



APPENDIX E

CHANGE TO GROUND LEVEL DRAWINGS

VantageYatala[®]



gassman
development
perspectives

DOCUMENT TRANSMITTAL SCHEDULE

To: City of Gold Coast Council

Address : PO Box 5042
GCMC 9726

Attention: Development Assessment



PROJECT: OPERATIONAL WORKS APPLICATION FOR CHANGE TO GROUND LEVEL
VANTAGE YATALA - STAGE 2

Job No: 5941

The documents listed below are issued for your use as indicated in the "Issued for" section.
All revisions supersede any revision of the same document.

DATE OF ISSUE	Day	20											
	Month	11											
	Year	20											

Attention	Issued To												
City of Gold Coast Council	Development Assessment	1xPDF											
FRASERS PROPERTY (AUSTRALIA) PTY. LTD	Commercial and Industrial												

Method:

☐ Our Mess.
☐ Your Mess.
☐ Hand

☐ Courier
☐ Mail
☐ FTP Site

☒ Email
☐ Aconex

Issued for:

A													
P	- Preliminary	C	- Construction	T	-Tender								
A	- Approval	I	- Information	O	- Other								

The information in any Gassman Development Perspectives generated messages together with any attachments is intended only for the person or entity to which it is addressed and may contain confidential and/or privileged material. Any form of review, disclosure, modification, distribution and/or publication of this message is prohibited. If you have received this message in error, you are asked to inform the sender as quickly as possible and delete this message and any copies of this message from your computer and/or your computer system network. In relation to computer viruses, any loss or damage incurred by using this material is not the responsibility of the sender. The sending company's entire liability will be limited to resupplying the material. No warranty is made that this material is free from computer virus or other defect. Please consider the environment before printing any electronic media received from Gassman

Issued Media

EP													
D	- Disk	P	Print	CP	-CAD&PDF								
ED	- DWG/DXF	EP	- PDF										

Drg/Doc No.	Title	Revision	Issued										
5941 ENG BE2 001	DRAWING INDEX AND LOCALITY PLAN	A											
5941 ENG BE2 002	GENERAL NOTES SHEET 1 OF 2	A											
5941 ENG BE2 003	GENERAL NOTES SHEET 2 OF 2	A											
5941 ENG BE2 004	LEGEND	A											
5941 ENG BE2 005	KEY PLAN LAYOUT	A											
5941 ENG BE2 010	EXISTING SURFACE AND FEATURES PLAN SHEET 1 OF 9	A											
5941 ENG BE2 011	EXISTING SURFACE AND FEATURES PLAN SHEET 2 OF 9	A											
5941 ENG BE2 012	EXISTING SURFACE AND FEATURES PLAN SHEET 3 OF 9	A											
5941 ENG BE2 013	EXISTING SURFACE AND FEATURES PLAN SHEET 4 OF 9	A											
5941 ENG BE2 014	EXISTING SURFACE AND FEATURES PLAN SHEET 5 OF 9	A											
5941 ENG BE2 015	EXISTING SURFACE AND FEATURES PLAN SHEET 6 OF 9	A											
5941 ENG BE2 016	EXISTING SURFACE AND FEATURES PLAN SHEET 7 OF 9	A											
5941 ENG BE2 017	EXISTING SURFACE AND FEATURES PLAN SHEET 8 OF 9	A											
5941 ENG BE2 018	EXISTING SURFACE AND FEATURES PLAN SHEET 9 OF 9	A											
5941 ENG BE2 020	SEDIMENT AND EROSION CONTROL PLAN SHEET 1 OF 9	A											
5941 ENG BE2 021	SEDIMENT AND EROSION CONTROL PLAN SHEET 2 OF 9	A											
5941 ENG BE2 022	SEDIMENT AND EROSION CONTROL PLAN SHEET 3 OF 9	A											
5941 ENG BE2 023	SEDIMENT AND EROSION CONTROL PLAN SHEET 4 OF 9	A											
5941 ENG BE2 024	SEDIMENT AND EROSION CONTROL PLAN SHEET 5 OF 9	A											
5941 ENG BE2 025	SEDIMENT AND EROSION CONTROL PLAN SHEET 6 OF 9	A											
5941 ENG BE2 026	SEDIMENT AND EROSION CONTROL PLAN SHEET 7 OF 9	A											
5941 ENG BE2 027	SEDIMENT AND EROSION CONTROL PLAN SHEET 8 OF 9	A											
5941 ENG BE2 028	SEDIMENT AND EROSION CONTROL PLAN SHEET 9 OF 9	A											
5941 ENG BE2 029	CONSTRUCTION PHASE SEDIMENT BASIN 1 LAYOUT SHEET 1 OF 4	A											
5941 ENG BE2 030	CONSTRUCTION PHASE SEDIMENT BASIN 1 LAYOUT SHEET 2 OF 4	A											
5941 ENG BE2 031	CONSTRUCTION PHASE SEDIMENT BASIN 1 LAYOUT SHEET 3 OF 4	A											
5941 ENG BE2 032	CONSTRUCTION PHASE SEDIMENT BASIN 2 LAYOUT SHEET 4 OF 4	A											
5941 ENG BE2 033	CONSTRUCTION PHASE SEDIMENT BASIN SECTIONS	A											
5941 ENG BE2 034	CONSTRUCTION PHASE SEDIMENT BASIN TYPICAL SECTIONS	A											
5941 ENG BE2 035	SEDIMENT AND EROSION TYPICAL DETAILS	A											
5941 ENG BE2 050	BULK EARTHWORKS LAYOUT PLAN SHEET 1 OF 9	A											
5941 ENG BE2 051	BULK EARTHWORKS LAYOUT PLAN SHEET 2 OF 9	A											
5941 ENG BE2 052	BULK EARTHWORKS LAYOUT PLAN SHEET 3 OF 9	A											
5941 ENG BE2 053	BULK EARTHWORKS LAYOUT PLAN SHEET 4 OF 9	A											
5941 ENG BE2 054	BULK EARTHWORKS LAYOUT PLAN SHEET 5 OF 9	A											
5941 ENG BE2 055	BULK EARTHWORKS LAYOUT PLAN SHEET 6 OF 9	A											
5941 ENG BE2 056	BULK EARTHWORKS LAYOUT PLAN SHEET 7 OF 9	A											
5941 ENG BE2 057	BULK EARTHWORKS LAYOUT PLAN SHEET 8 OF 9	A											
5941 ENG BE2 058	BULK EARTHWORKS LAYOUT PLAN SHEET 9 OF 9	A											
5941 ENG BE2 100	FINISHED BULK EARTHWORKS SURFACE LEVEL PLAN SHEET 1 OF 9	A											
5941 ENG BE2 101	FINISHED BULK EARTHWORKS SURFACE LEVEL PLAN SHEET 2 OF 9	A											
5941 ENG BE2 102	FINISHED BULK EARTHWORKS SURFACE LEVEL PLAN SHEET 3 OF 9	A											
5941 ENG BE2 103	FINISHED BULK EARTHWORKS SURFACE LEVEL PLAN SHEET 4 OF 9	A											
5941 ENG BE2 104	FINISHED BULK EARTHWORKS SURFACE LEVEL PLAN SHEET 5 OF 9	A											
5941 ENG BE2 105	FINISHED BULK EARTHWORKS SURFACE LEVEL PLAN SHEET 6 OF 9	A											
5941 ENG BE2 106	FINISHED BULK EARTHWORKS SURFACE LEVEL PLAN SHEET 7 OF 9	A											
5941 ENG BE2 107	FINISHED BULK EARTHWORKS SURFACE LEVEL PLAN SHEET 8 OF 9	A											
5941 ENG BE2 108	FINISHED BULK EARTHWORKS SURFACE LEVEL PLAN SHEET 9 OF 9	A											
5941 ENG BE2 150	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 1 OF 13	A											

g a s s m a n **development perspectives**

planning | environment | landscape | engineering | survey

T: 07 3807 3333 | F: 07 3287 5461 | www.gassman.com.au
76 Business Street, Yatala QLD | PO Box 392, Beenleigh 4207

est 1985

Attention: **Development Assessment**

PROJECT:	OPERATIONAL WORKS APPLICATION FOR CHANGE TO GROUND LEVEL VANTAGE YATALA - STAGE 2	Job No:	5941
----------	--	---------	------

All revisions supersede any revision of the same document.

[illegible][illegible]

☐ Our Mess. ☐ Courier ☒ Email
☐ Your Mess. ☐ Mail
☐ Hand ☐ FTP Site ☐ Aconex

A										
P	- Preliminary			C	- Construction			T	-Tender	
A	- Approval			I	- Information			O	- Other	

The information in any Gassman Development Perspectives generated messages together with any attachments is intended only for the person or entity to which it is addressed and may contain confidential and/or privileged material. Any form of review, disclosure, modification, distribution and/or publication of this message is prohibited. If you have received this message in error, you are asked to inform the sender as quickly as possible and delete this message and any copies of this message from your computer and/or your computer system network. In relation to computer viruses, any loss or damage incurred by using this material is not the responsibility of the sender. The sending company's entire liability will be limited to resupplying the material. No warranty is made that this material is free from computer virus or other defect. Please consider the environment before printing any electronic media received from Gassman

EP										
D	- Disk			P	Print			CP	-CAD&PDF	
ED	- DWG/DXF			EP	- PDF					

Drg/Doc No.	Title	Revision Issued
5941 ENG BE2 151	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 2 OF 13	A
5941 ENG BE2 152	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 3 OF 13	A
5941 ENG BE2 153	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 4 OF 13	A
5941 ENG BE2 154	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 5 OF 13	A
5941 ENG BE2 155	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 6 OF 13	A
5941 ENG BE2 156	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 7 OF 13	A
5941 ENG BE2 157	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 8 OF 13	A
5941 ENG BE2 158	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 9 OF 13	A
5941 ENG BE2 159	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 10 OF 13	A
5941 ENG BE2 160	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 11 OF 13	A
5941 ENG BE2 161	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 12 OF 13	A
5941 ENG BE2 162	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 13 OF 13	A
5941 ENG BE2 163	BULK EARTHWORKS ROAD TYPICAL SECTIONS	A
5941 ENG BE2 400	CONTROL LINE LAYOUT PLAN	A
5941 ENG BE2 401	CONTROL LINE SETOUT TABLES SHEET 1 OF 2	A
5941 ENG BE2 402	CONTROL LINE SETOUT TABLES SHEET 2 OF 2	A
5941 ENG BE2 410	ROAD 01 LONGITUDINAL SECTION SHEET 1 OF 2	A
5941 ENG BE2 411	ROAD 01 LONGITUDINAL SECTION SHEET 2 OF 2	A
5941 ENG BE2 412	FAIRWAY STREET LONGITUDINAL SECTION	A
5941 ENG BE2 413	FUTURE ROAD LONGITUDINAL SECTION	A
5941 ENG BE2 414	AMGROW DAM OVERFLOW DRAIN LONGITUDINAL SECTION	A
5941 ENG BE2 430	ROAD 01 CROSS SECTIONS SHEET 1 OF 8	A
5941 ENG BE2 431	ROAD 01 CROSS SECTIONS SHEET 2 OF 8	A
5941 ENG BE2 432	ROAD 01 CROSS SECTIONS SHEET 3 OF 8	A
5941 ENG BE2 433	ROAD 01 CROSS SECTIONS SHEET 4 OF 8	A
5941 ENG BE2 434	ROAD 01 CROSS SECTIONS SHEET 5 OF 8	A
5941 ENG BE2 435	ROAD 01 CROSS SECTIONS SHEET 6 OF 8	A
5941 ENG BE2 436	ROAD 01 CROSS SECTIONS SHEET 7 OF 8	A
5941 ENG BE2 437	ROAD 01 CROSS SECTIONS SHEET 8 OF 8	A
5941 ENG BE2 438	FAIRWAY STREET CROSS SECTIONS SHEET 1 OF 4	A
5941 ENG BE2 439	FAIRWAY STREET CROSS SECTIONS SHEET 2 OF 4	A
5941 ENG BE2 440	FAIRWAY STREET CROSS SECTIONS SHEET 3 OF 4	A
5941 ENG BE2 441	FAIRWAY STREET CROSS SECTIONS SHEET 4 OF 4	A
5941 ENG BE2 570	OPERATIONAL PHASE BIORETENTION BASIN SHEET 1 OF 4	A
5941 ENG BE2 571	OPERATIONAL PHASE BIORETENTION BASIN SHEET 2 OF 4	A
5941 ENG BE2 572	OPERATIONAL PHASE BIORETENTION BASIN SHEET 3 OF 4	A
5941 ENG BE2 573	OPERATIONAL PHASE BIORETENTION BASIN SHEET 4 OF 4	A

Name & Company: _____ Signed: _____ Dated: / /

Project Manager: mitchell@gassman.com.au Sent by: mitchell@gassman.com.au

OPERATIONAL WORKS APPLICATION FOR CHANGE TO GROUND LEVEL VANTAGE YATALA - STAGE 2

DRAWING INDEX		
DRAWING No.	REV No.	DRAWING TITLE
594I ENG BE2 001	A	DRAWING INDEX AND LOCALITY PLAN
594I ENG BE2 002	A	GENERAL NOTES SHEET 1 OF 2
594I ENG BE2 003	A	GENERAL NOTES SHEET 2 OF 2
594I ENG BE2 004	A	LEGEND
594I ENG BE2 005	A	KEY PLAN LAYOUT
594I ENG BE2 010	A	EXISTING SURFACE AND FEATURES PLAN SHEET 1 OF 9
594I ENG BE2 011	A	EXISTING SURFACE AND FEATURES PLAN SHEET 2 OF 9
594I ENG BE2 012	A	EXISTING SURFACE AND FEATURES PLAN SHEET 3 OF 9
594I ENG BE2 013	A	EXISTING SURFACE AND FEATURES PLAN SHEET 4 OF 9
594I ENG BE2 014	A	EXISTING SURFACE AND FEATURES PLAN SHEET 5 OF 9
594I ENG BE2 015	A	EXISTING SURFACE AND FEATURES PLAN SHEET 6 OF 9
594I ENG BE2 016	A	EXISTING SURFACE AND FEATURES PLAN SHEET 7 OF 9
594I ENG BE2 017	A	EXISTING SURFACE AND FEATURES PLAN SHEET 8 OF 9
594I ENG BE2 018	A	EXISTING SURFACE AND FEATURES PLAN SHEET 9 OF 9
594I ENG BE2 020	A	SEDIMENT AND EROSION CONTROL PLAN SHEET 1 OF 9
594I ENG BE2 021	A	SEDIMENT AND EROSION CONTROL PLAN SHEET 2 OF 9
594I ENG BE2 022	A	SEDIMENT AND EROSION CONTROL PLAN SHEET 3 OF 9
594I ENG BE2 023	A	SEDIMENT AND EROSION CONTROL PLAN SHEET 4 OF 9
594I ENG BE2 024	A	SEDIMENT AND EROSION CONTROL PLAN SHEET 5 OF 9
594I ENG BE2 025	A	SEDIMENT AND EROSION CONTROL PLAN SHEET 6 OF 9
594I ENG BE2 026	A	SEDIMENT AND EROSION CONTROL PLAN SHEET 7 OF 9
594I ENG BE2 027	A	SEDIMENT AND EROSION CONTROL PLAN SHEET 8 OF 9
594I ENG BE2 028	A	SEDIMENT AND EROSION CONTROL PLAN SHEET 9 OF 9
594I ENG BE2 029	A	CONSTRUCTION PHASE SEDIMENT BASIN 1 LAYOUT SHEET 1 OF 4
594I ENG BE2 030	A	CONSTRUCTION PHASE SEDIMENT BASIN 1 LAYOUT SHEET 2 OF 4
594I ENG BE2 031	A	CONSTRUCTION PHASE SEDIMENT BASIN 1 LAYOUT SHEET 3 OF 4
594I ENG BE2 032	A	CONSTRUCTION PHASE SEDIMENT BASIN 2 LAYOUT SHEET 4 OF 4
594I ENG BE2 033	A	CONSTRUCTION PHASE SEDIMENT BASIN SECTIONS
594I ENG BE2 034	A	CONSTRUCTION PHASE SEDIMENT BASIN TYPICAL SECTIONS
594I ENG BE2 035	A	SEDIMENT AND EROSION TYPICAL DETAILS
594I ENG BE2 050	A	BULK EARTHWORKS LAYOUT PLAN SHEET 1 OF 9
594I ENG BE2 051	A	BULK EARTHWORKS LAYOUT PLAN SHEET 2 OF 9
594I ENG BE2 052	A	BULK EARTHWORKS LAYOUT PLAN SHEET 3 OF 9
594I ENG BE2 053	A	BULK EARTHWORKS LAYOUT PLAN SHEET 4 OF 9
594I ENG BE2 054	A	BULK EARTHWORKS LAYOUT PLAN SHEET 5 OF 9
594I ENG BE2 055	A	BULK EARTHWORKS LAYOUT PLAN SHEET 6 OF 9
594I ENG BE2 056	A	BULK EARTHWORKS LAYOUT PLAN SHEET 7 OF 9
594I ENG BE2 057	A	BULK EARTHWORKS LAYOUT PLAN SHEET 8 OF 9
594I ENG BE2 058	A	BULK EARTHWORKS LAYOUT PLAN SHEET 9 OF 9
594I ENG BE2 100	A	FINISHED BULK EARTHWORKS SURFACE LEVEL PLAN SHEET 1 OF 9
594I ENG BE2 101	A	FINISHED BULK EARTHWORKS SURFACE LEVEL PLAN SHEET 2 OF 9
594I ENG BE2 102	A	FINISHED BULK EARTHWORKS SURFACE LEVEL PLAN SHEET 3 OF 9
594I ENG BE2 103	A	FINISHED BULK EARTHWORKS SURFACE LEVEL PLAN SHEET 4 OF 9
594I ENG BE2 104	A	FINISHED BULK EARTHWORKS SURFACE LEVEL PLAN SHEET 5 OF 9
594I ENG BE2 105	A	FINISHED BULK EARTHWORKS SURFACE LEVEL PLAN SHEET 6 OF 9
594I ENG BE2 106	A	FINISHED BULK EARTHWORKS SURFACE LEVEL PLAN SHEET 7 OF 9
594I ENG BE2 107	A	FINISHED BULK EARTHWORKS SURFACE LEVEL PLAN SHEET 8 OF 9
594I ENG BE2 108	A	FINISHED BULK EARTHWORKS SURFACE LEVEL PLAN SHEET 9 OF 9

DRAWING INDEX		
DRAWING No.	REV No.	DRAWING TITLE
594I ENG BE2 001	A	DRAWING INDEX AND LOCALITY PLAN
594I ENG BE2 150	A	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 1 OF 13
594I ENG BE2 151	A	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 2 OF 13
594I ENG BE2 152	A	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 3 OF 13
594I ENG BE2 153	A	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 4 OF 13
594I ENG BE2 154	A	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 5 OF 13
594I ENG BE2 155	A	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 6 OF 13
594I ENG BE2 156	A	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 7 OF 13
594I ENG BE2 157	A	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 8 OF 13
594I ENG BE2 158	A	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 9 OF 13
594I ENG BE2 159	A	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 10 OF 13
594I ENG BE2 160	A	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 11 OF 13
594I ENG BE2 161	A	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 12 OF 13
594I ENG BE2 162	A	FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 13 OF 13
594I ENG BE2 163	A	BULK EARTHWORKS ROAD TYPICAL SECTIONS
594I ENG BE2 400	A	CONTROL LINE LAYOUT PLAN
594I ENG BE2 401	A	CONTROL LINE SETOUT TABLES SHEET 1 OF 2
594I ENG BE2 402	A	CONTROL LINE SETOUT TABLES SHEET 2 OF 2
594I ENG BE2 410	A	ROAD 01 LONGITUDINAL SECTION SHEET 1 OF 2
594I ENG BE2 411	A	ROAD 01 LONGITUDINAL SECTION SHEET 2 OF 2
594I ENG BE2 412	A	FAIRWAY STREET LONGITUDINAL SECTION
594I ENG BE2 430	A	ROAD 01 CROSS SECTIONS SHEET 1 OF 8
594I ENG BE2 431	A	ROAD 01 CROSS SECTIONS SHEET 2 OF 8
594I ENG BE2 432	A	ROAD 01 CROSS SECTIONS SHEET 3 OF 8
594I ENG BE2 433	A	ROAD 01 CROSS SECTIONS SHEET 4 OF 8
594I ENG BE2 434	A	ROAD 01 CROSS SECTIONS SHEET 5 OF 8
594I ENG BE2 435	A	ROAD 01 CROSS SECTIONS SHEET 6 OF 8
594I ENG BE2 436	A	ROAD 01 CROSS SECTIONS SHEET 7 OF 8
594I ENG BE2 437	A	ROAD 01 CROSS SECTIONS SHEET 8 OF 8
594I ENG BE2 438	A	FAIRWAY STREET CROSS SECTIONS SHEET 1 OF 4
594I ENG BE2 439	A	FAIRWAY STREET CROSS SECTIONS SHEET 2 OF 4
594I ENG BE2 440	A	FAIRWAY STREET CROSS SECTIONS SHEET 3 OF 4
594I ENG BE2 441	A	FAIRWAY STREET CROSS SECTIONS SHEET 4 OF 4
594I ENG BE2 570	A	OPERATIONAL PHASE BIORETENTION BASIN SHEET 1 OF 4
594I ENG BE2 571	A	OPERATIONAL PHASE BIORETENTION BASIN SHEET 2 OF 4
594I ENG BE2 572	A	OPERATIONAL PHASE BIORETENTION BASIN SHEET 3 OF 4
594I ENG BE2 573	A	OPERATIONAL PHASE BIORETENTION BASIN SHEET 4 OF 4



LOCALITY PLAN
SCALE 1: 8000 (A1)

CLIENT



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

VantageYatala

SITE ADDRESS

LOT 501 on SP295994
60 STAPYLTON JACOBS WELL ROAD
STAPYLTON QLD 4207

HES BASIN GENERAL NOTES

AUTO DOSER

1. PROVIDED AS EITHER 'FLOC BOX' OR 'FOD-RAIN' DOSING UNIT OR APPROVED EQUIVALENT TO MANUFACTURERS SPECIFICATION.
2. DOSER AND SUPPLY OF FLOCCULANT TO BE PROVIDED ON LEVEL PAD 4mX4m WITHIN 10m OF DOSING POINT.
3. ALL-WEATHER ACCESS TRACK TO BE PROVIDED TO DOSER.
4. FLOCCULANT PROVIDED AS TURBICLEAR (ACH) OR APPROVED EQUIVALENT. IF ALTERNATIVE FLOCCULANT USED THEN THE BASIN SIZE IS TO BE INCREASED ACCORDING TO JAR SETTLEMENT TEST (REFER TO TABLE BELOW).

JAR SETTLEMENT AFTER 15 MINS	MULTIPLICATION FACTOR TO SETTLING ZONE
(mm)	VOLUME
50	x3.0
75	x2.0
100	x1.5
150	x1.0

BASIN CONSTRUCTION

MATERIALS

5. EARTH FILL: CLEAN SOIL WITH EMERSION CLASS 2(1), 3, 4 OR 5 AND FREE OF ROOTS, WOODY VEGETATION, ROCKS AND OTHER UNSUITABLE MATERIAL. SOIL WITH EMERSION CLASS 4 AND 5 MAY NOT BE SUITABLE DEPENDING ON PARTICLE SIZE DISTRIBUTION AND DEGREE OF DISPERSION. CLASS 2 (1) SHOULD ONLY BE USED UPON RECOMMENDATION FROM GEOTECHNICAL SPECIALIST.
6. SPILLWY ROCK: HARD, ANGULAR, DURABLE, WEATHER RESISTANT AND EVENLY GRADED ROCK WITH 50% BY WEIGHT LARGER THAN THE SPECIFIED NOMINAL (D50) ROCK SIZE. LARGE ROCK SHOULD DOMINATE, WITH SUFFICIENT SMALL ROCK TO FILL THE VOIDS BETWEEN LARGER ROCK. THE DIAMETER OF THE LARGEST ROCK SHOULD BE NO LARGER THAN 1.5 TIMES THE NOMINAL ROCK SIZE. THE SPECIFIC GRAVITY SHOULD BE AT LEAST 2.5.
7. GEOTEXTILE FABRIC: HEAVY DUTY, NEEDLE-PUNCHED, NON-WOVEN CLOTH, MINIMUM 'BIDIM' A24 OR EQUIVALENT.

CONSTRUCTION

8. NOTWITHSTANDING ANY DESCRIPTION CONTAINED WITH APPROVED PLANS OR SPECIFICATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR SATISFYING THEMSELVES AS TO THE NATURE AND EXTENT OF THE SPECIFIED WORKS AND THE PHYSICAL AND LEGAL CONDITIONS UNDER WHICH THE WORKS WILL BE CARRIED OUT. THIS SHALL INCLUDE MEANS OF ACCESS, EXTENT OF CLEARING, NATURE OF THE MATERIALS TO BE EXCAVATED, TYPE AND SIZE OF MECHANICAL PLANT REQUIRED, LOCATION AND SUITABILITY OF WATER SUPPLY FOR CONSTRUCTION AND TESTING PURPOSES, AND ANY OTHER LIKELY MATTERS AFFECTING THE CONSTRUCTION OF THE WORKS.
9. REFER TO APPROVED PLANS FOR LOCATION, DIMENSIONS, AND CONSTRUCTION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, DIMENSIONS, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.
10. BEFORE STARTING ANY CLEARING OR CONSTRUCTION, ENSURE ALL THE NECESSARY MATERIALS AND COMPONENTS ARE ON THE SITE TO AVOID DELAYS IN COMPLETING THE SEDIMENT BASIN ONCE WORKS BEGIN.
11. INSTALL REQUIRED SHORT TERM SEDIMENT CONTROL MEASURES DOWNSTREAM OF THE PROPOSED EARTHWORKS TO CONTROL SEDIMENT RUNOFF DURING CONSTRUCTION OF THE BASIN.
12. THE AREA TO BE COVERED BY THE EMBANKMENT, BORROW PITS AND INCIDENTAL WORKS, TOGETHER WITH AN AREA EXTENDING BEYOND THE LIMITS OF EACH FOR A DISTANCE NOT EXCEEDING FIVE (5) METRES ALL AROUND MUST BE CLEARED OF ALL TREES, SCRUB, STUMPS, ROOTS, DEAD TIMBER AND RUBBISH AND DISPOSED OF IN A SUITABLE MANNER. DELAY CLEARING THE MAIN BASIN AREA UNTIL THE EMBANKMENT IS COMPLETE.
13. ENSURE ALL HOLES MADE BY GRUBBING WITHIN THE EMBANKMENT FOOTPRINT ARE FILLED WITH SOUND MATERIAL, ADEQUATELY COMPACTED, AND FINISHED FLUSH WITH THE NATURAL SURFACE.

CUT-OFF TRENCH

14. BEFORE CONSTRUCTION OF THE CUT-OFF TRENCH OR ANY ANCILLARY WORKS WITHIN THE EMBANKMENT FOOTPRINT, ALL GRASS GROWTH AND TOPSOIL MUST BE REMOVED FROM THE AREA TO BE OCCUPIED BY THE EMBANKMENT AND MUST BE DEPOSITED CLEAR OF THIS AREA AND RESERVED FOR TOPDRESSING THE COMPLETED EMBANKMENT.

15. EXCAVATE A CUT-OFF TRENCH ALONG THE CENTRE LINE OF THE EARTH FILL EMBANKMENT. CUT THE TRENCH TO STABLE SOIL MATERIAL, BUT IN NO CASE MAKE IT LESS THAN 600mm DEEP. THE CUT-OFF TRENCH MUST EXTEND INTO BOTH ABUTMENTS TO AT LEAST THE ELEVATION OF THE OUTLET SPILLWAY CREST. MAKE THE MINIMUM BOTTOM WIDTH WIDE ENOUGH TO PERMIT OPERATION OF THE EXCAVATION AND COMPACTION EQUIPMENT, BUT IN NO CASE LESS THAN 600mm. MAKE THE SIDE SLOPES OF THE TRENCH NO STEEPER THAN 1:2 (H: V).
16. ENSURE ALL WATER, LOOSE SOIL, AND ROCK ARE REMOVED FROM THE TRENCH BEFORE BACKFILLING COMMENCES. THE CUT-OFF TRENCH MUST BE BACKFILLED WITH SELECT EARTH—FILL OF THE TYPE SPECIFIED FOR THE EMBANKMENT, AND THIS SOIL MUST HAVE A MOISTURE CONTENT AND DEGREE OF COMPACTION THE SAME AS SPECIFIED FOR THE CORE ZONE.
17. MATERIAL EXCAVATED FROM THE CUT-OFF TRENCH MAY BE USED IN THE CONSTRUCTION OF THE EMBANKMENT PROVIDED IT IS SUITABLE AND IT IS PLACED IN THE CORRECT ZONE ACCORDING TO ITS CLASSIFICATION.

EMBANKMENT

18. SCARIFY AREAS ON WHICH FILL IS TO BE PLACED BEFORE PLACING THE FILL.
19. ENSURE ALL FILL MATERIAL USED TO FORM THE EMBANKMENT MEETS THE SPECIFICATIONS CERTIFIED BY A SOIL SCIENTIST OF GEOTECHNICAL SPECIALIST.
20. THE FILL MATERIAL MUST CONTAIN SUFFICIENT MOISTURE SO IT CAN BE FORMED BY HAND INTO A BALL WITHOUT CRUMBLING. IF WATER CAN BE SQUEEZED OUT OF THE BALL, IT IS TOO WET FOR PROPER COMPACTION. PLACE FILL MATERIAL IN 150 to 200mm CONTINUOUS LAYERS OVER THE ENTIRE LENGTH OF THE FILL AREA AND THEN COMPACT BEFORE PLACEMENT OF FURTHER FILL.
21. UNLESS SPECIFIED ON THE APPROVED PLANS, COMPACT THE SOIL AT ABOUT 1% TO 2% WET OPTIMUM AND TO 95% MODIFIED OR 100% STANDARD COMPACTION.
22. WHERE BOTH DISPERSIVE AND NON-DISPERSIVE CLASSIFIED EARTH-FILL MATERIALS ARE AVAILABLE, NON-DISPERSIVE EARTH-FILL MUST BE USED IN THE CORE ZONE. THE REMAINING CLASSIFIED EARTH-FILL MATERIALS MUST ONLY BE USED AS DIRECTED BY THE SITE SUPERINTENDENT.
23. WHERE SPECIFIED, CONSTRUCT THE EMBANKMENT TO AN ELEVATION 10% HIGHER THAN THE DESIGN HEIGHT TO ALLOW FOR SETTLING; OTHERWISE FINISHED DIMENSIONS OF THE EMBANKMENT AFTER SPREADING OF TOPSOIL MUST CONFORM TO THE DRAWING WITH A TOLERANCE OF 75mm FROM SPECIFIED DIMENSIONS.
24. ENSURE DEBRIS AND OTHER UNSUITABLE BUILDING WASTE IS NOT PLACED WITHIN THE EARTH EMBANKMENT.
25. AFTER COMPLETION OF THE EMBANKMENT ALL LOOSE UNCOMPACTED EARTH-FILL MATERIAL ON THE UPSTREAM AND DOWNSTREAM BATTER MUST BE REMOVED PRIOR TO SPREADING TOPSOIL.
26. TOPSOIL AND RE-VEGETATE/STABILISE ALL EXPOSED EARTH AS DIRECTED WITHIN THE APPROVED PLANS.

ESTABLISHING THE SETTLING POND

27. THE AREA TO BE COVERED BY THE STORED WATER OUTSIDE OF THE LIMITS OF THE BORROW PITS MUST BE CLEARED OF RUBBISH. TREES MUST BE CUT DOWN STUMP HIGH AND REMOVED FROM THE IMMEDIATE VICINITY OF THE WORK.
28. ESTABLISH ALL REQUIRED INFLOW CHUTES AND INLET BAFFLES IF SPECIFIED TO ENABLE WATER TO DISCHARGE INTO THE BASIN IN A MANNER THAT WILL NOT CAUSE SOIL EROSION OR THE RE-SUSPENSION OF SETTLED SEDIMENT.
29. INSTALL A SEDIMENT STORAGE LEVEL MARKER POST WITH A CROSS MEMBER SET JUST BELOW THE TOP OF THE SEDIMENT STORAGE ZONE (AS SPECIFIED ON THE APPROVED PLANS). USE AT LEAST A 75mm WIDE POST FIRMLY SET INTO THE BASIN FLOOR.
30. IF SPECIFIED, INSTALL INTERNAL SETTLING POND BAFFLES. ENSURE THE CREST OF THESE BAFFLES IS SET LEVEL WITH, OR JUST BELOW, THE ELEVATION OF THE EMERGENCY SPILLWAY.
31. INSTALL ALL APPROPRIATE MEASURES TO MINIMISE SAFETY RISK TO ON-SITE PERSONNEL AND THE PUBLIC CAUSED BY THE PRESENCE OF THE SETTLING POND. AVOID STEEP, SMOOTH INTERNAL SLOPES. APPROPRIATELY FENCE THE SETTLING POND AND POST WARNING SIGNS IF UNSUPERVISED PUBLIC ACCESS IS LIKELY OR THERE IS CONSIDERED TO BE AN UNACCEPTABLE RISK TO THE PUBLIC.

SPILLWAY CONSTRUCTION

32. THE SPILLWAY MUST BE EXCAVATED AS SHOWN ON THE PLANS, AND THE EXCAVATED MATERIAL IF CLASSIFIED AS SUITABLE, MUST BE USED IN THE EMBANKMENT, AND IF NOT SUITABLE IT MUST BE DISPOSED OF INTO SPOIL HEAPS.
33. ENSURE EXCAVATED DIMENSIONS ALLOW ADEQUATE BOXING--OUT SUCH THAT THE SPECIFIED ELEVATIONS, GRADES, CHUTE WIDTH, AND ENTRANCE AND EXIT SLOPES FOR THE EMERGENCY SPILLWAY WILL BE ACHIEVED AFTER PLACEMENT OF THE ROCK OR OTHER SCOUR PROTECTION MEASURES AS SPECIFIED IN THE PLANS.
34. PLACE SPECIFIED SCOUR PROTECTION MEASURES ON THE EMERGENCY SPILLWAY. ENSURE THE FINISHED GRADE BLENDS WITH THE SURROUNDING AREA TO ALLOW A SMOOTH FLOW TRANSITION FROM SPILLWAY TO DOWNSTREAM CHANNEL.
35. IF A SYNTHETIC FILTER FABRIC UNDERLAY IS SPECIFIED, PLACE THE FABRIC DIRECTLY ON THE PREPARED FOUNDATION. IF MORE THAN A SHEET OF FILTER FABRIC IS REQUIRED, OVERLAP THE EDGES BY AT LEAST 300mm AND PLACE ANCHOR PINS AT MINIMUM 1m SPACING ALONG THE OVERLAP. BURY THE UPSTREAM END OF THE FILTER FABRIC A MINIMUM 300mm BELOW GROUND AND WHERE NECESSARY, BURY THE LOWER END OF THE FABRIC OR OVERLAP A MINIMUM 300mm OVER THE NEXT DOWNSTREAM SECTION AS REQUIRED. ENSURE THE FILTER FABRIC EXTENDS AT LEAST 1000mm UPSTREAM OF THE SPILLWAY CREST.
36. TAKE CARE NOT TO DAMAGE THE FABRIC DURING OR AFTER PLACEMENT. IF DAMAGE OCCURS, REMOVE THE ROCK AND REPAIR THE SHEET BY ADDING ANOTHER LAYER OF FABRIC WITH A MINIMUM OVERLAP OF 300mm AROUND THE DAMAGED AREA. IF EXTENSIVE DAMAGE IS SUSPECTED, REMOVE AND REPLACE THE ENTIRE SHEET.
37. WHERE LARGE ROCK IS USED, OR MACHINE PLACEMENT IS DIFFICULT, A MINIMUM 100mm LAYER OF FINE GRAVEL, AGGREGATE, OR SAND MAY BE NEEDED TO PROTECT THE FABRIC.
38. PLACEMENT OF ROCK SHOULD FOLLOW IMMEDIATELY AFTER PLACEMENT OF THE FILTER FABRIC. PLACE ROCK SO THAT IT FORMS A DENSE, WELL GRADED MASS OF ROCK WITH A MINIMUM OF VOIDS. THE DESIRED DISTRIBUTION OF ROCK THROUGHOUT THE MASS MAY BE OBTAINED BY SELECTIVE LOADING AT THE QUARRY AND CONTROLLED DUMPING DURING FINAL PLACEMENT.
39. THE FINISHED SLOPE SHOULD BE FREE OF POCKETS OF SMALL ROCK OR CLUSTERS OF LARGE ROCKS. HAND PLACING MAY BE NECESSARY TO ACHIEVE THE PROPER DISTRIBUTION OF ROCK SIZES TO PRODUCE A RELATIVELY SMOOTH, UNIFORM SURFACE. THE FINISHED GRADE OF THE ROCK SHOULD BLEND WITH THE SURROUNDING AREA. NO OVER FALL OR PROTRUSION OF ROCK SHOULD BE APPARENT.
40. ENSURE THAT THE FINAL ARRANGEMENT OF THE SPILLWAY CREST WILL NOT PROMOTE EXCESSIVE FLOW THROUGH THE ROCK SUCH THAT THE WATER CAN BE RETAINED WITHIN THE SETTLING BASIN AT THE ELEVATION NO LESS THAN 50mm ABOVE OF BELOW THE NOMINATED SPILLWAY CREST ELEVATION.

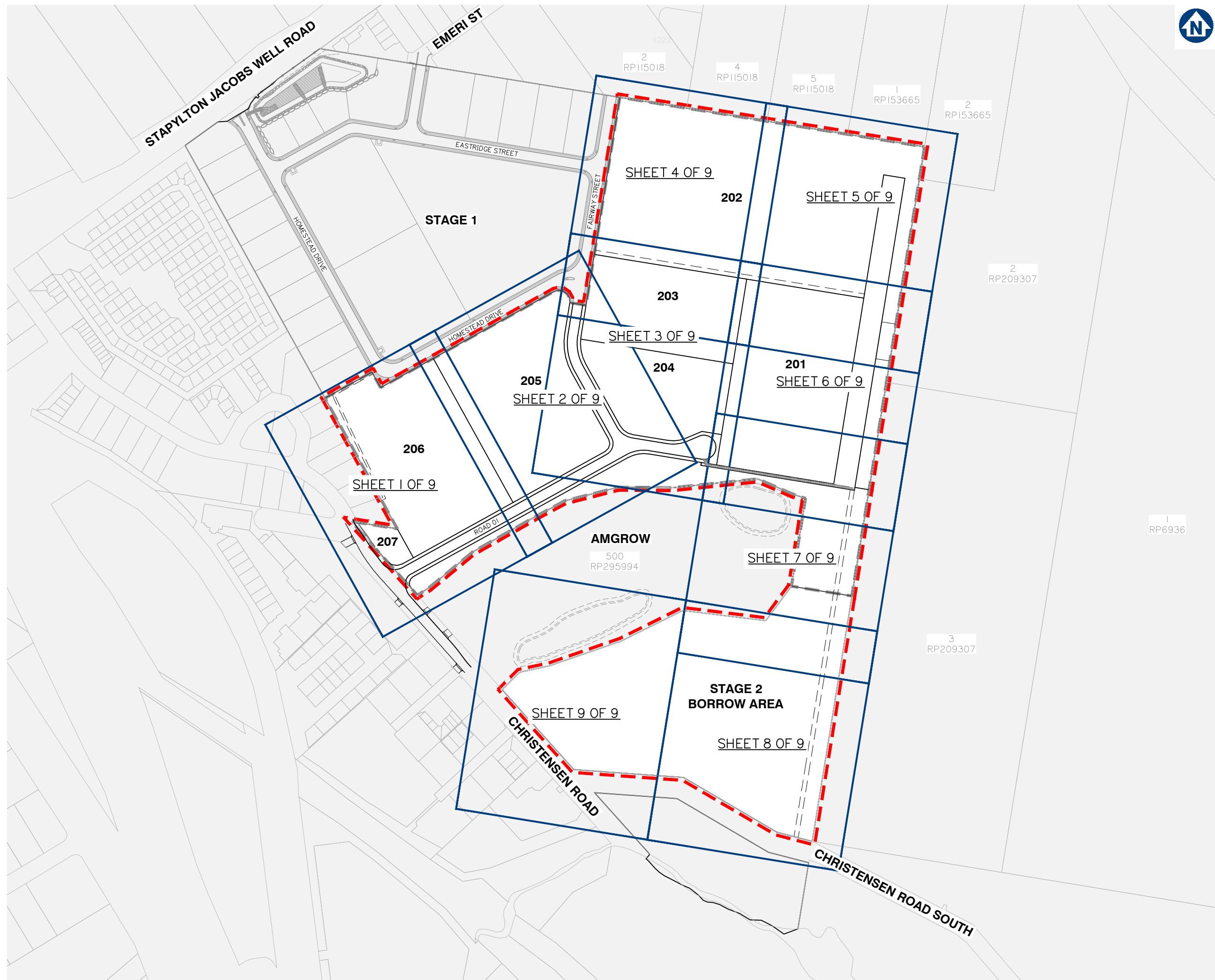
	OVERLAND FLOW PATH / SWALE
	CATCH DRAIN (NOT LINED)
	DIVERSION CHANNEL
	TABLE DRAIN
	STREAM INVERT
	CATCH DRAIN (CONCRETE LINED)
	SUBSOIL DRAINAGE
	SAWCUT
	SEDIMENT FENCE
	CHAINWIRE FENCE
	WOODEN FENCE
	BRIFEN WIRE SAFETY BARRIER
	GUARDRAIL (STANDARD)
	RETAINING WALL (PILED)
	RETAINING WALL (WITH FOOTINGS)
	RETAINING WALL
	ROCKBLOCK RETAINING WALL
	TOP OF BATTER / BERM
	NOISE WALL
	EDGE OF VEGETATION
	PROPERTY LINE
	PROPERTY LINE WITH FENCE
	PROPOSED KERB, FOOTPATH
	CONTROL LINE / CENTER OF ROAD
	RAILWAY (MAJOR)
	RAILWAY (MINOR)
	EXISTING PROPERTY LINE
	EXISTING PROPERTY LINE WITH FENCE
	EXISTING KERB, FOOTPATH
	EXISTING EDGE OF BITUMEN
	EXISTING RAILWAY (MAJOR)
	EXISTING RAILWAY (MINOR)
	LIMIT OF WORKS
	LIMIT OF SITE
	CATCHMENT BOUNDARY
	EXISTING CONTOURS
	DESIGN CONTOURS

RM	RM	RM	PROPOSED RISING MAIN
S	S	S	PROPOSED SEWER
SW	SW	SW	PROPOSED STORMWATER
SW	SW	SW	PROPOSED ROOFWATER
SS	SS	SS	PROPOSED SUBSOIL
W	W	W	PROPOSED WATER
FW	FW	FW	PROPOSED RECYCLED WATER
OIL	OIL	OIL	PROPOSED OIL
F	F	F	PROPOSED FUEL
G	G	G	PROPOSED GAS
P	P	P	PROPOSED PIPELINE
HV	HV	HV	PROPOSED HIGH VOLTAGE ELECTRICITY
E	E	E	PROPOSED UNDERGROUND ELECTRICITY
E	E	E	PROPOSED OVERHEAD ELECTRICITY
L	L	L	PROPOSED LIGHTING
T	T	T	PROPOSED TELSTRA
C	C	C	PROPOSED COMMUNICATIONS
GE	GE	GE	PROPOSED GAS, ELECT
GT	GT	GT	PROPOSED GAS, TELSTRA
ET	ET	ET	PROPOSED ELECT, TELSTRA
GET	GET	GET	PROPOSED GAS, ELECTRICITY, TELSTRA
RM	RM	RM	EXISTING RISING MAIN
S	S	S	EXISTING SEWER
SW	SW	SW	EXISTING STORMWATER
SW	SW	SW	EXISTING ROOFWATER
SS	SS	SS	EXISTING SUBSOIL
W	W	W	EXISTING WATER
FW	FW	FW	EXISTING RECYCLED WATER
OIL	OIL	OIL	EXISTING OIL
F	F	F	EXISTING FUEL
G	G	G	EXISTING GAS
P	P	P	EXISTING PIPELINE
HV	HV	HV	EXISTING HIGH VOLTAGE ELECTRICITY
E	E	E	EXISTING UNDERGROUND ELECTRICITY
E	E	E	EXISTING OVERHEAD ELECTRICITY
L	L	L	EXISTING LIGHTING
T	T	T	EXISTING TELSTRA
C	C	C	EXISTING COMMUNICATIONS
GE	GE	GE	EXISTING GAS, ELECT
GT	GT	GT	EXISTING GAS, TELSTRA
ET	ET	ET	EXISTING ELECT, TELSTRA
GET	GET	GET	EXISTING GAS, ELECTRICITY, TELSTRA

— RM — ✕ — RM — ✕ — RM — ✕ — RM — ✕ —	DEMOLISH RISING MAIN
— S — ✕ — S — ✕ — S — ✕ — S — ✕ —	DEMOLISH SEWER
— SW — ✕ — SW — ✕ — SW — ✕ — SW — ✕ —	DEMOLISH STORMWATER
— SS — ✕ — SS — ✕ — SS — ✕ — SS — ✕ —	DEMOLISH SUBSOIL
— W — ✕ — W — ✕ — W — ✕ — W — ✕ —	DEMOLISH WATER
— OIL — ✕ — OIL — ✕ — OIL — ✕ — OIL — ✕ —	DEMOLISH OIL
— F — ✕ — F — ✕ — F — ✕ — F — ✕ — F — ✕ —	DEMOLISH FUEL
— HV — ✕ — HV — ✕ — HV — ✕ — HV — ✕ —	DEMOLISH HIGH VOLTAGE ELECTRICITY
— E — ✕ — E — ✕ — E — ✕ — E — ✕ — E — ✕ —	DEMOLISH UNDERGROUND ELECTRICITY
— E — ✕ — E — ✕ — E — ✕ — E — ✕ — E — ✕ —	DEMOLISH OVERHEAD ELECTRICITY
— L — ✕ — L — ✕ — L — ✕ — L — ✕ — L — ✕ —	DEMOLISH LIGHTING
— G — ✕ — G — ✕ — G — ✕ — G — ✕ — G — ✕ —	DEMOLISH GAS
— P — ✕ — P — ✕ — P — ✕ — P — ✕ — P — ✕ —	DEMOLISH PIPELINE
— T — ✕ — T — ✕ — T — ✕ — T — ✕ — T — ✕ —	DEMOLISH TELSTRA
— C — ✕ — C — ✕ — C — ✕ — C — ✕ — C — ✕ —	DEMOLISH COMMUNICATIONS

BK(A)	BARRIER KERB (A)
BK(B)	BARRIER KERB (B)
BK(G)	BARRIER KERB (G)
MK(D)	MOUNTABLE KERB (D)
SMK(C)	SEMI MOUNTABLE KERB (C)
ER(E)	EDGE RESTRAINT (E)
KER(F)	KERB EDGE RESTRAINT (F)
RK&C(H)	ROLL TOP KERB & CHANNEL (H)
BK&C(J)	BARRIER KERB & CHANNEL (J)
ERH	KERB EDGE RESTRAINT (HIGH)
ERL	KERB EDGE RESTRAINT (LOW)
CS(K/L)	CHANNEL SECTION (K/L)
PMB	PRECAST MOTOR BED
DD	DISH DRAIN
K&G	KERB AND GUTTER
K&T	KERB AND TOE
KO	KERB ONLY
MK	MOUNTABLE KERB
RK	ROLL KERB
	EXISTING SIGN
	PROPOSED SIGN
	PROPOSED ROAD EDGE GUIDE POST
	EXISTING BIN
	POST BOX
	TELEPHONE BOX
	TELSTRA PIT
	TELSTRA MARKER POST
	WATER METER
	WATER VALVE
	FIRE HYDRANT
	WATER TAP
	WATER HYDRANT
	WATER TEE
	WATER REDUCER
	WATER ENDCAP
	WATER CONNECTION
	WATER CROSSING
	WATER DIEL
	SEWER MANHOLE
	SEWER RODDING END
	SEWER BEND
	SEWER MAINTENANCE SHAFT
	SEWER 'T' END
	SEWER SLUICE VALVE
	SEWER PIT
	SEWER PUMP STATION
	TEMPORARY SEWER PUMP STATION
	SEWER / STORMWATER PIT NO/LINE
	SETOUT POINT
	OFFSET PIT WITH GRATE
	IN LINE PIT WITH GRATE
	JUNCTION PIT
	LETTERBOX PIT
	GRATED INLET PIT
	MANHOLE
	GULLY PIT (LIP INLINE) BARRIER KERB
	GULLY PIT (LIP INLINE) BARRIER KERB
	GULLY PIT (LIP INLINE) ROLL TOP KERB
	GULLY PIT (LIP INLINE) ROLL TOP KERB
	GULLY PIT (KERB INLINE) – GRADE
	GULLY PIT (KERB INLINE) – SAG
	INFILTRATION TRENCH
	HEADWALL
	GROSS POLLUTANT TRAP
	STORMWATER CHAMBER

● PP	POWER POLE
★ PP	POWER POLE WITH LIGHT
★ LP	LIGHT POLE
● SP	STAY POLE
—●—	LIGHT POLE WITH EXTENSION
E	ELECTRICAL INSPECTION BOX
○	ELECTRICAL POLE
⊠	ELECTRICAL TURRET
◇ TS	TRAFFIC SIGNAL
MRD	MAIN ROADS PIT
—○—	TANGENT POINT
(KRD)	KERB RETURN NO.
▵	PRAM RAMP
⌒	GRAVEL ROCK CHECK DAM
○ ○ ○	MESH & GRAVEL INLET FILTER
⊠	STORMWATER INLET FILTER
→	DIRECTION OF OVERLAND FLOW
	VEHICLE SHAKEDOWN
—○—	GATE
▒	NOT IN SCOPE OF WORKS
▒	DEMOLITION
▒	PROPOSED CONCRETE FOOTPATH
⊙	SCOUR PROTECTION
⊙	TREES
⊙	TADPOLE



Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

©2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

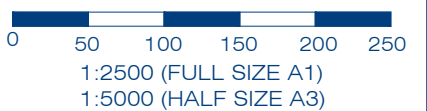
ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

KEY PLAN LAYOUT

A	20-11-2020	ORIGINAL ISSUE	BA	MG
Issue	Date	Description	DRN	CHK

SCALE IN METRES



Scale at A1: 1:2500

Designed:	IG
-----------	----

Drafted:	BA
----------	----

Approved:	MG
-----------	----

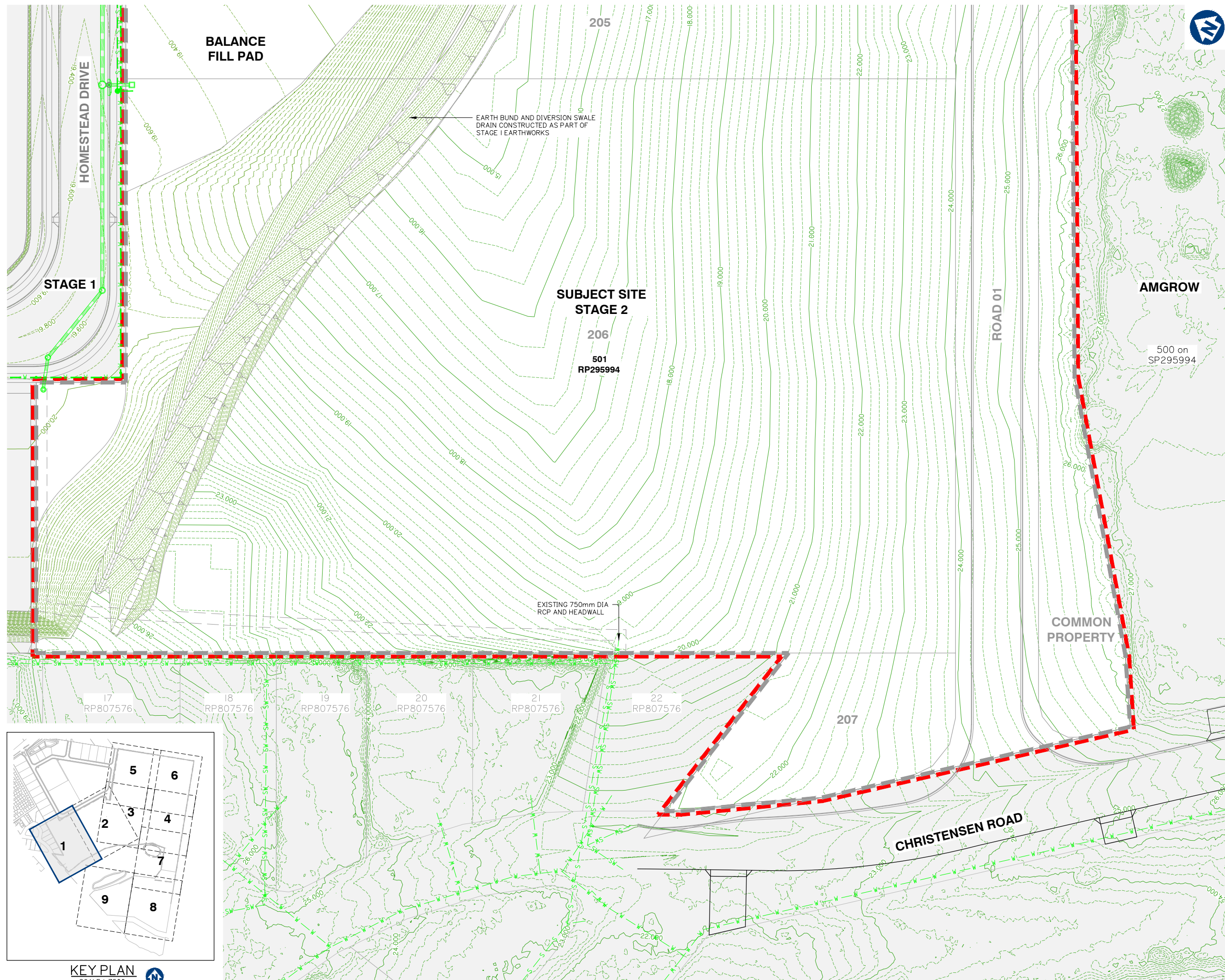
RPEQ:	16939
-------	-------

Signed:	
---------	---

Date:	20-11-2020
-------	------------

Drawing No:
5941 ENG BE2 005

Rev. No:
A

KEY PLAN
SCALE 1: 7500

Client:

FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be
reproduced or transmitted in any form or by any means,
electronic, mechanical, photocopying, recording, or
otherwise, without the written permission of Gassman
Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
EXISTING SURFACE
AND FEATURES PLAN
SHEET 1 OF 9

Issue	Date	Original Issue Description	BA DRN	MG CHK
A	20-11-2020	ORIGINAL ISSUE	BA	MG

SCALE IN METRES

1:500 (FULL SIZE A1)
1:1000 (HALF SIZE A3)

Scale at A1: 1:500

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 010Rev. No:
A



Project: **VantageYatala**
STAGE 2

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:	
Lot:	501
Plan:	SP295994
Local Authority:	CITY OF GOLD COAST COUNCIL
Level Datum:	AHD
Meridian:	-
Contour Interval:	-
PSM:	-
RI :	-

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

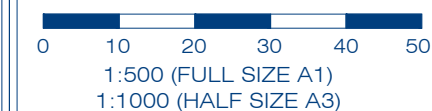
© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
EXISTING SURFACE
AND FEATURES PLAN
SHEET 2 OF 9

A Issue	20-11-2020		ORIGINAL ISSUE	BA DRN	MO CH-

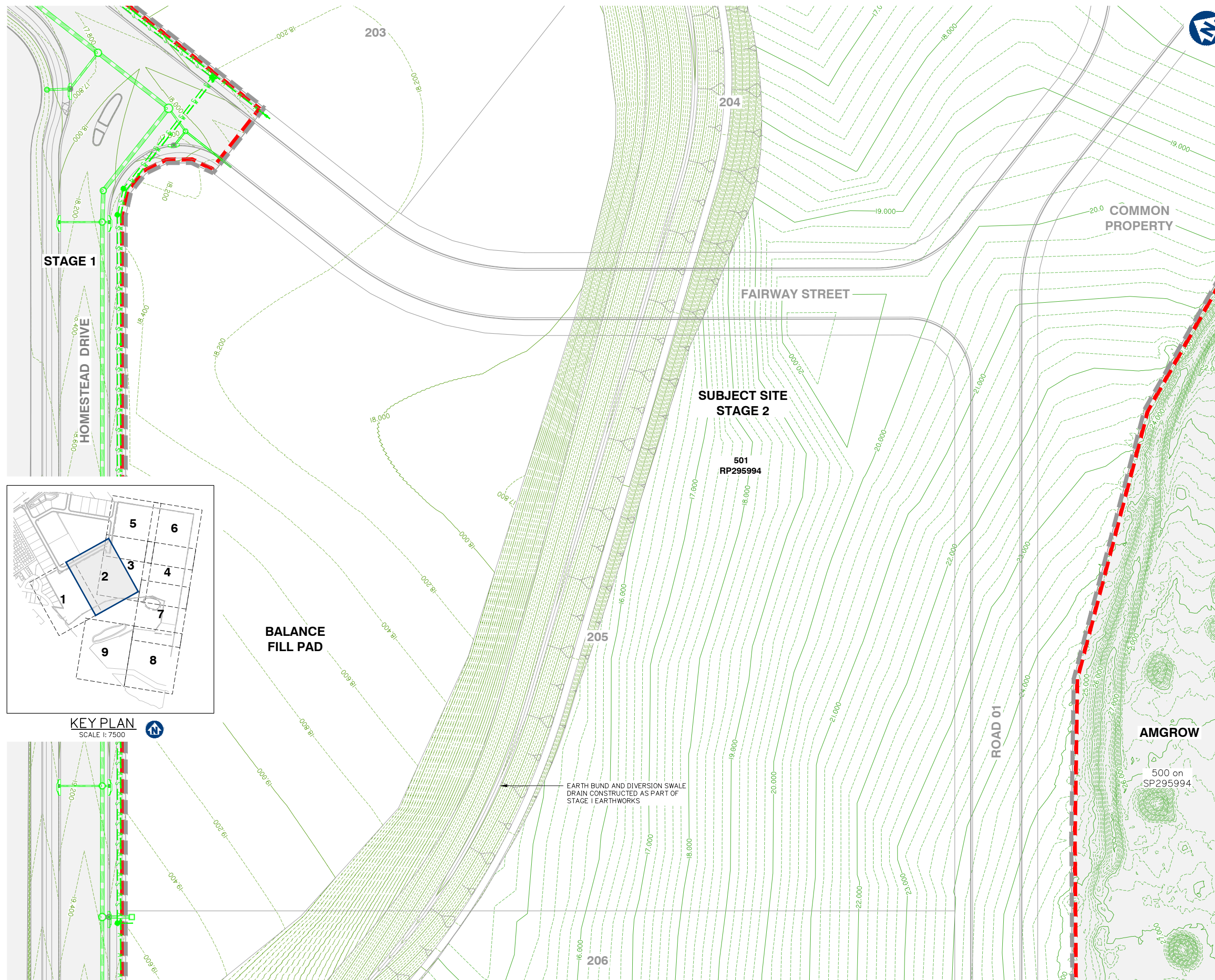
SCALE IN METRES

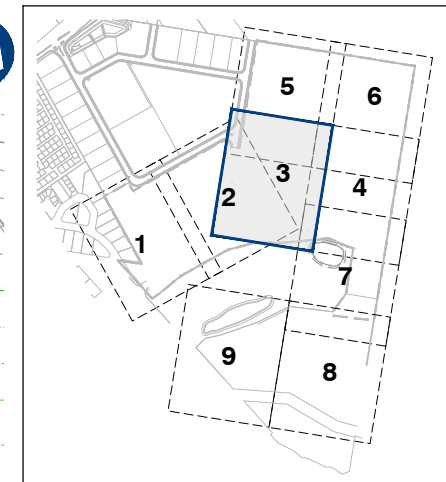


Scale at A1: 1:500

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:	Rev. No:
5941 ENG BE2 011	A





FRASERS
PROPERTY

FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

KEY PLAN
SCALE 1: 7500

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

A	20-11-2020	ORIGINAL ISSUE	BA	MG	
Issue	Date	Description	TEN	CHEK	

Scale at A1:	1:500
Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

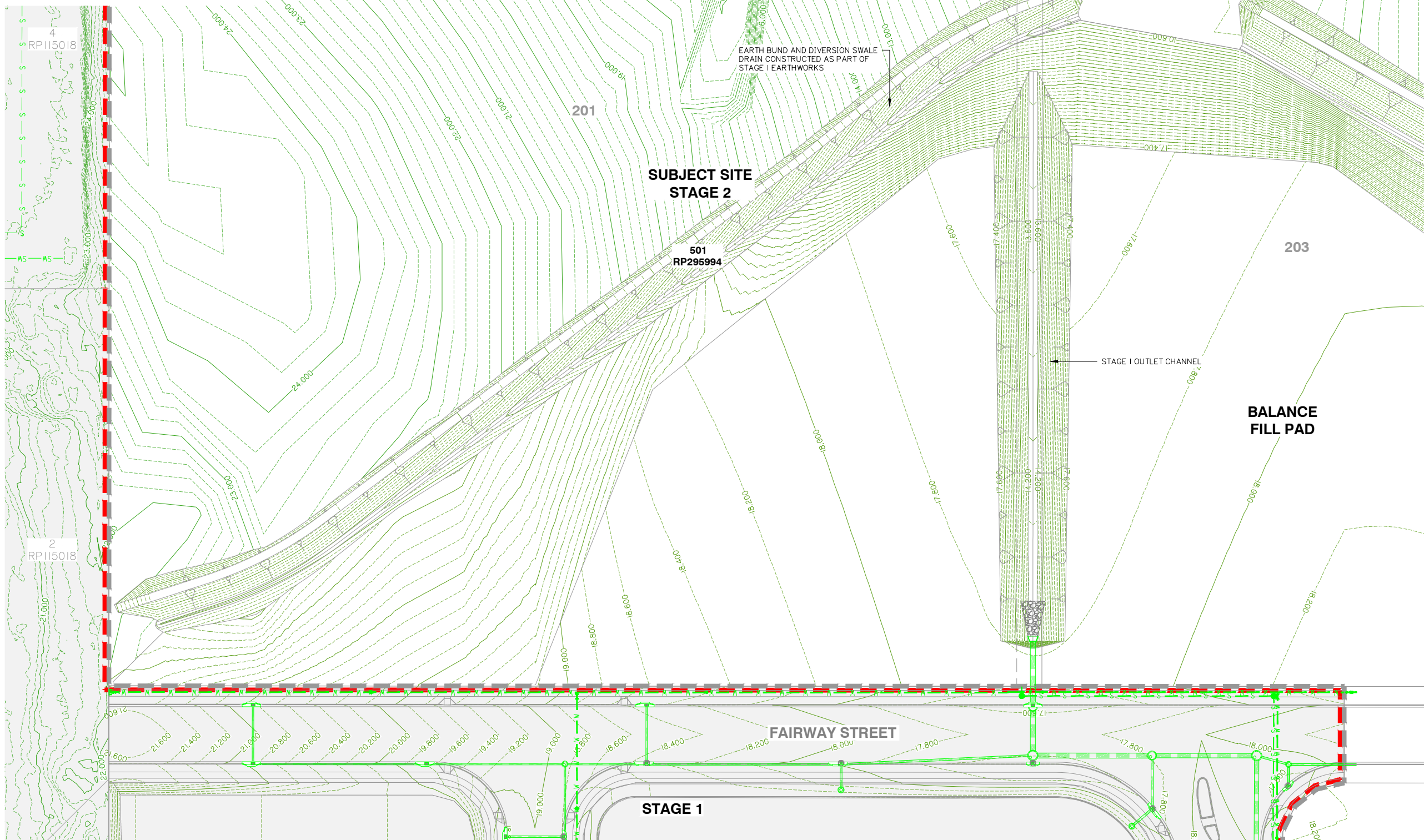
The map displays a topographic site plan with contour lines ranging from 17,000 to 20,000 feet. Key features include:

- STAGE I SEDIMENT BASIN:** Located in the upper left, showing a rectangular structure with internal divisions.
- SUBJECT SITE STAGE 2:** A large, irregularly shaped area in the center, labeled with '204' and '501 RP295994'.
- BALANCE FILL PAD:** A rectangular area on the left side, labeled '201'.
- FAIRWAY STREET:** A road running diagonally across the lower half of the map.
- COMMON PROPERTY:** An area on the right side, labeled '205'.
- ROAD 01:** A road running horizontally across the bottom right.
- STAGE 1:** A small area in the bottom left corner, near the intersection of Fairway Street and Road 01.
- Key Plan:** An inset map in the top right corner showing the site's location within a larger grid of numbered areas (1-9).
- Scale:** 1" = 7500'.
- North Arrow:** Located in the top right corner.
- Earth Bund and Diversion Swale:** A feature labeled 'EARTH BUND AND DIVERSION SWALE DRAIN CONSTRUCTED AS PART OF STAGE I EARTHWORKS'.

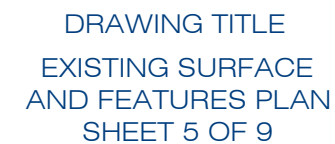


g:\Projects\5941\engineering\Acad\BE2 CGL\Current\5941 ENG BE2 010-018.dwg

Drawing No:	Rev. No:
5941 ENG BE2 013	A



FOR CONTINUATION REFER SHEET No. 594|ENG BE2 012



A	20-11-2020		ORIGINAL ISSUE	BA	MO
Issue Date			(Description)	DNR	CH

A horizontal number line starting at 0 and ending at 50. Major tick marks are labeled at 0, 10, 20, 30, 40, and 50. A dot is placed on the tick mark for 30, and the number 30 is written below the line.

Scale at A1: 1:500

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:	Rev. No:
5941 ENG BE2 014	A



gassman
development
perspectives

est 1985

planning | environment | landscape | engineering | survey

T: 3807 3333 | F: 3267 5461 | www.gassman.com.au

Gold Coast & Logan | 176 Business Street, Yatala QLD | PO Box 392, Beerleigh 4207

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
EXISTING SURFACE
AND FEATURES PLAN
SHEET 6 OF 9

A	20-11-2020	ORIGINAL ISSUE	BA	MG	
Issue	Date	Description	DRN	CHK	

SCALE IN METRES

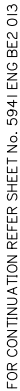


Scale at A1:	1:500
--------------	-------

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 015

Rev. No:
A



FOR CONTINUATION REFER SHEET No. 5941 ENG BE2 017



Project: **VantageYatala**
STAGE 2

Site Address:
60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot:	501
Plan:	SP295994
Local Authority:	CITY OF GOLD COAST COUNCIL
Level Datum:	AHD
Meridian:	-
Contour Interval:	-
PSM:	-
RL:	-

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
EXISTING SURFACE
AND FEATURES PLAN
SHEET 7 OF 9

A	20-11-2020	ORIGINAL ISSUE		BA	MG
Issue	Date	Description		DRN	CHK

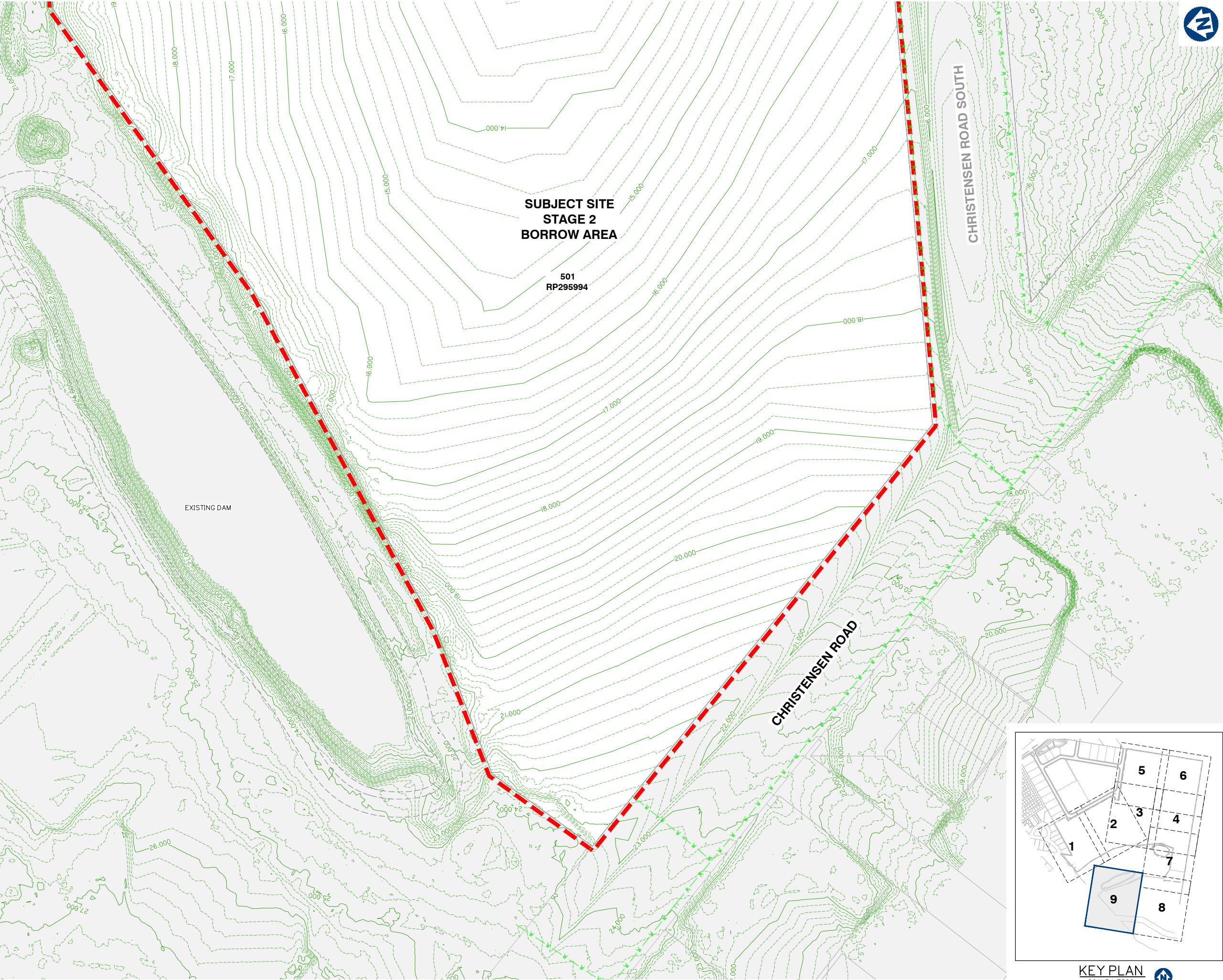
SCALE IN METRES



Scale at A1: 1:500

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:	Rev. No:
5941 ENG BE2 016	A



planning | environment | landscape | engineering | survey
T: 3807 3333 | F: 3287 5461 | www.gassman.com.au
Gold Coast & Logan | 76 Business Street, Yatala QLD | PO Box 392, Beerleigh 4207

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

©2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
EXISTING SURFACE AND
FEATURES PLAN SHEET
9 OF 9

Issue	Date	Original Issue Description	BA DRN	MG CHK
-------	------	----------------------------	--------	--------

SCALE IN METRES



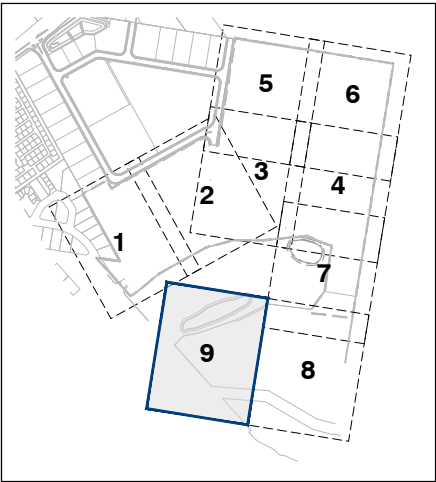
1:500 (FULL SIZE A1)
1:1000 (HALF SIZE A3)

Scale at A1: 1:500

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

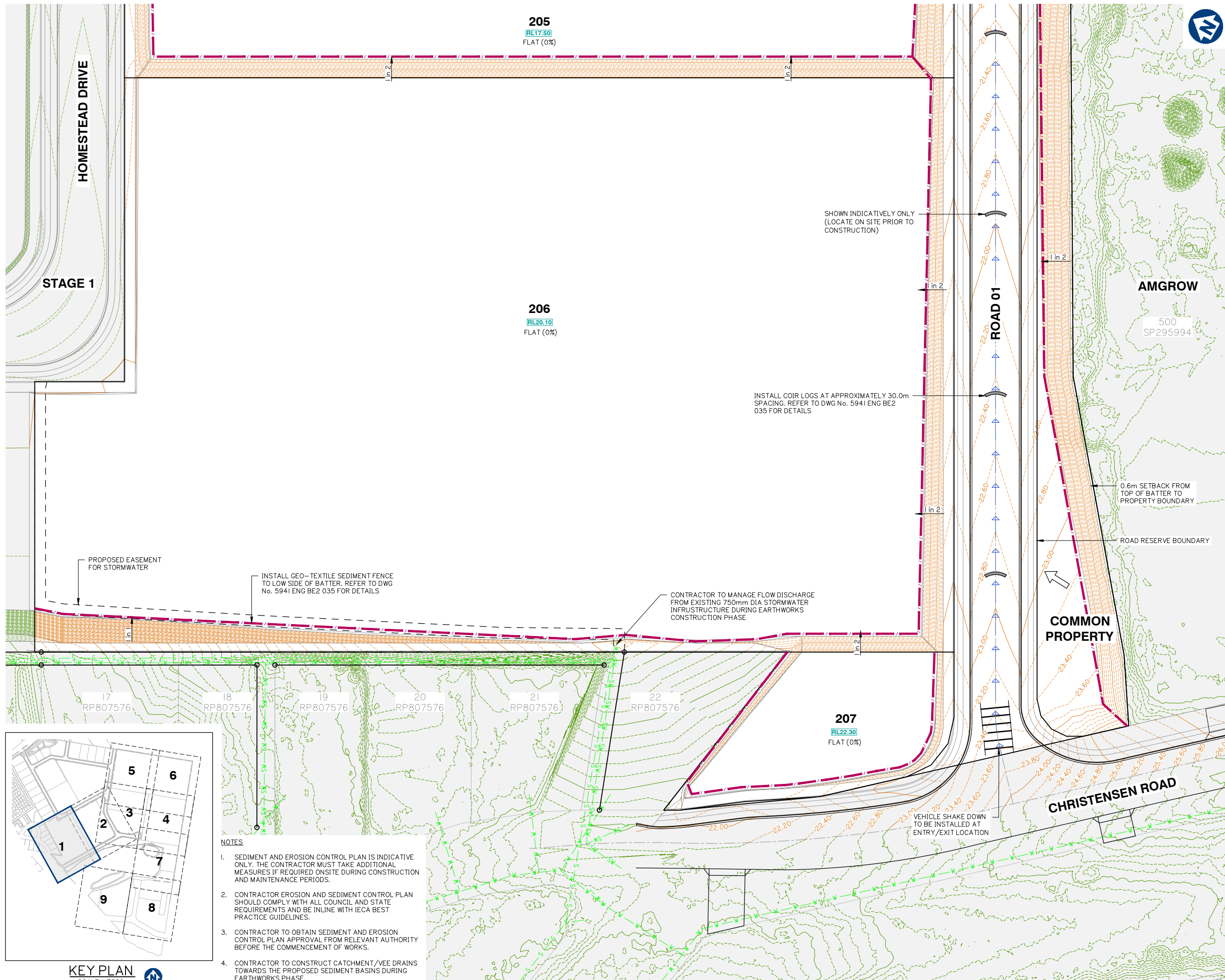
Drawing No:
5941 ENG BE2 018

Rev. No:
A



KEY PLAN
SCALE 1: 7500





Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

SEDIMENT AND
EROSION CONTROL
PLAN SHEET 1 OF 9

[illegible]

SCALE IN METRES



1:500 (FULL SIZE A1)
1:1000 (HALF SIZE A3)

Scale at A1: 1:500

Designed:	IG
-----------	----

Drafted:	BA
----------	----

Approved:	MG
-----------	----

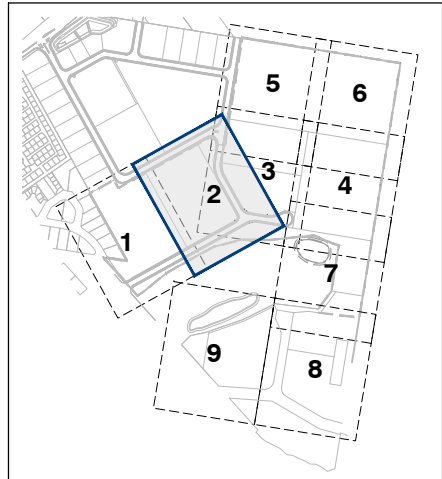
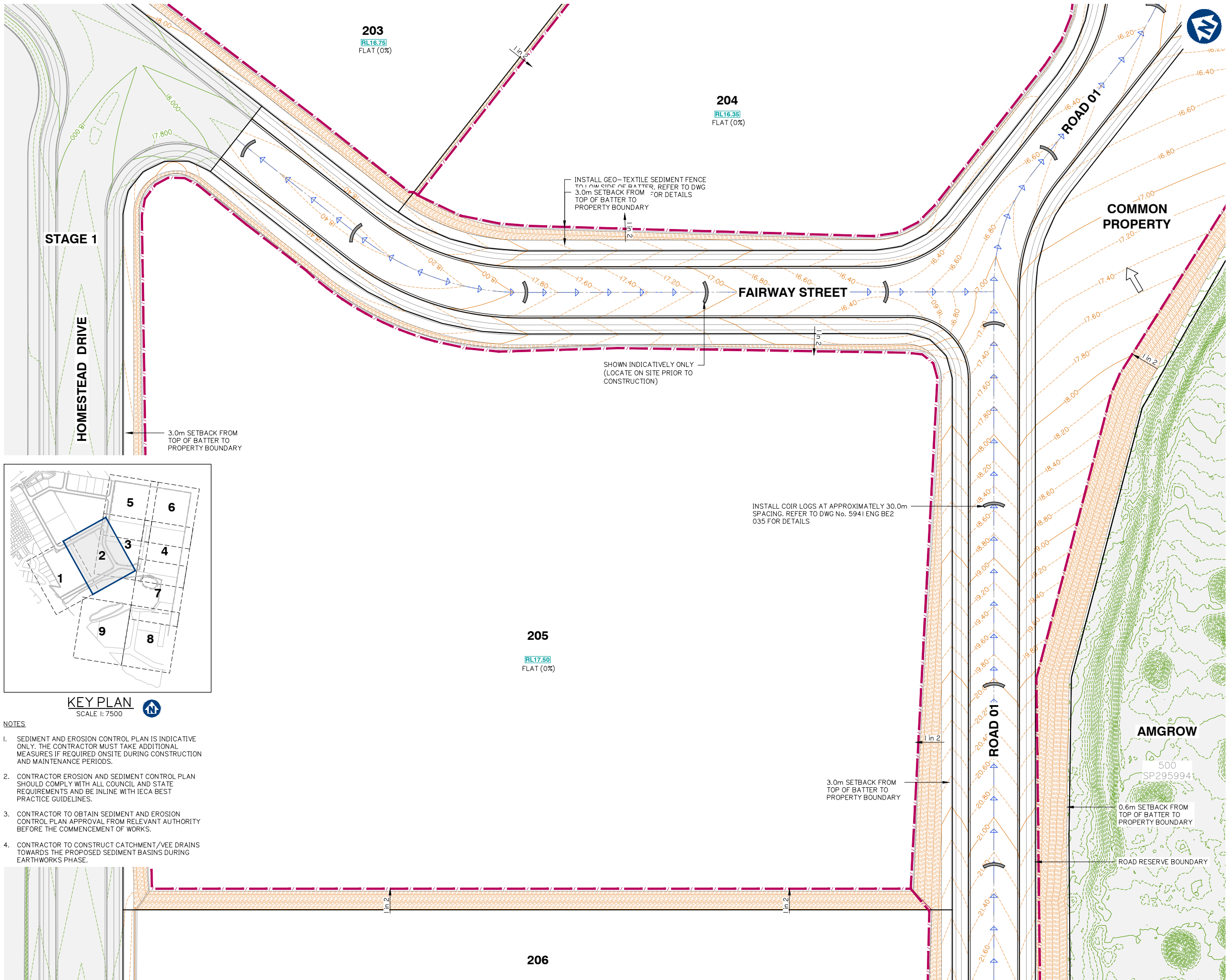
RPEQ:	16939
-------	-------

Signed:	
---------	---

Date:	20-11-2020
-------	------------

Drawing No:
5941 ENG BE2 020

Rev. No:
A



- NOTES
1. SEDIMENT AND EROSION CONTROL PLAN IS INDICATIVE ONLY. THE CONTRACTOR MUST TAKE ADDITIONAL MEASURES IF REQUIRED ONSITE DURING CONSTRUCTION AND MAINTENANCE PERIODS.
 2. CONTRACTOR EROSION AND SEDIMENT CONTROL PLAN SHOULD COMPLY WITH ALL COUNCIL AND STATE REQUIREMENTS AND BE IN LINE WITH IECA BEST PRACTICE GUIDELINES.
 3. CONTRACTOR TO OBTAIN SEDIMENT AND EROSION CONTROL PLAN APPROVAL FROM RELEVANT AUTHORITY BEFORE THE COMMENCEMENT OF WORKS.
 4. CONTRACTOR TO CONSTRUCT CATCHMENT/VEE DRAINS TOWARDS THE PROPOSED SEDIMENT BASINS DURING EARTHWORKS PHASE.

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
SEDIMENT AND
EROSION CONTROL
PLAN SHEET 2 OF 9

Issue	Date	Original Issue Description	BA	MG
-------	------	----------------------------	----	----

SCALE IN METRES



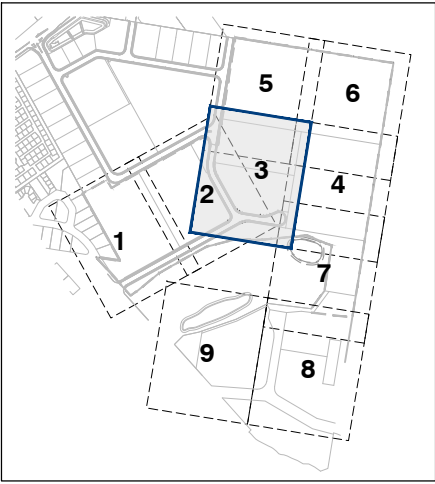
1:500 (FULL SIZE A1)
1:1000 (HALF SIZE A3)

Scale at A1: 1:500

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 021

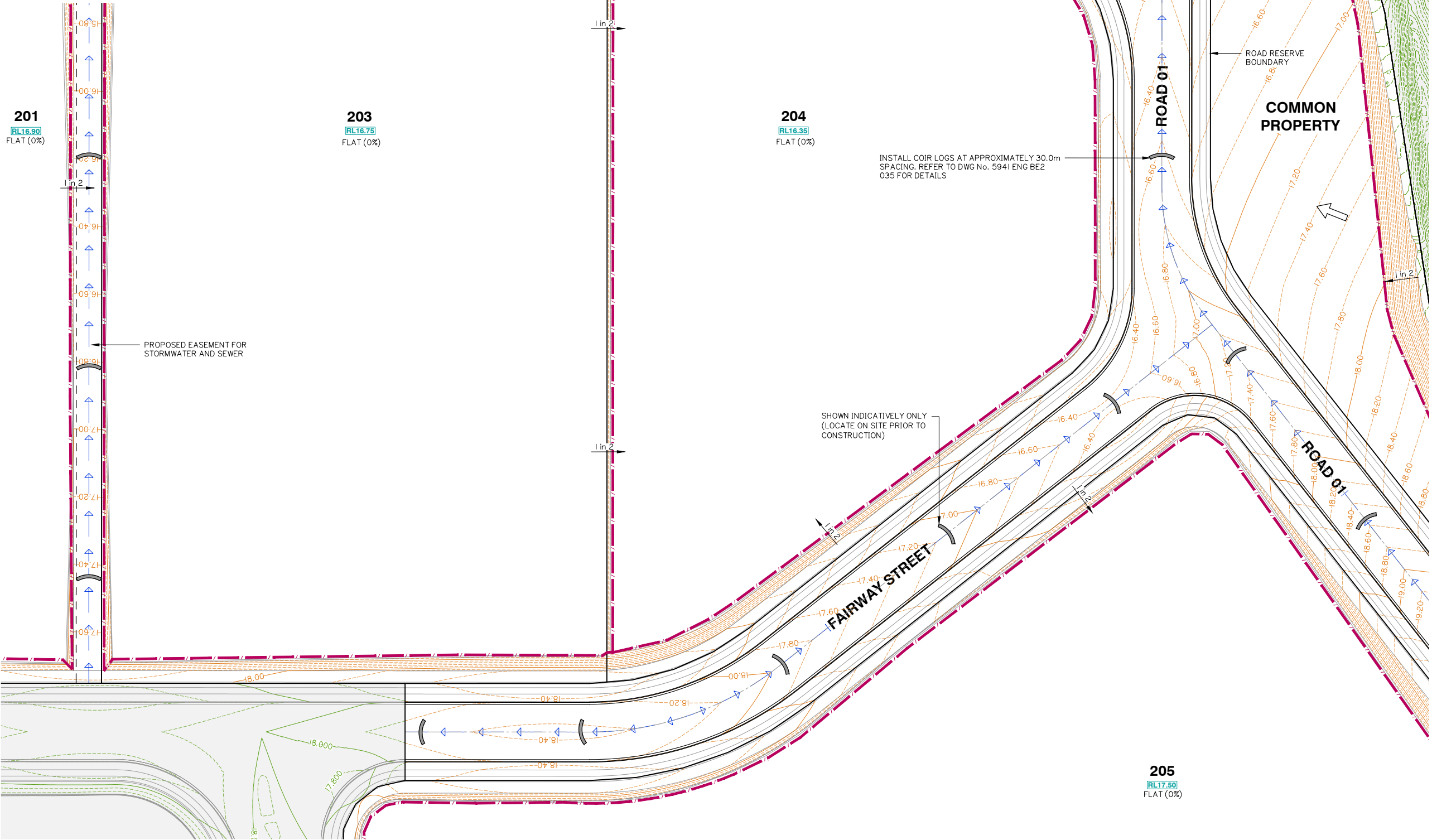
Rev. No:
A



KEY PLAN
SCALE 1: 7500

NOTES

1. SEDIMENT AND EROSION CONTROL PLAN IS INDICATIVE ONLY. THE CONTRACTOR MUST TAKE ADDITIONAL MEASURES IF REQUIRED ONSITE DURING CONSTRUCTION AND MAINTENANCE PERIODS.
2. CONTRACTOR EROSION AND SEDIMENT CONTROL PLAN SHOULD COMPLY WITH ALL COUNCIL AND STATE REQUIREMENTS AND BE IN LINE WITH IECA BEST PRACTICE GUIDELINES.
3. CONTRACTOR TO OBTAIN SEDIMENT AND EROSION CONTROL PLAN APPROVAL FROM RELEVANT AUTHORITY BEFORE THE COMMENCEMENT OF WORKS.
4. CONTRACTOR TO CONSTRUCT CATCHMENT / VEE DRAINS TOWARDS THE PROPOSED SEDIMENT BASINS DURING EARTHWORKS PHASE.



Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

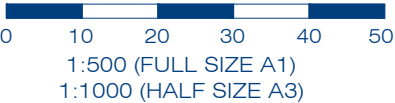
© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
SEDIMENT AND
EROSION CONTROL
PLAN SHEET 3 OF 9

Issue	Date	Original Issue Description	BA DRN	MG CHK
A	20-11-2020	ORIGINAL ISSUE	BA	MG

SCALE IN METRES



Scale at A1: 1:500

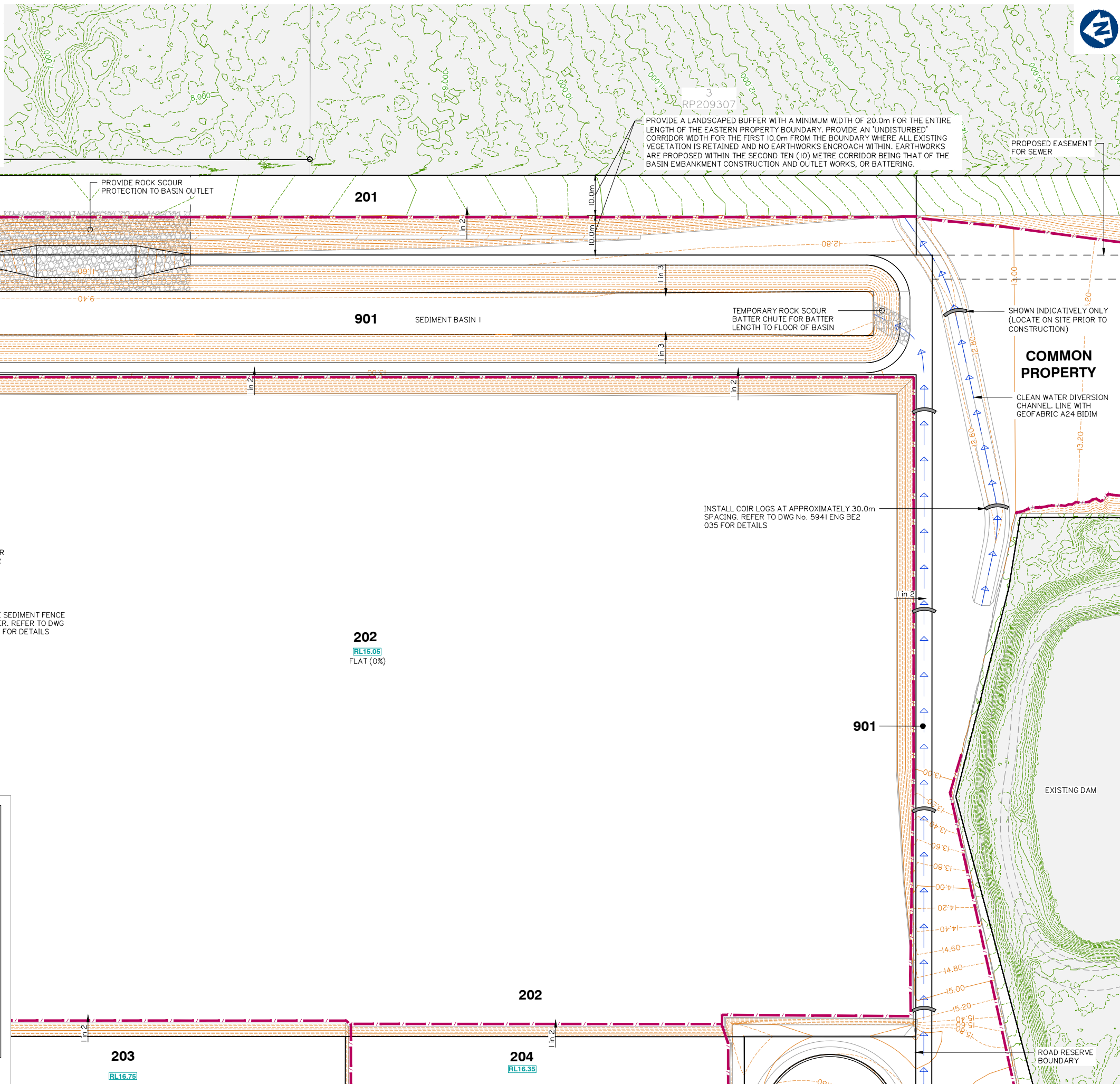
Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 022

Rev. No:
A

NOTES

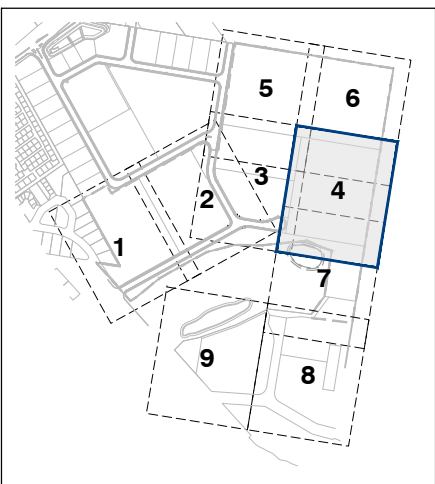
1. SEDIMENT AND EROSION CONTROL PLAN IS INDICATIVE ONLY. THE CONTRACTOR MUST TAKE ADDITIONAL MEASURES IF REQUIRED ONSITE DURING CONSTRUCTION AND MAINTENANCE PERIODS.
2. CONTRACTOR EROSION AND SEDIMENT CONTROL PLAN SHOULD COMPLY WITH ALL COUNCIL AND STATE REQUIREMENTS AND BE IN LINE WITH IECA BEST PRACTICE GUIDELINES.
3. CONTRACTOR TO OBTAIN SEDIMENT AND EROSION CONTROL PLAN APPROVAL FROM RELEVANT AUTHORITY BEFORE THE COMMENCEMENT OF WORKS.
4. CONTRACTOR TO CONSTRUCT CATCHMENT/VEE DRAINS TOWARDS THE PROPOSED SEDIMENT BASINS DURING EARTHWORKS PHASE.



FOR CONTINUATION REFER SHEET No. 5941 ENG BE2 025

FOR CONTINUATION REFER SHEET No. 5941 ENG BE2 026

FOR CONTINUATION REFER SHEET No. 5941 ENG BE2 022



KEY PLAN
SCALE 1:7500

SEDIMENT AND EROSION CONTROL PLAN SHEET 4 OF 9



planning | environment | landscape | engineering | survey
T: 3807 3333 | F: 3287 5461 | www.gassman.com.au
Gold Coast & Logan | 76 Business Street, Yatala QLD | PO Box 392, Beerleigh 4207

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
SEDIMENT AND
EROSION CONTROL
PLAN SHEET 4 OF 9

Issue	Date	Description	BA	MG
A	20-11-2020	ORIGINAL ISSUE	BA	MG

SCALE IN METRES



1:500 (FULL SIZE A1)
1:1000 (HALF SIZE A3)

Scale at A1: 1:500

Designed: IG

Drafted: BA

Approved: MG

RPEQ: 16939

Signed:

Date: 20-11-2020

Drawing No:
5941 ENG BE2 023

Rev. No:
A



VantageYatala
STAGE 2

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

Lot:	501
Plan:	SP295994
Local Authority:	CITY OF GOLD COAST COUNCIL
Level Datum:	AHD
Meridian:	-
Contour Interval:	-
PSM:	-
RL:	-

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

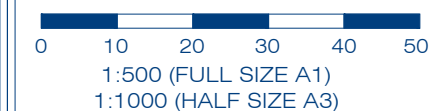
© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
SEDIMENT AND
EROSION CONTROL
PLAN SHEET 5 OF 9

A	20-11-2020		ORIGINAL ISSUE	BA	MG
Issue	Date		Description	DRN	CHI

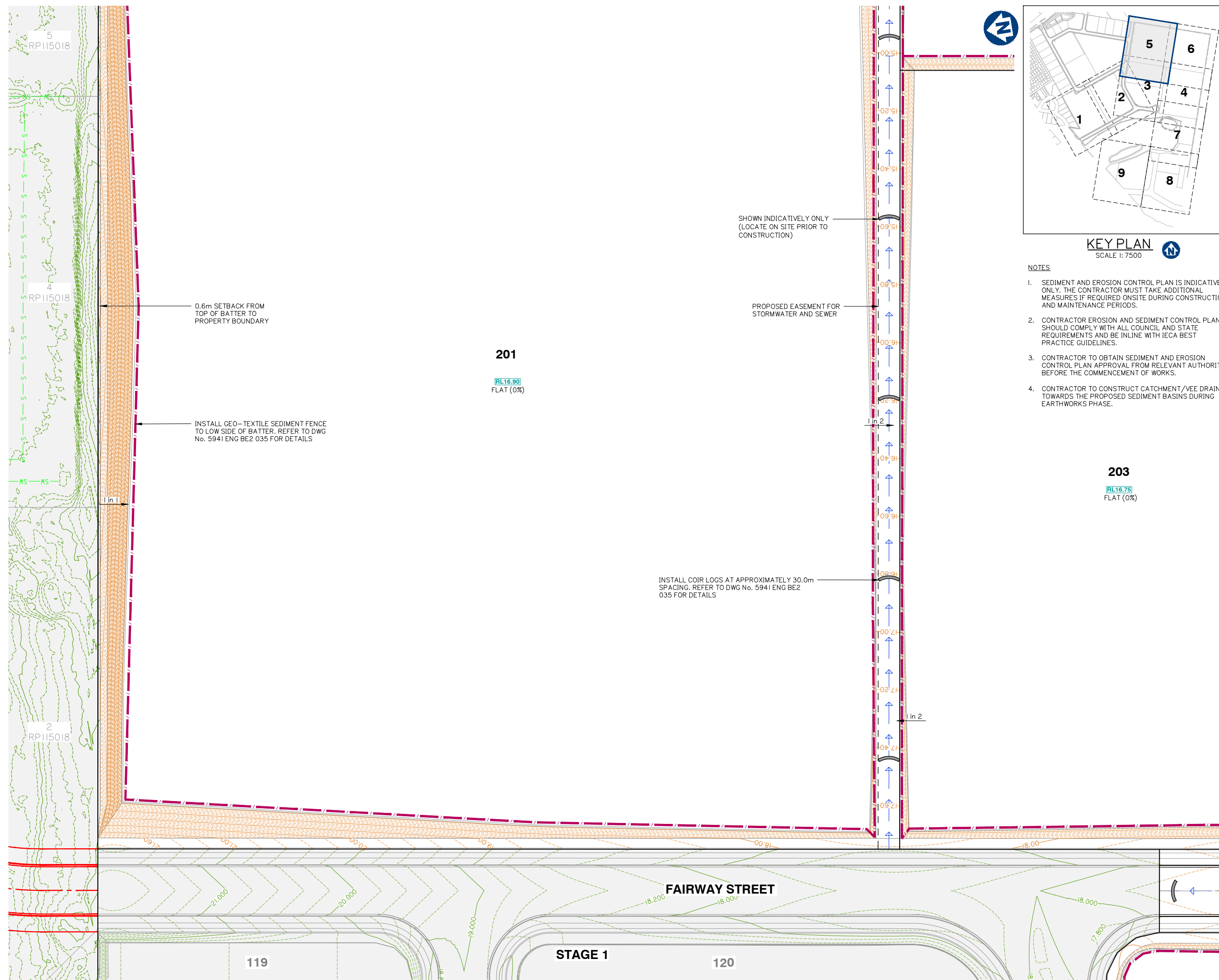
SCALE IN METRES

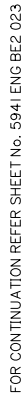


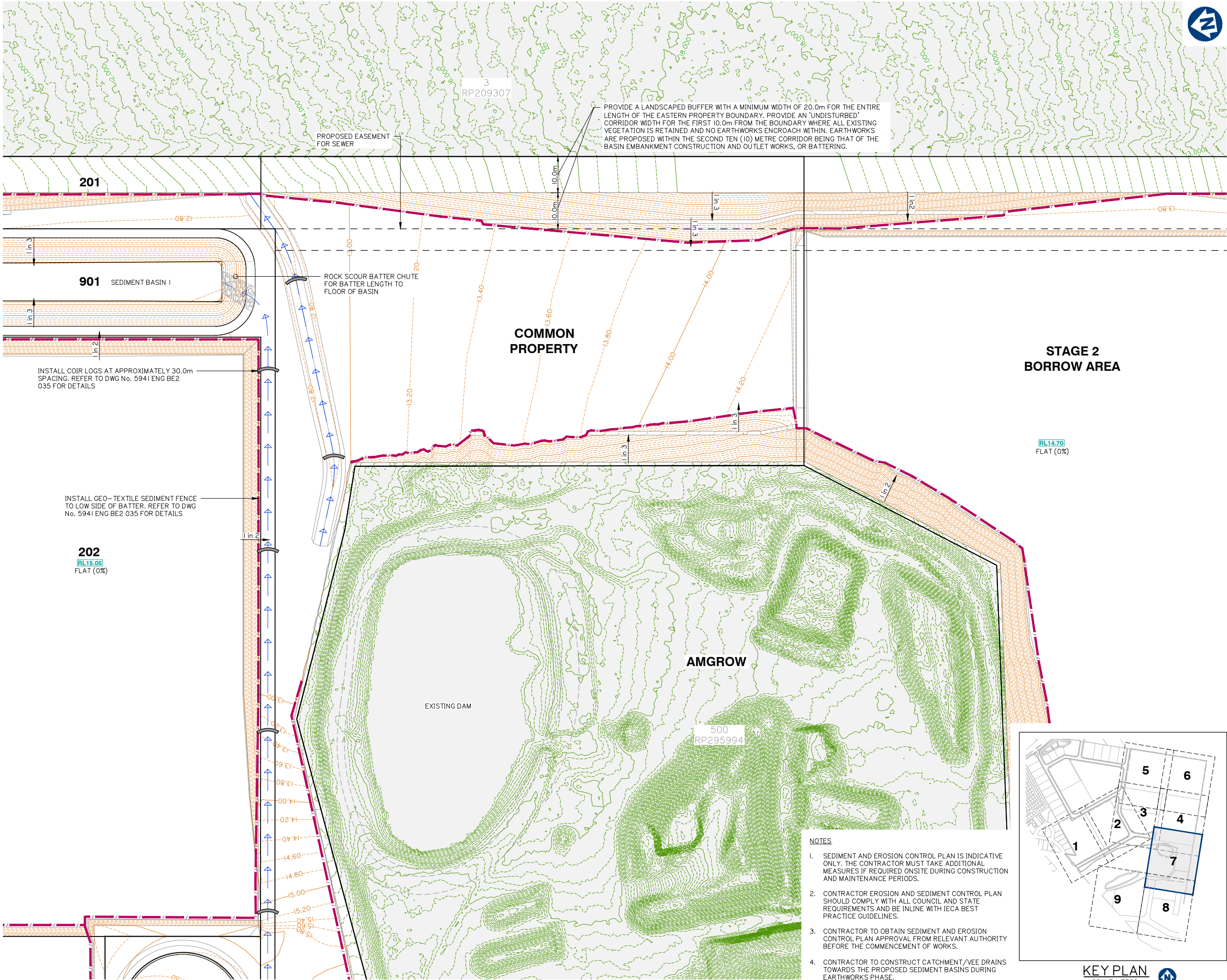
Scale at A1: 1:500

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:	Rev. No:
5941 ENG BE2 024	A





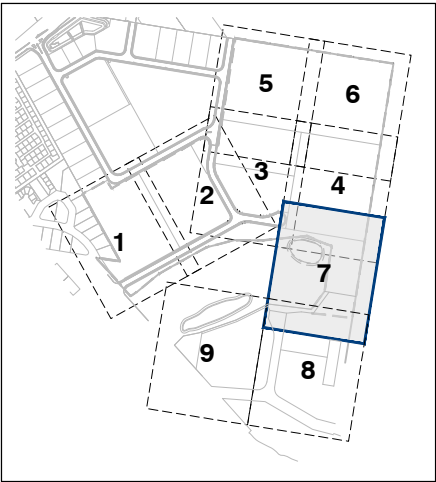


FOR CONTINUATION REFER SHEET No. 5941 ENG BE2 023

FOR CONTINUATION REFER SHEET No. 5941 ENG BE2 027

NOTES

1. SEDIMENT AND EROSION CONTROL PLAN IS INDICATIVE ONLY. THE CONTRACTOR MUST TAKE ADDITIONAL MEASURES IF REQUIRED ONSITE DURING CONSTRUCTION AND MAINTENANCE PERIODS.
2. CONTRACTOR EROSION AND SEDIMENT CONTROL PLAN SHOULD COMPLY WITH ALL COUNCIL AND STATE REQUIREMENTS AND BE IN LINE WITH IECA BEST PRACTICE GUIDELINES.
3. CONTRACTOR TO OBTAIN SEDIMENT AND EROSION CONTROL PLAN APPROVAL FROM RELEVANT AUTHORITY BEFORE THE COMMENCEMENT OF WORKS.
4. CONTRACTOR TO CONSTRUCT CATCHMENT/VEE DRAINS TOWARDS THE PROPOSED SEDIMENT BASINS DURING EARTHWORKS PHASE.



KEY PLAN
SCALE 1:7500

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

©2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
SEDIMENT AND
EROSION CONTROL
PLAN SHEET 7 OF 9

Issue	Date	Original Issue Description	BA DRN	MG CHK
A	20-11-2020			

SCALE IN METRES



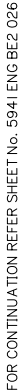
1:500 (FULL SIZE A1)
1:1000 (HALF SIZE A3)

Scale at A1: 1:500

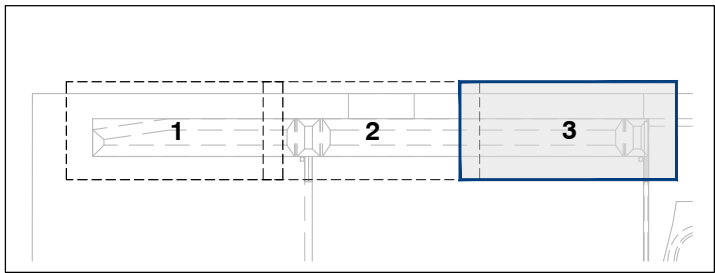
Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 026

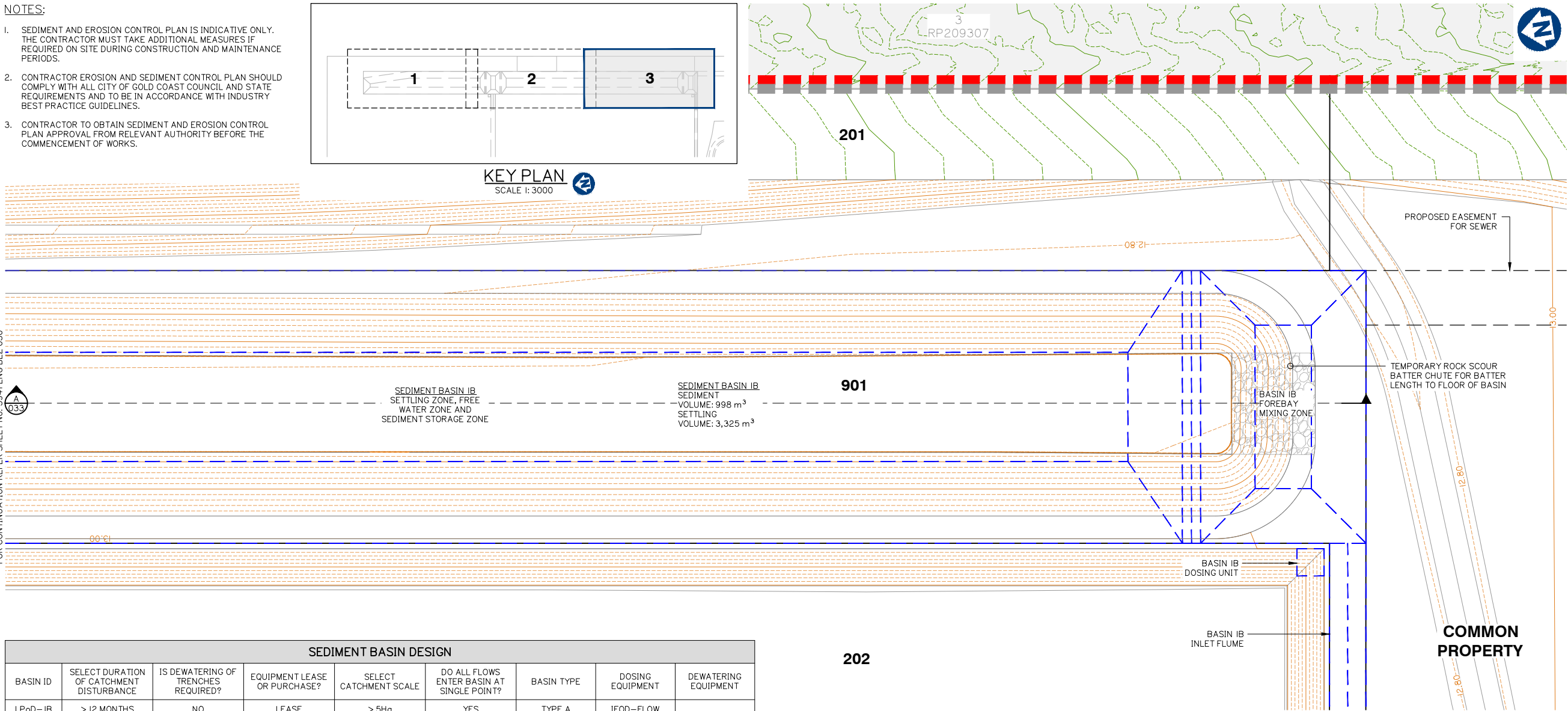
Rev. No:
A



1. SEDIMENT AND EROSION CONTROL PLAN IS INDICATIVE ONLY. THE CONTRACTOR MUST TAKE ADDITIONAL MEASURES IF REQUIRED ON SITE DURING CONSTRUCTION AND MAINTENANCE PERIODS.
2. CONTRACTOR EROSION AND SEDIMENT CONTROL PLAN SHOULD COMPLY WITH ALL CITY OF GOLD COAST COUNCIL AND STATE REQUIREMENTS AND TO BE IN ACCORDANCE WITH INDUSTRY BEST PRACTICE GUIDELINES.
3. CONTRACTOR TO OBTAIN SEDIMENT AND EROSION CONTROL PLAN APPROVAL FROM RELEVANT AUTHORITY BEFORE THE COMMENCEMENT OF WORKS.



KEY PLAN
SCALE 1:3000



SEDIMENT BASIN DESIGN								
BASIN ID	SELECT DURATION OF CATCHMENT DISTURBANCE	IS DEWATERING OF TRENCHES REQUIRED?	EQUIPMENT LEASE OR PURCHASE?	SELECT CATCHMENT SCALE	DO ALL FLOWS ENTER BASIN AT SINGLE POINT?	BASIN TYPE	DOSING EQUIPMENT	DEWATERING EQUIPMENT
LPoD-IB	> 12 MONTHS	NO	LEASE	> 5Ha	YES	TYPE A	IFOD-FLOW	

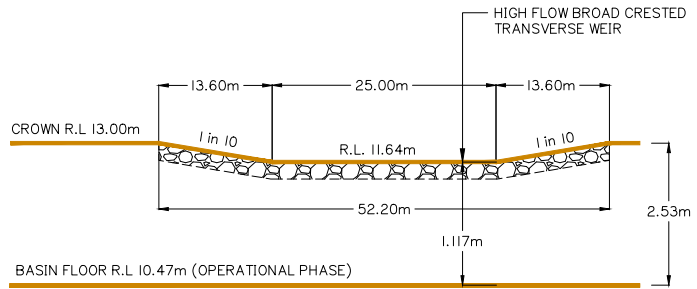
BASIN ID	CATCHMENT AREA	DESIGN EVENT	$I_{x \text{ yr}, 24 \text{ hr}}$	WATER TEMPERATURE	K_s	SETTLING ZONE DEPTH (D_s)	W: L	OPTIMUM LOW-FLOW DECAT RATE	SELECTED LOW-FLOW DECAT RATE (Q_A)	MIN SETTLING ZONE VOLUME (Min V_s)	MIN SETTLING ZONE SURFACE AREA (Min A_s)	LIMITING CRITERIA
	(Ha)	(1:X YEARS)	(mm/hr)	(°C)	(s/m)	(m)	(1:X)	(L/s/Ha)	(L/s/Ha)	(m³)	(m²)	
LPoD-IB	13.352	I	4.53	20	11150	1.82	3.1	9	9	3325	1358	VOLUME

	SETTLING ZONE				FREE WATER ZONE		SEDIMENT STORAGE ZONE		OVERALL DIMENSIONS RELATIVE TO SPILLWAY CREST (EXCL. FOREBAY)			
BASIN ID	ACTUAL SETTLING ZONE VOLUME (V _s)	ACTUAL SETTLING ZONE AREA (A _s)	SCOUR VELOCITY	DEPTH OF FREE WATER ZONE	VOLUME OF FREE WATER ZONE	SEDIMENT STORAGE VOLUME	SEDIMENT STORAGE DEPTH (APPROX.)	BATTER	WIDTH	LENGTH	DEPTH	
	(m³)	(m²)	(m/s)	(m)	(m³)	(m³)	(m)	(1: X)	(m)	(m)	(m)	
LPoD—IB	3325	1827	0.008	0.35	333	998	0.83	3	29.74	92.19	3.00	

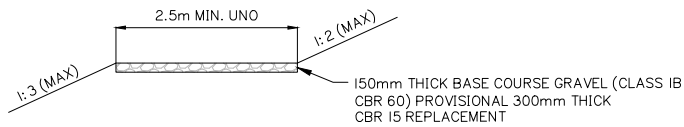
	SPILLWAY										
BASIN ID	BASIN DESIGN LIFE	DESIGN ARI	C _{io}	C	t _c	I	Q	HEAD OVER SPILLWAY	SPILLWAY CREST LENGTH	SPILLWAY CREST RL	MIN EMBANKMENT RL
		yr				(mm/hr)	(m ³ /s)	(m)	(m)	(m)	(m)
LPoD—IB	> 12 MONTHS	1: 50	0.80	0.92	25.00	143.00	4.95	0.20	25.00	11.64	12.29

	Flow Rate		Flume Design Parameters				Velocity Check			Output Parameters		
Basin ID	Basin Design Flow (m³/s)	Flume Design Flow (m³/s)	Base Width (m)	Slide Slope (1:x)	Longitudinal Slope (m/m)	Flume Lining	Max Allowable Velocity (m/s)	Mannings Roughness	Velocity (m/s)	Flow Depth (m)	Flume Depth (m)	Calculated Flow (m³/s)
			b	x	s					d	y	
LPoD—IB	4.95	7.43	4.00	2.00	0.01	Concrete	5.00	0.013	3.817	0.42	0.57	7.76

BASIN ID	SETTLING ZONE (incl. sediment storage)				FOREBAY				HYDRAULIC CONTROLS						
	VOLUME (m³)	LENGTH (m)	WIDTH (m)	DEPTH (m)	VOLUME (m³)	LENGTH (m)	WIDTH (m)	DEPTH (m)	SPILLWAY CREST LENGTH (m)	SPILLWAY CREST (RL)	EMBANKMENT (RL)	CREST (RL)	FLUME BASE WIDTH (m)	FLUME BATTERS (X:1)	FLUME DEPTH (m)
LPoD-IB	4323.1	92.2	29.7	3.00	822.44	9.2	29.7	3.00	25.0	11.64	12.29	11.84	4.0	2.0	0.6



WEIR / SPILLWAY – TYPICAL ELEVATION
N.T.S



MAINTENANCE ACCESS TRACK – TYPICAL SECTION



planning | environment | landscape | engineering | survey
T: 3807 3333 | F: 3287 5461 | www.gassman.com.au
Gold Coast & Logan | 76 Business Street, Yatala QLD | PO Box 392, Beenleigh 4207

Client:



FRASERS PROPERTY
AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

CONSTRUCTION PHASE
SEDIMENT BASIN 1
LAYOUT SHEET 3 OF 4

A Issue	20-11-2020 Date	ORIGINAL ISSUE Description	BA DRN	MG CHK

SCALE IN METRES



1:250 (FULL SIZE A1)
1:500 (HALF SIZE A3)

Scale at A1: 1:250

Designed:	IG
-----------	----

Drafted:	BA
----------	----

Approved:	MG
-----------	----

RPEQ:	16939
-------	-------

Signed:	
---------	---

Date:	20-11-2020
-------	------------

Drawing No:
5941 ENG BE2 031

Rev. No:
A

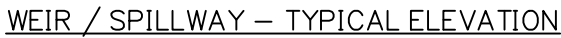
1. SEDIMENT AND EROSION CONTROL PLAN IS INDICATIVE ONLY. THE CONTRACTOR MUST TAKE ADDITIONAL MEASURES IF REQUIRED ON SITE DURING CONSTRUCTION AND MAINTENANCE PERIODS.
2. CONTRACTOR EROSION AND SEDIMENT CONTROL PLAN SHOULD COMPLY WITH ALL CITY OF GOLD COAST COUNCIL AND STATE REQUIREMENTS AND TO BE IN ACCORDANCE WITH INDUSTRY BEST PRACTICE GUIDELINES.
3. CONTRACTOR TO OBTAIN SEDIMENT AND EROSION CONTROL PLAN APPROVAL FROM RELEVANT AUTHORITY BEFORE THE COMMENCEMENT OF WORKS.



BASIN ID	CATCHMENT AREA	DESIGN EVENT	$I_{x\text{ yr}, 24\text{ hr}}$	WATER TEMPERATURE	K_s	SETTLING ZONE DEPTH (D_s)	W: L	OPTIMUM LOW-FLOW DECAT RATE	SELECTED LOW-FLOW DECAT RATE (Q_k)	MIN SETTLING ZONE VOLUME (Min V_s)	MIN SETTLING ZONE SURFACE AREA (Min A_s)	LIMITING CRITERIA
	(Ha)	(1: X YEARS)	(mm/hr)	(°C)	(s/m)	(m)	(1: X)	(L/s/Ha)	(L/s/Ha)	(m³)	(m²)	
LPoD-2	9.904	I	4.53	20	III50	1.76	3	9	9	2434	994	VOLUME

		SPILLWAY									
BASIN ID	BASIN DESIGN LIFE	DESIGN ARI	C ₁₀	C	tc	I	Q	HEAD OVER SPILLWAY	SPILLWAY CREST LENGTH	SPILLWAY CREST RL	MIN EMBANKMENT RL
		yr				(mm/hr)	(m³/s)	(m)	(m)	(m)	(m)
LPoD-2	> 12 MONTHS	1: 50	0.80	0.92	25	143	3.62	0.20	15.0	12.879	13.529

BASIN ID	SETTLING ZONE (incl. sediment storage)				FOREBAY				HYDRAULIC CONTROLS						
	VOLUME (m³)	LENGTH (m)	WIDTH (m)	DEPTH (m)	VOLUME (m³)	LENGTH (m)	WIDTH (m)	DEPTH (m)	SPILLWAY CREST LENGTH (m)	SPILLWAY CREST (RL)	EMBANKMENT (RL)	CREST (RL)	FLUME BASE WIDTH (m)	FLUME BATTERS (X: 1)	FLUME DEPTH (m)
LPoD-2	3164.1	80.3	26.8	3.00	644.01	8.0	26.8	3.00	15.0	12.88	13.53	13.08	3.0	2.0	0.6

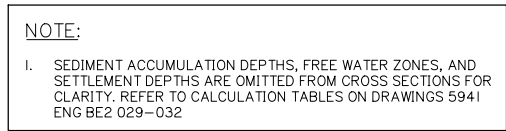
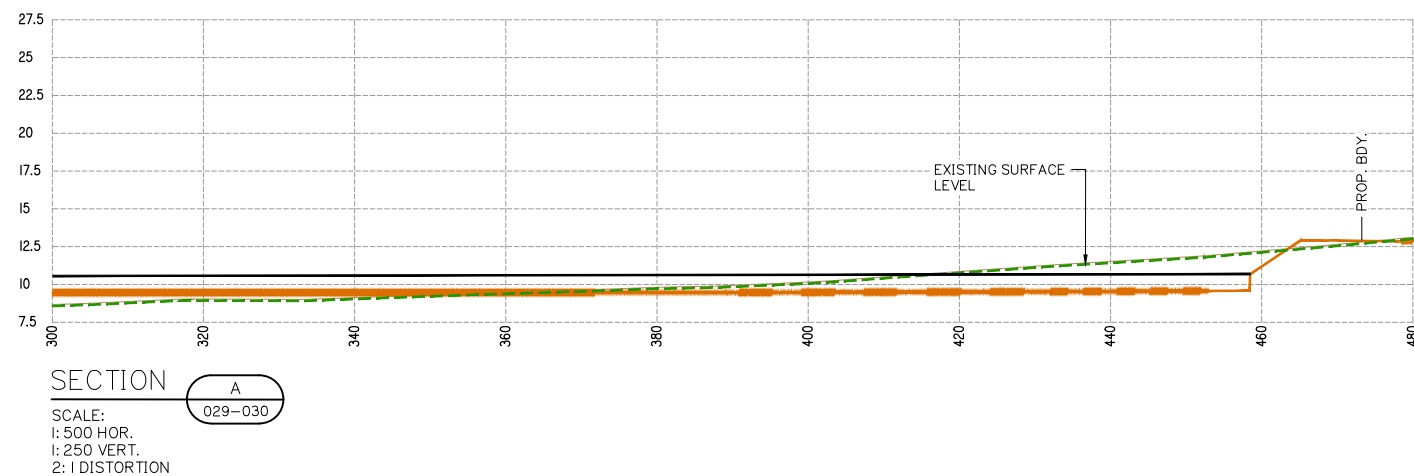
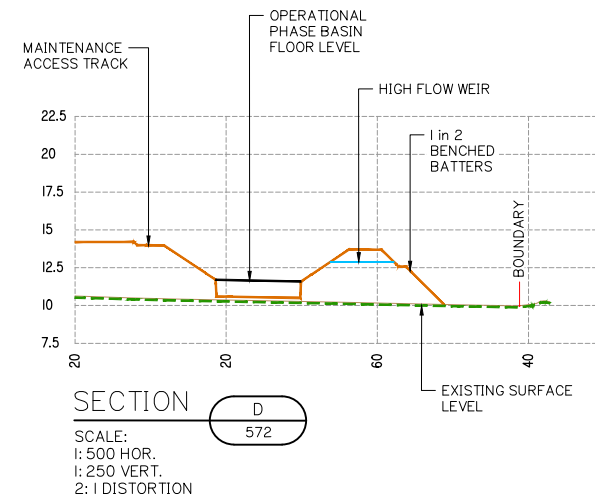


A	20-11-2020	ORIGINAL ISSUE	BA	MIG
Issue	Date	Description	DRN	CHIR

1:250 (FULL SIZE A1)
1:500 (HALF SIZE A3)

Scale at A1: 1:250

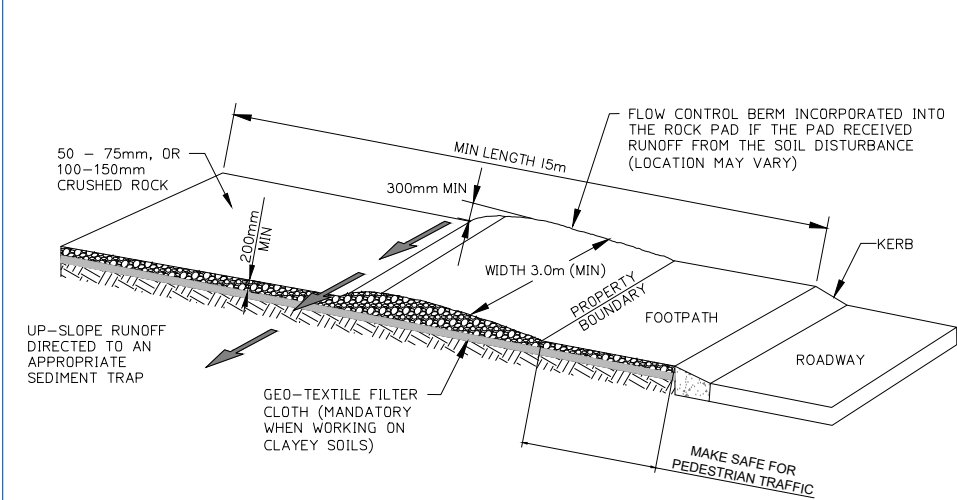
Drawing No:	Rev. No:
5941 ENG BE2 032	A



A	20-11-2020		ORIGINAL ISSUE	BA	MG
Issue	Date		Description	DRN	CHK

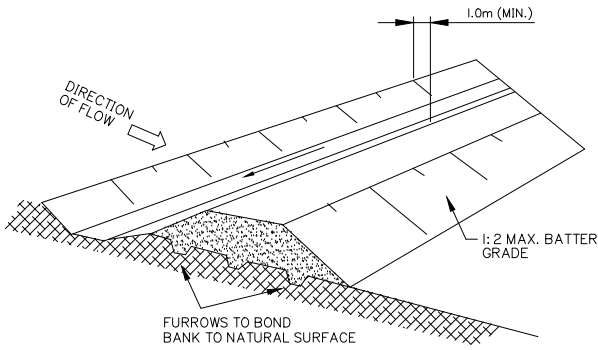


Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020



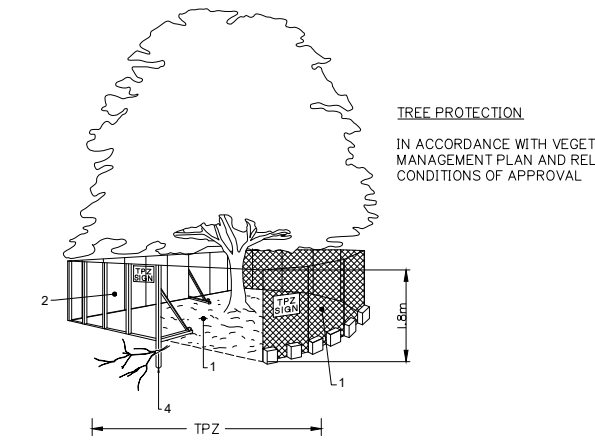
ENTRY/EXIT PAD FOR CONSTRUCTION SITE

NOT TO SCALE



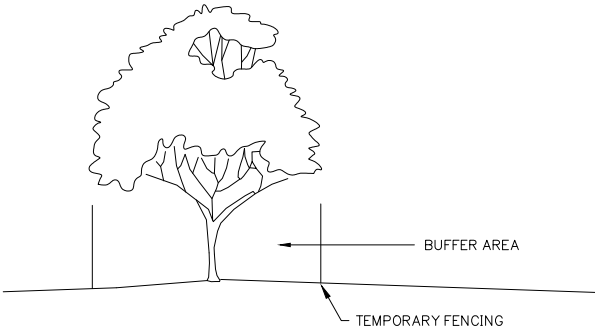
DIVERSION DRAIN

NOT TO SCALE



TREE PROTECTION

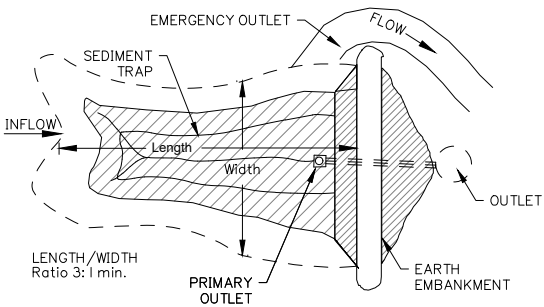
IN ACCORDANCE WITH VEGETATION
MANAGEMENT PLAN AND RELEVANT
CONDITIONS OF APPROVAL



ROCK LINED CHUTE

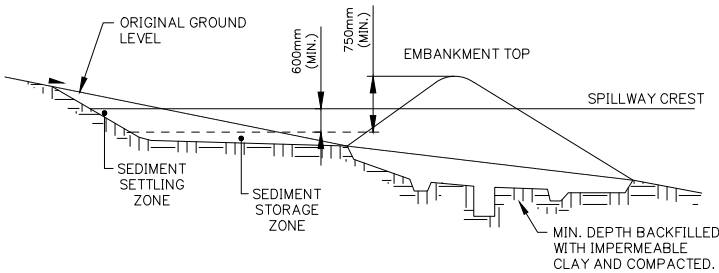
NOT TO SCALE

	W	H	L
TYPE 1	3.5m	0.81m	6.0m
TYPE 2	5.0m	0.90m	8.0m



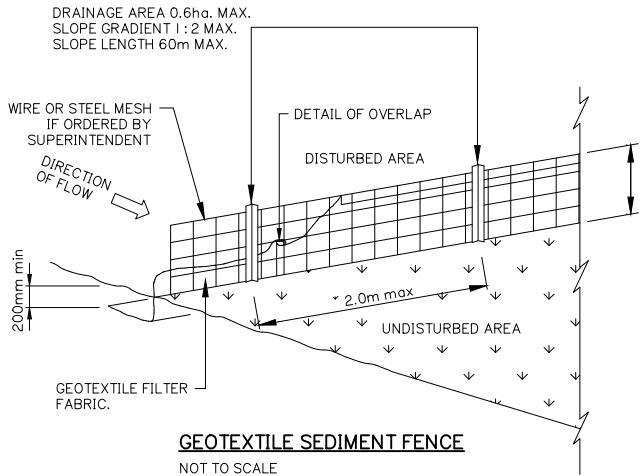
TYPICAL SEDIMENT BASIN

NOT TO SCALE



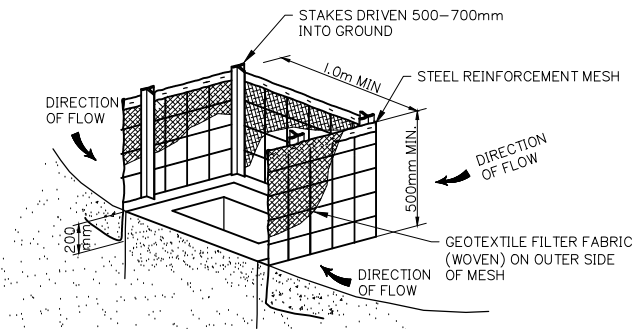
TYPICAL SECTION VEE DRAIN

NOT TO SCALE



GEOTEXTILE SEDIMENT FENCE

NOT TO SCALE



STORMWATER INLET - SEDIMENT TRAP

NOTE:
FOURTH SIDE OF TRAP NOT SHOWN FOR CLARITY

FENCING AS PER AS: 4970

1. CHAIN WIRE MESH PANELS WITH SHADE CLOTH (IF REQUIRED) ATTACHED, HELD IN PLACE WITH CONCRETE FEET.
2. ALTERNATIVE PLYWOOD OR WOODEN PALING FENCE PANELS. THIS FENCING MATERIAL ALSO PREVENTS BUILDING MATERIALS OR SOIL ENTERING THE TPZ.
3. MULCH INSTALLATION ACROSS SURFACE OF TPZ (AT THE DISCRETION OF THE PROJECT ARBORIST.) NO EXCAVATION, CONSTRUCTION ACTIVITY, GRADE CHANGES, SURFACE TREATMENT OR STORAGE OF MATERIALS OF ANY KIND IS PERMITTED WITHIN THE TPZ.
4. BRACING IS PERMITTED WITHIN THE TPZ. INSTALLATION OF SUPPORTS SHOULD AVOID DAMAGING ROOTS.
5. THE CONSTRUCTION CONTRACTOR IS NOT TO UNDERTAKE ANY PRUNING OF TREES. TREE MANAGEMENT IS TO BE UNDERTAKEN BY A SUITABLY QUALIFIED ARBORIST.
6. NO STOCKPILE/S ARE PERMITTED WITHIN THE ZONE OF ANY RETAINED VEGETATION WITHOUT SUPERVISION AND AUTHORIZATION OF THE SUPERVISING ARBORIST.
7. NO CLEARING OF PROTECTED SIZE VEGETATION IS TO OCCUR WITHOUT APPROVAL FROM LOGAN CITY COUNCIL.

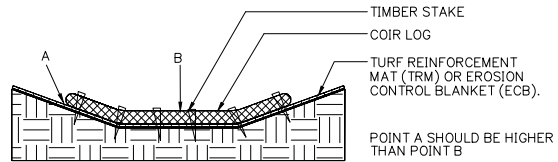
DETERMINING THE TPZ

THE RADIUS OF THE TPZ IS CALCULATED FOR EACH TREE BY MULTIPLYING ITS DBH X 12 = TRUNK DIAMETER MEASURED AT 1.4M ABOVE GROUND. RADIUS IS MEASURED FROM THE CENTRE OF THE STEM AT GROUND LEVEL.

A TPZ SHOULD NOT BE LESS THAN 2M NOR GREATER THAN 15M (EXCEPT WHERE CROWN PROTECTION IS REQUIRED).
THE TPZ OF PALMS, OTHER MONOCOTS, CYCADS AND TREE FERNS SHOULD NOT BE LESS THAN 1M OUTSIDE THE CROWN PROJECTION.

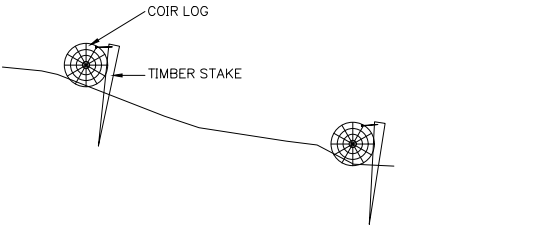
PROTECTIVE FENCING

NOT TO SCALE



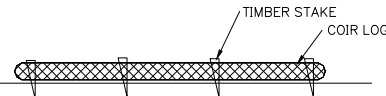
PROPER PLACEMENT OF COIR LOG IN DRAINAGE PATH

NOT TO SCALE



COIR LOG AND TIMBER STAKES STABILISING SLOPE

NOT TO SCALE



PROPER PLACEMENT OF COIR LOG IN SLOPE

NOT TO SCALE

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

©2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

SEDIMENT AND EROSION
TYPICAL DETAILS

A	20-11-2020	ORIGINAL ISSUE	BA	MG
Issue	Date	Description	DRN	CHK

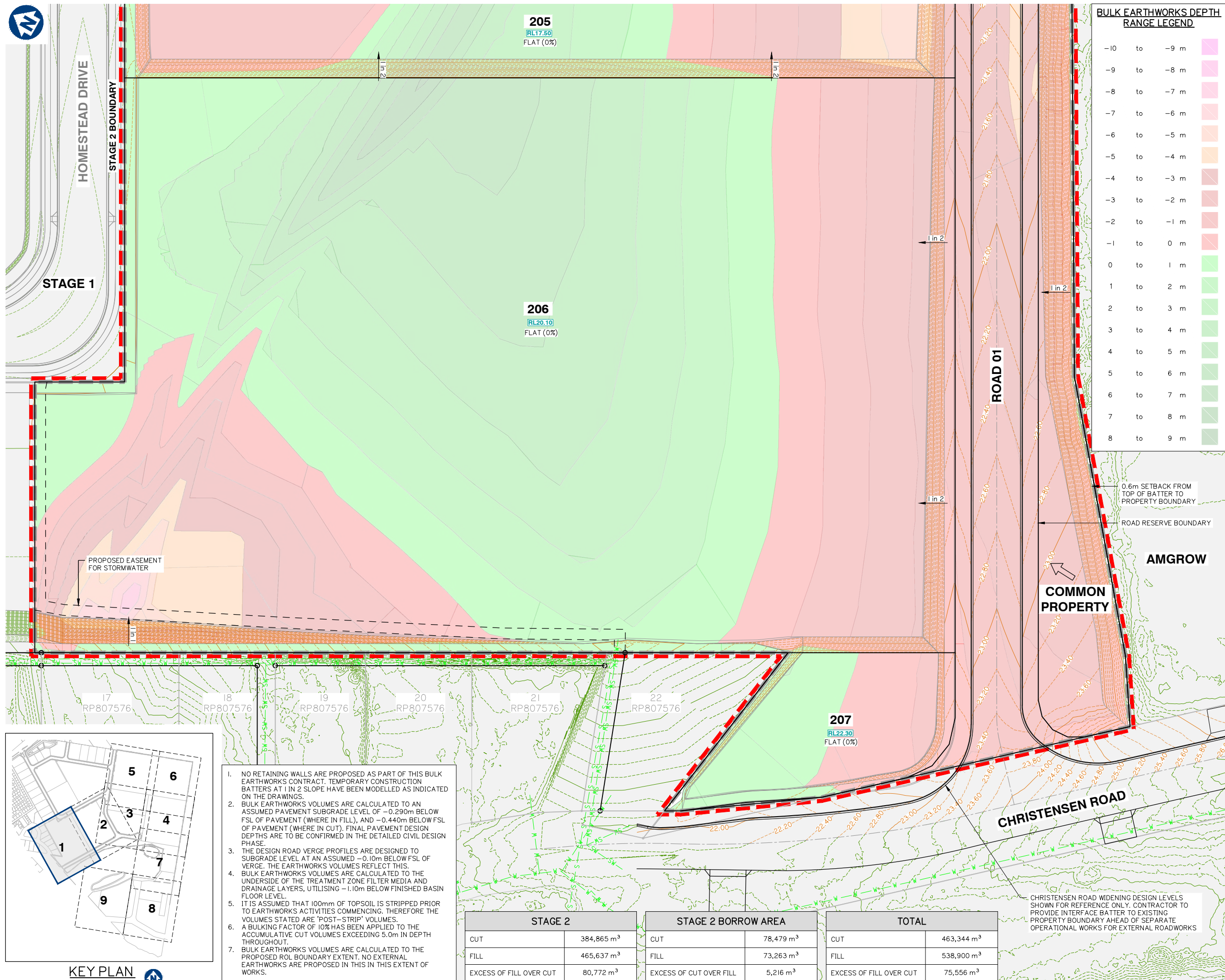
SCALE IN METRES

0 200 400 600 800 1000
1:10000 (FULL SIZE A1)
1:20000 (HALF SIZE A3)

Scale at A1: 1:XXXX

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No: 5941 ENG BE2 035
Rev. No: A



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project: **VantageYatala**
STAGE 2

Site Address:
60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

BULK EARTHWORKS
LAYOUT PLAN SHEET 1 OF 9

A	20-11-2020	ORIGINAL ISSUE	BA	MQ	
(issue)	Date	Description	R/N	C/HK	

SCALE IN METRES



1:500 (FULL SIZE A1)
1:1000 (HALF SIZE A3)

Scale at A1:	1:500
--------------	-------

Designed:	IG
-----------	----

Drafted:	BA
----------	----

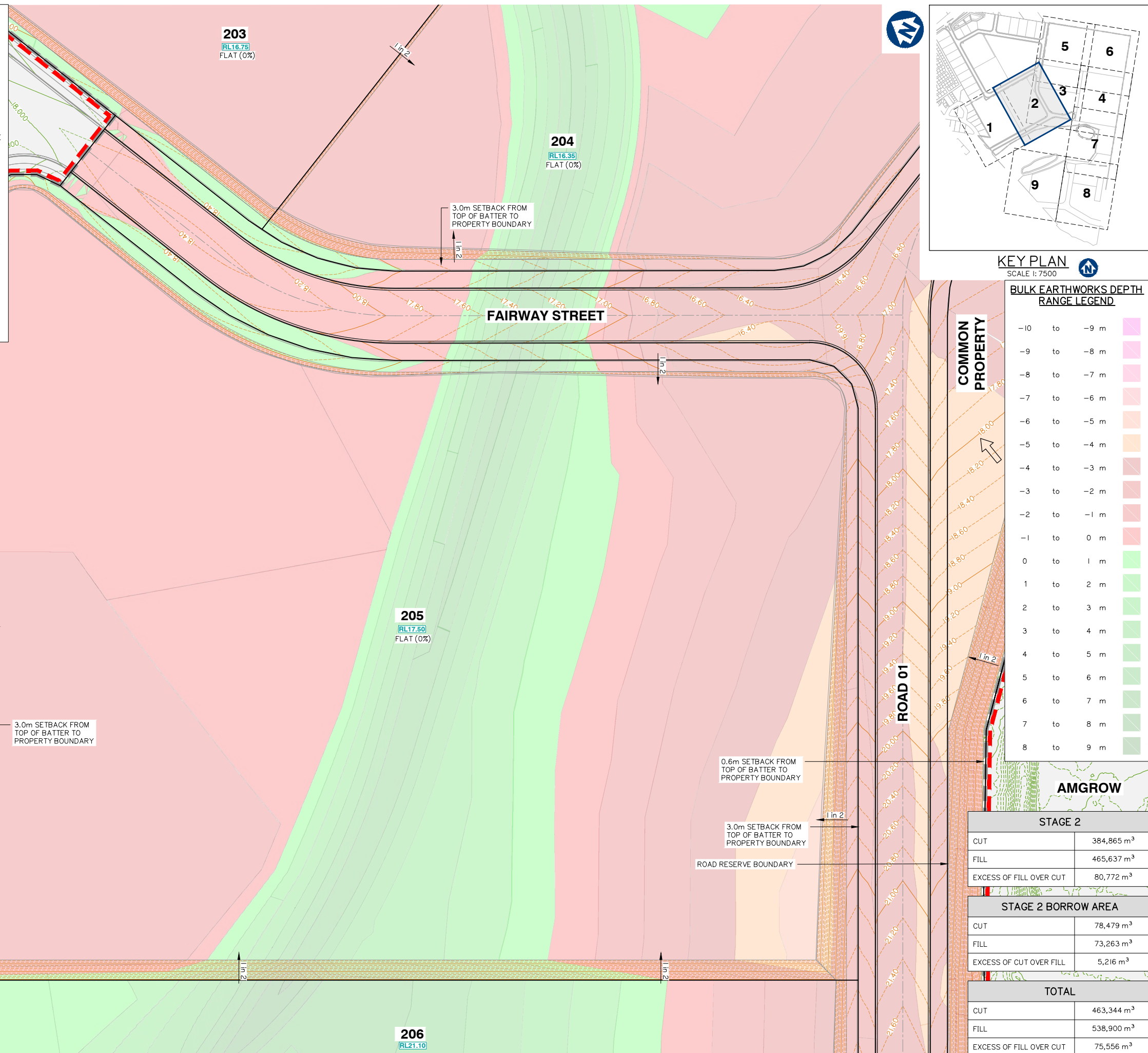
Approved:	MG
-----------	----

RPEQ:	16939
-------	-------

Signed:	
---------	--

Date:	20-11-2020
-------	------------

Drawing No:	Rev. No:
5941 ENG BE2 050	A

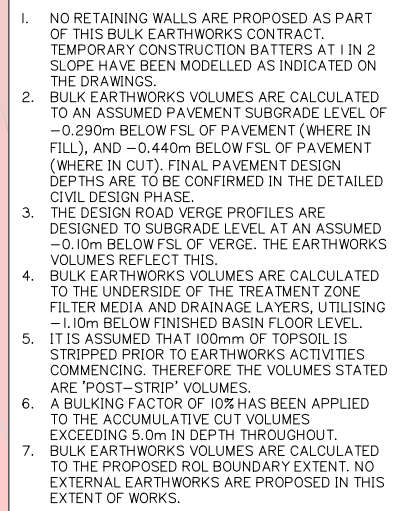


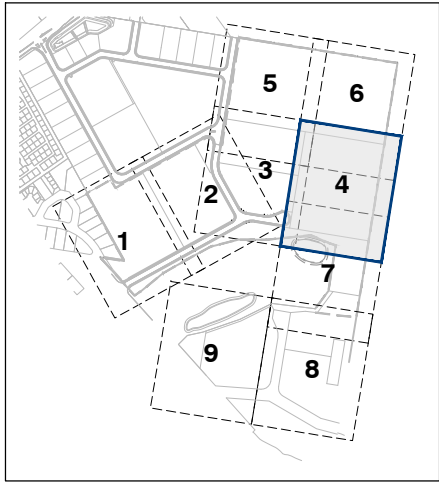


STAGE 2	
CUT	384,865 m ³
FILL	465,637 m ³
EXCESS OF FILL OVER CUT	80,772 m ³

STAGE 2 BORROW AREA	
CUT	78,479 m ³
FILL	73,263 m ³
EXCESS OF CUT OVER FILL	5,216 m ³

TOTAL	
CUT	463,344 m ³
FILL	538,900 m ³
EXCESS OF FILL OVER CUT	75,556 m ³

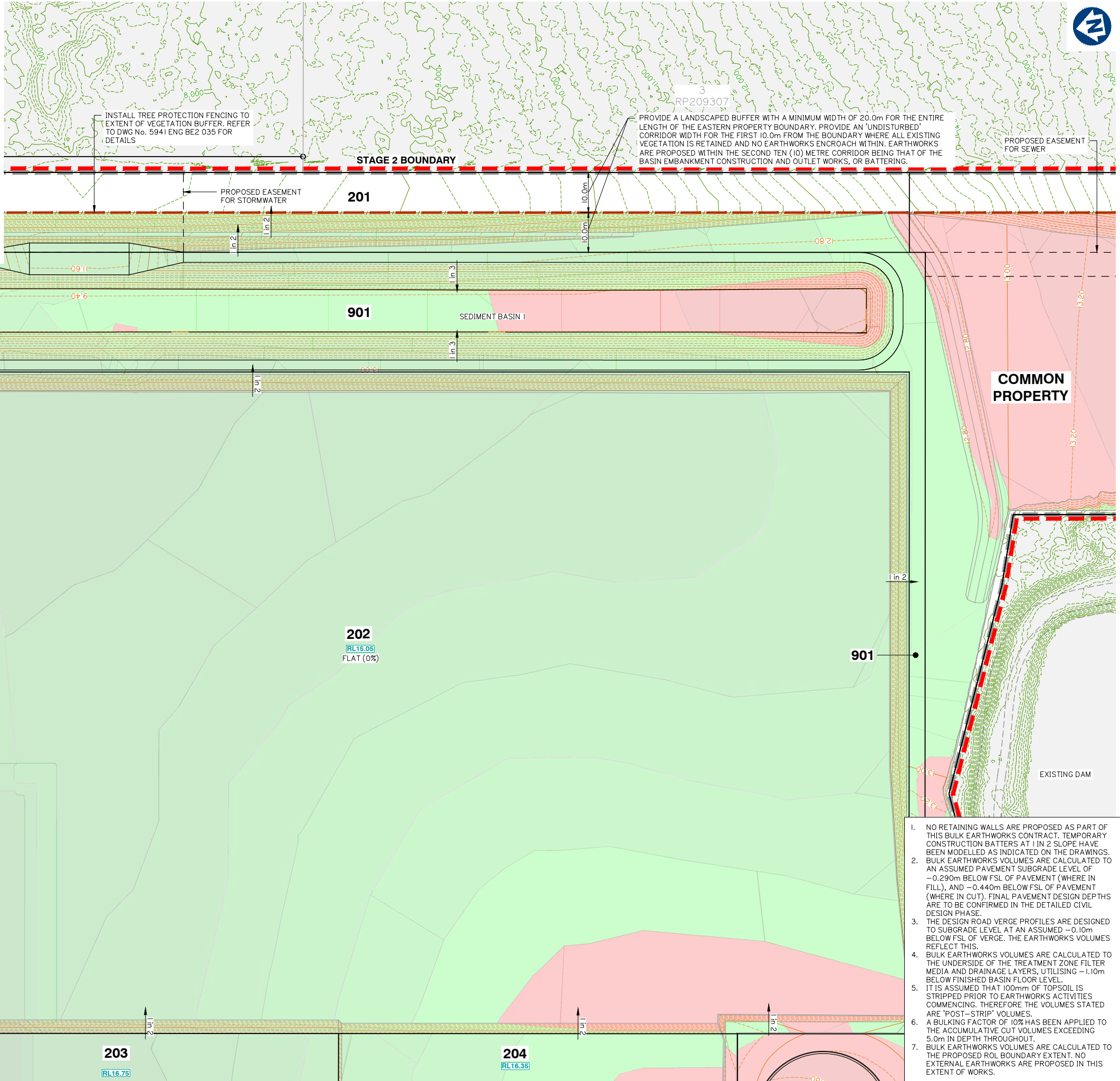




KEY PLAN
SCALE 1: 7500

BULK EARTHWORKS DEPTH RANGE LEGEND		
-10	to	-9 m
-9	to	-8 m
-8	to	-7 m
-7	to	-6 m
-6	to	-5 m
-5	to	-4 m
-4	to	-3 m
-3	to	-2 m
-2	to	-1 m
-1	to	0 m
0	to	1 m
1	to	2 m
2	to	3 m
3	to	4 m
4	to	5 m
5	to	6 m
6	to	7 m
7	to	8 m
8	to	9 m

STAGE 2	
CUT	384,865 m ³
FILL	465,637 m ³
EXCESS OF FILL OVER CUT	80,772 m ³
STAGE 2 BORROW AREA	
CUT	78,479 m ³
FILL	73,263 m ³
EXCESS OF CUT OVER FILL	5,216 m ³
TOTAL	
CUT	463,344 m ³
FILL	538,900 m ³
EXCESS OF FILL OVER CUT	75,556 m ³



- NO RETAINING WALLS ARE PROPOSED AS PART OF THIS BULK EARTHWORKS CONTRACT. TEMPORARY CONSTRUCTION BATTERS AT 1 IN 2 SLOPE HAVE BEEN MODELLED AS INDICATED ON THE DRAWINGS. BULK EARTHWORKS VOLUMES ARE CALCULATED TO AN ASSUMED PAVEMENT SUBGRADE LEVEL OF -0.290m BELOW FSL OF PAVEMENT (WHERE IN FILL), AND -0.440m BELOW FSL OF PAVEMENT (WHERE IN CUT). FINAL PAVEMENT DESIGN DEPTHS ARE TO BE CONFIRMED IN THE DETAILED CIVIL DESIGN PHASE.
- THE DESIGN ROAD VERGE PROFILES ARE DESIGNED TO SUBGRADE LEVEL AT AN ASSUMED -0.10m BELOW FSL OF VERGE. THE EARTHWORKS VOLUMES REFLECT THIS.
- BULK EARTHWORKS VOLUMES ARE CALCULATED TO THE UNDERSIDE OF THE TREATMENT ZONE FILTER MEDIA AND DRAINAGE LAYERS, UTILISING -1.10m BELOW FINISHED BASIN FLOOR LEVEL.
- IT IS ASSUMED THAT 100mm OF TOPSOIL IS STRIPPED PRIOR TO EARTHWORKS ACTIVITIES COMMENCING. THEREFORE THE VOLUMES STATED ARE 'POST-STRIP' VOLUMES.
- A BULKING FACTOR OF 10% HAS BEEN APPLIED TO THE ACCUMULATIVE CUT VOLUMES EXCEEDING 5.0m IN DEPTH THROUGHOUT.
- BULK EARTHWORKS VOLUMES ARE CALCULATED TO THE PROPOSED ROL BOUNDARY EXTENT. NO EXTERNAL EARTHWORKS ARE PROPOSED IN THIS EXTENT OF WORKS.

FOR CONTINUATION REFER SHEET No. 5941 ENG BE2 052

Client:



Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

BULK EARTHWORKS
LAYOUT PLAN SHEET 4 OF 9

Issue	Date	Description	BA	MG	CHK
A	20-11-2020	ORIGINAL ISSUE			

SCALE IN METRES

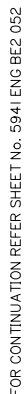


1:500 (FULL SIZE A1)
1:1000 (HALF SIZE A3)

Scale at A1: 1:500

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No: 5941 ENG BE2 053
Rev. No: A



Client



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Projects

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL

Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

BULK EARTHWORKS
LAYOUT PLAN SHEET 5 OF 9

[illegible]

A	20-11-2020	ORIGINAL ISSUE	BA	MG
Issue	Date	Description	DRN	CHK

SCALE IN METRES



1:500 (FULL SIZE A1)
1:1000 (HALF SIZE A3)

Scale at A1: 1:500

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 054

Rev. No:
A



1. NO RETAINING WALLS ARE PROPOSED AS PART OF THIS BULK EARTHWORKS CONTRACT. TEMPORARY CONSTRUCTION BATTERS AT 1 IN 2 SLOPE HAVE BEEN MODELLED AS INDICATED ON THE DRAWINGS.
2. BULK EARTHWORKS VOLUMES ARE CALCULATED TO AN ASSUMED PAVEMENT SURGRADE LEVEL OF -0.290m BELOW FSL OF PAVEMENT (WHERE IN FILL), AND -0.440m BELOW FSL OF PAVEMENT (WHERE IN CUT). FINAL PAVEMENT DESIGN DEPTHS ARE TO BE CONFIRMED IN THE DETAILED CIVIL DESIGN PHASE.
3. THE DESIGN ROAD VERGE PROFILES ARE DESIGNED TO SUBGRADE LEVEL AT AN ASSUMED -0.10m BELOW FSL OF VERGE. THE EARTHWORKS VOLUMES REFLECT THIS.
4. BULK EARTHWORKS VOLUMES ARE CALCULATED TO THE UNDERSIDE OF THE TREATMENT ZONE FILTER MEDIA AND DRAINAGE LAYERS, UTILISING -1.0m BELOW FINISHED BASIN FLOOR LEVEL.
5. IT IS ASSUMED THAT 100mm OF TOPSOIL IS STRIPPED PRIOR TO EARTHWORKS ACTIVITIES COMMENCING. THEREFORE THE VOLUMES STATED ARE 'POST-STRIP' VOLUMES.
6. A BULKING FACTOR OF 10% HAS BEEN APPLIED TO THE ACCUMULATIVE CUT VOLUMES EXCEEDING 5.0m IN DEPTH THROUGHOUT.
7. BULK EARTHWORKS VOLUMES ARE CALCULATED TO THE PROPOSED ROL BOUNDARY EXTENT. NO EXTERNAL EARTHWORKS ARE PROPOSED IN THIS EXTENT OF WORKS.

BULK EARTHWORKS DEPTH RANGE LEGEND			
-10	to	-9 m	
-9	to	-8 m	
-8	to	-7 m	
-7	to	-6 m	
-6	to	-5 m	
-5	to	-4 m	
-4	to	-3 m	
-3	to	-2 m	
-2	to	-1 m	
-1	to	0 m	
0	to	1 m	
1	to	2 m	
2	to	3 m	
3	to	4 m	
4	to	5 m	
5	to	6 m	
6	to	7 m	
7	to	8 m	
8	to	9 m	

STAGE 2	
CUT	384,865 m ³
FILL	465,637 m ³
EXCESS OF FILL OVER CUT	80,772 m ³

STAGE 2 BORROW AREA	
CUT	78,479 m ³
FILL	73,263 m ³
EXCESS OF CUT OVER FILL	5,216 m ³

TOTAL	
CUT	463,344 m ³
FILL	538,900 m ³
EXCESS OF FILL OVER CUT	75,556 m ³



STAGE 2	
CUT	384,865 m ³
FILL	465,637 m ³
EXCESS OF FILL OVER CUT	80,772 m ³
STAGE 2 BORROW AREA	
CUT	78,479 m ³
FILL	73,263 m ³
EXCESS OF CUT OVER FILL	5,216 m ³
TOTAL	
CUT	463,344 m ³
FILL	538,900 m ³
EXCESS OF FILL OVER CUT	75,556 m ³



Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot:	501
Plan:	SP295994
Local Authority:	CITY OF GOLD COAST COUNCIL
Level Datum:	AHD
Meridian:	-
Contour Interval:	-
PSM:	-
RL:	-

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

©2012 Gassman Development Perspectives

All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

BULK EARTHWORKS
LAYOUT PLAN SHEET 7 OF 9

A	20-11-2020				ORIGINAL ISSUE			BA	MG
Issue					Description			FREN	CHEK

SCALE IN METRES



Scale at A1:	1:500
--------------	-------

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 056

Rev. No:
A

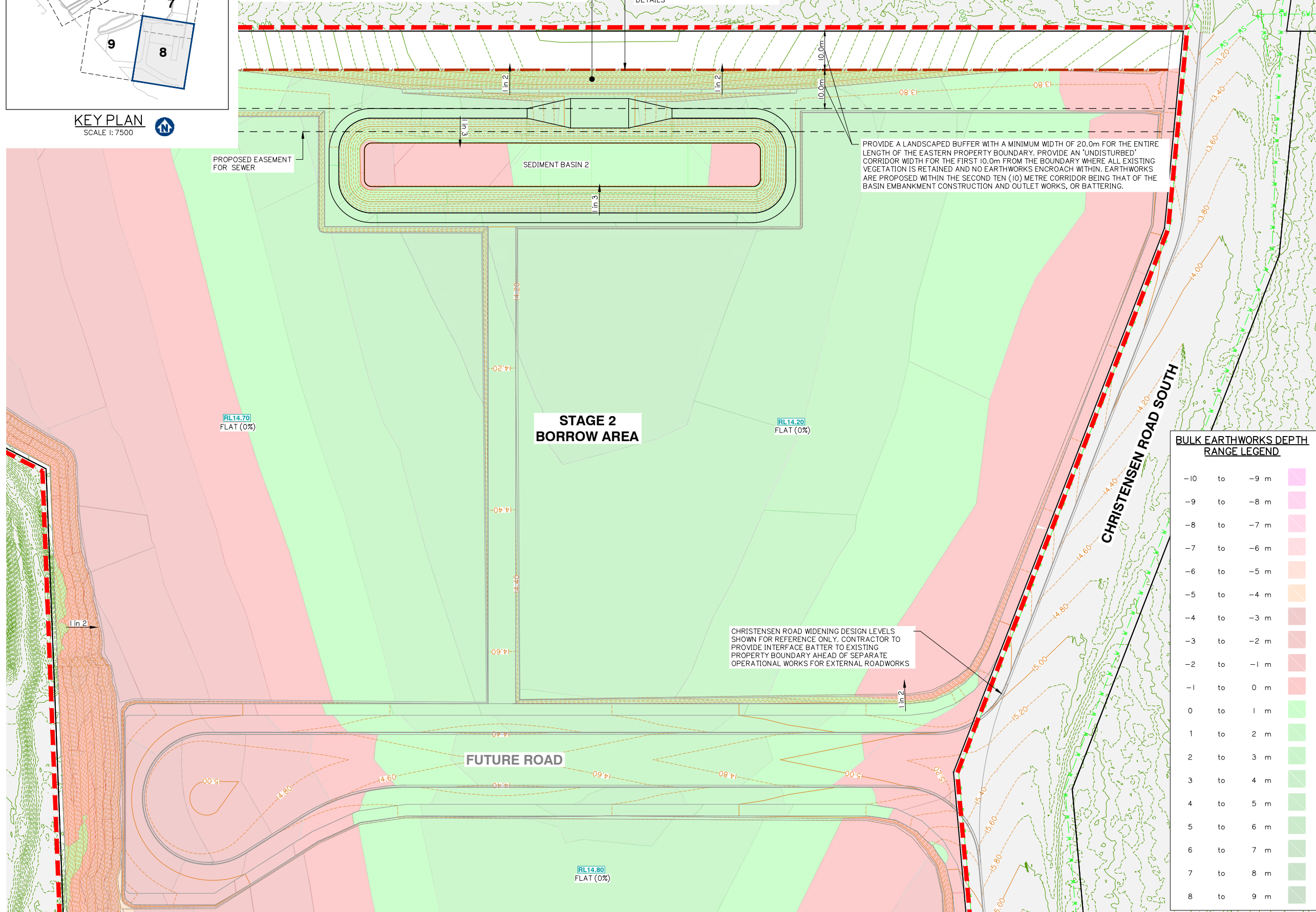


TOTAL	
CUT	463,344 m ³
FILL	538,900 m ³
EXCESS OF FILL OVER CUT	75,556 m ³

1. NO RETAINING WALLS ARE PROPOSED AS PART OF THIS BULK EARTHWORKS CONTRACT. TEMPORARY CONSTRUCTION BATTERS AT 1 IN 2 SLOPE HAVE BEEN MODELLED AS INDICATED ON THE DRAWINGS.
2. BULK EARTHWORKS VOLUMES ARE CALCULATED TO AN ASSUMED PAVEMENT SUBGRADE LEVEL OF -0.290m BELOW FSL OF PAVEMENT (WHERE IN FILL), AND -0.440m BELOW FSL OF PAVEMENT (WHERE IN CUT). FINAL PAVEMENT DESIGN DEPTHS ARE TO BE CONFIRMED IN THE DETAILED CIVIL DESIGN PHASE.
3. THE DESIGN ROAD VERGE PROFILES ARE DESIGNED TO SUBGRADE LEVEL AT AN ASSUMED -0.10m BELOW FSL OF VERGE. THE EARTHWORKS VOLUMES REFLECT THIS.
4. BULK EARTHWORKS VOLUMES ARE CALCULATED TO THE UNDERSIDE OF THE TREATMENT ZONE FILTER MEDIA AND DRAINAGE LAYERS, UTILISING -1.10m BELOW FINISHED BASIN FLOOR LEVEL.
5. IT IS ASSUMED THAT ANY (INCLUDING) OF TOPSOIL IS STRIPPED PRIOR TO EARTHWORKS ACTIVITIES COMMENCING. THEREFORE THE VOLUME STATED ARE "POST STRIP" VOLUMES.
6. A BULKING FACTOR OF 10% HAS BEEN APPLIED TO THE ACCUMULATIVE CUT VOLUMES EXCEEDING 5.0m IN DEPTH THROUGHOUT.
7. BULK EARTHWORKS VOLUMES ARE CALCULATED TO THE PROPOSED ROL BOUNDARY EXTENT. NO EXTERNAL EARTHWORKS ARE PROPOSED IN THIS EXTENT OF WORKS.

ALL BATERS PROPOSE WITHIN THE 20.0m wide BUFFER AREA TO THE EASTERN BOUNDARY ARE TO HAVE A MAXIMUM GRADIENT OF IV IN 2H WHERE THE BATTER IS WITHIN FILL AND IV IN 2H WHERE THE BATTER IS WITHIN CUT. THE IV IN 2H CUT BATTER SHALL BE OVER-EXCAVATED, MICRO-BENCHED AND INCORPORATE A MINIMUM OF 400mm DEEP IMPORTED SOIL. REFER CORRESPONDENCE FROM DOUGLAS PARTNERS, PROJECT 90520.00.L002 DATED 24 JANUARY 2019 TITLED BATTER TREATMENT.

INSTALL TREE PROTECTION FENCING TO
EXTENT OF VEGETATION BUFFER. REFER
TO DWG No. 5941 ENG BE2 035 FOR
DETAILS



BULK EARTHWORKS DEPTH RANGE LEGEND

-10	to	-9 m	
-9	to	-8 m	
-8	to	-7 m	
-7	to	-6 m	
-6	to	-5 m	
-5	to	-4 m	
-4	to	-3 m	
-3	to	-2 m	
-2	to	-1 m	
-1	to	0 m	
0	to	1 m	
1	to	2 m	
2	to	3 m	
3	to	4 m	
4	to	5 m	
5	to	6 m	
6	to	7 m	
7	to	8 m	
8	to	9 m	



**gassman
development
perspectives**

planning | environment | landscape | engineering | survey
T: 3807 3333 | F: 3287 5461 | www.gassman.com.au
Gold Coast & Logan | 76 Business Street, Yatala QLD | PO Box 392, Beenleigh 4207

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala

STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RI: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

BULK EARTHWORKS
LAYOUT PLAN SHEET 8 OF 9

A Issue	20-11-2020 Date	ORIGINAL ISSUE Description	BA DRN	MCH

SCALE IN METRES



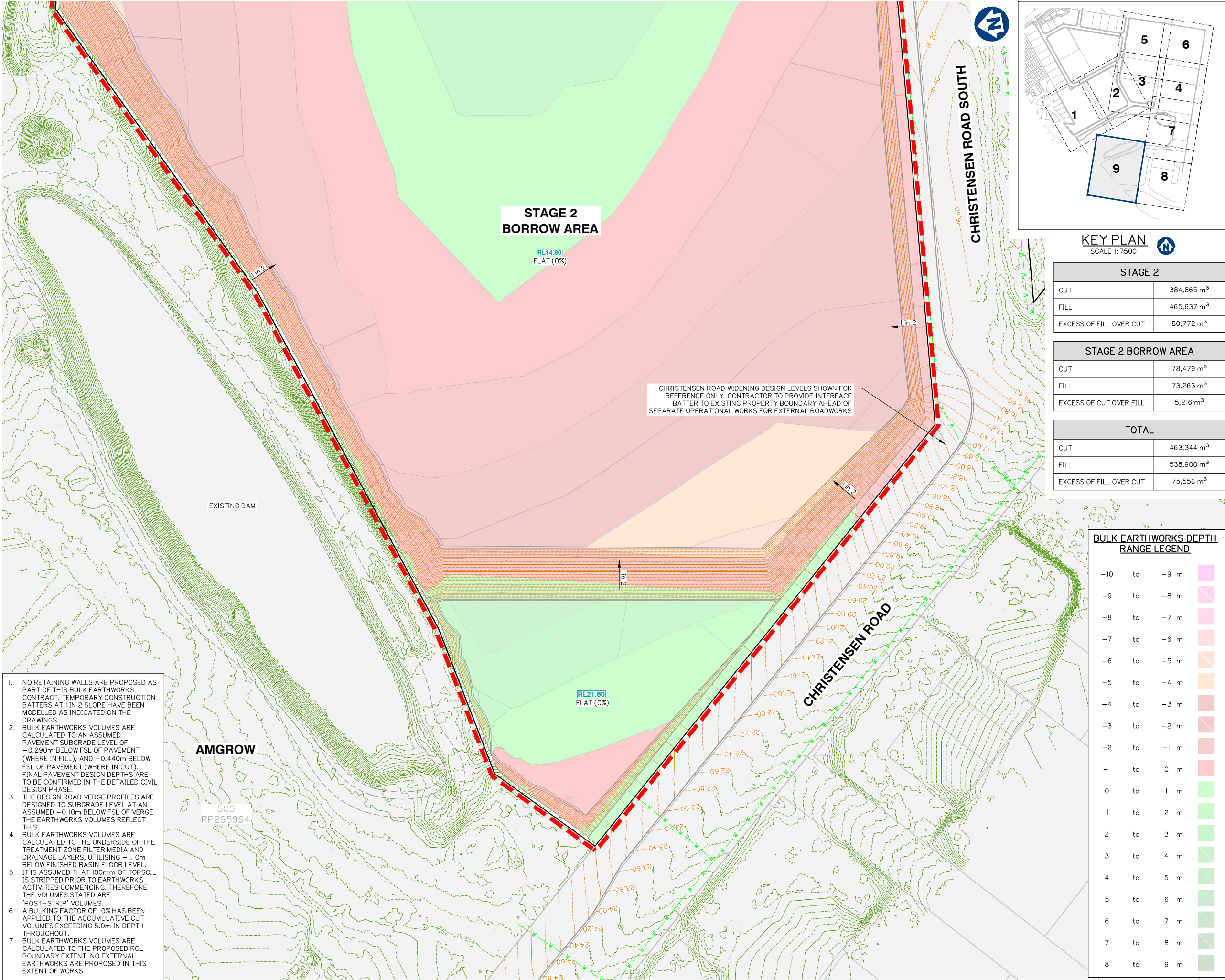
1:500 (FULL SIZE A1)
1:1000 (HALF SIZE A3)

Scale at A1: 1:500

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 057

Rev. No:
A



1. NO RETAINING WALLS ARE PROPOSED AS PART OF THIS BULK EARTHWORKS CONTRACT. TEMPORARY CONSTRUCTION BATTERS AT 1 IN 2 SLOPE HAVE BEEN MODELLED AS INDICATED ON THE DRAWINGS.
2. BULK EARTHWORKS VOLUMES ARE CALCULATED TO AN ASSUMED PAVEMENT SUBGRADE LEVEL OF -0.290m BELOW FSL OF PAVEMENT (WHERE IN FILL), AND -0.440m BELOW FSL OF PAVEMENT (WHERE IN CUT). FINAL PAVEMENT DESIGN DEPTHS ARE TO BE CONFIRMED IN THE DETAILED CIVIL DESIGN PHASE.
3. THE DESIGN ROAD VERGE PROFILES ARE DESIGNED TO SUBGRADE LEVEL AT AN ASSUMED -0.10m BELOW FSL OF VERGE. THE EARTHWORKS VOLUMES REFLECT THIS.
4. BULK EARTHWORKS VOLUMES ARE CALCULATED TO THE UNDERSIDE OF THE TREATMENT ZONE FILTER MEDIA AND DRAINAGE LAYERS, UTILISING -1.10m BELOW FINISHED BASIN FLOOR LEVEL. IT IS ASSUMED THAT 100mm OF TOPSOIL IS STRIPPED PRIOR TO EARTHWORKS ACTIVITIES COMMENCING. THEREFORE THE VOLUMES STATED ARE 'POST-STRIP' VOLUMES.
5. A BULKING FACTOR OF 10% HAS BEEN APPLIED TO THE ACCUMULATIVE CUT VOLUMES EXCEEDING 5.0m IN DEPTH THROUGHOUT.
6. BULK EARTHWORKS VOLUMES ARE CALCULATED TO THE PROPOSED ROL BOUNDARY EXTENT. NO EXTERNAL EARTHWORKS ARE PROPOSED IN THIS EXTENT OF WORKS.

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

©2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

BULK EARTHWORKS
LAYOUT PLAN SHEET 9 OF 9

SCALE IN METRES



1:500 (FULL SIZE A1)
1:1000 (HALF SIZE A3)

Scale at A1: 1:500

Designed: IG

Drafted: BA

Approved: MG

RPEQ: 16939

Signed:

Date: 20-11-2020

Drawing No:
5941 ENG BE2 058

Rev. No:
A



**FRASERS
PROPERTY**

FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Site Address:
60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

RPD:	
Lot:	501
Plan:	SP295994
Local Authority:	CITY OF GOLD COAST COUNCIL
Level Datum:	AHD
Meridian:	-
Contour Interval:	-
PSM:	-
RL:	-

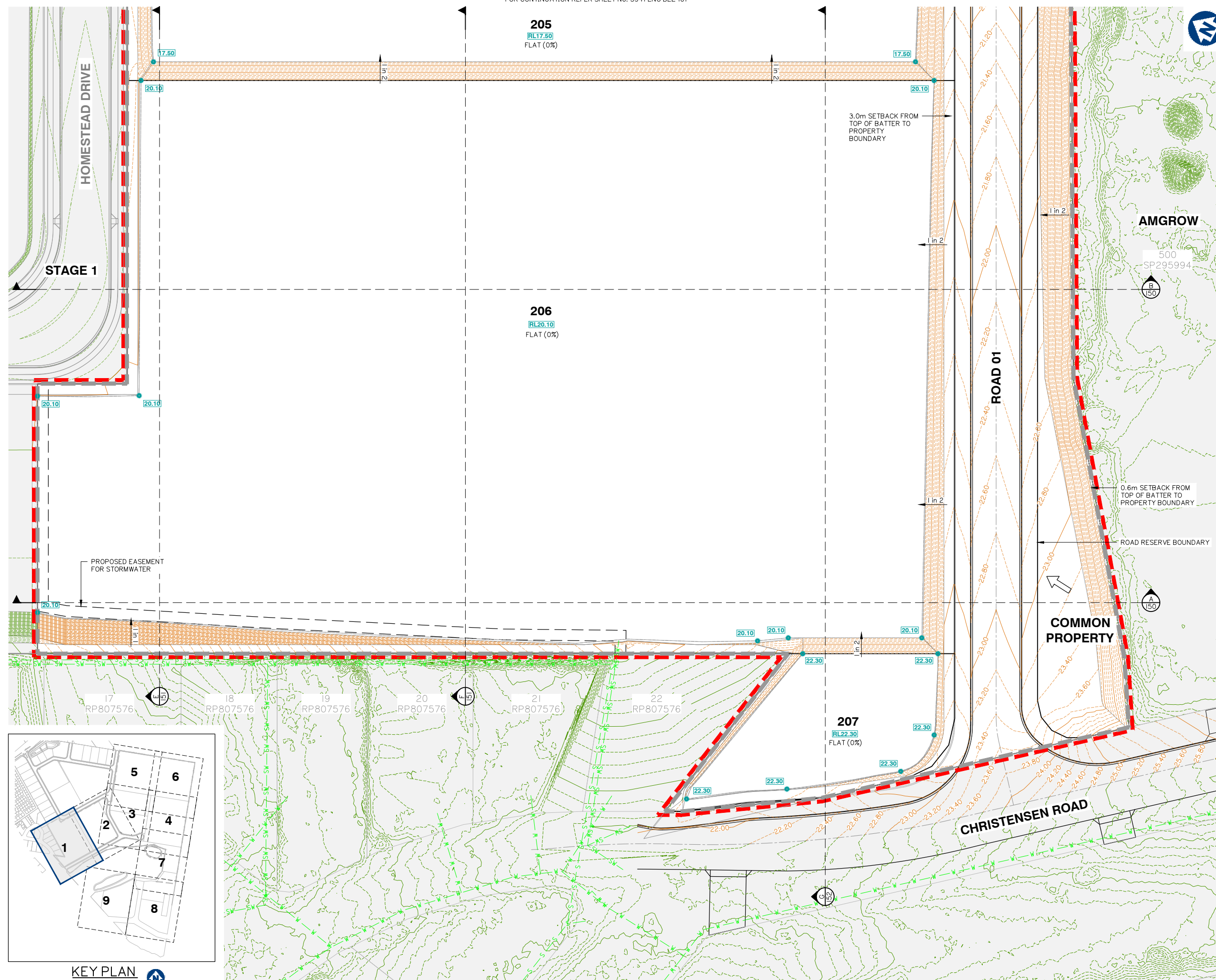
© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

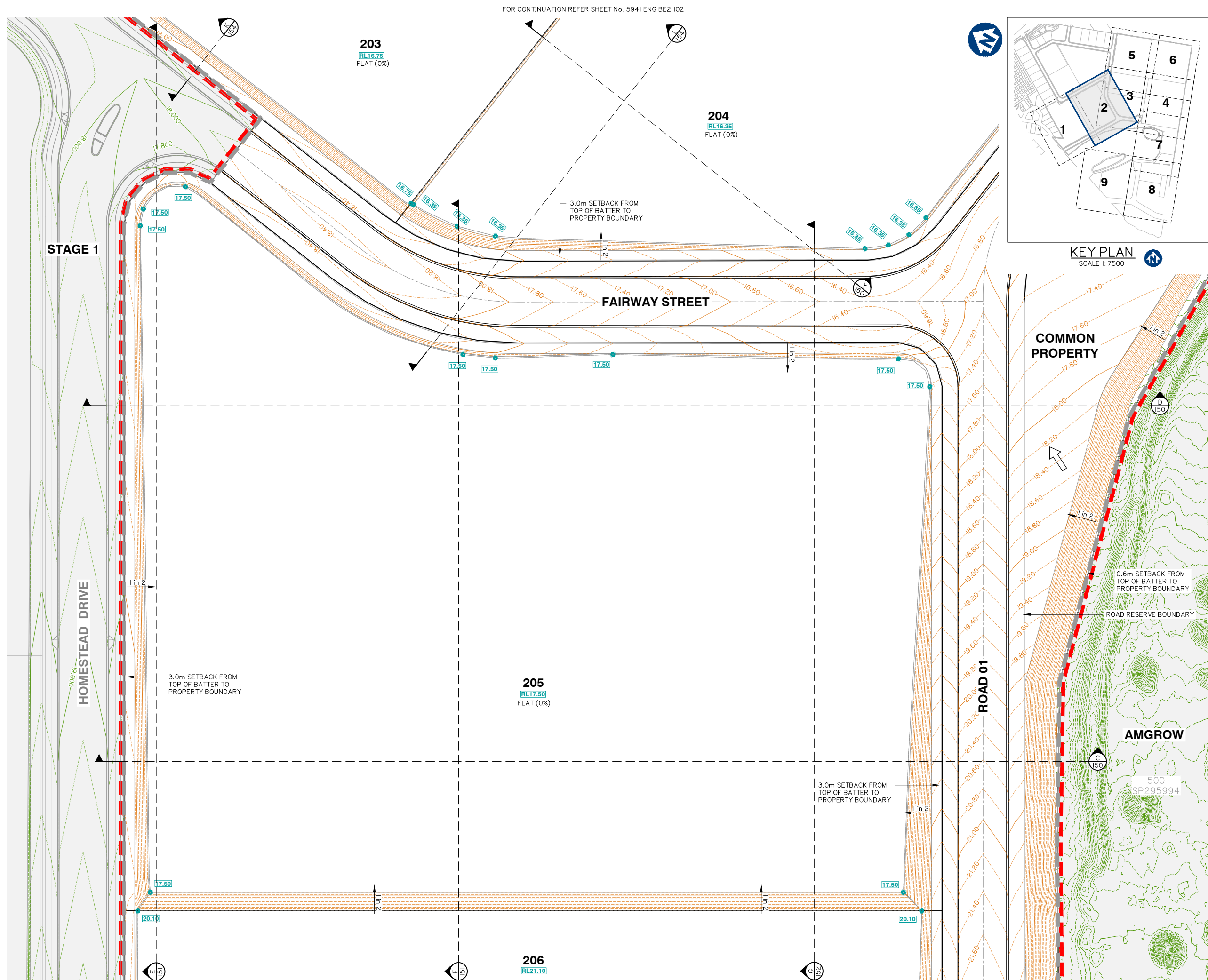
ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

A	20-11-2020		ORIGINAL ISSUE	BA	MO
Issue Date			(Description)	DRN	CH

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:	Rev. No:
5941 ENG BE2 100	A





KEY PLAN
SCALE 1: 7500



gassman
development
perspectives
est 1985

planning | environment | landscape | engineering | survey

T: 3807 3333 | F: 3287 5461 | www.gassman.com.au

Gold Coast & Logan | 176 Business Street, Yatala QLD | PO Box 392, Beerleigh 4207

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:
60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

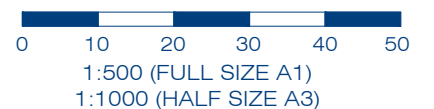
© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
FINISHED BULK
EARTHWORKS SURFACE
LEVEL PLAN SHEET 2 OF 9

[illegible]

SCALE IN METRES



Scale at A1:	1:500
--------------	-------

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 101

Rev. No:
A



203
RL16.75
FLAT (0%)

205
RL17.50
FLAT (0%)

STAGE 1



gassman
development
perspectives

est 1985

planning | environment | landscape | engineering | survey

T: 3807 3333 | F: 3287 5461 | www.gassman.com.au

Gold Coast & Logan | 176 Business Street, Yatala QLD | PO Box 392, Beerleigh 4207



FRASERS
PROPERTY

FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

VantageYatala

STAGE 2

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

Lot:	501
Plan:	SP295994
Local Authority:	CITY OF GOLD COAST COUNCIL
Level Datum:	AHD
Meridian:	-
Contour Interval:	-
PSM:	-
RL:	-

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
FINISHED BULK
EARTHWORKS SURFACE
LEVEL PLAN SHEET 3 OF 9

A	20-11-2020			ORIGINAL ISSUE			BA	MG	
Issued by:	Date			Description			(RSN)	(CHK)	

0 10 20 30 40 50

1:500 (FULL SIZE A1)

1:1000 (HALF SIZE A3)

Scale at A1:	1:500
--------------	-------

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:	Rev. No:
5941 ENG BE2 102	A



Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot:	501
Plan:	SP295994
Local Authority:	CITY OF GOLD COAST COUNCIL
Level Datum:	AHD
Meridian:	-
Contour Interval:	-
PSM:	-
RI :	-

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

©2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
FINISHED BULK
EARTHWORKS SURFACE
LEVEL PLAN SHEET 4 OF 9

[illegible]

SCALE IN METRES



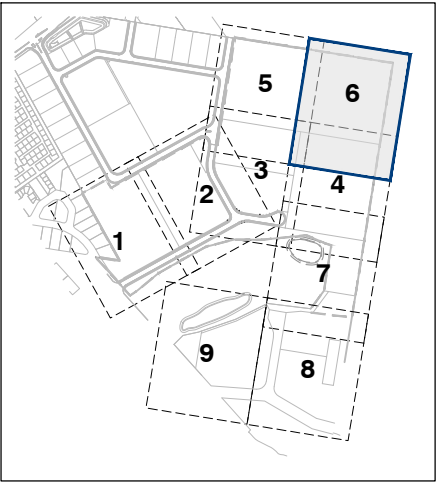
1:500 (FULL SIZE A1)
1:1000 (HALF SIZE A3)

Scale at A1: 1:500

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 103

Rev. No:
A



KEY PLAN
SCALE 1: 7500



**gassman
development
perspectives**

est 1985

planning | environment | landscape | engineering | survey

T: 3807 3333 | F: 3287 5461 | www.gassman.com.au

Gold Coast & Logan | 76 Business Street, Yatala QLD | PO Box 392, Beenleigh 4207

Client



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Projects

VantageYatala

STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RI: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
FINISHED BULK
EARTHWORKS SURFACE
LEVEL PLAN SHEET 6 OF 9

A ue	20-11-2020 Date	ORIGINAL ISSUE Description	BA DRN
			MCH

SCALE IN METRES



Scale at A1: 1:500

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 105

Rev. No:
A



ALL BATTERS PROPOSED WITHIN THE 20.0m WIDE BUFFER AREA TO THE EASTERN BOUNDARY OF THE 10.0m WIDE EXISTING 1.0m WIDE BUFFER AREA WHERE THE BATTER IS TO BE FILL AND IV IN 2H TO 1V. WHERE THE BATTER IS WITHIN CUT THE IV IN 2H CUT BATTER SHALL BE OVER-EXCAVATED, MICRO-BENCHED AND INCORPORATE A MINIMUM OF 400mm DEEP IMPROVED SOIL. REFER CORRESPONDENCE FROM DOUGLAS PARTNERS, PROJECT 90520.00.L002 DATED 24 JANUARY 2019 TITLED BATTER TREATMENT.

RP209307

INSTALL TREE PROTECTION FENCING TO
EXTENT OF VEGETATION BUFFER. REFER
TO DWG No. 5941 ENG BE2 035 FOR
DETAILS

PROVIDE A LANDSCAPED BUFFER WITH A MINIMUM WIDTH OF 20.0m FOR THE ENTIRE LENGTH OF THE EASTERN PROPERTY BOUNDARY. PROVIDE AN 'UNDISTURBED' CORRIDOR WIDTH FOR THE FIRST 10.0m FROM THE BOUNDARY WHERE ALL EXISTING VEGETATION IS RETAINED AND NO EARTHWORKS ENCR OACH WITHIN. EARTHWORKS ARE PROPOSED WITHIN THE SECOND TEN (10) METRE CORRIDOR BEING THAT OF THE BASIN EMBANKMENT CONSTRUCTION AND OUTLET WORKS, OR BATTERING.

SEDIMENT BASIN 2

PROPOSED EASEMENT
FOR SEWER

STAGE 2 BORROW AREA

RL14.70
FLAT (0%)

RL14.20
FLAT (0%)

FUTURE ROAD

RL14.80
FLAT (0%)

FOR CONTINUATION REFER SHEET No. 594I ENG BE2 108

FINISHED BULK EARTHWORKS SURFACE LEVEL PLAN SHEET 8 OF 9



planning | environment | landscape | engineering | survey
T: 3807 3333 | F: 3287 5461 | www.gassman.com.au
Gold Coast & Logan | 76 Business Street, Yatala QLD | PO Box 392, Beenleigh 4207

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot:	501
Plan:	SP295994
Local Authority:	CITY OF GOLD COAST COUNCIL
Level Datum:	AHD
Meridian:	-
Contour Interval:	-
PSM:	-
RI:	-

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

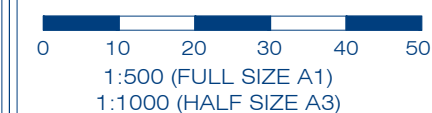
©2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
FINISHED BULK
EARTHWORKS SURFACE
LEVEL PLAN SHEET 8 OF 9

A	20-11-2020		ORIGINAL ISSUE	BA	MU

SCALE IN METRES



Scale at A1:	1:500
--------------	-------

Designed:	IG
-----------	----

Drafted:	BA
----------	----

Approved:	MC
-----------	----

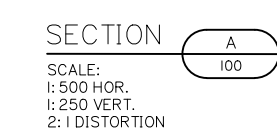
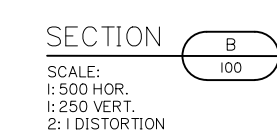
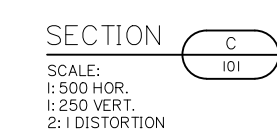
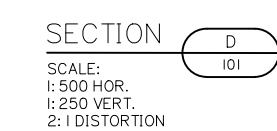
RPEQ:	169,39
-------	--------

Signed:	
---------	---

Date:	20-11-2020
-------	------------

Drawing No:	Rev. No:
5941 ENG BE2 107	A

Rev. No:
A



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

©2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
FINISHED BULK
EARTHWORKS CROSS
SECTIONS SHEET 1 OF 13

A Issue	20-11-2020 Date	ORIGINAL ISSUE Description	BA DRN	MG CHK

SCALE IN METRES

Scale 1:500 - Lengths are in Metres.

HOZ: 

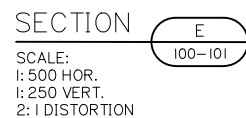
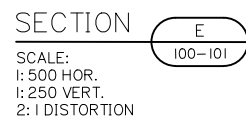
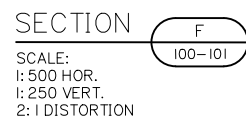
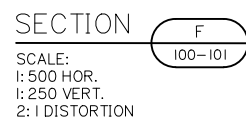
VERT:

Scale at A1: AS SHOWN

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 150

Rev. No:
A



VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RI: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

©2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
FINISHED BULK
EARTHWORKS CROSS
SECTIONS SHEET 2 OF 13

A	20-11-2020		ORIGINAL ISSUE	BA	M
Issue	Date		Description	DRN	CH

SCALE IN METRES

Scale 1:500 - Lengths are in Metres.

HOZ:

Scale 1:250 - Lengths are in Metres.

VERT: 

Scale at A1: AS SHOWN

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:	Rev. No:
5941 ENG BE2 151	A



Project: **VantageYatala**
STAGE 2

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

A Issue	20-11-2020 Date	ORIGINAL ISSUE Description	BA DRN	MG CHK

Scale 1:500 - Lengths are in Metres.

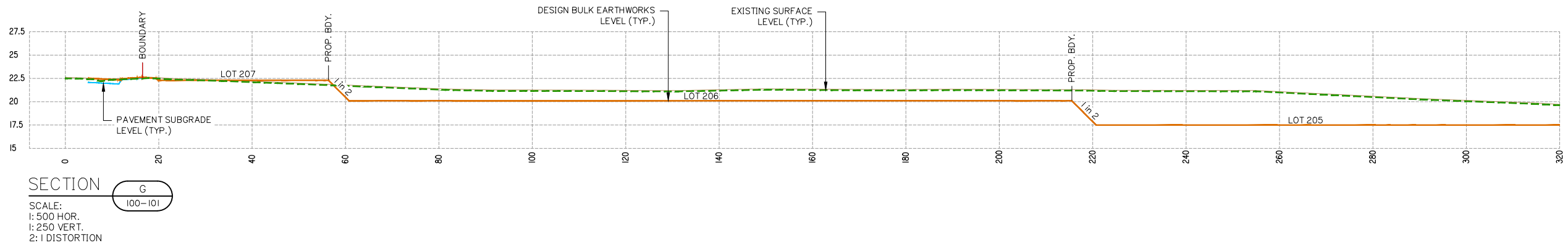
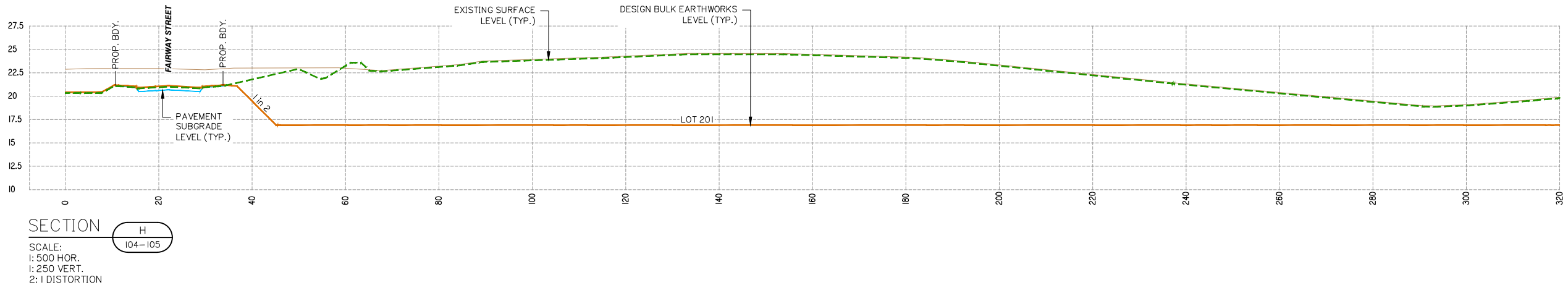
HOZ:

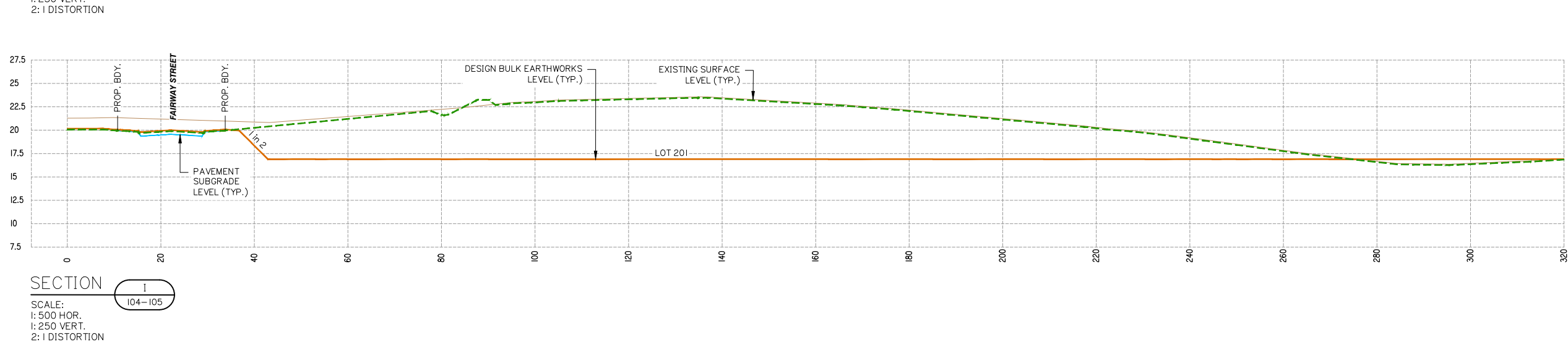
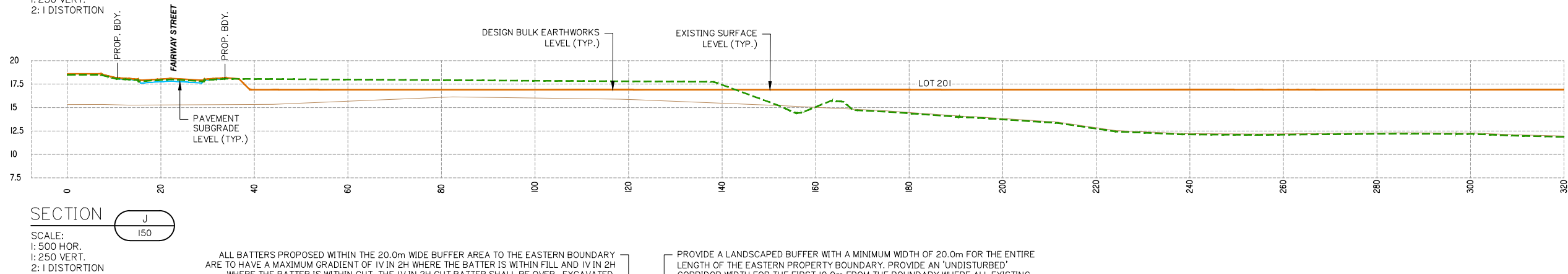
Scale 1:250 - Lengths are in Metres.

VERT:

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

FINISHED BULK EARTHWORKS CROSS SECTIONS SHEET 3 OF 13







Project: **VantageYatala**
STAGE 2

Site Address:
60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot:	501
Plan:	SP295994
Local Authority:	CITY OF GOLD COAST COUNCIL
Level Datum:	AHD
Meridian:	-
Contour Interval:	-
PSM:	-
RL:	-

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
FINISHED BULK
EARTHWORKS CROSS
SECTIONS SHEET 5 OF 13

A	20-11-2020	ORIGINAL ISSUE	BA	MG
Issue	Date	Description	DRN	CHK

SCALE IN METRES

Scale 1:500 - Lengths are in Metres.

HOZ:

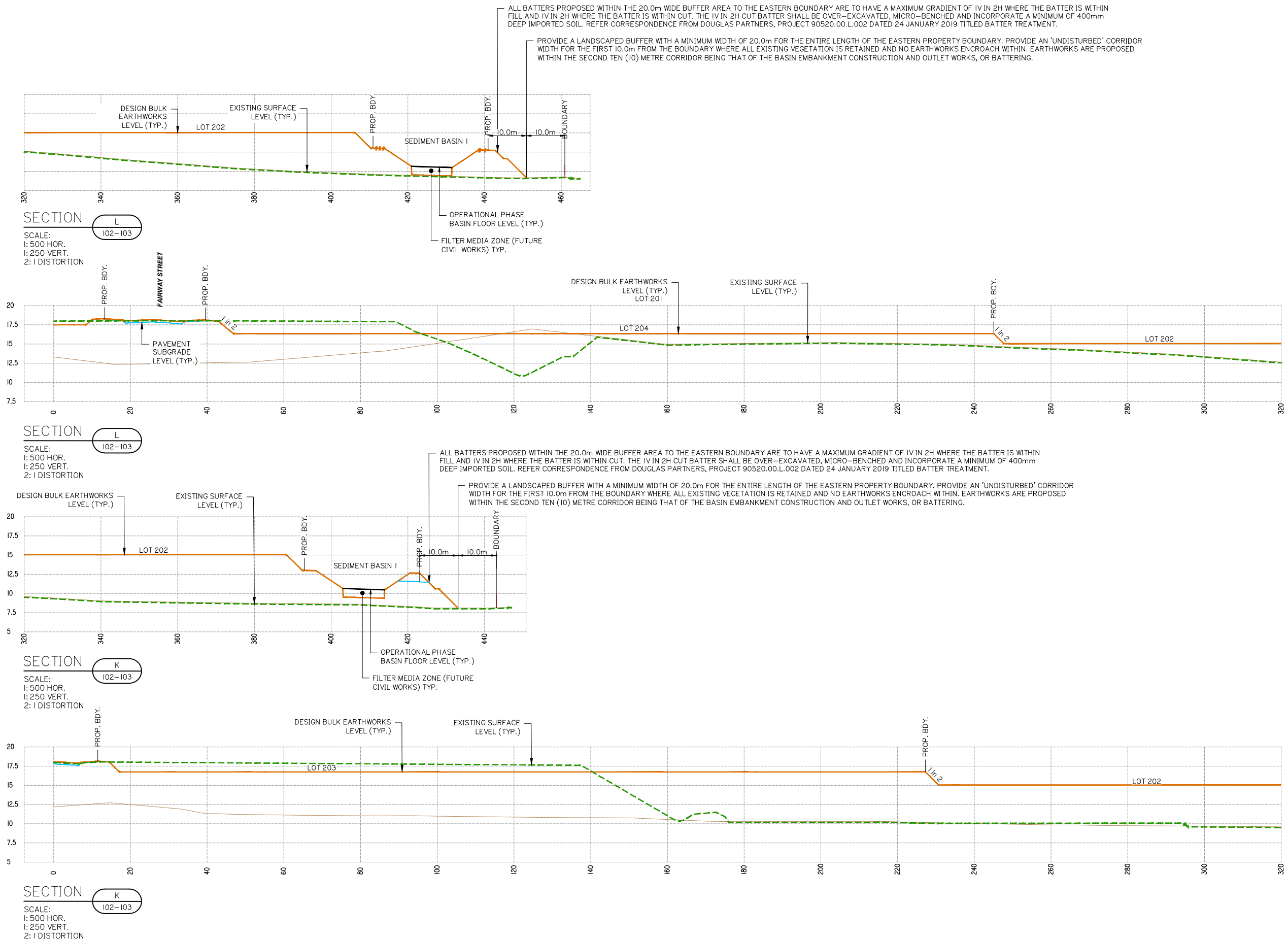
Scale 1:250 - Lengths are in Metres.

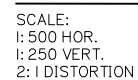
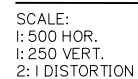
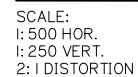
VERT: 

Scale at A1: AS SHOWN

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

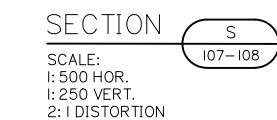
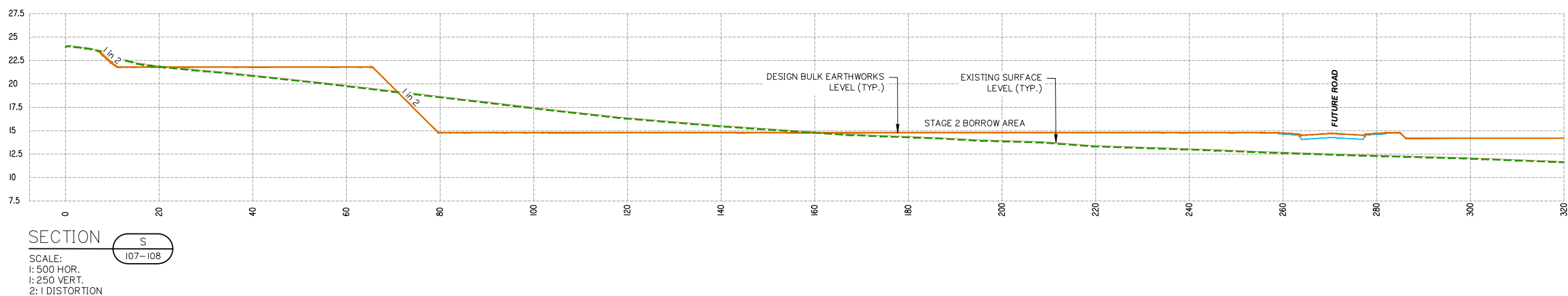
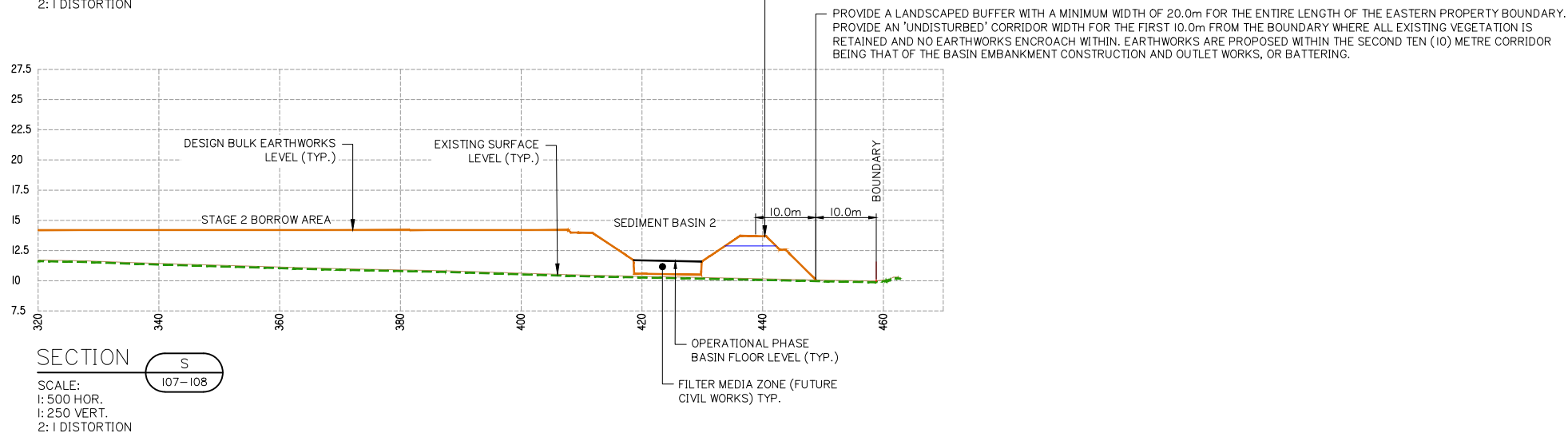
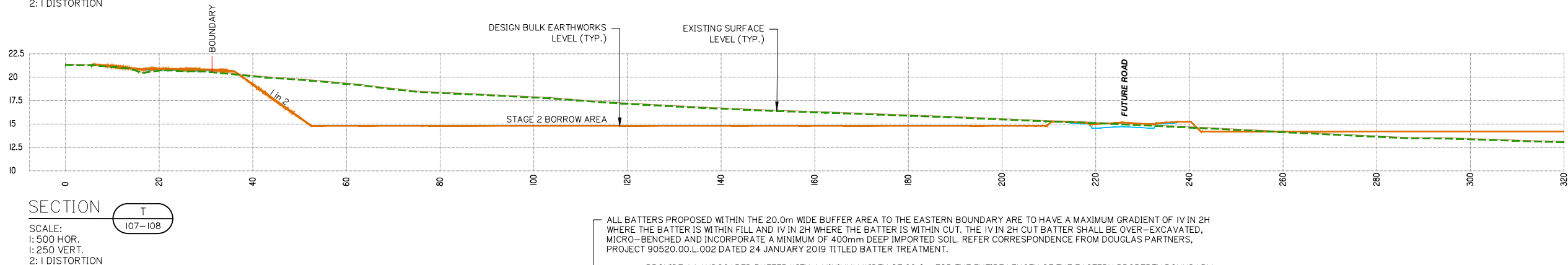
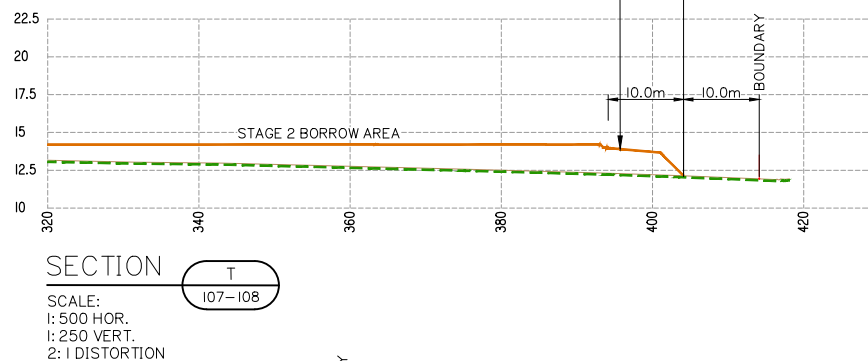
Drawing No:	Rev. No:
5941 ENG BE2 154	A





Drawing No:	Rev. No:
5941 ENG BE2 155	A

PROVIDE A LANDSCAPED BUFFER WITH A MINIMUM WIDTH OF 20.0m FOR THE ENTIRE LENGTH OF THE EASTERN PROPERTY BOUNDARY. PROVIDE AN 'UNDISTURBED' CORRIDOR WIDTH FOR THE FIRST 10.0m FROM THE BOUNDARY WHERE ALL EXISTING VEGETATION IS RETAINED AND NO EARTHWORKS ENROACH WITHIN. EARTHWORKS ARE PROPOSED WITHIN THE SECOND TEN (10) METRE CORRIDOR BEING THAT OF THE BASIN EMBANKMENT CONSTRUCTION AND OUTLET WORKS, OR BATTERING.



planning | environment | landscape | engineering | survey
T: 3807 3333 | F: 3287 5461 | www.gassman.com.au
Gold Coast & Logan | 76 Business Street, Yatala QLD | PO Box 392, Beenleigh 4207

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot:	501
Plan:	SP295994
Local Authority:	CITY OF GOLD COAST COUNCIL
Level Datum:	AHD
Meridian:	-
Contour Interval:	-
PSM:	-
RL:	-

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives

All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
FINISHED BULK
EARTHWORKS CROSS
SECTIONS SHEET 8 OF 13

A	20-11-2020	ORIGINAL ISSUE	BA	M	
Issue	Date	Description	DRN	CH	

SCALE IN METRES

Scale 1:500 - Lengths are in Metres.

HOZ:

Scale 1:250 - Lengths are in Metres.

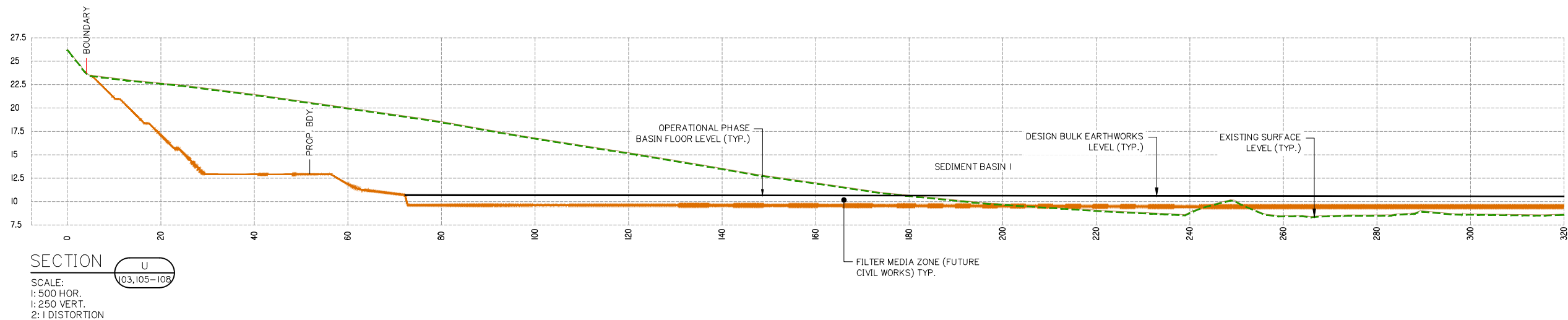
VERT: 

Scale at A1: AS SHOWN

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 157

Rev. No:
A



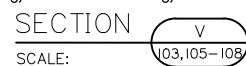
SCALE IN METRES

Scale 1:250 - Lengths are in Metres.

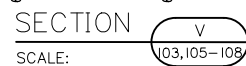
VERT: 

Scale at A1: AS SHOWN

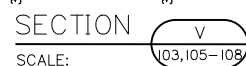
Drawing No:	Rev. No:
5941 ENG BE2 158	A



SCALE:
1: 500 HOR.
1: 250 VERT.
2: 1 DISTORTION



SCALE:
1: 500 HOR.
1: 250 VERT.
2: 1 DISTORTION



SCALE:
1: 500 HOR.
1: 250 VERT.
2: 1 DISTORTION



SCALE:
1: 500 HOR.
1: 250 VERT.
2: 1 DISTORTION



Project: **VantageYatala**
STAGE 2

Site Address:
60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:
 Lot: 501
 Plan: SP295994
 Local Authority: CITY OF GOLD COAST
 COUNCIL
 Level Datum: AHD
 Meridian: -
 Contour Interval: -
 'ASM: -
 'AL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

2012 Gassman Development Perspectives
rights reserved. No part of this document may
reproduced or transmitted in any form or by any mea
tronic, mechanical, photocopying, recording,
otherwise, without the written permission of Gassm
Development Perspectives.

DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NO.

DRAWING TITLE
FINISHED BULK
EARTHWORKS CROSS
SECTIONS SHEET 11 OF 13

[illegible]

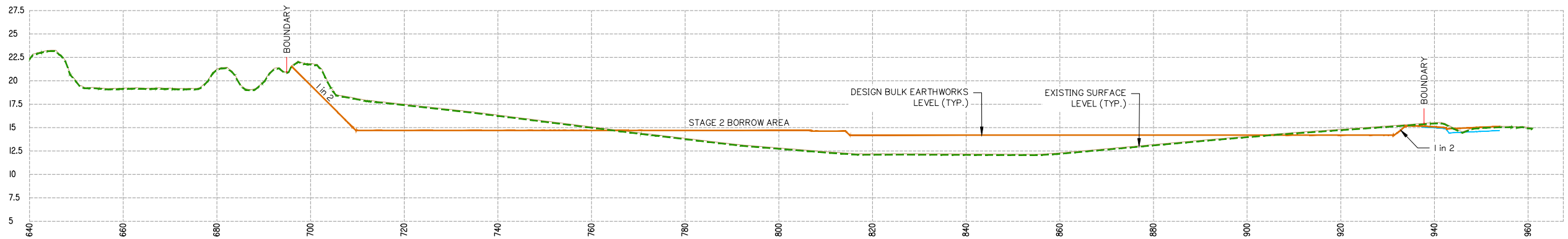
SCALE IN METRES



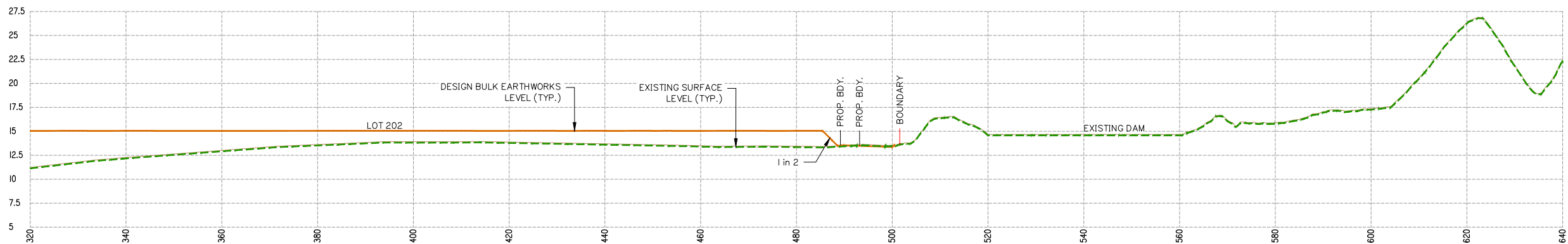
Scale at A1: AS SHOWN

Designed:	IG
Drafted:	BA
Approved:	MG
PEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:	Rev. N
041 ENG BE2 160	A

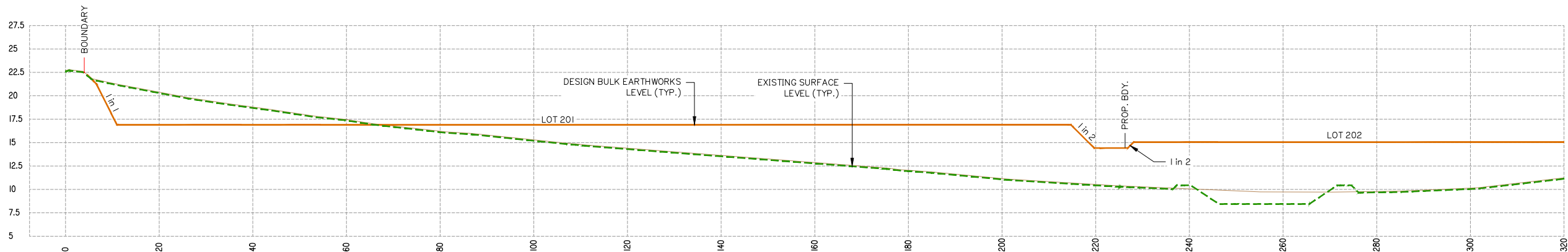


SECTION _____ W _____
 SCALE:
 1: 500 HOR.
 1: 250 VERT.
 2: 1 DISTORTION

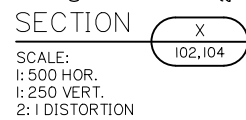
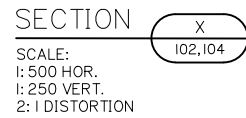
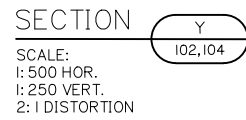
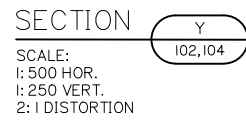


SECTION W
103,105-108

SCALE:
1: 500 HOR.
1: 250 VERT.
2: 1 DISTORTION



SECTION _____ W _____
SCALE:
1: 500 HOR.
1: 250 VERT.
2: 1 DISTORTION





Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project: **VantageYatala**
STAGE 2

Site Address:
60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot:	501
Plan:	SP295994
Local Authority:	CITY OF GOLD COAST COUNCIL
Level Datum:	AHD
Meridian:	-
Contour Interval:	-
PSM:	-
RL:	-

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
FINISHED BULK
EARTHWORKS CROSS
SECTIONS SHEET 13 OF 13

A Issue	20-11-2020 Date		ORIGINAL ISSUE Description	BA DRN	MG CHK

SCALE IN METRES

Scale 1:500 - Lengths are in Metres.

HOZ: 

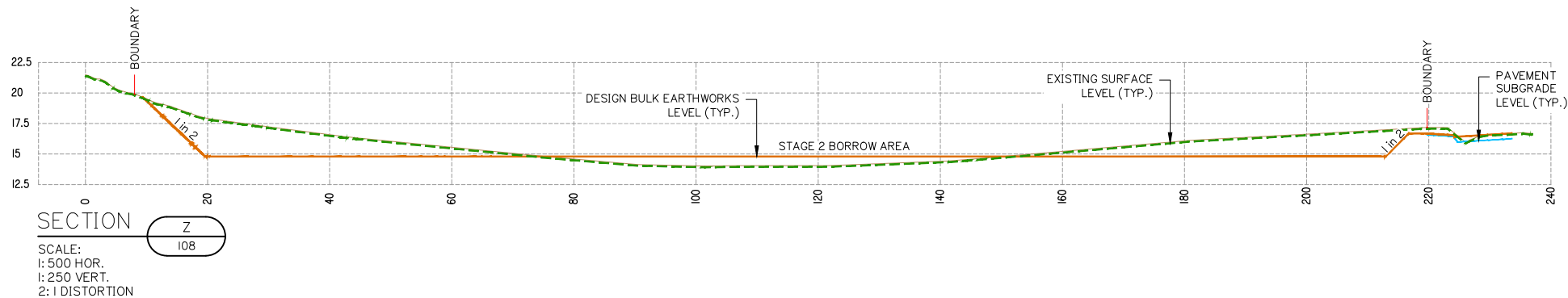
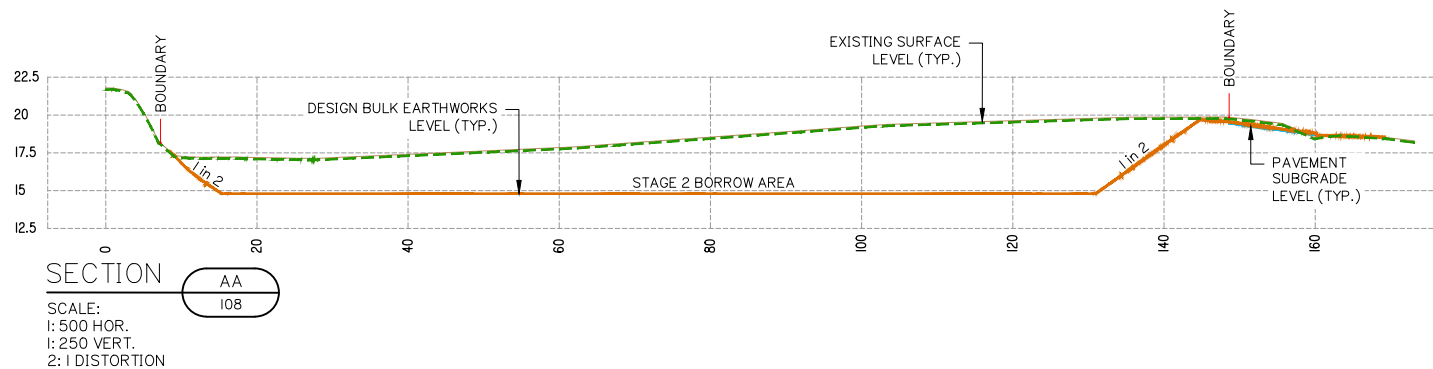
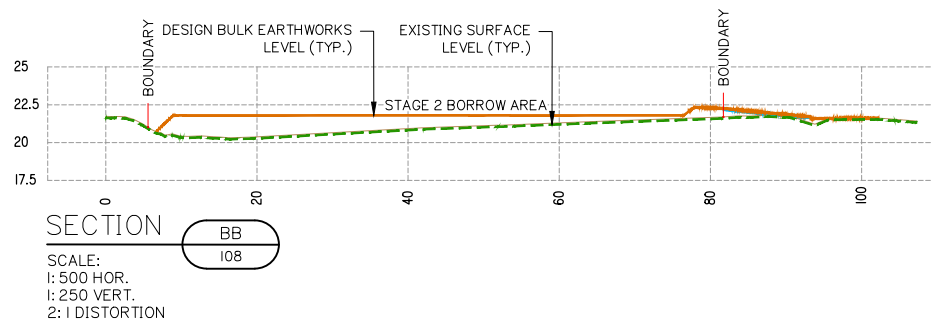
Scale 1:250 - Lengths are in Metres.

VERT: 

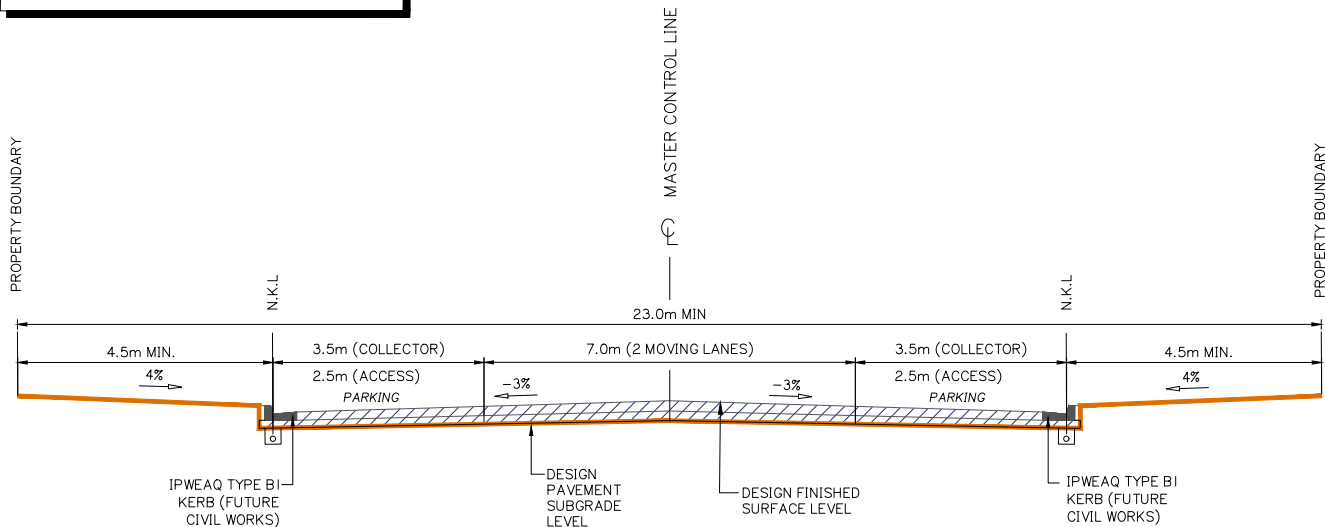
Scale at A1: AS SHOWN

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:	Rev. No:
5941 ENG BE2 162	A

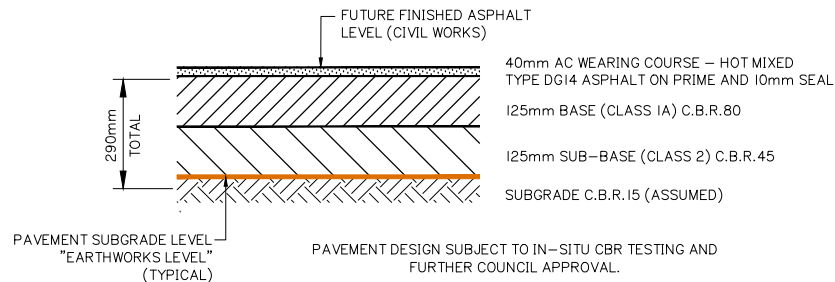


ONLY THE BULK EARTHWORKS IS APPLICABLE.
A SEPARATE APPLICATION WILL BE SUBMITTED
FOR THE CIVIL ROADWORKS ASSOCIATED WITH
THE RECONFIGURATION OF LOTS.

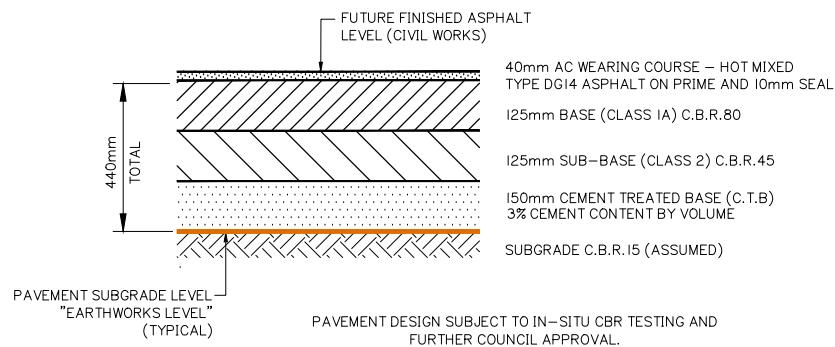


TYPICAL CROSS SECTION – INDUSTRIAL / COMMERCIAL
COLLECTOR AND ACCESS STREETS (23.0m)
FAIRWAY STREET AND ROAD 01

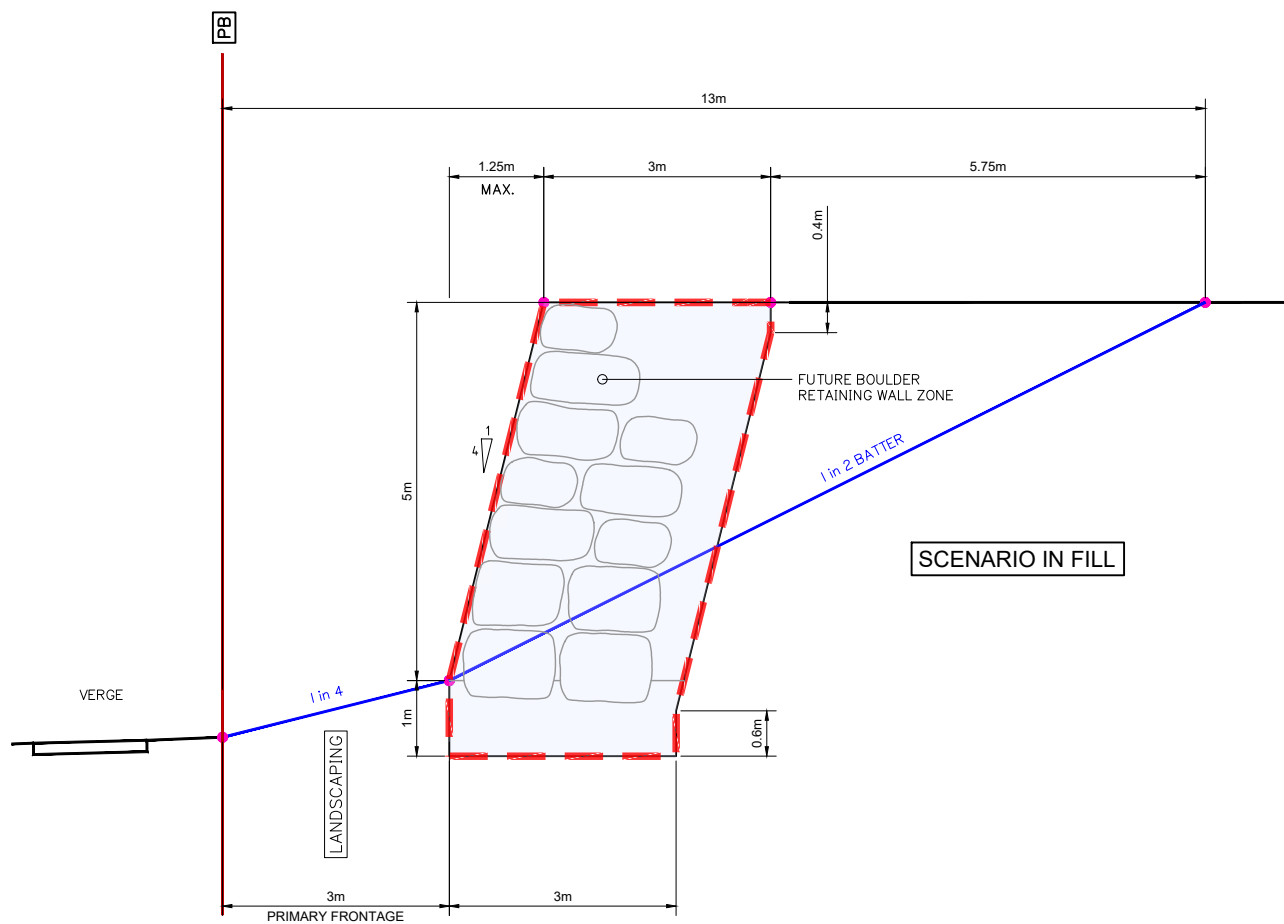
REFER ALSO CoGC STD DWG 05-02-2004 FOR DETAILS



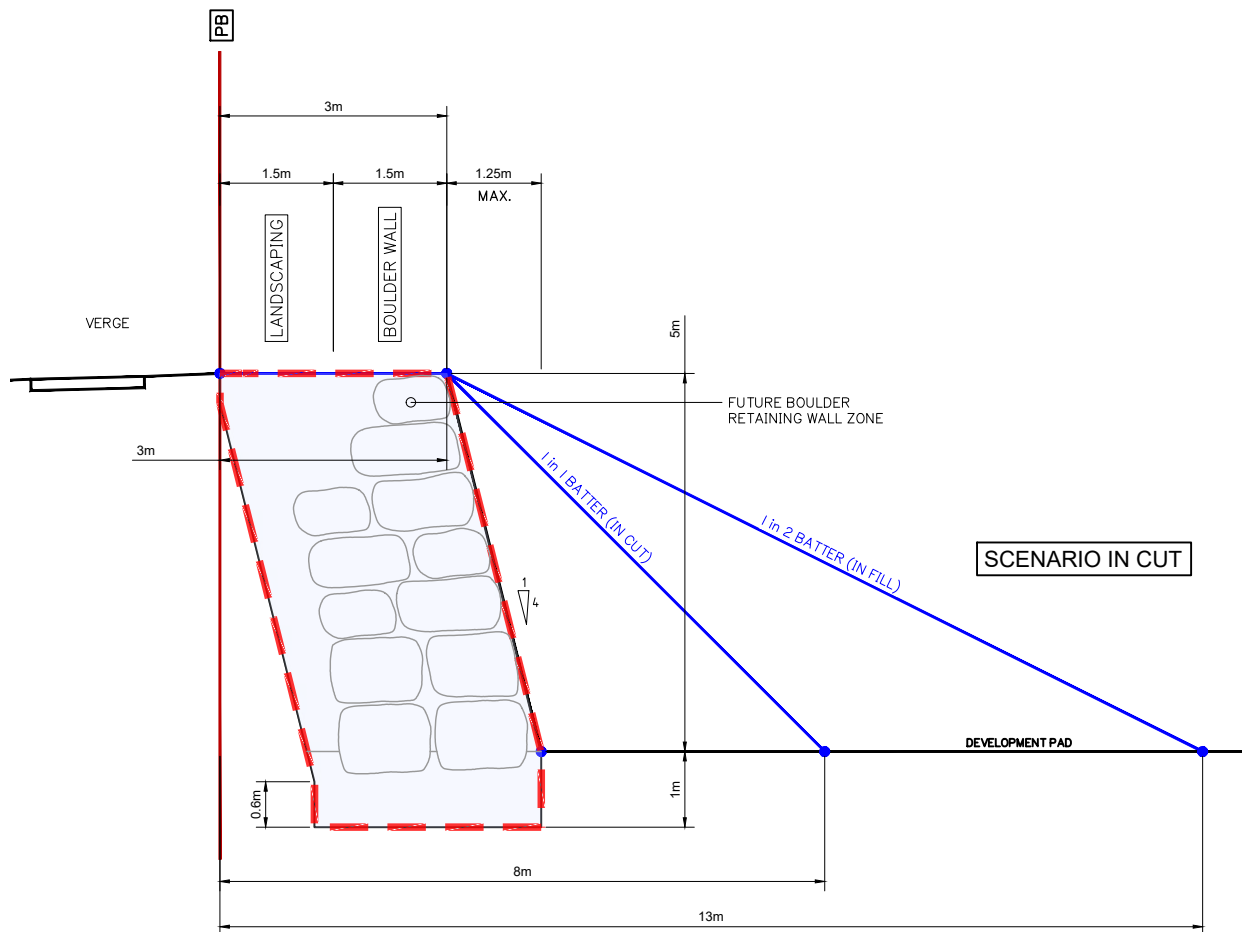
NOMINAL ROAD PAVEMENT DETAIL – IN FILL AREAS
INDUSTRIAL COLLECTOR & ACCESS STREET N.T.S



NOMINAL ROAD PAVEMENT DETAIL – IN CUT AREAS
INDUSTRIAL COLLECTOR & ACCESS STREET N.T.S



TYPICAL SECTION OF:
BOULDER RETAINING WALL (2.5m to 5.0m MAXIMUM HEIGHT)
SHOWING TOE OF EMBANKMENT OFFSET FOR TEMPORARY CONSTRUCTION BATTERS – IN FILL



TYPICAL SECTION OF:
BOULDER RETAINING WALL (2.5m to 5.0m MAXIMUM HEIGHT)
SHOWING TOE OF EMBANKMENT OFFSET FOR TEMPORARY CONSTRUCTION BATTERS – IN CUT

BULK EARTHWORKS ROAD TYPICAL SECTIONS

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be
reproduced or transmitted in any form or by any means,
electronic, mechanical, photocopying, recording, or
otherwise, without the written permission of Gassman
Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

BULK EARTHWORKS ROAD
TYPICAL SECTIONS

Issue	Date	Description	BA	MG	CHK
A	20-11-2020	ORIGINAL ISSUE	BA	MG	

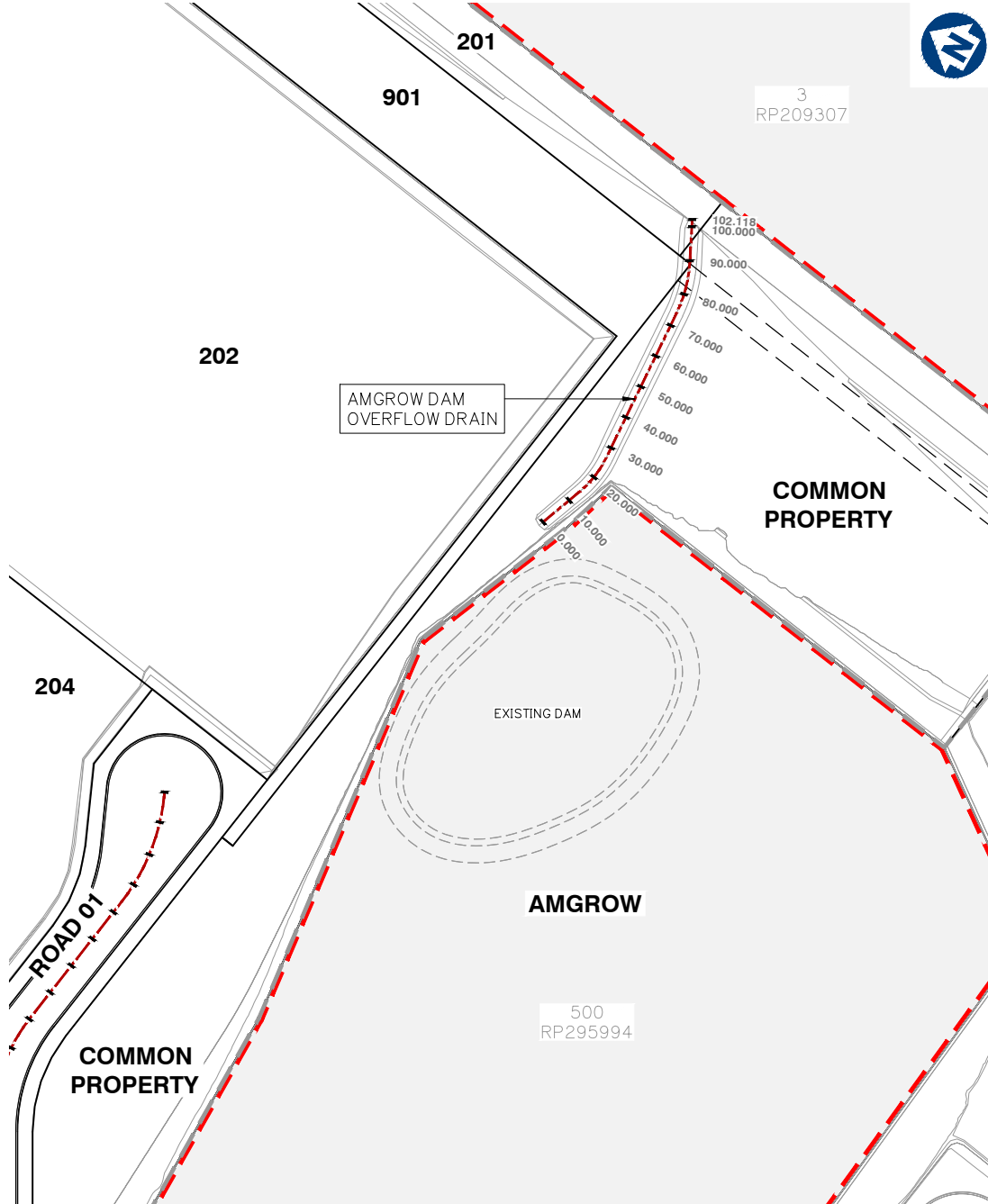
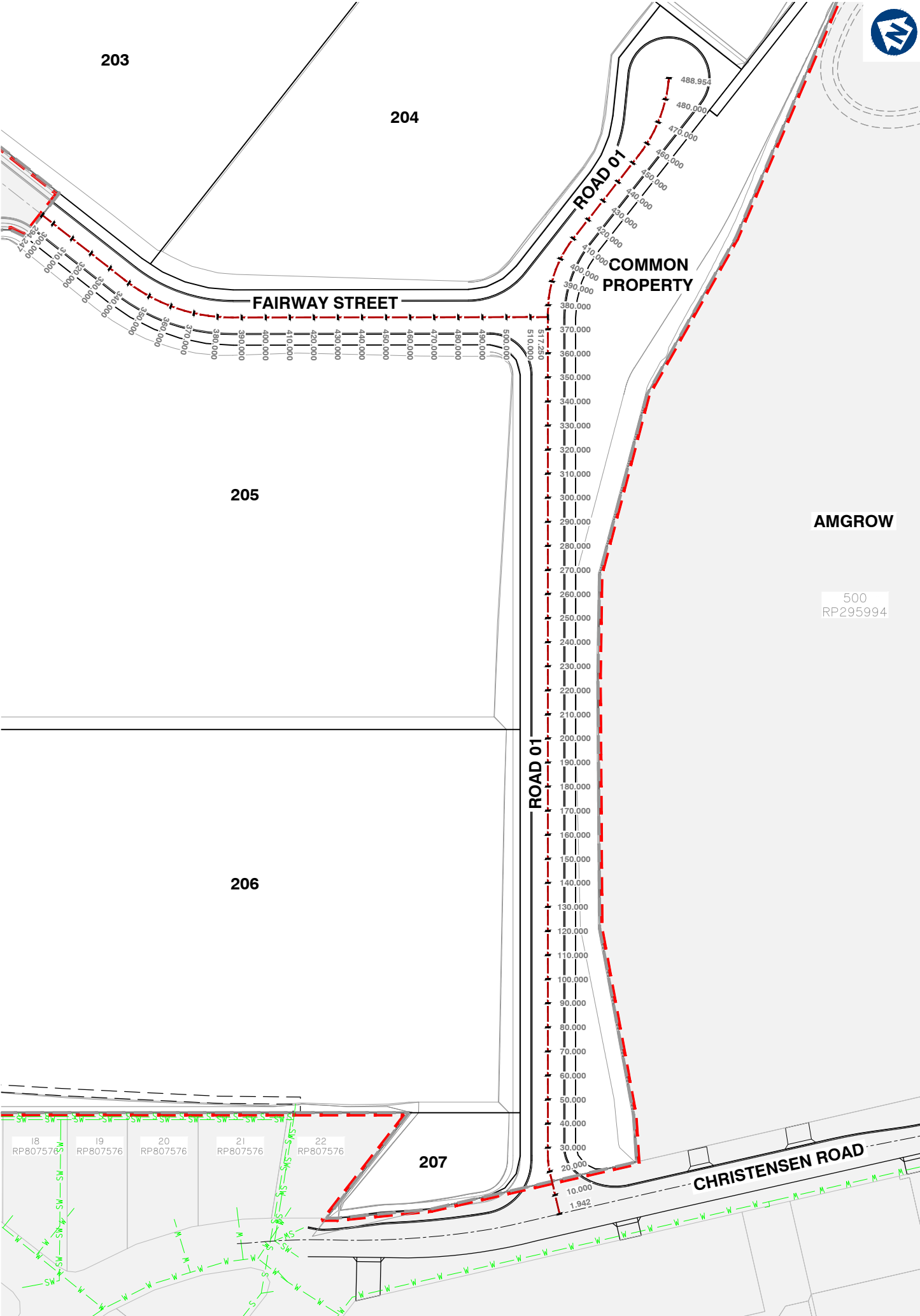
SCALE IN METRES

NOT APPLICABLE

Scale at A1:	NTS
Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 163

Rev. No:
A



CONTROL LINE LAYOUT PLAN



planning | environment | landscape | engineering | survey
T: 3807 3333 | F: 3287 5461 | www.gassman.com.au
Gold Coast & Logan | 76 Business Street, Yatala QLD | PO Box 392, Beerleigh 4207

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

©2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

CONTROL LINE LAYOUT
PLAN

Issue	Date	Description	BA DRN	MG CHK
-------	------	-------------	-----------	-----------

SCALE IN METRES



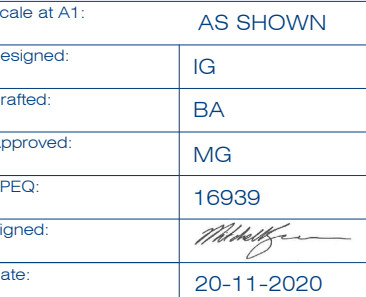
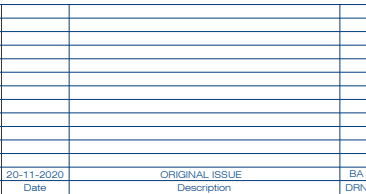
1:1000 (FULL SIZE A1)
1:2000 (HALF SIZE A3)

Scale at A1: 1:1000

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 400

Rev. No:
A



HORIZONTAL CURVE DATA

VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)
VERTICAL GEOMETRY GRADE (%)
VERTICAL GEOMETRY LENGTH (m)

DATUM RL = 13.200

FINISHED SURFACE LEVEL	261.942	-3.452	23.626	19.735	19.985	19.937	19.637	19.337	19.037	18.737	18.437	18.405	18.147	17.882	17.642	17.427	17.405	17.237	17.119	17.071	16.931	16.816	16.805	16.716	16.713	16.616	16.616	16.516	16.416	16.316	16.278	16.216	16.116	16.016	15.939	15.926
PAVEMENT SUBGRADE	268.405	-3.512	23.497	19.545	19.497	19.197	18.897	18.597	18.297	17.997	17.965	17.707	17.442	17.202	16.987	16.965	16.797	16.679	16.631	16.491	16.376	16.365	16.276	16.273	16.176	16.176	16.076	15.976	15.876	15.838	15.776	15.676	15.576	15.499	15.486	
EXISTING SURFACE LEVEL	270	-3.528	23.466	19.497	19.497	19.197	18.897	18.597	18.297	17.997	17.993	17.734	17.475	17.236	17.017	16.997	16.971	16.807	16.682	16.557	16.432	16.307	16.182	16.057	15.932	15.807	15.682	15.557	15.432	15.307	15.182	15.057	14.932	14.807		
CUT / FILL DEPTH																																				
CONTROL LINE CHAINAGE	261.942	268.405	270	280	290	300	310	320	321.088	330	340	350	360	361.088	370	376.975	380	390	400	401.088	410	410.318	420	430	440	450	453.791	460	470	480	487.643	488.954				

LONGITUDINAL SECTION - ROAD 01

ROAD 01 LONGITUDINAL SECTION SHEET 2 OF 2



planning | environment | landscape | engineering | survey
T: 3807 3333 | F: 3287 5461 | www.gassman.com.au
Gold Coast & Logan | 76 Business Street, Yatala QLD | PO Box 392, Beerleigh 4207

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

©2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

ROAD 01 LONGITUDINAL
SECTION SHEET 2 OF 2

Issue	Date	Description	BA	MG	CHK
A	20-11-2020	ORIGINAL ISSUE			

SCALE IN METRES

Scale 1:500 - Lengths are in Metres.
HOZ: 0 5 10 15 20 25 30 35 40

Scale 1:100 - Lengths are in Metres.
VERT: 0 1 2 3 4 5 6 7 8

Scale at A1: AS SHOWN

Designed: IG

Drafted: BA

Approved: MG

RPEQ: 16939

Signed:

Date: 20-11-2020

Drawing No:
5941 ENG BE2 411

Rev. No:
A

FAIRWAY STREET LONGITUDINAL SECTION

Client



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project: **VantageYatala**
STAGE 2

Site Address:
60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot:	501
Plan:	SP295994
Local Authority:	CITY OF GOLD COAST COUNCIL
Level Datum:	AHD
Meridian:	-
Contour Interval:	-
PSM:	-
RL:	-

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

FUTURE ROAD
LONGITUDINAL SECTION

A Issue	20-11-2020 Date	ORIGINAL ISSUE Description	BA DRN	MG CHK

SCALE IN METRES

Scale 1:500 - Lengths are in Metres.

HOZ:

Scale 1:100 - Lengths are in Metres.

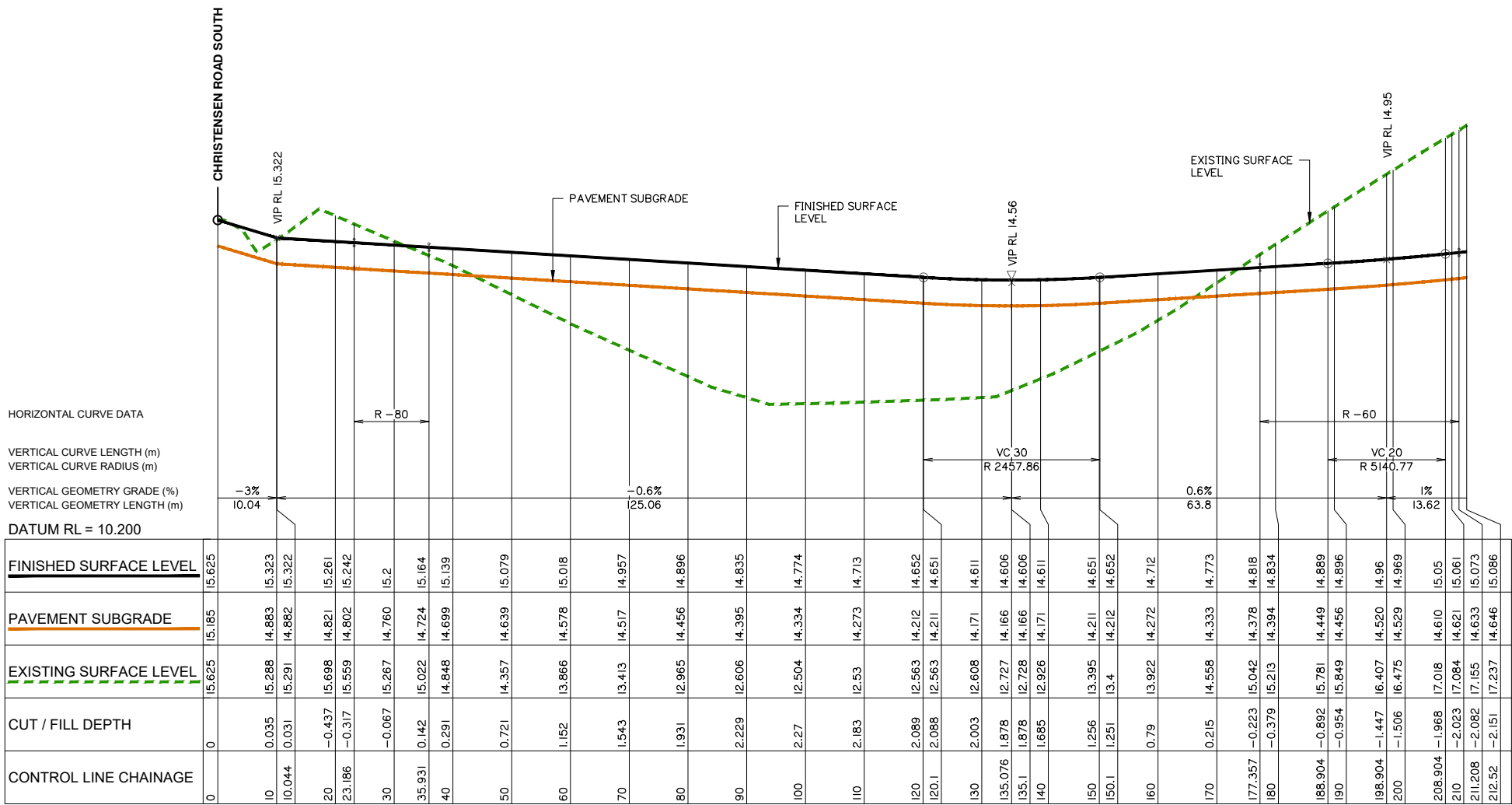
VERT: 

Scale at A1: AS SHOWN

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 413

Rev. No:
A



FUTURE ROAD LONGITUDINAL SECTION

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL

Level Datum:
Meridian:
Contour Interval:
PSM:
RL:

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

©2012 Gassman Development Perspectives

All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

ROAD 01 CROSS SECTIONS
SHEET 2 OF 8

A	20-11-2020	ORIGINAL ISSUE	BA	MG
Issue	Date	Description	DRN	CHK

SCALE IN METRES

Scale 1:100 - Lengths are in Metres.

HOZ: 

Scale 1:100 - Lengths are in Metres.

VERT: 

Scale at A1: AS SHOWN

Designed:	IG
-----------	----

Drafted:	BA
----------	----

Approved:	MG
-----------	----

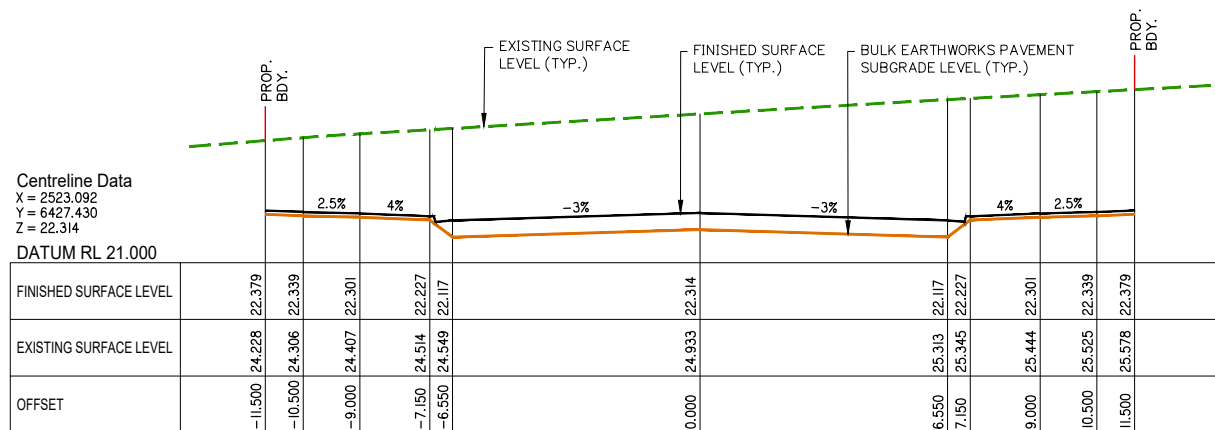
RPEQ:	16939
-------	-------

Signed:	
---------	---

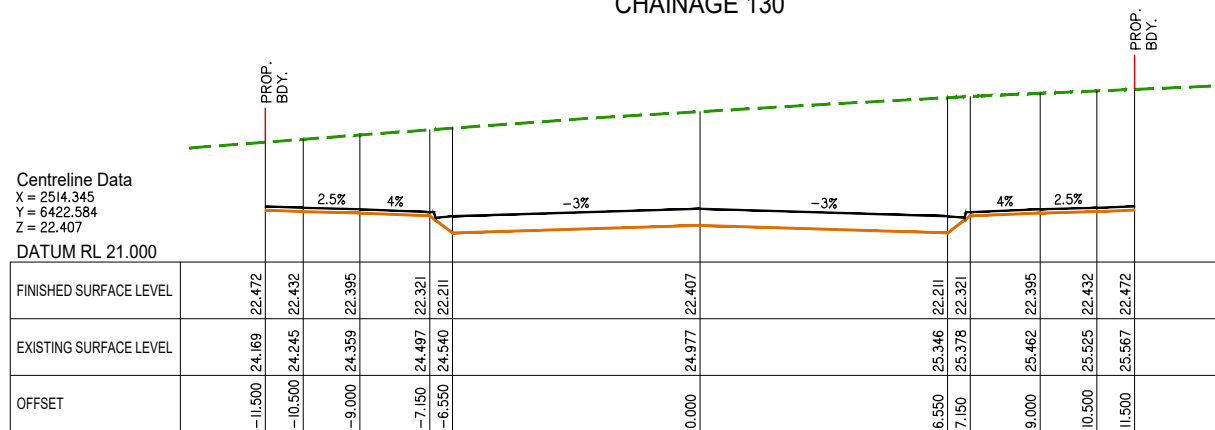
Date:	20-11-2020
-------	------------

Drawing No:
5941 ENG BE2 431

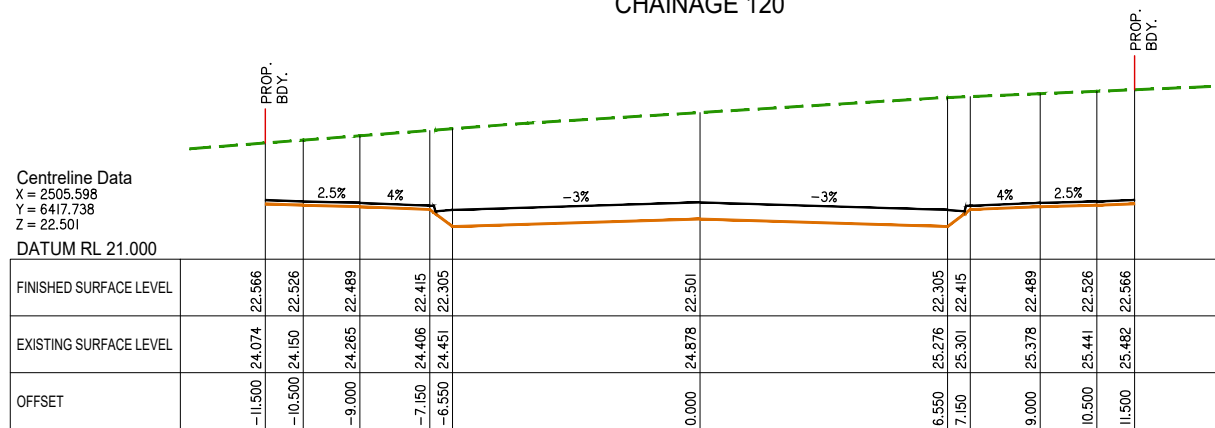
Rev. No:
A



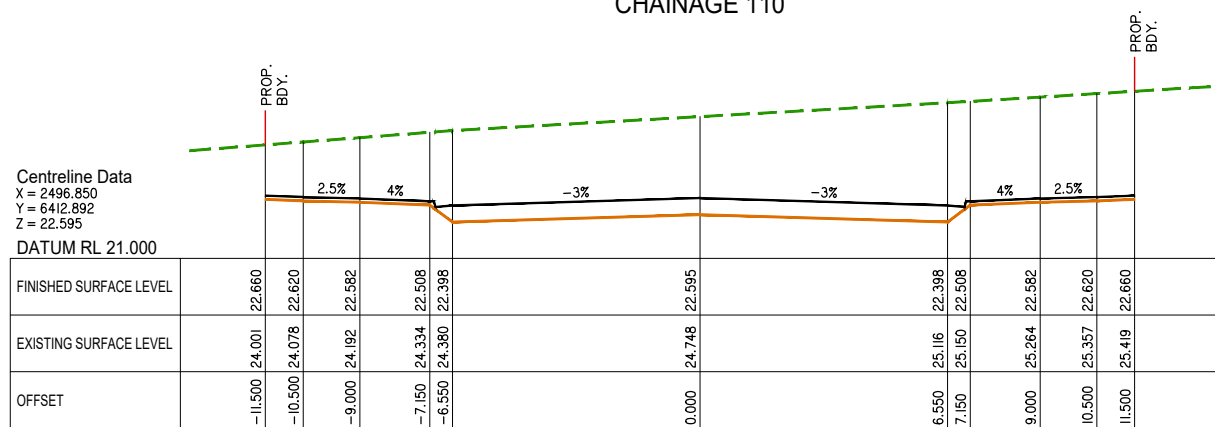
CHAINAGE 130



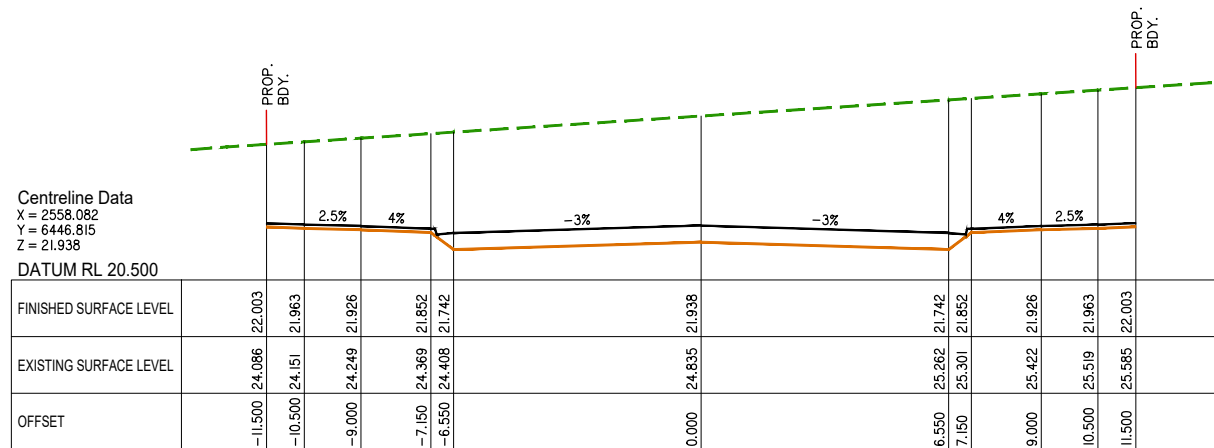
CHAINAGE 120



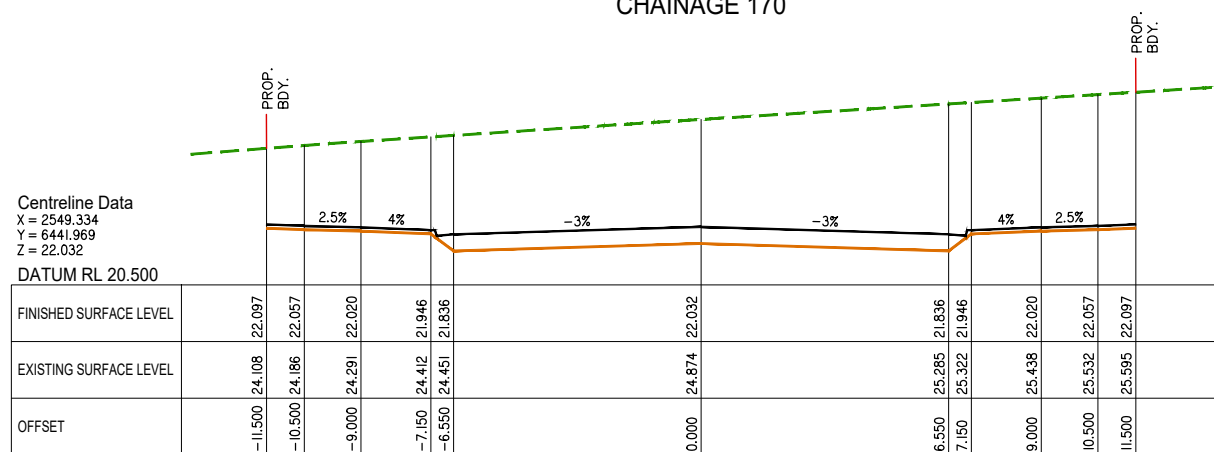
CHAINAGE 110



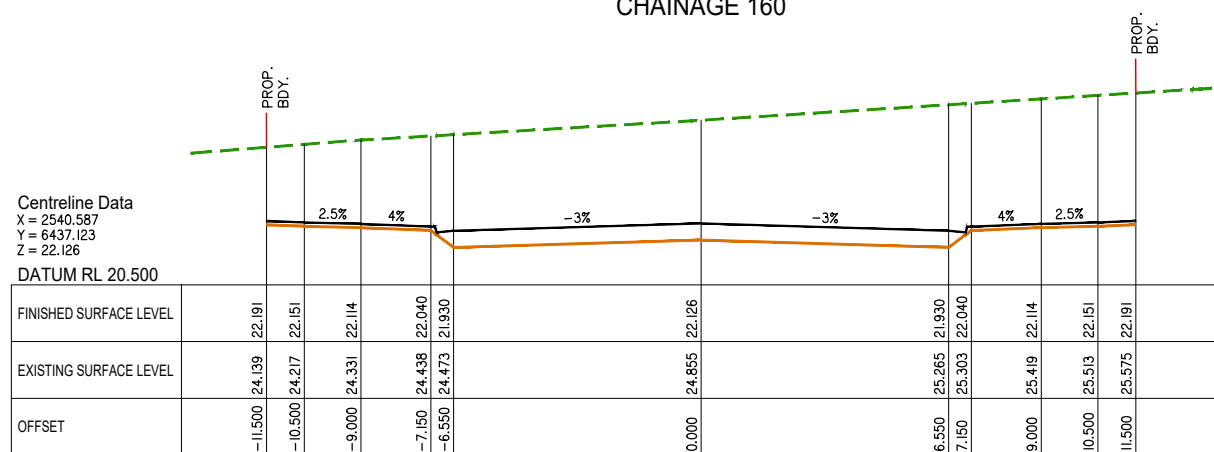
CHAINAGE 100



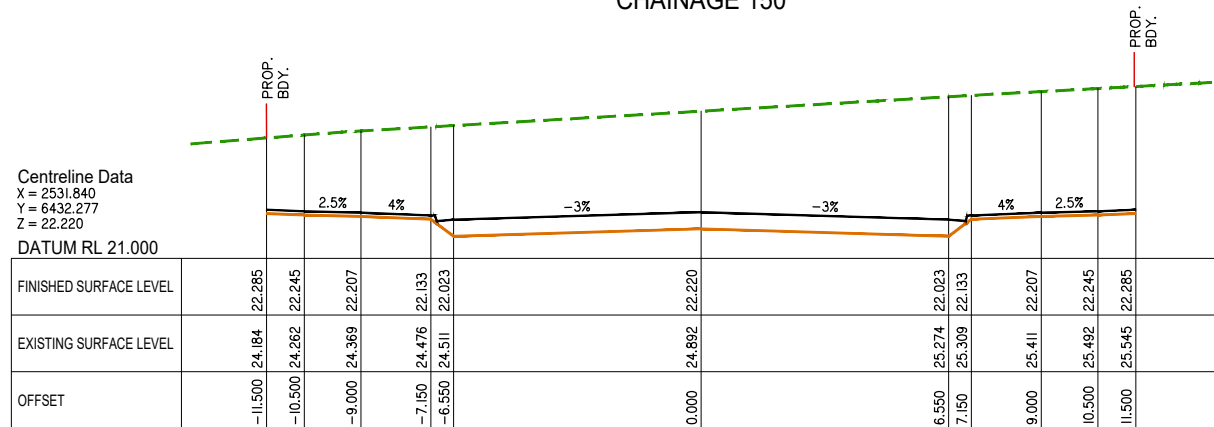
CHAINAGE 170



CHAINAGE 160



CHAINAGE 150



CHAINAGE 140

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL

Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

ROAD 01 CROSS SECTIONS
SHEET 6 OF 8

A	20-11-2020	ORIGINAL ISSUE	BA	MG
Issue	Date	Description	DRN	CHK

SCALE IN METRES

Scale 1:100 - Lengths are in Metres.

HOZ: 

Scale 1:100 - Lengths are in Metres.

VERT: 

Scale at A1: AS SHOWN

Designed:	IG
-----------	----

Designed:	IG
-----------	----

Drafted:	BA
----------	----

Approved:	MG
-----------	----

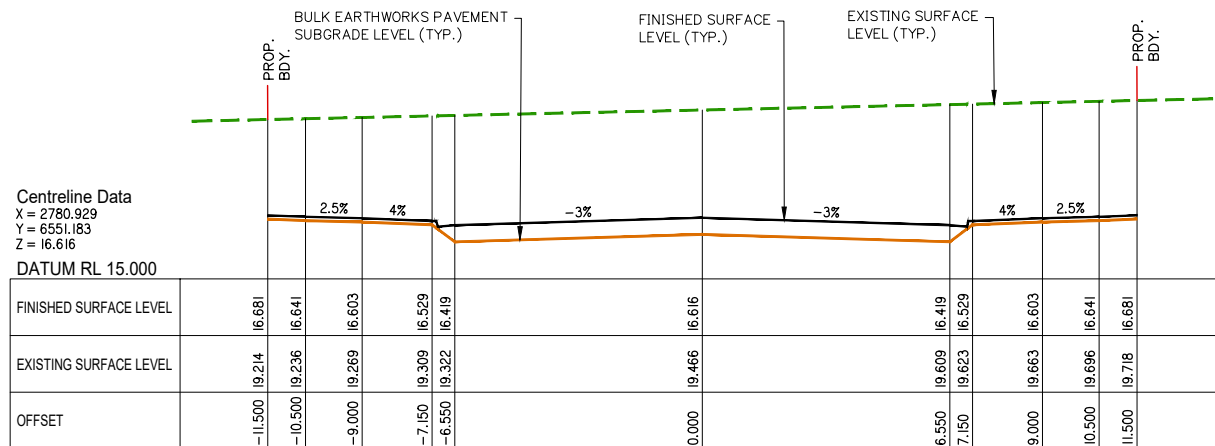
RPEQ:	16939
-------	-------

Signed:	
---------	---

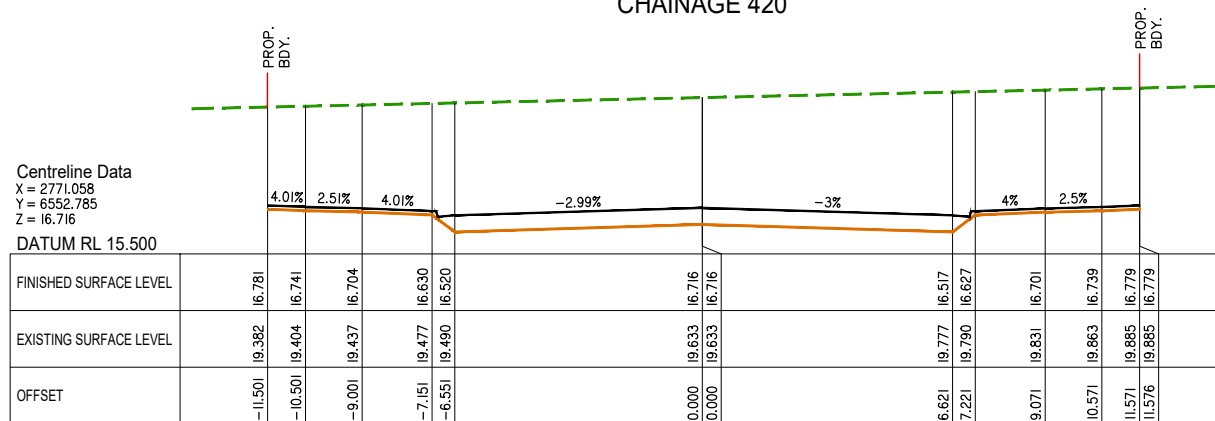
Date:	20-11-2020
-------	------------

Drawing No:	Rev. No:
5941 ENG BE2 435	A

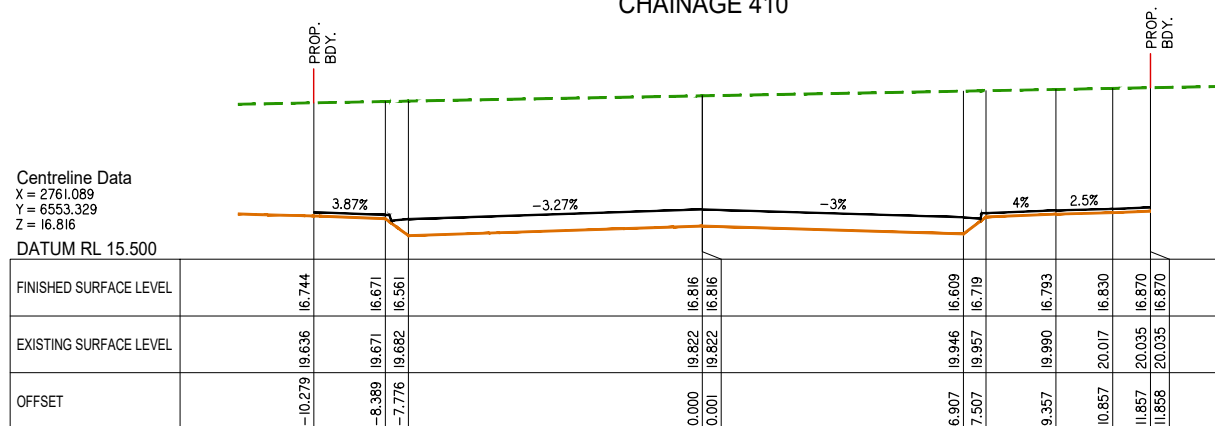
No:



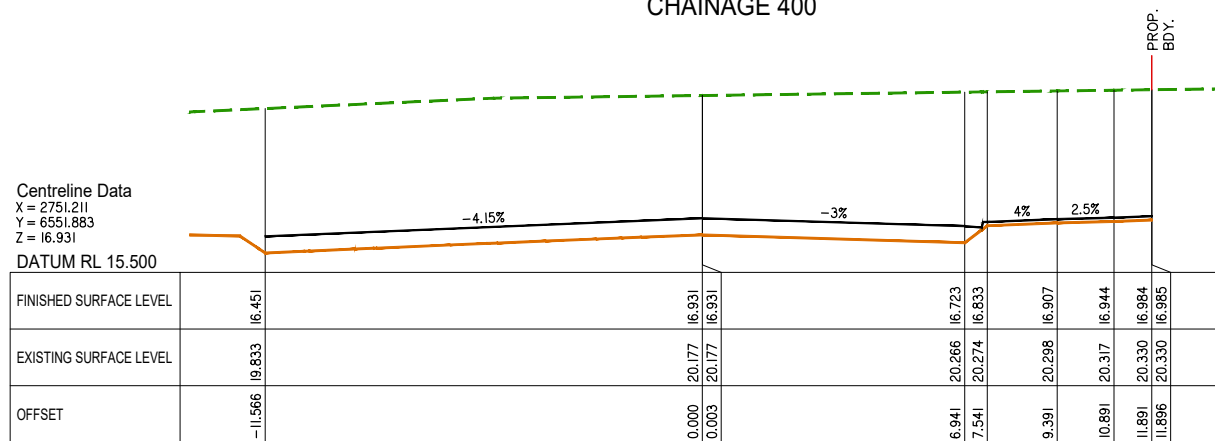
CHAINAGE 420



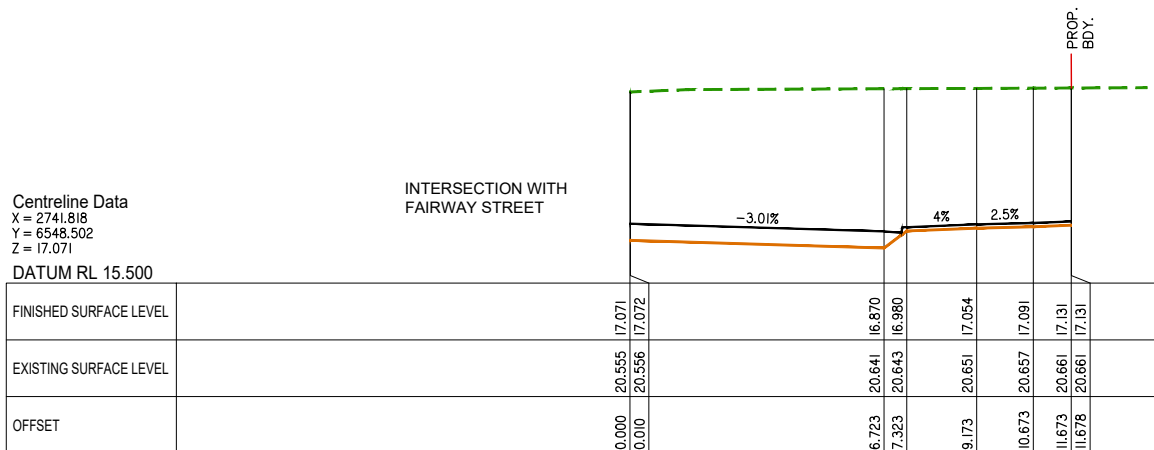
CHAINAGE 410



CHAINAGE 400



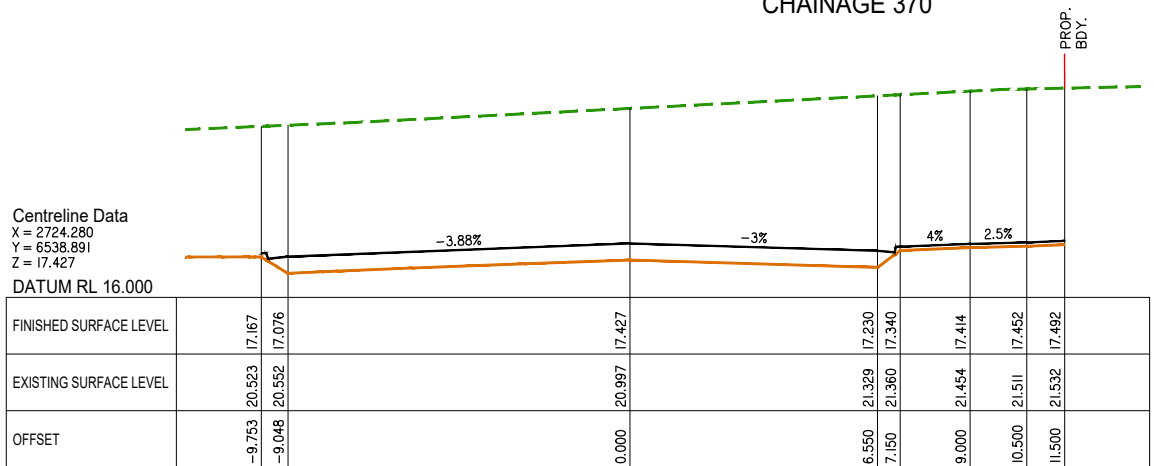
CHAINAGE 390



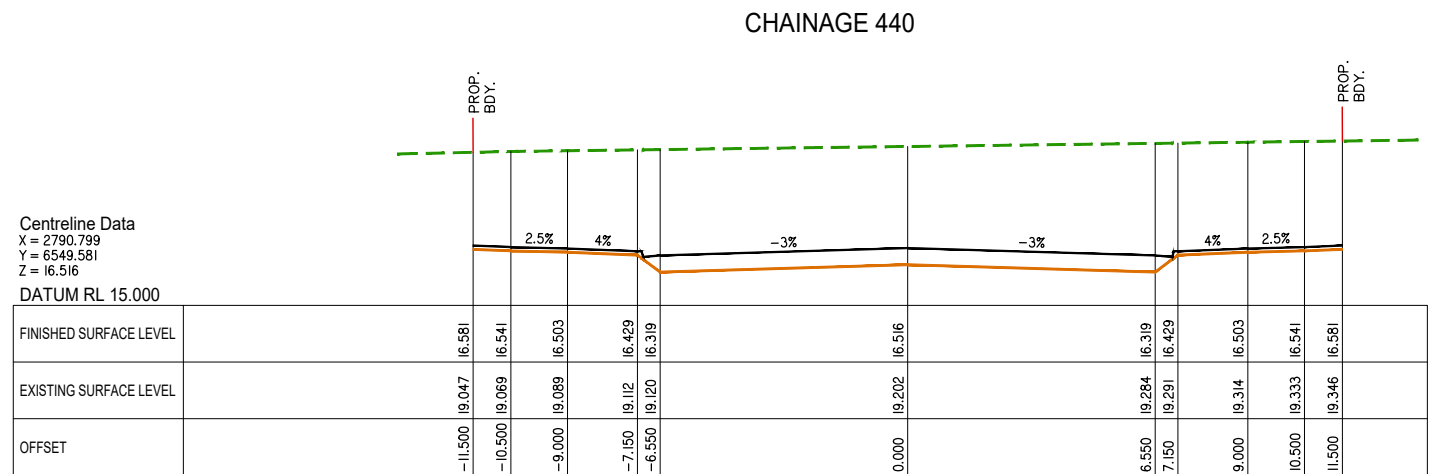
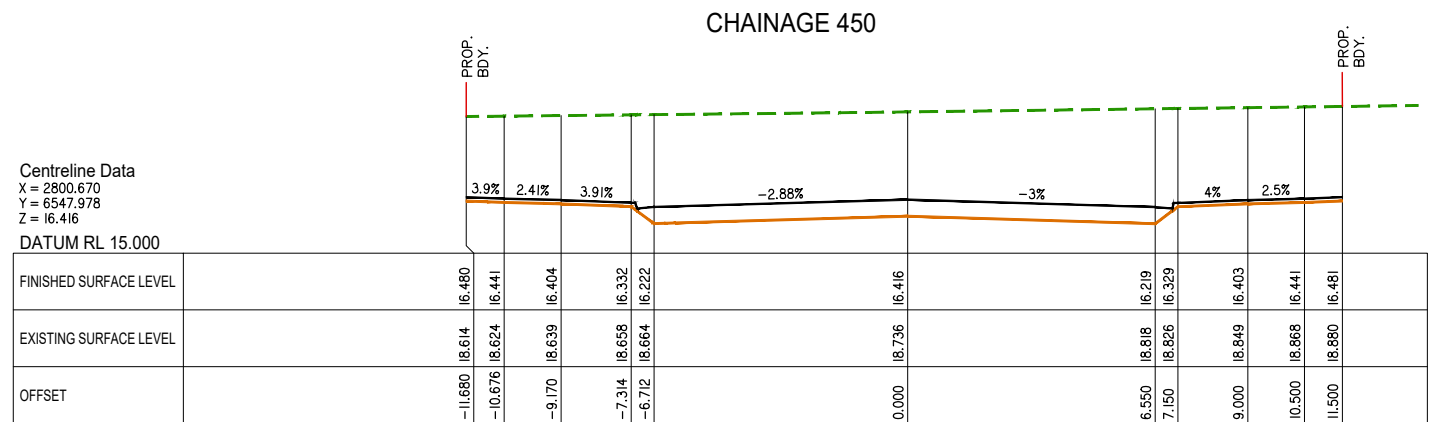
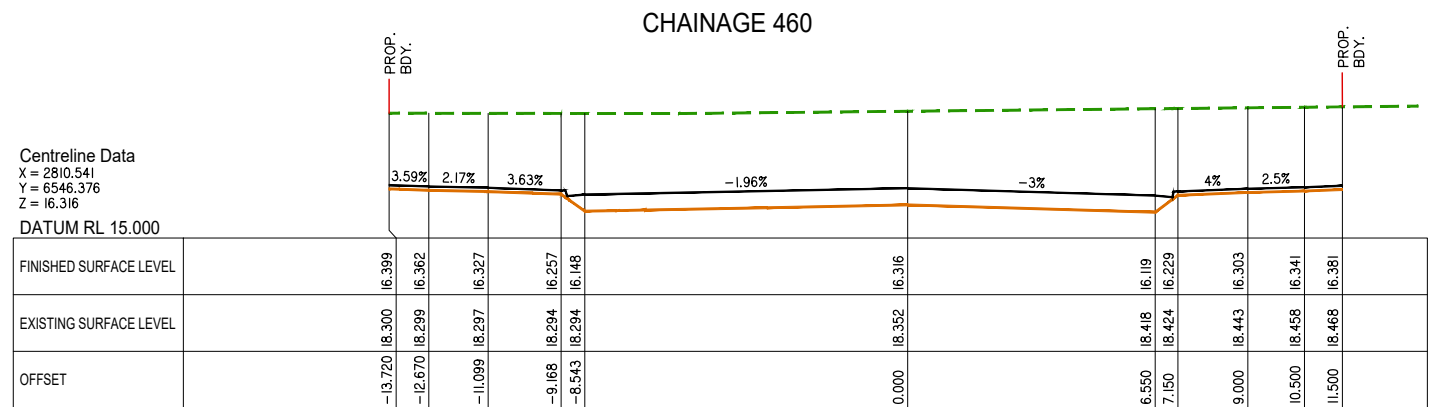
CHAINAGE 380



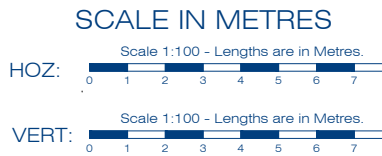
CHAINAGE 370



CHAINAGE 360



A	20-11-2020	ORIGINAL ISSUE	BA
LUE	Date	Description	DRI



Scale at A1:	AS SHOWN
Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020



Project: **VantageYatala**
STAGE 2

Site Address:
60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot:	501
Plan:	SP295994
Local Authority:	CITY OF GOLD COAST COUNCIL
Level Datum:	AHD
Meridian:	-
Contour Interval:	-
PSM:	-
RL:	-

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

ROAD 01 CROSS SECTIONS
SHEET 8 OF 8

A Issue	20-11-2020 Date		ORIGINAL ISSUE Description	BA DRN	MG CHK

SCALE IN METRES

Scale 1:100 - Lengths are in Metres.

HOZ:

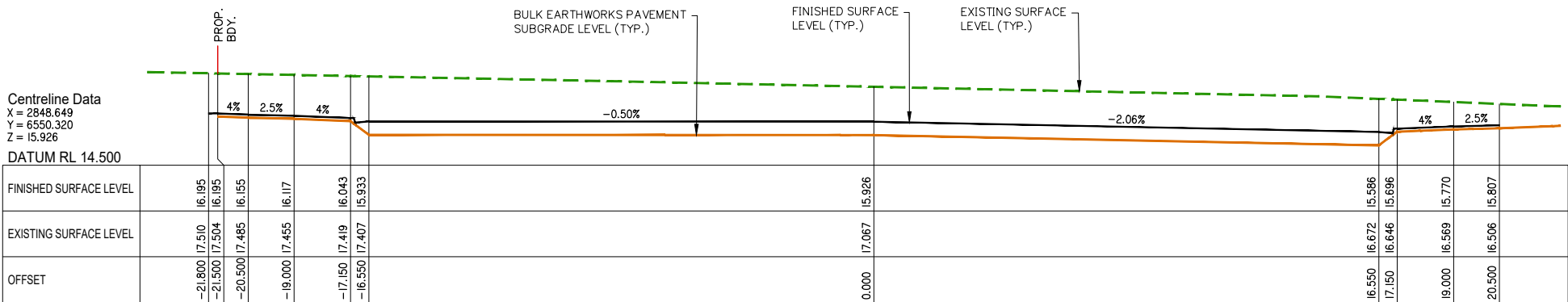
Scale 1:100 - Lengths are in Metres.

VERT: 

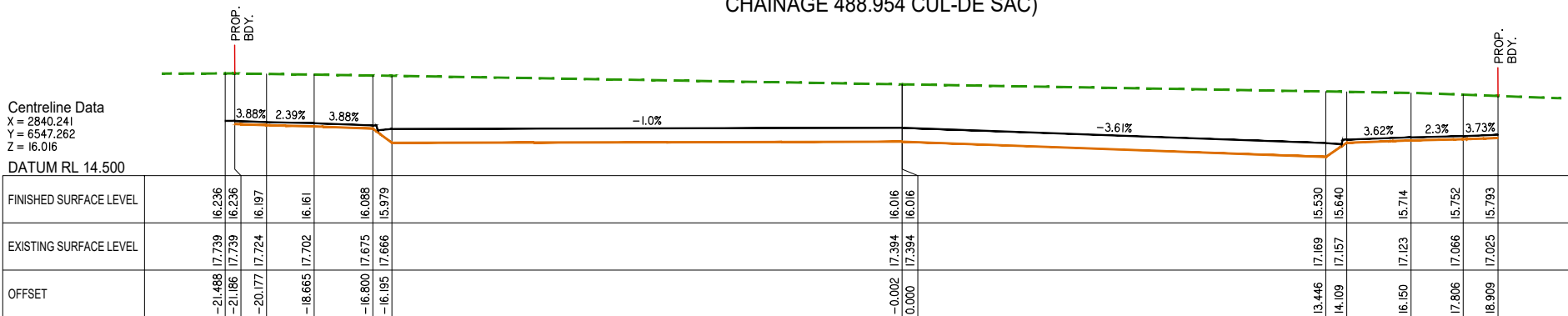
Scale at A1: AS SHOWN

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

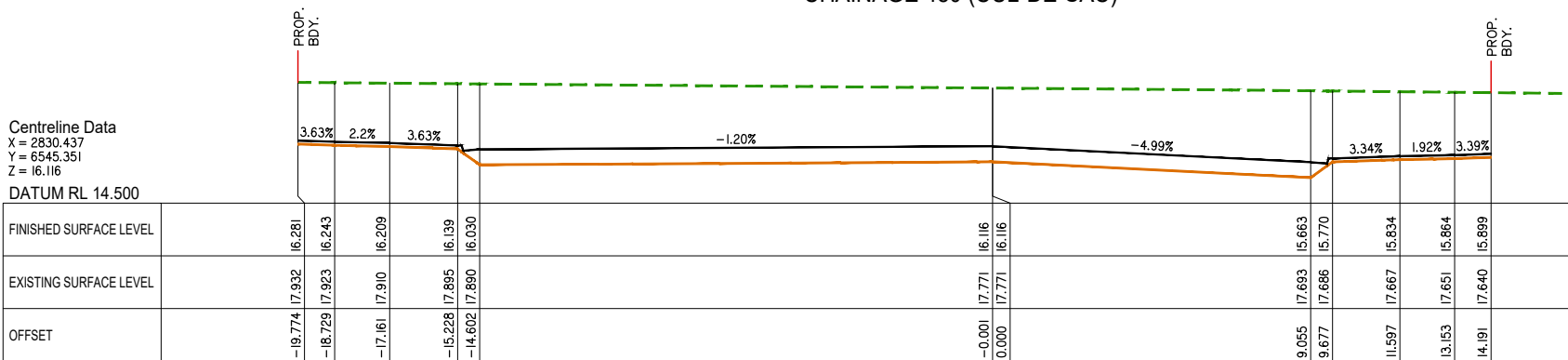
Drawing No:	Rev. No:
5941 ENG BE2 437	A



CHAINAGE 488.954 CUL-DE SAC)



CHAINAGE 480 (CUL-DE-SAC)



CHAINAGE 470

ROAD 01 CROSS SECTIONS SHEET 8 OF 8



Project: **VantageYatala**
STAGE 2

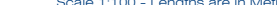
THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

Lot:	501
Plan:	SP295994
Local Authority:	CITY OF GOLD COAST COUNCIL
Level Datum:	AHD
Meridian:	-
Contour Interval:	-
PSM:	-
RL:	-

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

FAIRWAY STREET CROSS
SECTIONS SHEET 4 OF 4

Scale 1:100 - Lengths are in Metres.

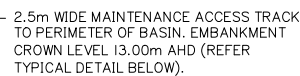
HOZ: 

Scale 1:100 - Lengths are in Metres.

VERT: 

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

g:\Projects\5941\engineering\Acad\BE2 CGL\Current\5941 ENG BE2 430-442.dwg



SCALE 1:250 (AI)



AEP (%)	MAX. WATER ELEVATION (m) A.H.D	MAX. WATER DEPTH (m)
63.2	11.458	0.988
0.5EY	11.611	1.141
20	11.737	1.267
10	11.812	1.342
5	11.875	1.405
2	11.944	1.474
1	11.992	1.522

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RI: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

©2012 Gassman Development Perspectives

All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

OPERATIONAL PHASE
BIORETENTION BASIN
SHEET 1 OF 4

A	20-11-2020	ORIGINAL ISSUE	BA	MG	
Issue	Date	Description	DRN	CHK	

SCALE IN METRES



1:250 (FULL SIZE A1)
1:500 (HALF SIZE A3)

Scale at A1: 1:250

Designed:	IC
-----------	----

Drafted:	BA
----------	----

Approved:	MG
-----------	----

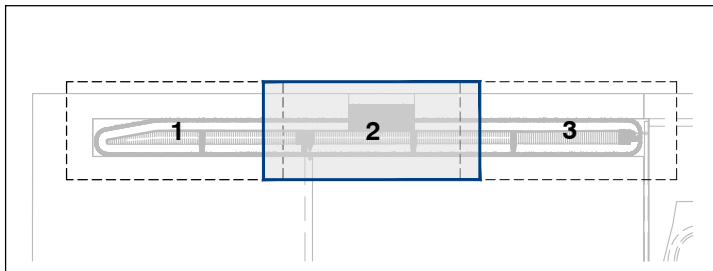
RPEQ:	16939
-------	-------

Signed:	<i>M. H. ...</i>
---------	------------------

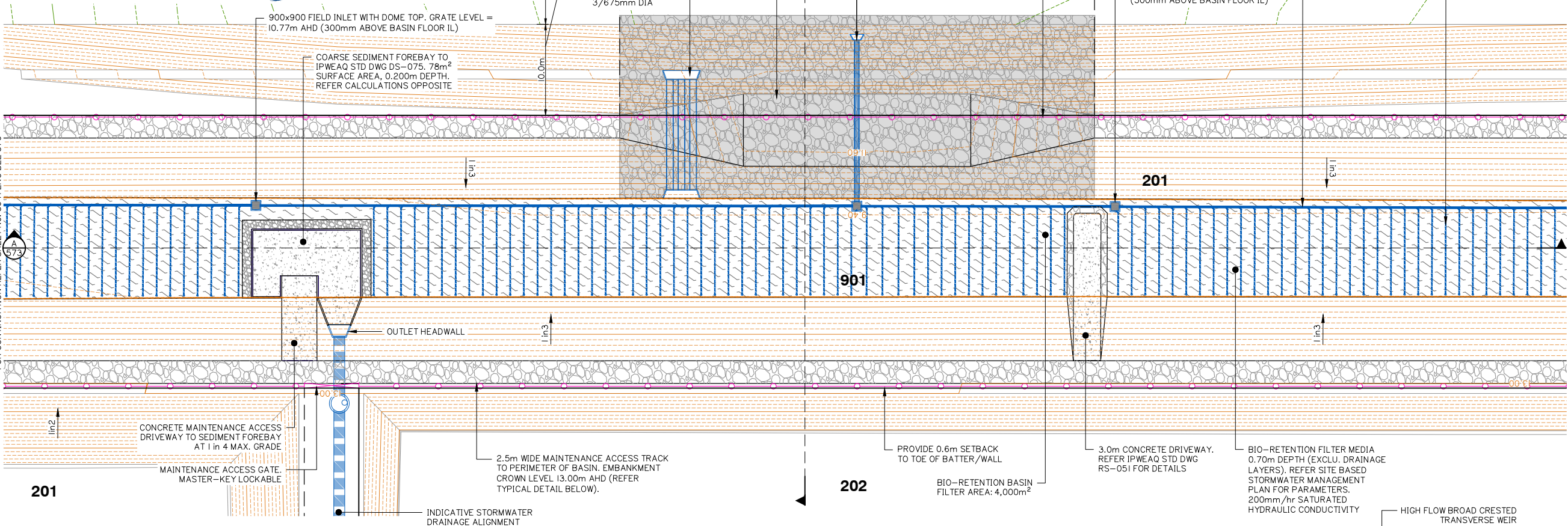
Date:	20-11
-------	-------

Drawing No:
5941 ENG BE2 570

Rev. No:
A



KEY PLAN
SCALE 1:3000



FOR CONTINUATION REFER SHEET No. 5941 ENG BE2 570

FOR CONTINUATION REFER SHEET No. 5941 ENG BE2 572

BIO RETENTION – COARSE SEDIMENT FOREBAY
SIZING GUIDE CALCULATIONS (TOTAL)

$V_s = A_c \times R \times L_o \times F = 17.568 \text{ m}^3$

$R = 1 - \left[1 + \frac{1}{n} \times \frac{V_s}{Q/A_f} \right]^{-n}$

$0.8 = 1 - \left[1 + \frac{0.10}{0.5} \times \frac{17.568}{4.316/A_f} \right]^{-0.5}$ $A_f = 517.92 \text{ m}^2$

$D_s = \frac{V_s}{A_f} = \frac{17.568}{517.92} = 0.034 \text{ m}$

OPTIMIZATION OF MINIMUM FOREBAY SIZE:

$D_s = \frac{17.568 \text{ m}^3}{14.700 \text{ m}^2 (78\text{m} \times 69\text{m}^2)} = 0.120 \text{ m}$

$V_s = 17.568 \text{ m}^3$ (Workings Above)

$A_c = 36.599 \text{ ha}$ (Refer Catchment Plan)

UNMITIGATED POST-DEVELOPMENT FLOW
 $Q = 4.316 \text{ m}^3/\text{s}$ (3 month ARI = 0.5 x 63.2% AEP)

$V_s = 0.1 \text{ m/s}$ (Recommended for 1mm Particle)

$R = 0.8$ (Recommended 80% Capture)

$L_o = 0.6$ (From Healthy Waterways Guide)

$n = 0.5$ (Recommended Turbulence)

$F_c = 1.0$ (Frequency of Clean Out / Yr)

REFER TO BIO RETENTION TECHNICAL DESIGN GUIDELINES FOR FURTHER INFORMATION

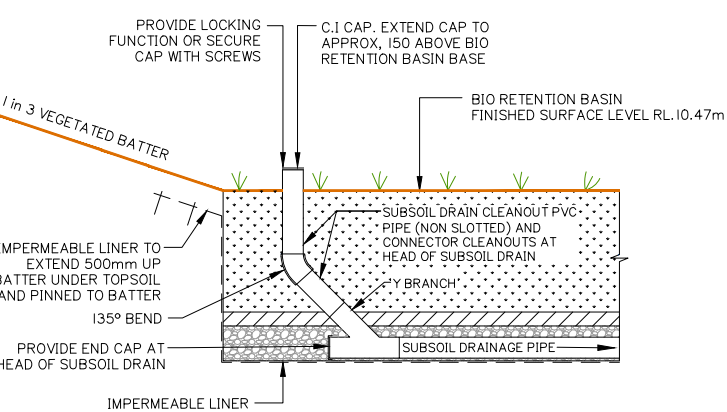
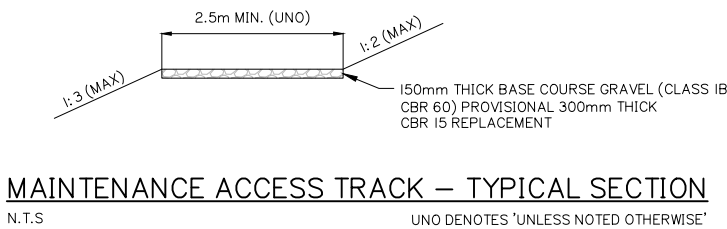
BIO-RETENTION NOTES:

MINIMUM BIO-RETENTION 'PROFILE' IS TO BE 1.0m AND IS TO CONSIST OF THE FOLLOWING:

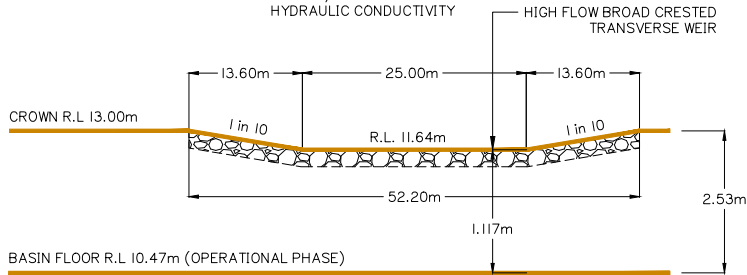
- * 0.70 OF SANDY LOAM MATERIAL WITH A HYDRAULIC CONDUCTIVITY OF 200mm/h AND A PARTICLE SIZE OF 0.45–0.50mm.
- * 0.15m OF COARSE SAND, PARTICLE SIZE TYPICALLY 0.5–2.0mm.
- * 0.25m OF GRAVEL DRAINAGE, PARTICLE SIZE 2–5mm SCREENING.

AGRICULTURAL PIPE TO BE INCLUDED IN FREE DRAINING AREAS TO ASSIST IN DRYING OUT THE DEVICE

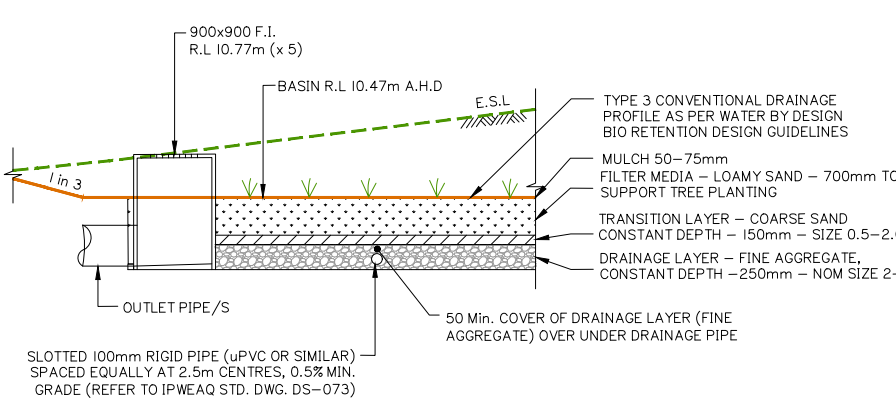
AEP (%)	MAX. WATER ELEVATION (m) A.H.D.	MAX. WATER DEPTH (m)
63.2	11.458	0.988
0.5EY	11.611	1.141
20	11.737	1.267
10	11.812	1.342
5	11.875	1.405
2	11.944	1.474
1	11.992	1.522



SUBSOIL DRAIN CLEANOUT – IN BASIN
N.T.S.



WEIR / SPILLWAY – TYPICAL ELEVATION
N.T.S.



TYPICAL BIO-RETENTION BASIN DETAIL
N.T.S.

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

©2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
OPERATIONAL PHASE
BIORETENTION BASIN
SHEET 2 OF 4

Issue	Date	Original Issue Description	BA	MG
A	20-11-2020			

SCALE IN METRES



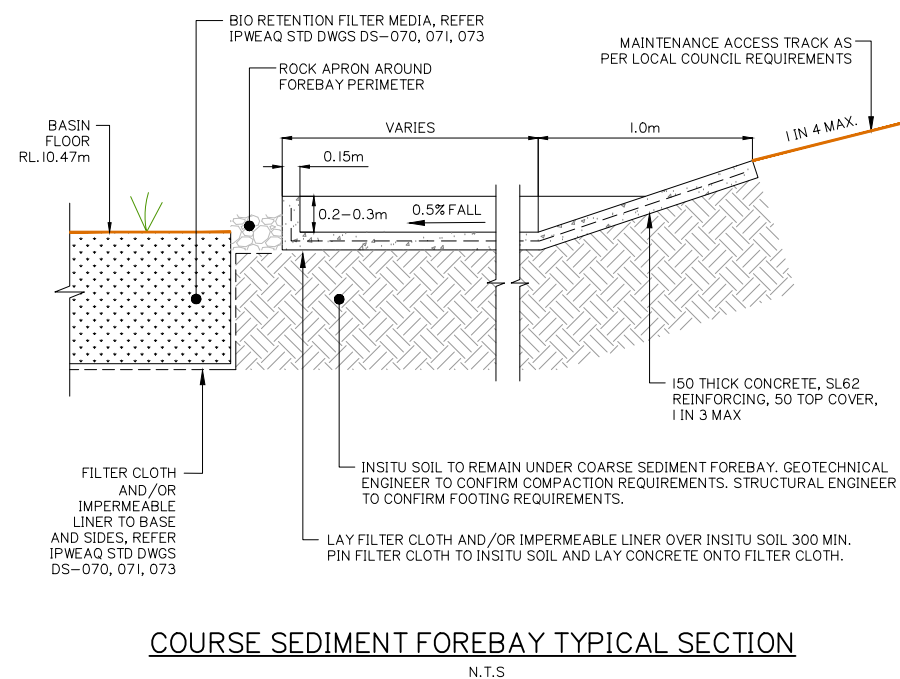
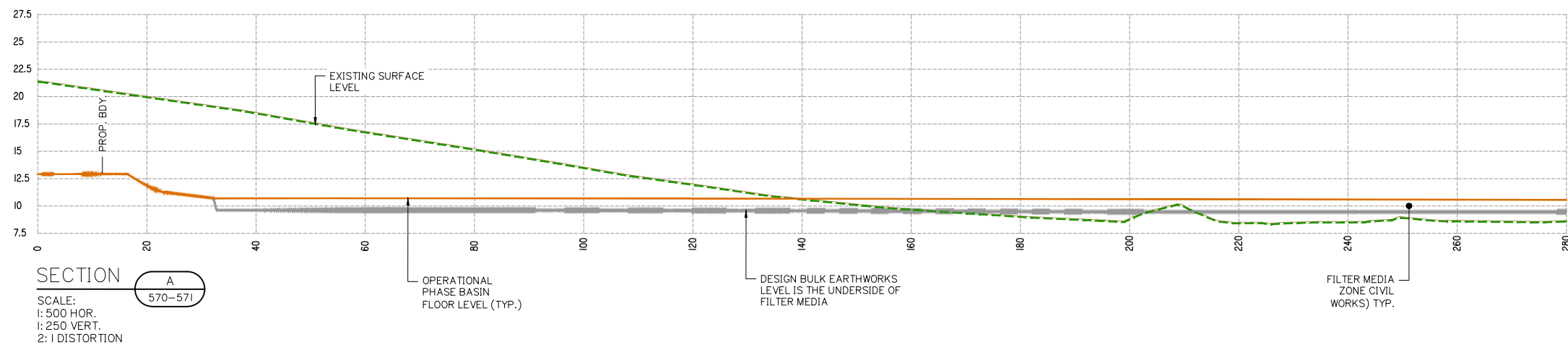
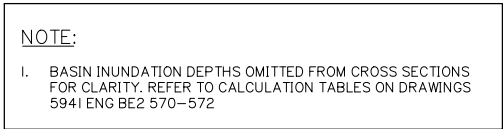
1:250 (FULL SIZE A1)
1:500 (HALF SIZE A3)

Scale at A1: 1:500

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 571

Rev. No:
A



Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala

STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RI: -

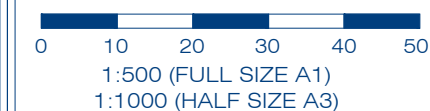
ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
OPERATIONAL PHASE
BIORETENTION BASIN
SHEET 4 OF 4

SCALE IN METRES



Scale at A1: 1:500

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 573

Rev. No:
A

APPENDIX F

STORMWATER MANAGEMENT PLAN

VantageYatala[®]



gassman
development
perspectives

SITE BASED STORMWATER MANAGEMENT PLAN

VANTAGE YATALA – STAGE 2 DEVELOPMENT APPLICATION FOR RECONFIGURING A LOT

ADDRESS

60 Stapylton Jacobs Well Road, Stapylton

REAL PROPERTY DESCRIPTION

Lot 501 on SP295994

PREPARED FOR

Frasers Property (Australia) Pty Ltd

November 2020 (Rev. 1)



gassman
development
perspectives

project coordination
urban + regional planning
landscape + urban design
engineering services
environmental management
visualisation + spatial services
surveying services
advisory services

“IMPORTANT NOTE”

Apart from fair dealing for the purposes of private study, research, criticism, or review as permitted under the Copyright Act, no part of this report, its attachments or appendices may be reproduced by any process without the written consent of *Gassman Development Perspectives Pty Ltd*.

We have prepared this report for the sole purposes of *Frasers Property (Australia) Pty Ltd* (“Client”) for the specific purpose of a *Site Based Stormwater Management Plan* (“Purpose”). This report is strictly limited to the Purpose and the facts and matters stated in it and does not apply directly or indirectly and will not be used for any other application, purpose, use or matter.

In preparing this report we have made certain assumptions. We have assumed that all information and documents provided to us by the Client or as a result of a specific request or enquiry were complete, accurate and up-to-date. Where we have obtained information from a government register or database, we have assumed that the information is accurate. Where an assumption has been made, we have not made any independent investigations with respect to the matters the subject of that assumption. We are not aware of any reason why any of the assumptions are incorrect.

This report is presented without the assumption of a duty of care to any other person (“Third Party”) other than the Client. The report may not contain sufficient information for the purposes of a Third Party or for other uses. Without the prior written consent of Gassman Development Perspectives Pty Ltd:

- a) This report may not be relied on by a Third Party; and
- b) Gassman Development Perspectives Pty Ltd will not be liable to a Third Party for any loss, damage, liability or claim arising out of or incidental to a Third Party publishing, using or relying on the facts, content, opinions or subject matter contained in this report.

If a Third Party uses or relies on the facts, content, opinions or subject matter contained in this report with or without the consent of Gassman Development Perspectives Pty Ltd, Gassman Development Perspectives Pty Ltd disclaims all risk and the Third Party assumes all risk and releases and indemnifies and agrees to keep indemnified Gassman Development Perspectives Pty Ltd from any loss, damage, claim or liability arising directly or indirectly from the use of or reliance on this report.

In this note, a reference to loss and damage includes past and prospective economic loss, loss of profits, damage to property, injury to any person (including death) costs and expenses incurred in taking measures to prevent, mitigate or rectify any harm, loss of opportunity, legal costs, compensation, interest and any other direct, indirect, consequential or financial or other loss.

GDP DOCUMENT CONTROL

Originating Office:	Gold Coast	Job Number:	5941
Physical Address:	76 Business Street Yatala. Q. 4207	Project Manager:	Mitchell Gassman
Postal Address:	PO Box 392 Beenleigh. Q. 4207	Document Title:	Site Based Stormwater Management Plan
Phone:	+61 7 3807 3333	Author:	Ian Grieves
Fax:	+61 7 3287 5461	Client:	Frasers Property (Australia) Pty Ltd
Email:	mail@gassman.com.au	Client Contact:	Paul Solomon
Web:	www.gassman.com.au	Client Reference:	N/A

Revision / Checking History

No.	Author	Reviewer	Date
INTERNAL DRAFT	Ian Grieves	Mitchell Gassman	18 November 2020
1.	Ian Grieves	Mitchell Gassman	18 November 2020

Approval for Issue

Rev. No.	Name	Position	Signature	Date
1.	Mitchell Gassman	Civil Project Engineer RPEQ 16939		20 November 2020

Final Distribution

Frasers Property (Australia) Pty. Ltd. (Client)	1 electronic copy
City of Gold Coast Council (Assessment Manager)	1 electronic copy
GDP File	1 electronic copy

TABLE OF CONTENTS

1.0	INTRODUCTION	6
2.1	LOCATION	7
2.2	SITE AREA	8
2.3	EXISTING TOPOGRAPHY AND SITE DRAINAGE	8
2.4	EXISTING LAND USAGE	8
2.5	PLANNING PROVISIONS AND PROPOSED DEVELOPMENT	9
2.6	FLOODING	9
3.0	CONVEYANCE MANAGEMENT AND PRE AND POST DEVELOPMENT CATCHMENTS	10
3.1	LAWFUL POINT OF DISCHARGE	10
3.2	PRE DEVELOPMENT CATCHMENTS	10
3.3	POST DEVELOPMENT CATCHMENTS	10
3.4	EXTERNAL CATCHMENT CONVEYANCE	11
4.0	HYDROLOGICAL ASSESSMENT	11
4.1	TEMPORAL PATTERNS AND RAINFALL DATA	11
4.2	CATCHMENTS	12
4.3	LAND USE	14
4.4	PRE AND POST DEVELOPMENT FLOW CALCULATIONS	15
5.0	STORMWATER QUANTITY, DETENTION & HYDRAULIC DESIGN	18
5.1	ATTENUATION OF DEVELOPED FLOWS	18
5.2	METHODOLOGY	18
5.2.1	MODEL CONDITIONS	18
5.2.2	CRITICAL STORM EVENT AND DURATIONS	19
5.2.3	DETENTION SYSTEM DESIGN	20
5.2.4	MODEL RESULTS	21
5.2.5	DISCUSSION ON MODELLING OUTCOMES	22
6.0	STORMWATER QUALITY	23
6.1	POLLUTANTS OF CONCERN	23
6.2	STORMWATER QUALITY OBJECTIVES (OPERATIONAL PHASE)	23
6.3	PROPOSED STORMWATER QUALITY MANAGEMENT STRATEGY	24
6.3.1	BIO RETENTION BASINS	24
6.4	MUSIC MODELLING METHODOLOGY FOR THE DEVELOPMENT SITE	26
6.4.1	METEOROLOGICAL DATA	26
6.4.2	SOURCE NODES	27
6.4.3	DRAINAGE LINKS	29

6.4.4	MUSIC MODEL LAYOUT AND RESULTS.....	30
7.1	CONSTRUCTION PHASE SEDIMENT AND EROSION CONTROL	34
7.2	ASSET OWNERSHIP AND HANDOVER	34
7.3	MAINTENANCE OF BIO RETENTION BASINS DURING OPERATIONAL PHASE	34
8.0	CONCLUSION	35
	APPENDIX A – SITE SURVEY PLAN	36
	APPENDIX B – PRE AND POST DEVELOPMENT CATCHMENT PLANS.....	37
	APPENDIX C – DESIGN OF STORMWATER QUANTITY AND QUALITY BASIN	38
	APPENDIX D – SEDIMENT & EROSION CONTROL PLANS.....	39
	APPENDIX E – MUSIC CATCHMENT PLAN	40
	APPENDIX F – MUSIC LINK REPORT	41
	APPENDIX G – WSUD BIO RETENTION BASIN MAINTENANCE CHECKLISTS	42
	APPENDIX H – BUREAU OF METEOROLOGY RAINFALL DATA	43
	APPENDIX I – AR&R STORM & LOSS DATA	44
	APPENDIX J – PROPOSED RECONFIGURATION OF LOT PLAN (ROL)	45
	APPENDIX K – PRE AND POST DEVELOPMENT PEAK FLOW HYDROGRAPHS.....	46
	APPENDIX L – PEAK FLOW BOX & WHISKER PLOTS.....	47
	APPENDIX M – MITIGATION RESULTS	48
	APPENDIX N – EXTERNAL STORMWATER CATCHMENT CONVEYANCE STRATEGY	49
	APPENDIX O – WSUD DESIGN CHECKLISTS	50

1.0 INTRODUCTION

Gassman Development Perspectives (GDP) has been engaged by Frasers Property (Australia) Pty Ltd (Client) to prepare a Site Based Stormwater Management Plan over land situated at 60 Stapylton Jacobs Well Road, Stapylton (Lot 501 on SP295994) being the 'subject site'.

This report has been prepared for submission to City of Gold Coast Council (Council) as part of a Development Application for Reconfiguring a Lot to facilitate Stage 2 of the *Vantage Yatala* industrial development with the intent of investigating and addressing the stormwater quantity and stormwater quality requirements for the proposed development in accordance with the applicable State and Local Government standards.

Stormwater quantity is addressed through pre and post development scenarios modelled in XPSTORM software utilising temporal pattern inputs from the Australian Rainfall & Runoff (AR&R) Data Hub and the AR&R Storm Generator.

A strategy for managing post development peak flows discharging from the site and the required attenuation measures are provided to demonstrate that any increase in peak flows can be managed within the subject site as not to measurably impact neighbouring properties.

Stormwater quality analysis is also undertaken through the use of MUSIC software to confirm the adequacy of proposed Stormwater Quality Improvement Devices (SQIDs) required to meet the State Planning Policy's (SPP 2017) Water Quality Objectives (WQOs) and the pollutant removal targets set by City of Gold Coast Council.

A copy of the XPSTORM and MUSIC modelling data files can be provided upon request.

2.0 SITE CHARACTERISTICS

2.1 LOCATION

The subject site is located within the City of Gold Coast Council local government boundaries.

The subject site is bounded by Stapylton Jacobs Well Road and existing industrial uses to the north, Christensen Road and existing industrial uses to the west and City of Gold Coast Council's land fill facility to the east.

The site has recently been cleared of all vegetation under existing Operational Works approval obtained from Council.



Figure 2.1.1: Site Locality Plan, Source: QLD Globe 2020

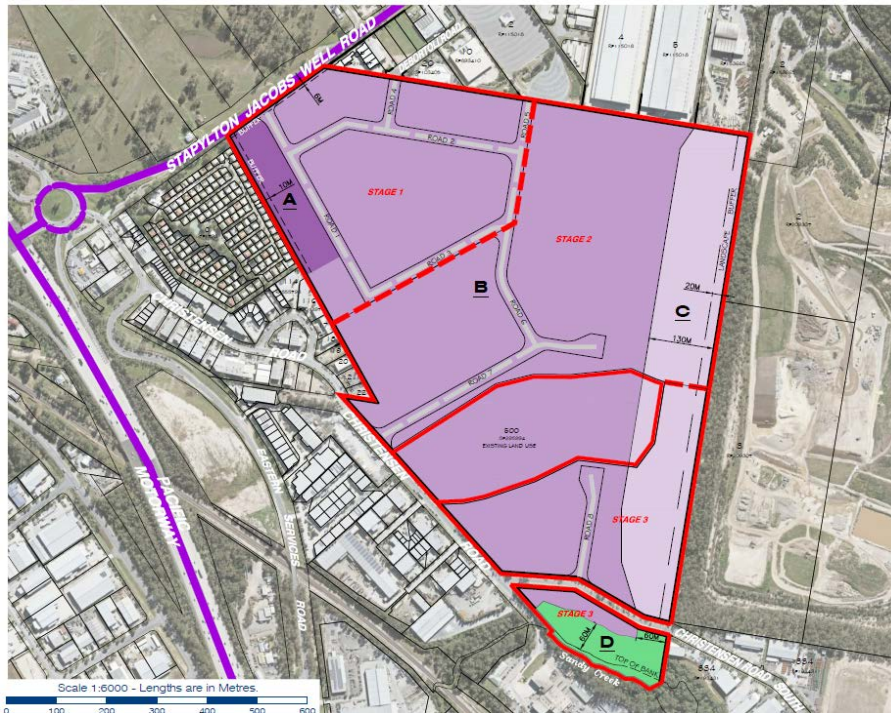


Figure 2.1.2: Vantage Yatala Staging Plan, Source: CoGC Prelim Approval

2.2 SITE AREA

The current area of the site is 64.239 Ha of which Stage 2 makes up 32.235Ha (refer Figure 2.1.2 above). Refer to **Appendix J** for the proposed Reconfiguration of a Lot (ROL) plan.

2.3 EXISTING TOPOGRAPHY AND SITE DRAINAGE

Along the south-eastern boundary of the subject site is the existing high point of 29.23m AHD with a ridge line extending through to the properties' northern boundary. This existing topography defines the existing catchments of the site and current stormwater discharge locations along the northern and eastern boundaries. These low points are visible within **Appendix A – Site Survey Plan** of the report with the pre development catchments defined within **Appendix B – Pre and Post Development Catchment Plans**.

2.4 EXISTING LAND USAGE

The subject land is vacant following the clearing of all vegetation in 2019.

2.5 PLANNING PROVISIONS AND PROPOSED DEVELOPMENT

The subject site is zoned “Low Impact Industry, Future Precinct” and “Medium Impact Industry, Future Precinct” under Council’s current City Plan for which Stage 2 sits wholly within the “Medium Impact Industry, Future Precinct”. The current proposal involves creating further industrial lots behind approved Stage 1 within the subject site which will require large scale bulk earthworks necessary to facilitate clear and flat earthwork pads suitable for this land use.

2.6 FLOODING

The subject site is located within the extent of the Flood Overlay as defined in Council’s City Plan Interactive Mapping – Version 5, 6 and 7 (refer **Figure 2.6** below).

As part of Stage 1 of the development compensatory earthworks within private property located off Yellowwood Road to the north was undertaken in 2019 to balance flood storage where fill within the subject site is proposed below the Designated Flood Level of RL8.60m AHD (Q₁₀₀) utilising CoGC City Plan v5 which was current at the time of the existing approval.

As shown within **Figure 2.6** below, the extent of Stage 2 development proposed as part of this application is not subject to any mapped flooding and as such no compensatory works are proposed or required to facilitate the development.



Figure 2.6 Council Flood Mapping of Subject Site, Source: CoGC Interactive Mapping

3.0 CONVEYANCE MANAGEMENT AND PRE AND POST DEVELOPMENT CATCHMENTS

3.1 LAWFUL POINT OF DISCHARGE

The *Queensland Urban Drainage Manual* (QUDM) 1992 edition *formerly* set criteria that defined a lawful point of discharge for a proposed development. The term described a two-point test. This criterion is obsolete.

The meaning defined in QUDM 2017 is different from the more general term 'lawful discharge of stormwater' because it *"requires the stormwater to be released at a location that is under the lawful control of the local government or other statutory authority from whom permission to discharge has been received."*

The revised criteria for determining a lawful point of discharge are: (taken from QUDM 2017)

- i) Will the proposed development alter the sites stormwater discharge characteristics in a manner that may substantially damage a third party property?
- ii) Is the location of the discharge from the development site under the lawful control of the local government or other statutory authority from whom permission to discharge has been received?
- iii) An authority to discharge over affected properties will be necessary. In descending order of certainty, an authority may be in the form of: a) dedication of a drainage reserve or park, b) a registered easement for stormwater discharge / works or written discharge approval.

The subject development proposal for Stage 2 will utilise one (1) lawful point of discharge being the existing low point along the site's south-eastern common boundary shared with Council's land fill facility where the existing gully line conveying both internal and upstream external catchments through the subject site lawfully discharges.

3.2 PRE DEVELOPMENT CATCHMENTS

The existing natural slope currently dictates the overland flow and drainage pattern of the subject site as illustrated in the pre development stormwater catchment plan within **Appendix B**. The flow patterns generally follow the ridgeline falling towards the existing low points of the site.

3.3 POST DEVELOPMENT CATCHMENTS

The intent of the proposed bulk earthworks outlined within this Stormwater Management Plan is to generally follow the pre development conditions to ensure no worsening of stormwater impacts downstream both during and post the construction period.

Whilst the proposed bulk earthworks over the site generally flatten the existing steep grades of the land as part of creating the earthworked pads, the increase in impervious areas

associated with the proposed land use mean that a hydrologic review is required to determine the changes in discharge characteristics (i.e. peak flow, water quality) from the site and to identify suitable attenuation measures that need to be implemented to mitigate any potential downstream impacts.

The post development catchments are illustrated within the post development catchment plan included within **Appendix B**. As demonstrated within these plans, the LPoD for Stage 2 remains consistent in both the pre and post development scenarios.

3.4 EXTERNAL CATCHMENT CONVEYANCE

An assessment of the surrounding boundary conditions for Stage 2 via Lidar survey have identified a number of external catchments that run through the site that will need to be managed and conveyed through the proposed development in the post-development scenario. These have been identified within the catchment mapping contained within **Appendix B** of the report and are summarised as follows:

- **CAT-X1** – Is an upstream catchment contained on the neighbouring northern allotment discharging into the Stage 2 extent falling to the natural low point of the site.
- **CAT-X2** – Discharges into the Stage 2 extent via an existing 750mm stormwater pipe and headwall located to the immediate west of proposed Lot 206.
- **CAT-6A** – Is an upstream catchment contained within 82 Christensen Road (Lot 55 on SP295994) that discharges into the Stage 2 extent via an existing dam weir directed into the proposed Common Property near the south-east boundary of the subject site.

A strategy for managing the conveyance of the external catchments through the subject site in a manner that still facilitates the intended Stage 2 development layout is shown within **Appendix N**.

4.0 HYDROLOGICAL ASSESSMENT

4.1 TEMPORAL PATTERNS AND RAINFALL DATA

Rainfall data for use in XPSTORM software has been sourced from the Australian Rainfall & Runoff 2016 Storm Generator and the AR&R Data Hub. This application generates rainfall data for the various design storm hydrographs which have been utilised in the below modelling of stormwater runoff from the subject site.

Appendix H contains a copy of the Intensity-Frequency-Duration (IFD) data sourced from the Bureau of Meteorology (BoM) utilised for the hydraulic analysis and sediment basin sizing.

Appendix I contains a copy of the AR&R Data Hub rainfall data utilised for the XPSTORM hydrological analysis. It is noted that the predicted climate change factors, and pre-burst losses are incorporated into the data for analysis.

4.2 CATCHMENTS

As discussed within Section 3 of this report the pre and post development stormwater catchments (refer **Appendix B**) have been determined using a combination of the site based Contour and Detail survey undertaken by Gassman Development Perspectives (refer **Appendix A**) along with LiDAR survey of the surrounding area to identify any potential external catchments.

A summary of the parameters assigned to these sub-catchments used to assess the pre and post development flows is contained within *Tables 4.2A, 4.2B and 4.2C* below which aligns with the two scenarios assessed within this reporting.

Parameter	Sub-Catchments (Pre Development – Contributing to LPoD-1 / Stage 2)		
Name	CAT-X1	CAT-X2	CAT-1
Area (Ha)	1.637	2.182	12.715
Vectored Slope (%)	1.00	1.00	5.41
Impervious Area (%)	90.00	90.00	5.00
Pervious Area (%)	10.00	10.00	95.00
Roughness (n)	0.020	0.020	0.080
Parameter	Sub-Catchments (Pre Development – Contributing to LPoD-1 / Stage 2)		
Name	CAT-2	CAT-3	CAT-4
Area (Ha)	7.114	3.015	8.666
Vectored Slope (%)	5.95	5.54	5.80
Impervious Area (%)	1.00	0.00	0.00
Pervious Area (%)	99.00	100.00	100.00
Roughness (n)	0.050	0.080	0.100
Parameter	Sub-Catchments (Pre Development – Contributing to LPoD-1 / Stage 2)		
Name	CAT-5	CAT-6	CAT-6A
Area (Ha)	4.144	6.474	4.767
Vectored Slope (%)	4.02	3.91	3.50
Impervious Area (%)	0.00	0.00	35.00
Pervious Area (%)	100.00	100.00	65.00
Roughness (n)	0.050	0.100	0.030

Table 4.2A: Pre Development Catchment Parameters

Parameter	Contributing Catchments
Reporting Location	LPoD-1
Contributing Sub Catchments	CAT-1, CAT-2, CAT-3, CAT-4, CAT-5, CAT-6, CAT-6A, CAT-X1 and CAT-X2
Area (Ha)	50.714
Initial Loss (mm)	17.20
Continuing Loss (mm/hr)	1.60

Table 4.2B: Contributing Catchment Parameters to Reporting Location LPoD-1

Parameter	Catchments (Post Development for Stage 2)	
Name	LPoD-1 <i>Impervious Catchment</i>	LPoD-1 <i>Pervious Catchment</i>
Total Area (Ha)	36.599 (83% Impervious, 17% Pervious)	
Area Split (Ha)	30.153	6.446
Vectored Slope (%)	1.00	1.00
Impervious Area (%)	100.00	0.00
Roughness (n) for Impervious Area	0.015	N/A
Pervious Area (%)	0.00	100.00
Roughness (n) for Pervious Area	N/A	0.045
Initial Loss (mm)	0.00	17.20
Continuing Loss (mm/hr)	1.60	1.60

Table 4.2C: Post Development Catchment Parameters LPoD-1

4.3 LAND USE

Land uses were mapped within the pre and post development catchments with the varying hydraulic roughness and hydrological losses input into the XPSTORM model summarised in *Table 4.3 below*.

Land Use Type LPoD-1 (Stage 2)	Initial Loss (mm)	Continuing Loss (mm/hr)
Pre Developed		
Pervious	17.20	1.60
Impervious	0.00	1.60

Land Use Type LPoD-1 (Stage 2)	Initial Loss (mm)	Continuing Loss (mm/hr)
Post Developed		
Pervious	17.20	1.60
Impervious	0.00	1.60

Table 4.3: Summary of Adopted Initial & Continuing Losses (AR&R Data-HUB 2016)

4.4 PRE AND POST DEVELOPMENT FLOW CALCULATIONS

XPSTORM modelling software was utilised to determine the pre and post development discharge flow rate for the contributing catchments based on the parameters listed above.

The computations were undertaken for the standard Average Exceedance Probabilities (AEP) 63.2%, 0.5EY, 20%, 10%, 5%, 2% and 1%.

Catchment runoff volumes to the respective existing Lawful Points of Discharge (reporting locations) are summarised in *Table 4.4*.

Catchment	Peak Flow Rates for Average Exceedance Probability (m ³ /s)						
Pre Developed Condition	63.2%	0.5EY	20%	10%	5%	2%	1%
LPoD-1	4.4845	6.4926	9.3301	11.1359	13.9592	16.3402	19.4076

Catchment	Peak Flow Rates for Average Exceedance Probability (m ³ /s)						
Post Developed Condition	63.2%	0.5EY	20%	10%	5%	2%	1%
LPoD-1	8.6323	10.8501	13.3258	15.8757	18.2378	21.1192	23.2979

Table 4.4: Flow Rates Calculated Using the Laurenson Method in XPSTORM at LPoD-1

Figure 4.12 below contains the pre-developed peak flow rate hydrograph at the lawful point of discharge (LPoD-1). Refer also **Appendix K**.

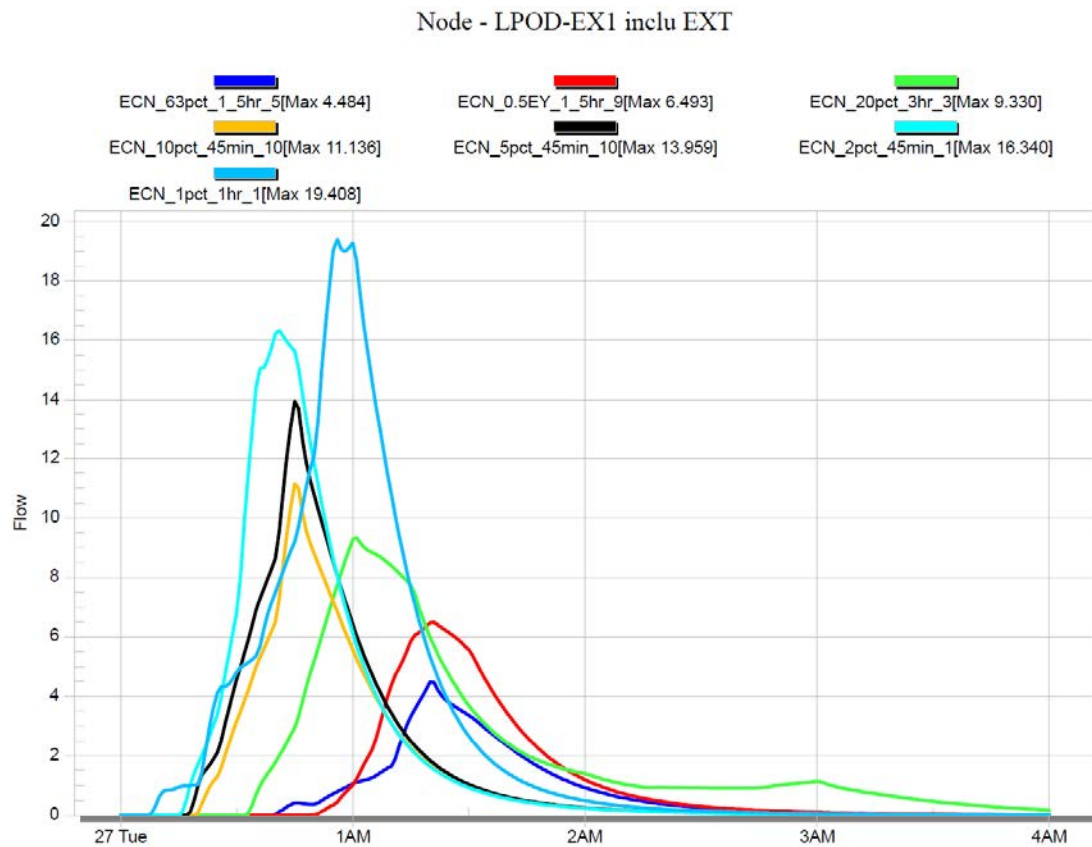


Figure 4.12: Pre Developed Peak Flow Rate Hydrograph (LPoD-1)

Figure 4.13 below contains the *post* developed peak flow rate hydrograph at the lawful point of discharge (LPoD-1). Refer also **Appendix K**.

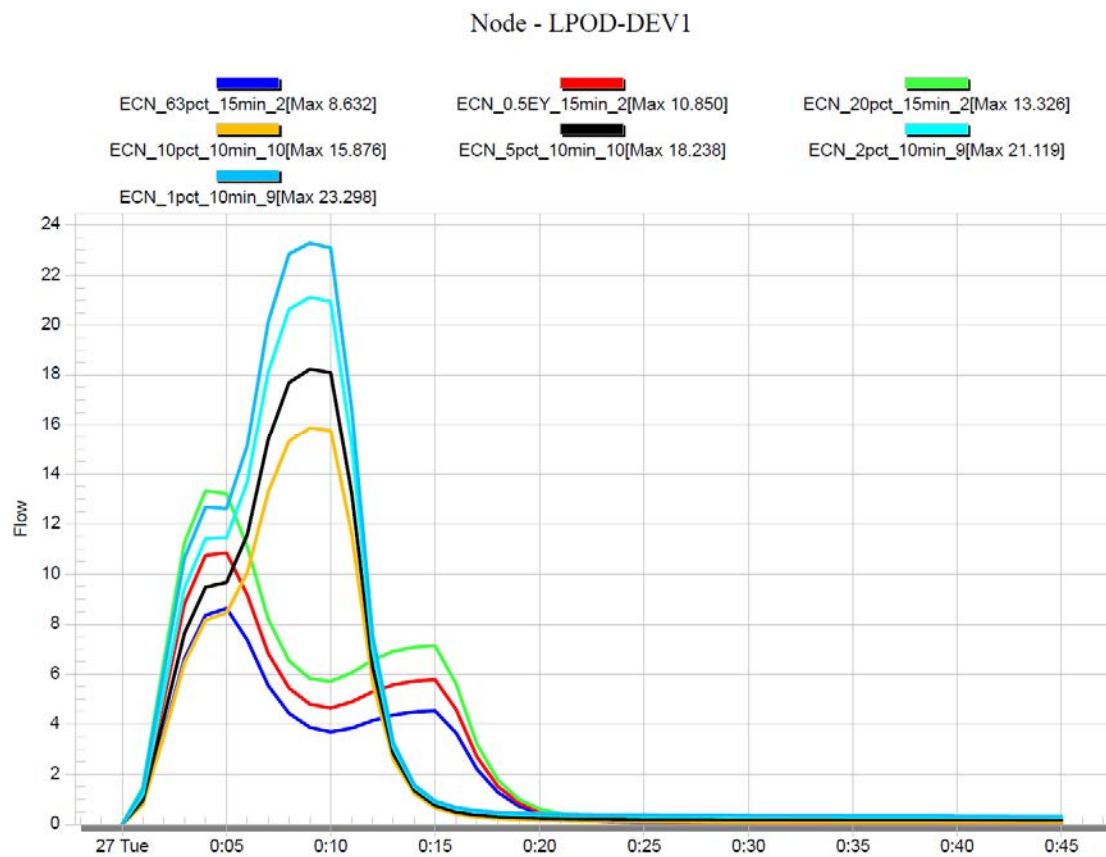


Figure 4.13: Post Developed Peak Flow Rate Hydrograph (LPoD-1)

5.0 STORMWATER QUANTITY, DETENTION & HYDRAULIC DESIGN

5.1 ATTENUATION OF DEVELOPED FLOWS

To ensure that the increased flow rates from the developed site have minimal impact on downstream property, the following hydrological objective has been set for stormwater exiting the subject site;

- *No increase in peak discharge flow rates from the developed site to downstream infrastructure.*

To achieve this objective, stormwater discharge from the development site must be detained to pre-development flow rates for all storms events up to and including the 1% AEP (equiv. to Q_{100}). The following sections provide a summary of the procedure used to design the onsite detention system at subject site.

5.2 METHODOLOGY

For the site catchment identified as having increase in peak flow rates when developed, a hydrologic model was created using XPSTORM. The model was then used to route post-development runoff through various proposed detention structures to determine the most efficient on-site detention system.

5.2.1 MODEL CONDITIONS

In XPSTORM three (3) hydraulic conditions were modelled in order to demonstrate the stormwater quantity, detention and hydraulic objective;

1. Existing Condition - Current condition of site with all the external catchments to assess the natural hydrology.
2. Developed Condition - Future condition of site when developed with all the external catchments. The main changes in hydrology as part of development include; increase in impervious area of the subject site due to the construction of the hardstand and other impervious areas and reduction in Manning's roughness coefficient for sections of the site to be developed.
3. Mitigated Condition - Future condition of site when developed with proposed detention structures in place with all the external catchments *where applicable*.

5.2.2 CRITICAL STORM EVENT AND DURATIONS

An analysis of storm events ranging from 63.2% AEP to 1% AEP was undertaken to determine the critical storm event and the critical storm duration per contributing catchment. The determined critical storm events for the pre developed and post developed condition are indicated in *Table 5.2.2* below.

MODEL CONDITION	CRITICAL STORM EVENT	PEAK DURATION	PEAK FLOW
Pre Developed	AEP / Storm Ensemble #	(mins)	(m ³ /s)
LPoD-1	1% / 1	60	19.4076

MODEL CONDITION	CRITICAL STORM EVENT	PEAK DURATION	PEAK FLOW
Post Developed	AEP / Storm Ensemble #	(mins)	(m ³ /s)
LPoD-1	1% / 9	10	23.2979

Table 5.2.2: Critical Storm Event and Duration Summary Table

Refer to **Appendix L** of this report which presents the detailed XPSTORM Box & Whisker plots for the above hydrological assessments.

5.2.3 DETENTION SYSTEM DESIGN

Detention devices capture and temporarily store stormwater runoff during major / critical storm events and release to the Lawful Point of Discharge (LPoD) at a controlled rate. Hence, detention devices act to mitigate potential downstream flooding impacts and also provide minor water quality treatment.

Therefore, to achieve the objective of zero post development flow rate increase to pre-developed 63.2% AEP (equiv. Q_1) to the 1% AEP (equiv. Q_{100}) flow rates at the downstream reporting location (outfall), on-site detention basins are introduced with low and high flow outlet configurations.

Table 5.2.3 includes the design details for the proposed on site detention system for Stage 2, being a regional basin.

Parameter	Value
Catchment	LPoD-1
Type	Detention basin (in ground)
Internal Batter Slope on Basin Sides	1 in 3
Basin Floor RL	10.470m AHD
Basin Embankment / Crown R.L	13.000m AHD
Basin Transverse Weir Crest RL	11.640m AHD
Freeboard to Crown (1% AEP WSL)	1.008m
Detention Volume Depth	1.522m to 1% AEP WSL (<i>measured from floor / IL of basin</i>)
Detention Volume to Crown	17,109m ³ to RL 13.000m (<i>deducting 0.30m extended detention</i>)
Detention Volume to 1% AEP WSL	7,824m ³ to RL 11.992m (<i>deducting 0.30m extended detention</i>)
Detention Volume to Weir Crest	5,139m ³ to RL 11.640m (<i>deducting 0.30m extended detention</i>)
Low Flow Outlets	5 / 900mm x 900mm grated field inlet pits connected to a low flow outlet pipe (450mm diameter at 0.62%) <i>Top of grate levels set at 0.300m above basin floor at RL10.77m AHD (typical and unless noted otherwise)</i>
High Flow Outlets	25 metre wide broad crested transverse weir <i>1.17m above basin floor at RL11.640m AHD</i> <i>1.70 discharge coefficient for transverse weir</i> 3 / 675mm RCP laid at max. grade of 1.324%

Table 5.2.3: Summary of Design Parameters of Proposed Detention System (Stage 2)

5.2.4 MODEL RESULTS

Table 5.2.4.1 presents the results obtained from XPSTORM modelling as a result of implementing the above detention system for flow mitigation.

PRE-DEVELOPED PEAK FLOWS FOR LPoD-1							
AEP	63.2%	0.5EY	20%	10%	5%	2%	1%
Peak Flow (m3/sec)	4.4845	6.4926	9.3301	11.1359	13.9592	16.3402	19.4076

POST-DEVELOPED PEAK FLOWS (MITIGATED) FOR LPoD-1							
AEP	63.2%	0.5EY	20%	10%	5%	2%	1%
Mitigated Flow (m3/sec)	3.1637	4.2134	7.0749	10.8745	13.3266	16.2640	18.4156
Max Water Elevation RL	11.458	11.611	11.737	11.812	11.875	11.944	11.992
Peak Duration (min)	25min	30min	30min	60min	60min	30min	30min
Depth to WSL (m)	0.988	1.141	1.267	1.342	1.405	1.474	1.522

Table 5.2.4.1: Summary of XPSTORM Hydrologic / Hydraulic Results Catchment LPoD-1

Table 5.2.4.2 sums the mitigated discharges and compares directly against the pre developed hydrology condition across a range of standard storm events.

MITIGATED DISCHARGE SUMMARY FOR PROPOSED DETENTION BASIN (LPoD-1)							
AEP	63.2%	0.5EY	20%	10%	5%	2%	1%
900 x 900mm F.I. (1) (m³/s)	0.0000	0.0141	0.1818	0.5175	0.5840	0.6499	0.6913
900 x 900mm F.I. (2) (m³/s)	0.0000	0.0141	0.1818	0.5175	0.5840	0.6499	0.6913
900 x 900mm F.I. (3) (m³/s)	0.0000	0.0141	0.1818	0.5175	0.5840	0.6499	0.6913
900 x 900mm F.I. (4) (m³/s)	0.0000	0.0141	0.1818	0.5175	0.5840	0.6499	0.6913
900 x 900mm F.I. (5) (m³/s)	0.0000	0.0141	0.1818	0.5175	0.5840	0.6499	0.6913
25m High Flow Weir (m³/s)	0.0000	0.0000	1.2907	3.0316	4.8428	7.1310	8.8652
3/675mm dia Outlet (m3/s)	3.1367	4.1429	4.8752	5.2554	5.5638	5.8835	6.0939
TOTAL (m³/s)	3.1367	4.2134	7.0749	10.8745	13.3266	16.2640	18.4156

Flow Mitigation from Existing Condition (m³/s)	1.3208	2.2792	2.2552	0.2614	0.6326	0.0762	0.9920
Attenuation Achieved (Y/N)	Y	Y	Y	Y	Y	Y	Y
Flow Mitigation Achieved	29.5%	35.1%	24.2%	2.3%	4.5%	0.5%	5.1%

Table 5.2.4.2: Summary of Mitigated Discharges from XPSTORM Hydrologic / Hydraulic Results

Important Note:

Due to the predicted water surface elevations and depths – it is proposed that the bio-retention basin be fenced at its perimeter to restrict public access for safety. Fencing is proposed as the City of Gold Coast Council's standard chain wire type fencing (or approved equivalent) at a height of 1.80 metres above finished ground level.

Details of the fence type, embellishments and colour will be confirmed at the detailed design phase. Provision shall be made for a master-keyed gate location to enable access for Council staff to the maintenance track/s.

5.2.5 DISCUSSION ON MODELLING OUTCOMES

The above hydraulic modelling has confirmed that there is no increase in peak discharge flow rates from the development site to existing infrastructure or downstream / neighbouring properties by implementing the proposed designed detention measures.

All AEP's ranging from 63.2% (equiv. Q_1) to 1% (equiv. Q_{100}) achieve mitigation.

6.0 STORMWATER QUALITY

Stormwater quality analysis has been undertaken through the use of MUSIC software to confirm the adequacy of proposed Stormwater Quality Improvement Devices (SQIDs) required to meet the State Planning Policy's (SPP) Water Quality Objectives (WQOs) and the pollutant removal targets set by the City of Gold Coast Council. A suitable treatment strategy addressing the typical pollutant types generated during construction and operation of an industrial development are outlined within this section of reporting.

6.1 POLLUTANTS OF CONCERN

There are a number of pollutants typically generated during the operational phase (following construction) of an industrial development. These include:

- **Litter / gross pollutants**
- **Sediment**
- Toxic materials
- Heavy metals
- Hydrocarbons
- **Nutrients (i.e. nitrogen & phosphorous)**
- Pathogens / faecal coliforms
- Oxygen demanding substance
- Surfactants
- Acid or alkaline substances
- Organochlorines & organophosphates
- Thermal pollution

The key pollutants highlighted in **bold** above represent those that will be further addressed within this report. This will be done through the use of MUSIC modelling software which will assist in estimating the generation of the pollutants in the developed condition and the associated treatment measures requiring implementation in order to meet the stormwater quality objectives as defined within Section 6.2 of this report.

6.2 STORMWATER QUALITY OBJECTIVES (OPERATIONAL PHASE)

City of Gold Coast Council have set stormwater quality objectives with the intent of "protecting receiving water quality by limiting the quantity (loads) of stormwater pollutants discharged into receiving waters from development" such as that proposed over the subject site.

These are summarised in *Table 4.10 of SC6.11.4 Stormwater Drainage and Water Sensitive Urban Design standards* of Council's City Plan Version 7, and outlined below:

Pollutant Type	Load Reduction Objective (in mean annual load)
Gross Pollutants (>5mm)	90.0%
Total Suspended Solids (TSS)	80.0%
Total Phosphorous (TP)	60.0%
Total Nitrogen (TN)	45.0%

Table 6.2: CoGC's Stormwater Quality Objectives (Source: City Plan v7, Schedule SC6.11.4)

6.3 PROPOSED STORMWATER QUALITY MANAGEMENT STRATEGY

Development over the subject site has the potential to introduce increased pollutant loads and concentrated stormwater runoff into existing downstream waterways. To mitigate any potential increase in the export of pollutants from the subject site, suitable stormwater treatment devices will be utilised throughout the developed area as part of the integrated design of the road and stormwater drainage networks.

The implementation of a site-specific stormwater treatment train prior to the discharge of stormwater from the site will ensure the quality objectives outlined in Section 6.2 of this report are achieved.

6.3.1 BIO RETENTION BASINS

Due to the spatial allowances over the subject site and the proposed development type being an industrial estate, bio retention basins have been identified as a suitable Stormwater Quality Improvement Device (SQID) to reduce the off-site discharge of pollutants in line with the operational phase stormwater quality objectives identified within this report.

Bio retention basins are designed to treat conveyed stormwater by filtering contaminated runoff through various layers of vegetation, biologically active sands and loam filter media which capture the pollutants as the water percolates down through the system.

The treated water is then conveyed through a series of perforated pipes to downstream drainage systems. A typical configuration of a bio retention system is outlined in Figure 6.3.1 below.

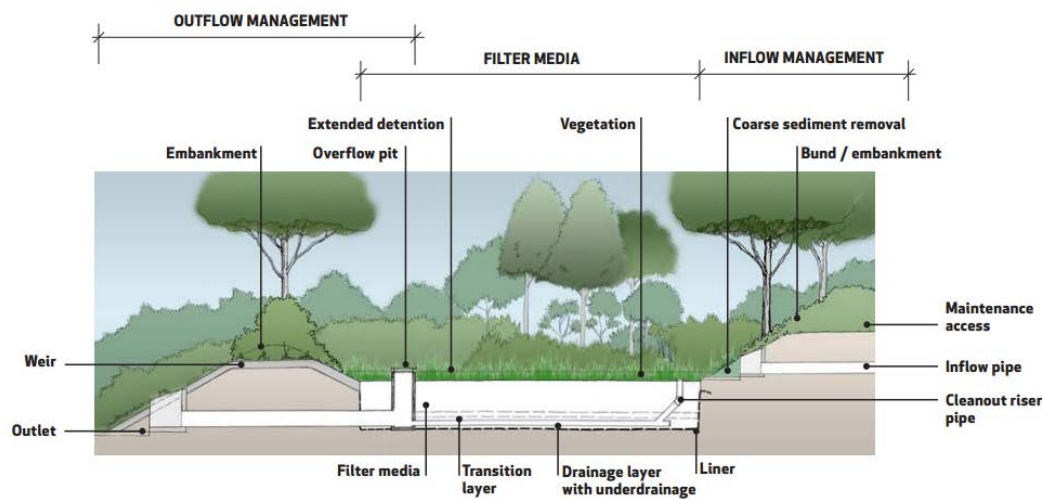


Figure 6.3.1: Components of a Typical Bio Retention System (Source: Water by Design, Bio Retention Technical Design Guidelines Version 1.1 Oct 2014)

The bio retention basin for the subject site has been designed in accordance with *Bio Retention Technical Design Guidelines (2014)* with the properties as outlined in *Table 6.3.1* below.

Outlet structures within the basin are designed to ensure an extended detention depth of 300mm is maintained over the filter media. The required surface area and filter media profile required to adequately treat the contributing developed catchment is discussed within Section 6.4 of this report.

Parameter	Value
Geofabric Lining to Base	Yes
Hydraulic Conductivity (<i>normal analysis</i>)	200 mm/hr
Orthophosphate Content	30 mg/kg
Filter Media's TN Content	400 mg/kg
Vegetation Properties	Basin to be vegetated with effective nutrient removal plants

Table 6.3.1: Summary of Adopted Bio Retention Parameters

6.4 MUSIC MODELLING METHODOLOGY FOR THE DEVELOPMENT SITE

MUSIC Version 6.3.0 was utilised for the water quality modelling of the proposed development in accordance with *Water by Design's MUSIC Modelling Guidelines 3.0 (2018)*.

Modelling of the developed scenario with the nominated SQIDs in place was undertaken to replicate the transfer of pollutants through a stormwater drainage system and to assist in determining the effectiveness of the proposed stormwater treatment train in meeting City of Gold Coast's Stormwater Quality Objectives.

6.4.1 METEOROLOGICAL DATA

The meteorological data required for input into MUSIC software was obtained through CoGC's pre-determined MUSIC-link v6.32 software application for Beenleigh Bowls Club (Weather Station No. 040406). The data utilised is in the form of 6-minute pluviographic data for a 10-year period from 01st January 1990 to 31st December 1999. The mean average rainfall for this period was 1,105mm.

Daily potential evapo-transpiration (PET) data (01/01/1990 to 31/12/1999) from the above-mentioned station has been used.

A summary of the information is indicated below:

Catchment Name: 5941 CoGC Industrial Development, Yatala MUSIC Model Stg 2
Rainfall Station: 40406 BEENLEIGH
ET Station: User-defined monthly PET
Start Date: 1/01/1990 12:00 AM
End Date: 31/12/1999 11:54 PM
Modelling Time Step: 6 Minutes

	Rainfall/6 Minutes	Evapo-Transpiration
mean	0.013	4.086
median	0.000	3.600
maximum	22.100	6.290
minimum	0.000	2.000
10 percentile	0.000	2.033
90 percentile	0.001	6.194
mean annual	1105	1492

6.4.2 SOURCE NODES

MUSIC modelling has utilised the *City of Gold Coast (North) MUSIC-Link data (Version 6.32)* to define the parameters assigned to the pollutant source node inputs for the MUSIC model. Refer images on the following page. No calibration was undertaken to CoGC source nodes.

Refer **Appendix E** for the MUSIC Catchment Plan relevant to the modelling.

CITY OF GOLD COAST™	
City of Gold Coast (Central)	
City of Gold Coast Central.mlb	
City of Gold Coast (North)	
City of Gold Coast North.mlb	
City of Gold Coast (South)	
City of Gold Coast South.mlb	

Current Project Version	
Music Version	6.3.0
MUSIC-link Data Version	6.32
Authority	City of Gold Coast
Area	City of Gold Coast (North)
Scenario	City of Gold Coast (North)

The intended industrial land use allows the developed catchment parameters to be conservatively assumed with the catchments broken down into a number of major surface types being ground level, roads (includes entire road reserve) and roofs.

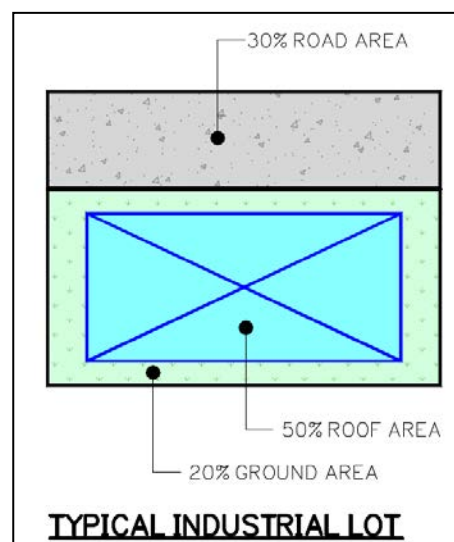
These surface types were allocated an impervious area (%) and further refined through the MUSIC modelling process via the “split” catchment approach in accordance with the *Healthy Waterways MUSIC Modelling Guidelines Version 3.0 – 2018 Table 3.4 and 3.6*.

The below table and figures summarise the imperviousness of the allocated source nodes within the MUSIC model for Stage 1. Where a proposed architectural design was available for the site, the MUSIC modelling has assumed these areas to be exact. However, in the absence of an architectural layout; the modelling has been guided by *Table 3.4 Typical Surface-Type Splits* for Industrial Development type – where the surface splits are defined below:

Road – 30%
 Roof – 50%
 Ground – 20%

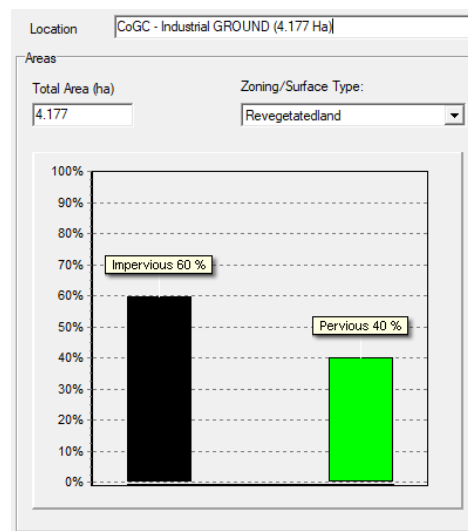
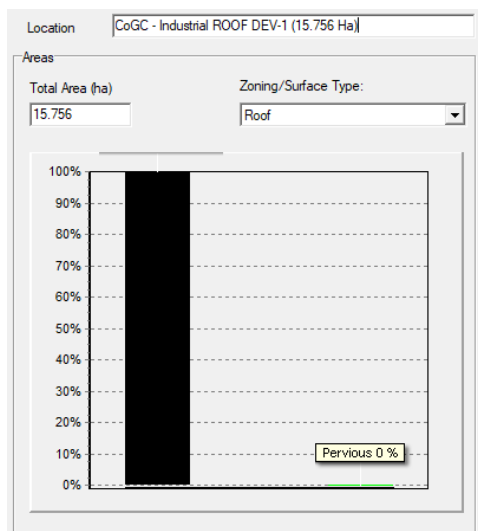
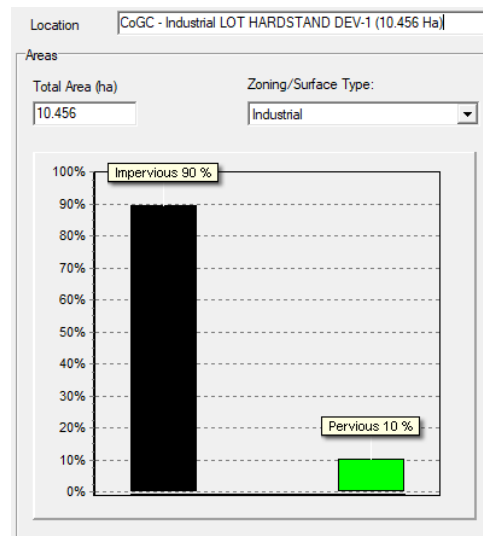
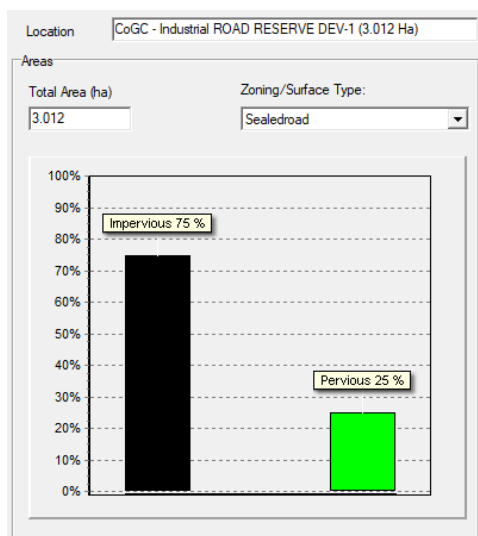
(extract from *Healthy Waters V3.0*)

External catchments that are conveyed through the site are assumed to be treated on site by the relevant upstream lot owner prior to entering the subject site.



MUSIC Source Node	Modelling Approach	Area (Ha)	Impervious %
Stage 2 (DEV-1) Total Catchment = 36.599 Ha		including 'DEV-1 Part'	
Road	SPLIT	3.012	75
Hardstand	SPLIT	10.456	90
Roof	SPLIT	15.756	100
Ground	SPLIT	4.177	60
Lot 119	SPLIT	0.382	80
Lot 207	SPLIT	0.235	80
Drainage Reserve	SPLIT	1.310	20
20m Ecological Buffer	SPLIT	1.271	0
Total		36.599	

Table 6.4: MUSIC Modelling Summary of Source Node Impervious Allocations



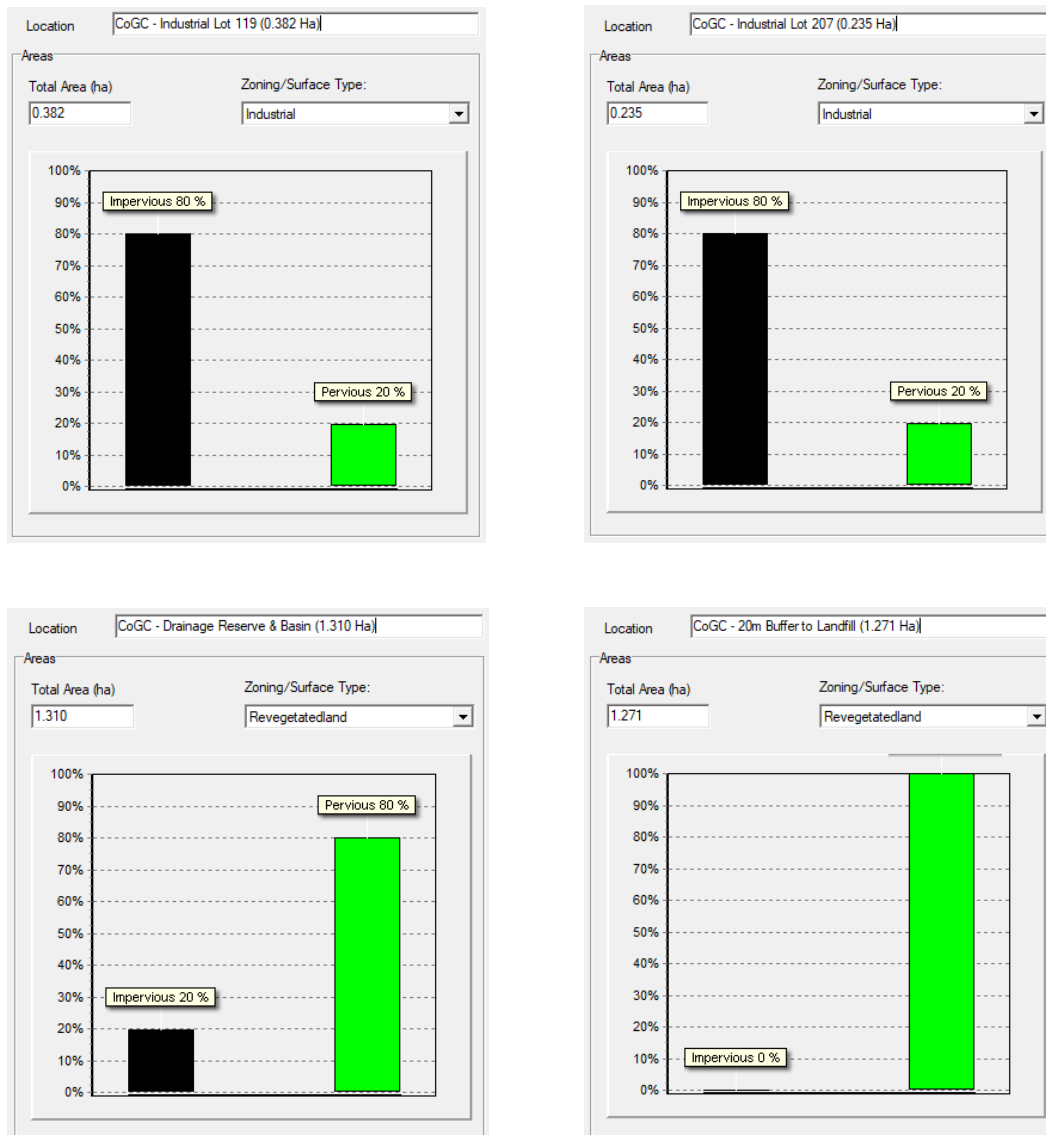


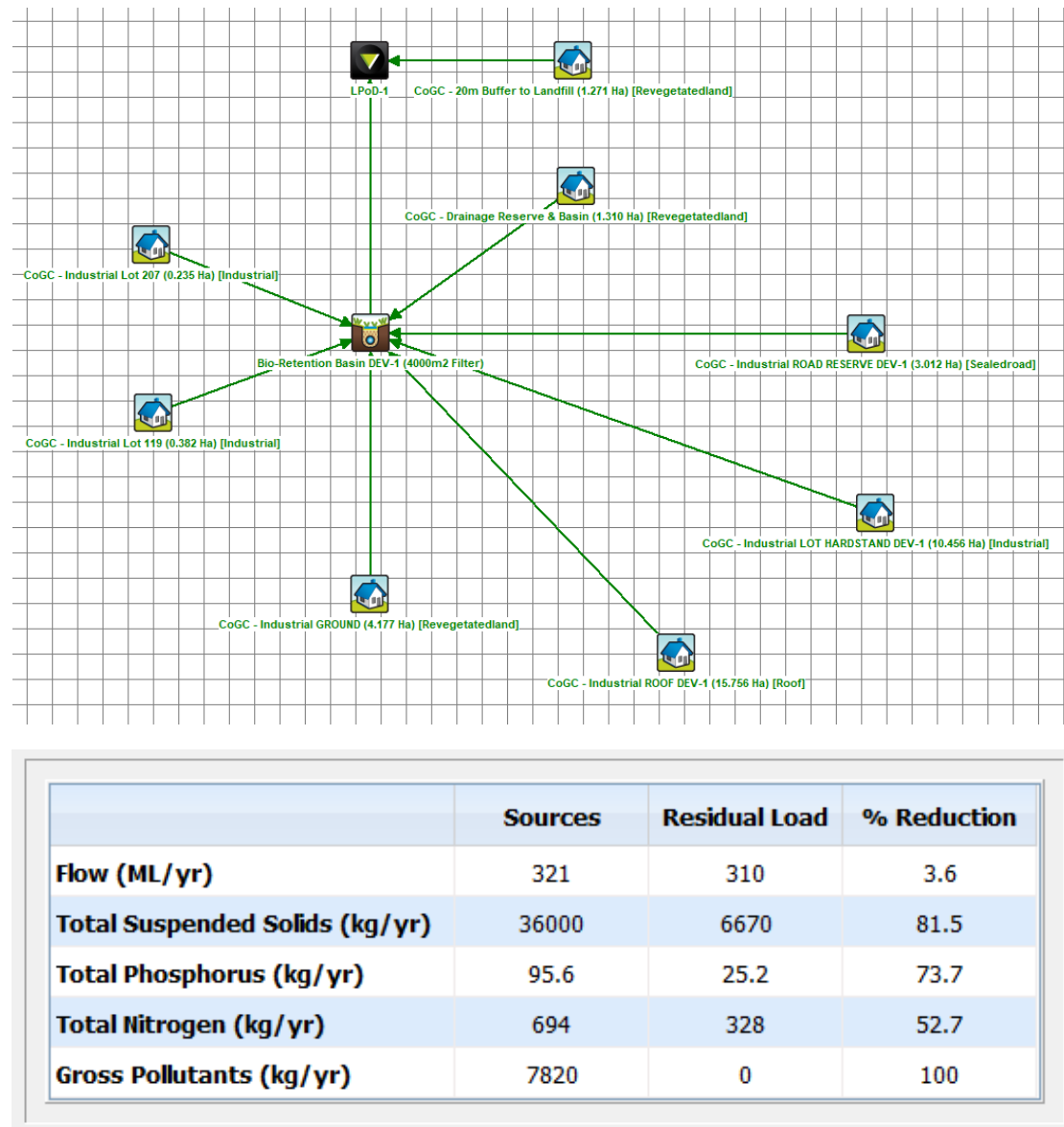
Figure 6.4.1: MUSIC Modelling Source Node Impervious Allocations

6.4.3 DRAINAGE LINKS

No routing has been adopted for the drainage links within the modelling that has been undertaken. This approach is believed to provide more conservative results.

6.4.4 MUSIC MODEL LAYOUT AND RESULTS

The diagrammatic representation of the source nodes, modelling configuration and results of pollutant reduction are outlined in Figure 6.4.4-1 below for the post developed catchment.



NORMAL ANALYSIS @ 200mm/hr SATURATED HYDRAULIC CONDUCTIVITY (SHC).

Figure 6.4.4-1: Catchment LPoD-1 MUSIC Layout and Results

The normal analysis returns a satisfactory result for meeting the SPP Water Quality Objectives. Refer above image for modelling outcomes.

The reduction in target pollutants to meet City of Gold Coast Council's requirements are achieved based on the below bio retention measures being implemented for the catchment.

Parameter	Value
	LPoD-1
Filter Media Area (m2)	4,000
Filter Media Depth (m) to support tree planting	0.70
Extended Detention Depth (m)	0.30
Weir Crest Width (m)	25.00

Refer also **Appendix F** for the CoGC MUSIC-Link summary report card to support the modelling outcomes described in this section.

Location		Bio-Retention Basin DEV-1 (4000m2 Filter)
Inlet Properties		
Low Flow By-pass (cubic metres per sec)		0.000
High Flow By-pass (cubic metres per sec)		100.000
Storage Properties		
Extended Detention Depth (metres)		0.30
Surface Area (square metres)		4000.00
Filter and Media Properties		
Filter Area (square metres)		4000.00
Unlined Filter Media Perimeter (metres)		0.01
Saturated Hydraulic Conductivity (mm/hour)		200.00
Filter Depth (metres)		0.70
TN Content of Filter Media (mg/kg)		400
Orthophosphate Content of Filter Media (mg/kg)		30.0
Infiltration Properties		
Exfiltration Rate (mm/hr)		0.00

NORMAL ANALYSIS @ 200mm/hr SHC

Table 6.4.4: Summary of Proposed Bio Retention Measures

Lining Properties	
Is Base Lined?	☒ Yes ☐ No
Vegetation Properties	
☒ Vegetated with Effective Nutrient Removal Plants	
☐ Vegetated with Ineffective Nutrient Removal Plants	
☐ Unvegetated	
Outlet Properties	
Overflow Weir Width (metres)	25.00
Underdrain Present?	☒ Yes ☐ No
Submerged Zone With Carbon Present?	☐ Yes ☒ No
Depth (metres)	0.45

NORMAL ANALYSIS @ 200mm/hr SHC

Table 6.4.4: Summary of Proposed Bio Retention Measures (cont.)

The MUSIC modelling outcome achieves the following results for the subject catchment in direct comparison to the *Load Reduction Objectives* required by Council:

Pollutant Type	Load Reduction Objective (in mean annual load)	Load Reduction Achieved
Gross Pollutants (>5mm)	90.0%	100.0% complies
Total Suspended Solids (TSS)	80.0%	81.5% complies
Total Phosphorous (TP)	60.0%	73.7% complies
Total Nitrogen (TN)	45.0%	52.7% complies

7.0 CONSTRUCTION, OPERATIONAL MANAGEMENT & MAINTENANCE

7.1 CONSTRUCTION PHASE SEDIMENT AND EROSION CONTROL

The operational phase detention basin within Stage 2 is proposed to be utilised as a HES (High Efficiency Sediment basin) during the construction phase of the development. The sizing of the basin has been determined using the ICEA Best Practice Erosion & Sediment Control Guidelines as well as calculation spreadsheets prepared by an industry provider.

Refer to **Appendix D** which contains copies of the Sediment Basin design calculations, and the Sediment & Erosion Control plans.

Where ultimate detention basin sizing does not align with the volumetric requirements of International Erosion Control Association's (IECA) Best Practice Guidelines, temporary construction phase sediment basins will be implemented.

Monitoring and maintenance of both the construction phase sediment basins and associated sediment and erosion control measures implemented over the site will be in accordance with IECA's Best Practice Guidelines and City of Gold Coast Council's standards.

7.2 ASSET OWNERSHIP AND HANDOVER

The SQIDs have been designed in accordance with QUDM standards and City of Gold Coast Council's Land Development Guidelines and in doing so aim to provide suitable and safe vehicular access for future maintenance.

The current development proposal involves dedication of proposed Lot 901 containing the SQIDs to Council through a formal 'On Maintenance' handover in accordance with Council's Land Development Guidelines to ensure the SQIDs have been built in accordance with the requirements.

7.3 MAINTENANCE OF BIO RETENTION BASINS DURING OPERATIONAL PHASE

Inspections and maintenance are to be carried out on a yearly basis to determine if the SQIDs are functioning as intended.

The WSUD Technical Design Guideline for South East Queensland incorporates Maintenance Checklists (*Refer Appendix G*) covering the items to be inspected and should be utilised and kept on record to ensure that a mechanism is in place to log the continued effectiveness of the SQIDs.

Inspections and any required maintenance will be the responsibility of the asset owner.

Refer to **Appendix C** which contains copies of the Operational Phase Bio Retention basin plans.

8.0 CONCLUSION

Gassman Development Perspectives have prepared this Site Based Stormwater Management Plan to support an application for *Reconfiguration of Lot* over Lot 501 on SP295994 (60 Stapylton Jacobs Well Road, Stapylton).

The purpose of which is to address and manage stormwater quantity and quality requirements of the proposed development of Stage 2 over the subject site in accordance with the relevant State and Local Authority's legislation and regulatory guidelines.

The key outcomes achieved through the analysis and modelling undertaken within this report are demonstrated in the stormwater bio-retention and sediment basin designs within **Appendix C and Appendix D**, and are as described below:

Stormwater Quantity

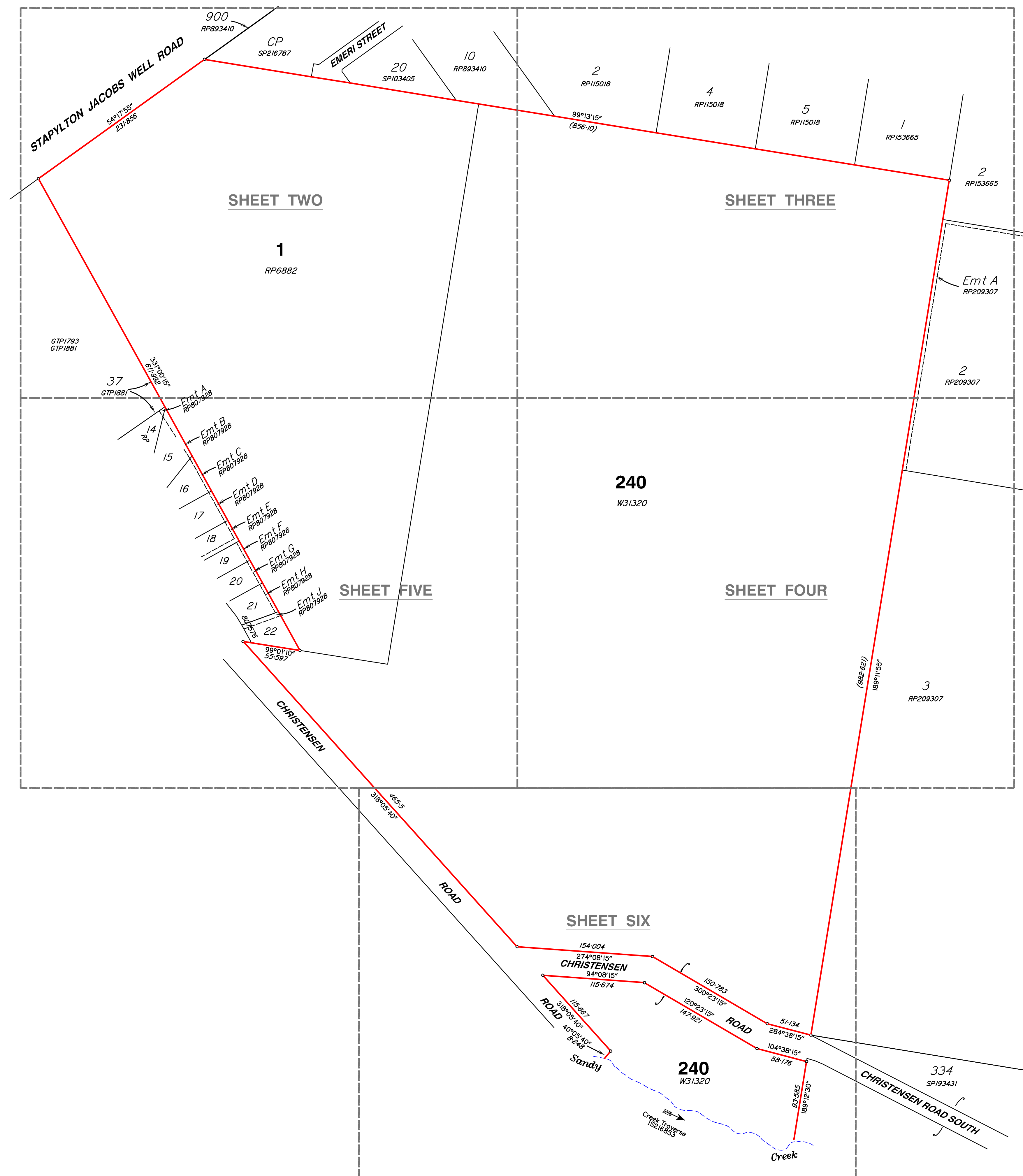
Suitable attenuation measures are able to be incorporated into the proposed development to ensure there is no adverse impacts to downstream properties, waterways or infrastructure as a result of an increase in peak stormwater flow rates discharging from the subject site upon development.

This is achieved through the design of an appropriately sized detention basin that complies with City of Gold Coast Council's Land Development Guidelines and the Queensland Urban Drainage Manual (QUDM).

Stormwater Quality

Stormwater quality objectives for the subject site are achieved through the design of a suitable stormwater treatment train that implements all necessary steps to ensure that the quality of stormwater discharging from the subject site meets the necessary standards to comply with City of Gold Coast Council's Water Sensitive Urban Design (WSUD) requirements, Queensland Urban Drainage Manual (QUDM) and the performance objectives of the Queensland State Planning Policy (SPP).

Appendix A – Site Survey Plan



Gassman Development Perspectives Pty. Ltd. hereby grants permission for the Local Authority to reproduce all relevant information contained herein for the purposes stated in the Sustainable Planning Act 2009. It should be noted that the granting of this consent by the copyright holder does not sign away copyright approval granted under the Commonwealth Copyright Act 1968.



gassman
development
perspectives

planning
design
environment
surveying

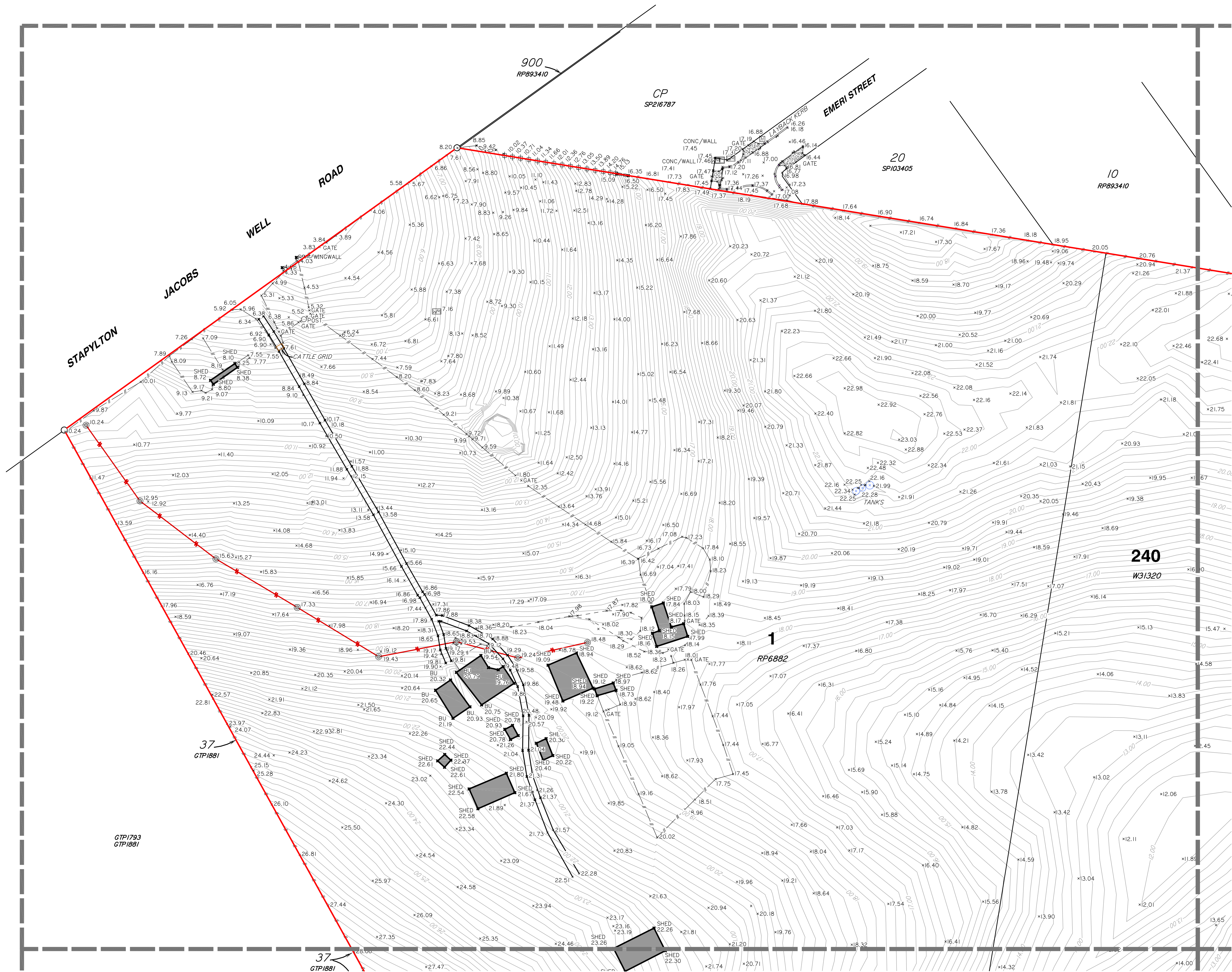
ACN 010 752 388

Brisbane Office
Level 13
97 Creek Street Brisbane Q. 4000
t: (07) 32216732
f: (07) 32217308

Gold Coast and Logan Office
Access Business Park
76 Business Street Yatala Q. 4207
t: (07) 35073355
f: (07) 32875461

e: mail@gassman.com.au
or www.gassman.com.au

REFERENCE No. 5093-10
PLAN No. **5093 S CD 01**



- LEGEND**
- PERMANENT MARK
 - SEWER MANHOLE
 - SEWER INSPECTION OUTLET
 - ELECTRICITY PILLAR
 - ELECTRICITY POLE
 - ELECTRICITY POLE WITH LIGHT
 - TELSTRA PIT
 - MANHOLE
 - STORMWATER MANHOLE
 - GULLY TRAP
 - WATER METER
 - FIRE HYDRANT
 - VALVE
 - GATE
 - BOLLARD
 - CONCRETE
 - EDGE OF BITUMEN
 - FENCE
 - OVERHEAD ELECTRICITY
 - OPEN DRAIN
 - RETAINING WALL
 - EDGE OF GARDEN
 - CONTOUR LEVEL

Notes

This plan has been prepared for the exclusive use and purposes of the client as stated on this plan and should not be used by any other person or corporation and for any other purpose.

Property boundaries have not been defined by this survey and have been compiled from 15216853.

Only those underground features and services as shown on this plan have been located by this survey. Prior to any construction, demolition or excavation on the site, the relevant authority should be contacted for the location of any further underground services and detailed location of all services.

This plan may not be photocopied unless these notes are included.

Gasman Development Perspectives Pty. Ltd. accepts no responsibility for any loss or damages caused in contravention of the above.

Gasman Development Perspectives Pty. Ltd. hereby grants permission for the Local Authority to reproduce all relevant information contained herein for the purposes stated in the Sustainable Planning Act 2009. It should be noted that the granting of this consent by the copyright holder does not sign away copyright approval granted under the Commonwealth Copyright Act 1968.

Client
HESTER

Project
CONTOUR AND DETAIL PLAN

Over Lot 1 on RP6882 and Lot 240 on WD31320

Parish of **ALBERT**
County of **Ward**
Local Govt **GOLD COAST CITY COUNCIL**

Level Datum	A.H.D.	Date Surveyed	Jan 2011
Meridian	IS133471	Surveyor	A. Macdonald
Contour Interval	0.2	Drawn	S. Holt
F.B.	No	Date Drafted	02-02-2011
Origin	PSM 133471	Checked	
	RL 22.169		
Scale (on A1 original)		Designed	
		Drawn	
		Date Designed	



ACN 010 752 388
Brisbane Office
Level 13
97 Creek Street Brisbane Q. 4000
t: (07) 32216732
f: (07) 32217308
Gold Coast and Logan Office
Access Business Park
76 Business Street Yatala Q. 4207
t: (07) 38073333
f: (07) 32975461
e: mail@gasman.com.au
w: www.gasman.com.au

REFERENCE No. **5093-10**
PLAN No. **5093 S CD 01**



LEGEND

- PERMANENT MARK
- SEWER MANHOLE
- SEWER INSPECTION OUTLET
- ELECTRICITY PILLAR
- ELECTRICITY POLE
- ELECTRICITY POLE WITH LIGHT
- TELSTRA PIT
- MANHOLE
- STORMWATER MANHOLE
- GULLY TRAP
- WATER METER
- FIRE HYDRANT
- VALVE
- GATE
- BOLLARD
- CONCRETE
- EDGE OF BITUMEN
- FENCE
- OVERHEAD ELECTRICITY
- OPEN DRAIN
- RETAINING WALL
- EDGE OF GARDEN
- CONTOUR LEVEL

Notes

This plan has been prepared for the exclusive use and purposes of the client as stated on this plan and should not be used by any other person or corporation and for any other purpose.

Property boundaries have not been defined by this survey and have been compiled from 15216853.

Only those underground features and services as shown on this plan have been located by this survey. Prior to any construction, demolition or excavation on the site, the relevant authority should be contacted for the location of any further underground services and detailed location of all services.

This plan may not be photocopied unless these notes are included.

Gassman Development Perspectives Pty. Ltd. accepts no responsibility for any loss or damages caused in contravention of the above.

Gassman Development Perspectives Pty. Ltd. hereby grants permission for the Local Authority to reproduce all relevant information contained herein for the purposes stated in the Sustainable Planning Act 2009. It should be noted that the granting of this consent by the copyright holder does not sign away copyright approval granted under the Commonwealth Copyright Act 1968.

Client

HESTER

Project

CONTOUR AND DETAIL PLAN

Over Lot 1 on RP6882 and Lot 240 on WD31320

Parish of **ALBERT**

County of **Ward**

Local Govt **GOLD COAST CITY COUNCIL**

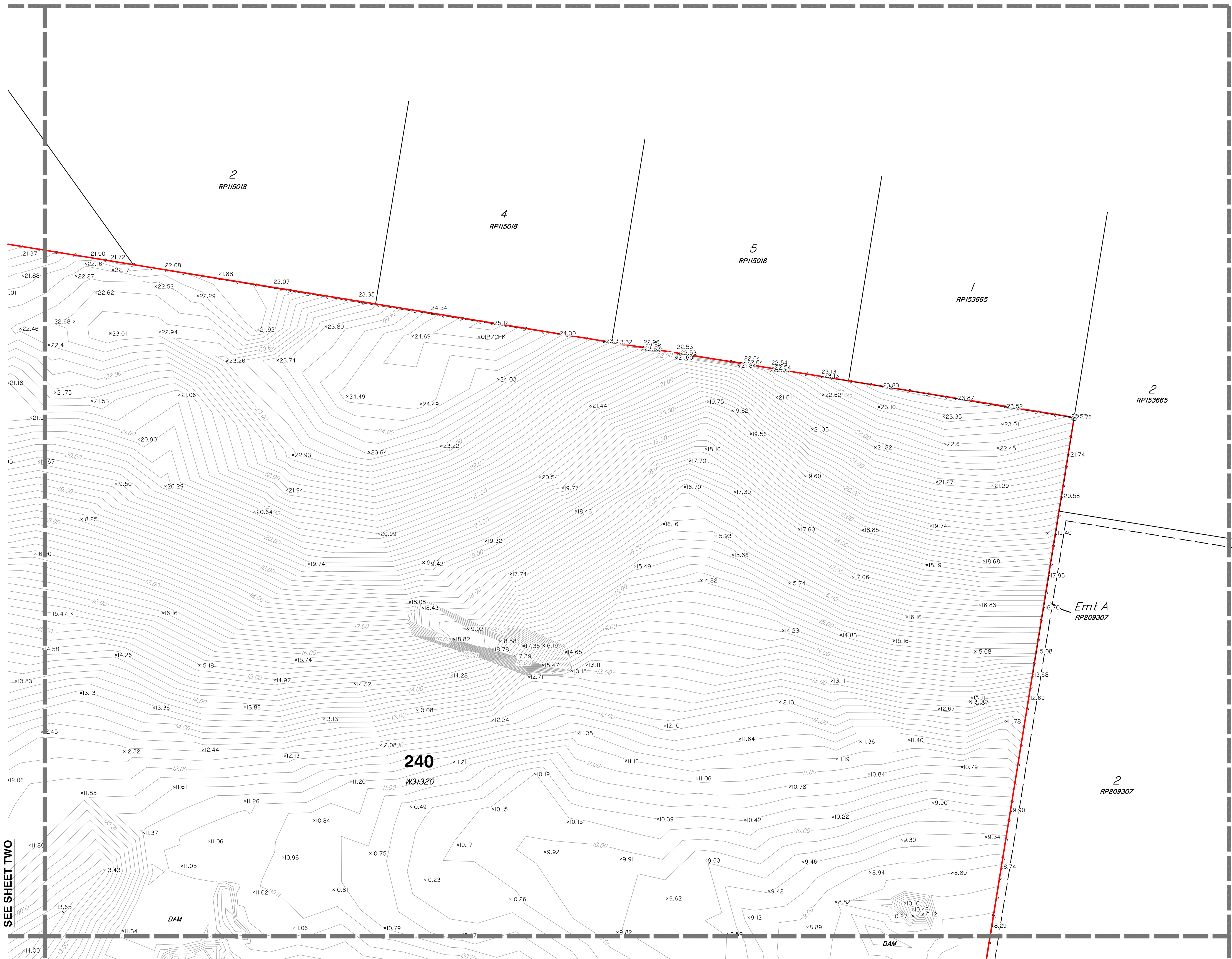
Level Datum	A.H.D.	Date Surveyed	Jan 2011
Meridian	15216853	Surveyor	A. Macdonald
Contour Interval	0.2	Drawn	S. Holt
F.B.	No	Date Drafted	02-02-2011
Origin	PSM 133471	Checked	RL 22.169
Scale (on A1 original)	Designed		
	Drawn		
	Date Designed		



ACN 010 752 388
Brisbane Office
Level 13
97 Creek Street Brisbane Q. 4000
t: (07) 32216732
f: (07) 32217308
Gold Coast and Logan Office
Access Business Park
76 Business Street Yatala Q. 4207
t: (07) 38073333
f: (07) 32975461
e: mail@gassman.com.au
w: www.gassman.com.au

REFERENCE No. **5093-10**

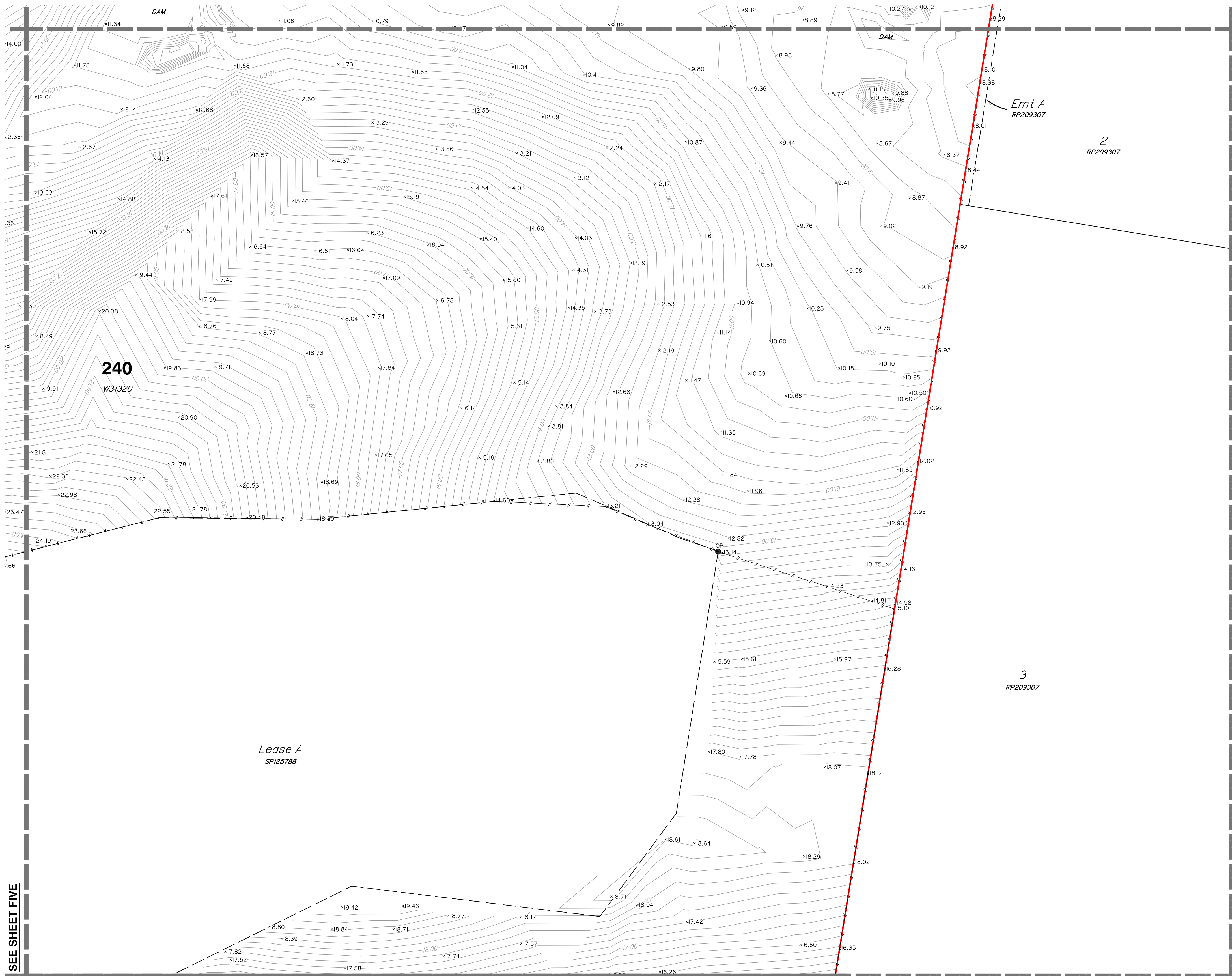
PLAN No. **5093 S CD 01**

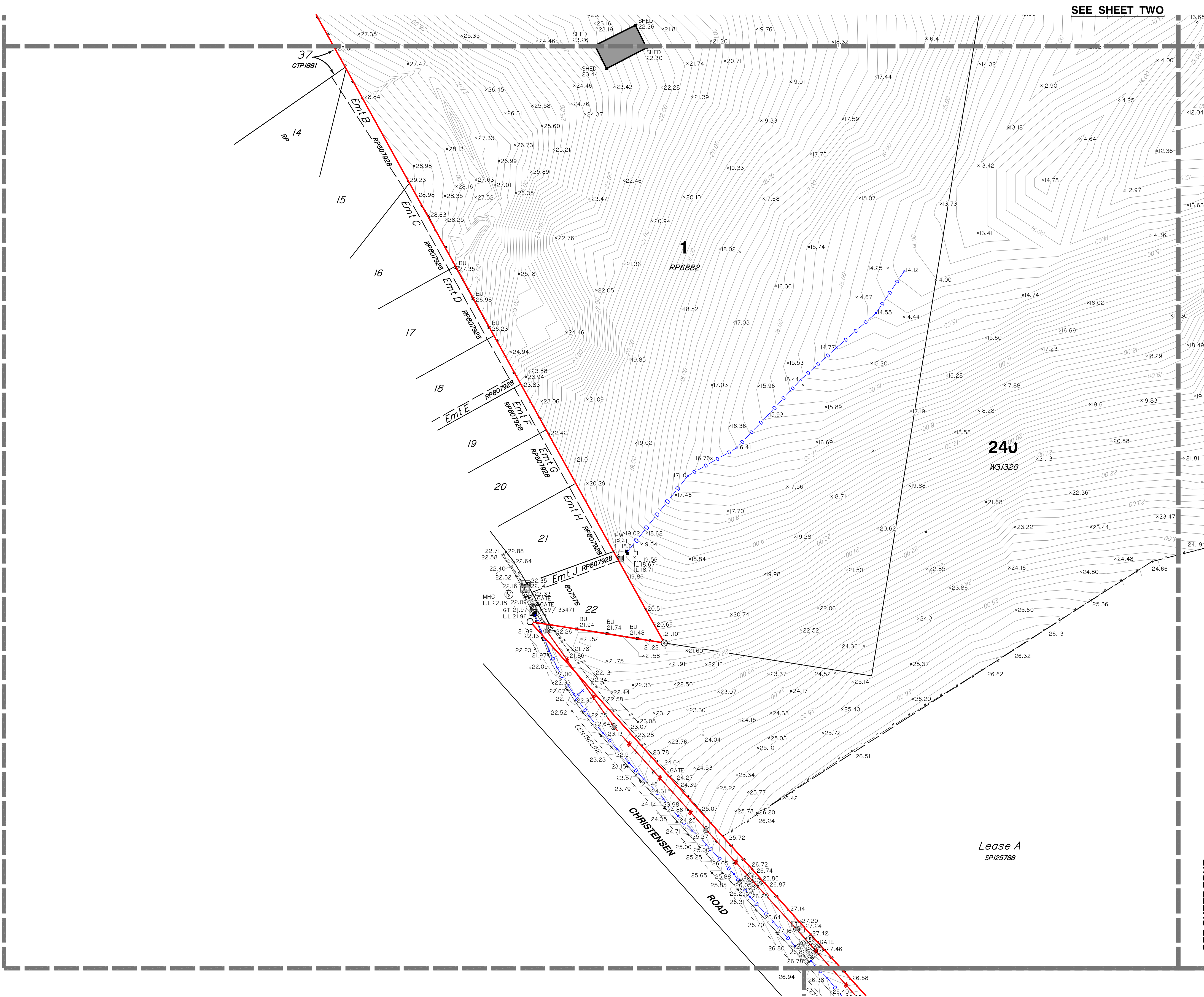




SEE SHEET THREE

SEE SHEET FIVE





LEGEND

- PERMANENT MARK
- SEWER MANHOLE
- SEWER INSPECTION OUTLET
- ELECTRICITY PILLAR
- ELECTRICITY POLE
- ELECTRICITY POLE WITH LIGHT
- TELSTRA PIT
- MANHOLE
- STORMWATER MANHOLE
- GULLY TRAP
- WATER METER
- FIRE HYDRANT
- VALVE
- GATE
- BOLLARD
- CONCRETE
- EDGE OF BITUMEN
- FENCE
- OVERHEAD ELECTRICITY
- OPEN DRAIN
- RETAINING WALL
- EDGE OF GARDEN
- CONTOUR LEVEL

Notes

This plan has been prepared for the exclusive use and purposes of the client as stated on this plan and should not be used by any other person or corporation and for any other purpose.

Property boundaries have not been defined by this survey and have been compiled from IS216853.

Only those underground features and services as shown on this plan have been located by this survey. Prior to any construction, demolition or excavation on the site, the relevant authority should be contacted for the location of any further underground services and detailed location of all services.

This plan may not be photocopied unless these notes are included.

Gassman Development Perspectives Pty. Ltd. accepts no responsibility for any loss or damages caused in contravention of the above.

Gassman Development Perspectives Pty. Ltd. hereby grants permission for the Local Authority to reproduce all relevant information contained herein for the purposes stated in the Sustainable Planning Act 2009. It should be noted that the granting of this consent by the copyright holder does not sign away copyright approval granted under the Commonwealth Copyright Act 1968.

Client

HESTER

Project

CONTOUR AND DETAIL PLAN

Over Lot 1 on RP6882 and Lot 240 on WD31320

Parish of **ALBERT**

County of **Ward**

Local Govt **GOLD COAST CITY COUNCIL**

Level Datum	A.H.D.	Date Surveyed	Jan 2011
Meridian	IS216853	Surveyor	A. Macdonald
Contour Interval	0.2	Drawn	S. Holt
F.B.	No	Date Drafted	02-02-2011
Origin	PSM 133471	Checked	RL 22.169

Scale (on A1 original)	Designed
1:1000	Date Designed



ACN 010 752 388
Brisbane Office
Level 13
97 Creek Street Brisbane Q. 4000
t: (07) 32216732
f: (07) 32217308
Gold Coast and Logan Office
Access Business Park
76 Business Street Yatala Q. 4207
t: (07) 38073333
f: (07) 32975461
e: mail@gassman.com.au
w: www.gassman.com.au

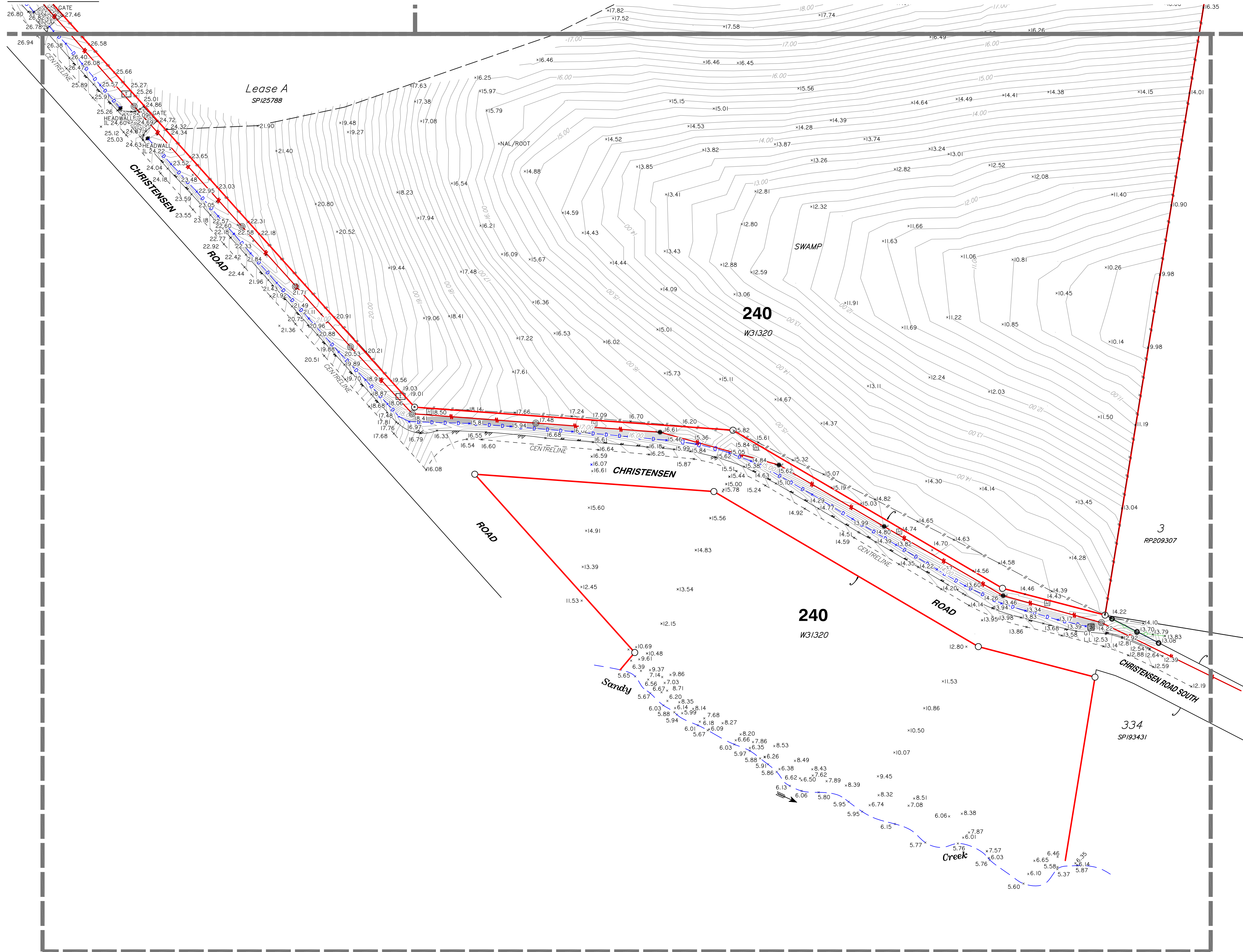
REFERENCE No. **5093-10**

PLAN No. **5093 S CD 01**



SEE SHEET FIVE

SEE SHEET FOUR



LEGEND

- PERMANENT MARK
- SEWER MANHOLE
- SEWER INSPECTION OUTLET
- ELECTRICITY PILLAR
- ELECTRICITY POLE
- ELECTRICITY POLE WITH LIGHT
- TELSTRA PIT
- MANHOLE
- STORMWATER MANHOLE
- GULLY TRAP
- WATER METER
- FIRE HYDRANT
- VALVE
- GATE
- BOLLARD
- CONCRETE
- EDGE OF BITUMEN
- FENCE
- OVERHEAD ELECTRICITY
- OPEN DRAIN
- RETAINING WALL
- EDGE OF GARDEN
- CONTOUR LEVEL

Notes

This plan has been prepared for the exclusive use and purposes of the client as stated on this plan and should not be used by any other person or corporation and for any other purpose.

Property boundaries have not been defined by this survey and have been compiled from IS216853.

Only those underground features and services as shown on this plan have been located by this survey. Prior to any construction, demolition or excavation on the site, the relevant authority should be contacted for the location of any further underground services and detailed location of all services.

This plan may not be photocopied unless these notes are included.

Gassman Development Perspectives Pty. Ltd. accepts no responsibility for any loss or damages caused in contravention of the above.

Gassman Development Perspectives Pty. Ltd. hereby grants permission for the Local Authority to reproduce all relevant information contained herein for the purposes stated in the Sustainable Planning Act 2009. It should be noted that the granting of this consent by the copyright holder does not sign away copyright approval granted under the Commonwealth Copyright Act 1968.

Client

HESTER

Project

CONTOUR AND DETAIL PLAN

Over Lot 1 on RP6882 and Lot 240 on WD31320

Parish of **ALBERT**

County of **Ward**

Local Govt **GOLD COAST CITY COUNCIL**

Level Datum	A.H.D.	Date Surveyed	Jan 2011
Meridian	IS216853	Surveyor	A. Macdonald
Contour Interval	0.2	Drawn	S. Holt
F.B.	No	Date Drafted	02-02-2011
Origin	PSM 133471	Checked	
	RL 22.169		

Scale (on A1 original)	Designed
1:1000	Date Designed

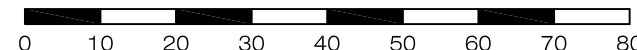


ACN 010 752 388
Brisbane Office
Level 13
97 Creek Street Brisbane Q. 4000
t: (07) 32216732
f: (07) 32217308
Gold Coast and Logan Office
Access Business Park
76 Business Street Yatala Q. 4207
t: (07) 38073333
f: (07) 32975461
e: mail@gassman.com.au
w: www.gassman.com.au

REFERENCE No. **5093-10**

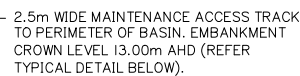
PLAN No. **5093 S CD 01**

Scale 1:1000 - Lengths are in Metres.



Appendix B – Pre and Post Development Catchment Plans

Appendix C – Design of Stormwater Quantity and Quality Basin



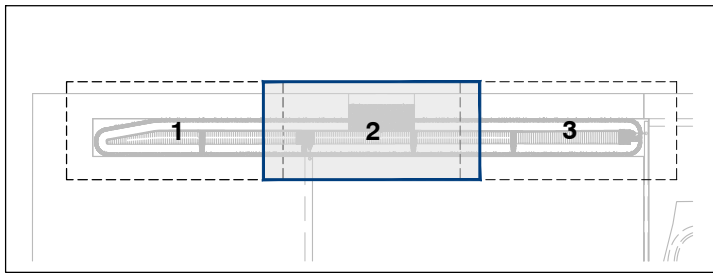
SCALE 1:250 (AI)



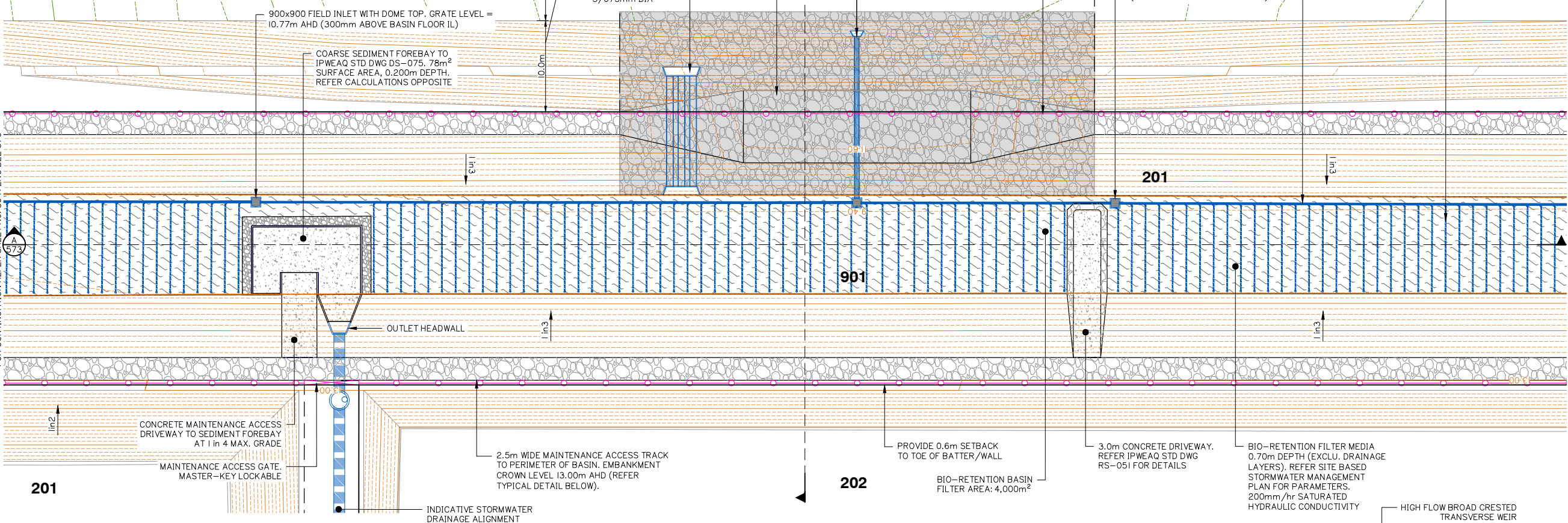
g:\Projects\5941\engineering\Acad\BE2 CGL\Current\5941 ENG BE2 570-573.dwg

AEP (%)	MAX. WATER ELEVATION (m) A.H.D	MAX. WATER DEPTH (m)
63.2	11.458	0.988
0.5EY	11.611	1.141
20	11.737	1.267
10	11.812	1.342
5	11.875	1.405
2	11.944	1.474
1	11.992	1.522

Rev. No:
A



KEY PLAN
SCALE 1:3000



201

202

BIO RETENTION - COARSE SEDIMENT FOREBAY
SIZING GUIDE CALCULATIONS (TOTAL)

$$V_s = A_c \times R \times L_0 \times F = 17.568 \text{ m}^3$$

$$R = 1 - \left[1 + \frac{1}{n} \times \frac{V_s}{Q/A_f} \right]^{-n}$$

$$0.8 = 1 - \left[1 + \frac{0.10}{0.5} \times \frac{17.568}{4.316/A_f} \right]^{-0.5} \quad A_f = 517.92 \text{ m}^2$$

$$D_s = \frac{V_s}{A_f} = \frac{17.568}{517.92} = 0.034 \text{ m}$$

OPTIMIZATION OF MINIMUM FOREBAY SIZE:

$$D_s = \frac{17.568 \text{ m}^3}{14.700 \text{ m}^2 (78\text{m} \times 69\text{m}^2)} = 0.120 \text{ m}$$

$V_s = 17.568 \text{ m}^3$ (Workings Above)
 $A_c = 36.599 \text{ ha}$ (Refer Catchment Plan)
UNMITIGATED POST-DEVELOPMENT FLOW
 $Q = 4.316 \text{ m}^3/\text{s}$ (3 month ARI = 0.5 x 63.2% AEP)
 $V_s = 0.1 \text{ m/s}$ (Recommended for 1mm Particle)
 $R = 0.8$ (Recommended 80% Capture)
 $L_0 = 0.6$ (From Healthy Waterways Guide)
 $n = 0.5$ (Recommended Turbulence)
 $F_c = 1.0$ (Frequency of Clean Out / Yr)

REFER TO BIO RETENTION TECHNICAL DESIGN
GUIDELINES FOR FURTHER INFORMATION

BIO-RETENTION NOTES:

MINIMUM BIO-RETENTION
'PROFILE' IS TO BE 1.0m AND IS TO
CONSIST OF THE FOLLOWING:

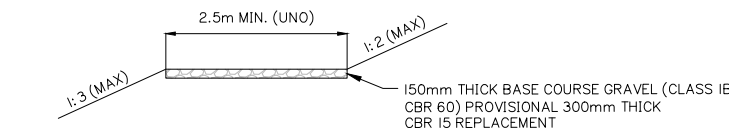
* 0.70 OF SANDY LOAM MATERIAL
WITH A HYDRAULIC CONDUCTIVITY
OF 200mm/h AND A PARTICLE
SIZE OF 0.45-0.50mm.

* 0.15m OF COARSE SAND,
PARTICLE SIZE TYPICALLY
0.5-2.0mm.

* 0.25m OF GRAVEL DRAINAGE,
PARTICLE SIZE 2-5mm
SCREENING.

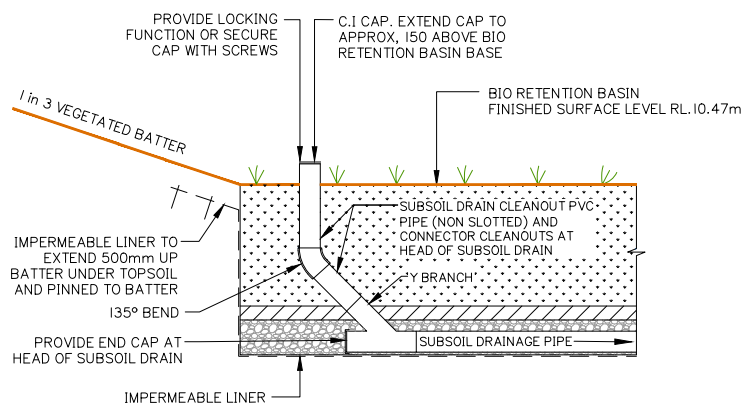
AGRICULTURAL PIPE TO BE
INCLUDED IN FREE DRAINING
AREAS TO ASSIST IN DRYING OUT
THE DEVICE

AEP (%)	MAX. WATER ELEVATION (m) A.H.D.	MAX. WATER DEPTH (m)
63.2	11.458	0.988
0.5EY	11.611	1.141
20	11.737	1.267
10	11.812	1.342
5	11.875	1.405
2	11.944	1.474
1	11.992	1.522



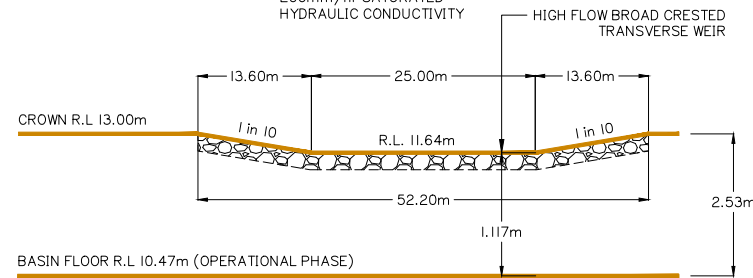
MAINTENANCE ACCESS TRACK - TYPICAL SECTION

N.T.S. UNO DENOTES 'UNLESS NOTED OTHERWISE'



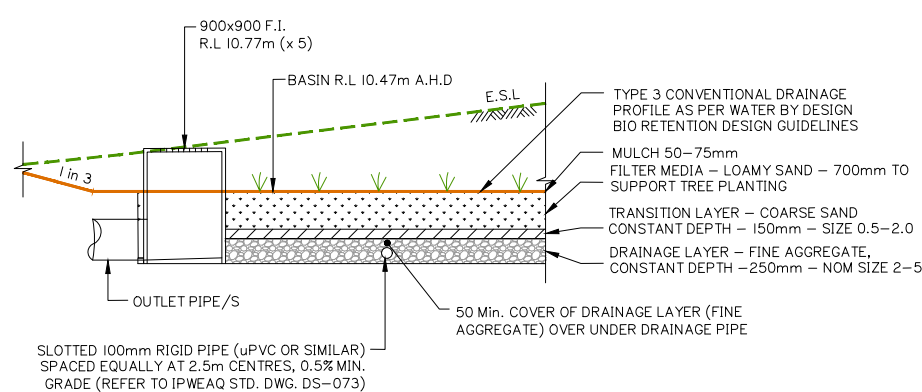
SUBSOIL DRAIN CLEANOUT - IN BASIN

N.T.S.



WEIR / SPILLWAY - TYPICAL ELEVATION

N.T.S.



TYPICAL BIO-RETENTION BASIN DETAIL

N.T.S.

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

©2012 Gassman Development Perspectives
All rights reserved. No part of this document may be
reproduced or transmitted in any form or by any means,
electronic, mechanical, photocopying, recording, or
otherwise, without the written permission of Gassman
Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
OPERATIONAL PHASE
BIORETENTION BASIN
SHEET 2 OF 4

Issue	Date	Original Issue	Description	BA	MG	CHK
A	20-11-2020					

SCALE IN METRES



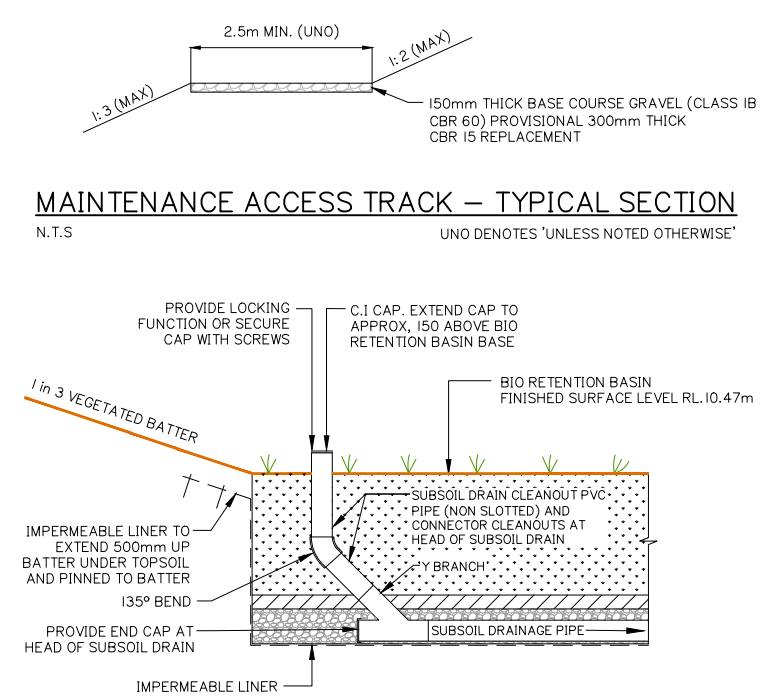
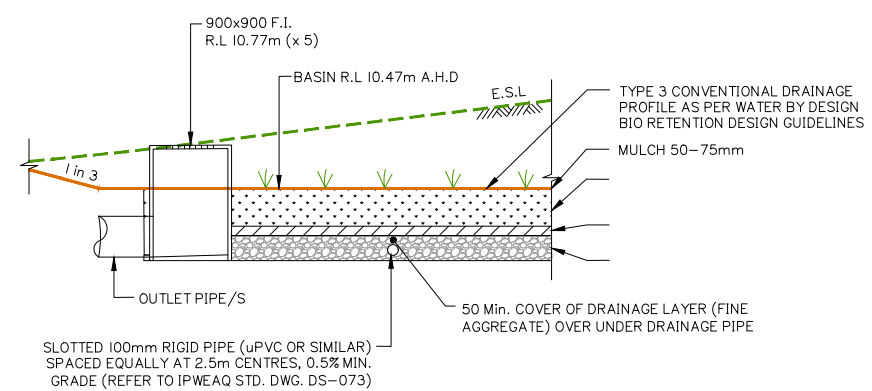
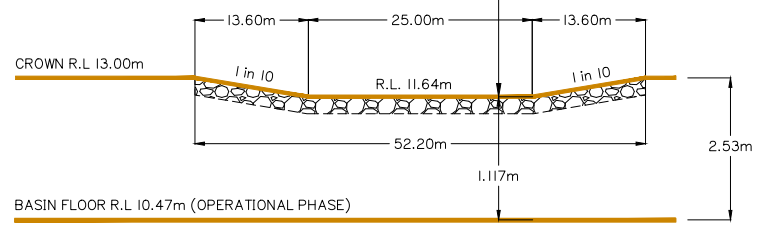
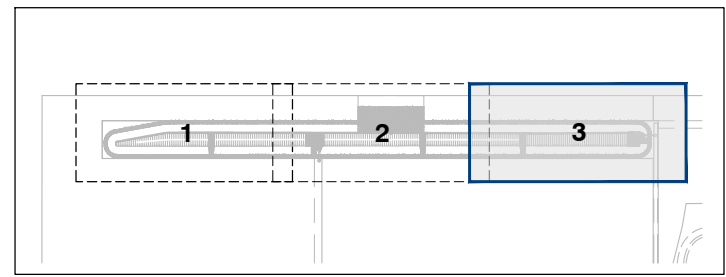
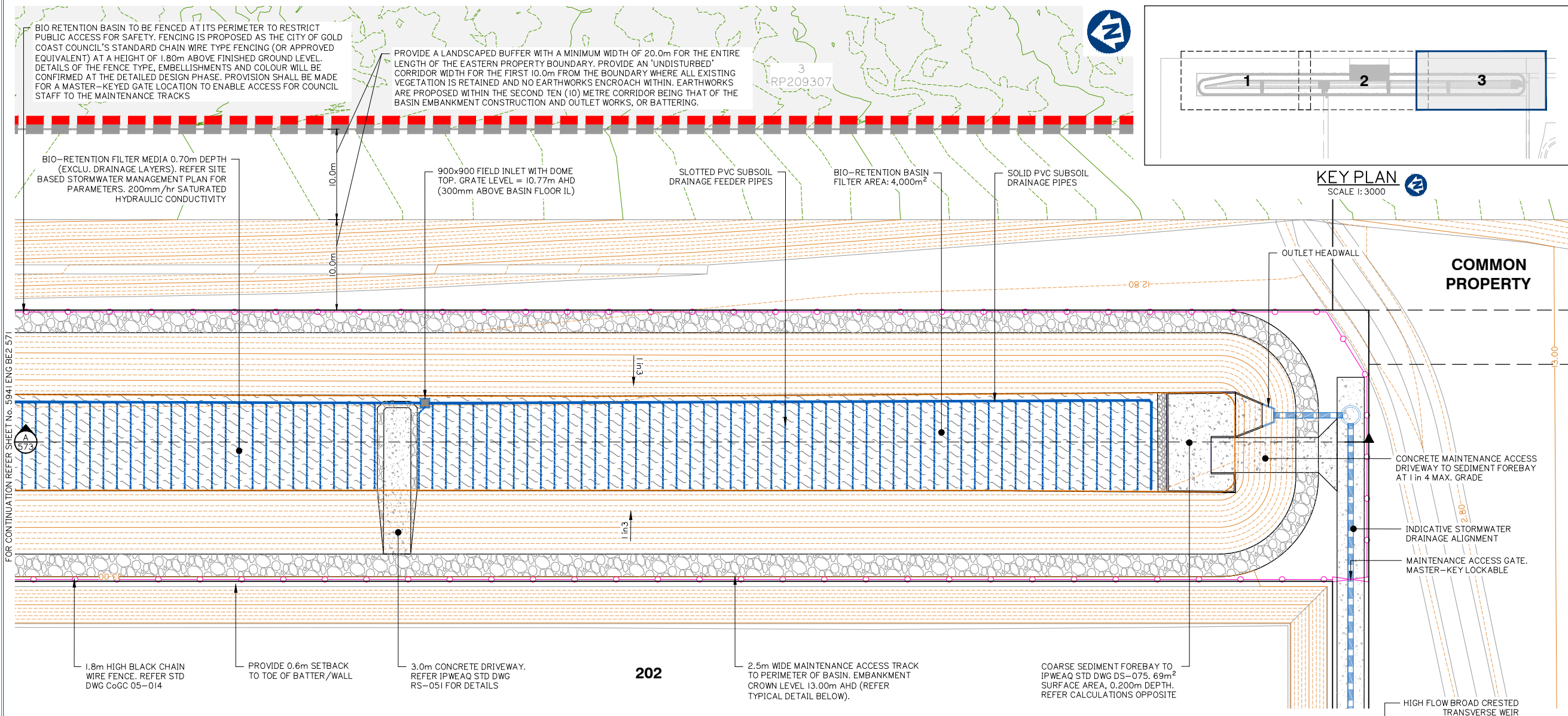
1:250 (FULL SIZE A1)
1:500 (HALF SIZE A3)

Scale at A1: 1:500

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 571

Rev. No:
A

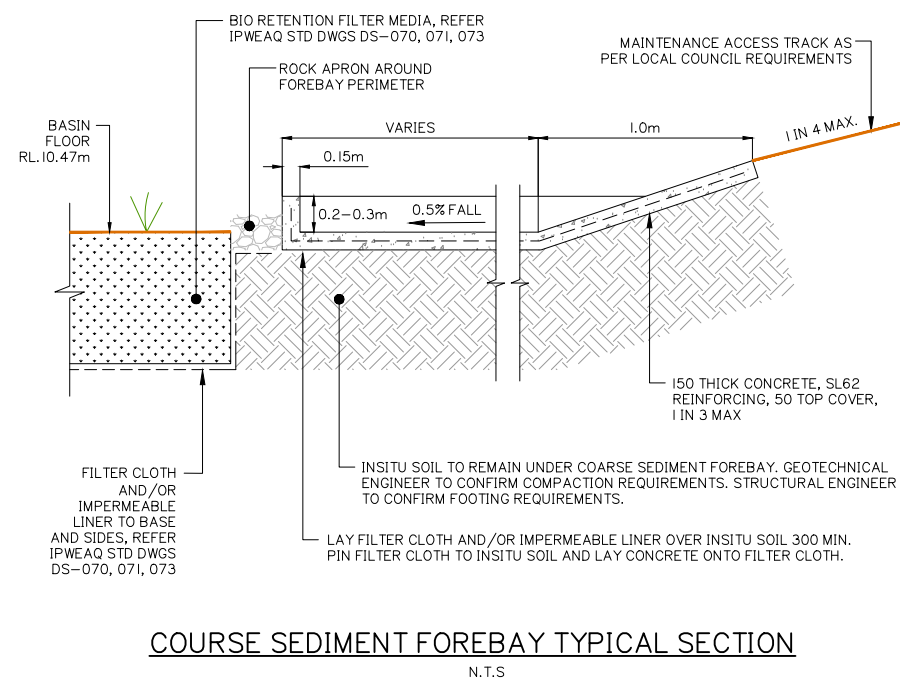
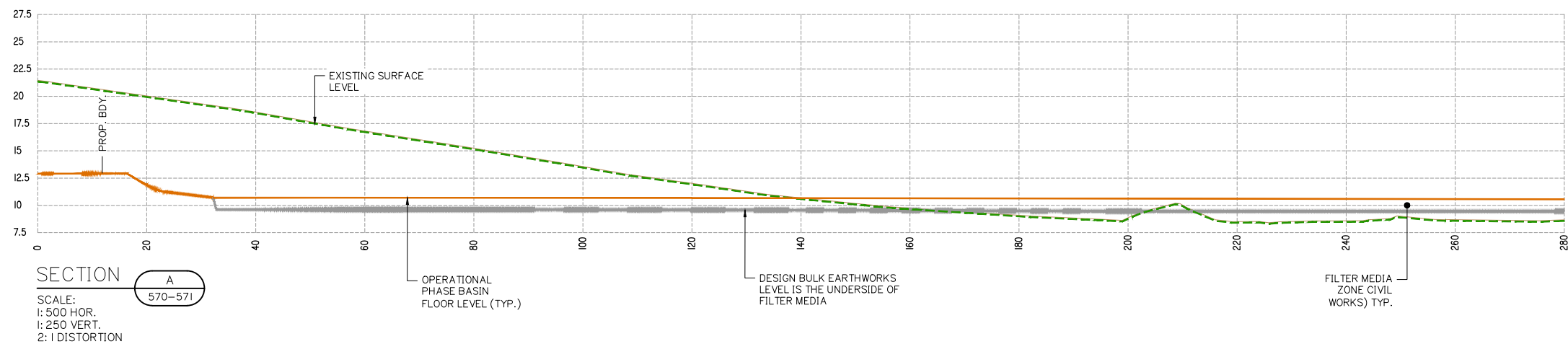
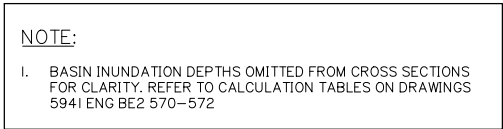


BIO RETENTION BASIN TO BE FENCED AT ITS PERIMETER TO RESTRICT PUBLIC ACCESS FOR SAFETY. FENCING IS PROPOSED AS THE CITY OF GOLD COAST COUNCIL'S STANDARD CHAIN WIRE TYPE FENCING (OR APPROVED EQUIVALENT) AT A HEIGHT OF 1.80m ABOVE FINISHED GROUND LEVEL. DETAILS OF THE FENCE TYPE, EMBELLISHMENTS AND COLOUR WILL BE CONFIRMED AT THE DETAILED DESIGN PHASE. PROVISION SHALL BE MADE FOR A MASTER-KEYED GATE LOCATION TO ENABLE ACCESS FOR COUNCIL STAFF TO THE MAINTENANCE TRACKS

BIO RETENTION – COURSE SEDIMENT FOREBAY
SIZING GUIDE CALCULATIONS (TOTAL)

AEP (%)	MAX. WATER ELEVATION (m) A.H.D	MAX. WATER DEPTH (m)
63.2	11.458	0.988
0.5EY	11.611	1.141
20	11.737	1.267
10	11.812	1.342
5	11.875	1.405
2	11.944	1.474
1	11.992	1.522

g:\Projects\5941\engineering\Acad\BE2 CGL\Current\5941 ENG BE2 570-573.dwg



Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RI: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

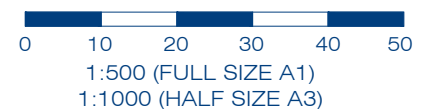
© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
OPERATIONAL PHASE
BIORETENTION BASIN
SHEET 4 OF 4

A	20-11-2020	ORIGINAL ISSUE	BA	MG	
Issue	Date	Description	DBN	CHK	

SCALE IN METRES

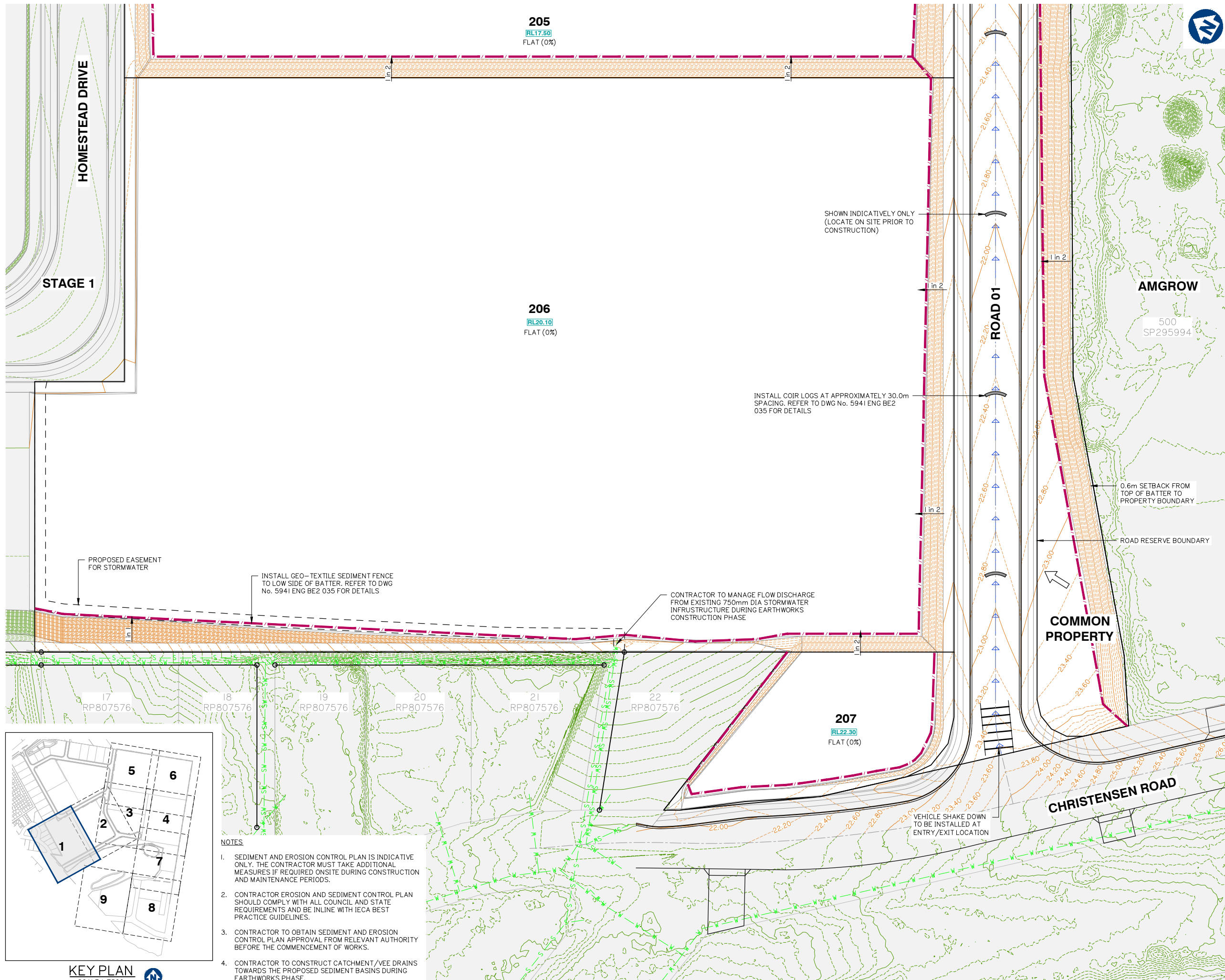


Scale at A1: 1:500

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:	Rev. No:
5941 ENG BE2 573	A

Appendix D – Sediment & Erosion Control Plans



Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
**SEDIMENT AND
EROSION CONTROL
PLAN SHEET 1 OF 9**

Issue	Date	Original Issue Description	BA DRN	MG CHK
A	20-11-2020			

SCALE IN METRES

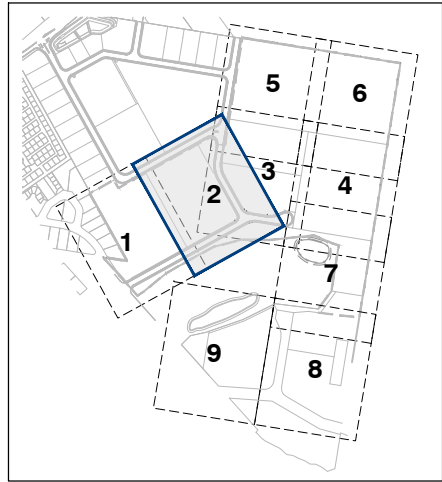
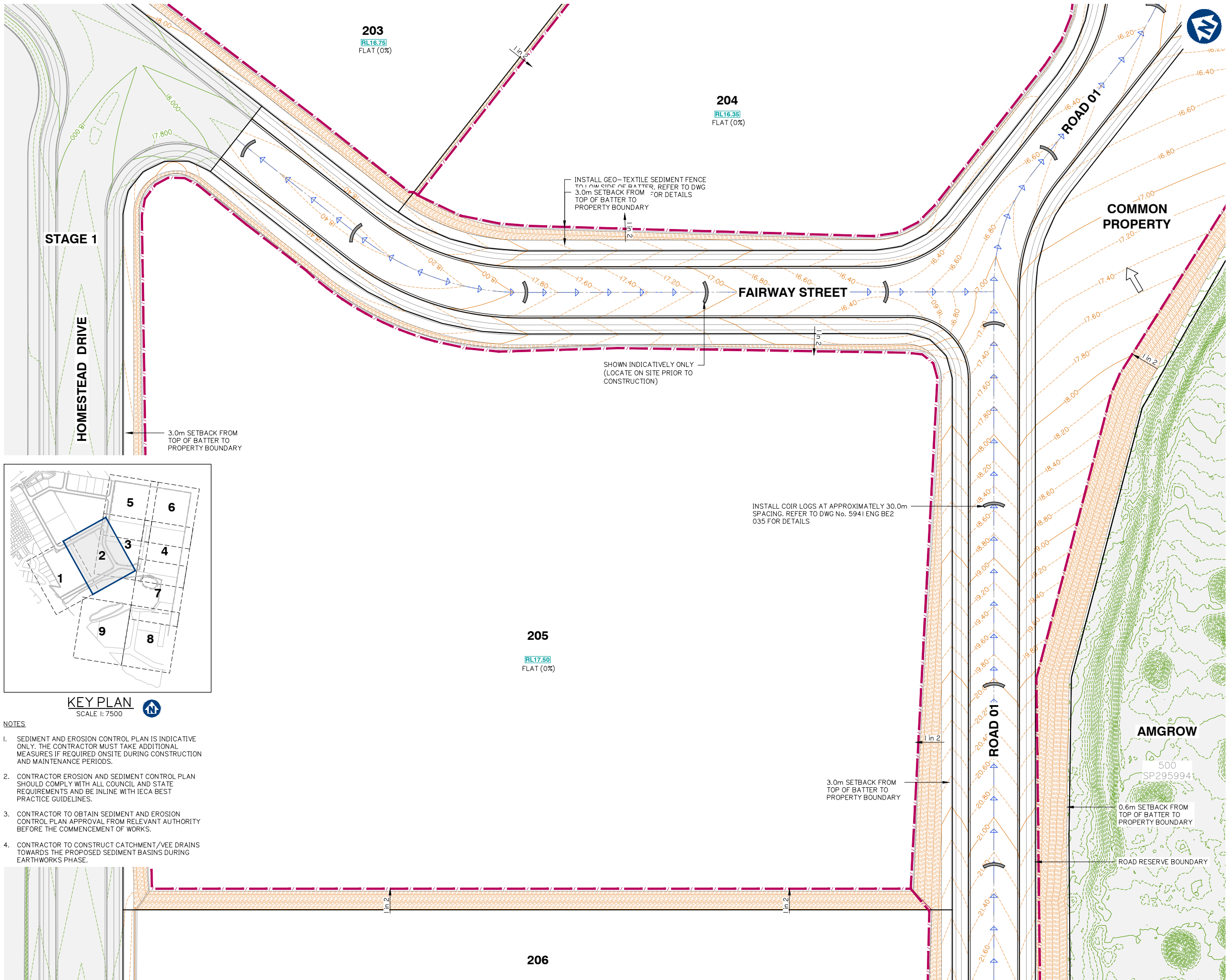
0 10 20 30 40 50
1:500 (FULL SIZE A1)
1:1000 (HALF SIZE A3)

Scale at A1: 1:500

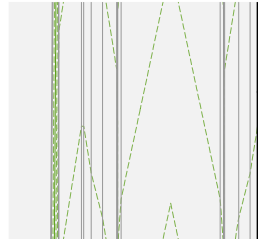
Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 020

Rev. No:
A



- NOTES
1. SEDIMENT AND EROSION CONTROL PLAN IS INDICATIVE ONLY. THE CONTRACTOR MUST TAKE ADDITIONAL MEASURES IF REQUIRED ONSITE DURING CONSTRUCTION AND MAINTENANCE PERIODS.
 2. CONTRACTOR EROSION AND SEDIMENT CONTROL PLAN SHOULD COMPLY WITH ALL COUNCIL AND STATE REQUIREMENTS AND BE IN LINE WITH IECA BEST PRACTICE GUIDELINES.
 3. CONTRACTOR TO OBTAIN SEDIMENT AND EROSION CONTROL PLAN APPROVAL FROM RELEVANT AUTHORITY BEFORE THE COMMENCEMENT OF WORKS.
 4. CONTRACTOR TO CONSTRUCT CATCHMENT/VEE DRAINS TOWARDS THE PROPOSED SEDIMENT BASINS DURING EARTHWORKS PHASE.



Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
SEDIMENT AND
EROSION CONTROL
PLAN SHEET 2 OF 9

Issue	Date	Description	BA	MG
A	20-11-2020	ORIGINAL ISSUE	BA	MG

SCALE IN METRES

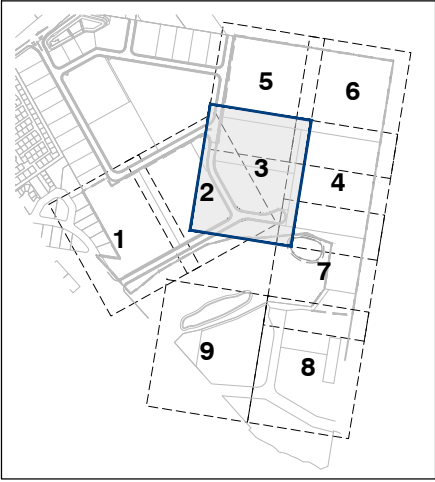
0 10 20 30 40 50
1:500 (FULL SIZE A1)
1:1000 (HALF SIZE A3)

Scale at A1: 1:500

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 021

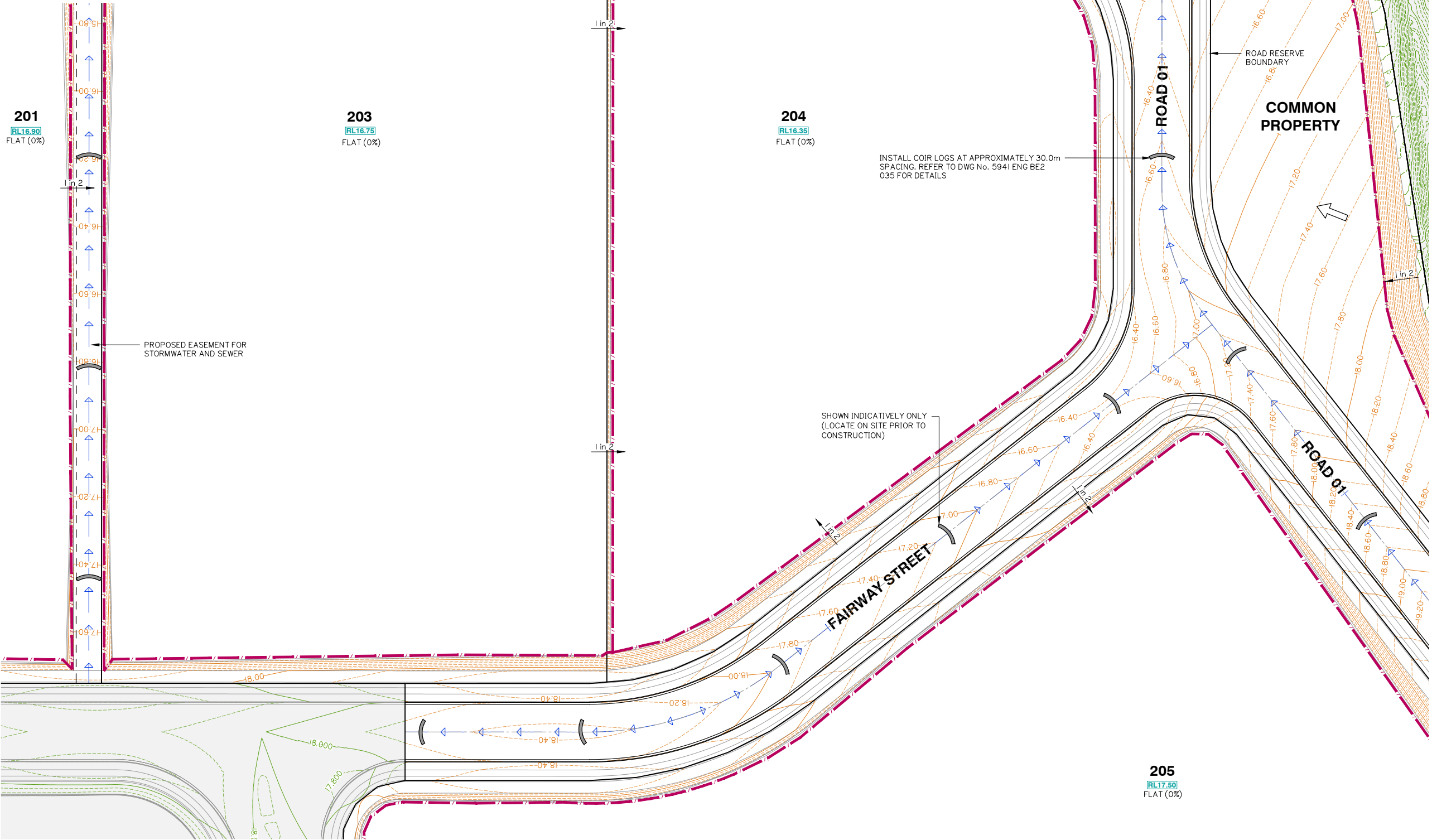
Rev. No:
A



KEY PLAN
SCALE 1: 7500

NOTES

1. SEDIMENT AND EROSION CONTROL PLAN IS INDICATIVE ONLY. THE CONTRACTOR MUST TAKE ADDITIONAL MEASURES IF REQUIRED ONSITE DURING CONSTRUCTION AND MAINTENANCE PERIODS.
2. CONTRACTOR EROSION AND SEDIMENT CONTROL PLAN SHOULD COMPLY WITH ALL COUNCIL AND STATE REQUIREMENTS AND BE IN LINE WITH IECA BEST PRACTICE GUIDELINES.
3. CONTRACTOR TO OBTAIN SEDIMENT AND EROSION CONTROL PLAN APPROVAL FROM RELEVANT AUTHORITY BEFORE THE COMMENCEMENT OF WORKS.
4. CONTRACTOR TO CONSTRUCT CATCHMENT / VEE DRAINS TOWARDS THE PROPOSED SEDIMENT BASINS DURING EARTHWORKS PHASE.



Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
SEDIMENT AND
EROSION CONTROL
PLAN SHEET 3 OF 9

Issue	Date	Original Issue Description	BA DRN	MG CHK
A	20-11-2020	ORIGINAL ISSUE	BA	MG

SCALE IN METRES



Scale at A1: 1:500

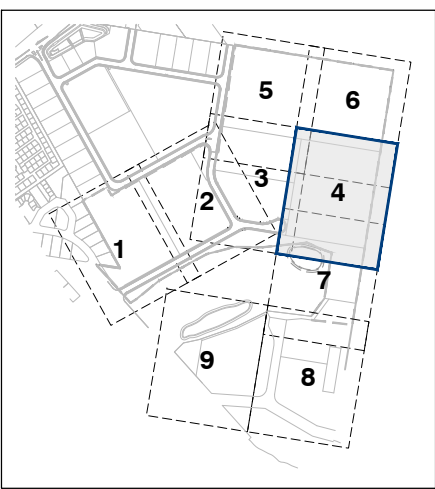
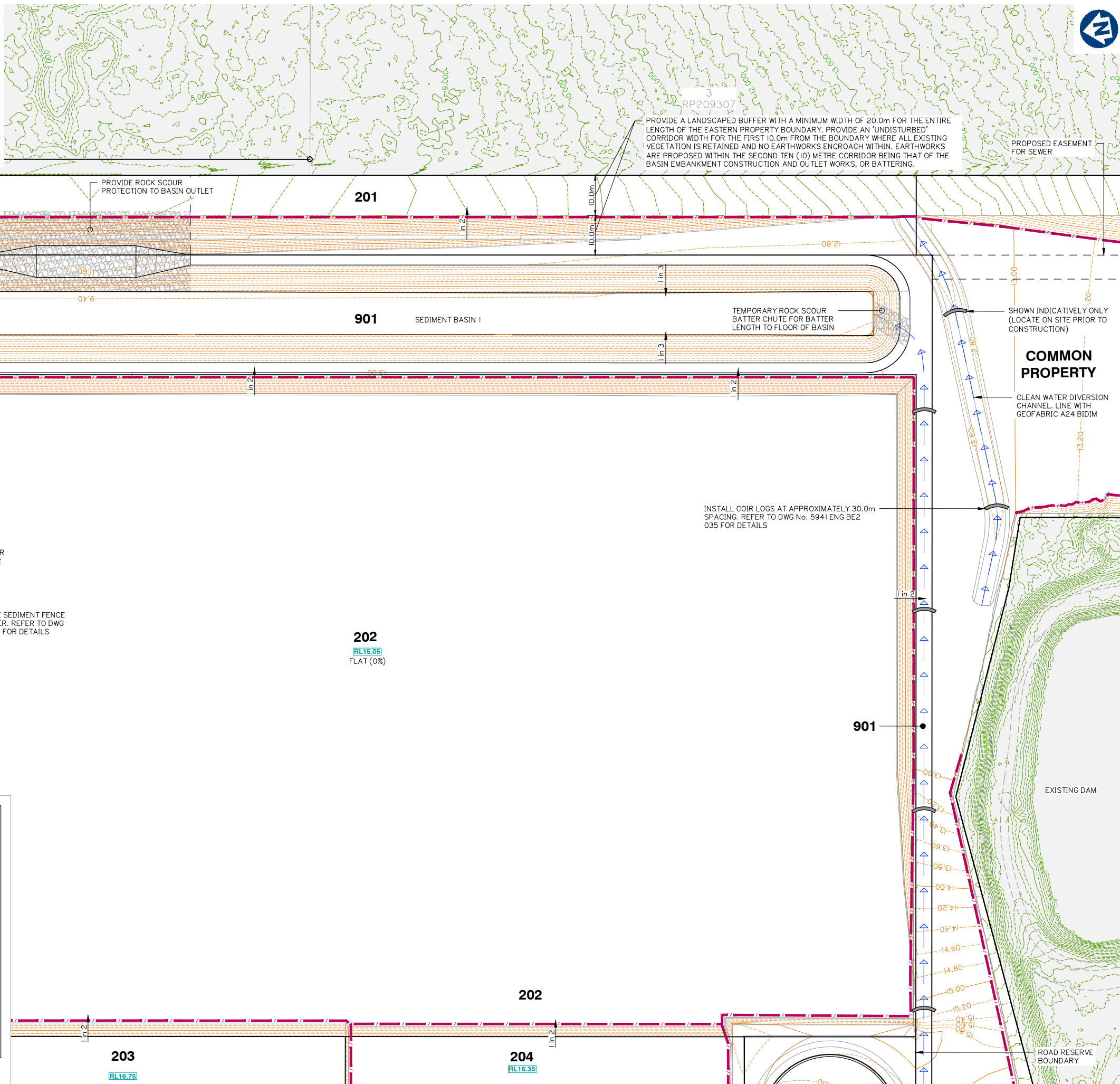
Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 022

Rev. No:
A

NOTES

1. SEDIMENT AND EROSION CONTROL PLAN IS INDICATIVE ONLY. THE CONTRACTOR MUST TAKE ADDITIONAL MEASURES IF REQUIRED ONSITE DURING CONSTRUCTION AND MAINTENANCE PERIODS.
2. CONTRACTOR EROSION AND SEDIMENT CONTROL PLAN SHOULD COMPLY WITH ALL COUNCIL AND STATE REQUIREMENTS AND BE IN LINE WITH IECA BEST PRACTICE GUIDELINES.
3. CONTRACTOR TO OBTAIN SEDIMENT AND EROSION CONTROL PLAN APPROVAL FROM RELEVANT AUTHORITY BEFORE THE COMMENCEMENT OF WORKS.
4. CONTRACTOR TO CONSTRUCT CATCHMENT/VEE DRAINS TOWARDS THE PROPOSED SEDIMENT BASINS DURING EARTHWORKS PHASE.



KEY PLAN
SCALE 1:7500

FOR CONTINUATION REFER SHEET No. 5941 ENG BE2 022

SEDIMENT AND EROSION CONTROL PLAN SHEET 4 OF 9



planning | environment | landscape | engineering | survey
T: 3807 3333 | F: 3287 5461 | www.gassman.com.au
Gold Coast & Logan | 76 Business Street, Yatala QLD | PO Box 392, Beerleigh 4207

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

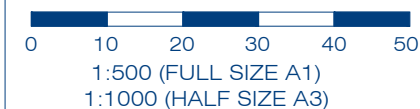
© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
SEDIMENT AND
EROSION CONTROL
PLAN SHEET 4 OF 9

Issue	Date	Description	BA	MG
A	20-11-2020	ORIGINAL ISSUE	BA	MG

SCALE IN METRES



Scale at A1: 1:500

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 023

Rev. No:
A



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

VantageYatala
STAGE 2

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

Lot:	501
Plan:	SP295994
Local Authority:	CITY OF GOLD COAST COUNCIL
Level Datum:	AHD
Meridian:	-
Contour Interval:	-
PSM:	-
RL:	-

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

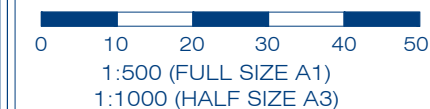
© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
SEDIMENT AND
EROSION CONTROL
PLAN SHEET 5 OF 9

A	20-11-2020		ORIGINAL ISSUE	BA	MG
Issue	Date		Description	DRN	CHI

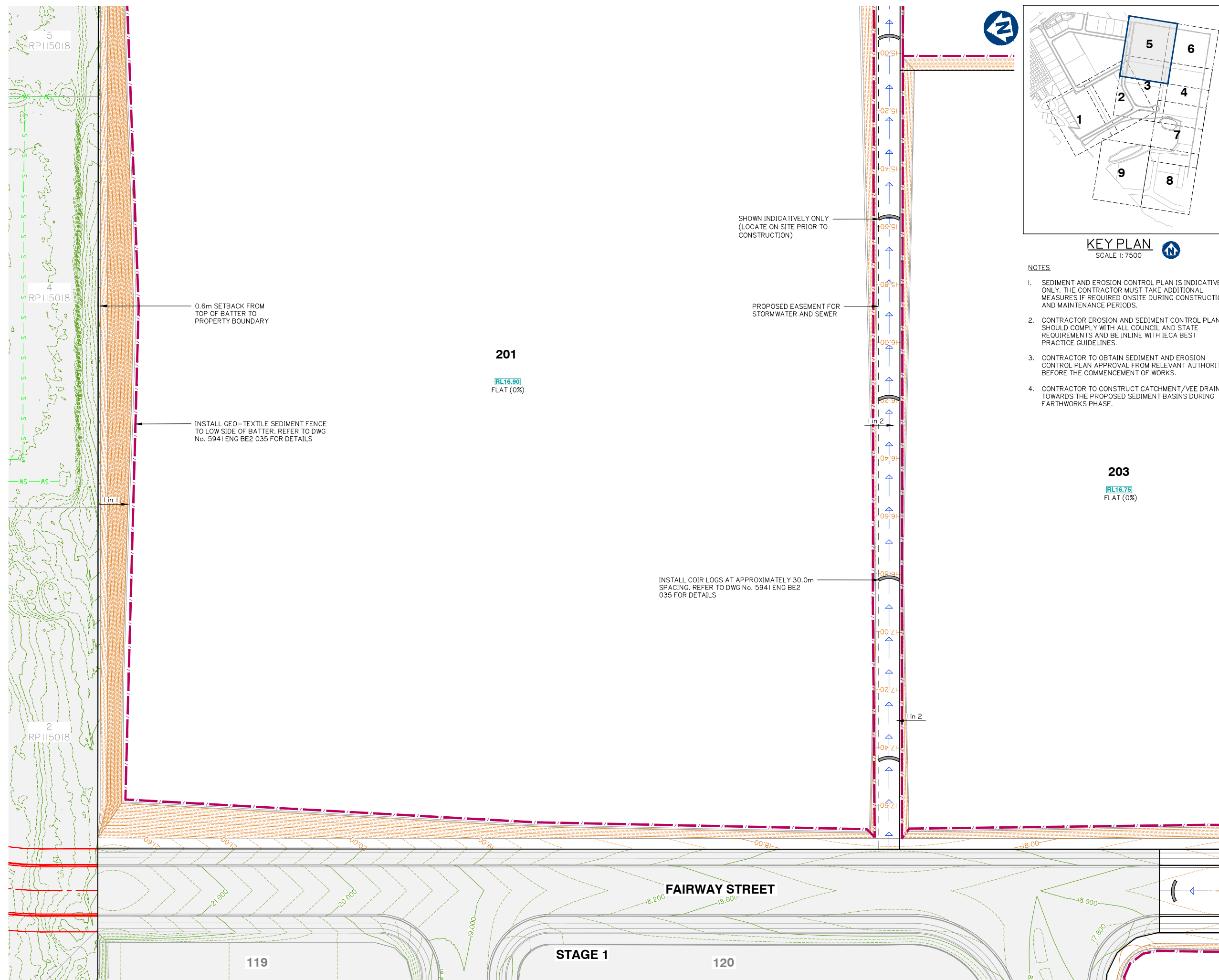
SCALE IN METRES



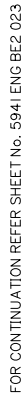
Scale at A1: 1:500

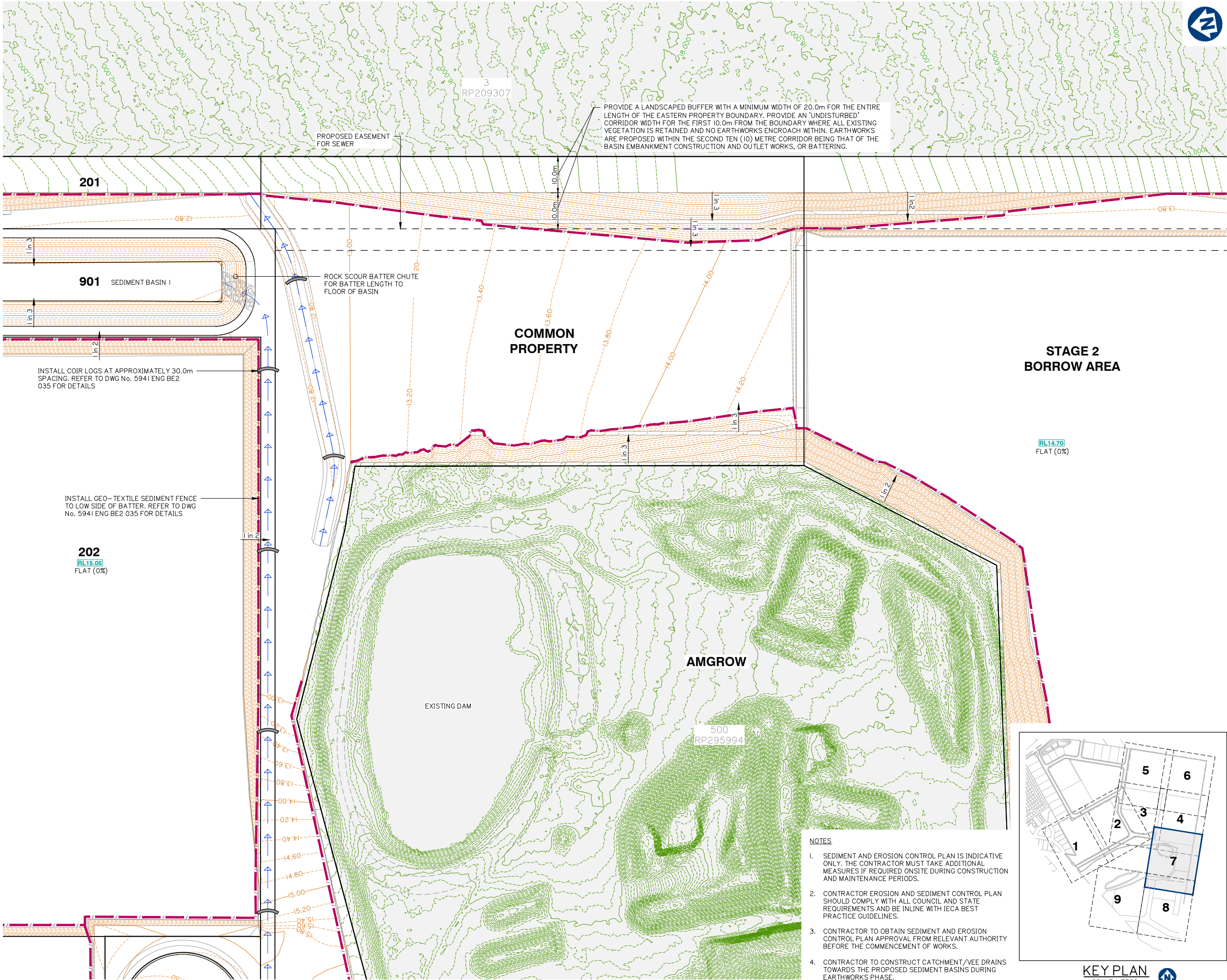
Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:	Rev. No:
5941 ENG BE2 024	A

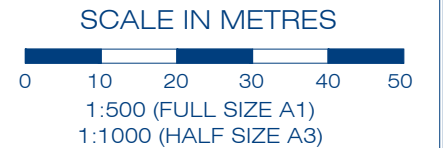


C
C
C
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T
U
V
W
X
Y
Z

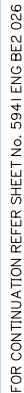




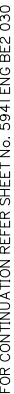
Issue	Date	Original Issue Description	BA DRN	MG CHK
A	20-11-2020			



Scale at A1:	1:500
Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020



1. SEDIMENT AND EROSION CONTROL PLAN IS INDICATIVE ONLY. THE CONTRACTOR MUST TAKE ADDITIONAL MEASURES IF REQUIRED ON SITE DURING CONSTRUCTION AND MAINTENANCE PERIODS.
2. CONTRACTOR EROSION AND SEDIMENT CONTROL PLAN SHOULD COMPLY WITH ALL CITY OF GOLD COAST COUNCIL AND STATE REQUIREMENTS AND BE IN ACCORDANCE WITH INDUSTRY BEST PRACTICE GUIDELINES.
3. CONTRACTOR TO OBTAIN SEDIMENT AND EROSION CONTROL PLAN APPROVAL FROM RELEVANT AUTHORITY BEFORE THE COMMENCEMENT OF WORKS.



BASIN ID	CATCHMENT AREA	DESIGN EVENT	$I_{x\text{ yr}, 24\text{ hr}}$	WATER TEMPERATURE	K_s	SETTLING ZONE DEPTH (D_s)	W:L	OPTIMUM LOW-FLOW DECAN'T RATE	SELECTED LOW-FLOW DECAN'T RATE (Q_A)	MIN SETTLING ZONE VOLUME (Min V_s)	MIN SETTLING ZONE SURFACE AREA (Min A_s)	LIMITING CRITERIA
	(Ha)	(1:X YEARS)	(mm/hr)	(°C)	(s/m)	(m)	(1:X)	(L/s/Ha)	(L/s/Ha)	(m³)	(m²)	
LPoD-IA	23.067	I	4.53	20	III50	1.9	5.1	9	9	5669	2315	VOLUME

	SPILLWAY										
BASIN ID	BASIN DESIGN LIFE	DESIGN ARI	C _{io}	C	t _c	I	Q	HEAD OVER SPILLWAY	SPILLWAY CREST LENGTH	SPILLWAY CREST RL	MIN EMBANKMENT RL
		yr				(mm/hr)	(m³/s)	(m)	(m)	(m)	(m)
LPoD—IA	> 12 MONTHS	1: 50	0.80	0.92	25.00	143.00	8.43	0.20	25.00	11.64	12.29

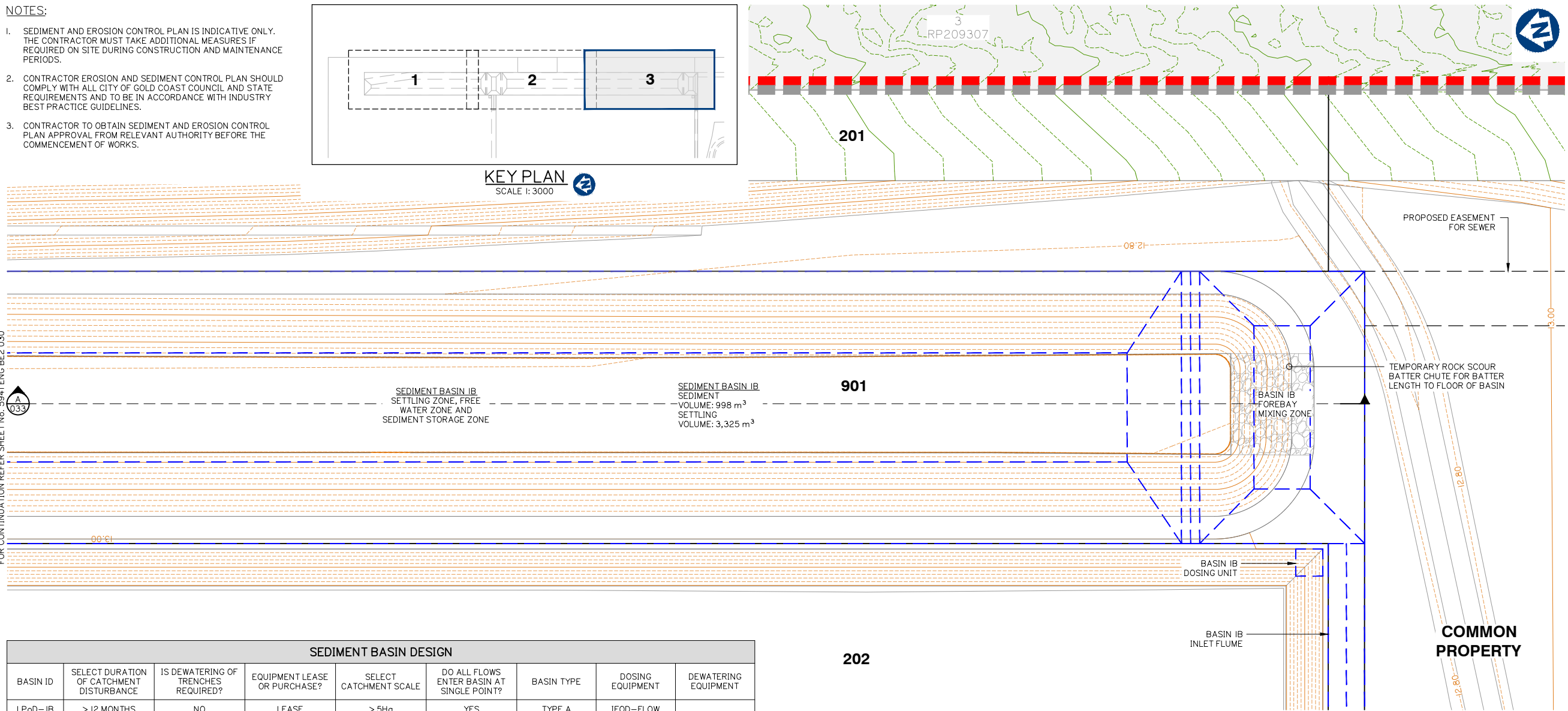
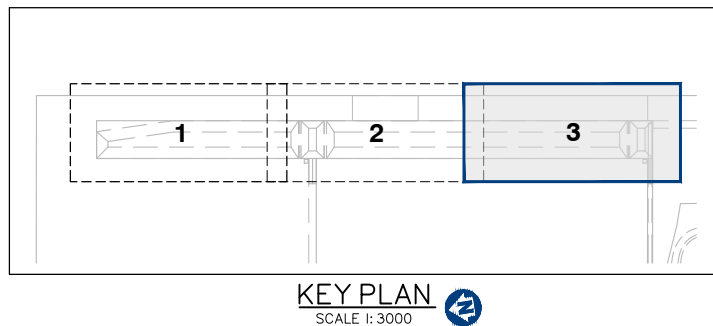
BASIN ID	SETTLING ZONE (incl. sediment storage)				FOREBAY				HYDRAULIC CONTROLS						
	VOLUME (m³)	LENGTH (m)	WIDTH (m)	DEPTH (m)	VOLUME (m³)	LENGTH (m)	WIDTH (m)	DEPTH (m)	SPILLWAY CREST LENGTH (m)	SPILLWAY CREST (RL)	EMBANKMENT (RL)	CREST (RL)	FLUME BASE WIDTH (m)	FLUME BATTERS (X: 1)	FLUME DEPTH (m)
LPoD-IA	7369.3	152.4	29.9	3.00	1366.63	15.2	29.9	3.00	25.0	11.64	12.29	11.84	6.0	2.0	0.6



A Issue	20-11-2020 Date	ORIGINAL ISSUE Description	BA DRN	MG CHK

A

1. SEDIMENT AND EROSION CONTROL PLAN IS INDICATIVE ONLY. THE CONTRACTOR MUST TAKE ADDITIONAL MEASURES IF REQUIRED ON SITE DURING CONSTRUCTION AND MAINTENANCE PERIODS.
2. CONTRACTOR EROSION AND SEDIMENT CONTROL PLAN SHOULD COMPLY WITH ALL CITY OF GOLD COAST COUNCIL AND STATE REQUIREMENTS AND TO BE IN ACCORDANCE WITH INDUSTRY BEST PRACTICE GUIDELINES.
3. CONTRACTOR TO OBTAIN SEDIMENT AND EROSION CONTROL PLAN APPROVAL FROM RELEVANT AUTHORITY BEFORE THE COMMENCEMENT OF WORKS.



SEDIMENT BASIN DESIGN								
BASIN ID	SELECT DURATION OF CATCHMENT DISTURBANCE	IS DEWATERING OF TRENCHES REQUIRED?	EQUIPMENT LEASE OR PURCHASE?	SELECT CATCHMENT SCALE	DO ALL FLOWS ENTER BASIN AT SINGLE POINT?	BASIN TYPE	DOSING EQUIPMENT	DEWATERING EQUIPMENT
LPoD-IB	> 12 MONTHS	NO	LEASE	> 5Ha	YES	TYPE A	IFOD-FLOW	

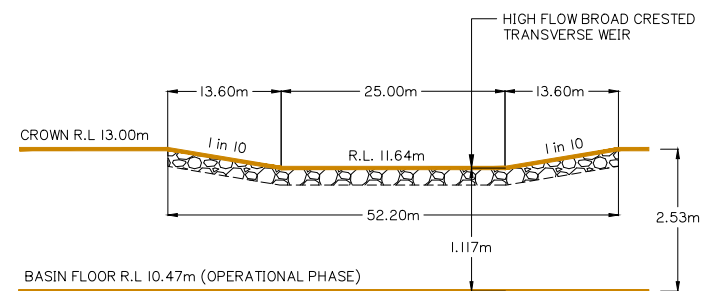
BASIN ID	CATCHMENT AREA	DESIGN EVENT	$i_{x\text{ yr}, 24\text{ hr}}$	WATER TEMPERATURE	K_s	SETTLING ZONE DEPTH (D_s)	W:L	OPTIMUM LOW-FLOW DECAT RATE	SELECTED LOW-FLOW DECAT RATE (Q_d)	MIN SETTLLING ZONE VOLUME (Min V_s)	MIN SETTLLING ZONE SURFACE AREA (Min A_s)	LIMITING CRITERIA
	(Ha)	(1: X YEARS)	(mm/hr)	(°C)	(s/m)	(m)	(1: X)	(L/s/Ha)	(L/s/Ha)	(m^3)	(m^2)	
LPoD-IB	13.352	1	4.53	20	11150	1.82	3.1	9	9	3325	1358	VOLUME

	SETTLING ZONE			FREE WATER ZONE		SEDIMENT STORAGE ZONE		OVERALL DIMENSIONS RELATIVE TO SPILLWAY CREST (EXCL. FOREBAY)			
BASIN ID	ACTUAL SETTLING ZONE VOLUME (V _s)	ACTUAL SETTLING ZONE AREA (A _s)	SCOUR VELOCITY	DEPTH OF FREE WATER ZONE	VOLUME OF FREE WATER ZONE	SEDIMENT STORAGE VOLUME	SEDIMENT STORAGE DEPTH (APPROX.)	BATTER	WIDTH	LENGTH	DEPTH
	(m ³)	(m ²)	(m/s)	(m)	(m ³)	(m ³)	(m)	(1: X)	(m)	(m)	(m)
LPoD – IB	3325	1827	0.008	0.35	333	998	0.83	3	29.74	92.19	3.00

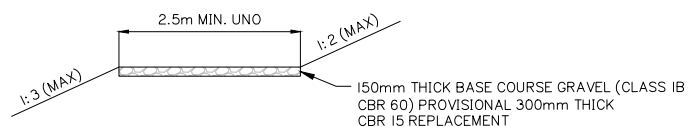
BASIN ID	BASIN DESIGN LIFE	SPILLWAY									
		DESIGN ARI	C ₁₀	C	t _c	I	Q	HEAD OVER SPILLWAY	SPILLWAY CREST LENGTH	SPILLWAY CREST RL	MIN EMBANKMENT RL
		yr				(mm/hr)	(m ³ /s)	(m)	(m)	(m)	(m)
LPoD-IB	> 12 MONTHS	1: 50	0.80	0.92	25,00	143,00	4,95	0.20	25,00	11.64	12.29

	Flow Rate		Flume Design Parameters				Velocity Check			Output Parameters		
Basin ID	Basin Design Flow (m³/s)	Flume Design Flow (m³/s)	Base Width (m)	Slide Slope (1: x)	Longitudinal Slope (m/m)	Flume Lining	Max Allowable Velocity (m/s)	Mannings Roughness	Velocity (m/s)	Flow Depth (m)	Flume Depth (m)	Calculated Flow (m³/s)
			b	x	s					d	y	
LPoD-IB	4.95	7.43	4.00	2.00	0.01	Concrete	5.00	0.013	3.817	0.42	0.57	7.76

BASIN ID	SETTLING ZONE (incl. sediment storage)				FOREBAY				HYDRAULIC CONTROLS						
	VOLUME (m³)	LENGTH (m)	WIDTH (m)	DEPTH (m)	VOLUME (m³)	LENGTH (m)	WIDTH (m)	DEPTH (m)	SPILLWAY CREST LENGTH (m)	SPILLWAY CREST (RL)	EMBANKMENT (RL)	CREST (RL)	FLUME BASE WIDTH (m)	FLUME BATTERS (x: 1)	FLUME DEPTH (m)
LPoD-IB	4323.1	92.2	29.7	3.00	822.44	9.2	29.7	3.00	25.0	11.64	12.29	11.84	4.0	2.0	0.6



WEIR / SPILLWAY – TYPICAL ELEVATION



MAINTENANCE ACCESS TRACK – TYPICAL SECTION



Client:



Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot:	501
Plan:	SP295994
Local Authority:	CITY OF GOLD COAST COUNCIL
Level Datum:	AHD
Meridian:	-
Contour Interval:	-
PSM:	-
RI :	-

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

©2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
CONSTRUCTION PHASE
SEDIMENT BASIN 1
LAYOUT SHEET 3 OF 4

A	20-11-2020	ORIGINAL ISSUE	BA	MG
Issue	Date	Description	DRN	CHK

SCALE IN METRES



1:250 (FULL SIZE A1)
1:500 (HALF SIZE A3)

Scale at A1:

1:250

Designed:

IG
BA

Approved:

MG

Signed:



Date:

20-11-2020

Drawing No:

Rev. No:

5941 ENG BE2 031

A

1. SEDIMENT AND EROSION CONTROL PLAN IS INDICATIVE ONLY. THE CONTRACTOR MUST TAKE ADDITIONAL MEASURES IF REQUIRED ON SITE DURING CONSTRUCTION AND MAINTENANCE PERIODS.
2. CONTRACTOR EROSION AND SEDIMENT CONTROL PLAN SHOULD COMPLY WITH ALL CITY OF GOLD COAST COUNCIL AND STATE REQUIREMENTS AND TO BE IN ACCORDANCE WITH INDUSTRY BEST PRACTICE GUIDELINES.
3. CONTRACTOR TO OBTAIN SEDIMENT AND EROSION CONTROL PLAN APPROVAL FROM RELEVANT AUTHORITY BEFORE THE COMMENCEMENT OF WORKS.



BASIN ID	CATCHMENT AREA	DESIGN EVENT	$I_{x\text{ yr}, 24\text{ hr}}$	WATER TEMPERATURE	K_s	SETTLING ZONE DEPTH (D_s)	W: L	OPTIMUM LOW-FLOW DECAN'T RATE	SELECTED LOW-FLOW DECAN'T RATE (Q_k)	MIN SETTLING ZONE VOLUME (Min V_s)	MIN SETTLING ZONE SURFACE AREA (Min A_s)	LIMITING CRITERIA
	(Ha)	(1: X YEARS)	(mm/hr)	(°C)	(s/m)	(m)	(1: X)	(L/s/Ha)	(L/s/Ha)	(m³)	(m²)	
LPoD-2	9.904	I	4.53	20	III50	1.76	3	9	9	2434	994	VOLUME

		SPILLWAY									
BASIN ID	BASIN DESIGN LIFE	DESIGN ARI	C _{lo}	C	tc	I	Q	HEAD OVER SPILLWAY	SPILLWAY CREST LENGTH	SPILLWAY CREST RL	MIN EMBANKMENT RL
		yr				(mm/hr)	(m³/s)	(m)	(m)	(m)	(m)
LPoD-2	> 12 MONTHS	1: 50	0.80	0.92	25	143	3.62	0.20	15.0	12.879	13.529

BASIN ID	SETTLING ZONE (incl. sediment storage)				FOREBAY				HYDRAULIC CONTROLS						
	VOLUME (m³)	LENGTH (m)	WIDTH (m)	DEPTH (m)	VOLUME (m³)	LENGTH (m)	WIDTH (m)	DEPTH (m)	SPILLWAY CREST LENGTH (m)	SPILLWAY CREST (RL)	EMBANKMENT (RL)	CREST (RL)	FLUME BASE WIDTH (m)	FLUME BATTERS (X: 1)	FLUME DEPTH (m)
LPoD-2	3164.1	80.3	26.8	3.00	644.01	8.0	26.8	3.00	15.0	12.88	13.53	13.08	3.0	2.0	0.6



Project: **VantageYatala**
STAGE 2

Site Address:
60 STAPYLTON JACOBS WEL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot:	501
Plan:	SP295994
Local Authority:	CITY OF GOLD COAST COUNCIL
Level Datum:	AHD
Meridian:	-
Contour Interval:	-
PSM:	-
RL:	-

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

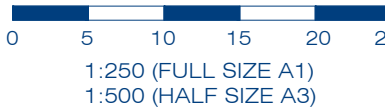
© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
CONSTRUCTION PHASE
SEDIMENT BASIN 2
LAYOUT SHEET 4 OF 4

[illegible]

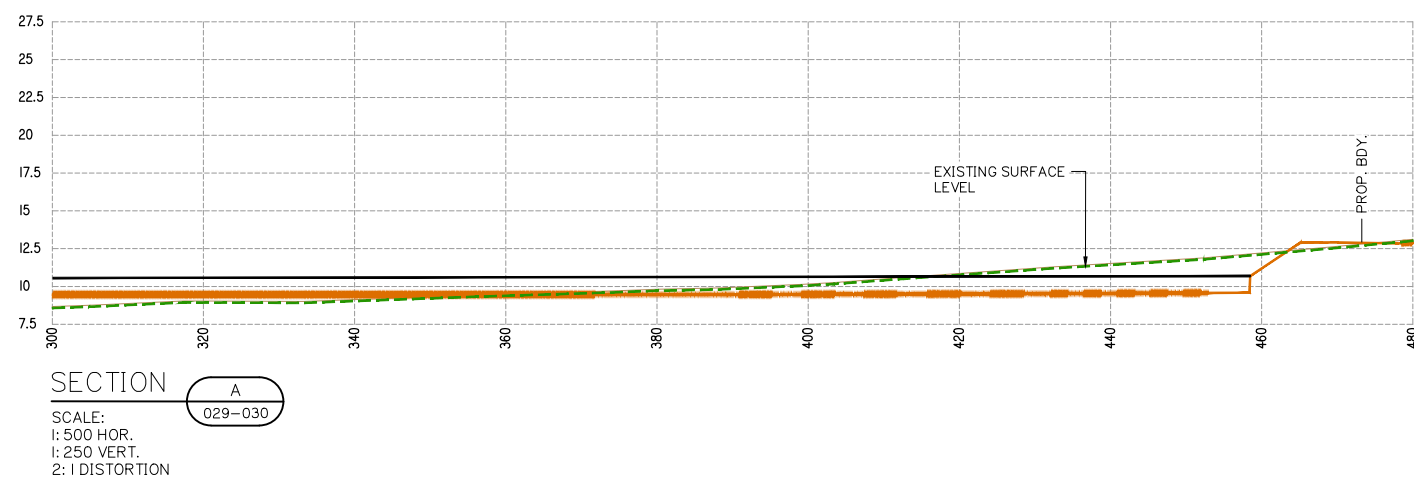
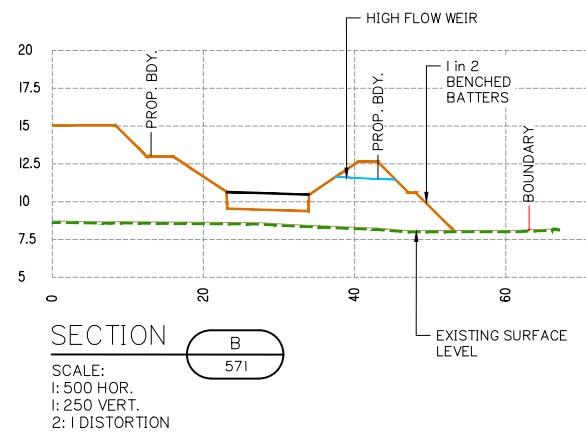
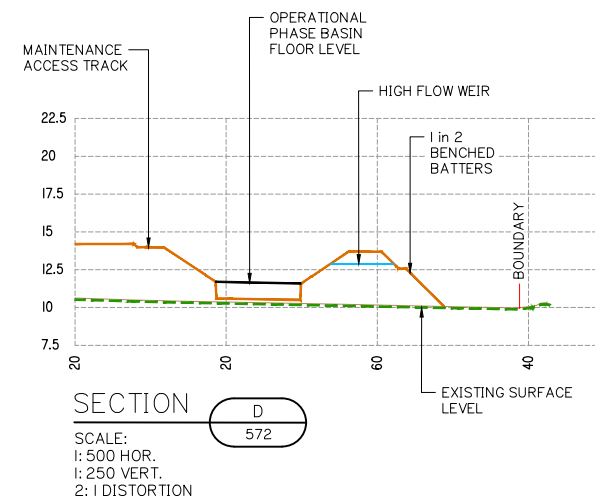
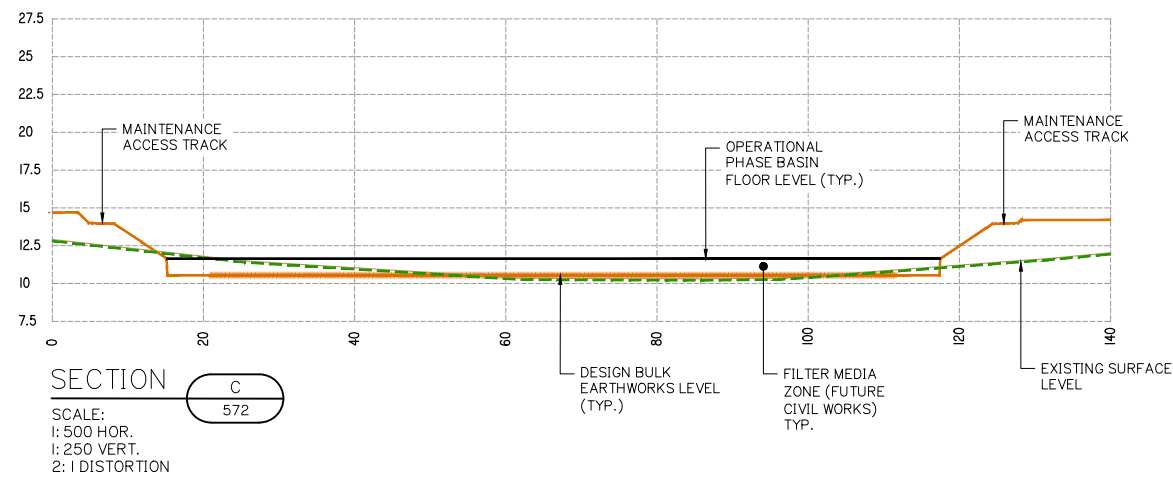
SCALE IN METRES



Scale at A1: 1:250

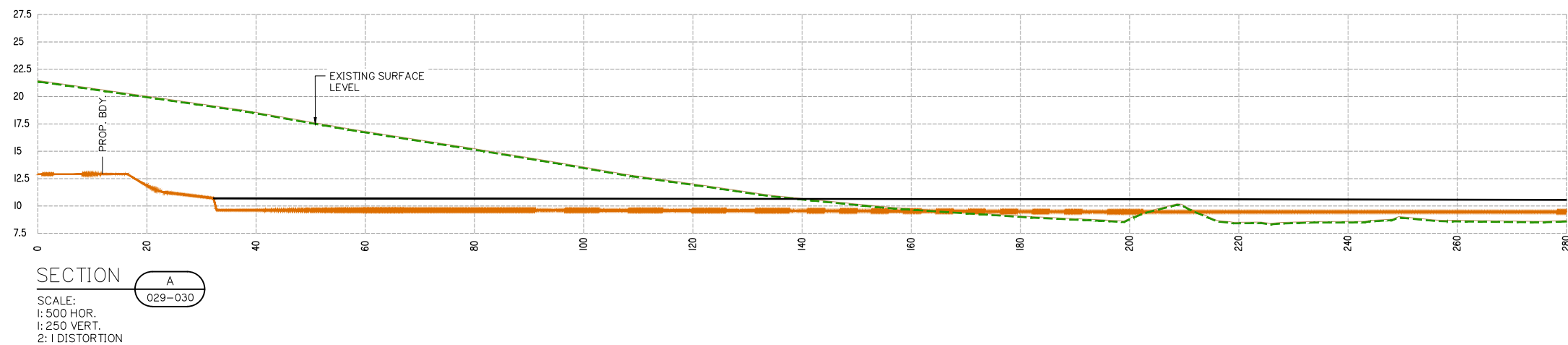
Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:	Rev. No:
5941 ENG BE2 032	A



NOTE:

I. SEDIMENT ACCUMULATION DEPTHS, FREE WATER ZONES, AND SETTLEMENT DEPTHS ARE OMITTED FROM CROSS SECTIONS FOR CLARITY. REFER TO CALCULATION TABLES ON DRAWINGS 5941 ENG BE2 029-032



Client:



Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot:	501
Plan:	SP295994
Local Authority:	CITY OF GOLD COAST COUNCIL
Level Datum:	AHD
Meridian:	-
Contour Interval:	-
PSM:	-
RL:	-

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
CONSTRUCTION PHASE
SEDIMENT BASIN
SECTIONS

A Issue	20-11-2020 Date	ORIGINAL ISSUE Description	BA DRN	MG CHK

SCALE IN METRES



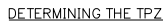
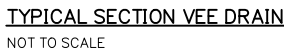
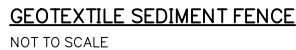
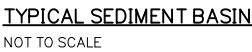
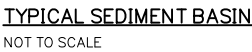
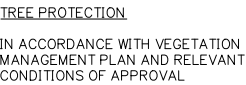
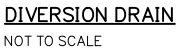
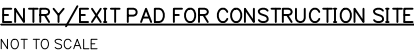
1:250 (FULL SIZE A1)
1:500 (HALF SIZE A3)

Scale at A1: 1:250

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:	Rev. No:
5941 ENG BE2 033	A

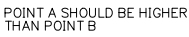




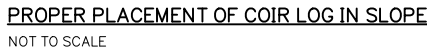
THE RADIUS OF THE TPZ IS CALCULATED FOR EACH TREE BY MULTIPLYING ITS DBH X 12 = TRUNK DIAMETER MEASURED AT 1.4M ABOVE GROUND. RADIUS IS MEASURED FROM THE CENTRE OF THE STEM AT GROUND LEVEL.

A TPZ SHOULD NOT BE LESS THAN 2M NOR GREATER THAN 15M (EXCEPT WHERE CROWN PROTECTION IS REQUIRED).
THE TPZ OF PALMS, OTHER MONOCOTS, CYCADS AND TREE FERNS SHOULD NOT BE LESS THAN 1M OUTSIDE THE CROWN PROJECTION.

PROTECTIVE FENCING
NOT TO SCALE



PROPER PLACEMENT OF COIR LOG IN DRAINAGE PATH
NOT TO SCALE



Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL

Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

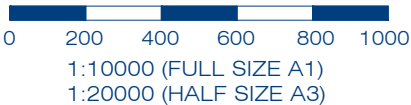
ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

SEDIMENT AND EROSION TYPICAL DETAILS

A	20-11-2020	ORIGINAL ISSUE		BA	MU
Issue	Date	Description		DRN	CH

SCALE IN METRES



Scale at A1: 1:XXXX

Designed:	IG
-----------	----

Drafted:	BA
----------	----

Approved:	MC
-----------	----

RPEQ:	169
-------	-----

Signed:	
---------	--

Date:	20
-------	----

Drawing No:
5941 ENG BE2 035

Rev. No:
A

Appendix E – MUSIC Catchment Plan

Appendix F – MUSIC Link Report

MUSIC-link Report

Project Details		Company Details	
Project:	5941 Frasers Property Yatala LPoD-1 (VANTAGE YATALA STAGE 2)	Company:	Frasers Property c/o Gassman Development Perspectives Pty. Ltd.
Report Export Date:	18/11/2020	Contact:	Mitchell Gassman
Catchment Name:	5941 CoGC Vantage	Address:	OFFICE: 76 Business Street Yatala 4207
Catchment Area:	36.599ha	Phone:	0738073333
Impervious Area*:	83.68%	Email:	mitchell@gassman.com.au
Rainfall Station:	40406 BEENLEIGH		
Modelling Time-step:	6 Minutes		
Modelling Period:	1/01/1990 - 31/12/1999 11:54:00 PM		
Mean Annual Rainfall:	1105mm		
Evapotranspiration:	1492mm		
MUSIC Version:	6.3.0		
MUSIC-link data Version:	6.32		
Study Area:	City of Gold Coast (North)		
Scenario:	City of Gold Coast (North)		

* takes into account area from all source nodes that link to the chosen reporting node, excluding Import Data Nodes

Treatment Train Effectiveness		Treatment Nodes		Source Nodes	
Node: LPoD-1	Reduction	Node Type	Number	Node Type	Number
Flow	3.56%	Bio Retention Node	1	Urban Source Node	8
TSS	81.5%				
TP	73.7%				
TN	52.7%				
GP	100%				

Comments

Bio retention basin
4000m2 filter media
700mm depth
200mm/hr SHC
Lot 119 and Lot 207 are included
Part of Stage 1 (DEV-1 part) diverted catchment (4.38Ha) is included
Part of Stage 1 catchment split: 2.140 Ha road, 1.311 Ha roof, 0.929 Ha ground (refer stage 1 approved MUSIC Link report)

Passing Parameters

Node Type	Node Name	Parameter	Min	Max	Actual
Bio	Bio-Retention Basin DEV-1 (4000m2 Filter)	Exfiltration Rate (mm/hr)	None	None	0
Bio	Bio-Retention Basin DEV-1 (4000m2 Filter)	Extended detention depth (m)	None	1	0.3
Bio	Bio-Retention Basin DEV-1 (4000m2 Filter)	Filter depth (m)	0.4	1	0.7
Bio	Bio-Retention Basin DEV-1 (4000m2 Filter)	Hi-flow bypass rate (cum/sec)	None	None	100
Bio	Bio-Retention Basin DEV-1 (4000m2 Filter)	Orthophosphate Content in Filter (mg/kg)	None	None	30
Bio	Bio-Retention Basin DEV-1 (4000m2 Filter)	PET Scaling Factor	2.1	2.1	2.1
Bio	Bio-Retention Basin DEV-1 (4000m2 Filter)	Saturated Hydraulic Conductivity (mm/hr)	50	200	200
Bio	Bio-Retention Basin DEV-1 (4000m2 Filter)	Total Nitrogen Content in Filter (mg/kg)	None	None	400
Receiving	LPoD-1	% Load Reduction	None	None	3.56
Receiving	LPoD-1	GP % Load Reduction	90	None	100
Receiving	LPoD-1	TN % Load Reduction	45	None	52.7
Receiving	LPoD-1	TP % Load Reduction	60	None	73.7
Receiving	LPoD-1	TSS % Load Reduction	80	None	81.5
Urban	CoGC - 20m Buffer to Landfill (1.271 Ha)	Area Impervious (ha)	None	None	0
Urban	CoGC - 20m Buffer to Landfill (1.271 Ha)	Area Pervious (ha)	None	None	1.271
Urban	CoGC - 20m Buffer to Landfill (1.271 Ha)	Total Area (ha)	None	None	1.271
Urban	CoGC - Drainage Reserve & Basin (1.310 Ha)	Area Impervious (ha)	None	None	0.260
Urban	CoGC - Drainage Reserve & Basin (1.310 Ha)	Area Pervious (ha)	None	None	1.049
Urban	CoGC - Drainage Reserve & Basin (1.310 Ha)	Total Area (ha)	None	None	1.31
Urban	CoGC - Industrial GROUND (4.177 Ha)	Area Impervious (ha)	None	None	2.497
Urban	CoGC - Industrial GROUND (4.177 Ha)	Area Pervious (ha)	None	None	1.679
Urban	CoGC - Industrial GROUND (4.177 Ha)	Total Area (ha)	None	None	4.177
Urban	CoGC - Industrial Lot 119 (0.382 Ha)	Area Impervious (ha)	None	None	0.306
Urban	CoGC - Industrial Lot 119 (0.382 Ha)	Area Pervious (ha)	None	None	0.075
Urban	CoGC - Industrial Lot 119 (0.382 Ha)	Total Area (ha)	None	None	0.382
Urban	CoGC - Industrial Lot 207 (0.235 Ha)	Area Impervious (ha)	None	None	0.188
Urban	CoGC - Industrial Lot 207 (0.235 Ha)	Area Pervious (ha)	None	None	0.046
Urban	CoGC - Industrial Lot 207 (0.235 Ha)	Total Area (ha)	None	None	0.235
Urban	CoGC - Industrial LOT HARDSTAND DEV-1 (10.456 Ha)	Area Impervious (ha)	None	None	9.365
Urban	CoGC - Industrial LOT HARDSTAND DEV-1 (10.456 Ha)	Area Pervious (ha)	None	None	1.090
Urban	CoGC - Industrial LOT HARDSTAND DEV-1 (10.456 Ha)	Total Area (ha)	None	None	10.45
Urban	CoGC - Industrial ROAD RESERVE DEV-1 (3.012 Ha)	Area Impervious (ha)	None	None	2.255
Urban	CoGC - Industrial ROAD RESERVE DEV-1 (3.012 Ha)	Area Pervious (ha)	None	None	0.756
Urban	CoGC - Industrial ROAD RESERVE DEV-1 (3.012 Ha)	Total Area (ha)	None	None	3.012
Urban	CoGC - Industrial ROOF DEV-1 (15.756 Ha)	Area Impervious (ha)	None	None	15.756
Urban	CoGC - Industrial ROOF DEV-1 (15.756 Ha)	Area Pervious (ha)	None	None	0
Urban	CoGC - Industrial ROOF DEV-1 (15.756 Ha)	Total Area (ha)	None	None	15.756

Only certain parameters are reported when they pass validation

Appendix G – WSUD Bio Retention Basin Maintenance Checklists

BIORETENTION BASIN CONSTRUCTION INSPECTION CHECKLIST											
Asset I.D.					Inspected By:						
Site:					Date:						
					Time:						
Constructed By:					Weather:						
					Contact During Visit:						
Items inspected		Checked		Satisfactory		Items inspected		Checked		Satisfactory	
		Y	N	Y	N			Y	N	Y	N
DURING CONSTRUCTION & ESTABLISHMENT											
A. FUNCTIONAL INSTALLATION						Structural components					
Preliminary Works						15. Location and configuration of inflow systems as designed					
1. Erosion and sediment control plan adopted						16. Location and levels of overflow pits as designed					
2. Temporary traffic/safety control measures						17. Under-drainage connected to overflow pits as designed					
3. Location same as plans						18. Concrete and reinforcement as designed					
4. Site protection from existing flows						19. Set down to correct level for flush kerbs (streetscape applications only)					
Earthworks and Filter Media						20. Kerb opening width as designed					
5. Bed of basin correct shape and slope											
6. Batter slopes as plans						B. SEDIMENT & EROSION CONTROL (IF REQUIRED)					
7. Dimensions of bioretention area as plans						21. Stabilisation immediately following earthworks and planting of terrestrial landscape around basin					
8. Confirm surrounding soil type with design						22. Silt fences and traffic control in place					
9. Confirm filter media specification in accordance with Step 4						23. Temporary protection layers in place					
9. Provision of liner (if required)											
10. Under-drainage installed as designed						C. OPERATIONAL ESTABLISHMENT					
11. Drainage layer media as designed						24. Temporary protection layers and associated silt removed					
12. Transition layer media as designed (if required)						Vegetation					
14. Extended detention depth as designed						25. Planting as designed (species and densities)					
						26. Weed removal and watering as required					
FINAL INSPECTION											
1. Confirm levels of inlets and outlets						6. Check for uneven settling of banks					
2. Confirm structural element sizes						7. Under-drainage working					
3. Check batter slopes						8. Inflow systems working					
4. Vegetation as designed						9. Maintenance access provided					
5. Bioretention filter media surface flat and free of clogging											
COMMENTS ON INSPECTION											
ACTIONS REQUIRED											
Inspection officer signature:											

BIORETENTION BASIN MAINTENANCE CHECKLIST				
Inspection Frequency:	1 to 6 monthly	Date of Visit:		
Location:				
Description:				
Asset I.D.				
Site Visit by:				
INSPECTION ITEMS:	Y	N	Action Required (details)	
Sediment accumulation at inflow points?				
Litter within basin?				
Erosion at inlet or other key structures?				
Traffic damage present?				
Evidence of dumping (e.g. building waste)?				
Vegetation condition satisfactory (density, weeds etc)?				
Watering of vegetation required?				
Replanting required?				
Mowing/slashing required?				
Clogging of drainage points (sediment or debris)?				
Evidence of ponding?				
Damage/vandalism to structures present?				
Surface clogging visible?				
Drainage system inspected?				
Resetting of system required?				
COMMENTS				

BIORETENTION BASIN ASSET TRANSFER CHECKLIST			
Asset I.D.			
Asset Location:			
Construction by:			
'On-maintenance' Period:			
TREATMENT	Y	N	
System appears to be working as designed visually?			
No obvious signs of under-performance?			
MAINTENANCE	Y	N	
Maintenance plans and indicative maintenance costs provided for each asset?			
Vegetation establishment period completed (2 years)?			
Inspection and maintenance undertaken as per maintenance plan?			
Inspection and maintenance forms provided?			
ASSET INSPECTED FOR DEFECTS AND/OR MAINTENANCE ISSUES AT TIME OF ASSET TRANSFER	Y	N	
Sediment accumulation at inflow points?			
Litter within basin?			
Erosion at inlet or other key structures?			
Traffic damage present?			
Evidence of dumping (e.g. building waste)?			
Vegetation condition satisfactory (density, weeds etc)?			
Watering of vegetation required?			
Replanting required?			
Mowing/slashing required?			
Clogging of drainage points (sediment or debris)?			
Evidence of ponding?			
Damage/vandalism to structures present?			
Surface clogging visible?			
Drainage system inspected?			
COMMENTS/ACTIONS REQUIRED FOR ASSET TRANSFER			
ASSET INFORMATION	Y	N	
Design Assessment Checklist provided?			
As constructed plans provided?			
Copies of all required permits (both construction and operational) submitted?			
Proprietary information provided (if applicable)?			
Digital files (e.g. drawings, survey, models) provided?			
Asset listed on asset register or database?			

Appendix H – Bureau of Meteorology Rainfall Data



Location

Label: Vantage Yatala Stage 2

Latitude: -27.736 [Nearest grid cell: 27.7375 ([S](#))]

Longitude:153.238 [Nearest grid cell: 153.2375 ([E](#))]

IFD Design Rainfall Intensity (mm/h)

Issued: 26 May 2020

Rainfall intensity for Durations, Exceedance per Year (EY), and Annual Exceedance Probabilities (AEP).
[FAQ for New ARR probability terminology](#)

	Annual Exceedance Probability (AEP)						
Duration	63.2%	50%#	20%*	10%	5%	2%	1%
1 min	155	175	239	281	323	378	419
2 min	127	144	200	240	281	339	386
3 min	119	135	187	224	261	313	354
4 min	114	130	178	212	246	292	328
5 min	110	124	170	202	233	275	307
10 min	90.5	102	139	163	187	217	240
15 min	76.8	86.8	118	138	158	183	202
20 min	66.7	75.5	103	121	138	160	177
25 min	59.2	67.0	91.1	107	123	143	159
30 min	53.3	60.3	82.3	97.1	112	131	145
45 min	41.5	47.0	64.6	76.6	88.6	105	117
1 hour	34.4	39.0	53.9	64.2	74.7	88.9	100
1.5 hour	26.2	29.7	41.4	49.8	58.3	70.1	79.5
2 hour	21.5	24.5	34.3	41.4	48.8	59.0	67.3
3 hour	16.4	18.7	26.4	32.1	38.0	46.3	53.1
4.5 hour	12.6	14.4	20.5	25.0	29.7	36.4	41.8
6 hour	10.5	12.0	17.2	21.0	25.0	30.7	35.3
9 hour	8.14	9.38	13.5	16.6	19.8	24.3	27.9
12 hour	6.85	7.92	11.5	14.1	16.8	20.6	23.7
18 hour	5.38	6.24	9.11	11.2	13.4	16.4	18.8
24 hour	4.53	5.27	7.72	9.51	11.4	13.9	16.0
30 hour	3.95	4.60	6.76	8.35	10.0	12.2	14.0
36 hour	3.53	4.11	6.05	7.48	8.98	11.0	12.6
48 hour	2.92	3.41	5.04	6.24	7.51	9.20	10.6
72 hour	2.19	2.56	3.79	4.72	5.71	7.01	8.07
96 hour	1.76	2.04	3.03	3.79	4.59	5.65	6.51
120 hour	1.46	1.69	2.51	3.14	3.82	4.70	5.41
144 hour	1.24	1.44	2.13	2.66	3.24	3.98	4.58
168 hour	1.08	1.24	1.83	2.29	2.79	3.42	3.93

Note:

The 50% AEP IFD **does not** correspond to the 2 year Average Recurrence Interval (ARI) IFD. Rather it corresponds to the 1.44 ARI.

* The 20% AEP IFD **does not** correspond to the 5 year Average Recurrence Interval (ARI) IFD. Rather it corresponds to the 4.48 ARI.

This page was created at **16:10 on Tuesday 26 May 2020 (AEST)**

© [Copyright](#) Commonwealth of Australia 2020, Bureau of Meteorology (ABN 92 637 533 532) | [CRICOS Provider 02015K](#) | [Disclaimer](#) | [Privacy](#) | [Accessibility](#)



Location

Label: Vantage Yatala Stage 2
Latitude: -27.736 [Nearest grid cell: 27.7375 ([S](#))]
Longitude:153.238 [Nearest grid cell: 153.2375 ([E](#))]

Very Frequent Design Rainfall Intensity (mm/h)

Issued: 26 May 2020

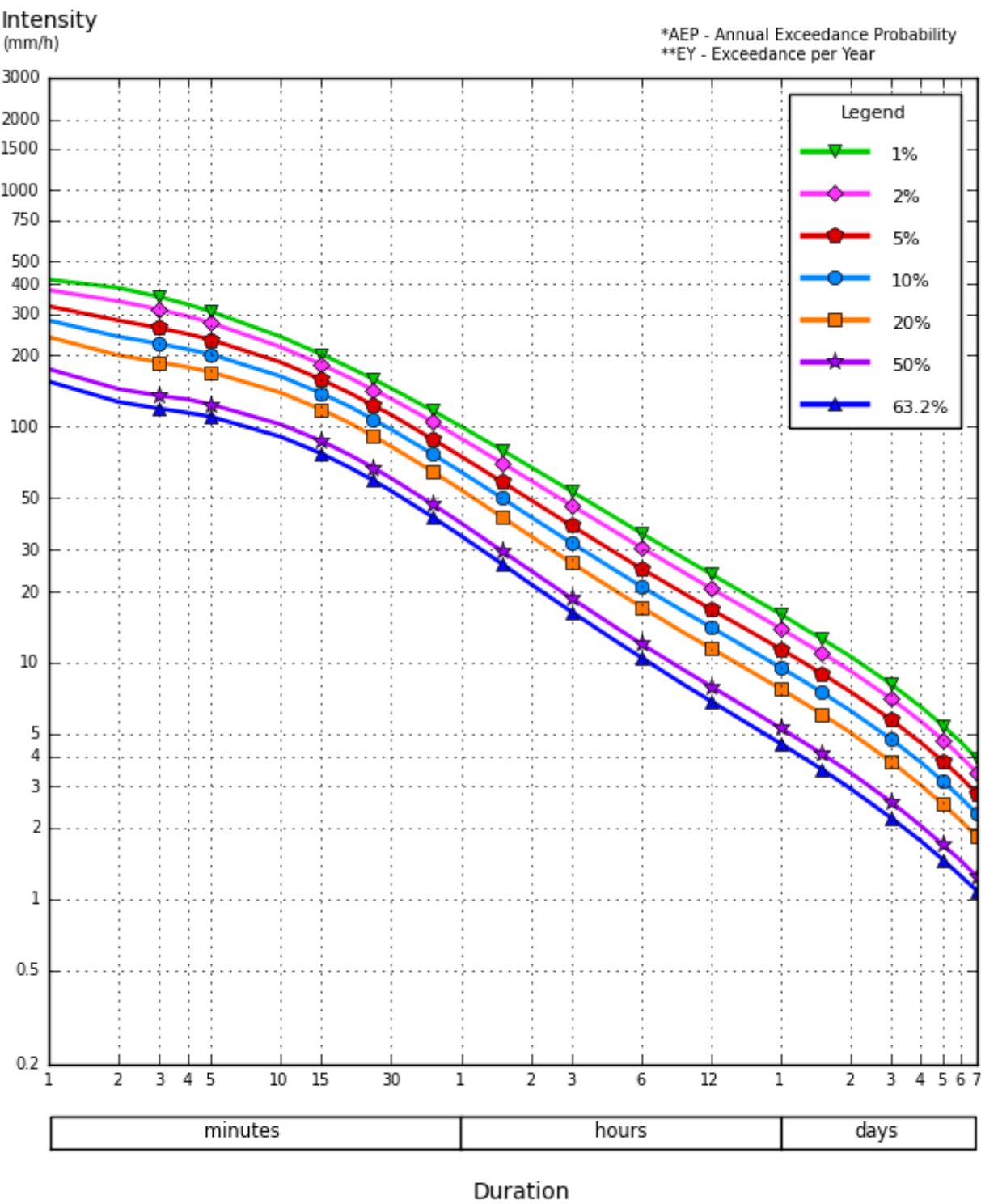
Rainfall intensity for Durations, Exceedance per Year (EY), and Annual Exceedance Probabilities (AEP).
[FAQ for New ARR probability terminology](#)

	Exceedance per Year (EY)							
Duration	12EY	6EY	4EY	3EY	2EY	1EY	0.5EY#	0.2EY*
1 min	65.1	75.1	92.3	105	123	155	194	243
2 min	56.3	64.3	78.2	87.9	102	127	160	204
3 min	52.3	60.0	73.4	82.8	96.2	119	150	191
4 min	49.2	56.8	69.8	79.0	92.0	114	144	182
5 min	46.4	53.9	66.6	75.6	88.2	110	138	174
10 min	36.6	43.0	53.9	61.6	72.4	90.5	114	142
15 min	30.3	35.8	45.2	51.8	61.1	76.8	96.4	120
20 min	26.0	30.8	39.0	44.8	53.0	66.7	83.8	105
25 min	22.9	27.1	34.4	39.6	46.8	59.2	74.4	93.0
30 min	20.5	24.3	30.9	35.5	42.1	53.3	67.0	83.9
45 min	15.8	18.7	23.8	27.4	32.6	41.5	52.2	65.9
1 hour	12.9	15.4	19.6	22.6	26.9	34.4	43.3	54.9
1.5 hour	9.73	11.5	14.7	17.0	20.3	26.2	33.0	42.3
2 hour	7.92	9.39	12.0	13.9	16.6	21.5	27.2	35.0
3 hour	5.93	7.03	9.00	10.4	12.5	16.4	20.8	27.0
4.5 hour	4.46	5.29	6.79	7.91	9.54	12.6	16.0	20.9
6 hour	3.66	4.35	5.60	6.53	7.91	10.5	13.3	17.6
9 hour	2.79	3.32	4.29	5.02	6.11	8.14	10.4	13.8
12 hour	2.31	2.76	3.57	4.19	5.11	6.85	8.79	11.7
18 hour	1.78	2.13	2.77	3.26	3.99	5.38	6.93	9.29
24 hour	1.48	1.77	2.31	2.73	3.35	4.53	5.85	7.87
30 hour	1.28	1.54	2.01	2.37	2.91	3.95	5.11	6.90
36 hour	1.14	1.36	1.79	2.11	2.59	3.53	4.56	6.17
48 hour	0.935	1.12	1.47	1.74	2.14	2.92	3.78	5.14
72 hour	0.696	0.837	1.10	1.30	1.60	2.19	2.84	3.87
96 hour	0.553	0.666	0.876	1.04	1.28	1.76	2.27	3.09
120 hour	0.456	0.549	0.724	0.859	1.06	1.46	1.88	2.56
144 hour	0.385	0.464	0.613	0.730	0.906	1.24	1.60	2.17
168 hour	0.330	0.399	0.528	0.631	0.785	1.08	1.38	1.87

Note:
The 0.5 EY design rainfall corresponds to the 2 year Average Recurrence Interval (ARI) IFD **not** the 50% AEP IFD.
* The 0.2 EY design rainfall corresponds to the 5 year Average Recurrence Interval (ARI) IFD **not** the 20% AEP IFD.

This page was created at **06:10 on Tuesday 26 May 2020 (UTC)**

© [Copyright](#) Commonwealth of Australia 2020, Bureau of Meteorology (ABN 92 637 533 532) | [CRICOS Provider 02015K](#) | [Disclaimer](#) | [Privacy](#) | [Accessibility](#)



©Copyright Commonwealth of Australia 2016, Bureau of Meteorology (ABN 92 637 533 532)

This page was created at **12:43 on Friday 13 December 2019 (AEST)**

© [Copyright](#) Commonwealth of Australia 2019, Bureau of Meteorology (ABN 92 637 533 532) | [Disclaimer](#) | [Privacy](#) | [Accessibility](#)

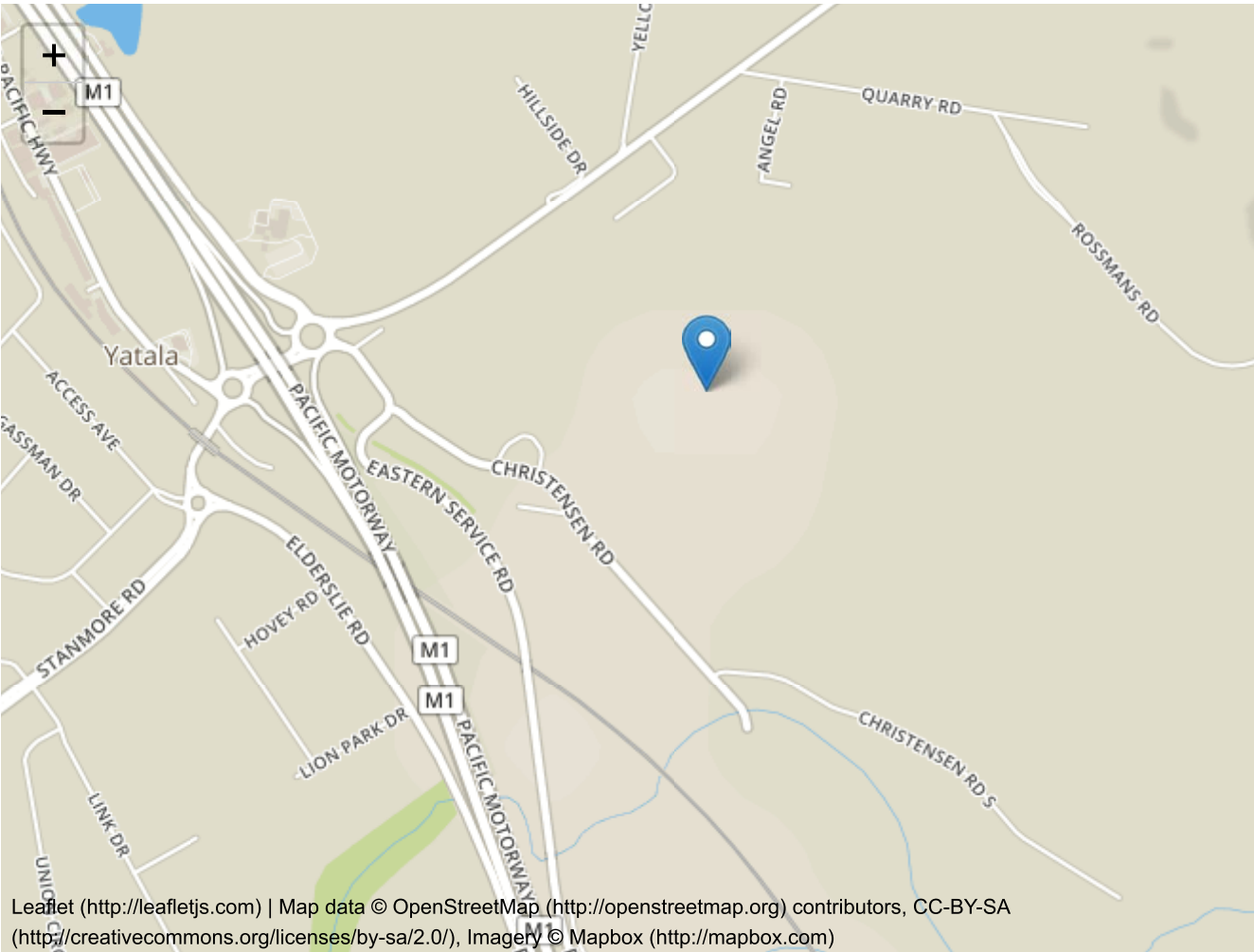
Appendix I – AR&R Storm & Loss Data

ATTENTION: This site was updated recently, changing some of the functionality. Please see the changelog ([./changelog](#)) for further information

Australian Rainfall & Runoff Data Hub - Results

Input Data

Longitude	153.238
Latitude	-27.736
Selected Regions (clear)	
River Region	show
ARF Parameters	show
Storm Losses	show
Temporal Patterns	show
Areal Temporal Patterns	show
BOM IFDs	show
Median Preburst Depths and Ratios	show
10% Preburst Depths	show
25% Preburst Depths	show
75% Preburst Depths	show
90% Preburst Depths	show
Interim Climate Change Factors	show
Baseflow Factors	show



Data

River Region

Division	North East Coast
River Number	45
River Name	Logan-Albert Rivers

Layer Info

Time Accessed	26 November 2019 12:45PM
Version	2016_v1

ARF Parameters

$$ARF = Min \left\{ 1, \left[1 - a \left(Area^b - c \log_{10} Duration \right) Duration^{-d} \right. \right. \\ \left. \left. + e Area^f Duration^g \left(0.3 + \log_{10} AEP \right) \right. \right. \\ \left. \left. + h 10^{i Area \frac{Duration}{1440}} \left(0.3 + \log_{10} AEP \right) \right] \right\}$$

Zone	a	b	c	d	e	f	g	h	i
East Coast North	0.327	0.241	0.448	0.36	0.00096	0.48	-0.21	0.012	-0.0013

Short Duration ARF

$$ARF = Min \left[1, 1 - 0.287 \left(Area^{0.265} - 0.439 \log_{10} (Duration) \right) . Duration^{-0.36} \right. \\ \left. + 2.26 \times 10^{-3} \times Area^{0.226} . Duration^{0.125} \left(0.3 + \log_{10} (AEP) \right) \right. \\ \left. + 0.0141 \times Area^{0.213} \times 10^{-0.021 \frac{(Duration-180)^2}{1440}} \left(0.3 + \log_{10} (AEP) \right) \right]$$

Layer Info

Time Accessed	26 November 2019 12:45PM
Version	2016_v1

Storm Losses

Note: Burst Loss = Storm Loss - Preburst

Note: These losses are only for rural use and are **NOT FOR DIRECT USE** in urban areas

ID	27987.0
Storm Initial Losses (mm)	27.0
Storm Continuing Losses (mm/h)	1.6

Layer Info

Time Accessed	26 November 2019 12:45PM
Version	2016_v1

Temporal Patterns | Download (.zip) (static/temporal_patterns/TP/ECnorth.zip)

code	ECnorth
Label	East Coast North

Layer Info

Time Accessed	26 November 2019 12:45PM
Version	2016_v2

Areal Temporal Patterns | Download (.zip)
(./static/temporal_patterns/Areal/Areal_ECnorth.zip)

code	ECnorth
arealabel	East Coast North

Layer Info

Time Accessed	26 November 2019 12:45PM
---------------	--------------------------

Version	2016_v2
---------	---------

BOM IFDs

Click here (http://www.bom.gov.au/water/designRainfalls/revised-ifd/?year=2016&coordinate_type=dd&latitude=-27.736&longitude=153.238&sdmin=true&sdhr=true&sdday=true&user_label=) to obtain the IFD depths for catchment centroid from the BoM website

Layer Info

Time Accessed	26 November 2019 12:45PM
---------------	--------------------------

Median Preburst Depths and Ratios

Values are of the format depth (ratio) with depth in mm

min (h)\AEP(%)	50	20	10	5	2	1
60 (1.0)	2.5 (0.064)	4.6 (0.085)	6.0 (0.093)	7.3 (0.098)	8.7 (0.098)	9.8 (0.098)
90 (1.5)	2.8 (0.063)	10.7 (0.172)	15.9 (0.213)	20.9 (0.239)	16.8 (0.160)	13.8 (0.115)
120 (2.0)	2.6 (0.053)	9.9 (0.144)	14.8 (0.178)	19.4 (0.199)	20.9 (0.177)	21.9 (0.163)
180 (3.0)	3.8 (0.067)	13.4 (0.169)	19.8 (0.205)	25.9 (0.227)	32.8 (0.236)	38.0 (0.238)
360 (6.0)	5.8 (0.080)	19.3 (0.187)	28.2 (0.223)	36.8 (0.245)	64.4 (0.350)	85.1 (0.401)
720 (12.0)	6.0 (0.063)	19.6 (0.142)	28.6 (0.169)	37.2 (0.184)	61.7 (0.250)	80.1 (0.282)
1080 (18.0)	7.1 (0.063)	15.9 (0.097)	21.8 (0.108)	27.3 (0.113)	47.7 (0.162)	63.0 (0.186)
1440 (24.0)	7.0 (0.055)	12.7 (0.069)	16.5 (0.072)	20.2 (0.074)	32.0 (0.096)	40.9 (0.107)
2160 (36.0)	0.0 (0.000)	6.6 (0.030)	10.9 (0.041)	15.1 (0.047)	28.6 (0.072)	38.8 (0.086)
2880 (48.0)	0.0 (0.000)	5.5 (0.023)	9.1 (0.030)	12.6 (0.035)	23.2 (0.053)	31.1 (0.061)
4320 (72.0)	0.0 (0.000)	0.9 (0.003)	1.4 (0.004)	2.0 (0.005)	10.2 (0.020)	16.3 (0.028)

Layer Info

Time Accessed	26 November 2019 12:45PM
Version	2018_v1
Note	Preburst interpolation methods for catchment wide preburst has been slightly altered. Point values remain unchanged.

10% Preburst Depths

Values are of the format depth (ratio) with depth in mm

min (h)\AEP(%)	50	20	10	5	2	1
60 (1.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
90 (1.5)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
120 (2.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
180 (3.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
360 (6.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
720 (12.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.9 (0.004)	1.5 (0.005)
1080 (18.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
1440 (24.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
2160 (36.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
2880 (48.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
4320 (72.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)

Layer Info

Time Accessed	26 November 2019 12:45PM
Version	2018_v1
Note	Preburst interpolation methods for catchment wide preburst has been slightly altered. Point values remain unchanged.

25% Preburst Depths

Values are of the format depth (ratio) with depth in mm

min (h)\AEP(%)	50	20	10	5	2	1
60 (1.0)	0.1 (0.003)	0.3 (0.005)	0.4 (0.006)	0.5 (0.007)	0.7 (0.008)	0.9 (0.009)
90 (1.5)	0.0 (0.000)	0.7 (0.011)	1.2 (0.016)	1.6 (0.019)	1.0 (0.009)	0.5 (0.004)
120 (2.0)	0.0 (0.000)	1.2 (0.017)	2.0 (0.024)	2.7 (0.028)	1.7 (0.014)	1.0 (0.007)
180 (3.0)	0.0 (0.000)	0.9 (0.012)	1.6 (0.016)	2.2 (0.019)	3.6 (0.026)	4.7 (0.029)
360 (6.0)	0.0 (0.000)	1.8 (0.017)	2.9 (0.023)	4.0 (0.027)	5.6 (0.030)	6.8 (0.032)
720 (12.0)	0.0 (0.000)	2.5 (0.018)	4.2 (0.025)	5.8 (0.029)	20.8 (0.084)	32.0 (0.113)
1080 (18.0)	0.0 (0.000)	2.2 (0.013)	3.7 (0.018)	5.1 (0.021)	9.5 (0.032)	12.7 (0.038)
1440 (24.0)	0.0 (0.000)	0.3 (0.002)	0.5 (0.002)	0.7 (0.002)	6.9 (0.021)	11.6 (0.030)
2160 (36.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	1.7 (0.004)	3.0 (0.007)
2880 (48.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	2.0 (0.005)	3.5 (0.007)
4320 (72.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)

Layer Info

Time Accessed	26 November 2019 12:45PM
Version	2018_v1
Note	Preburst interpolation methods for catchment wide preburst has been slightly altered. Point values remain unchanged.

75% Preburst Depths

Values are of the format depth (ratio) with depth in mm

min (h)\AEP(%)	50	20	10	5	2	1
60 (1.0)	26.3 (0.675)	35.6 (0.661)	41.8 (0.650)	47.7 (0.639)	45.7 (0.514)	44.2 (0.441)
90 (1.5)	25.6 (0.573)	56.5 (0.909)	77.0 (1.031)	96.6 (1.105)	96.4 (0.917)	96.2 (0.806)
120 (2.0)	27.1 (0.554)	61.6 (0.896)	84.3 (1.017)	106.2 (1.089)	143.2 (1.213)	171.0 (1.270)
180 (3.0)	39.7 (0.708)	71.9 (0.907)	93.3 (0.969)	113.7 (0.999)	150.7 (1.085)	178.5 (1.120)
360 (6.0)	36.5 (0.507)	70.0 (0.678)	92.2 (0.730)	113.4 (0.755)	146.0 (0.792)	170.3 (0.803)
720 (12.0)	27.3 (0.287)	66.3 (0.481)	92.0 (0.544)	116.8 (0.578)	175.7 (0.710)	219.8 (0.773)
1080 (18.0)	37.0 (0.329)	56.1 (0.342)	68.7 (0.340)	80.8 (0.335)	114.2 (0.387)	139.2 (0.411)
1440 (24.0)	31.0 (0.245)	46.9 (0.253)	57.4 (0.251)	67.5 (0.247)	91.4 (0.274)	109.3 (0.285)
2160 (36.0)	10.3 (0.070)	30.1 (0.138)	43.1 (0.160)	55.7 (0.172)	89.0 (0.225)	114.0 (0.251)
2880 (48.0)	6.0 (0.037)	30.3 (0.125)	46.4 (0.155)	61.8 (0.171)	89.8 (0.203)	110.8 (0.219)
4320 (72.0)	0.1 (0.000)	17.4 (0.064)	28.9 (0.085)	40.0 (0.097)	57.9 (0.115)	71.4 (0.123)

Layer Info

Time Accessed	26 November 2019 12:45PM
Version	2018_v1
Note	Preburst interpolation methods for catchment wide preburst has been slightly altered. Point values remain unchanged.

90% Preburst Depths

Values are of the format depth (ratio) with depth in mm

min (h)\AEP(%)	50	20	10	5	2	1
60 (1.0)	69.8 (1.790)	104.6 (1.942)	127.6 (1.987)	149.7 (2.005)	191.9 (2.160)	223.6 (2.234)
90 (1.5)	118.2 (2.648)	152.7 (2.458)	175.6 (2.353)	197.6 (2.261)	245.2 (2.333)	280.9 (2.354)
120 (2.0)	99.3 (2.026)	145.0 (2.112)	175.3 (2.115)	204.4 (2.096)	264.9 (2.244)	310.3 (2.304)
180 (3.0)	130.9 (2.333)	181.1 (2.284)	214.4 (2.227)	246.3 (2.163)	291.9 (2.102)	326.0 (2.046)
360 (6.0)	106.3 (1.476)	150.2 (1.455)	179.2 (1.420)	207.1 (1.378)	259.5 (1.409)	298.8 (1.409)
720 (12.0)	75.3 (0.792)	135.6 (0.984)	175.5 (1.037)	213.8 (1.059)	267.1 (1.080)	307.1 (1.080)
1080 (18.0)	86.2 (0.767)	131.6 (0.802)	161.6 (0.801)	190.4 (0.790)	215.9 (0.732)	235.1 (0.694)
1440 (24.0)	73.3 (0.580)	110.6 (0.597)	135.3 (0.593)	159.0 (0.582)	201.0 (0.602)	232.5 (0.607)
2160 (36.0)	38.4 (0.260)	82.9 (0.380)	112.3 (0.417)	140.6 (0.435)	184.6 (0.467)	217.5 (0.480)
2880 (48.0)	25.8 (0.158)	81.8 (0.338)	118.8 (0.396)	154.3 (0.428)	180.1 (0.408)	199.4 (0.393)
4320 (72.0)	6.5 (0.035)	44.8 (0.164)	70.2 (0.206)	94.5 (0.230)	107.5 (0.213)	117.2 (0.202)

Layer Info

Time Accessed	26 November 2019 12:45PM
Version	2018_v1
Note	Preburst interpolation methods for catchment wide preburst has been slightly altered. Point values remain unchanged.

Interim Climate Change Factors

	RCP 4.5	RCP6	RCP 8.5
2030	0.869 (4.3%)	0.783 (3.9%)	0.983 (4.9%)
2040	1.057 (5.3%)	1.014 (5.1%)	1.349 (6.8%)
2050	1.272 (6.4%)	1.236 (6.2%)	1.773 (9.0%)
2060	1.488 (7.5%)	1.458 (7.4%)	2.237 (11.5%)
2070	1.676 (8.5%)	1.691 (8.6%)	2.722 (14.2%)
2080	1.810 (9.2%)	1.944 (9.9%)	3.209 (16.9%)
2090	1.862 (9.5%)	2.227 (11.5%)	3.679 (19.7%)

Layer Info

Time Accessed	26 November 2019 12:45PM
Version	2019_v1
Note	ARR recommends the use of RCP4.5 and RCP 8.5 values. These have been updated to the values that can be found on the climate change in Australia website.

Baseflow Factors

Downstream	0
Area (km2)	3779.48325962
Catchment Number	7250
Volume Factor	0.150296
Peak Factor	0.04523

Layer Info

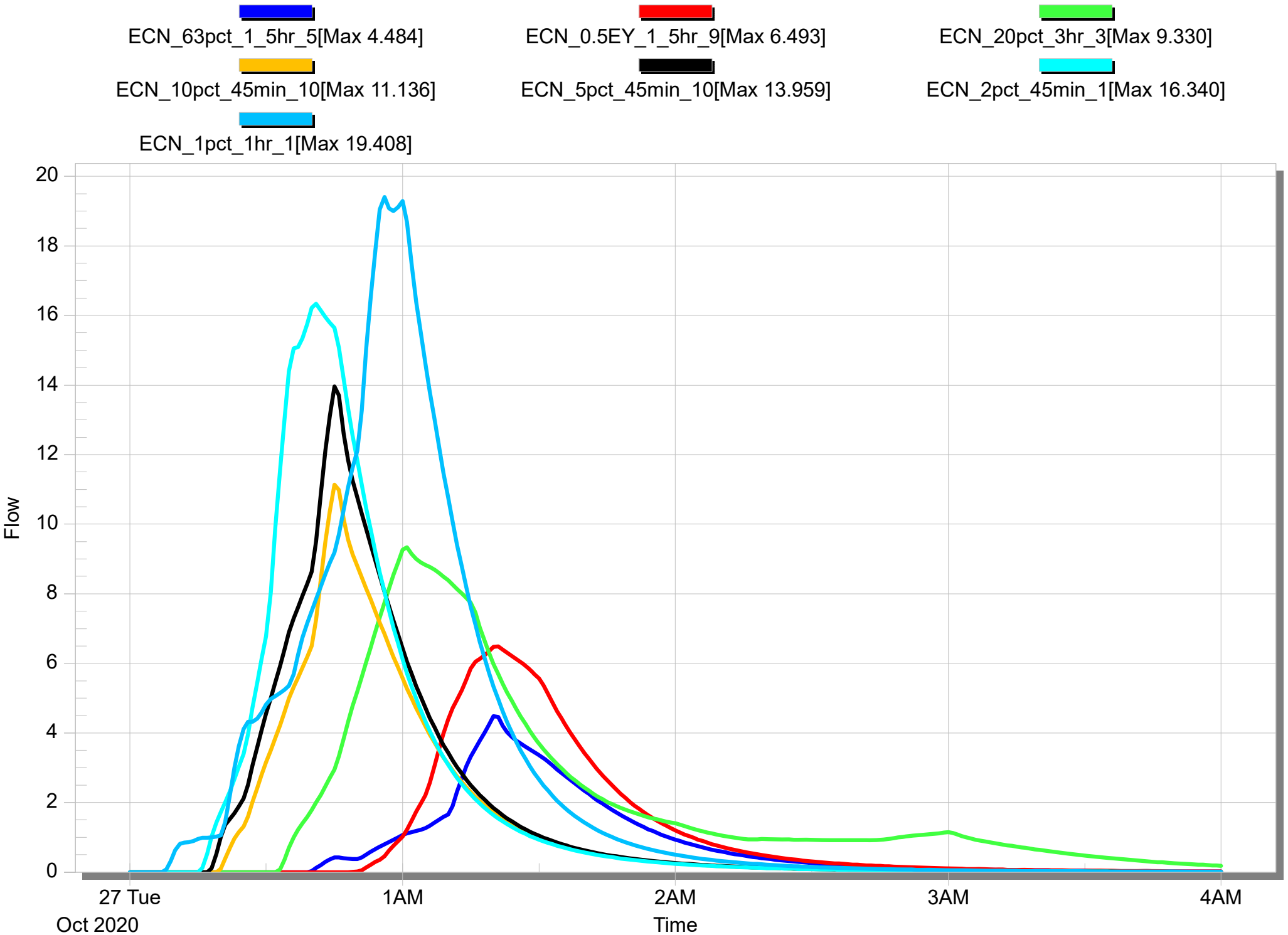
Time Accessed	26 November 2019 12:45PM
Version	2016_v1

- Download TXT (downloads/0a320360-3d6e-4b37-96bd-1f41fe5fdb3.txt)
- Download JSON (downloads/5e94d649-e516-45a9-b4fb-f374cf5791a5.json)
- Generating PDF... (downloads/579e9dd3-c6b7-4ec5-8a64-fc262213ce3d.pdf)

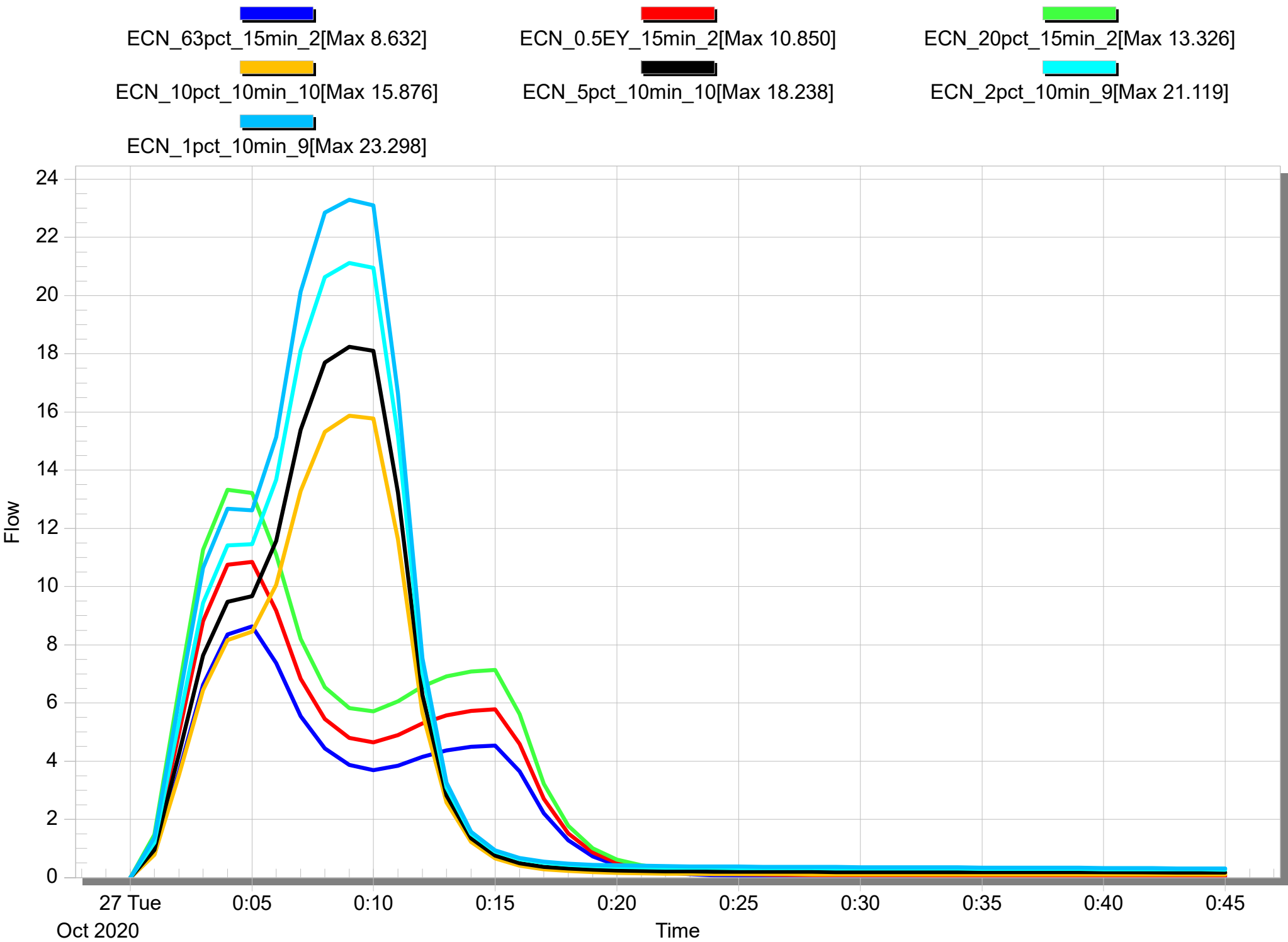
Appendix J – Proposed Reconfiguration of a Lot Plan (ROL)

Appendix K – Pre and Post Development Peak Flow Hydrographs

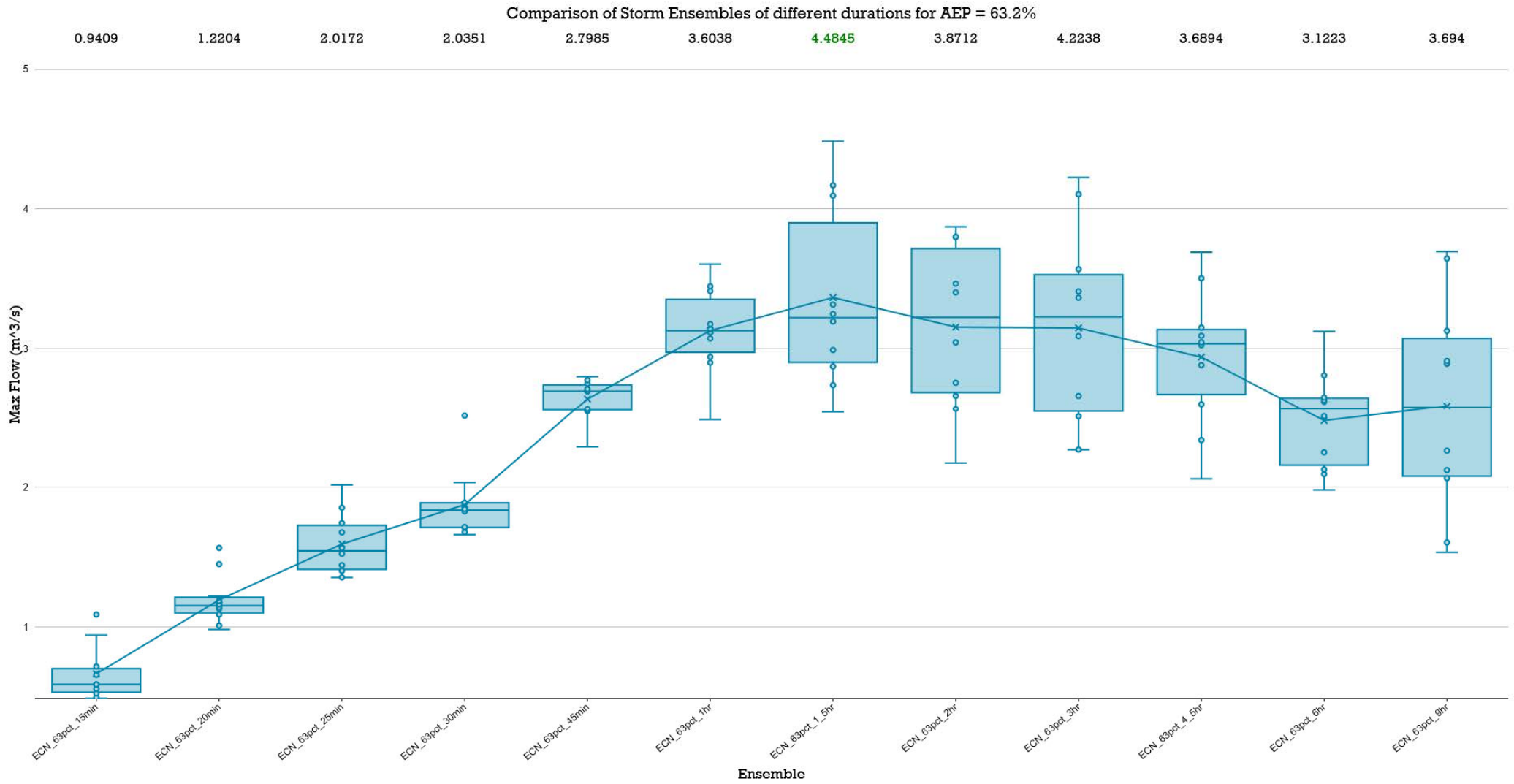
Node - LPOD-EX1 inclu EXT

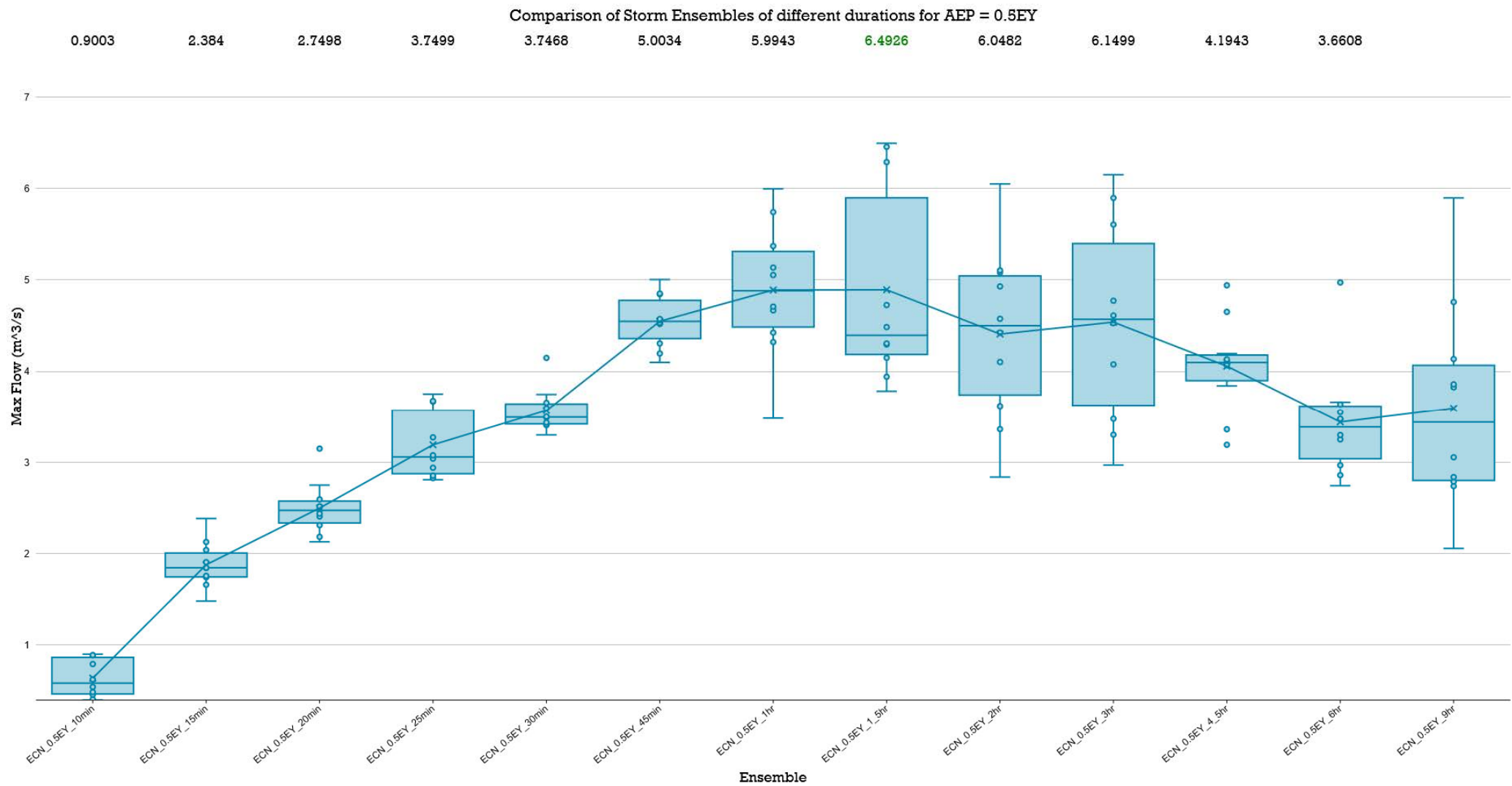


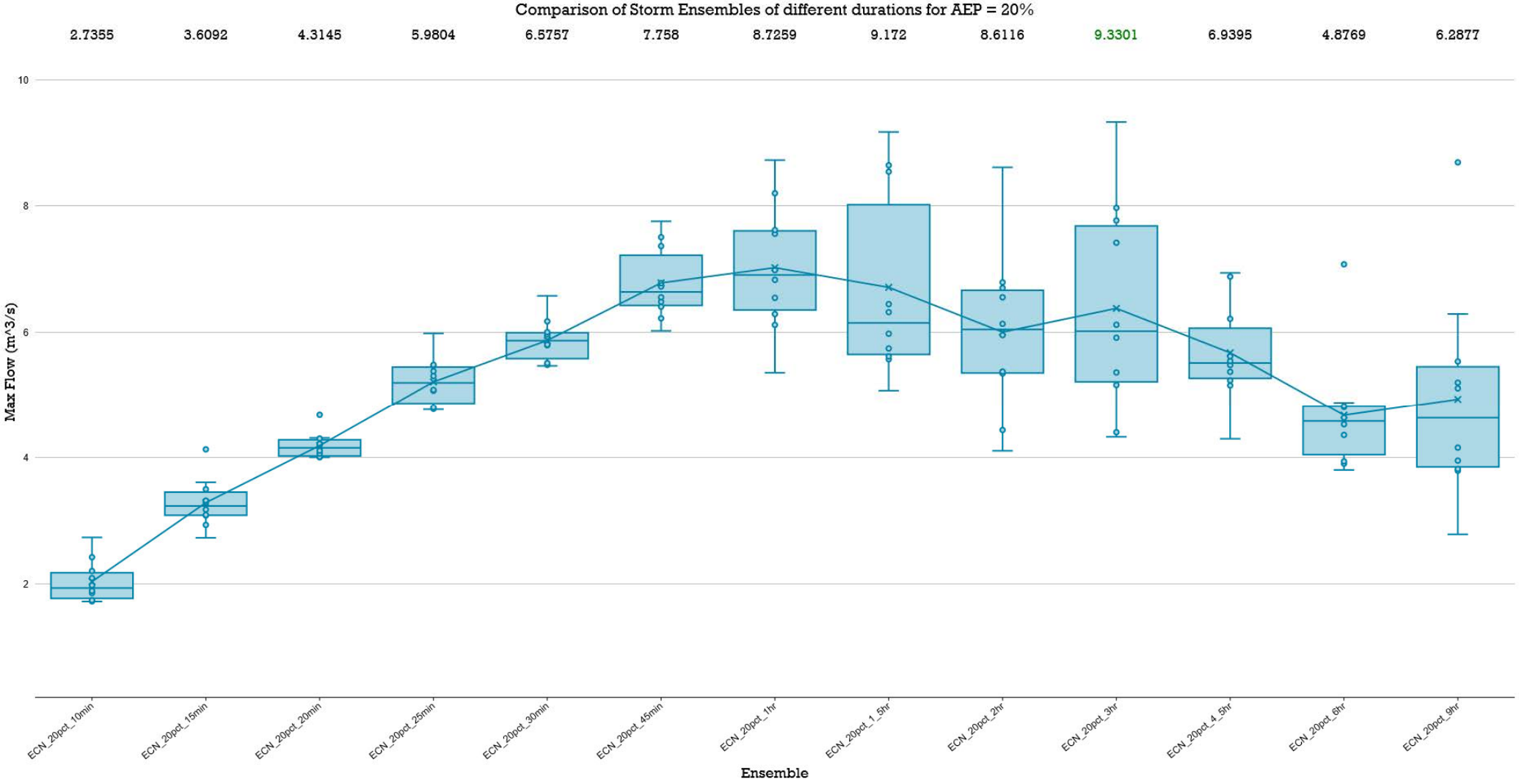
Node - LPOD-DEV1

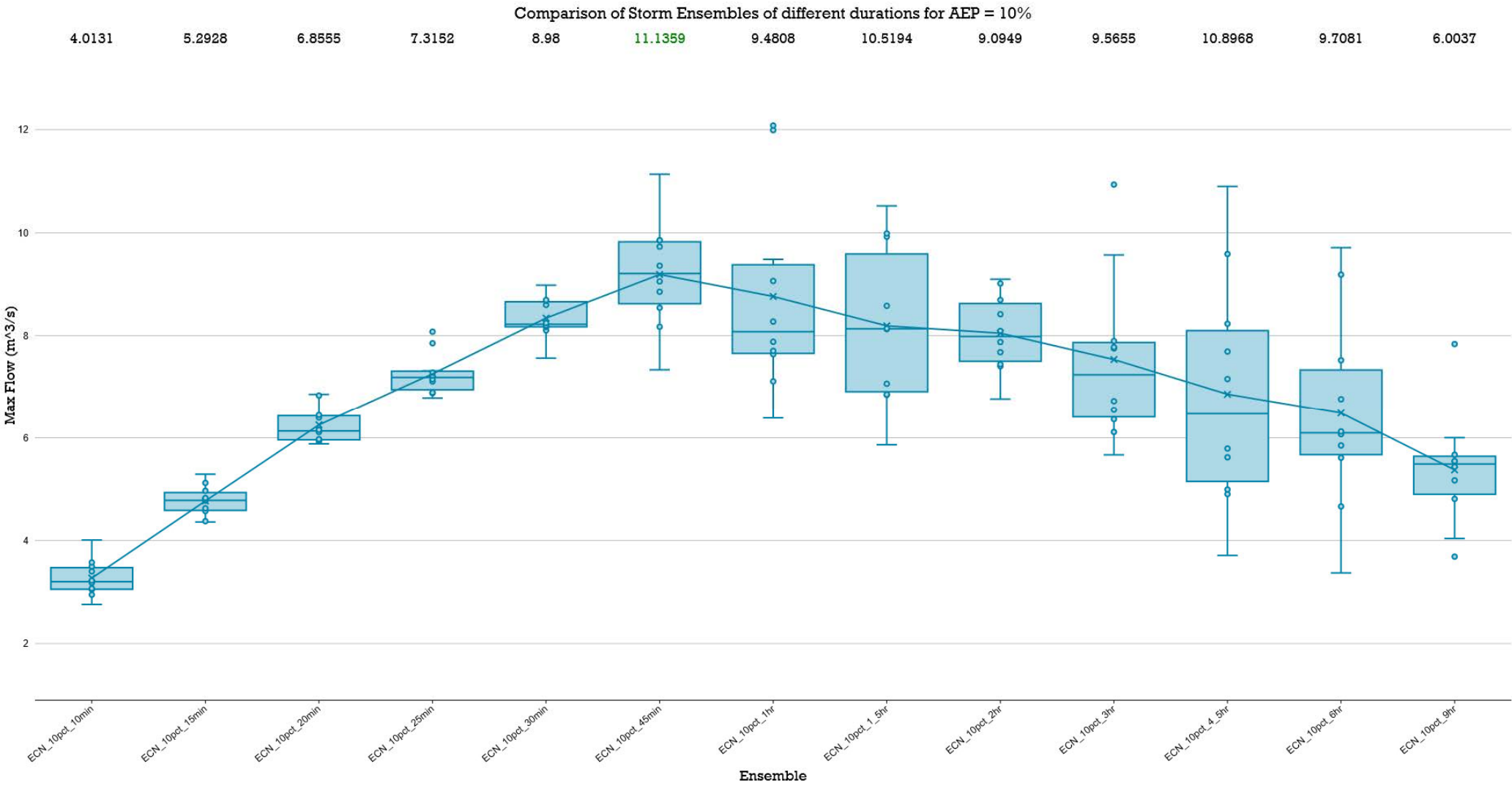


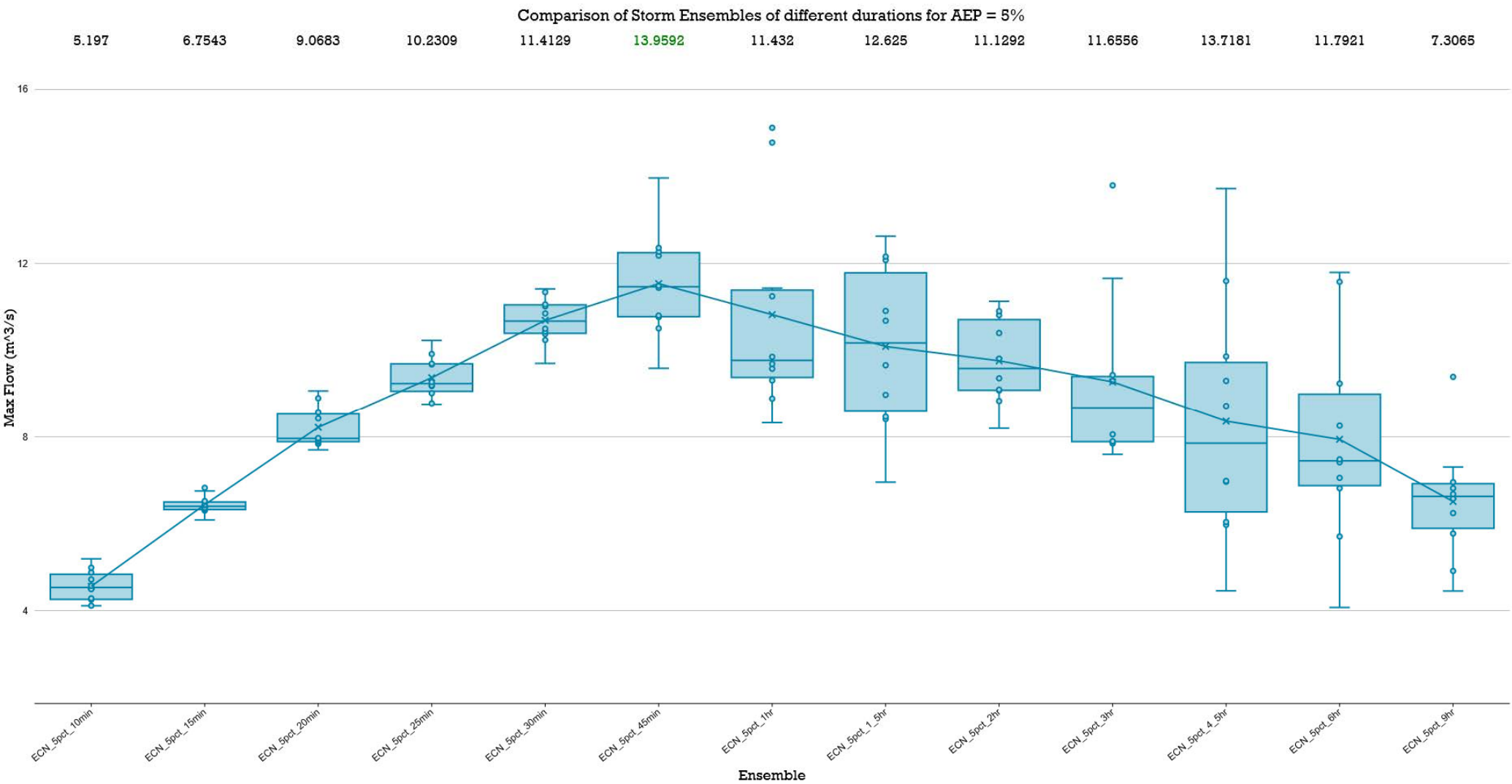
Appendix L – Peak Flow Box & Whisker Plots

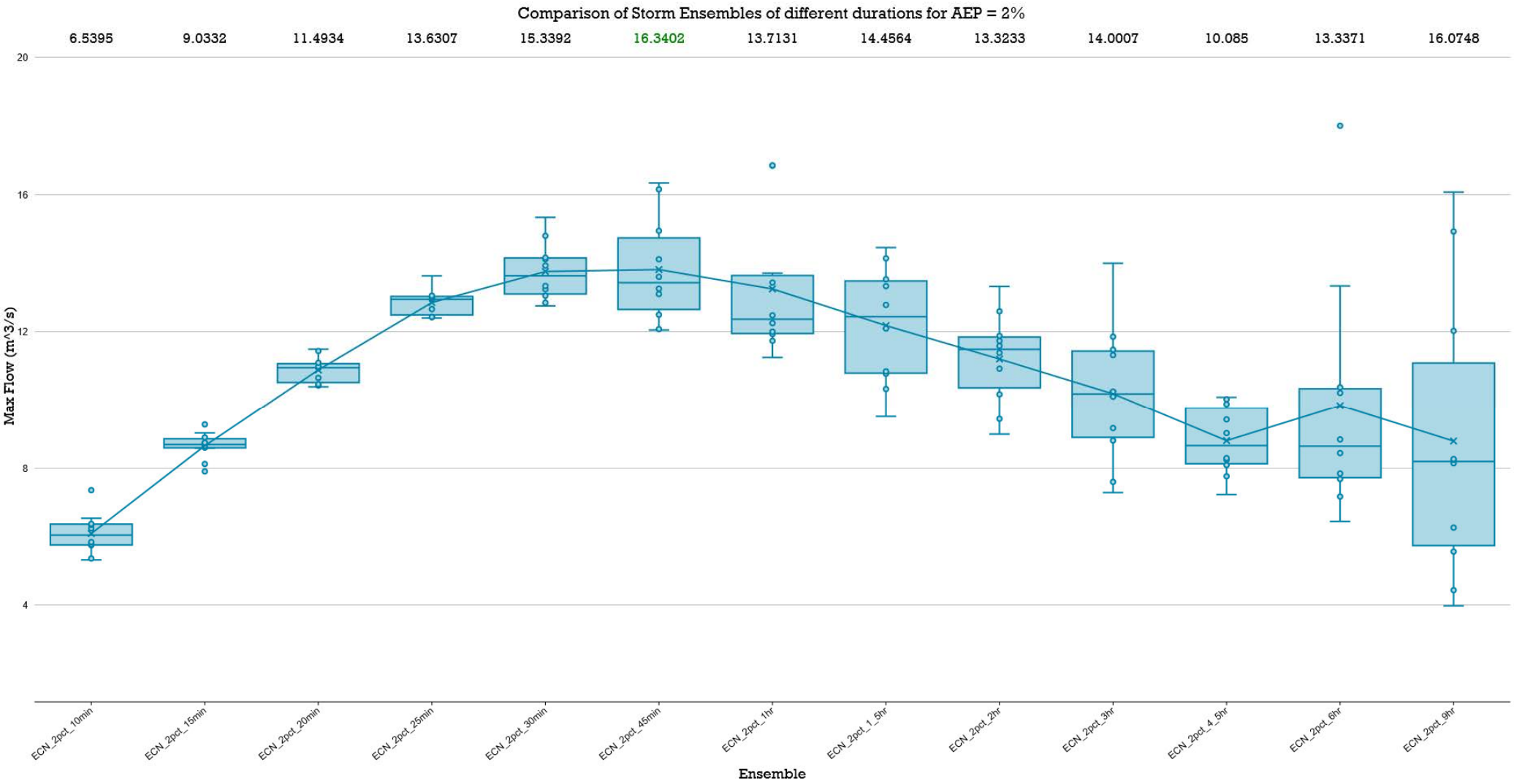


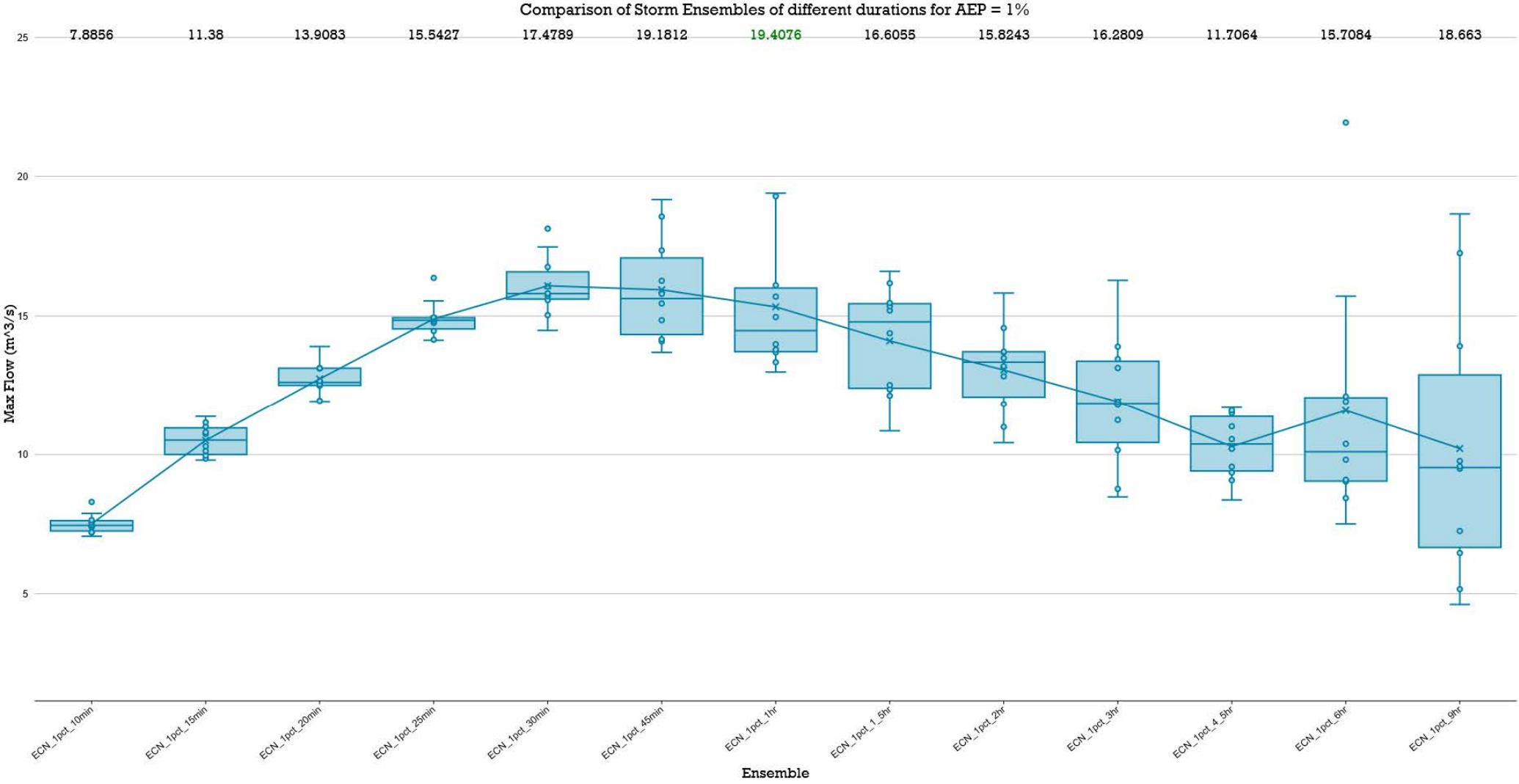


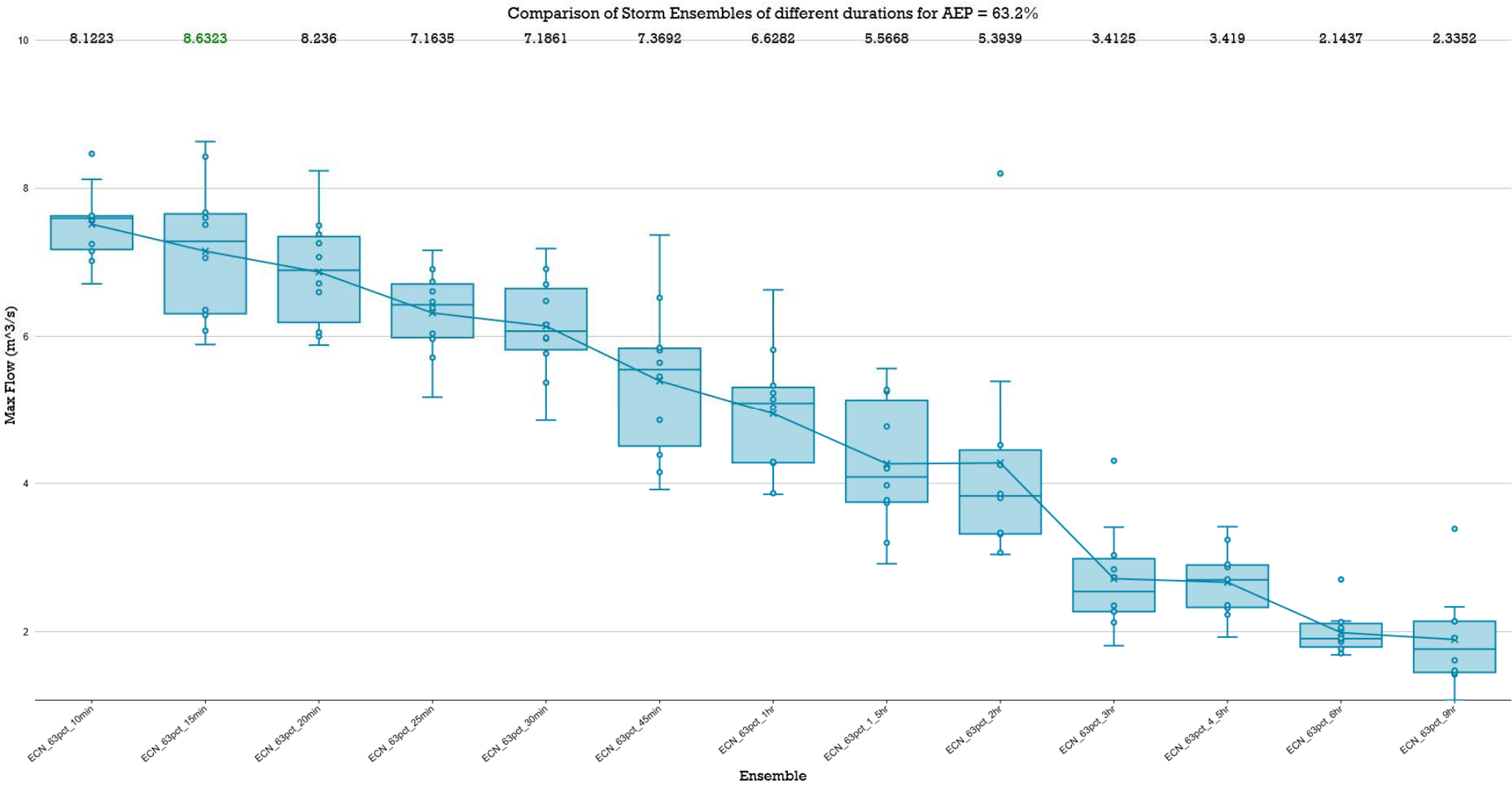


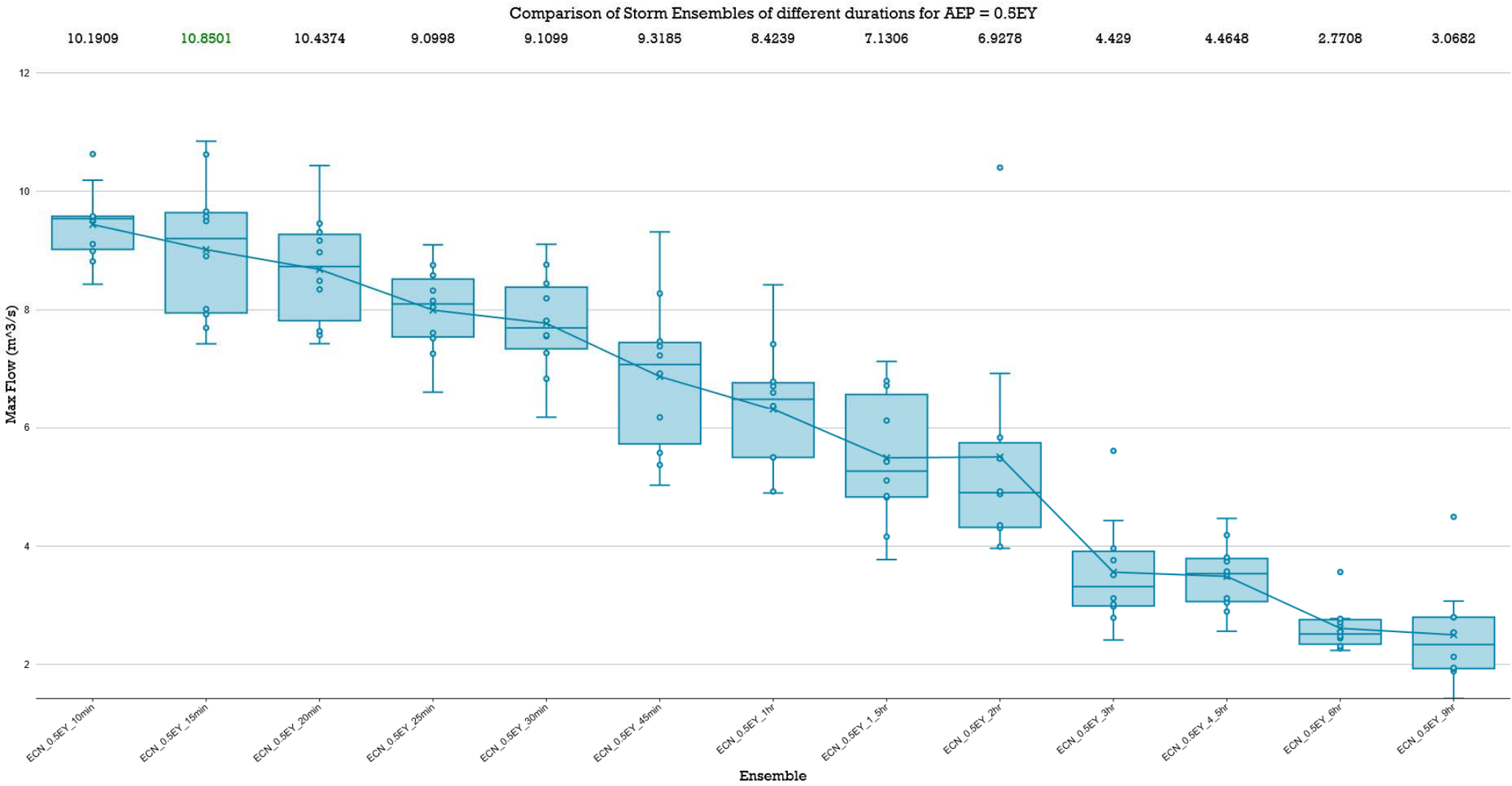


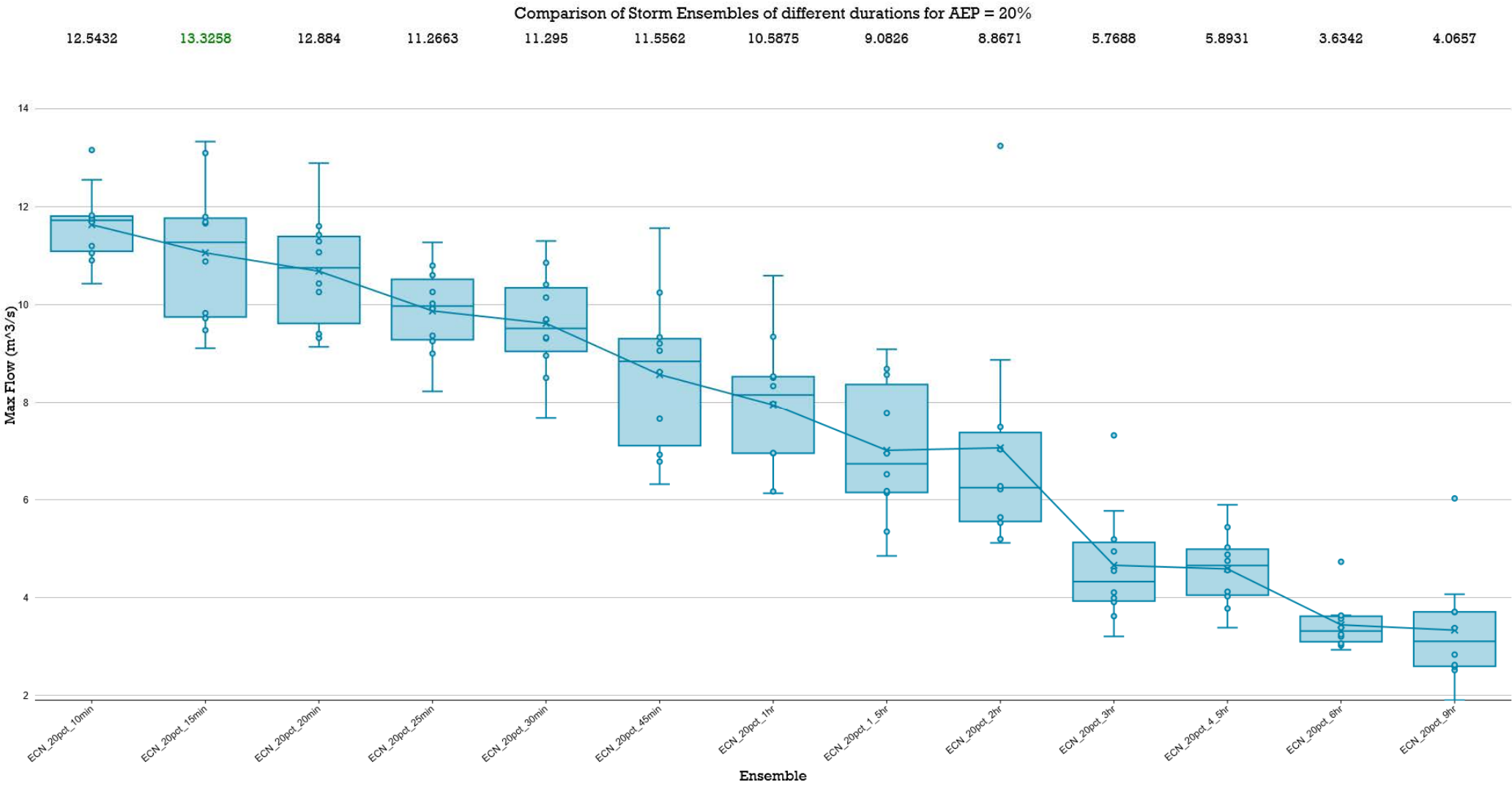


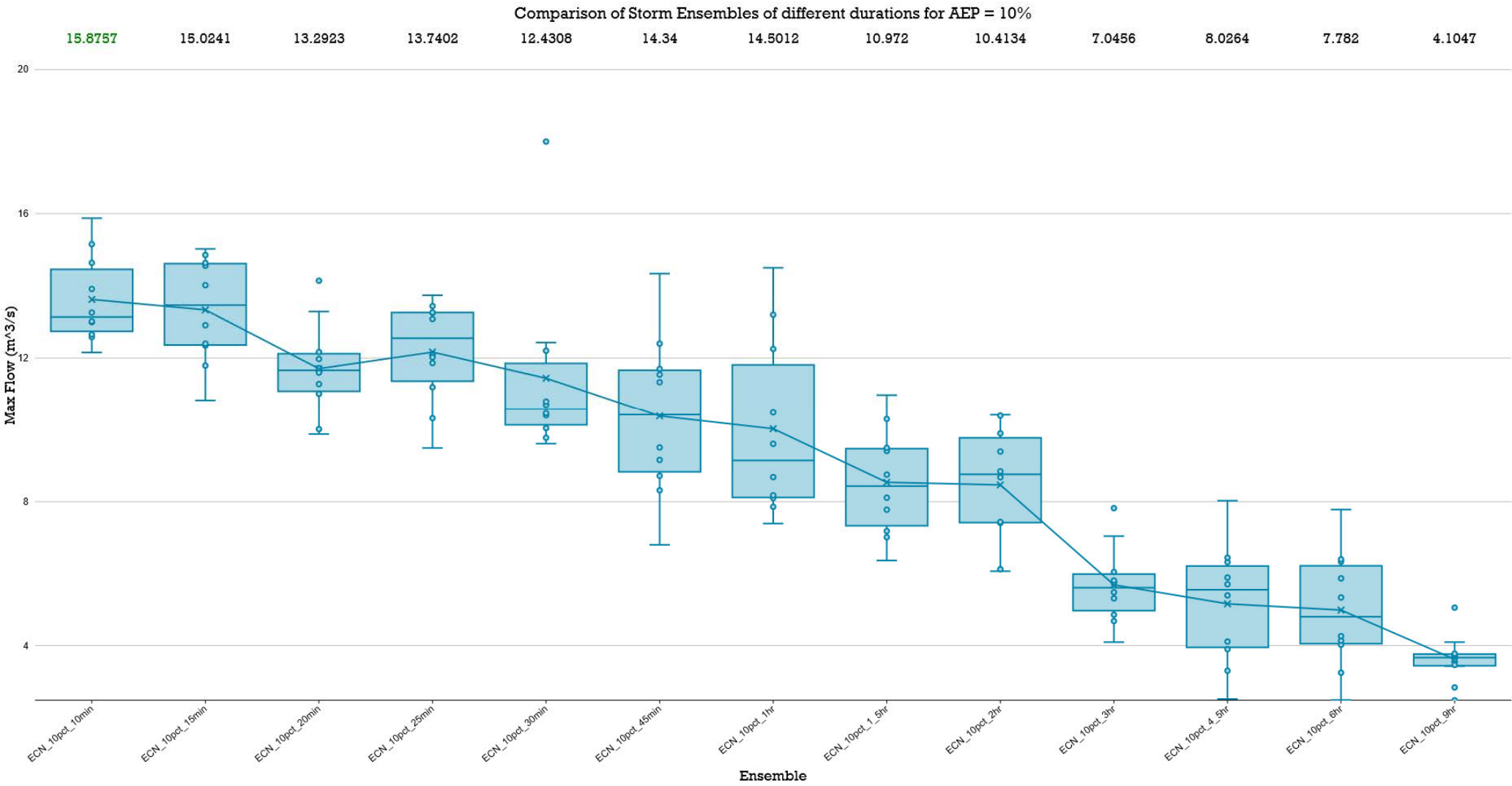


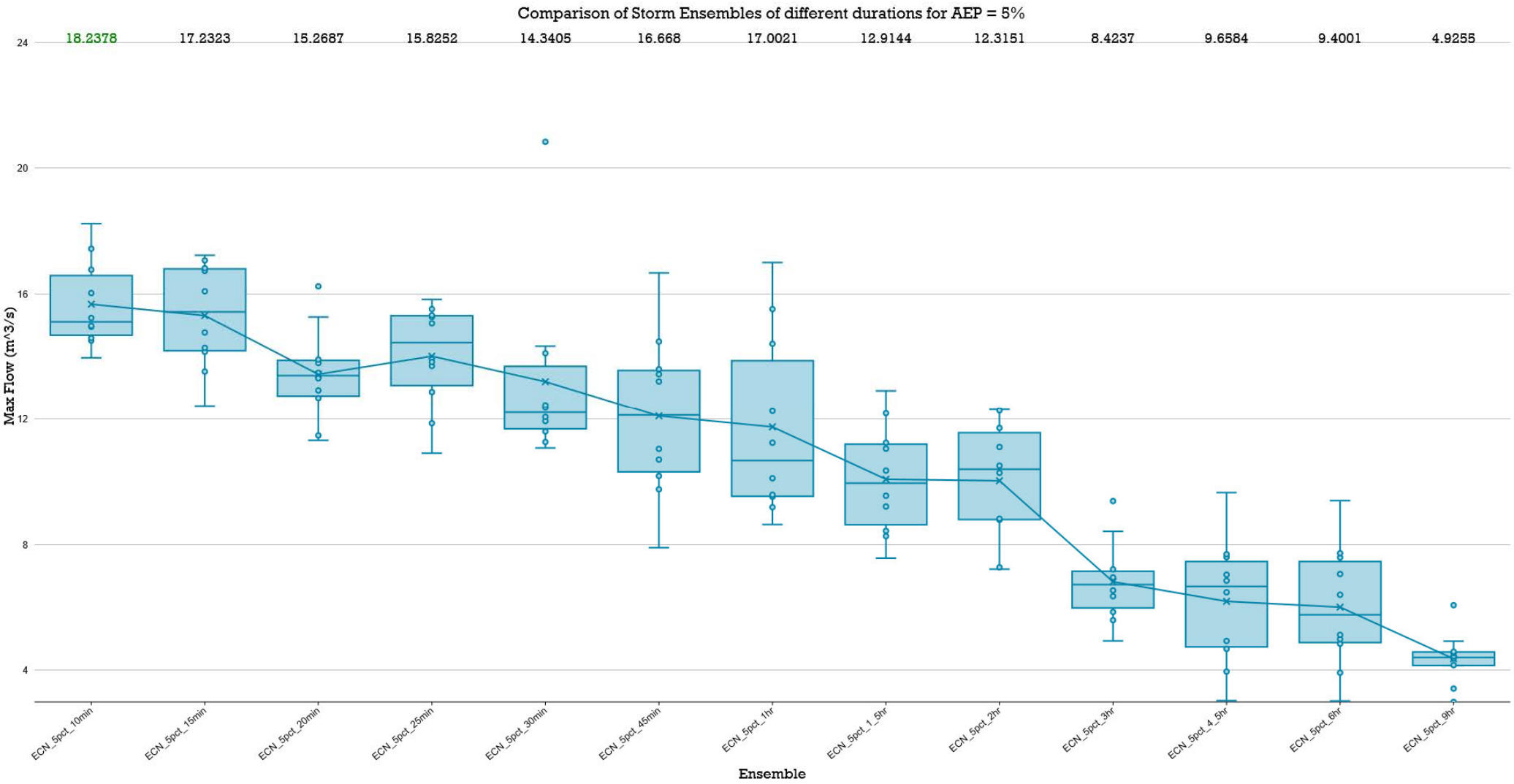


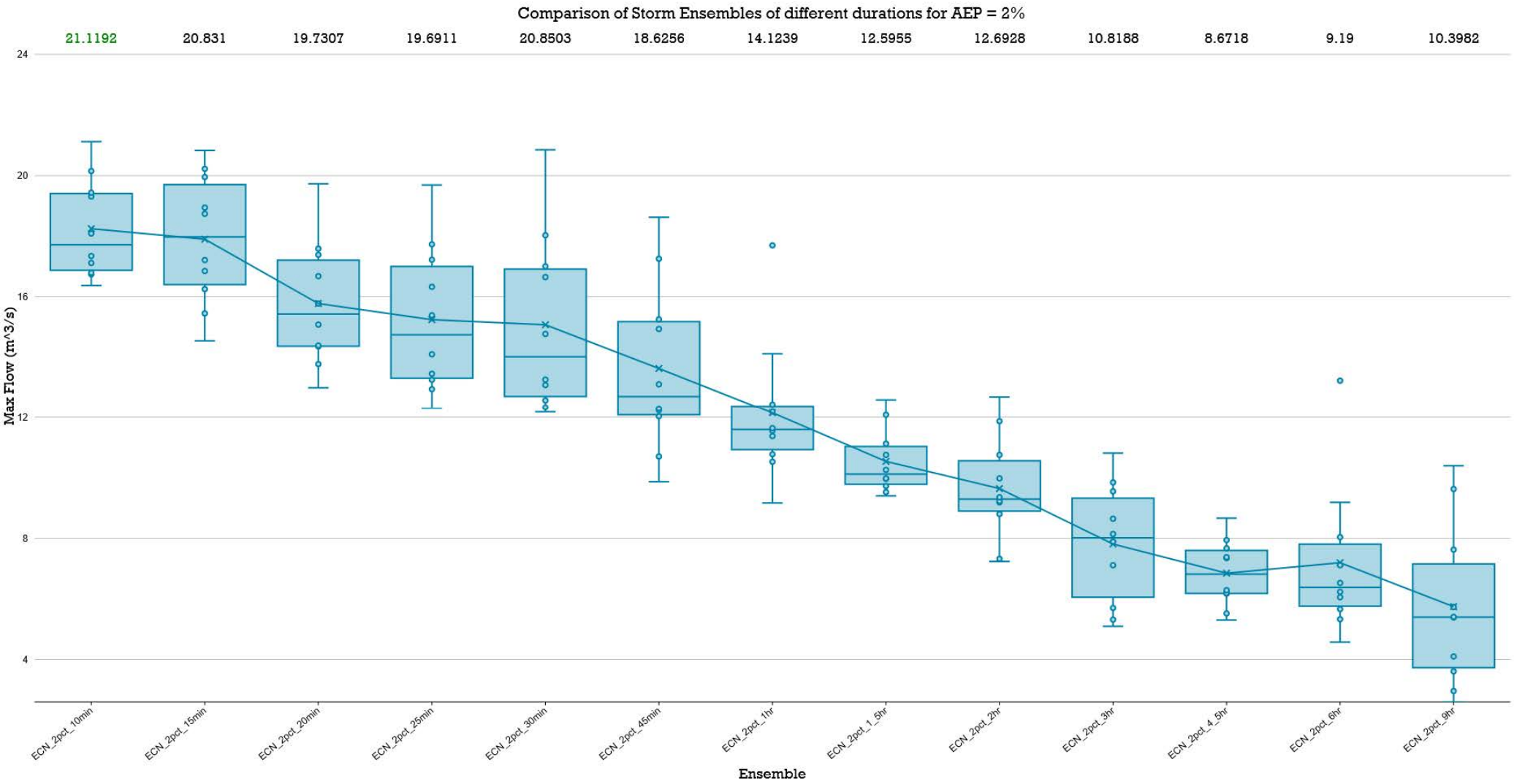


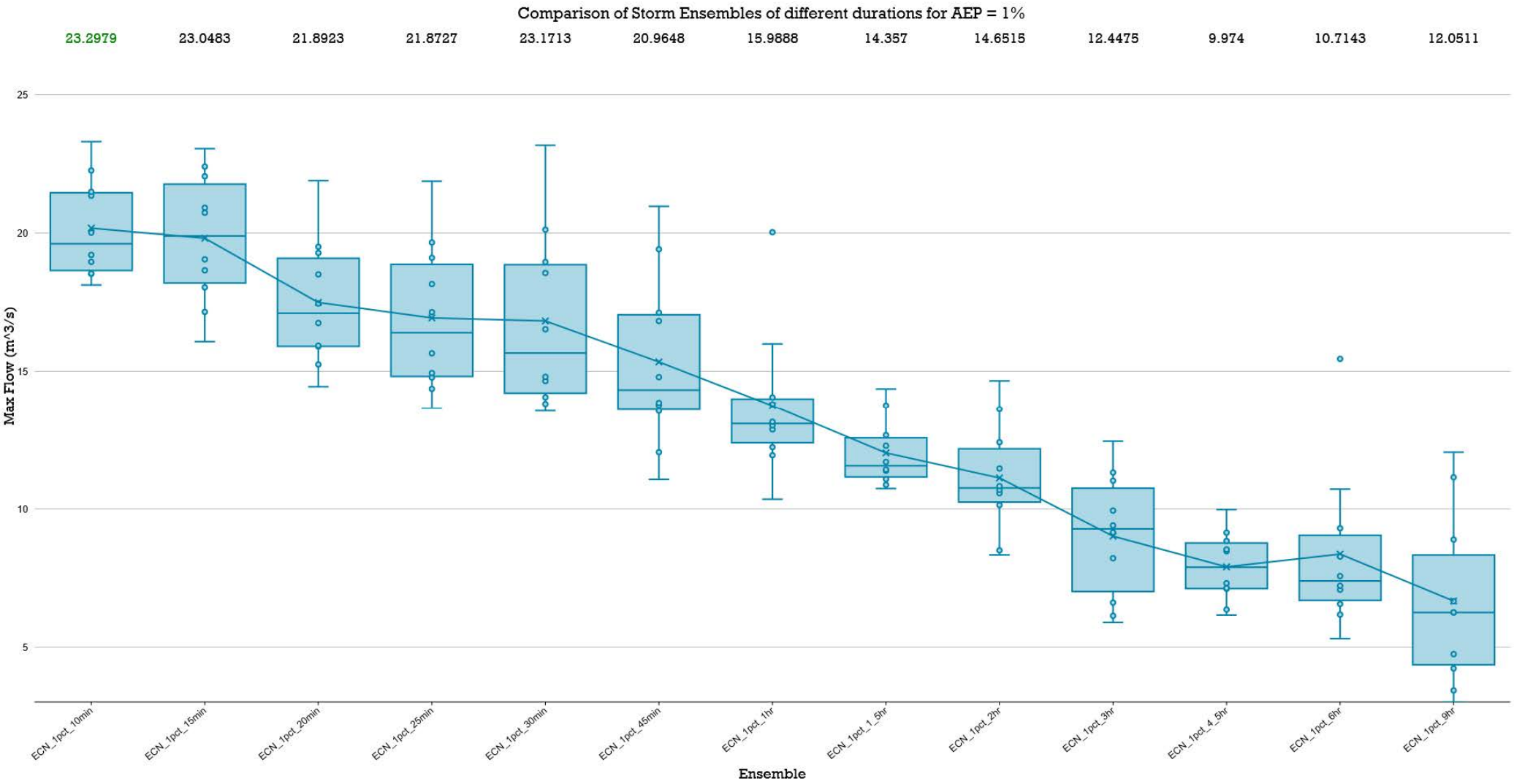












Appendix M – Mitigation Results

DESCRIPTION OF OUTLETS:	WEIR 1.170m ABOVE IL	HIGH FLOW OUTLET PIPE 3/675 @ 1.324% IL 0.3m ABOVE IL	900x900 - 1	900x900 - 2	900x900 - 3	900x900 - 4	900x900 - 5
--------------------------------	-------------------------	--	-------------	-------------	-------------	-------------	-------------

AREA FOR DETENTION = 7,015m2
AREA FOR TREATMENT = 4,000m2

----- Surface Area measured at Weir Crest Level of RL11.640m AHD

----- Refer MUSIC-Link Report

BASIN FLOOR IL:	10.470	<i>(at lowest point)</i>
BASIN WEIR RL:	11.640	
BASIN CROWN:	13.000	

hydraulic conductivity		20% blockage	
m/hr	200	hydraulic conductivity	
	0.055556	mm/hr	240
pipe capacity	194.4188	l/s	0.066667
max area	3499.538	pipe capacity	194.4188
max length (1.5m spacings)	2333.025	max area	2916.282
		max length	1944.188

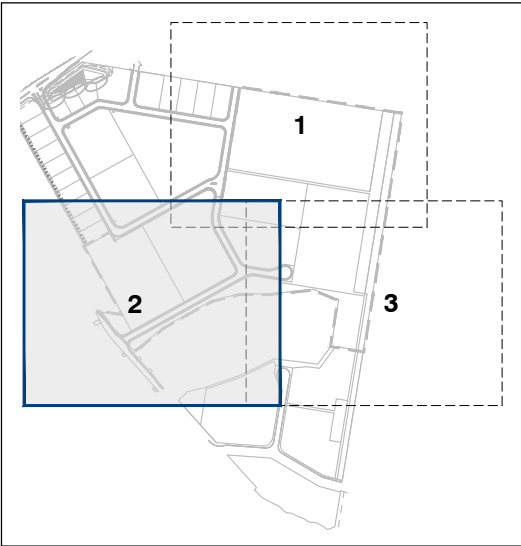
$$Q_{\text{collector}} > 1.2 \times Q_{\text{max}}$$

Where: $Q_{collector}$ = maximum conveyance of the collector pipe (from Manning's eq.) (m^3/s)

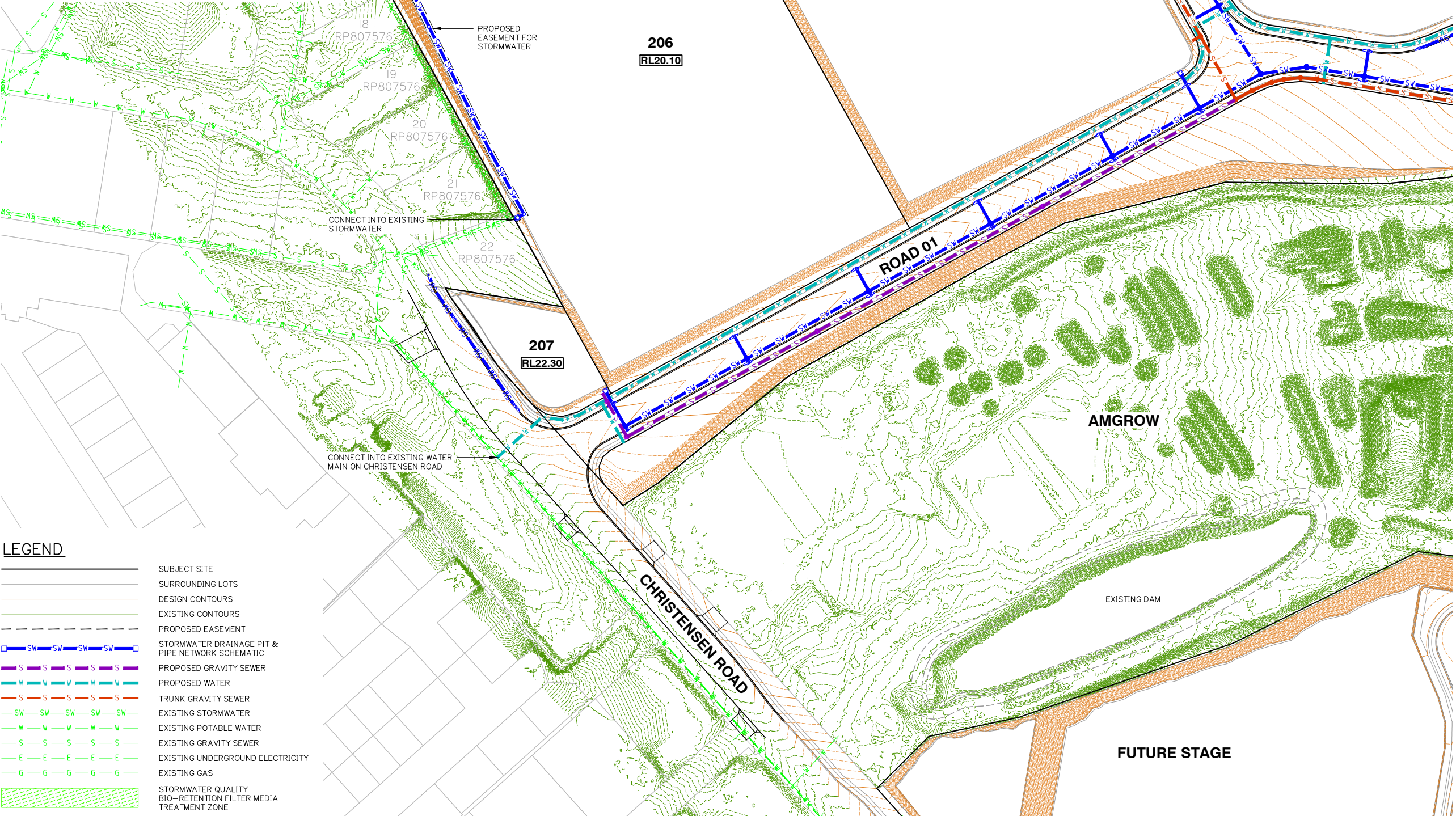
Q_{max} = maximum filtration rate of area being serviced by collector (m^3/s)

1.2 = allows 20% blockage factor
(in case pipe is partially blocked)

Appendix N – External Stormwater Catchment Conveyance Strategy



KEY PLAN
SCALE 1:10000



LEGEND

- SUBJECT SITE
- SURROUNDING LOTS
- DESIGN CONTOURS
- EXISTING CONTOURS
- PROPOSED EASEMENT
- STORMWATER DRAINAGE PIT & PIPE NETWORK SCHEMATIC
- PROPOSED GRAVITY SEWER
- PROPOSED WATER
- TRUNK GRAVITY SEWER
- EXISTING STORMWATER
- EXISTING POTABLE WATER
- EXISTING GRAVITY SEWER
- EXISTING UNDERGROUND ELECTRICITY
- EXISTING GAS
- STORMWATER QUALITY BIO-RETENTION FILTER MEDIA TREATMENT ZONE

Client:



Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

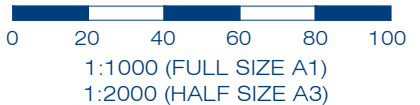
© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
STAGE 2 - ENGINEERING
SERVICING STRATEGY PLAN
SHEET 2 OF 3

A		ORIGINAL ISSUE		BA		MG	
Issue	Date	Description		DRN	CHK		
1	20-11-2020						

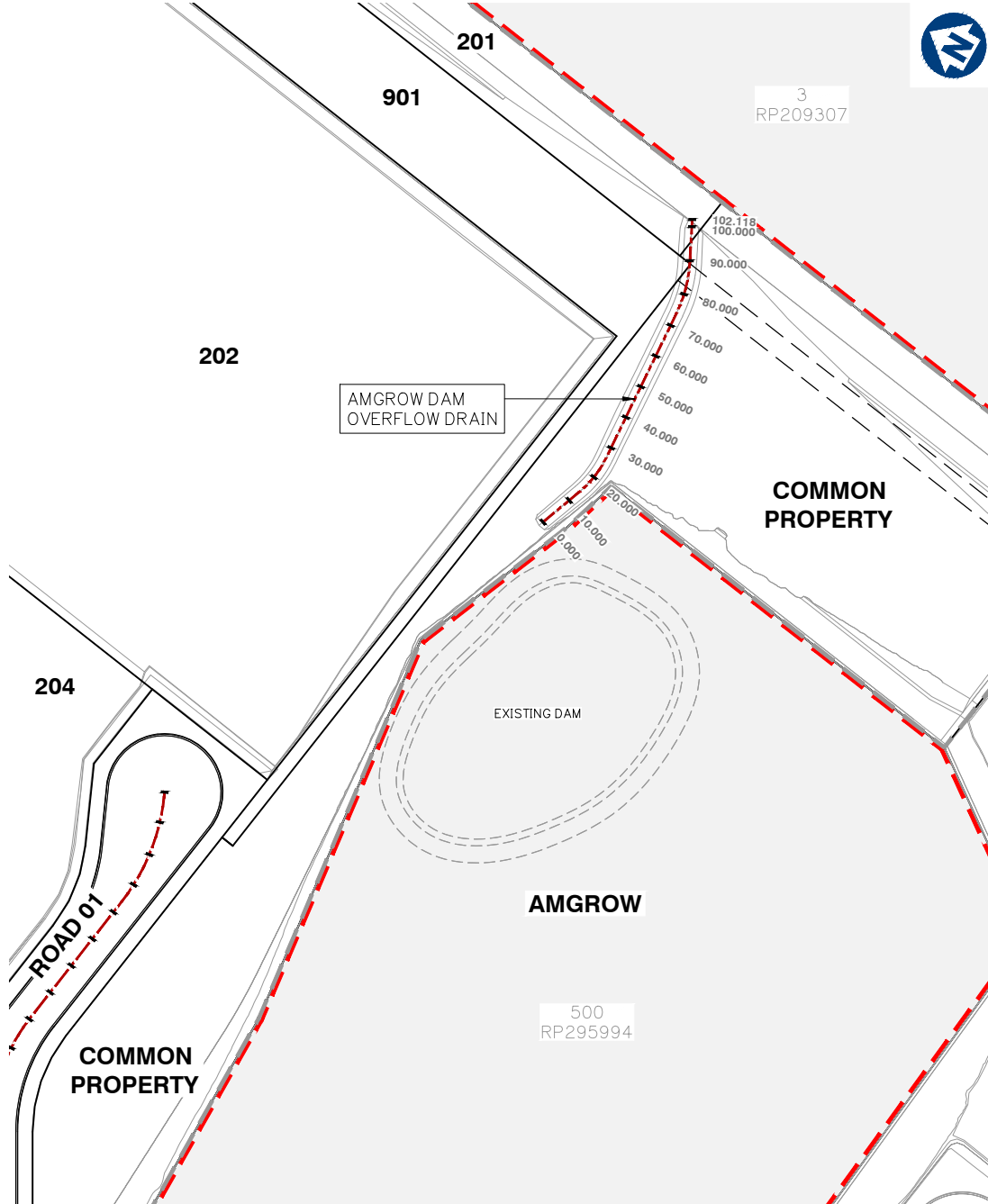
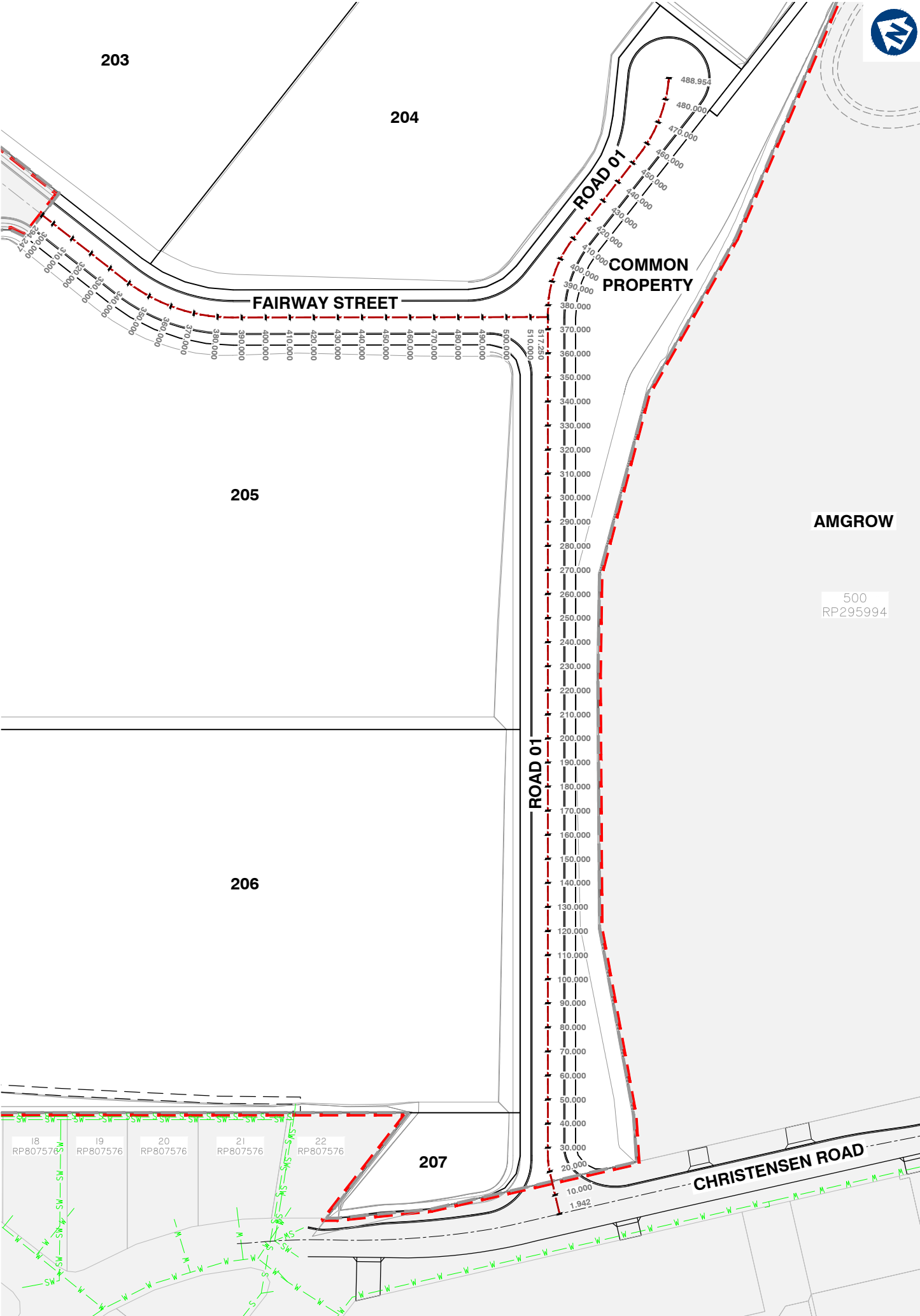
SCALE IN METRES



Scale at A1: 1:1000

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No: 5941 ENG SP 002
Rev. No: A



CONTROL LINE LAYOUT PLAN



planning | environment | landscape | engineering | survey
T: 3807 3333 | F: 3287 5461 | www.gassman.com.au
Gold Coast & Logan | 76 Business Street, Yatala QLD | PO Box 392, Beerleigh 4207

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

©2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

CONTROL LINE LAYOUT
PLAN

Issue	Date	Description	BA DRN	MG CHK
-------	------	-------------	-----------	-----------

SCALE IN METRES



1:1000 (FULL SIZE A1)
1:2000 (HALF SIZE A3)

Scale at A1: 1:1000

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 400

Rev. No:
A

Appendix O – WSUD Design Checklists

APPENDIX D – Assessment Checklists

TABLE D.1 GENERAL APPLICATION INFORMATION

(GDP Ref. 5941)

APPLICATION INFORMATION		
Site or Project Name	VANTAGE STG.2	DA No.
Lot and Plan No.	LOT 501 ON SP295994	
Location	60 STAPYLTON JACOBS WELL ROAD, STAPYLTON	

TABLE D.2 CLIMATE AND TIME STEP ASSESSMENT CHECKLIST (REFER TO SECTION 3 & APPENDIX A)

CLIMATE & TIME-STEP (CHECK REPORTING TABLE C1)	Y	N	COMMENTS/ISSUES TO FOLLOW UP
Has the correct rainfall station been used?	✓		CoQC MUSIC LINK NORTH
Has a 6-minute time-step been used for assessment against stormwater quality management objectives?	✓		
Has the correct modelling period been selected?	✓		
Has the correct potential evapotranspiration been selected?	✓		

TABLE D.3 CATCHMENT AND SOURCE NODE ASSESSMENT CHECKLIST (REFER TO SECTION 3.3)

CLIMATE & TIME-STEP (CHECK REPORTING TABLE C1)	Y	N	COMMENTS/ISSUES TO FOLLOW UP
Are the source node areas reported appropriate with respect to catchment areas shown on the plan?	✓		
Does the total area reported reflect the total catchment relative to the development application?	✓		
Does the land use reported reflect the proposed land use?	✓		
Is the total imperviousness percentage for each land type appropriate (for development applications this must be measured direct from plans)?	✓		

CATCHMENT SPLIT (CHECK REPORTING TABLE C3)	Y	N	COMMENTS/ISSUES TO FOLLOW UP
Has a 'split catchment' approach been used?	✓		
Does the area of each land use/surface type reported reflect the areas shown on the plan?	✓		
Does the total area reported reflect the total catchment?	✓		
Do the land uses or surface types reported reflect the proposed development i.e. have correct source nodes been used?	✓		
Is the fraction imperviousness for each land uses or surface type appropriate? Nb: for development applications this must be measured direct from plan, otherwise refer Section 3.3.3.	✓		
For split catchment modelling where rainwater tanks are proposed as treatment nodes, is the percentage of connected roof area appropriate (Section 4.2)?	N/A		

TABLE D.4 RAINFALL AND RUNOFF ASSESSMENT CHECKLIST (REFER TO SECTION 3.3 AND APPENDIX A)

RAINFALL RUN-OFF AND POLLUTANT EXPORT PARAMETER (CHECK REPORTING TABLE B4 AND TABLE)	Y	N	COMMENTS/ISSUES TO FOLLOW UP
Have the correct rainfall runoff parameters been used?	✓		
Are appropriate pollutant export parameters used?	✓		
Has stochastic generation been used for all pollutants?	✓		

TABLE D.5 ALL TREATMENT NODES ASSESSMENT CHECKLIST

ALL TREATMENT NODES	Y	N	COMMENTS/ISSUES TO FOLLOW UP
Will treatment nodes modelled be free draining? Compare the total depth of the treatment measures modelled against development plan levels.	✓		
Have any receiving environments been modelled as treatment systems? These include natural waterways, natural wetlands, naturalised channel systems, environmental buffers, freshwater and brackish lake and pond systems (existing or constructed). Stormwater must be treated before it discharges to these systems.	✓		20m ECOLOGICAL BUFFER WAS MODELLED

TABLE D.6 RAINWATER TANK NODES ASSESSMENT CHECKLIST (REFER TO SECTION 4.2)

RAINWATER TANKS (CHECK REPORTING TABLE B6)	Y	N	COMMENTS/ISSUES TO FOLLOW UP
Has the volume below overflow pipe (kL) been calculated appropriately?			N/A
Has the depth above the overflow been calculated appropriately?			
If tanks are lumped, is depth below overflow the same as a single tank and overflow pipe scaled accordingly. (Section 4.2.5?)			
Has the total tank surface area been calculated appropriately? For lumped tanks refer to Section 4.2.5.			
Has the overflow pipe diameter been calculated appropriately? For lumped tanks this must be equivalent to the diameter of the overflow pipe of a single tank multiplied by the square root of the number of tanks (Section 4.2.5).			
Has stormwater reuse been calculated appropriately? PET PET – Rain			
Have appropriate indoor connections been selected?			
Has the indoor demand been calculated appropriately?			
Has the outdoor demand been calculated appropriately?			
Has the daily demand been calculated appropriately?			
Has the monthly distribution of annual demand been calculated appropriately?			
Have K and C^* been retained as default values? (Y/N)			

TABLE D.7 WETLAND NODE ASSESSMENT CHECKLIST (REFER TO SECTION 4.3)

RAINWATER TANKS (CHECK REPORTING TABLE B6)	Y	N	COMMENTS/ISSUES TO FOLLOW UP
Has the inlet pond volume sized appropriately to capture coarse sediment?			N/A
Has the macrophyte zone surface area been calculated appropriately?			
Is the extended detention depth less than, or equal to, 0.5 m?			
Has the permanent pool volume been calculated appropriately?			
Is the exfiltration rate set to 0 mm/hr?			
If an exfiltration rate has been used, has the secondary drainage link been used to return the exfiltrated flows to the model? (Section 4.1)			
Has the evaporative loss as % of PET been set to 125% or less?			
Has the equivalent pipe diameter been set so that the notional detention time is about 48 hours?			
Has the overflow weir width been calculated appropriately?			
Is the notional detention time (hrs) approximately 48 hours?			
Are the number of CSTRs appropriate for the shape of the system?			
Have K and C* been retained as default values for all parameters except nitrogen which has been adjusted to reflect Section 4.3.4? (Y/N)			

TABLE D.8 SWALE NODE ASSESSMENT CHECKLIST (REFER TO SECTION 4.4)

SWALES (CHECK REPORTING TABLE C8)	Y	N	COMMENTS/ISSUES TO FOLLOW UP
Is the length equivalent to the length shown on the development plans and does it account for conveyance capacity and safety limitations selected in accordance with the WSUD Technical Design Guidelines for SEQ?			
Is the bed slope less than or equal to 4%?			
Are the base width, top width and depth equivalent to the length shown on the development plans?			
Is the set vegetation height appropriate for the selected species (Section 4.4)?			
Is the exfiltration rate set to 0 mm/hr?			
If an exfiltration rate has been used, has the secondary drainage link been used to return the exfiltrated flows to the model? (Section 4.1)			
If the swale accepts point source discharges at given locations, is it split into separate lengths?			
Have K and C* been retained as default values?			
BIORETENTION SWALE CHECKS			
Is the swale node located in the model downstream of bioretention swale surface component? (Y/N)			
Is the low-flow bypass of the swale node set to the infiltration rate of the filter? (Y/N)			

TABLE D.9 BIORETENTION AND BIORETENTION SWALE NODES ASSESSMENT CHECKLIST (REFER TO SECTION 4.5)

BIORETENTION AND BIORETENTION SWALE FILTER COMPONENTS (CHECK REPORTING TABLE C8 AND TABLE C9)	Y	N	COMMENTS/ISSUES TO FOLLOW UP
Has the filter surface area been calculated appropriately?	✓		
Is the extended detention depth consistent with the depth shown on the development plans and between 0-0.4 m?	✓		0.3m
Is the filter media area consistent with the area shown on the development plans?	✓		
Has an appropriate unlined filter media perimeter been set?	✓		
Has an appropriate saturated hydraulic conductivity been set? This should be modelled once at 50 mm/hr, once at 200 mm/hr and both scenarios reported.	✓		200mm/hr
Is the filter media depth modelled equivalent to the depth of media shown on the plans? This depth should not include the intermediate layer, drainage layers, or submerged zone.	✓		
Is the TN content in the filter media set to either 400 mg/kg or another suitably justified value?	✓		
Is the orthophosphate content in the filter media set to 30 mg/kg or another suitably justified value?	✓		
Is the base lined?	✓		
Has the system been modelled to reflect the nutrient removal properties of the plants to be used on site?	✓		
Is the overflow weir width appropriate?	✓		25m
Is the exfiltration rate set to zero?	✓		
If an exfiltration rate has been used, has the secondary drainage link been used to return the exfiltrated flows to the model? (Section 4.1)	N/A		
If exfiltration rate has been used, is the exfiltration rate justified?	N/A		
Has the system been modelled with underdrains present?	✓		
Is a submerged zone with carbon present?		✓	
Is the depth of submerged zone consistent with plans?		N/A	
If bioretention systems are modelled in series, is there a low-flow bypass modelled in the downstream bioretention system/s? (Note: separate drainage systems are required if a low-flow bypass is modelled)	N/A		
Have K and C* been retained as default values? (Y/N)			
BIORETENTION SWALE COMPONENT ONLY (CHECK TABLE C8)			
Has an extended detention depth of 0 m been used? (Y/N)			
Has the low flow bypass been calculated? The calculation should be provided by the applicant separately.		N/A	

TABLE D.10 BUFFER NODE ASSESSMENT CHECKLIST (REFER TO SECTION 4.7)

BUFFERS (CHECK REPORTING TABLE C10)	Y	N	COMMENTS/ISSUES TO FOLLOW UP
Does the treatment node reflect the vegetated area receiving sheet flow only?			
Is the percentage of upstream area buffered consistent with catchment plans?			
Does the buffer area accurately reflect the percentage impervious area as shown on the development plans?		N/A	
Is the exfiltration rate set to zero?			
If an exfiltration rate has been used, has the secondary drainage link been used to return the exfiltrated flows to the model? (Section 4.1)			

TABLE D.11 PROPRIETARY & CUSTOM PRODUCTS (INC GROSS POLLUTANT TRAPS) NODE ASSESSMENT CHECKLIST (REFER TO SECTION 4.8)

PROPRIETARY & CUSTOM PRODUCTS (CHECK REPORTING TABLE C11)	Y	N	COMMENTS/ISSUES TO FOLLOW UP
Are the proposed pollutant reduction efficiencies independently verified using a method suited to local conditions (Section 4.8)?			
Does the data provided include performance results under dry weather flows (to account for potential pollutant leaching)? (Y/N).			
Is the assumed high-flow bypass rate consistent with manufacturer specifications? (Y/N)		N/A	
UNLESS "YES" HAS BEEN ANSWERED TO ALL THREE QUESTIONS ABOVE THE PROPOSED POLLUTANT REDUCTION RATES CANNOT BE RELIED UPON AS BEING REASONABLE ASSUMPTIONS OF THE UNIT'S PERFORMANCE.			
Is the storage volume modelled consistent with the proposed unit?			
Is the expected maintenance frequency a reasonable assumption?			
Is the storage volume large enough to contain all sediments and gross pollutants received by unit during inter-maintenance periods?			

TABLE D.12 SEDIMENT BASIN NODE ASSESSMENT CHECKLIST (SECTION 4.9)

SEDIMENT BASINS (CHECK REPORTING TABLE C12)	Y	N	COMMENTS/ISSUES TO FOLLOW UP
Has the surface area been calculated appropriately (Section 4.3.2)?			
Is the extended detention depth consistent with the development plans?			
Is the permanent pool volume consistent with the development plans?			
Is the exfiltration rate set to 0 mm/hr?			
If an exfiltration rate has been used, has the secondary drainage link been used to return the exfiltrated flows to the model? (Section 4.1)			
Is the evaporative loss as % of PET reasonable?			
Has the equivalent pipe diameter been set appropriately? (Where appropriate refer to Section 4.3.3 for advice on accounting for user-defined stage-discharge relationship)?			
Is the overflow weir width consistent with the development plans?			
Is the notional detention time set to account for potential flow restriction?			
Are the number of CSTRs appropriate for the shape of the system?			
Have the K and C* values been retained as default values? (Y/N)			

N/A

TABLE D.13 INFILTRATION NODE ASSESSMENT CHECKLIST (REFER TO SECTION 4.10)

INFILTRATION (CHECK REPORTING TABLE C13)	Y	N	COMMENTS/ISSUES TO FOLLOW UP
Is the exfiltration rate justified?			
Has the secondary drainage link been used to return the exfiltrated flows to the model? (Section 4.1). If the secondary drainage link is not used, WQO's must be achieved prior to stormwater entering an infiltration system.			
Can the hydraulic conductivity of the in-situ soils be guaranteed even during earthworks?			
IF "NO" WAS ANSWERED TO ANY OF THE ABOVE QUESTIONS THIS NODE CANNOT BE USED.			
Is the pond surface area consistent with the plans?			
Is the extended detention depth consistent with the plans?	N/A		
Is the filter area consistent with the plans?			
Is the unlined filter media perimeter appropriate?			
Is the depth of infiltration media consistent with the plans?			
Is the exfiltration rate justified?			
Is the overflow weir width consistent with the plans?			
Is the evaporative loss as % of PET reasonable?			
Have the K and C* values been retained as default values?			

TABLE D.14 POROUS PAVEMENT NODE ASSESSMENT CHECKLIST (REFER TO SECTION 4.11)

POROUS PAVEMENTS (CHECK REPORTING TABLE C14)	Y	N	COMMENTS/ISSUES TO FOLLOW UP
Has the applicant answered "Y" to all questions in the reporting table?	N/A		

NB: Check all other parameters for the porous pavement using Table C9.

TABLE D.15 MEDIA FILTRATION NODE ASSESSMENT CHECKLIST (REFER TO SECTION 4.8.3)

MEDIA FILTRATION SYSTEM (CHECK REPORTING TABLE C15)	Y	N	COMMENTS/ISSUES TO FOLLOW UP
Is the extended detention depth consistent with plans?			
Is the surface area consistent with plans?			
Is the exfiltration rate set to zero?			
If an exfiltration rate has been used, has the secondary drainage link been used to return the exfiltrated flows to the model? (Section 4.1)			
Is the filter area consistent with plans?			
Is the filter depth consistent with plans?			
Is the filter media particle diameter consistent with manufacturer information?			
Is the saturated hydraulic conductivity consistent with manufacturer information?			
Is the depth below underdrain consistent with plans?			
Have the K and C* values been retained as default values or otherwise justified?			

N/A

TABLE D.16 OVERALL APPROVAL ASSESSMENT CHECKLIST

DESIGN OBJECTIVES (CHECK REPORTING TABLE C16)	Y	N	COMMENTS/ISSUES TO FOLLOW UP
Have all water quality objectives been met?	✓		
Is the MUSIC model approved?			

APPENDIX G

ENGINEERING SERVICES REPORT



VantageYatala



gassman
development
perspectives

ENGINEERING SERVICES REPORT

APPLICATION FOR RECONFIGURING A LOT VANTAGE YATALA STAGE 2

ADDRESS

60 Stapylton Jacobs Well Road, Stapylton

REAL PROPERTY DESCRIPTION

Lot 501 on SP295994

PREPARED FOR

Frasers Property (Australia) Pty. Ltd.

November 2020 (Rev. 1)



gassman
development
perspectives

project coordination
urban + regional planning
landscape + urban design
engineering services
environmental management
visualisation + spatial services
surveying services
advisory services

“IMPORTANT NOTE”

Apart from fair dealing for the purposes of private study, research, criticism, or review as permitted under the Copyright Act, no part of this report, its attachments or appendices may be reproduced by any process without the written consent of Gassman Development Perspectives Pty Ltd.

We have prepared this report for the sole purposes of Frasers Property (Australia) Pty. Ltd. (“Client”) for the specific purpose of an Engineering Services Report (“Purpose”). This report is strictly limited to the Purpose and the facts and matters stated in it and does not apply directly or indirectly and will not be used for any other application, purpose, use or matter.

In preparing this report we have made certain assumptions. We have assumed that all information and documents provided to us by the Client or as a result of a specific request or enquiry were complete, accurate and up-to-date. Where we have obtained information from a government register or database, we have assumed that the information is accurate. Where an assumption has been made, we have not made any independent investigations with respect to the matters the subject of that assumption. We are not aware of any reason why any of the assumptions are incorrect.

This report is presented without the assumption of a duty of care to any other person (“Third Party”) other than the Client. The report may not contain sufficient information for the purposes of a Third Party or for other uses. Without the prior written consent of Gassman Development Perspectives Pty Ltd:

- a) This report may not be relied on by a Third Party; and
- b) Gassman Development Perspectives Pty Ltd will not be liable to a Third Party for any loss, damage, liability or claim arising out of or incidental to a Third Party publishing, using or relying on the facts, content, opinions or subject matter contained in this report.

If a Third Party uses or relies on the facts, content, opinions or subject matter contained in this report with or without the consent of Gassman Development Perspectives Pty Ltd, Gassman Development Perspectives Pty Ltd disclaims all risk and the Third Party assumes all risk and releases and indemnifies and agrees to keep indemnified Gassman Development Perspectives Pty Ltd from any loss, damage, claim or liability arising directly or indirectly from the use of or reliance on this report.

In this note, a reference to loss and damage includes past and prospective economic loss, loss of profits, damage to property, injury to any person (including death) costs and expenses incurred in taking measures to prevent, mitigate or rectify any harm, loss of opportunity, legal costs, compensation, interest and any other direct, indirect, consequential or financial or other loss.

GDP DOCUMENT CONTROL

Originating Office:	Gold Coast	Job Number:	5941
Physical Address:	76 Business Street Yatala. Q. 4207	Project Manager:	Mitchell Gassman
Postal Address:	PO Box 392 Beenleigh. Q. 4207	Document Title:	Engineering Services Report
Phone:	+61 7 3807 3333	Author:	Ian Grieves
Fax:	+61 7 3287 5461	Client:	Frasers Property (Australia) Pty. Ltd.
Email:	mail@gassman.com.au	Client Contact:	Paul Solomon
Web:	www.gassman.com.au	Client Reference:	N/A

Revision / Checking History

No.	Author	Reviewer
INTERNAL DRAFT	Mitchell Gassman	Ian Grieves
1.	Mitchell Gassman	Ian Grieves

Approval for Issue

Rev. No.	Name	Position	Signature	Date
1.	Mitchell Gassman	Civil Project Engineer RPEQ 16939		20 November 2020

Final Distribution

Frasers Property (Australia) Pty. Ltd. (Client)	1 electronic copy
City of Gold Coast Council (Assessment Manager)	1 electronic copy
GDP File	1 electronic copy

TABLE OF CONTENTS

1.0	INTRODUCTION.....	5
2.0	SITE DESCRIPTION	6
2.1	SITE LOCATION	6
2.2	LAND ENCUMBRANCES	6
2.3	EXISTING LAND USES.....	7
2.4	TOPOGRAPHY.....	7
2.5	EXISTING VEGETATION	7
2.6	CONTAMINATED LAND	7
3.0	EARTHWORKS	7
4.0	ROADWORKS AND ACCESS.....	7
5.0	INFRASTRUCTURE SERVICES.....	8
5.1	SEWERAGE	8
5.2	WATER SUPPLY	9
6.0	SITE BASED STORMWATER MANAGEMENT	11
6.1	STORMWATER QUANTITY	11
6.2	STORMWATER QUALITY.....	11
7.0	CONCLUSION.....	11
APPENDIX A – STAGE 2 RECONFIGURATION OF LOT PLAN		12
APPENDIX B – SITE SURVEY		13
APPENDIX C – BULK EARTHWORKS STRATEGY		14
APPENDIX D – EXTERNAL INTERSECTION LAYOUT PLAN		15
APPENDIX E – CIVIL SERVICING STRATEGY PLAN		16
APPENDIX F – DIAL BEFORE YOU DIG SEARCH RESULTS		17

1.0 INTRODUCTION

Gassman Development Perspectives (GDP) has been engaged by Frasers Property (Australia) Pty. Ltd. (Client) to prepare an Engineering Services Report over land situated at 60 Stapylton Jacobs Well Road, Stapylton (Lot 501 on SP295994) being the 'subject site'.

This report has been prepared for submission to City of Gold Coast Council (Council) as part of an Application for Reconfiguring a Lot for Stage 2 of the Vantage Yatala industrial development (refer **Appendix A – Reconfiguration of Lot Plan**)

The purpose of this report is to supply information relating specifically to Civil Engineering infrastructure, services and issues over the subject site and how the proposed lot configuration changes still align with the previously approved servicing strategy for the subject site.

2.0 SITE DESCRIPTION

2.1 SITE LOCATION

The subject site is located within the City of Gold Coast Council's (Council) local government boundaries, in Council's "Future Low Impact Industry" and "Future Medium Impact Industry" zone precinct. The subject site is bounded by Stapylton Jacobs Well Road to the north, Christensen Road and existing industrial uses to the west and Council's land fill facility to the south-east (refer to **Figure 2.1**).

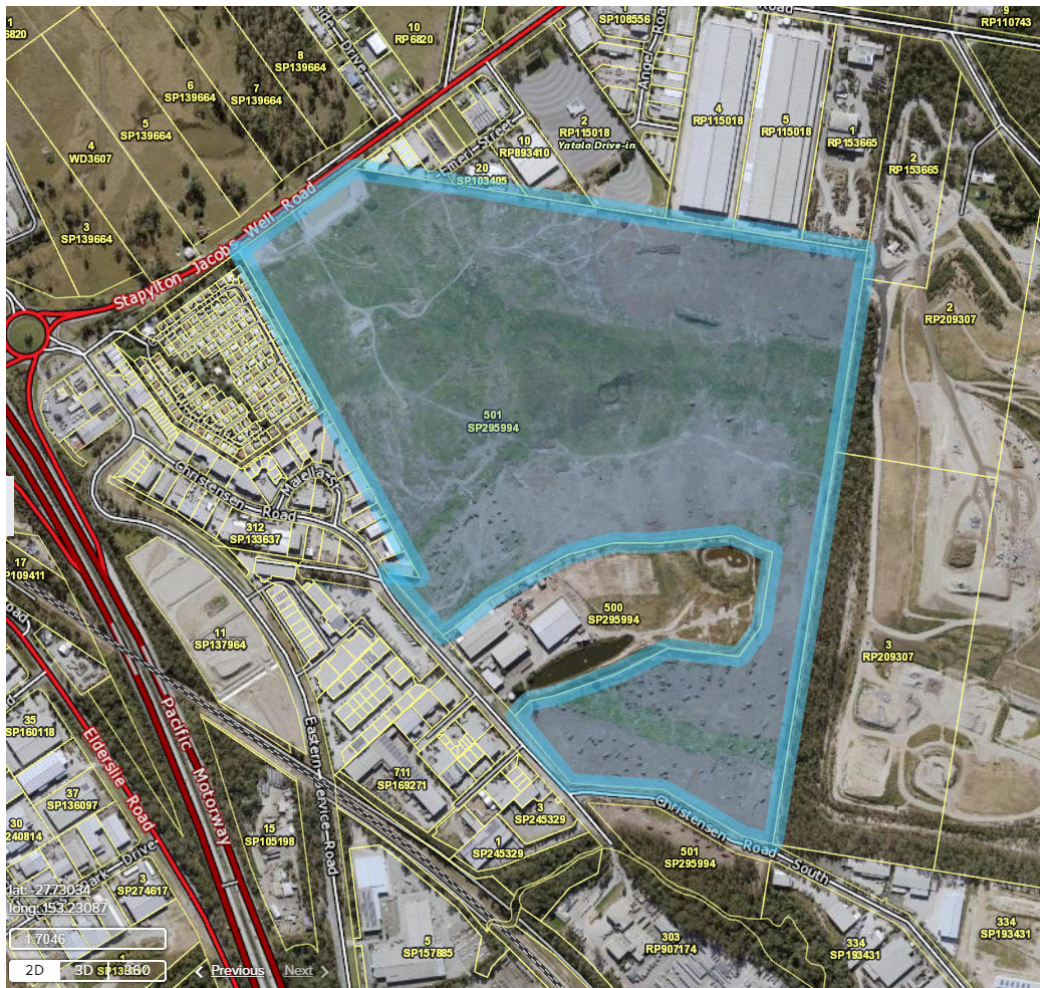


Figure 2.1: Site Locality Plan, Source: Google Earth 2017

2.2 LAND ENCUMBRANCES

There are no existing encumbrances over the subject site.

2.3 EXISTING LAND USES

The subject land is vacant following recent vegetation clearing.

2.4 TOPOGRAPHY

Along the south-eastern boundary of the subject site is the existing high point of 29.23m AHD with a ridge line extending through to the properties' northern boundary. This existing topography defines the existing catchments of the site and current stormwater discharge locations along the northern and eastern boundaries

2.5 EXISTING VEGETATION

The subject land is vacant of vegetation following recent clearing completed under Council approvals OPW201800486 and OPW201801219. A 10m retained vegetation buffer exists along the subject site's south-east boundary shared with Council's landfill facility. A component of this buffer falls within the Stage 2 extent.

2.6 CONTAMINATED LAND

The subject site is not known to be contaminated.

3.0 EARTHWORKS

Due to the existing topography of the subject site (refer **Appendix B**) major bulk earthworks will be required to provide generally flat pads suitable for the intended industrial use.

A bulk earthworks strategy has been developed by Gassman Development Perspectives over the subject site (refer **Appendix C**) to facilitate the creation of suitable flat earthworked pads capable of being serviced to City of Gold Coast Council standards. The current earthworks strategy for Stage 2 ties into the existing Change to Ground Level design (Council Ref: OPW201800485) for Stage 1 to provide connectivity through the development.

4.0 ROADWORKS AND ACCESS

Stage 2 of the proposed development will gain access via two (2) locations being the existing approved road network through Stage 1 of the development which links the subject site to its frontage to the State-controlled Stapylton Jacobs Well Road via a signalised intersection along with a secondary connection to the local road network (Christensen Road) proposed as part of Stage 2. Due to the subject site's proximity to Exit 38 of the M1 Motorway the conceptual design of the Christensen Road external intersection has included access provisions for A-Double vehicular movements into the development. Adequate provision for these external works and any land dedication within the subject site to accommodate the ultimate design have been made within the ROL Plan for Stage 2 (refer **Appendix A**).

The truncations to lot boundaries necessary to maintain minimum road verge widths through these kerb returns have been incorporated into the Reconfiguration of Lot plan for Stage 2

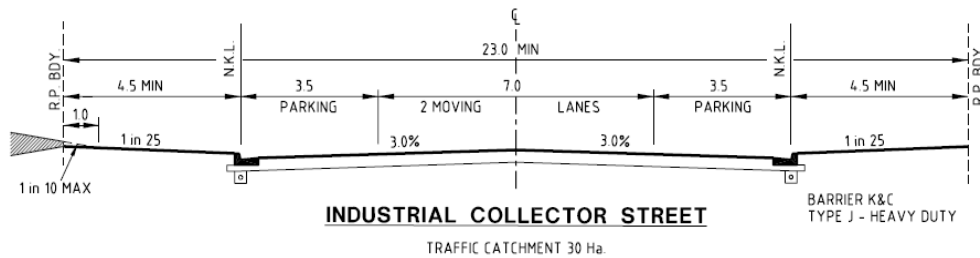


Figure 4.1: Proposed Internal Roads Cross Section, Source: CoGC Std Dwg 05-02-004

5.0 INFRASTRUCTURE SERVICES

5.1 SEWERAGE

Consultation has been undertaken with Gold Coast Water's Sewer Catchment Planning officers to establish the Sewer Network Analysis Report that was approved as part of the original Stage 1 Development Permit for Reconfiguration of Lot. This involved the creation of an overall sewer strategy internal to the site along with outlining the key trunk sewer infrastructure upgrades required external to the subject site to facilitate the scale of development proposed.

As per the approved Sewer Network Analysis, Stage 2 will be serviced via the construction of an external trunk gravity sewer main connecting to GCWW's existing infrastructure south-east of the subject site (refer **Figure 5.1** below). At the time of this reporting it is understood Gold Coast Water and Waste are reassessing the overall servicing strategy for the Stapylton Catchment and will provide formal advice in due course on the preferred trunk infrastructure route and size for the connection of Stage 2 to the development application for Reconfiguring a Lot progresses.

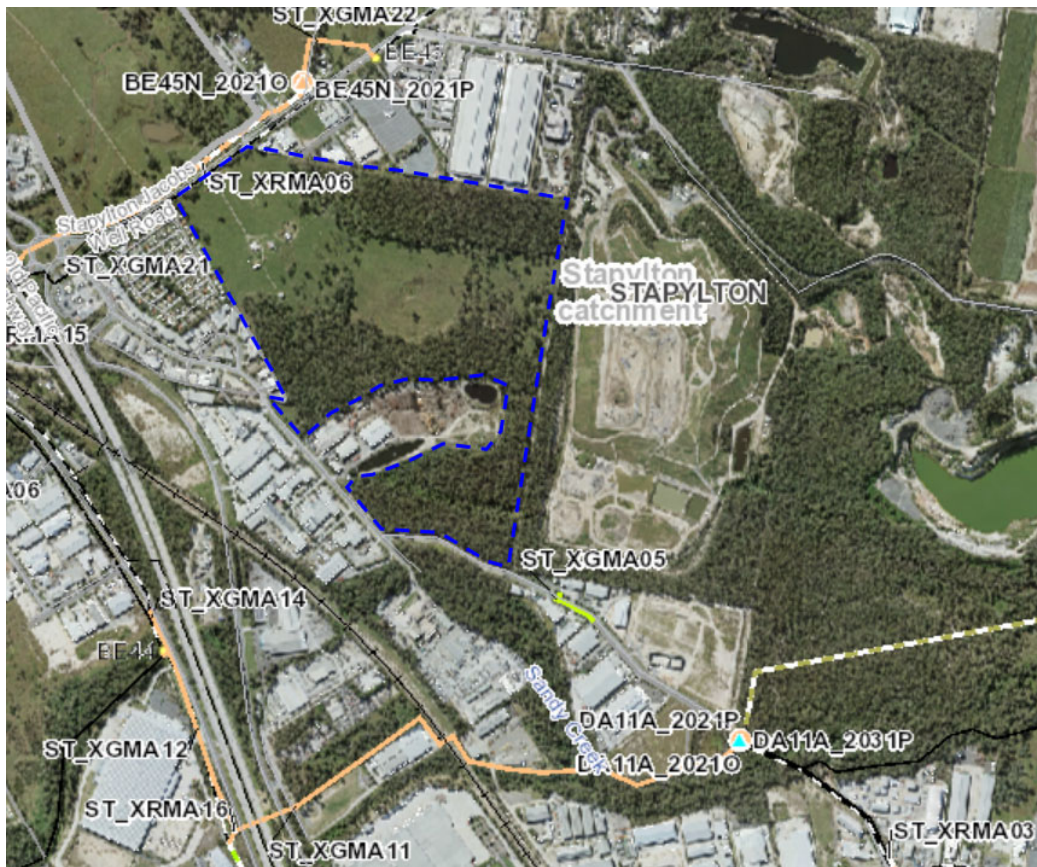


Figure 5.1: GCWW Trunk Sewer Infrastructure, Source: GCCC Interactive Mapping Version 7

A preliminary design of the proposed gravity sewer reticulation network necessary to service Stage 2 lots is contained within **Appendix E**.

5.2 WATER SUPPLY

A copy of Council's water reticulation as constructed plans has been obtained for roads within the vicinity of the subject site. These plans confirm that Stage 2 of the development will be serviced off Council's existing 150mm diameter potable water main located within the Christensen Road reserve (refer **Figure 5.2** below) along with connecting into the 150mm reticulated potable water network to be constructed as part of approved Stage 1 of the development.

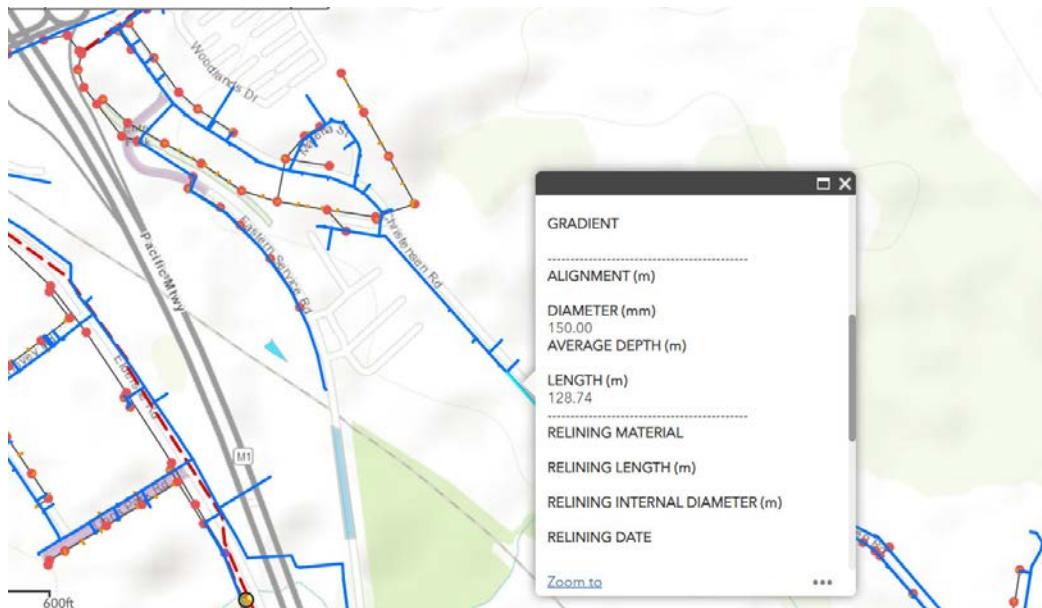


Figure 5.2: GCWW Water Infrastructure, Source: GCCC Infrastructure Assets Mapping

GDP have previously completed and had approved by Council a detailed Water Network Analysis as part of the original Preliminary Approval conditions-compliance process in accordance with Council's requirements to confirm minimum service supply and fire demand can be met for the proposed development. A preliminary design of the proposed potable water reticulation network necessary to service Stage 2 lots is contained within **Appendix E**.

5.3 ELECTRICITY AND TELECOMMUNICATIONS

A Dial-before-you-dig (DBYD) search was undertaken over the subject site (refer **Appendix F**) which confirmed the presence of electrical and communications reticulation to the subject site's road frontage.

The adequacy of this infrastructure in its current form along with the necessity for any augmentation or upgrades to cater for the proposed use will be confirmed through the detailed design process by the appointed electrical consultant.

6.0 SITE BASED STORMWATER MANAGEMENT

6.1 STORMWATER QUANTITY

A stormwater drainage network will be designed to ensure the proposed lot configuration adequately drains to a Lawful Point of Discharge (refer **Appendix E**).

A Site Based Stormwater Management Plan has been prepared by Gassman Development Perspectives that demonstrates that attenuation measures are able to be incorporated into the proposed development to ensure there is no adverse impacts to downstream properties, waterways or infrastructure as a result of an increase in peak stormwater flow rates discharging from the subject site upon development.

This is achieved through the conceptual design of appropriately sized detention basins that comply with City of Gold Coast Council's Land Development Guidelines along with the Queensland Urban Drainage Manual (QUDM).

6.2 STORMWATER QUALITY

A suitable stormwater treatment train will need to be implemented to ensure the servicing of both the proposed industrial lots, surrounding public road reserves and common property.

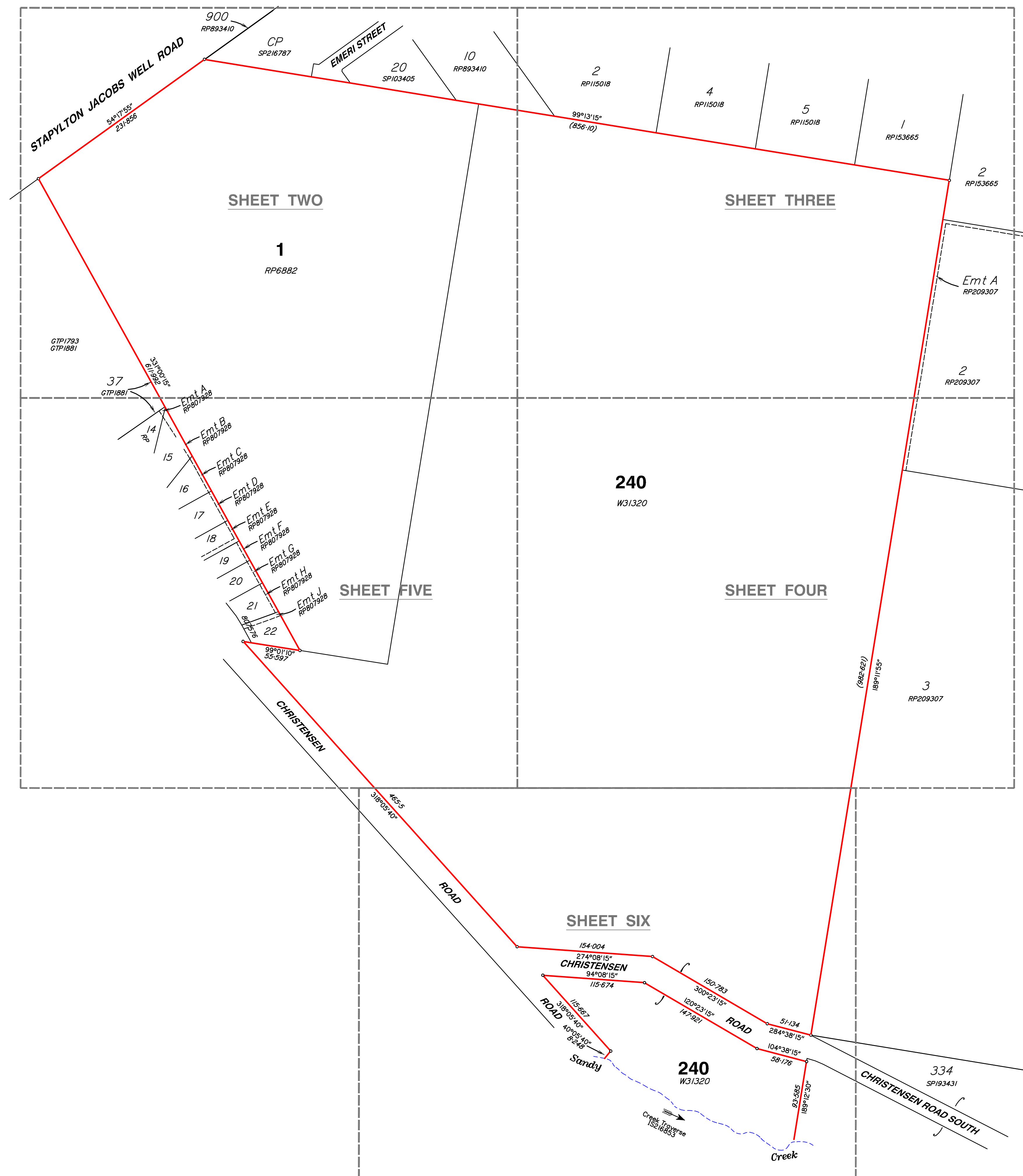
A site based stormwater management plan for the subject site outlining how all necessary steps to ensure that the quality of stormwater discharging from the subject site meets the necessary standards to comply with City of Gold Coast Council's Water Sensitive Urban Design (WSUD) requirements, Queensland Urban Drainage Manual (QUDM) and the performance objectives of the Queensland State Planning Policy (SPP) has been prepared by Gassman Development Perspectives and lodged under separate cover for Compliance Assessment by Council.

7.0 CONCLUSION

The above reporting demonstrates that proposed development can be undertaken through the construction of Civil Engineering infrastructure and services that meet the requirements of City of Gold Coast City Council's Land Development Guidelines and associated Australian Standards.

Appendix A – Stage 2 Reconfiguration of Lot Plan

Appendix B – Site Survey



Notes

This plan has been prepared for the exclusive use and purposes of the client as stated on this plan and should not be used by any other person or corporation and for any other purpose.

Property boundaries have not been defined by this survey and have been compiled from IS216853.

Property boundaries have not been defined by this survey and have been compiled from IS216853.

Only those underground features and services as shown on this plan have been located by this survey. Prior to any construction, demolition or excavation on the site, the relevant authority should be contacted for the location of any further underground services and detailed location of all services.

This plan may not be photocopied unless these notes are included.

Gassman Development Perspectives Pty. Ltd.
accepts no responsibility for any loss or damages
caused in contravention of the above.

Gassman Development Perspectives Pty. Ltd. hereby grants permission for the Local Authority to reproduce all relevant information contained herein for the purposes stated in the Sustainable Planning Act 2009. It should be noted that the granting of this consent by the copyright holder does not sign away copyright approval granted under the Commonwealth Copyright Act 1968.

Client

HESTER

Project	
---------	--

CONTOUR AND DETAIL PLAN

Over Lot 1 on RP6882 and Lot 240 on WD31320

Parish of **ALBERT**County of **Ward**

Local Govt **GOLD COAST CITY COUNCIL**

Level Datum	A.H.D.	Date Surveyed	Jan 2011
Meridian	IS216853	Surveyor	A. Macdonald
Contour Interval	0.2	Drawn	S. Holt
F.B.	No	Date Drafted	02-02-2011
Origin	PSM 133471	Checked	
	RL 22.169		

Scale (on AI original)	Designed
1:2500	Drawn
	Date Designed



ACN 010 752 388
Brisbane Office
Level 13
97 Creek Street Brisbane Q. 4000
t: (07) 32216732
f: (07) 32217308

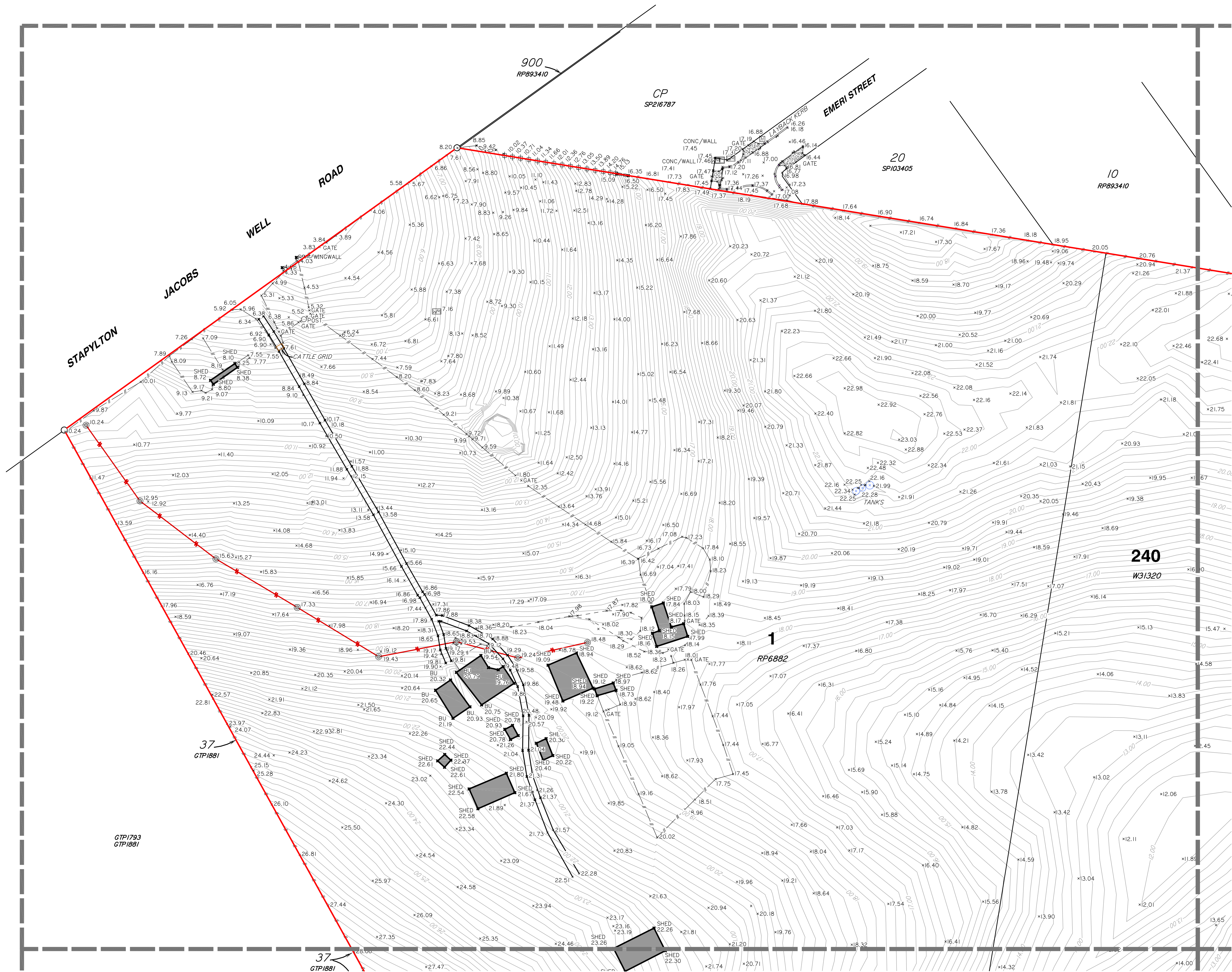
Gold Coast and Logan Office
Access Business Park
76 Business Street Yatala Q. 4200
t: (07) 38073333
f: (07) 32875461

e: mail@gassman.com.au
w: www.gassman.com.au

REFERENCE No. 5093-10

PLAN No. **5093 S CD 01**

SHEET 1 OF 6



LEGEND

- PERMANENT MARK
- SEWER MANHOLE
- SEWER INSPECTION OUTLET
- ELECTRICITY PILLAR
- ELECTRICITY POLE
- ELECTRICITY POLE WITH LIGHT
- TELSTRA PIT
- MANHOLE
- STORMWATER MANHOLE
- GULLY TRAP
- WATER METER
- FIRE HYDRANT
- VALVE
- GATE
- BOLLARD
- CONCRETE
- EDGE OF BITUMEN
- FENCE
- OVERHEAD ELECTRICITY
- OPEN DRAIN
- RETAINING WALL
- EDGE OF GARDEN
- CONTOUR LEVEL

Notes

This plan has been prepared for the exclusive use and purposes of the client as stated on this plan and should not be used by any other person or corporation and for any other purpose.

Property boundaries have not been defined by this survey and have been compiled from 15216853.

Only those underground features and services as shown on this plan have been located by this survey. Prior to any construction, demolition or excavation on the site, the relevant authority should be contacted for the location of any further underground services and detailed location of all services.

This plan may not be photocopied unless these notes are included.

Gasman Development Perspectives Pty. Ltd. accepts no responsibility for any loss or damages caused in contravention of the above.

Gasman Development Perspectives Pty. Ltd. hereby grants permission for the Local Authority to reproduce all relevant information contained herein for the purposes stated in the Sustainable Planning Act 2009. It should be noted that the granting of this consent by the copyright holder does not sign away copyright approval granted under the Commonwealth Copyright Act 1968.

Client

HESTER

Project

CONTOUR AND DETAIL PLAN

Over Lot 1 on RP6882 and Lot 240 on WD31320

Parish of **ALBERT**

County of **Ward**

Local Govt **GOLD COAST CITY COUNCIL**

Level Datum	A.H.D.	Date Surveyed	Jan 2011
Meridian	IS133471	Surveyor	A. Macdonald
Contour Interval	0.2	Drawn	S. Holt
F.B.	No	Date Drafted	02-02-2011
Origin	PSM 133471	Checked	RL 22.169

Scale (on A1 original)	Designed
1:1000	Drawn
	Date Designed



gasman
development
perspectives

planning
design
environment
surveying

ACN 010 752 388
Brisbane Office
Level 13
97 Creek Street Brisbane Q. 4000
t: (07) 32216732
f: (07) 32217308
Gold Coast and Logan Office
Access Business Park
76 Business Street Yatala Q. 4207
t: (07) 38073333
f: (07) 32975461
e: mail@gasman.com.au
w: www.gasman.com.au

REFERENCE No. **5093-10**

PLAN No. **5093 S CD 01**



LEGEND

- PERMANENT MARK
- SEWER MANHOLE
- SEWER INSPECTION OUTLET
- ELECTRICITY PILLAR
- ELECTRICITY POLE
- ELECTRICITY POLE WITH LIGHT
- TELSTRA PIT
- MANHOLE
- STORMWATER MANHOLE
- GULLY TRAP
- WATER METER
- FIRE HYDRANT
- VALVE
- GATE
- BOLLARD
- CONCRETE
- EDGE OF BITUMEN
- FENCE
- OVERHEAD ELECTRICITY
- OPEN DRAIN
- RETAINING WALL
- EDGE OF GARDEN
- CONTOUR LEVEL

Notes

This plan has been prepared for the exclusive use and purposes of the client as stated on this plan and should not be used by any other person or corporation and for any other purpose.

Property boundaries have not been defined by this survey and have been compiled from 15216853.

Only those underground features and services as shown on this plan have been located by this survey. Prior to any construction, demolition or excavation on the site, the relevant authority should be contacted for the location of any further underground services and detailed location of all services.

This plan may not be photocopied unless these notes are included.

Gassman Development Perspectives Pty. Ltd. accepts no responsibility for any loss or damages caused in contravention of the above.

Gassman Development Perspectives Pty. Ltd. hereby grants permission for the Local Authority to reproduce all relevant information contained herein for the purposes stated in the Sustainable Planning Act 2009. It should be noted that the granting of this consent by the copyright holder does not sign away copyright approval granted under the Commonwealth Copyright Act 1968.

Client

HESTER

Project

CONTOUR AND DETAIL PLAN

Over Lot 1 on RP6882 and Lot 240 on WD31320

Parish of **ALBERT**

County of **Ward**

Local Govt **GOLD COAST CITY COUNCIL**

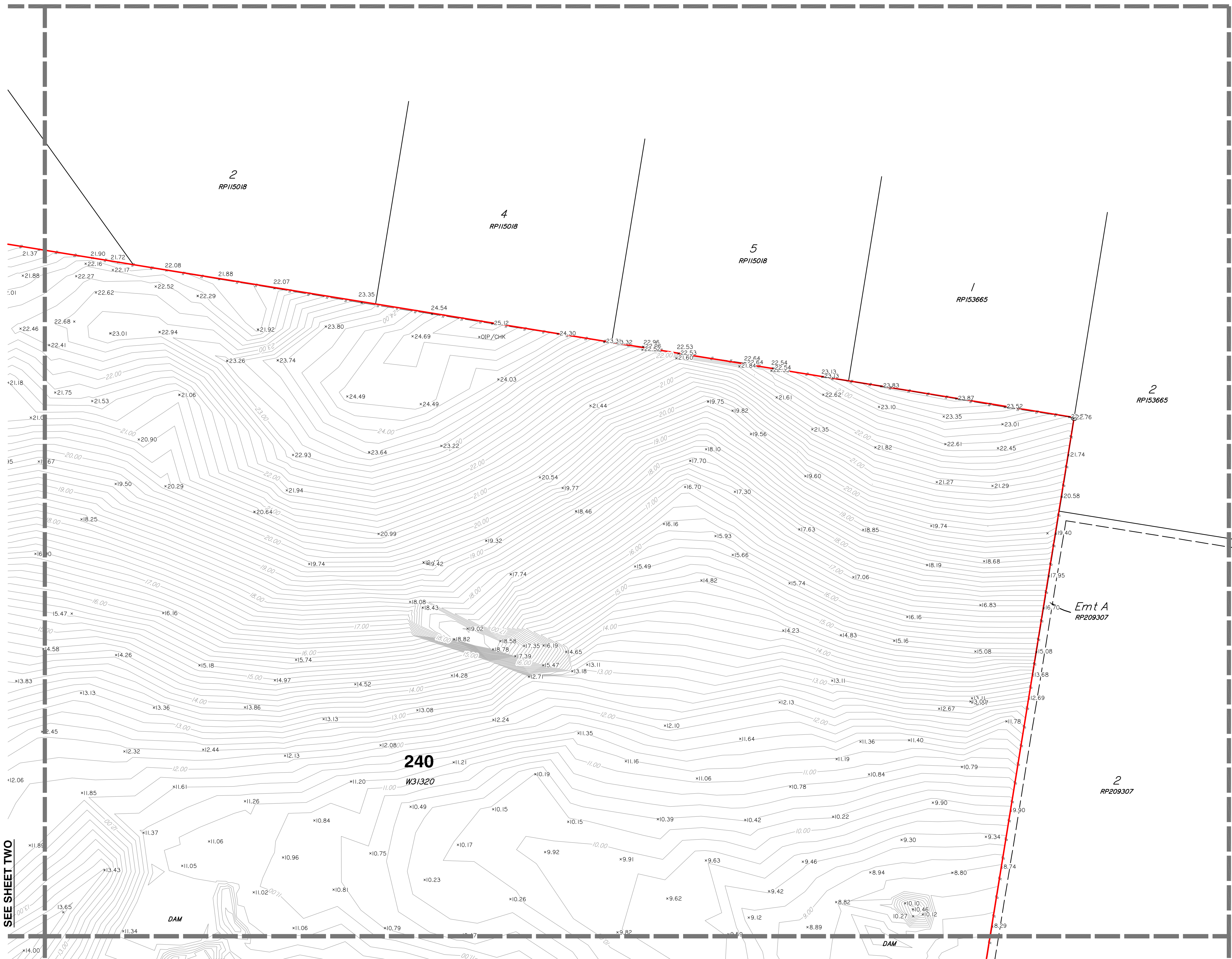
Level Datum	A.H.D.	Date Surveyed	Jan 2011
Meridian	15216853	Surveyor	A. Macdonald
Contour Interval	0.2	Drawn	S. Holt
F.B.	No	Date Drafted	02-02-2011
Origin	PSM 133471	Checked	RL 22.169
Scale (on A1 original)	Designed		
	Drawn		
	Date Designed		

 **gassman development perspectives** planning design environment surveying

ACN 010 752 388
Brisbane Office
Level 13
97 Creek Street Brisbane Q. 4000
t: (07) 32216732
f: (07) 32217308
Gold Coast and Logan Office
Access Business Park
76 Business Street Yatala Q. 4207
t: (07) 38073333
f: (07) 32975461
e: mail@gassman.com.au
w: www.gassman.com.au

REFERENCE No. **5093-10**

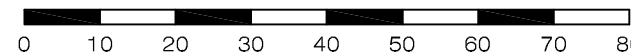
PLAN No. **5093 S CD 01**

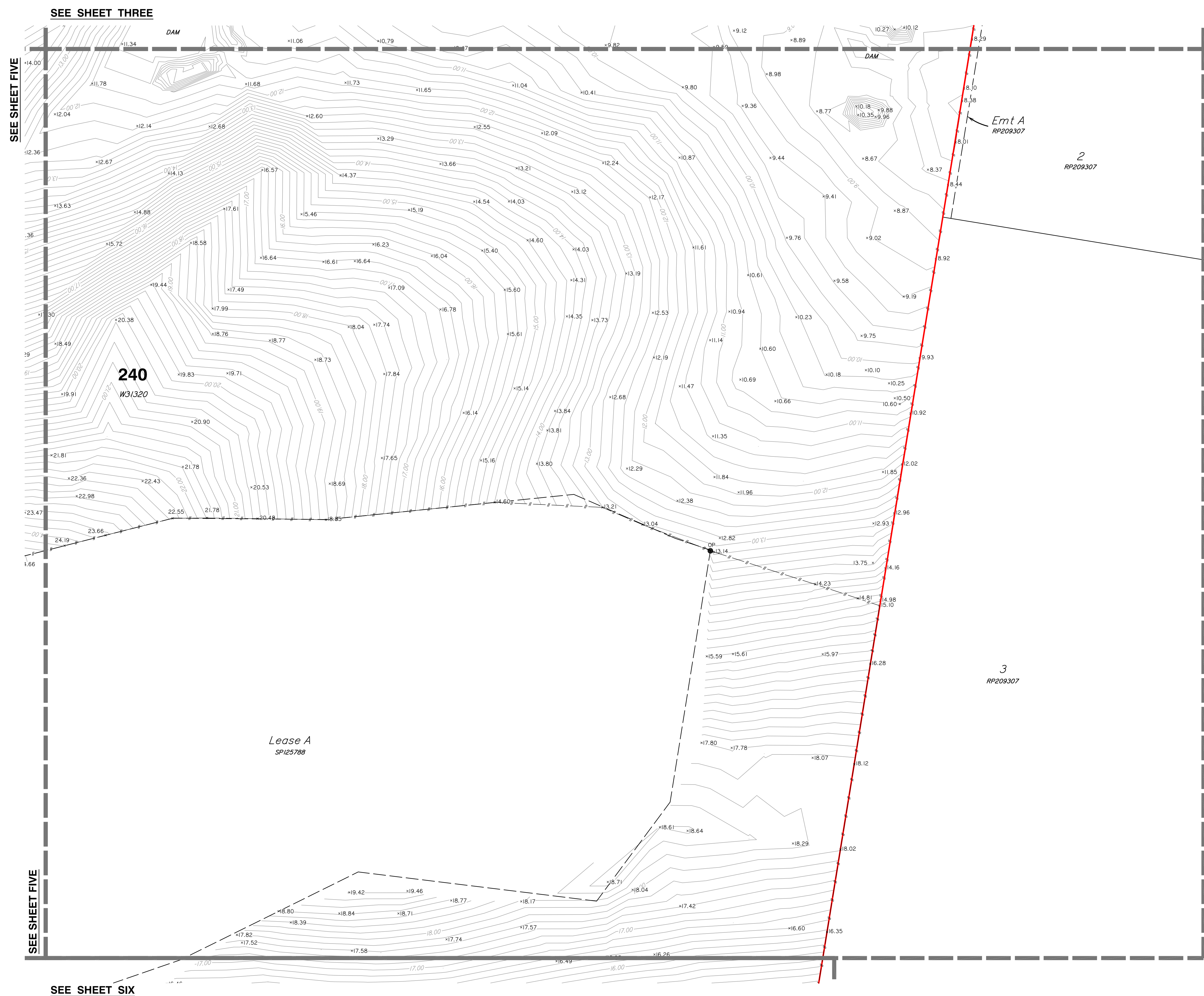


SEE SHEET TWO

SEE SHEET FOUR

Scale 1:1000 - Lengths are in Metres.





Scale 1:1000 - Lengths are in Metres.

0 10 20 30 40 50 60 70 80

- ### LEGEND
- PERMANENT MARK
 - SEWER MANHOLE
 - SEWER INSPECTION OUTLET
 - ELECTRICITY PILLAR
 - ELECTRICITY POLE
 - ELECTRICITY POLE WITH LIGHT
 - ELSTRA FIT
 - MANHOLE
 - STORMWATER MANHOLE
 - GULLY TRAP
 - WATER METER
 - FIRE HYDRANT
 - VALVE
 - GATE
 - BOLLARD
 - CONCRETE
 - 14-16 — EDGE OF BITUMEN
 - 11 — FENCE
 - — OVERHEAD ELECTRICITY
 - — UNDER DRAIN
 - — TAPPING WALL
 - — EDGE OF GARDEN
 - — CONTOUR LEVEL

Notes

This plan has been prepared for the exclusive use and purposes of the client as stated on this plan and should not be used by any other person or corporation and for any other purpose.

Property boundaries have not been defined by this survey and have been compiled from IS216853.

Only those underground features and services as shown on this plan have been located by this survey. Prior to any construction, demolition or excavation on the site, the relevant authority should be contacted for the location of any further underground services and detailed location of all services.

This plan may not be photocopied unless these notes are included.

Gassman Development Perspectives Pty. Ltd.
accepts no responsibility for any loss or damages
caused in contravention of the above.

Gassman Development Perspectives Pty. Ltd. hereby grants permission for the Local Authority to reproduce all relevant information contained herein for the purposes stated in the Sustainable Planning Act 2009. It should be noted that the granting of this consent by the copyright holder does not sign away copyright approval granted under the Commonwealth Copyright Act 1968.

Client

HESTER

Project

CONTOUR AND DETAIL PLAN

Over Lot 1 on RP6882 and Lot 240 on WD31320

Parish of **ALBERT**County of **Ward**

Local Govt **GOLD COAST CITY COUNCIL**

Level Datum	A.H.D.	Date Surveyed	Jan 2011
Meridian	1S218653	Surveyor	A. Macdonald
Contour Interval	0.2	Drawn	S. Holt
F.B.	No	Date Drafted	02-02-2011
Origin	FSM 133471	Checked	
	RL 22.169		
Scale (on AI original)		Designed	
1:1000		Drawn	
		Date Designed	



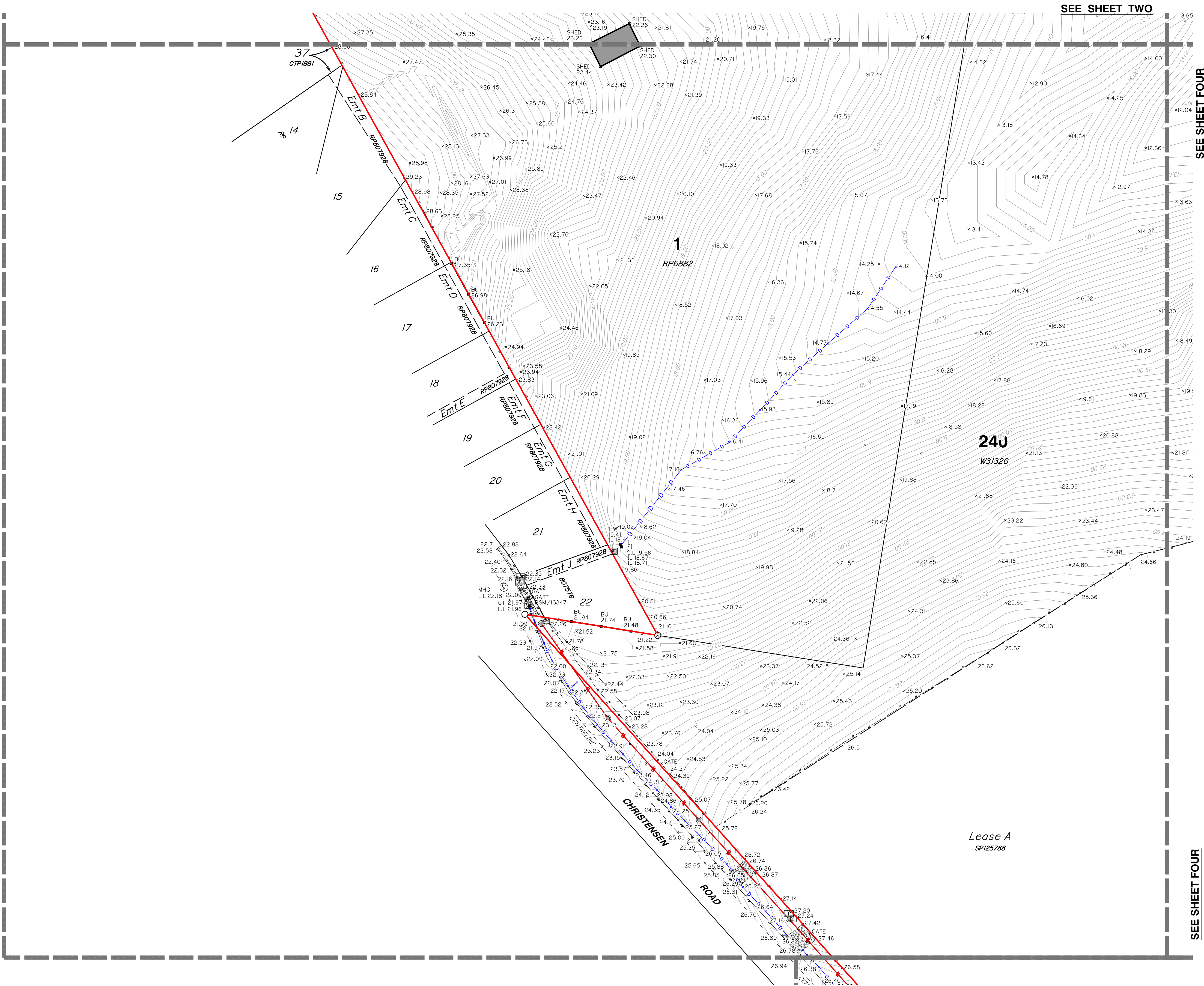
ACN 010 752 388
Brisbane Office
Level 13
97 Creek Street Brisbane Q. 4000
t: (07) 32216732
f: (07) 32217308

Gold Coast and Logan Office
Access Business Park
76 Business Street Yatala Q. 4207
t: (07) 38073333
f: (07) 32875461

e: mail@gassman.com.au
w: www.gassman.com.au

REFERENCE No. 5093-10

PLAN No. **5093 S CD 01**



- LEGEND**
- PERMANENT MARK
 - SEWER MANHOLE
 - SEWER INSPECTION OUTLET
 - ELECTRICITY PILLAR
 - ELECTRICITY POLE
 - ELECTRICITY POLE WITH LIGHT
 - TELSTRA PIT
 - MANHOLE
 - STORMWATER MANHOLE
 - GULLY TRAP
 - WATER METER
 - FIRE HYDRANT
 - VALVE
 - GATE
 - BOLLARD
 - CONCRETE
 - EDGE OF BITUMEN
 - FENCE
 - OVERHEAD ELECTRICITY
 - OPEN DRAIN
 - RETAINING WALL
 - EDGE OF GARDEN
 - CONTOUR LEVEL

Notes

This plan has been prepared for the exclusive use and purposes of the client as stated on this plan and should not be used by any other person or corporation and for any other purpose.

Property boundaries have not been defined by this survey and have been compiled from IS216853.

Only those underground features and services as shown on this plan have been located by this survey. Prior to any construction, demolition or excavation on the site, the relevant authority should be contacted for the location of any further underground services and detailed location of all services.

This plan may not be photocopied unless these notes are included.

Gassman Development Perspectives Pty. Ltd. accepts no responsibility for any loss or damages caused in contravention of the above.

Gassman Development Perspectives Pty. Ltd. hereby grants permission for the Local Authority to reproduce all relevant information contained herein for the purposes stated in the Sustainable Planning Act 2009. It should be noted that the granting of this consent by the copyright holder does not sign away copyright approval granted under the Commonwealth Copyright Act 1968.

Client

HESTER

Project

CONTOUR AND DETAIL PLAN

Over Lot 1 on RP6882 and Lot 240 on WD31320

Parish of **ALBERT**

County of **Ward**

Local Govt **GOLD COAST CITY COUNCIL**

Level Datum	A.H.D.	Date Surveyed	Jan 2011
Meridian	IS216853	Surveyor	A. Macdonald
Contour Interval	0.2	Drawn	S. Holt
F.B.	No	Date Drafted	02-02-2011
Origin	PSM 133471	Checked	
	RL 22.169		

Scale (on A1 original)	Designed
1:1000	Date Designed



ACN 010 752 388
Brisbane Office
Level 13
97 Creek Street Brisbane Q. 4000
t: (07) 32216732
f: (07) 32217308
Gold Coast and Logan Office
Access Business Park
76 Business Street Yatala Q. 4207
t: (07) 38073333
f: (07) 32975461
e: mail@gassman.com.au
w: www.gassman.com.au

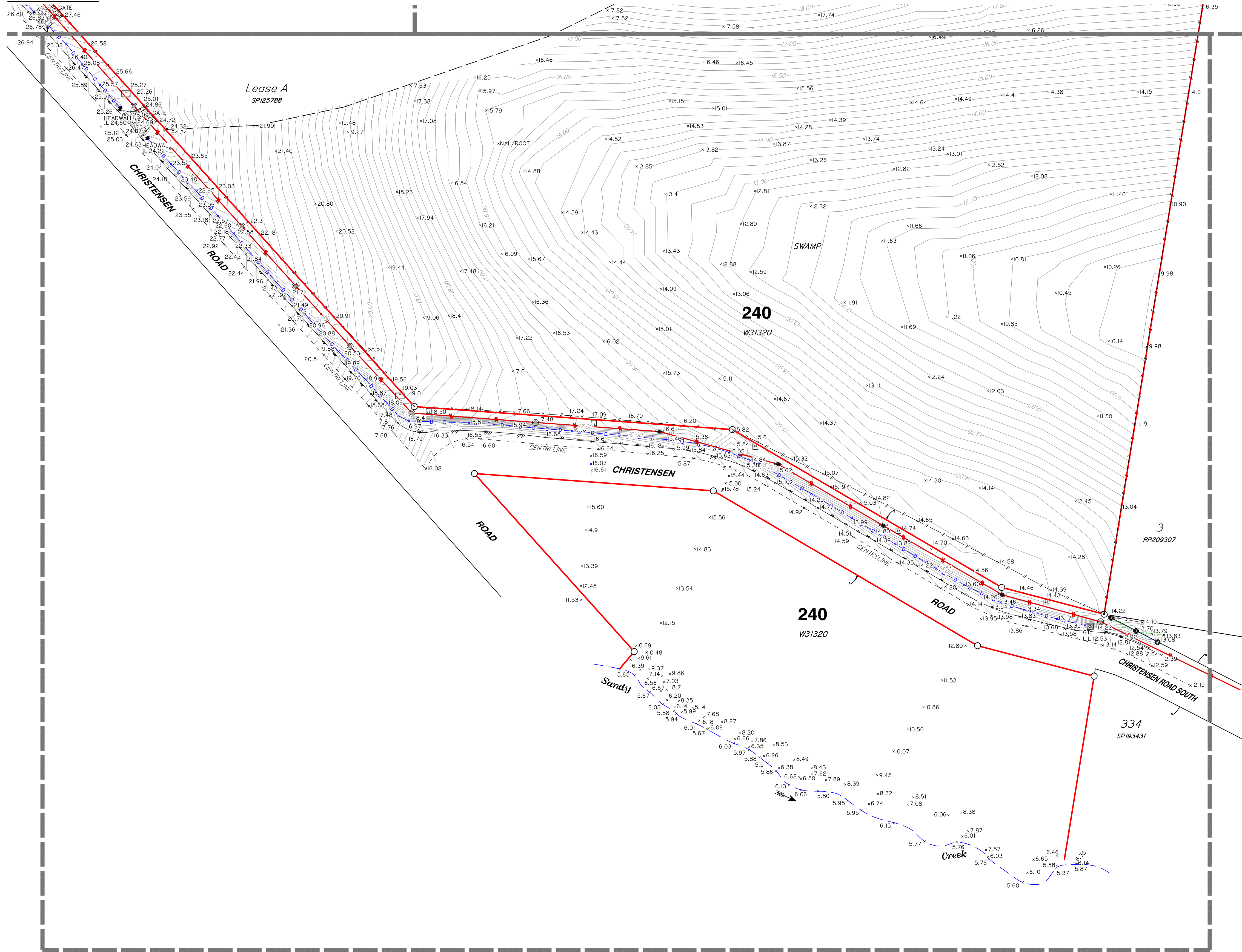
REFERENCE No. **5093-10**

PLAN No. **5093 S CD 01**



SEE SHEET FIVE

SEE SHEET FOUR



LEGEND

- PERMANENT MARK
- SEWER MANHOLE
- SEWER INSPECTION OUTLET
- ELECTRICITY PILLAR
- ELECTRICITY POLE
- ELECTRICITY POLE WITH LIGHT
- TELSTRA PIT
- MANHOLE
- STORMWATER MANHOLE
- GULLY TRAP
- WATER METER
- FIRE HYDRANT
- VALVE
- GATE
- BOLLARD
- CONCRETE
- EDGE OF BITUMEN
- FENCE
- OVERHEAD ELECTRICITY
- OPEN DRAIN
- RETAINING WALL
- EDGE OF GARDEN
- CONTOUR LEVEL

Notes

This plan has been prepared for the exclusive use and purposes of the client as stated on this plan and should not be used by any other person or corporation and for any other purpose.

Property boundaries have not been defined by this survey and have been compiled from IS216853.

Only those underground features and services as shown on this plan have been located by this survey. Prior to any construction, demolition or excavation on the site, the relevant authority should be contacted for the location of any further underground services and detailed location of all services.

This plan may not be photocopied unless these notes are included.

Gassman Development Perspectives Pty. Ltd. accepts no responsibility for any loss or damages caused in contravention of the above.

Gassman Development Perspectives Pty. Ltd. hereby grants permission for the Local Authority to reproduce all relevant information contained herein for the purposes stated in the Sustainable Planning Act 2009. It should be noted that the granting of this consent by the copyright holder does not sign away copyright approval granted under the Commonwealth Copyright Act 1968.

Client

HESTER

Project

CONTOUR AND DETAIL PLAN

Over Lot 1 on RP6882 and Lot 240 on WD31320

Parish of **ALBERT**

County of **Ward**

Local Govt **GOLD COAST CITY COUNCIL**

Level Datum	A.H.D.	Date Surveyed	Jan 2011
Meridian	IS216853	Surveyor	A. Macdonald
Contour Interval	0.2	Drawn	S. Holt
F.B.	No	Date Drafted	02-02-2011
Origin	PSM 133471	Checked	
	RL 22.169		

Scale (on A1 original)	Designed
1:1000	Date Designed



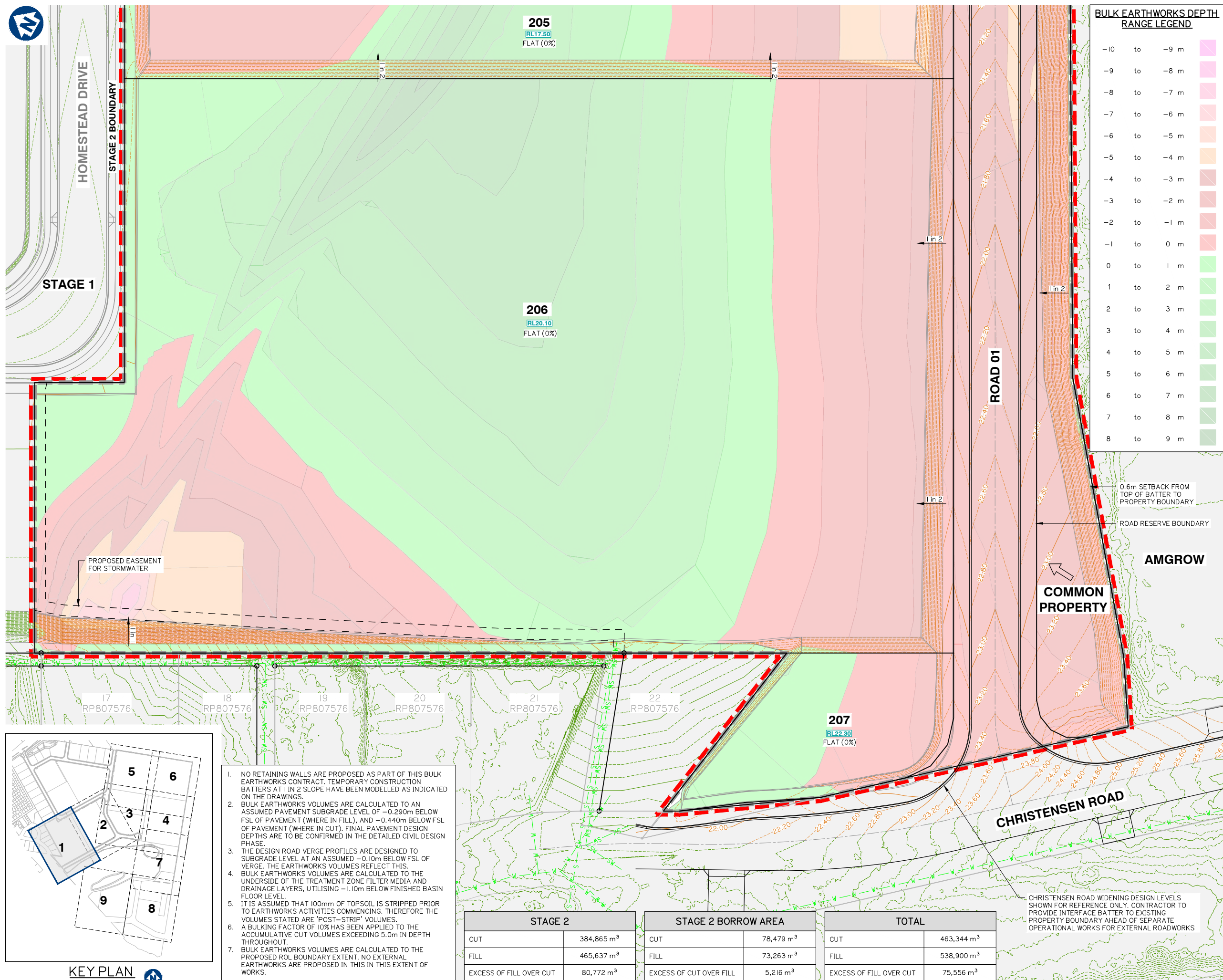
ACN 010 752 388
Brisbane Office
Level 13
97 Creek Street Brisbane Q. 4000
t: (07) 32216732
f: (07) 32217308
Gold Coast and Logan Office
Access Business Park
76 Business Street Yatala Q. 4207
t: (07) 38073333
f: (07) 32975461
e: mail@gassman.com.au
w: www.gassman.com.au

REFERENCE No. **5093-10**

PLAN No. **5093 S CD 01**

Scale 1:1000 - Lengths are in Metres.
0 10 20 30 40 50 60 70 80

Appendix C – Bulk Earthworks Strategy



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project: **VantageYatala**
STAGE 2

Site Address:
60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot:	501
Plan:	SP295994
Local Authority:	CITY OF GOLD COAST COUNCIL
Level Datum:	AHD
Meridian:	-
Contour Interval:	-
PSM:	-
RI:	-

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

©2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

BULK EARTHWORKS
LAYOUT PLAN SHEET 1 OF 9

A	20-11-2020			
ISSUE	Date	ORIGINAL ISSUE	BA	M/CH
		Description	DEN	

SCALE IN METRES



1:500 (FULL SIZE A1)
1:1000 (HALF SIZE A3)

Scale at A1: 1:500

Designed:	IG
-----------	----

Drafted:	BA
----------	----

Approved:	MG
-----------	----

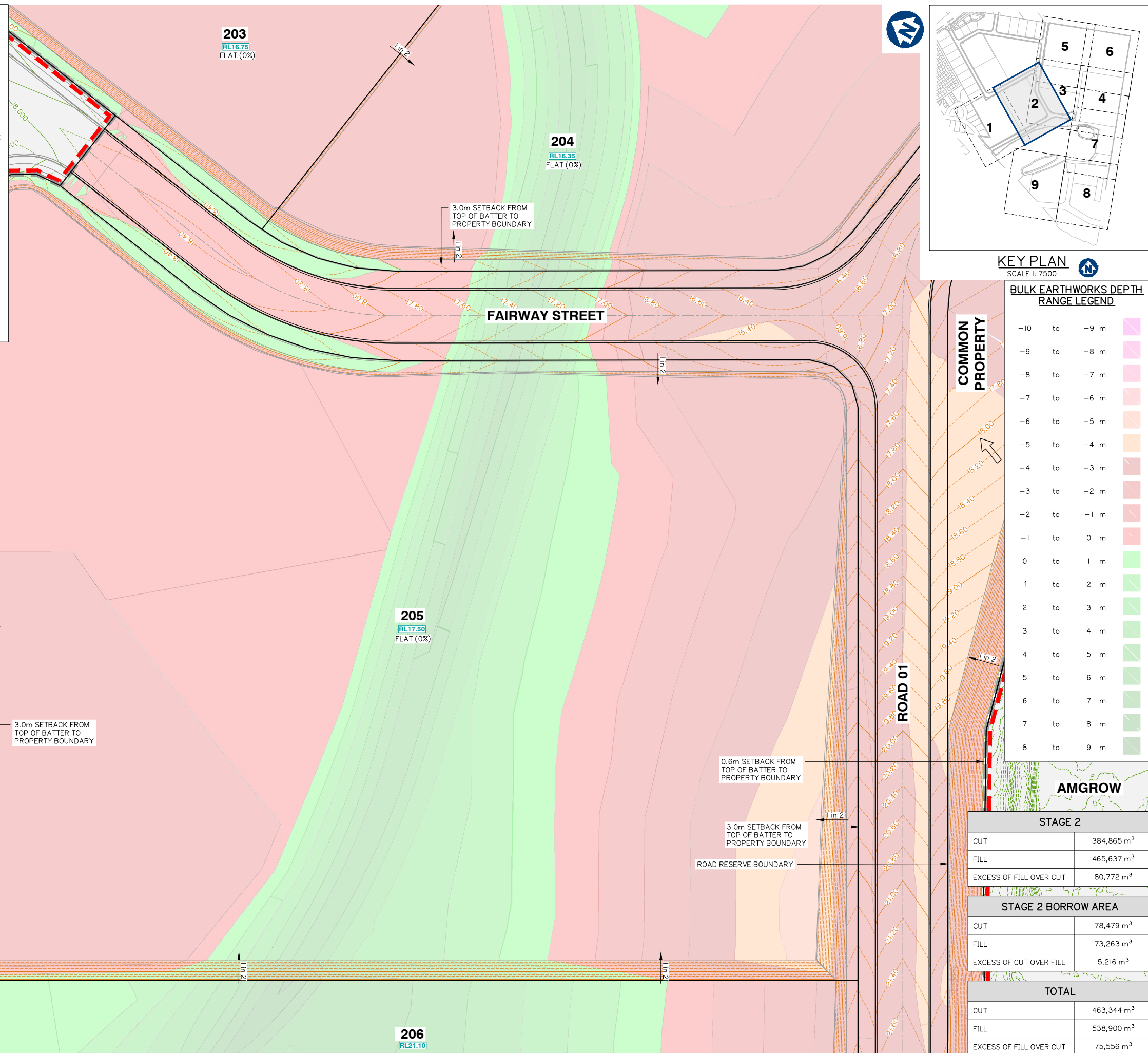
RPEQ:	16939
-------	-------

Signed:	
---------	---

Date:	20-11-2020
-------	------------

Drawing No:
5941 ENG BE2 050

Rev. No:
A

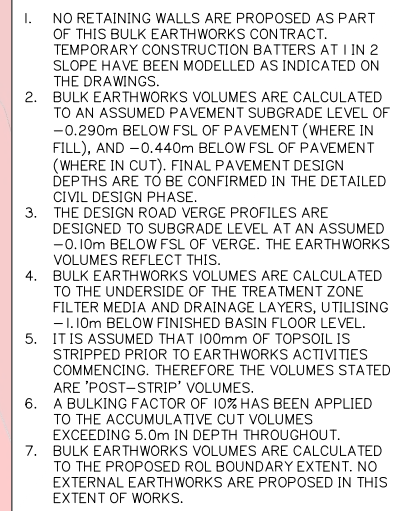




STAGE 2	
CUT	384,865 m ³
FILL	465,637 m ³
EXCESS OF FILL OVER CUT	80,772 m ³

STAGE 2 BORROW AREA	
CUT	78,479 m ³
FILL	73,263 m ³
EXCESS OF CUT OVER FILL	5,216 m ³

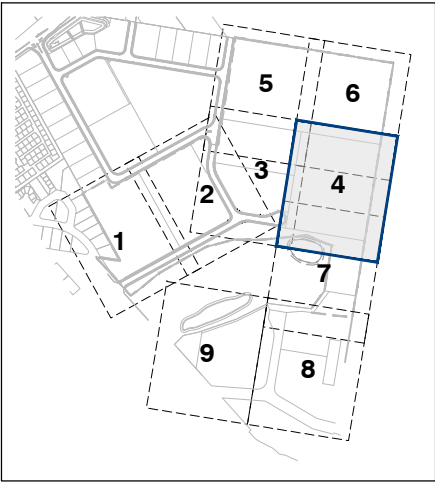
TOTAL	
CUT	463,344 m ³
FILL	538,900 m ³
EXCESS OF FILL OVER CUT	75,556 m ³



BULK EARTHWORKS
LAYOUT PLAN SHEET 3 OF 9

A	20-11-2020		ORIGINAL ISSUE					BA	MG
Iss. at	Date		Description					CEN	Chk

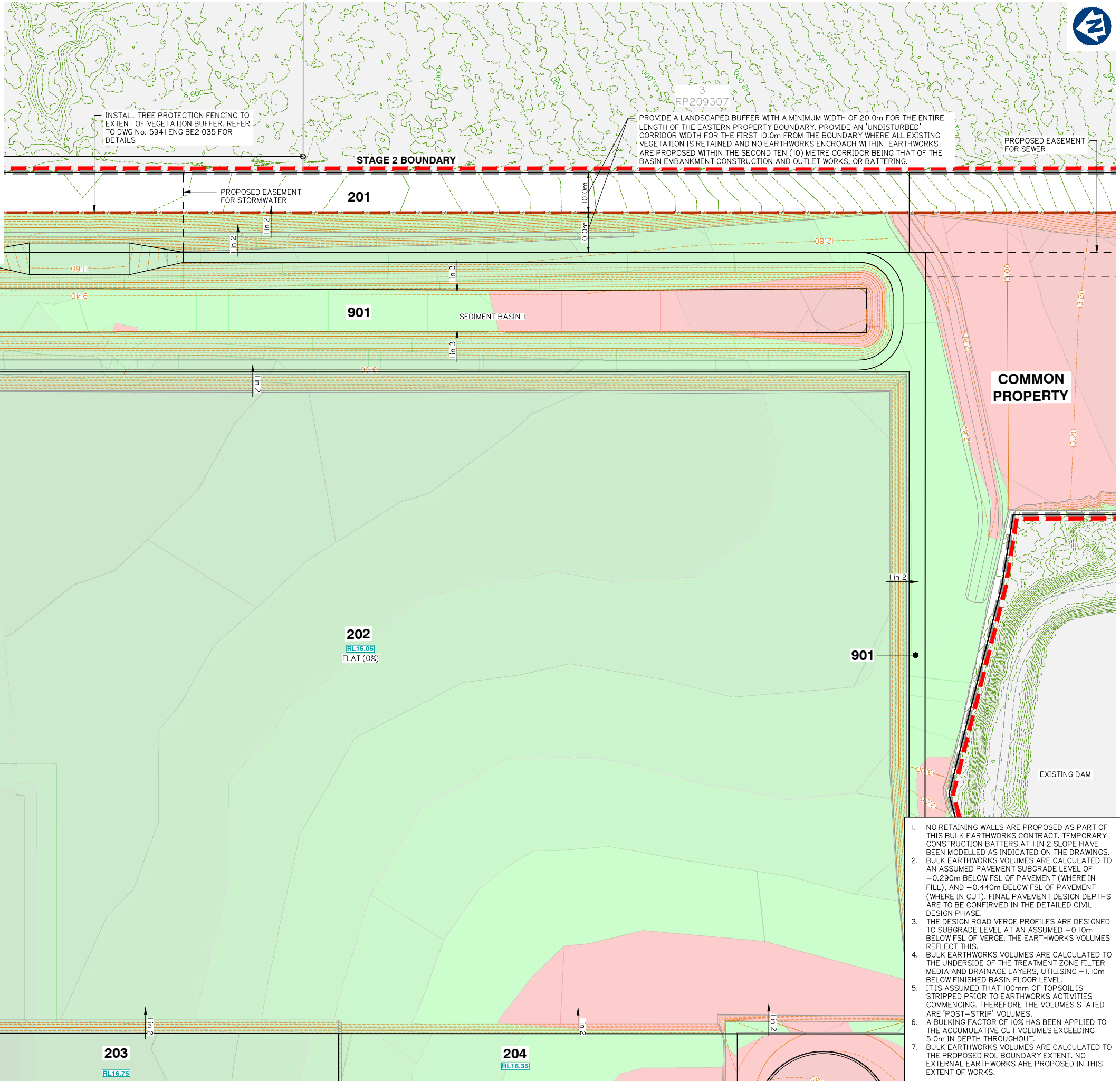
Drawing No:	Rev. No:
5941 ENG BE2 052	A



KEY PLAN
SCALE 1: 7500

BULK EARTHWORKS DEPTH RANGE LEGEND		
-10	to	-9 m
-9	to	-8 m
-8	to	-7 m
-7	to	-6 m
-6	to	-5 m
-5	to	-4 m
-4	to	-3 m
-3	to	-2 m
-2	to	-1 m
-1	to	0 m
0	to	1 m
1	to	2 m
2	to	3 m
3	to	4 m
4	to	5 m
5	to	6 m
6	to	7 m
7	to	8 m
8	to	9 m

STAGE 2	
CUT	384,865 m ³
FILL	465,637 m ³
EXCESS OF FILL OVER CUT	80,772 m ³
STAGE 2 BORROW AREA	
CUT	78,479 m ³
FILL	73,263 m ³
EXCESS OF CUT OVER FILL	5,216 m ³
TOTAL	
CUT	463,344 m ³
FILL	538,900 m ³
EXCESS OF FILL OVER CUT	75,556 m ³



FOR CONTINUATION REFER SHEET No. 5941 ENG BE2 052

Client:



Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

BULK EARTHWORKS
LAYOUT PLAN SHEET 4 OF 9

Issue	Date	Description	BA	MG	CHK
A	20-11-2020	ORIGINAL ISSUE	BA	MG	

SCALE IN METRES



1:500 (FULL SIZE A1)
1:1000 (HALF SIZE A3)

Scale at A1: 1:500

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No: 5941 ENG BE2 053
Rev. No: A

FOR CONTINUATION REFER SHEET No. 5941 ENG BE2 055

FOR CONTINUATION REFER SHEET No. 5941 ENG BE2 056



**FRASERS
PROPERTY**

FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

RPD:	
Lot:	501
Plan:	SP295994
Local Authority:	CITY OF GOLD COAST COUNCIL
Level Datum:	AHD
Meridian:	-
Contour Interval:	-
PSM:	-
RL:	-

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

[illegible]

A	20-11-2020	ORIGINAL ISSUE	BA	MG
Issue	Date	Description	DRN	CHK

0 10 20 30 40 50

1:500 (FULL SIZE A1)

1:1000 (HALF SIZE A3)

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:	Rev. No:
5941 ENG BE2 054	A



1. NO RETAINING WALLS ARE PROPOSED AS PART OF THIS BULK EARTHWORKS CONTRACT. TEMPORARY CONSTRUCTION BATTERS AT 1 IN 2 SLOPE HAVE BEEN MODELLED AS INDICATED ON THE DRAWINGS.
2. BULK EARTHWORKS VOLUMES ARE CALCULATED TO AN ASSUMED PAVEMENT SURGRADE LEVEL OF -0.290m BELOW FSL OF PAVEMENT (WHERE IN FILL), AND -0.440m BELOW FSL OF PAVEMENT (WHERE IN CUT). FINAL PAVEMENT DESIGN DEPTHS ARE TO BE CONFIRMED IN THE DETAILED CIVIL DESIGN PHASE.
3. THE DESIGN ROAD VERGE PROFILES ARE DESIGNED TO SURGRADE LEVEL AT AN ASSUMED -0.10m BELOW FSL OF VERGE. THE EARTHWORKS VOLUMES REFLECT THIS.
4. BULK EARTHWORKS VOLUMES ARE CALCULATED TO THE UNDERSIDE OF THE TREATMENT ZONE FILTER MEDIA AND DRAINAGE LAYERS, UTILISING -1.0m BELOW FINISHED BASIN FLOOR LEVEL.
5. IT IS ASSUMED THAT 100mm OF TOPSOIL IS STRIPPED PRIOR TO EARTHWORKS ACTIVITIES COMMENCING. THEREFORE THE VOLUMES STATED ARE 'POST-STRIP' VOLUMES.
6. A BULKING FACTOR OF 10% HAS BEEN APPLIED TO THE ACCUMULATIVE CUT VOLUMES EXCEEDING 5.0m IN DEPTH THROUGHOUT.
7. BULK EARTHWORKS VOLUMES ARE CALCULATED TO THE PROPOSED ROL BOUNDARY EXTENT. NO EXTERNAL EARTHWORKS ARE PROPOSED IN THIS EXTENT OF WORKS.

BULK EARTHWORKS DEPTH RANGE LEGEND			
-10	to	-9 m	
-9	to	-8 m	
-8	to	-7 m	
-7	to	-6 m	
-6	to	-5 m	
-5	to	-4 m	
-4	to	-3 m	
-3	to	-2 m	
-2	to	-1 m	
-1	to	0 m	
0	to	1 m	
1	to	2 m	
2	to	3 m	
3	to	4 m	
4	to	5 m	
5	to	6 m	
6	to	7 m	
7	to	8 m	
8	to	9 m	

STAGE 2	
CUT	384,865 m ³
FILL	465,637 m ³
EXCESS OF FILL OVER CUT	80,772 m ³

STAGE 2 BORROW AREA	
CUT	78,479 m ³
FILL	73,263 m ³
EXCESS OF CUT OVER FILL	5,216 m ³

TOTAL	
CUT	463,344 m ³
FILL	538,900 m ³
EXCESS OF FILL OVER CUT	75,556 m ³



STAGE 2	
CUT	384,865 m ³
FILL	465,637 m ³
EXCESS OF FILL OVER CUT	80,772 m ³
STAGE 2 BORROW AREA	
CUT	78,479 m ³
FILL	73,263 m ³
EXCESS OF CUT OVER FILL	5,216 m ³
TOTAL	
CUT	463,344 m ³
FILL	538,900 m ³
EXCESS OF FILL OVER CUT	75,556 m ³



Client:



Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot:	501
Plan:	SP295994
Local Authority:	CITY OF GOLD COAST COUNCIL
Level Datum:	AHD
Meridian:	-
Contour Interval:	-
PSM:	-
RL:	-

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

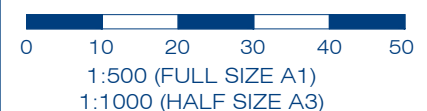
ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

BULK EARTHWORKS
LAYOUT PLAN SHEET 7 OF 9

A	20-11-2020			ORIGINAL ISSUE				BA	MG
Issue no.				Description				PEN	Cash

SCALE IN METRES



Scale at A1:	1:500
--------------	-------

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:	Rev. No:
5941 ENG BE2 056	A

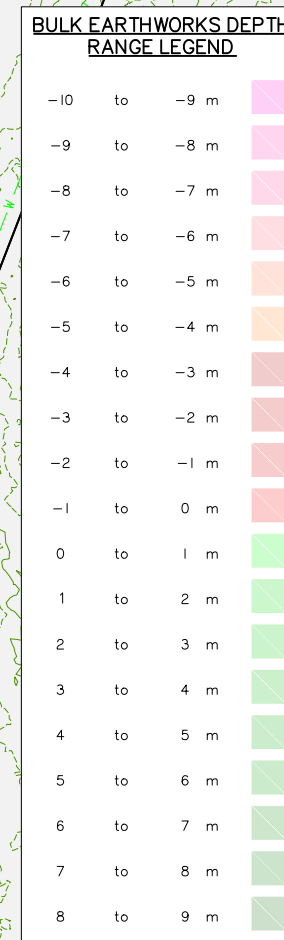
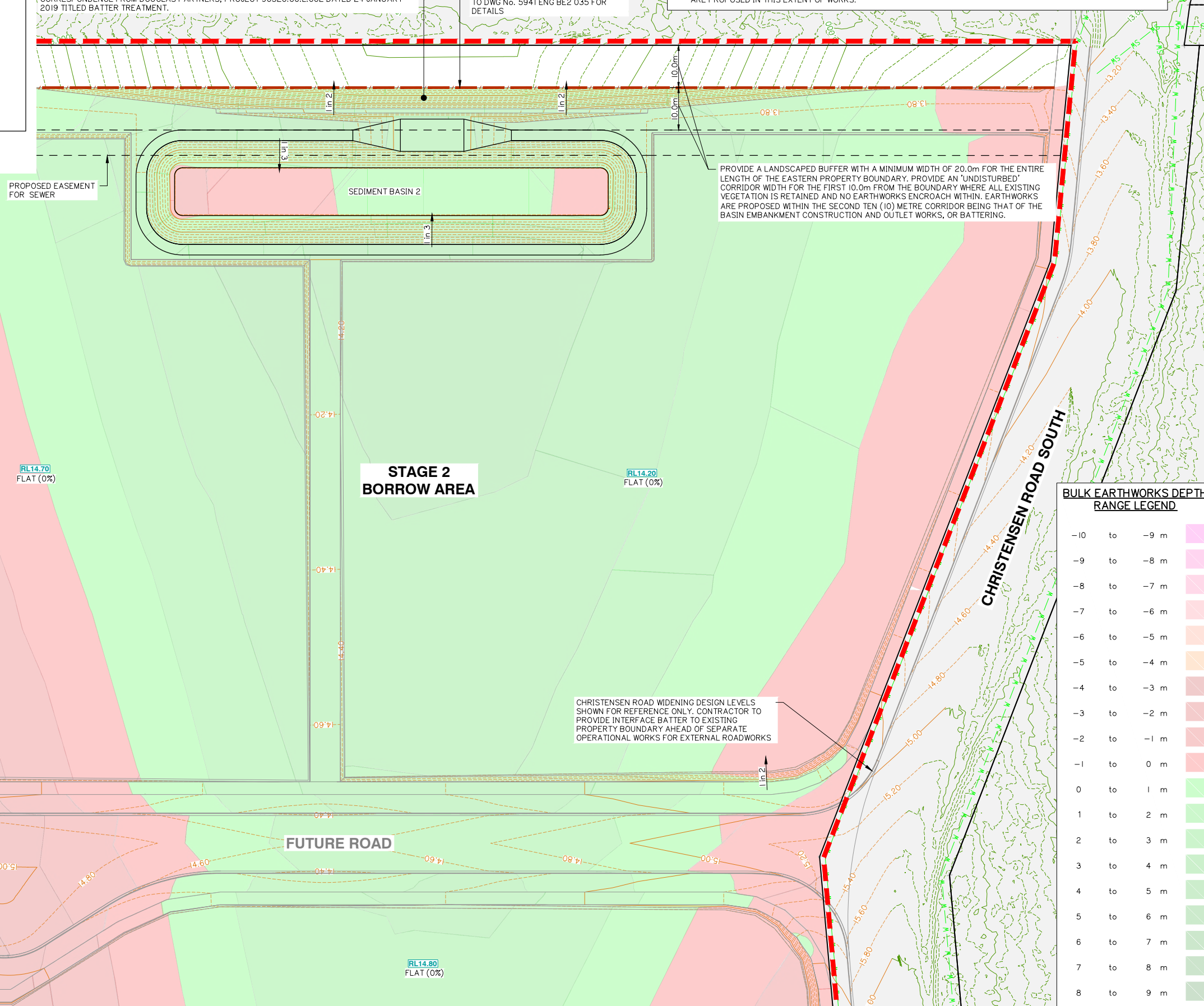


TOTAL	
CUT	463,344 m ³
FILL	538,900 m ³
EXCESS OF FILL OVER CUT	75,556 m ³

1. NO RETAINING WALLS ARE PROPOSED AS PART OF THIS BULK EARTHWORKS CONTRACT. TEMPORARY CONSTRUCTION BATTERS AT 1 IN 2 SLOPE HAVE BEEN MODELLED AS INDICATED ON THE DRAWINGS.
2. BULK EARTHWORKS VOLUMES ARE CALCULATED TO AN ASSUMED PAVEMENT SUBGRADE LEVEL OF -0.290m BELOW FSL OF PAVEMENT (WHERE IN FILL), AND -0.440m BELOW FSL OF PAVEMENT (WHERE IN CUT). FINAL PAVEMENT DESIGN DEPTHS ARE TO BE CONFIRMED IN THE DETAILED CIVIL DESIGN PHASE.
3. THE DESIGN ROAD VERGE PROFILES ARE DESIGNED TO SUBGRADE LEVEL AT AN ASSUMED -0.10m BELOW FSL OF VERGE. THE EARTHWORKS VOLUMES REFLECT THIS.
4. BULK EARTHWORKS VOLUMES ARE CALCULATED TO THE UNDERSIDE OF THE TREATMENT ZONE FILTER MEDIA AND DRAINAGE LAYERS, UTILISING -1.0m BELOW FINISHED BASIN FLOOR LEVEL.
5. IT IS ASSUMED THAT 100mm OF TOPSOIL IS STRIPPED PRIOR TO EARTHWORKS ACTIVITIES COMMENCING. THEREFORE THE VOLUMES STATED ARE 'POST-STRIP' VOLUMES.
6. A DRAINAGE FACTOR OF 10% HAS BEEN APPLIED TO THE ACCUMULATIVE CUT VOLUMES EXCEEDING 5.0m IN DEPTH THROUGHOUT.
7. BULK EARTHWORKS VOLUMES ARE CALCULATED TO THE PROPOSED ROL BOUNDARY EXTENT. NO EXTERNAL EARTHWORKS ARE PROPOSED IN THIS EXTENT OF WORKS.

ALL BATTERS PROPOSED WITHIN THE 20.0m WIDE BUFFER AREA TO THE EASTERN BOUNDARY OF THE EXISTING GULFVIEW ESTATE WHERE THE BATTER WOULD BE OVER FILL AND IV IN 2H CUT BATTER WITHIN CUT IV IN 2H CUT BATTER SHALL BE OVER FILL, GRAVED, MICRO-BENCHED AND INCORPORATE A MINIMUM OF 400mm DEEP IMPROVED SOIL. REFER CORRESPONDENCE FROM DOUGLAS PARTNERS, PROJECT 90520.00.L002 DATED 24 JANUARY 2019 TITLED BATTER TREATMENT.

INSTALL TREE PROTECTION FENCING TO
EXTENT OF VEGETATION BUFFER. REFER
TO DWG No. 5941 ENG BE2 035 FOR
DETAILS



planning | environment | landscape | engineering | survey
T: 3807 3333 | F: 3287 5461 | www.gassman.com.au
Gold Coast & Logan | 76 Business Street, Yatala QLD | PO Box 392, Beenleigh 4207

Client:

FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala

STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot:	501
Plan:	SP295994
Local Authority:	CITY OF GOLD COAST COUNCIL
Level Datum:	AHD
Meridian:	-
Contour Interval:	-
PSM:	-
RL:	-

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

©2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

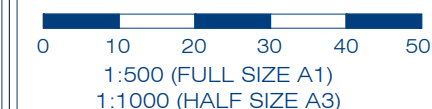
ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

BULK EARTHWORKS
LAYOUT PLAN SHEET 8 OF 9

A Issue	20-11-2020 Date		ORIGINAL ISSUE Description	BA IBN	MU CH

SCALE IN METRES

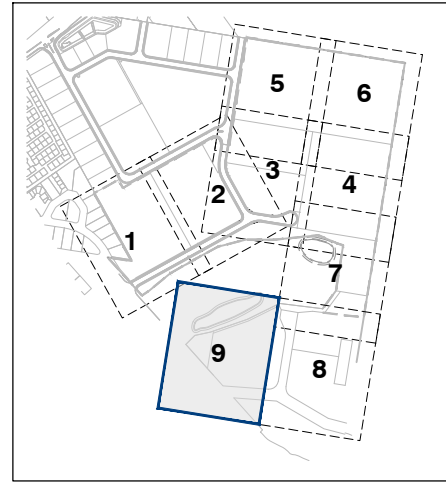


Scale at A1: 1:500

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG BE2 057

Rev. No:
A



KEY PLAN SCALE 1: 7500 	
STAGE 2	
CUT	384,865 m ³
FILL	465,637 m ³
EXCESS OF FILL OVER CUT	80,772 m ³

STAGE 2 BORROW AREA	
CUT	78,479 m ³
FILL	73,263 m ³
EXCESS OF CUT OVER FILL	5,216 m ³

TOTAL	
CUT	463,344 m ³
FILL	538,900 m ³
EXCESS OF FILL OVER CUT	75,556 m ³

BULK EARTHWORKS DEPTH RANGE LEGEND			
-10	to	-9 m	
-9	to	-8 m	
-8	to	-7 m	
-7	to	-6 m	
-6	to	-5 m	
-5	to	-4 m	
-4	to	-3 m	
-3	to	-2 m	
-2	to	-1 m	
-1	to	0 m	
0	to	1 m	
1	to	2 m	
2	to	3 m	
3	to	4 m	
4	to	5 m	
5	to	6 m	
6	to	7 m	
7	to	8 m	
8	to	9 m	

1. NO RETAINING WALLS ARE PROPOSED AS PART OF THIS BULK EARTHWORKS CONTRACT. TEMPORARY CONSTRUCTION BATTERS AT 1 IN 2 SLOPE HAVE BEEN MODELLED AS INDICATED ON THE DRAWINGS.
2. BULK EARTHWORKS VOLUMES ARE CALCULATED TO AN ASSUMED PAVEMENT SUBGRADE LEVEL OF -0.290m BELOW FSL OF PAVEMENT (WHERE IN FILL), AND -0.440m BELOW FSL OF PAVEMENT (WHERE IN CUT). FINAL PAVEMENT DESIGN DEPTHS ARE TO BE CONFIRMED IN THE DETAILED CIVIL DESIGN PHASE.
3. THE DESIGN ROAD VERGE PROFILES ARE DESIGNED TO SUBGRADE LEVEL AT AN ASSUMED -0.10m BELOW FSL OF VERGE. THE EARTHWORKS VOLUMES REFLECT THIS.
4. BULK EARTHWORKS VOLUMES ARE CALCULATED TO THE UNDERSIDE OF THE TREATMENT ZONE FILTER MEDIA AND DRAINAGE LAYERS, UTILISING -1.10m BELOW FINISHED BASIN FLOOR LEVEL.
5. IT IS ASSUMED THAT 100mm OF TOPSOIL IS STRIPPED PRIOR TO EARTHWORKS ACTIVITIES COMMENCING. THEREFORE THE VOLUMES STATED ARE 'POST-STRIP' VOLUMES.
6. A BULKING FACTOR OF 10% HAS BEEN APPLIED TO THE ACCUMULATIVE CUT VOLUMES EXCEEDING 5.0m IN DEPTH THROUGHOUT.
7. BULK EARTHWORKS VOLUMES ARE CALCULATED TO THE PROPOSED ROL BOUNDARY EXTENT. NO EXTERNAL EARTHWORKS ARE PROPOSED IN THIS EXTENT OF WORKS.

CHRISTENSEN ROAD WIDENING DESIGN LEVELS SHOWN FOR
REFERENCE ONLY. CONTRACTOR TO PROVIDE INTERFACE
BATTER TO EXISTING PROPERTY BOUNDARY AHEAD OF
SEPARATE OPERATIONAL WORKS FOR EXTERNAL ROADWORKS

EXISTING DAM

AMGROW

500
RP295994

Client:



Project:

VantageYatala

STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

©2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

BULK EARTHWORKS
LAYOUT PLAN SHEET 9 OF 9

A	20-11-2020	ORIGINAL ISSUE	BA	MG
Issue	Date	Description	DRN	CHK

SCALE IN METRES



Scale at A1:	1:500
Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:	Rev. No:
5941 ENG BE2 058	A

Appendix D – External Intersection Layout Plan

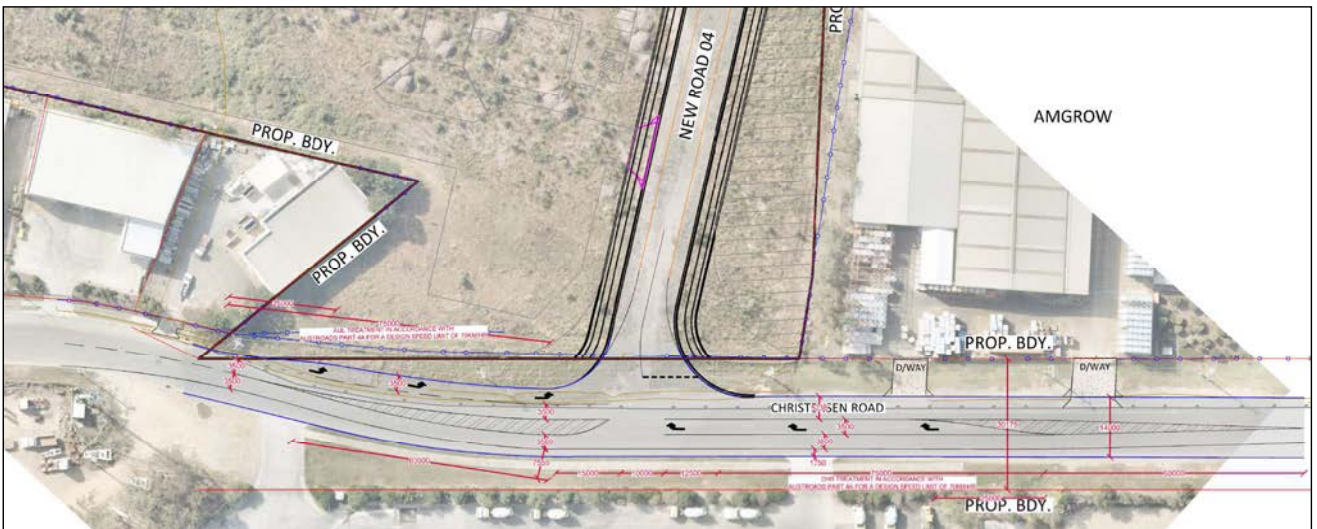
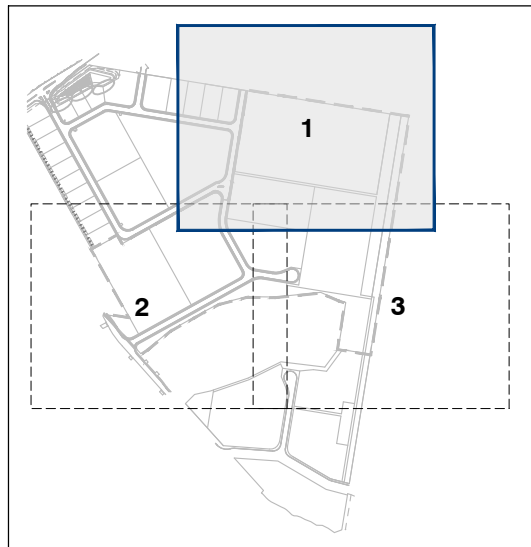
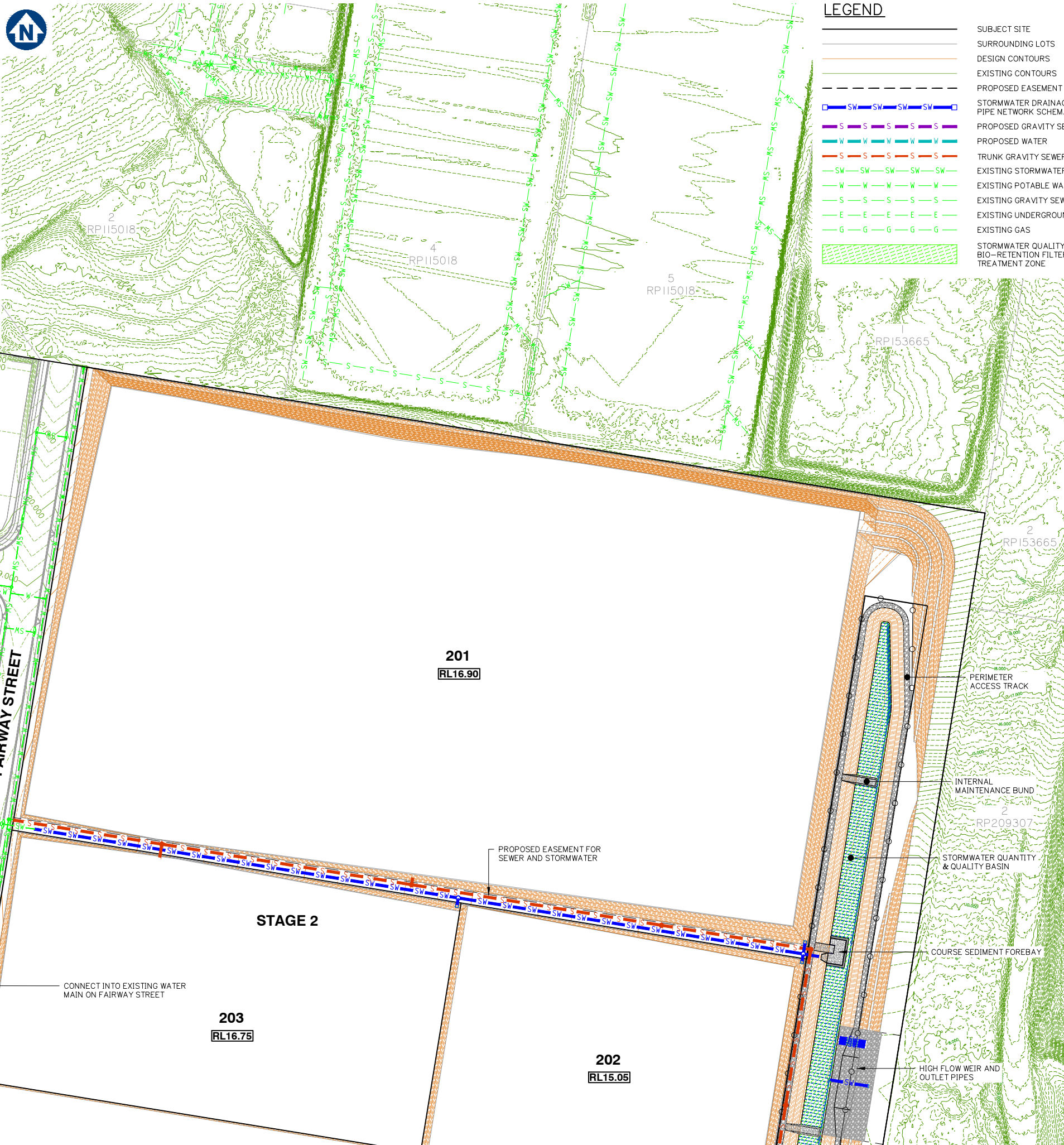


FIGURE 5.1 – CONCEPT DESIGN OF THE PROPOSED SITE ACCESS / CHRISTENSEN ROAD INTERSECTION

Appendix E – Civil Servicing Strategy Plan



KEY PLAN
SCALE 1:10000



FOR CONTINUATION REFER SHEET 5941 ENG SP 002

FOR CONTINUATION REFER SHEET 5941 ENG SP 003

STAGE 2 – ENGINEERING SERVICING STRATEGY PLAN SHEET 1 OF 3



planning | environment | landscape | engineering | survey
T: 3807 3333 | F: 3287 5461 | www.gassman.com.au
Gold Coast & Logan | 76 Business Street, Yatala QLD | PO Box 392, Beerleigh 4207

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

©2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
STAGE 2 - ENGINEERING
SERVICING STRATEGY PLAN
SHEET 1 OF 3

Issue	Date	Description	BA	MG
A	20-11-2020	ORIGINAL ISSUE	BA	MG

SCALE IN METRES



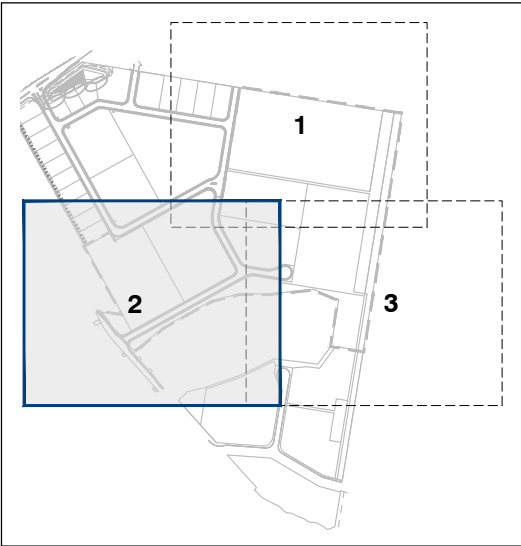
1:1000 (FULL SIZE A1)
1:2000 (HALF SIZE A3)

Scale at A1: 1:1000

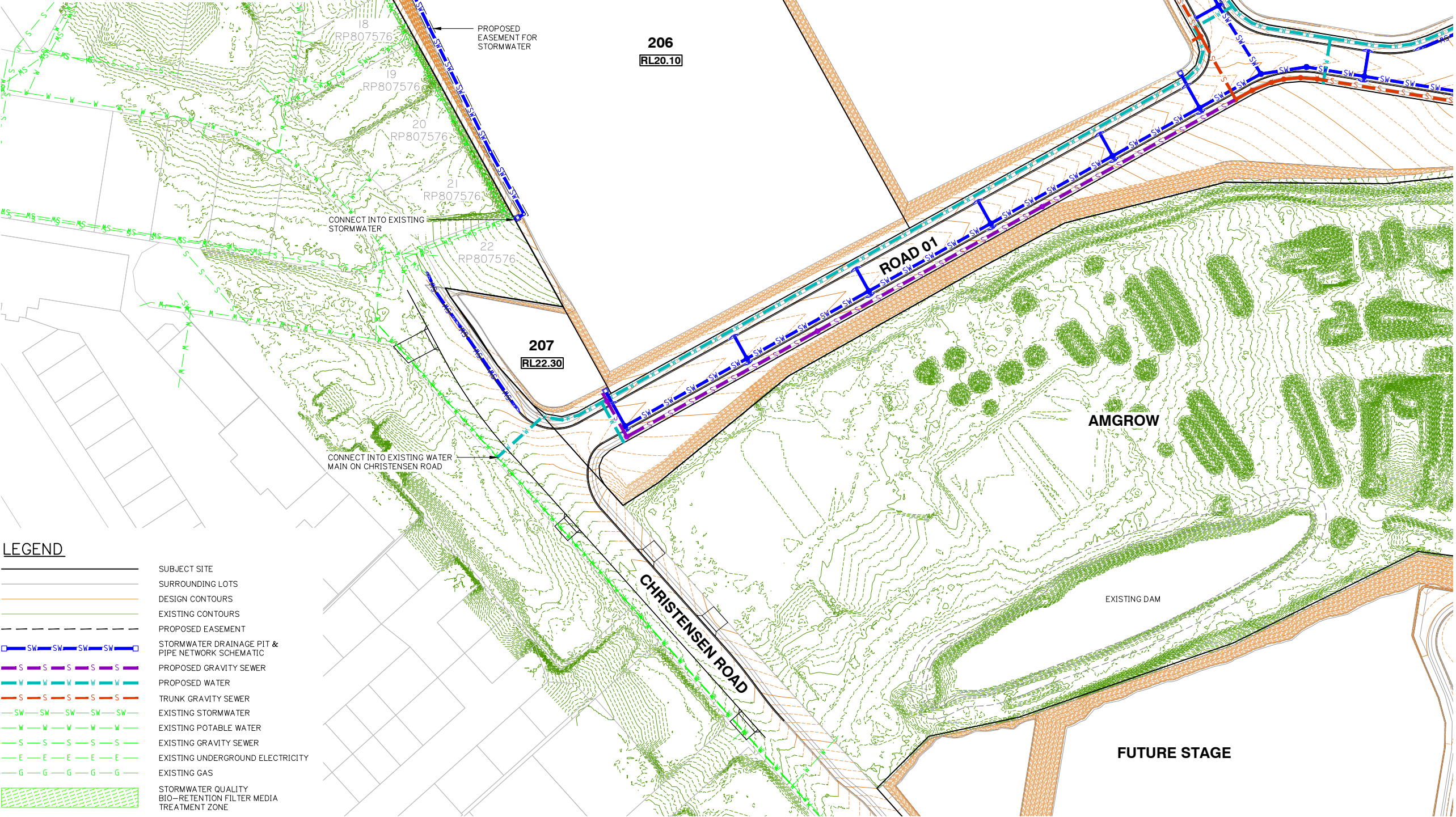
Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG SP 001

Rev. No:
A



KEY PLAN
SCALE 1:10000



FOR CONTINUATION REFER SHEET 5941 ENG SP 003

LEGEND

- SUBJECT SITE
- SURROUNDING LOTS
- DESIGN CONTOURS
- EXISTING CONTOURS
- PROPOSED EASEMENT
- STORMWATER DRAINAGE PIT & PIPE NETWORK SCHEMATIC
- PROPOSED GRAVITY SEWER
- PROPOSED WATER
- TRUNK GRAVITY SEWER
- EXISTING STORMWATER
- EXISTING POTABLE WATER
- EXISTING GRAVITY SEWER
- EXISTING UNDERGROUND ELECTRICITY
- EXISTING GAS
- STORMWATER QUALITY BIO-RETENTION FILTER MEDIA TREATMENT ZONE

Client:



Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

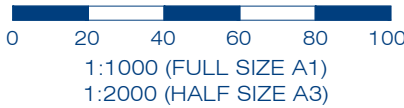
© 2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
STAGE 2 - ENGINEERING
SERVICING STRATEGY PLAN
SHEET 2 OF 3

A		ORIGINAL ISSUE		BA		MG	
Issue	Date	Description		DRN	CHK		
1	20-11-2020						

SCALE IN METRES



Scale at A1: 1:1000

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No:
5941 ENG SP 002

Rev. No:
A



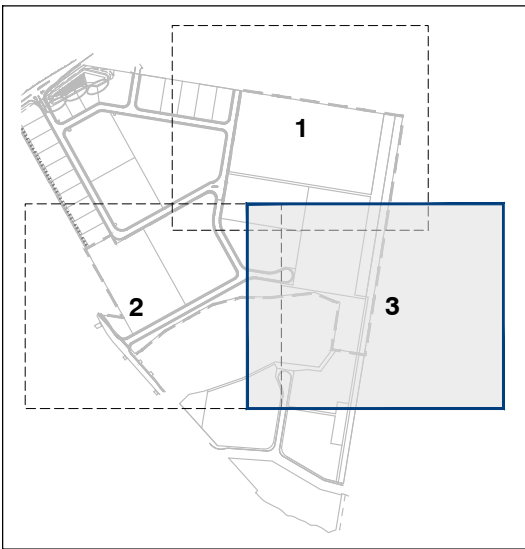
203
RL16.75

204
RL16.35

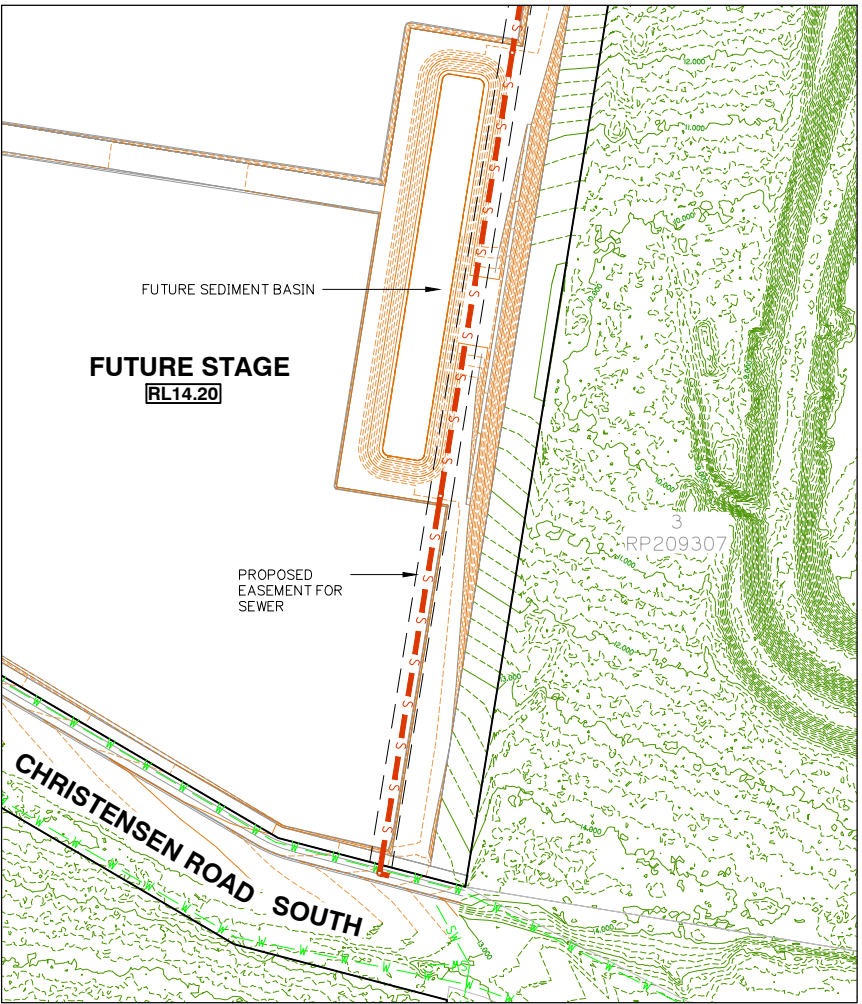
202
RL15.05

LEGEND

- SUBJECT SITE
- SURROUNDING LOTS
- DESIGN CONTOURS
- EXISTING CONTOURS
- PROPOSED EASEMENT
- STORMWATER DRAINAGE PIT & PIPE NETWORK SCHEMATIC
- PROPOSED GRAVITY SEWER
- PROPOSED WATER
- TRUNK GRAVITY SEWER
- EXISTING STORMWATER
- EXISTING POTABLE WATER
- EXISTING GRAVITY SEWER
- EXISTING UNDERGROUND ELECTRICITY
- EXISTING GAS
- STORMWATER QUALITY BIO-RETENTION FILTER MEDIA TREATMENT ZONE



KEY PLAN
SCALE 1:10000



INSET

Client:



Project:

VantageYatala
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

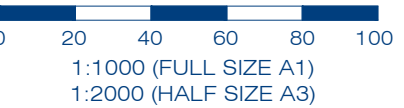
©2012 Gassman Development Perspectives
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
STAGE 2 - ENGINEERING
SERVICING STRATEGY PLAN
SHEET 3 OF 3

Issue	Date	Original Issue Description	BA DRN	MG CHK
A	20-11-2020			

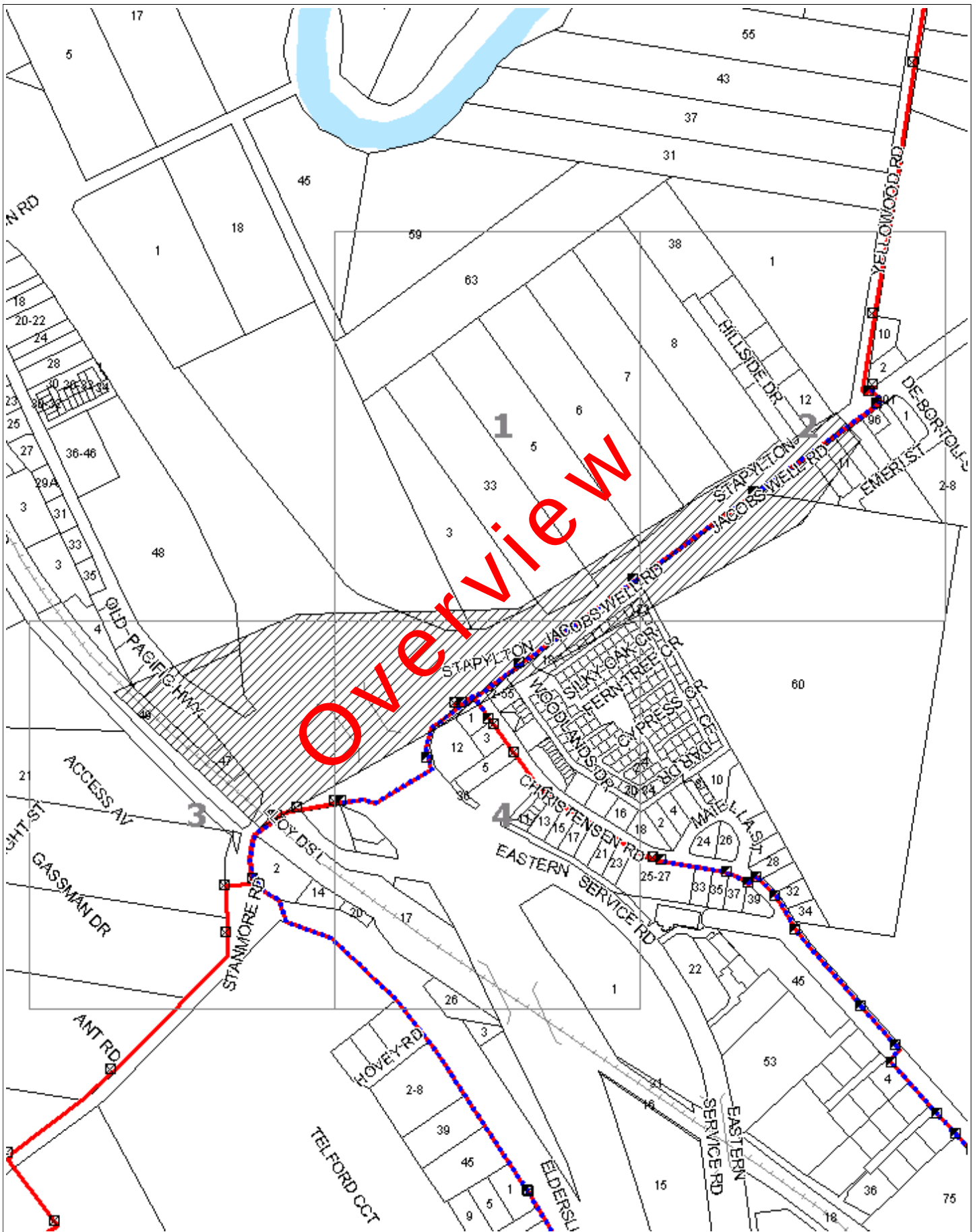
SCALE IN METRES



Scale at A1:	1:1000
Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	20-11-2020

Drawing No: 5941 ENG SP 003
Rev. No: A

Appendix F – Dial Before You Dig Search Results



WARNING: This document is confidential and may also be privileged. Confidentiality nor privilege is not waived or destroyed by virtue of it being transmitted to an incorrect addressee. Unauthorised use of the contents is therefore strictly prohibited. Any information contained in this document that has been extracted from our records is believed to be accurate, but no responsibility is assumed for any error or omission. Optus Plans and information supplied are valid for 30 days from the date of issue. If this timeline has elapsed please raise a new enquiry.

Sequence Number: 88097343

Date Generated: 20/08/2019



For all Optus DBYD plan enquiries –
Email: Fibre.Locations@optus.net.au
For urgent onsite assistance contact 1800 505 777
Optus Limited ACN 052 833 208





WARNING: This document is confidential and may also be privileged. Confidentiality nor privilege is not waived or destroyed by virtue of it being transmitted to an incorrect addressee. Unauthorised use of the contents is therefore strictly prohibited. Any information contained in this document that has been extracted from our records is believed to be accurate, but no responsibility is assumed for any error or omission. Optus Plans and information supplied are valid for 30 days from the date of issue. If this timeline has elapsed please raise a new enquiry.

Sequence Number: 88097343

Date Generated: 20/08/2019



For all Optus DBYD plan enquiries –
Email: Fibre.Locations@optus.net.au
For urgent onsite assistance contact 1800 505 777
Optus Limited ACN 052 833 208





WARNING: This document is confidential and may also be privileged. Confidentiality nor privilege is not waived or destroyed by virtue of it being transmitted to an incorrect addressee. Unauthorised use of the contents is therefore strictly prohibited. Any information contained in this document that has been extracted from our records is believed to be accurate, but no responsibility is assumed for any error or omission. Optus Plans and information supplied are valid for 30 days from the date of issue. If this timeline has elapsed please raise a new enquiry.

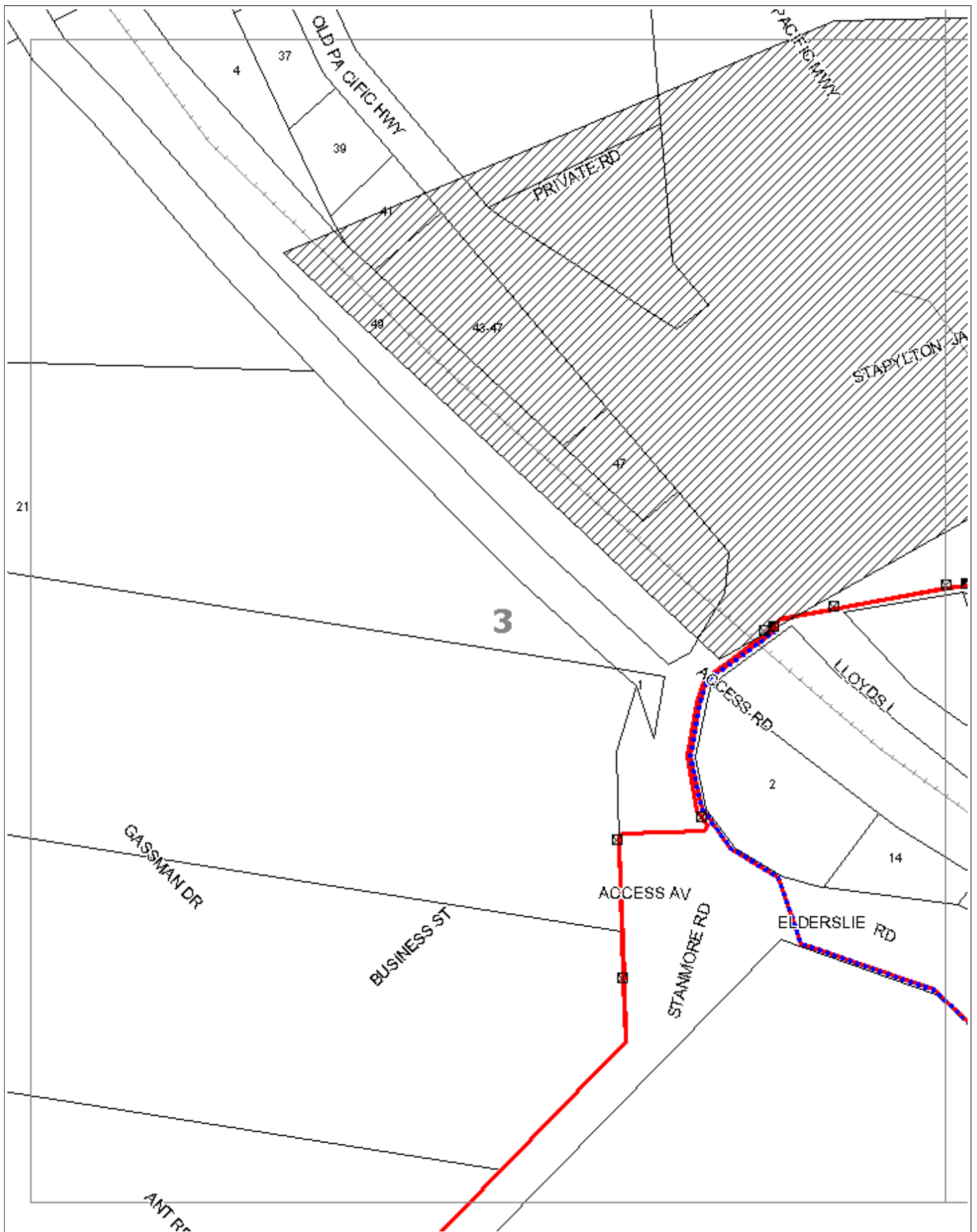
Sequence Number: 88097343

Date Generated: 20/08/2019



For all Optus DBYD plan enquiries –
Email: Fibre.Locations@optus.net.au
For urgent onsite assistance contact 1800 505 777
Optus Limited ACN 052 833 208





WARNING: This document is confidential and may also be privileged. Confidentiality nor privilege is not waived or destroyed by virtue of it being transmitted to an incorrect addressee. Unauthorised use of the contents is therefore strictly prohibited. Any information contained in this document that has been extracted from our records is believed to be accurate, but no responsibility is assumed for any error or omission. Optus Plans and information supplied are valid for 30 days from the date of issue. If this timeline has elapsed please raise a new enquiry.

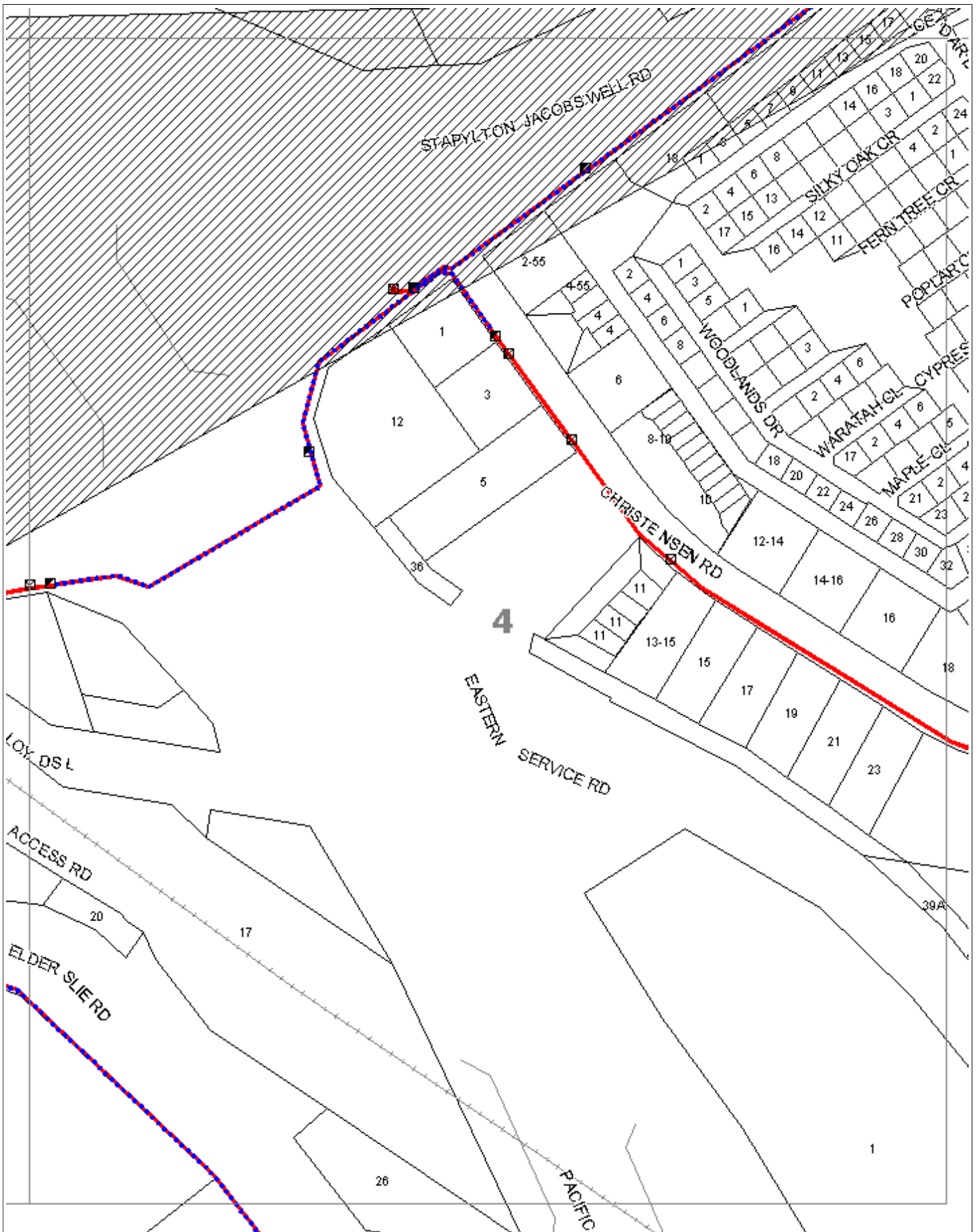
Sequence Number: 88097343

Date Generated: 20/08/2019



For all Optus DBYD plan enquiries –
Email: Fibre.Locations@optus.net.au
For urgent onsite assistance contact 1800 505 777
Optus Limited ACN 052 833 208





WARNING: This document is confidential and may also be privileged. Confidentiality nor privilege is not waived or destroyed by virtue of it being transmitted to an incorrect addressee. Unauthorised use of the contents is therefore strictly prohibited. Any information contained in this document that has been extracted from our records is believed to be accurate, but no responsibility is assumed for any error or omission. Optus Plans and information supplied are valid for 30 days from the date of issue. If this timeline has elapsed please raise a new enquiry.

Sequence Number: 88097343

Date Generated: 20/08/2019



For all Optus DBYD plan enquiries –
Email: Fibre.Locations@optus.net.au
For urgent onsite assistance contact 1800 505 777
Optus Limited ACN 052 833 208





Response Cover Letter

Date: 20/08/2019

AAPT (PowerTel) Limited
GPO Box 7041 Sydney 2001
Phone: 1800 786 306
A/H: 1800 786 306

To:
Mr Tom Herbert - Customer ID: 1630751

76 Business st
Yatala QLD 4207

Email: therbert@gassman.com.au
Phone: 0419226407
Fax: Not Supplied
Mobile: Not Supplied



Dear Mr Tom Herbert

The following is our response to your Dial Before You Dig enquiry.

AAPT ASSETS ARE AFFECTED BY YOUR ENQUIRY 88097338

Sequence Number: 88097338

Location: Access Ave
Yatala
QLD
4207

Commencement Date: 21/08/2019

In relation to your enquiry at the above address, AAPT (PowerTel) advises as follows.

The records of AAPT (PowerTel) Limited disclose that there are underground FIBRE OPTIC / TELECOMMUNICATIONS cables in the vicinity of the above enquiry. The AAPT network is in a 3rd party ducted network in this area. The 3rd party supplier will manage any duct issues related to this request. The 3rd party supplier will also contact AAPT directly if they believe the AAPT network would be impacted.

It is essential that no excavations are undertaken until you have received and appraised the duct owner's plans and conditions for this area.

Should the scope of your work or the area of your work change, please contact as below to receive further advice. Due to continued network expansion, the network information can only be considered valid and accurate for 28 days from issue.

AAPT will seek compensation for any damage to its network through negligence or ignorance of duty of care. Should you require any further information, please contact as below:

AAPT
Ph: 1800 786 306

DUTY OF CARE

Due to the nature of underground cables and the age of some cables and records the accuracy and/or completeness of the information cannot be guaranteed and, accordingly, they are indicative only and as a result AAPT (PowerTel) does not accept any responsibility for any inaccuracies of its plans. They should not be solely relied upon when undertaking underground works. It is also inaccurate to assume that fibre optic cables follow straight lines and careful onsite investigations are essential to locate an assets exact position.

The following minimum clearances must be maintained.

- 1) 300mm when laying asset's inline, horizontal or vertical.**
- 2) 500mm when operating vibrating equipment. Eg: Vibrating plates.**
- 3) 1000mm when operating mechanical excavators or Jackhammers.**

ON SITE LOCATING OF AAPT'S (POWERTEL) CABLING AND INFRASTRUCTURE MUST BE CONDUCTED BY AAPT'S (POWERTEL) PERSONNEL ONLY. AAPT (POWERTEL) WILL USE ALL LEGAL MEANS TO SEEK DAMAGES AND ANY OTHER REMEDIES AVAILABLE TO IT IN THE EVENT THAT ITS CABLE OR ANY OTHER NETWORK INFRASTRUCTURE IS DAMAGED BY YOU OR YOUR PERSONNEL AND/OR CONTRACTORS. IT IS AN OFFENCE TO OPEN ANY AAPT'S (POWERTEL) PITS OR MANHOLES AND/OR ANY ASSOCIATED INFRASTRUCTURE BELONGING TO OR PART OF AAPT'S (POWERTEL) NETWORK

Due to the inherent dangers associated with excavation in the vicinity of underground cables, precautions should be taken in the undertaking of any underground works, including (but not limited to) the following.

All excavation sites should be examined for underground cables by careful hand excavation. Cable cover slabs & Manhole covers must not be disturbed. Hand excavation needs to be undertaken with extreme care to minimise the possibility of damage to the cable.

EG: Blades of hand equipment should be orientated parallel to the line of the cable rather than digging across the cable.

All personnel must be properly briefed, particularly those associated with the use of earth-moving equipment, trenching, boring and pneumatic equipment.

All excavations must be undertaken in accordance with the relevant legislation and regulations.

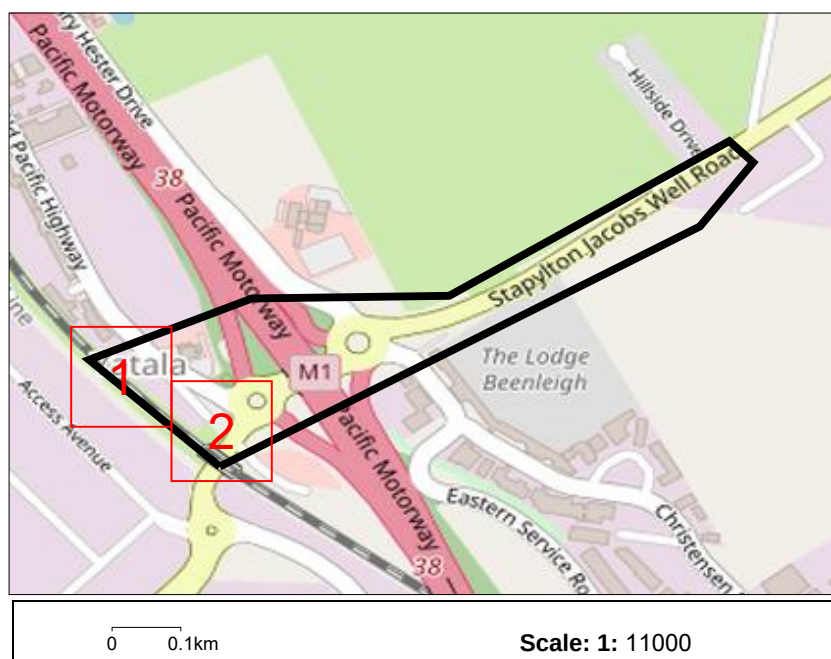
ANY DAMAGE TO AAPT (POWERTEL) NETWORK MUST BE REPORTED IMMEDIATELY TO 1800 786 306

Any information provided is valid only for 28 days from the date of issue of this document.

If the work operations extend beyond this period, or if the designs are altered in any way, you are requested to re-submit your proposal for re-assessment by contacting Dial Before You Dig ph:1100 or www.dialbeforeyoudig.com.au

Onsite visits by AAPT (PowerTel) agents may incur costs, this would solely depend on the type and extent of the work to be carried out. EG: Major roadwork's, network relocation's, Large planning and design work's.

Overview Map

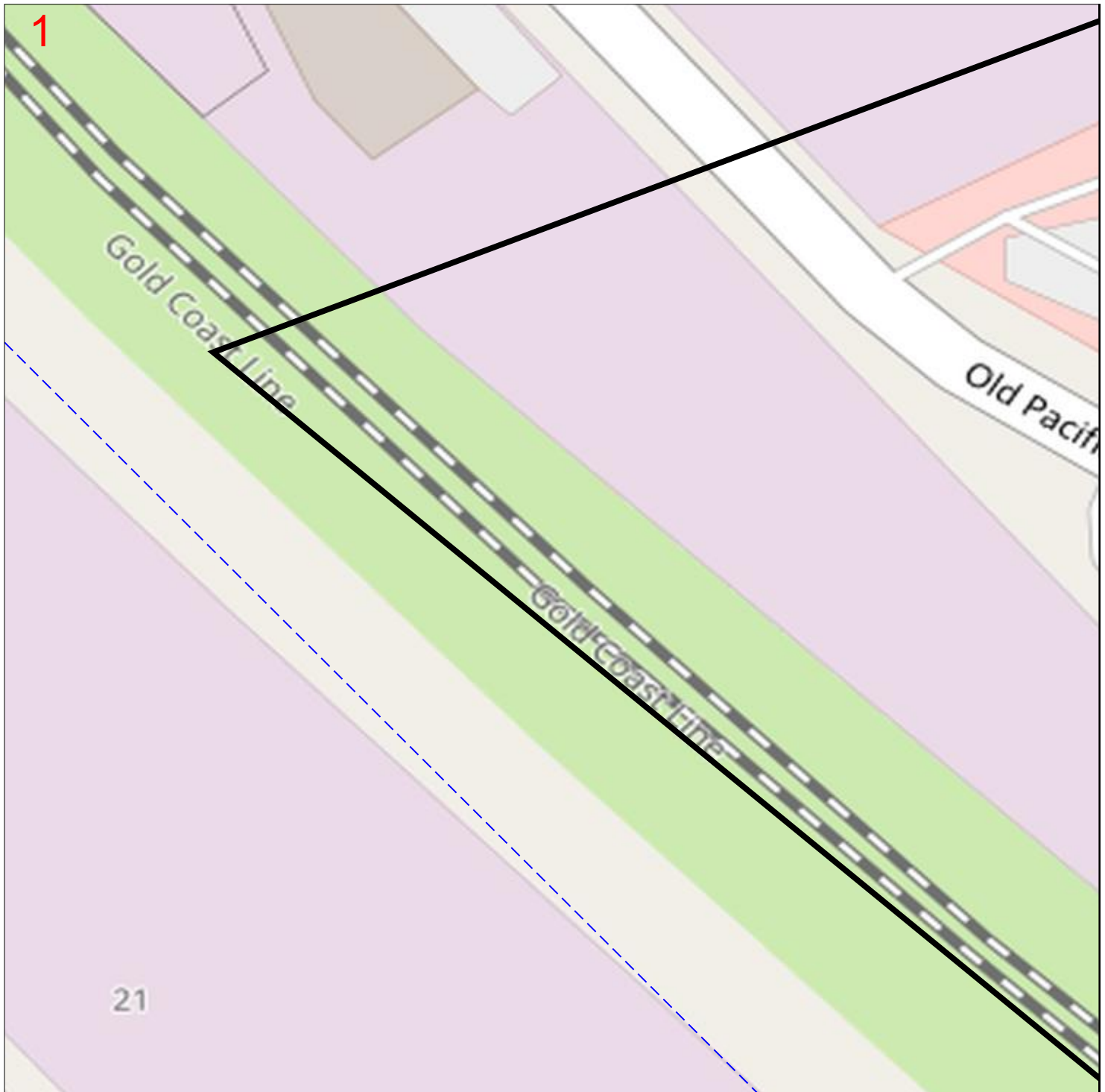


AAPT (for information specific to this job only) Ph 1800 786 306

DISCLAIMER: This document has been prepared solely for the use of AAPT. It should not be scaled to locate any asset. No warranty is given that the information given is accurate or complete



AAPT (PowerTel) Limited GPO Box 7041 Sydney 2001
Phone: 1800 786 306 A/H 1800 786 306



Enquiry Number: 88097338

Map Sheet: 1

Scale: 1:750

0 0.008km

LEGEND:

-  DBYD Work Area
-  AAPT Duct
-  Non AAPT Duct
-  AAPT Manhole



DISCLAIMER: This document has been prepared solely for the use of AAPT. It should not be scaled to locate any asset. No warranty is given that the information given is accurate or complete



AAPT (PowerTel) Limited GPO Box 7041 Sydney 2001
Phone: 1800 786 306 A/H 1800 786 306



Enquiry Number: 88097338

Map Sheet: 2

Scale: 1:750

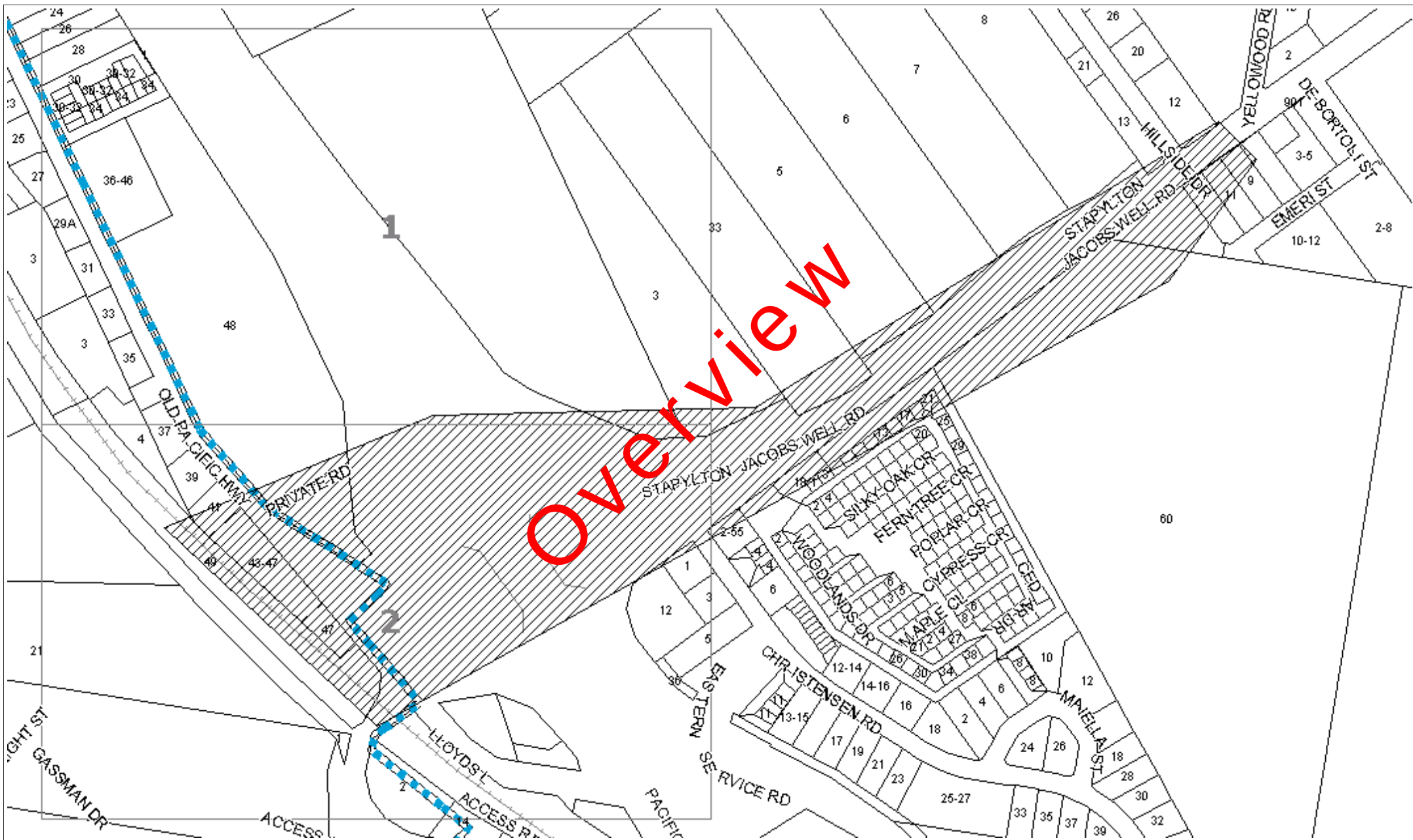
0 0.008km

LEGEND:

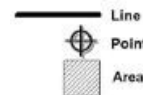
-  DBYD Work Area
-  AAPT Duct
-  Non AAPT Duct
-  AAPT Manhole



DISCLAIMER: This document has been prepared solely for the use of AAPT. It should not be scaled to locate any asset. No warranty is given that the information given is accurate or complete



Job Location

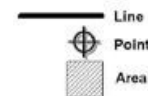


Underground Asset



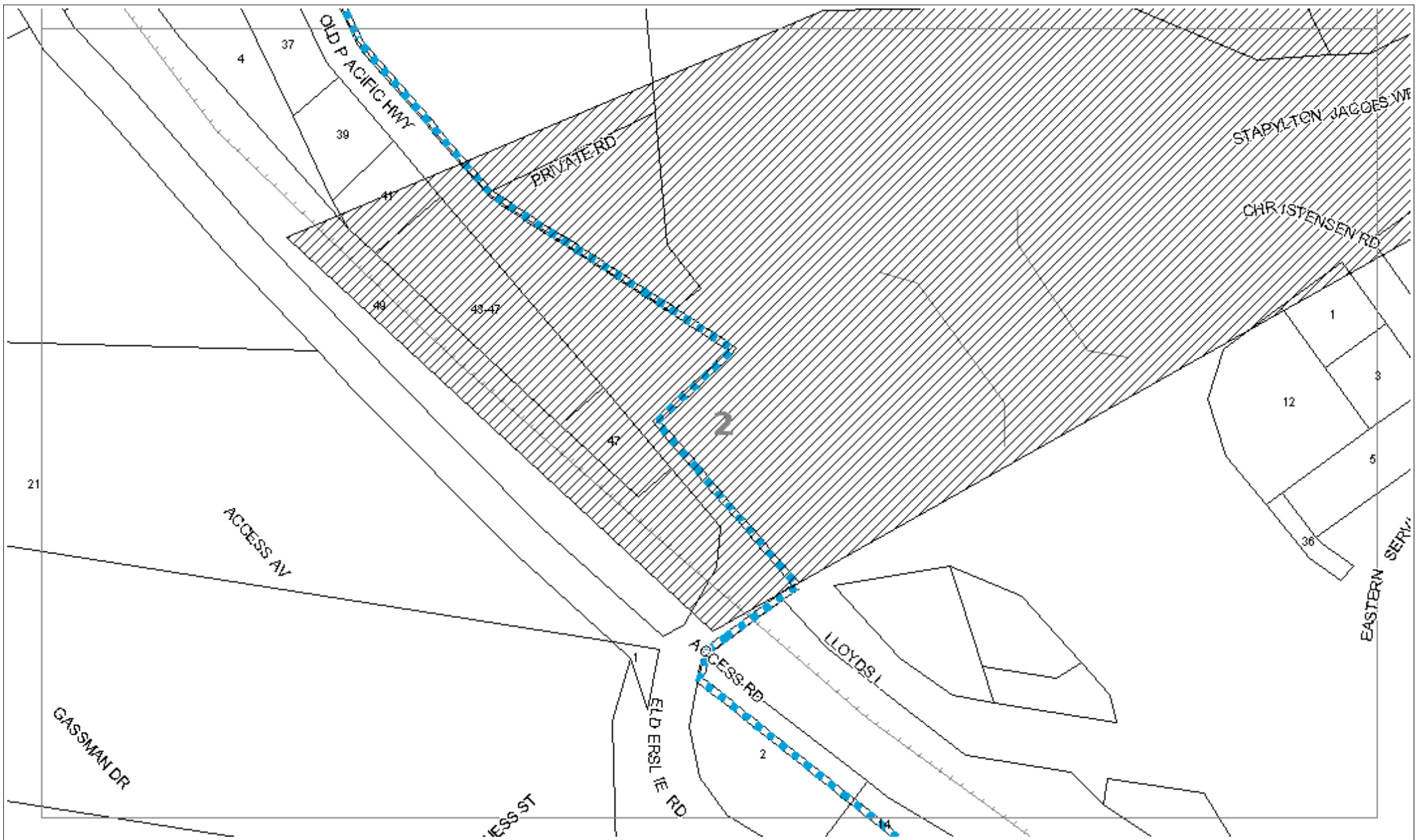


Job Location

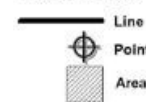


Underground Asset





Job Location



Underground Asset



All underground cables shall be treated as being energised. Where a cable is located that is not represented on the *ENERGEX EnerGISE DBYD map*, then *ENERGEX* shall be contacted immediately.

For Emergency Situations
Please call 13 19 62

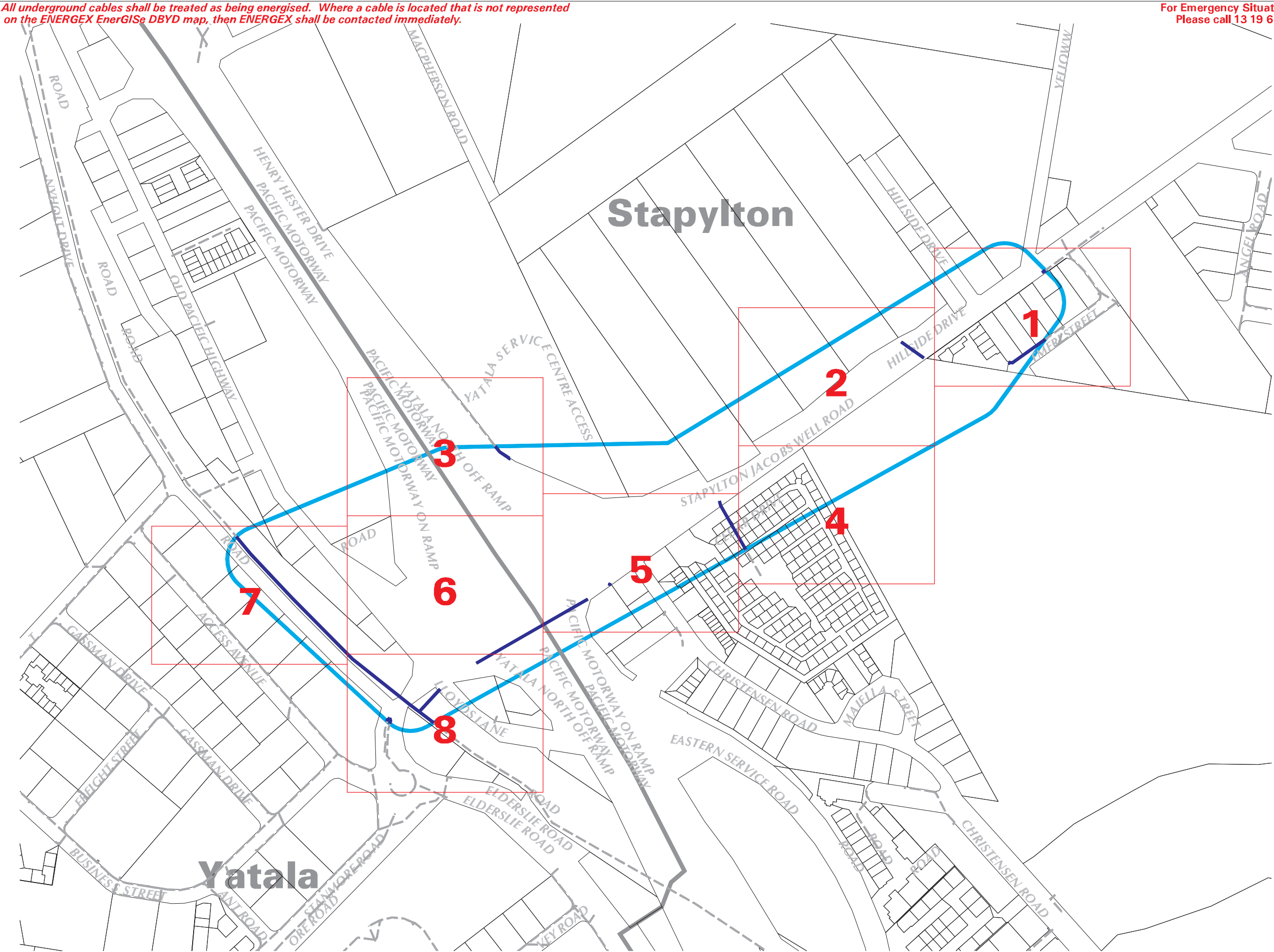


Date: 20 Aug 19 Time: 15.01.06
Requested By: DBYD

NOT TO SCALE
0 200m

Enquiry No: 88097341
KEY MAP

Enquiry Area



This output provides details of the *ENERGEX* electrical network. As variations may exist no responsibility is incurred by *ENERGEX* for the accuracy or completeness of the information provided. Exact positions of cables and electrical connectivity should be confirmed on site.

UNCONTROLLED COPY

LOCALITY DIAGRAM



All underground cables shall be treated as being energised. Where a cable is located that is not represented on the ENERGEX EnerGISE DBYD map, then ENERGEX shall be contacted immediately.

For Emergency Situations
Please call 13 19 62



Date: 20 Aug 19 Time: 15.01.18
Requested By: DBYD

SCALE 1:1000



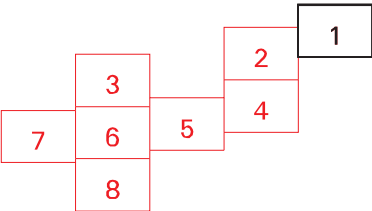
Enquiry No: 88097341

STRIP No: 1

- | | | | |
|--|-------------------------------------|--|------------------------------|
| | Ground Transformer | | Cable Voltage Less Than 33kV |
| | Cubicle Transformer | | Cable Voltage 33kV or Higher |
| | Ring Main Unit | | |
| | Metering Unit | | Direct-Lay Cable |
| | Link Pillar | | Conduit |
| | Service Pillar | | Multi-Section Duct |
| | Junction Pillar | | Trench |
| | Pit | | Cable Tray |
| | Cable Joint | | Tunnel |
| | Cable Termination | | |
| | Cable Marker | | |
| | Street Light Pole | | |
| | Earth | | |
| | Planned Work labelled by Work Order | | |



INDEX TO SHEETS



LOCALITY DIAGRAM



This output provides details of the ENERGEX electrical network. As variations may exist no responsibility is incurred by ENERGEX for the accuracy or completeness of the information provided. Exact positions of cables and electrical connectivity should be confirmed on site.

UNCONTROLLED COPY

All underground cables shall be treated as being energised. Where a cable is located that is not represented on the ENERGEX EnerGISE DBYD map, then ENERGEX shall be contacted immediately.

For Emergency Situations
Please call 13 19 62



Date: 20 Aug 19 Time: 15.01.39
Requested By: DBYD

SCALE 1:1000



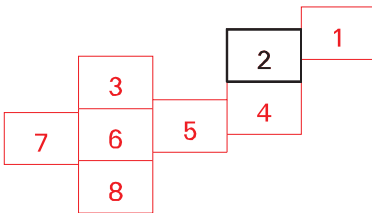
Enquiry No: 88097341

STRIP No: 2

- | | | | |
|--|-------------------------------------|--|------------------------------|
| | Ground Transformer | | Cable Voltage Less Than 33kV |
| | Cubicle Transformer | | Cable Voltage 33kV or Higher |
| | Ring Main Unit | | |
| | Metering Unit | | Direct-Lay Cable |
| | Link Pillar | | Conduit |
| | Service Pillar | | Multi-Section Duct |
| | Junction Pillar | | Trench |
| | Pit | | Cable Tray |
| | Cable Joint | | Tunnel |
| | Cable Termination | | |
| | Cable Marker | | |
| | Street Light Pole | | |
| | Earth | | |
| | Planned Work labelled by Work Order | | |



INDEX TO SHEETS



LOCALITY DIAGRAM



This output provides details of the ENERGEX electrical network. As variations may exist no responsibility is incurred by ENERGEX for the accuracy or completeness of the information provided. Exact positions of cables and electrical connectivity should be confirmed on site.

UNCONTROLLED COPY

All underground cables shall be treated as being energised. Where a cable is located that is not represented on the **ENERGEX EnerGISE DBYD** map, then **ENERGEX** shall be contacted immediately.

For Emergency Situations
Please call 13 19 62



Date: 20 Aug 19 Time: 15.01.55
Requested By: DBYD

SCALE 1:1000



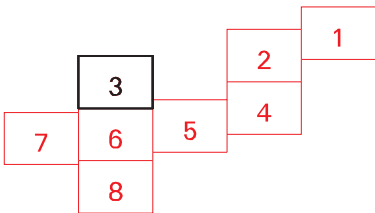
Enquiry No: 88097341

STRIP No: 3

- | | | | |
|--|-------------------------------------|--|------------------------------|
| | Ground Transformer | | Cable Voltage Less Than 33kV |
| | Cubicle Transformer | | Cable Voltage 33kV or Higher |
| | Ring Main Unit | | |
| | Metering Unit | | Direct-Lay Cable |
| | Link Pillar | | Conduit |
| | Service Pillar | | Multi-Section Duct |
| | Junction Pillar | | Trench |
| | Pit | | Cable Tray |
| | Cable Joint | | Tunnel |
| | Cable Termination | | |
| | Cable Marker | | |
| | Street Light Pole | | |
| | Earth | | |
| | Planned Work labelled by Work Order | | |



INDEX TO SHEETS



LOCALITY DIAGRAM



This output provides details of the **ENERGEX** electrical network. As variations may exist no responsibility is incurred by **ENERGEX** for the accuracy or completeness of the information provided. Exact positions of cables and electrical connectivity should be confirmed on site.

UNCONTROLLED COPY

All underground cables shall be treated as being energised. Where a cable is located that is not represented on the ENERGEX EnerGISE DBYD map, then ENERGEX shall be contacted immediately.

For Emergency Situations
Please call 13 19 62



Date: 20 Aug 19 Time: 15.02.12
Requested By: DBYD

SCALE 1:1000



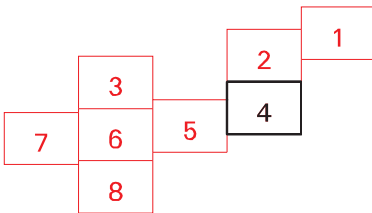
Enquiry No: 88097341

STRIP No: 4

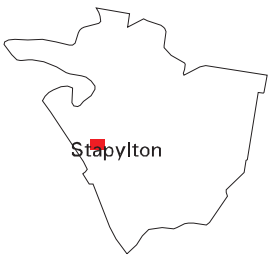
- | | | | |
|--|-------------------------------------|--|------------------------------|
| | Ground Transformer | | Cable Voltage Less Than 33kV |
| | Cubicle Transformer | | Cable Voltage 33kV or Higher |
| | Ring Main Unit | | |
| | Metering Unit | | Direct-Lay Cable |
| | Link Pillar | | Conduit |
| | Service Pillar | | Multi-Section Duct |
| | Junction Pillar | | Trench |
| | Pit | | Cable Tray |
| | Cable Joint | | Tunnel |
| | Cable Termination | | |
| | Cable Marker | | |
| | Street Light Pole | | |
| | Earth | | |
| | Planned Work labelled by Work Order | | |



INDEX TO SHEETS



LOCALITY DIAGRAM



This output provides details of the ENERGEX electrical network. As variations may exist no responsibility is incurred by ENERGEX for the accuracy or completeness of the information provided. Exact positions of cables and electrical connectivity should be confirmed on site.

UNCONTROLLED COPY

All underground cables shall be treated as being energised. Where a cable is located that is not represented on the ENERGEX EnerGISE DBYD map, then ENERGEX shall be contacted immediately.

For Emergency Situations
Please call 13 19 62



Date: 20 Aug 19 Time: 15.02.29
Requested By: DBYD

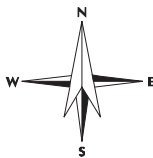
SCALE 1:1000



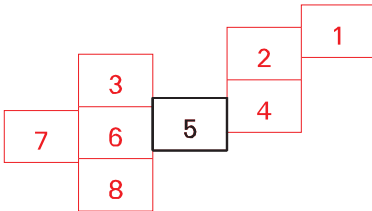
Enquiry No: 88097341

STRIP No: 5

- | | | | |
|--|--|--|------------------------------|
| | Ground Transformer | | Cable Voltage Less Than 33kV |
| | Cubicle Transformer | | Cable Voltage 33kV or Higher |
| | Ring Main Unit | | |
| | Metering Unit | | Direct-Lay Cable |
| | Link Pillar | | Conduit |
| | Service Pillar | | Multi-Section Duct |
| | Junction Pillar | | Trench |
| | Pit | | Cable Tray |
| | Cable Joint | | Tunnel |
| | Cable Termination | | |
| | Cable Marker | | |
| | Street Light Pole | | |
| | Earth | | |
| | Planned Work
labelled by Work Order | | |



INDEX TO SHEETS



LOCALITY DIAGRAM



This output provides details of the ENERGEX electrical network. As variations may exist no responsibility is incurred by ENERGEX for the accuracy or completeness of the information provided. Exact positions of cables and electrical connectivity should be confirmed on site.

UNCONTROLLED COPY

All underground cables shall be treated as being energised. Where a cable is located that is not represented on the ENERGEX EnerGISE DBYD map, then ENERGEX shall be contacted immediately.

For Emergency Situations
Please call 13 19 62



Date: 20 Aug 19 Time: 15.02.49
Requested By: DBYD

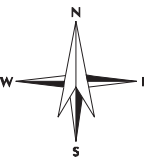
SCALE 1:1000



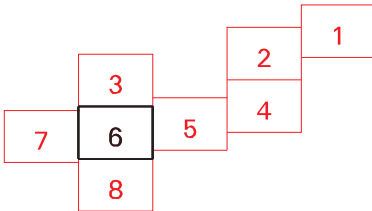
Enquiry No: 88097341

STRIP No: 6

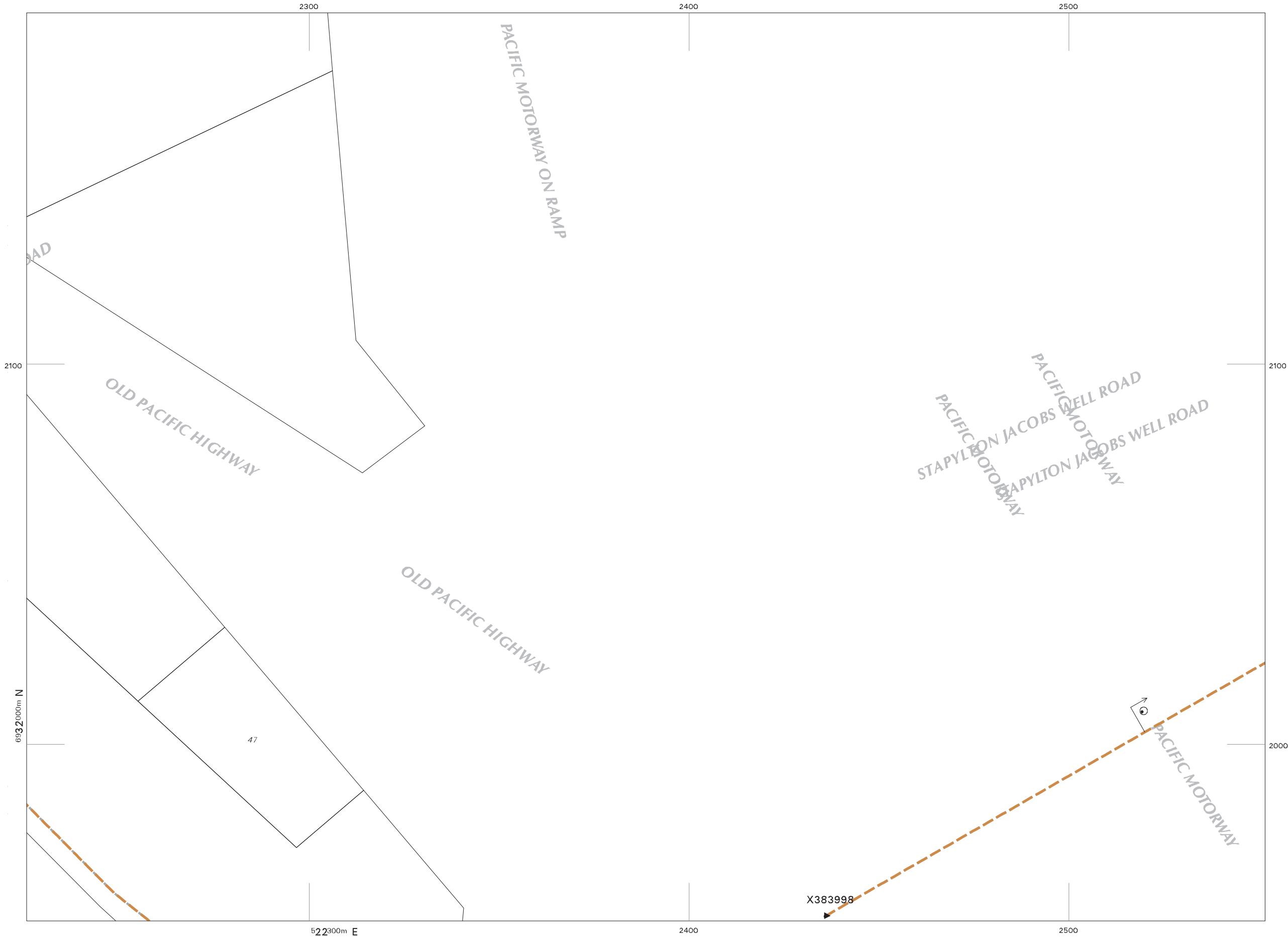
- | | | | |
|--|--|--|------------------------------|
| | Ground Transformer | | Cable Voltage Less Than 33kV |
| | Cubicle Transformer | | Cable Voltage 33kV or Higher |
| | Ring Main Unit | | |
| | Metering Unit | | Direct-Lay Cable |
| | Link Pillar | | Conduit |
| | Service Pillar | | Multi-Section Duct |
| | Junction Pillar | | Trench |
| | Pit | | Cable Tray |
| | Cable Joint | | Tunnel |
| | Cable Termination | | |
| | Cable Marker | | |
| | Street Light Pole | | |
| | Earth | | |
| | Planned Work
labelled by Work Order | | |



INDEX TO SHEETS



LOCALITY DIAGRAM



This output provides details of the ENERGEX electrical network. As variations may exist no responsibility is incurred by ENERGEX for the accuracy or completeness of the information provided. Exact positions of cables and electrical connectivity should be confirmed on site.

UNCONTROLLED COPY

All underground cables shall be treated as being energised. Where a cable is located that is not represented on the ENERGEX EnerGISE DBYD map, then ENERGEX shall be contacted immediately.

For Emergency Situations
Please call 13 19 62



Date: 20 Aug 19 Time: 15.03.10
Requested By: DBYD

SCALE 1:1000



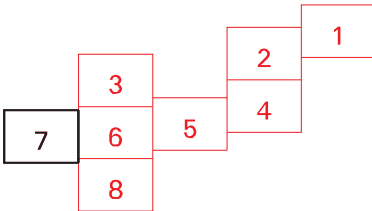
Enquiry No: 88097341

STRIP No: 7

- | | | | |
|--|-------------------------------------|--|------------------------------|
| | Ground Transformer | | Cable Voltage Less Than 33kV |
| | Cubicle Transformer | | Cable Voltage 33kV or Higher |
| | Ring Main Unit | | |
| | Metering Unit | | Direct-Lay Cable |
| | Link Pillar | | Conduit |
| | Service Pillar | | Multi-Section Duct |
| | Junction Pillar | | Trench |
| | Pit | | Cable Tray |
| | Cable Joint | | Tunnel |
| | Cable Termination | | |
| | Cable Marker | | |
| | Street Light Pole | | |
| | Earth | | |
| | Planned Work labelled by Work Order | | |



INDEX TO SHEETS



LOCALITY DIAGRAM



This output provides details of the ENERGEX electrical network. As variations may exist no responsibility is incurred by ENERGEX for the accuracy or completeness of the information provided. Exact positions of cables and electrical connectivity should be confirmed on site.

UNCONTROLLED COPY

All underground cables shall be treated as being energised. Where a cable is located that is not represented on the ENERGEX EnerGISE DBYD map, then ENERGEX shall be contacted immediately.

For Emergency Situations
Please call 13 19 62



Date: 20 Aug 19 Time: 15.03.34
Requested By: DBYD

SCALE 1:1000



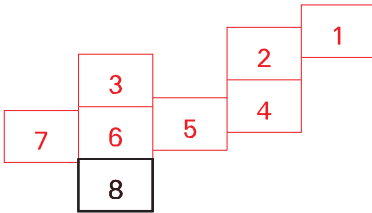
Enquiry No: 88097341

STRIP No: 8

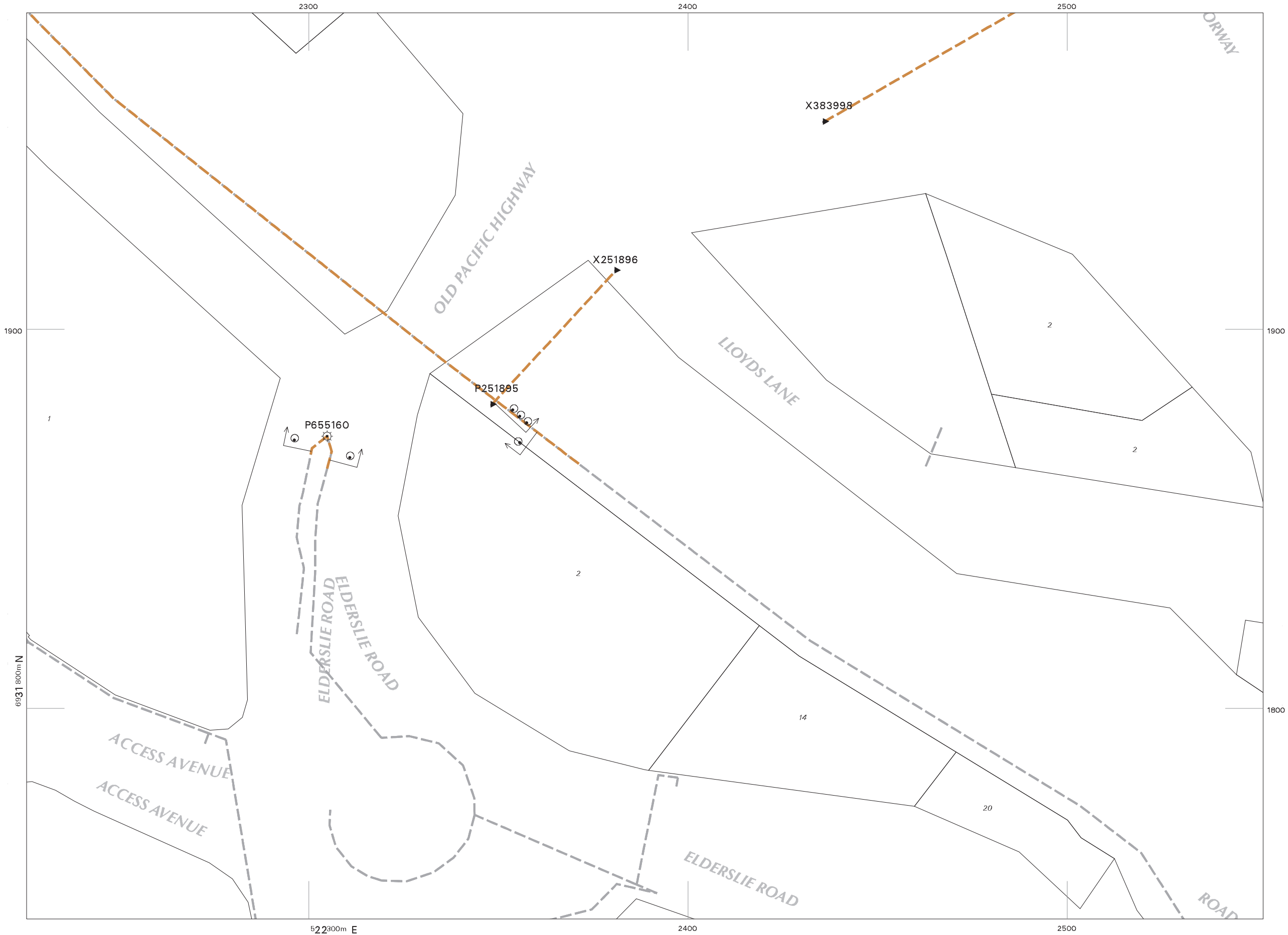
- | | | | |
|--|------------------------|--|------------------------------|
| | Ground Transformer | | Cable Voltage Less Than 33kV |
| | Cubicle Transformer | | Cable Voltage 33kV or Higher |
| | Ring Main Unit | | |
| | Metering Unit | | Direct-Lay Cable |
| | Link Pillar | | Conduit |
| | Service Pillar | | Multi-Section Duct |
| | Junction Pillar | | Trench |
| | Pit | | Cable Tray |
| | Cable Joint | | Tunnel |
| | Cable Termination | | |
| | Cable Marker | | |
| | Street Light Pole | | |
| | Earth | | |
| | Planned Work | | |
| | Labelled by Work Order | | |



INDEX TO SHEETS



LOCALITY DIAGRAM



This output provides details of the ENERGEX electrical network. As variations may exist no responsibility is incurred by ENERGEX for the accuracy or completeness of the information provided. Exact positions of cables and electrical connectivity should be confirmed on site.

UNCONTROLLED COPY

20/08/2019

Company:
Mr Tom Herbert
76 Business st
Yatala
QLD 4207

therbert@gassman.com.au

Dear Mr Tom Herbert

Sequence Number: 88097344
Worksite Address: Access Ave
Yatala
QLD 4207

RE: REQUEST FOR APA GROUP (APA) UNDERGROUND DIAL BEFORE YOU DIG

Dear Sir/Madam

In response to the above enquiry we wish to confirm that APA **operates underground plant** (Mains and / or Services) at or in the vicinity of the above address.

Please check that the following map represents the area you requested - if the area is not correct please contact our Dial Before You Dig Officer - 1800 085 628. If works are proposed adjacent to any underground plant operated by APA please ensure compliance with the attached "DUTY OF CARE"

Please find enclosed the following information in support of the above: -

1. A location map of the **suburb** the service is in and an A4 location map showing the **status** of APA underground plant (Mains and / or Services) adjacent to the subject site
2. DUTY OF CARE statement which forms **an integral part** of any information supplied by APA

For **GAS EMERGENCIES 24 HOURS - 1800 GAS LEAK (1800 427 532)**

Please note that as work on APA underground plant is ongoing any information supplied on their status can only be considered current for **30 days from the date of this response**. Expired locations, i.e., over 30 days from the date of this response, require a new Dial Before You Dig request to validate location information.

Should you have any questions with **regards to the attached information** please contact our Dial Before You Dig officer - 1800 085 628.

For any excavation works, including vacuum excavations, an "Authority to Work" Permit may be required and a Site Watch may need to be scheduled.

A minimum of 5 business days' notice is required to process permit applications. Permit applications can be made by: -

Post: Permit Applications QLD, PO Box 885 Hamilton Central QLD 4007 or

Email: permitsqld@apa.com.au or Phone: (07) 3215 6700 though an application will most likely be required

Charges may apply for Site Watch requests. Your sequence number may be requested when making your booking, please have this available when you request either a mains location or site watch.

For other enquiries please contact your gas retailer

To find out who your retailer is call 1800 657 567

Warning: if there are high or transmission pressure gas mains present in the vicinity of your area of interest, an APA employee must be in attendance during any excavation within 3 metres of high or transmission pressure mains, and an "Authority to Work" permit must be issued prior to work commencing.

Please contact us for a permit to work request if you believe your work is within this zone, by completing the "Authority to Work" request form attached and sending to APA. 5 days' notice is required prior to the commencement of any excavation to assess and allocate resources. Contact phone numbers are shown at the end of the notice of location.

Please Note: For some DBYD enquiries, you might receive 2 responses from the APA Group. Please read both responses carefully as they will relate to different assets. It is your responsibility to action all requirements set out in APA Group responses.

Please take some time to review the entire response document and check the information supplied and please let us have any feedback by sending an email to DBYDNetworksAPA@apa.com.au or contacting us direct on 1800 085 628.

Yours faithfully

Dial Before You Dig Officer
APA Group

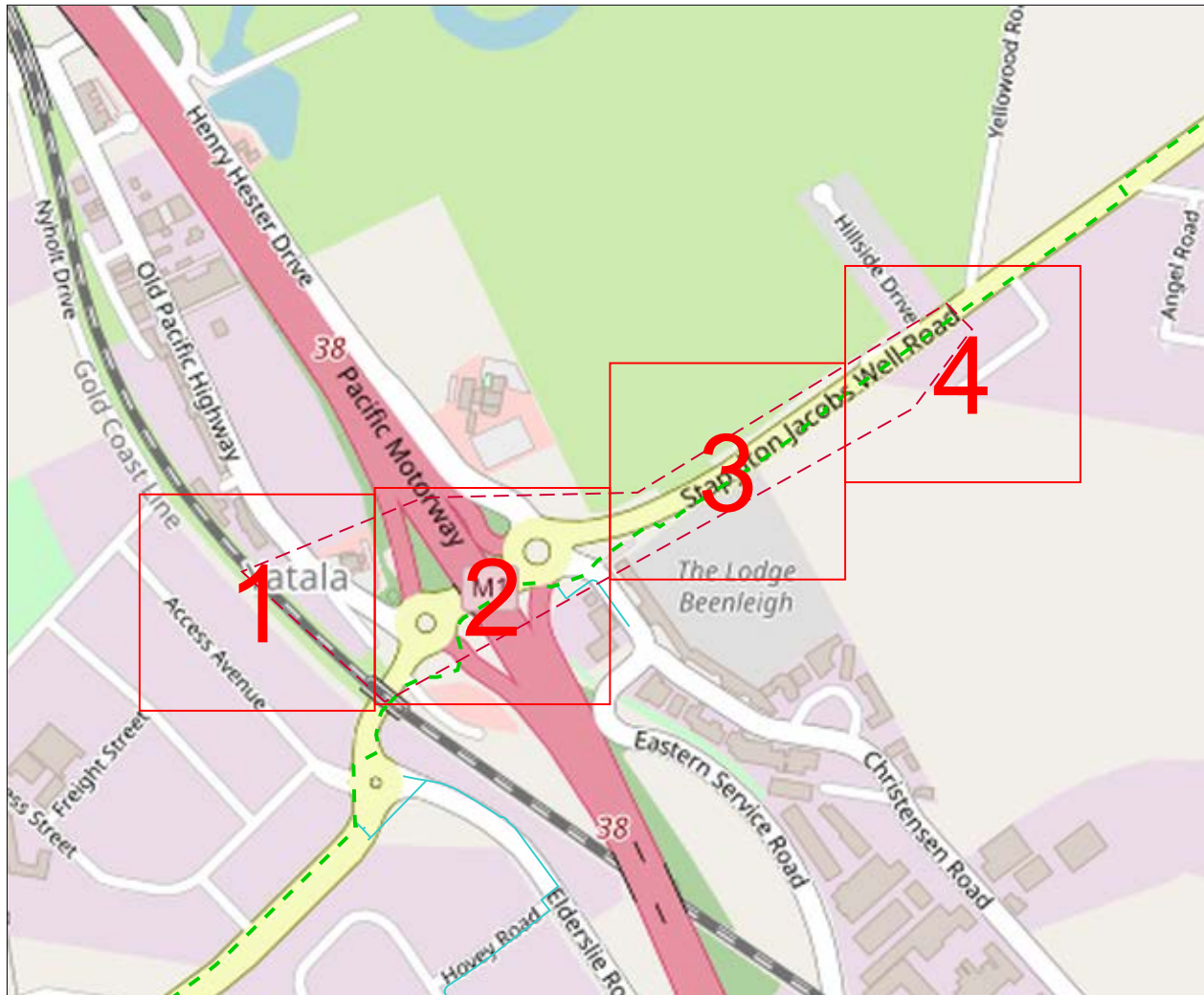
Email DBYDNetworksAPA@apa.com.au
Ph. 1800 085 628

20/08/2019

SCALE: DO NOT SCALE

REF NO: 88097344

As work on APA underground plant is ongoing any drawing with an issue date of more than 30 days previous can no longer be considered valid. All persons planning civil works on any site are advised to contact APA to confirm location. All underground gas pipelines are the property of APA & are not to be accessed by unauthorised persons. All care is taken with preparation of the drawings & no responsibility is accepted for errors or omissions



Enquiry: 88097344

Papersize: A4 Scale: 1: 8500

0 0.1km



Data Source

Pipeline Data Copyright APA Group, Property Parcels Copyright QLD Government, UBD Imagery – Copyright Sensis, DBYD Dig Location provided by DBYD.

operated by



This maps is created in colour and shall be printed in colour

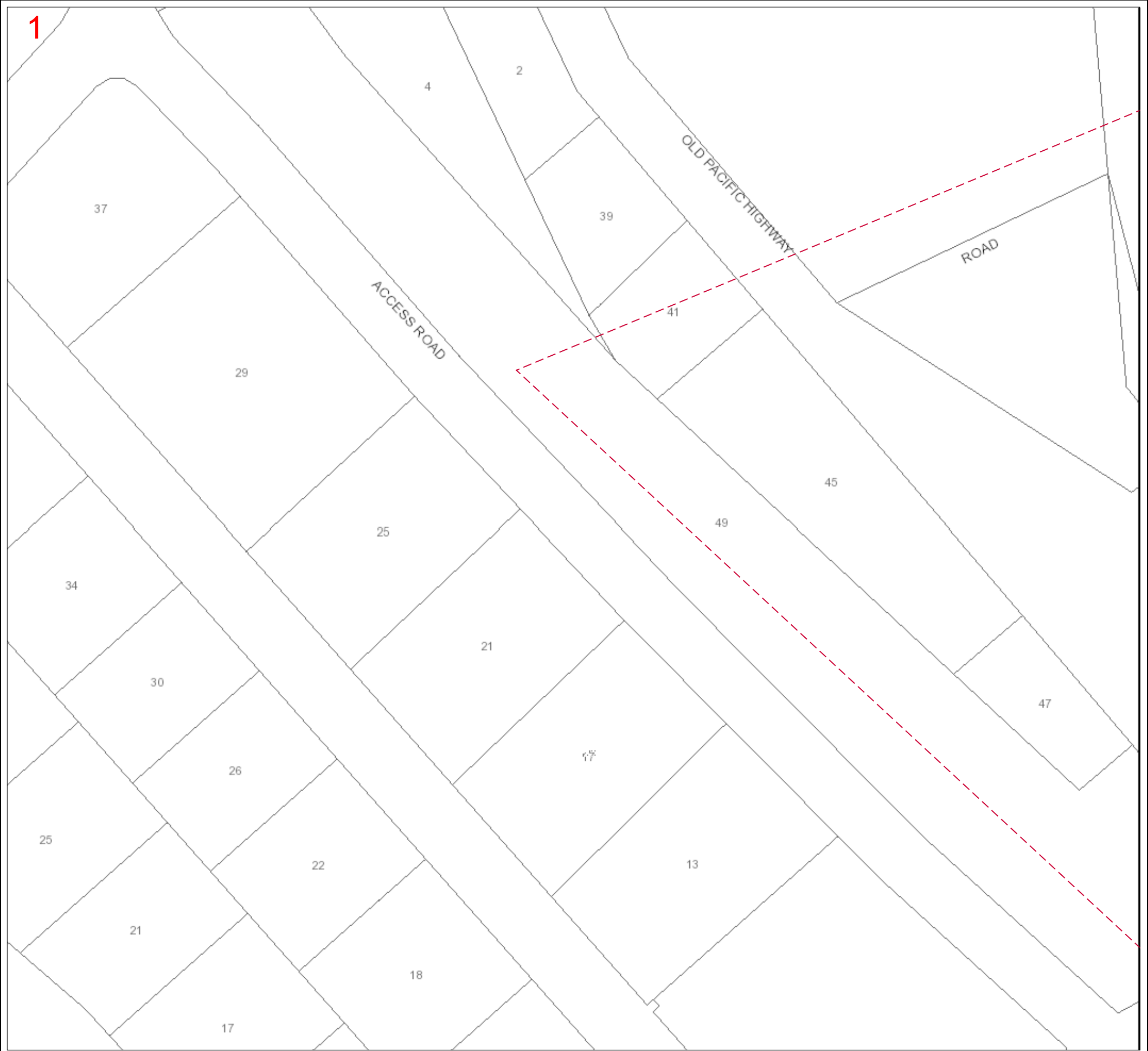
Legend

Distribution Main	Gas Assets and Fittings	Pipe Materials
- Class 900 Transmission - Class 600 Transmission - Class 300 Transmission - High Pressure Steel - High Pressure PE Trunk - High Pressure/ Class 500 - Medium Pressure PE/ Nylon - Medium Pressure (Allgas) - Low Pressure - LPG - TLP - Proposed/ Under Construction - Idle Gas Pipe - Abandoned Gas Pipe - Sleeve	- Gate Station - Regulator Station - Block/ Emergency Valve - Isolation Valve - Test Point - Syphon - Anode - Pipeline Marker - Trace Wire Point - Reducer - Pipe Connector/ Tee - Pipe Connector - End Cap	- CI Cast Iron - CU Copper - GAL Wrought Galvanised Iron - PGAL Poly Coated Wrought Galvanised Iron - ST Steel - NY/ NY11 Nylon - PE Polyethylene - MDPE Medium Density Polyethylene - HDPE High Density Polyethylene - DN Nominal Diameter - OD Outside Diameter

Examples: 40PE in DN80 CI 40mm Polyethylene in an 80mm (Nominal Diameter) Cast Iron Sleeve
63PE INS 63mm Polyethylene inserted in another pipe

Line/ Polygon Request

APA Group does not guarantee the accuracy or completeness of the map and does not make any warranty about the data. APA Group is not under any liability to the user for any loss or damage (including consequential loss or damage) which the user may suffer resulting from the use of this map.



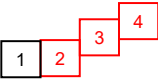
88097344 Map Sheet: 1

Papersize: A3 Scale: 1: 1000

0 0.01km



Map Key:



This maps is created in colour and shall be printed in colour

Legend

Distribution Main	Gas Assets and Fittings	Pipe Materials
Class 900 Transmission	Gate Station	CI Cast Iron
Class 600 Transmission	Regulator Station	CU Copper
Class 300 Transmission	Block/ Emergency Valve	GAL Wrought Galvanised Iron
High Pressure Steel	Isolation Valve	PGAL Poly Coated Wrought Galvanised Iron
High Pressure PE Trunk	Test Point	ST Steel
High Pressure/ Class 500	Syphon	NY/ NY11 Nylon
Medium Pressure PE/ Nylon	Anode	PE Polyethylene
Medium Pressure (Allgas)	Pipeline Marker	MDPE Medium Density Polyethylene
Low Pressure	Trace Wire Point	HDPE High Density Polyethylene
LPG	Reducer	DN Nominal Diameter
TLP	Pipe Connector/ Tee	OD Outside Diameter
Proposed/ Under Construction	Pipe Connector	
Idle Gas Pipe	End Cap	
Abandoned Gas Pipe		
Sleeve		

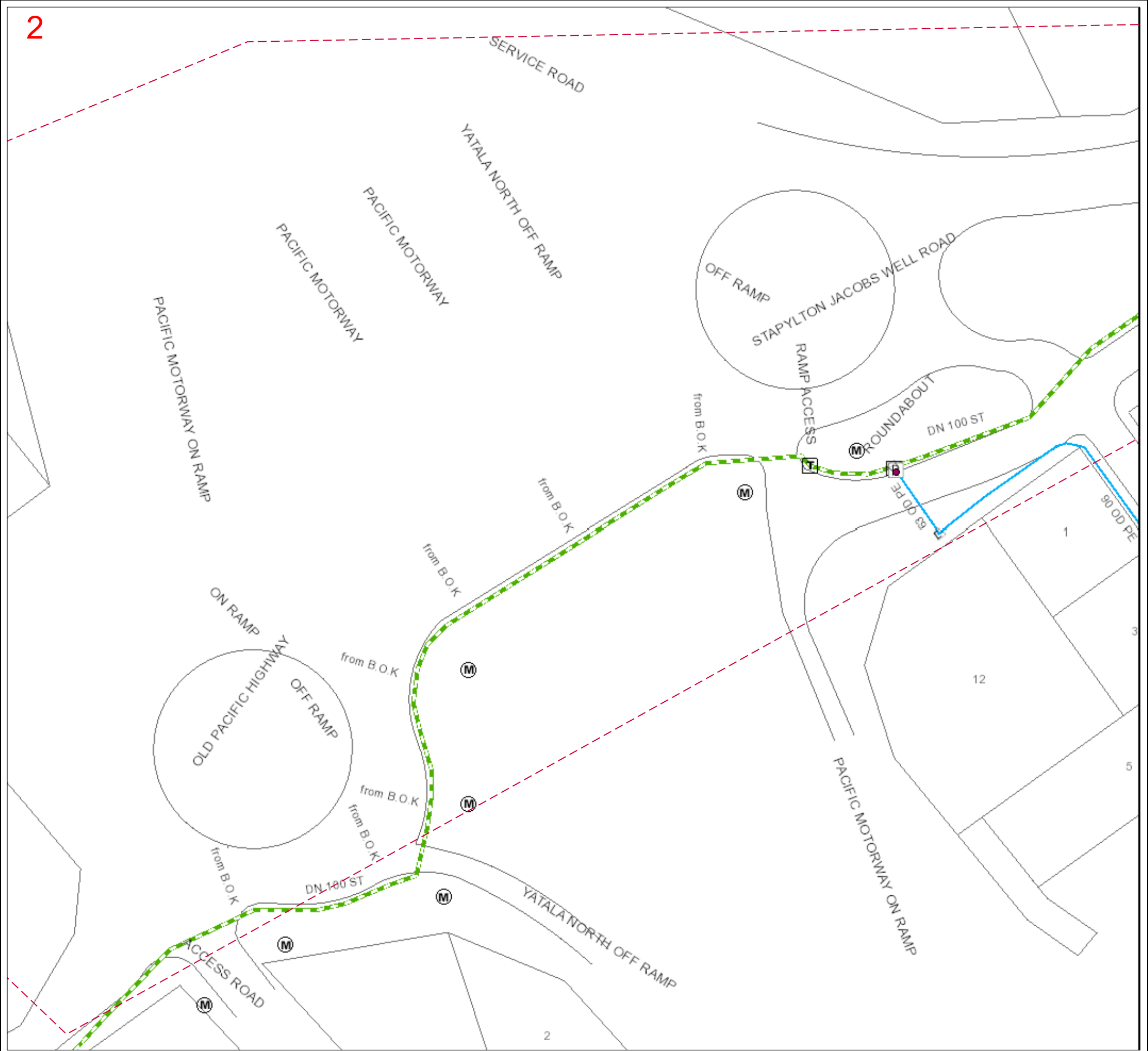
(1) Medium Pressure in AGN/ Nylon in Allgas

Examples: 40mm Polyethylene in an 80mm (Nominal Diameter) Cast Iron Sleeve
 63mm Polyethylene inserted in another pipe

----- Line/ Polygon Request

Data Source

Pipeline Data Copyright APA Group, Property Parcels Copyright QLD Government, UBD Imagery – Copyright Sensis, DBYD Dig Location provided by DBYD.



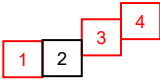
88097344 Map Sheet: 2

Papersize: A3 Scale: 1: 1000

0 0.01km



Map Key:



This maps is created in colour and shall be printed in colour

Legend

Distribution Main

- Class 900 Transmission
- Class 600 Transmission
- Class 300 Transmission
- High Pressure Steel
- High Pressure PE Trunk
- High Pressure/ Class 500
- Medium Pressure PE/ Nylon
- Medium Pressure (Allgas)
- Low Pressure
- LPG
- TLP
- Proposed/ Under Construction
- Idle Gas Pipe
- Abandoned Gas Pipe
- Sleeve

(1) Medium Pressure in AGN/ Nylon in Allgas

Gas Assets and Fittings

- Gate Station
- Regulator Station
- Block/ Emergency Valve
- Isolation Valve
- Test Point
- Syphon
- Anode
- Pipeline Marker
- Trace Wire Point
- Reducer
- Pipe Connector/ Tee
- Pipe Connector
- End Cap

Pipe Materials

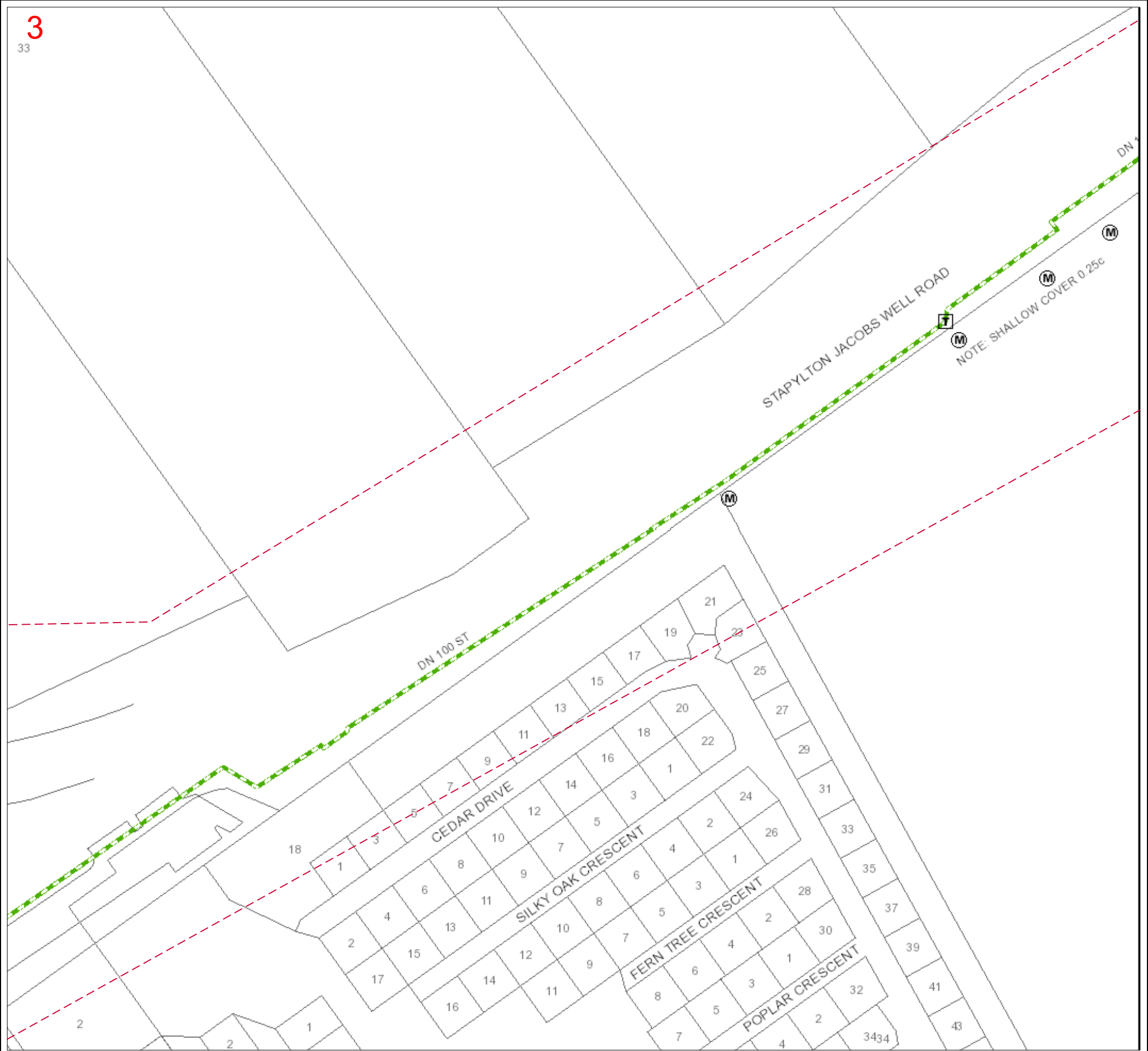
- | | |
|----------|-------------------------------------|
| CI | Cast Iron |
| CU | Copper |
| GAL | Wrought Galvanised Iron |
| PGAL | Poly Coated Wrought Galvanised Iron |
| ST | Steel |
| NY/ NY11 | Nylon |
| PE | Polyethylene |
| MDPE | Medium Density Polyethylene |
| HDPE | High Density Polyethylene |
| DN | Nominal Diameter |
| OD | Outside Diameter |

Examples: 40PE in DN80 CI 40mm Polyethylene in an 80mm (Nominal Diameter) Cast Iron Sleeve
63PE INS 63mm Polyethylene inserted in another pipe

Line/ Polygon Request

Data Source

Pipeline Data Copyright APA Group, Property Parcels Copyright QLD Government, UBD Imagery – Copyright Sensis, DBYD Dig Location provided by DBYD.

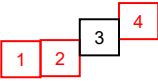


88097344 Map Sheet: 3

Papersize: A3 Scale: 1: 1000



Map Key:



This maps is created in colour and shall be printed in colour

Legend

Distribution Main	Gas Assets and Fittings	Pipe Materials
Class 900 Transmission	Gate Station	CI Cast Iron
Class 600 Transmission	Regulator Station	CU Copper
Class 300 Transmission	Block/ Emergency Valve	GAL Wrought Galvanised Iron
High Pressure Steel	Isolation Valve	PGAL Poly Coated Wrought Galvanised Iron
High Pressure PE Trunk	Test Point	ST Steel
High Pressure/ Class 500	Syphon	NY/ NY11 Nylon
Medium Pressure PE/ Nylon	Anode	PE Polyethylene
Medium Pressure (Allgas)	Pipeline Marker	MDPE Medium Density Polyethylene
Low Pressure	Trace Wire Point	HDPE High Density Polyethylene
LPG	Reducer	DN Nominal Diameter
TLP	Pipe Connector/ Tee	OD Outside Diameter
Proposed/ Under Construction	Pipe Connector	
Idle Gas Pipe	End Cap	
Abandoned Gas Pipe		
Sleeve		

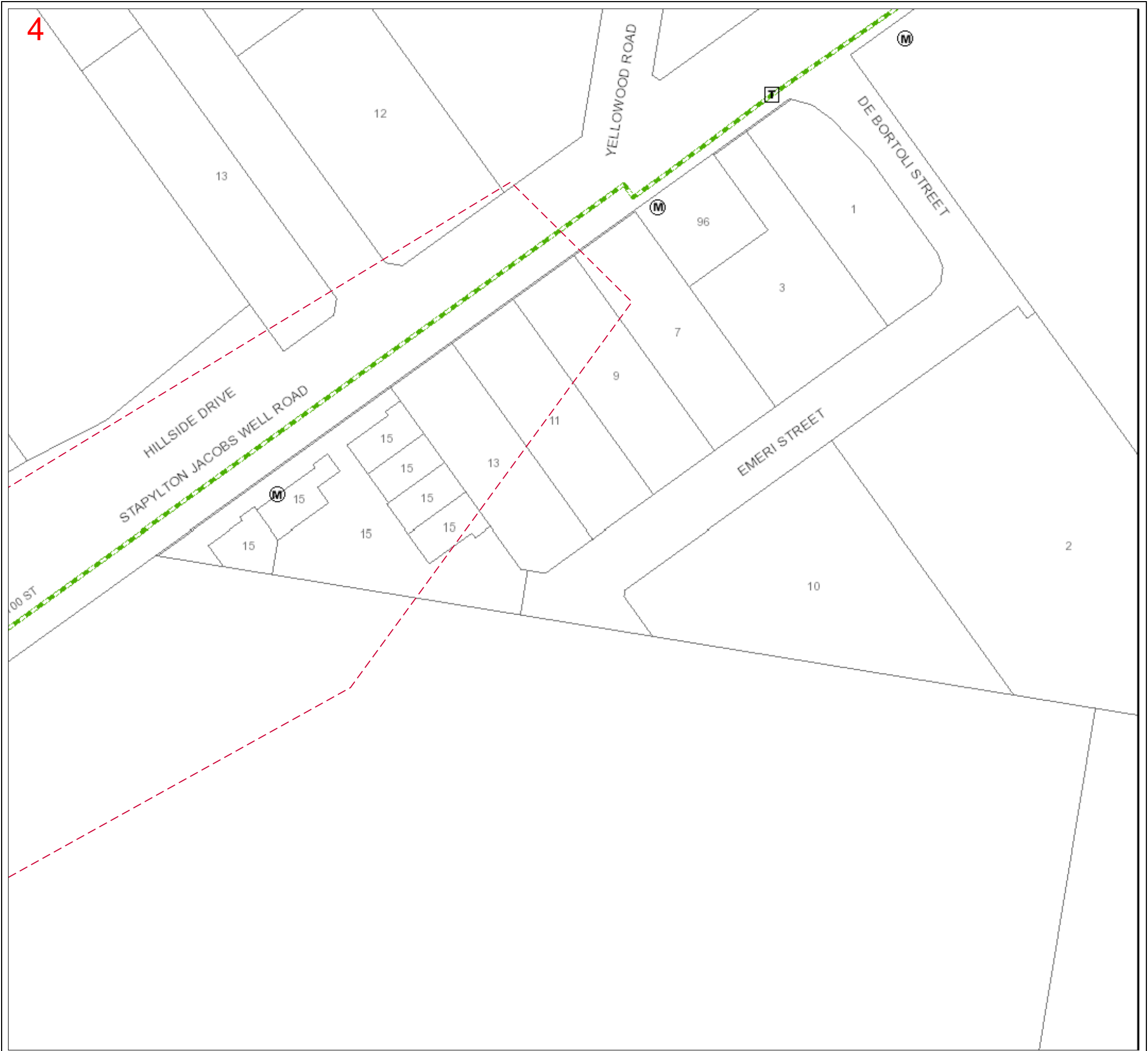
(1) Medium Pressure in AGN/ Nylon in Allgas

Examples:	40PE in DN80 CI	40mm Polyethylene in an 80mm (Nominal Diameter) Cast Iron Sleeve
	63PE INS	63mm Polyethylene inserted in another pipe

Line/ Polygon Request

Data Source

Pipeline Data Copyright APA Group, Property Parcels Copyright QLD Government, UBD Imagery – Copyright Sensis, DBYD Dig Location provided by DBYD.

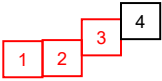


88097344 Map Sheet: 4

Papersize: A3 Scale: 1: 1000



Map Key:



This maps is created in colour and shall be printed in colour

Legend

Distribution Main	Gas Assets and Fittings	Pipe Materials
Class 900 Transmission	Gate Station	CI Cast Iron
Class 600 Transmission	Regulator Station	CU Copper
Class 300 Transmission	Block/ Emergency Valve	GAL Wrought Galvanised Iron
High Pressure Steel	Isolation Valve	PGAL Poly Coated Wrought Galvanised Iron
High Pressure PE Trunk	Test Point	ST Steel
High Pressure/ Class 500	Syphon	NY/ NY11 Nylon
Medium Pressure PE/ Nylon	Anode	PE Polyethylene
Medium Pressure (Allgas)	Pipeline Marker	MDPE Medium Density Polyethylene
Low Pressure	Trace Wire Point	HDPE High Density Polyethylene
LPG	Reducer	DN Nominal Diameter
TLP	Pipe Connector/ Tee	OD Outside Diameter
Proposed/ Under Construction	Pipe Connector	
Idle Gas Pipe	End Cap	
Abandoned Gas Pipe		
Sleeve		

(1) Medium Pressure in AGN/ Nylon in Allgas

Examples: 40PE in DN80 CI 40mm Polyethylene in an 80mm (Nominal Diameter) Cast Iron Sleeve

63PE INS 63mm Polyethylene inserted in another pipe

Line/ Polygon Request

Data Source

Pipeline Data Copyright APA Group, Property Parcels Copyright QLD Government, UBD Imagery – Copyright Sensis, DBYD Dig Location provided by DBYD.

Working Around Gas Assets: Duty of Care and Responsibilities

It is illegal to interfere or tamper with gas infrastructure.

Offenders who interfere or tamper with gas infrastructure may be prosecuted under relevant legislation and there are very serious penalties for such offences

"Gas infrastructure" or "infrastructure" in this document refers to any infrastructure or property owned or operated by APA Group including, but not limited to natural gas mains, services and regulator/meter stations or regulator pits.

1. Planning Your Work

- a. The constructor must:
 - i. Request plans of APA Group infrastructure for a particular location at a reasonable time before construction begins (at least 5 business days);
 - ii. Design for minimal impact and ensure protection of APA Group infrastructure, this includes networks managed by APA on behalf of Australian Gas Networks and Allgas; and
 - iii. Contact APA Group if their infrastructure is in any way affected by planned construction activities.

2. Before You Start Work

- a. Please Note: **You will be responsible to pay for the repair of any damage by you to gas assets.**
- b. You must obtain **Dial Before You Dig** (DBYD) documentation before any on-site construction or excavation commences. This document is to be read in conjunction with the Dial Before You Dig plans and other relevant documentation.
APA Group will provide free site plans if an APA Group infrastructure location request is made to APA on **1800 085 628**
- c. If DBYD documents indicate you will be working within 3m of a high pressure or transmission gas pipeline, you must complete and submit the **Authority to Work Request** provided with your DBYD documentation **five (5) business days** prior to commencing the work. Requests **under** five (5) business days will incur extra charges.
- d. APA Group shall assess your Authority to Work Request and will inform you if a Site Watch is required. A Site Watch involves the presence of an APA representative at site to advise on locating and working around the asset. Where on-site location advice is provided, the constructor is responsible for all hand digging (potholing) to visually locate and expose APA Group infrastructure. Vacuum excavations may only be used if permission is granted by APA and if it is used on high pressure mains Site Watch will be required. **Site Watch services are charged at an hourly rate.**
- e. The principal contractor for the site must provide APA Group with a written construction methodology for all works impacting or encroaching on APA infrastructure. All construction methodology documents will be reviewed by APA Group prior to the commencement of site works. Construction methodology documents must be submitted as part of an Authority to Work Request (send to permitsqld@apa.com.au).
- f. Site Plans
 - i. Plans and/or details provided by APA Group through DBYD or otherwise are current for one (1) month from the date of dispatch and should be disposed of by shredding or any other secure disposal method after use.
 - ii. APA Group retains copyright in all plans and details provided in connection with any request.
 - iii. APA Group plans or other details are provided for the use of the applicant, its servants, employees, contractors and agents, and must not be used for any unauthorised purpose.
 - iv. APA Group plans are pipe indication diagrams only and indicate the presence of plant in the general vicinity of the geographical area shown. Exact ground cover and alignments cannot be given with any certainty as such levels can change over time.
 - v. APA Group, its servants, employees, or agents shall not be liable for any loss or damage caused or occasioned by the use of plans and/or details so supplied to the applicant/constructor, its servants, employees, contractors and/or agents, and the applicant/constructor agrees to indemnify APA Group against any claim or demand for any such loss or damage.
 - vi. The constructor is responsible for all infrastructure damage occasioned to APA Group infrastructure.
 - vii. APA Group reserves all rights to recover compensation for loss or damage caused by interference or damage, including consequential loss and damages to its property and gas infrastructure.
 - viii. All care is taken in the preparation of location drawings and plans, but NO responsibility is accepted by APA Group for errors or omissions.

3. Working in the Vicinity of a Gas Pipeline

a. **Excavation** near Gas Mains and Services

PLEASE NOTE: Unless otherwise approved, mechanical excavation is not permitted above, or within 600mm of either side of APA Group infrastructure.

- i. **Location of Gas Mains and Services:** Examining the DBYD documentation and other plans is not sufficient as reference points may change from the time of installation and recording on documentation. You MUST use appropriately qualified plant locators to accurately locate and prove the position of all assets and then validate these positions prior to commencing work. For all work to be done within 3.0 metres of APA Group infrastructure, the constructor is required to hand dig (pothole) and expose the plant, hence proving its exact location before work can commence. Vacuum excavation can cause failure of some types of gas mains and therefore APA Group must be contacted prior to any vacuum excavation.
Please note that new APA Group gas mains generally have a plastic warning tape or lightweight plastic board buried above the pipe but this is not the case for older mains or when pipe is laid by means of boring or located in conduit.
 - ii. **IMPORTANT NOTE:** Not all gas services (i.e. pipe from gas main to a gas meter in an individual property) are captured on APA Plans. Gas services shown on plans are indicative only and do not pinpoint the exact location of APA's asset. A gas service may also cross a road to reach a property. To confirm the presence of a gas service, please contact the APA DBYD number below for further information.
 - iii. **Installation of Utilities Parallel to Gas Mains and Services:** If construction work is being undertaken parallel to APA Group gas mains, then hand digging (potholing) at least every 4 m is required to establish the location of all gas mains. Nominal locations must be confirmed before work can commence. A minimum clearance of 600mm must be maintained from gas mains unless otherwise approved by APA. If an excavation exceeds the depth of the gas mains and it is likely that the covers or bedding material around the pipes will move, approval must be sought from APA Group's Capital Works team.
 - iv. **Installation of Utilities Across Gas Mains and Services:** A minimum clearance of 300mm above and below and APA Group gas mains must be maintained unless otherwise approved by APA. If the width or depth of the excavation is such that the gas mains will be exposed or unsupported, then APA Group must be contacted to determine whether the gas mains should be taken out of service, or whether they need to be protected or supported. Protective cover strips when removed must be replaced under APA Group supervision.
 - v. **Exposed Gas mains and Services:** Exposure of APA infrastructure shall be limited to potholing for location purposes. Any other exposure of pipe is not permitted unless expressly approved by APA Group. Exposed gas pipes must be protected by the constructor against the effects of heat by shielding or covering with a suitable material. Heating of exposed plastic pipes is dangerous. If depth of cover is compromised in any way due to works, please contact APA immediately.
 - vi. **Heavy machinery Operation over Gas Mains and Services:** Where heavy "Crawler" or "Vibration" type machinery is operated over the top of gas mains, a minimum cover of 750mm to the gas mains must be maintained using load bearing protection whilst the machinery is in operation.
 - vii. **Directional Drilling Near Gas Mains and Services:** When drilling parallel to gas mains, trial holes must be carefully hand dug at least every 4m to prove the actual location of the conduits/pipes before using drilling machinery. Where it is required to drill across the line of gas mains, the actual location of the gas mains must first be proven by the constructor by hand digging. A trench must be excavated one metre from the side of the gas mains where the auger will approach to ensure a minimum clearance of 600mm for gas mains can be maintained unless otherwise approved by APA.
 - viii. **Explosives:** Clearances must be obtained from APA Group's Networks Engineering Manager for use of explosives in the vicinity of gas mains. Please contact the APA Group.
- b. **Damage Reporting:** All damage to conduits and pipes and any other gas infrastructure and property must be reported to APA Group no matter how insignificant the damage appears to be. Even very minor damage to protective coverings can lead to eventual failure through corrosion. All work in the vicinity of damaged infrastructure should cease and the area should be vacated until a clearance to continue work has been obtained from an APA Group officer. Please contact the Emergency number below to report damage.
- c. **Solutions and Assistance:** If it is determined that APA Group infrastructure is likely to be impacted or encroached upon by planned construction, APA Group must be contacted to arrange for possible engineering solutions. If APA Group relocation or protection works are part of the agreed solution, then payment to APA Group for the cost of this work will be the responsibility of the principal contractor. APA Group will provide an estimated quotation for work on receipt of the order number before work will proceed.
- d. **Reinstatement:** APA assets affected by third party works as highlighted above are to be reinstated as per APA requirements, potentially including but not limited to; warning tape/marker board, soft bedding/backfill materials, trench dimensions, depth of cover, trace wire for PE mains, compaction requirements, concrete protection, and surface re-instatement.

4. Contacting APA

GAS EMERGENCIES 24 HRS 1800 GAS LEAK (1800 427 532)	GAS PLANT RELOCATIONS APA CAPITAL WORKS PH: 07 3215 6709 FAX: 07 3215 6699 capitalworksqldnetworks@apa.com.au	APA GROUP GAS ASSET LOCATIONS TEAM (PERMITS OFFICE) PH: 07 3215 6700 FAX: 07 3215 6699 permitsqld@apa.com.au	DIAL BEFORE YOU DIG SUPPORT PH: 1800 085 628
--	---	---	---

HIGH PRESSURE GAS DISTRIBUTION MAINS "AUTHORITY TO WORK" REQUEST

N.B. THIS IS NOT A PERMIT TO WORK

SITE ADDRESS:

SUBURB:UBD MAP REF:.....

DBYD Sequence Number:..... Date of DBYD Enquiry.....

(Note: Only valid enquiries will be accepted and the currency of DBYD requests will affect your permit period. APA Group's DBYD requests are valid for 30 days only. Enquiries may need to be renewed and a new application may be required)

COMMENTS:.....

BROAD DESCRIPTION OF WORK (please provide any approvals from APA Group related to these works)

WORK TO BE CARRIED OUT:

- | | | |
|----------|---|--------------------------|
| Class 1. | Location | |
| | Works crossing a high pressure gas mains | ☐ |
| Class 2. | Location | |
| | Works within 3 metres of a high pressure gas mains | ☐ |
| Class 3. | Location | |
| | Works involving large excavations that would cause ground movement, vibrations or blasting beyond 3m of a high pressure gas mains | ☐ |
| Class 4. | Location | |
| | Works within 1m of gas service or connection to industrial gas meter | ☐ |

DETAILS OF WORK INVOLVED (Tick Applicable)

- | | | | |
|-----------------------------------|--------------------------|---------------------------|--------------------------|
| Excavation | ☐ | Change to surface level | ☐ |
| Service crossing (Gas CONNECTION) | ☐ | Boring | ☐ |
| Proving (Dial Before You Dig) | ☐ | Blasting | ☐ |
| Earthworks | ☐ | Road Construction/Change? | ☐ |
| Vacuum Excavation | ☐ | Other (give details) | ☐ |

Relevant drawings, Block Plans etc, attached Yes ☐ No ☐

PROPOSED DATES AND TIMES

From:

To:

Excavation / / 20... am/pm / / 20... am/pm

Backfill / / 20... am/pm / / 20... am/pm

Insurance Cover – Current Level None ☐ \$5M ☐ \$10M ☐ \$20M ☐ Other ☐ _

NOTES

1. This Authority to Work applies only to work in the vicinity of the Gas Mains. It does not authorise work near or on the Gas Mains itself.
2. A minimum of 5 business days must be allowed between receipt by APA Group of this Request and a response. However, more time for notification may be necessary.
3. For Class 1 and Class 2 classifications, this application must be accompanied by a detailed sequence of events, outlining all aspects of work involved and work is not permitted until an Authority to Work is issued.
4. For class 1 and 2 Dial Before You Dig, APA Group will arrange for an inspector to be on site as necessary during the work. An inspector must be present at all times for works involving excavation within 1m of the Gas Mains. APA Group will advise the requirement for an inspector for other works within 3m of the Gas Mains.
5. The applicant is responsible for any damage resulting from the work and all consequential damages and losses arising from such damage and therefore must insure against every liability of the contractor in respect of or arising out of any loss of life, loss of or damage to property of person (both real and personal), arising out of or in any way connected to this permit.

Such insurance must be arranged for an indemnity of not less than \$20 Million unless otherwise agreed.

Permit Requested By:(print name).....Signature:Date .../.../....

Company:..... Postal Address:.....

Phone No:..... Fax number..... Email.....

Requestors PO Number..... Site Contact Details: Name.....

Site Contact Number.....

Principal Contractors Details(if required).....

Principal Contractors Contact details:.....

Please be advised;
Under the Work Health and Safety Act 2011, each work place has an obligation to comply to Workplace Health and Safety Regulations and Codes of Practice.

APA Group brings to your attention Work Health and Safety Regulations 2011, Chapter 4: Hazardous Work. Failure to comply to the above regulation may result in APA Group reporting the non-compliance to Workplace Health and Safety.

Office use only

Received: Date .../.../....

Site Watch required? **Yes/No** (please circle)

Pipeline Officer:

(print name).....Signature:Date: .../.../....

Further information can be requested via:

Post: **Permit Applications QLD**

PO Box 885 Hamilton Central QLD 4007

Phone: (07) 3215 6700 though an application will most likely be required

Email: permitsqld@apa.com.au

24/01/2019

Company: Gassman Development Perspective
Mr Regardt Schutte
76 Business Street
Yatala
QLD 4207

rschutte@gassman.com.au

Dear Mr Regardt Schutte

Sequence Number: 79545758
Worksite Address: 60 Stapylton Jacobs Well Road
Stapylton
QLD 4207

RE: REQUEST FOR APA GROUP (APA) UNDERGROUND DIAL BEFORE YOU DIG

Dear Sir/Madam

In response to the above enquiry we wish to confirm that APA **operates underground plant** (Mains and / or Services) at or in the vicinity of the above address.

Please check that the following map represents the area you requested - if the area is not correct please contact our Dial Before You Dig Officer - (08) 8115 4500. If works are proposed adjacent to any underground plant operated by APA please ensure compliance with the attached "DUTY OF CARE"

Please find enclosed the following information in support of the above: -

1. A location map of the **suburb** the service is in and an A4 location map showing the **status** of APA underground plant (Mains and / or Services) adjacent to the subject site
2. DUTY OF CARE statement which forms **an integral part** of any information supplied by APA

For **GAS EMERGENCIES 24 HOURS - 1800 GAS LEAK (1800 427 532)**

Please note that as work on APA underground plant is ongoing any information supplied on their status can only be considered current for **30 days from the date of this response**. Expired locations, i.e., over 30 days from the date of this response, require a new Dial Before You Dig request to validate location information.

Should you have any questions with **regards to the attached information** please contact our Dial Before You Dig officer - (08) 8115 4500.

For any excavation works, including vacuum excavations, an "Authority to Work" Permit may be required and a Site Watch may need to be scheduled.

A minimum of 5 business days' notice is required to process permit applications. Permit applications can be made by: -

Post: Permit Applications QLD, PO Box 885 Hamilton Central QLD 4007 or

Email: permitsqld@apa.com.au or Phone: (07) 3215 6700 though an application will most likely be required

Charges may apply for Site Watch requests. Your sequence number may be requested when making your booking, please have this available when you request either a mains location or site watch.

For other enquiries please contact your gas retailer

To find out who your retailer is call 1800 657 567

Warning: if there are high or transmission pressure gas mains present in the vicinity of your area of interest, an APA employee must be in attendance during any excavation within 3 metres of high or transmission pressure mains, and an "Authority to Work" permit must be issued prior to work commencing.

Please contact us for a permit to work request if you believe your work is within this zone, by completing the "Authority to Work" request form attached and sending to APA. 5 days' notice is required prior to the commencement of any excavation to assess and allocate resources. Contact phone numbers are shown at the end of the notice of location.

Please Note: For some DBYD enquiries, you might receive 2 responses from the APA Group. Please read both responses carefully as they will relate to different assets. It is your responsibility to action all requirements set out in APA Group responses.

Please take some time to review the entire response document and check the information supplied and please let us have any feedback by sending an email to DBYDNetworksAPA@apa.com.au or contacting us direct on (08) 8115 4500.

Yours faithfully

Dial Before You Dig Officer
APA Group

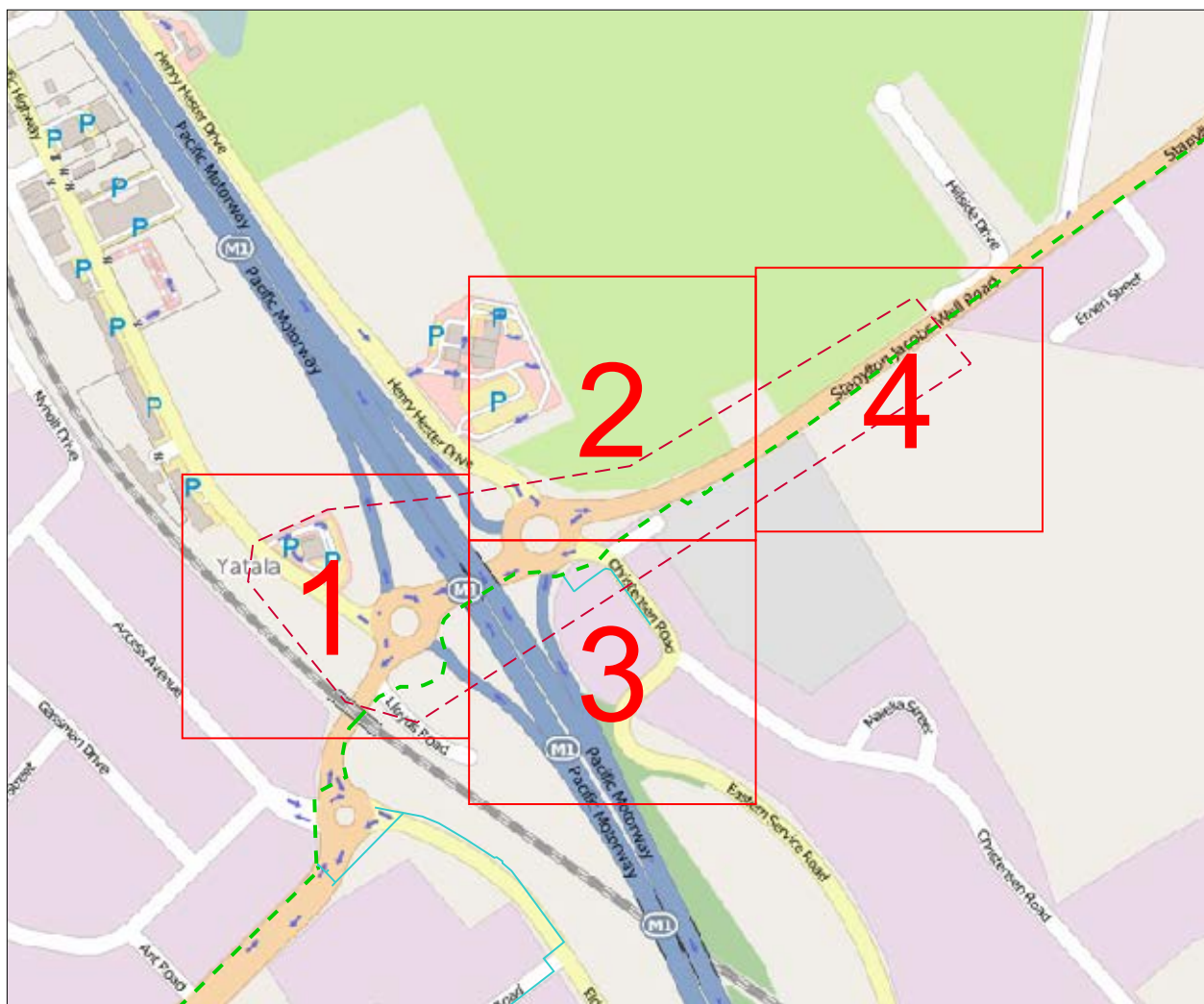
Email DBYDNetworksAPA@apa.com.au
Ph. (08) 8115 4500

24/01/2019

SCALE: DO NOT SCALE

REF NO: 79545758

As work on APA underground plant is ongoing any drawing with an issue date of more than 30 days previous can no longer be considered valid. All persons planning civil works on any site are advised to contact APA to confirm location. All underground gas pipelines are the property of APA & are not to be accessed by unauthorised persons. All care is taken with preparation of the drawings & no responsibility is accepted for errors or omissions



Enquiry: 79545758

Papersize: A4 Scale: 1: 7000

0 0.08km



Data Source

Pipeline Data Copyright APA Group, Property Parcels Copyright QLD Government, UBD Imagery – Copyright Sensis, DBYD Dig Location provided by DBYD.

operated by



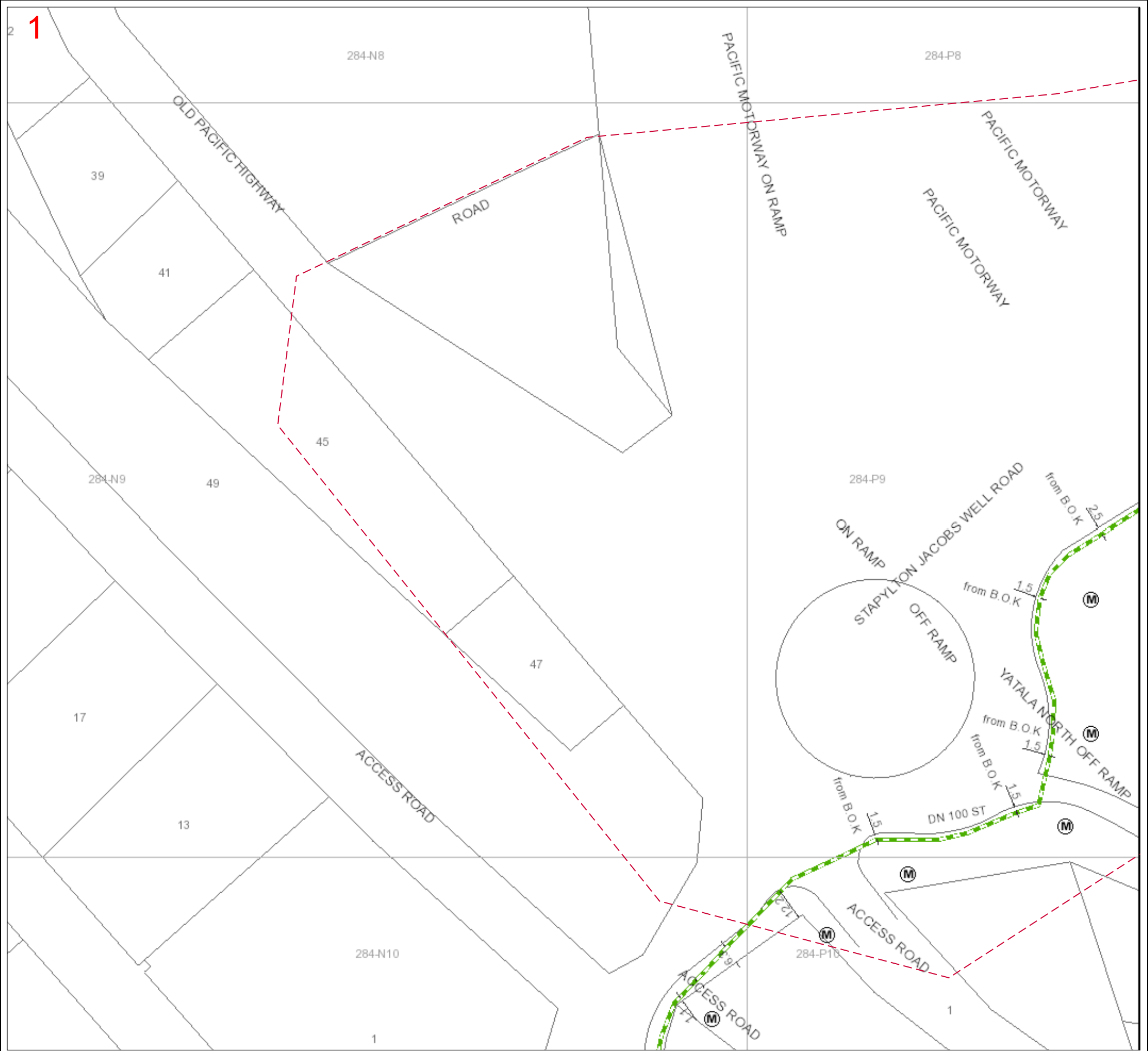
This maps is created in colour and shall be printed in colour

Legend

Distribution Main	Gas Assets and Fittings	Pipe Materials
- Class 900 Transmission - Class 600 Transmission - Class 300 Transmission - High Pressure Steel - High Pressure PE Trunk - High Pressure/ Class 500 - Medium Pressure PE/ Nylon - Medium Pressure (Allgas) - Low Pressure - LPG - TLP - Proposed/ Under Construction - Idle Gas Pipe - Abandoned Gas Pipe - Sleeve	- Gate Station - Regulator Station - Block/ Emergency Valve - Isolation Valve - Test Point - Syphon - Anode - Pipeline Marker - Trace Wire Point - Reducer - Pipe Connector/ Tee - Pipe Connector - End Cap	- CI Cast Iron - CU Copper - GAL Wrought Galvanised Iron - PGAL Poly Coated Wrought Galvanised Iron - ST Steel - NY/ NY11 Nylon - PE Polyethylene - MDPE Medium Density Polyethylene - HDPE High Density Polyethylene - DN Nominal Diameter - OD Outside Diameter

Examples: 40PE in DN80 CI 40mm Polyethylene in an 80mm (Nominal Diameter) Cast Iron Sleeve
63PE INS 63mm Polyethylene inserted in another pipe

Line/ Polygon Request



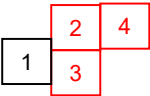
79545758 Map Sheet: 1

Papersize: A3 Scale: 1: 1000

0 0.01km



Map Key:



This maps is created in colour and shall be printed in colour

Legend

Distribution Main

- Class 900 Transmission
- Class 600 Transmission
- Class 300 Transmission
- High Pressure Steel
- High Pressure PE Trunk
- High Pressure/ Class 500
- Medium Pressure PE/ Nylon
- Medium Pressure (Allgas)
- Low Pressure
- LPG
- TLP
- Proposed/ Under Construction
- Idle Gas Pipe
- Abandoned Gas Pipe
- Sleeve

(1) Medium Pressure in AGN/ Nylon in Allgas

Gas Assets and Fittings

- Gate Station
- Regulator Station
- Block/ Emergency Valve
- Isolation Valve
- Test Point
- Syphon
- Anode
- Pipeline Marker
- Trace Wire Point
- Reducer
- Pipe Connector/ Tee
- Pipe Connector
- End Cap

Pipe Materials

- CI Cast Iron
- CU Copper
- GAL Wrought Galvanised Iron
- PGAL Poly Coated Wrought Galvanised Iron
- ST Steel
- NY/ NY11 Nylon
- PE Polyethylene
- MDPE Medium Density Polyethylene
- HDPE High Density Polyethylene
- DN Nominal Diameter
- OD Outside Diameter

Examples:

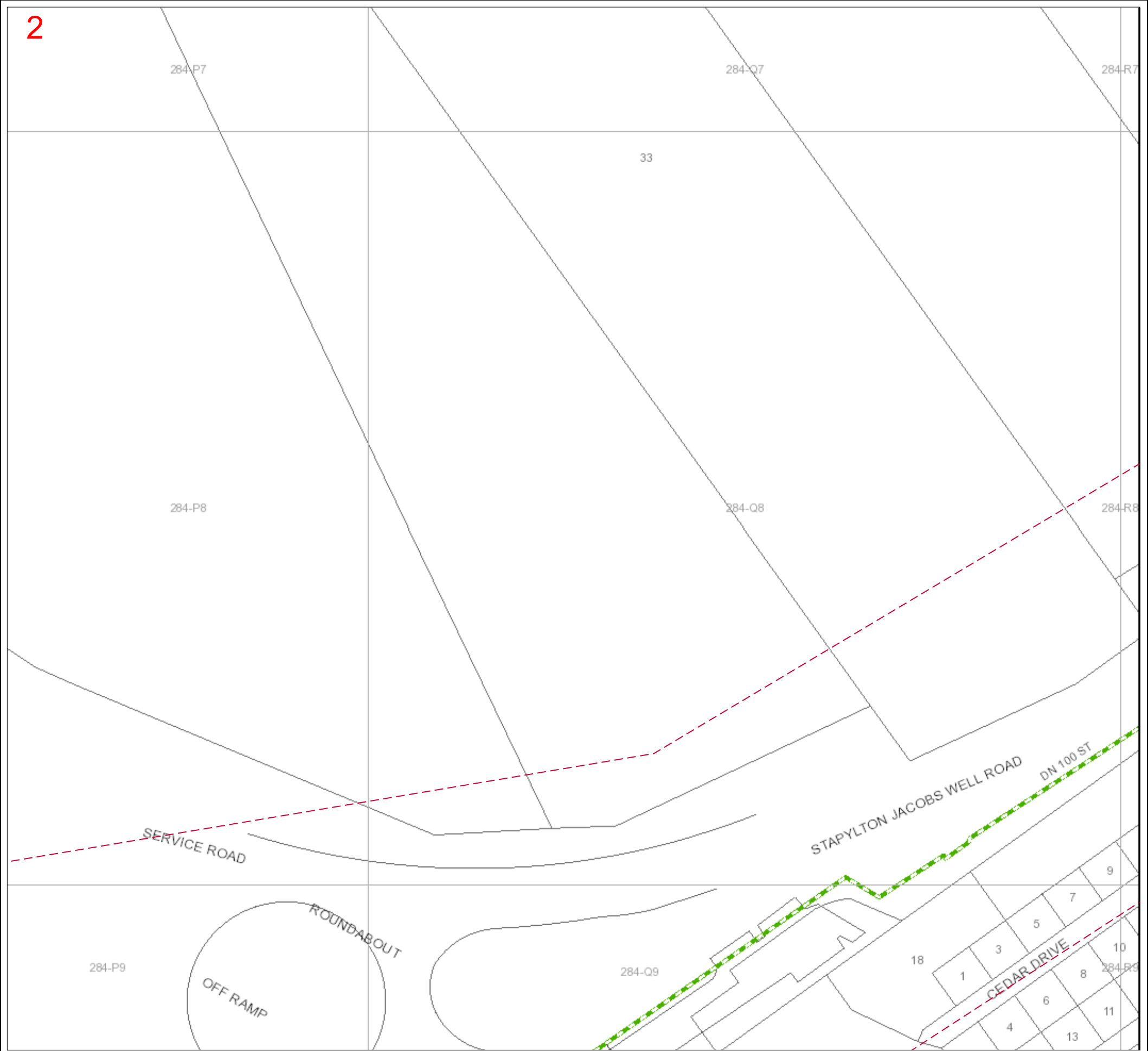
40PE in DN80 CI
63PE INS

40mm Polyethylene in an 80mm (Nominal Diameter) Cast Iron Sleeve
63mm Polyethylene inserted in another pipe

Line/ Polygon Request

Data Source

Pipeline Data Copyright APA Group, Property Parcels Copyright QLD Government, UBD Imagery – Copyright Sensis, DBYD Dig Location provided by DBYD.



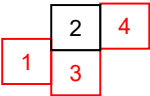
79545758 Map Sheet: 2

Papersize: A3 Scale: 1: 1000

0 0.01km



Map Key:



This maps is created in colour and shall be printed in colour

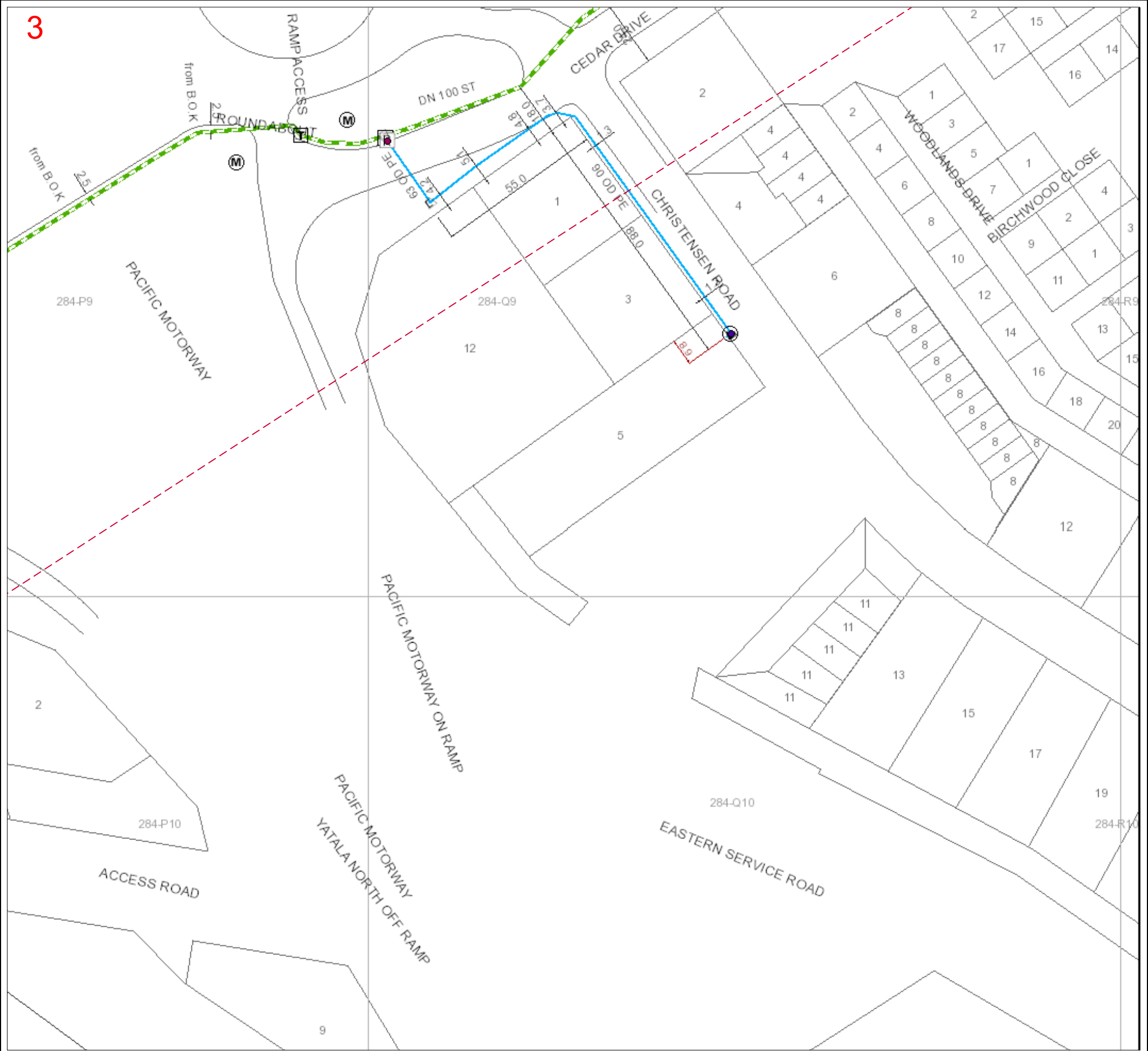
Legend

Distribution Main	Gas Assets and Fittings	Pipe Materials
Class 900 Transmission	Gate Station	CI Cast Iron
Class 600 Transmission	Regulator Station	CU Copper
Class 300 Transmission	Block/ Emergency Valve	GAL Wrought Galvanised Iron
High Pressure Steel	Isolation Valve	PGAL Poly Coated Wrought Galvanised Iron
High Pressure PE Trunk	Test Point	ST Steel
High Pressure/ Class 500	Syphon	NY/ NY11 Nylon
Medium Pressure PE/ Nylon	Anode	PE Polyethylene
Medium Pressure (Allgas)	Pipeline Marker	MDPE Medium Density Polyethylene
Low Pressure	Trace Wire Point	HDPE High Density Polyethylene
LPG	Reducer	DN Nominal Diameter
TLP	Pipe Connector/ Tee	OD Outside Diameter
Proposed/ Under Construction	Pipe Connector	
Idle Gas Pipe	End Cap	
Abandoned Gas Pipe		
Sleeve		

Examples:	40PE in DN80 CI	40mm Polyethylene in an 80mm (Nominal Diameter) Cast Iron Sleeve
	63PE INS	63mm Polyethylene inserted in another pipe
	Line/ Polygon Request	

Data Source

Pipeline Data Copyright APA Group, Property Parcels Copyright QLD Government, UBD Imagery – Copyright Sensis, DBYD Dig Location provided by DBYD.



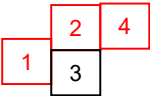
79545758 Map Sheet: 3

Papersize: A3 Scale: 1: 1000

0 0.01km



Map Key:



This maps is created in colour and shall be printed in colour

Legend

Distribution Main

- Class 900 Transmission
- Class 600 Transmission
- Class 300 Transmission
- High Pressure Steel
- High Pressure PE Trunk
- High Pressure/ Class 500
- Medium Pressure PE/ Nylon
- Medium Pressure (Allgas)
- Low Pressure
- LPG
- TLP
- Proposed/ Under Construction
- Idle Gas Pipe
- Abandoned Gas Pipe
- Sleeve

(1) Medium Pressure in AGN/ Nylon in Allgas

Gas Assets and Fittings

- Gate Station
- Regulator Station
- Block/ Emergency Valve
- Isolation Valve
- Test Point
- Syphon
- Anode
- Pipeline Marker
- Trace Wire Point
- Reducer
- Pipe Connector/ Tee
- Pipe Connector
- End Cap

Pipe Materials

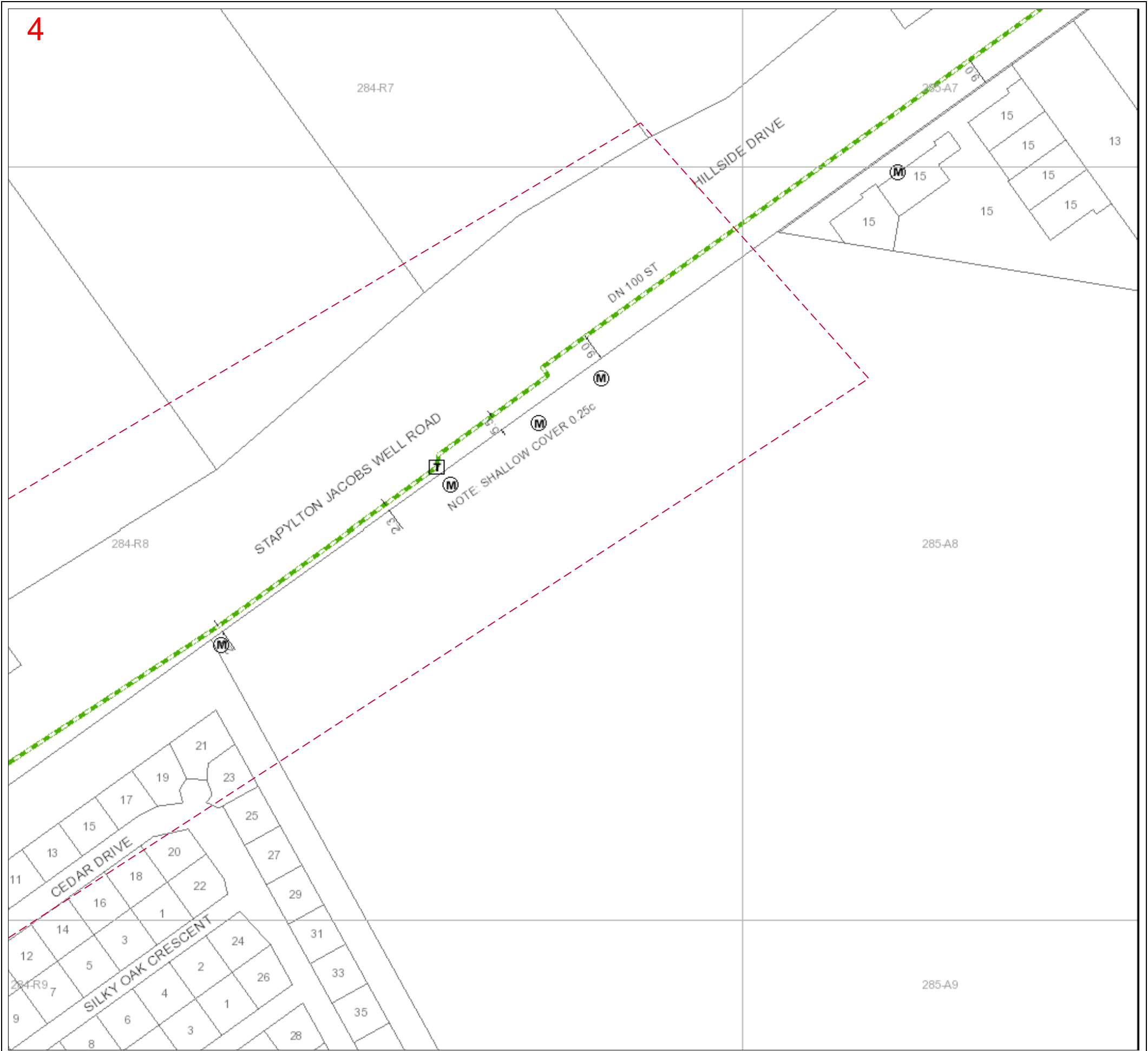
- CI Cast Iron
- CU Copper
- GAL Wrought Galvanised Iron
- PGAL Poly Coated Wrought Galvanised Iron
- ST Steel
- NY/ NY11 Nylon
- PE Polyethylene
- MDPE Medium Density Polyethylene
- HDPE High Density Polyethylene
- DN Nominal Diameter
- OD Outside Diameter

Examples: 40PE in DN80 CI 40mm Polyethylene in an 80mm (Nominal Diameter) Cast Iron Sleeve
63PE INS 63mm Polyethylene inserted in another pipe

Line/ Polygon Request

Data Source

Pipeline Data Copyright APA Group, Property Parcels Copyright QLD Government, UBD Imagery - Copyright Sensis, DBYD Dig Location provided by DBYD.



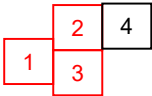
79545758 Map Sheet: 4

Papersize: A3 Scale: 1: 1000

0 0.01km



Map Key:



This maps is created in colour and shall be printed in colour

Legend

Distribution Main

- Class 900 Transmission
- Class 600 Transmission
- Class 300 Transmission
- High Pressure Steel
- High Pressure PE Trunk
- High Pressure/ Class 500
- Medium Pressure PE/ Nylon
- Medium Pressure (Allgas)
- Low Pressure
- LPG
- TLP
- Proposed/ Under Construction
- Idle Gas Pipe
- Abandoned Gas Pipe
- Sleeve

(1) Medium Pressure in AGN/ Nylon in Allgas

Gas Assets and Fittings

- Gate Station
- Regulator Station
- Block/ Emergency Valve
- Isolation Valve
- Test Point
- Syphon
- Anode
- Pipeline Marker
- Trace Wire Point
- Reducer
- Pipe Connector/ Tee
- Pipe Connector
- End Cap

Pipe Materials

- CI Cast Iron
- CU Copper
- GAL Wrought Galvanised Iron
- PGAL Poly Coated Wrought Galvanised Iron
- ST Steel
- NY/ NY11 Nylon
- PE Polyethylene
- MDPE Medium Density Polyethylene
- HDPE High Density Polyethylene
- DN Nominal Diameter
- OD Outside Diameter

Examples: 40PE in DN80 CI 40mm Polyethylene in an 80mm (Nominal Diameter) Cast Iron Sleeve
63PE INS 63mm Polyethylene inserted in another pipe

Line/ Polygon Request

Data Source

Pipeline Data Copyright APA Group, Property Parcels Copyright QLD Government, UBD Imagery – Copyright Sensis, DBYD Dig Location provided by DBYD.

Working Around Gas Assets: Duty of Care and Responsibilities

It is illegal to interfere or tamper with gas infrastructure.

Offenders who interfere or tamper with gas infrastructure may be prosecuted under relevant legislation and there are very serious penalties for such offences

"Gas infrastructure" or "infrastructure" in this document refers to any infrastructure or property owned or operated by APA Group including, but not limited to natural gas mains, services and regulator/meter stations or regulator pits.

1. Planning Your Work

- a. The constructor must:
 - i. Request plans of APA Group infrastructure for a particular location at a reasonable time before construction begins (at least 5 business days);
 - ii. Design for minimal impact and ensure protection of APA Group infrastructure, this includes networks managed by APA on behalf of Australian Gas Networks and Allgas; and
 - iii. Contact APA Group if their infrastructure is in any way affected by planned construction activities.

2. Before You Start Work

- a. Please Note: **You will be responsible to pay for the repair of any damage by you to gas assets.**
- b. You must obtain **Dial Before You Dig** (DBYD) documentation before any on-site construction or excavation commences. This document is to be read in conjunction with the Dial Before You Dig plans and other relevant documentation.
APA Group will provide free site plans if an APA Group infrastructure location request is made to APA on **(08) 8115 4500**
- c. If DBYD documents indicate you will be working within 3m of a high pressure or transmission gas pipeline, you must complete and submit the **Authority to Work Request** provided with your DBYD documentation **five (5) business days** prior to commencing the work. Requests **under** five (5) business days will incur extra charges.
- d. APA Group shall assess your Authority to Work Request and will inform you if a Site Watch is required. A Site Watch involves the presence of an APA representative at site to advise on locating and working around the asset. Where on-site location advice is provided, the constructor is responsible for all hand digging (potholing) to visually locate and expose APA Group infrastructure. Vacuum excavations may only be used if permission is granted by APA and if it is used on high pressure mains Site Watch will be required. **Site Watch services are charged at an hourly rate.**
- e. The principal contractor for the site must provide APA Group with a written construction methodology for all works impacting or encroaching on APA infrastructure. All construction methodology documents will be reviewed by APA Group prior to the commencement of site works. Construction methodology documents must be submitted as part of an Authority to Work Request (send to permitsqld@apa.com.au).
- f. Site Plans
 - i. Plans and/or details provided by APA Group through DBYD or otherwise are current for one (1) month from the date of dispatch and should be disposed of by shredding or any other secure disposal method after use.
 - ii. APA Group retains copyright in all plans and details provided in connection with any request.
 - iii. APA Group plans or other details are provided for the use of the applicant, its servants, employees, contractors and agents, and must not be used for any unauthorised purpose.
 - iv. APA Group plans are pipe indication diagrams only and indicate the presence of plant in the general vicinity of the geographical area shown. Exact ground cover and alignments cannot be given with any certainty as such levels can change over time.
 - v. APA Group, its servants, employees, or agents shall not be liable for any loss or damage caused or occasioned by the use of plans and/or details so supplied to the applicant/constructor, its servants, employees, contractors and/or agents, and the applicant/constructor agrees to indemnify APA Group against any claim or demand for any such loss or damage.
 - vi. The constructor is responsible for all infrastructure damage occasioned to APA Group infrastructure.
 - vii. APA Group reserves all rights to recover compensation for loss or damage caused by interference or damage, including consequential loss and damages to its property and gas infrastructure.
 - viii. All care is taken in the preparation of location drawings and plans, but NO responsibility is accepted by APA Group for errors or omissions.

3. Working in the Vicinity of a Gas Pipeline

a. **Excavation** near Gas Mains and Services

PLEASE NOTE: Unless otherwise approved, mechanical excavation is not permitted above, or within 600mm of either side of APA Group infrastructure.

- i. **Location of Gas Mains and Services:** Examining the DBYD documentation and other plans is not sufficient as reference points may change from the time of installation and recording on documentation. You MUST use appropriately qualified plant locators to accurately locate and prove the position of all assets and then validate these positions prior to commencing work. For all work to be done within 3.0 metres of APA Group infrastructure, the constructor is required to hand dig (pothole) and expose the plant, hence proving its exact location before work can commence. Vacuum excavation can cause failure of some types of gas mains and therefore APA Group must be contacted prior to any vacuum excavation.
Please note that new APA Group gas mains generally have a plastic warning tape or lightweight plastic board buried above the pipe but this is not the case for older mains or when pipe is laid by means of boring or located in conduit.
 - ii. **IMPORTANT NOTE:** Not all gas services (i.e. pipe from gas main to a gas meter in an individual property) are captured on APA Plans. Gas services shown on plans are indicative only and do not pinpoint the exact location of APA's asset. A gas service may also cross a road to reach a property. To confirm the presence of a gas service, please contact the APA DBYD number below for further information.
 - iii. **Installation of Utilities Parallel to Gas Mains and Services:** If construction work is being undertaken parallel to APA Group gas mains, then hand digging (potholing) at least every 4 m is required to establish the location of all gas mains. Nominal locations must be confirmed before work can commence. A minimum clearance of 600mm must be maintained from gas mains unless otherwise approved by APA. If an excavation exceeds the depth of the gas mains and it is likely that the covers or bedding material around the pipes will move, approval must be sought from APA Group's Capital Works team.
 - iv. **Installation of Utilities Across Gas Mains and Services:** A minimum clearance of 300mm above and below and APA Group gas mains must be maintained unless otherwise approved by APA. If the width or depth of the excavation is such that the gas mains will be exposed or unsupported, then APA Group must be contacted to determine whether the gas mains should be taken out of service, or whether they need to be protected or supported. Protective cover strips when removed must be replaced under APA Group supervision.
 - v. **Exposed Gas mains and Services:** Exposure of APA infrastructure shall be limited to potholing for location purposes. Any other exposure of pipe is not permitted unless expressly approved by APA Group. Exposed gas pipes must be protected by the constructor against the effects of heat by shielding or covering with a suitable material. Heating of exposed plastic pipes is dangerous. If depth of cover is compromised in any way due to works, please contact APA immediately.
 - vi. **Heavy machinery Operation over Gas Mains and Services:** Where heavy "Crawler" or "Vibration" type machinery is operated over the top of gas mains, a minimum cover of 750mm to the gas mains must be maintained using load bearing protection whilst the machinery is in operation.
 - vii. **Directional Drilling Near Gas Mains and Services:** When drilling parallel to gas mains, trial holes must be carefully hand dug at least every 4m to prove the actual location of the conduits/pipes before using drilling machinery. Where it is required to drill across the line of gas mains, the actual location of the gas mains must first be proven by the constructor by hand digging. A trench must be excavated one metre from the side of the gas mains where the auger will approach to ensure a minimum clearance of 600mm for gas mains can be maintained unless otherwise approved by APA.
 - viii. **Explosives:** Clearances must be obtained from APA Group's Networks Engineering Manager for use of explosives in the vicinity of gas mains. Please contact the APA Group.
- b. **Damage Reporting:** All damage to conduits and pipes and any other gas infrastructure and property must be reported to APA Group no matter how insignificant the damage appears to be. Even very minor damage to protective coverings can lead to eventual failure through corrosion. All work in the vicinity of damaged infrastructure should cease and the area should be vacated until a clearance to continue work has been obtained from an APA Group officer. Please contact the Emergency number below to report damage.
- c. **Solutions and Assistance:** If it is determined that APA Group infrastructure is likely to be impacted or encroached upon by planned construction, APA Group must be contacted to arrange for possible engineering solutions. If APA Group relocation or protection works are part of the agreed solution, then payment to APA Group for the cost of this work will be the responsibility of the principal contractor. APA Group will provide an estimated quotation for work on receipt of the order number before work will proceed.
- d. **Reinstatement:** APA assets affected by third party works as highlighted above are to be reinstated as per APA requirements, potentially including but not limited to; warning tape/marker board, soft bedding/backfill materials, trench dimensions, depth of cover, trace wire for PE mains, compaction requirements, concrete protection, and surface re-instatement.

4. **Contacting APA**

GAS EMERGENCIES 24 HRS 1800 GAS LEAK (1800 427 532)	GAS PLANT RELOCATIONS APA CAPITAL WORKS PH: 07 3215 6709 FAX: 07 3215 6699 capitalworksqldnetworks@apa.com.au	APA GROUP GAS ASSET LOCATIONS TEAM (PERMITS OFFICE) PH: 07 3215 6700 FAX: 07 3215 6699 permitsqld@apa.com.au	DIAL BEFORE YOU DIG SUPPORT PH: (08) 8115 4500
--	---	---	---

HIGH PRESSURE GAS DISTRIBUTION MAINS "AUTHORITY TO WORK" REQUEST

N.B. THIS IS NOT A PERMIT TO WORK

SITE ADDRESS:

SUBURB: UBD MAP REF:

DBYD Sequence Number: Date of DBYD Enquiry:

(Note: Only valid enquiries will be accepted and the currency of DBYD requests will affect your permit period. APA Group's DBYD requests are valid for 30 days only. Enquiries may need to be renewed and a new application may be required)

COMMENTS:

BROAD DESCRIPTION OF WORK (please provide any approvals from APA Group related to these works)

WORK TO BE CARRIED OUT:

- | | | |
|----------|---|--------------------------|
| Class 1. | Location | |
| | Works crossing a high pressure gas mains | ☐ |
| Class 2. | Location | |
| | Works within 3 metres of a high pressure gas mains | ☐ |
| Class 3. | Location | |
| | Works involving large excavations that would cause ground movement, vibrations or blasting beyond 3m of a high pressure gas mains | ☐ |
| Class 4. | Location | |
| | Works within 1m of gas service or connection to industrial gas meter | ☐ |

DETAILS OF WORK INVOLVED (Tick Applicable)

- | | | | |
|-----------------------------------|--------------------------|---------------------------|--------------------------|
| Excavation | ☐ | Change to surface level | ☐ |
| Service crossing (Gas CONNECTION) | ☐ | Boring | ☐ |
| Proving (Dial Before You Dig) | ☐ | Blasting | ☐ |
| Earthworks | ☐ | Road Construction/Change? | ☐ |
| Vacuum Excavation | ☐ | Other (give details) | ☐ |

Relevant drawings, Block Plans etc, attached Yes ☐ No ☐

PROPOSED DATES AND TIMES

From:

To:

Excavation / / 20... am/pm / / 20... am/pm

Backfill / / 20... am/pm / / 20... am/pm

Insurance Cover – Current Level None ☐ \$5M ☐ \$10M ☐ \$20M ☐ Other ☐ _

NOTES

1. This Authority to Work applies only to work in the vicinity of the Gas Mains. It does not authorise work near or on the Gas Mains itself.
2. A minimum of 5 business days must be allowed between receipt by APA Group of this Request and a response. However, more time for notification may be necessary.
3. For Class 1 and Class 2 classifications, this application must be accompanied by a detailed sequence of events, outlining all aspects of work involved and work is not permitted until an Authority to Work is issued.
4. For class 1 and 2 Dial Before You Dig, APA Group will arrange for an inspector to be on site as necessary during the work. An inspector must be present at all times for works involving excavation within 1m of the Gas Mains. APA Group will advise the requirement for an inspector for other works within 3m of the Gas Mains.
5. The applicant is responsible for any damage resulting from the work and all consequential damages and losses arising from such damage and therefore must insure against every liability of the contractor in respect of or arising out of any loss of life, loss of or damage to property of person (both real and personal), arising out of or in any way connected to this permit.

Such insurance must be arranged for an indemnity of not less than \$20 Million unless otherwise agreed.

Permit Requested By:(print name).....Signature:Date .../.../....

Company:..... Postal Address:.....

Phone No:..... Fax number..... Email.....

Requestors PO Number..... Site Contact Details: Name.....

Site Contact Number.....

Principal Contractors Details(if required).....

Principal Contractors Contact details:.....

Please be advised;
Under the Work Health and Safety Act 2011, each work place has an obligation to comply to Workplace Health and Safety Regulations and Codes of Practice.

APA Group brings to your attention Work Health and Safety Regulations 2011, Chapter 4: Hazardous Work. Failure to comply to the above regulation may result in APA Group reporting the non-compliance to Workplace Health and Safety.

Office use only

Received: Date .../.../....

Site Watch required? **Yes/No** (please circle)

Pipeline Officer:

(print name).....Signature:Date: .../.../....

Further information can be requested via:

Post: **Permit Applications QLD**

PO Box 885 Hamilton Central QLD 4007

Phone: (07) 3215 6700 though an application will most likely be required

Email: permitsqld@apa.com.au



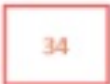
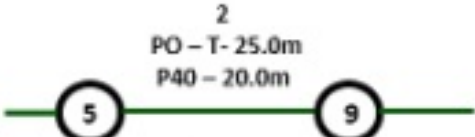
Indicative Plans

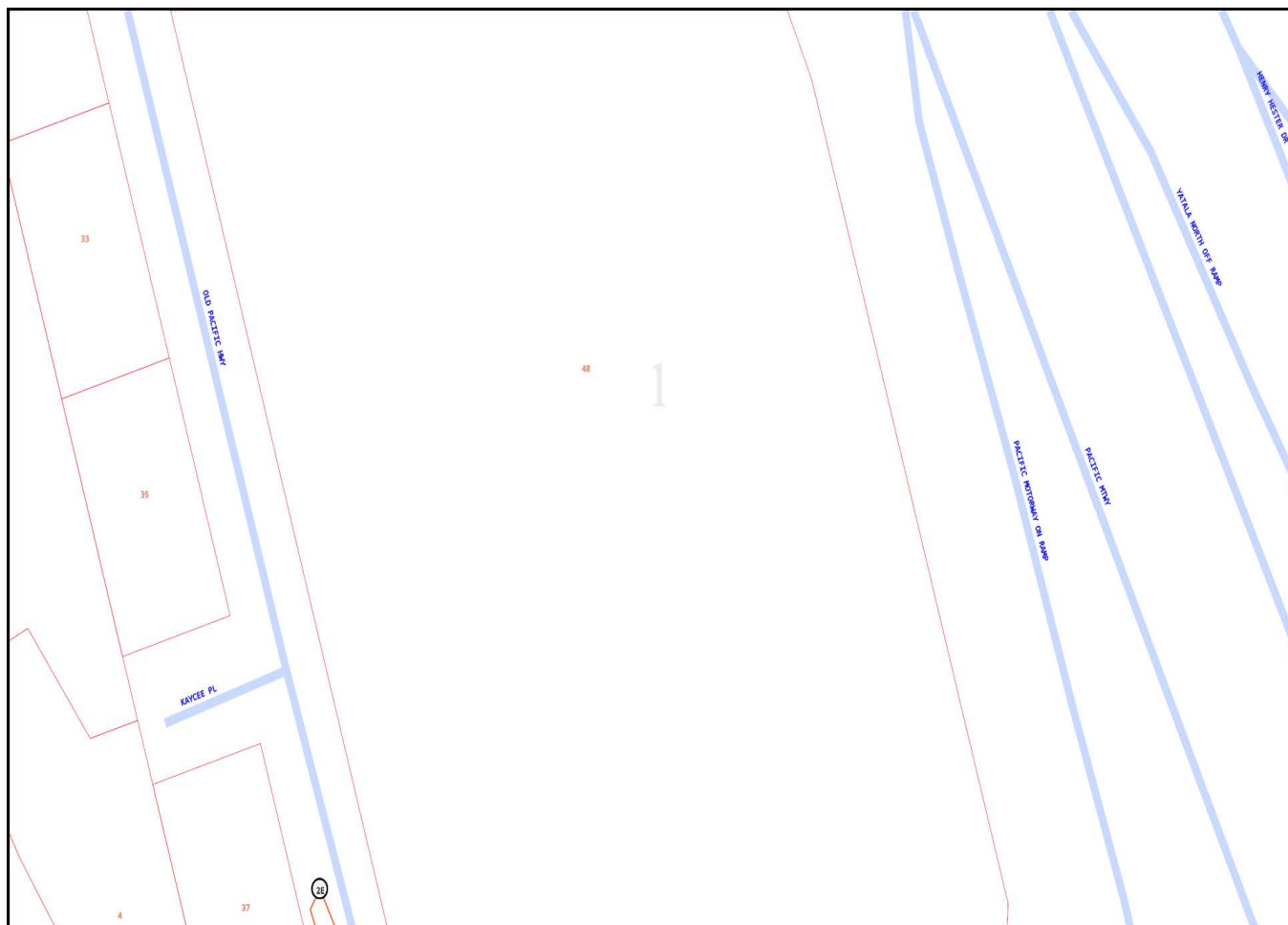
Issue Date:	20/08/2019	 DIAL BEFORE YOU DIG www.1100.com.au
Location:	Access Ave , Yatala , QLD , 4207	

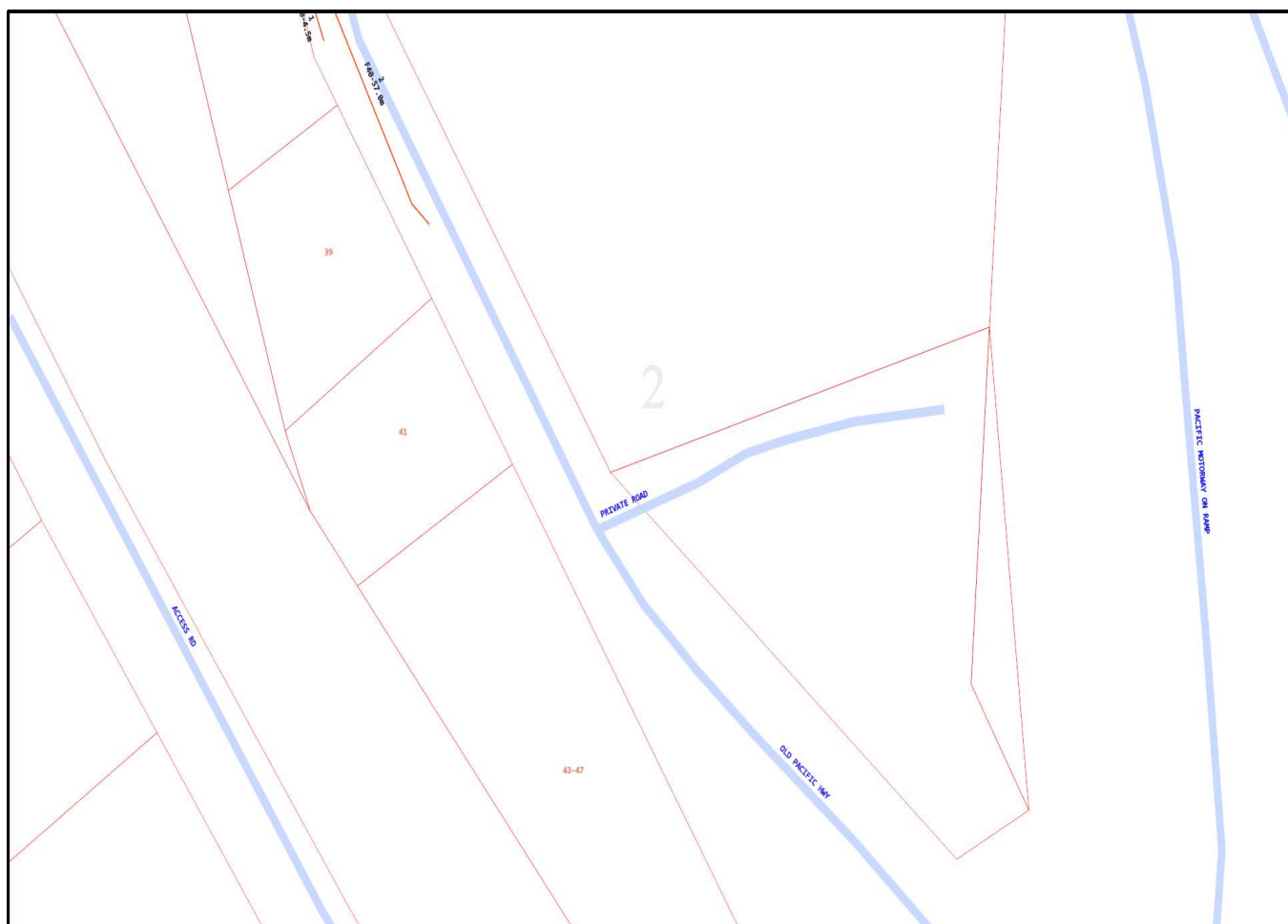
1	4	7	10
2	5	8	11
3	6	9	12

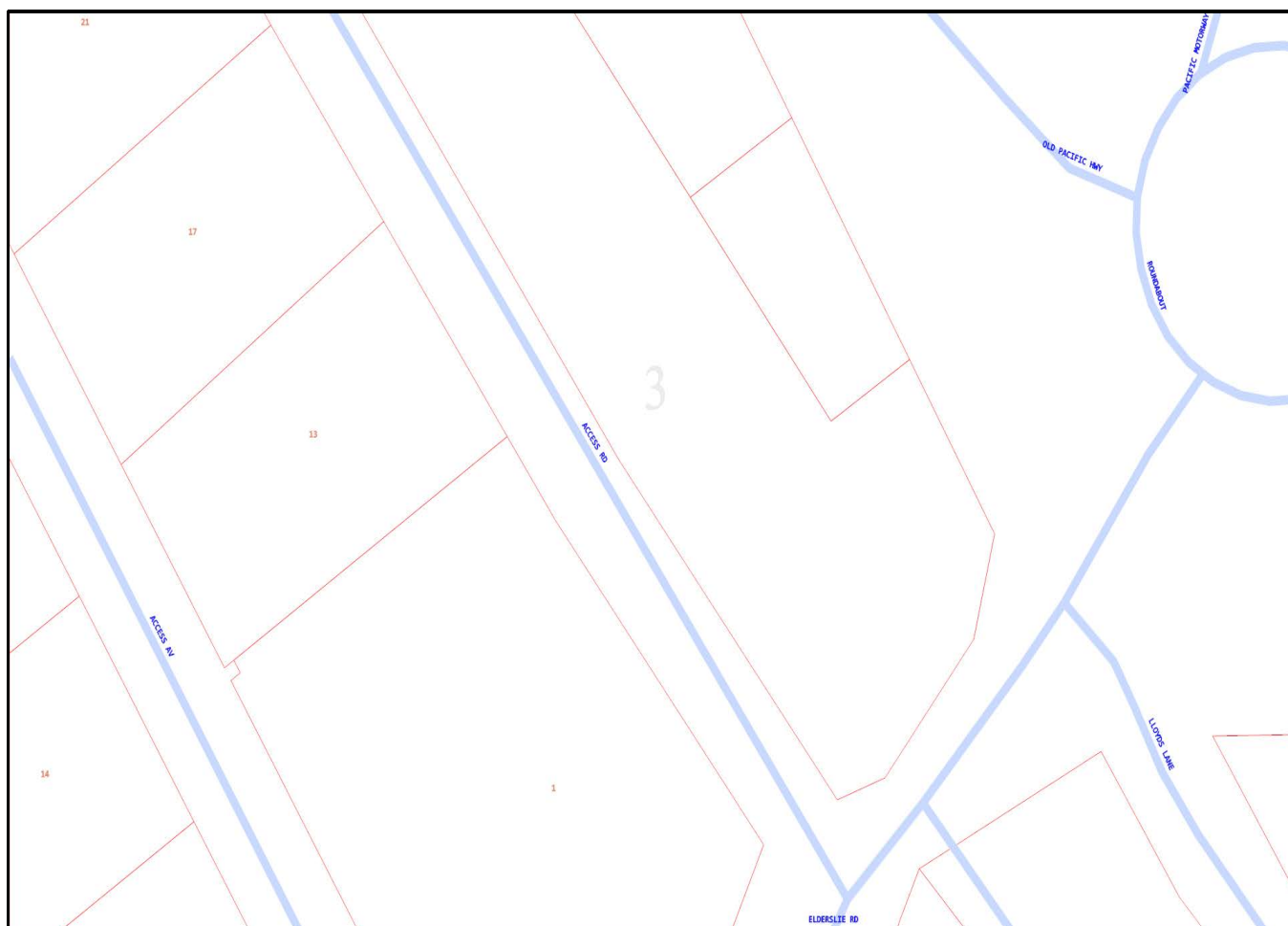


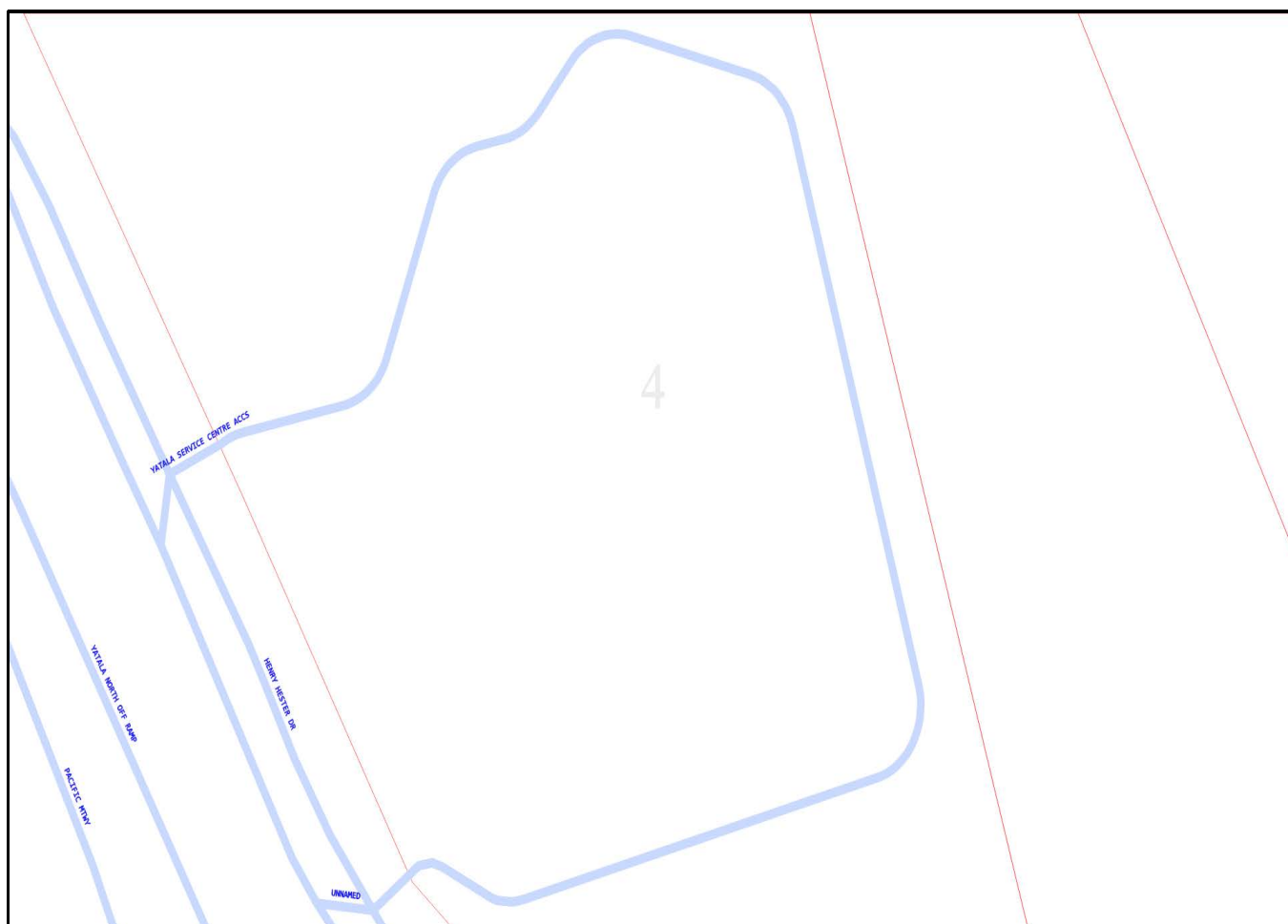
LEGEND

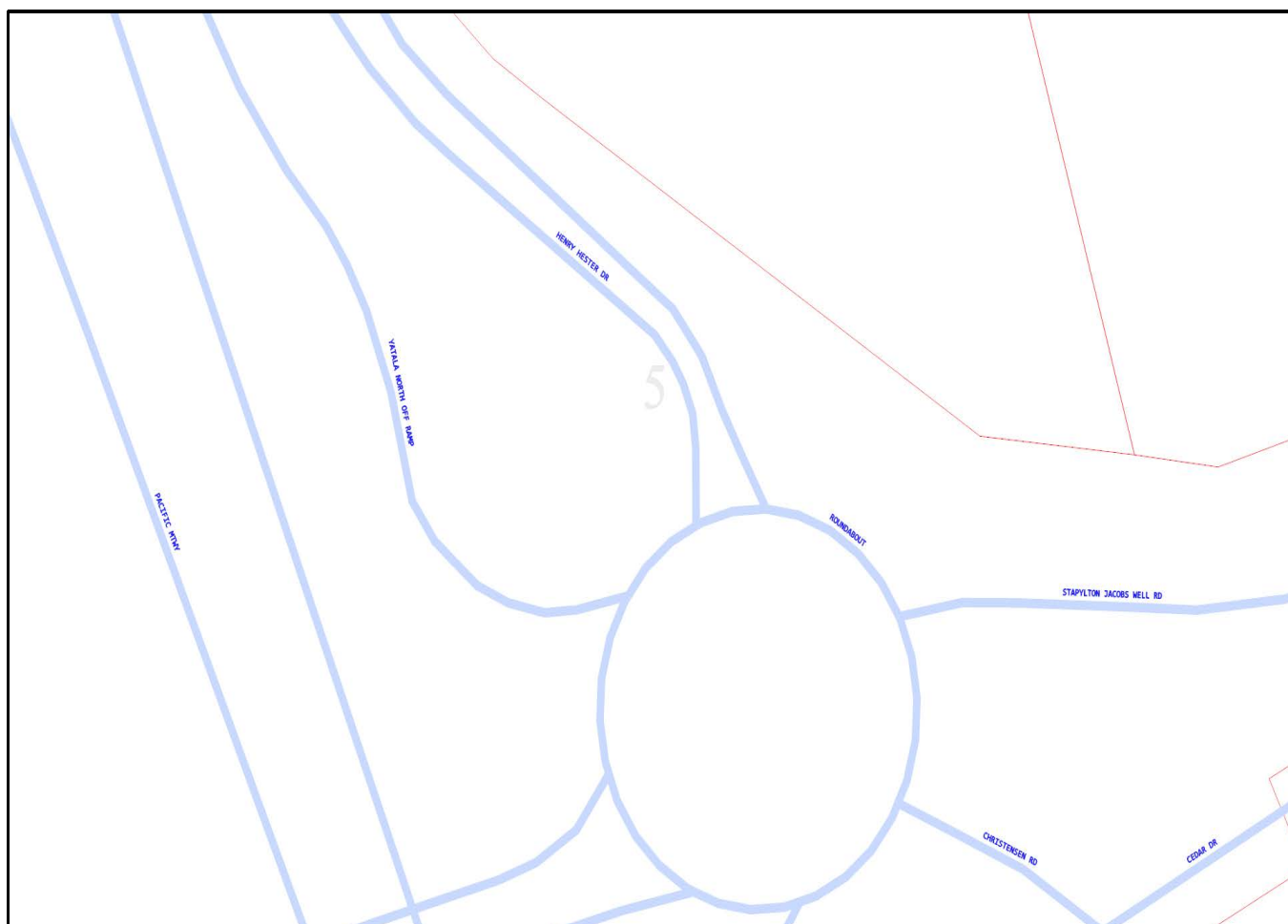
	Parcel and the location
	Pit with size "5"
	Power Pit with size "2E". Valid PIT Size: e.g. 2E, 5E, 6E, 8E, 9E, E, null.
	Manhole
	Pillar
	Cable count of trench is 2. One "Other size" PVC conduit (PO) owned by Telstra (-T-), between pits of sizes, "5" and "9" are 25.0m apart. One 40mm PVC conduit (P40) owned by NBN, between pits of sizes, "5" and "9" are 20.0m apart.
	2 Direct buried cables between pits of sizes, "5" and "9" are 10.0m apart.
	Trench containing any INSERVICE/CONSTRUCTED (Copper/RF/Fibre) cables.
	Trench containing only DESIGNED/PLANNED (Copper/RF/Fibre/Power) cables.
	Trench containing any INSERVICE/CONSTRUCTED (Power) cables.
BROADWAY ST	Road and the street name "Broadway ST"
Scale	0 20 40 60 Meters 1:2000 1 cm equals 20 m 

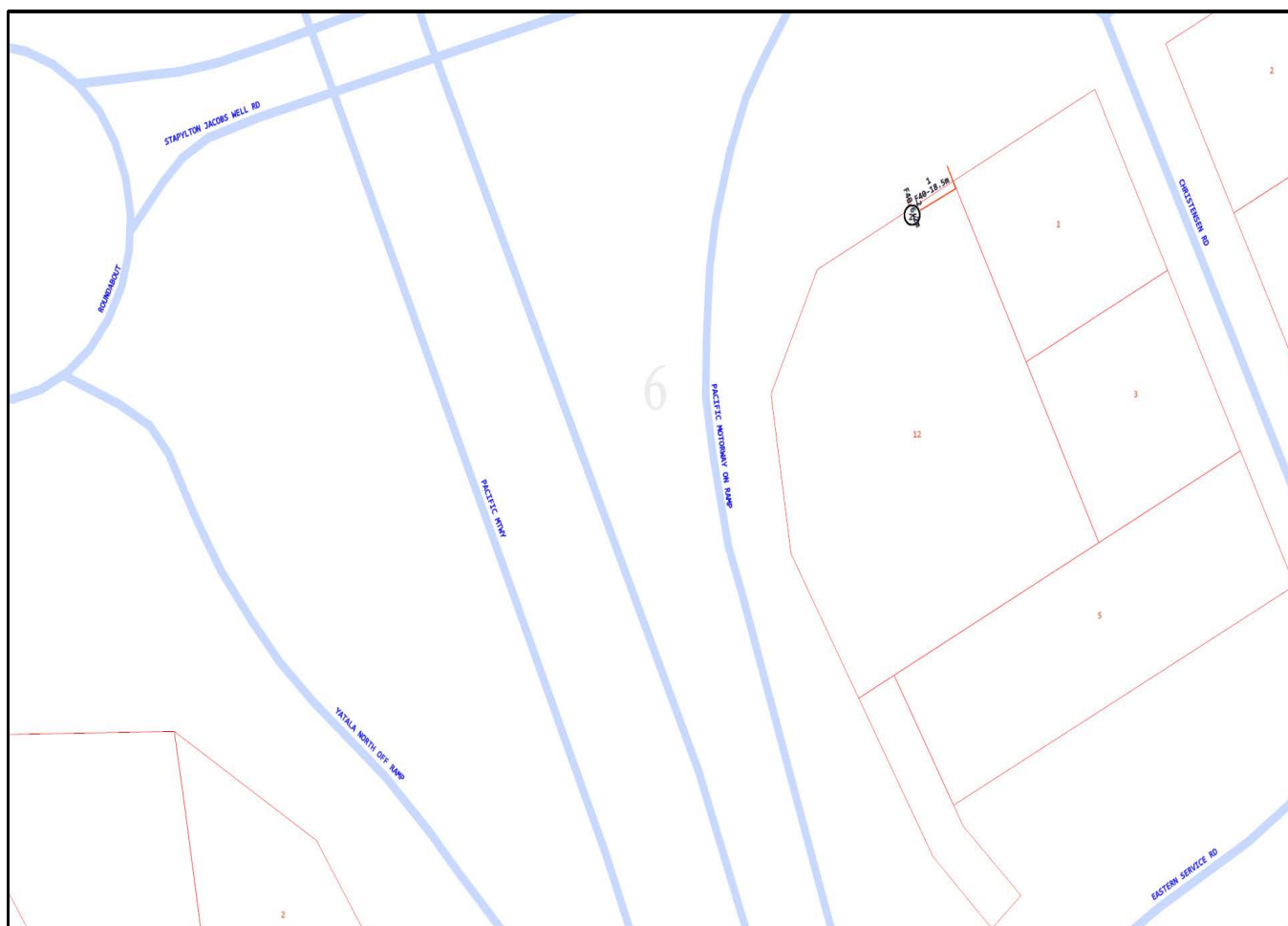


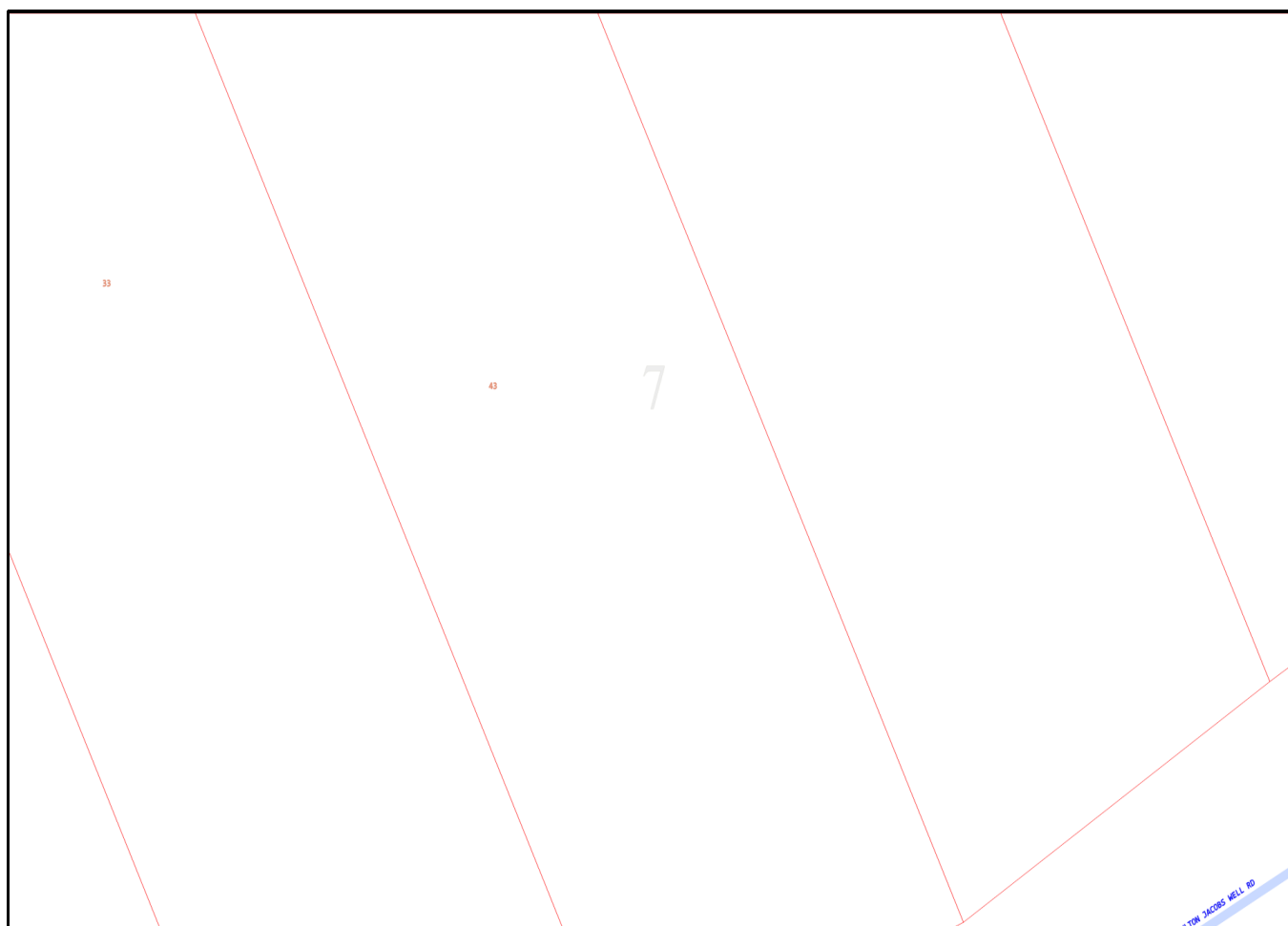




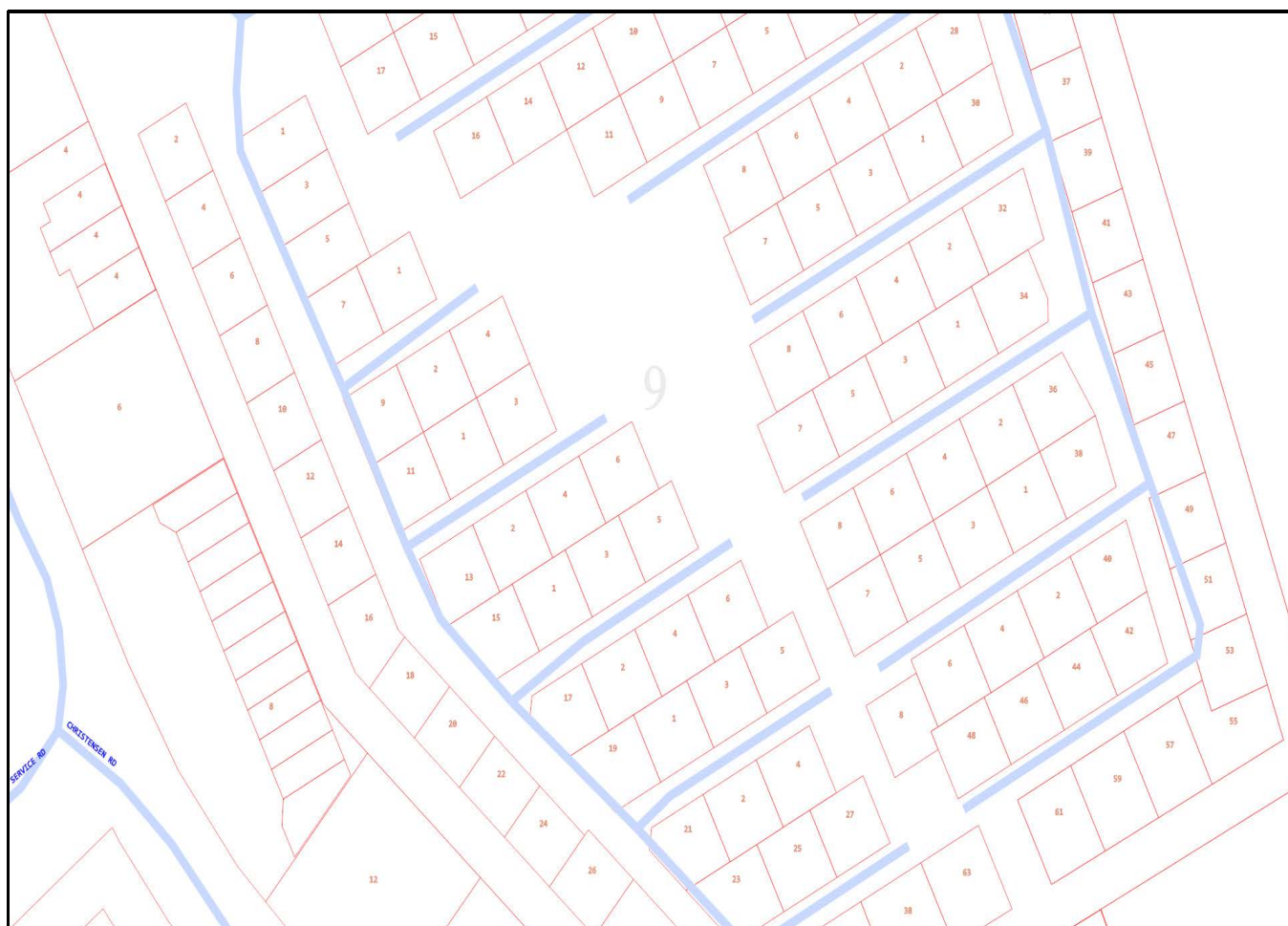


















69
12

Emergency Contacts

You must immediately report any damage to **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.



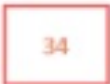
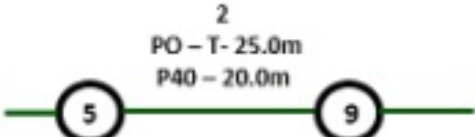
Indicative Plans

Issue Date:	20/08/2019	 DIAL BEFORE YOU DIG www.1100.com.au
Location:	Access Ave , Yatala , QLD , 4207	

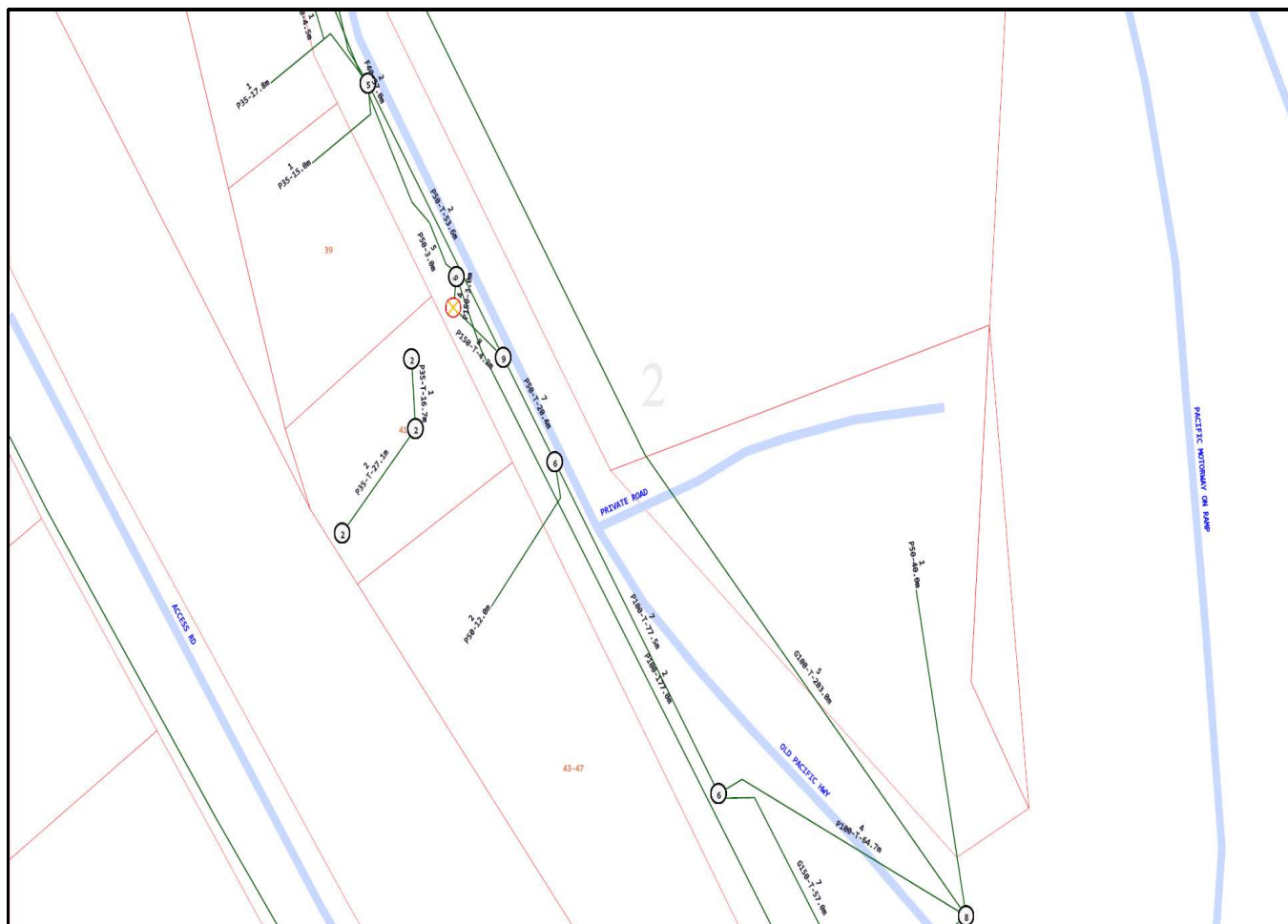
1	4	7	10
2	5	8	11
3	6	9	12

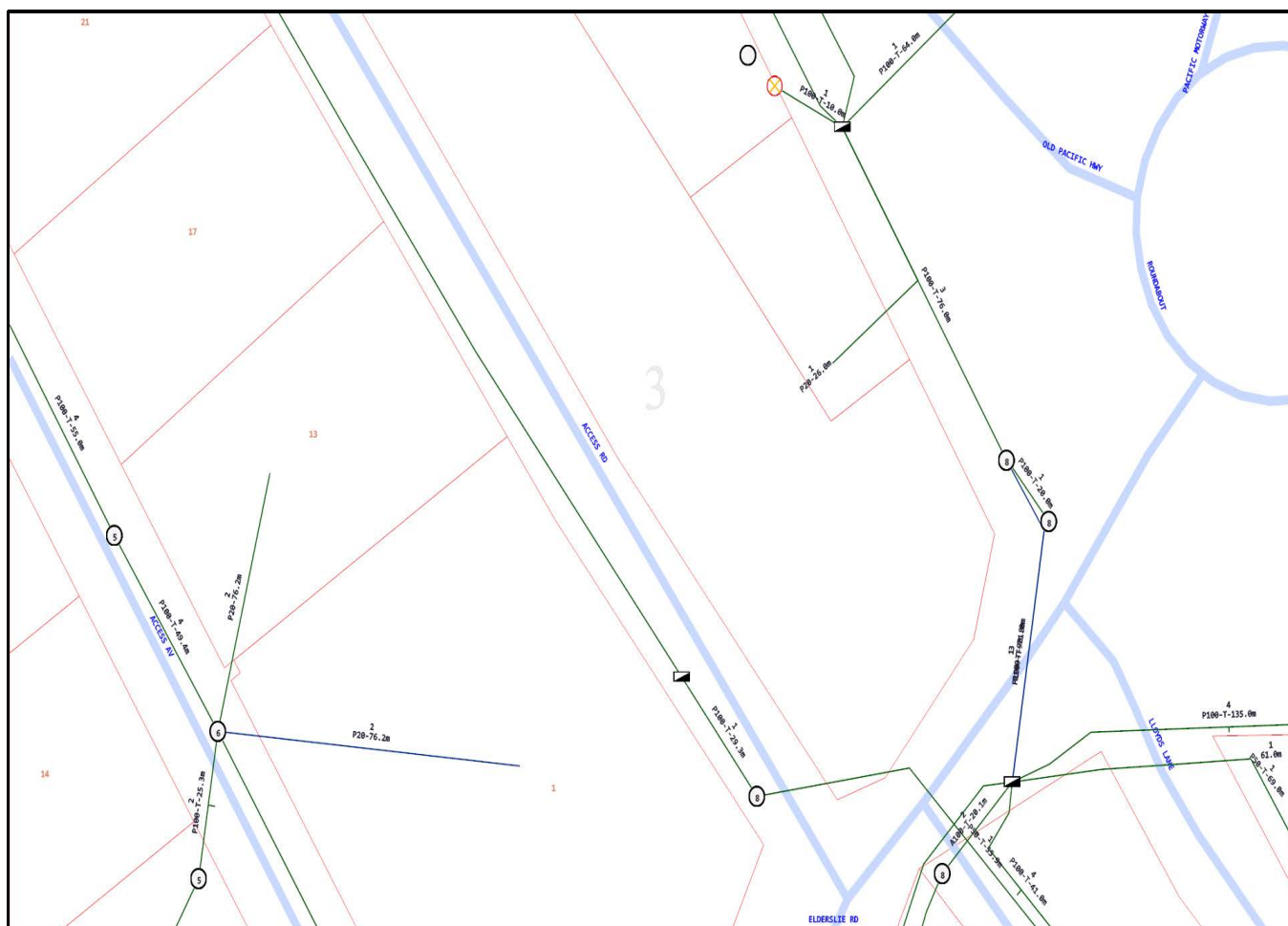


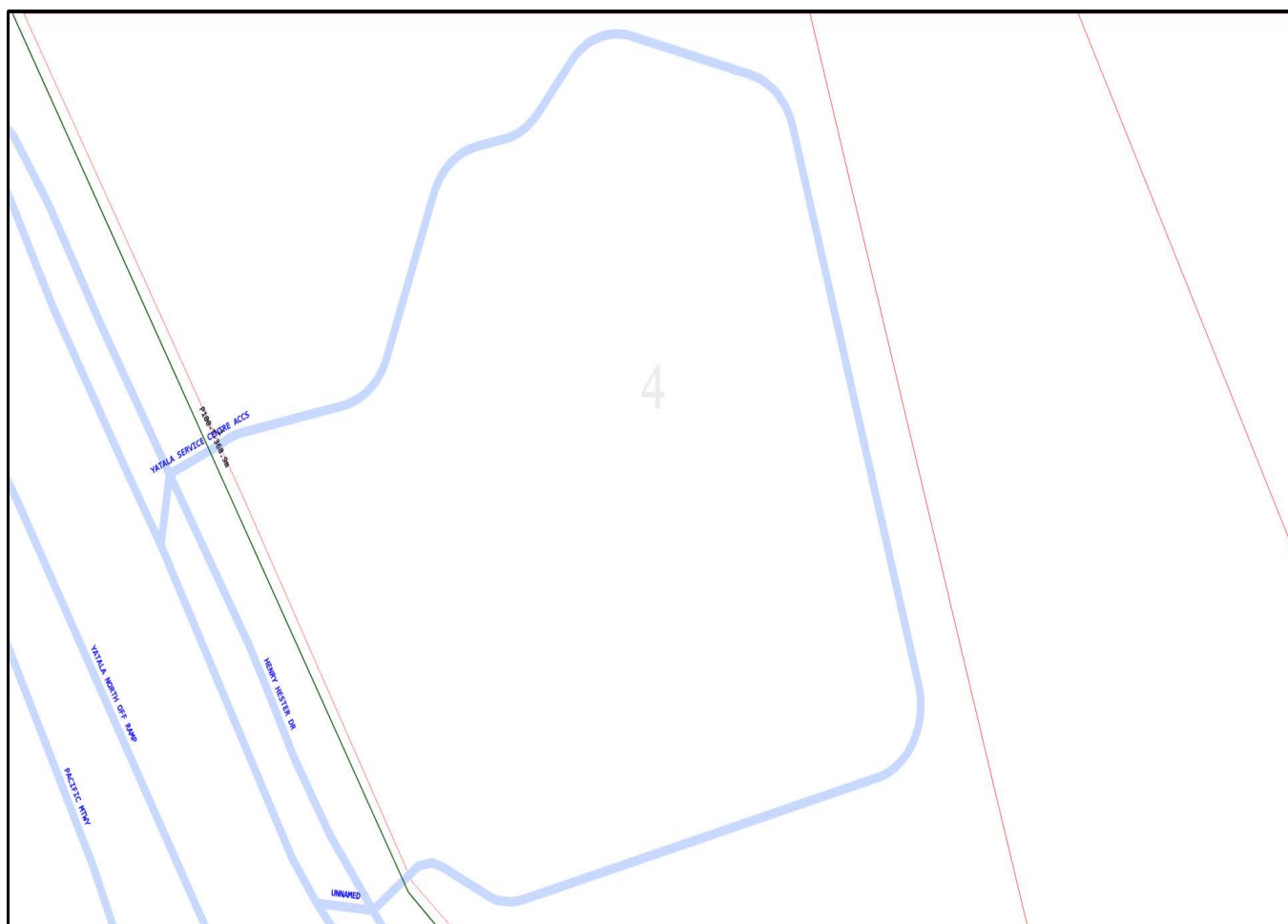
LEGEND

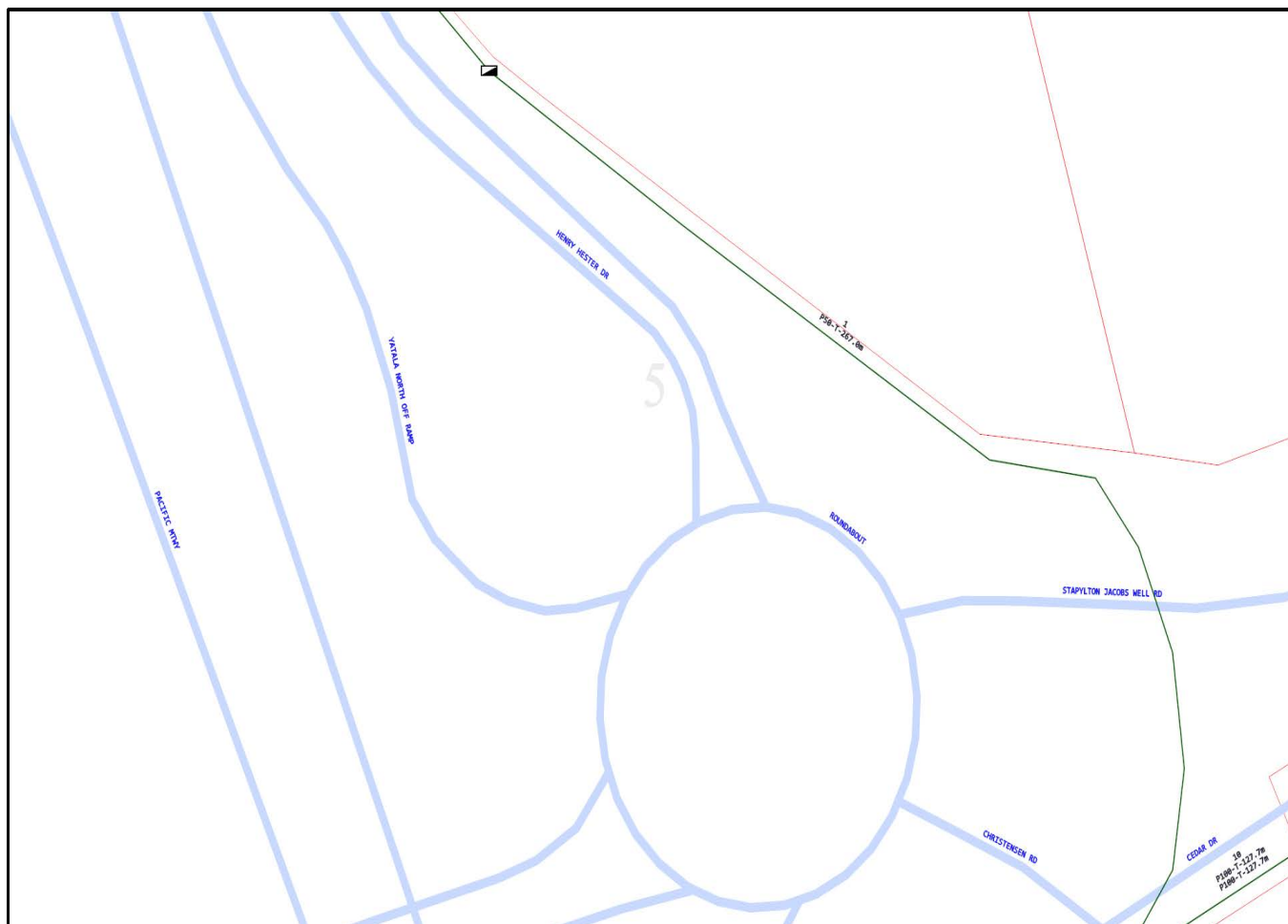
	Parcel and the location
	Pit with size "5"
	Power Pit with size "2E". Valid PIT Size: e.g. 2E, 5E, 6E, 8E, 9E, E, null.
	Manhole
	Pillar
	Cable count of trench is 2. One "Other size" PVC conduit (PO) owned by Telstra (-T-), between pits of sizes, "5" and "9" are 25.0m apart. One 40mm PVC conduit (P40) owned by NBN, between pits of sizes, "5" and "9" are 20.0m apart.
	2 Direct buried cables between pits of sizes, "5" and "9" are 10.0m apart.
	Trench containing any INSERVICE/CONSTRUCTED (Copper/RF/Fibre) cables.
	Trench containing only DESIGNED/PLANNED (Copper/RF/Fibre/Power) cables.
	Trench containing any INSERVICE/CONSTRUCTED (Power) cables.
	Road and the street name "Broadway ST"
Scale	0 20 40 60 Meters 1:2000 1 cm equals 20 m 

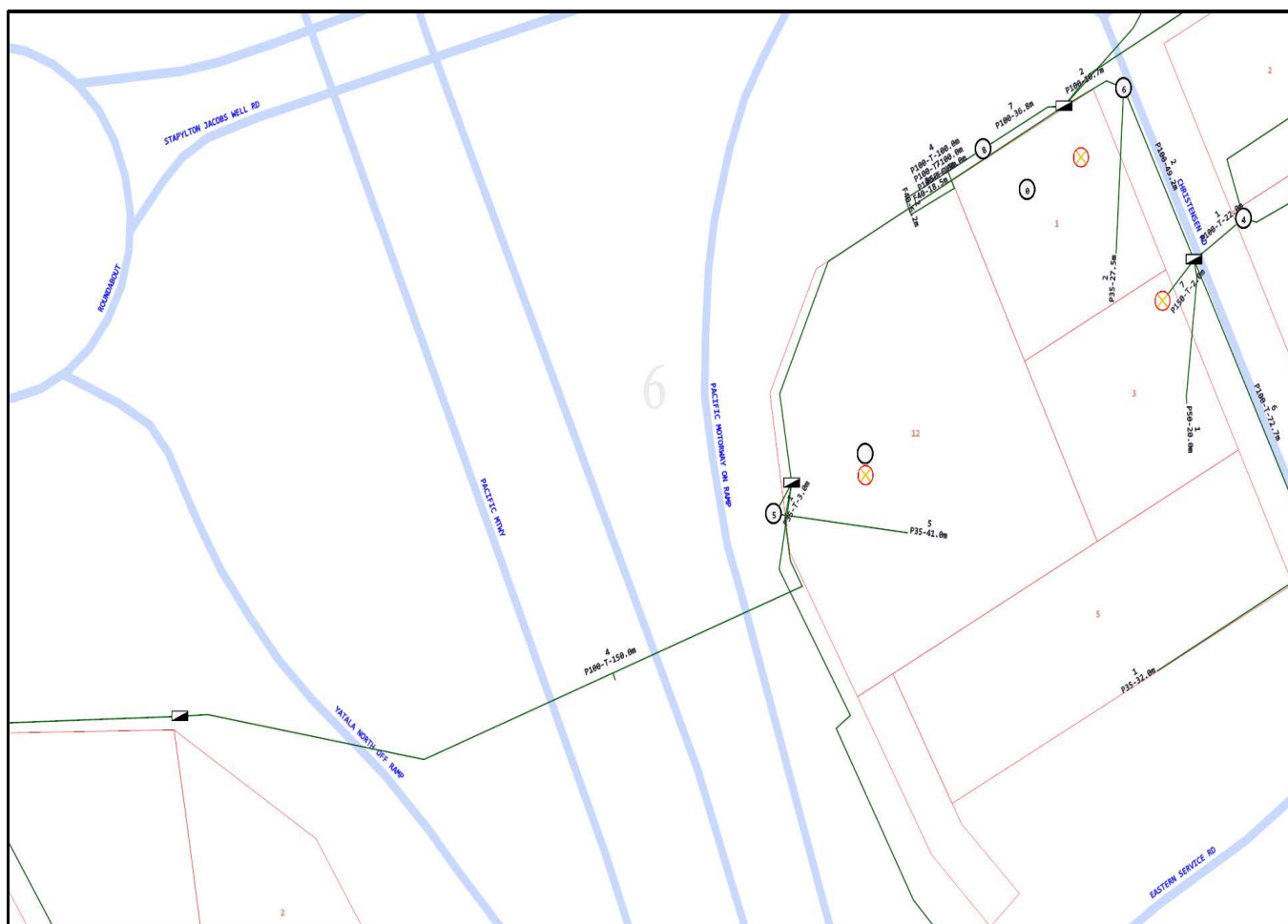


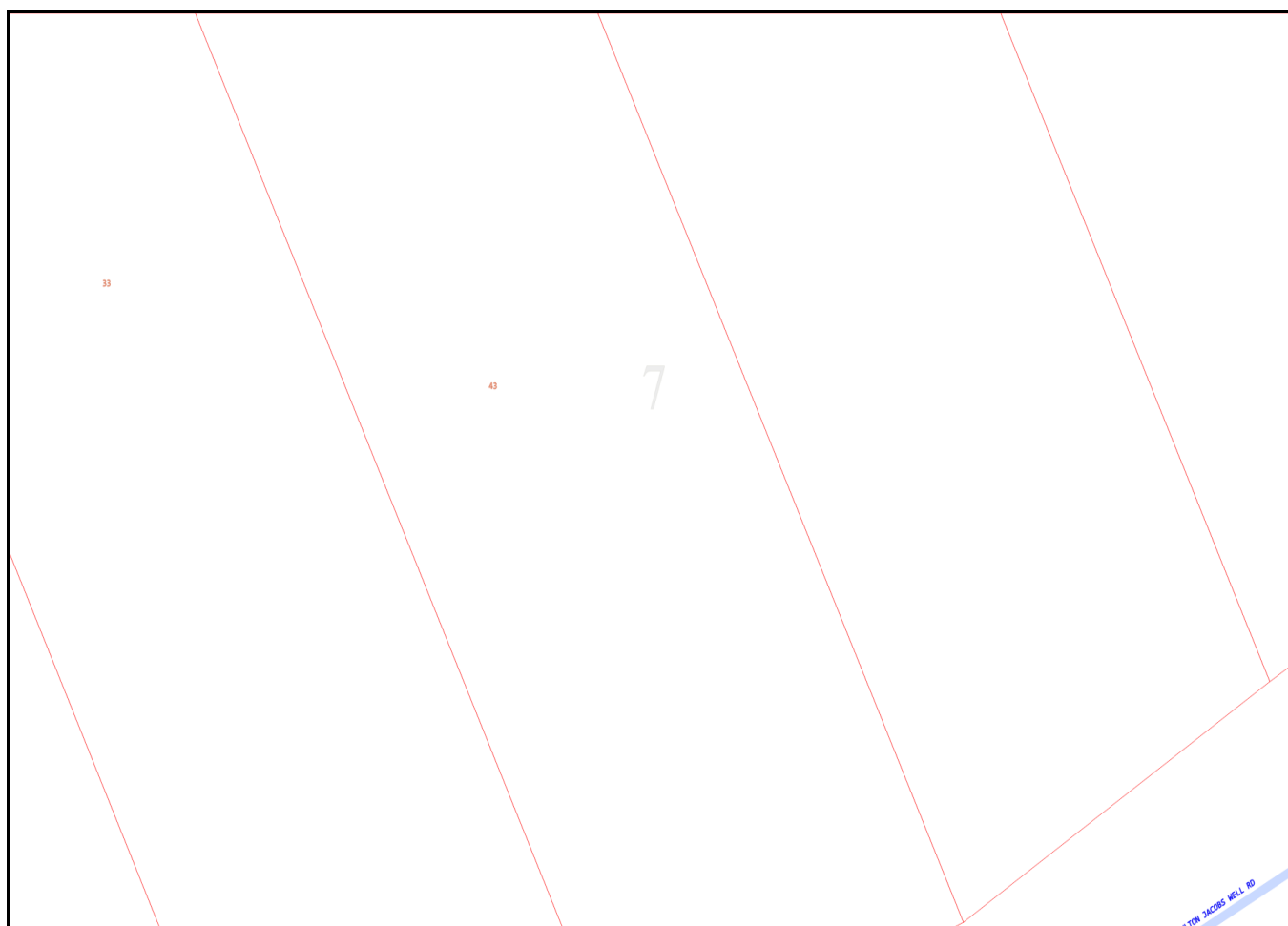


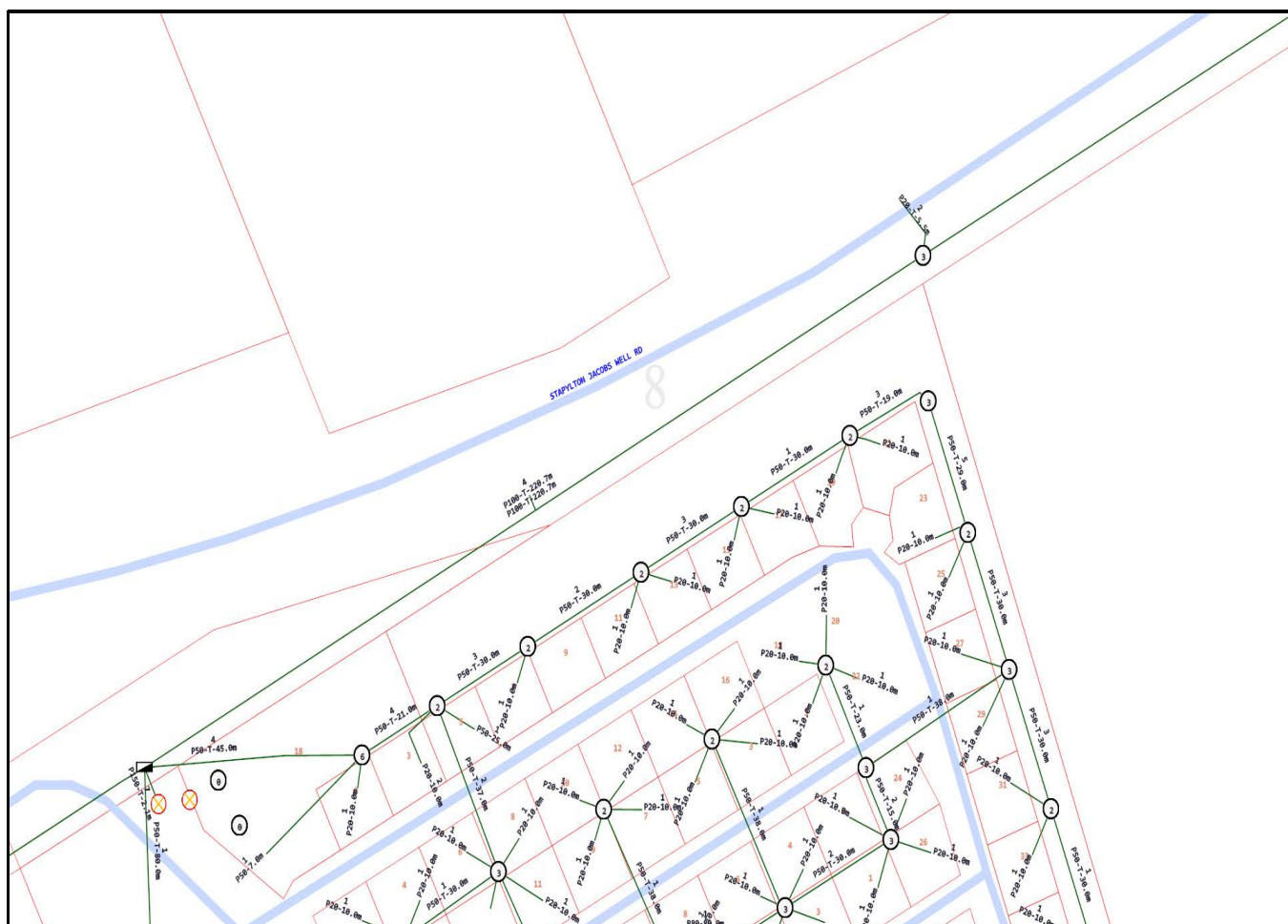


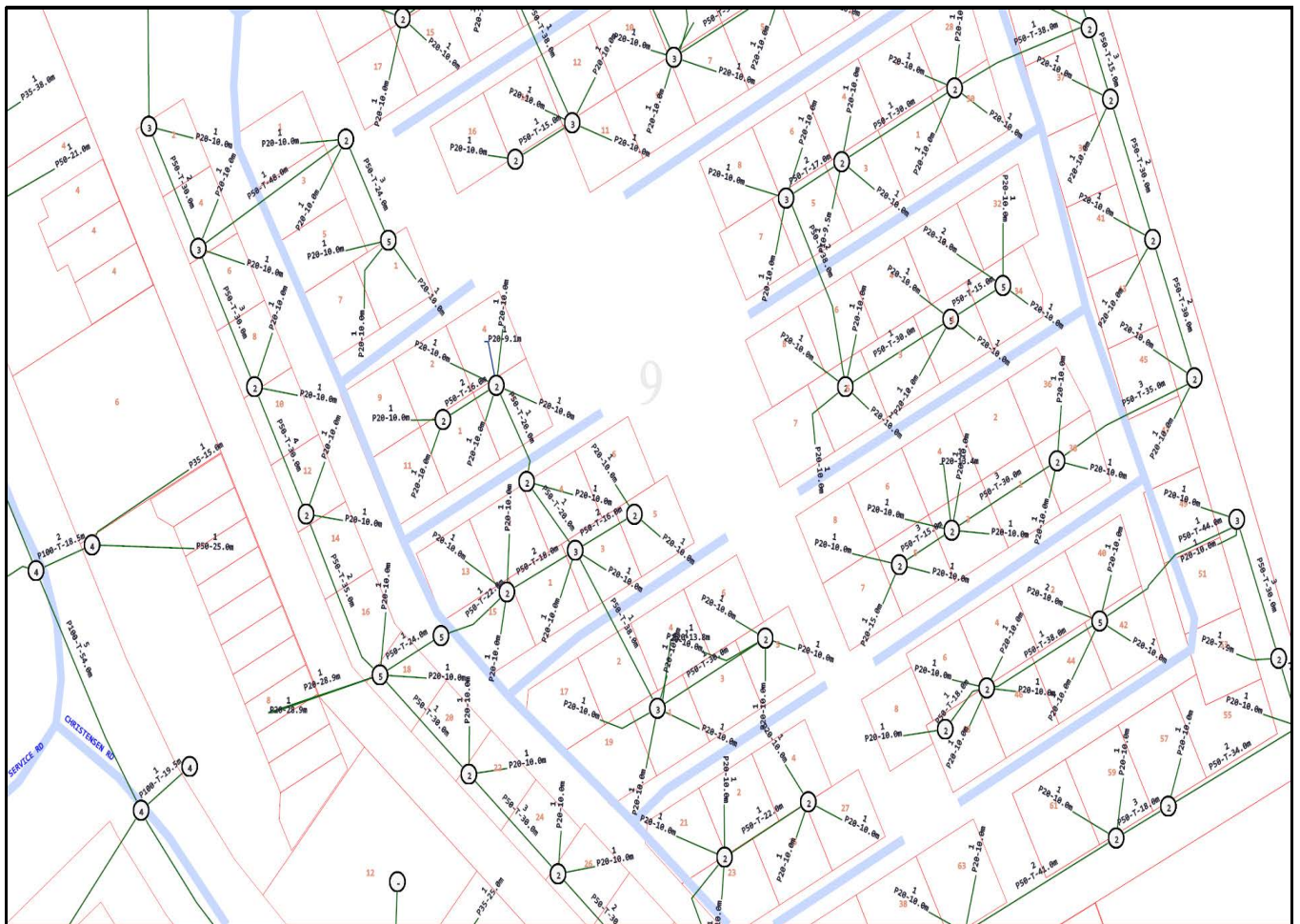


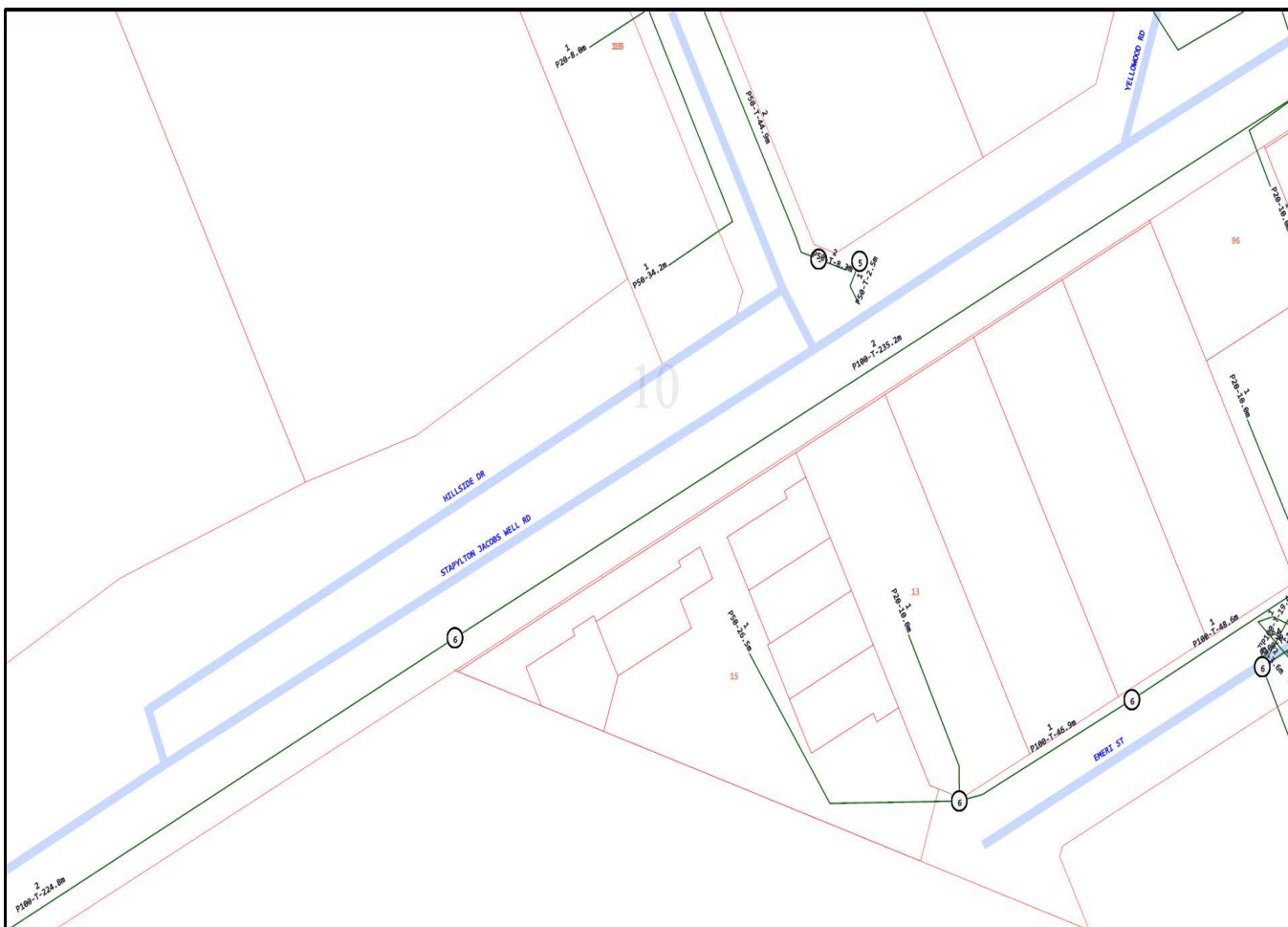




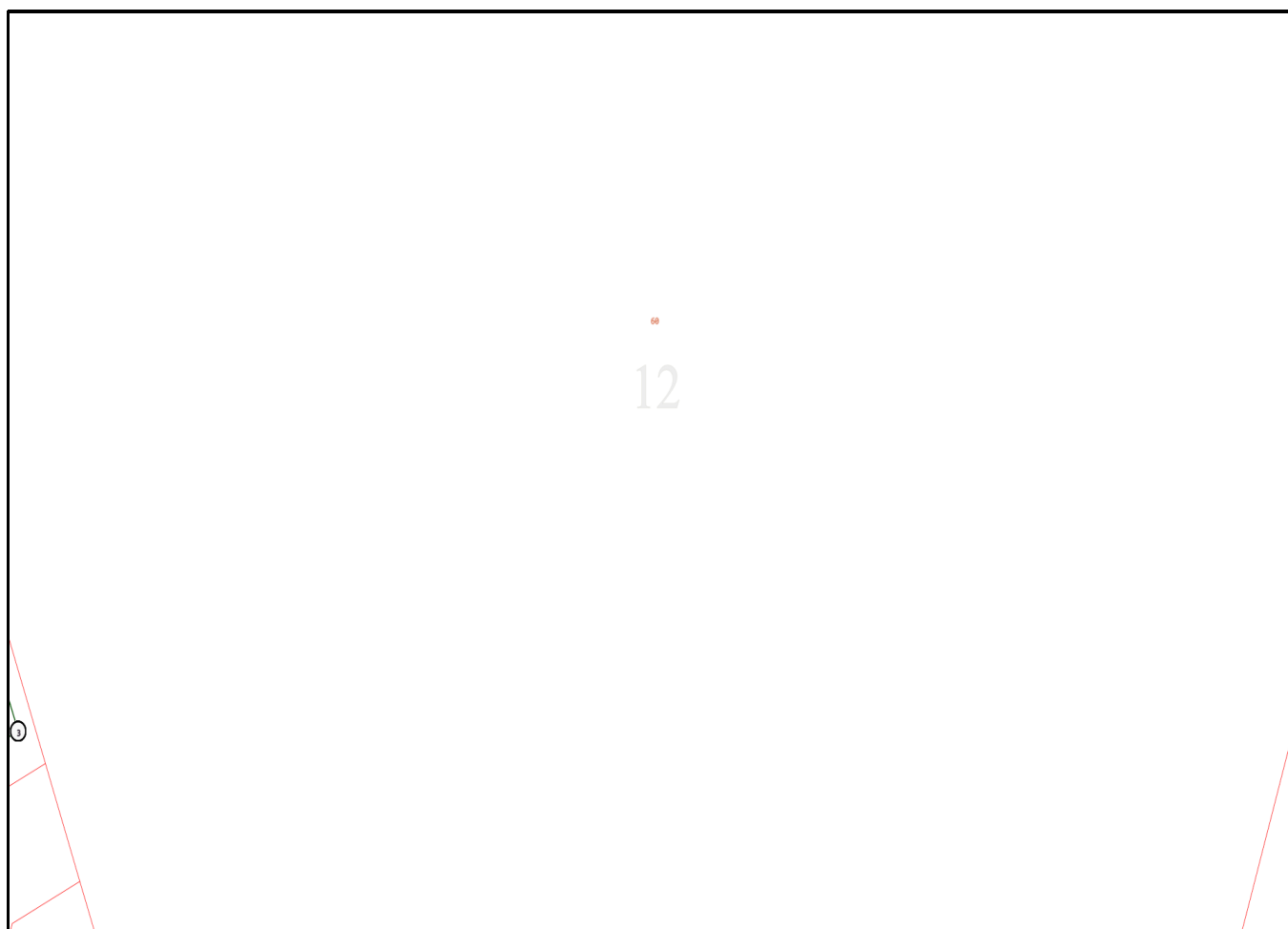






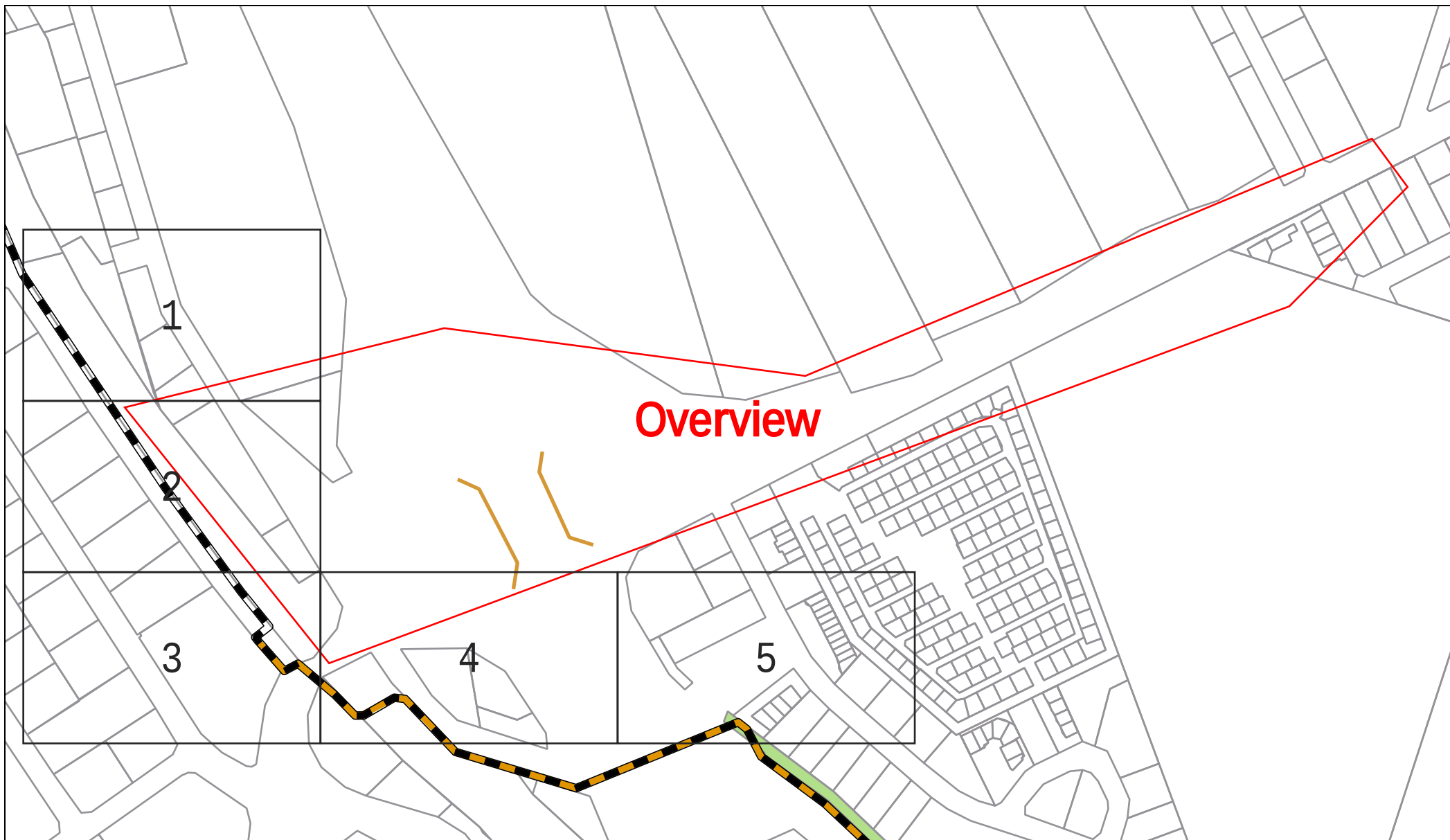






Emergency Contacts

You must immediately report any damage to **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.



Sequence Number: 88097340

Date: 20/08/2019

DISCLAIMER: THIS DRAWING SHOULD NOT BE SCALED TO LOCATE CABLES. NO WARRANTY IS GIVEN THAT THE INFORMATION IS ACCURATE OR COMPLETE. IF YOU REQUIRE INFORMATION REGARDING LOCATING THE CABLE PLEASE CALL NEXTGEN. THIS DOCUMENT HAS BEEN PREPARED SOLELY FOR DIAL BEFORE YOU DIG USE. THIS PLAN CONTAINS COMMERCIAL SENSITIVE INFORMATION AND IS TO BE TREATED ACCORDINGLY. NO SUCH INFORMATION IS TO BE PASSED ONTO OTHER PARTIES WITHOUT WRITTEN CONSENT FROM NEXTGEN PTY LTD.



LEGEND

Digsite



Area

Assets



Cable



3rd Party Duct



Marker Post



Sequence Number: 88097340

Date: 20/08/2019

DISCLAIMER: THIS DRAWING SHOULD NOT BE SCALED TO LOCATE CABLES. NO WARRANTY IS GIVEN THAT THE INFORMATION IS ACCURATE OR COMPLETE. IF YOU REQUIRE INFORMATION REGARDING LOCATING THE CABLE PLEASE CALL NEXTGEN. THIS DOCUMENT HAS BEEN PREPARED SOLELY FOR DIAL BEFORE YOU DIG USE. THIS PLAN CONTAINS COMMERCIAL SENSITIVE INFORMATION AND IS TO BE TREATED ACCORDINGLY. NO SUCH INFORMATION IS TO BE PASSED ONTO OTHER PARTIES WITHOUT WRITTEN CONSENT FROM NEXTGEN PTY LTD.



LEGEND

Digsite



Area

Assets



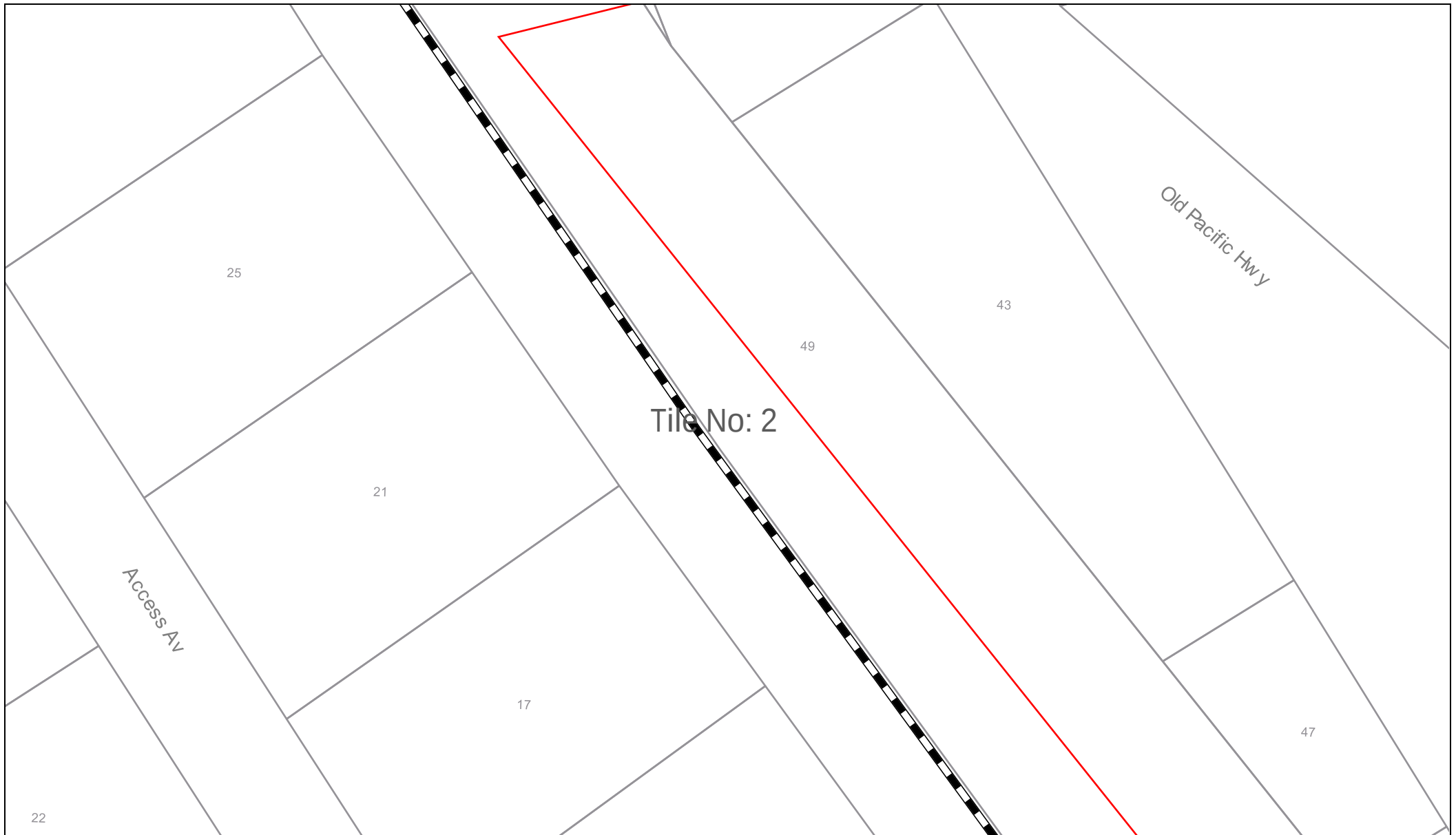
Cable



3rd Party Duct



Marker Post



Sequence Number: 88097340

Date: 20/08/2019

DISCLAIMER: THIS DRAWING SHOULD NOT BE SCALED TO LOCATE CABLES. NO WARRANTY IS GIVEN THAT THE INFORMATION IS ACCURATE OR COMPLETE. IF YOU REQUIRE INFORMATION REGARDING LOCATING THE CABLE PLEASE CALL NEXTGEN. THIS DOCUMENT HAS BEEN PREPARED SOLELY FOR DIAL BEFORE YOU DIG USE. THIS PLAN CONTAINS COMMERCIAL SENSITIVE INFORMATION AND IS TO BE TREATED ACCORDINGLY. NO SUCH INFORMATION IS TO BE PASSED ONTO OTHER PARTIES WITHOUT WRITTEN CONSENT FROM NEXTGEN PTY LTD.



LEGEND

Digsite



Area

Assets



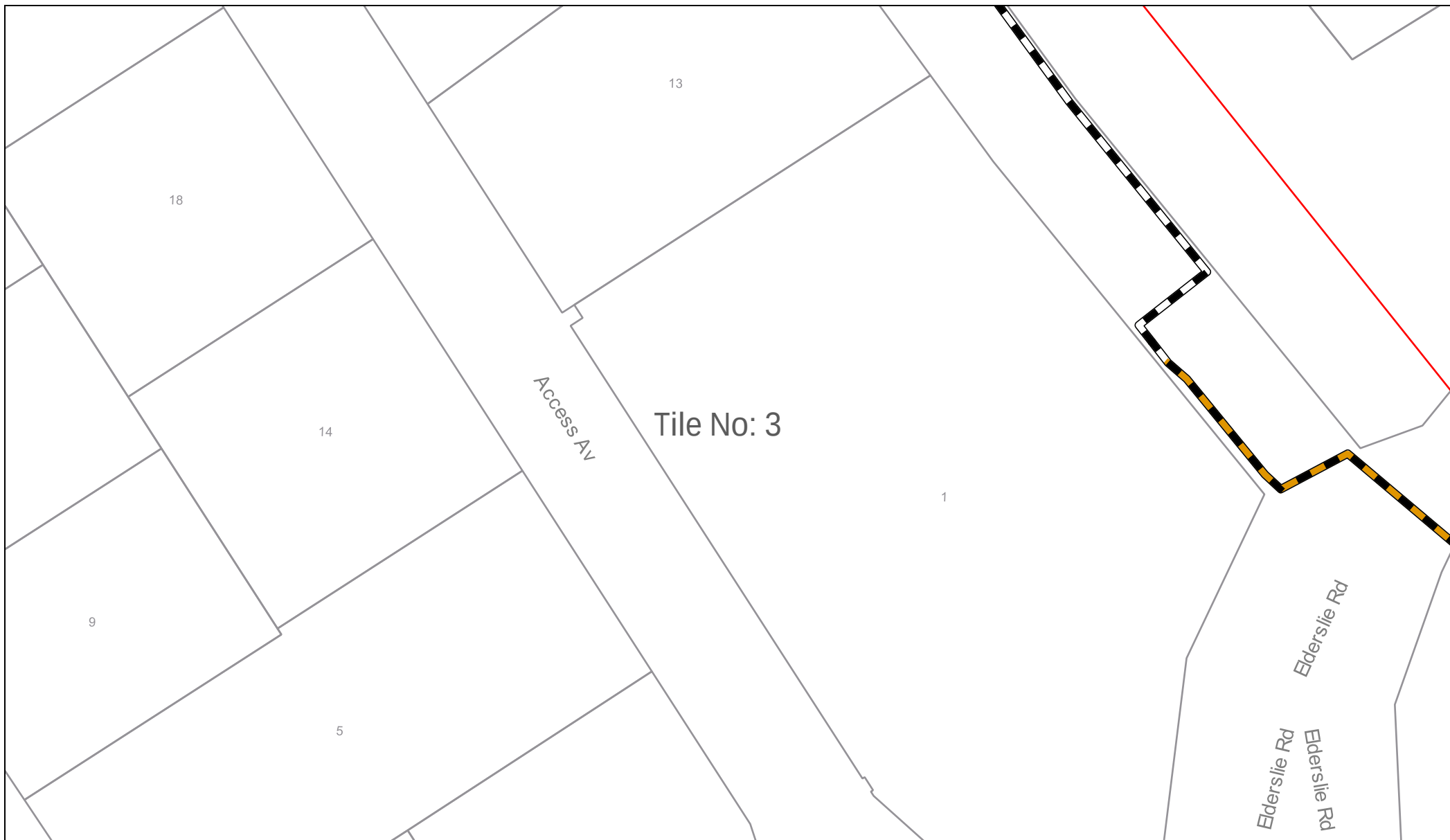
Cable



3rd Party Duct



Marker Post



Sequence Number: 88097340

Date: 20/08/2019

DISCLAIMER: THIS DRAWING SHOULD NOT BE SCALED TO LOCATE CABLES. NO WARRANTY IS GIVEN THAT THE INFORMATION IS ACCURATE OR COMPLETE. IF YOU REQUIRE INFORMATION REGARDING LOCATING THE CABLE PLEASE CALL NEXTGEN. THIS DOCUMENT HAS BEEN PREPARED SOLELY FOR DIAL BEFORE YOU DIG USE. THIS PLAN CONTAINS COMMERCIAL SENSITIVE INFORMATION AND IS TO BE TREATED ACCORDINGLY. NO SUCH INFORMATION IS TO BE PASSED ONTO OTHER PARTIES WITHOUT WRITTEN CONSENT FROM NEXTGEN PTY LTD.



LEGEND

Digsite



Area

Assets



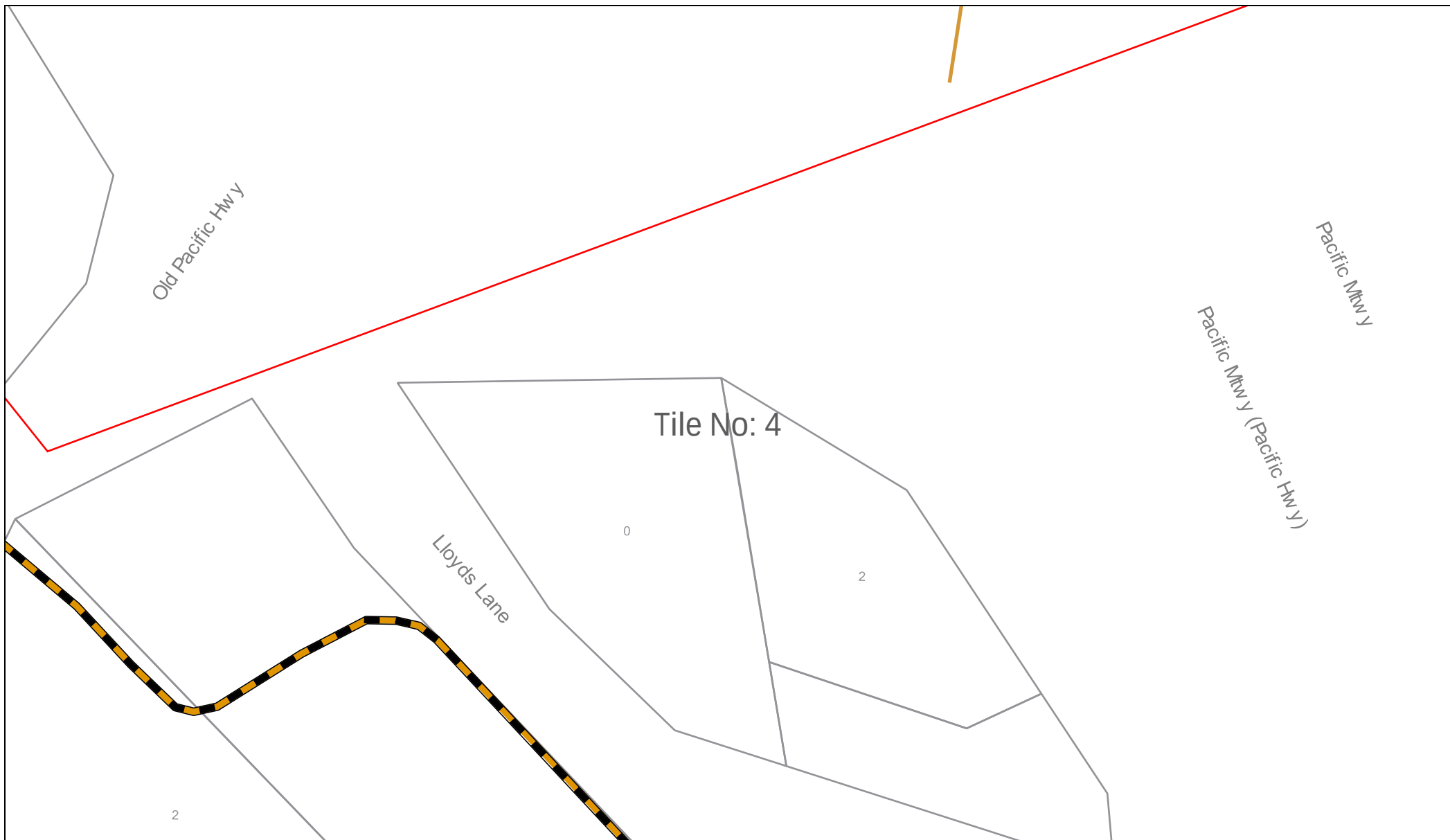
Cable



3rd Party Duct



Marker Post



Sequence Number: 88097340

Date: 20/08/2019

DISCLAIMER: THIS DRAWING SHOULD NOT BE SCALED TO LOCATE CABLES. NO WARRANTY IS GIVEN THAT THE INFORMATION IS ACCURATE OR COMPLETE. IF YOU REQUIRE INFORMATION REGARDING LOCATING THE CABLE PLEASE CALL NEXTGEN. THIS DOCUMENT HAS BEEN PREPARED SOLELY FOR DIAL BEFORE YOU DIG USE. THIS PLAN CONTAINS COMMERCIALLY SENSITIVE INFORMATION AND IS TO BE TREATED ACCORDINGLY. NO SUCH INFORMATION IS TO BE PASSED ONTO OTHER PARTIES WITHOUT WRITTEN CONSENT FROM NEXTGEN PTY LTD.



LEGEND

Digsite



Area

Assets



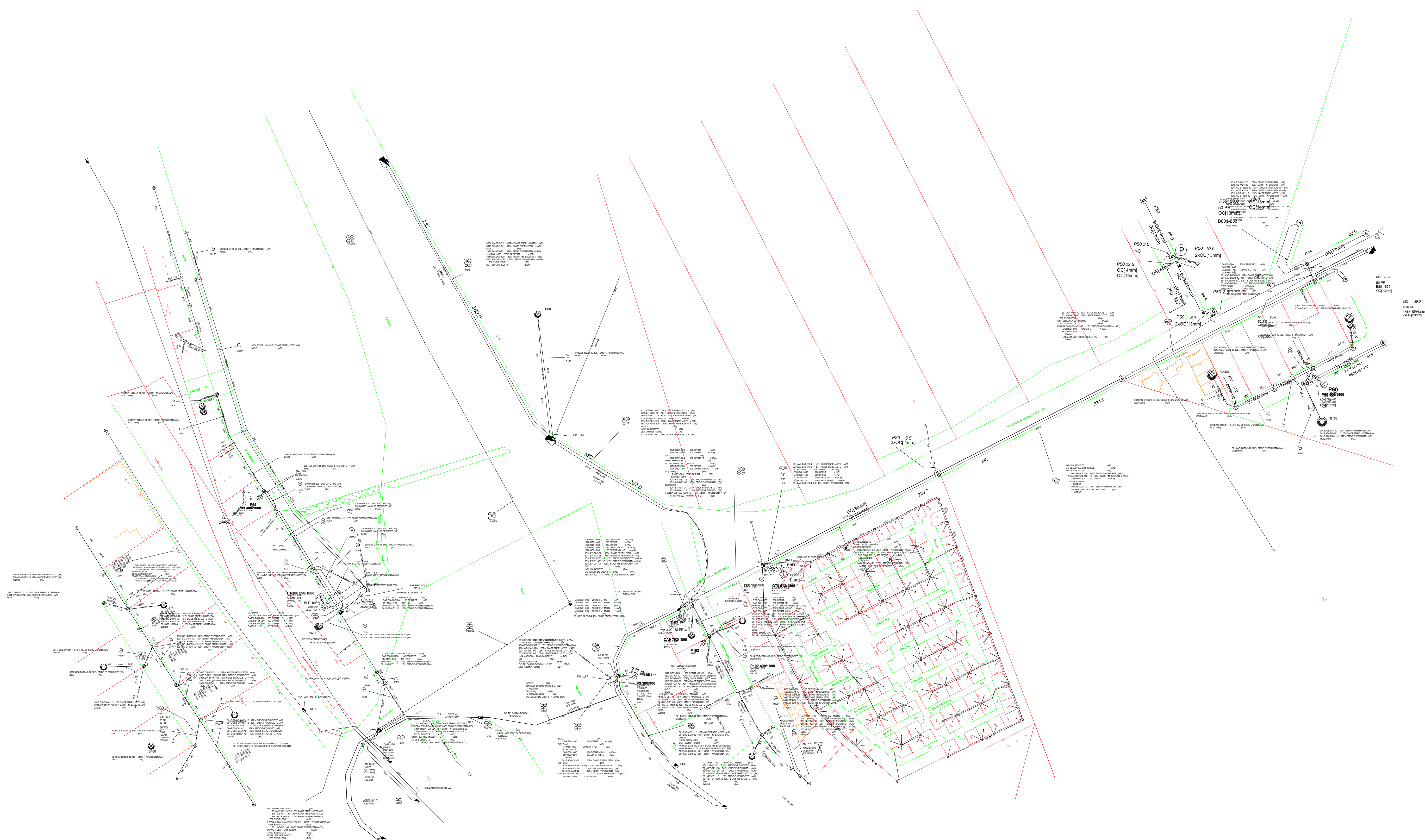
Cable



3rd Party Duct



Marker Post





APPENDIX H

LANDSCAPE INTENT PLAN



VantageYatala[®]



gassman
development
perspectives

VANTAGE YATALA

Landscape Intent Plan Stage 2

Frasers Property (Australia) Pty. Ltd.

Lot 501 on SP295994

Stapylton Jacobs Well Road,
Stapylton

November 2020
Revision - A

Prepared By -
Gassman Development Perspectives

GDP Ref: 5941



VantageYatala ♦





Landscape Master Plan

CONTENT

VANTAGE YATALA

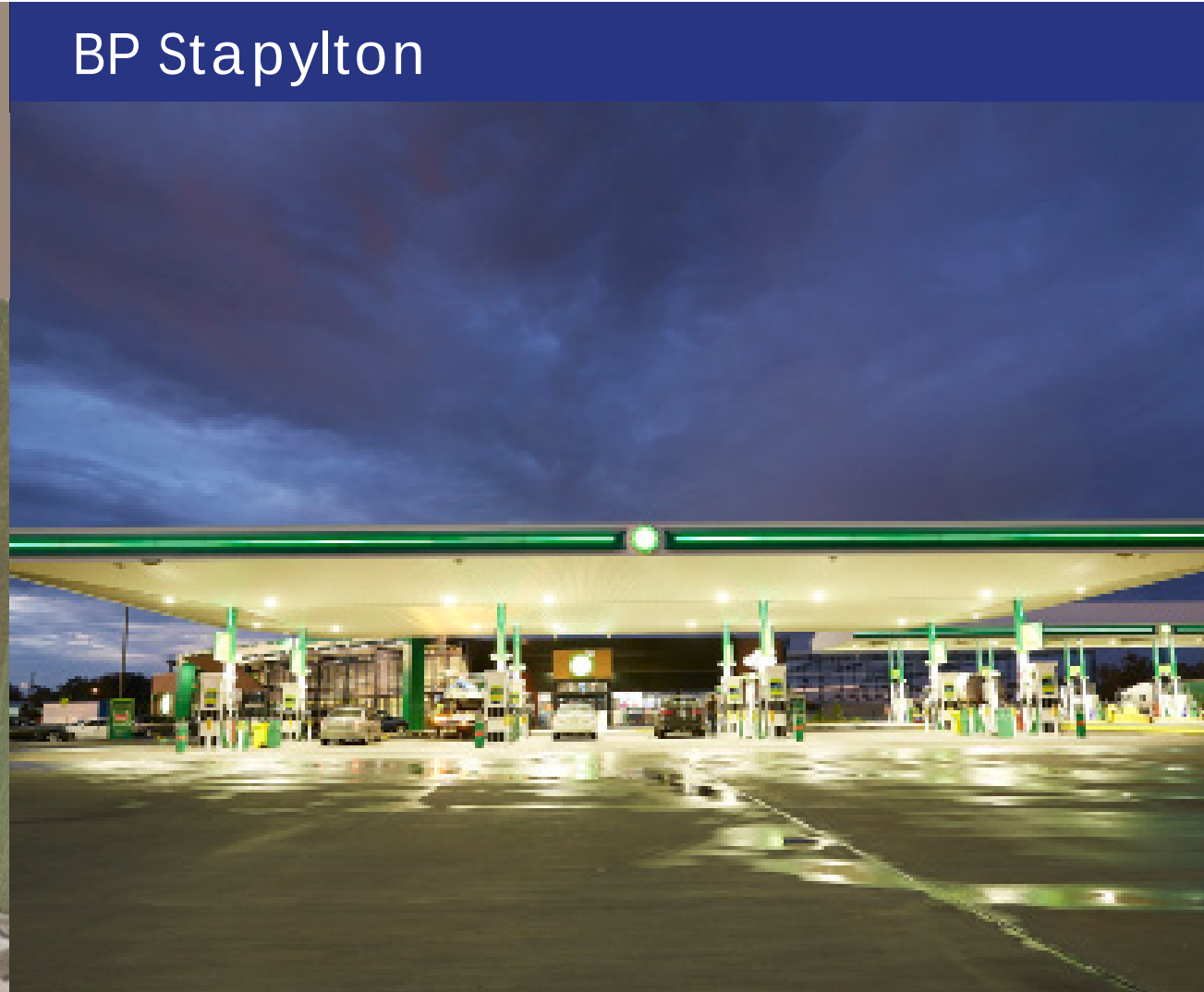
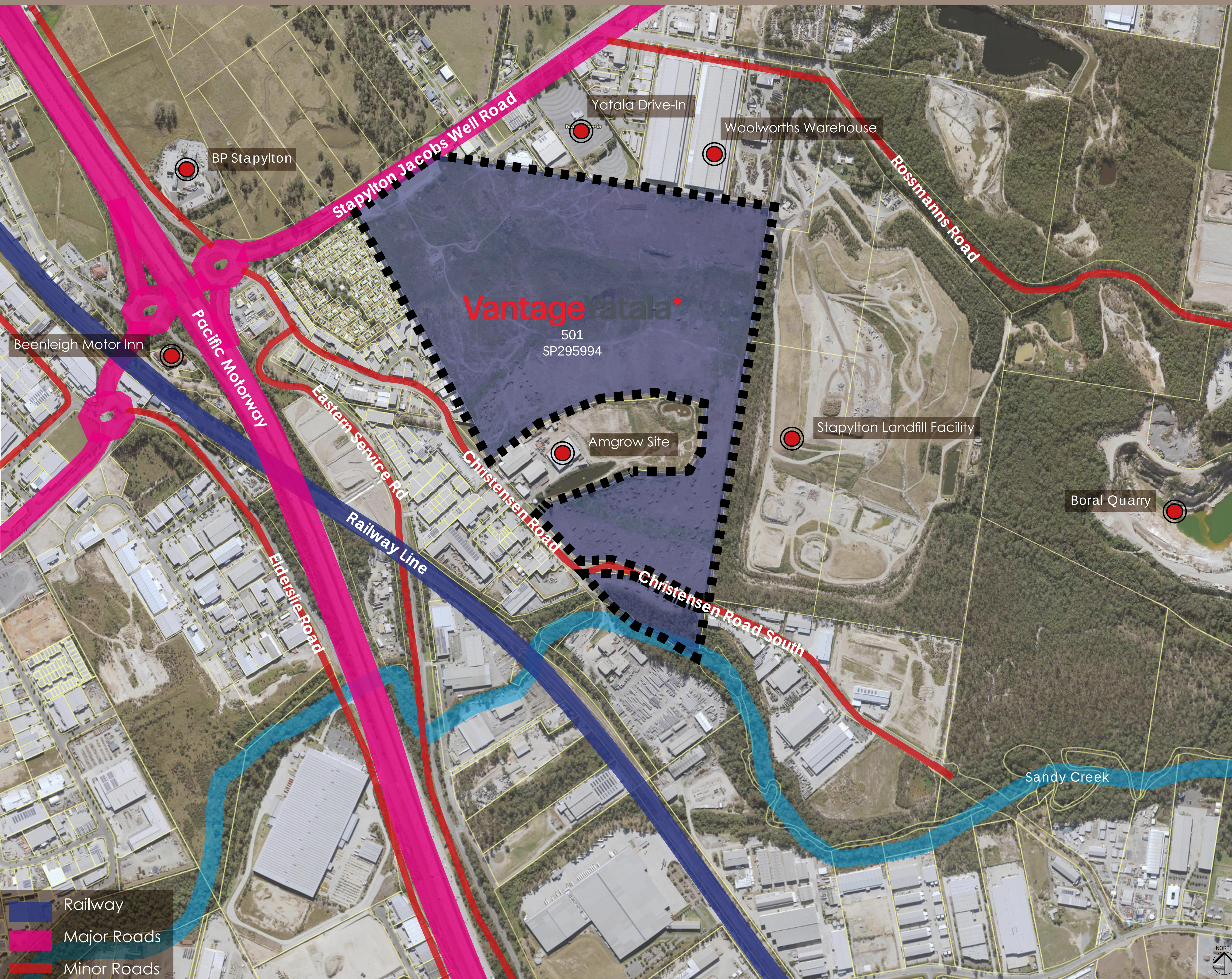
Cover Page.....01

Content Page.....02

01	SITE LOCALITY PLAN.....03
02	LANDSCAPE PLANS.....04-06
03	TYPICAL SECTIONS.....07-08
04	DESIGN PALETTE.....09
05	PLANTING PALETTE.....10-12



01 SITE LOCALITY PLAN



BP Stapylton



Stapylton Landfill Facility



Eastern Service Road Industries



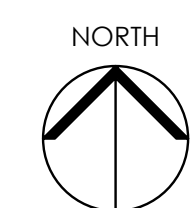
Yatala Drive-In



02 LANDSCAPE PLANS



LEGEND



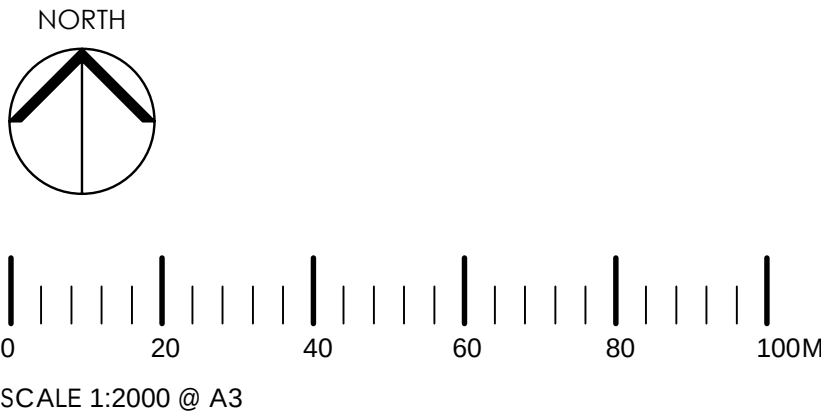
0 20 40 60 80 100M

SCALE 1:2000 @ A3

LANDSCAPE COMMUNITY TITLE SCHEME (CTS) PLAN

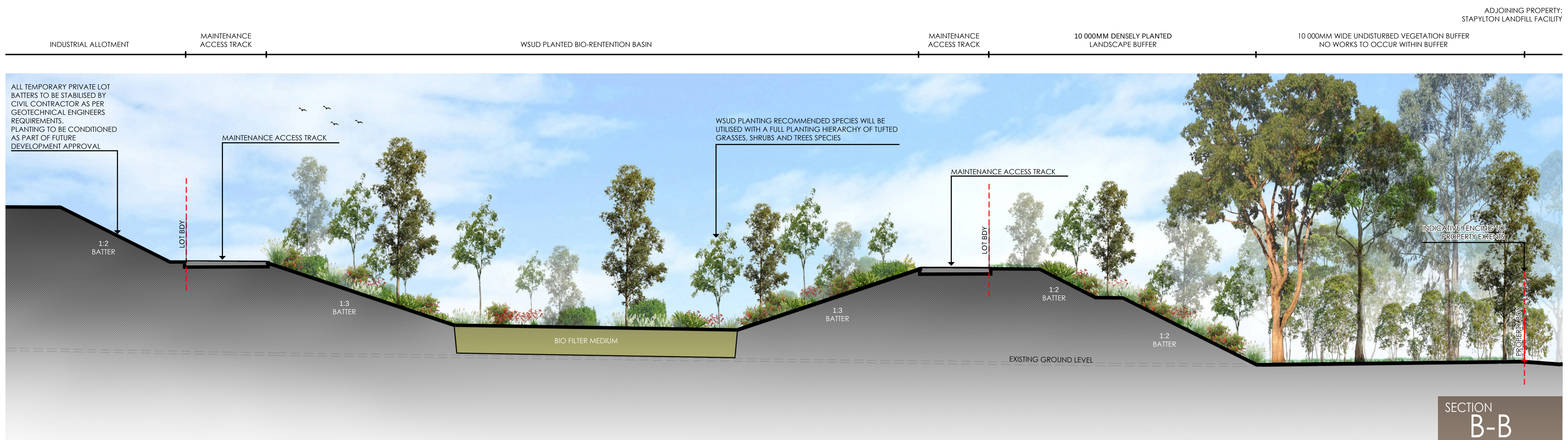
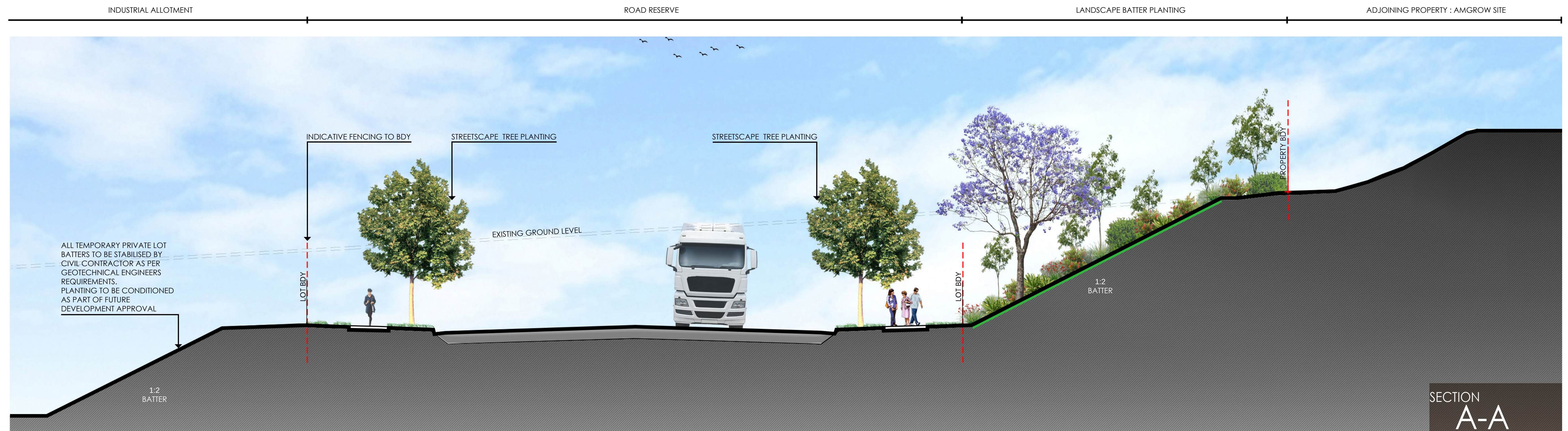
LEGEND

- PROPOSED INDUSTRIAL ALLOTMENTS
- ENTRY STATEMENT FOR INDUSTRIAL DEVELOPMENT
- STAGE 2 BOUNDARY
- COMMUNITY TITLE SCHEME (CTS) BOUNDARIES



03

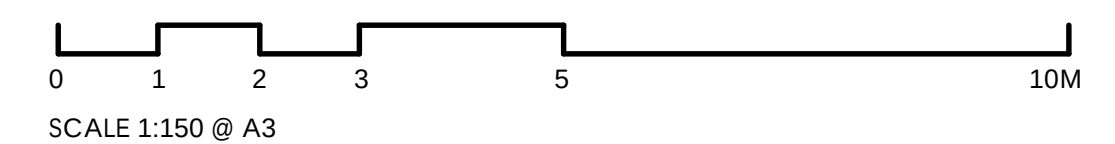
TYPICAL SECTIONS



0 1 2 3 5 10M
SCALE 1:150 @ A3

03

TYPICAL SECTIONS



VANTAGE YATALA DESIGN PALETTE

04

The landscape design intent for the industrial estate is underpinned by a number of overriding design Principles that will promote legibility, create site scale and setting and respond to the environmental values of the site.

Design details, finishes and materials will be complimentary to provide visual consistency throughout the estate. The softscape palette has been selected in response to the location of the site. Accompanied by an appropriate species list, the result will be a variety of landscape forms that meet both the needs of the estate and the local fauna.

The planting hierarchy throughout the development will reflect Crime Prevention through Environmental Design principles. By utilising plants with low heights and trees with thin trunks, this will allow for passive surveillance as well as recognition of traffic and pedestrian movements. By increasing the planting areas and providing a shared network, the overall aesthetics of the estate will be greatly enhanced. Water Sensitive Urban Design principles will be applied to the industrial estate where space allows. The principles will be incorporated into open space areas, allowing for water filtering and harvesting and other landscape purposes.

The scale and nature of the landscaping materials shall be appropriate to the size of the structures and the available space. Planting has been selected for ease of maintenance as well as the suitability and tolerance to the varying conditions of the site.

The planting scheme used is predominately native which softens the built form, improves natural ecosystems and minimised water usage. The design will respect the environmental aspects of responsible design, planning, and construction, which will respond to issues of bio diversity, natural processes and impacts on local waterways.



COHESIVE STREETSCAPE DESIGN
AND PLANT PALETTE



DISTINCTIVE ENTRY STATEMENT TO
DEVELOPMENT ENTRANCE



DENSE PLANTING BUFFERS TO
ESTATE FRONTAGE



BLACK CHAIN WIRE FENCING TO
REAR OF INDUSTRIAL LOTS



AUSTRALIAN NATIVE PLANTING
PALETTE



WATER SENSITIVE URBAN DESIGN
PLANTING PALETTE TO
BIO-RETENTION BASIN



GRASS SEED COMPOST BLANKET TO PRIVATE
BATTERS FOR LOW MAINTENANCE AND
DROUGHT TOLERANCE

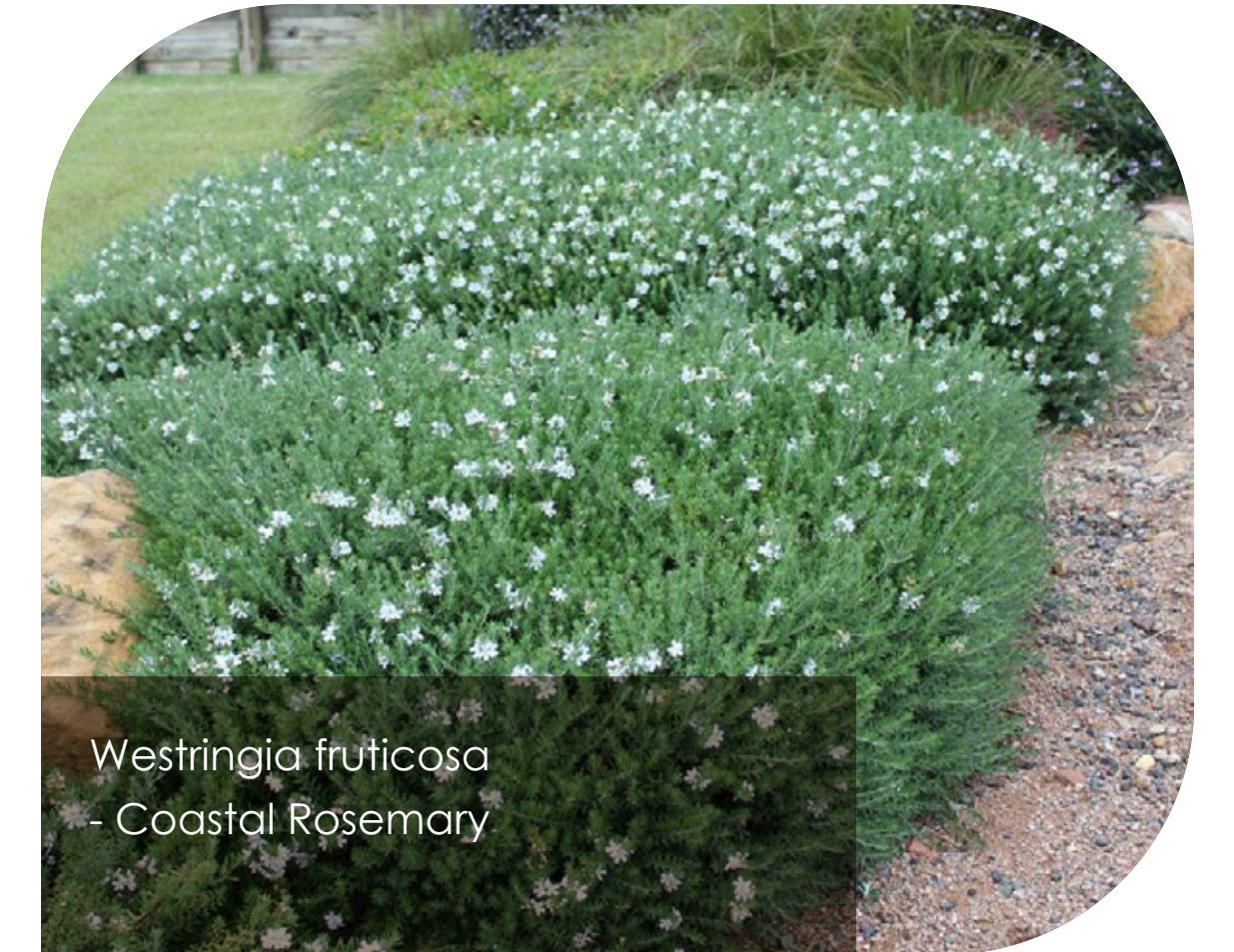
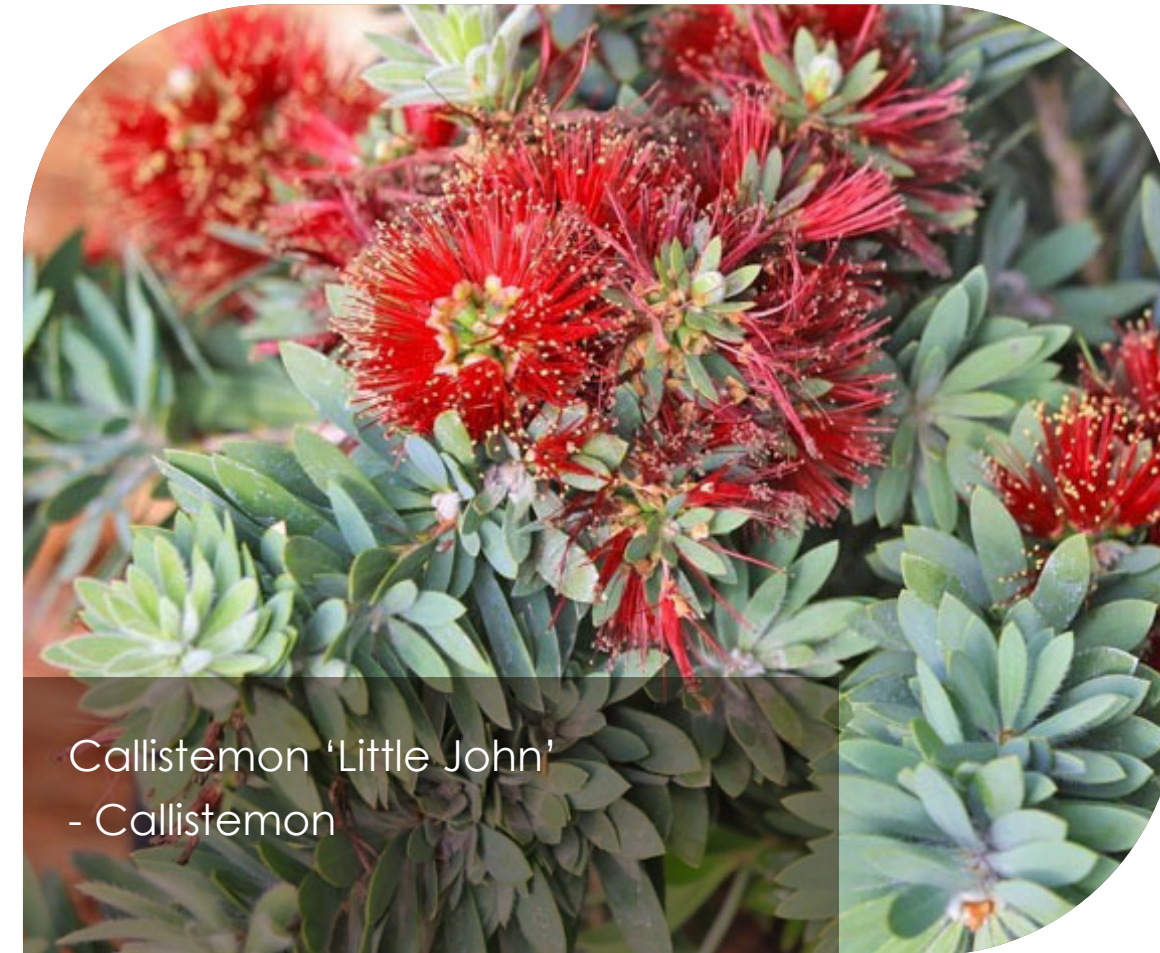
VANTAGE YATALA

PLANTING PALETTE 05



VANTAGE YATALA

PLANTING PALETTE 06



* BIO SPECIES

VANTAGE YATALA

PLANTING
PALETTE 07



* BIO SPECIES



APPENDIX I

TRAFFIC IMPACT ASSESSMENT

VantageYatala[®]



gassman
development
perspectives



TRAFFIC IMPACT ASSESSMENT

PROPOSED INDUSTRIAL ESTATE (STAGE 2)

60 STAPYLTON – JACOBS WELL ROAD, STAPYLTON

LOT 51 ON SP295994

Prepared for

FRASERS PROPERTY

20 NOVEMBER 2020

DOCUMENT REGISTER

Document Vantage – Change to Approval
60 Stapylton - Jacobs Well Road – STAGE 2

RTE Reference 20337

Prepared by Luke Rytenskild, Dare Janzekovic

Document History

Version	Version date	Details	Reviewed and Authorised	
			Name / Position	Signature
1	20 November 2020	DA ISSUE	Luke Rytenskild Director RPEQ 6293	

COPYRIGHT NOTICE

© Copyright CRG Traffic Pty Ltd All Rights Reserved. Copyright in the whole and every part of this document belongs to CRG Traffic Pty Ltd and may not be used, sold, transferred, copied or reproduced in whole or in part in any manner or form or in or on any media to any person without the prior written consent of CRG Traffic Pty Ltd.

COMPANY INFORMATION

CRG Traffic Pty Ltd as trustee for the Rytenskild CRG Trust trading as Rytenskild Traffic Group
 ABN 24 401 134 418
 ACN 151 846 847
 Director: Luke Rytenskild RPEQ 6293

GOLD COAST
 Unit 2,
 24 Surfers Avenue
 Mermaid Beach QLD 4218

BRISBANE
 Level 5
 320 Adelaide Street
 Brisbane QLD 4000

SYDNEY
 Level 26
 44 Market Street
 Sydney NSW 2000

Phone: 1300 220020
 Facsimile: 1300 087177
 Email: info@rytenskildtraffic.com
 Web: www.rytenskildtraffic.com

TABLE OF CONTENTS

1.0	INTRODUCTION.....	4
1.1	Background.....	4
1.2	Subject Site	4
2.0	PROPOSED DEVELOPMENT	6
3.0	SURROUNDING ROAD NETWORK.....	8
3.1	Interchange layout	8
3.2	Planned Road Upgrades	8
3.3	Traffic Volumes.....	8
4.0	DEVELOPMENT TRAFFIC ESTIMATES	10
4.1	Trip Generation Rate	10
4.2	Development Trip Generation	10
4.3	Development Trip Distribution.....	11
5.0	ROAD NETWORK IMPACT	14
5.1	General	14
5.2	Modelling of Overall Estate	14
5.3	Development Impact.....	18
6.0	INTERNAL ROAD LAYOUT.....	19
7.0	SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS.....	21
APPENDICES.....		22
	APPENDIX A – RPEQ CERTIFICATION	23
	APPENDIX B – TMR CONCEPT PLANNING FOR THE STAPYLTON JACOBS WELL ROAD	24
	APPENDIX C – 2018 TRAFFIC COUNT DATA (M1 EXIT 38 INTERCHANGE).....	27
	APPENDIX D – SURVEYED TRIP GENERATION DATA (RTE / GRIFFITH UNIVERSITY)	31
	APPENDIX E – CRITERIA FOR EVALUATING SIDRA RESULTS	33
	APPENDIX F – SIDRA RESULTS	34
	APPENDIX G – SDAP MODULE CODE 1 RESPONSE	44
	APPENDIX H – SDAP MODULE CODE 6 RESPONSE	55

1.0 INTRODUCTION

1.1 Background

Rytenskild Traffic Engineering (RTE) has been engaged by Frasers Property to prepare a Transport Impact Assessment of its proposed industry development at Yatala.

This report forms part of a Development Application for an Industrial Estate for the second stage of the project.

It is noted that traffic impact of the overall estate has been carried out as part of a separate application. The results of the analysis indicate that the first stage of the development will require signalisation of the Stapylton – Jacobs Well Road intersection, with the following works proposed to be completed prior to the completion of stage two:

- Construction of the second approach lane on the northbound off ramp (western side of Exit 38 interchange);
- Construction of second departure lane on the Stapylton – Jacobs Well Road leg of the eastern roundabout at the Exit 38 interchange.

The Department of Transport and Main Roads is a referral agency for the application. This report has been prepared in accordance with the Guide to Traffic Impact Assessments 2017 (GTIA). The RPEQ certification of this Traffic Impact Assessment (TIA) is provided in Appendix A.

1.2 Subject Site

As shown in Figure 2.1, the site is located on the southern side of Stapylton - Jacobs Well Road. The subject site forms the first stage of the planned estate on Lot 1 on RP6882 & Lot 240 on W31330.



FIGURE 1.1 – LOCATION OF SUBJECT SITE

2.0 PROPOSED DEVELOPMENT

The proposed plan of development is for the second stage of the estate and comprises of 6 individual lots, including a detention basin. Stage 2 has a total area of approximately 31.1 hectares.

An internal road network is proposed to be built which will provide access to the individual lots. The internal roadway will accommodate vehicles up to A-Double size. It is proposed that a priority controlled intersection will be constructed to provide direct access to stage two from Christensen Road. The access established during stage one of the estate, from Stapylton – Jacobs Well Road, will provide secondary access to stage two.

The proposed plan of development allows for road connections to the adjoining properties (Stage 1) to the west.

The proposed plan of development (Stage 2) is shown in Figure 2.1.

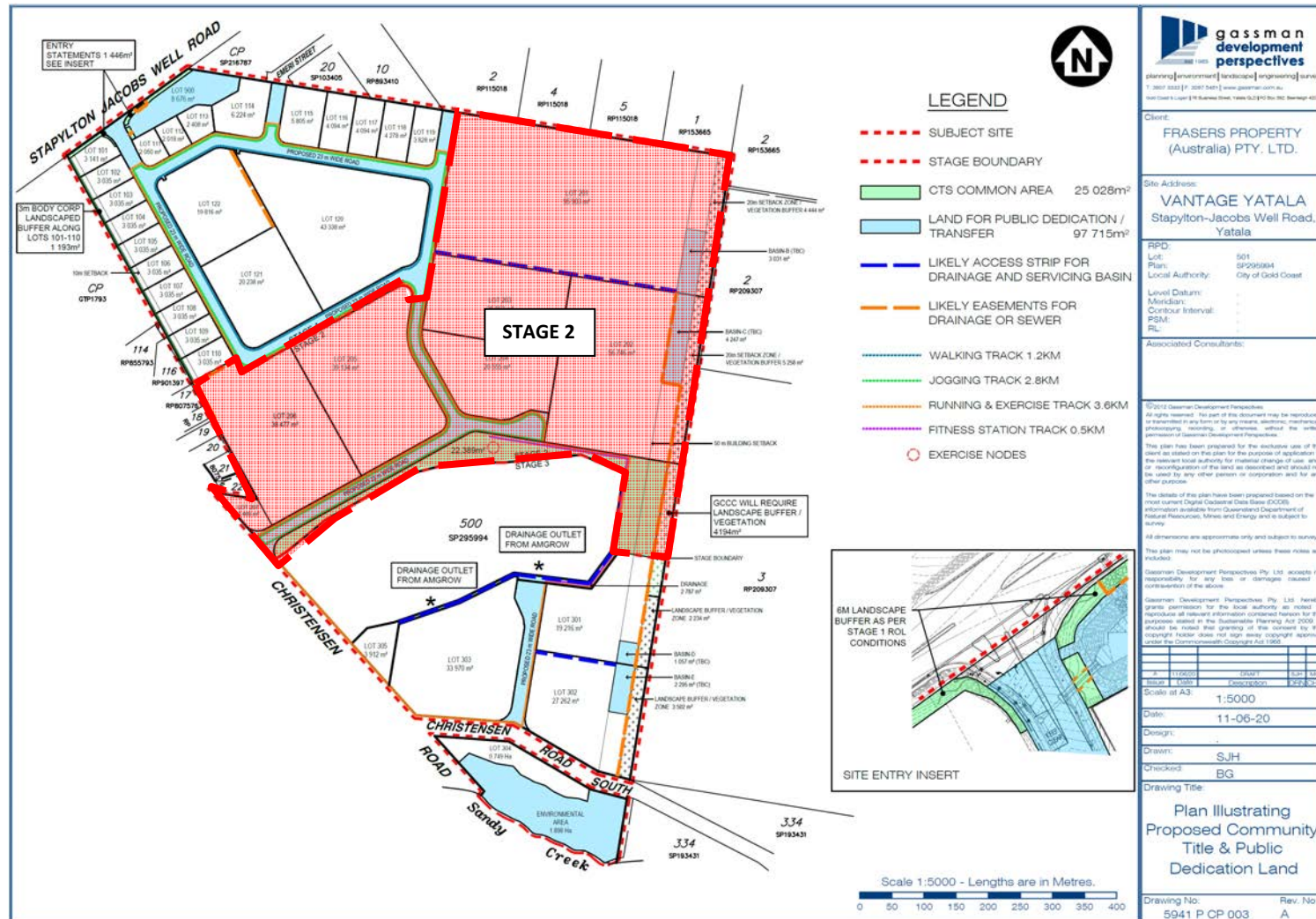


FIGURE 2.1 – PROPOSED STAGE 2 LAYOUT

3.0 SURROUNDING ROAD NETWORK

3.1 Interchange layout

As shown in Figure 3.1, the Exit 38 interchange comprises of a roundabout on each side of the Motorway with a four lane connection road beneath the Motorway. The western roundabout has two circulating lanes and five legs, including the northbound on and off ramps. The western roundabout has two circulating lanes and six legs, including the southbound on and off ramps.

The interchange has recently been upgraded, as follows:

Eastern roundabout:

- A second approach lane on the Stapylton – Jacob’s Well Road leg;
- A signal meter on the Elderslie Road (underpass) approach.

Western roundabout:

- A second approach lane on the Elderslie road approach;
- A signal meter on the Elderslie Road (underpass) approach.

In addition, Nyholt Drive was connected to Martens Street which has provided some relief to the interchange as local traffic is now able to access Beenleigh without using the motorway.

The existing layout of the Exit 38 interchange is shown in Figure 3.1.

3.2 Planned Road Upgrades

The Department of Transport and Main Roads has carried out planning for the future upgrade of the Stapylton – Jacob’s Well Road. Current concept planning layouts are provided as Appendix B. as shown, it is planned that the Stapylton – Jacob’s Well Road will be upgraded to a four – lane divided road with provision made for a signalised intersection providing access to the subject site.

3.3 Traffic Volumes

Traffic count data for each roundabout at the Yatala North interchange have been provided by the Department of Transport and Main Roads. The data was collected in May 2014 on a typical Thursday. This data was collected to the implementation of signal metering on Elderslie Road (underpass) and prior to the connection of Nyholt Drive to Martens Street. These works have significantly improved the performance of the interchange.

Given the above changes, RTE engaged Austraffic to carry out peak period traffic counts in January 2018 (during the first of the school term). During these surveys it was observed that the performance of the roundabouts have significantly improved, particularly with reduced queuing on the off-ramps. Overall, traffic volumes increased at a rate of approximately 3% per annum since the 2014 surveys.

A summary of the January 2018 count data is provided as Appendix D.



FIGURE 3.1 – EXISTING YATALA NORTH INTERCHANGE (PHOTO AUGUST 2020)

4.0 DEVELOPMENT TRAFFIC ESTIMATES

4.1 Trip Generation Rate

In accordance with the original traffic impact assessment, the following trip generation rates have been adopted for the analysis.

0.42 trips / 100m² GFA / peak hour, and 4 trips / 100m² GFA / day.

This rate is considered to be reasonable for the proposal given the proposed mix of lot sizes and similar location. It was also adopted for other studies in the area including the Frasers Property estate off Pearson Road.

4.2 Development Trip Generation

Potential floor areas have been estimated through application of a 45% site coverage. Resultant estimates of development trip generation estimates are provided below. It is noted that the trip generation calculations are based on revised calculations of developable areas. Previous assessments were based on the overall stage area and resulted in a significant over-estimate of potential trip generation.

Table 4.1 - Estimated Peak Hour Development Traffic Generation (STAGES 1 & 2 ONLY)

Stage	Lot Area (m ²)	Est GFA (m ²)	Morning Peak Hour			Afternoon Peak Hour		
			In	Out	Total	In	Out	Total
STAGE 1	119833	53925	147	79	226	46	180	226
STAGE 2	276677	124505	340	183	523	105	427	523
TOTAL TRAFFIC			487	262	749	151	607	749

Assumes 45% site cover

Peak Hour Distribution: AM Peak 65 / 35, PM Peak 20/80

4.3 Development Trip Distribution

To be consistent with the Hyder Consulting report submitted with the Development Application, it is assumed that development traffic will distribute on Stapylton Jacobs Well Road and on Christensen Road as follows:

Stapylton – Jacobs Well Road

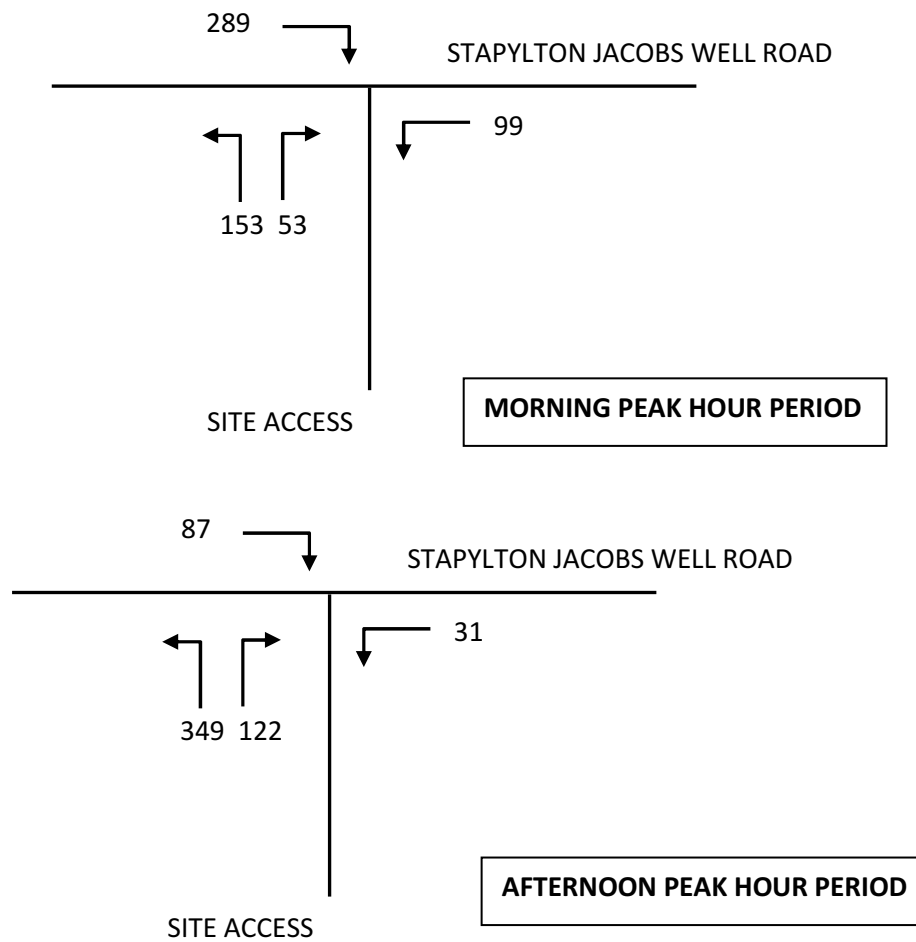
- 80% to and from the Pacific Motorway
- 20% to and from the east via the Stapylton – Jacob's Well Road.

Christensen Road

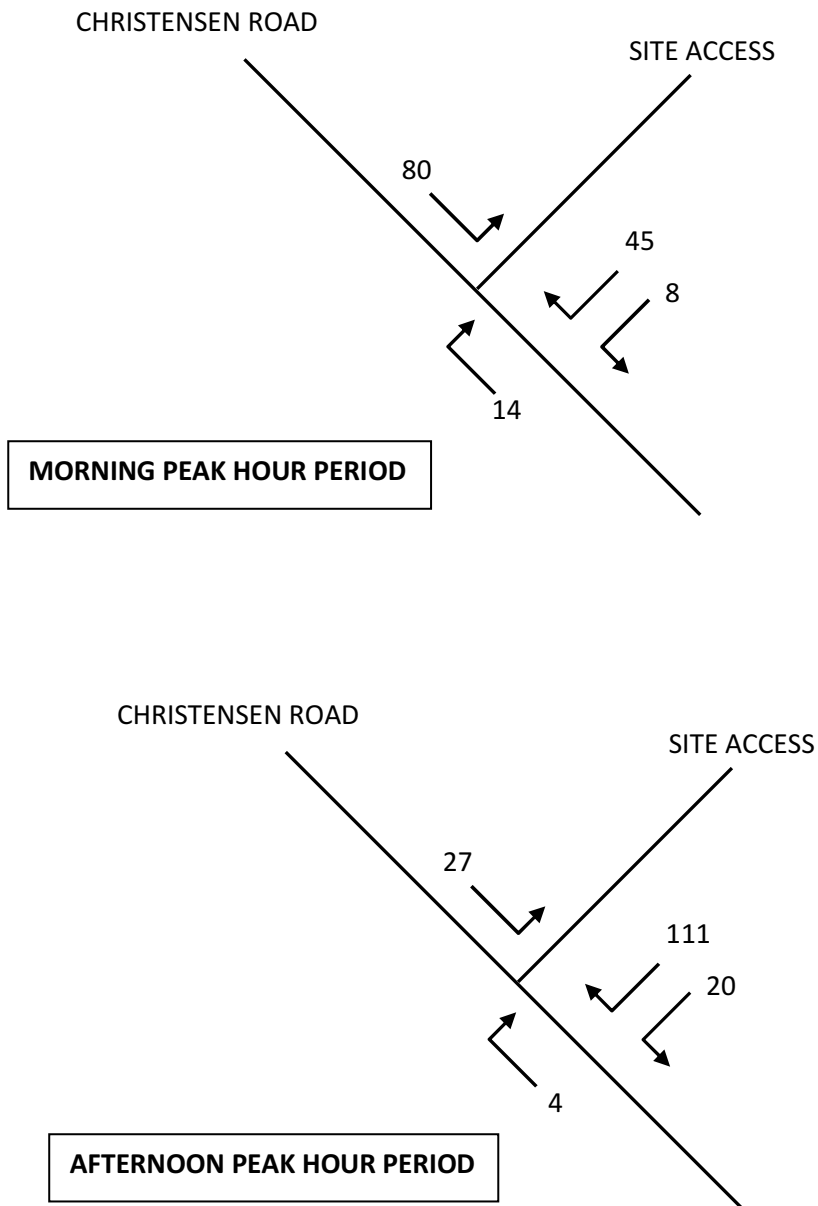
- 85% to and from the Pacific Motorway
- 15% to and from the east via the Stapylton – Jacob's Well Road.

It is noted that Council is planning to extend Christensen Road to connect with Burnside Road. This connection will significantly change the traffic patterns in the local area, and provide an overall increase in capacity. In particular local traffic will have more flexibility with regard to access to the Pacific Motorway, as it will provide a connection between the Exit 38 and Exit 41 interchanges. Forecast traffic volumes have been requested by Council, however it is understood that such are not currently available at this time.

The combined development traffic estimates (for Stages 1 and 2) at the site access intersections are shown in Figures 4.1 and 4.2.



**FIGURE 4.1 – STAGES 1 & 2 DEVELOPMENT TRAFFIC ESTIMATES
AT THE STAPYLTON – JACOBS WELL ROAD INTERSECTION**



**FIGURE 4.2 – STAGES 1 & 2 DEVELOPMENT TRAFFIC ESTIMATES
AT THE CHRISTENSEN ROAD INTERSECTION**

5.0 ROAD NETWORK IMPACT

5.1 General

Traffic modelling using SIDRA software has been carried out to determine the performance of the proposed Stapylton Jacobs Well Road / Site Access and Christensen Road / Site Access intersections under opening year (year 2023) and the projected project future (year 2030) conditions of the overall estate. In accordance with Section 3.5 and Table 4 of the Guide to Traffic Impact Assessments (2017), the assessment is required to examine impacts for the anticipated year of opening of each stage and the final stage. For the purposes of this assessment it has been assumed that the second stage of development would be completed by the year 2023, and the full development by the year 2030.

The estate access intersection with the Stapylton – Jacobs Well Road will be constructed to its ultimate layout (two through lanes in each direction plus turning lanes / traffic signal control) as part of the approved works for Stage 1. An additional access intersection of Christensen Road is proposed to be constructed to provide direct access to Stage 2.

It is noted that an assessment of impacts at the Exit 38 interchange has been carried out as part of the DA for a Preliminary Approval over the site.

5.2 Modelling of Overall Estate

Based on the analysis of the overall estate (prepared under a separate application) the signalised intersection with the Stapylton – Jacobs Well Road will improve the operation of the eastern roundabout at the Exit 38 interchange by bunching the traffic flow in the westbound direction. The operation of the Interchange is therefore expected to improve as a result of the first stage of development.

The traffic impact of the overall estate has been carried out as part of a separate application. The results of the analysis indicate that the following works are required upon the completion of Stage 2:

- Construction of new intersection with Christensen Road;
- Construction of the second approach lane on the northbound off ramp (western side of Exit 38 interchange);
- Construction of second departure lane on the Stapylton – Jacobs Well Road leg of the eastern roundabout at the Exit 38 interchange.

A concept design of the proposed Stage 2 works are in Shown in Figures 5.1 – 5.3.

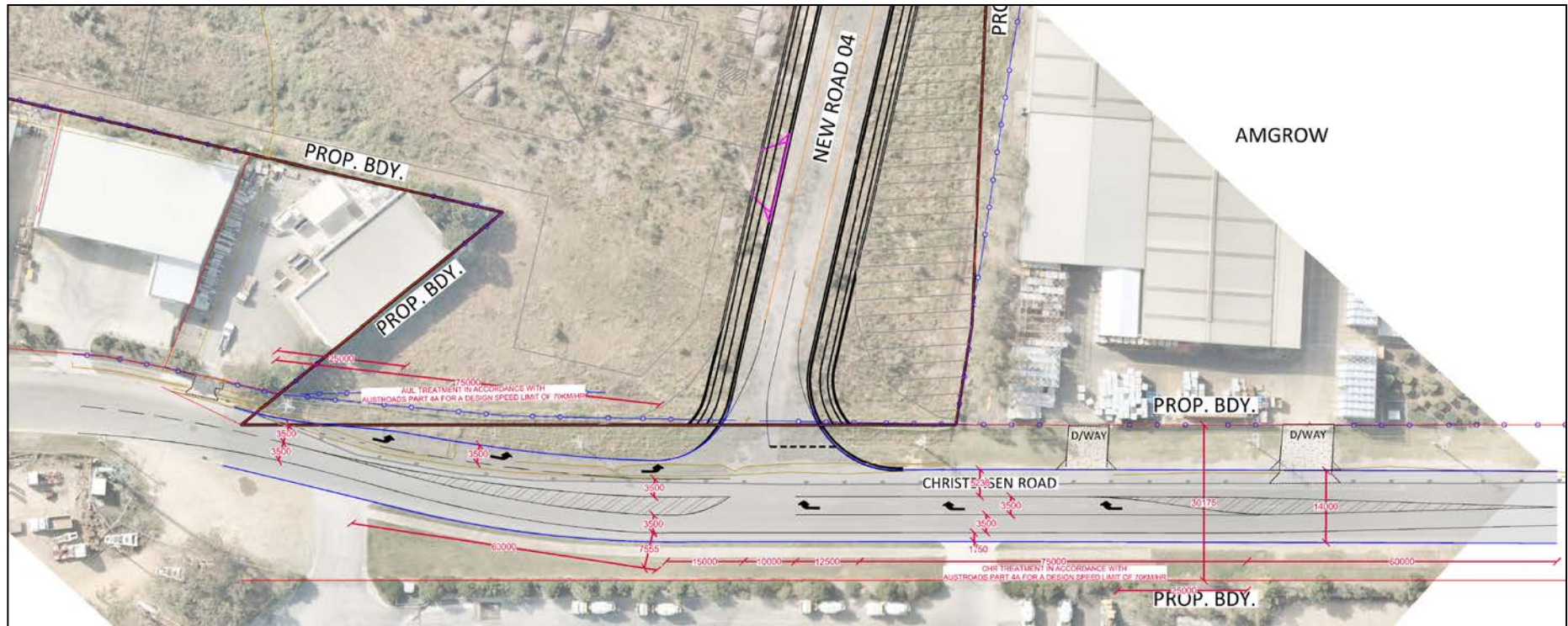


FIGURE 5.1 – CONCEPT DESIGN OF THE PROPOSED SITE ACCESS / CHRISTENSEN ROAD INTERSECTION

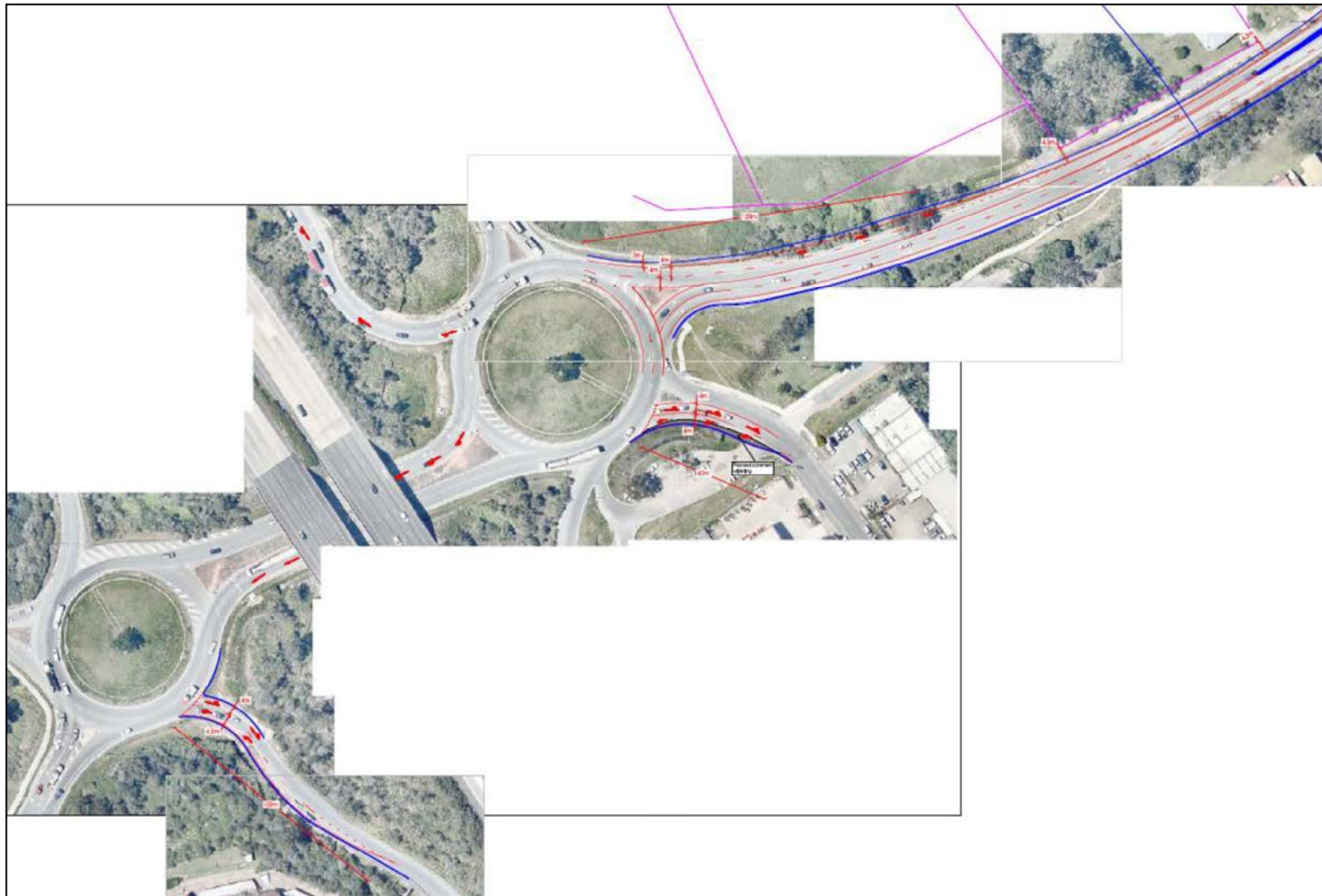


FIGURE 5.2 – CONCEPT DESIGN OF THE PROPOSED INTERCHANGE IMPROVEMENTS (OVERALL)



FIGURE 5.3 – CONCEPT DESIGN OF THE PROPOSED INTERCHANGE IMPROVEMENTS (DETAIL)

5.3 Development Impact

Criteria for evaluating the results of the SIDRA analysis are provided in Appendix E

Results of the SIDRA modelling of the Stapylton Jacobs Well Road / Site Access and Christensen Road / Site Access intersections are provided as Appendix F, and summarised in Tables 5.1 and 5.2 below.

Table 5.1 – Summarised SIDRA Results (Stapylton Jacobs Well Road / Site Access Intersection)

Scenario	Degree Of Saturation	Level Of Service	Total Average Delay (sec)	Queue Length (metres)	Cycle Time (sec)
2023 AM Peak – STAGES 1 & 2	0.815	B	14.8	50.2	40
2023 PM Peak – STAGES 1 & 2	0.578	B	11.9	64.3	40
2030 AM Peak – STAGES 1 & 2	0.729	B	13.8	63.2	50
2030 PM Peak – STAGES 1 & 2	0.714	B	13.0	90.3	50

Table 5.2 – Summarised SIDRA Results (Christensen Road / Site Access Intersection)

Scenario	Degree Of Saturation	Level Of Service	Total Average Delay (sec)	Queue Length (metres)
2023 AM Peak – STAGES 1 & 2	0.276	C	1.8	5.5
2023 PM Peak – STAGES 1 & 2	0.378	C	3.0	13.6
2030 AM Peak – STAGES 1 & 2	0.339	D	2.0	8.4
2030 PM Peak – STAGES 1 & 2	0.529	D	3.8	19.9

As shown in Table 5.1, the proposed access intersections will perform satisfactorily for a period of at least 10 years beyond completion of the final stage. Modelling carried out as part of the Preliminary Approval application indicates that the intersection will function satisfactorily with the overall estate completed.

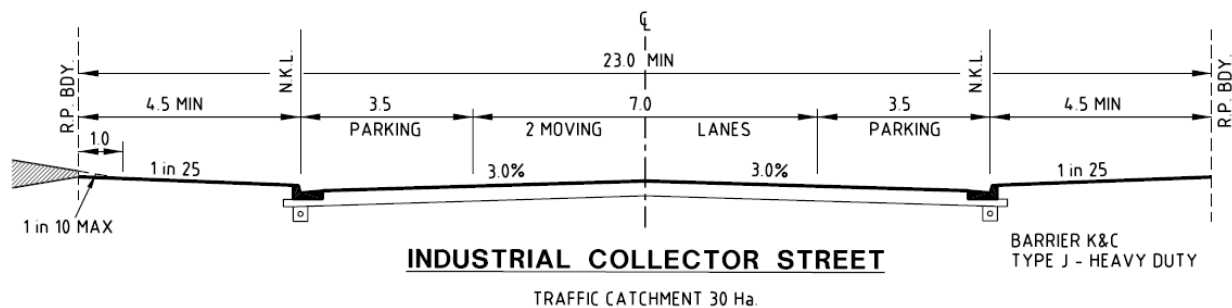
The above SIDRA results are consistent with the analysis of the preliminary approval and no additional mitigation works are considered to be necessary for the operation of the proposed development.

6.0 INTERNAL ROAD LAYOUT

The internal road profile has been designed in accordance with the Gold Coast City Council requirements for an Industrial Collector Street. As shown in Figure 6.1, the Industrial Collector Street provides a road reserve width of 23 metres with a 14 metre carriageway. Such is provided to accommodate the largest design vehicle expected to use the site (A-Double).

The layout of the intersections within the estate have been designed with a minimum radius of 17.0 metres. This is provided to allow the A-Double to navigate the intersections without having to encroach onto the opposite side of the road. Until the future staging is completed, it is proposed that the dead-end roads will be terminated using a cul-de-sac treatment.

The layout of the internal roadway is shown in Figure 6.2.



FIGURES 6.1 – PROPOSED ROAD CROSS SECTION

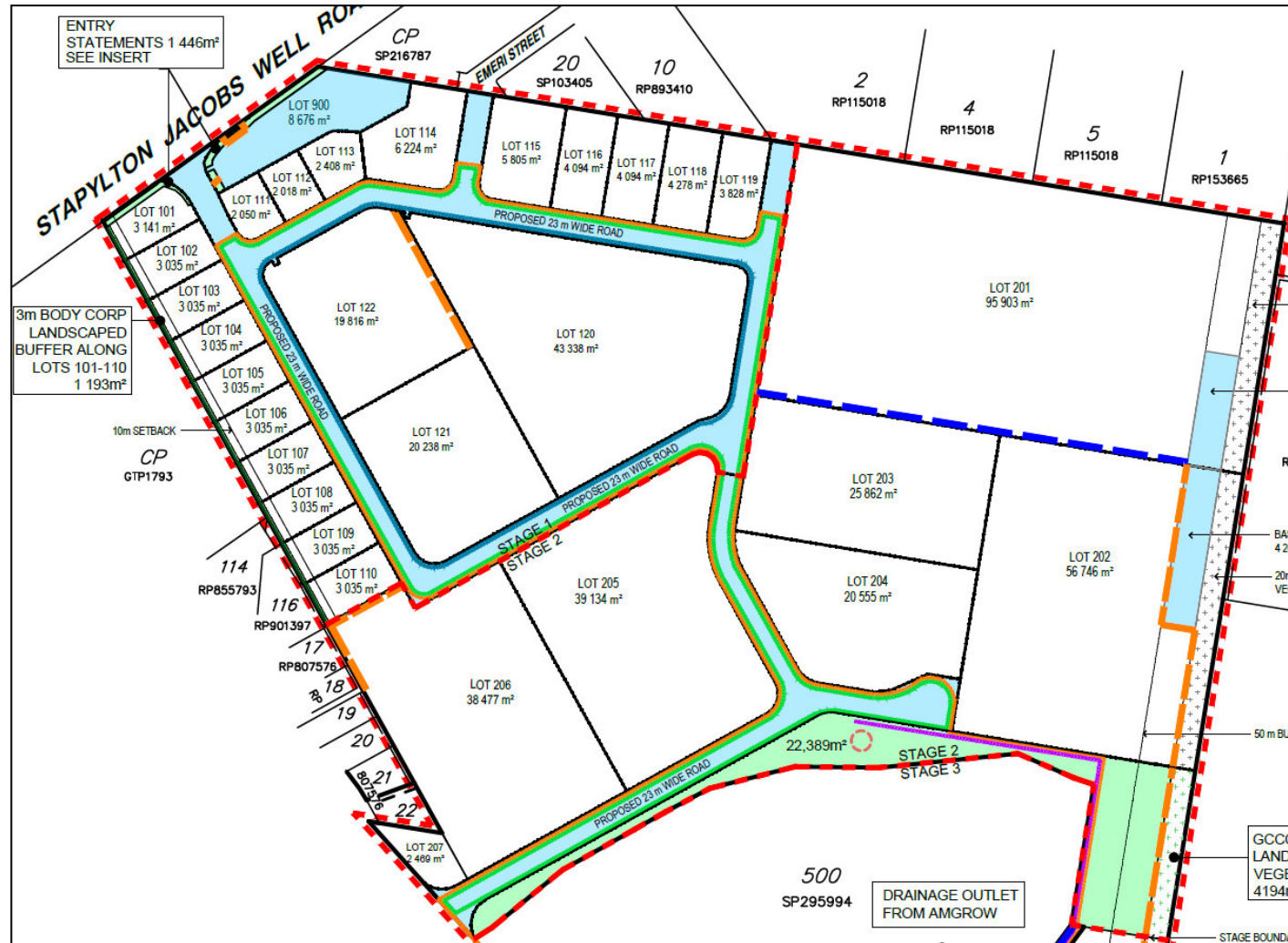


FIGURE 6.2 – PROPOSED ROAD LAYOUT

7.0 SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

- The site is located on the southern side of Stapylton - Jacobs Well Road. The subject site forms the first stage of a planned estate on Lot 1 on RP6882 & Lot 240 on W31330.
- The stage two site has an area of approximately 31.1 hectares and will comprise of 6 individual lots, including a detention basin.
- It is proposed that a new intersection be constructed on Christensen Road, serving as the primary access point to stage two of the estate. An internal road connection will be provided between stages one and two allowing traffic to distribute between the two access points. Dedicated left and right turn treatments have been provided to accommodate ultimate traffic volumes.
- SIDRA modelling indicates that the proposed intersection will perform satisfactorily with the construction of the proposed development. Modelling of the intersection considering the full development of the estate was carried out as part of the Development Application for a Preliminary Approval over the site.
- The internal road profile has been designed in accordance with the City of Gold Coast requirements for an Industrial Collector Street and allows for A-Double vehicle access.

APPENDICES

APPENDIX A – RPEQ CERTIFICATION

APPENDIX B – TMR CONCEPT PLANNING FOR THE STAPYLTON JACOBS WELL ROAD

APPENDIX C – 2018 TRAFFIC COUNT DATA (M1 EXIT 38 INTERCHANGE)

APPENDIX D – SURVEYED TRIP GENERATION (RTE / GRIFFITH UNIVERSITY)

APPENDIX E – CRITERIA FOR EVALUATING SIDRA RESULTS

APPENDIX F - DETAILED SIDRA OUTPUT

APPENDIX A – RPEQ CERTIFICATION

CERTIFICATION OF TRAFFIC IMPACT ASSESSMENT REPORT REGISTERED PROFESSIONAL ENGINEER QUEENSLAND for

Project title:	
----------------	--

As a professional engineer registered by the Board of Professional Engineers of Queensland pursuant to the *Professional Engineers Act 2002* as competent in my areas of nominated expertise, I understand and recognise:

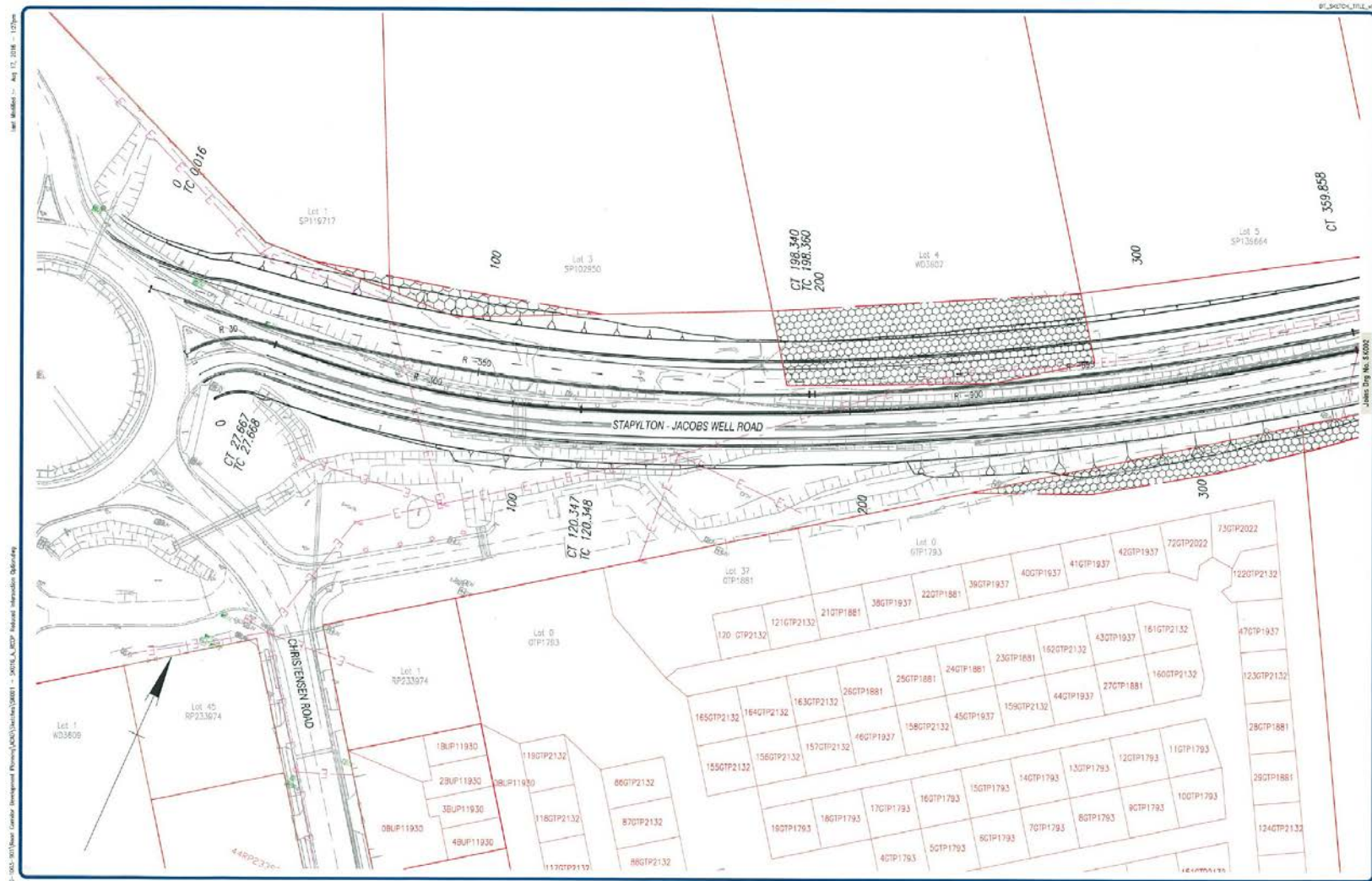
- the significant role of engineering as a profession, and that
- the community has a legitimate expectation that my certification affixed to this engineering work can be trusted, and that
- I am responsible for ensuring its preparation has satisfied all necessary standards, conduct and contemporary practice.

As the responsible RPEQ, I certify:

- I am satisfied that all submitted components comprising this traffic impact assessment, listed in the following table, have been completed in accordance with the Guide to Traffic Impact Assessment published by the Queensland Department of Transport and Main Roads and using sound engineering principles, and
- where specialised areas of work have not been under my direct supervision, I have reviewed the outcomes of the work and consider the work and its outcomes as suitable for the purposes of this traffic impact assessment, and that
- the outcomes of this traffic impact assessment are a true reflection of results of assessment, and that
- I believe the strategies recommended for mitigating impacts by this traffic impact assessment, embrace contemporary practice initiatives and will deliver the desired outcomes.

Name:	Luke Rytenskild	RPEQ No:	6293
RPEQ competencies:	Civil Engineer (Traffic Engineering)		
Signature:		Date:	20.11.20
Postal address:	Po Box 17 Surfers Paradise QLD 4217		
Email:	Luke@rytenskildtraffic.com		

APPENDIX B – TMR CONCEPT PLANNING FOR THE STAPYLTON JACOBS WELL ROAD



Comments:

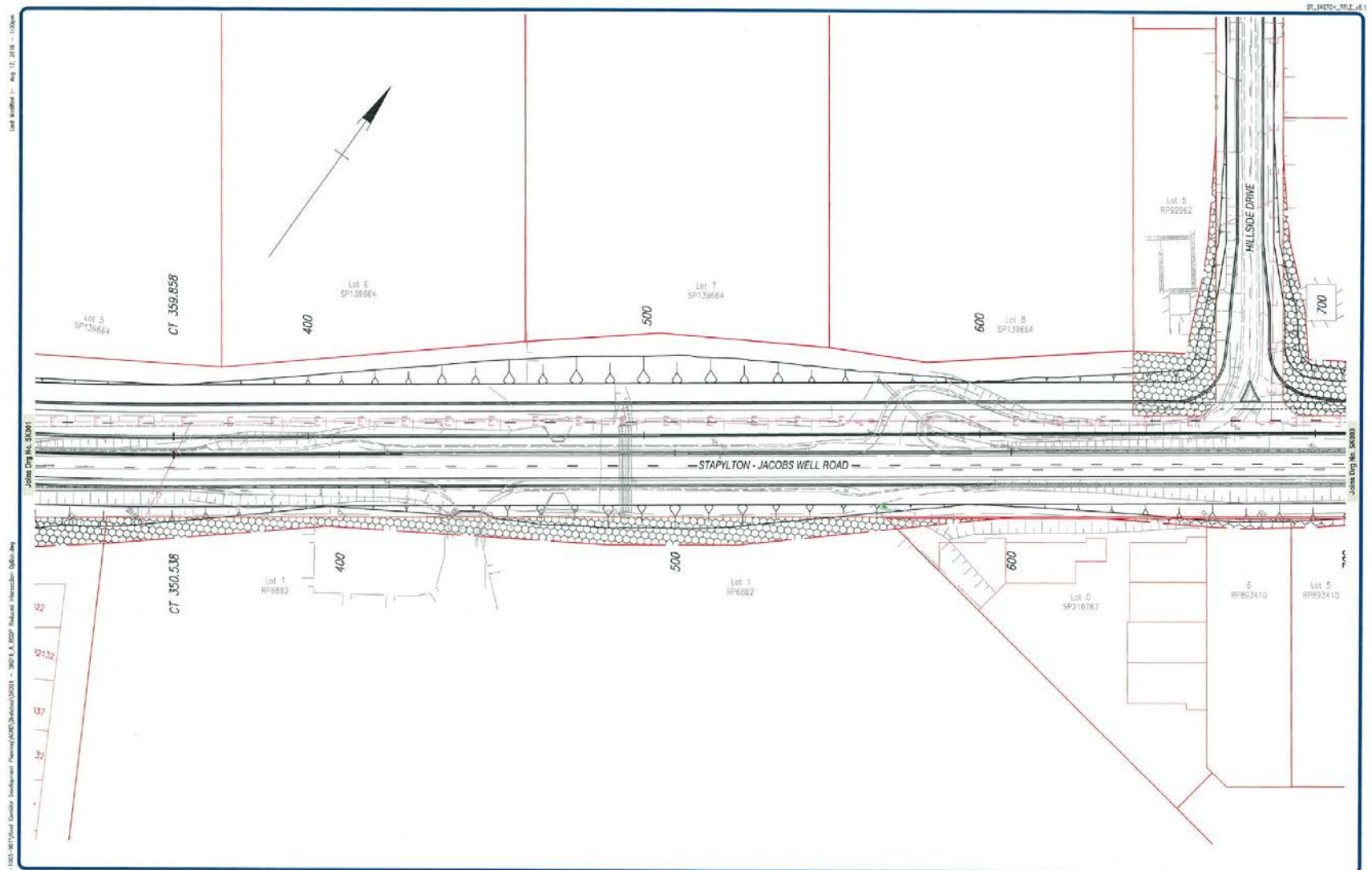
Stapylton - Jacobs Well Road Corridor Development Planning
Reduced Intersections Option
Sheet 1 of 16

0 10 20m
A

Drawing No. SK001 (A)
Drawn: S. READ
Design: S. READ
Engineer:



STAPYLTON - JACOBS WELL ROAD | 160 / 1003 / 901



Comments:

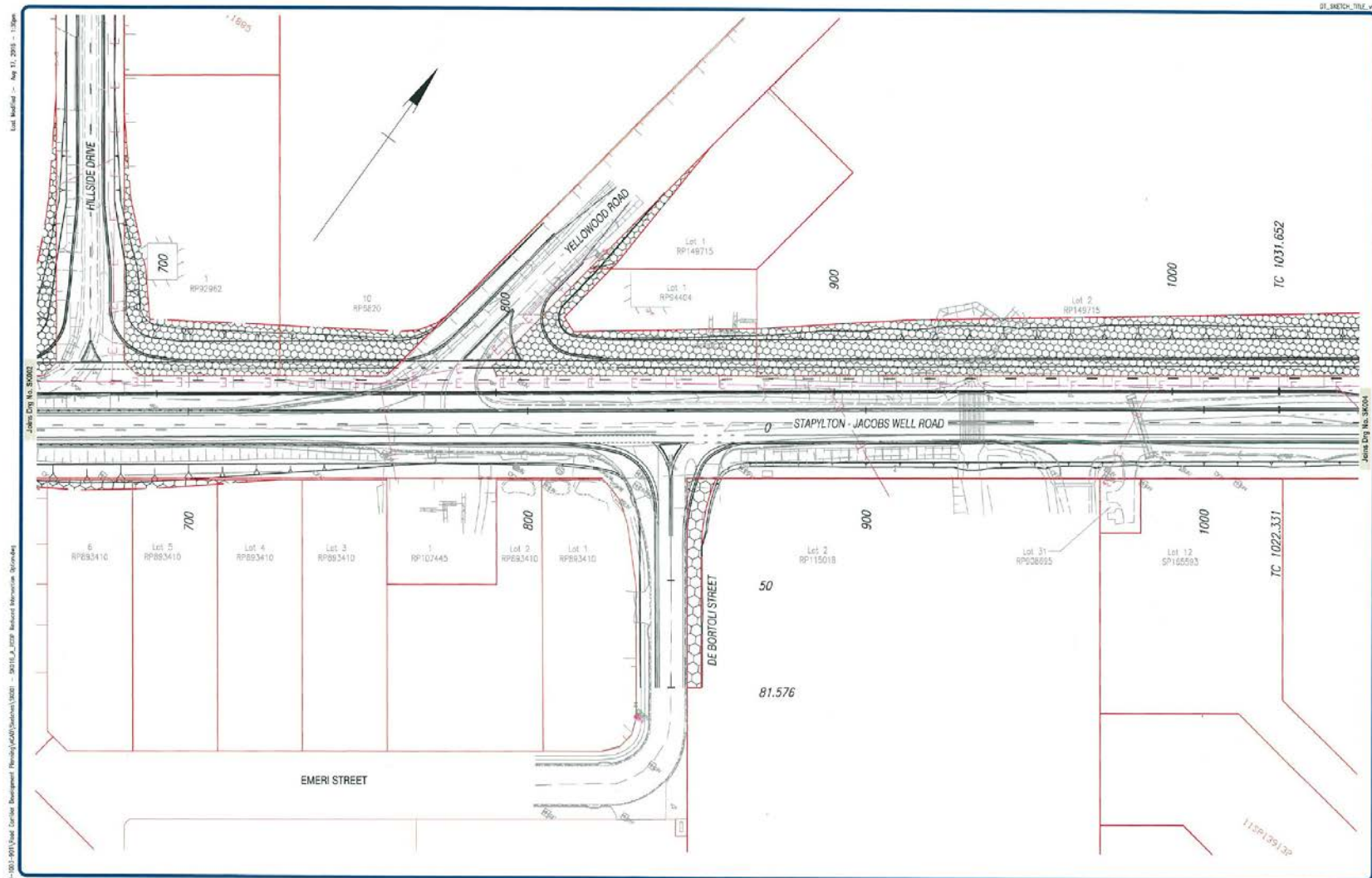
Stapylton - Jacobs Well Road Corridor Development Planning
Reduced Intersections Option
Sheet 2 of 16



Drawing No. SK002 (A)
 Drawn: S. READ
 Design: S. READ
 Engineer:



STAPYLTON - JACOBS WELL ROAD | 160 / 1003 / 901



Comments:

Stapylton - Jacobs Well Road Corridor Development Planning
Reduced Intersections Option
Sheet 3 of 16



Drawing No. SK003 (A)
Drawn: S. READ
Design: S. READ
Engineer:



APPENDIX C – 2018 TRAFFIC COUNT DATA (M1 EXIT 38 INTERCHANGE)

AUSTRAFFIC VIDEO INTERSECTION COUNT

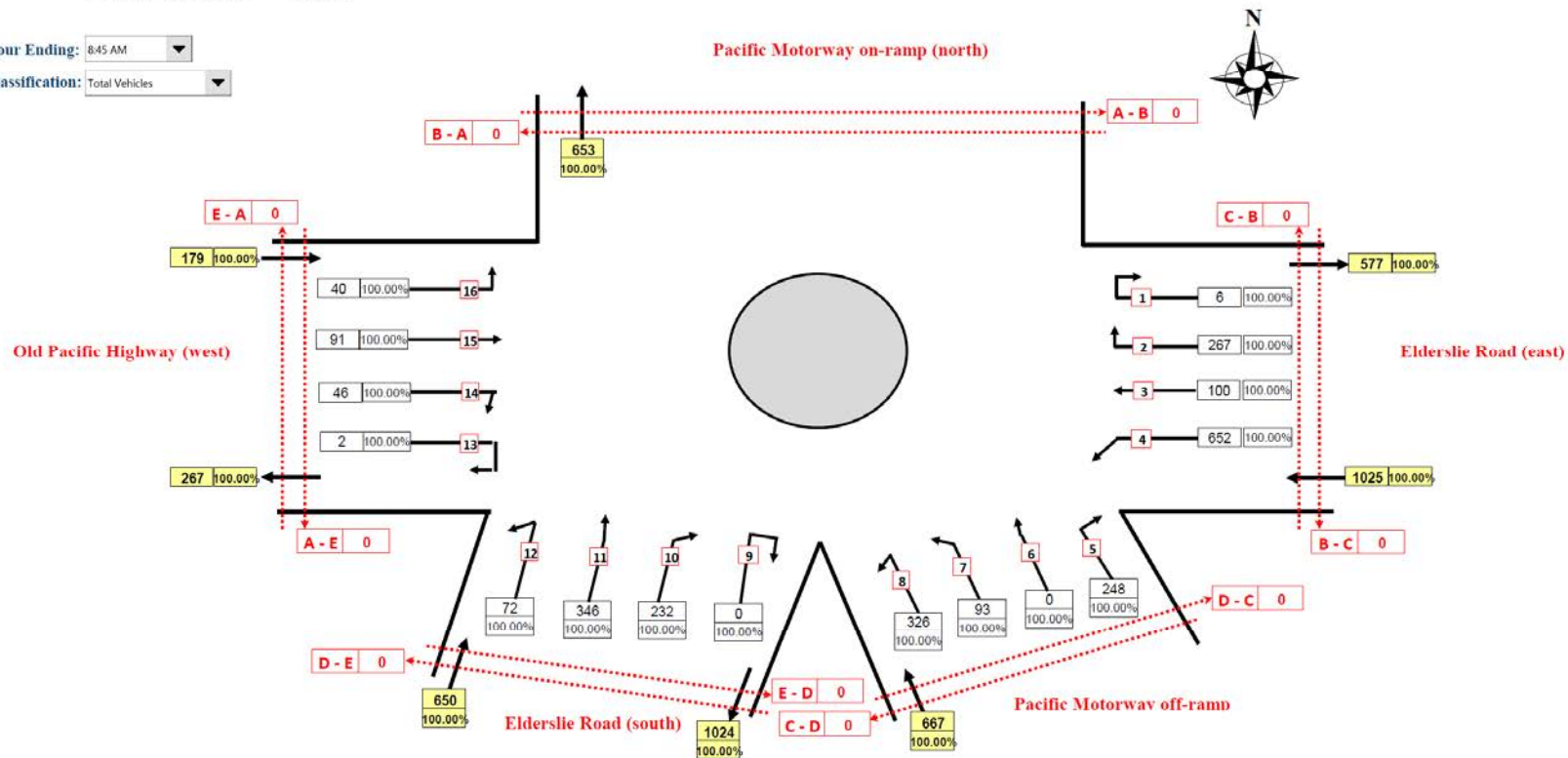
Site No.: 1 Weather: Fine
Location: Stapylton-Jacobs Well Road/Old Pacific Highway/Stanmore Road/M1 Ramps
Day/Date: Tuesday, 23 January 2018
Summary: AM Peak : Hour ending - 8:45 AM
PM Peak : Hour ending - 4:30 PM

Hour Ending: 8:45 AM

Classification: Total Vehicles



**Western Roundabout
Morning Peak Hour**



Note: 3.28% = proportion of selected vehicle classification as a percentage of total vehicles

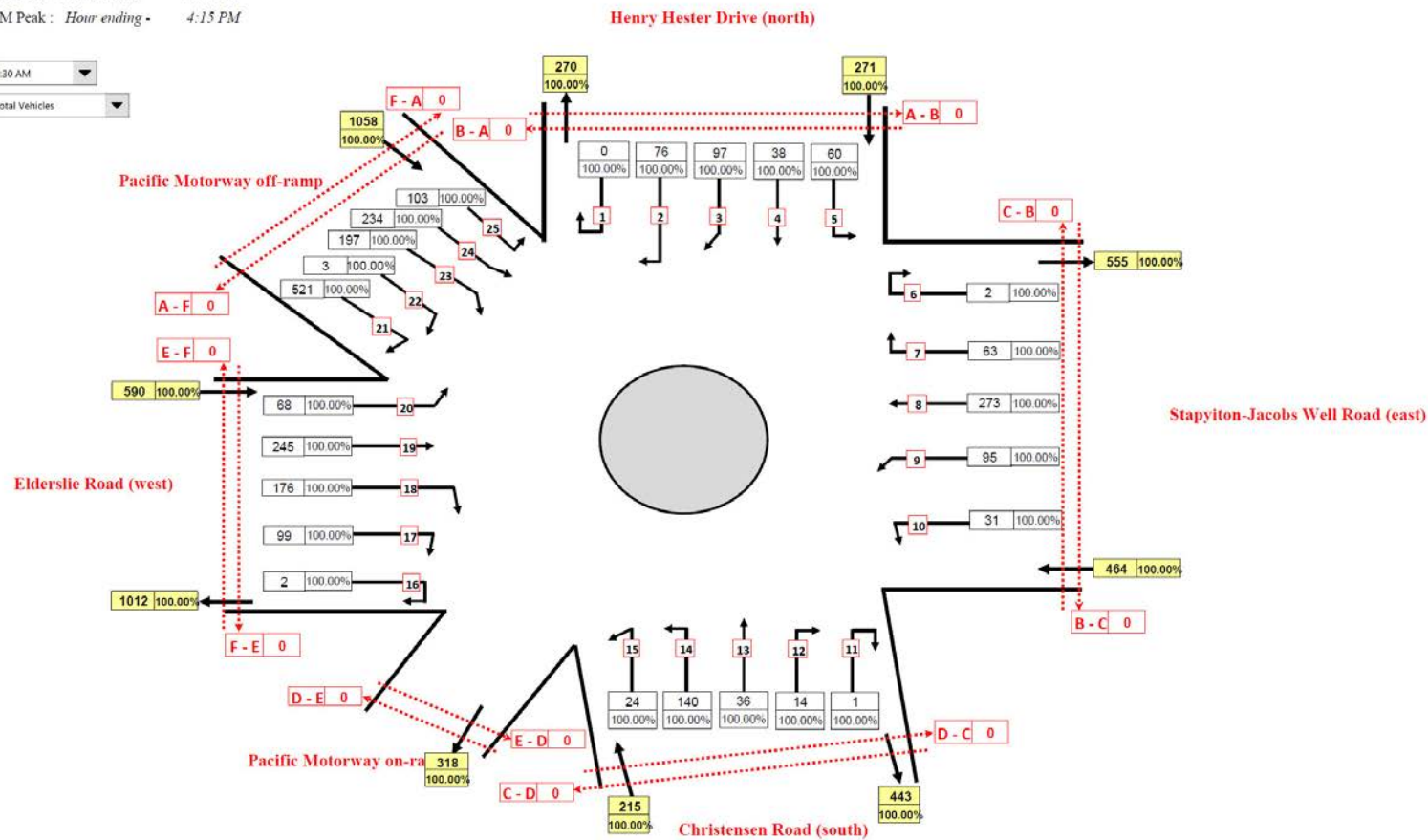
AUSTRAFFIC VIDEO INTERSECTION COUNT



**Eastern Roundabout
Morning Peak Hour**

Site No.: 2 Weather: Fine
Location: Stapyiton-Jacobs Well Road/Henry Hester Drive/Christensen Road/M1 Ramps
Day/Date: Tuesday, 23 January 2018
Summary: AM Peak : Hour ending - 8:30 AM
PM Peak : Hour ending - 4:15 PM

Hour Ending: 8:30 AM
Classification: Total Vehicles



Note: 3.28% = proportion of selected vehicle classification as a percentage of total vehicles

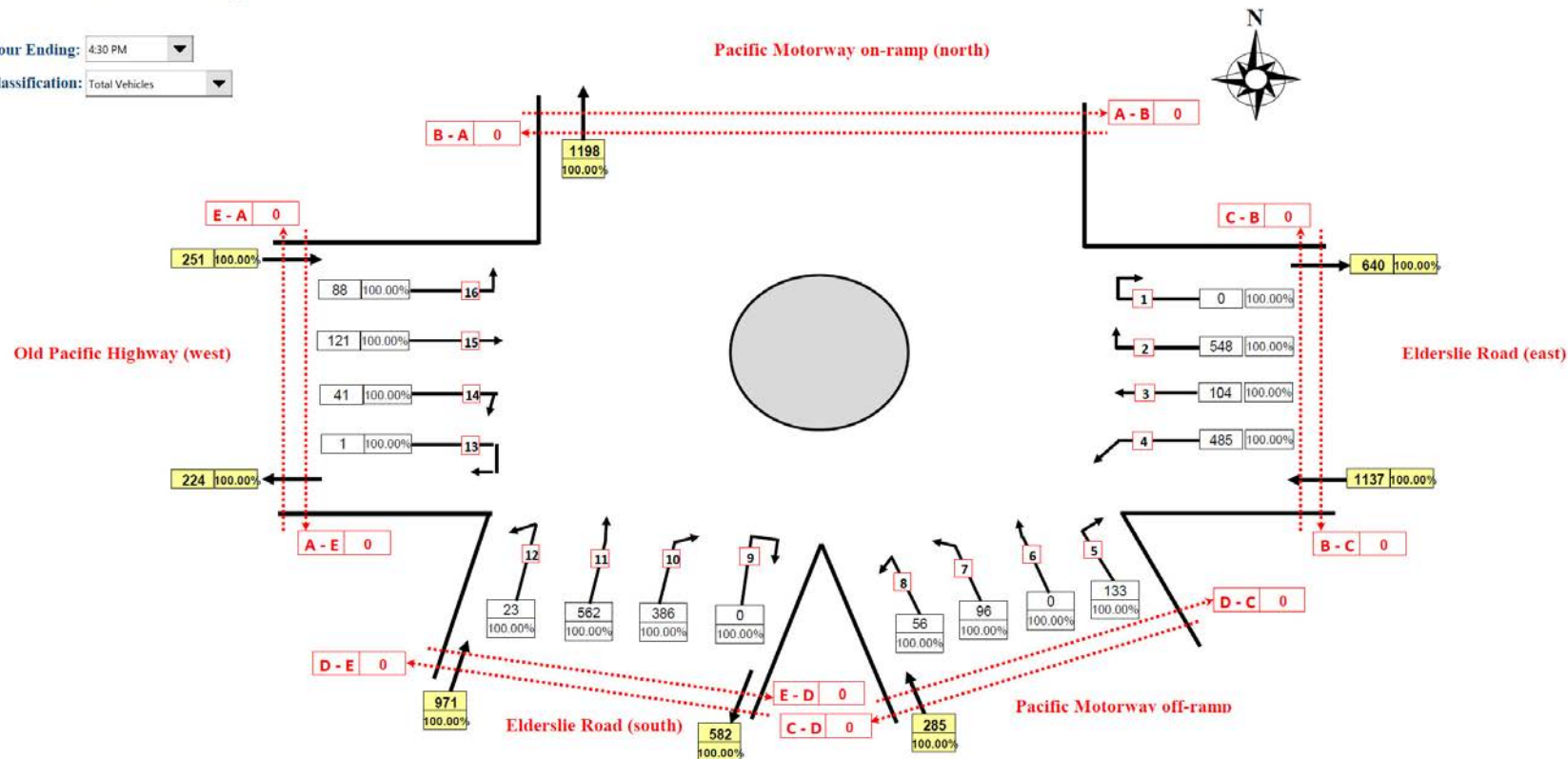
AUSTRAFFIC VIDEO INTERSECTION COUNT



Site No.: 1 Weather: Fine
Location: Stapylton-Jacobs Well Road/Old Pacific Highway/Stammore Road/M1 Ramps
Day/Date: Tuesday, 23 January 2018
Summary: AM Peak : Hour ending - 8:45 AM
PM Peak : Hour ending - 4:30 PM

**Western Roundabout
Afternoon Peak Hour**

Hour Ending: 4:30 PM
Classification: Total Vehicles



Note: 3.28% = proportion of selected vehicle classification as a percentage of total vehicles

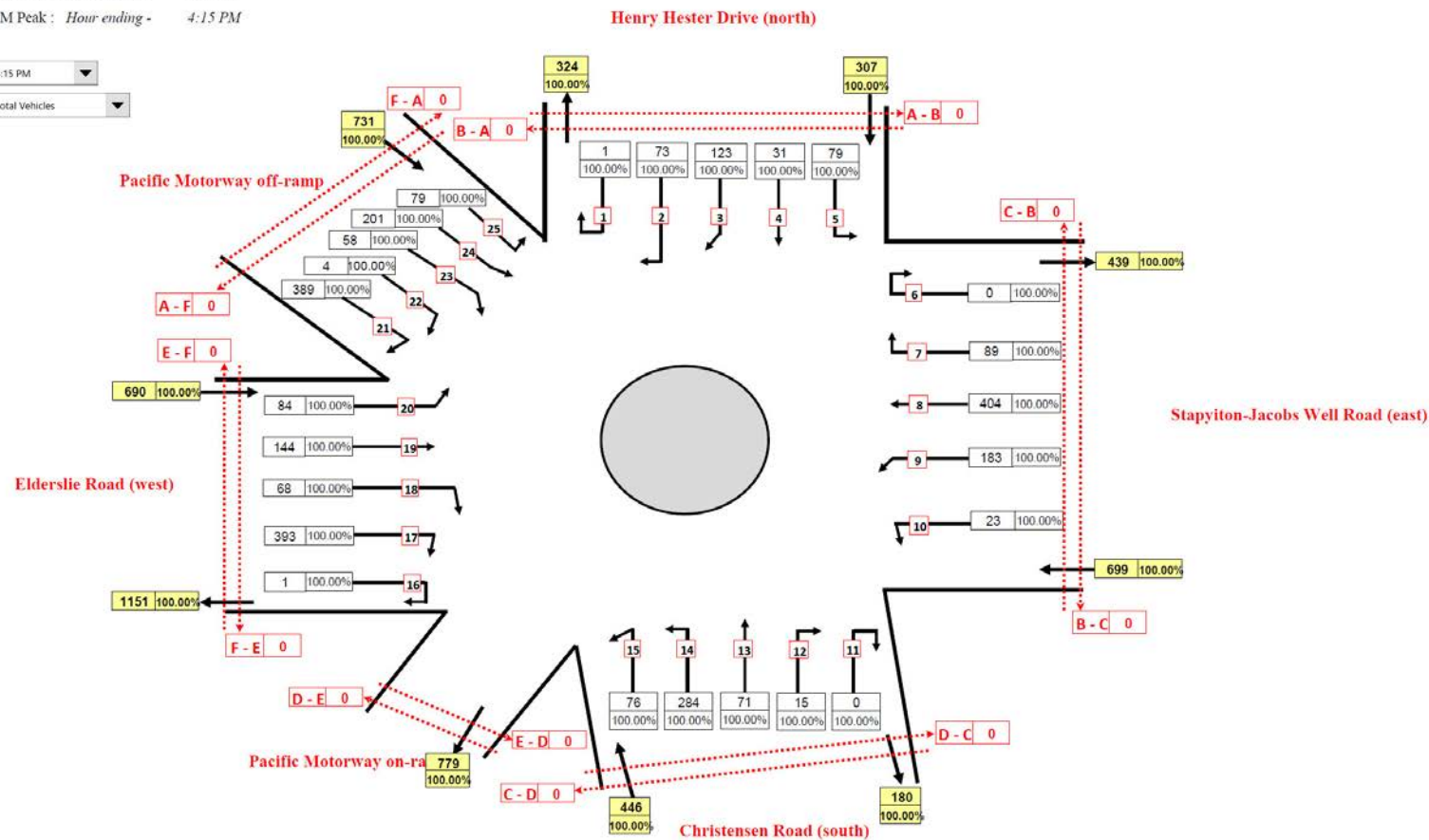
AUSTRAFFIC VIDEO INTERSECTION COUNT



**Eastern Roundabout
Afternoon Peak Hour**

Site No.: 2 Weather: Fine
Location: Stapyiton-Jacobs Well Road/Henry Hester Drive/Christensen Road/M1 Ramps
Day/Date: Tuesday, 23 January 2018
Summary: AM Peak : Hour ending - 8:30 AM
PM Peak : Hour ending - 4:15 PM

Hour Ending: 4:15 PM
Classification: Total Vehicles



Note: 3.28% = proportion of selected vehicle classification as a percentage of total vehicles

APPENDIX D – SURVEYED TRIP GENERATION DATA (RTE / GRIFFITH UNIVERSITY)



Surveyed site at Motorway Circuit, Ormeau

Location:	Motorway Circuit, Ormeau
Use:	Warehouse / manufacturing
GFA:	Approx 45,000m ² GFA
Surveyed trip generation:	AM peak - 170 vehicles per hour PM peak - 190 vehicles per hour
Surveyed trip rate:	AM peak hour - 0.38 trips per 100m ² GFA PM peak hour - 0.42 trips per 100m ² GFA

Weekly Vehicle Counts

WeeklyVehicle-1052

Site: 1.0.0E 2.0.0W

Description: Multiple sites - See Header sheet for site descriptions.

Filter time: 14:14 Sunday, 22 March 2015 => 18:50 Sunday, 29 March 2015

Scheme: Vehicle classification (AustRoads94)

Filter: Cls(1 2 3 4 5 6 7 8 9 10 11 12) Dir(NESW) Sp(10,160) Headway(>0)

	Mon 23 Mar	Tue 24 Mar	Wed 25 Mar	Thu 26 Mar	Fri 27 Mar	Sat 28 Mar	Sun 29 Mar	Averages 1 - 5	1 - 7
Hour									
0000-0100	0	4	4	8	3	0	0	3.8	2.7
0100-0200	2	0	0	0	0	0	0	0.4	0.3
0200-0300	0	3	1	2	0	0	0	1.2	0.9
0300-0400	6	11	14	11	3	0	0	9.0	6.4
0400-0500	15	20	23	16	7	0	0	16.2	11.6
0500-0600	115	127	128	124	120	0	0	122.8	87.7
0600-0700	90	100	105	89	107	0	0	98.2	70.1
0700-0800	139	143<	129	133	107	0	0	130.2	93.0
0800-0900	150	124	152	149	120	0	0	139.0	99.3
0900-1000	164<	142	136	170<	166<	0	0	155.6<	111.1<
1000-1100	132	131	159<	125	129	0	0	135.2	96.6
1100-1200	137	139	128	163	152	0<	0<	143.8	102.7
1200-1300	150	155	139	155	158	0	0	151.4	108.1
1300-1400	163	149	128	178	149	0	0	153.4	109.6
1400-1500	192<	190<	186<	197<	185<	0	0	190.0<	135.7<
1500-1600	166	181	127	146	171	0	0	158.2	113.0
1600-1700	161	165	164	145	117	0	0	150.4	107.4
1700-1800	68	55	80	59	39	0	0	60.2	43.0
1800-1900	17	31	25	22	15	0	0	22.0	15.7
1900-2000	2	6	5	7	0	0	*	4.0	3.3
2000-2100	8	2	2	0	0	0	*	2.4	2.0
2100-2200	9	5	6	5	0	0	*	5.0	4.2
2200-2300	9	11	9	7	0	0	*	7.2	6.0
2300-2400	4	10	2	6	0	0<	*	4.4	3.7
Totals									
0700-1900	1639	1605	1553	1642	1508	0	0	1589.4	1135.3
0600-2200	1748	1718	1671	1743	1615	0	*	1699.0	1214.9
0600-0000	1761	1739	1682	1756	1615	0	*	1710.6	1224.6
0000-0000	1899	1904	1852	1917	1748	0	*	1864.0	1334.2
AM Peak	0900 164	0700 143	1000 159	0900 170	0900 166	1100 0	1100 0		
PM Peak	1400 192	1400 190	1400 186	1400 197	1400 185	2300 0	* *		

* - No data.

APPENDIX E – CRITERIA FOR EVALUATING SIDRA RESULTS

1. Level of Service (LOS)

LOS	Traffic Signals and Roundabouts	Give Way and Stop Signs
'A'		Good operation.
'B'	Good operation. Good with acceptable delays and spare capacity.	Acceptable delays and spare capacity.
'C'	Satisfactory.	Satisfactory but accident study required.
'D'	Operating near capacity.	Near capacity and accident study required.
'E'	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode.	At capacity and requires other control mode.
'F'	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode.

2. Average Vehicle Delay (AVD)

The AVD provides a measure of the operational performance of an intersection as indicated on the table below which relates AVD to LOS. The AVD's listed in the table should be taken as a guide only as longer delays could be tolerated in some locations (i.e. inner city conditions) and on some roads (i.e. minor side street intersecting with a major arterial route).

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	less than 14	Good operation.	Good operation.
B	15 to 28	Good with acceptable delays and spare capacity.	Acceptable delays and spare capacity.
C	29 to 42	Satisfactory.	Satisfactory but accident study required.
D	43 to 56	Operating near capacity.	Near capacity and accident study required.
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode.	At capacity and requires other control mode.

3. Degree of Saturation (DS)

The DS is another measure of the operational performance of individual intersections.

For intersections controlled by **traffic signals**¹ both queue length and delay increase rapidly as DS approaches 1, and it is usual to attempt to keep DS to less than 0.9. Values of DS in the order of 0.7 generally represent satisfactory intersection operation. When DS exceeds 0.9 queues can be anticipated. For intersections controlled by a **roundabout or GIVE WAY or STOP signs**, satisfactory intersection operation is indicated by a DS of 0.8 or less.

¹The values of DS for intersections under traffic signal control are only valid for cycle length of 120 secs.

APPENDIX F – SIDRA RESULTS

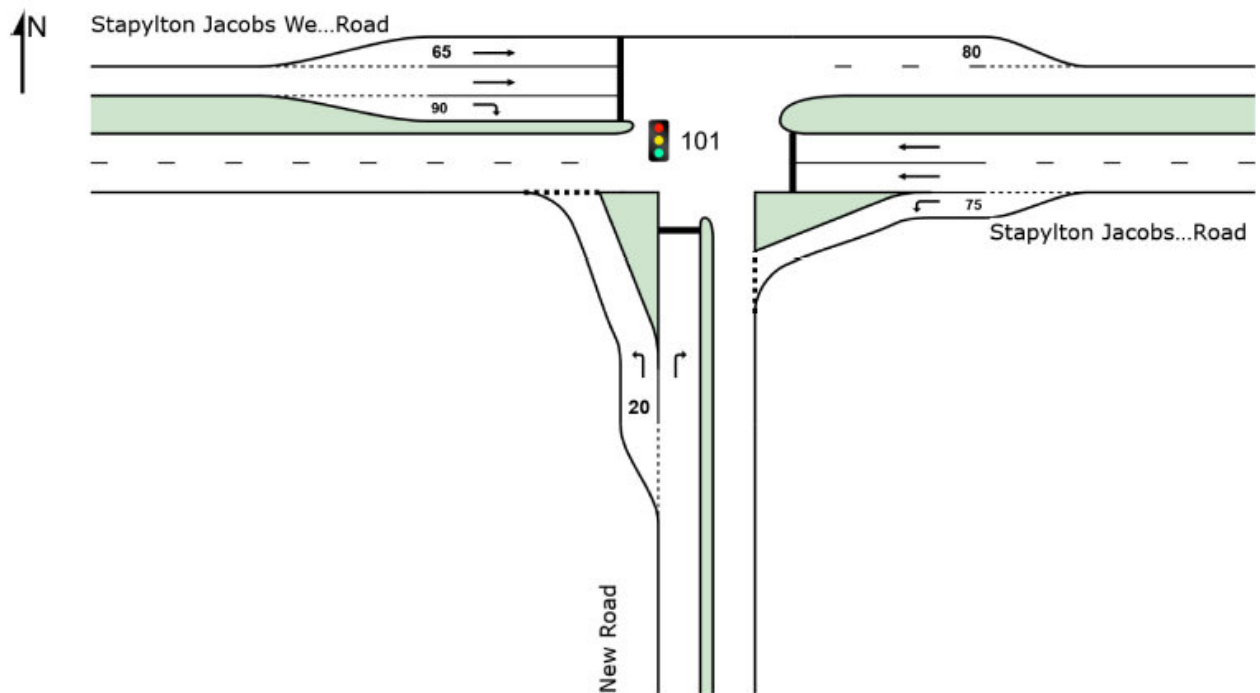
STAPYLTON JACOBS WELL ROAD / SITE ACCESS INTERSECTION

2023AM PEAK – STAGES 1 & 2

2023PM PEAK – STAGES 1 & 2

2030AM PEAK – STAGES 1 & 2

2030 PM PEAK – STAGES 1 & 2



MOVEMENT SUMMARY

**Site: 101 [2023 AM Peak (SJW Rd - New Rd Int) - STAGES 1 & 2
(Site Folder: General)]**

17450 - Stapylton Jacobs Well Road / New Road Signalised Intersection

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Practical Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: New Road														
1	L2	153	15.0	153	15.0	0.164	8.2	LOS A	0.9	7.5	0.49	0.67	0.49	51.7
3	R2	53	15.0	53	15.0	* 0.193	23.0	LOS C	1.0	7.7	0.91	0.73	0.91	42.6
Approach		206	15.0	206	15.0	0.193	12.0	LOS B	1.0	7.7	0.60	0.69	0.60	49.0
East: Stapylton Jacobs Well Road														
4	L2	99	15.0	99	15.0	0.112	8.5	LOS A	0.6	5.1	0.50	0.67	0.50	51.5
5	T1	512	15.0	512	15.0	* 0.815	22.4	LOS C	5.9	46.5	1.00	1.01	1.47	43.9
Approach		611	15.0	611	15.0	0.815	20.1	LOS C	5.9	46.5	0.92	0.96	1.31	45.0
West: Stapylton Jacobs Well Road														
11	T1	657	15.0	657	15.0	0.454	6.1	LOS A	5.4	42.6	0.61	0.52	0.61	54.9
12	R2	289	15.0	289	15.0	* 0.778	25.7	LOS C	6.4	50.2	0.99	0.98	1.33	41.4
Approach		946	15.0	946	15.0	0.778	12.1	LOS B	6.4	50.2	0.73	0.66	0.83	49.9
All Vehicles		1763	15.0	1763	15.0	0.815	14.8	LOS B	6.4	50.2	0.78	0.77	0.97	48.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

**Site: 101 [2023 PM Peak (SJW Rd - New Rd Int) - STAGES 1 & 2
(Site Folder: General)]**

17450 - Stapylton Jacobs Well Road / New Road Signalised Intersection

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site Practical Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: New Road														
1	L2	349	15.0	349	15.0	0.448	9.8	LOS A	3.7	29.5	0.60	0.74	0.60	50.6
3	R2	122	15.0	122	15.0	* 0.557	30.3	LOS C	3.1	24.4	0.99	0.80	1.04	39.3
Approach		471	15.0	471	15.0	0.557	15.1	LOS B	3.7	29.5	0.70	0.75	0.72	47.1
East: Stapylton Jacobs Well Road														
4	L2	31	15.0	31	15.0	0.026	6.9	LOS A	0.1	1.0	0.30	0.60	0.30	52.7
5	T1	830	15.0	830	15.0	* 0.578	13.0	LOS B	8.1	64.3	0.83	0.72	0.83	49.5
Approach		861	15.0	861	15.0	0.578	12.8	LOS B	8.1	64.3	0.81	0.71	0.81	49.6
West: Stapylton Jacobs Well Road														
11	T1	525	15.0	525	15.0	0.312	4.6	LOS A	4.0	31.3	0.46	0.39	0.46	56.1
12	R2	87	15.0	87	15.0	* 0.439	29.9	LOS C	2.2	17.1	0.97	0.76	0.97	39.5
Approach		612	15.0	612	15.0	0.439	8.2	LOS A	4.0	31.3	0.53	0.45	0.53	53.0
All Vehicles		1944	15.0	1944	15.0	0.578	11.9	LOS B	8.1	64.3	0.70	0.64	0.70	49.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 Site: 101 [2030 AM Peak (SJW Rd - New Rd Int) - STAGES 1 & 2
(Site Folder: General)]

17450 - Stapylton Jacobs Well Road / New Road Signalised Intersection

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site Practical Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: New Road														
1	L2	153	15.0	153	15.0	0.172	8.7	LOS A	1.2	9.5	0.47	0.67	0.47	51.4
3	R2	53	15.0	53	15.0	* 0.242	28.9	LOS C	1.3	10.0	0.94	0.73	0.94	39.9
Approach		206	15.0	206	15.0	0.242	13.9	LOS B	1.3	10.0	0.59	0.69	0.59	47.9
East: Stapylton Jacobs Well Road														
4	L2	99	15.0	99	15.0	0.102	8.5	LOS A	0.7	5.9	0.45	0.65	0.45	51.5
5	T1	681	15.0	681	15.0	* 0.677	18.9	LOS B	8.0	63.2	0.94	0.84	1.02	45.8
Approach		780	15.0	780	15.0	0.677	17.6	LOS B	8.0	63.2	0.88	0.82	0.95	46.5
West: Stapylton Jacobs Well Road														
11	T1	815	15.0	815	15.0	0.484	5.3	LOS A	7.2	56.6	0.52	0.46	0.52	55.6
12	R2	289	15.0	289	15.0	* 0.729	27.7	LOS C	7.3	58.0	0.98	0.91	1.15	40.5
Approach		1104	15.0	1104	15.0	0.729	11.2	LOS B	7.3	58.0	0.64	0.58	0.69	50.7
All Vehicles		2090	15.0	2090	15.0	0.729	13.8	LOS B	8.0	63.2	0.73	0.68	0.78	48.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [2030 PM Peak (SJW Rd - New Rd Int) - STAGES 1 & 2]
(Site Folder: General)]

17450 - Stapylton Jacobs Well Road / New Road Signalised Intersection

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site Practical Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: New Road														
1	L2	349	15.0	349	15.0	0.482	11.4	LOS B	4.4	35.1	0.69	0.76	0.69	49.5
3	R2	122	15.0	122	15.0	* 0.557	30.3	LOS C	3.1	24.4	0.99	0.80	1.04	39.3
Approach		471	15.0	471	15.0	0.557	16.3	LOS B	4.4	35.1	0.76	0.77	0.78	46.4
East: Stapylton Jacobs Well Road														
4	L2	31	15.0	31	15.0	0.026	6.9	LOS A	0.1	1.0	0.30	0.60	0.30	52.7
5	T1	1026	15.0	1026	15.0	* 0.714	15.3	LOS B	11.4	90.3	0.90	0.83	0.97	48.0
Approach		1057	15.0	1057	15.0	0.714	15.0	LOS B	11.4	90.3	0.88	0.82	0.95	48.1
West: Stapylton Jacobs Well Road														
11	T1	644	15.0	644	15.0	0.382	4.9	LOS A	5.2	40.8	0.48	0.42	0.48	55.9
12	R2	87	15.0	87	15.0	* 0.439	29.9	LOS C	2.2	17.1	0.97	0.76	0.97	39.5
Approach		731	15.0	731	15.0	0.439	7.9	LOS A	5.2	40.8	0.54	0.46	0.54	53.3
All Vehicles		2259	15.0	2259	15.0	0.714	13.0	LOS B	11.4	90.3	0.75	0.70	0.78	49.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

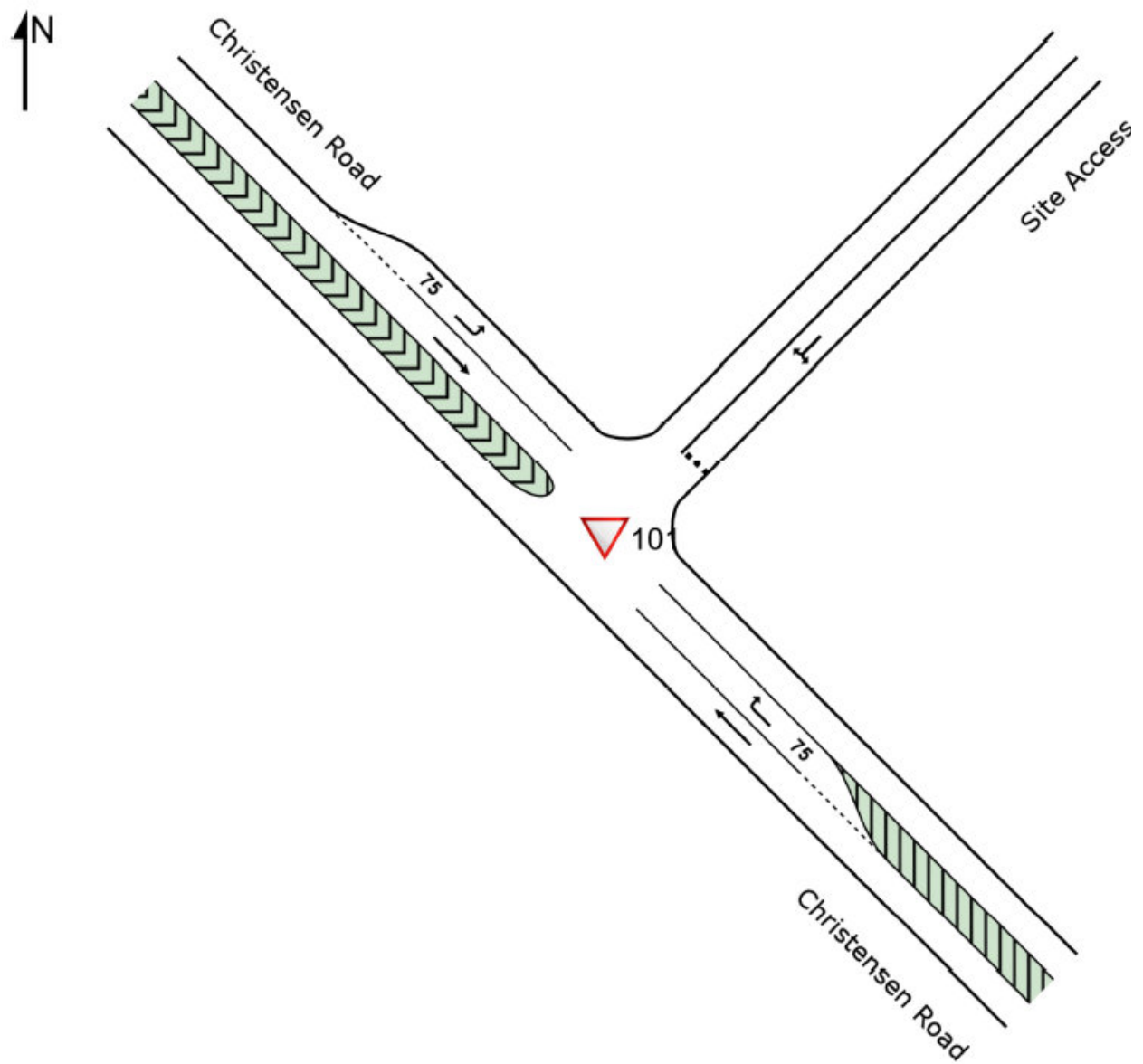
CHRISTENSEN ROAD / STIE ACCESS INTERSECTION

2023AM PEAK – STAGES 1 & 2

2023PM PEAK – STAGES 1 & 2

2030AM PEAK – STAGES 1 & 2

2030 PM PEAK – STAGES 1 & 2



MOVEMENT SUMMARY

▼ Site: 101 [2023 AM Peak (Christensen Rd - New Rd Int) - STAGES 1 & 2 (Site Folder: General)]

20337 - Christensen Road / Site Access Intersection

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
SouthEast: Christensen Road														
5	T1	294	15.0	294	15.0	0.165	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
6	R2	14	15.0	14	15.0	0.022	9.4	LOS A	0.1	0.6	0.55	0.72	0.55	49.7
Approach		308	15.0	308	15.0	0.165	0.5	NA	0.1	0.6	0.03	0.03	0.03	59.4
NorthEast: Site Access														
7	L2	8	15.0	8	15.0	0.200	9.4	LOS A	0.7	5.5	0.77	0.91	0.80	44.4
9	R2	45	15.0	45	15.0	0.200	20.7	LOS C	0.7	5.5	0.77	0.91	0.80	44.2
Approach		53	15.0	53	15.0	0.200	19.0	LOS C	0.7	5.5	0.77	0.91	0.80	44.3
NorthWest: Christensen Road														
10	L2	80	15.0	80	15.0	0.048	5.7	LOS A	0.0	0.0	0.00	0.57	0.00	53.0
11	T1	490	15.0	490	15.0	0.276	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		570	15.0	570	15.0	0.276	0.9	NA	0.0	0.0	0.00	0.08	0.00	58.8
All Vehicles		931	15.0	931	15.0	0.276	1.8	NA	0.7	5.5	0.05	0.11	0.05	57.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▼ Site: 101 [2023 PM Peak (Christensen Rd - New Rd Int) - STAGES 1 & 2 (Site Folder: General)]

20337 - Christensen Road / Site Access Intersection

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
SouthEast: Christensen Road														
5	T1	488	15.0	488	15.0	0.275	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
6	R2	4	15.0	4	15.0	0.004	6.7	LOS A	0.0	0.1	0.34	0.56	0.34	51.6
Approach		492	15.0	492	15.0	0.275	0.1	NA	0.0	0.1	0.00	0.00	0.00	59.8
NorthEast: Site Access														
7	L2	20	15.0	20	15.0	0.378	8.8	LOS A	1.7	13.6	0.70	0.92	0.92	45.0
9	R2	111	15.0	111	15.0	0.378	19.5	LOS C	1.7	13.6	0.70	0.92	0.92	44.9
Approach		131	15.0	131	15.0	0.378	17.9	LOS C	1.7	13.6	0.70	0.92	0.92	44.9
NorthWest: Christensen Road														
10	L2	27	15.0	27	15.0	0.016	5.7	LOS A	0.0	0.0	0.00	0.57	0.00	53.0
11	T1	197	15.0	197	15.0	0.111	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		224	15.0	224	15.0	0.111	0.7	NA	0.0	0.0	0.00	0.07	0.00	59.0
All Vehicles		847	15.0	847	15.0	0.378	3.0	NA	1.7	13.6	0.11	0.16	0.14	56.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [2030 AM Peak (Christensen Rd - New Rd Int) - STAGES 1 & 2 - 3% growth (Site Folder: General)]

20337 - Christensen Road / Site Access Intersection

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
SouthEast: Christensen Road														
5	T1	362	15.0	362	15.0	0.204	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
6	R2	14	15.0	14	15.0	0.027	10.9	LOS B	0.1	0.7	0.62	0.78	0.62	48.8
Approach		376	15.0	376	15.0	0.204	0.5	NA	0.1	0.7	0.02	0.03	0.02	59.4
NorthEast: Site Access														
7	L2	8	15.0	8	15.0	0.300	13.2	LOS B	1.1	8.4	0.87	0.98	1.01	39.5
9	R2	45	15.0	45	15.0	0.300	32.0	LOS D	1.1	8.4	0.87	0.98	1.01	39.4
Approach		53	15.0	53	15.0	0.300	29.2	LOS D	1.1	8.4	0.87	0.98	1.01	39.4
NorthWest: Christensen Road														
10	L2	80	15.0	80	15.0	0.048	5.7	LOS A	0.0	0.0	0.00	0.57	0.00	53.0
11	T1	602	15.0	602	15.0	0.339	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		682	15.0	682	15.0	0.339	0.8	NA	0.0	0.0	0.00	0.07	0.00	58.9
All Vehicles		1111	15.0	1111	15.0	0.339	2.0	NA	1.1	8.4	0.05	0.10	0.06	57.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▼ Site: 101 [2030 PM Peak (Christensen Rd - New Rd Int) - STAGES 1 & 2 - 3% growth (Site Folder: General)]

20337 - Christensen Road / Site Access Intersection

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
SouthEast: Christensen Road														
5	T1	600	15.0	600	15.0	0.338	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
6	R2	4	15.0	4	15.0	0.004	6.9	LOS A	0.0	0.1	0.37	0.57	0.37	51.5
Approach		604	15.0	604	15.0	0.338	0.2	NA	0.0	0.1	0.00	0.00	0.00	59.7
NorthEast: Site Access														
7	L2	20	15.0	20	15.0	0.529	13.2	LOS B	2.5	19.9	0.82	1.04	1.27	40.3
9	R2	111	15.0	111	15.0	0.529	30.0	LOS D	2.5	19.9	0.82	1.04	1.27	40.1
Approach		131	15.0	131	15.0	0.529	27.5	LOS D	2.5	19.9	0.82	1.04	1.27	40.1
NorthWest: Christensen Road														
10	L2	27	15.0	27	15.0	0.016	5.7	LOS A	0.0	0.0	0.00	0.57	0.00	53.0
11	T1	242	15.0	242	15.0	0.136	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		269	15.0	269	15.0	0.136	0.6	NA	0.0	0.0	0.00	0.06	0.00	59.1
All Vehicles		1004	15.0	1004	15.0	0.529	3.8	NA	2.5	19.9	0.11	0.15	0.17	56.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

APPENDIX G – SDAP MODULE CODE 1 RESPONSE

State code 1: Development in a state-controlled road environment

Table 1.2.1: Development in a state-controlled road environment

Performance outcomes	Acceptable outcomes	Response
Buildings and structures		
PO1 The location of buildings, structures, infrastructure, services and utilities does not create a safety hazard in a state-controlled road, or cause damage to, or obstruct road transport infrastructure	AO1.1 Buildings, structures, infrastructure, services and utilities are not located in a state-controlled road. AND	N/A – SUBDIVISION ONLY.
	AO1.2 Buildings, structures, infrastructure, services and utilities can be maintained without requiring access to a state-controlled road.	N/A – SUBDIVISION ONLY.
PO2 The design and construction of Buildings and structures does not create a safety hazard by distracting users of a state-controlled road.	AO2.1 Facades of buildings and structures facing a state-controlled road are made of non-reflective materials. OR	N/A – SUBDIVISION ONLY.
	AO2.2 Facades of buildings and structures do not reflect point light sources into the face of oncoming traffic on a state-controlled road. AND	N/A – SUBDIVISION ONLY.
	AO2.3 External lighting of buildings and structures is not directed into the face of oncoming traffic on a state-controlled road and does not involve flashing or laser lights. AND	N/A – SUBDIVISION ONLY.

Performance outcomes	Acceptable outcomes	Response
	AO2.4 Advertising devices visible from a state-controlled road are located and designed in accordance with the Roadside advertising guide, Department of Transport and Main Roads, 2013.	N/A – SUBDIVISION ONLY.
PO3 Road, pedestrian and bikeway bridges over a state-controlled road are designed and constructed to prevent projectiles from being thrown onto a state-controlled road.	AO3.1 Road, pedestrian and bikeway bridges over a state-controlled road include throw protection screens in accordance with section 4.9.3 of the Design criteria for bridges and other structures manual, Department of Transport and Main Roads, 2014.	N/A – SUBDIVISION ONLY.
Filling, excavation and retaining structures		
PO4 Filling and excavation does not interfere with, or result in damage to, infrastructure or services in a state-controlled road. Note: Information on the location of services and public utility plants in a state-controlled road can be obtained from the Dial Before You Dig service. Where development will impact on an existing or future service or public utility plant in a state-controlled road such that the service or public utility plant will need to be relocated, the alternative alignment must comply with the standards and design specifications of the relevant service or public utility provider, and any costs of relocation are to be borne by the developer.	No acceptable outcome is prescribed.	REFER TO CIVIL ENGINEERING REPORT.
PO5 Filling, excavation, building foundations and retaining structures do not undermine, or cause subsidence of, a state-controlled road. Note: To demonstrate compliance with this	No acceptable outcome is prescribed.	REFER TO CIVIL ENGINEERING REPORT.

Performance outcomes	Acceptable outcomes	Response
performance outcome, it is recommended an RPEQ certified geotechnical assessment, prepared in accordance with Volume 3 of the Road Planning And Design Manual 2nd edition, Department of Transport and Main Roads, 2016, is provided.		
PO6 Filling, excavation, building foundations and retaining structures do not cause ground water disturbance in a state-controlled road. Note: To demonstrate compliance with this performance outcome, it is recommended an RPEQ certified geotechnical assessment, prepared in accordance with Volume 3 of the Road planning and design manual 2nd edition, Department of Transport and Main Roads, 2016, is provided.	No acceptable outcome is prescribed.	REFER TO CIVIL ENGINEERING REPORT.
PO7 Excavation, boring, piling, blasting or fill compaction during construction of a development does not result in ground movement or vibration impacts that would cause damage or nuisance to a state-controlled road, road transport infrastructure or road works. Note: To demonstrate compliance with this performance outcome, it is recommended an RPEQ certified geotechnical assessment, prepared in accordance with Volume 3 of the Road Planning And Design Manual 2nd edition, Department of Transport and Main Roads, 2016, is provided.	No acceptable outcome is prescribed.	REFER TO CIVIL ENGINEERING REPORT.

Performance outcomes	Acceptable outcomes	Response
PO8 Development involving the haulage of fill, extracted material or excavated spoil material exceeding 10,000 tonnes per year does not damage the pavement of a state-controlled road. Note: It is recommended a pavement impact assessment is provided in accordance with the Guide to Traffic Impact Assessment, Department of Transport and Main Roads, 2017.	AO8.1 Fill, extracted material and spoil material is not transported to or from the development site on a state-controlled road.	REFER TO CIVIL ENGINEERING REPORT.
PO9 Filling and excavation associated with the construction of vehicular access to a development does not compromise the operation or capacity of existing drainage infrastructure for a state-controlled road.	No acceptable outcome is prescribed.	REFER TO CIVIL ENGINEERING REPORT.
PO10 Fill material used on a development site does not result in contamination of a state-controlled road.	AO10.1 Fill material is free of contaminants including acid sulfate content. Note: Soils and rocks should be tested in accordance with AS 1289.0 – Methods of testing soils for engineering purposes and AS 4133.0-2005 – Methods of testing rocks for engineering purposes. AND	REFER TO CIVIL ENGINEERING REPORT.
	AO10.2 Compaction of fill is carried out in accordance with the requirements of AS 1289.0 2000 – Methods of testing soils for engineering purposes.	REFER TO CIVIL ENGINEERING REPORT.
PO11 Filling and excavation does not cause wind-blown dust nuisance in a state-controlled road.	AO11.1 Compaction of fill is carried out in accordance with the requirements of AS 1289.0 2000 – Methods of testing soils for engineering purposes. AND	REFER TO CIVIL ENGINEERING REPORT.
	AO11.2 Dust suppression measures are used	REFER TO CIVIL ENGINEERING REPORT.

Performance outcomes	Acceptable outcomes	Response
	during filling and excavation activities such as wind breaks or barriers and dampening of ground surfaces.	
Stormwater and drainage		
PO12 Development does not result in an actionable nuisance, or worsening of, stormwater, flooding or drainage impacts in a state-controlled road.	No acceptable outcome is prescribed.	REFER TO CIVIL ENGINEERING REPORT.
PO13 Run-off from the development site is not unlawfully discharged to a state-controlled road.	AO13.1 Development does not create any new points of discharge to a state-controlled road. AND	REFER TO CIVIL ENGINEERING REPORT.
	AO13.2 Stormwater run-off is discharged to a lawful point of discharge. Note: Section 3.4 of the Queensland Urban Drainage Manual, Department of Energy and Water Supply, 2013, provides further information on lawful points of discharge. AND	REFER TO CIVIL ENGINEERING REPORT.
	AO13.3 Development does not worsen the condition of an existing lawful point of discharge to the state-controlled road.	REFER TO CIVIL ENGINEERING REPORT.
PO14 Run-off from the development site during construction does not cause siltation of stormwater infrastructure affecting a state-controlled road.	AO14.1 Run-off from the development site during construction is not discharged to stormwater infrastructure for a state-controlled road.	REFER TO CIVIL ENGINEERING REPORT.
Vehicular access to a state-controlled road		
PO15 Vehicular access to a state-controlled road that is a limited access road is consistent with government policy for the management of limited access roads.	AO15.1 Development does not require new or changed access to a limited access road. Note: Limited access roads are declared by the transport chief executive under section 54 of the <i>Transport Infrastructure Act 1994</i> and are identified in	ACCESS IS PROPOSED VIA A NEW SIGNALISED INTERSECTION DESIGNED IN ACCORDANCE WITH TMR STANDARDS.

Performance outcomes	Acceptable outcomes	Response
	the DA mapping system. OR	
	AO15.2 A new or changed access to a limited access road is consistent with the limited access policy for the state-controlled road. Note: Limited access policies for limited access roads declared under the <i>Transport Infrastructure Act 1994</i> can be obtained by contacting the relevant Department of Transport and Main Roads regional office. AND	ACCESS IS PROPOSED VIA A NEW SIGNALISED INTERSECTION DESIGNED IN ACCORDANCE WITH TMR STANDARDS.
	AO15.3 Where a new or changed access is for a service centre, access is consistent with the Service centre policy, Department of Transport and Main Roads, 2013 and the Access policy for roadside service centre facilities on limited access roads, Department of Transport and Main Roads, 2013, and the Service centre strategy for the state-controlled road. Note: The Service centre policy, Department of Transport and Main Roads, 2013, Access policy for roadside service centre facilities, Department of Transport and Main Roads, 2013 and the relevant Service centre strategy for a state-controlled road can be accessed by contacting the relevant Department of Transport and Main Roads regional office.	N/A
PO16 The location and design of vehicular access to a state-controlled road (including access to a limited access road) does not create a safety hazard for users of a state-controlled road or result in a worsening of operating	AO16.1 Vehicular access is provided from a local government road.	ACCESS IS PROPOSED VIA A NEW INTERSECTION WITH THE STATE – CONTROLLED IN ACCORDANCE WITH TMR STANDARDS.
	OR all of the following acceptable outcomes	ACCESS IS PROPOSED VIA A NEW

Performance outcomes	Acceptable outcomes	Response
conditions on a state-controlled road. Note: Where a new or changed access between the premises and a state-controlled road is proposed, the Department of Transport and Main Roads will need to assess the proposal to determine if the vehicular access for the development is safe. An assessment can be made by Department of Transport and Main Roads as part of the development assessment process and a decision under section 62 of <i>Transport Infrastructure Act 1994</i> issued where sufficient information is provided.	apply: AO16.2 Vehicular access for the development is consistent with the function and design of the state-controlled road. AND	INTERSECTION WITH THE STATE – CONTROLLED IN ACCORDANCE WITH TMR STANDARDS.
	AO16.3 Development does not require new or changed access between the premises and the state-controlled road. Note: A decision under section 62 of the <i>Transport Infrastructure Act 1994</i> outlines the approved conditions for use of an existing vehicular access to a state-controlled road. Current section 62 decisions can be obtained from the relevant Department of Transport and Main Roads regional office. AND	N/A
	AO16.4 Use of any existing vehicular access to the development is consistent with a decision under section 62 of the <i>Transport Infrastructure Act 1994</i>. Note: The development which is the subject of the application must be of an equivalent use and intensity for which the section 62 approval was issued and the section 62 approval must have been granted no more than 5 years prior to the lodgement of the application. AND	N/A
	AO16.5 Onsite vehicle circulation is designed to give priority to entering vehicles at all times so vehicles do not queue in a road intersection or on the state-controlled road.	COMPLIES.

Performance outcomes	Acceptable outcomes	Response
PO17 Vehicular access to a state-controlled road or local government road (and associated road access works) are located and designed to not damage or interfere with public passenger transport infrastructure, public passenger services or pedestrian or cycle access to public passenger transport infrastructure and public passenger services.	AO17.1 Vehicular access and associated road access works are not located within 5 metres of existing public passenger transport infrastructure. AND	COMPLIES.
	AO17.2 The location and design of vehicular access for a development does not necessitate the relocation of existing public passenger transport infrastructure. AND	COMPLIES.
	AO17.3 On-site vehicle circulation is designed to give priority to entering vehicles at all times so vehicles using a vehicular access do not obstruct public passenger transport infrastructure and public passenger services or obstruct pedestrian or cycle access to public passenger transport infrastructure and public passenger services. AND	COMPLIES.
	AO17.4 The normal operation of public passenger transport infrastructure or public passenger services is not interrupted during construction of the development.	COMPLIES.
Vehicular access to local roads within 100 metres of an intersection with a state-controlled road		
PO18 The location and design of vehicular access to a local road within 100 metres of an intersection with a state-controlled road does not create a safety hazard for users of a state-controlled road.	AO18.1 Vehicular access is located as far as possible from the state-controlled road intersection. AND	N/A
	AO18.2 Vehicular access is in accordance with volume 3, parts, 3, 4 and 4A of the Road Planning And Design Manual, 2nd edition, Department of Transport and Main Roads, 2016.	N/A

Performance outcomes	Acceptable outcomes	Response
	AND AO18.3 Onsite vehicle circulation is designed to give priority to entering vehicles at all times so vehicles do not queue in the intersection or on the state-controlled road.	N/A
Planned upgrades		
PO19 Development does not impede delivery of planned upgrades of state-controlled roads.	AO19.1 Development is not located on land identified by the Department of Transport and Main Roads as land required for the planned upgrade of a state-controlled road. Note: Land required for the planned upgrade of a state-controlled road is identified in the DA mapping system . OR	COMPLIES – NEW INTERSECTION LAYOUT ACCOUNTS FOR FUTURE PLANNING.
	AO19.2 Development is sited and designed so that permanent buildings, structures, infrastructure, services or utilities are not located on land identified by the Department of Transport and Main Roads as land required for the planned upgrade of a state-controlled road.	COMPLIES.
	OR all of the following acceptable outcomes apply: AO19.3 Structures and infrastructure located on land identified by the Department of Transport and Main Roads as land required for the planned upgrade of a state-controlled road are able to be readily relocated or removed without materially affecting the viability or functionality of the development. AND	COMPLIES.

Performance outcomes	Acceptable outcomes	Response
	AO19.4 Vehicular access for the development is consistent with the function and design of the planned upgrade of the state-controlled road. AND	COMPLIES.
	AO19.5 Development does not involve filling and excavation of, or material changes to, land required for a planned upgrade to a state-controlled road. AND	COMPLIES.
	AO19.6 Land is able to be reinstated to the pre-development condition at the completion of the use.	N/A
Network impacts		
PO20 Development does not result in a worsening of operating conditions on the state-controlled road <u>network</u> . Note: To demonstrate compliance with this performance outcome, it is recommended that an RPEQ certified traffic impact assessment is provided, prepared in accordance with the Guide to Traffic Impact Assessment, Department of Transport and Main Roads, 2017.	No acceptable outcome is prescribed.	REFER TO TRAFFIC REPORT PREPARED FOR PRELIMINARY APPROVAL APPLICATION.
PO21 Development does not impose traffic loadings on a state-controlled road which could be accommodated on the local road network.	AO21.1 The layout and design of the development directs traffic generated by the development to the local road network.	NEW INTERSECTION WITH STATE – CONTROLLED ROAD PROPOSED.
PO22 Upgrade works on, or associated with, a <u>state-controlled road</u> are built in accordance with Queensland road design standards.	AO22.1 Upgrade works required as a result of the development are designed and constructed in accordance with the <i>Road planning and design manual</i> , 2 nd edition, Department of Transport and Main Roads, 2016.	COMPLIES.

Performance outcomes	Acceptable outcomes	Response
	Note: Road works in a state-controlled road require approval under section 33 of the <i>Transport Infrastructure Act 1994</i> before the works commence.	

APPENDIX H – SDAP MODULE CODE 6 RESPONSE

State code 6: Protection of state transport networks

Table 6.2.2: All development

Performance outcomes	Acceptable outcomes	Response
Network impacts		
PO1 Development does not result in a worsening of the safety of a state-controlled road. Note: To demonstrate compliance with this performance outcome, it is recommended that a Registered Professional Engineer of Queensland (RPEQ) certified road safety audit or road safety assessment (as applicable) is provided, prepared in accordance with the Guide to Traffic Impact Assessment, Department of Transport and Main Roads, 2017. Section 6 of the Guide To Traffic Impact Assessment, Department of Transport and Main Roads, 2017, provides guidance on how to determine whether a road safety audit or road safety assessment is required.	No acceptable outcome is prescribed.	COMPLIES. REFER TO TRAFFIC IMPACT ASSESSMENT PREPARED FOR PRELIMINARY APPROVAL APPLICATION.
PO2 Development does not result in a worsening of the infrastructure condition of a state-controlled road or road transport infrastructure.	No acceptable outcome is prescribed.	COMPLIES. REFER TO TRAFFIC IMPACT ASSESSMENT PREPARED FOR PRELIMINARY APPROVAL APPLICATION.

Performance outcomes	Acceptable outcomes	Response
Note: To demonstrate compliance with this performance outcome, it is recommended that a RPEQ certified traffic impact assessment and pavement impact assessment are provided, prepared in accordance with the Guide To Traffic Impact Assessment, Department of Transport and Main Roads, 2017.		
PO3 Development does not result in a worsening of operating conditions on a state-controlled road or the surrounding road network. To demonstrate compliance with this performance outcome, it is recommended that an RPEQ certified traffic impact assessment, prepared in accordance with the Guide To Traffic Impact Assessment, Department of Transport and Main Roads, 2017, is provided.	No acceptable outcome is prescribed.	COMPLIES. REFER TO TRAFFIC IMPACT ASSESSMENT PREPARED FOR PRELIMINARY APPROVAL APPLICATION.
PO4 Development does not impose traffic loadings on a state-controlled road which could be accommodated on the local road network.	AO4.1 The layout and design of the development directs traffic generated by the development to the local road network.	COMPLIES.
PO5 Upgrade works on, or associated with, a state-controlled road are built in accordance with relevant design standards.	AO5.1 Upgrade works on a state-controlled road are designed and constructed in accordance with the Road Planning and Design Manual, 2nd edition, Department of Transport and Main Roads, 2016.	COMPLIES.
PO6 Development involving the haulage of fill, extracted material or excavated spoil material exceeding 10,000 tonnes per year does not damage the pavement of a state-controlled road. Note: It is recommended that a transport infrastructure impact assessment and pavement impact assessment are provided, prepared in	AO6.1 Fill, extracted material and spoil material is not transported to or from the development site on a state-controlled road.	REFER TO CIVIL ENGINEERING REPORT.

Performance outcomes	Acceptable outcomes	Response
accordance with the Guide To Traffic Impact Assessment, Department of Transport and Main Roads, 2017.		
PO7 Development does not adversely impact on the safety of a railway crossing. Note: It is recommended that a traffic impact assessment be prepared to demonstrate compliance with this performance outcome. An impact on a level crossing may require an Australian Level Crossing Assessment Model (ALCAM) assessment to be undertaken. Section 2.2 – Railway crossing safety of the Guide to Development in a Transport Environment: Rail, Department of Transport and Main Roads, 2015, provides guidance on how to comply with this performance outcome.	AO7.1 Development does not require a new railway crossing. OR	N/A
	AO7.2 A new railway crossing is grade separated.	N/A
	OR all of the following acceptable outcomes apply: AO7.3 Upgrades to a level crossing are designed and constructed in accordance with AS1742.7 – Manual of uniform traffic control devices, Part 7: Railway crossings and applicable rail manager standard drawings. Note: It is recommended a traffic impact assessment be prepared to demonstrate compliance with this acceptable outcome. An impact on a level crossing may require an Australian Level Crossing Assessment Model (ALCAM) assessment to be undertaken. Section 2.2 – Railway crossing safety of the Guide to Development in a Transport Environment: Rail, Department of Transport and Main Roads, 2015, provides guidance on how to comply with this acceptable outcome AND	N/A
	AO7.4 Access points achieve sufficient clearance from a level crossing in accordance with AS1742.7 – Manual of uniform traffic control devices, Part 7: Railway crossings by providing a	N/A

Performance outcomes	Acceptable outcomes	Response
	minimum clearance of 5 metres from the edge running rail (outer rail) plus the length of the largest vehicle anticipated on-site. Note: Section 2.2 of the Guide to Development in a Transport Environment: Rail, Department of Transport and Main Roads, 2015, provides guidance on how to comply with this acceptable outcome. AND	
	AO7.5 On-site vehicle circulation is designed to give priority to entering vehicles at all times.	N/A
PO8 Development does not result in a worsening of the infrastructure condition of a railway or rail transport infrastructure.	No acceptable outcome is prescribed.	N/A
PO9 Development does not result in a worsening of operating conditions of a railway	No acceptable outcome is prescribed.	N/A
PO10 Development does not damage or interfere with public passenger transport infrastructure, public passenger services or pedestrian or cycle access to public passenger transport infrastructure and public passenger services.	AO10.1 Vehicular access and associated road access works are not located within five metres of public passenger transport infrastructure. AND	COMPLIES.
	AO10.2 Development does not necessitate the relocation of existing public passenger transport infrastructure. AND	COMPLIES.
	AO10.3 Development does not obstruct pedestrian or cyclist access to public passenger transport infrastructure or public passenger services. AND	COMPLIES.
	AO10.4 The normal operation of public passenger transport infrastructure or public passenger services	COMPLIES.

Performance outcomes	Acceptable outcomes	Response
	is not interrupted during construction of the development.	
Stormwater and drainage		
PO11 Development does not result in an actionable nuisance, or worsening of, stormwater, flooding or drainage impacts in a state transport corridor.	No acceptable outcome is prescribed.	REFER TO CIVIL ENGINEERING REPORT.
\PO12 Run-off from the development site is not unlawfully discharged to a state transport corridor.	AO12.1 Development does not create any new points of discharge to a state transport corridor. AND	REFER TO CIVIL ENGINEERING REPORT.
	AO12.2 Stormwater run-off is discharged to a lawful point of discharge. Note: Section 3.4 of the Queensland Urban Drainage Manual, Department of Energy and Water Supply, 2013, provides further information on lawful points of discharge. AND	REFER TO CIVIL ENGINEERING REPORT.
	AO12.3 Development does not worsen the condition of an existing lawful point of discharge to a state transport corridor.	REFER TO CIVIL ENGINEERING REPORT.
PO13 Run-off from the development site does not cause siltation of stormwater infrastructure affecting a state transport corridor.	AO13.1 Run-off from the development site is not discharged to stormwater infrastructure for a state transport corridor.	REFER TO CIVIL ENGINEERING REPORT.
Planned upgrades		
PO14 Development does not impede delivery of planned upgrades of state transport infrastructure.	AO14.1 Development is not located on land identified by the Department of Transport and Main Roads as land required for the planned upgrade of state transport infrastructure.	COMPLIES – INTERSECTION LAYOUT ALLOWS FOR FUTURE PLANNING.

Performance outcomes	Acceptable outcomes	Response
	Note: Land required for the planned upgrade of state transport infrastructure is identified in the DA mapping system. OR	
	AO14.2 Development is sited and designed so that permanent buildings, structures, infrastructure, services or utilities are not located on land identified by the Department of Transport and Main Roads as land required for the planned upgrade of state transport infrastructure.	COMPLIES.
	OR all of the following acceptable outcomes apply: AO14.3 Structures and infrastructure located on land identified by the Department of Transport and Main Roads as land required for the planned upgrade of state transport infrastructure are able to be readily relocated or removed without materially affecting the viability or functionality of the development. AND	COMPLIES.
	AO14.4 Vehicular access for the development is consistent with the function and design of the planned upgrade of state transport infrastructure. AND	COMPLIES.
	AO14.5 Development does not involve filling and excavation of, or material changes to, land required for a planned upgrade to a state transport	REFER TO CIVIL ENGINEERING REPORT.

Performance outcomes	Acceptable outcomes	Response
	infrastructure. AND	
	AO14.6 Land is able to be reinstated to the pre-development condition at the completion of the use.	N/A

Table 6.2.3: Provision of public passenger transport infrastructure

Performance outcomes	Acceptable outcomes	Response
Provision of public passenger transport infrastructure		
PO15 Upgraded or new public passenger transport infrastructure is provided to accommodate the demand for public passenger transport generated by the development. Note: To demonstrate compliance with this performance outcome, it is recommended a public transport impact assessment be prepared in accordance with appendix 1 of the State Development Assessment Provisions Supporting Information – Public Passenger Transport, Department of Transport and Main Roads, 2014. New or upgraded public passenger transport infrastructure provided should be in accordance with the Public Transport Infrastructure Manual, Department of Transport and Main Roads, 2015	No acceptable outcome is prescribed.	N/A
PO16 Development is designed to ensure the location of public passenger transport infrastructure prioritises and enables efficient public passenger	No acceptable outcome is prescribed.	COMPLIES.

Performance outcomes	Acceptable outcomes	Response
services. Note: Chapters 2 and 5 of the Public Transport Infrastructure Manual, Department of Transport and Main Roads, 2015 provides guidance on how to comply with this performance outcome.		
PO17 Development enables the provision or extension of public passenger services to the development and avoids creating indirect or inefficient routes for public passenger services.	No acceptable outcome is prescribed.	COMPLIES.
PO18 New or modified road networks are designed to enable development to be serviced by public passenger services.	AO18.1 Roads catering for buses are arterial or sub-arterial roads, collector or their equivalent. AND	COMPLIES.
	AO18.2 Roads intended to accommodate buses are designed and constructed in accordance with Road Planning and Design Manual (2nd edition), Volume 3: Guide to Road Design, Department of Transport and Main Roads, 2016. Note: Guidance on how to meet the acceptable outcome is available in the Road Planning and Design Manual (2nd edition), Volume 3: Guide to Road Design, Department of Transport and Main Roads, 2016. 1. Part 3: a. 4.2 Traffic lanes b. 4.8 Bicycle lanes c. 4.9 High occupancy vehicle (HOV) lanes d. 4.12 Bus stops e. 7 Horizontal alignment	COMPLIES.

Performance outcomes	Acceptable outcomes	Response
	f. 7.7 Super elevation g. 7.9 Curve widening 2. Part 4: a. 6.3 Bus Facilities b. 5.6 Design vehicle swept path 3. Part 4A: a. 5 Auxiliary lanes 4. Part 4B: Roundabouts: a. 4 Geometric design b. 4.6 Circulating carriageway. AND	
	AO18.3 Traffic calming devices are not installed on roads used for buses. Note: Chapter 2 of the Public Transport Infrastructure Manual, Department of Transport and Main Roads, 2015 provides guidance on how to comply with this acceptable outcome. AND	COMPLIES.
	AO18.4 Where road humps are installed on roads used for buses, the road humps are designed in accordance with the Manual of Uniform Traffic Control Devices, Department of Transport and Main Roads, 2016. Note: Guidance on how to meet the acceptable outcome is available in the Manual of Uniform Traffic Control Devices, Part 13: 1. Local Area Traffic Management, section 2.4 – Road humps 2. Supplement part 13: Local Area Traffic	N/A

Performance outcomes	Acceptable outcomes	Response
	Management – 2.4.2-1 Hump profiles for bus routes.	
PO19 Development provides safe, direct and convenient pedestrian access to existing and future public passenger transport infrastructure. Note: Chapter 3 of the Public Transport Infrastructure Manual, Department of Transport and Main Roads, 2015 provides guidance on how to comply with this performance outcome. In particular, it is recommended that a pedestrian demand analysis be provided to demonstrate compliance with the performance outcome.	No acceptable outcome is prescribed.	COMPLIES.
PO20 Onsite vehicular circulation ensures the safety of both public passenger transport services and pedestrians.	AO20.1 The location of onsite pedestrian crossings ensures safe sight distances for pedestrians and public passenger services. AND	N/A
	AO20.2 Onsite circulation is designed and constructed so that public passenger services can enter and leave in a forward gear at all times. AND	N/A
	AO20.3 Development does not result in public passenger services movements through car parking aisles.	N/A
PO21 Taxi facilities are provided to accommodate the demand generated by the development. Note: Guidance on how to meet the performance outcome are available in chapter 7 of the Public Transport	No acceptable outcome is prescribed.	N/A

Performance outcomes	Acceptable outcomes	Response
Infrastructure Manual, Department of Transport and Main Roads, 2015.		
PO22 Taxi facilities are located and designed to provide convenient, safe and equitable access for passengers.	AO22.1 A taxi facility is provided parallel to the kerb and adjacent to the main entrance. AND	N/A
	AO22.2 Taxi facilities are designed in accordance with: 1. AS2890.5–1993 Parking facilities – on-street parking and AS1428.1–2009 Design for access and mobility – general requirements for access – new building work 2. AS1742.11–1999 Parking controls – manual of uniform traffic control devices 3. AS/NZS 2890.6–2009 Parking facilities – off-street parking for people with disabilities 4. Disability standards for accessible public transport 2002 made under section 31(1) of the <i>Disability Discrimination Act 1992</i> 5. AS/NZS 1158.3.1 – Lighting for roads and public spaces, Part 3.1: Pedestrian area (category P) lighting – Performance and design requirements.	N/A
PO23 Educational establishments are designed to ensure the safe and efficient operation of public passenger services and pedestrian access.	AO23.1 Educational establishments are designed in accordance with the provisions of the Planning for Safe Transport Infrastructure at Schools, Department of Transport and Main Roads, 2011.	N/A



APPENDIX J

DRAFT COMMUNITY MANAGEMENT STATEMENT

VantageYatala[®]



gassman
development
perspectives

THIS STATEMENT MUST BE LODGED TOGETHER WITH A FORM 14 GENERAL REQUEST AND IN THE CASE OF A NEW STATEMENT MUST BE LODGED WITHIN THREE (3) MONTHS OF THE DATE OF CONSENT BY THE BODY CORPORATE

Office use only

This statement incorporates and must include the following:

Schedule A - Schedule of lot entitlements

Schedule B - Explanation of development of scheme land

Schedule C - By-laws

Schedule D - Any other details

Schedule E - Allocation of exclusive use areas

CMS LABEL NUMBER

1. Name of community titles scheme

VANTAGE YATALA COMMUNITY TITLES SCHEME

2. Regulation module

COMMERCIAL MODULE

3. Name of body corporate

BODY CORPORATE FOR VANTAGE YATALA COMMUNITY TITLES SCHEME

4. Scheme land

Lot on Plan Description
LOTS 101-122 ON SP

Title Reference
TO ISSUE FROM 51164159

COMMON PROPERTY FOR VANTAGE YATALA
COMMUNITY TITLES SCHEME ON SP

TO ISSUE FROM 51164159

5. #Name and address of original owner

AUSTRALAND INDUSTRIAL NO. 89 PTY LIMITED
A.C.N. 107 355 715

C/- FRASERS PROPERTY AUSTRALIA PTY LTD,
LEVEL 2, 1C HOMEBUSH BAY DRIVE, RHODES NSW
2138

6. Reference to plan lodged with this statement

SP

7. Local Government community management statement notation

..... signed

..... name and designation

..... name of Local Government

8. Execution by original owner/Consent of body corporate

AUSTRALAND INDUSTRIAL NO. 89 PTY LIMITED
A.C.N. 107 355 715

/ /
Execution Date

.....
Director

.....
Director/Secretary
***Execution**

*Original owner to execute for a first community management statement
*Body corporate to execute for a new community management statement

Privacy Statement

Collection of this information is authorised by the Body Corporate and Community Management Act 1997 and is used to maintain the publicly searchable registers in the land registry. For more information about privacy in NR&W see the Department's website.

SCHEDULE A SCHEDULE OF LOT ENTITLEMENTS

Lot on Plan	Contribution	Interest
Lot 101 on SP	171	106
Lot 102 on SP	170	103
Lot 103 on SP	170	103
Lot 104 on SP	170	103
Lot 105 on SP	170	103
Lot 106 on SP	170	103
Lot 107 on SP	170	103
Lot 108 on SP	170	103
Lot 109 on SP	170	103
Lot 110 on SP	170	103
Lot 111 on SP	159	69
Lot 112 on SP	159	68
Lot 113 on SP	163	81
Lot 114 on SP	205	211
Lot 115 on SP	200	196
Lot 116 on SP	182	138
Lot 117 on SP	182	138
Lot 118 on SP	184	145
Lot 119 on SP	179	129
Lot 120 on SP	612	754
Lot 121 on SP	359	352
Lot 122 on SP	354	345
TOTALS	4,639	3,659

1. Contribution Schedule Lot Entitlements (CSLE)

The Contribution Schedule Lot Entitlements (CSLE) for the scheme have been determined using the Relativity Principle. As required by Section 48 of the Body Corporate and Community Management Act 1997, the CSLE for the scheme have been allocated having regard to:

- (i) The structure of the scheme;
- (ii) The nature, features and characteristics of the Lots in the scheme;
- (iii) The area of the Lots.

On the basis of these factors it is just and equitable for there to be a variation in the CSLE for the Scheme. Each Lot starts with an entitlement of 10 and additional entitlements are added or deducted to recognise the above factors. The relative difference in Lot entitlements recognises that the factors stated above do not impact on how much each Lot should contribute to certain Body Corporate costs such as secretarial fees, audit fees, printing postage and outlays, but the structure of the scheme and the features and characteristics of the Lots result in a differential burden on the costs of the Body Corporate for repair and maintenance of the Common Property.

When allocating the Lot entitlements to be included in the CSLE, each of the above factors stated above impacts on the allocation in the following ways:

2. Structure of the Scheme

The scheme does not have mixed use lots and therefore the structure of the scheme does not affect the CSLE.

3. Nature, Feature and Characteristics of the Lots in the Scheme

The Lots are proposed to be used for a wide variety of industrial related uses and landscaped areas, signage and some services will form part of the Common Property. It is common for industrial lots to pay contributions towards outgoings on an area basis so as not to penalise individual owners with smaller Lots.

4. The Purpose for which the Lots are used

Each of the Lots in the scheme are used for industrial purposes and consequently this factor does not contribute to any differences in the Lot entitlements.

The Interest Schedule Lot Entitlements have been determined using the Market Value Principle.

SCHEDULE B EXPLANATION OF THE DEVELOPMENT OF SCHEME LAND
--

1. Dictionary and Interpretation***Dictionary***

- (a) **“Act”** means the Body Corporate and Community Management Act 1997
- (b) **“Adjoining Land”** means any land adjoining the Scheme Land.
- (c) **“CMS”** means the Community Management Statement.
- (d) **“Common Property”** means the common property of the Scheme.
- (e) **“Concept Plan”** means the plan in Annexure "A".
- (f) **“Development”** means the development known as Vantage Yatala.
- (g) **“Local Government”** means Gold Coast City Council.
- (h) **“Lots”** means Lots in the Scheme.
- (i) **“Original Owner”** means the original owner as defined under the Act, and any person nominated by the Original Owner to the Body Corporate from time to time.
- (j) **“Scheme Land”** means the land described as the scheme land in Item 4 of this CMS.
- (k) **“Scheme”** means the CTS.
- (l) **“Utility Infrastructure”** means:
 - i. a device for measuring the reticulation or supply of a Utility Service.
 - ii. cables, wires, pipes, sewers, drains, ducts, plant and equipment by which Lots or Common Property are supplied with Utility Services; and
- (m) **“Utility Services”** means:
 - i. water reticulation or supply; or
 - ii. gas reticulation or supply; or
 - iii. electricity supply; or
 - iv. air conditioning; or
 - v. a telephone service; or
 - vi. a computer data or television service; or
 - vii. a sewer system; or
 - viii. drainage; or
 - ix. a system or the removal or disposal of garbage or water; or

- x. another system or service designed to improve the amenity, or enhance the enjoyment, of Lots or Common Property.

Interpretation

This Schedule B is to be interpreted, so far as possible, in accordance with the interpretation provisions set out in Schedule C of this CMS. Terms not defined in this Schedule B but defined in Schedule C of this CMS have the meanings given to them in Schedule C of this CMS.

2. Staged Development

The Development is to be developed progressively in 3 stages.

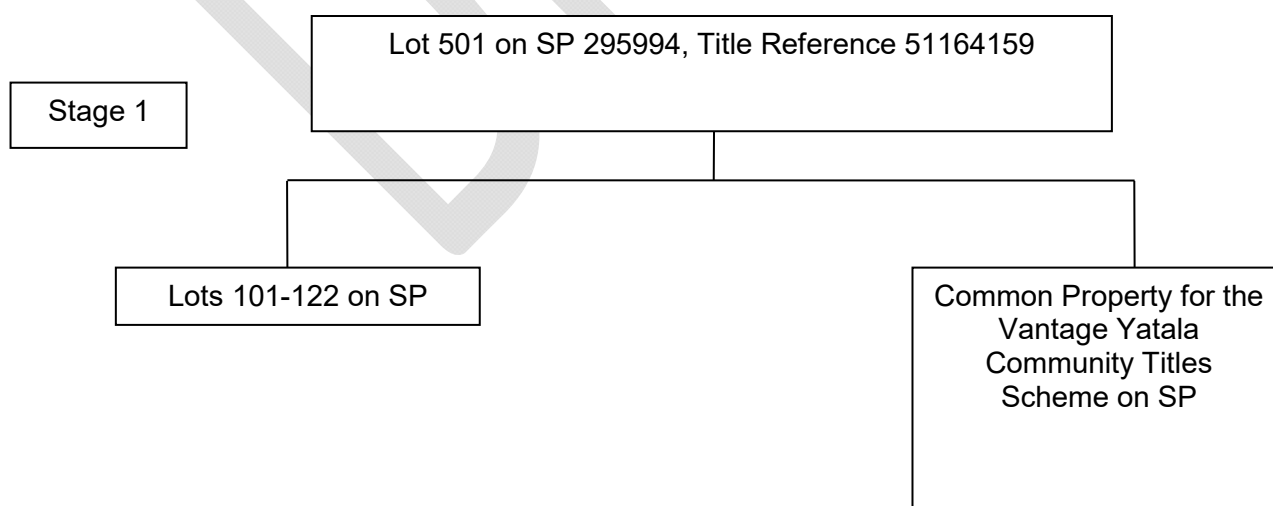
The first stage of the Development will create Lots 101-122 and Common Property on SP . The second stage of the Development will create Lots 201-206 and additional Common Property. The third stage of the Development will create Lots 301-304 and additional Common Property. The staging of the Development and the addition of Lots and Common Property in the second and third stages is shown in the Concept Plan.

The Concept Plan is illustrative only and does not fix the locations of buildings, improvements, Common Property or any other areas or the boundaries of any of them, all of which are subject to changes, including:

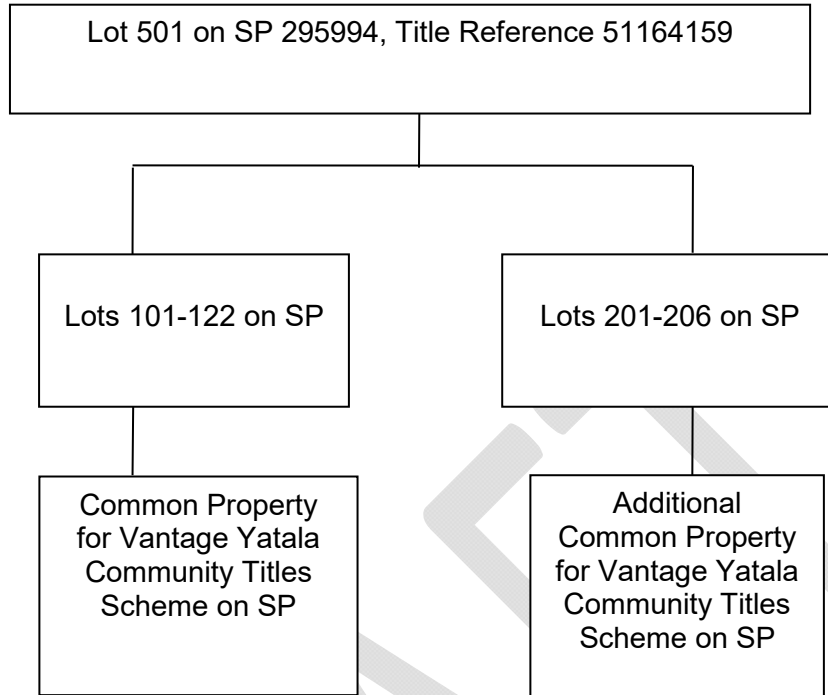
- (a) final surveys on completion of construction and/or placement of buildings, improvements and Utility Infrastructure on or within the Adjoining Land; and
- (b) completion of any other works, including landscaping, required to be undertaken under the terms of any relevant approval or the development issued by the Local Government or other relevant authority.

The Original Owner may from time to time update the Concept Plan to reflect changes referred to in this CMS.

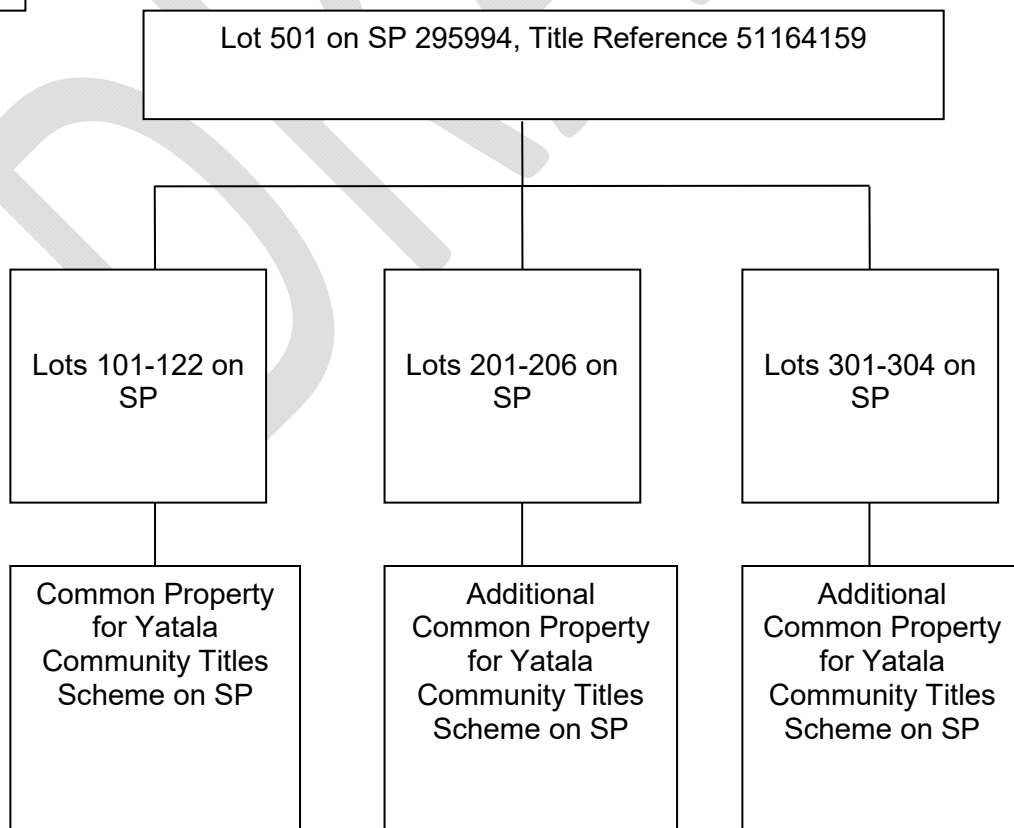
A diagrammatical depiction of the proposed staging of the Development (and explanatory notes) is included below:



Stage 2



Stage 3



3. Changes to aspects of the Scheme

Market, economic and site conditions (including the extent of further development and the need for additional Infrastructure and services as a result), the requirements of the Local Government and other relevant authorities, and the type, extent and conditions of approvals granted by the Local Government and other relevant authorities may mean that changes are made to:

- (a) the number of stages;
- (b) the size of each stage;
- (c) the configuration of Lots in each stage;
- (d) the timing of each stage;
- (e) the number of lots;
- (f) the size of Lots;
- (g) the position and size of roads;
- (h) the extent and location of the Common Property;
- (i) the extent and location of the public open space and roads;
- (j) this CMS; and
- (k) the proposed locations of the Utility Infrastructure.

4. Amalgamation of Lots

Lots may be amalgamated with other Lots or parts of Lots from time to time.

When Lots are amalgamated with other Lots or parts of Lots:-

- (a) the contribution schedule lot entitlement for the amalgamated Lot is equal to the total contribution schedule lot entitlements of the Lots which were amalgamated plus a proportionate part of the contribution schedule lot entitlements of any parts of Lots, rounded to the nearest whole numbers; and
- (b) the interest schedule lot entitlement for the amalgamated Lot is equal to the total interest schedule lot entitlements of the Lots which were amalgamated plus a proportionate part of the interest schedule lot entitlements of any parts of Lots, rounded to the nearest whole number.

5. Subdivision of Lots

The owner of a Lot in the Scheme (other than the Original Owner) must not subdivide the Lot unless the prior written consent of the Body Corporate is obtained.

SCHEDULE C BY-LAWS**1. DEFINITIONS****1.1 Dictionary**

- (a) **"Act"** means the *Body Corporate and Community Management Act 1997*.
- (b) **"Architectural and Landscaping Code"** means the development guidelines published by the Body Corporate from time to time and approved by the Committee.
- (c) **"Body Corporate"** has the same meaning as in the Act.
- (d) **"Committee"** has the same meaning as in the Act.
- (e) **"Commissioner"** has the same meaning as in the Act.
- (f) **"Common Property"** has the same meaning as in the Act.
- (g) **"Invitee"** any person on the Scheme Land with the permission of an Occupier.
- (h) **"Lot"** has the same meaning as in the Act.
- (i) **"Occupier"** an Owner of a Lot, a tenant of a Lot, a licensee of a Lot, or any person resident in a Lot.
- (j) **"Original Owner"** means the person identified in Item 5 of the First Community Management Statement and includes successors or assigns.
- (k) **"Owner"** has the same meaning as in the Act.
- (l) **"Scheme Land"** the Scheme Land identified in Item 4 of the Community Management Statement and includes when the context permits or requires the Lots and the Common Property and all improvements thereon.
- (m) **"Utility Infrastructure"** has the same meaning as in the Act.

1.2 Rules of interpretation

In these By-Laws unless the context Indicates a contrary intention:

- (a) words denoting any gender include all genders;
- (b) the singular number includes the plural and vice versa;
- (c) a person Includes their executors, administrators, successors, substitutes (for example, persons talking by novation) and assignors;
- (d) words importing persons will include all bodies, associations, trusts, partnerships, Instrumentalities and entitles corporate or unincorporated, and vice versa;
- (e) any obligation on the part of or for the benefit of two or more persons will be deemed to bind or benefit as the case may be, any two or more of them jointly and each of them severally;
- (f) references to any legislation includes any legislation which amends or replaces that legislation;

- (g) headings are included for convenience only and will not affect the Interpretation of these By-Laws;
- (h) a reference to anything Includes the whole or each part of it; and
- (i) in interpreting these By-Laws, no rules of construction will apply to the disadvantage of a party because that party was responsible for the drafting of these By-Laws or any part of them.

2. NOISE

Occupiers must not create any noise likely to interfere with the peaceful enjoyment of a person lawfully on another Lot or the Common Property, having regard to the nature and type of business being lawfully conducted on any Lot.

3. VEHICLES

Occupiers must not park any vehicle upon Common Property except:

- (a) with the consent of the Committee on those parts of the Common Property specifically identified for the purpose of car parking by an Occupier; or
- (b) where authorised by an exclusive use By-Law.

4. OBSTRUCTION/NUISANCE

- (a) Occupiers must not obstruct lawful use of Common Property (including any pathways and driveways) by any other person.
- (b) Occupiers must not cause a nuisance or act in such a way so as to interfere with the peaceful enjoyment of a person lawfully on another Lot or using the Common Property.

5. DEPOSITING RUBBISH, ETC ON COMMON PROPERTY

Occupiers must not deposit or throw upon the Common Property any rubbish, dirt, dust or other material likely to interfere with the peaceful enjoyment of a person lawfully on another Lot or using the Common Property.

6. GARBAGE DISPOSAL

- (b) Occupiers must keep a receptacle for garbage in a clean and dry condition and adequately covered on the Lot or on a part of the Common Property designated by the Body Corporate for that purpose, unless the Body Corporate provides for some other way of garbage disposal.
- (c) Occupiers must:
 - i. comply with all local government local laws about disposal of garbage; and
 - ii. ensure that In disposing garbage, the hygiene, health and comfort of other Occupiers is not adversely affected.

7. DAMAGE TO COMMON PROPERTY

Occupiers must not, except with the consent in writing of the Committee:

- (a) damage any Common Property lawn, garden, tree, shrub, plant, flower, walking track or other Body Corporate asset in Common Property; or
- (b) mark, paint, or drive nails or screws or the like into, or otherwise damage or deface a structure that forms part of the Common Property.

8. UTILITY INFRASTRUCTURE

- (a) An Occupier must use the Utility Infrastructure for the purpose for which it was designed and not for any other purpose.
- (b) An Occupier must report any damage or accident involving the Utility Infrastructure to the Committee.
- (c) An Occupier must not waste water and must ensure all water taps are promptly turned off after use.

9. RIGHT OF ENTRY

- 9.1 An Owner or Occupier, upon receiving reasonable notice from the Committee, shall allow the Body Corporate or any contractors, sub-contractors, workmen or other person authorised by it, the right of access to his lot for the purpose of carrying out works or effecting repairs on mains, pipes, wires or connections of any water, sewerage, drainage, gas, electricity, telephone or other system or service, whether to his lot or to an adjoining lot or for any other purpose permitted under these By-Laws, the Act or the Regulation Module.
- 9.2 If in the reasonable opinion of the Committee there is a matter of sufficient emergency no such aforesaid notice will be necessary. Such works or repairs shall be at the expense of the Owner or Occupier of the Lot in the case where the need for such works or repairs is due to any act or default of the owner or Occupier or their guests, servants or agents. Any entry pursuant to this By-Law shall not constitute trespass. The Committee in exercising its powers under this By-Law shall ensure that its servants, agents and employees cause as little inconvenience to the Owner or Occupier of the Lot as is reasonable in the circumstances.

10. MAINTENANCE OF LOTS

- (a) Each Owner must ensure that his Lot is kept and maintained so as not to allow infestation by vermin or insects or be offensive in appearance to other Occupiers.
- (b) Each owner is responsible for the interior maintenance and decoration of his Lot.

11. INCREASE IN INSURANCE PREMIUM

- (a) Occupiers must not bring to, do or keep on a Lot anything which increases the rate of fire insurance on the Scheme Land, or which may conflict with any insurance policy upon the Scheme and, except with the consent in writing of the Committee.
- (b) The Committee will not unreasonably withhold its consent, having regard to the nature and type of business lawfully being conducted on a Lot.
- (c) Where an Occupier obtains the consent of the Committee under By-Law 11(a), then it is the Occupier's responsibility to pay any increase in the insurance premium because of the Occupier's use of the Lot.

12. BEHAVIOUR OF INVITEES

- (a) Occupiers must take all reasonable steps to ensure that their invitees abide by the By-Laws and do not behave in a manner likely to interfere with the peaceful enjoyment of a person lawfully on another Lot or the Common Property.
- (b) Owners will be liable to compensate the Body Corporate for all damage to the Common Property caused by their Occupiers and invitees.

13. AUCTION SALE

Occupiers must not conduct an auction on his Lot or the Common Property, except with the consent in writing of the Committee.

14. USE OF LOTS

- (a) Occupiers may only use a Lot for the purpose permitted by the town planning scheme of the local government and shall ensure that all necessary consents, permits and approvals are obtained before commencing such use.
- (b) Occupiers must not use a Lot for any illegal, unlawful or immoral purpose.

15. INFECTIOUS DISEASES

In the event of any infectious disease which may require notification by virtue of any statute, regulation or ordinance happening in any lot, the owner or occupier of such lot shall give written notice thereof and any other Information which may be required relative thereto to the Committee and shall pay to the Body Corporate the expenses incurred by the Body Corporate for disinfecting the Lot and any part of the Common Property required to be disinfected and replacing any articles or things the destruction of which may be rendered necessary by such disease.

16. MAINTENANCE OF LOTS

An Occupier must:

- (a) keep its Lot (including without limitation) and the Improvements on its Lot clean, maintained in good order and condition and kept free of rubbish;
- (b) keep its landscaping (including without limitation vegetation and hard landscaping) in a neat and healthy state. Lawns must be cut regularly and gardens attended to so that they are in a neat, tidy and attractive state. Nothing in this By-Law requires an Occupier to irrigate its landscaping where doing so would be contrary to law. An occupier is only obliged to comply with this By-Law to the extent the Occupier is lawfully entitled to irrigate the landscaping on the Lot within any relevant water use restrictions;

If an Occupier is in breach of this By-Law the Body Corporate and its contractors may access the Lot at all reasonable times for the purpose of inspection and rectifying the breach provided that the Body Corporate gives the Occupier reasonable Notice of its intention to do so. Any costs of the Body Corporate from remedying a breach of the By-Laws (including legal costs) must be paid for by the Owner of the Lot and the Occupier of the Lot who shall be jointly and severally liable for the whole of the costs.

17. SECURITY

The Body Corporate is empowered to negotiate and to enter into an agreement with an individual or company for the exclusive provision of security services In respect of the Scheme Land if thought necessary or appropriate, and the Body Corporate is further empowered to regulate the provision of the services throughout the Scheme Land and contributions towards the Costs of the security services.

18. BODY CORPORATE EMPOWERED TO ENTER INTO AGREEMENTS

18.1 Without derogating from any powers, authorities, duties and functions conferred or imposed on it by or under the Act or elsewhere under these By-Laws, the Body Corporate shall be empowered to enter into with such person or persons or corporation or corporations as the Body Corporate in Its absolute discretion shall decide one or more of the following agreements:

- (a) an agreement or agreements for the purpose of better seeing to the proper functioning operation and management of the Scheme or for the purpose of ensuring the proper functioning of the duties and powers of the Body Corporate and of the Committee of the Body Corporate including any agreement with the Body Corporate;
- (b) an agreement with an energy provider and/or an energy resources consultant in relation to the provision of utility services (including reticulated hot water and electricity) to the Scheme Land and Lots; and
- (c) an agreement with the owner or body corporate of adjoining land for the provision of electricity, waste disposal, public toilets, reticulated hot water or other utility service.

18.2 The Body Corporate has the power to engage a service contractor for the Scheme on the basis that the service contractor will be the only service contractor that will be engaged by the Body Corporate to provide caretaking services to the Body Corporate for the benefit of the Common Property and Lots.

18.3 Any such agreements shall be upon such terms and conditions as the Body Corporate shall decide in its absolute discretion.

19. ARCHITECTURAL AND LANDSCAPING CODE

19.1 An Owner must observe and comply with the Architectural and Landscaping Code or building covenants in force from time to time in relation to the Scheme.

19.2 An Owner cannot commence any works that would require consent under the Architectural and Landscaping Code unless the requisite consent under that Code has been obtained.

19.3 The Body Corporate and Owners must act according to any lawful directions or recommendations made by the Architectural Review Committee under the Architectural and Landscaping Code.

19.4 The Body Corporate will take all reasonable and lawful steps to enforce the terms of the Architectural and Landscaping Code and the recommendations and directions issued by the Architectural Review Committee.

19.5 The Body Corporate is entitled to use any part of a bond, guarantee, submission fee or other money submitted under the Architectural and Landscaping Code to pay the costs of the process of approval under the Architectural and Landscaping Code and for any cost, loss or damage (including legal costs and professional consultants costs) incurred by the Body Corporate that result from a breach of this By-Law or the failure of the Owner to obey or implement directions, recommendations and terms of any approval from the Architectural Review Committee

- 19.6 Owners and Occupiers must ensure that their agents and consultants submit to and follow directions, recommendations and the conditions of any approvals issued by the Architectural Review Committee.
- 19.7 No person shall occupy any improvements on a Lot until:-
- (a) All statutory inspections have been completed; and
 - (b) The Architectural Review Committee confirms that all works have been completed in accordance with the relevant approved proposal and that no damage has been caused to any other Lot, Common Property or public area.
- 19.8 Neither the Architectural Review Committee, any member of the Architectural Review Committee, the Body Corporate, any member of the Body Corporate, its Committee or the Original Owner will be liable to any applicant under the Architectural and Landscaping Code for any loss, damage or injury arising out of or in any way connected with any recommendation, approval (condition or unconditional) or disapproval given under these By-laws or the Architectural and Landscaping Code.
- 19.9 The Original Owner may undertake any development at any time notwithstanding any noncompliance or inconsistency with the Architectural and Landscaping Code.
- 19.10 If an Owner or Occupier does not rectify any noncompliance with any approval given by the Architectural Review Committee within the period set out in a notice from the Architectural Review Committee, the Body Corporate, members of the Architectural Review Committee and its contractors may enter the relevant Lot and remove the non-complying development or any part of it. All of the costs, expenses and liabilities incurred or payable by the Body Corporate in exercising its rights under this By-law (including legal costs on a full indemnity basis) are payable on demand, by the Owner and the Occupier who will be jointly and severally liable.
- 19.11 If any works are carried out without relevant approval from the Architectural Review Committee, the Body Corporate, members of the Architectural Review Committee and their contractors may enter the relevant Lot and remove the non-complying works or any part of them. All the costs, expenses and liabilities incurred or payable by the Body Corporate in exercising its rights under this By-Law (including legal costs on a full indemnity basis) are payable, on demand, by the Owner and Occupier who are jointly and severally liable.
- 19.12 If any works are being carried out without approval or are not being carried out in accordance with a relevant approval from the Architectural Review Committee, the Body Corporate may refuse entry to the responsible builder and contractors to the Lot and the Body Corporate is authorised as agent for the Owner and Occupier to order, the builder and any contractors to immediately stop work on the Lot and remove the builder and contractors from the Lot and the Scheme Land.

20. RECOVERY OF COSTS

- 20.1 An Owner (which expression shall extend to a mortgagee in possession) shall pay on demand the whole of the Body Corporate's costs and expenses (including Solicitor and own client costs), such amount to be deemed a liquidated debt, incurred in:
- (a) recovering contributions or monies payable to the Body Corporate pursuant to the Act duly levied upon that Owner; and
 - (b) all proceedings including legal proceedings concluded in favour of the Body Corporate taken by or against the Owner or the lessee or Occupier of the Lot, including, but not limited to, applications for an Order by the Commissioner, appeals to the Tribunal and appeals to the Court.

- 20.2 In the event that the Owner (or his mortgagee in possession) fails to attend to the payment of such costs and expenses after demand is made for the payment of same, the Body Corporate may:
- (a) treat such costs and expenses as a liquidated debt and take action for the recovery of same in any Court of competent jurisdiction; and
 - (b) enter such costs and expenses against the levy account of such Owner in which case the amount of same shall be paid to the Body Corporate upon a subsequent sale or disposal of the Lot falling which the purchaser of such Lot shall be liable to the Body Corporate for the payment of same.

21. POWER OF COMMITTEE

- 21.1 The Committee may make rules relating to the Common Property not inconsistent with these By-Laws and the same shall be observed by the Owners or Occupiers of Lots unless and until they are disallowed or revoked by majority resolution at a general meeting of the Body Corporate.

22. MECHANICAL ITEMS

- 22.1 Any mechanical item or apparatus to be installed on the outside of a Lot or on the Common Property with approval of the Body Corporate and in accordance with these By-Laws must be designed and/or screened to limit noise emission to a level satisfactory to the Committee acting reasonably.

23. BULK SUPPLY OF ELECTRICITY AND RETICULATED HOT WATER

- 23.1 The Body Corporate may supply or obtain the supply of electricity, reticulated hot water or other utilities (which may be in bulk) for the Scheme ("utilities"). The utilities may be supplied by the Body Corporate or the Body Corporate may engage a third party provider to supply the utilities ("a Supplier"). The Body Corporate may enter into an agreement with a Supplier on terms decided by the Committee, or if the agreement is outside of the scope of the Committee's authority, on terms decided by the Body Corporate.
- 23.2 The Body Corporate may enter into an agreement with one or more utility managers who may facilitate the Body Corporate's purchase and administration of the utilities ("Utilities Manager").
- 23.3 The Body Corporate must install meters to monitor usage of the utilities supplied from the Supplier to Owners and Occupiers.
- 23.4 The Body Corporate may purchase, otherwise obtain or contract with an entity to provide an Energy Management System ("EMS") or services so as to allow for the bulk purchase of utilities and the efficient use of the utility services.
- 23.5 Owners and Occupiers must obtain their supply of utilities from or through the Body Corporate if the Body Corporate enters into a utility supply agreement with the Supplier or if the Body Corporate supplies the utilities. If requested by the Body Corporate, Owners must sign an agreement for the supply of the utilities on the terms of supply decided by the Body Corporate.
- 23.6 Owners or Occupiers who accept or use the utilities supplied by or through the Body Corporate ("Consumers") shall, in consideration of the supply of the utilities, comply with this By-Law and the terms and conditions of supply adopted by the Body Corporate ("the Terms of Supply"). A copy of the Terms of Supply adopted by the Body Corporate shall be made available by the Body Corporate to consumers.
- 23.7 Upon the acceptance or use of the utilities supplied by or through the Body Corporate, the Terms of Supply shall constitute an agreement between the consumer and the Body Corporate. The

consideration for the agreement shall be the supply and continued supply of the utilities through the Body Corporate to the consumer. The Terms of Supply form an agreement separate to this By-Law.

- 23.8 Upon request by a consumer, the Body Corporate shall provide one copy of the Terms of Supply to a consumer.
- 23.9 When a consumer assigns or transfers the consumer's interest in a Lot, the assignee or transferee becomes joined as a party to the agreement constituted by the Terms of Supply. The assignor or transferor consumer is released from the obligations imposed under this By-Law and the Terms of Supply only when all obligations of the consumer are satisfied and up to date.
- 23.10 The Body Corporate may include the actual costs for the supply of the utilities (whether to an Owner or Occupier of a lot) in notices of contributions payable to the Body Corporate by the Owner of the Lot to which the utilities are supplied.
- 23.11 The terms of this By-Law and the Terms of Supply are subject to any agreement entered into between the Body Corporate and the Supplier. The Body Corporate will have no obligation to provide utilities to a consumer if:
- (a) the agreement with the Supplier is terminated;
 - (b) the Supplier does not provide utilities to the Body Corporate for any reason; or
 - (c) the consumer does not pay for the supply of utilities by the due date.
- 23.12 All enquiries regarding connection, disconnection and charges shall be directed to the Utilities Manager (or other person nominated by the Committee). Consumers shall follow the directions of the Utilities Manager (or other person nominated by the Committee) with respect to the supply and use of electricity provided that the directions must be consistent with the By-law and the Terms of Supply.
- 23.13 The Committee may make rules with respect to the supply of utilities provided they are consistent with this By-law and the Terms of Supply.
- 23.14 The Body Corporate will not, under any circumstances whatsoever, be responsible or liable for any loss, cost or damages that occur to any consumer or anyone who relies upon the utilities supplied because of failure of the supply of utilities due to breakdowns, repairs, maintenance, strikes, accidents or causes of any class or description.
- 23.15 All consumers shall ensure that any electrical installation (as defined in the *Electricity Act 1994*) is maintained free of any defect which is likely to cause a fire or electrical shock. Subject to Act, the Body Corporate or the Utilities Manager shall be entitled to enter a Lot to inspect any electrical installations.
- 23.16 For the purposes of ensuring the efficient and constant supply of electricity to the Lots during any limitation in the supply of electricity, the Body Corporate may impose restrictions in such a manner and to such an extent as it considers necessary, upon the use of electrical articles (as defined in the *Electricity Act 1994*), including the prohibition of the use of specified articles.
- 23.17 The Body Corporate is not responsible for the accuracy or correct operation of any utility meter for a Lot, other than its obligations under the Act. Consumers shall ensure that no person associated with the consumer or their Lot interferes with any meter or equipment used for the supply or measure of supply of utilities to a Lot.
- 23.18 An invoice or notice will have been validly given to a consumer if the invoice or notice is sent to the last known address for the consumer known to the Body Corporate.

SCHEDULE D	OTHER DETAILS REQUIRED/PERMITTED TO BE INCLUDED
-------------------	--

STATUTORY EASEMENTS AND SERVICES LOCATION DIAGRAM

The following lots in the Scheme are affected by the following statutory easements:

Easement	Land Title Act 1994	Lots Affected
Easement for lateral and subjacent support	Section 115N	Lots 101 to 122 on SP and Common Property on SP
Easement for utility services Utility infrastructure	Section 115O Section 115P	Lots 101 to 122 on SP and Common Property on SP
Easement for shelter	Section 115Q	Lots 101 to 122 on SP and Common Property on SP
Easement for projections	Section 115R	Lots 101 to 122 on SP and Common Property on SP
Easement for maintenance of the building close to boundary	Section 115S	Lots 101 to 122 on SP and Common Property on SP

The Services Location Diagram identified as “Services Location Diagram” is attached as Annexure B.

SCHEDULE E	DESCRIPTION OF LOTS ALLOCATED EXCLUSIVE USE AREAS OF COMMON PROPERTY
-------------------	---

Not applicable.