

RIPLEY VALLEY SECONDARY URBAN CENTRE EAST STAGES 2 - 3

Infrastructure Report

Appendix E to the Town Planning Report

Project Number: 7901/47-029

Prepared for AMEX Corporation Pty Ltd

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1 INTRODUCTION

This report assesses the infrastructure required to service Stages 2 - 3 of the proposed Ripley Valley Secondary Urban Centre East (SUCE) development. The Stages 2 - 3 Infrastructure Report takes account of the proposed infrastructure outlined for Stage 1 (previously referred to as Precinct A) in the previously submitted *Precinct A Infrastructure Report (Appendix F to the Town Planning Report – November 2010)*, which also outlines the trunk network servicing requirements for the greater SUCE area.

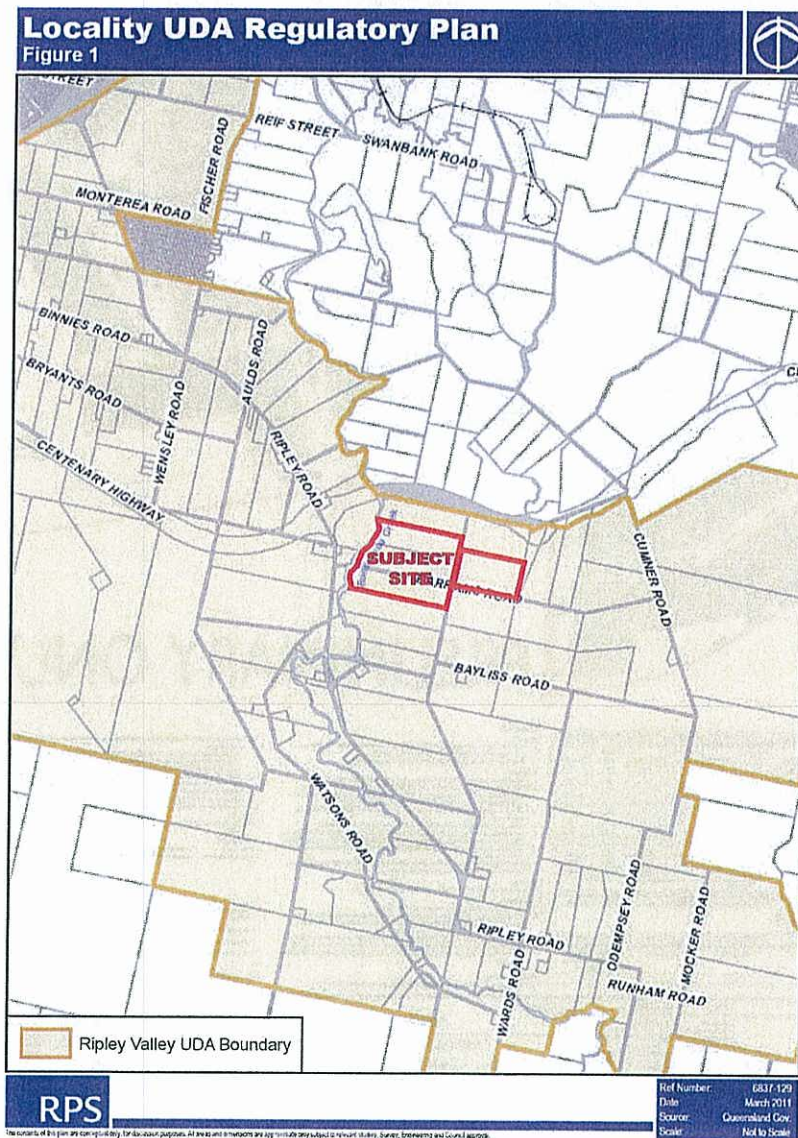
The Stages 2 - 3 Infrastructure Report identifies creditable infrastructure, which has been classified as 'trunk' in acknowledgment of the future benefits for the wider community. The schedule and mapping of trunk works is included in Appendix 2. These items are presumed to be considered as creditable works under the proposed UDA trunk infrastructure charging regime – i.e. the Local Infrastructure Plan.

Internal service layouts have been developed for Stages 2 - 3 and are provided in Appendix 1.

2 BACKGROUND

A part of the SUCE has been declared by the Urban Land Development Authority (ULDA) as an Early Release Precinct (ERP). This incorporates the area covered by Stage 1 and the remaining balance of 300 lots in Stages 2 - 3. The Stages 2 - 3 site covers approximately 15.6 Ha, includes 175 lots (168 residential lots, 3 management lots, 4 balance lots, and park, and has an approximate equivalent population (EP) of 450 EP. Figure 1 below provides a location plan and Figure 2 provides indicative land uses and road configurations for the area.

FIGURE 1 – Location Plan



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3 TRUNK SERVICING

All necessary supporting utilities infrastructure, including trunk water supply, sewerage services, electricity and telecommunications networks, will be provided during construction of the first stages of development. This infrastructure will be implemented on a staged basis to align infrastructure roll out with development growth. Infrastructure demands generated by Stages 2 - 3 do not require augmentations of trunk infrastructure elements previously proposed within Stage 1.

3.1 WATER SUPPLY

The area is currently primarily serviced by a 10ML reservoir beyond the southern end of Wensley Road. The reservoir has a bottom water level (BWL) of approximately 102.8m AHD. A 16ML reservoir was recently constructed adjacent to the existing 10ML reservoir, creating a combined reservoir capacity of 26ML. The existing supply arrangement can service development in the Ripley Valley up to approximately 6,000EP (i.e. equivalent to more than 5 years growth at an average of 1,000EP or 400ET per annum). Growth beyond 6,000EP triggers an augmentation of the connection from the SRWP.

Only areas below 75m AHD to 80m AHD are able to be serviced from the existing reservoir and meet Council's DSS (e.g. minimum pressure of 22m at maximum hour). Stages 2 - 3 site has a maximum elevation below the 70m AHD contour.

The primary connection to Stages 2 - 3 is via the proposed 300mm trunk main within Stage 1. This will provide sufficient capacity to service up to 2400 dwellings (including Stages 1 -3) prior to the need for further augmentation. This trunk main will be constructed within the easement of the proposed sub arterial loop road through Stages 2 - 3.

As future stages are released, the 300mm main will form part of an extensive supply network supplied by low and high level reservoirs and the Southern Regional Water Pipeline (SRWP).

3.2 SEWERAGE

Consideration has previously been given to wastewater servicing and is outlined in documentation submitted with the Stage 1 DA. The ultimate external sewerage infrastructure requirements are currently under investigation by Queensland Urban Utilities (QUU). However, it has been agreed with QUU that initially a tankering solution would be appropriate followed by the commissioning of a local pump station and rising main for the SUCE connecting to a pump station and rising main from the Urban Core to the Bundamba Creek trunk sewer main at Robertson Road.

The proposed trunk sewer servicing strategy utilises the gravity mains within Stage 1, which will collect sewerage (via gravity sewers) from the south-west of the Precinct. Sewer will transfer to the pump station via a new trunk gravity main through the linear park adjacent to Stages 2 - 3.

It is intended to route the first stage of the rising main (200mm dia.) to the proposed pump station north of the urban core via the eastern side of Bundamba Creek for approximately 1.6kms, before crossing the creek and continuing to the pump station north of the Urban Core. The preferred route and 3 alternative route options are shown on Plan 790147/012-SK005 Rev E, in Appendix 3. The final route selection is subject to further discussions and agreement with 3rd party land owners. It is expected that the ULDA and QUU will facilitate the securing of access and easements for these works.

Beyond the tankering solution the initial stage of the rising main from the SUCE to the Urban Core pump station (150mm dia main) will provide capacity to service 1300 dwellings (approx 3300 EP) i.e. sufficient capacity up to and beyond Stages 2 - 3.

The pump well and trunk gravity sewer main network will provide sufficient emergency storage capacity to provide a minimum 18hr emergency storage capacity for the entire SUCE area in the event of pump station breakdown. Therefore, it follows that there will be sufficient capacity to provide well in excess of 24hrs emergency storage for Stages 2 - 3.

3.3 RECYCLED WATER

Currently there is an existing recycled water main servicing Swanbank Power Station from the Bundamba Advanced WWTP. There are no immediate plans to extend this service to the SUCE as there are no requirements for the supply of recycled water (purple pipe) to Stages 2 - 3. Subject to an agreement on trunk works timing, it is proposed to construct the recycled water main through the open space corridor adjacent to Bundamba Creek to service major park works within the open space.

3.4 ROADS

3.4.1 External Trunk Roads

Ripley Valley is bisected from east to west by the Centenary Highway Extension (CHE). Ripley Road provides north-south connectivity with Ipswich CBD, and intersects the CHE via an at-grade intersection. Stages 2 - 3 of the SUCE development do not trigger requirements for upgrades to external trunk roads. Significant traffic capacity exists on the recently constructed Centenary Highway Extension (CHE) north of the site and proposed external works on Ripley Road (for Stage 1) provide sufficient traffic capacity to and beyond Stages 2 - 3.

3.4.2 Internal Trunk Roads

Stages 2 - 3 will be serviced by a functional road hierarchy including trunk arterial and sub-arterial roads. The traffic related issues are addressed in the Stage 1 DA and subsequent DA RFI response.

Stages 2 - 3 forms the second stage of development within the SUCE and has primary access via the proposed sub-arterial loop road extended from Stage 1. Preliminary design has been developed and submitted to the ULDA as part of the Stage 1 RFI response.

3.4.3 Junctions and Bridges

Stages 2 - 3 does not trigger additional work to previously constructed trunk roads, junctions or bridges. The culvert in the floodway under the extended trunk road within Stages 2 - 3 forms part of the trunk infrastructure works for Ripley Valley.

3.5 ENERGY AND COMMUNICATIONS

3.5.1 Electricity

Electricity is currently provided to the area, however, it is expected that this would need to be augmented with extensions to the existing high voltage network from Swanbank. Energex has identified two potential substation sites near the SUCE which would provide electricity supply to future development. These are proposed to be staged in line with future development and are not required to service Stages 2 - 3 which can be serviced from existing low voltage supplies.

Energex has identified two proposed major projects to augment their 11kV network and enhance the reliability of supply. These will be completed to service Stage 1 works and subsequent connections will provide for supply to Stages 2 - 3.

3.5.2 Gas

No natural gas supply networks currently exist within the Ripley Valley. Future services will be accommodated in the reticulated ducting included in the road reserves. Investigations are ongoing with suppliers with respect to trunk servicing which may include bulk storage of LNG in the vicinity of the Valley to facilitate early servicing.

3.5.3 Data

Communication infrastructure in the Ripley Valley consists predominately of copper phone/data lines and a trunk Telstra fibre optic cable on Ripley Road. The rollout of the federal governments' National Broadband Network (NBN) may impact on planning for incorporating copper lines into Stages 2 - 3. At this time a decision has not been reached and is subject to further discussions with the ULDA and government authorities to determine the necessary requirements. Provision for future services is included in proposed reticulated ducting.

The rollout of the federal governments' National Broadband Network (NBN) may be dependent on the provision of back-haul services to the main trunk networks i.e. to Springfield data centre or Ipswich CBD. This is subject to further consultation and is not allowed for in the Stages 2 - 3 application. Investigations are also ongoing with respect to access to the existing Telstra trunk fibre cable in Ripley Road.

3.6 PARKS

3.6.1 Linear Parks

The trunk linear parks include approximately 2.6ha of urban floodway that incorporates formal open spaces and walking/cycle trails. This route provides connectivity between the town centre and the open spaces adjacent to Bundamba Creek.

Stages 2 - 3 also triggers the construction of the end of line detention basin adjacent to Bundamba Creek, which initially incorporates 3.7ha of informal recreational space and ultimately includes the local sports grounds.

The linear park works in Stages 2 - 3 also include minor works to 2.5ha of the Bundamba Creek buffer along a 500m strip adjacent to the detention basin works.

3.6.2 Local Recreational (Amenity) Parks

Stages 2 & 3 both include a local amenity park that, when combined with all local parks in the SUCE, provides the local park allocation.

4 INTERNAL SERVICING

4.1 WATER SUPPLY

Water Supply within Stages 2 - 3 has been developed to include a potable water source and an alternative source in line with the Queensland Development Code (QDC) – Dec 06. For all Class 1 buildings, rainwater tank water has been included in the modelling. Rainwater tanks will be implemented in accordance with the QDC. The QDC also mandates the use of water efficient appliances for all new homes and this is accounted for in the water model.

Lots will be serviced internally by a network of smaller diameter water supply pipes, typically ranging from 100mm to 150mm. Proposed 250mm mains in the trunk roads form part of the ultimate trunk water supply network.

Road typologies include provision on one side of the reserve for water servicing with cross spurs. The internal supply network has been configured to minimise pipe and connection lengths and hence unnecessary storage volumes.

See Appendix 1 for preliminary servicing layouts.

4.2 SEWERAGE

Proposed lots will be serviced by PE pipe (NuSewer) gravity sewers, as required by QUU.

The internal sewerage configuration is governed by proposed ground levels, QUU design requirements, and location of the pump station (to be confirmed during Stage 1 detailed design phase). See Appendix 1 for preliminary servicing layouts.

4.3 ROADS

4.3.1 Road Network

The precinct road network has been designed to function as a 'grid' to provide enhanced thoroughfare permeability and route selection. Stages 2 - 3 road typologies include access roads and edge (singularly loaded) roads and laneways for rear loaded lots. Kerb radii are at 6m to minimise kerb mounting. Road typologies have been designed to service vehicular, cycle and pedestrian traffic.

4.4 ENERGY AND COMMUNICATIONS

4.4.1 Electricity

Provisions for shared trenching for electrical and communication conduits have been allowed for in the road reserve in accordance with Ipswich City Council standard drawings.

4.4.2 Gas

Provisions for gas reticulation has been provided for in the road reserve to allow for the future connection of gas mains.

4.4.3 Data

Provisions have been allowed for in the proposed road reserve, see 4.4.1. These conduits provide capacity to cater for copper or future optical fibre service networks. The precise nature of NBN requirements is not yet known.

5 CONCLUSIONS

From this report the following conclusions can be drawn:

- The proposed water supply infrastructure is generally in accordance with Ipswich City Councils' planning scheme policy part 15, and consideration has been given to QUU requirements.
- The proposed trunk water supply infrastructure for Stage 1, and the extension of trunk supply mains to Stages 2 - 3, will provide sufficient capacity to and beyond Stages 1 -3 (a total of 300 lots).
- Precinct trunk 250mm water supply mains will form part of the future ultimate supply network.

- The preferred route for the rising main to the Urban Core and on to Robertson Road has been identified as the Bundamba Creek corridor and Fischer Road. It is expected that the ULDA and QUU will facilitate the securing of access and easements for these works.
- A combination of the proposed sewerage infrastructure necessary for Stage 1, and the proposed mains in the open space area, will provide sufficient capacity to effectively service the SUCE Stages 2 - 3 development. 225 to 300 mm trunk gravity mains will service Stages 2 - 3 and in conjunction with the pump station well will provide emergency storage capacity..
- The proposed road hierarchy is generally in accordance with the Ripley Valley Structure Plan.
- Electrical servicing requirements have been identified by ENERGEX for Stage 1 and provide sufficient capacity for extension of supply to Stages 2 - 3.
- Gas servicing requirements have not been confirmed; however, provisions exist within the proposed road reserves for future services.
- Communications (data) infrastructure requirements have not yet been defined. Provisions exist within the proposed road reserves for copper or optical fibre mains.
- Park works include approximately 9 ha of linear park works within urban corridors, recreational space within detention basins and within the Bundamba Creek buffer. Stages 2 & 3 contain minor local/neighbourhood parks.

Appendix 1

Stages 2 – 3

Staging Layout Plan

7901-47-029-SK001

Services Layout Plans

7901-47-029-SK010

7901-47-029-SK011

7901-47-029-SK012

7901-47-029-SK013

Proposed Earthworks Model Layout Plan

7901-47-029-SK020

Erosion and Sediment Control Plans

7901-47-029-SK061

7901-47-029-SK062

7901-47-029-SK063

Road 1 Longitudinal Section

7901-47-029-SK131

Internal Water Supply and Sewerage Layout Plans

7901-47-029-SK301

7901-47-029-SK302

7901-47-029-SK401

7901-47-029-SK402

Please Refer to **Appendix B** of the Town
Planning Report – Plan of Development and
Supporting Information

Appendix 2

Trunk Infrastructure Plans & Schedule

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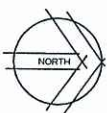
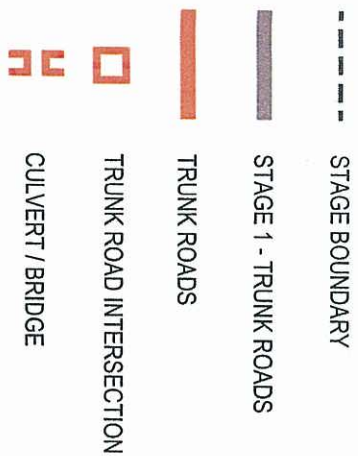
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SUCE STAGES 2 & 3 TRUNK INFRASTRUCTURE

PLAN ID	Trunk Service	Description	Size	Qty	Unit
Stages 2 & 3 Trunk Roads					
R8	Trunk Roads (Internal)	New Loop Road within Stage 3	23.5m Road Reserve	330	m
R9	Culvert - New road	Culvert in North East of Stage 1		250	m^2
Stages 2 & 3 Trunk Sewer					
S6	Sewer Gravity Main	Sewer gravity main to Pump Station adjacent to stage 4	300mm	400	m
S1	Sewer Rising Main	Sewer rising main from the pump station through to the UC pump station - capacity for 1300 dwellings	200mm	2526	m
	200mm Sewer Rising Main UC	Rising Main (first stage) from UC pump station to Robertson Road	200mm	6018	m
	Pump Station + Well in UC	3m dia well and pumps (Note SUCE pump station constructed with Stage 1)	-	1	
Stages 2 & 3 Trunk Water					
W6	Water Mains (Internal)	Water mains within Stage 3	250mm	350	m
Stages 2 & 3 Trunk Park					
P3	Corridor Park	Urban floodway (hard landscaping)	Areas of park/drainage to be determined	1.35	ha
P4	Corridor Park	Open drainage swales	Areas of park/drainage to be determined	2.36	ha
P5	Local Recreation Park	Kick-a-bout and informal space within detention basin	Areas of park/drainage to be determined	3.17	ha
P11	Corridor Park	50m buffer Bundamba Creek - north of phase 1 linear park	-	2.21	ha
P13	Local Amenity Park	Pocket Park within Stage 2		0.06	ha
P20	Local Amenity Park	Pocket Park within Stage 3		0.14	ha

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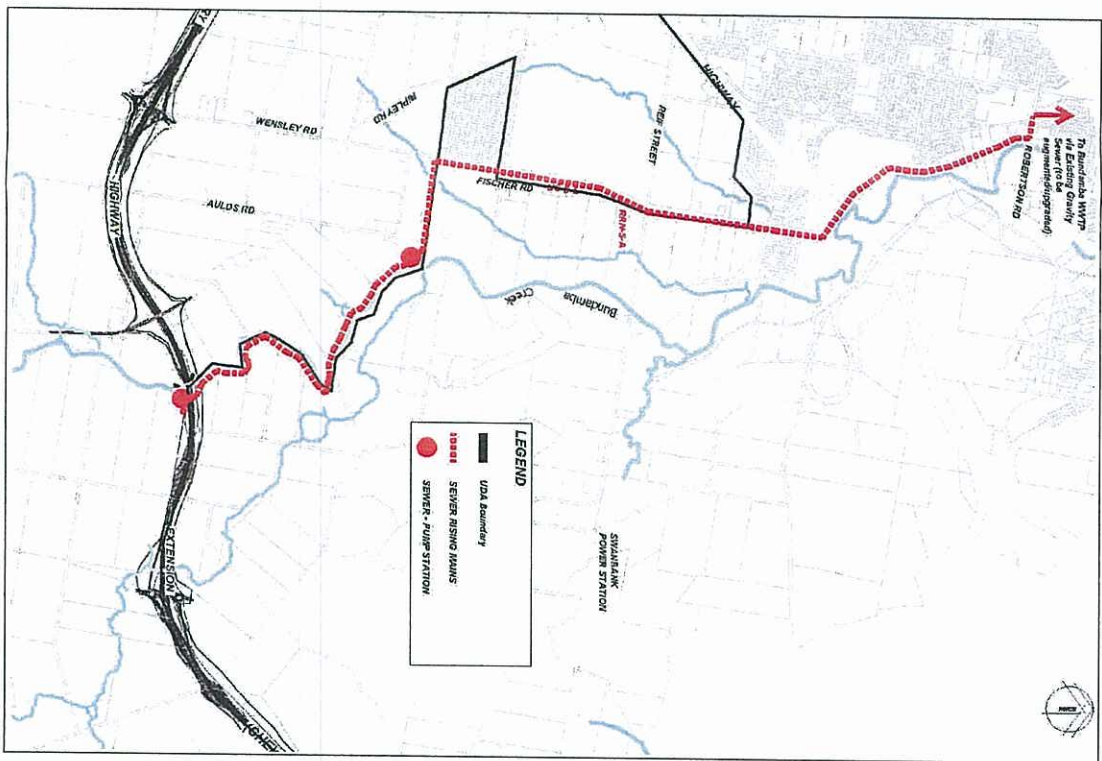
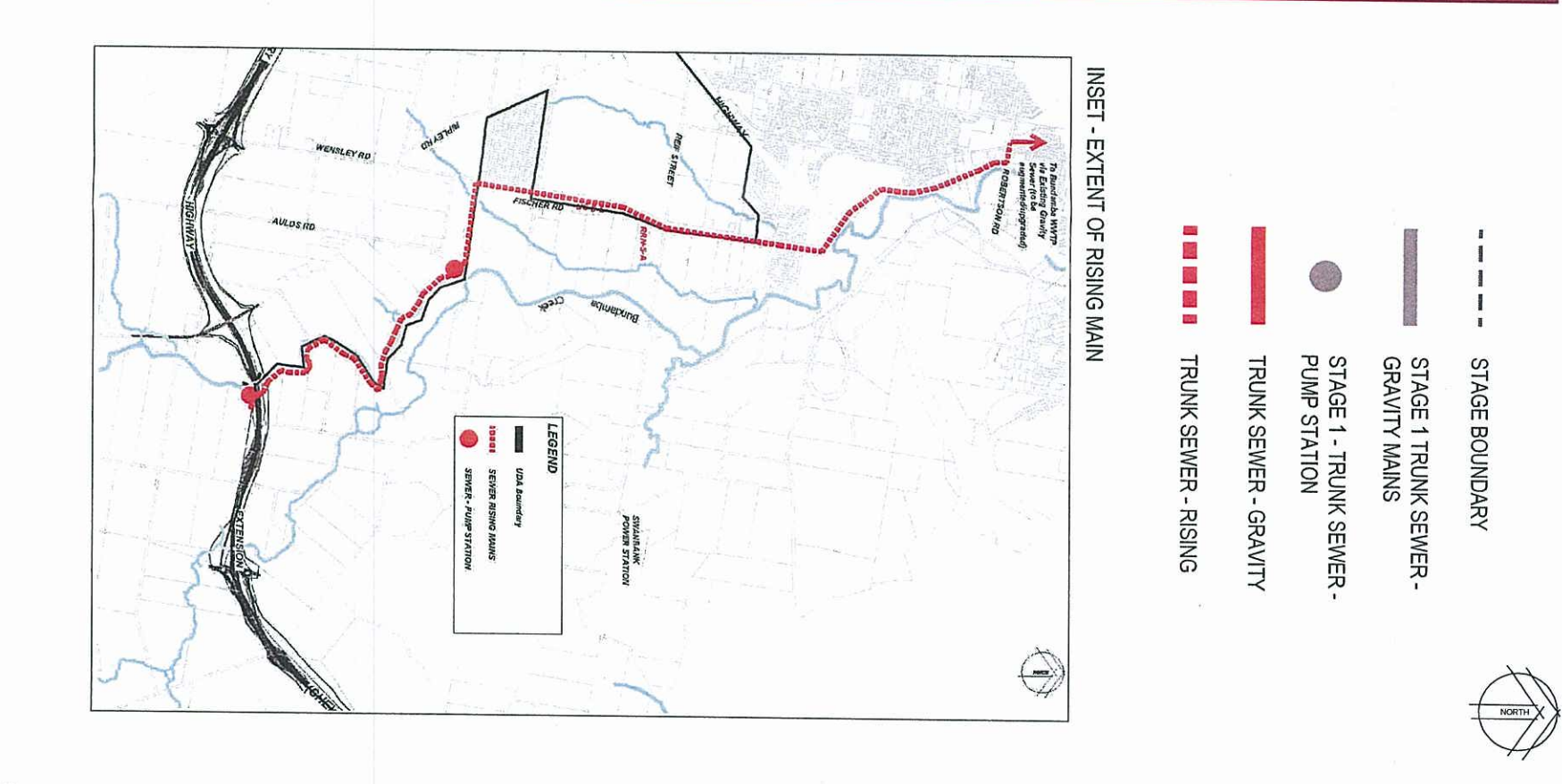
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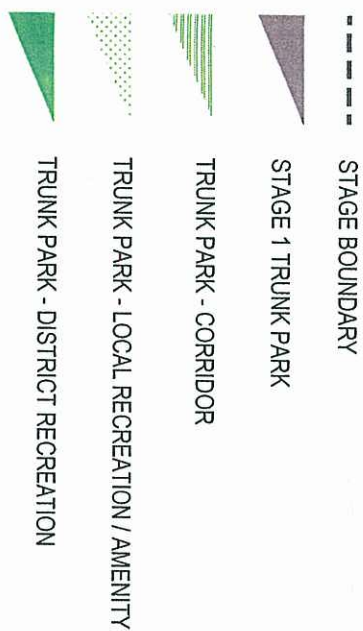
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