

Australian Jockey Club  
**Stables and Training Facilities**  
Utilities Infrastructure Report

ISSUE 2 | September 2010

Arup  
Arup Pty Ltd ABN 18 000 966 165



**Arup**  
Level 10 201 Kent Street  
Sydney NSW 2000  
arup.com.au

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Job number 220880

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# Document Verification

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# 1 Executive Summary

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This report has been produced in response to the Director Generals Part 3A Planning requirements MP 10-0098 for the construction of the proposed Stables and Training Facilities on the Eastern side of the Royal Randwick Racecourse.

It addresses the following and has been prepared in response to DGR 12 Utilities and Infrastructure.

- The extent and capacity of the statutory infrastructure in the vicinity of the new development,
- The impact of the new building's footprint on the routes of the existing infrastructure,
- The potential loads the development will have on the existing infrastructure,
- The implications of the relocation, realignment or augmentation of the effected services, and
- The benefits for inclusion of rainwater harvesting

The report's findings indicate that there is a minimal amount of infrastructure services that are affected or required to be upgraded to suit the new development.

In conclusion this report has reviewed the infrastructure services around the stabling precinct and identified that the existing infrastructure is capable of supporting the development.

## 2 Introduction

The proposed Stabling and Training Facilities will see the consolidation of stabling on site at the Racecourse in six blocks each with stabling facilities for 100 horses.

This consolidation will see the offsite stabling and on site stabling collocated in a single precinct. The precinct will incorporate all stabling and horse care functions for the course including equine pool, horse walkers, bull-ring and below grade tunnel connections to the infield.

The site overlay below shows the stables precinct location on site, adjacent to the intersection of Alison and Wansey Roads on the eastern side of the property.



Note: Diagram not to scale

At the time of writing this report, a ground survey has been supplied and a desk top study of existing services concludes that the site is unencumbered by major utility infrastructure services and all existing ancillary services within the property boundary are low capacity and will generally be made redundant and replaced with new connections and provisions as required.



## 3 Potable Water Supply

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### 3.1.1 Existing Configuration

There is an existing ø100mm cast iron cement lined (CICL) water main currently servicing street hydrants and residential houses within Wansey Road fed from the southern end, which is currently capped off in line with the last residential house prior to the Alison Road intersection. It is assumed this main has insufficient capacity without amplification works and as such will not be investigated with regards to servicing the proposed stable and training facilities development.

Alison road contains a single ø150mm cast iron cement lined (CICL) water main currently servicing street hydrants and residential houses along the Northern side of Alison Road. It is proposed that this main will be used to service the precincts domestic and fire requirements.

A pressure and flow enquiry for the ø150mm water main within Alison road lodged with Sydney Water confirms the availability of 20L/s flow with a residual mains pressure of 470kPA (refer to Appendix A).

### 3.1.2 Required Alterations

It is envisaged that no water mains amplification or extension works will be required to service the proposed stables and training facilities precinct with water for domestic and fire services applications.

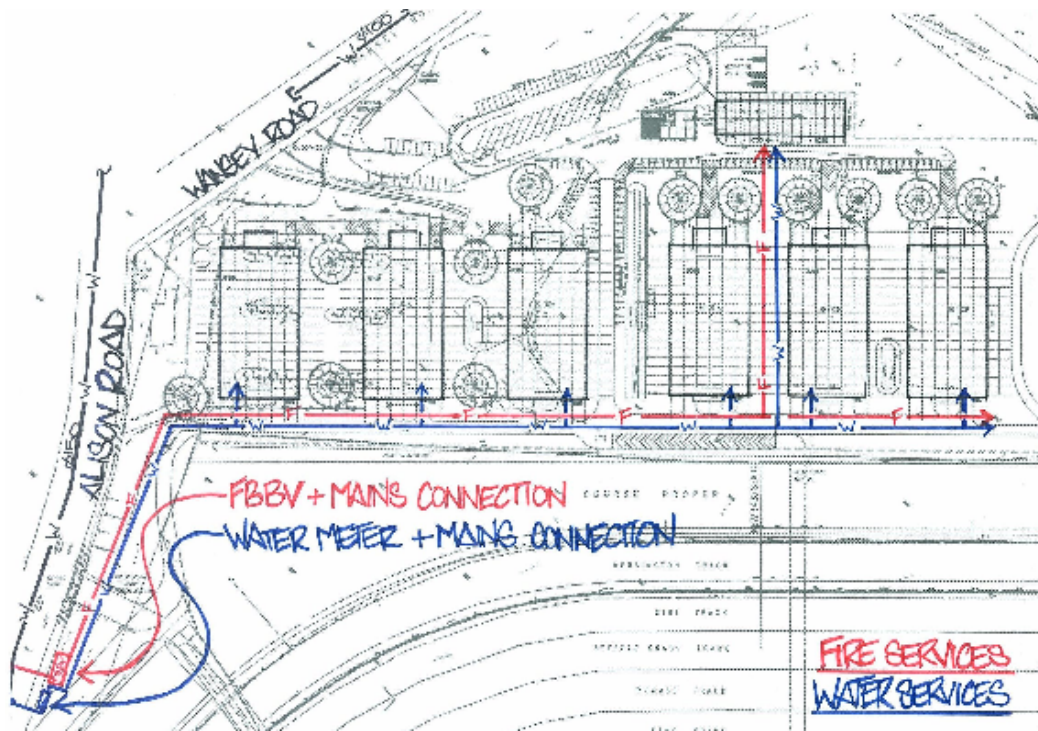
### 3.1.3 Design Proposal

A pressure and flow enquiry for the existing ø150mm water main within Alison Road has been lodged with Sydney Water with the aforementioned flow and pressure characteristics. The existing water main has adequate flow and pressure characteristics to serve the precincts domestic and fire fighting usage requirements.

It is also nominated that the proposed stables and training facilities point of supply will be connected to this water main adjacent to the Alison Road stables entry gate and will have separate connections for a metered potable water supply and a dedicated fire hydrant main complete with fire brigade booster valve (FBBV).

Domestic Potable water usage figures have been estimated to a probable simultaneous demand (PSD) of 1.0l/s without taking into account rainwater offsets provided by re-use or bore water usage. The fire hydrant service will require a flow rate of 20l/s to meet AS.2419 requirements and this is available.

The following image is an indicative plan of services routes.



Note: Services Diagram not to scale

## 4 Water Saving Initiatives

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### 4.1.1 Design Proposal

Each of the six dual level stable blocks has approximately 2000m<sup>2</sup> of roof area available for rainwater harvesting. Arup have modelled rainwater storage tank sizes and propose 30,000L storage capacity for each stable block be included within the scope, equating to a 65% contribution to annual water demands.

It is proposed that the roof water shall be conveyed by eaves gutters running the length of both sides of each stable block through a piped down pipe system at high level and discharging into an above ground storage tank typically located within the centre of each horse walker.

A debris filter and first flush water diverter installed prior to the tank eliminates pollution into the tank and diverts the first flow of roof water carrying dust and debris to the inground storm water drainage system for treatment prior to discharging into the on-site detention basins. All openings into the tank will be protected from mosquitoes and insects by means of stainless steel mesh over tank openings with an aperture size of less than 1mm<sup>2</sup>.

In order to provide adequate pressure to operate toilet cisterns, taps and end usage points, a pressure pump will be required to deliver the desired flow rates. The pump system will be a high efficiency motor type. The pump will be mounted adjacent to each storage tank as required.

A low level alarm in the tank will be provided to enable an automatic domestic water switch over to continue supplying water to required points of usage. An alternative to domestic water would be to supplement this feature with bore water.

### 4.1.2 Sustainability Initiatives

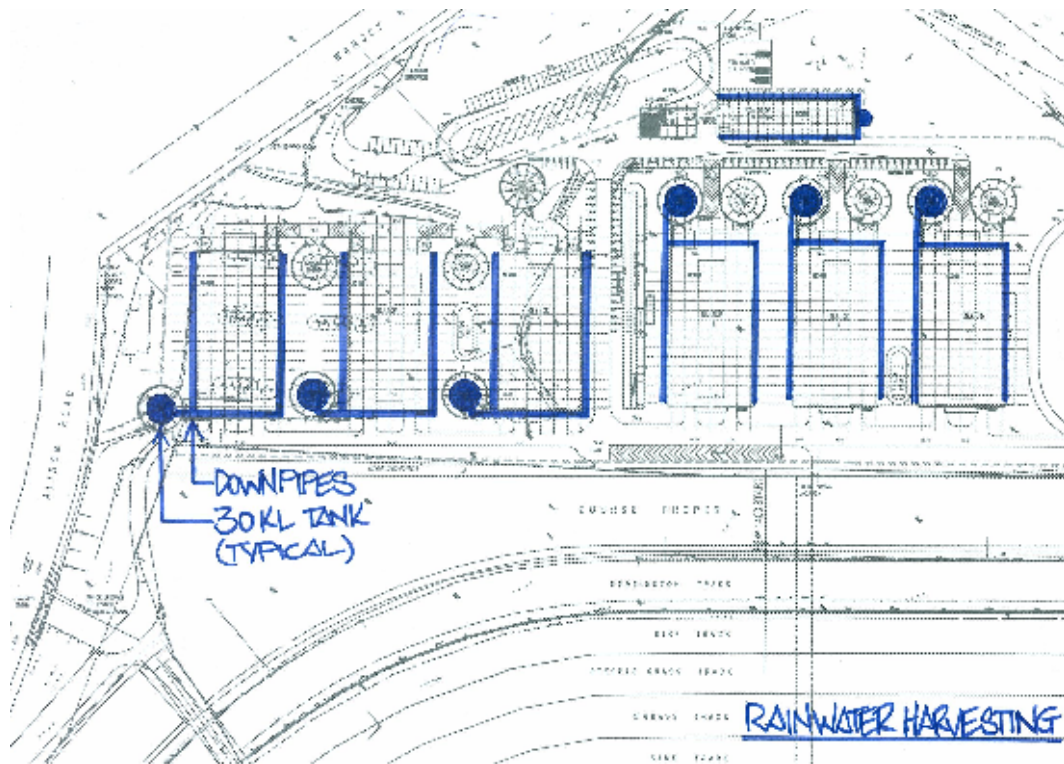
Collected rainwater from roofed areas will be used for:

- Primarily for WC flushing;
- Horse washing,
- Equine exercise pool top up.
- Hose taps for wash down (internal/external)

Water conservation measures to be incorporated include:

- WELS 4 star rated fixtures or higher where appropriate
- Dual flush toilets
- Bore Water usage where appropriate
- Rainwater storage / re-use tanks

The following image is an indicative plan of services routes.



Note: Services Diagram not to scale

## 5 Sewer

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### 5.1.1 Existing Configuration

Arup are currently awaiting existing services drawings and as-constructed plans from AJC detailing sanitary plumbing and drainage services within the property boundary currently servicing the existing stables and single residence.

The Sydney water information received through DBYD indicates a rehabilitated  $\varnothing 225$ mm salt glazed ware (SGW) sewer main at a higher level than the stables draining in a Northerly direction along Wansey Road connecting to a rehabilitated  $\varnothing 225$ mm salt glazed ware (SGW) sewer main at a higher level than the stables continuing to drain in a Northerly direction along Alison Road. There appears to be no gravity sewer junction provision within Alison Road to service the Eastern side of the property, however an existing sewer pump out well provision is evident on site.

### 5.1.2 Required Alterations

No Sewer mains amplifications or realignments are required to service the development. It is however proposed that a new sewer pumping station be constructed in a suitable location to service the new stables and training facility development.

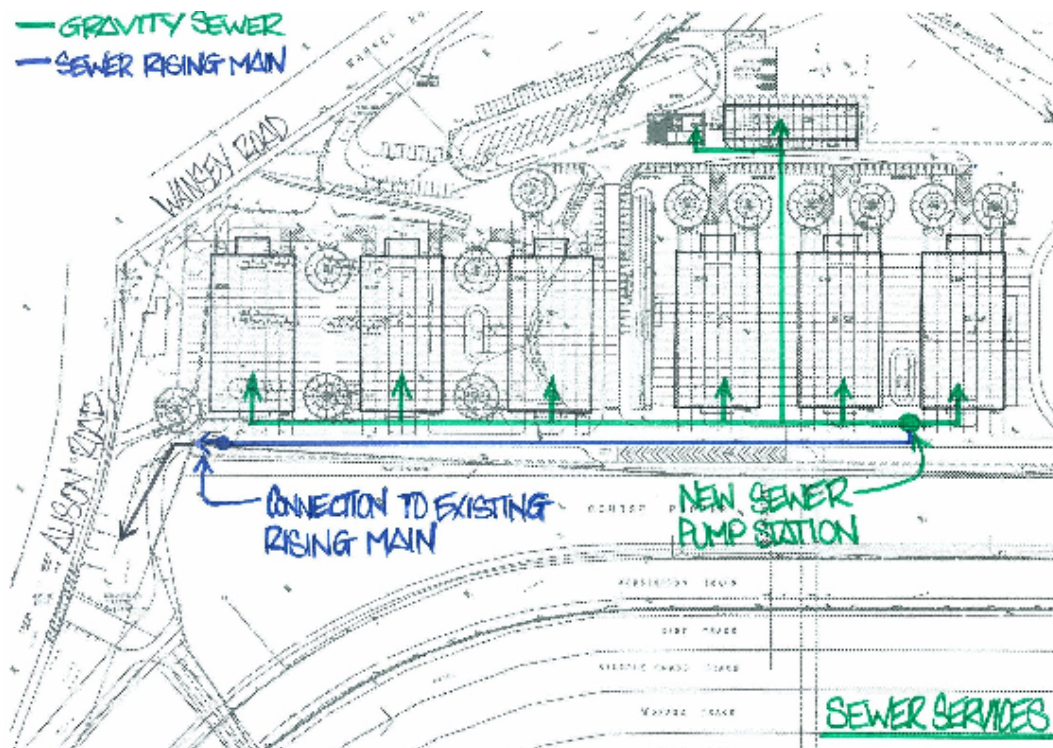
### 5.1.3 Design Proposal

Construction of a new sewer pumping station will ensure the functionality of the site is maintained during times of peak usage in the event of a sewer pump failure.

A preliminary estimate of the number of sanitary fittings has yielded a peak discharge to sewer of approximately 2.2l/s. It is anticipated that the existing infrastructure around the development will be able to accept these flows.

The following image is an indicative plan of services routes.





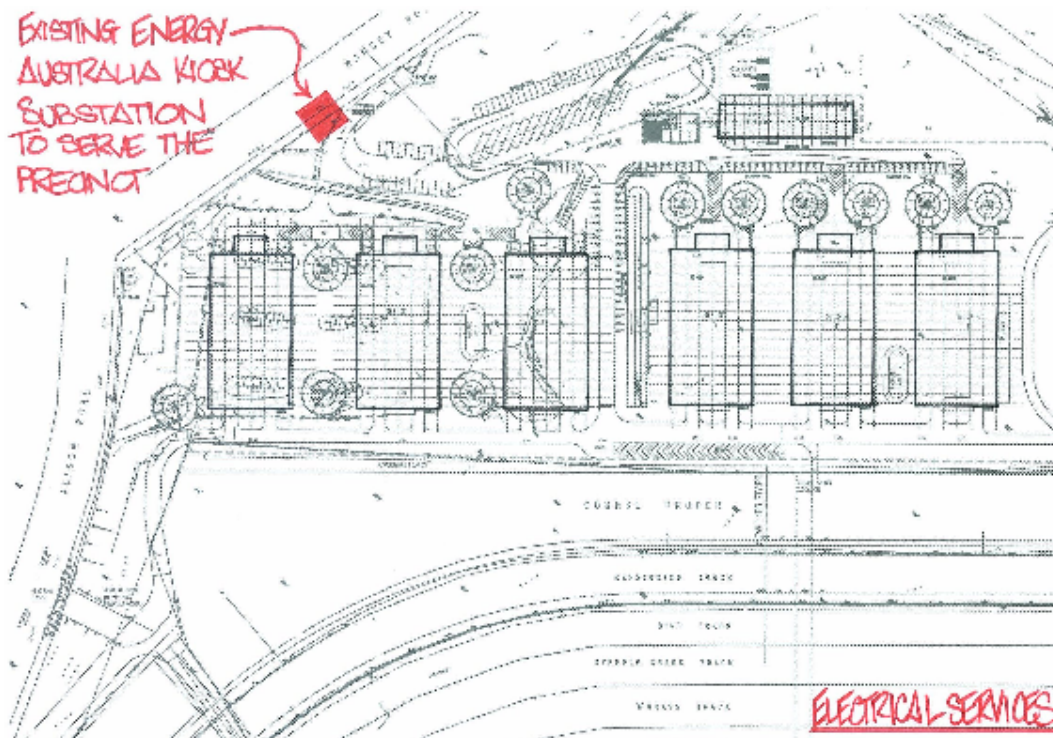
Note: Services Diagram not to scale

## 6 Electricity Supply

### 6.1.1 Power Supply To The Site

The calculated electrical maximum demand for the site is 150kW, requiring a 250A three phase supply.

Energy Australia has confirmed that the site can be supplied from the existing kiosk substation adjacent to the site.



Note: Services Diagram not to scale

### 6.1.2 Electrical Reticulation

All electrical works will be carried out in accordance with Energy Australia requirements and AS/NZS3000 – Electrical Wiring Rules.

### 6.1.3 Lighting

Internal lighting throughout the site will be in accordance with AS/NZS 1680 and BCA Part J.

External lighting will be provided to the building to provide an aesthetically pleasing “night image” for the site. Exterior lighting design will be in accordance with the Australian Standards and local authority requirements.

### 6.1.4 Emergency and Exit Lighting

Emergency and Exit lighting will be installed throughout the site will be in accordance with the Building Code of Australia and AS/NZS 2293 – Emergency Escape lighting and Exit signs for buildings.

## 7 Appendix A – Pressure Enquiry

### Statement of Available Pressure and Flow

**Arup**  
Level 10, 201 Kent St  
Millers Point, 2000

WMS No: **93286**  
Contact No: 8849-3531  
Fax No: 8849-3111

Attention: Pedro Afonso

Date: 07/09/2010

Pressure & Flow Application Number: 2957179  
Your Pressure Inquiry Dated: Wed August 25 2010  
Property Address: Randwick Racecourse Alison Rd Randwick 2031

The expected maximum and minimum pressures available in the water main given below relate to modelled existing demand conditions, either with or without extra flows for emergency fire fighting, and are not to be construed as availability for normal domestic supply for any proposed development.

#### ASSUMED CONNECTION DETAILS

Street Name: Alison Rd	Side of Street: West
Distance & Direction from Nearest Cross Street	100 metres North from Wansey Rd
Approximate Ground Level (AHD):	44 metres
Nominal Size of Water Main (DN):	150 mm

#### EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	66 metre head
Minimum Pressure	46 metre head

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	46
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	10	51
	15	49
	20	47
	24	45
	30	41
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main)	10	42
	15*	40
	20	37
	24	35
	30	31
Maximum Permissible Flow	35	26

(Please refer to reverse side for Notes)

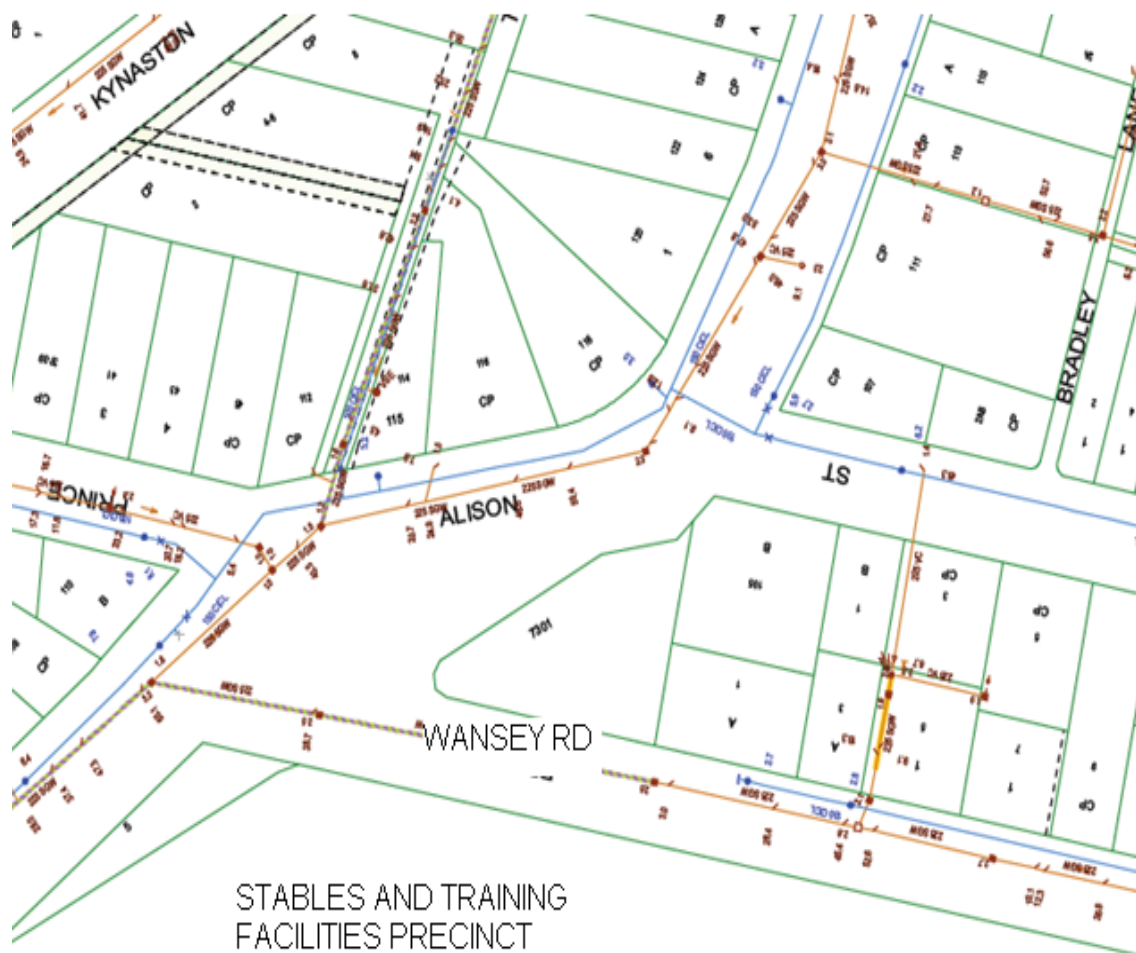
  
Per **Robert Wickham**  
Team Leader  
Asset Planning

Sydney Water Corporation ABN 49 776 225 038  
1 Smith St Parramatta 2150 | PO Box 399 Parramatta 2124 | DX 14 Sydney | T 13 20 92 | [www.sydneywater.com.au](http://www.sydneywater.com.au)  
Delivering essential and sustainable water services for the benefit of the community





## 8 Appendix B – Services Diagram



STABLES AND TRAINING  
FACILITIES PRECINCT

Note: Services Diagram not to scale