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THESE PLANS SHALL ONLY BE REPRODUCED IN COLOUR

WORK-AS-CONSTRUCTED

THE GABLES
BOX HILL

PRECINCT B

STAGE 3A & 3B

PRESSURE SEWER & RECYCLED WATER

LOCALITY PLAN
(NOT TO SCALE)

DRAWING LIST	
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No.	REVISION DESCRIPTION	BY	DATE
03	WORK-AS-CONSTRUCTED	D.S.	5/3/21
02	FUTURE LOTS ADDED AT CLIENT REQUEST	D.S.	1/10/20
01	ORIGINAL ISSUE FOR APPROVAL	D.S.	26/7/20

SERVICE	DATE	REF.

WORK-AS-CONSTRUCTED CERTIFICATION

DEVELOPER: STOCKLAND DEVELOPMENT Pty. Ltd.
PROJECT SUPERVISOR: ROSE ATKINS RIMMER (INFRASTRUCTURE) Pty. Ltd.
CONSTRUCTOR: C J DOYLE CONTRACTING SERVICES Pty. Ltd.
COMPLETED: W.A.C. PREPARED: 5/3/2021

ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.
RAR Incorporated in New South Wales
WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT
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40 STERLING ROAD, MINCHINBURY NSW 2770
PH: (02) 9853 0200 FAX: (02) 9671 7399

Quality System Quality Endorsed Company

CLIENT: Box Hill Water / Stockland

TITLE: PLAN OF PROPOSED WATER INFRASTRUCTURE SERVICES
THE GABLES DEVELOPMENT - PRECINCT B (STAGE 3A & 3B)
RED GABLES ROAD, GABLES
L.G.A. THE HILLS

COVER SHEET

SHEET 1 OF 9

VERSION: WAC

DRAFTED:	DESIGNED:	REVIEWED:	VERIFIED:
D.SHEATHER	D.SHEATHER	K.GAO	K.GAO
SCALE: -	DATUM: -	U.B.D. REFERENCE: -	DATE OF ISSUE: 5/3/2021

JOB No: 4/23645/B3A

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SEWER NOTES

1. ALL WORKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DESIGN DRAWINGS, FLOW SYSTEMS SUPPLEMENTARY MANUAL TO W.S.A.A., PRESSURE SEWERAGE CODE OF AUSTRALIA WSA 07-2007 VERSION 1.1 & POLYETHYLENE PIPELINE CODE WSA 01-2004.

2. ALL EQUIPMENT, MATERIALS & ACCESSORIES USED IN THIS CONTRACT SHALL BE NEW & SHALL COMPLY WITH FLOW SYSTEMS REQUIREMENTS. ***BUTT FUSION*** *FITTINGS DENOTED HEREWITH HAVE BEEN DERIVED FROM THE* ***GEORG FISCHER PIPING SYSTEMS*** *BUTT FUSION PRODUCT RANGE.* ***ELECTROFUSION*** *FITTINGS DENOTED HEREWITH HAVE BEEN DERIVED FROM THE* ***PLASSON*** *"POLYETHYLENE PIPING SYSTEMS" PRODUCT RANGE.*

3. ALL SERVICES SHOWN ARE INDICATIVE ONLY. A CURRENT SERVICES SEARCH & SITE CHECK OF ALL EXISTING SERVICES WILL BE REQUIRED PRIOR TO COMMENCEMENT OF ANY WORKS. THE CONSTRUCTOR IS TO DETERMINE LEVELS & LOCATIONS EXISTING SERVICES IN THE VICINITY OF THE CONSTRUCTION SITE AND ANY CONSTRUCTED STRUCTURES FOR PROPOSED SERVICES, SUCH AS DUCTING FOR WATER OR ELECTRICITY WITHIN THE SUBDIVISION. THE CONTRACTOR MUST ENSURE ALL SERVICES ARE LOCATED BY THE RELEVANT AUTHORITY PRIOR TO COMMENCEMENT OF WORKS.

4. PRESSURE SEWER MAINS SHALL BE BLACK POLYETHYLENE (PE100 PN16) WITH A CREAM STRIPE AS PER WSA 07-2007 & FLOW SYSTEMS SUPPLEMENTARY MANUAL TO W.S.A.A.

5. ALL POLYETHYLENE MAINS ≤DN200 SHALL BE JOINED BY ELECTROFUSION TECHNIQUES IN ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS. ALL POLYETHYLENE MAINS >DN200 SHALL BE JOINED BY BUTTWELD TECHNIQUES IN ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS

6. MAIN TO BE LAID GENERALLY AS INDICATED IN SERVICE ALLOCATION DIAGRAMS. INSTRUCTION NOTES SHALL TAKE PRECEDENCE OVER DIAGRAMS WHERE PROVIDED. *600mm HORIZONTAL CLEARANCE TO BE MAINTAINED BETWEEN ALL SEWER & WATER MAINS.* MINIMUM PIPE COVER SHALL BE 600mm IN FOOTWAYS & FOR ROADWAYS. MAXIMUM PIPE COVER SHALL GENERALLY BE 1.5m, WHERE COVER FOR A TRENCHED INSTALLATION EXCEEDS 1.5m, BUT LESS THAN 2.5m, THE MAIN AS A MINIMUM SHALL BE EMBEDDED IN STABILISED SAND. *THE CONTRACTOR SHALL ENSURE THAT ALL PRESSURE SEWER & RECYCLED WATER MAINS HAVE SUFFICIENT VERTICAL SEPARATION AS PER THE CLEARANCE TABLE ADJACENT.*

7. MAINS CROSSING UNDER EXISTING DRIVEWAYS (SEALED, PAVED OR DECORATIVE) SHALL BE CONDUCTED BY UNDER BORING ONLY UNLESS PERMISSION IS GRANTED BY THE AFFECTED PROPERTY OWNER.

8. MAINS WITHIN 2m OF ELECTRICITY OR POWER POLES SHALL BE CONDUCTED BY BORING TECHNOLOGY (UNLESS AGREED TO BY THE BOX HILL WATER REPRESENTATIVE).

9. ALL PIPE BEDDING MATERIAL SHALL COMPLY WITH WSAA PRODUCT SPECIFICATION WSA-PS350 & WSA-PS351.

10. ALL BENDS SHALL BE ELECTROFUSION OR BUTTWELD SWEEP BENDS. *FABRICATED BENDS SHALL NOT BE USED IN LIEU.* KNUCKLE ELBOWS ARE NOT PERMITTED.

11. *MINIMUM BENDING RADIUS FOR PN16 PE100 (SDR11) SHALL BE 20 x DN. (ie. DN400:R8.0m, DN250:R5.0m, DN200: R4.0m, DN160:R3.2m, DN125:R2.5m, DN90:R1.8m, DN75:R1.5m, DN63:R1.3m, DN50: R1.0m, DN40: R0.8m*

12. *ALL HOUSE SERVICE LATERALS SHALL BE DN40 (PE100 PN16) .*

13. FLUSHING PITS SHALL CONFORM WITH FLOW SYSTEMS STANDARD DRAWINGS. REFER TO FLOW SYSTEMS WEBSITE FOR CURRENT VERSION.
    SMALL MAINS (≤ DN110)
    http://flowsystems.com.au/governance/Land_Housing/PSS-1017A-FS.pdf
    LARGE MAINS (> DN110)
    http://flowsystems.com.au/governance/Land_Housing/PSS-1017B-FS.pdf

14. LOCALISED DEEPENING OF MAINS MAY BE REQUIRED TO FACILITATE AIR VALVE INSTALLATION. THE CONTRACTOR SHALL ENSURE THAT THE AIR VALVE OFFTAKE IS LOCATED AT A HIGH POINT (NATURAL OR ARTIFICIAL) IN THE MAIN (i.e. MAIN SHALL GRADE DOWNWARDS EITHER SIDE OF THE AIR VALVE).

15. DETECTABLE MARKING TAPE SHALL BE LAID ON TOP OF THE PIPE EMBEDMENT MATERIAL BEFORE BACKFILLING & CONNECTED TO SURFACE VALVES.

16. ALL SURFACE FITTINGS LOCATED IN TRAFFICABLE AREAS (ie ROADWAYS, PATHS etc) SHALL HAVE HEAVY DUTY SURROUNDS INSTALLED.

17. DURING CONSTRUCTION, ALL OPEN ENDS OF PIPE SHALL BE CAPPED OFF TO PREVENT ENTRY OF FOREIGN MATTER.

18. ALL VALVES SHALL BE RESILIENT SEATED SLUICE VALVES (CLOCKWISE CLOSING), SHALL BE RESTRAINED IN ACCORDANCE WITH WAT-1207 & SHALL COMPLY WITH FLOW SYSTEMS STANDARD DRAWING PSS-1015-FS.

19. ALL MAINS SHALL BE TESTED IN ACCORDANCE WITH WSA 07-2007 Version 1.1.

20. *FOR LOTS WITH TANKS IN THE REAR:* 1 x 25mm INSTRUMENTATION CONDUIT (ORANGE) AND 1 x 25mm ELECTRICAL CONDUIT (ORANGE) (WITH DRAW WIRES) SHALL BE INSTALLED FROM THE COLLECTION TANK TO WATER METERS. THE CONDUITS SHALL BE LAID IN A COMMON TRENCH WITH THE SEWERAGE AND MAINTAIN A MINIMUM HORIZONTAL CLEARANCE OF 400mm.

21. *THE CONSTRUCTOR SHALL PROVIDE BOX HILL WATER WITH MINIMUM OF 7 DAYS NOTICE IN WRITING OF INTENT TO CONNECT NEW MAINS TO EXISTING INFRASTRUCTURE. CONNECTIONS ARE NOT PERMITTED UNTIL COMPLIANT TEST RESULTS HAVE BEEN PROVIDED & CONFIRMATION IS PROVIDED BY THE BOX HILL WATER REPRESENTATIVE.*

22. UPON COMPLETION OF WORKS, ALL SURFACES MUST BE RESTORED AS CLOSE AS POSSIBLE, TO THE CONDITION THAT EXISTED PRIOR TO COMMENCEMENT OF WORK.

23. PERMISSION OF ENTRY MUST BE OBTAINED BY THE CONTRACTOR FROM THE OWNER/OCCUPIER PRIOR TO COMMENCEMENT OF WORK IN PRIVATE PROPERTY.

24. BURIED FITTINGS ARE NOT TO BE BACKFILLED UNTIL W.A.C. DETAILS HAVE BEEN OBTAINED & APPROVAL FOR BACKFILLING GIVEN BY THE BOX HILL WATER REPRESENTATIVE. *THE CONTRACTOR SHALL PROVIDE M.G.A. COORDINATED WORK-AS-CONSTRUCTED INFORMATION REGARDING THE INSTALLATION OF ALL BURIED FITTINGS.*

25. THE MINIMUM NUMBER OF COMPACTION TESTS REQUIRED TO SATISFY THE PRESSURE SEWER CODE OF AUSTRALIA (CLAUSE 21.3.4) ARE:
    TRAFFICABLE:
    PIPE EMBEDMENT ZONE: NIL TRENCH FILL ZONE: 1 TEST / CROSSING (Nil Tests)
    NON-TRAFFICABLE:
    PIPE EMBEDMENT ZONE: NIL TRENCH FILL ZONE: 1 TEST / 100m (7 Tests)

26. BOUNDARY KITS (COMPLETE) SHALL BE NOV SUPPLIED (NOV PSS-BK4). NOV 900L COLLECTION TANK (PSS-VMS150-PRIL) SHALL BE INSTALLED WITH BOUNDARY KIT *(REFER FLOW SYSTEMS STANDARD DRAWINGS PSS-1112-FS & PSS-1113-FS).* PUMP TO BE INSTALLED BY OTHERS.

27. *ALL MAINS (UP TO THE BOUNDARY KIT) SHALL BE PRESSURE TESTED TO 1600 kPa.*

28. ALL MAINS SHALL BE FLUSHED WITH WATER TO REMOVE ANY DEBRIS PRIOR TO COMMISSIONING.

29. SURFACE IDENTIFICATION MARKERS ARE TO BE PROVIDED TO BOX HILL WATER REQUIREMENTS.

30. ROPE OFF ALL PRESSURE SEWER UNITS & FLUSHING POINTS TO LIMIT DAMAGE DURING CONSTRUCTION.

31. PRESSURE TRANSMITTER TO BE MEASUREX MRB21 GENERAL PURPOSE TRANSMITTER WITH MICROSPIDER LOGGING TELEMETRY AND ALARM PER FLOW SYSTEMS REQUIREMENTS.

32. *WORK-AS-CONSTRUCTED DOCUMENTATION SHALL BE PROVIDED BY THE CONTRACTOR STRICTLY IN ACCORDANCE WITH THE FLOW SYSTEMS Q.A. SUBMISSION CHECKLIST.*

RECYCLED WATER NOTES

1. ALL WORKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DESIGN DRAWINGS, FLOW SYSTEMS SUPPLEMENTARY MANUAL TO W.S.A.A. & WSA 03-2011-3.1 (SYDNEY WATER WATER EDITION - 2014).

2. POTABLE WATER SHALL BE UTILISED FOR FIRE FIGHTING PURPOSES.

3. ALL EQUIPMENT, MATERIALS & ACCESSORIES USED IN THIS CONTRACT SHALL BE NEW, SHALL CONFORM WITH THE APPROPRIATE CURRENT AUSTRALIAN STANDARDS & SHALL COMPLY WITH FLOW SYSTEMS REQUIREMENTS.

4. ALL SERVICES SHOWN ARE INDICATIVE ONLY. A CURRENT SERVICES SEARCH & SITE CHECK OF ALL EXISTING SERVICES WILL BE REQUIRED PRIOR TO COMMENCEMENT OF ANY WORKS. THE CONSTRUCTOR IS TO DETERMINE LEVELS & LOCATIONS EXISTING SERVICES IN THE VICINITY OF THE CONSTRUCTION SITE AND ANY CONSTRUCTED STRUCTURES FOR PROPOSED SERVICES, SUCH AS DUCTING FOR WATER OR ELECTRICITY WITHIN THE SUBDIVISION. THE CONTRACTOR MUST ENSURE ALL SERVICES ARE LOCATED BY THE RELEVANT AUTHORITY PRIOR TO COMMENCEMENT OF WORKS.

5. THE CONSTRUCTOR SHALL VERIFY WITH THE SITE SURVEYOR THE POSITION & LEVEL OF ALL EXISTING & PROPOSED BOUNDARIES PERTINENT TO THE INFRASTRUCTURE INSTALLATIONS.

6. MAINS TO BE LAID GENERALLY AS INDICATED IN SERVICE ALLOCATION DIAGRAMS. INSTRUCTION NOTES SHALL TAKE PRECEDENCE OVER DIAGRAMS WHERE PROVIDED. *600mm HORIZONTAL CLEARANCE TO BE MAINTAINED BETWEEN ALL SEWER & WATER MAINS.* MINIMUM PIPE COVER SHALL BE 600mm IN FOOTWAYS (TYPE B EMBEDMENT: WAT-1202-V) & FOR ROADWAYS (TYPE L EMBEDMENT: WAT-1204-V). MAXIMUM PIPE COVER SHALL GENERALLY BE 1.5m, WHERE COVER FOR A TRENCHED INSTALLATION EXCEEDS 1.5m, BUT IS LESS THAN 2.5m, THE MAIN AS A MINIMUM SHALL BE EMBEDDED IN STABILISED SAND. *THE CONTRACTOR SHALL ENSURE THAT ALL RECYCLED WATER & PRESSURE SEWER MAINS HAVE SUFFICIENT VERTICAL SEPARATION AS PER THE CLEARANCE TABLE ADJACENT.*

7. ALL RECYCLED WATER MAINS SHALL BE LILAC nPVC (PN16). DIFFERENTIATION OF POTABLE & RECYCLED WATER SYSTEMS SHALL BE AS PER TABLE 4.1 WSA03-2011 WITH BOTH SERVICES BEING CLASSIFIED AS WATERMAINS. RECYCLED WATER MAINS SHALL ALWAYS BE LOWER THAN POTABLE MAINS. 150mm VERTICAL CLEARANCE BETWEEN POTABLE WATER & RECYCLED WATER MAINS SHALL BE PROVIDED.

8. MAXIMUM JOINT DEFLECTION SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

9. LOCALLY LOWER PIPEWORK IN VICINITY OF STOP VALVES TO ENSURE SUFFICIENT COVER IS MAINTAINED OVER VALVES. LOWERING OF PIPEWORK SHALL ACHIEVED OVER A NUMBER OF PIPE LENGTHS EITHER SIDE OF VALVES TO ELIMINATE ANY SHARP DEFLECTIONS.

10. ALL PIPE BEDDING MATERIAL SHALL COMPLY WITH WSAA PRODUCT SPECIFICATION PS-350, 368 & 369. GEOTECHNICAL CONDITIONS SHOULD BE ASSESSED DURING CONSTRUCTION BY THE CONTRACTOR IN ASSOCIATION WITH THE BOX HILL WATER REPRESENTATIVE TO DETERMINE THE NEED TO MODIFY EMBEDMENT/TRENCHFILL TYPE & THE ROAD FOR TRENCH DRAINAGE/BULKHEADS.

11. DURING CONSTRUCTION, ALL OPEN ENDS OF PIPES SHALL BE CAPPED OFF TO PREVENT ENTRY OF FOREIGN MATTER.

12. HYDRANTS, STOP VALVES & ALL OTHER FITTINGS SHALL BE THE SAME SIZE AS THROUGH WATER MAIN & ANTICLOCKWISE CLOSING.

13. HYDRANTS MUST NOT BE INSTALLED IN POTENTIAL DRIVEWAY LOCATIONS. HYDRANTS & WATER SERVICES SHALL BE NOMINALLY AT LEAST 5m FROM EACH BOUNDARY OR ON BOUNDARIES. WHERE POSSIBLE, FITTINGS SHALL BE LOCATED BEHIND KERB INLET PITS.

14. THRUST BLOCKS SHALL BE INSTALLED IN ACCORDANCE WITH WAT-1205.

15. ALL PROPERTY (MAIN TO METER) SERVICE CONNECTIONS SHALL BE CONSTRUCTED STRICTLY IN ACCORDANCE FLOW SYSTEMS REQUIREMENTS. REFER TO FLOW SYSTEMS WEBSITE FOR CURRENT VERSIONS.
    SINGLE SERVICE *http://flowsystems.com.au/governance/Land_Housing/WAT-1854-FS.pdf*
    DUAL SERVICE *http://flowsystems.com.au/governance/Land_Housing/WAT-1855-FS.pdf*

16. PROPERTY SERVICE CONNECTIONS SHALL BE FLUSHED & LOCKED (BY THE BOX HILL WATER REPRESENTATIVE) FOLLOWING SUCCESSFUL PRESSURE TESTING.

17. SURFACE FITTINGS LOCATED IN TRAFFICABLE AREAS (ie ROADWAYS, PATHS etc) SHALL HAVE HEAVY DUTY SURROUNDS INSTALLED.

18. ALL MAINS SHALL BE TESTED IN ACCORDANCE WITH WSA 03-2011-3.1 (SYDNEY WATER EDITION - 2014).

19. ALL MAINS SHALL BE FLUSHED WITH WATER TO REMOVE ANY DEBRIS PRIOR TO COMMISSIONING.

20. WATER QUALITY TESTING SHALL BE IN ACCORDANCE WITH WSA 03-2011-3.1 (SYDNEY WATER EDITION - 2014: CLAUSE 19.7).

21. *THE CONSTRUCTOR SHALL PROVIDE BOX HILL WATER WITH MINIMUM OF 7 DAYS NOTICE IN WRITING OF INTENT TO CONNECT NEW MAINS TO EXISTING INFRASTRUCTURE. CONNECTIONS ARE NOT PERMITTED UNTIL COMPLIANT TEST RESULTS HAVE BEEN PROVIDED & CONFIRMATION IS PROVIDED BY THE BOX HILL WATER REPRESENTATIVE.*

22. UPON COMPLETION OF WORKS, ALL SURFACES MUST BE RESTORED AS CLOSE AS POSSIBLE, TO THE CONDITION THAT EXISTED PRIOR TO COMMENCEMENT OF WORK.

23. PERMISSION OF ENTRY MUST BE OBTAINED BY THE CONTRACTOR FROM THE OWNER/OCCUPIER PRIOR TO COMMENCEMENT OF WORK IN PRIVATE PROPERTY.

24. BURIED FITTINGS ARE NOT TO BE BACKFILLED UNTIL W.A.C. DETAILS HAVE BEEN OBTAINED & APPROVAL FOR BACKFILLING GIVEN BY THE BOX HILL WATER REPRESENTATIVE. *THE CONTRACTOR SHALL PROVIDE M.G.A. COORDINATED WORK-AS-CONSTRUCTED INFORMATION REGARDING THE INSTALLATION OF ALL BURIED FITTINGS.*

25. THE MINIMUM NUMBER OF COMPACTION TESTS REQUIRED TO SATISFY THE WATER SUPPLY CODE OF AUSTRALIA ARE:
    TRAFFICABLE:
    PIPE EMBEDMENT ZONE: NIL TRENCH FILL ZONE: 1 TEST / CROSSING (NIL Tests)
    NON-TRAFFICABLE:
    PIPE EMBEDMENT ZONE: NIL TRENCH FILL ZONE: 1 TEST / 100m (7 Tests)

    TESTING SHALL BE IN ACCORDANCE WITH TABLE 16.1 & 17.1 OF THE WATER SUPPLY CODE OF AUSTRALIA

26. SURFACE IDENTIFICATION MARKERS ARE TO BE PROVIDED TO BOX HILL WATER REQUIREMENTS.

27. PRESSURE TRANSMITTER TO BE MEASUREX MRB21 GENERAL PURPOSE TRANSMITTER WITH MICROSPIDER LOGGING TELEMETRY AND ALARM PER FLOW SYSTEMS REQUIREMENTS.

28. *WORK-AS-CONSTRUCTED DOCUMENTATION SHALL BE PROVIDED BY THE CONTRACTOR STRICTLY IN ACCORDANCE WITH THE FLOW SYSTEMS Q.A. SUBMISSION CHECKLIST.*

FLOW SYSTEMS STANDARD DRAWINGS CAN BE FOUND AT THE FOLLOWING ADDRESS:

https://qaskus.flowsystems.com.au/hc/en-us/articles/210615383--Standard-Drawings

GENERAL NOTES

WORK-AS-CONSTRUCTED

1. THIS DRAWING SET SHALL BE READ IN CONJUNCTION WITH THE HILLS SHIRE COUNCIL STANDARDS, FLOW SYSTEMS SUPPLEMENTARY MANUAL TO W.S.A.A. & OTHER ASSOCIATED DRAWINGS AND TECHNICAL SPECIFICATIONS.

2. ALL PRESSURE SEWER LATERALS & RECYCLED WATER PROPERTY SERVICE CONNECTIONS CROSSING CARRIAGEWAYS SHALL BE INSTALLED WITHIN INDIVIDUAL SERVICE CONDUITS.

3. THE CONTRACTOR SHALL LOCATE AND IDENTIFY ALL UNDERGROUND SERVICES PRIOR TO COMMENCEMENT OF WORKS AND SHALL REPAIR ANY DAMAGE CAUSED TO SUCH SERVICES DURING THE COURSE OF WORKS. ANY SERVICE LOCATIONS ON THE FOLLOWING DRAWINGS ARE INDICATIVE ONLY.

4. MAKE SMOOTH TRANSITION TO EXISTING WORKS (i.e. ROAD PAVEMENTS AND FOOTPATHS TO P.C.A. AND SUPERINTENDENTS REQUIREMENTS.

5. SUITABLE PROTECTION OF EXISTING ROAD PAVEMENT, KERB AND GUTTER, FOOTPATHS AND ANY EXISTING FEATURES SHALL BE PROVIDED UNTIL THE CONSTRUCTION WORKS ARE COMPLETED.

CLEARANCES BETWEEN PIPELINES & UNDERGROUND SERVICES

Utility (Existing or proposed service)	Minimum horizontal clearance mm		Minimum vertical clearance [1] mm
	New main size		
	≤DN200	>DN200	
Water mains [2] > DN375	600	600	300
Water mains [2] < DN375	300 [4]	600	150
Gas mains	300 [4]	600	150
Telecommunication conduits and cables	300 [4]	600	150
Electricity conduits and cables	500	1000	225 [8]
Stormwater drains	300 [4]	600	150 [9]
Sewers - gravity	1000 [4] / 600	1000 [4] / 600	500 [9]
Sewers - pressure and vacuum	600	600	300 [9]
Kerbs	150	600 [3]	150 (where possible)

NOTES:
1. *Vertical clearances apply where pipelines cross other utility services, except in the case of water/sewer mains when a vertical separation shall always be maintained, even when the pressure sewer and water main are parallel. The pressure sewer should always be located below the water main to minimise the possibility of backflow contamination in the event of a pressure main break.*
2. *Water mains includes mains supplying both potable and recycled water.*
3. *For areas with existing water reticulation, clearances can be further reduced to 600mm with the approval of the water authority.*
4. *Clearances can be further reduced to 150mm for distances up to 2m when passing installations such as poles, pits, and small structures, providing the structures is not destabilised in the process.*
5. *Clearances from kerbs shall be measured from the nearest point of the kerb. For water/sewer <DN375, clearances from kerbs can be progressively reduced until the minimum of 150mm is reached for water/sewer <DN200.*
6. *Where a parallel sewer is at minimum vertical clearance lower than the water main (500mm), maintain a minimum horizontal of 1000mm. this minimum clearance can be progressively reduced to 600mm as the vertical clearance is increased to 750mm.*
7. *For pressure sewer laterals, minimum vertical clearances may be reduced to 150mm providing there is no joint in the lateral within 500mm of either side of the service being crossed.*
8. *An additional clearance from high voltage electrical installations should be maintained above the conduits or cables to allow for a protective barrier and marking to be provided.*
9. *Water mains should always cross over sewers and stormwater drains. For cases where this is no alterative and the main must cross under the sewer, the design shall nominate an appropriate protection treatment (joint-free in the vicinity of the sewer).*

* SHOULD THE RECOMMENDED CLEARANCES NOT BE ACHIEVED, NOTIFICATION SHALL BE CONVEYED TO THE BOX HILL WATER REPRESENTATIVE IN WRITING.

RECYCLED WATER PIPE SCHEDULE

SIZE	TYPE	CLASS	LENGTH
DN150	m.P.V.C.	PN16	407.7
DN100	m.P.V.C.	PN16	200.4
		TOTAL	*608.1*

PRESSURE SEWER PIPE SCHEDULE

SIZE	TYPE	CLASS	LENGTH
DN50	PE100	PN16	606.3
DN40	PE100	PN16	722.9
		TOTAL	*1,329.2*

Box Hill Water

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Quality System Quality Endorsed Company

GENERAL NOTES				SHEET 2 OF 9	VERSION: WAC
DRAFTED: D.SHEATHER	DESIGNED: D.SHEATHER	REVIEWED: K.GAO	VERIFIED: K.GAO	JOB No: 4/23645/B3A	
SCALE: -	DATUM: -	U.B.D. REFERENCE: -	DATE OF ISSUE: 5/3/2021		

A1

WORK-AS-CONSTRUCTED

Precinct B Development Stages

- Stage 1
- Stage 2
- Stage 3
- Stage 4

Box Hill Water

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RAR Incorporated in New South Wales

Quality System Quality Endorsed Company

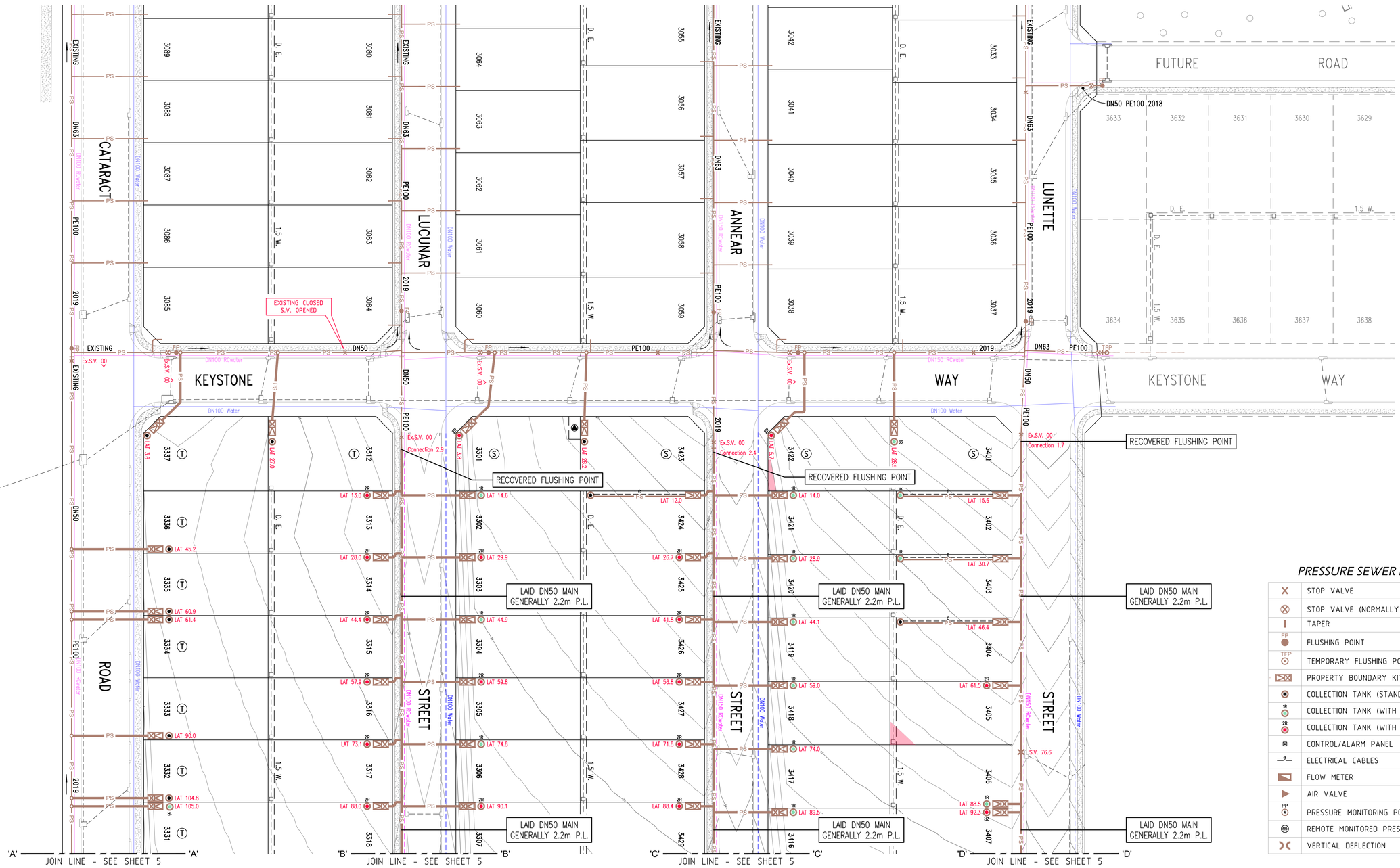
PRESSURE SEWER GENERAL ARRANGEMENT

SHEET 3 OF 9 | VERSION: WAC

DRAFTED:	DESIGNED:	REVIEWED:	VERIFIED:	JOB No:
D.SHEATHER	D.SHEATHER	K.GAO	K.GAO	4/23645/B3A
SCALE: -	DATUM: -	U.B.D. REFERENCE: -	DATE OF ISSUE: 5/3/2021	

A1

WORK-AS-CONSTRUCTED



PRESSURE SEWER LEGEND

X	STOP VALVE
⊗	STOP VALVE (NORMALLY CLOSED)
	TAPER
FP	FLUSHING POINT
TFP	TEMPORARY FLUSHING POINT
	PROPERTY BOUNDARY KIT
	COLLECTION TANK (STANDARD)
1R	COLLECTION TANK (WITH 300mm RISER)
2R	COLLECTION TANK (WITH 2x300mm RISERS)
	CONTROL/ALARM PANEL
—e—	ELECTRICAL CABLES
	FLOW METER
	AIR VALVE
PP	PRESSURE MONITORING POINT
PT	REMOTE MONITORED PRESSURE TRANSDUCER
	VERTICAL DEFLECTION

Ⓢ DENOTES PROPERTY LATERAL TO BE INSTALLED ON EXISTING MAIN. CONNECTION TO BE MADE TO EXISTING MAIN WITH *PLASSON TAPPING SADDLE* IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS (REFER *WAT-1108-V*).

Ⓣ DENOTES PROPERTY LATERAL TO BE INSTALLED ON EXISTING MAIN. LATERAL CONNECTIONS TO EXISTING MAIN SHALL BE MADE BY MEANS OF A *TEE* ONLY. ***TAPPING SADDLES ARE NOT PERMITTED.***

DENOTES LAID MAIN UNDER SERVICE

DENOTES LAID MAIN OVER SERVICE

ESMT FOR PADMOUNT SUBSTATION 2.75 W.

AREAS HATCHED THUS NOT DRAINED.

0 10 20 30 40 50 METRES

Box Hill Water

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Quality System Endorsed Company

PRESSURE SEWER DETAIL PLAN 1

SHEET 4 OF 9

VERSION: WAC

DRAFTED:	DESIGNED:	REVIEWED:	VERIFIED:	JOB No:
D.SHEATHER	D.SHEATHER	K.GAO	K.GAO	4/23645/B3A
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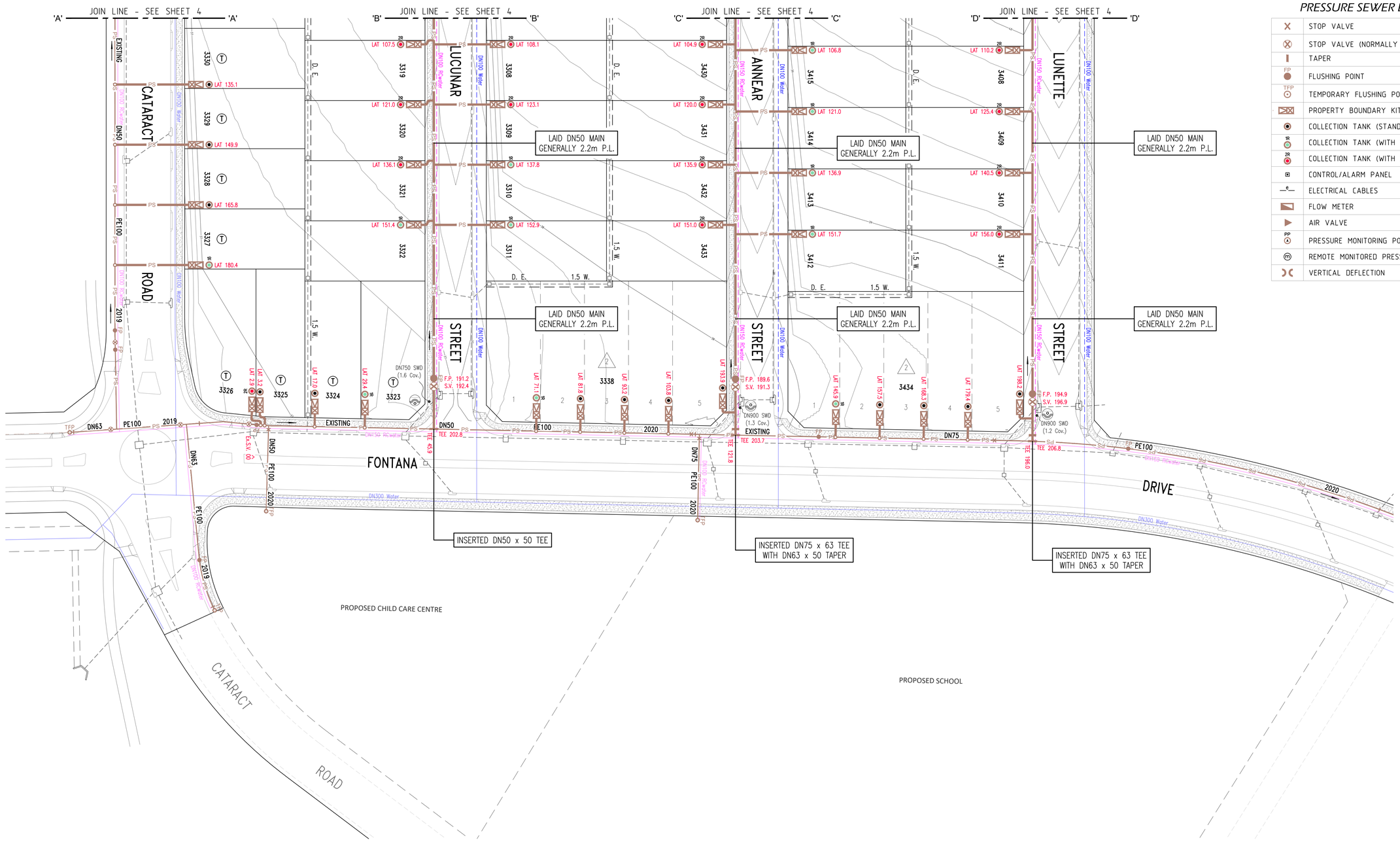
A1

WORK-AS-CONSTRUCTED



PRESSURE SEWER LEGEND

X	STOP VALVE
⊗	STOP VALVE (NORMALLY CLOSED)
▮	TAPER
FP ●	FLUSHING POINT
TFP ⊙	TEMPORARY FLUSHING POINT
⊠	PROPERTY BOUNDARY KIT
◉	COLLECTION TANK (STANDARD)
1R ◉	COLLECTION TANK (WITH 300mm RISER)
2R ◉	COLLECTION TANK (WITH 2x300mm RISERS)
⊡	CONTROL/ALARM PANEL
—e—	ELECTRICAL CABLES
▭	FLOW METER
▶	AIR VALVE
PP Ⓐ	PRESSURE MONITORING POINT
(P)	REMOTE MONITORED PRESSURE TRANSDUCER
><	VERTICAL DEFLECTION

Ⓢ DENOTES PROPERTY LATERAL TO BE INSTALLED ON EXISTING MAIN. CONNECTION TO BE MADE TO EXISTING MAIN WITH *PLASSON TAPPING SADDLE* IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS (REFER *WAT-1108-V*).

Ⓣ DENOTES PROPERTY LATERAL TO BE INSTALLED ON EXISTING MAIN. LATERAL CONNECTIONS TO EXISTING MAIN SHALL BE MADE BY MEANS OF A *TEE* ONLY. ***TAPPING SADDLES ARE NOT PERMITTED.***

DENOTES LAID MAIN UNDER SERVICE

DENOTES LAID MAIN OVER SERVICE

ESMT FOR PADMOUNT SUBSTATION 2.75 W.

AREAS HATCHED THUS NOT DRAINED.

0 10 20 30 40 50 METRES

Box Hill Water

ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.
RAR Incorporated in New South Wales
WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT
SHOP 7 & 8 'M CENTRE'
40 STERLING ROAD, MINCHINBURY NSW 2770
PH: (02) 9853 0200 FAX: (02) 9671 7399

Quality System Quality Endorsed Company

PRESSURE SEWER DETAIL PLAN 2

SHEET 5 OF 9

VERSION: WAC

DRAFTED	DESIGNED	REVIEWED	VERIFIED	JOB No.
D.SHEATHER	D.SHEATHER	K.GAO	K.GAO	4/23645/B3A
SCALE: 1:500	DATUM: A.H.D.	U.S.D. REFERENCE: -	DATE OF ISSUE: 5/3/2021	

A1

WORK-AS-CONSTRUCTED

PRESSURE SEWER COLLECTION TANK LEVEL DETAILS

BOX HILL DEVELOPMENT - PRECINCT B [STAGE 3A & 3B]

LOT NUMBER	COLLECTION TANK LOCATION	TANK SIZE	PFSL AT TANK LOCATION	QUANTITY OF DRYWELL RISERS REQUIRED	TOP OF COLLECTION TANK	DESIGN SANITARY DRAINAGE INVERT LEVEL	*TOP OF COLLECTION TANK LID* *	*CALCULATED SANITARY DRAINAGE INVERT LEVEL*	*WAC v's DESIGN INVERT LEVEL COMPARISON*
	[FRONT / REAR]	*[900L / 2200L]*			*[Design R.L.]*	*[Design R.L.]*	*[Work-As-Constructed]*	*[Work-As-Constructed]*	*[- LOWER / + HIGHER]*
3301	FRONT FLAT	900L	39.28	2	39.46	37.71	*39.66*	*37.72*	*0.01*
3302	FRONT BATTER	900L	38.79	1	39.15	37.70	*39.37*	*37.73*	*0.03*
3303	FRONT BATTER	900L	38.67	2	39.10	37.35	*39.29*	*37.35*	*0.00*
3304	FRONT BATTER	900L	38.56	1	38.95	37.50	*39.12*	*37.48*	*-0.02*
3305	FRONT BATTER	900L	38.45	2	38.85	37.10	*39.03*	*37.09*	*-0.01*
3306	FRONT BATTER	900L	38.34	1	38.75	37.30	*38.92*	*37.28*	*-0.02*
3307	FRONT BATTER	900L	38.22	2	38.65	36.90	*38.60*	*36.66*	*-0.24*
3308	FRONT BATTER	900L	38.09	2	38.50	36.75	*38.68*	*36.74*	*-0.01*
3309	FRONT BATTER	900L	37.98	2	38.40	36.65	*38.61*	*36.67*	*0.02*
3310	FRONT BATTER	900L	37.86	1	38.25	36.80	*38.43*	*36.79*	*-0.01*
3311	FRONT BATTER	900L	37.75	1	37.80	36.35	*37.98*	*36.34*	*-0.01*
3312	FRONT FLAT	900L	37.81		37.99	36.84	*38.17*	*36.83*	*-0.01*
3313	FRONT FLAT	900L	38.40	2	38.58	36.83	*38.76*	*36.82*	*-0.01*
3314	FRONT FLAT	900L	38.31	2	38.49	36.74	*38.67*	*36.73*	*-0.01*
3315	FRONT FLAT	900L	38.20	2	38.38	36.63	*38.54*	*36.60*	*-0.03*
3316	FRONT FLAT	900L	38.09	2	38.27	36.52	*38.41*	*36.47*	*-0.05*
3317	FRONT FLAT	900L	37.98	2	38.16	36.41	*38.30*	*36.36*	*-0.05*
3318	FRONT FLAT	900L	37.87	2	38.05	36.30	*38.22*	*36.28*	*-0.02*
3319	FRONT FLAT	900L	37.73	2	37.91	36.16	*38.10*	*36.16*	*0.00*
3320	FRONT FLAT	900L	37.62	2	37.80	36.05	*37.99*	*36.05*	*0.00*
3321	FRONT FLAT	900L	37.51	2	37.69	35.94	*37.83*	*35.89*	*-0.05*
3322	FRONT FLAT	900L	37.40	1	37.58	36.13	*37.75*	*36.11*	*-0.02*
3323	FRONT FLAT	900L	37.19	1	37.37	35.92	*37.56*	*35.92*	*0.00*
3324	FRONT FLAT	900L	37.07		37.25	36.10	*37.43*	*36.09*	*-0.01*
3325	FRONT FLAT	900L	36.92		37.10	35.95	*37.29*	*35.95*	*0.00*
3326	FRONT FLAT	900L	36.89	2	37.07	35.32	*37.25*	*35.31*	*-0.01*
3327	FRONT BATTER	900L	36.60	1	37.00	35.55	*37.21*	*35.57*	*0.02*
3328	FRONT BATTER	900L	36.71		37.05	35.90	*37.23*	*35.89*	*-0.01*
3329	FRONT BATTER	900L	36.83		37.10	35.95	*37.30*	*35.96*	*0.01*
3330	FRONT BATTER	900L	36.94		37.15	36.00	*37.31*	*35.97*	*-0.03*
3331	FRONT BATTER	900L	37.15	1	37.25	35.80	*37.43*	*35.79*	*-0.01*
3332	FRONT BATTER	900L	37.17		37.25	36.10	*37.42*	*36.08*	*-0.02*
3333	FRONT FLAT	900L	37.28		37.46	36.31	*37.64*	*36.30*	*-0.01*
3334	FRONT FLAT	900L	37.37		37.55	36.40	*37.70*	*36.36*	*-0.04*
3335	FRONT FLAT	900L	37.38		37.56	36.41	*37.74*	*36.40*	*-0.01*
3336	FRONT FLAT	900L	37.43		37.61	36.46	*37.77*	*36.43*	*-0.03*
3337	FRONT FLAT	900L	37.23		37.41	36.26	*37.57*	*36.23*	*-0.03*
3338(1)	FRONT FLAT	900L	37.65	1	37.83	36.38	*37.97*	*36.33*	*-0.05*
3338(2)	FRONT FLAT	900L	37.76		37.94	36.79	*38.04*	*36.70*	*-0.09*
3338(3)	FRONT FLAT	900L	37.87		38.05	36.90	*38.14*	*36.80*	*-0.10*
3338(4)	FRONT FLAT	900L	37.94		38.12	36.97	*38.21*	*36.87*	*-0.10*
3338(5)	FRONT FLAT	900L	37.88		38.06	36.91	*38.24*	*36.90*	*-0.01*
3401	FRONT FLAT	900L	41.74	1	41.92	40.47	*42.14*	*40.50*	*0.03*
3402	REAR	900L	41.33	1	41.51	40.06	*41.77*	*40.13*	*0.07*
3403	REAR	900L	41.01	1	41.19	39.74	*41.42*	*39.78*	*0.04*
3404	REAR	900L	40.75		40.93	39.78	*41.17*	*39.83*	*0.05*
3405	FRONT FLAT	900L	40.86	2	41.04	39.29	*41.27*	*39.33*	*0.04*
3406	FRONT FLAT	900L	40.30	1	40.48	39.03	*40.72*	*39.08*	*0.05*
3407	FRONT FLAT	900L	40.26	2	40.44	38.69	*40.65*	*38.71*	*0.02*
3408	FRONT FLAT	900L	39.90	2	40.08	38.33	*40.29*	*38.35*	*0.02*
3409	FRONT FLAT	900L	39.63	2	39.81	38.06	*40.02*	*38.08*	*0.02*
3410	FRONT FLAT	900L	39.39	2	39.57	37.82	*39.80*	*37.86*	*0.04*
3411	FRONT FLAT	900L	39.16	2	39.34	37.59	*39.57*	*37.63*	*0.04*
3412	FRONT BATTER	900L	38.60	1	38.90	37.45	*39.08*	*37.44*	*-0.01*
3413	FRONT BATTER	900L	38.79	1	39.10	37.65	*39.26*	*37.62*	*-0.03*
3414	FRONT BATTER	900L	38.98	1	39.30	37.85	*39.45*	*37.81*	*-0.04*
3415	FRONT BATTER	900L	39.17	1	39.50	38.05	*39.70*	*38.06*	*0.01*
3416	FRONT BATTER	900L	39.40	1	39.70	38.25	*39.87*	*38.23*	*-0.02*
3417	FRONT BATTER	900L	39.59	1	39.90	38.45	*40.06*	*38.42*	*-0.03*
3418	FRONT BATTER	900L	39.78	1	40.10	38.65	*40.29*	*38.65*	*0.00*
3419	FRONT BATTER	900L	39.97	1	40.30	38.85	*40.50*	*38.86*	*0.01*
3420	FRONT BATTER	900L	40.16	1	40.50	39.05	*40.71*	*39.07*	*0.02*
3421	FRONT BATTER	900L	40.38	1	40.65	39.20	*40.84*	*39.20*	*0.00*
3422	FRONT FLAT	900L	41.11	2	41.29	39.54	*41.47*	*39.53*	*-0.01*
3423	FRONT FLAT	900L	39.92		40.10	38.95	*40.30*	*38.96*	*0.01*
3424	REAR	900L	39.70		39.88	38.73	*40.08*	*38.74*	*0.01*
3425	FRONT FLAT	900L	39.89	2	40.07	38.32	*40.23*	*38.29*	*-0.03*
3426	FRONT FLAT	900L	39.70	2	39.88	38.13	*40.09*	*38.15*	*0.02*
3427	FRONT FLAT	900L	39.52	2	39.70	37.95	*39.89*	*37.95*	*0.00*
3428	FRONT FLAT	900L	39.33	2	39.51	37.76	*39.73*	*37.79*	*0.03*
3429	FRONT FLAT	900L	39.15	2	39.33	37.58	*39.54*	*37.60*	*0.02*
3430	FRONT FLAT	900L	38.93	2	39.11	37.36	*39.32*	*37.38*	*0.02*
3431	FRONT FLAT	900L	38.74	2	38.92	37.17	*39.09*	*37.15*	*-0.02*
3432	FRONT FLAT	900L	38.55	2	38.73	36.98	*38.95*	*37.01*	*0.03*
3433	FRONT FLAT	900L	38.36	2	38.54	36.79	*38.77*	*36.83*	*0.04*
3434(1)	FRONT FLAT	900L	38.34	1	38.52	37.07	*38.75*	*37.11*	*0.04*
3434(2)	FRONT FLAT	900L	38.48		38.66	37.51	*38.85*	*37.51*	*0.00*
3434(3)	FRONT FLAT	900L	38.59		38.77	37.62	*39.05*	*37.71*	*0.09*
3434(4)	FRONT FLAT	900L	38.69		38.87	37.72	*39.04*	*37.70*	*-0.02*
3434(5)	FRONT FLAT	900L	38.58		38.76	38.61	*38.94*	*37.60*	*-0.01*

2

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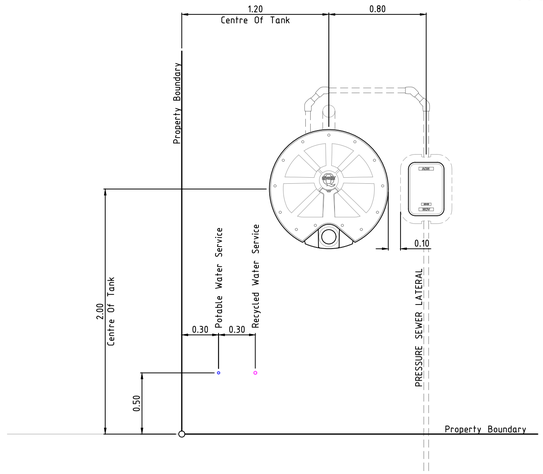
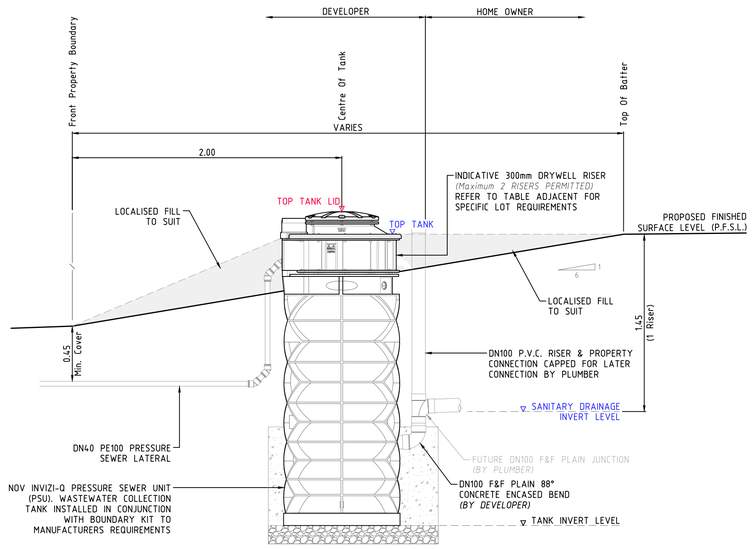
* COLLECTION TANK LEVEL PROVIDED TO G.P.S. ACCURACY ONLY. THE BUILDER IS REQUIRED TO CONFIRM DRAINAGE CONSTRAINTS PRIOR TO MAKING CONNECTION TO TANK.



TYPICAL INFRASTRUCTURE SETOUT DIMENSIONS

SCALE 1:25



COLLECTION TANK SECTIONAL ELEVATION

SCALE 1:25

COLLECTION TANK NOTES

1. DESIGN SURFACE LEVELS WERE ELECTRONICALLY EXTRACTED FROM DIGITAL DATA SUPPLIED BY ENSPIRE DATED 18/6/20 (PB *Design Tin.dwg*).
2. DESIGN LEVELS CAN ONLY BE ASSUMED AS CURRENT AT TIME OF EXTRACTION. ALL LEVELS SHALL BE CONFIRMED WITH THE SITE SUPERINTENDENT *PRIOR* TO INSTALLATION OF TANKS. SHOULD THE PROPOSED FINISHED SURFACE LEVEL (P.F.S.L.) DIFFER FROM DESIGN BY MORE THAN 100mm, THE CONSTRUCTOR SHALL CONTACT THE DESIGNER IMMEDIATELY.
3. COLLECTION TANK SETOUT SHALL BE COMPLIANT WITH *FSI-1000-FS* & *FSI-SK03A-FS*. COLLECTION TANK INSTALLATION LEVELS DOCUMENTED ADJACENT SHALL SUPERSEDE ANY LEVELS ADVISED ON DRAWING FSI-SK03A-FS.
4. R.A.R. ACCEPT NO RESPONSIBILITY FOR INCONSISTENCIES IN EXTRACTED LEVELS RESULTING FROM CHANGES TO THE MODEL (SURFACE LEVEL) INFORMATION POST DATA EXTRACTION DATE.

Box Hill Water

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RAR Incorporated in New South Wales
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Quality System Endorsed Company

COLLECTION TANK LEVEL DETAILS				SHEET 6 OF 9	VERSION: WAC
DRAFTED: D.SHEATHER	DESIGNED: D.SHEATHER	REVIEWED: K.GAO	VERIFIED: K.GAO	JOB No: 4/23645/B3A	
SCALE: -	DATUM: -	U.B.D. REFERENCE: -	DATE OF ISSUE: 5/3/2021		

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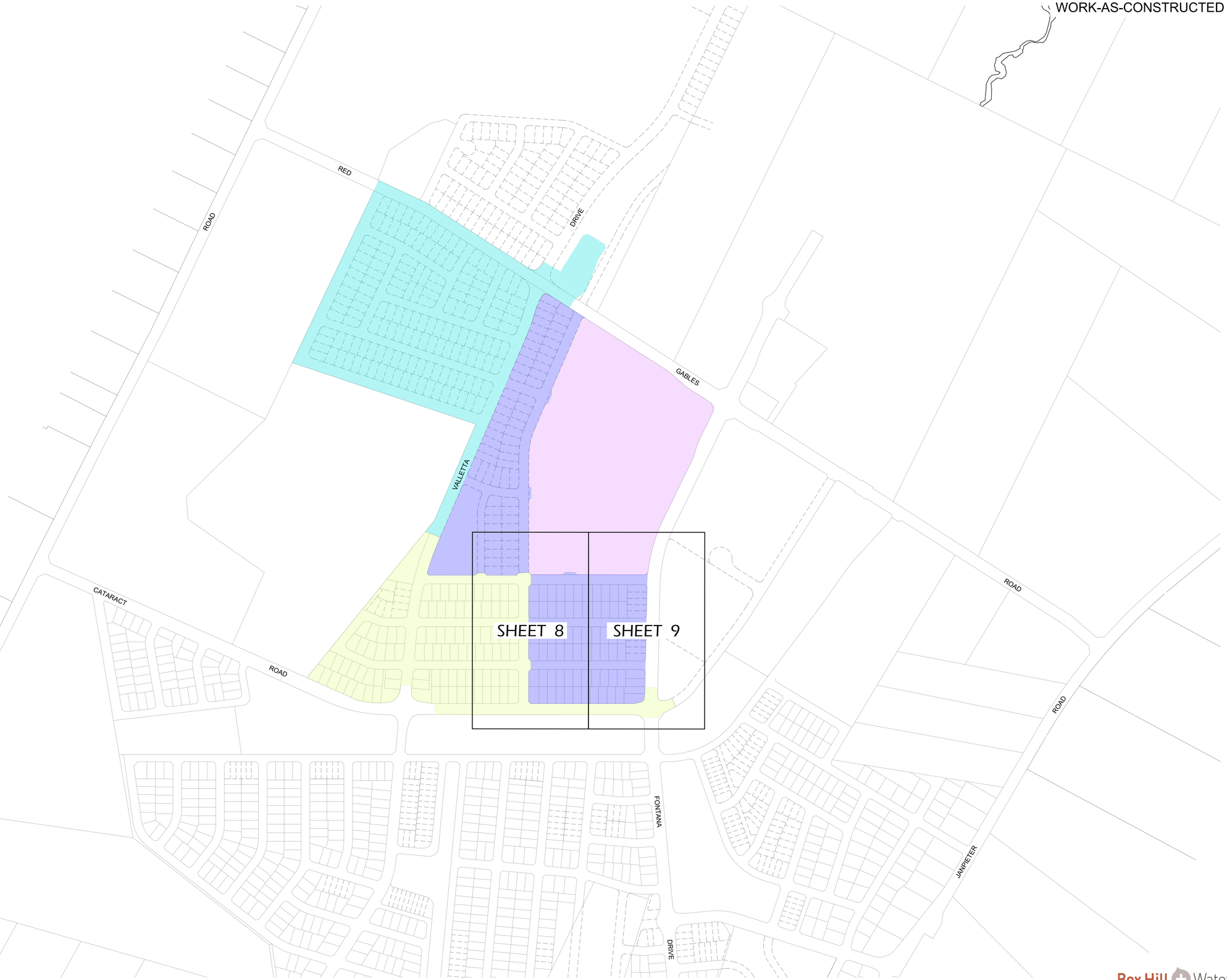
WORK-AS-CONSTRUCTED

Precinct B Development Stages

- Stage 1
- Stage 2
- Stage 3
- Stage 4



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RAR Incorporated in New South Wales

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RECYCLED WATER GENERAL ARRANGEMENT

SHEET 7 OF 9 | VERSION: WAC

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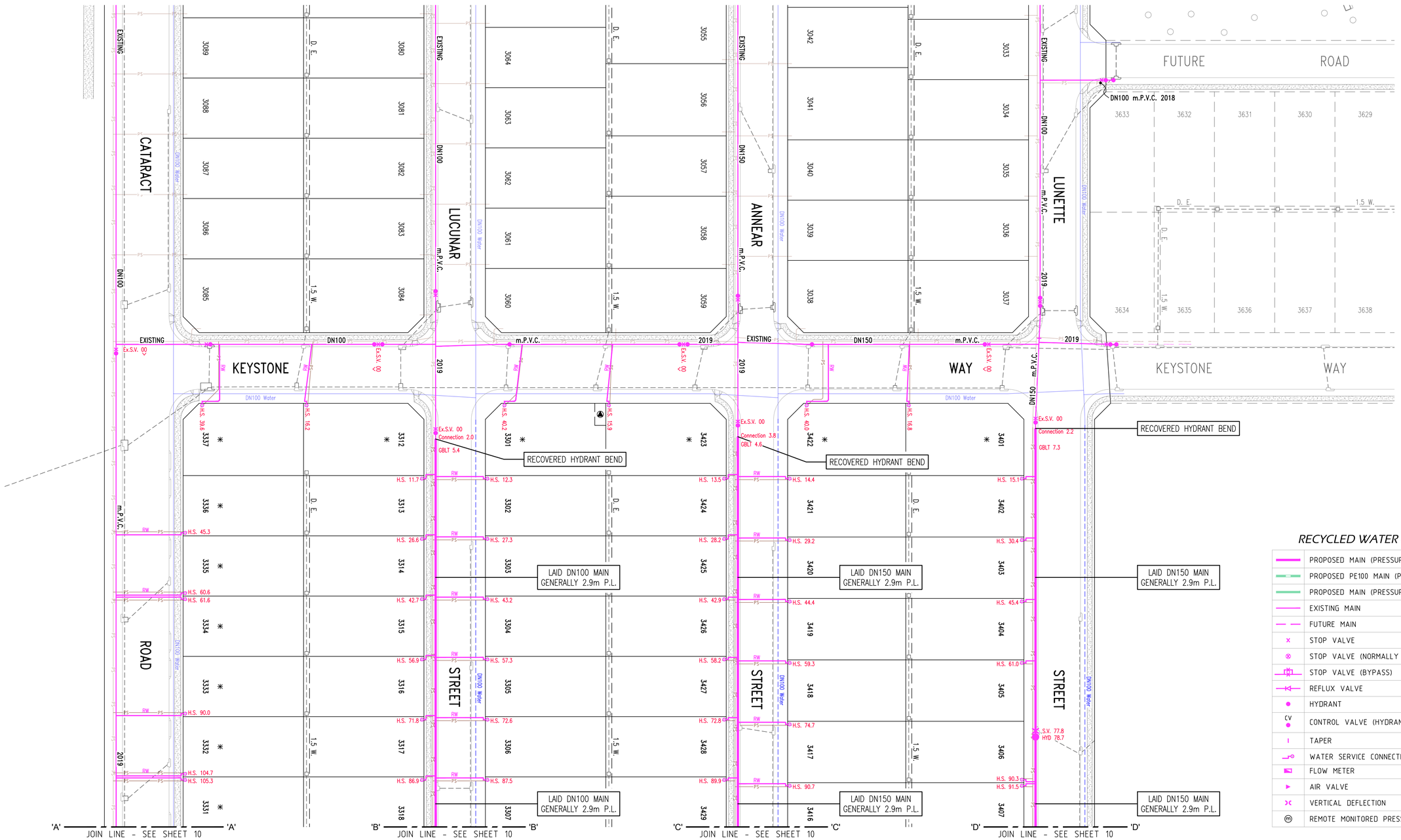

RECYCLED WATER LEGEND

	PROPOSED MAIN (PRESSURE ZONE 1)
	PROPOSED PE100 MAIN (PRESSURE ZONE 2)
	PROPOSED MAIN (PRESSURE ZONE 2)
	EXISTING MAIN
	FUTURE MAIN
×	STOP VALVE
⊗	STOP VALVE (NORMALLY CLOSED)
	STOP VALVE (BYPASS)
	REFLUX VALVE
	HYDRANT
CV	CONTROL VALVE (HYDRANT)
	TAPER
	WATER SERVICE CONNECTION
	FLOW METER
	AIR VALVE
	VERTICAL DEFLECTION
PT	REMOTE MONITORED PRESSURE TRANSDUCER

DENOTES LAID MAIN UNDER SERVICE

DENOTES LAID MAIN OVER SERVICE

ESMT FOR PADMOUNT SUBSTATION 2.75 W.

* DENOTES PROPERTY SERVICE CONNECTION TO BE INSTALLED ON EXISTING MAIN

0 10 20 30 40 50 METRES

Box Hill Water

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RECYCLED WATER DETAIL PLAN 1

SHEET 8 OF 9

VERSION: WAC

DRAFTED:	DESIGNED:	REVIEWED:	VERIFIED:	JOB No.
D.SHEATHER	D.SHEATHER	K.GAO	K.GAO	4/23645/B3A
SCALE: 1:500	DATUM: -	U.D.S. REFERENCE: -	DATE OF ISSUE: 5/3/2021	

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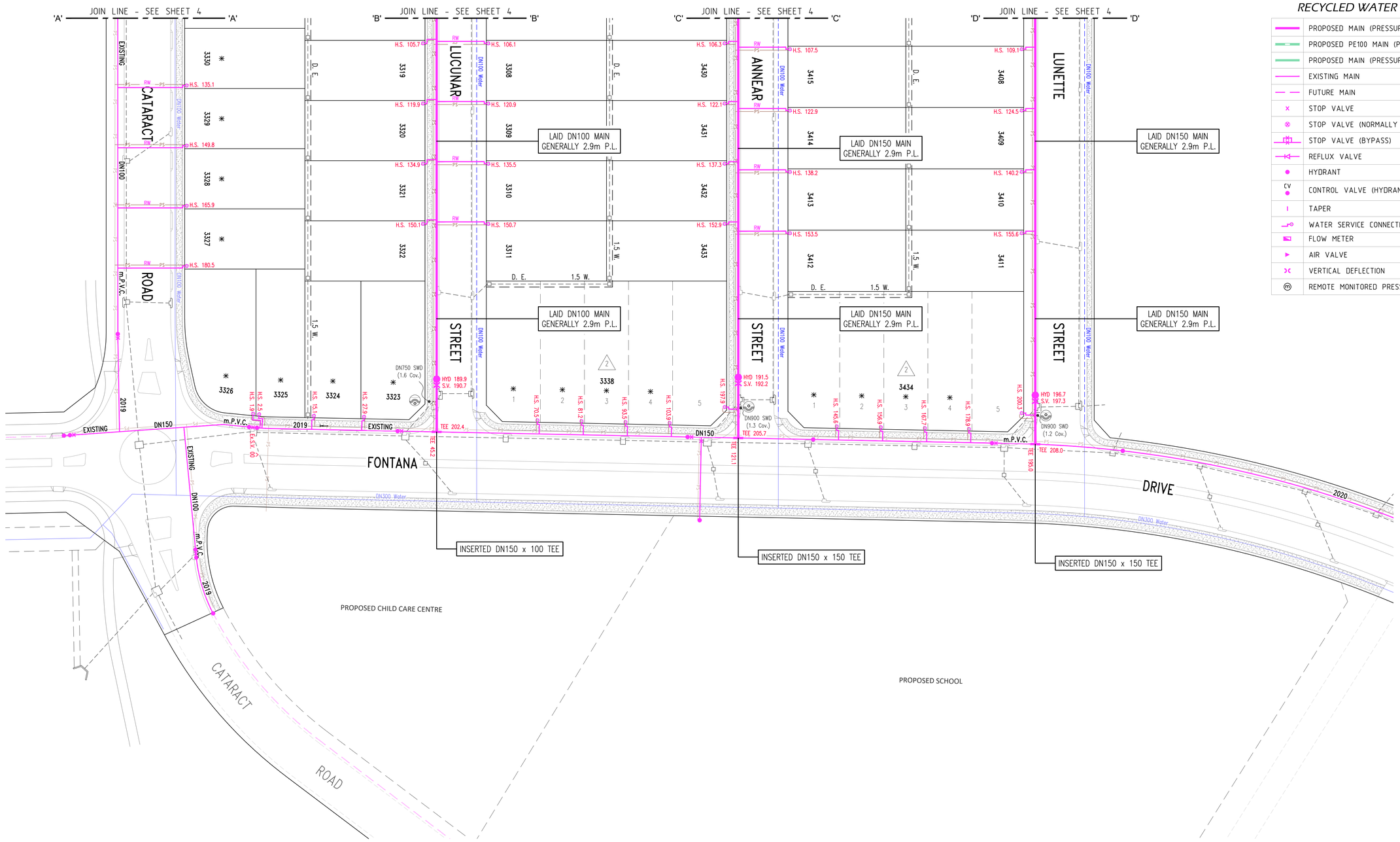
WORK-AS-CONSTRUCTED



RECYCLED WATER LEGEND

	PROPOSED MAIN (PRESSURE ZONE 1)
	PROPOSED PE100 MAIN (PRESSURE ZONE 2)
	PROPOSED MAIN (PRESSURE ZONE 2)
	EXISTING MAIN
	FUTURE MAIN
×	STOP VALVE
⊗	STOP VALVE (NORMALLY CLOSED)
	STOP VALVE (BYPASS)
	REFLUX VALVE
	HYDRANT
CV	CONTROL VALVE (HYDRANT)
	TAPER
	WATER SERVICE CONNECTION
	FLOW METER
	AIR VALVE
	VERTICAL DEFLECTION
PT	REMOTE MONITORED PRESSURE TRANSDUCER

DENOTES LAID MAIN UNDER SERVICE

DENOTES LAID MAIN OVER SERVICE

ESMT FOR PADMOUNT SUBSTATION 2.75 W.

✳ DENOTES PROPERTY SERVICE CONNECTION TO BE INSTALLED ON EXISTING MAIN

0 10 20 30 40 50 METRES

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RECYCLED WATER DETAIL PLAN 2				SHEET 9 OF 9	VERSION: WAC
DRAFTED: D.SHEATHER	DESIGNED: D.SHEATHER	REVIEWED: K.GAO	VERIFIED: K.GAO	JOB No: 4/23645/B3A	
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Box Hill Water