

OUR REF: 5941
YOUR REF: OPW/2020/674

14 July 2020

City Development
Council of The City of Gold Coast
PO Box 5042
GOLD COAST MC QLD 9729

Attention: Ms. Liza Teo

Dear Liza,

**RE: RESPONSE TO INFORMATION REQUEST FOR OPW/2020/674
EXTERNAL TRUNK SEWER ASSOCIATED WITH VANTAGE, YATALA**

**LOT 3 SP139664, LOT 4 WD3607, LOT 501 SP2959994 – MACPHERSON ROAD
AND STAPYLTON JACOBS WELL ROAD, STAPYLTON**

We act on behalf of the Applicant, Frasers Property Australia Pty Ltd, and provide the following response to Council's Information Request dated 12 June 2020. Given the nature of the response, the Applicant considers this to be a full response to the information request.

WATER AND WASTE ASSESSMENT

1. *Explore and demonstrate tolerances with directional drilling and provide this detail to Council for review.*

GDP Response:

GDP has previously explored directional drilling as a construction methodology prior to the detailed design documentation occurring. These investigations involved seeking advice from numerous trenchless specialists prior to design finalisation and formal submission of the Operational Works application to Council. Please find attached email forwarded by, GDP's Mitchell Gassman to GCWW's, Roman Thomas on the 15th May 2020 (*refer **Attachment 1***) confirming advice from specialist trenchless contractors that micro tunnelling is the correct trenchless methodology due to the flatter grades required to achieve an outfall to the existing GCWW gravity sewer network on the western side of the M1 Motorway. It is on this basis that directional drilling was not the methodology chosen for construction and instead micro tunnelling is the preferred methodology nominated on the engineering design drawings.

2. *Add extra steps to the live work table to manage connections and building over existing main on the western side of the M1.*
 - a. *Existing mains on western side of M1 depicted in Council mapping as DICL; these mains will require replacement of a section with uPVC prior to building MH over.*

GDP Response:

Council's comment regarding material type is noted and as such drawing 5941 ENG EXTSEW 650 Rev B along with the live works table contained on drawing 5941 ENG EXTSEW 600 Rev B have been amended to notate the material type of the existing mains along with adding an additional step confirming the replacement of the DICL within the manhole build over extent with uPVC prior to the manhole build over occurring. The amended engineering drawing set for these works is contained within **Attachment 2** of this response.

- b. *Provide live works table outlining construction methodology and order of works.*

GDP Response:

Drawing 5941 ENG EXTSEW 650 Rev B contains a live works table outlining the construction methodology and order of works as requested. The amended engineering drawing set for these works is contained within **Attachment 2** of this response.

3. *Clarify the decommissioning process for existing rising mains and ensure the sewer within TMR road reserve is removed.*

GDP Response:

Contained within **Attachment 2** of this response, please find drawings 5941 ENG EXTSEW 602 Rev B, 5941 ENG EXTSEW 603 Rev B and 5941 ENG EXTSEW 604 Rev B confirming the extent of and nominated the existing rising mains (both of public and private assets) to be decommissioned and taken up/removed upon successful live connection of trunk sewer gravity main within the DTMR corridor.

4. *Amend plans and provide composite lids on all trunk sewer manholes.*

GDP Response:

Contained within **Attachment 2** of this response, please find the amended engineering drawings confirming composite lids referenced on each structure both on the longitudinal sections and layout plans.

5. *May need transition manhole at S11/1 to manage rising main discharge.*

GDP Response:

Manhole S11/1 is currently configured as a transition manhole for the rising main discharge with the invert levels within the structure set up in accordance with SEQ Code standard drawing SEQ-SPS-1406-1. This is reflected on the longitudinal section plan no. 5941 ENG EXTSEW 613 Rev B which shows the transition inclusive of Invert Levels.

6. *Nominate in situ MH type with PE liners for MHs on trunk sewer main.*

GDP Response:

Contained within **Attachment 2** of this response, please find the amended engineering drawings confirming in situ manhole types have been specified. PE lining requirements are also already nominated within the long sections within the top information bar. A screenshot of where this is located is below for Council's reference.

MAINTENANCE HOLE / SHAFT NAME		S4/1
MH / MS COVER TYPE	D	
MH / MS TYPE	MH1500	(P2)
DS MH / MS DROP TYPE	V	
LINE DEFLECTION & BRANCHES	I	
PE LINING CORROSION PROTECTION?	Y	

7. *Directional drill needs to use PE – jacked or bored method needs a different material (this needs to be stated on the plans).*

- a. *Once the construction methodology is agreed with Council, material types to be specified based on the construction methodology.*
- b. *PE pipe will only be permitted where directional drilling is the approved construction method.*

GDP Response:

As clarified within GDP's response to Item 1, directional drilling is not proposed or suitable for use in construction of this trunk sewer gravity main due to the grades required to be achieved. The engineering drawings as submitted to Council provide details of the enveloper pipe material and size on the longitudinal sections as per SEQ-SEW-1402-1-B with GRP specified for the encasing pipe based on the specialist contractor feedback obtained in addressing Item 1 of Council's Information Request (refer Attachment 1).

8. *Pothole all 3 existing rising mains at the proposed discharge manhole locations and confirm connection arrangement to trunk gravity sewer.*

GDP Response:

Potholing has now been undertaken on all existing sewer rising mains. Contained within **Attachment 2** of this response, please find the amended engineering drawings confirming the specific potholing locations relevant to each connection detail of the existing rising mains to the proposed trunk gravity sewer main. These potholing references are shown on drawings 5941 ENG EXTSEW 012 Rev B and 014 Rev B.

We feel that the above information satisfactorily responds and addresses all the matters raised as part of the Information Request and we look forward to a timely and favourable determination of the application.

If you require any further information or have any queries, please contact the undersigned.

Yours faithfully,

GASSMAN DEVELOPMENT PERSPECTIVES



MITCHELL GASSMAN
CIVIL PROJECT ENGINEER

Enclosed

Attachment 1: Correspondence with GCWW confirming micro tunnelling

Attachment 2: Amended Engineering Drawings and associated Drawing Transmittal

ATTACHMENT 1 - CORRESPONDENCE WITH GCWW CONFIRMING MICRO TUNNELLING

Mitchell Gassman

From: Mitchell Gassman
Sent: Friday, 15 May 2020 2:13 PM
To: 'THOMAS Roman'
Cc: Alan Kelly
Subject: FW: 5941_Advice for HDD and Microtunneling contractors
Attachments: RE: 5941_Boring_Stapylton_Jacobs Well Road_Yatala; RE: 5941_Drilling Advice_SEQ Trenchless; RE: 5941_Sewer Gravity Main_Underbore_Methodology_GCE; FW: 5941_FW: Maxibor Frasers Property Group

Roman,

Further to our telephone conversation this afternoon please see attached written correspondence from the 4 specialist contractors we have been engaging with regarding micro tunnelling versus HDD methodology for the trunk sewer.

Regards,
Mitchell



From: Alan Kelly
Sent: Friday, 15 May 2020 10:06 AM
To: Mitchell Gassman <mitchell@gassman.com.au>
Cc: Ian Grieves <igrieves@gassman.com.au>
Subject: 5941_Advice for HDD and Microtunneling contractors

Mitchell,

We now have four specialist contractors whom have assessed the option 6 design all of whom have come back stating HDD is not advisable.

Two contractors that specialise in boring (GCE and Bothar) have also given a methodology of enveloper pipe with the internal carrier pipe.

Final responses from all contractors is attached.

This might satisfy GCWW of adequate specialist contractors advice.

Ian,

Cc'd for info.

Thanks,

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Alan Kelly

Civil Project Engineer | BEng Civil, BSc. CEng Man
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Mitchell Gassman

From: Dmitry Shcherbakov <Dmitry.Shcherbakov@botharboring.com>
Sent: Friday, 15 May 2020 9:46 AM
To: Alan Kelly
Cc: Mitchell Gassman
Subject: RE: 5941_Boring_Stapylton_Jacobs Well Road_Yatala

Hi Alan,

Apologies for late reply.

Definitely, it is not a HDD job.

Usually, it is not practicable to suggest HDD method for grades less than 1%, especially for gravity lines (sewer or stormwater). There are very limited amount of HDD operators who can achieve good results with 1% or steeper grades, but again I would not ever recommend to use HDD on a gravity lines.

This is due to accuracy and due to the method itself.

It is a great and in most cases – cost effective method, but mostly for pressure lines, especially when there is no requirement for any kind of enveloper for carrier/product pipe.

In regards to this project,

I would recommend to shorten line S3 – S4 to max. 200m.

Method proposed: AVN800 microtunnelling machine (Herrenknecht) with OD960 steel casing for OD560 PE. It will suit ground conditions (silty clay) and capable to maintain designed grade – 0.16%.

For lines S2 – S3 – 51m, I propose to use DN750 steel casing with AVN600 machine.

The same for line S4 – S5 of 111m.

Line S9-S10 is in Metasandstone, with the mixed layers of different strength.

For OD300 PE carrier pipe, I proposed to use DN500 steel casing and AVN400 machine.

Thank you,

Dmitry Shcherbakov

Project Manager

98 Ingleston Road, Wakerley, QLD, AUS 4154

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E dmitry.shcherbakov@botharboring.com / **W** www.botharboring.com



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From: Alan Kelly <AKelly@gassman.com.au>
Sent: Monday, 11 May 2020 4:22 PM
To: Dmitry Shcherbakov <Dmitry.Shcherbakov@botharboring.com>
Cc: Mitchell Gassman <mitchell@gassman.com.au>
Subject: 5941_Boring_Stapylton_Jacobs Well Road_Yatala

Hi Dmitry,

Thank you for your time during our previous telephone conversations.

Please find attached drawings and long section for a proposed sewer main which requires to be bored between S2 and S5 and again between s9 and s10.

Due to the length and the tie in point level as well as services, the main requires to be laid at grades as flat as 1 in 600.

City of Gold Coast Council have been previously suggesting HDD but I have been informed there would be high risk of not obtaining the desired design grades using HDD and also a high risk of micro ponding.

Would you in your professional opinion advise that HDD should or should not be undertaken.

It would also be appreciated if Bothar could provide a brief bullet point methodology on the chosen drilling/boring technique.

Thanks,

g a s s m a n development perspectives



Alan Kelly

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Mitchell Gassman

From: Joshua Taylor <josh@seqtrenchless.com.au>
Sent: Tuesday, 12 May 2020 11:23 AM
To: Alan Kelly
Cc: Mitchell Gassman
Subject: RE: 5941_Drilling Advice_SEQ Trenchless

Hi Alan,

The first flag for advising against HDD is the flat grade of the pipeline. Maintaining a 1:600 grade with no ponding or backfall is near on impossible with HDD due the over cut required, accuracy of guidance methods, changes in ground conditions and general process of drilling and not being able to confirm alignment during reaming stages. I have not taken into account the required setup area or area required to string the pipe prior to and during installation. The pipe type suits HDD but that is about it.

I would see microtunneling as being a suitable method, although a change in pipe type may be required or beneficial. There are multiple machine types (slurry, vacuum and custom made) and contractors available to quote the works.

Regards,

Josh Taylor – Director
0447156360 josh@seqtrenchless.com.au



From: Alan Kelly <AKelly@gassman.com.au>
Sent: Monday, 11 May 2020 4:31 PM
To: Joshua Taylor <josh@seqtrenchless.com.au>
Cc: Mitchell Gassman <mitchell@gassman.com.au>
Subject: RE: 5941_Drilling Advice_SEQ Trenchless

Hi Joshua,

I know you rang me after the below email and thanks for your information, which at the time was that the grades at 1 in 600 and 1 in 750 would not be suitable for HDD.

City of Gold Coast Council have suggesting HDD but I have been informed there would be high risk of not obtaining the desired design grades using HDD and also a high risk of micro ponding.

It would be appreciated if you could please confirm via email the reason for SEQ advising against HDD and also your recommended methodology.

I have attached the drawings and borelogs for your reference.

Thanks,

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Alan Kelly
Civil Project Engineer | BEng Civil, BSc. CEng Man

From: Alan Kelly
Sent: Wednesday, 25 March 2020 11:08 AM
To: Joshua Taylor <josh@segtrenchless.com.au>
Subject: RE: 5941_Drilling Advice_SEQ Trenchless

Hi Josh,

I hope all is well.

Is there any update with relation to the below?

I would be appreciated if you can give me a call to discuss when you are available?

Thanks,

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Alan Kelly

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From: Alan Kelly
Sent: Monday, 2 March 2020 11:07 AM
To: 'Joshua Taylor' <josh@segtrenchless.com.au>
Subject: RE: 5941_Drilling Advice_SEQ Trenchless

Hi Joshua,

Apologies for the delay mate.

Please see below answers to your queries, highlighted yellow:

Thanks,

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Alan Kelly

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From: Joshua Taylor <josh@segtrenchless.com.au>
Sent: Friday, 21 February 2020 8:38 AM
To: Alan Kelly <AKelly@gassman.com.au>
Subject: RE: 5941_Drilling Advice_SEQ Trenchless

Hi Alan,

A couple of quick question to see if HDD is suitable

1. Do you know the grade of the pipeline during the drilled sections? The grade of the pipe is in the longitudinal sections provided and attached with drilled sections and highlighted. Drilled sections are also stated in the long sections under "Embedment type"
2. What is the proposed pipe material? I know you mentioned HDPE but the sizing of 525mm more looks like a jacking pipe (either GRP, Hobas etc) – Thanks, if an alternative pipe material requires to be recommended with an alternative methodology, it would be greatly appreciated if could suggest with reasons given.

Regards,

Josh Taylor – Director
0447156360 josh@segtrenchless.com.au



From: Alan Kelly <AKelly@gassman.com.au>
Sent: Thursday, 20 February 2020 10:36 AM
To: Joshua Taylor <josh@segtrenchless.com.au>
Subject: 5941_Drilling Advice_SEQ Trenchless

Josh,

As discussed, we are currently in final design stages for a drill of approximately 400m to be undertaken commencing at Stapylton Jacobs Well Road and continuing under the Pacific Motorway and ceasing close to Yatala pies.

There is also an additional drill (41m long) under Stapylton Jacobs Well Road (S9 TO S10)

Please see attached layout plans and longitudinal sections.

I have noted the approximate length of the entry/exit pits, excluding the batters on the layout plans with depths to inverts and lengths of drills highlighted in the long section.

It would be appreciated if you could review and answer a couple of queries from SEQ Trenchless experience:

- Are the entry/exist pits big enough at each location given the depth required to be drilled? The length of pipe is of course 12m. Given that space is at a premium with existing services and roads, can the pipe be cut and drilled, should the length in the entry/exit pipe be too small for a 12m pipe.
- Would you have concerns directional drilling on grade over the distance? That is have you experienced drilling similar grade over this distance previously?
- Are 1 in 1 batters for the entry/exit pits too steep?

- City of Gold Council have queried that the SEQ code only allows for a maximum depth of 6m for PE 100 pipe. I would have thought this would depend on the pipe classification (SDR). It would be great if you would be able to confirm?

Please don't hesitate to call me should you have any further queries.

Thanks,

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Mitchell Gassman

From: Martin Grealish <mgregalish@gcecontractors.com>
Sent: Tuesday, 21 April 2020 5:37 AM
To: Alan Kelly
Subject: RE: 5941_Sewer Gravity Main_Underbore_Methodology_GCE

Alan,

The reason for the larger TBM is in accordance with SEQ encasing pipe, for a DN 560 we will require a 750 however the closet TBM we have is a 800ID machine currently. Possibility of changing to GRP pipe will reduce bore diameter.

In my opinion I wouldn't take the risk on reducing the bore diameter, there is a risk that you could encounter rock over this distance, the drive length will be 224m you will require inter jack stations too which will require man entry to install inter-jack stations. It is always good to have access to the cutting wheel on long drives to carry out any repairs/maintenance if required. The risk out weights the reward therefore we would only tunnel this using a 1200ID machine.

The water won't affect our encasing pipe we can drill from 500ID to 1500ID under water currently.

Let me know if you have any more questions.

Kind Regards,

Martin Grealish | Operations Manager | GCE Contractors Pty Ltd



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From: Alan Kelly [<mailto:AKelly@gassman.com.au>]

Sent: Monday, 20 April 2020 3:55 PM

To: Martin Grealish <mgrealish@gcecontractors.com>

Subject: RE: 5941_Sewer Gravity Main_Underbore_Methodology_GCE

Thanks Martin,

Can you give me a ring when you get a chance.

I'm curious as to why you have chosen 800mm from S2 to S3 and S4 to S5.

Given that the bore logs are not showing rock, would you change the methodology between S3 and S4 which may also reduce the encasing pipe diameter.

With water showing between S4 to S5, and the requirement to therefore use a slurry micro tunnel, would this trigger an increase in encasing pipe size?

The pipes sizes on SEQ-1401 and 1402 (Rail and Major Road corridor) specifying the below sizing, snapshot below:

BORED & JACKED ENCASING/SEWER PIPE SIZES										
SEWER PIPE (DN)	100	150	225	300	375	400	500	550	650	800
BORED ENCASING PIPE MIN (DN)	300	375	425	500	575	600	700	750	850	1000
JACKED ENCASING PIPE (DN)	N/A					1200 MIN.				

Thanks,

Alan.

From: Martin Grealish <mgrealish@gcecontractors.com>

Sent: Monday, 20 April 2020 11:26 AM

To: Alan Kelly <AKelly@gassman.com.au>

Subject: RE: 5941_Sewer Gravity Main_Underbore_Methodology_GCE

Alan,

Two of the boreholes aren't deep enough 3 and 4, borehole 5 had water from 3.5m from the surface therefore you will need to use a earth pressure balance tunnel boring machine for this project.

To avoid any delays I would have the designers include the enveloper this is a standard requirement when tunnelling under DTMR and QR assets.

Our original methodology would be the same for this project.

Kind Regards,

Martin Grealish | Operations Manager | GCE Contractors Pty Ltd



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From: Alan Kelly [<mailto:AKelly@gassman.com.au>]

Sent: Tuesday, 14 April 2020 2:57 PM

To: Martin Grealish <mgrealish@gcecontractors.com>

Subject: RE: 5941_Sewer Gravity Main_Underbore_Methodology_GCE

Martin,

Please see attached borelogs as promised.

It looks like the proposed microtunnelling sections are generally absent of rock.

DP have informed me that they did not experience any ground water within the alignment of the proposed micro tunnelling area.

Please let me know if GCE's methodology would change in anyway in light of these borelogs.

Thanks,

Alan.

From: Alan Kelly

Sent: Thursday, 2 April 2020 7:56 AM

To: Martin Grealish <mgrealish@gcecontractors.com>

Subject: RE: 5941_Sewer Gravity Main_Underbore_Methodology_GCE

Thanks Martin,

Good solid information.

The geotech's are currently preparing the geotechnical report.

Once, we receive, I will be in contact.

Thanks,



Alan Kelly

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From: Martin Grealish <mgrealish@gcecontractors.com>
Sent: Wednesday, 1 April 2020 3:40 PM
To: Alan Kelly <AKelly@gassman.com.au>
Subject: RE: 5941_Sewer Gravity Main_Underbore_Methodology_GCE

Alan,

I have had a quick look at the drawings and have the following comments:

S1 to S3

Tunnel bore using a 800mm enveloper

S3 to S4

This will need to be 1200mm id pipe which will also be your enveloper (This will be a DTMR requirement as well)
This will allow access to the cutting wheel to allow the changing of disk cutters that will be required when tunnelling
in rock on average you will need to change cutters every 50m on rock up to 50Mpa
This bore will need to be completed using a slurry system to ensure no ground water enters the tunnel.

1. We would set up our launch pit at S3
2. From this pit we would drill in both directions to S1 and S4
3. This would need to be an all-weather access track
4. The shaft would be constructed using a segmental shaft due to possibility of water ingress and the required duration the pit will be open for construction during the boring and manhole construction.

S5 to S4

Tunnel bore from S5 to S4 using a 800mm enveloper

We will need the boreholes to make any further comments on actual bore diameters and lengths, we will also need to consider the water table for our launch and retrieval pits.

Kind Regards,

Martin Grealish | Operations Manager | GCE Contractors Pty Ltd



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From: Alan Kelly [<mailto:AKelly@gassman.com.au>]
Sent: Tuesday, 31 March 2020 9:13 AM
To: Martin Grealish <mgrealish@gcecontractors.com>
Subject: 5941_Sewer Gravity Main_Underbore_Methodology_GCE

Martin,

Thank you for your time during our telephone conversation yesterday afternoon.

As discussed, we are in the final stages of obtaining approvals for an industrial development located at Stapylton-Jacobs Well Road, Yatala.

As part of the development it is necessary to construct a gravity sewer, which will connect with the exiting sewer infrastructure beside the Old Pacific Highway.

In order to achieve this, there is nearly 400m of underbore required.

As discussed yesterday with the specified grades you believe HDD is not an option.

We are awaiting the final Geotech report but would be expecting rock and groundwater in the area.

It would be appreciated if GCE could prepare a methodology for the boring works.

The drawings are attached, which contain diameter of pipe, grade, depth and bore distance. The layout also contains suggested shaft locations.

The pipe type is quoted for a HDD so appreciate that a GRP pipe and/or encasing maybe required.

Please let me know if you have any further queries.

Thanks,

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Alan Kelly

Civil Project Engineer | BEng Civil, BSc. CEng Man
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Mitchell Gassman

From: Tim Norrish <tim.norrish@maxibor.com.au>
Sent: Friday, 17 April 2020 3:55 PM
To: Alan Kelly
Cc: Mitchell Gassman; Guy Angus; Rodney O'Meley; Jeff Simpson; David Turner; Tony Cahill
Subject: FW: 5941_FW: Maxibor Frasers Property Group

Hi Alan,
Thank you for your enquiry.

We have had a chance to review your drawings and geotechnical borelogs and based on the information provided it appears to be more suited to microtunneling and not HDD.

We can certainly drill the length and diameter no issues and can also drill with a constant average grade down slope (pending ground conditions) but there is a chance of micro ponding due to drilling through varying ground formations on such low grades.

Let me know if you need any further information and please do not hesitate to contact us if you need any input on future projects. Thanks

Regards,

Tim Norrish

Project Manager



AUSTRALIA'S LEADING HDD SPECIALIST

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From: Guy Angus <guy.angus@maxibor.com.au>

Sent: Friday, 17 April 2020 7:47 AM

To: Tim Norrish <tim.norrish@maxibor.com.au>

Cc: Rodney O'Meley <rodney.omeley@maxibor.com.au>; Jeff Simpson <jeff.simpson@maxibor.com.au>; David Turner <david.turner@maxibor.com.au>; Tony Cahill <tony.cahill@maxibor.com.au>

Subject: FW: 5941_FW: Maxibor Frasers Property Group

Tim,

Any chance you can start to have a look at this one?

Guy Angus

Senior Project Manager



AUSTRALIA'S LEADING HDD SPECIALIST

Mail: PO Box 87 Beresfield NSW Australia 2322
7a/26 Balook Drive Beresfield NSW Australia 2322
1567 Stapylton Jacobs Well Road, Jacobs Well Qld 4208
PH: (+61) 02 4937 5500 – **M:** (+61) 488 375 552
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From: Alan Kelly <AKelly@gassman.com.au>

Sent: Wednesday, 15 April 2020 4:00 PM

To: Guy Angus <guy.angus@maxibor.com.au>

Cc: Mitchell Gassman <mitchell@gassman.com.au>

Subject: 5941_FW: Maxibor Frasers Property Group

Hi Guy,

We are currently in final design stages for a drill of approximately 400m to be undertaken commencing at Stapylton Jacobs Well Road and continuing under the Pacific Motorway and ceasing close to Yatala pies.

There is also an additional drill (41m long) under Stapylton Jacobs Well Road (S9 TO S10)

Please see attached layout plans and longitudinal sections along with the borelogs and associated map.

I have noted the approximate length of the entry/exit pits, excluding the batters on the layout plans with depths to inverts and lengths of drills highlighted in the long section.

It would be appreciated if you could review and provide Maxibor's proposed brief methodology and any suggestions in the design such as pipe classification.

Happy to discuss further, should you require.

Thanks,

g a s s m a n development perspectives



Alan Kelly

Civil Project Engineer | BEng Civil, BSc. CEng Man
planning | environment | landscape | [engineering](#) | survey
T: 07 3807 3333 | F: 07 3287 5461 | www.gassman.com.au
76 Business Street, Yatala QLD | PO Box 392, Beenleigh 4207
For email send and receipt conditions, please view our website or click [here](#).

From: Mitchell Gassman
Sent: Wednesday, 15 April 2020 3:20 PM
To: Alan Kelly <AKelly@gassman.com.au>
Subject: FW: Maxibor Frasers Property Group

Alan,

Can you please send through the information package on the 5941 external seer bore requirements to the below company (to Guy Angus) to get their opinion on methodology. Please include the prelim geotech bore logs.

Thanks

Regards,
Mitchell

g a s s m a n development perspectives



Mitchell Gassman

Civil Project Engineer | B.Eng.Civil, MIEAust, CPEng, NER, RPEQ
planning | environment | landscape | [engineering](#) | survey
T: 07 3807 3333 | M: 0437 073 333 | F: 07 3287 5461 | www.gassman.com.au
76 Business Street, Yatala QLD | PO Box 392, Beenleigh 4207
For email send and receipt conditions, please view our website or click [here](#).

From: Jeff Simpson <jeff.simpson@maxibor.com.au>
Sent: Wednesday, 15 April 2020 3:15 PM
To: Mitchell Gassman <mitchell@gassman.com.au>
Cc: Rodney O'Meley <rodney.omeley@ratepd.com.au>; Guy Angus <guy.angus@maxibor.com.au>;

stephen@hddengineering.com; David Turner <david.turner@maxibor.com.au>

Subject: Maxibor Frasers Property Group

Hi Mitchell,

Thanks for the call just then. The best person to send information to on the two Yatala long bores is Guy Angus, our senior project manager. His contact details are:

E guy.angus@maxibor.com.au

M 0488 375 552

Our design engineer Stephen Loneragan and Rodney O'Meley (Maxibor owner) will work with Guy to provide early input into the design of the bores to support the development proposal to Gold Coast City Council.

As discussed Maxibor have just completed work on the Logan Water project to connect the Greater Flagstone Priority Development Area with the Cedar Grove sewerage treatment plant. The longest bore was 1.320km installing 500mm of PE100 HSCR PN20 to a depth of over 50 metres (see article attached). Another six bores ranging in length of between 190m and 400m and pipe sizes of between 450mm to 560mm were also completed on the project. The one kilometre bore for Frasers should not be an issue!

Also as discussed Maxibor would like to develop a stronger relationship with Gassman and Frasers Property. We would be happy to discuss the option of separating out the horizontal directional drilling (HDD) from the total civils works of projects or for Maxibor to be given the opportunity to deliver other parts of projects. Happy to discuss also opportunities of how our knowledge and resources could assist Frasers and other developers realise the potential of their undeveloped land assets through infrastructure connection by way of HDD.

Kind regards

Jeff Simpson

Chief Financial Officer and Strategy



AUSTRALIA'S LEADING HDD SPECIALIST

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ATTACHMENT 2 – AMENDED ENGINEERING DRAWINGS AND ASSOCIATED DRAWING TRANSMITTAL

DOCUMENT TRANSMITTAL SCHEDULE

To: City of Gold Coast Council
Address : PO Box 5042
GCMC 9726
Attention: Development Assessment



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

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

DATE OF ISSUE	Day	08	28	13											
	Month	05	05	07											
	Year	20	20	20											

Distribution:															
Attention	Issued To														
CoGC COUNCIL	DEVELOPMENT ASSESSMENT	1xPDF		1xPDF											
FRASERS PROPERTY AUSTRALIA	Commercial and Industrial		1xPDF												

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Issued Media

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

Drg/Doc No.	Title	Revision Issued													
5941 ENG EXTSEW 001	DRAWING INDEX AND LOCALITY PLAN	A	A	B											
5941 ENG EXTSEW 002	GENERAL NOTES	A	A	B											
5941 ENG EXTSEW 003	LEGEND	A	A	B											
5941 ENG EXTSEW 005	KEY PLAN LAYOUT	A	A	B											
5941 ENG EXTSEW 010	CONTOUR AND DETAIL PLAN - SHEET 1 OF 5	A	A	B											
5941 ENG EXTSEW 011	CONTOUR AND DETAIL PLAN - SHEET 2 OF 5	A	A	B											
5941 ENG EXTSEW 012	CONTOUR AND DETAIL PLAN - SHEET 3 OF 5	A	A	B											
5941 ENG EXTSEW 013	CONTOUR AND DETAIL PLAN - SHEET 4 OF 5	A	A	B											
5941 ENG EXTSEW 014	CONTOUR AND DETAIL PLAN - SHEET 5 OF 5	A	A	B											
5941 ENG EXTSEW 020	DEMOLITION AND PROTECTION PLAN	A	A	B											
5941 ENG EXTSEW 600	SEWER LAYOUT PLAN SHEET - 1 OF 6	A	A	B											
5941 ENG EXTSEW 601	SEWER LAYOUT PLAN SHEET - 2 OF 6	A	A	B											
5941 ENG EXTSEW 602	SEWER LAYOUT PLAN SHEET - 3 OF 6	A	A	B											
5941 ENG EXTSEW 603	SEWER LAYOUT PLAN SHEET - 4 OF 6	A	A	B											
5941 ENG EXTSEW 604	SEWER LAYOUT PLAN SHEET - 5 OF 6	A	A	B											
5941 ENG EXTSEW 605	SEWER LAYOUT PLAN SHEET - 6 OF 6	-	-	A											
5941 ENG EXTSEW 610	SEWER LONGITUDINAL SECTIONS - SHEET 1 OF 4	A	A	B											
5941 ENG EXTSEW 611	SEWER LONGITUDINAL SECTIONS - SHEET 2 OF 4	A	A	B											
5941 ENG EXTSEW 612	SEWER LONGITUDINAL SECTIONS - SHEET 3 OF 4	A	A	B											
5941 ENG EXTSEW 613	SEWER LONGITUDINAL SECTIONS - SHEET 4 OF 4	A	A	B											
5941 ENG EXTSEW 650	SEWER STRUCTURE DETAILS - SHEET 1 OF 2	A	A	B											
5941 ENG EXTSEW 651	SEWER STRUCTURE DETAILS - SHEET 2 OF 2	A	A	B											

Please confirm that you have received all documents listed on the Document Register & Transmittal.

I hereby acknowledge receipt of the documents listed above.

Name & Company: _____ Signed: _____ Dated: / /
Project Manager: mitchell@gassman.com.au Sent by: mitchell@gassman.com.au

OPERATIONAL WORKS APPLICATION FOR TRUNK INFRASTRUCTURE

CoGC STAPYLTON XGMA21 GRAVITY SEWER "VANTAGE YATALA"

DRAWING INDEX		
DRAWING No.	REV. No.	DRAWING TITLE
594I ENG EXTSEW 001	B	DRAWING INDEX AND LOCALITY PLAN
594I ENG EXTSEW 002	B	GENERAL NOTES
594I ENG EXTSEW 003	B	LEGEND
594I ENG EXTSEW 005	B	KEY PLAN LAYOUT
594I ENG EXTSEW 010	B	CONTOUR AND DETAIL PLAN – SHEET 1 OF 5
594I ENG EXTSEW 011	B	CONTOUR AND DETAIL PLAN – SHEET 2 OF 5
594I ENG EXTSEW 012	B	CONTOUR AND DETAIL PLAN – SHEET 3 OF 5
594I ENG EXTSEW 013	B	CONTOUR AND DETAIL PLAN – SHEET 4 OF 5
594I ENG EXTSEW 014	B	CONTOUR AND DETAIL PLAN – SHEET 5 OF 5
594I ENG EXTSEW 020	B	DEMOLITION AND PROTECTION PLAN
594I ENG EXTSEW 600	B	SEWER LAYOUT PLAN – SHEET 1 OF 6
594I ENG EXTSEW 601	B	SEWER LAYOUT PLAN – SHEET 2 OF 6
594I ENG EXTSEW 602	B	SEWER LAYOUT PLAN – SHEET 3 OF 6
594I ENG EXTSEW 603	B	SEWER LAYOUT PLAN – SHEET 4 OF 6
594I ENG EXTSEW 604	B	SEWER LAYOUT PLAN – SHEET 5 OF 6
594I ENG EXTSEW 605	A	SEWER LAYOUT PLAN – SHEET 6 OF 6
594I ENG EXTSEW 610	B	SEWER LONGITUDINAL SECTIONS – SHEET 1 OF 4
594I ENG EXTSEW 611	B	SEWER LONGITUDINAL SECTIONS – SHEET 2 OF 4
594I ENG EXTSEW 612	B	SEWER LONGITUDINAL SECTIONS – SHEET 3 OF 4
594I ENG EXTSEW 613	B	SEWER LONGITUDINAL SECTIONS – SHEET 4 OF 4
594I ENG EXTSEW 650	B	SEWER STRUCTURE DETAILS – SHEET 1 OF 2
594I ENG EXTSEW 651	B	SEWER STRUCTURE DETAILS – SHEET 2 OF 2

CLIENT / APPLICANT:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

SITE ADDRESS

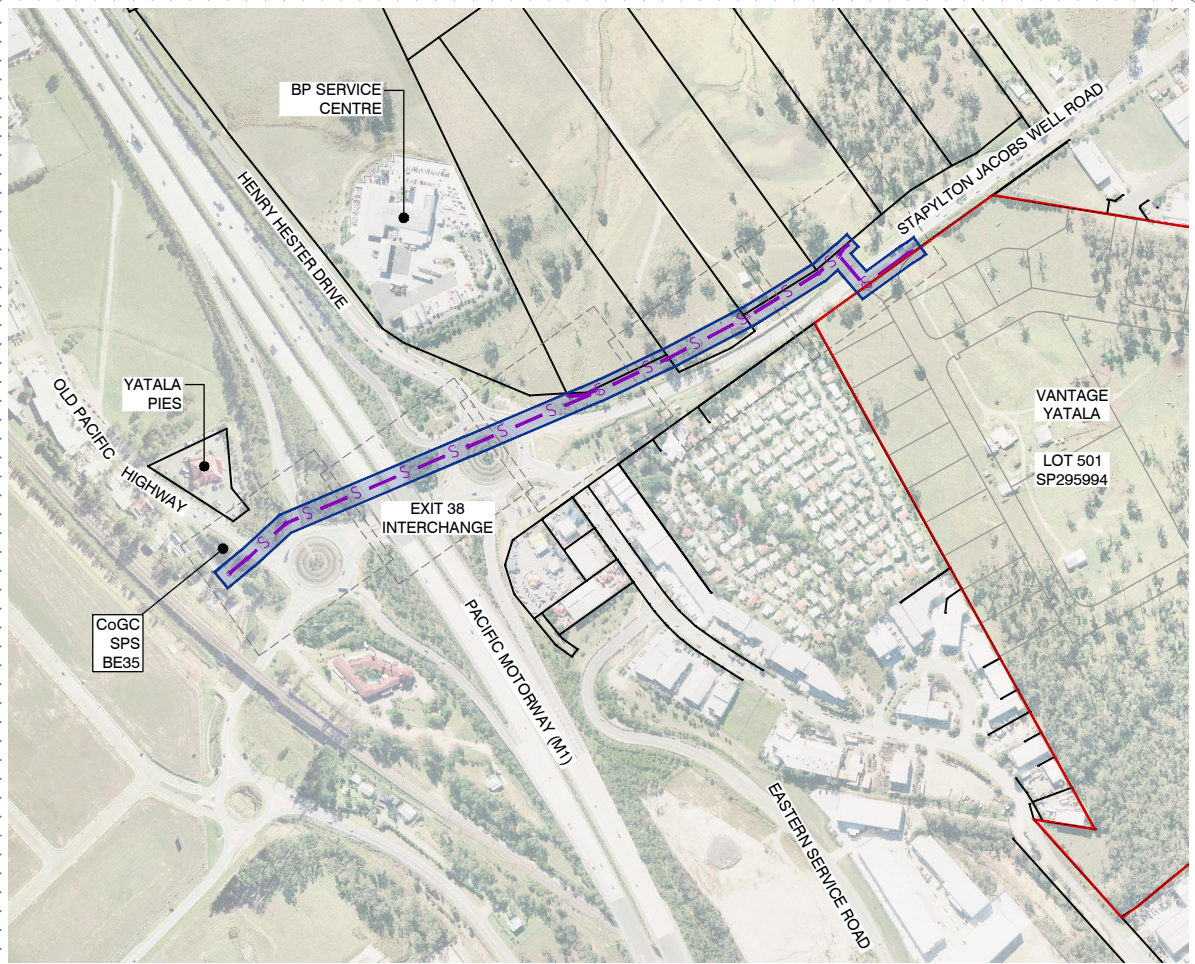
STAPYLTON JACOBS WELL ROAD
STAPYLTON QLD 4207

ISSUED FOR
APPROVAL

13/07/2020

DWG No. 594I ENG EXTSEW 001 – REV B

JULY 2020



LOCALITY PLAN
SCALE 1:4000 (A1)

GENERAL NOTES

1. **CONTRACT DOCUMENTATION**
ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE CONTRACT SPECIFICATION, SEQ CODE, SEQ CODE STANDARD DRAWINGS, CoGC STANDARD DRAWINGS AND SPECIFICATIONS AND DEPARTMENT OF TRANSPORT & MAIN ROADS STANDARD DRAWINGS AND SPECIFICATIONS.
2. **DATUM**
LEVELS SHOWN ON THE PLANS ARE A.H.D.
3. **SURVEY SETOUT**
THE SURVEY SET OUT INFORMATION TO ALLOW THE CONTRACTOR TO ACCURATELY SET OUT THE WORKS HAS BEEN ESTABLISHED ON SITE BY THE PRINCIPAL'S SURVEYOR. THE CONTRACTOR IS NOT TO SCALE FROM THESE PLANS AS A MEANS OF OBTAINING SETOUT INFORMATION.
4. **EXISTING SURVEY CONTROL STATIONS**
IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT EXISTING SURVEY CONTROL STATIONS ARE NOT DISTURBED OR DAMAGED BY CONSTRUCTION ACTIVITIES. SHOULD THE CONTRACTOR IDENTIFY ANY CONFLICT BETWEEN EXISTING SURVEY CONTROL AND THE REQUIRED CONSTRUCTION ACTIVITIES THE SUPERINTENDENT IS TO BE NOTIFIED IMMEDIATELY.
5. **EXISTING SERVICES**
THE LOCATION OF EXISTING SERVICES WHERE SHOWN ON THE PLANS HAVE BEEN POTHOLED, HOWEVER SOME SERVICES OUTSIDE OF THE WORKS AREA ARE INDICATIVE ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE RELEVANT SERVICE AUTHORITIES TO ASCERTAIN THE EXACT LOCATION OF ALL EXISTING SERVICES AND TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO THE EXISTING SERVICES.
6. **SITE ACCESS**
THE CONTRACTOR SHALL ONLY GAIN ACCESS TO THE SITE VIA ACCESS LOCATIONS APPROVED BY THE SUPERINTENDENT. FREEDOM OF ACCESS TO OTHER WORK AREAS ON THE SITE SHALL BE MAINTAINED AT ALL TIMES.
7. **PROVISION FOR TRAFFIC**
PROVISION FOR TRAFFIC ON LOCAL ROADS SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND CoGC COUNCIL REQUIREMENTS.
8. **WORK EXTENT**
THE CONTRACTOR IS TO RESTRICT ACTIVITIES TO THOSE AREAS DESIGNATED AS WORKS AREAS UNDER THE CONTRACT. AT NO TIME IS THE CONTRACTOR TO ENTER ADJOINING PROPERTIES OR CONTRACT AREAS WITHOUT THE WRITTEN AUTHORISATION OF THE SUPERINTENDENT.
9. **TESTING**
ALL TESTING IS TO BE CARRIED OUT BY AN APPROVED N.A.T.A TESTING AUTHORITY IN ACCORDANCE WITH THE PROJECT SPECIFICATION AND REQUIREMENTS OF CoGC COUNCIL.
10. **"AS CONSTRUCTED" SURVEY**
"AS CONSTRUCTED" SURVEY SHALL BE CARRIED OUT BY THE PRINCIPAL'S SURVEYOR AS WORK PROCEEDS. THE CONTRACTOR IS TO PROVIDE ADEQUATE NOTICE TO THE PRINCIPAL'S SURVEYOR ON WHEN THIS IS REQUIRED TO ENSURE COMPLIANCE WITH THE REQUIREMENTS OF CoGC COUNCIL.
11. **MAINTENANCE OF SITE CONDITION**
AT THE COMPLETION OF WORKS THE SITE IS TO BE LEFT IN A CLEAN AND TIDY CONDITION TO THE SATISFACTION OF THE SUPERINTENDENT AND CoGC.

EARTHWORKS

1. **PRECEDENCE**
EARTHWORKS SPECIFICATION PREPARED BY PROJECT GEOTECHNICAL ENGINEER TO TAKE PRECEDENCE OVER STANDARD CoGC & DTMR EARTHWORKS NOTES.
2. **TOPSOIL STRIPPING**
TOPSOIL SHALL BE STRIPPED ACROSS THE ENTIRE LIMIT OF THE EARTHWORKS CUT AND FILL AREAS AND SHALL BE STOCKPILED IN A LOCATION APPROVED BY THE SUPERINTENDENT. THE EXISTING STRATA IS TO BE TREATED IN ACCORDANCE WITH THE SPECIFICATION PRIOR TO PLACING ANY FILL.
3. **EARTHWORKS LEVELS**
EARTHWORKS LEVELS SHOWN ON THE DRAWING ARE TO FINISHED SURFACE LEVELS AND INCLUDE 100mm OF TOPSOIL. THE CONTRACTOR SHALL VERIFY BENCH MARK LEVELS AND ADVISE THE SUPERINTENDENT OF ANY DISCREPANCY BEFORE COMMENCEMENT OF CONSTRUCTION.
4. **UNDESIRABLE MATERIAL**
THE ENTIRE SITE/WORK AREAS SHALL BE CLEARED OF ALL UNDESIRABLE MATTER. THIS SHALL INCLUDE DEAD TIMBER, GRASS, OLD FOUNDATIONS, CONCRETE, MASONRY REMAINS, GARBAGE, DEBRIS AND ALL OTHER OBSTRUCTIONS TO THE WORKS UNLESS NOTED OTHERWISE. HOLES LEFT BY THE REMOVAL OF ANY OF THE ABOVE SHALL BE FILLED WITH APPROVED COMPACTED MATERIAL WITH PROPERTIES AT LEAST SIMILAR TO INSITU SOILS.
5. **COMPACTION STANDARD**
FILL MATERIAL SHALL BE COMPACTED TO THE FOLLOWING STANDARD, WHERE DRY DENSITY RATIO IS DETERMINED IN ACCORDANCE WITH AS 1289 USING STANDARD COMPACTION METHODS.
a. 100% DRY DENSITY RATIO IN COHESIVE MATERIAL OR 80% IN COHESIONLESS MATERIAL FOR ROAD SUBGRADE.
b. 98% DRY DENSITY RATIO IN COHESIVE MATERIAL OR 65% IN COHESIONLESS MATERIAL FOR ALL AREAS OTHER THAN THE ROADWAY AND BUILDING PADS.
c. 98% DRY DENSITY RATIO IN COHESIVE MATERIAL OR 70% IN COHESIONLESS MATERIAL FOR BUILDING PADS.
5. **PAVEMENT DEPTHS**
EARTHWORKS VOLUMES DO NOT INCLUDE DESIGN PAVEMENT DEPTHS AS INDICATED ON THE TYPICAL BULK EARTHWORKS ROAD SECTION.
6. **TESTING**
ALL EARTHWORKS TO BE CARRIED OUT UNDER LEVEL 1 SUPERVISION IN ACCORDANCE WITH AUSTRALIAN STANDARDS AS 3798 UNLESS DIRECTED OTHERWISE BY THE SUPERINTENDENT. ALL COMPACTION TESTING SHALL BE CARRIED OUT BY AN APPROVED N.A.T.A TESTING AUTHORITY.
7. **ROCK**
THE CONTRACTOR IS TO INCLUDE ROCK EXCAVATION AS PART OF THEIR EARTHWORKS RATES UNLESS SCHEDULED OTHERWISE WITHIN THE CONTRACT DOCUMENT.
8. **DAMS AND PONDS**
WHERE POSSIBLE, WATER FROM DAMS AND PONDS SHALL BE MAINTAINED AND UTILISED FOR CONSTRUCTION PURPOSES AND DUST SUPPRESSION. DAMS AND PONDS NOT TO BE RETAINED SHALL BE DEWATERED, CLEARED OF ANY FOREIGN MATTER AND ORGANIC MATERIAL WITH THIS MATERIAL TO BE REMOVED OFF SITE.
9. **RETAINING STRUCTURES**
THE DESIGN AND STRUCTURAL CERTIFICATION OF RETAINING STRUCTURES SHALL BE UNDERTAKEN BY THE CONTRACTOR'S STRUCTURAL ENGINEER (RPEQ) IN CONSULTATION WITH THE PROJECT'S CIVIL ENGINEER AND LANDSCAPE CONSULTANT. THE CONTRACTOR IS RESPONSIBLE FOR THE SUBMISSION AND APPROVAL COORDINATION OF THE ASSOCIATED DRAWINGS AND CERTIFICATION TO CoGC. A COPY OF THIS SUBMISSION IS TO BE PROVIDED TO THE SUPERINTENDENT.
10. **TOPSOIL REPLACEMENT**
ALL BATTERS AND ALLOTMENT CUT & FILL AREAS SHALL BE TOP SOILED FROM ONSITE STOCKPILES. IF DIRECTED BY THE SUPERINTENDENT THE TOPSOIL SHALL BE SCREENED PRIOR TO PLACING. THE CONTRACTOR SHALL ALLOW IN THEIR RATE FOR SCREENING AND THE DISPOSAL OF REJECT MATERIAL TO TIP OFFSITE INCLUDING ALL FEES. THE CONTRACTOR MUST ENSURE THAT THE STRIPPING SHALL BE UNDERTAKEN IN SUCH A MANNER AS TO AVOID CONTAMINATION BY OVER CUTTING. IF TOPSOIL IS CONTAMINATED BY OVER CUTTING AND DETERMINED NOT SUITABLE FOR REUSE BY THE SUPERINTENDENT, THE CONTRACTOR SHALL BEAR THE COST OF REMOVAL FROM SITE OF ALL CONTAMINATED TOPSOIL AND THE COST TO SUPPLY AND IMPORT SUITABLE TOPSOIL FOR RE-SPREADING.
11. **GRASSING / SEEDING**
ALL CUT & FILL AREAS AND DISTURBED AREAS SHALL BE GRASSED OR SEEDDED TO THE SATISFACTION OF THE SUPERINTENDENT.
12. **STOCKPILES**
ALL MATERIAL/SPOIL ARISING FROM WORKS ON SITE SHALL BE COMPACTED TO AN APPROPRIATE STANDARD WITHIN THE FILL AREAS OF FUTURE STAGES AS NOMINATED BY THE SUPERINTENDENT. THE CONTRACTOR IS NOT TO CREATE STOCKPILES OF SURPLUS MATERIALS UNLESS WRITTEN AUTHORIZATION IS RECEIVED FROM THE SUPERINTENDENT.

SEDIMENT AND EROSION CONTROL

1. THE OBJECTIVES OF THE EROSION AND SEDIMENT CONTROL PROGRAM ARE:
a. ALLOW STORMWATER TO PASS THROUGH THE SITE IN A CONTROLLED MANNER AT NON-EROSIVE FLOW VELOCITIES.
b. MINIMISE SOIL EROSION FROM WATER AND WIND
c. MINIMISE ADVERSE EFFECTS OF SEDIMENT RUNOFF.
d. MINIMISE OR PREVENT ENVIRONMENTAL HARM ASSOCIATED WITH DISCHARGE FROM THE CONSTRUCTED SITE.
e. ENSURE THAT THE VALUE AND USE OF RESIDENTIAL AND INDUSTRIAL PROPERTIES ADJACENT TO THE DEVELOPMENT ARE NOT DIMINISHED AS A RESULT OF THE MIGRATION OF SEDIMENT FROM THE DEVELOPMENT.
2. THE EROSION AND SEDIMENT CONTROL PROGRAM SHALL COMPLY WITH THE ENVIRONMENTAL BEST ENGINEERING GUIDELINES FOR QUEENSLAND CONSTRUCTION SITES. THE CURRENT INSTITUTION OF ENGINEERS AUSTRALIA AND LOCAL AUTHORITY GUIDELINES. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO CONTROL EROSION AND DOWNSTREAM SEDIMENTATION DURING ALL STAGES OF CONSTRUCTIONS INCLUDING THE MAINTENANCE PERIOD. NOTWITHSTANDING THE FINISHED EARTHWORK DESIGN SHOWN ON THE DRAWINGS THE CONTRACTOR IS RESPONSIBLE TO IMPLEMENT ADDITIONAL SEDIMENT CONTROL MEASURES AND DEVICES USING BEST PRACTICES AS NECESSARY TO MINIMISE THE QUANTITY LEAVING THE SITE DURING CONSTRUCTION AND UPON COMPLETION OF EARTHWORKS.
3. THE CONTRACTOR IS TO FOLLOW CONSTRUCTION PHASE AS OUTLINED IN THE CONSTRUCTION SEQUENCE/SILT MANAGEMENT PROGRAM. ALL SEDIMENT CONTROL DEVICES SHALL BE MONITORED, CLEANED AND/OR REPLACED WHENEVER THE ACCUMULATED SEDIMENT REDUCES THE CAPACITY BY 50%. ALL PERIMETER BANK/SWALES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET. AT ALL TIMES THE CONTRACTOR SHALL MONITOR THE PREVAILING WEATHER CONDITIONS AND PROTECT ANY DOWNSTREAM CONSTRUCTION AND GULLY INLETS. INLETS TO HAVE SILT PROTECTION IN ACCORDANCE WITH KERB INLET PROTECTION DETAIL AT LOCATIONS SHOWN OR AS INDICATED BY THE ENGINEER.
4. PRIOR TO THE COMMENCEMENT OF EARTHWORKS, THE CONTRACTOR IS TO CARRY OUT SOIL TESTING (IF REQUIRED BY SUPERINTENDENT) TO DETERMINE THE DISPERSIVE CHARACTERISTICS OF THE SOIL AND RESULTS TO BE GIVEN TO THE ENGINEERS SO THE FINALIZATION OF THE EROSION AND SEDIMENT CONTROL PLAN CAN BE COMPLETE.
5. TOPSOIL SHALL BE STRIPPED AND STOCKPILED IN LOCATIONS AGREED WITH THE SUPERINTENDENT. CLEARING OF SITE AND STOCKPILE AREAS TO BE AS DIRECTED BY THE SUPERVISING ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLING DUST AT ALL TIMES INCLUDING WEEKENDS AND PUBLIC HOLIDAYS.
6. SUITABLE ACCESS SHALL BE PROVIDED TO ALLOW MAINTENANCE OF ALL SEDIMENT CONTROL DEVICES (IT IS TO BE NOTED THAT CLEARING SHALL ONLY OCCUR IN AREAS WHERE THERE IS NO OTHER ALTERNATIVE TO GAIN ACCESS TO THE LOCATION OF THE SEDIMENT CONTROL DEVICES). APPROVAL FOR REMOVAL OF PROTECTED SIZE VEGETATION MUST BE OBTAINED PRIOR TO CLEARING.
7. ROCK BUNDS TO BE PLACED AROUND ALL HEADWALLS DURING CONSTRUCTION.
8. 0.8m TURF IS TO BE PLACED BEHIND ON ALL BATTERS WITHIN PRIVATE OPEN SPACE STEEPER THAN 1:4 UNLESS OTHERWISE NOTED. THE EXTENT OF GRASSING SHALL BE DETERMINED BY THE ENGINEER AND SHALL BE SEEDDED, AS SPECIFIED, WITHIN 7 DAYS OF FINAL TRIMMING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT GRASS STRIKE RATES ARE ACHIEVED AT ON AND OFF MAINTENANCE INSPECTION IN ACCORDANCE WITH COUNCIL REQUIREMENTS.
9. TURF IS TO BE PLACED FROM BACK OF KERB TO ROAD RESERVE BOUNDARY ON ALL ROADS AFTER EARTHWORKS ARE COMPLETE.
10. GEO-FABRIC LINING OF CHANNELS AND CHECK DAMS MAY BE REQUIRED SUBJECT TO THE SITE CONDITIONS.
11. FILLING AND OR MAINTENANCE OF EXISTING AND OR SEDIMENT BASINS MAY REQUIRE FLOCCULATION.
12. BATTERS WITHIN PUBLIC OPEN SPACE TO BE VEGETATED IN ACCORDANCE WITH THE APPROVED OPEN SPACE MANAGEMENT PLAN (OSMP).
13. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CLEAN OUT OPT'S, SEDIMENT FOREBAYS AND ALL OTHER SEDIMENT CONTROL DEVICES DURING CONSTRUCTION AND PRIOR BOTH ON AND OFF MAINTENANCE INSPECTIONS WITH CoGC. THE CONTRACTOR SHALL ALLOW FOR THE COST OF THESE WORKS WITHIN THEIR SUBMITTED TENDER PRICE.

CONSTRUCTION SEQUENCE / SILT MANAGEMENT PROGRAM

1. **PRE START**
a. ERECT SITE SIGNAGE, CONSTRUCT ENTRY AND EXIT POINT AS INDICATED CONSTRUCT VEHICLE WASH-DOWN AREA AND ASSOCIATED SILT MANAGEMENT DEVICES.
b. CONSTRUCT SITE OFFICE AND STORAGE COMPOUND AREA
c. ERECT SILT FENCE AT LOW POINTS OF THE SITE AS DEMONSTRATED
d. ERECT TEMPORARY TREE PROTECTION FENCING FOR VEGETATION TO BE RETAINED IN ACCORDANCE WITH AN OPW (TREE CLEARING) APPROVAL OR IN ACCORDANCE WITH AS4970 PROTECTION OF TREES ON DEVELOPMENT SITE.
e. CONSTRUCT ROCK CHECK DAMS AND SILT FENCE DOWN STREAM OF BASIN.
f. CONSTRUCT BASIN TO FULL DEPTH.
g. CONSTRUCT BALANCE OF BASIN IN CONJUNCTION WITH CLEARING AND BULK EARTHWORKS OPERATIONS.
h. BASIN TO BE UTILISED AS A TEMPORARY SEDIMENT BASIN. DO NOT FILL IN FILTRATION MATERIAL UNTIL CONSTRUCTION OF DEVELOPMENT IS COMPLETE.
2. **CLEARING AND BULK EARTHWORKS**
THERE SHALL BE NO CLEARING OF PROTECTED SITE VEGETATION WITHOUT AN APPROVED TREE CLEARING PLAN WHICH SHALL BE IN ACCORDANCE WITH AS4970. SILT FENCE, SAND BAGS AND EARTH RILLS WITHIN ROADS TO BE ERECTED AS INDICATED OR REQUIRED DURING CLEARING & EARTHWORKS. SUPERINTENDENT TO CONFIRM THE EXTENT OF CLEARING PRIOR TO COMMENCEMENT OF WORKS.
3. **CONSTRUCTION OF SEWER/ROOFWATER / STORMWATER/SERVICES**
EXCAVATED MATERIAL TO BE PLACED ON HIGH SIDE OF TRENCH AND TO PROTECT PIPE WORK AND DIRECT SURFACE MATERIAL AWAY FROM EXCAVATIONS. TOPSOIL AND GRASS SEED AREAS IN ALLOTMENTS IMMEDIATELY AFTER COMPLETING THE SEWER AND ROOFWATER DRAINAGE CONSTRUCTION. DEPRESS GROUND AROUND TEMPORARY FIELD INLETS TO CREATE SILT POND.
4. **CONSTRUCTION – SEDIMENT BASINS**
SEDIMENT BASIN TO BE CONSTRUCTED TO THE EARTHWORK PROFILES SHOWN. STORMWATER OUTLET PIPES TO BE TEMPORARY BLOCKED OFF UNTIL DECOMMISSIONING OF SEDIMENT BASIN (SUBSEQUENT TO CONSTRUCTION OF ALL STAGES). PLACE SPOIL FROM SEDIMENT BASIN INTO ALLOCATED AREAS AS ENGINEERED FILL IN ACCORDANCE WITH THE STAGING ORDER. SEDIMENT BASIN SHALL ONLY BE REMOVED AFTER APPROVAL BY SUPERINTENDENT AND COUNCIL.
5. **CONSTRUCTION – STOCKPILING**
TEMPORARY SILT FENCE TO BE ERECTED 5m FROM TOE OF BATTER ON LOW SIDE OF STOCKPILING. STOCKPILE SITE TO BE CLEARED OF ADJACENT PROPERTY BOUNDARIES SO AS NOT TO CAUSE NUISANCE TO ADJOINING PROPERTIES. NO STOCKPILES ARE TO BE LOCATED WITHIN THE DRIP ZONE OR STRUCTURAL ROOT ZONE OF ANY RETAINED VEGETATION.
6. **CONSTRUCTION – ROADWORKS**
SILT FENCES TO ALLOTMENTS TO BE ERECTED. KERB INLET PROTECTION TO BE PROVIDED TO ALL GULLIES.
7. **CONSTRUCTION – ALLOTMENTS**
TOPSOIL AND SEED ALLOTMENTS. SILT FENCES TO ALLOTMENTS TO BE RE-ERECTED. COVERS TO GULLY GRATES TO BE REMOVED IF THE SUPERINTENDENT INDICATE THE GRASS STRIKE IS SUFFICIENT (80% WITHIN 30 CALENDAR DAYS OF FINAL ALLOTMENT RIMMING).
8. **POST CONSTRUCTION – ALLOTMENTS**
TOPSOIL AND GRASS SEED ALL ALLOTMENTS. COVERS TO GULLY GRATES TO BE REMOVED IF THE SUPERINTENDENT INDICATES THE GRASS STRIKE IS SUFFICIENT (80% WITHIN 30 CALENDAR DAYS OF FINAL ALLOTMENT TRIMMING).
9. **POST CONSTRUCTION – BASIN**
BASIN TO CONTINUE ACTING AS SEDIMENT BASIN UNTIL COMPLETION OF ALL STAGES.
10. **POST CONSTRUCTION – ROAD RESERVES**
TOPSOIL AND TURFING IS TO BE PROVIDED BEHIND KERB.
11. **MAINTENANCE (PRE TO POST CONSTRUCTION)**
THE SILT FENCES ARE TO BE INSPECTED WEEKLY. ANY REPAIRS REQUIRED ARE TO BE EFFECTED IMMEDIATELY. SILT AFTER RAIN IS TO BE CLEANED FROM STREETS AND ALLOTMENTS IMMEDIATELY AND CORRECTIVE ACTION TAKEN TO AVOID A RE-OCCURRENCE OF THE FAILURE.
12. **BASIN CONSTRUCTION**
PRIOR TO COMMENCING CONSTRUCTION OF THE DETENTION BASIN THE DIVERSION OF SURFACE WATER FROM THE PROPOSED WORK AREAS, USING MEASURES SUCH AS OPEN DRAINS/SUMPS, ARE REQUIRED TO AID IN SITE DE-WATERING. BASIN TO CONTINUE ACTING AS SEDIMENT BASIN UNTIL 85% OF CATCHMENT CONSTRUCTION IS COMPLETE. THE CLAY FILLING FOR THE BASIN WALLS SHALL BE PLACED IN HORIZONTAL LAYERS OF 200mm THICKNESS AND COMPACTED TO DENSITY RATIO WITHIN THE RANGE 98%-102% STANDARD COMPACTION (AS 1289.5.1.1). PLACEMENT MOISTURE CONTENT SHOULD BE WITHIN THE RANGE OMC -1% TO OMC -2% (WHERE OMC = OPTIMUM MOISTURE CONTENT FOR STANDARD COMPACTION). CONTRACTOR TO PROVIDE SAFETY FENCING TO BASIN DURING CONSTRUCTION AND APPROPRIATE SIGNAGE (PERMANENT OR TEMPORARY).

SEWER RETICULATION

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT SOUTH EAST QUEENSLAND SEWERAGE CODE SPECIFICATIONS AND STANDARDS, GOLD COAST WATER AND WASTE (GCWW) AND DTMR REQUIREMENTS.
2. UNLESS SPECIFIED OTHERWISE ALL MATERIALS AND WORK SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS.
3. THE CONSTRUCTION OF THE SEWERAGE WORK SHOWN ON THESE DRAWINGS SHALL BE SUPERVISED BY AN ENGINEER WITH RPEQ REGISTRATION. SEWERAGE WORKS NOT COMPLYING WITH THIS REQUIREMENT WILL NOT BE PERMITTED TO CONNECT INTO CITY OF GOLD COAST'S SEWERAGE SYSTEM.
4. ALL WORKS ON EXISTING SEWERS SHALL BE CARRIED OUT BY GOLD COAST WATER & WASTE AT THE DEVELOPER'S EXPENSE, OR AS DIRECTED BY GCWW.
5. ALL PIPES AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE "ACCEPTED PRODUCTS AND MATERIALS" LIST, TO CITY OF GOLD COAST REQUIREMENTS.
6. PROPERTY CONNECTIONS SHALL BE LOCATED WITHIN THE PROPERTY AS SHOWN IN THE DRAWINGS.
7. ALL MAINTENANCE HOLES GREATER THAN 4.0m IN DEPTH OR DN1500 OR LARGER ARE TO BE PE LINED IN ACCORDANCE WITH THE SEQ CODE REQUIREMENTS.
8. ALL TRUNK SEWER MAINTENANCE HOLES GREATER THAN 4.0m IN DEPTH TO HAVE BOLT DOWN TYPE D COVERS ACCORDING TO SEQ-SEW-1308-S TO 7.
9. WHERE PIPES ARE LAID IN FILL, THE FILLING SHALL BE CARRIED OUT IN LAYERS NOT EXCEEDING 300mm (LOOSE) IN DEPTH AND SHALL BE COMPACTED UNTIL THE COMPACTION IS NOT LESS THAN 95% OF THE MATERIALS MAXIMUM COMPACTION WHEN TESTED IN ACCORDANCE WITH A.S. 1289 (MODIFIED COMPACTION). TESTING SHALL BE CARRIED OUT AFTER EACH ALTERNATE LAYER. IN ALL SUCH CASES APPROVAL OF CONSTRUCTED SEWERS WILL NOT BE ISSUED BY GCWW UNLESS CERTIFICATES ARE PRODUCED CERTIFYING THAT THE REQUIRED COMPACTION HAS BEEN ACHIEVED.
10. WHERE SEWERS HAVE A GRADE OF 1 IN 20 OR STEEPER, BULKHEADS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SEQ SEWER CODE.
11. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF EXISTING SERVICES WITH RELEVANT AUTHORITIES BEFORE COMMENCING WORKS.
12. SEWERS SHALL BE DISUSED/ABANDONED IN ACCORDANCE WITH PROCEDURES SET OUT IN THE SEQ SEWER CODE AND TO GCWW STANDARDS.
13. BENCH MARK AND LEVELS TO AHD.
14. EXISTING ALLOTMENTS REQUIRING A PROPERTY CONNECTION FROM EXISTING LIVE SEWERS SHALL ENSURE WORKS ARE UNDERTAKEN BY AN APPROVED CONTRACTOR UNDER GCWW SUPERVISION AT THE DEVELOPER'S COST.



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Project: VANTAGE YATALA
EXTERNAL TRUNK GRAVITY SEWER
(City of Gold Coast: Stapylton XGMA21)

Site Address:

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ROAD, STAPYLTON QLD 4207

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GENERAL NOTES

B	13-07-20	INFORMATION REQUEST RESPONSE	BA	MG	
A	08-05-20	ORIGINAL ISSUE	IG	MG	
Issue	Date	Description	DRN	CHK	

Scale at A1: NTS

Designed: IG

Drafted: IG

Approved: MG

RPEQ: 16939

Signed:

Date: 08-05-20

Drawing No: 5941 ENG EXTSEW 002 Rev. No: B



! WARNING !
BEWARE OF EXISTING UNDERGROUND SERVICES

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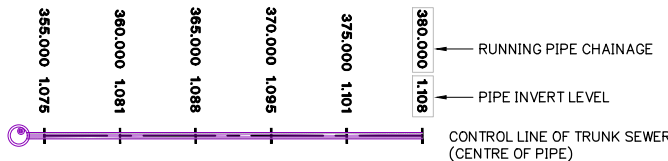
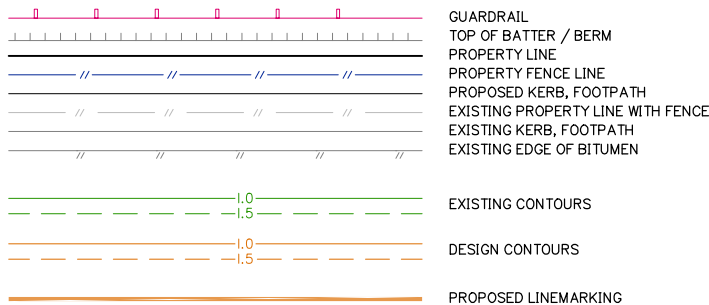
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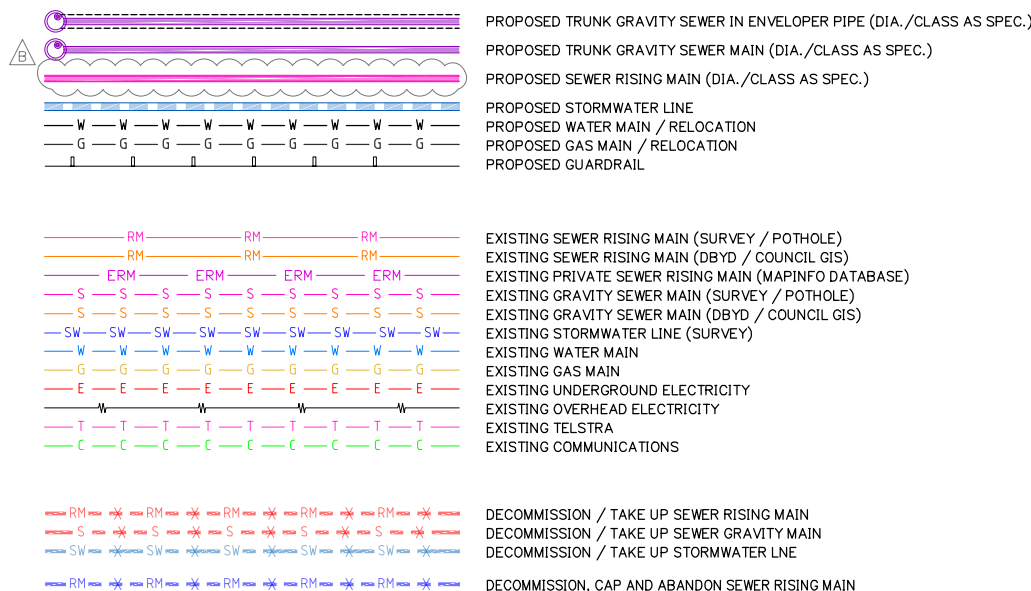
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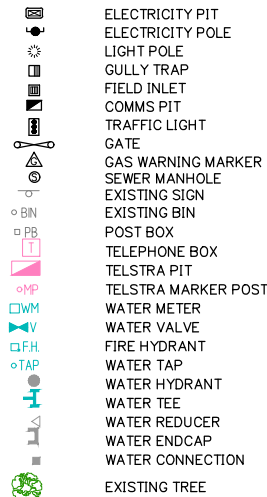


PIPE CHAINAGE KEY PLAN FOR DWG 600 SERIES PLANS

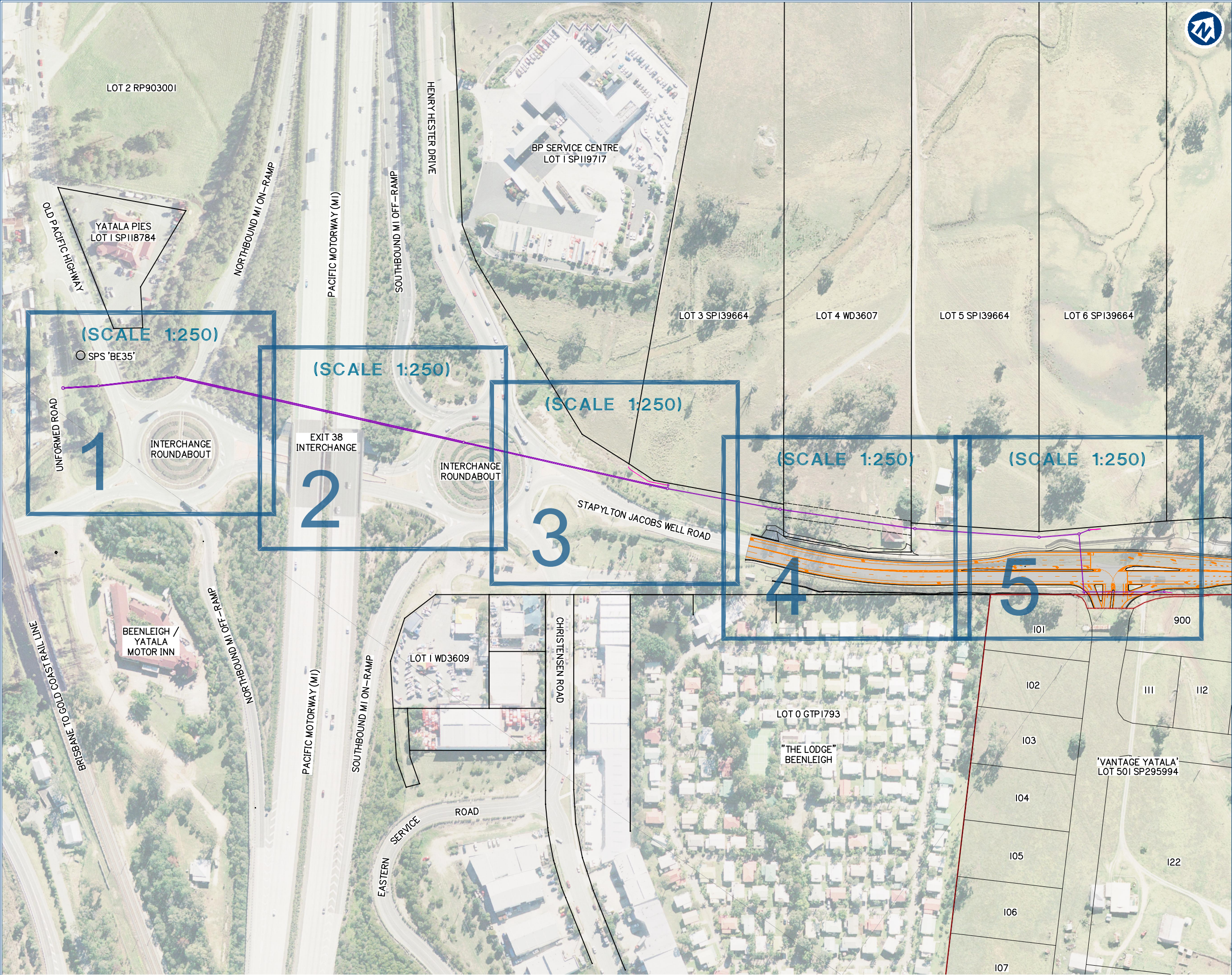
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SURVEY SYMBOLS LEGEND



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KEY PLAN LAYOUT

B	13-07-20	INFORMATION REQUEST RESPONSE	BA	MG	
A	08-05-20	ORIGINAL ISSUE	IG	MG	
Issue	Date	Description	DRN	CHK	

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Scale at A1: 1:1250

Designed: IG

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Approved: MG

RPEQ: 16939

Signed:

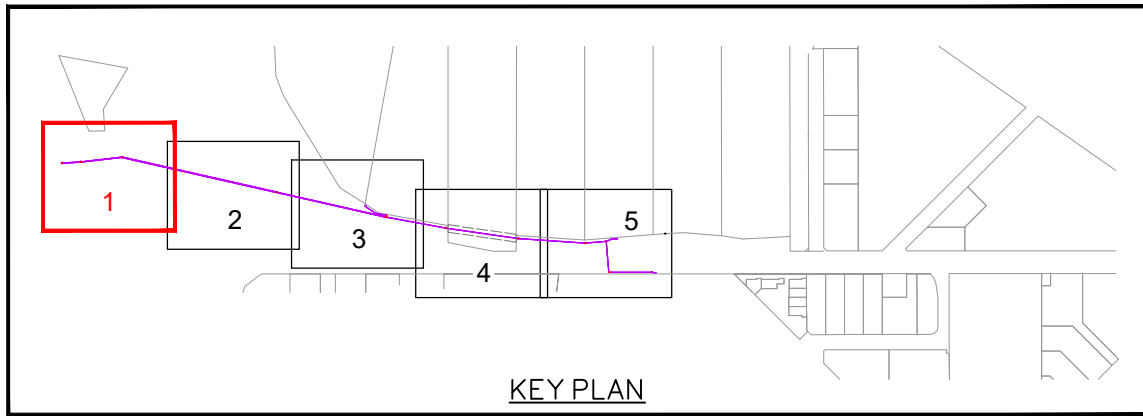
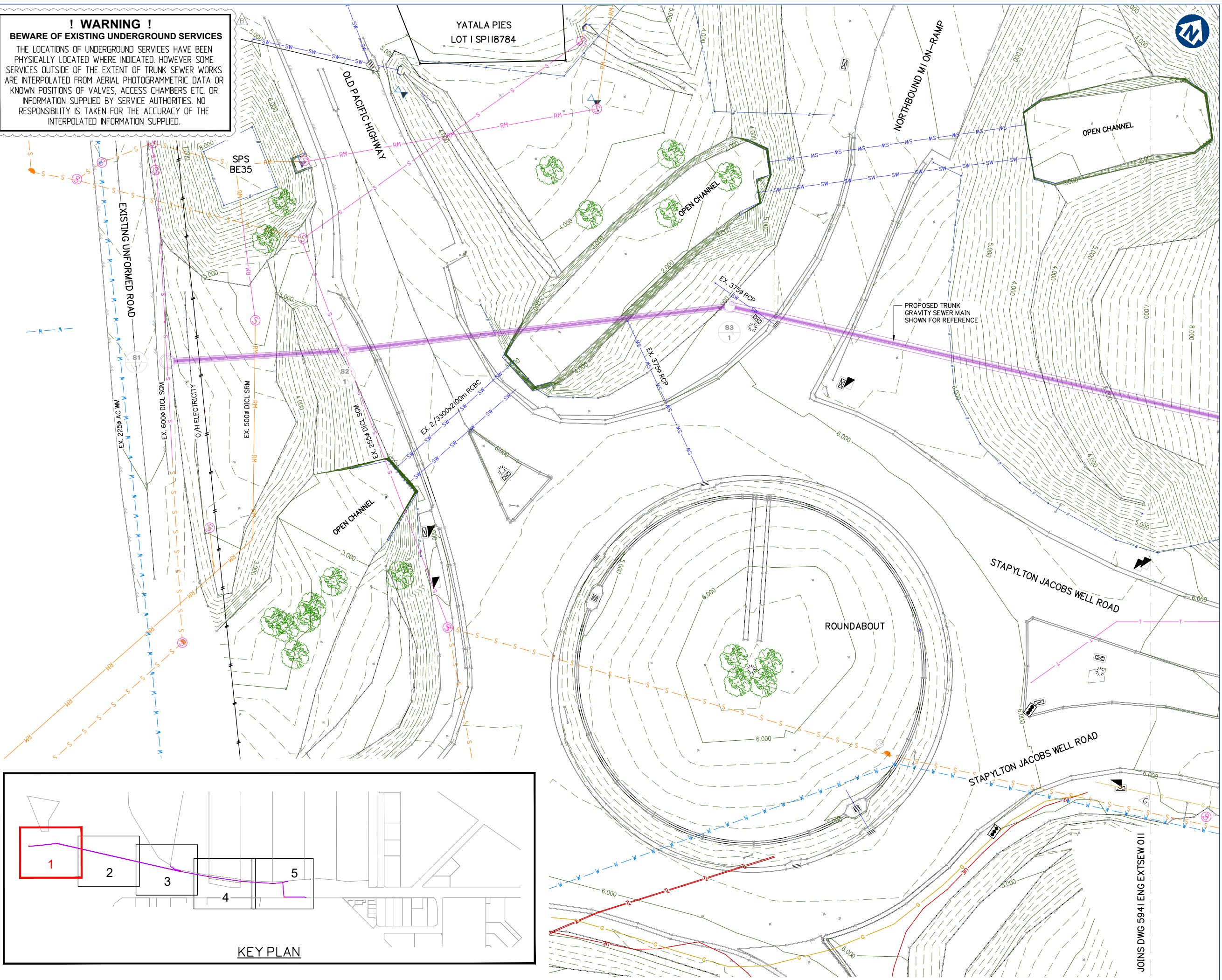
Date: 08-05-20

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KEY PLAN LAYOUT

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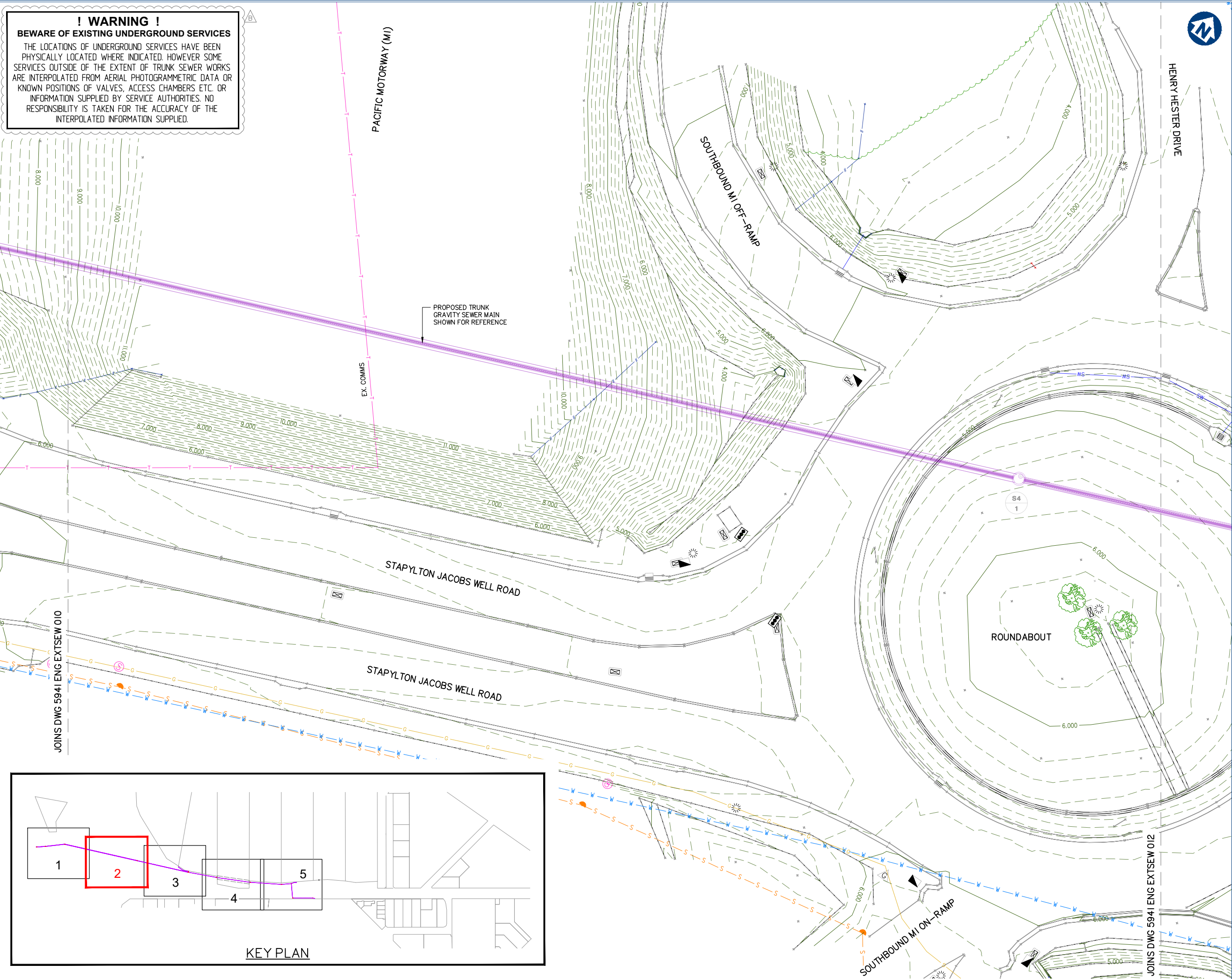


CONTOUR AND DETAIL PLAN – SHEET 1 OF 5

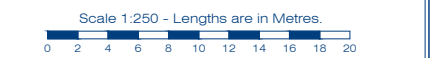
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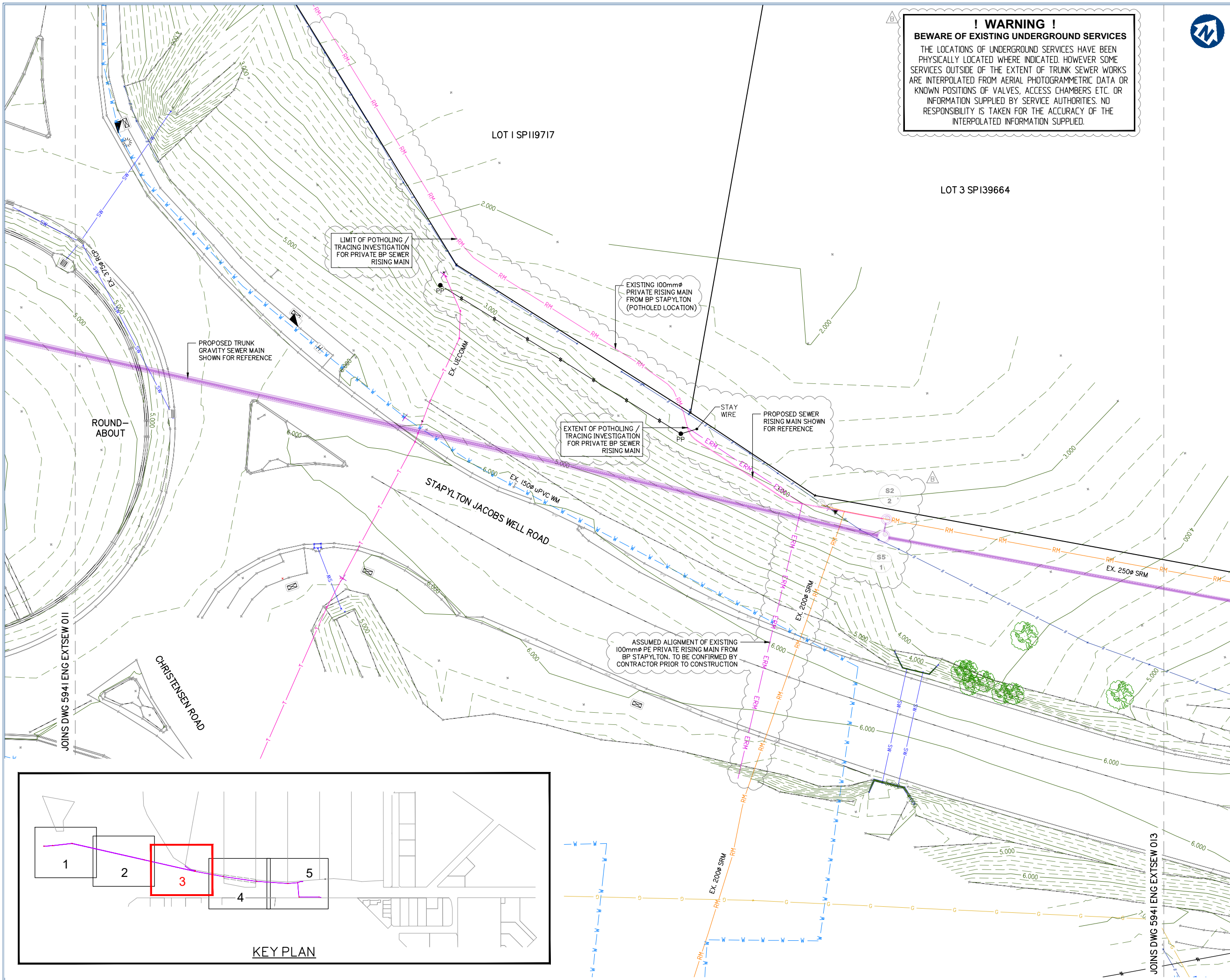
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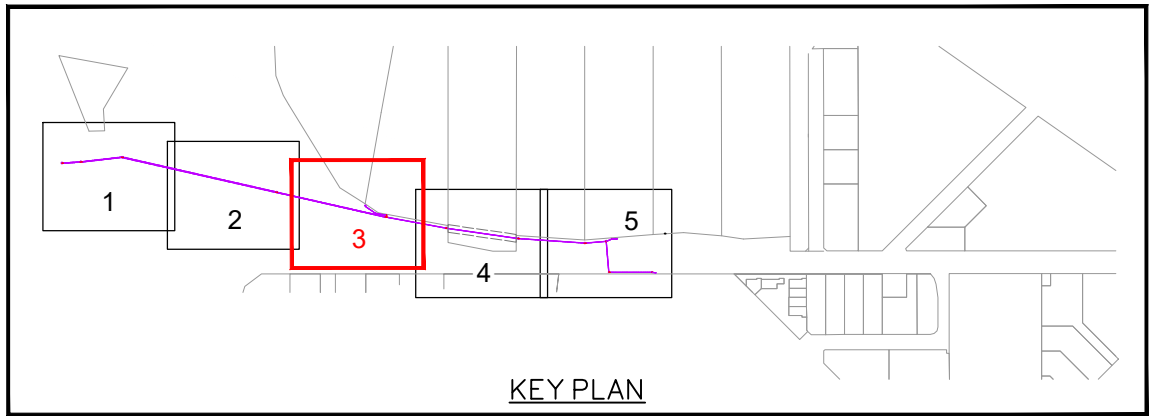
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PLAN - SHEET 3 OF 5

Issue	Date	Description	BA	MG	IG	MG	DRN	CHK
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A	08-05-20	ORIGINAL ISSUE			IG	MG		

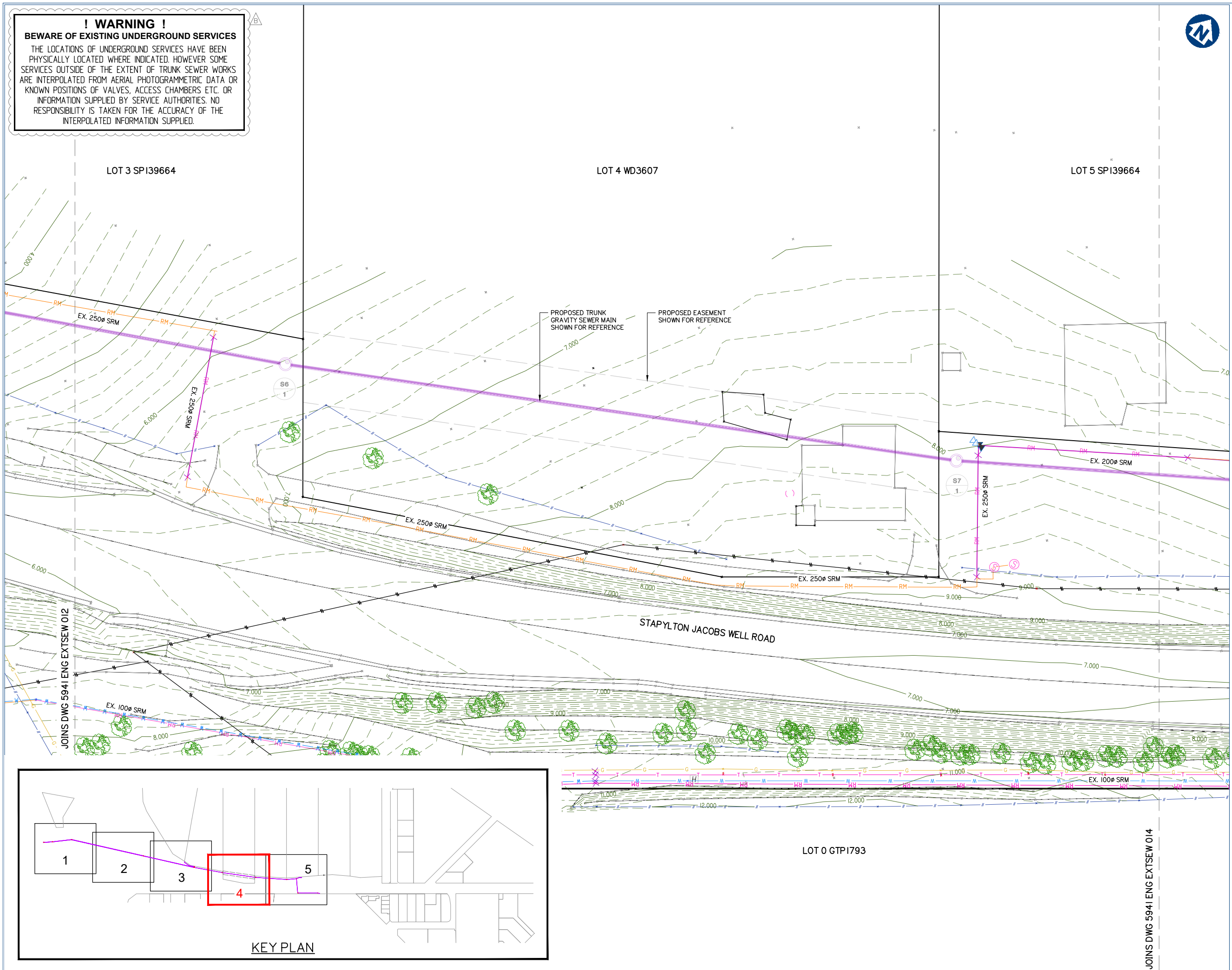
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PLAN - SHEET 4 OF 5

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A	08-05-20	ORIGINAL ISSUE	IG	MG	
Issue	Date	Description	DRN	CHK	

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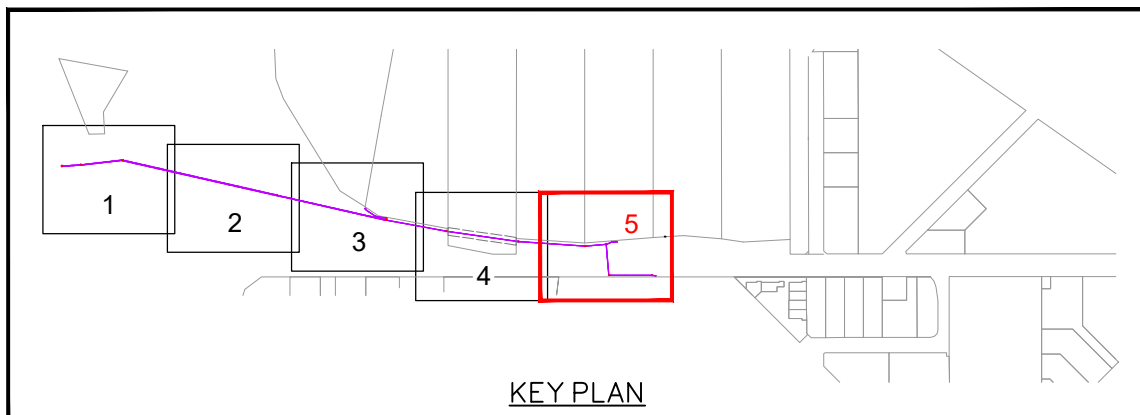
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PLAN - SHEET 5 OF 5

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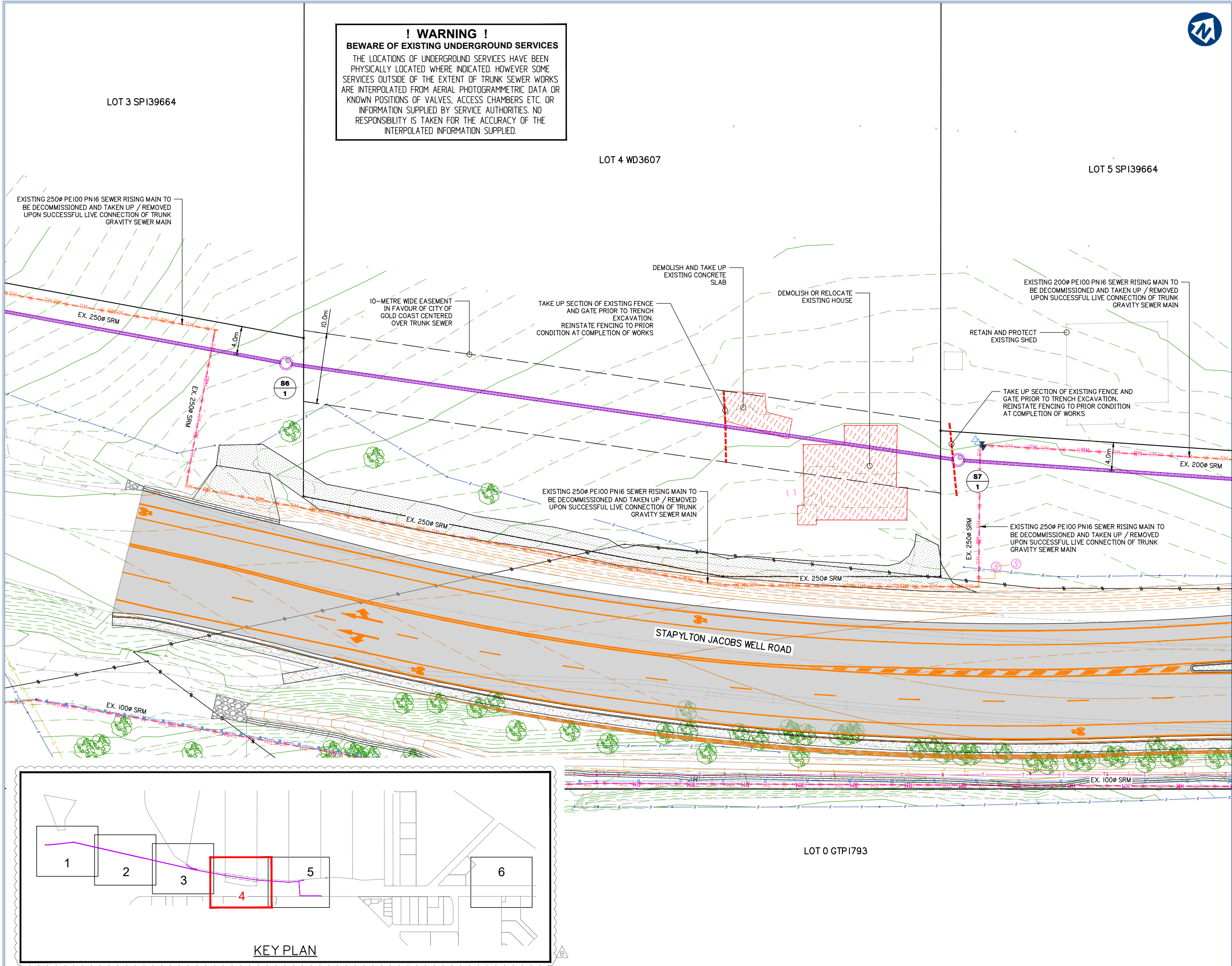
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Approved:	MG
RPEQ:	16939
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CONTOUR AND DETAIL PLAN – SHEET 5 OF 5



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DEMOLITION AND
PROTECTION PLAN

Issue	Date	Description	BA	MG	IG	MG	DRN	CHK
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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)

YATALA PIES
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EXISTING 225Ø DCL PN35 SEWER GRAVITY
MAIN TO BE DECOMMISSIONED AND TAKEN UP
/ REMOVED UPON SUCCESSFUL LIVE
CONNECTION OF TRUNK GRAVITY SEWER MAIN

KEY PLAN



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Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project: VANTAGE YATALA
EXTERNAL TRUNK GRAVITY SEWER
(City of Gold Coast: Stapylton XGMA21)

Site Address:
STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
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RPD:

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

SEWER LAYOUT PLAN
SHEET 1 OF 6

TRUNK SEWER PIPE INVERTS	
END OF PIPE CHAINAGE	INVERT LEVEL
0.900	0.529
24.317	0.560
25.817	0.590
79.404	0.661
80.924	0.691

CHAINAGE	EASTING	NORTHING	INVERT LEVEL
0.000	1504.477	6707.051	0.449
5.000	1508.349	6710.214	0.534
10.000	1512.222	6713.377	0.541
15.000	1516.094	6716.540	0.547
20.000	1519.967	6719.703	0.554
25.000	1523.839	6722.866	0.573
25.057	1523.883	6722.901	—
30.000	1527.542	6726.225	0.595
35.000	1531.243	6729.588	0.602
40.000	1534.943	6732.950	0.609
45.000	1538.644	6736.312	0.615
50.000	1542.345	6739.674	0.622
55.000	1546.046	6743.037	0.629
60.000	1549.746	6746.399	0.635
65.000	1553.447	6749.761	0.642
70.000	1557.148	6753.123	0.649
75.000	1560.849	6756.485	0.655
80.000	1564.549	6759.848	0.673
80.164	1564.671	6759.958	—
85.000	1569.125	6761.841	0.697
90.000	1573.730	6763.789	0.703
95.000	1578.335	6765.736	0.710
100.000	1582.941	6767.683	0.717
105.000	1587.546	6769.630	0.723
110.000	1592.151	6771.578	0.730
115.000	1596.756	6773.525	0.737
120.000	1601.361	6775.472	0.743
125.000	1605.967	6777.420	0.750
130.000	1610.572	6779.367	0.757
135.000	1615.177	6781.314	0.763
140.000	1619.782	6783.261	0.770
145.000	1624.388	6785.209	0.777

NOTE:
I. CONTRACTOR TO CONFIRM LOCATIONS AND LEVELS OF EXISTING SERVICES PRIOR TO COMMENCEMENT OF WORKS AND NOTIFY SUPERINTENDENT IF DIFFERENT FROM THOSE SHOWN.

LIVE WORKS SCHEDULE

[illegible]

Scale 1:250 - Lengths are in Metres.



Scale at A1: 1:250

Designed:	IG
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Drafted:	IG
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Approved:	MG
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RPEQ:	16930
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Signed:	
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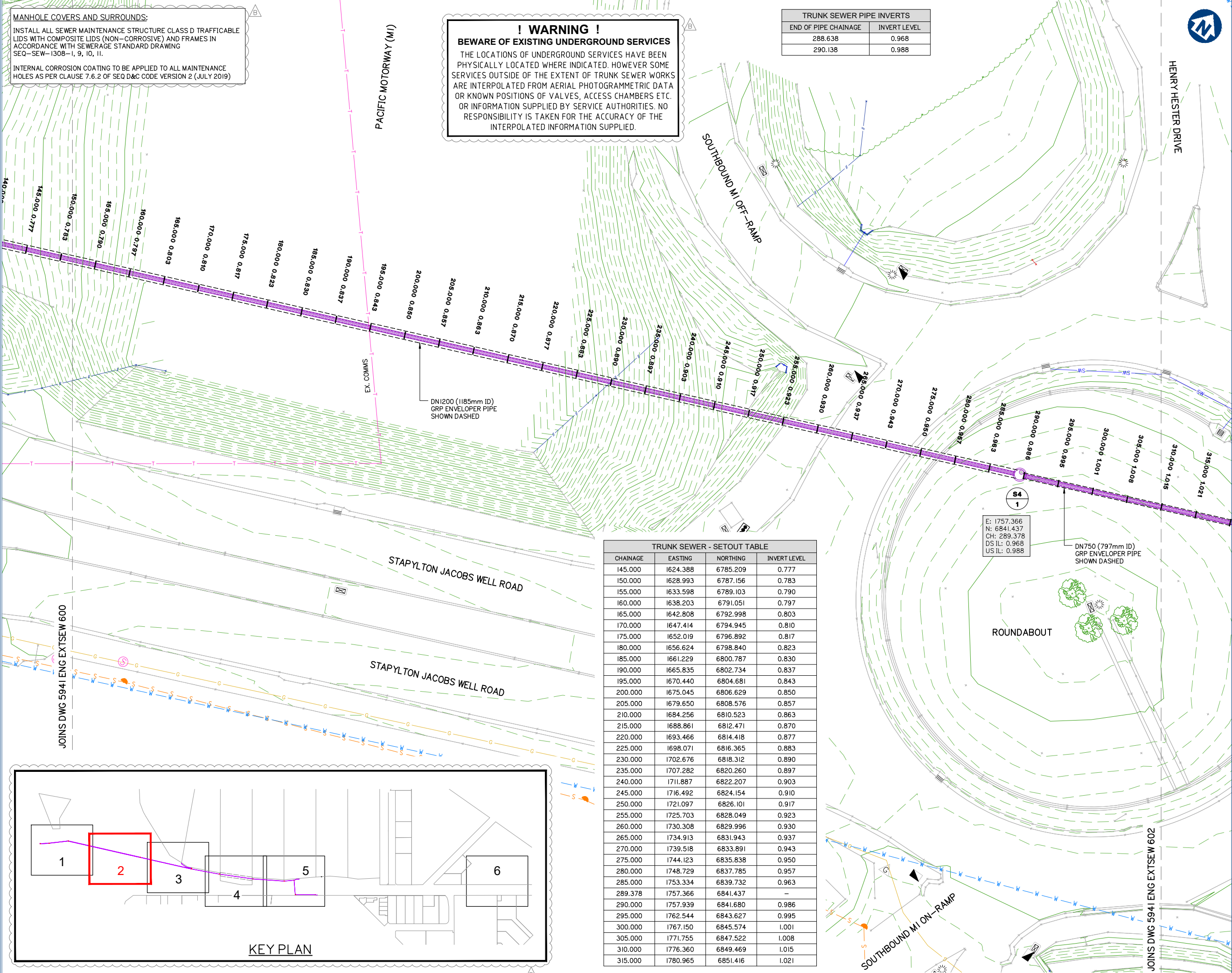
Date:	08-05-20
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Drawing No:
5941 ENG EXTSEW 600

Rev. No:
B

SEWER LAYOUT PLAN SHEET 1 OF 6

G:\Projects\5941\engineering\Acad\external trunk sewer\CURRENT\5941 ENG EXTSEW 600.dwg



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EXTERNAL TRUNK GRAVITY SEWER
(City of Gold Coast: Stapylton XGMA21)

Site Address:
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DRAWING TITLE

SEWER LAYOUT PLAN
SHEET 2 OF 6

Rev.	Date	Description	By	Check
B	13-07-20	INFORMATION REQUEST RESPONSE	BA	MG
A	08-05-20	ORIGINAL ISSUE	IG	MG

Scale 1:250 - Lengths are in Metres.

Scale at A1: 1:250

Designed: IG

Drafted: IG

Approved: MG

RPEQ: 16939

Signed: [Signature]

Date: 08-05-20

Drawing No: 5941 ENG EXTSEW 601

Rev. No: B

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.

LOT 1 SPI19717

LOT 3 SPI39664

TRUNK SEWER - SETOUT TABLE			
CHAINAGE	EASTING	NORTHING	INVERT LEVEL
315.000	1780.965	6851.416	1.021
320.000	1785.570	6853.363	1.028
325.000	1790.176	6855.311	1.035
330.000	1794.781	6857.258	1.041
335.000	1799.386	6859.205	1.048
340.000	1803.991	6861.152	1.055
345.000	1808.597	6863.100	1.061
350.000	1813.202	6865.047	1.068
355.000	1817.807	6866.994	1.075
360.000	1822.412	6868.942	1.081
365.000	1827.018	6870.889	1.088
370.000	1831.623	6872.836	1.095
375.000	1836.228	6874.783	1.101
380.000	1840.833	6876.731	1.108
385.000	1845.438	6878.678	1.115
390.000	1850.044	6880.625	1.121
395.000	1854.649	6882.573	1.128
400.000	1859.254	6884.520	1.135

TRUNK SEWER - SETOUT TABLE			
CHAINAGE	EASTING	NORTHING	INVERT LEVEL
405.000	1863.859	6886.467	1.141
410.000	1868.465	6888.414	1.148
415.000	1873.070	6890.362	1.155
420.000	1877.675	6892.309	1.161
425.000	1882.280	6894.256	1.168
430.000	1886.885	6896.203	1.175
435.000	1891.491	6898.151	1.181
437.725	1894.000	6899.212	-
440.000	1896.058	6900.183	1.247
445.000	1900.579	6902.317	1.322
450.000	1905.101	6904.452	1.397
455.000	1909.623	6906.586	1.472
460.000	1914.144	6908.720	1.547
465.000	1918.666	6910.855	1.622
470.000	1923.187	6912.989	1.697
475.000	1927.709	6915.123	1.772
480.000	1932.230	6917.258	1.847
485.000	1936.752	6919.392	1.922

TRUNK SEWER PIPE INVERTS	
END OF PIPE CHAINAGE	INVERT LEVEL
436.965	1.184
438.475	1.224

CAUTION

EXISTING ELECTRICAL OVERHEAD, POWER POLE AND STAY WIRE IN THIS AREA

EXTENT OF POTHOLING / TRACING INVESTIGATION OF BP PRIVATE SEWER RISING MAIN

E: 1862.447
N: 6895.575
CH: 34.630
DS IL: 1.721
US IL: 1.721

PROVIDE 110 PE 100 SDR21 RISING MAIN - LINE (TYPICAL)
E: 1894.000
N: 6899.212
CH: 2.500
DS IL: 2.200
US IL: 2.035

EXISTING 250 PE 100 PN16 SEWER RISING MAIN TO BE DECOMMISSIONED AND TAKEN UP / REMOVED UPON SUCCESSFUL LIVE CONNECTION OF TRUNK GRAVITY SEWER MAIN

RISING MAIN DISCHARGE TO GRAVITY SEWER MANHOLE. REFER SEQ CODE STD DWG SEQ-SPS-1406-1

PROVIDE 150 PVC-U CL SN8 GRAVITY SEWER LINE

E: 1863.442
N: 6895.007
CH: 33.427
DS IL: 1.732
US IL: 1.732

E: 1880.093
N: 6895.480
CH: 16.682
DS IL: 1.898
US IL: 1.898

E: 1894.000
N: 6899.212
CH: 437.725
DS IL: 1.184
US IL: 1.224

LIVE WORKS SCHEDULE

No.	DESCRIPTION	DIA. SEWER	MH NO	MH/MS TYPE	COVER TYPE	LOT NO	FSL	ESL	IL	DEPTH TO INVERT
(A)	UPON SUCCESSFUL LIVE CONNECTION OF NEW TRUNK GRAVITY SEWER LINE 01. CONTRACTOR IS TO CONNECT EXISTING 100mm DIA. PE PRIVATE SEWER RISING MAIN INTO STRUCTURE S1/2 UNDER GCWW SUPERVISION AT DEVELOPER'S EXPENSE.	DN150	S1/2	1050 P2	D/C	N/A	5.094	5.094	4.010	1.084m
(B)	CONTRACTOR TO PLUG OUTLET SIDE OF PRIVATE PUMP STATION RECEIVER MANHOLE. SEWAGE FLOWS TO BE INTERCEPTED AND TRANSPORTED TO A LICENSED WASTE FACILITY DURING LIVE CONNECTION PROCESS. EXISTING 100mm PE LINE TO BE CUT AT THE INLET SIDE OF S1/2. A 6m PE PIPE IS TO BE CONNECTED TO THE EXISTING 100mm PRIVATE SEWER RISING MAIN USING AN APPROVED OFF TAKE CLAMP. CONTRACTOR TO BUILD NEW MANHOLE S1/2 AROUND PREVIOUSLY INSTALLED STUB FROM S5/I.									

NOTE:
1. CONTRACTOR TO CONFIRM LOCATIONS AND LEVELS OF EXISTING SERVICES PRIOR TO COMMENCEMENT OF WORKS AND NOTIFY SUPERINTENDENT IF DIFFERENT FROM THOSE SHOWN.

EXISTING 200 MILD STEEL SEWER RISING MAIN (AND PRIVATE RISING MAIN) TO BE DECOMMISSIONED AND TAKEN UP / REMOVED UPON SUCCESSFUL LIVE CONNECTION OF TRUNK GRAVITY SEWER MAIN

ASSUMED ALIGNMENT AND DEPTH. CONTRACTOR TO CONFIRM EXISTING SERVICE LOCATION PRIOR TO COMMENCEMENT OF WORKS

EXISTING 200 MILD STEEL SEWER RISING MAIN AND PRIVATE RISING MAIN TO BE DECOMMISSIONED, CAPPED, GROUT FILLED AND ABANDONED UPON SUCCESSFUL LIVE CONNECTION OF TRUNK GRAVITY SEWER MAIN. ABANDONED SECTION OF MAIN TO REMAIN ON GCWW'S AS CONSTRUCTED RECORDS FOR FUTURE REFERENCE BY DTM.

EXISTING 200 MILD STEEL SEWER RISING MAIN (AND PRIVATE RISING MAIN) TO BE DECOMMISSIONED AND TAKEN UP / REMOVED UPON SUCCESSFUL LIVE CONNECTION OF TRUNK GRAVITY SEWER MAIN

KEY PLAN



Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project: VANTAGE YATALA
EXTERNAL TRUNK GRAVITY SEWER
(City of Gold Coast: Stapylton XGMA21)

Site Address:

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ROAD, STAPYLTON QLD 4207

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DRAWING TITLE

SEWER LAYOUT PLAN
SHEET 3 OF 6

Issue	Date	Description	BA	MG	IG	MG	DRN	CHK
B	13-07-20	INFORMATION REQUEST RESPONSE	BA	MG				
A	08-05-20	ORIGINAL ISSUE			IG	MG		

Scale 1:250 - Lengths are in Metres.



Scale at A1: 1:250

Designed:	IG
Drafted:	IG
Approved:	MG
RPEQ:	16939
Signed:	
Date:	08-05-20

Drawing No:
5941 ENG EXTSEW 602

Rev. No:
B

MANHOLE COVERS AND SURROUNDS:

INSTALL ALL SEWER MAINTENANCE STRUCTURE CLASS D TRAFFICABLE LIDS WITH COMPOSITE LIDS (NON-CORROSIVE) AND FRAMES IN ACCORDANCE WITH SEWAGE 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)

LOT 3 SPI39664

LOT 4 WD3607

LOT 5 SPI39664

EXISTING 250Ø PE100 PN16 SEWER RISING MAIN TO BE DECOMMISSIONED AND TAKEN UP / REMOVED UPON SUCCESSFUL LIVE CONNECTION OF TRUNK GRAVITY SEWER MAIN

EXISTING 200Ø PE100 PN16 SEWER RISING MAIN TO BE DECOMMISSIONED AND TAKEN UP / REMOVED UPON SUCCESSFUL LIVE CONNECTION OF TRUNK GRAVITY SEWER MAIN

EXISTING 250Ø PE100 PN16 SEWER RISING MAIN TO BE DECOMMISSIONED AND TAKEN UP / REMOVED UPON SUCCESSFUL LIVE CONNECTION OF TRUNK GRAVITY SEWER MAIN

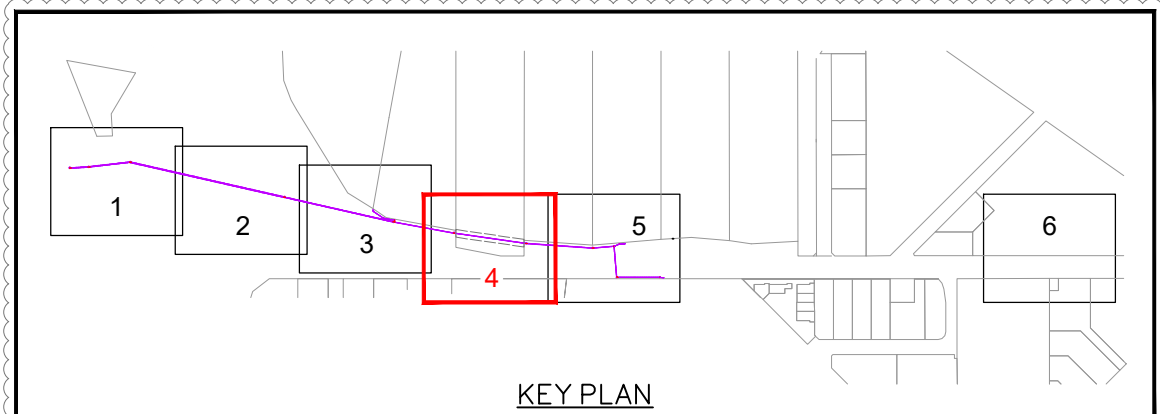
EXISTING 250Ø PE100 PN16 SEWER RISING MAIN TO BE DECOMMISSIONED AND TAKEN UP / REMOVED UPON SUCCESSFUL LIVE CONNECTION OF TRUNK GRAVITY SEWER MAIN

EXISTING OVERHEAD ELECTRICAL TO BE RELOCATED BY OTHERS

JOINS DWG 5941 ENG EXTSEW 602

JOINS DWG 5941 ENG EXTSEW 604

LOT 0 GTP1793



KEY PLAN

! 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.

TRUNK SEWER - SETOUT TABLE			
CHAINAGE	EASTING	NORTHING	INVERT LEVEL
480.000	1932.230	6917.258	1.847
485.000	1936.752	6919.392	1.922
490.000	1941.274	6921.526	1.996
495.000	1945.795	6923.661	2.071
500.000	1950.317	6925.795	2.146
505.000	1954.838	6927.929	2.221
510.000	1959.360	6930.064	2.296
515.000	1963.881	6932.198	2.371
518.863	1967.374	6933.847	-
520.000	1968.383	6934.373	2.448
525.000	1972.817	6936.683	2.456
530.000	1977.252	6938.993	2.463
535.000	1981.686	6941.303	2.470
540.000	1986.120	6943.614	2.477
545.000	1990.554	6945.924	2.484
550.000	1994.989	6948.234	2.491
555.000	1999.423	6950.544	2.499
560.000	2003.857	6952.855	2.506

TRUNK SEWER - SETOUT TABLE			
CHAINAGE	EASTING	NORTHING	INVERT LEVEL
565.000	2008.291	6955.165	2.513
570.000	2012.726	6957.475	2.520
575.000	2017.160	6959.786	2.527
580.000	2021.594	6962.096	2.534
585.000	2026.028	6964.406	2.542
590.000	2030.463	6966.716	2.549
595.000	2034.897	6969.027	2.556
600.000	2039.331	6971.337	2.563
605.000	2043.765	6973.647	2.570
610.000	2048.200	6975.958	2.577
615.000	2052.634	6978.268	2.584
615.359	2052.952	6978.434	-
620.000	2056.899	6980.876	2.620
625.000	2061.150	6983.508	2.627
630.000	2065.401	6986.139	2.634
635.000	2069.653	6988.771	2.641
640.000	2073.904	6991.402	2.648
645.000	2078.156	6994.034	2.655
650.000	2082.407	6996.666	2.663

TRUNK SEWER PIPE INVERTS	
END OF PIPE CHAINAGE	INVERT LEVEL
518.103	2.418
519.623	2.448
614.599	2.584
616.109	2.614



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DRAWING TITLE

SEWER LAYOUT PLAN
SHEET 4 OF 6

Rev	Date	Description	By	Check
A	08-05-20	ORIGINAL ISSUE	IG	MG
B	13-07-20	INFORMATION REQUEST RESPONSE	BA	MG
Issue	Date	Description	DRN	CHK

Scale 1:250 - Lengths are in Metres.
0 2 4 6 8 10 12 14 16 18 20

Scale at A1: 1:250

Designed:	IG
Drafted:	IG
Approved:	MG
RPEQ:	16939
Signed:	
Date:	08-05-20

Drawing No: 5941 ENG EXTSEW 603 Rev. No: B

LIVE WORKS SCHEDULE

No.	DESCRIPTION	DIA. SEWER	MH NO	MH/MS TYPE	COVER TYPE	LOT NO	FSL	ESL	IL	DEPTH TO INVERT
1(A)	UPON SUCCESSFUL LIVE CONNECTION OF NEW TRUNK GRAVITY SEWER LINE 01 CONTRACTOR IS TO CONNECT EXISTING GCWW 200mm DIA. SEWER RISING MAIN INTO STRUCTURE S1/3 UNDER GCWW SUPERVISION AT DEVELOPER'S EXPENSE.	DN150	SI/3	1050 P2	D/C	N/A	5.094	5.094	4.010	1.084m
1(B)	CONTRACTOR TO PLUG OUTLET SIDE OF MANHOLE EX1/3. SEWAGE FLOWS TO BE INTERCEPTED AT EX1/3 AND TRANSPORTED TO A LICENSED FACILITY DURING LIVE CONNECTION PROCESS. EXISTING 200mm PE LINE TO BE CUT AT THE INLET SIDE OF SI/3. A 6.0m PVC-M PIPE IS TO BE CONNECTED TO THE EXISTING 200mm SRM USING AN APPROVED OFFTAKE CLAMP. CONTRACTOR TO BUILD NEW MANHOLE SI/3 AROUND PVC-U PIPE AND NEW GRAVITY MAIN INCLUDING BENCHING.									
2(A)	UPON SUCCESSFUL LIVE CONNECTION OF NEW TRUNK GRAVITY SEWER LINE 01 CONTRACTOR IS TO CONNECT EXISTING GCWW 100mm DIA. SEWER RISING MAIN INTO STRUCTURE SI2/I UNDER GCWW SUPERVISION AT DEVELOPER'S EXPENSE.	DN150	SI1/I	1050 P2	D/C	N/A	7.475	4.873	3.304	4.171m
2(B)	CONTRACTOR TO PLUG OUTLET SIDE OF MANHOLE EX13/I (REFER DWG 5941 ENG EXTSEW 605). SEWAGE FLOWS TO BE INTERCEPTED AT EX13/I AND TRANSPORTED TO A LICENSED WASTE FACILITY DURING LIVE CONNECTION PROCESS. EXISTING 100mm PVC-U LINE TO BE CUT AT THE INLET SIDE OF SI/II. A 6.0m PVC-M PIPE IS TO BE CONNECTED TO THE EXISTING 100mm SRM USING AN APPROVED OFFTAKE CLAMP. CONTRACTOR TO BUILD NEW MANHOLE SI/II AROUND PVC-U PIPE AND NEW GRAVITY MAIN INCLUDING BENCHING.									

TRUNK SEWER - SETOUT TABLE			
CHAINAGE	EASTING	NORTHING	INVERT LEVEL
645.000	2078.156	6994.034	2.655
650.000	2082.407	6996.666	2.663
655.000	2086.659	6999.297	2.670
660.000	2090.910	7001.929	2.677
665.000	2095.162	7004.560	2.684
670.000	2099.413	7007.192	2.691
675.000	2103.665	7009.823	2.698
680.000	2107.916	7012.455	2.706
685.000	2112.168	7015.086	2.713
690.000	2116.419	7017.718	2.720
695.000	2120.671	7020.349	2.727
700.000	2124.922	7022.981	2.734
703.594	2127.978	7024.873	-
705.000	2129.048	7025.785	2.769
710.000	2132.852	7029.030	2.776
715.000	2136.656	7032.274	2.784
720.000	2140.460	7035.519	2.791
725.000	2144.264	7038.764	2.798
730.000	2148.069	7042.009	2.805
732.074	2149.646	7043.354	-
735.000	2151.543	7041.125	2.988

TRUNK SEWER - SETOUT TABLE			
CHAINAGE	EASTING	NORTHING	INVERT LEVEL
740.000	2154.788	7037.322	3.000
745.000	2158.033	7033.518	3.013
750.000	2161.278	7029.714	3.025
755.000	2164.523	7025.910	3.038
760.000	2167.768	7022.106	3.050
765.000	2171.013	7018.302	3.063
770.000	2174.258	7014.498	3.075
773.250	2176.367	7012.026	3.183
775.000	2177.789	7013.047	3.288
780.000	2181.849	7015.965	3.304
785.000	2185.910	7018.883	3.321
790.000	2189.970	7021.800	3.338
795.000	2194.031	7024.718	3.354
800.000	2198.091	7027.635	3.371
805.000	2202.152	7030.553	3.388
810.000	2206.212	7033.470	3.405
815.000	2210.273	7036.388	3.421
820.000	2214.333	7039.306	3.438
825.000	2218.394	7042.223	3.455
830.000	2222.454	7045.141	3.470
830.157	2222.582	7045.233	3.470

TRUNK SEWER PIPE INVERTS	
END OF PIPE CHAINAGE	INVERT LEVEL
702.834	2.738
704.354	2.768
731.314	2.807
732.834	2.982
772.640	3.082
773.860	3.284
829.642	3.470

MANHOLE COVERS AND SURROUNDS:

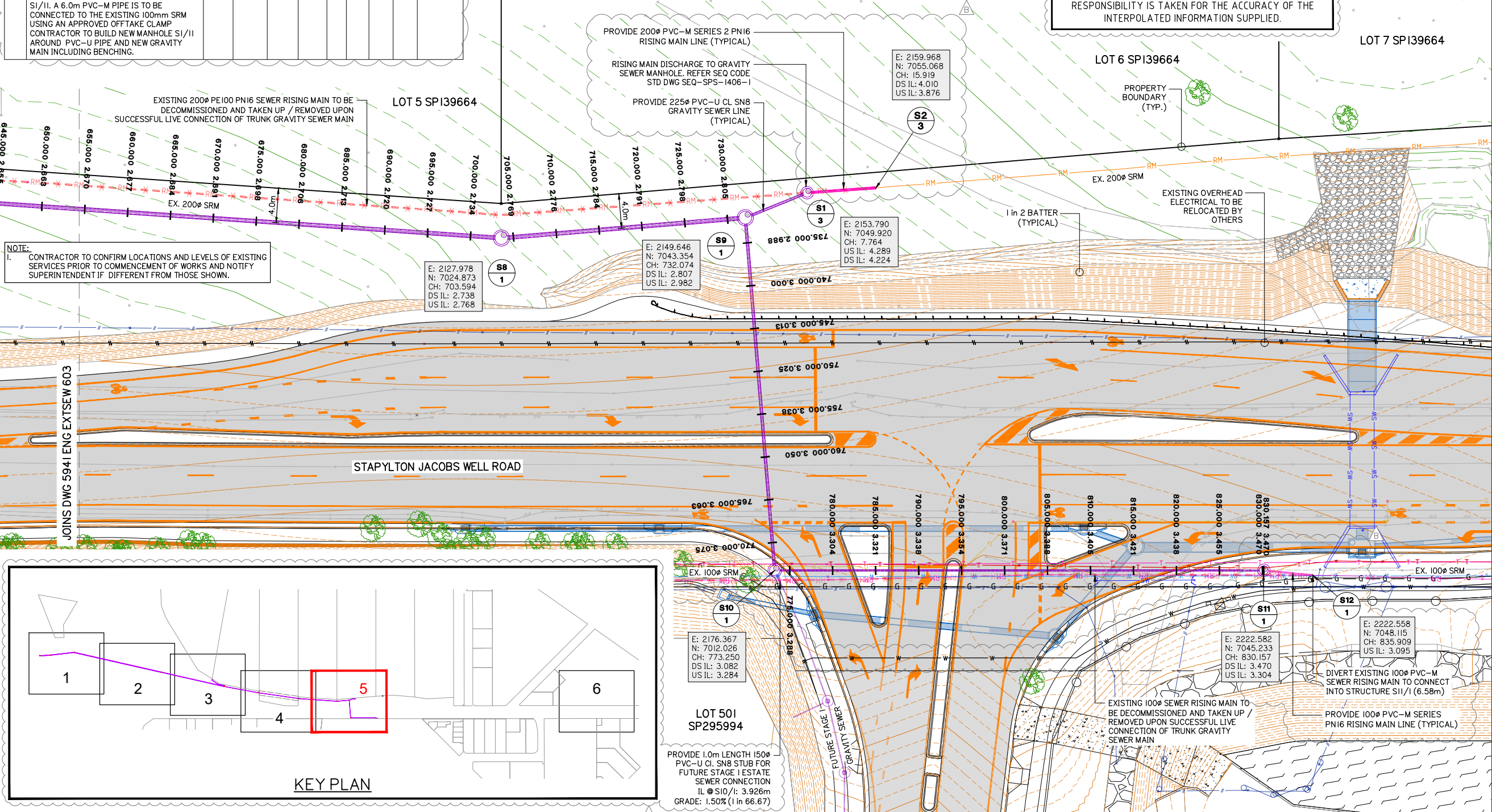
INSTALL ALL SEWER MAINTENANCE STRUCTURE CLASS D TRAFFICABLE LIDS WITH COMPOSITE LIDS (NON-CORROSIVE) AND FRAMES IN ACCORDANCE WITH SEWERAGE STANDARD DRAWING SEQ-SEW-1308-I, 9, 10, 11.

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.



Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project: VANTAGE YATALA
EXTERNAL TRUNK GRAVITY SEWER
(City of Gold Coast: Stapylton XGMA21)

Site Address:
STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

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

SEWER LAYOUT PLAN
SHEET 5 OF 6

Issue	Date	Description	IG	MG	CHK
B	13-07-20	INFORMATION REQUEST RESPONSE	BA	MG	
A	08-05-20	ORIGINAL ISSUE	IG	MG	

Scale 1:250 - Lengths are in Metres.
0 2 4 6 8 10 12 14 16 18 20

Scale at A1: 1:250

Designed: IG

Drafted: IG

Approved: MG

RPEQ: 16939

Signed:

Date: 08-05-20

Drawing No: 5941 ENG EXTSEW 604

Rev. No: B



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SEWER LAYOUT PLAN
SHEET 6 OF 6

Scale 1:250 - Lengths are in Metres.



Scale at A1:	1:250
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Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	13-07-20

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

G:\Projects\5941\engineering\Acad\external trunk sewer\CURRENT\5941 ENG EXTSEW 600.dwg

SEWER LAYOUT PLAN SHEET 6 OF 6

MAINTENANCE HOLE / SHAFT NAME

S1/1

S2/1

S3/1

S4/1

MH / MS COVER TYPE

MH / MS TYPE

DS MH / MS DROP TYPE

LINE DEFLECTION & BRANCHES

PE LINING CORROSION PROTECTION?

RIGS STRUCTURE DROPS

STRAIGHT THROUGH SEWER

SEQ-DWG

SEQ-SEW-1303-I

RIGS STRUCTURE LIDS

B NON-TRAFFICABLE LID

D TRAFFICABLE LID

C COMPOSITE

RIGS STRUCTURE TYPES

FULL CAST IN-SITU MAINTENANCE HOLE WITH CAST

IN-SITU BASE. INSTALL CLASS D COMPOSITE LIDS.

REFER SEQ STD DWG SEQ-SEW-1300-I

TYPE (P2) RISING MAIN DISCHARGE TO GRAVITY

SEWER MANHOLE IN ACCORDANCE WITH

SEQ STD DWG SEQ-SPS-1406-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

(NON-CORROSIVE). FOR ALL MANHOLES WHERE INTERNAL

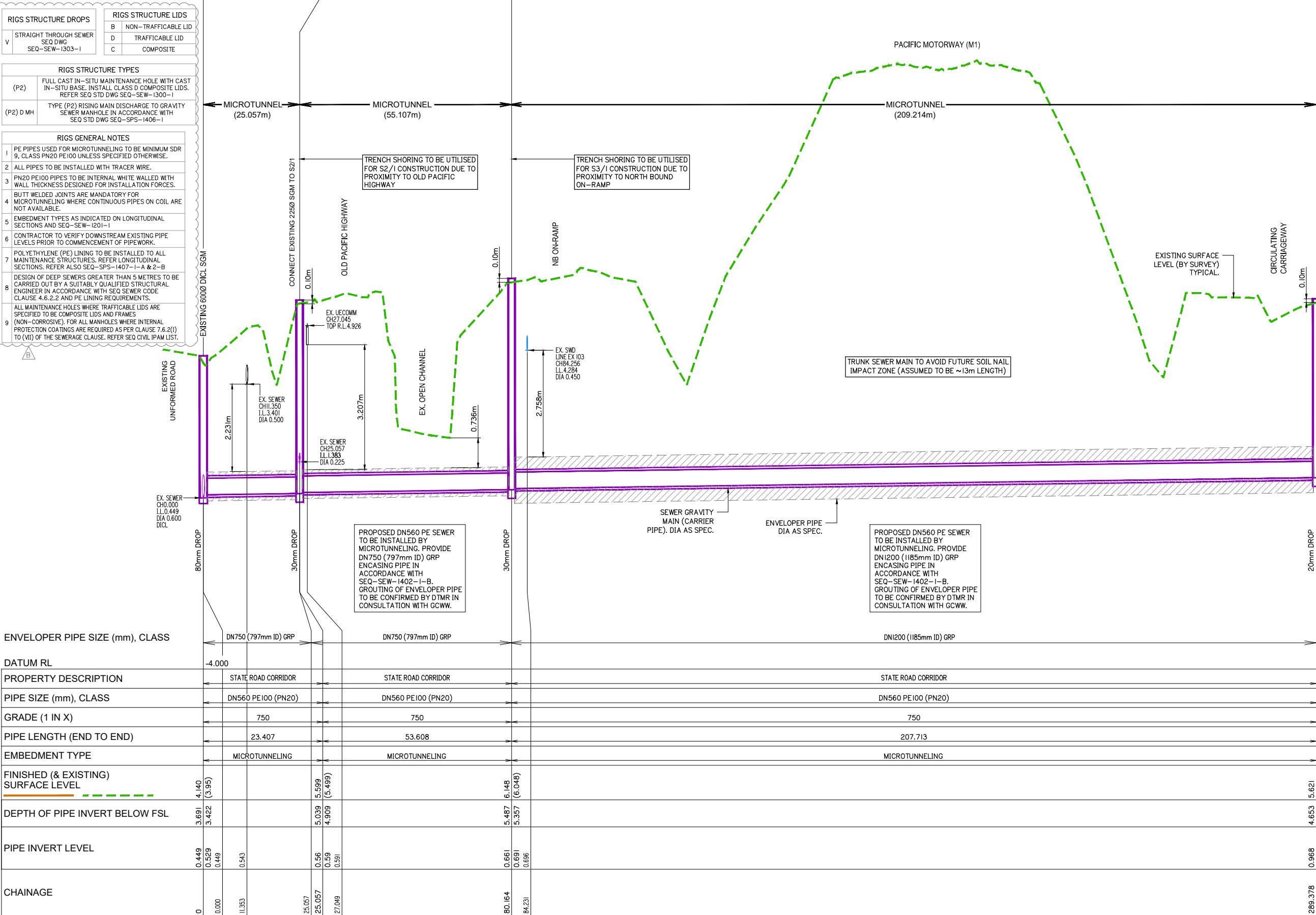
PROTECTION COATINGS ARE REQUIRED AS PER CLAUSE 7.6.2(1)

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

PIPE SIZE (mm), CLASS

GRADE (1 IN X)

PIPE LENGTH (END TO END)

EMBEDMENT TYPE

FINISHED (& EXISTING)

SURFACE LEVEL

DEPTH OF PIPE INVERT BELOW FSL

PIPE INVERT LEVEL

CHAINAGE

LINE

SEWER LONGITUDINAL SECTIONS – SHEET 1 OF 4



planning | environment | landscape | engineering | survey
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Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project: VANTAGE YATALA
EXTERNAL TRUNK GRAVITY SEWER
(City of Gold Coast: Stapylton XGMA21)

Site Address:

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DRAWING TITLE

SEWER LONGITUDINAL
SECTIONS - SHEET 1 OF 4

Issue	Date	Description	DRN	CHK
B	13-07-20	INFORMATION REQUEST RESPONSE	BA	MG
A	08-05-20	ORIGINAL ISSUE	IG	MG

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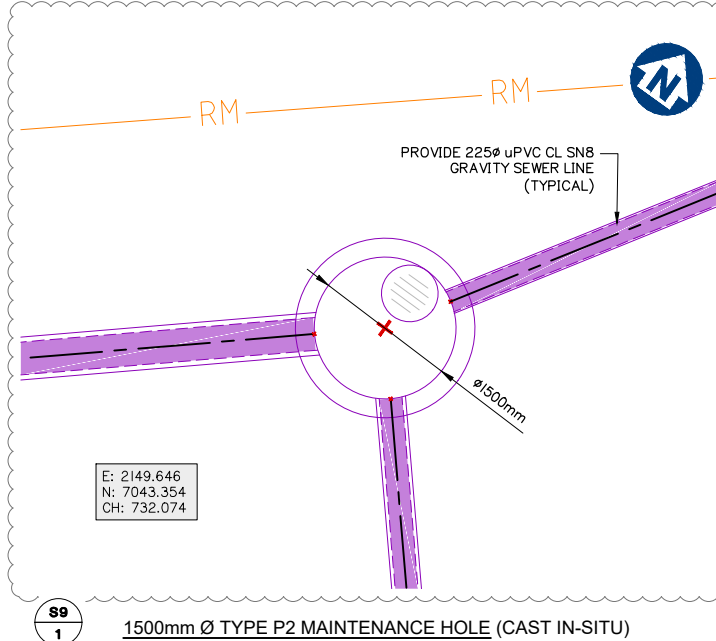
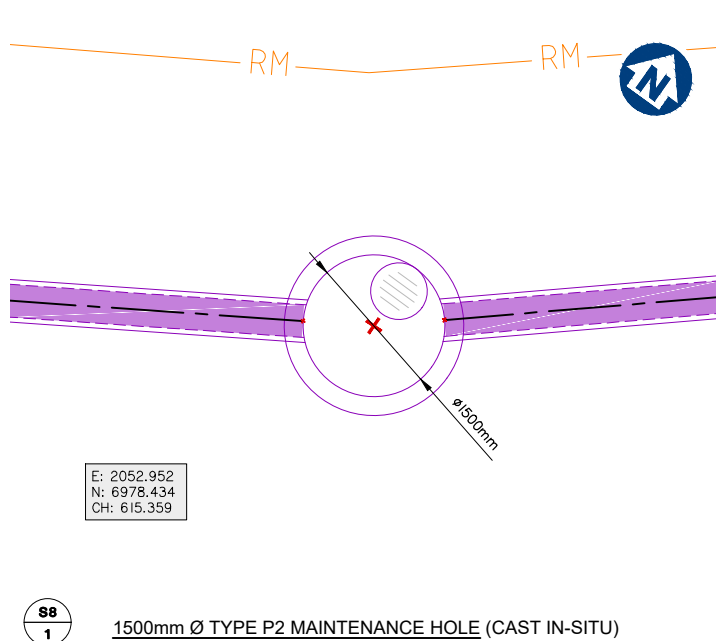
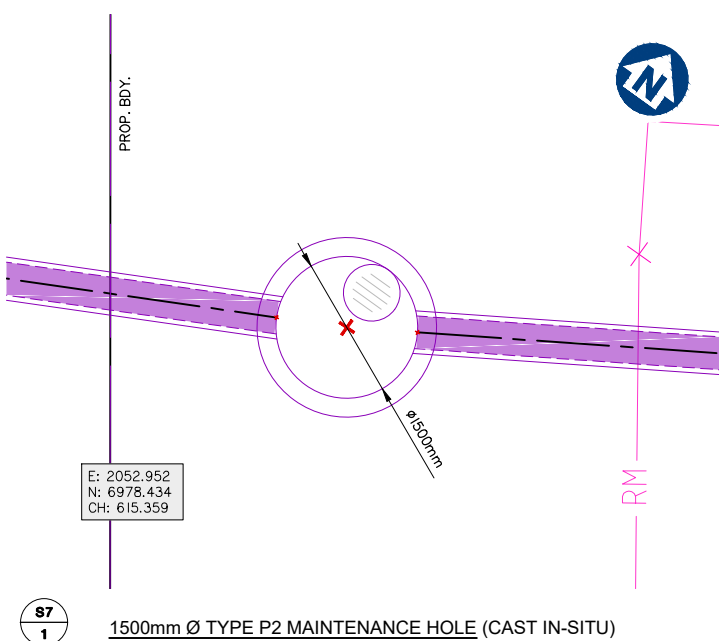
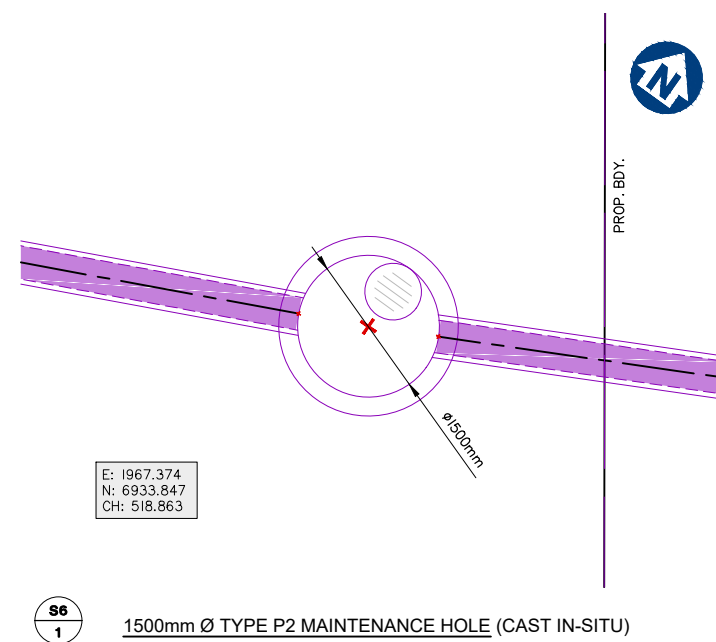
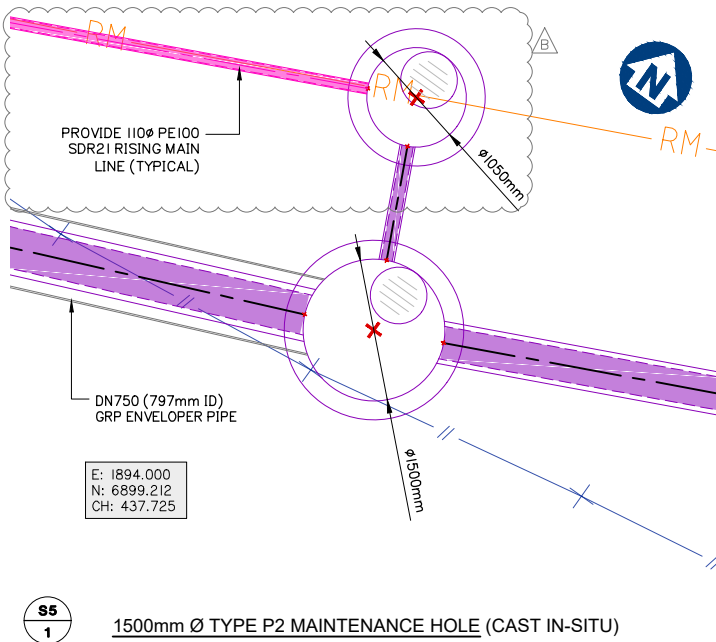
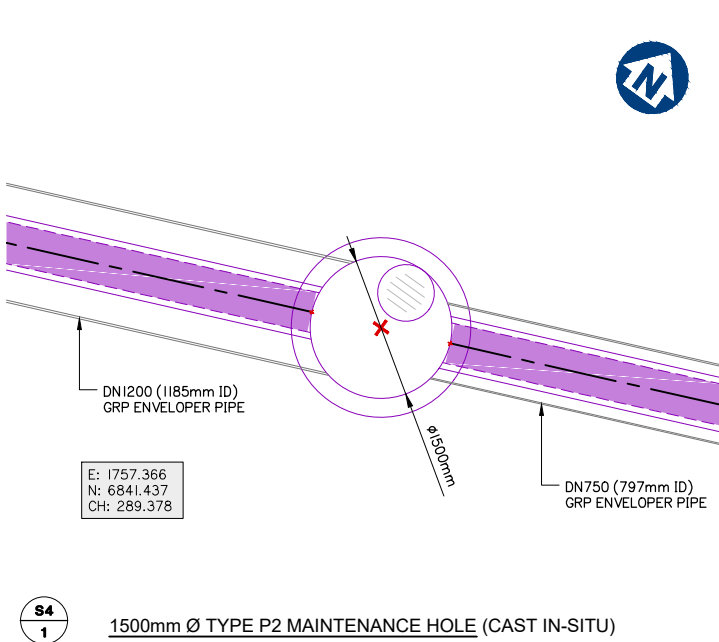
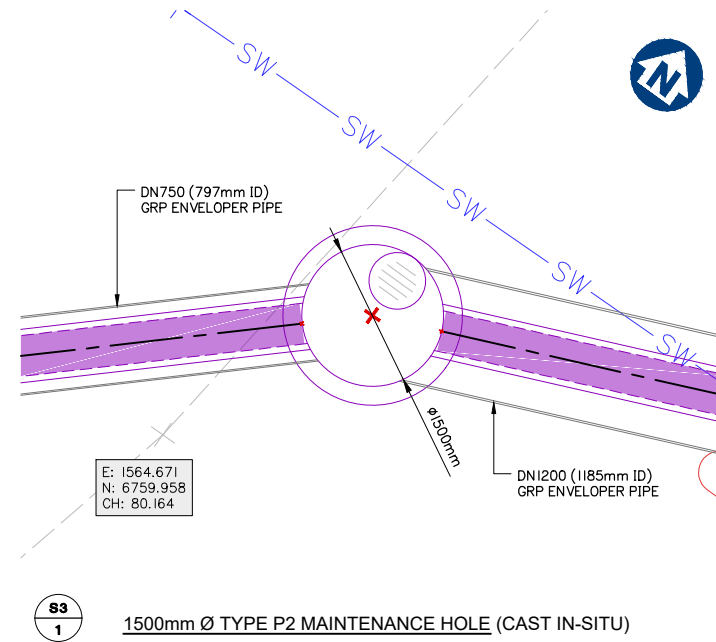
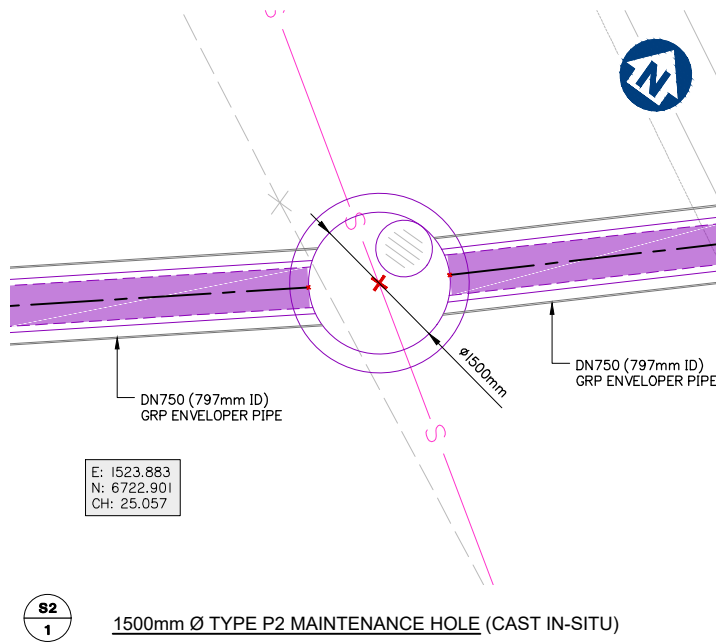
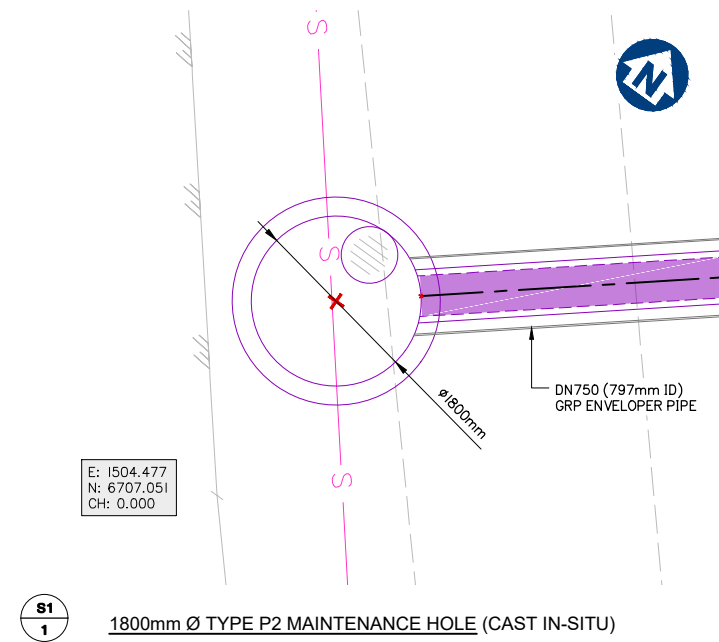
Scale 1:50 - Lengths are in Metres.

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

Designed:	IG
Drafted:	IG
Approved:	MG
RPEQ:	16939
Signed:	
Date:	08-05-20

Drawing No: 5941 ENG EXTSEW 610 Rev. No: B



Client:



Project: VANTAGE YATALA
EXTERNAL TRUNK GRAVITY SEWER
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Site Address:
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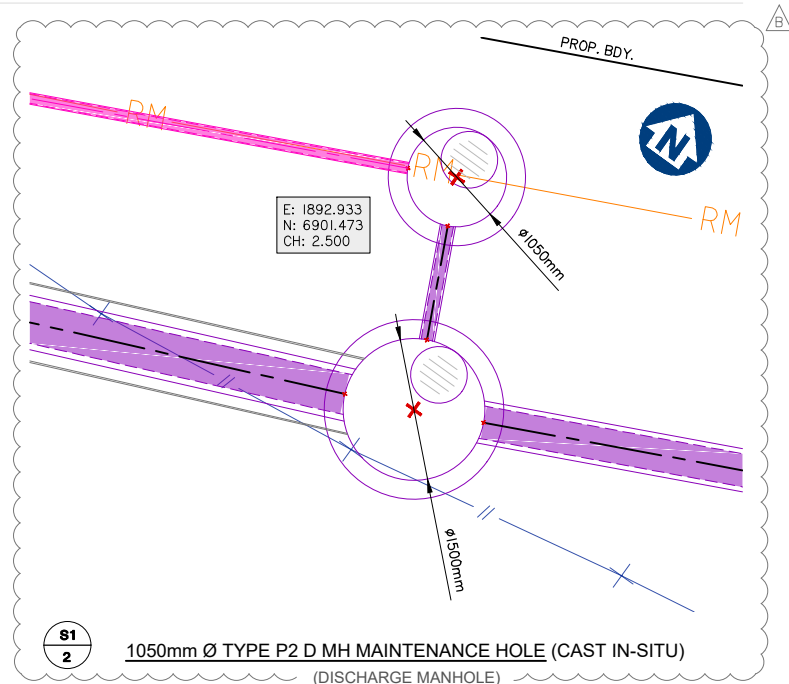
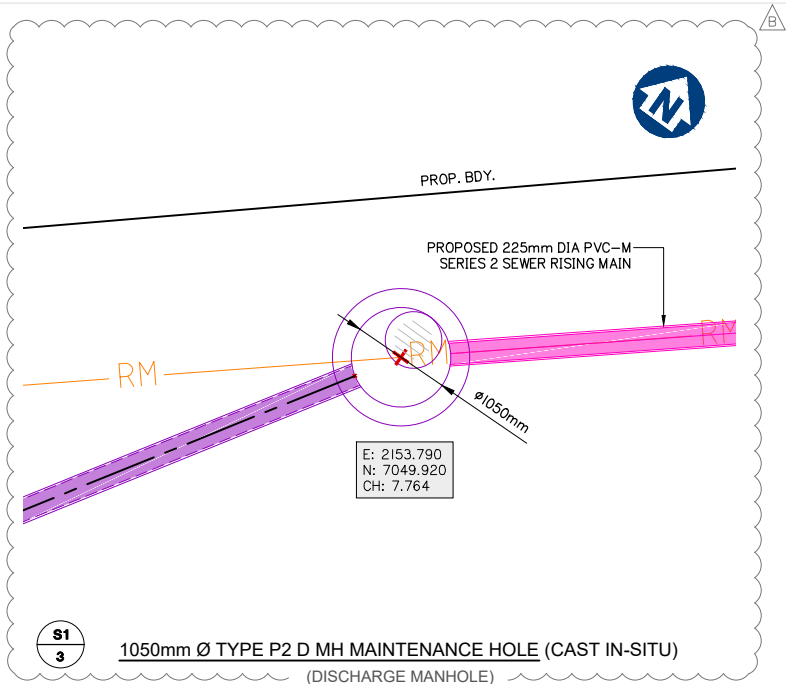
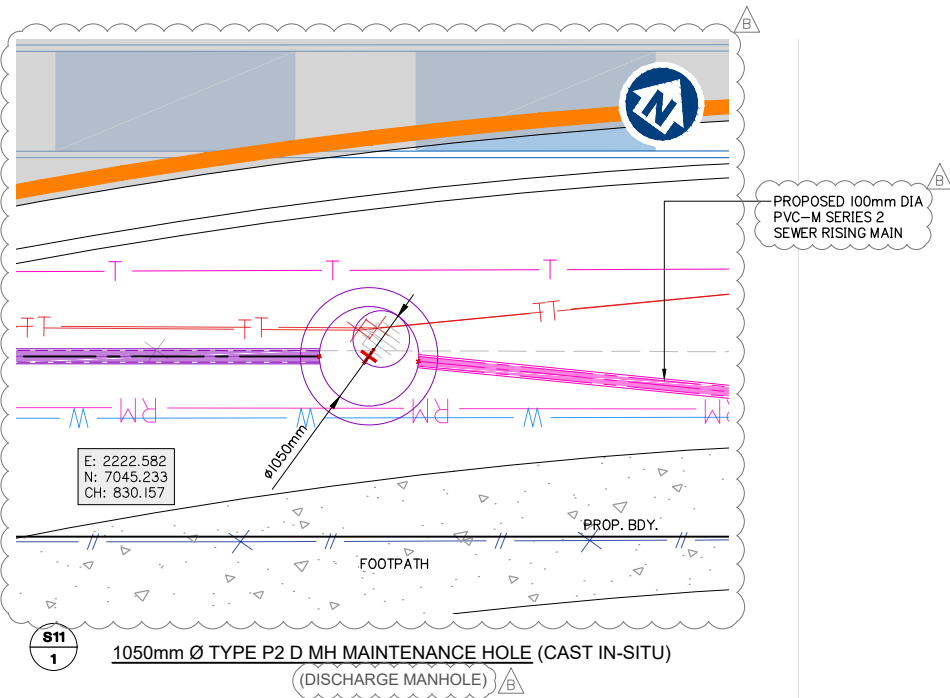
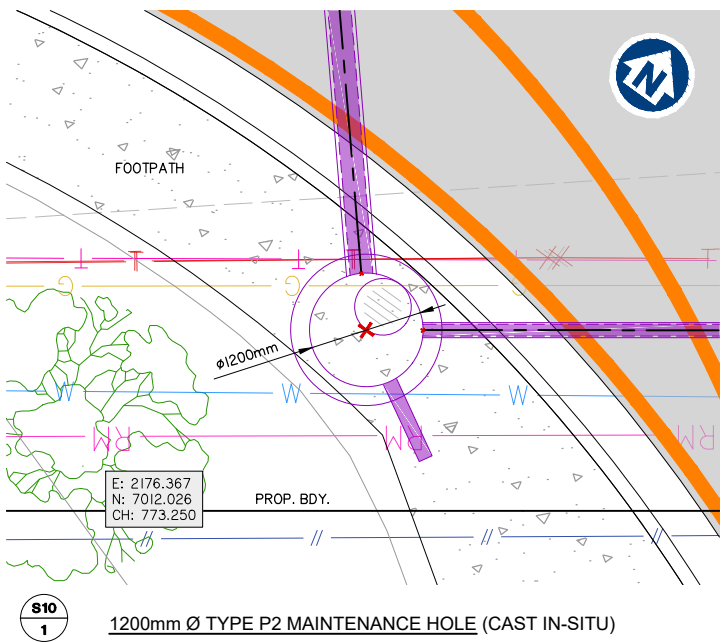
DRAWING TITLE
SEWER STRUCTURE
DETAILS - SHEET 1 OF 2

Issue	Date	Description	IG	MG	DRN	CHK
A	08-05-20	ORIGINAL ISSUE				
B	13-07-20	INFORMATION REQUEST RESPONSE	BA	MG		

Scale 1:40 - Lengths are in Metres.
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Scale at A1:	1:40
Designed:	IG
Drafted:	IG
Approved:	MG
RPEQ:	16939
Signed:	
Date:	08-05-20

Drawing No: 5941 ENG EXTSEW 650
Rev. No: B



Client:



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SEWER STRUCTURE
DETAILS - SHEET 2 OF 2

Issue	Date	Description	DRN	CHK
B	13-07-20	INFORMATION REQUEST RESPONSE	BA	MG
A	08-05-20	ORIGINAL ISSUE	IG	MG

Scale 1:40 - Lengths are in Metres.
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Scale at A1: 1:40

Designed:	IG
Drafted:	IG
Approved:	MG
RPEQ:	16939
Signed:	
Date:	08-05-20

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