



12 September 2014 4.15 pm.

12 September 2014

EQUILIBRIA

Our Ref: UD 131101

1122

Architecture



A+ MEMBER OF THE AUSTRALIAN INSTITUTE OF ARCHITECTS

Ms Karen Jones  
Director – Infrastructure Projects  
Department of Planning and Environment  
Major Projects Assessment  
GPO Box 39  
SYDNEY NSW 2001

Dear Ms Jones,

**Application Number – SSI 13\_6136**

**Environmental Impact Statement: NorthConnex Tunnel Proposal**

Please find enclosed Equilibria's Response to the NorthConnex M1-M2 Tunnel Proposal Environmental Impact Statement.

We hereby confirm that we object to the project as described in the EIS and that we are seeking to amend the NorthConnex proposal with an enhancement.

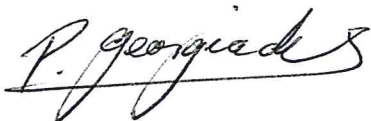
We trust that this meets the requirements for the EIS response process. Should you wish to discuss the details of our response please do not hesitate to contact me on:

Email: [tg.equilibria@gmail.com](mailto:tg.equilibria@gmail.com)

Tel: 02 9487 3800

Mob: 0419 483 827.

Yours sincerely,



Theodore Peter Georgiades

NSW Architects Registration Board No. 6789



Aerial Photograph Source: Google

INFRASTRUCTURE OPPORTUNITY

**PROPOSED M1-M2 TUNNEL EXTENSION**  
**WAHROONGA NSW**

A proposal by

**EQUILIBRIA**

in association with

**DALY INTERNATIONAL**

12 SEPTEMBER 2014

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## **SUMMARY**

Transurban has made an Unsolicited Proposal to design, build, operate, maintain and finance a tolled motorway linking the M1 at Wahroonga to the Hills M2 at West Pennant Hills.

Equilibria's Proposal is to extend the tunnel for an additional 2km at the start of the M1, or approximately 1km longer than the current Transurban / Lend Lease Bouygues Joint Venture Proposal.

The benefits would not only overcome the issue of a gradient in the tunnel, but would also substantially reduce noise and air pollution in the tunnel and Wahroonga.

### **A Unique Opportunity**

The land, presently occupied by the M1, would become available, providing a unique opportunity to create a sustainable urban development. The suburb of Wahroonga would be reunited (currently cut in two by the M1) and approximately 2000 dwellings would be built.

Ultimately, Equilibria's Proposal would enhance Transurban's Proposal, benefit project partners, and provide economic stimulus to the State of NSW and the local community.

## **ASSUMPTIONS**

The premier of NSW sees the value in extending the tunnel and building apartments in place of the 2km length of M1 Motorway.

Transurban sees the value in extending the tunnel and seeks to amend their Unsolicited Proposal.

The NSW Government and Transurban work together to facilitate the amendment.



**SYNOPSIS**

- Proposed M1-M2 Tunnel is extended by approx. 1km;
- Spoil from tunnel is used to rebuild sites and local streets;
- Wahroonga is reunited and benefits from reduction of M1 noise;
- 10 Precincts are created for development with total area approx. 100,000m<sup>2</sup>;
- Outstanding opportunity to create 21<sup>st</sup> century sustainable housing;
- Economic stimulus.

**POSSIBLE DEVELOPMENT OUTCOME**

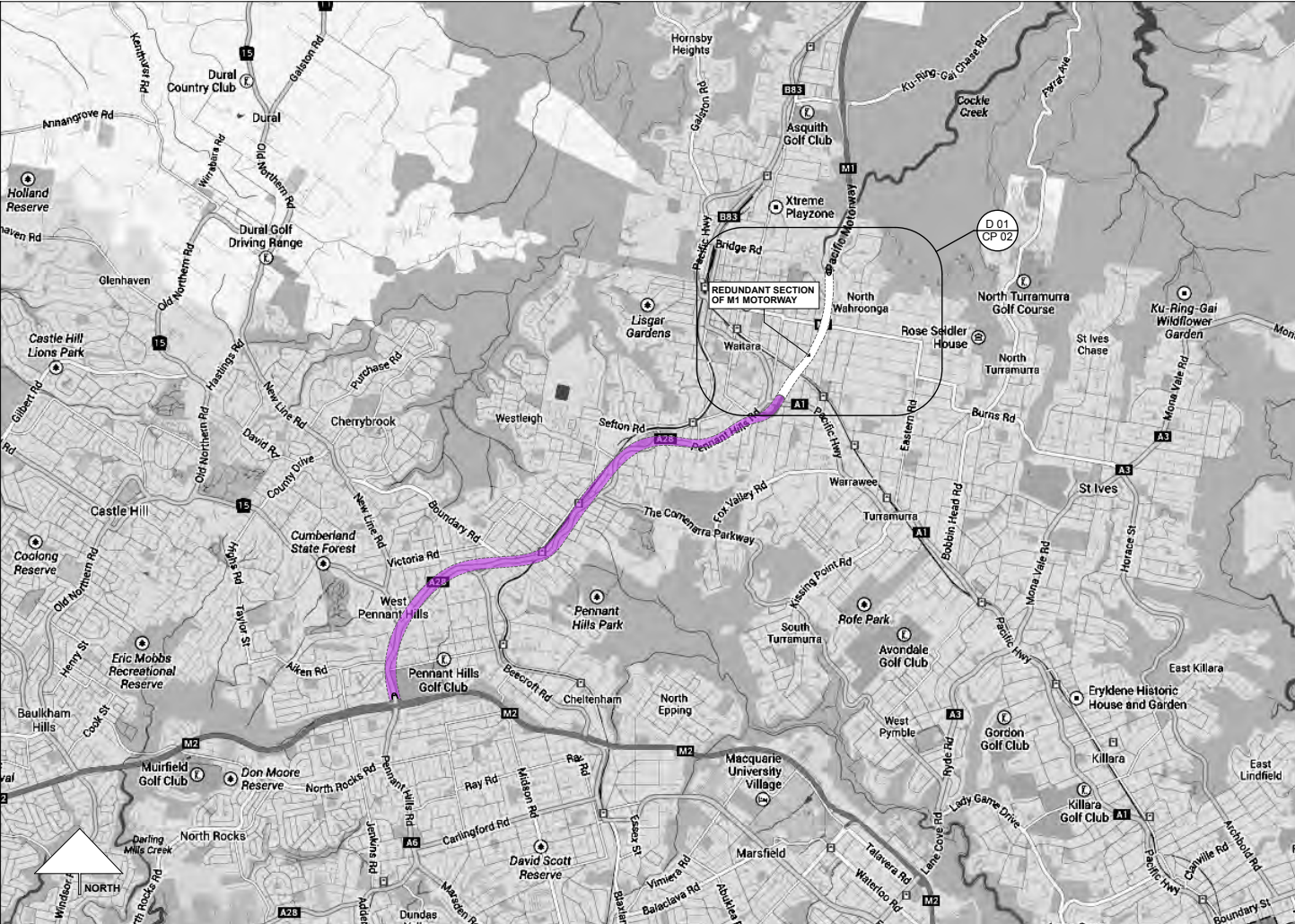
- Total Site Area (not including roads) = approx. 112,430m<sup>2</sup>
- Area dedicated as bush reserve = approx. 14,320m<sup>2</sup>
- Total Buildable Area = approx. 98,110m<sup>2</sup>
- Residential development subsidy for 1km tunnel extension = \$350M
- Payment to NSW Government for land purchase = approx. \$100M
- Total No. of apartments = 2000
- Total sales = approx. \$1.833B
- Total stamp duty from development sales = \$74M
- Development Profit = approx. \$400M

**BENEFITS TO THE STATE OF NSW**

- Lower environmental impact;
- Re-unification of the suburb of Wahroonga;
- Less traffic congestion where the original tunnel was proposed to end;
- Less pollution and cleaner air in the tunnel;
- Protection of Spring Gully Creek riparian zone;
- Swifter through traffic in tunnel;
- Capital return on sale of land;
- Provision of much needed residential accommodation close to a railway station;
- Much reduced noise impacts on Wahroonga;
- Likely greater community acceptance of NorthConnex;
- Economic stimulus.

**BENEFITS TO TRANSURBAN / LEND LEASE BOUYGUES**

- More vehicles likely to remain in tunnel rather than use Pennant Hills Road;
- Faster flow of all vehicles due to predominantly 0% gradient in tunnel;
- Fuel savings due to predominantly 0% gradient;
- Better tunnel experience due to minimum pollution in tunnel;
- Cost effective extension to the tunnel because the establishment costs would not need to be duplicated;
- Likely greater community acceptance of NorthConnex and improved public perception of Transurban;
- Likely improved EIS and more efficient planning approval;
- The section of M1 between Pacific Highway and Edgeworth David Road would not require upgrading;
- Overall a better tunnel and greater capital return from apartment sales.



Cadastral Map Source: Google

M1-M2 TUNNEL CORRIDOR scale 1 : 100,000

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# D 01: M1-M2 TUNNEL EXTENSION CORRIDOR

scale 1 : 20,000

Cadastral Map Source: Google

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CONCEPT PROPOSAL

M1-M2 TUNNEL EXTENSION

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Cadastral Map Source: Google

**D 02: M1 CORRIDOR PRECINCTS MASTERPLAN- WAHROONGA** scale 1:10,000

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CONCEPT PROPOSAL
M1-M2 TUNNEL EXTENSION

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Cadastral Map Source: Google

# D 03: M1 CORRIDOR PRECINCTS MASTERPLAN- WAHROONGA NORTH

scale 1:10,000

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CONCEPT PROPOSAL

M1-M2 TUNNEL EXTENSION

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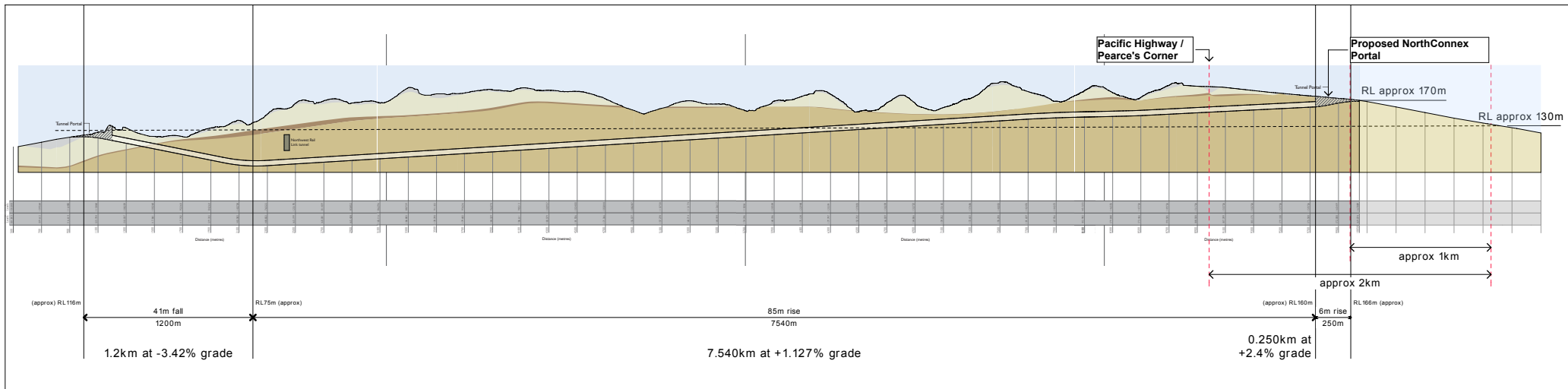
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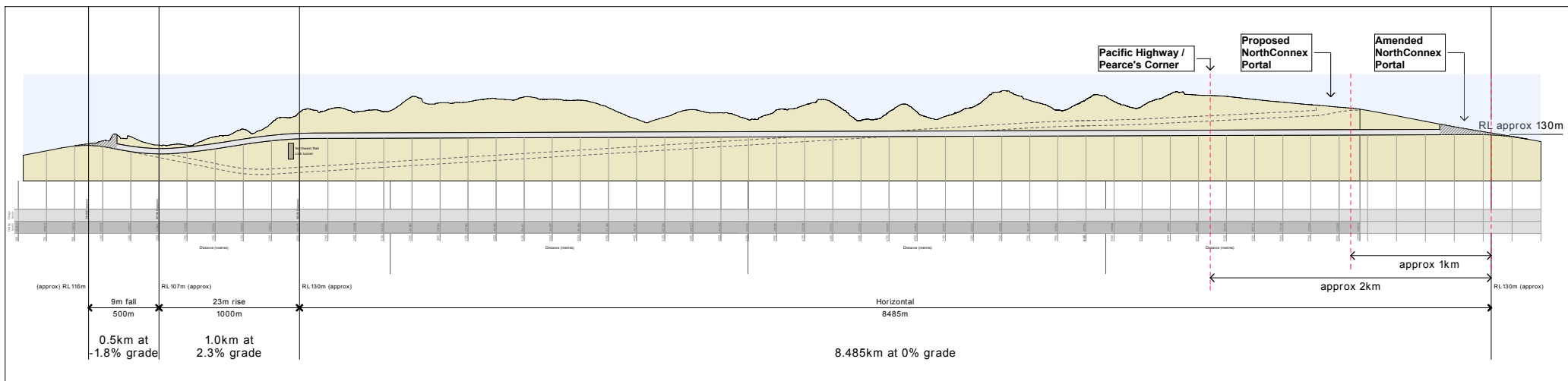
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Longitudinal section source: NorthConnex EIS Longitudinal Section Vol1C - Appendix C

## Current Transurban Proposal: LONGITUDINAL SECTION - NORTHCONNEX M1-M2 TUNNEL



Longitudinal section source: NorthConnex EIS Longitudinal Section Vol1C - Appendix C

## Proposed Equilibria Amendment: LONGITUDINAL SECTION - M1-M2 HORIZONTAL TUNNEL + EXTENSION

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CONCEPT PROPOSAL

M1-M2 TUNNEL EXTENSION

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M1-M2 TUNNEL EXTENSION - Proposed emission pipe to ventilation stack in Hornsby Industrial Area approx. RL 170m

Aerial Photograph Source: Google  
scale 1 : 10,000

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CONCEPT PROPOSAL

M1-M2 TUNNEL EXTENSION

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Cadastral Map Source: Google

D 04: M1-M2 TUNNEL / PACIFIC HIGHWAY INTERCHANGE - Option A: Full Traffic Light Controlled

scale 1 : 2,000

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CONCEPT PROPOSAL

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Cadastral Map Source: Google

D 05: M1-M2 TUNNEL / PACIFIC HIGHWAY INTERCHANGE - Option B: Northern Flow Priority

scale 1 : 2,000

CONCEPT PROPOSAL
M1-M2 TUNNEL EXTENSION

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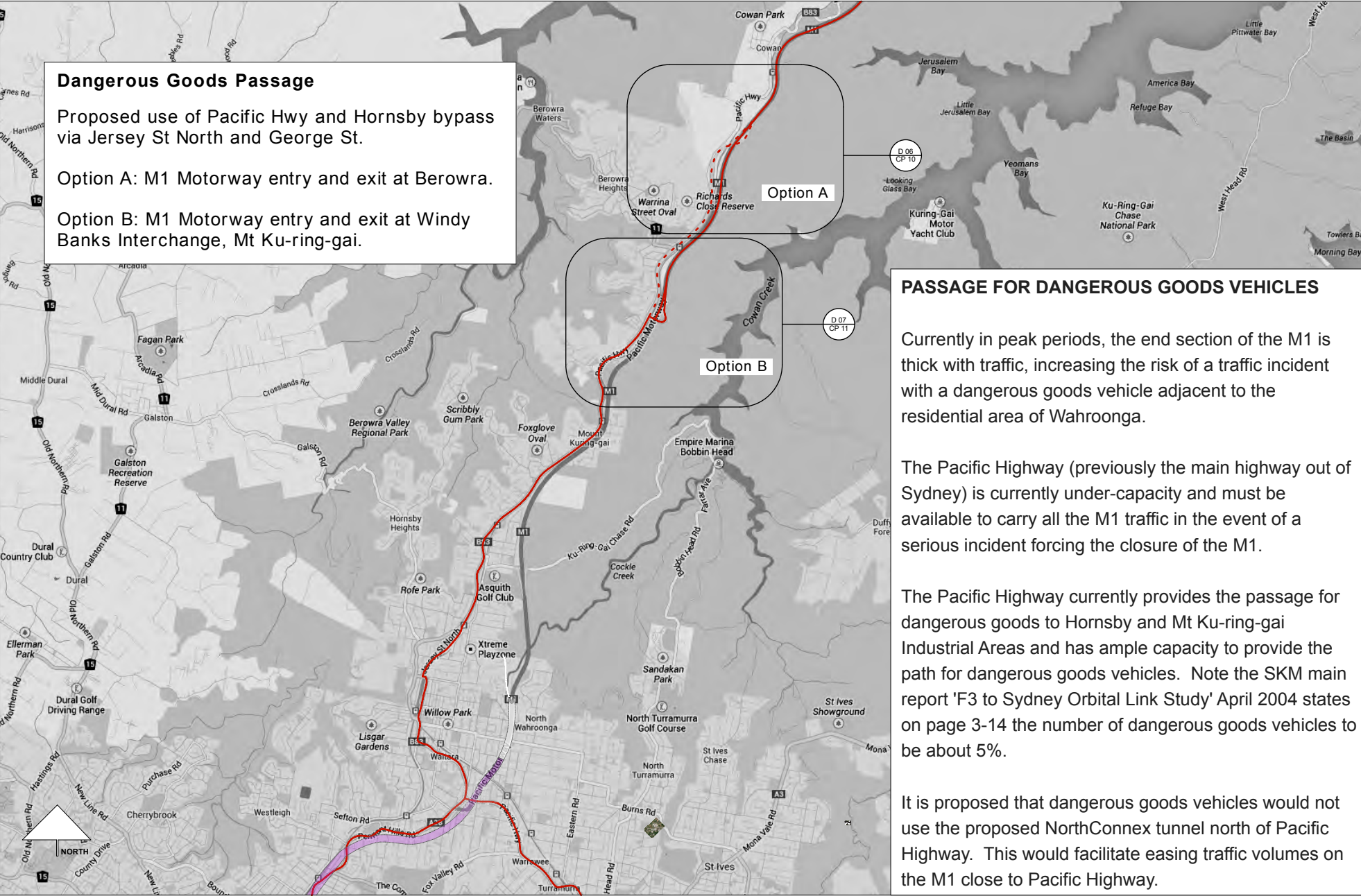
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### Dangerous Goods Passage

Proposed use of Pacific Hwy and Hornsby bypass via Jersey St North and George St.

Option A: M1 Motorway entry and exit at Berowra.

Option B: M1 Motorway entry and exit at Windy Banks Interchange, Mt Ku-ring-gai.

### PASSAGE FOR DANGEROUS GOODS VEHICLES

Currently in peak periods, the end section of the M1 is thick with traffic, increasing the risk of a traffic incident with a dangerous goods vehicle adjacent to the residential area of Wahroonga.

The Pacific Highway (previously the main highway out of Sydney) is currently under-capacity and must be available to carry all the M1 traffic in the event of a serious incident forcing the closure of the M1.

The Pacific Highway currently provides the passage for dangerous goods to Hornsby and Mt Ku-ring-gai Industrial Areas and has ample capacity to provide the path for dangerous goods vehicles. Note the SKM main report 'F3 to Sydney Orbital Link Study' April 2004 states on page 3-14 the number of dangerous goods vehicles to be about 5%.

It is proposed that dangerous goods vehicles would not use the proposed NorthConnex tunnel north of Pacific Highway. This would facilitate easing traffic volumes on the M1 close to Pacific Highway.

Cadastral Map Source: Google



## DANGEROUS GOODS PASSAGE

scale 1 : 100,000

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CONCEPT PROPOSAL

M1-M2 TUNNEL EXTENSION

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1. View North along Pacific Highway



2. View South along Pacific Highway

**Dangerous Goods Passage - Berowra exit**

Exit for southbound traffic. Exit for detour routes to Berowra and Hornsby. Entry for northbound traffic.

Cadastral Map Source: Google

**D 06: DANGEROUS GOODS PASSAGE Option A - Berowra Exit**

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M1-M2 TUNNEL EXTENSION

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3. View North along Pacific Highway



4. View of Windy Banks bridge over M1

**Dangerous Goods Passage - Windy Banks Interchange**

Proposed new entry ramp going north and a new exit slip lane to connect to 'dormant' lane on existing M1 bridge. Connects directly to Pacific Highway.

**D 07: DANGEROUS GOODS PASSAGE Option B - Mt Ku-ring-gai Windy Banks Interchange**

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CONCEPT PROPOSAL

M1-M2 TUNNEL EXTENSION

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Aerial Photograph Source: Google

## AERIAL VIEW OF LAND OCCUPIED BY M1 CORRIDOR

Arrow indicates direction of view - refer to following pages





Photograph Source: Equilibria

**1. View North from Pacific Highway**



Photograph Source: Equilibria

**2. View South from Pedestrian Bridge**

Views of land to be reclaimed for residential development and for the reunification of the suburb of Wahroonga.





**3. View North from Millewa Avenue**

Photograph Source: Equilibria



**4. View North from Junction Road**

Photograph Source: Equilibria

Views of land to be reclaimed for residential development and for the reunification of the suburb of Wahroonga.

## **EQUILIBRIA: Project Vision, Concept Design and Development**

Equilibria was established in 1994 to deliver excellence in architecture and urban design.

The practice develops conceptually powerful ideas to form a balanced, environmentally responsible design solution. Modern design principles underpin the resolution of site context, function and client brief to create elegant, refined architecture.

A strong understanding of the process of building and the detailing of design results in cost effective solutions that provide efficient and accurate transition from drawings to built form. Durable materials and efficient technologies are selected based on site conditions to ensure low maintenance costs and long life.

Urban design projects evolve from a creative vision. Detailed discussions with local authorities and the client form unique, sustainable, low energy environments. Building form is balanced against site constraints and local authority regulations to result in buildings that are fit for purpose and commercially astute.

Completed projects include commercial and retail, industrial, education as well as large and small scale residential. Specifically, urban infrastructure projects include the resolution of a new urban centre in Penrith, Sydney and Honeysuckle, Newcastle.

## **Concept, master planning, over-riding design management**

Our team has the capability to provide the following services to the M1-M2 tunnel extension and development of the land above the tunnel (currently M1 Motorway) for use as residential development:

- Negotiations with Council or NSW Government re zoning;
- Preparation of a preliminary draft LEP as a guide for Council or NSW Government;
- Preparation of design guidelines as embodiments of the LEP;
- Master planning in association with town planning and engineering consultants;
- Site Massing;
- Guiding and coordinating integration of services, access, vehicular routes, pedestrian ways and landscaping;
- Guiding the synthesis of client expectations and engineering requirements within a consistent aesthetic; which is to apply to the tunnel, the tunnel access ways, context; and the residential development;
- Quality assurance with respect to interpretation of the LEP, design guidelines, graphics, materials, textures and environmental considerations;
- Guidance on short-listing of residential development companies to develop the several portions of residential land; and or
- Guidance on short-listing of architects to design residential accommodation in the several precincts;
- Possibly accept the role of architect in designing residential accommodation for one or more of the residential precincts;
- Act as adviser to the client on all matters relating to aesthetics.



# DALY INTERNATIONAL: Infrastructure delivery services

Daly International specialises in the delivery of infrastructure projects by providing engineering, town planning, property consultancy and project management services.

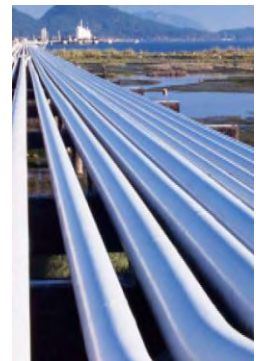
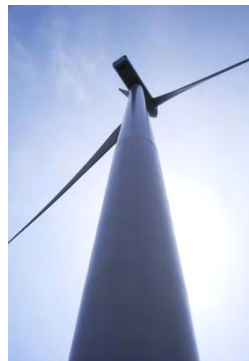
Daly International is engaging with Equilibria to develop the concept of a further 2km extension to the proposed F3-M2 tunnel. We fully support this concept that will deliver massive, economic and environmental benefit not only to Wahroonga and surrounding suburbs, but also to Sydney.

Our team of 220 professionals specialise in shaping infrastructure projects for maximum operational, economic and community benefit. Our clients include: governments; infrastructure owners and operators; financiers; and construction contractors.

Our team has the capability to provide the following services to the F3-M2 tunnel extension.

- Master planning
- Civil and structural design
- Stormwater modelling
- Detailed documentation
- Performance specification
- Engineering peer review for financiers
- Technical engineering advisory
- Building material and methodology review
- Quality assurance and compliance inspections during construction
- Construction contractor review
- Highest and best use analysis
- Property acquisition
- Compensation assessments
- Stakeholder identification and analysis
- Community consultation
- Town planning approvals
- Environmental assessment

Daly International is a privately owned company headquartered in Sydney. For more information about us see [www.dalyinternational.com](http://www.dalyinternational.com)



We are genuinely excited by this once in a generation opportunity and our people have a high level of professional interest in getting started.

# Proposed M1-M2 tunnel extension Surface infrastructure budget costing

13 January 2014

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Appendix A Precinct drawings .....	8



# Document control

Rev No	Date	Revision details	Approved	Verified	Prepared
A	13/1/14	Approved draft for discussion	SETB	BP	SJC

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# Introduction

Transurban propose to design, build, operate, maintain and finance a tolled motorway linking the M1 at Wahroonga to the Hills M2 at West Pennant Hills.

Equilibria propose to extend the tunnel for an additional 2 km at the start of the M1 and reclaim the land currently occupied by freeway to create a sustainable urban development accommodating hundreds of new dwellings and reuniting the suburb of Wahroonga.

Daly International have contributed to the Equilibria proposal and now through Woolacotts Consulting Engineers (their wholly owned engineering subsidiary) and JHA Consulting Engineers (as sub consultants to Woolacotts) have undertaken an assessment of budget costs associated with providing infrastructure to support the intended surface development.

This report details our assumptions and provides budget costing for:

- Water supply to precinct boundaries
- Sewer mains with connection point at precinct boundaries
- Gas mains to precinct boundaries
- Civil works consisting of minor earthworks and stormwater drainage to each precinct
- Electrical supply to precinct boundaries
- Communications infrastructure to precinct boundaries
- Reconnection across the old freeway of Bundarra Avenue South, Burns Road, Bareena Avenue, Lochville Street and Carrington Street.

## 2.0 Budget costing

The overall concept of the proposed surface development is to make available areas of land which can be developed by other parties into residential precincts and reconnect residential areas to the east and west of the existing freeway. It is intended to provide services to the boundaries of each precinct to ensure that future developers can undertake their works without the need for major infrastructure upgrading in the surrounding residential areas.

Our budget cost estimates are exclusive of any contingencies, fees or managing contractors mark up. At this stage we recommend an overall allowance of 50% be made for these items in project budget estimates.

### 2.1 Base data and assumptions

Our budget costing is based on the Precinct drawings presented in Appendix A and the information obtained from DBYD investigations and preliminary review of authority infrastructure data presented in Appendix B. No discussions have been held with service authorities at this stage. We recommend that such negotiations be commenced and the costs confirmed as soon as practical.

The following specific assumptions have been made:

#### 2.1.1 Water

A 150mm diameter water main will be provided to all precincts

#### 2.1.2 Sewer

The diameter of sewer mains has been sized to suit the estimated population within each building

#### 2.1.3 Gas

The sizes of gas mains is based on the need to supply 120 MJ/hr to each dwelling

#### 2.1.4 Civil works

Minimum earthworks and stormwater drainage will be undertaken to maintain stability and erosion control until development commences. It is intended that the existing freeway surface and stormwater drainage be maintained where possible. Where the existing freeway drainage is interrupted by reconnection of roads, additional pipes or culverts will be installed to maintain stormwater drainage.

#### 2.1.5 Electricity

Budget costs are based on infrastructure external to the individual development sites installed underground. Infrastructure internal to the sites (such as individual substations) will be a part of a separate costing exercise and funded by the Developers.

Given the compressed time no negotiations have taken place with Ausgrid. To receive definitive advice from Ausgrid on the capacity of existing nearby high voltage feeders and a supply methodology will necessitate formal applications, precise staging strategies and an

extended negotiating period (typically several months for a development of this nature). On this basis the analysis has been undertaken on a conservative basis.

JHA has undertaken a preliminary maximum demand assessment for the entire development (based on 1,450 dwellings) and has ascertained a maximum demand in the order of 6-7MVA.

While it may be possible to source power from a number of nearby HV feeders and extend such infrastructure the extent of their spare capacity is unknown. On this basis the budgets prepared are on the basis of a new high voltage feeder from the nearby Hornsby Zone Substation.

The reticulation route for this HV cable is in the order of 2km. A further 1.5km reticulation route is needed to run the HV infrastructure to the boundary of each development site. The total reticulation length of 3.5km of HV cabling represents a total investment in the order of \$3.5 million which has been amortised across all the development sites.

#### **2.1.6 Communications**

The reticulation of telecommunications infrastructure to each development site is a normal part of Telstra / NBN's charter and as such there is no cost to the Developer. Such infrastructure supplied by Telstra / NBN includes all conduits and pits to the development boundary plus the reticulation of copper / fibre to the main distribution frame within each development site. As a result of this there are no infrastructure costs to the development sites.

It is assumed the current Telstra / NBN policy of delivering infrastructure to each development site at no cost remains

#### **2.1.7 Reconnection of roads**

Provide a 20m wide road reserve with 14m wide asphaltic concrete pavement, concrete kerb and gutter, stormwater drainage, concrete footpath, street lighting and signage. Reinforced earth retaining walls with an average height of 3m will be provided to form the road reserve across the old freeway for Bundarra Avenue South and Carrington Road. All other roadworks are assumed to require less than 600mm fill.

## **2.2 Budget costs summary**

The spreadsheets presented on the following page summarise our budget costing for the infrastructure associated with the proposed surface development.



### Infrastructure Budget Costing M2/M1 Development

Precinct	Area (m2)	Dwellings		Water	Sewer	Gas	Civil	Electricity	Communications	Totals	\$/Dwelling
I	14,120	250	\$	150,000	\$ 80,000	\$ 8,600	\$ 141,200	\$ 603,500	\$ -	\$ 983,300	\$ 3,933
A	8,900	195	\$	286,500	\$ 25,000	\$ 3,000	\$ 89,000	\$ 470,500	\$ -	\$ 874,000	\$ 4,482
B	9,350	205	\$	151,500	\$ 6,000	\$ 3,440	\$ 93,500	\$ 495,000	\$ -	\$ 749,440	\$ 3,656
C	10,000	220	\$	119,000	\$ 28,000	\$ 19,500	\$ 100,000	\$ 531,000	\$ -	\$ 797,500	\$ 3,625
D	6,500	75	\$	109,500	\$ 26,400	\$ 9,200	\$ 65,000	\$ 181,000	\$ -	\$ 391,100	\$ 5,215
E	8,760	100	\$	109,500	\$ 11,200	\$ 9,200	\$ 87,600	\$ 241,500	\$ -	\$ 459,000	\$ 4,590
F	10,440	120	\$	140,000	\$ 88,000	\$ 11,800	\$ 104,400	\$ 289,500	\$ -	\$ 633,700	\$ 5,281
G	10,950	125	\$	33,000	\$ 27,600	\$ 38,000	\$ 109,500	\$ 302,000	\$ -	\$ 510,100	\$ 4,081
H	11,530	130	\$	381,000	\$ 124,900	\$ 38,000	\$ 115,300	\$ 314,000	\$ -	\$ 973,200	\$ 7,486
J	7,650	65	\$	20,000	\$ 6,000	\$ 88,000	\$ 76,500	\$ 158,000	\$ -	\$ 348,500	\$ 5,362
<b>Totals</b>			\$	1,500,000	\$ 423,100	\$ 228,740	\$ 982,000	\$ 3,586,000	\$ -	\$ 6,719,840	

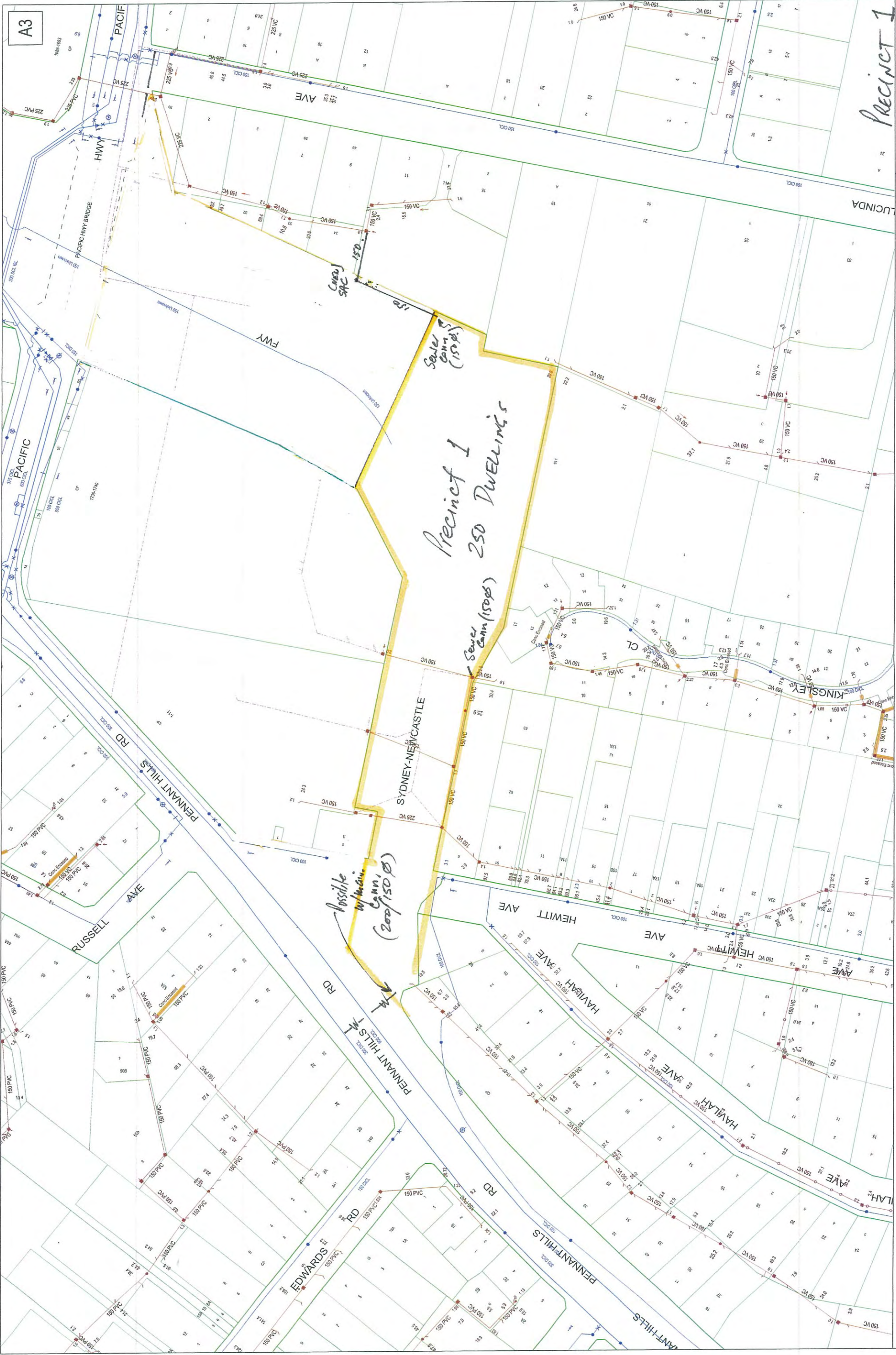
### Road Extensions

	Length (m)	Width (m)	Area (m2)	Rate (\$/m2)	Total
Bundarra Ave south	120	20	2400	\$800	\$ 1,920,000
Burns Road	80	20	1600	\$300	\$ 480,000
Bareena Ave	80	20	1600	\$300	\$ 480,000
Lochville Street	85	20	1700	\$300	\$ 510,000
Carrington Street	110	20	2200	\$800	\$ 1,760,000
<b>Totals</b>					\$ 5,150,000

## Appendix A

### Precinct drawings





Precinct 1



Plan 1 of 1  
0m 9m 18m 27m 36m

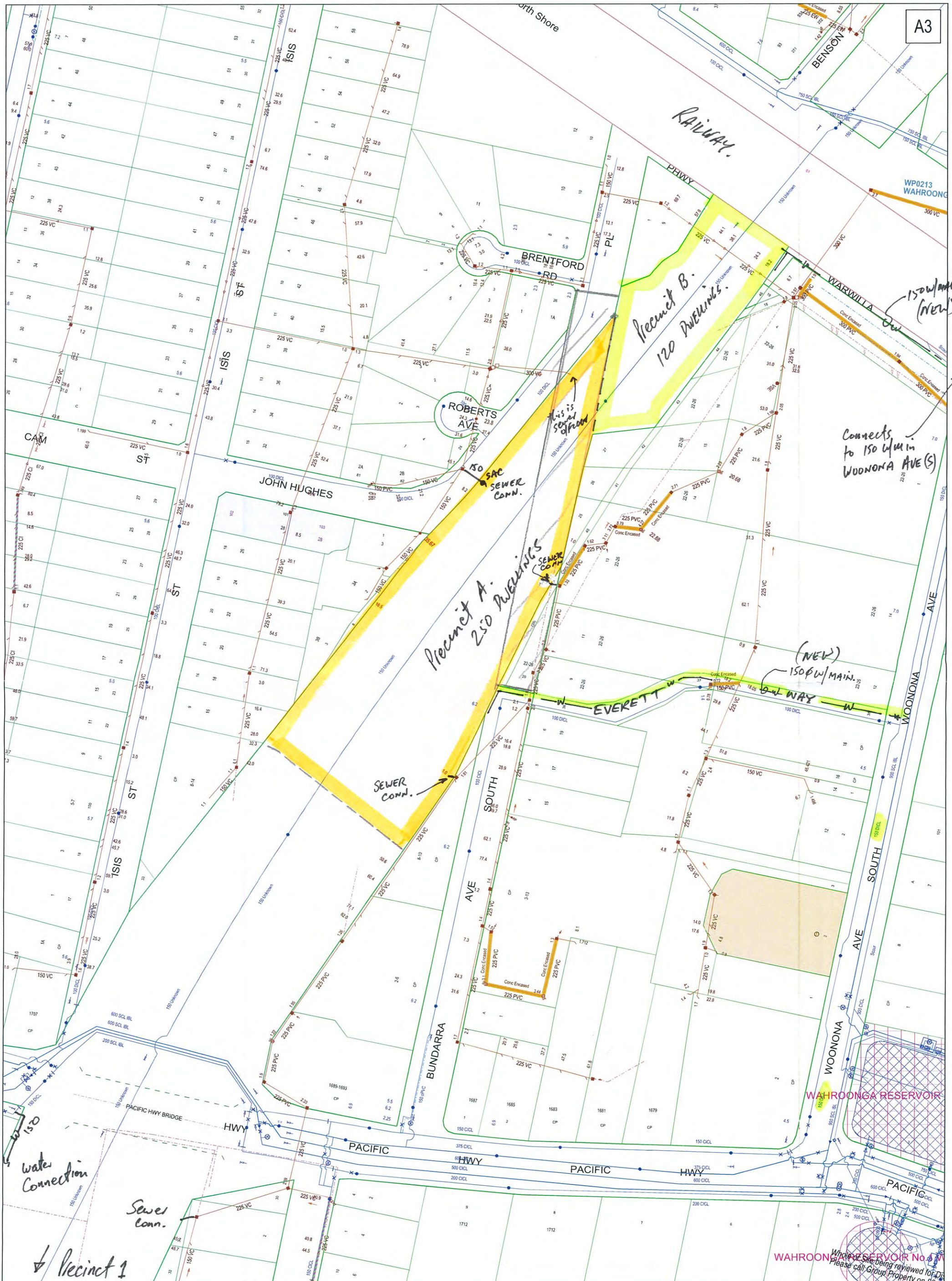
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Date of Production: 11/12/2013

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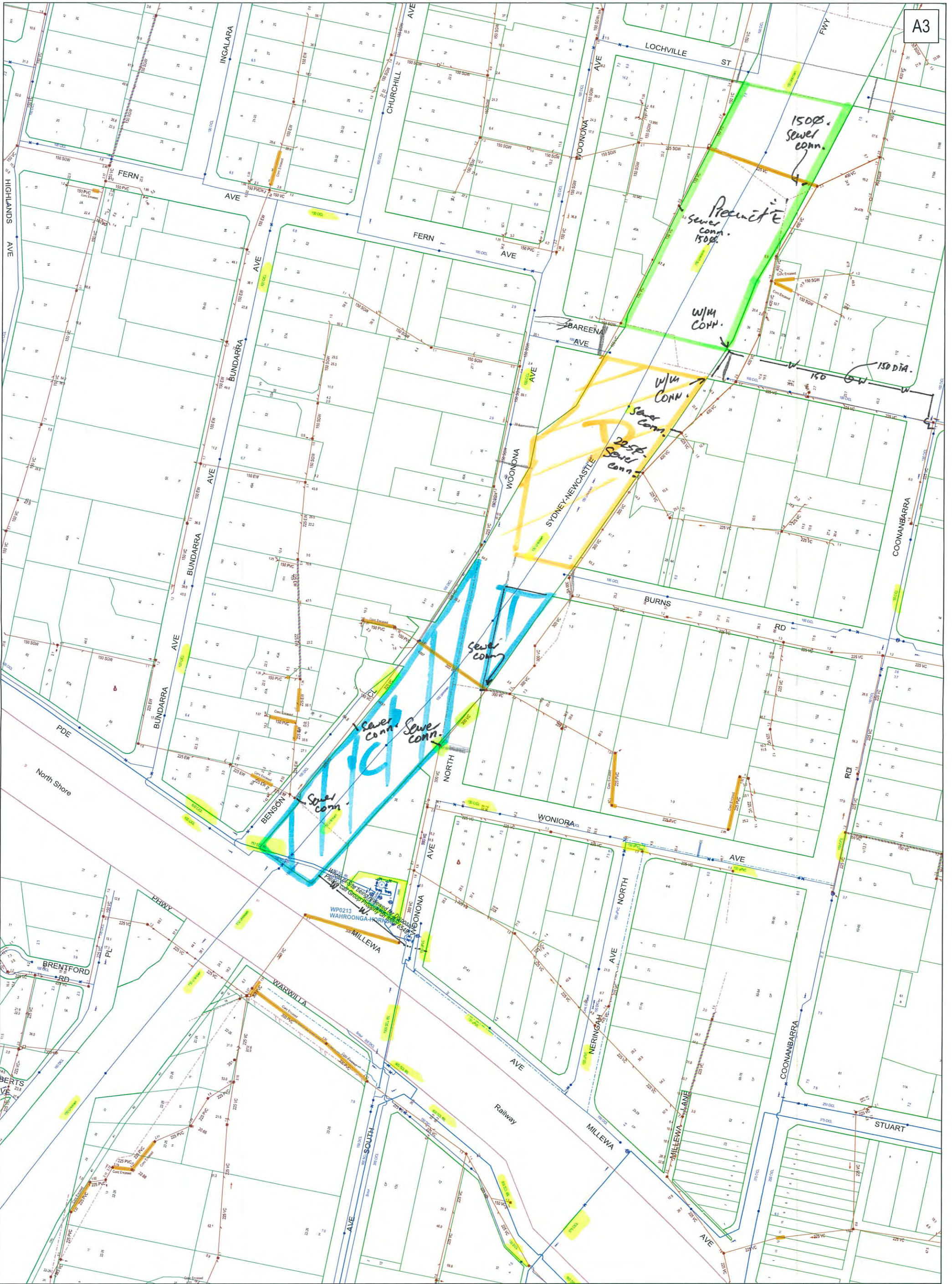
DBYD Address:  
4 Aaron Pl  
Wahroonga NSW 2076





**PRECINCTS A & B  
SEWER & WATER**





DBYD Address:  
n/a Benson Cl  
Wahroonga NSW 2076

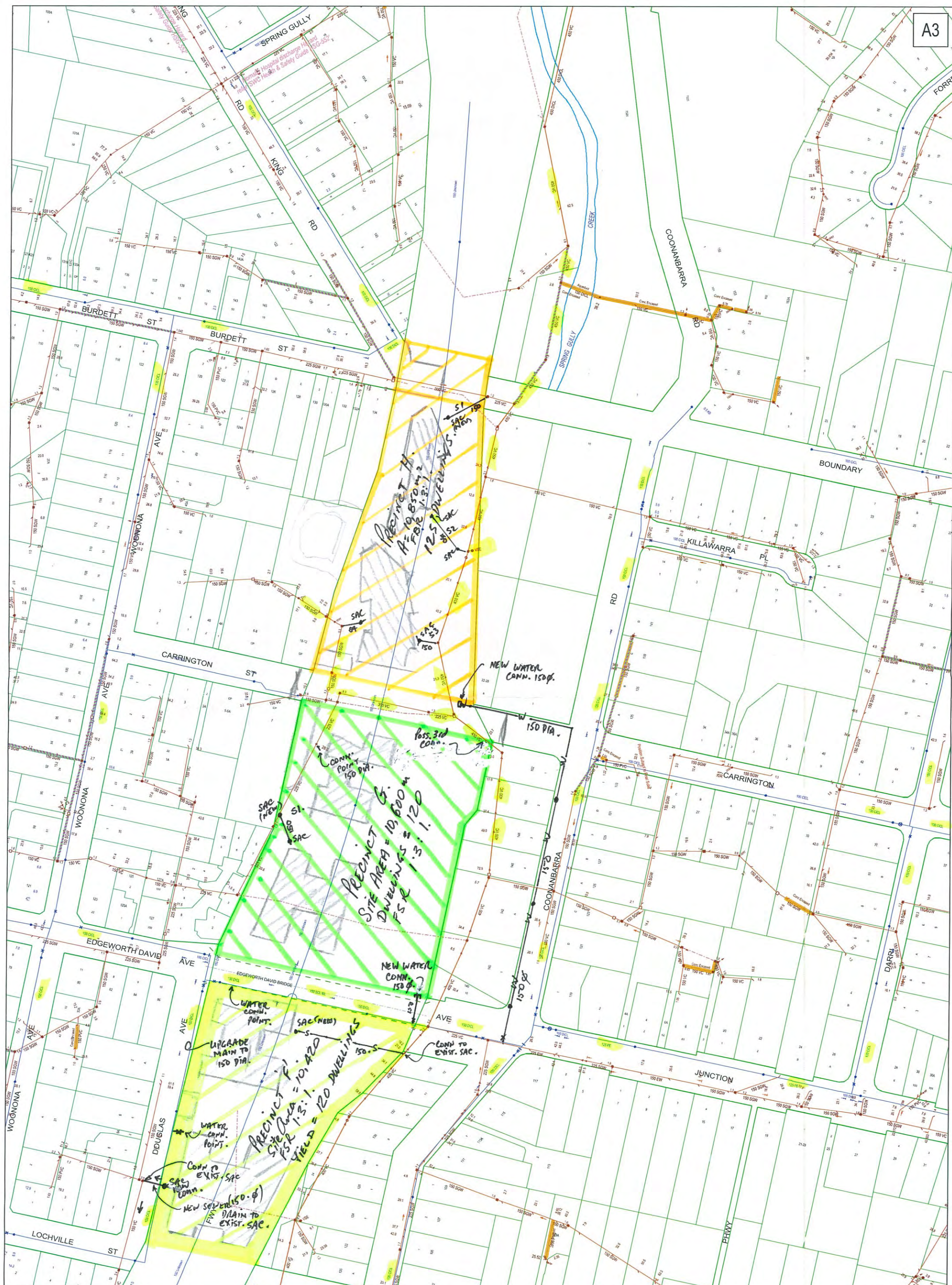
DBYD Job No: 6959619  
DBYD Sequence No: 31862314

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Scale: 1:2000  
Date of Production: 11/12/2013

Plan 1 of 1  
0m 9m 18m 27m 36m



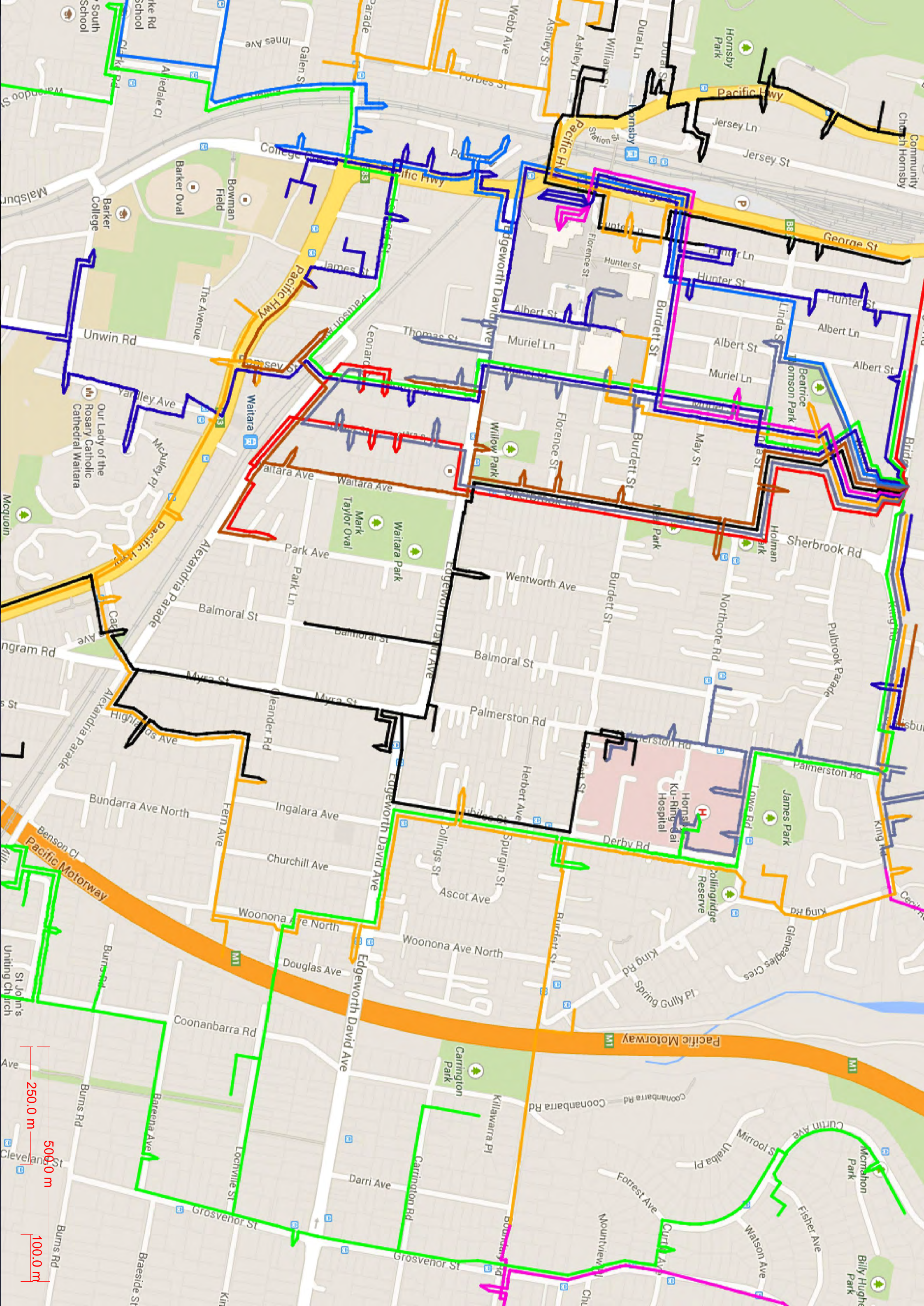














Equilibria Proposal Infrastructure Opportunity: Proposed M1-M2 Tunnel Extension Wahroonga, NSW

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2	FEASIBILITY SUMMARY												
3													
4	TOTAL AREA OF ALL PRECINCTS				98,110	sqm		Total Land Tax		\$10,412,288			
5													
6	INTEREST RATE				6.0%			Total Stamp Duty for Land		\$7,594,540			
7													
8	RESIDENTIAL DEVELOPMENT SUBSIDY FOR TUNNEL EXTENSION				\$350,000,000			Equilibria Concept Fee - included in feasibility					
9													
10	TOTAL SURFACE INFRASTRUCTURE COST				\$15,907,260								
11								Equilibria Development Fee - included in feasibility					
12	PAYMENT TO NSW GOVERNMENT FOR REDUNDANT M1 LAND				\$100,000,000								
13													
14	TOTAL NUMBER OF DWELLINGS				2,000								
15								Taxes to Government - 40% of sales		Stamp Duty			
16	TOTAL DEVELOPMENT SALES				\$1,833,570,000			\$733,428,000		\$74,528,822			
17													
18	TOTAL DEVELOPMENT PROFIT				\$405,951,565	22.14%							
19													
20													
21													
22	*DISCLAIMER												
23	This development analysis is NOT advice and has been prepared for the client as information only. It relies on the client to check all information.												
24	It has been prepared as an aid only in the decision to develop the site. Please note:												
25	• Site areas are approximate only.												
26	• Construction amounts are subject to variation and are approximate.												
27	• Construction costs will vary considerably depending on the type of builder & timing of construction.												
28	• Areas provided are approximate. Actual areas can only be known when the Development Application has been undertaken and approval												
29	granted from Council.												
30	• The feasibility describes a proposed dwelling mix which would be subject to council approval.												
31	• Note that the figures are provided as a preliminary guide only. A quantity surveyor should be consulted for an accurate construction cost												
32	estimate once all the approvals have been obtained.												
33													
34													
35													
36													
37													



CUMULATIVE BALANCE

Equilibria Proposal Infrastructure Opportunity: Proposed M1-M2 Tunnel Extension Wahroonga, NSW

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
49	Interest - Credit	6.0%										\$1,205,305		\$2,104,063		\$2,447,747		\$2,681,397													
50	BALANCE			(\$44,175,880)		(\$56,884,322)		(\$85,394,609)		(\$120,430,541)		\$21,293,721		\$37,171,786		\$43,243,535		\$47,371,350													
51																															
52																															
53	Precinct D																														
54																															
55	Balance from Previous Year					(\$28,972,278)		(\$35,045,737)		(\$46,308,449)		(\$65,560,774)		(\$89,234,036)		(\$1,748,092)		\$10,920,895		\$15,764,021											
56	Income			\$0		\$0		\$0		\$0		\$0		\$98,725,000		\$13,970,000		\$5,060,000		\$715,000											
57	GST Annual Reconciliation			\$2,673,319		\$398,405		\$687,310		\$1,438,105		\$1,629,855		\$8,916,969		(\$1,258,394)		(\$448,394)		(\$53,394)											
58	Expenses			(\$30,005,657)		(\$4,488,142)		(\$9,328,789)		(\$16,979,443)		(\$20,252,135)		(\$2,223,138)		(\$660,783)		(\$660,783)		(\$483,078)											
59	NET			(\$27,332,338)		(\$33,062,016)		(\$43,687,216)		(\$61,849,786)		(\$84,183,053)		(\$1,649,144)		\$10,302,731		\$14,871,718		\$15,942,549											
60	Interest - Debit	6.0%		(\$1,639,940)		(\$1,983,721)		(\$2,621,233)		(\$3,710,987)		(\$5,050,983)		(\$98,949)																	
61	Interest - Credit	6.0%														\$618,164		\$892,303		\$956,553											
62	BALANCE			(\$28,972,278)		(\$35,045,737)		(\$46,308,449)		(\$65,560,774)		(\$89,234,036)		(\$1,748,092)		\$10,920,895		\$15,764,021		\$16,899,102											
63																															
64																															
65	Precinct E																														
66																															
67	Balance from Previous Year					(\$39,032,393)		(\$42,510,446)		(\$45,210,418)		(\$55,035,037)		(\$80,050,847)		(\$110,763,296)		\$9,711,605		\$25,452,505		\$31,643,858									
68	Income			\$0		\$0		\$0		\$0		\$0		\$0		\$134,860,000		\$16,665,000		\$5,775,000		\$990,000									
69	GST Annual Reconciliation			\$3,603,467		\$93,091		\$0		\$443,717		\$1,903,882		\$2,155,339		(\$12,191,248)		(\$1,501,250)		(\$511,250)		(\$76,250)									
70	Expenses			(\$40,426,479)		(\$1,164,892)		(\$140,892)		(\$7,153,145)		(\$22,388,512)		(\$26,598,167)		(\$2,743,564)		(\$863,559)		(\$863,559)		(\$626,124)									
71	NET			(\$36,823,012)		(\$40,104,194)		(\$42,651,338)		(\$51,919,846)		(\$75,519,667)		(\$104,493,675)		\$9,161,892		\$24,011,797		\$29,852,697		\$31,931,485									
72	Interest - Debit	6.0%		(\$2,209,381)		(\$2,406,252)		(\$2,559,080)		(\$3,115,191)		(\$4,531,180)		(\$6,269,621)																	
73	Interest - Credit	6.0%														\$549,714		\$1,440,708		\$1,791,162		\$1,915,889									
74	BALANCE			(\$39,032,393)		(\$42,510,446)		(\$45,210,418)		(\$55,035,037)		(\$80,050,847)		(\$110,763,296)		\$9,711,605		\$25,452,505		\$31,643,858		\$33,847,374									
75																															
76																															
77	Precinct F																														
78																															
79	Balance from Previous Year					(\$45,552,220)		(\$49,593,607)		(\$52,742,313)		(\$56,079,941)		(\$67,331,018)		(\$97,000,801)		(\$133,762,654)		\$10,994,884		\$30,292,866		\$36,332,727							
80	Income			\$0		\$0		\$0		\$0		\$0		\$0		\$162,030,000		\$20,460,000		\$5,500,000		\$2,090,000									
81	GST Annual Reconciliation			\$4,206,505		\$107,091		\$0		\$0		\$478,690		\$2,247,157		\$2,577,591		(\$14,649,326)		(\$1,843,865)		(\$173,865)									
82	Expenses			(\$47,180,297)		(\$1,341,292)		(\$163,292)		(\$163,292)		(\$7,918,577)		(\$26,426,328)		(\$31,767,973)		(\$3,245,488)		(\$1,032,843)		(\$1,032,843)		(\$747,723)							
83	NET			(\$42,973,793)		(\$46,786,421)		(\$49,756,899)		(\$52,905,605)		(\$63,519,828)		(\$91,510,189)		(\$126,191,183)		\$10,372,533		\$28,578,176		\$34,276,158		\$37,501,139							
84	Interest - Debit	6.0%		(\$2,578,428)		(\$2,807,185)		(\$2,985,414)		(\$3,174,336)		(\$3,811,190)		(\$5,490,611)		(\$7,571,471)															
85	Interest - Credit	6.0%															\$622,352		\$1,714,691		\$2,056,569		\$2,250,068								
86	BALANCE			(\$45,552,220)		(\$49,593,607)		(\$52,742,313)		(\$56,079,941)		(\$67,331,018)		(\$97,000,801)		(\$133,762,654)		\$10,994,884		\$30,292,866		\$36,332,727		\$39,751,207							
87																															
88																															
89	Precinct G																														
90																															
91	Balance from Previous Year					(\$48,318,383)		(\$52,599,515)		(\$55,938,752)		(\$59,478,342)		(\$63,230,309)		(\$75,201,658)		(\$106,659,441)		(\$145,612,492)		(\$366,153)		\$25,189,764		\$31,768,036					
92	Income			\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$163,460,000		\$27,720,000		\$6,435,000		\$2,365,000							
93	GST Annual Reconciliation			\$4,462,303		\$113,091		\$0		\$0		\$0		\$491,392		\$2,362,122		\$2,711,526		(\$14,774,996)		(\$2,502,999)		(\$567,999)		(\$197,999)					
94	Expenses			(\$50,045,684)		(\$1,416,892)		(\$172,892)		(\$172,892)		(\$172,892)		(\$8,206,043)		(\$27,782,578)		(\$33,422,361)		(\$3,417,939)		(\$1,086,920)		(\$1,086,920)		(\$786,950)					
95	NET			(\$45,583,380)		(\$49,622,184)		(\$52,772,407)		(\$56,111,644)		(\$59,651,234)		(\$70,944,960)		(\$100,622,114)		(\$137,370,276)		(\$345,427)		\$23,763,928		\$29,969,845		\$33,148,087					
96	Interest - Debit	6.0%		(\$2,735,003)		(\$2,977,331)		(\$3,166,344)		(\$3,366,699)		(\$3,579,074)		(\$4,256,698)		(\$6,037,327)															
97	Interest - Credit	6.0%																													
98	BALANCE			(\$48,318,383)		(\$52,599,515)		(\$55,938,752)		(\$59,478,342)		(\$63,230,309)		(\$75,201,658)		(\$106,659,441)		(\$145,612,492)		(\$366,153)		\$1,425,836		\$1,798,191		\$1,988,885					
99																															
100																															
101	Precinct H																														
102																															
103	Balance from Previous Year					(\$51,087,163)		(\$55,608,198)		(\$59,138,132)		(\$62,879,861)		(\$66,846,094)		(\$71,050,301)		(\$83,707,799)		(\$116,978,491)		(\$158,185,285)		(\$567,765)		\$23,117,249		\$27,924,364			
104	Income			\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$177,265,000		\$25,850,000		\$4,785,000		\$2,090,000					
105	GST Annual Reconciliation			\$4,718,349		\$119,091		\$0		\$0		\$0		\$497,107		\$2,475,870		\$2,847,678		(\$16,025,723)		(\$2,332,145)		(\$417,145)		(\$172,145)					
106	Expenses			(\$52,913,786)		(\$1,492,492)		(\$182,492)		(\$182,492)		(\$182,492)		(\$8,416,427)		(\$29,125,139)		(\$35,100,588)		(\$3,589,619)		(\$1,141,365)		(\$826,380)							
107	NET			(\$48,195,437)		(\$52,460,564)		(\$55,790,690)		(\$59,320,624)		(\$63,062,353)		(\$67,028,586)		(\$78,969,621)		(\$110,357,067)		(\$535,627)		\$21,808,725		\$26,343,739		\$29,015,839					
108	Interest - Debit	6.0%		(\$2,891,726)		(\$3,147,634)		(\$3,347,441)		(\$3,559,237)		(\$3,783,741)		(\$4,021,715)		(\$4,738,177)		(\$6,621,424)		(\$8,953,884)		(\$32,138)									
109	Interest - Credit	6.0%																													
110	BALANCE			(\$51,087,163)																											

Equilibria Proposal Infrastructure Opportunity: Proposed M1-M2 Tunnel Extension Wahroonga, NSW

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O					
1	EQUILIBRIA COMMERCIAL-IN-CONFIDENCE																			
2																				
3	STAGE 2: ESTIMATES OF INFRASTRUCTURE COSTS (excluding residential sites)																			
4																				
5	NOTE: These estimates are presented as Stage 2A and Stage 2B																			
6																				
7	Stage 2A includes infrasture for Precincts A, B, C and I																			
8	Stage 2B incudes infrastructure for Precincts D, E, F, G, H, & J																			
9	STAGE 2A ESTIMATES																			
10																				
11	PRECINCT	A	B	C	I															
12	Area	8,900	9,350	10,000	14,120															
13	Dwellings	195	205	220	250															
14	Total Dwellings in Stage 2A					870														
15																				
16	Services:																			
17	Water	\$286,500	\$151,500	\$119,000	\$150,000															
18	Sewer	\$25,000	\$6,000	\$28,000	\$80,000															
19	Gas	\$3,000	\$3,440	\$19,500	\$8,600															
20	Civil	\$89,000	\$93,500	\$100,000	\$141,200															
21	Power	\$470,500	\$495,000	\$531,000	\$603,500															
22	Comms	\$0	\$0	\$0	\$0															
23																				
24	Stage 2A Total Individual Precinct Services Cost	\$874,000	\$749,440	\$797,500	\$983,300															
25																				
26	Stage 2A Total Services Cost of all Precincts					\$3,404,240														
27						Stage 2A Total Services Cost	\$3,404,240													
28	Cost per Dwelling based on totals for Precincts A, B, C & I																			
29	Cost per Dwelling precinct by precinct	\$4,482	\$6,245	\$3,625	\$3,933	\$3,913														
30																				
31																				
32	Roads for Precincts A, B, C & I				Weeks	Length (m)	Width (m)	Area (sqm)	Type	Rate (\$/sqm)	Total \$									
33	Bundarra Ave South through to John Hughes				20	120	20	2400	Raised	\$800	\$1,920,000									
34	Burns Road through to Woonona Ave				4	80	20	1600	On grade	\$300	\$480,000									
35																				
36						Stage 2A Total Road Cost					\$2,400,000									
37																				
38											TOTAL INFRASTRUCTURE COSTS FOR STAGE 2A					\$5,804,240				
39	[Excludes contingencies, fees or managing contractor's mark up.]																			
40	Therefore QS is advised to add 50%																			
41											Recommended estimate of Infrastructure costs for Stage 2A					\$8,706,360				
42	Total infrastructure cost per Dwelling in Stage	\$10,007																		
43																				
44	STAGE 2B ESTIMATES																			
45																				
46	PRECINCT	D	E	F	G	H	J													
47	Area	6,500	8,670	10,440	10,950	11,530	7650													
48	Dwellings	75	100	120	125	130	65													
49	Total Dwellings in Stage 2B							615												
50																				
51	Services:																			
52	Water	\$109,500	\$109,500	\$140,000	\$33,000	\$381,000	\$20,000													
53	Sewer	\$26,400	\$11,200	\$88,000	\$27,600	\$124,900	\$6,000													
54	Gas	\$9,200	\$9,200	\$11,800	\$38,000	\$38,000	\$88,000													
55	Civil	\$65,000	\$87,600	\$104,400	\$109,500	\$115,300	\$76,500													
56	Power	\$181,000	\$241,500	\$289,500	\$302,000	\$314,000	\$158,000													
57	Comms	\$0	\$0	\$0	\$0	\$0	\$0													
58																				
59	Stage 2B Total Individual Precinct Services cost	\$391,100	\$459,000	\$633,700	\$510,100	\$973,200	\$348,500													
60																				
61	Stage 2B Total Services Cost of all Precincts										\$3,315,600									
62						Stage 2B Total Services Cost					\$3,315,600									
63	Cost per Dwelling based on totals for Precincts D, E, F, G, H & J																			
64	Cost per Dwelling precinct by precinct	\$5,215	\$4,590	\$5,281	\$4,081	\$7,486						\$5,391								
65																				
66																				
67	Roads for Precincts D, E, F, G, H & J				Weeks	Length (m)	Width (m)	Area (sqm)	Type	Rate (\$/sqm)	Total \$									
68	Bareena Ave through to Bareena Ave				4	80	20	1600	On grade	\$300	\$480,000									
69	Lochville St through to Lochville Street				4	85	20	1700	On grade	\$300	\$510,000									
70	Carrington through to Carrington. Walk / Bicycle				4	110	10	1100	On grade	\$300	\$330,000									
71	Burdett St through to Boundary Road Walk / Bicycle				4	55	10	550	On grade	\$300	\$165,000									
72																				
73						Stage 2B Total Road Costs					\$1,485,000									
74																				
75											TOTAL INFRASTRUCTURE COSTS FOR STAGE 2B					\$4,800,600				
76	[Excludes contingencies, fees or managing contractor's mark up.]																			
77	Therefore QS is advised to add 50%																			
78											Recommended estimate of Infrastructure costs for Stage 2B					\$7,200,900				
79	Total infrastructure cost per Dwelling in Stage	\$11,709																		
80																				
81			TOTAL RECOMMENDED ESTIMATE OF COST OF INFRASTRUCTURE FOR STAGES 2A AND 2B													\$15,907,260				
82																				
83	Total infrastrucure cost per Dwelling for Stages 2A and 2B	\$10,712																		
84																				
85																				
86	NOTE: The above cost estimates are to be used as a guide only. This document is a draft only and all figures must be checked by a quantity surveyor.																			
87	Equilibria accepts no responsibility for any loss incurred as a result of reliance on these figures.																			
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# EQUILIBRIA PROPOSAL



## PROPOSED M1-M2 TUNNEL EXTENSION - WAHROONGA NSW

September 2014

<https://www.facebook.com/EquilibriaProposal>

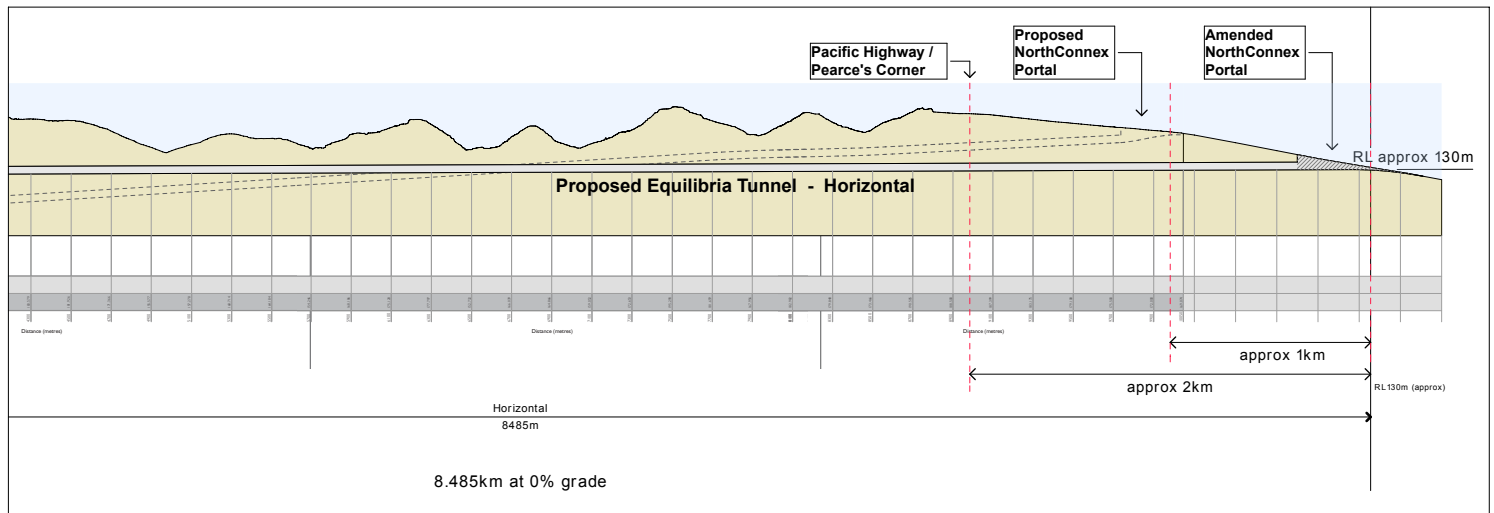
March 2012: Transurban submitted an Unsolicited Proposal to the NSW State Government to build a tunnel linking the M1 and M2 motorways in Sydney.

October 2013: Equilibria developed a proposal to extend the tunnel to approximately 2km north of Pacific Highway - approximately 1km longer than the current Transurban/Lend Lease Bouygues Joint Venture Proposal.

Approximately 2km of redundant M1 would be rezoned to create a unique opportunity for a sustainable urban development.

The suburb of Wahroonga would be reunited (currently cut in two by the M1) and approximately 2000 dwellings would be built over ten separate land precincts totalling approx. 100,000m<sup>2</sup>.

The main tunnel would then be built **horizontal** with **minimal vehicular emissions**. Pollution stack in Hornsby industrial area.



Base Longitudinal Section Source: NorthConnex EIS

## Longitudinal Section: Proposed M1-M2 Tunnel + Extension

### Benefits

Equilibria's Proposal would enhance Transurban's Proposal, benefit project partners, and provide economic stimulus to the Federal and NSW State Governments and the local community.

- More vehicles likely to use tunnel due to less pollution in tunnel and faster traffic flows + less fuel usage due to horizontal tunnel
- Greater community acceptance of the M1-M2 Tunnel due to less pollution and noise in local residential area
- The extension to the tunnel would be cost effective due to economies of scale from existing construction setup
- A likely improved EIS / more efficient planning approval
- NSW Government receives capital return on sale of redundant M1 land
- The pollution stack would be located adjacent to Hornsby industrial area, not immediate to Wahroonga residents
- The Spring Gully Creek riparian zone, currently adjacent to the M1 would be protected, not destroyed
- No Wahroonga resident would be forced out of their home
- Provision of an additional 2000 dwellings for Sydney with close proximity to Wahroonga train station
- Substantial financial benefits for the Federal Government, the State Government, Transurban and Lend Lease Bouygues

### Feasibility Summary

- Total area of all land precincts = approx. 100,000m<sup>2</sup>
- Residential development subsidy for 1km tunnel extension = \$350M
- Payment to NSW Government for redundant M1 land = \$100M
- Total number of dwellings = 2000
- Total development sales = \$1.833B
- Total stamp duty from development sales = \$74M
- Total development profit = approx. \$400M



Cadastral Map Source: Google

## Masterplan: Proposed Development Precincts