



Residential Development
Ralston Avenue, Belrose

Housing Demand Analysis Study



PREPARED FOR

Matthews Civil Pty Ltd

November 2012



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1. EXECUTIVE SUMMARY

Hill PDA has been commissioned by Matthews Civil Pty Ltd to undertake a housing demand study. The purpose of this Study is to provide Matthews Civil Pty Ltd with an understanding of the demand for a residential development of approximately 169 lots for detached dwellings in the suburb of Belrose, the Local Government Area (LGA) of Warringah and North East Region.

In any study of demand for housing, a number of factors are important to analyse including: local demographic trends, general housing market trends and the characteristics of the local market. In this regard, the following section summarises the key findings of this Study and its research.

Local Demographic Trends and Analysis

A cursory review of demographic trends in the suburb of Belrose has found that the area has experienced a modest decline in population over the past census (2006 to 2011), and a drop in dwelling stock of 83 dwellings. It should be noted that the decline is a result of the Belrose suburb boundaries being refined between the 2006 and 2011 ABS Censuses. As such, the data is not directly comparable. Data for the Belrose suburb from 2006 and 2011 has been included nonetheless as it provides a useful indicator of the broad demographic changes which have occurred over the 2006 to 2011 period. We make note that for the LGA of Warringah, the population growth was over 5% (6,904 population increase) and Greater Sydney by 6.6% (274,484) over the same period.

The median weekly rent within the suburb of Belrose experienced an increase of 33% between the census period (\$475 to \$630 in 2011) demonstrating a rise demand for this location. This median weekly rent was \$279 or 56% higher than the figure recorded for Greater Sydney (\$351).

Looking forward there are forecasts for an additional 2,350 persons to reside within Belrose by 2036, based on further land release and/or urban consolidation. This forecast population increase will produce a demand for an additional 870 dwellings over the next 25 years (or 35 additional dwellings supply per annum average). The subject residential development of approximately 169 lots for detached dwellings would represent a little over 5 years of supply for the suburb of Belrose.

The demographic profile and forecast age distribution indicates demand for the growing aging population housing stock to be more diverse. This would mean allowing the opportunity for older residents to downsize into suitable townhouse and apartment dwellings. This could be achieved whilst also accommodating for the growing demand for family housing within the existing large detached stock (home upgrades) and new house and land packages for the executive market who would be attracted to locational attributes of Belrose.

General Housing Market Trends and Analysis

Population forecasts are anticipating an additional 1.7 million people will be living in Sydney by 2036. Even without any population increases, the declining household occupancy means a shift and increase in housing stock is fundamental to meet the changing demographics. Despite this housing demand pressure, Sydney is experiencing its lowest rate of housing growth in 50 years with the gap between housing demand and supply worsening.

Housing completions in NSW peaked in 1999-2000 and have since fallen by 47%. In essence, this is a main contributor to maintaining Sydney as Australia's least affordable city. The high cost of housing is an important social issue in Sydney both in terms of equity and its economic prosperity.

In response to this critical social and economic issue, the NSW Government has implemented a program named 'the Metropolitan Development program (MDP)' better known as the Greenfield land release. In the MDP, the suburb Belrose is recognised as a lead infrastructure release zone pending rezoning to accommodate increased land supply.

Supporting the MDP, is the draft North East Subregion Strategy consisting of the local government areas of Mosman, Manly Warringah and Pittwater. The strategy targets an additional 17,300 dwellings for the Subregion by 2031. The LGA of Warringah historically has been the main contributor to housing supply to the Subregion with 5,483 dwellings completed between 2000/01-2009/10. It is important to note that the Subject Site have not been identified in the draft Subregional Strategy however the plan is still a draft subject to further investigation with respect to housing supply.

Belrose Market Analysis

Discussions with selling agents active in the Warringah LGA as well as adjoining LGAs indicate that demand for housing remains good and predominantly for families. Based on our market research, the following observations are made:

- Belrose is considered a more affordable choice for families compared to the Northern Beaches , lower North Shore and Eastern suburb markets;
- Buyer interest is high in Belrose with on average 20 people inspecting each house for sale;
- The buyer's profile consists of couples with children relocating (second homebuyers) primarily from the Northern beaches and Eastern suburbs and also empty nesters planning to downsize.
- Newly marketed house and land packages in Belrose with a land area of 500-600sqm per lot would range from \$900,000-\$1,400,000 while the median sales price for detached dwellings in Warringah LGA was \$900,000 in the March 2012 Quarter;
- There is limited new subdivision within the suburb of Belrose and surrounding suburbs; and
- The current development take up rates in surrounding suburbs is slow but this is likely to be a reflection of the economic climate as opposed to demand.

Conclusion

In conclusion the market evidence suggests Belrose is rejuvenating itself as a “value for money” family home destination with “empty-nester” households being purchased by younger families. The potential also exists for higher executive price housing on new subdivided land if available.

This buyer demand profile reflects Belrose’s highly restricted land and housing supply. The economics of development will dictate that housing supply will be limited to the “highest and best use”. In Belrose, this is either refurbishment of existing stock or the construction of luxury homes for the executive market. It is only when this supply is increased to a level exceeding that type of demand that other housing stock types become a viable option. This supply can only be achieved with the release of new rezoned land for urban development and or urban consolidation.

In addition, with Belrose’s aging population, demand will grow for housing stock that better suits “aging in place” such as townhouses and apartments. This is a potential new market but its supply is unlikely unless the land stock is significantly increased in Belrose and its environs over the next 10 years.

Hill PDA recommends that the development of the site predominantly constitutes low density housing to meet the needs of the local market (young families / executives). In accordance with the Metropolitan Development Program (Action C2:3) and the North East Subregion Strategy (Action C2.3.1) ‘*Provide a Mixture of Housing*’ Hill PDA also recommends that Matthews Civil Pty Ltd consider the prospect of providing a component of housing suitable for smaller lots to address an emerging aging market. This could also encourage the turnover (sale) of existing empty nester households in the locality thereby allowing younger couples with children to invest and seek value for money in these larger established homes.

2. INTRODUCTION

2.1 Study Background

Hill PDA has been commissioned to undertake a housing demand Study, having particular regard to the suburb of Belrose as well as surrounding suburbs within Warringah LGA. The Study has been undertaken to inform preliminary analysis concerning the potential development of the Site located in Belrose.

At this preliminary stage, there are no specific details regarding the potential development of the Subject Site and for this reason we have made a number of assumptions to inform our Study. More specifically we have assumed that, subject to rezoning, the Subject Site has the potential to build approximately 169 lots for detached residential dwellings.

More specifically this Study:

- Reviews the existing and forecast population and demographic features of the Study Area and their potential influence to housing demand;
- Reviews broader market and economic trends and how they influence housing supply within the Region;
- Undertakes a review of the existing Belrose Housing Market including subdivisions and developments; and
- Reviews the implications to housing affordability.

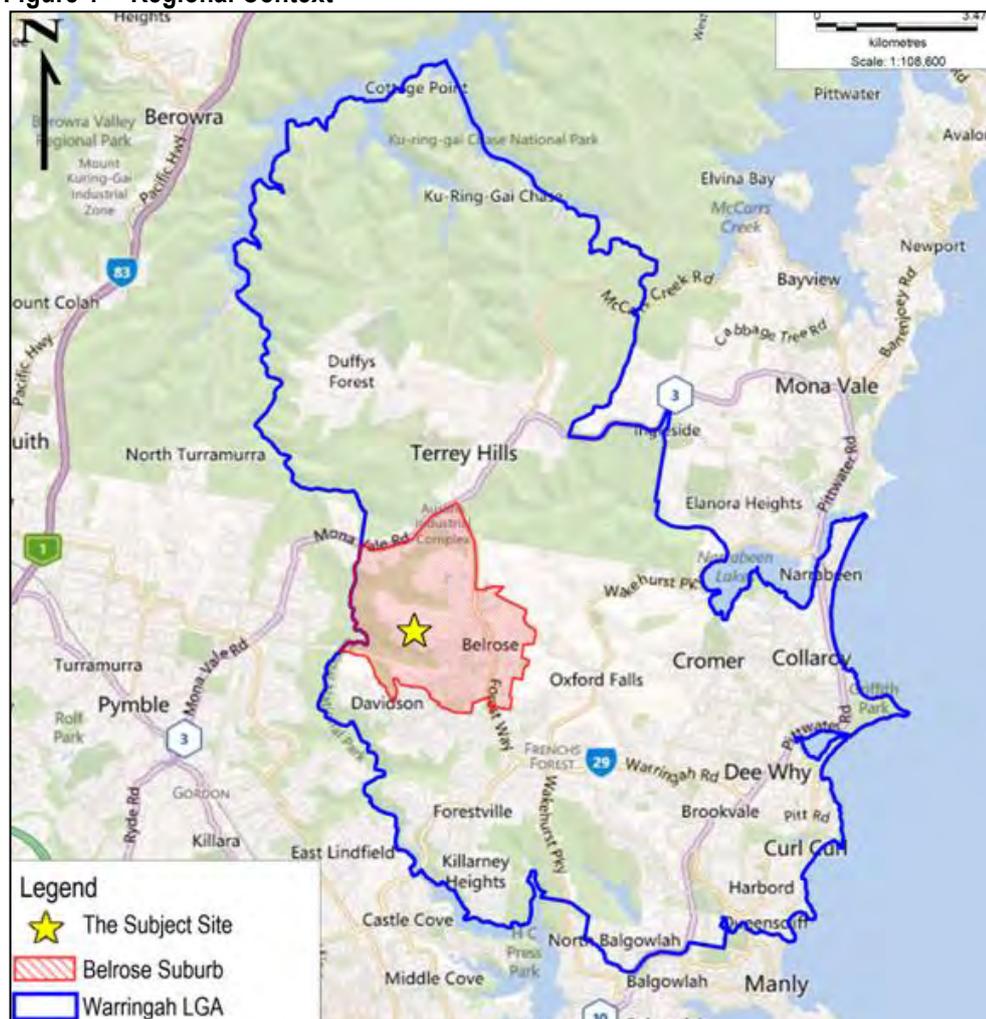
This Study forms one of three separate reports that have been commissioned to explore the implications of rezoning the Subject Site for residential uses. The two additional reports being undertaken by Hill PDA include:

- An Economic Impact Assessment; and
- A Social Impact Assessment.

It is also understood that a broader consultant team will be engaged to undertake other aspects of the analysis including a town planner, environmental and traffic studies. For this reason this Study does not address these technical matters.

The locations of the LGA, suburb and Subject Site are depicted in Figure 1.

Figure 1 - Regional Context



Source: Ralston Avenue Belrose Landscape Concept Report, Hassell (May 2012)

2.2 The Subject Site Designation

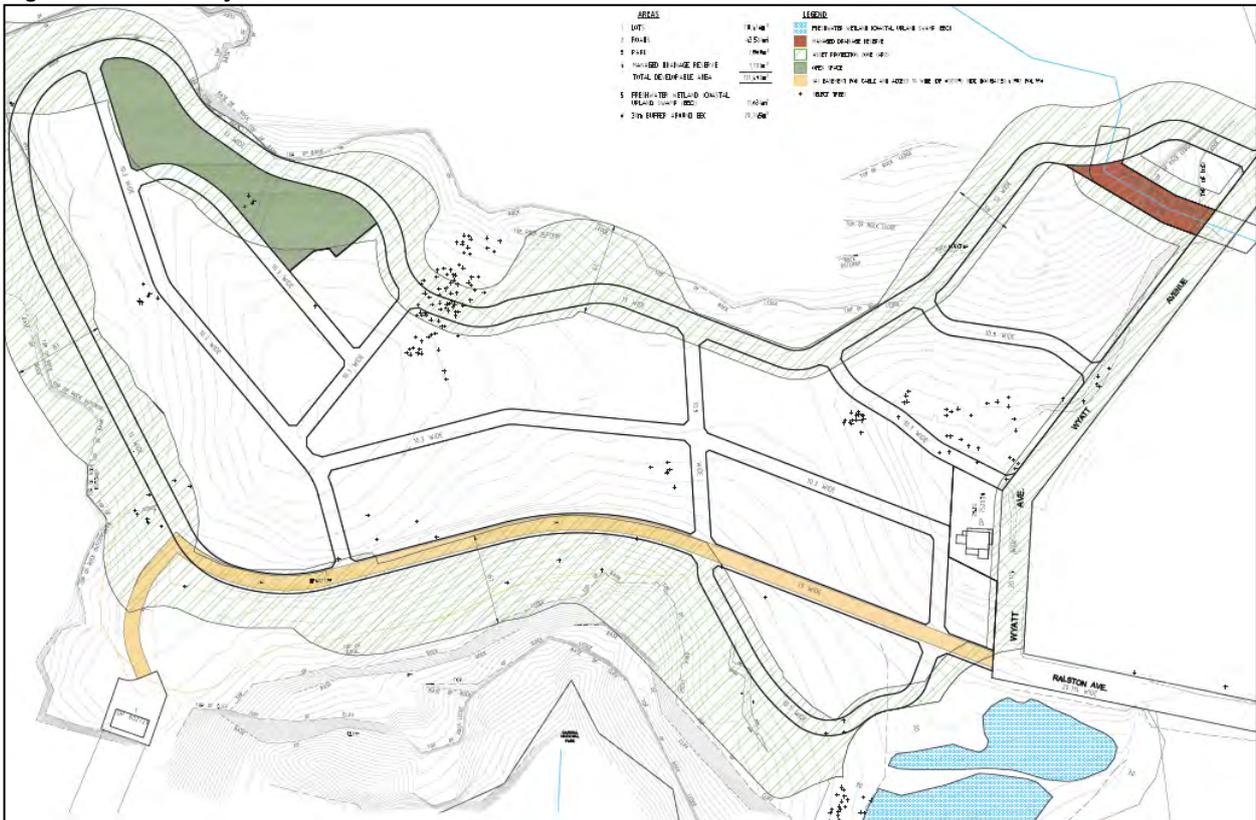
The Subject Site under investigation is located within Ralston Ave in the suburb of Belrose, which is approximately 11km north east of Chatswood and 20km north of the Sydney CBD. The Site is located within the LGA of Warringah and is currently vacant with no dwellings or permanent structures located thereon. The Garingal National Park surrounds the boundaries of the Site. The Site is connected by the Forest coach line service to Sydney CBD and Chatswood.

The Study Area

For the purposes of market research we have defined a Study Area that includes:

- The suburb of Belrose;
- Suburbs surrounding Belrose (Oxford falls, Forestville, French Forest, Duffy’s Forest, Killarney Heights , Cromer and Terry Hills); and
- Warringah local Government Area.

Figure 2 - The Subject Site



Source: Plan of Proposed Subdivision of Lot 1 in DP1139826 and Road Closures at Ralston Avenue, Belrose, Lockley Land Title Solutions (24/09/2012)

3. DEMOGRAPHICS TREND AND ANALYSIS

The following Chapter provides a resident and dwelling profile of Belrose. Where appropriate data from Warringah LGA and Greater Sydney area has been used in order to allow for a wider set of comparisons.

3.1 Population Growth

The NSW 2021 Plan aims to rebuild the NSW economy, provide quality services, renovate infrastructure, restore government accountability and strengthen NSW's local environment and communities. The Plan comprises five key strategies. The main strategy of relevance to this Study is "*Rebuild the Economy*" which seeks to secure new jobs and ensure that more land is made available for housing in order to support economic growth.

According to the 2011 ABS Census the population of Belrose has experienced a decline over the last 5 years. Between 2006 and 2011 the number of people living in Belrose decreased by 120 people, which equates to an annual average growth rate of -0.3%. This annual growth rate was significantly lower than that recorded over the same period for both Warringah LGA and Greater Sydney (1.0% and 1.3% respectively).

Table 1 - Population Growth for Study Area (2001-2011)

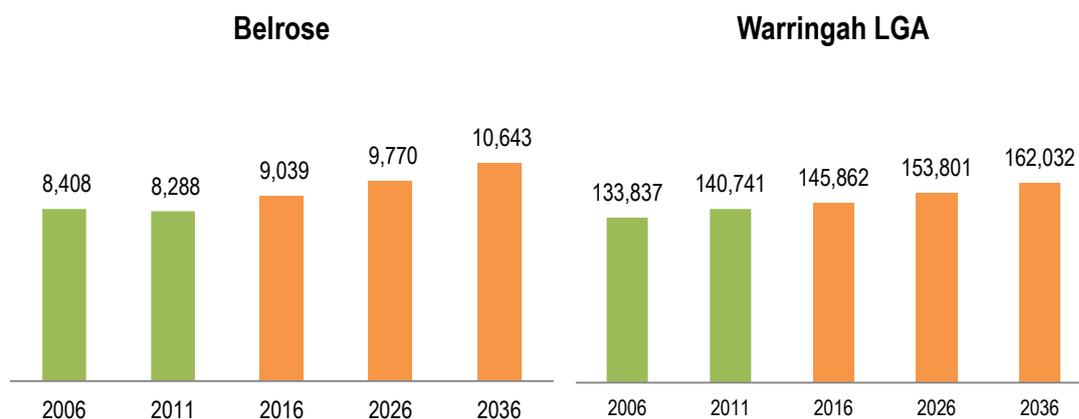
| | 2001 | 2006 | 2011 | # Change 06-11 | % Change 06-11 | Average Annual Growth Rate 2006-2011 (%) |
|----------------|-----------|-----------|-----------|----------------|----------------|--|
| Belrose | 7,585 | 8,408 | 8,288 | -120 | -1.43% | -0.29% |
| Warringah LGA | 127,613 | 133,837 | 140,741 | 6,904 | 5.16% | 1.01% |
| Greater Sydney | 3,948,015 | 4,119,190 | 4,391,674 | 272,484 | 6.61% | 1.29% |

Source: ABS Census 2011

Population Forecasts

In contrast to recent trends, the NSW Bureau of Transport Statistics (BTS) expects the resident population of Belrose to grow at a rate similar to that of the broader Warringah LGA (around 0.7% annually).

Figure 3 - Population Growth for Belrose and Warringah LGA (2006 – 2046)



Source: ABS 2006 and 2011 and Bureau of Transport Statistics 2009 Forecasts

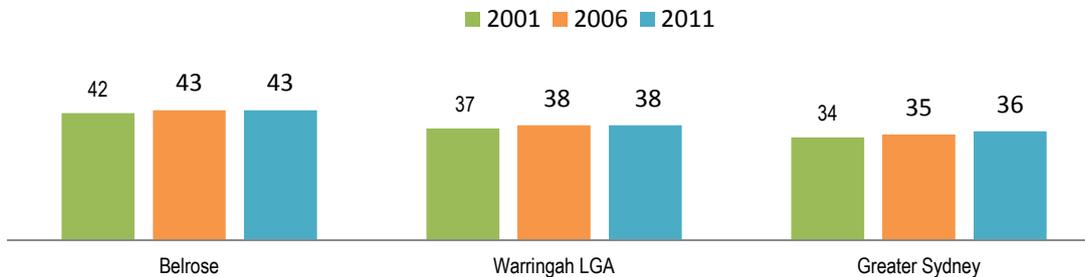
Based on these projections (Figure 3), the population of Belrose is expected to increase by more than 2,350 people while Warringah LGA will accommodate nearly 21,291 additional residents between 2011 and 2036. It should be noted that the growth rates anticipated for Belrose and Warringah LGA by the BTS are significantly greater than those actually recorded over the last 10 years in expectation of future land release and continued urban consolidation in urban areas.

3.2 Age

Median Age

Figure 4 illustrates that the population within Belrose has continued to age since 2001 and with a median age of 43 years in 2011. Belrose residents are typically older than those living in the LGA (38 years), and Greater Sydney (36 years). The older resident population in Belrose reflects the presence of substantial aged care accommodation within the suburb. This is evident in the two retirement villages located within Belrose itself such as Uniting Care Ageing Northern Sydney Region Community Care and Wesley Gardens Aged Care.

Figure 4 - Median Ages for Belrose, Warringah LGA and Greater Sydney (2001 – 2011)



Source: ABS Census 2001-2011

Forecast Age Distribution

Consistent with nationwide trends the resident population of Belrose is forecast to age over the next 24 years. By 2036 the BTS anticipates the number of Belrose residents aged over 74 years will grow by 626 persons (57%) compared to an increase of just 290 persons (17%) aged less than 15 years. It is important to note that persons aged within the age cohort of 15-29 years are also expected to experience a 42% increase by 2036.

Table 2 - Forecast Age Distribution in Belrose

| Belrose | 2011 | 2016 | 2021 | 2026 | 2031 | 2036 | % change 2011-2036 |
|--------------|--------------|--------------|--------------|--------------|---------------|---------------|--------------------|
| 0-14 years | 1,718 | 1,769 | 1,800 | 1,854 | 1,923 | 2,008 | 17% |
| 15-29 years | 1,110 | 1,399 | 1,472 | 1,513 | 1,534 | 1,576 | 42% |
| 30-44 years | 1,478 | 1,702 | 1,724 | 1,795 | 1,856 | 1,920 | 30% |
| 45-59 years | 1,513 | 1,722 | 1,795 | 1,810 | 1,832 | 1,867 | 23% |
| 60-74 years | 1,371 | 1,360 | 1,391 | 1,440 | 1,493 | 1,549 | 13% |
| 75+ years | 1,097 | 1,087 | 1,200 | 1,357 | 1,519 | 1,723 | 57% |
| Total | 8,287 | 9,040 | 9,382 | 9,770 | 10,156 | 10,643 | 2,356 |

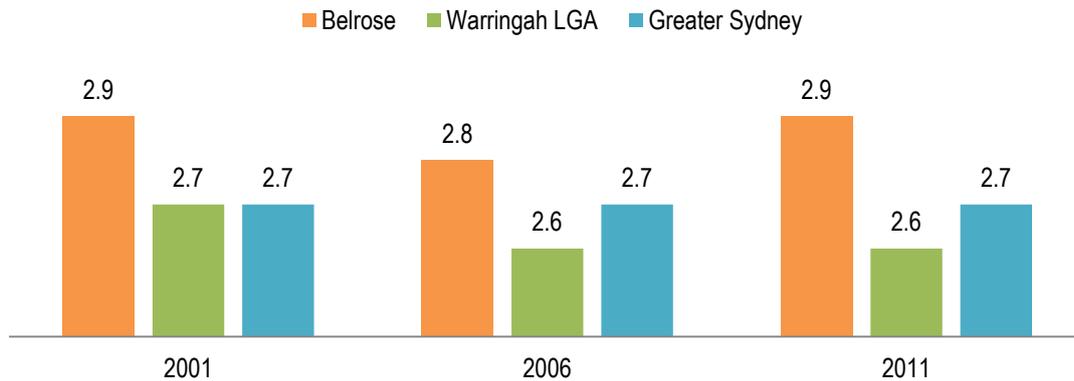
Source: ABS 2011 and Bureau of Transport Statistics 2009 Forecasts

3.3 Households

Household Occupancy Rates

Households in Belrose are on average, larger than those across the both the LGA and Greater Sydney (Figure 5). In 2011 the typical household size was 2.9 persons in Belrose, 2.6 in the wider LGA and 2.7 for Greater Sydney. The higher average household size within Belrose can be attributed to the higher proportion of families households with children located in the suburb.

Figure 5 - Household Occupancy Rates (2001, 2006 and 2011)



Source: ABS Census 2001-2011

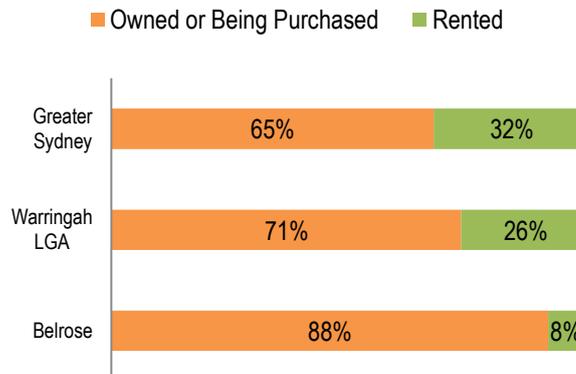
Home Ownership

Figure 7 demonstrates that nearly 90% of households in Belrose either own or are purchasing their home. This is substantially higher than that recorded for both the LGA (71%) and Greater Sydney (65%).

In 2011 the proportion of households renting in Belrose was 8% which was around a third of that recorded for the wider LGA (24%) and a quarter that of Greater Sydney (36%).

Over ten years (2001 and 2011) home ownership rates within Belrose have remained relatively stable.

Figure 6 - Home Ownership (2011)



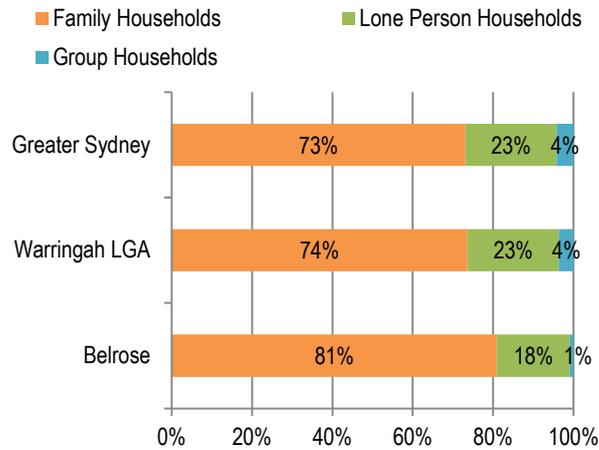
Source: ABS Census 2011

Household Structure

Figure 8 illustrates that the proportion of family households in Belrose is higher than that recorded for the LGA and Greater Sydney.

Since 2001 the proportion of family households in Belrose has remained steady which is consistent with trends across the LGA and Greater Sydney.

Figure 7 - Household Structure (2011)



Source: ABS Census 2011

Family Type

According to the 2011 ABS Census the most common family type in Belrose continues to be couples with children (55%). This was higher than that recorded for the wider LGA (51%) and Greater Sydney (49%). Belrose contains a low proportion of one parent families (9.5) while the proportion of families without children was comparable to that recorded for the LGA and Greater Sydney.

Since 2006 the proportion of couples with children has increased within Belrose and the wider LGA (+2% and +2% respectively). This positive increase is in contrast to the negative growth within this category experienced by Greater Sydney (-0.3%). Belrose and Warringah LGA experienced negative growth within the couple without children category since 2006 (-1.9% and -1.6% respectively) in contrast to the slightly positive growth experienced by Greater Sydney (+0.3%).

In 2011 the average number of children per family within Belrose (1.9 children) and Warringah LGA (1.8) was comparable to that of Greater Sydney of (1.9).

Table 3 - Family Types (2006-2011)

| | 2011 ABS Census | | | Change since 2006 ABS Census | | |
|--------------------------------|-----------------|---------------|----------------|------------------------------|---------------|----------------|
| | Belrose | Warringah LGA | Greater Sydney | Belrose | Warringah LGA | Greater Sydney |
| Couple family w. children (%) | 55.3% | 50.7% | 48.9% | 2.2% | 1.9% | -0.3% |
| Couple family w/o children (%) | 34.6% | 35.5% | 33.5% | -1.9% | -1.6% | 0.3% |
| One parent family (%) | 9.1% | 12.4% | 15.7% | -0.3% | -0.1% | 0.1% |
| Other family (%) | 1.0% | 1.4% | 1.9% | -0.1% | -0.2% | -0.1% |
| Average children per family | 1.9 | 1.8 | 1.9 | | | |

Source: ABS Census 2006-2011

In summary the existing demographic profile of Belrose can be defined as an area offering larger detached dwellings in a desirable location to raise a family. However with a growing local population, increasing demand for family sized dwellings and an emerging aging local population, looking forward there will be growing demand for additional dwellings and thereby land release areas for development in Belrose.

4. HOUSING MARKET TRENDS AND ANALYSIS

The following Chapter has been prepared to provide an overview of the economic, socio-economic and lifestyle trends that are influencing demand for housing across Sydney. It also provides a more detailed analysis of the housing targets for the North East Subregion and current housing activity in Warringah LGA. A more targeted analysis of the Belrose Housing Market is provided in Chapter 5.

4.1 Sydney

As discussed in Hill PDA's accompanying Economic Impact Assessment industry sources report that Sydney is experiencing its lowest rate of housing growth in 50 years¹ with the gap between housing demand and supply worsening. According to Deloitte Access Economics, NSW has slumped from contributing more than one third of new housing in Australia to less than a fifth in a single decade, with little indication that this trend will change in the short term. To exemplify this point, between 2007 and 2008 only 15,000 additional dwellings were built in the Sydney Statistical Division in comparison to 32,000 between 1999 and 2000

The primary driver of demand for residential dwellings is population growth. The most recent population forecasts for Sydney have revised growth expectations, anticipating an additional 1.7 million people will be living in Sydney by 2036. In addition to population growth, other drivers of housing demand relate to lifestyle trends including the ageing of the population and conversely the growing number of families in some locations.

As discussed in the preceding Chapter, these factors combined are reducing household occupancy rates and which in turn increases the demand for housing in NSW and Sydney, as well as stated above demand is generated by population growth alone. In fact, the implications of these trends are such that even if Sydney did not experience any population growth, more dwellings would be required over time².

Housing completions in NSW peaked in 1999-2000 and have since fallen by 47%³. Over the same period, private completions across Australia increased by 26% implying that NSW is not keeping pace with other States in terms of housing developments. This adversely impacts upon the economic competitiveness of NSW.

In order to in part help address the shortfall between housing supply and demand in Sydney, the NSW Government has implemented 'the Metropolitan Development program (MDP)' better known as the Greenfield land release. The program aims to manage the supply of land whilst guiding infrastructure coordination in the Sydney Metropolitan region and the Central Coast.

¹ Source: Rents to soar as housing crisis worsens, Daily Telegraph March 25, 2009

² Metropolitan Plan for Sydney 2036

³ Source: NSW Treasury

For the NSW Government to release land for housing on Greenfield sites five (5) steps must be undertaken to manage and deliver. The steps are as follows:

1. Release – Decision to urbanise;
2. Rezoning – Planning of land use and infrastructure contributions;
3. Servicing – Extension of Trunk Infrastructure and construction of Lead Infrastructure;
4. Subdivision – Approval Application and construction works; and
5. Sale- Marketing of land to builders and home purchasers.

In the current MDP, the suburb Belrose is recognised as a lead infrastructure release zone. The Subject Site located in North Belrose is a vacant site that is currently at stage 1 - being the stage at which the decision is to be made to urbanise and rezone.

Housing Affordability

Sydney remains Australia's least affordable city largely due to lack of housing supply. The number of housing starts in Sydney is the lowest it has been in 50 years. The high cost of housing is still an important social issue in Sydney; however after discussions with local agents, the suburb Belrose is seen as a more affordable area for young families who have been driven out of the Northern beaches market. The Suburb therefore shows a strong demand for family housing, which development of the Subject Site would help satisfy.

4.2 Targets for the North East Region

Over the last 30 years the North East Subregion (which includes the LGA's of Manly, Pittwater and Warringah) has become an established area for households with above average incomes and residential property prices well above Sydney averages. This has been partly due to the immigration of higher income families displacing aging low income households and partly due to the high visual amenity and lifestyle factors of the Subregion.

In light of the growing demand for housing in Sydney discussed in the preceding section, the North East Subregional Strategy establishes a target for housing supply in the Region. The Target is presently +17,300 dwellings, to increase the supply of housing from just over 90,000 in 2004 to 107,300 by 2031. Over the next 25 years, 690 new dwellings per annum are planned for the Subregion, which importantly is a lower rate than has been experienced in the 10 years to 2005 (955 new dwellings per year)⁴.

It is noted that the Subject Site has not been identified in the draft Subregional Strategy however the plan is still a draft subject to further investigation with respect to housing supply.

⁴ NSW Metropolitan strategy – Housing North East

The table below shows the distribution of the housing targets for each of the three local government areas in the North East Subregion.

Table 4 - 2031 Housing Targets BY LGA

| Local Government Area (LGA) | Dwelling Targets for 2031 |
|----------------------------------|---------------------------|
| Manly | 2,400 |
| Pittwater | 10,300 |
| Warringah | 4,600 |
| Total Number of Dwellings | 17,300 |

Source: NSW Metropolitan strategy – Housing North East

Residential Dwelling Completions

Housing completions for the Warringah LGA (2006 -2031) may appear conservative compared to historical housing completions in the Warringah LGA. From 2000/01-2009/10 a total of 5,483 dwellings were completed in the Warringah LGA.

In accordance with Hill PDA Economic Impact Assessment, dwelling completions in the Warringah LGA have declined consistently over this period with the 08/09 and 09/10 periods recorded the lowest number of completions overall. Combined, total completions for the 08/09 and 09/10 period (465 dwellings) equate to less than half (47%) of the total dwellings completed in the peak of 02/03 (994 dwellings). Furthermore, the number of dwellings completed over the five years post-2005 (1,948) equate to just 55% of the dwellings completed over the five years pre-2005 (3,535).

Table 5 - Warringah LGA - Residential Dwelling Completions (2000 to 2010)

| | 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | 05/06 | 06/07 | 07/08 | 08/09 | 09/10 | Total (00-10) |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------------|
| Warringah LGA | 535 | 696 | 994 | 722 | 588 | 695 | 431 | 357 | 226 | 239 | 5,483 |

Source: Metropolitan Development Program 2010/11 Report North East, NSW Department of Planning and Infrastructure (August 2011)

Residential Dwelling Starts:

The table below demonstrates the dwelling starts of all the suburbs in the Warringah LGA (July 2012 quarter). This is a snapshot of the current market demand. Frenchs Forest and Belrose supplied 11% dwelling starts, whilst the Northern beaches regions range from 14%- 19%. It has been stated that the trend for Sydney Dwelling starts remained flat in the July 2012 quarter. It can be concluded that Sydney and Belrose are experiencing a slow up take up in dwelling starts but this is only viewed as temporary and runs contrary to the long term underlying demand.

Table 6 - Dwelling Starts in the Warringah LGA – July 2012.

| | |
|--------------------------------|------------|
| Beacon Hill – Narraweena | 10 |
| Cromer | 7 |
| Dee Why – North Curl Curl | 16 |
| Forestville- Killarney Heights | 17 |
| Frenchs Forest – Belrose | 18 |
| Freshwater – Brookvale | 29 |
| Manly Vale- Allambie Heights | 29 |
| Narrabeen-Collaroy | 21 |
| Terry Hills –Duffys Forest | 8 |
| Total - Warringah LGA | 155 |

Source: ABS July 2012

5. BELROSE MARKET ANALYSIS

The following Chapter analyses some of these factors, building on the data gained in earlier Chapters of this report, to better understand their effect on demand for housing in Belrose and more specifically in relation to the Subject Site.

5.1 Construction Multiplier Effects

The existing Belrose Housing Market (Subject Site locality), is characterised by a high proportion of low density detached dwellings and townhouses. There is a limited amount of new stock in the immediate locality that would be directly comparable with the Site located at Belrose.

Informal discussions with selling agents active in Belrose and surrounding suburbs revealed that there is high demand for family dwellings. For every house put on the market over the last 12 months, local agents suggest there is on average 20 inspections per property, indicating a high interest amongst potential buyers. This should be highlighted in the context of a housing slump in the greater Sydney Housing Market over the corresponding period.

The typical Buyers profile according to local agents consists of couples with children relocating primarily from the northern beaches and eastern suburb seeking a larger family home as well as empty nesters looking to downsize. Belrose is an area where the buyer is said to experience "value for money", with a larger house and block of land in proximity of the northern beaches and the good connectivity to Chatswood and the Sydney CBD.

Hill PDA research on sale values for existing houses (approximately 10 years old) and house and land packages (approximately 500sqm) in the Belrose area suggests the following:

- Existing three (3) bedroom house approximate 700sqm-750sqm would range from \$700,000-\$900,000.
- An existing four (4) to six (6) bedrooms range from \$850,000-\$1,300,000 with a total land area of 700sqm-800sqm.
- All new house and land packages with a lot size of approximately 500sqm lot would range from \$900,000-\$1,400,000.

See Table 7 below for detached dwellings in Belrose was \$900,000 in the March 2012 Quarter. This price has been static over the last year.

Table 7 - Median Sales Prices (Non-Strata) for Belrose and Surrounds (March Quarter 2012)

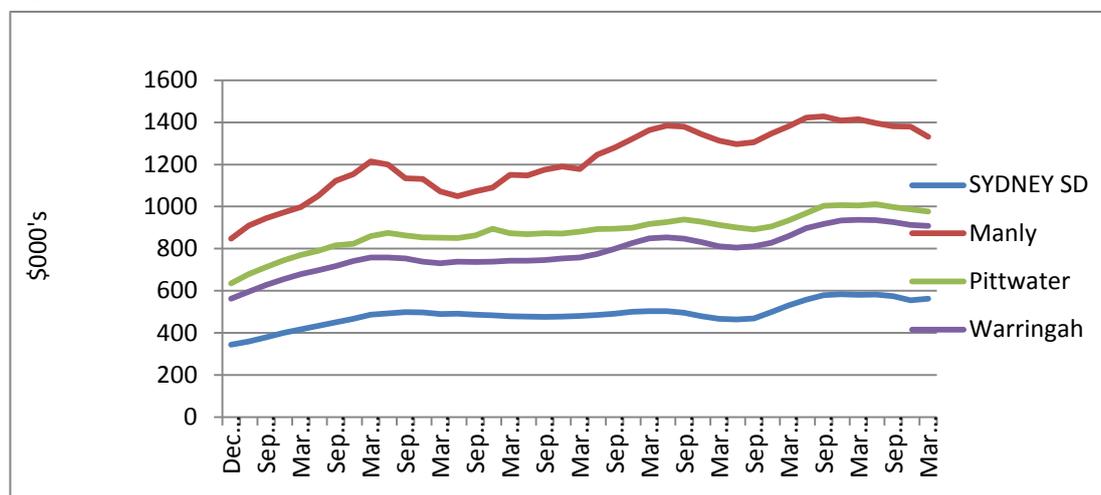
| Area | LGA | Median Price | Change in Median Price | |
|-------------------------|-----------------------------|--------------|------------------------|-------------|
| | | | Quarterly (%) | Annual (%) |
| Belrose | Warringah LGA | \$900,000 | n | n |
| Oxford Falls | Warringah LGA | \$873,000 | 6.0 | -1.6 |
| Forestville | Warringah LGA | \$980,000 | n | n |
| Frenchs Forest | Warringah LGA | \$862,000 | 1.6 | 1.0 |
| Terry Hills | Warringah LGA | \$370,300 | -1.3 | 0.2 |
| Warringah LGA | LGA | 900 | 0.8 | -2.0 |
| Northern Beaches | Metropolitan region | 931 | -2.2 | -4.0 |
| SYDNEY SD | Statistical District | 580 | 11.5 | 5.5 |

Source: Housing NSW Rent and Sales Data & Hill PDA Research 2012 (n) not available due to small number of sales

Figure 9 below shows the comparison in the LGA's of Sydney, Manly, Pittwater and Warringah median houses prices over 2002-2012. The Graph indicates that the Sydney SD, Warringah and Pittwater have currently stabilised in March 2012.

Manly Council median house price appears to have been higher than all of the other Councils over time but has started to decrease in March 2012.

Figure 8 - LGA Quarterly Median House Price, 2002-2012



Source: Housing NSW Rent & Sales Report & Hill PDA Research, 2012

5.2 Current and Recent Land Subdivisions in Belrose

Paramount Estate, Belrose

Paramount Estate is located along Perentie Road, Belrose which is approximately 2.5km south east of the proposed Site. The Estate is a large scale subdivision consisting of 430 lots, with construction phased over 6 years (2002-2008). The house and land Packages available were premium grade, consisting of 4-5 bedroom houses with in ground pools in the backyard. The house and land packages ranged from \$850,000 with a lot size of 500sqm to \$1,300,000 with a lot size of 850sqm.



This site is considered to be similar to the subject Site due to the site location, quality of stock and available lot sizes

The table below is a detailed summary of the Paramount Estate

Table 8 - Previous Land Subdivision Projects, Belrose

| Project Description Address | Tenure | Size sqm | Sales Prices | \$/sqm | Comments |
|--|--------------|----------|-------------------------|------------------|---|
| Paramount Estate Perentie Road Stage | House & land | 290-450 | \$745,000-\$850,000 | \$1,890-\$2,500 | Subdivision by Australand for approximately 430 lots with a mix of lot sizes. First sold in 2003/04 The subdivision has multiple DP numbers Resales analysed from 2010-2012. |
| | House & Land | 500-650 | \$853,651-\$1,050,000 | \$1,600- \$1,670 | |
| | House & Land | 700-850 | \$1,200,000-\$1,355,000 | \$1,440-\$1,865 | |
| Paramount Estate Dawes Road Stage Sold 2007/2008 | Land | 571-635 | \$540,000-\$660,000 | \$940-\$1,150 | These sales occurred just prior the impact of the GFC and therefore the prices are still valid as there has not been significant growth since this time. Houses have been built on the lots however |
| | Land | 740-780 | \$615,000-\$715,000 | \$800-\$950 | |
| | House & Land | 745 | \$1,350,000 | \$1,815 | |

Source: Red Square, & Hill PDA Research, 2012

Sugarloaf, Ralston Ave

The Sugarloaf development is located on Ralston Ave Belrose approximately 1.3km south east of the site. The land subdivision consists of 17 four (4) bedroom homes. The development will only be offering completed high quality home packages designed by Marchese & Partners Architects. The site is not currently marketed and therefore difficult to ascertain a price, however after informal discussions with the marketing firm, Hill PDA was advised that lot that range from 300-550sqm in size and are approximately asking price of \$1,100,000.



Monterey Estate, Belrose

Monterey Estate is an Australand subdivision located Perentie Road, which is approximately 2.5km south east of the proposed Site. The subdivision consists of a total of 25 lots which includes 16 with Community title, and the remaining 8 lots will be sold on a freehold basis. The purchaser has the option of purchasing just the land or a house and package. The lots are marketed at \$800,000-\$1,000,000 for Land and \$1,300,000 and \$1,800,000. All lots sizes range from 700-840sqm. It should be noted that selling agent sold two properties in the first month of marketing the lots.



Table 9 - Current Land Subdivision Projects, Belrose

| Project Description Address | Tenure | Size sqm | Sales Prices | \$/sqm | Comments |
|--|--------------|----------|-------------------------|-----------------|---|
| Monterey Estate793 Perentie Road Belrose (25 Lots) | Land | 700-840 | \$799,000-\$998,000 | \$980-\$1,407 | Level blocks with some lots having district views over the surrounding gullies. |
| | House & Land | 700-840 | \$1,200,000-\$1,700,000 | \$1,500-\$2,330 | |
| Sugarloaf Belrose24-26 Ralston Avenue Belrose | House & Land | 300-550 | \$1,100,000 | \$2,000-\$3,667 | No formal sales and marketing campaign has begun. Local agents informed Hill PDA of this price. |

Source: Realestate.com, & Hill PDA, 2012

Table 10 - Development Site Sales, Belrose and Surrounding Suburbs

| Address (Zoning) | Sale Date | Price | Land Size sqm | \$/sqm (\$/Lot) | Comments |
|---|------------|-------------|---------------|--------------------------|---|
| Serpentine Crescent, North Balgowlah | 10/03/2011 | \$1,920,000 | 3,718 | \$516/sqm (\$320,000) | Site is currently advertised for sale with DA for a subdivision into 6 lots. |
| 61 Warriewood Road, Warriewood | 19/12/2007 | \$2,850,000 | 9162 | \$311/sqm (\$259,000) | Construction has commenced of the subdivision and construction of 11 integrated dwellings |
| 25 Dawes Road, Belrose | 24/04/2007 | \$6,250,000 | 20,180 | \$310/sqm (\$260,417) | Site purchased by Australand and subdivided into 24 Lots around just prior to the GFC. |
| 24-26 Ralston Ave, Belrose | 16/06/2004 | \$3,750,000 | 6390 | \$587/sqm (\$220,600) | This site is currently being developed into 17 small lot houses. |

Source: Red Square, Realcommercial.com, Hill PDA Research, 2012

Supply of new housing stock in Belrose is limited (42 lots). This represents a little over one year's demand/ supply (35 houses per annum) for Belrose and its targeted supply. Belrose's market profile is "value for money" family housing for existing stock and higher quality executive family homes for new land and house packages.

From the research undertaken for this study it is shown that a lack of rezoning will generate loss of housing affordability and the diversity of housing stock with an area.

Hill PDA research shows that where supply is increased in the Belrose and Warringah LGA there is an increase in housing diversity with a mixture of detached houses, apartments and townhouses. The Meriton's site in the Warriewood valley (new release area) is an example of this stock diversity which includes over 600 townhouses and apartments.

As noted in the demographic analysis in this report, Belrose is experiencing an aging population which requires greater housing diversity to suit their needs. This housing demand cannot be satisfied by existing supply and will only be met by new land release and urban consolidation initiatives.

6. CONCLUSION

In conclusion the market evidence suggests Belrose is rejuvenating itself as a “value for money” family home destination with “empty-nester” households being purchased by younger families. The potential also exists for higher executive price housing on new subdivided land if available.

This buyer demand profile reflects Belrose’s highly restricted land and housing supply. The economics of development will dictate that housing supply will be limited to the “highest and best use”. In Belrose, this is either refurbishment of existing stock or the construction of luxury homes for the executive market. It is only when this supply is increased to a level exceeding that type of demand that other housing stock types become a viable option. This supply can only be achieved with the release of new rezoned land for urban development and or urban consolidation.

In addition, with Belrose’s aging population, demand will grow for housing stock that better suits “aging in place” such as townhouses and apartments. This is a potential new market but its supply is unlikely unless the land stock is significantly increased in Belrose and its environs over the next 10 years.

Hill PDA recommends that the development of the site predominantly constitutes low density housing to meet the needs of the local market (young families / executives). In accordance with the Metropolitan Development Program (Action C2:3) and the North East Subregion Strategy (Action C2.3.1) ‘*Provide a Mixture of Housing*’ Hill PDA also recommends that Matthews Civil Pty Ltd consider the prospect of providing a component of housing suitable for smaller lots to address an emerging aging market. This could also encourage the turnover (sale) of existing empty nester households in the locality thereby allowing younger couples with children to invest and seek value for money in these larger established homes.

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8. This valuation is prepared on the assumption that the lender or addressee as referred to in this valuation report (and no other) may rely on the valuation for mortgage finance purposes and the lender has complied with its own lending guidelines as well as prudent finance industry lending practices, and has considered all prudent aspects of credit risk for any potential borrower, including the borrower's ability to service and repay any mortgage loan. Further, the valuation is prepared on the assumption that the lender is providing mortgage financing at a conservative and prudent loan to value ratio.

**Appendix 1 - SOCIO-DEMOGRAPHIC ANALYSIS BASED ON ABS
CENSUS DATA**

Appendix 1: Housing Demand Analysis Based on ABS Census Data

The following Appendix provides a resident and labour force profile of the Belrose suburb based on ABS Census data. Where appropriate, data from the Warringah Local Government Area (LGA) and the Greater Sydney Area has also been presented for benchmarking purposes. For the purposes of the analysis undertaken in this Appendix, the Belrose suburb, the Warringah LGA and Greater Sydney Area comprise the Study Area.

Note that the boundaries of the Belrose suburb were refined between the 2006 and 2011 ABS Censuses. As such, the data is not directly comparable. Data for the Belrose suburb from 2006 and 2011 has been included nonetheless as it provides a useful indicator of the broad demographic changes which have occurred over the 2006 to 2011 period.

A1.1 Population

Population Growth

According to ABS Census data the population of the Belrose suburb declined between 2006 and 2011 after having increased between 2001 and 2006. Between 2006 and 2011 the number of people living in the Belrose suburb declined by 120 people which equates to an annual average decline of -0.3% (pro-rata). This annual growth rate was significantly lower than that recorded over the same period for both Warringah LGA and Greater Sydney (1.0% and 1.3% pro-rata respectively).

Table A1.1 – Population Growth for Study Area (2001-2011)

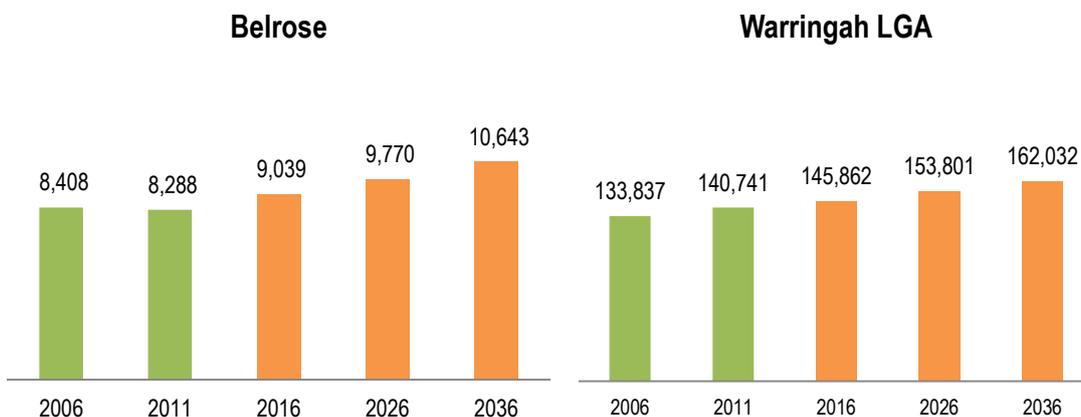
| | 2001 | 2006 | 2011 | # Change 06-11 | % Change 06-11 | Average Annual Growth Rate 2006-2011 (%) |
|----------------|-----------|-----------|-----------|----------------|----------------|--|
| Belrose | 7,585 | 8,408 | 8,288 | -120 | -1.4% | -0.3% |
| Warringah LGA | 127,613 | 133,837 | 140,741 | +6,904 | +5.2% | +1.0% |
| Greater Sydney | 3,948,015 | 4,119,190 | 4,391,674 | +272,484 | +6.6% | +1.3% |

Source: ABS Census 2011

Population Forecasts

In contrast to recent historic trends, the NSW Bureau of Transport Statistics (BTS) expects the resident population of Belrose to grow at a rate similar to that of the broader Warringah LGA (around 0.7% annually).

Figure A1.1 – Population Growth for the Belrose suburb and the Warringah LGA (2006 – 2036)



Source: ABS 2006 and 2011 and Bureau of Transport Statistics 2009 Forecasts

Appendix 1: Housing Demand Analysis Based on ABS Census Data

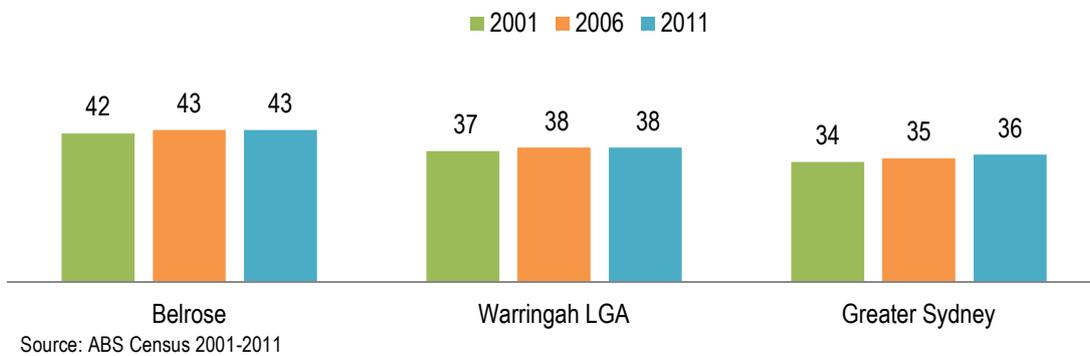
Based on these projections (Figure A1.1), the population of the Belrose suburb is expected to increase by more than 2,355 people between 2011 and 2036. The Warringah LGA will accommodate nearly 21,291 additional residents over the same period.

A1.2 Age

Median Age

Figure A1.2 illustrates that the population in the Study Area has aged over the 2001 to 2011 period with the median age increasing. The median age for residents in the Belrose suburb of 43 years (2011) is older than that of residents living in both the Warringah LGA (38 years) and Greater Sydney (36 years). The older resident population in the Belrose suburb reflects the presence of substantial aged care accommodation within the suburb. This is evident in the two retirement villages located within Belrose itself, namely Uniting Care Ageing Northern Sydney Region Community Care and Wesley Gardens Aged Care.

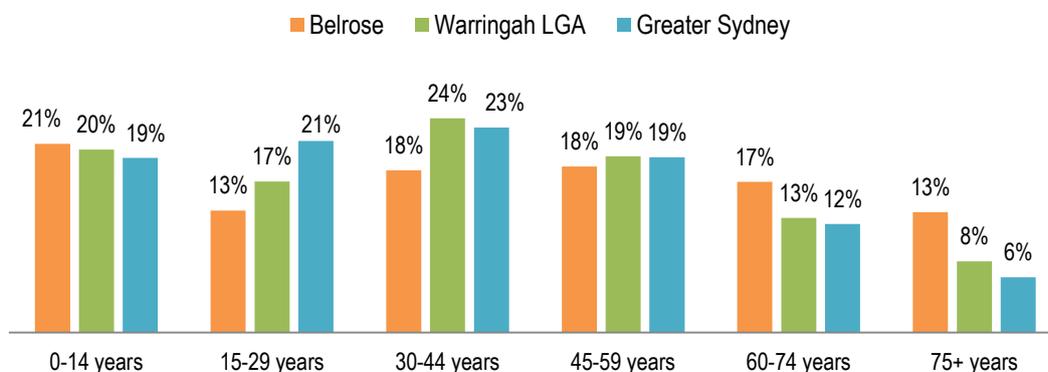
Figure A1.2 – Median Ages for the Study Area (2001 – 2011)



Age Distribution

The predominant age cohort in the Belrose suburb in 2011 was 0-14 years which comprised 21% of total population. The proportion of residents aged over 45 years in the Belrose suburb (48%) was significantly higher than for the Warringah LGA (40%) and Greater Sydney (37%), as was the proportion of persons aged 75+ years.

Figure A1.3 – Age Distribution for the Study Area (2011)



Appendix 1: Housing Demand Analysis Based on ABS Census Data

Forecast Age Distribution

Consistent with nationwide trends the resident population of the Belrose suburb is forecast to age over the 2011-2036 period (Table A1.2). By 2036 the BTS anticipates that the number of residents in the Belrose suburb aged 75+ years will grow by 626 persons (58%) compared to their 2011 level. This compares to an increase of just 290 persons (17%) aged 14 years or younger over the same period. It is important to note that persons aged within the 15-29 years age cohort are also expected to experience a 42% increase between 2011 and 2036.

Table A1.2 – Forecast Age Distribution for the Belrose suburb (2016-2036)

| Belrose | 2011 | 2016 | 2021 | 2026 | 2031 | 2036 | % change 2011-2036 |
|--------------|--------------|--------------|--------------|--------------|---------------|---------------|--------------------|
| 0-14 years | 1,718 | 1,769 | 1,800 | 1,854 | 1,923 | 2,008 | 17% |
| 15-29 years | 1,110 | 1,399 | 1,472 | 1,513 | 1,534 | 1,576 | 42% |
| 30-44 years | 1,478 | 1,702 | 1,724 | 1,795 | 1,856 | 1,920 | 30% |
| 45-59 years | 1,513 | 1,722 | 1,795 | 1,810 | 1,832 | 1,867 | 23% |
| 60-74 years | 1,371 | 1,360 | 1,391 | 1,440 | 1,493 | 1,549 | 13% |
| 75+ years | 1,097 | 1,087 | 1,200 | 1,357 | 1,519 | 1,723 | 58% |
| Total | 8,287 | 9,040 | 9,382 | 9,770 | 10,156 | 10,643 | 2,356 |

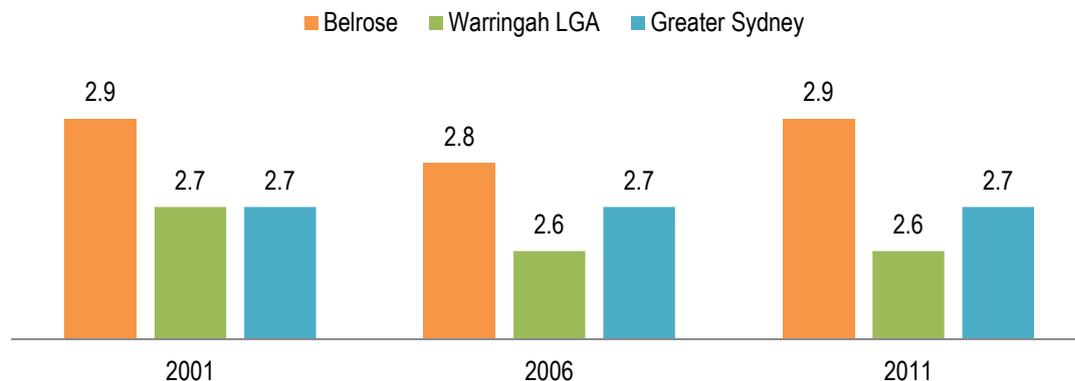
Source: ABS 2011 and Bureau of Transport Statistics 2009 Forecasts

A1.3 Households

Household Occupancy Rates

Households in the Belrose suburb were on average larger than those across both the LGA and Greater Sydney (Figure A1.4) based on 2011 ABS Census data. In 2011 the typical household size was 2.9 persons in the Belrose suburb, 2.6 in the wider LGA and 2.7 for Greater Sydney. The larger average household size within the Belrose suburb can be attributed to the higher proportion of families households with children located in the suburb.

Figure A1.4 – Household Occupancy Rates for the Study Area (2001, 2006 and 2011)



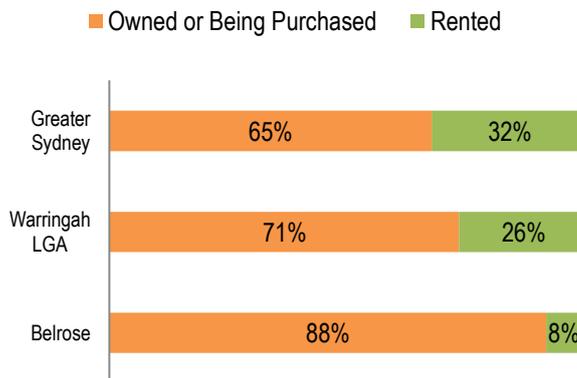
Source: ABS Census 2001, 2006, 2011

Appendix 1: Housing Demand Analysis Based on ABS Census Data

Home Ownership

Figure A1.5 shows that nearly 90% of households in the Belrose suburb either owned or were in the process of purchasing their home at the time of the 2011 ABS Census. This is substantially higher than that recorded for both the LGA (71%) and Greater Sydney (65%). In 2011 the proportion of households renting in the Belrose suburb was 8% which was around a third of that recorded for the wider LGA (24%) and a quarter of that for Greater Sydney (36%). In the ten years between 2001 and 2011 home ownership rates within the Belrose suburb remained relatively stable.

Figure A1.5 – Home Ownership for the Study Area (2011)

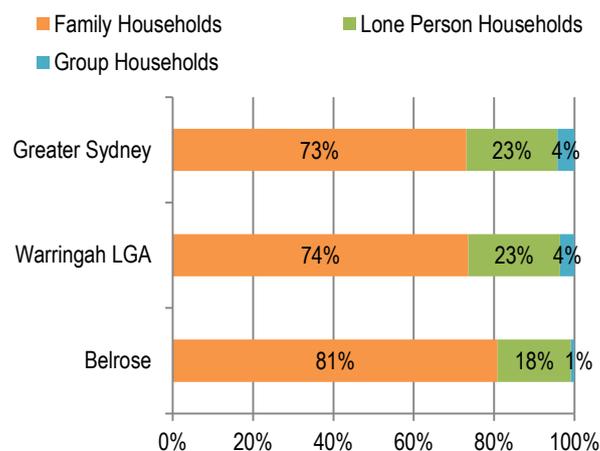


Source: ABS Census 2011

Household Structure

Figure A1.6 demonstrates that the proportion of family households in the Belrose suburb was higher than that recorded for the LGA and Greater Sydney in 2011. Since 2001 the proportion of family households in the Belrose suburb has remained steady which is consistent with trends in the LGA and Greater Sydney.

Figure A1.6 – Household Structure for the Study Area (2011)



Source: ABS Census 2011

Family Type

According to the 2011 ABS Census the most common family type in the Belrose suburb was couples with children (55%). This was higher than that recorded for the wider LGA (51%) and Greater Sydney (49%). The Belrose suburb contained a low proportion of one parent families (9%) whilst the proportion of families without children was comparable to that recorded for the LGA and Greater Sydney.

Since 2006 the proportion of couple families with children has increased within the Belrose suburb and the wider LGA (+2.2 percentage points and +1.9 percentage points respectively). This positive increase is in contrast to the negative growth within this category experienced by Greater Sydney (-0.3 percentage points). The Belrose suburb and the Warringah LGA experienced negative growth within the couple without children category since 2006 (-1.9 percentage points and -1.6 percentage points respectively) in contrast to the slightly positive growth experienced by Greater Sydney (+0.3 percentage points).

Appendix 1: Housing Demand Analysis Based on ABS Census Data

In 2011 the average number of children per family within the Belrose suburb (1.9 children) and the Warringah LGA (1.8) was comparable to that for Greater Sydney (1.9).

Table A1.3 – Family Types for the Study Area (2006-2011)

| | 2011 ABS Census | | | Change since 2006 ABS Census (percentage points) | | |
|--------------------------------|-----------------|---------------|----------------|--|---------------|----------------|
| | Belrose | Warringah LGA | Greater Sydney | Belrose | Warringah LGA | Greater Sydney |
| Couple family w. children (%) | 55.3% | 50.7% | 48.9% | +2.2 | +1.9 | -0.3 |
| Couple family w/o children (%) | 34.6% | 35.5% | 33.5% | -1.9 | -1.6 | +0.3 |
| One parent family (%) | 9.1% | 12.4% | 15.7% | -0.3 | -0.1 | +0.1 |
| Other family (%) | 1.0% | 1.4% | 1.9% | -0.1 | -0.2 | -0.1 |
| Average children per family | 1.9 | 1.8 | 1.9 | | | |

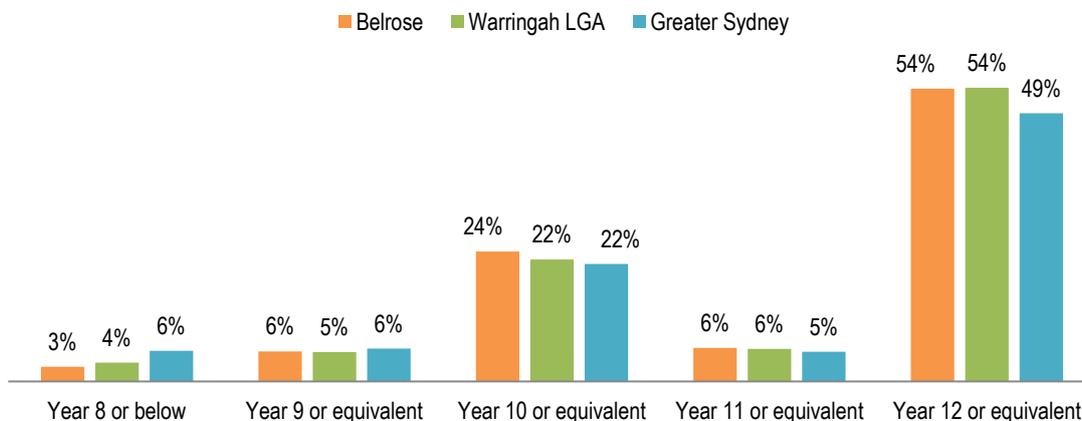
Source: ABS Census 2006 and 2011

A1.4 Education Attainment

Highest Year of School Completed

Education attainment levels of residents of the Belrose suburb improved since 2001 and remained above that of Greater Sydney (Figure A1.7) at the time of the 2011 ABS Census. In 2006 nearly 50% of the Belrose suburb's residents had completed year 12 compared to 49% across Greater Sydney.

Figure A1.7 – Highest Year of School Completed for the Study Area (2006)



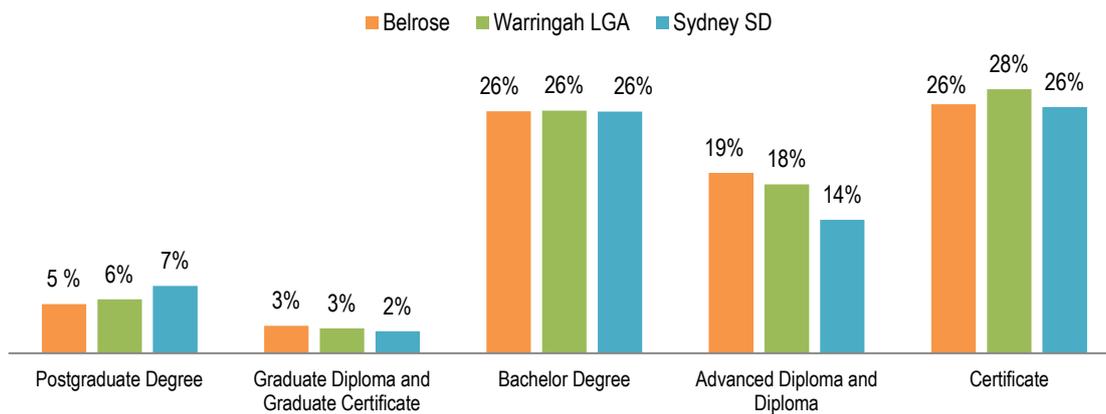
Source: ABS Census 2006

Non-School Qualifications

In 2006 the proportion of the Belrose suburb's residents with a tertiary qualification (34%) was comparable to the LGA (32%) and Greater Sydney (35%). Since 2001 the proportion of the Belrose suburb's and the Warringah LGA's residents with non-school qualifications increased dramatically. Between 2001 and 2006 the proportion of residents within the Belrose suburb with a certificate level qualification increased by 35 percentage points (44% to 79%). This increase was sustained across the wider LGA and Greater Sydney, mainly be due to the inadequately described / not stated category having being reduced in proportion between the census dates.

Appendix 1: Housing Demand Analysis Based on ABS Census Data

Figure A1.8 – Highest Year of School Completed for the Study Area (2006)



Source: ABS Census 2006

A1.5 Income

Household Weekly Incomes

The suburb of Belrose was relatively affluent with household incomes (\$1,782) well above the median recorded by Greater Sydney in 2011 (\$1,447). Furthermore 51% of households in 2011 earned more than \$1,400 per week compared to 42% of households across Greater Sydney.

Figure A1.4 – Weekly Household Income for the Study Area (2006-2011)

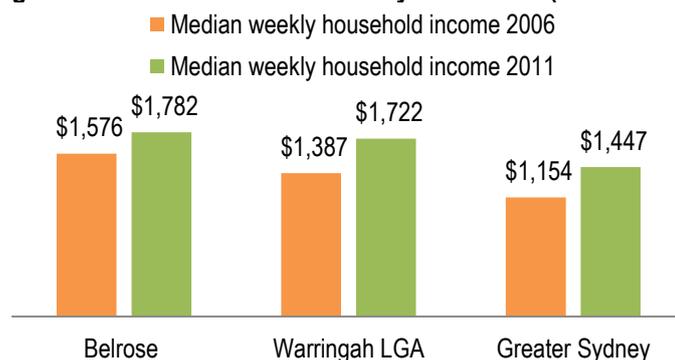
| | 2011 ABS Census | | | Change since 2006 ABS Census (percentage point) | | |
|--------------------------------|-----------------|---------------|----------------|---|---------------|----------------|
| | Belrose | Warringah LGA | Greater Sydney | Belrose | Warringah LGA | Greater Sydney |
| Median weekly household income | \$1,782 | \$1,722 | \$1,447 | - | - | - |
| \$0-\$349 | 6% | 7% | 9% | -2 | -3 | -4 |
| \$400-\$799 | 17% | 16% | 19% | +4 | +1 | +1 |
| \$800-\$1,399 | 17% | 20% | 22% | -1 | - | +1 |
| \$1,400-\$2,499 | 23% | 23% | 21% | +1 | +1 | -1 |
| \$2,500+ | 28% | 25% | 21% | +1 | +4 | +5 |

Source: ABS Census 2006-2011

Individual Weekly Incomes

Figure 9 shows the median individual weekly incomes of residents living in Belrose was higher than the wider LGA and Greater Sydney. In 2011 the median individual income in the Belrose suburb was \$60 more than for the LGA and \$335 higher than the Greater Sydney area. Between 2006 and 2011 household incomes in Belrose increased by 13%. This increase was almost half the rate increase

Figure A1.9 – Individual Weekly Incomes (2006 and 2011)



Source: ABS Census 2006 and 2011

Appendix 1: Housing Demand Analysis Based on ABS Census Data

experienced for the wider LGA and Greater Sydney (24% and 25% respectively).

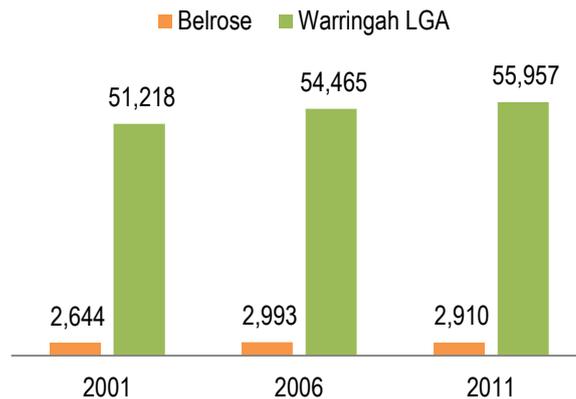
A1.6 Dwellings

Dwelling Growth

Over the 2006 to 2011 period the number of dwellings within the Belrose suburb declined by 83. This decline in dwellings may have influenced the suburb's population decline of 120 persons over the same period.

This decline in dwellings is in contrast to the dwelling growth experienced over the wider LGA which grew by additional 1,492 dwellings over the 2006 to 2011 period.

Figure A1.10 – Dwelling Growth for the Belrose suburb and the Warringah LGA (2001-2011)

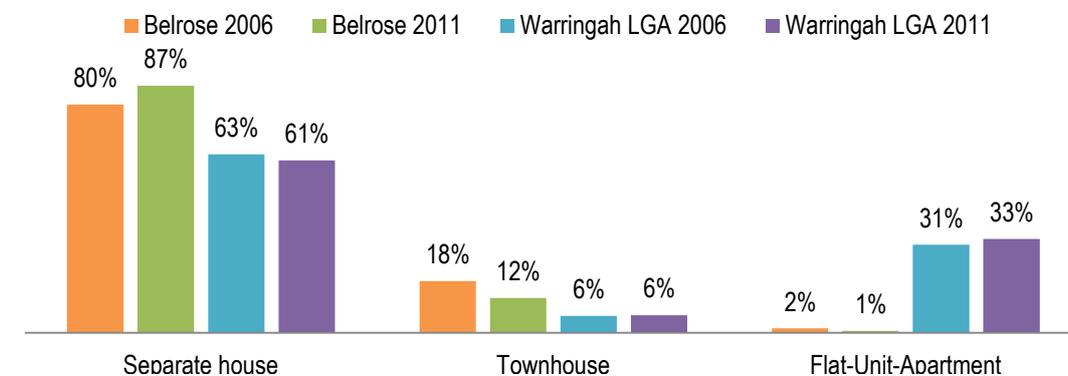


Source: ABS Census 2011

Dwelling Type

According to the 2011 ABS Census separate (detached) houses continue to be the most prevalent form of dwellings in the Belrose suburb. Since 2006 the proportion of separate houses in the Belrose suburb increased by 7 percentage points whilst the proportion of townhouses and units decreased by 6 percentage points and 1 percentage points respectively. In contrast the Warringah LGA witnessed a decrease in detached houses over the 2006 to 2011 period (-2 percentage points) although this category remains the dominant dwelling type within the LGA. The LGA also experienced a slight growth in townhouses (+0.3 percentage points) and a 2 percentage point increase in units.

Figure A1.11 – Dwelling Type for the Study Area (2011)



Source: ABS Census 2006 and 2011

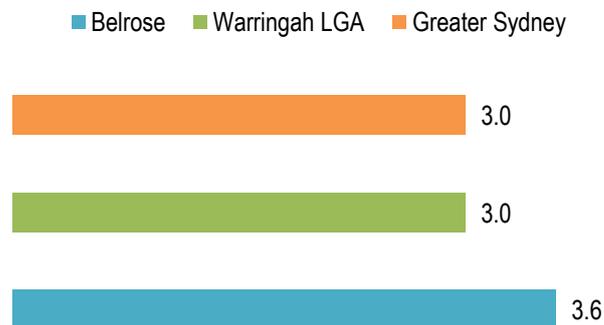
Appendix 1: Housing Demand Analysis Based on ABS Census Data

Number of Bedrooms

Dwellings in the Belrose suburb were on average larger than those for the wider LGA and Greater Sydney based on the 2011 ABS Census. According to the 2011 ABS Census dwellings in the Belrose suburb averaged 3.6 bedrooms compared to 3 bedrooms for the LGA and Greater Sydney.

The greater average number of bedrooms in the Belrose suburb can be attributed to the high number of detached dwellings within the suburb.

Figure A1.12 – Number Bedrooms per Dwelling for the Study Area (2011)



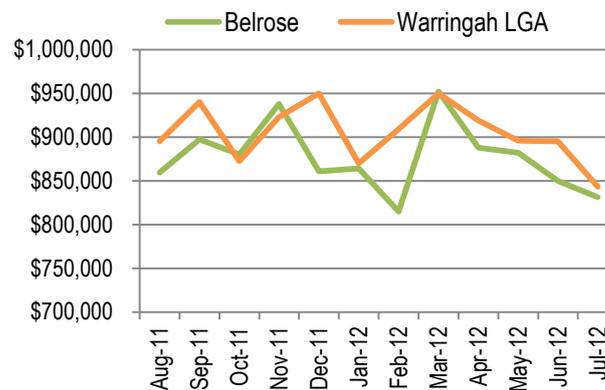
Source: ABS Census 2011

A1.7 Housing Costs

Housing Prices

Median house prices within the Belrose suburb tended to be slightly lower than the median for the Warringah LGA based on the 2011 ABS Census. Despite a fall in prices from November 2011 to February 2012, house prices in the Belrose suburb rebounded sharply between February and March 2012 to be comparable to the wider LGA median.

Figure A1.13 Housing Prices for the Belrose suburb and the Warringah LGA (2011-2012)



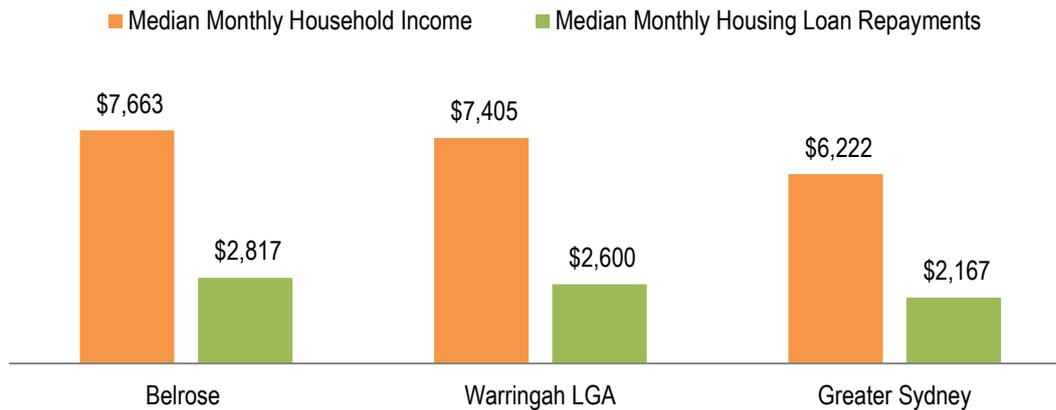
Source: RP Data

Housing Costs and Affordability

Compared to the Warringah LGA and Greater Sydney's, residents in the Belrose suburb tended to have a larger mortgage and use a greater proportion of their household income to service it. According to the 2011 ABS Census the median monthly mortgage was \$2,817 in the Belrose suburb and households were using 37% of their income to service it (Figure A1.14). Within the LGA the median monthly mortgage was \$2,600 which represented 35% of households' median income. Across Greater Sydney the median monthly mortgage was \$2,167 which represented 35% of median household incomes.

Appendix 1: Housing Demand Analysis Based on ABS Census Data

Figure A1.14 – Monthly Household Income and Mortgage Repayments for the Study Area (2011)

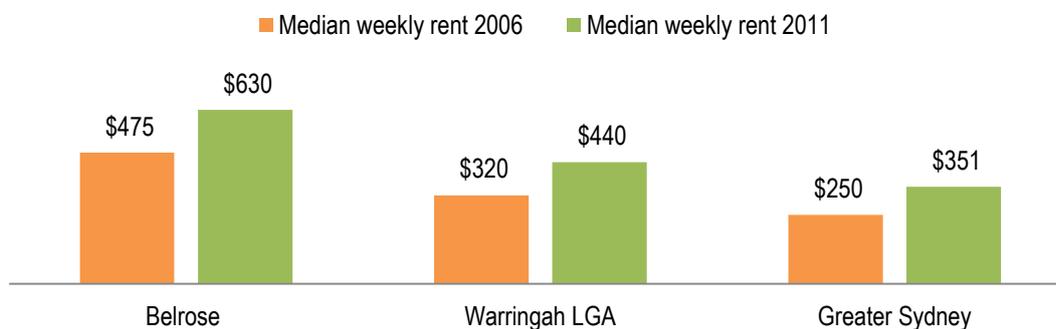


Source: ABS Census 2011

Rental Costs and Affordability

Over the 2006 to 2011 period the median weekly rent in the Belrose suburb increased by 33% from \$475 to \$630, this increase was below that of Warringah and Greater Sydney which increased by 38% and 40% respectively. Although the Belrose suburb rental market increased by a smaller percentage, the median weekly rent paid within the Belrose suburb remained higher than both the Wider LGA and Greater Sydney

Figure A1.15 Median Weekly Rent (2006-2011)



Source: ABS Census 2006 and 2011

A1.8 Index of Advantage and Disadvantage

Notwithstanding the analysis provided above, it is important to note that a review of weekly household incomes alone may not accurately shed light on the affluence of a resident population. By way of example, a review of weekly incomes alone fails to consider an area with an ageing population and thereby an area with a high level of retirees who have left the workforce yet still have a substantial asset base. Accordingly we have applied the Socio Economic Index for Areas (SEIFA) as an alternative means of assessing the socio economic character of Belrose.

The SEIFA⁵ is produced by the Australian Bureau of Statistics and compares geographic areas (LGAs and derived suburbs) with respect to advantage and disadvantage. The SEIFA, Index of Socio Economic Disadvantage and

⁵ The SEIFA data based on the 2011 ABS Census will be available from 28 March 2013.

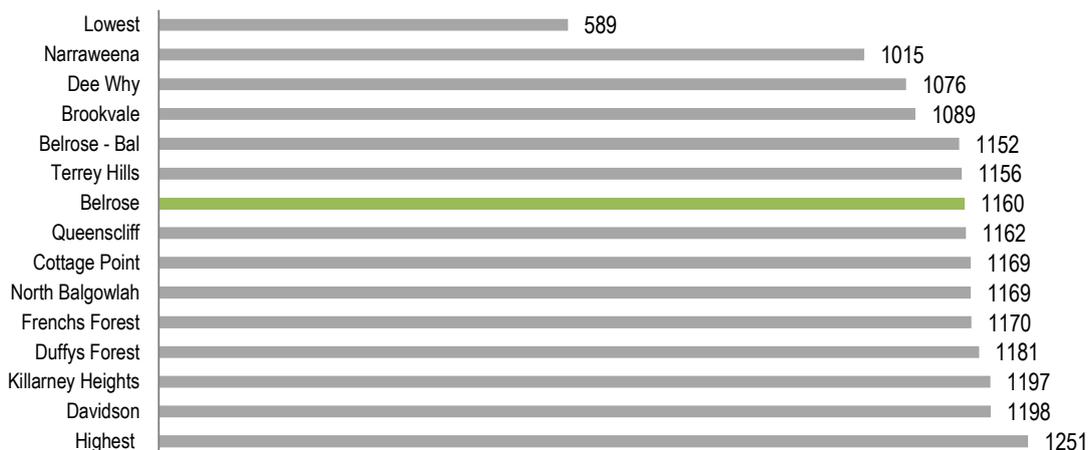
Appendix 1: Housing Demand Analysis Based on ABS Census Data

Advantage (the 'Index') is derived from the attributes of an area's residents such as income, educational attainment, rate of unemployment and labour force skill. Accordingly, the SEIFA shows where the affluent (as opposed to just high income earning) live; where disadvantaged (as opposed to the unemployed) live; and where the highly skilled and educated (as opposed to the tertiary educated people) live. The findings can be used to facilitate research into the relationship between socio economic status and various health and educational outcomes to determine areas that require funding and services and to identify new business opportunities. The Index refers to the area in which a person lives, not to the socioeconomic situation of the particular individual. For the Index, every geographic area in Australia is given an SEIFA score which shows how disadvantaged that area is compared with other areas in Australia. *Higher scores* on the Index occur when the particular geographic area has higher family incomes and a more skilled labour force. A higher score means that an area is more advantaged and accordingly a lower score indicates that an area is more disadvantaged.

The below figure shows the SEIFA Index of Relative Socio-economic Advantage and Disadvantage (2006) indicating the top 10 rated suburbs within Warringah LGA, the lowest 3 rated suburbs within the LGA and a comparison to the lowest and highest scoring that a suburb attained within Australia.

On this basis, the SEIFA Index of Relative Socio-economic Advantage and Disadvantage (2006) found that Belrose was ranked 8th in the top 10 suburbs with a SEIFA score of 1160. This score places Belrose within the 98th percentile ranking of suburbs within Australia (i.e. top 2% most advantaged suburb in Australia).

Figure A1.16 – SEIFA Index of Advantage / Disadvantage – Sample of Suburbs (2006)



Source: ABS Census 2006

A1.9 Summary of Findings

Since 2006 the suburb of Belrose has experienced a decline in its resident population (-120) and dwelling stock (-83 dwellings). Demographic analysis revealed residents of Belrose generally live in larger households and are increasingly educated, white collar and affluent in comparison to the average for Greater Sydney. Workforce participation rates amongst this relatively advantage community are high and levels of unemployment low.

Whilst residents of Belrose tend to be on average older, the predominant age group in 2011 was 0-14 years which constitutes 21% of the local population. Belrose has also become more family orientated, with the proportion of family households increasing by 2% since 2006.

Appendix 1: Housing Demand Analysis Based on ABS Census Data

With regard to built form, Belrose has a large proportion of detached dwellings which contain more people and bedrooms than the average for Greater Sydney. Home ownership levels in Belrose (87%) are also significantly higher than the average for Greater Sydney (65%).

In summary the Belrose is a well-established family orientated suburb inhabited by relatively advantaged, educated and affluent residents.

Aboriginal Archaeological Due Diligence Assessment

Proposed Residential Rezoning
Ralston Avenue, Belrose, New South Wales



Report to
Matthews Civil Pty Ltd

Dominic Steele Consulting Archaeology

10 December 2012

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1.0 Introduction

1.1 Background

This *Aboriginal Archaeological Due Diligence Assessment (AADDA)* has been prepared for *Matthews Civil Pty Ltd* to inform a Rezoning Proposal currently being finalised for submission to *Warringah Council* (Council) for an approximately 18 hectare parcel of land located off Ralston Avenue at Belrose, New South Wales. The objectives of this study have been to identify any potential Aboriginal archaeological heritage constraints that may exist for the proposal, and to guide how the future rezoning of the land can be achieved in a way that will avoid adversely impacting upon the Aboriginal archaeological heritage values of the place.

The general location of the study area at Belrose is illustrated in **Figure 1.1**. Comprising Lot 1 in DP 1139826, the layout and existing condition of the land is shown in the recent aerial photograph presented here as **Figure 1.2**.

1.2 The Rezoning Proposal

The proposal is to subdivide the land into approximately 169 residential allotments ranging in size from 550 sqm to >1,000 sqm. A subdivision plan that has been developed for the rezoning proposal is presented here as **Figure 1.3**.

1.3 Planning Context and Heritage Controls

The *Warringah Local Environmental Plan 2000*, as amended (WLEP) and *Development Control Plan* (DCP 2012) provides the overarching framework for Council's development controls for all land to which the WLEP applies. These documents include provisions for the protection and conservation of Aboriginal objects, sites and places of heritage significance (including archaeological sites) within development planning.

In particular, they outline that before consent is granted for development that may affect a heritage item (including Aboriginal sites and objects), or may be carried out within the vicinity of a heritage item, the extent to which development may affect its heritage significance is to be assessed and the measures proposed to conserve the heritage significance of the item (or whether any known or potential archaeological site would be adversely affected) needs to be adequately addressed.

In addition, the WLEP and DCP also identify that on receipt of an application for consent to development that is likely to have an impact on an Aboriginal site or place of Aboriginal cultural

significance, the consent authority must notify the MLALC and take into consideration any comments provided by this organisation in response to the proposal.

1.4 Statutory Heritage Contexts and Controls

1.4.1 Introduction

Two principal pieces of legislation provide automatic statutory protection for Aboriginal heritage and the requirements for its management in New South Wales: These are:

- The *National Parks and Wildlife Act 1974* (NPW Act); and
- The *Environmental Planning and Assessment Act 1979*.

1.4.2 National Parks and Wildlife Act 1974

The **NSW Office of Environment and Heritage (OEH)** is the principal government agency with responsibility for the protection and management of Aboriginal archaeological sites and Aboriginal cultural heritage values. The **OEH** forms part of the **NSW Department of Premier and Cabinet**.

The NPW Act was amended through the *National Parks and Wildlife Amendment Act 2010*. The majority of the Aboriginal heritage management objectives and protection provisions of the NPW Act remain largely the same as they were originally established in 1974. However, a number of the amendments and administration functions of the NPW Act that have implications for the current project are summarised below:

- The Director-General (**DG**) of the **OEH** is responsible for the protection and conservation of Aboriginal objects and declared Aboriginal places in NSW.
- Part 6 of the NPW Act provides specific protection for Aboriginal objects and declared Aboriginal places by establishing offences of harm.
- Harm is defined under the Act to mean destroying, defacing, damaging or moving an Aboriginal object from the land.
- Under Section 86 of the NPW Act, it is an offence to knowingly, or cause or permit harm to an Aboriginal object (or Aboriginal place) without prior written consent from the DG of the **OEH**.
- There are a number of defences and exemptions to the offence of harm under the NPW Act. One of these is that harm is carried out under the terms and conditions of an approved Aboriginal Heritage Impact Permit (**AHIP**).
- Section 87 of the NPW Act also provides for defences to harm done to an Aboriginal object if *due diligence* has determined that no Aboriginal object would be harmed, compliance with

regulations or an approved *code of practice* was followed, and if it is shown as a *low impact act* and/or an (unintended) omission.

- The NPW Act establishes the **DG** of the **OEH** as the decision-maker for **AHIP** applications.
- The OEH requires effective consultation with Aboriginal people as a fundamental component of the **AHIP** assessment process.
- AHIPs are issued under Section 87 and Section 90 of the NPW Act. Recent amendments to the administration of the NPW Act allow for the issuance of approvals that combine Sections 87 and 90 submissions in certain circumstances to streamline and make more effective the implementation of the NPW Act.
- Section 5 of the NPW Act defines an Aboriginal object as: '*any deposit, object or material evidence (not being a handicraft for sale) relating to Indigenous and non-European habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains*'.
- A declared Aboriginal place is a statutory concept, meaning that it is any place (land, landscape element, or building etc) that is declared to be an Aboriginal place (under Section 84 of the Act) by the Minister administering the NPW Act because the Minister is of the opinion that the place is or was of special significance with respect to Aboriginal culture.
- A declared Aboriginal Place may or may not contain Aboriginal objects.
- The protection provided to Aboriginal objects and places applies irrespective of the level of their significance or issues of land tenure.
- Section 89A of the NPW Act requires that the **DG** be notified of the location of any newly identified Aboriginal site or object which is then registered with the **OEH Aboriginal Heritage Information Management Service (AHIMS)** database.

In summary, the NPW Act:

- Is the primary legislation for the protection of Aboriginal cultural heritage in NSW and gives the **DG** the responsibility for the appropriate care, preservation and protection of Aboriginal objects and places.
- Part 6 of the NPW Act provides specific protection for Aboriginal objects and places by making it an offence to harm them. An **AHIP** is required if impacts to Aboriginal objects and/or places cannot be avoided. An **AHIP** is a defence to a prosecution for harming Aboriginal objects and places if the harm was authorised by the **AHIP** and the conditions of that **AHIP** were not contravened.

- The Act includes a 'strict liability' offence for harm to Aboriginal objects and places. Defences from prosecution include a low impact activity or demonstration of due diligence conducted in accordance with the **OEH Due Diligence Code of Practice**.
- However, if an Aboriginal object is encountered in the course of an activity (where an **AHIP** has not been approved) work must cease and an application must be made to the **DG** for an **AHIP**. An **AHIP** application must be accompanied by an assessment that is completed in accordance with the **OEH Code of Practice**.
- Consultation with Aboriginal communities is required under Part 8A of the NPW Regulation 2009 and is to be conducted in accordance with the **OEH Aboriginal Heritage Consultation Requirements for Proponents 2010** where **AHIPs** are sought.

1.4.3 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (**EPA Act**) establishes the statutory planning framework for environmental and land use planning in NSW through *State Environmental Planning Policies* (**SEPPs**), *Regional Environmental Plans* (**REPs**) and *Local Environmental Plans* (**LEPs**).

The EPA Act also establishes the framework for Aboriginal heritage values to be formally assessed in landuse planning and development consent processes. The Act has three main parts of relevance to Aboriginal cultural heritage. These are:

- Part 3 that governs the preparation of planning instruments (**SEPPs, REPs and LEPs**).
- Part 4 which relates to the development assessment process for local government (consent) authorities; and
- Part 5 which relates to activity approvals by governing (determining) authorities.

The **OEH** is an approval body under Part 5 of the **EPA Act** and may in many circumstances require formal consideration of a variety of cultural and community factors that may include potential impacts to significant Aboriginal anthropological, archaeological, and cultural and historical values to have been adequately addressed as part of their assessment process.

1.5 Aboriginal Heritage Assessment Methodology

1.5.1 Reporting Standards and Guidelines

This AADDA has been prepared in accordance with the following heritage recording, assessment and reporting guidelines and standards that are endorsed by the **OEH**:

- Australia ICOMOS. 2002 (Revised). The Burra Charter. The Australia ICOMOS Charter for Places of Cultural Significance. Australia ICOMOS Inc.¹
- NSW Department of Environment, Climate Change & Water. (DECCW) 2010a (September). Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales. DECCW. Sydney.
- NSW Department of Environment, Climate Change & Water. (DECCW) 2010b (September). Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales. DECCW. Sydney.²
- NSW Heritage Office. 1996. NSW Heritage Manual. NSW Heritage Office and the Department of Urban Affairs and Planning. Sydney (revised 2002).
- NSW Heritage Office. 2005. Historical Archaeology Code of Practice. NSW Department of Planning. Sydney.

1.5.2 Aboriginal Liaison

- To initiate consultation with the *Metropolitan Local Aboriginal Land Council (MLALC)* with regards to rezoning proposal.
- To incorporate the views, possible concerns, and management recommendations provided by the MLALC into the current study.

1.5.3 Background Research and Assessment

- To undertake background research into the location and nature of any previously recorded Aboriginal archaeological sites (and/or areas of potential Aboriginal cultural heritage sensitivity) known to be present either within the boundaries of the subject land or in immediately adjacent areas. This has included a search of the OEH AHIMS Sites Register for the project.
- To provide on the basis of the above Aboriginal archaeological and cultural heritage document review, a predictive model that outlines the potential Aboriginal archaeological sensitivity of the land relative to the rezoning proposal.

¹ The Burra Charter establishes nationally accepted principles for the conservation of places of cultural significance.

² A flow chart explaining how to follow the OEH due diligence process is appended to this report (**Appendix 1**). The principles and objectives of this best-practice assessment and action approach underpin the Aboriginal heritage component of this report.

1.5.4 Site Inspection and Evaluation

- To outline the rationale and methods that have been employed to support the recently completed October 2012 site inspection and recording of the study area.
- To provide a summary of the observations recorded during the site inspection, and an evaluation of the results of the fieldwork.

1.5.5 Analysis, Evaluation and Report

- To prepare an AADDA that includes an evaluation of the results of the site inspection, and a discussion of the Aboriginal archaeological and cultural heritage management conclusions that have been developed for the rezoning proposal.
- To provide appropriate Aboriginal cultural heritage management options and recommendations that establishes a framework for the ongoing protection of any documented and/or potential Aboriginal archaeological sites (or areas of potential cultural heritage sensitivity) to guide the proposal.

1.6 Report Outline

This AADDA presents the following:

- An introduction to the project (**Section 1.0**).
- A review of the environmental context of the study area including geology, topography, hydrology, vegetation and soils. This section also includes a summary landuse history of the site and its surrounds to place in context how landscape conditions can assist in the development of archaeological/cultural heritage sensitivity predictive statements as a management tool in rezoning and development planning (**Section 2.0**).
- A review of the results of previous Aboriginal heritage studies undertaken in the local Belrose landscape, and a predictive model of the likely Aboriginal archaeological evidence that may be present/survive within the boundaries of the subject site (**Section 3.0**).
- A summary of the observations recorded during the recently completed October 2012 site inspection (**Section 4.0**).
- The conclusions that have been developed for the project that are based upon the results of the above background research, and the results of the site inspection and evaluation. This is

presented in the form of an *Aboriginal Heritage Impact Statement* relative to the Ralston Avenue residential rezoning proposal (**Section 5.0**).

- The provision of Aboriginal cultural heritage management recommendations and strategies relative to the rezoning proposal (**Section 6.0**).
- Sources and references cited in this report (**Section 7.0**).

Figure 1.1: General Location of the Study Area at Belrose (Source: Google Maps 2010).

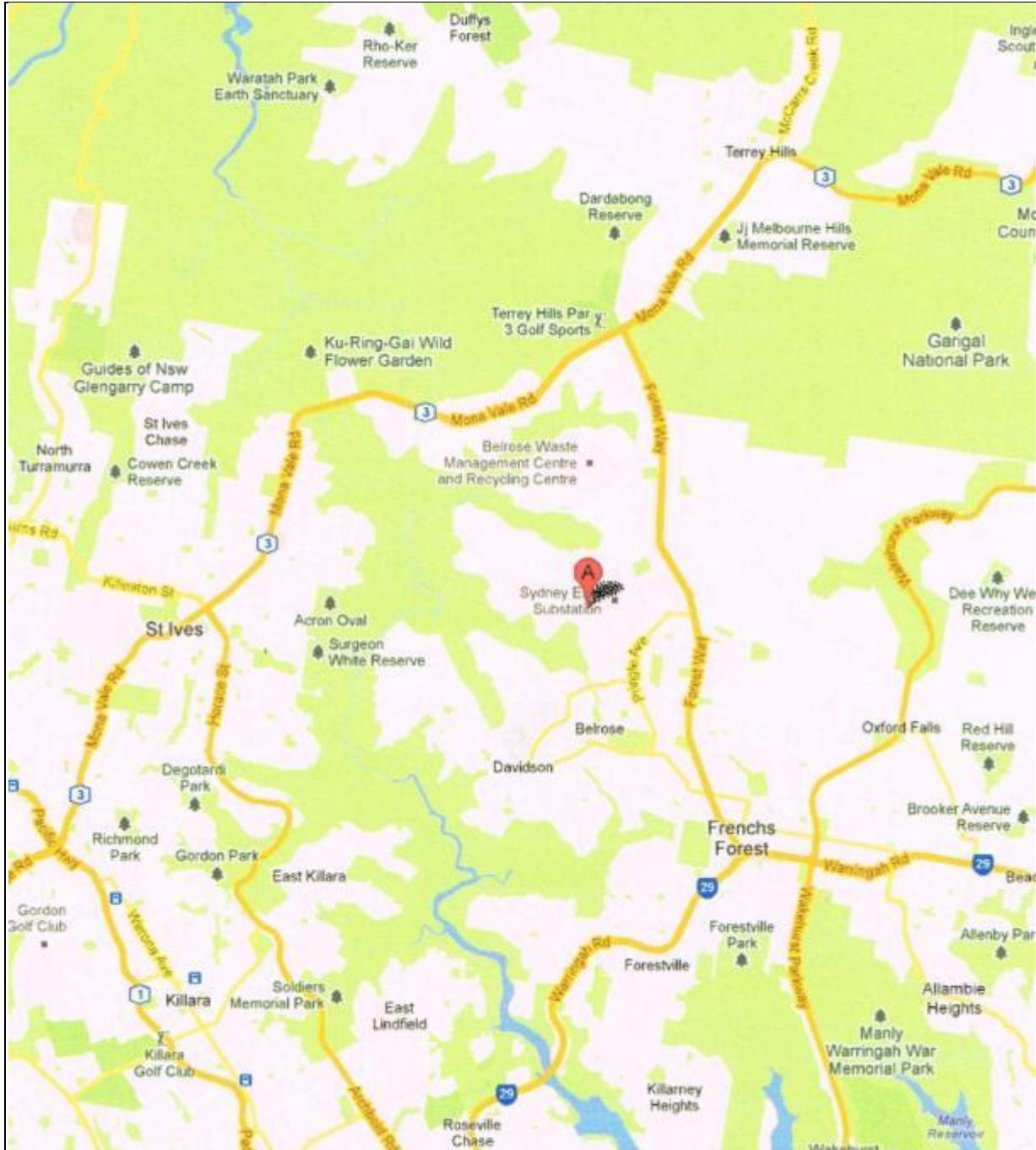
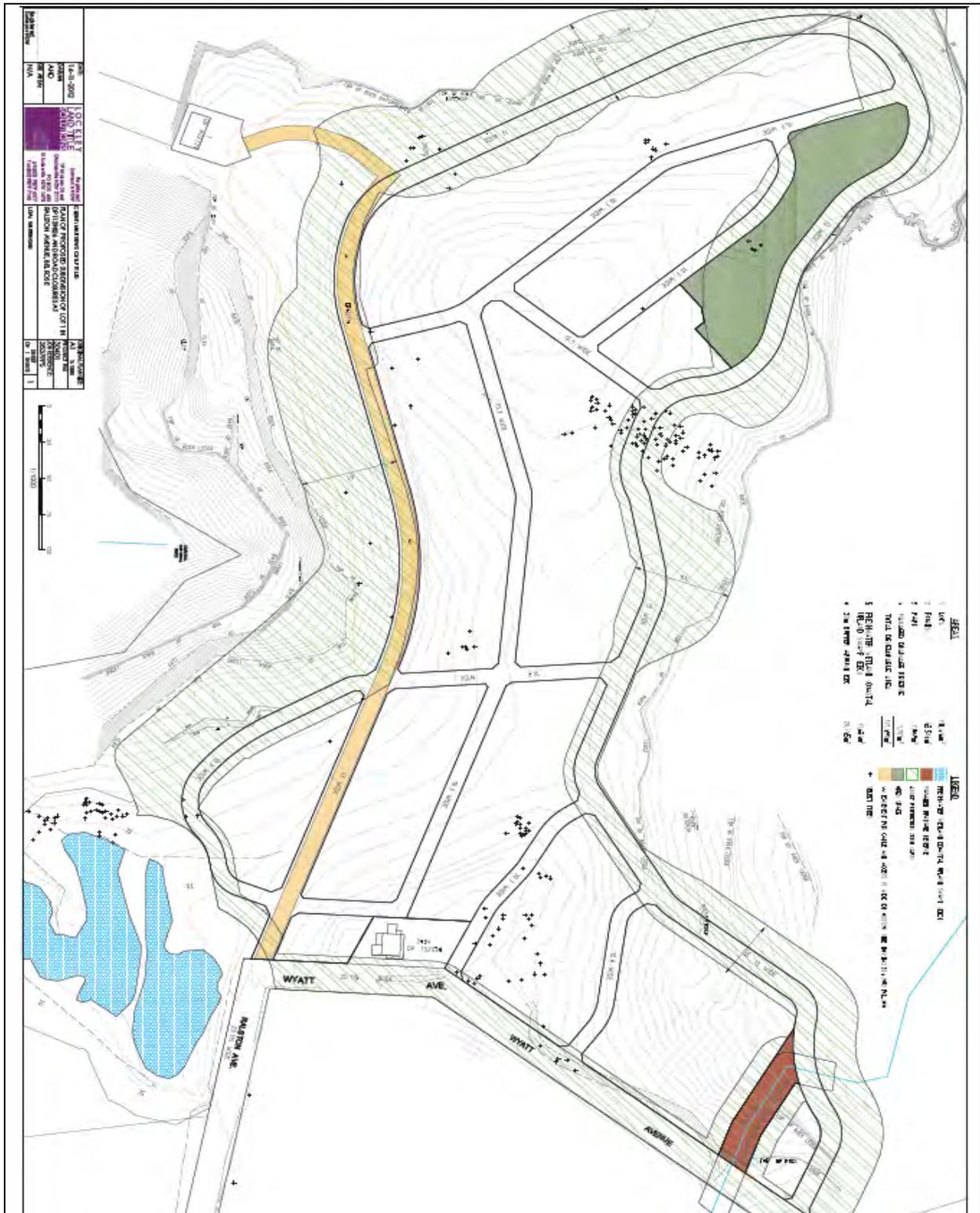


Figure 1.2: Existing Condition of the Study Area at Belrose - Comprising Lot 1 in DP 1139826 (Source: Department of Land and Property Information).



Figure 1.3: Proposed Rezoning & Subdivision of Lot 1 in DP 1139826 at Ralston Avenue, Belrose.



2.0 Environmental Context

2.1 The Environment and Aboriginal Archaeological Patterning

The environment influenced both the availability of resources to Aboriginal people in the past, and strongly determines what types of archaeological sites are likely to be located (and/or will survive) when land is inspected to assess potential Aboriginal archaeological sensitivity in contemporary subdivision and development circumstances. Namely:

- The distribution and availability of resources (such as drinking water, plant and animal foods, stone materials used for artefact manufacture, and wood and vegetable fibres used for other tool production and maintenance needs) were influenced by the nature of soils, the composition of vegetation cover, and other climactic characteristics including temperature and rainfall.
- The location of different types of archaeological sites (such as open campsites, scarred trees, axe grinding grooves and rock engravings etc) are also influenced by these factors, along with a range of other features which are specific to different land-systems and bedrock geologies.
- The nature and extent to which land has been subject to impacts as a consequence of historic landuse practices will define what types of Aboriginal archaeological evidence is likely to survive.

Assessing the environmental context of a study area is therefore an important procedure in understanding past Aboriginal land use practices and/or predicting Aboriginal archaeological site distribution patterns, in particular, in the absence of documentary records that can be used as a reference and guide. The information presented below is considered to be relevant to the assessment of the potential Aboriginal archaeological sensitivity of the land at Ralston Avenue.

2.2 Site Context, Topography, Geology, Soils, Hydrology & Vegetation

The proposed subdivision area (see **Figure 1.3**) consists of a relatively flat plateau landform that extends out to the west from existing residential areas to the east. The site perimeters to the north, west and south comprise gentle to steep sloping sandstone escarpments that constitute the main APZ's for the land. The majority of the study area is native bushland, and is crossed in places by a pattern of informal vehicle, bike and horse tracks.

Travers Bushfire & Ecology Pty Ltd (2012) have prepared an ecological survey of the land that identifies the potential presence (or absence) of threatened flora and fauna species, endangered

ecological communities, and significant habitat that may be affected by the proposal. The following description of the vegetation across the study area is adapted from that study.

Seven vegetation structures have been identified on the land, which conform to five distinct communities. These comprise:

- Coastal Sandstone Heath and comprising - Low Heath and Tall Heath variations.
- Sydney Sandstone Ridgetop Woodland and comprising - Low Open Forest and Open Forest variations.
- Disturbed areas - Cleared, Managed, Landscaped or Weed Plume.
- Upland Coastal Swamp (formally Sandstone hanging Swamp).
- Sandstone Gully Forest.

A total of two hundred and ninety nine (299) flora species were observed within the study area during the survey. This number comprised 226 native species and 73 exotic species. It should be noted that the majority of exotic species were only recorded adjacent to the Ralston Avenue entrance into the subdivision area, around the existing residence or adjacent to prominent tracks. The remainder of the subdivision area contained very few weeds. During the investigations, two (2) threatened flora species were sighted, *Tetratheca glandulosa* and *Grevillea caleyi*.

Low heath vegetation occurs near to the centre of the site to the north of Ralston Avenue and consists of Fabaceae plants generally to a height of between 1-3m. There is a dominance of shrub species and herbaceous groundcovers that are generally dense. The species diversity within this community is generally lower than the Forest communities.

Tall heath communities occur to the south and along the northern edge of Ralston Avenue, and within the northwest portion of the study area. This vegetation has a dominance of *Allocasuarina distyla* with several other heath species. The average height of vegetation within this community is 2.5-5m.

Low Open Forest occurs around the fringes on higher degrees of sloping land in addition to small patches within the central portion of the site. Whilst the community is diverse with a mix of upper strata species, an area containing *E. luehmanniana* (which is a rare species) is prevalent only within approximately 100m north and south of Ralston Avenue. This vegetation community has a high proportion of heath species in the lower layers of vegetation with a low proportion of grass species, and trees typically to a height of between 5-10m. Prevalent tree types include *Corymbia gummifera* (Red Bloodwood), *Eucalyptus piperita* (Sydney Peppermint), *Eucalyptus haemastoma* (Scribbly Gum),

Eucalyptus luehmanniana (Yellow top Ash), *Angophora hispida* (Dwarf Apple) and *Angophora crassifolia*. Shrubs include *Allocasuarina distyla* (Scrub She-oak), Banksia, Hakea, Lemon Scented Tea-tree, and Grevillea. Groundcovers include Lesser Flannel Flower, Curly Sedge, *Xanthorrhoea media* subsp. *media* (Forest Grass Tree), and *Patersonia sericea* (Wild Iris).

Open Forest occurs immediately to the west and south of the Sydney East Substation and at the terminal end of Ralston Avenue. This vegetation could be a combination of either Sydney Sandstone Ridgetop Woodland or Duffy's Forest (an endangered ecological community), and has an Open Forest structure but taller than the Low Open Forest, generally above 10m tall. It contains a mixture of heath understorey species with a moderate dominance of sclerophyllous species. Taller Eucalypt species dominate such as *Eucalyptus punctata* (Grey Gum), *Corymbia gummifera* (Red Bloodwood), *Angophora costata* (Smooth-barked Apple), *Allocasuarina littoralis* (Black She-oak), and *Eucalyptus sieberi* (Silver top Ash). This community also comprises a partially grassy understorey unlike the low heath and tall heath vegetation communities. Shrubs include Wattle and Banksia, and groundcovers include *Tetradlea ericifolia* (Black-eyed Susan) and *Lomandra gracilis*.

Disturbed areas occur largely within the centre of the site adjacent to the intersection of some major tracks, managed grounds and the residential lot, and around other built structures and the weed plume along the edge of Ralston Avenue near the existing gate. The vegetation in these locations contains shrub and heath vegetation with no trees and a grassy and annual understorey. This vegetation community is impacted by walking/driving tracks, and a high proportion of annuals, exotic grasses and Pampas Grass.

Sandstone Heath occurs in two small areas, one approximately 200-250m south of Ralston Avenue (or 300-350m south of the existing residence), and the second is a small remnant approximately 50m to the north of Ralston Avenue, at the terminal (western) end of the road. This community is regionally significant and may be more extensive in the local area near the northern boundary of the study area. Sandstone Gully Forest occurs in steeper portions of land to the south of Ralston Avenue generally outside of the study area. This is an open forest structure of Eucalypts, Angophoras and Corymbias with a moderately heathy understorey and some herbs, forbs and ferns in the ground layer. Trees are usually between 10-20m in height.

The study area contains a combination of two principal soil landscapes that comprise the erosional Lambert Soil Landscape and the colluvial Hawkesbury Soil Landscape. Largely characterised by Hawkesbury Sandstones of the Triassic Period, the soils of the central subdivision area are generally shallow to skeletal with some small sandstone outcrops occurring in places across parts of the site that are surrounded by steeper sandstone topography that falls away to the north, west and south around the perimeter of the property.

A number of minor drainage lines cross the site, and some have channelized as a result of channelized flows from Ralston Avenue, and some fire-trails that also extend into the nearby National Park. Of particular note is the Coastal Upland Swamp community that are groundwater dependent ecosystems. This vegetation community occurs in patches to the south of Ralston Avenue, and in the northern portion of the study varying in size with a total area of 1.53ha. The largest area to the south of Ralston Road is 1.27 ha in size.

3.0 Aboriginal Archaeological and Cultural Heritage Context

3.1 Sydney Regional Aboriginal Heritage Overview

3.1.1 The People

Over thirty named Aboriginal groups are recorded to have occupied the Sydney region in 1788. Attenbrow (2010) provides a review of what we know of these people at this time. While most of the earliest European observations derive from the coastal strip around the settlement at Sydney Cove, a number also come from Sydney's north. Key points provided by these historical records include:

- People are recorded to have belonged to several different language groups across the Sydney Basin at Contact. These included the Guringai to the north, the Darug (predominately) to the west, the Tharawal (predominately) to the south, with lands occupied by the Darkinjung and Gandangara converging to the northwest and southwest respectively.
- Groups that are recorded to have been associated with the lands of Sydney northern shore included the Carigal, Cammeraigal, Gayimal, and Cannaigal who are believed to have belonged to the larger Guringai language group.
- Various different spellings for these named groups exist in the literature, and the precise land boundaries that may have existed between individual groups in the past is not precisely known in many cases.
- Groups appear to have comprised multiple extended families ranging in size from 30 to 70 people or more, through which they appear to have had connections to specific areas of land.
- Groups are documented to have been organised around complex social, economic, spiritual and land-use inter-clan relationships that operated in 1788.
- It appears that individual groups/clans had specific primary access rights to resource zones provided by the coast, river, and inland areas, but would have routinely interacted with each neighbouring clan/group as day by day needs dictated.
- It appears that several dialect or language boundaries existed at Contact around the Sydney region between the coastal or 'saltwater' people and the inland or 'woods' groups, and that Sydney (coastal and hinterland) clans were bi-or multi-lingual.
- It is estimated that approximately 1,500 (or more) Aboriginal people occupied the inland zone away from the coast between Broken Bay and Botany Bay to the Blue Mountains at Contact (Kohen & Lampert 1988:345).

- The lives of the people who formed some of the Aboriginal groups who lived immediately around Sydney Cove in 1788 are documented to have been devastated as a result of massive death rates from introduced disease and from rapid land dispossession.
- There is evidence that some aspects of the ‘traditional’ lives of groups who lived in areas more distant or ‘remote’ from Sydney, such along the northern beaches and into the hinterland, continued well into the historic period.
- However, while we have more detailed records for early interactions between Aboriginal people and the British at places such as Manly, we know relatively little about how people lived in the more rugged sandstone country ‘hidden away’ from the coastal strip during the earliest years. Most European records north of the Harbour date to when the land on the peninsula was more extensively explored and mapped from the mid 1790s.

3.1.2 Aboriginal Archaeological Site Types, Frequency and Survival

Over 5,000 Aboriginal archaeological sites have been registered with the OEH AHIMS Sites Register in the greater Sydney region to date. Despite the extensive impacts that have accompanied over 220 years of post-Contact European occupation and land development, Aboriginal archaeological sites have been located in all types of landforms and include:

- Shell midden deposits contained within both sandstone rock shelters of suitable size that provided protection to people in the past during possibly inclement weather conditions etc, and also in open contexts, most often in coastal/estuarine foreshore environments and/or adjacent to principal watercourses.
- Painted and drawn art images in (primarily) sandstone overhangs/shelters.
- Engraved images and axe grinding grooves created on the surfaces of usually flat rock platforms that are more predominant in Hawkesbury Sandstone landforms.
- Open campsites that are commonly represented by the presence of durable materials such as flaked (and occasionally ground) stone artefact scatters reflective of often repeated site use of both short and long term duration.
- Occasional scarred and (rarer) carved trees. Most trees of a sufficient age to possess evidence for Aboriginal scarification have since died naturally and/or have been long-since felled during the post-Contact historical period.

- Some stone arrangements, waterholes, burials, and mythological sites reported to have been present in the landscape over time. Details for many of these types of sites are however often scant in the OEH AHIMS Sites Register.
- A number of post-Contact historical Aboriginal campsites that are documented to occur in and around the Sydney region.

As outlined below, the most common types of Aboriginal heritage sites that occur within the Warringah landscape surrounding the property at Belrose consist of rock shelters/overhangs containing painted art and occupation deposits, rock engravings, and axe grinding grooves.

3.1.3 An Archaeological Summary of Aboriginal Occupation of the Sydney Region

Aboriginal people have inhabited the Sydney region for at least 30,000 years. A Pleistocene sand body on the Parramatta River has been identified to underlie parts of the City, and an area of this old landform at the eastern edge of the CBD has been archaeologically excavated in three different locations with one site (on George Street) returning possibly the oldest date for the first Aboriginal occupation of the region (see McDonald 2007:36-37). A site at Cranebrook Terrace has produced an older date of c.41,000 BP (Nanson et al 1987), but the precise association of the deposits from which this date has been obtained and Aboriginal artefacts is debated.

Pleistocene sheltered occupation sites occur in the Blue Mountains and its foothills. One of these (Kings Tableland) has been dated to approximately 22,000 BP (Stockton & Holland 1974, Kohen et al 1984). Two dates ranging from 10,000 to 12,000 BP have also been reported for an open campsite at Regentville, while a rock shelter on Darling Mills Creek (at West Pennant Hills) has a date of a little over 10,000 years for first occupation.

The earliest dated coastal sites are located at Burrill Lake that shows evidence for first occupation approximately 20,000 years ago (Lampert 1971), and at Bass Point which is dated to some 17,000 years ago (Bowdler 1970). Both of these sites would have been occupied at a time when the sea level was much lower and the present coastline would have formed part of an inland environment drained by a series of rivers and streams. There are no other coastal Aboriginal sites of comparable age known at present.

Three further sites dated to around 12,000–8,500 BP that consist of a shell midden at Kurnell (Doughboy Head 1 – Smith et al 1990) dated to c.12,000 BP, an open occupation site dated to approximately 9,300 BP at Discovery Point (close to Tempe House - McDonald CHM 2005:56), and a open campsite (containing a cooking hearth) identified at the Prince of Wales Hospital in Randwick

that has returned a dated to c.8,400 BP (Godden Mackay Logan 1997:25-26) provide indications about how people lived around the time of sea level fluctuations and subsequent stabilisation along during this period.

The majority of dated Aboriginal archaeological sites in the region are however within the last 2,500 to 3,000 years. Available evidence suggests that the early occupation of the Sydney landscape was not intensive nor included large groups of people, and that around 5,000-6,000 years ago (when sea levels had stabilized at the present levels) more intensive use of the landscape by Aboriginal people subsequently began. Many open sites situated away from the coast appear likely to have been first occupied in the last 1,500 years before Contact.

3.1.4 Sydney Rock Engravings

Systematic attempts to locate and record Aboriginal art sites in the Sydney Basin began during the 1890s, with information on rock engravings in particular being gathered and published from that time by people such as R.H. Mathews and W.D. Campbell. Earlier work had been carried out in Port Jackson by George Angus in the mid to late 1840s. A century later from the mid 1930s to the 1960s, F.D. McCarthy (then Curator of Anthropology at the *Australian Museum*) carried out extensive field trips in the Sydney region to assess the archaeological resources of the area (including rock engravings) which were recognised even at that time to be increasingly threatened by development.

No historical descriptions exist for Aboriginal people in Sydney making rock engravings, and no records recount Aboriginal people telling Europeans who had made them or what they may have signified. However, rock engraving continued to be made in Sydney after 1788. Numerous images (engraved and painted) of European sailing ships, soldiers, guns, cattle, along with other European subjects and objects survive in the landscape.

Much of the interpretation of the engravings (and painted art sites) in the Sydney region is based on comparisons that have been made over time with areas for which more information has survived and/or where the art tradition (painting and/or engraving) had or has continued.

In 1990, it was estimated that around 2,000 rock engravings (consisting either of individual motifs and/or multiple figures) were known to occur around the sandstone landscapes of the Sydney region (Clegg and Stanbury 1990:2). Probably less than half of these were reported to have been recorded in any detail, and of these only a very few were well known. Additional engravings have been discovered since that time, but few have been documented in detail.

The numbers of figures (images or motifs) present at rock engraving sites in the Sydney region ranges from single items to over 150, and most of these have been created in a style commonly known as 'Simple Figurative' where motifs are simple outlines, and sometimes in-filled.

Maynard's (1976) model predicts that this art (and its style) is a relatively recent (Holocene) phenomenon. And this position is generally supported by this region's broader archaeological context. As McDonald (2007) demonstrates, Maynard's original definition still provides a good general description of the Sydney region's art:

'.....the style is dominated by figurative motifs ... the majority of [these] ... conform[ing] to a pattern of crude naturalism. Whether the motif is engraved or painted, in outline or solid form, it usually consists of a very simple silhouette of a human or animal model. Most portrayals are strongly standardised. Human beings are depicted frontally, animals and birds in profile, snakes and lizards from above. Normally only the minimum visual requirements for recognition of the motif are fulfilled by the shape of the figure' (Maynard 1976:200-1)

Most Sydney engravings appear to have been created by a technique that is commonly referred to as 'conjoined-puncturing'. This is where a series of pits or punctures were first made, possibly along an outline drawn on the surface of the sandstone platform perhaps with ochre and/or scratched with a stick or stone. The 'pits' are generally between 2mm and 5mm deep and at some sites overlap in places to form a continuous groove, whilst in others they may be spaced between 2cm and 5cm apart and have been subsequently abraded to create a distinctive U-shaped groove that is approximately 0.3cm to 1cm deep and 0.5cm to 1.0cm wide.

The types of implements used to create engravings is not precisely known, although it is likely that a range of materials were used as engraving tools including sharp pieces of bone, wood and stone before the introduction of steel implements from Contact. McCarthy (1976) reports on a piece of basalt with three abraded and rounded edges with striations that were located on a rock platform with engravings at Lake Conjola.

The range of engraved motifs at sites in the Sydney region is diverse and includes:

- Human figures and footprints (mundoes).
- Anthropomorphs (human-like composite figures).
- Land mammals (including kangaroos/wallabies, dingo's, wombats, echidnas, koalas, possums, gliders etc) and their tracks.
- Marine animals (including fish, sharks, whales, eels, dolphins, turtles, stingrays and jellyfish).

- Items such as axes, shields, spears, clubs, fishing lines and canoes.

Art styles, meaning and variation of Sydney rock engravings (and painted sites) have been studied for a long time. It is unclear what the rock engravings of the region originally symbolised. However, in light of nineteenth century descriptions of initiation ceremonies and totemic associations, many engraved figures could be interpreted as having been produced in a spiritual or religious context.

None of the engraved sites in the Sydney district have been directly dated. However, a number of studies argue that the *Simple Figurative* engravings around the Sydney landscape are likely to be between 5,000 and 200 years old, with engravings continuing to have been made after colonisation.

Most engraved images in the Sydney region are generally homogenous in style and technique. However, some regional stylistic variations are nevertheless evident. For example, McMahan (1965) identified a trend along the coast from north to south in the way kangaroos were depicted. In the north, kangaroo engravings have a single foreleg, hind-leg and ear (a profile view) whereas in the south, a high proportion (90%) has two forelegs, two hind-legs, and two ears.³ The vast majority (97%) of these engraved images are in outline only.⁴ There is also a tendency towards further 'realism' in the southern part of the range in the increased frequency of the depiction of claws on the feet and of the genitalia being shown on these engraved figures.

Although less clear, there is apparent a trend in the distribution of engraved motifs in the region for an increase from north to south in motifs depicting (possible) 'food' animals such as kangaroos/wallabies, emus, birds and fish (and other marine animals), where the proportional representation in motifs depicting human figures and weapons is greater to the south (Tracey 1974;23).

The boundary separating the land to the north of Botany Bay from that to the south broadly correlates with the historically recorded boundary between the Tharawal language group and the coastal (and inland) Darug.

3.2 Local Aboriginal Archaeological Context

3.2.1 OEH AHIMS Aboriginal Sites Register Search

A search of the OEH AHIMS Aboriginal Sites Register for a block of land measuring approximately 3km by 2km and centred on the middle of the subject land revealed that no Aboriginal archaeological

³ There are two known exceptions to this, a macropod located just south of Port Jackson with four legs, and another near the Lane Cove River (JMCHM 2007).

⁴ .The only consistently in-filled engravings in general terms in Sydney are 'culture heroes' which are generally decorated with series of pecked lines of dots. Intaglio forms (i.e. fully pecked infill) are extremely rare.

sites had previously been located, recorded and registered with the OEH within the proposed Ralston Avenue study area. The 10 recorded Aboriginal heritage sites identified within this search parameter consisted of 9 rock engravings and 1 rock shelter with art. The closest of these sites are a rock engraving (AHIMS Site #45-6-007) located on Wanniti Street approximately 850m to the south of the property, and three other engravings (AHIMS Sites #45-6-245-247) some 1,200m further to the south at the Frenchs Forest Cemetery

In a wider context, a shelter with art and potential archaeological deposit (AHIMS Site #45-2-0354) was recorded in 1992 on a private house block on the southern side of Dawes Road to the east of Forest Way. This shelter was recorded at the time to have contained at least six faded red and white hand stencils and some possible additional faded red and black drawings (Byrne 1992:5). Further to the northeast on a parcel of MLALC owned land on Morgan Road, a number of Aboriginal engravings have previously been recorded (see Steele 2004) including a kangaroo and nine associated footprints (AHIMS Site #45-6-1219), a human figure and footprints (AHIMS Site #45-6-2196), and two elliptical shaped shield motifs (AHIMS Site #45-6-2197).

3.3 Aboriginal Archaeological Site Prediction

Predictive models of Aboriginal archaeological site location attempt to identify areas of relative archaeological/cultural heritage sensitivity (high, moderate and low etc) as a tool that can be used for the planning and management of known Aboriginal sites and places of potential sensitivity within future development and/or land-use modification circumstances.

These models are generally based upon information including the types of landscape units contained within a study area, the results of previous Aboriginal archaeological and cultural heritage investigations undertaken in the surrounding landscape, the distribution of previously recorded sites along with their known nature, integrity, and potential composition, and upon an understanding of traditional Aboriginal land-use patterns (where possible) as guided by contemporary Aboriginal communities.

The following Aboriginal archaeological site predictive model for Ralston Avenue study area was prepared on the basis on the above background heritage review, and prior to the commencement of the current site inspection and assessment of the land:

- I *Rock Engravings*: The distribution of engraved sites relates to the occurrence of suitable rock outcrops common in sandstone formations that were used by Aboriginal people in the past for

the creation of engraved images. A considerable number of engraving sites are known to occur in the local Warringah landscape.

Engravings can occur in groups with numerous depictions of animals, human figures, possible spiritual motifs, and other images of equipment such as shields etc, or single depictions, that generally are found to occur on extensive level sandstone platforms along with smaller ledges and rock exposures.

- II *Axe Grinding Grooves:* These are grooves which resulted from the manufacture and/or maintenance of the working edge of some stone tools such as axe/hatchet heads by people in the past. They may be found where suitable sandstone is exposed in, or adjacent to, creeks or on elevated platforms where wet-grinding techniques are possible adjacent to natural rock holes and shallow 'basins'.

As for rock engravings, axe/hatchet grinding grooves may occur in large 'clusters' that serves to facilitate their ready recognition, or may conversely comprise isolated items that are often difficult to detect within certain light conditions.

- III *Open Camp Sites:* These sites are likely to occur on dry and relatively flat landforms along or adjacent to both major and minor watercourses, along with foreshore zones. However, repeatedly or continuously occupied sites are more likely to be located on elevated ground situated at principal creek confluences in the local landscape.

Surface scatters of flaked stone artefacts (or potentially durable food remains such as animal and fish bone or shell) may be the result of mobile hunting activities, while single or low density occurrences might relate to tool loss, tool maintenance activities or abandonment. These types of sites are often buried in alluvial or colluvial deposits and only become visible when subsurface sediments are exposed by erosion or disturbance.

- IV *Isolated Artefacts:* These items occur without any associated evidence for prehistoric activity or occupation. Isolated finds can occur anywhere in the landscape and may represent the random loss, deliberate discard or abandonment of artefacts, or the remains of dispersed artefact scatters. Manuports are items consisting of raw materials of stone that do not naturally occur within the soil profiles of a given region. Transported onto a site by Aboriginal people from sources elsewhere, these items will have subsequently been discarded before use as flaked or ground stone tools.

- V *Scarred Trees*: These sites are the result of bark or wood removal to make shields, shelter, canoes containers or carving designs into the exposed wood. These sites have rarely survived early timber clearance, bush fires and timber cutting. The definite ascription of scarring on a tree to an Aboriginal origin is not always possible. Europeans often removed bark for roofing material and stock watering troughs. Other scars may be the result of surveyor and property owner blazes, lightning strikes or cockatoo pecking. Unless the tree is at least 150 years old the scarring is unlikely to have an Aboriginal origin.

4.0 October 2012 Site Inspection

4.1 Introduction

An inspection of the Ralston Avenue site was undertaken in fine weather on the 2nd of October 2012 by DSCA archaeologists Mr Dominic Steele and Mr Adrian Dreyer. The field assessment was assisted by Project Manager, Mr Bob Stewart.

4.2 Site Inspection and Recording Methods

The site inspection was undertaken on foot and according to accepted field and reporting methods (see NPWS 1997 and OEH 2010). This included:

- The documentation of observations that included a consideration of landforms on the property, topography, existing vegetation; the nature of sandstone/ground exposures/visibility; and the extent of visible disturbance.
- Photography using a Nikon D-200 digital camera and scale bars as needed.
- The use of a Garmin e-Trex handheld GPS to plot noteworthy features.
- The use of air photographs and property plans to correlate field observations.

In general, the inspection used the existing roads and trails that cross the site as a series of baselines from which perpendicular transects to the north and south (in most cases) were made at 20m to 40m intervals where field conditions allowed that extended to the site perimeters (APZ's) that are generally defined by steep sandstone escarpments, benches and cliff lines.

4.3 Field Observations

Indicative images of the land at Ralston Avenue are provided below by **Figures 4.1 to 4.12**. These photographs can be broadly grouped into three according to the types of archaeological visibility that they illustrate:

- Cleared fire trails and informal walking/horse tracks.
- Sandstone surfaces around the site perimeters that are largely confined to the designated APZ's that will remain unaffected by the rezoning proposal.
- Minor sandstone exposures and ground erosion areas adjacent to tracks that characterise the majority of the central zone of the subject site.

A view looking east along a sealed section of Ralston Avenue road extension back towards Elm Avenue is presented in **Figure 4.1**. This existing road (and its easement) will provide one of the main entry points into the proposed rezoned land from the residential areas of Belrose to the east. As

illustrated in this photograph, service lines (electricity) run under the bitumen road, and in places along its alignment storm water drains and culverts run north-south (perpendicular) under the road corridor that gather water run-off from the various drainage lines on the land during periods of heavy/extended rain.

Indicative views of how much of the vegetation cover appears along the southern side of the study area is indicated in **Figures 4.2** and **Figure 4.3**. In the foreground of these images the grass and shrub cover is low, and this increases in height and density further to the south as the topography gets steeper within the southern APZ's. Few sandstone exposures are evident in these portions of the site to the south of Ralston Avenue.

The type of ground visibility that is provided by the various cleared fire trails and utility access tracks that occur on the land can be seen in **Figure 4.4**. This track at the south western end of the property leads to an existing brick electrical sub-station and overhead power pylons, and is largely outside of the study area. Nevertheless, the ground surfaces that are exposed characterise those that are prevalent in this part of the land that consist of shallow sandy and clay soils with minor sandstone exposures consisting of irregular broken rubble materials.

A view looking towards the south western side of the Ralston Avenue site is provided by **Figure 4.5**. The vegetation cover here is dense before the timber canopy is reached..

Two indicative views of the sandstone escarpments that characterise the south western and western boundaries of the subject site are presented in **Figures 4.6** and **4.7**. These sandstone elements consist of relatively flat tabular surfaces that drop-off steeply in a series of benches and scarps down into MLALC land and then the National Park below. These sandstone formations in these locations broadly define the designated APZ's, and will remain unaffected by the rezoning proposal.

Most of the topography in the central study area (comprising the plateau land) is characterised by flat to gently sloping/undulating ground with variable vegetation cover over shallow sandy and rocky soils. In places, relatively small sandstone outcrops occur in the form of smooth to corrugated horizontal surfaces and/or jumbled boulders and benches. An example of the former is illustrated in **Figure 4.8**. The prevalent leaf-litter cover that occurs over most of these exposures is evident.

Two indicative views of the sandstone platforms and escarpments that characterise the north and north-eastern boundaries of the study area are presented in **Figures 4.9** and **4.10**. Again, these sandstone landforms consist of relatively flat tabular surfaces that drop-off steeply in benches and

vertical cliff. These sandstone elements also define the designated APZ's, and will remain unaffected by future development.

Views of the existing fire trails that lead into Garigal National Park at the eastern end of the study area are presented in **Figures 4.11** and **4.12**. These types of cleared tracks will provide a basis from which internal road patterns to service the rezoned land will be created.

Figure 4.1: A View Looking Southeast along Ralston Avenue.



Figure 4.2: Looking Southeast over the APZ from Ralston Avenue.

Figure 4.3: A View of the Central Southern Part of the Site Looking South over the APZ.





Figure 4.4: Track at the South Western End of the Study Area Looking South.

Figure 4.5: A View of the South Western End of the Study Area.



Figure 4.6: Sandstone Exposure at the South Western End of the Study Area Looking West.

Figure 4.7: Sandstone Exposures at the Western Side of the Study Area Looking West.



Figure 4.8: Indicative Vegetation & Sandstone in the Centre of the Land Looking East.

Figure 4.9: Looking North over the APZ at the Northeast of the Site.



Figure 4.10: Looking West over the APZ at the Northeast of the Site.

Figure 4.11: Fire Trail Junction at the Eastern End of the Study Area Looking East.



Figure 4.12: Fire Trail Leading into Garigal National Park Looking Southwest.

5.0 Summary and Conclusions

5.1 The Proposed Ralston Avenue Rezoning & Potential Impacts

The proposed rezoning of the Ralston Avenue land will affect the flatter portions of the central plateau area that forms a characteristic part of the local landscape in this part of Belrose. This topography is characterised by shallow and stony sandy soils with limited sandstone exposure. The steeper Hawkesbury sandstone landforms that are characterised by a combination of horizontal platforms and escarpments with shelving benches that generally define the perimeters of the property are largely contained within the designated APZ's for the proposal and will remain unaffected by future residential housing construction.

5.2 Aboriginal Archaeological Heritage Impact Statement

The background Aboriginal archaeological heritage research, site inspection, analysis and assessment of the Ralston Avenue land undertaken for the current study indicate that:

- No *previously* documented Aboriginal archaeological sites or 'objects' are known to occur within the boundaries of the subject site and/or in immediately adjacent areas.
- No sandstone overhangs (generally created through processes of cavernous weathering and/or rock fall from extensive cliff-lines etc) suitable for habitation or use by people in the past occur on those parts of the property that will be affected by the proposal with the potential to contain occupation deposits or painted art. The limited areas of exposed sandstone bedrock across the site, outside of the landforms around the edges of the property that will be retained, is generally characterised by a mixture of small and low benches and scarps, along with eroded (and jumbled) boulders and cobbles. The type of flatter sandstone occurrences that occur only in a small number of locations on the land is illustrated in **Figure 4.8**.
- No rock engravings have been identified on the surfaces of the exposed sandstone bedrock within the property. The majority of the horizontal surfaces and vertical faces of the exposed sandstone scarps and benches in the proposed rezoning area are irregular, corrugated and heavily patinated and seemingly unsuitable (or at least unattractive) to Aboriginal people for the creation of engraved images. The majority of engravings recorded in the local landscape surrounding the site (many within Garigal and Kur-ring-gai National Parks etc) generally occur on relatively flat and smooth sandstone platforms of varying size. These are generally located in Hawkesbury Soil Landscapes as opposed to Lambert Soil Landscape contexts. While there exists the possibility for engravings to occur on the surfaces of sandstone currently obscured

by vegetation and leaf litter, this likelihood is considered to be limited and is manageable as explained below.

- No axe grinding grooves have been identified on the property. While such features may remain undetected in association with the minor drainage lines present on the site, there is no reason to expect these potential items will be numerous given the ephemeral nature of these creek-lines and the intermittent water flow they are likely to have provided in the past.
- None of the timber inspected on the property displays any evidence for cultural modification. In any case, the trees on the site consist either of sapling re-growth or relatively immature specimens that are highly unlikely to be of a sufficient age to display evidence of past Aboriginal scarification.
- No open campsites (or isolated finds of flaked stone etc) have been identified on the property. While these types of archaeological evidence can be difficult to detect in sandstone landscape contexts such as reported here, there is no reason to expect that the current study area was subject to intensive or repeated visitation and use by Aboriginal people in the past that would have created substantial and significant archaeological deposits. Mindful that while the subject site occupies a plateau, it is necessarily accessed from the main creek catchments below via steep and rugged landscape
- The proposed rezoning area itself would not seem to contain any highly valuable resources (beyond ephemeral drinking water sources), suggesting the place may have been visited sporadically by people in the past as they moved to and from more attractive landscape contexts and resource zones. These may have potentially included such areas as the catchments of Bare Creek to the west and Frenchs Creek to the south.
- No specific areas of *Potential Aboriginal Archaeological Sensitivity* relative to the rezoning proposal have been identified in the course of preparing this report. This assessment is based upon the archaeological conclusions presented in previous sections of this AADDA.

In conclusion, it is expected that any as yet undetected evidence for past Aboriginal visitation and use of the subject site that may be exposed by the proposed development will consist of either isolated items or low-density distributions of flaked/ground stone or possible rock engravings/axe grinding grooves that may be obscured by existing vegetation covers. The latter are however considered to be relatively unlikely to be present given the nature of the sandstone that characterises these areas of proposed rezoning.

5.3 Mitigation Options for the Potential Aboriginal Archaeological Resource

A number of actions can be implemented during future construction phases of the proposed residential development to mitigate impacts to the potential Aboriginal archaeological resource. These include:

- Briefing site contractors about the nature of archaeological sites and issues of potential sensitivity when sandstone surfaces previously obscured by vegetation for example are to be exposed.
- Monitoring of vegetation clearance required in open areas and initial earthworks within Asset Protection Zones being undertaken with the *Metropolitan Local Aboriginal Land Council*.
- Where any Aboriginal archaeological evidence may be exposed during the recommended program of site monitoring during construction phases, works should temporarily cease within the immediate vicinity of the find locality, be relocated to other areas of the site (allowing for an appropriate curtilage), and the OEH should be contacted and permission sought for the Land Council to record the items.
- Where Aboriginal sites may be located within proposed rezoning areas, future owners/occupants should be made aware of their presence and the legal requirements and automatic statutory protection that pertain to the management and preservation of all Aboriginal 'objects' under the terms of the *National Parks and Wildlife Act (1974)*. The configuration of the allotment may also require re-design where practicable in order to avoid impact when the location of construction footprints and asset protection zones are to be determined.
- Inclusion of *Restrictions as to User* in the *88b Instrument* preventing clearing and disturbance to bush beyond APZ's and other adverse impacts to natural values will also serve to mitigate future impacts to the potential archaeological resource.
- All efforts should be made to define *specific* and *limited* zones of impact within the proposed subdivided allotments that should be strictly adhered to throughout the course of future construction periods to limit impacts to existing vegetation and landforms.

5.4 Evaluation

On the basis of the above considerations, it is concluded that the Ralston Avenue rezoning proposal is unlikely to have an adverse impact upon the Aboriginal archaeological heritage values of the place and that no 'clear or obvious' archaeological constraints are apparent at this time for the proposal

proceeding as planned subject to the implementation of the heritage management recommendations provided below.

6.0 Management Recommendations

6.1 Basis for Recommendations

It is assessed that the Ralston Avenue residential rezoning proposal is unlikely to have an adverse impact upon the Aboriginal archaeological heritage values of the place.

It is therefore concluded that there are no Aboriginal archaeological (scientific) constraints for the proposal proceeding at this time subject to the consideration of the following conditions:

- Recognition of the legal requirements and automatic statutory protection provided to Aboriginal 'objects' and 'places' under the terms of the *National Parks and Wildlife Act of 1974*, where it is an offence to knowingly damage, deface or destroy Aboriginal sites or relics without the prior consent granted by the Director-General of the *Office of Environment and Heritage* (OEH)

6.2 Recommendations

- I Based on the conclusion that the potential for as yet undetected Aboriginal or European archaeological items of significance to occur within the property that may be affected by future construction works is assessed to be limited, it is recommended that there are no Aboriginal archaeological heritage constraints to the proposed Ralston Avenue residential rezoning proposal proceeding as planned.
- II In the (largely) unexpected circumstance that any Aboriginal objects are unearthed as a result of future works, it is recommended that activities should temporarily cease within the immediate vicinity of the find locality, be relocated to other areas of the subject site, and the OEH and the *NSW Heritage Branch* be contacted to advise on the appropriate course of action to allow the identified item(s) to be recorded/collected in a timely fashion to ensure works schedules are maintained and balanced with statutory heritage requirements.
- III A copy of this report should be forwarded to:

The Manager
Planning and Heritage Section – Metropolitan Region
Office of Environment and Heritage, Department of Premier and Cabinet
PO Box 668
PARRAMATTA, NSW, 2124
- IV A copy of this report should be forwarded to:

The Chairperson
Metropolitan Local Aboriginal Land Council
PO Box 1103
STRAWBERRY HILLS, NSW, 2012

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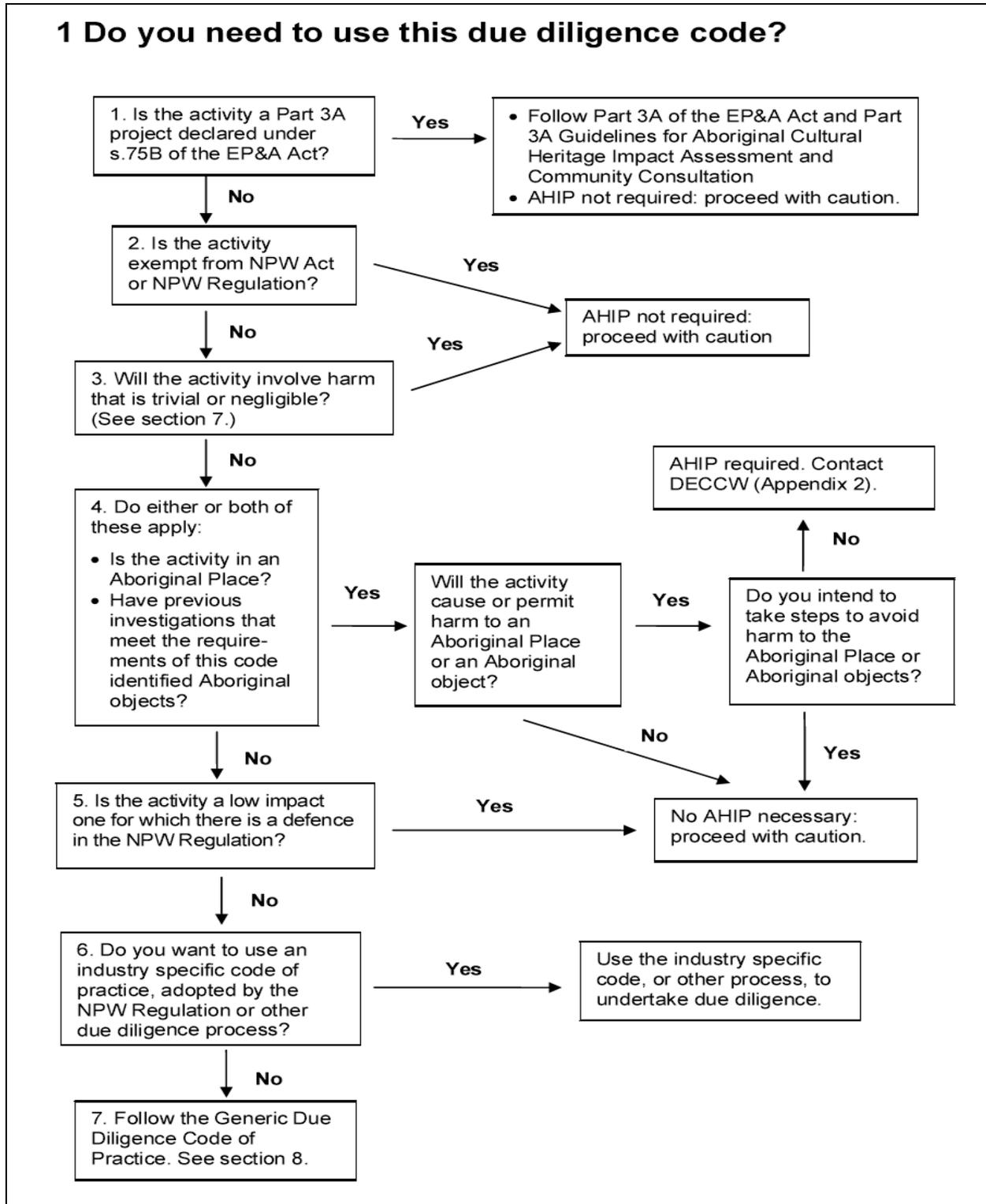
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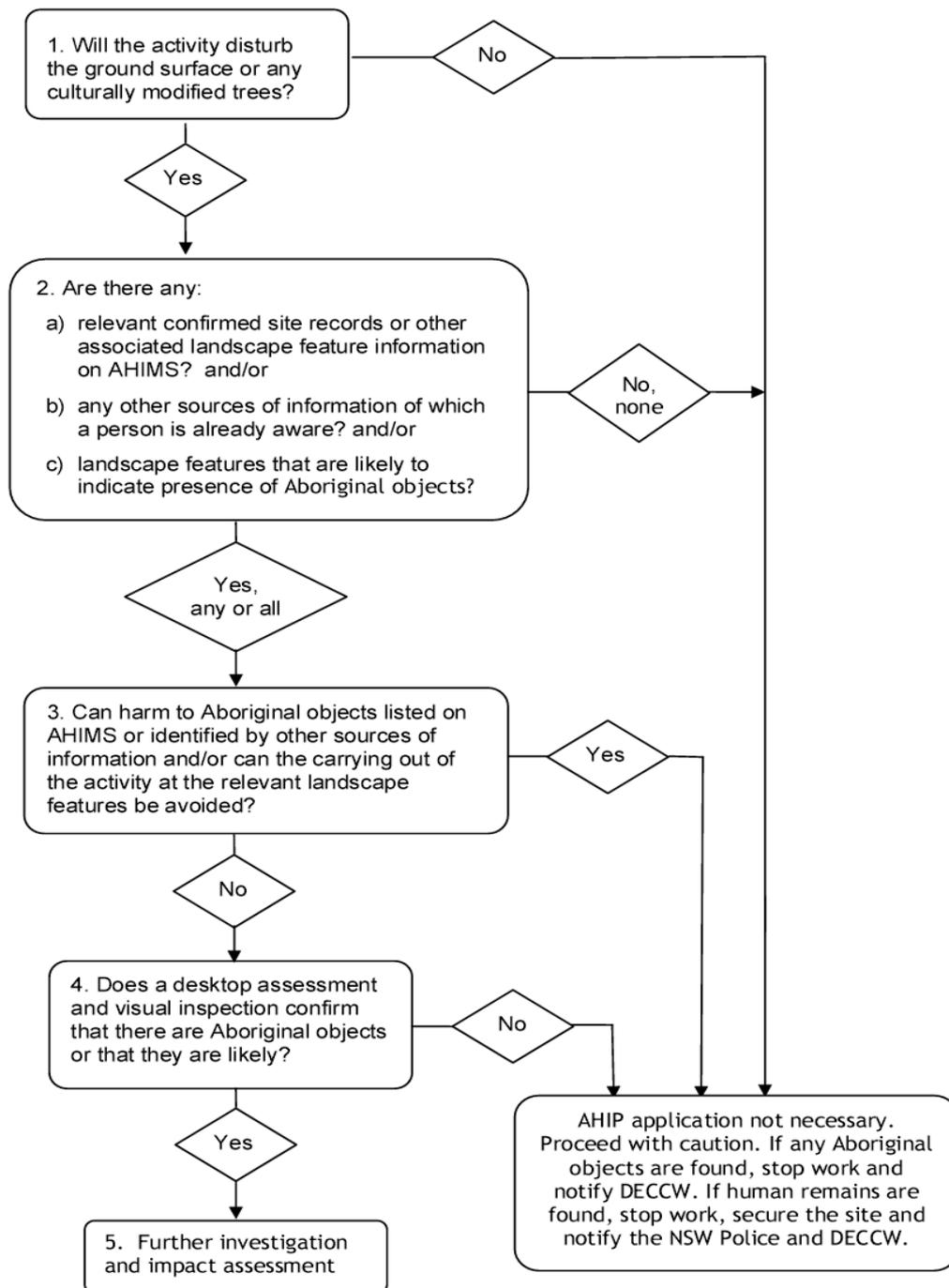
Appendix 1

OEH Due Diligence Code of Practice

Protection of Aboriginal Objects in NSW – NPWS Act 1974



8 The generic due diligence process



MATTHEWS CIVIL PTY LTD

STAGE 1 ENVIRONMENTAL SITE ASSESSMENT

RALSTON AVENUE, BELROSE, NSW

Environmental Investigations

Report No. E1669.1 AB

29th November 2012

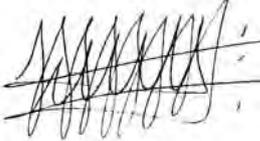


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Ralston Avenue, Belrose, NSW

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1.0 INTRODUCTION

Environmental Investigations (EI) was engaged by Matthews Civil Pty Ltd to conduct a Stage 1 Environmental Site Assessment (ESA 1) on a parcel of land adjacent to Ralston Avenue, Belrose, NSW, and is also referred to as the “Ralston Avenue Site” as shown in Figure 1 and 2 (henceforth referred to as ‘the site’).

The site can also be identified as being part of Lot 1, DP1139826 (*Ref. Fig.1*), situated within the Local Government Authority of Warringah Council, Parish of Manly Cove and County of Cumberland covering a total area of approximately 17.15 Ha, as depicted in Figure 2.

At the time of this investigation the site was a part of a 135.3 Ha lot of land which adjoins Garigal National Park and was mostly a vacant parcel of land situated on high grounds which are characterised by relatively low change in gradient as compared to the surrounding terrain, being mostly overgrown with trees, shrubs and vegetation, having a paved road partially marking its southern boundary which extends from Ralston Avenue and leading to an electrical substation facility at the end of it.

It is understood that the subject land is proposed for re-zoning as residential land. It is further understood that the purpose of this assessment is to evaluate the potential for contamination on site in support of a re-zoning application to Warringah Council.

This report documents the findings of a detailed site walkover inspection, a desk study involving reviews of site history and relevant soil and hydrogeological maps and includes a discussion of the potential areas of environmental concern.

The work reported herein follows standard environmental procedures and was conducted in accordance with the following set of guidelines:

- EPA (1997) *Guidelines for Consultants Reporting on Contaminated Sites*, NSW Environmental Protection Authority (NSW EPA);
- NEPC (1999) *Guidelines on Data Collection, Sample Design and Reporting* published by the National Environmental Protection Council (NEPC)

2.0 OBJECTIVES AND SCOPE OF WORK

The main objective of this assessment was to appraise the site for potential contamination resulting from any past and/or present land uses and to assess its suitability for the proposed rezoning into residential land. It was therefore proposed to conduct an investigation that follows standard environmental procedures following the Australian and New Zealand Guidelines for the Assessment of Contaminated Sites (ANZECC/NHMRC 2000) and the DEC Guidelines for the NSW Site Auditor Scheme (2006).

In order to achieve the above objective, and in keeping the project cost-effective and defensible for Council requirements, the following scope of works was proposed:

- a detailed site walkover inspection;
- a search of historical aerial photographs archived at NSW Land and Property Information in order to review previous site uses and the historical sequence of land development in the neighbouring area;
- a land titles search also conducted through NSW Land and Property Information;
- a search of records held by Warringah Council pertaining previous site uses and/or relevant environmental incidents;
- reviews of relevant topographic and hydrogeological maps;
- a search through the NSW EPA/OEH Land Information records to confirm that there are no statutory notices current on the site under the *Unhealthy Building Land Act* (1990) or the *Contaminated Land Management Act* (1997);
- data interpretation and reporting.

3.0 SITE DESCRIPTION

3.1 Property Identification, Physical Setting and Local Land Use

The subject land is situated at the end of Ralston Avenue, Belrose, NSW, continuing along the paved road track extending from Ralston Avenue leading onto private land with the majority of the subject area being on the northern side of this track. The site is further identified as being part of Lot 1, DP1139826 which falls within the Local Government Authority of Warringah Council, Parish of Manly Cove and County of Cumberland.

According to Warringah Local Environmental Plan (LEP) 2011 the zoning of the site is a deferred matter (Zoning Map – *DM deferred matter*).

The site is located in the vicinity of a residential area of the suburb of Belrose, being part of the larger property identified as Lot 1 DP1139826 (i.e. having an area of 135.3 Ha) which adjoins Garigal National Park and is an irregular shaped parcel of land, mostly undeveloped and overgrown with shrubs, trees and various types of vegetation, situated on high grounds with relatively low change in gradient in comparison to the surrounding terrain, and covering a total area of approximately 17.15 Ha. The subject land comprises an area on the southern side of Ralston Avenue which continues as a paved road track onto the private land with the remainder of the subject area situated to the north of the road which partially marks its southern boundary. The site has a residential property situated at its eastern end and is bound by mostly vacant bushland due north, south and west with a communications facility/tower and Sydney East Substation located due east of it as well as a facility being part of the substation infrastructure situated at the end of road/track due south-west of the subject land.

Reference to the *Hornsby 1:25,000 Topographic and Orthophoto Map* (9130-4S, 3rd Edition, Land and Property Information NSW, 2001) indicates that the site lies at an elevation of about 140-160m above Australian Height Datum (AHD).

The site is situated on relatively high, flat grounds (~170m AHD) characterised by low change in gradient as compared to the surrounding terrain which comprises mostly moderate to steeply inclined slopes and hills with frequent rock outcrops, with grounds sloping down naturally in the northern, southern and western direction away from the subject area and elevating in an easterly direction, with gradient varying between 1 in 5 to 1 in 25 across the site surface.

3.2 Regional Geology and Hydrogeological Conditions

Geology

Information on regional sub-surface conditions, referenced from the Department of Mineral Resources Geological Map *Sydney 1:100,000 Geological Series Sheet 9130* (DME 1983), indicated that the site overlies Hawkesbury Sandstone of the Wianamatta Group (*Rh*). Hawkesbury Sandstone is characterised by medium to coarse-grained quartz sandstone, very minor shale and laminate lenses.

Sandstone bedrock forms the aquifer system for the region and although the depth to the water table is unknown, it is expected to be greater than 5m. Natural site soils are characterised as firm, low-permeability, clay soils overlying sandstone, which restrict downward infiltration into the groundwater system.

The Soil Conservation Service of NSW *Soil Landscapes of Sydney 1:100,000* (Chapman, G.A., Murphy, C.L. and Tille, P.J. 1991) indicated that the site overlies an interchange of an *Erosional Landscape – Lambert (la)*, *Colluvial Landscape – Hawkesbury (ha)* and *Residual Landscape – Somersby (so)*.

Erosional Landscape – Lambert (la)

According to Chapman and Murphy, this landscape type is characterised by undulating to low rolling hills on Hawkesbury Sandstone which consists of medium to coarse-grained quartz sandstone with minor shale and laminate lenses. Local relief is 20-120m and slopes of <20%. Broad convex crests and plateau surfaces with gently to moderately inclined sideslopes, often associated with small hanging valleys. Small, poorly drained seepage areas are common.

Vegetation is predominantly uncleared open-heathlands, closed-heathlands and scrublands, with patches of low eucalypt woodland. The heathlands and scrublands are often exposed to strong winds. Their shallow, poorly drained soils fluctuate between being saturated or dry.

Colluvial Landscape – Hawkesbury (ha)

According to Chapman and Murphy, this landscape type consists of medium to coarse-grained quartz sandstone with minor shale and laminate lenses. Sandstones are either massive or cross-bedded sheet facies with vertical or subvertical joint sets. The combination of bedding planes and widely spaced joints gives sandstone outcrops a distinctive blocky appearance.

The topography consists of rolling to very steep hills. Local relief varies from 40m to 200m. Slope gradients range from 25% to 70%. Crests and ridges are convex and narrow, at >300m wide. Slopes are moderately inclined to precipitous. Rock outcrop occurs as horizontal benches and broken scarps up to 10m high. Boulders and cobbles cover up to 50% of the ground surface. Valleys are narrow and incised.

Vegetation is mostly uncleared open-woodland with pockets of tall open-forest and closed-forest.

The dominant land uses are national parks and nature reserves which are used for education and recreation. Population pressures, scenic views and bushland settings have contributed to the urbanisation of this landscape.

Severe sheet erosion often occurs during storms and after ground cover is destroyed by bushfires. Minor gully erosion occurs along unpaved tracks and fire trails, especially those used regularly by four wheel drive vehicles, motorcycles and horses.

Soils consist of shallow (>50cm) discontinuous lithosols/siliceous sands associated with rock outcrop; earthy sands, yellow earths and some yellow podzolic soils on the inside of benches and along joints and fractures; localised yellow and red podzolic soils associated with shale lenses; siliceous sands and secondary yellow earths along drainage lines.

Residual Landscape – Somersby (so)

According to Chapman and Murphy, this landscape type consists of medium to coarse-grained quartz sandstone with minor shale and laminate lenses. Deep weathering of the sandstone is widespread. The deep weathering products are known as friable sandstone. Laterite material occurs on some crests.

The topography consists of undulating low rises and plains on plateau surfaces. Local relief is up to 40 m. Slope gradients are generally <15%. Ridges and crests are broad and valleys are wide and open. Rock outcrop is absent.

The original vegetation of this landscape type includes eucalypt open-woodland and scrub. Poorly drained areas support scrubland of heath banksia and tea tree.

The dominant land uses include market gardens, citrus orchards, plant nurseries, cut flower nurseries, horse riding schools, horse studs and sand and gravel quarries. Some areas have been

used for urban residential development (i.e. Terrey Hills, Belrose). Small parts are proclaimed national parks. Small areas of unused bushland remain.

Minor to moderate sheet and rill erosion occur on land cleared for cultivation. Severe sheet and rill and minor to moderate gully erosion have occurred where soils have been disturbed by road construction, quarrying and over-glazing.

Soils consist of moderately deep to deep red earths and yellow earths overlying laterite gravels and clays on crests and upper slopes; yellow earths and earthy sands on mid slopes; leached sands and siliceous sands on lower slopes and drainage lines; gleyed podzolic soils in low lying poorly drained areas.

Hydrogeology

A search of registered groundwater bores through the NSW water bore database accessed through the *NSW Natural Resource Atlas* website <http://nratlas.nsw.gov.au/> revealed three (3) registered water supply bores (as summarised in Table 1) to have been constructed within 2 km of the site.

A plan of the bore location is included with the detailed information of the identified water bores. (Ref. Appendix A).

Table 1. Summary of registered groundwater bores within 2 km of the site

| Bore No. | Drilled Date / Bore Depth (mBGL) | SWL (m BGL) / Salinity * | Bore Purpose | |
|----------|----------------------------------|--------------------------|----------------------------|----------------------------|
| | | | Authorised Use | Intended Use |
| GW014050 | 1958 / 30.50 | 15.20 / - | Domestic Farming Stock | Domestic Stock |
| GW014474 | 1958 / 18.00 | 3.60 / - | Farming Stock | General Use |
| GW105329 | 2004/ 202.00 | 74.00 / 3.00 | Industrial – Sand & Gravel | Industrial – Sand & Gravel |

Footnotes

SWL = Standing Water Level, * Salinity Units - not recorded

The nearest watercourse is Frenchs Creek approximately 150-200 metres south of the site which runs into Bare Creek and eventually to Middle Harbour, located approximately 4.0 to 4.5 km due north.

4.0 SITE CONTAMINATION APPRAISAL

4.1 HISTORICAL AERIAL PHOTOGRAPHY REVIEW

The site history review included a search of historical aerial photographs sourced from the Land and Property Management Authority. The inspected photographs were as follows:

1. 6 March 1930, runs 1-12, print 1198, Sydney Survey MAP 3427
2. January 1947, run 36, print 59-111, Broken Bay
3. 1961, run 24, print 5105 Cumberland Series NSW 1053
4. 10 August 1982, run 16W, print 217, Sydney NSW 3243-40
5. 10 October 1994, run 6, print 70, Sydney NSW 4245
6. 16 March 2002, run 6, print 254, Sydney NSW 4724 (M2302)

1930

The 1930 aerial photograph revealed the site to be a vacant, undeveloped bushland overgrown with trees and vegetation and no apparent structures of any kind. The surrounding land appeared to be also undeveloped being mostly bushland overgrown with trees and shrubs. The closest established infrastructure appeared to be currently existing Ralston Avenue due east, being an unpaved track at that time, as well as rural estate situated either side of the Ralston Avenue with some market gardening activities taking place.

1947

The 1947 aerial photograph revealed the site to have little changes since 1930s remaining mostly an undeveloped bushland overgrown with trees, shrubs and other vegetation. The surrounding land remained also mostly unchanged being largely undeveloped and overgrown with trees and vegetation with an exception of the area to the east of the subject land which appeared to have been cleared and levelled with some tracks/roads established in its vicinity, most likely facilitating preparation works for the construction of the electrical substation facility; further details are subjective due to the poor quality of the photograph. The land further east of the site along Ralston Ave. (mainly along the northern side of the road) appeared to have had more rural/domestic properties established as compared to the previous aerial photograph, some of which appeared to be used for market gardening activities.

1961

The 1961 aerial photograph revealed the site to remain mostly unchanged since the previous aerial photograph, remaining largely an undeveloped parcel of land overgrown with trees and vegetation. The immediate surrounding remained also largely unchanged apart from the area due east which appeared to be an active construction site for the electrical substation facility and appeared to have been further cleared and levelled as compared to the previous aerial photograph extending onto the subject land. A number of facilities/structures most likely associated with the construction site, were erected in the locality, some appeared to have been situated on the subject land itself, with a number of tracks/roads established, most likely facilitating the construction works taking place. The properties further east mostly along the northern side of Ralston Avenue remained largely unchanged being mostly rural in nature with some being in use for market gardening activities, however the land in close proximity of the subject land along the southern side of Ralston Avenue appeared to be developed into a number of properties rural/residential in nature.

1982

The 1982 aerial photograph revealed the site and the immediate surrounding land uses to be mostly unchanged from the previous aerial photograph apart from the road/track being established extending from Ralston Avenue leading through the subject land, in part marking its southern boundary, towards a facility/structure situated at the end of it. Previously identified construction site area due east of the site appeared to now be an established and operating electrical substation facility situated along the northern side of Ralston Avenue. The land further south-east of the subject area along Ralston Avenue appeared to have been subdivided, as compared to the 1961 aerial photograph, and developed into mainly residential type properties and local school premises (along the northern side of Ralston Avenue) now comprising a residential estate.

1994

The 1994 aerial photograph revealed the site to be relatively unchanged from the previous photograph. A communications facility/tower appeared to have been established due east of the subject area immediately west of the established Sydney east substation facility grounds. The building/facility at the end of road/track extending from Ralston Avenue was identified to be a part of the electrical substation infrastructure. The remainder of the surrounding land as well as properties due south-east of the subject land along Ralston Avenue had little or no change associated as from the 1982 aerial photograph.

2002

The 2002 aerial photograph revealed the subject land to be relatively unchanged as compared to the previous aerial photograph, with an exception of a residential property which appeared to have been established at the eastern end of the subject area. The remainder of the surrounding land as well as properties due south-east of the site along Ralston Avenue appeared to have had little or no change associated.

In summary, the site was vacant bushland overgrown with trees and vegetation and no structures/buildings of any kind since at least 1930s. Only minor development appeared to have taken place on the subject land since, some of which included the establishment of road/track extending from Ralston Avenue onto the private land by 1982 which also in part marks the southern boundary of the subject land, and construction of a residential property (i.e. 54 Ralston Ave) in the eastern end of the subject land by 2002. The surrounding land was mostly undeveloped since at least 1930s apart from the large development that took place sometime between 1947 and 1982 for the Sydney east electrical substation located east of the site, which during its construction stages had the associated works extending onto the subject land, as well as having some of the project related infrastructure (i.e. accessing roads and various facilities/structures) established within the locality as well as on the subject land itself. A small facility identified as part of the substation infrastructure was identified to have been established by 1982 located at the end of the road track extending from Ralston Avenue. The land in the vicinity of Ralston Avenue as well as due south-east of the subject land appeared to have been rural in nature with some properties being associated with market gardening activities since at least 1930s until at least 1961, with most of the properties in the locality becoming predominantly residential in nature by 1982.

4.2 LAND TITLES INFORMATION

A historical land titles search was conducted through Service First Registration Pty Ltd. Copies of relevant documents resulting from this search are presented in Appendix B.

The site comprised of a single lot and a summary of owners are compiled in Table 2.

Table 2. Title Summary – Ralston Avenue Site

| Date of Acquisition | Registered Proprietor(s) & Occupations where available | Reference to Title at Acquisition and sale |
|--|--|--|
| <u>As regards the land cross hatched red and highlighted yellow and green on the attached copy of D.P. 1139826</u> | | |
| This land was created as Portion 1978 by plan 5773-2030 dated 12.05.1941 | | |
| Special Lease 1940/130 | To L Mills Pty Ltd | Forfeited 16.02.1945 |
| Special Lease 1949/44 | Refused | |
| Special Lease 1951/205 | To Aterio Bussa | Expired 31.12.1967 |
| 05.09.1958 | Reserve R 81044 from Sale for Future Public Requirements | See Crown Plan 7070-2030 |
| <u>As regards the land highlighted green and also the land cross hatched red and highlighted green on the attached copy of D.P. 1139826</u> | | |
| This land was comprised within land dedicated for Public Recreation by notification in Government Gazette dated 14.09.1923 | | |
| 17.02.1955. Proved for as a Crown Road 20.1168 metres wide – See Crown Plan 7070-2030 | | |
| 12.04.1979. The part cross hatched red and highlighted green was closed by notification in Government Gazette 12.04.1979 | | |
| 03.08.1979. Reserve No. 91519 for Public School Purposes affecting the part cross hatched red and highlighted green, revoked 18.11.1983 | | |
| <u>As regards the land highlighted green and also the land cross hatched red and highlighted green on the attached copy of D.P. 1139826</u> | | |
| This land was comprised within land dedicated for Public Recreation by notification in Government Gazette dated 14.09.1923 | | |
| 17.02.1955. Proved for as a Crown Road 20.1168 metres wide – See Crown Plan 7070-2030 | | |
| 12.04.1979. The part cross hatched red and highlighted green was closed by notification in Government Gazette 12.04.1979 | | |
| 03.08.1979. Reserve No. 91519 for Public School Purposes affecting the part cross hatched red and highlighted green, revoked 18.11.1983 | | |
| <u>As regards the land highlighted yellow and marked (B) on the attached copy of D.P. 1139826</u> | | |
| This land was comprised within land dedicated for Public Recreation by notification in | | |

| | | |
|---|---|--------------------------|
| Government Gazette dated 14.09.1923 | | |
| 03.08.1979. Reserve No. 91519 for Public School Purposes affecting the part cross hatched red and highlighted green, revoked 18.11.1983 | | |
| <u>As regards the land highlighted yellow and marked (C) on the attached copy of D.P. 1139826</u> | | |
| This land was comprised within land dedicated for Public Recreation by notification in Government Gazette dated 14.09.1923 | | |
| 14.09.1923 | Dedicated for Public Recreation (Now known as Davidson State Recreation Area) | Government Gazette |
| Date unknown | Subsequently becoming part of Garigal National Park | |
| <u>As regards the land hatched red and highlighted yellow on the attached copy of D.P. 1139826</u> | | |
| This land was comprised within land dedicated for Public Recreation by notification in Government Gazette dated 14.09.1923 | | |
| 17.02.1955. Now forming part of Portion 1978 – See Crown Plan 7070-2030 | | |
| Special Lease 1951/205 | To Aterio Bussa | Expired 31.12.1967 |
| 05.09.1958 | Reserve R 81044 from Sale for Future Public Requirements | See Crown Plan 7070-2030 |
| <u>Search continued as regards the lands known as Ralston Avenue Site</u> | | |
| 14.10.2009 (2009 to date) | # Metropolitan Local Aboriginal Land Council (Transferred from the State of New South Wales) | 1/1139826 |

Denotes current registered proprietor

Easements: -

- 17.11.1972. Easement for Transmission Line variable width – Appears to affect part of the Ralston Avenue Site
- 30.04.1982. Easement for Cable and Access 10 wide (D.P. 602729) – Affects part of the Ralston Avenue Site
- 23.07.2009. Easement for Access over Track in Use (D.P. 1139826) – Affects part of the Ralston Avenue Site

Leases: - NIL

The title search revealed the subject land to have been incorporated within the land dedicated for Public Recreation as per notification in Government Gazette dated 14.09.1923. It subsequently became a part of Garigal National Park, parts of the subject land were recorded to have been on special lease to Mr. Aterio Bussa from 1951 which expired in 1967. Parts of the subject land were also indicated to have been reserved from sale for future public requirements in 1958. Southern parts of the subject land were indicated to have been reserved for public school purposes from 1979 until 1983 most likely utilised by the nearby school for the associated recreational activities.

The title search indicated the subject land to have been transferred in 2009 from the State of NSW to Metropolitan Local Aboriginal Land Council which remains its current registered proprietor and overseer.

A number of easements were recorded to have been attributed to the parts of the subject land, and were indicated to be for the purposes of transmission line (dating to 1972), cable and access (dating to 1982) and were most likely associated with the nearby electrical substation infrastructure, an easement for the purposes of an access over the track in use was also recorded dating to 2009.

Overall the title search revealed that the subject land to be dedicated for Public Recreation with parts of it being attributed to Garigal National Park since at least 1923. The subject land was most likely used for predominantly recreational purposes since, with title search revealing parts of it being on special lease to various individuals/corporate body as well as being utilised by a public school, and having a number of easements attributed to it mainly in association with electrical substation infrastructure, until 2009 when it was transferred to Metropolitan Local Aboriginal Land Council.

4.3 COUNCIL INFORMATION

The search of site history records held by Warringah Council was initiated on the 31st July 2012. Correspondence from Council was received on 16th August 2012, advising that a cursory search of records held by the Local Council Authority reveal no relevant documentation, correspondences or approvals pertaining to the past uses of the subject land or possible risks of contamination.

4.4 HAZARDOUS CHEMICALS AND REGULATORY COMPLIANCE

On 21st August 2012, an on-line search of the *Contaminated Land – Record of EPA Notices* was conducted, this being a database that is maintained by the NSW OEH. This search confirmed that the NSW OEH has no current involvement, or regulation, under Section 58 of the *Contaminated Land Management Act 1997* for the NSW subject land identified as Lot 1 D.P. 1139826. Section 58 of the *CLM Act 1997* relates to the investigation, remediation and management of sites where

contamination poses a significant risk of harm, and includes Sections 35 and 36 of the *Environmentally Hazardous Chemicals Act 1985*.

4.5 SITE WALKOVER INSPECTION

Mr. Anthony Barkway (EI, Environmental Engineer) and Mr. Eric Gerges (EI, Senior Engineer) made the following observations during an inspection of the site on the 15th August, 2012:

- The site is located in the vicinity of a residential area of the suburb of Belrose, being part of the larger property identified as Lot 1 DP1139826 (i.e. having an area of 135.3 Ha) which adjoins Garigal National Park and is an irregular shaped parcel of land, mostly undeveloped and overgrown with shrubs, trees and various types of vegetation, situated on high grounds with relatively low change in gradient in comparison to the surrounding terrain, and covering a total area of approximately 17.15 Ha. The subject land comprises an area on the southern side of Ralston Avenue which continues as a paved road track onto the private land with the remainder of the subject area situated to the north of the road which partially marks its southern boundary. The site has a residential property situated at its eastern end.
- The subject area was surrounded mostly by vacant bushland due north, south and west with communications facility/tower and Sydney East Substation located due east of it as well as a facility, part of the substation infrastructure being situated at the end of road/track due south-west of the subject land. Residential properties were located further east and south-east of the site along Ralston Avenue.
- The land within the immediate proximity of the subject land is to a large extent an undeveloped bushland overgrown with trees and vegetation. Communications facility/tower is situated to the east of the site accessed as well as Sydney East Substation which was situated on the elevated reworked/levelled grounds further east of the communications tower site, being to the north of Ralston Avenue. Open channel storm water drainage was identified located between the road and the substation grounds along Ralston Avenue, situated downhill of the substation grounds, and uphill of the subject land, it was identified to incorporate a 50kL spill

oil tank situated directly above the channel, an overall gradient which the drainage pattern will follow is due east away from the subject land.

- The site is situated on relatively high, flat grounds (~170m AHD) characterised by low change in gradient as compared to the surrounding terrain which comprises mostly of moderate to steeply inclined slopes and hills with frequent rock outcrops, with grounds sloping down naturally away from the subject area in the northerly direction towards Fireclay Gully, in the southerly direction towards Frenchs Creek and towards Bare Creek in a westerly direction as well as elevating towards substation grounds in an easterly direction, with gradient varying between 1 in 5 to 1 in 25 across the site surface.
- Occasional waste dumping was identified at some parts of the site mainly along the road/track extending from Ralston Avenue leading towards the facility at the end of the road, and was mainly characterised as being domestic waste (i.e. carpets, putrescibles garbage etc.) also having some construction debris (i.e. bricks, wooden framework etc.) as well as some soil waste and a car wreck. There were no signs of mobile contamination identified anywhere across the subject area.

4.6 AREAS AND CONTAMINANTS OF ENVIRONMENTAL CONCERN

On the basis of site history information collected during the assessment and the site walkover inspection, potential Areas of Environmental Concern (AEC) and Contaminants of Concern were identified as summarised in Table 3.

Table 3. Summary of Potential Areas and Chemicals of Environmental Concern

| <i>AEC</i> | <i>Potential Contaminating activities</i> | <i>Location</i> | <i>Chemicals of Concern</i> | <i>Likelihood of Contamination</i> |
|------------|--|--|---|------------------------------------|
| 1 | Waste dumping in the form of: car wrecks, domestic waste, construction debris/waste. | Across the identified parts of the site premises | Heavy metals, Total Petroleum Hydrocarbons, BTEX, Polyaromatic Hydrocarbons, OCPs, PCBs, OPPs, asbestos | Low |

4.6.1 Potential Chemicals of Concern

Soil sampling and associated laboratory analytical testing were therefore deemed necessary at the targeted central southern part of the site where illegal rubbish dumping has taken place for the following parameters of concern:

- heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc);
- total petroleum hydrocarbons (TPHs);
- the monocyclic aromatic hydrocarbons *benzene, toluene, ethyl-benzene* and *xylenes* (BTEX);
- polycyclic aromatic hydrocarbons (PAHs);
- organochlorine pesticides (OCPs);
- polychlorinated biphenyls (PCBs);
- organophosphate pesticides (OPPs); and
- asbestos.

This list includes standard parameters recommended under the EPA (1994) *Table 1 Minimum Soil Sampling Protocol* for imported fill, as well as the DUAP / EPA (1998) *Appendix A Industries and Chemicals Used*.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The site located at the end of Ralston Avenue, Belrose, NSW as depicted in Figures 1 and 2 was the subject of a Stage 1 Environmental Site Assessment (ESA 1) in order to determine the potential for site contamination associated with the identified current and former land uses. Based on the findings of this ESA 1, it was concluded that:

- The subject land was dedicated for Public Recreation with parts of it being attributed to Garigal National Park since at least 1923. The subject land was most likely in use for mainly recreational purposes since then, with some of the parts being utilised by a public school, as well as having a number of easements attributed to it mainly in association with electrical substation infrastructure, until 2009 when it was transferred to Metropolitan Local Aboriginal Land Council overall remaining mostly undeveloped until present time;
- The site was free of statutory notices issued by the NSW EPA/DECC;
- Site observations during the assessment revealed the site to be mostly an undeveloped parcel of land being overgrown with trees and vegetation, situated on high grounds with relatively low change in gradient in comparison to the surrounding terrain, and covering a total area of approximately 17.15 Ha
- The site is situated on relatively high, flat grounds (~170m AHD) characterised by low change in gradient as compared to the surrounding terrain which comprises mostly of moderate to steeply inclined slopes and hills with frequent rock outcrops, with grounds sloping down naturally away from the subject area in the northerly direction towards Fireclay Gully, in the southerly direction towards Frenchs Creek and towards Bare Creek in a westerly direction as well as elevating towards substation grounds in an easterly direction, with gradient varying between 1 in 5 to 1 in 25 across the site surface.
- Occasional waste dumping was identified at some parts of the site mainly along the road/track extending from Ralston Avenue leading towards the facility at the end of the road, and was mainly characterised as being domestic waste (i.e. carpets, putrescibles garbage etc.) also having some construction debris (i.e. bricks, wooden framework etc.) as well as some soil

waste and a car wreck. There were no signs of mobile contamination identified anywhere across the subject area.

In view of the historical activities and site walkover inspection, Areas of Environmental Concern (AECs) may have been subject to potential soil contamination. These areas comprised spot locations where waste dumping was identified (AEC 1). The likelihood of contamination at the AEC was considered to be low.

It is therefore concluded that the site is considered suitable for the proposed re-zoning into residential land provided the identified dumped waste and car wreckage is removed prior to the approval given.

Given that no other evident sources of contamination could be visually identified on site, it is considered that the only surface validation sampling and laboratory analysis for the identified chemicals of concern should be carried out once the dumped waste and car wreckage is removed.

Should site soils require excavation and disposal from the site, then these soils should be classified in accordance with the DECCW (2009) *Waste Classification Guidelines* and disposed to an approved landfill facility. Any soils to be imported onto the site for the purpose of back-filling excavated areas will also require validation testing following the EPA (1995) *Sampling Design Guidelines* to confirm their suitability for the proposed land use.

6.0 STATEMENT OF LIMITATIONS

This Stage 1 Environmental Site Assessment evaluated the likelihood of site contamination resulting from previous uses of the site. This appraisal was limited to visual inspection of ground level conditions and a review of anecdotal and historical information that was available from local and state government authorities. It is assumed that this information was accurate and complete. Sampling and laboratory analysis of site materials were not conducted as part of this assessment. Although this methodology is consistent with current industry practice for such appraisal assessments, no warranty or guarantee of site conditions is given or intended.

This report has been prepared by Environmental Investigations for the sole use of Matthews Civil. No responsibility is accepted for the use of any part of this report in any other context or for any other purpose or by other third parties. This report does not purport to provide legal advice.

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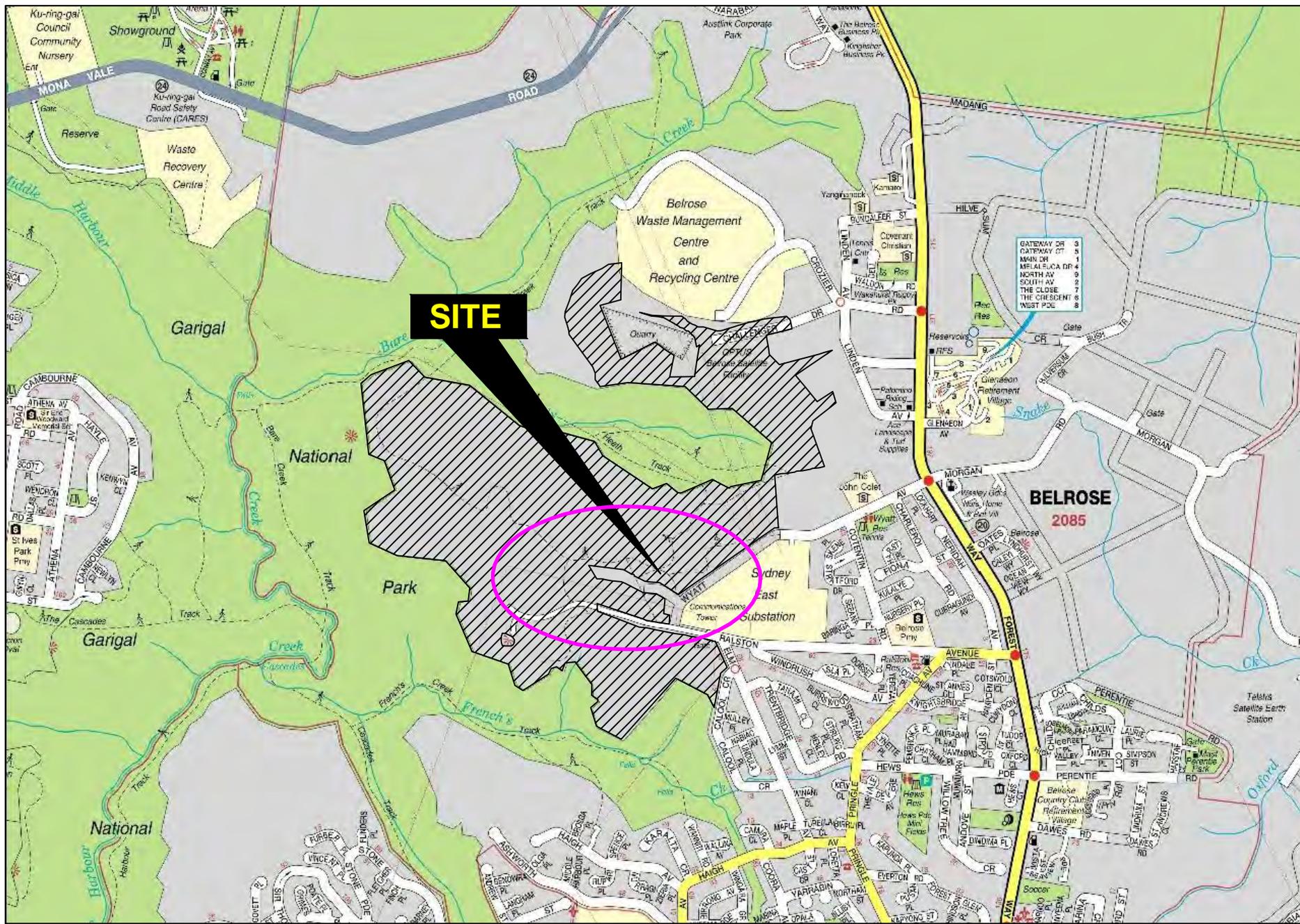
REFERENCES

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ABBREVIATIONS

| | |
|---------|--|
| AAS | Atomic Absorption Spectrometry |
| AHD | Australian Height Datum |
| AST | Aboveground Storage Tank |
| ANZECC | Australian and New Zealand Environment Conservation Council |
| B(a)P | Benzo(a)Pyrene |
| BGL | Below Ground Level |
| BH | Borehole |
| BTEX | Benzene, Toluene, Ethyl benzene, Xylene |
| COC | Chemical of Concern |
| DEC | Department of Environment and Conservation, NSW |
| DECC | Department of Environment and Climate Change, NSW (formerly DEC) |
| DECCW | Department of Environment, Climate Change and Water, NSW (formerly DECC) |
| DP | Deposited Plan |
| DQO | Data Quality Objective |
| EI | Environmental Investigations |
| EIL | Ecological Investigation Level |
| EPA NSW | Environment Protection Authority, New South Wales |
| ESA | Environmental Site Assessment |
| GC-ECD | Gas Chromatograph-Electron Capture Detector |
| GC-FID | Gas Chromatograph-Flame Ionisation Detector |
| GC-MS | Gas Chromatograph-Mass Spectrometer |
| HIL | Health Based Investigation Level |
| ICP-AES | Inductively Couple Plasma – Atomic Emission Spectra |
| NATA | National Association of Testing Authorities, Australia |
| NEPC | National Environmental Protection Council |
| NHMRC | National Health and Medical Research Council |
| OCPs | Organochlorine Pesticides |
| OEH | Office of Environment and Heritage, NSW (formerly DECCW) |
| PAHs | Polycyclic Aromatic Hydrocarbons |
| PCBs | Polychlorinated Biphenyls |
| PID | Photoionisation Detector |
| PQL | Practical Quantitation Limit |
| P&T | Purge & Trap |
| QC | Quality Control |
| RAC | Remediation Acceptance Criteria |
| RAP | Remediation Action Plan |
| RPD | Relative Percentage Difference |
| SILs | Soil Investigation Levels |
| SWL | Standing Water Test |
| TP | Test Pit |
| TPHs | Total Petroleum Hydrocarbons |
| USEPA | United States Environmental Protection Agency |
| UST | Underground Storage Tank |
| VOC | Volatile Organic Compound |
| UCL | Upper Confidence Limit |

FIGURES



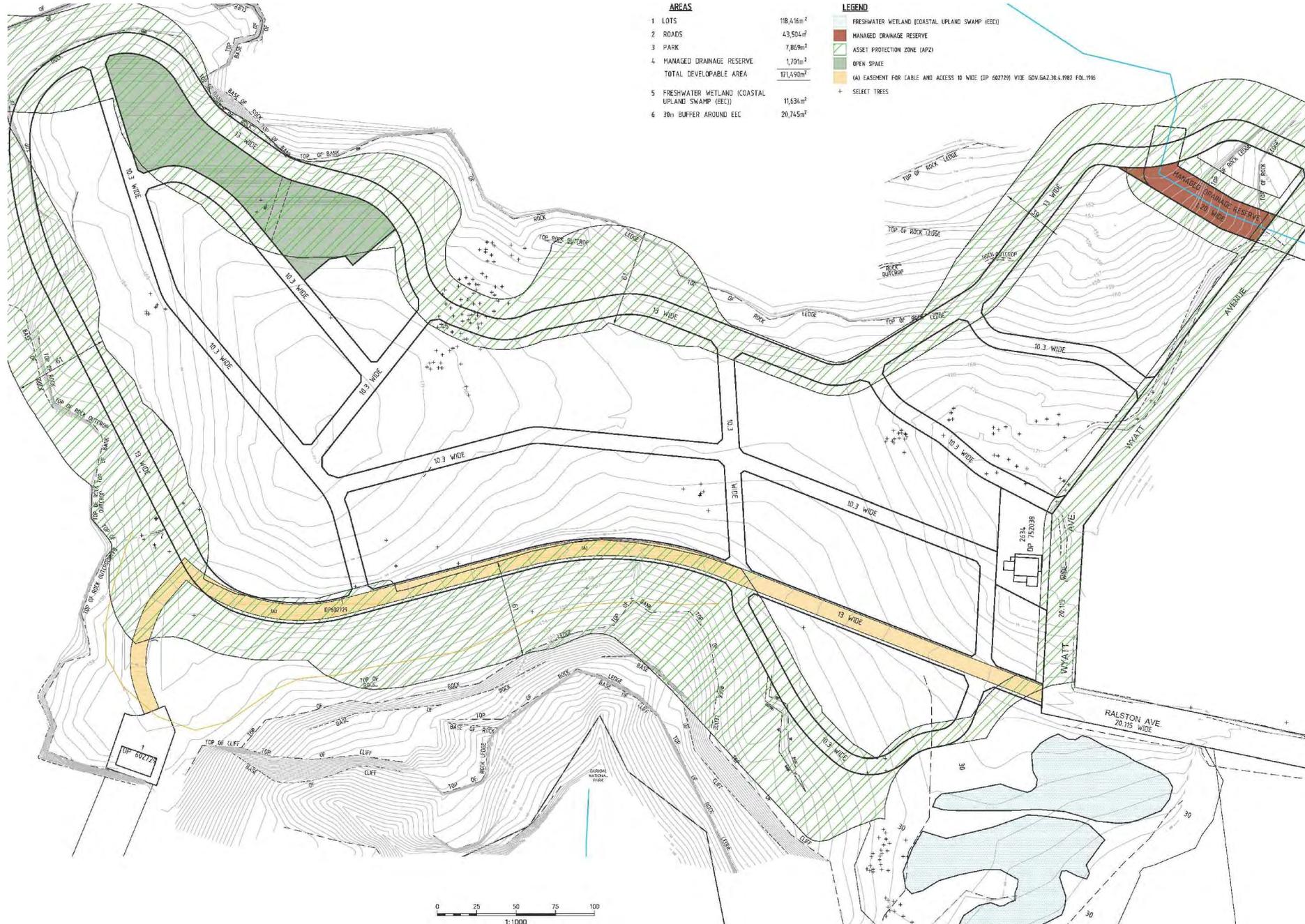
| | |
|---------------|----------|
| Drawn: | A.B. |
| Approved: | E.G. |
| Date: | 02-08-12 |
| Approx Scale: | N.T.S |

Matthews Civil Pty Ltd
 Stage 1 Environmental Site Assessment
 Lot 1 DP 1139826
 "Ralston Avenue Site", Belrose NSW
 Site Location Plan

Figure:

1

Project:
 AB E1669.1

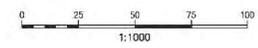


AREAS

| | |
|---|-----------------------|
| 1 LOTS | 118,416m ² |
| 2 ROADS | 43,504m ² |
| 3 PARK | 7,869m ² |
| 4 MANAGED DRAINAGE RESERVE | 1,701m ² |
| TOTAL DEVELOPABLE AREA | 171,490m ² |
| 5 FRESHWATER WETLAND (COASTAL UPLAND SWAMP (ECC)) | 11,634m ² |
| 6 30m BUFFER AROUND ECC | 20,745m ² |

LEGEND

- FRESHWATER WETLAND (COASTAL UPLAND SWAMP (ECC))
- MANAGED DRAINAGE RESERVE
- ASSET PROTECTION ZONE (APZ)
- OPEN SPACE
- (A) EASEMENT FOR CABLE AND ACCESS 10 WIDE (DP 602729) VIDE GOV.GAZ.36.4.1982 FOL.1916
- SELECT TREES



P O Box 215, ST PETERS 2044
 Ph (02) 9516 0722 Fax (02) 9516 0741

| | |
|---------------|----------|
| Drawn: | L.L.T.S. |
| Approved: | |
| Date: | 14-11-12 |
| Approx Scale: | as shown |

Matthews Civil Pty Ltd
 Stage 1 Environmental Site Assessment
 Ralston Ave. Site, Belrose NSW
 Draft Concept Plan

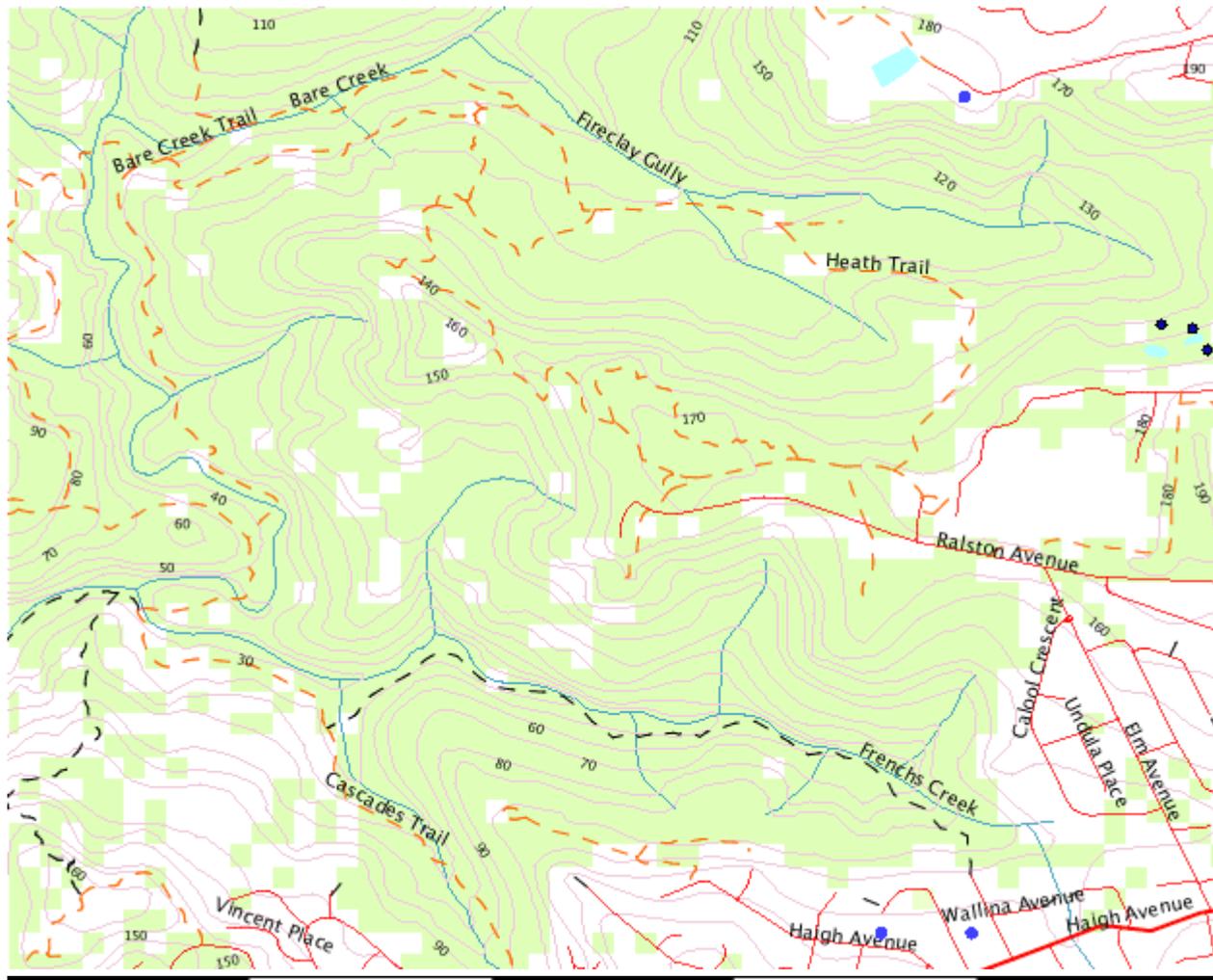
| | |
|----------|------------|
| Figure: | 2 |
| Project: | AB E1669.1 |

APPENDIX A

NSW NATURAL RESOURCE ATLAS SEARCH SUMMARY

E1669.1 - NR Atlas

Map created with NSW Natural Resource Atlas - <http://nratlas.nsw.gov.au>
 Thursday, August 23, 2012



0 2 Km

Legend

| Symbol | Layer | Custodian |
|--------|---|---|
| | Cities and large towns | renderImage: Cannot build image from features |
| | Populated places | renderImage: Cannot build image from features |
| | Towns | |
| | Groundwater Bores | |
| | Catchment Management Authority boundaries | |
| | Major rivers | |
| | Primary/arterial road | |
| | Motorway/freeway | |
| | Railway | |
| | Runway | |
| | Contour | |
| | Background | |
| | Topographic base map | |

Copyright © 2012 New South Wales Government. Map has been compiled from various sources and may contain errors or omissions. No representation is made as to its accuracy or suitability.

Groundwater Works Summary

For information on the meaning of fields please see [Glossary](#)
Document Generated on Thursday, August 23, 2012

Print Report

[Works Details](#) [Site Details](#) [Form A](#) [Licensed](#) [Construction](#) [Water Bearing Zones](#) [Drillers Log](#)

Work Requested -- GW014050

Works Details [\(top\)](#)

GROUNDWATER NUMBER GW014050
LIC-NUM 10WA108078
AUTHORISED-PURPOSES DOMESTIC FARMING STOCK
INTENDED-PURPOSES DOMESTIC STOCK
WORK-TYPE Bore open thru rock
WORK-STATUS (Unknown)
CONSTRUCTION-METHOD Cable Tool
OWNER-TYPE Private
COMMENCE-DATE
COMPLETION-DATE 1958-03-01
FINAL-DEPTH (metres) 30.40
DRILLED-DEPTH (metres) 30.50
CONTRACTOR-NAME
DRILLER-NAME
PROPERTY N/A
GWMA 603 - SYDNEY BASIN
GW-ZONE -
STANDING-WATER-LEVEL
SALINITY
YIELD

Site Details [\(top\)](#)

REGION 10 - SYDNEY SOUTH COAST
RIVER-BASIN 213 - SYDNEY COAST - GEORGES RIVER
AREA-DISTRICT
CMA-MAP
GRID-ZONE
SCALE
ELEVATION
ELEVATION-SOURCE (Unknown)
NORTHING 6265707.00
EASTING 333692.00
LATITUDE 33 44' 8"
LONGITUDE 151 12' 17"
GS-MAP 0055A3
AMG-ZONE 56
COORD-SOURCE GD.,PR. MAP
REMARK

Form-A [\(top\)](#)

COUNTY CUMBERLAND
PARISH MANLY COVE
PORTION-LOT-DP 2175

Licensed [\(top\)](#)

COUNTY CUMBERLAND
PARISH MANLY COVE
PORTION-LOT-DP 2175

Construction [\(top\)](#)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

| HOLE-NO | PIPE-NO | COMPONENT-CODE | COMPONENT-TYPE | DEPTH-FROM (metres) | DEPTH-TO (metres) | OD (mm) | ID (mm) | INTERVAL | DETAIL |
|---------|---------|----------------|-----------------|------------------------|----------------------|------------|------------|----------|---------------------|
| 1 | 1 | Casing | Asbestos Cement | -0.10 | 1.70 | 152 | | | Driven into Hole |

Water Bearing Zones [\(top\)](#)

| FROM-DEPTH (metres) | TO-DEPTH (metres) | THICKNESS (metres) | ROCK-CAT-DESC | S-W-L | D-D-L | YIELD | TEST-HOLE-DEPTH (metres) | DURATION | SALINITY |
|------------------------|----------------------|-----------------------|---------------|-------|-------|-------|-----------------------------|----------|-----------|
| 15.20 | 15.20 | 0.00 | Consolidated | | | 0.01 | | | (Unknown) |
| 27.40 | 27.40 | 0.00 | Consolidated | | | 0.01 | | | (Unknown) |

Drillers Log [\(top\)](#)

| FROM | TO | THICKNESS | DESC | GEO-MATERIAL | COMMENT |
|------|-------|-----------|-----------|--------------------|---------|
| 0.00 | 0.60 | 0.60 | Soil | | |
| 0.60 | 30.48 | 29.88 | Sandstone | White Water Supply | |

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Groundwater Works Summary

For information on the meaning of fields please see [Glossary](#)
Document Generated on Thursday, August 23, 2012

Print Report

[Works Details](#) [Site Details](#) [Form A](#) [Licensed](#) [Construction](#) [Water Bearing Zones](#) [Drillers Log](#)

Work Requested -- GW014474

Works Details [\(top\)](#)

GROUNDWATER NUMBER GW014474
LIC-NUM 10WA108079
AUTHORISED-PURPOSES FARMING STOCK
INTENDED-PURPOSES GENERAL USE
WORK-TYPE Bore open thru rock
WORK-STATUS (Unknown)
CONSTRUCTION-METHOD Cable Tool
OWNER-TYPE Private
COMMENCE-DATE
COMPLETION-DATE 1958-01-01
FINAL-DEPTH (metres) 17.90
DRILLED-DEPTH (metres) 18.00
CONTRACTOR-NAME
DRILLER-NAME
PROPERTY N/A
GWMA 603 - SYDNEY BASIN
GW-ZONE -
STANDING-WATER-LEVEL
SALINITY
YIELD

Site Details [\(top\)](#)

REGION 10 - SYDNEY SOUTH COAST
RIVER-BASIN 213 - SYDNEY COAST - GEORGES RIVER
AREA-DISTRICT
CMA-MAP
GRID-ZONE
SCALE
ELEVATION
ELEVATION-SOURCE (Unknown)
NORTHING 6265711.00
EASTING 333872.00
LATITUDE 33 44' 8"
LONGITUDE 151 12' 24"
GS-MAP 0055A3
AMG-ZONE 56
COORD-SOURCE GD.,PR. MAP
REMARK

Form-A [\(top\)](#)

COUNTY CUMBERLAND
PARISH MANLY COVE
PORTION-LOT-DP 1988

Licensed [\(top\)](#)

COUNTY CUMBERLAND
PARISH MANLY COVE
PORTION-LOT-DP 1988

Construction [\(top\)](#)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

| HOLE-NO | PIPE-NO | COMPONENT-CODE | COMPONENT-TYPE | DEPTH-FROM (metres) | DEPTH-TO (metres) | OD (mm) | ID (mm) | INTERVAL | DETAIL |
|---------|---------|----------------|-----------------|------------------------|----------------------|------------|------------|----------|----------|
| 1 | 1 | Casing | Asbestos Cement | 0.00 | 1.80 | 152 | | | Cemented |

Water Bearing Zones [\(top\)](#)

| FROM-DEPTH (metres) | TO-DEPTH (metres) | THICKNESS (metres) | ROCK-CAT-DESC | S-W-L | D-D-L | YIELD | TEST-HOLE-DEPTH (metres) | DURATION | SALINITY |
|------------------------|----------------------|-----------------------|---------------|-------|-------|-------|-----------------------------|----------|-----------|
| 9.10 | 9.10 | 0.00 | Consolidated | 3.60 | | 0.09 | | | (Unknown) |

Drillers Log [\(top\)](#)

| FROM | TO | THICKNESS | DESC | GEO-MATERIAL | COMMENT |
|------|-------|-----------|-----------|--------------|---------|
| 0.00 | 0.60 | 0.60 | Soil | | |
| 0.60 | 17.98 | 17.38 | Sandstone | Water Supply | |

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Groundwater Works Summary

For information on the meaning of fields please see [Glossary](#)
Document Generated on Thursday, August 23, 2012

[Print Report](#)

[Works Details](#) [Site Details](#) [Form A](#) [Licensed](#) [Construction](#) [Water Bearing Zones](#) [Drillers Log](#)

Work Requested -- GW105329

Works Details [\(top\)](#)

GROUNDWATER NUMBER GW105329
LIC-NUM 10WA109421
AUTHORISED-PURPOSES INDUSTRIAL - SAND & GRAVEL
INTENDED-PURPOSES INDUSTRIAL - SAND & GRAVEL
WORK-TYPE Bore
WORK-STATUS
CONSTRUCTION-METHOD Rotary
OWNER-TYPE
COMMENCE-DATE
COMPLETION-DATE 2004-08-12
FINAL-DEPTH (metres) 202.00
DRILLED-DEPTH (metres) 202.00
CONTRACTOR-NAME
DRILLER-NAME
PROPERTY WARRINGAH GRAVEL & STONE
GWMA -
GW-ZONE -
STANDING-WATER-LEVEL 74.00
SALINITY
YIELD 25.00

Site Details [\(top\)](#)

REGION 10 - SYDNEY SOUTH COAST
RIVER-BASIN
AREA-DISTRICT
CMA-MAP
GRID-ZONE
SCALE
ELEVATION
ELEVATION-SOURCE
NORTHING 6267715.00
EASTING 333822.00
LATITUDE 33 43' 3"
LONGITUDE 151 12' 24"
GS-MAP
AMG-ZONE 56
COORD-SOURCE
REMARK

Form-A [\(top\)](#)

COUNTY CUMBERLAND
PARISH MANLY COVE
PORTION-LOT-DP 2822 727090

Licensed [\(top\)](#)

COUNTY CUMBERLAND
PARISH MANLY COVE
PORTION-LOT-DP 2822 727090

Construction [\(top\)](#)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

| HOLE-NO | PIPE-NO | COMPONENT-CODE | COMPONENT-TYPE | DEPTH-FROM (metres) | DEPTH-TO (metres) | OD (mm) | ID (mm) | INTERVAL | DETAIL |
|---------|---------|----------------|------------------|------------------------|----------------------|------------|------------|----------|---------------------------------|
| 1 | | Hole | Hole | 0.00 | 202.00 | 165 | | | Rotary Air |
| 1 | 1 | Casing | Galvinised Steel | 0.00 | 3.00 | 160 | | | C: 0-3m; Driven into Hole |

Water Bearing Zones [\(top\)](#)

| FROM-DEPTH (metres) | TO-DEPTH (metres) | THICKNESS (metres) | ROCK-CAT-DESC | S-W-L | D-D-L | YIELD | TEST-HOLE-DEPTH (metres) | DURATION | SALINITY |
|------------------------|----------------------|-----------------------|---------------|-------|--------|-------|-----------------------------|----------|----------|
| 184.00 | 185.00 | 1.00 | | 74.00 | 200.00 | 25.00 | 202.00 | 3.00 | |

Drillers Log [\(top\)](#)

| FROM | TO | THICKNESS | DESC | GEO-MATERIAL | COMMENT |
|-------|--------|-----------|---------------------|--------------|---------|
| 0.00 | 32.50 | 32.50 | SANDSTONE/IRONSTONE | | |
| 32.50 | 202.00 | 169.50 | SANDSTONE | | |

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APPENDIX B

LAND TITLES SEARCH

Prior Title

Provides prior title details for computerised titles only.

Title Reference: **1/1139826**

Prior Title(s):

7027/1108760

CROWN LAND

Client Reference:

Date of Service: 07-Aug-2012 08:30:53

Prior Title

Provides prior title details for computerised titles only.

Title Reference: **7027/1108760**

Prior Title(s):

CROWN LAND

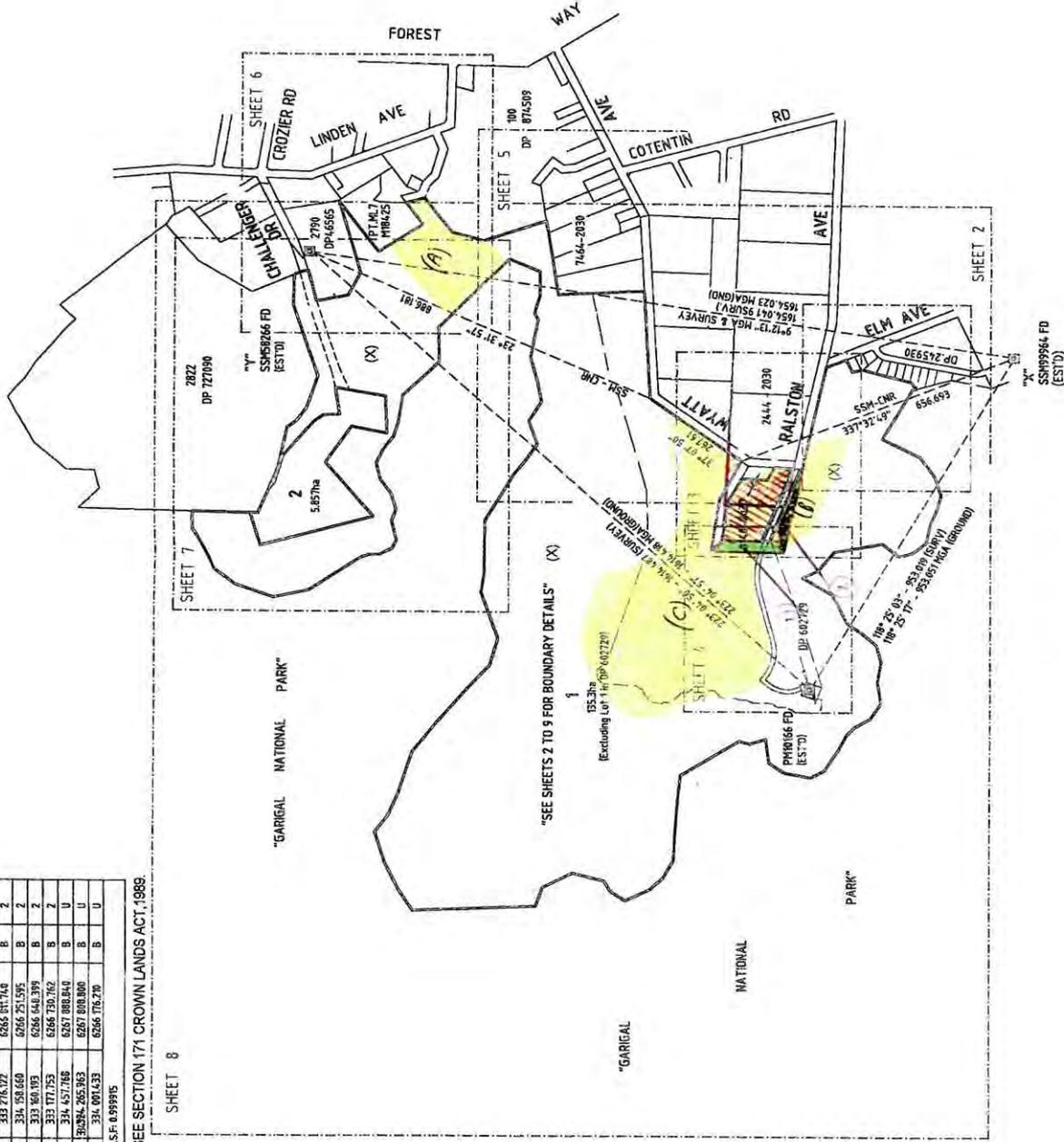
Client Reference:

Date of Service: 07-Aug-2012 08:31:29

| MARK | HEIGHT | CLASS | ORDER | MGA CO-ORDINATES | | CLASS | ORDER |
|----------|---------|-------|-------|------------------|--------------|-------|-------|
| | | | | EASTING | NORTHING | | |
| PHW066 | 162 | U | U | 333 963.374 | 6266 629.779 | B | Z |
| PH52759 | 178 | U | U | 333 093.056 | 6266 702.864 | B | 2 |
| PH52760 | 179 | U | U | 333 276.072 | 6266 611.740 | B | 2 |
| SSM90064 | 141.065 | LC | L3 | 334 958.660 | 6266 251.595 | B | 2 |
| SSM90064 | 142 | U | U | 333 160.959 | 6266 440.399 | B | 2 |
| SSM90065 | 164 | U | U | 333 177.253 | 6266 730.762 | B | 2 |
| SSM92605 | 182 | U | U | 334 457.768 | 6267 888.840 | B | U |
| SSM92606 | 181 | U | U | 334 265.963 | 6267 808.800 | B | U |
| SSM99044 | 130.311 | LC | L3 | 334 001.433 | 6266 176.270 | B | U |

SOURCE: S.C.M.S. ON 26-6-2007 CSF: 0399995
 (X) LAND EXCLUDES MINERALS - SEE SECTION 171 CROWN LANDS ACT, 1989.

SHEET 8



Registered:
 23.7.2009
 DP1139826 P

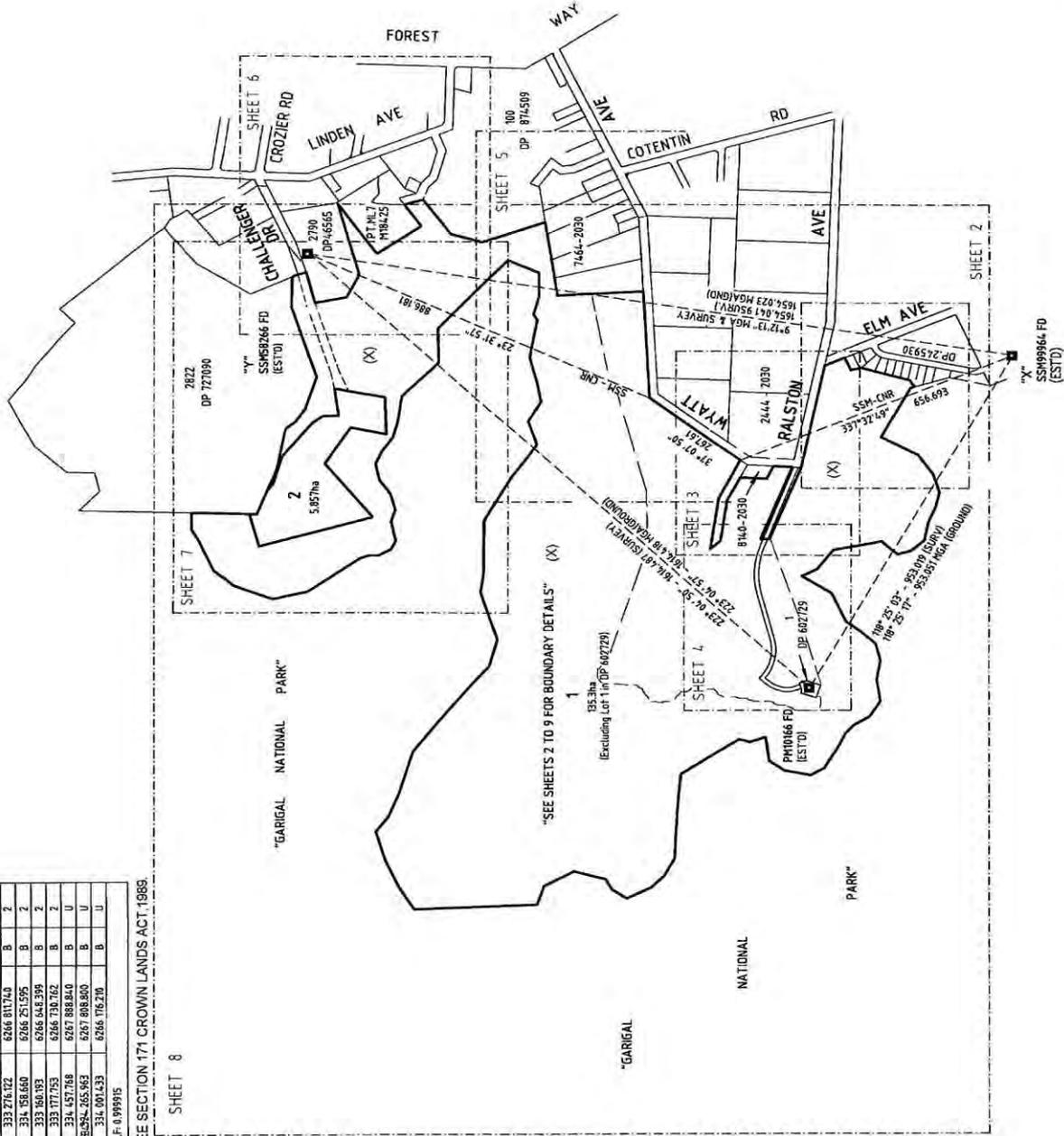
LGA: WARRINGAH
 Locality: BELROSE
 Subdivision No:
 Lengths are in metres. Reduction Ratio 1:7500

PLAN OF CROWN LAND INCLUDING
 LOT 7027 DP 1108760
 CREATING LOTS 1 AND 2 FOR FIRST TITLE ISSUE

Surveyor: JACEK IZIKOWSKI
 Date of Survey: 30-9-2007
 Surveyor's Ref: 30401 DP

| MARK | HEIGHT | CLASS | ORDER | M.G.A. CO-ORDINATES | | | CLASS | ORDER |
|---------|---------|-------|-------|---------------------|--------------|---|-------|-------|
| | | | | EASTING | NORTHING | | | |
| PM10166 | 162 | U | U | 333 163.324 | 6266 629.779 | B | 2 | |
| PM2753 | 178 | U | U | 333 803.956 | 6266 782.804 | B | 2 | |
| PM2760 | 173 | U | U | 333 276.122 | 6266 811.740 | B | 2 | |
| SSM9084 | 143.065 | U | L3 | 334 158.660 | 6266 751.595 | B | 2 | |
| SSM9064 | 162 | U | U | 333 860.983 | 6266 648.998 | B | 2 | |
| SSM9065 | 164 | U | U | 333 177.753 | 6266 730.762 | B | 2 | |
| SSM9066 | 182 | U | U | 334 157.768 | 6267 888.810 | B | U | |
| SSM9068 | 182 | U | U | 334 262.265.953 | 6267 888.810 | B | U | |
| SSM9984 | 130.371 | U | L3 | 334 007.433 | 6268 176.270 | B | U | |

SOURCE: S.C.I.M.S. ON 26-6-2007 C.S.F. 0 99995
 (X) LAND EXCLUDES MINERALS - SEE SECTION 171 CROWN LANDS ACT, 1988.



SHEET 8

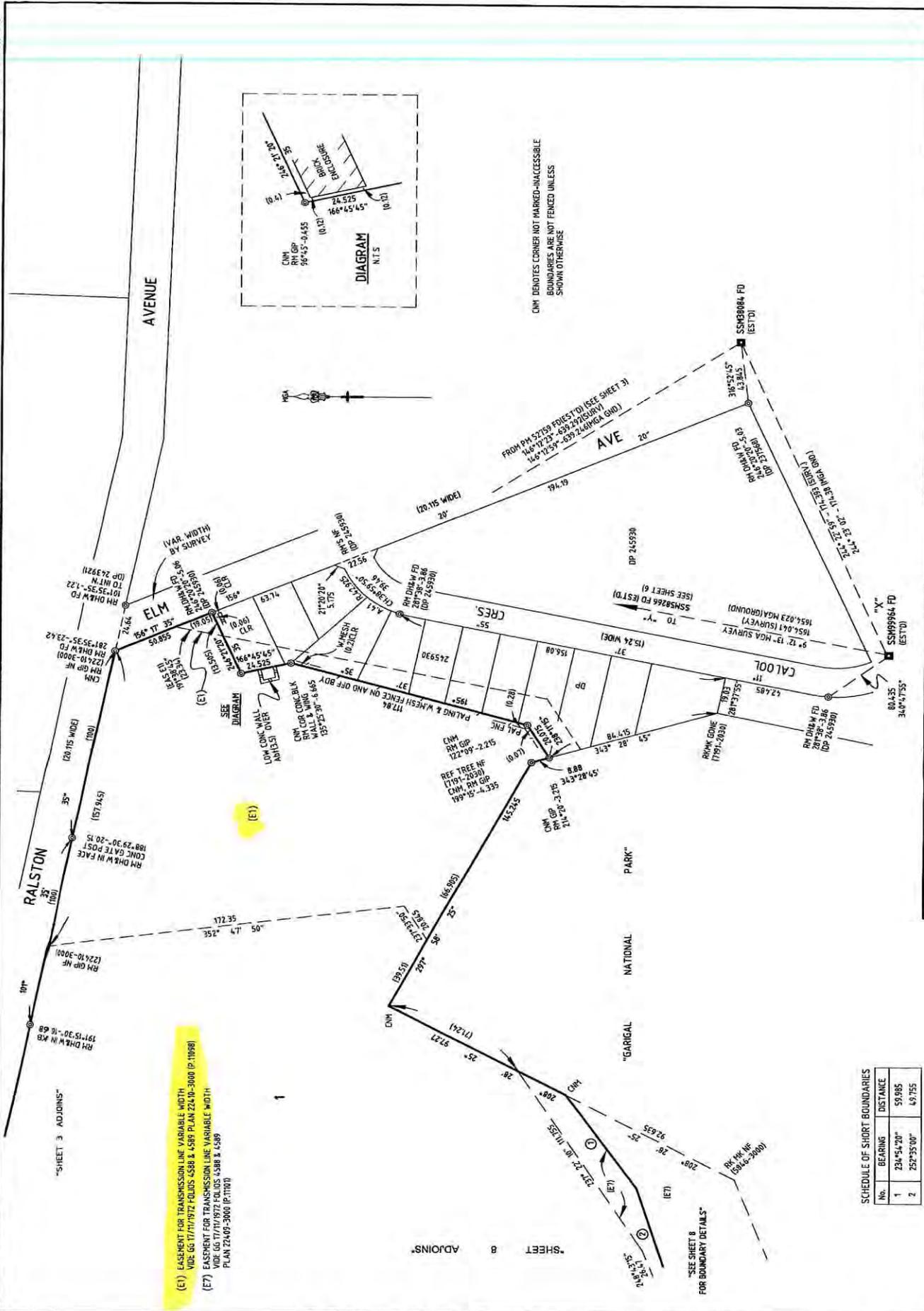
Surveyor: JACEK IDZIKOWSKI
 Date of Survey: 30-9-2007
 Surveyor's Ref: 30401 DP

PLAN OF CROWN LAND INCLUDING
 LOT 7027 DP 1108760
 CREATING LOTS 1 AND 2 FOR FIRST TITLE ISSUE

LGA: WARRINGAH
 Locality: BELROSE
 Subdivision No: _____
 Lengths are in metres. Reduction Ratio 1:7500

Registered:
 23.7.2009

DP1139826 P



(E1) EASEMENT FOR TRANSMISSION LINE VARIABLE WIDTH
 VIDE GG 17/17/1972 FOLIOS 4388 & 4389 PLAN 22449-3000 (P.11058)
 (E7) EASEMENT FOR TRANSMISSION LINE VARIABLE WIDTH
 VIDE GG 17/17/1972 FOLIOS 4388 & 4389
 PLAN 22449-3000 (P.11071)

SCHEDULE OF SHORT BOUNDARIES

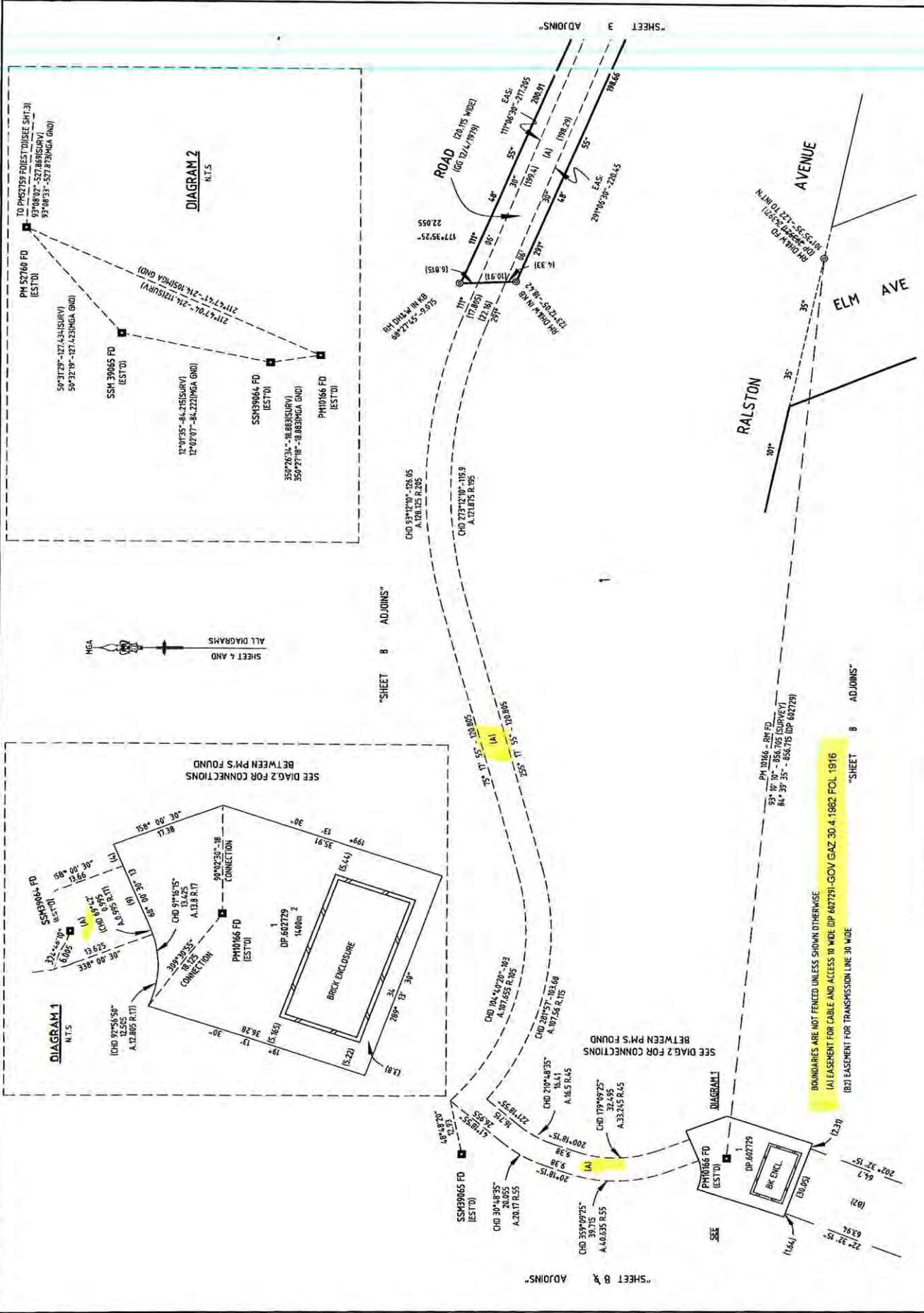
| No. | BEARING | DISTANCE |
|-----|--------------|----------|
| 1 | 234° 54' 20" | 59.985 |
| 2 | 252° 35' 00" | 49.755 |

Surveyor: JACEK IDZIKOWSKI
 Date of Survey: 30-9-2007
 Surveyor's Ref: 30401 DP

PLAN OF CROWN LAND INCLUDING
 LOT 7027 DP 1108760
 CREATING LOTS 1 AND 2 FOR FIRST TITLE ISSUE

LGA: WARRINGAH
 Locality: BELROSE
 Subdivision No: _____
 Lengths are in metres. Reduction Ratio 1:1200

Registered:
 23.7.2009
 DP1139826



ALL DIAGRAMS
SHEET 4 AND
MEGA

DIAGRAM 2
N.T.S.

DIAGRAM 1
N.T.S.

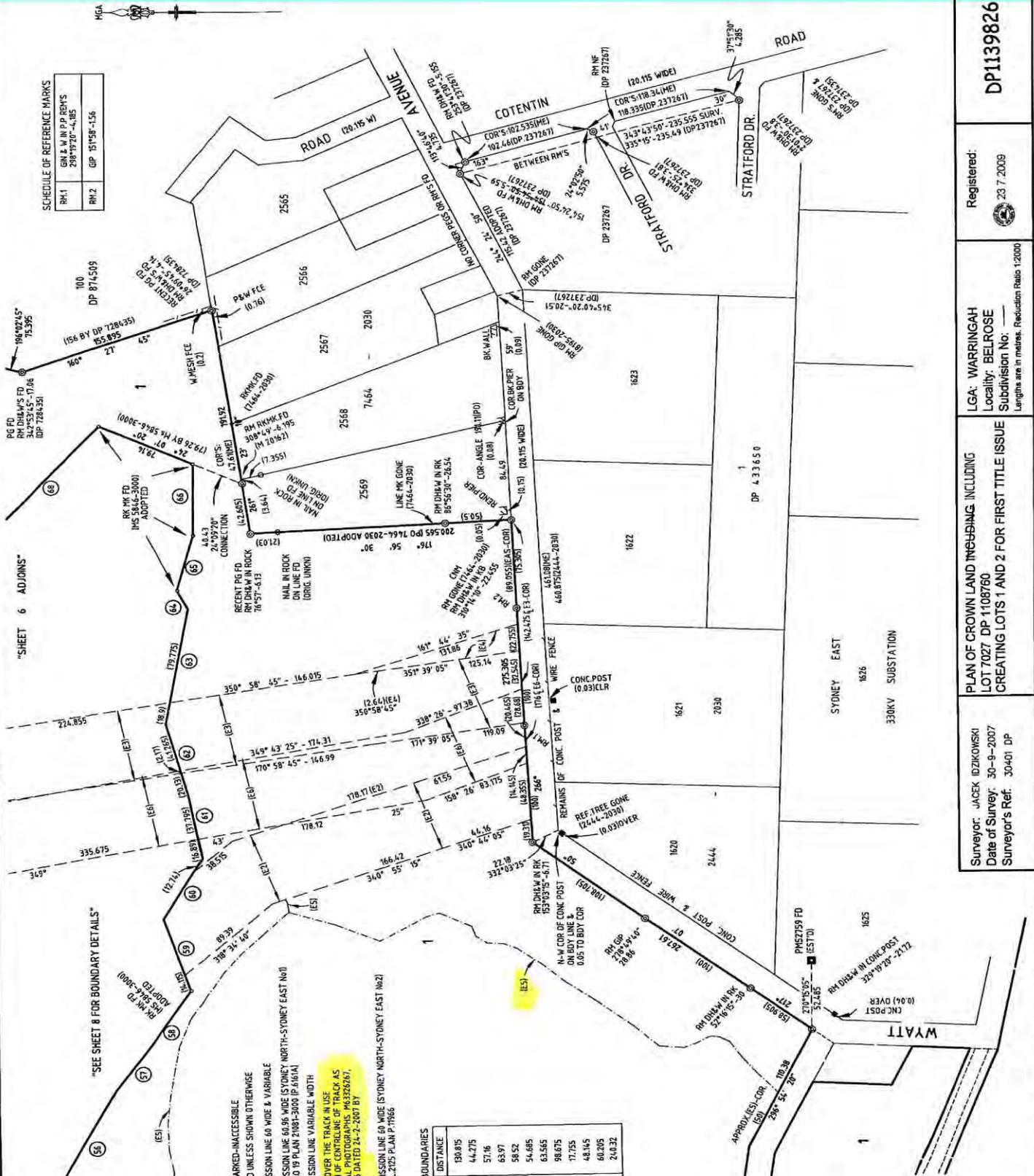
| | | | |
|---|---|------------------------------|-----------|
| Surveyor: JACEK IDZIKOWSKI Date of Survey: 30-9-2007 Surveyor's Ref: 30401 DP | PLAN OF CROWN LAND INCLUDING LOT 7027 IN DP 1108760 CREATING LOTS 1 AND 2 FOR FIRST TITLE ISSUE | Registered: 23.7.2009 | DP1139826 |
|---|---|------------------------------|-----------|

BOUNDARIES ARE NOT FENCED UNLESS SHOWN OTHERWISE
 (A) EASEMENT FOR CABLE AND ACCESS 10 WIDE (DP 602729)-GOV GAZ.30.4.1882.FOL.1916
 (B2) EASEMENT FOR TRANSMISSION LINE 30 WIDE

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

PLAN FORM 1 (A2)



SCHEDULE OF REFERENCE MARKS

| | |
|-----|--|
| RM1 | GN & W IN PP REM'S 288°19'20"-4.185 |
| RM2 | OP 15158-156 |



CNN DEMOTES CORNER NOT MARKED-INACCESSIBLE
 BOUNDARIES ARE NOT FENCED UNLESS SHOWN OTHERWISE
 (E2) EASEMENT FOR TRANSMISSION LINE 60 WIDE & VARIABLE
 (E3) EASEMENT FOR TRANSMISSION LINE 60.96 WIDE SYDNEY NORTH-SYDNEY EAST No.1
 (E4) EASEMENT FOR TRANSMISSION LINE VARIABLE WIDTH
 (E5) EASEMENT FOR ACCESS OVER THE TRACK IN USE
 (APPROXIMATE POSITION OF CONTROL LINE ON 26.4 AS
 INDICATED IN M3346266 DATED 24-2-2007 BY
 SINGLAR KNIGHT MERZ)
 (E6) EASEMENT FOR TRANSMISSION LINE 60 WIDE (SYDNEY NORTH-SYDNEY EAST No.2)
 (E7) EASEMENT FOR TRANSMISSION LINE 60 WIDE (SYDNEY NORTH-SYDNEY EAST No.2)
 (E8) EASEMENT FOR TRANSMISSION LINE 60 WIDE (SYDNEY NORTH-SYDNEY EAST No.2)

SCHEDULE OF SHORT DISTANCES

| No. | BEARING | DISTANCE |
|-----|------------|----------|
| 56 | 119°07'35" | 130.815 |
| 57 | 126°52'25" | 44.275 |
| 58 | 124°23'00" | 57.16 |
| 59 | 77°08'35" | 63.97 |
| 60 | 120°49'30" | 58.52 |
| 61 | 79°39'00" | 54.685 |
| 62 | 74°24'00" | 63.655 |
| 63 | 100°29'00" | 98.675 |
| 64 | 67°09'00" | 17.755 |
| 65 | 05°05'25" | 48.145 |
| 66 | 90°06'00" | 60.205 |
| 68 | 307°54'20" | 240.32 |

Registered: 23 7 2009

LGA: WARRINGAH
 Locality: BELROSE
 Subdivision No: —
 Lengths are in metres. Reduction Ratio 1:2000

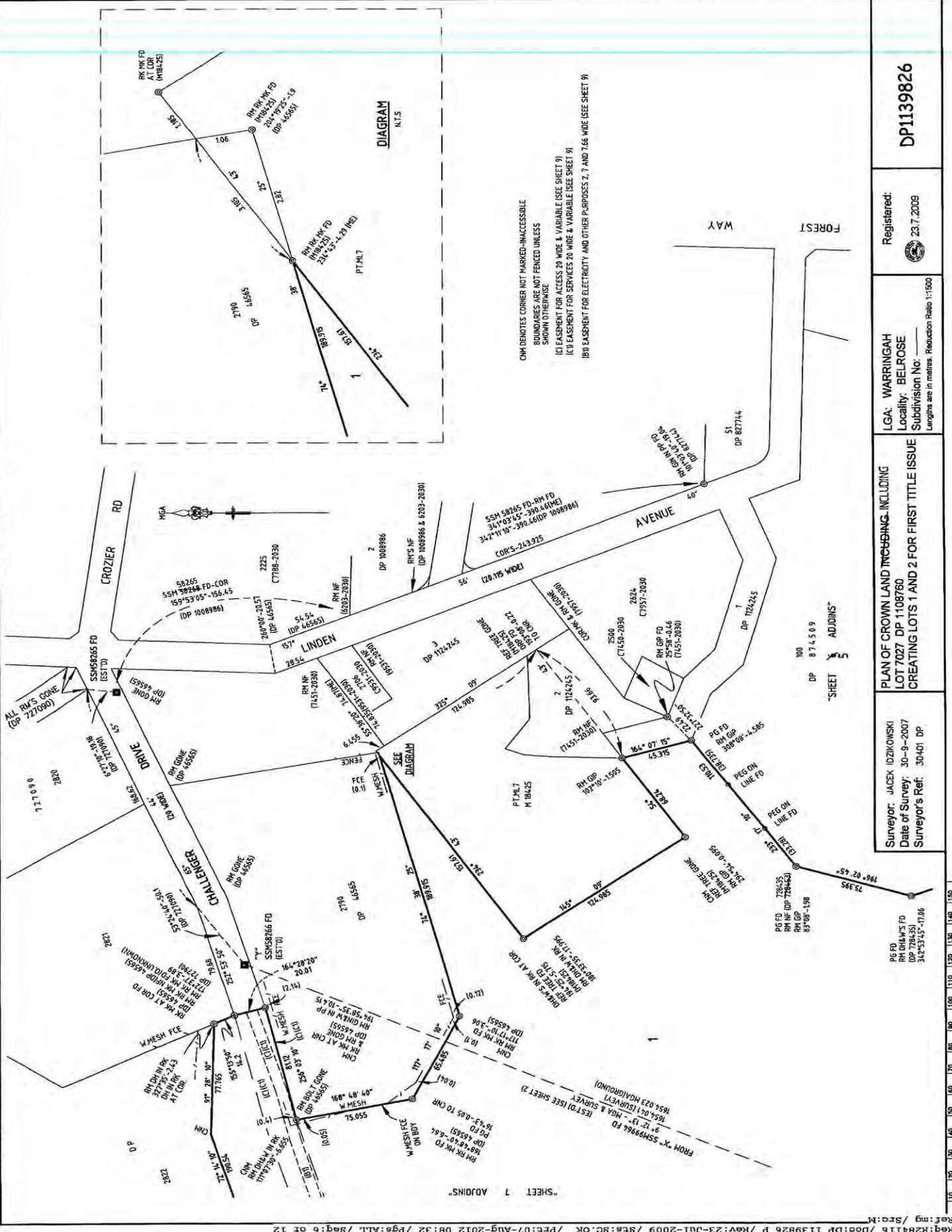
PLAN OF CROWN LAND INCLUDING
 LOT 7027 DP 1108760
 CREATING LOTS 1 AND 2 FOR FIRST TITLE ISSUE

Surveyor: JACEK DZIKOWSKI
 Date of Survey: 30-9-2007
 Surveyor's Ref: 30401 DP

DP1139826

10 110 120 130 140 150

Ref:mg /Src:M
 Reg:R28116 /Doc:DP 1139826 P /Rev:23-Jul-2009 /Sta:SC OK /Prt:07-Aug-2012 08:32 /Pg:ALL /Seg:5 of 12



CNM DENOTES CORNER NOT MARKED-INACCESSIBLE
 BOUNDARIES ARE NOT FENCED UNLESS SHOWN OTHERWISE
 (C) EASEMENT FOR ACCESS 20 WIDE & VARIABLE (SEE SHEET 9)
 (C1) EASEMENT FOR SERVICES 20 WIDE & VARIABLE (SEE SHEET 9)
 (B) EASEMENT FOR ELECTRICITY AND OTHER PURPOSES 2, 7 AND 7.66 WIDE (SEE SHEET 9)

Surveyor: JACEK IODZKOWSKI
 Date of Survey: 30-9-2007
 Surveyor's Ref: 30401 DP

PLAN OF CROWN LAND INCUBATING INCLUDING
 LOT 7027 DP 1108760
 CREATING LOTS 1 AND 2 FOR FIRST TITLE ISSUE

LGA: WARRINGAH
 Locality: BELFLORE
 Subdivision No: _____
 Lengths are in metres. Reduction Ratio 1:1500

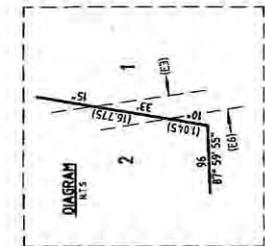
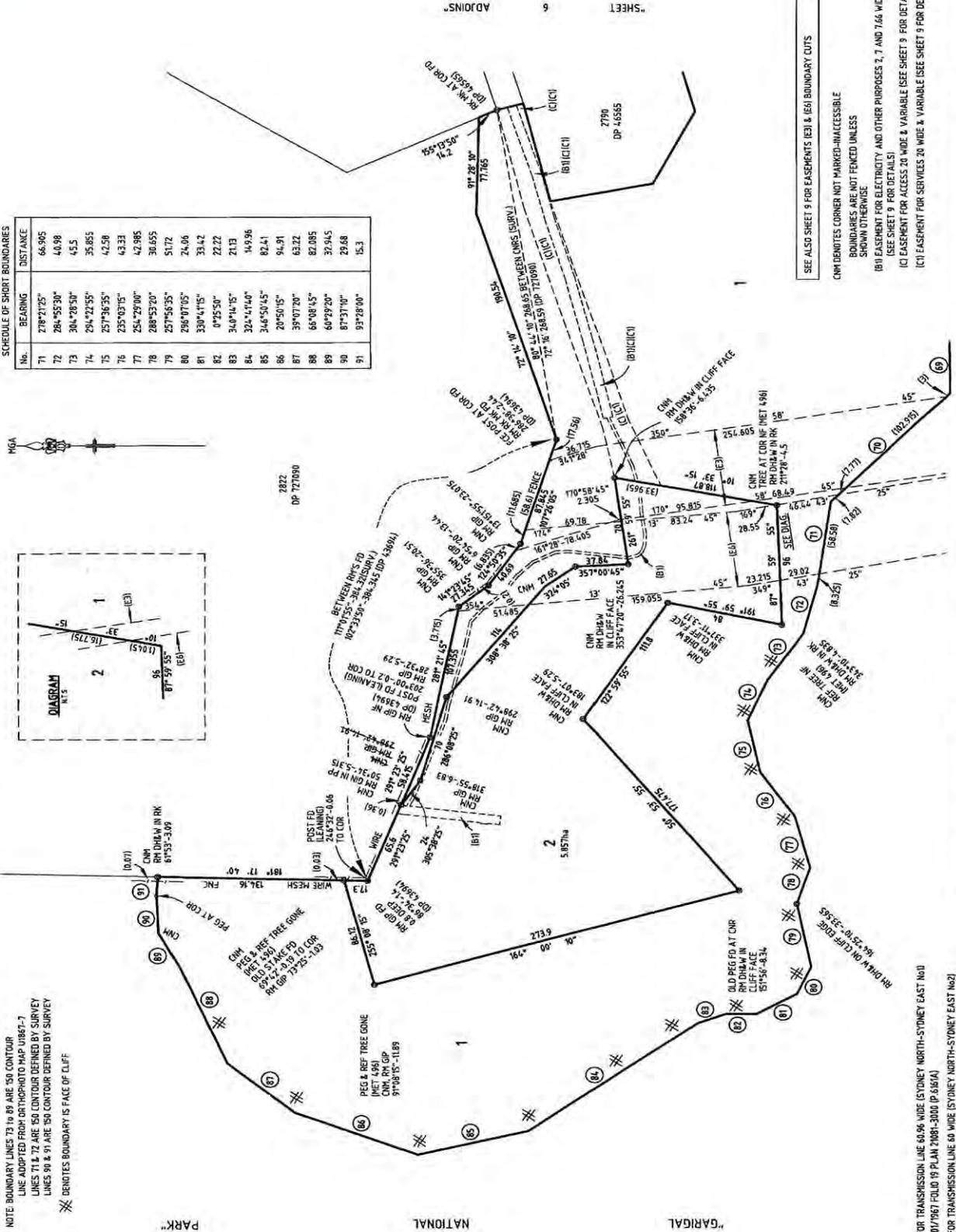
Registered:

 23.7.2009

DP1139826

NOTE: BOUNDARY LINES 73 TO 89 ARE 150m CONTOUR LINE ADAPTED FROM ORTHOPHOTO MAP U0867-7
 LINES 71 & 72 ARE 150m CONTOUR DEFINED BY SURVEY
 LINES 90 & 91 ARE 150m CONTOUR DEFINED BY SURVEY
 ✕ DENOTES BOUNDARY IS FACE OF CLIFF

| No. | BEARING | DISTANCE |
|-----|------------|----------|
| 71 | 718°21'25" | 66.905 |
| 72 | 264°55'30" | 40.98 |
| 73 | 304°28'50" | 45.5 |
| 74 | 294°22'55" | 35.855 |
| 75 | 257°36'35" | 42.58 |
| 76 | 235°03'15" | 43.33 |
| 77 | 254°29'00" | 42.985 |
| 78 | 288°53'20" | 30.655 |
| 79 | 257°56'35" | 51.72 |
| 80 | 296°07'05" | 24.06 |
| 81 | 0°25'50" | 33.42 |
| 82 | 0°25'50" | 22.22 |
| 83 | 340°14'15" | 21.13 |
| 84 | 324°17'40" | 149.96 |
| 85 | 344°50'45" | 82.41 |
| 86 | 20°50'15" | 94.91 |
| 87 | 39°07'20" | 63.22 |
| 88 | 66°08'45" | 82.085 |
| 89 | 60°29'20" | 32.945 |
| 90 | 87°37'10" | 29.68 |
| 91 | 93°28'00" | 15.3 |



ADJOINING SHEET 6

SEE ALSO SHEET 9 FOR EASEMENTS (E3) & (E6) BOUNDARY CUTS
 CROWN DENOTES CORNER NOT MARKED-UNACCESSIBLE
 BOUNDARIES ARE NOT FENCED UNLESS SHOWN OTHERWISE
 (E1) EASEMENT FOR ELECTRICITY AND OTHER PURPOSES 7, 7 AND 7.66 WIDE (SEE SHEET 9 FOR DETAILS)
 (E2) EASEMENT FOR ACCESS 20 WIDE & VARIABLE (SEE SHEET 9 FOR DETAILS)
 (E3) EASEMENT FOR SERVICES 20 WIDE & VARIABLE (SEE SHEET 9 FOR DETAILS)

- (E1) EASEMENT FOR TRANSMISSION LINE 60.96 WIDE (SYDNEY NORTH-SYDNEY EAST No1) VIDE EG 06/01/1967 FOLIO 19 PLAN 2081-3000 (P.615/4)
- (E2) EASEMENT FOR TRANSMISSION LINE 60 WIDE (SYDNEY NORTH-SYDNEY EAST No2) VIDE EG 30/05/1975 FOLIOS 27 & 28 PLAN 211866
- POSITION OF EASEMENT BY CONTINUES OF TOWERS AS SURVEYED

PLAN OF CROWN LAND INCLUDING LOT 7027 DP 1108760 CREATING LOTS 1 AND 2 FOR FIRST TITLE ISSUE

Surveyor: JACEK IDZIKOWSKI
 Date of Survey: 30-9-2007
 Surveyor's Ref: 30401 DP

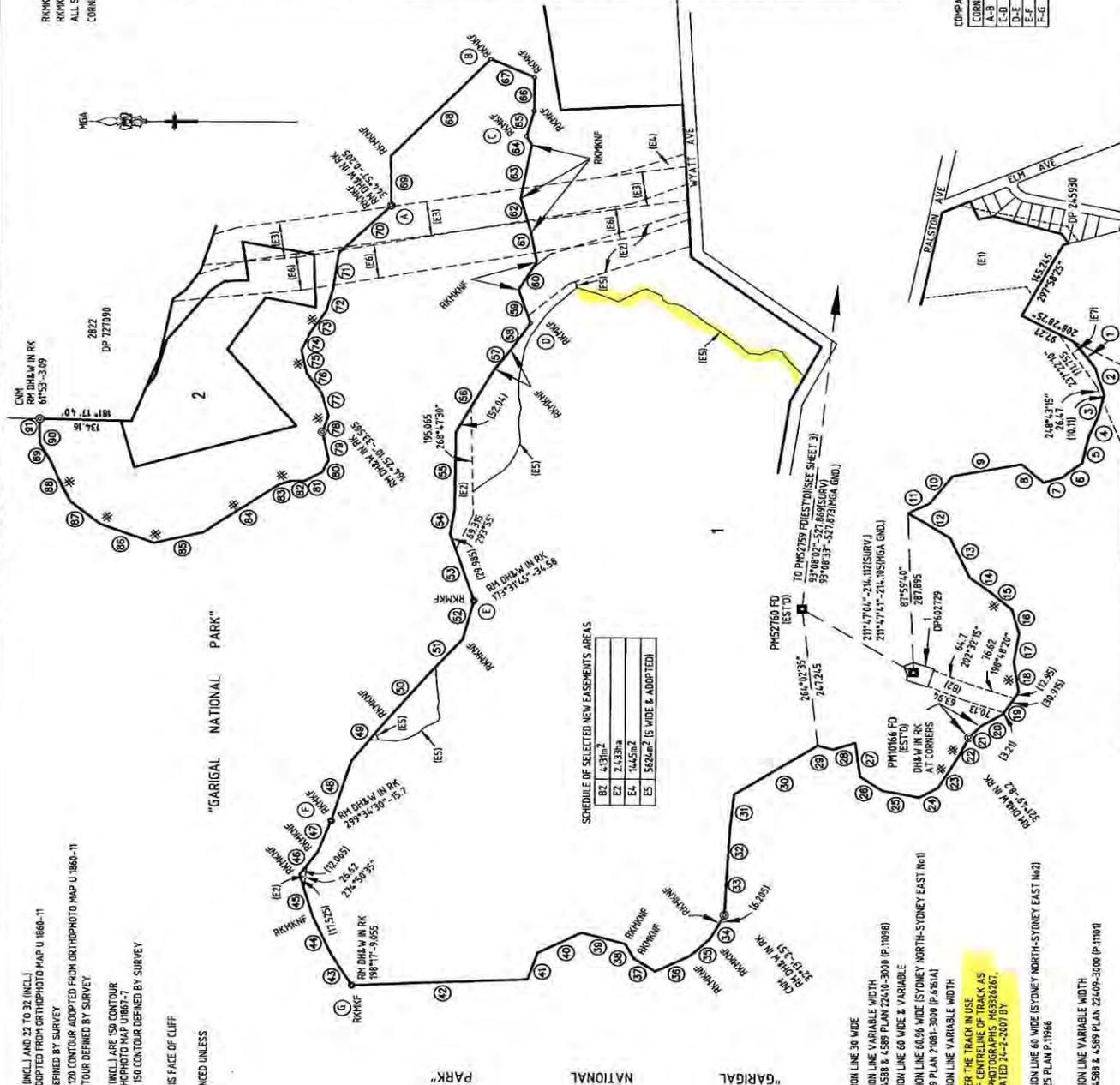
LGA: WARRINGAH
 Locality: BELROSE
 Subdivision No: _____

Registered: 23.7.2009

DP1139826

NOTE
 BOUNDARY LINES 1 to 20 (INCL) AND 22 TO 32 (INCL) ARE 120 CONTOUR LINE ADOPED FROM ORTHOPHO TO MAP U 1860-11
 LINE 21 IS 100 CONTOUR DEFINED BY SURVEY
 LINE 33: EASTERN END IS 120 CONTOUR ADOPED FROM ORTHOPHO TO MAP U 1860-11
 WESTERN END IS 100 CONTOUR DEFINED BY SURVEY
 BOUNDARY LINES 73 to 89 (INCL) ARE 150 CONTOUR LINE ADOPED FROM ORTHOPHO TO MAP U 1867-7
 LINES 71, 72, 90 & 91 ARE 150 CONTOUR DEFINED BY SURVEY

* DENOTES BOUNDARY IS FACE OF CLIFF
 BOUNDARIES ARE NOT FENCED UNLESS SHOWN OTHERWISE



SCHEDULE OF SHORT BOUNDARIES

| No. | BEARING | DISTANCE | No. | BEARING | DISTANCE |
|-----|------------|----------|-----|------------|----------|
| 1 | 234°54'20" | 58.985 | 47 | 116°46'50" | 61.965 |
| 2 | 203°32'00" | 48.255 | 48 | 188°47'35" | 183.55 |
| 3 | 281°15'00" | 38.805 | 49 | 127°27'35" | 94.719 |
| 4 | 295°39'45" | 38.819 | 50 | 129°32'35" | 183.55 |
| 5 | 282°01'45" | 50.31 | 51 | 191°17'35" | 71.245 |
| 6 | 319°01'45" | 48.255 | 52 | 105°02'35" | 71.8 |
| 7 | 343°44'00" | 31.255 | 53 | 115°23'35" | 126.995 |
| 8 | 47°44'30" | 48.33 | 54 | 98°47'35" | 44.88 |
| 9 | 348°52'35" | 14.6 | 55 | 50°27'35" | 140.075 |
| 10 | 307°30'30" | 62.1 | 56 | 109°07'35" | 100.815 |
| 11 | 332°45'35" | 30.82 | 57 | 104°52'35" | 44.275 |
| 12 | 312°52'30" | 82.9 | 58 | 124°23'00" | 57.6 |
| 13 | 245°34'50" | 78.755 | 59 | 171°00'35" | 63.57 |
| 14 | 217°40'35" | 45.195 | 60 | 102°49'00" | 58.52 |
| 15 | 224°33'00" | 44.82 | 61 | 179°39'00" | 54.485 |
| 16 | 255°07'35" | 44.555 | 62 | 174°21'00" | 63.565 |
| 17 | 279°44'35" | 51.865 | 63 | 107°29'00" | 98.075 |
| 18 | 261°05'30" | 55.28 | 64 | 61°09'00" | 17.755 |
| 19 | 307°47'35" | 47.075 | 65 | 105°05'25" | 48.165 |
| 20 | 308°47'48" | 42.55 | 66 | 50°16'00" | 60.205 |
| 21 | 315°11'05" | 27.74 | 67 | 24°07'00" | 79.14 |
| 22 | 282°23'35" | 44.445 | 68 | 312°51'20" | 24.32 |
| 23 | 300°39'35" | 62.74 | 69 | 249°09'20" | 89.49 |
| 24 | 338°23'20" | 36.08 | 70 | 314°39'20" | 121.505 |
| 25 | 30°58'35" | 62.125 | 71 | 278°21'25" | 66.805 |
| 26 | 35°22'45" | 43.69 | 72 | 284°55'30" | 44.88 |
| 27 | 82°22'00" | 61.535 | 73 | 304°29'50" | 4.55 |
| 28 | 341°02'30" | 38.8 | 74 | 79°42'55" | 35.855 |
| 29 | 57°02'35" | 25.8 | 75 | 257°58'35" | 42.58 |
| 30 | 304°54'45" | 18.18 | 76 | 235°02'35" | 43.33 |
| 31 | 275°52'40" | 82.085 | 77 | 254°29'00" | 30.655 |
| 32 | 270°39'25" | 62.14 | 78 | 288°53'20" | 30.655 |
| 33 | 79°58'05" | 89.51 | 79 | 257°56'35" | 51.72 |
| 34 | 299°09'45" | 51.5 | 80 | 206°07'05" | 24.46 |
| 35 | 315°54'45" | 42.245 | 81 | 330°41'15" | 33.42 |
| 36 | 337°39'45" | 64.775 | 82 | 07°05'50" | 21.22 |
| 37 | 337°39'45" | 41.24 | 83 | 340°14'55" | 21.13 |
| 38 | 67°24'45" | 38.375 | 84 | 324°51'48" | 149.96 |
| 39 | 159°01'45" | 78.245 | 85 | 346°50'45" | 82.41 |
| 40 | 332°24'45" | 79.885 | 86 | 20°50'15" | 56.91 |
| 41 | 288°54'45" | 50.495 | 87 | 394°17'20" | 63.22 |
| 42 | 357°31'45" | 288.275 | 88 | 66°08'45" | 82.885 |
| 43 | 58°28'50" | 64.985 | 89 | 60°29'20" | 32.945 |
| 44 | 65°28'50" | 76.655 | 90 | 87°27'10" | 29.68 |
| 45 | 73°41'50" | 78.065 | 91 | 83°28'00" | 5.3 |
| 46 | 100°16'50" | 49.29 | | | |

SCHEDULE OF SELECTED NEW EASEMENTS AREAS

| | |
|----|--------------------------------------|
| E2 | 4.133m ² |
| E3 | 2.433m ² |
| E4 | 14.45m ² |
| E5 | 32.04m ² IS WIDE & ADOPED |

COMPARISON BETWEEN CORNER MARKS FOUND (5846-3000)

| CORNERS | BY PL 5846-3000 | BY SURVEY |
|---------|--------------------|--------------------|
| A-B | 101°11'00"-217.28 | 99°28'00"-118 |
| C-D | 207°17'30"-311.45 | 207°17'30"-311.45 |
| D-E | 274°08'55"-509.84 | 280°47'50"-509.84 |
| E-F | 293°25'10"-459.85 | 300°17'10"-461.045 |
| F-G | 255°44'35"-299.295 | 263°11'25"-299.33 |

Registered:
 23 7 2009

LGA: WARRINGAH
 Locality: BELROSE
 Subdivision No: _____

PLAN OF CROWN LAND INCLUDING
 LOT 7027 DP 1108760
 CREATING LOTS 1 AND 2 FOR FIRST TITLE ISSUE

Surveyor: JACEK IDZIKOWSKI
 Date of Survey: 30-9-2007
 Surveyor's Ref: 30401 DP

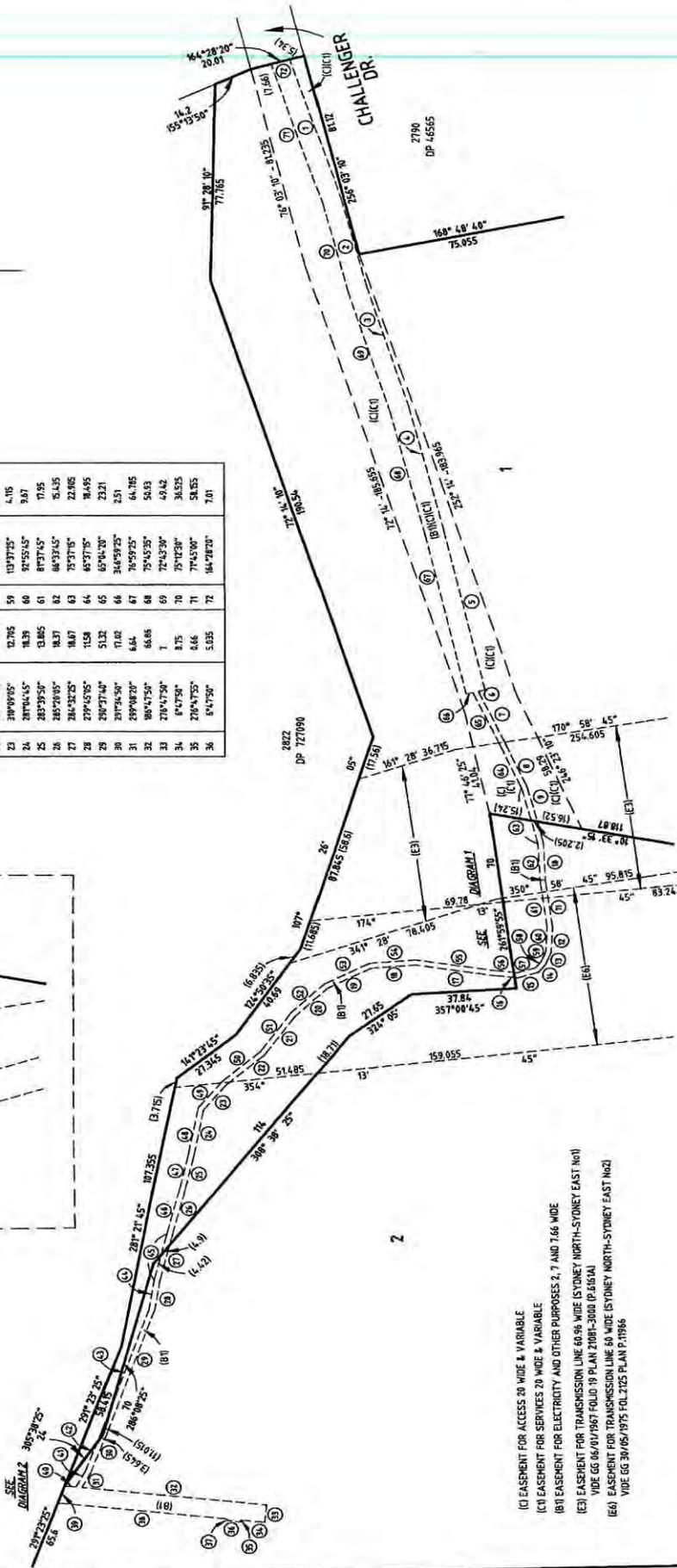
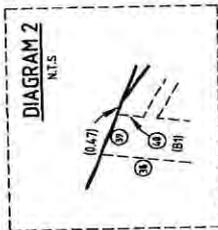
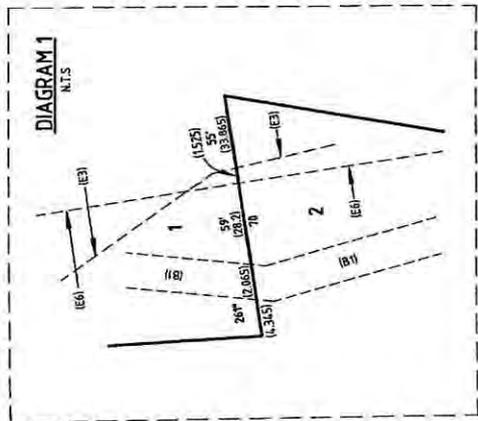
DP1139826

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

PLAN FORM 1 (A2)

SCHEDULE OF SHORT BOUNDARIES (B)

| No. | BEARING | DISTANCE | No. | BEARING | DISTANCE |
|-----|------------|----------|-----|------------|----------|
| 1 | 55°45'00" | 58.035 | 37 | 94°15'00" | 0.66 |
| 2 | 255°12'30" | 34.585 | 38 | 6°17'50" | 61.75 |
| 3 | 32°43'30" | 19.155 | 39 | 11°23'25" | 7.235 |
| 4 | 255°43'25" | 51.19 | 40 | 185°47'50" | 4.105 |
| 5 | 255°39'25" | 64.86 | 41 | 11°40'20" | 7.33 |
| 6 | 34°59'25" | 2.445 | 42 | 11°34'50" | 16.87 |
| 7 | 265°04'20" | 22.795 | 43 | 18°37'40" | 51.15 |
| 8 | 265°37'15" | 16.68 | 44 | 99°45'05" | 114.75 |
| 9 | 255°37'15" | 23.27 | 45 | 184°32'25" | 10.785 |
| 10 | 266°33'45" | 15.54 | 46 | 185°28'05" | 10.355 |
| 11 | 267°37'45" | 18.86 | 47 | 103°39'50" | 13.73 |
| 12 | 272°55'45" | 10.235 | 48 | 107°44'50" | 10.865 |
| 13 | 139°37'25" | 6.76 | 49 | 139°09'05" | 13.4 |
| 14 | 389°29'25" | 4.305 | 50 | 140°19'25" | 10.065 |
| 15 | 342°33'30" | 7.865 | 51 | 120°19'55" | 10.81 |
| 16 | 6°34'05" | 8.545 | 52 | 130°24'45" | 16.4 |
| 17 | 8°59'40" | 28.65 | 53 | 55°40'25" | 10.455 |
| 18 | 358°00'35" | 15.83 | 54 | 178°40'35" | 16.445 |
| 19 | 334°42'25" | 17.255 | 55 | 188°50'40" | 28.8 |
| 20 | 348°24'45" | 15.91 | 56 | 184°34'05" | 8.1 |
| 21 | 348°40'45" | 18.05 | 57 | 183°33'00" | 8.825 |
| 22 | 330°40'55" | 18.05 | 58 | 139°29'25" | 34.95 |
| 23 | 310°09'05" | 12.795 | 59 | 139°37'25" | 4.115 |
| 24 | 281°04'45" | 18.39 | 60 | 92°59'45" | 3.61 |
| 25 | 283°39'50" | 13.885 | 61 | 64°39'45" | 17.95 |
| 26 | 285°20'05" | 18.37 | 62 | 64°39'45" | 15.435 |
| 27 | 284°32'25" | 18.87 | 63 | 75°37'15" | 22.865 |
| 28 | 279°45'05" | 11.58 | 64 | 65°37'15" | 16.495 |
| 29 | 280°37'40" | 51.32 | 65 | 65°04'20" | 23.21 |
| 30 | 280°24'50" | 17.02 | 66 | 344°39'25" | 2.51 |
| 31 | 299°48'20" | 6.64 | 67 | 145°52'25" | 64.785 |
| 32 | 284°47'50" | 8.66 | 68 | 75°43'25" | 50.3 |
| 33 | 278°47'50" | 1 | 69 | 72°43'30" | 34.525 |
| 34 | 6°47'20" | 8.75 | 70 | 75°12'30" | 34.525 |
| 35 | 278°47'25" | 4.66 | 71 | 71°45'00" | 54.855 |
| 36 | 6°41'50" | 5.035 | 72 | 164°28'20" | 7.01 |



- (I) EASEMENT FOR ACCESS 20 WIDE & VARIABLE
- (CI) EASEMENT FOR SERVICES 20 WIDE & VARIABLE
- (BI) EASEMENT FOR ELECTRICITY AND OTHER PURPOSES 2, 7 AND 7.66 WIDE
- (E3) EASEMENT FOR TRANSMISSION LINE 60.94 WIDE (SYDNEY NORTH-SYDNEY EAST 161)
- (E4) WIDE GG 06/01/1967 FOLIO 19 PLAN 21081-3000 (P.L.161/A)
- (E6) EASEMENT FOR TRANSMISSION LINE 60 WIDE (SYDNEY NORTH-SYDNEY EAST 162)
- (E6) WIDE GG 30/05/1975 FOL. 2125 PLAN P.11956

Surveyor: JACEK IDZKOWSKI
 Date of Survey: 30-9-2007
 Surveyor's Ref: 30401 DP

PLAN OF CROWN LAND INCLUDING
 LOT 7027 DP 1108760
 CREATING LOTS 1 AND 2 FOR FIRST TITLE ISSUE

LGA: WARRINGAH
 Locality: BELROSE
 Subdivision No: _____
 Lengths are in metres. Reduction Ratio 1:1100

Registered:

 23.7.2009

DP1139826

DEPOSITED PLAN ADMINISTRATION SHEET

Sheet 1 of 3 sheet(s)

* OFFICE USE ONLY

SIGNATURES, SEALS and STATEMENTS of intention to dedicate public roads, to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.

PURSUANT TO SECTION 88B OF THE CONVEYANCING ACT, 1919, IT IS INTENDED TO CREATE:

1. EASEMENT FOR ELECTRICITY AND OTHER PURPOSES 2, 7 AND 7.66 WIDE (B1)
2. EASEMENT FOR ACCESS 20 WIDE AND VARIABLE WIDTH (C)
3. EASEMENT FOR SERVICES 20 WIDE AND VARIABLE WIDTH (C1)
4. EASEMENT FOR TRANSMISSION LINE 30 WIDE (B2)
5. EASEMENT FOR TRANSMISSION LINE 60 WIDE AND VARIABLE WIDTH (E2)
6. EASEMENT FOR TRANSMISSION LINE VARIABLE WIDTH (E4)
7. EASEMENT FOR ACCESS OVER THE TRACK IN USE (E5)

SEE SHEETS 2 AND 3 FOR SIGNATURES

Use PLAN FORM 6A
for additional certificates, signatures, seals and statements

Crown Lands NSW/Western Lands Office Approval

I, KENNETH WILLIAM GREEN in approving this plan certify
(Authorised Officer)

that all necessary approvals in regard to the allocation of the land shown herein have been given

Signature: [Signature]
 Date: 27 APRIL 2009
 File Number: 08/0650
 Office: SYDNEY METROPOLITAN

Subdivision Certificate

I certify that the provisions of s.109J of the Environmental Planning and Assessment Act 1979 have been satisfied in relation to:

the proposed..... set out herein
(insert 'subdivision' or 'new road')

* Authorised Person/General Manager/Accredited Certifier

Consent Authority:
 Date of Endorsement:
 Accreditation no:
 Subdivision Certificate no:
 File no:

* Delete whichever is inapplicable.



DP1139826 S

Registered: 23.7.2009
 Title System: TORRENS & CROWN LAND
 Purpose: FIRST TITLE CREATION

PLAN OF CROWN LAND INCLUDING LOT 7027
 DP1108760 CREATING LOTS 1 AND 2 FOR FIRST
 TITLE ISSUE

LGA: WARRINGAH
 Locality: BELROSE
 Parish: MANLY COVE
 County: CUMBERLAND

Surveying Regulation, 2006

I, JACEK IDZIKOWSKI
 of Lockley Land Title Solutions PO Box 400 Gladesville 1675
 a surveyor registered under the *Surveying Act, 2002*, certify that the
 survey represented in this plan is accurate, has been made in
 accordance with the *Surveying Regulation, 2006* and was completed
 on: 30-09-2007

The survey relates to LOTS 1 AND 2

(specify the land actually surveyed or specify any land shown in the
 plan that is not the subject of the survey)

Signature: Jacek Idzikowski Dated: 19-03-2009
 Surveyor registered under the *Surveying Act, 2002*

Datum Line: 'X' - 'Y'
 Type: Urban/Rural

Plans used in the preparation of survey/compilation

SEE SHEET 2

(if insufficient space use Plan Form 6A annexure sheet)

SURVEYOR'S REFERENCE: 30401DP

DEPOSITED PLAN ADMINISTRATION SHEET

Sheet 2 of 3 sheet(s)

PLAN OF CROWN LAND INCLUDING LOT 7027
DP1108760 CREATING LOTS 1 AND 2 FOR FIRST
TITLE ISSUE

DP1139826

Registered:  23.7.2009

* OFFICE USE ONLY *

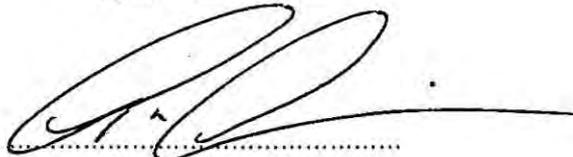
Subdivision Certificate No:

Date of Endorsement:

Plans used in the preparation of Survey:

| | | | |
|-----------|-----------------|------------|--------|
| DP43694 | Ms19035-3000SyR | C2444-2030 | M18425 |
| DP46565 | Ms19716-3000SyR | C7070-2030 | M20162 |
| DP237267 | Ms19886-3000SyR | C7191-2030 | MET496 |
| DP237435 | Ms19887-3000SyR | C7450-2030 | |
| DP243921 | Ms20743-3000SyR | C7451-2030 | |
| DP244157 | Ms22409-3000SyR | C7464-2030 | |
| DP245930 | Ms22410-3000SyR | C7762-2030 | |
| DP602729 | Ms22764-3000SyR | C7788-2030 | |
| DP708369 | Ms22767-3000SyR | C7957-2030 | |
| DP727090 | Ms22877-3000SyR | C8035-2030 | |
| DP728435 | Ms22905-3000SyR | C8140-2030 | |
| DP827744 | Ms5849-3000SyR | C8195-2030 | |
| DP874509 | | C9531-2030 | |
| DP1008986 | | | |

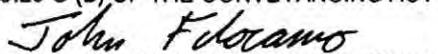
Signatures and Seals



Andrew McAnespie
Regional Manager, Sydney

By delegation pursuant to Section 180 of the Crown Lands Act 1989 and with authority under Section 13L, of the Real Property Act, 1900 from the Minister administering the Crown Lands Act 1989 on behalf of the State of New South Wales.

PLAN PREPARED FOR ISSUE OF FIRST TITLE OVER CROWN LAND
EXEMPTION CLAIMED UNDER
SEC.23 G (B) OF THE CONVEYANCING ACT 1919


Crown Land Authorised Officer

SURVEYOR'S REFERENCE: 30401DP

DEPOSITED PLAN ADMINISTRATION SHEET

Sheet 3 of 3 sheet(s)

PLAN OF CROWN LAND INCLUDING LOT 7027
DP1108760 CREATING LOTS 1 AND 2 FOR FIRST
TITLE ISSUE

DP1139826

Registered:



23.7.2009

Subdivision Certificate No:

Date of Endorsement:

EXECUTED for and on behalf of TRANSGRID by
MICHAEL GATT
whom it has authorised for the purpose and signed in the
presence of:

)
)
)
)
)

Michael Gatt
Authorised Officer

[Signature]
Witness

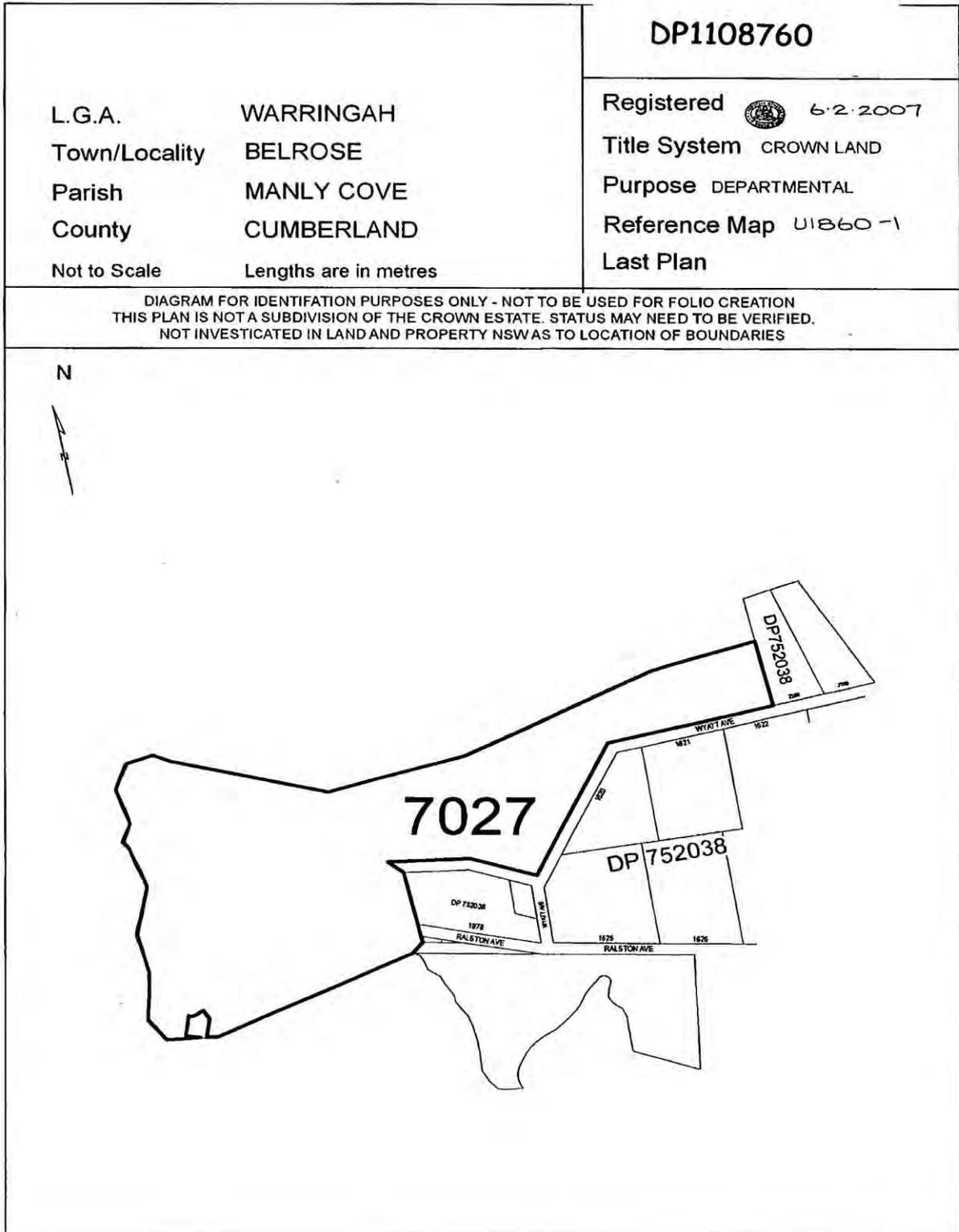
Janelle Garriets
Name of Witness (please print)

201 Elizabeth Street,
Sydney, NSW, 2000
Address of Witness

SIGNED SEALED AND DELIVERED
for and on behalf of EnergyAustralia
by KATHERINE MARGARET GUNTON
its duly constituted Attorney pursuant
to Power of Attorney registered
Book 4528 No. 401

[Signature]
Attorney
[Signature]
Witness

* OFFICE USE ONLY



A 293

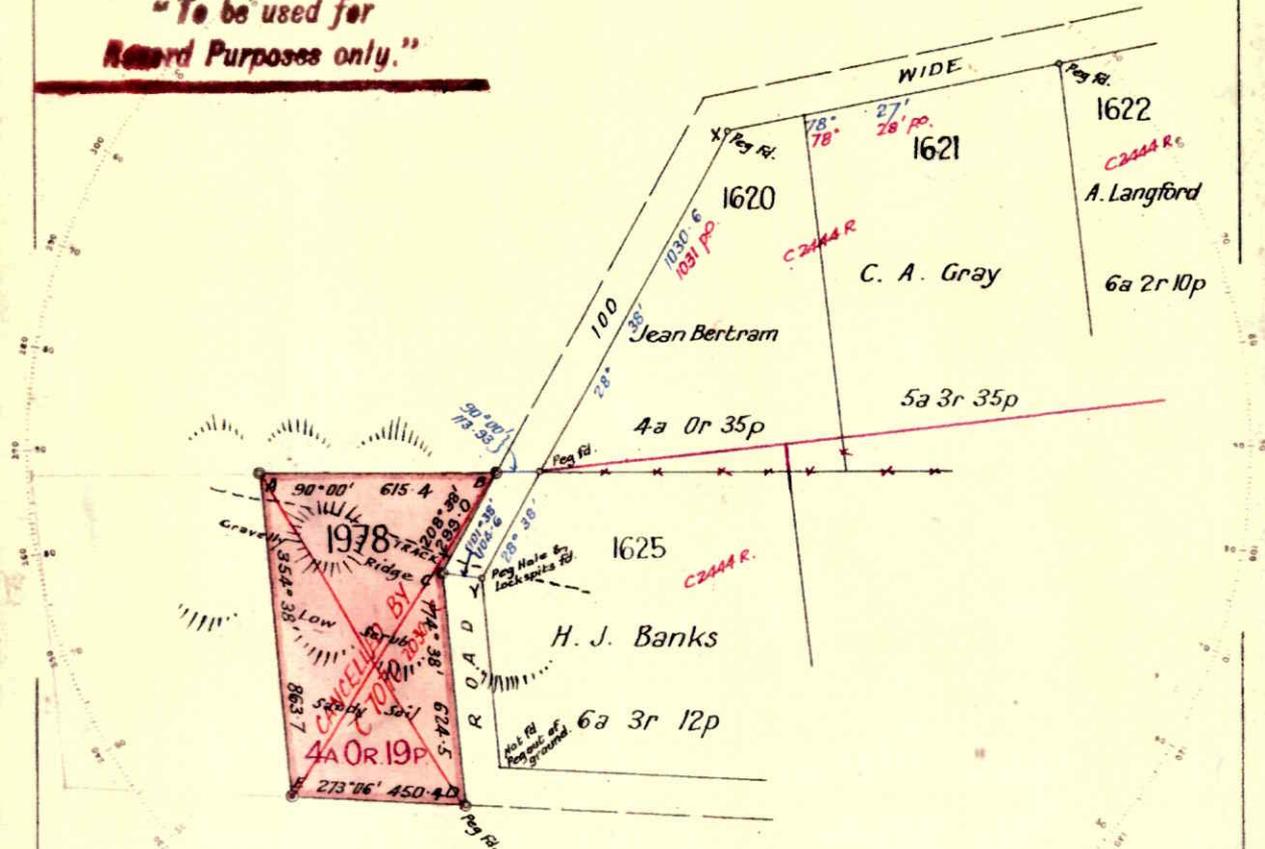
Within Sydney Population Area Procl^d 22nd April 1886
 Within R1986 fm. Occ^r under M.R. or B.L. Notd. 9th Aug 1935

Papers L.B. 40-647

PLAN OF PORTION 1978
 Parish of Manly Cove County of Cumberland
 LAND DISTRICT OF METROPOLITAN LAND BOARD DISTRICT OF SYDNEY
 WARRINGAH SHIRE

Applied for under the 75th Section of the Crown Lands Consolidation Act 1913 by L. Mills Pty. Ltd.
 Sp. L. 40-130 Forfeited & res. fr. sale or Lease Gaz. 16.2.45 Revoked 30.8.46
~~Por. 1978, Pt. Sp. L. 40-44 Secundo Bussa (Area abt. Buss) Refused Ls 51.787.~~
 Por. 1978; Sp. L. 51.205 Ateria Bussa

CANCELLED PLAN
 "To be used for
 Record Purposes only."



Asimuth taken from XY
 Field Book LD 1064 Pages 29-30

Reference to Corners

| Corner | Bearing | From | Links | From |
|--------|---------|-----------------|----------|------|
| A | 90 00 | G. I. Pipe 2-27 | Peg 1878 | |
| B | 270 00 | G. I. Pipe 2-59 | Peg 1978 | |
| C | 281 38 | G. I. Pipe 2-37 | | |
| D | 273 06 | G. I. Pipe 2-29 | Peg 1978 | |
| E | 93 06 | G. I. Pipe 2-27 | Peg 1978 | |

Reference to Traverse

| Line | Bearing | Distance |
|------|---------|----------|
| | | |
| | | |
| | | |

PLAN MICROFILMED

NO ADDITIONS OR AMENDMENTS TO BE MADE

Improvements

I Alan Sanford Hutchinson
 of Sydney

a Surveyor registered under the Surveyors Act, 1929 do hereby solemnly and sincerely declare that the survey represented in this plan has been made by me in accordance with the Survey Practice Regulations 1933 and the special requirements of the Department of Lands was completed on the 10th April 1941, and the reference marks have been placed as shown hereon.
 And I make this solemn declaration conscientiously believing the same to be true and by virtue of the provisions of the Oaths Act, 1900.

A. S. Hutchinson
 Surveyor registered under the Surveyors Act 1929

Subscribed and declared before me at Sydney
 this 17th day of April 1941

Justice of the Peace
 Checked and Charted *12.5.1941*
 Examined and Plan approved *12th May 1941*

Scale 4 Chains to an Inch

Cal. No. **C5773-2030**

Corrected plan C 5773 2030

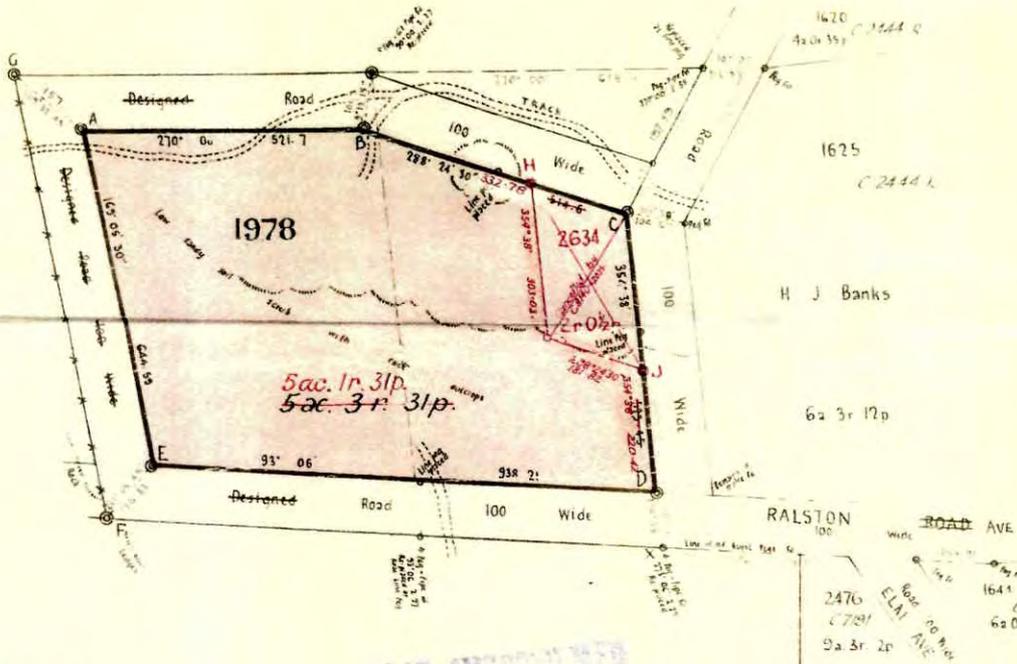
PLAN OF PORTION 1978

PAPERS 5 51 1078
Ten 51-1078

PARISH MANLY COVE COUNTY CUMBERLAND
LAND DISTRICT METROPOLITAN LAND BOARD DISTRICT SYDNEY
SHIRE WAPPINGAH

Applied for under the 75th Section of the Crown Lands Consolidation Act, 1913, by -Atetio- BH558

With reference to the original plan of 1978 approved 22nd April 1966 Revoked Act 32 1960.
1978 in 1978 under M.R. or B.L. Note 9th August 1935
SP L 51-205 Title is limited to the surface and to a depth of 50 feet below the surface
Exp'd 31-12-67 C.P. 57-7516 (M.R. or B.L. Note) - B.L. Note Vide C8140-2000
R81044 from sale. Not 5.5.58.
For Future Public Requirements



Surrounding Area: 5-4149 ac.
5-9497 ac.

REFERENCE MARKS

| CORNER | BEARING | FROM | LINKS | FOOTREES |
|--------|--------------|------------------------|-------|----------|
| A | 175° 31' 45" | G.I. Pipe | 3.53 | |
| | | Numbered Peg at Corner | | 1978 |
| B | 85° 15' 15" | G.I. Pipe | 1.30 | |
| | | Numbered Peg at Corner | | 1978 |
| C | 285° 38' | G.I. Pipe | 2.31 | |
| | | Numbered Peg at Corner | | 1978 |
| D | 314° 52' | G.I. Pipe | 3.48 | |
| | | Numbered Peg at Corner | | 1978 |
| E | 95° 06' | G.I. Pipe | 2.34 | |
| | | Numbered Peg at Corner | | 1978 |
| F | 273° 06' | Rock Mark | 15.0 | |
| | | Rock Mark at Corner | | 26 |
| G | 305° 32' 45" | G.I. Pipe | 1.54 | |
| | | Numbered Peg at Corner | | 1978 |
| H | 160° 00' 00" | 11 Pegs | 2.73 | |
| | | Peg on Cornbr. | | 2034 |
| J | 160° 38' | G.I. Pipe | 2.73 | |
| | | Peg on Cornbr. | | 2634 |

AZIMUTH TAKER FROM C.X.
FIELD BOOK LB 1161 PAGES 11-13

NOTATION PLAN.
I CERTIFY that this is a CORRECT COPY of the original plan of survey and of all notations thereon now relevant, I being the officer having the custody thereof.
A.B. Sherlock
Officer in Charge,
Land Board Office

Plan 1978 Approved for 5ac 1r 31p. (by Surround)
L.B. 59-1066.

Authorised Officer:
24.5.1960

NOTATION PLAN

I, Leonard Marsh Webb, of Sydney
do hereby certify that the survey represented by this plan has been made in accordance with the Survey (Methods) Regulations 1958 and the Special Regulations of the Department of Lands and the same have been carried out in accordance with the said Regulations.
And I make this solemn declaration conscientiously believing the same to be true and by virtue of the provisions of the said Regulations.
Subscribed and sworn to before me at Sydney in New South Wales this 23rd day of May 1960.
A. B. Sherlock
Officer in Charge
Lands Department
Checked & Charted
Examined
PLAN APPROVED
A.B. Sherlock
17 Feb. 1955

SCALE 2 CHAINS TO AN INCH
CAT. NO.

C 7070 2030



Historical Title

InfoTrack
An Approved LPI NSW
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

7/8/2012 8:34AM

FOLIO: 7027/1108760

First Title(s): THIS FOLIO

Prior Title(s): CROWN LAND

| Recorded | Number | Type of Instrument | C.T. Issue |
|------------|-----------|--|-----------------------------------|
| ----- | ----- | ----- | ----- |
| 6/2/2007 | DP1108760 | DEPOSITED PLAN | LOT RECORDED FOLIO NOT CREATED |
| 3/5/2007 | CA108376 | CONVERSION ACTION | FOLIO CREATED CT NOT ISSUED |
| 31/10/2008 | AE298091 | TRANSFER OF STATUTORY EASEMENT IN GROSS | |
| 23/7/2009 | DP1139826 | DEPOSITED PLAN | FOLIO CANCELLED |

*** END OF SEARCH ***



Historical Title

InfoTrack
An Approved LPI NSW
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

7/8/2012 8:33AM

FOLIO: 1/1139826

First Title(s): THIS FOLIO

Prior Title(s): 7027/1108760 CROWN LAND

| Recorded | Number | Type of Instrument | C.T. Issue |
|------------|-----------|--------------------|--------------------------------|
| ----- | ----- | ----- | ----- |
| 23/7/2009 | DP1139826 | DEPOSITED PLAN | FOLIO CREATED CT NOT ISSUED |
| 14/10/2009 | AF45550 | REQUEST | EDITION 1 |
| 2/2/2012 | AG773565 | CAVEAT | |

*** END OF SEARCH ***

Form: 11R
Licence: 98M111
Edition: 0702

REQUEST
New South Wales
Real Property Act 1900



AF45550H

PRIVACY NOTE: Section 31B of the Real Property Act 1900 (RP Act) authorises the Registrar General to collect the information required by this form for the establishment and maintenance of the Real Property Act Register. Section 96B RP Act requires that the Register is made available to any person for search upon payment of a fee, if any.

(A) **STAMP DUTY**

If applicable. Office of State Revenue use only

(B) **FOLIO OF THE REGISTER**

1/1139826

(C) **REGISTERED DEALING**

| | |
|--------|-----------------------|
| Number | Folio of the Register |
|--------|-----------------------|

(D) **LODGED BY**

| | | | |
|-------------------------|---|---|------------------|
| Document Collection Box | Name, Address or DX, Telephone, and Reference (optional): | Land & Property Management Authority LLPN: 123398 C 1 Prince Albert Road Queens Square SYDNEY NSW 2000 ALC3064 | CODE R |
|-------------------------|---|---|------------------|

(E) **APPLICANT**

THE STATE OF NEW SOUTH WALES

(F) **NATURE OF REQUEST**

TRANSFER BY THE STATE OF NEW SOUTH WALES
Real Property Act 1900

(G) **TEXT OF REQUEST**

TRANSFeree Metropolitan Local Aboriginal Land Council
THE APPLICANT being the Transferor, under the provisions of the Aboriginal Land Rights Act, 1983, transfers an estate in fee simple in the land above described to the Transferee. The land is transferred subject to:
1. Conditions in Memorandum Y757000. Restrictions on dealings - see Section 40 Aboriginal Land Rights Act 1983 (this land is not affected by Section 40AA).
2. Notification in Government Gazette dated 30.4.1982 Fol. 1916. Easement for cables & access 10 metres wide affecting the part of the land above described shown so burdened in the title diagram
AE298091 Easement now vested in Energy Australia.

DATE

14 / 10 / 2009
dd mm yyyy

(H) I certify that the applicant, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this application in my presence.

Signature of witness: Catherine Robinson
Name of witness: CATHERINE ROBINSON
Address of witness: 1 PRINCE ALBERT ROAD
QUEENS SQUARE
SYDNEY NSW 2000

Certified correct for the purposes of the Real Property Act 1900 by the applicant.

Signature of applicant: See Page 2.

By delegation pursuant to section 180 of the Crown Lands Act 1989 and with authority under section 13L of the Real Property Act 1900 from the Minister administering the Crown Lands Act 1989 on behalf of the State of New South Wales

ALL HANDWRITING MUST BE IN BLOCK CAPITALS.

A set of instructions for completing this form is available from the Department of Lands, Land and Property Information Division.

CF= 546B

Annexure to Request Form 11R dated _____, transfer of 11130926 from State of New South Wales to Metropolitan Local Aboriginal Land Council.

3. Notification in Government Gazette dated 17.11.1972 Fols 4588-4589. Easement for transmission line variable width affecting the part shown so burdened in the title diagram.
4. Notification in Government Gazette dated 06.01.1967 Fol19. Easement for transmission line 60.96 wide affecting the part shown so burdened in the title diagram.
5. Notification in Government Gazette dated 30.05.1975. Easement for transmission line 60 metres wide affecting the part shown so burdened in the title diagram.
6. Notification in Government Gazette dated 17.11.1972 Fols 4588-4589. Easement for transmission line variable width affecting the part shown so burdened in the title diagram.
7. DP1139826 Easement for electricity and other purposes 2, 7 and 7.66 metre(s) wide affecting the part(s) shown so burdened in the title diagram.
8. DP1139826 Easement for access 20 metre(s) wide and variable affecting the part(s) shown so burdened in the title diagram.
9. DP1139826 Easement for services 20 metre(s) wide and variable affecting the part(s) shown so burdened in the title diagram.
10. DP1139826 Easement for transmission line 30 metre(s) wide affecting the part(s) shown so burdened in the title diagram.
11. DP1139826 Easement for transmission line 60 metre(s) wide and variable affecting the part(s) shown so burdened in the title diagram.
12. DP1139826 Easement for transmission line variable width affecting the part(s) shown so burdened in the title diagram.
13. DP1139826 Easement for access over track in use affecting the part(s) shown so burdened in the title diagram.

DATE 14/10/2009

I certify that the person(s) signing opposite, with whom I am personally acquainted or as to whose identity I am Otherwise satisfied, signed this instrument in my presence.

Certified correct for the purposes of the Real Property Act 1900 by the applicant.

Signature of witness: Catherine Robinson

Signature of applicant: M. Weiss (M. WEISS)
LEGAL OFFICER

Name of witness: CATHERINE ROBINSON
Address of witness: 1 PRINCE ALBERT
ROAD
QUEENS SQUARE
SYDNEY NSW 2000

By delegation pursuant to section 180 of the Crown Lands Act 1989 and with authority under section 13L of the Real Property Act 1900 from the Minister administering the Crown Lands Act 1989 on behalf of the State of New South Wales



Title Search

InfoTrack
An Approved LPI NSW
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 1/1139826

| SEARCH DATE | TIME | EDITION NO | DATE |
|-------------|---------|------------|------------|
| 7/8/2012 | 8:32 AM | 1 | 14/10/2009 |

LAND

LOT 1 IN DEPOSITED PLAN 1139826
AT BELROSE
LOCAL GOVERNMENT AREA WARRINGAH
PARISH OF MANLY COVE COUNTY OF CUMBERLAND
TITLE DIAGRAM DP1139826

FIRST SCHEDULE

METROPOLITAN LOCAL ABORIGINAL LAND COUNCIL (R AF45550)

SECOND SCHEDULE (14 NOTIFICATIONS)

- 1 AF45550 SUBJECT TO CONDITIONS IN MEMORANDUM AF395175. RESTRICTIONS ON DEALINGS AND PLANS - SEE PART 2, DIVISION 4 ABORIGINAL LAND RIGHTS ACT 1983 (THIS IS NOT AFFECTED BY SECTION 42). ANY DEALING OR PLAN MUST BE ACCOMPANIED BY A REGISTRATION APPROVAL CERTIFICATE OR A STATEMENT OF NON REQUIREMENT.
- 2 NOTIFICATION IN GOVERNMENT GAZETTE DATED 30.4.1982 FOL.1916.EASEMENT FOR CABLES & ACCESS 10 METRES WIDE AFFECTING THE PART OF THE LAND ABOVE DESCRIBED SHOWN SO BURDENED IN THE TITLE DIAGRAM
AE298091 EASEMENT NOW VESTED IN ENERGY AUSTRALIA
- 3 NOTIFICATION IN GOVERNMENT GAZETTE DATED 17.11.1972 FOLS 4588-4589.EASEMENT FOR TRANSMISSION LINE VARIABLE WIDTH AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM
- 4 NOTIFICATION IN GOVERNMENT GAZETTE DATED 06.01.1967 FOL19.EASEMENT FOR TRANSMISSION LINE 60.96 WIDE AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM
- 5 NOTIFICATION IN GOVERNMENT GAZETTE DATED 30.05.1975.EASEMENT FOR TRANSMISSION LINE 60 METRES WIDE AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM
- 6 NOTIFICATION IN GOVERNMENT GAZETTE DATED 17.11.1972 FOLS 4588-4589.EASEMENT FOR TRANSMISSION LINE VARIABLE WIDTH AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM
- 7 DP1139826 EASEMENT FOR ELECTRICITY AND OTHER PURPOSES 2,7 AND 7.66 METRE(S) WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
- 8 DP1139826 EASEMENT FOR ACCESS 20 METRE(S) WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM

END OF PAGE 1 - CONTINUED OVER

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PRINTED ON 7/8/2012

7/08/2012

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 1/1139826

PAGE 2

SECOND SCHEDULE (14 NOTIFICATIONS) (CONTINUED)

- 9 DP1139826 EASEMENT FOR SERVICES 20 METRE(S) WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
- 10 DP1139826 EASEMENT FOR TRANSMISSION LINE 30 METRE(S) WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
- 11 DP1139826 EASEMENT FOR TRANSMISSION LINE 60 METRE(S) WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
- 12 DP1139826 EASEMENT FOR TRANSMISSION LINE VARIABLE WIDTH AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
- 13 DP1139826 EASEMENT FOR ACCESS OVER TRACK IN USE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
- * 14 AG773565 CAVEAT BY MATTHEWS CIVIL PTY LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

mg

PRINTED ON 7/8/2012

InfoTrack an approved NSW Information Broker hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act 1900.

7/08/2012