# LAND DYNAMICS AUSTRALIA SURVEYORS, ENGINEERS & PLANNERS **SUBDIVISION WORKS CERTIFICATE** THE SANCTUARY, STAGE 7 **344 JOHN OXLEY DRIVE, THRUMSTER** LOT 200 DP1306921 **D.A. 2014/114**

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These are the plans referred to in Subdivision Works Certificate Application No

# GENERAL

- 1. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE FOLLOWING DOCUMENTS: • OTHER PROVIDED ENGINEERING DRAWINGS:
- TECHNICAL SPECIFICATIONS:
- SUPPLEMENTARY SPECIFICATIONS;
- WRITTEN INSTRUCTIONS.
- 2. ALL CONSTRUCTION MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT SPECIFICATION FOR THE WORKS TOGETHER WITH THE REQUIREMENTS OF ALL THE RELEVANT CODES OF PRACTICE REFERRED TO THEREIN AND THE REQUIREMENTS OF AUS-SPEC STANDARDS AND SPECIFICATIONS.
- 3. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND PROVISION OF ANY TEMPORARY BRACING, PROPPING ETC. TO DRAINAGE PIPES DURING CONSTRUCTION. STRUCTURES SHALL BE MAINTAINED IN A STABLE POSITION AND NO PART SHALL BE OVERSTRESSED.
- 4. ALL LOCATIONS, ORIENTATION AND LEVELS SHALL BE VERIFIED ON SITE BEFORE COMMENCING ANY WORK. DISCREPANCIES SHALL BE REFERRED TO THE SITE SUPERINTENDENT.
- 5. DO NOT OBTAIN DIMENSIONS FROM SCALING.
- NATURAL SURFACE LEVELS ON THE DRAWINGS ARE INDICATIVE ONLY. 7. ANY PERMITS AND APPROVALS REQUIRED FOR CONSTRUCTION OF PERMANENT OR
- TEMPORARY WORKS SHALL BE OBTAINED BY THE CONTRACTOR. AUS-SPEC STANDARD DETAILS ARE TO BE ADOPTED UNLESS STATED OTHERWISE.
- 9. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN IN THE FIELD THE LOCATION AND LEVEL OF ALL EXISTING SERVICES (TELECOM, UNDERGROUND POWER, SEWER, WATER, ETC.) AND ANY OTHER FEATURE OR STRUCTURE LIKELY TO BE AFFECTED BY THE WORKS AND TO TAKE APPROPRIATE MEASURES TO ENSURE NO DAMAGE THERETO. ANY DAMAGE SHALL BE MADE GOOD AT NO COST TO THE PROPRIETOR.
- 10. IT IS THE CONTRACTOR'S RESPONSIBILITY PRIOR TO COMMENCEMENT OF SITE WORKS, ALL TREES REQUIRED TO BE REMOVED AS A CONSEQUENCE OF THE DEVELOPMENT CONSTRUCTION SHALL BE PHYSICALLY IDENTIFIED ON-SITE. AN INSPECTION SHALL BE MADE BY THE APPLICANT'S SUPERVISING ARBORIST TO ENSURE TREE REMOVAL COMPLIES WITH THE APPROVED PLAN. CERTIFICATION FROM THE ARBORIST IS TO BE PROVIDED TO COUNCIL.

# ROADWORKS

- 1. NOTWITHSTANDING THE DETAILS SHOWN ON THE DRAWINGS ALL WORKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH AUS-SPEC STANDARD SPECIFICATIONS AND DRAWINGS
- 2. SIDE DRAINS SHALL BE CONSTRUCTED UNDER ALL NEW KERBS AS SPECIFIED WITHIN THESE DRAWINGS AND AS DIRECTED BY THE SUPERINTENDENT. REFER TO AUS-SPEC STANDARD DRAWING
- 3. FLUSHING POINTS SHALL BE PROVIDED FOR SIDE DRAINS AT THE REQUIRED SPACING IN 17. THE THICKNESS OF THE RIP-RAP PROTECTION SHALL BE TWICE THE D50 STONE SIZE ACCORDANCE WITH AUS-SPEC STANDARD DRAWINGS AND SPECIFICATIONS.
- 4. GEOTECHNICAL TEST RESULTS ARE TO BE FORWARDED TO THE SUPERINTENDENT PRIOR TO FINAL BOXING. TESTS SHALL INCLUDE SOAKED CBR AND/OR OTHER TESTS AS REQUESTED BY THE SUPERINTENDENT. THESE TESTS SHALL BE USED TO CONFIRM THE PAVEMENT DESIGN SHOW ON THESE DRAWINGS.
- THE PAVEMENT DESIGN ON THE DRAWINGS IS NOT FOR CONSTRUCTION UNTIL FINAL CBR TESTS ARE REVIEWED AND APPROVED BY THE SITE SUPERINTENDENT. CONSTRUCTION OF THE PAVEMENT TO THE DESIGN SHOWN ON THE DRAWINGS PRIOR TO RECEIPT OF THE FINAL CBR TEST SHALL BE UNDERTAKEN AT THE CONTRACTOR'S OWN RISK.
- 6. THE CONTRACTOR SHALL OBTAIN THE LOCATION OF ALL SERVICES AND PROTECT THESE SERVICES PRIOR TO WORKING IN THE VICINITY, ANY DAMAGE WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE
- 7. WORK TO ANY SERVICES SHOULD BE DONE IN CONSULTATION WITH THE APPROPRIATE SERVICE PROVIDER.
- 8. EXISTING DRIVEWAYS WITHIN THE LIMITS OF THE CONSTRUCTION WORKS SHALL BE PROTECTED FROM DAMAGE. ANY DAMAGE TO DRIVEWAYS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- 9. ENTRY INTO EXISTING PROPERTIES SHALL BE MAINTAINED AT ALL TIMES.
- 10. TEMPORARY WARNING SIGNS TO BE ERECTED AS PER AUS-SPEC, CURRENT EDITION
- 11. SEAL TO BE A.C. SURFACING AS SPECIFIED.

# PAVEMENTS

- ALL DOCUMENTATION AS SHOWN ON THESE PLANS WITH REGARD TO PAVEMENT DESIGN, CONSTRUCTION AND TESTING ARE TYPICAL DETAILS ONLY AND NOT DETAILED PAVEMENT SPECIFICATION
- 2. ALL PAVEMENTS TO BE CONSTRUCTED IN ACCORDANCE WITH AN APPROVED
- GEOTECHNICAL ENGINEER'S PAVEMENT DESIGN AS APPROVED BY PMHC 3. PAVEMENT DRAINAGE AND SUB-SURFACE DRAINAGE AS SPECIFIED BY GEOTECHNICAL
- ENGINEER ALL PAVEMENT TESTING TO BE IN ACCORDANCE WITH PMHC AUSPEC SPECIFICATION 4.
- (CURRENT EDITION) AND ANY OTHER RELEVANT STANDARDS IT IS THE RESPONSIBILITY OF THE USER OF THIS PLAN TO ENSURE COMPLIANCE WITH
- THE LATEST APPROVED PAVEMENT DESIGN AND PMHC AUSPEC SPECIFICATION

# DRAINAGE

- ALL DRAINAGE STRUCTURES ARE TO BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING DOCUMENTS
- AUS-SPEC DRAWINGS AND SPECIFICATIONS;
- ANY MANUFACTURER'S STANDARD DRAWINGS AND SPECIFICATIONS ALL CONSTRUCTION MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT SPECIFICATION FOR THE WORKS TOGETHER WITH THE REQUIREMENTS OF ALL THE RELEVANT CODES OF PRACTICE REFERRED TO THEREIN AND THE REQUIREMENTS OF
- THE STATUTORY AUTHORITIES WHERE APPLICABLE. 3. STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ONLY. THE CONTRACTOR IS RESPONSIBLE FOR THE ASSESSMENT OF CONSTRUCTION LOADS AND PROVISIONS OF ANY TEMPORARY BRACING, PROPPING ETC. REQUIRED DURING CONSTRUCTION STRUCTURES SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED.
- 4. PRECAST REINFORCEMENT CONCRETE PIPES ARE TO BE MANUFACTURED IN ACCORDANCE WITH AS 4058 AND AS 1992.
- 5. ALL STORMWATER PIPES SHALL BE CLASS '2' RCP. U.N.O.
- 6. ALL PIPES UP TO AND INCLUDING Ø600 ARE TO BE RUBBER RING JOINTED. ALL PIPES ABOVE Ø600 ARE TO BE FLUSH JOINTED U.N.O.
- 7. HEADWALL END STRUCTURES TO BE TYPE A, CAST IN SITU CONCRETE WITH CONCRETE APRONS (INCLUDING CUT OFF WALLS) U.N.O. REFER TO AUS-SPEC STANDARD DRAWINGS FOR DETAILS.
- PRECAST END STRUCTURES MAY BE USED ON CULVERTS LESS THAN OR EQUAL TO 15° SKEW, SUBJECT TO THE APPROVAL OF THE SUPERINTENDENT. PRECAST END STRUCTURES SHALL BE CONSTRUCTED WITH A REINFORCED CONCRETE CUT OFF WALL AS DETAILED FOR TYPE 3 APRONS BY AUS-SPEC.
- EXISTING STORMWATER DRAINAGE PIPES AND MANHOLES WITHIN THE LIMIT OF WORK 9 SHALL BE PROTECTED, REMOVED OR MODIFIED AS SPECIFIED.
- 10. WHERE A CONNECTION IS MADE TO AN EXISTING DRAINAGE PIPE OR PIT. THE LEVEL OF THAT ELEMENT MUST BE SURVEYED PRIOR TO CONSTRUCTION. THE SURVEYED LEVELS SHALL BE PROVIDED TO THE SITE SUPERINTENDENT TO CONFIRM THE CONNECTION AND LEVELS PRIOR TO CONSTRUCTION.
- 11. BACKFILL AND BEDDING TO PIPE TO BE IN ACCORDANCE WITH AUS-SPEC STANDARD DRAWINGS AND SPECIFICATIONS
- 12. UNSUITABLE FOUNDING MATERIAL FOR PIPES AND STRUCTURES SHALL BE REMOVED OR IMPROVED IN ACCORDANCE WITH AUS-SPEC SPECIFICATIONS. 13. ALL TRENCH BACK FILL MATERIAL UNDER THE PAVEMENT SHALL BE CBR 15 OR APPROVED
- EQUIVALENT. 14. STEEL GRATES AND FRAMES ARE TO BE FABRICATED FROM MILD STEEL AND HOT DIP
- GALVANISED. ALL GRATES ARE TO BE CLASS D U.N.O. AND BICYCLE SAFE IN ACCORDANCE WITH AS 3996 U.N.O.
- 15. GRATE SUPPORT TO BE CONSTRUCTED LEVEL TO ENSURE THAT THE GRATE DOES NOT ROCK AFTER INSTALLATION. 16. ALL LEVELS ARE APPROXIMATE ONLY AND ARE SUBJECT TO FULL DETAIL SURVEY OF THE
- EXISTING STRUCTURE.
- SPECIFIED ON THE DRAWINGS. 17.1. THE STONE SHALL BE REASONABLY WELL GRADED THROUGHOUT THE RIP-RAP
  - LAYER. STONE SIZE SHALL BE DEPENDENT ON THE D50 VALUE SPECIFIED ON THE DRAWINGS. D10 SHALL BE 0.5xD50 AND D90 SHALL BE 1.35xD50. STONES SMALLER THAN THE SPECIFIED D10 ARE NOT TO EXCEED 20% BY WEIGHT OF EACH LOAD.
- 17.2. ROCK IS TO BE HARD, DENSE, DURABLE, RESISTANT TO WEATHERING AND ANGULAR IN SHAPE. IT SHALL BE FREE FROM OVERBURDEN, SPOIL SHALE AND ORGANIC MATTER. ROCK THAT IS LAMINATED. FRACTURED. POROUS OF OTHERWISE PHYSICALLY WEAK SHALL NOT BE USED.
- 17.3. AS AN APPROXIMATE GUIDE TO STONE SHAPE: THE BREADTH OR THICKNESS OF A SINGLE STONE SHOULD NOT BE LESS THAN ONE-THIRD ITS LENGTH. ROUND MATERIAL CAN BE USED AS RIP-RAP, PROVIDED IT IS NOT PLACED ON SLOPES **GREATER THAN 1:3.**
- 18. PUBLIC INFRASTRUCTURE STORMWATER PIPES TO BE RCP OR EQUIVALENT WITH ACCORDANCE WITH PMHC AUSPEC. USE OF CORRUGATED POLYPROPELYNE PIPES (E.G. STORMPRO / BLACKMAX) TO BE OF EQUIVALENT STANDARD TO COMPLY WITH PMHC AUSPEC AND BE INSTALLED
- 19. DRAINAGE PITS TO BE CONSTRUCTED IN ACCORDANCE WITH AUS-SPEC DESIGN GUIDELINES, ASD 301 TO ASD 328.

# SIGNAGE

- 1. FINAL SIGN LOCATIONS TO BE DETERMINED ON SITE BY THE SUPERINTENDENT.
- 2. ALL TRAFFIC SIGNS TO BE SIZE 'A' U.N.O.
- 3. FOR TRAFFIC SIGN SUPPORT DETAILS, REFER TO AUS-SPEC.
- 4. ALL SIGN MATERIAL TO BE CLASS 1. 5. ALL SIGNAGE, LINE MARKING & RRPMs ARE TO BE PREPARED IN ACCORDANCE WITH AUS-SPEC.

# SURVEY

- BOUNDARIES ARE APPROXIMATE ONLY AND SUBJECT TO FINAL SURVEY 1
- 2. LEVELS TO AHD71. ORIGIN OF LEVELS PM74301 RL 10.845
- 3. LOCAL MGA2020 GROUND DISTANCE HORIZONTAL COORDINATES ADOPTED. ORIGIN OF COORDINATES PM74301. MGA NORTH AZIMUTH PM74301 - PM74300
- 4. DESCRIPTION OF PROPOSED EASEMENTS SHOWN ON PLAN:

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- CONSTRUCTED IN ACCORDANCE WITH AUS-SPEC STANDARD SPECIFICATIONS, DRAWINGS AND WSA 02 - 2014.
  - 2. ALL PIPES SHALL BE Ø150 uPVC CLASS 'SN8' OR APPROVED EQUIVALENT U.N.O.
  - EACH LOT SHALL BE SERVICED BY A Ø100 HOUSE CONNECTION IN ACCORDANCE WITH AUS-SPEC STANDARD SPECIFICATIONS AND DRAWINGS. HOUSE CONNECTIONS SHALL BE LOCATED 0.5m UPSTREAM OF ALLOTMENT BOUNDARIES.

NOTWITHSTANDING THE DETAILS SHOWN ON THE DRAWINGS ALL WORKS SHALL BE

- 4. CONTRACTOR SHALL VERIFY FINISHED SURFACE LEVELS ON SITE BEFORE CONSTRUCTION OF SEWERS AND HOUSE CONNECTION BRANCHES.
- THE CONTRACTOR SHALL HAVE PROPERTY BOUNDARIES PEGGED AND THE LOCATION OF HOUSE CONNECTIONS CONFIRMED PRIOR TO COMMENCING CONSTRUCTION OF HOUSE CONNECTION BRANCHES.
- 6. FINISHED SURFACE LEVELS SHOWN ON LONGITUDINAL SECTIONS ARE INDICATIVE ONLY AND MANHOLE LIDS SHALL FINISH TO THE GRADE OF THE FOOTPATH IN ROADWAYS AND 75mm ABOVE THE SURROUNDING LEVELS IN THE ALLOTMENTS.
- 7. ANY WORK ASSOCIATED WITH LIVE SEWERS AND MANHOLES MAY BE CARRIED OUT BY THE CONTRACTOR UNDER SUPERVISION BY PORT MACQUARIE-HASTINGS COUNCIL. FEES & EXPENSES FOR THESE EXPENSES ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- THE CONTRACTOR SHALL OBTAIN THE LOCATION OF ALL SERVICES AND PROTECT THESE SERVICES PRIOR TO WORKING IN THE VICINITY, ANY DAMAGE WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR SHALL ADVICE THE SUPERINTENDENT IMMEDIATELY IF MIN. & MAX. DEPTHS AS DEFINED BY AUS-SPEC ARE EXCEEDED DURING CONSTRUCTION
- 10. ALL TRENCH BACK FILL MATERIAL UNDER ROAD PAVEMENT SHALL BE CBR 15 OR APPROVED EQUIVALENT.
- 11. THE BEDDING MATERIALS USED IN TRENCHES SHALL FOLLOW THE GUIDELINES OF AS2566.2, AND SHOULD BE ONE OF THE FOLLOWING:
- 11.1. SAND OR SOIL, FREE FROM ROCKS GREATER THAN 15MM IN SIZE.
- 11.2. CRUSHED ROCK, GRAVEL, OR GRADED MATERIAL OF EVEN GRADING WITH A MAXIMUM SIZE OF 15MM
- 11.3. EXCAVATED MATERIAL FREE FROM ROCKS OR ORGANIC MATERIAL OR VEGETABLE MATTER THAT WILL AFFECT EMBEDMENT MATERIAL PERFORMANCE. 11.4. CONTROLLED LOW STRENGTH MATERIALS.
- 12. SEWER HOUSE CONNECTIONS SHALL BE A MAXIMUM DEPTH OF 1.5m MEASURED FROM THE DESIGN SURFACE AT A POINT 1m INSIDE THE ALLOTMENT.
- 13. THE CONTRACTOR SHALL CHECK ALL HOUSE CONNECTIONS PRIOR TO CONSTRUCTION AND SEEK INSTRUCTIONS FROM THE SUPERINTENDENT FOR ANY HOUSE CONNECTIONS OUTSIDE THE ALLOWABLE DEPTH
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECTIFICATION OF HOUSE CONNECTIONS DEEPER THAN 1.5m IF THE SUPERINTENDENT HAD NOT BEEN CONSULTED PRIOR TO CONSTRUCTION.
- 15. THE CONTRACTOR SHALL PROVIDE SEWER JUNCTION MARKERS FOR ALL LOT CONNECTIONS IN ACCORDANCE WITH AUS-SPEC REQUIREMENTS.
- 16. SEWER MAIN AND MANHOLE TESTING IS TO BE IN ACCORDANCE WITH COUNCIL AMENDED AUS-SPEC OR WSA 02. THE CONTRACTOR IS REQUIRED TO PROVIDE A CERTIFICATE OF CONFORMANCE UPON COMPLETION TO THE SUPERINTENDENT

# WATER

- 1. NOTWITHSTANDING THE DETAILS SHOWN ON THE DRAWINGS. ALL WORKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH AUS-SPEC STANDARD SPECIFICATIONS, DRAWINGS AND WSA 03. -2011
- 2. ALL FITTINGS SHALL BE D.I.C.L. CLASS K9 RUBBER RING JOINTED SPIGOT AND SOCKET TO AS 2280-1986.
- ANCHOR BLOCKS SHALL BE INSTALLED AT ALL BENDS, JUNCTIONS AND DEAD ENDS. 3.
- THE CONTRACTOR SHALL OBTAIN THE LOCATION OF ALL SERVICES AND PROTECT THESE SERVICES PRIOR TO WORKING IN THE VICINITY. ANY DAMAGE WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- OFFSET FROM KERB TO WATER MAIN 1.0m 1.6m U.N.O.
- PROVIDE WATER SERVICE TO ALL LOTS TO AUS-SPEC STANDARD DRAWINGS. ALL TRENCH BACK FILL MATERIAL UNDER ROAD PAVEMENT SHALL BE CBR 15 OR APPROVED EQUIVALENT.
- 8. ANY WORKS ASSOCIATED WITH LIVE WATER CONNECTIONS MUST BE CARRIED OUT BY COUNCIL OR THE CONTRACTOR UNDER SUPERVISION BY PORT MACQUARIE-HASTINGS COUNCIL. FEES & EXPENSES FOR THESE EXPENSES ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- TESTING IS TO BE IN ACCORDANCE WITH WSA 01 REQUIREMENTS OR AS DIRECTED BY COUNCIL. THE CONTRACT IS REQUIRED TO PROVIDE A COMPLIANCE CERTIFICATE TO THE SUPERINTENDENT ONCE COMPLETE.
- 10. THE CONTRACTOR IS TO LIAISE WITH COUNCIL FOR CHLORINATION OF WATER MAINS AND PROVIDE COMPLIANCE CERTIFICATE UPON COMPLETION

# ABBREVIATIONS USED ON THE PLANS

REC RECLAIMED WATERMAIN HOUSE CONNECTION JUNCTION POT POTABLE WATERMAIN AC ASPHALTIC CONCRETE HYD FIRE HYDRANT ES CONCRETE EDGE STRIP SV STOP VALVE TOP OF KERB ΤK SEW SEWER CENTRELINE CL PMHC PORT MACQUARIE-HASTINGS COUNCIL K&G KERB & GUTTER BDY BOUNDARY INV INVERT O/S OFFSET OBVERT OBV KIP KERB INLET PIT FSL FINISHED SURFACE LEVEL SIP SURFACE INLET PIT HEADWALL HW WATERMAIN STW STORMWATER WM

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# EARTHWORKS

- 1. ALL EARTHWORKS TO BE UNDERTAKEN IN ACCORDANCE WITH AS3798
- 2. EARTHWORKS UNDERTAKEN WITHIN LOTS IS TO BE PLACED IN ACCORDANCE WITH AS3798 WITH LEVEL 1 SUPERVISION
- MINIMUM COMPACTION REQUIREMENT IS 95% DENSITY RATIO FOR ALL AREAS OF PLACED FILL. WHERE FILL IS PLACED TO SUBGRADE LEVEL IT SHALL BE COMPACTED TO 98% DENSITY RATIO
- 4. CONTRACTOR TO SEEK ADVICE FROM GEOTECHNICAL ENGINEER IF UNSUITABLE MATERIAL IS FOUND ON SITE DURING EXCAVATION AND PLACEMENT OF FILL. ANY UNSUITABLE MATERIAL IS TO BE USED ON SITE AS ADDITIONAL TOPSOIL

# LANDSCAPING

- 1. ALL PERVIOUS AREAS IN ROAD RESERVATION TO BE REHABILITATED WITH MINIMUM 100mm THICK TOPSOIL AND GRASS SEEDED
- 2. WHERE THERE IS INSUFFICIENT TOPSOIL QUANTITIES ON SITE, IMPORTED TOPSOIL SHALL BE USED
- 3. TOPSOIL TO COMPLY WITH AS4419 (1998) SOILS FOR LANDSCAPING AND GARDEN USE 4. ALL TOPSOIL TO BE CERTIFIED FREE OF FIRE ANTS
- 5. SITE STABILISATION & RESTORATION WILL INCLUDE GRASS PLANTING, TURFING AND PLANTING OF APPROPRIATE NATIVE SPECIES AS DETERMINED ON SITE

CI2014 - 114.8

These are the plans referred to in



THE SANCTUARY STAGE 7

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and determined as APPROVED on: 17/10/2024 PORT MACQUARIE HASTINGS COUNCIL

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PAVEMENT DETAILS SHOWN HEREIN ARE TYPICAL ONLY AND NOT DETAILED PAVEMENT SPECIFICATION. REFER TO PAVEMENT NOTES (SHEET 1001) AND APPROVED GEOTECHNICAL ENGINEER PAVEMENT DESIGN FOR DETAILED SPECIFICATION.

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DESIGN SURFACE	10.21	07:01	10.03	10.00	9.97 9.96	9.93	9.90	9.90 9.80	9.83	9.93 0.93	0.83 80	06.6	10.03 10.03	10.06
EXISTING	9.700	A.129	9.800	9.812	9.824 9.829	9.847	9.866	9.867	9.875	9.928	9.982 0.82	9.990 9.990	10.056 10.058	860.01
OFFSET	-15.00	00.01-	-8.25	-7.40	-6.60	-5.10	-3.77	-3.50	-3.20	0.00	3.20	3.70	7.31	.43
		•								CH 33	30.00		· · ·	·



100 Inv 8.601 100 Inv 8.640 0.96% 2.71% 2.93% 2.50% 3.60% -3.00% -3.00% \_\_\_\_\_ RL8.00 0.087 0.056 0.155 0.154 0.231 0.189 0.188 0.087 0.116 0.326 0.279 HEIGHT DIFFERENCE 0.0 9.98 9.95 9.95 9.85 9.88 9.88 9.85 9.95 9.95 8 DESIGN SURFACE <u>0</u> 11.12.2023 9.792 9.793 9.794 9.795 9.751 9.760 9.761 9.762 9.763 9.718 EXISTING 3.20 3.50 3.70 3.77 -5.10 -3.77 -3.70 -3.50 -3.20 7.40 OFFSET 🖞 13.

CH 313.00

			-					
REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED	SCALES: 0 1 2 4 6	Copyright of Land Dynamics Australia, No
D	STAGE 7 SUBDIVISION WORKS CERTIFICATE	11.09.24	T.F	J.R.O	A.C	G.B	Full Size 1:100 : Half Size 1:200	stored in a retrieval system or transmitted in
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						-7.50	6.096		.212 154	5	3.608									06.7			CI2014 - 114.8 and determined as APPROVED on: 17/10 PORT MACQUARIE-HASTINGS COUNT
RL5.00	1.13	3%			18.72%	BDY	o 150 Inv	2.50	00 lnv 7 00 lnv 7		375 Inv 6			-3.00%	-3.00%				3.60%	25.00%	0		
HEIGHT DIFFERENCE	0.168	0.183	8CI.0 8CI.0	-0.125		-0.710	-0.723	-0.389	-0.447	-0.448	-0.551	-0.525	-0.519	-0.471	609 <sup>.</sup> 0-	-0.643	-0.557	-0.546	-0.475 -0.465		0.002		
DESIGN SURFACE	9.11	9.08	90.8 96.8	8.72		8.04	7.96	ce./	7.89	7.89	7 79	7.82	7.83	7.91	7.82	7.79	7.88	7.89	8.00 8.01		8.51 8.51	-	
EXISTING	8.937	8.893	8.878 8.878	8.849		8.748 8.711	8.681	8.619 8.310	8.334	8.336	8.339 8.339	8.342	8.348	8.384	8.426	8.430	8.432	8.434	8.474 8.480		8.505	8.507	8.562
OFFSET	-15.00	-12.94	-12.74 -12.31	-11.07		-7.40	09.9-	-6.30 -5.10	-3.77	-3.70	-3.50	-3.20	-2.81	0.00	3.20	3.50	3.68	3.77	6.88 7.31		CP.8 9.28	9.54	15.00

	1.12%	8.409	BDY-7.50		2.509	• 100 Inv 7.824	375 Inv 7.243	-3.00%	-3.00%		3.60%	o 55 150 lnv 6.660		
RL6.00							/							
HEIGHT DIFFERENCE	-0.049 -0.036	-0.315	-0.478	-0.540 -0.545	-0.567	-0.602 -0.604	-0.709 -0.687	-0.642	-0.760 0.700	-0.730 -0.691 -0.691	-0.574	0.000	200.U	
DESIGN SURFACE	9.12 9.10	8.80	8.63	8.56 8.55	8.52	8.49 8.49	8.39 8.42	8.52	8.42 8.20	0.33 8.49 8.49	8.62	9.22	л. Л.	
EXISTING	9.172	9.117	9.108	9.102 9.100	9.092	9.094 9.096	9.101 9.108	9.160	9.181	9.102 9.182 9.183	9 0.193	9.221	9.223	9.280
OFFSET	-15.00 -13.00	-9.46	-7.40	-6.60 -6.30	-5.10	-3.77	-3.50	00.0	3.20	3.70 3.70 3.77	7.31	9.72	ס איני	15.00

 BDY7.42			
0.185	0.000		
10.08	9.89		
9.893	9.894	9.997	
7.31	8.05	15.00	

	1.21%	0 225 Inv 8.425	BDY-7.52			2.5	• 100 Inv 8.411 • 100 Inv 8.476			-3.00%	-3.00%			3.60%	o BDY7.48 %0 150 lnv 7.963	
RL7.00					'				/   \					$\backslash$		
HEIGHT DIFFERENCE	-0.017 -0.065	-0.252		962.0-	-0.342	-0.410	-0.470	-0.471	-0.575	-0.520	-0.677	-0.706	-0.605	6000.0- 097 0	0.000	
DESIGN SURFACE	9.52	9.34		9.30	9.28 9.27	9.24	9.21	9.21	9.11 9.14	9.23	010	9.14 9.11	9.21		9.89 9.89	
EXISTING	9.541 9.565	9.595	0,600	9.002	9.618 9.624	9.648	9.675	9.677	9.681 9.687	9.751	0 810	9.811	9.811		9.835 9.842	9.947
OFFSET	-15.00 -13.00	-8.52	0	-7.40	-6.60 -6.30	-5.10	-3 77	-3.70	-3.50 -3.20	0.00	۳ ۵۵ ۵	3.50	3.70	0.17	9.32 9.56	15.00
L	1	1	1			1	I			CH 3	60.00			-		J



ROAD 11





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# ROSS SECTIONS OF ROAD 11

# AWING TITLE:

	PROJECT:
OF UNDERGROUND	THE
ARE APPROXIMATE	DRAWING
LAND DYNAMICS HOLDS	CROSS
ANTY TO THE LOCATION	
NE WORK HEREIN	

# THE SANCTUARY STAGE 7

REV:

1004 D

# CH 375.00

# CH 388.16

# These are the plans referred to in Subdivision Works Certificate Application No. /2024



REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED	SCALES: 0 5 10 20	30	Copyright of Land
D	STAGE 7 SUBDIVISION WORKS CERTIFICATE	11.09.24	T.F	J.R.O	A.C	G.B	Full Size 1:500 ; Half Size 1:1000 Scale (m)		stored in a retrieval
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	1.24%		8.00%	。 100 lnv 9.357 0.00 lnv 9.357			-3.00%	-3.00%		2	.50	%_2	.50%	5.0	BDY7.50	3.01%		0.00%
	)										$\setminus$							
HEIGHT DIFFERENCE	0.198	0.239	-0.084	-0.125	-0.123	-0.176	-0.022		-0.086	-0.011	0-0-0-	0.024	0.064	0.074	0.132		0.135	0.125
DESIGN SURFACE	10.52	10.50	10.01	9.92 0.92	9.92	9.85	9.94		9.85	9.92 9.92	0.02	9.94	9.97	9.98	10.03		10.20	10.20
EXISTING	10.327	10.261	10.127	10.040	10.038	10.021	9.964		9.931	9.926 9.926	0.20.0	9.917	9.907	9.904	9.897		10.065	10.078
OFFSET	-15.00	-13.03	-7.31	-3.77	-3.70	-3.20	0.00		3.20	3.70	2.0	4.81	6.01	6.31	7.31		13.01	15.00

			8 51%	100 Inv 100 Inv										BDY7.		
				3.60%	— u		-3.00%	-3.00%		2.5	50%	2.50%	5.00	)%	0.34%	1.21%
				o 0												
	)			(					$\lfloor \rfloor$							
HEIGHT DIFFERENCE	0.186	0.247	-0.066	660.0-	-0.098 -0.194	-0.157	600 <sup>.0</sup>	-0.040	-0.066	0.037 0.038	0.078	0.124	0.129	0.167		0.140
DESIGN SURFACE	10.70	10.70	10.19 10	10.07	10.07 9.97	10.00	10.09	10.00	9.97	10.07 10.07	10.09	10.12	10.13	10.18		10.21
EXISTING	10.514	10.453	10.260	10.165	10.164 10.159	10.153	10.083	10.036	10.032	10.029 10.028	10.014	9.998	10.001	10.013		10.073
OFFSET	-15.00	-13.26	-7.31	-3.77	-3.70	-3.20	00.0	3.20	3.50	3.70	4.81	6.01	6.31	7.31		15.00
							CHS	90.00								

		RDV7 50	F 66%	1.13%
50%	5	.00%	5.00%	
0.033	0.034	0.063	0182	0.125
9.82	9.83	9.88		10.22
9.788	9.794	9.815		10.098
6.01	6.31	7.31	С С С	15.00

Crest Ch 107.54 RL 10.41 INT'N ROAD 1 CHG. 548.742 R

PVC150 Inv 9.180 PVC150 Inv 9.489

I.P. 10.19 I.P. 10.29 I.P. 10.41

2.95%3.05%

6.00

	<b>—</b>		8.51%	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			-3.00%	-3.00%	2	.50%	2.50%	5.00	03 22 20 20 20 20 20 20 20 20 20 20 20 20
RL8.00	D			o °									
HEIGHT DIFFERENCE	0.186	0.247	-0.066	-0.099	-0.098	-0.157	0.009	-0.040	-0.066 0.037	0.078	0.124	0.129	0.16/
DESIGN SURFACE	10.70	10.70	67 07 07	10.07	10.07 9.97	10.00	10.09	10.00	9.97 10.07	10.09	10.12	10.13	10.18
EXISTING	10.514	10.453	10.260	10.165	10.159	10.153	10.083	10.036	10.032 10.029	10.014	9.998	100.01	10.013
OFFSET	-15.00	-13.26	-7.31	-3.77	-3.70	-3.20	0.0	3.20	3.50 3.70 3.77	4.81	6.01	0.31	7.31

		8.18%	BDY-7.50	。 %100 lnv 9.271 。 100 lnv 9.384	<u>-3.00%</u>	-3.00%	2.5	50%	2.50% 5	800/2 20	-0.08% 1	l.17%
RL8.00	)											
HEIGHT DIFFERENCE	0.196		-0.005	-0.041 -0.040 -0.106	0.052	0.00	0.086 0.087	0.125	0.149 0.153	0.190		0.148
DESIGN SURFACE	10.66 10.66		10.22	10.09 10.09 10.02	10.12	10.02	10.09 10.09	10.12	10.15 10.15	10.20		10.22
EXISTING	10.486		10.224	10.132 10.131 10.127	10.066	10.012	10.006 10.005	9.992	9.998 10.002	10.014		10.072
OFFSET	-15.00		-7.31	-3.77 -3.70 -3.20	0.00	3.20	3.70 3.77	4.81	6.01 6.31	7.31		15.00



ORIGINAL SIZE: LAND DYNAMICS JOB No.: DRAWING No.: A1 5153

REV:

1005 D

THE SANCTUARY STAGE 7 DRAWING TITLE: CROSS SECTIONS & LONGITUDINAL SECTION OF ROAD 12

# CH 65.00

PROJECT:

CH 75.00

00%	-3 00%	-3.00%	3.00%						BDY7 50	00.1100	4.59%		1.13%
00%	-0.0070	-0.00 /0	-3.00%										
	0.073		0.007	0.074	0.072	0.076	0.080	0.081	0.116			0.175	0.126
	9.84		9.74	9.81	9.81	9.84	9.86	28.6	9.93			10.17	10.22
	9.768		9.738	9.741	9.743	9.765	9.784	9.790	9.818			9.999	10.097
	00.0		3.20	3.70	3.77	4.81	5.74	6.01	7.31			12.55	15.00

CH 92.52



**TYPICAL DESIGN CROSS SECTION - ROAD 12 & 13** SCALE 1:50



	1					1											
REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED	SCALES: 0 5 10	20	30	Copyright of La							
D	STAGE 7 SUBDIVISION WORKS CERTIFICATE	11.09.24	T.F	J.R.O	A.C	G.B	Full Size 1:500 ; Half	Size 1:1000		stored in a retriev							
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CONSTRUCT SUBSOIL DRAINAGE IN ACCORDANCE WITH ASD 328

1.20 0.30 1.00 -5% -2.5% CONSTRUCT 1.20m WIDE CONCRETE FOOTPATH IN ACCORDANCE WITH ASD 100 & ASD 103

### NOTE: PAVEMENT DETAILS SHOWN HEREIN ARE TYPICAL ONLY AND NOT DETAILED PAVEMENT SPECIFICATION. REFER TO PAVEMENT NOTES (SHEET 1001) AND APPROVED GEOTECHNICAL ENGINEER PAVEMENT DESIGN FOR DETAILED SPECIFICATION.

REV

D S

	1.11%	3.37%	)	BDY-7.50	3.60%	-3.00%	-3.0	0%	2.50%	2.50% 5	%BDY7.50	-6.93%
	.094 .173		50Ø I.L 7.409 o	W 225Ø I.L 8.164 .489	WM 7000 1.4 8.466 WM 1000 1.4 8.466 680 683 592		746	619 577 669	653	636	.643	
DESIGN SURFACE	9.42 0 9.40 0		SEW 1	9.21 S	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.01	9.11 0	9.01 8.98 0 0 0 0 0	9.08 0 9.11 0	9.14 0 9.14 0	9.19 0	
EXISTING	9.328 9.227			8.719	8.401 8.398 8.389	8.375	8.361	8.392 8.404 8.412	8.454 8.454	8.501 8.512	8.551	
OFFSET	-15.00 -13.00			-7.31	-3.77 -3.70 -3.50	-3.20	00.0	3.20 3.50 3.70	3.77 4.81	6.01 6.31	7.31	
	1.15%	3.88%	SEW 150Ø I.L 8.953	STW 225Ø I.L 9.383 BDY-7.50	3.60% WM 100Ø I.L 9.900 WM 100Ø I.L 9.961	- <u>3.00%</u>	H 150.00 -3.00	0%	2.50%	2.50% 5.	%BDY7.50	-6.42%
			0	0	• • • • • • • • • • • • • • • • • • •							
RL8.00 HEIGHT DIFFERENCE	0.359			0.713	0.736 0.736	0.679	0.854	0.796 0.854	0.855	0.852 0.850	0.869	
DESIGN SURFACE 24.03.2021	10.92 10.90			10.68	10.55 10.55	10.48	10.58	10.48 10.55	10.55	10.61 10.62	10.67	
EXISTING	) 10.564 10.439			9.966	7 9.817 9.815	0.803	9.724	9.686	7 9.699 1 9.722	1 9.756 1 9.765	1 9.796	
OFFSET	-15.00			-7.3	-3.71	-3.20	0.00	3.20	3.77	6.0 6.3	7.3	
	1.16%	8.39%		BDY-7.50		-3.00%	-3.0	0%	2.50%	2.50% 5	% BDY7.50	-12.45%
				0								
HEIGHT DIFFERENCE	1.117			0.745	0.700	0.644	0.814	0.669	0.732	0.760	0.801	
DESIGN SURFACE 24.03.2021	12.32 12.30			11.82	11.70 11.70	11.63	11.72	11.63 11.70	11.70	11.75 11.76	11.81	
EXISTING	) 11.207 11.186			11.078	7 10.995 10.993	0 10.981	10.907	0 10.956	7 10.963	I 10.991	1 11.008	
OFFSET	-15.00			-7.31	-3.77	-3.20	0.00	3.20	3.77	6.01 6.31	7.31	
	1.08%	00. 14 0 <del>7</del> 0/		<u>۲-7.50</u>	VM 100Ø I.L11.856 VM 100Ø I.L 11.905	С	H 120.00				<u> 7.50</u>	60.0
		BD			3.60%	-3.00%	-3.00	9%		2.50%		2.01%
RL10.00												
HEIGHT DIFFERENCE	2 1.253 1.245		0.548	0.444	8 0.411 0.406 0.320	0.356	0.532	0.440 0.432 0.398	0.489	8 0.525 1 0.534	0.609	0.763
DESIGN SURFACE 24.03.2021	<ul> <li>13.42</li> <li>13.42</li> <li>5</li> </ul>		1 12.71	0 12.60 4 12.60	6 12.48 12.47 12.47	1 12.4 5 12.41	0 12.5(	3         12.41           5         12.41           9         12.38	11         12.47           2         12.46           4         12.50	7 12.53 6 12.54	1 12.55	7 12.64 9 12.30
EXISTING	00 12.16 00 12.15		09 12.16	31 12.16 07 12.15	77 12.06 69 12.06 48 12.05	20 12.05 98 12.04	00 11.97	99 11.97 20 11.97 50 11.97	69 11.98 77 11.98 81 11.99	01 12.00 31 12.00	31 11.98 31 11.98	99 11.87 63 11.84
OFFSET	-15.		9.6-	-7. -7.	n n n n	<u>الم</u>	ы Н 101 00	<u>3</u> 37	<u>.</u>	00	7.	6
DESCRIPTION	IFICATE	DATE 11.09.24	DRAWN T.F	DESIGN J.R.O	A.C APPROVED A.C G.B	SCALES: 0 1 2 Full Size 1:10 Scale (m)	4 0 ; Half Size 1:20	6	Copyrig part or stored any for the cop the Cop Any storage this dra addition	ght of La f this drav in a retriev rm, without pyright owr pyright Act permitted e, display, p awing shou n to the or	nd Dynar ving may al system the writ ler excep 1968. downloa rint, copy ld contai iginal dra	mics Australia, No y be reproduced, n or transmitted in ten permission of at as permitted by ading, electronic or reproduction of n no alteration or awing. This notice

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REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED	SCALES: 0 2 4 8 12
D	STAGE 7 SUBDIVISION WORKS CERTIFICATE	11.09.24	T.F	J.R.O	A.C	G.B	Full Size 1:200 ; Half Size 1:400
							Scale (m) 0 1 2 4 6
							Full Size 1:100 ; Half Size 1:200
							0 0.25 0.5 1.0 1.5
							Full Size 1:25 ; Half Size 1:50 Scale (m)
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### LIP LONGSECTION OF CUL-DE-SAC SCALES: Hz. 1:100 Vt. 1:25 @ A1

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THE SANCTUARY STAGE 7 DRAWING TITLE: CUL-DE-SAC LONGITUDINAL SECTION

ORIGINAL SIZE: LAND DYNAMICS JOB No.: DRAWING No.:

REV:

1008 D

I.P. 5.52 I.P. 5.55 I.P. 5.58 I.P. 5.61 I.P. 5.64 I.P. 5.67 I.P. 5.39 I.P. 5.48 5.38 3.28% 3.00% 3.18% 3.41% 3.15% 3.04% \* 3.33% 5.34 5.35 40 5.48 5.52 5.55 5.55 5.61 5.61 5.64 5.67 5.37 2.2 5.21 5.28 5.34 5.41 5.47 5.53 5.58 4.82 4.86 5.03 5.08 4.95 58.00 59.00 60.00 61.00 61.78 50.00 50.62 56.00 56.00 57.00 52.00 31 53.

PROJECT:

These are the plans referred to in Subdivision Works Certificate Application No.: CI2014 - 114.8 and determined as APPROVED on: 17/10/2024 PORT MACQUARIE-HASTINGS COUNCIL



	INT'N ROAD 1 RL. 8.(	Class 2 RRJ375 Inv 7.1	PVC150 Inv 7.959	PVC150 INV / .856																				INT'N REV ROAD 13 F
	I.P. 8.66	0	L 0 0 -	C0.8.4.1												1.P. 8.99						1.P. 8.44	I.P. 8.56	
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ng Is	8.66	8.48	8.58	8.59	8.64	8.61	8.59	8.51	8.54	8.58	8.62	8.67	8.70	8.71	8.73	8.75	8.76	8.79	8.69	8.65	8.52	8.44	8.57	
age	00.0	4.49	5.00	5.78	8.28	10.00	10.78	15.00	20.00	25.00	30.00	35.00	39.02	40.00	41.93	45.00	46.52	50.00	54.02	55.00	60.00	61.28	64.50	
ntal etry						·					L: B=(	= <u>64.5</u> 0°25'3	0 30"		-							- 		



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**CONSTRUCTION ISSUE** 



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ERVICES ARE APPROXIMATE

PROJECT:

A1

THE SANCTUARY STAGE 7 DRAWING TITLE: STORMWATER LONGITUDINAL SECTIONS SHEET 1 OF 3

5153

CI2014 - 114.8 and determined as APPROVED on: 17/10/2024 PORT MACQUARIE-HASTINGS COUNCIL

REV:

2001 D

These are the plans referred to in Subdivision Works Certificate Application No.:



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![](_page_15_Figure_3.jpeg)

![](_page_15_Picture_5.jpeg)

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(IAD 85)

(IAD 84)

(IAD 83)

DRAINAGE LONGITUDINAL SECTION FOR LINE D.L. NO.19 SCALES: HORIZONTAL 1:500 VERTICAL 1:100

![](_page_15_Picture_8.jpeg)

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PROJECT:

A1

THE SANCTUARY STAGE 7 DRAWING TITLE: STORMWATER LONGITUDINAL SECTIONS SHEET 2 OF 3

5153

and determined as APPROVED on: 17/10/2024 PORT MACQUARIE-HASTINGS COUNCIL

These are the plans referred to in Subdivision Works Certificate Application No.: CI2014 - 114.8

REV:

2002 D

![](_page_16_Figure_1.jpeg)

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![](_page_16_Picture_6.jpeg)

DRAWING TITLE: STORMWATER LONGITUDINAL SECTIONS SHEET 3 OF 3

PROJECT: THE SANCTUARY STAGE 7

These are the plans referred to in Subdivision Works Certificate Application No.: CI2014 - 114.8 and determined as APPROVED on: 17/10/2024 PORT MACQUARIE-HASTINGS COUNCIL

REV:

2003 D

			PITS					2	0% AEP New	ults				1	% AEP Res.	ults	
	Name	Туре	Size	Change	Surface	Max HGL	Mex Pond	Max Surface	Nex Pond R	Min reebour	Overflow Constraint	MIXHGL.	Max Pond	Mix Surface	Nex Pond R	Min reeboar	Overflow Constraint
	N 227	Sec	0 Am X 0 Am Reised Grote Jury 03	Coeff Ku	0.34	8 75	HGL 9.37	Row 0.025	Volume 0.2	<b>d(m)</b>	0.003 inter Canacity	9.35	HGL 0.38	Row	Volume	<b>d(m)</b>	0.014 Outlet System
U.	D228	Sing	0 6m x 0.9m Relised Grate Aug 03	5.7	9.198	845	9 22	0 027	0.2	0.75	0.004 Inlet Capacity	921	9.24	0 052	03	0	0.016 Outlet System
	D 229	Seg	0 6m x 0.9m Failaed Grate Aug 03 0 9m x 0 9m Failaed Grate Aug 03	18	8 986	8 18 7 55	8.99	0.021	0.1	079	0.004 Inlet Capacity 0.004 Inlet Capacity	878	9 854	0.041	02	0.19	0.006 Inlet Capacit
V	D231	Sing	0 9m x 0 9m Reised Grate Aug 03	0.7	8.046	7 26	8.05	0	0.1	0.78	0 Inlet Capacity	8.02	8.08	0.001	04	0.03	0 Inlet Capacit
	IT 232	OnGrade OnGrade	1 8 m lintel (all slopes) Interallotment Elt 600/600	14	5 04 12 243	72		0.031		0.84	0.001 Infet Capacity 0.005 Infet Capacity	7 79		0.044		0.25	0.009 Inlet Capacit 0.02 Inlet Capacit
v	O 151	OnGrade	Interal lotment Pit 600x600	57	11 635	10.9		0 048		0.74	0.021 Inlet Capacity	11 17		0 094		0.47	0.048 Intet Capacit
P	D 152	OnGrade Sag	Interaliotment Pit 600x600	23	9 164 8 578	804	1.65	0.028	0.6	1 12	0.011 Inlet Capacity 0 Inlet Capacity	9.1 8.78	88	0.055	17	0.07	0.026 Inlet Capacit 0.076 Outlet System
P	IT 159	Sag	1 âm Lintel	17	8 578	771	8.64	0 079	05	0.87	0.013 Intet Capacity	8 39	8.67	0 31	13	0.19	0 081 Inlet Capacit
P	IT 160 ID 156	OnGrade OnGrade	1 8m Lintel Interal forment Pit 600x600	16 59	8 673 12 22	7.47		0 031		1.2	0 None 0 006 Inlet Canacity	7 63		0.06		084	0 None 0.019 Intel Capacit
V	D 157	OnGrade	Interal lotment Pit 600x600	59	11 483	10 67		0 039		0 82	0 016 Inlet Capacity	10 79		0 077		07	0 039 Inlet Capacit
	D 158	OnGrade OnGrade	Interallotment Pit 600x600 Interallotment Pit 600x900	59 59	9 016 9 193	8 01		0 038		0.87	0 016 Intel Capacity 0 005 Intel Capacity	869		0 075		033	0 037 Inlet Capacit 0 014 Inlet Capacit
	12	22 OnGrade	Interallotment Pit 900:900	59	9 219	8 11		0 061		1 11	0 017 Intel Capacity	8 83		0 123		0 39	0 045 Inlet Capacit
$\left\{ \left  \right  \right\}$	12	23 OnGrade 25 Sag	2 4m Lintel	45	7 818	7 56	7 85	0.057	04	0 55	0 014 Inlet Capacity 0 Inlet Capacity	8 19 7 94	798	0 123	17	0	0 118 Outlet System 0 097 Outlet System
	12	29 Sag	3 Om Lintel 1 Bm Lintel	19	7 815	7 22	7 86	0.076	05	06	0.017 Intel Capacity	7.84	79	0.348	17	0	0 14 Outlet System
	13	32 Sag	1 âm Lintei	15	7 542	6 92	7 58	0 024	04	0.63	0 Intet Capacity	7.25	763	0.301	17	03	0 002 Intel Capacit
	D 120	OnGrade	Interal lotment Pit 600x600	59	10 055	9 35		0.018		0.75	0 006 Inlet Capacity	9.30		0.035		0.71	0.015 Intel Capacit
P P	1173 1774	OnGrade	2 4m Lintel	0.3	8 222	6.85		0 023		1.38	0 None	7.81		0.044		0.41	0.005 Inlet Capacit
	1T75	Sag	1.8m Lintel 1.8m Lintel	2	7 703	6 81	7 79	0 106	11	0.89	0 Inlet Capacity	7 76	7 68	0.214	17	0	0.022 Outlet System
	1777	Sag	1.8m Lintel	0.1	7 735	6.41	7 78	0 024	02	1 33	0 Inlet Capacity	667	7.82	0 072	0.4	1 06	0 Inlet Capacit
H	W78	Node	2 den Lucital	22	7 716	6 33		0 046		4 64	0 Noos	6.48		0 091		0.64	0 Norm
P	1163	Sag	1.8m Lintel	1	8,106	726	8.32	0 033	0.4	1 01	0 Inlet Capacity	847	\$.46	0.066	17	0.64	0.035 Outliet System
P	1T64	OnGrade	2 4m Lintel 1 Bm Lintel	16	8 045 7 793	71	7.84	0.036	- 04	0.95	0 None	8 18 7 #1	7.05	0 128 0 209	17	0	0.095 Outliet System
N	450464	Node		<i>2</i> .1	\$ 41	8 47		0 028	0=	0.3%	- Office Capacity	8.5	1.214	Q 184	14		
N	407897 ND 61	Node OrGrada	Interallotment Et 600x600	0	9 A 833	8 66 7 79		0.1		1.04	0 Nerou	11 62		0 195		<u> </u>	0 None
N	394426	5 Node		· ·	9.7	97		Q		1.04	0 Pagana	9.7		õ		0.24	0 110110
N	1394422 Jun P	Node OnGrade	Interal lotment Pit 600x600	05	9719	9 49 9 24		0 026		0.44	0 None	9 66 9 37		0.051		0.35	0 None
L.	070	OnGrade	Interal lotment Pit 600x600	17	9 486	8 95		O O		05	0 Nore	9 19		ō		03	0 Nore
P	1071 1772	OnGrade OnGrade	Interaliotment Pit 600x900 1 Sm Lintel	5.1 13	8 945 8 801	8 09 7 62		0 005		0 85	0 None 0 None	8 94 7 89		0 027		0.71	0 Outlet System 0 None
N	394420	) Node			95	84		0 028		2.00		92		0.055			
N	394414 1394411	Node Node			9.2 9.7	92		0				92		0			
N	394407	Node			9.288	929		0				9 29		0			
N IA	1394403 ND 67	OnGrade	Interal lotment Pit 900x900	0	9.823	9 22 8 71		0.036		1 12	0 None	9 56 8 76		007		1 06	0 None
M	D68	OnGrade	Junction Fit 600k900	17	8 868	75		0.063		1 17	0 064 Intel Capacity	7.86		0 163		0.79	0.131 Inlet Capacit
N	1394401 1394397	Node			9.200	911		- 0002				9.32		0000			
N	1394389 1204280	Node			12.5	12 8		0				12.8		0			
M	D 60	OnGrade	Interal lotment Pit 600x800	5.9	13.203	12.47		0018		0.73	0 None	12.57		0036		0.63	0 None
N	1394 <b>38</b> 5	5 Node			47	47		0				47		0.045			
M	D 103	OnGrade	Interal lotment Pit 600x600	18	6 666	5.91		0 1023		0.76	0 None	6 97		0000			0.045 Outlet System
P	T 105	OnGrade	2 4m Lintel 2 4m i mini	21	6 295	5	5 02	0.031	15	1.3	0 None	6 35	521	0 189	24	0	0.032 Outliet System
P	T 107	OnGrade	Junction Fit 900k900	16	4 47	367	0.02	0 027	10	0.8	0.023 Inlet Capacity	4 41	-	0 147	24	0.06	0.083 Inlet Capacit
P	T 105	Sag	1 8m Lintel 1 8m Lintel	07	4 21	3 45	4.25	0.029	03	0.76	0 Inlet Capacity 0 Inlet Capacity	3 92	43	0 136	15 19	0.29	0 Inlet Capacit 0 Inlet Capacit
÷	W114	Node	, on Links	12	3.2	3 21	-1.20	0		0.96	o must capacity	3 35	40	0	1.2	0.40	o mat capacit
N.	1394373 ND 102	3 Node OrGrade	Interallotment Et 600x600	14	75	664		0.042		0.59	0 None	#.2 7.65		0.012		0	0.061 Outlet System
N	394371	Node			10	898		0.041				973		0.079	-		
12 15	D 101	OnGrade Node	Interal lotment Pit 600x600	2	9 63	8 85		0 021		0.78	0 None	9 21 11 3		0.041		0.42	0 None
42	D 100	OnGrade	Interal lotment Pit 600x600	0.8	11 718	10 99		0		0.73	0 None	11 04		0		0.68	0 None
N	1394364 1394363	I Node 3 Node			9.3	7 93		0				7 09		0 075			
N	1394356	Node			114	11.4		õ				11.4		õ			
N.	1394349 1394344	Node Node			114	11.4		0				11.4		0.041			
4	D 80	OnGrade	Interaliotment Pit 600x600	37	10.559	9 81		0		0.74	0 None	10 19		0		0.36	0 None
1	D81	OnGrade	Junction Fit 900k900 Internitiotment Fit 600k900	16	10 418	936 89		a a		1 05	0 None 0 None	10.03		0		0.38 Q	0 None 0 Outlet System
-	D85	OnGrade	Interal lotment Pit 600x600	13	9 289	8.41	-	0		0.88	0 None	8 65		0		0.44	0 None
÷.	T87	OnGrade	1 âm Lintel 1 âm Lintel	21	5 904 7 612	6 67	-	0.022		0.94	0.003 Inlet Capacity	8 1/i 7 3		0.077		0.73	0.023 Inlet Capacit
P	1154161	7 OnGrade	1 8m Lintel 1 8m Lintel	16	5.391	4 62		0.005	_	0.77	0 None	5.48		0.033		0.74	0.023 Outlet System
P	154162	3 OnGrade	1 ðm Lintel	02	4 69	36		0		1 09	0 None	3 64		0.000		0.85	0 None
41 10	W91 1904/94/9	Node Node			3 37	3.51		0.02				3 63		0			
N	1394341	Node			10 5	8 95		0.026				9.86		0.051			
N	394337	Node OpGrowte	Interalizationent Elt 600-000	0.0	10.5	9.22		0.036		0.00	Û Norse	9.57		0.071		0.82	0 Noos
N	394332	Node	THE STORES IN THE OUTSTAT	Q2	10 5	9 67		0.018		0.30		973		0.035		0.03	Q INULS
1/	D 83	OnGrade Node	Interal lotment Pit 900x900	0	11 801	9.47	_	0		2.42	0 None	95		0		2.39	0 None
N	394325	Node			10 305	10 31		0		-		10 31		ő			
N P	1 <b>394</b> 328 1 <b>T 1</b> 11	OnGrade	1 8m Lintel	59	10 305	10 31 3 67		0.052		0 84	0 002 Intel Capacity	10-31		0 102		0.44	0.016 Injet Capacit
P	T 112	OnGrade	1 8m Lintel	21	4 229	3 42	_	0 034		0.8	0 Intel Capacity	3 92		0.063		_0.31	0 007 Inlet Capacit
P	117 <b>104</b> 12	OnGrade 6 OnGrade	n am Lintel Interallotment Pit 900x900	59 59	6 9 9 996	6 07 8 5		0 032		0 83	0 None 0 005 Inlet Capacity	678 864		0.063		0.12	0.003 Inlet Capacit 0.013 Inlet Capacit
	12	28 OnGrade	Interal lotment Pit 600x900	58	8 014	7 37		0 074		0 65	0 029 Intel Capacity			0 146		0.01	0.072 Inlet Capacit
	13 12	an Sag 24 OnGrade	1 am Lintel 1 âm Lintel	59 56	7 542	6 93 7 27	7 🗈	0 092	15	0 61	0 Intel Capacity 0 Intel Capacity	8 09	771	0 459 0 201	17	0.14	0.049 Inlet Capacit 0.03 Inlet Capacit
-M	D220	Sag	0 6m x 0 8m Faised Grate Aug 03	5.9	10.428	9 57	10.45	0.061	02	0 86	0 038 Inlet Capacity	9.69	10.46	0 12	0.4	0.74	0.077 Intet Capacit
Đ	D 221	Sag	0 6m x 0 6m Raised Grate Aug 03 0 6m x 0 6m Raised Grate Aug 03	47	8 903	5 95 8 22	9 59 8.93	0.085	08	0 69	0 009 Inlet Capacity	9 56	9.61 8.95	0 168	16	0.08	0.000 Cuttet System 0.027 Inlet Capacit
4/	D223	Sag	0 Cm x 0.6m Reised Grate Aug 03 1.8 m lintel (all cleaner) 010	25	8.556	7 64	8.57	0.033	0.2	0.91	0 022 Inlet Capacity	8 56	8.571	0.064	03	0	0.049 Outlet System
P	T 225	Sig	1 8 m lintel (all slopes) SAG	22	8.093	7 49	6.18 8.13	0 028	03	0 59	0 Inlet Capacity	8 16	8.32 8.29	0 352	17	0	0.019 Outlet System 0.019 Outlet System
P	T224	OnGrade Node	1 8 m lintel (all slopes)	48	8 412	7 59		0.08		0.82	0.013 Inlet Capacity	844		0 157		O	0.039 Outliet System
	12	7 OnGrade	Interal lotment Fit 600x900	5	7 852	7 35		0.03		0.53	0.009 Inlut Capacity	7 98		0.058		0	0.055 Outliet System
P	11 EX1A	OnGrade OnGrade	2.4m Lintel 2.4m Lintel	56 16	11 22	10 63		0.131		0.59	0.017 Intet Capacity 0.None	10 84		0 257		0.38	0.064 Initit Capacit 0.017 Initit Capacit
P	IT 154	OnGrade	1 8m Lintel	08	9 461	801		0 005		1 45	0 None	9.2		0 037		0.26	0 None
P	1t54164 1t54164	4 OnGrade 3 OnGrade	Interallotment Pit 900x900 Interallotment Pit 900x900	59	11 54 9 542	9 92		0.039		1.62	0.009 Inlet Capacity 0.02 Inlet Capacity	10 02		0 076 0 147		152	0.022 Inlist Capacit 0.083 Outlist System
P	1154164	2 OnGrade	Interallotment Pit 900x900	15	8 804	8 19		0 028		0.61	0.005 Inlet Capacity	8 85		0 118	_	0	0.089 Outliet System
P	1154165 1154164	1 OnGrade 15 OnGrade	Interalitorment Pit 900k900 Interalitorment Pit 900k900	13	8 55 8 516	7 81		0 008		0.74	0.005 Inlet Capacity 0.005 Inlet Capacity	8 61		0 126		0.45	0.074 Outlet System 0.049 Inlet Capacit
P	1167A	OnGrade	Interal lotment Pit 900x900	15	10 146	89		0 012		1 25	0.002 Inlet Capacity	8 92		0 024		1 22	0.005 Iniet Capacit
N	1770204	Node			72	976 72		0.002				978 72		0.006			
N	759155	Node			6 75	675		0				675		Q			
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	STORMWATER PIT SCHEDULE										
Pit No.	Pit Type	Pit Width	Pit Length	Outlet Diameter	Outlet Invert RL	Inlet Diameter	Inlet Invert RL	Pit Depth	Pit Lid Level	Easting	Northing
		(mm)	(mm)	(mm)	(m)	(mm)	(m)	(m)	(m)	(m)	(m)
PIT 86A	IAD JUNCTION PIT	600	900	225	7.750			1.081	8.831	485487.96	6520109.152
IAD 82	IAD JUNCTION PIT	600	900	225	8.680	225	8.730	0.984	9.664	485472.57	6520104.765
IAD 84	IAD JUNCTION PIT	600	900	225	8.900	225	8.950	1.109	10.009	485486.59	6520126.449
IAD 81	IAD JUNCTION PIT	900	900	225	9.200	225	9.250	1.218	10.418	485456.36	6520096.199
IAD 83	IAD JUNCTION PIT	900	900	225	9.400			2.409	11.809	485456.59	6520126.672
JUN 80	IAD JUNCTION PIT	600	600	225	9.700			0.859	10.559	485441.87	6520084.088
PIT 72	GRATED KERB INLET PIT 1.80m	750	900	375	7.450	225	7.550	1.151	8.601	485401.53	6519956.925
IAD 71	IAD JUNCTION PIT	600	900	225	7.850	225	7.900	1.095	8.945	485401.02	6519961.621
IAD 67	IAD JUNCTION PIT	900	900	225	8.607	225	8.657	1.255	9.862	485418.93	6520026.729
IAD 67A	IAD JUNCTION PIT	900	900	225	8.820			1.326	10.146	485420.67	6520042.930
IAD 70	IAD JUNCTION PIT	600	600	225	8.850	225	8.900	0.636	9.486	485385.25	6519963.581
JUN 69	IAD JUNCTION PIT	600	600	225	9.150			0.569	9.719	485371.34	6519970.521
PIT 106	(SAG) VEE-GRATED KERB INLET PIT	750	900	450	3.700	375	3.800	1.239	4.939	485564.22	6520154.663
PIT 105	GRATED KERB INLET PIT 2.4m	750	900	375	4.830	225	4.960	1.543	6.373	485523.78	6520163.191
						375	4.855				
IAD 103	IAD JUNCTION PIT	900	900	225	5.450	225	5.490	1.321	6.771	485523.23	6520168.102
PIT 104	GRATED KERB INLET PIT 1.80m	750	900	375	5.641			1.427	7.068	485511.87	6520158.041
IAD 102	IAD JUNCTION PIT	600	900	225	6.250	225	6.300	1.000	7.250	485514.10	6520169.474
IAD 101	IAD JUNCTION PIT	900	900	225	8.900	225	8.950	1.272	10.172	485482.12	6520172.424
IAD 100	IAD JUNCTION PIT	900	900	225	11.150			1.362	12.512	485450.14	6520172.426

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![](_page_17_Picture_5.jpeg)

![](_page_17_Picture_6.jpeg)

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These are the plans referred to in Subdivision Works Certificate Application No.: CI2014 - 114.8 and determined as APPROVED on: 17/10/2024 PORT MACQUARIE-HASTINGS COUNCIL

REV:

2004 D

PROJECT: THE SANCTUARY STAGE 7 DRAWING TITLE: STORMWATER CALCULATION TABLE (PITS) & PIT

SCHEDULE

ORIGINAL SIZE: LAND DYNAMICS JOB No.: DRAWING No.: 2

PIPES	20% AEP Results	1% AEP Results			
Name         From         To         Length         U/SIL         D/SIL         Stope (%)         Dia (mm)           Name         From         To         (m)         (m)         (m)         Stope (%)         Dia (mm)	Max Q         Max U/S         Max D/S         Due to Storm         Max Q	xV MaxU/S MaxD/S /s) HGL(m) HGL(m) Due to Storm	OVERLAND FLOW PATHS	20% AEP Results	1% AEP Results
Pipe58914 JUN 227         IAD 228         13.674         8.6         8.3         2.19         225           Pipe58914 JUN 227         IAD 228         15.004         8.25         8         1.67         225	0 019 0 92 8.713 8 451 20% AEP, 20 min burst, Storm 5 0 027	0 59 9 226 9 209 1% AEP, 10 min burst Storm 8 1 23 8 857 8 78 1% AEP 10 min burst Storm 1	Name From To (min) Storms (m) Storms (m) (%) (m)	U/S D/S Safe Q Max D Max D/V Width Max V Due to Storm	U'S D'S SafeQ Max D Max DxV Width Max V Due to Storm
Hipe-21         IAD229         IAD230         16.915         7.95         7.41         3.19         225           Rise off         IAD230         16.915         7.95         7.41         3.19         225	0         052         1         8         136         7         549         20% AEP, 10 min burst, Storm 8         0         0         682         0         142         143 <th143< th=""> <th143< th=""></th143<></th143<>	177 8517 8.315 1% AEP, 10 min burst Storm 9	B20-21         JUN 227         FIT 232         0.9         0.3         0.15         0.24         60           B21         22         IAD 228         FIT 232         0.4         0.3         0.15         2.37         48	4         0.003         0.003         0.222         0.023         0.03         0.44         1.96         20% AEP, 1 hour burst, Storm 9           9         0.004         0.004         0.698         0.025         0.02         0.48         0.72         20% AEP, 5 min burst, Storm 1	0 014 0 014 1 703 0 042 0 03 1 09 0 86 1% AEP, 10 min burst Storm 7 0 016 0 016 1 199 0 041 0 04 1 06 0 89 1% AEP, 10 min burst Storm 7
Hpe-615         IAD230         IAD231         10.443         7.31         6.97         3.26         300           Hpe-614         IAD231         PIT232         5.075         6.92         6.8         2.36         300	0.075         1.4         7.522         7.262.20% AEP, 10 min burst, Storm 10         0.119           0.081         1.12         7.222         7.203.20% AEP, 20 min burst, Storm 1         0.156	165         81         8.015 1% AEP, 10 min burst storm2           2.17         7 859         7 786 1% AEP, 10 min burst Storm7	B22-23         IAD 229         FIT 232         0.2         0.3         0.15         2.68         34.3           B23-24         IAD 230         FIT 232         0.1         0.3         0.15         3         15.3	5         0.004         0.004         0.742         0.025         0.02         0.5         0.74 20% AEP, 30 min burst Storm 5           5         0.004         0.004         0.785         0.025         0.02         0.48         0.8 20% AEP, 5 min burst, Storm 1	0 006 0 006 1 149 0 029 0 02 0 65 0 81 1% AEP, 10 min burst Storm 4 0.01, 0.01 1 114 0.034 0.03 0.81 0 94 1% AEP, 10 min burst Storm 1
Pipe-23         PIT 232         South Basin         33,501         6,64         6,45         0,57         525           Pipe-4         IAD 150         IAD 151         17,641         11.4         10.8         3,4         225	0.341         1.96         7.165         6.843 20% AEP, 20 min burst, Storm 1         0.527           0.012         0.68         11.5         10.9 20% AEP, 15 min burst, Storm 6         0.017	2.6 7 349 6.915 1% AEP, 10 min burst, Storm 7 0.9 11 508 11 169 1% AEP, 10 min burst, Storm 7	B605-24 IAD 231 FIT 232 0.2 0.3 0.3 0.12 5.07 OE416323 FIT 232 131 0.8 0.2 0.11 0.64 651	5 0 0 0.749 0 0 0 0 6 0.001 0 0.133 0.019 0 0.22 0.20% AEP 20 min hunst Storm 1	0 0 0749 0 0 0 0 0 0009 0000 0915 0049 003 101 053 184 4ER 10 min hurst Storm 7
Pipe-6 IAD 151 IAD 152 44 804 10.75 7 9 6 36 225	5 0.033 1 22 10 9 8 042 20% AEP, 15 min burst, Storm 4 0 049	1 38 10 934 9.095 1% AEP, 10 min burst Storm 7	B39-40 IAD 150 FIT 155 04 03 015 3.8 6	0 008         0 008         0 0884         0 033         0.03         0 78         1 14 20% AEP, 15 min burst Storm 4	0.02 0.02 1.041 0.039 0.05 1, 1.33 1% AEP, 10 min burst Storm 7
Pipe-33         IAD 152         PT 155         5.197         7.55         7.6         4.61         228           Pipe-39         PT 155         PT 159         7.204         7.32         7.25         0.97         450	0         04         1         21         8.013         7         898         20% AEP, 10 min burst, Storm 8         0.07           0         225         1         43         7         737         7         708         20% AEP, 15 min burst, Storm 4         0         348	1 52         5 833         8.784         1% AEP, 10 min burst Storm 7           2.13         8.448         8.366         1% AEP, 10 min burst Storm 7	B40-41         IAD 151         FIT 155         0.3         0.3         0.15         6.04         44           B41-42         IAD 152         FIT 155         0.1         0.3         0.3         10.16         5.19	9 0.021 0.021 0.907 0.038 0.05 0.96 1.4.20% AEP 15 min burst Storm 4 7 0.011 0.011 3.604 0.006 0 5.99 0.29 20% AEP, 15 min burst Storm 4	0 048 0 048 0 907 0.05 0 06 1 4 1 64 1% AEP, 10 min burst Storm 7 0 026 0 026 3 604 0 01 0 5 99 0 43 1% AEP, 10 min burst Storm 7
Pipe-40         PIT 159         PIT 160         19 804         7 15         6 97         0 91         525           Pipe-41         PIT 160         North Pasin         12 871         6 97         6 9         0 54         525	0 306 1 75 7 54 7 473 20% AEP, 15 min burst, Storm 4 0 4771 0 326 1 94 7 353 7 276 20% AEP 15 min burst, Storm 4 0 517.	2.14 7 987 7 828 1% AEP, 15 min burst Storm 8 2.51 7 503 7 364 1% AEP 10 min burst Storm 7	B42-43 FIT 155 FIT 159 0.1 0.201 0.075 0.76 7.20 OF416336 FIT 159 N450464 0.3 0.2 0.11 2.28 4	4 0 0 0.65 0 0 0 0 2 0.013 0.013 0.251 0.058 0.03 1.33 0.46 20% AEP, 45 min burst Storm 10	0 076 0 076 5 59 0 025 0.01 8 32 0 58 1% AEP, 15 min burst. Storm 8 0 081 0 081 0 965 0 101 0 07 2 83 0 69 1% AEP, 15 min burst. Storm 8
Hips-14         IAD 156         IAD 157         30 172         11 36         10 55         2 68         225           Bits 45         IAD 157         10 20         10 20         10 20         10 20         10 20	0 009 0 46 11 47 10 667 20% AEP, 45 min burst, Storm 1 0 017	0.9 11 467 10 785 1% AEP, 10 min burst Storm 10	OF416340 FIT 160         130         0.5         0.2         0.11         1.55         66           B44-45         FIT 160         North Bas         0.1         0.3         0.3         5.22         11	4 <u>0 0 0207'</u> 0 0 0 0 3 0 0 3.601 0 0 0 0	0 0 1 174 0 0 0 0 0 003 0 003 3 601 0 003 0 5 99 0 17 1% AEP. 10 mm burst Storm 7
Hpe-45         IAD 157         IAD 158         40 318         10 5         7 95         6 32         224           Pipe-46         IAD 158         PIT 159         6.591         7 8         7 475         4 93         300	0 025 2.55 10 628 8 014 20% AEP, 15 min burst, Storm 10 0 043 0 04 11 7 954 7 708 20% AEP, 20 min burst, Storm 1 0.07	1 26 10 67 8.666 1% AEP, 10 min burst Storm 1 0 97 8 405 8.366 1% AEP, 10 min burst, Storm 7	B48-49 IAD 156 PIT 159 0.2 0.3 0.15 2.75 30 17 B49-50 IAD 157 PIT 159 0.2 0.3 0.15 6.47 40.24	2 0.008 0.008 0.752 0.025 0.04 0.48 1.59.20% AEP, 15 min burst, Storm 4	0.019 0.019 1.139 0.033 0.06 0.79 1.83 1% AEP, 10 min burst Storm 7
Pipe-32         IAD 121         122         29.947         8 2         7 9         1         225           Pipe-26         122         123         23.336         7.85         6.85         4.29         300	0         0         0         45         8         32         8.111         20% AEP, 15 min burst, Storm 4         0         019           0         0.05         1         18         8.022         7.558         20% AEP, 15 min burst, Storm 4         0.094	0 41         8 851         8 83 1% AEP, 10 min burst Storm 7           1 31         8 316         8 192 1% AEP, 10 min burst Storm 7	B50-43 IAD 158 PIT 159 0.1 0.3 0.3 6.36 6.59	3         0.016         0.016         3.586         0.008         0         5.99         0.32 20% AEP, 15 min burst Storm 4	0.037 0.037 3.586 0.014 0.01 5.99 0.44 1% AEP, 10 min burst. Storm 7
Pipe-27         123         125         5.804         6.82         6.75         1.21         300           Pipe-27         125         120         9.627         9.70         9.42         442	0.078 1 09 7 288 7 267 20% AEP, 15 min burst, Storm 4 0 103	1 43 7 96 7 942 1% AEP, 5 min burst, Storm 1	CH416333 (AD 121         N450464         0.3         0.3         0.3         0.3         3.83         35.3           E28-29         122         123         0.2         0.3         0.3         5.24         23.39	3         0.005         0.005         3.597         0.004         0         5.99         0.21 20% AEP, 15 min burst Storm 4           6         0.017         0.017         3.608         0.009         0         5.99         0.3 20% AEP, 15 min burst Storm 4	0.045 0.045 3.608 0.018 0.01 5.99 0.42 1% AEP, 10 min burst Storm 7
Hpe-28         129         9 637         6.72         6 68         0 42         430           Hpe58916         129         130         16.775         6.64         6 59         0 3 0 75Wx 0 375H	0 205 0 73 7 171 7 15 20% AEP, 15 min burst, Storm 4 0 222 0 205 0 73 7 171 7 15 20% AEP, 15 min burst, Storm 4 0 305	1 09 7 742 7 702 1% AEP 45 min burst Storm 2	B29-30         123         125         0.1         0.3         0.3         6.96         5.80           B30-31         125         129         0.1         0.201         0.075         3.4         9.63	4 0.014 0.014 3.598 0.008 0 5.99 0.28 20% AEP, 10 min burst Storm 8 7 0 0 1.376 0 0 0 0	0 118 0 118 3 598 0 031 0 02 5 99 0 64 1% AEP, 10 min burst Storm 7 0 097 0 097 5 313 0 03 0 02 9 26 0 56 1% AEP, 10 min burst Storm 7
Hipe-29         130         132         29 633         6.59         6.48         0.37 0 75Wx 0 375H           Hipe-10         132         South Basin         7 911         6.48         6.45         0.38 0 75Wx 0 375H	0 222 0 8 6 96 6 917 20% AEP, 15 min burst, Storm 4 0 331 0 293 1 11 6 831 6 811 20% AEP 10 min burst, Storm 8 0 585	1 18         7 33         7 246 1% AEP 20 min burst Storm 8           2 08         6 916         6 838 1% AEP 15 min burst Storm 8	B31-32         129         131         0.1         0.3         0.15         1         102           OF665064         130         132         0.3         0.3         0.15         1         10	2 0.017 0.017 0.453 0.041 0.04 1.06 0.96 20% AEP, 15 min burst Storm 4 1 0 0 0.492 0 0 0 0 0	0 14 0 14 1 484 0 064 0 12 2 63 1 43 1% AEP, 10 min burst Storm 7 0 002 0 002 1 424 0 022 0 01 0 4 0 45 1% AEP 10 min burst Storm 7
Pipe-25         IAD 120         122         31 5         9.25         7 9         4 29         225           Pipe-25         IAD 120         122         31 5         9.25         7 9         4 29         225	5         0.008         0.45         9.348         8.111 20% AEP, 15 min burst, Storm 4         0.014           0         0.027         1.40         7.405         0.017 20% AEP, 15 min burst, Storm 4         0.014	084 9347 883 1% AEP, 10 min burst Storm 7	B33-34         132 South Bas         0.1         0.3         0.3         1.68         5.110           F27.28         JAD 130         122         0.3         0.3         2.67         314	6 0 0 2801 0 0 0 0 6 0.006 0.006 3.521 0.005 0 5.00 0.22.20% AEP 15 pup hurst Storm 4	0 0 2 801 0 0 0 0 0 0.015 0.015 3 531 0.009 0 599 0.29 1% 4ER 10 min hurst Storm 7
Hpe-17         H173         H174         10.318         7.3         6.75         5.33         375           Pipe-18         PIT74         PIT75         12.734         6.7         6.4         2.36         375	0.027         1 19         7 425         6 847 20% AEP, 10 min burst, Storm 8         0.06           0.058         1 44         6.847         6 811 20% AEP, 10 min burst, Storm 8         0 115	1 02 7 798 7 764 1% AEP, 10 min burst, Storm 1	OF366201 PIT73 PIT77 0.4 0.26 0.15 1.42 40	9 0 0.014 0.186 0.072 0.02 1 52 0 22 20% AEP, 10 min burst Storm 8	0 005 0 033 1 12 0 076 0 04 1 65 0 51 1% AEP 10 min burst Storm 1
Pipe-13         PIT 75         PIT 76         7         6.4         6.3         1.43         450           Pipe36225         PIT 76         PIT 77         28.7         6.25         6         0.87         525	0.217 2.03 6.725 6.584 20% AEP, 10 min burst, Storm 8 0.407 0.235 1.67 6.575 6.409 20% AEP, 10 min burst, Storm 8 0.463	2 49 7 163 7 072 1% AEP, 10 min burst Storm 1 2 14 7 003. 6.671 1% AEP. 10 min burst Storm 7	B19-14 H1 74 H1 75 0.1 0.26 0.15 3.53 14. B14-15 PIT 75 PIT 76 0.1 0.201 0.075 1.93	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	0.022 0.022 5.69 0.014 0.01 6.09 0.44 1% AEP 10 min burst Storm 7
Hpe36229         PIT 77         HW78         5 25         5 95         5 9         0 95         600           Hpe36229         PIT 77         HW78         5 25         5 95         5 9         0 95         600	0 522 2.36 6.409 6 338 20% AEP, 10 min burst, Storm 8 0 979	3 51 6.61 6.476 1% AEP, 10 min burst Storm 7	B15-6         FIT76         FIT66         0.7         0.26         0.15         0.22         28.64           B6-7         FIT77         HW78         0.1         0.3         0.3         5.22         5.25	9 0 0 0073 0 0 0 0 5 0 0 3.601 0 0 0 0	0 0i 0 441 0 0i 0 0 0 0 3 601 0 0 0 0
Hpe-7         H162         H163         H153         7.5         7.01         4.25         373           Hpe-3         PIT63         PIT64         18.904         6.96         6.65         1.64         373	0         0         7 5         7 264 20% AEP, 5 min burst, storm 1         0 048           0         118         1 49         7 21         7 099 20% AEP, 15 min burst, Storm 4         0 194	1 71 8 327 8.178 1% AEP, 10 min burst Storm 3	B8-3         AT62         AT63         0.1         0.26         0.15         7.22         11.5           B3-4         PT63         PT64         0.1         0.201         0.075         1.94         18.90	3 0 0 0419 0 0 0 0 4 0 0 1039 0 0 0 0	0 0 1 222 0 0 0 0 0 0 035 0 035 5 705 0 017 0 01 6 68 0 5 1% AEP 10 min burst Storm 1
Hpe36229         PIT 64         PIT 66         20 3         6 6         6 34         1 28         375           Pipe36229         PIT 66         PIT 77         11 9         6.29         6 15         1 18         450	0 143 1 29 6.973 6 851 20% AEP, 15 min burst, Storm 4 0.217 0 0.257 2 16 6.646 6 466 20% AEP, 10 min burst, Storm 8 0 447	1 97         7 993         7 813 1% AEP, 25 min burst Storm 1           2 81         6.96         6.671 1% AEP, 15 min burst Storm 3	B4-5         BT64         BT66         0.2         0.26         0.15         1.24         20.31           B5-6         BT66         BT77         0.1         0.201         0.075         1.63         11.84	3 0 0 0174 0 0 0 0 6 0 0 0953 0 0 0 0	0 095 0 095 1 047 0.116 0 06 3 01 0 68 1% AEP, 10 min burst Storm 4
P330553 N407897 IAD 61 5 7 9 7 8 2 150	0 06 43 8.656 7 954 20% AEP, 15 min burst, Storm 4 0 169	9 08 11 623 <sup>1</sup> 8.594 1% AEP, 10 min burst, Storm 7	OF416334 N450464 124 0.2 02 011 115 23.3	3 0012 0012 0178 0049 0.03 1 03 0 66 20% AEP, 45 min burst Storm 3	0.069 0.069 1.226 0.069 0.09 2.4 1.03 1% AEP, 15 min burst Storm 8
Hpe-2         IAD 61         PT 63         5.182         77         701         13.32         300           P320335         N394422         Jun-69         5         9.4         9.3         2         150	0.094 5 11 7 791 7 264 20% AEP, 15 min burst, Storm 4 0 2 0.021 1 76 9 495 9 393 20% AEP, 15 min burst, Storm 4 0 044	2 77 8 594 8 47 1% AEP, 10 min burst Storm 7 2 36 9 664 9.454 1% AEP, 10 min burst Storm 7	B2-3 IAD61 PIT63 0.1 0.3 0.3 8.82 5.18 OF366243 N394426 PIT76 0.4 0.26 0.15 3.36 594	2 0 0 3584 0 0 0 0 4 0 001 0286 006 002 113 032 20% AEP, 10 min burst Storm 8	0 0 3 584 0 0 0 0 0 0.02 1 643 0 07 0.03 1 46 0 42 1% AEP, 10 min burst. Storm 4
Hipe36228         Jun-69 IAD 70         15 667         9 15         8 9         1 6         228           Hipe36228 IAD 70         IAD 71         15 969         8.85         7 9         5 94         228	0 021 1 31 9 269 8 994 20% AEP, 15 min burst, Storm 4 0 045 0 021 0 97 8 969 8 092 20% AEP, 15 min burst, Storm 4 0 044	1 34         9 327         9 191 1% AEP, 10 min burst Storm 4           1 1         9 09         8 945 1% AEP, 10 min burst Storm 4	OF366232 Jun-69 N394414 0.1 0.3 0.3 4.82 17 0 OF366234 IAD 70 N394414 0.1 0.3 0.3 13.69 3.1	8 0 0 3594 0 0 0 0 5 0 0 3.605 0 0 0 0	0' 0 3 594 0 0 0 0 0 0 3 605 0' 0 0 0
Hpe-11         IAD71         PT72         4723         7.85         7.55         6.35         225           Hpe-11         IAD71         PT72         4723         7.85         7.55         6.35         225	0 043 3.21 8.019 7 63 20% AEP, 25 min burst, Storm 4 0 09	2.02 8 075 7 893 1% AEP, 10 min burst Storm 9	B12-13 IAD71 PIT72 0.1 0.3 0.3 5.4 4.72 B13-14 PIT72 PIT75 0.1 0.26 0.15 5.05 19.68	3 <u>0 0 3607 0 0 0 0</u> 6 <u>0 0 035 0 0 0 0</u>	0 0 3607 0 0 0 0 0 0 143 0 0 0 0
Hpe-12         H1 /2         H1 /2         H1 /2         H1 /2         H /2	0 005 1 01 7 622 6 811 20% AEP, 15 min burst, Storm 4 0 106 0 023 1 77 8 4 8.3 20% AEP, 15 min burst, Storm 4 0 048	0.95         7.812         7.764 1% AEP, 10 min burst Storm 7           2.55         9.196         8.945 1% AEP, 10 min burst Storm 7	OF366227 N394414 FIT72 0.1 0.26 0.15 2.89 17 0 CE365230 N394414 N394414 0.1 0.26 0.15 2.89 17 0 CE365230 N394414 N394414 0.1 0.26 0.15 2.89 17 0 CE365230 N394414 N394414 0.1 0.26 0.15 2.89 17 0 CE365230 N394414 N394414 0.1 0.26 0.15 2.89 17 0 CE365230 N394414 N394414 0.1 0.26 0.15 2.89 17 0 CE365230 N394414 N394414 0.1 0.26 0.15 2.89 17 0 CE365230 N394414 N394414 0.1 0.26 0.15 2.89 17 0 CE365230 N394414 N394414 0.1 0.26 0.15 2.89 17 0 CE365230 N394414 N394414 0.1 0.26 0.15 2.89 17 0 CE365230 N394414 N394414 0.1 0.26 0.15 0.15 0.28 0.15 0.15 0.15 0.28 0.15 0.15 0.15 0.28 0.15 0.15 0.28 0.15 0.15 0.28 0.15 0.15 0.28 0.15 0.15 0.28 0.15 0.15 0.28 0.15 0.15 0.28 0.15 0.15 0.28 0.28 0.28 0.28 0.28 0.28 0.28 0.28	4 0 0 008 0 265 0 059 0.02 1 08 0 49 20% AEP, 10 min burst Storm 8	0 0 016 1 598 0 072 0 04 1 54 0 56 1% AEP 10 min burst Storm 1
P320322         N394405         IAD 67         5         9 1         9         2         150           Pipe-15         IAD 67         IAD 68         59,793         3 607         7 41         2         225	0.029 1 83 9.221 9 122 20% AEP, 15 min burst, Storm 4 0 061 0.034 1 97 8.705 7 508 20% AEP, 10 min burst, Storm 8 0 074	3 27         9 561         9.154 1% AEP, 10 min burst Storm 7           2 38         8 761         7 88 1% AEP, 10 min burst, Storm 7	OF366220 N394407         FIT73         0.4         0.26         0.15         1 86         51           OF366220 N394407         FIT73         0.4         0.26         0.15         1 86         51	<b>0</b> 0 026 0 214 0 091 0 04 2 15 0 53 20% AEP 10 min burst Storm 8	0 0 055 1 289 0 107 0 06 2 69 0 61 1% AEP 10 min burst Storm 1
Pipe-16         IAD 68         PIT 75         8.953         7 35         6 4         10 61         300           P202340         N204287         IAD 60         5         10 7         10 6         0         165	0.035 1 7 497 6 811 20% AEP, 10 min burst, Storm 8 0.074	1 03 7 792 7 764 1% AEP, 10 min burst Storm 6	B17-14 IAD68 PIT75 0.1 0.3 0.3 8.19 8.95	1         0         0         3.604         0         0.01         5.99         0.62.20% AEP 10 min burst Storm 8           3         0.064         0.064         3.58         0.017         0.01         5.99         0.62.20% AEP 10 min burst Storm 8	0 0 3 504 0 0 0 0 0 0 131 0 131 3 58 0 027 0 02 5 99 0 81 1% AEP 10 min burst Storm 1
P320312         N394307         P4D 00         5         127         126         2         150           Fipe-1         IAD 60         IAD 61         77 938         12.35         7 8         5 84         225	0.015         10         12.770         12.076         20% AEP, 15 min burst, Storm 4         0.031           0.015         2.55         12.449         7.845         20% AEP, 15 min burst, Storm 4         0.031	174         12.84         12.746         1% AEP, 10 min burst Storm 7           1.09         12.493         8.594         1% AEP, 10 min burst Storm 7	OF366211 N394401         FIT74         0.5         0.26         0.15         1.86         57           OF366203 N394397         FIT77         0.3         0.26         0.15         2.98         46	4         0 001         0 033         0 213         0 098         0 05         2.39         0 55 20% AEP, 10 min burst. Storm 8           1         0         0 021         0 269         0 074         0 02         1 59         0 33 20% AEP 10 min burst. Storm 8	0 001 0 071 1 282 0 119 0 07 3 11 0 64 1% AEP, 10 min burst Storm 1 0 0 044 1 623 0 087 0 04 2.04 0 43 1% AEP 10 min burst Storm 1
P320293         N394375         IAD 103         5         6         5 9         2         150           Pipe-61         IAD 103         PIT 105         4 942         5 45         4 96         9 92         225	0 018 1 72 6.087 5 966 20% AEP, 15 min burst, Storm 4 0 039 0 1 4 73 5 682 5 074 20% AEP, 15 min burst, Storm 4 0 143	2.09         7 137         6.971         1% AEP, 10 min burst         Storm 7           3 12         6.462         6.347         1% AEP         5 min burst, Storm 1	OF366170 N394389 PIT 63 0.4 0.26 0.15 5.79 79 0 OF366174 IAD 60 N394389 0.1 0.3 0.3 6.06	8 0 0 0375 0 0 0 0 5 0 0 3586 0 0 0 0	0 0 1 338 0 0 0 0 0 0 0 3 586 0 0 0 0
Hipe-62         PIT 105         PIT 106         41 321         4 66         3 8         2 13         373           Pine-63         PIT 106         PIT 107         38 674         3 7         3 2         1 39         456	0         161         1         71         4         973         4         105         20% AEP, 15 min burst, Storm 4         0.271           0         230         1         82         4         041         3         668         20% AEP, 15 min burst, Storm 4         0.268	2.39 5 748 5.107 1% AEP, 10 min burst Storm 7	OF366164 N394385 FIT 113 0.5 0.26 0.15 0.77 641 F66-67 IAD 103 FIT 105 0.1 0.3 0.3 7.91 4.90	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	0 0 0 825 0 0 0 0 0 045 0 045 3 581 0 045 0 04 5 99 0 49 1% AFP 10 min burst Storm 7
Pipe-64 PIT 107 PIT 108 8.105 3.12 3 1.48 450	0.238 1 68 3.491 3 453 20% AEP, 15 min burst, Storm 4 0 368	2 26 4 006 3.921 1% AEP, 10 min burst Storm 7	1967-68 FIT 105 FIT 106 0.3 0.26 0.15 3.13 41 32 1969-69 FIT 106 FIT 107 0.4 0.3 0.3 1.17 39.67	1 0 0 0276 0 0 0 0 0 0004 2955 0006 0 5 0 0 10 20% AER 25 mm hurst Storm 5	0 032 0 032 1 663 0 079 0 06 1 75 0 62 1% AEP, 10 min burst Storm 7
Pipe-65         PIT 108         PIT 113         9         2.95         2.905         0.5         525           Pipe-66         PIT 113         HW114         11.925         2.9         2.84         0.5         600	0.262         1 29         3.404         3 38 20% AEP, 15 min burst, Storm 4         0.44           0         0.365         1 98         3.291         3.21 20% AEP, 15 min burst, Storm 4         0.631	1 97         3 7871         3.729 1% AEP, 15 min burst, Storm 3           2 41         3 508         3.353 1% AEP, 10 min burst Storm 7	B69-70 FIT 107 FIT 108 0.1 0.3 0.3 1.97 5.102	5 0 023 0 023 3.033 0 011 0 5 99 0 34 20% AEP, 15 min burst Storm 4	0.063 0.063 3.033 0.027 0.01 5.99 0.51 1% AEP, 15 min burst. Storm 6
IP320291 N394373 IAD 102 5 6.45 6.35 2 150 Fibe-60 IAD 102 IAD 103 9.227 6.25 5.49 8.24 225	0.034 1 83 6.641 6 499 20% AEP, 15 min burst, Storm 4 0 071	3 83         8 197         7 645 1% AEP, 10 min burst Storm 7           2 55         7 209         6 971 1% AEP 5 min burst Storm 1	<b>E</b> 70-71 HT106 HT113 U.1 U.201 0.075 1.35 E71-72 FIT113 HW114 0.1 0.201 0.075 10.56 11.92	8 0 0 2.424 0 0 0 0	
P320289 N394371 IAD 101 5 88 87 2 150	0 033 1 79 8.975 8 848 20% AEP, 15 min burst, Storm 4 0 069	3.7 9729 9208 1% AEP, 10 min burst Storm 7	INDF366149 IAD 102         N394364         0.1         0.3         0.3         4.77         3           INDF366147 IAD 101         N394363         0.1         0.3         0.3         6.84         3	1 0 0 3603 0 0 0 0 7 <u>0</u> 0 3.597 0 0 0 0	0 061 0 061 3 603 0 022 <sup>1</sup> 0 01 5 99 0 46 1% AEP 10 min burst Storm 7_ 0 <sub>1</sub> 0 3 597 0 0 0 0 0
P320281 N394368 IAD 100 5 11 1 11 2 150	0.034         1.39         8.839         6.497         2.0% AEP, 20 min burst, Storm 5         0.104           0.017         1.68         11.183         11.082         20% AEP, 15 min burst, Storm 4         0.036	2.29         8.865         7.645 1% AEP, 10 min burst Storm 7           1.92         11.301         11.152 1% AEP, 10 min burst Storm 7	+OF366145 IAD 100 N394349 0.1 0.3 0.3 6.11 3.1 •OF366139 N394364 FIT 105 0.1 0.26 0.15 6.87 10.1	7 0 0 3601 0 0 0 0 3 0 0 0 409 0 0 0 0	0 0 3 601 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
IPipe32027 IAD 100         IAD 101         31 967         10 9         8 7         6 88         225           IP320256         N394345         IAD 80         5         9 9         9 8         2         150	5 0.017 1 04 10.993 8 848 20% AEP, 15 min burst, Storm 4 0 036 0 0.017 1 68 9 962 9 882 20% AEP, 15 min burst, Storm 4 0 035	1 3 11 039 9 208 1% AEP, 10 min burst Storm 7 1 9 10 335 10,194 1% AEP, 10 min burst Storm 7	•OF366141 N394363         N394364         0.2         0.26         0.15         7.35         31.3           •OF366128 N394366         FIT 104         0.3         0.26         0.15         7.41         60.3	3 0 0 0 423 0 0 0 0 7 0 0 0 424 0 0 0 0	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
IPipe32016 IAD 80 IAD 81 19.017 97 9.25 2.37 228	0.019         0.88         9.515         9.364 20% AEP, 20 min burst, Storm 1         0.035           0.023         1.12         9.348         1.901 20% AEP, 45 min burst, Storm 10         0.077	0 77 10 062 10.034 1% AEP, 10 min burst, Storm 7	OF366143 N394349         N394363         D.2         D 26         O 15         6 6         31 6           OF366143 N394349         N394363         D.2         D 26         O 15         6 6         31 6	8 <u>0 0 04 0 0 0 0</u> 3 <u>0 0 2759 0 0 0 0 0</u>	
Pipe32016 IAD 82 IAD 85 14 526 8.68 8 25 2 96 225	0.000         1         2         atom         0 atom	2 47 9 225 8.852 1% AEP, 10 min burst, Storm 9	OF366110 IAD 81 N394330 0.1 0.3 0.3 2.33 7:		
•Pipe32017 IAD 85         PT 86         6.755         8.15         7.7         6.66         300           •Pipe32016 PIT 86         PIT 87         22.353         7.6         6.4         5.37         375	0 097 2 34 8.391 7 869 20% AEP, 15 min burst, Storm 4 0.201 0 128 1 55 7 861 6 669 20% AEP, 15 min burst, Storm 4 0.233	2.78         8 452         8.174         1% AEP, 10 min burst         Storm 4           2.24         7 934         7 304         1% AEP, 10 min burst         Storm 4	E54-55 IAD 85 PIT 86 0.1 0.3 0.3 3.96 154		0 0 3584 0 0 0 0 0
Hpe32016 PIT 87         Rt541617         37 072         6.35         4 3         5 53         375           Bio=19         Bt541617         Bt541620         26 905         4 25         3 7         2 04         375	0 168 1 77 6.651 4 619 20% AEP, 20 min burst, Storm 1 0 308 0 153 2 43 4 537 3 909 20% AEP 15 min burst, Storm 4 0 305	2.82 6.712 5.479 1% AEP, 10 min burst Storm 4 2.79 4.852 4.061 1% AEP 10 min burst Storm 3	B55-56         PT 86         PT 87         0.1         0.26         0.15         5.78         22.35           B56-57         PT 87         Pt 541617         0.2         0.26         0.15         5.99         37.07	3 0 0 0375 0 0 0 0 2 0 003 0 003 0 361 0 029 0 02 0 32 0 55 20% AEP, 15 min burst, Storm 4	0 001 0 001 1 36 0 024 0 01 0 27 0 44 1% AEP, 10 min burst Storm 7 0 023 0 023 1 337 0 065 0 05 1 29 0 76 1% AEP 10 min burst Storm 4
IFipe-20 Fit541620 Fit541623 11 073 3.55 3.35 1.81 450	0.153 1 91 3.776 3 596 20% AEP, 15 min burst, Storm 4 0 328	2 08 3 988 3.841 1% AEP, 10 min burst Storm 3	IB57-58         Fit541617         Fit541620         0.2         0.26         0.15         2.46         26.903           IOF366101         Fit541620         FIT         0.7         D.26         0.15         0.86         60	5 0 0 0244 0 0 0 0 5 0 0 0145 0 0 0 0	0 023 0 023 1 474 0 074 0 04 1 58 0 54 1% AEP, 10 min burst Storm 3 0 0 0 872 0 0 0 0 0
P320254 N394343 IAD 81 5 94 93 2 150	0.016 1 67 9 481 9 381 20% AEP, 15 min burst, Storm 4 0 328	1         3         10         169         10.034         1% AEP, 10 min burst, Storm 7	OF366103 Fit541623 FIT 113         0.8         0.26         0.15         0.8         6           B62-54         IAD 84         IAD 85         0.1         0.3         0.3         3.42         17.59	1 0 0 0139 <u>0</u> 0 0 0 6 0 0 359 0 0 0 0	0 0 0 841 0 0 0 0 0 0 359 0 <sup>1</sup> 0 <sup>1</sup> 0 0
IP320252         N394341         IAD 82         5         8.85         8.7         3         150           IP320242         N394337         IAD 84         5         9.1         9         2         150	0.021         1.6         8.953         8.901 20% AEP, 15 min burst, Storm 4         0.045           0         0.029         1.83         9.223         9.123 20% AEP, 15 min burst, Storm 4         0.062	2 39         9 862'         9.664 1% AEP, 10 min burst Storm 7           3 31         9.57         9.163 1% AEP, 10 min burst Storm 7	B61-62 IAD 83 IAD 84 0.2 0.3 0.3 6.33 3 OF366109 N394330 PIT 86 0.2 0.26 0.15 4.23 28.4	0 0 0 <u>3.607 0 0</u> 0 0 0 6 0 0 0 <u>321 0 0</u> 0 0	0 0 3607 0 0 0 0 0 0 1507 0 0 0 0
Hipe32016 IAD 84         IAD 85         17 596         8 9         8 25         3 69         225           Hipe32020 N394332         IAD 83         5         3 6         0 5         3 6         225	0.013 1.71 9.031 8.41 20% AEP, 15 min burst, Storm 4 0.094	21 9128 8.852 1% AEP, 10 min burst Storm7	OF366108 N394329 N394330 0.3 0.26 0.15 0.86 22 OF366104 N394328 Pt541623 1 0.26 0.45 0.45		
Hipe32017 IAD83         IAD84         30         94         895         15         225	0 014 1 39 9 466 9 031 20% AEP, 15 min burst, Storm 4 0.03	1 72 9 498 9 163 1% AEP, 10 min burst Storm 4	B76-77 FIT111 FIT112 0.4 0.26 0.15 0.87 32.29	4 0 002 0 002 0 145 0 031 0.01 0 34 0 38 20% AEP, 15 min burst Storm 4	0.016 0.016 0.877 0.067 0.03 1.36 0.49 1% AEP, 10 min burst Storm 7
Hpe-70         PT 111         PT 112         32.294         3.454         3.131         1         373           Pipe-71         PIT 112         PIT 113         13.113         3.081         2.95         1         373	0 039         1 01         3.597         3 425 20% AEP, 15 min burst, Storm 4         0 071           5         0.063         0 63         3.393         3 38 20% AEP, 15 min burst, Storm 4         0 131	0.63         3.954         3.919 1% AEP, 10 min burst. Storm 7           1.16         3.778         3.729 1% AEP, 10 min burst. Storm 7	OF366129 FIT 104 FIT 106 0.4 0.26 0.15 0.19 10 OF366129 FIT 104 FIT 106 0.4 0.26 0.15 2.9 65	5 0 0 0265 0 0 0 0 0 5 0 0 0 0265 0 0 0 0 0	0.007 0.007 0.41 0.052 0.02 0.85 0.43 1% AEP 10 min burst Storm 7 0.003 0.001 1.601 0.044 0.02 0.59 0.43 1% AEP, 10 min burst Storm 7
Pipe-67         PIT 104         PIT 105         12.976         5.89         5.175         5.51         225           Pipe-33         126         128         39         8.51         6.95         4         225	0.024 2.5 6.017 5.24 20% AEP, 10 min burst, Storm 8 0.047	1 13 6 428 6.347 1% AEP, 10 min burst Storm 3 0.81 3 601 8 002 1% AEP 10 min burst Storm 7	#536-37         126         129         0.4         0.3         0.15         3.68         59.3           #637-31         128         129         0.1         0.3         0.3         8.7         6.063	0         005         0         067         0         067         0         89         20% AEP         45 min burst         Storm 10           7         0         029         0         029         0         014         0         5         99         0         36         20% AEP         15 min burst         Storm 4	0 013 0 013 1 05 0 037 0 04 0 93 1 04 1% AEP 10 min burst Storm 7 0 072 0 072 3 592 0 024 0 01 5 99 0 49 1% AEP, 10 min burst Storm 7
Pipe-34 128 129 5.367 6.9 6.77 2.42 300	0.049 0.68 7.229 7.222 20% AEP, 15 min burst, Storm 4 0.073	1 02 7 85 7 842 1% AEP, 5 min burst, Storm 1	B32-33         131         132         0.1         0.201         0.075         1.43         7.00           B38-30         124         125         0.1         0.2         0.11         0.75         12.91	8 0 0 0892 0 0 0 0 7 0 0 0144 0 0 0 0	0 049 0 049 6 002 0 024 0 01 8 19 0 39 1% AEP, 10 min burst. Storm 7 0 03 0 03 0 99 0 057 0 06 1 3 1 11 1% AEP, 15 min burst. Storm 8
Hpe-9         131         132         8         6.51         6.48         0.38 0.75Wx 0.375H           Hpe-35         124         125         12.917         6.82         6.72         0.77         375	0 053 0.22 6.918 6 917 20% AEP, 20 min burst, Storm 1 0 197 0 022 0 19 7 268 7 267 20% AEP, 45 min burst, Storm 3 0 076	0.7 7 256 7 246 1% AEP, 10 min burst Storm 7 0.67 7 958 7 942 1% AEP, 15 min burst Storm 8	B574-475 IAD 220 IAD 221 0.3 0.3 0.3 2.84 31 22 B475-476 IAD 221 FT 225 0.2 0.3 0.15 2.19 29.24	4         0 038         0 038         3 584         0 016         0 01         5 99         0 4 20% AEP 10 min burst, Storm 8           3         0 029         0 029         0 671         0 044         0 06         1 17         1 37 20% AEP 10 min burst, Storm 8	0 077 0 077 3 584 0 026 0.01 5 99 0 5 1% AEP, 10 min burst Storm 4 0 088 0 088 1 224 0 065 0 11 1 93 1 65 1% AEP 10 min burst Storm 7
Pipe-582         IAD 220         IAD 221         31 224         9 45         8 75         2 24         225           Pipe-481         IAD 221         IAD 222         29 243         8 7         8 1         2 05         2 34	0 01 0 76 9 532 8 949 20% AEP, 10 min burst, Storm 8 0 02 0 048 2 18 8 98 8 218 20% AEP 20 min burst, Storm 1 0 069	0.63 9.617 9.556 1% AEP, 10 min burst Storm 4 1.51 9.076 8.827 1% AEP. 5 min burst Storm 1	IB476-477 IAD 222 PIT 225 0.1 0.3 0.15 4.59 17.76 IP477-478 IAD 222 PIT 225 0.1 0.3 0.15 4.59 17.76	8 0 009 0 009 0 971 0 03 0 03 0 69 1 09 20% AEP 10 min burst Storm 8	0.027 0.027 0.984 0.044 0.06 1.17 1.3.1% AEP, 10 min burst Storm 2
Hipe-482         IAD222         IAD223         17768         8         6.95         5.91         300	0 0.07 1 36 8.204 7 642 20% AEP, 10 min burst, Storm 8 0 104	1 44 8 676 8.564 1% AEP, 10 min burst Storm 1	B478-479 PIT225 PIT226 0.1 0.201 0.075 1.34 7.01	9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 144 0 144 6.037 0 034 0.02 10 04 0 68 1% AEP, 10 min burst Storm 7
Hpe-483         AD 223         HT 225         4 779         6.89         6 85         0 84         300           Pipe-484         PIT 225         PIT 226         7 019         6.85         6 81         0 57         525	0.074         1 03         7 508         7 493 20% AEP, 10 min burst, Storm 8         0.11           0.215         0 99         7 369         7 373 20% AEP, 20 min burst, Storm 1         0 284	1 33         5 303         8.272         1% AEP, 10 min burst. Storm 5           1 31         5 172         8.156         1% AEP, 5 min burst. Storm 1	B679         H1226         N748179         0.2         0.3         0.15         1.26         19.23           B567         478         PIT224         PIT225         0.1         0.3         0.15         2.86         11.28	a 0 0 0509 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 019 0 019 1 402 0 048 0 03 1 32 0 71 1% AEP, 15 min burst. Storm 8 0 039 0 039 1 116 0 054 0 06 1 52 1 16 1% AEP, 10 min burst. Storm 7
IFipe-485         PIT 226         PIT 232         19.238         6.81         6.64         0.88         528           IPipe-571         PIT 224         PIT 225         11.292         6.934         6.85         0.74         374	0.236         1 2         7 257         7 203 20% AEP, 20 min burst, Storm 1         0.39           0.051         0.46         7 507         7 493 20% AEP, 10 min burst, Storm 8         0.039	1 8 7 904 7 786 1% AEP, 10 min burst, Storm 4 0.81 8 298 8 272 1% AEP 10 min burst, Storm 1	CF416324 N748179 132 0.6 0.3 0.15 0.76 61 4 CF665065 127 131 0.3 0.3 0.15 1.01 33 0	5 0 0 0395 0 0 0 0 6 0009 0009 0456 0039 002 098 057 20% AEP, 10 min burst, Storm 8	0 012 0 006 1 583 0 051 0 02 1 43 0 53 1% AEP, 15 min burst Storm 10 0 055 0 055 1 492 0 073 0 06 2.2 0 79 1% AEP, 10 min burst Storm 7
IPpe58916         127         128         10 001         7 05         6 95         1         225	0 014 0 3 7 353 7 366 20% AEP, 10 min burst, Storm 8 0 022	0 47 7 978 8.002 1% AEP, 5min burst, Storm 1	CF665068 Pit EX1A PIT 153 0.1 0.3 0.15 4.47 212 1846-47 PIT 153 PIT 154 0.1 0.3 0.15 4.5 13.74	2 0.017 0.017 0.959 0.037 0.04 0.94 1.2.20% AEP, 15 min burst Storm 5	0 064 0 064 0 997 0 059 0 09 1 71 1 5 1% AEP, 15 min burst Storm 8 0 0171 0 017 1 0 036 0 05 0 48 1 36 1% AEP 15 min burst Storm 8
Hpeosezz         HT 153         19 535         10 36         9 26         5 73         375           Pipe-5         PIT 153         PIT 154         14 157         9 23         7 7         10 81         375	0 107         1 44         10 619         9 506 20% AEP, 25 min burst, Storm 5         0 157           0 139         1 6         9 502         8 006 20% AEP, 45 min burst, Storm 4         0.241	2.26 9.569 9.202 1% AEP, 15 min burst Storm 8	B47-42 FIT 154 FIT 155 0.1 0.3 0.15 6.79 13.719 OFE65151 Fit541644 Fit541643 0.3 0.2 0.2 0.2 0.2		
Pipe-43         PIT 154         PIT 155         13.719         7.57         7.37         1.46         375           Pipe58931Pt541644         Pt541643         45.839         9.75         8.55         2.62         225	0 133 1 17 7 951 7 898 20% AEP, 15 min burst, Storm 4 0.264 0 024 1 9 876 8 723 20% AEP, 10 min burst, Storm 2 0.041	2.33         8.966         8.784 1% AEP, 15 min burst Storm 8           1.22         9.914         9.56 1% AEP, 10 min burst Storm 1	OF665152 Ptt541643 Ptt541642 01 03 03 4.86 15.7	2 0 02 0 02 3.582 0 011 0 5 99 0 32 20% AEP, 10 min burst Storm 8	0 083 0 083 3 582 0 026 0 01 5 99 0 53 1% AEP, 10 min burst Storm 7
Pipe58932 Pit541643 Pit541642 15.005 8 5 8 3 33 225	0 06 1 52 8.7 8.193 20% AEP, 10 min burst, Storm 8 0 078	1 69 9 015 8.845 1% AEP, 10 min burst Storm 4	OF665154         Pit541651         Pit541645         0.8         0.3         5.91         4.3           OF665154         Pit541651         Pit541645         0.8         0.3         0.3         0.15         22	1 0 0 0837 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 069 0 069 3 099 0 025 0.01 5 99 0 59 1% AEP, 10 min burst Storm 7 0 074 0 074 0 837 0 025 0 01 5 99 0 49 1% AEP, 10 min burst Storm 7
Pipe58932 Pit541651 Pit541645         22.428         7.55         6.95         2.68         225	0.063         2.18         7.77         7.136 20% AEP, 10 min burst, Storm 7         0.038           0.063         2.18         7.77         7.136 20% AEP, 10 min burst, Storm 7         0.11	2.4 8.382 8.069 1% AEP, 10 min burst, Storm 2	E9-5         Fit541645         FIT66         0.1         0.3         0.3         7.26         9.12           OF992985         Fit67A         N1133701         0.1         0.3         0.3         7.62         5.3	0 005         0 005         3.588         0.004         0         5 99         0.2 20% AEP, 15 min burst, Storm 4           2         0 002         0 002         3.608         0 002         0         5 99         0 15 20% AEP, 5 min burst, Storm 1	0 049 0 049 3 588 0 017 0.01 5 99 0 48 1% AEP, 10 min burst. Storm 7 0 005 0 005 3 608 0 004 0 5 99 0 2 1% AEP, 5 min burst. Storm 1
Pipe-8         Pit541645         PIT66         9.129         6.87         6.36         5.59         375           Pipe88954         Pit67A         IAD 67         16         8.82         8.657         1.02         225	0.094         1 36         7 092         6 851 20% AEP, 20 min burst, Storm 1         0 148           0 008         1 13         8 897         8 709 20% AEP 5 min burst, Storm 1         0 015	1 31         7 856         7 813 1% AEP, 10 min burst Storm 7           0 8         8 924         8.761 1% AEP 5 min burst Storm 1	OF992967 N1133701 N394401 0.1 0.3 0.15 2.8 16	5 0.002 0.002 0.759 0.019 0.01 0.3 0.59.20% AEP 10 min burst Storm 8	0 004 0 004 1 125 0 025 0.02 0 48 0.75 1% AEP, 5 min burst Storm 1
					These are the plans referred to in

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**CONSTRUCTION ISSUE** 

PROJECT:

THE SANCTUARY STAGE 7 CONTACT DIAL BEFORE YOU DIG PRIOR TO COMMENCING ANY EXCAVATION WORKS OF THE LINE WORK HEREIN OF THE LINE WORK HEREIN FLOW

ORIGINAL SIZE: LAND DYNAMICS JOB No.: DRAWING No.: 2

and determined as APPROVED on: 17/10/2024 PORT MACQUARIE-HASTINGS COUNCIL

CI2014 - 114.8

REV:

2005 D

Subdivision Works Certificate Application No.:

# **EROSION AND SEDIMENT CONTROL NOTES:**

1. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE NO POLLUTANTS LEAVE THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES ARE TO BE IN ACCORDANCE WITH AUS-SPEC #1 HASTINGS COUNCIL VERSION AND LANDCOM SOILS AND CONSTRUCTION (BLUE BOOK).

2. ALL EROSION AND SILTATION CONTROL MEASURES ARE TO BE PLACED IN ACCORDANCE WITH EROSION & SEDIMENT CONTROL SCHEDULE AND AS DIRECTED.

3. NO DISTURBED AREA IS TO REMAIN DENUDED LONGER THAN 60 DAYS.

4. ALL TEMPORARY EARTH BANKS, DIVERSIONS AND SEDIMENT DAM EMBANKMENTS ARE TO BE MACHINE COMPACTED AND SEEDED FOR TEMPORARY VEGETATIVE COVER WITHIN 5 DAYS AFTER GRADING.

5. ALL CUT AND FILL SLOPES ARE TO BE SEEDED AND MULCHED WITHIN 5 DAYS OF COMPLETION OF GRADING.

6. ALL DISTURBED AREAS TO BE STABILISED AND/OR REVEGETATED WITHIN 14 DAYS OF EARTHWORKS COMPLETION USING "HYDROMULCH" OR THE FOLLOWING SEED AND FERTILISER MIXTURE:

5kg/ha

15kg/ha

8kg/ha

8kg/ha

10kg/ha

100kg/ha

JAPANESE MILLET RYECORN/OATS COUCH GRASS \*RHODES GRASS PERENNIAL RYEGRASS STARTED FERTILISER (SOWING) SPRING/SUMMER SPRING/SUMMER 15kg/ha 5kg/ha 10kg/ha 10kg/ha 5kg/ha 300kg/ha 300kg/ha 100kg/ha

(FOLLOWING SPRING/AUTUMN)

MAINTENANCE FERTILISER

\*NOT TO BE USED ADJACENT TO BUSHLAND AREAS.

7. PROVIDE A BUFFER STRIP OF TURF 2m WIDE ADJACENT TO KERB & GUTTER.

8. SILT FENCING & SERVICES SHOULD AVOID VEGETATION THAT IS TO BE RETAINED.

9. PORTABLE GRAVEL INLET SEDIMENT TRAPS TO BE PLACED TO AVOID SILT ENTERING SAG PITS AND ALL OTHER PITS WHERE DOWNSTREAM FLOODING WILL NOT DAMAGE EXISTING RESIDENCES. A 50mm SPACER IS TO BE PROVIDED BETWEEN TRAP AND LINTEL OF INLET PIT.

10. PROVIDE FILTER FENCE AND/OR CONTOUR DRAINS AT APPROPRIATE INTERVALS ACROSS SITE REGRADING AREAS UNTIL DISTURBED AREAS ARE COMPLETELY STABILISED OR TO THE SATISFACTION OF DIRECTOR OF DEVELOPMENT AND ENVIRONMENT.

11. ALL CONTOUR DRAINS AND DIVERSION BANKS NOT DISCHARGING TO SEDIMENT PONDS TO HAVE (MIN) 4m LENGTH OF SPILLWAY TRENCH AT DISCHARGE POINT WITH NO EARTH BANK ON LOW SIDE AND POSITIONED SUCH THAT THERE IS NO LONGITUDINAL GRADE ON THE SPILLWAY.

12. PROVIDE SUITABLE DUST SUPPRESSION MEASURES DURING CONSTRUCTION.

13. NO VEHICLE IS TO LEAVE THE SITE IN CONDITIONS THAT MAY RESULT IN DEPOSITION OF EARTH ONTO PUBLIC ROADWAYS.

14. THE RESTORATION OF EROSION AND SEDIMENTATION CONTROL WORKS ARE TO BE ON A DAY TO DAY BASIS TO ENSURE THAT NO DISTURBED AREA IS LEFT WITHOUT ADEQUATE MEANS OF CONTAINMENT AND TREATMENT OF CONTAMINATED WATER.

15. SEDIMENT PONDS ARE TO BE INSPECTED AFTER EACH RAIN EVENT AND COLLECTED SEDIMENT TO BE REMOVED WHEN 30% OF POND VOLUME HAS BEEN FILLED.

16. THE CONTRACTOR SHALL INSPECT ALL TEMPORARY EROSION AND SEDIMENTATION CONTROL WORKS AFTER EACH RAIN PERIOD AND DURING PERIODS OF PROLONGED RAINFALL. ANY DEFECT REVEALED BY ANY SUCH INSPECTION SHALL BE RECTIFIED IMMEDIATELY AND THESE WORKS SHALL BE CLEANED, REPAIRED AND AUGMENTED AS REQUIRED, TO ENSURE EFFECTIVE EROSION AND SEDIMENTATION CONTROL THEREAFTER

17. SEDIMENT CONTROL TO BE VARIED AND MODIFIED IN ORDER TO MAINTAIN EFFECTIVE EROSION AND SEDIMENT CONTROL IN ASSOCIATION WITH THE STAGING OF WORKS. REVEGETATION WILL OCCUR WITH THE PROGRESSION OF THE WORKS

# **EROSION & SEDIMENT CONTROL SCHEDULE:**

STEP 1 INSTALL SEDIMENT FENCING DOWNSLOPE OF SITE

**STEP 2 STRIP TOPSOIL TO STOCKPILES** 

STEP 3 CONSTRUCT TEMPORARY SEDIMENT PONDS

STEP 4 CUT CONTOUR DRAINS ABOVE STOCKPILE SITES. GRADE DRAINS TO MAX 10% AND EXTEND TO DISCHARGE TO STABLE VEGETATED AREAS OR SEDIMENT PONDS.

STEP 5 INSTALL SEDIMENT FENCING BELOW STOCKPILE SITES UNLESS GRASSED AREAS EXIST DOWNSLOPE SUFFICIENT TO CATCH SEDIMENT WHICH MAY ERODE FROM STOCKPILE.

STEP 6 CONSTRUCT VEHICLE "SHAKER GRID" AT SITE ENTRANCE

STEP 7 MAINTAIN ALL EROSION AND SEDIMENT CONTROL DEVICES DURING CONSTRUCTION. MODIFY AND INSTALL ADDITIONAL DEVICES. (CHECK FENCES, PIT INLET CONTROLS ETC.) AS REQUIRED.

STEP 8 REVEGETATE DISTURBED AREAS IN ACCORDANCE WITH EROSION AND SEDIMENT CONTROL NOTES.

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THE SANCTUARY STAGE 7

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THE SANCTUARY STAGE 7 DRAWING TITLE: SEWER LONGITUDINAL SECTIONS SHEET 3 OF 3

Subdivision Works Certificate Application No. CI2014 - 114.8 and determined as APPROVED on: 17/10/2024 PORT MACQUARIE-HASTINGS COUNCIL

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DRAWING TITLE: BRIDGING DETAILS

A1

PROJECT: THE SANCTUARY STAGE 7

ORIGINAL SIZE: LAND DYNAMICS JOB No.: DRAWING No.:

5153

- FOOTING CANNOT BE CONSTRUCTED DUE TO COLLAPSING SAND.
- NOTIFY ENGINEER FOR ALTERNATIVE DETAIL IF MASS CONCRETE
- CONCRETE WORKS IN ACCORDANCE WITH AS3600 CURRENT EDITION. • EXPOSURE CLASSIFICATION: B1 - MIN COVER 65mm
- CONCRETE STRENGTH MINIMUM 25MPA.

CI2014 - 114.8 and determined as APPROVED on: 17/10/2024 PORT MACQUARIE-HASTINGS COUNCIL

REV:

3004 D

These are the plans referred to in Subdivision Works Certificate Application No.:

CONTRACTOR TO ENSURE SINGLE LENGTH OF PIPE SPANS PIERS. SOCKET NOT TO BE LOCATED OVER BEAM

# LEGEND

# PROPOSED

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DESIGN CONTOUR MAJOR DESIGN CONTOUR MINOR KERB FOOTPATH & PRAM RAMP STORMWATER / PIT STORMWATER JUNCTION & DISTANCE TO D/S PIT SEWER MAIN / MANHOLE POTABLE WATERMAIN / HYD / SV **RECLAIMED WATERMAIN / HYD /SV RETAINING WALL** 

# EXISTING

![](_page_26_Figure_5.jpeg)

# EXISTING CONTOUR MAJOR EXISTING CONTOUR MINOR KOALA FOOD TREE TO RETAIN AND PROTECT

APPROVED KOALA FOOD TREES TO BE REMOVED

NON KOALA FOOD TREES TO BE REMOVED

# LANDSCAPE LEGEND

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![](_page_26_Picture_11.jpeg)

FEATURE TIMBER SIGNAGE/ SCULPTURAL WALL TO BE WHOLLY LOCATED WITHIN PRIVATE LOT **REFER TO DETAILS 6004** 

MULCHED GARDEN BEDS - REFER TO DETAIL 6004

TURF (SAPPHIRE BUFFALO) - REFER TO DETAIL 6004

MULCH BED TO 100MM DEPTH USING SITE STOCKPILED MATERIAL

TIMBER GARDEN EDGING (38 X 100MM) - TO FINISH FLUSH WITH ADJOINING TURF

LOW EARTH MOUNDING TO MAX, 400MM HIGH, TO **BE PLANTED WITH NATIVE GRASSES & MULCHED** TO 75MM DEPTH

- Trimming of areas to be landscaped
- Cultivation
- Top soil - Planting
- Mulching - Edging
- Maintenance

PRELIMINARIES Establishment on site may include site sheds, barricading, signage or security and general Health and Safety requirements associated with workplace.

# **EXISTING TREES**

Existing trees shown as trees to be retained must be protected in accordance with AS4970 'Protection of Trees on Development Sites'. Trees are to have approved temporary exclusion fencing installed outside the critical root zone to ensure not storage of materials/ or compaction of the ground occurs in this area. Where works are necessary within the critical root zone (such as laying of turf), this is to be undertaken as a final activity once all other works have been finalized. A gualified horticulturist or tradesman skilled in arboricultural techniques is to review the existing trees and undertake any necessary pruning to remove any deadwood or limbs that have been broken, damaged or are deemed unsafe. Prior to undertaking any tree surgery, approval must first be obtained from the landscape architect. Any necessary work within the critical root zone must also be supervised by a qualified horticulturist or tradesman skilled in arboricultural techniques. All works must be undertaken in accordance with AS4373 'Pruning of Amenity Trees'.

Comply with Local Authority, State and Federal Government requirements on allowable construction times and noise levels. Plan and carry out the work so as to avoid erosion, contamination and sedimentation of the site, surrounding areas, and drainage systems. Ensure all practicable control measures are taken to limit the amount of site disturbance, to control run-off and to prevent increased movement of sediments into any waterways.

1.5 m.

# EARTHWORKS

Finished surfaces shall finish flush with existing pits, covers, rollover kerbs, edges and adjacent surfaces. Except where flush kerbs are installed to road edges than grass levels should finish 50mm below such flush kerbs.

Preparation Eradicate all weeds using environmentally acceptable methods, such as non-residual glyphosate herbicide in any of its registered formulae, at the recommended maximum rate. All works in close proximity to the conservation area should reduce reliance on herbicides. Non-chemical control measures should be considered within highly sensitive areas, including those around waterways and/or wetland areas, for preferential and successful weed control. Weed specimens requiring herbicide application within these sensitive areas should consider safe guards against application methods. For example, cut stump methods for drill/inject methods are less likely to contaminate the native ecology than spray techniques. Refer to the Weed Management Plan, which was previously prepared for the development site, which clearly identifies different weed management zones and preferred treatment. Maintain all areas in a weed free state for the duration of the contact and Plant Establishment periods.

Removing compacted material Excavate and remove from site compacted fill resulting from the building works. Cultivate to 300mm depth all pre existing site material that has been compacted during construction.

**Existing Site Topsoil** Site topsoil to be improved for all landscape areas. Where this is insufficient quantity of site top soil imported topsoil shall be used. Topsoil shall comply with this specification and AS 4419 (1998) 'Soils for

Landscaping and Garden Use'. All topsoil's to be certified free of fire ants. Plant Growing Media:

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# **SCOPE OF WORK**

The work includes the organization for and supply of all relevant labor, materials, plant and equipment as required to execute the works.

The scope of work includes but is not limited to the following:

- Supply and spreading of additives

### SITE AND ENVIRONMENTAL MANAGEMENT

Ensure all practicable needs are taken to protect stockpiles from winds and water erosion. Protect the topsoil stockpiles from contamination by other excavated material, weeds and building debris. Ensure that no noxious weeds (groundsel, lantana, nut grass, etc.) exist in the topsoil. Stockpiles will be managed to prevent spontaneous combustion and fire. Establish stockpiles to heights not exceeding

Earthworks shall involve the removal of existing compacted material, the cultivation of subsoil, the supply and mixing in of additives, the supply and spreading of topsoil and the fine grading of such soil and existing soil profiles to all landscaped areas to form the finished levels and profiles. Install all surfaces with falls of minimum 3% away from the existing buildings, to

edges or kerbs as required, to ensure drainage of surface water to the drainage systems around the site.

# All site top soil shall be tested and Amelioration undertaken if required.

The intended purpose of the projects topsoil is to support healthy and vigorous establishment of a phosphorous sensitive native planting palette similar to the vegetation currently on site, and reduce the requirement for ongoing supplementary watering and fertilizer applications.

Site topsoil amelioration Allow for:

- Strip and stockpiling of site won topsoil in stockpiles no greater than 1m height;
- Perform a soil test and assessment by qualified soil scientist of the stockpiled top soil against the "SLD D1, standard pH range, P sensitive' soil specification. Finial amelioration of topsoil to be confirmed by the landscape architect.
- Allow for the incorporation of the following ameliorants to the topsoil to the nominated depth either prior or post placement of stockpiled top soil.
- Low phosphorous composted soil conditioner conforming with as 4454 0 @ 20% by volume
- Gypsum, lime and or dolomite @ 2kg / m3 0
- 0 Osmocote® Plus Trace Elements 12 month sustained release fertilizer @ 150g / m3
- TerraCottem Universal @ 5kg / m3 0

All deleterious material including rocks larger than 50 mm diam., builder's rubble, sticks, roots, weeds and spillage are to be removed,

### Import and Spread Topsoil

Import and spread premium topsoil mix to make up deficiencies as required and appropriate. Soil shall be free of weeds. Finished soil levels shall allow for mulch to finish 20mm below edge as specified herein. Imported topsoil to comply with AS4419.

### METALWORK

Provide stable and permanent metal work which supplies the specified requirements, functions at optimal effectiveness and accommodates thermal movement. Metalwork must be corrosion resistant and remain intact under anticipated climatic conditions and use.

### MULCH

Mulch to planting areas shall be free of soil, stones, weeds, rubbish or any other deleterious materials. Spread mulch to garden bed areas to a depth of 75mm, to finish 20mm below adjacent surfaces. Keep mulch clear of plant stems. Spread mulch following planting and watering in. Avoid mixing of soil and mulch materials.

Mulch to be "forest fines" as available from A.N.L. 131458 (or similar). Site mulch can be used in bushland areas and mounding but to be approved by supervisor prior

### **STAKES AND TIES**

All trees and shrubs 25L or over shall be staked and tied.

### PLANTING ESTABLISHMENT

Establishment shall include the care of the contract areas by accepted horticultural practices, as well as rectifying any defects that become apparent in the works under normal 'use'. This shall include, but not be limited, the following works

- Repair and/or replace ay defects due to failure and/or inferior quality materials and/or workmanship
- Replace plants that have failed and/or have been damaged or died
- Weed and pest control
- Maintain all landscape areas in a neat and tidy condition at all times
- Maintain fertilizing and pruning as required
- Check and adjust levels to attain those specified by addition or removal of mulch and/or top soil/

All planted beds are to be weeded to maintain same in a grass and weed free condition. Carry out any other work that is specified or is necessary to establish the landscape works in a first class condition.

### PLANTING TREE PLANTING

- Prepare hole for tree planting at least two (2) times the depth and two (2) times the diameters of container.
- Place plant in hole backfill in planting hole with 100% site topsoil with added slow release fertilizer as specified then tap and lightly compact around sides to prevent air pockets.
- Supply and install tree guards as detailed to all street trees. All other tree planting to have 2no. x 180 x 50 x 50mm HWD stakes to a minimum depth in to ground 600mm. Place stakes parallel to kerb and equal distances apart from trunk to allow good growth habit (approx. 300mm).
- Supply and install 50mm wide hessian or Jute from stake to trunk fixed at stake in a figure eight at approx. half tree height
- Minimum horizontal distance from tree trunk:
- 2 meters from fire hydrant, valve box or Telstra inspection pit
- 1.5 meters to sewer or water main connection and 0
- 2 meters from a directly buried fiber optical cable 0

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### TURF

- Minimum thickness 25mm of topsoil attached INSTALLATION Lay turf parallel to slope contours with staggered, close-butted joints so that the finished turf surface is flush with adjacent finished surfaces.
- Watering Irrigate thoroughly with a fine spray. Continue as necessary to maintain moisture to this depth and to maintain the grass in a healthy green condition. rejection
- Replace failed turf and relay with new turf.
- Fertilizer Supply Deliver fertilizer to the site in bags, branded with the type and manufacturer's names.
- Types and Application Refer to details

### Turfed Areas

The following is the minimum expected:

At time of preparation or not more than 48 hours before laying, spread pre-laying fertilizer evenly over topsoil and rake lightly into the surface. During the Establishment Period spread establishment fertilizer evenly over the turf area and then water in. Do not apply fertilizer to wet grass.

### LANDSCAPE MAINTENANCE PROGRAM

### Period

The landscape maintenance period shall commence at the date of Practical Completion. The required period shall be fifty two weeks (52)

### **Recurrent Works**

Throughout the Maintenance Period, continue to carry out recurrent works of a maintenance nature, including but not limited to weeding, rubbish removal, fertilising, pest and disease control, staking and tying, replanting, pruning and the like. Contractor to keep a log book including date of attendance on site, activities

carried out, actions taken etc

Watering Trees and garden bed areas shall be watered regularly so as to ensure continuous healthy growth.

### Replacements

The Landscape Contractor shall replace all plants that are missing, unhealthy or dead at no cost to the Proprietor. Replacements shall be of a similar size and quality and identical species to the plant that has failed. Replacements shall be made within two weeks of the plant having died or seen to be missing. Any vandalism to landscape works must be reported to the Project officer within 24hrs and photographic record taken.

### Weeding and Rubbish Removal

During the Maintenance Period the Landscape Contractor shall remove rubbish and weed growth that may occur and re-occur throughout the period. Only approved herbicides may be used and shall be used according to the manufacturers instructions.

### **Grass Areas**

Landscape Contractor to maintain healthy, weed free growth of turfed areas. Turf to be cut at intervals to maintain height of 30-50mm. Irregularities in turf to be corrected by topdressing. Any damage to turf by others to be reported to the Project officer within 24hrs and photographic record taken.

### Mulched Surfaces

All mulched surfaces shall be maintained in a clean and tidy condition and be reinstated where necessary to a depth of 75mm.

### Stakes and Ties

Adjust stakes and ties where necessary.

Where plants are robust and have a well developed root system and no longer require support, stakes and ties shall be removed.

Where plants are unable to be self supporting or where stakes are damaged, plants shall be staked and re-staked

### **Pest and Disease Control**

PROJECT:

All plants shall be checked prior to planting and at regular intervals during the works and Maintenance Period for disease and insect attack. Any problems shall be identified and the standard horticultural practices shall be implemented to control and eliminate the problem. Any spraying shall be carried out strictly in accordance with the manufacturers directions.

### Pruning

Trees and shrubs shall be pruned as required. Emphasis to be placed upon ensuring 'sight lines' are maintained within any roadside plantings. Pruning will be directed at the maintenance of the dense foliage and beneficial to the condition of the plant. Any damaged growth shall be pruned. Vigorous groundcovers shall be pruned to be kept clear and maintained 150mm from the base of any tree or shrub. A number of species including Livistona australia and Allocasuarina torulosa are to be planted away from pedestrian areas allowing for frond fall and canopy form respectively

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### THE SANCTUARY STAGE 7 DRAWING TITLE: LANDSCAPE NOTES

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DESIGN CONTOUR MAJOR DESIGN CONTOUR MINOR KERB FOOTPATH & PRAM RAMP STORMWATER / PIT **STORMWATER JUNCTION &** DISTANCE TO D/S PIT SEWER MAIN / MANHOLE POTABLE WATERMAIN / HYD / SV RECLAIMED WATERMAIN / HYD /SV **RETAINING WALL** 

EXISTING CONTOUR MAJOR EXISTING CONTOUR MINOR KOALA FOOD TREE TO RETAIN AND PROTECT

APPROVED KOALA FOOD TREES TO BE REMOVED

NON KOALA FOOD TREES TO BE REMOVED

FEATURE TIMBER SIGNAGE/ SCULPTURAL WALL TO BE WHOLLY LOCATED WITHIN PRIVATE LOT **REFER TO DETAILS 6004** 

MULCHED GARDEN BEDS - REFER TO DETAIL 6004

TURF (SAPPHIRE BUFFALO) - REFER TO DETAIL 6004

MULCH BED TO 100MM DEPTH USING SITE STOCKPILED MATERIAL

TIMBER GARDEN EDGING (38 X 100MM) - TO FINISH FLUSH WITH ADJOINING TURF

LOW EARTH MOUNDING TO MAX. 400MM HIGH. TO **BE PLANTED WITH NATIVE GRASSES & MULCHED** TO 75MM DEPTH

> These are the plans referred to in Subdivision Works Certificate Application No. CI2014 - 114.8

and determined as APPROVED on: 17/10/2024 PORT MACQUARIE-HASTINGS COUNCIL

## THE SANCTUARY STAGE 7 DRAWING TITLE:

OVERALL LANDSCAPE LAYOUT

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SECTION DETAIL; SERVICES EASEMENT/ PEDESTRIAN ACCESS SCALE 1:100 REFER TO OVERALL LANDSCAPE LAYOUT 6002 FOR LOCATION

# LEGEND

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These are the plans referred to in Subdivision Works Certificate Application No.: CI2014 - 114.8 and determined as APPROVED on: 17/10/2024 PORT MACQUARIE-HASTINGS COUNCIL DESIGN CONTOUR MAJOR KOALA FOOD TREE TO RETAIN AND PROTECT DESIGN CONTOUR MINOR --- --- ROAD CENTER LINE KOALA FOOD TREES TO BE REMOVED J 26.8 STORMWATER JUNCTION Х NON KOALA FOOD TRESS TO BE REMOVED & DISTANCE TO D/S PIT FEATURE TIMBER FENCE AT ROAD SPLAY (TO BE FULLY WITHIN THE PRIVATE LOT) TREE PROTECTION FENCING REFER TO LANDSCAPE DETAIL SHEET EXISTING CONTOUR MAJOR MULCHED GARDEN BEDS - REFER TO DETAIL EXISTING CONTOUR MINOR TIMBER GARDEN EDGING (38X100MM) -FLUSH WITH ADJOINING TURF PROJECT: THE SANCTUARY STAGE 7 OCATION OF UNDERGROUND SERVICES ARE APPROXIMATE DRAWING TITLE: ONLY AND LAND DYNAMICS HOLDS LANDSCAPE DETAIL CONTACT DIAL BEFORE YOU DIG PRIOR TO COMMENCING ANY EXCAVATION WORKS OF THE LINE WORK HEREIN

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