Department of Transport and Main Roads

NTUMDM Worked examples

July 2025

Queensland Government

Copyright

Licence

CC BY licence summary statement

In essence, you are free to copy, communicate and adapt this work, as long as you attribute the work to the State of Queensland (Department of Transport and Main Roads). To view a copy of this licence, visit: https://creativecommons.org/licenses/by/4.0/

Translating and interpreting assistance

The Queensland Government is committed to providing accessible services to Queenslanders from all cultural and linguistic backgrounds. If you have difficulty understanding this publication and need a translator, please call the Translating and Interpreting Service (TIS National) on 13 14 50 and ask them to telephone the Queensland Department of Transport and Main Roads on 13 74 68.

Disclaimer

While every care has been taken in preparing this publication, the State of Queensland accepts no responsibility for decisions or actions taken as a result of any data, information, statement or advice, expressed or implied, contained within. To the best of our knowledge, the content was correct at the time of publishing.

Feedback

Please send your feedback regarding this document to: tmr.techdocs@tmr.qld.gov.au

Contents

Worked Example – Simple – Part of road package

For limited PUP relocations it is possible to add conflict tags to the EF drawings and a matrix and only generate PUP layouts for relocations as shown in example below. Where the projects become more complex or where drawings may become convoluted, conflict tags would be placed on PUP layouts split between utility types as presented in Drafting and Design Presentations Manual. For non-contestable works, it's a space proofing exercise with information feeding into the utility provider's final design documentation that once received is added to the project documentation. For contestable works, whether to conduct a standalone package will come down to the utility provider's drafting standards and database management. Some will require individual packages (refer to contestable water - standalone package for details) others may accept relevant certified IFC drawings from the project set. Early discussions with utility providers will govern the documentation requirement.

Note, purpose of these examples is to show minimum expected level of detail not the design solution. For simplicity any DE or EDD items referencing relevant reports and approvals have been removed.

Department of Transport and Main Roads WRR_Detail (08/19)

Doc. No.

GENERAL:

G 1 These drawings shall be read in conjunction with Contract Specifications, SEQ Water Supply Code and Specifications, WSAA Code, DTMR Technical Note TN163, SEQ Code, Logan City Council (LCC) Standard Specifications and Drawings, all relevant Australian Standards and with such other written instructions as may be issued during the course of the contract. All discrepancies shall be referred to the Administrator for decision before proceeding with work.

G 2 Nomination of proprietary items does not indicate exclusive preference but indicates the required properties of the item. Similar alternatives with the required properties may be offered for written approval.

G 3 Refer any discrepancy to the Administrator before proceeding with the work.

G 4 Do not obtain dimensions by scaling from the drawings. All dimensions are in millimetres and all levels and chainages are in metres unless noted otherwise.

G 5 Set-out dimensions and levels, including any shown on the drawings are to be verified on site by the Contractor before fabrication and construction.

G 6 Maintain structures and existing services in stable condition during construction.

G 7 The Contractor shall be responsible for ensuring any existing structures are not damaged during construction. Any damage shall be made good by re-construction or repair as directed by and to the satisfaction of the Administrator and/or Owner.

G 8 All workmanship and materials shall be in accordance with the relevant codes, Specifications, and current Australian Standards.

G 9 Support all trenches in accordance with the requirements of Workplace Health & Safety Act and Workplace Health & Safety Regulation.

G 10 Not withstanding that the present and/or proposed positions of underground services may be indicated on the drawings, their position and depth is approximate only. Prior to any excavation the Contractor shall contact all relevant authorities and shall pot-hole all services to obtain detailed locations. The Contractor shall notify the Administrator of any conflicts between the proposed main and existing services. The Administrator will advise details of any required changes to alignment or level, or arrange for changes to services.

G 11 If pipeline installation requires deviation from construction drawings, seek confirmation from Administrator and/or RPEQ construction engineer before proceeding.

G 12 Roads shall not be closed for their full width except for times when movement of materials are necessary. Traffic shall be controlled by accredited traffic controllers only.

G 13 Contractor to provide sufficient trench depth and width to allow for deflection of pipes at joints.

G 14 No heavy construction equipment shall operate within 5m from the edge of excavations. Spoil piles shall be placed no closer than 1m from the trench edge.

G 15 Excavation for mass concrete thrust blocks shall be checked for adequate thrust bearing capability. Poor trench stability or other adverse conditions including adjacent services shall be reported to the Administrator prior to commencing construction.

G 16 Bearing area of concrete thrust blocks shall be cast against undisturbed ground. Ground conditions and preparation shall be inspected and approved by the Administrator prior to constructing thrust blocks (geotextile not to be used between concrete and soil).

G 17 Bedding, side and haunch zones of pipes shall be compacted in accordance with SEQ Water specifications unless noted otherwise.

G 18 Removal of redundant mains shall occur upon completion of liveworks for the proposed mains.

G 19 Marker Posts in accordance SEQ-WAT-1300-1.

G 20 All reasonable skill and care has been taken in the interpolation of the existing service data sources, however, the Contractor shall confirm all existing services within the trench extent of the design services prior to opening the trench, to avoid damaging any services that are to remain.

EXAMPLE ONLY

PIPEWORK:

P 1 All DICL pipe shall be Class PN35 "Tyton" series and flanged pipes to be Class PN45 in accordance with SEQ Water specifications. All other pipe material type, class and coatings shall be as indicated in this drawing set.

P 2 Where connecting to existing pipe work, the level and diameter of the existing pipe work shall be confirmed by the Contractor prior to ordering fittings and commencing connection works.

P 3 Lengths of pipe, spacing of fittings, bend angles etc must be confirmed onsite prior to ordering materials. Amendments onsite, if required, shall be in line with the design intent and to the satisfaction of the Administrator.

P 4 Cut to fit pipework to be determined on site and carried out in accordance with manufacturer's specifications.

P 5 Flanges shall be in accordance with AS 4087, unless noted otherwise.

P 6 All bolt sets shall be Grade 316 stainless steel, refer AS 4087. Flange gasket material shall be in accordance with AS 4087.

P 7 All buried Joints shall be protected from corrosion in accordance with manufacturers recommendations.

P 8 All buried pipe work to have corrosion protection and fittings to have a Thermally Bonded Polymeric (TBP) coating or approved equivalent for long term corrosion protection. Refer to External Corrosion Protection notes for more details.

P 9 All proprietary materials shall be installed in accordance with manufacturer's instructions.

P 10 Buried Sluice Valves shall be installed in accordance with the details on Std Drg No SEQ-WAT-1301-1.

P 11 All live connections (In-line & Early Works) are to be supervised by LCC. The proposed date of any water connection work is to be agreed with LCC Water as early as possible and at least 2 weeks prior in advance. The scheduled date/s of connection works are then to be confirmed by the specialist Contractor exactly 2 weeks prior to nominated date/s. Any changes within one week of scheduled date/s will result in the Contractor being responsible for any additional costs incurred by Council for the reschedule and agreement of the new date/s.

P 12 Changes in horizontal and vertical alignment, other than by bends, shall be achieved by deflecting pipe joints by a maximum deflection specified by the manufacturer. Where changes in pipe grades shown on the project drawings exceed the value per single joint, the deflection shall be spread between adjacent pipe joints.

P 13 Test pressure for water mains shall be 1200 kPa in accordance with SEQ Water Supply Code .

P 14 For all other testing requirements, refer to relevant SEQ Water specification.

P 15 All thrust blocks shall be constructed in accordance with SEQ Water Drawing SEQ-WAT-1205-1/ SEQ-WAT-1206-1/ SEQ-WAT-1207-1 or relevant WSA sewer or water code documents and drawings for all others UNO.

P 16 Soil conditions at each thrust block must be checked against the design condition of an horizontal bearing capacity of 50kPa. If site conditions differ, seek advice from designer via Administrator.

P 17 Vertical and horizontal clearances between new pipe and existing services shall be in accordance with SEQ Water, or with Water Supply Code UNO.

P 18 Any pipework requiring repairs shall be conducted in accordance with manufactures recommendations.

P 19 Marker Tape shall be installed in accordance with the relevant SEQ Water specifications.

P 20 Where Tyton-lok is nominated, all fittings must be compatible for use. Only the sureflow® range with TBP coating to be used with Tyton-lok.

EXTERNAL CORROSION PROTECTION

ECP1 All DICL pipe fittings, accessories, valves, pipe joints and sleeve joints shall be wrapped with Denso tape to manufacturers specification.

ASBESTOS HANDLING:

AH1 The Contractor responsible for the repair and removal of asbestos cement water pipes is to ensure compliance with legislative requirements of the Queensland's Workplace Health and Safety Act 2011, Regulations 2011, How to Manage and Control Asbestos in the Workplace Code of Practice 2011, and How to Safely Remove Asbestos Code of Practice 2011.

AH2 Asbestos removal work must be carried out only be a licensed asbestos removalist who is appropriately licensed to carry out the work. No work on asbestos pipes should take place unless an assessment of the material was undertaken to determine the level of risk and identification of appropriate control measures to mitigate the risk.

AH3 As per the asbestos regulations an "Asbestos Removal Control Plan" must be completed prior to the asbestos removal.

AH4 Workplace Health and Safety Regulation 2011 requires the Contractor to notify Workplace Health and Safety Queensland prior to any planned asbestos removal works.

AH5 Important actions by the Contractor during the removal of asbestos pipes are:

- The work area should be cordoned off (e.g. with barrier tape) to ensure unprotected people cannot enter the area;
- People involved in the removal process should wear suitable protective equipment;
- The product should be wet down prior to removal, except where this would be dangerous;
- Damage or breakage of the material should be minimised;
- Plastic drop sheets should be used, and all surfaces then wet wiped after removal is completed;
- People involved in removal should go through some form of decontamination process;
- Work should be performed in well-ventilated areas, and in the open air where possible;
- Power tools should never be used, as they are likely to disperse fibres into the air.

AH6 Important actions by the Contractor for disposing of asbestos pipes are:

- Asbestos is generally double bagged in 0.2mm thick plastic bags at the workplace before being fully sealed and taken away. Sealed drums may sometimes also be used to dispose of asbestos;
- The sealed asbestos must be taken to a landfill approved by the Local Authority for specialised burial.

AH7 Any asbestos transport and disposal must be in adherence to the regulations under Queensland's Environmental Protection Regulation 2008 Part 2 – Environmentally Relevant Activities.

ASS AND SOIL TESTING

T1 Insitu soil bearing pressure testing shall be conducted at 50m centres along the pipe alignment to confirm bedding treatments.

T2 All soil testing results and final treatments shall be confirmed by a RPEQ geotechnical engineer.

ABBREVIATIONS

AC	Asbestos Cement	LTS	Length to suit		Pipe
ASS	Acid Sulphate Soil	MH	Manhole	RRJ	Rubber Ring Joint
BoK	Back of Kerb	NSL	Natural Surface Level	SC	Socket
CRC	Cairns Regional Council	OL	Obvert Level	SP	Spigot
DI	Ductile Iron	OD	Outside Diameter	SRM	Sewer Rising Main
DN	Nominal Diameter	PASS	Potential Acid Sulphate Soil	SS	Stainless Steel
Drg	Drawing			UNO	Unless Noted Otherwise
ESL	Existing Surface Level	PE	Pipe End	WM	Water Main
FL	Flange	PL	Plain End	WSAA	Water Services Association of Australia
FSL	Finished Surface Level	PSC	Pre-stressed Concrete		
HDPE	High Density Polyethylene	PVC	Plasticised Polyvinyl Chloride	TBP	Thermally Bonded Polymeric
IL	Invert Level	RCP	Reinforced Concrete		

Last Modified :- Sep 17, 2020 - 12:38am

A	ISSUED FOR CONSTRUCTION		
Revisions/Descriptions	Name or RPEQ No.	Signature	Date

CAD FILES

Associated Job Nos

Auxiliary Drg Nos

Survey Data	
Horiz. Datum	XXXX
Horiz. Grid	MGA XX ZONE XX
Height Datum	AHD DERIVED
Survey Books	XXXX

Scales

Dimensions shown in metres except where shown otherwise

LOCAL JURISDICTION

STATE CONTROLLED HIGHWAY

CTL CHGE xxxx to xxxx

Reference Points				
Preceding RP	Dist. to start of job (km)	From start to end of job	From end to Following RP	Following RP
xxx	xxx	xxx	xxx	xx

Through Chainage from xxx to xxx km

PROJECT NAME

PUBLIC UTILITIES (PUP) GENERAL NOTES

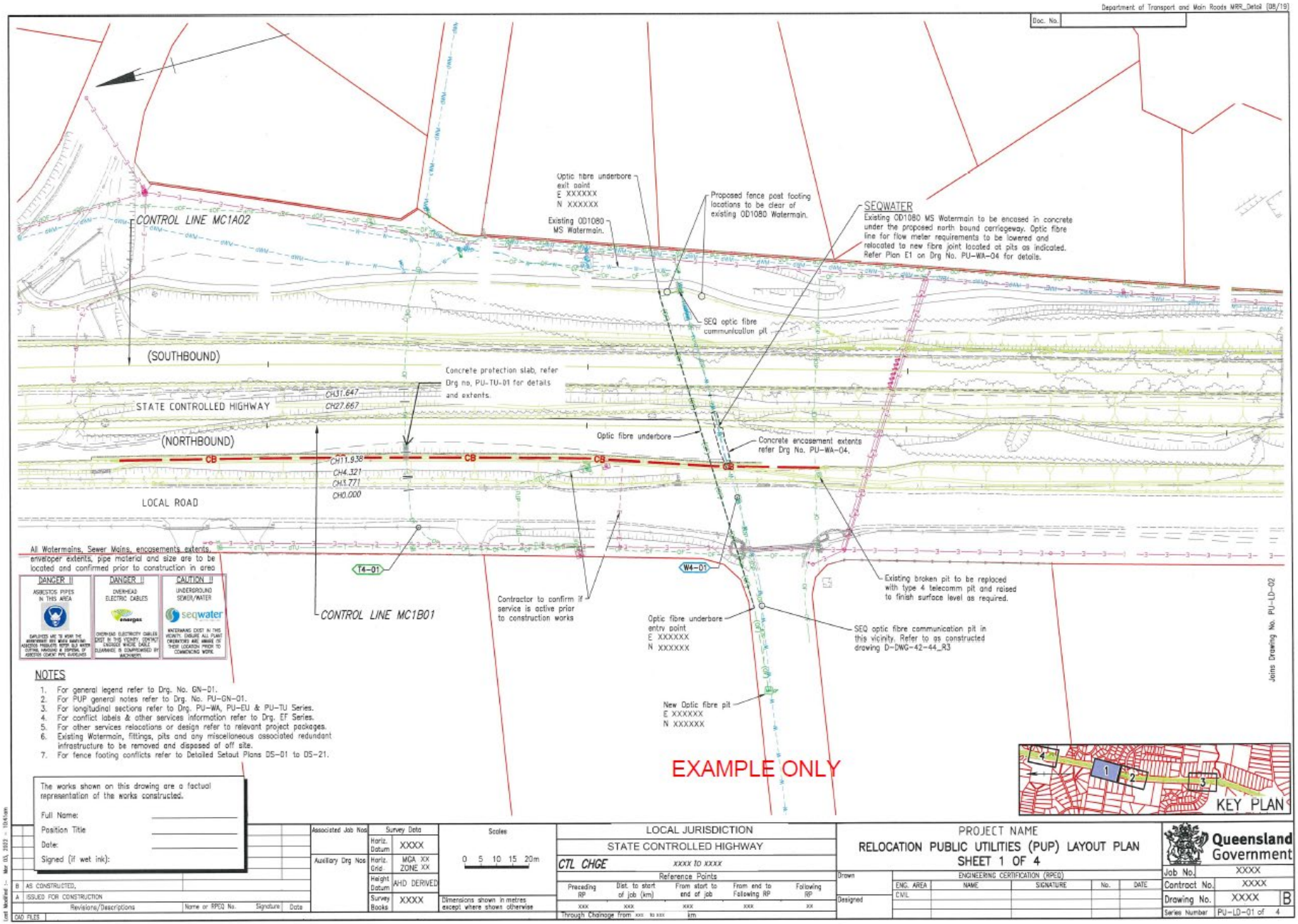
Drawn

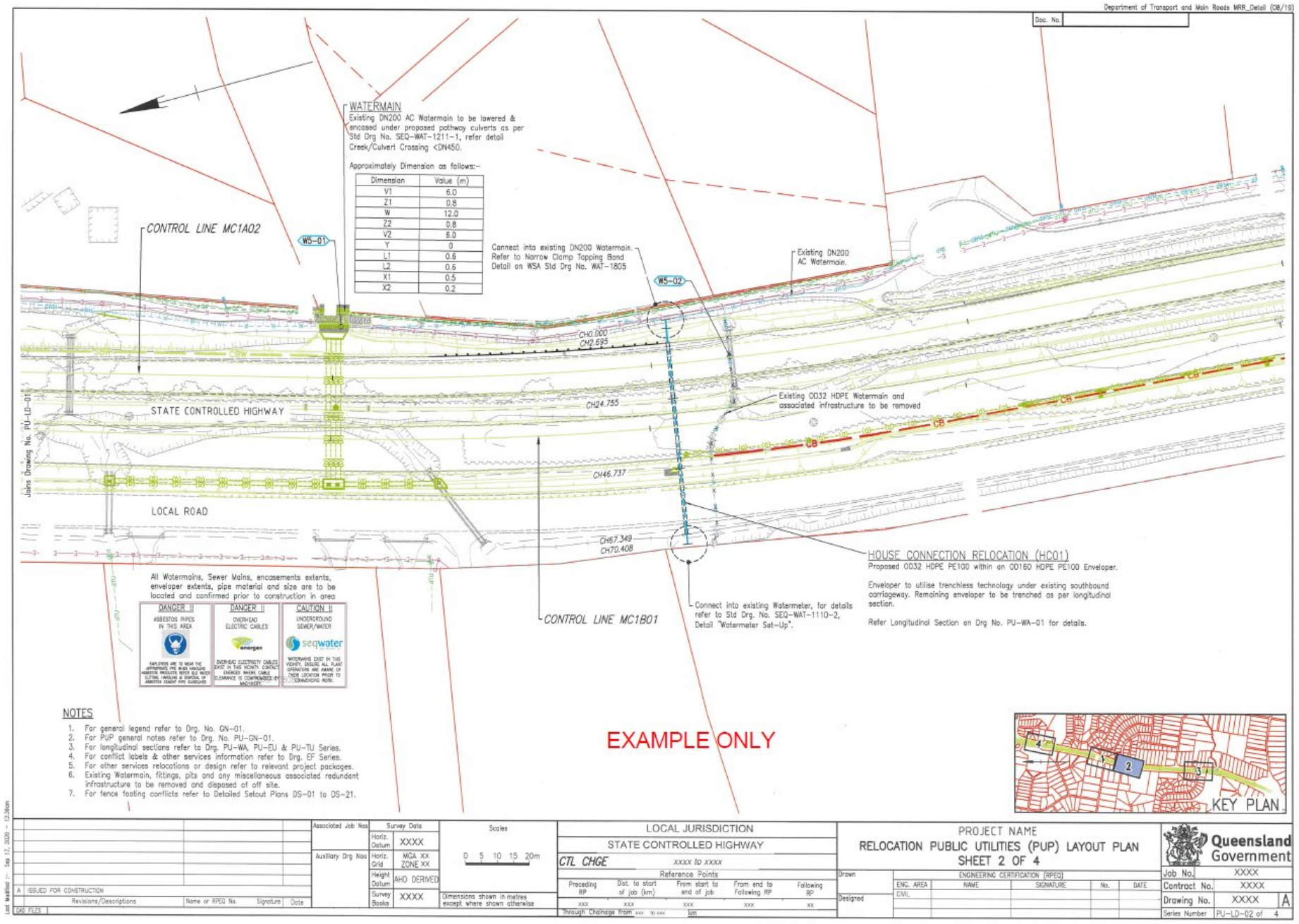
Designed

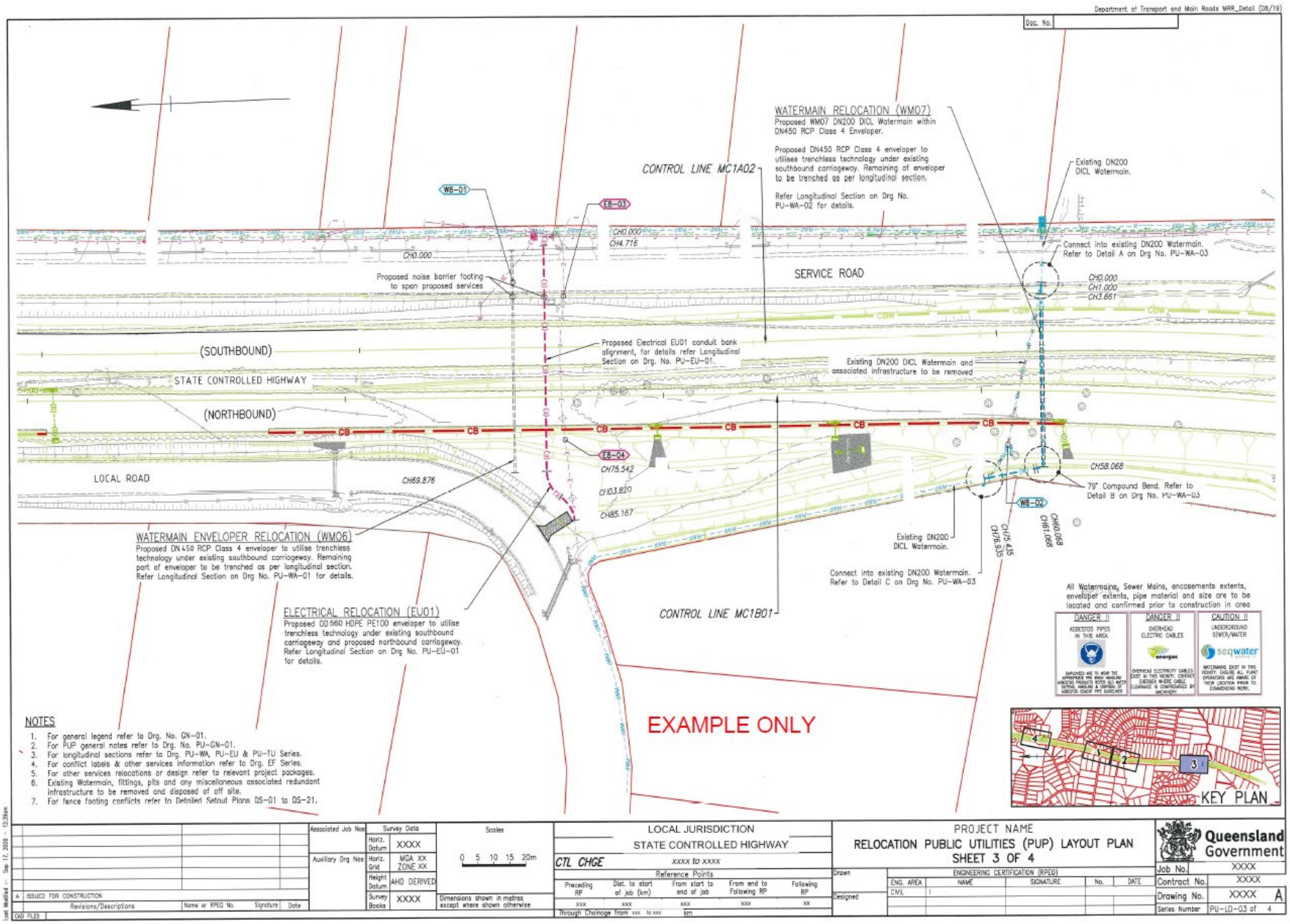
ENGINEERING CERTIFICATION (RPEQ)				
ENG. AREA	NAME	SIGNATURE	No.	DATE
CIVIL				

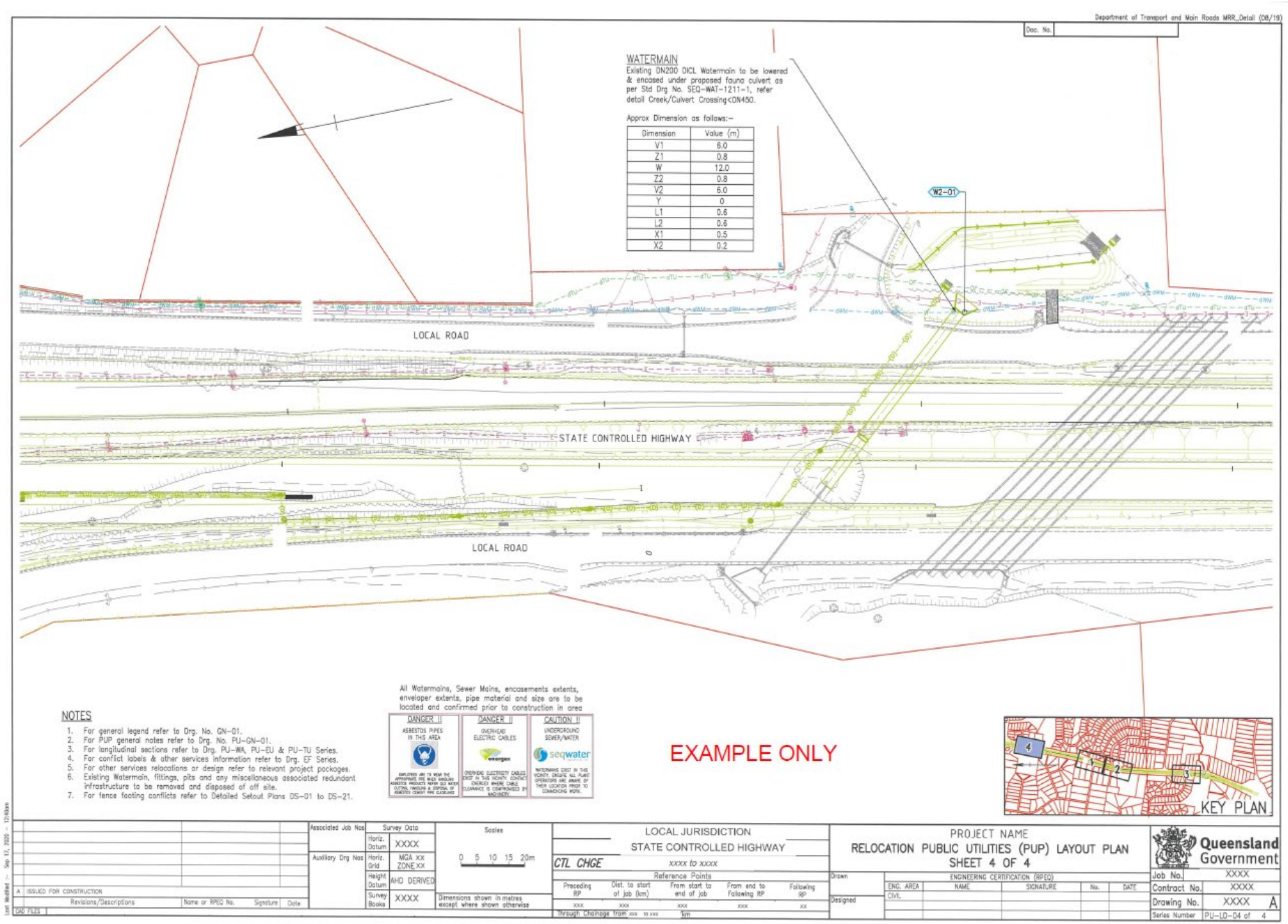
Queensland Government

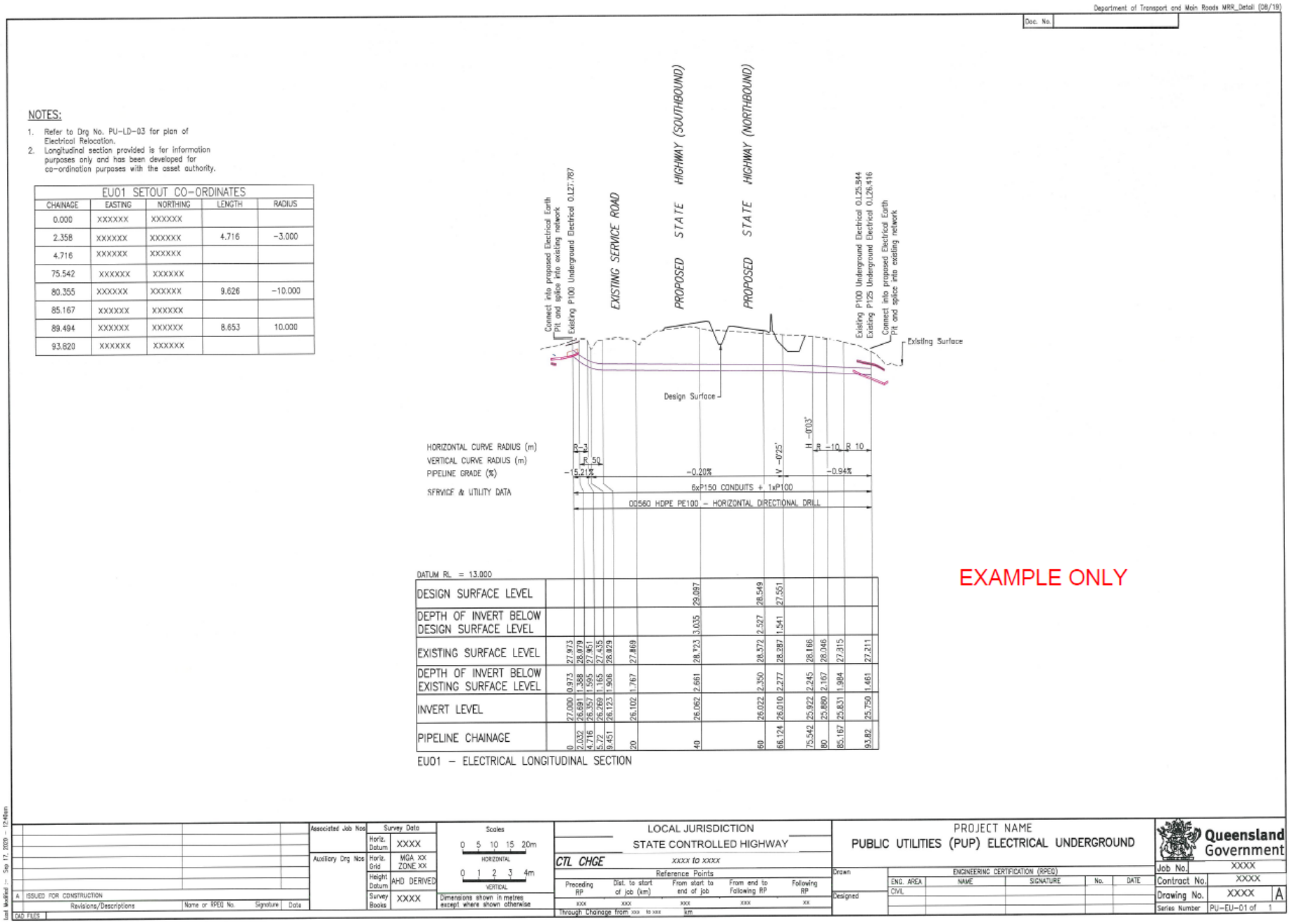
Job No.	XXXX	
Contract No.	XXXX	
Drawing No.	XXXX	A
Series Number	PU-GN-01 of	1

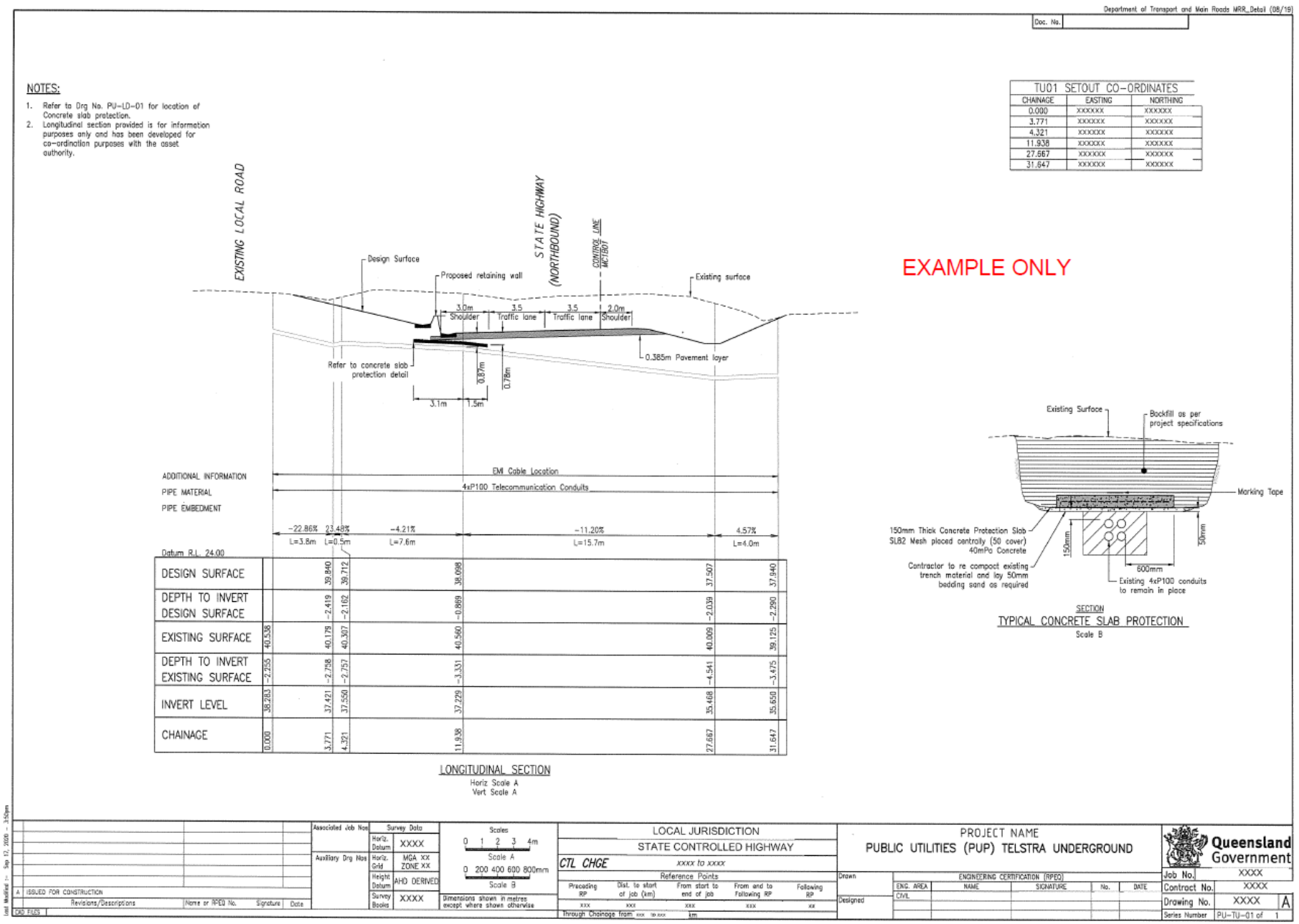

Department of Transport and Main Roads MRR_Detail (08/19)
Doc. No.
CONTROL LINE MC1A02
(SOUTHBOUND)
STATE CONTROLLED HIGHWAY
(NORTHBOUND)
LOCAL ROAD
CONTROL LINE MC1B01
CH31.647
CH27.667
CH11.938
CH4.321
CH3.771
CH0.000
CB
Optic fibre underbore exit point
E XXXXXX
N XXXXXX
Existing OD1080 MS Watermain.
Proposed fence post footing locations to be clear of existing OD1080 Watermain.
SEQWATER
Existing OD1080 MS Watermain to be encased in concrete under the proposed north bound carriageway. Optic fibre line for flow meter requirements to be lowered and relocated to new fibre joint located at pits as indicated. Refer Plan E1 on Drg No. PU-WA-04 for details.
SEQ optic fibre communication pit
Concrete protection slab, refer Drg no, PU-TU-01 for details and extents.
Optic fibre underbore
Concrete encasement extents refer Drg No. PU-WA-04.
T4-01
W4-01
All Watermains, Sewer Mains, encasements extents, envelope extents, pipe material and size are to be located and confirmed prior to construction in area
DANGER !! ASBESTOS PIPES IN THIS AREA
DANGER !! OVERHEAD ELECTRIC CABLES
energex
CAUTION !! UNDERGROUND SEWER/WATER
seqwater
Contractor to confirm if service is active prior to construction works
Optic fibre underbore entry point
E XXXXXX
N XXXXXX
Existing broken pit to be replaced with type 4 telecomm pit and raised to finish surface level as required.
SEQ optic fibre communication pit in this vicinity. Refer to as constructed drawing D-DWG-42-44_R3
New Optic fibre pit
E XXXXXX
N XXXXXX
Joins Drawing No. PU-LO-02
NOTES
1. For general legend refer to Drg. No. GN-01.
2. For PUP general notes refer to Drg. No. PU-GN-01.
3. For longitudinal sections refer to Drg. PU-WA, PU-EU & PU-TU Series.
4. For conflict labels & other services information refer to Drg. EF Series.
5. For other services relocations or design refer to relevant project packages.
6. Existing Watermain, fittings, pits and any miscellaneous associated redundant infrastructure to be removed and disposed of off site.
7. For fence footing conflicts refer to Detailed Setout Plans DS-01 to DS-21.
EXAMPLE ONLY
KEY PLAN
The works shown on this drawing are a factual representation of the works constructed.
Full Name:
Position Title
Date:
Signed (if wet ink):
LOCAL JURISDICTION
STATE CONTROLLED HIGHWAY
CTL CHGE
xxxx to xxxx
PROJECT NAME
RELOCATION PUBLIC UTILITIES (PUP) LAYOUT PLAN
SHEET 1 OF 4
Queensland Government
Job No. XXXX
Contract No. XXXX
Drawing No. XXXX B
Series Number PU-LO-01 of 4
Survey Data
Horiz. Datum XXXX
Horiz. Grid MGA XX ZONE XX
Height Datum AHD DERIVED
Survey Books XXXX
Scales
0 5 10 15 20m
Dimensions shown in metres except where shown otherwise
Reference Points
Preceding RP
Dist. to start of job (km)
From start to end of job
From end to Following RP
Following RP
Through Chainage from xxx to xxx km
ENGINEERING CERTIFICATION (RPEQ)
ENG. AREA
NAME
SIGNATURE
No.
DATE
CIVIL
Drawn
Designed
B AS CONSTRUCTED,
A ISSUED FOR CONSTRUCTION
Revisions/Descriptions
Name or RPEQ No.
Signature
Date
CAD FILES

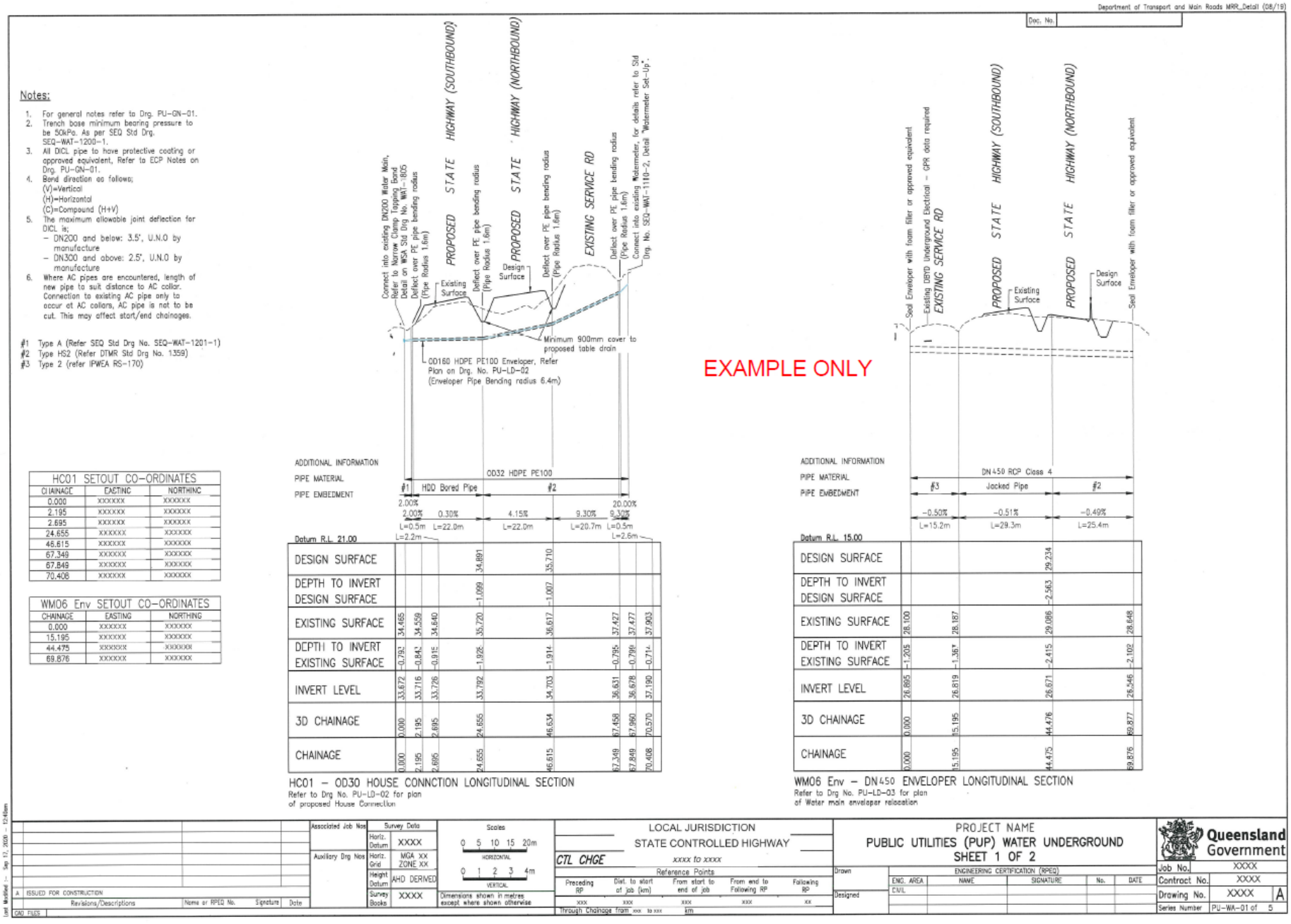

Department of Transport and Main Roads MRR_Detail (08/19)
Doc. No.
WATERMAIN
Existing DN200 AC Watermain to be lowered & encased under proposed pathway culverts as per Std Drg No. SEQ-WAT-1211-1, refer detail Creek/Culvert Crossing <DN450.
Approximately Dimension as follows:-
Dimension | Value (m)
V1 | 6.0
Z1 | 0.8
W | 12.0
Z2 | 0.8
V2 | 6.0
Y | 0
L1 | 0.6
L2 | 0.6
X1 | 0.5
X2 | 0.2
CONTROL LINE MC1A02
WS-01
WS-02
Connect into existing DN200 Watermain. Refer to Narrow Clamp Tapping Band Detail on WSA Std Drg No. WAT-1805
Existing DN200 AC Watermain.
CH0.000
CH2.695
CH24.755
CH46.737
CH67.349
CH70.408
STATE CONTROLLED HIGHWAY
LOCAL ROAD
Existing OD32 HDPE Watermain and associated infrastructure to be removed
CB
Joins Drawing No. PU-LD-01
CONTROL LINE MC1B01
HOUSE CONNECTION RELOCATION (HC01)
Proposed OD32 HDPE PE100 within an OD160 HDPE PE100 Enveloper.
Enveloper to utilise trenchless technology under existing southbound carriageway. Remaining enveloper to be trenched as per longitudinal section.
Refer Longitudinal Section on Drg No. PU-WA-01 for details.
Connect into existing Watermeter, for details refer to Std Drg. No. SEQ-WAT-1110-2, Detail "Watermeter Set-Up".
All Watermains, Sewer Mains, encasements extents, enveloper extents, pipe material and size are to be located and confirmed prior to construction in area
DANGER !!
ASBESTOS PIPES IN THIS AREA
DANGER !!
OVERHEAD ELECTRIC CABLES
energex
CAUTION !!
UNDERGROUND SEWER/WATER
seqwater
NOTES
1. For general legend refer to Drg. No. GN-01.
2. For PUP general notes refer to Drg. No. PU-GN-01.
3. For longitudinal sections refer to Drg. PU-WA, PU-EU & PU-TU Series.
4. For conflict labels & other services information refer to Drg. EF Series.
5. For other services relocations or design refer to relevant project packages.
6. Existing Watermain, fittings, pits and any miscellaneous associated redundant infrastructure to be removed and disposed of off site.
7. For fence footing conflicts refer to Detailed Setout Plans DS-01 to DS-21.
EXAMPLE ONLY
KEY PLAN
A ISSUED FOR CONSTRUCTION
Revisions/Descriptions
Name or RPEQ No.
Signature
Date
CAD FILES
Last Modified :- Sep 17, 2020 - 12:38am
Associated Job Nos
Auxiliary Drg Nos
Survey Data
Horiz. Datum XXXX
Horiz. Grid MGA XX ZONE XX
Height Datum AHD DERIVED
Survey Books XXXX
Scales
0 5 10 15 20m
Dimensions shown in metres except where shown otherwise
LOCAL JURISDICTION
STATE CONTROLLED HIGHWAY
CTL CHGE xxxx to xxxx
Reference Points
Preceding RP
Dist. to start of job (km)
From start to end of job
From end to Following RP
Following RP
Through Chainage from xxx to xxx km
PROJECT NAME
RELOCATION PUBLIC UTILITIES (PUP) LAYOUT PLAN
SHEET 2 OF 4
Drawn
Designed
ENGINEERING CERTIFICATION (RPEQ)
ENG. AREA
NAME
SIGNATURE
No.
DATE
CIVIL
Queensland Government
Job No. XXXX
Contract No. XXXX
Drawing No. XXXX A
Series Number PU-LD-02 of 4

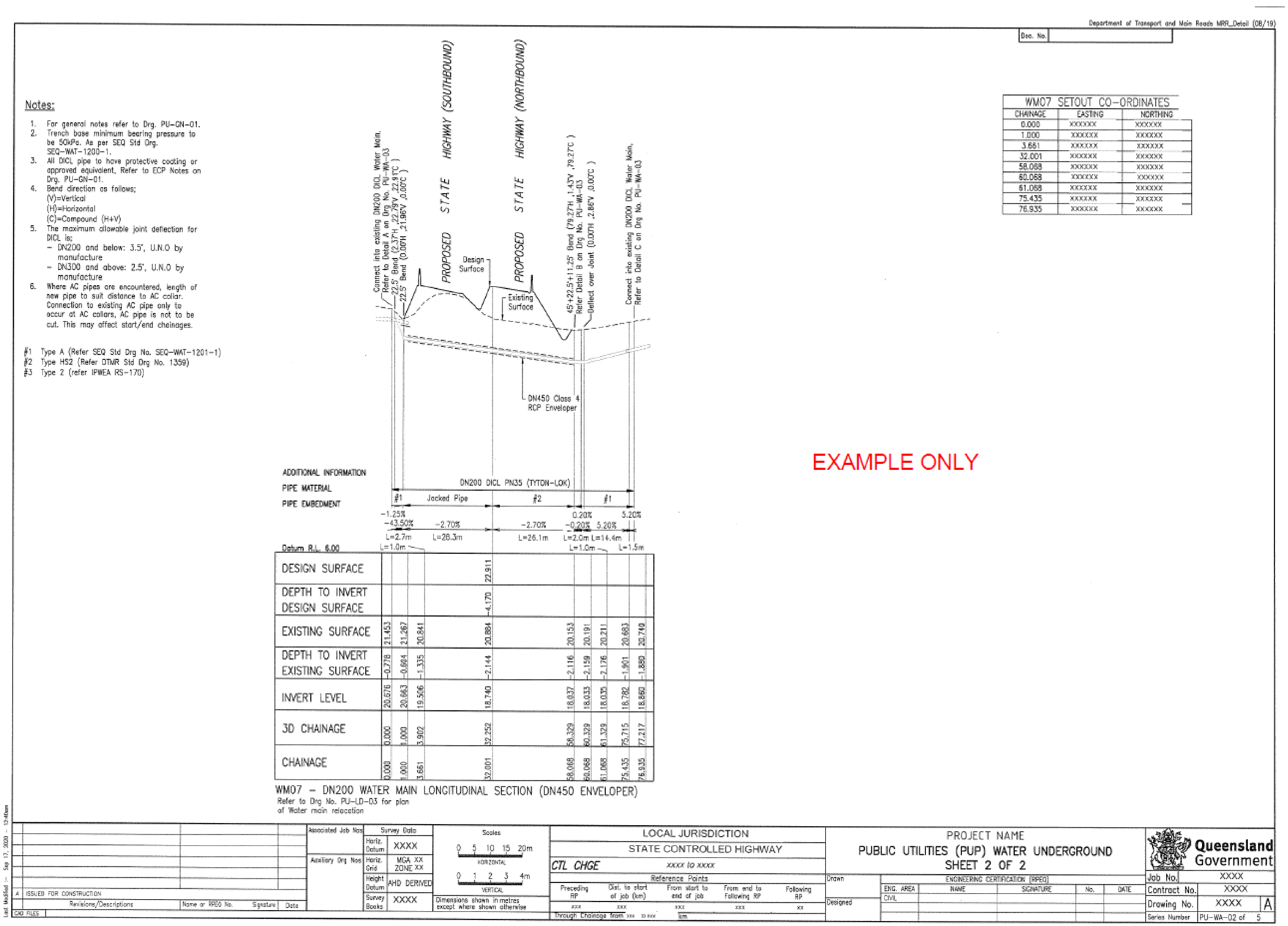

Department of Transport and Main Roads MRR_Detail (08/19)
Doc. No.
WATERMAIN RELOCATION (WM07)
Proposed WM07 DN200 DICL Watermain within DN450 RCP Class 4 Enveloper.
Proposed DN450 RCP Class 4 enveloper to utilises trenchless technology under existing southbound carriageway. Remaining of enveloper to be trenched as per longitudinal section.
Refer Longitudinal Section on Drg No. PU-WA-02 for details.
CONTROL LINE MC1A02
WB-01
EB-03
CH0.000
CH4.716
CH0.000
Proposed noise barrier footing to span proposed services
SERVICE ROAD
Existing DN200 DICL Watermain.
Connect into existing DN200 Watermain. Refer to Detail A on Drg No. PU-WA-03
CH0.000
CH1.000
CH3.661
(SOUTHBOUND)
STATE CONTROLLED HIGHWAY
(NORTHBOUND)
Proposed Electrical EU01 conduit bank alignment, for details refer Longitudinal Section on Drg. No. PU-EU-01.
Existing DN200 DICL Watermain and associated infrastructure to be removed
CB
EB-04
CH75.542
CH103.820
CH85.167
LOCAL ROAD
CH69.876
CH58.068
79° Compound Bend. Refer to Detail B on Drg No. PU-WA-03
WB-02
CH60.068
CH61.068
WATERMAIN ENVELOPER RELOCATION (WM06)
Proposed DN450 RCP Class 4 enveloper to utilise trenchless technology under existing southbound carriageway. Remaining part of enveloper to be trenched as per longitudinal section. Refer Longitudinal Section on Drg No. PU-WA-01 for details.
Existing DN200 DICL Watermain.
CH75.435
CH76.935
Connect into existing DN200 Watermain. Refer to Detail C on Drg No. PU-WA-03
ELECTRICAL RELOCATION (EU01)
Proposed OD560 HDPE PE100 enveloper to utilise trenchless technology under existing southbound carriageway and proposed northbound carriageway. Refer Longitudinal Section on Drg No. PU-EU-01 for details.
CONTROL LINE MC1B01
All Watermains, Sewer Mains, encasements extents, enveloper extents, pipe material and size are to be located and confirmed prior to construction in area
DANGER !! ASBESTOS PIPES IN THIS AREA
DANGER !! OVERHEAD ELECTRIC CABLES
CAUTION !! UNDERGROUND SEWER/WATER
seqwater
EXAMPLE ONLY
NOTES
1. For general legend refer to Drg. No. GN-01.
2. For PUP general notes refer to Drg. No. PU-GN-01.
3. For longitudinal sections refer to Drg. PU-WA, PU-EU & PU-TU Series.
4. For conflict labels & other services information refer to Drg. EF Series.
5. For other services relocations or design refer to relevant project packages.
6. Existing Watermain, fittings, pits and any miscellaneous associated redundant infrastructure to be removed and disposed of off site.
7. For fence footing conflicts refer to Detailed Setout Plans DS-01 to DS-21.
KEY PLAN
A ISSUED FOR CONSTRUCTION
Revisions/Descriptions
Name or RPEQ No.
Signature
Date
CAD FILES
Associated Job Nos
Auxiliary Drg Nos
Survey Data
Horiz. Datum XXXX
Horiz. Grid MGA XX ZONE XX
Height Datum AHD DERIVED
Survey Books XXXX
Scales
0 5 10 15 20m
Dimensions shown in metres except where shown otherwise
LOCAL JURISDICTION
STATE CONTROLLED HIGHWAY
CTL CHGE xxxx to xxxx
Reference Points
Preceding RP
Dist. to start of job (km)
From start to end of job
From end to Following RP
Following RP
Through Chainage from xxx to xxx km
PROJECT NAME
RELOCATION PUBLIC UTILITIES (PUP) LAYOUT PLAN
SHEET 3 OF 4
Drawn
Designed
ENGINEERING CERTIFICATION (RPEQ)
ENG. AREA
NAME
SIGNATURE
No.
DATE
CIVIL
Queensland Government
Job No. XXXX
Contract No. XXXX
Drawing No. XXXX A
Series Number PU-LD-03 of 4
Last Modified :- Sep 17, 2025 - 12:39am

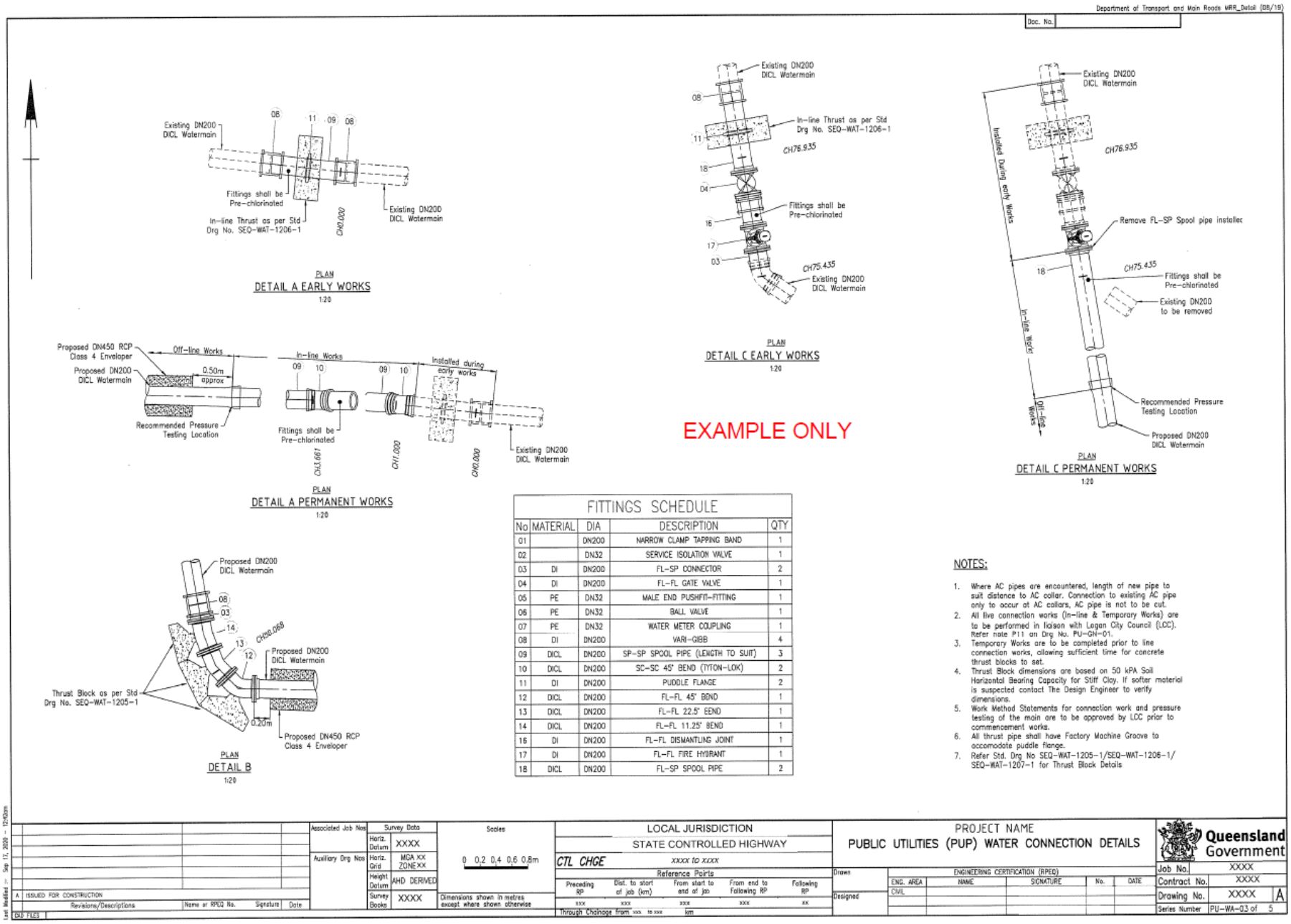

Department of Transport and Main Roads MRR_Detail (08/19)
Doc. No.
WATERMAIN
Existing DN200 DICL Watermain to be lowered & encased under proposed fauna culvert as per Std Drg No. SEQ-WAT-1211-1, refer detail Creek/Culvert Crossing<DN450.
Approx Dimension as follows:-
Dimension | Value (m)
V1 | 6.0
Z1 | 0.8
W | 12.0
Z2 | 0.8
V2 | 6.0
Y | 0
L1 | 0.6
L2 | 0.6
X1 | 0.5
X2 | 0.2
W2-01
LOCAL ROAD
STATE CONTROLLED HIGHWAY
LOCAL ROAD
All Watermains, Sewer Mains, encasements extents, envelope extents, pipe material and size are to be located and confirmed prior to construction in area
DANGER !! ASBESTOS PIPES IN THIS AREA
DANGER !! OVERHEAD ELECTRIC CABLES
CAUTION !! UNDERGROUND SEWER/WATER
NOTES
1. For general legend refer to Drg. No. GN-01.
2. For PUP general notes refer to Drg. No. PU-GN-01.
3. For longitudinal sections refer to Drg. PU-WA, PU-EU & PU-TU Series.
4. For conflict labels & other services information refer to Drg. EF Series.
5. For other services relocations or design refer to relevant project packages.
6. Existing Watermain, fittings, pits and any miscellaneous associated redundant infrastructure to be removed and disposed of off site.
7. For fence footing conflicts refer to Detailed Setout Plans DS-01 to DS-21.
EXAMPLE ONLY
KEY PLAN
LOCAL JURISDICTION
STATE CONTROLLED HIGHWAY
CTL CHGE
xxxx to xxxx
PROJECT NAME
RELOCATION PUBLIC UTILITIES (PUP) LAYOUT PLAN
SHEET 4 OF 4
Queensland Government
Job No. XXXX
Contract No. XXXX
Drawing No. XXXX A
Series Number PU-LD-04 of 4


Department of Transport and Main Roads MRR_Detail (08/19)
Doc. No.
NOTES:
1. Refer to Drg No. PU-LD-03 for plan of Electrical Relocation.
2. Longitudinal section provided is for information purposes only and has been developed for co-ordination purposes with the asset authority.
EU01 SETOUT CO-ORDINATES
CHAINAGE | EASTING | NORTHING | LENGTH | RADIUS
0.000 | XXXXXX | XXXXXX | |
2.358 | XXXXXX | XXXXXX | 4.716 | -3.000
4.716 | XXXXXX | XXXXXX | |
75.542 | XXXXXX | XXXXXX | |
80.355 | XXXXXX | XXXXXX | 9.626 | -10.000
85.167 | XXXXXX | XXXXXX | |
89.494 | XXXXXX | XXXXXX | 8.653 | 10.000
93.820 | XXXXXX | XXXXXX | |
Connect into proposed Electrical Earth Pit and splice into existing network
Existing P100 Underground Electrical 0.127.767
EXISTING SERVICE ROAD
PROPOSED STATE HIGHWAY (SOUTHBOUND)
PROPOSED STATE HIGHWAY (NORTHBOUND)
Existing P100 Underground Electrical 0.125.844
Existing P125 Underground Electrical 0.126.416
Connect into proposed Electrical Earth Pit and splice into existing network
Existing Surface
Design Surface
HORIZONTAL CURVE RADIUS (m)
VERTICAL CURVE RADIUS (m)
PIPELINE GRADE (%)
SERVICE & UTILITY DATA
R 50
-15.21%
-0.20%
V -925
H -1003
R -10
R 10
-0.94%
6xP150 CONDUITS + 1xP100
OD560 HDPE PE100 - HORIZONTAL DIRECTIONAL DRILL
DATUM RL = 13.000
DESIGN SURFACE LEVEL: 29.097 28.549 27.551
DEPTH OF INVERT BELOW DESIGN SURFACE LEVEL: 3.035 2.527 1.541
EXISTING SURFACE LEVEL: 27.973 28.079 27.951 27.435 28.929 27.869 28.723 28.372 28.287 28.166 28.046 27.315 27.211
DEPTH OF INVERT BELOW EXISTING SURFACE LEVEL: 0.973 1.388 1.595 1.165 1.906 1.767 2.661 2.350 2.277 2.245 2.167 1.984 1.461
INVERT LEVEL: 27.000 26.691 26.357 26.269 26.123 26.102 26.062 26.022 26.010 25.922 25.880 25.831 25.750
PIPELINE CHAINAGE: 0 2.032 4.716 5.72 9.451 20 40 60 66.124 75.542 80 85.167 93.82
EU01 - ELECTRICAL LONGITUDINAL SECTION
EXAMPLE ONLY
Associated Job Nos
Auxiliary Drg Nos
Survey Data
Horiz. Datum XXXX
Horiz. Grid MGA XX ZONE XX
Height Datum AHD DERIVED
Survey Books XXXX
Scales
0 5 10 15 20m HORIZONTAL
0 1 2 3 4m VERTICAL
Dimensions shown in metres except where shown otherwise
LOCAL JURISDICTION
STATE CONTROLLED HIGHWAY
CTL CHGE
xxxx to xxxx
Reference Points
Preceding RP | Dist. to start of Job (km) | From start to end of Job | From end to Following RP | Following RP
xxx | xxx | xxx | xxx | xx
through Chainage from xxx to xxx km
PROJECT NAME
PUBLIC UTILITIES (PUP) ELECTRICAL UNDERGROUND
Drawn
Designed
ENGINEERING CERTIFICATION (RPEQ)
ENG. AREA | NAME | SIGNATURE | No. | DATE
CIVIL
A ISSUED FOR CONSTRUCTION
Revisions/Descriptions | Name or RPEQ No. | Signature | Date
CAD FILES
Last Modified: Sep 17, 2020 - 12:48am
Queensland Government
Job No. XXXX
Contract No. XXXX
Drawing No. XXXX A
Series Number PU-EU-01 of 1


Department of Transport and Main Roads MRR_Detail (08/19)
Doc. No.
NOTES:
1. Refer to Drg No. PU-LD-01 for location of Concrete slab protection.
2. Longitudinal section provided is for information purposes only and has been developed for co-ordination purposes with the asset authority.
TU01 SETOUT CO-ORDINATES
CHAINAGE | EASTING | NORTHING
0.000 | XXXXXX | XXXXXX
3.771 | XXXXXX | XXXXXX
4.321 | XXXXXX | XXXXXX
11.938 | XXXXXX | XXXXXX
27.667 | XXXXXX | XXXXXX
31.647 | XXXXXX | XXXXXX
EXISTING LOCAL ROAD
STATE HIGHWAY (NORTHBOUND)
CONTROL LINE MCTBOT
Design Surface
Proposed retaining wall
Existing surface
3.0m Shoulder
3.5 Traffic lane
3.5 Traffic lane
2.0m Shoulder
0.385m Pavement layer
Refer to concrete slab protection detail
0.87m
0.78m
3.1m
1.5m
EXAMPLE ONLY
ADDITIONAL INFORMATION
EMI Cable Location
PIPE MATERIAL
4xP100 Telecommunication Conduits
PIPE EMBEDMENT
-22.86% L=3.8m
23.48% L=0.5m
-4.21% L=7.6m
-11.20% L=15.7m
4.57% L=4.0m
Datum R.L. 24.00
DESIGN SURFACE: 39.840 | 39.712 | 38.098 | 37.507 | 37.840
DEPTH TO INVERT DESIGN SURFACE: -2.419 | -2.162 | -0.869 | -2.039 | -2.290
EXISTING SURFACE: 40.538 | 40.178 | 40.307 | 40.560 | 40.009 | 39.125
DEPTH TO INVERT EXISTING SURFACE: -2.755 | -2.758 | -2.757 | -3.331 | -4.541 | -3.475
INVERT LEVEL: 38.283 | 37.421 | 37.550 | 37.229 | 35.468 | 35.650
CHAINAGE: 0.000 | 3.771 | 4.321 | 11.938 | 27.667 | 31.647
LONGITUDINAL SECTION
Horiz Scale A
Vert Scale A
Existing Surface
Backfill as per project specifications
Marking Tape
150mm Thick Concrete Protection Slab SL82 Mesh placed centrally (50 cover) 40mPa Concrete
Contractor to re compact existing trench material and lay 50mm bedding sand as required
150mm
50mm
600mm
Existing 4xP100 conduits to remain in place
SECTION
TYPICAL CONCRETE SLAB PROTECTION
Scale B
A ISSUED FOR CONSTRUCTION
Revisions/Descriptions
Name or RPEQ No.
Signature
Date
CAD FILES
Last Modified :- Sep 17, 2020 - 3:50pm
Associated Job Nos
Auxiliary Drg Nos
Survey Data
Horiz. Datum XXXX
Horiz. Grid MGA XX ZONE XX
Height Datum AHD DERIVED
Survey Books XXXX
Scales
0 1 2 3 4m
Scale A
0 200 400 600 800mm
Scale B
Dimensions shown in metres except where shown otherwise
LOCAL JURISDICTION
STATE CONTROLLED HIGHWAY
CTL CHGE
xxxx to xxxx
Reference Points
Preceding RP | Dist. to start of job (km) | From start to end of job | From end to Following RP | Following RP
Through Chainage from xxx to xxx km
Drawn
Designed
PROJECT NAME
PUBLIC UTILITIES (PUP) TELSTRA UNDERGROUND
ENGINEERING CERTIFICATION (RPEQ)
ENG. AREA | NAME | SIGNATURE | No. | DATE
CIVIL
Queensland Government
Job No. XXXX
Contract No. XXXX
Drawing No. XXXX A
Series Number PU-TU-01 of 1


Department of Transport and Main Roads MRR_Detail (08/19)
Doc. No.
Notes:
1. For general notes refer to Drg. PU-GN-01.
2. Trench base minimum bearing pressure to be 50kPa. As per SEQ Std Drg. SEQ-WAT-1200-1.
3. All DICL pipe to have protective coating or approved equivalent, Refer to ECP Notes on Drg. PU-GN-01.
4. Bend direction as follows;
(V)=Vertical
(H)=Horizontal
(C)=Compound (H+V)
5. The maximum allowable joint deflection for DICL is;
– DN200 and below: 3.5°, U.N.O by manufacture
– DN300 and above: 2.5°, U.N.O by manufacture
6. Where AC pipes are encountered, length of new pipe to suit distance to AC collar. Connection to existing AC pipe only to occur at AC collars, AC pipe is not to be cut. This may affect start/end chainages.
#1 Type A (Refer SEQ Std Drg No. SEQ-WAT-1201-1)
#2 Type HS2 (Refer DTMR Std Drg No. 1359)
#3 Type 2 (refer IPWEA RS-170)
HC01 SETOUT CO-ORDINATES
CHAINAGE EASTING NORTHING
0.000 XXXXXX XXXXXX
2.195 XXXXXX XXXXXX
2.695 XXXXXX XXXXXX
24.655 XXXXXX XXXXXX
46.615 XXXXXX XXXXXX
67.349 XXXXXX XXXXXX
67.849 XXXXXX XXXXXX
70.408 XXXXXX XXXXXX
WM06 Env SETOUT CO-ORDINATES
CHAINAGE EASTING NORTHING
0.000 XXXXXX XXXXXX
15.195 XXXXXX XXXXXX
44.475 XXXXXX XXXXXX
69.876 XXXXXX XXXXXX
Connect into existing DN200 Water Main, Refer to Narrow Clamp Tapping Bend Detail on WSA Std Drg No. WAT-1805
Deflect over PE pipe bending radius (Pipe Radius 1.6m)
PROPOSED STATE HIGHWAY (SOUTHBOUND)
Existing Surface
Deflect over PE pipe bending radius (Pipe Radius 1.6m)
PROPOSED STATE HIGHWAY (NORTHBOUND)
Design Surface
Deflect over PE pipe bending radius (Pipe Radius 1.6m)
EXISTING SERVICE RD
Deflect over PE pipe bending radius (Pipe Radius 1.6m)
Connect into existing Watermeter, for details refer to Std Drg No. SEQ-WAT-1110-2, Detail 'Watermeter Set-Up'.
Minimum 900mm cover to proposed table drain
OD160 HDPE PE100 Enveloper, Refer Plan on Drg. No. PU-LD-02 (Enveloper Pipe Bending radius 6.4m)
EXAMPLE ONLY
ADDITIONAL INFORMATION
PIPE MATERIAL
PIPE EMBEDMENT
OD32 HDPE PE100
#1 HDD Bored Pipe #2
2.00% 2.00% 0.30% 4.15% 9.30% 9.30% 20.00%
L=0.5m L=22.0m L=22.0m L=20.7m L=0.5m L=2.6m
L=2.2m
Datum R.L. 21.00
DESIGN SURFACE 34.891 35.710
DEPTH TO INVERT DESIGN SURFACE -1.099 -1.007
EXISTING SURFACE 34.465 34.559 34.640 35.720 36.617 37.427 37.477 37.903
DEPTH TO INVERT EXISTING SURFACE -0.792 -0.843 -0.915 -1.926 -1.914 -0.795 -0.799 -0.714
INVERT LEVEL 33.672 33.716 33.726 33.792 34.703 36.631 36.678 37.190
3D CHAINAGE 0.000 2.195 2.695 24.655 46.634 67.458 67.960 70.570
CHAINAGE 0.000 2.195 2.695 24.655 46.615 67.349 67.849 70.408
HC01 – OD30 HOUSE CONNCTION LONGITUDINAL SECTION
Refer to Drg No. PU-LD-02 for plan of proposed House Connection
Seal Enveloper with foam filler or approved equivalent
Existing DBYD Underground Electrical – GPR data required
EXISTING SERVICE RD
PROPOSED STATE HIGHWAY (SOUTHBOUND)
Existing Surface
PROPOSED STATE HIGHWAY (NORTHBOUND)
Design Surface
Seal Enveloper with foam filler or approved equivalent
ADDITIONAL INFORMATION
PIPE MATERIAL
PIPE EMBEDMENT
DN450 RCP Class 4
#3 Jacked Pipe #2
-0.50% -0.51% -0.49%
L=15.2m L=29.3m L=25.4m
Datum R.L. 15.00
DESIGN SURFACE 29.234
DEPTH TO INVERT DESIGN SURFACE -2.563
EXISTING SURFACE 28.100 28.187 29.086 28.648
DEPTH TO INVERT EXISTING SURFACE -1.205 -1.367 -2.415 -2.102
INVERT LEVEL 26.895 26.819 26.671 26.546
3D CHAINAGE 0.000 15.195 44.476 69.877
CHAINAGE 0.000 15.195 44.475 69.876
WM06 Env – DN450 ENVELOPER LONGITUDINAL SECTION
Refer to Drg No. PU-LD-03 for plan of Water main enveloper relocation
Last Modified :- Sep 17, 2020 - 12:48am
A ISSUED FOR CONSTRUCTION
Revisions/Descriptions Name or RPEQ No. Signature Date
CAD FILES
Associated Job Nos
Auxiliary Drg Nos
Survey Data
Horiz. Datum XXXX
Horiz. Grid MGA XX ZONE XX
Height Datum AHD DERIVED
Survey Books XXXX
Scales
0 5 10 15 20m
HORIZONTAL
0 1 2 3 4m
VERTICAL
Dimensions shown in metres except where shown otherwise
LOCAL JURISDICTION
STATE CONTROLLED HIGHWAY
CTL CHGE
xxxx to xxxx
Reference Points
Preceding RP Dist. to start of Job (km) From start to end of Job From end to Following RP Following RP
xxx xxx xxx xxx xx
Through Chainage from xxx to xxx km
PROJECT NAME
PUBLIC UTILITIES (PUP) WATER UNDERGROUND
SHEET 1 OF 2
Drawn
Designed
ENGINEERING CERTIFICATION (RPEQ)
ENG. AREA NAME SIGNATURE No. DATE
CIVIL
Queensland Government
Job No. XXXX
Contract No. XXXX
Drawing No. XXXX A
Series Number PU-WA-01 of 5


Department of Transport and Main Roads MRR_Detail (08/19)
Doc. No.
Notes:
1. For general notes refer to Drg. PU–GN–01.
2. Trench base minimum bearing pressure to be 50kPa. As per SEQ Std Drg. SEQ–WAT–1200–1.
3. All DICL pipe to have protective coating or approved equivalent. Refer to ECP Notes on Drg. PU–GN–01.
4. Bend direction as follows; (V)=Vertical (H)=Horizontal (C)=Compound (H+V)
5. The maximum allowable joint deflection for DICL is; – DN200 and below: 3.5°, U.N.O by manufacture – DN300 and above: 2.5°, U.N.O by manufacture
6. Where AC pipes are encountered, length of new pipe to suit distance to AC collar. Connection to existing AC pipe only to occur at AC collars, AC pipe is not to be cut. This may affect start/end chainages.
#1 Type A (Refer SEQ Std Drg No. SEQ–WAT–1201–1)
#2 Type HS2 (Refer DTMR Std Drg No. 1359)
#3 Type 2 (refer IPWEA RS–170)
PROPOSED STATE HIGHWAY (SOUTHBOUND)
PROPOSED STATE HIGHWAY (NORTHBOUND)
Design Surface
Existing Surface
DN450 Class 4 RCP Enveloper
WM07 SETOUT CO–ORDINATES
CHAINAGE EASTING NORTHING
0.000 1.000 3.661 32.001 58.068 60.068 61.068 75.435 76.935
EXAMPLE ONLY
ADDITIONAL INFORMATION
PIPE MATERIAL DN200 DICL PN35 (TYTON–LOK)
PIPE EMBEDMENT #1 Jacked Pipe #2 #1
Datum R.L. 6.00
DESIGN SURFACE
DEPTH TO INVERT DESIGN SURFACE
EXISTING SURFACE
DEPTH TO INVERT EXISTING SURFACE
INVERT LEVEL
3D CHAINAGE
CHAINAGE
WM07 – DN200 WATER MAIN LONGITUDINAL SECTION (DN450 ENVELOPER)
Refer to Drg No. PU–LD–03 for plan of Water main relocation
LOCAL JURISDICTION
STATE CONTROLLED HIGHWAY
PROJECT NAME
PUBLIC UTILITIES (PUP) WATER UNDERGROUND
SHEET 2 OF 2
Queensland Government
Job No. XXXX
Contract No. XXXX
Drawing No. XXXX A
Series Number PU–WA–02 of 5



FITTINGS SCHEDULE

No	MATERIAL	DIA	DESCRIPTION	QTY
01		DN200	NARROW CLAMP TAPPING BAND	1
02		DN32	SERVICE ISOLATION VALVE	1
03	DI	DN200	FL-SP CONNECTOR	2
04	DI	DN200	FL-FL GATE VALVE	1
05	PE	DN32	MALE END PUSHFIT-FITTING	1
06	PE	DN32	BALL VALVE	1
07	PE	DN32	WATER METER COUPLING	1
08	DI	DN200	VARI-GIBB	4
09	DICL	DN200	SP-SP SPOOL PIPE (LENGTH TO SUIT)	3
10	DICL	DN200	SC-SC 45° BEND (TYTON-LOK)	2
11	DI	DN200	PUDDLE FLANGE	2
12	DICL	DN200	FL-FL 45° BEND	1
13	DICL	DN200	FL-FL 22.5° EEND	1
14	DICL	DN200	FL-FL 11.25° BEND	1
16	DI	DN200	FL-FL DISMANTLING JOINT	1
17	DI	DN200	FL-FL FIRE HYDRANT	1
18	DICL	DN200	FL-SP SPOOL PIPE	2

NOTES:

1. Where AC pipes are encountered, length of new pipe to suit distance to AC collar. Connection to existing AC pipe only to occur at AC collars, AC pipe is not to be cut.
2. All live connection works (In-line & Temporary Works) are to be performed in liaison with Logan City Council (LCC). Refer note P11 on Drg No. PU-GN-01.
3. Temporary Works are to be completed prior to line connection works, allowing sufficient time for concrete thrust blocks to set.
4. Thrust Block dimensions are based on 50 kPA Soil Horizontal Bearing Capacity for Stiff Clay. If softer material is suspected contact The Design Engineer to verify dimensions.
5. Work Method Statements for connection work and pressure testing of the main are to be approved by LCC prior to commencement works.
6. All thrust pipe shall have Factory Machine Groove to accomodate puddle flange.
7. Refer Std. Drg No SEQ-WAT-1205-1/SEQ-WAT-1206-1/ SEQ-WAT-1207-1 for Thrust Block Details

Last Modified :- Sep 17, 2009 - 12:40pm

A ISSUED FOR CONSTRUCTION

Revisions/Descriptions | Name or RPEQ No. | Signature | Date

END FILES

Associated Job Nos

Auxiliary Drg Nos

Survey Data: Horiz. Datum XXXX; Horiz. Grid MGA XX ZONE XX; Height Datum AHD DERIVED; Survey Books XXXX

Scales: 0 0.2 0.4 0.6 0.8m

Dimensions shown in metres except where shown otherwise

LOCAL JURISDICTION
STATE CONTROLLED HIGHWAY
CTL CHGE xxxx to xxxx

Reference Points

Preceding RP	Dist. to start of job (km)	From start to end of job	From end to Following RP	Following RP
xxx	xxx	xxx	xxx	xx

Through Chainage from xxx to xxx km

PROJECT NAME
PUBLIC UTILITIES (PUP) WATER CONNECTION DETAILS

Drawn

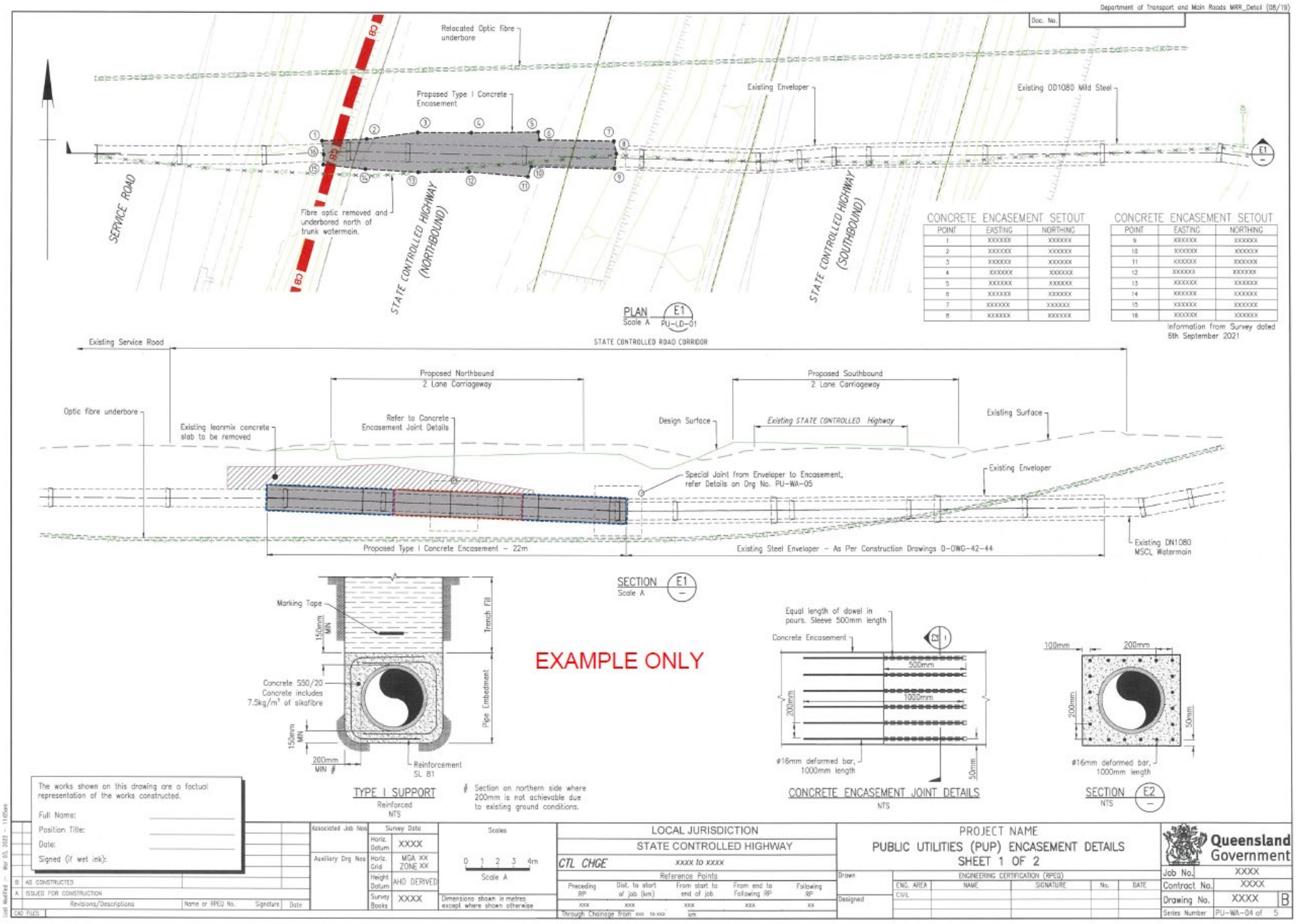
Designed

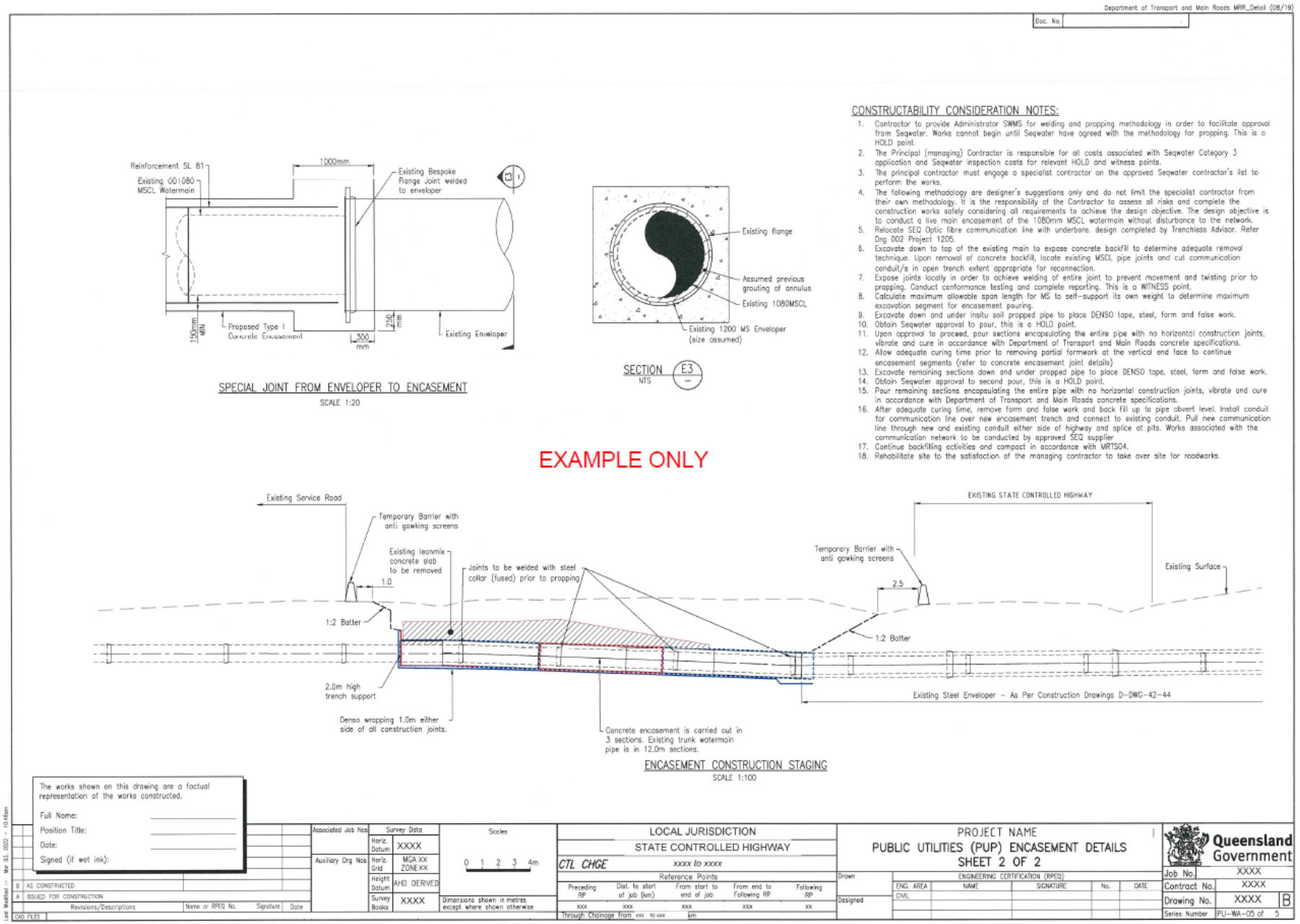
ENGINEERING CERTIFICATION (RPEQ)

	ENG. AREA	NAME	SIGNATURE	No.	DATE
	CIVIL				

Queensland Government

Job No. XXXX
Contract No. XXXX
Drawing No. XXXX A
Series Number PU-WA-03 of 5


Department of Transport and Main Roads MRR_Detail (08/19)
Doc. No.
Relocated Optic fibre underbore
Proposed Type I Concrete Encasement
Existing Enveloper
Existing OD1080 Mild Steel
SERVICE ROAD
Fibre optic removed and underbored north of trunk watermain.
STATE CONTROLLED HIGHWAY (NORTHBOUND)
STATE CONTROLLED HIGHWAY (SOUTHBOUND)
PLAN Scale A E1 PU-LD-01
CONCRETE ENCASEMENT SETOUT
POINT EASTING NORTHING
1 XXXXXX XXXXXX
2 XXXXXX XXXXXX
3 XXXXXX XXXXXX
4 XXXXXX XXXXXX
5 XXXXXX XXXXXX
6 XXXXXX XXXXXX
7 XXXXXX XXXXXX
8 XXXXXX XXXXXX
CONCRETE ENCASEMENT SETOUT
POINT EASTING NORTHING
9 XXXXXX XXXXXX
10 XXXXXX XXXXXX
11 XXXXXX XXXXXX
12 XXXXXX XXXXXX
13 XXXXXX XXXXXX
14 XXXXXX XXXXXX
15 XXXXXX XXXXXX
16 XXXXXX XXXXXX
Information from Survey dated 6th September 2021
Existing Service Road
STATE CONTROLLED ROAD CORRIDOR
Proposed Northbound 2 Lane Carriageway
Proposed Southbound 2 Lane Carriageway
Optic fibre underbore
Existing leanmix concrete slab to be removed
Refer to Concrete Encasement Joint Details
Design Surface
Existing STATE CONTROLLED Highway
Existing Surface
Special Joint from Enveloper to Encasement, refer Details on Drg No. PU-WA-05
Existing Enveloper
Proposed Type I Concrete Encasement – 22m
Existing Steel Enveloper – As Per Construction Drawings D-DWG-42-44
Existing DN1080 MSCL Watermain
SECTION Scale A E1
Marking Tape
150mm MIN
Trench Fill
Pipe Embedment
Concrete S50/20 Concrete includes 7.5kg/m³ of sikafibre
150mm MIN
200mm MIN #
Reinforcement SL 81
TYPE I SUPPORT Reinforced NTS
Section on northern side where 200mm is not achievable due to existing ground conditions.
EXAMPLE ONLY
Equal length of dowel in pours. Sleeve 500mm length
Concrete Encasement
E1
500mm
1000mm
200mm
ø16mm deformed bar, 1000mm length
50mm
CONCRETE ENCASEMENT JOINT DETAILS NTS
100mm
200mm
200mm
50mm
ø16mm deformed bar, 1000mm length
SECTION E2 NTS
The works shown on this drawing are a factual representation of the works constructed.
Full Name:
Position Title:
Date:
Signed (if wet ink):
B AS CONSTRUCTED
A ISSUED FOR CONSTRUCTION
Revisions/Descriptions Name or RPEQ No. Signature Date
CAD FILES
Associated Job Nos
Auxiliary Drg Nos
Survey Data
Horiz. Datum XXXX
Horiz. Grid MGA XX ZONE XX
Height Datum AHD DERIVED
Survey Books XXXX
Scales
0 1 2 3 4m
Scale A
Dimensions shown in metres except where shown otherwise
LOCAL JURISDICTION
STATE CONTROLLED HIGHWAY
CTL CHGE xxxx to xxxx
Reference Points
Preceding RP Dist. to start of job (km) From start to end of job From end to Following RP Following RP
xxx xxx xxx xxx xx
Through Chainage from xxx to xxx xxx km
PROJECT NAME
PUBLIC UTILITIES (PUP) ENCASEMENT DETAILS
SHEET 1 OF 2
Drawn
Designed
ENGINEERING CERTIFICATION (RPEQ)
ENG. AREA NAME SIGNATURE No. DATE
CIVIL
Queensland Government
Job No. XXXX
Contract No. XXXX
Drawing No. XXXX B
Series Number PU-WA-04 of 5


Department of Transport and Main Roads MRR_Detail (08/19)
Doc. No.
CONSTRUCTABILITY CONSIDERATION NOTES:
1. Contractor to provide Administrator SWMS for welding and propping methodology in order to facilitate approval from Seqwater. Works cannot begin until Seqwater have agreed with the methodology for propping. This is a HOLD point.
2. The Principal (managing) Contractor is responsible for all costs associated with Seqwater Category 3 application and Seqwater inspection costs for relevant HOLD and witness points.
3. The principal contractor must engage a specialist contractor on the approved Seqwater contractor's list to perform the works.
4. The following methodology are designer's suggestions only and do not limit the specialist contractor from their own methodology. It is the responsibility of the Contractor to assess all risks and complete the construction works safely considering all requirements to achieve the design objective. The design objective is to conduct a live main encasement of the 1080mm MSCL watermain without disturbance to the network.
5. Relocate SEQ Optic fibre communication line with underbore. design completed by Trenchless Advisor. Refer Drg 002 Project 1205.
6. Excavate down to top of the existing main to expose concrete backfill to determine adequate removal technique. Upon removal of concrete backfill, locate existing MSCL pipe joints and cut communication conduit/s in open trench extent appropriate for reconnection.
7. Expose joints locally in order to achieve welding of entire joint to prevent movement and twisting prior to propping. Conduct conformance testing and complete reporting. This is a WITNESS point.
8. Calculate maximum allowable span length for MS to self-support its own weight to determine maximum excavation segment for encasement pouring.
9. Excavate down and under insitu soil propped pipe to place DENSO tape, steel, form and false work.
10. Obtain Seqwater approval to pour, this is a HOLD point.
11. Upon approval to proceed, pour sections encapsulating the entire pipe with no horizontal construction joints, vibrate and cure in accordance with Department of Transport and Main Roads concrete specifications.
12. Allow adequate curing time prior to removing partial formwork at the vertical end face to continue encasement segments (refer to concrete encasement joint details)
13. Excavate remaining sections down and under propped pipe to place DENSO tape, steel, form and false work.
14. Obtain Seqwater approval to second pour, this is a HOLD point.
15. Pour remaining sections encapsulating the entire pipe with no horizontal construction joints, vibrate and cure in accordance with Department of Transport and Main Roads concrete specifications.
16. After adequate curing time, remove form and false work and back fill up to pipe obvert level. Install conduit for communication line over new encasement trench and connect to existing conduit. Pull new communication line through new and existing conduit either side of highway and splice at pits. Works associated with the communication network to be conducted by approved SEQ supplier
17. Continue backfilling activities and compact in accordance with MRTS04.
18. Rehabilitate site to the satisfaction of the managing contractor to take over site for roadworks.
Reinforcement SL 81
Existing Ø1080 MSCL Watermain
1000mm
Existing Bespoke Flange Joint welded to enveloper
150mm MIN
Proposed Type 1 Concrete Encasement
300 mm
250 mm
Existing Enveloper
SPECIAL JOINT FROM ENVELOPER TO ENCASEMENT
SCALE 1:20
Existing flange
Assumed previous grouting of annulus
Existing 1080MSCL
Existing 1200 MS Enveloper (size assumed)
SECTION E3
NTS
EXAMPLE ONLY
Existing Service Road
Temporary Barrier with anti gawking screens
Existing leanmix concrete slab to be removed
1.0
Joints to be welded with steel collar (fused) prior to propping
1:2 Batter
2.0m high trench support
Denso wrapping 1.0m either side of all construction joints.
Concrete encasement is carried out in 3 sections. Existing trunk watermain pipe is in 12.0m sections.
EXISTING STATE CONTROLLED HIGHWAY
Temporary Barrier with anti gawking screens
2.5
Existing Surface
1:2 Batter
Existing Steel Enveloper – As Per Construction Drawings D-DWG-42-44
ENCASEMENT CONSTRUCTION STAGING
SCALE 1:100
The works shown on this drawing are a factual representation of the works constructed.
Full Name:
Position Title:
Date:
Signed (if wet ink):
B AS CONSTRUCTED
A ISSUED FOR CONSTRUCTION
Revisions/Descriptions
Name or RPEQ No.
Signature
Date
CAD FILES
Associated Job Nos
Auxiliary Drg Nos
Survey Data
Horiz. Datum XXXX
Horiz. Grid MGA XX ZONE XX
Height Datum AHD DERIVED
Survey Books XXXX
Scales
0 1 2 3 4m
Dimensions shown in metres except where shown otherwise
LOCAL JURISDICTION
STATE CONTROLLED HIGHWAY
CTL CHGE xxxx to xxxx
Reference Points
Preceding RP
Dist. to start of job (km)
From start to end of job
From end to Following RP
Following RP
Through Chainage from xxx to xxx km
PROJECT NAME
PUBLIC UTILITIES (PUP) ENCASEMENT DETAILS
SHEET 2 OF 2
Drawn
Designed
ENGINEERING CERTIFICATION (RPEQ)
ENG. AREA
NAME
SIGNATURE
No.
DATE
CIVIL
Queensland Government
Job No. XXXX
Contract No. XXXX
Drawing No. XXXX B
Series Number PU-WA-Q5 of 5

Worked example – Conflict Matrix Table

Conflict Tag	Asset Owner	Asset Type	Asset Description	Quality Level	Sheet No.	Asset Treatment Remain / Protect/ Relocate	Alignment to Cross Section	Control Line	"Chainage (m)"	Total Length (m)	Cover to Subgrade	Preloded Y/N	Enveloper Type	Vibration Risk (L,M,H)	Comments	Contestable or Non Contestable	Design Responsibilty
S-03-01	City of Gold Coast	Sewer Trunk Gravity Main	DN1200 GRP	B	3	Relocate	Oblique	MC010	33750	177	5	YES	N/A	L	relocate post pier installation within allocated service corridor. Allow for 2x new access chambers	Contestable	CoGC Water
W-03-01	City of Gold Coast	Recycled Water Trunk Main	DN375 DICL	B	3	Relocate	Oblique	MC010	33750	176	5	YES	RCP	L	relocate post pier installation, allow RCP enveloper and DICL carrier pipe. Allow for 2x 45 bends and 2x inline thrust blocks an d1x horizontal thrust and 1x gated valve. Encasement is the last componet unde rnte toe of embankments as tie-in location prevents enveloper from extending beyond design batter	Contestable	CoGC Water
Q-05-01	Queensland Rail	Telecommunications	Signal/Comms	D	5	Remain	Parallel	MC010	34600	0	1	YES	N/A	H	design out better conflict	Non Contestable	QR
S-05-01	City of Gold Coast	Sewer Trunk Gravity Main	DN225 PVC-U	B	5	Relocate and Protect	Oblique	MC010	34675	170	9.5	YES	RCP	L	relocate post ground treatment on new alignment with DICL. RCP enveloper under roadway. Allow 2x new pits 1050mm	Contestable	CoGC Water
S-05-02	City of Gold Coast	Sewer Pump Station	SPS - OX39	B	5	Remain	Perpendicular	MC010	34350	0	9.5	YES	N/A	L	plant and equipment to be managed to prevent impact to services to remain	Contestable	CoGC Water
S-05-03	City of Gold Coast	Sewer Rising Main	SPS - OX11	B	5	Remain	Perpendicular	MC010	34570	80	9.5	YES	N/A	L	future crossing conducted by CoGC after road works	Contestable	CoGC Water
S-05-04	City of Gold Coast	Sewer Rising Main	DN750 GRP	B	5	Relocate	Perpendicular	MC010	34700	93	9.5	NO	N/A	L	relocate outside of works footprint. Allow for access chamber and 1x valve	Contestable	CoGC Water
W-05-01	City of Gold Coast	Recycled Water Trunk Main	DN375 DICL	B	5	Relocate	Perpendicular	MC010	34700	85	9.5	NO	N/A	L	relocate outside of works footprint. Allow for valve and 2x inline thrust blocks	Contestable	CoGC Water
E-06-01	Energex	Electricity	11kV Underground	B	6	Remain	Perpendicular	MC010	34850	0	13	YES	N/A	L	road overpass. No impact	Contestable	CJV - Electrical ITS
S-06-01	City of Gold Coast	Sewer Reticulation Main	DN150 PVC-U	B	6	Relocate	Oblique	MC010	34980	210	13	YES	RCP	L	relocate post pier installation with DICL. Place in RCP enveloper under roadway. Allow 3x 1050 pits for connections	Contestable	CoGC Water
S-06-02	City of Gold Coast	Sewer Rising Main	DN750 GRP	B	6	Relocate	Perpendicular	MC010	34980	200	1	YES	N/A	H	rolcate on new alignment with GRP. Allow 1 x horiz thrust block and 1x inline thrust block, 1x gated valve. protect against vibration for temporary pavement access. Prevent impact of remaining line against plant and equipment and lay down areas etc.	Contestable	CoGC Water
S-06-03	City of Gold Coast	Sewer Trunk Gravity Main	DN225 PVC-U	B	6	Remain	Perpendicular	MC010	35050	0	13	YES	N/A	L	protect from earthworks vibrations	Contestable	CoGC Water
T-06-01	Optus	Telecommunications	Optic Fibre in Telstra Conduit	B	6	Remain	Perpendicular	MC010	34850	0	13	YES	N/A	L	road overpass. No impact	Non Contestable	Telstra/Optus/NBN
T-06-02	Telstra/NBN	Telecommunications	Optic Fibre in Telstra Conduit	B	6	Remain	Perpendicular	MC010	34850	0	13	YES	N/A	L	road overpass. No impact	Non Contestable	Telstra/Optus/NBN
T-06-03	Telstra/NBN	Telecommunications	3xP100	B	6	Remain	Perpendicular	MC010	34850	0	13	YES	N/A	L	road overpass. No impact	Non Contestable	Telstra/Optus/NBN
T-06-04	Telstra/NBN	Telecommunications	RIM Cabinet	B	6	Remain	Perpendicular	MC010	34800	0	N/A	NO	N/A	L		Non Contestable	Telstra/Optus/NBN
W-06-01	City of Gold Coast	Recycled Water Trunk Main	DN375 PVC-U	B	6	Relocate	Perpendicular	MC010	35050	203	1	YES	N/A	H	rolcate on new alignment with DICL. Allow 1 x horiz thrust block and 1x inline thrust block, 1x gated valve. protect against vibration for temporary pavement access. Prevent impact of remaining line against plant and equipment and lay down areas etc.	Contestable	CoGC Water
W-06-02	City of Gold Coast	Water Reticulation Main	DN150 PVC-U	B	6	Remain	Perpendicular	MC010	34850	0	13	YES	N/A	L	road overpass. No impact	Contestable	CoGC Water
S-08-01	City of Gold Coast	Sewer Rising Main	DN750 MSCL	B	8	Remain	Perpendicular	MC010	25600	0	5	YES	N/A	L	Pipe alignment becomes above ground. Protect from plant and equipment.	Contestable	CoGC Water
W-08-01	City of Gold Coast	Recycled Water Trunk Main	DN375 PVC-U	B	8	Remain	Perpendicular	MC010	25600	0	5	YES	n/a	L	Pipe alignment becomes above ground. Protect from plant and equipment.	Contestable	CoGC Water
E-09-01	Energex	Electricity	Overhead Lines (11kV)	C	9	Relocate	Oblique	MC010	36165	382	1.5	YES	PE	M	change strategy from principals design, cant run over bridge as line needs to remain live for commercial location . place line under ground and relocate along boundary line allow 2x pits between enveleper GC highway and Burkler intersection very congested. Recommend new pole closer to Buckler and go OH similar to existing scenario at this location. could keep stret lighting run from Road intersection and tie new lighting run in at tie in to save on relocation costs and putting new trench at a location where RW and Sewer is located.	Non Contestable	ENERGEX
E-09-02	Energex	Electricity	Street Lighting, 1 x conduit	B	9	Relocate	Perpendicular	MC010	35950	0	1.5	NO	N/A	M	relocate road lighting	Contestable	CJV - Electrical ITS
E-09-03	Queensland Rail	Electricity	-	B	9	Remain	Perpendicular	MC010	35950	0	1.5	NO	N/A	M	in rail corridor	Non Contestable	QR
E-09-04	Energex	Electricity	Street Lighting, 1 x conduit	B	9	Relocate	Perpendicular	MC010	35950	0	1.5	YES	N/A	M	ACCESS PATH SREET LIGHTING NETWORK- lighting ITS design	Contestable	CJV - Electrical ITS
S-09-01	City of Gold Coast	Sewer Rising Main	DN800 MSCL	B	9	Relocate and Protect	Oblique	MC010	35860	342	8.5	YES	Concrete	L	allow provisional item for 150m 1200mm RCP Class 4 empty enveloper jacked	Contestable	CoGC Water

EXAMPLE ONLY

Conflict Tag	Asset Owner	Asset Type	Asset Description	Quality Level	Sheet No.	Asset Treatment Remain / Protect/ Relocate	Alignment to Cross Section	Control Line	"Chainage (m)"	Total Length (m)	Cover to Subgrade	Preloded Y/N	Enveloper Type	Vibration Risk (L,M,H)	Comments	Contestable or Non Contestable	Design Responsibilty
S-09-02	City of Gold Coast	Sewer Rising Main	DN450 DICL	B	9	Relocate	Oblique	MC010	35900	1025	1.5	YES	N/A	M	early works, Buckler Drive relocation from northern tie in to new SPS. Allow for 2x scour valves, fittings and thrust blocks, 2x gas relief valves, fittings and thrust blocks, 1x access chamber , 2x gated valves, fittings and thrust blocks, 8x horiz bends and thrust blocks, 8 x vertical bends and thrust blocks,	Contestable	CoGC Water
S-09-03	City of Gold Coast	Sewer Pump Station	SPS - OX1	B	9	Remain	Perpendicular	MC010	35900	0	1.5	YES	N/A	M	plant and equipment to be managed to prevent impact to services to remain	Contestable	CoGC Water
T-09-01	Optus	Telecommunications	Optic Fibre in Telstra Conduit	B	9	Relocate	Oblique	MC010	35900	345	8.5	YES	PE	L	relocated in one HDD sleeve. Splice pit locaitons unknown. Allow for feeding 1km line or NBN and Optus OF	Non Contestable	Telstra/Optus/NBN
T-09-02	Uecomm	Telecommunications	Optic Fibre in Telstra Conduit	B	9	Relocate	Oblique	MC010	35900	0	8.5	YES	N/A	L	relocation included in T28-01	Non Contestable	Uecomm
T-09-03	Telstra/NBN	Telecommunications	3xP100	B	9	Relocate	Oblique	MC010	35900	0	8.5	YES	N/A	L	relocation included in T28-01	Non Contestable	Telstra/Optus/NBN
T-09-04	TPG (AAPT)	Telecommunications	P32 subduct with Telstra Conduit	B	9	Relocate	Oblique	MC010	35900	0	1.5	YES	N/A	M	relocation included in T28-01	Non Contestable	Telstra/TPG
T-09-05	Queensland Rail	Telecommunications	Optic Fibre	B	9	Remain	Parallel	MC010	36050	0	1.5	YES	N/A	M	relocation included in T28-01	Non Contestable	QR
T-09-06	Telstra/NBN	Telecommunications	Overhead Communication Cable	B	9	Relocate	Oblique	MC010	36000	0	1.5	YES	N/A	M	not picked up in survey or GPR. Interpretation of DBYD against survey and GPR would be along alignment T-28-01 to 03. this is relocated as part of T-28-01	Non Contestable	Telstra/NBN
T-09-07	TPG (AAPT)	Telecommunications	P32 subduct with Telstra Conduit	B	9	Relocate	Oblique	MC010	36000	55	1.5	YES	N/A	M	refeed line through new underbore and exisitng conduits to existing splice pits/junction pits	Non Contestable	Telstra/TPG
T-09-08	Telstra/NBN	Telecommunications	Optic Fibre in Telstra Conduit	B	9	Relocate	Oblique	MC010	36000	0	1.5	YES	N/A	M	relocation included in T28-01 & 08	Non Contestable	Telstra/NBN
T-09-09	Telstra/NBN	Telecommunications	4xP100 in Telstra Counduit	B	9	Relocate	Oblique	MC010	36000	0	1.5	YES	N/A	M	relocation included in T28-01	Non Contestable	Telstra/NBN
T-09-10	Telstra/NBN	Telecommunications	RIM Cabinet	B	9	Relocate	Perpendicular	MC010	36150	620	1.5	YES	N/A	M	early works, Road relocation from northern tie in to helensvale station. Allow RIM relocation and 3x conduits	Non Contestable	Telstra/NBN
W-09-01	City of Gold Coast	Recycled Water Reticulation Main	DN200 DICL	B	9	Relocate	Oblique	MC010	36580	1280	1.5	YES	PE	M	early works, Road relocation with DN250 PE from northern tie in to helensvale to FH and water meter crossing at chainage 37300. underbore at Red mapped waterway. Allow for 5 fittings, 3 inline thrust blocks and 2x vari gibs and 10 hydraunts	Contestable	CoGC Water
E-10-01	Energex	Electricity	11kV, 4x Conduits	B	10	Remain	Parallel	MC3M5	300	0	1	NO	N/A	H	plant and equipment to be managed to prevent impact to services to remain	Non Contestable	ENERGEX
E-10-02	Energex	Electricity	Overhead Lines (11kV)	B	10	Remain	Parallel	MC3M5	300	0	1	NO	N/A	H	manage plant during construction	Non Contestable	ENERGEX
S-10-01	City of Gold Coast	Sewer Trunk Gravity Main	DN450 DICL	B	10	Relocate	Perpendicular	MC3M5	250	80	2	NO	RCP	M	Jack a new 750 RCP enveloper and install new DICL carrier pipe. Allow valves, bends, and thrust blocks, shut downs etc	Contestable	CoGC Water
T-10-01	Telstra/NBN	Telecommunications	4xP100 Counduits	B	10	Relocate	Oblique	MC3M5	280	0	1	NO	N/A	H	Continuation from T28-01-09	Non Contestable	Telstra/NBN
T-10-02	Telstra/NBN	Telecommunications	1xP100 Conduit	B	10	Relocate	Oblique	MC3M5	280	0	1	NO	N/A	H	Continuation from T28-01-09	Non Contestable	Telstra/NBN
T-10-03	Telstra/NBN	Telecommunications	Optic Fibre in Telstra Conduit	B	10	Protect	Oblique	MC3M5	300	30	1	NO	N/A	H	asset to remain, allowed for encasement due to unknown pavement depth of widening	Non Contestable	Telstra/NBN
T-10-04	Telstra/NBN	Telecommunications	1xP20 Optic Fibre	B	10	Remain	Oblique	MC3M5	260	0	1	NO	N/A	H	plant and equipment to be managed to prevent impact to services to remain	Non Contestable	Telstra/NBN
T-10-05	Telstra/NBN	Telecommunications	Optic Fibre in Telstra Conduit	B	10	Remain	Oblique	MC3M5	260	0	1	NO	N/A	H	plant and equipment to be managed to prevent impact to services to remain	Non Contestable	Telstra/NBN
T-10-06	Telstra/NBN	Telecommunications	1xP100 Conduit	B	10	Remain	Parallel	MC3M5	260	0	1	NO	N/A	H	plant and equipment to be managed to prevent impact to services to remain	Non Contestable	Telstra/NBN
W-10-01	City of Gold Coast	Recycled Water Reticulation Main	DN200 DICL	B	10	Relocate	Perpendicular	MC3M5	250	80	2	NO	RCP	M	Jack a new 525 RCP enveloper and install new DICL carrier pipe. Allow valves, bends, and thrust blocks, shut downs etc	Contestable	CoGC Water
E-11-01	Energex	Street Lights	LV	B	11	Relocate	Parallel	MC3M0	100	0	1	NO	N/A	H	manage plant during construction	Contestable	CJV - Electrical ITS
E-11-02	Energex	Electricity	Overhead Lines (11kV)	B	11	Remain	Perpendicular	MC3M0	110	0	1	NO	N/A	H	manage plant during construction	Non Contestable	ENERGEX
S-11-01	City of Gold Coast	Sewer Rising Main	DN225 PVC-U	B	11	Remain	Perpendicular	MC010	36300	0	1	NO	N/A	H	Prevent impact of line against plant and equipent and lay down areas etc.	Contestable	CoGC Water
T-11-01	Uecomm	Telecommunications	3120F with Telstra conduit	B	11	Remain	Parallel	MC3M0	0	0	1	NO	N/A	H	plant and equipment to be managed to prevent impact to services to remain	Non Contestable	Uecomm
T-11-02	Optus	Telecommunications	Optic Fibre in conduit	B	11	Remain	Parallel	MC3M0	0	0	1	NO	N/A	H	plant and equipment to be managed to prevent impact to services to remain	Non Contestable	optus
T-11-03	Optus	Telecommunications	Telecommunication s Tower	B	11	Remain	Oblique	MC3M0	0	0	1	NO	N/A	H	plant and equipment to be managed to prevent impact to services to remain	Non Contestable	optus
T-11-04	Optus	Telecommunications	Cabinet	B	11	Remain	Parallel	MC3M0	125	0	1	NO	N/A	H	plant and equipment to be managed to prevent impact to services to remain	Non Contestable	optus
T-11-05	Telstra/NBN	Telecommunications	4xP100 Conduits	B	11	Remain	Parallel	MC3M0	0	0	1	NO	N/A	H	plant and equipment to be managed to prevent impact to services to remain	Non Contestable	Telstra/NBN
T-11-06	Telstra/NBN	Telecommunications	4xP100 Conduits	B	11	Remain	Parallel	MC3M0	0	0	1	NO	N/A	H	plant and equipment to be managed to prevent impact to services to remain	Non Contestable	Telstra/NBN

EXAMPLE ONLY

Worked example - Contestable water- Standalone package with project documentation

Note, purpose of this example is to show minimum expected level of detail, not the design solution. For simplicity any DE or EDD items referencing relevant reports and approvals have been removed.

Note, works conducted by the utility providers whether contestable or external from a TMR project (non-consequential) level of detail on the drawings should be adequate enough for TMR or its representatives to make an informed decision. Information provided should reflect this standalone example.

Department of Transport and Main Roads MRR_Detail (08/19)

DN180 PE WATERMAIN RELOCATION

STATE CONTROLLED ROAD NAME

(LOCAL ROAD NAMES)

DRAWING INDEX

DRAWING No.	TMR DRAWING No.	REVISION	SERIES No.	DRAWING DESCRIPTION
UTILITY DRAWING NUMBER	TMR DRAWING NO.	A	PU-DI-01	COVER SHEET, LOCALITY PLAN AND DRAWING INDEX
UTILITY DRAWING NUMBER	TMR DRAWING NO.	A	PU-GN-01	GENERAL NOTES
UTILITY DRAWING NUMBER	TMR DRAWING NO.	A	PU-GN-02	LEGEND
UTILITY DRAWING NUMBER	TMR DRAWING NO.	A	PU-LP-01	LAYOUT PLAN
UTILITY DRAWING NUMBER	TMR DRAWING NO.	A	PU-GD-01	GENERAL DETAILS SHEET 1 OF 2
UTILITY DRAWING NUMBER	TMR DRAWING NO.	A	PU-GD-02	GENERAL DETAILS SHEET 2 OF 2
UTILITY DRAWING NUMBER	TMR DRAWING NO.	A	PU-LS-01	LONGITUDINAL SECTION SHEET 1 OF 2
UTILITY DRAWING NUMBER	TMR DRAWING NO.	A	PU-LS-02	LONGITUDINAL SECTION SHEET 2 OF 2

SEQ STANDARD DRAWING INDEX

DRAWING NO.	DESCRIPTION
SEQ-WAT-1106-2	TYPICAL PROPERTY SERVICE CONNECTION – MAIN TO METER
SEQ-WAT-1201-1	STANDARD EMBEDMENT – TYPICAL FLEXIBLE & RIGID PIPES
SEQ-WAT-1203-1	TYPICAL SPECIAL EMBEDMENT CONCRETE & STABILISED EMBEDMENT AND FLEXIBLE JOINT DETAILS
SEQ-WAT-1204-1	TYPICAL TRENCH AND BEDDING DETAILS WITHIN EXISTING ROAD
SEQ-WAT-1205-1	TYPICAL THRUST BLOCK DETAILS – MASS CONCRETE
SEQ-WAT-1206-1	TYPICAL THRUST AND ANCHOR BLOCKS – FOR VALVES
SEQ-WAT-1212-1	TYPICAL BURIED CROSSINGS – MAJOR ROADWAYS
SEQ-SEW-1303-1	TYPICAL VALVE AND HYDRANT INSTALLATION – FUTURE EXTENSION INSTALLATION
SEQ-SEW-1403-1	TYPICAL BURIED CROSSING BORED AND JACKED ENCASING PIPE DETAILS

LOCALITY PLAN

Utility Authority relevant text boxes and notes as per its drafting standards

THIS IS AN EXAMPLE OF CONTESTABLE WORKS DRAWING SET TO MEET TMR AND UTILITY AUTHORITY REQUIREMENTS FOR DESIGN AND DRAFTING. THIS DRAWING PACKAGE SUPPLEMENTS OTHER PROJECT DRAWING PACKAGES SUCH AS EXISTING FEATURES (WITH CONFLICT TAGS AND MATRIX), ROAD PLANS ETC FOR CONSEQUENTIAL WORKS (INSITAGTED BY TMR) DURING A TMR ROAD PROJECT. WHERE THE WORKS ARE NON-CONSEQUENTIAL (INSTIGATED BY UTILITY AUTHORITY) AND SUBMITED VIA THE PARC PROCESS, DRAFTING PRESENTATION MAY MATCH UTILITY AUTHORITY REQUIREMENTS, HOWEVER, THE LEVEL OF DETAIL TO BE PROVIDED REMAINS THE SAME

EXAMPLE ONLY

Associated Job Nos | Survey Data: Horiz. Datum GDA XX; Auxiliary Drg Nos | Horiz. Grid MGA XX ZONE XX; Height Datum AHD DERIVED; Survey Books XXXXXXX

Scales: Not to Scale

Dimensions shown in metres except where shown otherwise

LOCAL JURISDICTION
STATE CONTROLLED ROAD NAME
STATE CONTROLLED ROAD CHAINAGES

Reference Points: Preceding RP XXXXXXX | Dist. to start of job (km) | From start to end of job | From end to Following RP | Following RP

Through Chainage from XXXXXXX

WATER MAIN RELOCATION
COVER SHEET, LOCALITY PLAN AND DRAWING INDEX

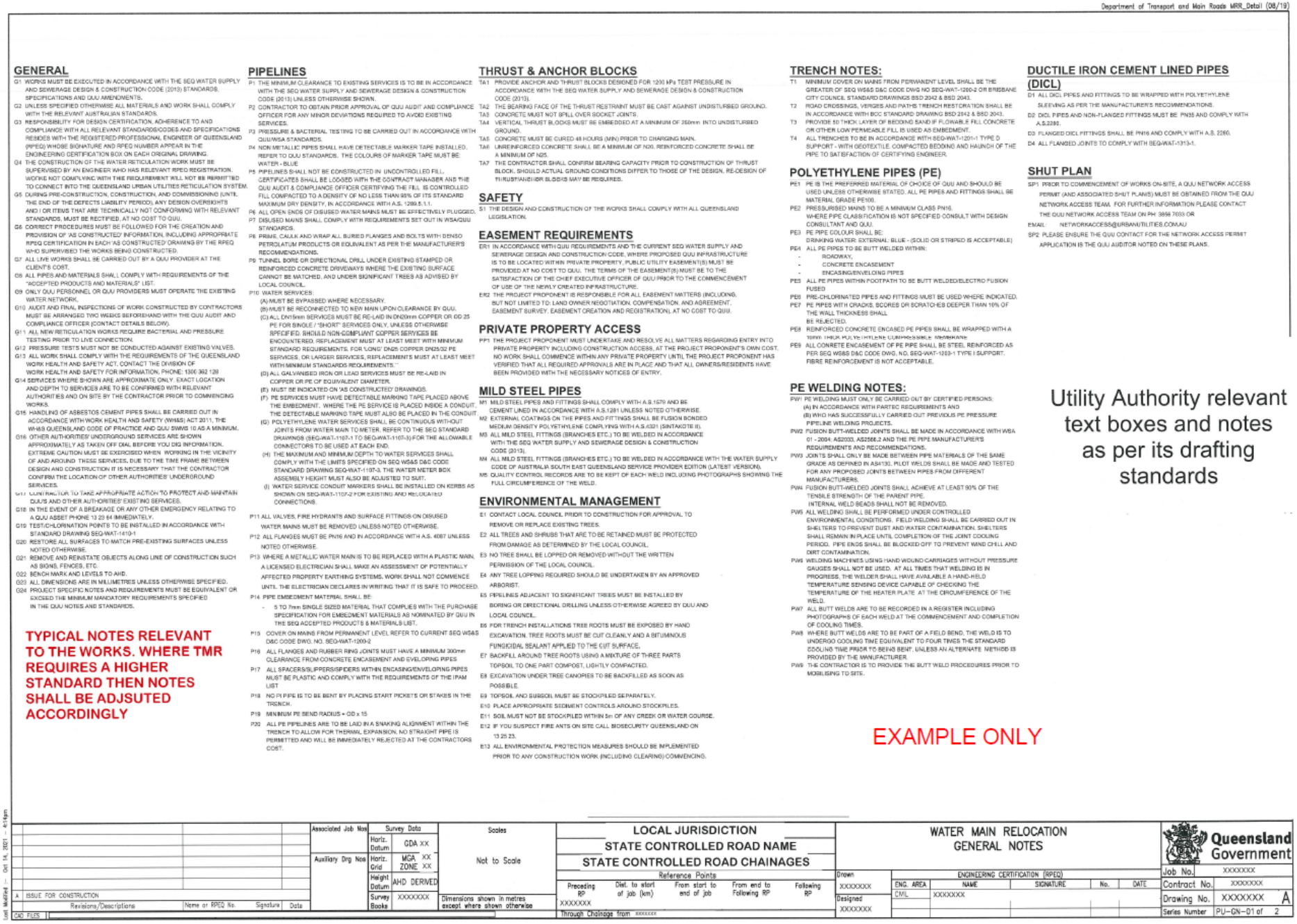
Drawn XXXXXXX
Designed XXXXXXX

ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	No.	DATE
CIVIL	XXXXXXX			

Queensland Government

Job No. XXXXXXX
Contract No. XXXXXXX
Drawing No. XXXXXXX A
Series Number PU-DI-01 of 1



Department of Transport and Main Roads MRR_Detail (08/19)

GENERAL

G1 WORKS MUST BE EXECUTED IN ACCORDANCE WITH THE SEQ WATER SUPPLY AND SEWERAGE DESIGN & CONSTRUCTION CODE (2013) STANDARDS, SPECIFICATIONS AND QUU AMENDMENTS.
G2 UNLESS SPECIFIED OTHERWISE ALL MATERIALS AND WORK SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS.
G3 RESPONSIBILITY FOR DESIGN CERTIFICATION, ADHERENCE TO AND COMPLIANCE WITH ALL RELEVANT STANDARDS/CODES AND SPECIFICATIONS RESIDES WITH THE REGISTERED PROFESSIONAL ENGINEER OF QUEENSLAND (RPEQ) WHOSE SIGNATURE AND RPEQ NUMBER APPEAR IN THE ENGINEERING CERTIFICATION BOX ON EACH ORIGINAL DRAWING.
G4 THE CONSTRUCTION OF THE WATER RETICULATION WORK MUST BE SUPERVISED BY AN ENGINEER WHO HAS RELEVANT RPEQ REGISTRATION. WORKS NOT COMPLYING WITH THIS REQUIREMENT WILL NOT BE PERMITTED TO CONNECT INTO THE QUEENSLAND URBAN UTILITIES RETICULATION SYSTEM.
G5 DURING PRE-CONSTRUCTION, CONSTRUCTION, AND COMMISSIONING (UNTIL THE END OF THE DEFECTS LIABILITY PERIOD), ANY DESIGN OVERSIGHTS AND / OR ITEMS THAT ARE TECHNICALLY NOT CONFORMING WITH RELEVANT STANDARDS, MUST BE RECTIFIED, AT NO COST TO QUU.
G6 CORRECT PROCEDURES MUST BE FOLLOWED FOR THE CREATION AND PROVISION OF 'AS CONSTRUCTED' INFORMATION, INCLUDING APPROPRIATE RPEQ CERTIFICATION IN EACH 'AS CONSTRUCTED' DRAWING BY THE RPEQ WHO SUPERVISED THE WORKS BEING CONSTRUCTED.
G7 ALL LIVE WORKS SHALL BE CARRIED OUT BY A QUU PROVIDER AT THE CLIENT'S COST.
G8 ALL PIPES AND MATERIALS SHALL COMPLY WITH REQUIREMENTS OF THE "ACCEPTED PRODUCTS AND MATERIALS" LIST.
G9 ONLY QUU PERSONNEL OR QUU PROVIDERS MUST OPERATE THE EXISTING WATER NETWORK.
G10 AUDIT AND FINAL INSPECTIONS OF WORK CONSTRUCTED BY CONTRACTORS MUST BE ARRANGED TWO WEEKS BEFOREHAND WITH THE QUU AUDIT AND COMPLIANCE OFFICER (CONTACT DETAILS BELOW).
G11 ALL NEW RETICULATION WORKS REQUIRE BACTERIAL AND PRESSURE TESTING PRIOR TO LIVE CONNECTION.
G12 PRESSURE TESTS MUST NOT BE CONDUCTED AGAINST EXISTING VALVES.
G13 ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE QUEENSLAND WORK HEALTH AND SAFETY ACT. CONTACT THE DIVISION OF WORK HEALTH AND SAFETY FOR INFORMATION. PHONE: 1300 362 128
G14 SERVICES WHERE SHOWN ARE APPROXIMATE ONLY. EXACT LOCATION AND DEPTH TO SERVICES ARE TO BE CONFIRMED WITH RELEVANT AUTHORITIES AND ON SITE BY THE CONTRACTOR PRIOR TO COMMENCING WORKS.
G15 HANDLING OF ASBESTOS CEMENT PIPES SHALL BE CARRIED OUT IN ACCORDANCE WITH WORK HEALTH AND SAFETY (WHAS) ACT 2011, THE WHAS QUEENSLAND CODE OF PRACTICE AND QUU SWMS 10 AS A MINIMUM.
G16 OTHER AUTHORITIES' UNDERGROUND SERVICES ARE SHOWN APPROXIMATELY AS TAKEN OFF DAL BEFORE YOU DIG INFORMATION. EXTREME CAUTION MUST BE EXERCISED WHEN WORKING IN THE VICINITY OF AND AROUND THESE SERVICES. DUE TO THE TIME FRAME BETWEEN DESIGN AND CONSTRUCTION IT IS NECESSARY THAT THE CONTRACTOR CONFIRM THE LOCATION OF OTHER AUTHORITIES' UNDERGROUND SERVICES.
G17 CONTRACTOR TO TAKE APPROPRIATE ACTION TO PROTECT AND MAINTAIN QUU'S AND OTHER AUTHORITIES' EXISTING SERVICES.
G18 IN THE EVENT OF A BREAKAGE OR ANY OTHER EMERGENCY RELATING TO A QUU ASSET PHONE 13 23 64 IMMEDIATELY.
G19 TEST/CHLORINATION POINTS TO BE INSTALLED IN ACCORDANCE WITH STANDARD DRAWING SEQ-WAT-1410-1
G20 RESTORE ALL SURFACES TO MATCH PRE-EXISTING SURFACES UNLESS NOTED OTHERWISE.
G21 REMOVE AND REINSTATE OBJECTS ALONG LINE OF CONSTRUCTION SUCH AS SIGNS, FENCES, ETC.
G22 BENCH MARK AND LEVELS TO AHD.
G23 ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.
G24 PROJECT SPECIFIC NOTES AND REQUIREMENTS MUST BE EQUIVALENT OR EXCEED THE MINIMUM MANDATORY REQUIREMENTS SPECIFIED IN THE QUU NOTES AND STANDARDS.

TYPICAL NOTES RELEVANT TO THE WORKS. WHERE TMR REQUIRES A HIGHER STANDARD THEN NOTES SHALL BE ADJSUTED ACCORDINGLY

PIPELINES

P1 THE MINIMUM CLEARANCE TO EXISTING SERVICES IS TO BE IN ACCORDANCE WITH THE SEQ WATER SUPPLY AND SEWERAGE DESIGN & CONSTRUCTION CODE (2013) UNLESS OTHERWISE SHOWN.
P2 CONTRACTOR TO OBTAIN PRIOR APPROVAL OF QUU AUDIT AND COMPLIANCE OFFICER FOR ANY MINOR DEVIATIONS REQUIRED TO AVOID EXISTING SERVICES.
P3 PRESSURE & BACTERIAL TESTING TO BE CARRIED OUT IN ACCORDANCE WITH QUU/WSA STANDARDS.
P4 NON METALLIC PIPES SHALL HAVE DETECTABLE MARKER TAPE INSTALLED, REFER TO QUU STANDARDS. THE COLOURS OF MARKER TAPE MUST BE: WATER - BLUE
P5 PIPELINES SHALL NOT BE CONSTRUCTED IN UNCONTROLLED FILL. CERTIFICATES SHALL BE LODGED WITH THE CONTRACT MANAGER AND THE QUU AUDIT & COMPLIANCE OFFICER CERTIFYING THE FILL IS CONTROLLED FILL COMPACTED TO A DENSITY OF NO LESS THAN 95% OF ITS STANDARD MAXIMUM DRY DENSITY, IN ACCORDANCE WITH A.S. 1289.5.1.1.
P6 ALL OPEN ENDS OF DISUSED WATER MAINS MUST BE EFFECTIVELY PLUGGED.
P7 DISUSED MAINS SHALL COMPLY WITH REQUIREMENTS SET OUT IN WSA/QUU STANDARDS.
P8 PRIME, CAULK AND WRAP ALL BURIED FLANGES AND BOLTS WITH DENSO PETROLATUM PRODUCTS OR EQUIVALENT AS PER THE MANUFACTURER'S RECOMMENDATIONS.
P9 TUNNEL BORE OR DIRECTIONAL DRILL UNDER EXISTING STAMPED OR REINFORCED CONCRETE DRIVEWAYS WHERE THE EXISTING SURFACE CANNOT BE MATCHED, AND UNDER SIGNIFICANT TREES AS ADVISED BY LOCAL COUNCIL.
P10 WATER SERVICES:
(A) MUST BE BYPASSED WHERE NECESSARY.
(B) MUST BE RECONNECTED TO NEW MAIN UPON CLEARANCE BY QUU.
(C) ALL DN15mm SERVICES MUST BE RE-LAID IN DN20mm COPPER OR OD 25 PE FOR SINGLE / "SHORT" SERVICES ONLY, UNLESS OTHERWISE SPECIFIED. SHOULD NON-COMPLIANT COPPER SERVICES BE ENCOUNTERED, REPLACEMENT MUST AT LEAST MEET WITH MINIMUM STANDARD REQUIREMENTS. FOR 'LONG' DN25 COPPER DN25/32 PE SERVICES, OR LARGER SERVICES, REPLACEMENTS MUST AT LEAST MEET WITH MINIMUM STANDARDS REQUIREMENTS."
(D) ALL GALVANISED IRON OR LEAD SERVICES MUST BE RE-LAID IN COPPER OR PE OF EQUIVALENT DIAMETER.
(E) MUST BE INDICATED ON 'AS CONSTRUCTED' DRAWINGS.
(F) PE SERVICES MUST HAVE DETECTABLE MARKING TAPE PLACED ABOVE THE EMBEDMENT. WHERE THE PE SERVICE IS PLACED INSIDE A CONDUIT, THE DETECTABLE MARKING TAPE MUST ALSO BE PLACED IN THE CONDUIT.
(G) POLYETHYLENE WATER SERVICES SHALL BE CONTINUOUS WITHOUT JOINTS FROM WATER MAIN TO METER. REFER TO THE SEQ STANDARD DRAWINGS (SEQ-WAT-1107-1 TO SEQ-WAT-1107-3) FOR THE ALLOWABLE CONNECTORS TO BE USED AT EACH END.
(H) THE MAXIMUM AND MINIMUM DEPTH TO WATER SERVICES SHALL COMPLY WITH THE LIMITS SPECIFIED ON SEQ WSAS D&C CODE STANDARD DRAWING SEQ-WAT-1107-3. THE WATER METER BOX ASSEMBLY HEIGHT MUST ALSO BE ADJUSTED TO SUIT.
(I) WATER SERVICE CONDUIT MARKERS SHALL BE INSTALLED ON KERBS AS SHOWN ON SEQ-WAT-1107-2 FOR EXISTING AND RELOCATED CONNECTIONS.
P11 ALL VALVES, FIRE HYDRANTS AND SURFACE FITTINGS ON DISUSED WATER MAINS MUST BE REMOVED UNLESS NOTED OTHERWISE.
P12 ALL FLANGES MUST BE PN16 AND IN ACCORDANCE WITH A.S. 4087 UNLESS NOTED OTHERWISE.
P13 WHERE A METALLIC WATER MAIN IS TO BE REPLACED WITH A PLASTIC MAIN, A LICENSED ELECTRICIAN SHALL MAKE AN ASSESSMENT OF POTENTIALLY AFFECTED PROPERTY EARTHING SYSTEMS. WORK SHALL NOT COMMENCE UNTIL THE ELECTRICIAN DECLARES IN WRITING THAT IT IS SAFE TO PROCEED.
P14 PIPE EMBEDMENT MATERIAL SHALL BE:
- 5 TO 7mm SINGLE SIZED MATERIAL THAT COMPLIES WITH THE PURCHASE SPECIFICATION FOR EMBEDMENT MATERIALS AS NOMINATED BY QUU IN THE SEQ ACCEPTED PRODUCTS & MATERIALS LIST.

P15 COVER ON MAINS FROM PERMANENT LEVEL REFER TO CURRENT SEQ WSAS D&C CODE DWG. NO. SEQ-WAT-1200-2
P16 ALL FLANGES AND RUBBER RING JOINTS MUST HAVE A MINIMUM 300mm CLEARANCE FROM CONCRETE ENCASEMENT AND EVELOPING PIPES
P17 ALL SPACERS/SLIPPERS/SPIDERS WITHIN ENCASING/ENVELOPING PIPES MUST BE PLASTIC AND COMPLY WITH THE REQUIREMENTS OF THE IPAM LIST
P18 NO PI PIPE IS TO BE BENT BY PLACING START PICKETS OR STAKES IN THE TRENCH.
P19 MINIMUM PE BEND RADIUS = OD x 15
P20 ALL PE PIPELINES ARE TO BE LAID IN A SNAKING ALIGNMENT WITHIN THE TRENCH TO ALLOW FOR THERMAL EXPANSION. NO STRAIGHT PIPE IS PERMITTED AND WILL BE IMMEDIATELY REJECTED AT THE CONTRACTORS COST.

THRUST & ANCHOR BLOCKS

TA1 PROVIDE ANCHOR AND THRUST BLOCKS DESIGNED FOR 1200 kPa TEST PRESSURE IN ACCORDANCE WITH THE SEQ WATER SUPPLY AND SEWERAGE DESIGN & CONSTRUCTION CODE (2013).
TA2 THE BEARING FACE OF THE THRUST RESTRAINT MUST BE CAST AGAINST UNDISTURBED GROUND.
TA3 CONCRETE MUST NOT SPILL OVER SOCKET JOINTS.
TA4 VERTICAL THRUST BLOCKS MUST BE EMBEDDED AT A MINIMUM OF 250mm INTO UNDISTURBED GROUND.
TA5 CONCRETE MUST BE CURED 48 HOURS (MIN) PRIOR TO CHARGING MAIN.
TA6 UNREINFORCED CONCRETE SHALL BE A MINIMUM OF N20. REINFORCED CONCRETE SHALL BE A MINIMUM OF N25.
TA7 THE CONTRACTOR SHALL CONFIRM BEARING CAPACITY PRIOR TO CONSTRUCTION OF THRUST BLOCK. SHOULD ACTUAL GROUND CONDITIONS DIFFER TO THOSE OF THE DESIGN, RE-DESIGN OF THRUST/ANCHOR BLOCKS MAY BE REQUIRED.

SAFETY

S1 THE DESIGN AND CONSTRUCTION OF THE WORKS SHALL COMPLY WITH ALL QUEENSLAND LEGISLATION.

EASEMENT REQUIREMENTS

ER1 IN ACCORDANCE WITH QUU REQUIREMENTS AND THE CURRENT SEQ WATER SUPPLY AND SEWERAGE DESIGN AND CONSTRUCTION CODE, WHERE PROPOSED QUU INFRASTRUCTURE IS TO BE LOCATED WITHIN PRIVATE PROPERTY, PUBLIC UTILITY EASEMENT(S) MUST BE PROVIDED AT NO COST TO QUU. THE TERMS OF THE EASEMENT(S) MUST BE TO THE SATISFACTION OF THE CHIEF EXECUTIVE OFFICER OF QUU PRIOR TO THE COMMENCEMENT OF USE OF THE NEWLY CREATED INFRASTRUCTURE.
ER2 THE PROJECT PROPONENT IS RESPONSIBLE FOR ALL EASEMENT MATTERS (INCLUDING, BUT NOT LIMITED TO: LAND OWNER NEGOTIATION, COMPENSATION, AND AGREEMENT, EASEMENT SURVEY, EASEMENT CREATION AND REGISTRATION), AT NO COST TO QUU.

PRIVATE PROPERTY ACCESS

PP1 THE PROJECT PROPONENT MUST UNDERTAKE AND RESOLVE ALL MATTERS REGARDING ENTRY INTO PRIVATE PROPERTY INCLUDING CONSTRUCTION ACCESS, AT THE PROJECT PROPONENT'S OWN COST. NO WORK SHALL COMMENCE WITHIN ANY PRIVATE PROPERTY UNTIL THE PROJECT PROPONENT HAS VERIFIED THAT ALL REQUIRED APPROVALS ARE IN PLACE AND THAT ALL OWNERS/RESIDENTS HAVE BEEN PROVIDED WITH THE NECESSARY NOTICES OF ENTRY.

MILD STEEL PIPES

M1 MILD STEEL PIPES AND FITTINGS SHALL COMPLY WITH A.S.1579 AND BE CEMENT LINED IN ACCORDANCE WITH A.S.1281 UNLESS NOTED OTHERWISE.
M2 EXTERNAL COATINGS ON THE PIPES AND FITTINGS SHALL BE FUSION BONDED MEDIUM DENSITY POLYETHYLENE COMPLYING WITH A.S.4321 (SINTAKOTE II).
M3 ALL MILD STEEL FITTINGS (BRANCHES ETC.) TO BE WELDED IN ACCORDANCE WITH THE SEQ WATER SUPPLY AND SEWERAGE DESIGN & CONSTRUCTION CODE (2013).
M4 ALL MILD STEEL FITTINGS (BRANCHES ETC.) TO BE WELDED IN ACCORDANCE WITH THE WATER SUPPLY CODE OF AUSTRALIA SOUTH EAST QUEENSLAND SERVICE PROVIDER EDITION (LATEST VERSION).
M5 QUALITY CONTROL RECORDS ARE TO BE KEPT OF EACH WELD INCLUDING PHOTOGRAPHS SHOWING THE FULL CIRCUMFERENCE OF THE WELD.

ENVIRONMENTAL MANAGEMENT

E1 CONTACT LOCAL COUNCIL PRIOR TO CONSTRUCTION FOR APPROVAL TO REMOVE OR REPLACE EXISTING TREES.
E2 ALL TREES AND SHRUBS THAT ARE TO BE RETAINED MUST BE PROTECTED FROM DAMAGE AS DETERMINED BY THE LOCAL COUNCIL.
E3 NO TREE SHALL BE LOPPED OR REMOVED WITHOUT THE WRITTEN PERMISSION OF THE LOCAL COUNCIL.
E4 ANY TREE LOPPING REQUIRED SHOULD BE UNDERTAKEN BY AN APPROVED ARBORIST.
E5 PIPELINES ADJACENT TO SIGNIFICANT TREES MUST BE INSTALLED BY BORING OR DIRECTIONAL DRILLING UNLESS OTHERWISE AGREED BY QUU AND LOCAL COUNCIL.
E6 FOR TRENCH INSTALLATIONS TREE ROOTS MUST BE EXPOSED BY HAND EXCAVATION. TREE ROOTS MUST BE CUT CLEANLY AND A BITUMINOUS FUNGICIDAL SEALANT APPLIED TO THE CUT SURFACE.
E7 BACKFILL AROUND TREE ROOTS USING A MIXTURE OF THREE PARTS TOPSOIL TO ONE PART COMPOST, LIGHTLY COMPACTED.
E8 EXCAVATION UNDER TREE CANOPIES TO BE BACKFILLED AS SOON AS POSSIBLE.
E9 TOPSOIL AND SUBSOIL MUST BE STOCKPILED SEPARATELY.
E10 PLACE APPROPRIATE SEDIMENT CONTROLS AROUND STOCKPILES.
E11 SOIL MUST NOT BE STOCKPILED WITHIN 5m OF ANY CREEK OR WATER COURSE.
E12 IF YOU SUSPECT FIRE ANTS ON SITE CALL BIOSECURITY QUEENSLAND ON 13 25 23.
E13 ALL ENVIRONMENTAL PROTECTION MEASURES SHOULD BE IMPLEMENTED PRIOR TO ANY CONSTRUCTION WORK (INCLUDING CLEARING) COMMENCING.

TRENCH NOTES:

T1 MINIMUM COVER ON MAINS FROM PERMANENT LEVEL SHALL BE THE GREATER OF SEQ WSAS D&C CODE DWG NO SEQ-WAT-1200-2 OR BRISBANE CITY COUNCIL STANDARD DRAWINGS BSD 2042 & BSD 2043.
T2 ROAD CROSSINGS, VERGES AND PATHS TRENCH RESTORATION SHALL BE IN ACCORDANCE WITH BCC STANDARD DRAWING BSD-2042 & BSD 2043.
T3 PROVIDE 50 THICK LAYER OF BEDDING SAND IF FLOWABLE FILL CONCRETE OR OTHER LOW PERMEABLE FILL IS USED AS EMBEDMENT.
T4 ALL TRENCHES TO BE IN ACCORDANCE WITH SEQ-WAT-1201-1 TYPE D SUPPORT - WITH GEOTEXTILE. COMPACTED BEDDING AND HAUNCH OF THE PIPE TO SATISFACTION OF CERTIFYING ENGINEER.

POLYETHYLENE PIPES (PE)

PE1 PE IS THE PREFERRED MATERIAL OF CHOICE OF QUU AND SHOULD BE USED UNLESS OTHERWISE STATED. ALL PE PIPES AND FITTINGS SHALL BE MATERIAL GRADE PE100.
PE2 PRESSURISED MAINS TO BE A MINIMUM CLASS PN16.
WHERE PIPE CLASSIFICATION IS NOT SPECIFIED CONSULT WITH DESIGN CONSULTANT AND QUU.
PE3 PE PIPE COLOUR SHALL BE:
DRINKING WATER: EXTERNAL: BLUE - (SOLID OR STRIPED IS ACCEPTABLE)
PE4 ALL PE PIPES TO BE BUTT WELDED WITHIN:
- ROADWAY,
- CONCRETE ENCASEMENT
- ENCASING/ENVELOING PIPES

PE5 ALL PE PIPES WITHIN FOOTPATH TO BE BUTT WELDED/ELECTRO FUSION FUSED
PE6 PRE-CHLORINATED PIPES AND FITTINGS MUST BE USED WHERE INDICATED.
PE7 PE PIPES WITH CRACKS, SCORES OR SCRATCHES DEEPER THAN 10% OF THE WALL THICKNESS SHALL BE REJECTED.
PE8 REINFORCED CONCRETE ENCASED PE PIPES SHALL BE WRAPPED WITH A 1MM THICK POLYETHYLENE COMPRESSIBLE MEMBRANE
PE9 ALL CONRETE ENCASEMENT OF PE PIPE SHALL BE STEEL REINFORCED AS PER SEQ WSAS D&C CODE DWG. NO. SEQ-WAT-1203-1 TYPE I SUPPORT. FIBRE REINFORCEMENT IS NOT ACCEPTABLE.

PE WELDING NOTES:

PW1 PE WELDING MUST ONLY BE CARRIED OUT BY CERTIFIED PERSONS:
(A) IN ACCORDANCE WITH PARTEC REQUIREMENTS AND
(B) WHO HAS SUCCESSFULLY CARRIED OUT PREVIOUS PE PRESSURE PIPELINE WELDING PROJECTS.
PW2 FUSION BUTT-WELDED JOINTS SHALL BE MADE IN ACCORDANCE WITH WSA 01 - 2004: AS2033, AS2566.2 AND THE PE PIPE MANUFACTURER'S REQUIREMENTS AND RECOMMENDATIONS.
PW3 JOINTS SHALL ONLY BE MADE BETWEEN PIPE MATERIALS OF THE SAME GRADE AS DEFINED IN AS4130. PILOT WELDS SHALL BE MADE AND TESTED FOR ANY PROPOSED JOINTS BETWEEN PIPES FROM DIFFERENT MANUFACTURERS.
PW4 FUSION BUTT-WELDED JOINTS SHALL ACHIEVE AT LEAST 90% OF THE TENSILE STRENGTH OF THE PARENT PIPE.
INTERNAL WELD BEADS SHALL NOT BE REMOVED.
PW5 ALL WELDING SHALL BE PERFORMED UNDER CONTROLLED ENVIRONMENTAL CONDITIONS. FIELD WELDING SHALL BE CARRIED OUT IN SHELTERS TO PREVENT DUST AND WATER CONTAMINATION. SHELTERS SHALL REMAIN IN PLACE UNTIL COMPLETION OF THE JOINT COOLING PERIOD. PIPE ENDS SHALL BE BLOCKED OFF TO PREVENT WIND CHILL AND DIRT CONTAMINATION.
PW6 WELDING MACHINES USING HAND WOUND CARRIAGES WITHOUT PRESSURE GAUGES SHALL NOT BE USED. AT ALL TIMES THAT WELDING IS IN PROGRESS, THE WELDER SHALL HAVE AVAILABLE A HAND-HELD TEMPERATURE SENSING DEVICE CAPABLE OF CHECKING THE TEMPERATURE OF THE HEATER PLATE AT THE CIRCUMFERENCE OF THE WELD.
PW7 ALL BUTT WELDS ARE TO BE RECORDED IN A REGISTER INCLUDING PHOTOGRAPHS OF EACH WELD AT THE COMMENCEMENT AND COMPLETION OF COOLING TIMES.
PW8 WHERE BUTT WELDS ARE TO BE PART OF A FIELD BEND, THE WELD IS TO UNDERGO COOLING TIME EQUIVALENT TO FOUR TIMES THE STANDARD COOLING TIME PRIOR TO BEING BENT. UNLESS AN ALTERNATE METHOD IS PROVIDED BY THE MANUFACTURER.
PW9 THE CONTRACTOR IS TO PROVIDE THE BUTT WELD PROCEDURES PRIOR TO MOBILISING TO SITE.

DUCTILE IRON CEMENT LINED PIPES (DICL)

D1 ALL DICL PIPES AND FITTINGS TO BE WRAPPED WITH POLYETHYLENE SLEEVING AS PER THE MANUFACTURER'S RECOMMENDATIONS.
D2 DICL PIPES AND NON-FLANGED FITTINGS MUST BE PN35 AND COMPLY WITH A.S.2280.
D3 FLANGED DICL FITTINGS SHALL BE PN16 AND COMPLY WITH A.S. 2280.
D4 ALL FLANGED JOINTS TO COMPLY WITH SEQ-WAT-1313-1.

SHUT PLAN

SP1 PRIOR TO COMMENCEMENT OF WORKS ON-SITE, A QUU NETWORK ACCESS PERMIT (AND ASSOCIATED SHUT PLANS) MUST BE OBTAINED FROM THE QUU NETWORK ACCESS TEAM. FOR FURTHER INFORMATION PLEASE CONTACT THE QUU NETWORK ACCESS TEAM ON PH: 3896 7033 OR
EMAIL: NETWORKACCESS@URBANUTILITIES.COM.AU
SP2 PLEASE ENSURE THE QUU CONTACT FOR THE NETWORK ACCESS PERMIT APPLICATION IS THE QUU AUDITOR NOTED ON THESE PLANS.

Utility Authority relevant text boxes and notes as per its drafting standards

EXAMPLE ONLY

Last Modified: Oct 14, 2021 - 4:14pm

Revisions/Descriptions	Name or RPEQ No.	Signature	Date
A ISSUE FOR CONSTRUCTION			
CAD FILES			

Associated Job Nos | Survey Data: Horiz. Datum GDA XX; Horiz. Grid MGA XX ZONE XX; Height Datum AHD DERIVED; Survey Books XXXXXXX
Auxiliary Drg Nos
Scales: Not to Scale
Dimensions shown in metres except where shown otherwise

LOCAL JURISDICTION
STATE CONTROLLED ROAD NAME
STATE CONTROLLED ROAD CHAINAGES

Reference Points

Preceding RP	Dist. to start of Job (km)	From start to end of Job	From end to Following RP	Following RP
XXXXXX				

Through Chainage from XXXXXX

WATER MAIN RELOCATION
GENERAL NOTES

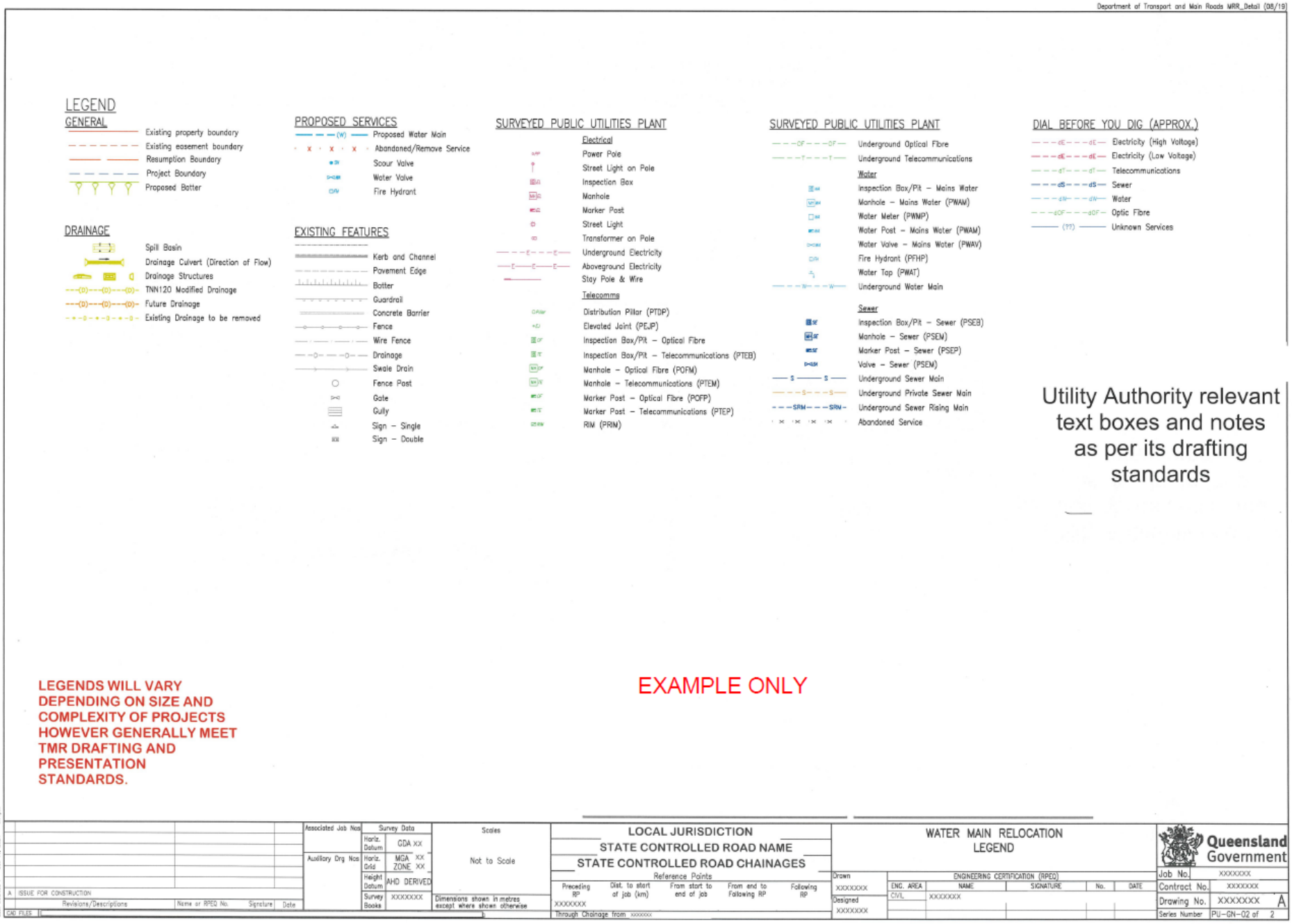
Drawn XXXXXXX
Designed XXXXXXX

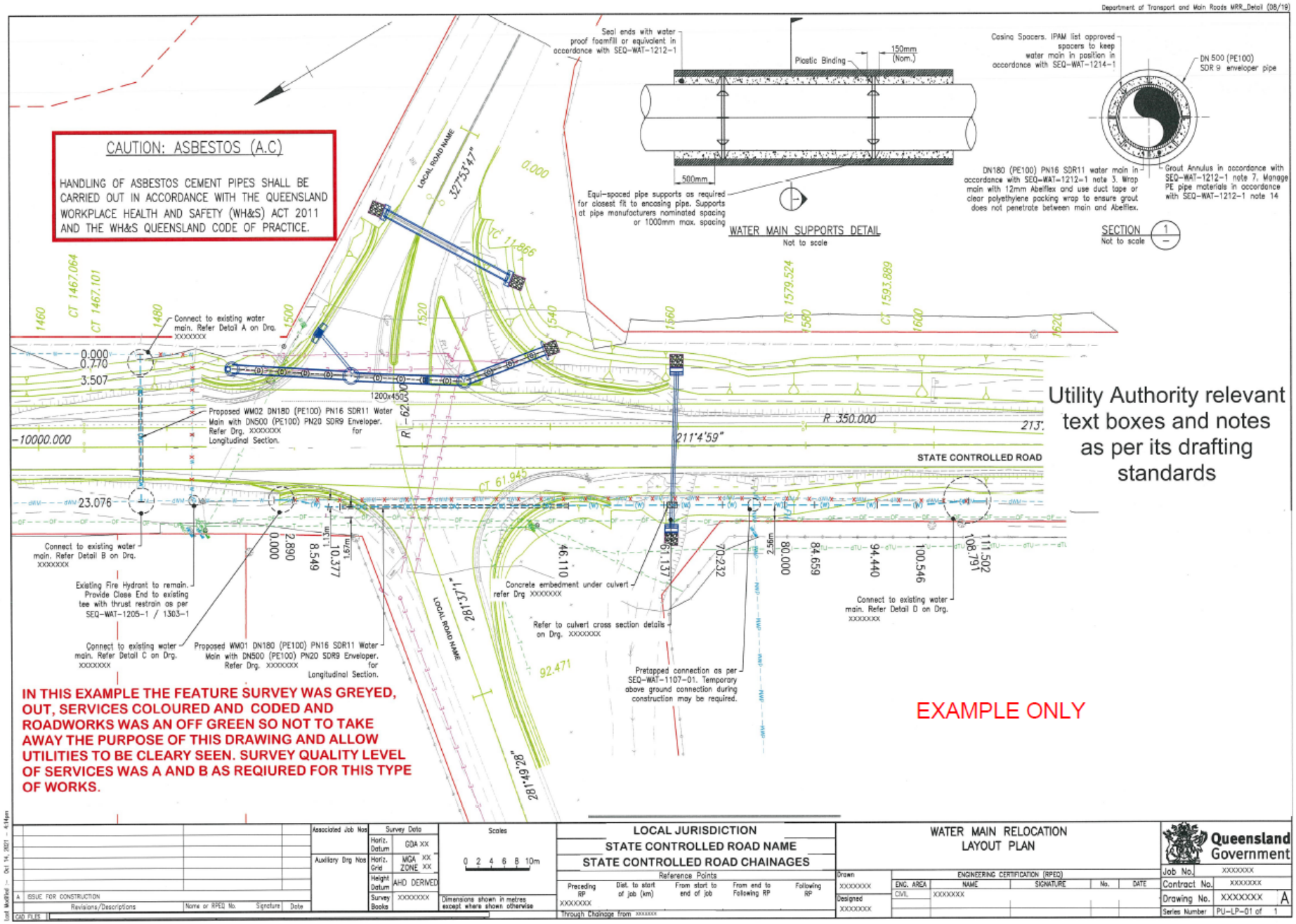
ENGINEERING CERTIFICATION (RPEQ)

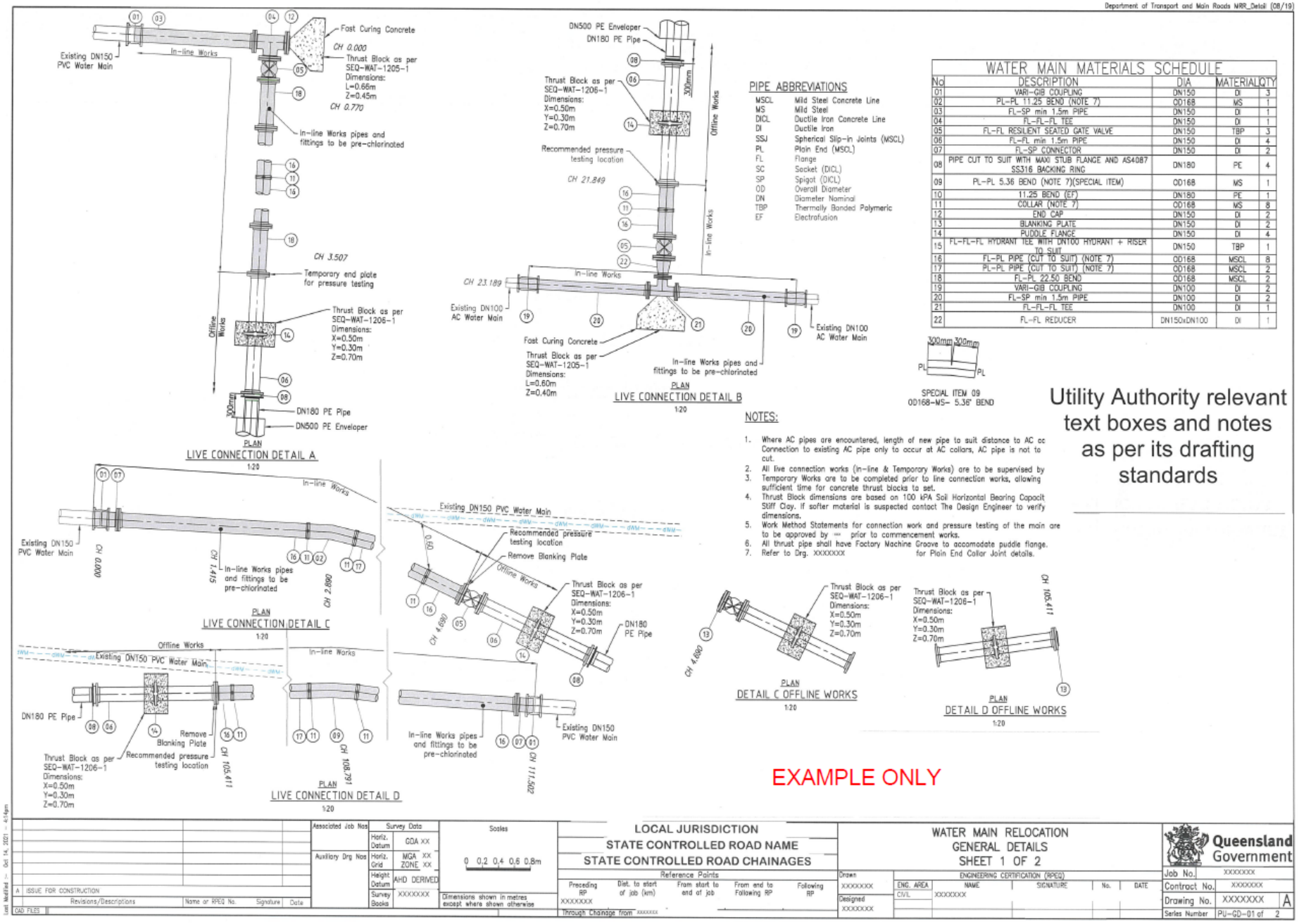
ENG. AREA	NAME	SIGNATURE	No.	DATE
CIVIL	XXXXXXX			

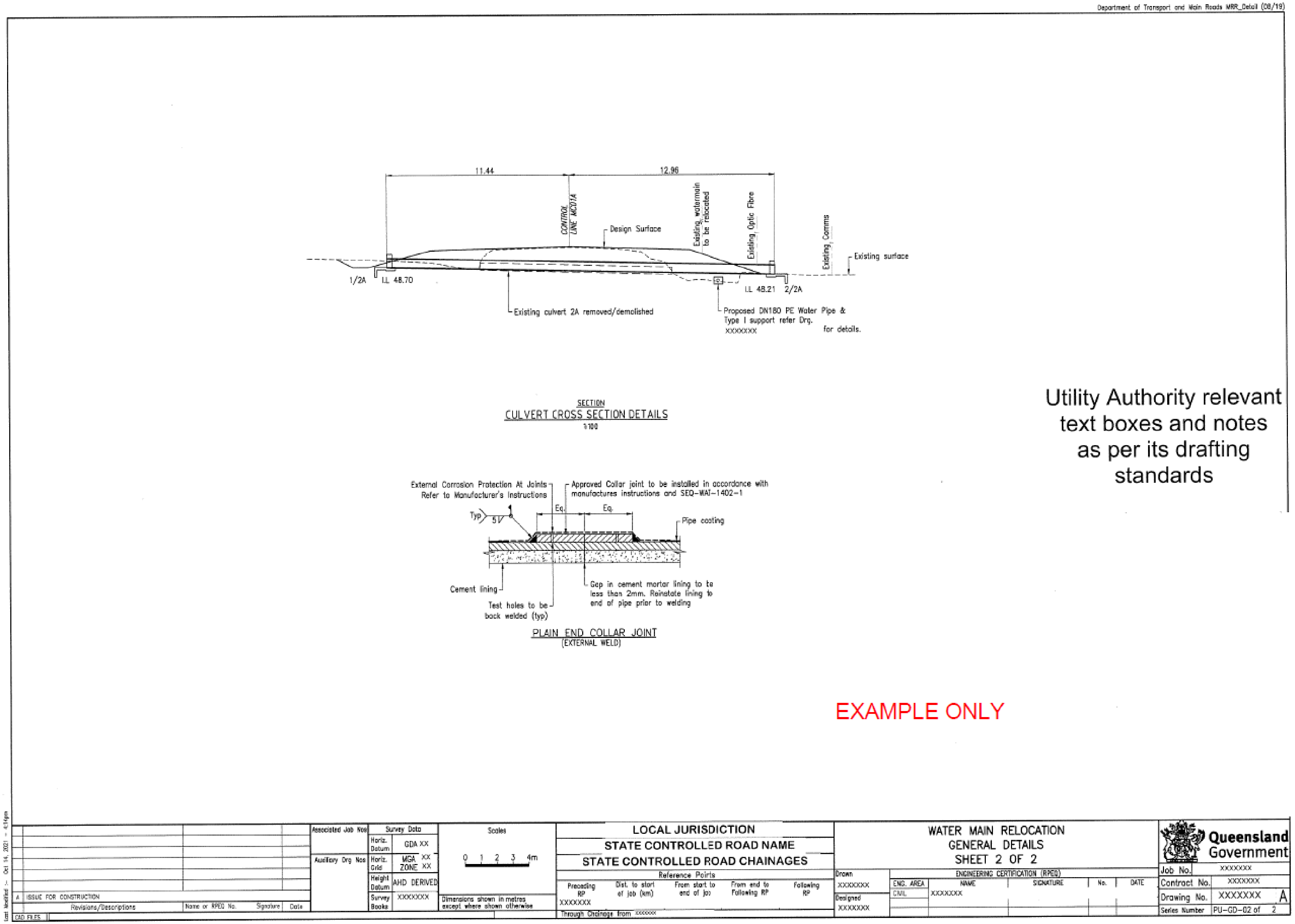
Queensland Government

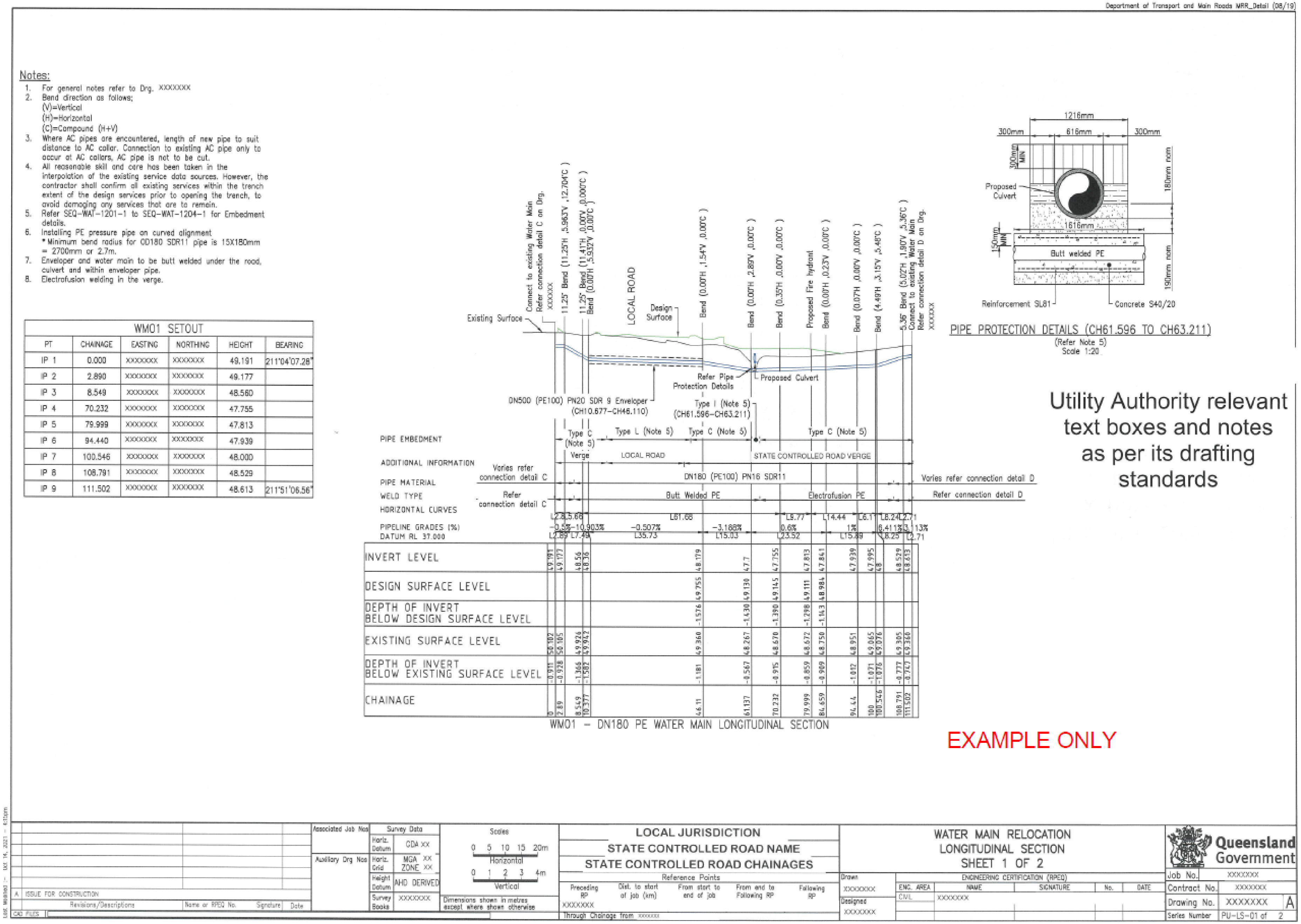
Job No. XXXXXXX
Contract No. XXXXXXX
Drawing No. XXXXXXX A
Series Number PU-GN-01 of 2


Department of Transport and Main Roads MRR_Detail (08/19)
LEGEND
GENERAL
Existing property boundary
Existing easement boundary
Resumption Boundary
Project Boundary
Proposed Batter
DRAINAGE
Spill Basin
Drainage Culvert (Direction of Flow)
Drainage Structures
TNN120 Modified Drainage
Future Drainage
Existing Drainage to be removed
PROPOSED SERVICES
Proposed Water Main
Abandoned/Remove Service
Scour Valve
Water Valve
Fire Hydrant
EXISTING FEATURES
Kerb and Channel
Pavement Edge
Batter
Guardrail
Concrete Barrier
Fence
Wire Fence
Drainage
Swale Drain
Fence Post
Gate
Gully
Sign – Single
Sign – Double
SURVEYED PUBLIC UTILITIES PLANT
Electrical
Power Pole
Street Light on Pole
Inspection Box
Manhole
Marker Post
Street Light
Transformer on Pole
Underground Electricity
Aboveground Electricity
Stay Pole & Wire
Telecomms
Distribution Pillar (PTDP)
Elevated Joint (PEJP)
Inspection Box/Pit – Optical Fibre
Inspection Box/Pit – Telecommunications (PTEB)
Manhole – Optical Fibre (POFM)
Manhole – Telecommunications (PTEM)
Marker Post – Optical Fibre (POFP)
Marker Post – Telecommunications (PTEP)
RIM (PRIM)
SURVEYED PUBLIC UTILITIES PLANT
Underground Optical Fibre
Underground Telecommunications
Water
Inspection Box/Pit – Mains Water
Manhole – Mains Water (PWAM)
Water Meter (PWMP)
Water Post – Mains Water (PWAM)
Water Valve – Mains Water (PWAV)
Fire Hydrant (PFHP)
Water Tap (PWAT)
Underground Water Main
Sewer
Inspection Box/Pit – Sewer (PSEB)
Manhole – Sewer (PSEM)
Marker Post – Sewer (PSEP)
Valve – Sewer (PSEM)
Underground Sewer Main
Underground Private Sewer Main
Underground Sewer Rising Main
Abandoned Service
DIAL BEFORE YOU DIG (APPROX.)
Electricity (High Voltage)
Electricity (Low Voltage)
Telecommunications
Sewer
Water
Optic Fibre
Unknown Services
Utility Authority relevant text boxes and notes as per its drafting standards
LEGENDS WILL VARY DEPENDING ON SIZE AND COMPLEXITY OF PROJECTS HOWEVER GENERALLY MEET TMR DRAFTING AND PRESENTATION STANDARDS.
EXAMPLE ONLY
Associated Job Nos
Auxiliary Drg Nos
Survey Data
Horiz. Datum GDA XX
Horiz. Grid MGA XX ZONE XX
Height Datum AHD DERIVED
Survey Books XXXXXXX
Scales
Not to Scale
Dimensions shown in metres except where shown otherwise
LOCAL JURISDICTION
STATE CONTROLLED ROAD NAME
STATE CONTROLLED ROAD CHAINAGES
Reference Points
Preceding RP
Dist. to start of job (km)
From start to end of job
From end to Following RP
Following RP
XXXXXXX
Through Chainage from XXXXXXX
WATER MAIN RELOCATION
LEGEND
Drawn XXXXXXX
Designed XXXXXXX
ENGINEERING CERTIFICATION (RPEQ)
ENG. AREA
NAME
SIGNATURE
No.
DATE
CIVIL XXXXXXX
A ISSUE FOR CONSTRUCTION
Revisions/Descriptions
Name or RPEQ No.
Signature
Date
CAD FILES
Queensland Government
Job No. XXXXXXX
Contract No. XXXXXXX
Drawing No. XXXXXXX A
Series Number PU-GN-02 of 2

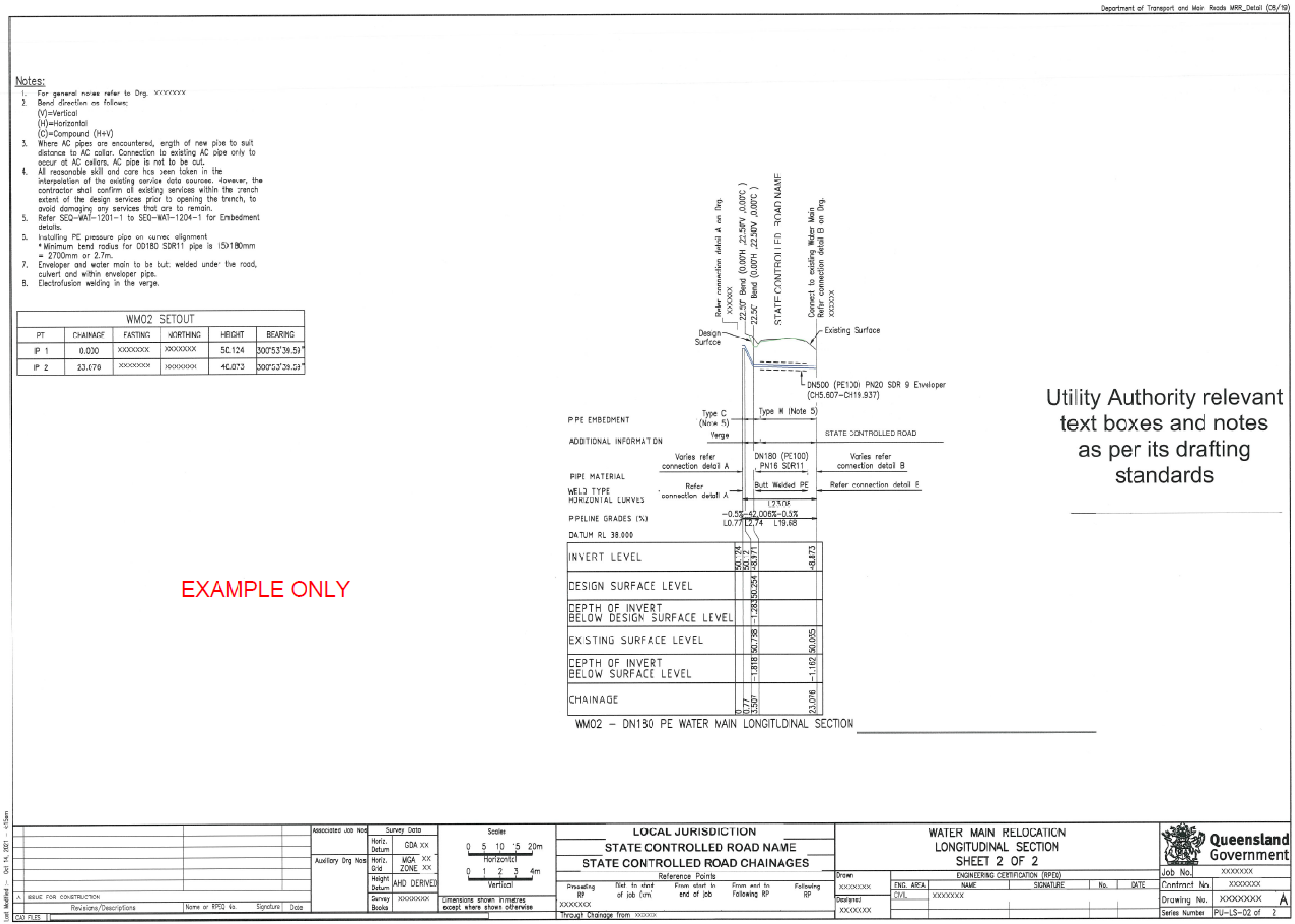

CAUTION: ASBESTOS (A.C)
HANDLING OF ASBESTOS CEMENT PIPES SHALL BE CARRIED OUT IN ACCORDANCE WITH THE QUEENSLAND WORKPLACE HEALTH AND SAFETY (WH&S) ACT 2011 AND THE WH&S QUEENSLAND CODE OF PRACTICE.
WATER MAIN SUPPORTS DETAIL
Not to scale
SECTION
Not to scale
Utility Authority relevant text boxes and notes as per its drafting standards
STATE CONTROLLED ROAD
EXAMPLE ONLY
IN THIS EXAMPLE THE FEATURE SURVEY WAS GREYED, OUT, SERVICES COLOURED AND CODED AND ROADWORKS WAS AN OFF GREEN SO NOT TO TAKE AWAY THE PURPOSE OF THIS DRAWING AND ALLOW UTILITIES TO BE CLEARY SEEN. SURVEY QUALITY LEVEL OF SERVICES WAS A AND B AS REQIURED FOR THIS TYPE OF WORKS.
LOCAL JURISDICTION
STATE CONTROLLED ROAD NAME
STATE CONTROLLED ROAD CHAINAGES
WATER MAIN RELOCATION
LAYOUT PLAN
Queensland Government


Department of Transport and Main Roads MRR_Detail (08/19)
Existing DN150 PVC Water Main
In-line Works
Fast Curing Concrete
CH 0.000
Thrust Block as per SEQ-WAT-1205-1 Dimensions: L=0.66m Z=0.45m
CH 0.770
In-line Works pipes and fittings to be pre-chlorinated
CH 3.507
Temporary end plate for pressure testing
Thrust Block as per SEQ-WAT-1206-1 Dimensions: X=0.50m Y=0.30m Z=0.70m
Offline Works
300mm
DN180 PE Pipe
DN500 PE Enveloper
PLAN
LIVE CONNECTION DETAIL A
1:20
DN500 PE Enveloper
DN180 PE Pipe
Thrust Block as per SEQ-WAT-1206-1 Dimensions: X=0.50m Y=0.30m Z=0.70m
Recommended pressure testing location
CH 21.849
300mm
Offline Works
In-line Works
CH 23.189
Existing DN100 AC Water Main
Fast Curing Concrete
Thrust Block as per SEQ-WAT-1205-1 Dimensions: L=0.60m Z=0.40m
In-line Works pipes and fittings to be pre-chlorinated
PLAN
LIVE CONNECTION DETAIL B
1:20
PIPE ABBREVIATIONS
MSCL Mild Steel Concrete Line
MS Mild Steel
DICL Ductile Iron Concrete Line
DI Ductile Iron
SSJ Spherical Slip-in Joints (MSCL)
PL Plain End (MSCL)
FL Flange
SC Socket (DICL)
SP Spigot (DICL)
OD Overall Diameter
DN Diameter Nominal
TBP Thermally Bonded Polymeric
EF Electrofusion
WATER MAIN MATERIALS SCHEDULE
No | DESCRIPTION | DIA | MATERIAL | QTY
01 | VARI-GIB COUPLING | DN150 | DI | 3
02 | PL-PL 11.25 BEND (NOTE 7) | OD168 | MS | 1
03 | FL-SP min 1.5m PIPE | DN150 | DI | 1
04 | FL-FL-FL TEE | DN150 | DI | 1
05 | FL-FL RESILIENT SEATED GATE VALVE | DN150 | TBP | 3
06 | FL-FL min 1.5m PIPE | DN150 | DI | 4
07 | FL-SP CONNECTOR | DN150 | DI | 2
08 | PIPE CUT TO SUIT WITH MAXI STUB FLANGE AND AS4087 SS316 BACKING RING | DN180 | PE | 4
09 | PL-PL 5.36 BEND (NOTE 7)(SPECIAL ITEM) | OD168 | MS | 1
10 | 11.25 BEND (EF) | DN180 | PE | 1
11 | COLLAR (NOTE 7) | OD168 | MS | 8
12 | END CAP | DN150 | DI | 2
13 | BLANKING PLATE | DN150 | DI | 2
14 | PUDDLE FLANGE | DN150 | DI | 4
15 | FL-FL-FL HYDRANT TEE WITH DN100 HYDRANT + RISER TO SUIT | DN150 | TBP | 1
16 | FL-PL PIPE (CUT TO SUIT) (NOTE 7) | OD168 | MSCL | 8
17 | PL-PL PIPE (CUT TO SUIT) (NOTE 7) | OD168 | MSCL | 2
18 | FL-PL 22.50 BEND | OD168 | MSCL | 2
19 | VARI-GIB COUPLING | DN100 | DI | 2
20 | FL-SP min 1.5m PIPE | DN100 | DI | 2
21 | FL-FL-FL TEE | DN100 | DI | 1
22 | FL-FL REDUCER | DN150xDN100 | DI | 1
300mm 300mm
PL PL
SPECIAL ITEM 09
OD168-MS- 5.36° BEND
NOTES:
1. Where AC pipes are encountered, length of new pipe to suit distance to AC cc Connection to existing AC pipe only to occur at AC collars, AC pipe is not to cut.
2. All live connection works (in-line & Temporary Works) are to be supervised by
3. Temporary Works are to be completed prior to line connection works, allowing sufficient time for concrete thrust blocks to set.
4. Thrust Block dimensions are based on 100 kPA Soil Horizontal Bearing Capacit Stiff Clay. If softer material is suspected contact The Design Engineer to verify dimensions.
5. Work Method Statements for connection work and pressure testing of the main are to be approved by ... prior to commencement works.
6. All thrust pipe shall have Factory Machine Groove to accomodate puddle flange. for Plain End Collar Joint details.
7. Refer to Drg. XXXXXXX
Utility Authority relevant text boxes and notes as per its drafting standards
Existing DN150 PVC Water Main
In-line Works
CH 0.000
CH 1.415
In-line Works pipes and fittings to be pre-chlorinated
CH 2.660
PLAN
LIVE CONNECTION DETAIL C
1:20
Existing DN150 PVC Water Main
Recommended pressure testing location
Remove Blanking Plate
Offline Works
Thrust Block as per SEQ-WAT-1206-1 Dimensions: X=0.50m Y=0.30m Z=0.70m
DN180 PE Pipe
CH 4.690
Offline Works
In-line Works
Existing DN150 PVC Water Main
DN180 PE Pipe
Remove Blanking Plate
Recommended pressure testing location
Thrust Block as per SEQ-WAT-1206-1 Dimensions: X=0.50m Y=0.30m Z=0.70m
CH 105.411
CH 108.791
In-line Works pipes and fittings to be pre-chlorinated
Existing DN150 PVC Water Main
CH 111.502
PLAN
LIVE CONNECTION DETAIL D
1:20
Thrust Block as per SEQ-WAT-1206-1 Dimensions: X=0.50m Y=0.30m Z=0.70m
CH 4.690
PLAN
DETAIL C OFFLINE WORKS
1:20
Thrust Block as per SEQ-WAT-1206-1 Dimensions: X=0.50m Y=0.30m Z=0.70m
CH 105.411
PLAN
DETAIL D OFFLINE WORKS
1:20
EXAMPLE ONLY
Last Modified :- Oct 14, 2021 - 4:14pm
A ISSUE FOR CONSTRUCTION
Revisions/Descriptions | Name or RPEQ No. | Signature | Date
CAD FILES
Associated Job Nos
Auxiliary Drg Nos
Survey Data
Horiz. Datum GDA XX
Horiz. Grid MGA XX ZONE XX
Height Datum AHD DERIVED
Survey Books XXXXXXX
Scales
0 0.2 0.4 0.6 0.8m
Dimensions shown in metres except where shown otherwise
LOCAL JURISDICTION
STATE CONTROLLED ROAD NAME
STATE CONTROLLED ROAD CHAINAGES
Reference Points
Preceding RP | Dist. to start of job (km) | From start to end of job | From end to Following RP | Following RP
XXXXXXX
Through Chainage from XXXXXXX
WATER MAIN RELOCATION
GENERAL DETAILS
SHEET 1 OF 2
Drawn XXXXXXX
Designed XXXXXXX
ENGINEERING CERTIFICATION (RPEQ)
ENG. AREA | NAME | SIGNATURE | No. | DATE
CIVIL XXXXXXX
Queensland Government
Job No. XXXXXXX
Contract No. XXXXXXX
Drawing No. XXXXXXX A
Series Number PU-GD-01 of 2


Department of Transport and Main Roads MRR_Detail (08/19)
11.44
12.96
CONTROL LINE MC01A
Design Surface
Existing watermain to be relocated
Existing Optic Fibre
Existing Comms
Existing surface
1/2A
LL 48.70
LL 48.21
2/2A
Existing culvert 2A removed/demolished
Proposed DN180 PE Water Pipe & Type I support refer Drg. XXXXXXX for details.
SECTION
CULVERT CROSS SECTION DETAILS
1:100
External Corrosion Protection At Joints Refer to Manufacturer's Instructions
Approved Collar joint to be installed in accordance with manufactures instructions and SEQ-WAT-1402-1
Eq.
Eq.
Typ
5
Pipe coating
Cement lining
Test holes to be back welded (typ)
Gap in cement mortar lining to be less than 2mm. Reinstate lining to end of pipe prior to welding
PLAIN END COLLAR JOINT
(EXTERNAL WELD)
Utility Authority relevant text boxes and notes as per its drafting standards
EXAMPLE ONLY
A ISSUE FOR CONSTRUCTION
Revisions/Descriptions
Name or RPEQ No.
Signature
Date
CAD FILES
Associated Job Nos
Auxiliary Drg Nos
Survey Data
Horiz. Datum GDA XX
Horiz. Grid MGA ZONE XX
Height Datum AHD DERIVED
Survey Books XXXXXXX
Scales
0 1 2 3 4m
Dimensions shown in metres except where shown otherwise
LOCAL JURISDICTION
STATE CONTROLLED ROAD NAME
STATE CONTROLLED ROAD CHAINAGES
Reference Points
Preceding RP
Dist. to start of job (km)
From start to end of job
From end to Following RP
Following RP
XXXXXXX
Through Chainage from XXXXXX
WATER MAIN RELOCATION
GENERAL DETAILS
SHEET 2 OF 2
Drawn XXXXXXX
Designed XXXXXXX
ENGINEERING CERTIFICATION (RPEQ)
ENG. AREA
CIVIL
NAME
XXXXXXX
SIGNATURE
No.
DATE
Queensland Government
Job No. XXXXXXX
Contract No. XXXXXXX
Drawing No. XXXXXXX A
Series Number PU-GD-02 of 2

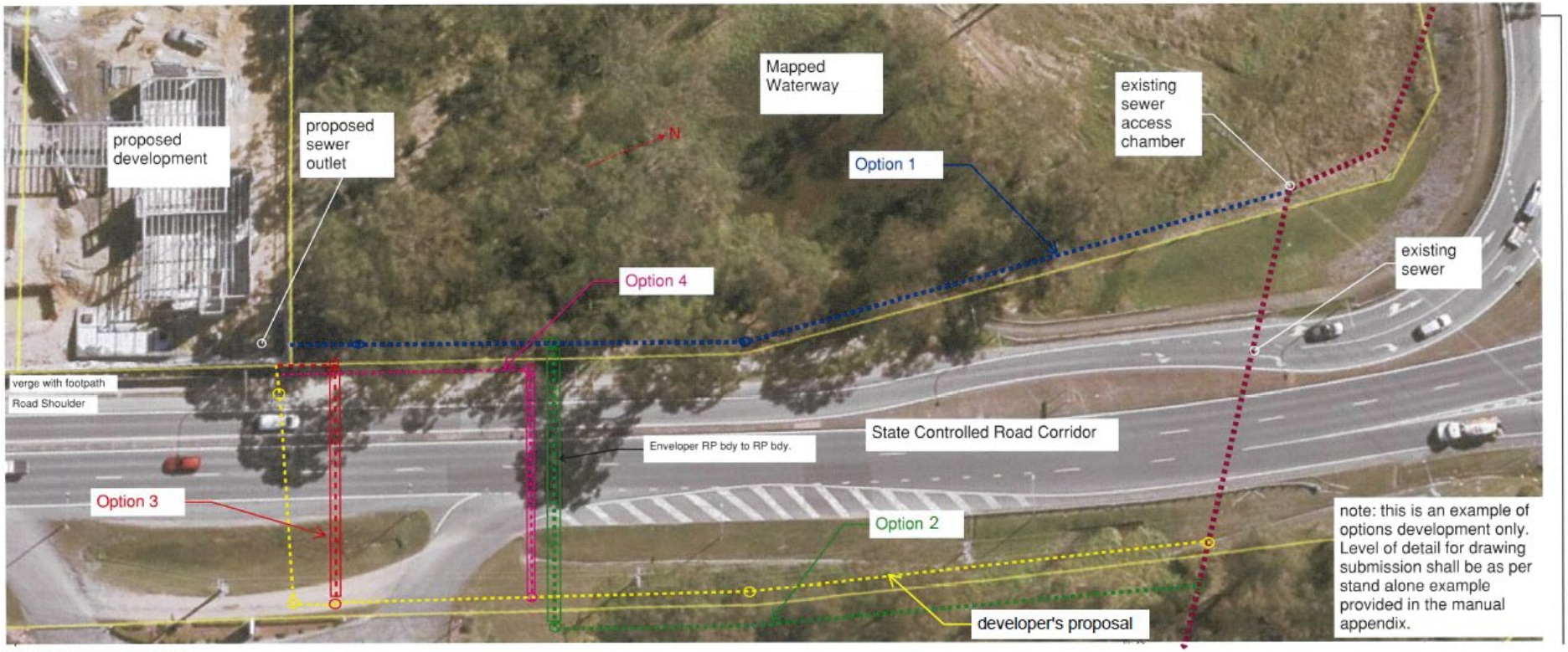


PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING
IP 1	0.000	XXXXXXX	XXXXXXX	49.191	211°04'07.28"
IP 2	2.890	XXXXXXX	XXXXXXX	49.177	
IP 3	8.549	XXXXXXX	XXXXXXX	48.560	
IP 4	70.232	XXXXXXX	XXXXXXX	47.755	
IP 5	79.999	XXXXXXX	XXXXXXX	47.813	
IP 6	94.440	XXXXXXX	XXXXXXX	47.939	
IP 7	100.546	XXXXXXX	XXXXXXX	48.000	
IP 8	108.791	XXXXXXX	XXXXXXX	48.529	
IP 9	111.502	XXXXXXX	XXXXXXX	48.613	211°51'06.56"



Department of Transport and Main Roads MRR_Detail (08/19)
Notes:
1. For general notes refer to Drg. XXXXXXX
2. Bend direction as follows;
(V)=Vertical
(H)=Horizontal
(C)=Compound (H+V)
3. Where AC pipes are encountered, length of new pipe to suit distance to AC collar. Connection to existing AC pipe only to occur at AC collars. AC pipe is not to be cut.
4. All reasonable skill and care has been taken in the interpolation of the existing service data sources. However, the contractor shall confirm all existing services within the trench extent of the design services prior to opening the trench, to avoid damaging any services that are to remain.
5. Refer SEQ-WAT-1201-1 to SEQ-WAT-1204-1 for Embedment details.
6. Installing PE pressure pipe on curved alignment
* Minimum bend radius for OD180 SDR11 pipe is 15X180mm = 2700mm or 2.7m.
7. Enveloper and water main to be butt welded under the road, culvert and within enveloper pipe.
8. Electrofusion welding in the verge.
WM02 SETOUT
PT | CHAINAGE | EASTING | NORTHING | HEIGHT | BEARING
IP 1 | 0.000 | XXXXXXX | XXXXXXX | 50.124 | 300°53'39.59"
IP 2 | 23.076 | XXXXXXX | XXXXXXX | 48.873 | 300°53'39.59"
Refer connection detail A on Drg. XXXXXX
22.50° Bend (0.00°H ,22.50°V ,0.00°C)
22.50° Bend (0.00°H ,22.50°V ,0.00°C)
STATE CONTROLLED ROAD NAME
Connect to existing Water Main
Refer connection detail B on Drg. XXXXXX
Design Surface
Existing Surface
DN500 (PE100) PN20 SDR 9 Enveloper (CH5.607–CH19.937)
Utility Authority relevant text boxes and notes as per its drafting standards
PIPE EMBEDMENT
Type C (Note 5)
Type M (Note 5)
ADDITIONAL INFORMATION
Verge
STATE CONTROLLED ROAD
Varies refer connection detail A
DN180 (PE100) PN16 SDR11
Varies refer connection detail B
PIPE MATERIAL
WELD TYPE
HORIZONTAL CURVES
Refer connection detail A
Butt Welded PE
Refer connection detail B
L23.08
PIPELINE GRADES (%)
-0.5% -42.006% -0.5%
L0.77 L2.74 L19.68
DATUM RL 38.000
INVERT LEVEL 50.124 50.12 48.971 48.873
DESIGN SURFACE LEVEL 50.254
DEPTH OF INVERT BELOW DESIGN SURFACE LEVEL -1.283
EXISTING SURFACE LEVEL 50.788 50.035
DEPTH OF INVERT BELOW SURFACE LEVEL -1.818 -1.162
CHAINAGE 0.77 3.507 23.076
EXAMPLE ONLY
WM02 – DN180 PE WATER MAIN LONGITUDINAL SECTION
A ISSUE FOR CONSTRUCTION
Revisions/Descriptions
Name or RPEQ No.
Signature
Date
CAD FILES
Associated Job Nos
Auxiliary Drg Nos
Survey Data
Horiz. Datum GDA XX
Horiz. Grid MGA XX ZONE XX
Height Datum AHD DERIVED
Survey Books XXXXXXX
Scales
0 5 10 15 20m
Horizontal
0 1 2 3 4m
Vertical
Dimensions shown in metres except where shown otherwise
LOCAL JURISDICTION
STATE CONTROLLED ROAD NAME
STATE CONTROLLED ROAD CHAINAGES
Reference Points
Preceding RP
Dist. to start of job (km)
From start to end of job
From end to Following RP
Following RP
XXXXXXX
Through Chainage from XXXXXX
WATER MAIN RELOCATION
LONGITUDINAL SECTION
SHEET 2 OF 2
Drawn XXXXXXX
Designed XXXXXXX
ENGINEERING CERTIFICATION (RPEQ)
ENG. AREA CIVIL
NAME XXXXXXX
SIGNATURE
No.
DATE
Queensland Government
Job No. XXXXXXX
Contract No. XXXXXXX
Drawing No. XXXXXXX A
Series Number PU-LS-02 of 2

Worked example – Developer Submission – Planning considerations



Planning Considerations

Note, by the time TMR review an application drawing and documentation, packages are at "Issued for Utility Authority Approval" and delays due to non conformances can cause significant rework. It is not the responsibility of the Utility Authority to review designs for compliance to TMR requirements, The onus is on the developer / designer to understand and be conversant in TMR design standards and specifications so to prevent delays when seeking approval to enter the road corridor. In the above example, the developer proposal did not consider TMR requirements regarding longitudinal services in a State Controlled Road Corridor (SCRC), Proximity to Structures or impact to pavements as well as the Sewer Gravity Code regarding not placing maintenance structures in a major road reserve. As per TMR requirements, Utility Authorities or third parties conducting works on behalf of the Utility Authority should seek first to install services outside the SCRC. Where alternative routing of utility services has been shown to be either uneconomical or impractical, utility services (dependant on type and size) may enter the corridor with the conditions stipulated by, the District Director, or their delegate, in the Permit. Justifications need to be documented and provided with the submission.

To prevent delays on similar like projects, for planning considerations, several options have been shown in the above example in order to help developers with strategies earlier in the design phase. The options are not meant to be exhaustive, or expected to cover unknown constraints, however shows appreciation for both TMR requirements and the Utility Authority. To limit complexity and keep it generic, no service relocations are proposed to cater for additional alternative options which may also be viable. Note there is no option provided showing chambers in road pavement area.

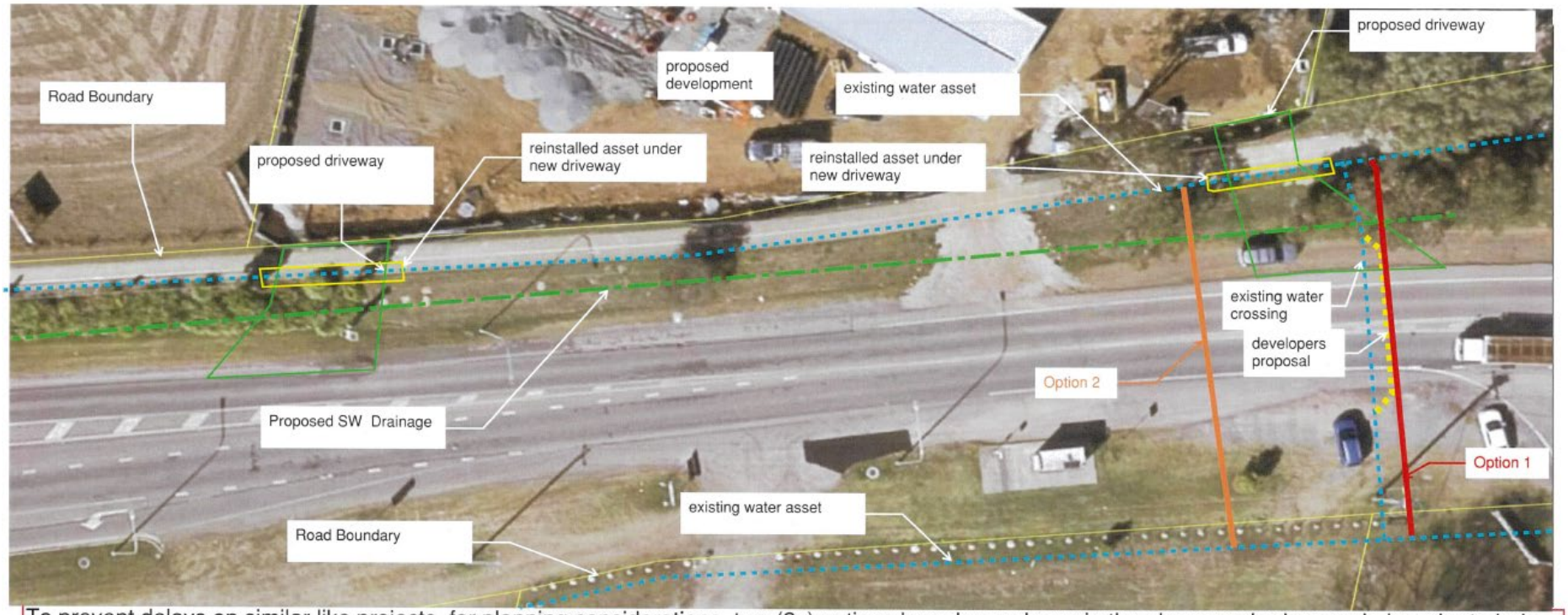
EXAMPLE ONLY

Option 1
Preferred option. Easement and environmental considerations are required with this option, however fully complies with both entities.

Option 2
Where it is proven to be unviable to continue all the way along the western boundary, compliance can still be achieved by having structures outside the SCRC with majority of the alignment on the eastern side. As per option 1, easement and environmental considerations are required with this option, however fully complies with both entities.

Option 3
Where it is proven to be unviable to install outside the SCRC, there may be an opportunity to get agreement to install chamber close to the development outlet and cross the corridor. This option still effects the commercial driveway on the eastern side and approval is still required to install within the SCRC and will come with strict conditions which Utility Authority must agree to prior to approval.

Option 4
Similar to option 3 but prevents impact to the existing commercial driveway on the east and places the access chamber away from congested verge location. Approval is still required to install within the SCRC and will come with strict conditions which Utility Authority must agree to prior to approval.



To prevent delays on similar like projects, for planning considerations, two (2x) options have been shown in the above worked example in order to help developers with strategies earlier in the design phase. The options are not meant to be exhaustive, or expected to cover unknown constraints, however shows appreciation for both TMR requirements and the Utility Authority.

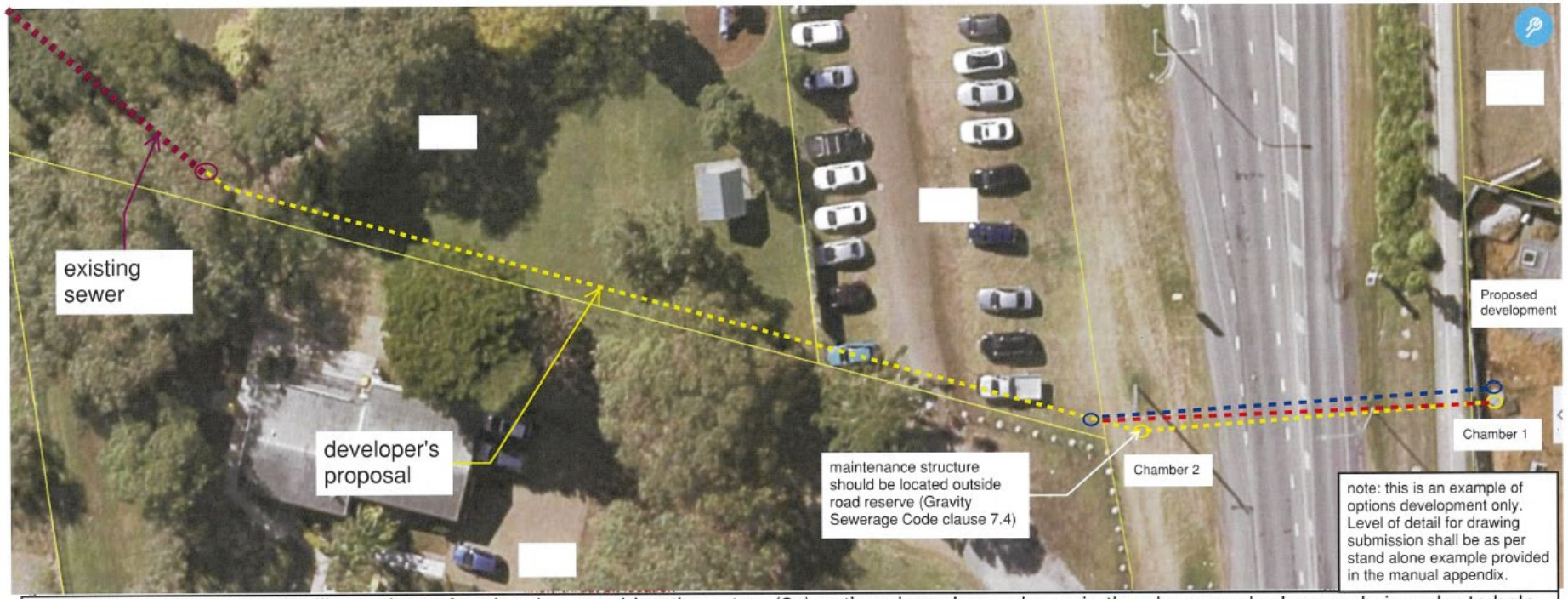
Option 1

Within close proximity to the existing crossing to be abandoned. Bends should be as close to the service allocation as practicable so not to interfere with TMR structures or other utility corridors within the verge location. Placing under the driveway would require removal of driveway in order to maintain and inspect asset which is generally not favourable to the utility authority of road authority where traffic delays and safety risks could be avoided. Due to cover requirements of the service crossing under TMR road pavement, rarely would the WM pass over the SW longitudinal network. TMR preference is for the service to pass under the SW, where applicable, in order to have access to TMR asset for maintenance purposes. Envelopers shall extend to road boundaries or as close to the service allocation corridor as practicable, catering for thrust restraints and bend arrangements.

Option 2

Less interface with existing pipe crossing to be removed and replaced, tie in can be catered for in first shut down, where in this example pipes were lowered under proposed driveways. Connection from road crossing would require smaller bends to match the main line due to increased cover under driveways. Constructibility wise it has less risks, operation and maintenance wise, being in a grassed verge, allows access without disturbing the driveway. SW pipe is lifted back to minimum cover with no thrust block impedance to the SW trench. Enveloper extends to road boundary or as close to the service allocation corridor as practicable catering for thrust restraints and bend arrangements and providing for a no maintenance solution under the SW network.

EXAMPLE ONLY



To prevent delays on similar like projects, for planning considerations, two (2x) options have been shown in the above worked example in order to help developers with strategies earlier in the design phase. The options are not meant to be exhaustive, or expected to cover unknown constraints, however shows appreciation for both TMR requirements and the Utility Authority.

Option 1

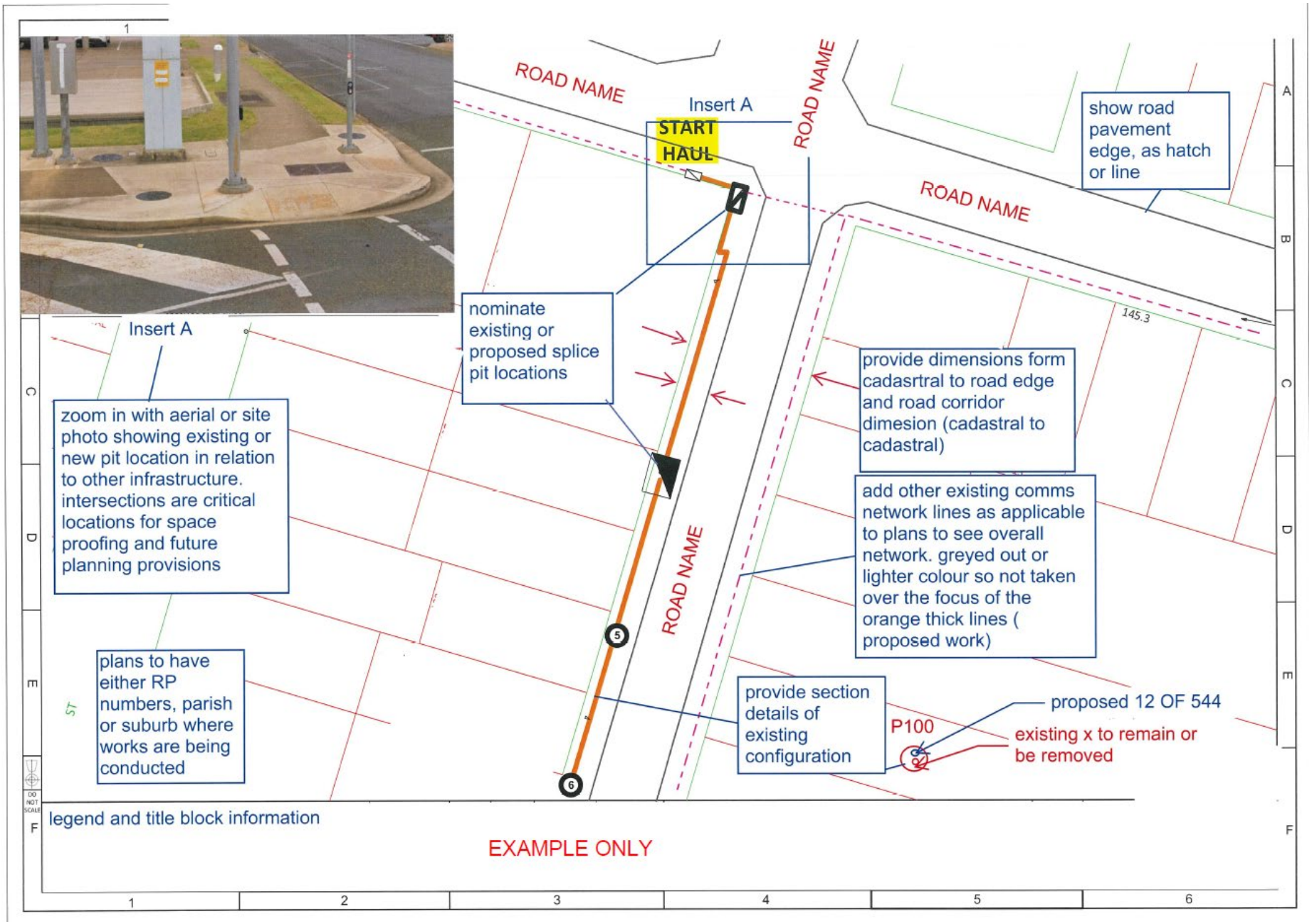
Shifting proposed chamber 1 north, extend enveloper as close as practicable to chambers 1 and 2. This option caters for a 90 degree road crossing, having the structure outside the road corridor in accordance with sewer gravity code and TMR requirements, and caters for TMR future widening and pavement rehabilitation provisions. As third parties are not aware of future TMR works, in order to prevent delays or rejection of permits, the designer should assume widening works or major pavement rehabilitation is expected within the lifespan of the newly installed asset and should cater for all potential loads, vibration effects and safety improvements to the roadway.

Option 2

If the position of chamber 1 cannot be shifted slightly north, the road crossing would be as close to 90 degrees as practicable to keep chamber 2 outside the road corridor and not within the overhead power electrical allocation corridor. TMR allow for large oblique angles to prevent bends and fittings from being within the corridor, existing pavement or future pavement areas. Where chamber 2 is unable to be outside the corridor, a large radius bend could have been introduced as it has already been provided in the above example. Enveloper extends to road boundary or as close to thechamber as practicable.

EXAMPLE ONLY

Worked example – Telecommunications – Low impact – Minimum required information


ROAD NAME
ROAD NAME
ROAD NAME
ROAD NAME
Insert A
START HAUL
show road pavement edge, as hatch or line
Insert A
nominate existing or proposed splice pit locations
zoom in with aerial or site photo showing existing or new pit location in relation to other infrastructure. intersections are critical locations for space proofing and future planning provisions
provide dimensions form cadasrtral to road edge and road corridor dimesion (cadastral to cadastral)
add other existing comms network lines as applicable to plans to see overall network. greyed out or lighter colour so not taken over the focus of the orange thick lines (proposed work)
plans to have either RP numbers, parish or suburb where works are being conducted
provide section details of existing configuration
P100
proposed 12 OF 544
existing x to remain or be removed
145.3
legend and title block information
EXAMPLE ONLY