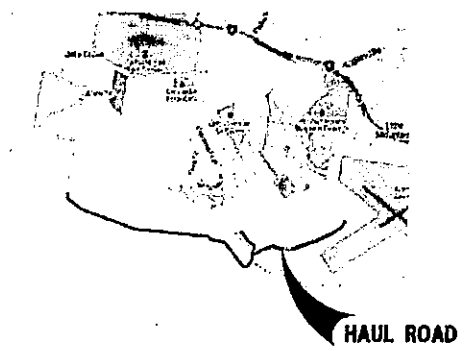
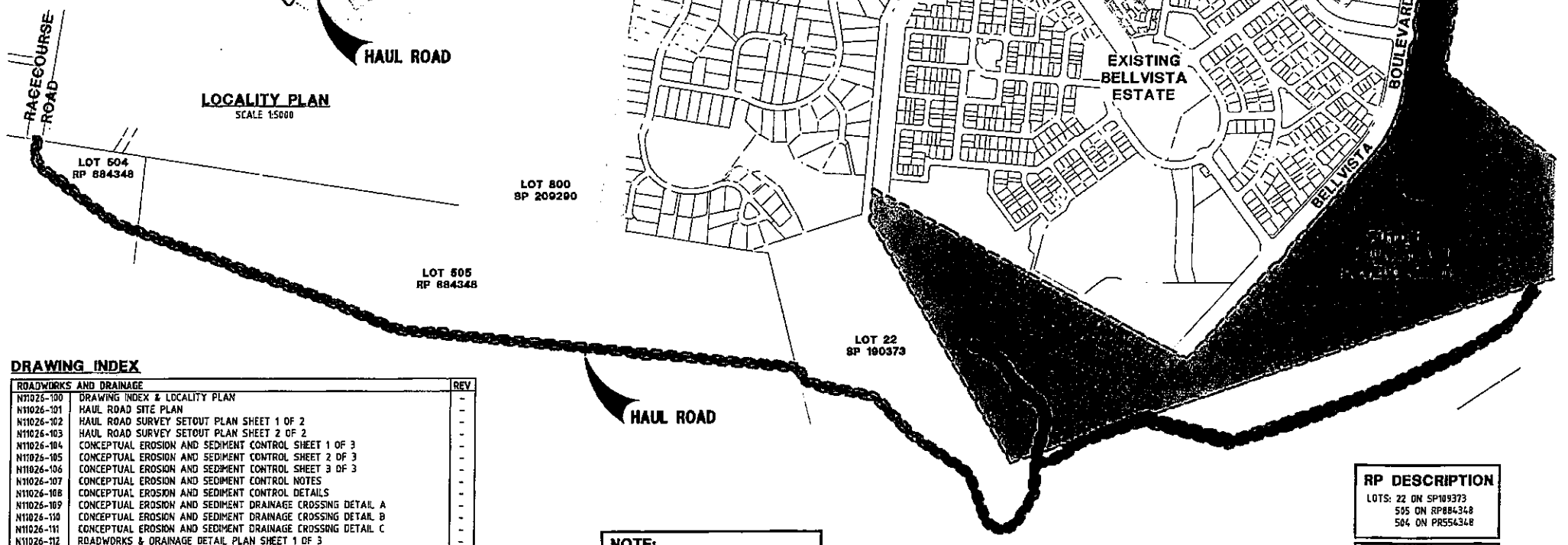
BELLVISTA II
HAUL ROAD APPLICATION
Stockland Caloundra Downs Pty Ltd



LOCALITY PLAN
SCALE 1:5000



N

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NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT ALL RELEVANT SERVICE AUTHORITIES TO VERIFY THE LOCATION OF ALL EXISTING SERVICES PRIOR TO START OF CONSTRUCTION.

RP DESCRIPTION
LOTS: 22 ON SP190373
595 ON RP884348
504 ON PR554348

ULDA REF:
DEV2010/100
DEV2010/101

PSM 132061
RL: 9.252
BELLVISTA BLVD
DATUM : AHD

ISSUE	CADD	DRAWN	DATE	AMENDMENT DETAILS
A	KK	SS	17.04.11	
B				
C				
D				
E				
F				

DESIGN CHECK:
DRAWN CHECK:
SCALE (METRES) 100 50 0 100 200
1 : 5000 (UNREDUCED)

PROJECT No. N11026

SURVEYOR: RPS AUSTRALIA EAST PTY LTD
PHONE: 07 5436 7888
FAX: 07 5493 6630
APPROVED: BRENT THOMAS 7853 BRIDGE DESIGN RPEQ
FOR & ON BEHALF OF BROWN CONSULTING (QLD) PTY LTD

CLIENT: STOCKLAND CALOUNDRA DOWNS P.L.
PROJECT: BELLVISTA II HAUL ROAD

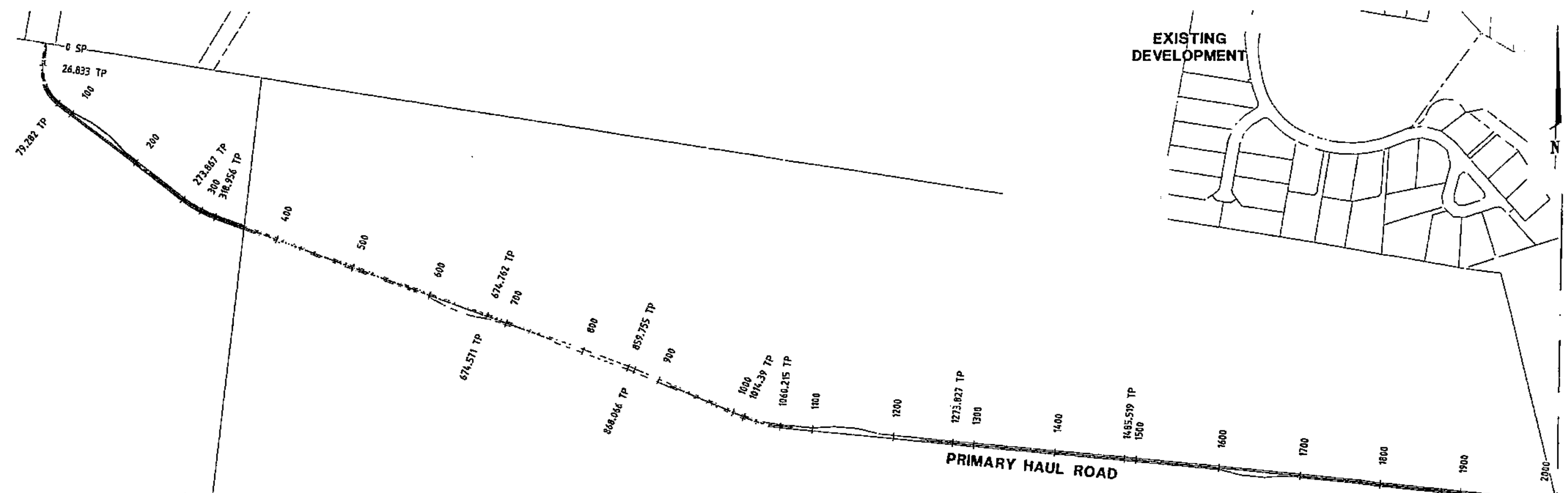
Brown Consulting (QLD) Pty Ltd Engineers & Managers
Level 1, 15 Niddrie Way, Buddina QLD Australia 4575
Telephone 07 5470 9200 Facsimile 07 5470 9202
BROWN CONSULTS AUSTRALIA

DRAWING TITLE: DRAWING INDEX & LOCALITY PLAN
DRAWING NUMBER: N11026-100
ISSUE:

PLANS AND DOCUMENTS
referred to in the ULDA
APPROVAL dated 19/11

SCALE 1:5000 (UNREDUCED)	PROJECT No. N11026	SURVEYOR: RPS AUSTRALIA EAST PTY LTD, PHONE: 07 5436 7888, FAX: 07 5493 6638	CLIENT: STOCKLAND CALOUNDRA DOWNS P.L.	DRAWING TITLE: HAUL ROAD SITE PLAN
		FOR & ON BEHALF OF BROWN CONSULTING (QLD) PTY LTD	PROJECT: BELLVISTA II HAUL ROAD	DRAWING NUMBER: N11026-101

BROWN

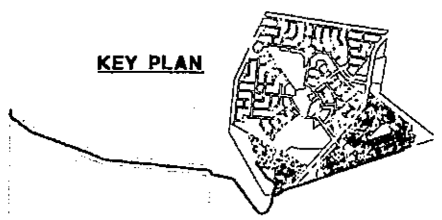


NOTE: FINAL ALIGNMENT OF PRIMARY HAUL ROAD TO BE CONFIRMED ON SITE PRIOR TO CONSTRUCTION TO SUIT CONTRACTORS REQUIREMENTS. FINAL LOCATION TO UTILISE EXISTING HAUL TRACKS AND EXISTING CLEARED AREAS TO MINIMISE POTENTIAL DAMAGE TO EXISTING VEGETATION.

LEGEND

- ROAD CONTROL LINE
- EXISTING TRACK TO BE UPGRADED TO CONTRACTOR'S REQUIREMENTS
- NEW HAUL ROAD
- INDICATIVE FUTURE CONSTRUCTION ACCESS
- PROPOSED TEMPORARY BRIDGE CROSSING

KEY PLAN



PRIMARY HAUL ROAD SETOUT TABLE

	PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	TANGENT	DEF ANGLE	ARC LEN
EXISTING HAUL TRACK TO BE UPGRADED	IP1	0.000	6215.860	35656.552	187d14'57"				
	TC	26.833	6212.474	35629.933	187d14'57"				
	IP2	53.058	6208.824	35601.237		50.000	28.927	60d06'08"	52.449
	CT	79.282	6231.881	35583.769	127d08'49"				
	TC	273.867	6386.983	35466.267	127d08'49"				
	IP3	296.411	6405.089	35452.550		150.000	22.716	17d13'21"	45.088
	CT	318.956	6426.445	35444.809	109d55'28"				
	IP	357.092	6462.299	35431.813	109D55'28"				
EXISTING HAUL TRACK	TC	674.571	6760.[illegible]	35323.622	109d55'2?"				
	IP4	674.666	6760.864	35323.599		150.000	0.095	0d04'22"	0.190
	CT	674.762	6760.954	35323.557	109d59'50"				
	TC	859.755	6934.793	35260.295	109d59'50"				
	IP5	863.910	6938.699	35258.873		150.000	4.157	3d10'2?"	8.311
	CT	868.066	6942.521	35257.238	113d10'18"				
	TC	1014.390	7077.040	35199.561	113d10'18"				
	IP6	1037.302	7098.270	35190.574		150.000	23.092	17d30'14"	45.875
	CT	1060.215	7121.249	35180.294	95d40'04"				
	IP7	1273.827	7333.317	35167.197	95d40'04"			0d13'48"	
	IP8	1485.519	7544.552	35147.094	95d26'56"			0d11'55"	
	TC	2007.51?	8064.018	35095.723	95d38'52"				
	IP9	2024.303	8082.71?	35093.974		30.0[illegible]	10.780	64d06'52"	33.570
	CT	2041.088	8099.213	35076.247	159d45'44"				
	TC	2041.833	8061.471	35075.548	159d45'44"				
	IP10	2056.092	8095.167	35060.098		30.0–0	16.467	57d31'28"	30.120
	CT	2071.952	8111.260	35056.607	102d14'16"				

PRIMARY HAUL ROAD SETOUT TABLE (CONTINUED)

	PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	TANGENT	DEF ANGLE	ARC LEN
PROPOSED NEW HAUL ROAD	TC	2213.630	8249.718	35026.576	102d14'16"				
	IP11	2231.835	8268.077	35022.594		60.000	18.786	34d46'13"	36.411
	CT	2250.041	8280.887	35008.853	137d00'30"				
	TC	2348.312	8347.897	34936.973	137d00'30"				
	IP12	2356.492	8353.501	34930.962		70.000	8.218	13d23'28"	16.360
	CT	2364.672	8360.344	34926.412	123d37'01"				
	TC	2507.891	8479.610	34847.121	123d37'01"				
	IP13	2530.048	8498.703	34834.427		70.000	22.928	36d16'18"	44.314
	CT	2552.205	8506.587	34812.897	159d53'19"				
	TC	2642.247	8537.548	34728.345	159d53'19"				
	IP14	2667.919	8547.422	34701.379		46.000	28.717	63d57'04"	51.343
	CT	2693.591	8575.985	34698.409	95d56'15"				
	TC	2693.591	8575.985	34698.409	95d56'15"				
	IP15	2719.262	8604.547	34695.438		46.000	28.717	63d57'04"	51.343
	CT	2744.934	8619.759	34719.795	31d59'11"				
	TC	2800.431	8649.157	34766.866	31d59'11"				
	IP16	2812.550	8655.705	34777.352		50.000	12.362	27d46'28"	24.238
	CT	2824.669	8656.613	34789.680	4d12'42"				
	TC	2898.215	8662.014	34863.027	4d12'42"				
	IP17	2907.918	8662.729	34872.735		100.000	9.734	11d07'010"	19.407
	CT	2917.622	8665.303	34882.122	15d19'52"				
	TC	2982.508	8682.459	34944.700	15d19'52"				
	IP18	3023.589	8694.767	34989.595		70.000	46.552	67d14'58"	82.161
	CT	3064.669	8658.125	35018.307	308d04'54"				
	TC	3114.273	8619.080	35048.902	308d04'54"				
	IP19	3126.772	8609.136	35056.694		70.000	12.633	20d27'40"	24.998
	CT	3139.270	8602.543	35067.471	328d32'34"				
	TC	3170.984	8585.993	35094.523	328d32'34"				
	IP20	3189.423	8576.142	35110.626		70.000	18.878	30d11'05"	36.878
	CT	3207.861	8559.529	35119.592	298d21'28"				
	IP21	3262.966	8511.038	35145.766	298d21'28"				

FILE: N11026-103.dwg DATE: 17-05-2011 TIME: 10:15
Xref's: X-N11026-CONTOUR-EXIST-TEMPORARY USER: Kyle Kennedy

	CALC'D	DRAWN	DATE	AMENDMENT DETAILS
	XX	SS	31.03.11	
A				
B				
C				
D				
E				
F				

DESIGN CHECK

DRAWN CHECK

SCALE (METRES) 1 : 2500 A1, 1 : 5000 A3 — 50 0 50 100

PROJECT No. N11026

SURVEYOR: RPS AUSTRALIA EAST PTY LTD
PHONE: 07 5436 7888
FAX: 07 5493 6630

APPROVED: BRENT THOMAS 7862, BROCK BITSON 7894

FOR & ON BEHALF OF BROWN CONSULTING (QLD) PTY LTD

CLIENT: STOCKLAND CALOUNDRA DOWNS P.L.

PROJECT: BELLVISTA II HAUL ROAD

Brown Consulting (QLD) Pty Ltd Engineers & Managers
Level 1, 15 Nicklin Way, Buddina QLD Australia 4575
Telephone 07 5470 9260 Facsimile 07 5470 9262

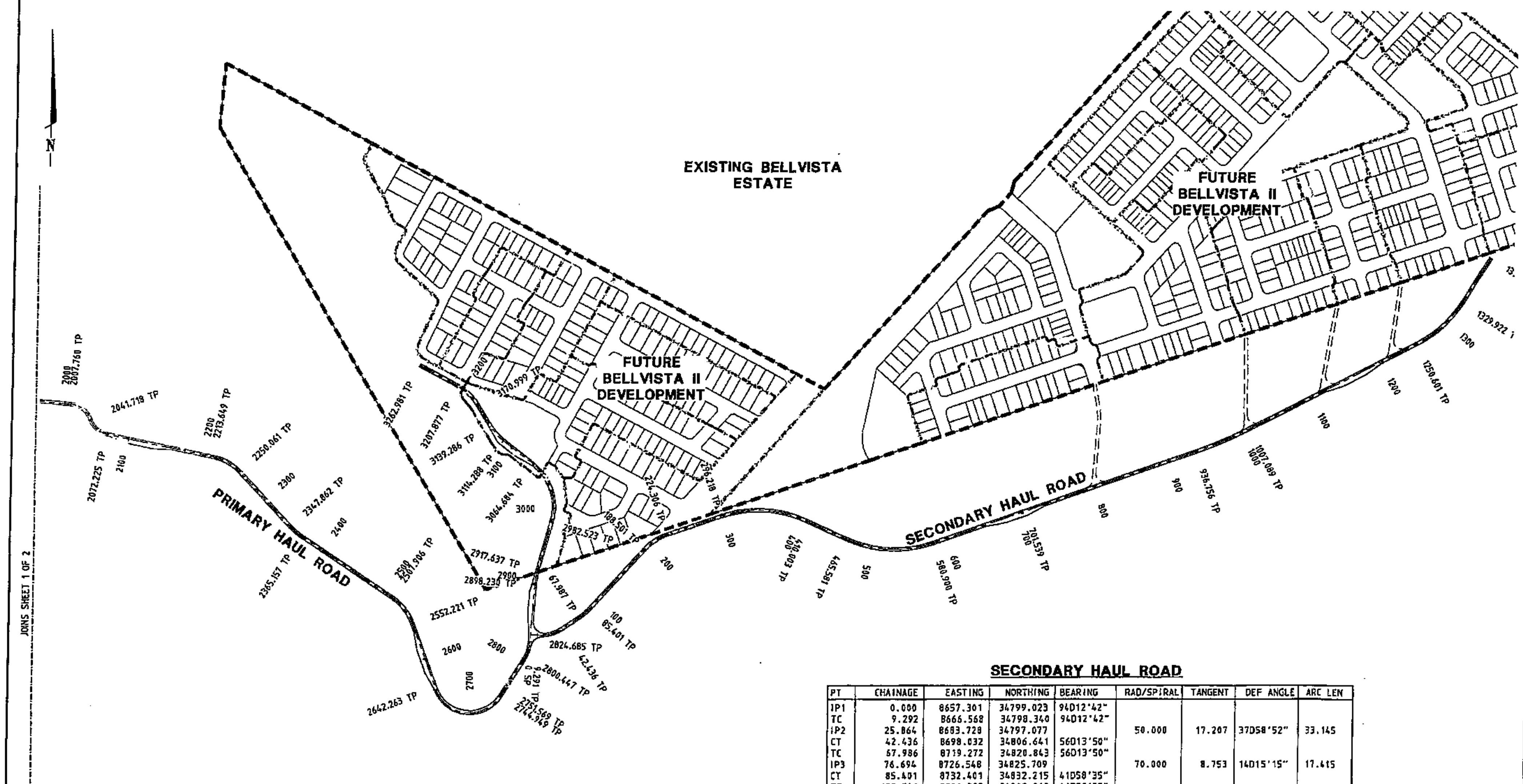
BROWN

CONSULT AUSTRALIA

DRAWING TITLE: HAUL ROAD SURVEY SETOUT PLAN SHEET 1 OF 2

DRAWING NUMBER: N11026-102

PLANS AND DOCUMENTS
referred to in the ULDA
APPROVAL dated 16/9/11



SECONDARY HAUL ROAD

PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	TANGENT	DEF ANGLE	ARC LEN
IP1	0.000	8657.301	34799.023	94D12'42"				
TC	9.292	8666.568	34798.340	94D12'42"				
IP2	25.864	8683.728	34797.077		50.000	17.207	37D58'52"	33.145
CT	42.436	8698.032	34806.641	56D13'50"				
TC	67.986	8719.272	34820.843	56D13'50"				
IP3	76.694	8726.548	34825.709		70.000	8.753	14D15'15"	17.415
CT	85.401	8732.401	34832.215	41D58'35"				
TC	188.501	8801.357	34908.862	41D58'35"				
IP4	206.404	8813.599	34922.469		70.000	18.303	29D18'25"	35.805
CT	224.306	8830.934	34928.342	71D16'60"				
TC	296.218	8899.043	34951.418	71D16'60"				
IP5	353.111	8955.669	34970.603		150.000	59.787	43D27'45"	113.785
CT	410.003	9009.966	34945.577	114D44'45"				
TC	465.581	9060.441	34922.312	114D44'45"				
IP6	523.241	9115.547	34896.913		150.000	60.678	44D02'54"	115.318
CT	580.900	9172.813	34916.970	70D41'51"				
TC	936.756	9508.666	35034.601	70D41'51"				
IP7	971.923	9541.910	35046.245		500.000	35.224	8D03'34"	70.332
CT	1007.089	9573.193	35062.434	62D38'16"				
TC	1250.601	9789.461	35174.355	62D38'16"				
IP8	1290.261	9825.529	35193.021		150.000	40.611	30D17'54"	79.321
CT	1329.922	9847.253	35227.333	32D20'23"				
IP9	1398.247	9883.803	35285.060	32D20'23"				

LEGEND

- ROAD CONTROL LINE
- EXISTING TRACK TO BE UPGRADED TO CONTRACTOR'S REQUIREMENTS
- NEW HAUL ROAD
- INDICATIVE FUTURE CONSTRUCTION ACCESS
- PROPOSED TEMPORARY BRIDGE CROSSING

SCALE 1 : 2500, 1 : 5000

PROJECT No. N11026

SURVEYOR: RPS AUSTRALIA EAST PTY LTD
PHONE: 07 5436 7888
FAX: 07 5493 6630

FOR & ON BEHALF OF BROWN CONSULTING (QLD) PTY LTD

CLIENT: STOCKLAND CALOUNDRA DOWNS P.L.

PROJECT: BELLVISTA II HAUL ROAD

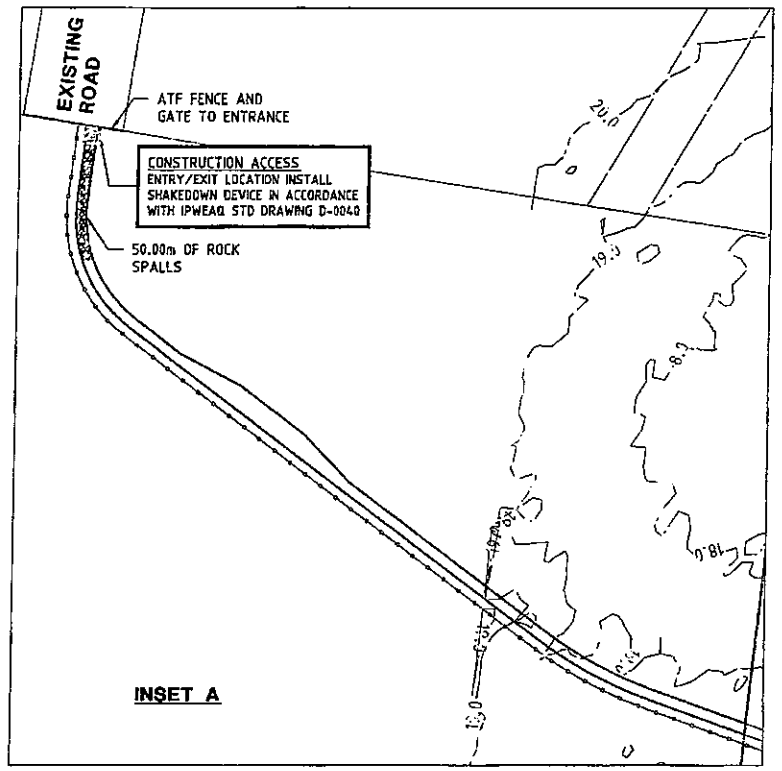
BROWN

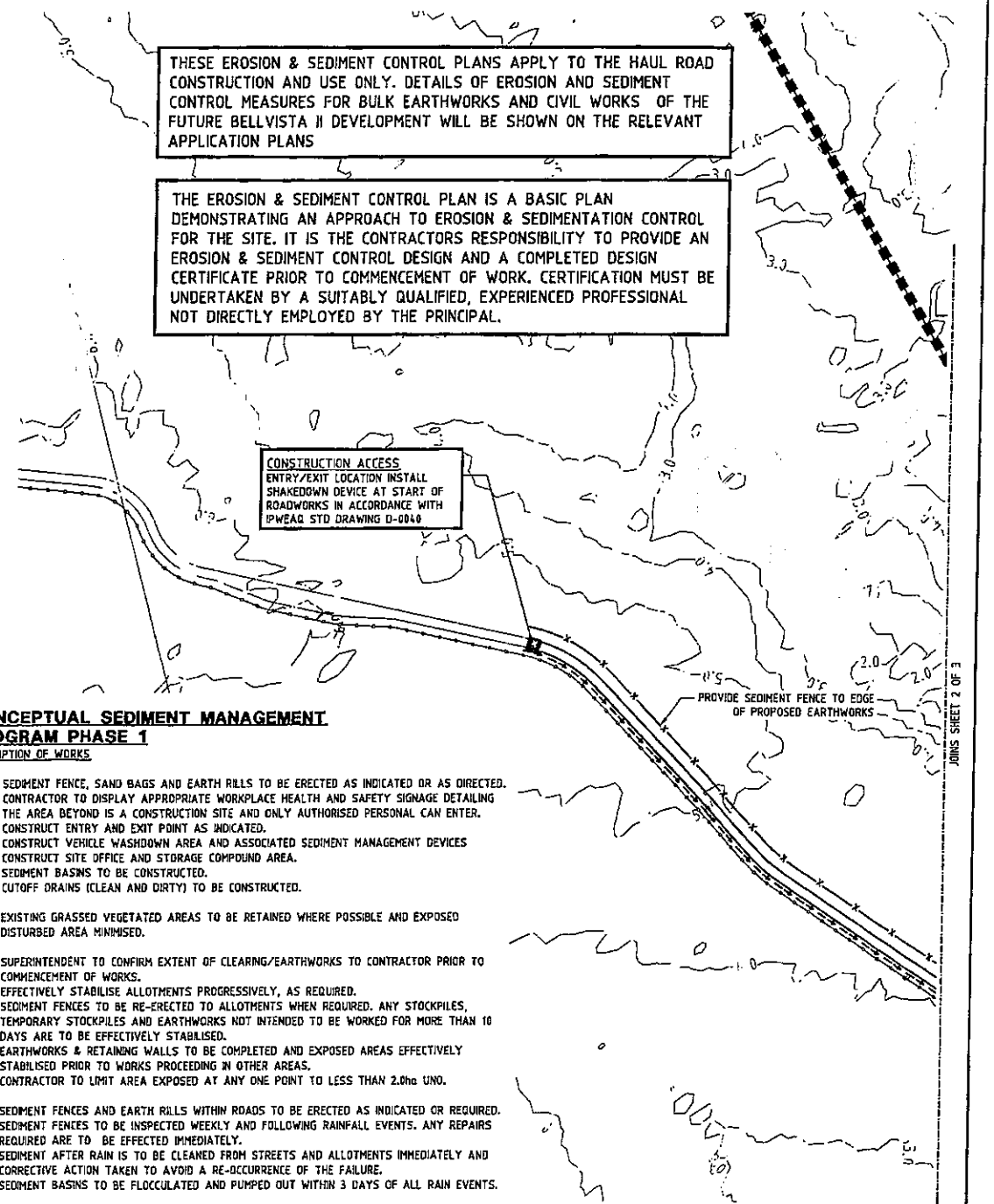
Brown Consulting (QLD) Pty Ltd Engineers & Managers
Level 1, 15 Nicklin Way, Buddina QLD Australia 4575
Telephone 07 5470 9260 Facsimile 07 5470 9262

DRAWING TITLE: HAUL ROAD SURVEY SETOUT PLAN SHEET 2 OF 2

DRAWING NUMBER: N11026-103

PLANS AND DOCUMENTS
referred to in the ULDA
APPROVAL dated 16/9/11

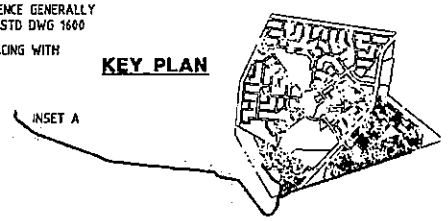




LEGEND

- PROPOSED STAGE BOUNDARY
- DIRTY WATER DIVERSION DRAIN
- NATURAL CONTOURS (1000mm INTERVALS)
- PROPOSED SEDIMENT FENCE
- FUTURE OPEN DRAINAGE CHANNEL
- RCP CULVERT CROSSING & HEADWALLS
- INDICATIVE EXISTING CREEK ALIGNMENT
- 10mm CHIP SEAL (ALL AREAS BELOW Q10 FLOOD LEVEL OF 3.15m)
- ROCK SPALLS (50m EITHER SIDE OF CHIP SEAL)
- PROPOSED TEMPORARY BRIDGE CROSSING
- 3 STRAND BARBED WIRE FENCE GENERALLY IN ACCORDANCE WITH DMR STD DWG 1600
- ORANGE BARRIER MESH FENCING WITH "NO GO AREA" SIGNAGE

KEY PLAN



CONCEPTUAL SEDIMENT MANAGEMENT PROGRAM PHASE 1

DESCRIPTION OF WORKS

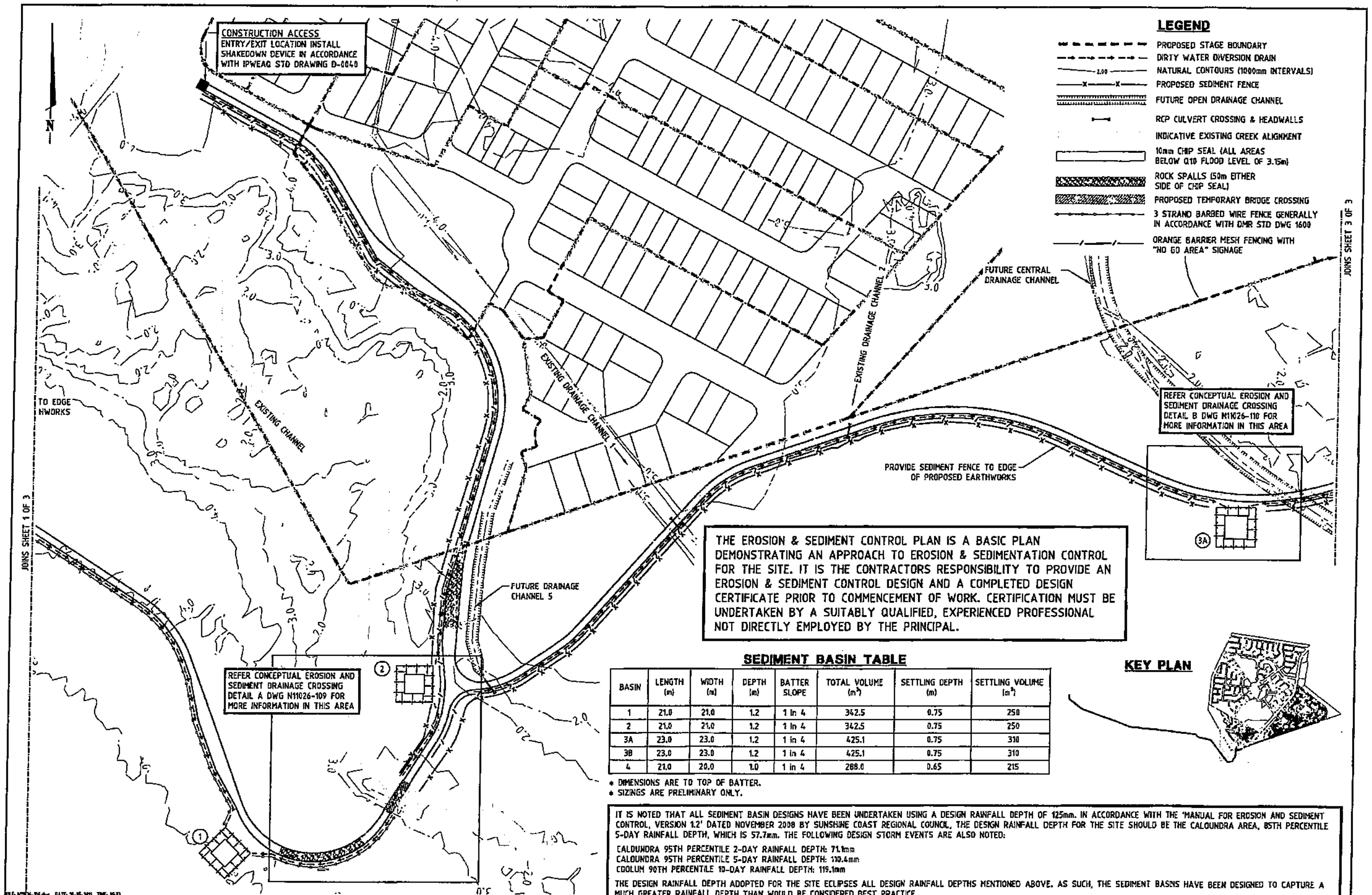
PRIOR TO CONSTRUCTION
- SEDIMENT FENCE, SAND BAGS AND EARTH BILLS TO BE ERECTED AS INDICATED OR AS DIRECTED.
- CONTRACTOR TO DISPLAY APPROPRIATE WORKPLACE HEALTH AND SAFETY SIGNAGE DETAILING THE AREA BEYOND IS A CONSTRUCTION SITE AND ONLY AUTHORISED PERSONAL CAN ENTER.
- CONSTRUCT ENTRY AND EXIT POINT AS INDICATED.
- CONSTRUCT VEHICLE WASHDOWN AREA AND ASSOCIATED SEDIMENT MANAGEMENT DEVICES CONSTRUCT SITE OFFICE AND STORAGE COMPOUND AREA.
- SEDIMENT BASINS TO BE CONSTRUCTED.
- CUTOFF DRAINS (CLEAN AND DIRTY) TO BE CONSTRUCTED.

CLEARING
- EXISTING GRASSED VEGETATED AREAS TO BE RETAINED WHERE POSSIBLE AND EXPOSED DISTURBED AREA MINIMISED.

EARTHWORKS
- SUPERINTENDENT TO CONFIRM EXTENT OF CLEARING/EARTHWORKS TO CONTRACTOR PRIOR TO COMMENCEMENT OF WORKS.
- EFFECTIVELY STABILISE ALLOTMENTS PROGRESSIVELY, AS REQUIRED.
- SEDIMENT FENCES TO BE RE-ERECTED TO ALLOTMENTS WHEN REQUIRED. ANY STOCKPILES, TEMPORARY STOCKPILES AND EARTHWORKS NOT INTENDED TO BE WORKED FOR MORE THAN 10 DAYS ARE TO BE EFFECTIVELY STABILISED.
- EARTHWORKS & RETAINING WALLS TO BE COMPLETED AND EXPOSED AREAS EFFECTIVELY STABILISED PRIOR TO WORKS PROCEEDING IN OTHER AREAS.
- CONTRACTOR TO LIMIT AREA EXPOSED AT ANY ONE POINT TO LESS THAN 2.0ha UNO.

MAINTENANCE
- SEDIMENT FENCES AND EARTH BILLS WITHIN ROADS TO BE ERECTED AS INDICATED OR REQUIRED.
- SEDIMENT FENCES TO BE INSPECTED WEEKLY AND FOLLOWING RAINFALL EVENTS. ANY REPAIRS REQUIRED ARE TO BE EFFECTED IMMEDIATELY.
- SEDIMENT AFTER RAIN IS TO BE CLEANED FROM STREETS AND ALLOTMENTS IMMEDIATELY AND CORRECTIVE ACTION TAKEN TO AVOID A RE-OCCURRENCE OF THE FAILURE.
- SEDIMENT BASINS TO BE FLOCCULATED AND PUMPED OUT WITHIN 3 DAYS OF ALL RAIN EVENTS.

SURVEYOR: RPS AUSTRALIA EAST PTY LTD PHONE: 07 5436 7888 FAX: 07 5493 6630	CLIENT: STOCKLAND CALOUNDRA DOWNS P.L.	Brown Consulting (QLD) Pty Ltd, Engineers & Managers Level 1, 15 Nicklin Way, Buddina QLD Australia 4575 Telephone 07 5470 9260 Facsimile 07 5470 9262 Brisbane Canberra Melbourne Sydney Singapore Australia Coast	DRAWING TITLE: CONCEPTUAL EROSION AND SEDIMENT CONTROL SHEET 1 OF 3
SCALE (METRES): 1:1000 10 5 0 10 20 30 40 50 A1; 1:2000 A3	PROJECT No.: N11026	PROJECT: BELLVISTA II HAUL ROAD	BROWN CONSULT AUSTRALIA	DRG/WORK NUMBER: N11026-104



THE EROSION & SEDIMENT CONTROL PLAN IS A BASIC PLAN DEMONSTRATING AN APPROACH TO EROSION & SEDIMENTATION CONTROL FOR THE SITE. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE AN EROSION & SEDIMENT CONTROL DESIGN AND A COMPLETED DESIGN CERTIFICATE PRIOR TO COMMENCEMENT OF WORK. CERTIFICATION MUST BE UNDERTAKEN BY A SUITABLY QUALIFIED, EXPERIENCED PROFESSIONAL NOT DIRECTLY EMPLOYED BY THE PRINCIPAL.

SEDIMENT BASIN TABLE

BASIN	LENGTH (m)	WIDTH (m)	DEPTH (m)	BATTER SLOPE	TOTAL VOLUME (m³)	SETTLING DEPTH (m)	SETTLING VOLUME (m³)
1	21.0	21.0	1.2	1 in 4	342.5	0.75	250
2	21.0	21.0	1.2	1 in 4	342.5	0.75	250
3A	23.0	23.0	1.2	1 in 4	425.1	0.75	310
3B	23.0	23.0	1.2	1 in 4	425.1	0.75	310
4	21.0	20.0	1.0	1 in 4	288.0	0.65	215

* DIMENSIONS ARE TO TOP OF BATTER.
* SIZINGS ARE PRELIMINARY ONLY.

IT IS NOTED THAT ALL SEDIMENT BASIN DESIGNS HAVE BEEN UNDERTAKEN USING A DESIGN RAINFALL DEPTH OF 125mm. IN ACCORDANCE WITH THE 'MANUAL FOR EROSION AND SEDIMENT CONTROL, VERSION 1.2' DATED NOVEMBER 2008 BY SUNSHINE COAST REGIONAL COUNCIL, THE DESIGN RAINFALL DEPTH FOR THE SITE SHOULD BE THE CALOUNDRA AREA, 85TH PERCENTILE 5-DAY RAINFALL DEPTH, WHICH IS 57.7mm. THE FOLLOWING DESIGN STORM EVENTS ARE ALSO NOTED:

CALOUNDRA 95TH PERCENTILE 2-DAY RAINFALL DEPTH: 71.1mm
CALOUNDRA 95TH PERCENTILE 5-DAY RAINFALL DEPTH: 110.4mm
COOLUM 90TH PERCENTILE 10-DAY RAINFALL DEPTH: 119.1mm

THE DESIGN RAINFALL DEPTH ADOPTED FOR THE SITE ECLIPSES ALL DESIGN RAINFALL DEPTHS MENTIONED ABOVE. AS SUCH, THE SEDIMENT BASINS HAVE BEEN DESIGNED TO CAPTURE A MUCH GREATER RAINFALL DEPTH THAN WOULD BE CONSIDERED BEST PRACTICE.

RPS AUSTRALIA EAST PTY LTD
PHONE: 07 5436 7888
FAX: 07 5493 6630

FOR & ON BEHALF OF BROWN CONSULTING (QLD) PTY LTD

SCALE 1:1000 / 1:2000 (A1 / A3)

PROJECT No. N11026

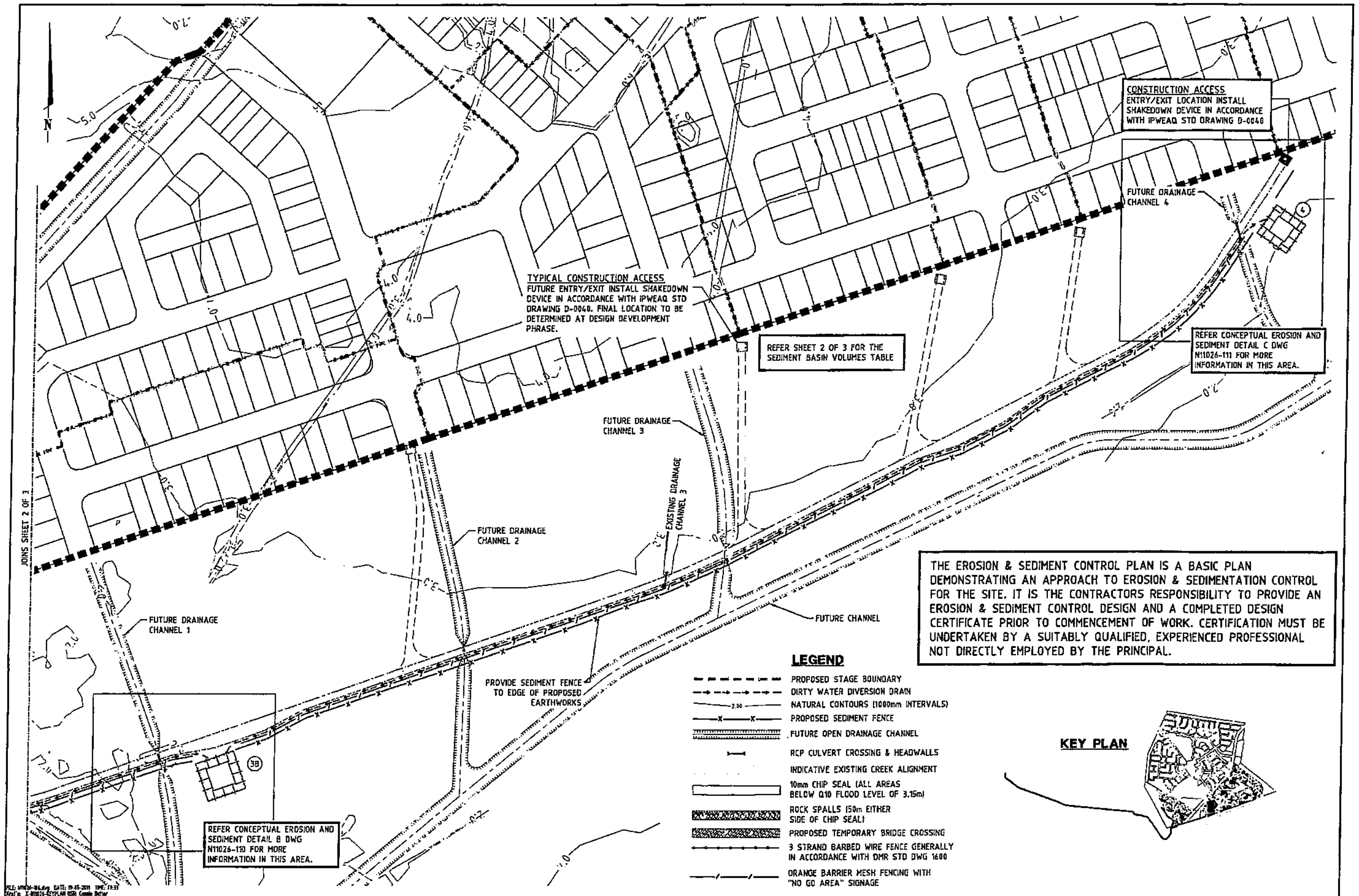
STOCKLAND CALOUNDRA DOWNS P.L.

BELLVISTA II
HAUL ROAD

BROWN

CONCEPTUAL EROSION AND SEDIMENT CONTROL
SHEET 2 OF 3

N11026-105



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FOR & ON BEHALF OF BROWN CONSULTING (QLD) PTY LTD

PROJECT No. N11026

CLIENT: STOCKLAND CALOUNDRA DOWNS P.L.

PROJECT: BELLVISTA II HAUL ROAD

BROWN

DRAWING TITLE: CONCEPTUAL EROSION AND SEDIMENT CONTROL SHEET 3 OF 3

DRAWING NUMBER: N11026-106

PLANS AND DOCUMENTS
referred to in the ULDA
APPROVAL dated 16/9/11

GENERAL NOTES

1. THIS DESIGN FOR EROSION AND SEDIMENT CONTROL IS CONCEPTUAL ONLY. THE CONTRACTOR SHALL MODIFY OR INSTALL ADDITIONAL/ ALTERNATIVE MEASURES DURING THE CONSTRUCTION AND MAINTENANCE PERIOD IN ORDER TO COMPLY WITH BEST PRACTICE STANDARDS IN ACCORDANCE WITH BUT NOT LIMITED TO BROWN CONSULTANT'S SPECIFICATION 17 , THE MANUAL FOR EROSION AND SEDIMENT CONTROL (V1.2) AND ALL STATUTORY REQUIREMENTS .

2. PRESCRIBED WATER CONTAMINANTS (AS DEFINED IN THE ENVIRONMENTAL PROTECTION ACT 1994) MUST NOT BE RELEASED FROM THE SITE, OR BE LIKELY TO BE RELEASED SHOULD RAINFALL OCCUR, UNLESS ALL REASONABLE AND PRACTICABLE MEASURES ARE TAKEN TO PREVENT OR MINIMISE THE RELEASE AND CONCENTRATION OF CONTAMINATION. THESE MEASURES MUST INCLUDE AS A MINIMUM, BUT ARE NOT LIMITED TO, THE FOLLOWING:
   A. ENSURE NON ESSENTIAL EXPOSURE OF SOIL IS PREVENTED BY: RESTRICTING THE EXTENT OF CLEARING TO THAT NECESSARY FOR ACCESS TO, AND SAFE CONSTRUCTION OF, THE APPROVED WORKS; PROTECTING VEGETATION IN ALL OTHER AREAS OF THE SITE; AND BY MINIMISING THE DURATION OF SOIL EXPOSURE BY:
      - STAGING THE WORKS TO MINIMISE THE AREA OF SOIL EXPOSED AT ANY ONE TIME;
      - EFFECTIVELY STABILISING CLEARED AREAS PRIOR TO RAINFALL IF WORKS ARE DELAYED OR
        WORKS ARE NOT INTENDED TO OCCUR IMMEDIATELY. SEE E&SC ADVICE NOTE 1;
      - EFFECTIVELY STABILISING AREAS AT FINISHED LEVEL WITHOUT DELAY AND PRIOR TO RAINFALL; AND
      - EFFECTIVELY STABILISING STEEP AREAS, SUCH AS STOCKPILES, BATTERS AND EMBANKMENTS,
        WHICH ARE NOT BEING ACTIVELY WORKED AND PRIOR TO RAINFALL.
   B. WHERE IT IS NOT FEASIBLE TO EFFECTIVELY STABILISE CLEARED AREAS OF EXPOSED SOIL, SUCH AS AREAS BEING ACTIVELY WORKED, IMPLEMENT A FULL SUITE OF EROSION AND SEDIMENT CONTROLS TO MAXIMISE SEDIMENT CAPTURE IN THOSE AREAS AND TO MINIMISE EROSION SUCH THAT EROSION BY ALL FORMS OTHER THAN SPLASH (RAINDROP IMPACT) EROSION AND SHEET EROSION DOES NOT OCCUR; AND
   C. IN AREAS OF EXPOSED SOIL WHERE IT IS NOT FEASIBLE TO EITHER EFFECTIVELY STABILISE THE SURFACE OR IMPLEMENT A FULL SUITE OF EROSION AND SEDIMENT CONTROLS. FOR EXAMPLE IN THE AREAS BEING ACTIVELY WORKED AND WHERE THE IMPLEMENTATION OF SOME EROSION AND SEDIMENT CONTROLS WOULD IMPEDE CONSTRUCTION ACTIVITIES, ENSURE CONTINGENCY MEASURES ARE AVAILABLE ON SITE AND ARE IMPLEMENTED, PRIOR TO RAIN, TO MAXIMISE SEDIMENT CAPTURE AND TO MINIMISE EROSION SUCH THAT EROSION BY ALL FORMS OTHER THAN SPLASH (RAINDROP IMPACT) EROSION AND SHEET EROSION DOES NOT OCCUR
   D. EFFECTIVELY STABILISE ALL STOCKPILES, BATTERS AND EMBANKMENTS WITHOUT DELAY. WHERE IT IS NOT FEASIBLE TO EFFECTIVELY STABILISE A STOCKPILE, BATTER OR EMBANKMENT, SUCH AS AREAS BEING ACTIVELY WORKED, ENSURE THAT SEDIMENT CONTROLS ARE INSTALLED AND SURFACE STORMWATER FLOWS ARE MANAGED SUCH THAT EROSION OF STOCKPILES, BATTERS OR EMBANKMENTS IS NOT CAUSED BY CONCENTRATED STORMWATER FLOWS.
   E. ENSURE CLEAN STORMWATER IS DIVERTED OR MANAGED AROUND OR THROUGH THE SITE WITHOUT INCREASING THE CONCENTRATION OF TOTAL SUSPENDED SOLIDS OR OTHER CONTAMINANTS IN THE FLOW AND WITHOUT CAUSING EROSION (ON SITE OR OFF SITE). IF IT IS NOT FEASIBLE TO DIVERT ALL AREAS DISCHARGING CLEAN STORMWATER AROUND OR THROUGH THE SITE, MANAGE THE CLEAN STORMWATER RUNOFF AS FOR CONTAMINATED STORMWATER RUNOFF, AND ENSURE THAT SEDIMENT BASINS ARE SIZED TO ACCOMMODATE THE ADDITIONAL VOLUME OF RUNOFF (SEE E&SC ADVICE NOTE 2).
   F. ENSURE SHEET FLOWS OF STORMWATER ARE MANAGED SUCH THAT SHEET AND RILL EROSION IS PREVENTED OR MINIMISED.
   G. ENSURE THAT ALL CONCENTRATED STORMWATER FLOWS INCLUDING DRAINAGE LINES, DIVERSION DRAINS, CHANNELS AND BATTER CHUTES ARE MANAGED ONTO, THROUGH, AND AT RELEASE POINTS FROM THE SITE IN ALL RAIN EVENTS UP TO AND INCLUDING THE AVERAGE RECURRENCE INTERVAL (ARI) EVENT OF 1 IN 2 YEAR ARI WITHOUT CAUSING WATER CONTAMINATION, SHEET, RILL OR GULLY EROSION, SEDIMENTATION, OR DAMAGE TO STRUCTURES OR PROPERTY
   H. ENSURE MEASURES HAVE BEEN IMPLEMENTED SUCH THAT THE RUNOFF FROM ALL DISTURBED AREAS FLOWS TO A SEDIMENT BASIN OR BASINS. WHERE IT IS NOT FEASIBLE TO DIVERT RUNOFF FROM DISTURBED AREAS OF THE SITE TO A SEDIMENT BASIN, IMPLEMENT COMPENSATORY EROSION AND DRAINAGE CONTROLS PRIOR TO RAINFALL TO ENSURE THAT EROSION OF THOSE AREAS DOES NOT OCCUR, INCLUDING EROSION CAUSED BY EITHER SPLASH (RAINDROP IMPACT), SHEET, RILL OR GULLY EROSION PROCESSES (SEE E&SC ADVICE NOTE 3).
   I. ENSURE EACH SEDIMENT BASIN HAS THE CAPACITY TO TREAT FLOWS TO CURRENT BEST PRACTICE STANDARDS (SEE E&SC ADVICE NOTE 4) AND AS A MINIMUM TO CONTAIN ALL THE STORMWATER RUNOFF FROM THE 80TH PERCENTILE 5 DAY RAINFALL DEPTH AND STORE 2 MONTHS SEDIMENT FROM THE RECEIVING CATCHMENT, AS DETERMINED USING THE REVISED UNIVERSAL SOIL LOSS EQUATION.
   J. ENSURE SEDIMENT BASINS ARE MAINTAINED WITH SUFFICIENT STORAGE CAPACITY TO CAPTURE AND TREAT THE RUNOFF FOR THE DESIGN RAINFALL DEPTH OR EVENT. WHERE SEDIMENT BASINS ARE PROPOSED TO BE OVERSIZED FOR STORAGE OF CAPTURED WATER FOR RE-USE, INSTALL SURVEY MARKERS IN EACH SUCH BASIN TO INDICATE THE LEVEL THAT WATER WITHIN THE BASIN MUST BE LOWERED TO, IN ORDER TO MEET THE STORAGE CAPACITY SPECIFIED IN THE ABOVE REQUIREMENT.
   K. ENSURE SEDIMENT BASINS ARE DEWATERED AS SOON AS PRACTICABLE AFTER EACH RAINFALL EVENT.
   L. ENSURE THAT DURING DEWATERING, THE CONCENTRATION OF TOTAL SUSPENDED SOLIDS (TSS) DISCHARGED DOES NOT EXCEED 50MG/L AND THAT PH IS WITHIN THE RANGE OF 6.5-8.5. THE CONCENTRATION OF TSS RELEASED BY DEWATERING MAY ONLY EXCEED 50MG/L WHERE IT CAN BE DEMONSTRATED AND SUPPORTED THROUGH DOCUMENTATION THAT:
      - FURTHER SIGNIFICANT RAINFALL IS FORECAST TO OCCUR BEFORE THE TSS CONCENTRATION IS
        LIKELY TO BE REDUCED TO 50MG/L ; AND
      - RELEASING A HIGHER CONCENTRATION OF TOTAL SUSPENDED SOLID WILL RESULT IN A BETTER
        ENVIRONMENTAL OUTCOME BY PROVIDING STORAGE FOR THE CAPTURE AND TREATMENT OF
        RUNOFF FROM THE IMMINENT RAINFALL AND RUNOFF; AN
      - FLOCCULENT HAS BEEN APPLIED AND THE CONCENTRATION OF TSS IN THE CAPTURED WATER
        HAS ALREADY SIGNIFICANTLY DECREASED.
   M. ENSURE SEDIMENT BASINS AND ASSOCIATED STRUCTURES SUCH AS INLETS, OUTLETS AND SPILLWAYS ARE STRUCTURALLY SOUND FOR 10 YEAR ARI RAINFALL EVENT.
   N. ENSURE ACCUMULATED SEDIMENT FROM BASINS AND OTHER CONTROLS IS REMOVED AND DISPOSED OF APPROPRIATELY WITHOUT CAUSING WATER CONTAMINATION.
   O. ENSURE SEDIMENT DOES NOT LEAVE THE SITE ON THE TYRES OF VEHICLES.

3. THE ENVIRONMENTAL PROTECTION ACT 1994 STATES THAT A PERSON MUST NOT CARRY OUT ANY ACTIVITY THAT CAUSES, OR IS LIKELY TO CAUSE, ENVIRONMENTAL HARM UNLESS THAT PERSON TAKES ALL REASONABLE AND PRACTICAL MEASURES TO PREVENT OR MINIMISE THE HARM. ENVIRONMENTAL HARM INCLUDES ENVIRONMENTAL NUISANCE. IN REGARD PERSONS AND ENTITIES, INVOLVED IN THE CIVIL, EARTHWORKS AND CONSTRUCTION PHASES OF THIS DEVELOPMENT, ARE TO ADHERE TO THEIR 'GENERAL ENVIRONMENTAL DUTY' TO MINIMISE THE RISK OF CAUSING ENVIRONMENTAL HARM.

   ENVIRONMENTAL; HARM IS DEFINED BY THE ACT AS ANY ADVERSE AFFECT, OR POTENTIAL ADVERSE AFFECT WHETHER TEMPORARY OR PERMANENT AND OF WHATEVER MAGNITUDE, DURATION OR FREQUENCY ON AN ENVIRONMENTAL VALUE AND INCLUDES ENVIRONMENTAL NUISANCE. THEREFORE, NO PERSON SHOULD CAUSE ANY INTERFERENCE WITH THE ENVIRONMENT OR AMENITY OF THE AREA BY REASON OF THE EMISSION OF NOISE, VIBRATION, SMELL, FUMES, SMOKE, VAPOR, STEAM, SOOT, ASH, DUST, WASTE WATER, WASTE PRODUCTS, GRIT, SEDIMENT, OIL OR OTHERWISE, OR CAUSE HAZARDS LIKELY IN THE OPINION OF THE ADMINISTERING AUTHORITY TO CAUSE UNDUE DISTURBANCE OR ANNOYANCE TO PERSONS OR AFFECT PROPERTY NOT CONNECTED WITH THE USE.

4. THE CONTRACTOR IS TO TAKE ALL NECESSARY PRECAUTIONS TO CONTROL EROSION AND DOWNSTREAM SEDIMENTATION DURING ALL STAGES OF CONSTRUCTION INCLUDING THE MAINTENANCE PERIOD.

5. WHERE IT IS REQUIRED TO SLASH EXISTING VEGETATION EITHER PRIOR TO THE COMMENCEMENT OF WORKS, DURING THE CONSTRUCTION WORKS AND / OR DURING THE MAINTENANCE PERIOD, SAID VEGETATION SHALL BE SLASHED TO A MINIMUM HEIGHT OF 75MM TO ASSIST WITH THE RETENTION OF SOILS ON SITE (I.E. ASSIST IN THE PREVENTION OF EROSION).

6. WHERE THE EXISTING VEGETATION WITHIN THE PROPOSED LOTS AND / OR PARKLAND IS DISTURBED AS A RESULT OF THE CONSTRUCTION WORKS, SAID EARTHWORKS ARE TO BE TOPSOILED AND EFFECTIVELY STABILISED WITHIN FIVE (5) DAYS, (EARLIER IF RAIN EXPECTED) OF FINAL ALLOTMENT EARTHWORKS. AN EFFECTIVELY STABILISED SURFACE IS DEFINED AS ONE THAT DOES NOT HAVE
   - VISIBLE EVIDENCE OF SOIL LOSS CAUSED BY SHEET, RILL OR GULLY EROSION OR
   - LEAD TO SEDIMENTATION, OR
   - LEAD TO WATER CONTAMINATION.

7. ALL CONSTRUCTION VEHICLES ARE TO ACCESS THE SITE VIA A SINGLE POINT OF ACCESS; THE POINT OF ACCESS, TOGETHER WITH THE MEASURES TO BE IMPLEMENTED, ARE TO BE AGREED WITH COUNCIL'S DESIGNATED REPRESENTATIVE ON SITE. THE PRINCIPLE AIM OF THE MEASURE(S) TO BE IMPLEMENTED IS / ARE TO LIMIT THE TRACKING OF DELETERIOUS MATERIALS ONTO THE SURROUNDING ROAD NETWORK.

8. THE CONTRACTOR SHALL PROVIDE GULLY INLET PROTECTION TO ALL GULLY INLET STRUCTURES LOCATED, DIRECTLY DOWNSTREAM OF THE PROPOSED DEVELOPMENT WORKS.

9. APPROPRIATE PROVISIONS ARE TO BE PROVIDED TO THE INTERFACE BETWEEN THE EXISTING ROADWAY PAVEMENTS AND THE NEW ROADWORK'S CONSTRUCTION. THE PROVISIONS SHALL ADDRESS WORKPLACE HEALTH AND SAFETY CONCERNS (I.E. RESTRICTING ACCESS BY THE GENERAL PUBLIC TO THE SITE).

10. THE LOCATION OF THE CONSTRUCTION VEHICLE COMPOUND, SITE OFFICE AND THE VEHICLE SERVICING AREA SHALL BE AGREED WITH COUNCIL'S DESIGNATED REPRESENTATIVE ON SITE, PRIOR TO THE COMMENCEMENT OF WORKS.

11. CLEARED VEGETATION IS TO NOT BE BURNED ON SITE, ALL VEGETATIVE WASTE(S) SHALL BE MULCHED AND THEREAFTER RETAINED ON SITE FOR USE AS PART OF THE EROSION AND SEDIMENTATION CONTROL STRATEGY OR THE LANDSCAPING / REVEGETATION WORKS. ALL STUMPS AND / OR OTHER ORGANIC MATTER NOT SUITABLE FOR MULCHING SHALL BE DISPOSED OF AT AN APPROVED WASTE DISPOSAL FACILITY.

12. SEDIMENT FENCE AND TURFING RUNNING DOWNSLOPES SHALL HAVE REGULAR FLOW DISSIPATERS AT 45° TO SLOPE AS DIRECTED CONSISTING OF SAND BAGS OR SIMILAR AS REQUIRED.

13. DURING THE CONSTRUCTION PROCESS INCLUDING THAT PERIOD DURING WHICH THE WORKS ARE "ON MAINTENANCE' SHOULD COUNCIL'S DESIGNATED REPRESENTATIVE REQUEST ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES BE IMPLEMENTED, SAID MEASURES SHALL BE IMPLEMENTED AT THE EARLIEST TIME POSSIBLE. NOTWITHSTANDING THE ABOVE REQUIREMENT ANY MEASURES REQUESTED TO BE IMPLENENTED BY COUNCIL'S DESIGNATED REPRESENTATIVE SHALL BE IMPLEMENTED WITHIN 24 HOURS OF THE TIME OF THE REQUEST.

14. ALL ROOFWATER / SEWER RETICULATION TRENCHES EITHER ADJACENT TO EXISTING DEVELOPMENT OR PERPENDICULAR TO THE CROSSFALL OF THE LAND ARE TO BE TOPSOILED (75MM MINIMUM) AND TURFED. FOR A MINIMUM 900MM WIDTH.

15. THE CONTRACTOR SHALL CONSTRUCT LINED CUTOFF DRAINS IN WORK AREAS SO AS TO LIMIT SLOPE LENGTHS TO A MAXIMUM OF 80M.

16. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO RELEASE OR FLOW IS PERMITTED FROM THE SITE, THROUGHOUT THE EARTHWORKS AND CONSTRUCTION PERIOD TO ANY WATER WAYS OR STORMWATER DRAINLINES LEADING TO A WATERWAY OR AREA OF NATIVE VEGETATION UNLESS THE LEVELS OF TOTAL SUSPENDED SOLIDS DOES NOT EXCEED A CONCENTRATION OF 50 MGL.

17. ALL SEDIMENT CONTROL DEVICES SHALL BE MONITORED, CLEANED AND/OR REPAIRED WHENEVER THE ACCUMULATED SEDIMENT REDUCES THE CAPACITY BY 50%.

18. ALL PERIMETER BANK/SWALE SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.

19. AT ALL TIMES THE CONTRACTOR SHALL MONITOR THE PREVAILING WEATHER CONDITIONS AND PROTECT OR STABILISE ANY DOWNSTREAM CONSTRUCTION AND GULLY INLETS.

20. CLEARING OF SITE AND STOCK PILE AREAS TO BE AS DIRECTED BY THE SUPERVISING ENGINEER.

21. WHERE PRACTICAL THE CONTRACTOR SHALL DIVERT CLEAN WATER ENTERING THE SITE FROM EXTERNAL CATCHMENT(S) AND DIRECTED TO THE STORMWATER SYSTEM. THIS DISCHARGE POINT SHOULD BE ROCK LINED. REGULAR ROCK CHECK DAMS SHOULD BE POSITIONED ALONG THE VEGETATED DRAINAGE LINE LEADING TO THIS DISCHARGE POINT.

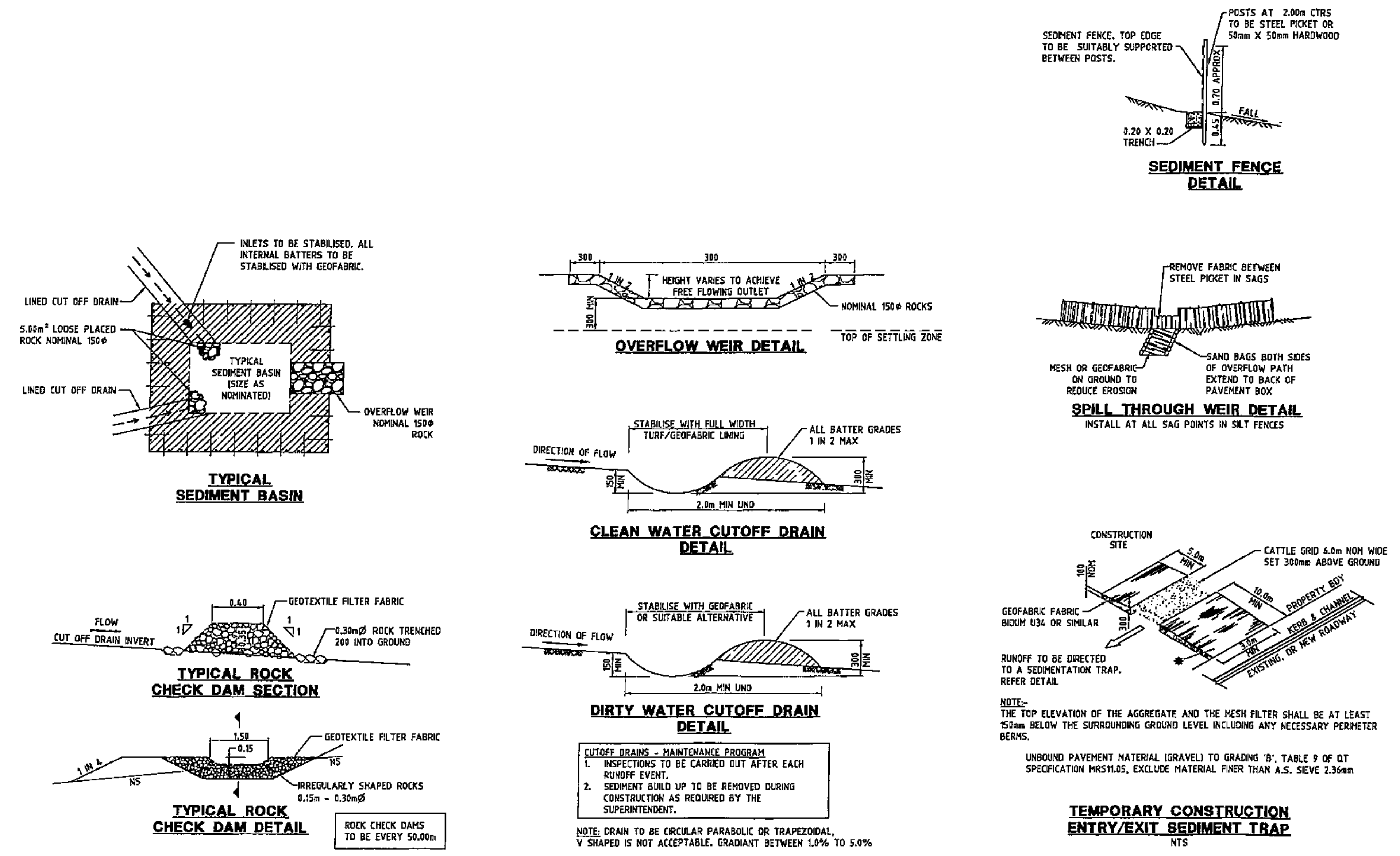
22. REGULAR INSPECTIONS AND MAINTENANCE OF VEHICLE WASHDOWN AREA, SITE AND STORAGE COMPOUND TO BE CARRIED OUT BY CONTRACTOR.

23. AREAS USED FOR STORAGE OF CHEMICALS USED FOR CONSTRUCTION PURPOSES SHALL HAVE STORMWATER CONTROL DEVICES ERECTED ADJACENT TO THEM (I.E. EARTH BUND AND SEDIMENT FENCES). UPON COMPLETION OF ROADWORKS WASTE PRODUCTS ARE TO BE DISPOSED OF AS PER LOCAL AUTHORITY GUIDELINES AND TEMPORARY DEVICES ARE TO BE REMOVED AND AREA REHABILITATED.

FILE: N11026-107.dwg DATE: 19-05-2011 TIME: 09:33

AMENDMENT	SCALE	PROJECT No.	SURVEYOR	CLIENT / PROJECT		DRAWING TITLE / NUMBER
	NTS UNO	N11026	RPS AUSTRALIA EAST PTY LTD PHONE: 07 5436 7888 FAX: 07 5493 6630 APPROVED: BRENT THOMAS 7862 / BROOK KITSON 7884 FOR & ON BEHALF OF BROWN CONSULTING (QLD) PTY LTD	STOCKLAND CALOUNDRA DOWNS P.L. BELLVISTA II HAUL ROAD	Brown Consulting (QLD) Pty Ltd Engineers & Managers Level 1, 15 Nicklin Way, Buddina QLD Australia 4575 Telephone 07 5470 9260 Facsimile 07 5470 9262 BROWN CONSULT AUSTRALIA	CONCEPTUAL EROSION AND SEDIMENT CONTROL NOTES N11026-107

PLANS AND DOCUMENTS
referred to in the ULDA
APPROVAL dated 16/9/11



SEDIMENT FENCE, TOP EDGE TO BE SUITABLY SUPPORTED BETWEEN POSTS.
POSTS AT 2.00m CTRS TO BE STEEL PICKET OR 50mm X 50mm HARDWOOD
0.70 APPROX
0.45
FALL
0.20 X 0.20 TRENCH
SEDIMENT FENCE DETAIL
INLETS TO BE STABILISED. ALL INTERNAL BATTERS TO BE STABILISED WITH GEOFABRIC.
LINED CUT OFF DRAIN
5.00m² LOOSE PLACED ROCK NOMINAL 150⌀
TYPICAL SEDIMENT BASIN (SIZE AS NOMINATED)
LINED CUT OFF DRAIN
OVERFLOW WEIR NOMINAL 150⌀ ROCK
TYPICAL SEDIMENT BASIN
300
300
300
HEIGHT VARIES TO ACHIEVE FREE FLOWING OUTLET
NOMINAL 150⌀ ROCKS
300 MIN
TOP OF SETTLING ZONE
OVERFLOW WEIR DETAIL
REMOVE FABRIC BETWEEN STEEL PICKET IN SAGS
MESH OR GEOFABRIC ON GROUND TO REDUCE EROSION
SAND BAGS BOTH SIDES OF OVERFLOW PATH EXTEND TO BACK OF PAVEMENT BOX
SPILL THROUGH WEIR DETAIL
INSTALL AT ALL SAG POINTS IN SILT FENCES
STABILISE WITH FULL WIDTH TURF/GEOFABRIC LINING
ALL BATTER GRADES 1 IN 2 MAX
DIRECTION OF FLOW
150 MIN
300 MIN
2.0m MIN UNO
CLEAN WATER CUTOFF DRAIN DETAIL
CONSTRUCTION SITE
CATTLE GRID 6.0m NOM WIDE SET 300mm ABOVE GROUND
100 NOM
5.0m MIN
10.0m MIN
PROPERTY BDY
KERB & CHANNEL
EXISTING, OR NEW ROADWAY
GEOFABRIC FABRIC BIDIM U34 OR SIMILAR
300
RUNOFF TO BE DIRECTED TO A SEDIMENTATION TRAP. REFER DETAIL
NOTE:-
THE TOP ELEVATION OF THE AGGREGATE AND THE MESH FILTER SHALL BE AT LEAST 150mm BELOW THE SURROUNDING GROUND LEVEL INCLUDING ANY NECESSARY PERIMETER BERMS.
UNBOUND PAVEMENT MATERIAL (GRAVEL) TO GRADING 'B', TABLE 9 OF QT SPECIFICATION MRS11.05, EXCLUDE MATERIAL FINER THAN A.S. SIEVE 2.36mm
TEMPORARY CONSTRUCTION ENTRY/EXIT SEDIMENT TRAP
NTS
FLOW
CUT OFF DRAIN INVERT
0.40
0.35
GEOTEXTILE FILTER FABRIC
0.30m⌀ ROCK TRENCHED 200 INTO GROUND
TYPICAL ROCK CHECK DAM SECTION
STABILISE WITH GEOFABRIC OR SUITABLE ALTERNATIVE
ALL BATTER GRADES 1 IN 2 MAX
DIRECTION OF FLOW
150 MIN
300 MIN
2.0m MIN UNO
DIRTY WATER CUTOFF DRAIN DETAIL
1.50
0.15
GEOTEXTILE FILTER FABRIC
NS
1 IN 4
IRREGULARLY SHAPED ROCKS 0.15m - 0.30m⌀
TYPICAL ROCK CHECK DAM DETAIL
ROCK CHECK DAMS TO BE EVERY 50.00m
CUTOFF DRAINS - MAINTENANCE PROGRAM
1. INSPECTIONS TO BE CARRIED OUT AFTER EACH RUNOFF EVENT.
2. SEDIMENT BUILD UP TO BE REMOVED DURING CONSTRUCTION AS REQUIRED BY THE SUPERINTENDENT.
NOTE: DRAIN TO BE CIRCULAR PARABOLIC OR TRAPEZOIDAL, V SHAPED IS NOT ACCEPTABLE. GRADIANT BETWEEN 1.0% TO 5.0%

SCALE: NTS UNO

PROJECT No. N11026

RPS AUSTRALIA EAST PTY LTD
PHONE: 07 5436 7888
FAX: 07 5493 6630

FOR & ON BEHALF OF BROWN CONSULTING (QLD) PTY LTD

CLIENT: STOCKLAND CALOUNDRA DOWNS P.L.

PROJECT: BELLVISTA II HAUL ROAD

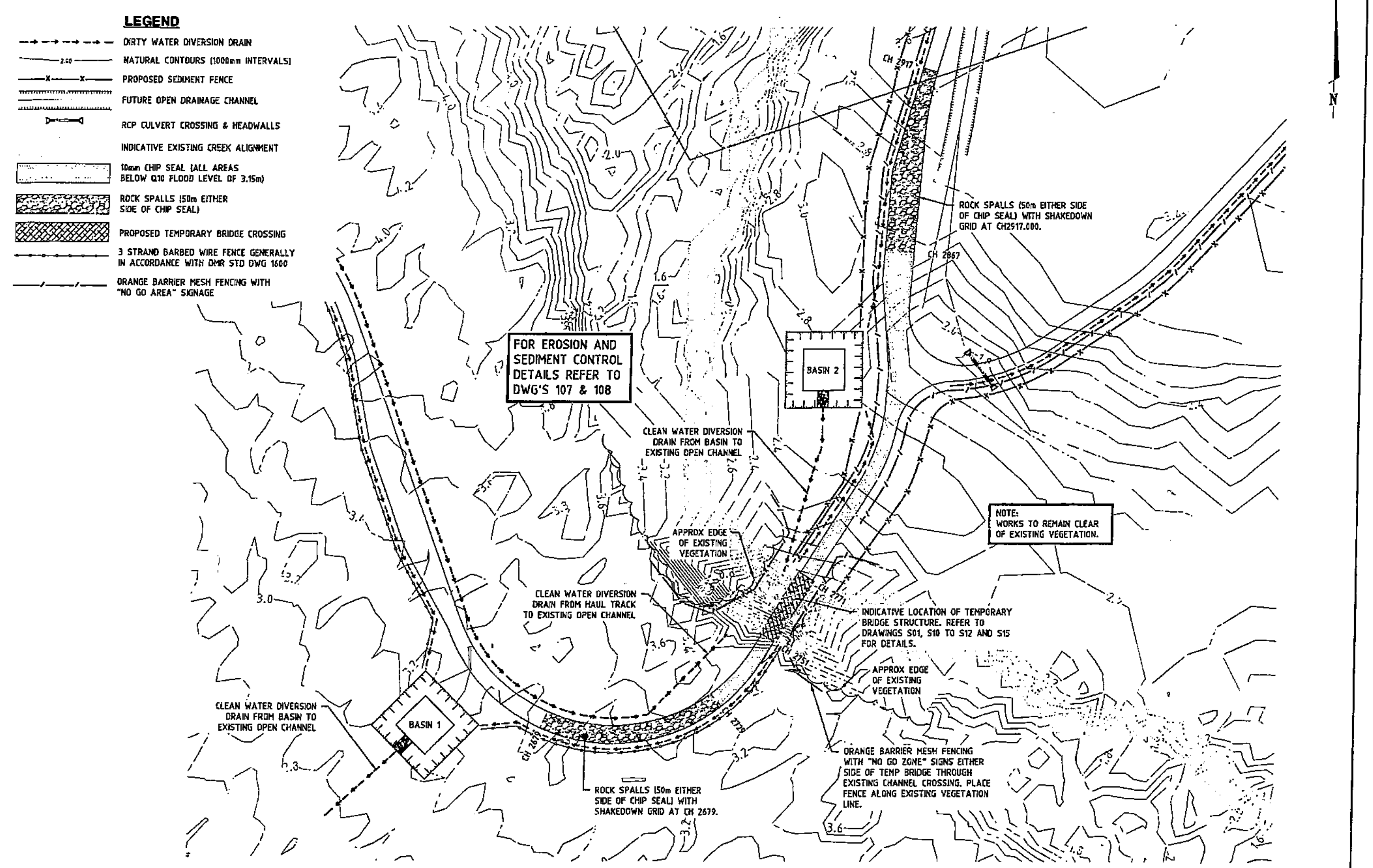
BROWN

CONSULT AUSTRALIA

DRAWING TITLE: CONCEPTUAL EROSION AND SEDIMENT CONTROL DETAILS

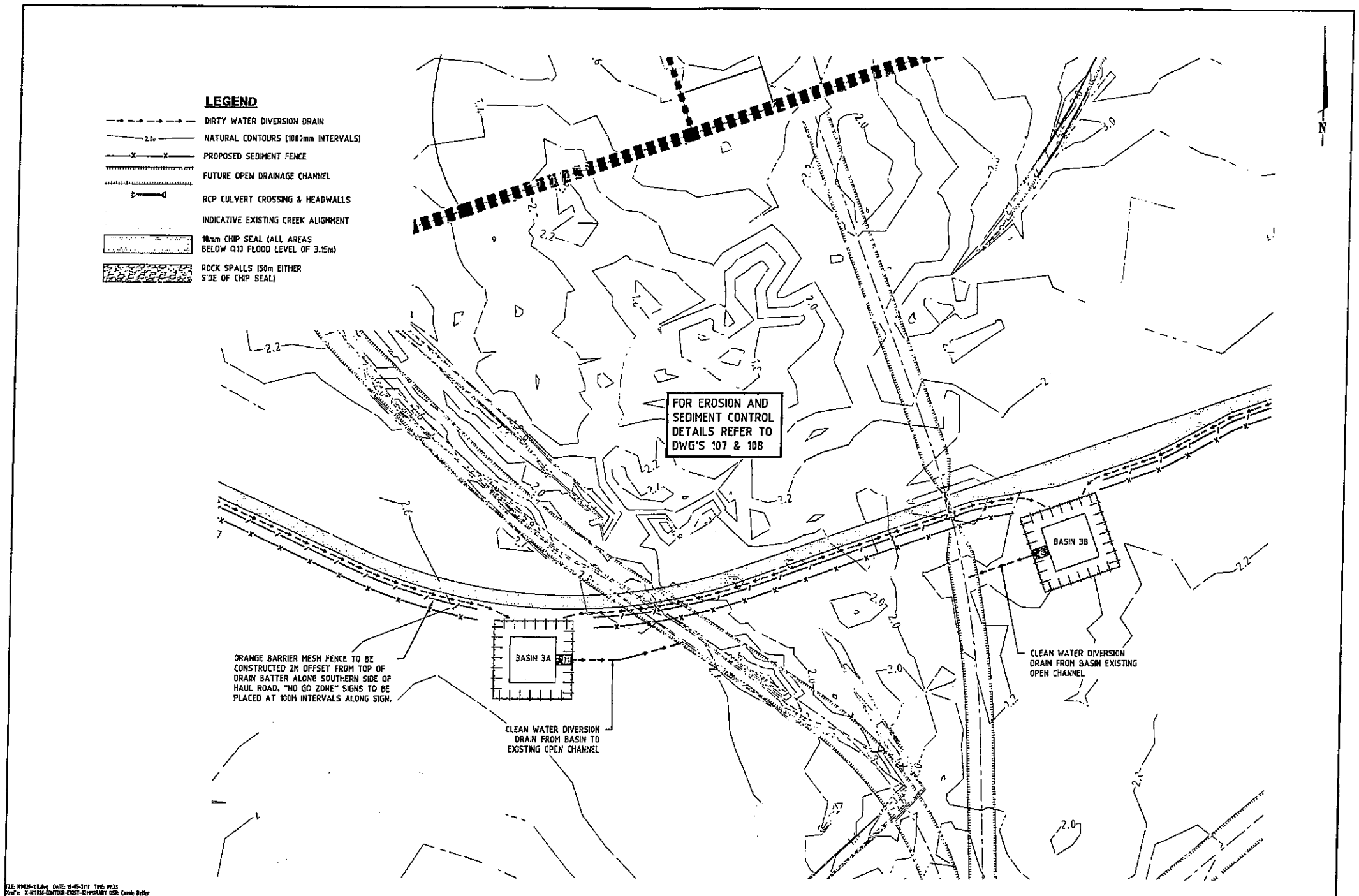
DRAWING NUMBER: N11026-108

PLANS AND DOCUMENTS referred to in the ULDA APPROVAL dated 16/9/11

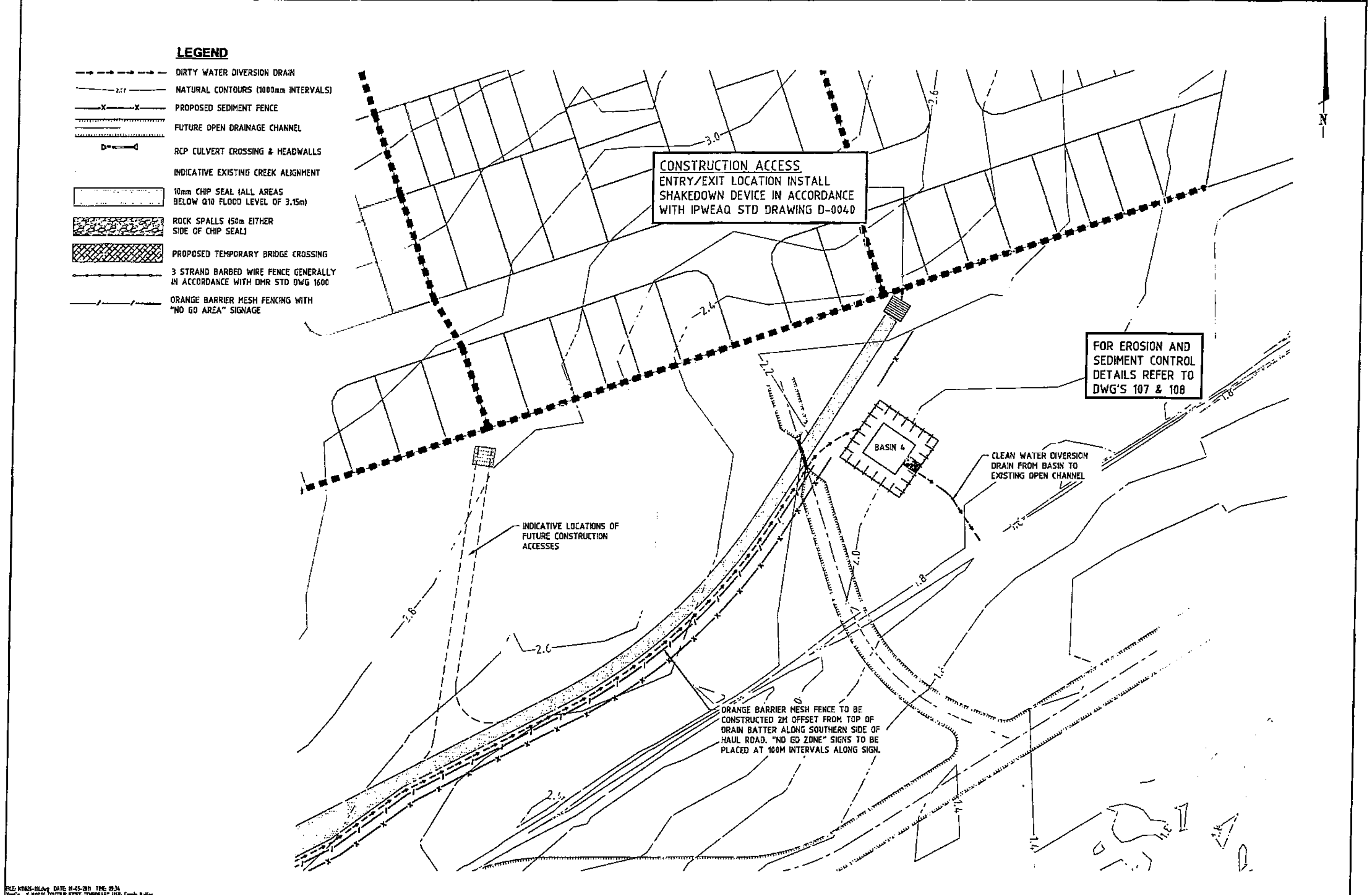

LEGEND
DIRTY WATER DIVERSION DRAIN
NATURAL CONTOURS (1000mm INTERVALS)
PROPOSED SEDIMENT FENCE
FUTURE OPEN DRAINAGE CHANNEL
RCP CULVERT CROSSING & HEADWALLS
INDICATIVE EXISTING CREEK ALIGNMENT
10mm CHIP SEAL (ALL AREAS BELOW Q10 FLOOD LEVEL OF 3.15m)
ROCK SPALLS (50m EITHER SIDE OF CHIP SEAL)
PROPOSED TEMPORARY BRIDGE CROSSING
3 STRAND BARBED WIRE FENCE GENERALLY IN ACCORDANCE WITH DMR STD DWG 1600
ORANGE BARRIER MESH FENCING WITH "NO GO AREA" SIGNAGE
FOR EROSION AND SEDIMENT CONTROL DETAILS REFER TO DWG'S 107 & 108
BASIN 1
BASIN 2
CLEAN WATER DIVERSION DRAIN FROM BASIN TO EXISTING OPEN CHANNEL
CLEAN WATER DIVERSION DRAIN FROM HAUL TRACK TO EXISTING OPEN CHANNEL
APPROX EDGE OF EXISTING VEGETATION
ROCK SPALLS (50m EITHER SIDE OF CHIP SEAL) WITH SHAKEDOWN GRID AT CH2917.000.
ROCK SPALLS (50m EITHER SIDE OF CHIP SEAL) WITH SHAKEDOWN GRID AT CH 2679.
NOTE: WORKS TO REMAIN CLEAR OF EXISTING VEGETATION.
INDICATIVE LOCATION OF TEMPORARY BRIDGE STRUCTURE. REFER TO DRAWINGS S01, S10 TO S12 AND S15 FOR DETAILS.
ORANGE BARRIER MESH FENCING WITH "NO GO ZONE" SIGNS EITHER SIDE OF TEMP BRIDGE THROUGH EXISTING CHANNEL CROSSING. PLACE FENCE ALONG EXISTING VEGETATION LINE.
CH 2917
CH 2867
CH 2679
N

CONSULTANT	RPS AUSTRALIA EAST PTY LTD PHONE: 07 5436 7888 FAX: 07 5493 6630
APPROVED	FOR & ON BEHALF OF BROWN CONSULTING (QLD) PTY LTD
PROJECT No.	N11026
CLIENT	STOCKLAND CALOUNDRA DOWNS P.L.
PROJECT	BELLVISTA II HAUL ROAD
DRAWING TITLE	CONCEPTUAL EROSION AND SEDIMENT DRAINAGE CROSSING DETAIL A
DRAWING NUMBER	N11026-109

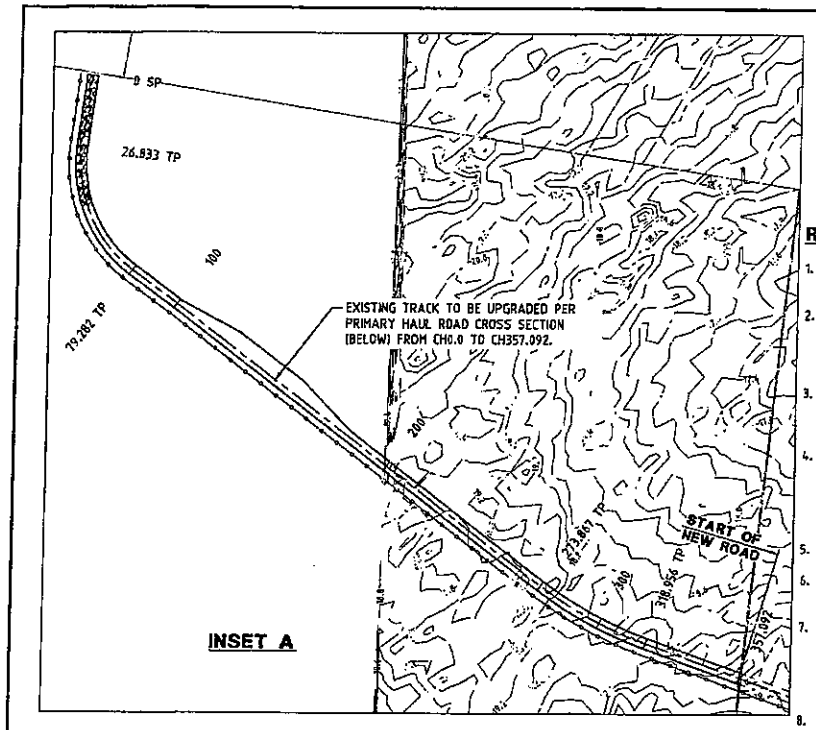
BROWN

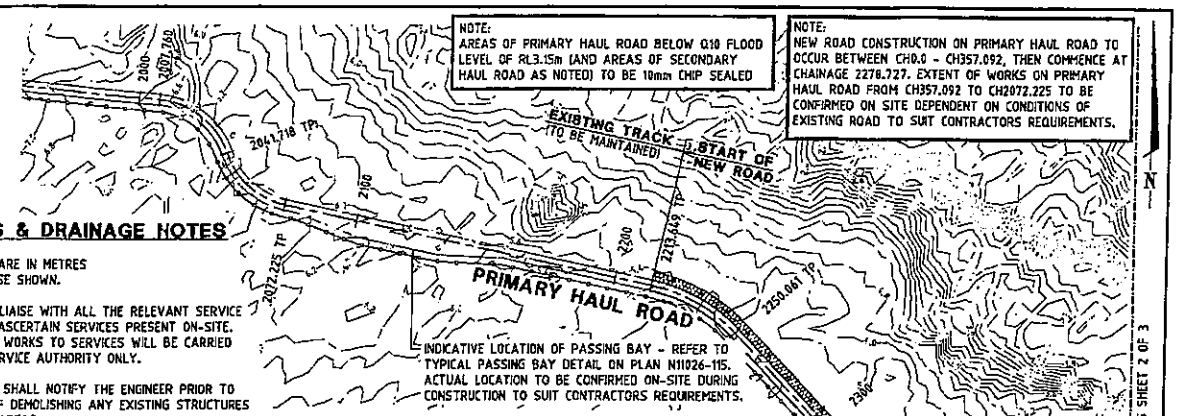


SURVEYOR: RPS AUSTRALIA EAST PTY LTD PHONE: 07 5436 7888 FAX: 07 5493 6638 APPROVED: BRENT BURNUS 3062 BROOK WILSON 3126 FOR & ON BEHALF OF BROWN CONSULTING (QLD) PTY LTD	CLIENT: STOCKLAND CALOUNDRA DOWNS P.L. PROJECT: BELLVISTA II HAUL ROAD	Brown Consulting (Qld) Pty Ltd Engineers & Managers Level 1, 15 Hobbs Way, Sandline QLD Australia 4575 Telephone 07 5470 9260 Facsimile 07 5470 9262 Brisbane Canberra Melbourne Sydney Singapore Sunshine Coast BROWN CONSULT AUSTRALIA	DRAWING TITLE: CONCEPTUAL EROSION AND SEDIMENT DRAINAGE CROSSING DETAIL B	PROJECT No. N11026
			DRAWING NUMBER: N11026-110	ISSUE


LEGEND
DIRTY WATER DIVERSION DRAIN
NATURAL CONTOURS (1000mm INTERVALS)
PROPOSED SEDIMENT FENCE
FUTURE OPEN DRAINAGE CHANNEL
RCP CULVERT CROSSING & HEADWALLS
INDICATIVE EXISTING CREEK ALIGNMENT
10mm CHIP SEAL (ALL AREAS BELOW Q10 FLOOD LEVEL OF 3.15m)
ROCK SPALLS (50m EITHER SIDE OF CHIP SEAL)
PROPOSED TEMPORARY BRIDGE CROSSING
3 STRAND BARBED WIRE FENCE GENERALLY IN ACCORDANCE WITH DMR STD DWG 1600
ORANGE BARRIER MESH FENCING WITH "NO GO AREA" SIGNAGE
CONSTRUCTION ACCESS
ENTRY/EXIT LOCATION INSTALL SHAKEDOWN DEVICE IN ACCORDANCE WITH IPWEAQ STD DRAWING D-0040
FOR EROSION AND SEDIMENT CONTROL DETAILS REFER TO DWG'S 107 & 108
BASIN 4
CLEAN WATER DIVERSION DRAIN FROM BASIN TO EXISTING OPEN CHANNEL
INDICATIVE LOCATIONS OF FUTURE CONSTRUCTION ACCESSES
ORANGE BARRIER MESH FENCE TO BE CONSTRUCTED 2M OFFSET FROM TOP OF DRAIN BATTER ALONG SOUTHERN SIDE OF HAUL ROAD. "NO GO ZONE" SIGNS TO BE PLACED AT 100M INTERVALS ALONG SIGN.
3.0
2.6
2.4
2.2
2.0
1.8
1.6
N

AMENDMENT DETAILS	SCALE (METRES)	PROJECT No. N11026	SURVEYOR: RPS AUSTRALIA EAST PTY LTD PHONE: 07 5436 7888 FAX: 07 5493 6630	CLIENT: STOCKLAND CALOUNDRA DOWNS P.L.	BROWN	DRAWING TITLE: CONCEPTUAL EROSION AND SEDIMENT CONTROL CROSSING DETAIL C
	1:500 A1 / 1:1000 A3		APPROVED: FOR & ON BEHALF OF BROWN CONSULTING (QLD) PTY LTD	PROJECT: BELLVISTA II HAUL ROAD	Brown Consulting (QLD) Pty Ltd Engineers & Managers, Level 1, 15 McKillo Way, Buderim QLD Australia 4575, Telephone 07 5470 9260 Facsimile 07 5470 9262	DRAWING NUMBER: N11026-111



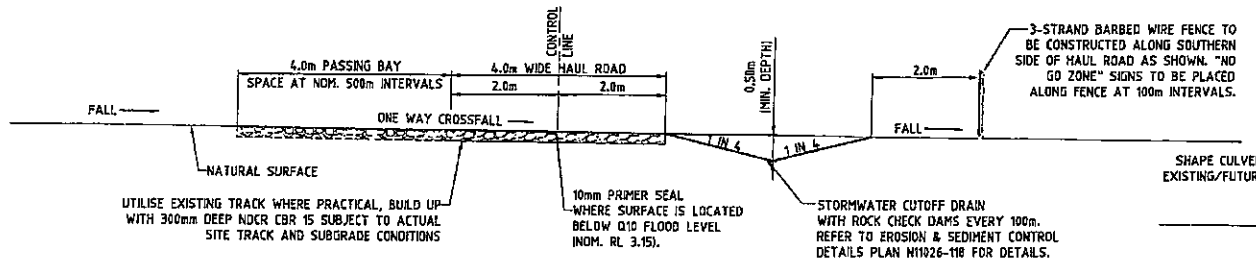


ROADWORKS & DRAINAGE NOTES

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.
2. CONTRACTOR TO LIAISE WITH ALL THE RELEVANT SERVICE AUTHORITIES TO ASCERTAIN SERVICES PRESENT ON-SITE. ANY ALTERATION WORKS TO SERVICES WILL BE CARRIED OUT BY THAT SERVICE AUTHORITY ONLY.
3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO COMMENCEMENT OF DEMOLISHING ANY EXISTING STRUCTURES WITHIN THE SITE AREAS.
4. NOT WITHSTANDING THE LIMITS OF CUTTING AND FILLING SHOWN ON THE TYPICAL CROSS SECTIONS, THE ACTUAL LIMITS SHALL BE DETERMINED ON-SITE BY THE ENGINEER DURING CONSTRUCTION AND SIMILARLY THE FINISHED SURFACE CONTOURS MAY BE ADJUSTED BY WRITTEN DIRECTION OF THE ENGINEER DURING CONSTRUCTION AFTER AMENDED DRAWINGS HAVE BEEN APPROVED BY COUNCIL.
5. BATTERS TO HAVE A MINIMUM OF 75MM TOPSOIL AND FULL WIDTH TURF IF ORDERED.
6. MATCH TO EXISTING AC PAVEMENT EXTENSION OR WIDENING TO BE IN ACCORDANCE WITH IPWEAQ STD DWG SEQ R-170.
7. SUBGRADE TEST RESULTS TO BE FORWARDED TO SUPERVISING ENGINEER FOR DETERMINATION OF BOX DEPTHS PRIOR TO EXCAVATION TESTS SHALL INCLUDE SOAKED CBR AND/OR OTHER TESTS AS REQUESTED BY THE SUPERVISING ENGINEER.THE CONTRACTOR SHALL ALLOW ADEQUATE TIME FOR COUNCIL APPROVAL OF PAVEMENT DESIGN.
8. THE STORMWATER PIPE CLASSES HAVE BEEN DESIGNED FOR SERVICE LOADS ONLY, AND THE CONTRACTOR SHALL ASSESS ANTICIPATED CONSTRUCTION LOADS AND UPGRADE THE PIPE CLASSES, IF NECESSARY, IN ACCORDANCE WITH A.S 3725-1989. AT THE CONTRACTORS COST.

LEGEND

- PROPOSED STAGE BOUNDARY
- DIRTY WATER DIVERSION DRAIN
- NATURAL CONTOURS (200mm INTERVALS)
- FUTURE OPEN DRAINAGE CHANNEL
- RCP CULVERT CROSSING & HEADWALLS
- 10mm CHIP SEAL (ALL AREAS BELOW Q10 FLOOD LEVEL OF 3.15m)
- ROCK SPALLS (50m EITHER SIDE OF CHIP SEAL)
- 3 STRAND BARBED WIRE FENCE GENERALLY IN ACCORDANCE WITH DMR STD DWG 1680
- ORANGE BARRIER MESH FENCE WITH "NO GO ZONE" SIGNS PLACED AT 100mm INTERVALS



TYPICAL PRIMARY HAUL ROAD CROSS SECTION CH0.0 - CH357.092, CH2278.727 - END
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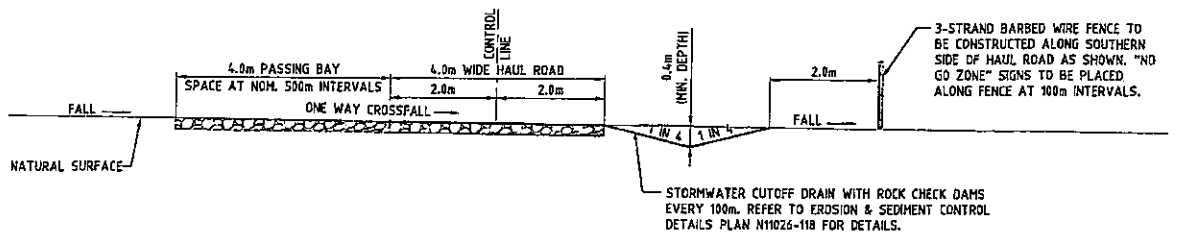

TYPICAL SECONDARY HAUL ROAD CROSS SECTION CH0.0 - END
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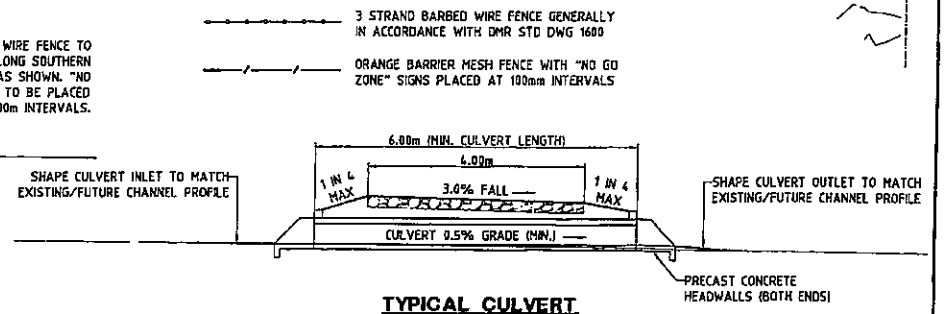


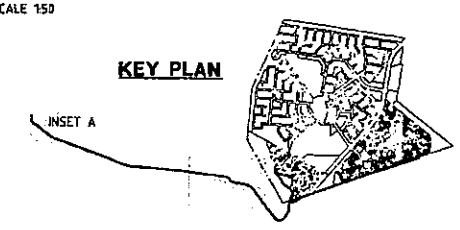
TYPICAL CULVERT CROSSING DETAIL
SCALE 1:50

CULVERT DETAIL TABLE

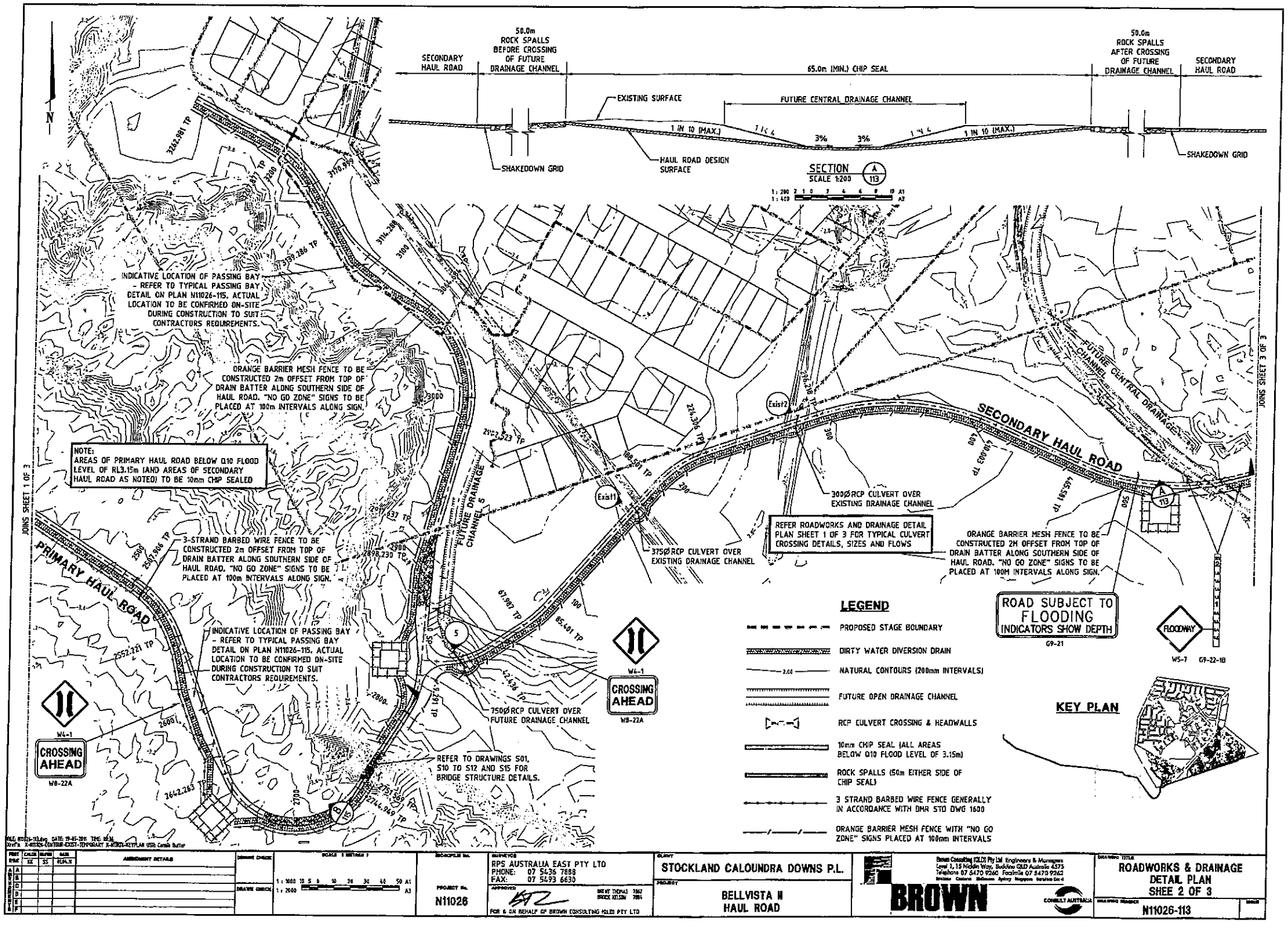
STRUCTURE	SIZE	FLOW
1	1050RCP CLASS 3	Q2 FLOW =1.63m³
2	1050RCP CLASS 3	Q2 FLOW =1.35m³
3	1350RCP CLASS 3	Q2 FLOW =2.86m³
4	900RCP CLASS 3	Q2 FLOW =1.31m³
5	750RCP CLASS 3	Q2 FLOW =0.79m³
EXIST 1	375RCP CLASS 3	Q2 FLOW =0.08m³
EXIST 2	300RCP CLASS 3	Q2 FLOW =0.01m³
EXIST 3	600RCP CLASS 3	Q2 FLOW =0.30m³

NOTE: EXACT LOCATION AND INVERT LEVELS OF DRAINAGE CULVERTS TO BE DETERMINED ON SITE. ALL CULVERTS TO BE AT MIN 0.5% GRADE.

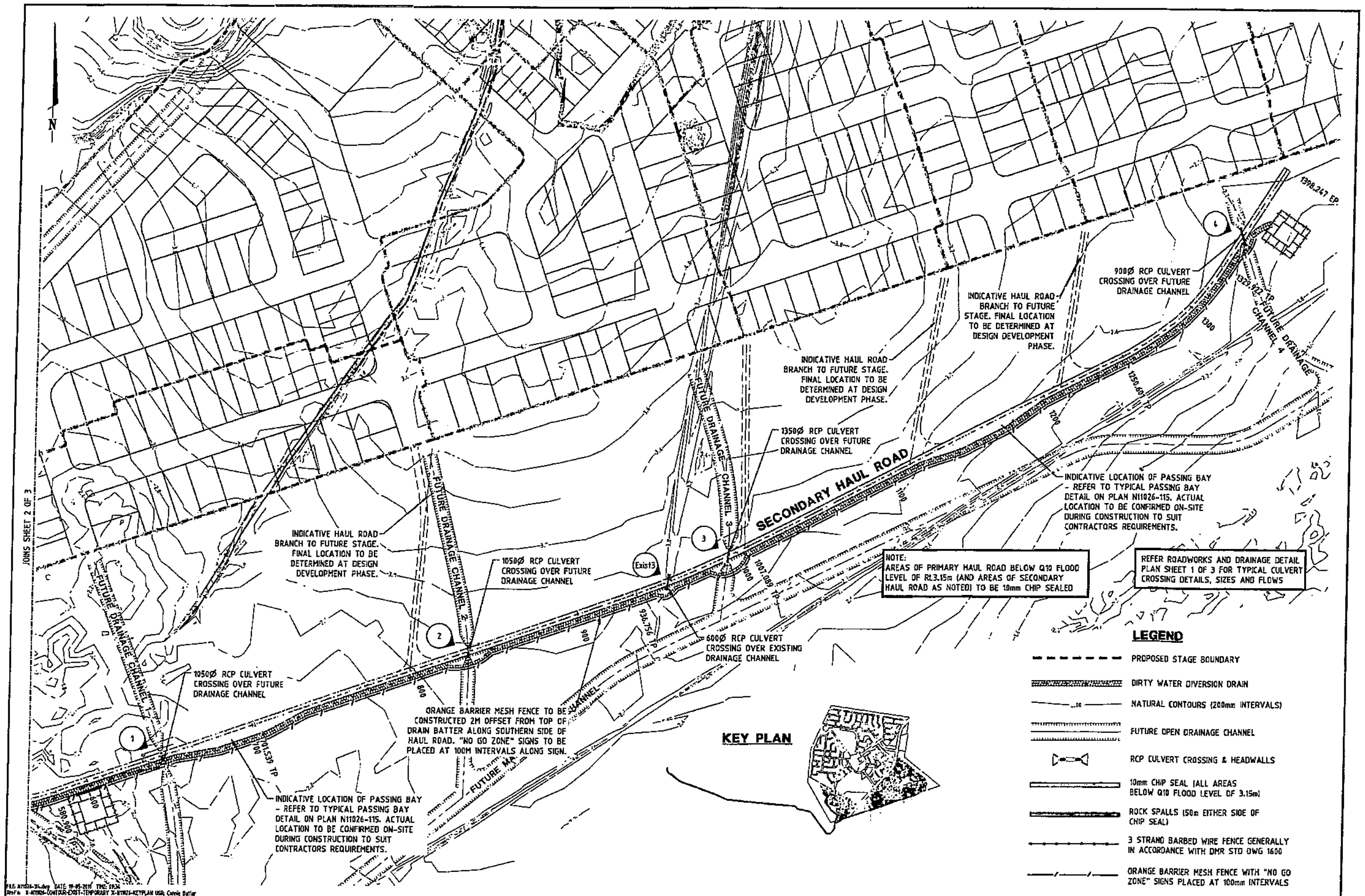
KEY PLAN



ISSUE	CALCS CHANGE	DATE	AMENDMENT DETAILS	DESIGNED CHECK	SURVEYED	CLIENT	BROWN Brown Consulting (QLD) Pty Ltd Engineers & Managers Level 1, 15 Hidden Way, Buddina QLD Australia 4575 Telephone 07 5470 9260 Facsimile 07 5470 9262 Brisbane Perth Melbourne Sydney Gold Coast Mackay Cairns CONSULT AUSTRALIA
	RS	SS	31.01.11		RPS AUSTRALIA EAST PTY LTD	STOCKLAND CALOUNDRA DOWNS P.L.	
A				DRAWN CHECK	PHONE: 07 5436 7888	PROJECT	DRAWING TITLE
B					FAX: 07 5493 6630	BELLVISTA II HAUL ROAD	ROADWORKS & DRAINAGE DETAIL PLAN SHEET 1 OF 3
C				SCALE (METRIC)	APPROVED		
D				1:1000 10 5 0 10 20 30 40 50 A1	BRENT THOMAS 7463 DOUG NITSON 7884		
E				1:2000 A3	FOR & ON BEHALF OF BROWN CONSULTING (QLD) PTY LTD		DRAWING NUMBER N11026-112
F				PROJECT No. N11026			



PLANS AND DOCUMENTS
referred to in the ULDA
APPROVAL dated 16/9/11



RPS AUSTRALIA EAST PTY LTD
PHONE: 07 5436 7888
FAX: 07 5493 6630

FOR & ON BEHALF OF BROWN CONSULTING (QLD) PTY LTD

PROJECT No. N11026

CLIENT: STOCKLAND CALOUNDRA DOWNS P.L.

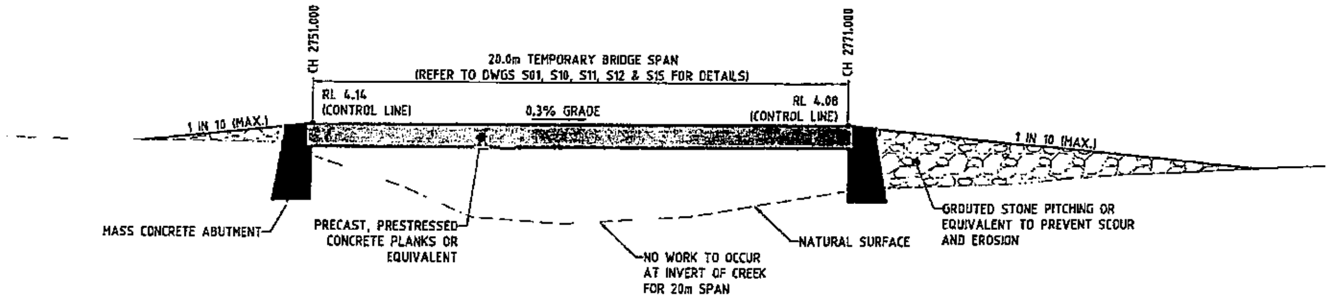
PROJECT: BELLVISTA II HAUL ROAD

BROWN

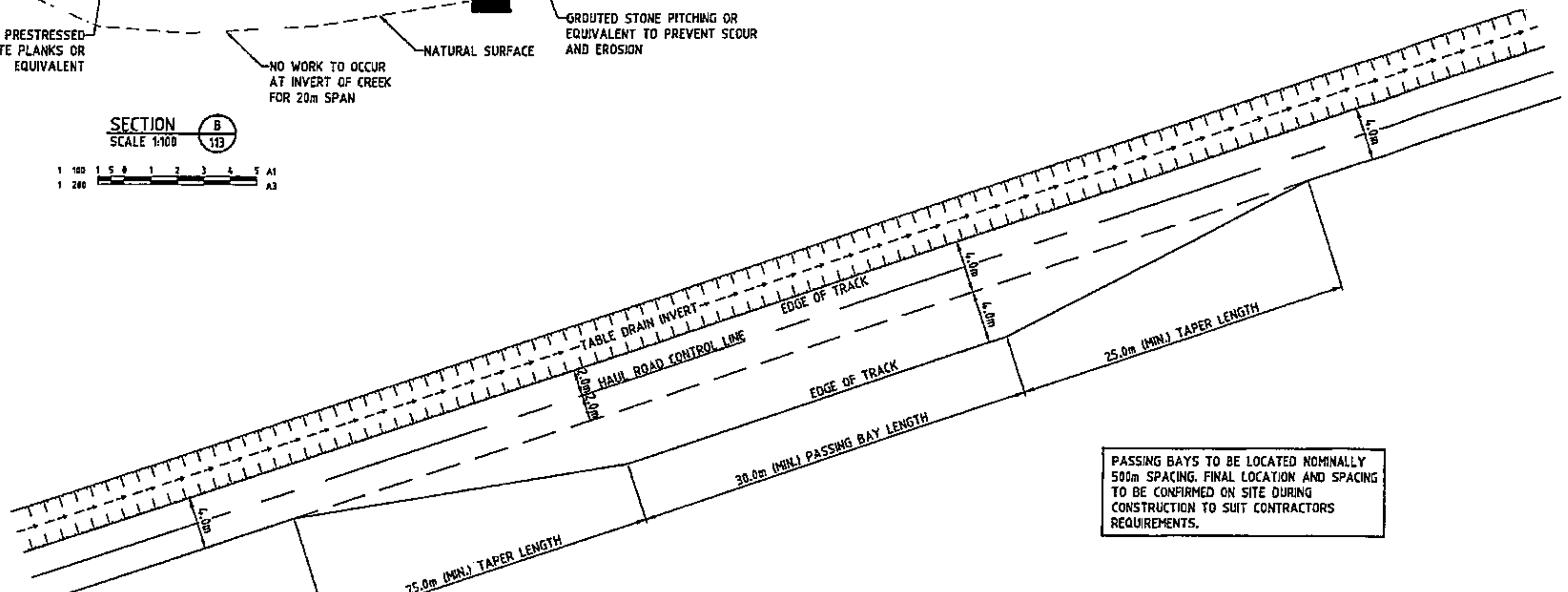
DRAWING TITLE: ROADWORKS & DRAINAGE DETAIL PLAN SHEET 3 OF 3

DRAWING NUMBER: N11026-114

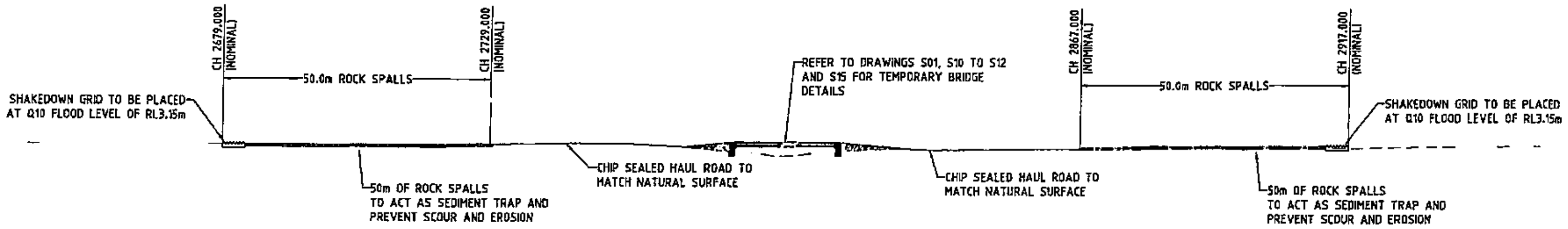
PLANS AND DOCUMENTS
referred to in the ULDA
APPROVAL dated 16/9/11



SECTION (B / 113)
SCALE 1:100



TYPICAL HAUL ROAD PASSING BAY DETAIL
SCALE 1:200



EXTENDED TEMP BRIDGE SECTION
SCALE 1:500

SCALE: AS SHOWN	PROJECT No. N11026	RPS AUSTRALIA EAST PTY LTD PHONE: 07 5436 7888 FAX: 07 5493 6630 FOR & ON BEHALF OF BROWN CONSULTING (QLD) PTY LTD	CLIENT: STOCKLAND CALOUNDRA DOWNS P.L. PROJECT: BELLVISTA II HAUL ROAD	BROWN	DRAWING TITLE: MISCELLANEOUS DETAILS DRAWING NUMBER: N11026-115

PLANS AND DOCUMENTS referred to in the ULDA APPROVAL dated 16/9/11

Structural Design by

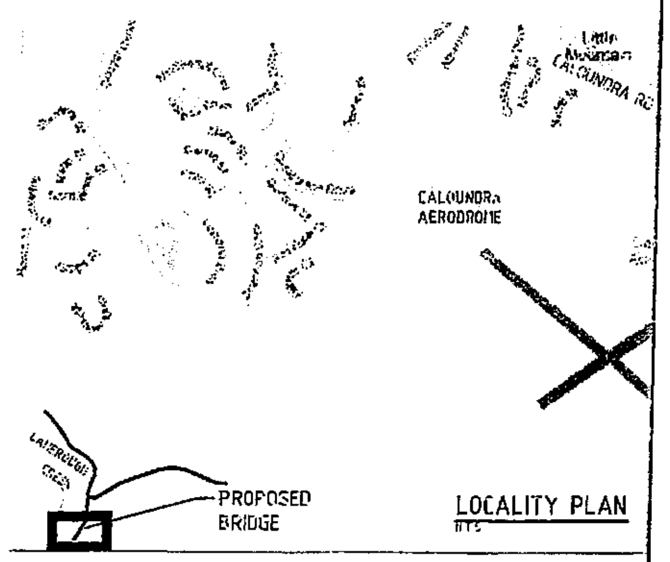
Canberra Brisbane Melbourne Sydney Singapore Sunshine Coast Brunei

BROWN CONSULT AUSTRALIA

CONSULTING (QLD) PTY LTD ENGINEERS & MANAGERS

STRUCTURAL ENGINEERING DRAWINGS

BELLVISTA II
TEMPORARY HAUL ROAD BRIDGE
LAMEROUGH CREEK



LOCALITY PLAN

NTS

DRAWING INDEX

DESIGN DATA

1. STRUCTURAL ELEMENTS HAVE BEEN DESIGNED TO THE FOLLOWING CODES AS 5100 BRIDGE DESIGN
2. DESIGN:

ROADWAY	SM1600
EARTHQUAKE	BEDC-1
FLOOD DESIGN VELOCITY V10	0.6m/s
FLOOD DESIGN LEVEL	RL 3.15

BRIDGE ALSO DESIGNED FOR CATEGORY 627H WHEEL TRACTOR-SCRAPER AND MOXY MT41. DECK WEARING SURFACE ALLOWANCE 30mm CHIP AND SPRAY SEAL.

DESIGN LIFE FOR ABUTMENT, FOOTINGS, WINGWALLS & PSC DECK UNITS 100 YRS

FOUNDATIONS

1. REFER TO SOIL REPORT FOR GEOTECHNICAL INFORMATION ABOUT THIS SITE.
2. FOUND ALL FOOTING ELEMENTS IN NATURAL MATERIAL WITH MINIMUM SAFE ALLOWABLE BEARING PRESSURES (SABP) AS FOLLOWS:

ELEMENT	kPa
STRIP FOOTINGS	?
BORED PIERS	8000 kPa

ENGAGE A GEOTECHNICAL ENGINEER TO VERIFY SAFE ALLOWABLE BEARING PRESSURES BEFORE PLACEMENT OF BLINDING CONCRETE OR REINFORCEMENT.

3. ENSURE THE BASES OF ALL EXCAVATIONS ARE FREE OF ANY ORGANIC OR LOOSE MATERIAL AND WATER PRIOR TO PLACEMENT OF CONCRETE. CLEAN OUT BORED PIER BASES WITH A CLEANOUT BUCKET OR BY HAND.

CONCRETE

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS5100.5 AND MRS 70
2. DESIGN AND CONSTRUCT THE FORMWORK IN ACCORDANCE WITH AS 3610.
3. CONCRETE SIZES AS DRAWN DO NOT INCLUDE APPLIED FINISHES AND MUST NOT BE REDUCED IN ANY WAY WITHOUT APPROVAL OF THE ENGINEER.
4. MAKE NO HOLES, CHASES OR EMBEDMENT OF PIPES IN CONCRETE MEMBERS OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS WITHOUT PRIOR APPROVAL OF THE ENGINEER.
5. SPACE CONDUITS CAST INTO CONCRETE MEMBERS AT MAX. DISTANCE POSSIBLE AND UNDER NO CIRCUMSTANCES CLOSER THAN A CLEAR SPACING OF TWICE THE LARGER CONDUIT DIAMETER FROM PARALLEL REINFORCEMENT OR ANY OTHER CONDUIT. NO CONDUITS SHALL BE PLACED WITHIN THE COVER OF THE REINFORCEMENT.
6. PROPERLY FORM CONSTRUCTION JOINTS AND USE ONLY WHERE SHOWN OR SPECIFICALLY APPROVED BY THE ENGINEER. CAST CONSTRUCTION JOINTS VERTICAL OR HORIZONTAL AS APPROPRIATE AND THOROUGHLY SCABBLE THE INTERFACE OF HARDENED CONCRETE TO REMOVE LAITANCE.
7. MAXIMUM CONCRETE AGGREGATE SIZE TO BE 20mm UNLESS STATED OTHERWISE.
8. CONCRETE CHARACTERISTIC STRENGTHS (f'c) AND COVERS SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE

ELEMENT	EXPOSURE CLASSIFICATION	COVER (mm)	GRADE (MPa)
BLINDING	-	-	20
FOOTINGS	B2	75	40
INSITU KERB	B2	45	40
ABUTMENTS	B2	75	50
PRECAST DECK UNITS	B2	35	50

9. CONCRETE SLUMP SHALL BE 80 mm UNLESS STATED OTHERWISE.
10. TEST CONCRETE USING THE 'PROJECT ASSESSMENT' METHOD IN ACCORDANCE WITH AS 1379. TAKE AT LEAST 2 CYLINDERS PER SAMPLE. SUBMIT TEST RESULTS TO THE ENGINEER
11. WHEN CONCRETING DURING HOT (MORE THAN 25°) AND/OR WINDY CONDITIONS, APPLY ALIPHATIC ALCOHOL TO HORIZONTAL ELEMENTS AFTER INITIAL SET.
12. INITIATE AN APPROVED METHOD OF CURING FOR ALL CONCRETE ELEMENTS AS SOON AS PRACTICABLE AFTER THE CONCRETE HAS SET AND MAINTAIN IT FOR AT LEAST 7 DAYS.
13. STRIPPING OF FORMWORK AND PROPPING SHALL BE IN ACCORDANCE WITH AS 3600 CLAUSE 17.6 UNLESS OTHERWISE APPROVED BY THE ENGINEER.

REINFORCING

1. ALL WORKMANSHIP AND MATERIAL SHALL BE IN ACCORDANCE WITH MRS 71
2. ABBREVIATIONS FOR STEEL GRADE AND TYPE:
   "R" - STRUCTURAL GRADE 230 PLAIN ROUND BAR TO AS 1302.
   "N" - GRADE D500N DEFORMED BAR TO AS/NZS 4671.
   "RL" AND "SL" - GRADE 500 HARD DRAWN STEEL WIRE REINFORCING FABRIC TO AS/NZS 4671.
   "W" - GRADE 500 STEEL WIRE TO AS 1303
3. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND NOT NECESSARILY SHOWN IN TRUE PROJECTION.
4. ENSURE THE CORRECT SPACING OF BARS IS MAINTAINED AND ALL REINFORCEMENT IS SUPPORTED IN ITS CORRECT POSITION BY APPROVED PLASTIC BAR CHAIRS, SPACERS ORSUPPORT BARS AT 800 MAX CRS IN BOTH DIRECTIONS.
5. FIX REINFORCEMENT WITH 1.25mm MIN. DIA. ANNEALED WIRE TIES SUCH THAT IT IS SUPPORTED AND MAINTAINED IN POSITION WITHIN THE TOLERANCES GIVEN IN AS3600 CLAUSE 17.5.3.
6. LAPS TO FABRIC REINFORCEMENT SHALL BE AT LEAST 225mm OR 2 CROSS WIRES ON EACH SHEET + 25mm. LAPS TO TRENCH MESH SHALL BE 500mm MINIMUM AT SPLICES AND FULL WIDTH AT INTERSECTIONS. LAPS TO BARS SHALL BE AS FOLLOWS

GRADE D500N BAR LAP LENGTHS							
BAR DIAMETER	12	16	20	24	28	32	36
LAP LENGTH (TOP BARS)	400	550	850	1150	1550	1900	2100
LAP LENGTH (ALL OTHERS)	400	500	700	900	1200	1500	1650

7. 'TOP BARS' ARE THOSE NORMALLY HORIZONTAL BARS WITH MORE THAN 300mm OF CONCRETE BELOW THE BARS. IF BARS OF DIFFERENT DIAMETERS ARE LAPPED, USE THE LAP LENGTH FOR THE SMALLER DIAMETER BAR.
8. DO NOT WELD REINFORCEMENT WITHOUT APPROVAL OF THE ENGINEER.
9. DO NOT CUT REINFORCEMENT TO CLEAR SMALL PENETRATIONS. DISPLACE REINFORCEMENT TO CLEAR PENETRATIONS OR PROVIDE TRIMMER BARS TO REPLACE CUT REINFORCEMENT.

BORED PILES

1. THE DESIGN AND INSTALLATION OF THE PILES SHALL BE IN ACCORDANCE WITH THE DRAWINGS, SPECIFICATIONS AND AS2159.
2. A LIMITED FOUNDATION INVESTIGATION IS AVAILABLE. SHOULD ANY FURTHER INFORMATION BE REQUIRED THE CONTRACTOR SHALL ARRANGE THE WORK AT THEIR COST.
3. THE PILING CONTRACTOR SHALL ENGAGE A QUALIFIED GEOTECHNICAL ENGINEER TO DETERMINE THE PILE TOE LEVELS REQUIRED TO ACHIEVE THE NOMINATED DESIGN LOADS.
4. DESIGN THE PILES TO CARRY THE LOADS NOMINATED ON THE DRAWINGS IN ACCORDANCE WITH AS2159 WITH $\phi g = 0.45$.
5. BORED CAST INCITU REINFORCED CONCRETE PILES UNDER COLUMNS AND WALLS SHALL COMPLY WITH THE FOLLOWING:
   - MINIMUM CONCRETE GRADE f'c = 32MPa WITH A MINIMUM CEMENT CONTENT OF 400kg/CUBIC METRE
   - CONCRETE SLUMP SHALL BE IN THE RANGE OF 100mm TO 180mm AT THE POINT OF DISCHARGE
   - MINIMUM CLEAR CONCRETE COVER TO REINFORCEMENT = 50mm
   - CONCRETE FOR THE PILES SHALL BE BROUGHT UP AT LEAST 300mm ABOVE CUT OFF LEVEL
6. THE CONTRACT SUM SHALL BE DEEMED TO INCLUDE ALL COSTS ASSOCIATED WITH THE PILING IN THE CONDITIONS FOUND. THE PRINCIPAL WILL NOT ACCEPT ANY CLAIMS ARISING FROM INCREASED COSTS IN PILING TO MEET THE PERFORMANCE REQUIREMENTS OF THE CONTRACT.
7. SAFE BEARING CAPACITY OF BORED PILES UNDER COLUMNS AND WALLS SHALL BE VERIFIED BY PDA TESTING OF NOT LESS THAN 2 No. PILES. TEST PILES SHALL BE SELECTED BY THE ENGINEER.
8. A CERTIFICATE SHALL BE SUPPLIED BY A PRACTISING RPEQ STRUCTURAL ENGINEER TO THE EFFECT THAT THE PILING DESIGN AND PILES AS INSTALLED IN THEIR SURVEYED POSITIONS ARE STRUCTURALLY ADEQUATE TO CARRY THE SPECIFIED DESIGN LOADS.
9. A CERTIFICATE SHALL BE SUPPLIED BY A PRACTISING RPEQ STRUCTURAL ENGINEER TO THE EFFECT THAT THE PILING DESIGN AND PILES AS INSTALLED IN THEIR SURVEYED POSITIONS ARE STRUCTURALLY ADEQUATE TO CARRY THE SPECIFIED DESIGN LOADS.
10. A SURVEY PLAN COMPILED BY A REGISTERED SURVEYOR SHOWING THE AS BUILT LOCATION OF THE PILES RELATIVE TO THEIR DESIGN POSITION PRIOR TO CONSTRUCTION OF THE PILE CAPS SHALL BE PROVIDED. MEASURE LOCATIONS AT CUT OFF LEVEL. PILES WILL NOT BE ACCEPTED UNTIL ENGINEERS CERTIFICATE AND SURVEY PLAN ARE SUPPLIED.
11. INSTALLATION TOLERANCES:
   - PLAN POSITION AT CUT OFF LEVEL ±75mm
   - VERTICALITY: 2%
12. POSITIONS OF SERVICES ARE GIVEN FOR GUIDANCE ONLY. LOCATIONS AND/OR DEPTH MAY NOT BE ACCURATELY REPRESENTED AND OTHER SERVICES MAY EXIST ON SITE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE POSITION OF ALL SERVICES PRIOR TO COMMENCING PILING. EXCAVATE AS REQUIRED TO CONFIRM THE LOCATION OF ADJACENT SERVICES.
13. CUT OFF THE PILES TO THE LEVELS REQUIRED. DESIGN AND CONSTRUCT ANY NECESSARY MODIFICATIONS TO THE PILECAPS OR FOOTINGS DOCUMENTED TO ENSURETHAT THE LOADS FROM THE SUPERSTRUCTURE ARE ADEQUATELY TRANSFERRED INTO THE PILES. THE COSTS OF ANY SUCH MODIFICATIONS SHALL BE BORNE BY THE CONTRACTOR.

PERFORMANCE - BASED PILING

1. THE DESIGN, MANUFACTURE, INSTALLATION & TESTING OF THE PILES IS TO BE INACCORDANCE WITH THE DRAWINGS, SPECIFICATIONS AND AS2159.
2. A LIMITED FOUNDATION INVESTIGATION IS AVAILABLE. SHOULD ANY FUTHER INFORMATION BE REQUIRED THE CONTRACTOR SHALL ARRANGE THE WORK AT THEIR COST.
3. THE PILING CONTRACTOR SHALL BE RESPONSIBLE FOR SCHEDULING / QUANTIFYING THE VARIOUS PARAMETERS (INCLUDING FOUNDING DEPTHS) THAT AFFECT THE WORK IN PROGRESS.
4. ENGAGE A QUALIFIED GEOTECHNICAL ENGINEER TO DETERMINE THE PILE TOE LEVELS REQUIRED TO ACHIEVE THE NOMINATED DESIGN LOADS.
5. DESIGN THE PILES TO CARRY THE LOADS NOMINATED ON THE DRAWINGS IN ACCORDANCE WITH AS2159 WITH $\phi g = 0.50$. WHERE PERMISSIBLE STRESS DESIGN IS PERFORMED, THE FOLLOWING MINIMUM FACTORS OF SAFETY SHALL APPLY:
   - STATIC ANALYSIS = 3.0
   - DYNAMIC TESTING = 2.0
6. DESIGN THE PILES TO BE DURABLE FOR 50 YEARS WHEN EXPOSED TO THE GROUND CONDITIONS.
7. THE CONTRACT SUM SHALL BE DEEMED TO INCLUDE ALL COSTS ASSOCIATED WITH THE PILING IN THE CONDITIONS FOUND. THE PRINCIPAL WILL NOT ACCEPT ANY CLAIMS ARISING FROM INCREASED COSTS IN PILING TO MEET THE PERFORMANCE REQUIREMENTS OF THE CONTRACT.
8. POSITIONS OF SERVICES (WHERE PROVIDED) ARE GIVEN FOR GUIDANCE ONLY. LOCATIONS AND/OR DEPTH MAY NOT BE ACCURATELY REPRESENTED AND OTHER SERVICES MAY EXIST ON SITE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE POSITION OF ALL SERVICES PRIOR TO COMMENCING PILING. EXCAVATE AS REQUIRED TO CONFIRM THE LOCATION OF ADJACENT SERVICES. DRIVEN PILES WITHIN 3m OF EXISTING SERVICES SHALL BE PREBORED TO A DEPTH OF 1m BELOW SERVICE. BACKFILL WITH 1:4 CEMENT MODIFIED SAND.
9. PREBORE DRIVEN PILES AS REQUIRED TO PREVENT VIBRATION DAMAGE TO ADJACENT BUILDINGS.
10. INSTALLATION TOLERANCES. PLAN POSITION AT CUT OFF LEVEL:
    ±75mm FOR DRIVEN PILES
    VERTICALITY: 2%
11. IF THE PANELS ARE OUT OF TOLERANCE CUT OFF THE PILES TO THE LEVELS REQUIRED. DESIGN AND CONSTRUCT ANY NECESSARY MODIFICATIONS TO THE PILING OR PILECAPS DOCUMENTED TO ENSURE THAT THE LOADS FROM THE SUPERSTRUCTURE ARE ADEQUATELY TRANSFERRED INTO THE PILES. THE COSTS OF ANY SUCH MODIFICATIONS SHALL BE BORNE BY THE CONTRACTOR.
12. TEST PILES AS FOLLOWS: STATIC PROOF LOAD TESTS - ONE PER PILE SIZE AND DYNAMIC LOAD TESTS (WITH CAPWAP ANALYSES) - 5%/2** OF EACH PILE SIZE. THE ENGINEER SHALL NOMINATE THE PILES TO BE TESTED.
13. PROVIDE A SURVEY PLAN COMPILED BY A REGISTERED SURVEYOR SHOWING THE AS BUILT LOCATION OF THE PILES RELATIVE TO THEIR DESIGN POSITION PRIOR TO CONSTRUCTION OF THE PILE CAPS. MEASURE LOCATIONS AT CUT OFF LEVEL.
14. SUPPLY A CERTIFICATE BY A PRACTISING RPEQ STRUCTURAL ENGINEER TO THE EFFECT THAT THE PILING DESIGN AND PILES AS INSTALLED IN THEIR SURVEYED POSITIONS ARE STRUCTURALLY ADEQUATE TO CARRY THE SPECIFIED DESIGN LOADS. PILES WILL NOT BE ACCEPTED UNTIL ENGINEERS CERTIFICATE AND SURVEY PLAN ARE SUPPLIED.

PLANS AND DOCUMENTS referred to in the ULDA APPROVAL dated 16/9/11

APPROVED
Signed...
MICHAEL COOKE RPEQ 4948
For & on behalf of Brown Consulting (QLD) Pty Ltd

APPROVED FOR OPERATIONAL WORKS

BRIDGE DESIGN CRITERIA:	DESIGN CODE: AS5100:2004	DESIGN LOADING: SM1600	DESIGN SPEED: TBC.	EARTHQUAKE ZONE: BEDC-1	BRIDGE TYPE: PSC DECK UNITS

AMENDMENT DETAILS: ISSUED FOR OPERATIONAL WORKS

CLIENT: Stockland Caloundra Downs Pty Ltd

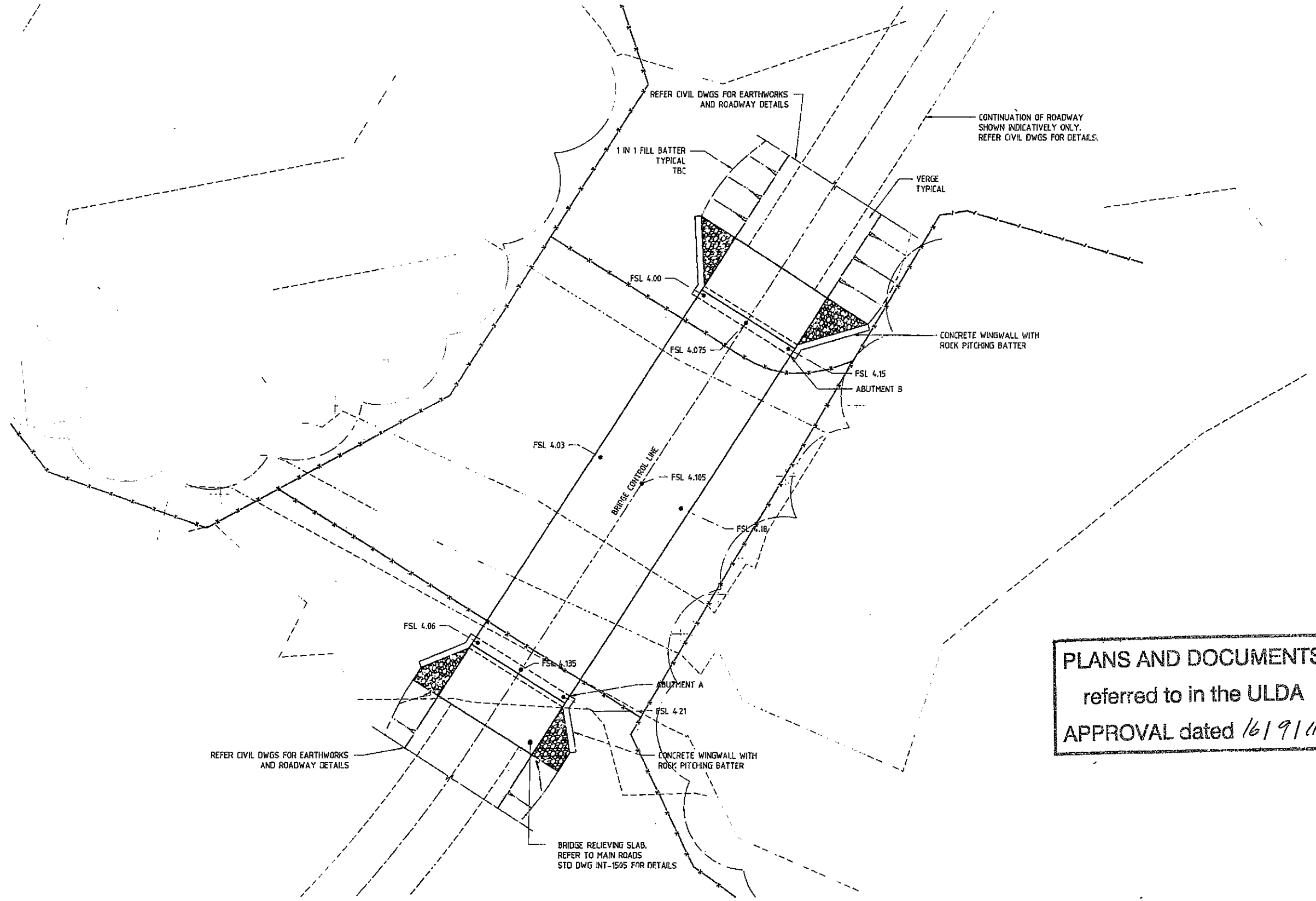
BROWN CONSULTING (QLD) PTY LTD ENGINEERS & MANAGERS
Level 6 199 Grey Street South Brisbane QLD Australia 4101
Telephone 07 3895 3144 Facsimile 07 3895 3400
Canberra Brisbane Melbourne Sydney Singapore Sunshine Coast Brunei
BROWN CONSULT AUSTRALIA

PROJECT: BELLVISTA II TEMPORARY HAUL ROAD BRIDGE LAMEROUGH CREEK

BROWN'S PROJECT No. B11056

DRAWING TITLE: COVER SHEET, DRAWING INDEX & STRUCTURAL NOTES

DRAWING No S01 ISSUE 2



PLANS AND DOCUMENTS
referred to in the ULDA
APPROVAL dated 16/9/11

LEGEND

DENOTES PROPRIETARY BARRIER FENCE WITH NO GO ZONE SIGN TO MANUFACTURERS DETAIL.

BRIDGE LAYOUT PLAN

SCALE

APPROVED
Signed.....
MICHAEL COOKE RPEQ 4948
For & on behalf of
Brown Consulting (QLD) Pty Ltd

APPROVED FOR OPERATIONAL WORKS

REFER S01 FOR STANDARD STRUCTURAL NOTES

BRIDGE DESIGN CRITERIA:	DESIGN CODE: AS5100:2004	DESIGN LOADING: SM1600	DESIGN SPEED: TBC.	EARTHQUAKE ZONE: BEDC-1	BRIDGE TYPE: PSC DECK UNITS

DEV. CAT.	DRAWN	DATE	AMENDMENT DETAILS
P 2	TO	BN	19/1/11
A	TO	BN	20/12/11

ISSUED FOR OPERATIONAL WORKS

CLIENT: Stockland Caloundra Downs Pty Ltd

BROWN CONSULTING (QLD) PTY LTD ENGINEERS & MANAGERS
Level 6 199 Grey Street South Brisbane QLD Australia 4101
Telephone 07 3895 3444 Facsimile 07 3895 3400
Canberra Brisbane Melbourne Sydney Singapore Sunshine Coast Beirut
BROWN CONSULTANTS AUSTRALIA

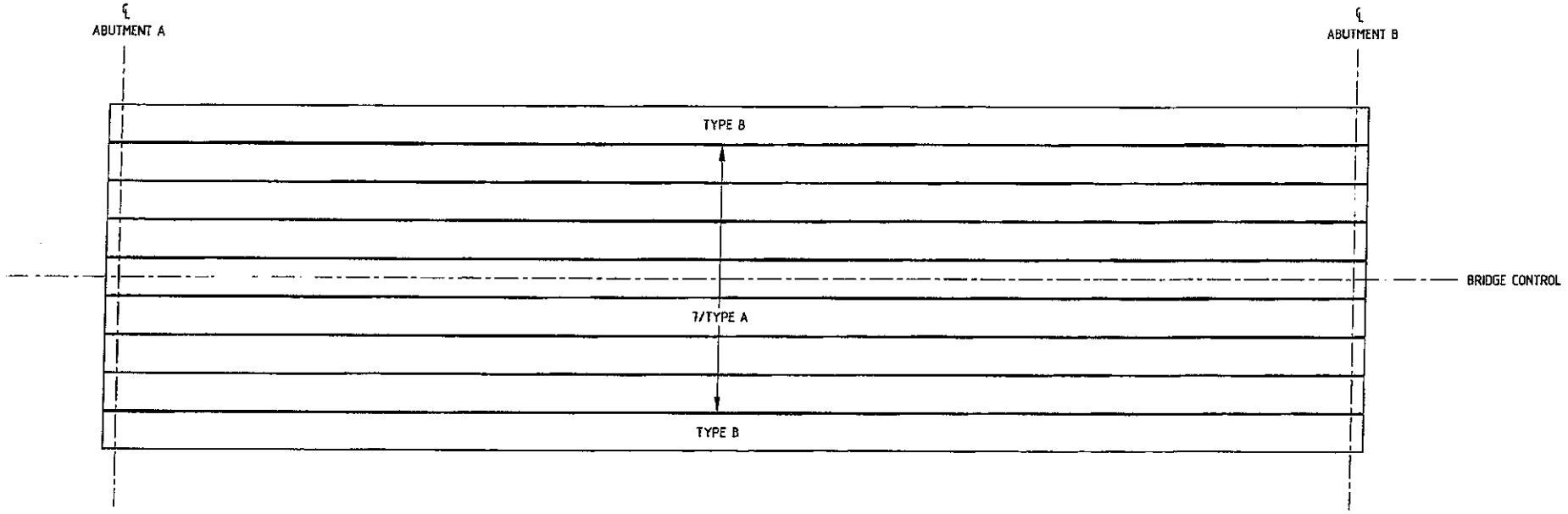
PROJECT: BELLVISTA II TEMPORARY HAUL ROAD BRIDGE LAMEROUGH CREEK

BROWNS PROJECT No.: B11056

DRAWING TITLE: GENERAL ARRANGEMENT - SHEET 1 BRIDGE LAYOUT PLAN

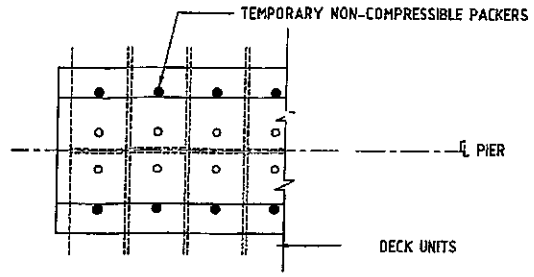
DR. WG. No.: S10

ISSUE: 2



DECK UNIT LAYOUT DIAGRAM

SCALE 1:50

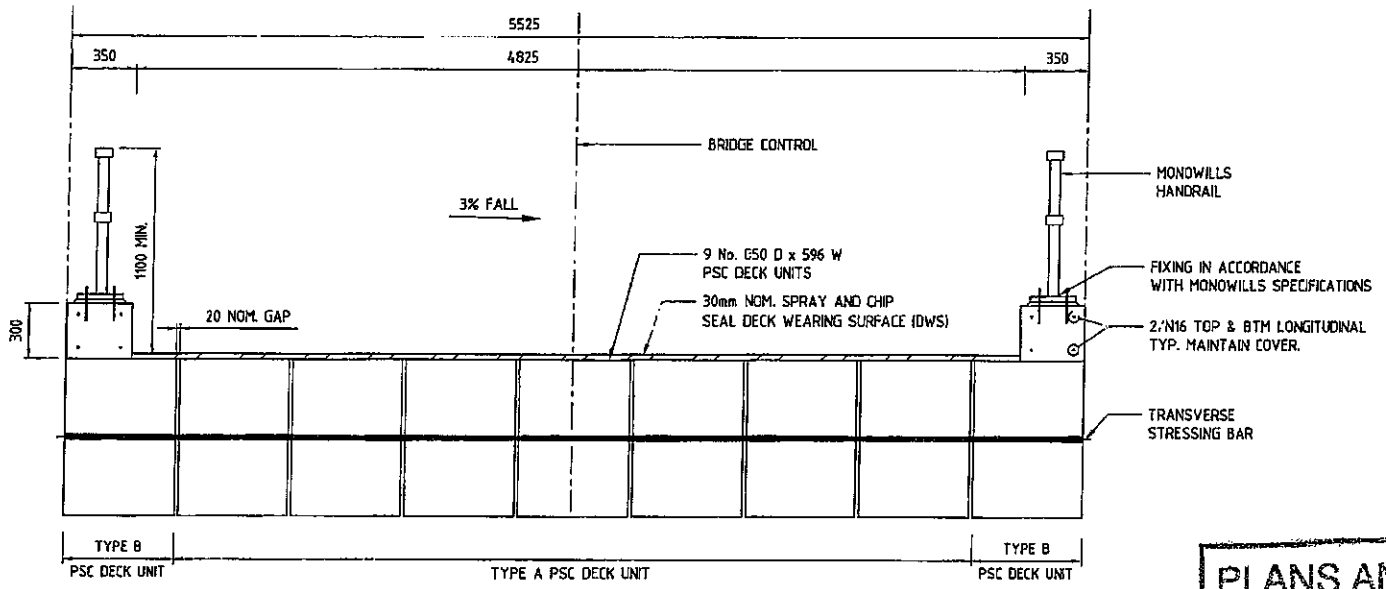


DECK UNIT ERECTION AT ABUTMENTS

NTS

CONSTRUCTION PROCEDURE

1.. INSTALL NON-COMPRESSIBLE TEMPORARY PACKERS ON TOP OF THE HEADSTOCK, POSITIONED TO SUPPORT THE DECK UNITS. PACKERS TO BE OF SUFFICIENT STRENGTH TO SUPPORT THE WEIGHT OF THE DECK UNITS, AND OF SUCH A HEIGHT UNDER LOAD THAT THE SOFFIT OF THE DECK UNITS WILL CLEAR THE TOP OF THE BEARINGS BY 2-3MM AT THE CLOSEST POINT.
2.. IMMEDIATELY PRIOR TO LOWERING THE DECK UNITS APPLY AN APPROVED MORTAR TO THE ABUTMENT'S TOP SURFACE. THE THICKNESS OF THE MORTAR IS DETERMINED BY THE HOG OF THE DECK UNITS AND ANY GRADE ON THE BRIDGE. THE THICKNESS SHALL NOT EXCEED 5MM.
3.. LOWER THE DECK UNITS CAREFULLY ON TO THE PACKERS ALLOWING THE EXCESS MORTAR TO BE DISPLACED AND CLEANED OFF IMMEDIATELY.
4.. PUT HOLDING DOWN BOLTS IN PLACE BEFORE GROUTING THE BOLTS INTO THE HEADSTOCK.
5.. PLACE THE FIBRE WASHERS AND SILICONE IN THE TOP OF THE HOLDING DOWN BOLT HOLES BEFORE INSTALLING THE WASHERS AND NUTS.
6.. REMOVAL OF PACKERS TO TAKE PLACE A MINIMUM OF 48 HOURS AFTER PLACEMENT OF THE DECK UNITS.



DECK SECTION

SCALE 1:20

NOTE:

REFER DEPARTMENT OF MAIN ROADS DWG No. 1531 REVISION A FOR ALL DECK UNIT & TRANSVERSE STRESSING BAR DETAILS.

STANDARD PLANS

DESCRIPTION	DWG NO	REVISION
RELIEVING SLAB 3m SPAN	--	A
STANDARD BAR SHAPES	1043	M
HOOK, LAP & BEND DETAILS	1044	J
DATE PLATE	1063	G
DECK UNITS	1531	A

NOTES

1.. THE FOUNDATION REPORT IS INCLUDED IN THE SCHEME DOCUMENTS. TENDERERS ARE ABLE TO VIEW THE CORE SAMPLES, IF AVAILABLE, BY ARRANGEMENT WITH THE DISTRICT DIRECTOR.
2.. NO FILLING TO BE PLACED ABOVE SOFFIT OF ABUTMENT HEADSTOCKS UNTIL AT LEAST SEVEN (7) DAYS AFTER ERECTION OF SPANS AND CASTING OF DECK.
3.. REINFORCING STEEL TO BE IN ACCORDANCE WITH AS/NZS 4671.
DEFORMED BARS -GRADE D500N.
ROUND BARS - GRADE R250N.
ALL REINFORCING STEEL TO BE ACRS CERTIFIED.

THE CONTRACTOR IS TO SUBMIT A CONSTRUCTION PROCEDURE TO THE SUPERINTENDENT WITH REGARD TO ENSURING THE STABILITY OF THE DECK UNITS DURING CONSTRUCTION.

PLANS AND DOCUMENTS
referred to in the ULDA
APPROVAL dated 6/9/11

APPROVED
Signed.....
MICHAEL COOKE RPEQ 4948
For & on behalf of
Brown Consulting (QLD) Pty Ltd

APPROVED FOR
OPERATIONAL WORKS

REFER S01 FOR STANDARD STRUCTURAL NOTES

BRIDGE DESIGN CRITERIA: | DESIGN CODE: AS5100:2004 | DESIGN LOADING: SM1600 | DESIGN SPEED: TBC. | EARTHQUAKE ZONE: BEDC-1 | BRIDGE TYPE: PSC DECK UNITS

PRELIMINARY / CONSTRUCTION	DRAWN	DATE	AMENDMENT DETAILS
2	TO	19.05.11	
A	TO	[illegible]	ISSUED FOR OPERATIONAL WORKS
B			
C			
D			
E			
F			

CLIENT: Stockland Caloundra Downs Pty Ltd

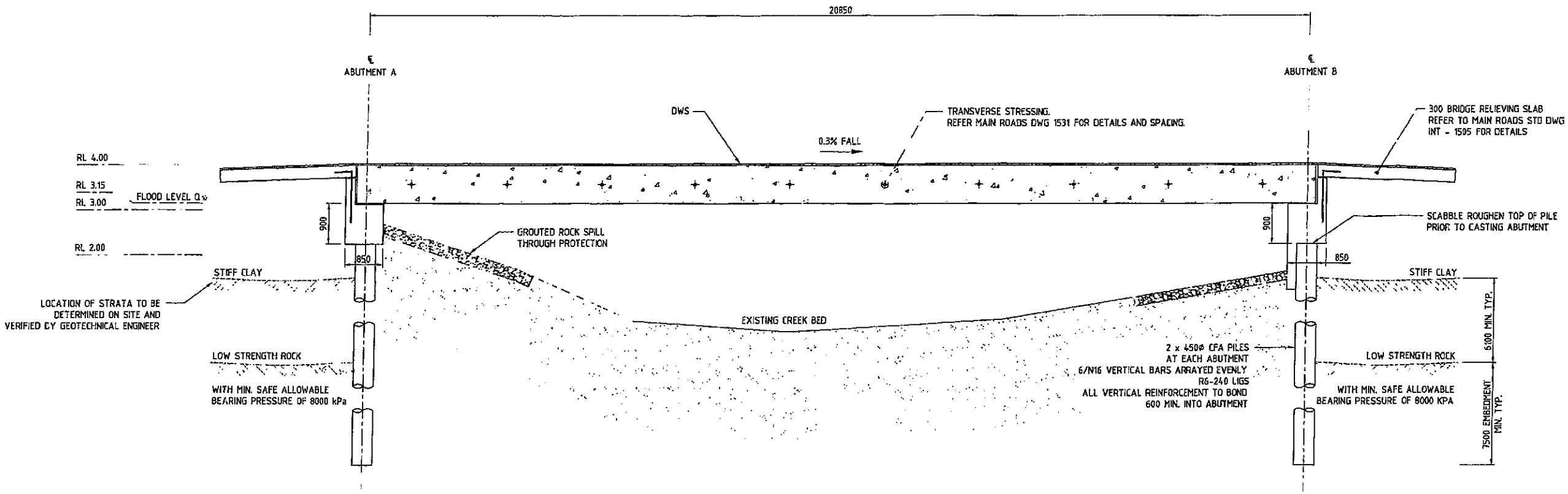
BROWN CONSULTING (QLD) PTY LTD ENGINEERS & MANAGERS
Level 6 199 Grey Street South Brisbane QLD Australia 4101
Telephone 07 3846 3444 Facsimile 07 3846 3400
Canberra Brisbane Melbourne Perth Singapore Sunshine Coast Bhutan
BROWN CONSULTANTS

PROJECT: BELLVISTA II TEMPORARY HAUL ROAD BRIDGE LAMEROUGH CREEK

BROWN CONSULTING PROJECT No.: B11056

DRAWING TITLE: GENERAL ARRANGEMENT - SHEET 2 DECK LAYOUT & SECTION

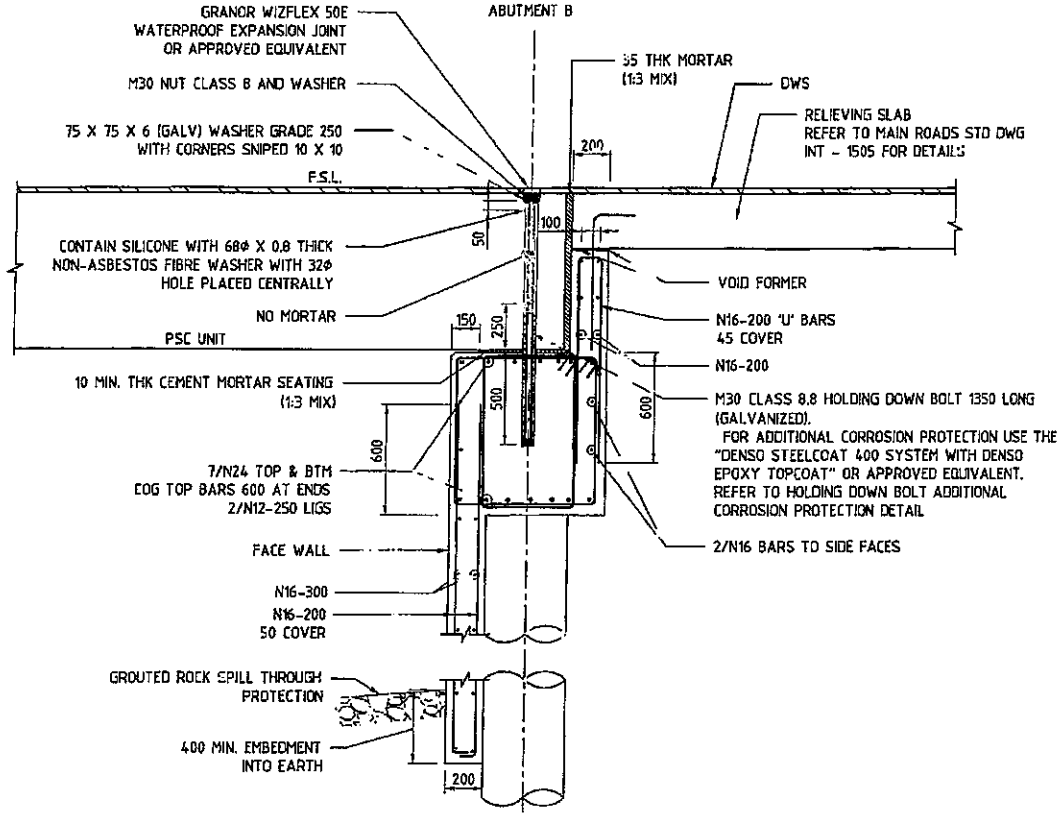
DRAWING No.: S11 | ISSUE: 2



ELEVATION ALONG BRIDGE CONTROL LINE

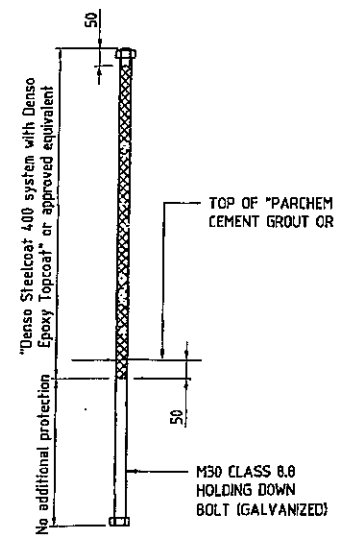
SCALE 1:50

NOTE:
ALTERNATIVE PILING SYSTEM TO BE CONFIRMED BY ENGINEER. DESIGN FOR ULTIMATE MAXIMUM COMPRESSIVE LOAD 2600 kN.



ABUTMENT B DETAIL (ABUTMENT A SIMILAR WITHOUT THE FACE WALL)

SCALE 1:20



HOLDING DOWN BOLT ADDITIONAL CORROSION PROTECTION DETAIL

NTS

PLANS AND DOCUMENTS
referred to in the ULDA
APPROVAL dated 16/9/11

APPROVED
Signed.....
MICHAEL COOKE RPEQ 4948
For & on behalf of
Brown Consulting (QLD) Pty Ltd

APPROVED FOR OPERATIONAL WORKS

REFER S01 FOR STANDARD STRUCTURAL NOTES

BRIDGE DESIGN CRITERIA:	DESIGN CODE: AS5100:2004	DESIGN LOADING: SM1600	DESIGN SPEED: TBC.	EARTHQUAKE ZONE: BEDC-1	BRIDGE TYPE: PSC DECK UNITS

ISSUE	DR.	CHK.	APP.	DATE	AMENDMENT DETAILS
P					
2	TD	SH		16.05.11	
A	TD	JN		20.05.11	ISSUED FOR OPERATIONAL WORKS
B					
C					
D					
E					
F					

CLIENT: Stockland Caloundra Downs Pty Ltd

BROWN CONSULTING (QLD) PTY LTD ENGINEERS & MANAGERS
Level 6 100 Grey Street South Brisbane QLD Australia 4101
Telephone 07 3995 3444 Facsimile 07 3995 3400
Canberra Brisbane Melbourne Sydney Singapore Sunshine Coast Darwin
BROWN
CONSULT AUSTRALIA

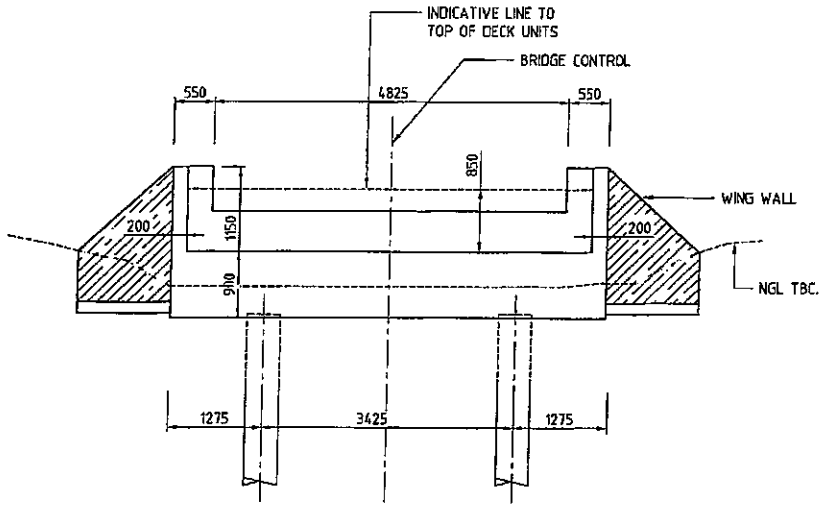
PROJECT: BELLVISTA II TEMPORARY HAUL ROAD BRIDGE LAMEROUGH CREEK

BROWNS PROJECT No.: B11056

DRAWING TITLE: GENERAL ARRANGEMENT - SHEET 3 TYPICAL SECTIONS AND DETAILS

DRAWING No.: S12

ISSUE: 2

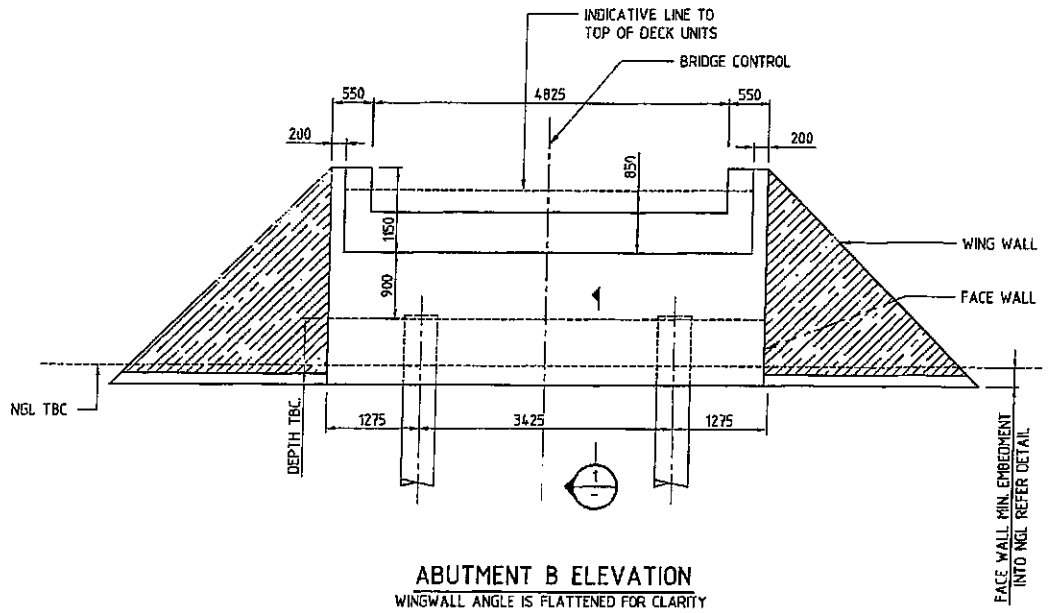


ABUTMENT A ELEVATION

WINGWALL ANGLE IS FLATTENED FOR CLARITY

1:50 1 0.5 0 1 2 A1

1:100 A3



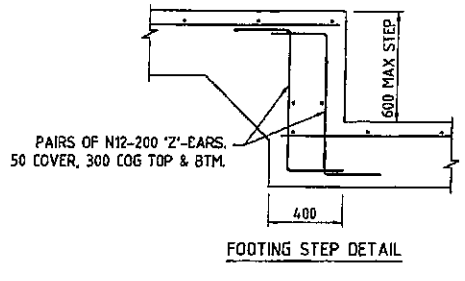
ABUTMENT B ELEVATION

WINGWALL ANGLE IS FLATTENED FOR CLARITY

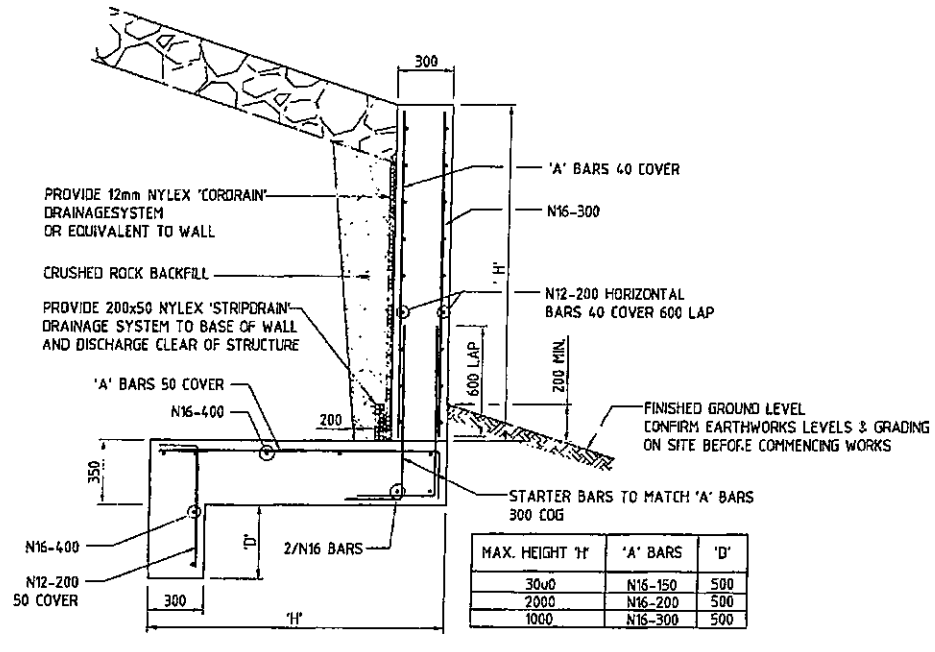
1:50 1 0.5 0 1 2 A1

1:100 A3

PLANS AND DOCUMENTS
referred to in the ULDA
APPROVAL dated 16/9/11



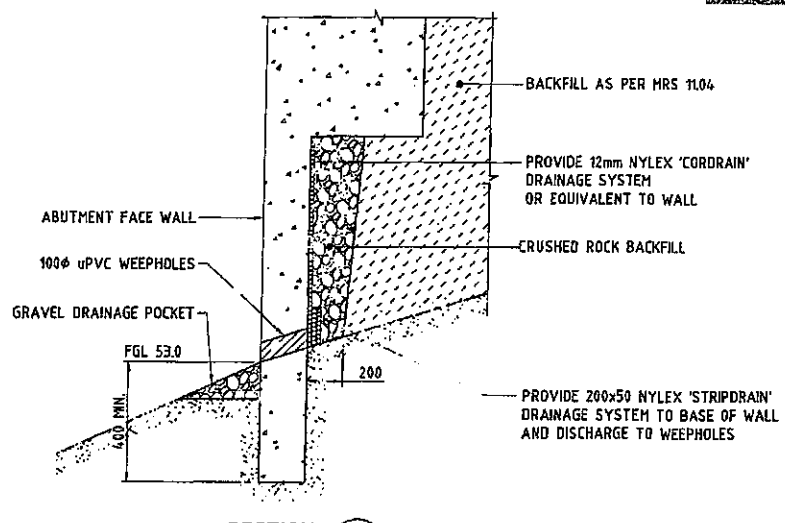
FOOTING STEP DETAIL



MAX. HEIGHT 'H'	'A' BARS	'D'
3000	N16-150	500
2000	N16-200	500
1000	N16-300	500

TYPICAL WINGWALL DETAIL

SCALE 1:20



SECTION 1/- SCALE 1:20

TYPICAL ABUTMENT APRON DRAINAGE DETAIL

SCALE 1:20

APPROVED
Signed.....
MICHAEL COOKE RPEQ 4948
For & on behalf of
Brown Consulting (QLD) Pty Ltd

APPROVED FOR OPERATIONAL WORKS

REFER S01 FOR STANDARD STRUCTURAL NOTES

BRIDGE DESIGN CRITERIA: | DESIGN CODE: AS5100:2004 | DESIGN LOADING: SM1600 | DESIGN SPEED: TBC. | EARTHQUAKE ZONE: BEDC-1 | BRIDGE TYPE: PSC DECK UNITS

P	A	B	C	D	E	F	DRAWN	DES. by	DATE	AMENDMENT DETAILS
	A						TM	CH	18.5.11	ISSUED FOR CONSTRUCTION WORK.
	B						TD	BN	20.5.11	

CLIENT: Stockland Caloundra Downs Pty Ltd

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Telephone 07 3895 3444 Facsimile 07 3895 3400
Canberra Brisbane Melbourne Sydney Singapore Sunshine Coast Bowral
BROWN CONSULTING AUSTRALIA

PROJECT: BELLVISTA II TEMPORARY HAUL ROAD BRIDGE LAMEROUGH CREEK

BROWNS PROJECT No. B11056

DRAWING TITLE: ABUTMENT - SHEET 1

DRAWING No. S15

ISSUE 2