	0.015	0	5	0	5	1% AEP, 5 min burst, Storm 1						
CAT F10	0.014	0.014	0	5	5	5	1% AEP, 5 min burst, Storm 1						
CAT F9	0.026	0.026	0	5	0	5	1% AEP, 5 min burst, Storm 1						
CAT F7	0.004	0.002	0.002	5	5	5	1% AEP, 10 min burst, Storm 1						
CAT F6	0.005	0.003	0.003	5	5	5	1% AEP, 10 min burst, Storm 1						
Cat F12 DP	0.011	0.011	0	5	0	5	1% AEP, 5 min burst, Storm 1						
Cat F10 DP	0.005	0.005	0	5	0	5	1% AEP, 5 min burst, Storm 1						
Cat F9 DP	0.009	0.009	0	5	0	5	1% AEP, 5 min burst, Storm 1						
Cat F7 DP	0.013	0.013	0	5	0	5	1% AEP, 5 min burst, Storm 1						
Cat F6 DP	0.025	0.025	0	5	0	5	1% AEP, 5 min burst, Storm 1						
Cat G1 DP	0.006	0.006	0	5	0	5	1% AEP, 5 min burst, Storm 1						
Cat G1	0.012	0.011	0	5	5	5	1% AEP, 5 min burst, Storm 1						
Cat G2 DP	0.007	0.007	0	5	0	5	1% AEP, 5 min burst, Storm 1						
CAT G2	0.018	0.017	0.001	5	5	5	1% AEP, 5 min burst, Storm 1						
Cat G3 DP	0.022	0.022	0	5	0	5	1% AEP, 5 min burst, Storm 1						
CAT G3	0.018	0.018	0	5	5	5	1% AEP, 5 min burst, Storm 1						
Cat G4 DP	0.011	0.011	0	5	0	5	1% AEP, 5 min burst, Storm 1						
CAT G4	0.032	0.029	0.003	5	5	5	1% AEP, 5 min burst, Storm 1						
Cat G5 DP	0.011	0.011	0	5	0	5	1% AEP, 5 min burst, Storm 1						
CAT G5	0.015	0.013	0.001	5	5	5	1% AEP, 5 min burst, Storm 1						
Cat G6 DP	0.011	0.011	0	5	0	5	1% AEP, 5 min burst, Storm 1						
CAT G6	0.016	0.014	0.002	5	5	5	1% AEP, 5 min burst, Storm 1						
Cat E1	0.012	0.009	0.003	5	5	0	1% AEP, 10 min burst, Storm 1						
Cat B1	0.004	0.004	0	5	5	0	1% AEP, 5 min burst, Storm 1						
Cat CH Drain	0.018	0.016	0.002	5	5	0	1% AEP, 5 min burst, Storm 1						
Cat D2	0.028	0.021	0.008	5	5	5	1% AEP, 10 min burst, Storm 1						
Cat D1	0.026	0.025	0.001	5	5	5	1% AEP, 5 min burst, Storm 1						
Cat C4	0.006	0.005	0.001	5	5	5	1% AEP, 10 min burst, Storm 1						
Cat C3	0.004	0.004	0	5	5	5	1% AEP, 5 min burst, Storm 1						
Cat C6	0.021	0.017	0.004	5	5	5	1% AEP, 5 min burst, Storm 1						
Cat C5	0.021	0.018	0.003	5	5	5	1% AEP, 5 min burst, Storm 1						
PIPE DETAILS													
Name	Max Q	Max V	Max U/S	Max D/S	Due to Storm								
	(cu.m/s)	(m/s)	HGL (m)	HGL (m)									
F13D-F13	0.017	0.32	679.916	679.915	1% AEP, 5 min burst, Storm 1								
F13 - F12	0.035	0.76	679.94	679.904	1% AEP, 5 min burst, Storm 1								
F12 - F11	0.058	0.82	680.081	680.049	1% AEP, 5 min burst, Storm 1								
F11 - F10	0.055	0.78	679.82	679.802	1% AEP, 10 min burst, Storm 2								
F10 - F9	0.071	0.64	679.942	679.915	1% AEP, 10 min burst, Storm 1								
F9 - F8	0.101	0.91	679.839	679.823	1% AEP, 10 min burst, Storm 1								
F8 - F7	0.1	0.91	679.783	679.745	1% AEP, 10 min burst, Storm 1								
F7 - F6	0.116	1.05	679.713	679.611	1% AEP, 10 min burst, Storm 1								
F6 - F5	0.143	1.29	679.397	679.343	1% AEP, 10 min burst, Storm 1								
F5 - OSD	0.14	0.65	679.446	679.444	1% AEP, 10 min burst, Storm 5								
OSD - F3	0.251	1.16	678.985	678.935	1% AEP, 10 min burst, Storm 4								
F3 - F2	0.25	1.15	678.921	678.833	1% AEP, 10 min burst, Storm 7								
F2 - F1	0.25	1.15	678.702	678.65	1% AEP, 15 min burst, Storm 8								
F12 DP-F12	0.011	0.28	679.833	679.83	1% AEP, 5 min burst, Storm 1								
F10 DP-F10	0.005	0.12	679.736	679.733	1% AEP, 10 min burst, Storm 6								
F9 DP-F9	0.009	0.22	679.933	679.931	1% AEP, 10 min burst, Storm 5								
F7 DP-F7	0.013	0.32	679.763	679.759	1% AEP, 10 min burst, Storm 5								
F6 DP-F6	0.025	0.63	679.461	679.444	1% AEP, 5 min burst, Storm 1								
G1 DP-G1	0.006	0.16	679.538	679.54	1% AEP, 5 min burst, Storm 1								
G1 - OSD	0.161	1.46	679.316	679.322	1% AEP, 10 min burst, Storm 6								
G2 DP-G2	0.007	0.23	679.46	679.455	1% AEP, 5 min burst, Storm 1								

G2 - G1	0.144	1.31	679.409	679.355	1% AEP, 10 min burst, Storm 6							
G3 DP-G3	0.022	1.1	679.692	679.704	1% AEP, 5 min burst, Storm 1							
G3 - G2	0.124	1.12	679.54	679.49	1% AEP, 10 min burst, Storm 1							
G4 DP-G4	0.011	4.61	679.924	679.887	1% AEP, 5 min burst, Storm 1							
G4 - G3	0.085	1.21	679.617	679.541	1% AEP, 10 min burst, Storm 8							
G5 DP-G5	0.011	2.61	680.137	680.1	1% AEP, 5 min burst, Storm 1							
G5 - G4	0.048	1.21	680.041	679.937	1% AEP, 5 min burst, Storm 1							
G6 DP-G6	0.012	0.29	680.997	680.981	1% AEP, 5 min burst, Storm 1							
G6 - G5	0.024	1.34	680.923	680.561	1% AEP, 10 min burst, Storm 10							
E1 - B1	0.01	1.68	679.419	679.296	1% AEP, 10 min burst, Storm 1							
B1 -A1	0.034	1.17	679.157	679.054	1% AEP, 10 min burst, Storm 1							
CH Drain - B3	0.018	1.15	679.551	679.518	1% AEP, 5 min burst, Storm 1							
B3 - B2	0.017	0.46	679.348	679.305	1% AEP, 5 min burst, Storm 1							
B2 - B1	0.016	0.41	679.302	679.296	1% AEP, 10 min burst, Storm 1							
D2 - D1	0.025	1.76	680.838	680.503	1% AEP, 10 min burst, Storm 1							
D1 - C4	0.049	1.24	680.242	680.055	1% AEP, 10 min burst, Storm 1							
C4 - C3	0.097	1.38	679.896	679.813	1% AEP, 10 min burst, Storm 1							
C3 - R2	0.102	0.92	679.78	679.7	1% AEP, 10 min burst, Storm 1							
R2 - R1	0.024	2.72	679.195	678.878	1% AEP, 10 min burst, Storm 3							
R1 - C2	0.082	1.04	678.66	678.631	1% AEP, 10 min burst, Storm 1							
C2 - C1	0.097	1.64	678.537	678.468	1% AEP, 10 min burst, Storm 1							
C6 - C5	0.019	1.5	680.531	680.166	1% AEP, 5 min burst, Storm 1							
C5 - C4	0.04	0.76	680.07	680.055	1% AEP, 10 min burst, Storm 1							
B4 - B3	0.001	0.02	679.927	679.927	1% AEP, 10 min burst, Storm 3							
CHANNEL DETAILS												
Name	Max Q	Max V			Due to Storm							
	(cu.m/s)	(m/s)										
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				
OF N2-EX PIT F1	0.01	0.01	1.201	0.049	0.03	0.75	0.69	1% AEP, 15 min burst, Storm 7				
OF Grassed Bypass-F1	0.15	0.15	1.442	0.052	0.05	4	1.02	1% AEP, 10 min burst, Storm 1				
OF F12-F11	0.006	0.006	1.479	0.019	0.01	1.92	0.31	1% AEP, 10 min burst, Storm 1				
OF F11-F10	0.003	0.003	1.479	0.015	0	1.53	0.27	1% AEP, 10 min burst, Storm 1				
OF F10-F9	0.001	0.001	1.497	0.011	0	1.13	0.14	1% AEP, 10 min burst, Storm 1				
OF F9-B1	0.002	0.002	1.479	0.014	0	1.43	0.24	1% AEP, 5 min burst, Storm 1				
Bowral St 1	0.434	0.434	1.442	0.084	0.13	4	1.57	1% AEP, 10 min burst, Storm 4				
OF G1-N2	0.003	0.003	0.88	0.026	0.02	0.29	0.77	1% AEP, 15 min burst, Storm 3				
OF G2-G1	0.001	0.001	0.88	0.018	0.01	0.21	0.59	1% AEP, 10 min burst, Storm 8				
OF G3-G2	0.001	0.001	0.88	0.017	0.01	0.2	0.59	1% AEP, 10 min burst, Storm 1				
OF G4-G3	0.004	0.004	0.88	0.028	0.02	0.32	0.81	1% AEP, 5 min burst, Storm 1				
OF G5-G4	0.001	0.001	0.88	0.016	0.01	0.18	0.53	1% AEP, 5 min burst, Storm 1				
OF G5-F12	0.004	0.004	1.442	0.015	0.01	1.53	0.36	1% AEP, 5 min burst, Storm 1				
OF E1-B1	0.002	0.002	1.431	0.009	0	0.94	0.37	1% AEP, 10 min burst, Storm 1				
OF B1-A1	0	0	1.479	0	0	0	0					
OF N1-Bowral St	0.034	0.034	1.137	0.07	0.06	1.46	0.89	1% AEP, 10 min burst, Storm 1				
OF CH D-B1	0.001	0.001	1.479	0.008	0	0.84	0.15	1% AEP, 5 min burst, Storm 1				
Bowral St 3	0.526	0.526	1.442	0.093	0.16	4	1.68	1% AEP, 10 min burst, Storm 4				
OF D2-D1	0.003	0.003	1.431	0.012	0	1.23	0.37	1% AEP, 10 min burst, Storm 1				
OF D1-C4	0.002	0.002	1.412	0.011	0	1.13	0.39	1% AEP, 5 min burst, Storm 1				
OF C4-C3	0	0	1.412	0	0	0	0					
OF C3-R2	0	0	1.468	0	0	0	0					
OF R2-R1	0.08	0.08	1.431	0.037	0.03	4	0.91	1% AEP, 10 min burst, Storm 1				
OF R1-C2	0.019	0.019	1.4	0.022	0.01	4	0.67	1% AEP, 10 min burst, Storm 1				
OF C2-C1	0.001	0.001	0.984	0.019	0.01	0.22	0.48	1% AEP, 10 min burst, Storm 1				
Bowral St 2	0.097	0.097	1.442	0.043	0.04	4	0.87	1% AEP, 10 min burst, Storm 1				
OF C6-C5	0.001	0.001	1.44	0.01	0	1.04	0.26	1% AEP, 5 min burst, Storm 1				
OF C5-C4	0.002	0.002	1.412	0.009	0	0.94	0.36	1% AEP, 10 min burst, Storm 1				
DETENTION BASIN DETAILS												
Name	Max WL	MaxVol	Max Q	Max Q	Max Q							
			Total	Low Level	High Level							
OSD TANK	679.21	161.3	0.251	0.251	0							
Run Log for Bowral Hospital run at 15:16:52 on 14/5/2018												

Upwelling occurred at: Pit R2												
Freeboard was less than 0.15m at Pit G6 DP, PIT G6												
Flows were safe in all overflow routes.												