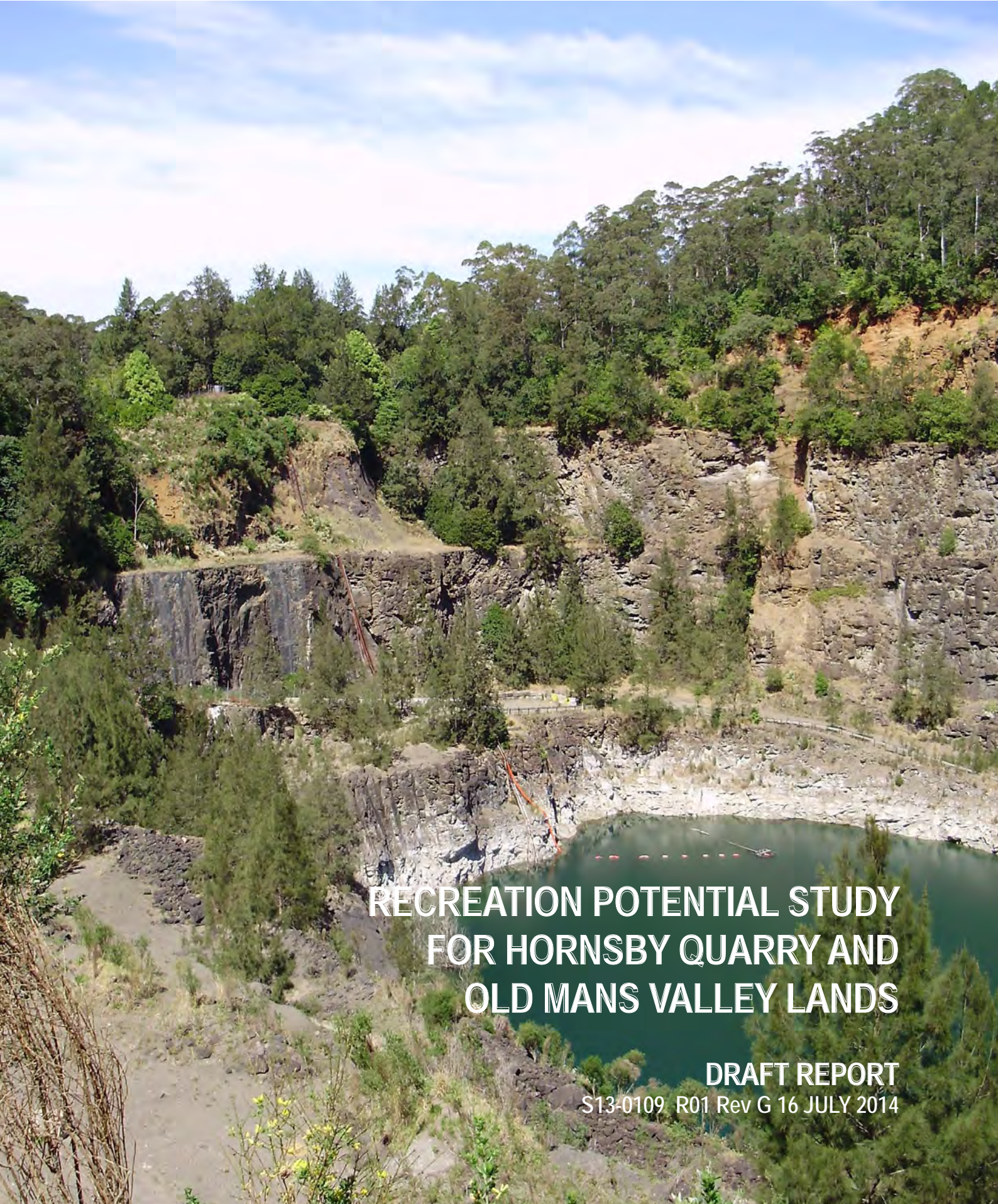




CLOUSTON associates

A large, high-angle photograph of a quarry site. In the foreground, a dark, calm reservoir is visible, with a small boat and a line of red buoys on its surface. The quarry walls are composed of dark, layered rock formations, partially covered with green vegetation and trees. The background shows a dense forest of tall, thin trees under a bright blue sky with scattered white clouds.

**RECREATION POTENTIAL STUDY
FOR HORNSBY QUARRY AND
OLD MANS VALLEY LANDS**

DRAFT REPORT
S13-0109 R01 Rev G 16 JULY 2014

Cover Image:
Old Hornsby Quarry

RECREATION POTENTIAL STUDY FOR HORNSBY QUARRY AND OLD MANS VALLEY LANDS



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EXECUTIVE SUMMARY



THE OPPORTUNITY

The old quarry provides a unique and interesting landscape setting in close proximity to Hornsby CBD. This is created by the dramatic level changes, exposed rock walls and water body.

A feeling of remoteness is experienced in the lower parts of the quarry where it is very quiet, and no built form can be seen. The quarry has its own microclimate and bushland backdrop that reinforces the remoteness and distinctive qualities of the overall site experience.

It is considered that as much of this experience should be retained as possible to create a unique landscape and recreation experience for future users of the site.

This is where the exciting opportunity lies for Hornsby Shire Council. Retention and enhancement of the existing environment can be complimented with unique recreation experiences that build upon the site's natural and intrinsic qualities. Hornsby Shire Council have the chance to create a regional attraction that could have long term state, national and international appeal whilst also meeting the needs of the local community.

THE SITE

The land that is part of this study includes the following land parcels:

- Hornsby Quarry: Hornsby Shire Council owned Community Land that includes the large and deep quarry hole and adjacent crusher plant and other fill zones
- Old Mans Valley Lands (OMV): Community Land to the east of the quarry that has been in Council ownership since the 1970's and is the subject of a recently adopted Plan of Management that identifies permissible recreation development
- Hornsby Park: a Crown Reserve under the care and control of Council
- Other parcels of land identified by a red outline (see figure IB01 below) that include undeveloped road reserve and other areas of Council owned bushland or Crown Reserve

PROJECT BACKGROUND

Hornsby Quarry was worked as a hard rock quarry from the early 1900's, operating until it became unfeasible to continue due to the poor quality of excavated material.

The NSW State Government required that the Quarry be zoned 'Local Open Space' under the Hornsby Shire Local Environmental Plan (HSLEP) in 1994. The Open Space zoning at the time required Council to acquire the property.

More recently the NSW State Government has expressed interest in using the site as a destination for fill material from current major infrastructure projects in Sydney. Council will inform the Environmental Impact Statement for these works and needs to develop a position regarding filling options.

EXECUTIVE SUMMARY

PROJECT PURPOSE

The purpose of the study is to identify potential recreation opportunities to help inform a design process and determine a final landform for the Hornsby Quarry and Old Mans Valley Lands (the site).

UNIQUE SITE IN HORNSBY

The study site is unique. The remnant quarry walls, lake and exposed diatreme formation combine to create a dramatic landscape only minutes walk from the centre of Hornsby. The surrounding bushland encloses the site creating a sense of remoteness from the city.

The site provides Hornsby Shire Council with the opportunity to create a very special place for its residents and the wider Sydney community. There is the potential to open up the site for public enjoyment and take advantage of the quarry landscape for adventure style recreation such as abseiling, rock climbing and water based activities. There is also the option to host community events and festivals whilst still providing for the local and neighbourhood visitor.

OPEN SPACE PROVISION

For the purposes of this study the suburbs of Hornsby, Asquith and Waitara have been combined to understand the open space provision immediately surrounding the study site. These three suburbs will experience continued growth over the next 20 years and pressures on open space will increase.

Currently there is an under provision of open space within the combined area, nearly half of the benchmark standard set by Council's own Section 94 Plan. The conversion of the full study area into usable recreation space will alleviate the pressure on existing spaces in close proximity to proposed high density living within the three suburbs.

SPORTS GROUNDS

Sportsground provision is measured firstly at a shire wide level but also needs to be accessible at a local level. The Old Mans Valley Plan of Management allows for the development of a sportsground on the site.

However the issue of additional sportsground provision should be considered with other site specific factors and other research put forward in this study:

- The existing topography of the site is not suited to developing flat, level playing fields on a restricted site and will be expensive to create.
- On a shire wide assessment the creation of sportsfields in this unique location may be a lower priority when compared to other more suitable sites in the Shire, for example the Old Dairy site in Brooklyn, Tollgates site in North Berowra and Sydney Water site in Westliegh.



EXECUTIVE SUMMARY



- The provision of multiple sportsgrounds in this location does not relate to the unique qualities of the site which are directly related to the topography. This would in turn result in the loss of the dramatic landscape, water body, diatreme and quarry walls that give the site its unique qualities.

RECREATION POTENTIAL

A variety of open space and recreation facilities could be provided within the site. This study identifies the range of activities that are deemed to be suitable for particular areas within the site.

Ultimately, due to the site's size, unique character and setting, CBD location, ease of access from major roads and public transport and neighbouring Aquatic Centre, the study area could become a regional attraction and hub for open space and recreation.

A series of recreation scenarios are included in the Landform Design Options analysis and cater for local and shire wide residents in terms of passive recreation spaces for picnics, play and lawns to kick a ball around through to extension of Mountain Bike trails, high ropes courses, tree top walks and zip lines.

ADVENTURE RECREATION TOURISM

Our research demonstrated that the inclusion of Adventure Recreation Tourism was a definite possibility for this site with the potential for part of the site to become a focus for adventure recreation. If opened up and successfully developed for public access the site will become a regional attraction.

As part of the Adventure Tourism Scoping Study discussions with adventure recreation operators revealed that there is limited outdoor adventure sport opportunities in the region. Up to four adventure parks in the capture region and recent investment in outdoor and indoor adventure facilities indicates growth and investment in the sector, mimicking international growth trends.

LANDFORM DESIGN OPTIONS

Three design options were prepared as part of this strategy. After review and assessment of all three options it is evident that a range of alternative landforms are possible for the site and that all three options can achieve a desirable recreation outcome, with opportunities for a distinctive outdoor experience whilst revealing and protecting the site's cultural and environmental heritage.

Based on the Multi-Criteria Assessment Option 1 was the highest scoring Option. This was mostly due to the fact that no excavation was required in Old Mans Valley resulting in maximisation of usable open space as a potential specialty park area. Access options, cultural events and opportunities for community events programming were more favourable and the 'site story' was more intact in Option 1.

EXECUTIVE SUMMARY

CONCLUSIONS AND RECOMMENDATIONS

The concept designs that Council have prepared reveal that there are a range of landform and recreation possibilities for the Hornsby Quarry and Old Mans Valley site.

The landform options indicate desirable outcomes. However they all involve complex fill and construction scenarios and each option will have a different impact on the local community and environmental values of the site. These factors, alongside financial implications, need to be carefully considered as part of the next phase of the project.

It is strongly recommended that Council pursue the adventure recreation tourism opportunity for the site. This should be in conjunction with an overall master plan for the site, further feasibility work and investigation of business models.

There is no question that Hornsby Quarry and Old Mans Valley is an important site based on its environmental and heritage values. The additional value of recreation and potential income generation for Council presents a regionally significant site that serves the local and Sydney community.



HORNSBY QUARRY VISION

from quarry to park...

Hewn from ancient rock right next to Hornsby's urban heart the layered timeline of this former quarry reveals story and value in every stratum.

More than a dramatic space, this sculpted landscape is the face of past industry and the shape of a new stage on which Hornsby Shire's community can engage with their natural legacy and urban lifestyle.

A place for adventure, challenge and rejuvenation, this gateway landscape links ridge to river, city to bush and people to place.

Photo: Chiang Mai Rock Climbing Adventures

Local living

Hornsby's parkland hub, meeting the needs of the current and future local community for recreation and cultural experiences in a bushland setting.

Tourism and economy

A centre for adventure tourism for the Northern Sydney region, driving local economic development and urban renewal.

Environment and heritage

Renewing Hornsby's natural systems and connecting community to Hornsby's rich heritage and evolving story.

Return on investment

Leveraging commercial opportunities that enhance the leisure experience and deliver a financially sustainable community asset.

...the beginning of a new story.



Hornsby Quarry

1. INTRODUCTION AND BACKGROUND

1.1 SITE AND PROJECT BACKGROUND

The site

The land that is part of this study includes the following land parcels:

- Hornsby Quarry: Hornsby Shire Council owned Community Land that includes the large and deep quarry hole and adjacent crusher plant and other fill zones
- Old Mans Valley Open Lands (OMV): Community Land to the east of the quarry that has been in Council ownership since the 1970's and is the subject of a recently adopted Plan of Management that identifies permissible recreation development
- Hornsby Park: a Crown Reserve under the care and control of Council
- Other parcels of land identified by a red outline (see figure IB01 below) that include undeveloped road reserve and other areas of Council owned bushland or Crown Reserve

Location

Hornsby Quarry is to the west of the Hornsby Central Business District with vehicular access from Dural Street. The Quarry is adjacent to residential properties to the north, Berowra Valley National Park to the west, Council lands within Old Mans Valley to the east and bushland owned by the Department of Sustainable Natural Resources to the south.



Figure IB01: Plan of the combined study area indicated by the red outline, including the Hornsby Quarry Acquisition area (green outline) Old Mans Valley lands (yellow outline) and Hornsby Park and other land parcels in red.

1. INTRODUCTION AND BACKGROUND



Site History

Hornsby Quarry was worked as a hard rock quarry from the early 1900's, operating until recently when it became unfeasible to continue due to the poor quality of excavated material. Products produced included road base and gravel. The site is dominated by a large open excavation (approximately 90 metres deep) with steep, exposed slopes. Previous Quarry infrastructure also remains on the site such as the crushing facility.

The Quarry was zoned 'Greenbelt' under the County of Cumberland Planning Scheme in 1951. The site was later zoned 'Local Open Space' under the Hornsby Planning Scheme Ordinance in 1977. The State Government required that the Quarry be zoned 'Local Open Space' under the Hornsby Shire Local Environmental Plan (HSLEP) in 1994. The Open Space zoning at the time required Council to acquire the property upon receipt of a notice in writing from the owner to do so.

The Quarry became increasingly unviable and on 22 March 2001, CSR Limited served notice on Council to acquire the site. Council consulted its legal representatives who advised that Council was obliged to acquire the land. Notice of Council's acquisition was published in the Government Gazette on 25 October 2002.

Upon taking ownership of the property, Council requested the Valuer-General to determine the compensation payable to CSR Limited for Council's compulsory acquisition of the site. The Valuer-General determined that Council would pay \$25 million to CSR Limited for the market value of the land and \$99,500.00 for disturbances associated with the compulsory acquisition.

At its meeting on 12 August 2009, Hornsby Shire Council considered a report concerning actions to determine the future use and management of the Hornsby Quarry and adjoining lands in Old Mans Valley. Council resolved to progress actions to fill the Quarry pit with virgin excavated natural material and that filling be limited to that necessary for safety, other operational reasons or where financially viable.

Council also resolved to prepare a Masterplan for Old Mans Valley that identifies a range of recreation facilities. As a result of the resolution portions of OMV to the east of the Quarry were partially developed for recreation use following adoption of a Plan of Management (PoM) in 2012. In late 2012 Council constructed a popular mountain bike singles trail that extends across Hornsby Park and into OMV.

The NSW State Government has expressed interest in using the site as a destination for fill material from current major infrastructure projects in Sydney. Council will inform the Environmental Impact Statement for these works and needs to develop a position regarding filling options.

1. INTRODUCTION AND BACKGROUND

Stabilisation options for the quarry lands

Previous decisions and discussions have given rise to a need to consider the benefits of either stabilising or filling the quarry lands to make them accessible to the public. The options that have been identified based on land fill solutions include:

- Option 1 - 1 million m³ of external fill. OMV would be largely unchanged.
- Option 2 - 400,000 m³ of external fill and 600,000m³ from OMV.
- Option 3 - zero volume of external fill and 600,000m³ from OMV and produce steeper landforms in the quarry.

Four other options are included in Appendix D.

1.2 PROJECT PURPOSE AND SCOPE

The rehabilitation of the Quarry and the adjacent degraded open space is required to allow the general public to use the site. There is a need to stabilise the Quarry, manage and restore the bushland, and resolve the future use of open space, existing buildings and roads throughout the combined study area.

There is also a need to ensure that the site is made safe and managed in an environmentally sustainable manner. Redevelopment of part of the site is an option which may provide land management opportunities to halt the environmental degradation and threat to public safety.

The purpose of the study is to identify potential recreation opportunities to help inform a design process and determine a final landform for the Hornsby Quarry and Old Mans Valley Lands (the site). The study includes the following specific tasks:

- Identify the overall planning context for the site
- Review population and demographic data for Hornsby, Asquith and Waitara
- Identify the recreation potential of the site
- Undertake a site analysis
- Prepare a precedent study
- Identify and develop options to provide recreation facilities in the Quarry and OMV. These facilities should:
 - Respond to the unique characteristics of the site
 - Address local needs
 - Be innovative and encourage use of the site
 - Potentially address a wider regional catchment.



1. INTRODUCTION AND BACKGROUND



1.3 AIMS AND OBJECTIVES

The objectives of this study are to:

- Determine an appropriate recreational use for the site that is directly related to demonstrated open space and recreation needs of the current and future Hornsby population
- Determine the catchment of each recreational use
- Identify the opportunities for recreation facilities in each of the Landform Design Options developed and prepared by Council as an evolution of the four options previously described in section 1.1 (under the heading *Stabilisation options for the quarry lands*).

The aims of this study are to:

- Review site analysis, visual, physical, micro-climatic and access assessment material developed by Council's design team and identify what recreation facilities respond best to the specific nature of the site while meeting identified needs and future demand
- Determine if additional sports grounds are required based on current demand and future needs for sports grounds in the northern suburbs of the shire (from Normanhurst to Berowra)
- Assess the site's potential for 'adventure' based recreation activities.

1.4 PROJECT METHODOLOGY

Methodology for the preparation of the Recreation Potential Study involved the following activities in its preparation and development:

- Initial briefing (and site visit) by Council's Project Control Group (PCG) to review details of scope, program and consultation strategy
- Review of all existing policies, mapping, data and documents provided by Council
- Detailed assessment of the current open space provision in Hornsby
- Detailed assessment of the current sports facilities provision in the northern suburbs of the shire
- Review of current demographics and forecast population for Hornsby Asquith and Waitara communities
- Development and testing of a multi-criteria assessment tool, called a 'Goal Achievement Matrix' (GAM) with associated scoring and weighting systems. The matrix was developed over several iterations within the CLOUSTON and HSC teams.
- Two internal HSC Stakeholder consultation workshops held during the project.

1. INTRODUCTION AND BACKGROUND

1.5 STAKEHOLDER PARTICIPATION

Internal HSC Stakeholders were engaged in the Recreation Potential Study process at two key stages of the project in a workshop format:

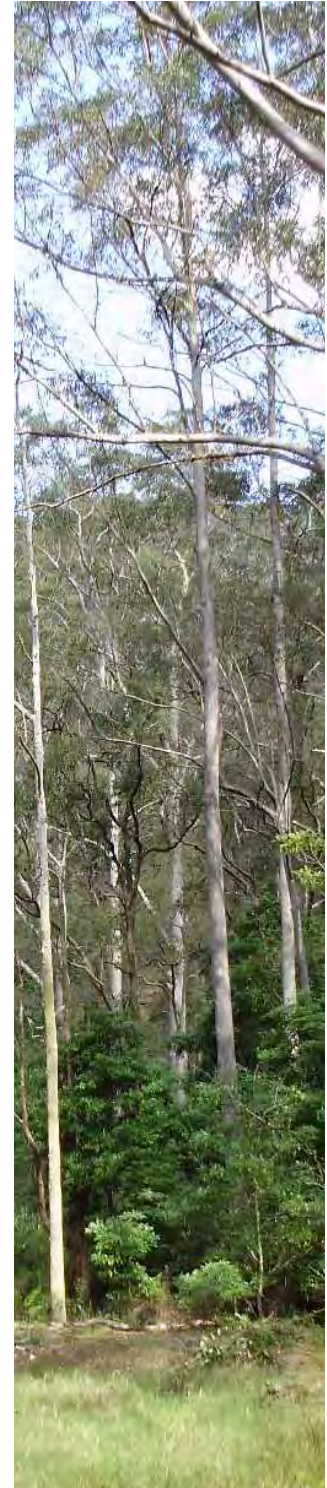
- Workshop number 1 (held at the beginning of the project): the purpose of this workshop was to present the project aims and objectives, discuss the strengths, weaknesses and opportunities of the Hornsby Quarry and Old Mans Valley Lands site. CLOUSTON also presented initial analysis of existing open spaces, demographics and emerging issues.
- Workshop number 2 (held after the development of the draft Goal Achievement Matrix and Council's options): the purpose of this workshop was for CLOUSTON to present the draft findings for discussion with the Stakeholders. Feedback from this workshop informed the finalisation of the study.

The PCG were also responsible for reviewing the Draft and Final reports at key stages in the project program.

Community Consultation

Unfortunately time constraints prevent Council from being able to consult with the community at this early investigative stage as there is a requirement to report outcomes of the investigation to Council by the end of December 2013.

Council engaged the community in consultations in early 2010 that identified a range of criteria that have been used to evaluate development proposals for recreation facilities in OMV. These criteria are summarised in Section 2.



2. PLANNING CONTEXT



Remnants of the Quarry crushing plant

2. PLANNING CONTEXT

2.1 REGIONAL PLANNING CONTEXT

Metropolitan Plan for Sydney 2036

The Metropolitan Plan for Sydney 2036 is the 20 year plan to build liveable places across Sydney. It provides an integrated, long-term sustainable planning framework for Sydney to guide future planning and investment decisions covering housing, economic development and jobs, open space and the transport needed to connect Sydney.

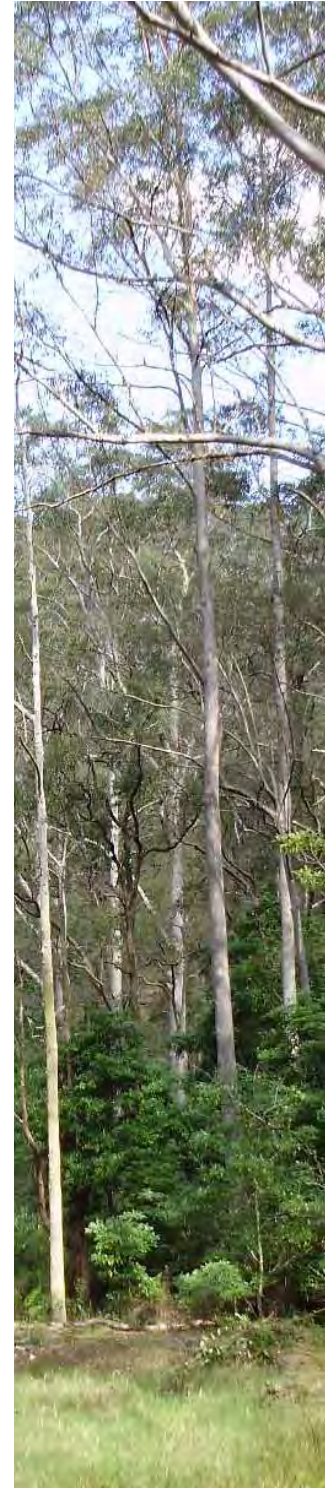
The Metropolitan Plan identifies a number of land use and transport-related strategic directions and policy settings that are of particular relevance to the future of Hornsby (identified as a Major Centre in the Northern Subregional Strategy) including to:

- Ensure more jobs are located closer to home by increasing the percentage of people living within 30 minutes by public transport of a major or strategic centre to 77 per cent by 2036
- Build at least 80 per cent of all new homes within walking distance of existing and planned centres with good public transport
- Enable residential and employment growth in areas where there is available or planned public transport capacity
- Support key economic gateways with integrated land use, infrastructure and transport planning
- Plan for centres to grow and change over time, including focusing activity in accessible centres
- Improve local opportunities for walking, cycling and using public transport
- Strengthen the NSW Government's lead on best practice urban renewal for improved liveability.

North Subregional Strategy

The North Subregional Strategy includes the following centres: Hornsby; Ku-ring-gai; Manly; Pittwater and Warringah. The Strategy states the following Metropolitan priorities for the North Subregion:

- Promote as a highly accessible and liveable area with outstanding amenity, a growing network of employment areas and a prized natural environment
- Improve connections to the Global Economic Corridor via North Sydney and cross-regional links with Chatswood via Brookvale–Dee Why
- Improve connections linking the Orbital Motorway Network to the F3
- Improve the connecting corridor to the north for freight and passengers to Central Coast, Newcastle and NSW North Coast via the F3 and Main Northern Line, including any future high speed rail corridor
- Provide for increased housing choice through redevelopment for a variety of new housing types and densities around identified centres along major transport corridors including strategic bus corridors and the North Shore Line and Northern Line
- Protect the health and resilience of the environmental assets of the subregion, including National Parks.



2. PLANNING CONTEXT



Policy settings that are of particular relevance to the growth of 'Hornsby Major Centre' include:

- Enhance as a location for growing retail and office uses for the subregion and a broader catchment extending to the Central Coast
- Promote residential intensification near the centre
- Provide for at least 1,000 additional jobs to 2031.

The plan also identifies the growth targets for the Hornsby Local Government Area (LGA) for an additional 11,000 dwellings and 9,000 jobs by 2031.

Sydney Metropolitan Regional Recreation Trails Framework Update 2010

The framework identifies regional recreation links the Sydney metropolitan area. Key links in the Northern region occur through the many bushland reserves and National Parks. The Great North Walk is deemed to be a significant north-south links. The priority projects for this route include investigation of bike route (priority 2) and implementation (priority 3).

2.2 SHIRE WIDE PLANS

Community Strategic Plan 2013-2023

"Your Community Plan" sets the direction for where the people of Hornsby Shire want to be in 2023 and identifies the community's main priorities and aspirations for the future. It is a 10 year vision developed collaboratively between the community and Council. It is the highest order document in the Integrated Planning and Reporting suite of documents and is a long term concept which will be used to guide shorter term planning.

The following principles are relevant to the Recreation Potential Study project:

- 1C - Provide opportunities for community involvement in projects to regenerate the bushland and develop a more environmentally sustainable Shire
- 7B - Provide community access to a range of places and spaces
- 7D - Foster healthy neighbourhood and life balance activities
- 8A - Support the living centres in the Shire to be distinctive and vibrant
- 9A - Provide infrastructure and services that serves current and future community needs, including active and passive recreational facilities
- 10A - Provide infrastructure and services that are socially, environmentally and culturally responsive to community needs.

Social Plan 2010-2014

The Social Plan promotes a vision for Hornsby Shire with a particular focus on groups that may be disadvantaged. While the Plan is focused on community facilities and services and not open spaces the plan includes several references to Hornsby CBD that are relevant to the growing centre and the potential use of the study area:

- Lack of community facilities in Hornsby CBD area as the population has grown, especially child safe areas for families and groups to use (page 25 and repeated on page 43)
- Need more parking spaces around Hornsby CBD (page 36)

2. PLANNING CONTEXT

- Need a big multi-purpose community hall in Hornsby CBD (page 50)
- Hornsby CBD – commercial services all within walking distance and very convenient (page 51)

The Plan does not make reference to Hornsby Quarry or Old Mans Valley.

2.3 HORNSBY PLANS AND STUDIES

Hornsby Housing Strategy 2011

The Housing Strategy identifies areas suitable for the provision of additional housing to assist in meeting HSC's future housing obligations. The Strategy was prepared in response to the State Government's Metropolitan Strategy and draft North Subregional Strategy.

Exact forecast population figures have been discussed directly with HSC's Strategic Planning department and are explained in Section 4.5.

Hornsby Westside Precinct study 2013

This study was been prepared by consultants JBA on behalf of Hornsby Shire Council. It relates to the western side of the Hornsby CBD known as the Hornsby West Side Precinct which is adjacent to Hornsby TAFE and and Hornsby Aquatic Centre, near Old Mans Valley lands.

The aim of the study was to develop an urban structure plan and new development controls to facilitate urban renewal of the precinct. The genesis of this study arose from a combination of factors including:

- Development proposals from landowners suggesting substantial increases in development potential
- The need to meet increased dwelling and employment targets under the Metropolitan Plan for Sydney 2036
- Recognition that the existing planning controls for the precinct were outdated.

The landowner submissions (page 12) demonstrate the building density and height that could be achieved in the precinct. The draft structure plan identifies landscape, urban design, road alignment and car parking proposals.

The subsequent Planning Proposal dated August 2013 requested changes to the Hornsby Local Environmental Plan 2013 including new building height limits and floor space ratios in order to achieve the density and height proposed by the study.

2.4 SITE SPECIFIC STUDIES

Hornsby Quarry Lake Options Study 2012

Pells Sullivan Meynink (PSM) considered four options for the Hornsby Quarry to fill with water to form a lake at approximately RL88m. Three of the options could allow for public access to the lake. The stabilisation options and their corresponding costs include:

- Mechanical stabilisation of slopes with rock bolts, shotcrete, mesh and cable anchors - \$10 to 16 million
- Cutting back the existing slopes to flatter more stable batters - \$10 million



2. PLANNING CONTEXT



- Buttrussing the existing slopes with fill materials \$11 million (if fill is free) to \$50 million (for purchasing of fill)
- Restricting access to areas of failure, no other works than fencing and flood routing control - \$6 million

Old Mans Valley Plan of Management 2012

Council prepared this Plan of Management (PoM) for the open space area known as Old Mans Valley (OMV) which forms part of a valley to the west of the Hornsby Town Centre. OMV is approximately 12.5 Ha, the majority of which has been modified by the activities of early European settlement including logging and farming, followed by impacts associated with quarrying on the adjoining former Hornsby Quarry land to the west.

The land is currently used for recreation purposes, mostly for mountain bike riding (see Figure PC01 opposite). The PoM identifies potential sports and speciality park use with concept options for the layout of sportsfields, play, picnic and barbecue areas and associated facilities (see section 4.1 for park type definitions).

In 2008 Council developed Indicative Concept Options for OMV. Acknowledging the spatial opportunities for various uses and a shortage of sportsgrounds and land, Council put forward for consultative purposes two Indicative Concept Plans capable of accommodating a significant open space area devoted to informal recreation, other speciality park pursuits and a sportsground.

The options for OMV are discussed in more detail in Section 5.

Concept Development for Hornsby Quarry Study 2013

Pells Sullivan Meynink (PSM)

Council has received further advice from PSM indicating options for the stabilisation of the quarry walls by various methods including blasting, ripping and mechanical stabilisation. They evaluate a range of options and advise on stabilisation methods and constraints including:



Figure PC01: Hornsby Mountain Bike Trail map

2. PLANNING CONTEXT

- Options proposing no fill, limited fill and significant fill into the site;
- Looking at the potential to generate fill from the stabilisation works and other parts of the quarry and Old Mans Valley lands; and
- A lake option involving filling the quarry with water and stabilising the walls.

These reports have provided a valuable basis to the open space study in that they have identified how the site may be stabilised and made accessible to the general public. The reports are critical to understanding the key geotechnical constraints and have set the framework for the development of the range of landform options that are presented in this report.

2.5 IMPLICATIONS FOR THE RECREATION POTENTIAL STUDY

The key implications for the potential recreation opportunities of the site are:

- The forecast population in Hornsby, in particular the West Side Precinct will place increased pressure on existing open spaces within the CBD and suburb of Hornsby
- The stabilisation of the quarry is paramount to allowing public access into the site. The need for fill and the potential associated costs could inhibit public access. The current estimated costs for achieving this present a significant challenge and could prevent public access for a long time into the future.
- Lack of public access could be a poor outcome for the community with regard to the extensive community consultation that has taken place and the identified community's desires for the site
- The costs of stabilising the quarry to allow free public access are estimated to be considerable and could prevent the site from being opened up to the general community for a long time.
- By contrast options that look at significant filling of the quarry void will make the site able to be used for traditional sporting and recreation pursuits, will require a significantly greater volume of fill. There is a high likelihood that this approach will be more expensive and may take longer to achieve.



Figure PC02: Hornsby Quarry, Old Man Valley and Hornsby Park Masterplan from PoM

3. EXISTING SITE CHARACTERISTICS



Existing cemetery within the Hornsby Quarry site

3. EXISTING SITE CHARACTERISTICS

3.1 OPEN SPACE SETTINGS AND EXISTING FACILITIES

As described previously the study area is divided into four parts the following table provides a summary of the basic open space characteristics, settings and existing uses for each land parcel.

| Name | Ownership | Size (ha) | Zoning | PoM Setting/ Categories | Hierarchy level | Existing facilities |
|---|---|----------------|-----------------------|---|---|---|
| Hornsby Quarry | HSC Community Land | 20 | RE1 Public Recreation | n/a | Potential Regional | <ul style="list-style-type: none"> No public access |
| Old Mans Valley Open Space Lands | HSC Community Land | 11 (6 for use) | | <ul style="list-style-type: none"> Natural Area, Park, Sportsground Area of Cultural significance congregations | Regional | <ul style="list-style-type: none"> Mountain bike trails Walking trails Cemetery |
| Hornsby Park (Site includes Hornsby Pool) | Crown Reserve under the care and control of Council | 14.4 | | <ul style="list-style-type: none"> Natural Area Sportsground General Community Use Park | District (Regional with Pool) | <ul style="list-style-type: none"> Playground Barbecue Amenities Car park Hornsby Olympic Pool |
| Other parcels of land | Council owned bushland or Crown Reserve or operational land | - | | (Undeveloped road reserve) | Local with potential for District/ Regional in combination with development of study area | <ul style="list-style-type: none"> No facilities |
| Total size | | 45.4 | | | | |

Table ES01 Summary of study area land parcels

The total area of the study area is approximate and includes areas that would not provide open space or recreational opportunities such as areas of protected bushland, steep slopes, quarry walls etc.

3. EXISTING SITE CHARACTERISTICS

3.2 TOPOGRAPHY AND NATURAL SYSTEMS

Topography

The topography of the study area varies greatly. From the void and lake level of Hornsby Quarry to the formal gardens of Hornsby Park adjacent to the Pacific Highway there is a significant level difference:

- The base of the quarry hole is at RL8.
- The rim of the quarry is at RL90.
- The existing level area in Old Mans Valley is RL130.
- The new outdoor pool is at RL181.
- The Pacific Highway at Hornsby Park varies between RL184 and RL187.

Hornsby Quarry

Within the Quarry site the level difference from the lake level to the top of the quarry wall is over 100 metres on the southern side. The level difference is lower on other sides of the lake.

The land surrounding the quarry void is steep and rises to the north towards residential properties along Manor Road and to the south towards Dural Street and Quarry Road.

Old Mans Valley

Old Mans Valley sits in a well-defined natural valley to the west of the Pacific Highway and Hornsby TAFE and north of Hornsby Park. There are steep slopes on valley sides, including natural embankments and embankments created by modification as a result of the quarrying and landfill operations of the past.

Surrounding slopes to the OMV site form an amphitheatre at the edges of constructed, filled and cleared areas. The southern portion of the area could accommodate a single sports ground if further developed, while the near-level terraces situated in the northern half of the site would require additional filling and levelling to reach a standard suitable for formal sports activities.

Hornsby Park and Pool

Hornsby Park slopes away from the Pacific Highway to level areas associated with Hornsby Pool. The steeply sloped bushland areas along Quarry Road and to the north of Dural Street rise to the level of the old quarry crushing plant and fall away to the level of the top of the quarry void.

Natural Systems

Hornsby Quarry

Old Mans Creek flows across the northwest section of the study area. The creek is a tributary of Berowra Creek and forms part of the Hawkesbury River catchment. An open concrete stormwater channel is located on the northern edge of the quarry pit and collects stormwater from the residential areas to the north and east and redirects the runoff away from the quarry pit.

3. EXISTING SITE CHARACTERISTICS



Hornsby Quarry - view from western side of quarry, looking east showing diatreme



Hornsby Quarry - view from northern side of quarry, looking south showing fill areas



Hornsby Quarry - view from northern side, at lake level of quarry, looking south west towards south western fill zone

3. EXISTING SITE CHARACTERISTICS

Where quarry activities have occurred the land is predominantly clear with some weed invasion. Where land is primarily undisturbed the endemic vegetation communities of Old Mans Valley are present. There are significant stands of remnant Glen Forest and Sydney Sandstone Gully Forest on the north and southwestern boundaries of the study area which provide a direct link/wildlife corridor with Berowra Valley National Park to the west (PB Master Plan Report 2004).

Old Mans Valley

There are several overland flows that enter the site including:

- A remnant and incised drainage line entering the site from the northern park boundary, collecting concentrated residential stormwater flows
- A drainage line collecting from the adjoining eastern areas runs along the eastern boundary and joins the above line. The combined flows descend into a drainage diversion which exits into the Hornsby Quarry lands from the northwest of OMV
- A watercourse running close to the western boundary (inside and out of the boundary), which enters the southwestern corner of OMV from Hornsby Park.

The watercourse from Hornsby Park in the south and the combined flows from the east and north exit OMV to the west around the northern side of Hornsby Quarry via a concrete diversion channel on quarry lands. These flows enter Berowra Creek west of the quarry lands.

OMV contains remnant Blackbutt Gully Forest (containing dominant species of *Eucalyptus pilularis*, *Angophora costata* and *Syncarpia glomulifera*) on upland slopes and batters across the northern and in southwestern and southeastern corners of the site as well as regrowth fragments of what equates to a Glen Forest or Blue Gum Diatreme community along the western batter below the main cleared area.

OMV is dominated by weedy undergrowth including Privet while open, cleared areas are generally grassed and weedy. In various locations, garden escapees such as Wisteria Vines and other common garden species are evident.

Hornsby Park and Pool

The soil within the site is predominantly derived from Hawkesbury Sandstone, with some Volcanic Diatreme derived soils. Vegetation communities within the bushland areas of the park include:

- *Eucalyptus pilularis* - *Angophora costata* - *Syncarpia glomulifera* tall open forest (Vegetation Community L), vegetation of local conservation significance
- Glen Forest - *E.saligna* Tall Open Forest (Vegetation Community J), significant in Sydney Region due to very restricted distribution

Darwinia biflora, a listed vulnerable species under the Threatened Species Conservation Act (1995), occurs in close proximity to the reserve (in the adjacent Berowra Valley National Park).

3. EXISTING SITE CHARACTERISTICS



Bushland areas



Bushland areas



Old Mans Valley open fields, looking south west towards the quarry void



View looking north from the southern eastern fill zone

3. EXISTING SITE CHARACTERISTICS

Overall, the reserve bushland is in variable condition, ranging from very poor to good. An isolated good patch of restored Glen Forest occurs at the reserve's western end. Core areas of Community Land bushland are in good condition. However the condition becomes poor surrounding all road and structural developments associated with the quarry (frequently associated with fill slopes from roads), and along residential edges on the southern reserve boundary.

Old Mans Creek flows through the site.

3.3 LANDSCAPE CHARACTER AND CULTURAL HERITAGE

Landscape Character

Using the character zones developed by HSC (see Appendix C) the site's character varies dramatically and is closely related to the sites's topography. Overall the site feels remote and quiet despite it's proximity to the Pacific Highway and Hornsby CBD.

- Hornsby Park - a heritage, formal parkland with some mature trees and manicured gardens. The park allows for some long distance views of tree canopy within the Quarry and OMV.
- Old Mans Valley - ranging from steep bush land slopes and open fields this part of the site provides a series of open and enclosed spaces. There are some views to the quarry (but not of the quarry lake) from the bush land edges on the western side of OMV.
- Quarry Zone - the high walls of the quarry create a dramatic landscape when positioned at the bottom of the quarry and also along the quarry road. Whilst in the quarry there is a sense of being 'in the wilderness' or 'in the middle of nowhere.'
- Cultural Heritage zone - the old crusher plant is situated on a flat area and provides views of the quarry. The abandoned buildings add to the feeling of remoteness but also add to the story of the site.
- South Western fill zone - this area is on the southern side of the quarry and provides views of the quarry and also to OMV and surrounding bush land. This area is dominated by bush land and some weed infestation.

Overall it is the Quarry Zone that provides a unique and interesting landscape setting in such close proximity to Hornsby CBD. This sense of 'quarriness' is created by the dramatic level changes, exposed rock walls and water body extenuate. The bushland backdrop also extenuates the site experience.

Cultural Heritage

Hornsby Quarry

The Quarry is listed on the Heritage Register of the National Estate describing it (in part) as the "largest volcanic neck in the Sydney area". The Higgins family cemetery is also located on the site and is listed as a heritage item of State Significance under the Hornsby Shire Local Environmental Plan 1994. The cemetery identifies the burial of 23 people, all members of early families in the area and covers the period from 1875 to 1925. The cemetery is still in use and maintained by Higgins family descendents.

3. EXISTING SITE CHARACTERISTICS



Hornsby Park - sloping lawn areas and mature trees



Hornsby Park - formal gardens and paths



Old Mans Valley - open parklands



Old Mans Valley - steep vegetated slopes



Quarry zone - diatreme



South western fill zone - cleared area, looking north east

3. EXISTING SITE CHARACTERISTICS

Old Mans Valley

The HSC Plan of Management provides in depth detail regarding the natural and cultural heritage of the site. Key aspects of the heritage value of the site include:

Hornsby Park and Pool

The HSC Plan of Management for District Three and Nine provides detailed information regarding the natural and cultural heritage of the Park. Key aspects of the heritage value of the park include:

- Hornsby Park is heritage listed and regarded as being of regional significance (Hornsby Shire LEP, 1994)
- The Park falls within the Hornsby West Side Heritage Conservation Area (Hornsby Shire LEP, 1994)
- There are no recorded Aboriginal artefacts or relics on the site
- The sandstone steps running through the bushland areas are thought to have been built during the Depression of the 1930s. The formal park was created in 1933. The formal park layout and design are based on a design prepared by Scott Finlay and Jack Dow under the nom-de-plume of Pro Bono Publico in 1927 that was gradually implemented over the following decade (Mayne Wilson 2012).

3.4 ACCESS AND TRANSPORT

Vehicle and pedestrian access points

Despite the size and composition of the site, several land parcels have limited access points into the site:

- Quarry Road is the main point of vehicle access to Old Mans Valley and Hornsby Quarry. A second vehicle access way is available to the east of the site from Bridge Road where a steep fire trail enters the site and provides access to OMV.
- The Benowie Walking Track follows Quarry Road through Hornsby Park and provides links to Berowra Valley National Park and the Great North Walk
- To the north Dilker Close, near Manor Road is indicated as an entry point to the Benowie Walking Track which links to Hornsby Park and Old Mans Valley
- To the south west Rosemead Road off Dural Street is indicated as an entry point to the Benowie Walking Track
- Hornsby Park and Pool is accessed from the Pacific Highway. Heritage stairs and trail leading from near pool down into old mans valley Hornsby Park bushland.

Public Transport

The study area is well located with respect to public transport links. It is approximately 350m from Hornsby train station to Hornsby Pool; and 350m from Hornsby Train Station to Quarry Road. The site is located near multiple bus stops along Pacific Highway.

The regional potential of the site would be supported by these important public transport links.

3. EXISTING SITE CHARACTERISTICS

Other facilities

The Hornsby CBD location is home to Hornsby TAFE, Hornsby Court House and Police Station, Council offices and Chambers, retail and commercial uses. The site has the potential to link with other facilities and services in the vicinity and provide Hornsby and Shire residents with a major regional facility.

3.5 IMPLICATIONS FOR THE RECREATION POTENTIAL STUDY

The key implications for the potential recreation opportunities of the site are:

- The disconnected nature of the three main land parcels. Management and maintenance boundaries may need to be retained. However opportunity exists for the creation of one large regional facility combining a variety of recreational experiences
- The CBD location provides Council with a unique opportunity to provide an outstanding and unique facility in the heart of the LGA
- Existing level changes between the land parcels and major level drops will require rigorous design resolution in order to incorporate some degree of universal access
- Protection and revegetation of Endangered Ecological Communities (L and J). In particular the EEC to the southwest of the quarry limits access. The EEC between the quarry and the OMV parklands restricts opportunities to physically link these two significant land parcels of open space.
- Current access into the site is limited. Quarry Road is the main vehicle access corridor. A Bridge Road connection into the site has the potential to improve accessibility. Options for other road access are severely limited by the topography and environmental constraints imposed by EEC and other bushland parcels. Pedestrian and cycle access is also limited by topography
- Conservation of heritage features and in particular new uses for existing buildings
- Opportunities to improve views into the site from key lookouts, improving the appreciation of the overall site.
- The Quarry landscape, in particular the level changes and surrounding bushland lends itself to provision of adventure and/or outdoor recreation activities.



Higgins family cemetery



Remnant in situ quarry machinery

4. OPEN SPACE NEEDS AND DEMANDS



Old Mans Valley meadow

4. OPEN SPACE NEEDS AND DEMANDS

4.1 EXISTING OPEN SPACE

Hornsby Shire

Currently there is 478 hectares of categorised public open space within the Hornsby LGA which equates to 31 square metres (m²) per person for the estimated population of 153,395 at 1 January 2012. The following table demonstrates the number of different categories and the square metres per person of open space for the 2012 HSC population.

| Category | Land Area (hectares) | Standard of Provision (m ² per person (2012 pop.)) |
|-----------------|----------------------|---|
| Local Reserves | 94 | 6.1 |
| Specialty Parks | 123 | 8.0 |
| Sportsgrounds | 261 | 17.0 |
| Total | 478 | 31.1 |

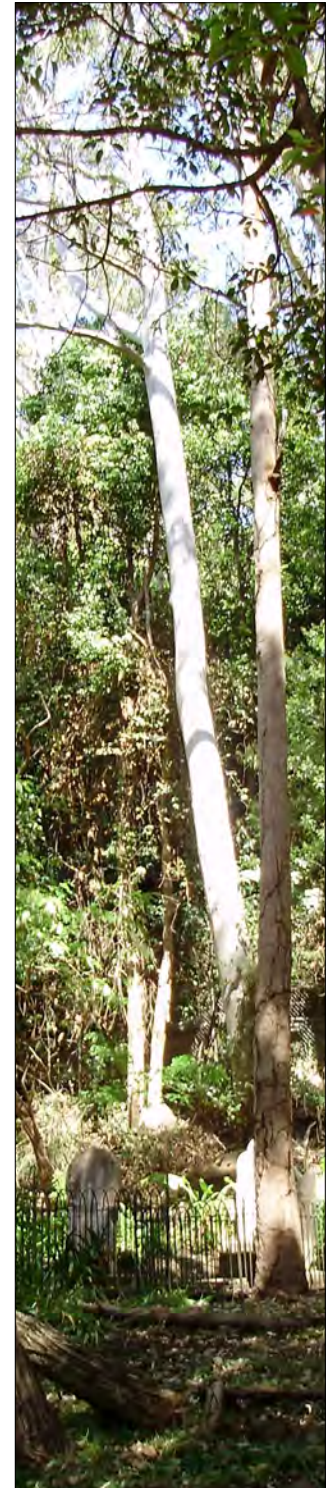
Table OS01 HSC's open space per person

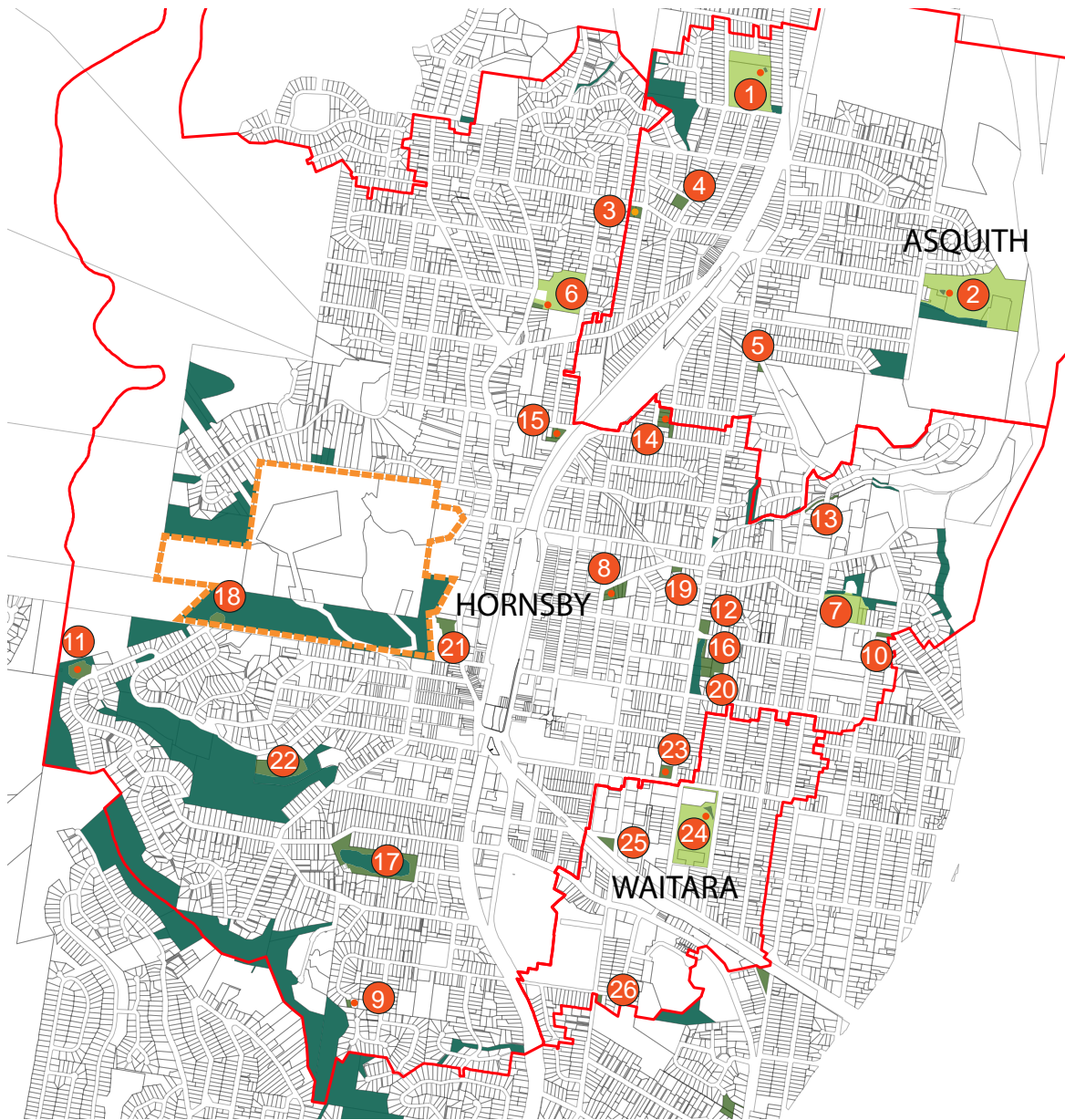
Local reserves are generally defined as open spaces that allow for a variety of passive recreation activities.

As defined by HSC's Unstructured Recreation Strategy (2008) Specialty parks should generally:







- Cater for a range of age groups and contemplative as well as physical activity
- Be larger than 1 ha
- Include an open grass area as well as area for tree, shrub and groundcover plantings
- Be overlooked by adjacent houses
- Where possible include the following:
 - Play spaces, hard court ball areas, wall or hit up or soccer practice, grass area for kick to kick and picnics, a formed path system, circuit walking path shade,
 - Furniture include bins, seats, tables and preference an dog exercising area.
 - District level facilities may also include skate and /or BMX facilities, toilets and shelters
 - Aim to provide one park for off-leash dog activity area in every planning district

Sportsgrounds are generally defined as open spaces dedicated for active recreation in the form of organised sports. However these spaces can also be used informally for a variety of other recreation activities.





LEGEND

-  Suburb Boundary
-  Site Boundary
-  Sportsgrounds
-  Parks
-  Natural Areas
-  Playgrounds

SPORTSGROUNDS AND PARKS

- | | | |
|--|--|---|
| ASQUITH | |  Lessing Street Playground |
|  Asquith Park |  Mills Park |  Mildred Avenue Playground |
|  Amor Street Playground |  Gardenia Street Playground |  Neale Park |
|  Salisbury Road Park | |  Reddy Park |
| HORNSBY | |  Rosemead Road Park |
|  Storey Park |  James Park |  Water Street Drainage Reserve |
|  Beatrice Thomson Park |  Clarke Road Park |  Edgeworth David Park |
|  Collingridge Reserve |  Ginger Meggs Park |  Hornsby Park and Pool |
|  Holman Park |  Leighton Place |  Lisgar Gardens |
| | |  Willow Park |
| | | WAITARA |
| | |  Waitara Park |
| | |  Leonard Street Rotary Park |
| | |  Unwin Park |

Figure OS01: Open Space provision within the suburb of Hornsby, Asquith and Waitara

4. OPEN SPACE NEEDS AND DEMANDS

The figures in Table OS01 do not include bushland areas. A separate calculation has been determined for these areas and is focused on bushland walking tracks, of which Council manages 142 km that equates to a standard provision of 0.93 lineal metres of walking track per person.

Council state in the Section 94 Plan that bushland areas 'provide open space and recreational assets for the resident population by way of walking and cycling tracks, fire trails are also used for bushwalking, picnic areas and lookouts'.

Overall these figures represent a shire wide approach to open space provision and do not reflect the different residential situations between high density town centres (with higher populations) and low density suburban areas.

Hornsby, Asquith and Waitara

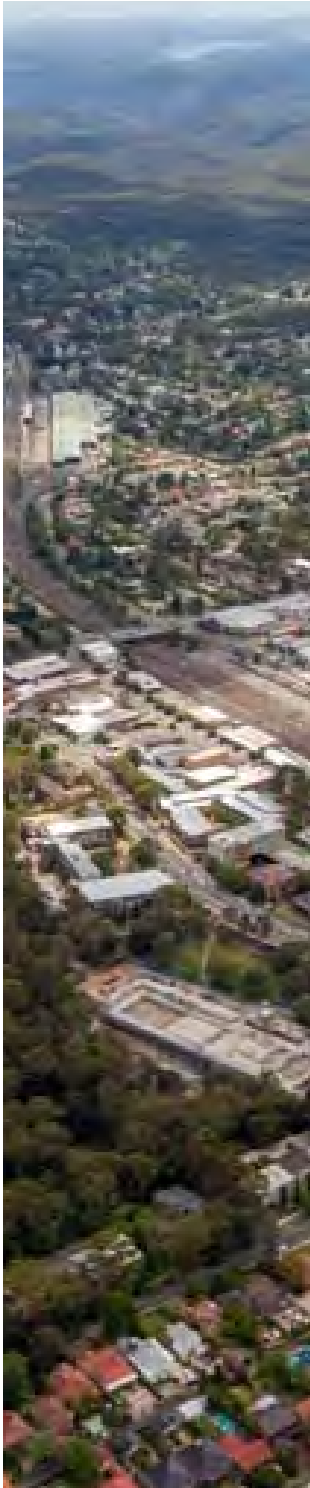
The following table demonstrates the number of different open space categories and the square meters per person of open space for the combined 2011 Hornsby, Asquith and Waitara population.

When compared to the standard of provision for the entire shire (see table OS01) the following table demonstrates a significant shortfall, particularly in the suburb of Waitara. It should be noted that data on the distribution of Specialty Parks have been incorporated into the local reserves figures, while natural areas have been excluded.

| Category | Land Area (hectares) | Standard of Provision (m2 per person (2011 pop.)) |
|---------------------------|----------------------|---|
| Hornsby | | |
| Local Reserves | 23.77 | 11.63 |
| General Community Use | 2.199 | 1.08 |
| Sportsgrounds | 3.97 | 1.94 |
| Total Hornsby OS | 29.939 | 14.65 |
| Asquith | | |
| Local Reserves | 0.523 | 1.59 |
| General Community Use | 0.56 | 1.70 |
| Sportsgrounds | 9.7 | 29.33 |
| Total Asquith OS | 10.783 | 32.62 |
| Waitara | | |
| Local Reserves | 0.3 | 0.61 |
| General Community Use | 0.0 | 0.00 |
| Sportsgrounds | 3.2 | 6.53 |
| Total Waitara OS | 3.5 | 7.14 |
| Total of 3 suburbs | | |



4. OPEN SPACE NEEDS AND DEMANDS



| | | |
|-------------------------|---------------|--------------|
| Local Reserves | 24.593 | 8.59 |
| General Community Use | 2.759 | 0.96 |
| Sportsgrounds | 16.8 | 5.88 |
| Total Open Space | 44.152 | 15.43 |

Table OS02 HSC's open space per person within Hornsby, Asquith and Waitara

Regional Parks

There are several parks within the suburb of Hornsby. The following is a description of their characteristics:

- Hornsby Park - 14.4Ha, The developed portion of Hornsby Park contains the aquatic centre, open grassland areas available for informal use, a developed playground, BBQ facilities and public toilets.
- Lisgar Gardens and Lisgar North Bushland - 2.7 Ha, connects to Florence Cotton Reserve and contains:
 - Terraced gardens that can be booked for weddings, photography and group activities
 - Gardens contain a pavilion, shade house with fishponds, a gazebo, waterfalls, lawn areas, picnic tables, public amenities and an informal trail through creek-side bushland.
- Florence Cotton Reserve - 13.7ha of natural area with an informal walking trail along the southern ridgeline. While not providing the range of facilities generally provided by a Specialty Park it's connectivity with Lisgar Gardens means that this parkland contributes to the recreation opportunities of Lisgar Gardens by providing long and distinctive bushwalking trails through the area.

Berowra Valley National Park, including Crosslands Reserves, managed by National Parks and Wildlife Service (NPWS) straddles large parts of the Berowra Creek catchment from Pennant Hills to Berowra Waters covering about 4,000 Ha or 8 percent of the Hornsby Shire. The park provides enormous opportunities for bushwalking and recreation, protects the habitat of native flora and fauna and has many Aboriginal sites.

Bushland areas

Hornsby and Asquith have a total of 45.75Ha of natural areas. The lineal metre tracks through these areas have not been calculated.

4. OPEN SPACE NEEDS AND DEMANDS

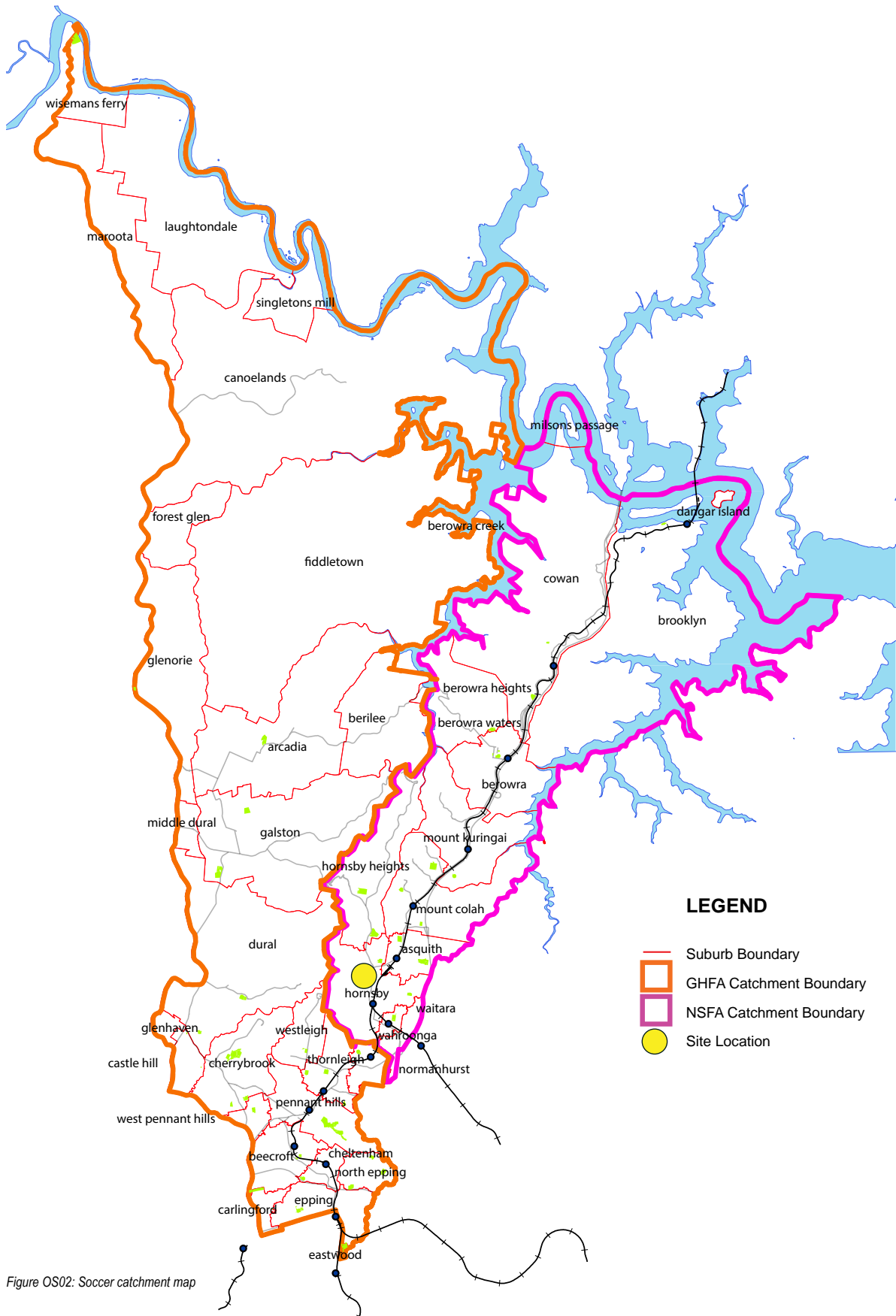
Sportsgrounds

The following table (OS03) demonstrates the sportsgrounds located in close proximity to the study site, within the suburb of Hornsby, Asquith and Waitara. The conclusion that can be drawn is that:

- There are several sportsgrounds in the area that cater for a variety of sports and also provide open space for noncompetitive/training purposes such as playgrounds, outdoor gym equipment etc.
- There is a shortfall of specialty and/or regional parks in close proximity to the study area.

| Park Name | Distance (km) | Size (Ha) | Provision |
|--|---------------|-----------|--|
| Hornsby | | | |
| Storey Park | 1.0 | 2.4 | <ul style="list-style-type: none"> • Sportsground with turf wicket • Children's playground • Amenities and bubbler <ul style="list-style-type: none"> • Community Centre • Car park • Radio tower and shed |
| James Park, Scout Hall and James Park Bushland | 1.5 | 2.4 | <ul style="list-style-type: none"> • Basketball half court • Circuit path • Playground • Outdoor gym equipment <ul style="list-style-type: none"> • Sportsground • Cricket practice nets • Amenities • Scout hall. |
| Asquith | | | |
| Asquith Park | 2.2 | 3.7 | <ul style="list-style-type: none"> • Sportsground • Amenities building |
| Mills Park | 2.3 | 7.2 | <ul style="list-style-type: none"> • Sportsground • Amenities building • Play area |
| Waitara | | | |
| Waitara Park | 1.4 | 3.2 | <ul style="list-style-type: none"> • Sportsground • Turf wicket • Grandstand <ul style="list-style-type: none"> • Tennis courts and • Amenities including disabled amenities |

Table OS03 Sportsgrounds within Hornsby, Asquith and Waitara and proximity to the study area.



LEGEND

- Suburb Boundary
- GHFA Catchment Boundary
- NSFA Catchment Boundary
- Site Location

Figure OS02: Soccer catchment map

4. OPEN SPACE NEEDS AND DEMANDS

4.2 SPORTSGROUND DEMAND

Previous studies carried out by Hornsby Council indicate that the three high-participation sports of soccer, cricket and netball are also the sports with the greatest need for new sportsground facilities.

Table OS04 on the following pages shows the membership of soccer clubs throughout Hornsby Shire. Matched to the population of the suburbs the clubs are located in, it shows that the membership of the clubs south of Hornsby represent a higher proportion of their local populations than do the clubs in Hornsby and to the north. In summary:

- Soccer is available at 21 sportsgrounds (out of 41 grounds in the shire).
- A sportsfield is either a senior or junior field. A sportsground is a site that may contain a number of fields.
- There are 2 sites in the north west of the shire (Galston Rec Res and Wisemans Ferry) that are not used in winter.
- There are 3 sites in the north east of the shire that are undeveloped (Brooklyn Dairy site, Cowan tollgates site, Hornsby OMV) and could be made available in the future.
- The figures demonstrate lower participation in soccer in the NSFA catchment.
- The figures demonstrate significantly higher numbers of participating players per sportsfield in the GHFA catchment.

Feedback from these clubs and confirmed by Council's own observations over many years shows that congestion in the use of sportsgrounds for soccer training is far worse on grounds south of Hornsby than on those in Hornsby and to the north. Ground wear patterns also confirm this.

The conclusion that can be drawn is that the suburbs south of Hornsby should have a higher priority for the provision of new sportsgrounds than the suburb of Hornsby itself, and suburbs to the north generally.

To gain a complete understanding of sportsground demand a shire wide analysis is necessary. This is outside the scope of this study.

4. OPEN SPACE NEEDS AND DEMANDS

| Club | No. of registered players 2013 | Suburb | Suburb population 2011 | No. of soccer sports fields available |
|--|--------------------------------|---|------------------------|---------------------------------------|
| Gladesville Hornsby Football Association Clubs (GHFA) | | | | |
| Beecroft SC | 450 | Beecroft, Cheltenham | 10445 | 2 senior, 1 junior |
| Dural FC | 36 | Dural | 5372 | 3 senior |
| Hills Hawks SC | 612 | Arcadia, NW rural, Galston, Mid Dural | 6995 | 3 senior, 1 junior |
| Roselea FC | 586 | Carlingford | 3179 | 3 senior |
| North Epping SC | 478 | Nth Epping | 4251 | 1 senior, 1 junior |
| Normanhurst SC | 508 | Normanhurst | 5186 | 1 senior |
| Pennant Hills FC | 494 | Pennant Hills | 7037 | 1 senior |
| Thornleigh | 509 | Thornleigh, Westleigh | 12336 | 2 senior, 1 junior |
| West Pennant Hills/Cherrybrook | 1219 | Castle Hill, Cherrybrook, W Pennant Hills | 27677 | 4 senior |
| Epping YMCA | 462 | Epping | 13837 | 2 senior, 1 junior |
| Total | 5354 | - | 96315 | 22 senior, 5 junior |
| No. of people (pop.) per registered player | | | 17.99 | |
| No. players per field | | | 198.29 | |
| Northern suburbs Football Association Clubs (NSFA) | | | | |
| Asquith FC | 296 | Asquith | 3235 | 2 senior, 3 junior |
| Berowra FC | 785 | Berowra | 4469 | 1 senior |
| Brooklyn FC | 138 | Berowra Hts, Cowan, Brooklyn | 6795 | 1 senior, 2 junior |
| Hornsby RSL FC | 85 | Hornsby, Waitara, Wahroonga | 29353 | 1 senior |
| Hornsby RSL Youth FC | 179 | - | - | - |
| Hornsby Heights FC | 537 | Hornsby Heights | 5905 | 2 senior, 1 junior |
| Mt Colah FC | 549 | Mt Colah, Mt Kuring Gai | 8542 | 4 senior, 3 junior |
| Total | 2569 | - | 58299 | 11 senior, 9 junior |
| No. of people (pop.) per registered player | | | 22.69 | |
| No. players per field | | | 128.45 | |

Table OS04 Soccer participation rates in Hornsby Shire: GHFA and NDFA registered player No. compared to existing local suburb population in Hornsby Shire



4. OPEN SPACE NEEDS AND DEMANDS



4.3 REVIEW OF PREVIOUS OPEN SPACE STUDIES

The following report summaries provide informative statistics and insight into current participation in sport and recreation.

Exercise Recreation and Sport Survey (2010)

The Exercise, Recreation and Sport Survey (ERASS) collected information on the frequency, duration, nature and type of physical activities participated in for exercise, recreation or sport by persons aged 15 years and over between 2001 and 2010. A summary of key findings that are relevant to the Recreation Potential Study include:

- Physical activities:
 - The top ten physical activities in 2010, in terms of total participation rate, were walking, aerobics/fitness, swimming, cycling, running, golf, tennis, bushwalking, outdoor football and netball
 - Activities experiencing declines in participation between 2001 and 2010 included tennis (down 24% compared to 2001 and now at its second lowest participation rate since 2001), swimming (down 6% since 2001) and golf (down 5% between 2001 and 2010).
- Organised activities:
 - The top ten organised physical activities in 2010, in terms of total participation rate, were aerobics/fitness, golf, outdoor football (soccer), netball, Australian rules football, tennis, basketball, touch football, outdoor cricket and lawn bowls
 - In terms of the top ten organised physical activities, Australian rules football had the largest increase in total participation between 2001 and 2010, increasing by 64% since 2001
 - Other top ten organised activities experiencing increases in participation since 2001 were outdoor football (55% increase) and outdoor cricket (33% increase)
 - Of all top ten organised activities, tennis (-24%) and golf (-8%) experienced the greatest declines in participation between 2001 and 2010.
- Club based activities:
 - Regardless of gender, regular participation in club-based physical activity was most common among those aged 15 to 24 years (17.7%)
 - The top ten club-based physical activities in 2010, in terms of total participation rate, were golf, outdoor football, netball, Australian rules football, tennis, outdoor cricket, lawn bowls, touch football, basketball and martial arts
 - Of all top ten club-based activities, tennis (-13%) had the greatest decline in participation between 2001 and 2010.

4. OPEN SPACE NEEDS AND DEMANDS

ERASS Children's Report 2010

In 2009 and 2010, a number of questions were added to ERASS asking survey respondents with children aged between 5 and 14 years about their children's level of physical activity outside of school hours.

The key findings of the study include:

Participation in any physical activity

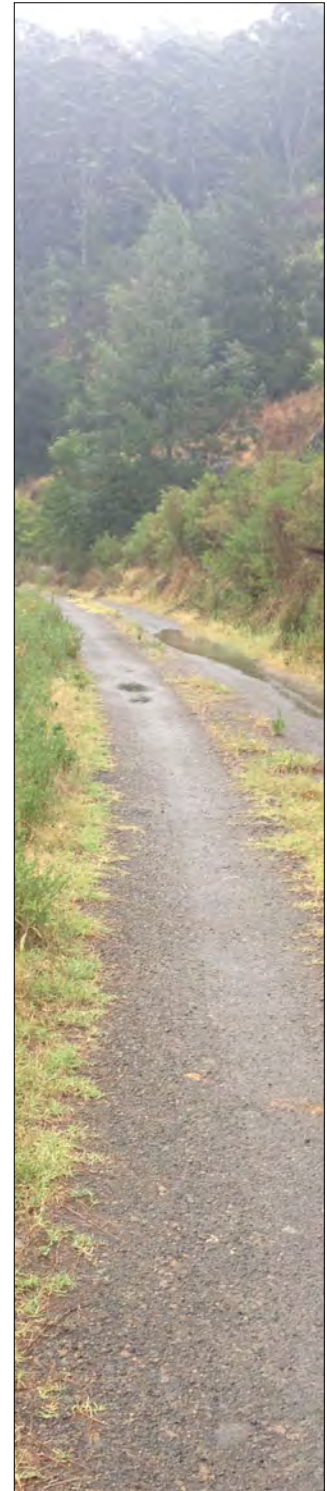
- An estimated 2.5 million children, or 92.4%, participated at least once per week outside school hours in the previous school term in physical activity
- The median frequency of participation outside school hours in any physical activity for all children aged between 5 and 14 years was nine times per week. Males participated more frequently (ten times per week) than females (seven times per week)
- An estimated 1.7 million children, or 61.8%, participated outside school hours seven times per week or more in any physical activity (including light, moderate and vigorous). Australian Physical Activity Recommendations for Children are at least 60 minutes (and up to several hours) of moderate to vigorous intensity physical activity every day
- Males, children aged between 8 and 12 years, children living in households where English only or a European language is spoken, and children whose parents are regular participants in physical activity, were more likely to be participating in physical activity daily. Among females aged 13 to 14 years only 44.4% participated daily. Among children living in households where a non-European language is spoken, only 43.8% participated daily.

Participation in organised physical activity

- An estimated 957,000 children aged between 5 and 14 years participated at least three times per week in organised physical activity, a regular participation rate of 34.7%
- The 'top ten' organised physical activities for children in 2010, in terms of term participation rate, were swimming, dance, outdoor football, basketball, tennis, netball, Australian rules football, martial arts, outdoor cricket and gymnastics. An estimated 518,000 children aged between 5 and 14 years (or 18.8%) participated in organised swimming in the previous school term

Participation in non-organised physical activity

- The 'top ten' non-organised physical activities in 2010, in terms of term participation rate, were walking, cycling, active play, swimming, gymnastics, running, outdoor football, roller sports, bush walking and outdoor cricket
- The median frequency of participation in non-organised physical activity for all children aged 5 to 14 years was six times per week; five times among females and seven times among males
- In general, frequency of participation in non-organised physical activity decreased as children grew older.



4. OPEN SPACE NEEDS AND DEMANDS



The Australian State of Play Report (2012)

This report commissioned by MILO focused on surveys of children, parents and grandparents with a total of 1,397 Australian respondents. Children surveyed were between eight to twelve years of ages. The summary of findings revealed that:

- The majority of children (65%) said outdoor play is their favourite activity
- Nearly 1 in 2 (45%) children don't play every day
- Majority of parents (95%) and grandparents (99%) agree that playtime is not only important but actually essential for children's development.

The revealing findings of the MILO report are relevant to new and existing residents with children.

Hornsby Leisure Strategic Plan (2002)

The overall objective for this project was the preparation of a strategic report that provides the 'basis for long-term leisure planning and services and facilities provision for the Hornsby community'. The Plan proposes strategies 'to best align service and facility provision with the identified leisure needs of Hornsby's present and future populations'.

The major finding of this Plan was that leisure facilities must be flexible, accessible and varied to allow for population 'life cycles' and consequent shifts in recreation focus. There will be times when some facilities will be overused and others under-used. Opportunities for making adjustments for these peaks and troughs and for catering for future (unknown) needs will be maximised where facilities have built-in flexibility. Stage 3 of the document lists a series of non-site specific generic Parks and Open Space improvements (page 12 to 13).

Unstructured Recreation Strategy (2008)

This report was undertaken for the Hornsby Shire Council to further develop issues arising from the Hornsby Leisure Strategic Plan prepared in 2002. The 2002 report highlighted a deficiency in the provision of some sporting, leisure and recreation facilities. The activities that were included as part of the Unstructured Recreation Strategy were:

- A range of unstructured sports undertaken for pleasure, away from the club competitive environment in social / family settings
- BMX and mountain biking
- Walking for recreation
- Dog socialisation and exercise
- Skateboarding and in-line skating
- Horse riding trails
- Playgrounds
- Recreational fishing

With regard to specific parks and places that provide open space and recreation opportunities within or close to the study area the Unstructured Recreation Strategy Maps highlighted the need for Preliminary Assessment of BMX and MTB trail sites (schedule 8).

4. OPEN SPACE NEEDS AND DEMANDS

Other projects considered to be those of the highest priority:

- Attempt to provide one speciality/mixed recreation park in each suburb or planning district, where there is a cluster of facilities for social and unstructured recreation activities suitable for a range of ages. Typically, this park would have a play space, kick-to-kick area, an offleash dog exercise area, hard court for informal ball play as well as an accessible formed path circuit suitable for children's cycling and people with disabilities, and access to toilets (at key reserves)
- Provide a hierarchy of trails across the Shire to suit a wide range of pedestrian and non-motorised wheeled activities: urban footpaths, equestrian and shared trails; bike trails in urban bushland, sealed circuit paths in larger parks
- Priority for playground development to be given to larger parks such as those with regional, shire-wide or suburb-wide catchments.

Due to the site's location and size the above points are relevant and should be considered as part of the recreational potential of the site.

The report also states that a feasibility study was conducted concerning a future skate park in Hornsby, however no suitable site has emerged, nor is likely to in future. Hornsby Park was previously considered then rejected by Council as being an unsuitable site.

Sports Facility Strategy (2006)

The SFS study had the following aims and objectives (relevant to this project):

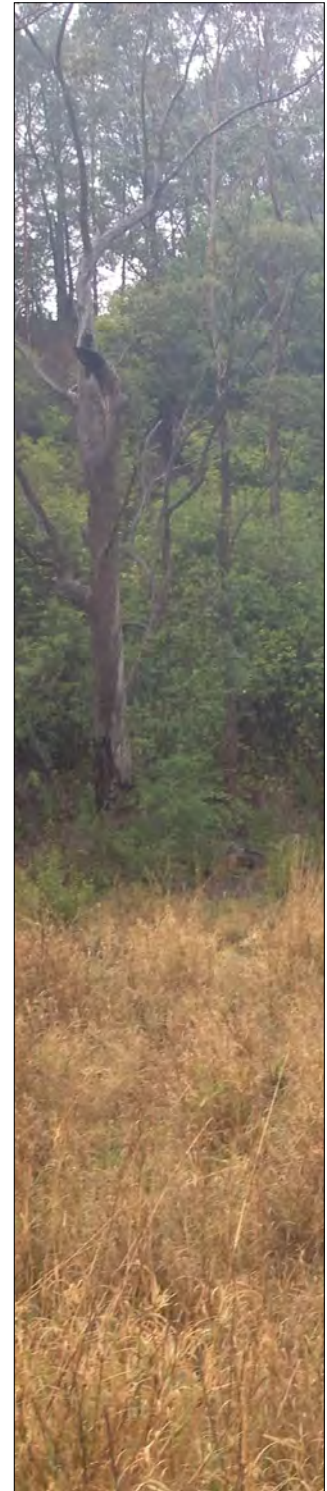
- Identify the adequacy (or otherwise) of the condition and distribution of existing outdoor sporting facilities to meet current and future needs (especially soccer, cricket and netball facilities)
- Confirm the existing and likely future unmet needs of the broader community and sports clubs in relation to outdoor sports facility provision (specifically the sports of soccer, cricket, and netball)
- Prepare a strategic approach for the future provision of soccer, cricket and netball facilities, including potential new sites for additional facility development.

The Action plan specifically mentions Hornsby Quarry:

- Significant land area although site constraints for sports field developments due to topography
- Substantial buildings existing on site
- Community consultation supports sportsground on adjoining reserve in Old Mans Valley together with some residential uses
- Long-term prospect only.

The Action plan specifically mentions Old Mans Valley:

- A portion of the land has been levelled but has not been developed
- Suitable size for senior sports oval and/or 2 soccer fields.
- Access to site is difficult and will need to be formalised



4. OPEN SPACE NEEDS AND DEMANDS



- Site is currently under active consideration for development of a sports ground as part of the broader strategic land use planning study.

The Action Plan identifies Old Mans Valley be considered for several sports codes including cricket (page 35); rugby union (page 38); soccer (page 38) baseball (page 47). The site is listed as a low priority Capital Development Project with an allocation of \$2 to 5 million funding.



Section 94 Development Contributions Plan (adopted 2014)

The Hornsby Shire Council Section 94 Development Contributions Plan 2012 - 2021 has been prepared to satisfy the requirements of the Environmental Planning and Assessment Act and Regulation, enabling Council or an accredited certifier to levy contributions from development for the provision of community infrastructure, such as open spaces and improvements to existing open spaces, that is required to meet the demands of that development.

The Section 94 Plan also identifies funding for a specialty park and sportsground of \$15m within Old Man Valley Lands. Issues related to forecast population and provision of open space, derived from the Plan are discussed in more detail in the following pages of this section.



4.4 OPEN SPACE SETTINGS

Based on existing Council open space settings and previous studies the following settings would be appropriate to develop at the Hornsby Quarry and Old Mans Valley Lands site.

Passive Parklands

- Open spaces which have had their physical character and/or vegetation modified to support community recreation, community development and wellbeing uses
- Facilities could include play spaces, paths, fences, lighting, public art, toilets, amenity buildings, cafe/kiosk etc.



Outdoor Sports

- Venues designed to support organised sports, including training and competition
- Facilities could include formal fields, courts, buildings (change rooms, toilets, amenities, cafe), lighting, irrigation, fencing, car parks etc.

Conservation of Natural and Cultural Heritage

- Open spaces created to protect and enhance natural and cultural resources, but which also have a quiet/passive recreation/leisure dimension such as walking, bushwalking, cycling, tourism visitation
- Assets could include native bushland or grassland

Creeks and wetlands

- Water bodies including lake, pond, permanent or ephemeral creek
- Assets could include shoreline, boardwalks, creek bank, water treatment infrastructure

Some passive parklands activities: community garden, informal sports, picnics and social gatherings, walking and play areas.

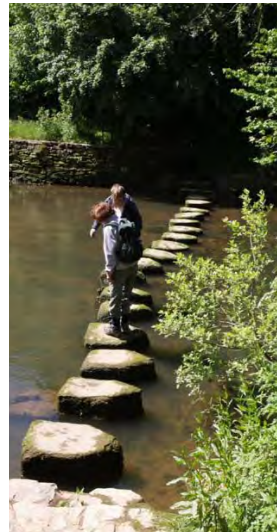
4. OPEN SPACE NEEDS AND DEMANDS



A mixture of formal; sports that could be accommodate on site



Bushwalking through natural heritage bushland; cultural heritage steps and structures in OMV



Creek crossing and boardwalks

4. OPEN SPACE NEEDS AND DEMANDS



In addition to the open space settings identified on the previous pages there are also several other types of recreation or settings that could be accommodated on site:

Outdoor adventure activities

- Rely on natural or man-made features within the site to create challenging environments
- Associated with outdoor education, but not limited to
- Some adventure activities within the open space are operated/managed by private providers

For current trends in adventure recreation refer to appendix... (Adventure Tourism Report)

Outdoor events

- Community events
- Combination of public or private events that require ticket sales
- Intimate or larger events

This list is expanded in section 6, following on from the Precedent Study in section 7 which has ultimately influenced and informed the Landform Design Options in section 8.

4.5 IMPLICATIONS FOR THE RECREATION POTENTIAL STUDY

The key implications for the potential recreation opportunities of the site are:

- Existing open space provision within the suburbs of Hornsby, Asquith and Waitara reveals an overall under provision when compared to the shire wide figures in table OS01.
- The potential additional open space provided by the study site would make a significant contribution towards open space provision for the three suburbs and the entire Shire. For the three suburbs of Hornsby, Asquith and Waitara, which will experience an increase in high density residential living. The provision of a large open space will have a direct impact on the ability of some residents to access more open space within walking or cycling distance from their home. It will also contribute to reducing the existing deficit in specialty parks in the area.
- Sportsground provision is well under Shire provision standards for Hornsby and Waitara, where as Asquith is nearly double the Shire wide standard of provision. The OMV PoM allows for the development of a sportsground. However Council should consider the nature and type of sportsground that is provided. A 'Town Park' that is not dedicated to one particular sports code or a ground that is only used for training could ease the under provision and provide council with a flexible open space central to Hornsby CBD.
- The issue of additional sportsground provision should be considered with other site specific factors and other research put forward in this study:
 - The existing topography of the site, i.e. sloping land with small to medium level areas and other areas of steep slopes, does not suit the creation of level sportsfields, without major cost and construction.

4. OPEN SPACE NEEDS AND DEMANDS

- The development of sportsgrounds on the site will be expensive in terms of excavation, cutting and filling, vegetation clearance, access roads and other infrastructure. The location of potential sportsgrounds on the western side of the site would incur additional costs relating to access and infrastructure.
 - Access to the site is limited to one main road. This could be an issue for future maintenance and hosting of competition events.
 - The acoustics associated with night time training and competitions could pose an issue for local residents.
 - On a shire wide assessment the creation of sportsfields in this unique location may be a lower priority when compared to other more suitable sites in the Shire, for example the Old Dairy site in Brooklyn, Tollgates site in North Berowra and Sydney Water site in Westleigh.
 - The provision of sportsgrounds in this location does not relate to the unique qualities and setting of the site. The 'quarriiness' mentioned previously is directly related to the topography of the site which would be lost through the creation of level areas for sports within the quarry lands. This would in turn result in the loss of the dramatic landscape, water body diatreme and quarry walls that give the site its unique qualities.
 - Based on Council's previous studies and detailed figures on soccer participation the higher needs of soccer, the suburbs south of Hornsby should have a higher priority for the provision of new sportsgrounds than the suburb of Hornsby itself, and suburbs to the north generally.
- Due to the size of the site a variety of open space settings could be accommodated. However the temptation to include a wide range of facilities should be avoided. The site should be developed over a period of 10 to 20 years allowing the site to evolve and be shaped by community demands and opportunities to deliver site specific responses. This is further supported by current trends in adventure tourism as noted in the Adventure Tourism Report (See Appendix D).
 - The unique qualities of the site could allow for the introduction of some adventure recreation activities and supporting facilities such as those that take advantage of the level differences, water body, tree canopy etc. and continued mountain biking trails. This is explored in section 7.
 - The site, due to it's size and location (adjacent to Hornsby CBD, Aquatic Centre and train station, Berowra Valley National Park Regional, Great North Walk etc.) has the potential to become a regional park, providing for residents throughout the Shire and other parts of Sydney. However the site will also need to provide open space facilities for the local and neighbourhood population that will want to access walking trails, passive open space, play grounds etc. as part of the open space within their immediate community.



5. HORNSBY, ASQUITH AND WAITARA COMMUNITY



Hornsby Quarry

5. HORNSBY, ASQUITH AND WAITARA COMMUNITY

5.1 POPULATION AND DEMOGRAPHICS

For the purpose of this study the following communities have been identified as the potential local catchment suburbs for the Hornsby Quarry and Old Mans Valley Lands site: Hornsby, Asquith and Waitara.

Although it is likely the site will become a regional attraction over time as the populations of Hornsby, Asquith and Waitara increase the study site will become increasingly popular as a local and neighbourhood open space resource and a place for recreational activity.

The following section provides a summary of the population characteristics and demographics of the three suburbs. A detailed description of the suburbs is contained in Appendix B.

Population

The combined population for three suburbs is 28,641 people, as recorded in the 2011 census. There are slightly more females (51.2%) than males (48.2%) with an event percentage across all three suburbs.

| Suburb | Population | Suburb size (Ha) | Population Density (persons per Ha) |
|---------------------------------|---------------|------------------|-------------------------------------|
| Hornsby Shire | 165,090 | 46,230 | 3.57 |
| Hornsby | 20,446 | 840 | 24.34 |
| Asquith | 3,294 | 347 | 9.49 |
| Waitara | 4,901 | 77 | 63.90 |
| TOTAL study area suburbs | 28,641 | 1,264 | 22.65 |

Table HAW01 Population summary

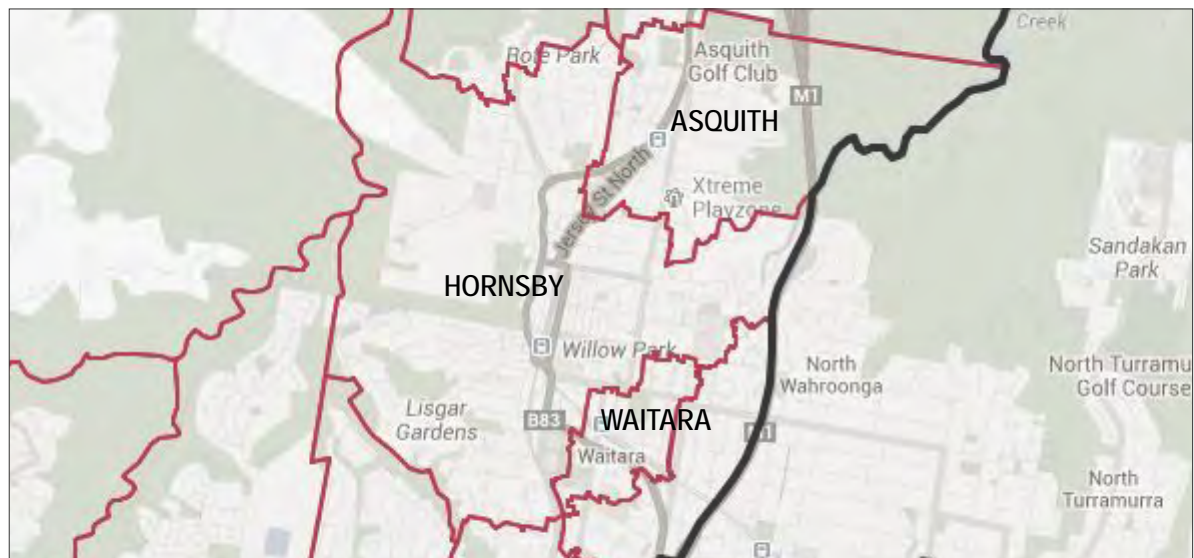


Figure HAW01 Suburb Map

5. HORNSBY, ASQUITH AND WAITARA COMMUNITY



Age Groups

The largest age groups in the combined suburbs of Hornsby, Asquith and Waitara are:

- Young workforce (25 to 34), growth of between 34 and 337 people from 2006 to 2011, representing 18.6% of the combined suburbs.
- Parents and homebuilders (35 to 49), growth of between 78 and 371 people from 2006 to 2011, representing 24.0% of the combined suburbs.
- Older workers & pre-retirees (50 to 59), growth of between 15 and 206 people from 2006 to 2011, representing 11.4% of the combined suburbs.

Parents and homebuilders represent the largest portion of the population with young workers represent the fastest growing age group across all three suburbs.

The age span of the three groups is 34 years (from 25 to 59) and represents a variety of potential recreation needs/demands based on differing life cycles.

Younger age groups are also on the rise including babies and pre-schoolers (0 to 4). Residents in this age group have grown by between 52 and 150 over the three suburbs. Primary schoolers (5 to 11) are also increasing in number ranging from 50 to 201 over the three suburbs.

At the other end of the age groupings empty nesters and retirees (60 to 69) are also on the increase across all three suburbs.

| Group | Hornsby | | Asquith | | Waitara | | Total Group | |
|---|---------------|----------|--------------|----------|--------------|----------|---------------|-------------|
| | No. | % | No. | % | No. | % | No. | % |
| Young workforce (25 to 34) | 3,783 | 18.5 | 342 | 10.4 | 1,205 | 24.6 | 5,330 | 18.6 |
| Parents and homebuilders (35 to 49) | 4,996 | 24.4 | 738 | 22.4 | 1,141 | 23.3 | 6,875 | 24.0 |
| Older workers & pre-retirees (50 to 59) | 2,387 | 11.7 | 477 | 14.5 | 394 | 8.0 | 3,258 | 11.4 |
| Total suburb population | 20,446 | - | 3,293 | - | 4,901 | - | 28,640 | 54.0 |

Table HAW02 Age Group summary

Households

The most common household groups in the combined suburbs of Hornsby, Asquith and Waitara are:

- Couples with children - 32.4% of the Hornsby population, 42.6% of Asquith and 29.3% of Waitara
- Couples without children - 23.0% of Hornsby, 23.1 of Asquith and 24.4 of Waitara
- Lone person households - 25.2 of Hornsby (despite a decrease of 15 people),

5. HORNSBY, ASQUITH AND WAITARA COMMUNITY

18.3% of Asquith (no growth), 31.1% of Waitara (growth of 18 people)

Analysis of household groups provides some clues to the open space needs and demands of the community. Generally households with children will seek play spaces and other active or passive spaces for exercise, leisure and social/family gatherings. The types of accommodation that people live in is linked to household types.

For instance, generally a family living in high density will demand more open space when compared to a family living in a detached house with private yard or garden.

Households with Children

Following on from the high numbers of couples with children living in the three suburbs the largest types of households with children in 2011 were couples with young children with growth of 485 households from 2006 to 2011.

The second and third largest groups in the three suburbs were alternated between the suburbs:

- Single parents with children - overall growth of 43 households from 2006 to 2011
- Couples with older children - overall growth of 84 households from 2006 to 2011

Cultural Diversity

Country of Birth data identifies where people were born and is indicative of the level of cultural diversity in Hornsby, Asquith and Waitara.

| Suburb | % From Non English Speaking Country | 2006-2011 Born Overseas growth | | 2006-2011 non-English speaking growth | |
|---------|-------------------------------------|--------------------------------|------|---------------------------------------|------|
| | | No. | % | No. | % |
| Hornsby | 38% | 1,536 | 19.3 | 1,652 | 26.6 |
| Asquith | 21% | 241 | 32.0 | 204 | 41.3 |
| Waitara | 51% | 963 | 51.0 | 1,004 | 68.1 |

Table HAW03 Cultural diversity summary

People born in India make up the fastest growing country of birth group across the combined suburbs. People born in China, South Korea, Nepal and Iran make up the largest overseas born groups.

Indigenous population

The Aboriginal and Torres Strait Islander Census population of the Hornsby Shire in 2011 was 565, living in 292 dwellings. Detailed information on Indigenous population is not provided for the individual suburbs.

Mobility

Motor vehicle ownership is on the rise in every category in each suburb. Compared to 54% of Hornsby Shire:

- 30% of households in Hornsby had access to two or more vehicles
- 46% of households in Asquith had access to two or more vehicles
- 18% of households in Waitara had access to two or more vehicles



5. HORNSBY, ASQUITH AND WAITARA COMMUNITY



5.2 POPULATION FORECAST

Hornsby Shire

Residential forecasts for the LGA have been undertaken as part of the Section 94 Plan and have taken into consideration:

- The Draft North Subregional Strategy (DNSS) (DoP, 2007)
- The Hornsby Shire Housing Strategy (Hornsby 2010);
- The Ku-ring-gai and Hornsby Subregional Employment Study (SGS, 2008); and
- Historical development approvals/constructions and data from Sydney Water Corporation relating to dwelling connections.

In the Section 94 Plan the occupancy rate is 3.02 for houses and 2.3 for residential accommodation. These types of housing could both make up infill development, therefore the average of both (2.7, rounded down to 2.5) has been used for infill occupancy rates.

However, the occupancy rates for units/townhouses should be 2. In the Section 94 Plan, the occupancy rate ranges from 1.24, 2.02, 2.3 and 2.7, therefore the average of 2 has been used for the Housing Strategy and townhouse developments, Hornsby West Side and future growth after 2021.

Therefore:

- The forecast local population for Hornsby Shire Council area for 2012-2021 is 10,020 (based on table 6, page 26 of the Section 94 Plan).
- The forecast local population for Hornsby Shire Council area for 2021-2031 is approximately 7,800 (based on 3900 new dwellings multiplied by 2 persons and includes growth from West Side Precinct (see below)).

Hornsby suburb

Based on information provided by Hornsby Shire Council the total estimated increase in population for Hornsby between 2013 and 2021 includes:

- Growth from infill development is approximately 2,073 (based on 829 dwellings multiplied by 2.5 persons)
- Growth from Housing Strategy and townhouse developments is approximately 1,060 (based on 530 dwellings multiplied by 2 persons)
- A total of 3,133 new residents to the suburb of Hornsby.

Forecast local population for the Hornsby suburb for 2021-2031 is based on the West side Precinct with approximately 1000 dwellings, at 2 persons per dwelling which equates to 2,000 new residents.

| Category | Hornsby Land Area (hectares) | Standard of Provision (m2 per person (2011 pop.)) | New Open Space (Ha) | Notes | Exig pop. | Projected pop. to 2021 | Projected pop. to 2031 | Projected Land Area (Ha) | Standard of Provision (m2 per person (2021 pop.)) | Standard of Provision (m2 per person (2031 pop.)) |
|---------------------------|------------------------------|---|---------------------|--|---------------|------------------------|------------------------|--------------------------|---|---|
| Hornsby | | | | | 20,446 | | 2000 | | | |
| Local Reserves | 23.77 | 11.63 | | | | | | 23.77 | | |
| General Community Use | 2.199 | 1.08 | | | | | | 2.199 | | |
| Sportsgrounds | 3.97 | 1.94 | 7 | New parks in OMV/Quarry (excluding bushland) | | | | 11.97 | | |
| Total Hornsby OS | 29.939 | 14.65 | | | | | | 37.939 | | |
| Asquith | | | | | 3294 | | | | | |
| Local Reserves | 0.523 | 1.59 | 0.5 | Acquisition in S94 plan | | | | 0.523 | | |
| General Community Use | 0.56 | 1.70 | | | | | | 1.06 | | |
| Sportsgrounds | 9.7 | 29.33 | | | | | | 9.66 | | |
| Total Asquith OS | 10.783 | 32.62 | | | | | | 11.243 | | |
| Waitara | | | | | 4901 | | | | | |
| Local Reserves | 0.3 | 0.61 | 0.5 | Acquisition in S94 plan | | | | 0.8 | | |
| General Community Use | 0.0 | 0.00 | | | | | | 0 | | |
| Sportsgrounds | 3.2 | 6.53 | | | | | | 3.2 | | |
| Total Waitara OS | 3.5 | 7.14 | | | | | | 3.5 | | |
| Total of 3 suburbs | | | | Total Population | 28,641 | 4,838 | 2,000 | | | |
| Local Reserves | 24.593 | 8.59 | 1 | Growth | - | 14.5% | 5.6% | 25.593 | 7.64 | 7.21 |
| General Community Use | 2.759 | 0.96 | | | | | | 2.759 | 0.82 | 0.78 |
| Sportsgrounds | 16.8 | 5.88 | 7 | | | | | 24.83 | 7.42 | 7.00 |
| Total Open Space | 44.152 | 15.43 | 8 | Total pop/provision | 28,641 | 33,479 | 35,479 | 53.182 | 15.89 | 14.99 |

Table HAW04 Open Space provision for 2021 and 2031 horizon. Please note the total open space Ha provision for OMV/Quarry could be up to 17.5Ha depending on the type of landfill/stabilisation solution.

5. HORNSBY, ASQUITH AND WAITARA COMMUNITY



5.3 IMPLICATIONS FOR FORECAST OPEN SPACE PROVISION

Open Space Calculations

- Based on the existing Hornsby suburb population, the forecast population figures and the open space provision standards determined by HSC's Section 94 (see section 4.1) there will be an open space deficit in 2021 and 2031 for the suburb of Hornsby (see Table HAW04).
- A further 26.27 Ha of bushland exists within the suburb. This excludes the Old Mans Valley open space lands that are the subject of the Old Mans Valley Plan of Management. Determining the portion of the site that is currently used for recreation and adding that figure to the calculations could reduce the overall deficits for existing and future provision.
- Similarly Hornsby Park and Pool combined are 14.4Ha. The majority of the site is bushland but could be used for recreation in the future and therefore further reduce the open space deficit figures.
- Hornsby Quarry is approximately 20Ha and although not all of the site would be usable for open space or recreation due to steep slopes, significant bushland etc. the development of the site could help to overcome the open space deficits for Hornsby and the shire.
- The proposed new open space, consisting of 1 Ha of local reserves and 9 Ha of sportsgrounds (including OMV) would allow for the existing level standard of provision (15.43Ha) for the three suburbs to be maintained (and slightly increased) up to 2021. However the standard of provision reduces looking towards 2031 as the population increases and new open space provision is not identified.
- Overall when compared to the shire wide standard of provision there is a lack of open space provision across the combined three suburbs.

Sportsgrounds

- Of particular interest to Council is the provision of additional sports grounds. Table HAW04 indicates an existing deficit of 11.12 Ha of sportsgrounds in the three suburbs (despite Asquith's over provision). It is unlikely that Council are in a position to purchase land for the creation of an additional 5 new sportsgrounds within the three suburbs (based on 2.5ha in size for 1 sports ground) to meet the Section 94 benchmark standard and it is considered reasonable for Council to look to provide sportsgrounds at a shire wide scale.
- There are several sportsgrounds in close proximity to the study area. Storey Park (2.4Ha), James Park (2.6Ha) and Waitara Park (3.2Ha) all provide a variety of facilities that could all be described as district facilities (open spaces that provide for a variety of active and passive recreation needs and can accommodate large group activities, organized sports and offer opportunities for cultural expression and environmental education (see appendix A)). Other nearby sportsgrounds such as Rofe Park and Mills Park also provide good opportunities for organised sport for this local community.

5. HORNSBY, ASQUITH AND WAITARA COMMUNITY

- Hornsby, as the centre of the LGA is lacking in a regional park/sportsground.
- A regional park or space would perform the same open space/recreation functions as a district level facility and would also provide:
 - Unique recreation opportunities or landscape settings
 - A regional attraction with
 - Potential for high environmental or cultural heritage values
 - Opportunity for other recreation activities that take advantage of the unique landforms, such as adventure recreation.
- See also section 4.5 for specific comments regarding the provision of sportsgrounds in relation to the site characteristics.

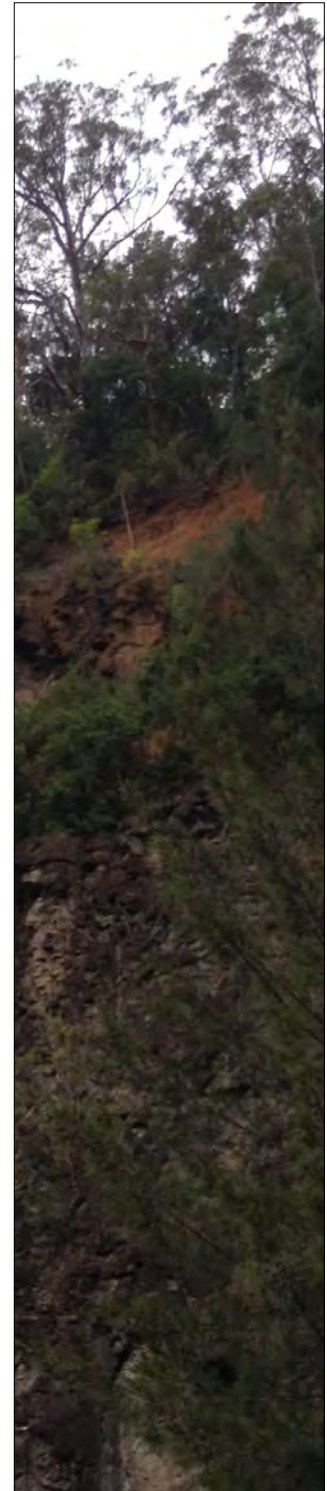
Predicted characteristics of the future population

Based on demographic trends recorded between 2006 to 2011 it is predicted that there could be a proportionally larger number of the following groups moving into Hornsby:

- Age groups
 - Parents and homebuilders (35 to 49) which represent largest portion of the population.
 - Young workforce (25 to 34) which represent the fastest growing age group
 - Older workers & pre-retirees (50 to 59)
 - Primary schoolers (5 to 11)
- Households
 - Couples with and without children
 - Single parent families
 - It could be assumed that the West Side Precinct development could attract higher proportions of the young workforce (25 to 34), couples, single parent families and lone persons due to the high density living options.
- Culturally and Linguistically Diverse (CALD)
 - Continued growth of residents from Asian countries including China, India, South Korea, Philippines, Hong Kong and also the United Kingdom
 - Continued growth of residents from non-english speaking backgrounds

Types of open spaces and recreation uses to meet future population

- A variety of open spaces will be required to meet the future population open space and recreation needs. In particular the following open spaces could be considered to create an open space network that offers variety of settings and types of recreation for the following (some are repeated for the different groups)



5. HORNSBY, ASQUITH AND WAITARA COMMUNITY

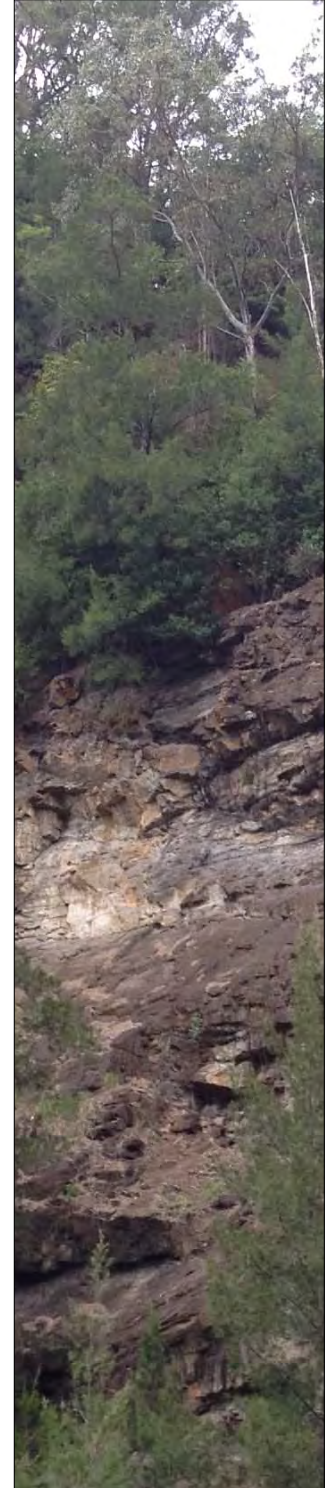


- Households with children:
 - Play spaces
 - Sports facilities that accommodate informal and or junior sport training with no permanent sports infrastructure nor floodlighting
 - Picnic/BBQ facilities and shade/tables
 - Informal active areas with passive elements for family recreation including kickabout
 - Youth spaces including multi use areas and skate facilities
 - Sports facilities that accommodate multiple sports and hard courts with supporting infrastructure such as floodlighting, seating, change rooms and canteens/kiosks.
 - Adventure sports such as ropes courses, abseiling, rock climbing
- Older workers and pre-retirees:
 - Community gardens and nursery
 - Dog off leash exercise areas
 - Specific areas of interest including natural areas and bushland with walking trails, seating, maps etc.
- The young workforce
 - Youth spaces including multi use areas and skate facilities
 - Cultural and civic spaces for events and or ceremonies/celebrations
 - Adventure sports such as ropes courses, abseiling, rock climbing
- CALD residents
 - Cultural and civic spaces for events and or ceremonies
 - Picnic/BBQ facilities and shade/tables
 - Youth spaces including multi use areas and skate facilities
 - Sports facilities that accommodate multiple sports and hard courts with supporting infrastructure such as floodlighting, seating, change rooms and canteens
- The recreation types listed above are an example of the types of recreation uses that could occur on the site and are specific to the listed groups. They should be regarded as a starting point for further discussion.

5. HORNSBY, ASQUITH AND WAITARA COMMUNITY

Types of Open Space

- With regard to provision of different types of open space within the three suburbs there is:
 - Sufficient natural area available in the local area. However access to these spaces may be limited.
 - Access to the natural area needs to be balanced with high environmental values. The recreation opportunities that can be offered to the growing population in a bushland setting include a variety of passive and active activities such as walking, jogging, bush walking, orienteering, mountain biking etc.
 - There is potential for more adventure, specialised activities to be made available in the unique site. These kinds of activities could provide specialised recreation options for the shire community and provide council with a revenue stream for the ongoing maintenance and development of the site.
 - Figure OS01 shows limited local parks in high density areas, especially to the west of the Pacific Highway and the railway line. The study area has the potential to provide open spaces that perform both local and neighbourhood functions as part of a regional facility.



6. PRECEDENT STUDY



Quarry Garden in Shanghai Botanical Garden

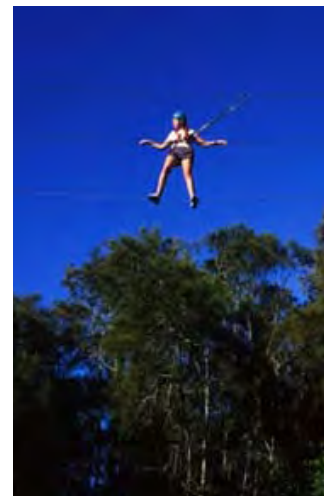
6. PRECEDENT STUDY

As part of the project brief several precedent projects have been identified in the following categories:

- Adventure recreation sites - these are predominantly privately operated and not located in public open space. Some examples include:
 - The Sydney Academy of Sport at Narrabeen provides abseiling, archery, bushwalking, orienteering, kayaking and canoeing, challenge ropes course and swimming. Accommodation for large groups is available on site.¹
 - The Great Aussie Bush camp, located at Kincumber and Tea Gardens (near Port Stephens) offers over 40 activities focused on outdoor education including abseiling, ropes courses, raft building, rock climbing, sea kayaking.²
 - Somerset Outdoor Learning Centre, Colo NSW offers a variety of outdoor education experiences including bushwalking expeditions, canoeing, airbedding, abseiling and rock climbing.³
- Multi- recreation sites - large public accessible spaces that provide a variety of passive/active activities including water based activities.
- Rehabilitated Quarry sites - rehabilitated and transformed into publicly accessible spaces these examples demonstrate the variety of recreation/leisure activities that could be incorporated into an old quarry site and innovative ways to allow public access.
- Post Industrial sites - rehabilitated and open to the public these projects demonstrate best practise adaptive re-use of abandoned buildings.

Three other themes are explored:

- Old Structures
- New Structures
- Imaginative Play



1 <http://www.dsr.nsw.gov.au/sydneyacademy/accom.asp>

2 <http://www.bushcamp.com.au/activities-overview.html>

3 <http://www.campsomerset.com.au/explore-somerset-5.html>

6. PRECEDENT STUDY

MULTI- RECREATION PARKS

| | | |
|-------------------------|--|--|
| Park name | Manly Warringah War Memorial Park (Manly Dam) | |
| Location | 112 King Street Manlyvale, Sydney, NSW | |
| Park size (Ha) | 375 (78% bushland); 30Ha lake | |
| Description | Manly Dam Reserve (also known as the Manly-Warringah War Memorial Park) is an area of urban bushland in the Northern Beaches region of Sydney, Australia. It is within the suburbs of Allambie Heights and Manly Vale in Warringah. The Park has a wonderful diversity of flora and fauna. It's great for picnics by the water and is renowned for mountain biking and water skiing. | |
| Features | Lake, major playground, mountain bike trail, walking trails | |
| Recreation activities | <p>Mountain Biking With several access points from the surrounding street network. The trails provide for a range of abilities.</p> <p>Water Skiing A section of the lake is available for waterskiing through the Manly and Warringah Water Ski Club.</p> <p>Fishing The dam is stocked regularly with Australian bass, however other species that may be caught are silver perch, carp and redfin.</p> <p>Swimming and Kayaking A section of water is a dedicated waterskiing area and is prohibited for swimming and non-motorised water activities. Other designated swimming areas indicated by buoys and signs.</p> <p>Bushwalking Several tracks catering for different abilities ranging from 0.35km to 7.3km.</p> <p>Other activities Bird watching, Cycling, Jogging, Dog walking (dogs are allowed on bushwalking tracks but only if they are on a leash), picnics etc.</p> | |
| Facilities | Picnic area with tables and barbecues Playground Showers Public toilets | Boat Ramp Bus Stop within 100m Walking tracks/paths Car parking |
| Relevance to study site | Potential for water based activities such as scuba diving training, kayak/canoe lessons, paddling at waters edge, swimming, at a smaller scale than Manly Dam Multiple recreation activities (non-field sports based) Council owned and managed (Warringah Shire Council) Topography, surrounding bushland and natural values | |
| Information source | http://www.warringah.nsw.gov.au/play/parks-gardens-and-reserves/manly-dam | |

6. PRECEDENT STUDY



Manly Dam map

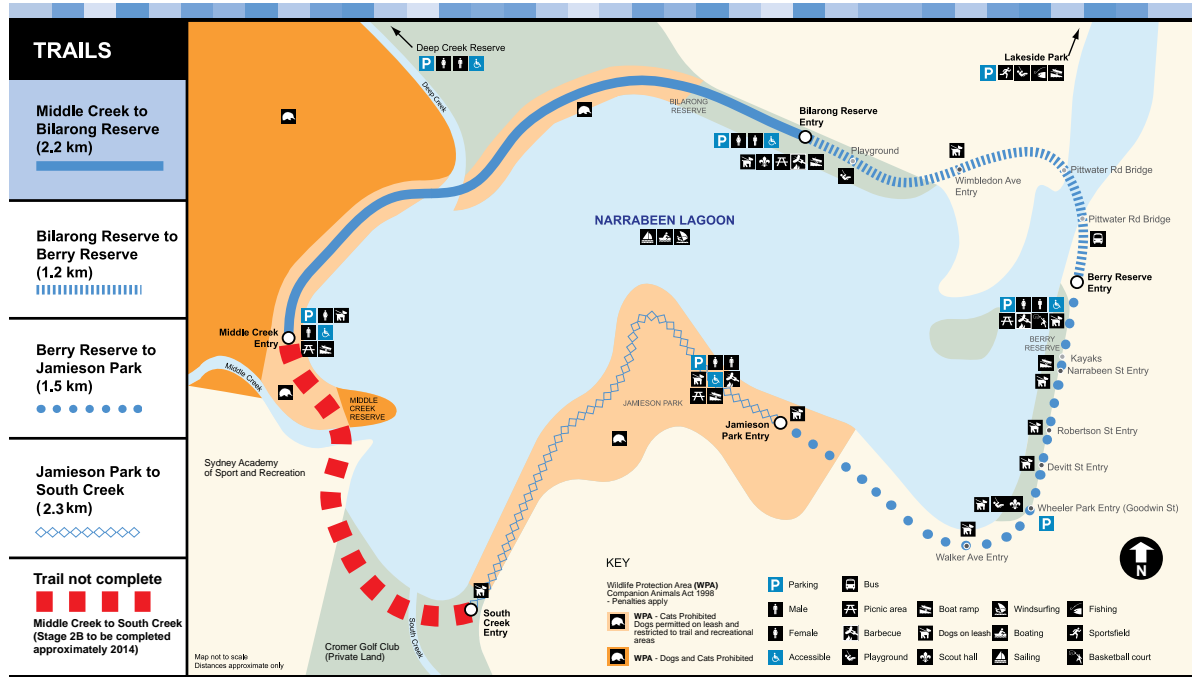


Manly Dam in its bushland setting

6. PRECEDENT STUDY

| | |
|--------------------------------|--|
| Park name | Narrabeen Lagoon |
| Location | Narrabeen, Sydney, NSW |
| Lake size | approx. 200Ha (park is mostly located around the edge of the lake) |
| Park designers | ASPECT STUDIOS |
| Construction budget | 1.8 Million (Narrabeen Lagoon Multi-use Trail Stage 1) |
| Description | <p>Narrabeen Lagoon is 2km² and is Sydney's northern beaches largest coastal lagoon. The lagoon provides for a variety of water sports such as wind surfing, fishing, boating and swimming. The peripheral path allows cyclists, joggers walkers and people of all-abilities to circumnavigate the lagoon.</p> <p>The Sydney Academy of Sport and Recreation is located on the western side of the lake and provides active/formal recreation opportunities.</p> <p>There are several entrances into the parklands allowing neighbouring residents to the east and north to walk to the site.</p> |
| Features | Lake, bushland setting, Sydney Academy of Sport and Recreation |
| Recreation activities | Water sports, fishing, bushwalking, bird watching, cycling, jogging, picnics, play Organised sports and fitness at the Academy |
| Facilities | Showers, public toilets, picnic tables, playground, picnic area, car parking, bus stop within 100m, boat ramp |
| Relevance to study site | <p>Potential for water based activities such as scuba diving training, kayak/canoe lessons, paddling at waters edge, swimming</p> <p>Multiple passive, non-formalised recreation activities</p> <p>Council owned and managed (Warringah Shire Council)</p> <p>Surrounding bushland and natural values</p> |
| Information sources | <p>http://www.warringah.nsw.gov.au/environment/catchments/lagoons/narrabeen-lagoon-environment</p> <p>http://www.warringah.nsw.gov.au/play/narrabeen-lagoon</p> |

6. PRECEDENT STUDY



Narrabeen Lake map



Narrabeen Lake walking paths and sitting areas



Water based activities



Boardwalks



Sitting areas

6. PRECEDENT STUDY

REHABILITATED QUARRY SITES

| | |
|-------------------------|---|
| Park name | Quarry Garden, Shanghai Botanical Garden |
| Location | Songjiang District, Shanghai, China |
| Park size (Ha) | 4.26 |
| Park designers | THUPDI & Tsinghua University, Beijing |
| Description | <p>Quarry Garden is located at the centre of Shanghai Chen Mountain Botanical Garden. Chen Mountain is located within the Gardens and is nearly 70 meters high. Two quarries were formed between the early 1900's and the 1980's. Remnants of the quarry include one deep pool and an exposed rock hill.</p> <p>The rehabilitation was based on ecological restoration and culture reconstruction strategies. The site is now a major tourist destination and recipient of the American Society of Landscape Architecture 2012 Honour Award.</p> |
| Features | Quarry lake, viewing area, tunnels (created as part of the original quarry), smaller lake, lawn areas, ornamental gardens. |
| Recreation activities | Walking, contemplation/reflection, picnics, interpretation, tourism |
| Facilities | As part of the larger Botanical Gardens site |
| Relevance to study site | <p>The Quarry is a feature in a much larger tourist destination</p> <p>Dramatic, vertical landscape is retained, as is the water body</p> <p>Simplicity of materials links to the site's industrial heritage</p> <p>Interaction with the quarry wall and lake is limited. However the experience of walking along the staircases and through the tunnels is an interesting experience in itself</p> <p>Viewing platform at the top of the site</p> <p>Ecological restoration</p> |
| Information source(s) | <p>http://www.asla.org/2012awards/139.html</p> <p>http://www.thecoolhunter.com.au/article/detail/2115</p> <p>http://www.landezine.com/index.php/2013/02/quarry-garden-in-shanghai-botanical-garden/</p> <p>http://land8.com/profiles/blogs/quarry-garden-shanghai-china</p> |

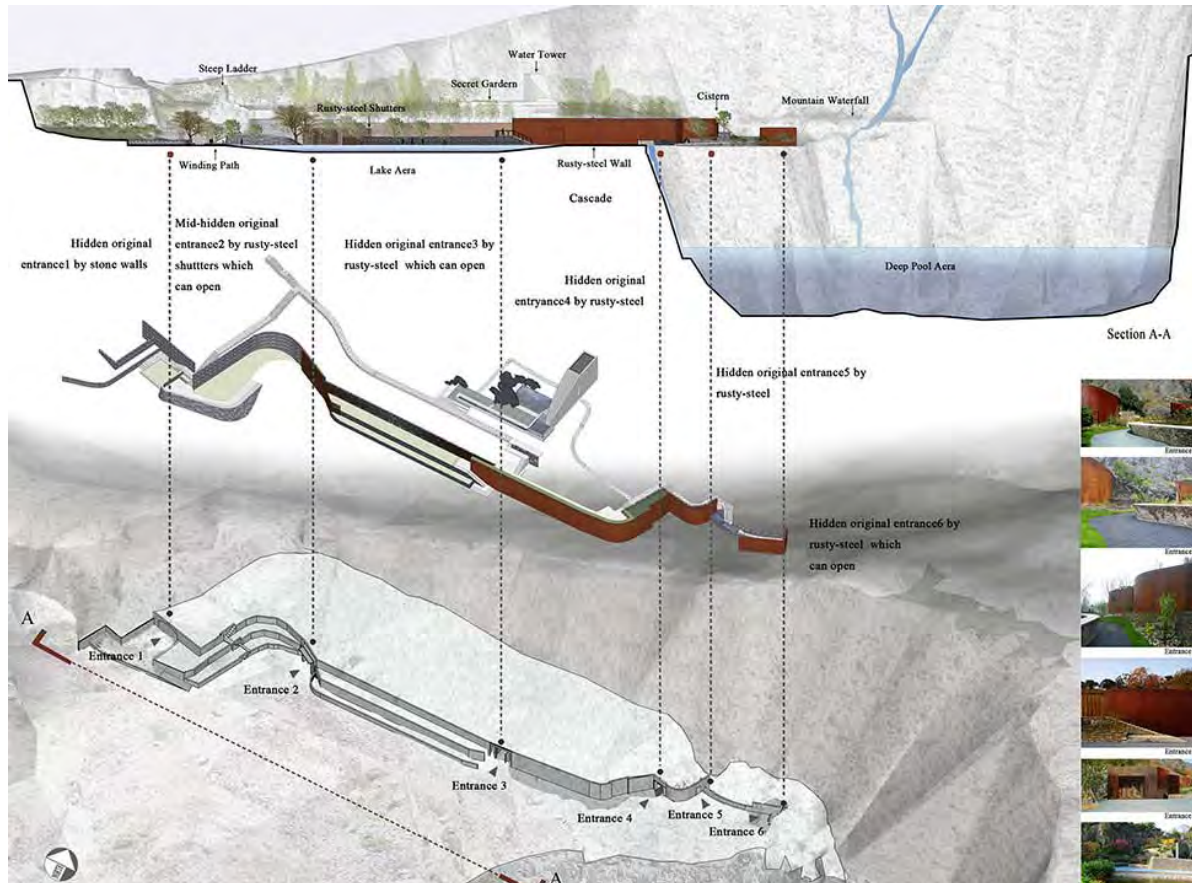


Staircase alongside Quarry wall



Visitors are able to walk alongside the netted quarry wall

6. PRECEDENT STUDY



Map and section



Aerial photo of old quarry lake and new landscape

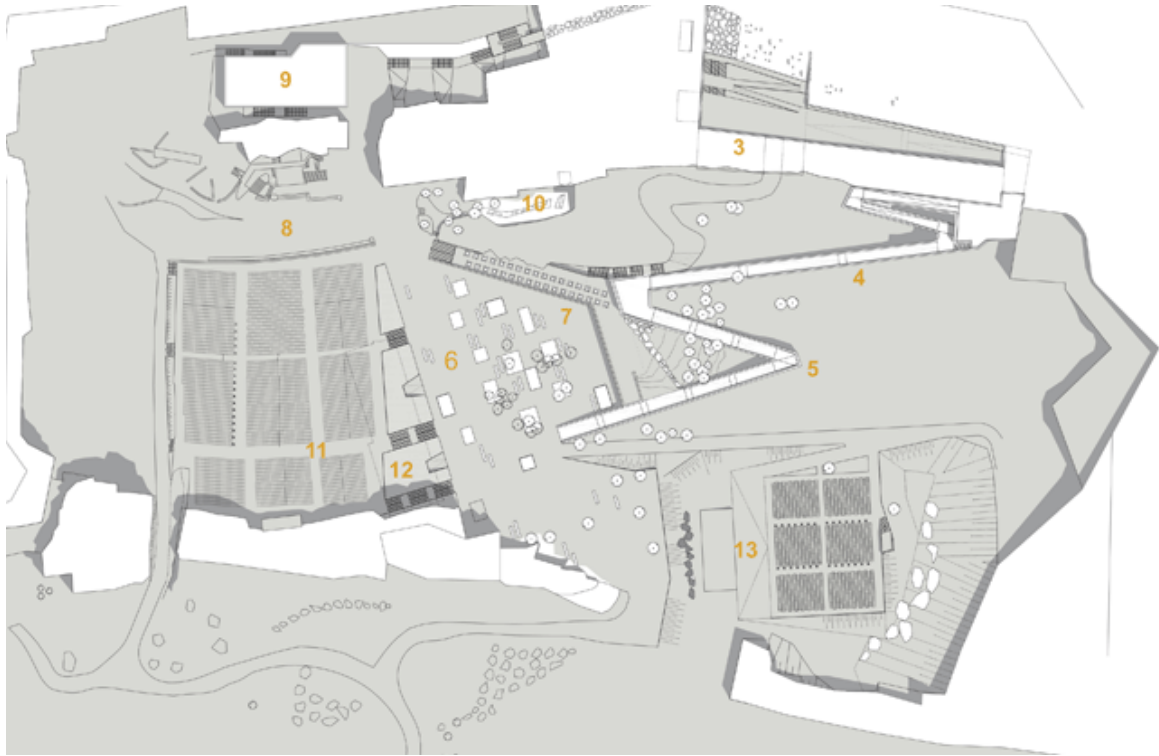
6. PRECEDENT STUDY

| | |
|-----------------------------------|--|
| Park name | Redesign of the Roman Quarry disposed Opera Festivals |
| Location | St. Margarethen, Austria |
| Park size (Ha) | 4.4 Ha outdoor areas and 5.5 Ha |
| Park designers | AllesWirdGut Architektur |
| Description | The quarry of St. Margarethen in Austria has been part of a UNESCO World Cultural Heritage Site since 2001. The sandstone quarried here was used for the building of St. Stephen's Cathedral in Vienna as well as for a number of landmark buildings of the Ringstrasse period. Today, the quarry of St. Margarethen is one of the most beautiful and impressive open air arenas in Europe. The spectacular architecture makes the impressive natural setting of the venue a palpable experience for about 220,000 annual festival visitors. |
| Major features/ Facilities | Buildings associated with performances and events |
| Recreation activities | Cultural events |
| Relevance to study site | The Quarry provides the setting for the outdoor opera performances and buildings The landscape and vertical walls are less prominent. Yet the retained stone work and quarry walls provide an interesting settings and backdrop Simplicity of materials links to the site's industrial heritage Design competition Income generation |
| Information source | http://www.landezine.com/index.php/2009/11/roman-quarry-redesign/ |



Geometric shaped access paths contrast with surrounding landscape

6. PRECEDENT STUDY



Site plan



Auditorium set within quarry



Buildings constructed within the quarry



Contrasting materials



Robust seating

6. PRECEDENT STUDY

| | |
|--|--|
| Park name | Westside Reservoir Park |
| Location | Atlanta, USA |
| Park size (Ha) | 81 Ha park, 20 Ha lake (121 metres deep, 1.9 billion gallons) |
| Description | In 2006 the City of Atlanta purchased a quarry in northwest Atlanta that had been in operation for more than 100 years. The entire site will be converted into a new city park along Atlanta's Beltline, a 22-mile corridor of parks, trails, and transit encircling downtown. The new park will be the largest in the city and the quarry will become a major source of water for the city. |
| Proposed features/ Recreation activities (not yet designed) | Adjacent to the reservoir activities such as hiking and biking trails, viewing platforms are proposed. Throughout the rest of the parklands a diverse range of open space recreation activities are provided for such as picnics, formal sport, skating, dog off leash area etc. |
| Relevance to study site | Water resource for surrounding area Council purchase of land for community benefit Major destination/regional resource Range of activities offered in one location Stepped quarry walls, surrounding vegetation |
| Information source | http://www.brockbuiltblog.com/09/new-westside-park-to-be-biggest-in-the-city/ http://www.tpl.org/our-work/parks-for-people/bellwood-quarrywestside-park |



Existing quarry



Overall master plan



Existing quarry

6. PRECEDENT STUDY

| | |
|----------------------------------|--|
| Park name | Statham's Quarry |
| Location | Perth, Darling Range |
| Park size (Ha) | n/a |
| Description | <p>Statham's Quarry (also known as Perth City Council's Darling Range Quarry) is the site of a quarry on the Darling Scarp on the southern side of the entrance of the Helena River valley on to the Swan Coastal Plain in Perth, Western Australia. It is located in Gooseberry Hill and is within the bounds of the Gooseberry Hill National Park.</p> <p>The main current usage of the quarry is rock climbing and abseiling, with the Department of Environment and Conservation providing facilities and maintaining the site. Dangerous areas are signed and fenced off.</p> <p>It is regarded as a safe, easily accessible and well maintained climbing and abseiling location. Close to the metropolitan area of Perth and situated one minute's walk off the Zig Zag Scenic drive in Gooseberry Hill, makes it a well used 'drive-in outdoor gym'.</p> <p>DEC has installed abseiling and rock climbing facilities, making it a popular haunt for adventure seekers. It has also been the scene of weddings and movies.</p> |
| Major features/activities | Rock climbing, photography, bushwalking as part of the National Park |
| Relevance to study site | <p>Abandoned crusher plant</p> <p>Rock climbing potential but the need for ongoing maintenance</p> <p>Part of the Statham's Quarry Walk Trail (5.9 kilometre walk)</p> <p>Natural beauty</p> |
| Information source | <p>http://www.perthtourism.com.au/trail/64/253/statham-s-quarry-walk-trail.html?page=2</p> <p>http://en.wikipedia.org/wiki/Statham's_Quarry</p> <p>http://www.climberswa.asn.au/climb/online-guide/perth/stathams-quarry/</p> |



Old quarry buildings and structures



Quarry set in National Park



Visitors park cars at the base of the quarry



Rock climbing on old quarry walls

6. PRECEDENT STUDY

| | |
|-------------------------|---|
| Park name | 'Zip World' Penrhyn Quarry, Snowdonia, Wales |
| Location | Wales, United Kingdom |
| Park size (Ha) | The main pit is nearly 1.6km long and 370 metres deep |
| Description | Zip World offers visitors a unique and world-class experience as they fly for over a mile through the skies. The site contains two specially constructed zip lines. The 'little zipper' takes visitors to the bottom of the quarry, reaching speeds of up to 40mph. Visitors then board a specialised vehicle for a quarry tour in what was once the largest slate quarry in the world to a second mile long zip line where participants can reach speeds of up to 100mph. On opening in 2013, the full experience cost £50 for adults and £40 for children under 16 |
| Recreation activities | Zip lining, site tour, other activities associated with Snowdonia such as mountain biking, bushwalking, viewing tower etc. |
| Relevance to study site | Water resource for surrounding area Major destination/regional resource, part of network of national park and other adventure activities Stepped quarry walls Income potential |
| Information source | http://gouk.about.com/gi/o.htm?zi=1/XJ&zTi=1&sdn=gouk&cdn=travel&tm=51&gps=69_7_1440_751&f=00&su=p284.13.342.ip_&tt=29&bt=4&bts=43&zu=http%3A/www.zipworld.co.uk/ |



Overall site plan

6. PRECEDENT STUDY



Zip lining



Double zip line



Surrounding landscape



Quarry landscape



Water based activities



Zip line and paths