

OPERATIONAL WORKS APPLICATION FOR TRUNK SEWER INFRASTRUCTURE

CoGC STAPYLTON XGMA10 & 11 GRAVITY SEWER VANTAGE YATALA

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594I ENG SNA2 652	A	SEWER STRUCTURE DETAILS SHEET 3 OF 3
594I ENG SNA2 700	A	TEMPORARY POTABLE WATER MAIN DETAILS

CLIENT / APPLICANT:



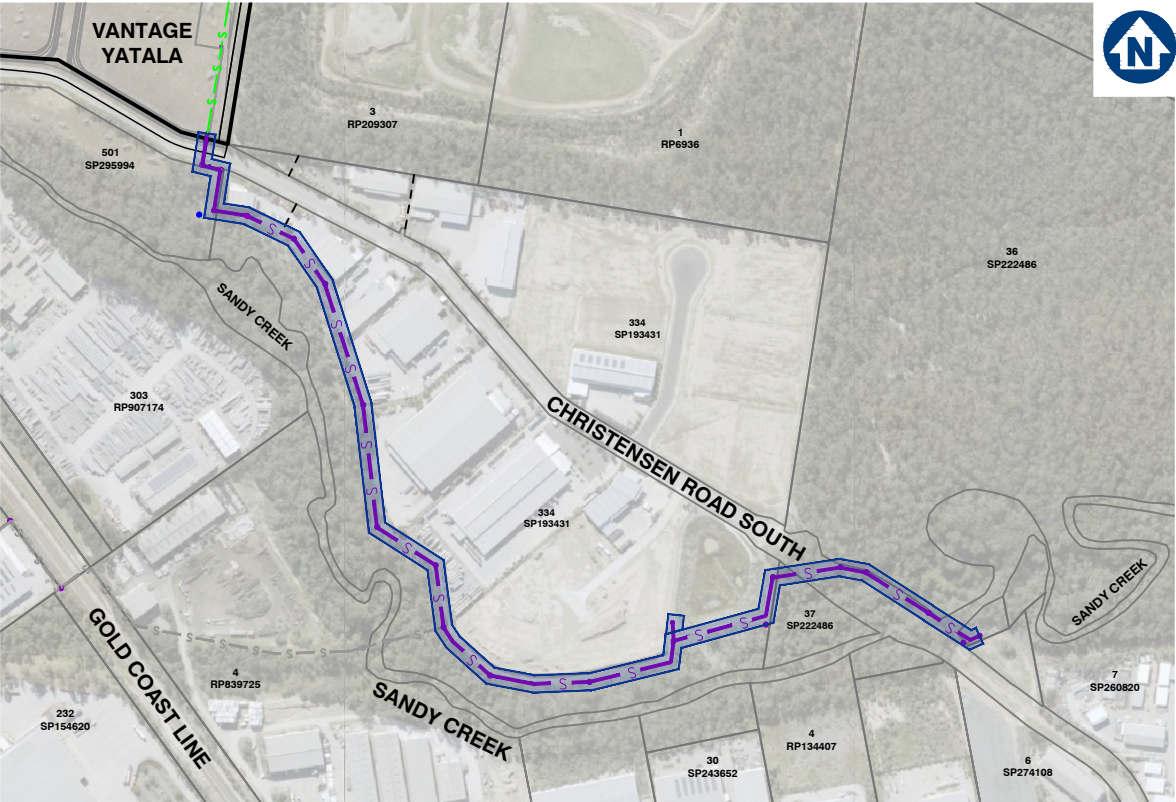
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Attention: Development Assessment

PROJECT: OPERATIONAL WORKS APPLICATION FOR TRUNK INFRASTRUCTURE (STAPYLTON XGMA21 GRAVITY) Job No: 5941

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5941 ENG SNA2 001	DRAWING INDEX AND LOCALITY PLAN	A												
5941 ENG SNA2 002	GENERAL NOTES	A												
5941 ENG SNA2003	LEGEND	A												
5941 ENG SNA2 005	KEY PLAN LAYOUT AND BOREHOLE INVESTIGATION LOCATIONS	A												
5941 ENG SNA2 010	CONTOUR AND DETAIL PLAN SHEET 1 OF 5	A												
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5941 ENG SNA2 700	TEMPORARY POTABLE WATER MAIN DETAILS	A												



Client:



FPI QUEENSLAND PTY. LTD.

Project: TRUNK GRAVITY SEWER -
VANTAGE YATALA
STAGE 2

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

THIS DRAWING IS INTENDED TO
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RPD:

Lot: 501
Plan: SP295994
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COUNCIL

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Contour Interval: -
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LEGEND

A	20-11-2021		ORIGINAL ISSUE	LAR	MG
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Approved:	MG
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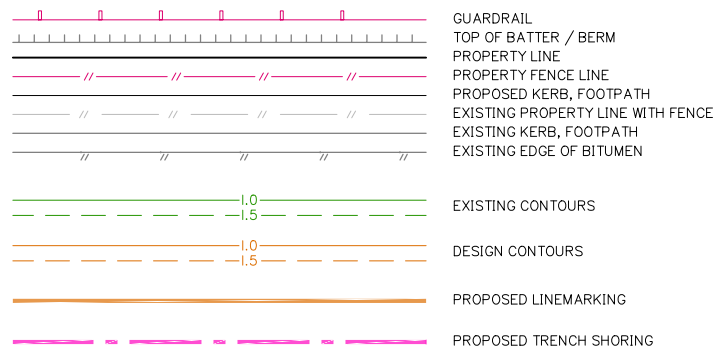
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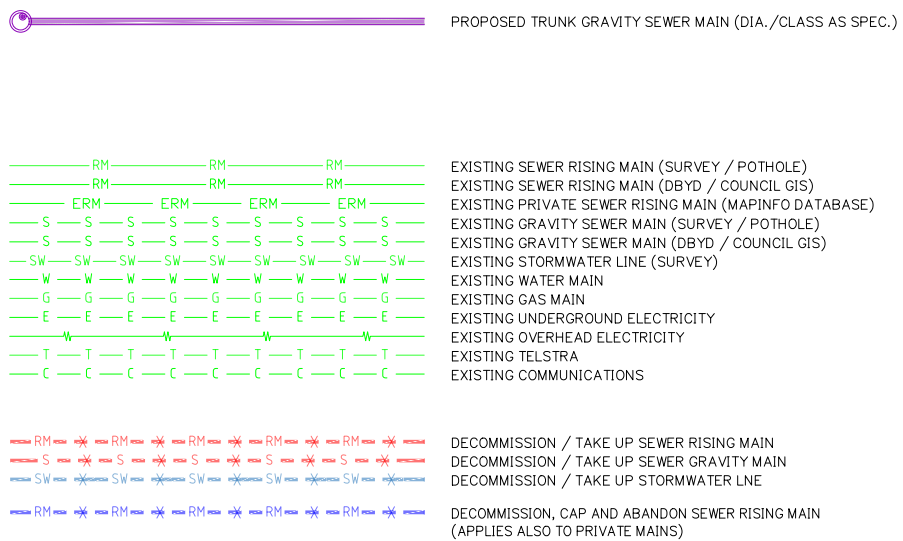
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5941 ENG SNA2 003	A

FEATURE LEGEND



SERVICES LEGEND



SURVEY SYMBOLS LEGEND



PIPE CHAINAGE KEY PLAN FOR DWG 600 SERIES PLANS

LEGEND



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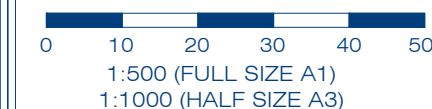
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DRAWING TITLE

CONTOURS AND DETAILS
PLAN SHEET 3 OF 5

A	20-11-2021		ORIGINAL ISSUE	LAB	MC
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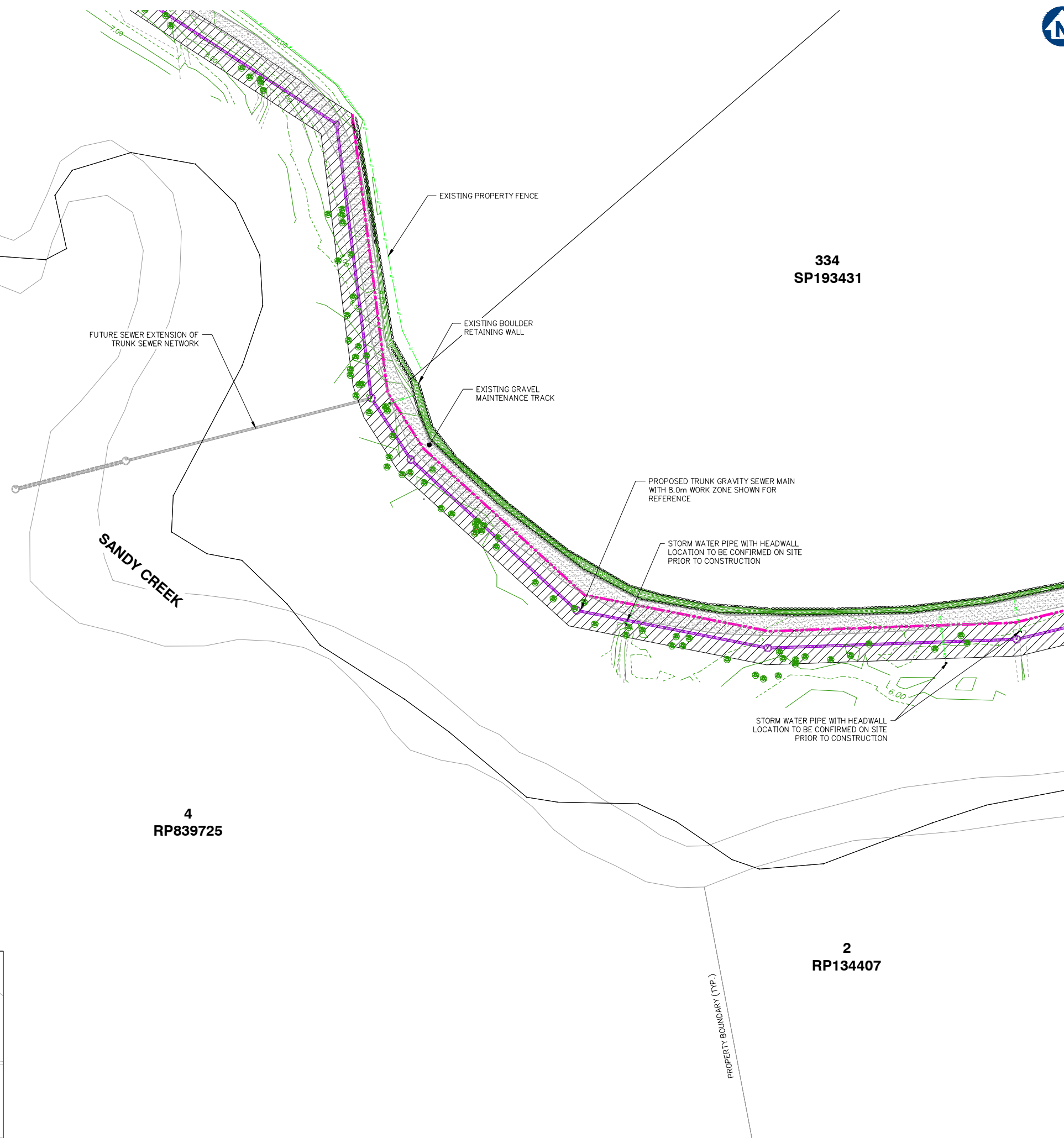
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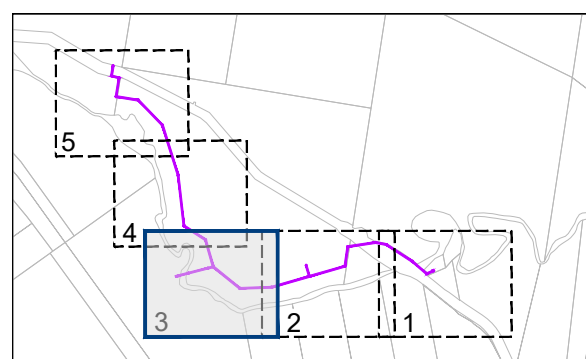
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5941 ENG SNA2 012	A



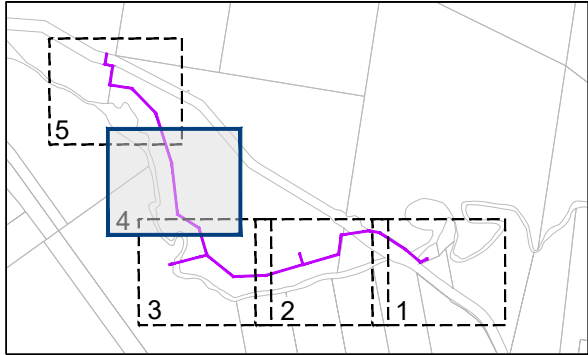
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THE LOCATIONS OF UNDERGROUND SERVICES HAVE BEEN PHYSICALLY LOCATED WHERE INDICATED. HOWEVER SOME SERVICES OUTSIDE OF THE EXTENT OF TRUNK SEWER WORKS ARE INTERPOLATED FROM AERIAL PHOTOGRAMMETRIC DATA OR KNOWN POSITIONS OF VALVES, ACCESS CHAMBERS ETC. OR INFORMATION SUPPLIED BY SERVICE AUTHORITIES. NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF THE INTERPOLATED INFORMATION SUPPLIED.



KEY PLAN

CONTOURS AND DETAILS PLAN SHEET 3 OF 5



CONTOURS AND DETAILS PLAN SHEET 4 OF 5





Client:



FPI QUEENSLAND PTY. LTD.

Project: TRUNK GRAVITY SEWER -
VANTAGE YATALA
STAGE 2

Site Address:
60 STAPYLTON JACOBS WELL
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DRAWING TITLE
DEMOLITION AND
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SHEET 2 OF 5

Issue	Date	Description	LAB	MG	DRN	CHK
A	20-11-2021	ORIGINAL ISSUE				

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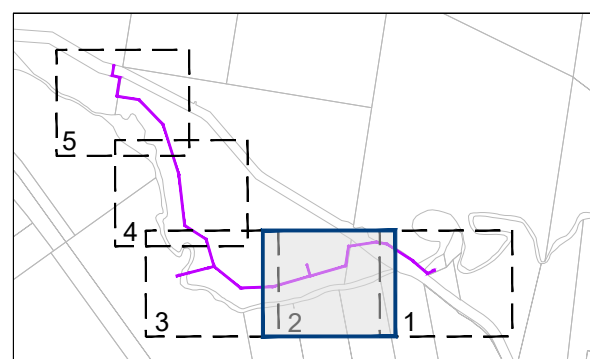
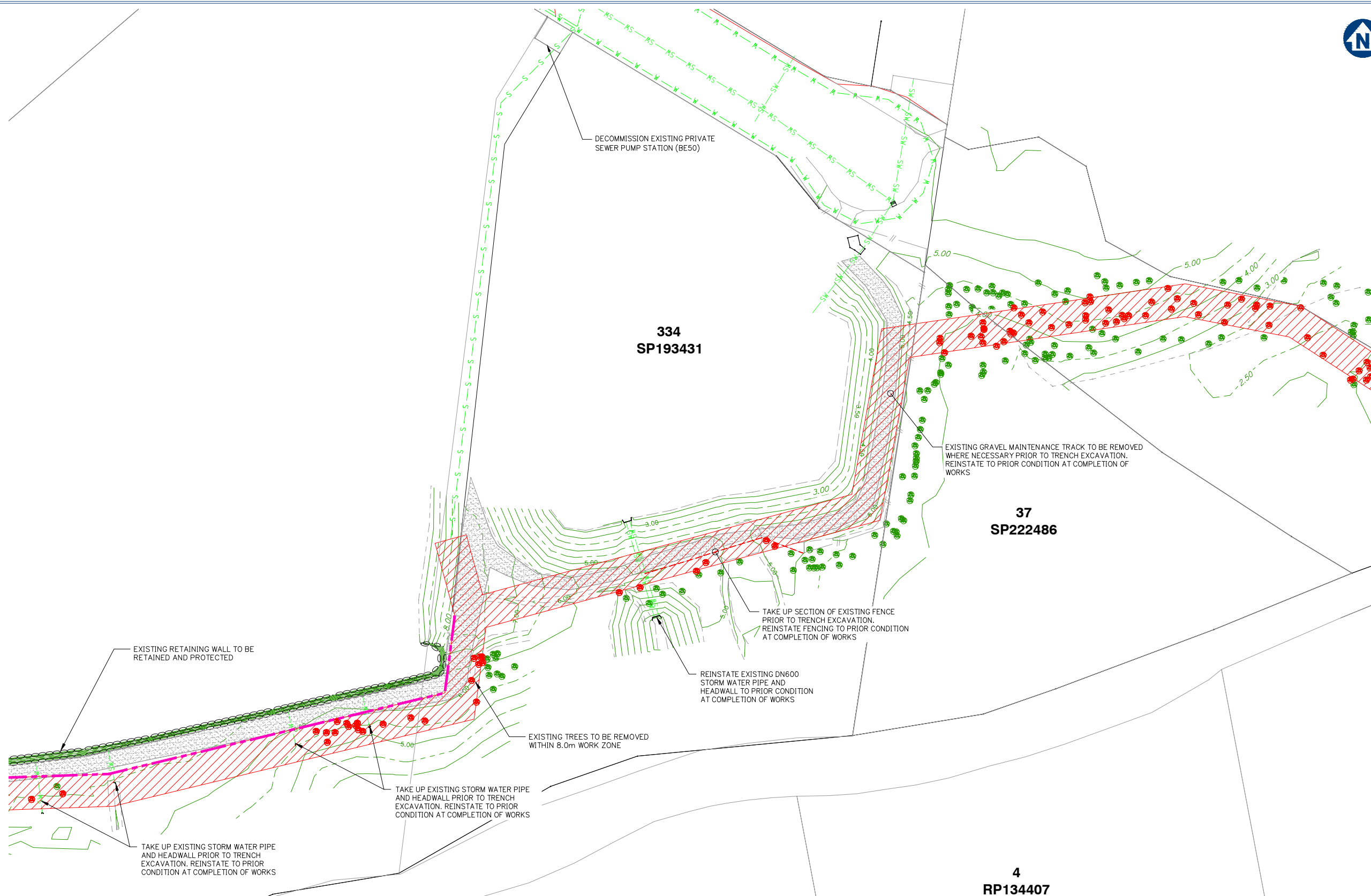


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VANTAGE YATALA
STAGE 2

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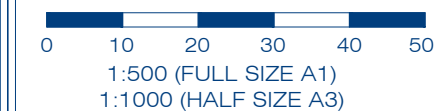
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DRAWING TITLE
DEMOLITION AND
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SHEET 3 OF 5

A	20-11-2021		ORIGINAL ISSUE	LAB	MC
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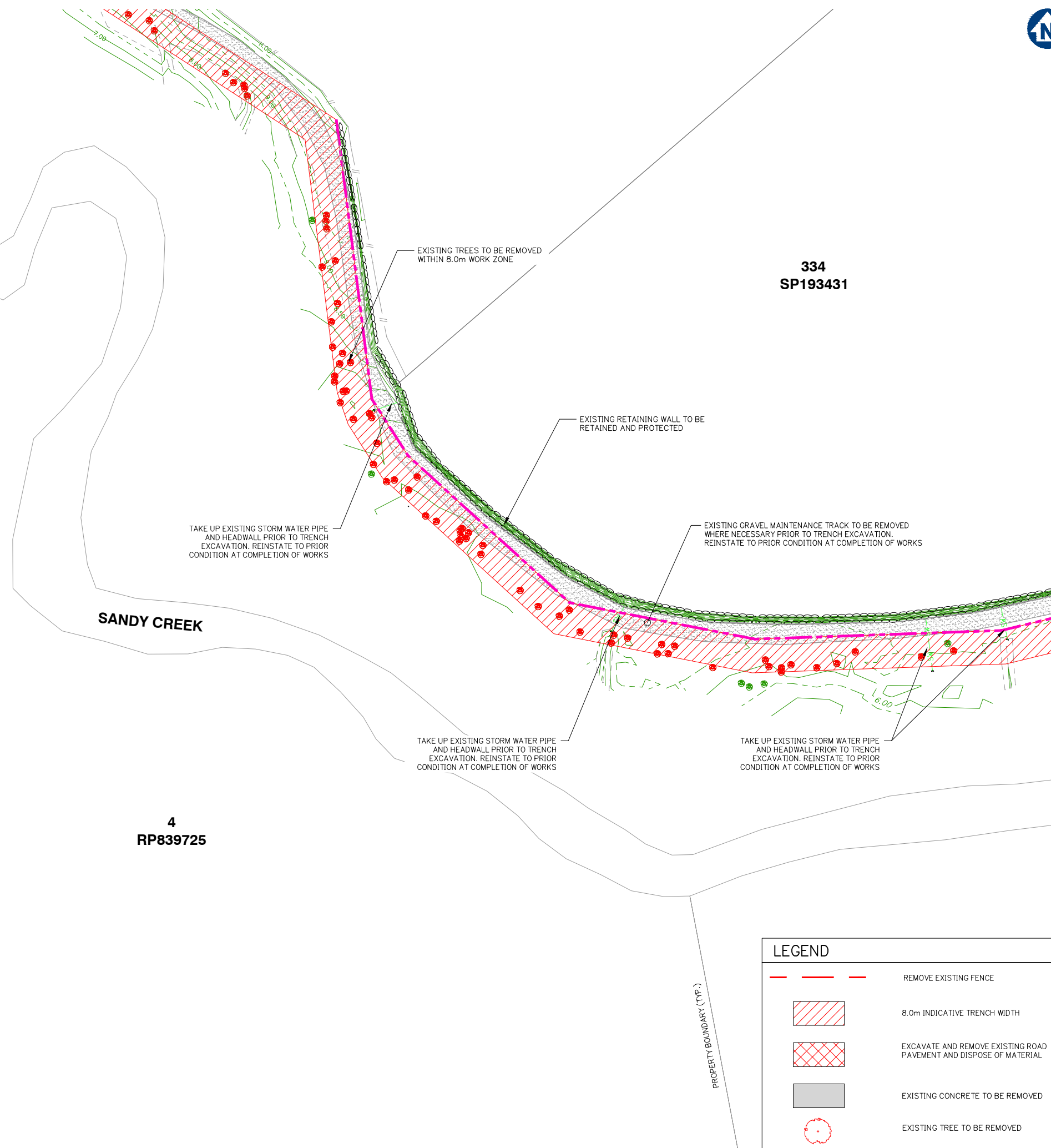
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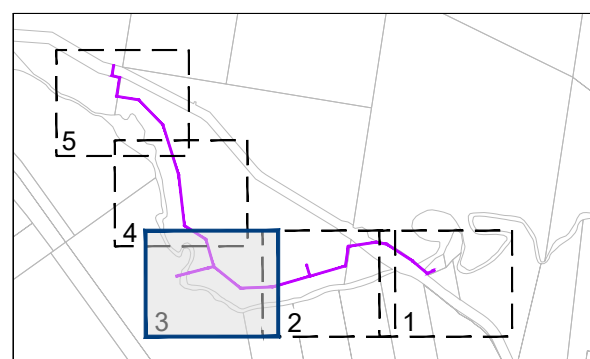
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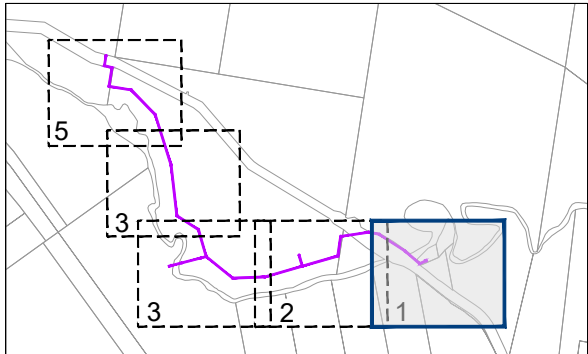


KEY PLAN

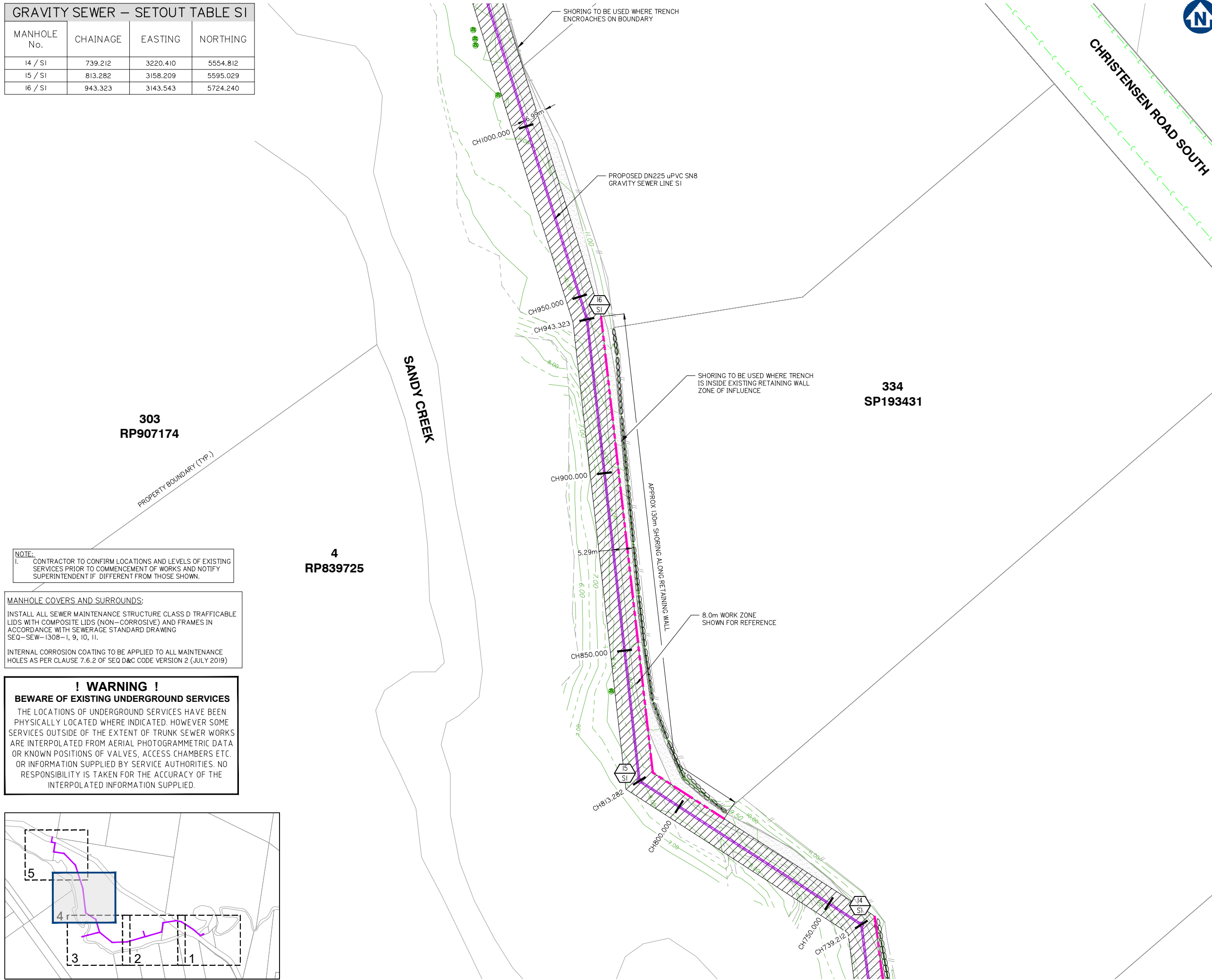
DEMOLITION AND PROTECTION PLAN SHEET 3 OF 5



Drawing No:	Rev. No:
5941 ENG SNA2 024	A



GRAVITY SEWER – SETOUT TABLE SI			
MANHOLE No.	CHAINAGE	EASTING	NORTHING
14 / SI	739.212	3220.410	5554.812
15 / SI	813.282	3158.209	5595.029
16 / SI	943.323	3143.543	5724.240



Client:



FPI QUEENSLAND PTY. LTD.

Project: TRUNK GRAVITY SEWER -
VANTAGE YATALA
STAGE 2

Site Address:
60 STAPYLTON JACOBS WELL
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SEWER LAYOUT PLAN
SHEET 4 OF 5

A	20-11-2021							LAB	MG
Issue	Date				ORIGINAL ISSUE			DRN	CHK
					Description				

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5941 ENG SNA2 603	A

GRAVITY SEWER – SETOUT TABLE S1

MANHOLE No.	CHAINAGE	EASTING	NORTHING
9 / S1	495.705	3383.208	5431.489
10 / S1	555.354	3323.595	5429.405
11 / S1	601.943	3277.882	5438.398
12 / S1	655.609	3238.169	5474.493
13 / S1	673.063	3228.756	5489.191
14 / S1	739.212	3220.410	5554.812

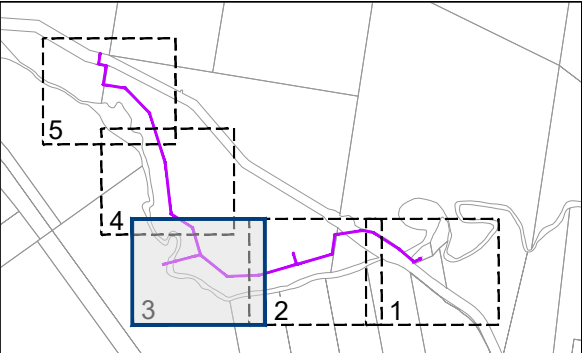
GRAVITY SEWER – SETOUT TABLE S2

MANHOLE No.	CHAINAGE	EASTING	NORTHING
13 / S1	0.000	3228.756	5489.191
1 / S2	60.617	3170.027	5474.181
2 / S2	87.922	3143.572	5467.419

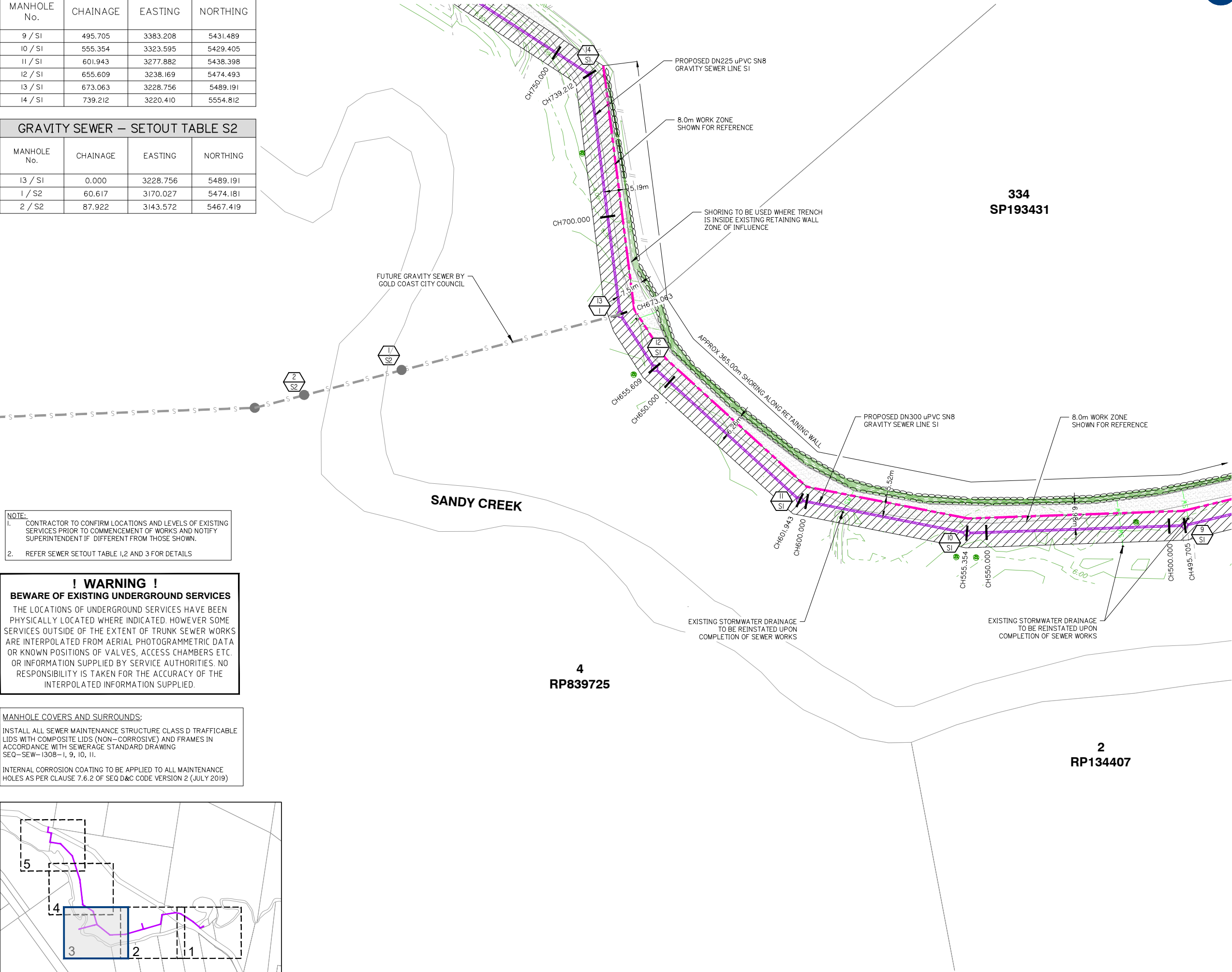
- NOTE:
- CONTRACTOR TO CONFIRM LOCATIONS AND LEVELS OF EXISTING SERVICES PRIOR TO COMMENCEMENT OF WORKS AND NOTIFY SUPERINTENDENT IF DIFFERENT FROM THOSE SHOWN.
 - REFER SEWER SETOUT TABLE 1, 2 AND 3 FOR DETAILS

! WARNING !
BEWARE OF EXISTING UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES HAVE BEEN PHYSICALLY LOCATED WHERE INDICATED. HOWEVER SOME SERVICES OUTSIDE OF THE EXTENT OF TRUNK SEWER WORKS ARE INTERPOLATED FROM AERIAL PHOTOGRAMMETRIC DATA OR KNOWN POSITIONS OF VALVES, ACCESS CHAMBERS ETC. OR INFORMATION SUPPLIED BY SERVICE AUTHORITIES. NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF THE INTERPOLATED INFORMATION SUPPLIED.

MANHOLE COVERS AND SURROUNDS:
INSTALL ALL SEWER MAINTENANCE STRUCTURE CLASS D TRAFFICABLE LIDS WITH COMPOSITE LIDS (NON-CORROSIVE) AND FRAMES IN ACCORDANCE WITH SEWERAGE STANDARD DRAWING SEQ-SEW-1308-1, 9, 10, 11.
INTERNAL CORROSION COATING TO BE APPLIED TO ALL MAINTENANCE HOLES AS PER CLAUSE 7.6.2 OF SEQ D&C CODE VERSION 2 (JULY 2019)



KEY PLAN



SEWER LAYOUT PLAN SHEET 3 OF 5



planning | environment | landscape | engineering | survey
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Gold Coast & Logan | 76 Business Street, Yatala QLD | PO Box 392, Beenleigh 4207

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Project:

TRUNK GRAVITY SEWER -
VANTAGE YATALA
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
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RPD:

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SEWER LAYOUT PLAN
SHEET 3 OF 5

Issue	Date	Description	LAB	MG
A	20-11-2021	ORIGINAL ISSUE	LAB	MG

SCALE IN METRES

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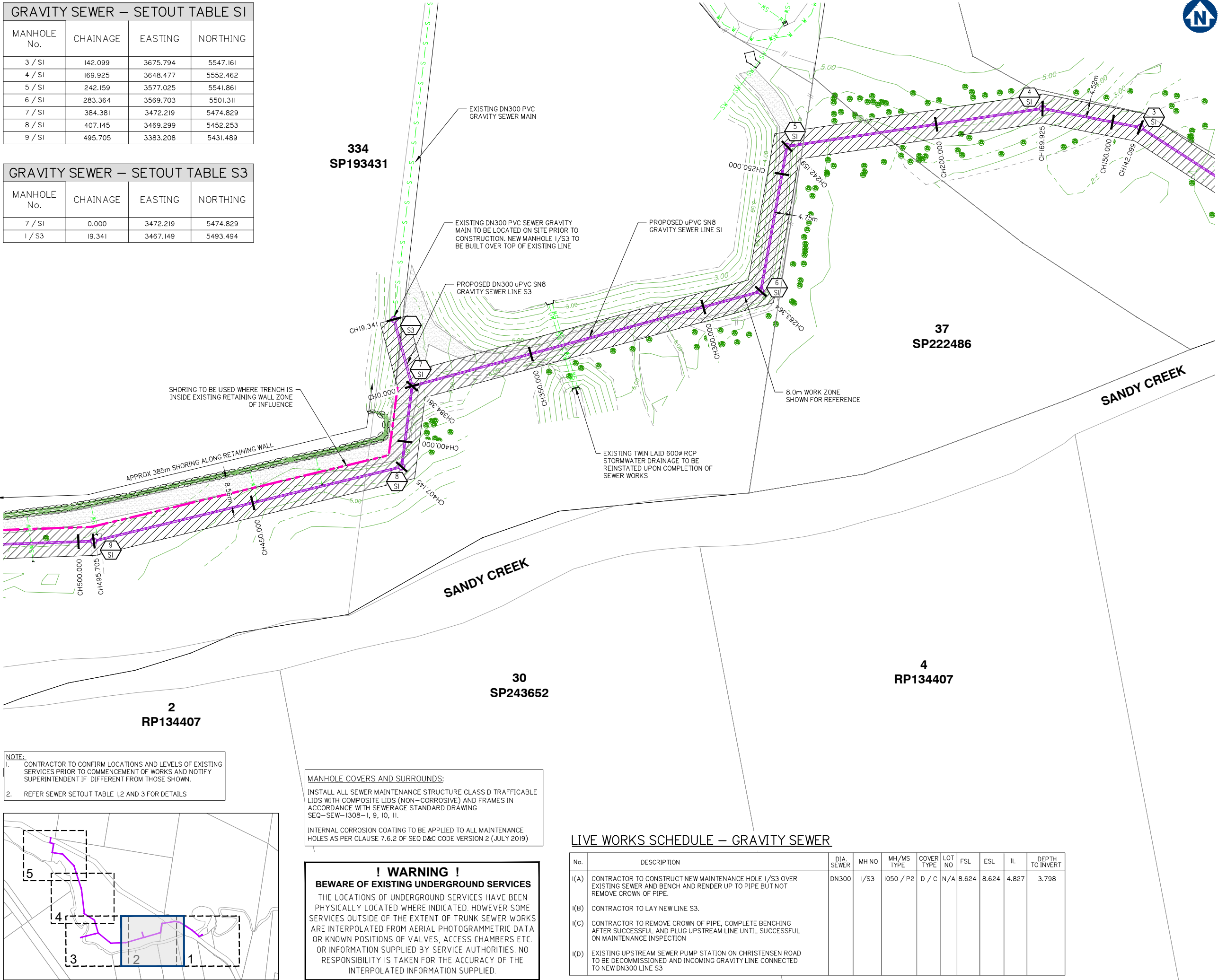
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A

GRAVITY SEWER – SETOUT TABLE S1			
MANHOLE No.	CHAINAGE	EASTING	NORTHING
3 / S1	142.099	3675.794	5547.161
4 / S1	169.925	3648.477	5552.462
5 / S1	242.159	3577.025	5541.861
6 / S1	283.364	3569.703	5501.311
7 / S1	384.381	3472.219	5474.829
8 / S1	407.145	3469.299	5452.253
9 / S1	495.705	3383.208	5431.489

GRAVITY SEWER – SETOUT TABLE S3			
MANHOLE No.	CHAINAGE	EASTING	NORTHING
7 / S1	0.000	3472.219	5474.829
1 / S3	19.341	3467.149	5493.494



- NOTE:
- CONTRACTOR TO CONFIRM LOCATIONS AND LEVELS OF EXISTING SERVICES PRIOR TO COMMENCEMENT OF WORKS AND NOTIFY SUPERINTENDENT IF DIFFERENT FROM THOSE SHOWN.
 - REFER SEWER SETOUT TABLE 1, 2 AND 3 FOR DETAILS

MANHOLE COVERS AND SURROUNDS:

INSTALL ALL SEWER MAINTENANCE STRUCTURE CLASS D TRAFFICABLE LIDS WITH COMPOSITE LIDS (NON-CORROSIVE) AND FRAMES IN ACCORDANCE WITH SEWERAGE STANDARD DRAWING SEQ-SEW-1308-I, 9, 10, 11.

INTERNAL CORROSION COATING TO BE APPLIED TO ALL MAINTENANCE HOLES AS PER CLAUSE 7.6.2 OF SEQ D&C CODE VERSION 2 (JULY 2019)

! WARNING !

BEWARE OF EXISTING UNDERGROUND SERVICES

THE LOCATIONS OF UNDERGROUND SERVICES HAVE BEEN PHYSICALLY LOCATED WHERE INDICATED. HOWEVER SOME SERVICES OUTSIDE OF THE EXTENT OF TRUNK SEWER WORKS ARE INTERPOLATED FROM AERIAL PHOTOGRAMMETRIC DATA OR KNOWN POSITIONS OF VALVES, ACCESS CHAMBERS ETC. OR INFORMATION SUPPLIED BY SERVICE AUTHORITIES. NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF THE INTERPOLATED INFORMATION SUPPLIED.

LIVE WORKS SCHEDULE – GRAVITY SEWER

No.	DESCRIPTION	DIA. SEWER	MH NO	MH/MS TYPE	COVER TYPE	LOT NO	FSL	ESL	IL	DEPTH TO INVERT
I(A)	CONTRACTOR TO CONSTRUCT NEW MAINTENANCE HOLE 1/S3 OVER EXISTING SEWER AND BENCH AND RENDER UP TO PIPE BUT NOT REMOVE CROWN OF PIPE.	DN300	1/S3	1050 / P2	D / C	N/A	8.624	8.624	4.827	3.798
I(B)	CONTRACTOR TO LAY NEW LINE S3.									
I(C)	CONTRACTOR TO REMOVE CROWN OF PIPE, COMPLETE BENCHING AFTER SUCCESSFUL AND PLUG UPSTREAM LINE UNTIL SUCCESSFUL ON MAINTENANCE INSPECTION									
I(D)	EXISTING UPSTREAM SEWER PUMP STATION ON CHRISTENSEN ROAD TO BE DECOMMISSIONED AND INCOMING GRAVITY LINE CONNECTED TO NEW DN300 LINE S3									



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Client:



FPI QUEENSLAND PTY. LTD.

Project:

TRUNK GRAVITY SEWER -
VANTAGE YATALA
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
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RPD:

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

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DRAWING TITLE

SEWER LAYOUT PLAN
SHEET 2 OF 5

Issue	Date	Original Issue Description	Lab	MG
A	20-11-2021	ORIGINAL ISSUE	LAB	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: DV

Drafted: DV

Approved: MG

RPEQ: 16939

Signed:

Date: 08-12-2021

Drawing No:
5941 ENG SNA2 601

Rev. No:
A

GRAVITY SEWER – SETOUT TABLE SI

MANHOLE No.	CHAINAGE	EASTING	NORTHING
17 / SI	1077.577	3103.254	5852.307
18 / SI	1135.478	3070.591	5900.114
19 / SI	1190.836	3020.934	5924.583
20 / SI	1226.568	2985.662	5930.300
21 / SI	1269.857	2992.589	5973.032
22 / SI	1289.952	2973.170	5978.198
23 / SI	1323.980	2978.609	6011.788

- NOTE:
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 - REFER SEWER SETOUT TABLE 1, 2 AND 3 FOR DETAILS

MANHOLE COVERS AND SURROUNDS:

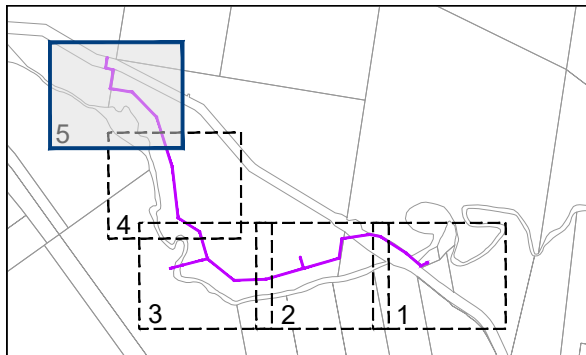
INSTALL ALL SEWER MAINTENANCE STRUCTURE CLASS D TRAFFICABLE LIDS WITH COMPOSITE LIDS (NON-CORROSIVE) AND FRAMES IN ACCORDANCE WITH SEWERAGE STANDARD DRAWING SEQ-SEW-1308-I, 9, 10, 11.

INTERNAL CORROSION COATING TO BE APPLIED TO ALL MAINTENANCE HOLES AS PER CLAUSE 7.6.2 OF SEQ D&C CODE VERSION 2 (JULY 2019)

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KEY PLAN

LIVE WORKS SCHEDULE – GRAVITY SEWER

No.	DESCRIPTION	DIA. SEWER	MH NO	MH/MS TYPE	COVER TYPE	LOT NO	FSL	ESL	IL	DEPTH TO INVERT
I(A)	CONTRACTOR TO BREAK INTO EXISTING MAINTENANCE HOLE 23 / SI AND CONSTRUCT 225mm STUB (TEMPORARILY END CAPPED) PRIOR TO START OF CONSTRUCTION.	DN225	23/SI	I500 / P2	D / C	N/A	13.674	13.674	7.206	6.468
I(B)	CONTRACTOR TO LAY NEW LINE S.I. AFTER CLEANSING TESTING AND INSPECTING NOTIFY GOLD COAST WATER AND WASTE.									
I(C)	CONTRACTOR TO REMOVE TEMPORARY END CAPS ON STUBS AND MAKE LIVE CONNECTIONS AFTER SUCCESSFUL "ON MAINTENANCE" INSPECTION BY GCWW									

SEWER LAYOUT PLAN SHEET 5 OF 5



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Client:



FPI QUEENSLAND PTY. LTD.

Project:

TRUNK GRAVITY SEWER -
VANTAGE YATALA
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207THIS DRAWING IS INTENDED TO
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RPD:

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DRAWING TITLE

SEWER LAYOUT PLAN
SHEET 5 OF 5

Rev.	Date	Description	LAB	MG
A	20-11-2021	ORIGINAL ISSUE	DRN	CHK

SCALE IN METRES



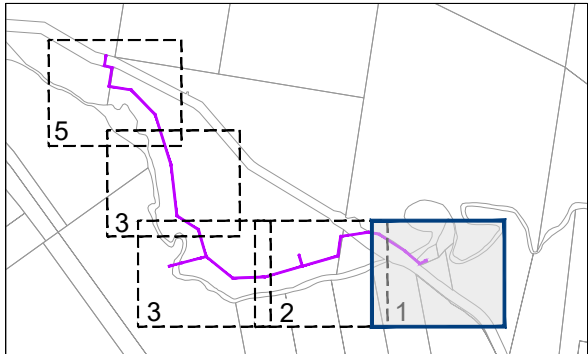
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1:1000 (HALF SIZE A3)

Scale at A1: 1:500

Designed:	DV
Drafted:	DV
Approved:	MG
RPEQ:	16939
Signed:	
Date:	08-12-2021

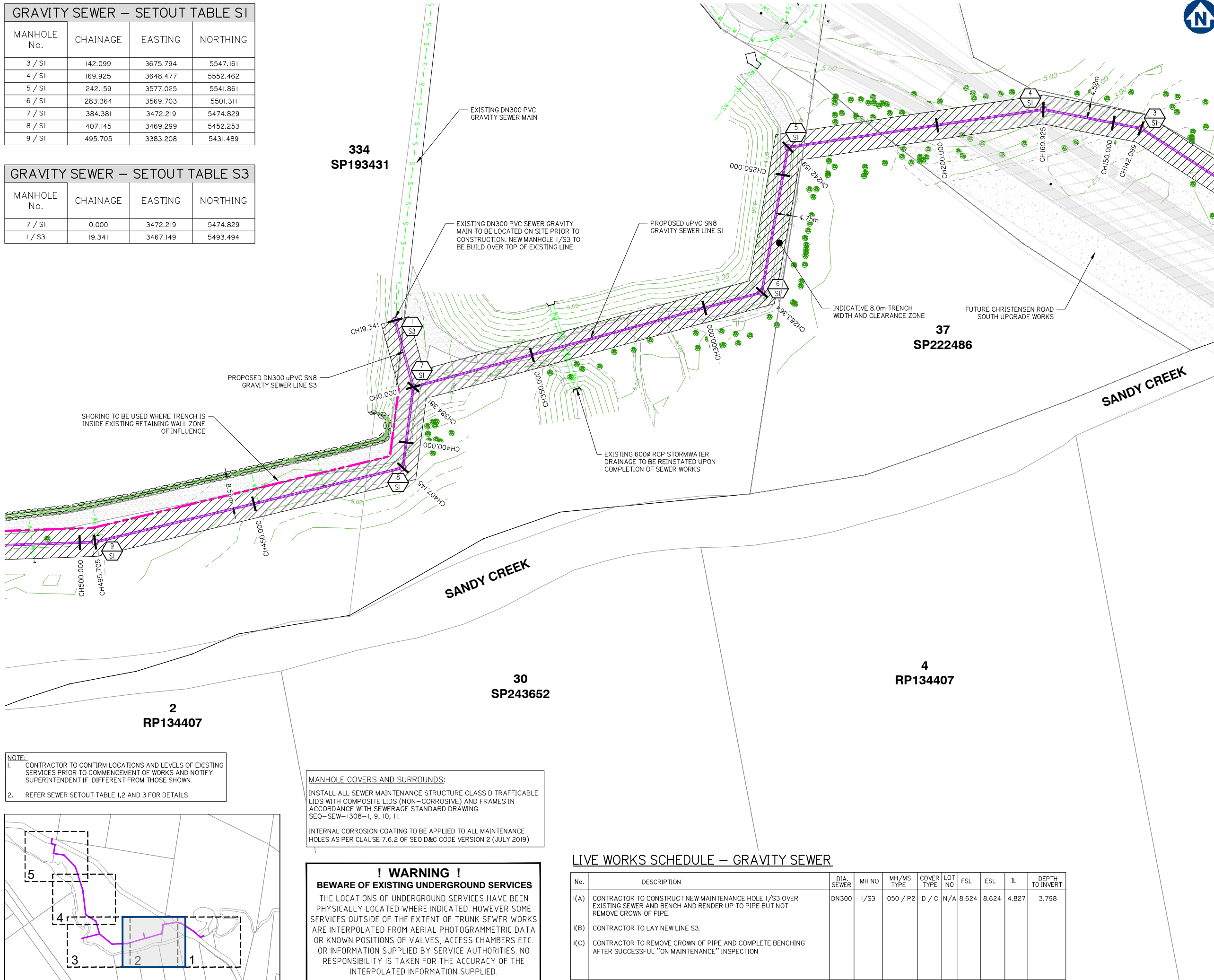
Drawing No: 5941 ENG SNA2 604
Rev. No: A



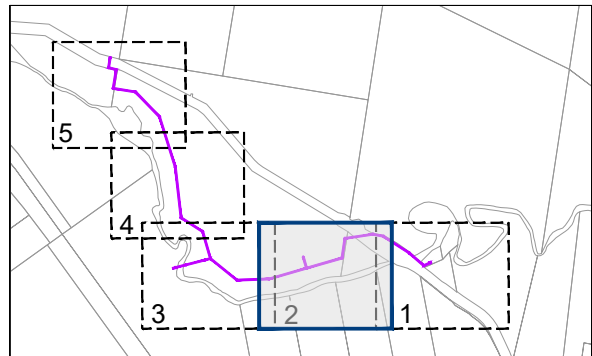
Drawing No:	Rev. No:
5941 ENG SNA2 605	A

GRAVITY SEWER – SETOUT TABLE S1			
MANHOLE No.	CHAINAGE	EASTING	NORTHING
3 / S1	142.099	3675.794	5547.161
4 / S1	169.925	3648.477	5552.462
5 / S1	242.159	3577.025	5541.861
6 / S1	283.364	3569.703	5501.311
7 / S1	384.381	3472.219	5474.829
8 / S1	407.145	3469.299	5452.253
9 / S1	495.705	3383.208	5431.489

GRAVITY SEWER – SETOUT TABLE S3			
MANHOLE No.	CHAINAGE	EASTING	NORTHING
7 / S3	0.000	3472.219	5474.829
1 / S3	19.341	3467.149	5493.494



- NOTE:
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 - REFER SEWER SETOUT TABLE 1, 2 AND 3 FOR DETAILS



MANHOLE COVERS AND SURROUNDS:

INSTALL ALL SEWER MAINTENANCE STRUCTURE CLASS D TRAFFICABLE LIDS WITH COMPOSITE LIDS (NON-CORROSIVE) AND FRAMES IN ACCORDANCE WITH SEWERAGE STANDARD DRAWING SEQ-SEW-1308-1, 9, 10, 11.

INTERNAL CORROSION COATING TO BE APPLIED TO ALL MAINTENANCE HOLES AS PER CLAUSE 7.6.2 OF SEQ D&C CODE VERSION 2 (JULY 2019)

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LIVE WORKS SCHEDULE – GRAVITY SEWER

No.	DESCRIPTION	DIA. SEWER	MH NO	MH/MS TYPE	COVER TYPE	LOT NO	FSL	ESL	IL	DEPTH TO INVERT
I(A)	CONTRACTOR TO CONSTRUCT NEW MAINTENANCE HOLE I/S3 OVER EXISTING SEWER AND BENCH AND RENDER UP TO PIPE BUT NOT REMOVE CROWN OF PIPE.	DN300	I/S3	I050 / P2	D / C	N/A	8.624	8.624	4.827	3.798
I(B)	CONTRACTOR TO LAY NEW LINE S3.									
I(C)	CONTRACTOR TO REMOVE CROWN OF PIPE AND COMPLETE BENCHING AFTER SUCCESSFUL "ON MAINTENANCE" INSPECTION									



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Client:



FPI QUEENSLAND PTY. LTD.

Project: TRUNK GRAVITY SEWER - VANTAGE YATALA STAGE 2

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

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DRAWING TITLE

SEWER LAYOUT WITH CHRISTENSEN R. SOUTH UPGRADE SHEET 2 OF 2

No.	Issue	Date	Description	LAB	MG	CHK
1	A	20-11-2021	ORIGINAL ISSUE			

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: DV

Drafted: DV

Approved: MG

RPEQ: 16939

Signed:

Date: 08-12-2021

Drawing No: 5941 ENG SNA2 606

Rev. No: A

MAINTENANCE HOLE / SHAFT No.	EX11/5	1/1	2/1	3/1	4/1	5/1
MH / MS COVER TYPE		1500 D/C	1500 D/C	1500 D/C	1500 D/C	1500 D/C
MH / MS TYPE		P2	P2	P2	P2	P2
MH / MS DROP TYPE	X	V	V	V	V	V
LINE DEFLECTION & BRANCHES		56°		-22°	-19°	-71°
INTERNAL CORROSION PROECTION		Y	Y	Y	Y	Y
PROPERTY CONNECTION TYPE						

RIGS STRUCTURE DROPS	RIGS STRUCTURE LIDS
B	NON-TRAFFICABLE LID
D	TRAFFICABLE LID
V	COMPOSITE

RIGS STRUCTURE TYPES
(P2)
FULL CAST IN-SITU MAINTENANCE HOLE WITH CAST IN-SITU BASE. INSTALL CLASS D COMPOSITE LIDS. REFER SEQ STD DWG SEQ-SEW-1300-I

RIGS GENERAL NOTES
1 PE PIPES USED FOR MICROTUNNELING TO BE MINIMUM SDR 9, CLASS PN20 PE100 UNLESS SPECIFIED OTHERWISE.
2 ALL PIPES TO BE INSTALLED WITH TRACER WIRE.
3 PN20 PE100 PIPES TO BE INTERNAL WHITE WALLED WITH WALL THICKNESS DESIGNED FOR INSTALLATION FORCES.
4 BUTT WELDED JOINTS ARE MANDATORY FOR MICROTUNNELING WHERE CONTINUOUS PIPES ON COIL ARE NOT AVAILABLE.
5 EMBEDMENT TYPES AS INDICATED ON LONGITUDINAL SECTIONS AND SEQ-SEW-1201-I
6 CONTRACTOR TO VERIFY DOWNSTREAM EXISTING PIPE LEVELS PRIOR TO COMMENCEMENT OF PIPEWORK.
7 POLYETHYLENE (PE) LINING TO BE INSTALLED TO ALL MAINTENANCE STRUCTURES. REFER LONGITUDINAL SECTIONS. REFER ALSO SEQ-SPS-1407-I-A & 2-B
8 DESIGN OF DEEP SEWERS GREATER THAN 5 METRES TO BE CARRIED OUT BY A SUITABLY QUALIFIED STRUCTURAL ENGINEER IN ACCORDANCE WITH SEQ SEWER CODE CLAUSE 4.6.2.2 AND PE LINING REQUIREMENTS.
9 ALL MAINTENANCE HOLES WHERE TRAFFICABLE LIDS ARE SPECIFIED TO BE COMPOSITE LIDS AND FRAMES
10 (NON-CORROSIVE). FOR ALL MANHOLES WHERE INTERNAL PROTECTION COATINGS ARE REQUIRED AS PER CLAUSE 7.6.2(I) TO (VII) OF THE SEWERAGE CLAUSE. REFER SEQ CIVIL IPAM LIST.

MANHOLE COVERS AND SURROUNDS:
INSTALL ALL SEWER MAINTENANCE STRUCTURE CLASS D TRAFFICABLE LIDS WITH COMPOSITE LIDS (NON-CORROSIVE) AND FRAMES IN ACCORDANCE WITH SEWERAGE STANDARD DRAWING SEQ-SEW-1308-I, 9, 10, 11.
INTERNAL CORROSION COATING TO BE APPLIED TO ALL MAINTENANCE HOLES AS PER CLAUSE 7.6.2 OF SEQ D&C CODE VERSION 2 (JULY 2019)

ENVELOPER PIPE SIZE (mm), CLASS

DATUM RL

PROPERTY DESCRIPTION	500mm		500mm		500mm		500mm	
PIPE SIZE (mm), CLASS	DN300 EXISTING	DN300 uPVC SN8	DN300 EXISTING	DN300 uPVC SN8	DN300 uPVC SN8	DN300 uPVC SN8	DN300 uPVC SN8	DN300 uPVC SN8
GRADE (1 IN X) CTR - CTR	1 IN -400	1 IN -100	1 IN -400	1 IN -400	1 IN -400	1 IN -400	1 IN -400	1 IN -400
LENGTH	10.873	52.592	78.633	27.826	72.234			
EMBEDMENT TYPE	4	TUNNEL BORING OR SIMILAR	4	4	4			
PIPE GRADE (%)	-0.250%	-1.000%	-0.250%	-0.250%	-0.250%			
DEPTH TO INVERT	5.658	5.769	2.946	2.540	4.434			5.119
INVERT LEVEL	-2.720	-0.980	-0.414	-0.197	-0.098			0.113
FINISHED SURFACE LEVEL	4.651	4.789	2.532	2.342	4.337			5.232
EXISTING SURFACE LEVEL	4.651	4.789	2.532	2.342	4.337			5.232
CHAINAGE	0.000	10.873	63.466	142.099	169.925			242.159

LINE 1

SEWER LONGITUDINAL SECTIONS SHEET 1 OF 8



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Client:



FPI QUEENSLAND PTY. LTD.

Project: TRUNK GRAVITY SEWER - VANTAGE YATALA STAGE 2

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

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

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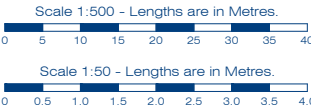
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DRAWING TITLE

SEWER LONGITUDINAL
SECTIONS SHEET 1 OF 8

A	20-11-2021	ORIGINAL ISSUE	LAB	MG
Issue	Date	Description	DRN	CHK



Scale at A1: 1:500 (H) 1:50 (V)

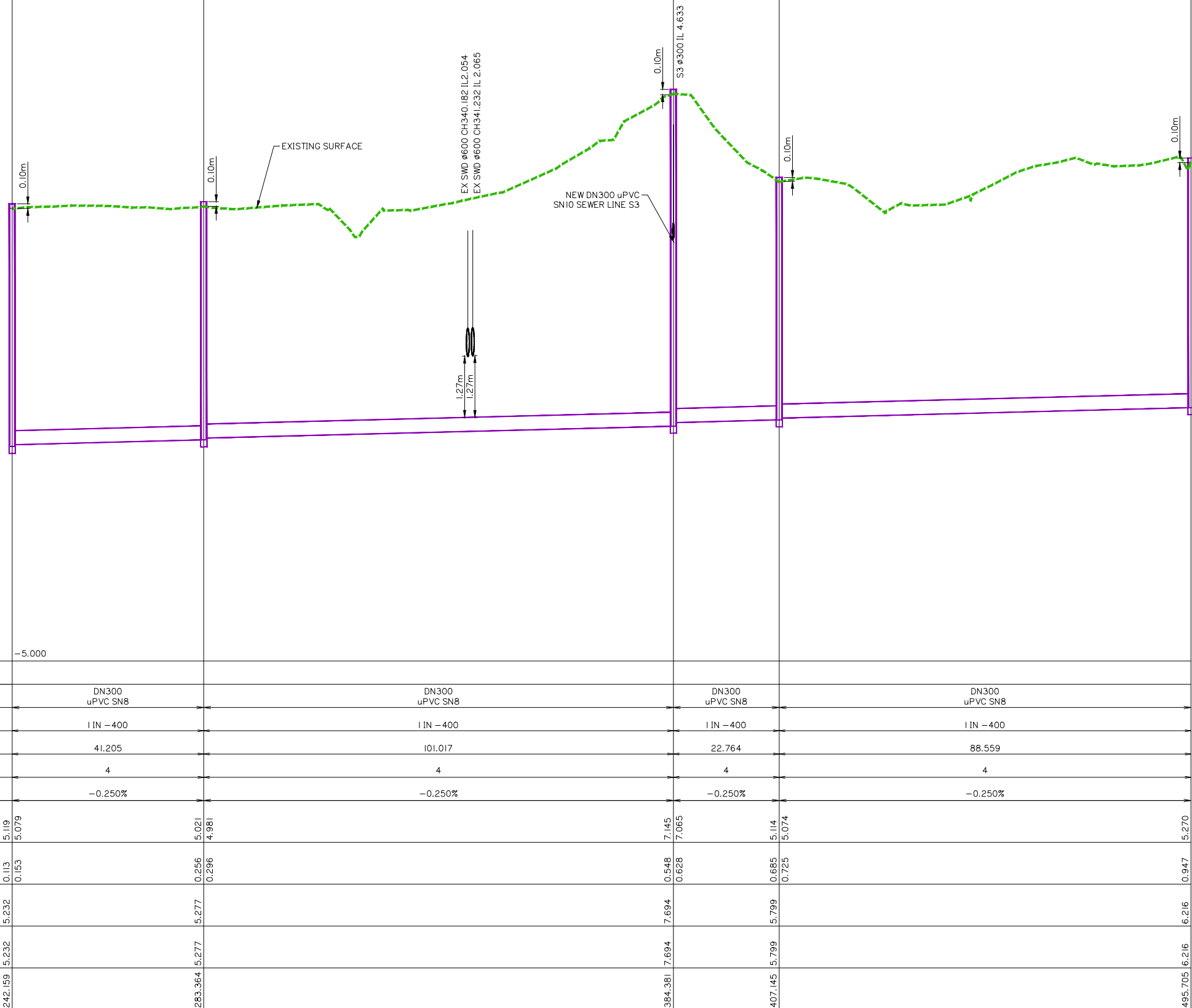
Designed:	DV
Drafted:	DV
Approved:	MG
RPEQ:	16939
Signed:	
Date:	08-12-2021

Drawing No: 5941 ENG SNA2 610 Rev. No: A

RIGS STRUCTURE DROPS		RIGS STRUCTURE LIDS	
V	STRAIGHT THROUGH SEWER	B	NON-TRAFFICABLE LID
	SEQ DWG SEQ-SEW-1303-I	D	TRAFFICABLE LID
		C	COMPOSITE
RIGS STRUCTURE TYPES			
(P2)	FULL CAST IN-SITU MAINTENANCE HOLE WITH CAST IN-SITU BASE. INSTALL CLASS D COMPOSITE LIDS. REFER SEQ STD DWG SEQ-SEW-1303-I		

RIGS GENERAL NOTES	
	PE PIPES USED FOR MICROTUNNELING TO BE MINIMUM SDR 9, CLASS PN20 PE100 UNLESS SPECIFIED OTHERWISE.
	ALL PIPES TO BE INSTALLED WITH TRACER WIRE.
3	PN20 PE100 PIPES TO BE INTERNAL WELD WALLED WITH WALL THICKNESS DESIGNED FOR INSTALLATION FORCES.
	BUT WELDED JOINTS ARE MANDATORY FOR MICROTUNNELING WHERE CONTINUOUS PIPES ON COIL ARE NOT AVAILABLE.
5	EMBEDMENT TYPES AS INDICATED ON LONGITUDINAL SECTIONS AND SEQ—SEW—1201—1
6	CONTRACTOR TO VERIFY DOWNSTREAM EXISTING PIPE LAYOUT PRIOR TO COMMENCEMENT OF PIPEWORK.
	POLYETHYLENE (PE) LINING TO BE INSTALLED TO ALL MAINTENANCE STRUCTURES. REFER LONGITUDINAL SECTIONS. REFER ALSO SEQ—SPS—1407—I & A 2-B.
7	DESIGN OF DEEP SEWERS GREATER THAN 5 METRES TO BE CARRIED OUT BY A SUITABLY QUALIFIED STRUCTURAL ENGINEER IN ACCORDANCE WITH SEQ SEWER CODE CLAUSE 4.6.2.2 AND PE LINING REQUIREMENTS.
	ALL MAINTENANCE HOLES WHERE PORTABLE LIDS ARE SPECIFIED TO BE COMPOSED OF LIDS AND FRAMES
9	(NON—CORROSIVE), FOR ALL MANHOLES WHERE INTERNAL PROTECTION COATINGS ARE REQUIRED AS PER CLAUSE 7.6.2(i) TO (vii) OF THE SEWERAGE CLAUSE. REFER SEQ CIVIL IPAM LIST.

MANHOLE COVERS AND SURROUNDS:
INSTALL ALL SEWER MAINTENANCE STRUCTURE CLASS D TRAFFICABLE LIDS WITH COMPOSITE LIDS (NON-CORROSIVE) AND FRAMES IN ACCORDANCE WITH SEWERAGE STANDARD DRAWING SEQ-SEW-1308-1, 9, 10, 11. INTERNAL CORROSION COATING TO BE APPLIED TO ALL MAINTENANCE HOLES AS PER CLAUSE 7.6.2 OF SEQ D&C CODE VERSION 2 (JULY 2019)



LINE 1



Client:



FPI QUEENSLAND PTY. LTD.

Project: TRUNK GRAVITY SEWER -
VANTAGE YATALA
STAGE 2

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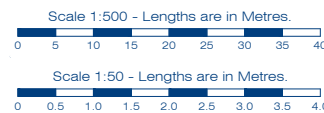
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DRAWING TITLE

SEWER LONGITUDINAL
SECTIONS SHEET 1 OF 8

A	20-11-2021	ORIGINAL ISSUE						LAB	MG
Issue	Date	Description						DRN	CHN



Scale at A1: 1:500 (H) 1:50 (V)

Designed:	DV
Drafted:	DV
Approved:	MG
RPEQ:	16939
Signed:	
Date:	08-12-2021

Drawing No:	Rev. No:
5941 ENG SNA2 611	A

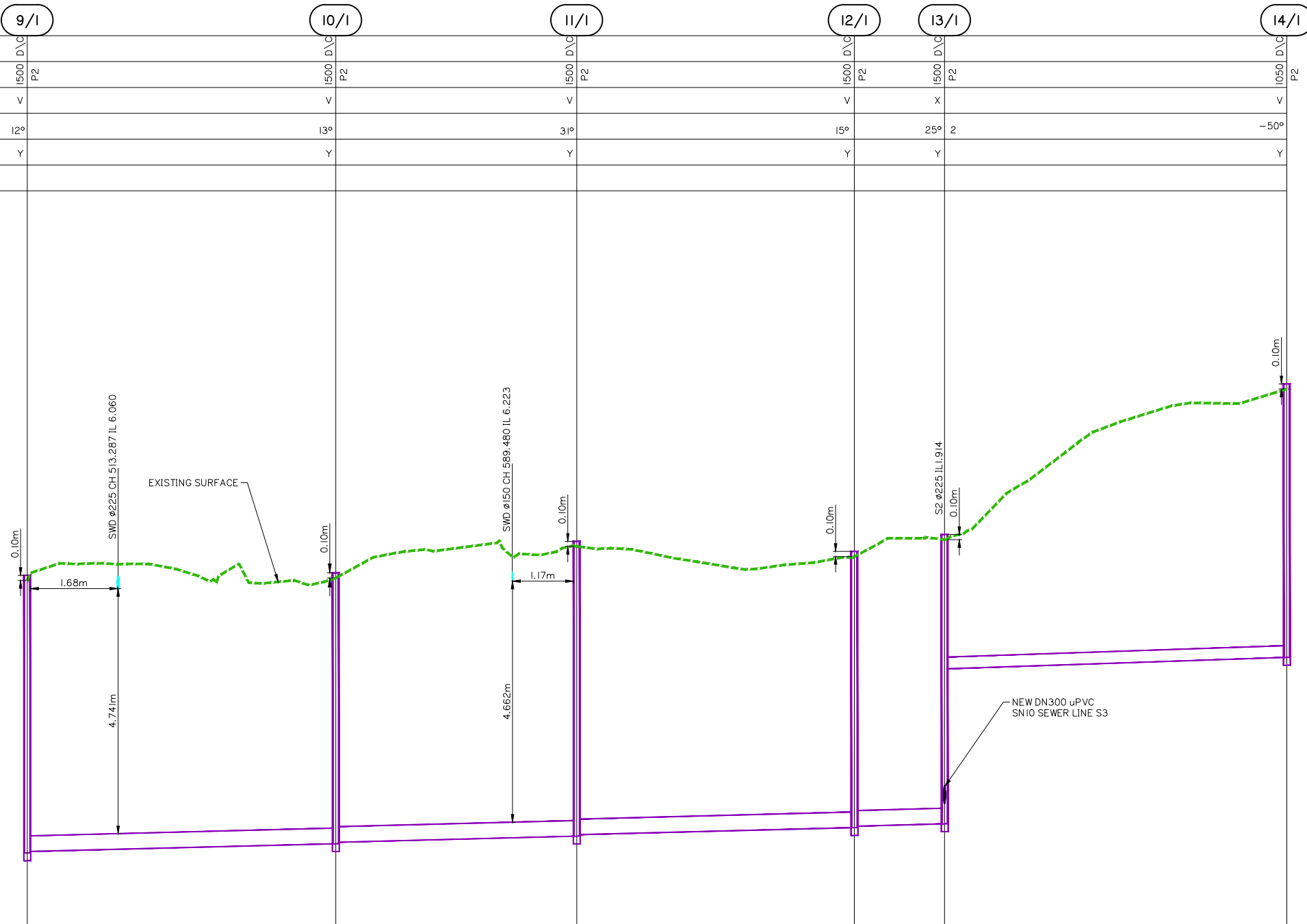
RIGS STRUCTURE DROPS		RIGS STRUCTURE LIDS	
V	STRAIGHT THROUGH SEWER	B	NON-TRAFFICABLE LID
	SEQ DWG SEQ-SEW-1303-I	D	TRAFFICABLE LID
		C	COMPOSITE
RIGS STRUCTURE TYPES			
(P2)	FULL CAST IN-SITU MAINTENANCE HOLE WITH CAST IN-SITU BASE. INSTALL CLASS D COMPOSITE LIDS. REFER SEQ STD DWG SEQ-SEW-1303-I		

RIGS GENERAL NOTES	
	PE PIPES USED FOR MICROTUNNELING TO BE MINIMUM SDR 9, CLASS PN20 PE100 UNLESS SPECIFIED OTHERWISE.
	ALL PIPES TO BE INSTALLED WITH TRACER WIRE.
3	PN20 PE100 PIPES TO BE INTERNAL WELD WALLED WITH WALL THICKNESS DESIGNED FOR INSTALLATION FORCES.
	BUT WELDED JOINTS ARE MANDATORY FOR MICROTUNNELING WHERE CONTINUOUS PIPES ON COIL ARE NOT AVAILABLE.
5	EMBEDMENT TYPES AS INDICATED ON LONGITUDINAL SECTIONS AND SEQ—SEW—1201—I
6	CONTRACTOR TO VERIFY DOWNSTREAM EXISTING PIPE LAYOUT PRIOR TO COMMENCEMENT OF PIPEWORK.
	POLYETHYLENE (PE) LINING TO BE INSTALLED TO ALL MAINTENANCE STRUCTURES. REFER LONGITUDINAL SECTIONS. REFER ALSO SEQ—SPS—1407—I & A 2—B.
7	DESIGN OF DEEP SEWERS GREATER THAN 5 METRES TO BE CARRIED OUT BY A SUITABLY QUALIFIED STRUCTURAL ENGINEER IN ACCORDANCE WITH SEQ SEWER CODE CLAUSE 4.6.2.2 AND PE LINING REQUIREMENTS.
	ALL MAINTENANCE HOLES WHERE PORTABLE LIDS ARE SPECIFIED TO BE COMPOSED OF LIDS AND FRAMES.
9	(NON—CORROSIVE), FOR ALL MANHOLES WHERE INTERNAL PROTECTION COATINGS ARE REQUIRED AS PER CLAUSE 7.6.2(i) TO (vii) OF THE SEWERAGE CLAUSE. REFER SEQ CIVIL IPAM LIST.

MANHOLE COVERS AND SURROUNDS:

INSTALL ALL SEWER MAINTENANCE STRUCTURE CLASS D
TRAFFICABLE LIDS WITH COMPOSITE LIDS
(NON-CORROSIVE) AND FRAMES IN ACCORDANCE WITH
SEWERAGE STANDARD DRAWING SEQ-SEW-1308-1, 9, 10, 11.

INTERNAL CORROSION COATING TO BE APPLIED TO ALL
MAINTENANCE HOLES AS PER CLAUSE 7.6.2 OF SEQ D&C
CODE VERSION 2 (JULY 2019)



ENVELOPER PIPE SIZE (mm), CLASS

DATUM RL	-3.000								
PROPERTY DESCRIPTION									
PIPE SIZE (mm), CLASS	DN300 uPVC SN8		DN300 uPVC SN8		DN300 uPVC SN8		DN300 uPVC SN8		DN225 uPVC SN8
GRADE (1 IN X) CTR - CTR	1 IN -400		1 IN -400		1 IN -400		1 IN -400		1 IN -303
LENGTH	59.650		46.589		53.666		17.454		66.149
EMBEDMENT TYPE	4		4		4		4		4
PIPE GRADE (%)	-0.250%		-0.250%		-0.250%		-0.250%		-0.330%
DEPTH TO INVERT	5.270 5.240		5.138 5.108		5.602 5.572		5.242 5.212	5.496 5.466	5.189
INVERT LEVEL	0.947 0.977		1.126 1.156		1.272 1.302		1.436 1.466	1.510 1.540	4.728
FINISHED SURFACE LEVEL	6.216		6.264		6.874		6.678	7.006	9.917
EXISTING SURFACE LEVEL	6.216		6.264		6.874		6.678	7.006	9.917
CHAINAGE	495.705		555.354		601.943		655.609	673.063	739.212

LINE 1

SEWER LONGITUDINAL SECTIONS SHEET 3 OF 8



Client:



FPI QUEENSLAND PTY. LTD.

Project: TRUNK GRAVITY SEWER -
VANTAGE YATALA
STAGE 2

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

THIS DRAWING IS INTENDED TO
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RPD:

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

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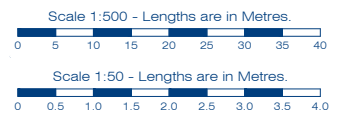
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SEWER LONGITUDINAL
SECTIONS SHEET 3 OF 8

A	20-11-2021	ORIGINAL ISSUE	LAB	MG
Issue	Date	Description	DRN	CHK



Scale at A1: 1:500 (H) 1:50 (V)

Designed:	DV
Drafted:	DV
Approved:	MG
RPEQ:	16939
Signed:	
Date:	08-12-2021

Drawing No:	Rev. No:
5941 ENG SNA2 612	A

g:\Projects\5941\engineering\Acad\civil works stage 2\SNA\Current\5941 ENG SNA2 610.dwg

Client:



FPI QUEENSLAND PTY. LTD.

Project: TRUNK GRAVITY SEWER -
VANTAGE YATALA
STAGE 2

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

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RPD:

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

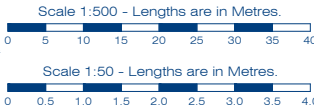
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SEWER LONGITUDINAL
SECTIONS SHEET 4 OF 8[illegible]

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RPEQ:	16939
Signed:	
Date:	08-12-2021

Drawing No:	Rev. No:
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Client:



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Project: TRUNK GRAVITY SEWER -
VANTAGE YATALA
STAGE 2

Site Address:
60 STAPYLTON JACOBS WELL
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Level Datum: AHD
Meridian: -
Contour Interval: -
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RL: -

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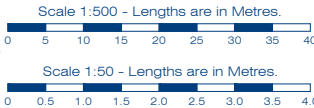
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SEWER LONGITUDINAL
SECTIONS SHEET 5 OF 8

A Issue	20-11-2021 Date	ORIGINAL ISSUE Description	LAB DRN	MCH



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Drafted:	DV
Approved:	MG
RPEQ:	16939
Signed:	
Date:	08-12-2021

Drawing No:	Rev. No:
5941 ENG SNA2 614	A

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Client:



FPI QUEENSLAND PTY. LTD

Project: TRUNK GRAVITY SEWER -
VANTAGE YATALA
STAGE 2

Site Address:
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ROAD, STAPYLTON QLD 4207

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RPD:

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

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

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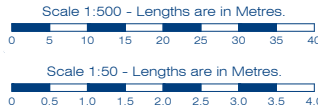
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SEWER LONGITUDINAL
SECTIONS SHEET 6 OF 8

A Issue	20-11-2021	ORIGINAL ISSUE	LAB	MO	
	Date	Description	DRN	CH	



Scale at A1: 1:500 (H) 1:50 (V)

Designed:	DV
Drafted:	DV
Approved:	MG
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Date:	08-12-2021

Drawing No:	Rev. No:
5941 ENG SNA2 615	A

RIGS STRUCTURE DROPS		RIGS STRUCTURE LIDS	
V	STRAIGHT THROUGH SEWER	B	NON-TRAFFICABLE LID
	SEQ DWG SEQ-SEW-1303-I	D	TRAFFICABLE LID
		C	COMPOSITE
RIGS STRUCTURE TYPES			
(P2)	FULL CAST IN-SITU MAINTENANCE HOLE WITH CAST IN-SITU BASE. INSTALL CLASS D COMPOSITE LIDS. REFER SEQ STD DWG SEQ-SEW-1300-I		

RIGS GENERAL NOTES	
	PE PIPES USED FOR MICROTUNNELING TO BE MINIMUM SDR 9, CLASS PN20 PE100 UNLESS SPECIFIED OTHERWISE.
	ALL PIPES TO BE INSTALLED WITH TRACER WIRE.
3	PN20 PE100 PIPES TO BE INTERNAL WELD WALLED WITH WALL THICKNESS DESIGNED FOR INSTALLATION FORCES.
	BUT WELDED JOINTS ARE MANDATORY FOR MICROTUNNELING WHERE CONTINUOUS PIPES ON COIL ARE NOT AVAILABLE.
5	EMBEDMENT TYPES AS INDICATED ON LONGITUDINAL SECTIONS AND SEQ—SEW—1201—1
6	CONTRACTOR TO VERIFY DOWNSTREAM EXISTING PIPE LAYOUT PRIOR TO COMMENCEMENT OF PIPEWORK.
	POLYETHYLENE (PE) LINING TO BE INSTALLED TO ALL MAINTENANCE STRUCTURES. REFER LONGITUDINAL SECTIONS. REFER ALSO SEQ—SPS—1407—I & A 2-B.
7	DESIGN OF DEEP SEWERS GREATER THAN 5 METRES TO BE CARRIED OUT BY A SUITABLY QUALIFIED STRUCTURAL ENGINEER IN ACCORDANCE WITH SEQ SEWER CODE CLAUSE 4.6.2.2 AND PE LINING REQUIREMENTS.
	ALL MAINTENANCE HOLES WHERE PORTABLE LIDS ARE SPECIFIED TO BE COMPOSED OF LIDS AND FRAMES.
9	(NON—CORROSIVE), FOR ALL MANHOLES WHERE INTERNAL PROTECTION COATINGS ARE REQUIRED AS PER CLAUSE 7.6.2(i) TO (vii) OF THE SEWERAGE CLAUSE. REFER SEQ CIVIL IPAM LIST.

MANHOLE COVERS AND SURROUNDS:

INSTALL ALL SEWER MAINTENANCE STRUCTURE CLASS D
TRAFFICABLE LIDS WITH COMPOSITE LIDS
(NON-CORROSIVE) AND FRAMES IN ACCORDANCE WITH
SEWERAGE STANDARD DRAWING SEQ-SEW-1308-1, 9, 10, 11.

INTERNAL CORROSION COATING TO BE APPLIED TO ALL
MAINTENANCE HOLES AS PER CLAUSE 7.6.2 OF SEQ D&C
CODE VERSION 2 (JULY 2019)

ENVELOPER PIPE SIZE (mm), CLASS

[illegible]

LINE 2

SEWER LONGITUDINAL SECTIONS SHEET 7 OF 8



Client:



FPI QUEENSLAND PTY. LTD.

Project: TRUNK GRAVITY SEWER -
VANTAGE YATALA
STAGE 2

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

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Plan: SP295994
Local Authority: CITY OF GOLD COAST
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Level Datum: AHD
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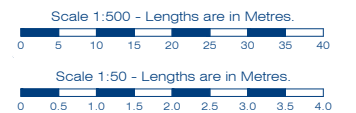
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DRAWING TITLE

SEWER LONGITUDINAL
SECTIONS SHEET 7 OF 8

A	20-11-2021	ORIGINAL ISSUE	LAB	MG
Issue	Date	Description	DRN	CHK



Scale at A1:	1:500 (H)	1:50 (V)
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Designed:	DV
Drafted:	DV
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Signed:	
Date:	08-12-2021

Drawing No:	Rev. No:
5941 ENG SNA2 616	A

RIGS STRUCTURE DROPS		RIGS STRUCTURE LIDS	
v	STRAIGHT THROUGH SEWER	B	NON-TRAFFICABLE LID
	SEQ DWG SEQ-SEW-1303-I	D	TRAFFICABLE LID
		C	COMPOSITE
RIGS STRUCTURE TYPES			
(P2)	FULL CAST IN-SITU MAINTENANCE HOLE WITH CAST IN-SITU BASE. INSTALL CLASS D COMPOSITE LIDS. REFER SEQ STD DWG SEQ-SEW-1303-I		

RIGS GENERAL NOTES	
1	PE PIPES USED FOR MICROTUNNELING TO BE MINIMUM SDR 9, CLASS PN20 PE100 UNLESS SPECIFIED OTHERWISE.
2	ALL PIPES TO BE INSTALLED WITH TRACER WIRE.
3	PN20 PE100 PIPES TO BE INTERNAL, WHITE WALLED WITH WALL THICKNESS DESIGNED FOR INSTALLATION FORCES.
4	BUTT WELDED JOINTS ARE MANDATORY FOR MICROTUNNELING WHERE CONTINUOUS PIPES ON COIL ARE NOT AVAILABLE.
5	EMBEDMENT TYPES AS INDICATED ON LONGITUDINAL SECTIONS AND SEQ-SEW-120(I)-1
6	CONTRACTOR TO VERIFY SEWAGE EXISTING PIPE LEVELS PRIOR TO COMMENCEMENT OF PIPEWORK.
7	POLYETHYLENE (PE) LINING TO BE INSTALLED TO ALL MAINTENANCE STRUCTURES. REFER LONGITUDINAL SECTIONS. REFER ALSO SEQ-SPS-1407-I & A 2-B
8	DESIGN OF DEEP SEWERS GREATER THAN 5 METRES TO BE CARRIED OUT BY A SUITABLY QUALIFIED STRUCTURAL ENGINEER IN ACCORDANCE WITH SEQ SEWER CODE CLAUSE 6.4.2.2 AND PE LINING REQUIREMENTS.
9	ALL MAINTENANCE HOLES WHERE TRAFFICABLE LIDS ARE REQUIRED TO BE COMPOSITE LIDS AND FRAMES (NON-CORROSIVE), FOR ALL MANHOLES WHERE INTERNAL PROTECTION COATINGS ARE REQUIRED AS PER CLAUSE 7.6.2(i) TO (vi) OF THE SEWERAGE CLAUSE REFER SEQ CIVIL P&M.

MANHOLE COVERS AND SURROUNDS:

INSTALL ALL SEWER MAINTENANCE STRUCTURE CLASS D
TRAFFICABLE LIDS WITH COMPOSITE LIDS
(NON-CORROSIVE) AND FRAMES IN ACCORDANCE WITH
SEWERAGE STANDARD DRAWING SEQ-SEW-1308-I, 9, 10, 11.

INTERNAL CORROSION COATING TO BE APPLIED TO ALL
MAINTENANCE HOLES AS PER CLAUSE 7.6.2 OF SEQ D&C
CODE VERSION 2 (JULY 2019)

ENVELOPER PIPE SIZE (mm), CLASS

DATUM RL		-3.000	
PROPERTY DESCRIPTION			
PIPE SIZE (mm), CLASS		DN300 uPVC SN8	
GRADE (1 IN X) CTR - CTR		1 IN - 100	
LENGTH		19.341	
EMBEDMENT TYPE		4	
PIPE GRADE (%)		-1.000%	
DEPTH TO INVERT	3.061		3.798 3.694
INVERT LEVEL	4.633		4.827 4.930
FINISHED SURFACE LEVEL	7.694		8.624
EXISTING SURFACE LEVEL	7.694		8.624
CHAINAGE	0.000		19.341

LINE 3

NEW MANHOLE 1/S3 TO BE BUILD OVER
TOP OF EXISTING LINE

EXISTING DN300 PVC SEWER GRAVITY
MAIN TO BE LOCATED ON SITE PRIOR TO
CONSTRUCTION.

NEW DN300 uPVC
SN10 SEWER LINE S

SEWER LONGITUDINAL SECTIONS SHEET 8 OF 8



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Client:



FPI QUEENSLAND PTY. LTD

Project: TRUNK GRAVITY SEWER -
VANTAGE YATALA
STAGE 2

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

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RPD:

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

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

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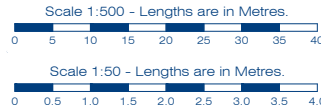
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SEWER LONGITUDINAL
SECTIONS SHEET 8 OF 8

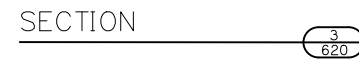
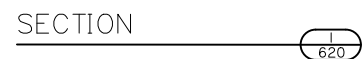
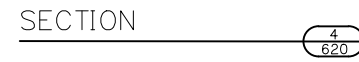
A Issue	20-11-2021 Date	ORIGINAL ISSUE Description	LAB DRN	MCH



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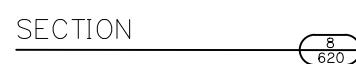
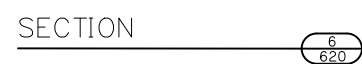
Designed:	DV
Drafted:	DV
Approved:	MG
RPEQ:	16939
Signed:	
Date:	08-12-2021

Drawing No:	Rev. No:
5941 ENG SNA2 617	A



EXISTING RETAINING WALL SECTIONS SHEET 1 OF 2

Drawing No:	Rev. No:
5941 ENG SNA2 621	A



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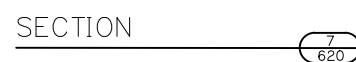
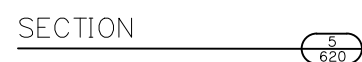
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EXISTING RETAINING WALL
SECTIONS SHEET 2 OF 2



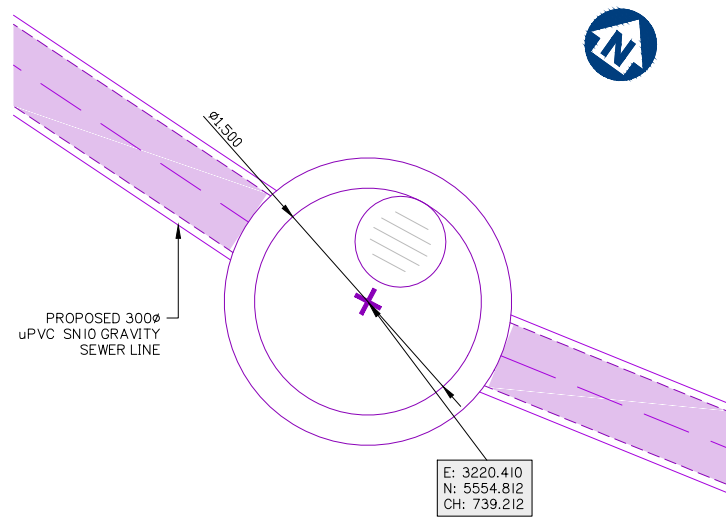
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Issue	Date	Description	DRN	CHK	

Drawing No:	Rev. No:
5941 ENG SNA2 622	A

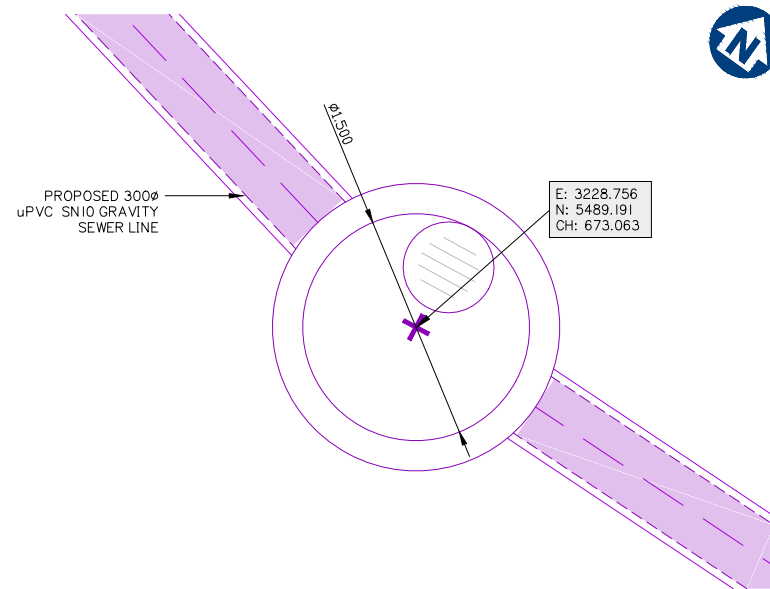


A hexagonal logo with a horizontal line. The top half contains the text 'EX11' and the bottom half contains the number '5'.

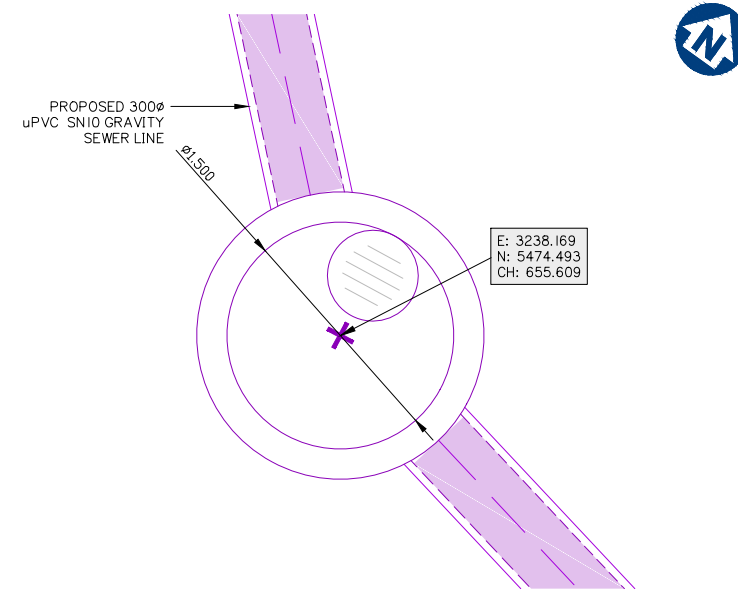
A hexagon divided horizontally. The top half contains the number '6' and the bottom half contains the text 'S1'.



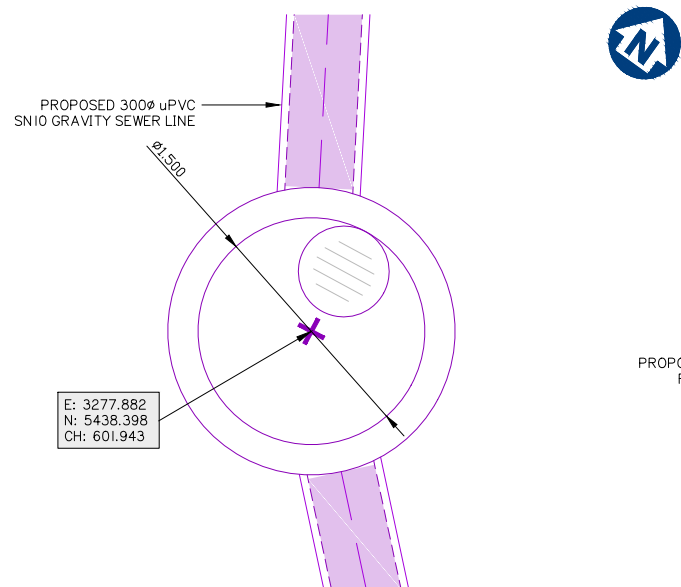
9
S1 1500mm Ø TYPE P2 MAINTENANCE HOLE (CAST IN-SITU)



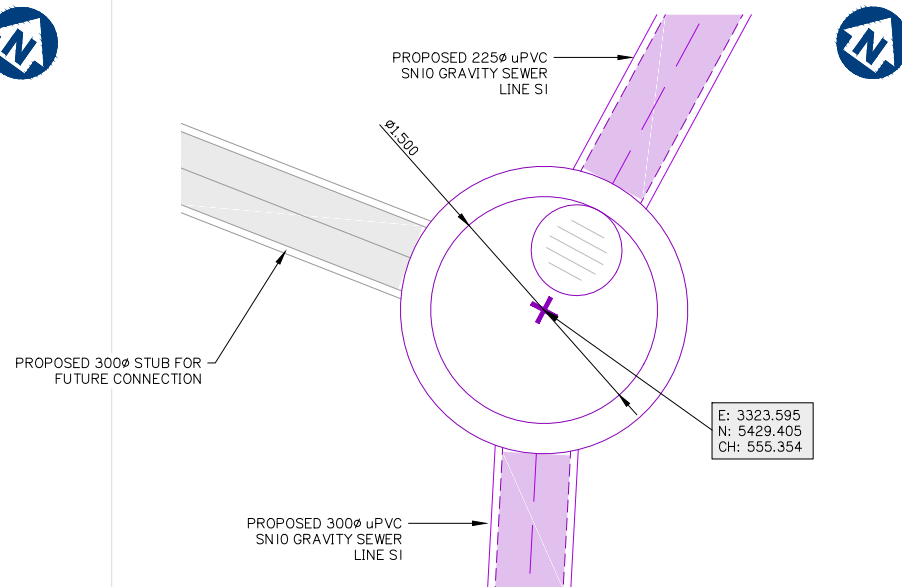
10
S1 1500mm Ø TYPE P2 MAINTENANCE HOLE (CAST IN-SITU)



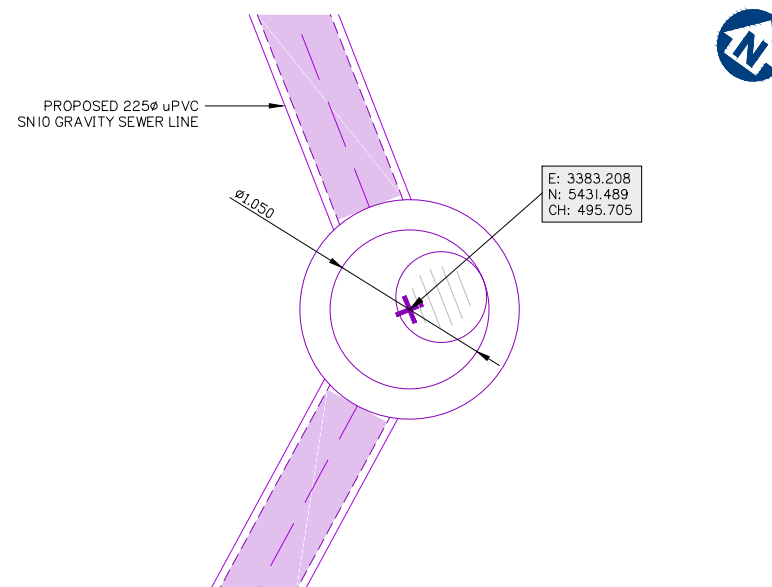
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S1 1500mm Ø TYPE P2 MAINTENANCE HOLE (CAST IN-SITU)



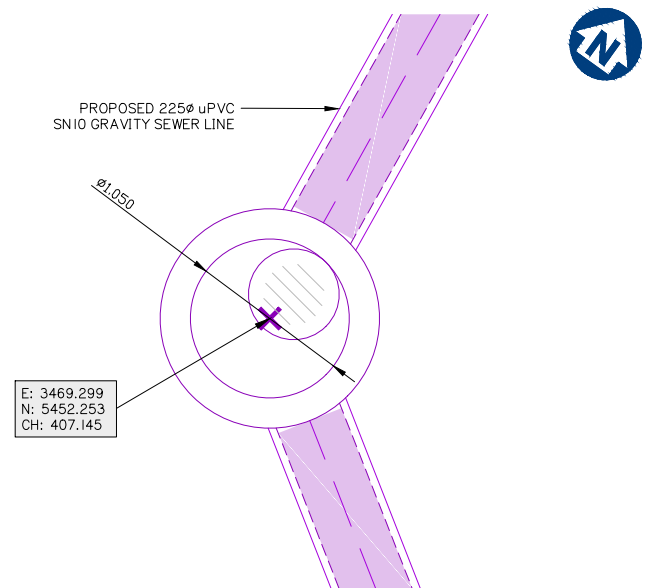
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S1 1500mm Ø TYPE P2 MAINTENANCE HOLE (CAST IN-SITU)



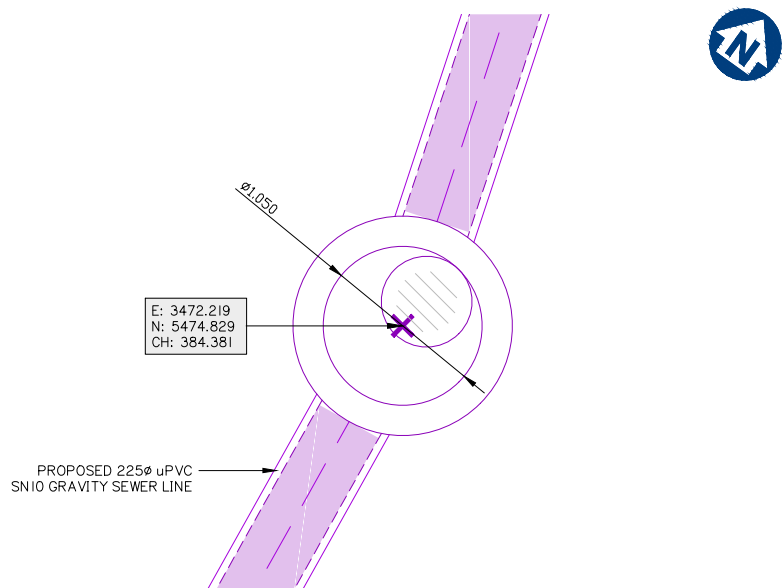
13
S1 1500mm Ø TYPE P2 MAINTENANCE HOLE (CAST IN-SITU)



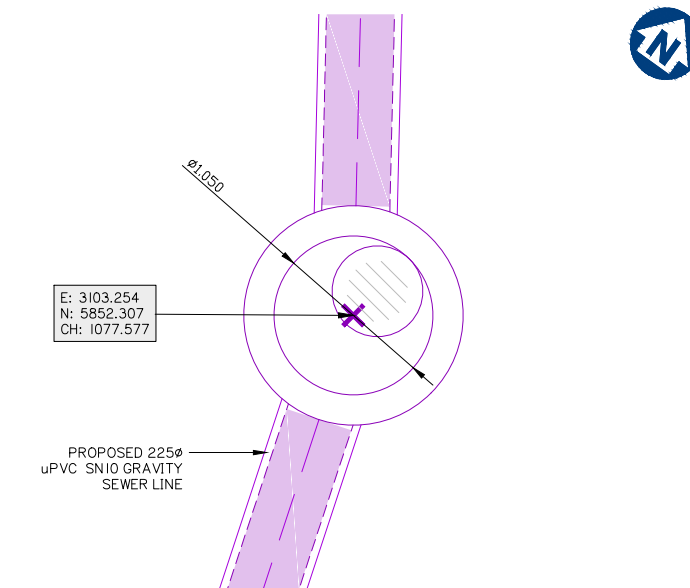
14
S1 1050mm Ø TYPE P2 MAINTENANCE HOLE (CAST IN-SITU)



15
S1 1050mm Ø TYPE P2 MAINTENANCE HOLE (CAST IN-SITU)



16
S1 1050mm Ø TYPE P2 MAINTENANCE HOLE (CAST IN-SITU)



17
S1 1050mm Ø TYPE P2 MAINTENANCE HOLE (CAST IN-SITU)

Client:



FPI QUEENSLAND PTY. LTD.

Project:

TRUNK GRAVITY SEWER -
VANTAGE YATALA
STAGE 2

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

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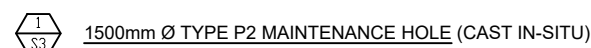
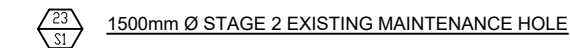
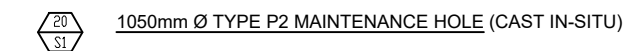
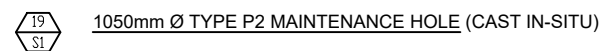
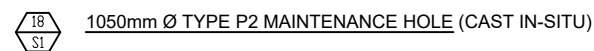
SEWER STRUCTURE
DETAILS SHEET 2 OF 3

Issue	Date	Original Issue Description	LAB DRN	MG CHK
A	20-11-2021			

Scale at A1: N.T.S

Designed:	DV
Drafted:	DV
Approved:	MG
RPEQ:	16939
Signed:	
Date:	08-12-2021

Drawing No: 5941 ENG SNA2 651 Rev. No: A



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ROAD, STAPYLTON QLD 4207

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RPD:

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

SEWER STRUCTURE
DETAILS SHEET 3 OF 3

A	20-11-2021	ORIGINAL ISSUE	LAB	MG
Issue	Date	Description	DRN	CHK

Scale at A1:	N.T.S
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Designed:	DV
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Drafted:	DV
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Approved:	MG
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RPEQ:	16939
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Signed:	
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Date:	08-12-2021
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Drawing No:	Rev. No:
5941 ENG SNA2 652	A



VEGETATION MANAGEMENT PLAN

Prepared for: FPI Queensland Pty Ltd
Christensen Road South, Stapylton

ADDRESS: Christensen Road South, Stapylton

REAL PROPERTY DESCRIPTION: Lot 334 on SP193431

PREPARED FOR: FPI Queensland Pty Ltd

DATE PREPARED: 23 March 2022



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GDP Document Control

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Revision / Checking History

No.	Author	Reviewer
1. V1.0	Andrew Humpherys	Mitchell Gassman
2. V2.0	Andrew Humpherys	Mitchell Gassman

Approval for Issue

Version	Name	Position	Signature	Date
V2.0	Brian Gassman	Director		23/03/2022

Final Distribution

FPI Queensland Pty Ltd	1 electronic copy
Gold Coast City Council	1 electronic copy

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1. Introduction

1.1. Background

This Vegetation Management Plan (VMP) has been produced by Gassman Development Perspectives in support of an Operational Works development application for proposed vegetation clearing works for construction of an underground sewer for Stage 2 of the Vantage Yatala Industrial Estate at Christensen Road South, Stapylton.

This VMP focuses on land occurring over Lot 334 on SP193431. The site is directly adjacent to the Vantage Yatala Industrial Estate at Stapylton and Sandy Creek, a tributary of the Albert River. The industrial estate is largely cleared and has a number of businesses, factories and warehouse on Christensen Road South. (Refer Figure 1). The site is partly an access track on the rear boundary of factories and warehouses on Christensen Road South; on the southern side of the access track it shelves steeply in places to Sandy Creek. Within the subject site, woody vegetation is largely restricted to the riparian corridor of Sandy Creek.

Details of individual trees recorded on the subject site include the species, trunk diameter, height, canopy spread and fauna use. The positions of larger trees over 10cm diameter at breast height (DBH) or otherwise significant trees were recorded using a handheld Apple Ipad with GNSS. This information has been used for the best practice management strategies for managing clearing on the site. The records of these trees are included in Appendix 1 to this report

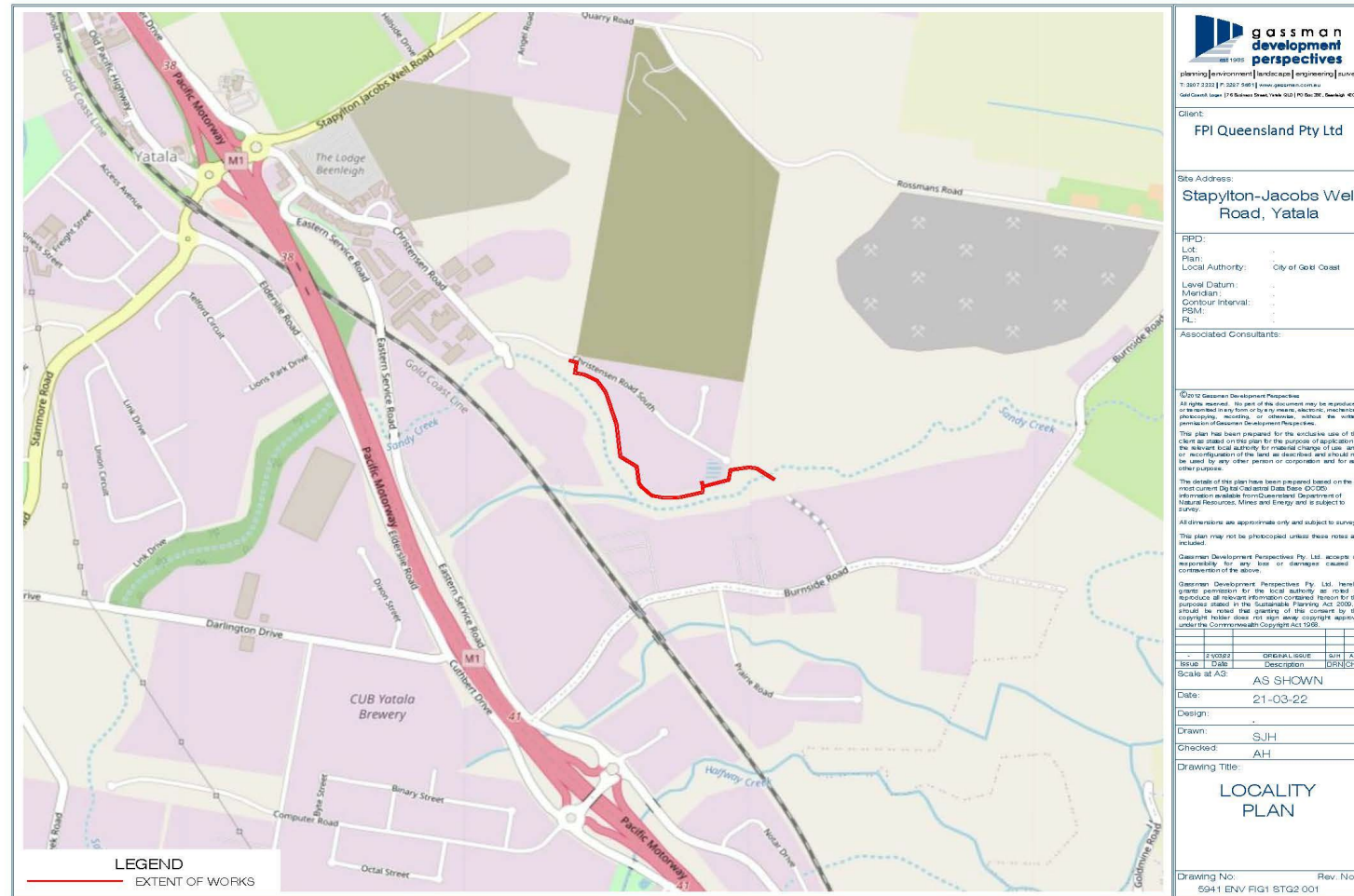


Figure 1. Locality Plan

1.2. Survey Methods

Vegetation within the sewer extent of works corridor was surveyed, with individual hand-held GPS points recorded using an Apple Ipad in the following instances;

- For any tree greater than 4 metres in height, or
- For any trees over 10cm DBH at 1.4m from the ground, or
- For any trees containing habitat features (irrespective of DBH size).

Details of individual trees recorded on the subject site include the species, trunk diameter, height, canopy spread and fauna use. For multi-stemmed tree specimens, overall girth was based on the diameter at breast height of each stem.

The above sampling method is considered to have accurately detailed the native vegetation values present on the site, and is consistent with City of Gold Coast Council's City Plan definition of assessable vegetation.

This information has been used for the best practice management strategies for managing clearing on the site. The records of these trees and groups of vegetation are included in Appendix 1 to this report.

2. Purpose

The principle intention of this VMP is to appropriately reflect the current tree species on the site, their location, management and treatment in relation to removal, retention, protection, relocation, propagation and enhancement.

A total of 439 individual native trees and 9 non-native Camphor Laurels, (*Cinnamomum camphora*) were recorded within or immediately adjoining the proposed extent of works on the subject site. All vegetation within the proposed 'extent of works' area shown within Appendix 1, or directly adjacent to the boundary of the 'extent of works', is proposed to be removed for the purposes of this Vegetation Management Plan and associated application for Operational Works – Vegetation Clearing.

A description of all these tree species, including a plan showing their locations, is included in Appendix 1 to this report.

3. VMP Provisions

This VMP has been structured in a manner to incorporate the following provisions:

- The location and extents of the proposed areas of vegetation that will be removed, and vegetation that will be protected;
- Particulars of the vegetation occurring on site (Appendix 1);
- A statement of the reasons for the vegetation removal and associated factors;
- Details of procedures relating to the following;
 - Vegetation protection
 - Vegetation to be removed
 - Corrective action
 - Reuse of felled Vegetation
 - Stockpiles
 - Habitat Trees
 - Ecological role of the vegetation to be removed
 - Invasive weed species
 - Summary of performance indicators

4. VMP Objectives

The primary objectives of this VMP are as follows:

- To identify type and location of the site's existing individual trees and vegetation groups (refer to the Vegetation Survey Plan in Appendix 1);
- Identify any existing tree species and vegetation communities adjacent to the proposed clearance area intended for retention and protection;
- Identify tree species that may contain fauna;
- To identify and locate existing tree species required for removal;
- To provide a specific method of tree clearance that will minimise impact on the ecology and surrounding vegetation;
- To provide information for the protection of existing vegetation to be retained;
- To provide sustainable reuse methods for the felled vegetation; and
- To limit any possible erosion from vegetation clearing practices.

5. Reasons for Vegetation Removal

The vegetation present within the 'extent of works' area (shown in Appendix 1) requires removal for several reasons which include;

- To facilitate access for machinery;
- To facilitate required earthworks;
- To facilitate construction of the trunk gravity sewer line.

6. Guidelines for clearing

The vegetation shall be removed from the subject site with the following considerations:

- 1) All machine operators conducting the tree clearing process are to have a copy of the approved VMP;
- 2) No site sheds, parking areas or structures are to be located within proximity to vegetation outside the clearance area or under its drip line;
- 3) The area surrounding the tree for removal is clear of any hazards and maintains adequate room to safely conduct the removal;
- 4) The vegetation removal process has focused on providing environmentally sensitive and sustainable practices including:
 - Fauna removal if required; and
 - Reuse of felled material for on-site use
- 5) The following activities are prohibited to occur within the vegetation protection zones or drip-lines of trees marked for retention:
 - Machinery or vehicle parking;
 - Disposal of liquids of any type;
 - Repairs or refuelling;
 - Earthworks;
 - Temporary sheds; and
 - Stockpiling (refer to section 7.3).

6.1. Vegetation Protection

Orange barrier mesh tree protection fencing, or orange flagging, will be installed along the extent of limit of clearing works, along the subject site boundary, to prevent any clearing of adjacent vegetation.

6.2. Vegetation to be Removed

All vegetation within the proposed 'extent of works' area shown in Appendix 1, or directly adjacent to the 'extent of works', is proposed to be removed for the purposes of this Vegetation Management Plan and associated application for Operational Works – Vegetation Clearing. The individual trees and vegetation groups identified for removal are included in Appendix 1.

7. Tree Clearing Process

The manner by which the vegetation should be removed from the subject site is outlined in the following section:

- 1) A pre-start meeting with an environmental officer from City of Gold Coast Council prior to commencement shall be scheduled.
- 2) No specific prescribed direction of clearance is considered to be necessary. However, the direction of clearing should always be toward areas of retained vegetation and away from roads where practical, or in the direction specified by the spotter catcher supervising clearing.
- 4) Woodchip the felled vegetation on site which cannot be resold or reused as logs.
- 5) Stockpile the wood-chipped vegetation in areas which are adequately set back from the retained vegetation.
- 6) Stump grind remains or remove from ground with excavator.

7.1. Corrective Actions

If a retained tree shows signs of ill health, then the causes are to be identified and amelioration methods are to be discussed with council.

7.2. Reuse of Felled Vegetation

Large trees which produce usable logs should be sold where feasible. Any wood chipped vegetation should be reused on the site in any future landscape, and site stabilisation where appropriate. If a surplus of mulch is produced, it may be transported off site for alternative uses elsewhere.

7.3. Stockpiles

Stockpiles of felled vegetation should be managed with the following considerations:

- Stockpiles are not to be located within 30 metres from retained vegetation.
- Stockpiles are not to be located in areas allocated for road constructions.
- Stockpiles are not to be located in areas with difficult access or on steep slopes.
- Stockpiles are not to exceed 3000mm in height.
- Stockpiles left for longer than 10 hours are to be inspected by a spotter catcher prior to mulching

8. Fauna Inspection

At the time the vegetation survey took place, two (2) trees on the site were observed to contain potential fauna habitat features in the form of possible hollows, termite nests or bird nests.

A fauna spotter catcher is required to be present on site to inspect all trees within the clearance area prior to the commencement of works to assess whether fauna has taken up residence subsequent to this survey, and present during all clearing works. The fauna spotter catcher should clearly mark trees with flagging tape or coloured spray paint which were observed to contain fauna. The machine operator is to follow instructions from the fauna spotter catcher regarding the method in which marked trees are felled. Clearing is not to commence until the fauna spotter has certified that the site has been fully inspected and any necessary fauna protection measures or relocation procedures implemented.

The spotter catcher should hold a current permit with the Department of Environment and Science (DES). Captured fauna should be relocated to nearby areas deemed appropriate by the spotter catcher.

A pre-start meeting is to be arranged with prior to the commencement of vegetation clearing. The fauna spotter catcher and consulting ecologist shall be present during the pre-start meeting. The fauna spotter catcher will be present for all clearing works. The fauna spotter catcher will submit a letter or report following the clearing, reporting on the details of any fauna rescued, relocated or otherwise.

9. Sediment Control

Erosion and sediment control onsite once the clearing process begins should include sediment fencing around the clearance area to reduce the risks of erosion and subsequent sediment entrainment impacting on adjacent retained vegetation, waterways and wetland areas. These measures should be installed once clearing and reshaping of the site begin until completion and the site is re-stabilised.

Sediment and erosion control measures will be put in place in accordance with the Sediment and Erosion Control Plan included within the engineering plans to be submitted for the Operational Works.

10. Vegetation Clearing Performance Indicators

1. Tree removal was restricted to allocated and approved areas;
2. Trees that remain in protected areas are in a healthy condition;
3. The spotter catcher was present for the removal of any habitat bearing vegetation;
4. Fauna was relocated to suitable recommended locations;
5. No increased erosion or sediment loss occurred from site as a result of the tree clearing; and
6. Felled vegetation has been wood-chipped and stockpiled or logs transported off site where appropriate.

11. Conclusion

Within the vicinity of the clearing area subject to this VMP there are 439 significant native trees (i.e. trees over 10cm in diameter at 1.3m from the ground). The survey also recorded 9 large non-native trees Camphor Laurels, (*Cinnamomum camphora*). A map showing the larger individual trees identified for removal are included in Appendix 1.

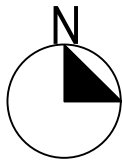
Two hundred and fifty (250) significant trees (i.e. trees over 10 cm in diameter at 1.3m from the ground) require clearing from within the impact area. A description of these tree species is included with the map showing their locations in Appendix 1 to this report. A fauna spotter catcher is required to be present for the removal of trees observed to contain fauna values but should inspect the remainder of the vegetation immediately prior to clearing commences to ensure that no recent fauna movements place present fauna at risk of death or injury due to clearing activities.

Specific methodologies have been prescribed which are to be adhered to at all times during the clearing process to ensure that best practice is achieved at all times, and the ecological impacts of the proposed works are minimised as far as practicable.

The above specifications and management plans have been included with the graphic plans to provide the necessary information for Council officers to enable it to make a reasonable assessment of the proposed actions. This report has outlined procedures in relation to the vegetation management and clearing procedures to be undertaken as an operational works component for the construction of the necessary sewer infrastructure.

Appendix 1 – Vegetation Management Plan

LOCALITY MAP





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planning | environment | landscape | engineering | survey

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

Client:
FPI Queensland Pty Ltd

Site Address:
**Christensen Road
South, Yatala**

RPD:
Lot: .
Plan: .
Local Authority: City of Gold Coast
Level Datum: .
Meridian: .
Contour Interval: .
PSM: .
RL: .

Associated Consultants:

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Scale at A3: 1:3000

Date: 21-03-22

Design:

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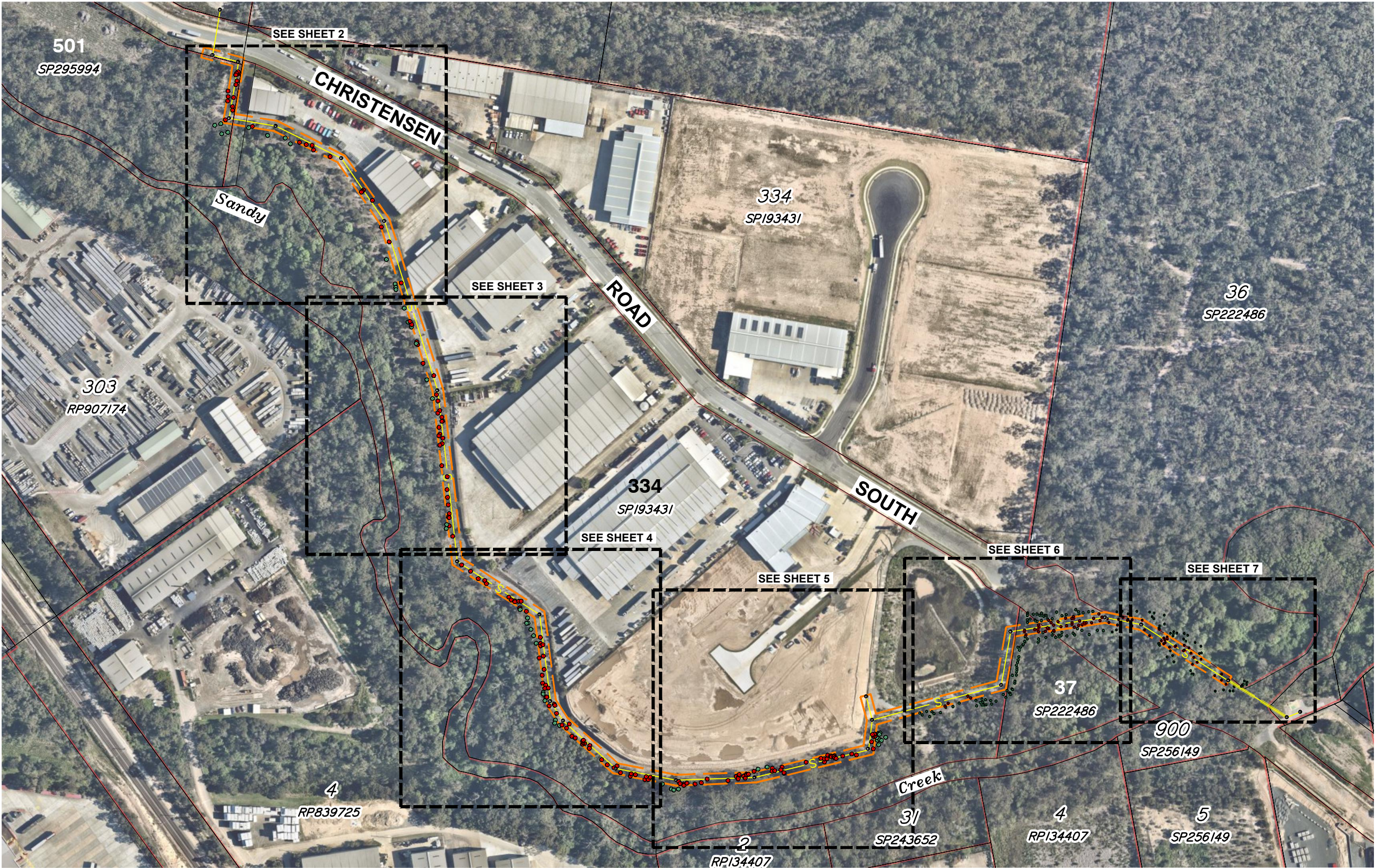
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Drawing Title:

**TREE SURVEY
PLAN
(EXTERNAL SEWER
STAGE 2)**

SHEET 1 OF 7

Drawing No: 5941 ENV VMP STG2 001
Rev. No:



LEGEND

- EXTENT OF WORKS
- TREE TO BE REMOVED
- TREE TO BE RETAINED
- PROPOSED SEWER LINE
- SEWER STRUCTURE

Scale 1:3000 - Lengths are in Metres.



Client:
FPI Queensland Pty Ltd

Site Address:
**Stapylton-Jacobs Well
Road, Yatala**

RPD:
Lot: .
Plan: .
Local Authority: City of Gold Coast
Level Datum: MGA
Meridian: DCDB
Contour Interval: .
PSM: .
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**TREE SURVEY
PLAN
(EXTERNAL SEWER
STAGE 2)**

SHEET 2 OF 7

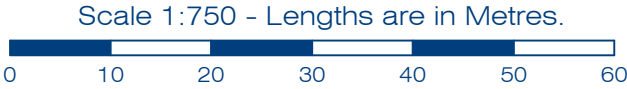
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SHEET 4 OF 7

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Scale 1:750 - Lengths are in Metres.
0 10 20 30 40 50 60

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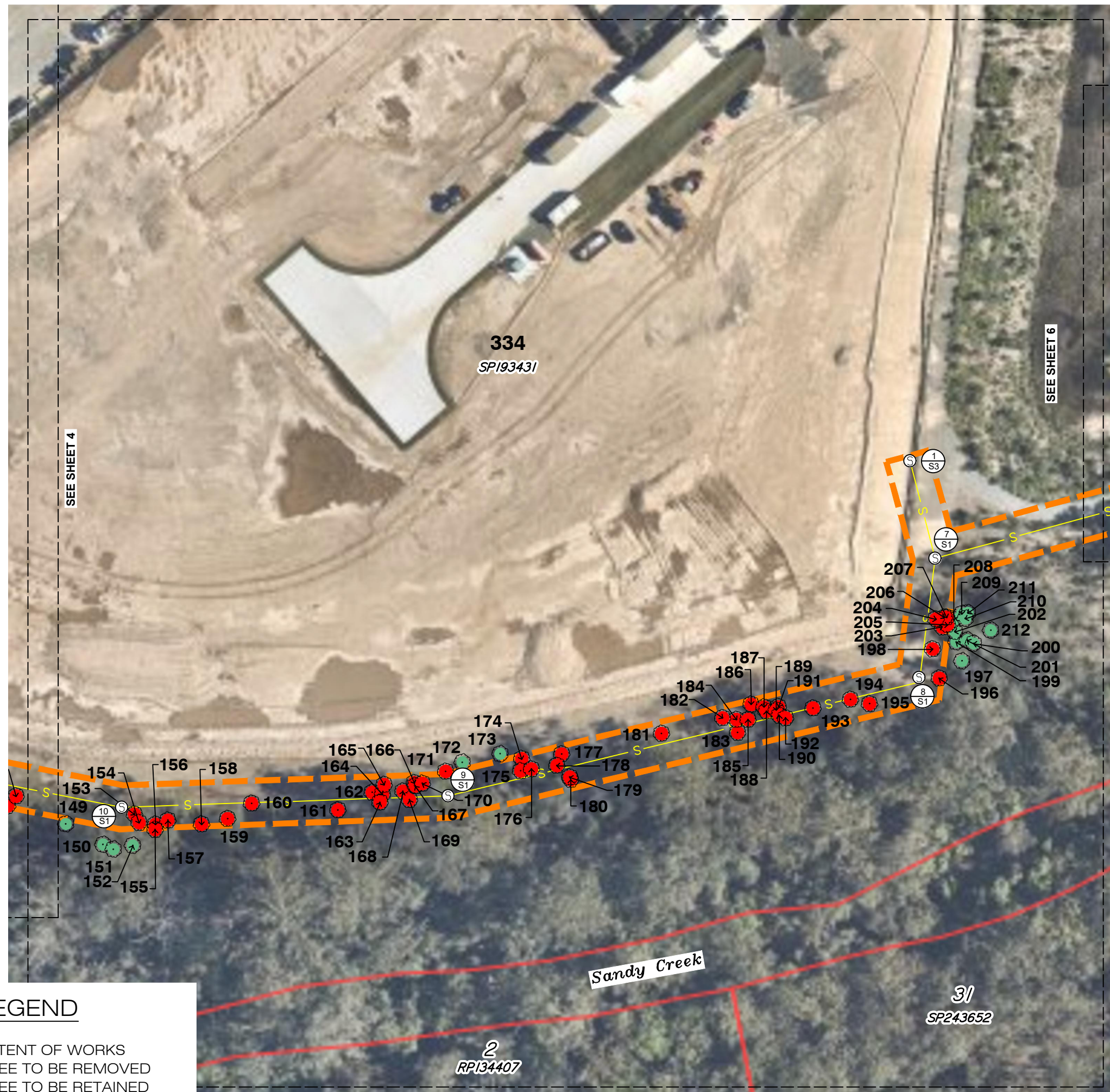
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Issue	Date	Description	DRN	CHK
-	21/03/22	ORIGINAL ISSUE	SJH	AH

Scale at A3: 1:500

Date: 21-03-22

Design:

Drawn: SJH

Checked: AH

Drawing Title:

TREE SURVEY PLAN (EXTERNAL SEWER STAGE 2)

SHEET 6 OF 7

Drawing No: 5941 ENV VMP STG2 001
Rev. No:

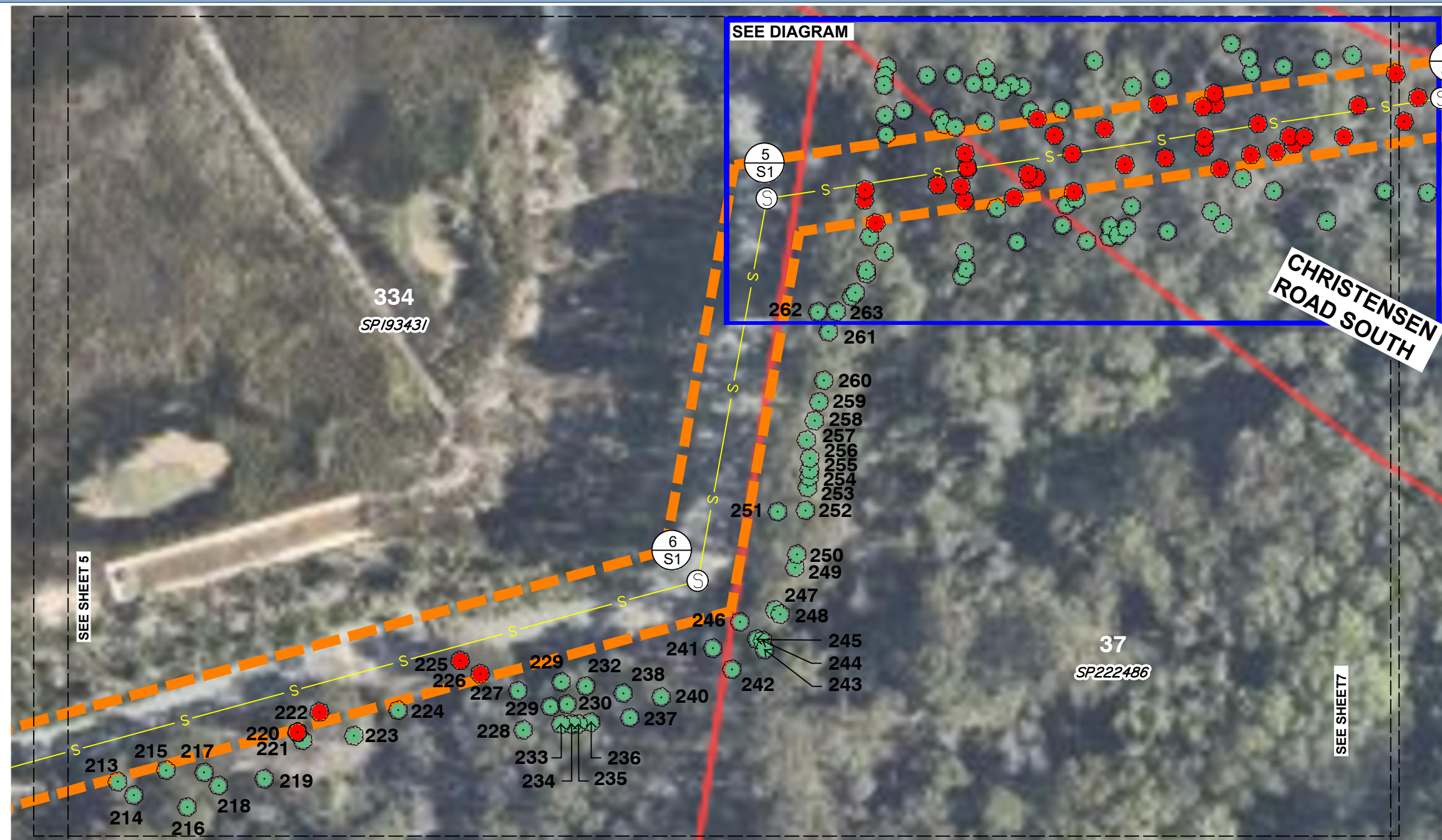
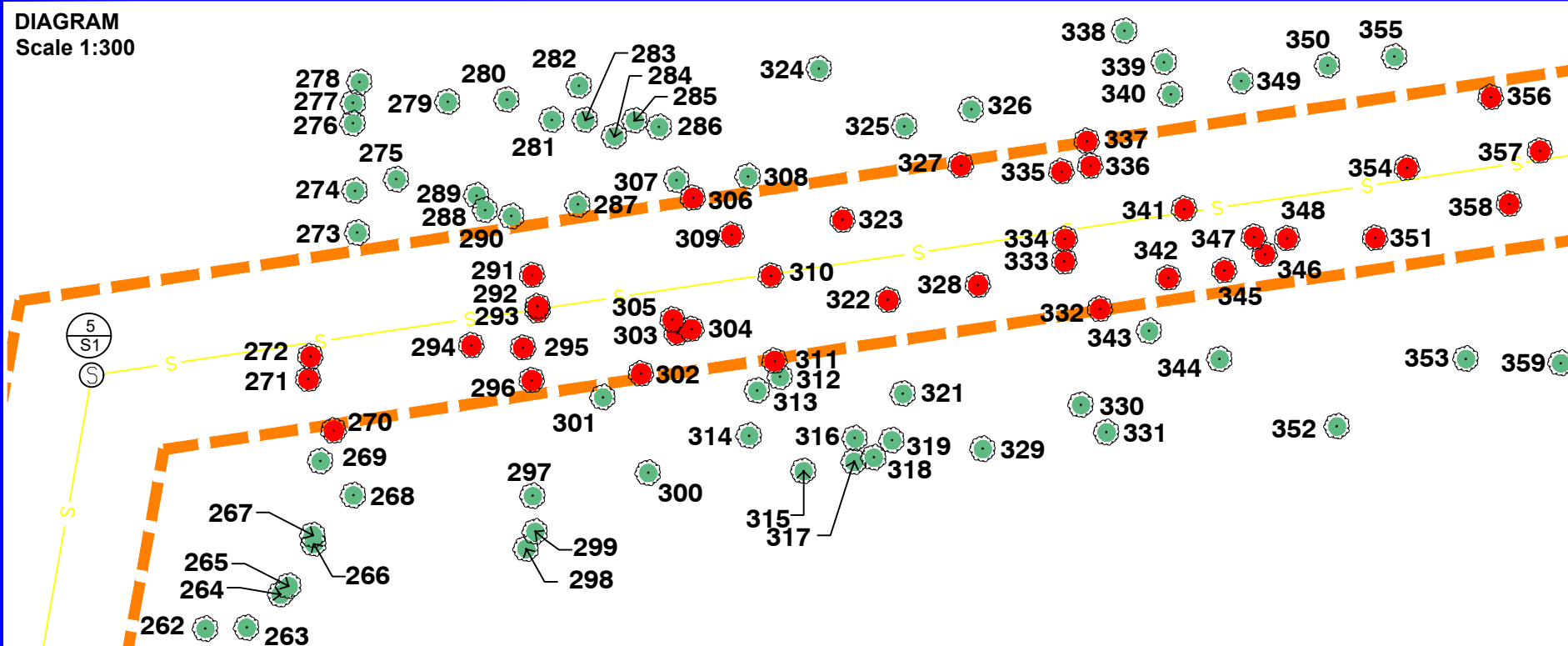


DIAGRAM
Scale 1:300



LEGEND

- EXTENT OF WORKS
- TREE TO BE REMOVED
- TREE TO BE RETAINED
- PROPOSED SEWER LINE
- SEWER STRUCTURE

Scale 1:500 - Lengths are in Metres.



Client:

FPI Queensland Pty Ltd

Site Address:

Stapylton-Jacobs Well
Road, Yatala

RPD:

Lot: .
Plan: .
Local Authority: City of Gold Coast
Level Datum: MGA
Meridian: DCDB
Contour Interval: .
PSM: .
RL: .

Associated Consultants:

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All dimensions are approximate only and subject to survey.

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Scale at A3: 1:500

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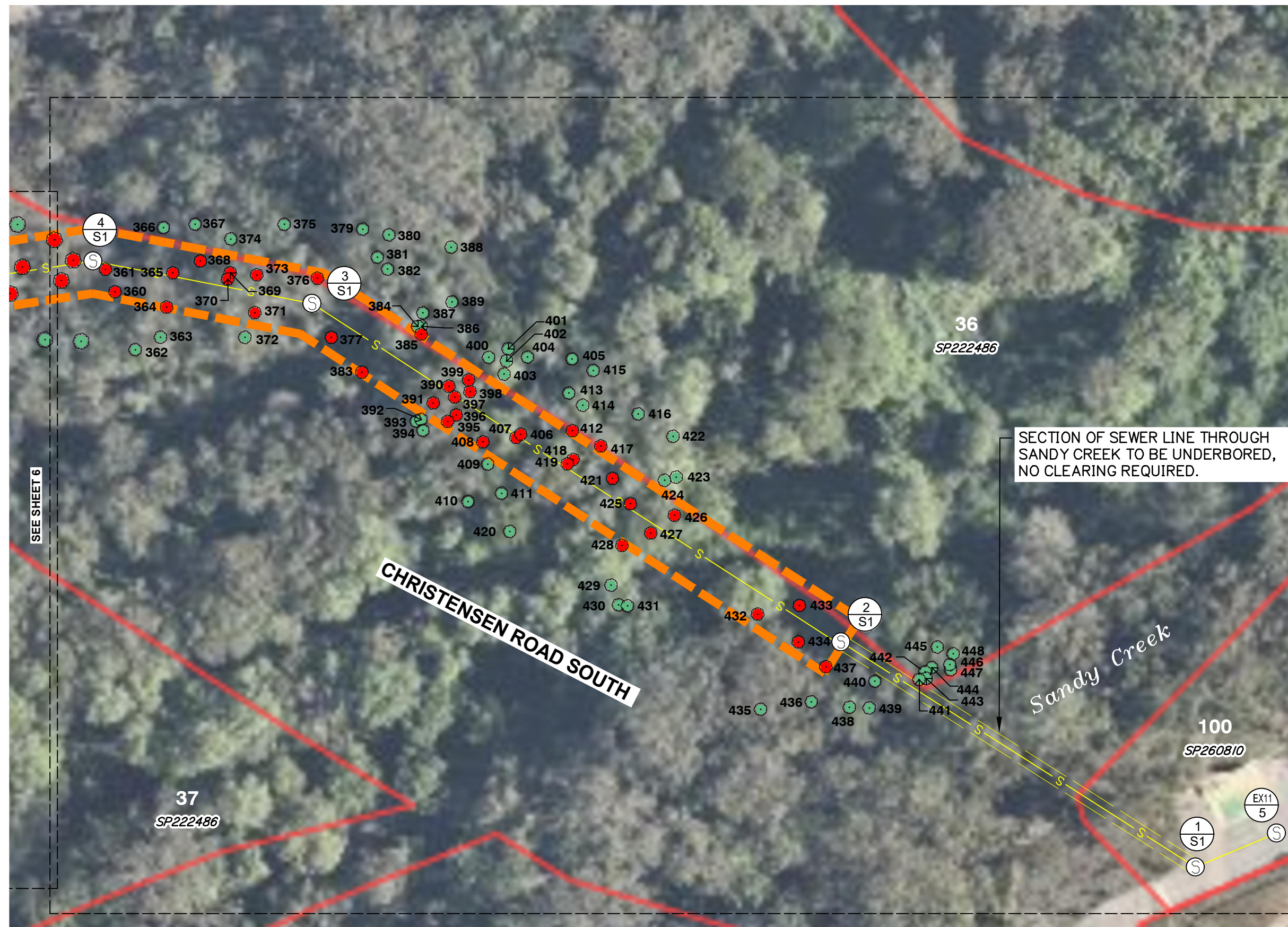
Checked: AH

Drawing Title:

**TREE SURVEY
PLAN
(EXTERNAL SEWER
STAGE 2)**

SHEET 7 OF 7

Drawing No: 5941 ENV VMP STG2 001
Rev. No:



LEGEND

- EXTENT OF WORKS
- TREE TO BE REMOVED
- TREE TO BE RETAINED
- PROPOSED SEWER LINE
- SEWER STRUCTURE

Scale 1:500 - Lengths are in Metres.



Significant Trees

Tree Number	Species name	Height (m)	DBH (cm)	Canopy spread (m)	Habitat Features	To be Retained or Removed
1	Angophora leiocarpa	0	1	4		Removed
2	Eucalyptus siderophloia	5	1	4		Removed
3	Corymbia intermedia	19	18	5		Removed
4	Eucalyptus siderophloia	15	25	6		Removed
5	Eucalyptus siderophloia	17.5	12	4		Removed
6	Eucalyptus siderophloia	24	23	7.5		Removed
7	Eucalyptus siderophloia	20.5	23	6		Removed
8	Acacia sp.	1	1	1		Removed
9	Eucalyptus siderophloia	16.5	21	4.5		Removed
10	Eucalyptus siderophloia	20.5	16	5.5		Removed
11	Eucalyptus siderophloia	15	14	4.3		Removed
12	Corymbia intermedia	16	20.5	5		Removed
13	Eucalyptus siderophloia	27	26	8.4		Removed
14	Corymbia intermedia	17.5	18	7.79		Removed
15	Allocasuarina littoralis	6.4	10	4.41		Retained
16	Eucalyptus siderophloia	26.7	36	10.26		Retained
17	Lophostemon confertus	10.6	14	2.34		Retained
18	Eucalyptus siderophloia	16.9	24	0		Retained
19	Allocasuarina littoralis	8.5	10	0		Retained
20	Corymbia citriodora	10	10	4.31		Removed

Tree Number	Species name	Height (m)	DBH (cm)	Canopy spread (m)	Habitat Features	To be Retained or Removed
21	Eucalyptus siderophloia	16.7	22.5	3.92		Retained
22	Acacia leiocalyx	8.2	10	0		Retained
23	Acacia leiocalyx	6.3	10	0		Retained
24	Acacia leiocalyx	4.2	10	1.7		Removed
25	Acacia leiocalyx	3.2	10	0		Removed
26	Acacia leiocalyx	4.6	10	0		Removed
27	Acacia leiocalyx	3.2	10	1.76		Removed
28	Acacia leiocalyx	6.1	12	3.3		Removed
29	Acacia leiocalyx	6.3	10	2.1		Removed
30	Acacia leiocalyx	2.3	10	3.52		Removed
31	Acacia leiocalyx	4.2	10	4		Removed
32	Acacia leiocalyx	6.9	10	0		Removed
33	Acacia concurrens	5.5	10	4.1		Removed
34	Acacia leiocalyx	3.73	10	0	Dead stag	Removed
35	Melaleuca quinquinervia	9	25	3.49		Retained
36	Acacia concurrens	7.2	15	5.62		Removed
37	Acacia concurrens	6.6	13	5.18		Retained
38	Corymbia intermedia	5.1	10	0		Retained
39	Melaleuca quinquinervia	7.2	10	2.3		Retained
40	Acacia concurrens	7.1	16	4.83		Removed
41	Acacia concurrens	7.1	13.5	0		Retained
43	Eucalyptus siderophloia	16.2	12	2.71		Retained
44	Callistemon salignus	5.2	11	0		Removed
45	Corymbia intermedia	4.3	10	0		Removed
46	Eucalyptus siderophloia	12.9	17	8.3		Retained
47	Acacia concurrens	4.8	10	0		Removed
48	Corymbia intermedia	5.7	10	0		Retained
49	Eucalyptus siderophloia	8.3	10	3.72		Removed
50	Eucalyptus siderophloia	17.04	25	6.4		Removed
51	Eucalyptus siderophloia	20.3	17	5.39		Removed
52	Acacia sp.	12.2	14	4.83		Retained

Tree Number	Species name	Height (m)	DBH (cm)	Canopy spread (m)	Habitat Features	To be Retained or Removed
53	Eucalyptus siderophloia	12.1	12	0		Removed
54	Acacia disparrima	10.1	10	3.13		Retained
55	Eucalyptus siderophloia	19.7	16.5	4.37		Removed
56	Eucalyptus siderophloia	12.7	14.5	9.38		Removed
57	Eucalyptus pilularis	24.33	38	8.9		Removed
58	Eucalyptus siderophloia	12.3	10	3.42		Removed
59	Eucalyptus pilularis	23.7	19.5	4.31		Removed
60	Eucalyptus siderophloia	10	10	3.61		Removed
61	Eucalyptus pilularis	12.3	13.5	8.36		Removed
62	Eucalyptus pilularis	21.1	14.5	4.5		Removed
63	Eucalyptus siderophloia	21.6	14	0		Removed
64	Eucalyptus pilularis	22	26.5	7.1		Removed
65	Eucalyptus siderophloia	6.2	15.5	10.7	Fallen tree. Moribund	Removed
66	Eucalyptus pilularis	22.89	18.5	6.43		Removed
67	Acacia disparrima	6.1	12.5	2.04		Removed
68	Eucalyptus pilularis	20.4	10	8.15		Removed
69	Callistemon salignus	20.38	10	8.15		Removed
70	Acacia disparrima	10.2	12.5	3.28		Removed
71	Corymbia citriodora	19.5	45	12.95		Removed
72	Acacia disparrima	8	10	4.81		Removed
73	Lophostemon suaveolens	8.3	15	4.18		Removed
74	Lophostemon suaveolens	8.55	10	4.18		Removed
75	Lophostemon suaveolens	13.8	16.5	0		Removed
76	Eucalyptus pilularis	16	12	6.79		Removed
77	Eucalyptus pilularis	11.3	13.5	8.36		Retained
78	Lophostemon suaveolens	13.5	13	5.8		Retained
79	Eucalyptus siderophloia	14.7	16.8	3.4		Removed
80	Eucalyptus siderophloia	15.9	18.7	3.24		Removed

Tree Number	Species name	Height (m)	DBH (cm)	Canopy spread (m)	Habitat Features	To be Retained or Removed
81	Eucalyptus siderophloia	27.4	19.8	0		Removed
82	Eucalyptus siderophloia	10.6	10	3.06		Removed
83	Acacia disparrima	8.9	10	1.03	Dead stag	Removed
84	Acacia disparrima	14.3	10	1.2		Removed
85	Acacia disparrima	13.8	10	5.23		Removed
86	Corymbia intermedia	11.1	10	2.72		Removed
87	Acacia disparrima	14.87	10	8.13		Removed
88	Melaleuca quinquenervia	11.1	21	3.77		Removed
89	Commersonia bartramia	14.5	13.5	6.61		Removed
91	Acacia sp.	8.8	17	5.5		Removed
92	Acacia sp.	11.1	14.5	2.4		Removed
93	Lophostemon confertus	9.4	16.2	2.4		Retained
94	Eucalyptus pilularis	11.16	15.6	3.2		Retained
95	Eucalyptus pilularis	18.3	17.6	4.31		Retained
96	Eucalyptus pilularis	17.9	14.8	3.2		Retained
97	Corymbia intermedia	15.1	24.7	3.66		Retained
98	Acacia disparrima	6.3	10	3.5		Retained
99	Acacia disparrima	7.2	10	2.83		Removed
100	Acacia disparrima	6.2	10	3.64		Retained
101	Acacia disparrima	11.6	10	2.92		Removed
103	Acacia disparrima	12.5	10	2.35		Removed
104	Acacia disparrima	4.2	10	3.5		Removed
105	Acacia disparrima	4.3	10	3.5		Removed
106		4.8	10	4.47		Removed
107	Eucalyptus pilularis	15.1	22.5	5.82		Removed
108	Eucalyptus pilularis	17.1	19.5	3.9		Removed
109	Acacia disparrima	18.9	18.7	2.84		Removed
110	Eucalyptus pilularis	15.5	19.8	6.35		Removed
111	Acacia disparrima	9.82	10	3.81		Removed
112	Eucalyptus pilularis	16.4	14.5	8.3		Retained
113	Eucalyptus pilularis	17.3	19.7	6.3		Retained
114	Alphitonia excelsa	11.02	10	3.71		Removed
115	Alphitonia excelsa	11.12	13	2.45		Removed
116	Eucalyptus pilularis	29.9	110	6.28	Dead stag. Hollows and crevices	Retained

Tree Number	Species name	Height (m)	DBH (cm)	Canopy spread (m)	Habitat Features	To be Retained or Removed
117	Melaleuca quinquinervia	11.5	10	2.83		Removed
118	Melaleuca quinquinervia	11.7	12	3		Removed
119	Acacia leiocalyx.	12.4	12.3	2.96		Removed
120	Melaleuca quinquinervia	11.3	23.4	3.64		Removed
121	Eucalyptus pilularis	20.4	21.3	5.06		Retained
122	Eucalyptus pilularis	17.1	10	0.5		Retained
123	Lophostemon suaveolens	20.3	11	4.65		Retained
124	Callistemon salignus	11.5	10	2.21		Removed
125	Eucalyptus pilularis	24.2	44.5	8.44		Removed
126	Melaleuca quinquinervia	12.7	21	3.12		Removed
127	Callistemon salignus	13.1	19.5	3.68		Removed
128	Melaleuca quinquinervia	13.2	22	3.58		Removed
129	Melaleuca quinquinervia	20.4	10	2.55		Removed
130	Melaleuca quinquinervia	19.2	15.5	1.23		Removed
131	Melaleuca quinquinervia	18.72	10	1.3		Removed
133	Melaleuca quinquinervia	11.2	10	1.5		Removed
132	Melaleuca quinquinervia	19.4	16	2.73		Removed
135	Melaleuca quinquinervia	4.3	10	3.8		Removed
135	Melaleuca quinquinervia	17.2	23	1.9		Removed
136	Melaleuca quinquinervia	13.5	18.2	4.99		Removed
137	Acacia disparrima	16.2	13.8	3.71		Removed
138	Acacia disparrima	15.4	10	4.2		Removed
139	Melaleuca quinquinervia	14.8	15	2.85		Removed
140	Acacia disparrima	19.84	12.5	3.12	dead stag	Removed
141	Corymbia intermedia	20.1	12	4.23		Removed
142	Eucalyptus pilularis	18.7	11.5	2.3		Removed

Tree Number	Species name	Height (m)	DBH (cm)	Canopy spread (m)	Habitat Features	To be Retained or Removed
143	Eucalyptus pilularis	21.32	15.2	4.64		Removed
144	Eucalyptus pilularis	19.8	10	4.28		Removed
145	Eucalyptus pilularis	17.86	17.2	4.29		Removed
146	Eucalyptus pilularis	19.2	19.5	6.7		Removed
147	Eucalyptus pilularis	22	21.5	4.7		Removed
148	Eucalyptus pilularis	23.2	33	8.9		Removed
149	Acacia disparrima	5	10	3.2		Retained
150	Eucalyptus siderophloia	16.72	10	3.3		Retained
151	Eucalyptus pilularis	12.72	150	28.9		Retained
152	Eucalyptus siderophloia	18.53	10	2.1		Retained
153	Angophora leiocarpa	12.3	10	1.1		Removed
154	Angophora leiocarpa	13.07	10	2.45		Removed
155	Acacia disparrima	12.92	10	1.76		Removed
156	Acacia disparrima	12.3	10	1.92		Removed
157	Angophora leiocarpa	14.5	16.6	2.71		Removed
158	Acacia disparrima	10.2	10	2.73		Removed
159	Alphitonia excelsa	16.35	18.8	4.27		Retained
160	Acacia sp.	0	21	0	Fallen tree	Removed
161	Acacia sp.	12.2	11.2	2.13		Removed
162	Lophostemon suaveolens	10.5	10	0.87		Removed
163	Eucalyptus tereticornis	16.92	15.4	2.3		Removed
164	Acacia sp.	12.07	10	5.4		Removed
165	Acacia sp.	14.2	10	6.7		Removed
166	Lophostemon suaveolens	9.7	10	1.15		Removed
167	Lophostemon suaveolens	7.5	10	1.23		Removed
168	Lophostemon suaveolens	10.2	10	1.36		Removed
169	Eucalyptus siderophloia	17.9	10	4.13		Removed
170	Lophostemon suaveolens	17.6	10	4.82		Removed
171	Eucalyptus pilularis	18.83	12	2.83		Removed
172	Lophostemon suaveolens	9.8	10	2.36		Retained

Tree Number	Species name	Height (m)	DBH (cm)	Canopy spread (m)	Habitat Features	To be Retained or Removed
173	Melaleuca quinquinervia	8.7	10	2.32		Retained
174	Acacia disparrima	16.3	10	3.41		Removed
175	Acacia disparrima	15.7	10	1.1		Removed
176	Alphitonia excelsa	17.2	13.5	4.13		Removed
177	Acacia disparrima	15.7	10	2.27		Removed
178	Lophostemon suaveolens	12.3	10	1.27		Removed
179	Corymbia intermedia	9.6	10	2.27		Removed
180	Lophostemon suaveolens	10.5	10	1.47		Removed
181	Acacia disparrima	16.3	13.5	4.71		Removed
182	Lophostemon suaveolens	16.2	10	1.11		Removed
183	Alphitonia excelsa	14.2	10	3.82		Removed
184	Lophostemon suaveolens	15.7	10	2.1		Removed
185	Callistemon salignus	9.73	10	2.02		Removed
186	Callistemon salignus	10.32	10	1.5		Removed
187	Lophostemon suaveolens	6.2	10	0.3		Removed
188	Eucalyptus siderophloia	10.3	10	1.4		Removed
189	Eucalyptus tereticornis	9.3	10	1.14		Removed
190	Eucalyptus siderophloia	15.2	10	0		Removed
191	Acacia disparrima	12.3	10	2.58		Removed
192	Eucalyptus siderophloia	9.98	10	1.4		Removed
193	Alphitonia excelsa	13.2	10	4.98		Removed
194	Eucalyptus siderophloia	16.8	10	2.6		Removed
195	Eucalyptus pilularis	31.4	110	16.31	Hollows in limbs	Removed
196	Acacia disparrima	16.3	10	2.21		Removed
197	Lophostemon suaveolens	15.7	10	1.37		Retained
198	Lophostemon suaveolens	9.51	10	1.02		Removed
199	Acacia disparrima	17.46	10	2.74		Retained

Tree Number	Species name	Height (m)	DBH (cm)	Canopy spread (m)	Habitat Features	To be Retained or Removed
200	Lophostemon suaveolens	4.34	10	2.7		Retained
201	Lophostemon suaveolens	9.3	10	1.17		Retained
202	Alphitonia excelsa	11.45	10	2.43		Retained
203	Acacia disparrima	11.72	10	1.4		Removed
204	Lophostemon suaveolens	8.4	10	1.1		Removed
205	Acacia disparrima	10.8	10	1.3		Removed
206	Eucalyptus tereticornis	15.8	10	2.72		Removed
207	Acacia disparrima	13.5	12	3.7		Removed
208	Acacia disparrima	9.3	10	2.12		Retained
209	Lophostemon suaveolens	8.3	10	1.57		Retained
210	Acacia disparrima	12.7	10	4.8		Retained
211	Lophostemon suaveolens	7.4	10	3.1		Retained
212	Acacia disparrima	13.2	10	3.7		Retained
213	Eucalyptus tereticornis	14.7	12.5	5.2		Retained
214	Acacia disparrima	7.4	12.3	7.1		Retained
215	Acacia disparrima	10.2	10	2.78		Retained
216	Acacia disparrima	13.8	17.4	8.3		Retained
217	Acacia disparrima	8.2	12	4.9		Retained
218	Acacia disparrima	11.4	15.2	6.8		Retained
219	Acacia sp.	12.8	13.4	4.3	Dead stag	Retained
220	Eucalyptus siderophloia	12.2	10	2.46		Removed
221	Acacia concurrens	9.8	10	2.37	Dead stag	Retained
222	Acacia concurrens	8.4	19.5	6.2		Removed
223	Lophostemon suaveolens	10.7	26	4.8	Three trunks	Retained
224	Allocasuarina littoralis	11.1	10	3.8		Retained
225	Acacia concurrens	7.4	15.7	6.8	Moribund tree	Removed
226	Allocasuarina littoralis	11.3	11.5	6.4		Removed
227	Acacia concurrens	12.4	10	3.6	Dead stag	Retained
228	Lophostemon suaveolens	11.6	10	2.7		Retained
229	Lophostemon suaveolens	6.43	10	0.9		Retained

Tree Number	Species name	Height (m)	DBH (cm)	Canopy spread (m)	Habitat Features	To be Retained or Removed
230	Lophostemon suaveolens	9.1	10	1.1		Retained
231	Lophostemon suaveolens	13.4	18.9	2.6		Retained
232	Lophostemon suaveolens	9.8	10	2.7		Retained
233	Lophostemon suaveolens	11.4	10	2.8		Retained
234	Lophostemon suaveolens	12.1	10	1.8		Retained
235	Lophostemon suaveolens	7.2	10	1.6		Retained
236	Allocasuarina littoralis	9.73	13.5	3.5		Retained
237	Callistemon salignus	8.7	10	2.6		Retained
238	Lophostemon suaveolens	10.2	13.4	3.4		Retained
240	Allocasuarina littoralis	10.42	13.2	4.75		Retained
241	Acacia concurrens	0	10	0	Fallen tree	Retained
242	Lophostemon suaveolens	8.45	10	2.1		Retained
243	Lophostemon suaveolens	11.2	10	2.1		Retained
244	Lophostemon suaveolens	9.13	10	4.21		Retained
245	Lophostemon suaveolens	11.2	10	4.8		Retained
246	Melaleuca linariifolia	8.6	10	2.2		Retained
247	Eucalyptus siderophloia	9.7	10	4.3		Retained
248	Eucalyptus siderophloia	12.2	16.1	3.7		Retained
250	Eucalyptus siderophloia	21.2	44	6.38		Retained
249	-None Selected-	0	0	0		Retained
252	Eucalyptus siderophloia	19.8	26.5	7.21		Retained
251	Lophostemon suaveolens	13.3	13.2	4.21		Retained
253	Alphitonia excelsa	11.4	15.5	3.6		Retained
254	Alphitonia excelsa	7.1	10	3.7		Retained

Tree Number	Species name	Height (m)	DBH (cm)	Canopy spread (m)	Habitat Features	To be Retained or Removed
255	Lophostemon suaveolens	19.2	22.3	4.1		Retained
256	Eucalyptus tereticornis	23.6	23.2	6.27		Retained
257	Alphitonia excelsa	11.6	10	3.2		Retained
258	Lophostemon suaveolens	18.1	12.4	3.2		Retained
259	Eucalyptus tereticornis	17.1	10	2.5		Retained
260	Eucalyptus siderophloia	26.1	29.8	7.52		Retained
261	Corymbia intermedia	28.3	36.5	11.76		Retained
262	Lophostemon suaveolens	13.2	10	4.1		Retained
263	Alphitonia excelsa	14.7	10	1.1		Retained
264	Lophostemon suaveolens	15.2	10	3.34		Retained
265	Lophostemon suaveolens	13.2	10	2.1		Retained
266	Lophostemon suaveolens	22.7	10	4.1		Retained
267	Eucalyptus siderophloia	29.6	37.2	9.82		Retained
268	Lophostemon suaveolens	13.2	10	2.8		Retained
269	Lophostemon suaveolens	9.8	24.5	2.2		Retained
270	Lophostemon suaveolens	21.3	13	3.6		Removed
271	Lophostemon suaveolens	16.3	14.2	2.27		Removed
272	Eucalyptus siderophloia	14.6	15.7	3.21		Removed
273	Lophostemon suaveolens	14.27	12	3.25		Removed
274	Lophostemon suaveolens	13.64	14	2.7		Removed
275	Lophostemon suaveolens	16.2	12.5	3.58		Retained
276	Eucalyptus siderophloia	19.82	19.7	5.4		Removed
277	Lophostemon suaveolens	11.2	10	1.2		Removed

Tree Number	Species name	Height (m)	DBH (cm)	Canopy spread (m)	Habitat Features	To be Retained or Removed
278	Lophostemon suaveolens	13.65	12.2	3.8		Removed
279	Eucalyptus siderophloia	17.2	11.5	1.53		Removed
280	Lophostemon suaveolens	13.7	11	0.76		Removed
281	Lophostemon suaveolens	17.3	11	2.7		Removed
282	Corymbia intermedia	16.32	10	1.8		Removed
283	Melaleuca linariifolia	11.3	10	2.48		Removed
284	Lophostemon suaveolens	16.3	11.3	1.8		Removed
285	Lophostemon suaveolens	18.1	13.7	2.7		Removed
286	Eucalyptus siderophloia	19.87	10	3.64		Removed
287	Corymbia intermedia	21.29	32	8.5		Retained
288	Lophostemon suaveolens	18.7	36	4.33		Retained
289	Alphitonia excelsa	9.7	10	3.62		Retained
290	Lophostemon suaveolens	7.1	10	3.31		Removed
291	Lophostemon suaveolens	16.3	13.6	4.86		Removed
292	Alphitonia excelsa	15.2	10	4.8		Removed
293	Acacia disparrima	18.1	14.5	3.6		Removed
294	Lophostemon suaveolens	20.03	18.5	7.24		Removed
295	Lophostemon suaveolens	16.42	12.3	2.48		Removed
296	Melaleuca quinquinervia	17.7	17.4	4.86		Removed
297	Melaleuca quinquinervia	23.2	28	5.82		Retained
298	Melaleuca quinquinervia	19.3	10	4.2		Retained
299	Melaleuca quinquinervia	20.5	20	3.78		Retained
300	Melaleuca quinquinervia	18.74	10	2.32		Retained

Tree Number	Species name	Height (m)	DBH (cm)	Canopy spread (m)	Habitat Features	To be Retained or Removed
301	Lophostemon suaveolens	19.8	11	1.7		Retained
302	Corymbia intermedia	21.3	19.6	2.01		Retained
303	Lophostemon suaveolens	17.2	11	3.64		Removed
304	Melaleuca quinquinervia	15.61	10	3.4		Removed
305	Eucalyptus siderophloia	14.82	10	4.5		Removed
306	Acacia disparrima	21.87	19.2	4.32		Removed
307	Lophostemon suaveolens	11.8	10	3.12		Retained
308	Acacia disparrima	17.6	11	2.48		Retained
309	Lophostemon suaveolens	16.8	11.5	3.4		Removed
310	Acacia disparrima	24.2	16.7	4.3		Removed
311	Lophostemon suaveolens	17.4	19.5	3.6		Removed
312	Lophostemon suaveolens	17.6	11	2.4		Retained
313	Melaleuca quinquinervia	16.3	10	1.13		Retained
314	Melaleuca quinquinervia	17.1	12	3.3		Retained
315	Lophostemon suaveolens	16.4	14.7	4.7		Retained
316	Corymbia intermedia	22.7	25.3	8.4		Retained
317	Lophostemon suaveolens	14.2	10	3.17		Retained
318	Melaleuca quinquinervia	16.3	13.5	5.1		Retained
319	Lophostemon suaveolens	11.2	10	3.1		Retained
321	Lophostemon suaveolens	16.1	17.8	4.8		Retained
322	Eucalyptus tereticornis	24	20.6	2.1		Removed
323	Corymbia intermedia	27.3	28.6	9.83		Removed
324	Lophostemon suaveolens	14.3	12	4.7		Retained

Tree Number	Species name	Height (m)	DBH (cm)	Canopy spread (m)	Habitat Features	To be Retained or Removed
325	Eucalyptus siderophloia	11.3	10	2.1		Retained
326	Lophostemon suaveolens	16.3	11	4.25		Retained
327	Lophostemon suaveolens	17.6	14	4.3		Removed
328	Lophostemon suaveolens	18.3	23.5	7.65		Removed
329	Lophostemon suaveolens	19.7	11.5	1.44		Retained
330	Lophostemon suaveolens	15.4	10	2.7		Retained
331	Eucalyptus siderophloia	19.53	15.6	3.57		Retained
332	Acacia disparrima	19.2	18.4	8.35		Removed
333	Lophostemon suaveolens	15.8	10	4.94		Removed
334	Lophostemon suaveolens	10.4	12.5	3.82		Removed
335	Lophostemon suaveolens	12.2	23.6	2.14		Removed
336	Lophostemon suaveolens	14.6	10	3.7		Removed
337	Eucalyptus tereticornis	16.5	14.8	3.74		Removed
338	Angophora leiocarpa	21.32	15.4	6.57		Retained
339	Lophostemon suaveolens	14.9	12	2.12		Retained
340	Lophostemon suaveolens	19.89	14.5	4.64		Retained
341	Acacia disparrima	18.04	12	3.73		Removed
342	Acacia disparrima	21.4	11	6.27		Removed
343	Acacia disparrima	13.2	11	2.6		Retained
344	Acacia disparrima.	22.46	14.3	8.96		Retained
345	Eucalyptus siderophloia	19.85	25.4	2.64		Removed
346	Eucalyptus tereticornis	21.3	27.6	5.78		Removed
347	Acacia disparrima	16.4	12	3.2		Removed
348	Acacia disparrima	18.3	12.5	4.84		Removed
349	Corymbia intermedia	16.4	10	2.7		Retained

Tree Number	Species name	Height (m)	DBH (cm)	Canopy spread (m)	Habitat Features	To be Retained or Removed
350	Lophostemon suaveolens	16.83	25.5	2.47		Retained
351	Eucalyptus siderophloia	22.4	20.3	7.53		Removed
352	Lophostemon suaveolens	13.6	12	3.3		Retained
353	Acacia disparrima.	18.4	13.3	3.86		Retained
354	Eucalyptus siderophloia	23.1	27.7	8.94		Removed
355	Eucalyptus tereticornis	20.27	18.8	4.8		Retained
356	Lophostemon suaveolens	15.3	25.6	1.2		Removed
357	Eucalyptus siderophloia	24.3	28.9	5.43		Removed
358	Lophostemon suaveolens	16.6	23.6	2.8		Removed
359	Acacia sp.	20.4	34.2	6.7	Partly dead stag.	Retained
360	Corymbia intermedia	14.8	11	1.2		Removed
361	Lophostemon suaveolens	10.3	12	3.2		Removed
362	Melaleuca quinquinervia	18.3	10	3.1		Retained
363	Melaleuca quinquinervia	24.1	56	5.6		Retained
364	Eucalyptus siderophloia	22.1	23.5	6.5		Removed
365	Lophostemon suaveolens	16.1	19.4	3.4		Removed
366	Lophostemon suaveolens	8.1	10	3.2		Retained
367	Corymbia intermedia	13.1	10	2.3		Retained
368	Lophostemon suaveolens	9.1	10	2.4		Removed
369	Lophostemon suaveolens	19.3	13	3.7		Removed
370	Lophostemon suaveolens	22.7	24.5	3.45		Removed
371	Melaleuca quinquinervia	19.2	17.2	3.7		Removed
372	Melaleuca quinquinervia	24.6	32	4.1		Retained

Tree Number	Species name	Height (m)	DBH (cm)	Canopy spread (m)	Habitat Features	To be Retained or Removed
373	Corymbia intermedia	16.4	29.4	5.8		Removed
374	Corymbia intermedia	19.8	11.5	3.7		Retained
375	Corymbia intermedia	18.7	16.1	4.8		Retained
376	Melaleuca quinquinervia	22.1	38.9	5.8		Removed
377	Acacia disparrima.	7.2	16	1.1	Dead tree	Removed
379	Melaleuca bracteata	10.1	12.5	3.7	Nearly dead.	Retained
380	Melaleuca bracteata	11.2	13.5	1.3		Retained
381	Melaleuca bracteata	8.4	10	5.67		Retained
382	Melaleuca bracteata	18.2	14	4.1	Dead	Retained
383	Ficus coronata	16.4	16.7	3.2		Removed
384	Acacia disparrima.	19.3	23.5	7.1		Retained
385	Acacia disparrima.	19.2	14.8	3.1		Removed
386	Acacia disparrima	16.3	24	4.85		Retained
387	Acacia disparrima	15.6	22	11.7		Retained
388	Acacia disparrima	19.3	17	8.7		Retained
389	Melaleuca bracteata	11.3	16.5	4.2		Retained
390	Melaleuca bracteata	15.3	10	4.2		Retained
391	Melaleuca bracteata	13.6	10	5.2		Retained
392	Melaleuca quinquinervia	23.7	18.7	3.2		Removed
393	Melaleuca quinquinervia	21.7	23.2	3.1		Removed
394	Melaleuca quinquinervia	19.86	22	3.71		Retained
395	Melaleuca quinquinervia	17.3	15	1.45		Removed
396	Eucalyptus tereticornis	21.2	17.7	3.76		Removed
397	Melaleuca quinquinervia	17.9	10	6.13		Removed
398	Lophostemon suaveolens	19.8	18.5	3.2		Removed

Tree Number	Species name	Height (m)	DBH (cm)	Canopy spread (m)	Habitat Features	To be Retained or Removed
399	Melaleuca quinquinervia	17.3	12.3	2.78		Removed
400	Lophostemon suaveolens	16.2	10	4.3		Retained
401	Euroschinus falcatus	14.3	12	5.2		Retained
402	Melaleuca quinquinervia	16.1	13.5	3.3		Retained
403	Lophostemon suaveolens	16.1	24.5	2.4		Retained
404	Lophostemon suaveolens	11.2	10	3.1		Retained
405	Acacia disparrima	21.3	28.5	5.4		Retained
406	Lophostemon suaveolens	22.7	23.5	4.3		Removed
407	Cinnamomum camphora	23.1	13	4.9		Removed
408	Lophostemon suaveolens	18.3	13.5	4.27		Removed
409	Euroschinus falcatus	18.5	14.5	4.75		Retained
410	Melaleuca quinquinervia	23.1	52	8.7		Retained
411	Ficus coronata	11.2	10	3.5		Retained
412	Acacia disparrima	22.2	19	4.8	Dead stag	Removed
413	Acacia disparrima	18.3	11	4.3		Retained
414	Lophostemon suaveolens	19.8	16.5	2.7		Retained
415	Cinnamomum camphora	7.3	10	5.6		Retained
416	Lophostemon suaveolens	18.3	10	4.2		Retained
417	Lophostemon suaveolens	22.1	13.5	3.7		Removed
418	Lophostemon suaveolens	18.4	27	3.67		Removed
419	Lophostemon suaveolens	20.3	49	4.9		Removed
420	Ficus coronata	12.3	22	3.87		Retained
421	Acacia disparrima	23.04	38	9.3		Removed
422	Lophostemon suaveolens	18.6	15.6	4.23		Retained
423	Ficus coronata	8.2	12	3.8		Retained

Tree Number	Species name	Height (m)	DBH (cm)	Canopy spread (m)	Habitat Features	To be Retained or Removed
424	Lophostemon suaveolens	14.2	21	5.3		Retained
425	Cinnamomum camphora	16.3	10	4.8		Removed
426	Ficus coronata	12.3	17	3.48	Fallen tree .	Removed
427	Ficus coronata	16.5	18.5	4.96		Removed
428	Ficus coronata	9.2	10	2.86		Removed
429	Melaleuca quinquinervia	21.02	120	8.7		Retained
430	Lophostemon suaveolens	19.3	14	6.7		Retained
431	Lophostemon suaveolens	14.2	14	6.7		Retained
432	Lophostemon suaveolens	19.8	32	8.45		Removed
433	Ficus coronata	6.3	10	4.9		Removed
434	Ficus coronata	8.3	10	4.25		Removed
435	Eucalyptus tereticornis	38.2	135	19.98		Removed
436	Ficus coronata	17.3	11	4.9		Retained
437	Ficus coronata	11.2	36	8.7		Retained
438	Cinnamomum camphora	25.1	42	8.2		Removed
439	Melaleuca quinquinervia	24.01	58	9.23	Dead stag. Hollows.	Retained
440	Melaleuca quinquinervia	23.2	36.4	6.51		Retained
441	Melaleuca quinquinervia	19.8	24	11.23		Retained
442	Melaleuca quinquinervia	20.09	21	3.2		Retained
443	Melaleuca quinquinervia	20.13	22.5	4.7		Retained
444	Cinnamomum camphora	18.3	31	4.4		Retained
445	Cinnamomum camphora	22.5	115	8.74		Retained
447	Cinnamomum camphora	17.2	17	2.8		Retained
446	Cinnamomum camphora	17.3	51	4.1		Retained
448	Cinnamomum camphora	11.1	22	3.75		Retained

Appendix 2 - COGC Vegetation Management Code Response

City Plan code template

This code template supports the preparation of a development application against either the acceptable outcome(s) or performance outcome(s) contained in the code. Development assessment rules are outlined in **Section 5.3.3** of the City Plan.

Please note:

For assessment against the overall outcomes, refer to the appropriate code.

Note: The whole of the planning scheme is identified as the assessment benchmark for impact assessable development. This specifically includes assessment of impact assessable development against this strategic framework. The strategic framework may contain intentions and requirements that are additional to and not necessarily repeated in zone, overlay or other codes. In particular, the performance outcomes in zone codes address only a limited number of aspects, predominantly related to built form. Development that is impact assessable must also be assessed against the overall outcomes of the code as well as the strategic framework.

9.4.14 Vegetation management code

9.4.14.1 Application

This code applies to assessing material change of use, reconfiguring a lot or operational work for development where indicated within **Part 5 Tables of assessment**.

When using this code, reference should be made to **Section 5.3.2** and, where applicable, **Section 5.3.3**, in **Part 5**.

The requirements for accepted development in Part A of this code provide guidance on what is considered acceptable damage to assessable vegetation before it becomes assessable development. Each required outcome in Part A will apply to a particular circumstance. The table below outlines the applicable provision relating to the type of damage.

Damage type	Provision(s)
Vegetation close to property boundaries	RO1 – RO2
Vegetation close to buildings	RO3
Vegetation close to pool fencing	RO4
Pest species vegetation	RO5
Threatening vegetation	RO6
Damage to vegetation for fire safety	RO7
Damage on agricultural land	RO8
Vegetation maintenance	RO9

Damage type	Provision(s)
All damage not described in the required outcomes	PO1
Note: The required outcomes in Part A of this code will not apply to vegetation that is identified under a vegetation protection order or planted as an approved landscape plan or condition of approval.	
Note: For general guidance on pruning and managing the growth of vegetation refer to <i>AS4373–2007 Pruning of amenity trees</i> .	
Note: Vegetation clearing must not result in harm to native wildlife. Where native wildlife is present it is recommended that a licensed wildlife spotter catcher be employed to oversee works.	

9.4.14.2 Purpose

- (1) The purpose of the Vegetation management code is to provide for the protection and management of assessable vegetation.
- (2) The purpose of the code will be achieved through the following overall outcomes:
 - (a) Vegetation of environmental, historical, cultural, visual and character significance is retained.
 - (b) Vegetation is retained to provide habitats for threatened flora and fauna, prevent erosion and ensure slope stabilisation.
 - (c) Damage to assessable vegetation is only undertaken if it directly obstructs approved development or is a threat to persons or property.
 - (d) Vegetation management plans are prepared for development which has the potential to cause damage to vegetation.
 - (e) Any potential damage caused to vegetation by development is extensively investigated and mitigated.

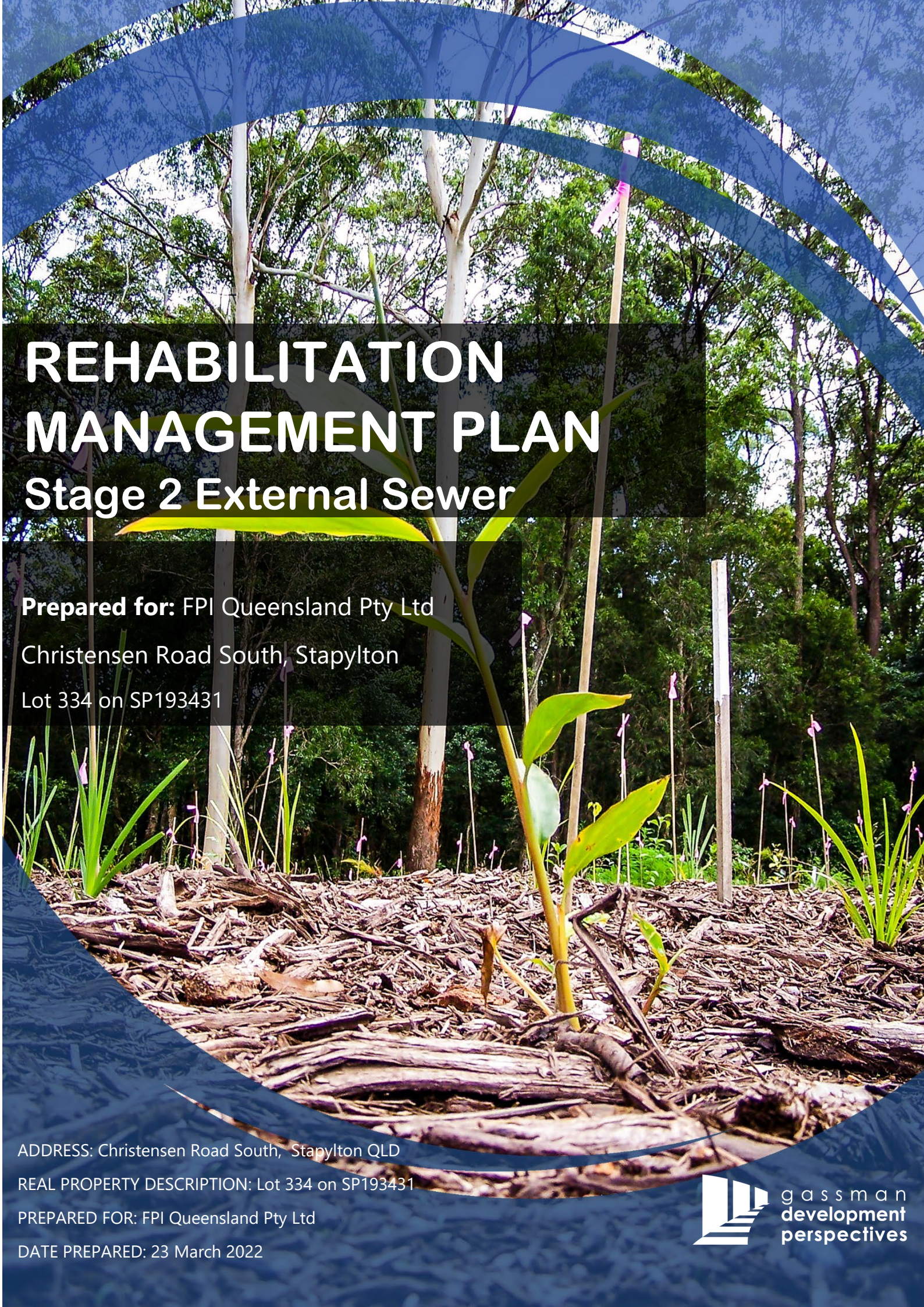
9.4.14.3 Specific benchmarks for assessment

Table 9.4.14-2: Vegetation management code – for assessable development

Performance outcomes	Acceptable outcomes	Does the proposal meet the acceptable outcome? If not, justify how the proposal meets <u>either</u> the performance outcome or overall outcome	Internal use
Vegetation management plan			
PO1 Damage to assessable vegetation does not occur where the vegetation: (a) provides habitats for threatened flora and fauna; (b) is of historical, cultural or visual significance; (c) provides erosion prevention and slope stabilisation; (d) is necessary to maintain the	AO1 A Vegetation Management Plan, prepared by a suitably qualified person, is submitted as part of an Operational Work (Vegetation Clearing) application to show compliance with the Performance outcome. This plan includes, but is not limited to: (a) the location of the existing or approved dwellings, building or structures;	Complies with AO1 – A Vegetation Management Plan has been prepared by a suitably qualified person and submitted with the application.	

Performance outcomes	Acceptable outcomes	Does the proposal meet the acceptable outcome? If not, justify how the proposal meets <u>either</u> the performance outcome or overall outcome	Internal use
character of the local area; or (e) assists in the conservation of the city's biodiversity. Note: A Vegetation Management Plan, prepared in accordance with SC6.8 City Plan policy – Environmental management plans is the Council's preferred method of addressing this performance outcome.	(b) the location of waterways, ridge tops and steep slopes (greater than 25%) on and adjacent to the site; (c) the location of the assessable vegetation to which the damage is proposed, and reasonable particulars of its vegetation type, including species, height and girth and whether it is: • habitat for threatened flora and fauna; • of historical, cultural, character or visual significance; • essential for erosion prevention and slope stabilisation, including within waterway buffers; • significant to the conservation of the city's biodiversity; • vegetation that contributes to waterway and wetland health. (d) a statement of the reasons for the damage and any relevant factors associated with the purpose of the proposed damage; (e) particulars of how vegetation to be retained will be protected during works in accordance with <i>AS4970–2009 Protection of trees</i> on development sites; (f) particulars of how the vegetation is to be damaged and, if relevant, how the damaged material is to be removed or disposed of; (g) a plan indicating the location, size and species of replacement vegetation to compensate for the		

Performance outcomes	Acceptable outcomes	Does the proposal meet the acceptable outcome? If not, justify how the proposal meets <u>either</u> the performance outcome or overall outcome	Internal use
	loss of damaged vegetation; and (h) a staging plan for clearing greater than 4ha of vegetation. Note: To remove a single tree on residential premises only a basic Vegetation Management Plan is required to be submitted to Council. The Vegetation Management Plan can be prepared by the property owner and may only require limited details about the above elements. Guidance on the content of a Vegetation Management Plan can be found in SC6.8 City Plan policy – Environmental management plans.		



REHABILITATION MANAGEMENT PLAN

Stage 2 External Sewer

Prepared for: FPI Queensland Pty Ltd
Christensen Road South, Stapylton
Lot 334 on SP193431

ADDRESS: Christensen Road South, Stapylton QLD
REAL PROPERTY DESCRIPTION: Lot 334 on SP193431
PREPARED FOR: FPI Queensland Pty Ltd
DATE PREPARED: 23 March 2022



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1. Introduction

1.1 Purpose

The purpose of this Rehabilitation Management Plan (RMP) is to provide details of vegetation restoration works to be undertaken on Lot 334 on SP193431 in order to enable the construction of an external underground sewer for the industrial estate development at Christensen Road South, Stapylton. The construction of the sewer will involve excavation of a trench up to 8 metres deep and 8 metre wide on the length of the sewer alignment, that will be backfilled and allowed to regenerate

1.2 Scope

This RMP applies to areas within the proposed Lots 334 on SP193431 (Refer Figure 1.) that are on the alignment of the proposed external sewer. The construction of the sewer will involve excavation of a trench up to 8 metres deep and 8 metres wide on the length of the sewer alignment, that will be backfilled and reinstated to provide a maintenance access track. The proposed rehabilitation area is between Sandy Creek and the sewer alignment.

1.3 Aims and Objectives

This RMP aims to outline the details of work required to achieve restoration outcomes that adequately improve the quality of native vegetation and habitat within the impacted area of Lot 334 on SP193431 that is part of the OPW development application. The proposed Rehabilitation Area will maintain and improve native vegetation and habitat linkages through Vantage Yatala Industrial precinct, and into the stream waterway corridor of Sandy Creek.

The broad objectives of this RMP are to:

- Comply with current 'best practice' guidelines and Council guidelines and policies;
- Provide an overview of the environmental conditions in the riparian corridor;
- Ensure the long-term environmental integrity and ecological linkages within the riparian corridor;
- Provide a native vegetation corridor from the impacted area to the Albert River waterway corridor to the north; and

- Improve ecological function and fauna opportunities within the tributary stream riparian corridor.



1.4 Intended Outcomes

The intended outcomes for successful restoration of the impacted area are:

- The Rehabilitation Area is free from declared weed species;
- The Rehabilitation Area demonstrates a reduction in abundance and diversity of weed species currently present on the site; and
- The Rehabilitation Area contains restored and improved native vegetation to provide enhanced habitat for native flora and fauna.

2. Rehabilitation Approaches

There are four generally accepted approaches to rehabilitation as outlined in South East Queensland (SEQ) Ecological Restoration Framework Manual (2012). These are:

- a. Natural regeneration;
- b. Assisted natural regeneration;
- c. Reconstruction; or
- d. Fabrication.

Of these approaches, assisted natural regeneration and reconstruction planting will be required to facilitate the proposed restoration works within the impacted area on Lot 334 on SP193431 subject to this RMP. Assisted natural regeneration will be utilised in areas with established native vegetation, with some additional infill planting added where necessary to establish the required vegetation densities. In areas that have been subject to earthworks, or where no existing native vegetation is present or is degraded, reconstruction planting will be used to actively restore native vegetation.

3. Site Assessment

The site on Lot 334 on SP193431 is close to Sandy Creek, a tributary stream of the Albert River. The riparian areas of the unnamed watercourse are currently in relatively good ecological condition, with large areas of established and mature native vegetation. There are some incursions of common weeds in certain parts of the Rehabilitation Area. Biodiversity values are relatively high due to the existing native vegetation, the presence of large hollow bearing trees, and the presence of water habitats for various fauna and flora. Natural habitat features such as logs and instream vegetation are present throughout the stream channel.

3.1 Existing Vegetation

The impacted area of Lot 334 on SP193431 is currently mapped as containing some Category B (remnant) vegetation described as partly RE 12.11.3 a riparian vegetation on Sandy Creek, together with some RE 12.11.5 and RE 12.11.24. Examination of desktop imagery indicates that the surrounding vegetation on the site has been heavily modified by historical land uses and now mostly consists of a riparian corridor of remnant vegetation on the Sandy Creek surrounded by large areas of industrial estate development together with exotic grasses and weeds with occasional scattered native and exotic trees.

Prevalent canopy tree species observed in the nearby riparian corridor on the property include; *Eucalyptus tereticornis*, *E. pilularis*, *E. siderophloia* and *Corymbia citriodora*. Other species such as *Melaleuca quinquenervia* and a variety of native vine forest understorey species and aquatic macrophytes also occur in abundance in specific areas, such as directly adjacent to the tributary stream.

This included on ground planting of native vegetation, which is now established. This area also contains some large mature *Eucalyptus tereticornis* and *E. pilularis* trees.

The area within proposed 334 on SP193431 that will be impacted by the clearing largely consists of the existing access track corridor, some area with rehabilitation planting close to the track and surrounding mature open forest vegetation with large mature trees and a significant amount of natural regeneration. Due to the natural regeneration that has occurred, it is expected that revegetation planting required in this area can be adjusted to facilitate natural regeneration occurring.

3.2 Weed species

A number of exotic species were observed as occurring within or close to the impacted area. These exotic species typically included, but were not limited to:

- Giant Devils Fig

- Siratro
- Wild Tobacco
- Lantana, and
- Exotic grasses

Specific weed control techniques and methods to be used on site are outlined in subsequent sections of this report.

3.3 Erosion and sediment infrastructure

The proposed sediment basins for stormwater will be located outside the 30m buffer to the natural waterway. This accords with Performance Outcome PO5 of the Environmental Significance Overlay Code. This states that all infrastructure is to be located outside the buffer to the wetland and waterway in accordance with Performance Outcome PO5.5. These erosion and sediment basins are not included within the rehabilitation area of this RMP, and will instead be planted and treated in accordance with WSUD principles and detailed Landscape OPW plans. The erosion and sediment infrastructure area within Lot 53 will include existing rock scour protection areas from adjacent basin outlets, and also the installation of new culvert headwalls and minor bank re-grading.

The areas subject to old infrastructure removal will be treated with additional preparation measures to make the areas suitable for planting, as detailed in Section 4.

4. Site Preparation

4.1 Removal of rubbish and debris

Some parts of the impacted area on Lot 334 on SP193431 contain piles of loose debris or other material such as corrugated iron and plastic containers. Any material remaining on the site will need to be removed prior to the commencement of rehabilitation works. This unwanted material will need to be removed from the site and disposed of appropriately. Material may need to be separated prior to disposal off-site by a suitably qualified waste management contractor.

4.2 Erosion and Sediment Control

All earthworks undertaken in, or adjacent to, the impacted area will be done in accordance with a Sediment and Erosion Control Plan at all times. In addition, following the earthworks required to remove the concrete pad infrastructure, temporary stabilisation in the form of hydro mulch will be applied to the area where the old infrastructure has been removed. The hydro mulch species mix is to be consistent with the rehabilitation species outlined in the Section 6 - Planting Specifications. Long-term, the hydro mulch stabilisation in this area is considered a temporary erosion control measure, and therefore this area will still require active restoration planting in accordance with Section 6.

4.3 Additional Topsoil and Mulch Treatment

Additional topsoil and mulch may need to be added to disturbed and compacted areas following ripping, in order to create conditions suitable for revegetation plantings to be successful. The suitably qualified rehabilitation contractor will confirm on ground which areas (if any) require additional topsoil and mulch treatment prior to the commencement of restoration plantings. If additional topsoil and mulch is required to be added to a particular area, this will consist of;

- The application of 100mm of topsoil and 100mm of weed free forest mulch; or
- Any other combination of topsoil and mulch depths as recommended by the suitably qualified rehabilitation contractor.

5. Weed Management

5.1 Management objectives

Weed control activities throughout the Rehabilitation Area will aim to achieve the following objectives;

- To reduce the extent of weed species that are threatening or have future threats to diversity levels and ecological processes within the designated rehabilitation areas;
- To remove listed weed (and undesirable exotic) species from rehabilitation areas;
- Allow increased success and establishment of existing natives and rehabilitation plantings; and
- To reduce incidental weed invasion into plant communities within the surrounding areas.

5.2 Implementation

The weed management processes have been provided below sequentially so to ensure the most successful and efficient method is undertaken. Weed management activities are expected to be required on an ongoing basis for a total of two years in accordance with 12-month establishment and 12-month maintenance periods.

5.3 Weed control methods

Weed control of the subject site will be limited to the Rehabilitation Area, and will focus on the treatment of declared weeds, and the treatment of other exotic species and grasses in order to encourage assisted natural regeneration and to prepare any areas that require reconstructive plantings.

All weed control undertaken on the subject site will be undertaken with the following considerations:

- All weed control methods will be in accordance with the South East Queensland Ecological Restoration Framework Guidelines 2012 (Appendix 2).
- Due consideration of the ecologically sensitive nature of the site must be made when selecting the appropriate weed removal and weed control methods.
- Only registered frog friendly aquatic herbicides such as "Biactive" glyphosate will be used due to the proximity of the Rehabilitation Area to the creek corridor and nearby Albert River.
- Weed control works must be undertaken in a manner which does not promote erosion and instability of soil, specifically in the areas around the impacted area that has been cleared.
- If evidence of excessive spraying or off target damage is observed, additional rehabilitation will be undertaken to ensure that public open space areas are stable and not at elevated risks of erosion due to off target damage.
- Dye mixed with chemical is to be used when treating all weeds within public open space.
- Weed control is to be undertaken under drip lines of existing native plants in a manner which promotes regeneration and reduces competition for native species and which limits the potential for off target damage.

5.3.1 Manual Removal

This method physically removes any existing or re-establishing weed species from around the existing plants, thus limiting competition and increasing health of native plants and allowing the new plantings to establish. Manual removal may include hand pulling, or the use of other tools such as a weed plough, or targeted brush cutting and chainsaw use as required to remove the target weed species with no damage to surrounding native vegetation.

5.3.2 Herbicide application

Herbicide should be applied by qualified personnel with experience in bush regeneration and native plant species identification. It is recommended that spray operators have undertaken accredited training through a nationally accredited program such as Chemcert. All weed control techniques will be in accordance with the South East Queensland Ecological Restoration Framework Guidelines 2012 (Appendix 2).

Power operated spray equipment must only be undertaken or supervised by ACDC accredited operators and must comply with the ACDC Act. This Act also specifies limitations of certain herbicides and applications in Queensland Districts.

Spray operators have a legal responsibility to themselves and the public. Employers and employees have obligations under the Work Place Health and Safety Act to provide a 'Duty of Care'.

In Queensland, the 'off-label' permit allows bush regenerators to apply herbicide on plant species that are not listed on the label under Permit 7485. The off-label permit is administered by the Australian Pesticides and Veterinary Medicines Authority (APVMA). This relates to the ground distribution control of weeds in Non-Agricultural Areas, Bushland, Forests and Wetlands.

It is a requirement of this permit, that all persons using the products covered by this off-label permit comply with the details and conditions listed in the permit. In addition, read the herbicide label carefully before use and always use the herbicide in accordance with the label directions. Chemical control of various weeds mentioned in this document will comply with permit 7485.

The operator is responsible to comply with environmental considerations, especially working in riparian areas. It is important to become familiar with the product MSDS, in particular aspects of soil residuality, translocation, breakdown in water, and impact on amphibians (for example, Glyphosate herbicides are chelated with salts which can build up in the soil, changing the Ph and soil conditions). To ameliorate the impact of salt and modified ph, fulvic acid can be used in conjunction with herbicide. As a microbial stimulant fulvic acid increases the plants uptake of the herbicide and reduces soil residues, therefore minimizing environmental harm.

Due to the rehabilitation area being a drainage corridor to the Albert River, only registered frog friendly aquatic herbicides such as "Biactive" glyphosate will be used.

6. Planting Specifications

6.1 Summary of treatments

A single rehabilitation treatment zone is nominated and the species palettes and planting treatments individually outlined in the following section and shown in the Rehabilitation Management Plan in Appendix 1. The area cleared for the sewer alignment will be reinstated as a maintenance access track and will not be rehabilitated.

The planting schedules for the rehabilitation area contains a mix of species known to occur in the mapped Regional Ecosystems, namely RE 12.3.11. The species suggested have been tailored to suit the on-ground location, suitability for Koala habitat and landscape intent of the Rehabilitation Zone.

6.2 Rehabilitation Zone – Undisturbed Waterway Buffer Corridor

The 'Rehabilitation Zone – Undisturbed Waterway Buffer Corridor is designed to be located as a riparian buffer to Sandy Creek (as shown in Appendix 1).

Planting numbers will need to be adjusted on ground to account for areas that already containing existing native vegetation, and therefore require less planting. However, planting works will still need to ensure that an overall density of 1 plant per 2m² is achieved following the revegetation works. It should also be noted that in some instances more denser groundcover plantings may be required in erosion prone areas, such as at the edge of the maintenance track. Therefore, the canopy, mid storey and groundcover planting ratios specified below can be adjusted on ground by the suitably qualified rehabilitation contractor to suit the specific requirements of particular areas within this rehabilitation zone.

The planting species below have been selected to compliment both the pre-clearing and current regional ecosystem mapping with a focus on RE 12.3.11 to reflect the zone's location near the creek channel. Species observed in this zone during site surveys was also taken into consideration.

The primary management action in the 'Rehabilitation Zone – Undisturbed Waterway Buffer' area is to be weed management in order to support natural assisted regeneration, with contingency planting treatments used if assisted natural regeneration does not effectively establish sufficient vegetation.

The following planting specifications outlined below will be implemented within this area if weed management actions are not sufficient to promote natural regeneration. Planting densities and ratios have been specified, however, the actual planting requirements will vary depending on the extent of existing vegetation on the ground. Planting ratios have been adjusted to recognise that the majority for this area already contains established canopy vegetation. The location of this 'Rehabilitation Zone -

Undisturbed Waterway Buffer' is shown in Appendix 1. Estimates of actual numbers of plant numbers required are not provided as this zone is intended to be restored primarily through weed management, with the contingency planting below only used if infill planting is required.

The planting species below have been selected to compliment the current regional ecosystem mapping (12.3.11), as well as species that were observed on ground within the rehabilitation zone.

Rehabilitation Zone – Undisturbed Waterway Buffer

Total area: 46,226 m² (approx.)

Density: 1 plant per 2m²

Ratio: 20% canopy, 60% Mid-storey / Shrubs, 20% Groundcovers

10x Tree Species per 100m²

30x Mid-storey / Shrub Species per 100m²

10x Groundcover Species per 100m²

Total = 50 plants per 100m² module

Table 2 – Rehabilitation Zone - Undisturbed Waterway Buffer Species List

Scientific Name	Common Name	Pot size
Tree Species		
<i>Melaleuca quinquenervia</i> *	Coastal Paperbark	Tube
<i>Eucalyptus tereticornis</i> *	Blue Gum	Tube
<i>Eucalyptus pilularis</i> *	Blackbutt	Tube
<i>Lophostemon suaveolens</i> *	Swamp Box	Tube
<i>Lophostemon confertus</i> *	Brush Box	Tube
Mid-storey / Shrub Species		
<i>Glochidion ferdinandi</i>	Cheese Tree	Tube
<i>Acacia fimbriata</i>	Brisbane Wattle	Tube
<i>Breynia oblongifolia</i>	Coffee Bush	Tube
<i>Leptospermum polygalifolium</i>	Wild May	Tube
<i>Trema tomentose</i>	Poison Peach	Tube
<i>Hibiscus diversifolius</i>	Swamp Hibiscus	Tube
Groundcover Species		
<i>Imperata cylindrica</i>	Blady Grass	Tube
<i>Lomandra longifolia</i>	Mat Rush	Tube
<i>Lomandra hystrix</i>	Creek Mat Rush	Tube

<i>Pteridium esculentum</i>	Native Bracken	Tube
<i>Juncus usitatus</i>	Common Rush	Tube

***Koala habitat tree**

6.3 Planting requirements

Active revegetation planting within the Rehabilitation Zone will be in accordance with the following requirements:

- A suitably qualified rehabilitation contractor is to be engaged.
- Boundaries of the rehabilitation area must be temporarily fenced to exclude people and vehicle impacts during the initial rehabilitation weed control and planting.
- Plant stock is to be grown from local provenance, where possible.
- Plants are to be supplied in tube stock, 75mm native tube or equivalent;
- A survival rate of at least 90% for active planting is to occur within the rehabilitation areas for the duration of the 12-month establishment and 12-month maintenance periods. Failure to achieve these targets will require plant replacement.
- The plants species specified in Section 6.2-6.4 are to be used as a priority, however, if a plant species is not available at the time of planting, a suitable substitute can be made.
- Plant out areas and species locations should be located and clearly marked.
- Replanting areas should be monitored for exotic weed growth during plant out and spot treated accordingly.
- The boundaries of the planting areas will be located and marked or clearly visible.
- Temporary markings on existing native species can be removed during the plant out.
- The planting is to include the addition of a long-term slow release fertilizer to increase establishment potentials and rates of the plant.
- Where possible plants should be planted the day they arrive on site, if this not feasible, they will require a shaded location with sufficient watering provided.
- All planted species should be immediately watered after planting. If this is between the hours of 9am and 4pm specific attention should be given to avoiding leaves during watering to limit epidermis burning.
- Planting is not to occur in extreme weather conditions i.e. strong winds, extremely high temperatures.
- The planting hole should be dished to maximise water catchment and retention

A survival rate of at least 90% is to occur within the Rehabilitation Zone for the duration of the 12-month establishment and 12-month maintenance periods. Failure to achieve these targets will require plant replacement.

6.3.1 Jute Mat

Due to the location of batters associated with erosion and sediment management structures within parts of the rehabilitation zone, jute mat squares installed with each plant are considered more appropriate option than mulch in some circumstances. The jute mat squares are to be installed with each tube stock and pinned in accordance with manufactures instructions. The suitably qualified rehabilitation contractor will confirm which areas within the Rehabilitation Area require jute mat squares, or if some areas may be suited to mulch application.

For areas where earthworks have occurred, use of a broad application Jute mat product, such as Tech Mat, may be more appropriate.

6.3.2 Watering

All plant stock is to be watered onsite prior to planting and as soon as practical after planting (within several hours). Water is to be sourced locally or is to be recycled non-potable water.

The watering regime for planted areas will consist of:

- Weekly for the first month following planting;
- As required for the remaining 12-month period (i.e. to finished the establishment period), bearing in mind performance criteria relating to plant survival and health.

7. Establishment Period

The rehabilitation works are to have an Establishment Period of 12 months, allowing 6 weeks for adequate preparation of planting areas if required. Rehabilitation works should be staged as follows:

Table 4 - Staging of works (Establishment Phase)

<i>Step</i>	<i>Activity</i>	<i>Timing</i>
1	Locate and delineate the rehabilitation area	Week1
2	Remove all rubbish and foreign debris from rehabilitation area	Week 1
3	Undertake initial weed treatment. Locate, mark out and prepare areas for planting.	Week 1
4	Undertake follow up weed control and plant the specified species according to the planting module	Week 7 – 10
5	Scheduled maintenance of planting areas during establishment period and follow up weed control.	6 weekly cycle: Week 16,22,28, 34 - 52

8. Maintenance

The Maintenance Period will be for 12 months, following the 12-month plant establishment phase, and shall consist of:

- Weed Management - hand weeding and spot spraying in rehabilitation areas.
- Watering of planted plants if required.
- Replacement and repair of jute matting if required.
- Replacement planting of individual plants which have died if required.

The performance of maintenance activities will be assessed as part of allocated monitoring inspections.

Table 5 – Measurement of Health

<i>Time scale</i>	<i>Growth and development processes</i>	<i>Key indicator for species health</i>	<i>Maintenance Issues that may arise</i>	<i>Description of maintenance period</i>
0 – 12 Months (establishment period)	Growth rate and establishment	Seedling heights, foliage growth and colour, weed presence.	Weed removal, water requirements, impacts from unforeseen destruction, attrition rates.	90% success in establishing the planted species. Minimal weeding required.
12 – 24 Months (Maintenance period)	Continued growth and establishment General health Minor habitat use	Increasing height and trunk diameter increasing, Canopy growth and density Weed presence, Canopy closure	Weed removal, possible impacts from past weed invasion measures.	Healthy foliage growth rates and characteristics corresponding with individual species.

9. Monitoring

The rehabilitation works are to be monitored by routine site inspections by a qualified professional. Refer to Appendix 3 for an example monitoring inspection form.

Photo Monitoring Points should be established in suitable locations of each rehabilitation zone, to monitor changes over time.

The following inspections are recommended:

Table 6 – Monitoring Schedule (Establishment and On Maintenance Phase)

<i>Inspection</i>	<i>Timing</i>	<i>Purpose</i>	<i>Evidence</i>
1	Weeks 1-2	Confirm location of rehabilitation area & planting areas. Install permanent photo monitoring points (N/E/W/S images to be taken). Take images of site prior to commencement of initial weed treatment.	Site visit and photographs
2	Weeks 6-7	Inspection following initial and follow up weed management treatments.	Site visit and photographs
3	Weeks 8	On Establishment Inspection: Complete inspection with Council following practical completion of reconstructive active plantings.	Site visit, photographs and On Establishment Inspection with Council
4 to 11	Each following month	Monthly inspection of planting areas. Replace any dead plants. Monthly inspection of weed control areas.	Inspection form & photographs
12	Week 52	On Maintenance inspection: assess ecological integrity of site; - Plant establishment and vigour - Effectiveness of weed control activities	Site visit, photographs and On Maintenance Inspection with Council

<i>Inspection</i>	<i>Timing</i>	<i>Purpose</i>	<i>Evidence</i>
13 to 22	Every 6 weeks following	Inspection of planting areas and of weed control areas.	Inspection form & photographs
23	Week 104 or 12 months following 'On Establishment'	Off Maintenance inspection to assess ecological integrity of site; • Plant establishment and vigour • Effectiveness of weed control activities	Site visit, photographs and On Maintenance Inspection with Council

10. Performance Criteria

1. All environmental weeds including woody weeds, vines and Declared Class 1 and 2 weeds (pursuant to the Land Protection (Pest and Stock Route Management) Act 2002) must be controlled on all lands proposed for transfer to Council.
2. No declared Class 1 or Class 2 weeds are to be present on site at the Off-Maintenance inspection.
3. Pasture grass weeds and other perennial weed species are managed and impacts are minimised as much as possible.
4. A survival rate of 90% of active plantings is to be achieved, with any replants displaying good growth and form.
5. Species diversity of the active planting area is reflective of the species detailed within Section 6, except where subject to stock availability or as agreed with the rehabilitation contractor and council.

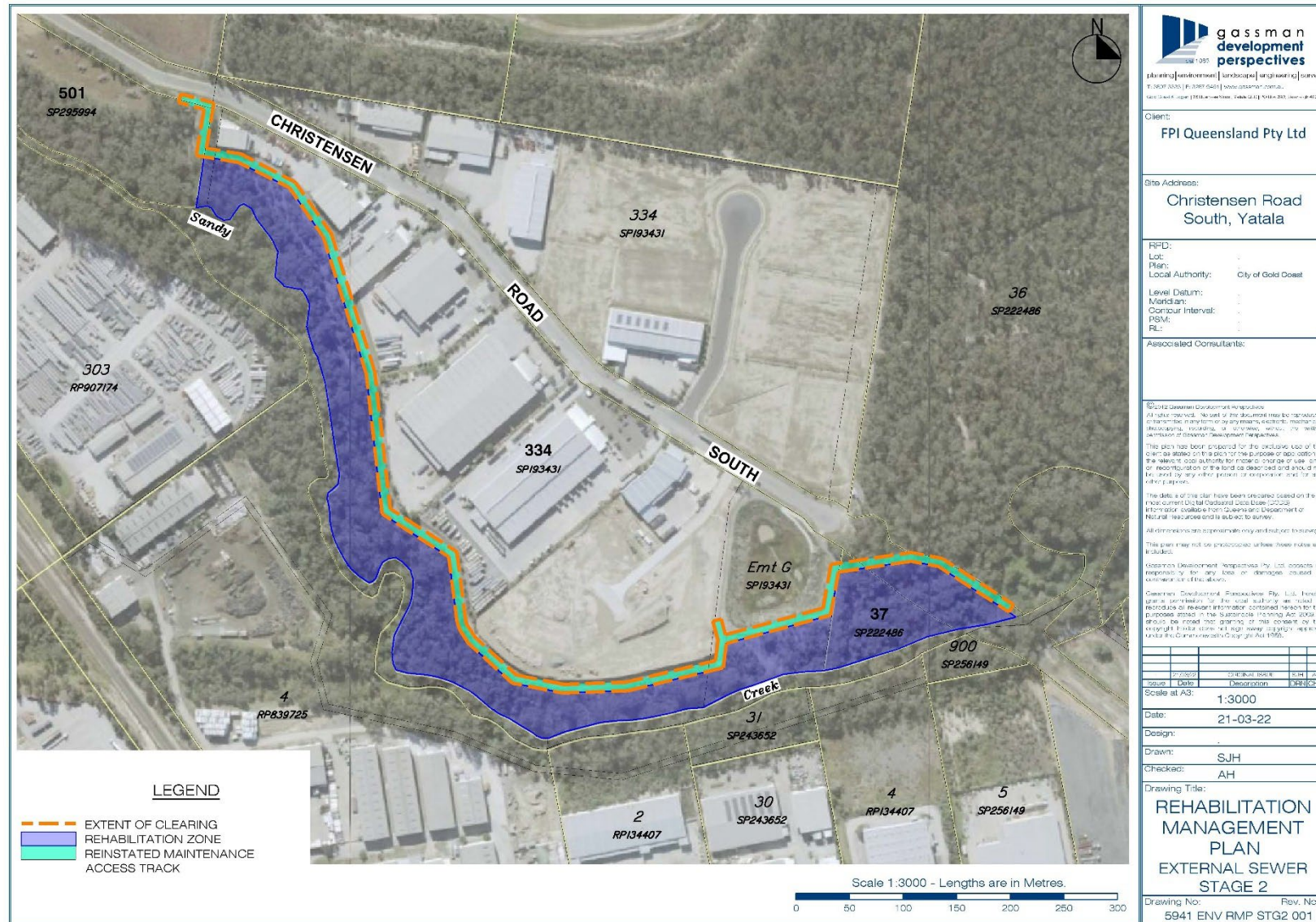
11. Conclusion

This Rehabilitation Management Plan has addressed the objectives that are required to achieve stabilisation of the impacted area of Lot 334 on SP193431 by FPI Queensland Pty Ltd, prior to the OPW application being decided to council.

This report also provides the various strategies and responses required to achieve Council objectives by providing compensatory habitat, whilst effectively managing environmentally sensitive areas during the construction and operation of the proposed development. In particular, the proposed restoration works will involve assisted natural regeneration of the waterway buffer area for Koala habitat, through weed management, and active reconstruction plantings. Specifications for weed management activities and reconstructive plantings have been provided as part of this Rehabilitation Management Plan.

The rehabilitation of the waterway buffer area will benefit council and the natural environment by enhancing a habitat corridor between the riparian vegetation on Sandy Creek and the adjoining habitat corridors surrounding the industrial estate. A vegetation restoration buffer in conjunction with proposed erosion and sediment management measures will allow the impacted area of the subject site to function as a buffer to Sandy Creek, while facilitating other benefits such as vegetation conservation, habitat enhancement, and waterway protection.

APPENDIX 1 – Rehabilitation Management Plan



APPENDIX 2 – South East Queensland Ecological Restoration Framework Weed Management Techniques

DISCLOSURE

At the time of publication the following chemicals and techniques are registered for use and are commonly utilised. Other chemicals and techniques are used in the ecological restoration industry. Laws and best practice techniques change over time and as such it is best to check with your local government as to the current preferred approach.

Under label or off-label permits 11463 and 9868. Permit 9868 requires that persons who can use the product under the permit are "All persons who are trained in the use and handling of agricultural chemicals and who are performing weed control as part of a bush regeneration/restoration project". Operators are legally obliged to read the label before using any herbicides. If the species you wish to treat is not on the label it will be

necessary to read the off label permit. Always consult the ecological restoration plan for the projects.

Additional useful references include the Weeds of Southern Queensland (Dight et al., 2011) and PUBCRIS (<http://services.apvma.gov.au/PubcrisWebClient/welcome.do>).

HERBICIDE (+ E.G. TRADE NAME)	PRINCIPLE USES	ECOTOXICOLOGY	GROUP	SCHEDULE	UPTAKE AND RESIDUAL AFFECT
Glyphosate 360gl (Weedmaster® or Roundup Biactive®)	Non- selective weed control	Full Aquatic registration (in most formulations),	M	5	Absorbed through the leaf via spraying and through the cambium when applying techniques such as stem injection and cut, scrape and paint. Extremely short-lived and rapidly immobilised (both in soil and water). Degraded within hours in most environments
2,4-D 625 gl amine (Amicide 625)	Selective of broad-leaved weeds in native grasses (limited effect on deep rooted dicots, legumes etc.)	Aquatically registered formulations available	I	5	Mainly absorbed through leaves and stems. Fairly immobile and relatively short-lived in the soil. (degraded within days in most environments)
Fluroxypyr 333gl (Starane advance)	Selective broad-leaf control (particularly effective on undersown legumes weeds)	N (demonstrated toxicity to aquatic organisms)	I	NS	Absorbed through the leaves. Relatively short-lived in the soil though highly persistent in water
Metsulfuron Methyl (Brush-off, Ally, Associate)®	Selective of broad-leaved weeds but also able to control a variety of monocots when applied at higher rates especially Liliaceae and Commelinaceae. Lower rates do affect monocots.	N (demonstrated toxicity to aquatic organisms)	B (potential resistance rotate with other herbicides)	NS	Mainly leaf absorbed. May persist for 3-6 months in the soil profile.
Metsulfuron + Glyphosate	Non-selective weed control and used with particular weeds or combination of weeds.	N (demonstrated toxicity to aquatic organisms)	MB (potential resistance rotate with other herbicides)	5	Mainly leaf absorbed, may persist for 3-6 months in the soil profile.
2,2-DPA	Grass (monocot) selective herbicide suitable for targeting dense weedy grass infestations amongst desirable native vegetation.	Yes (limited)	J	NS	Leaf and root absorbed
*Aquatic reg indicates that formulations of this herbicide may carry and aquatic registration, some formulations do not and individuals should check PUBCRIS prior to assuming they have an aquatically registered formulation. Addition of non-aquatically re...					
Gly	Glyphosate	eg. Weedmaster Duo®, Roundup Biactive®			
MM	Metsulfuron methyl	eg. Brushoff®, Brushkiller®, Associate®			
S	Surfactant	eg. LI700®, Prosil®, Pulse®			
A	Spray Adjuvant	eg. Agral®, Protec®, Codacide®			
D	Colour Marking Dye	eg. Herbi (red or blue) Liquid Dye®			

COMMON NAME	SCIENTIFIC NAME	APPLICATION METHOD	CHEMICAL	RATE	ADJUVANT	SURFACTANT	COMMENTS
TREES							
Chinese Celtis	<i>Celtis sinensis</i>	Stem Inject	Glyphosate	1:1.5 Gly:water			
		Cut, Scrape and Paint	Glyphosate	1:1.5 Gly:water			
		Basal Bark (saplings)	Fluroxypyr	210ml:10L diesel			
		spot-spray	Glyphosate	200ml:10L water + A + D			
			Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + S + A			
Camphor Laurel	<i>Cinnamomum camphora</i>	Stem Inject	Glyphosate	1:1.5 Gly:water			
		Cut, Scrape and Paint	Glyphosate	1:1.5 Gly:water			
		Basal Bark (saplings)	Fluroxypyr	210ml:10L diesel			
		Spot spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + S + D			
			Glyphosate	200ml:10L water + A + D			
Cadaghi	<i>Corymbia torelliana</i>	Cut, Scrape and Paint	Glyphosate	1:1.5 Gly:water			
		Stem Inject	Glyphosate	1:1.5 Gly:water			
		Basal Bark (saplings)	Fluroxypyr	210ml:10L diesel			
		Spot spray	Glyphosate	100ml Gly: 10L water + A + D			
Loquat	<i>Eriobotrya japonica</i>	Basal Bark(sapling)	Fluroxypyr	210ml:10L diesel			
		Spot spray	Glyphosate	200ml Gly:10L water +			
		Cut Scrape and Paint	Glyphosate	1:1.5 Gly:water			
		Stem Inject	Glyphosate	1:1.5 Gly:water			
Cockscomb Coral Tree and Coral Tree	<i>Erythrina crista-galli</i> and <i>E. x sykesii</i>	Spot spray	Glyphosate	200ml Gly:10L water + S+ A			
		Basal Bark (sapling)	Fluroxypyr	210ml/10L diesel			
		Cut Scrape and Paint	Glyphosate	1:1.5 Gly:water			
		Stem Inject	Glyphosate	1:1.5 Gly:water			
Brazilian cherry	<i>Eugenia uniflora</i>	Cut Scrape and Paint	Glyphosate	neat (undiluted)			
		Stem Inject	Glyphosate + Metsulfuron Methyl	1g MM added to 1 Gly:1.5 water			
		Spot Spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + S + D			
Golden Rain Tree	<i>Koelreuteria elegans; paniculata</i>	Cut Scrape and Paint	Glyphosate	1:1.5 Gly:water			
		Stem Inject	Glyphosate	1:1.5 Gly:water			
		Basal Bark (sapling)	Fluroxypyr	210ml:10L diesel			
		Spot spray	Glyphosate	100ml Gly:10L water + A + D			
Privet (Large and Small leaved)	<i>Ligustrum lucidum</i> and <i>L. sinense</i>	Spot Spray	Glyphosate	200ml Gly:10L water + S+ D			
			Metsulfuron methyl	1.5g MM:10L water + A + D			
			Fluroxypyr	30ml:10L water +			
		Cut Scrape and Paint	Glyphosate	1:1.5 Gly:water			
		Stem Inject	Glyphosate	1:1.5 Gly:water			
		Basal Bark (sapling)	Fluroxypyr	210ml:10L diesel			

Mulberry	<i>Morus spp.</i>	Spot Spray	Glyphosate	200ml Gly:10L water + S + D			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Stem Inject	Glyphosate	1 Gly:1.5 water			
		Basal Bark (Juvenile)	Fluroxypyr	210ml:10L diesel			
Canary Island Date Palm	<i>Phoenix canariensis</i>	Spot Spray	Glyphosate	200ml Gly:10L water + S + D			
		Stem Inject	Glyphosate + Metsulfuron Methyl	1g MM added to 1 Gly:1.5 water			
Guava	<i>Psidium guajava</i>	Spot Spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + S + D			
		Cut Scrape and Paint	Glyphosate + Metsulfuron Methyl	1g MM added to 1 Gly:1.5 water			
		Stem Inject	Glyphosate + Metsulfuron Methyl	1g MM added to 1 Gly:1.5 water			
		Stem Inject	Glyphosate	1 Gly:1.5 water			
Umbrella Tree	<i>Schefflera actinophylla</i>	Spot Spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A + D			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Stem Inject	Glyphosate	1 Gly:1.5 water (do not stem inject when in flower)			
Broad-leaf Pepper Tree	<i>Schinus terebinthifolius</i>	Spot Spray	Glyphosate	200ml:10L water + S + A			
			Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + S + A			
			Fluroxypyr	30ml:10L water			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Basal Bark (sapling)	Fluroxypyr	210ml:10L diesel			
		Stem Inject	Glyphosate	1 Gly:1.5 water			
Giant Devils Fig and Wild Tobacco	<i>Solanum chrysotrichum and S. mauritianum</i>	Spot Spray	Glyphosate	150ml Gly:10L water + A + D			
			Fluroxypyr	30ml:10L water			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Basal Bark (Juvenile/ Mature)	Fluroxypyr	210ml:10L diesel			
		Stem Inject	Glyphosate	1 Gly:1.5 water			
African tulip tree	<i>Spathodea campanulata</i>	Spot Spray	Glyphosate	200ml Gly + 1.5g MM in 10L water + A + D			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Stem Inject	Glyphosate	1 Gly:1.5 water			
Cocos palm	<i>Syagrus romanzoffiana</i>	Stem Inject	Glyphosate + Metsulfuron Methyl	1g MM added to 1 Gly:1.5 water			
		Spot Spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A + D			
Yellow Bells	<i>Tecoma stans</i>	Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Basal Bark	Fluroxypyr	210ml:10L diesel			
		Spot Spray	Glyphosate	150ml Gly: 10L water + A + D			
		Stem Inject	Glyphosate	1 Gly:1.5 water			
Tipuana	<i>Tipuana tipu</i>	Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Stem Inject	Glyphosate	1 Gly:1.5 water			

GRASSES							
Creeping Bamboo/ Clumping Bamboo	<i>Arundinaria spp./ Bambusa spp.</i>	Cut and spray (re- growth/seedling)	Glyphosate 2,2-DPA	100ml Gly: 10L water + D 150g:10L water			
		Cut stump and fill segment	Glyphosate	1 Gly:1.5 water			
Broad-leaved carpet grass, Narrow-leaved carpet grass, Para grass, Mosman River grass , Pangola grass, Guinea grass, Rhodes grass, Molasses grass, Sour grass, Paspalum, Bahia grass, Vasey grass, Broad-leaf paspalum, Kikuyu grass, Bana grass, Elephant grass	<i>Axonopus compressus, A. fissifolius, Brachiaria mutica, Cenchrus echinatus, Chloris gayana, Digitaria eriantha, Megathyrsus maximus, Melinis minutiflora, Paspalum conjugatum , P. dilatatum , P. notatum , P. urvillei, P. wetsteinii , Pennisetum clandest</i>	Spot Spray	Glyphosate	100ml Gly:10L water + D			
Herbs							
Agave/Century plant	<i>Agave americana</i>	Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Stern Inject	Glyphosate	1g MM added to 1 Gly:1.5 water			
Crofton weed	<i>Ageratina adenophora</i>	Spot Spray	Glyphosate	100ml Gly:10L water + D			
			Metsulfuron methyl	1/2 - 1g MM: 10L water + D			
Mistflower	<i>Ageratina riparia</i>	Spot Spray	Glyphosate	100ml Gly:10L water + D			
			Metsulfuron methyl	1/2 - 1g MM: 10L water + D			
Blue billy-goat weed	<i>Ageratum houstonianum</i>	Spot Spray	Glyphosate	100ml Gly:10L water + D			
			Metsulfuron methyl	1g MM: 10L water + D			
			Fluroxypyr	30ml/10L water			
			2,4-D	30ml/10L water			
Ragweed	<i>Ambrosia artemisiifolia</i>	Spot Spray	Glyphosate	100ml gly:10L water + A + D			
			Metsulfuron methyl	1.5g MM: 10L water + A + D			
Cobblers pegs	<i>Bidens pilosa var. pilosa</i>	Spot Spray	Fluroxypyr	30ml/10L water			
			2, 4-D	30ml/10L water			
			Glyphosate	100ml Gly: 10L water + A + D			
			Metsulfuron methyl	1g MM: 10L water + A + D			
Mother of Millions; Live Leaf Plant; Resurrection Plant	<i>Bryophyllum delagoense; Pinnatum</i>	Spot Spray	2, 4-D	50ml/10L water			
	<i>Bryophyllum delagoense</i>		Metsulfuron methyl	1.5g MM:10L water + S + D			
Purple/Green Succulent, Inch Plant	<i>Callisia fragran; repens</i>	Spot Spray	Fluroxypyr	90ml/10L water			
			Metsulfuron methyl	1.5g MM:10L water + S + D			
			Glyphosate	200ml Gly:10L water + A + D			
			Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A + D			

Hairy Commelina; Trad (wandering Jew); Purple Succulent; Striped Trad	<i>Commelina benghalensis</i> ; <i>Tradescantia fluminensis</i> / <i>albiflora</i> ; <i>Tradescantia pillida</i> ; <i>Zebrina pendula</i> syn <i>Tradescantia zebrina</i>	Spot Spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A + D			
			Glyphosate	200ml Gly:10L water + A + D			
			Metsulfuron methyl	1.5g MM: 10L water + S + D			
			Fluroxypyr	90ml/10L water			
Glory lilly	<i>Gloriosa superba</i>	Foliar Spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A + D			
Polka dot plant	<i>Hypoestes phyllostachya</i>	Spot Spray	Metsulfuron methyl	1.5g MM:10L water + S + D			
			Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A + D			
Fish bone fern	<i>Nephrolepis cordifolia</i>	Spot Spray	Metsulfuron methyl	1g MM: 10L + A/S + D			
			Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A + D			
Coral berry	<i>Rivinia humilis</i>	Spot Spray	Glyphosate	100ml Gly: 10L water + A + D			
			Glyphosate + Metsulfuron Methyl	100ml Gly + 1.5g MM in 10L water + A + D			
Mother-in-law's tongue	<i>Sansevieria trifasciata</i>	Spot Spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A + D			
Flannel Weed	<i>Sida cordifolia</i>	Spot Spray	Fluroxypyr	60ml/10L water			
Ground Asparagus	<i>Asparagus aethiopicus</i>	Spot Spray	Metsulfuron Methyl	1.5g MM : 10L water + A + D			
			Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A/S + D			
Singapore Daisy	<i>Sphagneticola trilobata</i>	Spot Spray	Metsulfuron methyl	1.5g MM in 10L water + A + D			
			Glyphosate + Metsulfuron Methyl	100ml Gly + 1g MM in 10L water + A + D			
SHRUBS							
Groundsel bush	<i>Baccharis halimifolia</i>	Spot Spray	2,4-D	40ml/10L water			
		Spot Spray	Glyphosate	200ml Gly:10L water + A + D			
		Stern Inject	Glyphosate	1 Gly:1.5 water			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
Green cestrum	<i>Cestrum parqui</i>	Spot Spray	Glyphosate	200ml Gly:10L water + A + D			
			Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A + D			
Duranta	<i>Duranta erecta</i>	Overall Spray (re-growth/seedling)	Glyphosate	200ml Gly:10L water + A + D			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Stern Inject	Glyphosate	1 Gly:1.5 water			
Lantana	<i>Lantana camara</i>	Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Spot Spray	Fluroxypyr	40ml/10L (spring, summer)-60ml/10L water (Autumn, Winter)			
		Spray (spot spray and overspray)	Glyphosate	100ml Gly:10L water + D			
		Spray Red Flowering species	Glyphosate	200ml Gly:10L water + A + D			
		Splatter Gun	Glvphosate	1 Gly:9 water			

Leucaena	<i>Leucaena leucocephala</i>	Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Spot Spray	Fluroxypyr	30ml/10L water			
HERBS							
Murraya	<i>Murraya paniculata</i>	Spot Spray	Glyphosate	200ml Gly:10L water + A + D			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Stern Inject	Glyphosate	1 Gly:1.5 water			
Mickey mouse bush	<i>Ochna serrulata</i>	Basal Bark	Fluroxypyr	210ml/10L diesel			
		Spot Spray	Fluroxypyr	30ml/10L water			
		Spot Spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A/S + D			
		Scrape (lightly) and Paint - juvenile	Glyphosate	neat (undiluted)			
		Cut Drill and Fill - mature	Glyphosate + Metsulfuron Methyl	1g MM added to 1 Gly:1.5 water			
Prickly pear	<i>Opuntia Spp.</i>	Spot Spray	Glyphosate + Metsulfuron Methyl	100ml Gly + 1.5g MM in 10L water + A + D			
		Cut Scrape and Paint in horizontal cuts across flat stems	Glyphosate + Metsulfuron Methyl	1g MM added to 1 Gly:1.5 water			
Castor Oil Plant	<i>Ricinus communis</i>	Spot Spray	2, 4-D	45ml/10L water			
			Glyphosate	100ml/ 10L water			
		Cut Scrape and Paint	Glyphosate	1g MM added to 1 Gly:1.5 water			
		Stern Inject	Glyphosate	1g MM added to 1 Gly:1.5 water			
Easter Cassia/ Winter Senna	<i>Senna pendula var. glabrata</i>	Spot Spray	Glyphosate	200ml Gly:10L water + A + D			
		Cut and Paint		1 Gly:1.5 water			
		Stern Inject (Mature)	Glyphosate	1 Gly:1.5 water			
Smooth senna	<i>Senna septemtrionalis</i>	Spot Spray	Glyphosate	200ml Gly:10L water + A + D			
		Cut and Paint	Glyphosate	1 Gly:1.5 water			
		Stern Inject	Glyphosate	1 Gly:1.5 water			
Yellow Oleander	<i>Thevetia peruviana</i>	Basal Bark	Fluroxypyr	210ml/10L Diesel			
		Spot Spray	Glyphosate	200ml Gly:10L water + A + D			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Stern Inject	Glyphosate	1 Gly:1.5 water			
VINES							
Madeira Vine	<i>Anredera cordifolia</i>	Spot Spray	Fluroxypyr	30ml/10L water			
		Spot Spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A/S + D			
		Scrape and Paint (mature vines)	Glyphosate	Scrape as much stem as possible in 1m lengths on alternate sides. Gouge and paint ground tubers. Scrape and paint roots			
Moth vine	<i>Araujia sericiflora</i>	Spot Spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A + D			
		Cut Scrape and Paint	Glyphosate (aerial)	1 Gly:1.5 water			

Dutchman's pipe	<i>Aristolochia elegans</i>	Spot Spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A + D			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
Climbing Asparagus	<i>Asparagus africanus; plumosus</i>	Basal Bark	Fluroxypyr	210ml/ 10L diesel			
		Spot Spray	Glyphosate	200ml Gly:10L water + A + D			
Balloon Vine	<i>Cardiospermum grandiflorum</i>	Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Spot Spray	Glyphosate	100ml Gly:10L water + D			
Green/ Silver-leaf desmodium; Siratro; Horesgrain; Glycine	<i>Desmodium intortum; Macroptilium atropurpureum; Macrotyloma uniflorum; Neonotonia wightii</i>	Spot Spray	Glyphosate	200ml Gly:10L water + A + D			
			2,4-D	40ml/10L water			
			Glyphosate + Metsulfuron Methyl	100ml Gly + 1.5g MM in 10L water + A + D			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
Moon flower; Mile-a-minute; Morning Glory; Blue Morning Glory	<i>Ipomoea alba; I. cairica; I. indica and I. purpurea</i>	Spot Spray	Glyphosate + Metsulfuron Methyl	100ml Gly + 1.5g MM in 10L water + A + D			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
Creeping Lantana	<i>Lantana montevidensis</i>	Spot Spray	2,4-D	40ml/10L water			
			Glyphosate + Metsulfuron Methyl	100ml Gly + 1.5g MM in 10L water + A + D			
Cat's Claw Creeper	<i>Macfadyena unguis-cati</i>	Spot Spray	Metsulfuron methyl	1.5g MM : 10L water + A + D			
			Glyphosate	100ml Gly : 10L water + S + D			
Edible passionfruit; Stinking Passionflower; Corky Passionfruit; White Passionfruit	<i>Passiflora edulis; foetida; suberosa; subpeltata</i>	Spot Spray	Glyphosate + Metsulfuron Methyl	100ml Gly + 1g MM in 10L water + A + D			
			Glyphosate	200ml Gly:10L water + A + D			
		Cut Scrape and Paint	2,4-D	30ml/10L water			
			Glyphosate	1 Gly:1.5 water			
Kudzu	<i>Pueraria lobata</i>	Spot Spray	Glyphosate + Metsulfuron Methyl	100ml Gly + 1.5g MM in 10L water + A + D			
			Fluroxypyr	30ml/10L water			
		Gouge and Paint tubers	Glyphosate	1 Gly:1.5 water			
		Stern Inject	Glyphosate + Metsulfuron Methyl	1/1 (g) + 1g (MM) Per Litre of water			
Climbing nightshade	<i>Solanum seaforthianum</i>	Spot Spray	Fluroxypyr	30ml/10L water			
		Cut Scrape and Paint	Glyphosate	100ml Gly : 10L water + A + D			
Black eyed susan	<i>Thunbergia alata</i>	Spot Spray	Glyphosate	1 Gly:1.5 water			
			2-4,D	30ml/10L water			
			Glyphosate	200mL in 10L water			
		Basal Bark	Metsulfuron methyl	1.5g in 10L water			
		Cut Scrape and Paint	Fluroxypyr	210ml/ 10L diesel			
			Glyphosate	1 Gly:1.5 water			

APPENDIX 3 – Example Site Monitoring Form

SITE VISIT DETAILS	
Location: Site Visit No. & Date: Site Visit By: Weather:	
Purpose of the site visit	Tick box
Allocated routine inspection	
Final Inspection	

Score of 1: <5%cover Score of 2: 5-20%

cover Score of 3: 20-50% cover Score of 4: 50-75% cover Score of 3: 75-100% cover

Site visit	Date	Criteria					
		Habitat	Species Diversity Indicators	Indigenous cover (tree, shrub, moss)	Occurrence of natural regeneration	Condition of fences	General Observations (fire, flood, breeding, flowering etc.)
1							
2							
3							
4							
5							
6							
7							
8							