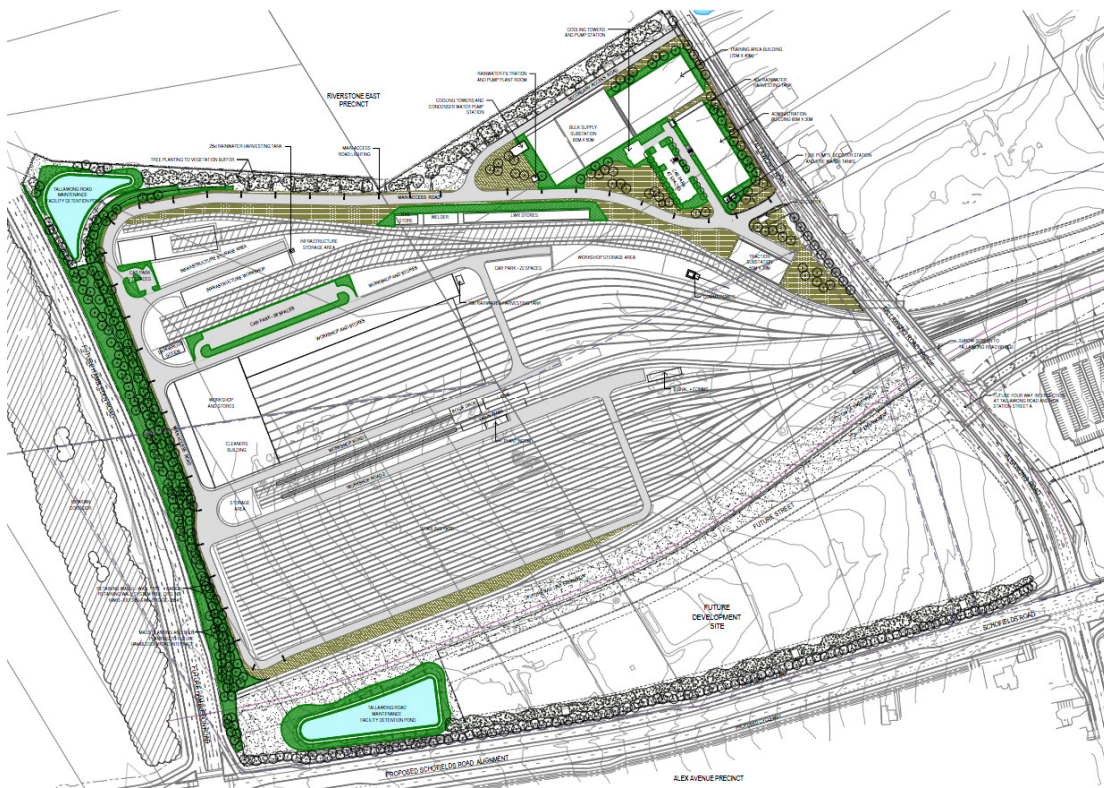


# RAPID TRANSPORT RAIL FACILITY Utility Services Assessment

Prepared for: JBA Planning and Transport for NSW

June 2013

Final



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## **Utility Services Assessment**

### **Prepared for JBA Planning and Transport for NSW**

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## 1 EXECUTIVE SUMMARY

Diversi Consulting has been engaged by JBA Planning and Transport for NSW to prepare a report on the availability of services in the area for the Rapid Transit Rail Facility (RTRF) at Tallawong Road, Schofields as well as define what utility service lead-in works are required to adequately service this facility.

This report demonstrates that preparation for supply of electricity for the RTRF facility is well in hand with the newly commissioned Endeavour Energy Rouse Hill Substation able to supply the requirements required by the RTRF. A suitable route for the connection has been identified that can be constructed independently of others works.

There is no current water supply adequate to service the site. However water is available nearby in Schofields Road or Macquarie Road and can be extended to the RTRF site. Initial water supply for construction may be able to utilise the existing private water main in Tallawong Road.

The two major water mains that currently exist in Tallawong Road will be affected by the construction of the new Tallawong Road road/rail bridge and will have to be adjusted as part of the Tallawong road realignment. This forms part of critical early works for the RTRF site.

Sewerage services are not currently available to the RTRF site but Sydney Water are currently constructing new sewer mains close to the RTRF site boundary in the south western corner. This sewer main may be able to be used for the construction phase.

A future sewer connection at the completion of the works may be possible in the north western corner of the RTRF site if a proposed sewerage carrier main has been constructed by then.

Aerial copper telecommunication cables currently service the RTRF site but there is potential for connection to the NBN. Gas is currently not available but may be made available if required.

The site is well positioned for future service of electricity, water, sewerage and communications but some large water mains need to be relocated in early works.

## 2 INTRODUCTION

### 2.1 General

Diversi Consulting has been engaged by JBA Planning and Transport for NSW to prepare a report on the availability of services in the area for the Rapid Transit Rail Facility (RTRF) at Tallawong Road, Schofields as well as define what utility service lead-in works are required to adequately service this facility.

The proposed facility is situated in a predominantly rural area, as shown in **Figure 2.1**, with limited existing services. However, located within the Sydney's North West Growth Centre, the area is rapidly developing and a number of new major service lead-ins and upgrades are currently under construction or are in the planning/design phase.

**Figure 2.1** Locality Plan



### 2.2 Purpose and Scope

The purpose of this report is to investigate the availability of existing services to the proposed RTRF site and potential lead-in and upgrade requirements. This assessment has been based on a desktop review of the reports, plans and information supplied by JBA Planning and Transport for NSW (TfNSW), an on-site inspection of the existing conditions as well as discussions directly with Endeavour Energy (EE) and Sydney Water Corporation (SWC).



### 2.2.1 Limitations

There are a number of limitations that have constrained this utility services assessment, including;

- Limited access to early information, discussions and decisions relating to the RTRF planning and site assessment phase.
- Current work being undertaken along Schofields Rd means that future As-Builts for current work are not available through Dial-Before-You-Dig (DBYD). This will require a more detailed search directly to the utilities authorities to obtain plans for current and proposed works.
- A site inspection identified current work on the 450mm and 600mm critical water mains along Tallawong Road, installation of a new recycled water main along Schofields Road and a possible new sewer pump-out tank, conveniently located in the best position for us, near the corner of Hambledon Road and Schofields Road. The earlier reports may not have included all of these three features, all of which are critical.

### 2.2.2 Site investigations

As there are only a few existing services within the boundaries of the site only a basic inspection was undertaken. No exact field locations of services were recorded, with some of the newer services still being adjusted along Schofields Road.

### 2.2.3 Assessment methodology

Our assessment has included an initial DBYD enquiry, followed up by direct consultation with selected authorities after review of any detailed reports that were available from TfNSW.

## 2.3 Project Background

Transport for NSW (TfNSW) proposes to develop a Rapid Transit Rail Facility on land between Tallawong Road, Schofields Road and First Ponds Creek in the localities of Rouse Hill and Schofields. The Rapid Transit Rail Facility would comprise a purpose built train stabling and maintenance facility to support Sydney's new rapid transit rail network.

*Sydney's Rail Future: Modernising Sydney's Trains*, released in June 2012, sets the long term strategy to increase the capacity of Sydney's rail network through investment in new services and upgrading of existing infrastructure. New generation, single deck rapid transit trains are a key element of the strategy.

The operational and land requirements for the rapid transit network are being progressed in accordance with the NSW Long Term Master Plan, released in December 2012. *Sydney's Rail Future* forms an integral component of the Long Term Transport Master Plan. It is important to ensure that the delivery of rapid transit infrastructure can occur as outlined in *Sydney's Rail Future*.

The Rapid Transit Rail Facility is to cater for future expansion of the rapid transit system, including a future harbour crossing and link to the southern suburbs. The facility would be constructed in two phases and would provide stabling for 45 trains and maintenance facilities for 76 trains. The initial design capacity would be 20 trains (stabling and maintenance).

An indicative layout for the facility is shown in Figure 3.1.

### 3 THE RTRF SITE

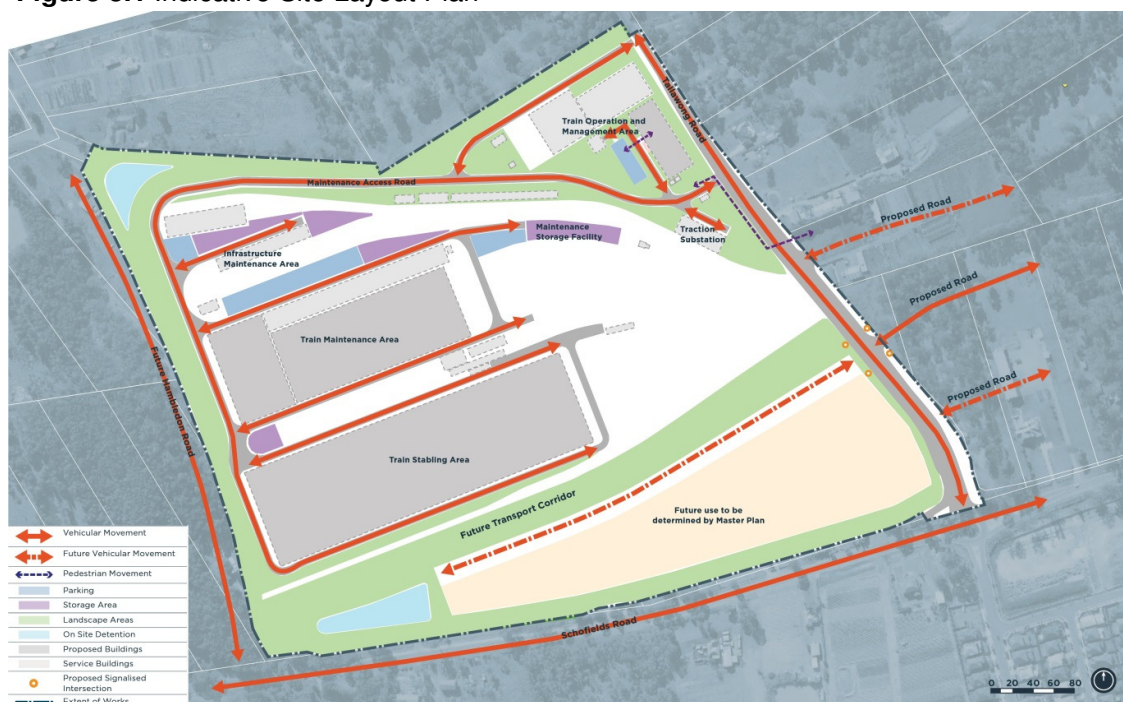
The Rapid Transit Rail Facility (RTRF) site is at the western end of the NWRL within the Blacktown local government area. The environmental assessment study area is within the Riverstone and Riverstone East Precincts of the North West Growth Centre.

The site would include 36 hectares of land on the western side of Tallawong Road, Schofields. Site facilities, including buildings, tracks and the like, would occupy approximately half of the site. Vehicle access would be from Tallawong Road.

The Rapid Transit Rail Facility would be a secure facility operating 24 hours a day, seven days a week. The site would be expected to support up to 300 staff.

The facilities would be constructed in two phases with a final design capacity sufficient to stable 45 eight car train sets and maintain 76 eight car train sets. An indicative site layout is shown in **Figure 3.1**.

**Figure 3.1** Indicative Site Layout Plan



The site layout would seek to maximise operational efficiencies by prioritising activities in relation to movements within the site. The layout would include two primary control areas being:

- An automatic control area consisting of the stabling yard and wash track.
- A manual control area consisting of the train maintenance and infrastructure workshops.

The site would include:

- Train stabling facilities

- 
- Train maintenance facilities including facilities for cleaning, inspection, preventative maintenance, corrective maintenance, component repair and major overhauls of rolling stock.
  - A test track.
  - Facilities for maintenance and repair of rail systems, equipment and infrastructure.
  - Warehousing for spare parts, tools and equipment.
  - Administration, staff facilities and training facilities including an Operations Control Centre.
  - Ancillary buildings as required for security services, power supply systems, refuse disposal and hazardous material storage.
  - Internal access and maintenance roads.
  - Safeguarding for a future transport corridor to Marsden Park.

Consent will be sought for the full extent of works (end state). The works would be constructed incrementally commencing with *Sydney's Rail Futures* Stage 3 (20 trains).

The development would provide for the future northern extension of Hambledon Road, and would safeguard for a future transport corridor to Marsden Park.



## 4 UTILITY SERVICES ASSESSMENT

A desktop study (DBYD enquiry) was undertaken to determine the presence of existing utility services within and adjacent to the subject site. This was followed up via direct contacts with the services authorities (specifically Sydney Water, Endeavour Energy and NBNCo). Services which have been identified as being near the RTRF site as shown in Table 4.1 below.

**Table 4.1** Summary of Utility Services for the Site

Service	Provider	Current Status
<b>Electricity</b>	Endeavour Energy (EE)	132KV aerial mains in Tallawong Road as well as residential supply mains. Buried and proposed cables and conduits in Schofields Road and the new Tallawong Road intersection.
<b>Water Supply</b>	Sydney Water (SWC)	DN450 & 600 mains located in Tallawong Road but neither of these mains service any properties in the area. A 63mmuPVC private main services residential properties only.
<b>Sewerage</b>	Sydney Water (SWC)	No sewer currently available. Possible new Sewerage Pump-out Tank (SPOT) being constructed near the corner of Schofields Road and Hambledon Road.
<b>Telecommunications</b>	NBNCo, Telstra, Optus	Existing aerial copper cables in the area north of Schofields Road. Optical Fibre exists in the adjacent residential development to the South.
<b>Gas</b>	Jemena	No Gas services on the RTRF site. Gas is available on Southern side of Schofields Road and throughout the residential development south of Schofields Road.
<b>Stormwater</b>	State Water RMS Blacktown Council,	RTRF site backs onto First Ponds Creek controlled by State Water. Schofields Road drainage is being upgraded by RMS. No current Stormwater pipes in Tallawong Road (Blacktown Council).

### 4.1 Electricity

Underground electricity services plans were obtained (through DBYD) and representatives of Endeavour Energy were contacted with regard to electrical supply to the RTRF site.

Endeavour Energy (EE) has advised that earlier correspondence from TfNSW's consultants has indicated that a request to supply up to 60MVA from the Endeavour Energy Rouse Hill substation for use with the RTRF site was made and that Endeavour Energy was able to supply this load. However EE advised that it is likely this design load may be conservative at this stage and will need to be confirmed at the detailed design phase.

The RTRF would own the cables from the Endeavour Energy Rouse Hill substation. Endeavour Energy would provide termination and earthing for the cable within their facility and they would not require the feed to be earthed at the RTRF end. The conduit and cabling would remain the property and responsibility of the RTRF.

EE have advised that it is planned to bury the cables from the EE substation to the substation on the RTRF site. As the three cables will be earth shielded and closely grouped the EMF radiation of the three phases will cancel each other out and EMF should not be an issue however is subject to future design. This would be the case whether they were all buried or in part or in full placed in a service tray. The location and position of these cables will have to comply with the standard conditions of use under TfNSW. As a guide they should not be placed closer than 2 metres parallel to a private boundary.

The route of the cables is shown generally on the concept lead-in works plan in **Appendix C1**. Apart from the crossings of Cudgegong and Tallawong Roads and the small final extension to the Endeavour Energy Rouse substation the cables will be entirely laid within the NWRL corridor.

Whether buried or attached to a cable tray, the three cables used in the 132kVA extension will be grouped together in close proximity in 150 mm conduits and if buried, overlaid by marker tap and cable protection. The three cable conduits will be accompanied by 2 x 100 mm service conduits that will contain an earth return cable and communication cables.

Additional cable runs, as indicated in Appendix C1 will start from the Substation on the RTRF site and return along the route of the NWRL to supply electrical services outside of the RTRF site.

## 4.2 Water Supply

Water supply services plans were obtained (through DBYD) and representatives of SWC were contacted with regard to potable water supply to the RTRF site.

The RTRF site and local vicinity is currently serviced by two critical water mains in Tallawong Road and one private service which will become redundant due to the future works. These two major pipes, a 600mm Mild Steel (MS) pipe and a 300mm Ductile Iron (DI) pipe may have to be adjusted at least twice; once when Tallawong Road is being adjusted at the Schofields Road intersection and the second time when the rail bridge over Tallawong Road is being constructed. It would be prudent to adjust the mains at the first instance to the western side of Tallawong Road and clear of the proposed bridge works. If the pipes are moved to the eastern side of the new Tallawong Road alignment then it may not be possible to construct the bridge without moving the pipe locations again.

Temporary supply to the work site can be achieved utilising the private DN65 uPVC main that now exists on Tallawong Road to service private properties that will be resumed. This

may be sufficient as an interim measure however would require further design and discussions with Sydney Water. Alternatively the permanent water supply mains can be extended from an existing connection spur near the intersection of Tallawong Road and Macquarie Road. Ultimately, advice on the preferred connection location will be provided by Sydney Water. These water supply mains are shown on the concept lead-in works plan in **Appendix C2**.

Future long term water supply connection will come from an extension of the mains from Schofields Road and supply both the potable water and fire fighting requirements for the site. To avoid conflict with the construction of the Tallawong Road bridge this main should initially be terminated south of the bridge works but along the new alignment of Tallawong Road. The initial and possibly long term connection should be made on the southern side of the rail bridge, well clear of the bridgeworks.

### 4.3 Sewerage

Sewerage services plans were obtained (through DBYD) and representatives of SWC were contacted with regard to sewerage services to the RTRF site.

The site is not currently serviced by SWC sewerage infrastructure. The area to the south of Schofields Road however is now fully seweraged for the new residential development. As such there is a proposed sewer carrier planned that is indicatively shown on the concept lead-in works plan in **Appendix C3**. A carrier main is currently under construction south of Schofields Road which will terminate in a sewerage pump out tank (SPOT) near the north western intersection of Hambledon Road and Schofields Road. A proposed DN375 carrier will extend further to the north, approximately parallel to the western boundary of the RTRF site. It is not known if this sewer main has sufficient capacity for the RTRF site to connect to directly, however as this carrier is still in the planning phase, the main can be sized to suit the flows from the RTRF if required.

Should a temporary sewer connection be required, this can be accommodated with a pressure sewer system and temporary rising main from the site connection to the proposed SPOT currently being constructed.

### 4.4 Telecommunications

Underground telecommunications services plans were obtained (through DBYD) and representatives of NBNCo were previously contacted with regard to optical fibre telecommunications supply to the RTRF site.

The National Broadband Network (NBNCo) has been advised of this project and we understand that it is currently being considered as part of their overall strategy for the area. The site will require telephone and internet connection from the time of the early works. If required and for a short period of time, communications services could be provided wirelessly by the exclusive use of mobile services. There is a current copper cable network available in Tallawong Road however optical fibre cables are not currently available in the vicinity or to the site. Until the Tallawong Road bridge has been completed, the area will have to be serviced via the existing copper service. We understand that service conduits have been allowed for in the bridge for new optic fibre cables to be installed in the area.

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#### 4.5 Gas

Jemena has advised that there is no gas supply currently in the area north of Schofields Road. The residential subdivision to the south is currently supplied by Jemena. If required, gas reticulation could be extended from the area south of Schofields Road to the site. Currently there appears to be no requirement for gas being connected to the RTRF site.

#### 4.6 Future Authority Liaison

It is anticipated that further meetings will be required with Sydney Water, Endeavour Energy, and NBNCo. From the earlier EIS Stages 1 and Stage 2, it is apparent that significant discussions had already taken place with these authorities but none of these discussions has been made available for this report.

## 5 CONCLUSIONS

The proposed facility is situated in a predominantly rural area with limited existing services. However, located within the Sydney's North West Growth Centre, the area is rapidly developing and a number of new major service lead-ins and upgrades are currently under construction or are in the planning/design phase.

Preparation for supply of electricity for the RTRF facility is well in hand with the newly commissioned Endeavour Energy Rouse Hill Substation. This will be able to supply the requirements required by the RTRF. A suitable route for the connection has been identified which should not be affected by the Tallawong bridge construction.

There is no current water supply adequate for the site but water is available in Schofields Road or Macquarie road, new distributor mains will be constructed.

The two major water mains that exist in Tallawong road will be affected by the construction of the new Tallawong Road road/rail bridge and will have to be adjusted as part of the earlier works. This could be done in conjunction with the adjustment of these mains for the new Schofields Road/Tallawong Road intersection.

Initial site water for construction may be able to utilise the existing private water main in Tallawong road.

There is no sewerage currently available to the RTRF site however SWC is currently constructing new sewer mains near the south western corner of the site which may be able to be accessed for the construction phase.

Future sewer connection at the completion of the works may be possible in the north western corner of the RTRF site if a proposed sewerage carrier has been constructed by then.

Only copper aerial cables currently service the RTRF site but there is potential for connection to the NBN.

Gas may be available if required.

Based on our review and assessment of services in the area and for the RTRF site, there are limited services in the area however the site is ideally located near trunk services which can be extended to the site to provide adequate supply of services.



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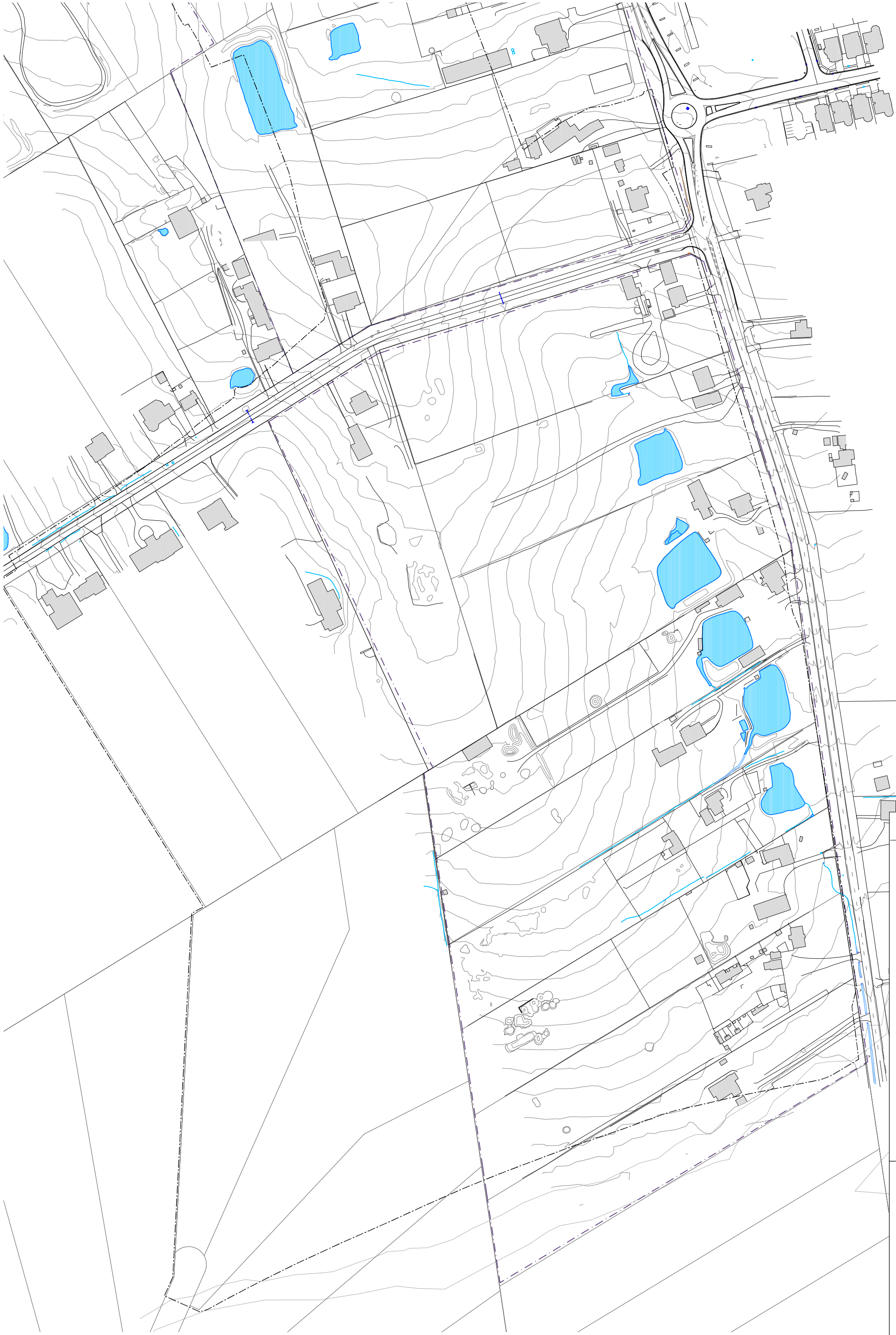
## 6 REFERENCE LIST

Michael England, 2012. *NWRL Environmental Impact Statement Stage 1*, Sydney: Transport NSW.

Michael England, 2012. *NWRL Environmental Impact Statement Stage 2*, Sydney: Transport NSW.

ERSL, 2012. *NWRL, Technical Paper TS105 - Train Stabling and Depot*, Transport for NSW

## **APPENDIX A**



TALLAWONG EXISTING CONDITION  
27 FEBRUARY 2013  
SCALE 1:1250 @ A1  
1:2500 @ A3

## **APPENDIX B**

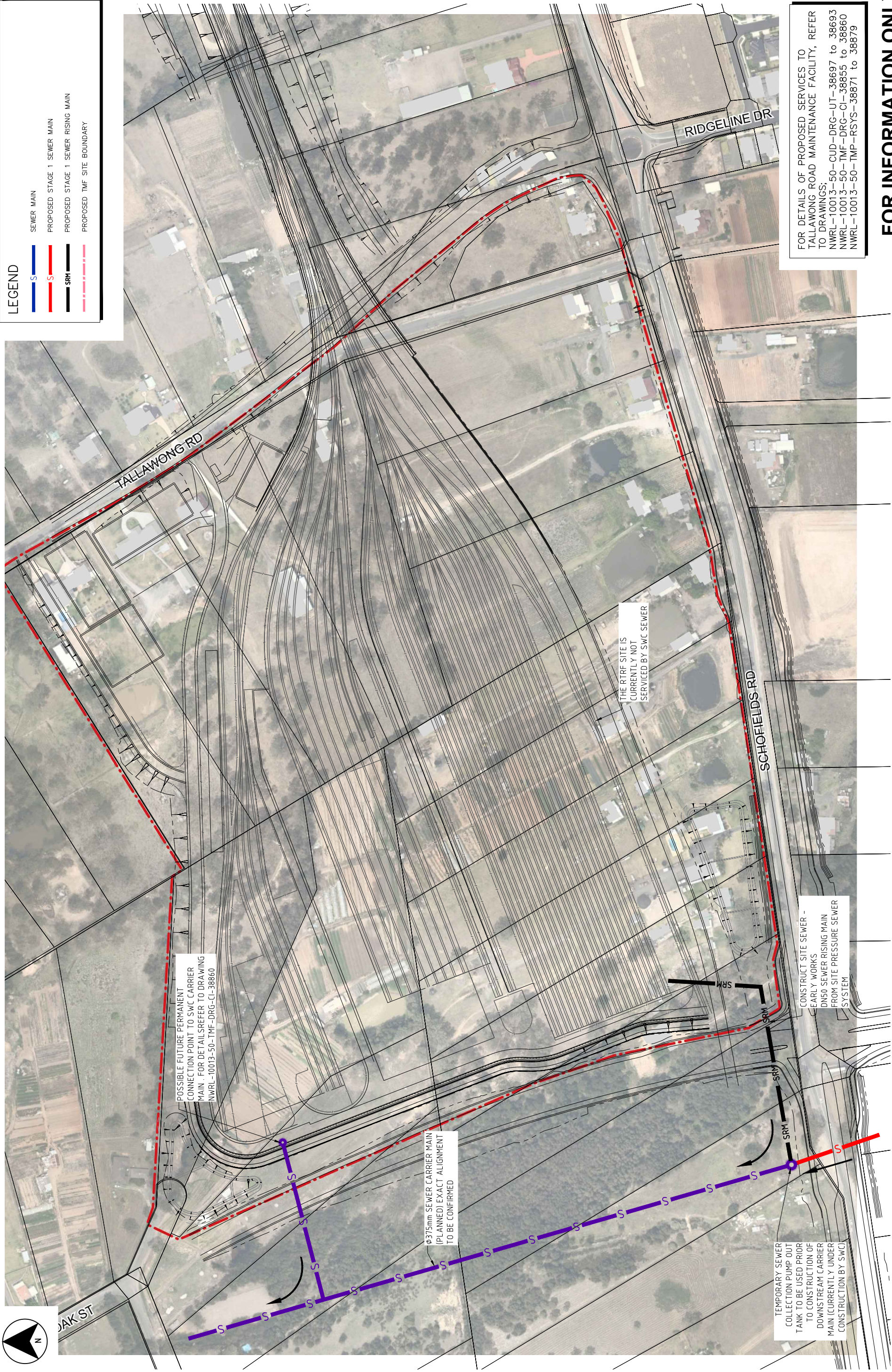












FOR DETAILS OF PROPOSED SERVICES TO  
TALLAWONG ROAD MAINTENANCE FACILITY, REFER  
TO DRAWINGS:  
NWRL-10013-50-CUD-DRG-UT-38697 to 38693  
NWRL-10013-50-TMF-DRG-CI-38855 to 38860  
NWRL-10013-50-TMP-RSYS-38871 to 38879

**FOR INFORMATION ONLY**

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