

Queensland Head Office:

Level 4, 196 Wharf Street, Spring Hill Qld 4000
PO Box 1344, Buddina Qld 4575

Main: +61 7 3532 1300
colliers.com.au



Riverbend

Water and Wastewater

Infrastructure Master plan

To:	Brandon Bouda (EDQ)
From:	Dan Collins (Colliers Engineering and Design)
Project Name:	Riverbend
Date:	3 September 2024
Our Reference:	20-0190-IMP-WWWS_1

1. Introduction

Colliers Engineering & Design Pty Ltd have been engaged by Celestino Developments Pty Ltd for the purposes of preparing a Sewerage and Water Supply Infrastructure Master Plan in support of a Priority Development Area (PDA) Development Application to:

- A. Support a context plan application: and
- B. Support a future reconfiguration of lot application.

Over land located at Teviot Road, Riverbend described as Lots 101, 102, 104, 105 & 106 on SP254145 and Lot 800 on SP247625 and as shown below. Geographically, the development will be located within the proposed Riverbend Development Precinct and is bounded by Teviot Road and existing rural-residential allotments and associated infrastructure to the north and west, Logan River and associated tributaries to the south and existing rural-residential, associated infrastructure and former agricultural land to the east.



FIGURE 1: SITE LOCATION

1.1. Context Plan

The Structure Plan (4123001-01Q, dated 02/08/2024 prepared by Place Design Group) that is proposed over the site can be found in **Attachment A**. This comprises:

- Existing contours and indicative block pattern layout;
- Proposed District Centre location;
- Development uses including, sports parks, parks and conservation corridors; and
- Proposed school location

1.2. Requirements of the Infrastructure Management Plan

This Infrastructure Management Plan will be assessed against:

- The provisions of the PDA Development Scheme in force at the date of Approval;

- The applicable EDQ Guideline(s) in effect at the date of the Approval; and
- Any further requirements set out in a condition of the Approval

An endorsed infrastructure master plan may be replaced by submitting for compliance assessment a new infrastructure master plan for endorsement, which is subsequently endorsed.

Where a context plan area strategy is inconsistent with an endorsed infrastructure master plan the amendment to the infrastructure master plan may be limited to address the inconsistency.

1.3. Definitions

Developer	means the owner and developer of a parcel of land within the Approved Land at the relevant time.
IFF	means the Infrastructure Funding Framework (July 2021) of the EDQ.
IFFCOA	means the Infrastructure Funding Framework, Crediting and Offset Arrangements (November 2018) of the EDQ.
ICOP	means the Infrastructure Charging and Offset Plan Greater Flagstone Urban Development Area (June 2020) of the EDQ.
LCC	means Logan City Council.
IMP	means Infrastructure Master Plan.
EDQ	means the Minister for Economic Development Queensland established under the <i>Economic Development Act 2012</i> , which supersedes the Urban Land Development Authority and repeals the <i>Urban Land Development Authority Act 2007 (Qld)</i> .
PDA Development Scheme	means the Greater Flagstone Urban Development Area Development Scheme (October 2011).
PDA Guidelines	means the EDQ guidelines in effect at the time of the Approval (with due regard given to EDQ guidelines subsequently adopted).
QUDM	means Queensland Urban Drainage Manual
Subject Land	means the parcel of land described as Lots 101, 102, 104, 105 & 106 on SP254145 and Lot 800 on SP247625
Supporting Documents	means the documents contained in the attachments.

1.4. Standards

- Prior to 1 July 2013, water and sewer network planning was undertaken in accordance with Logan City Council Desired Standards of Service. Network planning to support Reconfiguration of a Lot (RoL) applications will generally align to the SEQ Water Supply and Sewer Design & Construction Code (SEQ WS&S D&C Code). Note: the application of the SEQ WS&S D&C Code is expected to result in a minor decrease in infrastructure sizing for trunk networks works.
- All future planning and design will be undertaken in accordance with the SEQ Water Supply and Sewer Design & Construction Code (SEQ WS&S D&C Code).
- Detailed sewer design will be generally in compliance with Gravity Sewerage Code of Australia South East Queensland Service Providers Edition Version 2.1 and associated SEQ Code amendments.
- WSA 04-2022 Sewage Pump Station Code and associated SEQ Code amendments.
- Detailed water supply design will be generally in compliance with Water Supply Code of Australia South East Queensland Service Providers Edition Version 1.3 and associated SEQ Code amendments.
- All relevant Australian Standards and best practice design methods

1.5. Innovation and Flexibility

Infrastructure for the sewer and water supply networks will be implemented on a staged basis to align infrastructure roll out with development growth. This provides flexibility to respond to changes in demands and leaves open opportunities for the adoption of best practices and innovation in the future. The staged approach outlined above recognises the current economic constraints whilst providing the maximum flexibility to modify proposals as technology and commercial opportunities arise through the life of the development.

Whilst proposals are based on a conventional approach to providing wastewater and water supply solutions, the EDQ initiative to identify more cost-effective, sustainable and innovative servicing strategies for consideration in Flagstone is strongly supported.

2. Development Projections

Ultimate development projections for the proposed Jimboomba Celestino development have been estimated in accordance with the Place Design Group Structure Plan, drawing 4123001(Q) and the Veris Development Summaries included within Appendix A. Equivalent Persons (EP) were estimated using the demand (by landuse) values prescribed within Table 4.2.5.7 of the Logan City Council Planning Scheme 2015. Table 3-1 outlines the equivalent water and wastewater demands calculated for the proposed Jimboomba Celestino development.

Table 2-1: Jimboomba Celestino Development Projections

Precinct	Development Land Use	Quantity	Unit	Water Supply		Wastewater	
				EP/Unit	Total EP	EP/Unit	Total EP
1	Residential Dwellings	615	du	2.8	1722	2.8	1722
	School	141.0	100 m ² GFA	0.6076	86	0.6638	94
	Low-Medium Density Residential	393	du	2.8	1100	2.8	1100
2	Residential Dwellings	850	du	2.8	2380	2.8	2380
3	Residential Dwellings	1347	du	2.8	3772	2.8	3772
4	Residential Dwellings	644	du	2.8	1803	2.8	1803
	Neighbourhood Centre	68.0	100m ² GFA	0.7523	51	0.8219	56
	Low-Medium Density Residential	293	du	2.8	820	2.8	820
5	Residential Dwellings	1275	du	2.8	3570	2.8	3570
6	Residential Dwellings	608	du	2.8	1702	2.8	1702
	Low-Medium Density Residential	133	du	2.8	372	2.8	372
7	Low-Medium Density Residential	619	du	2.8	1733	2.8	1733
	Centre Apartments	424.8	du	2.8	1189	2.8	1189
	District Centre	175.2	100 m ² GFA	0.7523	132	0.8219	144
Total				20,434 EP		20,459 EP	
Total inc. 10% Contingency				22,477 EP		22,504 EP	

As outlined in Table 2-1, it is anticipated that the proposed Jimboomba Celestino development will have water supply and wastewater equivalent populations of 20,434 EP and 20,459 EP respectively. For modelling analyses, a 10% contingency has been applied. The adopted water supply and wastewater equivalent populations for design are 22,477 EP and 22,504 EP respectively. Provision has been made for future surrounding development areas within the Context Plan. Table 2-2 outlines the water and wastewater projections for the balance of the Context Plan.

Table 2-2: Balance of Context Plan Ultimate Development Projections

Precinct	Development Land Use	Quantity	Unit	Water Supply		Wastewater	
				EP/Unit	Total EP	EP/Unit	Total EP
11	Residential Dwellings	783	du	2.8	2192.4	2.8	2192.4
	Neighbourhood Centre	28.6	100 m ² GFA	0.7523	21.5	0.8219	23.5
12	Residential Dwellings	561	du	2.8	1570.8	2.8	1570.8
	Neighbourhood Centre	12.4	100 m ² GFA	0.7523	9.3	0.8219	10.2
13	Residential Dwellings	659	du	2.8	1845.2	2.8	1845.2
	School	132.8	100 m ² GFA	0.6076	80.7	0.6638	88.2
14	Residential Dwellings	576	du	2.8	1612.8	2.8	1612.8
15	Residential Dwellings	205	du	2.8	574.0	2.8	574.0
Total				7,907 EP		7,917 EP	
Total inc. 10% Contingency				8,697 EP		8,709 EP	

As outlined in Table 2-2, for design purposes, the balance of the Context Plan will have water supply and wastewater equivalent populations of 8,697 EP and 8,709 EP respectively. Table 3-3 provides a summary of the development projections for the Context Plan.

Table 2-3: Summary of Context Plan Development Projections

	Water Supply		Wastewater	
	Total EP	Total EP inc. 10% Cont	Total EP	Total EP inc. 10% Cont
Jimboomba Celestino	20,424	22,477	20,459	22,504
Balance of Context Plan	7,907	8,697	7,917	8,709
Context Plan Total	28,331	31,174	28,376	31,213

The adopted water supply and wastewater equivalent population demands for the Context Plan are 31,174 EP and 31,213 EP respectively.

3. Water Supply Service Strategy

A water supply network assessment was previously undertaken to assess the infrastructure required to service the Jimboomba Celestino development and the balance of the Context Plan. Trunk network infrastructure was adopted generally in accordance with the EDQ Flagstone PDA Water Supply Servicing Strategy. Assessment was undertaken for the ultimate population projection of 31,134 EP. All proposed water service strategies are conceptual only and remain subject to detailed engineering design.

3.1. Existing Water Supply Network Infrastructure

There is an existing DN375 trunk water main to the north of the site at the intersection of Homestead Drive and Teviot Road. This is currently being extended along the Teviot Road frontage to the proposed development and is expected to supply this site. This DN375 water main is supplied via Round Mountain Reservoir, approximately 6.9 km north-west. There is also an existing DN225 water main located immediately north-east of the site in Riverbend Boulevard.

Site inspections have identified an existing ground level water reservoir adjacent the north-east boundary of the site at Riverbend Boulevard. Liaison with EDQ has confirmed that the reservoir was temporary infrastructure and is currently in the decommissioning process. For the purpose of this assessment, operation of the reservoir has not been accounted for in the investigation.

3.2. Proposed Water Supply Service Strategy

As outlined on drawing 20-0190-SK301(A) which documents the proposed masterplan water network and relevant pressure zones. It is noted that this is consistent with the previous IMP endorsed and adjusted to the current layout. It is expected to be serviced via the DN300 water network within Teviot Road for the first precincts of development which ultimately will loop back to Riverbend Boulevard and Bushman Drive within the development site. HLZ and LLZ are indicatively located in line with previously endorsed IMP and will be subject to precinct network plan assessment with each ROL to confirm the extent of the boundary zones.

Based on the previous network modelling analyses, it is considered that the internal and external water supply networks can service the proposed Jimboomba Celestino development and the balance of the Context Plan generally in accordance with the EDQ Flagstone PDA Water Supply Servicing Strategy.

4. Wastewater Service Strategy

A wastewater network assessment was previously undertaken to assess the infrastructure required to service the Jimboomba Celestino development and the balance of the Context Plan. Trunk network infrastructure was adopted generally in accordance with the EDQ Flagstone PDA Wastewater Servicing Strategy. Assessment was undertaken for the ultimate population projection of 31,169 EP. All proposed wastewater service strategies are conceptual only and remain subject to detailed engineering design.

4.1. Existing Network

There is an existing gravity main located approximately 1.6 km north-west of the site in Homestead Drive whereby wastewater gravitates to the existing SPS adjacent Blueberry Ash Court. From here flows are conveyed north to the existing Jimboomba WWTP. Liaison with LWIA and LCC has indicated that the existing wastewater infrastructure and Jimboomba WWTP does not have residual capacity to service future development loads.

As outlined in the Flagstone PDA Wastewater Servicing Strategy, it is proposed that the site is serviced via the Cedar Grove WWTP network.

4.2. Proposed Wastewater Service Strategy

As outlined on drawings No.B13343.W-WW002 to WW004 within Appendix B outline the proposed wastewater service strategies for the three proposed planning horizons. The proposed servicing strategies are generally in accordance with the EDQ Flagstone PDA Wastewater Servicing Strategy.

As outlined on Drawing 20-0190-SK300(A), it is proposed that the initial stages of the Jimboomba Celestino development will be serviced via the Sub-Regional Pump Station delivered by Logan Water centrally to the site which discharges to the Cedar Grove WWTP in accordance with the EDQ Flagstone PDA Wastewater Servicing Strategy.

It is proposed that a new permanent pump station will be constructed adjacent Teviot Road to service the northern catchment. Wastewater will be pumped south to the trunk gravity network which conveys wastewater to the sub-regional pump station central to the site. Additionally a sewer pump station to the west of the site service the western catchment. This catchment will also be pumped back to the central Sub-regional pump station to service the overall catchment.

Based on the previous network modelling analyses, it is considered that the internal and external sewer networks can service the proposed Jimboomba Celestino development and the balance of the Context Plan generally in accordance with the EDQ Flagstone PDA Wastewater Servicing Strategy.

5. Concluding Remarks

This water and wastewater infrastructure master plan outlines the intended strategy for servicing the overall development and acts as an addendum to the previously endorsed IMP strategy. It is expected that Precinct Networks Plans will be provided with each ROL application to support the staging of the infrastructure delivery and pipe sizing strategies within each precinct. This information has been prepared to support the context area plan application.

6. Supporting Documents and Related Reports

- Calibre Consulting (March 2017), Water and Wastewater Infrastructure Master Plan
- Cardno (2 November 2015), Greater Flagstone PDA Wastewater Servicing Strategy.
- Logan City Council (2016), H2OMap Water Model entitled Logan_Comb11.H2O.
- Logan City Council (2015), Logan Planning Scheme SC6.2.5 Planning Scheme Policy.
- Logan City Council (2015), LWIA Water Network DSS entitled 90-13-08.
- Logan City Council (2014), LWIA Wastewater Network DSS entitled 90-12-43.
- SEQ Water (2013), SEQ Code – South East Queensland Water Supply and Wastewater Design & Construction Code

7. Disclaimer

This report is prepared by Colliers Engineering & Design for exclusive use by its client only. No responsibility is accepted for the use of or reliance upon this report in whole or in part by any third party.

The sole purpose of this report and the associated services performed by Colliers Engineering & Design is to display information in accordance with the scope of services set out in the contract/quotation between Colliers Engineering & Design and its client. The scope of works and services were defined by the requests of the client, by the time and budgetary constraints imposed by the client, and by the availability of access to site/s and information.

This report is prepared with information supplied by the client and possibly others which is presumed to be accurate and complete. No responsibility is accepted for information that is withheld, incorrect or that is inaccurate, nor for changes to the conditions over the passage of time or from latent circumstance or conditions. No warranty or guarantee is made in relation to the data, findings and conclusions expressed in this report.

This report has been compiled at the level of detail specified in the report and no responsibility is accepted for interpretations made at more detailed levels than so indicated.

Attachments

Attachment A	Context Plan
Attachment B	Preliminary Engineering Plans

RIVERBEND

CELESTINO

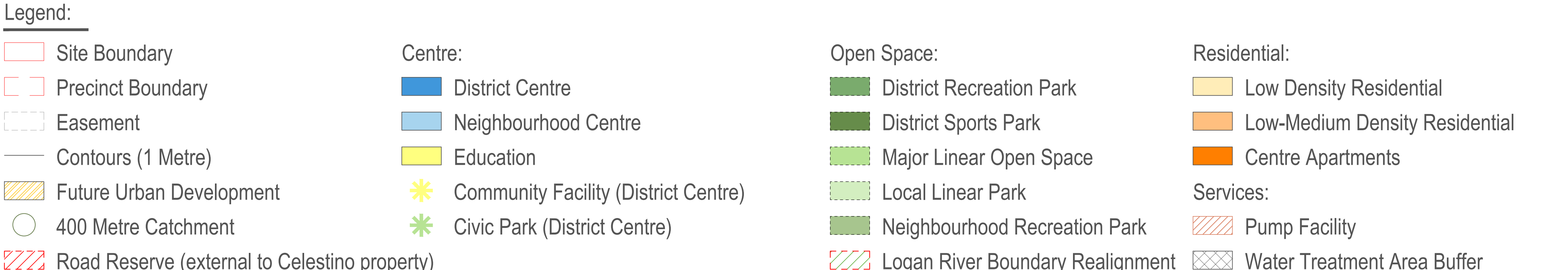
SITE BOUNDARIES: COLLIERS (JUNE 2024)
ADJOINING CADASTRE: QSPATIAL
DESIGN CONTOURS: COLLIERS (JUNE 2024)
AERIAL PHOTOGRAPHY: NEARMAP
TEVIOT ROAD DETAIL: COLLIERS (OCTOBER 2023)

ISSUE	CODE	ISSUE DESCRIPTION	BY	CHK	DATE
A	PRE	FOR REVIEW	TD		20/04/2023
B	PRE	FOR REVIEW	TD		21/04/2023
A	PRE	FOR REVIEW	TD		21/04/2023
C	PRE	FOR REVIEW	TD		03/05/2023
D	PRE	FOR REVIEW	NV		07/06/2023
E	PRE	FOR REVIEW	NV		30/08/2023
F	PRE	FOR REVIEW	NV		01/11/2023
G	PRE	FOR REVIEW	NV		02/11/2023
H	PRE	FOR REVIEW	TD		02/11/2023
I	PRE	FOR REVIEW	NV		10/11/2023
J	PRE	FOR REVIEW	TD		13/11/2023
K	PRE	FOR REVIEW	NV		13/11/2023
L	PRE	FOR REVIEW	NV		20/02/2024
M	PRE	FOR REVIEW	NV		28/03/2024
N	PRE	FOR REVIEW	NV		04/03/2024
O	PRE	FOR REVIEW	NV		08/04/2024
P	PRE	REVISED DISTRICT CENTRE	NV		30/07/2024
Q	PRE	FINAL ISSUE	NV		02/08/2024

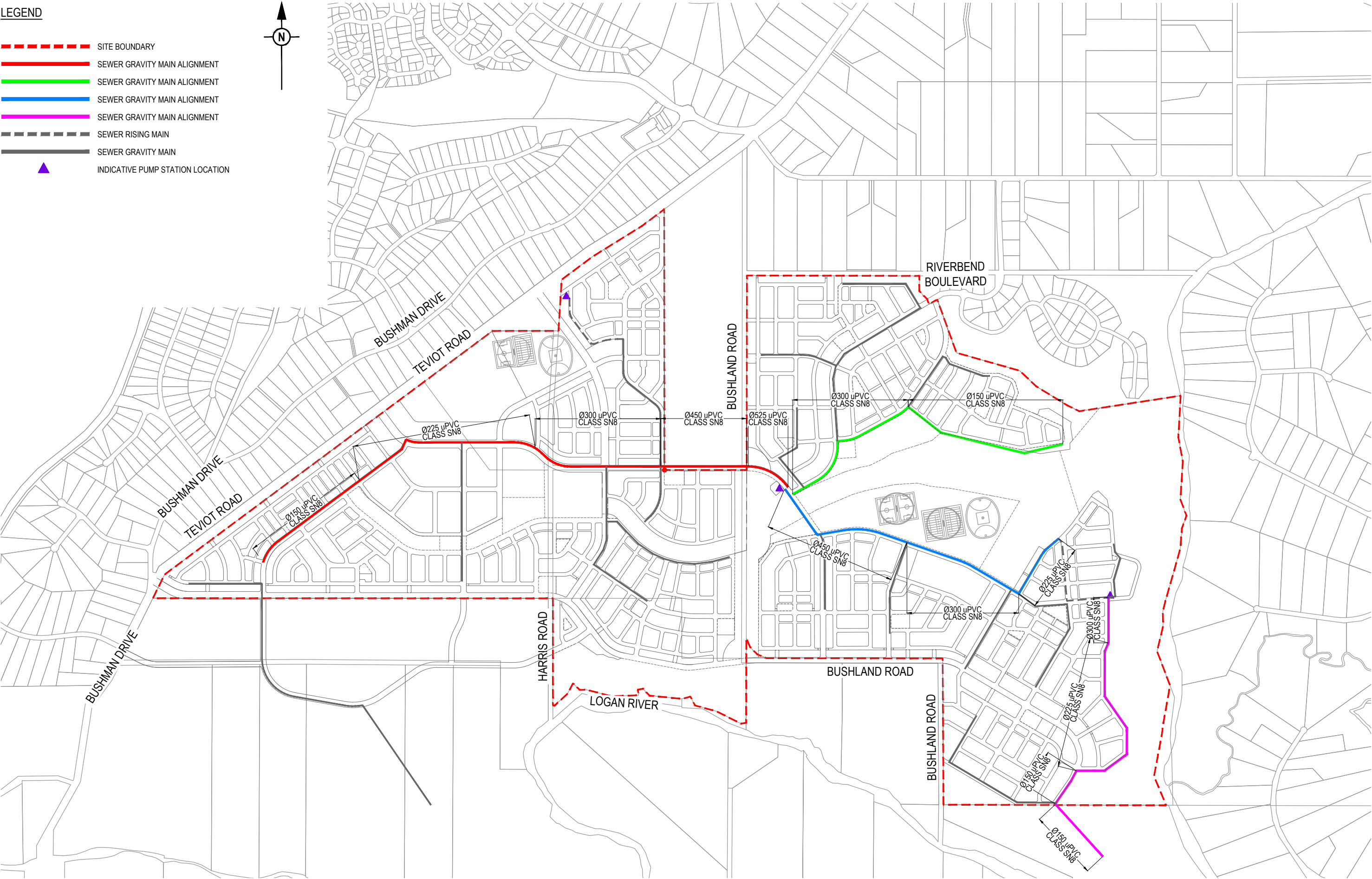
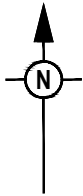
DRAWING TITLE

DESIGN : TD
DOCUMENT : TD / NV
PROJECT : 4123001
1:5,000 @ A

REVISION



- LEGEND**
- SITE BOUNDARY
 - SEWER GRAVITY MAIN ALIGNMENT
 - SEWER GRAVITY MAIN ALIGNMENT
 - SEWER GRAVITY MAIN ALIGNMENT
 - SEWER GRAVITY MAIN ALIGNMENT
 - SEWER RISING MAIN
 - SEWER GRAVITY MAIN
 - INDICATIVE PUMP STATION LOCATION



REV	DATE	DESIGN	DRAWN	REVISION DETAILS
A	15.07.24	ML	BA	ORIGINAL ISSUE

DRAWN	STATUS
	NOT FOR CONSTRUCTION
DESIGN	APPROVED DANIEL COLLINS RPEQ 18631
FOR AND ON BEHALF OF COLLIER'S INTERNATIONAL ENGINEERING & DESIGN PTY LTD	



SCALE
1:7500 1:15000
150 0 150 300 A1 1:15000 A3

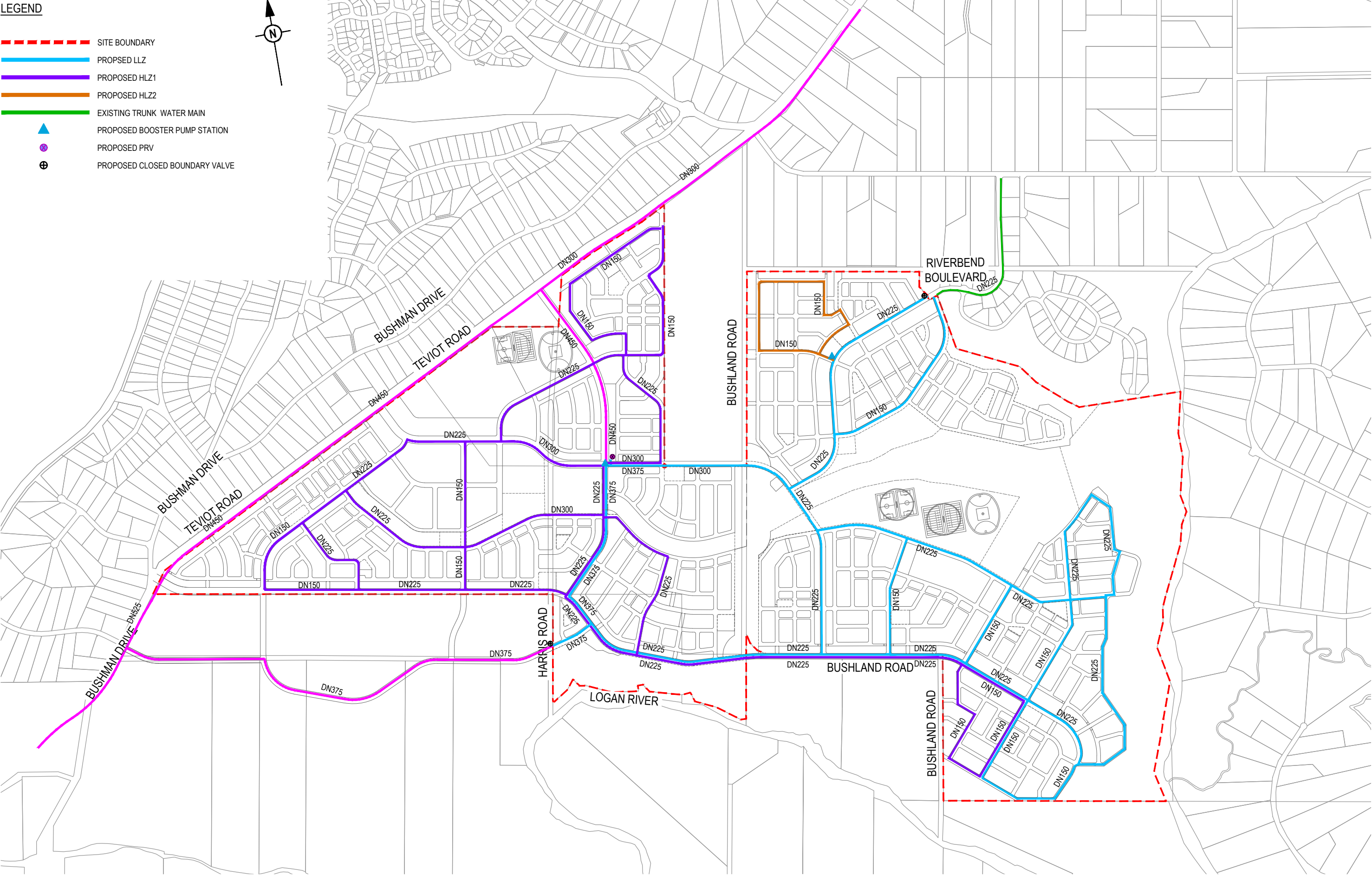
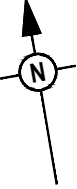
CLIENT
CELESTINO DEVELOPMENTS PTY LTD
ASSOCIATED CONSULTANT

PROJECT NAME
RIVERBEND
RIVERBEND JIMBOOMBA

DRAWING TITLE		
PROPOSED ULTIMATE SEWER ALIGNMENT SERVICE STRATEGY		
PROJECT No.	DRAWING No.	REVISION
20-0190	SK300	A

PLOT - 03 Sep 2024 04:21 PM LOCATION - H:\2020\0190 Riverbend\Design\A\01A Master Plan\SKETCH\Sewer and Water Plans\20-0190 SK300 (SEW).dwg

- LEGEND**
- SITE BOUNDARY
 - PROPOSED LLZ
 - PROPOSED HLZ1
 - PROPOSED HLZ2
 - EXISTING TRUNK WATER MAIN
 - ▲ PROPOSED BOOSTER PUMP STATION
 - PROPOSED PRV
 - ⊕ PROPOSED CLOSED BOUNDARY VALVE



REV	DATE	DESIGN	DRAWN	REVISION DETAILS
A	15.07.24	ML	BA	ORIGINAL ISSUE

DRAWN	STATUS
	NOT FOR CONSTRUCTION
DESIGN	APPROVED DANIEL COLLINS RPEQ 18631
	FOR AND ON BEHALF OF COLLIER'S INTERNATIONAL ENGINEERING & DESIGN PTY LTD



SCALE
1:7500 150 0 150 300 A1
1:15000

CLIENT CELESTINO DEVELOPMENTS PTY LTD
ASSOCIATED CONSULTANT

PROJECT NAME RIVERBEND
RIVERBEND JIMBOOMBA

DRAWING TITLE PROPOSED ULTIMATE WATER ALIGNMENT AND PRESSURE ZONES		
PROJECT No. 20-0190	DRAWING No. SK301	REVISION A

PLOT: 15 Aug 2024 04:06 PM LOCATION: H:\2020\0190 Riverbend\Design\Asat\DA Master Plan\SKETCH\sewer and Water Plans\20-0190 SK301 WAT1.dwg