

DATUM 162.000

PIPELINE GRADE	PIPE COVER	DEPTH TO INVERT	GROUND LEVELS	PIPE INVERT	CHAINAGE
	-0.859	-0.807	173.539	172.507	320.00
	-0.839	-0.843	173.532	172.544	330.00
	-0.848	-0.815	173.587	172.576	338.673
	-0.848	-0.815	173.586	172.581	340.00
	-0.848	-0.815	173.638	172.617	350.00
	-0.848	-0.815	173.610	172.654	360.00
	-0.848	-0.815	173.799	172.686	368.673
	-0.848	-0.815	173.809	172.691	370.00
	-0.848	-0.815	173.924	172.728	380.00
	-0.848	-0.815	174.003	172.764	390.00
	-0.848	-0.815	174.042	172.801	400.00
	-0.848	-0.815	174.111	172.833	408.673
	-0.848	-0.815	174.125	172.838	410.00
	-0.848	-0.815	174.160	172.875	420.00
	-0.848	-0.815	174.278	172.911	430.00
	-0.848	-0.815	174.280	172.946	440.00
	-0.848	-0.815	174.830	172.985	450.00
	-0.848	-0.815	174.685	173.781	454.00
	-0.848	-0.815	174.768	173.857	460.00
	-0.848	-0.815	174.974	173.882	470.00
	-0.848	-0.815	174.939	174.108	480.00
	-0.848	-0.815	174.930	174.173	481.713
	-0.848	-0.815	174.918	174.190	488.48

DATUM 161.000

PIPELINE GRADE	PIPE COVER	DEPTH TO INVERT	GROUND LEVELS	PIPE INVERT	CHAINAGE
	-0.769	-0.923	173.284	172.343	0.00
	-0.923	-0.923	173.284	172.189	2.515
	-0.923	-0.923	173.278	172.184	2.535
	-0.923	-0.923	173.278	172.182	2.555
	-0.923	-0.923	173.182	171.798	4.59

DATUM 162.000

PIPELINE GRADE	PIPE COVER	DEPTH TO INVERT	GROUND LEVELS	PIPE INVERT	CHAINAGE
	-1.112	-1.284	174.163	172.879	0.00
	-1.564	-1.736	174.609	172.873	10.00
	-1.696	-1.868	174.735	172.858	20.00
	-0.797	-0.969	173.831	172.862	30.00
	-0.618	-0.790	173.850	172.850	34.34

AMENDED

DN160 DI CL. PN20 WATERMAIN LONGITUDINAL SECTION (MCW0)

DN150 DI CL. PN20 WATERMAIN LONGITUDINAL SECTION (MCW2)

DN150 DI CL. PN20 WATERMAIN LONGITUDINAL SECTION (MCW3)

EVANDALE MAIN ROAD (A1109)
LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
ROADWORKS

Department of State Growth

Contract No. 3288
DRAWINGS HB 19503-C-1232
PRINTED DATE 23-Sep-20, 12:32 PM

REGISTRATION NUMBER
A1109.001

REGISTERED ENGINEER

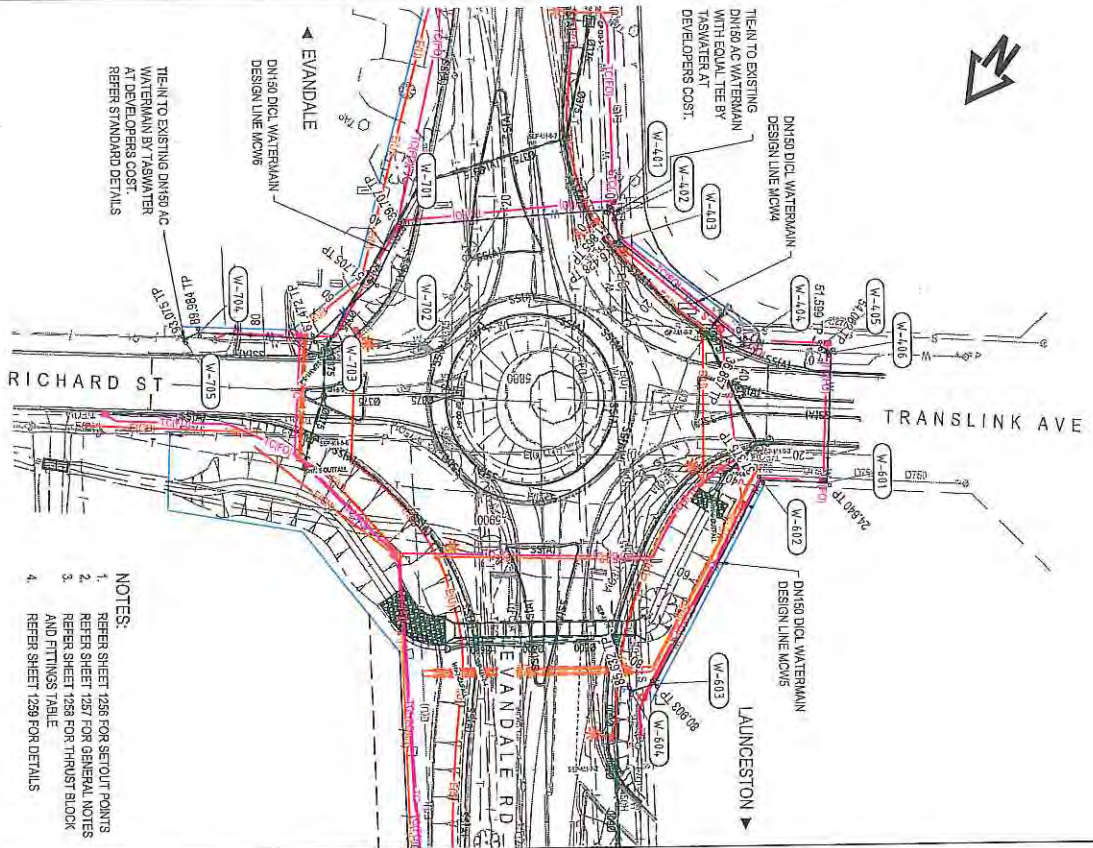
pit&shery
DESIGNED BY L. ALLEN
REVIEWED BY D. COPE

SHEET No. **1252**
REVISION 0

ISSUE FOR CONSTRUCTION
23/09/2020
D.C.
23/09/2020
Infillis
Date

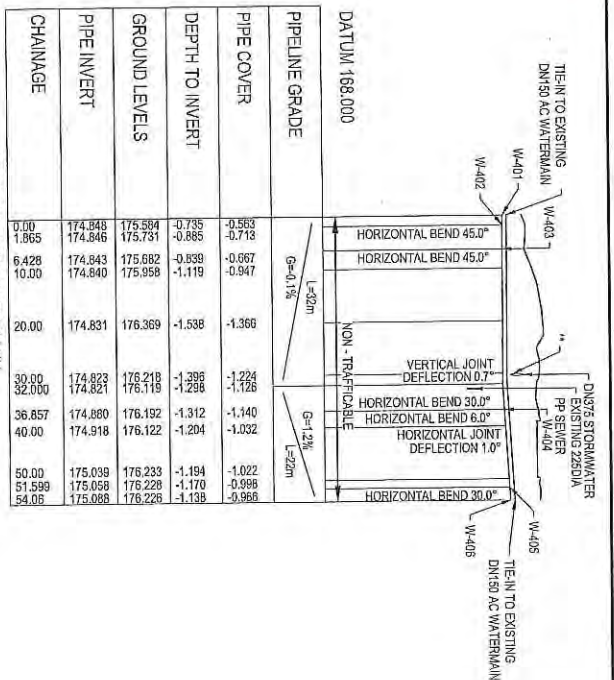
Coordinate System: MGA 94 ZONES 55
Height Datum: A.M.S.L.

SCALES
1:1000 (H), 1:200 (V)
SCALE IN METRES: 1:1000



- NOTES:
1. REFER SHEET 1256 FOR SETOUT POINTS
 2. REFER SHEET 1251 FOR GENERAL NOTES
 3. REFER SHEET 1259 FOR THROUST BLOCK AND FITTINGS TABLE
 4. REFER SHEET 1259 FOR DETAILS

AMENDED



CHAINAGE	PIPE INVERT	GROUND LEVELS	DEPTH TO INVERT	PIPE COVER	PIPELINE GRADE
0.00	174.848	175.594	-0.735	-0.553	
1.96	174.848	175.737	-0.885	-0.713	
6.428	174.943	175.682	-0.859	-0.667	
10.00	174.840	175.958	-1.119	-0.947	
20.00	174.831	176.369	-1.538	-1.366	
30.00	174.823	176.219	-1.396	-1.224	
32.00	174.821	176.119	-1.298	-1.126	
36.857	174.880	176.192	-1.312	-1.140	
40.00	174.918	176.122	-1.204	-1.032	
50.00	175.039	176.233	-1.194	-1.022	
51.599	175.059	176.228	-1.170	-0.998	
54.00	175.088	176.228	-1.139	-0.966	

CHAINAGE	PIPE INVERT	GROUND LEVELS	DEPTH TO INVERT	PIPE COVER	PIPELINE GRADE
0.00	174.848	175.594	-0.735	-0.553	
10.00	174.502	175.514	-1.011	-0.839	
20.00	174.348	175.532	-1.183	-1.011	
30.00	174.195	175.223	-1.028	-0.858	
39.707	174.045	175.334	-1.289	-1.117	
40.00	174.041	175.358	-1.315	-1.143	
50.00	173.887	175.433	-1.547	-1.375	
51.705	173.735	175.110	-1.375	-1.203	
60.00	172.994	174.432	-1.437	-1.265	
67.472	172.841	174.162	-1.321	-1.149	
70.00	172.790	174.086	-1.297	-1.125	
80.00	172.585	173.919	-1.034	-0.862	
90.00	172.381	173.625	-1.246	-1.074	
93.00	172.318	173.494	-1.176	-1.004	

DN150 DI CL P20 WATERMAIN LONGITUDINAL SECTION (MCW4)

pittsherry



Department of State Growth
EVANDALE MAIN ROAD (A1109)
LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
ROADWORKS
WATERMAIN MCW4 AND MCW6

CONTRACT No. 3288
DRAWING H815933-C1553
PRINTED DATE 23-Sep-20, 12:53 PM

SHEET No. 1253

No.	Amendment Description	D.C.	Date
0	ISSUE FOR CONSTRUCTION		23/09/2020

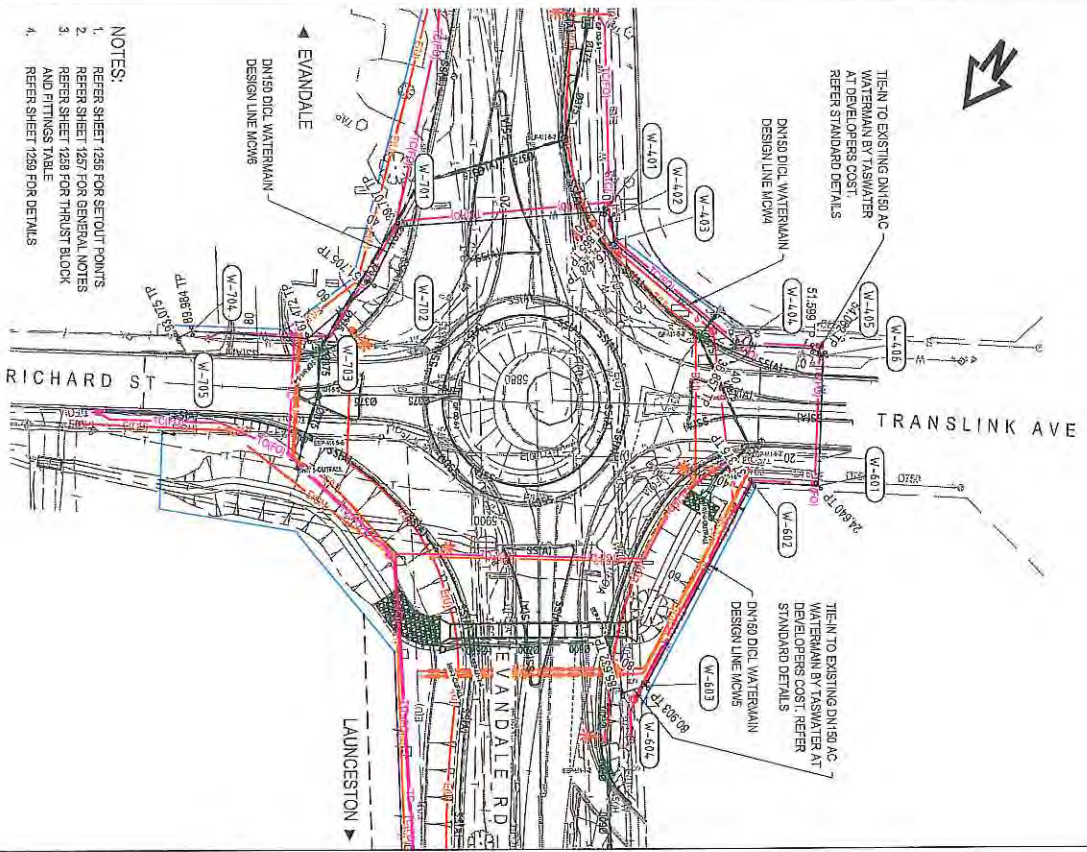
SCALES
1:1000 (H); 1:200 (V)
SCALE IN METRES - 1:1000
MGA 94 ZONE 56
Height Datum: AHD

DESIGNED L. ALLEN
REVIEWED D. COE

REGISTRATION NUMBER
A1109.001

REVISION 0

AMENDED



- NOTES:
1. REFER SHEET 1256 FOR SETOUT POINTS
 2. REFER SHEET 1257 FOR GENERAL NOTES
 3. REFER SHEET 1258 FOR THRUST BLOCK AND FITTINGS TABLE
 4. REFER SHEET 1259 FOR DETAILS

SCALES

1:1000 (H); 1:200 (V)



No.	ISSUE FOR CONSTRUCTION	D.C.	23/09/2020
Amendment Description		Initials	
Date			

Co-ordinate System: MGA 94 ZONE 55 Height Datum: A.H.D.

DESIGNED: L. ALLEN
 REVIEWED: D. COE

Department of State Growth
 EVANDALE MAIN ROAD (A1109)
 LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
 ROADWORKS
 WATERMAIN MCW6

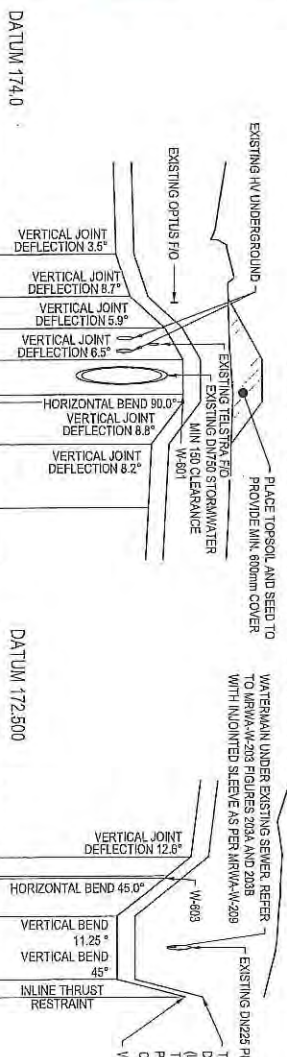
CONTRACT No. 3288
 DRAWING HB 1955-C/1254
 PRINTED DATE 23/09/20 12:33 PM
 REGISTRATION NUMBER A1109.001
 SHEET No. 1254
 REVISION 0

DATUM 174.0

PIPELINE GRADE	PIPE COVER	DEPTH TO INVERT	GROUND LEVELS	PIPE INVERT	CHAINAGE
G=0.5%	-0.899	-1.071	176.249	175.178	18.000
G=0.5%	-0.784	-0.936	176.246	175.309	20.00
G=2.2%	-0.600	-0.772	176.411	175.639	21.500
G=1.4%	-0.600	-0.772	176.582	175.810	23.000
G=0.0%	-0.600	-0.772	176.582	175.810	24.840
G=0.0%	-0.600	-0.772	176.582	175.810	25.000
G=1.5-1.1%	-0.600	-0.772	176.289	175.508	27.000
G=1.1%	-0.600	-0.772	176.247	175.475	30.000

DATUM 172.500

PIPELINE GRADE	PIPE COVER	DEPTH TO INVERT	GROUND LEVELS	PIPE INVERT	CHAINAGE
G=2.5%	-0.715	-0.887	175.265	174.378	79.00
G=2.5%	-0.952	-1.124	175.291	174.127	80.00
G=25.1%	-0.952	-1.124	175.291	174.127	80.903
G=0.0%	-1.381	-1.553	175.229	173.676	81.80
G=0.0%	-1.282	-1.454	175.130	173.676	84.80
G=7.74%	-0.766	-0.938	175.085	174.320	85.63



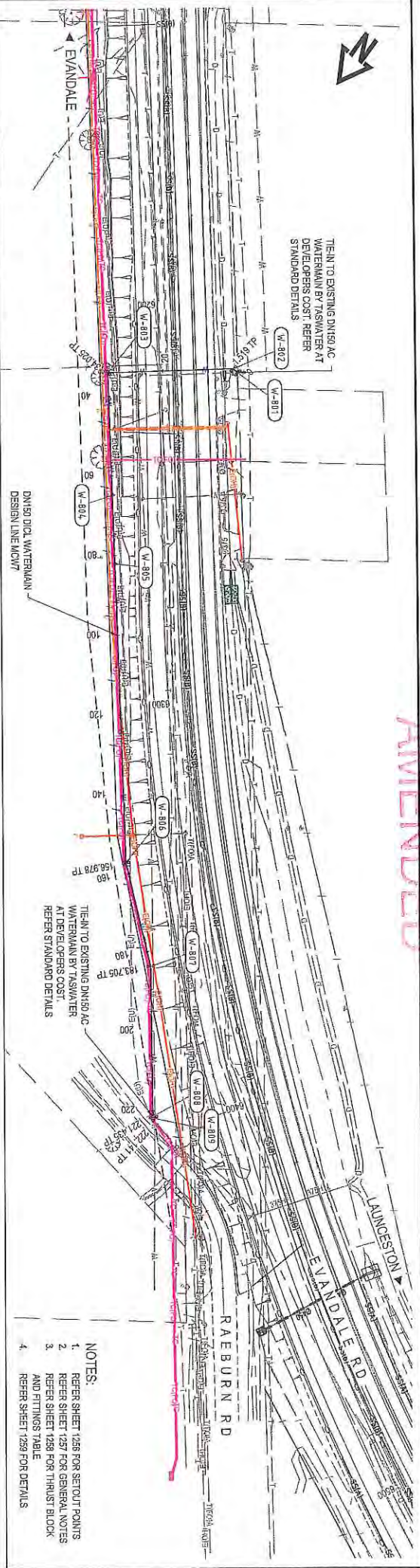
DN150 DIWL PN20 WATERMAIN LONGITUDINAL SECTION (MCW6)

CHAINAGE	PIPE INVERT	GROUND LEVELS	DEPTH TO INVERT	PIPE COVER	PIPELINE GRADE
0.00	175.088	176.226	-1.137	-0.985	G=0.5%
10.00	175.138	176.385	-1.247	-1.075	G=0.5%
20.00	175.309	176.246	-0.936	-0.764	REFER DETAIL
30.00	175.475	176.247	-0.772	-0.600	G=1.1%
37.375	175.394	176.168	-0.774	-0.502	G=1.3m
40.00	175.365	176.220	-0.854	-0.682	G=1.1%
50.00	175.112	175.993	-0.881	-0.709	G=2.5%
60.00	174.859	175.771	-0.912	-0.740	G=2.5%
70.00	174.606	175.497	-0.882	-0.720	G=2.5%
80.00	174.127	175.251	-1.124	-0.952	REFER DETAIL
80.903	174.127	175.251	-1.124	-0.952	REFER DETAIL
85.63	174.320	175.088	-0.768	-0.600	REFER DETAIL

DETAIL 1
 1:250 (H); 1:50 (V)

DETAIL 2
 1:250 (H); 1:50 (V)

AMENDED



DATE: 23/09/2020
 TIME: 12:33 PM
 PROJECT: EVANDALE MAIN ROAD (A1109)
 SHEET: 1255

CHAINAGE	PIPE INVERT	GROUND LEVELS	DEPTH TO INVERT	PIPE COVER	PIPELINE GRADE	PIPE GRADE	PIPE COVER	DEPTH TO INVERT	GROUND LEVELS	PIPE INVERT	CHAINAGE
0.00	181.188	182.253	-1.275	-1.103	L=4m	G=-1.03%	L=27m	-1.280	180.729	181.188	0.00
1.519	181.037	182.252	-1.215	-1.043	L=4m	G=-1.03%	L=27m	-1.280	180.839	181.037	1.519
3.500	180.839	181.423	-0.584	-0.412	L=4m	G=-1.7%	L=27m	-1.535	180.729	180.839	3.500
10.00	180.729	182.182	-1.452	-1.280	L=4m	G=-1.7%	L=27m	-1.535	180.729	180.729	10.00
20.00	180.561	182.268	-1.707	-1.535	L=4m	G=-1.7%	L=27m	-1.535	180.561	180.561	20.00
30.00	180.392	181.107	-0.714	-0.542	L=4m	G=-7.7%	L=27m	-0.692	180.392	180.392	30.00
34.025	180.081	180.933	-0.882	-0.710	L=4m	G=-7.7%	L=27m	-0.692	180.081	180.081	34.025
34.500	180.044	180.957	-0.923	-0.751	L=4m	G=-7.7%	L=27m	-0.692	180.044	180.044	34.500
40.00	180.242	181.106	-0.884	-0.692	L=4m	G=-7.7%	L=27m	-0.692	180.242	180.242	40.00
50.00	180.602	181.456	-0.854	-0.692	L=4m	G=3.2%	L=18m	-0.711	180.602	180.602	50.00
60.00	180.962	181.644	-0.683	-0.711	L=4m	G=3.2%	L=18m	-0.711	180.962	180.962	60.00
70.00	181.322	182.204	-0.882	-0.710	L=4m	G=3.2%	L=18m	-0.710	181.322	181.322	70.00
80.00	181.682	182.548	-0.866	-0.694	L=4m	G=1.4%	L=15m	-0.726	181.682	181.682	80.00
82.000	181.754	182.526	-0.774	-0.602	L=4m	G=1.4%	L=15m	-0.726	181.754	181.754	82.000
90.00	181.642	182.448	-0.806	-0.634	L=4m	G=1.4%	L=15m	-0.726	181.642	181.642	90.00
100.00	181.502	182.400	-0.898	-0.726	L=4m	G=1.4%	L=15m	-0.726	181.502	181.502	100.00
110.00	181.362	182.262	-0.999	-0.827	L=4m	G=1.4%	L=15m	-0.726	181.362	181.362	110.00
120.00	181.222	182.045	-0.823	-0.651	L=4m	G=8.9%	L=15m	-0.726	181.222	181.222	120.00
123.000	181.180	181.940	-0.760	-0.588	L=4m	G=8.9%	L=15m	-0.726	181.180	181.180	123.000
130.00	180.560	181.413	-0.853	-0.681	L=4m	G=8.9%	L=15m	-0.726	180.560	180.560	130.00
138.000	179.852	180.750	-0.898	-0.726	L=4m	G=8.9%	L=15m	-0.726	179.852	179.852	138.000
140.00	179.833	180.785	-0.952	-0.780	L=4m	G=8.9%	L=15m	-0.726	179.833	179.833	140.00
150.00	179.737	180.970	-1.233	-1.061	L=4m	G=1.0%	L=18m	-1.061	179.737	179.737	150.00
158.978	179.671	180.724	-1.053	-0.881	L=4m	G=1.0%	L=18m	-1.061	179.671	179.671	158.978
160.00	179.642	180.650	-1.008	-0.836	L=4m	G=1.0%	L=18m	-1.061	179.642	179.642	160.00
170.00	179.546	180.491	-0.945	-0.773	L=4m	G=1.0%	L=18m	-1.061	179.546	179.546	170.00
180.00	179.451	180.446	-0.995	-0.823	L=4m	G=1.0%	L=18m	-1.061	179.451	179.451	180.00
183.705	179.415	180.453	-1.038	-0.866	L=4m	G=1.0%	L=18m	-1.061	179.415	179.415	183.705
190.00	179.355	180.356	-1.001	-0.829	L=4m	G=1.0%	L=18m	-1.061	179.355	179.355	190.00
200.00	179.260	180.181	-0.921	-0.749	L=4m	G=1.0%	L=18m	-1.061	179.260	179.260	200.00
210.00	179.164	179.997	-0.833	-0.661	L=4m	G=1.0%	L=18m	-1.061	179.164	179.164	210.00
220.00	179.068	179.901	-0.833	-0.661	L=4m	G=1.0%	L=18m	-1.061	179.068	179.068	220.00
221.435	179.055	179.859	-0.804	-0.632	L=4m	G=1.0%	L=18m	-1.061	179.055	179.055	221.435
222.14	179.048	179.879	-0.831	-0.659	L=4m	G=1.0%	L=18m	-1.061	179.048	179.048	222.14

DN150 DI CL PN20 WATERMAIN LONGITUDINAL SECTION (MCW7)

Department of State Growth

EVANDALE MAIN ROAD (A1109)
 LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
 ROADWORKS
 WATERMAIN MCW7

DESIGNED: L. ALLEN
 REVIEWED: D. COE

CONTRACT No. 3388
 DRAWING: HB1950-C1255
 PRINTED DATE: 23-Sep-20, 12:33 PM
 REGISTRATION NUMBER: A1109.001
 SHEET No. 1255
 REVISION: 0

SCALE: 1:1000 (H); 1:200 (V)
 SCALE IN METRES: 1:1000

ISSUE FOR CONSTRUCTION
 Amendment Description: D.C. 23/09/2020
 Date: 23/09/2020

This sheet may be prepared using colour and may be incomplete if copied

AMENDED

WATERMAIN SETOUT POINTS			
POINT	EASTING	NORTHING	
W-101	515782.754	540156.042	
W-102	516729.765	540156.480	
W-103	516693.988	5401708.812	
W-104	516691.804	5401512.914	
W-105	516688.822	5401509.238	
W-106	516680.880	5401716.989	
W-107	516690.222	5401721.908	
W-108	516696.813	5401738.777	
W-109	516683.034	5401746.105	
W-110	516681.796	5401906.678	
W-111	516690.880	5401947.074	
W-112	516675.679	5401947.507	
W-113	516673.948	5401949.804	
W-114	516690.398	5401967.766	
W-115	516699.495	5401988.883	
W-116	516686.985	5401978.614	
W-117	516693.974	5401988.635	

WATERMAIN SETOUT POINTS			
POINT	EASTING	NORTHING	
W-118	516690.859	5401986.516	
W-119	516623.844	5401418.705	
W-120	516695.155	5401442.173	
W-121	516481.066	5401474.104	
W-122	516473.508	5401483.785	
W-123	516496.064	5401631.636	
W-124	516496.843	5401636.372	
W-201	516698.383	5401966.246	
W-202	516690.057	5401984.204	
W-301	516690.554	5401994.920	
W-401	516347.547	5401646.517	
W-402	516344.497	5401649.014	
W-403	516314.111	5401650.847	
W-404	516301.888	5401642.411	
W-405	516299.427	5401642.240	
W-601	516295.184	5401682.570	

WATERMAIN SETOUT POINTS			
POINT	EASTING	NORTHING	
W-602	516296.051	5401669.697	
W-603	516293.321	5401712.705	
W-604	516292.188	5401716.626	
W-701	516379.442	5401671.494	
W-702	516377.182	5401683.279	
W-703	516390.384	5401688.722	
W-704	516390.168	5401711.101	
W-705	516400.554	5401713.884	
W-801	516120.431	5401942.969	
W-802	516121.869	5401942.779	
W-803	516147.484	5401962.932	
W-804	516128.207	5401966.915	
W-805	516117.222	5402000.333	
W-806	516070.448	5402098.773	
W-807	516049.987	5402075.848	
W-808	516026.880	5402105.736	
W-809	516026.189	5402105.829	

No.	ISSUE FOR CONSTRUCTION	O.C.	23/09/2020
Amendment Description		Initials	Date

SCALES
N.T.S.

Coordinates System: WGS 84 ZONE 551
Height Datum: A.H.D.

DESIGNED: L. ALLEN
REVIEWED: D. COE



Department of State Growth
EVANDALE MAIN ROAD (A1109)
LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
ROADWORKS
WATERMAIN MCWD

CONTRACT No. 328B
DRAWING: HB-18503-01256
REGISTRATION NUMBER: A1109.001
PRINTED DATE: 23-Sep-20, 12:33 PM
SHEET No. 1256
REVISION 0

GENERAL NOTES

1. THE LOCATION OF UNDERGROUND SERVICES ARE BASED ON SURVEY DRAWINGS 301008 EVANDALE RD DATUM BOUNDARY BY VERIS SURVEYORS. THE EXACT POSITION OF EACH SERVICE PRESENT SHOULD BE ESTABLISHED ON SITE WITH THE RESPECTIVE SERVICE OWNERS PRIOR TO COMMENCING CONSTRUCTION.
2. FOR GROUND ENGINEERING DETAILS REFER ENGINEERING SITE INVESTIGATIONS REPORT H819503.
3. ALL SETOUT DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE (UNLESS DETAIL SHEETS ARE IN MILLIMETRES (MM)).
4. ANY DISCREPANCIES WITHIN PROJECT DOCUMENTATION SHALL BE REPORTED TO THE SUPERINTENDENT FOR RESOLUTION.

SAFETY IN DESIGN (SID)

SP1. SID GENERALLY
THIS STRUCTURE HAS BEEN DESIGNED TO ELIMINATE HAZARDS TO HEALTH AND SAFETY WHEREVER POSSIBLE. WHERE THIS HAS NOT BEEN POSSIBLE, THE RISK TO HEALTH AND SAFETY OF PERSONS HAS BEEN MINIMISED TO BE REASONABLY PRACTICABLE FOR THE 100 YEAR DESIGN LIFE OF THE STRUCTURE.

SP2. WORK HEALTH AND SAFETY:

THE CONTRACTORS SHALL ENSURE THAT THE CONSTRUCTION OF THIS PROJECT IS CARRIED OUT IN ACCORDANCE WITH THE WORK HEALTH AND SAFETY COORDINATION PLAN AND COMPLIANT WITH ANY SCHEDULE 1 OF THE WORK HEALTH AND SAFETY LEGISLATION APPLICABLE IN THE STATE IN WHICH THE WORK IS CARRIED OUT.

SP3. IDENTIFY HAZARDS:

THE CONTRACTOR SHALL MAKE EVERY EFFORT TO ENSURE THAT ALL PERSONS WHO ENTER THE CONSTRUCTION SITE ARE MADE AWARE ABOUT THE RISK OF HAZARDS AND POTENTIAL HAZARDS WHICH MAY OCCUR ON THE SITE. ANY SUCH HAZARD SHALL BE ISOLATED AND CLEARLY IDENTIFIED, THE CORRECT LEVEL OF TRAINING SHALL BE MANDATORY BEFORE ANY PERSON ENTERS THE CONSTRUCTION AREA. ALL PERSONS SHALL WEAR THE APPROPRIATE SAFETY PROTECTION APPAREL SPECIFIED BY THE CONTRACTOR BEFORE ENTERING THE SITE. A QUALIFIED GUIDE SHALL ACCOMPANY ALL NEW CONSTRUCTION WORKERS DURING THEIR INITIATION AND ALL SITE VISITORS WHILE ON THE SITE.

SP4. TEMPORARY SUPPORT REQUIRED:

SOIL AND ROCK EXCAVATION
CONCRETE FORMWORK TO FACILITATE CONCRETE PLACEMENT
STATIC OR OPERATING PLANT AND EQUIPMENT
STORED MATERIALS

SP5. SPECIALIST CONTRACTORS:

SOME ACTIVITIES REQUIRED TO BE CARRIED OUT DURING THE CONSTRUCTION ARE NOT CONSIDERED TO BE NORMAL BUILDING PRACTICE. THEREFORE ENGAGEMENT OF A SPECIALIST CONTRACTOR IS EXPECTED TO BE NECESSARY FOR THE FOLLOWING ACTIVITIES, BUT NOT LIMITED TO:

- LIFTING AND PLACEMENT OF HEAVY ELEMENTS
- USE OF HEAVY EQUIPMENT
- DEMOLITION WORKS
- DRILLING
- ANCHOR INSTALLATION
- WORK OVERHEAD ELECTRICAL EQUIPMENT
- EXCAVATION NEAR - PRESURISED WATER MAINS
- SEWER RISING MAIN

GENERAL NOTES - SERVICES

1. ALL PRIVATE PLUMBING WORKS SHALL GENERALLY BE IN ACCORDANCE WITH THE ASSOCIATION OF PLUMBERS AND THE TASMANNIAN PLUMBING CODE OF PRACTICE AND THE TWEED MUNICIPAL STANDARD SPECIFICATION AND DRAWINGS AS APPLICABLE.
2. UNLESS NOTED OTHERWISE THE CONTRACTOR IS REQUIRED TO OBTAIN ALL NECESSARY PERMITS FOR THE WORKS INCLUDING PROPERTIES RESERVATION AND FOR ADJACENT PRIVATE PROPERTIES.
3. THE CONTRACTOR SHALL CONVINCE THE PRESERVEE AND LOCATION OF ALL EXISTING SERVICES ON THE SITE AND WITHIN THE AREA OF WORKS AND CLEARLY IDENTIFY ALL DANGEROUS SERVICES UNDERGROUND AND OVERHEAD.
4. ALL DRAINING AND SERVICES (IE IN LEVELS AND LOCATIONS ARE TO BE CONFIRMED BEFORE COMMENCEMENT OF WORKS INCLUDING WORKS UNDERGROUND AND OVERHEAD.
5. UNLESS NOTED OTHERWISE THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR THE WORKS INCLUDING PROPERTIES RESERVATION AND FOR ADJACENT PRIVATE PROPERTIES.
6. MATERIALS AND SERVICES SHALL BE CUT, GROUNDED AND CAPPED AT ALL ADJACENT SERVICE LINES SHALL BE CUT, GROUNDED AND CAPPED AT THEIR LOCATIONS (UNLESS OTHERWISE NOTED).
7. REBOUND/STRESS TRENCHES SHALL BE BACKFILLED WHERE NOTED WITH FULLY COMPACTED MATERIAL APPROPRIATE FOR THE AREA OF THE DEVELOPMENT SITE.
8. ALL UNDERGROUND WATER AND SEWER WORKS MUST BE TESTED AND INSPECTED BY TSMARTY PRIOR TO BACKFILL.
9. ALL MATERIALS SHALL COMPLY WITH:
 - OP/CO PIPE AS 4474
 - DI/CL AND/DEI PIPE AS 2780
 - MS/CL AND/SEL PIPE AS 1478
 - MS/CL AND/SEL PIPE AS 2544
 - PIPE FITTINGS AS 4129
 - PIPE FITTINGS AS 4130
 - PIPE FITTINGS AS 4131
 - PIPE FITTINGS AS 4132
 - PIPE FITTINGS AS 4133
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 - PIPE FITTINGS AS 4147
 - PIPE FITTINGS AS 4148
 - PIPE FITTINGS AS 4149
 - PIPE FITTINGS AS 4150
10. LOCATIONS AND LEVELS OF THE EXISTING PIPES ARE APPROXIMATE ONLY. THE CONTRACTOR IS TO LOCATE AND CONFIRM ALL SETOUT DIMENSIONS PRIOR TO FABRICATION.
11. BACKFILL AND REINSTATEMENT OF PIPE TRENCHES TO BE IN ACCORDANCE WITH WSAS 1801 AND TSMARTY REQUIREMENTS AS FOLLOWS:
 - 12. ON THE DRAINAGE PIPE TRENCHES WITH A MINIMUM REQUIRED STRENGTH OF 10 MPa AT 20°C IN ACCORDANCE WITH AS 4129 AND FITTINGS IN ACCORDANCE WITH AS 4129

SEWER

1. ALL SEWER WORKS IN PUBLIC AREAS ARE TO BE IN ACCORDANCE WITH WSAS 1801 AND TSMARTY REQUIREMENTS AS FOLLOWS:
 - 2. ALL SEWER WORKS IN PRIVATE AREAS SHALL BE IN ACCORDANCE WITH ASS500.2, 3 UNLESS NOTED OTHERWISE. ALL SEWER DRAINS SHALL BE PVC SEWER CLASS 'S'W' TO AS1280.
 - 4. ALL SEWER MANHOLE LIDS TO BE GANTIC, TYPE 'HEAVY DUTY' FOR TRAFFIC AREAS, TYPE B LIGHT DUTY FOR NON TRAFFIC AREAS.
 - 5. WHERE NECESSARY ALL EXISTING MANHOLE & PIT TOPS SHALL BE ADJUSTED TO SUIT NEW SURFACE LEVELS. PROVIDE AND INSTALL NEW APPROVED LIDS WHERE NECESSARY.
 - 6. PROVIDE ALL NECESSARY TESTING & INSPECTION OPENINGS TO PEPE WORK. WHERE RELEVANT PROVIDE ADDITIONAL INSPECTION OPENINGS TO ALLOW IDENTIFICATION OF THE ORIGIN OF BLOCKAGES.
 - 7. ALL MAINTENANCE STRUCTURES ARE TO BE IN ACCORDANCE WITH MRWA-S-300 DRAWING SENR. ALL MAINTENANCE STRUCTURES ARE DIV120 UNLINED CONCRETE CLASS 3 PITS WITH CONICAL TOP AND WITHOUT LADDERS OR STEPS (UNLESS OTHERWISE NOTED).

WATER SERVICES NOTES:

1. WORKS IN GENERAL TO BE CARRIED OUT IN ACCORDANCE WITH - WSAS 03-2011-1-1, MRWA VERSION 2.0 - WATER SUPPLY PLUMBING TO WSAS WATER SUPPLY CODE - PIPE SUPPLIERS INSTALLATION MANUAL AND SPECIFICATIONS
2. IDENTIFY THE NOMINAL PRESSURE RATING OF THE WATER SERVICE. ALL PIPES AND ASSOCIATED FITTINGS SHALL BE RATED UNLESS NOTED OTHERWISE.
3. DIMENSIONS SHALL BE GIVEN UNLESS NOTED OTHERWISE. THIS REFERS TO THE OUTSIDE DIAMETER OF THE PIPE. FOR ALL OTHER PIPES IT REFERS TO THE NOMINAL BORE OF THE PIPE.
4. ON THE DRAWINGS, PIPE JOINTS ARE SPECIFIED AS FOLLOWS:
 - 1. UNLESS OTHERWISE NOTED JOINTS IN ACCORDANCE WITH AS 4087 WITH PN TO MATCH PIPE MATERIAL.
 - 2. UNLESS OTHERWISE NOTED JOINTS IN ACCORDANCE WITH AS 4087 WITH PN TO MATCH PIPE MATERIAL.
 - 3. UNLESS OTHERWISE NOTED JOINTS IN ACCORDANCE WITH AS 4087 WITH PN TO MATCH PIPE MATERIAL.
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SURVEY NOTES

1. THE SIZE AND ORIENTATION OF ALL SURVEY FEATURES LIKE PIT COVERS AND MANHOLES ARE SHOWN SYMBOLIC ONLY BASED ON SURVEY DATA PROVIDED. LOCATION AND DEPTH OF THE EXISTING UTILITIES ARE SHOWN INDICATIVELY BASED ON SURVEY. THE CONTRACTOR SHALL ENSURE MINIMUM CLEARANCE BETWEEN NEW WATER MAIN AND OTHER UTILITIES/STRUCTURES ARE ACHIEVED ON SITE.
2. THE CONTRACTOR SHALL PROVIDE TRENCH STOPS FOR PIPES Laid AT GRADES BETWEEN 5% AND 20% AS PER THE REQUIREMENTS OF DRS MRWA-W-208 AND MRWA-W-209.
3. THE CONTRACTOR SHALL PROVIDE CONCRETE BULKHEADS FOR PIPES Laid AT GRADES GREATER THAN 20% AS PER THE REQUIREMENTS OF DRS MRWA-W-208 AND MRWA-W-209.
4. WHERE MINIMUM COVER CANNOT BE ACHIEVED SUCH AS CROSSINGS OF EXISTING ASSETS SEEK DIRECTION FROM TSMARTY.
5. ALL MATERIALS ARE TO COMPLY WITH CITY WEST WATER APPROVED PRODUCTS PUBLICATION.
6. DETECTOR TAPE / DETECTOR WIRE IS TO BE INSTALLED OVER ALL NON-METALLIC WATER MAINS.
7. MARKER POSTS TO BE INSTALLED IN ACCORDANCE WITH TSMARTY STANDARDS REFER TM-W-311 AND TM-W-312.
8. TEST PROCEDURE TO BE TESTED AS PER WATER SUPPLY CODE OF AUSTRALIA - WSAS 03-2011-1-1 MRWA EDITION 2.0 PART 2 - CONSTRUCTION CLAUSE 18.4.
9. TEST PRESSURE 1500kPa (AT LOWEST POINT) TO BE CONDUCTED WITH TSMARTY REPRESENTATIVE PRESENT.
10. FOLLOWING A SATISFACTORY HYDROSTATIC PRESSURE TEST ALL WATER MAINS TO BE DISCONNECTED PRIOR TO COMMISSIONING IN ACCORDANCE WITH MRWA WATER QUALITY COMPLIANCE SPECIFICATION NO. 04-02-1. NOTE TSMARTY DOES NOT NECESSARILY REQUIRE MAINS TO BE SWABBED HOWEVER THIS MAY BE REQUIRED TO MEET THE WATER QUALITY TESTING.

No.		Description		D.C.		23/06/2020	
0		ISSUE FOR CONSTRUCTION		D.C.		23/06/2020	
As original		This sheet may be prepared using colour and may be incomplete if copied					
Scales				N.T.S			
pittsherry				DESIGNED L. ALLEN			
Department of State Growth				REVIEWED D. COPE			
EVANDALE MAIN ROAD (A1109)				LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)			
ROADWORKS				WATERMAIN NOTES			
CONTRACT No.		DRAWING		PRINTED DATE		SHEET No.	
3268		H819503-01757		24-Sep-20 12:33 PM		1257	
REGISTRATION NUMBER				REVISION 0			
A1109.001							

REVISED

AMENDED


WATER MAIN SETOUT, FITTINGS AND THRUST RESTRAINTS

POINT	FITTING	THRUST TYPE	MIN. THRUST AREA (m ²)
W-101	TIE-IN TO EX DN150 AC WITH INLINE THRUST AND 11.25 DEG BEND	INLINE	0.4
W-102	11.25 DEG BEND	N/A	N/A
W-103	CHANGE OF GRADING	N/A	N/A
W-104	90 DEG BEND	PLAIN	0.51
W-105	90 DEG BEND	PLAIN	0.51
W-105A	22.5 DEG BEND	PLAIN	0.15
W-105B	22.5 DEG BEND	PLAIN	0.15
W-105C	CHANGE OF GRADING	N/A	N/A
W-106	SCOUR VALVE TEE DN100	PLAIN	0.2
W-107	CHANGE OF GRADING	N/A	N/A
W-108	11.25 DEG BEND	N/A	N/A
W-109	11.25 DEG BEND	N/A	N/A
W-110	CHANGE OF GRADING	N/A	N/A
W-111	45 DEG BEND	PLAIN	0.28
W-112	45 DEG BEND	PLAIN	0.28
W-113	CHANGE OF GRADING	N/A	N/A
W-114	EQUAL TEE	PLAIN	0.36
W-115	22.5 DEG BEND	PLAIN	0.15
W-116	22.5 DEG BEND	PLAIN	0.15
W-117	CHANGE OF GRADING	N/A	N/A
W-118	CHANGE OF GRADING	N/A	N/A
W-119	CHANGE OF GRADING	N/A	N/A
W-120	CHANGE OF GRADING	N/A	N/A
W-121	CHANGE OF GRADING	N/A	N/A
W-122	EQUAL TEE	PLAIN	0.36
W-123	45 DEG BEND	PLAIN	0.28
W-124	TIE-IN TO EX DN150 AC WITH INLINE THRUST AND 45 DEG BEND	INLINE	0.51
W-201	45 DEG BEND	PLAIN	0.36

WATER MAIN SETOUT, FITTINGS AND THRUST RESTRAINTS

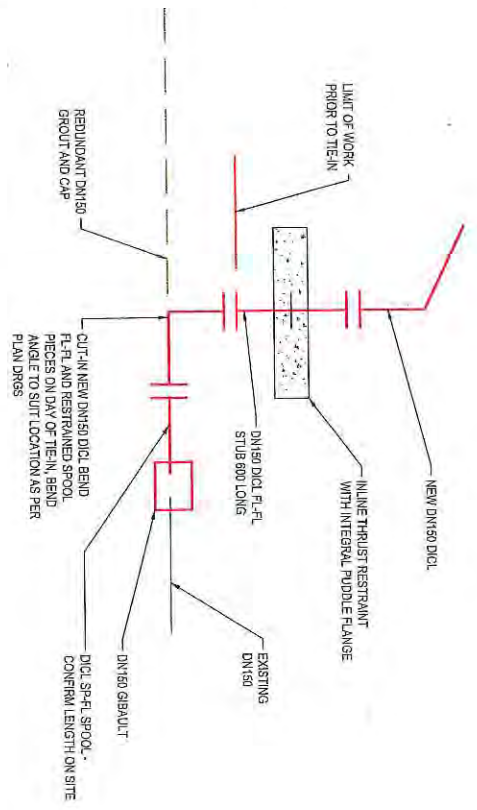
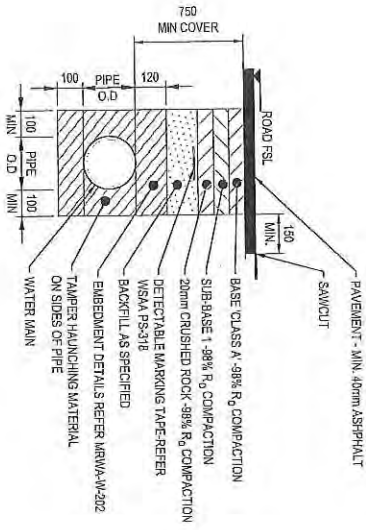
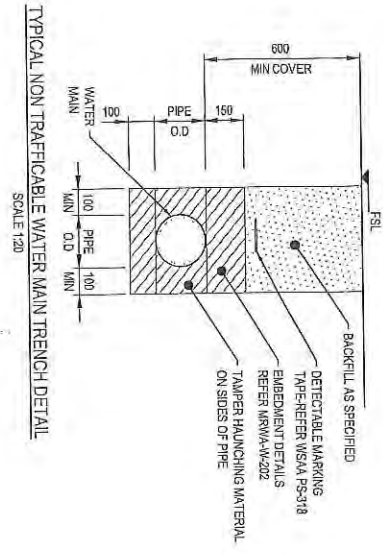
POINT	FITTING	THRUST TYPE	MIN. THRUST AREA (m ²)
W-202	TIE-IN TO EX DN150 AC WITH INLINE THRUST AND 45 DEG BEND	INLINE	0.5
W-301	TIE-IN TO EX DN150 AC WITH INLINE THRUST	INLINE	0.4
W-401	TIE-IN TO EX DN150 AC WITH INLINE THRUST AND EQUAL TEE AND 45 DEG BEND	INLINE	0.6
W-402	45 DEG BEND	PLAIN	0.28
W-403	45 DEG BEND	PLAIN	0.28
W-404	30 DEG AND 6 DEG BENDS	PLAIN	0.2
W-405	45 DEG BEND	PLAIN	0.28
W-406	45 DEG BEND	PLAIN	0.28
W-601	90 DEG BEND	PLAIN	0.51
W-602	60 DEG BEND	PLAIN	0.4
W-603	45 DEG BEND	PLAIN	0.28
W-603A	11.25 DEG BEND	N/A	N/A
W-603B	45 DEG BEND	PLAIN	0.28
W-604	TIE-IN TO EX DN150 AC WITH INLINE THRUST AND 90 DEG BEND	INLINE	0.65
W-701	60 DEG BEND	PLAIN	0.4
W-702	22.5 DEG BEND	PLAIN	0.15
W-703	45 DEG BEND	PLAIN	0.28
W-704	30 DEG BEND	PLAIN	0.2
W-705	TIE-IN TO EX DN150 AC WITH INLINE THRUST	INLINE	0.36
W-801	TIE-IN TO EX DN150 AC WITH INLINE THRUST AND 45 DEG BEND	INLINE	0.5
W-802	45 DEG BEND	PLAIN	0.28
W-803	90 DEG BEND	PLAIN	0.51
W-804	PROPERTY CONNECTION	N/A	N/A
W-805	AIR VALVE ON DN100 TEE	PLAIN	0.36
W-806	11.25 DEG BEND	N/A	N/A
W-807	11.25 DEG BEND	N/A	N/A
W-808	45 DEG BEND	PLAIN	0.28
W-809	TIE-IN TO EX DN150 AC WITH INLINE THRUST AND 45 DEG BEND	INLINE	0.5

NOTE:
 1. CONCRETE THRUST RESTRAINTS SHALL COMPLY WITH STD DRGS TM-W-300 AND MRWA-W255A.
 2. THRUST BLOCK DESIGN IS BASED ON THE FOLLOWING:
 AHP = 100 kPa
 DESIGN HEAD = 90m
 TEST PRESSURE = 1500 kPa

No. 0		ISSUE FOR CONSTRUCTION	
Amendment Description		D.C.	22/04/2022
This sheet may be prepared using colour and may be incomplete if copied		Date	
Coordinate System: MGA 94 ZONE 55		Height Datum: AHD	
Scales: N.T.S.		DESIGNED: L. ALLEN	
pittsberry		REVIEWED: D. COE	
			

Department of State Growth		CONTRACT NO. 3268	
EVANDALE MAIN ROAD (A1109)		DRAWING HB19503-C1956	
LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)		PRINTED DATE 23-Sep-20, 12:54 PM	
ROADWORKS		REGISTRATION NUMBER A1109.001	
WATERMAIN THRUST BLOCK AND FITTING TABLE		SHEET NO. 1258	
		REVISION 0	

AMENDED



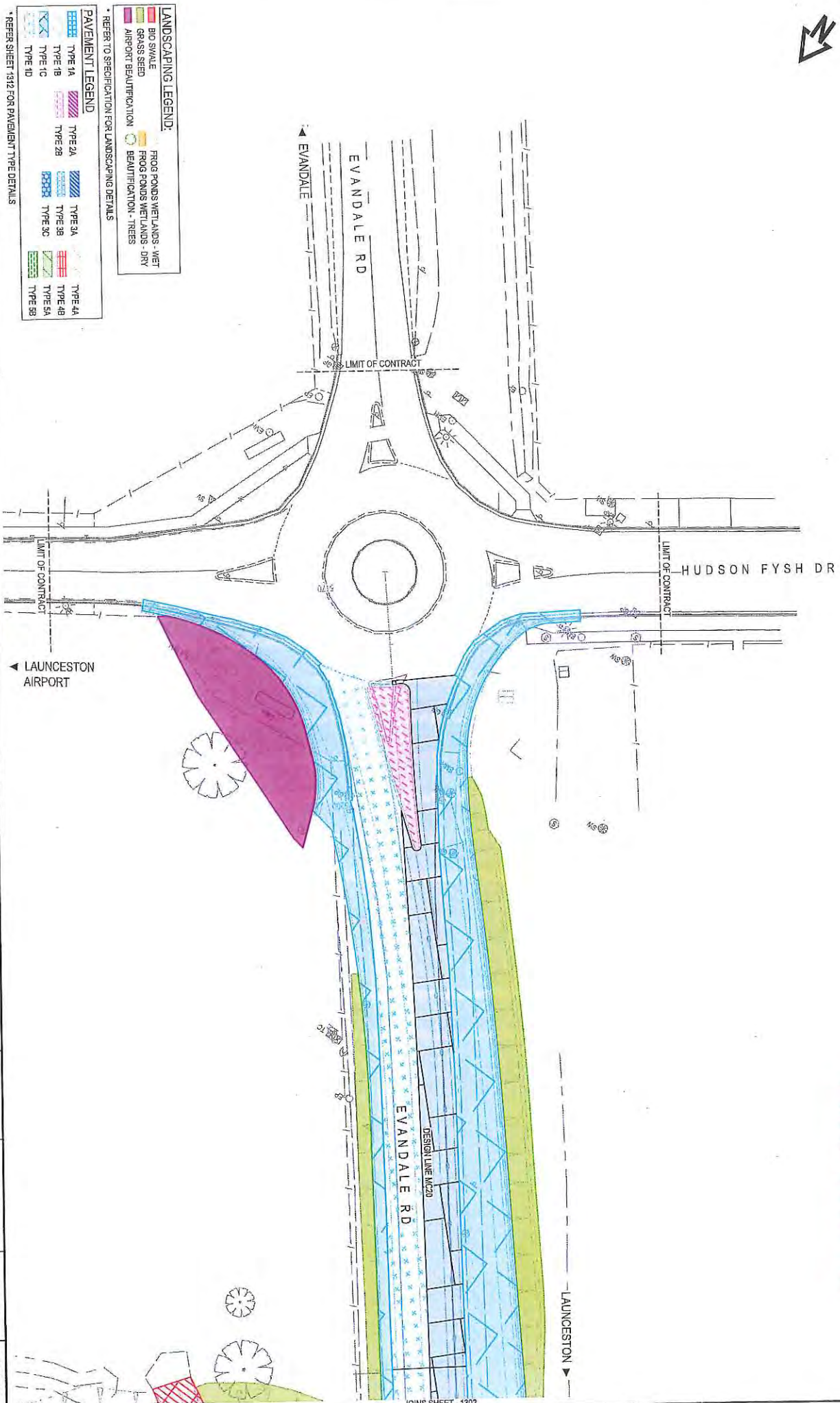
BACKFILL TYPE:
 NON - TRAFFICABLE - SELECTED OR ORDINARY BACKFILL
 TRAFFICABLE - CLASS A MATERIAL AS PER ROAD SPECIFICATION

NOTES:
 AS PER MRWA-W-202 AND DSG 114 PUBLIC UTILITIES SPEC. MAXIMUM COVER = 1.5 MIN COVER, COVER MAY BE EXCEEDED FOR LIMITED LENGTH OF TRENCH, TO MAINTAIN CLEARANCE FROM SERVICES BURIED INFRASTRUCTURE AND TO MINIMISE CHANGES IN GRADE

- REFERENCE STANDARD DRAWINGS:**
- MRWA-W-103 - PIPE & JOINTING REQUIREMENTS
 - MRWA-W-106 - INSTALLATION OF -DN150 OFF-TAKES TO EXISTING MAINS
 - MRWA-W-107 - INSTALLATION OF PHOPE, DUNPE AND DISPE OFF-TAKES
 - MRWA-W-111 - INSTALLATION OF DN2PE AND DN32PE OFF-TAKES
 - MRWA-W-202 - PIPE TRENCH DETAILS
 - MRWA-W-203 - EMBEDMENT
 - MRWA-W-205 - SINGLE MAIN CONCRETE RESTRAINTS AND PE THRUST RESTRAINT
 - MRWA-W-208 - SLOPING MAINS AND TRENCH DRAINAGE
 - MRWA-W-408 - TRENCH BULKHEADS AND TRENCH STOPS
 - MRWA-W-412 - CURVES AND DEFLECTIONS (VERTICAL & HORIZONTAL)
 - MRWA-W-413 - TRENCHLESS CONSTRUCTION
 - MRWA-W-402 - VALVE SURFACE ARRANGEMENTS, TRAFFICABLE & NON-TRAFFICABLE AREAS
 - MRWA-W-403 - HYDRANT & WASHOUT SURFACE ARRANGEMENTS
 - MRWA-W-404 - HYDRANT & WASHOUT SURFACE ARRANGEMENTS
 - MRWA-W-408A - FLANGE ARRANGEMENTS
 - MRWA-W-408B - FLANGE DETAILS AND FLANGE FASTENING REQUIREMENTS
 - TM-W-300 - PIPE INSTALLATION, THRUST BLOCKS
 - TM-W-306 - STOP VALVES / FIRE PLUGS, TYPICAL INSTALLATION
 - TM-W-411 - FIRE PLUGS, MARKING - WITH KERBS
 - TM-W-412 - FIRE PLUGS, MARKING - WITHOUT KERBS
 - TM-W-413 - FIRE PLUGS, MARKING - AT INTERSECTIONS
 - TMS-W-002 - PROPERTY SERVICE CONNECTIONS

WATER MAIN CLEARANCES		
UTILITY (EXISTING OR PROPOSED SERVICE)	MINIMUM HORIZONTAL CLEARANCE (mm) NEW MAIN SIZE	MINIMUM VERTICAL CLEARANCE (mm)
WATER MAINS >DN 375	REFER MRWA-W-202	300
WATER MAINS <=DN 375	REFER MRWA-W-202	150
GAS MAINS	REFER MRWA-W-202	150
TELECOMMUNICATIONS CONDUITS AND CABLES	300	150
ELECTRICITY CONDUITS AND CABLES	500	225
STORM WATER DRAINS	300	150
SEWERS - GRAVITY	1000 / 600	500
KERBS	300	REFER MRWA-W-202 (ie. MIN COVER)

No. 0 AS original Amendment Description Initials Date 23/09/2023 D.C.	SCALES 1:20 (A3) 200 400 600 800 SCALE IN MILLIMETRES - 1:20 MSA 14 ZONE G5 Height Drawn: A.H.O.	pit&sherry DESIGNED: L. ALLEN REVIEWED: D. COE	Department of State Growth EVANDALE MAIN ROAD (A1109) LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD) ROADWORKS WATERMAIN DETAILS	CONTRACT No. 3288 DRAWING HR1903-C1258 PRINTED DATE 23-Sep-2011 12:34 PM REGISTRATION NUMBER A1109.001 SHEET No. 1259 REVISION 0
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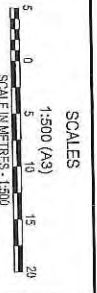
LANDSCAPING LEGEND:

- BIRD SWALE
- GRASS SEED
- FROG PONDS WETLANDS - WET
- FROG PONDS WETLANDS - DRY
- AIRPORT BEAUTIFICATION
- BEAUTIFICATION - TREES

PAVEMENT LEGEND:

- TYPE 1A
- TYPE 1B
- TYPE 1C
- TYPE 1D
- TYPE 2A
- TYPE 2B
- TYPE 2C
- TYPE 2D
- TYPE 3A
- TYPE 3B
- TYPE 3C
- TYPE 3D
- TYPE 4A
- TYPE 4B
- TYPE 4C
- TYPE 4D
- TYPE 5A
- TYPE 5B

REFER SHEET 1412 FOR PAVEMENT TYPE DETAILS



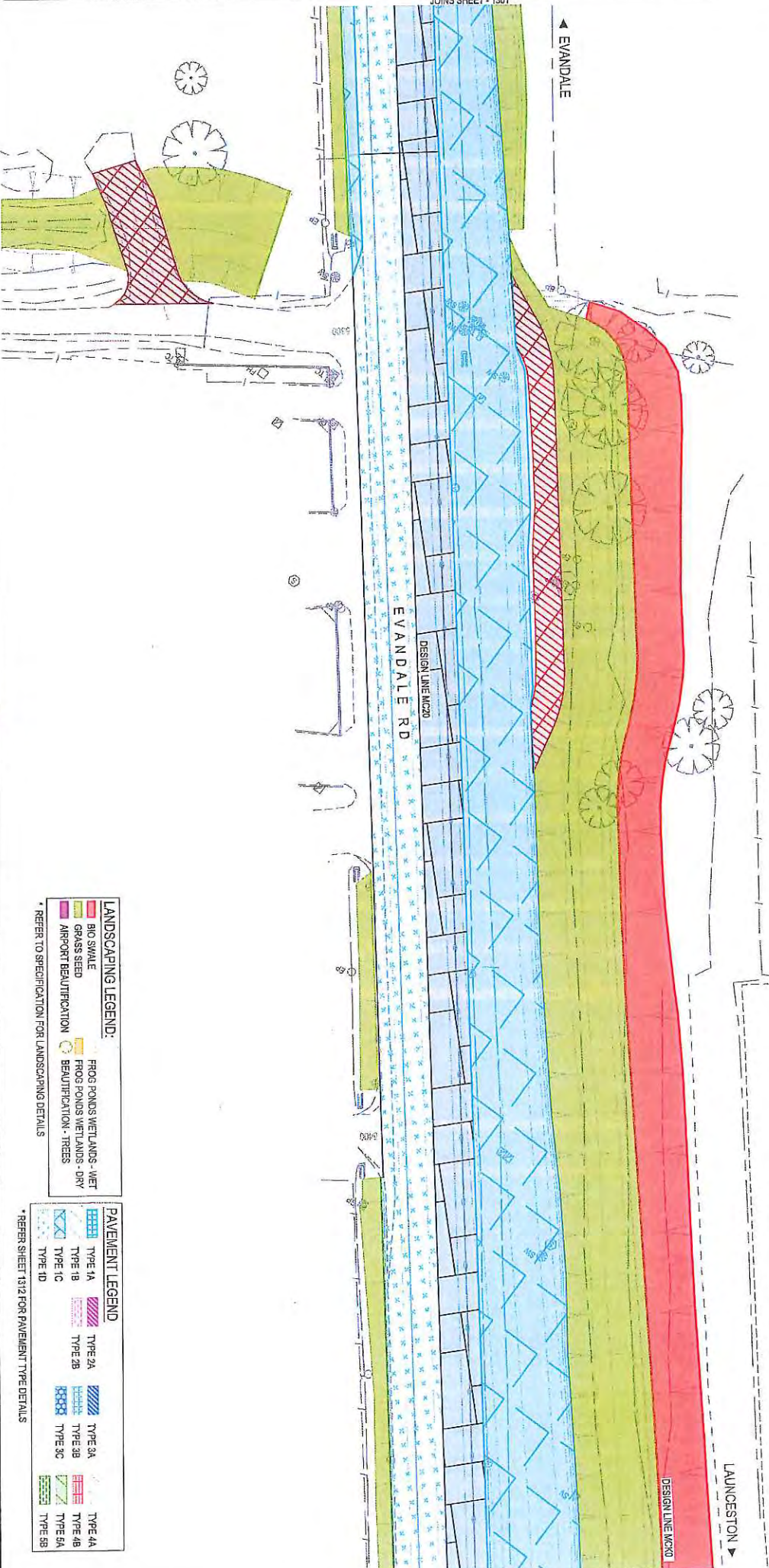
No.	ISSUE FOR CONSTRUCTION	Amendment Description	Initials	Date
0				

DESIGNED: L. ALLEN
 REVIEWED: D. COE

Department of State Growth
 EVANDALE MAIN ROAD (A1109)
 LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
 ROADWORKS

CONTRACT No.	2388	DRAWING	HB19503-C1301	PRINTED DATE	23-Sep-20, 12:34 PM	SHEET No.	1301
PAVEMENT AND LANDSCAPING - DRG 1				REGISTRATION NUMBER	A1109.001	REVISION	0

AMENDED



AMENDED

<p>Department of State Growth</p> <p>EVANDALE MAIN ROAD (A1109)</p> <p>LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)</p> <p>PAVEMENT AND LANDSCAPING - DRG 2</p>		<p>CONTRACT No.</p> <p>3288</p>	<p>DRAWING</p> <p>HB19503-C1902</p>	<p>PRINTED DATE</p> <p>29-Sep-20, 12:34 PM</p>	<p>SHEET No.</p> <p>1302</p>
<p>pit&sherry</p>		<p>DESIGNED: L. ALLEN</p> <p>REVIEWED: D. COE</p>			
<p>SCALES</p> <p>1:500 (A3)</p> <p>SCALE IN METRES - 1:500</p>		<p>Co-ordinate System: MGA 94 ZONE 55</p> <p>Height Datum: A.H.D.</p>			
<p>ISSUE FOR CONSTRUCTION</p> <p>Amendment Description</p> <p>No. 0</p> <p>D.C. 23/09/2020</p> <p>Date</p>		<p>LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)</p> <p>PAVEMENT AND LANDSCAPING - DRG 2</p> <p>REGISTRATION NUMBER</p> <p>A1109.001</p>			
<p>0</p> <p>ISSUE FOR CONSTRUCTION</p> <p>Amendment Description</p> <p>No. 0</p> <p>D.C. 23/09/2020</p> <p>Date</p>		<p>REVISION 0</p>			

LANDSCAPING LEGEND:

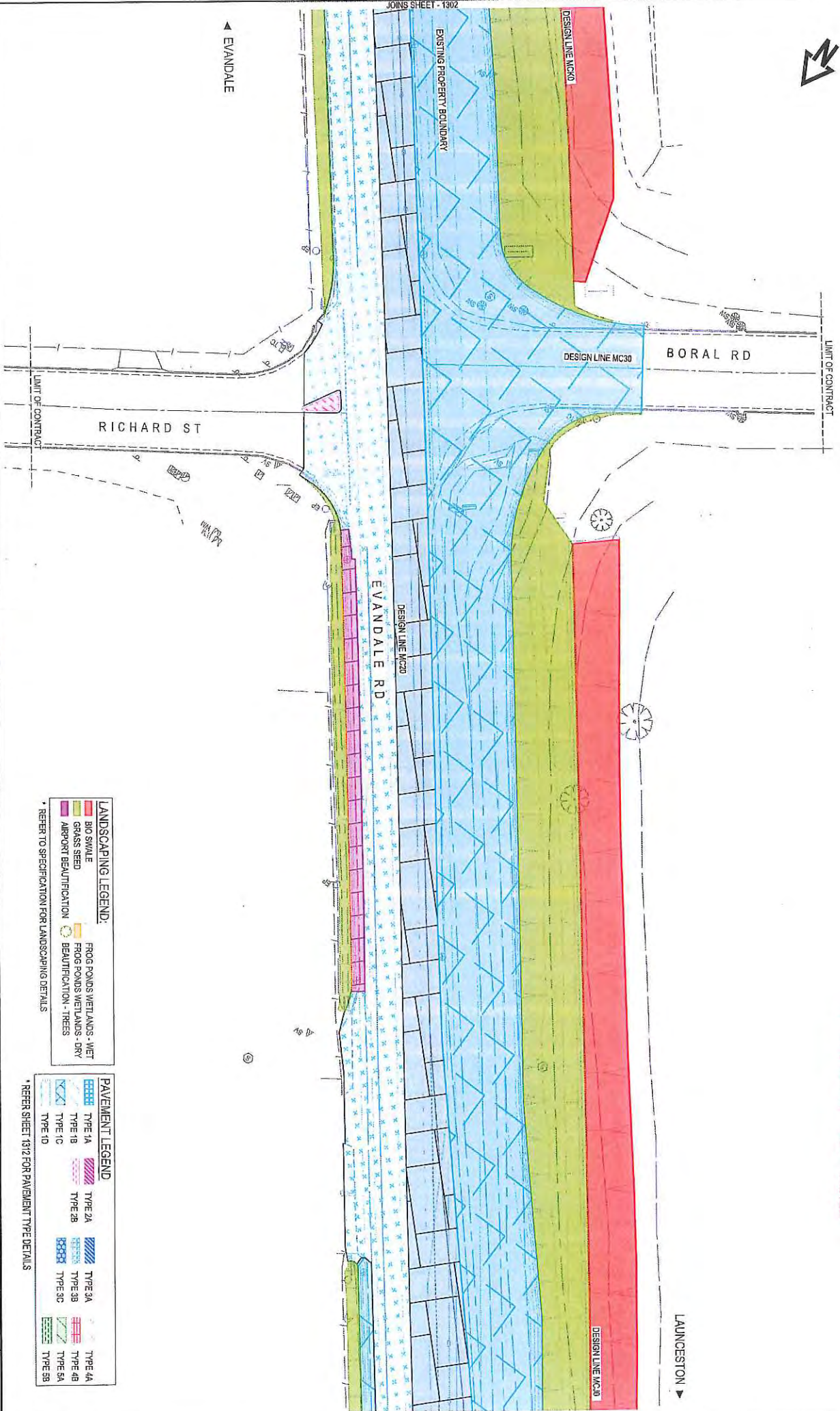
	BIG SWALE		FROG PONDS WETLANDS - WET
	GRASS SEED		FROG PONDS WETLANDS - DRY
	AIRPORT BEAUTIFICATION		BEAUTIFICATION - TREES

* REFER TO SPECIFICATION FOR LANDSCAPING DETAILS

PAVEMENT LEGEND

	TYPE 1A		TYPE 2A		TYPE 3A		TYPE 4A
	TYPE 1B		TYPE 2B		TYPE 3B		TYPE 4B
	TYPE 1C		TYPE 2C		TYPE 3C		TYPE 4C
	TYPE 1D		TYPE 2D		TYPE 3D		TYPE 4D

* REFER SHEET 1312 FOR PAVEMENT TYPE DETAILS



AMENDED

LANDSCAPING LEGEND:

	BIO SWALE
	GRASS SEED
	AIRPORT BEAUTIFICATION
	FROG PONDS WETLANDS - WET
	FROG PONDS WETLANDS - DRY
	BEAUTIFICATION - TREES

* REFER TO SPECIFICATION FOR LANDSCAPING DETAILS

PAVEMENT LEGEND:

	TYPE 1A		TYPE 2A		TYPE 3A		TYPE 4A
	TYPE 1B		TYPE 2B		TYPE 3B		TYPE 4B
	TYPE 1C		TYPE 2C		TYPE 3C		TYPE 4C
	TYPE 1D		TYPE 2D		TYPE 3D		TYPE 4D

* REFER TO SPECIFICATION FOR PAVEMENT TYPE DETAILS

No.	Amendment Description	D.C.	Initials	Date
0	ISSUE FOR CONSTRUCTION			23/09/2020

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SCALES

1:500 (A3)

SCALE IN METRES - 1:500

Coordinate System: MGA 94 ZONE 55 Height Datum: A.H.D.

pit&sherry

DESIGNED: L. ALLEN

REVIEWED: D. COE

Department of State Growth

EVANDALE MAIN ROAD (A1109)

LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)

ROADWORKS

PAVEMENT AND LANDSCAPING - DRG 3

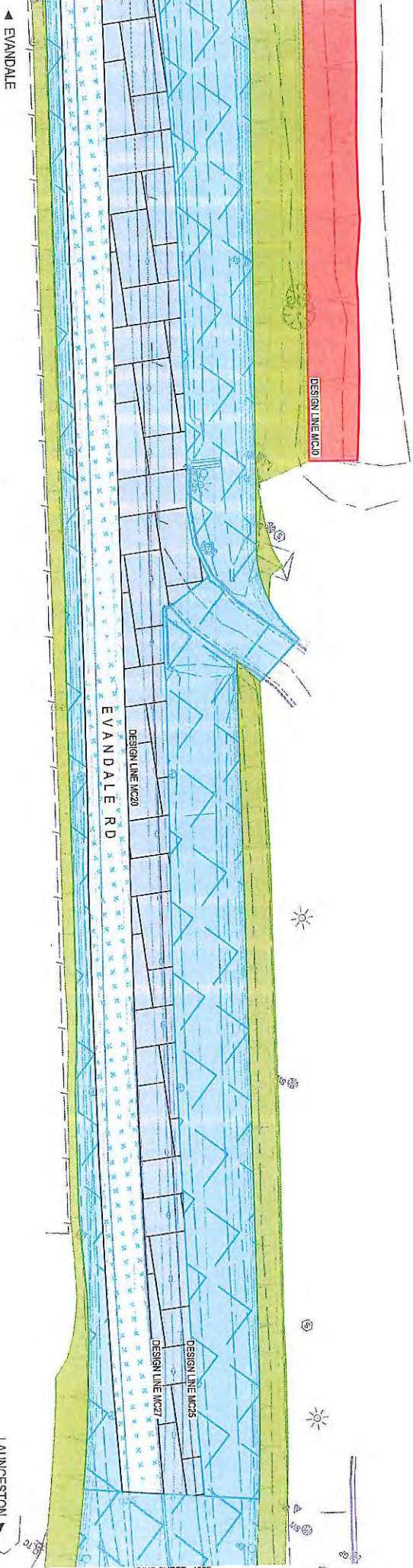
CONTRACT No.	3288	DRAWING	HB1903/C1903	PRINTED DATE	23-Sep-20 12:34 PM
REGISTRATION NUMBER	A1109.001	SHEET No.	1303	REVISION 0	



AMENDED

1-361

JOINS SHEET - 1303



- LANDSCAPING LEGEND:**
- BIO SWALE
 - GRASS SEED
 - AIRPORT BEAUTIFICATION
 - FROG PONDS WETLANDS - WET
 - FROG PONDS WETLANDS - DRY
 - BEAUTIFICATION - TREES

- PAVEMENT LEGEND**
- REFER TO SPECIFICATION FOR LANDSCAPING DETAILS
- REFER SHEET 1312 FOR PAVEMENT TYPE DETAILS
- TYPE 1A
 - TYPE 1B
 - TYPE 1C
 - TYPE 1D
 - TYPE 2A
 - TYPE 2B
 - TYPE 3A
 - TYPE 3B
 - TYPE 3C
 - TYPE 4A
 - TYPE 4B
 - TYPE 5A
 - TYPE 5B

No.	Amendment Description	D.C.	Date
0	ISSUE FOR CONSTRUCTION		23/09/2020

SCALES

1:500 (A3)

SCALE IN METRES - 1:500

Coordinate System: MGA 94 ZONE 55

Height Datum: AHD

pit&sherry

DESIGNED: L. ALLEN

REVIEWED: D. COE

Department of State Growth

EVANDALE MAIN ROAD (A1109)

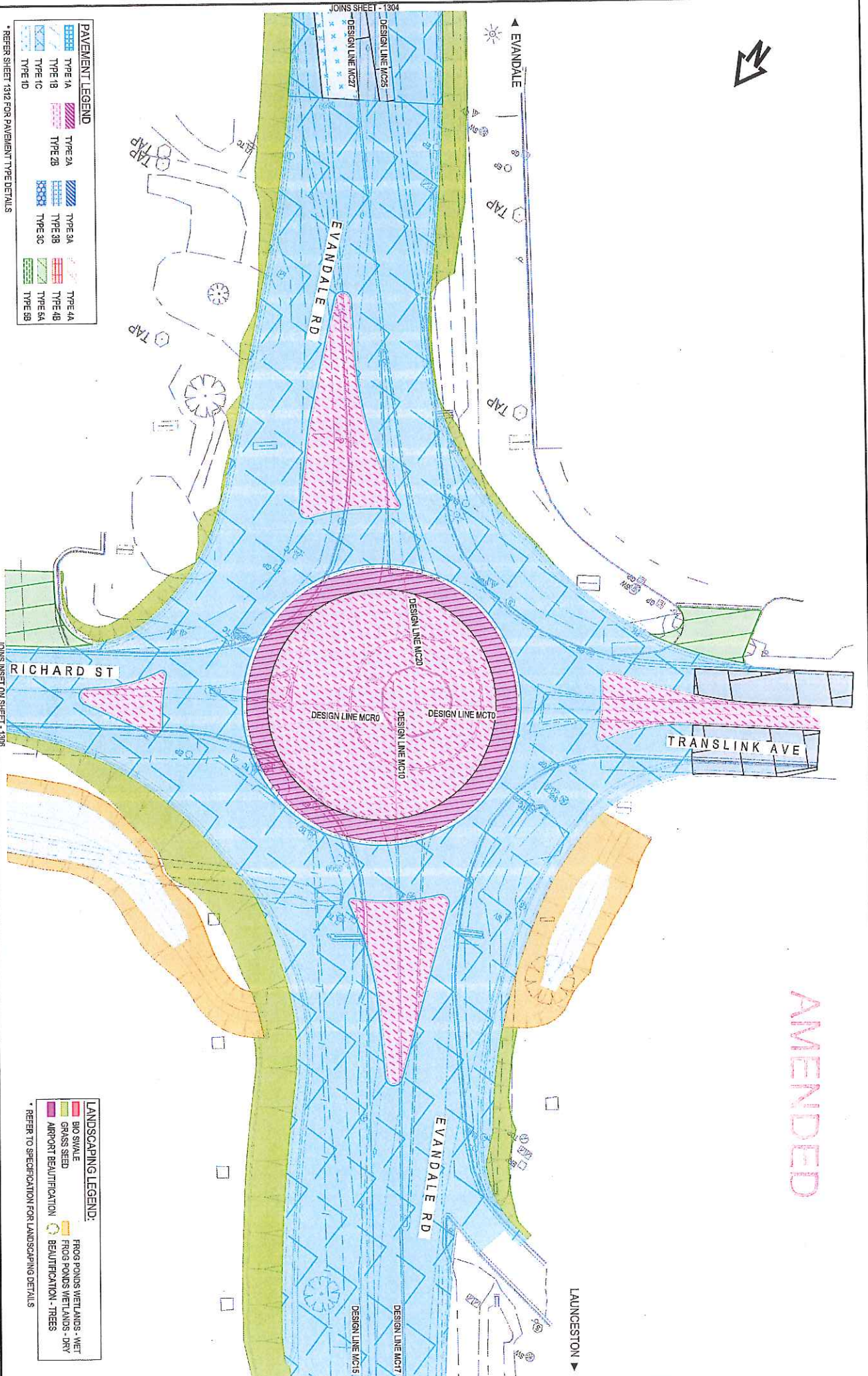
LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)

ROADWORKS

PAVEMENT AND LANDSCAPING - DRG 4

CONTRACT No.	3288	DRAWING	HB1593-C1304	PRINTED DATE	23-Sep-20, 12:55 PM	SHEET No.	1304
REGISTRATION NUMBER	A1109.001	REVISION	0				

JOINS SHEET - 1305



PAVEMENT LEGEND

	TYPE 1A		TYPE 2A		TYPE 1B
	TYPE 1B		TYPE 2B		TYPE 3A
	TYPE 1C		TYPE 3B		TYPE 3B
	TYPE 1D		TYPE 3C		TYPE 3C
			TYPE 4A		TYPE 4A
			TYPE 4B		TYPE 4B
			TYPE 5A		TYPE 5A
			TYPE 5B		TYPE 5B

* REFER SHEET 1312 FOR PAVEMENT TYPE DETAILS

LANDSCAPING LEGEND:

	BIO SWALE		FROG PONDS WETLANDS - WET
	GRASS SEED		FROG PONDS WETLANDS - DRY
	AIRPORT BEAUTIFICATION		BEAUTIFICATION - TREES

* REFER TO SPECIFICATION FOR LANDSCAPING DETAILS

No.	Amendment Description	Initials	Date
0	ISSUE FOR CONSTRUCTION	D.C.	23/09/2020

SCALES

1:500 (A3)

SCALE IN METRES - 1:500

pit&sherry
Therapeutic Government

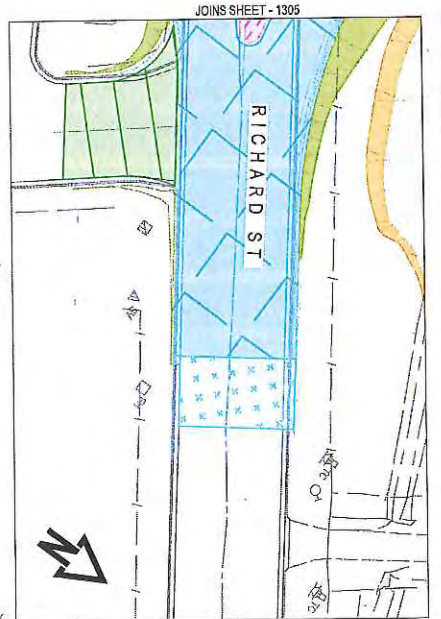
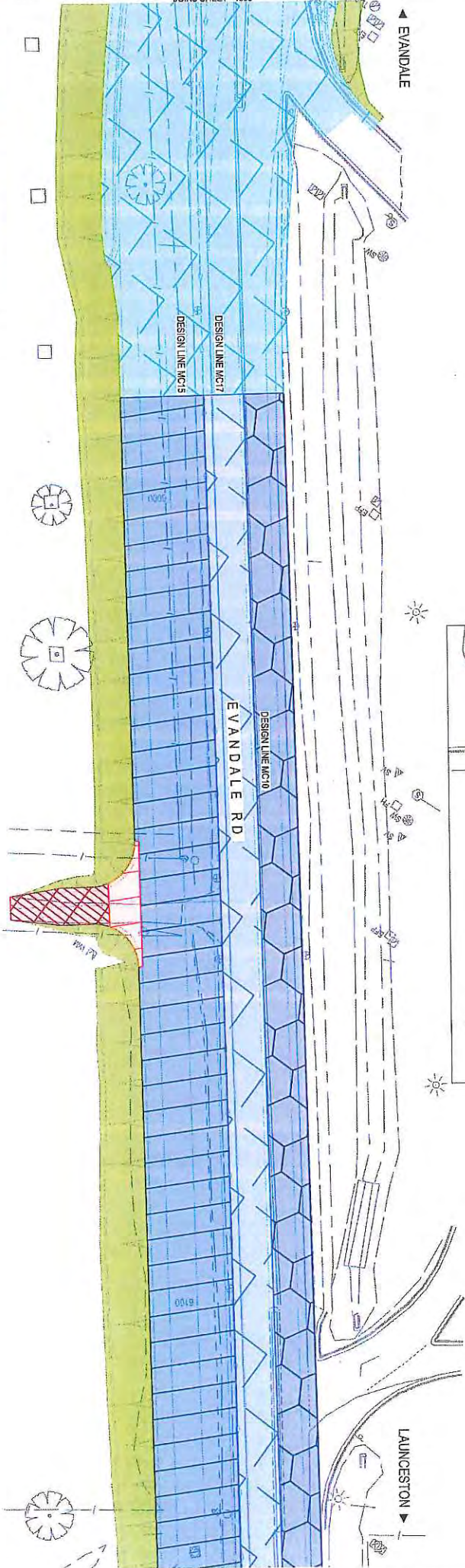
DESIGNED L. ALLEN
REVIEWED D. COE

Department of State Growth
EVANDALE MAIN ROAD (A1109)
LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
ROADWORKS
PAVEMENT AND LANDSCAPING - DRG 5

CONTRACT No.	3266	DRAWING	HB19523-C1305	PRINTED DATE	23-Sep-20 12:38 PM	SHEET No.	1305
REGISTRATION NUMBER	A1109.001	REVISION	0				

AMENDED

EVANDALE



JOINS SHEET - 1305

LAUNCESTON

- LANDSCAPING LEGEND:**
- BIO SWALE
 - GRASS SEED
 - AIRPORT BEAUTIFICATION
 - FROG PONDS WETLANDS - WET
 - FROG PONDS WETLANDS - DRY
 - BEAUTIFICATION - TREES

- PAVEMENT LEGEND**
- TYPE 1A
 - TYPE 1B
 - TYPE 1C
 - TYPE 1D
 - TYPE 2A
 - TYPE 2B
 - TYPE 3A
 - TYPE 3B
 - TYPE 3C
 - TYPE 4A
 - TYPE 4B
 - TYPE 5A
 - TYPE 5B

REFER TO SPECIFICATION FOR PAVEMENT TYPE DETAILS

No.	Amendment Description	Initials	Date
0	ISSUE FOR CONSTRUCTION	D.C.	23/09/2020

SCALES

1:500 (A3)

SCALE IN METRES - 1:300

Co-ordinate System: MGA 94 ZONE 55 | Height datum: AHD.

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DESIGNED: L. ALLEN
REVIEWED: D. COPE

Department of State Growth

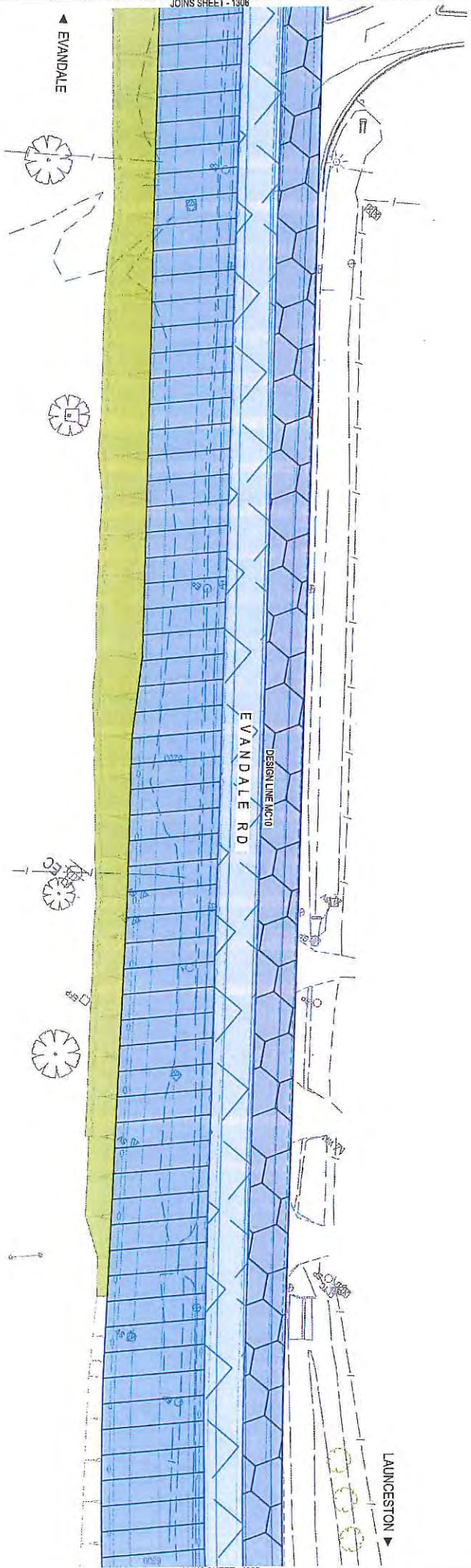
EVANDALE MAIN ROAD (A1109)
LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
ROADWORKS

PAVEMENT AND LANDSCAPING - DRG 6

CONTRACT No.	3288	DRAWING	HB 19305-C1306	PRINTED DATE	23-Sep-20, 12:55 PM	SHEET No.	1306
REGISTRATION NUMBER	A1109.001	REVISION	0				

AMENDED





LANDSCAPING LEGEND:

- BIO SWALE
- FROG PONDS WETLANDS - WET
- GRASS SEED
- FROG PONDS WETLANDS - DRY
- AIRPORT BEAUTIFICATION
- BEAUTIFICATION - TREES

PAVEMENT LEGEND

- TYPE 1A
- TYPE 2A
- TYPE 3A
- TYPE 4A
- TYPE 1B
- TYPE 2B
- TYPE 3B
- TYPE 4B
- TYPE 1C
- TYPE 3C
- TYPE 5A
- TYPE 9A
- TYPE 1D
- TYPE 9B

* REFER TO SPECIFICATION FOR LANDSCAPING DETAILS

NO.	Amendment Description	D.C.	Date
0	ISSUE FOR CONSTRUCTION		20/09/2020
A3 original This sheet may be prepared using colour and may be incomplete if copied			

SCALES	1:500 (A3)
SCALE IN METRES - 1:500	

DESIGNED	L. ALLEN
REVIEWED	D. COE

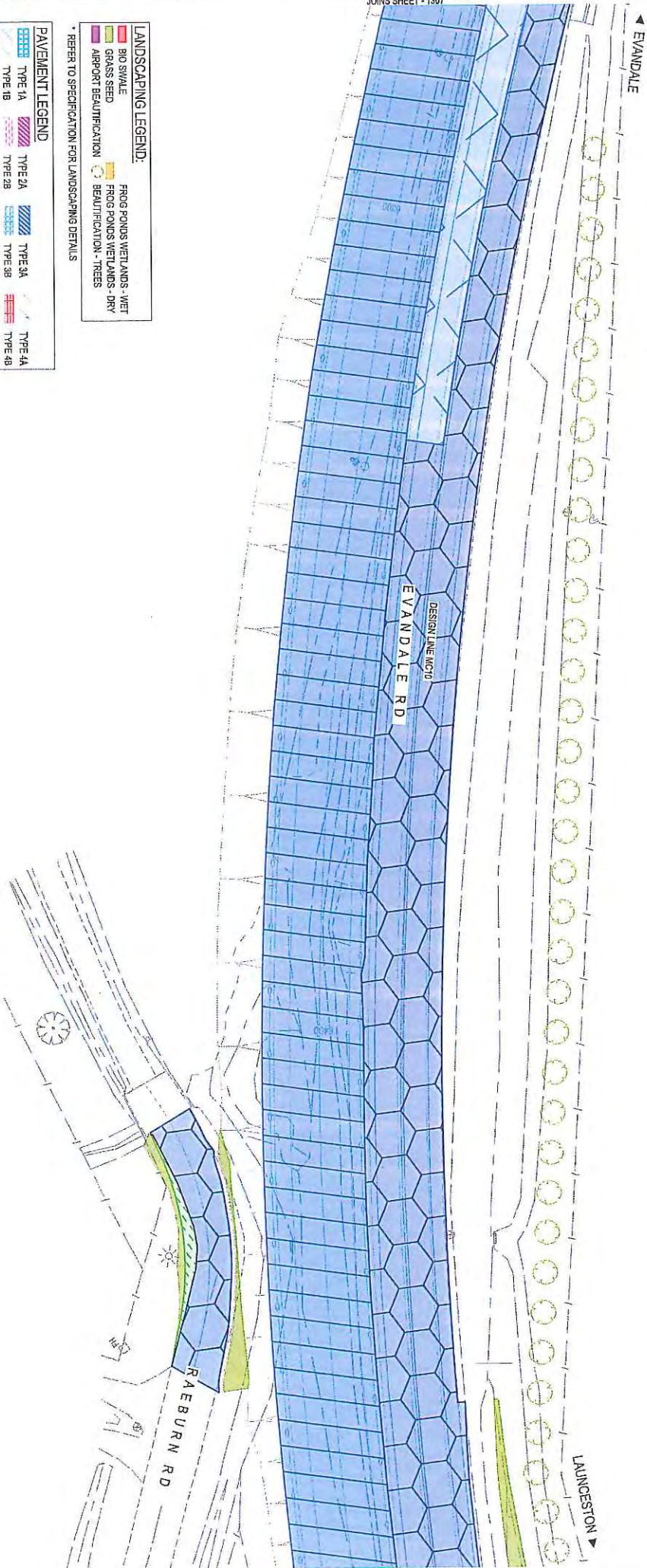
Department of State Growth	EVANDALE MAIN ROAD (A1109)
	LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
	ROADWORKS
	PAVEMENT AND LANDSCAPING - DRG 7

CONTRACT No.	DRAWING	PRINTED DATE
3288	HB1903-C1-007	23-Sep-20, 12:35 PM
REGISTRATION NUMBER		SHEET No.
A1109.001		1307
		REVISION 0

AMENDED



AMENDED



LANDSCAPING LEGEND:

- BIO SWALE
- GRASS SEED
- AIRPORT BEAUTIFICATION
- FROG PONDS WETLANDS - WET
- FROG PONDS WETLANDS - DRY
- BEAUTIFICATION - TREES

* REFER TO SPECIFICATION FOR LANDSCAPING DETAILS

PAVEMENT LEGEND

- TYPE 1A
- TYPE 1B
- TYPE 1C
- TYPE 1D
- TYPE 2A
- TYPE 2B
- TYPE 2C
- TYPE 3A
- TYPE 3B
- TYPE 3C
- TYPE 4A
- TYPE 4B
- TYPE 4C
- TYPE 4D
- TYPE 5A
- TYPE 5B

* REFER SHEET 1312 FOR PAVEMENT TYPE DETAILS

No.	Amendment Description	D.C.	Initials	Date
0	ISSUE FOR CONSTRUCTION			23/09/2020

SCALES

1:300 (A3)

SCALE IN METRES - 1:300

Co-ordinate System: MGA 94 ZONE 55 | Height Datum: A.H.D.

pit&sherry

DESIGNED: L. ALLEN

REVIEWED: D. COE

Department of State Growth

EVANDALE MAIN ROAD (A1109)

LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)

ROADWORKS

PAVEMENT AND LANDSCAPING - DRG 8

CONTRACT No. 3288

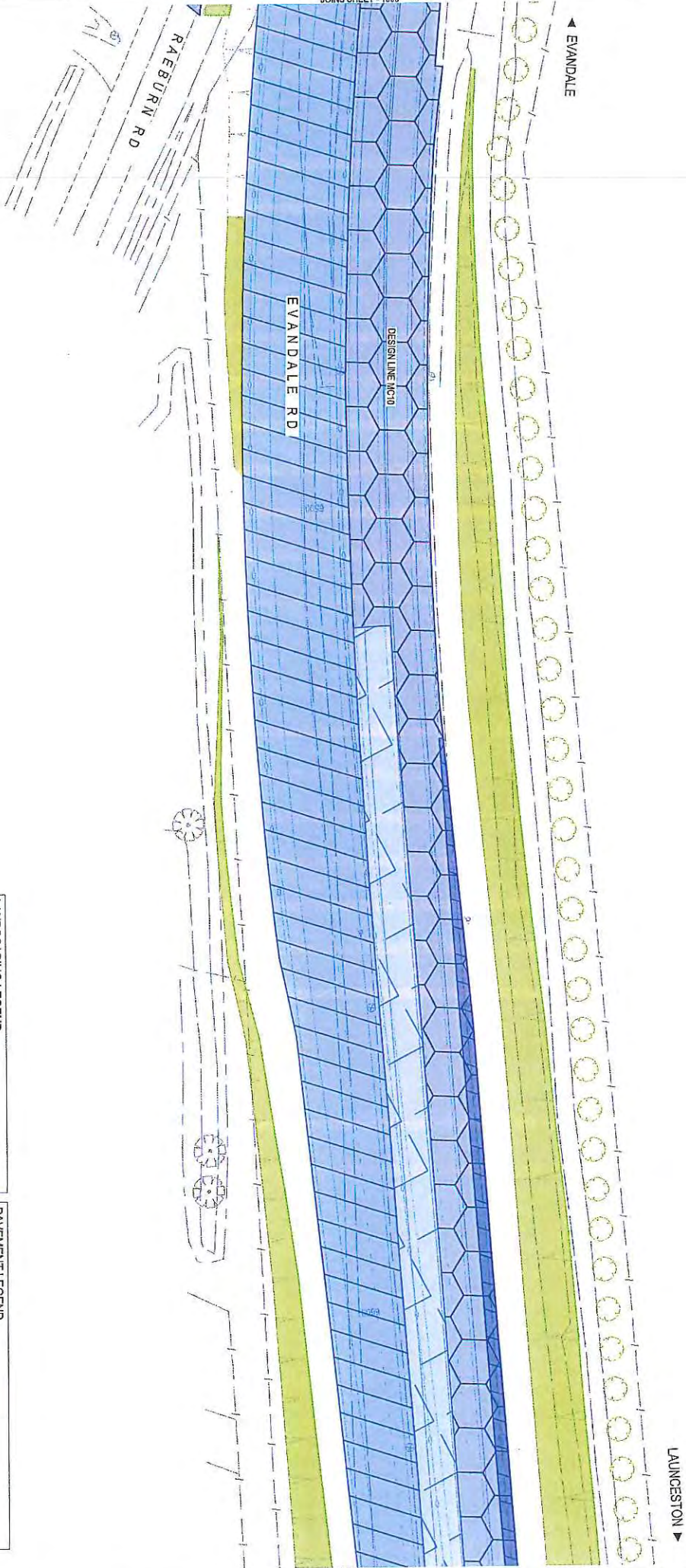
DRAWING HB1909-C-1908

PRINTED DATE 23-09-20 12:38 PM

REGISTRATION NUMBER A1109.001

SHEET No. 1308

REVISION 0



AMENDED

LAUNCESTON

No.	ISSUE FOR CONSTRUCTION	Amendment Description	Initials	Date
0			D.C.	23/09/2020

SCALES
1:500 (A3)

SCALE IN METRES - 1:500

Co-ordinate System: MGA 94 ZONE 55
Height Datum: A.H.D.

DESIGNED BY: **pit&sherry**
REVIEWED BY: **L. ALLEN**
D. COE

Department of State Growth
EVANDALE MAIN ROAD (A1109)
LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
ROADWORKS
PAVEMENT AND LANDSCAPING - DRG 9

LANDSCAPING LEGEND:

- BIG SHALE
- GRASS SEED
- AIRPORT BEAUTIFICATION
- FROG PONDS WETLANDS - WET
- FROG PONDS WETLANDS - DRY
- BEAUTIFICATION - TREES

* REFER TO SPECIFICATION FOR LANDSCAPING DETAILS

PAVEMENT LEGEND

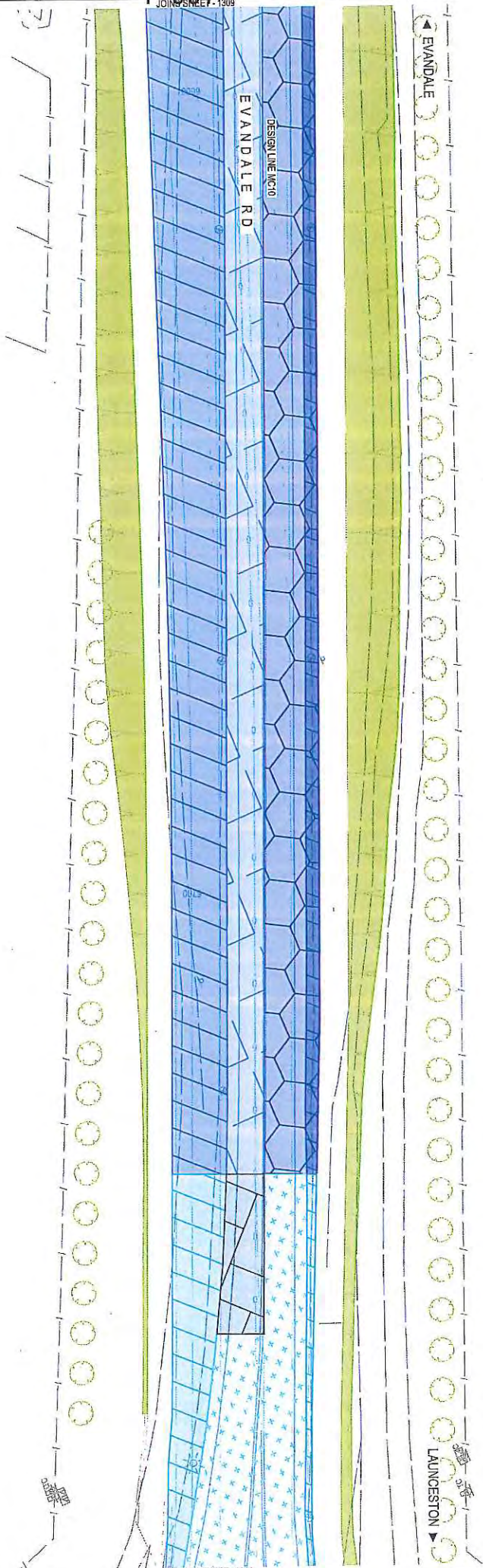
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- TYPE 1B
- TYPE 1C
- TYPE 1D
- TYPE 2A
- TYPE 2B
- TYPE 3A
- TYPE 3B
- TYPE 3C
- TYPE 4A
- TYPE 4B
- TYPE 5A
- TYPE 5B

* REFER SHEET 1312 FOR PAVEMENT TYPE DETAILS

CONTRACT No.	3238	DRAWING	H819568-C1309	PRINTED DATE	23-Sep-20, 12:38 PM	SHEET No.	1309
REGISTRATION NUMBER	A1109.001	REVISION	0				



AMENDED



1-367
JOINS SHEET - 1309

JOINS SHEET - 1311

LANDSCAPING LEGEND:

- BIG SWALE
- GRASS SEED
- AIRPORT BEAUTIFICATION
- FROG PONDS WETLANDS - WET
- FROG PONDS WETLANDS - DRY
- BEAUTIFICATION - TREES

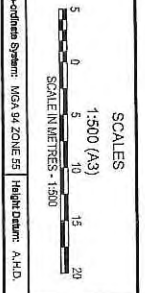
PAVEMENT LEGEND

- TYPE 1A
- TYPE 1B
- TYPE 1C
- TYPE 1D
- TYPE 2A
- TYPE 2B
- TYPE 3A
- TYPE 3B
- TYPE 3C
- TYPE 4A
- TYPE 4B
- TYPE 4C
- TYPE 4D
- TYPE 4E
- TYPE 4F
- TYPE 4G
- TYPE 4H
- TYPE 4I
- TYPE 4J
- TYPE 4K
- TYPE 4L
- TYPE 4M
- TYPE 4N
- TYPE 4O
- TYPE 4P
- TYPE 4Q
- TYPE 4R
- TYPE 4S
- TYPE 4T
- TYPE 4U
- TYPE 4V
- TYPE 4W
- TYPE 4X
- TYPE 4Y
- TYPE 4Z

* REFER TO SPECIFICATION FOR LANDSCAPING DETAILS

* REFER SHEET 1312 FOR PAVEMENT TYPE DETAILS

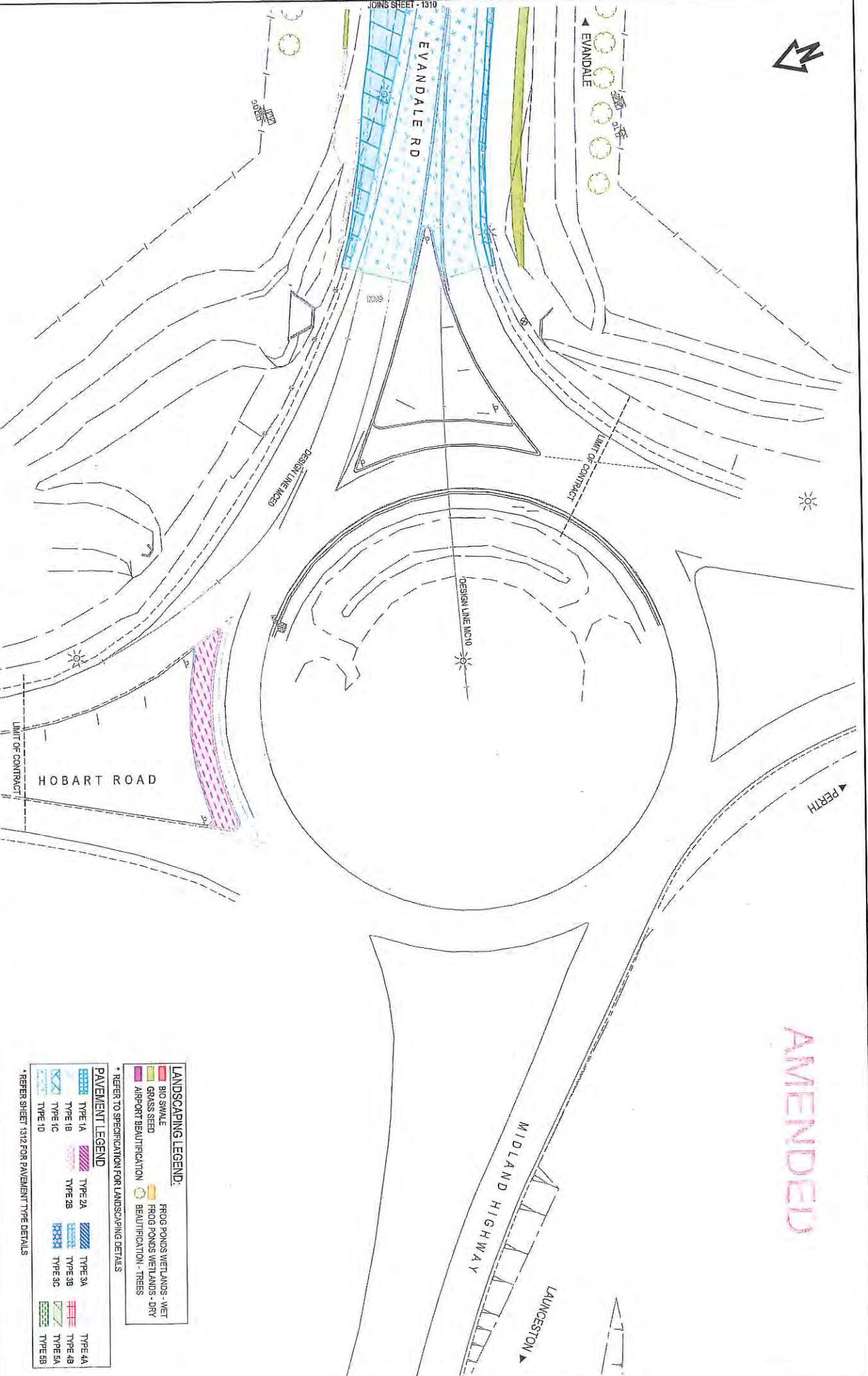
No.	Amendment Description	D.C.	23/09/2020
0	ISSUE FOR CONSTRUCTION		



pit&sherry

Department of State Growth
 EVANDALE MAIN ROAD (A1109)
 LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
 ROADWORKS
 PAVEMENT AND LANDSCAPING - DRG 10

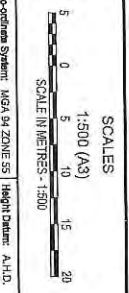
CONTRACT No.	3288	DRAWING	H810903-C1310	PRINTED DATE	23-Sep-20, 12:28 PM	SHEET No.	1310
DESIGNED	L. ALLEN	REGISTRATION NUMBER	A1109.001	REVISION 0			



AMENDED

No.	ISSUE FOR CONSTRUCTION	D.C.	Date
0	Amendment Description	HABIS	23/09/2020

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 REVIEWED: D. COPE

Department of State Growth
 EVANDALE MAIN ROAD (A1109)
 LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
 ROADWORKS
 PAVEMENT AND LANDSCAPING - DRG 11

CONTRACT No.	2368	DRAWING	H818503-C1311	PRINTED DATE	23-Sep-20, 12:38 PM	SHEET No.	1311
REGISTRATION NUMBER	A1109.001		REVISION	0			

LANDSCAPING LEGEND:

- BIO SWALE
- GRASS SEED
- AIRPORT BEAUTIFICATION
- FROG PONDS WETLANDS - WET
- FROG PONDS WETLANDS - DRY
- BEAUTIFICATION - TREES

PAVEMENT LEGEND

- TYPE 1A
- TYPE 1B
- TYPE 1C
- TYPE 1D
- TYPE 2A
- TYPE 2B
- TYPE 2C
- TYPE 2D
- TYPE 3A
- TYPE 3B
- TYPE 3C
- TYPE 4A
- TYPE 4B
- TYPE 5A
- TYPE 5B


* REFER TO SPECIFICATION FOR LANDSCAPING DETAILS

* REFER SHEET 1312 FOR PAVEMENT TYPE DETAILS

AMENDED

PAVEMENT TYPE DETAILS

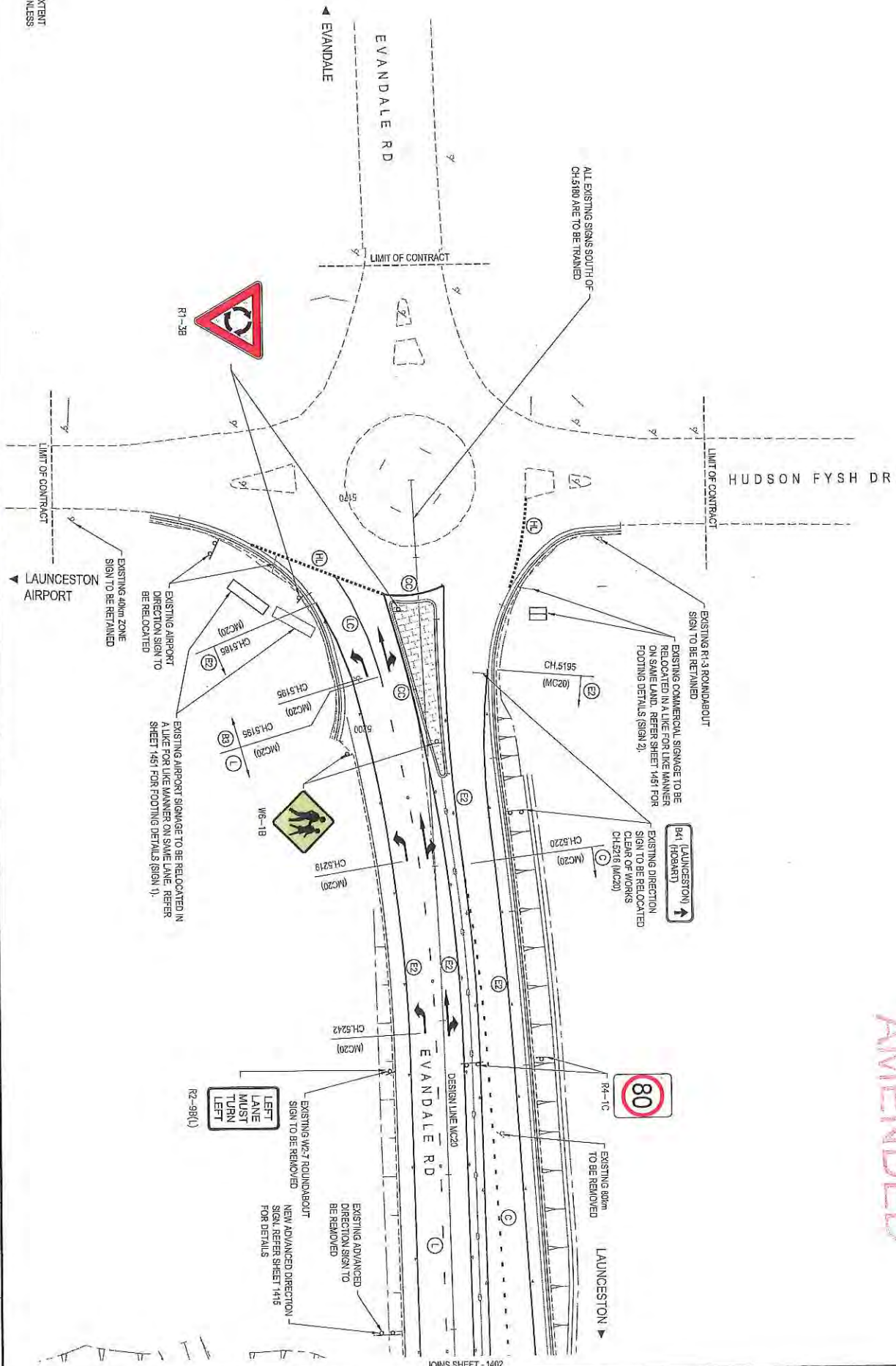
	Type 1A	Type 1B	Type 1C	Type 1D	Type 2A	Type 2B	Type 3A	Type 3B	Type 3C	Type 4A	Type 4B	Type 5A	Type 5B
Wearing Course	40mm Asphalt	40mm Asphalt	40mm Asphalt	40mm Asphalt	200mm Concrete with S182 Wash	150mm Concrete with S172 Wash	Spray Seal	Spray Seal	Spray Seal	Spray Seal		40mm Asphalt	Spray Seal
Prime	Waterproofing Seal	Waterproofing Seal	Waterproofing Seal	Waterproofing Seal							150mm Ungrained Pavement Material	Waterproofing Seal	
Base	200mm Class 1 Crushed Rock	200mm Class 1 Crushed Rock	200mm Class 1 Crushed Rock		200mm Class 1 Crushed Rock	150mm Class 1 Crushed Rock	200mm Class 1 Crushed Rock	200mm Class 1 Crushed Rock	150mm Class 1 Crushed Rock	150mm Class 3 Crushed Rock	150mm Class 3 Crushed Rock	200mm Class 1 Crushed Rock	200mm Class 1 Crushed Rock
Subbase 1	180mm Class 3 Crushed Rock	180mm Class 3 Crushed Rock			180mm Class 3 Crushed Rock		180mm Class 3 Crushed Rock			150mm Class 3 Crushed Rock		150mm Class 3 Crushed Rock	150mm Class 3 Crushed Rock
Subbase 2	150mm Class 4 Crushed Rock	150mm Class 4 Crushed Rock			150mm Class 4 Crushed Rock		150mm Class 4 Crushed Rock						
Capping	330mm Type A Min CR 5%				330mm Type A Min CR 5%								

Amendment Description		D.C.		23/09/2020		Initials		Date		Co-ordinator System		MGA 64 ZONE 55		Height Datum		A.H.D.													
0 ISSUE FOR CONSTRUCTION										SCALES		N.T.S																	
DESIGNED		L. ALLEN				REVIEWED		D. COE				Department of State Growth EVANDALE MAIN ROAD (A1109) LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD) ROADWORKS PAVEMENT AND LANDSCAPING - DETAILS		CONTRACT No.		3268		DRAWING		HB1903-C1312		PRINTED DATE		23-Sep-20, 12:56 PM		SHEET No.		1312	
No.		0																REVISION		0									

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NOTE:
ALL EXISTING SIGNS WITHIN EXTENT
OF WORKS TO BE REMOVED UNLESS
NOTED OTHERWISE



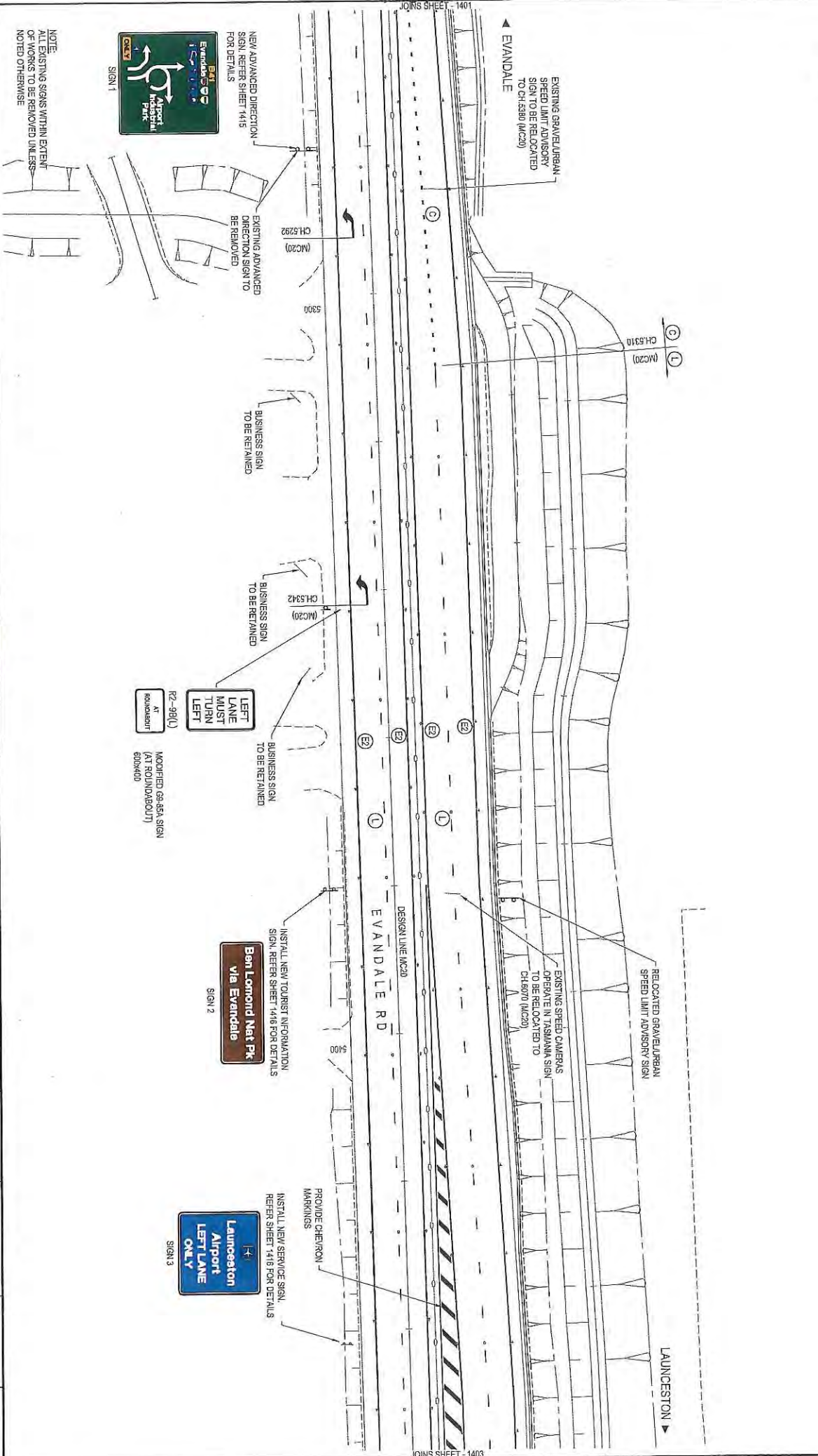
AMENDED

<p>0 ISSUE FOR CONSTRUCTION Amendment Description</p>	<p>D.C. 23/09/2020 Index Date</p>	<p>Co-ordinate System: MGA 94 ZONE 95 Height datum: AHD</p>	<p>DESIGNED: L. ALLEN REVIEWED: D. COE</p>	<p>Department of State Growth EVANDALE MAIN ROAD (A1109) LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD) ROADWORKS</p>	<p>CONTRACT No. 3288 DRAWING HR19803-C1401 PRINTED DATE 28-Sep-20, 12:37 PM</p>	<p>SHEET No. 1401 REVISION 0</p>
<p>SCALES 1:500 (A3)</p>			<p>pit&sherry DESIGNED: L. ALLEN REVIEWED: D. COE</p>		<p>REGISTRATION NUMBER A1109.001</p>	
<p>Signs and Linemarking - DRG 1</p>						

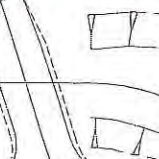


1-371

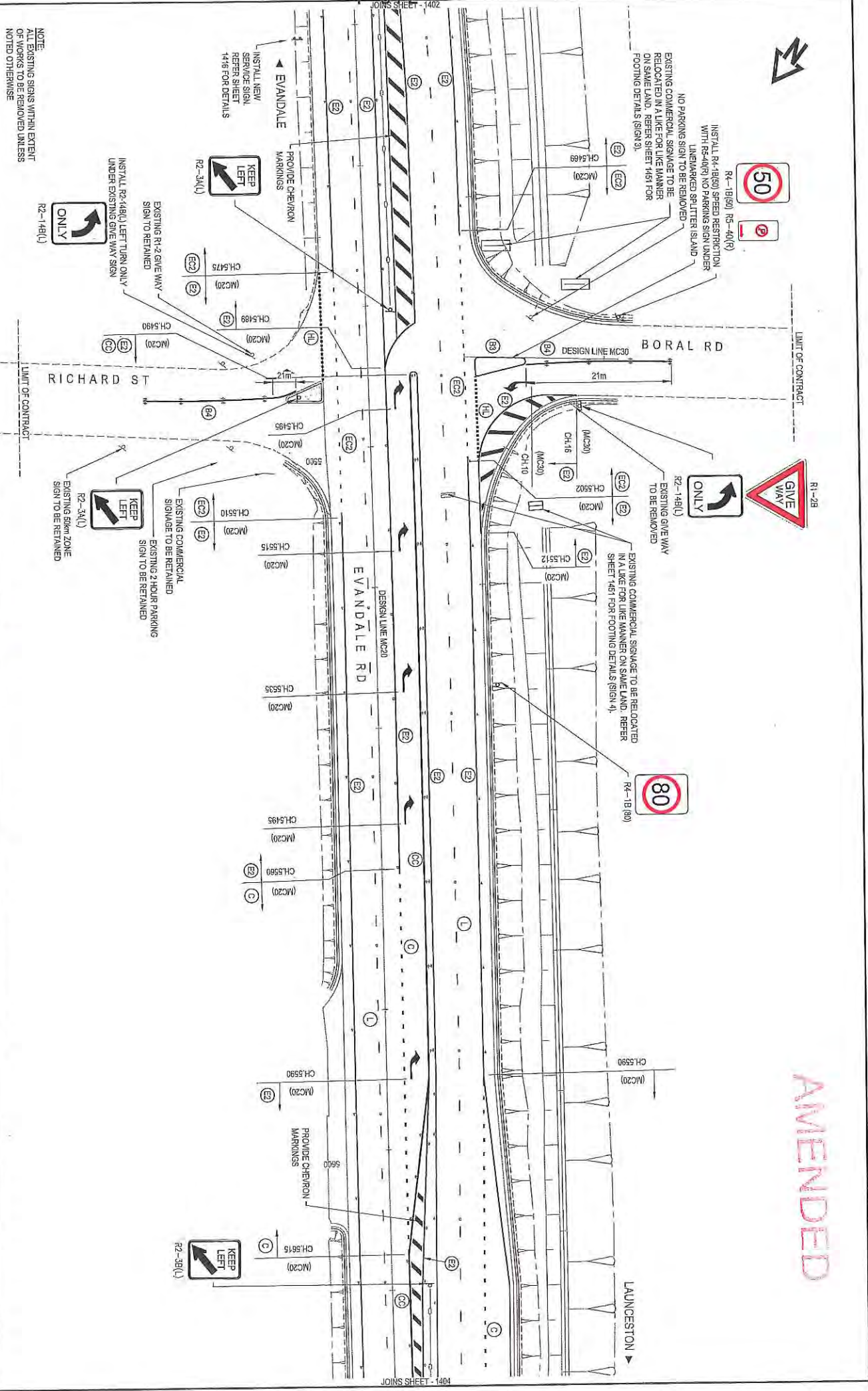
AMENDED



NOTE:
ALL EXISTING SIGNS WITHIN EXTENT
OF WORKS TO BE REMOVED UNLESS
NOTED OTHERWISE



No.		Amendment Description		D.C.		Date	
0		ISSUE FOR CONSTRUCTION				23/09/2020	
As original		This sheet may be prepared using colour and may be incomplete if copied		Co-ordinate System		MGA 94 ZONE 55	
DESIGNED		L. ALLEN		REVIEWED		D. COE	
DRAWING		HB 19165-C-1492		PRINTED DATE		23-Sep-20, 1:13 PM	
REGISTRATION NUMBER		A1109.001		SHEET NO.		1402	
CONTRACT No.		3268		REVISION 0			
Department of State Growth				pit&sherry			
EVANDALE MAIN ROAD (A1109)				LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)			
ROADWORKS				SIGNS AND LINEMARKING - DRG 2			
Scales 1:500 (A3)				Height Datum A.H.D.			



NOTE:
ALL EXISTING SIGNS WITHIN EXTENT
OF WORKS TO BE REMOVED UNLESS
NOTED OTHERWISE



R4-1B(50) R5-4Q(8)
INSTALL R4-1B(50) SPEED RESTRICTION
WITH READER NO PARKING SIGN UNDER
LINEMARKED SPURTER ISLAND



R1-2B
EXISTING GIVE WAY
TO BE REMOVED

EXISTING COMMERCIAL SIGNAGE TO BE
RELOCATED IN A LIKE FOR LIKE MANNER
ON SAME LAND. REFER SHEET H417 FOR
FOOTING DETAILS (SIGN 3).

EXISTING COMMERCIAL SIGNAGE TO BE
RELOCATED IN A LIKE FOR LIKE MANNER
ON SAME LAND. REFER
SHEET 1461 FOR FOOTING DETAILS (SIGN 4).



R4-1B(80)

INSTALL NEW
SERVICE SIGN
H418 FOR DETAILS



R2-3A(1)



R2-3B(1)

EXISTING R2-2 GIVE WAY
SIGN TO REMAIN



R2-14B(1)

EXISTING 2-HOUR PARKING
SIGN TO BE RETAINED



R2-3A(1)

EXISTING SIGN ZONE
SIGN TO BE RETAINED



R2-3A(1)

No.	Issue For Construction	D.C.	Date
0	Amendment Description	HMS	23/09/2020

Co-ordinate System: MGA 94 ZONE 55
Height datum: M.H.D.

DESIGNED: L. ALLEN
REVIEWED: D. COE

Department of State Growth
EVANDALE MAIN ROAD (A1109)
LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
ROADWORKS
SIGNS AND LINEMARKING - DRG 3

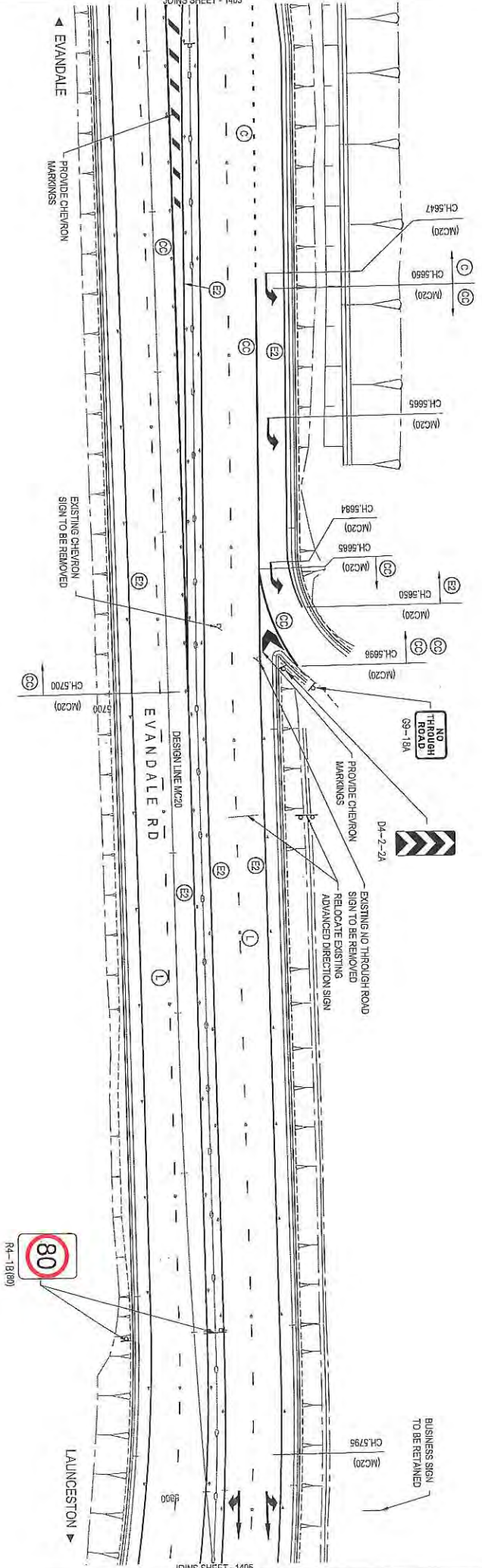
CONTRACT No. 3268	DRAWING HB19505-C-103	PRINTED DATE 23-Sep-20 15:37 PM	SHEET No. 1403
REGISTRATION NUMBER A1109.001		REVISION 0	

AMENDED



1-373

JOINS SHEET - 1403



NOTE:
 ALL EXISTING SIGNS WITHIN EXTENT
 OF WORKS TO BE REMOVED UNLESS
 NOTED OTHERWISE

SCALES
 1:500 (A3)

No	ISSUE FOR CONSTRUCTION	Amendment Description	D.C.	Initials	Date
0	ISSUE FOR CONSTRUCTION				23/09/2020

Coordinate System: MGA 94 ZONE 51
 Height Datum: A.H.D.

DESIGNED: L. ALLEN
 REVIEWED: D. COE

Department of State Growth
 EVANDALE MAIN ROAD (A1109)
 LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
 ROADWORKS
 SIGNS AND LINEMARKING - DRG 4

CONTRACT No. 328	DRAWING HB19503-C-144	PRINTED DATE 23-Sep-20, 12:37 PM	SHEET No. 1404
REGISTRATION NUMBER A1109.001			REVISION 0

AMENDED

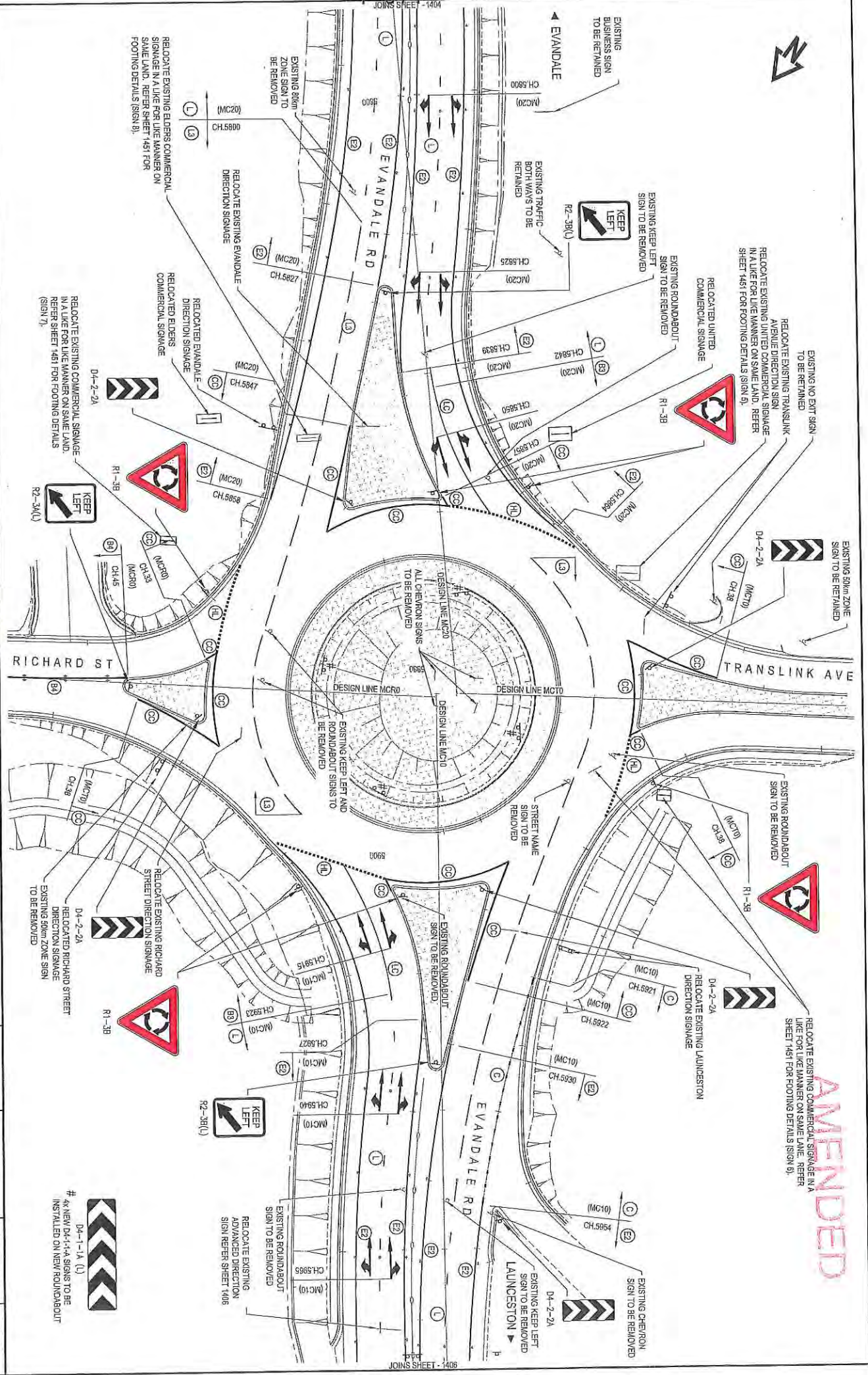
JOINS SHEET - 1404

No.	0	ISSUE FOR CONSTRUCTION	D.C.	23/09/2020
Amendment Description				
Author				
Checked				
Drawn				

Co-ordinate System	WGS 84 ZONE 55	Height datum	AHD
DESIGNED	J. ALLEN	REVIEWED	D. COE

Department of State Growth
 EVANDALE MAIN ROAD (A1109)
 LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
 ROADWORKS
 SIGNS AND LINE-MARKING - DRG 5

CONTRACT No.	3298	DRAWING	H81959-C1405	PRINTED DATE	23-Sep-20, 12:37 PM
REGISTRATION NUMBER	A1109.001			SHEET No.	1405
				REVISION	0



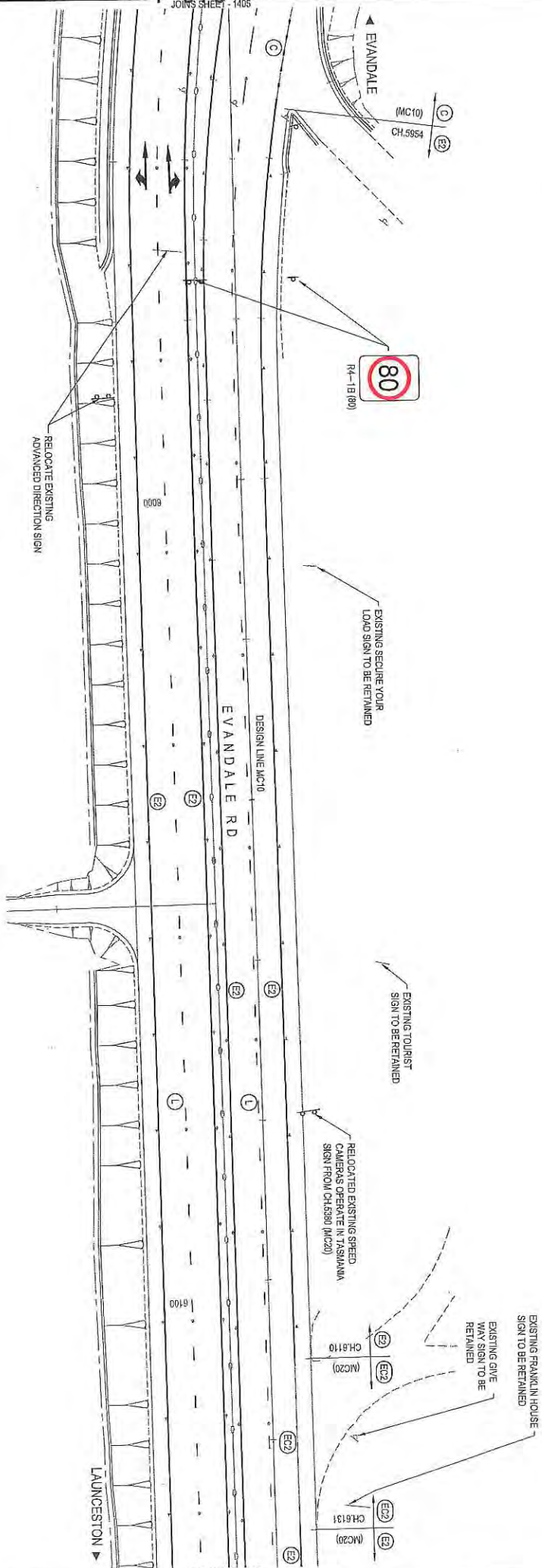
AMENDED

NEW D4-1-A SIGNS TO BE INSTALLED ON NEW ROUNDABOUT



RELOCATE EXISTING ADVANCED DIRECTION SIGN REFER SHEET 1408





NOTE:
ALL EXISTING SIGNS WITHIN EXTENT
OF WORKS TO BE REMOVED UNLESS
NOTED OTHERWISE

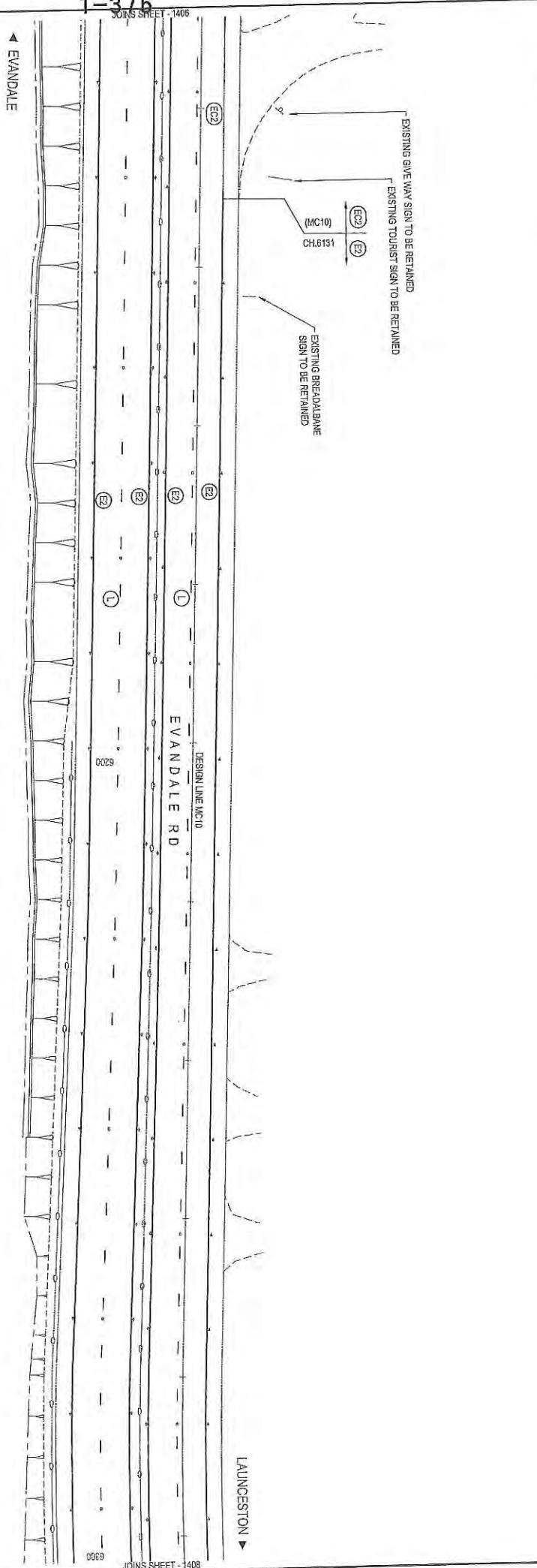
No.		Amendment Description		D.C.	Initials	Date
0		ISSUE FOR CONSTRUCTION				23/09/2020
As original This sheet may be prepared using colour and may be incomplete if copied						
Scales			1:500 (A3)			
DESIGNED			L. ALLEN			
REVIEWED			D. COE			
Department of State Growth			EVANDALE MAIN ROAD (A1109) LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD) ROADWORKS			
CONTRACT No.			3288			
DRAWING			HB/19/003-C/408			
PRINTED DATE			23 Sep 20, 12:37 PM			
REGISTRATION NUMBER			A1109.001			
SHEET No.			1406			
REVISION			0			

AMENDED





AMENDED



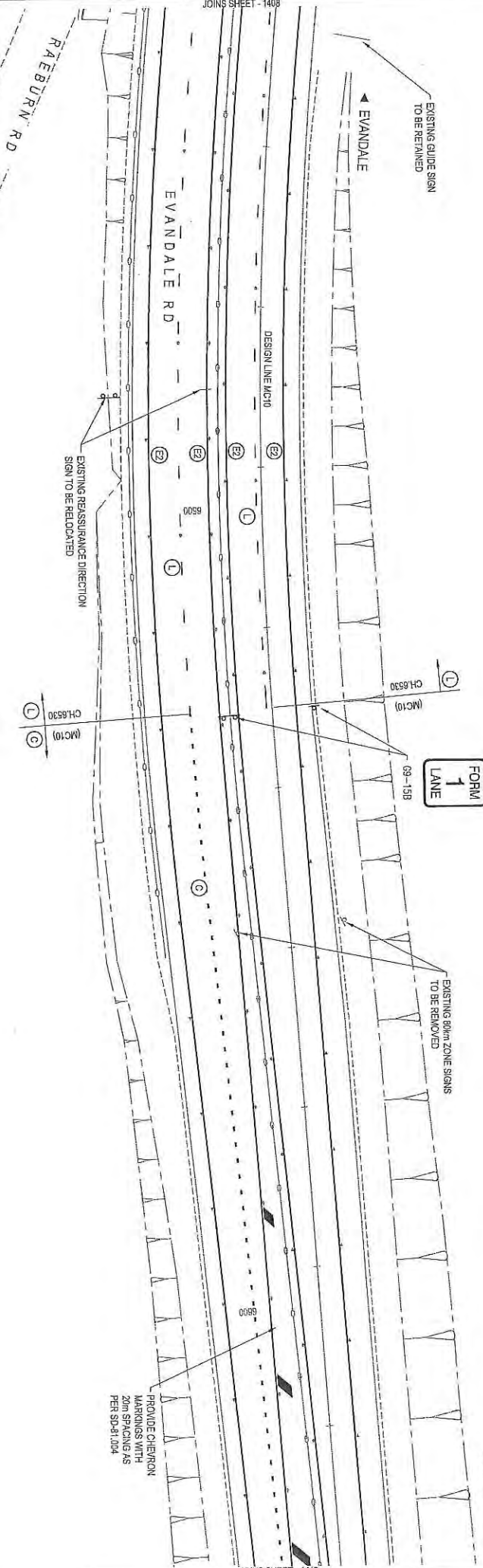
1-376

NOTE:
 ALL EXISTING SIGNS WITHIN EXTENT
 OF WORKS TO BE REMOVED UNLESS
 NOTED OTHERWISE

No.		Amendment Description		D.C.		Date		Co-ordinate System: MGA 84 ZONE 85		Height Datum: A.H.D.		Scales: 1:500 (A3)				DESIGNED: L. ALLEN REVIEWED: D. COE		Department of State Growth EVANDALE MAIN ROAD (A1109) LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD) ROADWORKS SIGNS AND LINEMARKING - DRG 7		CONTRACT No. 3288 DRAWING: H879503-C1407 REGISTRATION NUMBER: A1109.001		SHEET No. 1407 REVISION 0	
0		ISSUE FOR CONSTRUCTION				23/09/2023																	
As original		This sheet may be prepared using colour and may be incomplete if copied																					

JOINS SHEET - 1406

JOINS SHEET - 1408



NOTE:
ALL EXISTING SIGNS WITHIN EXTENT
OF WORKS TO BE REMOVED UNLESS
NOTED OTHERWISE

No.	ISSUE FOR CONSTRUCTION	D.C.	Date
0	Amendment Description	Initials	23/09/2020

AS original This sheet may be prepared using colour and may be incomplete if copied

Co-ordinate System: MGA 94 ZONE 55
Map Datum: AHD

DESIGNED: L. ALLEN
REVIEWED: P. COE

Department of State Growth
EVANDALE MAIN ROAD (A1109)
LAUNGESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
ROADWORKS
SIGNS AND LINEMARKING - DRG 9

CONTRACT No. 3288
DRAWINGS: HB19903-C1-08
PRINTED DATE: 23-Sep-20, 12:38 PM
REGISTRATION NUMBER: A1109.001
SHEET No. 1409
REVISION 0

AMENDED

AMENDED

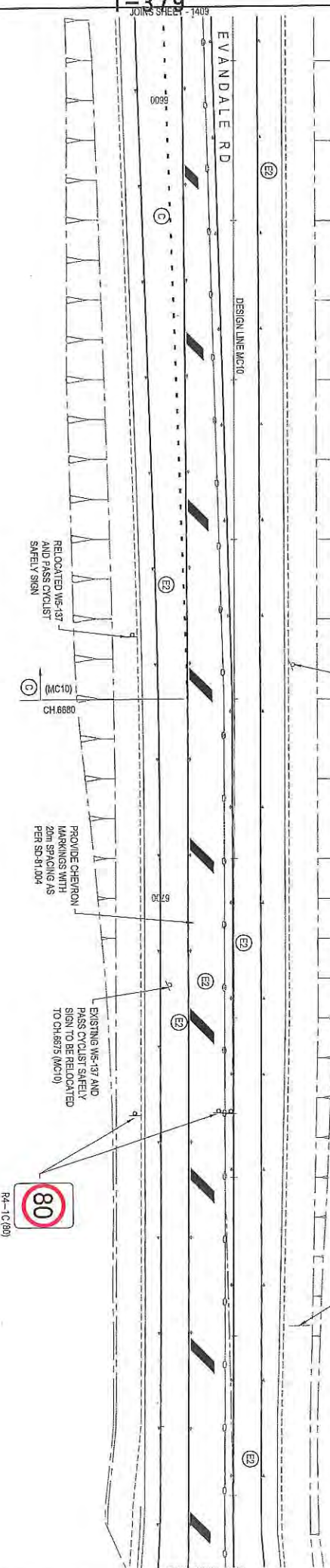


EVANDALE

EXISTING ROUNDABOUT AND SPEED ADVISORY SIGNS TO BE REMOVED

EXISTING TOURIST SIGNS TO BE RENOVATED AFTER COMPLETION OF WORKS

LAUNCESTON



1-379

JOINS SHEET - 1409

JOINS SHEET - 1411

NOTE:
ALL EXISTING SIGNS WITHIN EXTENT OF WORKS TO BE REMOVED UNLESS NOTED OTHERWISE

No.		Amendment Description		D.C.		Initials		Date	
0		ISSUE FOR CONSTRUCTION		D.C.				23/09/2020	
A3 Original This sheet may be prepared using colour and may be incomplete if copied									
SCALES			1:500 (A3)						
DESIGNED		L. ALLEN		DRAWN		D. COE		CHECKED	
REVIEWED		D. COE		DESIGNED		L. ALLEN		DRAWN	
Co-ordinate System:		MGA 84 ZONE 55		Height Datum:		A.H.D.			
Department of State Growth									
EVANDALE MAIN ROAD (A1109)									
LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)									
SIGNS AND LINEMARKING - DRG 10									
CONTRACT No.		3288		DRAWING		HB19505-C1410		PRINTED DATE	
REGISTRATION NUMBER		A1109.001		23-Sep-20, 12:38 PM		SHEET No.			
REVISION		0		1410		REVISION			



PERTH

AMENDED

EVANDALE

ALL EXISTING SIGNS ON ROUNDABOUT AND SPLITTER ISLANDS TO BE RETAINED

CH.6800 (MC10)

EVANDALE RD

DESIGNLINE MC10

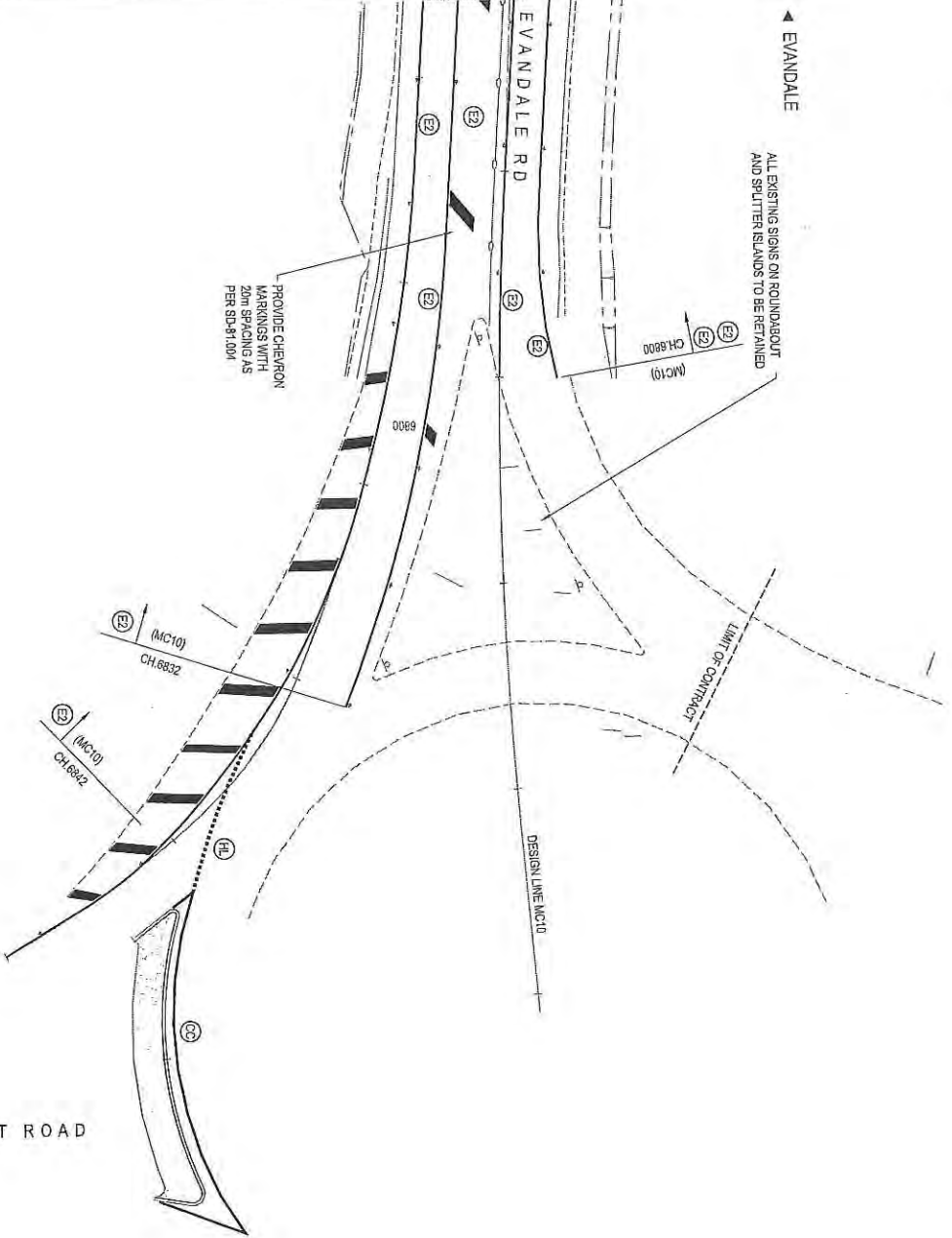
MIDLAND HIGHWAY

LAUNCESTON

1-380

JOINS SHEET 1110

PROVIDE CHEVRON MARKINGS WITH 20m SPACING AS PER SD.91.004



HOBART ROAD

LIMIT OF CONTRACT

No.	0	ISSUE FOR CONSTRUCTION	D.C.	23/09/2020
Amendment Description			Initials	Date

SCALES
1:500 (A3)

Co-ordinate System: MGA 94 ZONE 55
Height Datum: A.H.D.

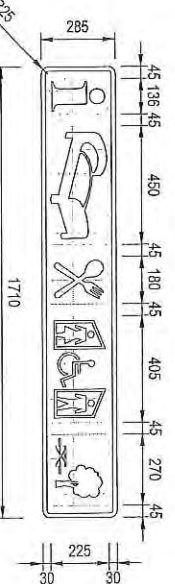
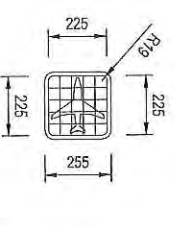
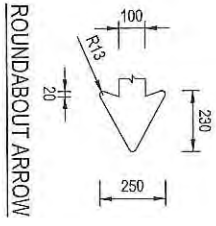
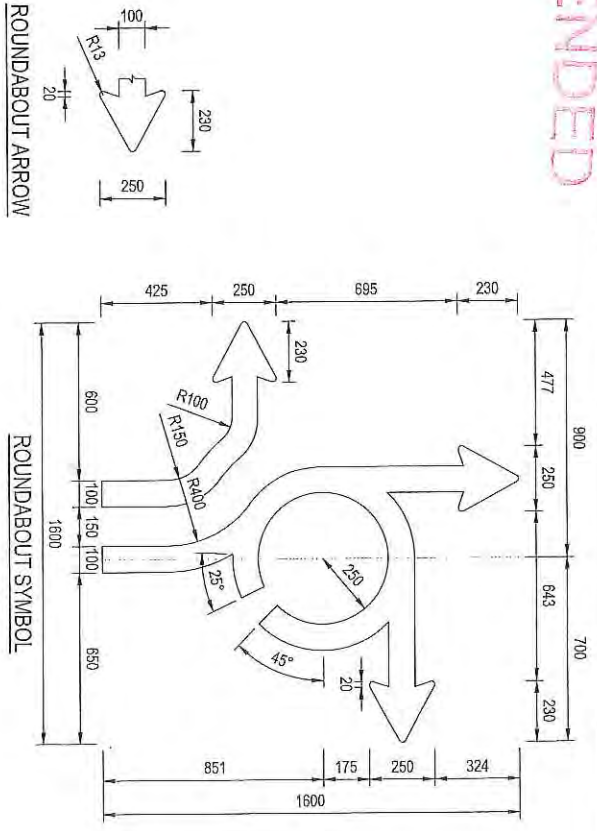
DESIGNED: J. ALLEN
REVIEWED: D. COPE

Department of State Growth
EVANDALE MAIN ROAD (A1109)
LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
ROADWORKS
SIGNS AND LINES MARKING - DRG 11

CONTRACT No. 3265
DRAWING HB19053-C1411
PRINTED DATE 23-Sep-20, 12:38 PM
REGISTRATION NUMBER A1109.001

SHEET No. 1411
REVISION 0

AMENDED



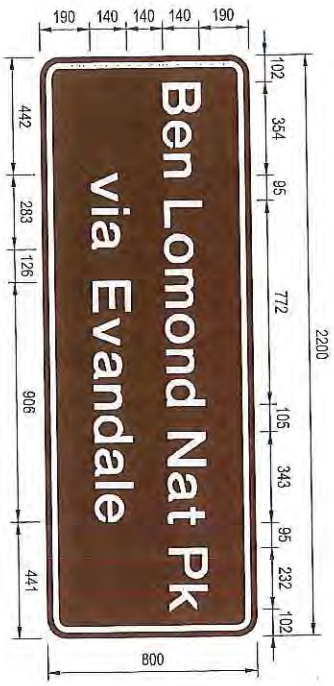
SIGN TO BE WHITE ON GREEN WITH BLACK ON YELLOW
 ONLY PANEL, NOTE 25mm CORNER RADIUS ON PANEL.
 DETAILS TO BE READ IN CONJUNCTION WITH DEPARTMENT OF
 STATE GROWTH STANDARD DRAWING S403-SF41-1
 FOR DETAILS (WHERE APPLICABLE) OF:-
 BORDER WIDTH & CORNER
 RADIUS
 RADIUS SPACING & BRACKETS
 DIRECTIONAL ARROWS
 NATIONAL ROUTE SHIELDS

ADVANCED DIRECTION
 SIGN 1

SIGN TO BE WHITE ON GREEN, INDIVIDUAL WORD SPACING
 AND/OR SYMBOL DETAILS TO BE SUPPLIED BY
 SUPERINTENDENT IF REQUIRED.
 FOR SIGN MATERIAL, COLOUR AND REFLECTIVITY DETAILS
 REFER TO DEPARTMENT OF STATE GROWTH SPECIFICATION
 SECTION 860 - MANUFACTURE OF ROAD SIGNS

LETTER TYPES -
 140mm / 105mm SERIES 'E' MODIFIED
 120mm SERIES 'D' (ONLY PANEL)

SCALES 1:20 (A3) SCALE IN MILLIMETRES - 1:20		CONTRACT No. 3268		DRAWING HB1503-C4145		PRINTED DATE 25-Sep-20, 12:38 PM		SHEET No. 1415	
DESIGNED L. ALLEN		DEPARTMENT OF STATE GROWTH EVANDALE MAIN ROAD (A1109) LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD) ROADWORKS		REGISTRATION NUMBER A1109.001		REVISION 0			
REVIEWED D. COE		pittsherry Government		Department of State Growth EVANDALE MAIN ROAD (A1109) LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD) ROADWORKS		SIGN DETAILS - DRG 1			
No. 0 Amendment Description ISSUE FOR CONSTRUCTION		D.C. 23/09/2020		Date		Co-ordinates System: MGA 84 ZONE 65		Height datum: A.H.D.	
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TOURIST INFORMATION
SIGN 2

SIGN TO BE WHITE ON BROWN
DETAILS TO BE READ IN CONJUNCTION WITH DEPARTMENT OF STATE GROWTH STANDARD DRAWING 3403-SF411-1 FOR DETAILS (WHERE APPLICABLE) OF -
BORDER WIDTH & CORNER
RADI WORD SPACING & BRACKETS
DIRECTION ARROWS
NATIONAL ROUTE SHIELDS
SIGN TO BE WHITE ON GREEN, INDIVIDUAL WORD SPACING AND/OR SYMBOL DETAILS TO BE SUPPLIED BY SUPERINTENDENT IF REQUIRED.
FOR SIGN MATERIAL, COLOUR AND REFLECTIVITY DETAILS REFER TO DEPARTMENT OF STATE GROWTH SPECIFICATION SECTION 860 - MANUFACTURE OF ROAD SIGNS

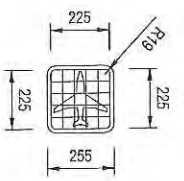
LETTER TYPES -
140mm / 115mm SERIES 'E' MODIFIED



SERVICES
SIGN 3

SIGN TO BE WHITE ON BLUE
DETAILS TO BE READ IN CONJUNCTION WITH DEPARTMENT OF STATE GROWTH STANDARD DRAWING 3403-SF411-1 FOR DETAILS (WHERE APPLICABLE) OF -
BORDER WIDTH & CORNER
RADI WORD SPACING & BRACKETS
DIRECTION ARROWS
NATIONAL ROUTE SHIELDS
SIGN TO BE WHITE ON GREEN, INDIVIDUAL WORD SPACING AND/OR SYMBOL DETAILS TO BE SUPPLIED BY SUPERINTENDENT IF REQUIRED.
FOR SIGN MATERIAL, COLOUR AND REFLECTIVITY DETAILS REFER TO DEPARTMENT OF STATE GROWTH SPECIFICATION SECTION 860 - MANUFACTURE OF ROAD SIGNS

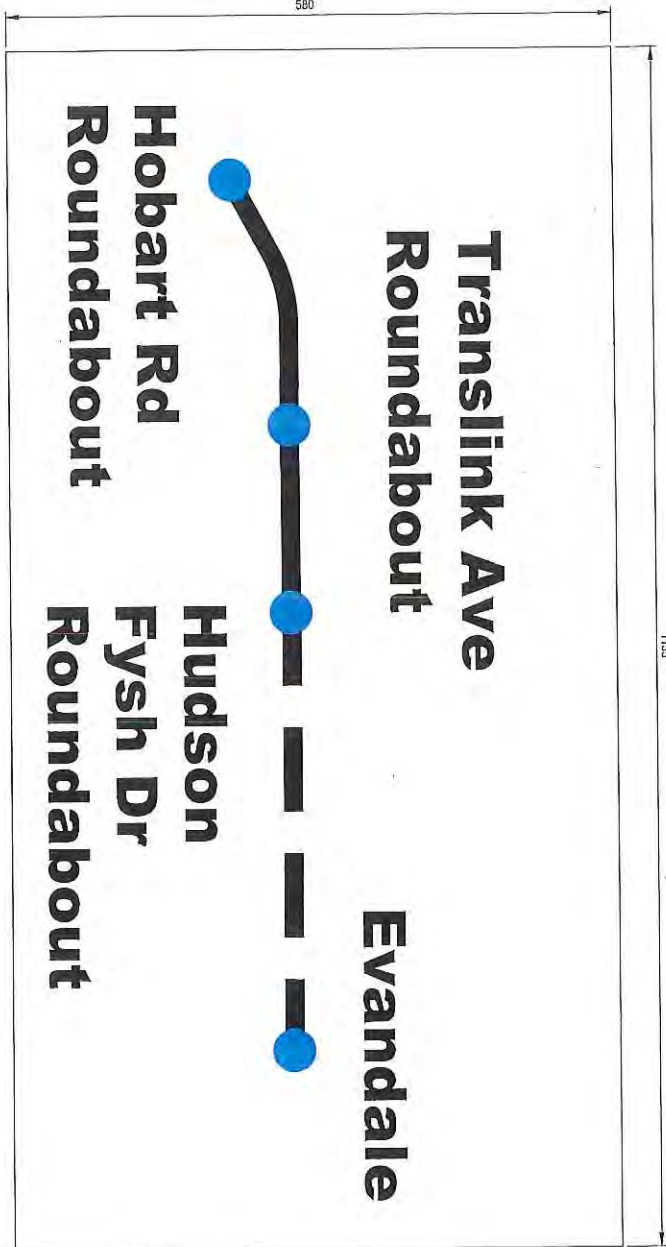
LETTER TYPES -
140mm / 115mm SERIES 'E' MODIFIED




AIRPORT SYMBOL DETAIL
USE 45mm GRID

AMENDED

Ad original		This sheet may be prepared using colour and may be incomplete if copied		Coordinates System: MGA 94 ZONE 45		Height datum: AHD.	
No.		ISSUE FOR CONSTRUCTION		D.C.		23/09/2020	
Amendment Description		Initials		Date			
SCALES		1:20 (A3)		200		0 200 400 800	
SCALE IN MILLIMETRES: 1:20							
DESIGNED		L. ALLEN		REVIEWED		D. COE	
DESIGNED BY		L. ALLEN		REVIEWED BY		D. COE	
Department of State Growth		pittsherry		LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD) ROADWORKS		SIGN DETAILS - DRG 2	
CONTRACT No.		3268		DRAWING		H919503-C-119	
PRINTED DATE		23-Sep-20, 1:10 PM		REGISTRATION NUMBER		A1109.001	
SHEET No.		1416		REVISION		0	



AMENDED

No.		Amendment Description		D.C.		Initials		Date	
0		ISSUE FOR CONSTRUCTION		23082220					
A3 original This sheet may be prepared using colour and may be incomplete if copied									
SCALES				1:20 (A3)					
DESIGNED			L. ALLEN			REVIEWED			
Pittsberry						D. COE			
Department of State Growth EVANDALE MAIN ROAD (A1109) LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD) ROADWORKS BUILDING FOR THE FUTURE - MAP SYMBOL									
CONTRACT No.		DRAWING		PRINTED DATE		SHEET No.			
3288		H819893-0117		23-Sep-20, 12:30 PM		1417			
REGISTRATION NUMBER						REVISION			
A1109.001						0			

QUANTITY	DESIGN No. / SIGN CODE	SIGN SIZE		No. OF SIGNS PER ASSEMBLY	No. AND POST TYPE (SEE NOTE 1)	MOUNTING HEIGHT (mm) (SEE NOTE 2)	POST HOLE (SEE NOTE 1)			REMARKS	
		WIDTH (mm)	HEIGHT (mm)				DEPTH mm (MIN)	DIAMETER mm (MIN)	Location		
1	ADVANCED DIRECTION SIGN 1	2750	2750	1	FRANGIBLE	1500				(MC20) CH5280	
1	TOURIST INFORMATION SIGN 2	2200	800	1	FRANGIBLE	1500				(MC20) CH5380	
1	SERVICES SIGN 3	1500	1500	1	FRANGIBLE	1500				(MC20) CH5452	
1	R1-3	B	B	1	1 No 50mm NB STEEL	2500	600	400	400	(MC20) CH5184	
1	R1-3	B	B	1	1 No 50mm NB STEEL	2500	600	400	400	(MC20) CH5186	
2	W6-1	B	B	1	1 No 50mm NB STEEL	2500	600	400	400	(MC20) CH5205	
1	R4-1(80)	C	C	1	1 No 50mm NB STEEL	2500	600	400	400	(MC20) CH5245	DUAL POST IN MEDIAN
1	R4-1(80)	C	C	1	FRANGIBLE	2500				(MC20) CH5245	
1	R2-9 (L)	B	B	1	1 No 50mm NB STEEL	2500	600	400	400	(MC20) CH5245	
1	R2-9 (L)	A	A	2	1 No 50mm NB STEEL	2500	600	400	400	(MC20) CH5292	9-95 MODIFIED TO READ AT ROUNDABOUT
1	G9-85	A	A	2	1 No 50mm NB STEEL	2500	600	400	400	(MC20) CH5292	
1	R4-1 (50)	B	B	2	1 No 50mm NB STEEL	2500	600	400	400	(MC30) CH22	
1	R5-40 (R)	A	A	2	1 No 50mm NB STEEL	2500	600	400	400	(MC30) CH16	
1	R1-3	B	B	2	1 No 50mm NB STEEL	2500	600	400	400	(MC20) CH5480	MOUNTED UNDER EXISTING R1-3
1	R2-1	A	A	1	1 No 50mm NB STEEL	600	600	400	400	RICHARD STREET	RICHARD STREET SPLITTER ISLAND
1	R2-3	B	B	1	EXISTING POST	600	600	400	400	(MC20) CH5490	
1	R2-14	A	A	1	1 No 50mm NB STEEL	600	600	400	400	(MC20) CH5555	
1	R4-1 (80)	B	B	1	1 No 50mm NB STEEL	2500	600	400	400	(MC20) CH5620	
1	R2-3 (L)	B	B	1	1 No 50mm NB STEEL	600	600	400	400	(MC20) CH5697	
1	D4-2-2	A	A	1	1 No 50mm NB STEEL	2500	600	400	400	(MC20) CH5700	
1	G9-18	A	A	1	1 No 50mm NB STEEL	2500	600	400	400	(MC20) CH5780	
1	R4-1 (80)	B	B	1	1 No 50mm NB STEEL	2500	600	400	400	(MC20) CH5780	DUAL POST IN MEDIAN
1	R4-1 (80)	B	B	1	FRANGIBLE	2500				(MC20) CH5827	
1	R2-3	B	B	1	1 No 50mm NB STEEL	600	600	400	400	(MC20) CH5860	
1	R1-3	B	B	1	1 No 50mm NB STEEL	2500	600	400	400	(MC20) CH5860	
1	D4-2-2	A	A	1	1 No 50mm NB STEEL	600	600	400	400	(MC20) CH5865	
1	D4-1-1	A	A	1	2 NO 50mm NB STEEL	600	600	400	400	(MCT0) CH48	
1	D4-1-1	A	A	1	2 NO 50mm NB STEEL	600	600	400	400	(MCT0) CH48	
1	D4-1-1	A	A	1	2 NO 50mm NB STEEL	600	600	400	400	(MCT0) CH5895	
1	D4-1-1	A	A	1	2 NO 50mm NB STEEL	600	600	400	400	(MCT0) CH63	
1	D4-1-1	A	A	1	2 NO 50mm NB STEEL	600	600	400	400	(MCT0) CH28	
1	R1-3	B	B	1	1 No 50mm NB STEEL	2500	600	400	400	(MCT0) CH29	
1	D4-2-2	A	A	1	1 No 50mm NB STEEL	600	600	400	400	(MCT0) CH34	
1	R2-3	B	B	1	1 No 50mm NB STEEL	600	600	400	400	(MCT0) CH34	
1	R1-3	B	B	1	1 No 50mm NB STEEL	2500	600	400	400	(MCT0) CH34	
1	D4-2-2	A	A	1	1 No 50mm NB STEEL	600	600	400	400	(MCT0) CH44	
1	R2-3	A	A	1	1 No 50mm NB STEEL	600	600	400	400	(MCT0) CH5908	
1	R1-3	B	B	1	1 No 50mm NB STEEL	2500	600	400	400	(MCT0) CH5908	
1	D4-2-2	A	A	1	1 No 50mm NB STEEL	600	600	400	400	(MCT0) CH5933	
1	D4-2-2	A	A	1	1 No 50mm NB STEEL	600	600	400	400	(MCT0) CH5960	

- NOTES:
- THE SIGN INSTALLER IS TO PROVIDE DETAILS OF THE TYPE, NUMBER, POST HOLE DEPTH AND POST HOLE DIAMETER FOR FRANGIBLE POSTS.
 - MOUNTING HEIGHT FOR SIGNS
 - WHERE INSTALLED ON ROADSIDES, IS MEASURED FROM LOWER EDGE OF THE SIGN OR GROUP OF SIGNS ON THE MOUNTING, TO THE LEVEL OF THE NEAREST EDGE OF THE ROAD TO WHICH THE SIGN APPLIES.
 - WHERE SUSPENDED ABOVE FOOTPATHS OR AREAS OF PEDESTRIAN ACTIVITY, IS THE HEIGHT ABOVE THE FOOT-PATH LEVEL.

SCALES N.T.S.

DESIGNED BY: L. ALLEN
 REVIEWED BY: D. COLE

Department of State Growth
 EVANDALE MAIN ROAD (A1109)
 LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
 ROADWORKS
 SIGN SCHEDULE - DRG 1

CONTRACT No. 3268
 DRAWING HB1503-C1421
 REGISTRATION NUMBER A1109.001
 PRINTED DATE 23-Sep-20, 12:38 PM
 SHEET No. 1421
 REVISION 0

AD original This sheet may be prepared using colour and may be incomplete if copied

Coordinate System: MGA 94 ZONE 55
 Height datum: AHD

Issue for construction: 23/09/2020
 D.C. 23/09/2020
 Initials Date

pit&sherry
 CONSULTANTS

APPROVED

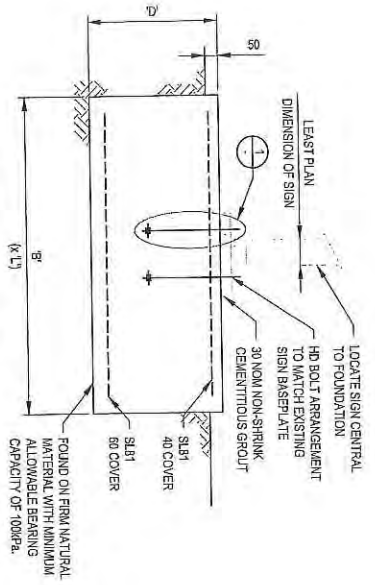
QUANTITY	DESIGN No. / SIGN CODE	SIGN SIZE		No. OF SIGNS PER ASSEMBLY	No. AND POST TYPE (SEE NOTE 1)	MOUNTING HEIGHT (mm) (SEE NOTE 2)	POST HOLE (SEE NOTE 1)			REMARKS
		WIDTH (mm)	HEIGHT (mm)				DEPTH mm (MIN)	DIAMETER mm (MIN)	Location	
1	R4-1 (80)	B	B	1	1 No 50mm NB STEEL	2500	600	400	(MC10) CH5975	DUAL POST IN MEDIAN
1	R4-1 (80)	B	B	1	FRANGIBLE	2500			(MC10) CH5975	
1	G9-15	B	B	2	1 No 50mm NB STEEL	2500	600	400	(MC10) CH6325	DUAL POST IN MEDIAN
1	G9-78 (200)	B	B	2	FRANGIBLE	2500			(MC10) CH6325	DUAL POST IN MEDIAN
1	G9-15	B	B	1	1 No 50mm NB STEEL	2500	600	400	(MC10) CH6530	DUAL POST IN MEDIAN
1	G9-15	B	B	1	FRANGIBLE	2500			(MC10) CH6530	
1	R4-1 (80)	B	B	1	1 No 50mm NB STEEL	2500	600	400	(MC10) CH6725	DUAL POST IN MEDIAN
1	R4-1 (80)	B	B	1	FRANGIBLE	2500			(MC10) CH6725	
1	R4-1 (80)	B	B	1	FRANGIBLE	2500			(MC10) CH6725	DUAL POST IN MEDIAN
1	AIRPORT DIRECTION			1	2 REUSE EXISTING				(MC20) CH5110	RELOCATE CLEAR OF WORKS DISCUSS WITH LAND OWNER
1	AIRPORT SIGNAGE			1						
1	COMMERCIAL SIGNAGE			1						
1	DIRECTION SIGN			1	2 REUSE EXISTING				(MC20) CH5216	RELOCATE CLEAR OF WORKS
1	GRAVLE/URBAN SPEED ADVISORY			1	2 REUSE EXISTING				(MC20) CH5483	RELOCATE CLEAR OF WORKS
1	COMMERCIAL SIGNAGE			1						
1	COMMERCIAL SIGNAGE			1						
1	COMMERCIAL SIGNAGE			1						
1	ADVANCED DIRECTION			1	2 REUSE EXISTING				(MC10) CH129	RELOCATE CLEAR OF WORKS
1	TRANSLINK AVE DIRECTION SIGN			1	2 REUSE EXISTING				(MC20) CH8868	RELOCATE CLEAR OF WORKS
1	UNITED COMMERCIAL SIGN			1	REUSE EXISTING				(MC10) CH29	RELOCATE CLEAR OF WORKS
1	COMMERCIAL SIGNAGE			1	2 REUSE EXISTING				(MC10) CH29	RELOCATE CLEAR OF WORKS
1	LAUNCESTON DIRECTION SIGN			1	2 REUSE EXISTING				(MC10) CH44	RELOCATE CLEAR OF WORKS
1	RICHARD STREET SIGN			1	REUSE EXISTING				(MC10) CH44	RELOCATE CLEAR OF WORKS
1	RICHARD ST DIRECTION SIGN			1	2 REUSE EXISTING				(MC10) CH44	RELOCATE CLEAR OF WORKS
1	ELDERNS COMMERCIAL SIGN			1	REUSE EXISTING				(MC10) CH60	RELOCATE CLEAR OF WORKS
1	EVANDALE DIRECTION SIGN			1	2 REUSE EXISTING				(MC20) CH5847	RELOCATE CLEAR OF WORKS
1	SPEED CAMERA OPERATION			1	2 REUSE EXISTING				(MC20) CH5847	RELOCATE ONTO SPLITTER ISLAND
1	ADVANCED DIRECTION			1	2 REUSE EXISTING				(MC20) CH6070	RELOCATE CLEAR OF WORKS
1	CHRISTADELPHIAN SIGN			1	2 REUSE EXISTING				(MC10) 5990	RELOCATE CLEAR OF WORKS
1	ADVANCED DIRECTION			1	2 REUSE EXISTING				(MC10) CH6420	DISCUSS WITH LAND OWNER
1	PASS CYCLISTS SAFELY			2	2 REUSE EXISTING				(MC10) 6490	RELOCATE CLEAR OF WORKS
1	W2-7			1	REMOVE POST				(MC10) 6675	RELOCATE CLEAR OF WORKS
1	R4-1 (80)			1	REMOVE POST				(MC20) CH5245	
1	ADVANCED DIRECTION			1	3 REMOVE POSTS				(MC20) CH5250	
1	R5-40 (R)			1	REMOVE POST				(MC20) CH5280	
1	R2-2			1	REMOVE POST				(MC30) CH10	
1	G9-18			1	REMOVE POST				(MC20) CH16	
1	G9-18			1	REMOVE POST				(MC20) CH5700	

- NOTES:
- THE SIGN INSTALLER IS TO PROVIDE DETAILS OF THE TYPE, NUMBER, POST HOLE DEPTH AND POST HOLE DIAMETER FOR FRANGIBLE POSTS.
 - MOUNTING HEIGHT FOR SIGNS
 - WHERE INSTALLED ON ROADSIDES, IS MEASURED FROM LOWER EDGE OF NEAREST EDGE OF THE ROAD TO WHICH THE SIGN APPLIES
 - WHERE SUSPENDED ABOVE FOOTPATHS OR AREAS OF PEDESTRIAN ACTIVITY, IS THE HEIGHT ABOVE THE FOOT-WAY LEVEL

No. 0		ISSUE FOR CONSTRUCTION		Amendment Description		D.C. 23/09/2020		WILKES DATE		Co-ordinate System: WGS 84 ZONE 54		Height datum: A.A.D.		SCALES N.T.S					
AD original		This sheet may be prepared using colour and may be incompatible if copied		DESIGNED: L. ALLEN		REVIEWED: D. GOF				Department of State Growth EVANDALE MAIN ROAD (A1109) LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD) ROADWORKS SIGN SCHEDULE - DRG 2		CONTRACT No. 3288		DRAWING H916903-CH22		PRINTED DATE 23-Sep-20, 12:38 PM		SHEET No. 1422	
REGISTRATION NUMBER A1109.001																			
REVISION 0																			

MEMORANDUM

AMENDMENT



TYPICAL SIGN FOOTING DETAIL
SCALE 1:20 (mm)

SIGN No.	LENGTH 'L'	BREADTH 'B'	DEPTH 'D'
1	5900	1400	500
2	2150	1600	500
3	4000	1500	500
4	2000	1200	500
5	3300	2000	500
6	2000	1800	500
7	2800	1200	500
8	3500	1300	500
9	4500	1800	500



DETAIL
1:10 (mm)
TYPICAL HD BOLT DETAIL

BOLT SIZE	EMBEDMENT 'D'	PLATE DIMENSION 'B'	PLATE THICKNESS 'H'
M12	280	50	8
M16	300	65	10
M20	350	75	12
M24	400	90	16

SCALES AS SHOWN (mm)

pittsburgh



Department of State Growth
EVANDALE MAIN ROAD (A1109)
LAUNGESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
ROADWORKS
SIGNS & LITEMARKING
FOOTING DETAILS

CONTRACT No.
3288

DRAWING
HB15803-C451

PRINTED DATE
23-Sep-20, 1:09 PM

SHEET No.
1451

No.	ISSUE FOR CONSTRUCTION	Amendment Description	Initials	Date
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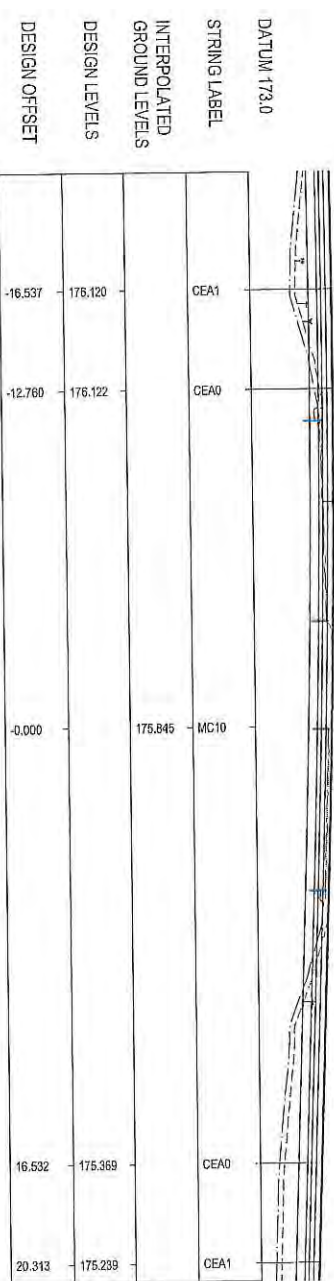
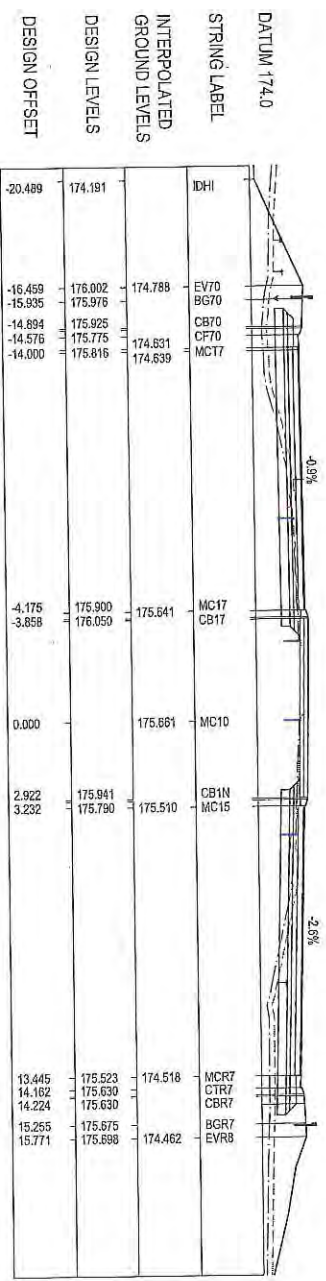
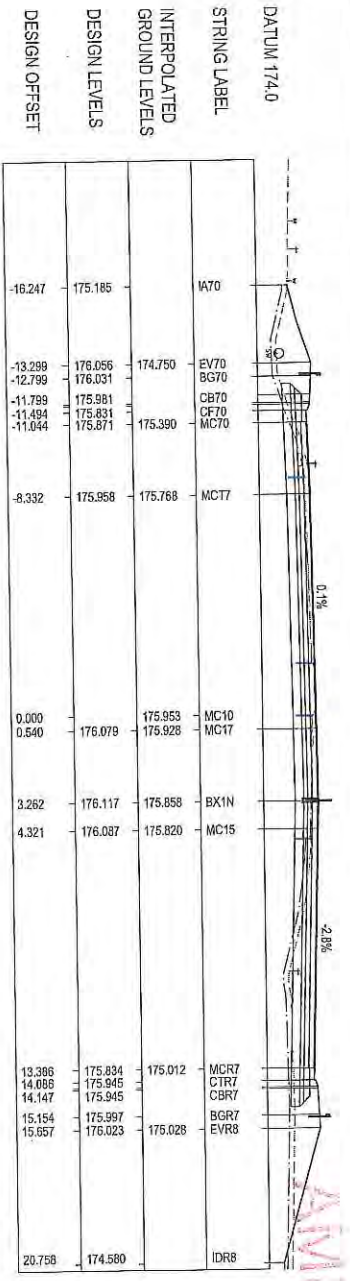
Coordinate System: MGA 94 ZONE 55
Height Datum: AHD.

DESIGNED: E. FANNING
REVIEWED: R. CASSIDY

REGISTRATION NUMBER
A1109.001

REVISION 0

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SCALES
1:200 (A3)
SCALE IN METRES - 1:200

pitsherry
DESIGNED BY L. ALLEN
REVIEWED BY D. COE

Department of State Growth
EVANDALE MAIN ROAD (A1109)
LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
ROADWORKS
CROSS SECTIONS MC10 - DRG 1

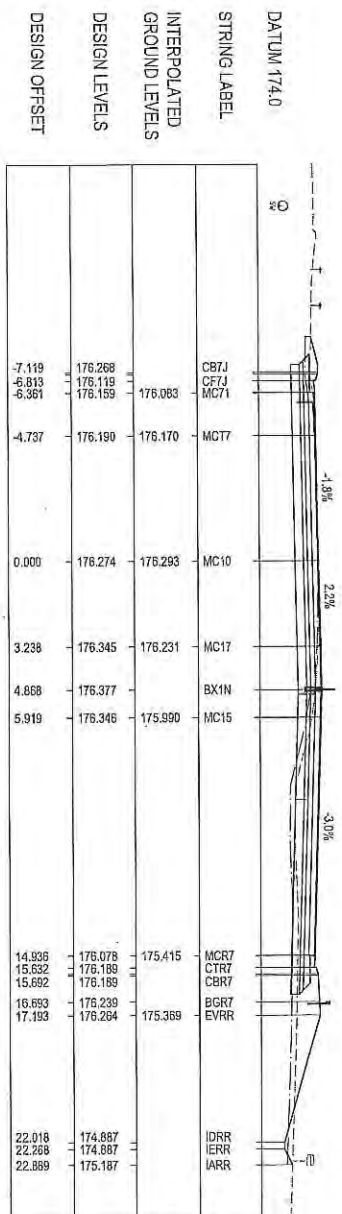
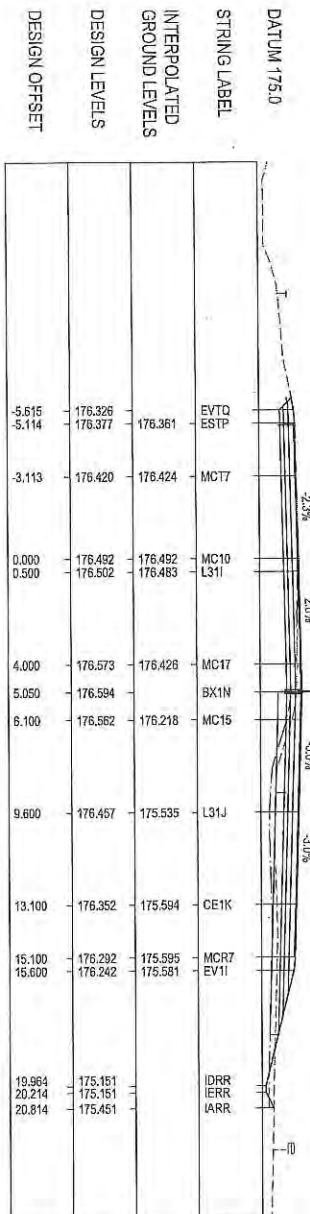
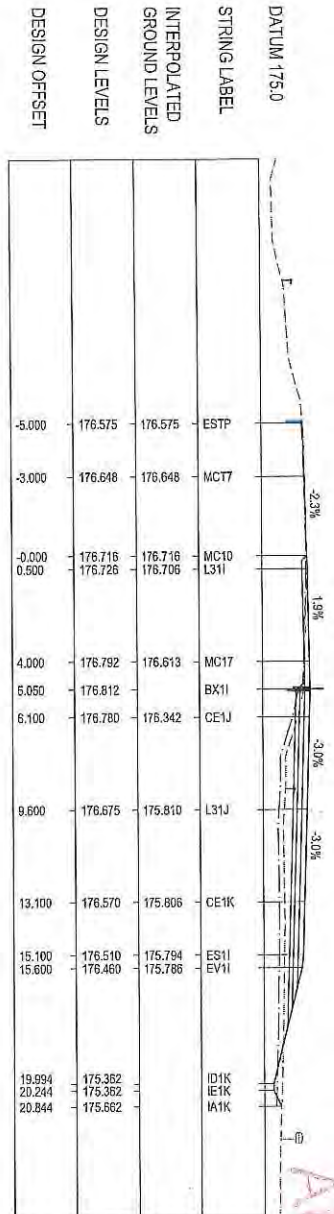
CONTRACT No. 3288
DRAWING HB19503-CT101
PRINTED DATE 23-Sep-20, 12:29 PM
REGISTRATION NUMBER A1109.001
SHEET No. 1701
REVISION 0

Amendment Description: D.C. 23/09/2020
Initials: [Blank]
Date: [Blank]

Coordinate System: MGA 64 ZONE 55
Height Datum: A.H.D.

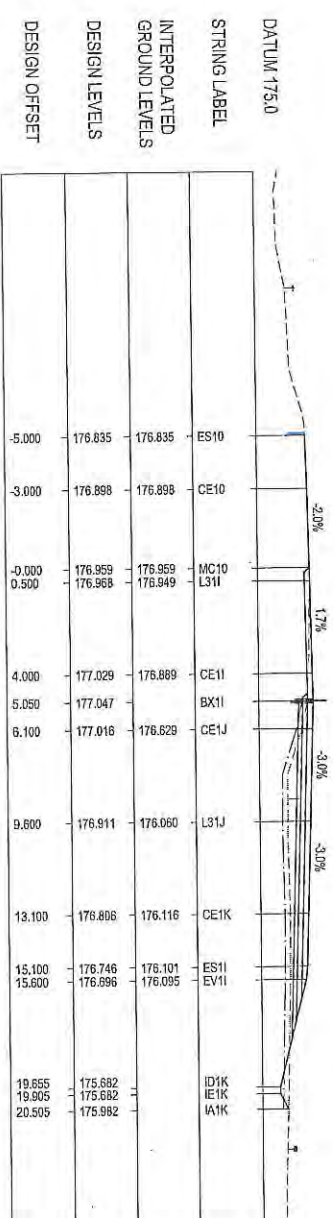
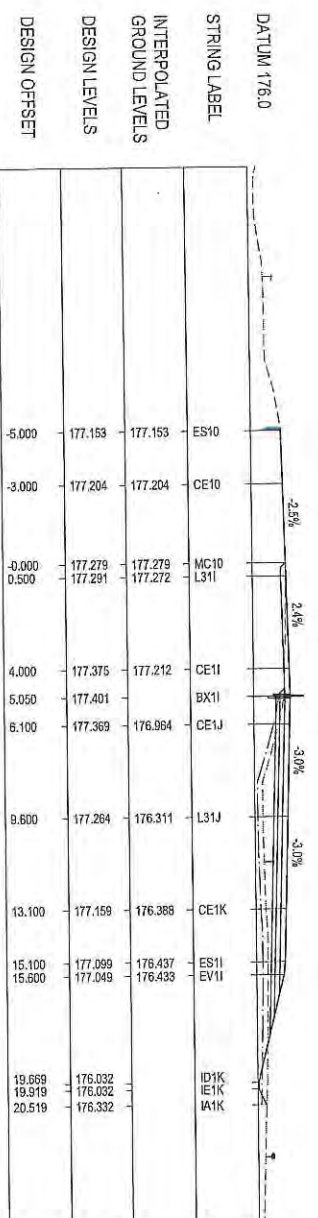
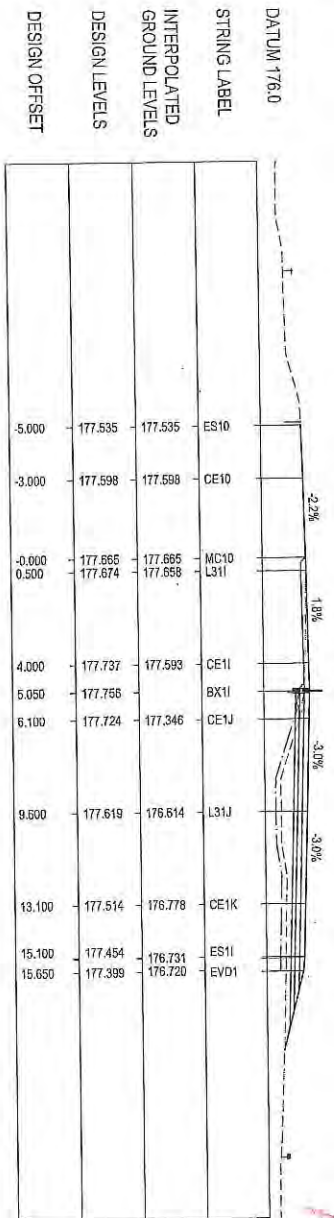
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AMENDED



AMENDED

SCALES 1:200 (A3) SCALE IN METRES - 1:200		DESIGNED BY: L. ALLEN REVIEWED BY: D. COE		Department of State Growth EVANDALE MAIN ROAD (A1109) LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD) ROADWORKS CROSS SECTIONS MC10 - DRG 2		CONTRACT No. 3769		DRAWING HB15903-CT1702		PRINTED DATE 23-Sep-20, 12:59 PM		SHEET No. 1702	
No. 0 ISSUE FOR CONSTRUCTION Amendment Description: D.C. 23/09/2020 Initials: [Blank] Date: [Blank]		Co-ordinates System: MGA SA ZONE 55 Height Datum: A.H.D.		pitsherry 		CROSS SECTIONS MC10 - DRG 2		REGISTRATION NUMBER A1109.001		REVISION 0		AD original This sheet may be prepared using colour and may be incomplete if copied	



Department of State Growth
 EVAUDALE MAIN ROAD (A1109)
 LAUNCESTON AIRPORT ROAD ACCESS (EVAUDALE ROAD)
 ROADWORKS
 CROSS SECTIONS MC10 - DRG 3

pit&sherry
 DESIGNED: L. ALLER
 REVIEWED: D. COLE

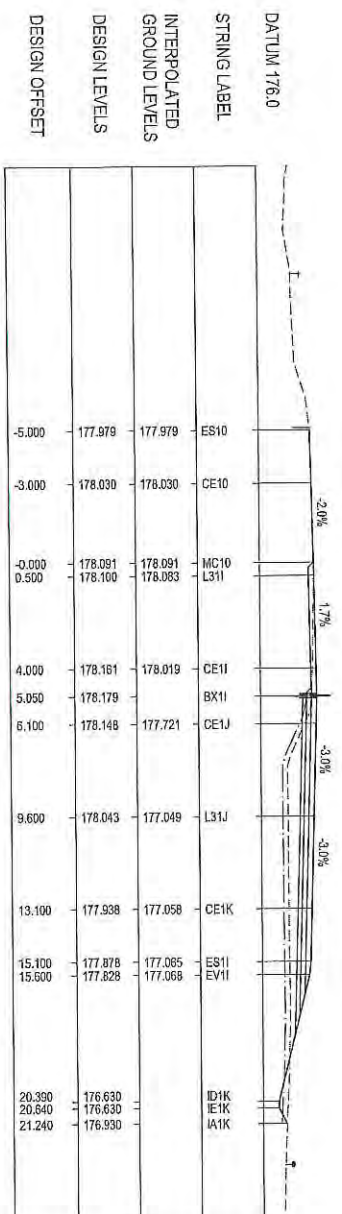
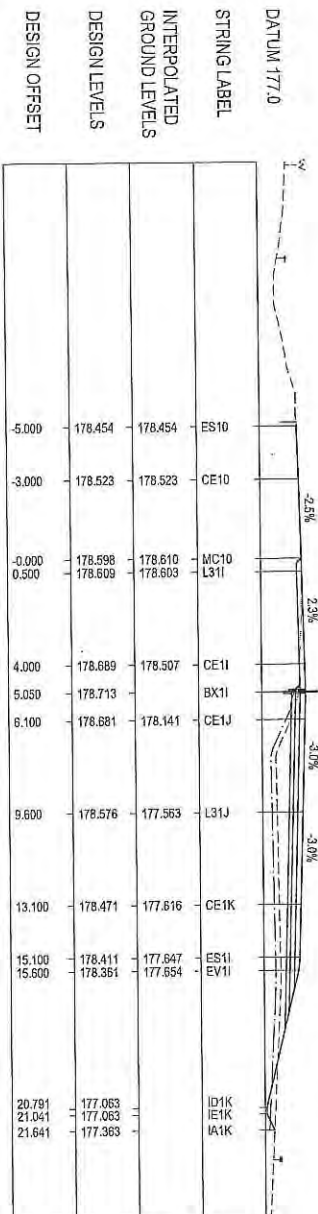
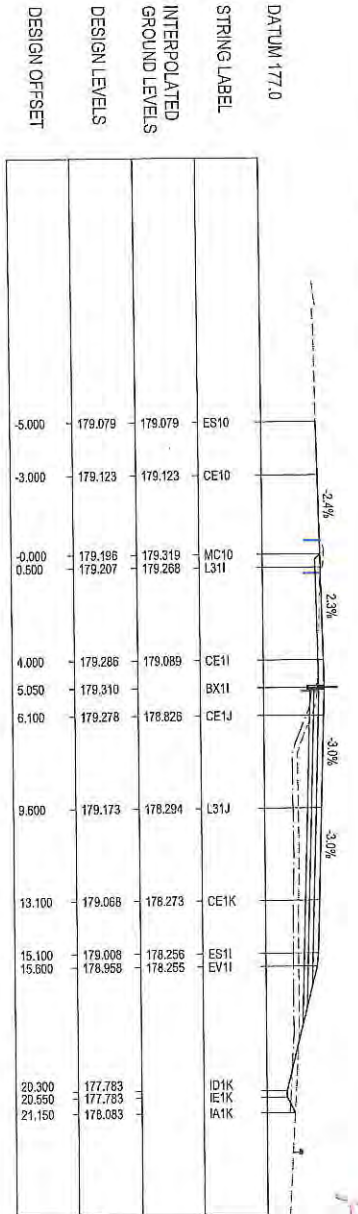
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 1:200 (A3)
 SCALE IN METRES - 1:200

CONTRACT No. 2269
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PRINTED DATE 23-Sep-20 12:39 PM
REGISTRATION NUMBER A1109.001
SHEET No. 1703
REVISION 0

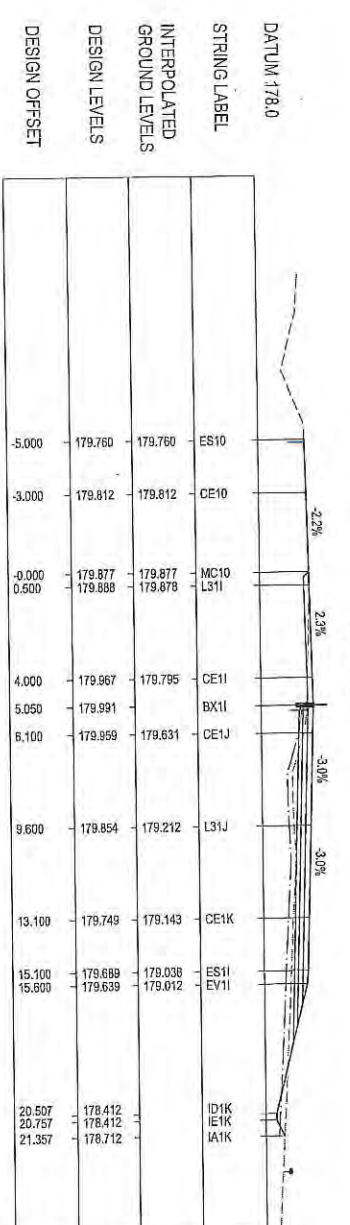
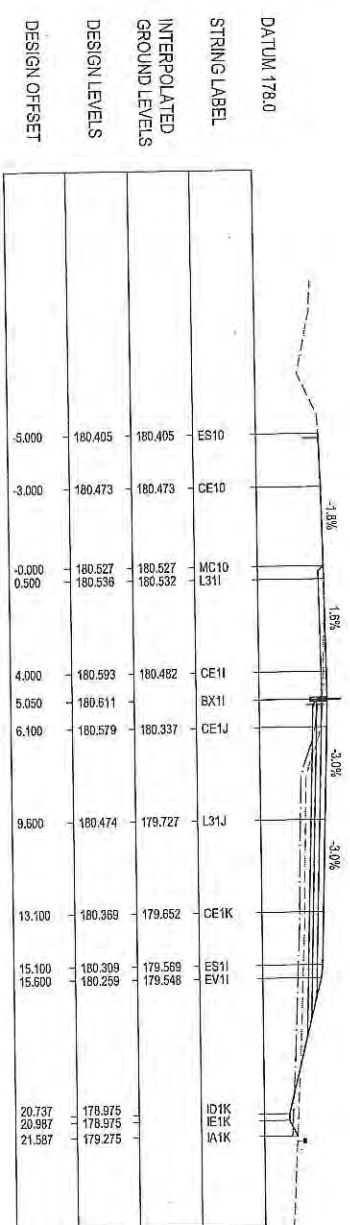
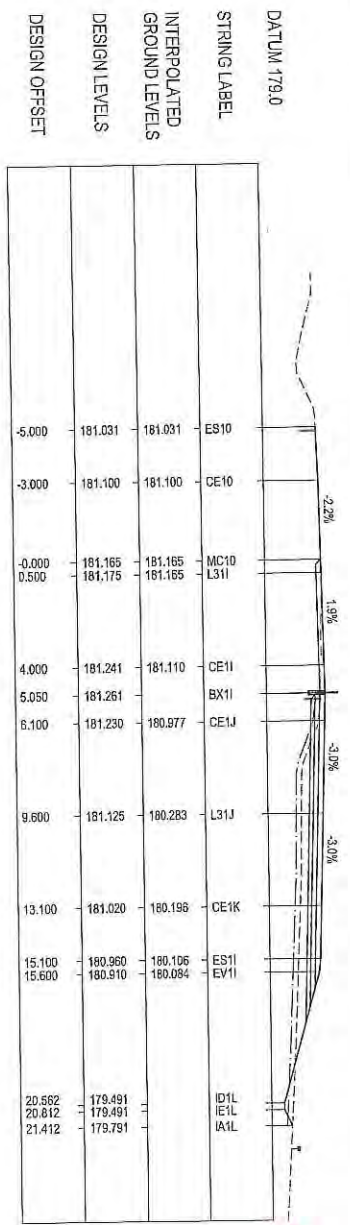
Issue for Construction
 D.C. 23/09/2020
 Initials Date
 Amendment Description
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AMENDED

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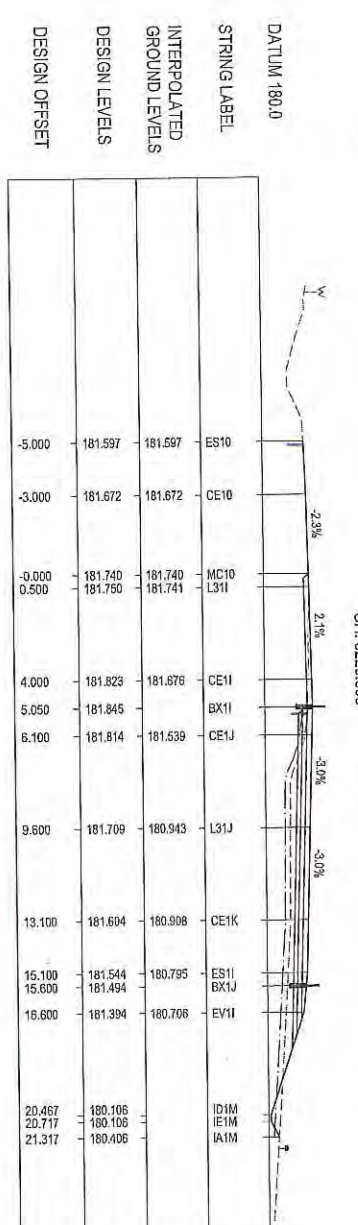
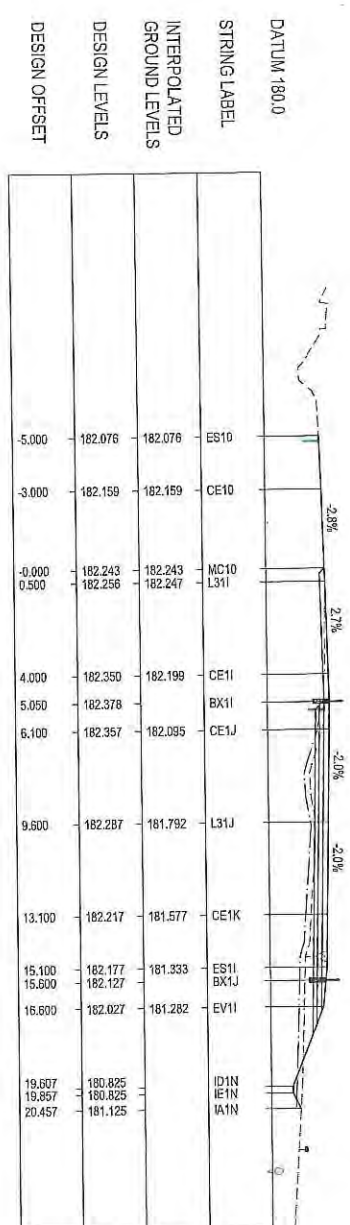
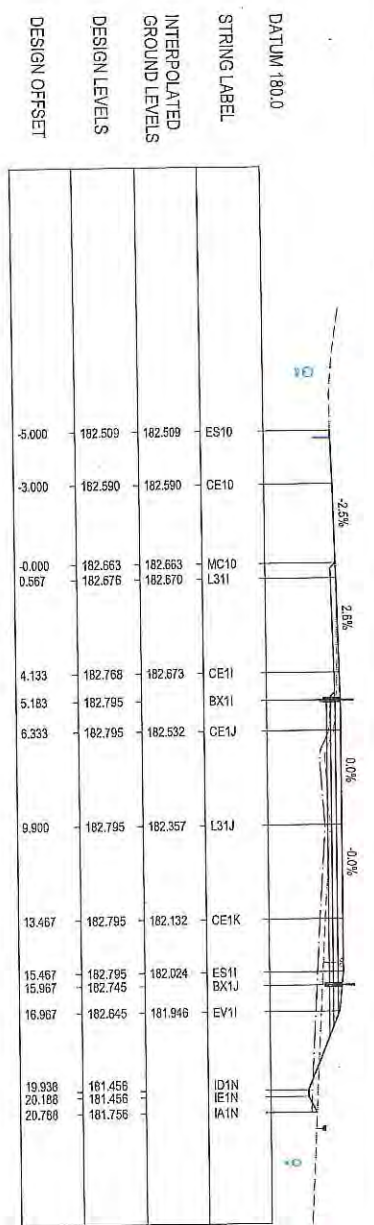
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No. 0 ISSUE FOR CONSTRUCTION Amendment Description Initials Date 23/09/2020		DESIGNED L. ALLEN REVIEWED D. COE		CONTRACT No. 3288 DRAWING HB1935-CT104 PRINTED DATE 23-Sep-20, 12:30 PM REGISTRATION NUMBER A1109.001 SHEET No. 1704 REVISION 0	
Co-ordinate System: MGA 94 ZONE 59 Height Datum: A.H.D.		CH. 6030.000		CH. 6100.000	
No. 0 ISSUE FOR CONSTRUCTION Amendment Description Initials Date 23/09/2020		CH. 6120.000		CH. 6100.000	



AMENDED

SCALES 1:200 (A3) SCALE IN METRES - 1:200		pit&sherry CONSULTANTS		Department of State Growth EVANDALE MAIN ROAD (A1109) LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD) ROADWORKS CROSS SECTIONS MC10 - DRG 5	
No. 0 ISSUE FOR CONSTRUCTION Amendment Description Initials Date 23/09/2020		DESIGNED L. ALLEN REVIEWED D. COE		CONTRACT No. 3298 DRAWING HB19503-C1705 PRINTED DATE 23-Sep-20, 12:39 PM	
Co-ordinate System: MGA 94 ZONE 56 Height Datum: A.H.I.D.		CH. 6140.000		SHEET No. 1705 REVISION 0	

AMENDED



<p>Department of State Growth</p> <p>EVANDALE MAIN ROAD (A1109)</p> <p>LAUNGESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)</p> <p>ROADWORKS</p> <p>CROSS SECTIONS MC10 - DRG 6</p>		<p>CONTRACT No.</p> <p>3288</p>	<p>DRAWING</p> <p>H819593-C1706</p>	<p>PRINTED DATE</p> <p>23-Sep-20, 12:39 PM</p>	<p>SHEET No.</p> <p>1706</p>
<p>pit&sherry</p> <p>DESIGNED L. ALLEN</p> <p>REVIEWED D. COE</p>		<p>REGISTRATION NUMBER</p> <p>A1109.001</p>			
<p>Department of State Growth</p> <p>EVANDALE MAIN ROAD (A1109)</p> <p>LAUNGESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)</p> <p>ROADWORKS</p> <p>CROSS SECTIONS MC10 - DRG 6</p>		<p>REVISION 0</p>			

SCALES

1:200 (A3)

SCALE IN METRES - 1:200

DESIGNED L. ALLEN

REVIEWED D. COE

No.	ISSUE FOR CONSTRUCTION	D.C.	23/09/2020
	Amendment Description	Initials	Date
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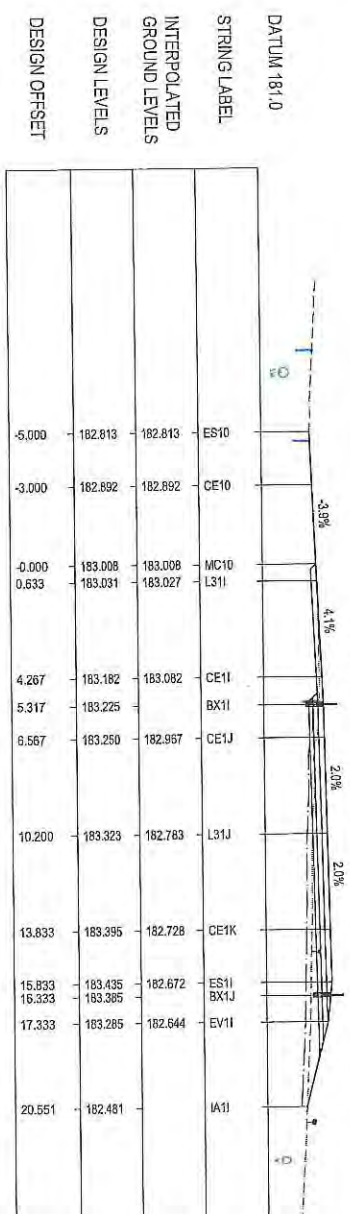
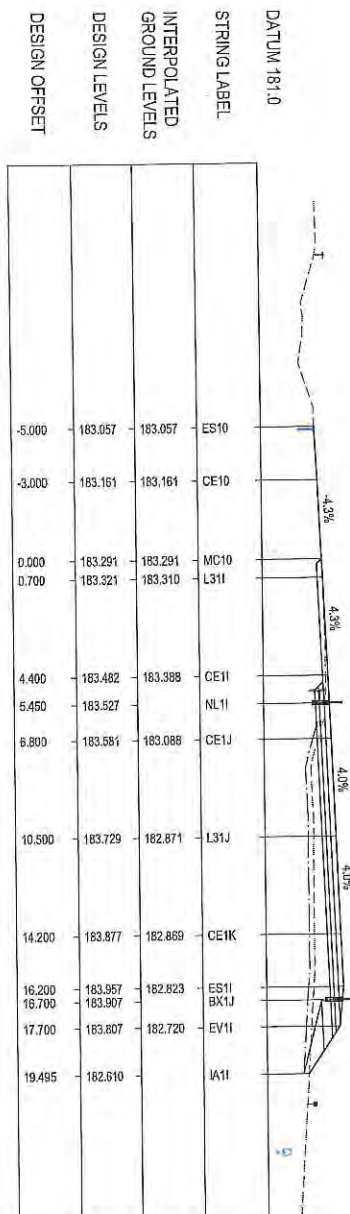
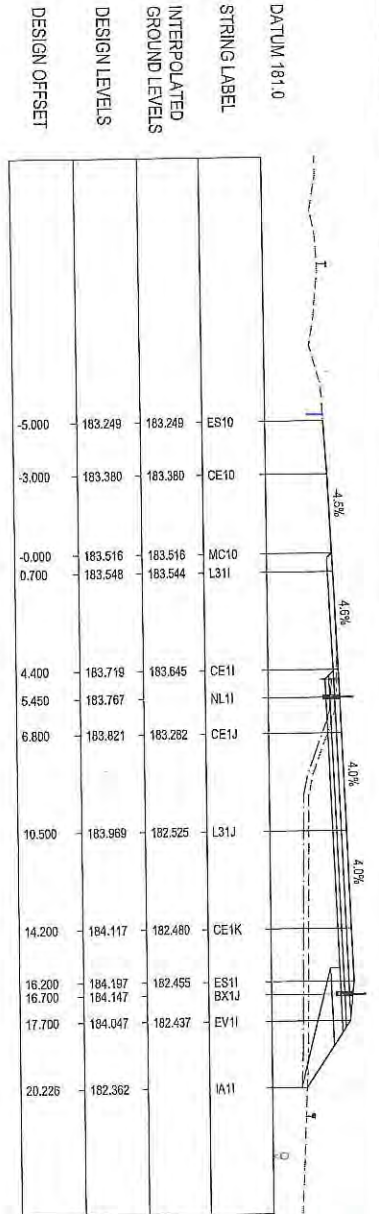
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Co-ordinate System: MGA 94 ZONE 56

Height datum: A.H.D.

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Department of State Growth
 EVANDALE MAIN ROAD (A1109)
 LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
 ROADWORKS
 CROSS SECTIONS MC10 - DRG 7

pit&sherry
 DESIGNED: L. ALLEN
 REVIEWED: D. COE

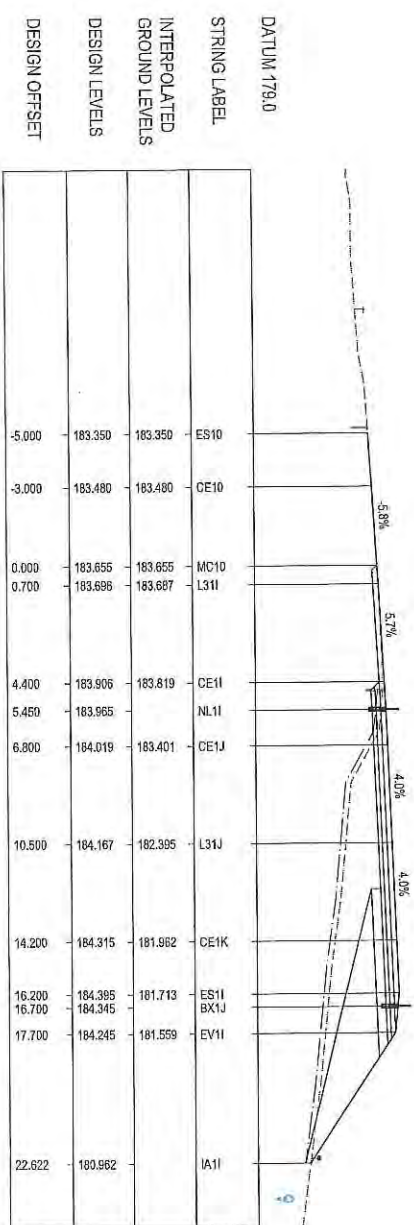
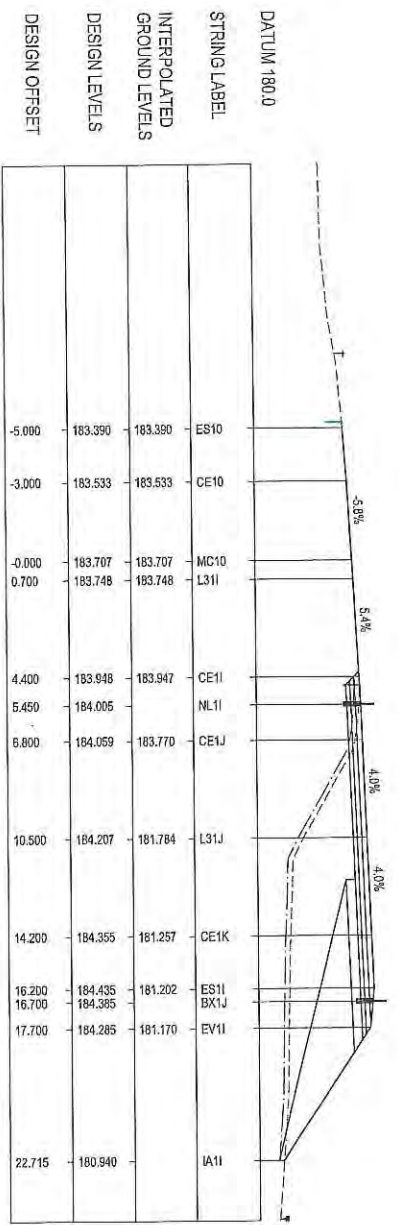
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CONTRACT No. 3288
DRAWING HB19563-C1707
REGISTRATION NUMBER A1109.001

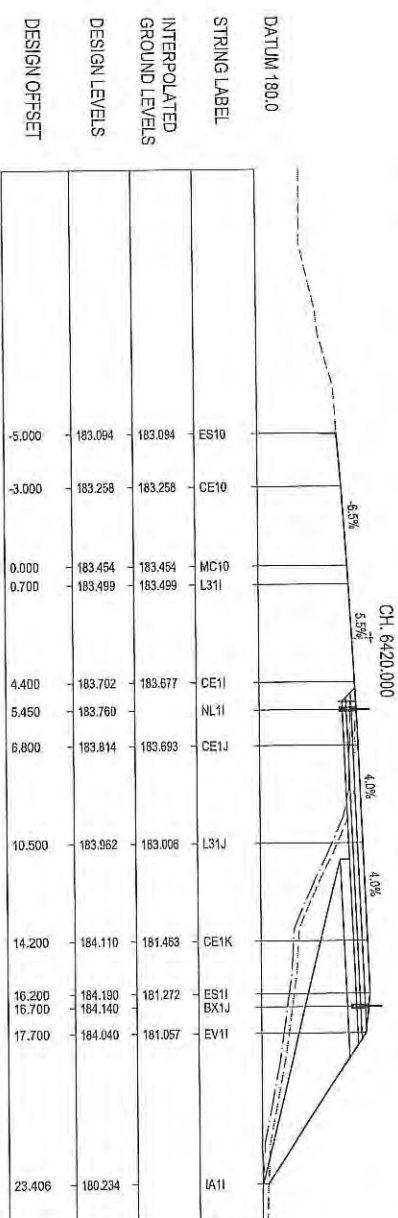
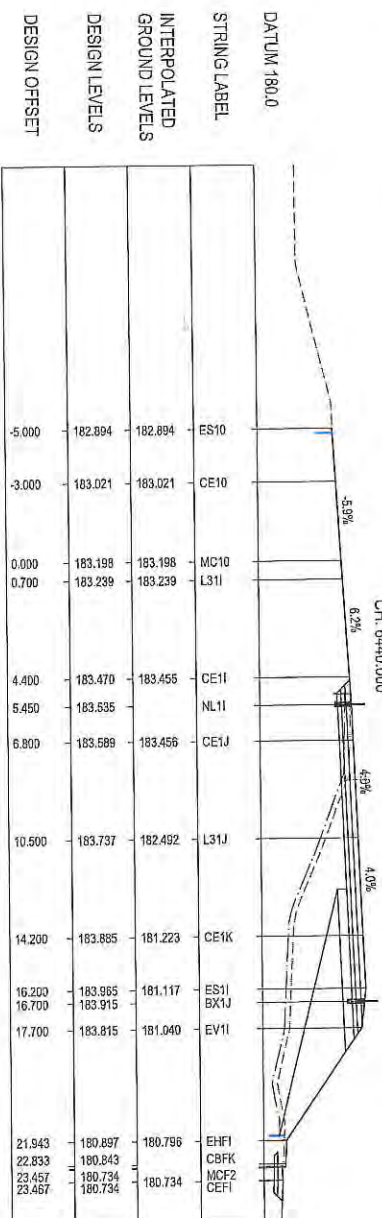
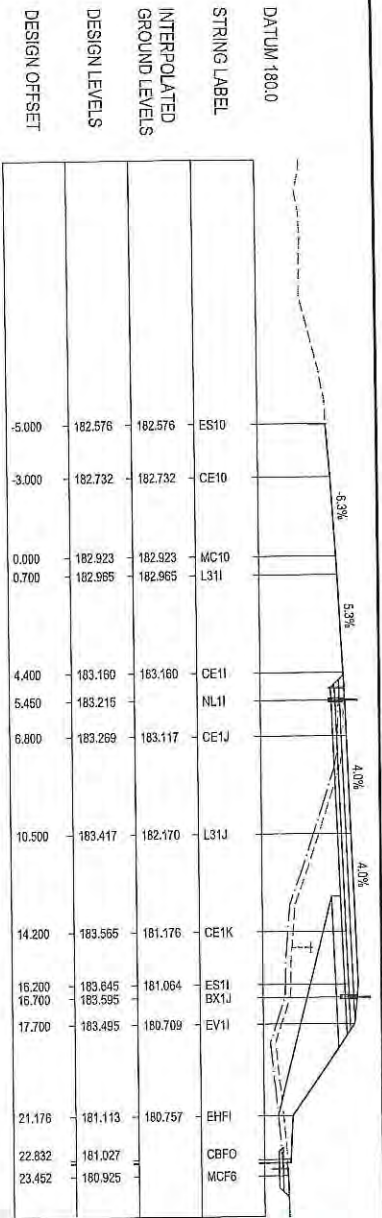
PRINTED DATE 23-Sep-20, 12:38 PM
SHEET No. 1707
REVISION 0

ISSUE FOR CONSTRUCTION
 Amendment Description: Initials: Date: 23/09/2020
 No: 0
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SCALES 1:200 (A3) SCALE IN METRES - 1:200		DESIGNED BY: L. ALLEN REVIEWED BY: D. COE	
Department of State Growth EVANDALE MAIN ROAD (A1109) LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD) ROADWORKS CROSS SECTIONS MC10 - DRG 8		CONTRACT No. 3288 DRAWING H819513-C1708 PRINTED DATE 23-Sep-20, 12:39 PM	
No. 0 ISSUE FOR CONSTRUCTION Amendment Description Initials Date		SHEET No. 1708 REGISTRATION NUMBER A1109.001 REVISION 0	
No. 0 ISSUE FOR CONSTRUCTION Amendment Description Initials Date		This sheet may be prepared using either and may be incomplete if copied	



Department of State Growth
 EVANDALE MAIN ROAD (A1109)
 LAUNGESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
 ROADWORKS
 CROSS SECTIONS MC10 - DRG 10

CONTRACT No. 3268
 DRAWING HPI/9503-C/1710
 PRINTED DATE 23 Sep 20, 12:39 PM
 SHEET No. 1710

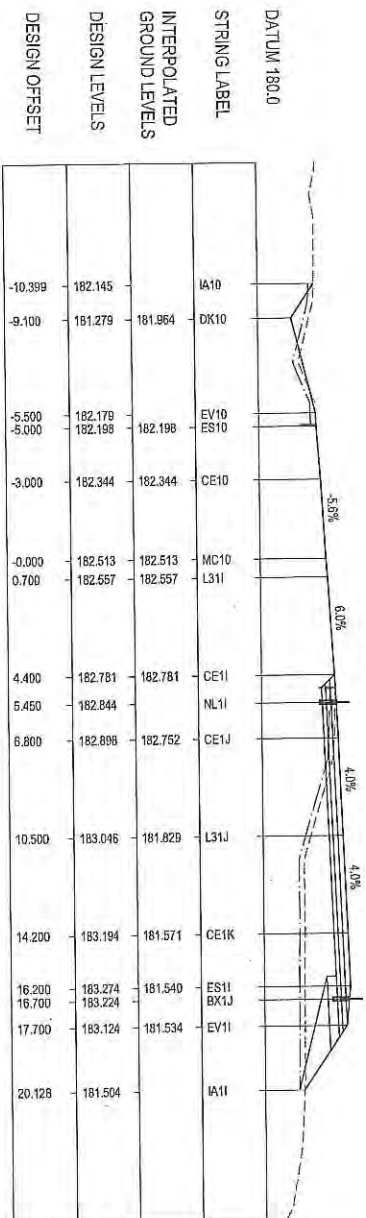
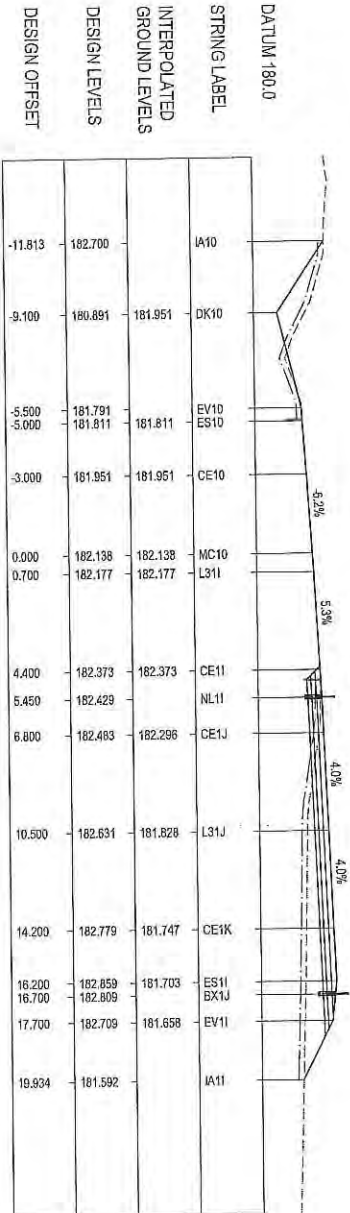
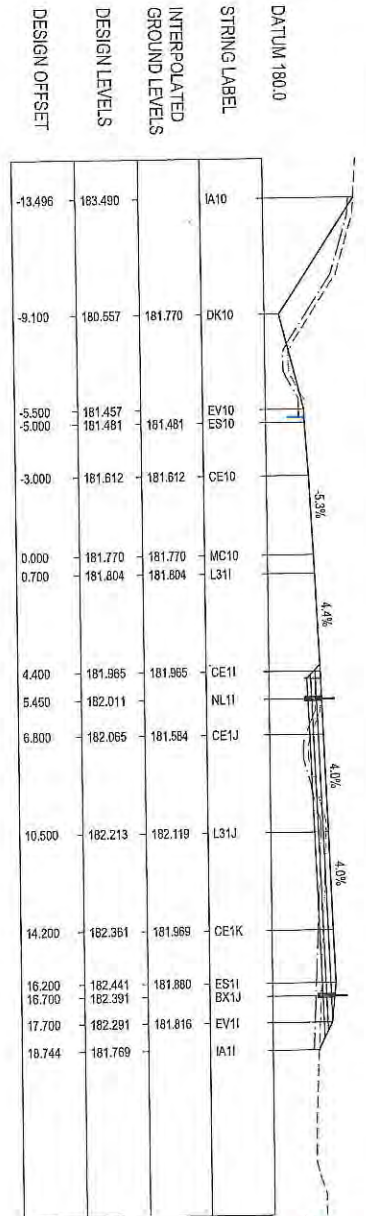
DESIGNED: L. ALLEN
 REVIEWED: D. COE

SCALE IN METRES: 1:200
 SCALES: 1:200 (A3)
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ISSUE FOR CONSTRUCTION
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 Date: 23/09/2020
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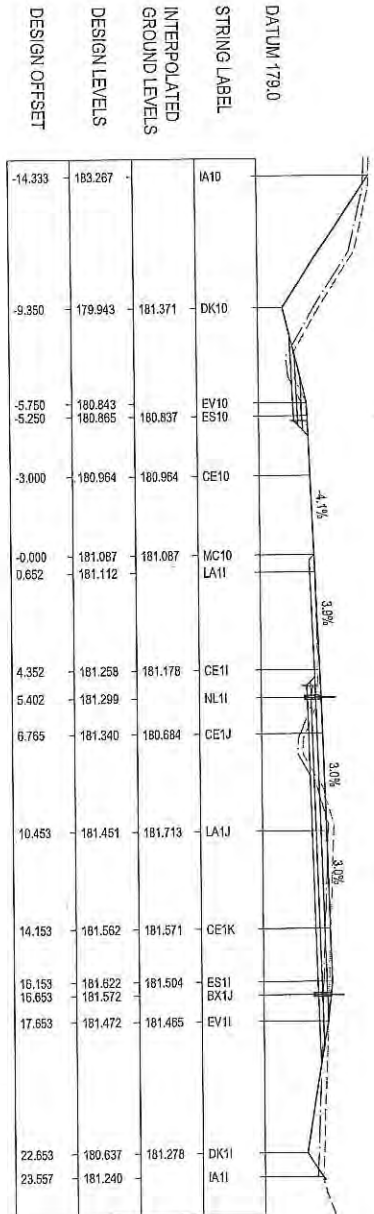
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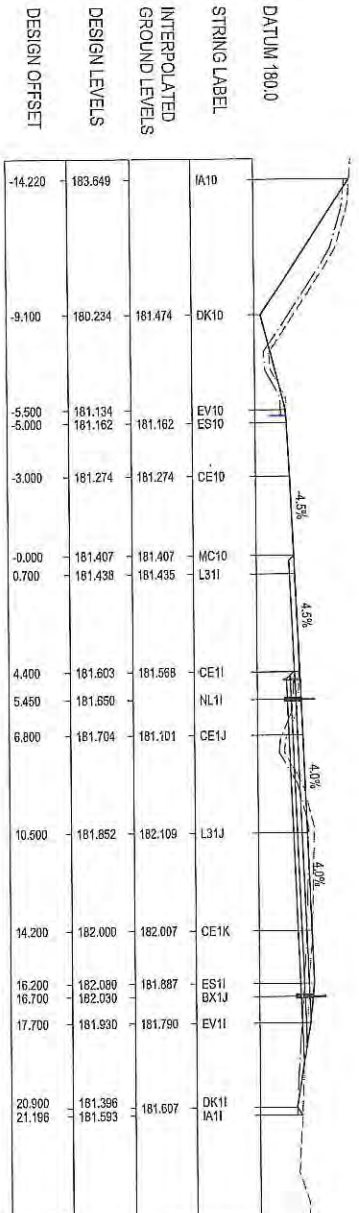


SCALES 1:200 (A3) SCALE IN METERS - 1:200		pit&sherry DESIGNED BY L. ALLIER REVIEWED BY D. COPE	
Department of State Growth EVANDALE MAIN ROAD (A1109) LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD) ROADWORKS CROSS SECTIONS MC10 - DRG 11		CONTRACT No. 3298 DRAWING H819503-01711 PRINTED DATE 23-Sep-20, 12:39 PM	
No. 0 ISSUE FOR CONSTRUCTION Amendment Description: D.C. 23/09/2020 This sheet may be prepared using colour and may be incompatible if copied		REGISTRATION NUMBER A1109.001 SHEET No. 1711 REVISION 0	

AMENDED



CH 6540.000

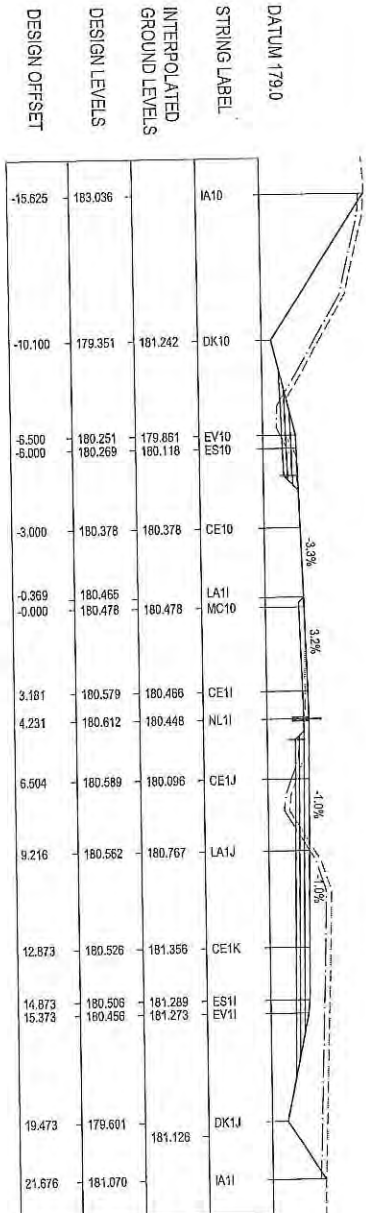


CH 6620.000

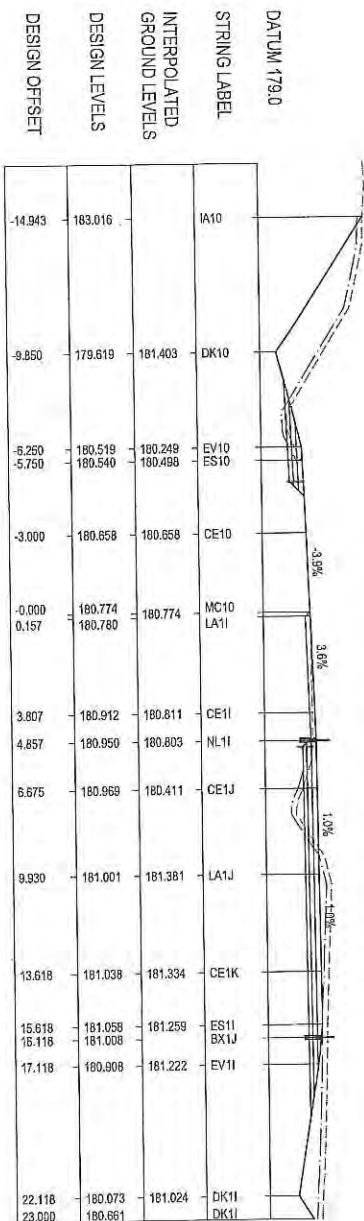
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Department of State Growth EVANDALE MAIN ROAD (A1109) LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD) ROADWORKS CROSS SECTIONS MC10 - DRG 12		CONTRACT No. 3288 DRAWING No. HB19508-CT12 PRINTED DATE: 23-Sep-20, 12:39 PM	
ISSUE FOR CONSTRUCTION Amendment Description: Initials: Date: 23/09/2020		REGISTRATION NUMBER: A1109.001 SHEET No. 1712 REVISION 0	

AMENDED

AMENDED



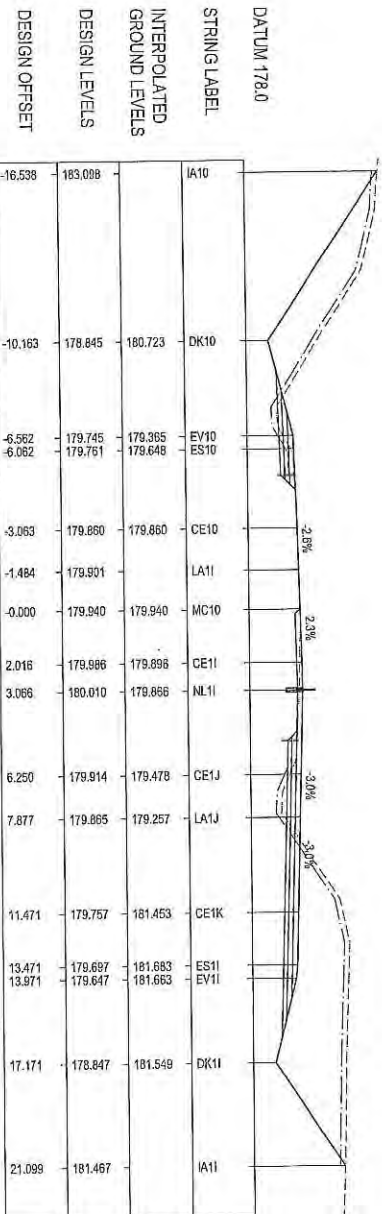
CH. 6560.000



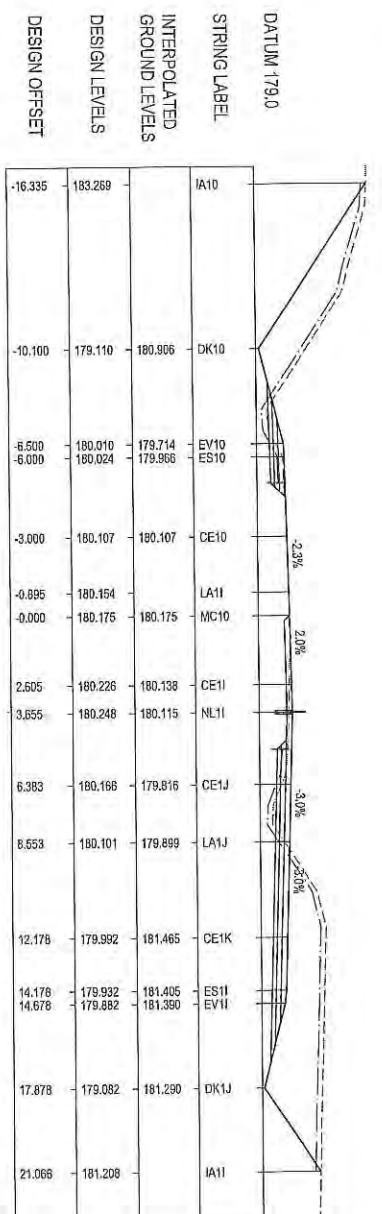
CH. 6560.000

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No. 0 ISSUE FOR CONSTRUCTION Amendment Description Initials Date 23/09/2020		SHEET No. 1713 REVISION 0	

AMENDED

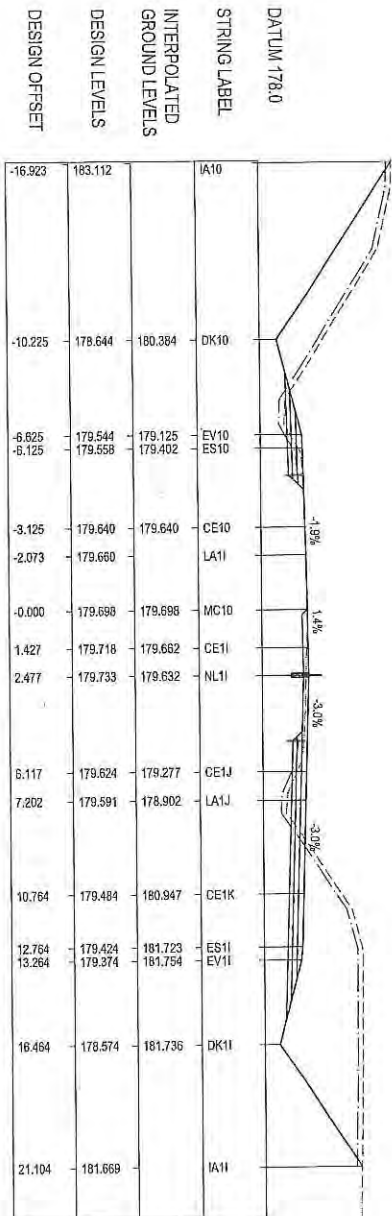
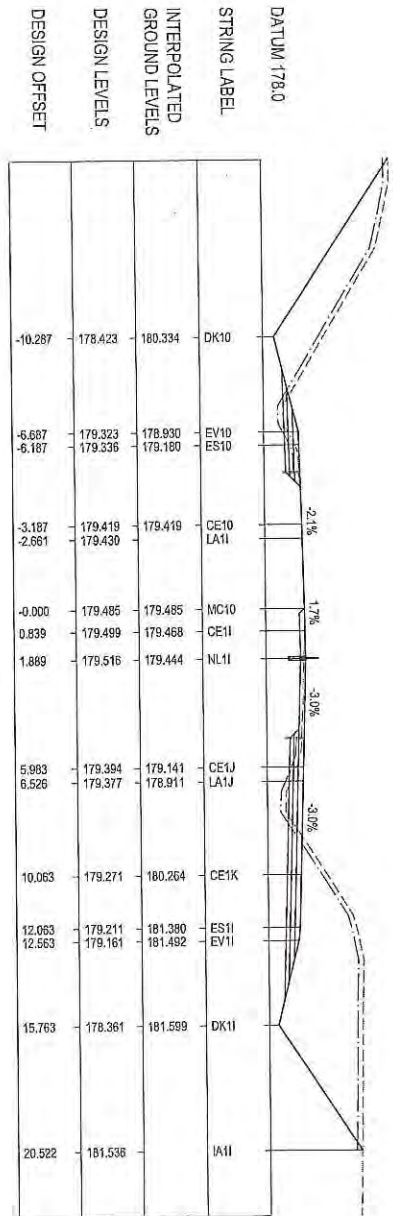


CH. 6620.000



CH. 6600.000

SCALES 1:200 (A3) SCALE IN METRES - 1:200		pit&sherry Government		Department of State Growth EVANDALE MAIN ROAD (A1109) LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD) ROADWORKS CROSS SECTIONS MC10 - DRG 14	
No. 0 Amendment Description: ISSUE FOR CONSTRUCTION Initials: [blank] Date: 23/09/2020		DESIGNED: L. ALLEN REVIEWED: D. COE		CONTRACT No. 3268 DRAWING: HB19593-61714 PRINTED DATE: 23-Sep-20, 12:40 PM	
No. 0 Amendment Description: ISSUE FOR CONSTRUCTION Initials: [blank] Date: 23/09/2020		This sheet may be prepared using colour and may be incorporated if capital.		REGISTRATION NUMBER: A1109.001 SHEET No. 1714 REVISION: 0	

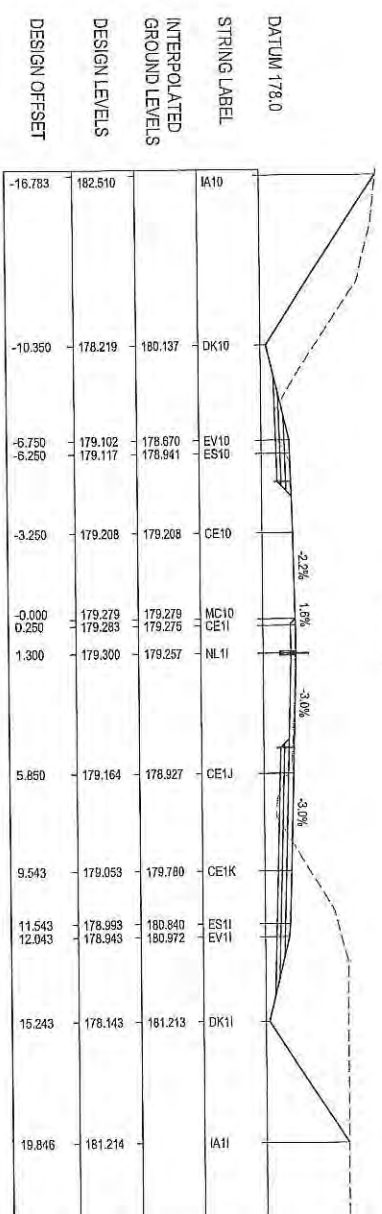
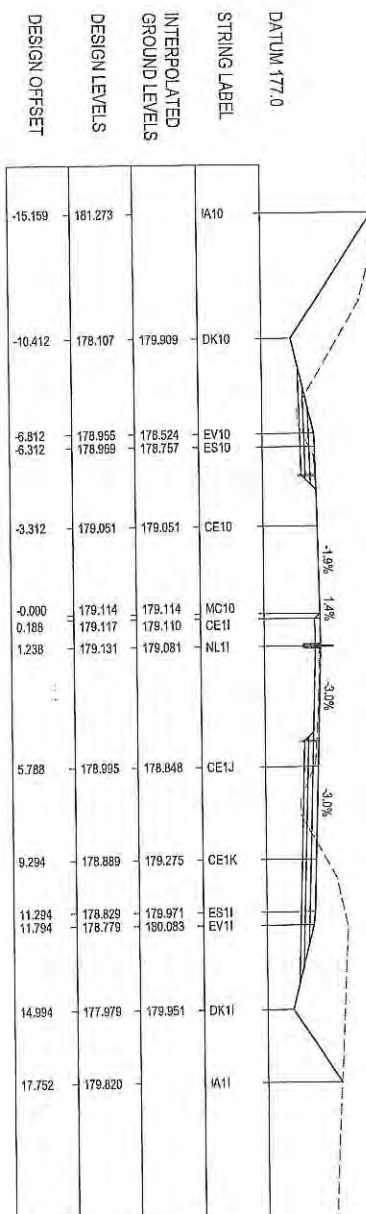
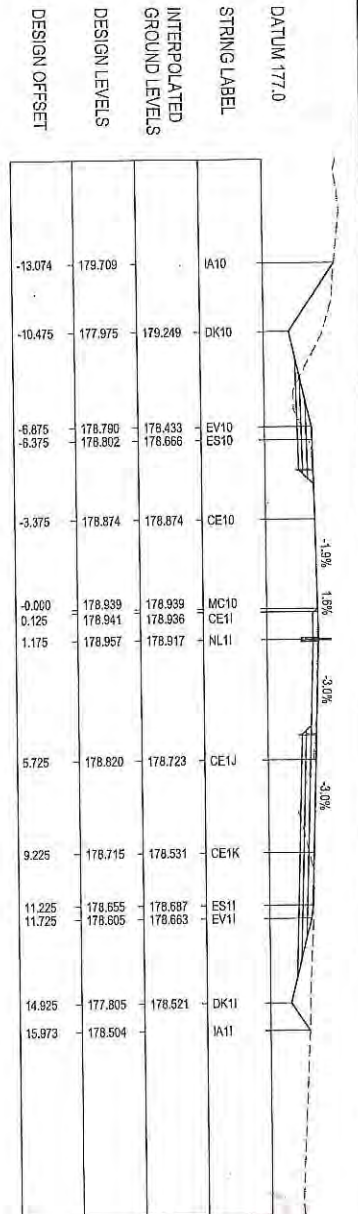


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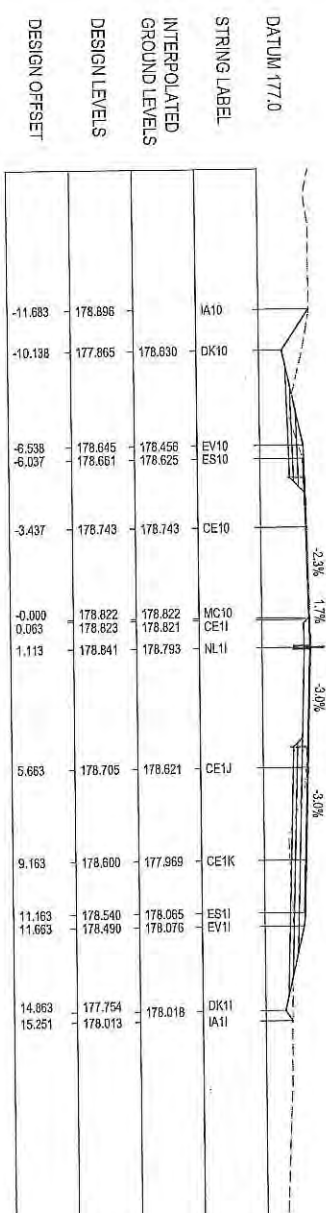
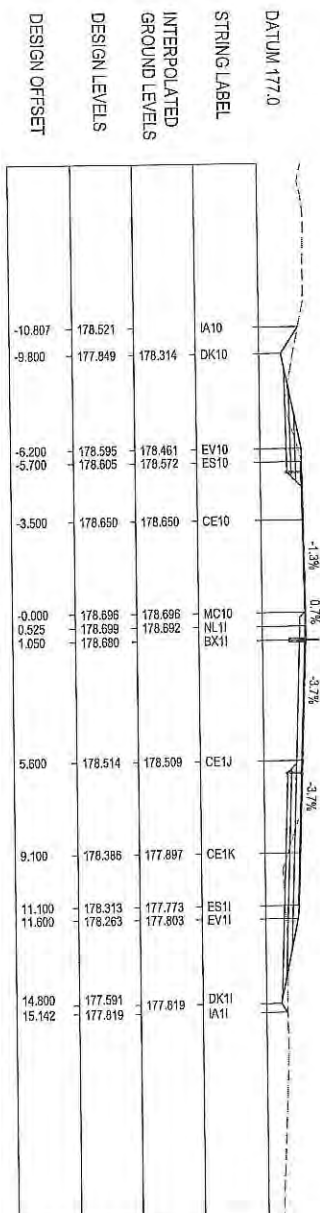
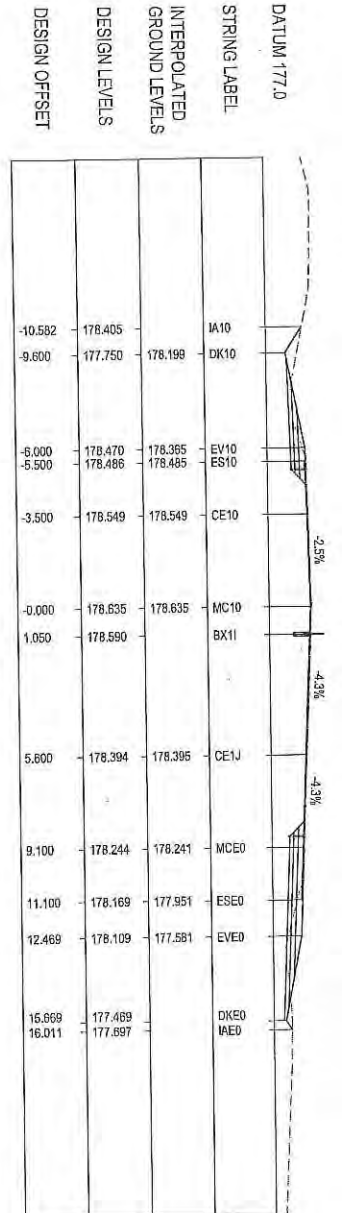
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No. 0 ISSUE FOR CONSTRUCTION Amendment Description D.C. Initials Date 23/09/2020		Co-ordinate System: MGA 94 ZONE 55 Height Datum: A.H.D.		CONTRACT No. 3288 DRAWING H918990-C1715 PRINTED DATE 23-Sep-20, 12:40 PM	
DESIGNED J. ALLEN REVIEWED D. COPE		CROSS SECTIONS MC10 - DRG 15		SHEET No. 1715 REVISION D	

AMEN



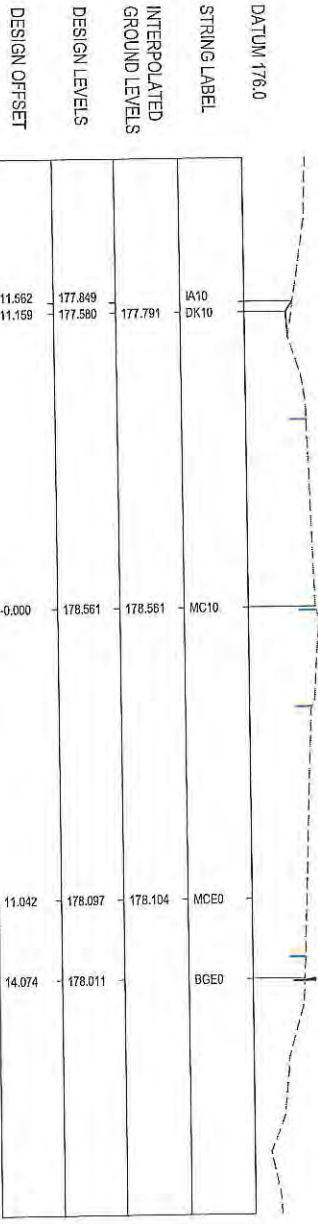
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No. 0 ISSUE FOR CONSTRUCTION Amendment Description: Initial Date: 23/09/2020		REGISTRATION NUMBER A1109.001	
No. 0 ISSUE FOR CONSTRUCTION Amendment Description: Initial Date: 23/09/2020		SHEET No. 1716 REVISION 0	

AMENDED

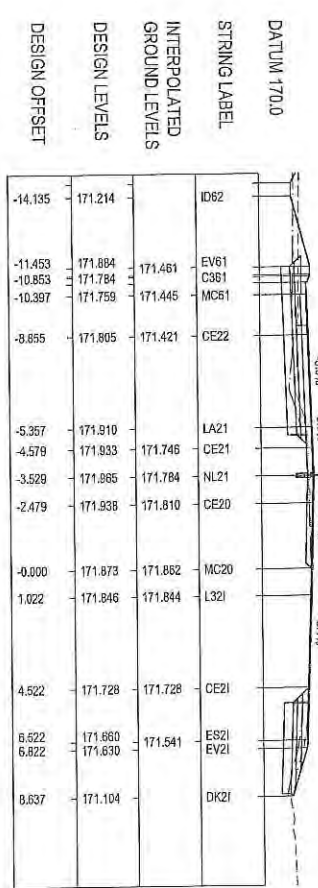
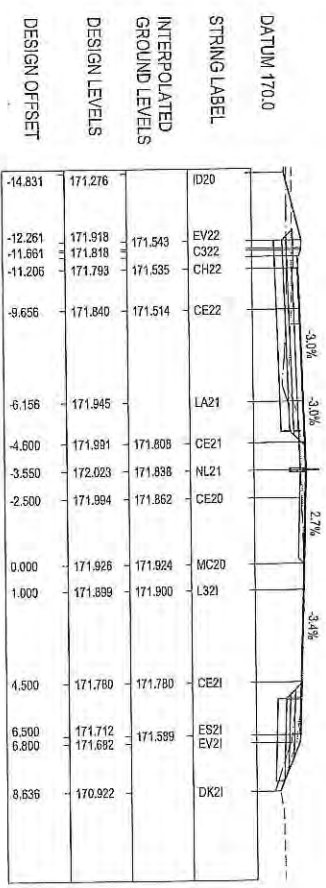
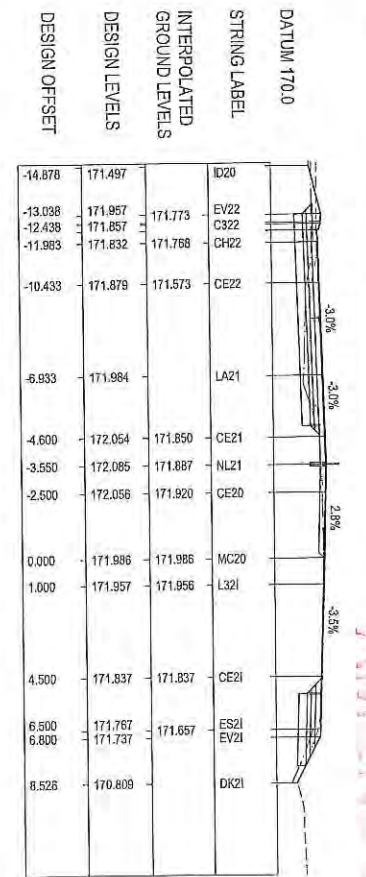
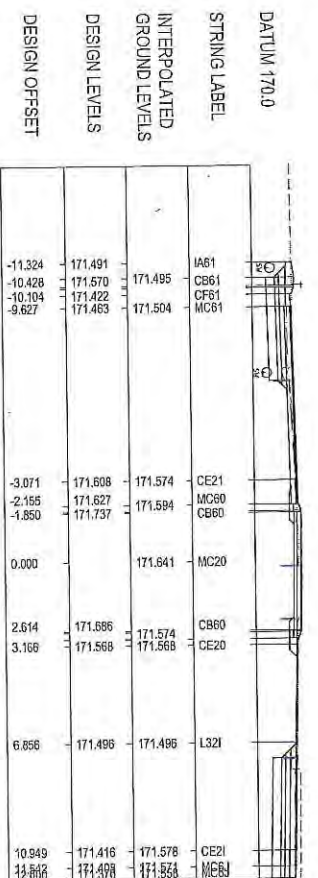
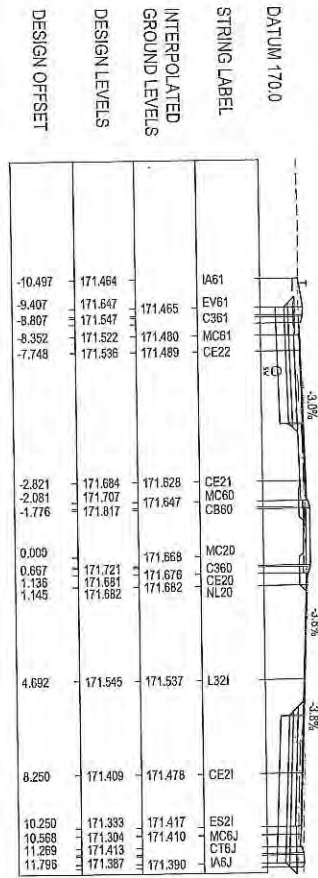
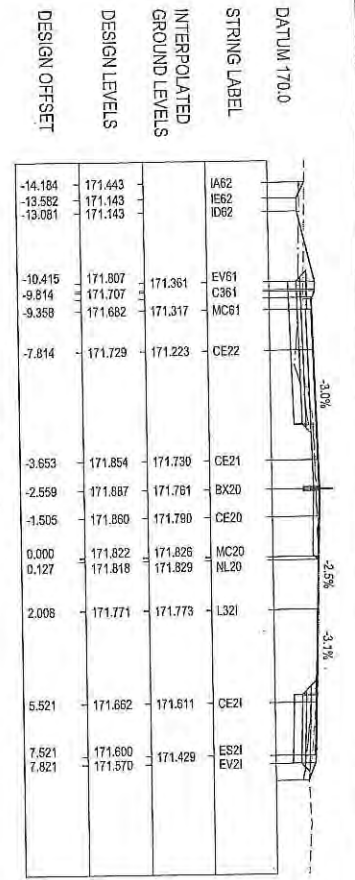


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AMENDED



SCALES 1:200 (A3) SCALE IN METRES - 1:200 		Department of State Growth EVANDALE MAIN ROAD (A1109) LAUNGESTON AIRPORT ROAD ACCESS (EVANDALE ROAD) ROADWORKS CROSS SECTIONS MC10 - DRG 18	
No. 0 ISSUE FOR CONSTRUCTION Amendment Description D.C. 23/09/2020 Initials Date	pit&sherry THE ENGINEERS DESIGNED L. ALLEN REVIEWED D. COE	CONTRACT No. 3288 DRAWING HB1903-C17/18 PRINTED DATE 23-Sep-20 12:40 PM	SHEET No. 1718 REVISION 0
A1109.001			
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Amendment Description

No.	Date	Index
0	23/09/2020	D.C.

SCALE IN METRES - 1:200

Co-ordinate System: MGA 94 ZONE 58 Highm datum: AHD

DESIGNED: L. ALLEN
REVIEWED: D. COE

Department of State Growth

EVANDALE MAIN ROAD (A1109)
LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
ROADWORKS

CROSS SECTIONS MC20 - DRG 1

CONTRACT No. 3289

DRAWING H81959-C1751

PRINTED DATE 23-Sep-20, 12:40 PM

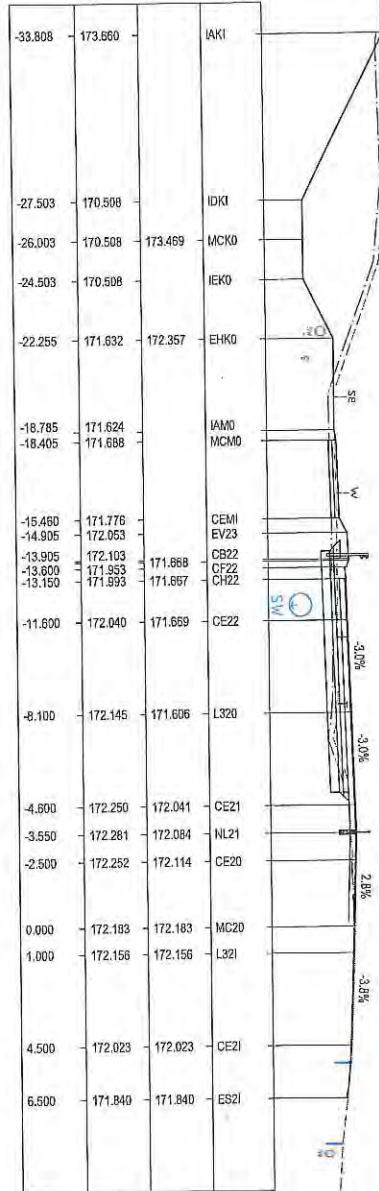
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SHEET No. 1751

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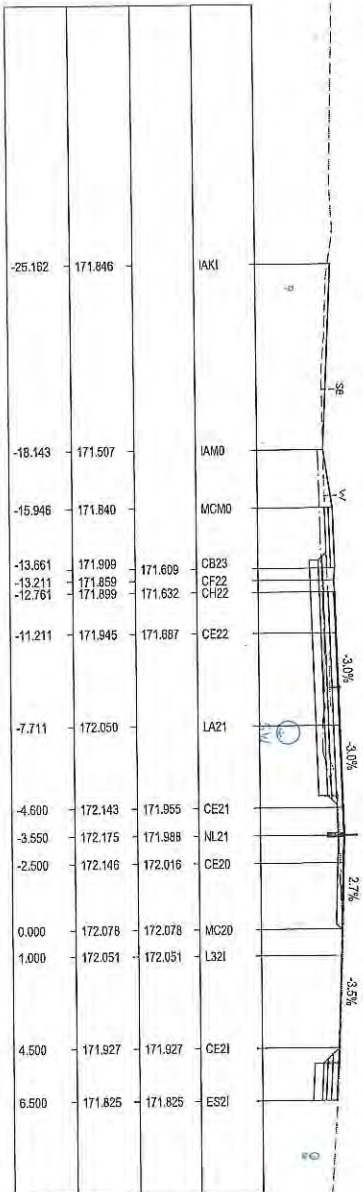
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CH. 5320.000

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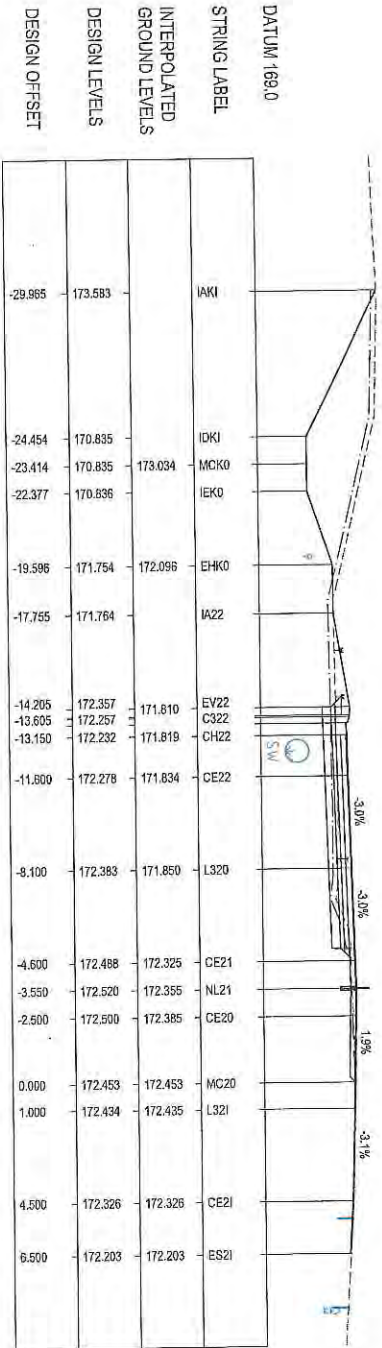


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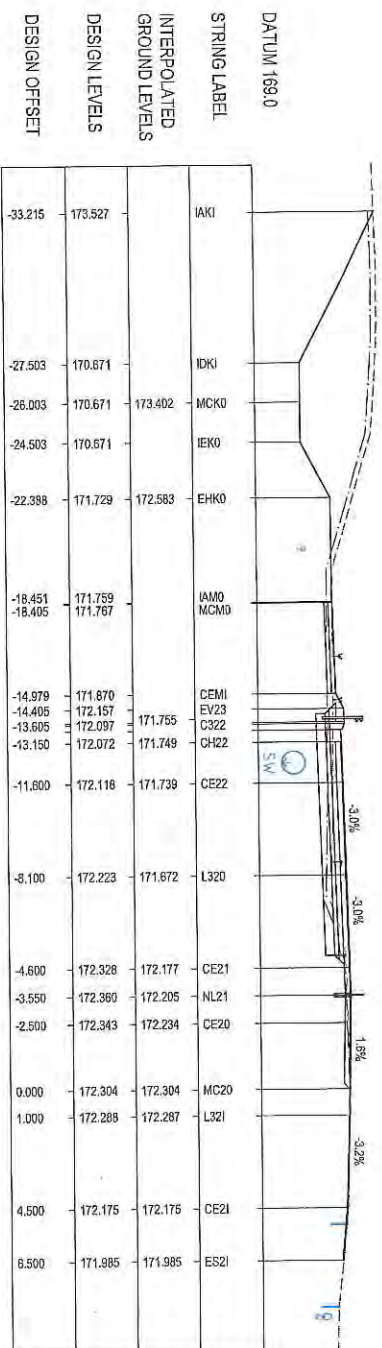
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No. 0 ISSUE FOR CONSTRUCTION Amendment Description Initials Date 23/09/2020	CONTRACT No. 3288	DRAWING HB/1909-C/75Z	PRINTED DATE 23-Sep-20, 12:40 PM
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AMENITY

AMENDED

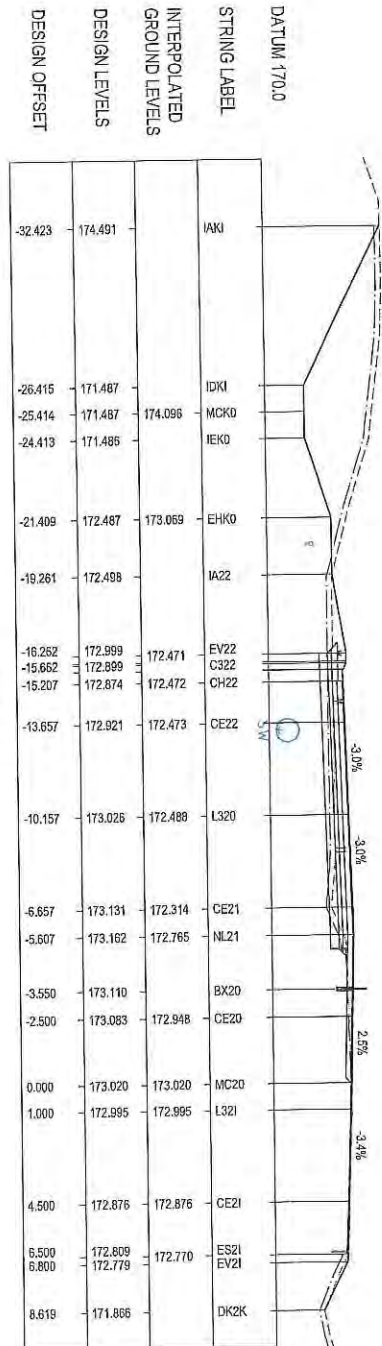


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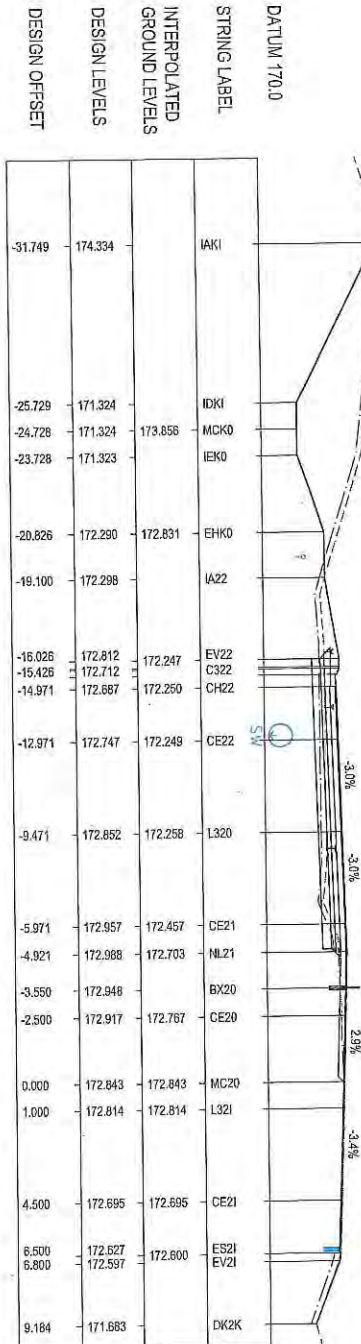


CH. 5340.000

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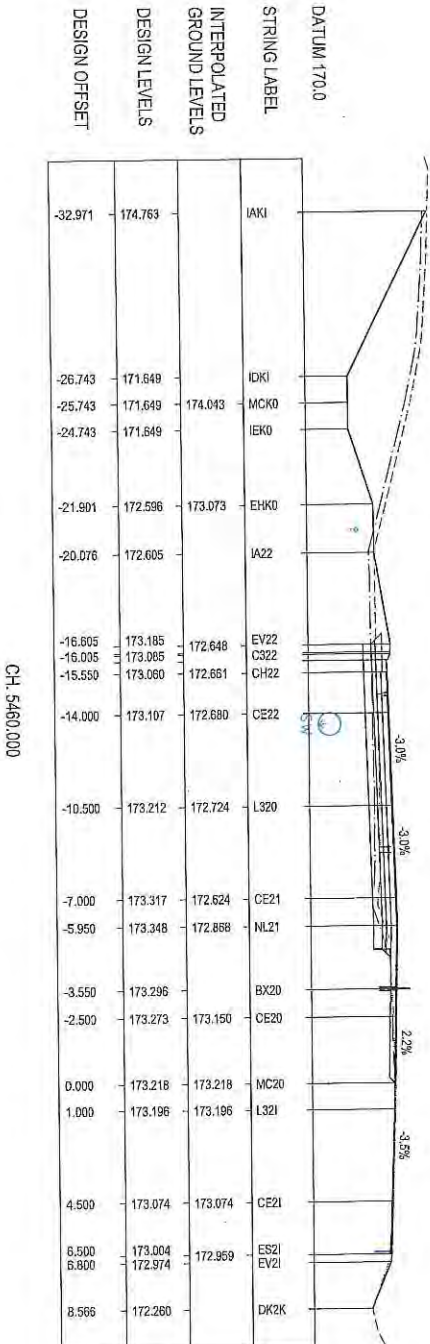
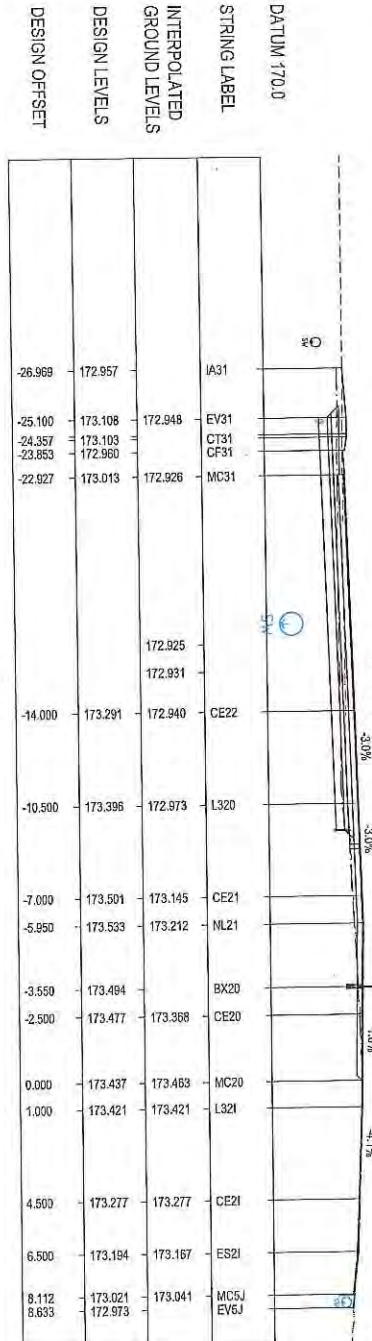
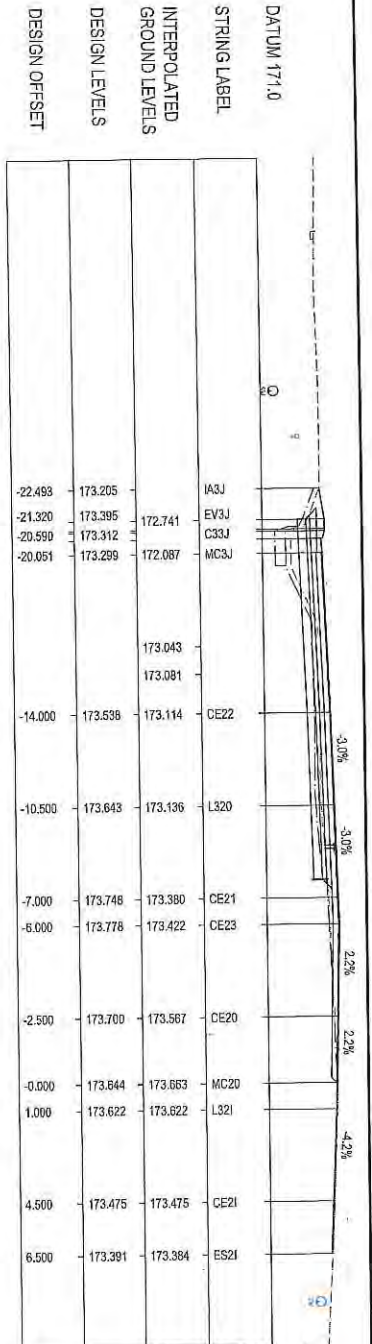
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CH: 5420.000

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No. 0 ISSUE FOR CONSTRUCTION Amendment Description Initials Date 29/09/2020		DESIGNED: L. ALLEN REVIEWED: D. COE		CONTRACT No. 3268 DRAWING HB1909-C1755 PRINTED DATE 23-Sep-20, 12:40 PM	
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AMENDMENT



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Amendment Description

No. 0

ISSUE FOR CONSTRUCTION

D.C. 23/09/2020

Initials Date

Co-ordinate System: NGA 84 ZONE 51 Height Datum: A.H.D.

SCALE IN METRES - 1:200

SCALE 1:200 (A3)

DESIGNED BY: L. ALLEN

REVIEWED BY: D. COE

Department of State Growth

EVANDALE MAIN ROAD (A1109)

LAUNGESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)

CROSS SECTIONS MC20 - DRG 6

CONTRACT No. 3248

DRAWING HB19503-CT785

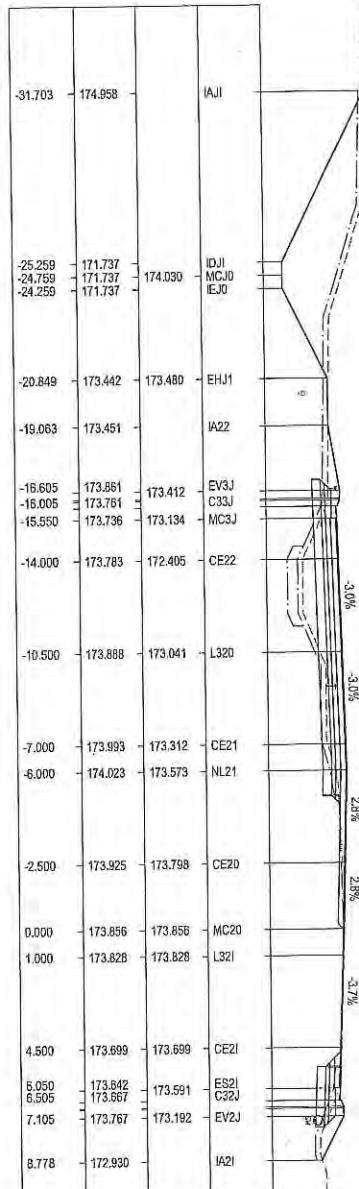
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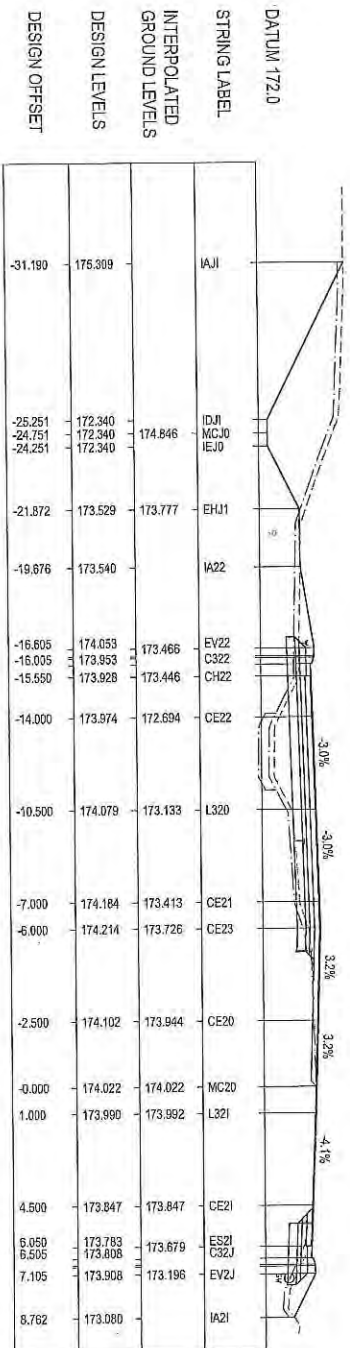
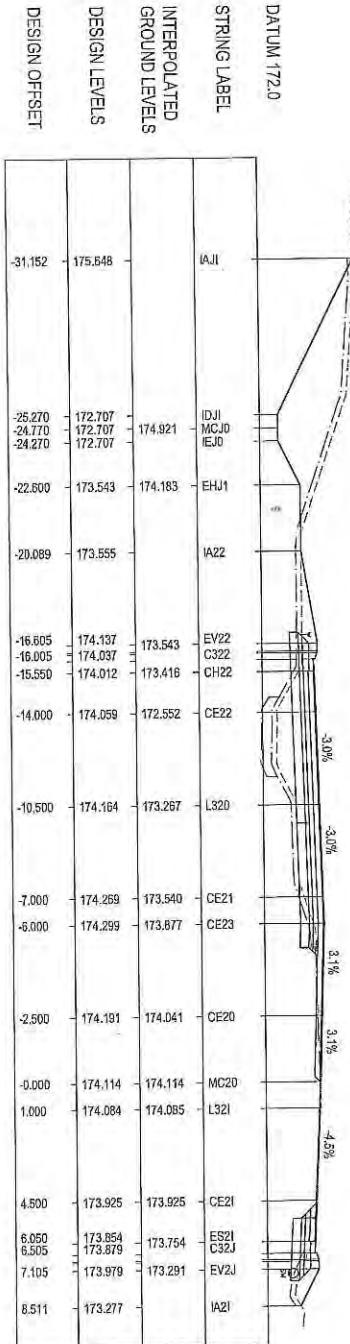
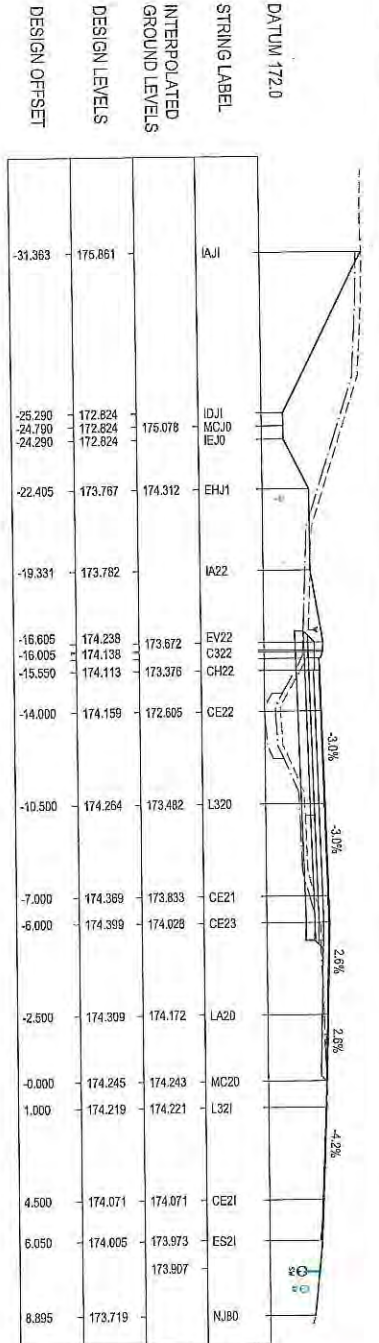
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No. 0 ISSUE FOR CONSTRUCTION Amendment Description Initials Date		DESIGNED L. ALLEN REVIEWED D. COE	
Coordinates System: MGA 54 ZONE 55 Height Datum: A.H.D.		Department of State Growth EVANDALE MAIN ROAD (A1109) LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD) ROADWORKS CROSS SECTIONS MC20 - DRG 7	
CONTRACT No. 2288	DRAWING HB19503-CT137	PRINTED DATE 23 Sep 20, 12:40 PM	SHEET No. 1757
REGISTRATION NUMBER A1109.001		REVISION 0	

AMENITY



No.	Amendment Description	Date
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SCALE IN METRES - 1:200

Co-ordinate System: MGA 84 ZONE 56 Height Datum: A.H.D.

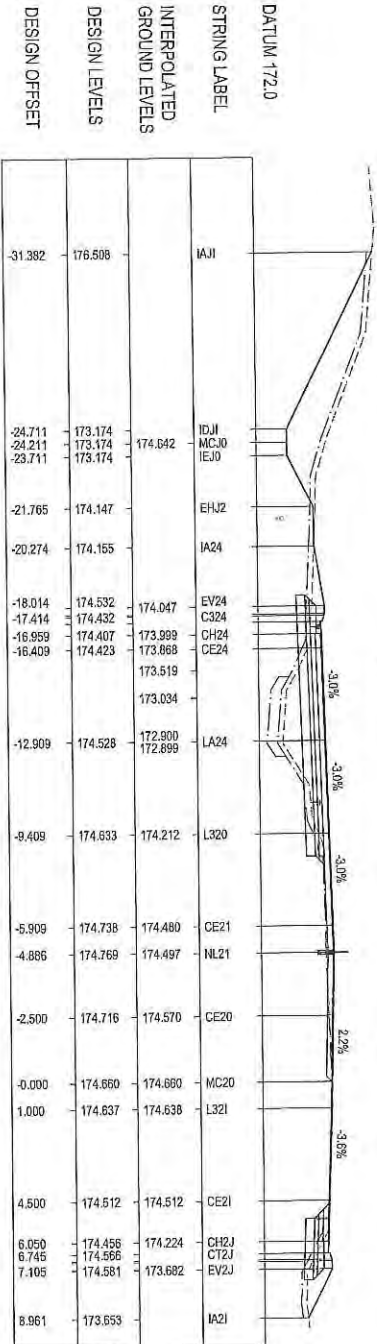
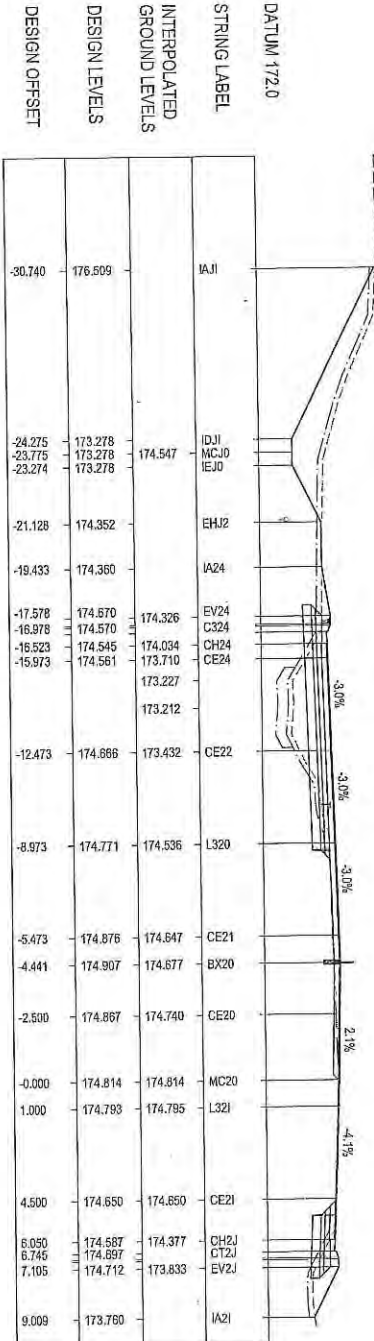
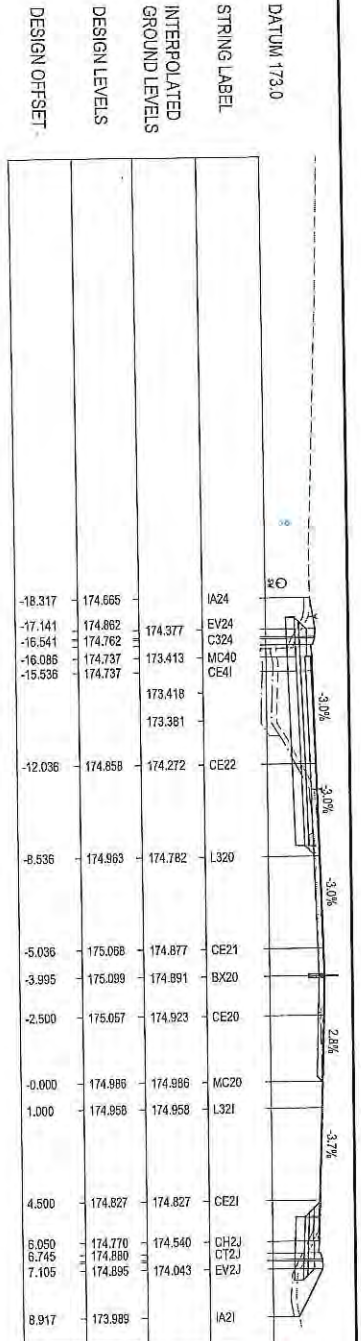
pitt&sherry
DESIGNED BY: L. ALLEN
REVIEWED BY: D. COE

Department of State Growth
EVANDALE MAIN ROAD (A1109)
LAUNGESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)
ROADWORKS
CROSS SECTIONS MC20 - DRG 8

CONTRACT No. 3288
DRAWING No. HB19009-CT/38
PRINTED DATE: 23-Sep-20, 12:40 PM
REGISTRATION NUMBER: A1109.001

SHEET No. 1758
REVISION 0

FOR IMPROVED



Department of State Growth

EVANDALE MAIN ROAD (A1109)

LAUNCESTON AIRPORT ROAD ACCESS (EVANDALE ROAD)

ROADWORKS

CROSS SECTIONS MC20 - DRG 10

CH. 5640.000

CH. 5660.000

CH. 5680.000

SCALE 1:200 (A3)

SCALE IN METRES - 1:200

Height Datum: A.H.D.

DESIGNED: L. ALLEN

REVIEWED: D. COE

CONTRACT No. 3288

DRAWING No. HB1903-C1760

PRINTED DATE 23-Sep-2011 12:40 PM

REGISTRATION NUMBER A1109.001

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REVISION 0

ISSUE FOR CONSTRUCTION

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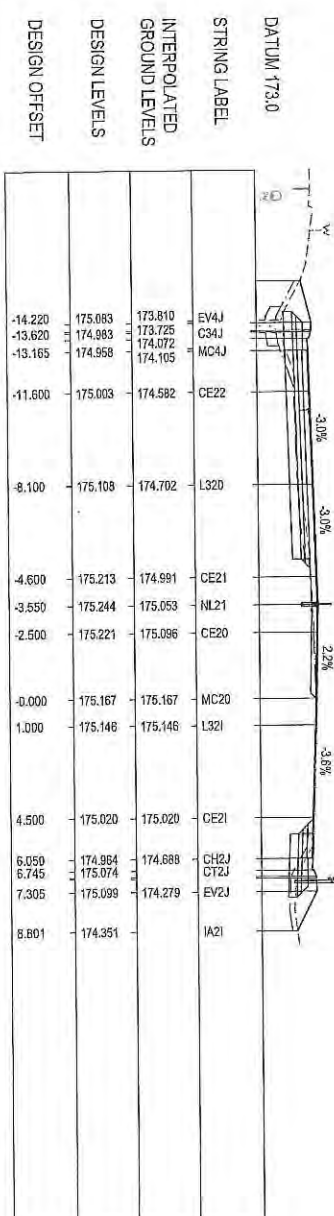
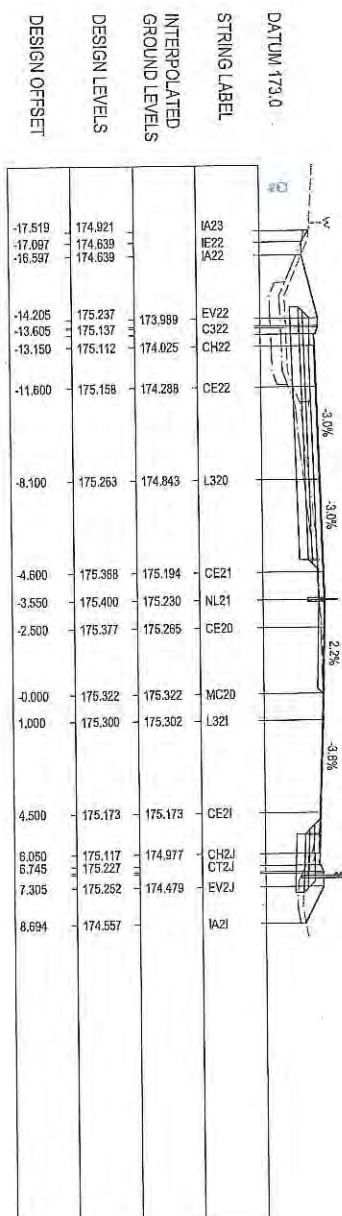
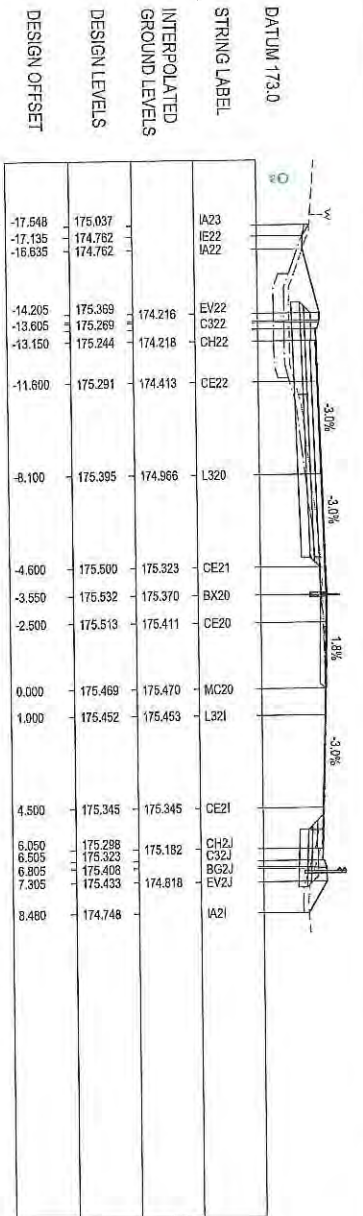
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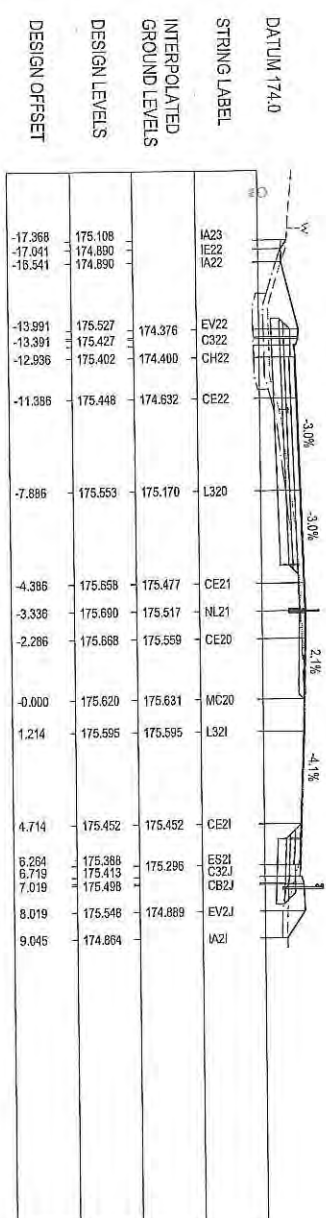
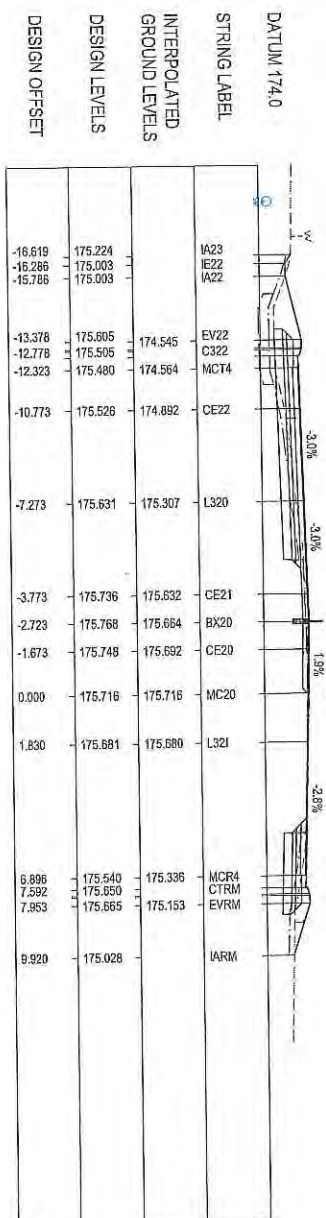
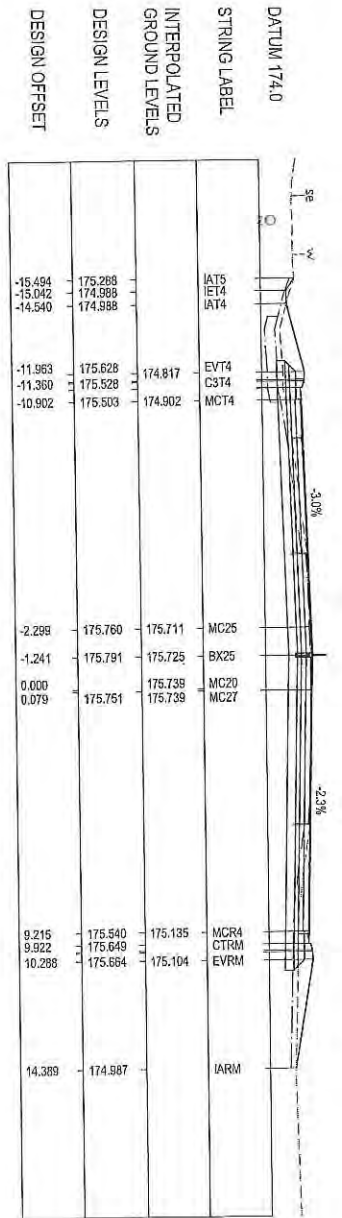
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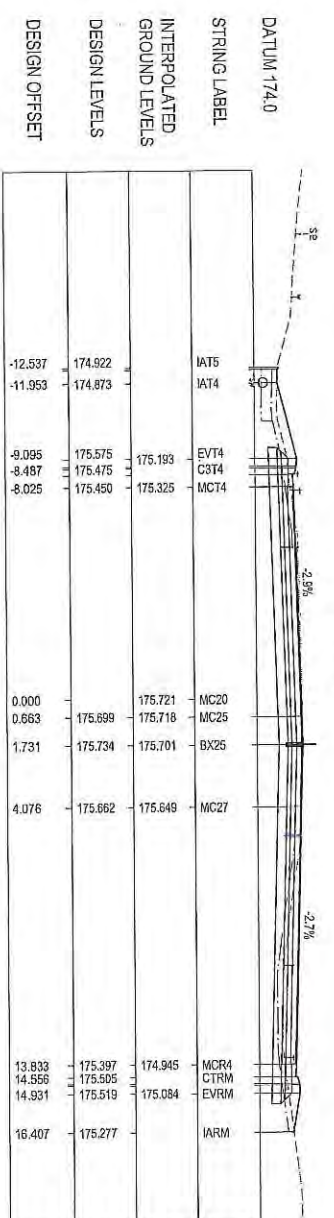
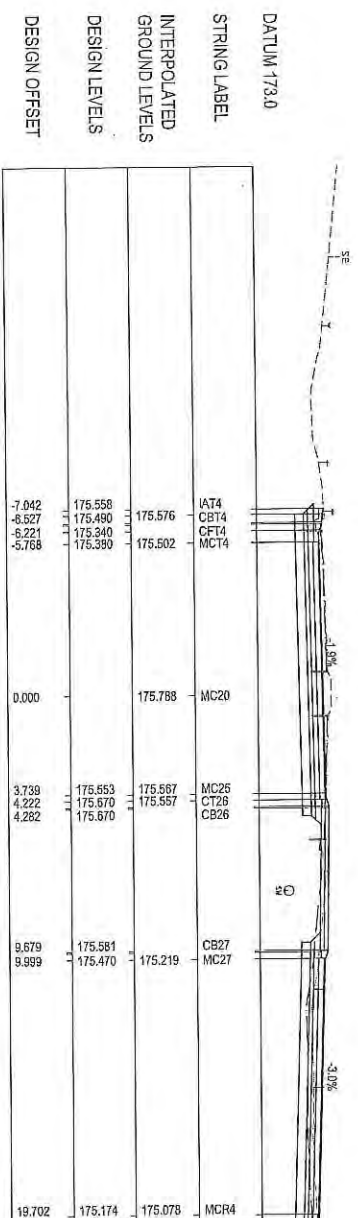
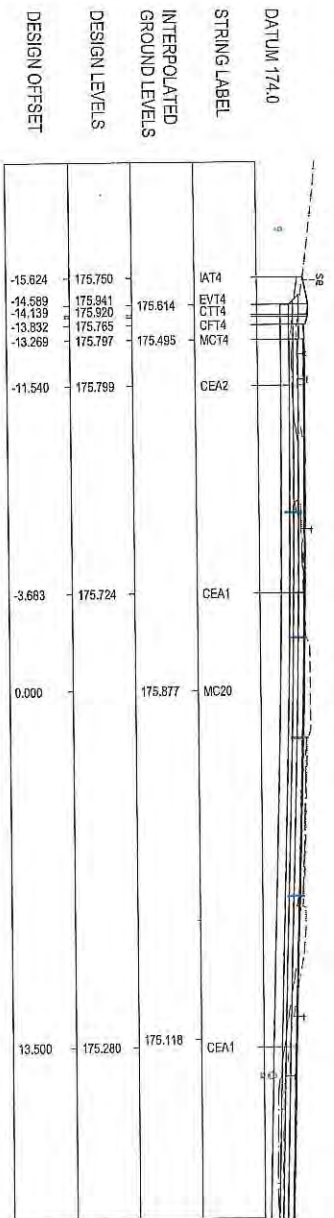


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REGISTRATION NUMBER A1109.001		SHEET No. 1761		REVISION 0	



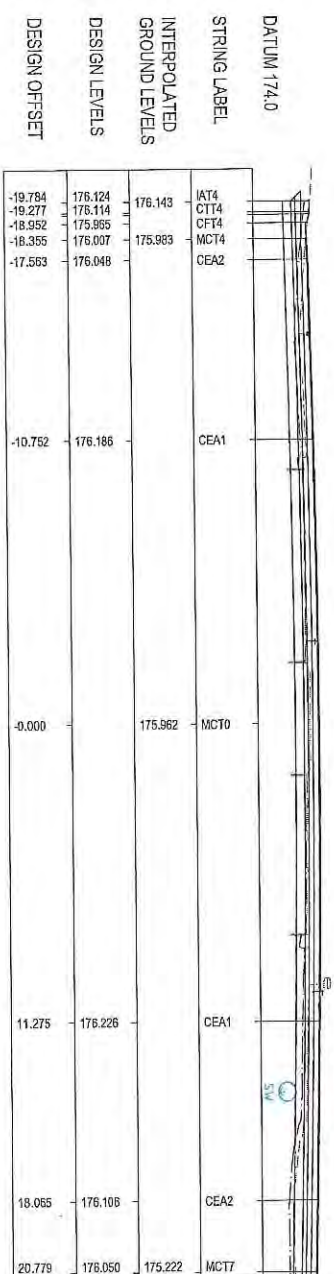
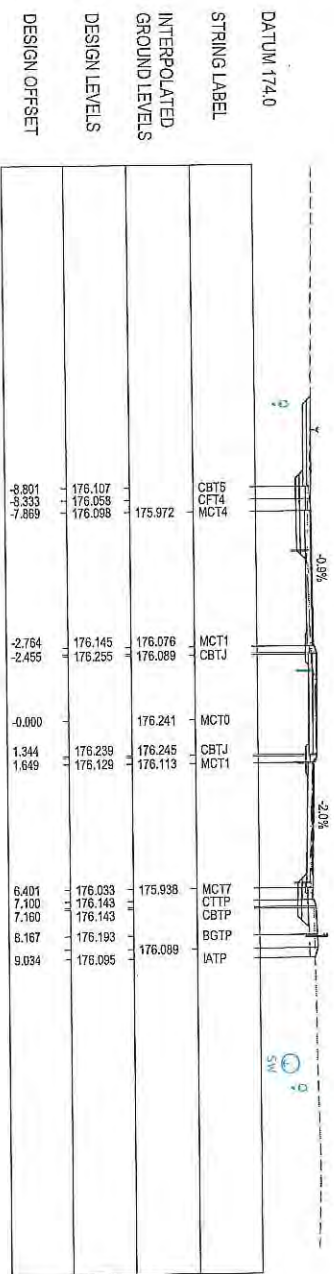
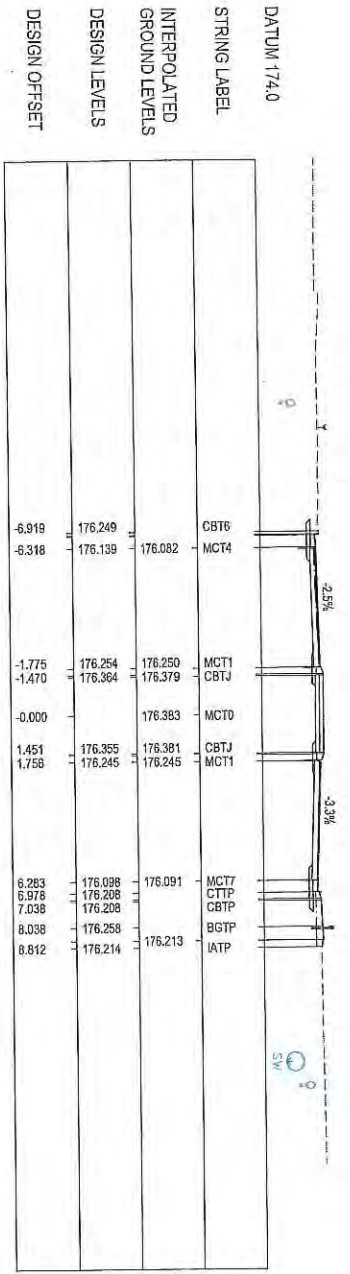
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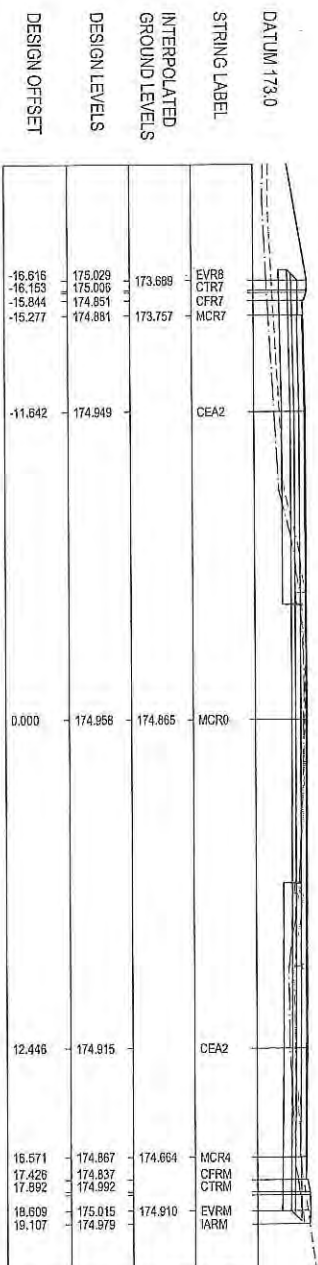
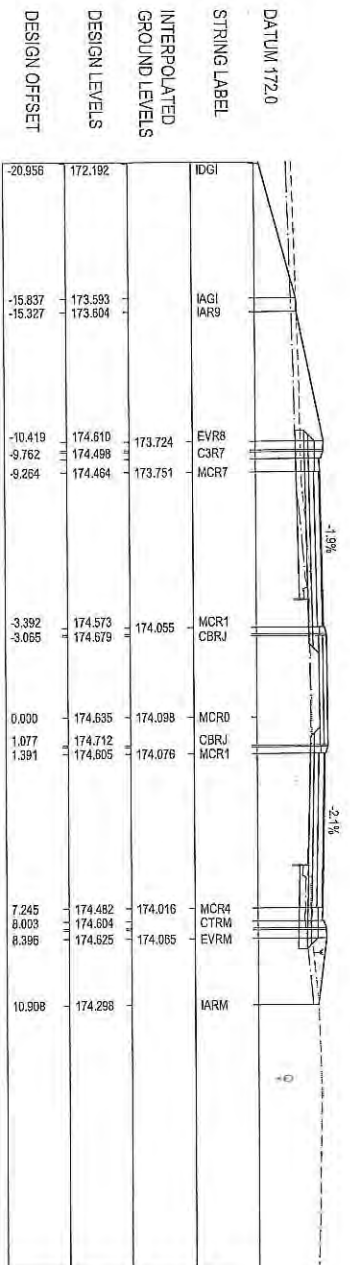
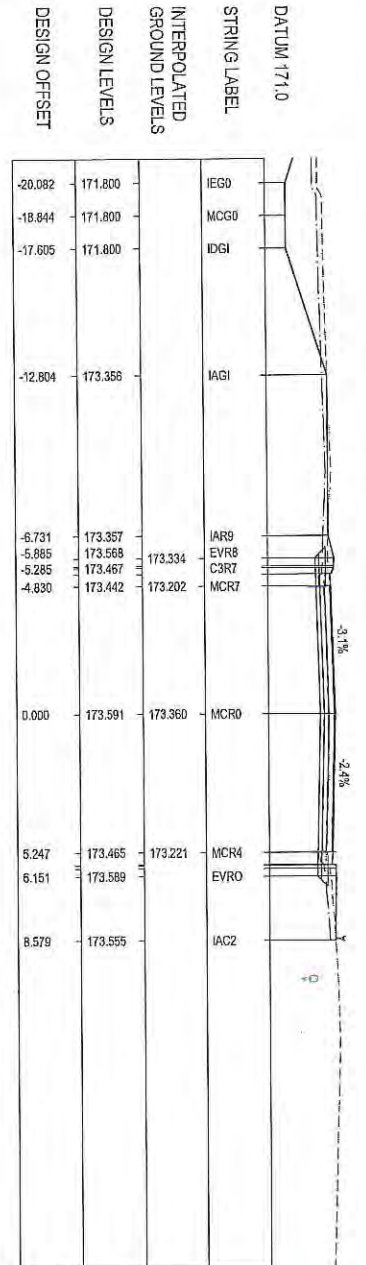


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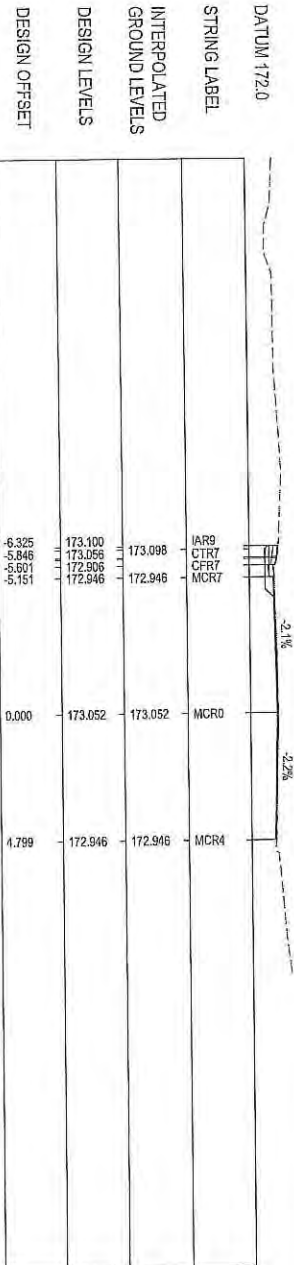
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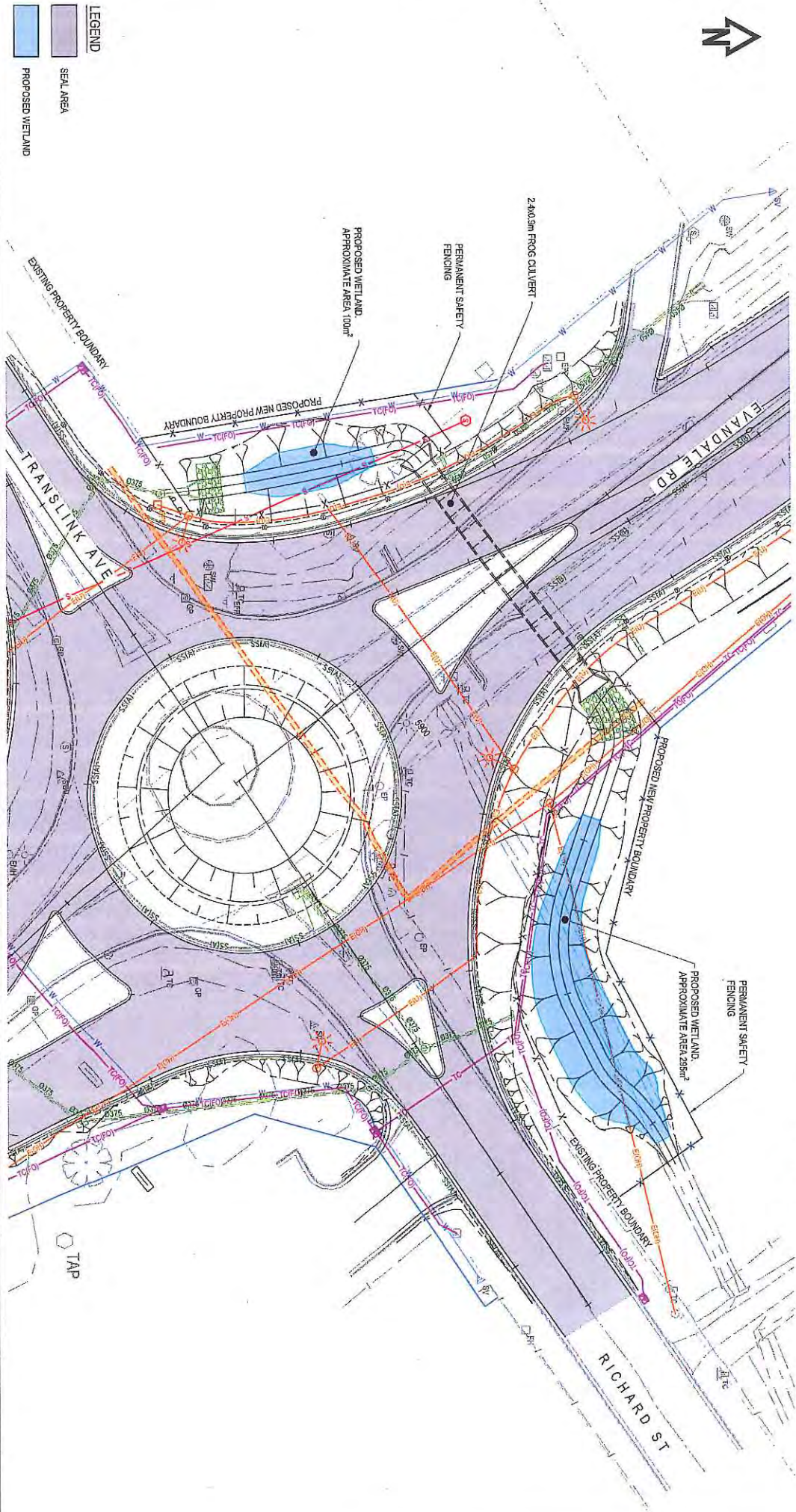
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TRANSLINK AVENUE POND PROFILE
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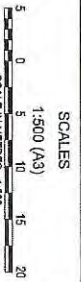


RICHARD STREET POND PROFILE
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LEGEND

- SEAL AREA
- PROPOSED WETLAND



No.	Amendment Description	Initials	Date

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DESIGNED L. ALLEN
REVIEWED D. COE

Department of State Growth
EVANDALE MAIN ROAD (A1109)
BREADALBAINE TO LAUNCESTON AIRPORT
ROADWORKS

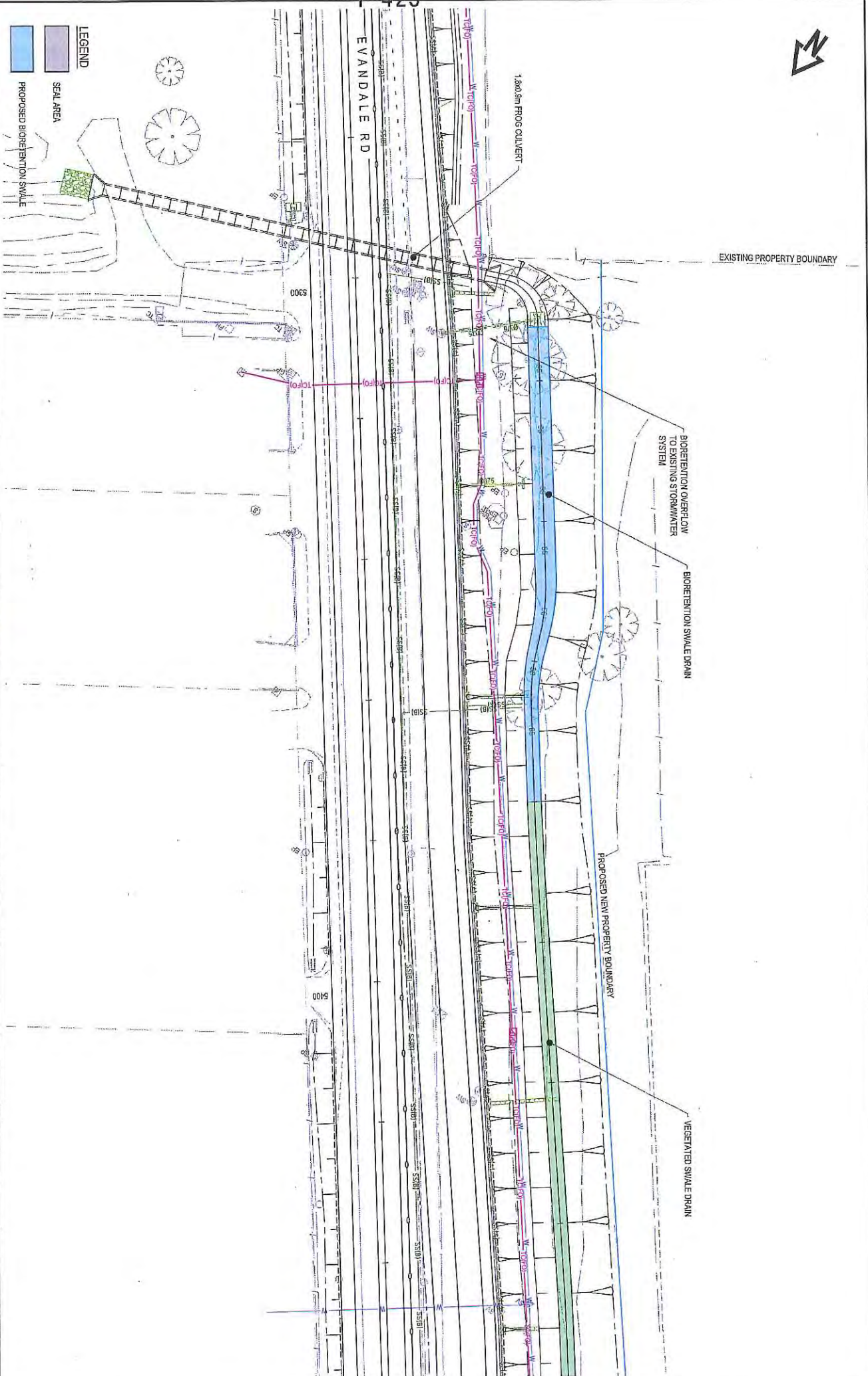
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LEGEND

- SEAL AREA
- PROPOSED BIORETENTION SWALE

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Co-ordinate System: MGA ZONE 56
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 Environmental
 Government

DESIGNED: L. ALLEN
 REVIEWED: D. COE

Department of State Growth
 EVANDALE MAIN ROAD (A1109)
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Appendix B
Natural Values Assessment

1-425



Evandale Main Road
Breadalbane

Natural Values Assessment
For Department of State Growth

7th November 2019
DSG033

Andrew North anorth@northbarker.com.au Philip Barker pbarker@northbarker.com.au
163 Campbell Street Hobart TAS 7000 Telephone 03. 6231 9788 Facsimile 03. 6231 9877

Summary

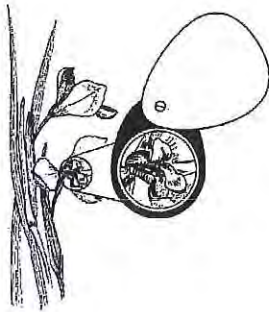
Northern Midlands Planning Scheme 2013: ZONES	General Industrial (D25) Rural Resource (D26) Utilities (D28)
Implications	No anticipated conflicts with these zones
Northern Midlands Planning Scheme 2013: CODES	No relevant natural values codes
Threatened flora	None
Impacts	Nil
Threatened fauna and threatened fauna habitat	Three large blue gums (90-120 cm) as potential foraging habitat for swift parrot outside breeding range. Also foraging habitat for wide-ranging species tolerant of peri-urban areas and that may occur sporadically in the area (e.g. eastern barred bandicoot).
Impacts	Non-significant impact on foraging habitat
Threatened vegetation	None
Impacts	Nil
EPBC Act	No significant impact to MNES
TSP Act	No values that will trigger this Act
NCA Act	No values that will trigger this Act
Weed Management Act	Two Zone B species in the project area: gorse and blackberry

Acknowledgements

Fieldwork and reporting: Richard White
 Project Management: Andrew North
 Client liaison: Glenna Joseph, Department of State Growth

File Control

Version	Date	Author
Draft report	22/10/2019	R. White
Review and delivery to DSG	23/10/2019	A. North
Amended as per comments on green and gold frog from DSG sent 05/11/2019	07/11/2019	R. White



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1. Introduction and Methods

1.1 Background

The Department of State Growth (DSG) is planning a road upgrade to a section of Evandale Main Road (A1109), south of Launceston. To assist with planning and determine potential impacts to natural values, North Barker Ecosystem Services (NBES) have been engaged to undertake a flora and fauna habitat assessment.

1.2 Project Area

The project area (the site) is from the traffic circle at the junction of Evandale Main Road and Midland Highway (Hobart Road) at Breadalbane and runs southeast for ~1.7 km to Hudson Fysh Drive (Figure 1). From the pavement edge the area extends 20 m on either side of the road. The site is comprised entirely of modified heavily managed land.

The site is located in the Tasmanian Northern Midlands Bioregion¹ and in the Northern Midlands Council. The total survey area is approximately 8 ha (Figure 2).

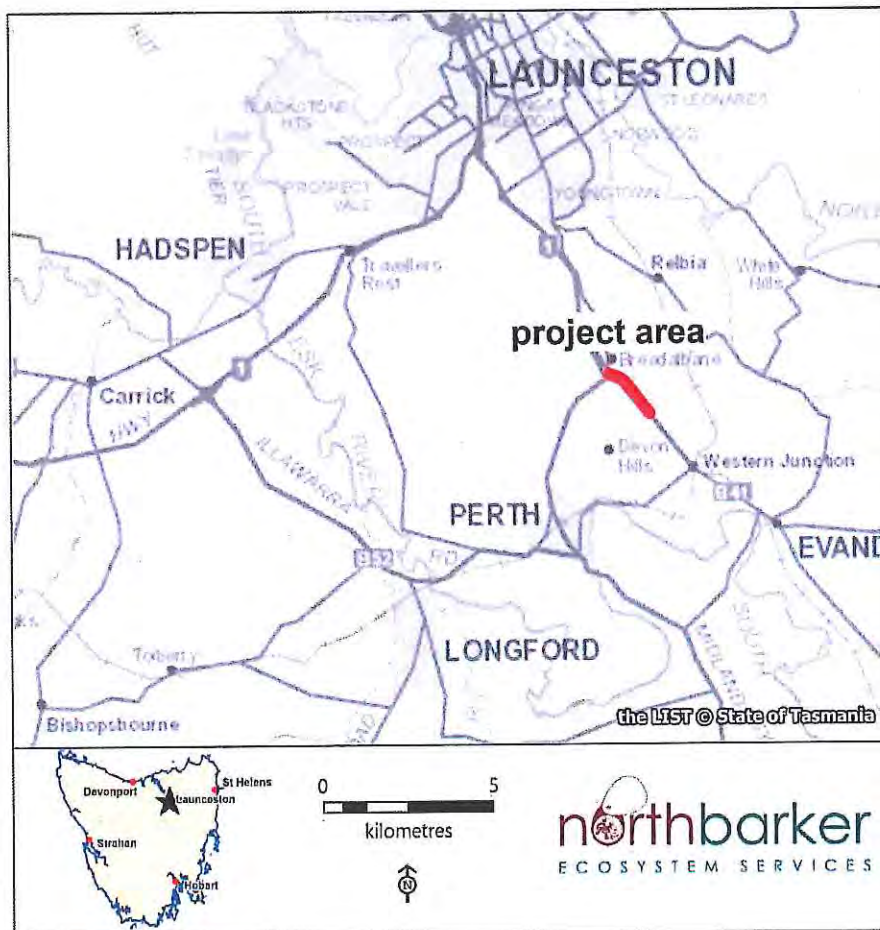


Figure 1: Location of the survey area

¹ IBRA7 - Commonwealth of Australia 2012

1.3 Field Survey

The survey was conducted on the 21st October 2019. Vegetation was mapped across the site in accordance with units defined in TASVEG 3.0². Vascular plant species lists were compiled using the current census of Tasmanian plants³ for nomenclature; minimum survey effort was determined by a meandering area search technique⁴.

Observations of habitat suitability for fauna were made concurrently with the flora surveys. Trees thought capable of providing habitat for threatened fauna were recorded via handheld GPS. As requested by DSG, this survey did not specifically cover green and gold frog (*Litoria raniformis*, see section 2.5 below).

Declared weeds⁵ were mapped throughout the entire survey area.

1.4 Limitations

Data were recorded on a handheld GPS with an average accuracy of < 10 m.

Due to seasonal variations in detectability and identification, there may be some species that have been overlooked or were seasonally absent during our surveys. To compensate for these limitations to some degree, data from our field surveys are supplemented with data from TASVEG and the Tasmanian Natural Values Atlas (NVA).

2. Biological Values

2.1 VEGETATION

No native vegetation communities occur in the survey area. The site comprises heavily managed easements, built areas (e.g. car park), and cultivated hedgerows and gardens. Occasional native trees remain or have been planted in places (e.g. *Eucalyptus globulus*, *Acacia mearnsii*), and there are small (<0.1 ha), highly disturbed patches of native grasses in the north of the survey area. Accordingly, the whole site is mapped as extra-urban miscellaneous (FUM – TASVEG 3.0).

There are occasional table drains and culverts supporting plants adapted to poorly drained sites that include a few natives, though typical dominated by introduced species such as *Plantago coronopus*, *Cyperus eragrostis*, *Holcus lanatus*, and *Callitriche stagnalis* (the latter in infrequent and small areas of standing water).

² DPIPWE 2013, Harris & Kitchener 2005

³ de Salas and Baker 2016

⁴ Goff et al. 1982

⁵ Tasmanian Weed Management Act 1999



Figure 2: Natural values in the project area



Plate 1: Grassy easement in the north of the survey area



Plate 2: Area of planted eucalypts



Plate 3: Drain at culvert outlet

2.3 FLORA OF CONSERVATION SIGNIFICANCE

2.3.1 THREATENED FLORA

A total of 60 vascular plant taxa were recorded in the project area (only species that are assumed to have naturalised were recorded, i.e. garden species were largely excluded). Of those, 40 species are introduced.

No threatened flora species have been recorded within 500 m of the project area. In Table 1, all threatened flora recorded within 5 km of the site⁶ are presented. It is thought highly unlikely that any threatened flora species occur in the project area. Based on the highly modified and the highly disturbed nature of the project area, most of the species are highly unlikely to occur and been overlooked. Any remaining species that can potentially occur in disturbed habitat (e.g. *Haloragis heterophylla*) are highly unlikely to occur or have been overlooked.

⁶ Natural Values Atlas Report, nvr_8_21-Oct-2019

Table 1: Threatened flora observations attributed to within 5 km of the project area; SS = Tasmanian Threatened Species Protection Act 1995, NS = Commonwealth Environment Protection and Biodiversity Conservation Act 1999

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
<i>Alternanthera denticulata</i>	lesser joyweed	e		n	4	14-Feb-2018
<i>Aphelia gracilis</i>	slender fanwort	r		n	11	15-Nov-2014
<i>Aphelia pumilio</i>	dwarf fanwort	r		n	31	16-Nov-2016
<i>Bolboschoenus caldwellii</i>	sea clubsedg	r		n	2	14-May-2018
<i>Brunonia australis</i>	blue pincushion	r		n	28	13-Nov-2013
<i>Caesia calliantha</i>	blue grasslily	r		n	27	16-Nov-2016
<i>Caladenia filamentosa</i>	daddy longlegs	r		n	1	29-Oct-1893
<i>Callitriche umbonata</i>	winged waterstarwort	r		n	4	17-Jan-1993
<i>Dianella amoena</i>	grassland flaxlily	r	EN	n	3	03-Mar-1980
<i>Gyrostemon thesioides</i>	broom wheelfruit	r		n	1	01-Jan-1934
<i>Haloragis heterophylla</i>	variable raspwort	r		n	13	15-Nov-2014
<i>Hovea tasmanica</i>	rockfield purplepea	r		e	1	12-Oct-1892
<i>Juncus amabilis</i>	gentle rush	r		n	1	27-Mar-1981
<i>Juncus prismatocarpus</i>	branching rush	r		n	6	07-Feb-1979
<i>Lobelia pratensis</i>	poison lobelia	v		n	1	01-Jan-1837
<i>Lycopus australis</i>	australian gypsywort	e		n	5	14-Feb-2018
<i>Lythrum salicaria</i>	purple loosestrife	v		n	7	14-Feb-2018
<i>Mentha australis</i>	river mint	e		n	1	26-Jan-1894
<i>Muehlenbeckia axillaris</i>	matted lignum	r		n	1	01-Dec-1890
<i>Myriophyllum integrifolium</i>	tiny watermilfoil	v		n	2	15-Nov-2014
<i>Persicaria decipiens</i>	slender waterpepper	v		n	1	14-Feb-2018
<i>Pomaderris intermedia</i>	lemon dogwood	r		n	1	02-Apr-1950
<i>Prostanthera cuneata</i>	alpine mintbush	x		n	2	01-Jan-1896
<i>Pultenaea prostrata</i>	silky bushpea	v		n	3	20-Nov-1995
<i>Senecio macrocarpus</i>	largefruit fireweed	x	VU	n	1	01-Jan-1837
<i>Siloxerus multiflorus</i>	small wrinklewort	r		n	14	16-Nov-2016
<i>Spyridium vexilliferum</i> var. <i>vexilliferum</i>	helicopter bush	r		n	1	01-Jan-1892
<i>Stylidium despectum</i>	small triggerplant	r		n	1	15-Nov-2014
<i>Teucrium corymbosum</i>	forest germander	r		n	1	04-Dec-1967
<i>Tricoryne elatior</i>	yellow rushlily	v		n	25	15-Jan-2014
<i>Triptilodiscus pygmaeus</i>	dwarf sunray	v		n	46	16-Nov-2016
<i>Vittadinia burbridgeae</i>	smooth new-holland-daisy	r		e	19	12-Nov-2013
<i>Vittadinia cuneata</i> var. <i>cuneata</i>	fuzzy new-holland-daisy	r		n	1	01-Nov-1984

2.4 Weeds

Our survey recorded two declared weeds (Figure 2):

- Blackberry (*Rubus fruticosus*) – this is the outstanding weed in the project area and occurs widely, especially on the eastern side of the road in hedgerows and on fence lines.
- gorse (*Ulex europaeus*) – occurs in three discreet patches.

Environmental weeds include the infrequently recorded sweet briar (*Rosa rubiginosa*) and variegated thistle (*Silybum maritimum*).

Earthworks on site are likely to stimulate germination of the declared weeds on site. The use of machinery and vehicles during construction also increases the risk of spreading these weeds from the site and introducing others. Best practice site hygiene and primary and secondary weed control⁷ should be implemented to prevent the proliferation, spread and/or introduction of weeds as a result of the proposal.

⁷ Weed and Disease Planning and Hygiene Guidelines - Preventing the spread of weeds and diseases in Tasmania (DPIPWE, Stewart and Askey-Doran, 2015)

2.5 Fauna of Conservation Significance

No threatened fauna have been recorded within 500 m of the project area. In Table 2, all threatened fauna recorded within 5 km of the site^B are presented. It is thought highly unlikely that any threatened fauna occur regularly, or have significant habitat in the project area. Several threatened fauna have limited potential to occur based on the habitat quality and/or type. The remaining species are wide-ranging and to some degree tolerant of habitat disturbance characteristic of peri-urban environments; these species may forage in the project area from time to time and are: Tasmanian wedge-tailed eagle, eastern barred bandicoot, quolls, and Tasmanian devil.

As requested by DSG, this survey did not specifically cover habitat or potential impacts to green and gold frog (*Litoria raniformis*) as it is in the core range for this species and may be assumed to be in the area. Accordingly, DSG management guidelines for this species should be applied.

Table 2: Threatened fauna observations attributed to within 5 km of the project area; SS = Tasmanian Threatened Species Protection Act 1995, NS = Commonwealth Environment Protection and Biodiversity Conservation Act 1999

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
<i>Aquila audax</i>	wedge-tailed eagle	pe	PEN	n	2	06-Dec-2012
<i>Aquila audax</i> subsp. <i>flavii</i>	tasmanian wedge-tailed eagle	e	EN	e	5	29-Nov-2016
<i>Dasyurus maculatus</i>	spotted-tail quoll	r	VU	n	3	16-May-2019
<i>Dasyurus maculatus</i> subsp. <i>maculatus</i>	spotted-tail quoll	r	VU	n	4	11-Jul-2006
<i>Dasyurus viverrinus</i>	eastern quoll		EN	n	3	22-May-1996
<i>Haliaeetus leucogaster</i>	white-bellied sea-eagle	v		n	1	23-Jun-2019
<i>Hydroptila scamandra</i>	caddis fly (upper scamander river)	r		n	1	28-Feb-1963
<i>Litoria raniformis</i>	green and gold frog	v	VU	n	7	01-Dec-2018
<i>Oecetis gilva</i>	caddis fly (south esk river)	r		n	1	01-Mar-1967
<i>Perameles gunnii</i>	eastern barred bandicoot		VU	n	7	25-Oct-1992
<i>Sarcophilus harrisi</i>	tasmanian devil	e	EN	e	5	24-Jan-1992
<i>Thylacinus cynocephalus</i>	thylacine	x	EX	ex	1	01-Jan-1969
<i>Tyto novaehollandiae</i>	masked owl	pe	PVU	n	6	06-Aug-1989
<i>Tyto novaehollandiae</i> subsp. <i>castanops</i>	masked owl (tasmanian)	e	VU	e	1	19-Sep-2012

There are three large planted *Eucalyptus globulus* in the project area (90-120 cm, Figure 2, Plate 4). Although these may be regarded as potential foraging habitat for swift parrot (*Lathamus discolor*, TSPA – 'endangered', EPBCA – 'critically endangered'), habitat for this species is limited in the area, and given the paucity of records (none within 5 km), it is unlikely that these trees are utilised by this species. Furthermore, the location of the project area not located near any of the swift parrot important breeding areas (see map at Appendix B)

No tree hollows or dens potentially suitable for threatened fauna were recorded.

^B Natural Values Atlas Report, nvr_8_21-Oct-2019



Plate 4: The three planted *Eucalyptus globulus* in the project area (in the foreground)

3. Potential Impacts of Project

This project is expected to have no significant impacts to any threatened species or vegetation community. Although, some threatened fauna species may forage in the area (e.g. eastern barred bandicoot), these are wide-ranging fauna and the development of the proposal is expected to have no impact. The proposal area is unlikely to support a population or be important to the survival of a local population for any of these species. Accordingly, no mitigatory measures are recommended for these species.

The project area is within the core range of green and gold frog (*Litoria raniformis*) and DSG management guidelines for this species should be applied.

4. Legislative Implications

4.1 Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

The EPBCA is structured for self-assessment. There are guidelines and criteria available⁹ to assist any person to determine if the action they propose is likely to have a significant impact on any species or community listed under the Act. If a significant impact is likely, then the Action should be referred to the Australian Government Department of the Environment for a decision by the Minister (the minister) on whether assessment and approval is required under the Act.

Potential impacts to any EPBCA fauna that may utilise the site are not likely to trigger the significant impact criteria.

No flora species listed as threatened under the EPBCA were recorded.

⁹ Commonwealth of Australia 2013

4.2 Tasmanian *Threatened Species Protection Act 1995*

Any impact on threatened plant species listed under the TSPA will require a 'permit to take' from the Policy and Conservation Assessments Branch (PCAB) at the Department of Primary Industries, Parks, Wildlife and the Environment (DPIPWE).

No threatened species listed under this Act are expected to be impacted by this species.

4.3 Tasmanian *Weed Management Act 1999*

The two declared weeds found in the survey area are classed as Zone B species in the Northern Midlands Council. According to the provisions of the *Weed Management Act 1999* (WMA), Zone B municipalities are those that host infestations of the 'declared weed' that are not deemed eradicable because the feasibility of effective management is low at this time. Therefore, the objective is containment of infestations. The objective includes preventing spread of the 'declared weed' from the municipality and preventing spread to properties currently free of them. There is a requirement to prevent spread of the 'declared weeds' to properties containing sites for significant flora, fauna and vegetation communities.

4.4 Northern Midlands Interim Planning Scheme 2013

The project area traverses the following three codes under the NMIPS; there are no overlays relevant to natural values that are likely to be implicated:

1. General Industrial (D25)
2. Rural Resource (D26)
3. Utilities (D28)

Based on the natural values present, there are no provisions that conflict with the purposes and objectives of these codes.

5. Recommendations

Given the paucity of natural values of conservation significance no mitigation measures are warranted. However, best practice site hygiene and primary and secondary weed control should be implemented to prevent the proliferation, spread and/or introduction of weeds as a result of the proposal.

Appendix A: Vascular Plant Species List

Status codes:

ORIGIN

i - introduced

d - declared weed WM Act

en - endemic to Tasmania

† - within Australia, occurs only in Tas.

NATIONAL SCHEDULE

EPBC Act 1999

CR - critically endangered

EN - endangered

VU - vulnerable

STATE SCHEDULE

TSP Act 1995

e - endangered

v - vulnerable

r - rare

Sites:

1 FUM - E515714, N5402257

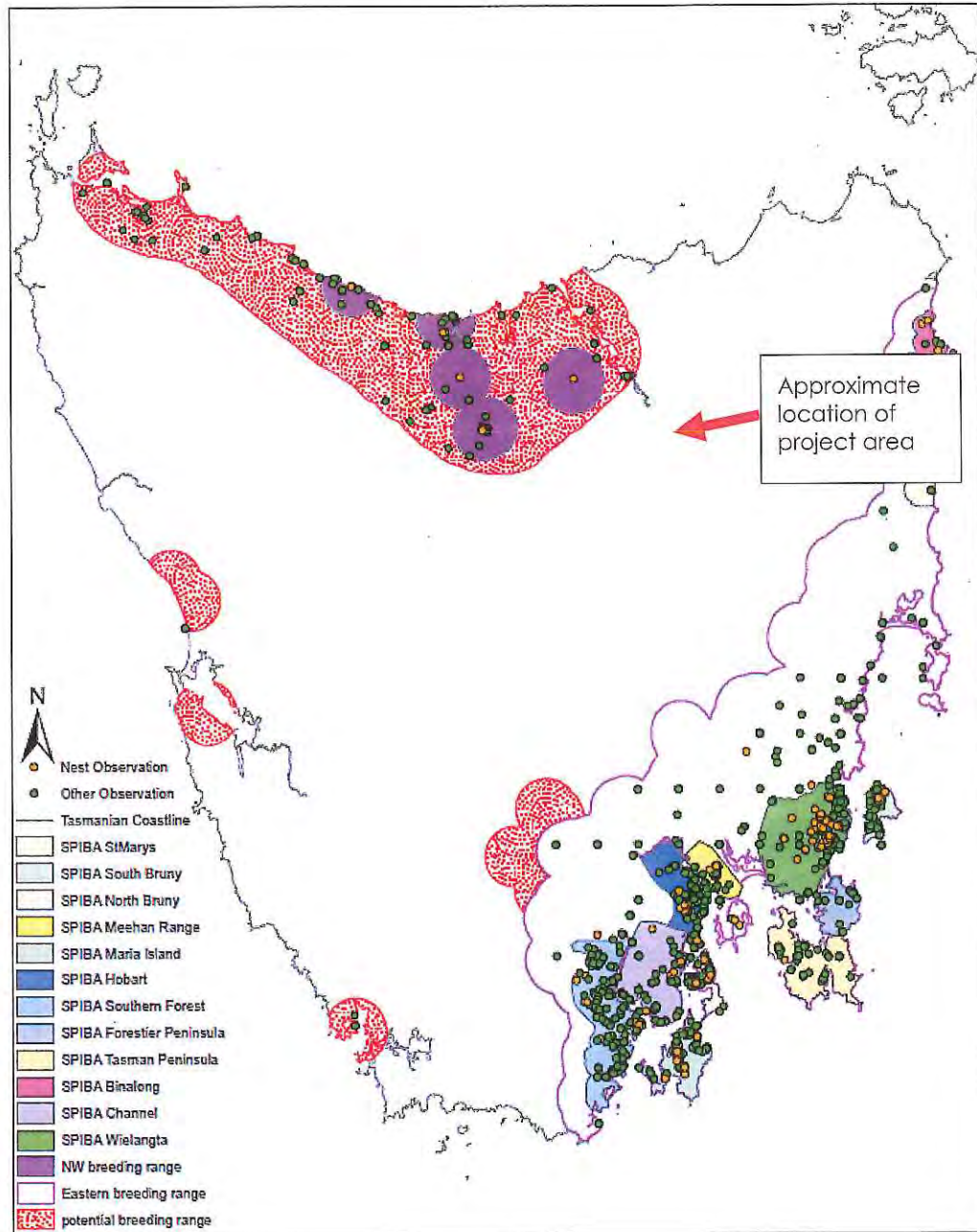
21/10/2019 Richard White

Site	Name	Common name	Status
	DICOTYLEDONAE		
	ASTERACEAE		
1	<i>Achillea millefolium</i>	yarrow	i
1	<i>Arctotheca calendula</i>	capeweed	i
1	<i>Hypochaeris radicata</i>	rough catsear	i
1	<i>Leontodon saxatilis</i>	hairy hawkbit	i
1	<i>Senecio quadridentatus</i>	cotton fireweed	i
1	<i>Silybum marianum</i>	variegated thistle	i
1	<i>Sonchus oleraceus</i>	common sowthistle	i
	BORAGINACEAE		
1	<i>Myosotis discolor</i>	changing forgetmenot	†
	BRASSICACEAE		
1	<i>Brassicaceae</i> sp.		i
1	<i>Cardamine</i> sp.	bittercress	
	CALLITRICHACEAE		
1	<i>Callitriche stagnalis</i>	mud waterstarwort	i
	CARYOPHYLLACEAE		
1	<i>Cerastium glomeratum</i>	sticky mouse-ear	i
1	<i>Moenchia erecta</i>	erect chickweed	†
	CRASSULACEAE		
1	<i>Crassula decumbens</i> var. <i>decumbens</i>	spreading stonecrop	
	DIPSACACEAE		
1	<i>Dipsacus fullonum</i>	wild teasel	i
	FABACEAE		
1	<i>Acacia dealbata</i> subsp. <i>dealbata</i>	silver wattle	
1	<i>Acacia mearnsii</i>	black wattle	
1	<i>Trifolium repens</i>	white clover	i
1	<i>Trifolium</i> sp.	clover	i
1	<i>Ulex europaeus</i>	gorse	d
1	<i>Vicia</i> sp.	vetch, tare	i
	FUMARIACEAE		
1	<i>Fumaria</i> sp.	fumitory	i

GERANIACEAE			
1	<i>Erodium cicutarium</i>	common heronsbill	i
1	<i>Erodium moschatum</i>	musky heronsbill	i
1	<i>Geranium sp.</i>	Non native geranium	i
MYRTACEAE			
1	<i>Eucalyptus amygdalina</i>	black peppermint	en
1	<i>Eucalyptus globulus subsp. globulus</i>	tasmanian blue gum	planted
ONAGRACEAE			
1	<i>Epilobium billardierianum</i>	common willowherb	
PLANTAGINACEAE			
1	<i>Plantago coronopus</i>	buckshorn plantain	i
1	<i>Plantago lanceolata</i>	ribwort plantain	i
1	<i>Veronica calycina</i>	hairy speedwell	
POLYGONACEAE			
1	<i>Acetosella vulgaris</i>	sheep sorrel	i
1	<i>Rumex conglomeratus</i>	clustered dock	i
1	<i>Rumex crispus</i>	curled dock	i
PRIMULACEAE			
1	<i>Lysimachia arvensis</i>	scarlet pimpernel	i
ROSACEAE			
1	<i>Acaena novae-zelandiae</i>	common buzzy	
1	<i>Aphanes arvensis</i>	parsley piert	i
1	<i>Crataegus monogyna</i>	hawthorn	i
1	<i>Rosa rubiginosa</i>	sweet briar	i
1	<i>Rubus fruticosus</i>	blackberry	d
RUBIACEAE			
1	<i>Asperula conferta</i>	common woodruff	
MONOCOTYLEDONAE			
ARACEAE			
1	<i>Zantedeschia aethiopica</i>	arum lily	i
CYPERACEAE			
1	<i>Cyperus eragrostis</i>	drain flatsedge	i
1	<i>Schoenus apogon</i>	common bogsedge	
IRIDACEAE			
1	<i>Romulea rosea var. australis</i>	lilac oniongrass	i
JUNCACEAE			
1	<i>Juncus pauciflorus</i>	looseflower rush	
1	<i>Juncus sp.</i>	rush	
POACEAE			
1	<i>Aira elegantissima</i>	delicate hairgrass	i
1	<i>Anthosachne scabra</i>	rough wheatgrass	
1	<i>Anthoxanthum odoratum</i>	sweet vernalgrass	i
1	<i>Arthenatherum elatius var. bulbosum</i>	bulbous oatgrass	i
1	<i>Bromus catharticus</i>	prairie grass	i
1	<i>Bromus diandrus</i>	great brome	i
1	<i>Bromus hordeaceus</i>	soft brome	i

1	<i>Cynosurus echinatus</i>	rough dogstail	i
1	<i>Holcus lanatus</i>	yorkshire fog	i
1	<i>Poa annua</i>	winter grass	i
1	<i>Rytidosperma</i> sp.	wallabygrass	
1	<i>Vulpia</i> sp.	fescue	i
	TYPHACEAE		
1	<i>Typha latifolia</i>	great reedmace	i

Appendix B: Swift Parrot Important Breeding Area



Appendix C

Stormwater Management Plan

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Stormwater Management Plan

Evandale Main Road Duplication

Prepared for
Department of State Growth

Client representative
Trevor Gibson

Date
7 August 2020

Rev 00



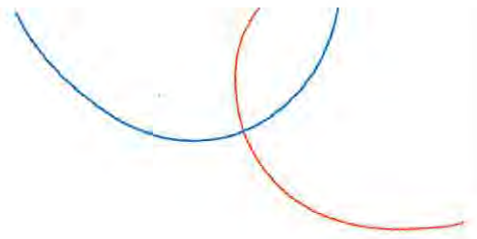


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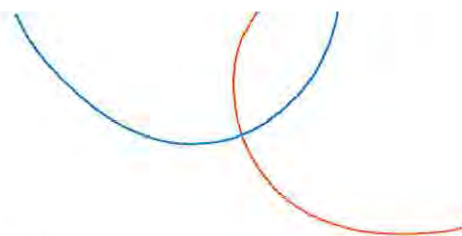
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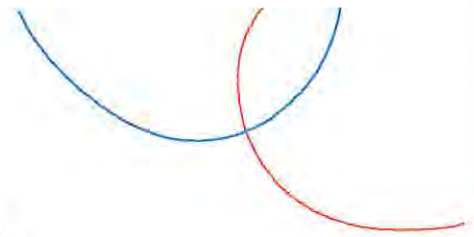
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Authorised by — Rhys Thorp		Date — 07/08/2020

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Rev No.	Description	Prepared by	Reviewed by	Authorised by	Date
00	Stormwater Management Plan	H Peacock	A Hsu	R Thorp	07/08/2020

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1. Background and Design Specifications

The Department of State Growth (DSG) plans to upgrade Evandale Main Road leading to Launceston Airport. The plan includes generally widening the Highway to 4 lanes between the Breadalbane roundabout and Launceston Airport.

New and upgraded stormwater drainage infrastructure is necessary to allow for changes to the road geometry. New stormwater drainage infrastructure is required to meet DSG drainage criteria for a Category 1 road. The requirements include but are not limited to:

- Flood immunity for a 100-year Average Recurrence Interval (ARI) (1% AEP) event with 500mm freeboard
- Kerb and Gutter capacity for a 20-year ARI event (5% AEP)
- Flow depth for the 5-minute, 2-year ARI event to be below aquaplaning depth
- Minimum 0.5% longitudinal grade in open drains and culverts
- Catchment surface type to be assumed for development 25 years hence

The Northern Midlands Interim Planning Scheme 2013 has a number of stormwater disposal requirements relating stormwater drainage, including to the specific Translink industrial area including:

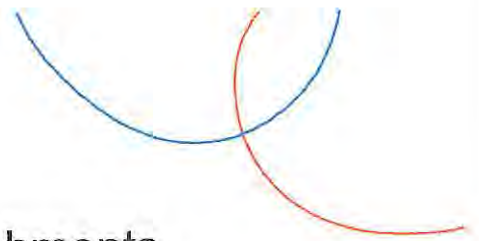
- Detention of stormwater to pre-development levels for the 1% AEP storm event
- Stormwater shall not cause environmental nuisance
- Overland flow paths in extreme events shall not cause nuisance outside or inside of the site.

This project will include best practice Water Sensitive Urban Design, that will mitigate the harmful environmental impacts of stormwater discharge and provide attractive habitats to enhance biodiversity including:

- two permanently-fenced frog ponds (wetlands) on either side of the road, connected by an underground box culvert (to allow the passage of small fauna e.g. frogs);
- a bioretention swale drain, which will be connected by an underground box culvert to land on the other side of the road; and
- open roadside swale drains.

All assessments and design have been undertaken in accordance with the following guidelines and specifications:

- The Department of State Growth (DSG) T8 Drainage Specification
- Austroads Part 5 - Drainage Design
- Northern Midlands Interim Planning Scheme 2013
- Australian Rainfall and Runoff 2019 (ARR19).



2. Existing Stormwater Network and Catchments

There are several stormwater detention basins present in the adjacent industrial area. For road design purposes, it has been conservatively assumed that these basins are not maintained and do not provide flow attenuation. This assumption has been made as the Department of State Growth does not maintain this infrastructure and can't guarantee its performance.

The existing stormwater network includes road drainage and culverts which has been reviewed and does not have capacity to convey the 1% AEP storm event (with freeboard) for a fully developed catchment under the assumptions made.

The existing road stormwater network along Evandale Main Road consists of sections of kerb and gutter and open drains with some larger stormwater mains running along the existing road reserve. The major stormwater catchments that cross the road are displayed in Figure 1. The road network along the design alignment discharges stormwater at five locations:

- The 72.3-hectare catchment discharges via a culvert under Evandale Main Road on the Eastern end of the Breadalbane Roundabout, this culvert is on the limit of works and is to be maintained.
- The 3.1-hectare catchment discharges via a 375mm pipe culvert to the north of the road, this culvert will be upgraded
- The 74.1-hectare catchment discharges through a 450mm pipe culvert to an existing watercourse, this culvert is significantly undersized for the 1% AEP
- The 53.1-hectare catchment discharges via a 1200mm pipe into a large open drain on the Airport land, overland flow in rarer events however flows further south east of the 1200mm pipe outlet and then overtops the road before discharging through the Airport, the 1200mm pipe will be upgraded to ensure the overland flow up to the 1% AEP flows across to the large open drain on the Airport boundary
- The 134.6-hectare catchment discharges via an unknown diameter pipe under Evandale Main Road onto the Airport land, this culvert is beyond the extent of the road works, but part of the road drainage network stormwater is conveyed to this point
- The 1.5-hectare catchment discharges under Evandale Main Road to the same stormwater main as the 53.1-hectare catchment.
- The 134.6- and 53.1-hectare catchments meet up at a culvert that conveys water under the Launceston Airport runway.

In some locations the minor (pipe) network differs from the major overland flow path. This has been considered in the stormwater design.

The upstream extent of most catchments is mild to steep rural paddocks with the lower extents flatter industrial sites with some significant developed impervious areas. The stormwater design assumes a fully developed industrial zone (see Figure 2 for zoning). The aerial image indicates that there are significant areas still to be developed.



Figure 1: Major Stormwater Catchments (Hectares) Discharging Under Evandale Main Road

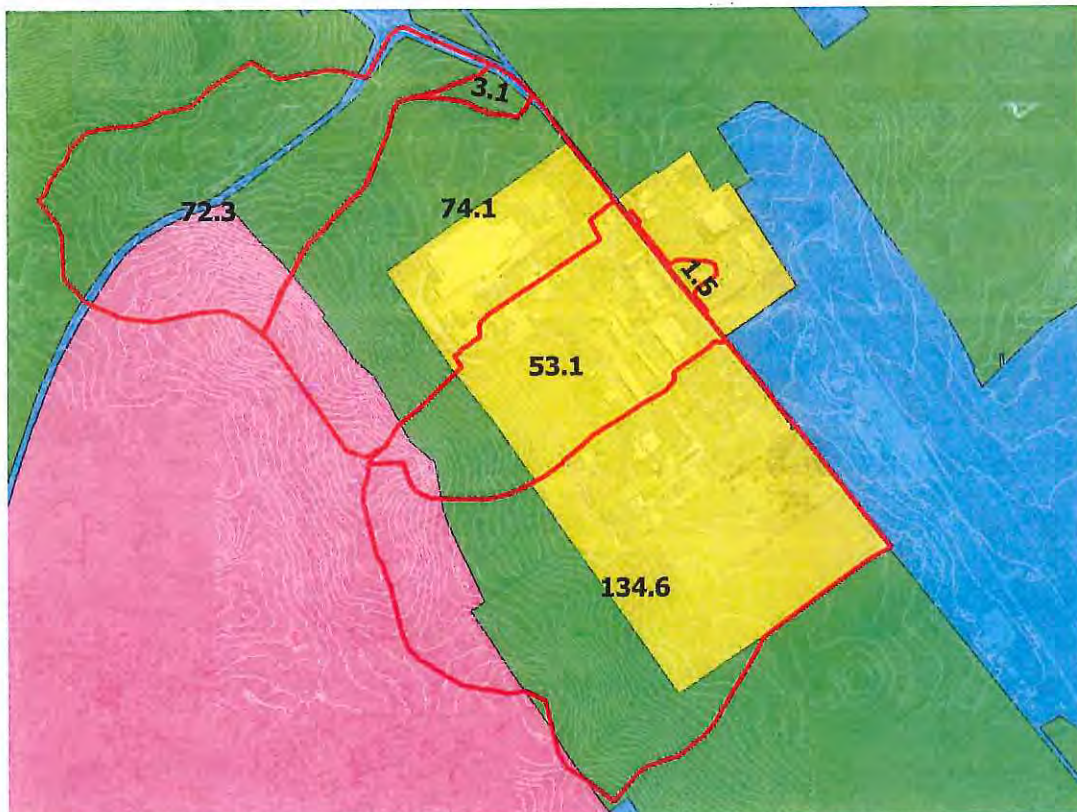


Figure 2: Planning Scheme Zoning (green rural resource, blue utilities, yellow industrial, pink low density residential)

3. Hydrology and Hydraulics

Hydrologic and hydraulic analysis was undertaken in accordance with the procedures recommended by Australian Rainfall and Runoff 2019. Rainfall Intensity Frequency Durations (IFD) data was obtained from the Bureau of Meteorology website. Pre-burst rainfall depths were obtained from the ARR datahub. Terrain data was obtained from detailed survey and the existing 2017 lidar obtained from elevation spatial data freely available from Geoscience Australia. Catchments were delineated using GIS software QGIS.

A DRAINS model was created to assess both the existing and proposed hydrology and hydraulics. An ILSAX hydrological model (DRAINS) was used to assess the hydrology. The hydrologic assessment included the assessment of storm durations from 5 minutes to 24 hours, with ten temporal patterns for each duration and consideration of median pre-burst rainfall depths. This model incorporates initial and continuing soil losses, combined with a surface depression storage. The following assumptions were made in the model:

- Depression storage of 1mm for paved areas and 5mm for grassed areas, DRAINS soil type 3 for pervious areas representing a soil that impedes downward movement of water (see Figure 3).
- DRAINS antecedent moisture condition 3 representing 12-25mm of rain in the preceding days.
- 5-minute impervious minimum concentration times
- Time of concentration estimated from travel time components as recommended in the Queensland Urban Drainage Manual (QUDM)
- Pit loss coefficients were estimated from values recommended in ARR2019 book 9 – Runoff in Urban Areas
- Pit inlet capacities were derived from LGAT standard drawing pit curve capacities
- Manning's 'n' values of 0.013 and 0.015 were adopted for RCP pipes and pavements respectively
- Tailwater levels (downstream of the road outfalls) have been assumed from lidar information and consideration of major hydraulic controls (e.g. open drain capacities and downstream culvert spill levels)
- Stormwater detention has been assessed based on the proposed road impact to the entire existing catchment flows for the 1% AEP.

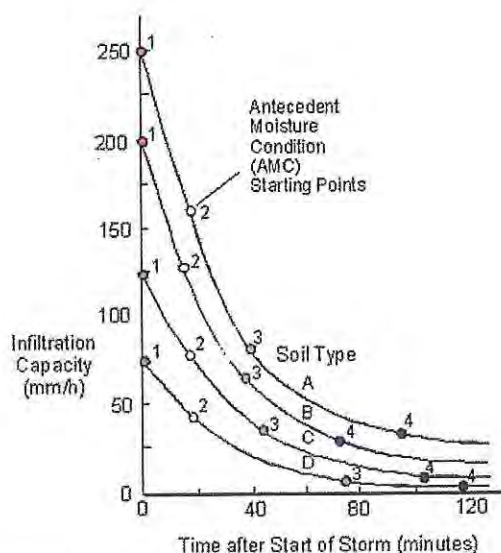
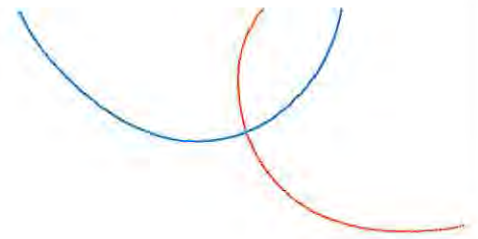


Figure 3: Soil Infiltration Capacity (DRAINS Help Contents)



4. Results and Design

To comply with the requirement to limit post-development peak discharges to pre-development levels (for the 1% AEP in the Translink Area), three catchment assessments were undertaken:

- Existing case: Existing upstream catchment surface and existing stormwater network with 1% AEP storm
- Design network with pre-developed upstream catchment: Proposed network with existing upstream catchment surface with 1% AEP storm
- Design network with fully developed upstream catchment: Proposed network with assumed fully developed catchment surface with 1% AEP storm

The peak discharges for each scenario are displayed in Table 1 below (locations shown in Figure 4). The discharges shown are the expected discharges downstream of the road culverts. Note the 72.3-hectare catchment has not been assessed as the culvert structure is not being altered. Also note that the combinations provided are to give an indication of any changes to flow rates due to the road design.

Table 1 Estimated Peak Discharges (m^3/s) 1% AEP Storm Event (3 decimal places for detention reference only)

Location	Existing Case	Design Network (Pre-developed Catchment)	Difference Between Existing and Design	Ultimate Design Network (Fully Developed Catchment)
1	0.197	0.209	0.012	0.209
2	4.759	4.708	-0.051	5.27
3	2.343	4.081	1.738	4.97
4	8.503	7.148	-1.355	11.0
5	10.557	10.500	-0.057	14.2



Figure 4 Locations of Interest

The increase in flow at location 3 can be attributed to the increased culvert capacity immediately upstream under the proposed design. This prevents overflow from moving south along Evandale Main Road. Conversely the decrease in peak flow at location 4 is attributed to this existing overflow being captured at location 3. The results indicate that more water will flow to the existing open drain that skirts the airport boundary and results in less flood water through the existing parking areas at the airport. This is discussed further in section 4.4.

4.1 Large Open Drain and Culvert from Boral Road to Airport Boundary

A large open drain has been proposed to convey excess overland flows between the locations shown in Figure 5. The existing 900mm stormwater pipe has been maintained along much of its existing alignment and is assumed to provide capacity (prior to surcharge) for the fully developed catchment under minor storm events.

This large open drain will convey overland flow (flow exceeding the 900mm industrial pipe network capacity) arriving at the junction of Boral Road and Evandale Main Road. A low point exists on Boral road, ensuring that in the event of significant overland flow in the 1% AEP event, Evandale Main Road remains dry and accessible. The overland component of the stormwater will be carried along Evandale Main Road in a new open drain to a new 1.8x1.2m box culvert (or equivalent) which will in turn convey stormwater under Evandale Main Road and discharge into the large open drain on Airport land (see Figure 5).

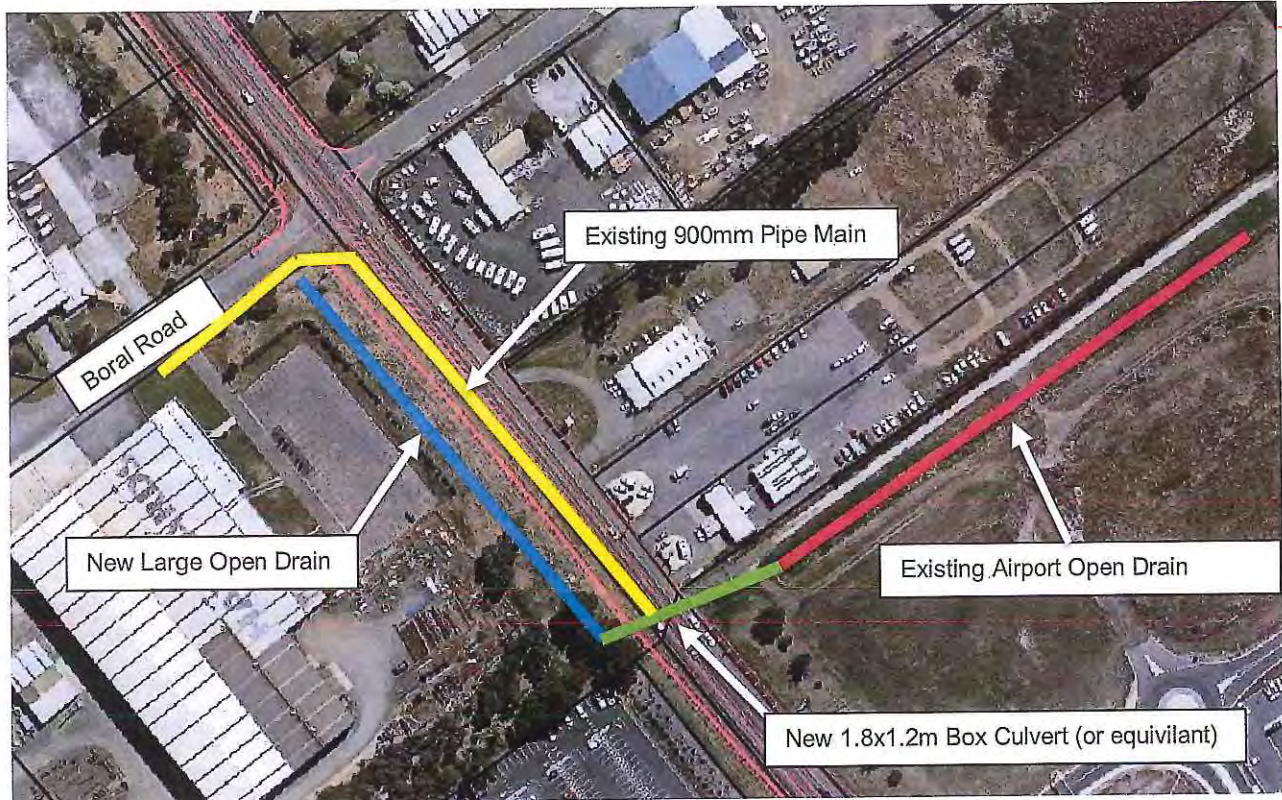


Figure 5 Proposed stormwater infrastructure between Boral Road and Airport Boundary

4.2 New Culvert Evandale Main Road at Translink Ave Roundabout (Junction of Richard St & Translink Ave)

An upgraded culvert is proposed to cross Evandale Main Road on the north west of Translink Ave roundabout (see Figure 6). The existing culvert is deficient and will be upgraded significantly to a 1.8x1.2m box culvert (or equivalent). The culvert receives flow from a total catchment of 74 hectares. It is expected that overland flow will approach the culvert generally from three directions as seen in Figure 6. The exact path of this overflow will be dictated by how upstream properties are developed. The volume of flow arriving down Translink Avenue is unclear and will depend on future development.

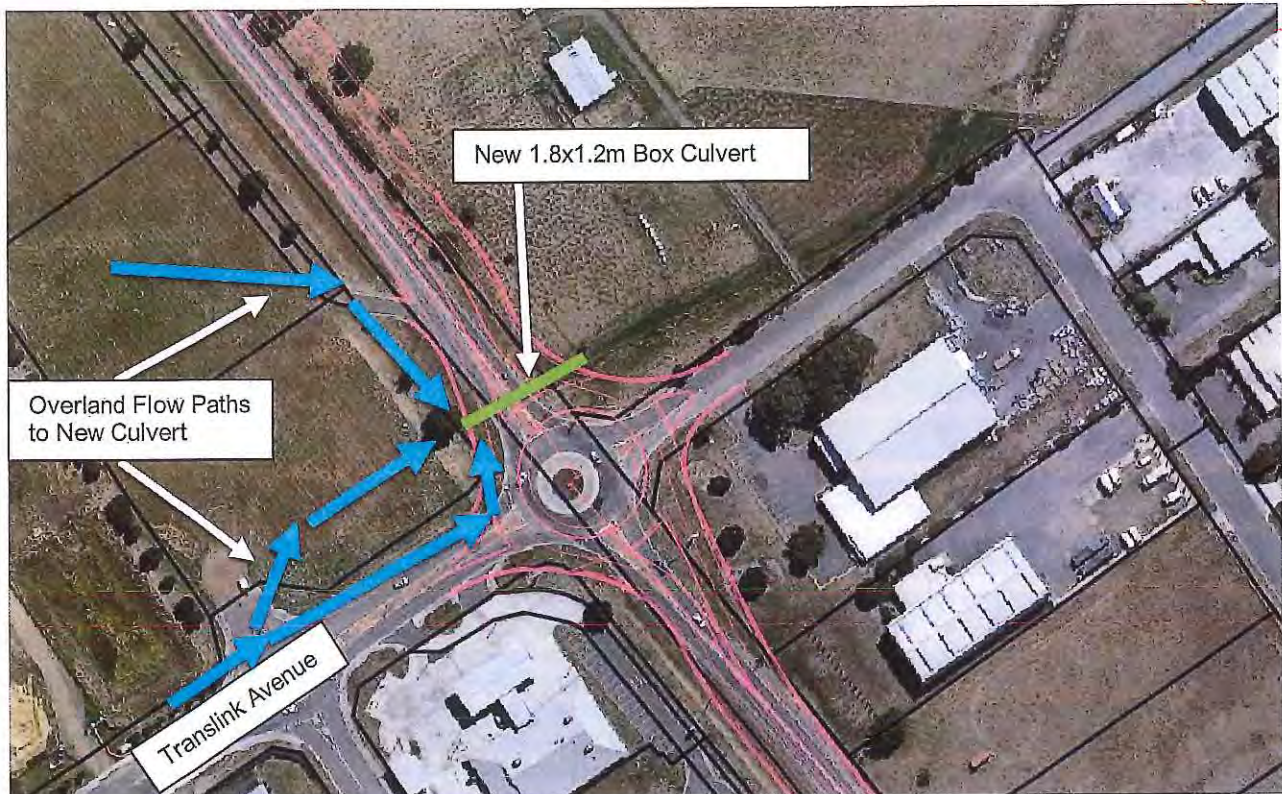


Figure 6 New Large Culvert Location

4.3 New Kerb and Channel Network

New Kerb and Channel will be incorporated along much of the road between Translink Avenue and the Airport. The associated pipe network will be connected to the existing network with pipe upgrades being proposed where necessary. Kerb scuppers with batter drains will be used in addition to stormwater pits where the road pavement drains directly to an open drain. Gutter flow widths will be within limits for the 5% AEP storm as per the drainage specification. The presence of a shoulder along much of the kerb length provides an acceptable area for this flow to be conveyed to pits.

4.4 Stormwater Detention Prior to Airport

Meeting Council stormwater detention requirements to match pre-development flow while meeting the DSG specification (1% AEP flow with 500mm freeboard) is difficult in the vicinity of the Airport. This is because the existing overland flow paths will be altered due to the proposed road culvert upgrade (Figure 7) and the proposed culvert will convey the overland flow under the road surface to ensure the road is open (the road is the main Airport access) and meet the DSG specification.

- Flow attenuation (detention storage) is provided in the new large open drain between Boral Road and the new culvert crossing. The storage provided behind the culvert in the drain is sufficient to retard flows such that the peak flow at the airport runway is not increased.
- Currently overflow that does not cross at the 1.8x1.2m box culvert crossing (existing 900mm pipe) will continue flowing down Evandale Main Road to a low point in the road and across into the Airport
- The proposed culvert upgrade will remove flow from this overland path (up to the 1% AEP event) and direct it to the existing open drain that skirts the Airport Boundary
- Both overland flow routes (at Location 3 and 4) meet back at an existing culvert that passes under the main runway.

The proposed stormwater network will ensure that the peak 1% AEP flow arriving at the airport runway culvert is not increase above pre-development levels. The peak discharge at location 4 (refer Figure 4) is reduced and therefore the probability of flooding across the existing airport car parking area is reduced. Along the Airport open drain that skirts the boundary of the Airport there is an increase in the peak 1% AEP discharge, however, flow down this large open drain is assumed to be preferable when compared to flow across the Airport carparking areas. The large open drain capacity will be checked during detailed design following confirmation of pipe levels.



Figure 7 Overland Flow Paths 1% AEP

4.5 Aquaplaning

Aquaplaning assessments have been undertaken in accordance with recommendations set out in Austroads Part 5 and the DSG specification for a 2-year ARI, 5-minute storm event. The proposed pavement crossfall is sufficient for surface drainage consistent over the length of road with no flat areas. Aquaplaning has been assessed to be below the nominated low hazard depth in all areas.

5. Water Quality

Water quality treatment requirements are set out in the Northern Midlands Planning Scheme. The requirement does not outline specific targets:

- "Stormwater shall not cause environmental nuisance".

The adopted approach to water quality was therefore to target the best practice targets recommended in the State Stormwater Strategy 2010. These requirements are displayed in Table 2 below.

Table 2: Water quality pollution reduction targets

80% reduction in the average annual load of total suspended solids (TSS) based on typical urban stormwater TSS concentrations.
45% reduction in the average annual load of total phosphorus (TP) based on typical urban stormwater TP concentrations.
45% reduction in the average annual load of total nitrogen (TN) based on typical urban stormwater TN concentrations.
Stormwater quantity requirements must always comply with requirements of the local authority including catchment-specific standards. All stormwater flow management estimates should be prepared according to methodologies described in Australian Rainfall and Runoff (Engineering Australia 2004) or through catchment modelling completed by a suitably qualified person.

5.1 Water Quality Treatment Measures

MUSIC modelling was nominated to simulate the performance of stormwater treatment measures in developing a stormwater quality treatment system for the project.

The rainfall template for Launceston Airport using 6-minute intervals over a 10-year period was adopted for the assessment.

Two types of surfaces – road pavement and landscape, were created as source nodes. Road pavement has an assumed 100% impervious area and landscaped areas have 0% impervious area. Soil parameters included soil Store Capacity of 120mm and Field Capacity of 50mm have been used while the MUSIC default pollutant concentration data has been adopted for the design.

Two types of treatment measures have been used including open drain swales, and bio-retention/wetlands. These are located:

- The bio-retention is in the open drain adjacent to the road between the chainage 5400 and chainage 5300, the bio-retention includes a filter trench with sub-soil outlet, and
- The wetland is in the form of a frog pond both upstream and downstream of the culvert at chainage 5920. Between the ponds is a frog friendly box culvert in accordance with DSG's Green and Golden Frog Guidelines.

Treatment trains have been modelled for the proposed Evandale Road upgrading between Breadalbane roundabout and Launceston Airport. Refer to Figure 8 below for the treatment train layout.

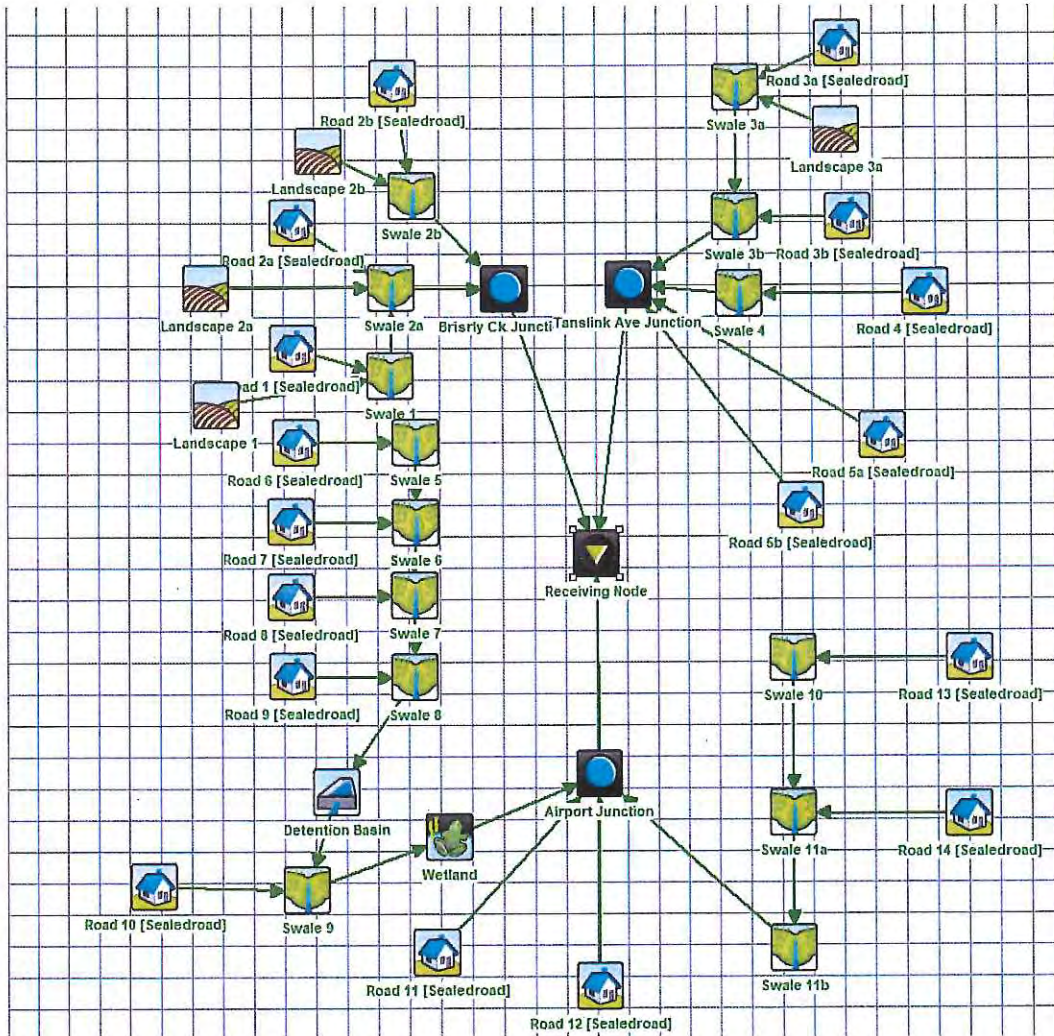


Figure 8: Water Quality treatment train layout

5.2 Water Quality Results

The pollutant reduction and treatment performance values are shown below in Figure 9. Results indicate that the current proposal achieves the total suspended solids and phosphorus targets but not the best practice targets for the 45% reduction target for Total Nitrogen (TN). However, the Northern Midlands Planning Scheme does not nominate specific targets rather stating that development shall not cause environmental nuisance. The proposed treatment will remove a significant amount of pollutants so as not to create an environmental nuisance.

	Sources	Residual Load	% Reduction
Flow (ML/yr)	20.6	20	2.8
Total Suspended Solids (kg/yr)	7110	1280	81.9
Total Phosphorus (kg/yr)	11.9	3.77	68.4
Total Nitrogen (kg/yr)	49	33.6	31.5
Gross Pollutants (kg/yr)	767	111	85.5

Figure 9 Water quality treatment train effectiveness

If absolutely necessary to meet the State Stormwater Strategy targets options are available to upsize the current treatment measures and introduce bio-retention at the downstream end of the systems in several locations.

6. Responses to Planning Scheme

The Northern Midlands Interim Planning Scheme 2013 applies to the proposed road upgrades.

6.1 Flood Prone Areas Code

As previously discussed, the existing stormwater system does not have capacity to convey the 1% AEP storm event for a fully developed catchment, this code applies to the proposal.

An assessment of the proposal against the code's applicable standards is provided below. As the proposal meets the requirements of the applicable standards, it is consistent with the code's purpose, which is to:

- (a) ensure that use or development subject to risk from flooding is appropriately located and that adequate measures are taken to protect human life and property and to prevent adverse effects on the environment.
- (b) determine the potential impacts of flooding through the assessment of risk in accordance with the Australian Standard.

6.1.1 Flood Risk Assessment

This Flood Risk Assessment is aimed at demonstrating the proposed stormwater system will mitigate the risk to life, property and the environment, when the road upgrades are completed.

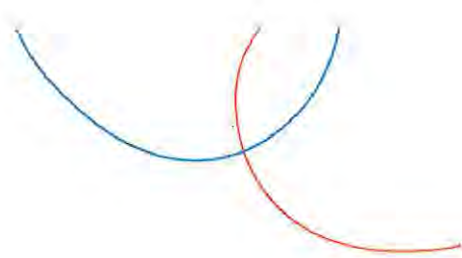
The proposed design mitigates and reduces flood risk on the road and immediately adjacent to the road by providing new drainage infrastructure including culverts and open drains. The open drains are located outside the roadway clear-zone (a specified distance depending on scenario between the road and the drains) in accordance with Austroads Guidelines. This includes protection around culvert headwalls. Outside of the open drains the flood risk is rare likelihood and insignificant consequence for all events up to the 1% AEP event.

With regard to the risk to human life, the larger roadside open drains will contain hazardous flows in intense storm events. In accordance with the risk assessment in E5.7 of the code, the Likelihood – Annual Exceedance Probability is Moderate in the larger open drains. The consequence is moderate to major. This results in a high risk category under the risk matrix provided in the Planning Scheme. While the risk to human life may be high, it should be noted that the road is an existing land use. Adjacent to this road and in the surrounding area there are similarly-designed open drains, which have operated for a number of years without significant risk to human life. The drains themselves do not have steep side slopes and will be vegetated allowing a person who entered the drain to exit up the side of the drain.

For the frog ponds, the Likelihood – Annual Exceedance Probability is Moderate, with the consequence of someone entering the ponds being moderate to major. This results in a high risk to human life. However, the permanent fencing for these ponds will mitigate the risk to low.

There will be no risk to the environment or property up to the 1% AEP as the drainage infrastructure is designed to accept, convey and provide environmental controls for this event.

Given the above matters, the proposed drainage system will not compromise risk to human life, and property and environmental risks will be responsibly managed.



6.1.2 Use Standards

As the proposal does not include habitable rooms, A1/P1 of standard E5.5.1 Use and flooding are not applicable.

E5.5.1 Use and flooding

Objective: To ensure that use does not compromise risk to human life, and that property and environmental risks are responsibly managed.

Acceptable Solution	Performance Criteria
A2 Use must not be located in an area subject to a medium or high risk in accordance with the risk assessment in E5.7.	P2 Use must demonstrate that the risk to life, property and the environment will be mitigated to a low risk level in accordance with the risk assessment in E5.7.

Assessment

The above Flood Risk Assessment demonstrates that the risk to human life at the larger open drains may be high. However, it should be noted that the road is an existing land use. Adjacent to this road and in the surrounding area there are similarly-designed open drains, which have operated for a number of years without significant risk to human life. The risk to human life around the two frog ponds is mitigated to low by the permanent fencing. The Flood Risk Assessment also demonstrates that, due to the design of the drainage system, there will be no risk to the environment or property up to the 1% AEP as the drainage infrastructure is designed to accept, convey and provide environmental controls for this event.

Given these matters, the proposed drainage system will not compromise risk to human life, and property and environmental risks will be responsibly managed, thereby complying with the objective of use standard E5.5.1.

6.1.3 Development Standards

E5.6.1 Flooding and Coastal Inundation

Objective: To protect human life, property and the environment by avoiding areas subject to flooding where practicable or mitigating the adverse impacts of inundation such that risk is reduced to a low level.

Acceptable Solution	Performance Criteria
A1 No acceptable solution.	P1.1 It must be demonstrated that development: <ul style="list-style-type: none"> (a) where direct access to the water is not necessary to the function of the use, is located where it is subject to a low risk, in accordance with the risk assessment in E5.7 a); or (b) where direct access to the water is necessary to the function of the use, that the risk to life, property and the environment is mitigated to a medium risk level in accordance with the risk assessment in E5.7. P1.2 Development subject to medium risk in accordance with the risk assessment in E5.7 must demonstrate that the risk to life, property and the environment is mitigated through structural methods or site works to a low risk level in accordance with the risk assessment in E5.7.

P1.3 Where mitigation of flood impacts is proposed or required, the application must demonstrate that:

- (a) the works will not unduly interfere with natural coastal or water course processes through restriction or changes to flow; and
- (b) the works will not result in an increase in the extent of flooding on other land or increase the risk to other structures;
- (c) inundation will not result in pollution of the watercourse or coast through appropriate location of effluent disposal or the storage of materials; and
- (d) where mitigation works are proposed to be carried out outside the boundaries of the site, such works are part of an approved hazard reduction plan covering the area in which the works are proposed.

Assessment

The proposal complies with P1(a) because access to the water is not necessary to the function of the use (the road) and the above Flood Risk Assessment demonstrates that the risk around the two frog ponds has been mitigated to low by permanent fencing and that there is no risk to property or the environment. The Flood Risk Assessment also demonstrates that the risk to human life may be high around the larger open drains. However, as this risk no higher than the existing stormwater system, and existing drainage regimes are generally being maintained, the proposal is considered to comply with the objective of standard E5.6.1.

P1(b) is not applicable because direct access to the water is not necessary to the function of the road use.

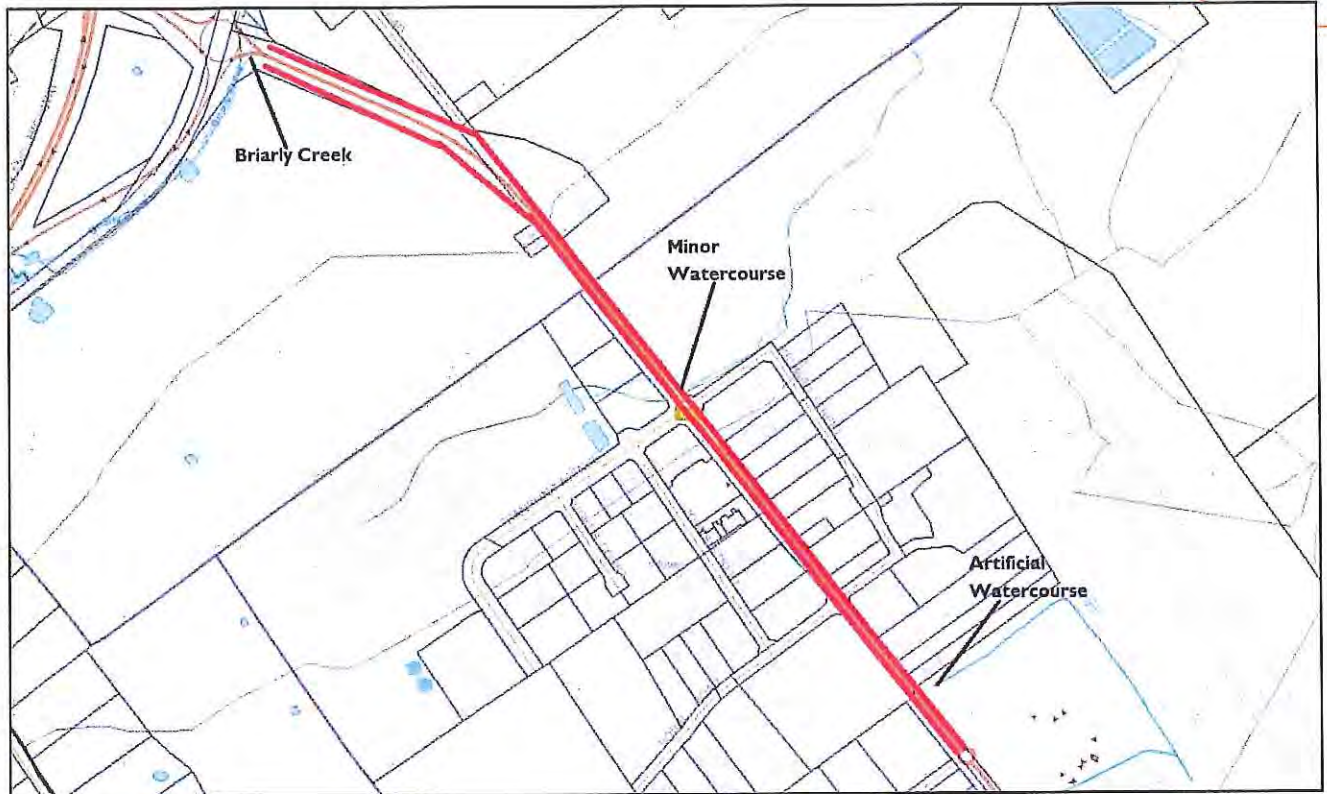
P1.2 is not applicable because the proposal will not result in development subject to medium risk.

The proposed drainage system will mitigate flood impacts, and will comply with P1.3 for the following reasons:

- (a) Drainage upgrades will ensure that existing flow regimes are generally maintained, and that the works will not unduly interfere with natural water course processes through restriction or changes to flow.
- (b) Flood extents will be reduced by improving drainage, which will ensure the works will not result in an increase in the extent of flooding on other land or increase the risk to other structures.
- (c) The proposal does not require the management of effluent disposal or storage of materials.
- (d) No mitigation works will be carried out outside the boundaries of the site.

6.2 Water Quality Code

As the proposed road works is within 50m several watercourses, as shown below, the proposal must be assessed against this code.



An assessment of the proposal against the code's applicable standards is provided below. As the proposal meets the requirements of the applicable standards, it is consistent with the code's purpose, which is to:

consider the impacts of development to limit adverse effects on the following:

- (a) wetland and watercourse ecosystems; and
 - i. flow regimes, water levels, biological activity and physical characteristics; and
 - ii. the variety of flora and fauna; and
 - iii. the role of wetlands and watercourses for water supply, flood mitigation, environmental protection, water regulation and nutrient filtering, as resources for recreational activities and as attractive features in the landscape; and
- (b) improve the sustainable management of surface water through development.

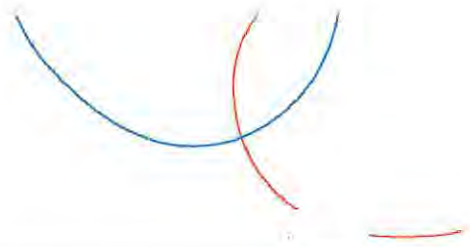
6.2.1 Use Standards

There are no use standards under this code.

6.2.2 Development Standards

The following standards do not apply:

- E9.6.1 Development and Construction Practices and Riparian Vegetation A2/P2 (no wetlands will be impacted)
- E9.6.2 Water Quality Management A3/P3 (no quarries or borrow pits will be impacted)
- E9.6.5 Sediment and Erosion Control (only relates to subdivision)
- E9.6.6 Ben Lomond Water Catchment Areas (the proposal is outside this area)



E9.6.1 Development and Construction Practices and Riparian Vegetation

Objective: To protect the hydrological and biological roles of wetlands and watercourses from the effects of development.

Acceptable Solution	Performance Criteria
<p>A1</p> <p>Native vegetation is retained within:</p> <ul style="list-style-type: none"> a) 40m of a wetland, watercourse or mean high water mark; and b) a Ben Lomond Water catchment area - inner buffer. 	<p>P1</p> <p>Native vegetation removal must submit a soil and water management plan to demonstrate:</p> <ul style="list-style-type: none"> a) revegetation and weed control of areas of bare soil; and b) the management of runoff so that impacts from storm events up to at least the 1 in 5 year storm are not increased; and c) that disturbance to vegetation and the ecological values of riparian vegetation will not detrimentally affect hydrological features and functions.

Assessment

The proposal complies with P1 because the proposed plans for the road upgrades and this Stormwater Management Plan demonstrate that soil and water will be adequately managed by:

- (a) Revegetating and stabilising exposed areas
- (b) Addition of several new open drains will enable flow to be attenuated to the 1 in 5-year ARI storm event
- (c) Provision of new open swale drains with native vegetation. Frog ponds, a bioretention swale and underground box culverts will provide road crossings and will allow easier passage for small fauna such as frogs. The culverts will be installed in accordance with State Growth's Green and Golden Frog Guidelines.

<p>A3</p> <p>A watercourse must not be filled, piped or channelled except to provide a culvert for access purposes.</p>	<p>P3</p> <p>A watercourse may be filled, piped, or channelled:</p> <ul style="list-style-type: none"> a) within an urban environment for the extension of an existing reticulated stormwater network; or b) for the construction of a new road where retention of the watercourse is not feasible.
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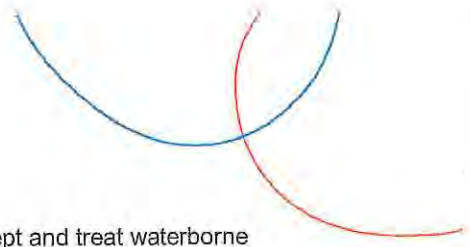
Assessment

The road widening will result in piping small lengths of watercourse realignments where necessary, as shown in the proposed plans for the road upgrades and this Stormwater Management Plan. This complies with the requirements of P3.

E9.6.2 Water Quality Management

Objective: To maintain water quality at a level which will not affect aquatic habitats, recreational assets, or sources of supply for domestic, industrial and agricultural uses.

Acceptable Solution	Performance Criteria
<p>A1</p> <p>All stormwater must be:</p> <ul style="list-style-type: none"> a) connected to a reticulated stormwater system; or b) where ground surface runoff is collected, diverted through a sediment and grease trap or artificial wetlands prior to being discharged into a natural wetland or watercourse; or c) meet emission limit guidelines from the Board of the Environment Protection Authority in 	<p>P1</p> <p>Stormwater discharges to watercourses and wetlands must minimise loss of hydrological and biological values, having regard to:</p> <ul style="list-style-type: none"> a) natural flow regimes, water quality and biological diversity of any waterway or wetland; b) design and operation of any buildings, works or structures, on or near the wetland or waterway; c) sources and types of potential contamination of the wetland or waterway;



accordance with the State Policy for Water Quality Management 1997.

- d) devices or works to intercept and treat waterborne contaminants;
- e) opportunities to establish or retain native riparian vegetation or continuity of aquatic habitat.

Assessment

Stormwater discharges will be treated by via vegetated swales, bio-retention and new wetlands (frog ponds) prior to discharge to existing watercourses. The pollutant reductions from treatment of total suspended solids, total phosphorus and total nitrogen are 82%, 68% and 31% respectively. Additional vegetated drains, and wetlands and box culverts are included in the design and will help establish and retain vegetation or any fauna in the existing watercourse vicinity. Given this, the proposal complies with the requirements of P1.

A2.1

No new point source discharge directly into a wetland or watercourse.

A2.2

For existing point source discharges into a wetland or watercourse there is to be no more than 10% increase over the discharge which existed at the effective date.

P2

New and existing point source discharges to wetlands or watercourses must implement appropriate methods of treatment or management to ensure point sources of discharge:

- a) do not give rise to pollution as defined under the *Environmental Management and Pollution Control Act 1994*; and
 - i. are reduced to the maximum extent that is reasonable and practical having regard to:
 - ii. best practice environmental management; and
 - iii. accepted modern technology; and
- b) meet emission limit guidelines from the Board of Environmental Management and Pollution Control in accordance with the *State Policy for Water Quality Management 1997*.

P2.2

Where it is proposed to discharge pollutants into a wetland or watercourse, the application must demonstrate that it is not practicable to recycle or reuse the material.

Assessment

As no new point discharge points are being created, the proposal complies with A2.1.

Peak discharge will not increase by more than 10% when considering the 1% AEP catchment peak flows. The new drains including large open drains attenuate flow. Given this, the proposal also complies with A2.2.

E9.6.3 Construction of Roads

Objective: To ensure that roads, private roads or private tracks do not result in erosion, siltation or affect water quality

Acceptable Solution

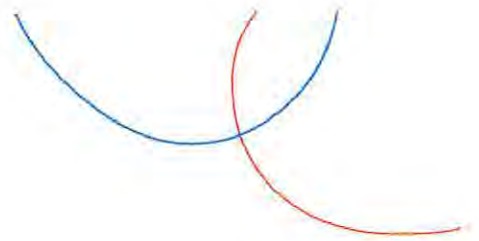
A1

A road or track does not cross, enter or drain to a watercourse or wetland

Performance Criteria

P1

Road and private tracks constructed within 50m of a wetland or watercourse must comply with the requirements of the *Wetlands and Waterways Works Manual*, particularly the guidelines for siting and designing stream crossings.



Assessment

The road and drainage design considers environmental impacts including the partial filling and shifting of watercourses. The construction contractor will be responsible for soil and water management during construction. During operational phase water quality control is achieved through the inclusion of vegetated swale drains, wetlands and bio-retention as discussed. Evandale Road is an existing road and the upgrades cannot be separated from its current alignment. Taking all of these matters into consideration, the proposal is generally consistent with the requirements of the Wetlands and Waterways Works Manual and complies with P1.

E9.6.4 Access

Objective: To facilitate appropriate access at suitable locations whilst maintaining the ecological, scenic and hydrological values of watercourses and wetlands.

Acceptable Solution	Performance Criteria
A1 No acceptable solution.	P1 New access points to wetlands and watercourses are provided in a way that minimises: a) their occurrence; and b) the disturbance to vegetation and hydrological features from use or development.

Assessment

All culvert discharge points to waterways and drains will be provided with rock pitching for erosion control in accordance with Austroads culvert outlet protection requirements. This minimises the occurrence of new access points to watercourses and the disturbance to vegetation and hydrological features, thereby complying with P1.

A2 No acceptable solution.	P2 Accesses and pathways are constructed to prevent erosion, sedimentation and siltation as a result of runoff or degradation of path materials.
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Assessment

As discussed, vegetated swales and wetlands (frog ponds) will help control sediment and siltation with rock pitching to be provided at outfalls to Austroads guides. Given this, the proposal complies with P2.

6.3 Translink Specific Area Code Stormwater Requirements

Part of the Evandale Main Road Upgrade is in the Translink Specific Area and as such the portion of road within that area is subject to the specific stormwater requirements. The portion of the road is between the Translink Avenue roundabout and the eastern end of the scope of works. The stormwater requirements and responses to the Planning Scheme for the Translink Specific Area Code are displayed below.

F1.4.5 Stormwater

Objective: To ensure that full utility services are available to new development.

Acceptable Solution	Performance Criteria
A1	P1 Stormwater may only be discharged from the site in a manner that will not cause an

The flow rate of stormwater outside the boundaries of the title shall be no greater than if the land was used for rural purposes. On-site detention devices shall be incorporated in the development.

environmental nuisance, and that prevents erosion, siltation or pollution of any waterways, coastal lagoons, coastal estuaries, wetlands or inshore marine areas, having regard to:

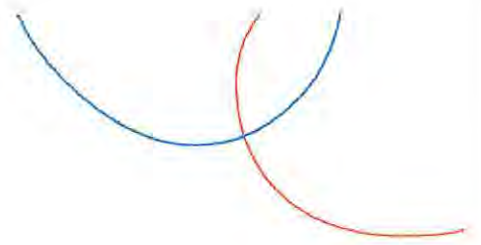
- (a) the intensity of runoff that already occurs on the site before any development has occurred for a storm event of 1% Annual Exceedance Probability (pre-development levels); and
- (b) how the additional runoff and intensity of runoff that will be created by the subdivision for a storm event of 1% Annual Exceedance Probability, will be released at levels that are the same as those identified at the predevelopment levels of the subdivision; and
- (c) whether any on-site storage devices, retention basins or other Water Sensitive Urban Design (WSUD) techniques are required within the subdivision and the appropriateness of their location; and
- (d) overland flow paths for overflows during extreme events both internally and externally for the subdivision, so as to not cause a nuisance.

Assessment

Peak stormwater discharge to the Launceston Airport Runway culvert has been maintained at existing 1% AEP levels by including new culverts and a new large open drain. The details of this arrangement are discussed previously. A marginal peak discharge increases at other locations (1 and 2) have been assumed to be of no consequence (location 1 and 2 discharges are outside of the Translink Specific Area). Given this, the proposal complies with P1 (a) and b).

Stormwater will be treated by means of long stretches of vegetated swale drains, bio-retention and wetlands (frog ponds). As discussed previously, the current proposed measures will reduce suspended solid loads by 82%, total phosphorus by 68% and total nitrogen by 30%. Given this, the proposal complies with P1 (c).

Overland flow paths and discharge locations are clearly defined and confined to the road drainage infrastructure. The major drainage infrastructure is designed to meet the DSG specification for a 1% AEP storm. As such, no nuisance will be caused. Given this, the proposal complies with P1 (d).



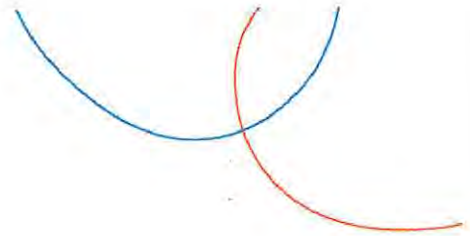
7. Conclusion

The proposed stormwater drainage system has been designed to capture and convey a 1% AEP design event with 500mm freeboard as per the DSG T8 Drainage Specification. The system includes upgrades to the existing culverts, new large open drains, new kerb and gutter and new pit and pipes.

Stormwater detention has been incorporated into the design and for the Translink Area the peak 1% AEP flows have been maintained at pre-development levels with regard to peak discharge to the Airport runway culverts. At other discharge locations outside the Translink Area Code water is effectively attenuated (when compared to existing conditions) in new, larger roadside drains.

Water quality measures have been incorporated into the design to ensure no environmental nuisance is created. No specific reduction targets were specified but pollutant reductions for total suspended solids, phosphorus and nitrogen will be 82%, 68% and 30% respectively.

The proposed road and drainage design comply with the requirements of the Northern Midlands Council Interim Planning Scheme 2013.



Stormwater Management Plan – Evandale Main Road
Duplication

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Appendix D
Noise Assessment



Evandale Main Road Duplication

Noise Assessment

Prepared for
Department of State Growth

Client
Trevor Gibson

Date
4 August 2020

Rev01



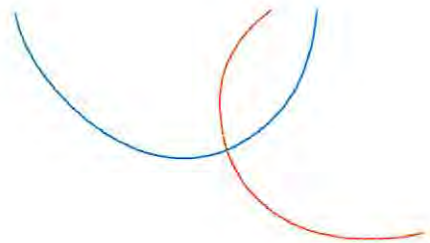


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Prepared by — Alex Seen & Douglas Ford		Date — 2 July 2020
Reviewed by — Douglas Ford		Date — 3 July 2020
Authorised by — Andy Turner		Date — 3 July 2020

Revision History

Rev No.	Description	Prepared by	Reviewed by	Authorised by	Date
01	Modelling area adjusted	D. Ford	D. Ford	A. Turner	04/08/2020

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