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Statement of Environmental Effects

Lot 1 DP 117890 Goulburn Aquatic Centre, Goulburn

Prepared for: Goulburn-Mulwaree Council

Revised February 2019

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Introduction

1.1 Commission

Capital Region Planning has been commissioned by Goulburn-Mulwaree Council (also described in this Report as the **Proponent**) to prepare a Statement of Environmental Effects (**SEE**) to accompany a Development Application (**DA**) proposing the staged re-development of the Goulburn Aquatic Centre on Lot 1 DP 117890, Goulburn.

1.2 Purpose of Report

This SEE has been prepared in accordance with Schedule 1 of the Environmental Planning and Assessment Regulation 2000 (**EP&A Regulation**) for the purposes of:

- Demonstrating that the environmental impacts of the development have been considered; and
- Outlining the steps to be undertaken to protect the environment or to mitigate against any potential harm, if necessary.

This SEE describes the proposal and its environment, including a detailed description of the site and its surrounds and an assessment of the proposal against the relevant planning controls.

The SEE demonstrates that the development proposed is acceptable under Section 4.15 of the *Environmental Planning and Assessment Act 1979* (**EP&A Act**) and concludes that the proposed development should be granted approval subject to conditions.

1.3 Type of Development Application

Section 2.15 of the EP&A Act requires that the relevant Regional Planning Panel (**RPP**)(also known as the Joint Regional Planning Panel) exercise the functions of the consent authority under Part 4 for 'regionally significant development'. Schedule 7 of State Environmental Planning Policy (State and Regional Development) 2011 provides that Council related development with a capital investment value (**CIV**) of more than \$5 million, is 'regionally significant development'.

As the Goulburn-Mulwaree Council is the Proponent for the staged re-development proposal, which will have a CIV of more than \$5 million, the RPP will be the determining authority.

The proposal is considered to be 'development' in accordance with Section 1.5 of the EP&A Act 1979. Therefore, pursuant to Section 4.12 of the EP&A Act, development consent is sought from the RPP.

The proposal is not categorised as integrated, designated or State significant development under the EP&A Act or EP&A Regulation 2000.

1.4 Background

This background information is derived (in part) from the Goulburn-Mulwaree Council's briefing material for 'Design of the Goulburn Aquatic Centre Re-development (Stage 1)'.

In 2016, Goulburn-Mulwaree Council undertook a Feasibility Study for the re-development of the Goulburn Aquatic Centre. In reviewing the history of the existing aquatic facilities, the Feasibility Study found that as with many communities across Australia, aquatic sports were dramatically boosted by the national success in the pool at the 1956 Melbourne Olympic Games. Unfortunately, many of the hundreds of 50-yard or 50-metre pools built in the decade following the Melbourne Olympic Games are now rapidly reaching the end of their operational life due to asset failures and the changing needs of the community. As such, the outdated facilities are having to be replaced.

In larger regional cities and in most metropolitan areas, the outdated aquatic facilities/venues have already gone, having been replaced by modern venues comprising multiple pools and a growing mix of 'dry' fitness, health and social facilities. The Goulburn-Mulwaree Council is seeking to follow this trend so as to address the shortcomings of its existing Aquatic Centre facilities.

Occurring concurrently with the Feasibility Study for the re-development of the Goulburn Aquatic Centre, the Goulburn-Mulwaree Council developed a Master Plan for the long-term re-development of Victoria Park, which included two (2) significant projects being, the construction of an Adventure Playground and the staged re-development of the Goulburn Aquatic Centre. Prior to progressing to implementation, it was deemed appropriate to develop individual project Master Plans to ensure each project progressed in a sympathetic manner in keeping with the Victoria Park Precinct.

The Master Plans would also assist in informing Council's decision-making process in relation to the allocation of funds for the future development of the Park.

The Victoria Park Master Plan provides an overview and long-term strategic direction for the Park. The Master Plan ensures that the projects currently underway (i.e. the Adventure Playground and re-development of the Goulburn Aquatic Centre) are developed and progressed in a manner that is consistent with the future direction of the Park and the requirements of the community. An extract of the Master Plan is included as **Figure 1** below.

The commissioning of the Master Plan for the re-development of the Goulburn Aquatic Centre reflected the ageing conditions of all elements of the present venue, and the inability of the mix, size, quality and management of the facilities to effectively meet present and/or future community needs.

A Community Working Party was established to assist with formulating the concept Master Plan for the redevelopment of the Aquatic Centre. As part of the concept planning process, the Working Party visited other facilities and participated in community consultation exercises to compile a Plan that brings the existing facility in line with community expectations and modern design standards.

The Working Party outlined a concept Master Plan, which identified core provisions for an upgraded Aquatic Centre. These provisions were subsequently supported by research carried out by the re-development study and included:

- New amenities and services block,
- Expanded car parking,
- Modern indoor fitness facilities,
- Enhanced indoor program pool provision,
- Additional indoor lap pool provision, and
- Modern water play area.

An extract from the concept Master Plan is included at Figure 2 blow.

At the 20 December 2016 Council Meeting, the Goulburn-Mulwaree Council endorsed recommendations from the Working Party to proceed with the detailed design development for Stage 1 works. During the Concept Design Phase for the Stage 1 works, the scope of works evolved to include a warm water pool, sauna and steam room, and an external splash pad. As part of the Concept Design Phase for Stage 1, Council directed the Project Lead to also progress the Concept Design phase for the final Stage 2, which includes a new 50 metre outdoor pool, new gymnasium and new outdoor spaces.

There are a number of elements in the 2016 Master Plan, such as restaurant, spa and outdoor exercise station, which will be considered further by Council in the future. A copy of the current Master Plan as proposed in this Development Application is presented in **Figure 3** below.



Figure 1: Extract from the Victoria Park Master Plan

Statement of Environmental Effects Lot 1 DP117890 – Goulburn Aquatic Centre, Goulburn



Figure 2: Extract from the Goulburn Aquatic Centre Concept Master Plan



Figure 3: Current Proposed Master Plan

Site Description and Context

This Section of the Report describes the physical characteristics of the subject site, the adjoining development and character of the locality.

2.1 Regional Site Location

The land the subject of this DA is situated within the Goulburn-Mulwaree Local Government Area (**LGA**) within the regional centre of Goulburn, which is located on the Hume Highway (M5) approximately 90 kilometres northeast of Canberra and 195 kilometres southwest of Sydney.

The regional site location is depicted in Figure 4 below.

2.2 Site Description and Surrounding Development

The land the subject of this DA is legally described as Lot 1 in DP 117890 (**the site**) and is known as Victoria Park. Victoria Park is Crown Land, which was dedicated for public recreation by gazette on 1 July 1873. Council was appointed the trustee of the dedicated area on 20 January 1961. The area is a public reserve as defined by the Crown Lands Act 1989 and is classified as Community Land under Schedule 7, Clause 6(2) of the Local Government Act 1993.

Victoria Park is a substantial public reserve with an area of approximately 18.6 hectares, located less than a kilometre west of the Goulburn CBD. It is bordered primarily by residential areas along Faithfull, Clifford, Deccan and Verner Streets. Goulburn High School and Goulburn Base Hospital are located immediately north of the Park, on the opposite side of Clifford Street.

The Park accommodates a range of sporting and recreation facilities, which are used by a broad cross-section of the community. The main components of the Park include the Goulburn Aquatic Centre, skate park, playground and picnic tables, Seiffert Oval (cricket, cycling and formerly rugby union), Prell Oval (formerly used for cricket, soccer and Australian Rules football), rose garden, tennis courts, Basketball (half court), outdoor gym, walking and cycle paths, Guide hall, stage area, ornamental pond, dog off-leash area, extensive lawn areas with mature trees and public toilet facilities.

Within Victoria Park, the Goulburn Aquatic Centre occupies a site of approximately 1.45 hectares and is located centrally on the north-western edge fronting Deccan Street. The Aquatic Centre frontage is setback from Deccan Street to provide off-street car parking for approximately 60 cars.

The entry and change room pavilion has frontage to the car park and as well as housing the entry kiosk, has large, traditional change and toilet rooms, a small gymnasium (which occupies most of the former entry foyer) and staff offices. A small room above the staff office is used as a dry program room.

The Goulburn Aquatic Centre has three (3) pools, these being:

- A seven (7) lane, outdoor 50-metre pool (50m long by 17.5m wide), which aligns with Deccan Street, with its deep end and plant room located towards the north-east boundary. This is serviced by a wide concourse area and a grassed sloping lawn area with shade sails to the north. A large swimming club room sits at the far end of the 50-metre pool.
- An indoor 25-metre pool of five (5) lanes created through a 1998 renovation and enclosure of an earlier 33 metre pool.
- A shallow, rectangular toddler pool of 15.4m by 7.5m with a fixed shade structure, which sits between the indoor and outdoor pools.

The Aquatic Centre site has a significant cross-fall, and this has resulted in the pools being constructed on separate and distinct levels.

Figures 5 and 6 below show the site in its local and site-specific context.



Figure 4: Regional Site Context (www.profile.id.com.au/Goulburn/about, February 2018)



Figure 5: Local Site Context (www.profile.id.com.au/Goulburn/about, February 2018)



Figure 6: Site-specific Context (www.profile.id.com.au/Goulburn/about, February 2018)

Proposed Development

3.1 General

As detailed in the sub-sections below, the staged re-development of the Goulburn Aquatic Centre will include:

- STAGE 1
 - o Demolition and removal of existing vegetation
 - o Existing car parking areas to be expanded and access arrangements to Deccan Street re-configured
 - o Construction of an outdoor entry plaza
 - o Construction of a new Aquatic Centre building comprising the following main spaces:
 - Entry foyer and creche
 - Gymnasium
 - Indoor pool with water play
 - Indoor pool
 - Warm water pool
 - Café
 - o Ancillary spaces (e.g. toilets, changing rooms, storage areas and circulation spaces)
 - o Outdoor recreation and landscaped spaces
 - Outdoor Aquatic Centre signage, including wayfinding signage (both internal and external to the building)

o <u>STAGE 2</u> -

- o Demolition and removal of vegetation
- o Existing car parking areas to be expanded and access arrangements to Deccan Street re-configured
- o Construction of a new outdoor pool with associated facilities
- o Outdoor recreation and landscaped spaces

3.1.1 Stage 1 Works

Demolition and Removal of Existing Vegetation

As shown on the Demolition - Stage 1 Site Plan (Drawing No. SK105 Rev. D), the majority of the existing buildings and structures situated within the Stage 1 area are proposed to be demolished. The exception is the existing 25 metre pool shell, which is to be retained and re-furbished as part of the Stage 1 works. The existing playground will be removed and suitably re-located as part of the re-development.

The outdoor 50 metre pool is proposed to be retained in Stage 1. There are no works proposed to this pool in Stage 1 other than the concourse works associated with the construction of the new indoor pool hall and outdoor splash pad (as detailed below).

Expansion of Car Park and Relocation of Deccan Street Access Arrangements

The existing Aquatic Centre frontage is setback from Deccan Street. Within this setback is off-street car parking comprising approximately 60 car parking spaces (45°). As part of the Stage 1 re-development works, the existing car parking areas are proposed to be expanded along the Deccan Street frontage to the east and west of the proposed Entry Plaza.

The proposed car parking areas will accommodate 95 off-street parking spaces (90°), inclusive of six (6) accessible parking spaces. Specifically, the proposal includes:

- o For the western car park
 - o A total of 42 car parking spaces arranged at 90° to Deccan Street and the adjoining Victoria Park.
 - o Revised ingress/egress arrangement.
- o For the eastern car park

- o A total of 53 car parking spaces arranged at 90° to Deccan Street and the adjoining aquatic centre facilities and Victoria Park.
- o Revised ingress/egress arrangement.

Entry Plaza

Within the proposed building setback to Deccan Street, a new outdoor entry plaza will be constructed so as to provide a unique arrival experience before entering the new Aquatic Centre. The plaza will serve as an outdoor meeting place for visitors and for school groups to orient themselves. It will be defined by areas of variably coloured concrete, garden areas and feature tree plantings, timber bench seating and bike racks. New street tree planting along the plaza's interface with Deccan Street will also be provided.

Construction of a new Aquatic Centre Building

Entry Foyer and Creche

Linking with the new Entry Plaza, a new Entry Foyer and Creche will be constructed. The new Entry Foyer will comprise a central reception area, which will be located so as to be visible as patrons enter the facility from the Entry Plaza on Deccan Street. It will be the first point of contact for patrons and will include administrative space for Aquatic Centre staff.

A Creche will be provided with access from the Entry Foyer. It will include amenities, a small kitchenette and storage. The Creche will be a large open space that will be utilised as a child care facility during the morning with the ability to be converted into a multi-purpose room during the afternoons and evenings. Entry to the Creche will be through a reception area immediately inside the main Entry Foyer.

Construction of New Gymnasium

A new gymnasium is proposed to be constructed. The new gym will be located adjacent to the proposed Aquatic Centre entry foyer (east) and will comprise 300m² of gym floor space, two (2) group exercise rooms (circa 150m²), dry change rooms, store room and an assessment room. A small reception area will be located at the entrance to the gymnasium from the Aquatic Centre entry foyer.

Indoor Pool with Water Play

Within the upper pool hall, the existing 25 metre indoor pool will be refurbished to create a Learn-to-Swim Program Pool. The existing indoor pool will be modified to remove the water play and program areas at the shallow end. New entry stairs and access ramp will be provided within the existing pool shell as well as seating, which will be located along one side, approximately 300mm below surface level. A new interactive Leisure Pool will be provided adjacent to the refurbished Learn-to-Swim Program Pool. The Leisure Pool will be organically shaped and will include a segregated 200mm deep toddlers zone with appropriately scaled interactive water play features. The main body of water will include a beach entry (zero depth) falling to a maximum depth of 600mm. A selection of water play features and sprays will be located through and around the Leisure Pool.

Warm Water Pool

Within the upper pool hall, a new warm water program pool will be constructed. The warm water program pool will be separated from the 25 metre learn-to-swim program pool by a glazed wall with integrated bench seating. The pool will include an access ramp and stair serving the shallow end at 1.1 metres with accessible hoist. The pool floor will fall to a depth of 1.5 metres.

A bench seat with integrated spa jets and a standing spa zone are proposed for one side of the pool. Recessed hand rails will run around the perimeter of the pool and recessed climb-out ladders will be provided at the deep end. Perimeter concourse areas will be generous for the purpose of accommodating temporary storage of wheelchairs, walking frames and the like. Accessible change rooms, a sauna, steam room and concourse showers will be located within proximity.

Indoor Pool

Within the lower level pool hall, a new 8 lane 25 metre pool will be constructed. This pool will include an access ramp and stair, and generous concourse areas for marshalling and general circulation. Pool depths will be 1.2 metres to 2.0 metres at the deep end.

A tiered spectator area will line the north-western side of the pool. The north-eastern and south-eastern sides of the pool hall will be bound by bench seating and glazing with views across the outdoor 50 metre pool (Stage 2) and outdoor splash pads.

Café

A café is proposed to be provided on the southern side of the facility, with direct access from Victoria Park so as to encourage Park users to the facility. It will be positioned close to the leisure pool, outdoor splash pads and within proximity to the 25-metre indoor pool, learn-to-swim pool and the warm water program pool.

Café seating will be provided within a separate café environment, but also has the potential to spill into the pool hall and out to the terrace space surrounding the outdoor splash pad. The café space will be divided to allow service to patrons within the facility at one end, and to Victoria Park users at the other end. This will enable the community to use the café without paying for entry to the facility, exposing the facility to a broader proportion of the community.

The café kitchen is sized for capacity to serve coffee, light meals, snacks and the like.

Ancillary Spaces

Female and male change rooms and accessible change rooms are proposed to be provided at the entry to the upper pool hall. A family change area will be provided adjacent to the change rooms at the end of the learn-to-swim pool. Change rooms will include toilets, basins, showers, open change areas and lockers.

A storage area for pool equipment (kick boards, floatation aids, land rope trolleys, etc.) is proposed to be provided near to the new indoor 25 metre pool with access via the concourse. A first aid room is also proposed to be provided near to the new indoor pool and leisure pool so as to allow surveillance of the indoor aquatic spaces. A lifeguard station will be provided adjacent to the learn-to-swim pool and warm water pool in the upper pool hall with views across the lower pool hall.

Outdoor Recreation

Outdoor splash pads are proposed to be located adjacent to the lower pool hall and café. The splash pads will be zero-depth water play spaces with small play features and ground sprays. The splash pads will be surrounded by terraced viewing and recreation spaces integrated with landscaping.

Outdoor Centre Signage

A large freestanding pylon sign is proposed adjacent the entry driveway to the western carpark and within the forecourt entry plaza. The purpose of the sign being to identify and present the new pool complex within the streetscape. No design detail for the sign is provided at the present time. The design elements of the sign will be finalised at a future date and as part of an integrated wayfinding signage system for the Centre and the adjoining Victoria Park (via a separate DA as required). It is anticipated that the design of the sign will be in keeping with the architectural merits of the new pool complex and streetscape character.

3.1.2 Stage 2 Works

Expansion of Car Park and Relocation of Deccan Street Access Arrangements

As part of the Stage 1 re-development works, the existing car parking areas are proposed to be expanded along the Deccan Street frontage to the east and west of the proposed Entry Plaza.

The proposed Stage 2 car parking areas will accommodate 65 off-street parking spaces (90°) Specifically, the proposal includes:

- o For the western car park
 - o A total of 29 car parking spaces arranged at 90° to Deccan Street and the adjoining Victoria Park.
 - o Revised ingress/egress arrangement.

- o For the eastern car park
 - o A total of 36 car parking spaces arranged at 90° to Deccan Street and the adjoining aquatic centre facilities and Victoria Park.
 - o Revised ingress/egress arrangement.

Demolition and Removal of Existing Vegetation

As shown on the Demolition - Stage 2 Site Plan (Drawing No. SK106 Rev. G), the majority of the existing buildings, structures and vegetation situated within the Stage 2 area are proposed to be demolished/removed.

Construction of a New Outdoor Pool with Associated Facilities

A new 8 lane (2.5m per lane) 50 metre outdoor pool is proposed to be constructed. The new pool will cater for regional level swimming competitions and will comprise an access ramp and stair and generous perimeter concourse areas. The new outdoor pool will be located adjacent to the new 25 metre indoor pool and will be accessed via the upper pool hall.

To complement the new outdoor pool, a new pool plant room (circa 180m²) with concourse showers and change rooms (circa 100m²) and a store room (circa 40m²) are proposed to be provided. These ancillary facilities are proposed to be provided at the eastern end of the pool adjoining the pool concourse.

Outdoor Recreation and Landscaped Spaces

Adjacent to the Stage 1 outdoor splash pads and associated recreation/landscaped spaces, it is proposed to construct an outdoor play space with climbing structures and slides, undercover seating shelters (8 tables in total), a roof over the existing BBQ, an outdoor exercise station and a beach volleyball court.

General landscaping is proposed to be provided to the open space areas, including an extension of the 50-metre outdoor pool viewing mound, which will be extended to the edge of the concourse with proposed shade structure over.

3.1.3 Operational Characteristics

The Goulburn Mulwaree Council is committed to sport and recreation for the Goulburn Mulwarre community. The Council recognises the importance that aquatic and leisure facilities have in contributing to the wellbeing of the community, supporting the improvements in physical and mental health, and providing an environment to build social networks and connections.

Council, in supporting the upgrade of the existing pool complex, acknowledged the importance of developing and activating an Operational Management Plan for the new pool complex for the purpose of ensuring the viability and vitality of the new complex into the future.

Council is currently in the process of preparing a Draft Operational Plan for the new pool complex entitled "Operations Plan for Goulburn Aquatic Centre Upgrade" dated May 2018. The Draft Plan is all encompassing in terms of its aims and objectives and once adopted, will establish strategic and sustainable venue management principles and procedure, which will ensure the effective and efficient operation of the pool complex for the community into the future.

The following is a general overview of some of the day to day operational characteristics for the new pool complex as presented in the Draft Operational Plan.

Operating Hours

Day	Hours
Monday- Friday	6.00am - 7.45pm
Saturday	8.00am - 5.45pm
Sunday and Public Holidays	9.00am - 5.45pm
Centre Closed Christmas and Boxing Day, Good Friday	

The Goulburn Aquatic Centre will operate between the following hours:

Staff Complement

The day to day operation of the new pool centre would involve the engagement of a number of management, technical/operational and administrative personnel. This may involve a staff complement in the order of 10 employees, but subject to refinement and cross functional expertise and capability.

Centre Programs

The Draft Operational Plan has identified a number of aquatic and health and wellbeing programs, which will be activated from day one of operational commencement. They include the likes of (but not limited to) recreational swimming, learn to swim schools, aquatic and community events, swim squad training, health club activities, aqua aerobics, warm water therapy and spa/steam/sauna facilities.

Additional programs under consideration could include the likes of health and well-being seminars, active kids holiday programs, kids' fitness and recreational classes, water polo and rehabilitation sessions.

Strategic and Statutory Planning Context

This Section of the Report assesses the proposed development against the planning framework and planning controls applicable to the site and the development, including:

- Commonwealth legislation
- Biodiversity conservation (Section 1.7 of the EP&A Act)
- Integrated development matters (Section 4.46 of the EP&A Act)
- Matters for consideration relating to Development Applications (Section 4.15 of the EP&A Act)

4.1 Commonwealth Legislation

4.1.1 Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

The EPBC Act protects matters of National Environmental Significance (**NES**), such as threatened species and ecological communities, migratory species (protected under international agreements), and National Heritage places (among others).

Any actions that will or are likely to have a significant impact on the matters of NES, require referral and approval from the Australian Government Environment Minister. Significant impacts are defined by the Commonwealth for matters of NES.

No Matters of NES have been identified at or near the site. A referral to the Commonwealth Department of Environment is therefore, not required. Refer to the Biodiversity Assessment prepared by NGH Environmental Pty Ltd (NGH), which is included with the DA submission.

4.2 Biodiversity Conservation

4.2.1 Biodiversity Conservation Act 2016

The Biodiversity Conservation Act 2016 (BC Act) commenced on 25 August 2017 and replaces the Threatened Species Conservation Act 1995 (TSC Act). Together with the Local Land Services Amendment Act 2016 and State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017, this new regulatory framework introduces a balanced approach to land management and biodiversity conservation in NSW.

A Biodiversity Assessment prepared by NGH has been included with the DA submission to provide a preliminary summary of the terrestrial biodiversity values and the potential impacts to those values as a result of the proposed re-development of the Goulburn Aquatic Centre. As detailed at **Section 4.9.2** of this SEE, the Biodiversity Assessment identifies that the site is considered unlikely to support any listed threatened flora or fauna species or support any identifiable ecological community of conservation significance under the NSW *Biodiversity Conservation Act 2016*.

4.3 Integrated Development

Section 4.46 of the EP&A Act requires a review of whether the proposed development on the land would trigger an approval under other environmental or related legislation. Such development is categorised as 'integrated development'.

The following provides brief comments on whether any aspect of the development triggers a need for the consent authority to obtain general terms of approval from other relevant approval authorities.

4.3.1 Coal Mine Subsidence Compensation Act 2017

Under the Coal Mine Subsidence Compensation Act 2017, approval from the Chief Executive of Subsidence Advisory NSW (**SA NSW**) is required to alter or erect improvements, or to subdivide land, within a mine subsidence district.

According to the Subsidence Advisory NSW Interactive Mapping System, the site is not within an identified Mine Subsidence District. Therefore, the proposed development will not require approval from SA NSW.

4.3.2 Fisheries Management Act 1994

Fisheries Management Act 1994 (FM Act) provides for the protection, conservation, and recovery of threatened species defined under the FM Act. It also makes provision for the management of threats to threatened species, populations, and ecological communities defined under the FM Act, as well as the protection of fish and fish habitat in general.

No works proposed as part of this Application will harm defined marine vegetation or impede the movement or development of marine life. Therefore, the proposed development will not require approval under the FM Act.

4.3.3 Heritage Act 1977

The re-development of the Goulburn Aquatic Centre does not involve an item or place listed on the NSW State Heritage Register. Approval of works on the site is therefore, not required under Section 57 of the *Heritage Act 1977*.

4.3.4 Mining Act 1992

The *Mining Act 1992* aims to encourage and facilitate the discovery and development of mineral resources in NSW, having regard to the need to encourage ecologically sustainable development. Under Sections 63 and 64 of the *Mining Act 1992*, the approval of the NSW Minister for Resources and Energy is required for the granting of a mining licence.

No works proposed as part of this Application will require the granting of a mining licence. Therefore, the proposed development will not require approval under the *Mining Act 1992*.

4.3.5 National Parks and Wildlife Act 1974

The National Parks and Wildlife Act 1974 is administered by the Director-General of the National Parks and Wildlife Services, who is responsible for the control and management of all national parks, historic sites, nature reserves, and Aboriginal areas (among others). The main aim of the Act is to conserve the natural and cultural heritage of NSW. Where works will disturb Aboriginal objects, an Aboriginal Heritage Impact Permit (AHIP) is required.

NGH Environmental Pty Ltd (**NGH Environmental**) was commissioned to undertake a Due Diligence assessment in relation to Aboriginal heritage and culture. The assessment concluded that there were no sites of Aboriginal heritage or sensitive archaeological landscapes within the study area. As the proposed re-development works will be largely confined to within the footprint of previous disturbance of the site, it is unlikely that the scope of the works, will pose a potential impact to Aboriginal heritage sites or values.

NGH Environmental concluded that no further assessment was required under the Aboriginal Due Diligence Code of Practice. As such, no integrated approval is considered to be required under the *National Parks and Wildlife Act 1974*.

4.3.6 Petroleum (Onshore) Act 1991

The object of the *Petroleum (Onshore)* Act 1991 is to encourage and facilitate the discovery and development of petroleum resources in NSW, having regard to the need to encourage ecologically sustainable development. Under Section 16 of the *Petroleum (Onshore)* Act 1991, the approval of the NSW Minister for Resources and Energy is required for the granting of a petroleum production lease.

No works proposed as part of this Application will require the granting of a petroleum production lease. Therefore, the proposed development will not require approval under the *Petroleum (Onshore) Act 1991*.

4.3.7 Protection of the Environment Operations Act 2002

The Protection of the Environment Operations Act 2002 (**POEO Act**) is the key environmental protection and pollution legislation. The POEO Act is administered by the EPA and establishes a licensing regime for waste, air, water and pollution. Any work potentially resulting in pollution must comply with the POEO Act. Relevant licences must be obtained if required.

No licences have been identified as being required for the proposed development, including an Environmental Protection Licence (EPL).

4.3.8 Roads Act 1993

Section 138 of the *Roads Act 1993* requires an approval from the Roads Authority for certain works in, on or over a public road, or to connect to a classified road.

The proposed development will involve the carrying out of works within the Deccan Street road reserve in order to accommodate the proposed revised driveway locations associated with the expansion and reconfiguration of the on-site carparking arrangements currently servicing the pool complex.

In this instance, Deccan Street is a Council owned and maintained public road and as such, Council as the Roads Authority, will need to issue an approval under Section 138 of the *Roads Act 1993*. Any subsequent approval would be subject to the preparation and endorsement of detailed engineering plans covering the scope of the proposed works.

A suitable condition should be imposed on any subsequent development consent to ensure compliance.

Goulburn-Mulwaree Council has advised that they are currently in discussions with Roads and Maritime Services (**RMS**) around the classification of Deccan Street. The current proposal is to re-classify Deccan Street from a Local Street to an RMS State Road. As detailed in the Traffic Impact Assessment included with the DA submission, the development proposal will comply with the RMS requirements and guidelines for accessing State Roads.

4.3.9 Rural Fires Act 1997

Section 100B of the *Rural Fires Act 1997* requires that a bush fire safety authority be obtained for a subdivision of bush fire prone land that could lawfully be used for residential or rural residential purposes, or development of bush fire prone land for a special fire protection purpose.

The land is not currently mapped as bushfire prone and as such, does not require approval under the *Rural Fires* Act 1997.

4.3.10 Water Management Act 2000

A Controlled Activity Approval (CAA) is required to be obtained for any activity situated within 'waterfront land' (defined to be within 40 metres of the top of a bank of a river, lake or estuary) in accordance with Section 91(2) of the Water Management Act 2000 (WM Act).

The proposed development does not involve carrying out work within 'waterfront land' and therefore, does not require approval under the WM Act.

4.4 Environmental Planning Instruments (s4.15 (1)(a)(i))

The following addresses the State Environmental Planning Policies (**SEPPs**) and/or deemed SEPPs that are considered to be relevant to this DA.

4.4.1 State Environmental Planning Policy No. 55 – Remediation of Land

This Policy provides a state-wide planning approach to remediation and aims to promote the remediation of any contaminated land for the purpose of reducing risk of harm to human health and/or the environment.

A Preliminary Site Investigation (**PSI**) has been conducted by Robson Environmental Pty Ltd and is included with this DA submission. The PSI provides information on the contamination status of the subject site and comments on the site's suitability for the current land use (i.e. Aquatic Centre).

The PSI makes a number of recommendations, which if implemented, would allow for the site to be appropriately assessed for potential contaminants of concern, and therefore confirm its suitability for the land use.

The Proponent accepts that a suitable condition will be imposed on any consent granted, which will require the development to be carried out in accordance with the recommendations of the PSI. On this basis, the consent authority can be satisfied that the land will be suitable for the re-development and therefore, consistent with SEPP 55.

4.4.2 State Environmental Planning Police No. 64 – Advertising and Signage

The Policy provides a State-wide planning approach to outdoor advertising by setting out controls which are designed to ensure all signage is compatible with the future character of an area, provides effective communication in suitable locations and is of high quality design and finish.

The SEPP applies to all signage that can be displayed with or without development consent under another environmental planning instrument and is visible from any public place. The SEPP also nominates assessment criteria which must be satisfied in the granting of development consent by the Consent Authority.

The erection of the sign would be permissible with consent.

As documented earlier, no final design details for the proposed pylon sign have been submitted as part of the current application. Whilst the design details for the sign are to finalised at a later date, it is anticipated that the sign will be of a high quality and reflective of the character of the locality and streetscape whilst communicating and promoting the presence of the new pool complex within its parkland setting.

4.4.3 State Environmental Planning Policy (State and Regional Development)

Section 2.15 of the EP&A Act requires that the relevant Regional Planning Panel (**RPP**) exercise the functions of the consent authority under Part 4 for 'regionally significant development'. Schedule 7 of State Environmental Planning Policy (State and Regional Development) 2011 provides that Council related development with a capital investment value (**CIV**) of more than \$5 million, is 'regionally significant development'. As the Goulburn-Mulwaree Council is the Proponent for the staged re-development proposal, which will have a CIV of more than \$5 million, the RPP will be the determining authority.

4.4.4 State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011

State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011 (**Catchment SEPP**) requires all proposed development in the Greater Sydney drinking water catchment to have a neutral or beneficial effect on water quality (**NorBE**). The Catchment SEPP also states that all land development activities in the Sydney drinking water catchment should incorporate WaterNSW's current recommended practices and standards.

A Water Cycle Management Study (WCMS) prepared by Crackerjack Consulting Engineers entitled 'Goulburn Aquatic Centre Re-development Water Cycle Management Study' dated 27 June 2018 has been included with the DA submission to conceptionally outline stormwater management methodology and design.

The proposed water cycle management measures comply with the requirements set out in the Water NSW Policy -Development in the Drinking Water Catchment - Water Quality Information Requirements, dated February 2015. Based on the NorBE testing criteria and the results of MUSIC model simulation, a beneficial effect on the water quality will be achieved when comparing post development criteria to pre-development.

4.4.5 State Environmental Planning Policy (Infrastructure) 2007

The State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP) aims to provide a consistent planning regime for infrastructure and the provision of services across NSW, along with requiring consultation with relevant public authorities during the assessment process.

Clause 104 of the Infrastructure SEPP requires certain traffic-generating development to be referred to the Roads and Maritime Services (**RMS**) for comment. Schedule 3 identifies the type of development to which Clause 104 applies.

As per Schedule 3, the development proposal would be classified as 'tourist facilities, recreation facilities, showgrounds or sports grounds'. Clause 104 - Traffic Generating Development applies to development for the purpose of tourist facilities, recreation facilities, showgrounds or sports grounds of 200 or more motor vehicles will access the site from any road, or if 50 or more motor vehicles will access the site from a classified road, or a road that connects to a classified road (if access is within 90m of the connection).

As noted at **Section 4.3.8** above, Goulburn Mulwaree Council has advised that it is currently in discussions with the Roads and Maritime Services (**RMS**) regarding the re-classification of Deccan Street. The current proposal is to re-classify Deccan Street from a Local Street to an RMS State Road.

As Deccan Street is still currently classified as a Local Street, the development proposed is not considered to be Traffic Generating Development under the Infrastructure SEPP. Notwithstanding, consultation with the RMS is likely to occur during the assessment of the Application due to the possible re-classification.

4.4.6 Goulburn Mulwaree Local Environmental Plan 2009

Development within the Goulburn Mulwaree Local Government Area (LGA) is governed by the Goulburn Mulwaree Local Environmental Plan 2009 (GMLEP 2009). Under this environmental planning instrument, the subject site is zoned RE1 Public Recreation.

The objectives of the RE1 Zone are:

- To enable land to be used for public open space or recreational purposes.
- To provide a range of recreational settings and activities and compatible land uses.
- To protect and enhance the natural environment for recreational purposes.

The proposed development, which is for the staged re-development of the Goulburn Aquatic Centre, is considered to be consistent with the zone objectives.

Under the provisions of the GMLEP 2009 the subject land is located within an RE1 Public Recreation Zone. Within that Zone, the likes of a 'kiosk', 'recreation area', 'recreational facility (indoor)' and recreational facility (outdoor) are permissible forms of land use with Council consent.

A 'recreational area' is defined as meaning:

"a place used for outdoor recreation that is normally open to the public, and includes:

- (a) a children's playground, or
- (b) an area used for community sporting activities, or
- (c) a public park, reserve or garden or the like,

and any ancillary buildings, but does not include a recreation facility (indoor), recreation facility (major) or recreation facility (outdoor)."

A 'recreational facility (indoor)' is defined as meaning:

"a building or place used predominantly for indoor recreation, whether or not operated for the purposes of gain, including a squash court, indoor swimming pool, gymnasium, table tennis centre, health studio, bowling alley, ice rink or any other building or place of a like character used for indoor recreation, but does not include an entertainment facility, a recreation facility (major) or a registered club."

A 'recreational facility (outdoor)' is defined as meaning:

"a building or place (other than a recreation area) used predominantly for outdoor recreation, whether or not operated for the purposes of gain, including a golf course, golf driving range, mini-golf centre, tennis court, paint-ball centre, lawn bowling green, outdoor swimming pool, equestrian centre, skate board ramp, go-kart track, rifle range, water-ski centre or any other building or place of a like character used for outdoor recreation (including any ancillary buildings), but does not include an entertainment facility or a recreation facility (major)."

It is also to be noted that the proposed new pool complex would support a small (138m²) café. By definition, a 'café' constitutes a 'food and drink premises' which is a prohibited use within a RE1 Public Recreation Zone.

A 'food and drink premises' is defined as meaning:

"means premises that are used for the preparation and retail sale of food and drink (or both) for the immediate consumption on or off the premises, and includes any of the following:

- (a) a restaurant or cafe,
- (b) take away food and drink premises,
- (c) a pub,
- (d) a small bar."

A 'restaurant or café' is defined as meaning:

"a building or place the principal purpose of which is the preparation and serving, on a retail basis, of food and drink to people for consumption on the premises, whether or not liquor, take way meals and drinks or entertainment are also provided."

Whilst the café is small in size $(138m^2)$ in comparison to the overall size of the new pool complex, it exceeds the maximum floor area for a kiosk $(100m^2)$ as prescribed by Clause 5.4(6) of the BMLEP 2009.

A 'kiosk' is defined as meaning:

"premises that are used for the purposes of selling food, light refreshments and other small convenience items such as newspapers, films and the like."

In this instance and given the fact that café and its use is integrated into the design and operational characteristics of the new pool complex, and would service patrons of both the pool complex and Victoria Park, the café is considered to be normally incidental to the predominate recreational use of the land and as such, is considered to be an acceptable form of land use given the circumstances of the case.

There are a number of specific provisions in the GMLEP 2009 that are relevant to the assessment of the Application. These are listed and commented on in **Table 1**. Overall, it is considered that there are no provisions in the GMLEP 2009 that would preclude the granting of development consent for the development proposal.

Table	1:	Relevant	GMLEP	2009	Planning	Controls
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Relevant Clause and Requirement	Comment
Part 4 Principal Development Standards	
4.3 Height of Buildings	Not applicable. There is no prescribed maximum building height that applies to the site.
4.4 Floor Space Ratio	Not applicable. There is no prescribed maximum floor space ratio that applies to the site.
Part 5 Miscellaneous Provisions	
5.10 Heritage Conservation	The over-arching Objective of the LEP is to ensure the integrity of both European heritage conservation and Indigenous heritage and archaeology.
	The LEP makes specific provisions, which must be taken into account in the preparation, assessment and determination of development applications involving items of a heritage and/or cultural significance.
	Indigenous Heritage and Archaeology
	NGH Environmental Pty Ltd (NGH Environmental) was commissioned to undertake a Due Diligence review for the purpose of identifying any and all potential impacts associated with the scope of the re-development of the pool complex.
	The review established that the scope of the re-development would be largely confined to the areas of the site previously disturbed in the siting and design of the existing pool complex and as such, it is unlikely that any new development on-site would pose unacceptable risk to Aboriginal archaeology, heritage and culture.
	The review concluded that no further assessment was required under the Aboriginal Due Diligence Code of Practice.
	Further comment on this matter is provided in Section 4.9.7.

Relevant Clause and Requirement	Comment
	European (Non-Indigenous) Heritage Conservation
	The Application is supported by a detailed Statement of Heritage Impact (SoHI) prepared by NGH Environmental. The purpose of the SoHI was to assess the potential heritage impact associated with the re-development of the Pool Complex.
	The SoHI concludes that the proposed re-development of the pool complex will not have an adverse impact on the heritage significance of the War Memorial Swimming Pool Complex and that the principal and heritage function of the complex will be retained.
	Notwithstanding, the report makes several recommendations in this regard, which should be acknowledged by way of the imposition of suitable conditions on any subsequent development consent if considered acceptable.
	Further comment on this matter is provided in Section 4.9.8.
Part 7 Additional Local Provisions	
7.1A Earthworks	The Objectives of the LEP are designed to ensure that earthworks associated with the development of land will not have an adverse impact on both the natural and built environments.
	Under the provisions of the LEP, earthworks require development consent unless their nature and extent are minor or constitute exempt development under the LEP or that of SEPP (Exempt and Complying Development Codes) 2008.
	In this instance, any earthworks associated with the re- development of the pool complex would be contained mostly in the footprint of the existing pool facility. Accordingly, any potential adverse impact on the natural or built environments would be minor and manageable.
	It is expected that any necessary earth works will be undertaken in accordance with conditions imposed on any subsequent development consent, but subject to detailed engineering design lodged as part of any future application for the issue of a Construction Certificate.
	Ultimately, the issue of the Construction Certificate will endorse the full nature and extent of any earth works.

4.5 Draft Environmental Planning Instruments (s4.15 (1)(a)(ii))

There are no Draft Environmental Planning Instruments relevant to the proposal.

4.5.1 Remediation of Land State Environmental Planning Policy

Currently, SEPP 55 provides the assessment framework for the remediation of contaminated land and sets out the remediation works that require development consent. It also requires councils and other planning authorities to consider the potential for land to be contaminated when making planning decisions.

The Draft Remediation of Land State Environmental Planning Policy aims for the better management of remediation works by aligning the need for development consent with the scale, complexity and risk associated with the proposed works.

The Draft SEPP was publicly exhibited from 31 January to 13 April 2018 and the Department of Planning and Environment is currently collating submissions that were received. It is therefore, considered that the Draft SEPP is imminent and a relevant consideration of some weight in the assessment of this Application.

As detailed at **Section 4.4.1** above, a PSI has been conducted and is included with this DA submission. The PSI provides information on the contamination status of the subject site and comments on the site's suitability for the current land use (i.e. Aquatic Centre). The PSI makes a number of recommendations, which if implemented, would allow for the site to be appropriately assessed for potential contaminants of concern, and therefore confirm its suitability for the land use.

Subsequent to compliance with the recommendations of the PSI, the development proposed would not be inconsistent with the goals, objectives and strategic directions of the Draft SEPP.

4.6 Provisions of Development Control Plans (s4.15 (1)(a)(iii))

The Goulburn Mulwaree Development Control Plan 2009 (**GMDCP 2009**) supplements the GMLEP 2009 by providing detailed reasoning, guidelines, controls and general information relating to the decision-making process. Together, these documents form the land use planning and development controls for the Goulburn Mulwaree LGA.

Our assessment of the proposal against the relevant GMDCP 2009 development standards is detailed in the table below.

Relevant Clause and Requirement	Comment
Part 3 - General Development Controls	
3.1 European (Non-Indigenous) Heritage Conservation	The provisions of the DCP are designed to conserve and preserve Goulburn's rich heritage character into the future. Further comment on this matter is provided in Section 4.9.8 .
3.2 Indigenous Heritage and Archaeology	The provisions of the DCP are designed to ensure that appropriate consideration is given to the potential impacts development may or may not have on Aboriginal archaeology, heritage and culture.
3.3 Landscaping	The objectives of the DCP are generally focused on ensuring good quality, well designed, constructed and maintained landscapes in context with the natural environment and the health, well-being, safety and expectations of the community at large.
	The re-development of the pool complex would require the removal of a small number of mature trees along the Deccan Street road frontage to facilitate new vehicle access arrangements and internal to the site to facilitate the new building and pool areas.
	The majority of the trees within the adjoining Park will be retained and supplemented by additional landscaped areas and plantings in those areas of the site disturbed by building activities.
	The new landscaped areas would be integrated into the siting and design of the new pool complex and generally reflective of the existing landscape features of the site whilst promoting ease of patron and community access and surveillance.
	Commemorative trees on-site should be identified and retained where possible and secured against damage/loss during construction works prior to any site works commencing.
	Subject to final design, it would be expected that the nature of any future landscape treatment would satisfy the objectives and standards of the DCP.
3.4 Vehicular Access and Parking	The objectives of the DCP are designed to ensure that development is suitably serviced by safe, efficient and discrete integrated on-site carparking without compromising the capacity and/or function of the local road network.
	The existing pool complex is serviced by formal carparking arrangements (approximately 60 spaces) accessing Deccan Street.

Table 2: Relevant Provisions of the Goulburn Mulwaree DCP 2009

Relevant Clause and Requirement	Comment
	The standards of the DCP would require the provision of 173 spaces of which 4 spaces would be allocated for disabled parking.
	As now proposed (Stages 1 and 2), formal on-site carparking for 160 spaces inclusive of 6 disable spaces would be provided. As proposed, this represents a shortfall of 13 spaces.
	Further consideration addressing the proposed shortfall is discussed in Section 4.6.1
	Vehicular access would continue to be provided from Deccan Street albeit over new driveway locations and constructed entrances.
	The new driveway and parking arrangements would be landscaped to help reduce their visual prominence within the development, streetscape and adjoining parkland.
	Further comment on this matter is provided in Section 4.9.1.
3.5 Disability Standards for Access	The objectives of the DCP are specific in that they are designed to ensure consideration is given to the provision of compliant equitable access for people with disabilities in new development and those developments subject to changes in land use/building characteristics.
	The provision of equitable access is governed by prescribed legislation and adopted and applied standards and as such, the proposed re-development of the pool complex would need to be compliant across all individual components to the development. Accordingly, the requirements of the DCP would be satisfied.
3.6 Crime Prevention Through Environmental Design	The over-arching objective of the DCP is to ensure the safety of individuals and security of property through sound environmental design of buildings and open space areas. Further comment on this matter is provided in Section 4.9.10 .
3.8 Tree and Vegetation Preservation	The Objectives of the DCP are designed to preserve the amenity, biodiversity and ecology of the area through the preservation of trees and other vegetation. The re-development of the pool complex would involve the removal of a number of trees and shrubs. However, as part of the re-development proposal, new areas of landscaping would be established to integrate the complex into the existing character of the adjoining parkland.
	Further comment on this matter is provided in Section 4.2 above.
Relevant Clause and Requirement	Comment
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3.14 Stormwater Pollution	The primary Objective of the DCP is to improve water conservation through building design and engineering best practice. The benefits being improvements in environmental quality and reductions in stormwater run-off and pressure on existing stormwater infrastructure.
	The re-development of the pool complex would require the preparation and endorsement of a detailed engineering design for the collection and lawful discharge of stormwater and the subsequent construction of the system if the objectives of the DCP are to be satisfied.
	To this end, the Application is supported by a preliminary stormwater management plan prepared by Crackerjack Consulting Engineers dated 13 April 2018. The Plan outlines a general philosophy for the treatment of stormwater runoff from the proposed development based on the on-site detention and reuse of stormwater.
	To control and regulate the migration of soil and water from the site during construction and post construction, appropriate soil and water management controls should be installed in accordance with the Landcom publication entitled "Managing Urban Stormwater: Soils and Construction" 4 th Edition March 2004(Blue Book) prior to any site works commencing.
3.15 Impacts on Drinking Water Catchments	The over-arching Objective of the DCP is to ensure the environmental integrity of water supply catchments for the purpose of delivering sustainable high standards in water quality in the local communities.
	Comment on this matter has been provided in Section 4.4.4.
4.2 Non-Residential Development - Retail, Commercial and Industrial	The proposal involves the major upgrade of an existing long standing recreational/community facility on the periphery of the Goulburn Town Centre.
	The proposal, in part, would involve the inclusion of a small ancillary café on the lower ground level of the complex. The café would provide a sit down service and social areas for patrons of the complex and those enjoying the passive and active recreational opportunities offered by adjoining parkland.
	The internal and external character of the new café would be integrated into the architectural design of the new complex.
	Its inclusion would have no adverse impact on the historical, and social heritage values attached to the long standing recreational and community occupation of the land or that of the Town Centre and/or adjoining and adjacent lands.

Relevant Clause and Requirement	Comment
	Furthermore, it would have no detrimental impact on the amenity of the surrounding areas and would not detract from the vitality or retail/commercial opportunities of the Town Centre.
Part 6 Special Development Types	
6.4 Advertising and Signage	The Objectives of the DCP are designed to ensure the erection of appropriate outdoor advertising and signage.
	An outdoor advertising/sign strategy has not been developed for the new pool complex to date. However, it is to be expected that such a strategy would culminate in the erection of signage, which was reflective of the heritage and social values of the site, streetscape character and the architectural and landscape merits of the new complex whilst addressing the location and presence of the complex within the streetscape and its associated access arrangements.
Part 7 - Engineering Requirements	
7.1 Utility Services	The Objective of the DCP is to ensure the satisfactory delivery of utility services to the development site.
	All utility services are available to the land. However, the provision of adequate servicing may need to be addressed as part of the final architectural and engineering designs for the project.
7.3 Drainage and Soil and Water Management	The Objectives of the DCP are designed to ensure that the impacts of stormwater and urban run-off are appropriately measured and mitigated in the development of land.

4.6.1 Variations to Controls

The Plan acknowledges that it is not possible for the development standards of the Plan to accommodate all possible situations and development scenarios. Accordingly, the development standards under the Plan have been designed to be flexible.

Given the circumstances of the case, consent may be given to departures (to a minor extent) if considered justified. The Plan identifies a number of factors, which can be considered in deciding whether or not a departure(s) is warranted. They are as follows:

- a) whether there will be any detrimental impact on the amenity of the existing and future residents.
- b) whether there will be any detrimental impact on the amenity of the area.
- c) the nature and size of the departure.

- d) the degree of compliance with other relevant requirements.
- e) the circumstances of the case, including whether the particular provision is unreasonable and/or necessary
- f) priorities identified in a site analysis of being of more importance than what is being departed from.
- g) whether non-compliance will prejudice the objectives of the zone and the aims of this plan.

Comment

In this instance, it is requested that the Determining Authority formally consider a variation to the total amount of onsite car parking required under the Plan on the basis that the departure is minor and specifically designed to ensure the integrity and retention of a number of mature trees within the boundaries of the land and public domain and by providing additional opportunity for the establishment of on-site landscaping within the pool complex.

The development standards of the Plan as they relate to onsite car parking would require the provision of 173 spaces. As proposed, 160 spaces would be provided representing a shortfall of 13 spaces. In addressing the abovementioned factors, the following is submitted for consideration:

- the departure is minor being in the order of 5%.
- all other relevant requirements of the DCP have been addressed and satisfied.
- the departure would not result in detrimental impacts on the existing and likely future amenity and streetscape character of the locality.
- the nature of the departure would not compromise the objectives of the GMLEP 2009 or the aims of the GMDCP 2009.
- the departure would not establish and undesirable precedent in the application of the GMDCP 2009.
- The availability of kerbside parking within the immediate area would more than adequately cater for the shortfall in the provision of on-site car parking.

Given the circumstances of the case, the departure is considered reasonable and fully justified.

4.7 The Regulations (s4.15 (1)(a)(iv))

This DA is not subject to any prescribed matters referred to in Section 92 of the EP&A Regulation that are required to be considered in relation to the assessment of an application.

4.8 Coastal Zone Management Plan (s4.15 (1)(a)(v))

A Coastal Zone Management Plan is not applicable to the subject site.

4.9 Likely Impacts of the Development (s4.15 (1)(b))

4.9.1 Traffic, Transport and Parking

A comprehensive Traffic Impact and Parking Assessment (**TIPA**) report has been prepared by Ontoit Global Pty Ltd (**Ontoit**) entitled 'Goulburn Aquatic Centre Redevelopment' dated 20 February 2019 and is included with the DA submission. The TIPA reviews the proposed re-development and its likely impacts on traffic, the adjacent road network, parking, access, public transport and pedestrian and cycle paths.

To identify and assess potential impacts, a comprehensive review of the existing transport and traffic networks in the vicinity of the pool complex has been undertaken together with existing and likely future demand characteristics both pre and post redevelopment.

The review process also included analysis of traffic volume data collected for Deccan Street over a 6-week period (June to July 2015) and supplementary data collected by traffic survey over a 20-day period between 24 January 2018 and the 12 February 2018.

In summary, the review made the following key observations:

Existing Conditions

- The existing roadway capacities (Deccan, Verner, Faithfull and Clifford Streets) would be in the order of 600 to 900 vehicles per hour, per lane.
- There has been little or no change in traffic conditions along Deccan Street (directional traffic movement, daily traffic volumes and speed) between 2015 and 2018.
- The existing pool facility is serviced by two dedicated on-site carparking areas which operate independently to each other. Each carparking area is service by separate ingress/egress driveways accessing Deccan Street.
- Existing onsite and kerbside (Deccan Street) carparking is underutilised.
- Existing bicycle parking is available at the entrance to the pool facility but appears to be underutilised.
- Deccan Street has pedestrian paths on both sides of the road corridor.
- There are no dedicated cycle lanes and due to kerbside parking, there is an inherent conflict between vehicles and cyclists.

• Currently, there are no regular public transport routes that service Deccan Street with the nearest bus stop being approximately 450 metres form the facility. Notwithstanding, the bus stop is serviced by a regular bus service on Monday to Friday and on Saturday.

Proposed Development

 Based on existing and forecasted demands on the proposed facility, peak patronage would be in the order of 200 people visits per day (excluding major events) which may increase to 300 to 350 people visits per day during hot weather or public holiday weekends. The latter being considered unusual and infrequent.

Traffic and Parking Generation

- The new pool complex could generate up to an addition 133 additional vehicle trips during peak periods and additional 554 vehicles movements a day along Deccan Street.
- On-site car parking for approximately 60 spaces is currently provided in meeting the demands of the existing pool complex. As proposed, 160 on-site carparking spaces (inclusive of 6 disabled spaces) would be provided as part of the redevelopment. The total number of spaces provided would be less than that required by Council's requirements (173 spaces) as adopted by the BMDCP 2009. However, it is estimated that approximately 400 to 500 street parking spaces would be available within 400 to 500 metres of the pool complex.

Transport and Traffic Impact Assessment

Future Road Capacity

- Deccan Street has an existing capacity between 1200 to 1800 vehicles per hour (600 to 900 per lane) and an average daily traffic volume of 4500 vehicles. This equates to approximately 450 vehicles travelling along the road corridor in peak hour.
- Following redevelopment, the pool complex is likely to generate an additional 133 peak hour vehicle trips which would result in approximately 583 vehicles travelling along Deccan Street during peak hour. Accordingly, the additional traffic generated by the new facility would not adversely impact on the function and capacity of deccan Street and the adjacent road and intersection network.

Access Arrangements

• The proposed access arrangements in the redevelopment are not dissimilar to that existing. That being, all driveways will access Deccan Street via single directional entry/exit points which will minimise potential vehicle and pedestrian conflicts. All vehicles will be driven onto and from the site in a forward direction.

Sight Distances

- Australian Standard 'AS/NZS 2890.1:2004 Parking facilities Part 1: off street car parking' provides requirements for access sight distances for off-street parking facilities. As stipulated, access driveways need to be located and constructed so as to ensure that adequate sight distance is maintained to traffic using the frontage road.
- On review, the proposed access arrangements are compliant with Australian Standard `AS/NZS 2890.1:2004 Parking facilities Part 1: off street car parking.

Parking Impacts

Layout, Provision and Utilisation

- The proposed on-site carparking will be designed and constructed in accordance with the provisions of Council's adopted Development Control Plan 2009 (as relevant), Australian Standard 'AS/NZS 2890.1:2004 Parking facilities - Off Street Car Parking and Australian Standard AS/NZS 2890.6-2009 Off-street Parking for People with Disabilities.
- On-site carparking and its associated driveway areas will be constructed on grade so as to ensure their effective and efficient use with a minimum of maintenance. Stormwater discharge will be captured and detained on-site to restrict flows to meet pre-development conditions.
- It is anticipated that there will be sufficient car parking on-site or within a short walking distance to accommodate the day to day peak visitor demand periods.
- There are likely to be special event periods (e.g. School carnivals) where the demand for on-site carparking will exceed the total amount of on-site carparking provided. However, kerbside parking in the general locality is underutilised, which could accommodate any likely over flow demand.

Adventure Playground Facility Impacts

- Sufficient on-site carparking is proposed to accommodate the requirements of the new pool complex on a day to day basis. The need to access kerb side parking would only occur during peak visitor demand at the pool complex.
- The opening of the new Adventure Playground facility in Victoria Park has resulted in a significant increased demand for kerbside parking in the area, particularly within the Verner Street road reserve at weekends and to a lesser extent, in Deccan Street.
- No additional demand for kerb side parking has been experienced within the Clifford and Faithfull Streets.

- Irrespective of the apparent demands for kerb side parking along Verner Street, sufficient over flow kerb side parking opportunity would still be available during peak times within a reasonable walking distance of the pool complex.
- It is not unreasonable to expect that the expanded carparking arrangements at the new pool complex may reduce the pressure on available kerb side parking in Verner Street during periods of normal visitor demand at the pool when carparking availability at the pool complex is underutilised.

Public Transport Impacts

• Public transport (bus service) is unlikely to be impacted by the redevelopment of the pool complex due to the service characteristics and the capacity and function of the existing road network. However, consideration should be given to establishing a new transport corridor to the pool complex to reduce the dependence on private motor vehicles and to provide patrons with an alternate mode of access.

Pedestrian and Cycle Impacts

- No impacts are anticipated on existing pedestrian and cycle access to the pool complex.
- As part of the re-development proposals, enhanced bicycle parking facilities and capacities have been included both at the access to the development and the rear of the facility through the inclusion of sixteen (16) bicycle 'loops'.

Waste Vehicle Access and Collection

• Waste vehicles will be able to access the site in a forward direction effectively minimising reversing movements. A purpose-built turning bay located at the rear of the pool complex will confine vehicle movements to a low pedestrianised area effectively minimising vehicle/pedestrian conflicts. Further separation between the adjoining Park, pedestrian paths and the manoeuvring area would be achieved by kerb lines.

Conclusion and Recommendations

The Report has demonstrated that the provision of on-site carparking and existing road infrastructure has enough capacity to cater for the likely visitor demand generated by the new pool complex and that there will be no adverse impact on access to public transport, pedestrian and cycle traffic. Notwithstanding, the Report makes several recommendations worthy of consideration and as part of any operation strategy for the pool complex. They are as follows:

- Consideration should be given to providing a public transport corridor and bus stop closer to the new pool complex to encourage public transport use and improved accessibility.
- Enhance pedestrian and cycle amenity to and from the new pool complex to encourage walking and cycling.

- Consideration should be given to formulating and implementing an 'event day' traffic and parking
 management strategy to minimise impact on adjoining and adjacent local streets particularly in context
 with the apparent demand for kerb-side parking generated by the new Adventure Playground.
- Vehicles exit points from the on-site carparking areas to the new pool complex should be left turn only onto Deccan Street so as to minimise potential vehicle and pedestrian/cycle conflicts in the interest of public safety.

4.9.2 Biodiversity

A Biodiversity Assessment prepared by NGH Environment Pty Ltd (NGH) has been included with the DA submission to provide a preliminary summary of the terrestrial biodiversity values and the potential impacts to those values as a result of the proposed re-development of the Goulburn Aquatic Centre.

In summarising the results of the NGH Biodiversity Assessment, it is noted that the site supports limited biodiversity values given the previous development and ongoing management of the area. Importantly, the site is considered unlikely to support any listed threatened flora or fauna species, or support any identifiable ecological community of conservation significance under either the NSW *Biodiversity Conservation Act 2016* or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

Regarding the new Biodiversity Conservation Act 2016 assessment provisions, the understorey is exotic-dominated and the over-storey has been planted. On this basis, the vegetation is not considered to be a native plant community type that could trigger the Biodiversity Offset Scheme. Further, the site is not included in the Biodiversity Values Mapping undertaken by the NSW Office of Environment and Heritage (**OEH**).

No specific construction management measures are recommended in order for the works to proceed beyond those already expected to be implemented in accordance with standard construction practices, particularly with respect to the protection of trees on development sites, as well as typical erosion and sediment control, dust and stockpile management measures.

4.9.3 Contamination

Robson Environmental Pty Ltd (**Robson Environmental**) was engaged to prepare a Preliminary Site Investigation (**PSI**) for the Goulburn Aquatic Centre re-development. The PSI, which has been included with the DA submission, was undertaken to review past and present land uses for activities that may have introduced contamination, and to assess the suitability of the site for the current land use.

As detailed in the PSI, two (2) on-site areas of environmental concern (**AECs**) were identified with the potential to impact the site (from a contamination point of view). The AECs identified are:

• AEC 1 - potential fill material of unknown origin beneath buildings and around pool areas; and

• AEC 2 - Chemical storage within the outdoor (primary) and indoor (secondary) pool plant rooms.

Based on the results of the PSI and the current condition of the site, Robson Environmental identified that the on-site AECs will generally pose a low risk to the users of the site. However, it was noted that further assessment would be required for the AECs should the soil be disturbed during the re-development works to assess the suitability of the site for the current land use.

The recommendation for further assessment includes:

- AEC 1 further assessment should be undertaken to identify the potential contaminants associated with uncontrolled fill including total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylenes (BTEX), organochlorine pesticides (OCPs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), eight (8) heavy metals (including arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc) and asbestos, and to determine the lateral and vertical extent of contamination (if any).
- AEC 2 further assessment should be undertaken of the underlying soil should the buildings be demolished and/or the soil within the footprint of the buildings be disturbed to identify potential contaminants including acids/pH and to determine the lateral and vertical extent of contamination (if any).

Following the assessment of the AECs Robson Environmental recommends that a construction environmental management plan (**CEMP**) with an unexpected finds protocol (**UFP**) for suspicious materials (including but not limited to asbestos) be prepared prior to the commencement of the re-development works.

The implementation of these recommendations would allow for the site to be appropriately assessed for potential contaminants of concern, and therefore determine whether the site is considered suitable for the current land use.

The Proponent accepts that a suitable condition will be imposed on any consent granted, which will require the development to be carried out in accordance with the recommendations of the PSI.

4.9.4 Hazardous Materials

As the proposed re-development of the Goulburn Aquatic centre includes the demolition and refurbishment of aged buildings and infrastructure (circa 1960s), a Hazardous Materials Survey and Management Plan (HMSMP) was prepared so as to identify and assess the extent and condition of hazardous materials and to document safe management procedures in accordance with current legislation.

The HMSMP contains sections covering the identification, evaluation and control of hazardous materials, including asbestos containing materials (ACM), lead paint, Polychlorinated Biphenyls (PCB), Synthetic Mineral Fibre (SMF), Ozone Depleting Substances (ODS) and fuel storage above and underground storage tanks (A/UST).

The HMSMP includes information, which must be known and acted upon prior to the commencement of any demolition, refurbishment, or hazardous material removal or remediation. It also details responsibilities that the PMCW (person with management or control of workplace) and occupier must address to ensure safe occupation of the premises.

The Proponent accepts that a suitable condition will be imposed on any consent granted, which will require the development to be carried out in accordance with the key recommendations of the HMSMP.

4.9.5 Soil and Water

A Water Cycle Management Study (WCMS) prepared by Crackerjack Consulting Engineers entitled 'Goulburn Aquatic Centre Re-development Water Cycle Management Study' dated 19 December 2018 has been included with the DA submission to conceptionally outline stormwater management methodology and design.

The WCMS references the Goulburn Mulwaree Council's adopted Policy entitled 'Stormwater Drainage and Rainwater Collection Systems Policy'. In accordance with the Policy, it is intended to limit stormwater discharge from the development site (Stages 1 and 2) to the surrounding system to pre-development flow rates, meaning that excess post development catchments will be detained using a series of stormwater tanks and detention techniques.

The WCMS demonstrates that the post development flow rates from the carpark areas can be accommodated by integrating suitable stormwater management controls into the engineering design for the individual carpark areas and that excess roof stormwater can be effectively captured and directed to detention tanks for reuse purposes.

For the 50-metre pool and water play areas, wet decks are proposed. Concrete concourses will fall away from the wet deck areas, which fall away to a series of either slot drains or strip drains that would connect to existing/proposed stormwater infrastructure.

The Plan provides preliminary investigations and design, which will need to finalised in detailed engineering design at a later date.

During construction and over the period of site rehabilitation, soil and water management controls will be installed and maintained to control and regulate the migration of soil and water during storm events. Necessary controls will need to be designed and implemented in accordance with the Landcom publication entitled 'Managing Urban Stormwater - Erosion Control of Soils and Construction' Volume 1, 4th Edition March 2004.

4.9.6 Acoustic Environment

A Preliminary Noise Impact Assessment (NIA) prepared by Rudds Consulting Engineers (Rudds) has been included with the DA submission to address the likely impact of the development on nearby noise sensitive receiver locations. The NIA provides advice in relation to suitable design target levels and addresses the primary onsite noise sources, which are expected to be mechanical equipment noise, carpark traffic noise, noise from patrons and noise from construction activities.

As detailed in the NIA, Rudds identifies carpark traffic, noise from crowds and construction noise activities as being the most significant noise sources on the site. Where a noise impact has been identified, Rudds provides preliminary advice in relation to suitable noise mitigation measures, which could be employed to limit noise emissions to nearby sensitive receivers.

Mechanical noise emissions have not been entirely addressed at this stage as a detailed equipment list has not yet been prepared. During the detailed design phase, the preferred equipment will be assessed and appropriate noise mitigation measures will be implemented so as to ensure compliance with environmental noise limits for the site.

4.9.7 Aboriginal Heritage

NGH Environmental Pty Ltd (NGH Environmental) was commissioned to undertake a Due Diligence level assessment for Aboriginal heritage. The Due Diligence assessment identified neither new Aboriginal heritage sites nor sensitive archaeological landscapes. The proposed re-development works will be largely confined to within the footprint of previous disturbance and therefore, will not pose a potential impact to Aboriginal heritage sites or values.

NGH Environmental concluded that no further assessment was required under the Aboriginal Due Diligence Code of Practice.

4.9.8 European Heritage

The Goulburn Aquatic Centre is listed on the Heritage Schedule of the GMLEP 2009 as having high local heritage significance for its social and community association. The GMLEP 2009 listing (I62) includes the following statement of heritage significance:

'War Memorial Swimming Pool complex is of high local heritage significance in Goulburn for its social and community associations. The complex, designed by Figgis and Jefferson Architects, Milsons Point, in 1964, features two symmetrical changing wings with a central entrance/office.' In recognition of its local significance, NGH Environmental was commissioned to prepare a Statement of Heritage Impact (SoHI) to assess the potential heritage impacts associated with the works proposed as part of the redevelopment of the pool complex.

The subsequent report entitled 'Statement of Heritage Impact Goulburn War Memorial Swimming Pool' date June 2018 was prepared in accordance with The Burra Charter: The Australian ICOMOS Charter for Places of Cultural Significance and associated Practice Notes as well as best practice standards set by the NSW Heritage Branch.

The Report confirms that there are no listed items within, or in the vicinity of the site that have National, Commonwealth or State significance but acknowledges the site's local listing under the provisions of the GMLEP 2009 and correlating GMDCP 2009.

The Report effectively promotes the position that whilst the Goulburn Aquatic Centre project will impact materially upon the design and fabric of the existing pool complex, it is not the design nor aesthetics from which the existing complex draws its heritage significance. Rather, the heritage significance of the existing pool complex is directly attributed to its long standing within the local community as a place of important social and recreational interaction and commemoration. Attributes which are common to other municipal pool complexes in the Region such as, the Queanbeyan Recreation and Leisure Centre and the Braidwood Memorial Pool.

In addressing potential heritage impacts, the Report addresses specific matters for consideration as documented in the NSW Heritage Manual document 'Statements of Heritage Impact' (NSW Heritage Office 2002). They are as follows together with commentary as documented in the Report.

Do the aspects of the proposal respect or enhance the heritage significance of the item or conservation area?

The siting and design of the proposed development has taken into consideration the importance of preserving the historical significance of the existing pool complex as a safe and modern communal swimming facility. New aquatic facilities will ensure the continued use of the area by the community into the future whilst instilling a sense of 'place and ownership'.

Could aspects of the proposal detrimentally impact on heritage significance?

Removal of the commemorative trees from the landscape grounds will detrimentally impact upon the social heritage significance of the pool complex. Accordingly, the trees should be retained.

Removing the War Memorial plaques will detrimentally impact upon the social heritage significance of the pool complex. Accordingly, the plaques should be reinstated elsewhere within the new aquatic centre design, or some other memorial to the Australian Defence Forces should be included within the design of the complex.

Have sympathetic solutions been considered and discounted?

The 'Do nothing' approach is not a viable option for the Centre given the apparent structural defects in the outdoor 50m pool. The proposed development of the site focuses on providing a clean and modern social and recreational environment that will promote and facilitate community participation.

How is the impact of the proposed development on the heritage significance of the site to be minimised?

The scope of the proposed development aims to enhance the facilities currently available to the community. The siting and design of the new pool complex will entice and encourage community use and enjoyment of the facility and its parkland surrounds. The ongoing community use of facility into the future will further enhance the historical significance of the complex within its location and setting.

Can the proposed development be located within an existing structure? If not, why not?

Given that a number of new facilities are proposed to be provided, the scope of the project can not be contained within an existing structure. The scope of the project has been designed with due regard to the historical significance of the pool complex and its continued use into the future. New facilities and services will be provided, which will reinforce the historical relevance of the pool. The Articles of the Burra Charter instil the necessity to conserve forms of the original use. The siting and design of the proposed development aim to achieve this principle.

Will the proposed development visually dominant the heritage item?

The heritage significance of the pool complex has been assessed as being more associated with the long history of swimming within Victoria Park and the local community's association with the area as opposed to the design and aesthetics of the building. The siting and design of the new buildings, pool deck areas, surrounds and occupation will not negatively visually dominate the heritage significance of the item as they aim to improve public access and the enjoyment of the area as a place of social and recreation interaction. Furthermore, the pool complex is not located within a heritage conservation area as prescribed by the BMLEP 2009.

• Will the proposed development be sighted on known, or potentially significant archaeological deposit? If so, have alternative positions for the development been considered?

There are no known significant archaeological deposits at the location of the pool complex. Notwithstanding, the scope of the proposed development would effectively sit within the disturbed footprint of the existing pool complex.

Is the scope of the proposed development sympathetic to the heritage item? In what way (e.g. form, proportions, design)?

The proposed development is sympathetic to the heritage item in that it involves an upgrade of the existing pool complex aimed at improving the quality of experience for patrons of the swimming pool whilst reinforcing the historical importance of the location of the pool to the community.

Conclusion

The Report provides valuable insight into the historical significance of the existing swimming pool complex and the potential impacts on its heritage values associated with the redevelopment of the site. Accordingly, the Report is considered to be an important reference tool in considering the appropriateness of the proposed redevelopment in context with the provisions of the BMLEP 2009 and GMDCP 2009 as they relate to the importance of preserving local heritage items.

The Report concludes, that the scope of the proposed re-development will have no adverse impact upon the historical, associative and social heritage values of the existing pool complex. Notwithstanding, the Report makes the following recommendations:

- That the commemorative trees remain within the landscaped grounds surrounding the Aquatic Centre.
- That some form of the War Memorial commemoration be retained on site.
- That Council commission an Oral History with key people relevant to the history of the memorial swimming pool.
- That Council commission an Interpretation Strategy which includes fully developed concept design which is informed by community consultation and includes a strategy to identify a suitable site for the relocation of the existing commemorative plaques.
- The installation of the interpretation should be required prior to issue of the occupation certificate.
- That Council commissions a photographic archival recording of the War Memorial Swimming Pool Complex in accordance with the NSW Heritage Office Guidelines (*Photographic Recording of Heritage Items Using Film or Digital Capture, 2001*) prior to the commencement of works to be held by Council and the Goulburn Mulwaree Council.

The recommendations are worthy of consideration and if adopted should be fully implemented as part of the redevelopment process. Their implementation would ensure the long standing historical significance of the pool complex within the local community into the future.

4.9.9 Waste Management

Demolition and Construction

An integral component to the redevelopment process is the preparation and adoption of a waste management plan which clearly details the following:

The volume and type of waste to be generated by the works;

- How the waste materials are to be managed, stored and treated recycled/directed to landfill) on-site during the demotion and construction phases of the redevelopment;
- How residue waste is to be disposed of and where.

Given the many variables that would be associated with the demolition and construction phases of the project, it is difficult to accurately enumerate the full nature and extent of any waste generation as part of the development assessment and determination process.

The more typical pathway to address the management of waste generation is at the construction certificate stage following the finalisation of detailed architectural and engineering designs for the project. An operational waste management plan (**OWMP**) should be submitted to and endorsed by the Principal Certifying Authority as part of any subsequent application for the issue of a construction certificate. Following endorsement, the plan should be implemented during the demolition and construction phases of the re-development to the satisfaction of the Principal Certifying Authority.

The content of any subsequent OWMP would generally revolve around:

- minimising quantity of construction materials ordered and packaging materials (i.e. cardboard, plastic wrap), and avoid the generation of waste in general;
- purchase of sustainable, environmentally friendly products;
- identify the types and approximate quantities of waste streams expected to be generated on-site;
- procedures for the separation and collection of recyclable construction materials, including provision of appropriate containers/bins, signage and education;
- procedures for the collection and removal of waste that cannot be reused or recycled from the site, including the provision of appropriate containers/bins, signage and education;
- measures to prevent and monitor airborne litter/debris (i.e. bins with lids) on-site; and
- procedures for the removal of hazardous or dangerous materials from the site in accordance with State and Federal legislation including work place health and safety requirements.

All construction waste would be collected and appropriately stored on-site until its removal. Waste and recyclables collection/removal would be undertaken by a licensed waste contractor, which would be managed in accordance with the requirements of a construction environmental management plan.

Construction vehicles will be managed during the construction phases of the redevelopment by the implementation of a Council endorsed construction traffic management plan.

A suitable condition could be imposed on any subsequent development consent granted for the project.

Centre Management

The development application is supported by a detailed report prepared by Irwinconsult entitled 'Goulburn Aquatic Centre Redevelopment Waste Management Plan' dated 21 June 2018.

The Report has been prepared based on best practice waste management methodology and technologies commonly available throughout Australia. The Report identifies and examines potential waste generation for each individual land use component of the new pool complex (pool areas, administration, creche, gym, café and public spaces) and makes several recommendations relating to the management, treatment and disposal of waste given its specific characteristics and requirements. The segregation of waste into specific waste streams (e.g. general garbage, comingled recycling and hard waste) is strongly promoted, which will help portray the principles of sustainability throughout the new complex.

Whilst the Report offers sound rationale for the purpose of managing waste responsibly across the new complex, it needs to be formalised, adopted and implemented as an operational waste management strategy within any subsequent operational management framework for the new complex.

Internal driveways servicing the centre will be designed and constructed to accommodate service vehicles, which will need to access the complex on a regular basis. Service vehicles will be driven onto and from the site in a forward direction.

A suitable condition could be imposed on any subsequent development consent granted for the project.

4.9.10 Crime Prevention Through Environmental Design

There are four principles that need to be considered as part of the pool complex design for the purpose of minimising the opportunity for individuals to participate in anti-social behaviour and crime. They are:

• Surveillance Measures (i.e. natural/technical/formal, lighting and landscaping)

Opportunities for anti-social behaviour and crime can be reduced by providing opportunities for effective surveillance by creating sight lines between public and private places and maximising natural surveillance and by providing appropriate lighting and landscaping.

Access Control

The principle of access control is to use physical and symbolic barriers to attract, channel or restrict movement of people to minimise opportunities for anti-social behaviour and crime by increasing the effort required to commit the act or offence.

Territorial Reinforcement

The principle revolves around community ownership of public spaces and the creation, promotion and maintenance of public spaces which the public feel comfortable in using. Well used public spaces act as a deterrent against anti-social behaviour and crime as they reduce the opportunity to commit the act or offence. Designing with clear transitions and boundaries between public and private spaces is essential.

Activity and Space Management

This principle is linked to the principle of territorial reinforcement and ensures that spaces are appropriately utilised and well-cared for. Space management strategies include activity co-ordination, site cleanliness, timely repair of vandalism and graffiti, the replacement of lighting to name a few.

In addressing the above principles, the following elements of the new pool complex and proposed design treatments would help ensure against the incidence of anti-social behaviour and crime within the complex and its immediate curtilage.

Lighting

Lighting plays a vital role in crime protection and personal safety. The re-development of the pool complex would involve the installation of various forms of internal and external lighting systems designed not only to enhance the architectural elements of the new complex and its use by management and patrons alike but also, to ensure the security of the asset and the personal safety of user groups and individuals. In addition, the project would also involve the upgrade of existing lighting throughout the complex inclusive of the carpark area, Victoria Park and surrounding assess pathways and routes.

Lighting would also enhance the proposed use of closed circuit television surveillance.

Fencing

The characteristics of fencing is important and should integrate with the individual components of the pool complex without compromising their active and passive use, the security of the asset and the personal safety of user groups and individuals. It should also be noted that fencing in this instance must be compliant with the Building Code of Australia and adopted and applied Australian Standards.

Subject to final design, appropriate fencing would be installed as part of the re-development proposal.

Car Parking

The siting and design of on-site carparking and associated driveway areas is critical to their safe, effective and efficient day and night time use. The re-development of the pool complex would see an extension of the existing parking arrangements along the Deccan Street property frontage, intersecting with a new re-designed entry plaza being the 'gateway' to the complex. These areas will remain as open air civic spaces and as such, would continue to be highly exposed for the purpose of casual surveillance both external and internal to the site. The use of these areas would also be enhanced by security lighting and coverage by closed circuit television surveillance

Entrapment Spots and Blind Corners

Given the civic nature and scope of the project it is important to eliminate these areas as much as possible through careful design of buildings and facilities and their spatial relationships both internal and external to the site. However, achieving a desired outcome can prove illusive given the motivated intent of persons engaged in anti-social behaviour or crime.

The siting and design of the proposed new pool complex has mostly eliminated potential areas of conflict internal to the complex (buildings and pool deck areas). However, there are areas within the immediate curtilage of the complex, such as the associated carpark and Victoria Park, which will continue to provide opportunity for those who seek to participate in anti-social behaviour and crime.

Accordingly, in any final design of the new pool complex, due consideration should be given to identifying potential areas of concern with the aim of resolving on a suitable design and implementation strategy to effectively mitigate the incidence of conflict.

The installation of selective lighting and closed-circuit television surveillance in prominent locations are considered integral components to the design of the pool complex and the creation of a safe public space.

Landscaping

The design, establishment and ongoing maintenance of landscaping within a development of this type is of paramount importance if both passive and active surveillance within the development and its immediate curtilage is to be effectively managed.

New areas of landscaping can be established within the new pool complex and its immediate curtilage, which can be designed to maximise visual surveillance capability and to clearly delineate between those areas available to pubic use and those areas which have no public access. The selection of appropriate tree and plant species and ongoing maintenance thereof can be addressed in the final design of the pool complex without compromising surveillance capability whilst ensuring the architectural merits of the development.

Communal/Public Areas

The new pool complex inclusive of its immediate curtilage, contains sizeable public areas, which can be effectively managed through the development and implementation of a suitable surveillance strategy. However, there are areas within the carpark and adjoining parkland, which are somewhat remote from the core of the complex which, given their isolation, may well be exposed to anti-social behaviour and crime. These areas could be identified and suitably addressed in the final design of the complex. The installation of selective lighting and closed-circuit television surveillance in prominent locations are considered integral components to the design of the pool complex and the creation of a safe public space.

Movement Predictors

Movement predictors are routes which people move through on a regular and predicable basis.

The movement of staff, patrons and the general public through the new pool complex can be controlled and regulated by the siting and design (internal and external) of buildings and open space/communal areas and contemporary management practice. In most cases, public access to the individual components within the complex would be provided via the proposed new entry plaza and foyer/reception areas. This would have active surveillance benefits in the management of the complex proper.

On the other hand, there are areas within the immediate curtilage of the complex, which provide direct, multiple and active formal/informal pedestrian access routes, which could be used to access the new pool complex. In most cases, these routes have clear site lines and as warranted, their lighting would be upgraded as part of the redevelopment process. Proposed closed circuit television will enhance surveillance opportunity.

Entrances

The entrance to any type of development must be sited and designed to facilitate their safe effective and efficient use. They need to be prominent and identifiable so as to promote their quick and convenient use whilst limiting the opportunity to engage in anti-social behaviour.

The new pool complex would be serviced by a new open plan entry plaza orientated to the Deccan Street property frontage. The design of the new plaza has been purposeful in that it presents a recognisable visual element in the streetscape and integrates with and complements the design of the new main entry to the complex. Its open plan would facilitate ease of surveillance.

4.9.11 Sustainability

The Principles of Ecologically Sustainable Development are considerations, which must be suitably addressed as part of the development process. The four Principles are:

The Precautionary Principle

The Principle, in application, suggests that if there are threats of serious irreversible environmental damage, the lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

In this instance, the level of detailed reporting in the Application is extensive and clearly establishes that the scope of the proposed re-development would have no serious irreversible environmental consequence and that any perceived risk would be minor and manageable.

Intergenerational Equity

The Principle, in application, places a duty of care on the present generation to ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.

In this instance, the scope of the proposed re-development involves a major upgrade of a long standing communal recreational facility, which will benefit future generations whilst enhancing environmental integrity through superior building, engineering and environmental design and quality control.

Conservation of Biodiversity and Ecological Integrity

The Principle effectively mandates that the conservation of biological diversity and ecological integrity should be a fundamental consideration in the decision-making process.

In this instance, the land supports limited biodiversity values given the existing development and ongoing management of the area. Importantly, the site is considered unlikely to support any listed threatened flora or fauna species or support any identifiable ecological community of conservation significance. Notwithstanding, the site and the surrounding parkland offer habitat opportunities, which will be preserved and supplemented as part of the redevelopment process.

Improved Valuation of Environmental Resources

The Principle means integrating long and short term economic, environmental, social and fairness considerations into decision making process.

In this instance, the scope of the proposed re-development involves a major upgrade of a long standing communal recreation facility. As part of that process, long and short term environmental benefits and costs have been addressed and factored into the design, construction and operation of the new complex, which would be supported by ongoing contemporary management practices.

In addressing ESD Principles, the Application is supported by a detailed report prepared by Umow Lai entitled 'Goulburn Aquatic Centre Redevelopment Sustainability Report' dated 12 April 2018.

The Report outlines a strategy to achieve best practice sustainable design and construction to ensure the long-term sustainability of the new complex by reducing its environmental impact throughout its service life.

The strategy focuses on a number of key areas being:

- Reducing energy consumption through best practice initiatives and the investigation of the offset of energy consumption with the application of renewable energy technologies;
- Reduce water consumption and the offset of non-potable water demands through the application of rainwater harvesting and reuse systems; and
- Enhanced health and wellbeing through the avoidance of materials, which contribute to poor indoor air quality and the provision of higher rates of outside air.

The strategy also identifies a number of best practice, sustainable service design and architectural initiatives which, if implemented, will minimise life cycle economic and environmental costs of the complex to the benefit of the community at large. Those being:

- Photovoltaic renewable energy generation;
- Energy recovery to heating ventilation and air conditioning systems and increased outside air rates to provide better indoor air quality;
- Application of high energy, hybrid system of heat pump and condensing boiler technology for pool heating, heating hot water and domestic hot water;
- Best practice lighting and broad application of LED technology and advanced lighting and cooling systems
- Comprehensive sub-metering to facilitate monitoring and management of utilities;
- Rainwater harvesting and reuse system for non-potable water applications (irrigation and pool top-up);
- Enhanced building fabric insulation and glazing performance beyond the minimum specified 'deemed to satisfy' standards (Section J) under the Building Code of Australia;
- High water efficiency fixtures and fittings to reduce water demand and consumption; and
- Low volatile organic compound finishes and products (Paints and floor coverings).

Comment

The above initiatives would need to be considered in the preparation of the final designs for each stage of the redevelopment and could be adopted in part or in full. However, it is to be noted that whilst these initiatives have environmental and cost saving benefits over the long term, they come with initial upfront associated capital expenditure.

It is considered that the initiatives as documented in the report are worthy of the fullest consideration.

4.10 Other Matters for Consideration

4.10.1 Suitability of the Site for the Development (s4.15 (1)(c))

The subject site is considered to be suitable for the proposed development as demonstrated in the site analysis provided at **Section 2** of this SEE.

4.10.2 Submissions Made (s4.15 (1)(d))

This Development Application will be publicly notified and advertised in accordance with Part 1.7 - Public Participation of the GMDCP 2009. The Proponent requests the opportunity to review and to comment on any submissions received, should that arise.

4.10.3 Public Interest (s4.15 (1)(e))

The proposed re-development of the Goulburn Aquatic Centre is in the public's interest as it will provide an attractive and modern aquatic, sports, fitness and community venue, which will provide a mixture of indoor and outdoor facilities and programs targeted at all groups of the Goulburn Mulwaree community, wider region, tourists and visitors.

Specifically, the re-developed Aquatic Centre will:

- Support swim teaching, training and competition for aquatic sports.
- Provide high quality facilities, programs and support services for people with disabilities, injuries, the elderly, youth and other special needs groups and individuals.
- Provide a mix of water play facilities appropriate to different age groups in the community.
- Provide a mix of appropriate commercial facilities, programs and services, which will supplement those offered directly by the venue.

- Achieve best practice in sustainable design and construction to ensure the long-term sustainability of the Centre by reducing its environmental impact throughout its service life.
- Integrate closely with the surrounding Victoria Park so as to exploit the assets of the Centre in supporting other Park activities and programs.

Conclusion

5

This Development Application seeks approval for the major redevelopment of the Goulburn Aquatic Centre on Lot 1 DP117890 Deccan Street Goulburn.

The proposed development has been assessed against the relevant requirements of the EP&A Act and has been found to be an acceptable development, which is consistent with the planning framework for the Goulburn-Mulwaree Local Government Area.

Based on the information contained within this SEE and the technical documentation included with the DA submission, the proposed development should be granted development consent subject to appropriate conditions.

Statement of Heritage Impact

GOULBURN WAR MEMORIAL SWIMMING POOL



SEPTEMBER 2018



www.nghenvironmental.com.au

Document Verification

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EXECUTIVE SUMMARY

NGH Environmental (NGH) has been engaged by Clarke Keller Architects to prepare this Statement of Heritage Impact (SoHI) report to assess the potential heritage impact of upgrade works proposed as part of a Master Plan upon the locally heritage listed War Memorial Swimming Pool Complex, Goulburn NSW.

This SoHI report has been prepared in accordance with *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance* (Burra Charter) and associated *Practice Notes* as well as best practice standards set by the NSW Heritage Office. Best practice guidance followed in this report includes *Assessing Heritage Significance* (Heritage Office (former), 2001) and *Statements of Heritage Impact* (Heritage Office and Department of Urban Affairs & Planning (former), 1996, revised 2002). This report also refers to and is guided by the Goulburn Mulwaree Council Local Environmental Plan (2009) and the Development Control Plan (2009).

In order to assess whether a proposal has an adverse impact on heritage significance it is necessary to submit a clear and concise statement of the item's heritage significance and an assessment of whether a proposal impacts on that significance.

PROPOSED WORKS AND RATIONALE SUMMARY

PRECINCT PLAN

Goulburn Mulwaree Council developed a Master Plan for the long-term redevelopment of Victoria Park in 2016. Council proposed two significant projects for Victoria Park; an Adventure Playground and redevelopment of the Goulburn Aquatic Centre. Before either project progressed to implementation, it was deemed appropriate to develop a Master Plan to ensure each project progressed in a sympathetic manner to the Victoria Park precinct.

The proposed redevelopment of the Goulburn Aquatic Centre will be undertaken in two stages. The two stages include the following works (a full list of proposed works is provided in section 6.2 of this report):

- retain and upgrade the existing indoor 25 metre pool
- small, indoor, all-year water play facility, approximately 100-150 sq. m.
- second indoor 10 lane 25 m. pool
- new plant room
- 10 by 10 metre pool with an adjustable water depth.
- new outdoor water play area with splash pads and interactive equipment
- pool deck showers, first aid room and space for service lockers
- new pool hall that includes Stage 1 Aquatic Facilities plus all support facilities and services within a single consolidated structure
- new, enlarged entrance foyer, reception, marshalling or waiting area
- modern kiosk/café with sit down service and social areas
- new male and female change rooms
- new administration offices, staff room(s), locker and storage areas
- Swim Club rooms
- new building structure that encloses all indoor water spaces, change rooms, administration, spectator seating, kiosk and café
- retain, enhance, add to and landscape outdoor lawn and shade areas.



- removable fencing, positioning of buildings, lawns areas, paths, gateways etc to permit programmed integration with and use of Victoria Park
- integrate the skate park into the venue
- undertake tree removal to facilitate redevelopment
- provide direct access gating to Victoria Park
- upgrade and expand car parking along Deccan Street
- provide linked pathways around Victoria Park
- install modern sound/communications/PA system
- drinking bubblers at appropriate locations throughout the Centre.
- additional barbeques and tables.
- upgrade indoor and outdoor lighting
- new 8 lane (2.5m) x 50m pool with access ramp and stair for regional competition level
- new concourses to perimeter of new 50m pool
- new shade structures to 50m pool viewing area (one side of pool)
- new pool plant room for 50m pool (180sqm), with concourse showers and group change and store room
- new gymnasium
- gym reception and assessment rooms
- two group exercise rooms
- dry change rooms
- new outdoor furniture and signage
- improvement of viewing grass mound area
- new beach volleyball court in approximate location of existing
- new BBQ's in location of existing
- new BBQ seating with associated shade / shelter allow 8 tables / benches
- new outdoor play space (climbing structure with slides, etc)
- new outdoor exercise station
- general landscaping to open space, including extension of 50m pool viewing mound (assumed to be formed from excavated material on site)
- additional car park for ~118 spaces
- upgrade of access to 50m pool plant room

HERITAGE SIGNIFICANCE SUMMARY

The Goulburn War Memorial Pool is listed on the Heritage Schedule of the Goulburn Mulwaree Local Environmental Plan (LEP) (2009) as having high local heritage significance for its social and community association. The LEP listing (I62) includes the following statement of heritage significance:

War Memorial Swimming Pool complex is of high local heritage significance in Goulburn for its social and community associations. The complex, designed by Figgis & Jefferson Architects, Milsons Point, in 1964, features two symmetrical changing wings with a central entrance/office.

NGH has completed within this SoHI an independent heritage significance assessment, which is provided below and in section 5 of this report. The NGH assessment has concluded that the War Memorial Pool meets criteria (a) *Historical*; (b) *Associative*; and (d) *Social* of the NSW heritage criteria at a local level:



Criterion (a) – Historical: An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area)

Goulburn War Memorial Pool was built in 1964 and opened in 1966 to extend the facilities of an existing swimming pool constructed on the site in 1909. The Goulburn community have been swimming at this location within the Victoria Park for over 100 years. *Meets criterion (a) at a local level.*

Criterion (b) – Associative: An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area)

The Goulburn War Memorial Pool is locally significant for its association with members of the local community who contributed to its construction and management thereafter. Memorial tree plantings and plaques were laid within the lawn area to the south of the Aquatic Centre boundary for Donald Argyle McGregor for his contribution to the establishment of the baths and for Albert Ferguson who was Superintendent of the pool from 1941 to 1973. When the pool was upgraded in the 1960s, it was reopened as the War Memorial Pool, commemorating Goulburn War veterans. <u>Meets criterion (b) at a local level.</u>

Criterion (c) – Aesthetic/Technical: An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area)

The Goulburn War Memorial Swimming Pool Complex consists of a main reception building flanked by symmetrical changing room wings. The reception building is single storey and rectilinear in shape. It possesses characteristics of the 'International' architectural style featuring a box-like appearance with a flat roof, and wall-to-wall and floor-to-ceiling glass. The street frontage is painted, brick. The complex is set back from Deccan Street with a carpark located between the complex and the street. The complex and its composite buildings are not aesthetically nor technically significant. *Does not meet criterion (c).*

Criterion (d) – Social: An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons

The Goulburn War Memorial Pool has social significance at local level for being the site of public swimming amenities for over 100 years. Local swimming associations and racing clubs have held annual swimming competitions every summer, which were historically well attended. Additionally, the name of the swimming pool complex pays respect to the service men and women of Goulburn who have served in the Australian Defence Forces. <u>Meets criterion (d) at a local level.</u>

Criterion (e) – Research: An item has potential to yield information that will contribute to an understanding of the area's cultural or natural history

The history of Goulburn and the War Memorial Pool is well documented. Does not meet criterion (e).

Criterion (f) – Rarity: An item possesses uncommon, rare or endangered aspects of the area's cultural or natural history

As the public swimming pool in Goulburn, the War Memorial Pool is locally unique, but it does not possess any characteristics that differentiate it from many other regional public swimming pools and neither can it therefore would inform a unique insight into Goulburn local history. **Does not meet criterion (f)**.



Criterion (g) – Representative: An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments. (or a class of the local area's)

Whilst the War Memorial Pool shares certain characteristics with other regional NSW public swimming pools, there is no recognised, representative type. *Does not meet criterion (g)*.

STATEMENT OF SIGNIFICANCE – NGH, 2018

The Goulburn War Memorial Pool has historical, associative and social heritage values at a local level having been the site of public swimming amenities to the Goulburn community for over 100 years, since a 33-yard pool was constructed in the northeast corner of Victoria Park in 1907. Overtime, the facilities have changed with an Olympic-size 50 metre pool and new entrance building with changing facilities constructed in 1964-6, and then the original 33-yard pool being converted to an indoor, 25 metre pool in 1996. These changes overtime reflect the importance to the Goulburn community of a public swimming pool that meets public needs as they change.

The 1960s designed complex was built at a time when local and state governments were active in public building, and pools were an important initiative to encourage physical well-being. Pools were constructed in Yass and Queanbeyan at this time, and architects Figgis & Jefferson, who designed the Goulburn War Memorial Pool also designed the Bathurst Regional pool.

HERITAGE IMPACT ASSESSMENT SUMMARY

This report argues that whilst the Goulburn Aquatic Centre project will impact materially upon the design and fabric of the War Memorial Swimming Pool Complex, it is not design nor aesthetics from which the War Memorial Pool Complex derives its heritage significance. Rather, the heritage significance of the existing pool complex is the important place the swimming pool and facilities have occupied in the community, which are values that date back earlier than the construction of the 1964 War Memorial Pool Complex.

The proposal to upgrade the Goulburn Aquatic Centre has been assessed has having no adverse impact upon the historical, associative, and social heritage values of the LEP listed War Memorial Swimming Pool Complex.

CONCLUSIONS

This report has found:

- 1. That the proposed works do not represent an adverse heritage impact to the assessed heritage significance and values of the War Memorial Swimming Pool Complex.
- 2. That the principal and historical function of swimming pool complex will be retained.

RECOMMENDATIONS

It is recommended:

1. That the commemorative trees remain within the landscaped grounds surrounding the Aquatic Centre;



- 2. That some form of War Memorial commemoration remains on site;
- 3. That Council commissions an Oral History with key people relevant to the history of the memorial Swimming pool;
- 4. That Council commissions an Interpretation Strategy which includes fully developed concept design which is informed by community consultation and includes a strategy to identify a suitable site for the relocation of the existing plaques;
- 5. The installation of the interpretation should be required prior to issue of occupation certificate; and
- 6. That Council commissions a photographic archival recording of the War Memorial Swimming Pool Complex in accordance with NSW Heritage Office guidelines (*Photographic Recording of Heritage Items Using Film or Digital Capture, 2001*)) prior to the commencement of works to be held by Council and the Goulburn Mulwaree Library.



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ABBREVIATIONS

- EP&A: Environmental Planning and Assessment
- DCP: Development Control Plan
- LEP: Local Environmental Plan
- LGA: Local Government Area
- OEH: Office of Environment and Heritage
- S170: Section 170 Heritage and Conservation Register (under the Heritage Act 1977)
- SHI: State Heritage Inventory
- SHR: State Heritage Register of New South Wales (under the Heritage Act 1977)


1 INTRODUCTION

1.1 BACKGROUND

NGH Environmental (NGH) was engaged by Clarke Keller Architects to prepare this Statement of Heritage Impact (SoHI) report to assess the potential heritage impact of upgrade works proposed as part of a Master Plan upon the locally listed War Memorial Swimming Pool Complex, Goulburn NSW.

This SoHI report has been prepared in accordance with:

- The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance (Burra Charter) and associated Practice Notes;
- Assessing Heritage Significance (Heritage Office (former), 2001);
- Statements of Heritage Impact (Heritage Office and Department of Urban Affairs & Planning (former), 1996, revised 2002);
- The Goulburn Mulwaree Council Development Control Plan (2009;) and
- The Goulburn Heritage Study (Lester, Anders, & Dalton, 1983).

To assess whether a proposal has an adverse impact on heritage significance it is necessary to submit a clear and concise statement of the item's heritage significance and an assessment of whether a proposal impacts on that significance.

A site inspection was carried out by the NGH Environmental consultant, Jakob Ruhl, on 21 September 2017 to determine the existing physical condition and heritage significant elements of the site.

1.2 LOCATION

The Goulburn War Memorial Swimming Pool Complex is located at 85 Deccan Street in Goulburn, within Victoria Park, Lot 1/ DP 117890 (Figure 1).





Figure 1 Location of Goulburn War Memorial Swimming Pool Complex.

Goulburn War Memorial Swimming Pool Statement of Heritage Impact FINAL 2.1

1.3 PROPOSED WORKS, OBJECTIVE AND RATIONALE

Goulburn Mulwaree Council developed a Master Plan for the long-term redevelopment of Victoria Park in 2016. Council proposed two significant projects for Victoria Park; an Adventure Playground and redevelopment of the Goulburn Aquatic Centre. Before either project progressed to implementation, it was deemed appropriate to develop a Master Plan to ensure each project progressed in a sympathetic manner to the Victoria Park precinct.

The key objectives identified for the redeveloped Goulburn Aquatic Centre by the Working Party are:

- provide high quality facilities which support diverse community uses;
- provide a venue able to support swim teaching, training and competition for aquatic sports to a regional level;
- provide high quality facilities, programs and support services for people with disabilities, injuries, the elderly, youth and other special needs groups and individuals;
- provide a mix of water play facilities appropriate to different age groups in the community;
- provide a community-focused venue that offers opportunities that are attractive to the majority of the population; and
- provide a mix of appropriate commercial facilities, programs and services which augment those offered directly by the venue.

A detailed list of proposed works is provided in section 6.2 of this report.

1.4 STATEMENT OF HERITAGE IMPACT METHODOLOGY

This Statement of Heritage Impact has been prepared in accordance with The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance (Burra Charter) and associated Practice Notes as well as best practice standards set by the NSW Heritage Branch. Best practice guidance followed in this report includes Assessing Heritage Significance (Heritage Office (former), 2001) and Statements of Heritage Impact (Heritage Office and Department of Urban Affairs & Planning (former), 1996, revised 2002).

1.5 REPORT STRUCTURE

This report:

- Outlines the background of the current study/proposal (Section 1).
- Discusses issues such as legislative requirements and statutory heritage listings (Section 2).
- Provides a historical and physical overview of the place (Section 3).
- Provides a description the site and features (Section 4).
- Provides a heritage significance assessment of the site and its elements (Section 5).
- Provides an assessment of the potential impacts from the proposal upon the site and its elements (Section 6).
- Provides recommendations regarding the site regarding the proposed works (Section 7).



1.6 AUTHORSHIP AND ACKNOWLEDGEMENTS

This SoHI report has been prepared by Jakob Ruhl, Senior Heritage Consultant, of NGH Heritage Pty Ltd and reviewed by NGH Heritage Principal Heritage Consultant, Matthew Barber. Jakob has a degree in History and has been working as a Heritage Consultant and Advisor for over 10 years.



2 LEGISLATIVE CONSIDERATIONS & STATUTORY HERITAGE LISTINGS

Places of heritage value can be subject to different levels of recognition and protection. This protection (at local, state and national levels) includes specific measures for the protection of heritage items. The text below provides a summary of the legislative framework at each level of government.

No items within, or in the vicinity of the study area are listed on the National or Commonwealth Heritage Lists which are identified under the Commonwealth Environment Protection and *Biodiversity Conservation (EPBC) Act 1999.* Therefore, no further consideration is required under the *EPBC Act* in this SoHI. There are also no items listed on the World Heritage List. The legislation described below only includes that which is of relevance to heritage conservation and management of the asset (the Goulburn War Memorial Pool).

2.1 NSW HERITAGE ACT

State Heritage Register

The NSW *Heritage Act 1977* is a statutory tool designed to conserve the cultural heritage of NSW and used to regulate development impacts on the state's heritage assets. Administered by the NSW Heritage Division (OEH), the Act details the statutory requirements for protecting historic buildings and places and includes *any place, building, work, relic, movable object, which may be of historic, scientific, cultural, social, archaeological, natural or aesthetic value.*

Goulburn War Memorial Swimming Pool Complex is not listed on the NSW State Heritage Register.

2.2 ENVIRONMENTAL PLANNING & ASSESSMENT ACT

The *Environmental Planning & Assessment Act 1979* (EP&A Act) controls land use planning in NSW. The planning system established by the EP&A Act includes Local Environment Plans (LEPs) and other provisions relating to development control.

2.2.1 Goulburn Mulwaree Council LEP (2009)

Goulburn War Memorial Swimming Pool Complex is listed on the heritage schedule of the Goulburn Mulwaree Council LEP (2009), listing #I62 (provided as Appendix A to this report).

2.2.2 Development Control Plan, 2009

The purpose of the Goulburn Mulwaree Development Control Plan 2009 is to provide a set of guiding principles for future development throughout the Goulburn Mulwaree local government area. The DCP requires with respect to any development proposal for the proponent to respect cultural heritage by undertaking in the first instance heritage assessments and then preparing appropriate management responses to any assessed potential heritage impact.

To assist the heritage management within the Goulburn Mulwaree LGA, the DCP includes heritage conservation areas and street character statements in which the character of heritage has been assessed and protected.





The Goulburn War Memorial Pool, shown within the blue square, is not within a heritage conservation area. Figure 2 below is from the DCP, showing the Heritage Conservation Areas within Goulburn.

Figure 2. Goulburn locality precincts plans (Figure 2-1 in the Goulburn Mulwaree DCP), which shows the heritage conservation areas in red.

Goulburn War Memorial Swimming Pool Statement of Heritage Impact FINAL 2.1



2.2.3 Heritage Study, 1983

The Goulburn Heritage Study was prepared in 1983 by architects Lester Firth and Associates. Within the study, Goulburn City was divided into planning precincts. Victoria Park and the War Memorial Swimming Pool are located with planning precinct no. 8 – *Outer West/Hoddle Street Area*. Below is an abridge excerpt from the Heritage Study regarding planning precinct no. 8.

Heritage Study Planning Precinct no. 8 – Outer West/Hoddle Street Area

Location

To the north west of the central area and bounded by Addison St in the south, Coromandel and Faithful Streets in the east and Goldsmith, Hoskins and Fitzroy Streets in the north.

Description and Character (abridged)

The precinct is diverse in both geographic and built environment terms. Land rises from the city to an intermediate spur along Deccan St and Hoskins St, and rises again to the ridge which connects Ridge St and "Bishopthorpe", with a number of small valleys between, falling north to the Wollondilly River. Land use is mixed with major private schools, public buildings, open space, residential and rural uses represented.

Victoria Park, the adjacent Goulburn Base Hospital and Goulburn High School effectively separate the remainder of the precinct from the city proper. The Park primarily caters for active recreational pursuits and incorporates the Olympic Pool, Sieffert oval, and a children's playground.

The landscape character of the Park is mixed with mature eucalypts, formally planted deciduous trees and large areas of dry grass.

The residential fabric is generally post World War II with a couple of examples of the so called "International Style" along Deccan St (No. 78 and 80).

Guidelines

- The area should continue to cater for residential growth with major heritage items being retained.
- Prominent ridgeline area should be protected from development.

2.3 STATE AGENCY HERITAGE REGISTERS

State agencies and authorities in NSW are required to keep a register of heritage places under their management under Section 170 of the Act. The Section 170 (s.170) Heritage and Conservation Registers are also held in the NSW Heritage Division's (OEH) State Heritage Inventory (SHI), an electronic database of statutory listed heritage items in NSW.

Goulburn War Memorial Pool is not listed on any s.170 registers.



3 HISTORICAL & PHYSICAL OVERVIEW

The history of the Goulburn War Memorial Swimming Pool from conception to construction; to use, and becoming a part of the local landscape and community's life is important in understanding the heritage significance of the site.

3.1 GOULBURN DEVELOPMENT

The area known as the Goulburn Plains was settled in the late 1820s with most the settlers building bark huts. The Town of Goulburn was gazetted in 1833 and established on a grid pattern. Development was slow in the beginning and blamed upon the slow construction of the Great South Road. The Great South Road was built by convict road gangs to facilitate the movement of produce and people to Sydney and to enable development of the interior of the Colony. Semi-permanent stockades as headquarters were established along the route with convicts working on the roads in ironed gangs with a convict overseer. The Stockade at Towrang 9.5 km from Goulburn was the chief penal camp in the southern district from about 1833 to 1843 and operated as the headquarters for the road building operation. Goulburn became the garrison town.

Educational and ecclesiastical facilities began to be established in the late 1830s and 1840s, by 1844 Goulburn contained three churches with a fourth under construction. The first stone Court House was constructed in Sloane Street and was designed by the Colonial Architect Mortimer Lewis and built by Sinclair in 1849 (Lester, Anders, & Dalton, 1983, p. 38).

The discovery of gold in other localities in 1851 interrupted the growth of Goulburn but it became a major supplier on the main transport route to the Tuena and Braidwood goldfields, helping to recover the population of the area by 1856 (Lester, Anders, & Dalton, 1983, p. 41).

Agitation for Goulburn to become a municipality began in 1856, with demands for water, drainage and roadwork schemes. Goulburn was eventually incorporated as a municipality in 1859. 1963 saw the evolution of Goulburn into a City - the first inland City in Australia. The introduction of the railway line to the area in 1868 greatly boosted the economy of the city ((Lester, Anders, & Dalton, 1983, p. 41). Almost immeditaely new mills opened on the corner of Auburn and Clinton Street, a meat preserving company opened, new jobs associated with the railway were offered, and the land surrounding the Station was subdivided and sold. A further 30km extention was added to the railway from Goulburn to Gunning in 1875, with a further extention to Albury in 1881.

The introduction (and later extension) of the railway line in Goulburn resulted in administrative, manufacturing and farming changes. The centre remained a railhead, and had the opportunity to develop as a rail centre where farmers could bring their wheat to be milled, and their other produce (including wool) to be transported via rail to Sydney. Primary production of the area was centred around the idea of cheap rail transport, resulting in an increase in the production of wheat and wool. The extension of the railway into the Riverina stimulated wheat growing in the area which quickly overtook the Tablelands and a wheat district (Lester, Anders, & Dalton, 1983, p. 45).

Goulburn's bid to become a major commercial and manufacturing centre was short-lived, as the colonial government at the time adopted a policy of differential railway rates which resulted in it being cheaper to send goods between Sydney and more distant centres, rather than between country centres along the line. This policy disadvantaged Goulburn greatly in terms of supplying goods to other centres, compared with Sydney.

Goulburn War Memorial Swimming Pool Statement of Heritage Impact FINAL 2.1



1881-82 saw a boom in land sales in Goulburn, with sub-divisions opening up in Eastgrove, North Goulburn, Ifield, Garfield and City View. The Victoria Recreation Ground that faced Citizen Street was subdivided, and Park and George Streets formed (Lester, Anders, & Dalton, 1983, p. 47). During this period of expansion, the typical Georgian style buildings on the main street (characterised by plain symmetrical facades and straight parapets), gave way to brick and stone buildings of the Victorian period.

By the turn of the Century (1890-1914) the prosperity of the previous years was dramatically contrasted to the following 20 years which were characterised by depression, drought and cautious recovery. From 1906 economic recovery in the area slowly began, and the arrival of WWI saw the fluctuation of Goulburn fluctuate as a result of the arrival and departures of soldiers at the AIF camp in the old showground (Lester, Anders, & Dalton, 1983, p. 66).

Construction of a power station began in 1913, and the electric light was first switched on in May 1914. Sewerage schemes in the area had been considered since 1883, but the works were finally built, and the first ten places were connected by January 1919.

WWII interrupted Goulburn's recovery from the Great Depression, and the subsequent drought between 1939-45 cut back rural activity substantially. War time restrictions affected local retailers, though the presence of soldiers at the showground brought some spending to the area.

Immediately following the end of the War and into the mid 1950's Goulburn's population grew substantially, creating housing problems in the area. The end of the war coincided with the end of the drought, and wool prices soared. Centrally, chain stores continued to expand with a Woolworths supermarket opened in 1966, as well as a new Olympic pool complex opened in Victoria Park.

The opening of the F5 Motorway in 1981 resulted in Sydney being within quicker reach to the residents of Goulburn. The hope in the district was based on the idea that Sydney manufacturing and distribution firms might reach out as far as Goulburn to establish branches.

3.2 VICTORIA PARK

Victoria Park, previously a 'reserved square' was commissioned for public purposes in 1873. Occasionally known as 'the recreation ground west of the City', Victoria Park lies towards the west of the main city-centre and provides a sportsground, cycle track, swimming baths, tennis courts, hockey ground and cricket pitch, as well as a park that contains numerous mature Eucalyptus trees.

Improvements to the park occurred in 1911/12 were largely financed by the Victoria Park Recreation Ground Improvement Committee, with one of the chief efforts of the organisation being the opening of the Victoria Park carnival on 28.2.1912 by the Governor, Lord Chelmsford (Wyatt 1941, p. 156) The pavilion within the park was also constructed and opened for public use in 1912.

The oval within Victoria Park began construction under the unemployment relief schemes in 1933/34, and was completed for public use in 1936 (Wyatt 1941, p. 146)

3.3 SWIMMING IN GOULBURN AND THE CONSTRUCTION OF THE WAR MEMORIAL SWIMMING POOL COMPLEX

Prior to the construction of the first public baths in 1892, Goulburn residents used the Wollondilly and Mulwaree Rivers for swimming (Leighton-Daly, 2016). Swimming Clubs such as the Juvenile Enterprise Swimming Club and the Goulburn Swimming Club existed from at least 1894 and 1896 respectively.



The first bathing pool in Goulburn was constructed in 1892, designed by architect, E.C Manfred, and located on the northeast corner of Sloane and Goldsmith Streets, although plans for a swimming pool had also been mooted for the northeast corner of Victoria Park. The Municipal Baths were small and enclosed within a brick building. The site was sold in 1906 and became the site of Connolly's Mill (Leighton-Daly, 2016, p. 32).

Plans for baths to be located within the grounds of Victoria Park were discussed in the late 19th Century but were realised in 1907, after the closure of the Municipal Baths. The design included a 33-yard pool with 6 lanes, high diving board, grandstand, a paddle pool, two men's changing rooms and women's change cubicles.



Plate 1. Goulburn City Baths prior to the construction of the War Memorial Pool (Leighton-Daly, 2016)

The experience and threat of war lead to government initiatives for the improvement of physical health of all citizens throughout Australia. The National Fitness Council was established in 1939 to promote physical fitness. Physical education became compulsory in some primary schools and secondary schools in 1941 and in 1944 learning to swim became compulsory in primary schools. In 1947 the State government released Standards for Modern Swimming Pools, which by 1951 were regarded as a necessary community facility.

The Goulburn War Memorial Swimming Pool Complex was constructed in 1964, opened in 1966, and designed by Sydney architects, Figgis and Jefferson, who also designed other regional, public swimming pools including in Bathurst. The 1964 design included a new 50 metre, outdoor pool and new main entrance building with symmetrical changing wings, with funds for the construction of the pool raised through fashion parades, discos and guessing competitions (Leighton-Daly 2016, 35). Swimming carnivals were held within the pool in summer, and the depth was suggested to be greater than the original plans in order to accommodate for the activity.

The original 33-yard pool was converted into a 25 metre, indoor swimming pool in 1996.



4 PHYSICAL DESCRIPTION AND CONDITION

This section of the report provides a description of elements comprising the War Memorial Swimming Pool Complex and their physical condition. Little emphasis has been given to describing the physical condition as it is the assertion of this report that it is neither the design nor the fabric of individual elements that contribute to the heritage values and significance of the locally listed heritage item. Therefore, the condition and integrity of the Memorial Swimming Pool Complex is not a factor in understanding the heritage values and significance.

The structural condition assessment of the pools is taken from a 2008 report commissioned by Council and prepared by architects Collingridge and Associates.

4.1 GENERAL DESCRIPTION

The War Memorial Swimming Pool Complex was designed and constructed in the mid-1960's. The main reception building and changing room wings were built in the 'International' architectural style. Characteristic of the International style, the buildings feature a rectilinear design achieved by a long, single storey build with a flat roof. Additional features of the style include wall-to-wall and floor-to-ceiling glass windows, and painted brick (although the brick has not always been painted on the street frontage, and is currently unpainted on eastern elevation).







4.1.1 THE PRESENT CONDITION OF THE 50 METRE POOL

The 50-metre pool is leaking significantly and from the various investigations previously undertaken on this pool, suffers from serious structural defects which have allowed the displacement of some structural components and has resulted in diminished strength of the concrete walls and floor.

The pool floor has reportedly sunk in the shallow end and "hogged" or risen in the centre of the deep end. The Collingridge report of 2008 includes a survey of the pool floor showing this movement. It goes on to describe other signs of structural deterioration including spalling, joint sealant failure and displacement of parts of the structure relative to those adjacent to them.

4.1.2 THE PRESENT CONDITION OF THE OUTDOOR TODDLERS POOL

The 2008 Collingridge report refers to this pool and confirms that at that time, the pool was reasonably sound, and it would offer a potential life of more than 15 years from the date of that report. Beyond that, little mention is made of this pool in any of the previous reports.

A shade structure has been erected above the pool. It is unattractive and detracts from the appearance of this pool. It excludes all sun and users report, leaves the pool water cold. The pool is filtered by the same system as the 50-metre pool and because of this arrangement; it receives an insufficient water flow to meet current regulations.

4.1.3 PRESENT CONDITION OF THE INDOOR POOL

The pool finishes have deteriorated. The report advises that a structure life in excess of 15 years from the date of the report was a reasonable expectation.



4.2 DESCRIPTION AND PHOTOS OF THE WAR MEMORIAL POOL COMPLEX

Elements of the War Photo Memorial Pool Complex

Plate 4. Deccan Street entrance.

The building is long, single storey and rectilinear in shape. It possesses characteristics of the 'International' architectural style featuring a box-like appearance with a flat roof, and wall-to-wall and floor-toceiling glass.

Plate 5. Southern elevation of reception building.

The original single storey reception building is shown here with a later addition of a two storey, brick wing extension to the north.

Plate 6. Looking to the west towards the reception building and female change rooms with the toddler pool in the foreground.







Goulburn War Memorial Swimming Pool Statement of Heritage Impact FINAL 2.1



Elements of the War Memorial Pool Complex	Photo
Plate 7. Looking north towards the outdoor 50m lap pool with the plant room in the background and male change rooms to the west.	
Plate 8. Outdoor 50m lap pool and male change rooms.	
Plate 9. War Memorial with plaques commemorating the Royal Navy, Military Forces, and the Royal Air Forces. Located at the western end of the 50m outdoor pool.	



Elements of the War Memorial Pool Complex	Photo
Plate 10. Toddler pool located to the south of the outdoor pool and outside	
Plate 11. Toddler pool and park play equipment	
Plate 12. Outdoor 50m lap pool, looking south.	



Elements of the War Memorial Pool Complex	Photo
Plate 13. Toddler pool	
Plate 14. Male change rooms.	
Plate 15. Internal view of change rooms.	







4.3 COMPARATIVE ANALYSIS

The assessment of heritage significance, in particular rarity, can be aided by undertaking a comparative analysis of a subject site with other similar items. A comparative analysis of the Goulburn Memorial Swimming Pool with other memorial pools in NSW has been undertaken.

Three other memorial pools have been selected for the comparative analysis with Goulburn War Memorial Swimming Pool: Inverell Memorial Pool, Queanbeyan Recreation and Leisure Centre, and Braidwood Memorial Pool. These pools were selected out of a number of options as they are war memorials dedicated to those who died in active service. Inverell and Queanbeyan have been chosen as examples as they are locally listed on the relevant LEP, and Braidwood has been chosen as it does not have any legislative listings.

4.3.1 Inverell Memorial Pool

Inverell Memorial Pool is located at 67 Evans St, Inverell in north east NSW. The memorial pool is listed on the Inverell LEP (2012) as item I107.

Description

The Inverell Swimming Pool is a 50 metre pool with an adjustable boom dividing the upper 25 metre and lower 25 metre sections. This allows for heating of the shallow portion of the pool during the winter months. The lower 25 metre section is enclosed with a timber laminate structure to provide protection from the elements and trap heat while the water is heated during winter. The facility provides Inverell and the surrounding district with a public pool that may be utilised throughout the entire year.

A normal (round topped) shaped polished stone headstone is located on the eastern side of the Memorial Olympic Pool entrance. It features National Service Australia, the insignias of each of the Australian services, 1951 to 1972, 'Dedicated to all those who Served, Suffered and Died. "We Will Never Forget" It was unveiled by Ronald H. Brown, OAM, assisted by Anthony Michael and dedicated by Reverend D. Henry C. Martin on 20 June 2015.

Statement of Significance, 10 March 2008

The pool is an important reminder of World War 2 veterans and an important addition to the sporting and recreation facilities in the town (HIS 2008).

Inverell Memorial Pool is significant for it historical association with the memory of WWII veterans and its social significance to the local community as an important recreation and sporting facility.

Comparison with Goulburn War Memorial Swimming Pool

Both Inverell Memorial Pool and Goulburn War Memorial Swimming Pool are dedicated to those who died in active service of Australia. Both pool complexes contain a 50 metre pool, and also provide the community with a public pool that can be used by all members of the community. Inverell Pool is also listed on the local Council LEP (Inverell 2012) as an item of local significance.

As of 10 March 2008, the Inverell Memorial Pool was assessed on the relevant HIS as being in good condition with a high degree of original fabric intact.



4.3.1 Queanbeyan Recreation and Leisure Centre

Queanbeyan Recreation and Leisure Centre is located within the triangular plot of land formed by Crawford, Campbell and Antill Streets in Queanbeyan. The Recreation and Leisure Centre is listed on the Queanbeyan LEP (2012) as item I43.

Description

The Queanbeyan Recreation and Leisure Centre reflects 1960's architectural explorations through the use of reinforced concrete.

Various changes of level and other uses of landscaping are used to express the functional relationships within the complex. The pool is of Olympic standard (fifty metres in length) with a five metre high diving platform. A paddling pool is situated between the entrance and the main pool, separated from the main pool by a series of landscaped terraces. A volley ball court lies beyond the main pool and there are plantings of elm, plane and ash trees.

Statement of Significance, 8 August 2007

Built in 1960-61 as Queanbeyan's first public swimming pool, the complex was the result of very strong community action to overcome the risks associated with swimming in the river, river swimming having been a traditional part of Queanbeyan recreational life. The pool also represents a landmark undertaking by the municipal authorities. Further, the complex reflects the continuing evolution in outdoor pool design in Australia, while at the same time illustrating the important place of outdoor recreation in Australian social life. (Criterion A.4) The complex utilizes shell concrete in an imaginative manner, reflecting 1960s architectural exploration of expression through the use of reinforced concrete. (Criterion F.1) Queanbeyan pool is valued by the Queanbeyan community for its social associations. It was deliberately conceived and built as a war memorial that would serve some useful community purpose, rather than simply standing as a monument in the town. (Criterion G.1) With its assortment of shell concrete structures, the complex is a striking feature in the townscape. (Criterion E.1)

Comparison with Goulburn War Memorial Swimming Pool

Both Queanbeyan Recreation and Leisure Centre and Goulburn War Memorial Swimming Pool are dedicated to those who died in active service of Australia. Both pool complexes contain a 50 metre pool, and also provide the community with a public pool that can be used by all members of the community. Queanbeyan Recreation and Leisure Centre is also listed on the local Council LEP (Queanbeyan 2012) as an item of local significance.

As of 26 January 2007, the Queanbeyan Recreation and Leisure Centre was assessed on the relevant HIS as being in good condition with no modifications.

4.3.2 Braidwood Memorial Pool

Braidwood Memorial Pool is located on Park Lane in Braidwood, NSW. The pool is a WWII memorial dedicated to those who served, and is not currently listed on the SHR, s.170 or Palerang LEP (2014).

Description

Built in the early 1960s, the pool is a focal point of the community during summer, filled with children and families escaping the heat. The pool was built in response to concern over a number of drownings in local streams and to create a safe venue for local children to learn to swim.



The pool has been dedicated to those who served in WWII with a plaque that's inscription reads:

Tallaganda Shire Council

This pool was officially opened to the public by Hon P.H. Morton, M.L.A. Minister for Local Government & Highways

5th February 1966 J.L. Garvey, President

This pool and facilities have been erected by the Tallaganda Shire Council with monies provided by local citizens as a memorial to those who served in World War 1939-45

In 2016/2017 the pool was recorded as leaking up to 25 kilolitres a day, with major upgrade works pending.

Comparison with Goulburn War Memorial Swimming Pool

Both Braidwood Memorial Pool and Goulburn War Memorial Swimming Pool are dedicated to those who dies in active service of Australia and provide the community with a public pool that can be used by all members of the community. Braidwood Memorial Pool is not listed within the Palerang LEP (2014).

Both pools are in degraded condition and in need of upgrade works to maintain their use within the local community.

4.3.3 Comparative Analysis Conclusions

Goulburn War Memorial Swimming Pool is locally unique and important to the area of Goulburn as a community facility and as a tribute to those that died in active service. However, an analysis of other memorial pools within NSW (both locally listed and not) has revealed that the Goulburn War Memorial Swimming Pool does not possess any extraordinary characteristics that differentiate it from other regional public swimming pools.

The importance of the Goulburn War Memorial Swimming pool lies within its social value to the local community and its tribute to fallen soldiers.



5 HERITAGE SIGNIFICANCE

5.1 INTRODUCTION

'Heritage significance' is a term used to describe the inherent cultural and historical value of an item. Significance may be contained within the fabric of a building or other place, in its setting and its relationship with other nearby items.

The main aim in assessing significance is to produce a succinct statement of significance, which summarises an item's heritage values. The statement is the basis for policies and management structures that will affect the item's future (NSW Heritage 2001).

The NSW Heritage Division (OEH) recommends assessment of heritage items in a number of situations, which include:

- Making decisions about whether to retain an item.
- Considering changes to an item.
- Preparing a heritage study.
- Preparing a conservation management plan.
- Considering an item for listing on the State Heritage Register or on the schedule of heritage items in a local environmental plan, or.
- Preparing a statement of environmental effects or a heritage impact statement as part of the development and building approval process.

The following assessment of significance is based on the NSW heritage assessment criteria.

5.2 ASSESSMENT OF HERITAGE SIGNIFICANCE

An item will be considered to be of state and/or local heritage significance if it meets one or more of the following NSW heritage assessment criteria. The Goulburn War Memorial Swimming Pool Complex was assessed in 2005 and is listed on the LEP (2009), provided as Appendix A of this report.

5.2.1 Heritage Significance Assessment of Goulburn War Memorial Pool according to the NSW Heritage Assessment Criteria (2001):

Criterion (a) – Historical: An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area)

Goulburn War Memorial Pool was built in 1964 and opened in 1966 to extend the facilities of an existing swimming pool constructed on the site in 1909. The Goulburn community have been swimming at this location within the Victoria Park for over 100 years. *Meets criterion (a) at a local level.*

Criterion (b) – Associative: An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area)

The Goulburn War Memorial Pool is locally significant for its association with members of the local community who contributed to its construction and management thereafter. Memorial tree plantings and plaques were laid within the lawn area to the south of the Aquatic Centre boundary for Donald Argyle



McGregor for his contribution to the establishment of the baths and for Albert Ferguson who was Superintendent of the pool from 1941 to 1973. When the pool was upgraded in the 1960s, it was reopened as the War Memorial Pool, commemorating Goulburn War veterans. <u>*Meets criterion (b) at a local level.*</u>

Criterion (c) – Aesthetic/Technical: An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area)

The Goulburn War Memorial Swimming Pool Complex consists of a main reception building flanked by symmetrical changing room wings. The reception building is single storey and rectilinear in shape. It possesses characteristics of the 'International' architectural style featuring a box-like appearance with a flat roof, and wall-to-wall and floor-to-ceiling glass. The street frontage is painted, brick. The complex is set back from Deccan Street with a carpark located between the complex and the street. The complex and its composite buildings are not aesthetically nor technically significant. *Does not meet criterion (c).*

Criterion (d) – Social: An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons

The Goulburn War Memorial Pool has social significance at local level for being the site of public swimming amenities for over 100 years. Local swimming associations and racing clubs have held annual swimming competitions every summer, which were historically well attended. Additionally, the name of the swimming pool complex pays respect to the service men and women of Goulburn who have served in the Australian Defence Forces. <u>Meets criterion (d) at a local level.</u>

Criterion (e) – Research: An item has potential to yield information that will contribute to an understanding of the area's cultural or natural history

The history of Goulburn and the War Memorial Pool is well documented. Does not meet criterion (e).

Criterion (f) – Rarity: An item possesses uncommon, rare or endangered aspects of the area's cultural or natural history

As the public swimming pool in Goulburn, the War Memorial Pool is locally unique, but it does not possess any characteristics that differentiate it from many other regional public swimming pools and neither can it therefore would inform a unique insight into Goulburn local history. <u>Does not meet</u> <u>criterion (f).</u>

Criterion (g) – Representative: An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments. (or a class of the local area's)

Whilst the War Memorial Pool shares certain characteristics will other regional NSW public swimming pools, there is no representative type. *Does not meet criterion (g)*.

5.2.2 SUMMARY STATEMENT OF SIGNIFICANCE

Goulburn War Memorial Swimming Pool Complex has historical, associative and social heritage values at a local level having been the site of public swimming amenities to the Goulburn community for over 100 years, since a 33-yard pool was constructed in the northeast corner of Victoria Park in 1907. Overtime, the facilities have changed with an Olympic-size 50 metre pool and new entrance building with changing facilities constructed in 1964-6, and then the original 33-yard pool being converted to an indoor, 25 metre pool in 1996. These changes overtime reflect the importance to the Goulburn community of a public swimming pool that meets public needs as they change.



The 1960s designed complex was built at a time when local and state governments were active in public building, and pools were an important initiative to encourage physical well-being. Pools were constructed in Yass and Queanbeyan at this time, and architects Figgis & Jefferson, who designed the Goulburn War Memorial Pool also designed the Bathurst Regional pool.

5.2.3 SIGNIFICANCE OF ITEMS

Overall assessments of heritage significance can be complemented and justified by descriptive ranking of the individual elements of a place. As noted in the prior Heritage Office and Heritage Council publication Assessing Heritage Significance (2001): 'Different components of a place may make a different relative contribution to its heritage value.' The different elements of a structure or place may make a different relative contribution to its heritage value. Loss of integrity or condition may diminish significance.

A ranking or grading system as a succinct way of considering the relative value of individual elements derives from the work of JS Kerr (The Conservation Plan, 2000). Kerr notes that a tabulated hierarchical assessment may be convenient and can assist with the development of management policies for complex places when they are subject to change and flexibility is needed in future management. The guidelines for Assessing Heritage Significance provide the following table 1. Table 2 provides a grading of significance of the primary elements of the swimming pool complex.

Grading	Justification	Status
Exceptional	Rare or outstanding item of local or State significance. High degree of intactness. Item can be interpreted relatively easily.	Fulfils criteria for local or State listing.
High	High degree of original fabric. Demonstrates a key element of the item's significance. Alterations do not detract from significance.	Fulfils criteria for local or State listing.
Moderate	Altered or modified elements. Elements with little heritage value but which contribute to the overall significance of the item.	Fulfils criteria for local or State listing.
Little	Alterations detract from significance. Difficult to interpret. Does not fulfil criteria for local or State listing.	Does not fulfil criteria for local or State listing.
Intrusive	Damaging to the item's heritage significance.	Does not fulfil criteria for local or State listing.

Table 1.	Heritage	Significance	Grading
TUDIC 1.	nentuge	Significance	Grading



Table 2. Heritage significance discussion and grading of individual elements of the War Memorial Swimming Pool.

Elements of the War Memorial Pool Complex	Photo	Heritage Significance of Element
Deccan Street entrance.		The War Memorial Pool reception building fronts Deccan Street. The architectural design is in the 'International' style, which is noted within the character description of planning precinct no.8 – Outer West/Hoddle Street Area (Lester, Anders, & Dalton, 1983) to occur in Deccan street. The design style of the reception building is not considered heritage significant within the Goulburn DCP or the LEP heritage listing for the item. Assessment: LITTLE
Southern elevation of reception building.		The eastern elevation of the original reception building is shown here with a later addition of a two storey, brick wing. The layout of the reception building and the two "symmetrical" change room wings is mentioned in the LEP Heritage listing for the War Memorial Pool Complex. However, it is not the design and layout of the buildings that has been assessed as being heritage significant. Assessment: LITTLE
Outdoor 50m lap pool.		The outdoor 50m pool is the focal
		point of the Memorial Swimming Pool Complex. In terms if the heritage significance of the Memorial Swimming Pool Complex, the 50m pool is of high significance but not due to any feature other than that is there. The pool contributes to the historical and social heritage values of the complex. Assessment: HIGH



Elements of the War Memorial Pool Complex	Photo	Heritage Significance of Element
Change rooms.		There is nothing particularly noteworthy about the change rooms other than that the layout of wings suggest the separatiton of the sexes was important. Assessment: LITTLE
War Memorial with plaques commemorating the Royal Navy, Military Forces, and the Royal Air Forces. Located at the southern end of the 50m outdoor pool.		The name of the swimming pool complex pays respect to the Goulburn service men and women who have served in the Australian Defence Forces. The significance of the name of the complex and the Memorial itself (pictured here) contributes significantly to the social heritage value of the complex. These plaques will be removed and retainined during the proposed works, and will be replaced on the backrest of the seating area between two external splash pads. Assessment: HIGH
Toddler pool		The toddler pool is part of the historical alterations made to the complex over time to meet the needs of the community. It has no heritage significance. Assessment: LITTLE







6 IMPACT ASSESSMENT

6.1 HERITAGE IMPACT STATEMENT

The following questions are presented in the NSW Heritage Manual document *Statements of Heritage Impact* to address development proposals and additions to heritage items (NSW Heritage Office 2002).

The following aspects of the proposal respect or enhance the heritage significance of the item or conservation area for the following reasons?

The proposed works take into consideration the heritage significance of the Goulburn War Memorial Swimming Pool Complex and aim to ensure its continued use as a safe and modern swimming facility for the site to retain its historical significance. New aquatic facilities will ensure the continued use of the area by the community into the future.

The maintenance of the War Memorial Plaques for use in the new facility will retain the social heritage significance of the War Memorial Swimming Pool Complex. The proposal to resituate the plaques within the new aquatic centre on the backrest of seating area between the two external splash pads will maintain the social and historical significance of the aquatic centre in the Goulburn area.

The following aspects of the proposal could detrimentally impact on heritage significance.

Removal of the commemorative trees from the landscaped grounds will detrimentally impact upon the social heritage significance of the War Memorial Swimming Pool Complex. NGH recommends the trees be retained within the area.

The following sympathetic solutions have been considered and discounted for the following reasons.

'Doing nothing' is not a viable option for the Goulburn Aquatic Centre due to the structural defects that have been identified within the outdoor 50m swimming pool. The proposed works aim to create a clean and modern environment that will allow participation for all members of the community.

How is the impact of the addition on the heritage significance of the item to be minimised?

The proposed works aim to enhance the facilities currently available. The works aim to entice and encourage the community into the area. Ongoing use for years to come will further establish the historical and social heritage significance of the swimming pool at this location.

Can the additional area be located within an existing structure? If not, why not?

As a number of new facilities are proposed, works cannot be confined to an existing structure. The works have been designed to consider the heritage significance of the Goulburn War Memorial Swimming Pool and ensure its continued use into the future to maintain its significance. The proposed works aim to upgrade the existing facilities and provide additional services to ensure the relevance of the pool. Article 23 of the Burra Charter 'Conserving use' highlights the necessity of conserving forms of original use. The proposed works to the buildings and complex aim to achieve this.

Will the additions tend to visually dominate the heritage item?

The heritage significance of the War Memorial Swimming Pool Complex has been assessed as being associated with the long history of swimming within Victoria Park and the local community's association with the area. The addition of buildings within the area will not negatively visually dominate the heritage item, as the works aim to improve the public's enjoyment of the area. Works have been designed to create



an easily accessible facility for all visitors. Furthermore, the War Memorial Swimming Pool Complex located within Victoria Park is not located within a Heritage Conservation Area.

Are the additions sited on any known, or potentially significant archaeological deposits? If so, have alternative positions for the additions been considered?

There are no known significant archaeological deposits at this location.

Are the additions sympathetic to the heritage item? In what way (e.g. form, proportions, design)?

The additions are sympathetic to the existing heritage item as the works aim to improve the quality of experience for users of the swimming pool. The importance of the location of the pool to the local community will not be lost or diminished.

Section 6.2 below provides a table which lists each of the proposed upgrade items of work against the heritage significance assessment of the relevant element of the existing pool complex and an assessment of the heritage impact.



6.2 SUMMARY OF IMPACTS

Proposed works area	Description	Heritage Impact Assessment
Aquatic facilities	Retain and upgrade the existing indoor 25 metre pool including retiling, air treatment, water treatment, removal of toddler pools to reinstate 5 full lanes with disabled access, and redevelopment of toilet and change facilities to include male only, female only and family change space.	Nil/neutral.
	Construct a small, indoor, all-year water play facility, approximately 100-150 sq. m.	Nil/neutral.
	Construct a second indoor 10 lane 25 m. pool for all year training, competition, lap swimming and other uses. New pool to have disabled access.	Nil/neutral.
	Construct a new plant room to service the new & upgraded indoor facilities plus the outdoor water play area. Plant room components to be connected to a telemetry system to permit remote operation. Plant room to have adequate access for chemical delivery and storage space.	Nil/neutral.
	Design to include provision for a "warm water program pool" for therapy, fitness, exercise and learn to swim programs. This would consist of 10 by 10 metre pool with an adjustable water depth. The warm water pool may not progress in Stage 1, however enabling infrastructure is to be included for future stages.	Nil/neutral.
	Construct a new outdoor water play area with splash pads and interactive equipment with room for future expansion plus space for inflatables, small slides on mounds. If practical, extend this beyond the defined Aquatic Centre boundary into Victoria Park, approximately 200-250 sq. m.	Nil/neutral.
	Construct pool deck showers, first aid room and space for service lockers.	Nil/neutral.
Dry facilities and services	Construct a new pool hall that includes Stage 1 Aquatic Facilities plus all support facilities and services within a single consolidated structure. Walls of the pool hall to include full length panels that can be opened when weather conditions permit. Design of the building to permit future expansion to add a gym, community rooms and a warm water program pool for subsequent stages.	Nil/neutral.
	Construct a new, enlarged entrance foyer, reception, marshalling or waiting area with external weather protection, display facilities, small kiosk and toilets.	Nil/neutral.



Proposed works area	Description	Heritage Impact Assessment
	Construct a modern kiosk/café with sit down service and social areas. Create the capacity for this to service clients both within the complex and for Victoria Park users, approximately 150-200 sq. m. Café to have its own toilet facilities.	Nil/neutral.
	Construct new male and female change rooms, including showers and toilet facilities.	Nil/neutral.
	Construct new administration offices, staff room(s), locker and storage areas, approximately 60-80 sq. m.	Nil/neutral.
	Include Swim Club rooms into the design which integrates into the centre buildings and to allow wider community use OR depending on site space requirements, integrate Swimming Club rooms with other dry program rooms.	Nil/neutral.
	Create a new building structure that encloses all indoor water spaces, change rooms, administration, spectator seating, kiosk and café. This building to have future expansion capacity to accommodate a gym (approximately 500-600 sq. m.), warm water program pool and community rooms (approximately 100-200 sq. m.).	Nil/neutral.
Outdoor facilities	Retain, enhance, add to and landscape outdoor lawn and shade areas.	Nil/neutral.
	Use removable fencing, positioning of buildings, lawns areas, paths, gateways etc to permit programmed integration with and use of Victoria Park and extension of the Centre grounds during major community events and centre programs.	Nil/neutral.
	Integrate the skate park into the venue to allow sharing of toilet, café and similar facilities and to provide linked shelter and gathering areas, with the Centre management to manage, supervise and service the skate park.	Nil/neutral.
	Undertake tree removal to facilitate redevelopment and to protect redeveloped and new assets.	Negative.
	Provide direct access gating to Victoria Park for shared Centre / Park uses and programs.	Nil/neutral.



Proposed works area	Description	Heritage Impact Assessment
	Upgrade and expand car parking along Deccan Street.	Nil/neutral.
	Provide linked pathways around Victoria Park.	Nil/neutral.
	Install modern sound/communications/PA system.	Nil/neutral.
	Provide drinking bubblers at appropriate locations throughout the Centre.	Nil/neutral.
	Provide additional barbeques and tables.	Nil/neutral.
	Upgrade indoor and outdoor lighting throughout the Centre and car park, and along Victoria Park and surrounding access pathways/routes	Nil/neutral.
Stage 2 Works	New 8 lane (2.5m) x 50m pool with access ramp and stair for regional competition level.	Nil/neutral.
	New concourses to perimeter of new 50m pool.	Nil/neutral.
	New shade structures to 50m pool view area (one side of pool).	Nil/neutral.
	New pool plant room for 50m pool (180sqm), with concourse showers and group change (allow approx. 100sqm) and store room (allow 40sqm).	Nil/neutral.
	New gymnasium (500sqm).	Nil/neutral.
	Gym reception and assessment rooms (30sqm).	Nil/neutral.



Proposed works area	Description	Heritage Impact Assessment
	Two group exercise rooms (120sqm and 180sqm) with store room 15sqm).	Nil/neutral.
	Dry change rooms (approx. 80sqm – male, female and 1 x accessible).	Nil/neutral.
	New outdoor furniture and signage.	Nil/neutral.
	Improve viewing grass mound area.	Nil/neutral.
	New beach volleyball court in approximate location of existing.	Nil/neutral.
	New BBQ's in location of existing.	Nil/neutral.
	New BBQ seating with associated shade/shelter – allow 8 tables/ benches	Nil/neutral.
	New outdoor play space (climbing structure with slides etc.)	Nil/neutral.
	New outdoor exercise station.	Nil/neutral.
	General landscaping to open space, including extension of 50m pool viewing mound (assumed to be formed from excavated material on site).	Nil/neutral.
	Additional car park for approximately 118 spaces.	Nil/neutral.
	Upgrade access to 50m pool plant room.	Nil/neutral.



7 CONCLUSION & RECOMMENDATIONS

This report argues that whilst the Goulburn Aquatic Centre project will impact materially upon the design and fabric of the War Memorial Swimming Pool Complex, it is not design nor aesthetics from which the War Memorial Pool Complex derives its heritage significance. Rather, the heritage significance of the existing pool complex is as the important place the swimming pool and facilities have occupied in the community, which are values that date back earlier than the construction of the 1964 War Memorial Swimming Pool Complex.

The proposal to upgrade the Goulburn Aquatic Centre has been assessed has having no adverse impact upon the historical, associative and social heritage values of the LEP listed War Memorial Swimming Pool Complex.

7.1 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This report has found:

- 1. That the proposed works do not represent an adverse heritage impact to the assessed heritage significance and values of the War Memorial Swimming Pool Complex.
- 2. That the principal and historical function of swimming pool complex will be retained at this location.

Recommendations

It is recommended:

- 1. That the commemorative trees remain within the landscaped grounds surrounding the Aquatic Centre;
- 2. That some form of War Memorial commemoration remains on site;
- 3. That Council commissions an Oral History with key people relevant to the history of the memorial Swimming pool;
- 4. That Council commissions an Interpretation Strategy which includes fully developed concept design which is informed by community consultation and includes a strategy to identify a suitable site for the relocation of the existing plaques;
- 5. The installation of the interpretation should be required prior to issue of occupation certificate; and
- 6. That Council commissions a photographic archival recording of the War Memorial Swimming Pool Complex in accordance with NSW Heritage Office guidelines (*Photographic Recording of Heritage Items Using Film or Digital Capture, 2001*)) prior to the commencement of works to be held by Council and the Goulburn Mulwaree Library.



8 **REFERENCES**

Australia ICOMOS (2013) The Burra Charter (The Australia ICOMOS Charter for Places of Cultural Significance) Canberra.

Commonwealth Bureau of Census and Statistics (1911), Official Year Book of the Commonwealth of Australia containing authoritative statistics for the period 1901-1910, McCarron, Bird and Co. Printers.

Inverell Council (2012) Inverell Local Environment Plan.

Kerr, J.S (2004) The Conservation Plan. National Trust.

Leighton-Daly, P. (2016) 'A Reflective History of the Goulburn District: The Tides and the Lives of Men, Volume IV'. Goulburn: Print NRG.

Lester, A., Anders S., & S. Dalton (1983) 'Goulburn Heritage Study: Final Report'. Canberra: Lester Firth Associates.

Goulburn Shire Council (2012) Goulburn Local Environment Plan (Draft).

HeriCon Consulting (2013) 'The Modern Movement in New South Wales: A Thematic Study and Survey of Places.

NSW Heritage Office (1996) Statements of Heritage Impact. Sydney, NSW.

NSW Heritage Office (1998) How to prepare Archival Records of Heritage Items.

NSW Heritage Office (1999) Heritage Information Series: Minimum Standards of Repair.

NSW Heritage Branch (2001) Assessing Heritage Significance: A NSW Heritage Manual Update.

NSW Heritage Branch (2013) http://www.environment.nsw.gov.au/heritageapp/heritagesearch.aspx

Queanbeyan Council (2012) Queanbeyan Local Environment Plan.

Wyatt, R. (1995). 'The History of Goulburn.' Sydney: NSW Government Printing Service – Goulburn.



APPENDICES



A.1 GOULBURN MULWAREE COUNCIL LOCAL ENVIRONMENTAL PLAN LISTING FOR THE WAR MEMORIAL SWIMMING POOL


Goulbur	The state Heritage Inver	eritage Invent	Ory 293323
Item Name:	Goulburn Aquat	ic Centre	
Location:	85 Deccan Street, (Goulburn [Goulbu	rn Mulwaree]
Address:	85 Deccan Street	DUAP Regio	on: Southern & Western
Suburb / Nearest Town:	Goulburn 2580	Historic regi	on: Southern Tableland
Local Govt Area:	Goulburn Mulwaree	Pari	sh: Goulburn
State:	NSW	Coun	ity: Argyle
Other/Former Names:			
Area/Group/Complex:			Group ID:
Aboriginal Area:			
Curtilage/Boundary:			
Item Type:	Built Gro	up: Recreation and Entert	Category: Swimming Pool - ingr
Owner:			
Admin Codes:	С	ode 2:	Code 3:
Current Use:			
Former Uses:			
Assessed Significance:		Endorsed Sig	gnificance:
Statement of Significance:	War Memorial Swimming Poo its social and community asso Architects, Milsons Point, in 1 entrance/office. War Memoria in Goulburn for its social and Jefferson Architects, Milsons central entrance/office.	I complex is of high local her ociations. The complex, desig 964, features two symmetric Il Swimming Pool complex is community associations. The Point, in 1964, features two s	itage significance in Goulburn for gned by Figgis & Jefferson al changing wings with a central of high local heritage significance o complex, designed by Figgis & symmetrical changing wings with a
Historical Notes or Provenance:	War Memorial Swimming Poo Service emblems symmetrica	I complex and office/entry h I change wings c1964	as etched glass panels with
Themes:			
Designer:	Figgs and Jefferson Architect	s Milsons Point Sydney	
Maker / Builder:			
Year Started:	Year Comple	ted: 1964 Circ	a: No
Physical Description:	Brick building		
Physical Condition:			
Modification Dates: Recommended	aline minato a tradecar a construction de la construcción de la construcción de la construcción de la construcc	1715 August Wall Jones Services & Jones	
nte: 30/04/2018	State Herit Full Repo	age Inventory rt with Images	Page

Goulbur	n Mulw State H	/aree He eritage Inver	eritage	Invent	tory	2933234
Item Name:	Goulbu	rn Aquat	ic Centr	e		
Location:	85 Decca	an Street, (Goulburn	[Goulbu	ırn Mulwa	ree]
Management:	atol, castera		22. NR 274.		37 G S 73 U.C	
Management:						
Further Comments:						
Criteria a)						
Criteria b)						
Criteria c)						
Criteria d)						
Criteria e)						
Criteria f)						
Criteria g)						
Integrity / Intactness:						
References:						
Studies:						
Parcels:	Parcel Code	LotNumber	Section	Plan Code	Plan Number	
	LOT	1		DP	117890	
Latitude:				I	.ongitude:	
Location validity:				Spatial	Accuracy:	
Map Name:					Map Scale:	
AMG Zone:			Easting:		Northing	j :
Listings:	Name: Heritage study			Title:	Numbe	r: Date: 21/07/2005
Custom Field One:						
Custom Field Two:						
Custom Field Three:						
Custom Field Four:						
Custom Field Five:						
Custom Field Six:						
Data Entry:	Date First En	tered: 05/01/2004	Date Up	dated: 27/05/20	11	Status: Basic
		State Herit	age Inventor	у		
Date: 30/04/2018		Full Repo	rt with Images			Page 2

ngh environmental

FINAL 2.1



Image:



Caption: Goulburn Aquatic Centre main entranceway, Deccan Street. Copyright: Image by: Robert Dillon Image Date: 6/12/2004 Image Number: Image Path: Image File: 2933234b.jpg Thumb Nail Path:

Thumb Nail File: t_2933234b.jpg

 State Heritage Inventory
 Page 3

 Date: 30/04/2018
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 Page 3



Aboriginal Heritage Due Diligence Assessment

GOULBURN AQUATIC CENTRE

MAY 2018



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ACRONYMS AND ABBREVIATIONS

AHIMS	Aboriginal heritage information management system
Km	kilometres
LALC	Local Aboriginal Land Council
М	Metres
NPW Act	National Parks And Wildlife Act 1974 (NSW)
NSW	New South Wales
OEH	(NSW) Office of Environment and Heritage, formerly Department of Environment, Climate Change and Water
PAD	Potential Archaeological Deposit
REF	Review of Environmental Factors



1 INTRODUCTION

NGH Environmental was commissioned by Clarke Keller Architects to undertake a Due Diligence level assessment for Aboriginal heritage sites for the proposed redevelopment of the Goulburn Aquatic Centre on a portion of Lot 1/ DP 117890 at Goulburn, NSW (Figure 1 and 2), as part of a Master Plan redevelopment.

1.1 PROJECT PARTICIPANTS

The Due Diligence assessment was carried out by qualified archaeologists Jakob Ruhl and Kirsten Bradley of NGH Environmental. Kirsten Bradley prepared the background research while Jakob Ruhl undertook the field inspection and the completion of this report.

The Due Diligence process does not formally require consultation with Aboriginal community groups however the Pejar LALC were provided with a copy of this report by NGH on 24.05.2018. The project is within the boundaries of the Pejar Local Aboriginal Land Council.

1.2 FORMAT OF THIS REPORT

This report has been drafted in keeping with the sequence of steps identified in the NSW Office of Environment and Heritage's (OEH) *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (OEH 2010). The Code of Practice provides a five step approach to determine if an activity is likely to cause harm to an Aboriginal object, as defined by the *NSW National Parks and Wildlife Act* (1974). The steps follow a logical sequence of questions, the answer to each question determines the need for the next step in the process.

The progress through the steps in the Code of Practice is aimed at providing an assessment of the potential for an activity to impact either a known Aboriginal object, or whether it is likely that unrecorded Aboriginal objects are present that may be impacted. The result of the process is aimed at providing the proponent with information about the likelihood that their activity will impact an Aboriginal object and whether an Aboriginal Heritage Impact Permit may be required.

Each section below follows the relevant step outlined in the Code of Practice.





Figure 1. General project location.



Figure 2. Project staging plan (dwp, 2018)

2 GROUND DISTURBANCE

Step 1. Will the activity disturb the ground surface or any culturally modified trees?

The proposed works for the Goulburn Aquatic Centre redevelopment on a portion of Lot 1/ DP 117890 would involve the following elements:

- New amenities and services block,
- Expanded car parking,
- Modern indoor fitness facilities,
- Enhanced indoor program pool provision,
- Additional indoor lap pool provision, and
- A modern water play area.

The works will be completed in three stages. The following is a detailed outline of the work components proposed for the Goulburn Aquatic Centre redevelopment.

STAGE 1 - AQUATIC FACILITIES

- Retain and upgrade the existing indoor 25 metre pool including retiling, air treatment, water treatment, removal of toddler pools to reinstate 5 full lanes with disabled access, and redevelopment of toilet and change facilities to include male only, female only and family change space.
- Construct a small, indoor, all-year water play facility, approximately 100-150 sq. m.
- Construct a second indoor 10 lane 25 m. pool for all year training, competition, lap swimming and other uses. New pool to have disabled access.
- Construct a new plant room to service the new & upgraded indoor facilities plus the outdoor water play area. Plant room components to be connected to a telemetry system to permit remote operation. Plant room to have adequate access for chemical delivery and storage space.
- Design to include provision for a "warm water program pool" for therapy, fitness, exercise and learn to swim programs. This would consist of 10 by 10 metre pool with an adjustable water depth. The warm water pool may not progress in Stage 1, however enabling infrastructure is to be included for future stages.
- Construct a new outdoor water play area with splash pads and interactive equipment with room for future expansion plus space for inflatables, small slides on mounds. If practical, extend this beyond the defined Aquatic Centre boundary into Victoria Park, approximately 200-250 sq. m.
- Construct pool deck showers, first aid room and space for service lockers.

STAGE 1 - DRY FACILITIES AND SERVICES

- Construct a new pool hall that includes Stage 1 Aquatic Facilities plus all support facilities and services within a single consolidated structure. Walls of the pool hall to include full length panels that can be opened when weather conditions permit. Design of the building to permit future expansion to add a gym, community rooms and a warm water program pool for subsequent stages.
- Construct a new, enlarged entrance foyer, reception, marshalling or waiting area with external weather protection, display facilities, small kiosk and toilets.
- Construct a modern kiosk/café with sit down service and social areas. Create the capacity for this to service clients both within the complex and for Victoria Park users, approximately 150-200 sq. m. Café to have its own toilet facilities.
- Construct new male and female change rooms, including showers and toilet facilities.
- Construct new administration offices, staff room(s), locker and storage areas, approximately 60-80 sq. m.



- Include Swim Club rooms into the design which is integrates into the centre buildings and to allow wider community use OR depending on site space requirements, integrate Swimming Club rooms with other dry program rooms.
- Create a new building structure that encloses all indoor water spaces, change rooms, administration, spectator seating, kiosk and café. This building to have future expansion capacity to accommodate a gym (approximately 500-600 sq. m.), warm water program pool and community rooms (approximately 100-200 sq. m.).

STAGE 1 - OUTDOOR FACILITIES

- Retain, enhance, add to and landscape outdoor lawn and shade areas.
- Use removable fencing, positioning of buildings, lawns areas, paths, gateways etc to permit programmed integration with and use of Victoria Park and extension of the Centre grounds during major community events and centre programs.
- Integrate the skate park into the venue to allow sharing of toilet, café and similar facilities and to provide linked shelter and gathering areas, with the Centre management to manage, supervise and service the skate park.
- Undertake tree removal to facilitate redevelopment and to protect redeveloped and new assets.
- Provide direct access gating to Victoria Park for shared Centre / Park uses and programs.
- Upgrade and expand car parking along Deccan Street.
- Provide linked pathways around Victoria Park.
- Install modern sound/communications/PA system.
- Provide drinking bubblers at appropriate locations throughout the Centre.
- Provide additional barbeques and tables.
- Upgrade indoor and outdoor lighting throughout the Centre and car park, and along Victoria Park and surrounding access pathways/routes.

STAGE 2

- New 8 lane (2.5m) x 50m pool with access ramp and stair for regional competition level.
- New concourses to perimeter of new 50m pool.
- New shade structures to 50m pool viewing area (one side of pool).
- New pool plant room for 50m pool (180sqm), with concourse showers and group change and store room.
- New gymnasium.
- Gym reception and assessment rooms.
- Two group exercise rooms.
- Dry change rooms.
- New outdoor furniture and signage.
- Improvement of viewing grass mound area.
- New beach volleyball court in approximate location of existing.
- New BBQ's in location of existing.
- New BBQ seating with associated shade / shelter allow 8 tables / benches.
- New outdoor play space (climbing structure with slides, etc).

It is likely that these works would be undertaken involving use of earthwork machinery.

The affirmation that ground disturbance will occur requires the next step in the Due Diligence process.



3 REGISTER SEARCH AND LANDSCAPE ASSESSMENT

Step 2a. Search the AHIMS Database and other information sources

A search of relevant heritage registers for Aboriginal sites and places provides an indication of the presence of previously recorded sites. A register search is not conclusive however, as it requires that an area has been inspected and any site locations are provided to the relevant body to add to the register. However, as a starting point, the search will indicate whether any sites are known within or adjacent to the investigation area.

The Aboriginal Heritage Information Management System (AHIMS) is maintained by OEH and provides a database of previously recorded Aboriginal heritage sites. A search provides basic information about any sites previously identified within a search area. The results of the search are able to be relied upon for 12 months for the purposes of a due diligence level assessment.

A search of the AHIMS database of an area approximately 12km east-west by 12km north-south, that included the project area being assessed, was undertaken on the 16th of August 2017. The coordinates for the search area were Lat. Long. from: -34.677, 149.6568 – Lat. Long to: -34.677, 149.7958 with a buffer of 50 meters. The AHIMS Client Service Number was: 296300. There were 114 Aboriginal sites recorded within this search area and no declared Aboriginal Places. A single site (#51-6-0421) was listed as restricted however OEH confirmed via email correspondence on the 5th of August 2016 to NGH Environmental during investigations for another project in the Goulburn area that the site was mistakenly marked as restricted and have since provided the site card location details to NGH. Table 1 shows the breakdown of site types and Figure 3 show the location of the AHIMS sites closest to the current project area.

Site Type	Number
Artefacts (1 or more)	103
Modified tree	4
Artefacts (1 or more) and PAD	4
Potential Archaeological Deposit (PAD)	2
Burial	1
TOTAL	114

Table 1 Breakdown of previously recorded Aboriginal sites in the region.

It is clear from these search results that the dominant site type in the area is occurrences of stone artefact. None of the recorded AHIMS sites are within or adjacent to the project area within the closest site to the project area located approximately 1.2km north-west of the Goulburn Aquatic Centre.





Figure 3. AHIMS sites close to the project area

3.1 LOCAL ARCHAEOLOGICAL STUDIES

No specific archaeological assessments or surveys have previously occurred within the project area. However, a number of archaeological surveys have occurred within the broader Goulburn area. The major relevant studies are summarised below.

In 1983 Koettig surveyed a 11km corridor for the Goulburn by-pass identifying 22 artefact scatters and 17 isolated artefacts. The sited were all located within 200 m of a watercourse and were predominantly located on slopes and creek flats with less numbers on ridges or crest saddles (as cited in IHE 2010 and Biosis 2013).

In 1986 Koettig and Lance compiled an Aboriginal resource planning study for Goulburn City Council to identify known or potential areas of archaeological sensitivity and significance in the region. The study identified a number of sensitive landforms with stone artefact scatters on undulating hills and plains on basal slopes adjacent to water the most common site type in the area. The sensitive landscapes identified by Koettig and Lance (1986) were later tested and refined by Fuller (1989) as shown below in Table 2. During the testing of Koettig and Lance's (1986) model Fuller (Fuller, 1989) identified 17 artefact scatters, five isolated find and noted that chert and quartz were the dominate raw materials in the area.

			Potential Archaeological Sensitivity		
Landform		Koettig and Lance 1986	Fuller 1989		
Alluvial flats adjacent to Major Watercourse		High	High		
Undulating hills	Lower slopes adjacent to watercourse	High	High		
	Gently undulating land or plains	Not assessed	Low		
	Hills- low (<700m above sea level)	Low	Medium		
	Hills-moderate (700-750m above sea level)	Low	Low		
	Hills- high (>700m above sea level)	Low	Low		
Hill tops		Low	Low		
Built up area		Moderate	Moderate		

Table 2 Aboriginal archaeological sensitivity of landforms in Goulburn (AMBS Consulting, 2012, p.25)

In 1987 Koettig surveyed and conducted test excavations on Lot 2 DP 702730 that comprised a low ridge crest and upper slopes 750 m north of the Mulwaree River. The survey identified 15 isolated finds and an artefact scatter. During subsequent test excavation program of the area 80 additional artefacts were recovered from 20 of the 72 test pits excavated. A concentration of artefacts was noted on the low knoll along the ridge crest with silcrete and quartz artefacts recorded (as cited in Ironbark Heritage and Environment, 2010).

In 1994 EnviroSciences surveyed a sample of the proposed 93ha Goulburn racecourse. The area comprised of undulating plains, flood plains and creek lines. Two isolated finds were identified (Envirosciences Pty Ltd, 1994).



In 1995 Silcox surveyed a 2.7km proposed power line route for a radio base at 'Sunnyside', approximately 14 km southwest of Goulburn. Two artefact scatters and an isolated find were recorded. Site 1 (S1) was an extensive low density artefact scatter on the crest of a low broad spur ridge about 2 km west of the Mulwaree River and 100 m from a tributary creek line. The majority of the artefacts were quartz with some silcrete, chert and mudstone also present (as cited in Ironbark Heritage and Environment, 2010).

In 2000 Bowen surveyed approximately 11ha for a proposed industrial estate in Ross Street, Goulburn. A single artefact scatter with two artefacts was recorded. The site was located approximately 20m above the Wollondilly River in the river flats on a walking track linking the Wollondilly River to the powerline easement. Bowen noted that the area had moderate potential but was highly disturbed by its previous use as a golf course (as cited in Biosis, 2015).

In 2003 Navin Officer surveyed 17ha for the proposed Pictura Tourist Complex at Goulburn. The area comprised of a broad spur line, ridge and mid to upper slopes with a creek line bisecting the northern corner of the property. A single low density surface scatter was located over 700 m from the water on the upper slopes of a spur (as cited in Biosis, 2013).

In 2004 Dibden surveyed the Greenwich Park proposed subdivision area, northeast of Goulburn. The area comprised of spur crests and side slopes, slope/drainage depression interfaces, ridge crests, ridge side slopes and drainage depressions. A total of 19 sites were recorded consisting of isolated finds and artefact scatters. The dominate lithology recorded was silcrete with lesser numbers of quartz, chert, quartzite and volcanic material. The highest density of artefacts was recorded on spur crests and side slopes (as cited in Ironbark Heritage and Environment, 2010).

In 2005 Archaeo Analysis surveyed approximately 2,800 hectares of Tarlo Station approximately 15 km north-east of Goulburn recording 21 artefact scatters, two isolated artefacts and six historic sites. A total of 1100 artefacts were noted in the 23 artefact sites recorded with the dominant lithology in the area quartz with lesser amounts of silcrete, chert, volcanic and quartzite. Archaeo Analysis recorded 372 artefacts in detail with flakes, broken flakes and cores the most common typologies recorded. The largest and most diverse site recorded by Archaeo Analysis was located on a sandy rise on a river flat however other larger sites were also found some distance from water that tended to be associated with crests, spurs and ridges. A diverse array of artefact types was also recorded during the survey including seven backed artefacts, 15 retouched artefacts, an edge ground axe and a large anvil stone (Archaeo Analysis, 2005).

In 2010 IHE surveyed approximately 18.1 hectares of Lot A/DP 912692 and Lot 11/ DP 912247 south of Mary Mount Road for the development of the Monastery Gardens estate. While the area had been subject to agricultural and grazing practices the close proximity of Wollondilly River and terrain suggested that the area would have been ideal for camping and IHE predicted that the area was likely to contain archaeological material in the form of stone artefacts either as clusters or isolated finds. Two isolated finds (MG5/IF1 and MG5/IF2) and a low density artefact scatter (MG5/1) were recorded during the survey. The two isolated finds initially identified in 2005 were unable to be relocated during the IHE 2010 survey. IHE recommended that a subsurface testing program be undertaken to establish the archaeological potential and extent of sites in the areas.

Following the recommendations of the IHE report (2010) Biosis undertook an Aboriginal Cultural Heritage Assessment (ACHA) for Lot A/DP 912692 and Lot 11/ DP 912247 which included survey and a subsurface test excavation program in 2013. Two field surveys and test pit excavation programs were conducted. The second program of field work was conducted after the area had been slashed and the ground surface visibility higher, however none of the artefact at the three previously recorded sites (MG5/1, MG5/IF1 and MG5/IF2) were able to be relocated during either survey. A total of 34 test pits were excavated across the valley flats and lower slope landforms. No sub-surface or surface artefacts were recovered. Biosis



concluded that the findings indicated that low potential exists across the study area for archaeological cultural sites or deposits. This conforms with the local site model that predicts that the further an area from water the lower the potential for sites. Biosis (2013) concluded that based on the previous identification of surface objects and the absence of any subsurface material from Lot A/DP 912692 and Lot 11/ DP 912247 that it was likely that the general area would consist of small surface scatters without any sub surface deposits.

In 2011 the Pejar LALC inspected approximately 15ha for the proposed Merina Country Estate subdivision on Mary Mount Road, Goulburn. During the fieldwork, no sites were recorded however it was recommend that initial earth works should be monitored by the Pejar LALC.

In 2012 Australian Museum Business Services (AMBS) conducted an Aboriginal Heritage Study for the entire Goulburn Mulwaree LGA to aid in the future management of sites. The study continued on from those undertaken by Koettig and Lance (1986) and Fuller (1989) and supported the predictive model refined by Fuller with sites noted to generally occur in close proximity to water, in elevated areas and with suitable underlying geology or mature vegetation. The current assessment area was mapped by AMBS as having potential for Aboriginal artefacts as show on Figure 6 below (AMBS Consulting, 2012).





In 2014 Biosis (2015) surveyed approximately 21 ha of Lot 208/ DP188578 on Clyde Street, Goulburn for the proposed Snow Gum Estate development. The northern boundary of the Project Area was the Wollondilly River. A Due Diligence heritage assessment had previously been undertaken over area in 2004 by Archaeological Heritage Surveys that identified a single Aboriginal cultural heritage site (CSA1 – 51-5-0208) and assessed that the area had sub surface potential for archaeological deposits at three locations. An additional site (AHIMS # 51-6-0318) was identified in 2007 by the Pejar LALC while on site with DECC to determine the impacts to site AHIMS #51-6-0208 from a proposed sewerage pipeline within the project



area. No additional sites were identified during the field survey undertaken by Biosis in 2014. The recorded locations of the two Aboriginal heritage sites within the project area were examined by Biosis however no surface evidence of the sites was identified. This may have been the result of low visibility. The three PAD areas were also tested by Biosis with a total of 24 test pits excavated. No Aboriginal cultural material was recovered from two of the PADs (CSPAD 1 and CSPAD2). These two PAD areas were re-assessed to have low potential for sub surface sites or deposits to be present. The third PAD area tested (CSPAD 3) recovered four artefacts recorded from three of the 10 test pits in this area. All of the test pits containing artefacts are located on the eastern side close to the saddle passageway down to the Wollondilly River.

In 2016 Biosis conducted the survey and subsurface testing of Lot 7/DP1184830 on Clyde Street, Goulburn. A Due Diligence heritage assessment was undertaken over the project area by Archaeological Heritage Surveys in 2005 which identified one small surface scatter with Potential Archaeological Deposit (PAD), registered as 51-6-0294 and an additional area of possible PAD (PAD2). Biosis did not identify any surface finds during the field survey or at previously recorded site #51-6-0294 despite fair visibility. A total of 16 test pits were excavated across three landforms (upper, middle and lower slopes) that targeted the two previously recorded areas of PAD. No archaeological deposits or sub surface Aboriginal cultural material was identified at PAD2 and the area was re-assessed to no longer hold sub surface potential. Excavations at AHIMS #51-6-0294 revealed low density sub surface deposit with 15 artefacts recorded from five test pits. All of the subsurface artefacts were recovered from low depths with 11 artefacts recorded from the upper 40cm of deposits.

In 2016 NGH conducted a Due diligence assessment within Lot 26/ DP650291 and Lot 1/DP920161, at 129 Marys Mount Road, Goulburn. The field assessment identified the presence of a single Aboriginal artefact Marys Mount IF1 and three areas of PAD. It is expected that artefactual material will be distributed throughout the three PAD sites located on the hill crest, a saddle and on a broad flat area on a lower basal slope. The landforms outside the identified PADs and site Marys Mount IF1, were deemed to have negligible potential to contain Aboriginal objects. The subsurface testing of the three PAD areas has yet to occur.

Based on a review of the results of archaeological surveys, assessments and landscape modelling of the Goulburn area, it is reasonable to predict that sites in the project area would likely share similar attributes and characteristics with those previously identified in the surrounding area. Based on the reviewed reports and predictive modelling, the key attribute taken into consideration to develop the predictive model was that areas of archaeological sensitivity will occur in association with water sources and along crests, spurs and ridges.

Step 2b. Are there undisturbed landscape features likely to contain Aboriginal objects?

As outlined above, Aboriginal heritage sites have been recorded in the general Goulburn area. The *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* also outlines a range of landscape features that have higher potential to contain Aboriginal objects. It is necessary to consider whether there are landscape features of undisturbed land that may contain Aboriginal objects. These include land that is:

- within 200m of water,
- located within a sand dune system,
- located on a ridge top, ridge line or headland,
- located within 200m below or above a cliff face, or
- within 20m of a cave, rock shelter or cave mouth.



Using the predictive model for the Goulburn region as refined by Fuller in 1989 the study area has landforms present which are predicted to have low to moderate archaeological sensitivity. While the majority of the project area has previously been disturbed by the construction and maintenance of the Goulburn Aquatic Centre on a portion of Lot 1/ DP 117890 at Goulburn there is still potential for Aboriginal objects to occur in areas that remain relatively undisturbed given the surrounding park landscape. Therefore, the desktop and landscape assessment of the proposed works for the Goulburn Aquatic Centre redevelopment on a portion of Lot 1/ DP 117890 at Goulburn indicate that there are landscapes present that have the potential to contain Aboriginal sites. The next step in the OEH due diligence process, a field inspection, is therefore required.

4 IMPACT AVOIDANCE

Step 3. Can any AHIMS listed objects, or landscape features be avoided?

The area proposed for the works for the Goulburn Aquatic Centre redevelopment is unlikely to be able to be revised to avoid such low to moderate archaeological sensitive landscapes as described by Fuller. The desktop assessment alone is not sufficient to conclusively appraise the archaeological potential of the landscape or the location of any sites, the next step in the process, a visual inspection, must be conducted to properly appraise the presence and potential for Aboriginal sites to occur.

5 DESKTOP ASSESSMENT AND VISUAL INSPECTION

Step 4. Does the desktop assessment and visual inspection confirm that there are likely to be Aboriginal objects present or below the ground surface?

The assessment process is primarily a desktop exercise, using available information such as the AHIMS search results and relevant archaeological reports that have been previously completed in the area. Visual inspection is also required where undisturbed landscape features are present that may contain sites. Whilst it was considered unlikely that any undisturbed landscape features would be impacted upon, NGH archaeologist Jakob Ruhl visited the War Memorial Swimming Pool Complex site, on 21.09.2017, and inspected the grounds both within and immediately adjacent. No Aboriginal heritage sites nor potential archaeological deposits were identified.

100% of the proposal area was inspected by pedestrian survey. Within the War Memorial Swimming Pool Complex site, there were no archaeological exposures and ground visibility was very low due to landscaping and grass cover. The area outside of the swimming pool complex was inspected due to the potential for undisturbed archaeological landscapes to exist. Archaeological exposures were less than 2% with ground visibility very low due to the landscaping within Victoria Park, which includes grass cover and garden beds.



5.1 VISUAL INSPECTION WITHIN THE SWIMMING POOL COMPLEX GROUNDS

The following table includes details of the archaeological pedestrian survey undertaken within the grounds of the War Memorial Swimming Pool Complex.

The War Memorial Swimming Pool Complex is situated on relatively flat ground, gently rising to west. The grounds are landscaped with 100% grass cover. Archaeological exposure and ground visibility was 0%. Trees included both native and exotic species and were inspected for culturally modification.

No Aboriginal heritage sites were identified during the visual inspection.

Table 3. Visual inspection photos and notes within the swimming pool complex grounds





Photos	Visual inspection notes
Plate 3. Looking north towards the outdoor 50m pool	Looking north towards the outdoor 50m pool and male change rooms. No archaeological potential in this area.
Plate 4. Looking northwest towards the toddler pool.	Toddler pool area located to the east of the main reception building and female change rooms. No archaeological potential in this area.
Plate 5. Looking south from the outdoor 50m pool.	Looking south from the outdoor 50m pool. No archaeological potential in this area.





5.2 VISUAL INSPECTION OUTSIDE OF THE SWIMMING POOL COMPLEX WITHIN THE GROUNDS OF VICTORIA PARK

The following table includes details of the archaeological pedestrian survey undertaken outside the grounds of the War Memorial Swimming Pool Complex within Victoria Park. As the War Memorial Swimming Pool Complex fronts Deccan Street, where there is car parking, the archaeological pedestrian survey description below focuses upon the areas within Victoria Park surrounding the swimming pool complex within a 100m buffer.

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Table 4. Visual inspection photos and notes outside the swimming pool complex grounds



Plate 7. Looking northeast towards the southern boundary of the swimming pool complex.

Plate 8. An example of subsurface services located within the grounds of Victoria Park in the vicinity of the War Memorial Swimming Pool grounds.	The occurrence of ground exposures was limited to areas of ground disturbance, such as existing subsurface services.
Plate 9. Looking north towards the Adventure Playground and Skate Park.	Native trees in close proximity to the swimming pool complex were inspected for cultural modification. No evidence of scarring was observed.



Visual inspection notes



6 FURTHER ASSESSMENT

Step 5. Is further investigation or impact assessment required?

The Due Diligence Code of Practice states that if, after the desktop research and visual inspection is completed, it is evident that harm will occur to Aboriginal objects or heritage places then further and more detailed assessment is required. However, if the research and inspection conclude that there are no, or unlikely to be any objects impacted by the proposed activity, then the activity can proceed with caution.

The field assessment identified neither new Aboriginal heritage sites nor sensitive archaeological landscapes.

The proposed works will be confined within the foot print of previous disturbance and do not pose a potential impact to Aboriginal heritage sites or values.

No further assessment is required under the Aboriginal heritage due diligence code of practice.

7 **RECOMMENDATIONS**

The following recommendations are based on the results of this Due Diligence assessment and an appraisal of the potential for Aboriginal artefacts and sites to occur within the proposed works of the Goulburn Aquatic Centre redevelopment on a portion of Lot 1/ DP 117890 at Goulburn.

Recommendations:

1. Works may proceed with caution.

2. If unrecorded Aboriginal objects are identified in the course of the proposed activity, then all activity in the immediate area must cease, and the area should be cordoned off. The Goulburn Mulwaree Council and Pejar Local Aboriginal Land Council should be notified immediately. OEH must be notified by ringing the Enviroline 131 555 so that the site can be adequately assessed and managed.

3. In the event that human remains are identified, activity must cease immediately near the remains and the area must be cordoned off. The proponent must contact the local NSW Police who will make an initial assessment as to whether the remains are part of a crime scene or possible Aboriginal remains. If the remains are thought to be Aboriginal, OEH must be notified by ringing the Enviroline 131 555. An OEH officer will determine if the remains are Aboriginal or not; and a management plan must be developed in consultation with the Aboriginal community before the activity recommences.



8 **REFERENCES**

AMBS Consulting, 2012. *Goulburn Mulwaree LGA Aboriginal Heritage Study*. Unpublished report to the the Goulburn Mulwaree Council.

Archaeo Analysis, 2005. A Cultural Heritage Survey of a Proposed Subdivision of 'Tarlo' Lot 2 DP212922 and Pt Lot 193 DP 750048, near Goulburn, NSW. Unpublished report to J. MacPhillamy and Laterals Planning Pty Ltd.

Biosis, 2013. *Aboriginal Cultural Heritage Assessment Report Marys Mount Road Residential Development, Goulburn, NSW*. Unpublished report to MHL Pty Ltd.

Biosis, 2015. Snow Gum Estate Residentical Development Clyde Street Goulburn Mulwaree: Archaeolgical Report Unpublished report to Snowgum Estate Pty Ltd

Biosis, 2016. Aboriginal Cultural Heritage Assessment Report Platypus Estate Residential Development Goulburn, NSW. Unpublished report to Southern Region Land Engineering.

Envirosciences Pty Ltd, 1994. *Archaeological Survey Proposed Goulburn Racecourse Kenmore*. Unpublished report to Public Works.

Fuller, N., 1989. *Goulburn City – An Archaeological Investigation of Aboriginal Site Location*. Unpublished report to the Goulburn City Council.

Ironbark Heritage and Environment, 2010. Archaeological Investigation of Lot A DP912692 and Lot 11 DP912247, Mary's Mount Road Goulburn. Unpublished report to Binda Group Pty Ltd and Laterals Planning Pty Ltd.

Koettig, M. and Lance, A., 1986. *An Aboriginal Resources Planning Study for the city of Goulburn, NSW*. Unpublished report to the Goulburn City Council.

NGH Environmental, 2016. Aboriginal Heritage Due Diligence Assessment: 129 Marys Mount Road. Unpublished report to MaxiWealth Holdings Pty Ltd.







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11 April 2018

Peter Burns

Senior Architect Clarke Keller Unit 16, Level 2 16 National Circuit Barton ACT 2600

E: <u>PBurns@clarkekeller.com.au</u>

Dear Peter,

RE –Goulburn Aquatic and Leisure Centre Biodiversity Assessment – (NGH ref. 18-128)

Please find included below a preliminary summary of the terrestrial biodiversity values and potential impacts on those values associated with the proposed development at the Goulburn Leisure and Aquatic Centre, Goulburn. Included within is a brief summary of the site assessment methods, results and potential impacts of the proposed development.

In summarising the findings of this assessment, we note that the site supports limited biodiversity values given the previous development and ongoing management of the area. Importantly, the site is considered unlikely to support any listed threatened flora or fauna species, or support any identifiable ecological community of conservation significance under either the NSW *Biodiversity Conservation Act 2016* or the Commonwealth *Environment Protection and Biodiversity Conservation act 1999* (EPBC Act). Regarding the new Biodiversity Conservation Act assessment provisions, the vegetation understorey is exotic-dominated and the overstorey has been planted. On this basis, the vegetation is not considered to be a native plant community type that could trigger the Biodiversity Offset Scheme. Further, the site is not included in the Biodiversity Values Mapping undertaken by OEH.

Please note this is a preliminary advice letter only, to provide you with a sufficiently detailed summary of the main issues relevant to the project and likely to be of interest to you, to allow you to continue with the proposed development with confidence that the biodiversity assessment requirements for the project have been sufficiently addressed. More detailed components such as appendices including database search results and site survey species lists are not included here. A more detailed biodiversity assessment report will be provided in the coming weeks.

If you have any questions relating to the advice provided below, or wish to discuss any aspect of this project, please contact me on the number below.

Yours sincerely,

Farblall.

 Brooke Marshall
 Manager, NSW SE & ACT

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PROJECT BACKGROUND

NGH Environmental understand that Clarke Keller Architects, on behalf of Goulburn Mulwaree Council (GMC), are preparing a development proposal for the redevelopment of the Goulburn Aquatic Centre, located at 134-136 Faithful Street, Goulburn (and being Lot 1 on DP117890). The proposed redevelopment works are detailed on the *Preferred Site Development Model Concept Plan* (dwg: SK001/B, Figure 2), and is understood to include the following elements (in no particular order):

- Reconfiguration of the Beach Volley Ball field
- Creation of exercise station and outdoor program spaces
- Creation of new BBQ Area
- Creation of new Water Play area(s)
- New poolside café and seating
- New 8-lane 50m pool
- New indoor 8-10 lane 25m pool
- New (children's) leisure pool
- Refurbished 25m program pool
- New warm water pool (with moving floor)
- Refurbished/redeveloped indoor areas/buildings to include:
 - New dry fitness area & Gymnasium
 - o Foyer & Kiosk
 - o Group exercise program rooms
 - o Creche room
 - Informal meeting room
- New outdoor plant rooms/equipment

The concept plan also identifies future possible development elements along the north-western part of the site, adjacent to Deccan Street including:

- Restaurant
- Health and wellness spa
- Community program rooms

SITE CONTEXT

The site of the proposed redevelopment is situated within the broader parcel of land identified as Victoria Park, being Lot 1 on DP117890, and also known as 134-136 Faithfull Street, Goulburn (Figure 1). The site occupies a total area of approximately 19 ha, and is bordered by Deccan Street to northwest, Verner Street to southwest, Faithfull Street to southeast and Clifford Street to NE. Existing uses at this block include:

- Goulburn Aquatic and Leisure Centre
- Maintain (oval) playing field in the southwest corner of the block (Sieffert Oval)
- General open space recreation including landscaped areas of formal tree planting and pedestrian pathways

The proposed works subject to this assessment are located within an area of approximately 2 ha situated within and immediately surrounding the existing Goulburn Aquatic and Leisure Centre in the northwest portion of Lot 1 on DP117890, as shown in Figure 2 below.

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Figure 1 Location map





503462 GOULBURN AQUATIC CENTRE REDEVELOPMENT STUDY

CONCEPT PLAN PREFERRED SITE DEVELOPMENT MODEL ISSUE: SK-401/B SCALE: NTS DRAWN: MM DATE: 24.05.2016

dwp suters

Figure 2 Preferred site development design.



SITE ASSESSMENT

The assessment of the site's biodiversity values included a combination of both a desktop search as well as a site inspection, as described further below.

Desktop Assessment

Background database searches were conducted to identify any existing known or recorded environmental values within the study site that may provide a potential to constraint to the development, or otherwise impact upon the planning and approval requirements to allow the works to proceed. These database searches include the following:

- Online Database searches including:
 - o NSW Bionet Wildlife Atlas (with a 10 km x 10 km search area centred on the site)
 - o EPBC protected Matters Search Tool (with a 10 km radius search area centred on the site)
- Commonwealth Threatened Species Profiles
- NSW OEH Threatened Species Profiles

The results of these background searches will be provided in full in the final report and are not otherwise reproduced in this summary advice letter here except for where a specific threatened species or ecological community was either recorded, or considered to have some potential to occur at the site, and required specific consideration within this preliminary advice letter.

Site inspection

A site inspection was conducted by an experienced ecologist on Tuesday 3 April 2018 to assess the terrestrial biodiversity (flora and fauna) values within the proposed development area. The survey method involved a systematic meander across the entire development footprint (outside of the already developed actual swimming pool area which didn't support any biodiversity values of interest), to record plant species and identify broad vegetation conditions and types. The survey timing was not compatible with the seasonal emergence and flowering times of some herbaceous species, being in early Autumn, however given the overall site conditions, was considered suitable for determining most species present at the site. The site assessment also involved an assessment of the broad fauna habitat values of the development area, including inspection of all mature trees to record the presence of tree hollows. The survey was completed over a period of approximately 3 hours, in warm, sunny conditions.

Assessment limitations

This assessment has the following limitations:

• This preliminary assessment was based on a single day of survey conducted in (early) Autumn, outside of the period of activity/occurrence for some species. Notwithstanding this, given the extent of modification and ongoing management to the area in question, further field surveys during the recognised breeding/flowering period for cryptic or threatened species is not considered necessary to support the existing assessment of impacts.



SITE VALUES

FLORA AND VEGETATION COMMUNITIES

Flora values of the site

A total of 61 vascular plant species were recorded comprising 24 (39%) native¹ and 37 (61%) exotic species (A full flora species list will be provided in the final report).

The groundlayer vegetation at the site was dominated by non-native species including predominantly Kikuyu *Cenchrus clandestinus* with a variety of other less common species including Couch *Cynodon dactylon*, Paspalum *Paspalum dilatatum*, Soft Brome *Bromus hordeaceus*, Buffalo Grass *Stenotaphrum secundatum*, Bearded Oats *Avena barbata*, Parramatta Grass *Sporobolus africanus* and Goose Grass *Eleusine tristachya*.

The road verge at the front of the Centre contained a slightly higher proportion of native herbaceous grasses (including Redleg Grass *Bothriochloa macra*, Wallaby Grass *Rytiodosperma carphoides* and *Rytidosperma* sp., Windmill Grass *Chloris truncata*, *Oxalis perennans* and *Wahlenbergia luteola*) mixed with various exotic grasses and weeds (including Paspalum, Subterraneum Clover *Trifolium subterraneum*, Serrated Tussock *Nassella trichotoma*, African Lovegrass *Eragrostis curvula*, Capeweed *Arctotheca calendula*, Flatweed *Hypochaeris radicata* and Lamb's tongue *Plantago lanceolata*.

The tree and shrub layer was found to contain mostly planted specimens with some eucalypt specimens likely to be many decades old. The tree species present at the site included seven eucalypt species, River-oak *Casuarina cunninghamiana* and exotic Liquidambar *Liquidambar styraciflua* and Cypress *Cupressus torulosa*. The native trees observed at the site ranged in height from 8 m to 16 m with trunk diameters (dbh) between 340 mm and 1200 mm, which included some mature and possibly remnant specimens.

Numerous shrubs were distributed across the site and represented at least six non-local native and eight exotic species. Native shrubs included Crimson Bottlebrush *Callistemon citrinus*, Prickly-leaved Tea Tree *Melaleuca styphelioides*, Bracelet Honey-myrtle *Melaleuca armillaris*, Coast Banksia *Banksia integrifolia*, Old-man Banksia *Banksia serrata* and Coastal Rosemary *Westringia fruticosa*.

In summary, the site was not found to support any listed threatened flora species. Due to the previous development of the site and ongoing management regimes as a public open space and developed recreation area, there is considered to be little potential for any of the threatened flora species to occur at the site. This is supported by the database records (NSW Bionet) which did not include any records of any listed threatened species within the site or the surrounding Victoria Park precinct.

Vegetation community values

The vegetation community on the whole within the subject development areas situated within and around the aquatic centre was found to be highly modified and comprised regularly maintained exotic lawns and various tree and shrub plantings that is typical of such a facility. The groundcover within the surrounding parkland and along Deccan Street road verge is similarly maintained though contained a slightly higher native grass component.

The high component of introduced non-native groundcovers, as well as the largely non-local planted trees and shrubs collectively would not be considered to comprise native vegetation that can be assigned a Plant Community Type. Further, the vegetation would not meet any threatened ecological community definition. On this basis, native vegetation clearing would not trigger the Biodiversity Offset Scheme under the Biodiversity Conservation Act.

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¹ Included local and non-local species

FAUNA AND FAUNA HABITAT VALUES

The fauna values of the site are limited mainly to some potential foraging opportunities for a variety of urbanised fauna, including mainly birds, and potentially possums. the trees and shrubs at the site have been planted for visual amenity, some of which are nectar producing shrubs and larger eucalypts, that are likely to provide some food resources for common native wildlife.

The nesting/roosting resources of the site and immediate surrounds were limited to the occurrence of two tree-hollows (or at least forming hollows) that were observed in two eucalypt specimens: Maiden's Gum *Eucalyptus maidenii* (Tree ID 29) and Southern Blue Gum *E. bicostata* (tree located just beyond scope of tree plan provided) (See Photos 1 and 2).

No fauna were observed using these hollows at the time of the survey, and no spotlighting was undertaken to confirm if they are being used by any nocturnal fauna. However, given the size (and apparent condition) of the hollows as observed from the ground, as well as their context within a broader urban environment, it is considered unlikely that any rare or threatened hollow-dependent fauna types would be using these trees.

The highly managed groundcover at the site has resulted in an almost complete lack of any structural understorey habitat values, with no notable occurrences of rocky outcrops, fallen logs and general short mown grass. As such, the site provides limited value for all but the more common grassland fauna species typically observed in urban environments (such as grass and tussock skinks and introduced rats and mice etc).

Collectively, the site habitat values are considered unlikely to support any listed threatened fauna species. This is supported by the database records (NSW Bionet) which did not include any records of any listed threatened species within the site or the surrounding Victoria Park precinct.



Photo 1: Hollow-bearing Maiden's Gum Eucalyptus maidenii (Tree ID 29).





Photo 1: Hollow-bearing Southern Blue Gum Eucalyptus bicostata, not proposed to be removed

POTENTIAL IMPACTS OF THE PROPOSAL

FLORA AND VEGETATION COMMUNITY IMPACTS

The proposed development of the land within and surrounding the existing Goulburn Aquatic and Leisure Centre will result in the removal of 26 existing trees and shrubs, including a total of planted 10 native trees (based on the concept plan available and assuming appropriate tree protection measures are in place for trees located along the development boundary). Given that most, if not all of the trees are either planted specimens, and that none of the species are listed threatened species, the project's impacts on the site's flora values are considered to be of minimal consequence to biodiversity values in the area. No threatened flora are considered likely to be impacted. No threatened ecological community would be impacted.

FAUNA IMPACTS

Similarly, the fauna values of the site are limited to only some marginal foraging resources for urban fauna, including mainly common bird species. The loss of a small number of planted trees along the edge of the broader Victoria Park precinct which supports many more trees of both native and introduce origin, is unlikely to result in a notable loss in the overall foraging resources of the site.

The site does not provide any notable nesting or roosting habitat that would be impacted by the development, with only two observed hollow-bearing trees (Tree #29, and further tree just beyond the scope of the tree survey plan provided) observed nearby but outside of the actual development footprint. Should any changes occur to the development proposal that may require the removal of either of these trees, then specific tree management measures would be required, including adopting a soft-felling approach to carefully cut the hollow-section and gently bring it to the ground, as well as employing a fauna catcher for this procedure to ensure that any resident fauna within the hollow are safely relocated to a suitable nearby area (which may involve relocating the removed limb and attaching to a suitable nearby tree). The adoption of these measures should remove any necessity to conduct any further (nocturnal) survey of the hollow for confirmation of use by any fauna.



The development would not result in the removal of any identifiable habitat resources for native ground-dwelling fauna, with an absence of identifiable habitat features such as fallen logs or rocky outcrops within or near to the works area. Given this, the proposed works are not expected to result in any impacts to any listed threatened fauna species.

CONCLUSIONS

Based on the findings of this assessment, the site's biodiversity values are considered to be of minimal importance to local biodiversity, with no listed threatened flora or fauna species or ecological communities of conservation significance observed or considered likely to occur at the site. Consequently, the proposed works are considered unlikely to affect any matters of National Environmental Significance under the Commonwealth EPBC Act, or protected matters under the NSW Biodiversity Conservation Act.

Specifically considering the new Biodiversity Conservation Act provisions:

- The site does not impact on areas included in the Biodiversity Values Mapping undertaken by OEH
- The site would not clear native vegetation that could trigger the Biodiversity Offset Scheme² on the basis that is cannot be assigned to a native plant community type.
 - The understory exotic dominated
 - o The overstorey is planted

Given the minor scale of the works and the low probability of any impacts to any protected matters, no further site survey is considered necessary.

No specific construction management measures are recommended in order for the works to proceed beyond those already expected to be implemented in accordance with standard construction practices, particularly with respect to the protection of trees on development sites, as well as typical erosion and sediment control, dust and stockpile management measures.

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² For a site with a minimum lot size of 1-40ha, 0.5ha of native vegetation removal triggers the Biodiversity Offset Scheme.


Hazardous Materials Survey & Management Plan

Goulburn Aquatic & Leisure Centre 85 Deccan Street Goulburn NSW 2580

September 2017





Client: Clarke Keller, Unit 9 Level 1 - 16 National Circuit, Barton, ACT 2600

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T-04310_Goulburn Aquatic & Leisure Centre-20170911



CERTIFICATE OF APPROVAL FOR ISSUE OF DOCUMENTS

Document No: T-04310 **Title:** Hazardous Materials Survey Goulburn Aquatic & Leisure Centre 85 Deccan Street Goulburn NSW 2580 Revision Status: 1 Date of Issue: 7/11/2017

Client: Clarke Keller

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1 PREFACE

This Hazardous Materials Survey and Management Plan (HMSMP) was commissioned by Clarke Keller in order to assure the occupants of the site the highest standards of occupational health and safety in relation to hazardous materials. The safe removal of hazardous materials must be undertaken by appropriately licensed and skilled personnel prior to the demolition of the premises.

The HMSMP contains sections covering the identification, evaluation and control of hazardous materials including asbestos containing materials (ACM), Lead Paint, Polychlorinated Biphenyls (PCB), Synthetic Mineral Fibre (SMF), Ozone Depleting Substances (ODS) and fuel storage above and underground storage tanks (A/UST).

Robson Environmental Pty Ltd commenced the hazardous material survey on 11 September 2017. The information contained in this document will assist the PMCW (person with control or management of a workplace) in fulfilling their obligations under the latest editions of the following regulations/Acts:

- How To Manage and Control Asbestos In The Workplace Code of Practice
- How To Safely Remove Asbestos Code of Practice
- Dangerous Substances (General) Regulation 2004
- Dangerous Substances Act 2004
- Work Health and Safety Act 2011
- Work Health and Safety Regulations 2011
- National Code of Practice for the Safe Use of Synthetic Mineral Fibre [NOHSC:2006(1990)]
- National Standard for Synthetic Mineral Fibres [NOHSC:1004(1990)]
- Guide to Lead Paint Management, Part 2: Residential and Commercial Buildings Standards Australia, AS 4361.2 1998
- Identification of PCB-Containing Capacitors; An information Booklet for Electricians and Electrical Contractors ANZECC 1997 and
- The Australian Refrigeration and Air-conditioning Code of Good Practice Standards Australia, HB 40.1 – 2001



2 EXECUTIVE SUMMARY

2.1 Purpose

This report presents the findings of a Hazardous Materials survey conducted at the site on 11 September 2017 at the request of the client. The survey was undertaken to assess the extent and condition of hazardous materials and document safe management procedures in accordance with current legislation. The safe removal of hazardous materials must be undertaken by appropriately licensed and skilled personnel prior to refurbishment or demolition of the premises or where the risk assessment recommends removal. This report includes information which must be known and acted upon prior to the commencement of any demolition, refurbishment, or hazardous material removal or remediation. It also details responsibilities that the PMCW (person with management or control of a workplace) and occupier must address to ensure safe occupation of the premises.

2.2 Scope

The Hazardous Materials survey was non-destructive and non-intrusive in nature with the extent limited to the following areas:

- Interior and exterior of the building
- Roof, amenities and immediate surrounding land
- A/UST filler points and breather vents

The survey did not include the inspection or assessment of the following areas:

- Subterranean areas (e.g. infill/soil)
- Concealed cavities
- Formwork and subterranean electrical cable ducts and water pipe ducts

2.3 Survey Methodology

The survey involved the visual inspection of accessible, representative, construction materials and the collection and analysis of sampled materials suspected of being potentially hazardous to human health.

Hazardous materials assessed included ACM, SMF, PCBs, lead containing paint, ODS and A/UST.

The site inspection included the sampling of representative materials suspected of being hazardous, was undertaken in accordance with Robson's NATA ISO/IEC 17020 accreditation, ISO9001, ISO14001, AS4801 and current legislation. The particular sampling methodology used for each hazardous materials type is provided below:

Asbestos: The asbestos materials survey was conducted in accordance with the current legislation. It involved a visual inspection of accessible representative construction materials suspected of containing asbestos. Materials were not sampled from all areas due to the uniformity of the materials used throughout the building(s). Samples were analysed in Robson Environmental's National Association of Testing Authorities (NATA) accredited laboratory for the presence of asbestos by polarising light microscopy and dispersion staining.



Note that electrical switchboards and other similar areas were only inspected where they were isolated by a qualified electrician. Live switchboards were not inspected, and accordingly are presumed to be ACM until conclusively proven otherwise.

Lead (Pb) Based Paints: In accordance with AS4361.2-1998 representative paint samples were collected from various paint coated surfaces identified on site.

A sample consisting of a 25mm square of paint coating was removed using a knife to expose the base substrate. All scrapings and portions of the paint from within the square's area were collected and placed in a sealed and marked container. A total of three spot samples were collected for each suspected paint coating.

Samples were analysed for their lead (Pb) content by Envirolab Services Pty Ltd – NATA accreditation number: 2901 using ICP/AES techniques and in house Method No.4.

Within the same building, wherever a paint coating had a similar surface texture, colour etc. to a paint coating that had already been sampled because of its suspected lead content, it was presumed that these paint coatings were identical.

SMF: Synthetic Mineral Fibre (SMF) materials were visually identified and a determination made as to whether they were bonded or un-bonded.

PCBs: The information (make, type, capacitance etc.) recorded for each representative fluorescent light fitting capacitor suspected of containing PCB was cross-referenced against *ANZECC Identification of PCB Containing Capacitors – Information Booklet for Electricians and Electrical Contractors - 1997.*

This identification booklet provides a list of electrical equipment that is known to contain PCBs, and a list of electrical equipment known not to contain PCBs. Where the information recorded from the capacitor case(s) correlated exactly with the information listed in the ANZECC Information Booklet for known PCB-containing capacitors it was determined that PCBs were present in the capacitor under analysis.

Wherever a capacitor could not be identified in either list, this was noted in the PCB register as being a capacitor suspected to contain PCBs.

Note that light fittings were only inspected where they were isolated by a qualified electrician. Live light fittings were not inspected, and accordingly no determination about whether or not they contain PCB is included in this report.

Ozone Depleting Substances: A visual examination was made of refrigerant gas labels affixed to representative air-conditioning and refrigeration units. Information concerning the ASHRAE/ARI refrigerant designated R number was noted for later cross-reference to relevant air-conditioning and refrigeration industry Codes of Practice and Guidelines. In addition, the condition of the plant was noted and comment made as to possible refrigerant or lubricant leaks.

Where refrigerant gas labels were absent from representative air-conditioning and refrigeration plant, an assessment was made as to the likelihood of the plant using an ozone depleting substance based on its age and condition.

Fuel Storage Facilities: The survey included a visual inspection for above ground storage tanks (AST) and underground storage tank (UST) filler points and breather vents.



2.4 Key Findings

Asbestos

Table 1A: ACM locations and required actions

Aquatic Centre Grounds			
ACM	Locations	Action to be taken	
Sheet (Non-Friable)	Exterior outdoor pool deck area - underground services pit	Label and maintain Remove prior to demolition	

Female Ablution Block			
ACM	Locations	Action to be taken	
Bituminous product (Non-Friable)	Ground floor external - expansion joints	Label and maintain Remove prior to demolition	

Main Building			
ACM	Locations Action to be taken		
Sheet (Presumed Non- Friable)	Ground floor Electrical switchboard room - electrical backing sheet	Further investigation required	
Sheet (Non-Friable)	Ground floor Reception area - upper east wall infill	Label and maintain Remove prior to demolition	
Pipe lagging (fibrous) (Presumed Non- Friable)	Ground floor Reception area - internal south wall	Further investigation required	
Core sheet (Presumed Non- Friable)	Ground floor Reception store room - fire resistant safe	Further investigation required	

Male Ablution Block			
ACM	Locations	Action to be taken	
Bituminous product (Non-Friable)	Ground floor external - expansion joints	Label and maintain Remove prior to demolition	



Outdoor Pool Plant and Swim Club Building			
ACM	Locations	Action to be taken	
Sheet (Non-Friable)	Ground floor Equipment room - ceiling	Label and maintain Remove prior to demolition	
Sheet (Non-Friable)	Ground floor Equipment room - walls	Label and maintain Remove prior to demolition	
Sheet (Non-Friable)	Ground floor external - eave soffits (east half of building only)	Label and maintain Remove prior to demolition	
Sheet (Non-Friable)	Ground floor external - south upper door and window infills	Label and maintain Remove prior to demolition	
Sheet (Non-Friable)	Ground floor Female showers - ceiling	Label and maintain Remove prior to demolition	
Sheet (Non-Friable)	Ground floor Female showers - walls	Label and maintain Remove prior to demolition	
Sheet (Non-Friable)	Ground floor outdoor pool plant room - east upper window infills	Label and maintain Remove prior to demolition	
Sheet (Non-Friable)	Ground floor Store room - ceiling	Label and maintain Remove prior to demolition	
Sheet (Non-Friable)	Ground floor Store room - walls	Label and maintain Remove prior to demolition	

Refer to Section 2.4 - Table 1B for presumed ACM and Section 3.2 for exclusions



Table 1B: Presumed ACM, concealed locations and required actions

Туре	ACM	Locations	Action to be taken
The materials	listed below while until a des	not identified on site, should be p tructive survey confirms otherwise	resumed to be present e
	Insulation/pipe lagging	Inaccessible ducts, risers and ceiling and wall space cavities	
Presumed ACM	Asbestos millboard lining	Interior of air conditioning ductwork adjacent to heater elements	
	Asbestos insulation and gaskets/joints	Within mechanical equipment concealed by outer metal cladding, structure or housing	Destructive survey under controlled conditions prior to any refurbishment which is likely to disturb possible ACM in these areas. Until these areas are surveyed they should be presumed to contain asbestos. No access to unauthorised personnel should be given
	Asbestos vinyl floor tiles, covering, cushioning underlay and adhesive	Found beneath carpets and vinyl flooring	
	Asbestos sheeting	Backing material to ceramic tiles (roofs, floors and walls) and packers to building construction joints, such as gable end verge undercloaking	
	Asbestos cement sheet formwork and electrical cable duct / water pipe	Subterranean areas	

Prior to any planned demolition, refurbishment or maintenance, its effect upon any in situ asbestos must be established by reference to this document including amendments.



Lead Paint

It should be assumed that all similar paints throughout the building contain comparable percentages of lead.

First Schedule Paint (> 0.25%) - Male Ablution Block				
Location Paint Colour Required action				
External, roof structure	Green	Encapsulate		
Change area, roof structure	White	Maintain		

Lead Free Paint (<0.25%) - Male Ablution Block				
Location Paint Colour Required action				
External, roof structure	Grey	No action required		
Shower area, internal walls	Blue	No action required		
Change area, seats and benches	Green	No action required		

Synthetic Mineral Fibre (SMF)

It should be presumed that SMF materials may be present to inaccessible areas.

Indoor Pool Building			
Material	Material Location & Material		
water pipe insulation	Ground floor Plant room	Manage during demolition or refurbishment	
electric water heater insulation	Ground floor Plant room	Manage during demolition or refurbishment	
flexi-duct insulation	Ground floor ceiling space above Change rooms	Manage during demolition or refurbishment	
rigid duct insulation	Ground floor ceiling space above Change rooms	Manage during demolition or refurbishment	
insulation and sarking	Ground floor ceiling space above Change rooms	Manage during demolition or refurbishment	



Male Ablution Block			
Material Location & Material Required action			
electric water heater insulation	Ground floor Change area	Manage during demolition or refurbishment	

Outdoor Pool Plant and Swim Club Building		
Material Location & Material Required action		
insulation and sarking	Ground floor underside of roofing	Manage during demolition or refurbishment

Polychlorinated Biphenyls (PCB)

PCB - Goulburn Aquatic & Leisure Centre			
Make - Type	Location	Required action	
	Ground floor external Main building	>16	Further investigation required
	Ground floor outdoor pool plant and Swim club building	>12	Further investigation required
	Exterior Main building	>60	Further investigation required

* Note that light fittings were only inspected where they were isolated by a qualified electrician. Live light fittings were not inspected, and accordingly no determination about whether or not they contain PCB is included in this report.

Ozone Depleting Substances (ODS)

R Number	Location	Total	Required action
No ozone depleting substances located			

Non – Ozone Depleting Substances

Main Building			
R NumberLocationTotalRequired action			
R-410A	Ground floor Staff office area, Daikin	1	No action required
R-410A	1st floor upper gym, Mitsubishi	1	No action required



Above Ground Storage Tanks (AST) & Underground Storage Tanks (UST)

A/UST	Location	Total	Required action
	No storage tanks located		



2.5 Key Recommendations

Asbestos

- All of the asbestos containing materials (ACM) identified in this report should be removed prior to the commencement of demolition works or refurbishment.
- It was not possible to gain access behind the metal backing in the Electrical Distribution board 1 as it was live at the time of the survey. Further investigation is required when this item is isolated.
- It is presumed that friable asbestos lagging is present to hot water pipes set into masonry walls behind the tap in the Reception area south wall. A further intrusive assessment will be required if hot water pipes / tap fittings or wall tiles in the vicinity of hot water taps are likely to be disturbed during any maintenance/refurbishment works or demolition in this area.
- Asbestos containing material (ACM) insulation for fire retardant is commonly used in older style safes. As it was not possible to take sample without damaging the safe, the safe should be treated as containing ACM until it is proven otherwise.
- ACM must not be drilled, cut, sanded, damaged or abraded and a good paint finish maintained. Asbestos work on non friable ACM may be undertaken by a licensed Class A or B Asbestos Removalist. Any works on, or in the vicinity of friable ACM must only be undertaken by a licensed Class A Asbestos Removalist.
- Any ACM identified in this report that is to remain in situ should be inspected by a licensed Asbestos Assessor at the intervals stated in Section 4.5 Table 3A Asbestos Register.
- As access could not be gained to all areas of the building, it should be presumed that any similar materials located within these areas could contain asbestos until proven otherwise. Strict controls should be put in place to brief all contractors.
- ACM should be labelled with approved asbestos warning labels or signs. Due to the stigma associated with asbestos and to avoid malicious damage to ACM, labelling can be kept to discrete areas. Where labelling cannot be undertaken, the PMCW must adopt strict administrative controls to ensure ACM is not subject to accidental damage.

Asbestos Removal

Removal of ACM must be undertaken by a competent and suitably trained person as per the Code of Practice for the Safe Removal of Asbestos (2011) and the Work Health And Safety Regulation (2011). The removal/remediation of friable ACM must be undertaken by a licensed Class A Asbestos Removalist. Removal or remediation of non friable asbestos may be undertaken by either an A or B Class Asbestos Removalist. A competent person may remove ≤10m² of non friable asbestos and associated Asbestos-Contaminated Dust or



Debris (ACD), or ACD not associated with the removal of friable or non friable asbestos where this is only a minor contamination.

Prior to the commencement of any remediation works associated with friable asbestos or >10m² of non friable asbestos, this report and a permit application must be submitted to SafeWork NSW and Comcare (where applicable) at least 5 days prior to removal works commencing. An asbestos removal contractor must supply an Asbestos Removal Control Plan (ARCP) and a Safe Work Method Statement (SWMS) for review by an independent Licensed Asbestos Assessor or competent person, who ensures that the ARCP addresses all safety issues relating to the planned asbestos works.

Air monitoring is mandatory during the removal or remediation of friable asbestos and should be considered during the removal or remediation of non friable asbestos. Air sampling is to be undertaken in accordance with the Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres, 2nd Edition [NOHSC: 3003(2005)] and test certificates must be endorsed by a National Association of Testing Authorities (NATA) accredited testing laboratory.

An independent Licensed Asbestos Assessor must be employed to undertake a clearance inspection at the completion of friable asbestos removal or remediation works. Where the removal or remediation of >10m² of non friable asbestos is undertaken a clearance inspection must be undertaken by an independent Asbestos Assessor or competent person. A satisfactory clearance certificate for the remediated areas must state that no visible asbestos or presumed asbestos remains. Additionally no asbestos fibres should be detected by laboratory analysis in any validation samples. All surfaces within the removal or remediation area must be free of general dust, cobwebs and debris.

Lead Paint

- It is recommended that First Schedule paint be maintained. Any areas that begin to flake, peel or otherwise deteriorate should be appropriately remediated. If the paint is to be removed this should be undertaken by a suitably qualified person.
- It should be assumed that all similar paint applications throughout the building would contain similar percentages of lead.
- Refer to Appendix D for further general information on lead paint.

SMF

- SMF were identified to insulation to the roof space, on the hot water unit and the hot water ducting throughout the premises. If these materials are to be disturbed during refurbishment or demolition appropriate PPE should be worn. SMF materials being removed should be done so using effective dust control procedures.
- Refer to Appendix D for further general information on SMF.



PCBs

- As the light fittings were live at the time of the survey, further investigation is required when they are isolated by a qualified electrician to determine whether or not they contain PCB.
- Refer to Appendix D for further general information on PCB.

ODS

- No ozone depleting substances were identified.
- Refer to Appendix D for further general information on ODS.

A/UST

- No above or under ground fuel storage tanks were identified.
- Refer to Appendix D for further general information on A/UST.

Legislation and Guidelines (UST): In NSW the management of fuel storage tanks is administered by the local Council under the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2014 (UPSS Regulation) which aims to improve the environmental management of storage systems was made under the Act.

Safework NSW is responsible for occupational health and safety issues relating to decommissioning and removal of A/USTs from a site.

For the long-term management of the sites with redundant fuel storage tanks, Robson Environmental Pty Ltd recommends that the USTs be removed in accordance with the requirements of Safework NSW and the relevant local authority. USTs still in use are to be managed in accordance with the requirements of the UPSS Regulation.

Removal of UST's may require approvals from the relevant local authority and should be undertaken in accordance with the UPSS Regulation and Safework NSW Guidelines.



Demolition and Refurbishment

Robson Environmental Pty Ltd recommends that prior to any demolition our office be contacted. Our licensed Asbestos Assessors can attend the site to observe the demolition process, advise as necessary and in the event of previously inaccessible hazardous materials being located, assist with assessing the extent, type and removal or abatement of materials as required.

Robson Environmental Pty Ltd provides a range of occupational hygiene services in relation to the safe remediation or abatement of hazardous materials as well as contaminated land advice in relation to hydrocarbon contamination.

To assist with the tendering process Robson Environmental could be engaged to attend the walkthrough to show the extent of ACM and to respond to questions of clarification.



3 INTRODUCTION

The following Hazardous Materials Survey and Management Plan (HMSMP) have been designed to address the safe control of hazardous materials. It covers current requirements for hazardous material management as at 11/09/2017 only and must therefore be updated to comply with any future changes to legislative requirements. The safe removal of hazardous materials must be undertaken by appropriately licensed and skilled personnel prior to any renovation or demolition of the premises.

This HMSMP includes the following:

- a register of all identified hazardous materials
- extent, form, condition and risks associated with nominated hazardous materials
- labelling requirements for identified hazardous materials
- a timetable for managing risks including priorities for removal or control of ACM and for reviewing risk assessments
- responsibilities of all persons involved in hazardous materials management
- procedures to address incidents or spillage involving ACM
- safe work and removal methods
- guidelines on reviewing and updating the HMSMP and hazardous materials register

3.1 Requirements for the HMSMP

This HMSMP must be held on site for ready access. All personnel undertaking any repair or maintenance work must be provided with a copy of the HMSMP before commencement of work.

Maintenance, trade and other personnel must be instructed not to remove or damage identified hazardous materials if hazardous material is identified in the area where work will be undertaken it must be removed or remediated before work begins.

Removal of hazardous material must be undertaken by suitably qualified persons in accordance with relevant Regulations and Codes of Practice.



3.2 Exclusions

The HMSMP commissioned by the client was to be non-destructive and non-intrusive in nature. This type of commission limits or restricts access to the building structure, some surfaces and materials.

The survey undertaken was limited to those areas available for access at the time of building inspection. Only the areas accessible to the surveyors at the time of the building inspection are included in this HMSMP.

Unless specifically noted, the survey did not cover exterior ground surfaces and subsurfaces (e.g. infill/soil) or materials other than normal building fabric such as materials in laboratories or special purpose facilities.

At the time of survey no access was gained to materials and / or void areas located behind, above, or attached to any sampled or assumed hazardous materials.

The HMSMP does not include the areas, locations and equipment items to which the surveyors could not gain access at the time of inspection.

Material	Location
Asbestos millboard lining	Air conditioning duct work adjacent to heater elements
Asbestos insulation and gaskets/joints	Within mechanical equipment concealed by outer metal cladding
Asbestos insulation	Walls and cavities (e.g. as lagging to hot water pipes set into and sealed within masonry walls)
Vinyl floor tiles and floor covering	Beneath carpets
Sheeting	Backing material to ceramic tiles and as packers to building construction joints
Asbestos cement sheet formwork and electrical cable/water pipe duct	Sub-ground floor slab

Some other areas which may conceal asbestos include:



No absolute determination can be made regarding the possibility of concealed or inaccessible hazardous materials or items in the areas, locations and equipment listed in the table above until access is gained to allow for inspection.

Materials and equipment in any non-accessed area should therefore be assumed to contain ACM, SMF, lead paint, PCB, ODS and A/UST (the nominated hazardous materials) and be treated appropriately until assessment and sample analysis confirm otherwise.

Samples were not taken where the act of sampling would endanger the surveyor or affect the structural integrity of the item concerned.

This HMSMP, although extensive, is not intended for and must not be used as a specification or method statement for any future hazardous material removal project. In this instance detailed plans, quantities etc. would be required.

Before any refurbishment or hazardous material removal projects, the contractor(s) carrying out the work must fully acquaint themselves with the extent of the hazardous materials, particularly in those areas which may need full or partial demolition in order to determine the exact extent and location of such materials.

Care should be taken when demolishing or excavating to determine the existence or otherwise of hazardous materials. For example subsurface pipes and drains, revealed through excavation may be constructed of asbestos cement. Wherever a material is uncovered or revealed and it is suspected to be hazardous, it should be assumed to be hazardous and treated appropriately until such time as assessment and sample analysis of the material confirms otherwise.

Until this confirmation occurs the building work must cease in the immediate vicinity of the suspect material and a suitably qualified person must issue a clearance certificate or report before the building work can recommence in the affected area.

To ensure contextual integrity, this HMSMP must always be read in its entirety and should never be referred to in part only.



3.3 Limitations

This report is based on the information obtained by Robson Environmental Pty Ltd at the time of inspection. Robson Environmental Pty Ltd will not update this report; nor take into account any event(s) occurring after the time that its assessment was conducted.

As both the range and use of manufactured products containing hazardous materials was extremely widespread, Robson Environmental Pty Ltd cannot accept responsibility for any consequential loss or damage that results from non-recognition of a material that may later be established to contain hazardous material. For example, certain textured wall and ceiling finishes may contain small traces of asbestos fibre. In situ, textured finishes are often composed of assorted batches of product, or may have been repaired/patched at various times. It is therefore always a possibility that the samples collected may not always be representative of the entire material.

While Robson Environmental Pty Ltd has taken all care and attention to ensure that this report includes the most accurate information available, it has been unable to examine any inaccessible materials or materials hidden from view.

Under normal construction practices some materials are "built in" or "randomly applied". These materials are therefore not readily accessible and can only be exposed through demolition or damage to the structure or finishes. Access to a material may also be prevented or restricted by "in service" or operational equipment, or where to obtain access contravenes a relevant statutory requirement or code of practice. (e.g. electrical switchboards) Consequently, while all reasonable care and attention was taken in compiling this report no guarantee to its completeness can be given.

Robson Environmental Pty Ltd has taken all care to ensure that this report includes the most accurate information available, where it uses test results prepared by other persons it relies on the accuracy of the test results in preparing this report. In providing this report Robson Environmental Pty Ltd does not warrant the accuracy of such third party test results.



4 ASBESTOS SURVEY RESULTS

4.1 Survey Details

The survey of the site included all accessible areas of the building(s) except where stated otherwise. For further asbestos management information, refer to Appendix D.

4.2 Survey Methodology

The survey involved a visual inspection of the premises and a condition assessment of identified ACM. Samples were analysed in Robson Environmental's National Association of Testing Authorities (NATA) laboratory using polarising light microscopy (PLM) and dispersion staining. Samples were a representative selection of materials suspected of containing asbestos. Samples were not taken from all areas due to the uniformity of the materials used throughout the building. Laboratory analysis certificates are presented in Appendix A.

4.3 Sample Analysis

Table 2: Mineralogical Analysis of Samples for Asbestos using PLM

Aquatic Centre Grounds			
Sample reference	Sample location	Sample type	Composition Asbestos type
S1627	Exterior outdoor pool deck area - underground services pit	Sheet	Amosite, Chrysotile, Crocidolite Asbestos Detected

Female Ablution Block			
Sample reference	Sample location	Sample type	Composition Asbestos type
S1615	Ground floor external - expansion joints	Bituminous product	Chrysotile Asbestos Detected

Indoor Pool Building			
Sample reference	Sample location	Sample type	Composition Asbestos type
S1616	Ground floor Entrance area - wall infill	Sheet	No Asbestos Detected
S1617	Ground floor Male change room - toilet partitions	Sheet	No Asbestos Detected
S1618	Ground floor Male change room - window seal	Mastic	No Asbestos Detected



Indoor Pool Building				
Sample reference	Sample location	Sample type	Composition Asbestos type	
S1619	Ground floor Pool deck area - lower wall infills	Sheet	No Asbestos Detected	
S1620	Ground floor Pool deck area - recessed ceiling infills	Sheet	No Asbestos Detected	

Main Building								
Sample reference	Sample location	Sample type	Composition Asbestos type					
S1605	Ground floor Entry / Gym area - east upper wall	Sheet	No Asbestos Detected					
S1606	Ground floor Gym area - window seal	Mastic	No Asbestos Detected					
S1607	Ground floor Staff office area - floor	Vinyl floor tile	No Asbestos Detected					
S1608 Ground floor Staff office area - floor		Vinyl floor covering	No Asbestos Detected					
S1609	Ground floor Electrical Switchboard room - electrical backing sheet	Sheet	No Asbestos Detected					
S1610	Ground floor Weights room - floor	Vinyl floor tile No Asbestos Detect						
S1611	Ground floor Reception area - internal south wall	Sheet	No Asbestos Detected					
S1612	Ground floor Reception area - cupboard backing sheet	Sheet	No Asbestos Detected					
S1613	Ground floor Reception area - upper east wall infill	Sheet	Chrysotile Asbestos Detected					
S1614	Ground floor Reception area - upper east wall infill	Sheet	Amosite, Chrysotile, Crocidolite Asbestos Detected					

Outdoor Pool Plant and Swim Club Building								
Sample reference	mple Sample location		Composition Asbestos type					
S1621	Ground floor outdoor pool plant room - south window and wall infills	Sheet	No Asbestos Detected					
S1622	Ground floor outdoor pool plant room - east upper window infills	Sheet	Chrysotile Asbestos Detected					



Outdoor Pool Plant and Swim Club Building								
Sample reference	Sample location	Sample type	Composition Asbestos type					
S1623	Ground floor Equipment room - walls	Sheet	Amosite, Chrysotile Asbestos Detected					
S1624	Ground floor Equipment room - ceiling	Sheet	Amosite, Chrysotile Asbestos Detected					
S1625	Ground floor external - eave soffits (east half of building only)	Sheet	Amosite, Chrysotile Asbestos Detected					
S1626	Ground floor external - south upper door and window infills	Sheet	Amosite, Chrysotile Asbestos Detected					

Chrysotile	=	white asbestos
Amosite	=	grey or brown asbestos
Crocidolite	=	blue asbestos

It should be noted that the above samples were a representative selection of materials suspected of containing asbestos.

On-site inspections and an examination of the Asbestos Register within this report should be undertaken prior to the commencement of any asbestos removal programme.

4.4 Risk Assessment

The purpose of the risk assessment is to enable informed decisions to be made concerning the control of ACM.

The risk assessment should take account of the identification information in the Asbestos Register, including:

- type of ACM (non-friable or friable)
- condition and location of ACM
- whether the ACM is likely to be disturbed due to its condition and location
- the likelihood of exposure



Types of ACM

Non-friable ACM	Non-friable ACM is any material that contains asbestos bound into a stable matrix. It may consist of cement or various resins/binders and cannot be reduced to a dust by hand pressure. As such it does not present an exposure hazard unless cut, abraded, sanded or otherwise disturbed. Therefore, the exposure risk from non-friable ACM is negligible during normal building occupation. Note: If non-friable ACM is damaged or otherwise deteriorated, the risk assessment may be reviewed to reflect a higher potential for exposure to asbestos fibres. A licensed Asbestos Assessor should perform the risk assessment.
Friable ACM	Friable ACM can be crumbled or reduced to a dust by hand pressure when dry and can represent a significant exposure hazard. Examples of friable asbestos are hot water pipe lagging, severely damaged asbestos cement sheet, limpet spray to structural beams and electrical duct heater millboard.

ACM CONDITION RATING

1	Severe	Deteriorated surface in extremely poor condition
2	Poor	Deteriorated material
3	Normal	Stable asbestos with little damage
4	Good	Well sealed stable surfaces in accessible locations

ACM RISK RATING

A	Very High	Exposure to airborne asbestos as a consequence of extremely minor disturbance
В	High	Exposure to airborne asbestos likely as a consequence of significant disturbance
С	Medium	Exposure to airborne asbestos unlikely during normal building use
D	Low	No exposure to airborne asbestos during normal building use



4.5 Asbestos Register

The Asbestos Register details the type, location, risk assessment and action required for all identified ACM. The Register should be accessed to inform all decisions made concerning control of ACM. Action taken to control ACM must be recorded in this Register in order to comply with current legislation.

Table 3A: Asbestos Register

Aquatic Centre Grounds									
Sample No.	Item No.	Material Description & Location	Condition Rating	Risk Rating	Approx Quantity	Recommended Management Action	Action Undertaken	Assessor/ Date assessed	
S1627	21457	Exterior outdoor pool deck area - Sheet - underground services pit (Non-Friable)	3	D	8	Label and maintain Remove prior to demolition			

Female Ablution Block										
Sample No.	Item No.	Material Description & Location	Condition Rating	Risk Rating	Approx Quantity	Recommended Management Action	Action Undertaken	Assessor/ Date assessed		
S1615	21461	Ground floor external - Bituminous product - expansion joints (Non-Friable)	3	D	100 lin m	Label and maintain Remove prior to demolition				



	Main Building										
Sample No.	Item No.	Material Description & Location	Condition Rating	Risk Rating	Approx Quantity	Recommended Management Action	Action Undertaken	Assessor/ Date assessed			
VA03	21455	Ground floor Electrical Switchboard room - Sheet - electrical backing board (Presumed Non-Friable)	3	D	4 m²	Further investigation required					
S1614	21446	Ground floor Reception area - Sheet - upper east wall infill (Non-Friable)	3	D	.25 m²	Label and maintain Remove prior to demolition					
S1613	21463	Ground floor Reception area - Sheet - upper east wall infill (Non-Friable)	3	D	2 m²	Label and maintain Remove prior to demolition					
VA01	21441	Ground floor Reception area - Pipe lagging (fibrous) - internal south wall (Presumed Non-Friable)	4	D	1 no	Further investigation required					
VA02	21448	Ground floor Reception store room - Core sheet - fire resistant safe (Presumed Non-Friable)	4	D	1 no	Further investigation required					

Male Ablution Block										
Sample No.	Item No.	Material Description & Location	Condition Rating	Risk Rating	Approx Quantity	Recommended Management Action	Action Undertaken	Assessor/ Date assessed		
RA S1615	21472	Ground floor external - Bituminous product - expansion joints (Non-Friable)	3	D	100 lin m	Label and maintain Remove prior to demolition				



	Outdoor Pool Plant and Swim Club Building										
Sample No.	Item No.	Material Description & Location	Condition Rating	Risk Rating	Approx Quantity	Recommended Management Action	Action Undertaken	Assessor/ Date assessed			
S1623	21450	Ground floor Equipment room - Sheet - walls (Non-Friable)	3	D	40 m²	Label and maintain Remove prior to demolition					
S1624	21451	Ground floor Equipment room - Sheet - ceiling (Non-Friable)	3	D	12 m²	Label and maintain Remove prior to demolition					
S1625	21439	Ground floor external - Sheet - eave soffits (east half of building only) (Non-Friable)	3	D	10 m²	Label and maintain Remove prior to demolition					
S1626	21468	Ground floor external - Sheet - south upper door and window infills (Non-Friable)	3	D	3 m²	Label and maintain Remove prior to demolition					
RA S1624	21470	Ground floor Female showers - Sheet - ceiling (Non-Friable)	3	D	12 m²	Label and maintain Remove prior to demolition					
RA S1623	21471	Ground floor Female showers - Sheet - walls (Non-Friable)	3	D	40 m²	Label and maintain Remove prior to demolition					
S1622	21452	Ground floor outdoor pool plant room - Sheet - east upper window infills (Non-Friable)	3	D	2 m²	Label and maintain Remove prior to demolition					



Outdoor Pool Plant and Swim Club Building								
Sample No.	Item No.	Material Description & Location	Condition Rating	Risk Rating	Approx Quantity	Recommended Management Action	Action Undertaken	Assessor/ Date assessed
RA S1623	21449	Ground floor Store room - Sheet - walls (Non-Friable)	4	D	40 m²	Label and maintain Remove prior to demolition		
RA S1624	21442	Ground floor Store room - Sheet - ceiling (Non-Friable)	3	D	12 m²	Label and maintain Remove prior to demolition		

Refer to Section 2.4 Table 1B for presumed ACM and Section 3.2 for exclusions



Table 3B: Register of sampled materials which have been confirmed as non ACM

Indoor Pool Building			
Sample number Type Locations		Locations	
S1616	Sheet	Ground floor Entrance area - wall infill	
S1618	Mastic	Ground floor Male change room - window seal	
S1617	Sheet	Ground floor Male change room - toilet partitions	
S1619	Sheet	Ground floor Pool deck area - lower wall infills	
S1620	Sheet	Ground floor Pool deck area - recessed ceiling infills	

Main Building			
Sample number	Туре	Locations	
S1609	Sheet	Ground floor Electrical Switchboard room - electrical backing sheet	
S1605	Sheet	Ground floor Entry / Gym area - east upper wall	
S1606	Mastic	Ground floor Gym area - window seal	
S1612	Sheet	Ground floor Reception area - cupboard backing sheet	
S1611	Sheet	Ground floor Reception area - internal south wall	
S1607	Vinyl floor tile	Ground floor Staff office area - floor	
S1608	Vinyl floor covering	Ground floor Staff office area - floor	
S1610	Vinyl floor tile	Ground floor Weights room - floor	

Outdoor Pool Plant and Swim Club Building			
Sample number Type Locations			
S1621 Sheet Ground floor outdoor pool plant room - south window and wall infills			



5 LEAD PAINT SURVEY RESULTS

5.1 Introduction

Lead paint is defined by the Australian Standard (AS 4361.2 – 1998 Guide to lead paint management Part 2: Residential and Commercial buildings) as a paint or component coat of a paint system containing lead or lead compounds, in which the lead content (calculated as lead metal) is in excess of 1.0% by weight of the dry film as determined by laboratory testing.

Further, the Standard for the Uniform Scheduling of Drugs and Poisons (National Drugs and Poisons Schedule Committee July 2000) classifies paints having more than 0.25% lead as First Schedule Paint and prohibits their manufacture, supply or use.

It has been shown that the dust generated from dry sanding or abrasive blast cleaning of paints with a lead concentration of > 0.25% can have sufficient content to produce exposure levels that exceed those that define a 'lead task' in NOHSC 1012.

Therefore, paints with a lead concentration greater than 0.25% (if they are to be removed) must be treated as a lead paint (i.e. subject to the regulations in NOHSC 1012).

Analytical values of <0.25% Pb allow the sample to be categorised as being lead free paint.

5.2 Results

Paint samples were collected from and analysed for lead content. Where paints were collected, samples were analysed by Envirolab – NATA accreditation number: 2901.

Table 4 presents lead composition in paints, with results presented as a percentage concentration of lead contained within the sampled materials. Despite the fact that sampling methodologies require that three (3) paint sub-samples be taken for each sampled product, only maximum values are presented below. Due to the inherent heterogeneity of lead concentrations in applied liquids this maximum reading is presented as it represents an upper level of lead concentrations throughout a heterogeneous product and aids in interpretation of risk assessment and management recommendations. For detailed results of analysed paint samples refer to Appendix A.



Table 4: Lead Composition in Paint by Inductively-Coupled Plasma Spectroscopy

Male Ablution Block					
Sample No.	Item No.	Sample location	Colour	Lead in Paint %	
Pb1	PB532	Throughout Change area, roof structure	White	0.3	
Pb2	PB530	Throughout Change area, seats and benches	Green	0.07	
Pb3	PB533	Throughout Shower area, internal walls	Blue	0.1	
Pb4	PB531	External, roof structure	Green	0.4	
Pb5	PB534	External, roof structure	Grey	0.2	

Notes:

Lead Paint	(> 1.0% Pb)
First Schedule Paint	(> 0.25% Pb)
Lead-free Paint	(≤ 0.25% Pb)

5.3 Discussion and Conclusion

The analytical results of paint sampling from 85 Deccan St Goulburn revealed that there is First Schedule paint present.

The green First Schedule paint to the roof structure is flaking in areas. These areas should be suitably repaired and sealed as soon as possible.

It is recommended that First Schedule paint be maintained. Any areas that begin to flake, peel or otherwise deteriorate should be appropriately remediated. If the paint is to be removed this should be undertaken by a suitably qualified person.

It should be assumed that all similar paint(s) throughout the premises contains comparable percentages of lead.



6 Synthetic Mineral Fibre (SMF) Survey Results

6.1 Introduction

SMF is a generic term used to collectively describe a number of amorphous (noncrystalline) fibrous materials including glass fibre, mineral wool (Rockwool and Slagwool) and ceramic fibre. Generally referred to as SMF, these materials are also known as 'Man-Made Mineral Fibres' (MMMF).

SMF products are used extensively in commercial and residential buildings for thermal and acoustic insulation, and as a reinforcing agent in cement, plaster and plastic materials. In some specialised instances, SMF materials have also been used as alternatives to asbestos, especially where high temperature insulation properties are required.

There are two basic forms of SMF insulation **bonded** and **unbonded**.

The **bonded form** is where adhesives, binding agents, facing/cladding, cement or other sealants have been applied to the SMF before delivery and the SMF product has a specific shape (e.g. a binding or sealing agents hold the SMF in a batt or blanket form). Some bonded SMF materials may also be clad in various coverings on one or more sides (e.g. a silver foil backing).

The **unbonded form** has no adhesives, binding agents, facing/cladding or sealants applied, and the SMF is a loose material (e.g. wet spray and loose fill).

6.2 Results

Table 5: Visual Assessment of Samples

Outdoor Pool Plant and Swim Club Building				
Item No	Location	Sample Type	Form	
SMF484	Ground floor underside of roofing	insulation and sarking		

Male Ablution Block				
Item No	Location	Sample Type	Form	
SMF483	Ground floor Change area	electric water heater insulation		

Indoor Pool Building				
Item No Location Sample Type Form				
SMF489	Ground floor Plant room	water pipe insulation	Bonded	



Indoor Pool Building				
Item No	Location	Sample Type	Form	
SMF488	Ground floor Plant room	electric water heater insulation		
SMF486	Ground floor ceiling space above Change rooms	flexi-duct insulation		
SMF485	Ground floor ceiling space above Change rooms	rigid duct insulation		
SMF482	Ground floor ceiling space above Change rooms	insulation and sarking		

6.3 Conclusion

It should be presumed that SMF materials may be present to inaccessible areas including the ceiling space of areas which are inaccessible. If building work is likely to significantly disturb the insulation, the SMF materials should be removed using effective dust control procedures.

Refer to Appendix D for safe SMF handling.



POLYCHLORINATED BIPHENYLS (PCB) SURVEY RESULTS

7.1 Introduction

PCB is the common name for polychlorinated biphenyls. PCBs range in appearance from colourless, oily liquids to more viscous and increasingly darker liquids, to yellow then black resins, depending on the chlorine content of the PCB.

PCBs are chemically stable synthetic compounds that do not degrade appreciably over time or with exposure to high temperatures. The major use of PCBs was as an insulating fluid inside transformers and capacitors. Capacitors containing PCBs were installed in various types of equipment including domestic appliances, motors and fluorescent light fittings during the 1950s, 60s and 70s.

These applications generally do not present an immediate risk to human health or the environment as the equipment is sealed and contains relatively small amounts of PCB. The equipment can continue to be used safely provided that the capacitors do not leak.

The Australian and New Zealand Environment and Conservation Council (ANZECC) in its *PCB Management Plan* of 2003 stipulate cessation dates for the generation of PCB scheduled waste, the use of articles containing PCB scheduled waste, and the disposal of PCB scheduled waste*.

* PCB scheduled waste means any PCB material that has no further use that contains PCBs at levels at, or in excess of 50mg/kg and is of a quantity of 50g or more.

Small equipment items and capacitors found in households and commercial buildings that contain scheduled PCBs (i.e. at or in excess of 50mg/kg) are to be disposed of as scheduled PCB waste. Where the aggregate weight of the items or capacitors exceeds 10kg, they must be notified to the relevant Commonwealth, State or Territory Government agency prior to their disposal.



7.2 Results

Table 6: PCB and non PCB Containing Capacitors Identified on fluorescent light fittings

PCB - Goulburn Aquatic & Leisure Centre					
Item No.	Location	Make - Type	Capacitance (µF)		
PCB237	Exterior Main building		-		
PCB238	Ground floor external Main building		-		
PCB240	Ground floor outdoor pool plant and Swim club building		-		
Item No. Location Make - Type Capacitance (µF)					
No Non-PCB capacitors were located					

* Note that light fittings were only inspected where they were isolated by a qualified electrician. Live light fittings were not inspected, and accordingly no determination about whether or not they contain PCB is included in this report.

For further PCB management information refer to Appendix D.


8 OZONE DEPLETING SUBSTANCES SURVEY RESULTS

The site was surveyed for the presence of air conditioning and refrigeration units that contain ozone depleting substances.

ODS are used for heat transfer in refrigeration and air conditioning systems, absorbing or releasing heat according to vapour pressure. Release of these substances to the atmosphere has the ability to cause long term atmospheric pollution that can lead to ozone depletion, global warming, petrochemical smog and acid rain.

The ozone depletion potential (ODP) of a fluorocarbon refrigerant gas, its global warming potential (GWP) and estimated atmospheric life (EAL) all contribute to its potential to deplete the stratospheric ozone layer and enhance the greenhouse effect leading to global warming.

Chlorofluorocarbons (CFCs) contain chlorine and possess a large ODP, high GWP and long EAL. They are generally found in refrigeration and air-conditioning systems e.g. centrifugal chillers.

Hydrochlorofluorocarbons (HCFCs) are less saturated with chlorine than are CFCs and the hydrogen within these compounds give the HCFCs a much shorter EAL and lower ODP. They are generally found in refrigeration systems that are used for food display, cold stores and self contained, split, multi-split and central plant chillers used for building airconditioning.

Hydrofluorocarbons (HFCs) are a class of replacement gases for CFCs. They do not contain chlorine or bromine and therefore do not deplete the ozone layer. While all HFCs have an ODP of zero, some do have a high GWP (e.g. R-404A, R-407B, R-125 etc).

Halons are synthetic chemical compounds that contain one or two carbon atoms, bromine and other halogens. They have a long atmospheric lifetime and cause very aggressive ozone depletion when breaking down in the stratosphere. Halons were introduced into Australia as fire-extinguishing agents in the early 1970s and quickly replaced many previously accepted fire-fighting products because of their superior fire-extinguishing characteristics and ease of use.

Halon 1211 was commonly used in portable fire extinguishers, while fixed fire protection systems, such as those that protect computer rooms and ship engine rooms, commonly contained Halon 1301.

Halon 1301 has an ODP that is 10 times greater that of CFCs, while Halon 1211 has an ODP 3 times greater than that of CFCs.



8.1 Results

Table 7: Chemical properties of ODS located during survey

ODS Item No	Location	R Number	Chemical name	ODP	GWP	EAL
	Nc	ozone deple	ting substances located			

Chemical properties of non ODS located during survey

Main Building						
Non ODS	Location	R Number	Chemical name	ODP	GWP	EAL
ODS296	Ground floor Staff office area, Daikin	R-410A	HFC-32 (50%), HFC-125 (50%)	0	1370	36
ODS295	1st floor upper gym, Mitsubishi	R-410A	HFC-32 (50%), HFC-125 (50%)	0	1370	36

For further refrigerant management information refer to Appendix D.



9 FUEL STORAGE FACILITIES

It is important to note that prior to the introduction of natural gas commercial premises generally utilised heating systems where boilers were fuelled by diesel or heating oils which were stored in USTs.

For the long-term management of sites with redundant fuel storage tanks, Robson Environmental Pty Ltd recommends that the USTs be removed (where possible) in accordance with the requirements of Safework NSW and the relevant local authority.

USTs still in use are to be managed in accordance with the requirements of the UPSS Regulation. This is discussed further in Appendix D.

Removal of UST's may require approvals from the relevant local authority and should be undertaken in accordance with the UPSS Regulation and Safework NSW Guidelines.

9.1 Results

A/UST Type	Item No	Location	Recommendations
		No storage tanks located	



10 ASBESTOS MANAGEMENT

10.1 Management of ACM

General requirements

- ACM identified as representing an exposure risk (see <u>Table 3A Asbestos Register</u>) should be removed or otherwise controlled.
- Any ACM that is not scheduled for immediate removal should be labelled with appropriate warnings and maintained in good condition.
- The location of ACM must be entered into the Asbestos Register.
- Maintenance and other personnel must be made aware of the location of ACM.
- The Asbestos Register must be freely available.
- Unless they have a valid SafeWork NSW Asbestos Removal licence, maintenance workers, trades or occupants shall not remove or knowingly damage >10m² of identified non friable ACM or any amount of friable ACM.
- Before any planned demolition, refurbishment or maintenance, its effect upon any in situ asbestos must be established by reference to this document, including amendments.



10.2 Management of Contractors

Before any contractor is engaged to carry out work on a site, the Asbestos Register, site plan and photographs should be checked to ensure the work will not interfere with, or disturb asbestos containing materials (ACM).

Contractor arrives on site	Check Safe Work Method Statement (SWMS) and Trade Licenses (including Asbestos Awareness training) of all personnel involved in the work
Induct contractor	Conduct contractor's induction for the personnel involved in the work and ensure they are aware of any special requirements for ACM, security, no smoking, etc.
Check the Asbestos Register	The Asbestos Register and plan should be readily accessible (i.e. front office/reception) and in colour. Check the Asbestos Register with the contractor for ACM in the proposed work area.
ls asb	estos present in the work area?
No	Yes
Contractor may proceed with work	
Wil	I the asbestos be disturbed?
	N.
No	Yes
Contractor may proceed with work	NO WORK TO BE CONDUCTED – CONTACT THE PMCW immediately informing them of the problem.
-	



10.3 Asbestos Emergency Procedures

The following course of action should be taken **immediately** if ACM or suspected ACM is disturbed, or is accidentally damaged.





10.4 PMCW Decision Record

Option 1: Defer action

Item no.	ACM and Location	Reason	Authorisation	Date

Option 2: Encapsulate or seal

Item no.	ACM and Location	Reason	Authorisation	Date

Option 3: Removal

Item no.	ACM and Location	Reason	Authorisation	Date



10.5 Timetable for Action

The timetable for action should be administered to ensure the PMCW has a clear plan for all works which may affect ACM in the workplace. This includes maintenance work, scheduled removal work and risk assessment reviews, which may impact ACM.

Table 8: Timetable for action

ACM removal/ work	Date of scheduled works	Details	Authorisation	Date
Asbestos review/audit	Date of scheduled review	Details	Authorisation	Date
Asbestos review/audit	Date of scheduled review	Details	Authorisation	Date
Asbestos review/audit	Date of scheduled review	Details	Authorisation	Date
Asbestos review/audit	Date of scheduled review	Details	Authorisation	Date
Asbestos review/audit	Date of scheduled review	Details	Authorisation	Date



11 RESPONSIBILITIES

11.1 Asbestos - Provision of Information

The PMCW must:

- ensure the ACM register and all relevant information pertaining to asbestos in the workplace is freely available upon request
- provide occupants with up-to-date information relating to the condition and relative risk of ACM in the workplace
- provide information on the control measures in place to contain ACM-related risk and
- provide information to staff and contractors on measures to be taken to ensure that they are not exposed to asbestos in the workplace, either through accident or negligence

PMCW Action Record

Record all communication activities undertaken to inform staff/occupants of ACM in the workplace.

Action	Authorisation	Date



11.2 Updating the Risk Assessment

The register of ACM, including any risk assessments, should be reviewed every 12 months or earlier where:

- a risk assessment indicates the need for reassessment; or
- any ACM has been disturbed or moved

A visual inspection of identified ACM should be undertaken as part of any review.

Each review should critically assess all asbestos management procedures and their effectiveness in:

- preventing exposure to asbestos fibres
- controlling access to asbestos
- highlighting the need for action to maintain or remove ACM
- maintaining the accuracy of the ASMP

Details of any mitigating actions must be recorded in the Asbestos Register (refer Table 3A).



11.3 Key Personnel

This section outlines the responsibilities of all persons involved in the safe management of ACM.

1. PMCW

Name:	
Contact details:	
Responsibilities:	e.g. provision of information

2. Occupational Health and Safety Representative

Name:	
Contact details:	
Responsibilities:	e.g. keeping occupants informed of any changes to the status of ACM in the workplace

3. Facilities Management (if applicable)

Name:	
Contact details:	
Responsibilities:	e.g. arrange removal and repair works as required; maintaining the HMSMP

4. Other

Name:	
Contact details:	
Responsibilities:	



12 ASBESTOS REMOVAL WORKS

12.1 PMCW Responsibilities

Where it has been determined that ACM is to be removed, the PMCW must ensure that a risk assessment is performed before the removal work commences and that the removalist takes this risk assessment into account. The risk assessment must include the possibility of uncovering previously concealed ACM, and that concealed ACM is subsequently identified by a licensed Asbestos Assessor.

The PMCW should provide a detailed scope of works prepared by a licensed Asbestos Assessor for the removalist, including potential hazards, details on areas, which contain asbestos and arrangements for clearance inspections and airborne fibre monitoring.

12.2 Removalist Responsibilities

Before the commencement of removal work, the licensed removal contractor must:

- Provide a site-specific Asbestos Removal Control Plan(ARCP)
- Ensure the removal is adequately supervised and carried out in a safe manner
- Ensure that the equipment used in the project is appropriate for the task
- Ensure all persons carrying out the removal are competent and trained for the type of work being carried out
- Demonstrate that they have a health surveillance program in accordance with the requirements of Code Of Practice: How To Safely Remove Asbestos

12.3 Licensing Requirements

All Asbestos Removalists in NSW are licensed by SafeWork NSW.

As a minimum the holder of a NSW Asbestos Removal Licence is required to demonstrate practical experience in the industry for at least three years and possess a full and complete understanding of the requirements of:

- How to Manage and Control Asbestos in the Workplace Code of Practice
- How to Safely Remove Asbestos Code of Practice
- Work Health and Safety Act 2011
- Work Health and Safety Regulations 2011



12.4 Approval to Begin Asbestos Removal Works

- All removal methods and procedures are required to be undertaken in accordance with current legislation.
- The PMCW in conjunction with a licensed Asbestos Assessor where required, will inform the asbestos removalist of the 'Scope of Works'.
- The licensed Asbestos Assessor will be required to provide a clearance certificate on satisfactory completion of the works.

12.5 Emergency Work in Areas Containing Asbestos

- If emergency access is required contact the PMCW.
- If the PMCW determines that asbestos is likely to be disturbed, all works must be undertaken in accordance with current legislation that is, a licensed Asbestos Removalist must be contracted to undertake any asbestos removal works.
- A licensed Asbestos Assessor will be required to provide a clearance certificate on satisfactory completion of the works.

12.6 Monitoring Arrangements

Control air monitoring should be performed when indicated by a Risk Assessment to ensure the control measures are effective.

All air monitoring must be performed by a licensed Asbestos Assessor accredited to perform air sampling for asbestos. Sampling should be performed in accordance with the *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres* [NOHSC: 3003 (2005)].

It is the Asbestos Removalist's responsibility to ensure that the maximum fibre levels throughout asbestos removal and associated works does not equal or exceed the minimum practical detection limit of 0.01 fibres per millilitre of air (F/ml). If the airborne fibre levels are observed at or exceeding those specified below, the licensed Asbestos Assessor will instruct the contractor to take the appropriate control /action as per current legislation.

Control Level (airborne asbestos fibres/ml)	Control/Action
< 0.01	Continue with control measures
≥ 0.01	Review control measures
≥ 0.02	Stop removal work and find the cause

Table 9: Control levels and required actions



12.7 Clearance Inspections

Following removal work, a licensed Asbestos Assessor must undertake a clearance inspection before re-occupation of an asbestos work area.

All barriers and warning signs should remain in place until the area has been cleared.

12.8 ACM removal/maintenance record

The Asbestos Register, Section 4.5, Table 3A is to be completed by the PMCW after receiving appropriate clearance certification from a licensed Asbestos Assessor.

The 'Work Performed' and 'Asbestos Control Measure' Tables are required to be completed by the PMCW.

1. Work Performed

Company name	Contact details	Date of work + job no.	Scope of work

2. Asbestos Control Measures

Work performed	Air monitoring/ decontamination	Clearance certificate issued	Other



3. Additional Information



13 FURTHER INFORMATION

13.1 Useful Contacts

Additional information on asbestos can be obtained from the following organisations and agencies.

SafeWork NSW Office locations across NSW. offices open from 8:30am to 4:30pm Monday to Friday.

Head office

Gosford 92-100 Donnison Street GOSFORD 2250 Phone (02) 4321 5000 Fax (02) 4325 4145

Postal address: SafeWork NSW Locked Bag 2906 LISAROW 2252

Regional & Local Offices

Newcastle – Regional Office

Level 1, Suite C Cnr Fitzroy and Cowper Street CARRINGTON 2294 Phone (02) 4921 2900 Fax (02) 4940 8558

Wollongong – Regional Office

Level 1, 60 Burelli Street WOLLONGONG 2500 Phone (02) 4222 7333 Fax (02) 4226 9087

Albury

Suite 5, 1st Floor 429 Swift Street ALBURY 2640 Phone (02) 6042 4600 Fax (02) 6041 2580

Ballina

11 Grant Street BALLINA 2478 Phone (02) 6620 6900 Fax (02) 6681 6100

Goulburn

Lower Ground Floor 159 Auburn Street GOULBURN 2580 Phone (02) 4824 1500 Fax (02) 4822 1242

Griffith

Suites G06 & G07 Government Office Block 104-110 Banna Avenue GRIFFITH 2680 Phone (02) 6962 8900 Fax (02) 6964 1738

Narrabri

Suite 6, Level 1 100 Maitland Street NARRABRI 2390 Phone (02) 6792 8720 Fax (02) 6792 3532

Nowra

Level 1, 5 O'Keefe Avenue NOWRA 2541 Phone (02) 4428 6700 Fax (02) 4422 4997

Baulkham Hills

Level 4, 2 Burbank Place Norwest Business Park Baulkham Hills NSW 2153 Phone (02) 8867 2700 Fax (02) 9287 4087

Bega

1/248 Carp Street BEGA 2550 Phone (02) 6491 6600 Fax (02) 6494 7151

Coffs Harbour

Suite 33, Jetty Village Shopping Centre 361 Harbour Drive COFFS HARBOUR 2450 Phone (02) 6659 1700 Fax (02) 6652 8213

Dubbo

Comcare

Level 2, 1 Church Street DUBBO 2830 Phone (02) 6841 7900 Fax (02) 6884 2808

Orange

74 McNamara Street ORANGE 2800 Phone (02) 6392 7600 Fax (02) 6362 8820

Parramatta

Level 4, 128 Marsden Street PARRAMATTA 2150 Phone (02) 9841 8550 Fax (02) 9891 1474

Port Macquarie

Suite 5, 53 Lord Street PORT MACQUARIE 2444 Phone (02) 6588 7000 Fax (02) 6584 1788

Tamworth

126 Marius Street TAMWORTH 2340 Phone (02) 6767 2500 Fax (02) 6766 4972

Wagga Wagga

76 Morgan Street WAGGA WAGGA 2650 Phone (02) 6933 6500 Fax (02) 6937 3616

GPO Box 9905 Canberra ACT 2601 Phone: 1300 366 979 Email: general.enquires@comcare.gov.au Internet: www.comcare.gov.au

NSW Environmental Protection Agency

EPA Head Office PO Box A290 Sydney South NSW 1232 Phone (02) 9995 5555 Fax (02) 9995 5999



Hazardous Materials Survey & Management Plan

14 APPENDICES

14.1 APPENDIX A – Laboratory Reports





Envirolab Services Pty Ltd ABN 37 112 535 645 12 Ashley St Chatswood NSW 2067 ph 02 9910 6200 fax 02 9910 6201 customerservice@envirolab.com.au www.envirolab.com.au

CERTIFICATE OF ANALYSIS 176844

Client Details	
Client	Robson Environmental Pty Ltd
Attention	Administration Email
Address	PO Box 112, Fyshwick, ACT, 2609

Sample Details	
Your Reference	<u>T-04310</u>
Number of Samples	15 paints
Date samples received	03/10/2017
Date completed instructions received	03/10/2017

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report D	Details
----------	---------

Report Details			
Date results requested by	10/10/2017		
Date of Issue	10/10/2017		
NATA Accreditation Number 2901. This document shall not be reproduced except in full.			
Accredited for compliance with ISO/IEC 1	7025 - Testing. Tests not covered by NATA are denoted with *		

Results Approved By Long Pham, Team Leader, Metals Authorised By

25

David Springer, General Manager

Envirolab Reference: 176844 Revision No: R00



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Lead in Paint	100					
Our Reference		176844-1	176844-2	176844-3	176844-4	176844-5
Your Reference	UNITS	Pb1 - A	Pb1 - B	Pb1 - C	Pb2 - A	Pb2 - B
Date Sampled		11/09/2017	11/09/2017	11/09/2017	11/09/2017	11/09/2017
Type of sample		Paint	Paint	Paint	Paint	Paint
Date prepared	-	04/10/2017	04/10/2017	04/10/2017	04/10/2017	04/10/2017
Date analysed	-	05/10/2017	05/10/2017	05/10/2017	05/10/2017	05/10/2017
Lead in paint	%w/w	0.2	0.3	0.3	0.07	0.06
Lead in Paint						
Our Reference		176844-6	176844-7	176844-8	176844-9	176844-10
Your Reference	UNITS	Pb2 - C	Pb3 - A	Pb3 - B	Pb3 - C	Pb4 - A
Date Sampled		11/09/2017	11/09/2017	11/09/2017	11/09/2017	11/09/2017
Type of sample		Paint	Paint	Paint	Paint	Paint
Date prepared	-	04/10/2017	04/10/2017	04/10/2017	04/10/2017	04/10/2017
Date analysed	-	05/10/2017	05/10/2017	05/10/2017	05/10/2017	05/10/2017
Lead in paint	%w/w	0.06	0.1	0.09	0.1	0.4
Lead in Paint						
Our Reference		176844-11	176844-12	176844-13	176844-14	176844-15
Your Reference	UNITS	Pb4 - B	Pb4 - C	Pb5 - A	Pb5 - B	Pb5 - C
Date Sampled		11/09/2017	11/09/2017	11/09/2017	11/09/2017	11/09/2017
Type of sample		Paint	Paint	Paint	Paint	Paint
Date prepared	-	04/10/2017	04/10/2017	04/10/2017	04/10/2017	04/10/2017
Date analysed	-	05/10/2017	05/10/2017	05/10/2017	05/10/2017	05/10/2017
Lead in paint	%w/w	0.4	0.4	0.2	0.2	0.2

Envirolab Reference: 176844 Revision No: R00 Page | 2 of 6



Method ID	Methodology Summary
Metals-004	Digestion of Paint chips/scrapings/liquids for Metals determination by ICP-AES/MS and or CV/AAS.

Envirolab Reference: 176844 Revision No: R00 Page | 3 of 6



QUALIT	Y CONTRO	L: Lead in	n Paint			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			04/10/2017	10	04/10/2017	04/10/2017		04/10/2017	
Date analysed	-			05/10/2017	10	05/10/2017	05/10/2017		05/10/2017	
Lead in paint	%w/w	0.05	Metals-004	<0.05	10	0.4	0.4	0	98	
011017									0.1	.
QUALII	Y CONTRO	L: Lead in	n Paint			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	15	04/10/2017	04/10/2017		[NT]	
Date analysed	-			[NT]	15	05/10/2017	05/10/2017		[NT]	
Lead in paint	%w/w	0.05	Metals-004	[NT]	15	0.2	0.2	0	[NT]	

Envirolab Reference: 176844 Revision No: R00 Page | 4 of 6



Result Definiti	Result Definitions				
NT	Not tested				
NA	Test not required				
INS	Insufficient sample for this test				
PQL	Practical Quantitation Limit				
<	Less than				
>	Greater than				
RPD	Relative Percent Difference				
LCS	Laboratory Control Sample				
NS	Not specified				
NEPM	National Environmental Protection Measure				
NR	Not Reported				

Quality Control	ol Definitions		
Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.		
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.		
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.		
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.		
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.		
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC			

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Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Envirolab Reference: 176844 Revision No: R00 Page | 6 of 6





Fibre Id	entificatio	n Certificate of Ana	alysis		
Report Number: T-04310	Date of Report: 20/09/20	17 Samples Taken by: Robson Environmental	Page 1 of 3		
Client Details		Laboratory Details			
Client: Clarke Keller		Address: 140 Gladstone Street, Fyshwid	ck, Canberra 2609		
Attention: Sarah Pollheim		Manager: John Robson			
Received: 20/09/2017 10:56:39) AM	Telephone: 02 6239 5656			
Client Reference: 85 Deccan S	treet Goulburn	Fax: 02 6239 5669			
Email: mailto:spollheim@clarke	keller.com.au]	Email: hazmat@robsonenviro.com.au	1		
Test Specification(s) Employed	: AS4964 (2004) & In-House	e Procedure No.2			
	Method	ology Summary			
certainty to determine whether a fibre under investigation is asbestiform or not. Careful application of the test procedure provides sufficient diagnostic clues to allow unequivocal identification of asbestos types, and so, to determine whether a sample contains asbestos or not. If sufficient diagnostic clues are absent, then positive identification of fibrous asbestos is not possible.					
interpretation of the results shown. Wh sampling. Robson Environmental takes	the test certificate indicates that responsibility of information reporte	bulk samples were taken by the client, they are outside the scop ed only when a staff member takes the sample(s).	e of our NATA Accreditation for		
	Report	ing of Results			
*Asbestos Detected ¹ : Asbestos detected by Polarised Light Microscopy (PLM), including Dispersion Staining (DS) *No Asbestos Detected ¹ : No Asbestos detected by Polarised Light Microscopy (PLM), including Dispersion Staining (DS) *UMF Detected ¹ : Microscopy (PLM), including Dispersion Staining (DS). Confirmation by another independent analytical technique may be necessary. *Hand-picked ¹ refers to small discrete amounts of asbestos unevenly distributed in a large body of non-asbestos material. Non asbestos fibres such as "Organic" and "Synthetic Mineral Fibres" detected in samples will be marked with an *. Please refer to non asbestos fibre table beneath main table.					
Limit of Detection & Reporting	∟imit				
Known limitations of the test procedure	using Polarised Light Microscopy	(PLM) are:			
 It does not cover identifica 	tion of airborne or water-borne asbe	stos;			
 The less encountered as identification by PLM and chrysotile ("white") and cro 	bestos mineral fibres actinolite, ar Dispersion Staining (DS). Thus, pcidolite ("blue");	hthophyllite and tremolite exhibit a wide range of optical proper the method is used to positively identify the three major asbest	rties that preclude unequivocal os minerals: amosite ("brown"),		
 Valid identification require case PLM and Dispersion 	s that the sample material contains	a sufficient quantity of the unknown fibres in excess of the pract	tical detection limit used (in this		

Results relate only to the sample(s) submitted for testing. Test report must not be reproduced except in full. Accredited for compliance with ISO/IEC 17025

	Aquatic Center Grounds					
Sample No.	Client Ref.	Location	Physical Structure	Sample Description	Analysis of Fibrous Content	
S1627		Outdoor pool deck area - underground services pit surround	Sheet	2g	Amosite, Chrysotile, Crocidolite Asbestos Detected	

			Female Ablution Block		
Sample No.	Client Ref.	Location	Physical Structure	Sample Description	Analysis of Fibrous Content
S1615		External - expansion joints	Bituminous product	<1g	Chrysotile Asbestos Detected

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards

Robson Environmental Pty Ltd ~ ABN: 55 008 660 900 ~ www.robsonenviro.com.au p: 02 6239 5656 ~ f: 02 6239 5669 ~ <u>admin@robsonenviro.com.au</u> PO Box 112 Fyshwick ACT 2609 ~ 140 Gladstone Street Fyshwick ACT 2609



T-04310_85 Deccan Street Goulburn-Fibre Identification Certificate of Analysis_20170920 Client: Clarke Keller



Fibre Identification Certificate of Analysis						
Laborator	Laboratory Report Number: T-04310 Analyst: Natasha Pearson Page Page 2 of 3					
			Indoor Pool Building			
Sample No.	Client Ref.	Location	Physical Structure	Sample Description	Analysis of Fibrous Content	
S1616		Entrance area - wall infill	Sheet	<1g	No Asbestos Detected*	
S1617		Male change room - toilet partitions	Sheet	1g	No Asbestos Detected*	
S1618		Male change room - window seal	Mastic	1g	No Asbestos Detected*	
S1619		Pool deck area - lower wall infills	Sheet	9g	No Asbestos Detected*	
S1620		Pool deck area - recessed ceiling infills	Sheet	1g	No Asbestos Detected*	

Main Building					
Sample No.	Client Ref.	Location	Physical Structure	Sample Description	Analysis of Fibrous Content
S1605		Entry / Gym area - east upper wall	Sheet	1g	No Asbestos Detected*
S1606		Gym area - window seal	Mastic	3g	No Asbestos Detected*
S1607		Staff office area - floor	Vinyl floor tile	2g	No Asbestos Detected*
S1608		Staff office area - floor	Vinyl floor covering	2g	No Asbestos Detected*
S1609		Electrical switchboard room - electrical backing sheet	Sheet	<1g	No Asbestos Detected*
S1610		Weights room - floor	Vinyl floor tile	3g	No Asbestos Detected*
S1611		Reception area - internal south wall	Sheet	3g	No Asbestos Detected*
S1612		Reception area - cupboard backing sheet	Sheet	1g	No Asbestos Detected*
S1613		Reception area - upper east wall infill	Sheet	2g	Chrysotile Asbestos Detected
S1614		Reception area - upper east wall infill	Sheet	2g	Amosite, Chrysotile, Crocidolite Asbestos Detected

Outdoor Pool Plant and Swim Club Building					
Sample No.	Client Ref.	Location	Physical Structure	Sample Description	Analysis of Fibrous Content
S1621		Outdoor pool plant room - south window and wall infills	Sheet	1g	No Asbestos Detected*
S1622		Outdoor pool plant room - east upper window infills	Sheet	2g	Chrysotile Asbestos Detected
S1623		Equipment room - walls	Sheet	2g	Amosite, Chrysotile Asbestos Detected
S1624		Equipment room - ceiling	Sheet	2g	Amosite, Chrysotile Asbestos Detected
S1625		External - eave soffits (east half of building only)	Sheet	2g	Amosite, Chrysotile Asbestos Detected
S1626		External - south upper door and window infills	Sheet	<1g	Amosite, Chrysotile Asbestos Detected

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards

Client: Clarke Keller

T-04310_85 Deccan Street Goulburn-Fibre Identification Certificate of Analysis_20170920

Page 2 of 3



		A				
Fibre Iden	tification	Certific	ate	ot A	nalys	IS
aboratory Report Number:	T-04310	Analyst:	Natasha	Pearson	Page	Page 3 of 3
Non Achastas Eibra Tabla						
* S1611 - Organic Fibres Det	acted					
* S1608 - Organic Synthetic	Mineral Fibres Detected					
* S1617 - Organic Fibres Det	ected					
* S1610 - Organic Fibres Det	acted					
* S1607 - Organic Fibres Dete	ected					
* S1609 - Organic Fibres Dete	ected					
* S1620 - Organic Fibres Dete	ected					
* S1612 - Organic Fibres Dete	ected					
* S1606 - Organic Fibres Dete	ected					
* S1621 - Organic Fibres Dete	ected					
* S1616 - Organic Fibres Dete	ected					
* S1618 - Organic Fibres Dete	ected					
* S1605 - Organic Fibres Dete	ected					
* S1619 - Organic Fibres Dete	ected					
Dewport	N	ATA		2	Turkish	ley
0						\bigcirc
Robson Approved Identifier	No	o. 3181		Rob	bson Approved	Signatory
Natasha Pearson	Accredited for compli	ance with ISO/IEC	17025		Jordan Curbis	shley

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards

Client: Clarke Keller T-04310_85 Deccan Street Goulburn-Fibre Identification Certificate of Page 3 of 3 Analysis_20170920



Hazardous Materials Survey & Management Plan

14.2 APPENDIX B – Plans



Hazardous Materials Survey & Management Plan

No plans required



14.3 APPENDIX C – HAZMAT Item locations & representative photographs

	ASBESTOS - Aquatic Centre Grounds						
ITEM NO	LOCATION	MATERIAL DESCRIPTION	PHOTOGRAPH				
21457	Exterior outdoor pool deck area - underground services pit	Sheet (Non-Friable)					

	ASBESTOS - Female Ablution Block						
ITEM NO	LOCATION	MATERIAL DESCRIPTION	PHOTOGRAPH				
21461	Ground floor external - expansion joints	Bituminous product (Non-Friable)					



ASBESTOS - Main Building				
ITEM NO	LOCATION	MATERIAL DESCRIPTION	PHOTOGRAPH	
21455	Ground floor Electrical switchboard room - electrical backing sheet	Sheet (Presumed Non-Friable)		
21446	Ground floor Reception area - upper east wall infill	Sheet (Non-Friable)		
21463	Ground floor Reception area - upper east wall infill	Sheet (Non-Friable)		



	ASBESTOS - Main Building				
ITEM NO	LOCATION	MATERIAL DESCRIPTION	PHOTOGRAPH		
21441	Ground floor Reception area - internal south wall	Pipe lagging (fibrous) (Presumed Non-Friable)			
21448	Ground floor Reception store room - fire resistant safe	Core sheet (Presumed Non-Friable)			

	ASBESTOS - Male Ablution Block				
ITEM NO	LOCATION	MATERIAL DESCRIPTION	PHOTOGRAPH		
21472	Ground floor external - expansion joints	Bituminous product (Non-Friable)			



ASBESTOS - Outdoor Pool Plant and Swim Club Building				
ITEM NO	LOCATION	MATERIAL DESCRIPTION	PHOTOGRAPH	
21450	Ground floor Equipment room - walls	Sheet (Non-Friable)		
21451	Ground floor Equipment room - ceiling	Sheet (Non-Friable)		
21439	Ground floor external - eave soffits (east half of building only)	Sheet (Non-Friable)		



	ASBESTOS - O	utdoor Pool Plan	t and Swim Club Building
ITEM NO	LOCATION	MATERIAL DESCRIPTION	PHOTOGRAPH
21468	Ground floor external - south upper door and window infills	Sheet (Non-Friable)	Rundenser Balage Done: 02 6239 5666
21470	Ground floor Female showers - ceiling	Sheet (Non-Friable)	No photograph available
21471	Ground floor Female showers - walls	Sheet (Non-Friable)	No photograph available
21452	Ground floor outdoor pool plant room - east upper window infills	Sheet (Non-Friable)	
21449	Ground floor Store room - walls	Sheet (Non-Friable)	No photograph available
21442	Ground floor Store room - ceiling	Sheet (Non-Friable)	No photograph available



LEAD PAINT - Male Ablution Block				
ITEM NO	LOCATION	Lead %	PHOTOGRAPH	
PB531	Exterior, roof structure	0.4		
PB532	Throughout Change area, roof structure	0.3		



SMF - Outdoor Pool Plant and Swim Club Building				
ITEM NO	LOCATION	MATERIAL TYPE	PHOTOGRAPH	
SMF484	Ground floor underside of roofing	insulation and sarking	No photograph available	

SMF - Male Ablution Block					
ITEM NO	LOCATION	MATERIAL TYPE	PHOTOGRAPH		
SMF483	Ground floor Change area	electric water heater insulation			

SMF - Indoor Pool Building				
ITEM NO	LOCATION	MATERIAL TYPE	PHOTOGRAPH	
SMF489	Ground floor Plant room	water pipe insulation		


SMF - Indoor Pool Building					
ITEM NO	LOCATION	MATERIAL TYPE	PHOTOGRAPH		
SMF488	Ground floor Plant room	electric water heater insulation			
SMF486	Ground floor ceiling space above Change rooms	flexi-duct insulation			
SMF485	Ground floor ceiling space above Change rooms	rigid duct insulation			



SMF - Indoor Pool Building				
ITEM NO	LOCATION	MATERIAL TYPE	PHOTOGRAPH	
SMF482	Ground floor ceiling space above Change rooms	insulation and sarking		



POLYCHLORINATED BIPHENYLS - Goulburn Aquatic & Leisure Centre				
ITEM NO	LOCATION	MATERIAL TYPE	PHOTOGRAPH	
PCB238	Ground floor external Main building			
PCB240	Ground floor outdoor pool plant and Swim club building			
PCB237	Exterior Main building			



14.4 APPENDIX D – Hazardous Material Management Information

ASBESTOS

Some 3000 products have been manufactured using asbestos, of which cement sheeting, pipe insulation, textiles, gaskets, vinyl floor tiles and fire door cores are the most commonly encountered. The mineral asbestos (i.e. Crocidolite, Chrysotile and Amosite and other forms) is classified by the National Occupational Health and Safety Commission as a Category 1 carcinogen. If respirable asbestos fibres are inhaled they may cause an inflammatory response, which in turn may lead to asbestosis (scarring of the lung), mesothelioma (cancer of the pleura or peritoneum) or lung cancer.

It is illegal under Commonwealth, State and Territory legislation to manufacture asbestos building materials or to reuse asbestos products.

Asbestos sheeting or 'fibro' is bonded into a stable matrix and as such does not present an exposure hazard unless it is cut, abraded, sanded or otherwise disturbed. This material is referred to as non friable ACM. Friable ACM has the potential to release fibre with only minor disturbance.

The health risks associated with asbestos exposure increase with the fibre type, level and frequency of exposure. Crocidolite (blue asbestos) is the most hazardous type. Amosite (brown asbestos) is not as hazardous as crocidolite but is significantly more hazardous than chrysotile (white asbestos). Exposure to all types of asbestos can result in diseases including asbestosis, lung cancer and mesothelioma. Smoking increases the risk of disease 50 fold. The often heard adage ' one fibre can kill you" is overly simplistic. Evidence indicates that risk increases with the level, type and frequency of exposure. Some individuals may be predisposed to disease at low and infrequent exposure, while others suffer no ill effect even after prolonged industrial exposure. We do not know what level can be considered safe nor what level may be considered hazardous. Asbestos may also be naturally present in the environment at very low levels. Therefore controls should be implemented to avoid exposure as far as practicable.

Asbestos is only hazardous if it becomes airborne and inhaled. When it is fully encapsulated within the structure it cannot become airborne. Simple engineering controls can ensure it remains encapsulated. These controls are detailed in the Required Actions and Recommendations detailed in this report.

Provided the site has been inspected by a licensed Asbestos Assessor and their recommendations adopted, normal occupation would not be hazardous. It is vital that any maintenance or renovation be in strict accordance with the Assessor's recommendations.

Any person employed to undertaken any maintenance or refurbishment must be informed of the presence of friable and/or non friable asbestos in the premises. The PMCW must ensure that if planned work may impact on any asbestos materials, the asbestos is removed or remediated by the appropriate class of removalist prior to commencement.



LEAD PAINT

Introduction

Lead in paint (as lead carbonate) is found extensively in homes and commercial and industrial buildings built pre-1970. Although Australian industry has generally phased out lead content in paint, levels of below 1 percent are still permitted and industrial application of high-lead paint to residential/commercial dwellings may still continue.

Lead-base paint may be a health issue if it becomes mobile in the environment or if ingested. For this reason sealing or safe removal of paint is strongly recommended particularly where it is flaking or exposed to the elements.

Assessment Criteria

Lead paint is defined by the Australian Standard (AS 4361.2 – 1998 *Guide to lead paint management Part 2: Residential and Commercial buildings*) as a paint or component coat of a paint system containing lead or lead compounds, in which the lead content (calculated as lead metal) is in excess of 1.0% by weight of the dry film as determined by laboratory testing. Further, the Standard for the Uniform Scheduling of Drugs and Poisons (National Drugs and Poisons Schedule Committee July 2000) classifies paints having more than 0.25% lead as First Schedule Paint and prohibits their manufacture, supply or use.

It has been shown that the dust generated from dry sanding or abrasive blast cleaning of paints with a lead concentration of 0.25% can have sufficient content to produce exposure levels that exceed those that define a 'lead task' in NOHSC 1012.

Therefore paints with a lead concentration greater than 0.25% (if they are to be removed) must be treated as a lead paint (i.e. subject to the regulations in NOHSC 1012).

Lead Paint Management and Recommendations

The following information uses Australian Standard (AS 4361.2 – 1998) as the primary reference. Lead paint and first schedule paints in residential and commercial premises may be managed in one of four ways:

- Leave undisturbed
- Stabilised (i.e. over painting or encapsulation)
- Abated (i.e. removed)
- A combination of the three management options may be required

Should removal be chosen, a high degree of skill, preparation and risk minimisation is required to avoid lead exposure, as dry sanding of lead levels as low as 0.25% can generate high lead dust. Therefore the Wet Scraping and Wet Sanding methods are amongst the safest methods available.

Strict adherence to the guidelines described in AS 4361.2 – 1998 will best ensure minimisation of risk. During this process personal protective equipment and waste containment equipment is essential and children, pregnant women and persons not directly engaged in the process should not be present. General workers may undertake this process providing they adhere strictly to the guidelines, however, a specialist lead paint removal contractor is recommended for extensive paint removal works.



Where remediation is required it is important to minimise ongoing maintenance costs by ensuring that the works are undertaken by a professional who is able to give a significant time guarantee of the painted surfaces at the completion of the works. The following website lists contactors by postcodes that have been included based on their indicated skills and training in working safely with lead paint. <u>http://www.lead.org.au/paintersall.html</u>. These contractors should however be assessed by current performance prior to engagement.

Responsibilities of Owners and Contractors

According to AS 4361.2 – 1998 owners of residences or commercial buildings that may contain lead should:

- Manage the property in such a manner as to effectively control any health risk to occupants, contractors or others
- Ensure occupants are sufficiently informed about and protected from the hazards associated with lead paint
- If management work is to be undertaken, inform immediate neighbours about the nature of the work

Contractors should:

- Obtain appropriate accreditation to undertake the proposed level of remedial work involving lead paint and have the required level of specialized training
- Undertake the contracted work in such a way as to protect the health and safety of employees, tenants and the general public



SYNTHETIC MINERAL FIBRE

SMF refers to man-made mineral fibrous materials commonly used for their insulating and reinforcing properties. The amorphous (non-crystalline) materials include glass fibre, mineral wool and ceramic fibre products.

Discussion

Although glass fibre is classified as an irritant, levels of airborne fibreglass during routine occupation of the premises would be insignificant. During any large-scale installation or removal of fibreglass insulation, providing SMF fibre suppression measures as defined below are employed, exposure standards for SMF fibre would not normally be exceeded.

The following Risk Assessment is based on the requirements of Worksafe Australia, WorkSafe Australia, Sydney 1990, *Synthetic Mineral Fibres: National Standard and National Code of Practice.*

SMF Risk Assessment

According to Worksafe Australia 1990 (p 9) health risks associated with SMF are "significantly less potent ... than white asbestos (Chrysotile) fibres" and that "...the possibility of lung cancer is eliminated at an exposure standard (time weighted average) of 0.5 respirable fibres per millilitre of air for all types of synthetic mineral fibres...." (p V).

To reduce the possibility of skin, eye and upper respiratory tract irritation a maximum exposure standard of 2 milligrams per cubic metre of inspirable dust is recommended. These two standards are designed principally for the manufacture and end user industries in which significant dust clouds would be generated.

The same document also states: "The overall conclusion based on available animal experiments and epidemiology is that provided work is carried out in accordance with (NOHSC 1990), and compliance is maintained with the exposure standards, then there is a negligible health risk associated with exposure to SMF under present-day manufacturing and usage patterns."



РСВ

PCB is the common name for Polychlorinated Biphenyls. PCBs range in appearance from colourless, oily liquids to more viscous and increasingly darker liquids, to yellow then black resins, depending on chlorine content of the PCB.

Discussion

The major use of PCBs in the electrical industry has been as an insulating fluid inside transformers and capacitors. These transformers and capacitors have ranged in size from the very large transformers typically used by electrical supply companies, to the small capacitors used in commercial products. Capacitors containing PCBs were installed in various types of equipment including fluorescent light fittings during the 1950s, 60s and 70s.

Risk Assessment

Small quantities of PCBs are usually found in sealed containers known as capacitors. PCBcontaining capacitors are unlikely to pose a health risk, unless they become damaged and leak.

PCBs can enter the body in three ways:

- absorption through the skin
- inhalation of PCB vapour
- ingestion by contamination of food or drink

The most commonly observed symptom in people exposed to high levels of PCBs is a condition known as chloracne. This is a severe, persistent acne-like rash due to repeated and prolonged contact of PCBs with skin. This condition has also occurred in people who have accidentally ingested PCBs.

Very high exposure to PCBs may also cause liver damage and damage to the nervous system.

There is the possibility that PCBs may cause cancers.

The likelihood of becoming sick from PCB exposure increases with the length of time and the amount of material that a person might come in contact with.



OZONE DEPLETING SUBSTANCES

Introduction

Ozone depleting substances (ODS) are compounds that contribute to stratospheric ozone depletion. They are widely used in refrigerators, air-conditioners, fire extinguishers, in dry cleaning, as solvents for cleaning, electronic equipment and as agricultural fumigants.

Ozone depleting substances (ODS) include:

- Bromochloromethane (BCM)
- Carbontetrachloride (CCl₄)
- Chlorofluorocarbons (CFCs)
- Halons
- Hydrobromofluorocarbons (HBFCs)
- Hydrochlorofluorocarbons (HCFCs)
- Methylbromide (CH₃Br)
- Methylchloroform (CH₃CCl₃)

ODS are generally very stable in the troposphere and only degrade under intense ultraviolet light in the stratosphere. When they break down they release chlorine or bromine atoms which then deplete the ozone.

Ozone Protection Strategy

The Australian Strategy for Ozone Protection calls for personnel who handle, install, service, commission and decommission and maintain commercial and industrial refrigeration and air-conditioning equipment to be accredited, licensed, registered to work with ozone depleting substances.

Best Management Practices

In Australia a 'Code of Good Practice' has been drawn up with the objective of assisting the reduction of emissions into the atmosphere of substances that deplete the ozone layer and contribute to global warming.

The Australian Refrigeration and Air-conditioning Code of Good Practice (HB 40.1 – 2001) recommends best practice for the maintenance, design, servicing, labelling and manufacture of refrigeration and air conditioning systems towards this objective.

Legislation

Under the Federal Government's Ozone Protection and Synthetic Gas Management Act 1989 and its Ozone Protection and Synthetic Gas Legislation Amendment Bill 2003 it is illegal to vent an ODS (Scheduled Substances) to the atmosphere.



General Maintenance

- All refrigeration and air-conditioning plant should be regularly inspected for traces of leaking refrigerant and/or oil, and for signs of leak-indicating dye
- Whenever a system is charged with refrigerant and/or lubricant, the service person must clearly label the system with the refrigerant/lubrication type; name of service organization; and date of service. In addition, the ASHRAE/ARI refrigerant designated R number shall be clearly displayed
- A service person should be aware of the possibility that a refrigeration or airconditioning system may have been incorrectly charged or incorrectly labelled. The type of refrigerant contained in the system must therefore be first established by checking the temperature/pressure relationship or by using other tests to verify that the labelling is correct

Advice to Equipment Users

- Users are advised that persons who service refrigeration and air-conditioning equipment are required by legislation to observe the Code of Good Practice and not to 'top-up' or 'charge' systems known to be leaking refrigerant, or to service equipment unless it can be returned into service in a leak-free condition
- If a user does not have trained staff to undertake service or maintenance work, then it is recommended that a routine maintenance agreement for their plant be undertaken with a reputable service organization
- All users should monitor the operation of their installation weekly and call the service person immediately if any abnormal condition is found
- When a refrigeration system contains in excess of 50 kg of refrigerant, that system should be leak tested on a quarterly basis

Leak Testing

- Various methods may be used for leak-testing, e.g. electronic leak detectors, halide lamp and or ultraviolet lamp
- Only a non-controlled refrigerant mixed with a pressurising substance such as dry nitrogen should be used to leak test refrigeration and air-conditioning systems
- Where an air-conditioning or refrigeration system is found to be leaking and needs to be repaired, the vapour and/or liquid must first be recovered from the leaking system
- Where pressurisation testing has determined that an air-conditioning or refrigeration system is not leaking, moisture and non-condensables must be evacuated from the system using dry nitrogen as the moisture absorber and either the deep or triple evacuation methods
- All refrigerants shall be recovered and either recycled, reclaimed or held for disposal in an approved manner
- It is highly recommended that a refrigerant charge monitor or leak detector be installed to alert equipment owners/operators of a refrigerant leak



Recovery, Recycling and Disposal of Refrigerants

- It is highly recommended, and in some cases mandatory, for recovery and/or recycling equipment to be used for the removal and recovery of refrigerant during service
- To avoid the danger of mixing different refrigerant types, the receiving containers shall be identified by the correct colour coding and labelling and shall only be used for the refrigerant type that is being transferred. The recovery containers shall conform to AS 4484-2004, 'Gas Cylinders for Industrial, Scientific and Refrigerant use labelling and colour coding'
- As chillers have large internal volume, it is important that all refrigerant vapour be recovered. A chiller at atmospheric pressure can still hold many kilograms of refrigerant vapour after the liquid has been removed
- When recovering refrigerant from a chiller the refrigerant should be recovered until the internal system pressure is reduced to 3 kPa absolute for low-pressure systems (e.g., R-11) and 70 kPa absolute for positive pressure systems (e.g., R-12 and R-22). The internal pressure should then be taken up to atmospheric pressure with dry nitrogen if the chiller is to be opened. This will prevent moisture–laden air entering the system, which could lead to contamination and corrosion

Disposal of Refrigerants

- Unusable or surplus fluorocarbon refrigerant shall not be discharged to the atmosphere, but shall be returned to a supplier
- Empty residual refrigerant in a disposable container shall be recovered and the container disposed of at a recycling centre
- The utmost care must be taken to avoid mixing different types of refrigerants, as separation may be impossible and large quantities of refrigerant may be rendered unusable

Handling and Storage

Losses of refrigerant to the atmosphere can occur during the handling and storage of refrigerant containers. Service persons have a duty of care to avoid such losses.

• There are numerous hazards associated with the storage of refrigerant. These include asphyxiation in confined space due to leakage from refrigerant containers; and fire, which may overheat and explode refrigerant containers or decompose refrigerant into toxic substances

Alternative Refrigerants and Lubricants

- With the introduction of HFC alternative refrigerants, alternative lubricants need to be considered to ensure system reliability. Some of these alternative lubricants tend to exhibit greater hygroscopicity than mineral oils, so care must be taken to ensure they are kept in sealed containers at all times
- Care must be taken to ensure that all components used in the refrigeration/airconditioning system are compatible with the new refrigerant and lubricant



Recovery of Fluorocarbons Mixed with other Refrigerants

A number of different refrigerants and refrigeration mixtures have been used to replace or to 'top up' fluorocarbon based refrigerants in refrigeration and air-conditioning systems.

In many cases the equipment in question may not be labelled to indicate that hydrocarbon or hydrocarbon mixtures have been used and as the operating pressures of these replacement refrigerants are usually similar to those of the original refrigerant, their identification in the field is extremely difficult.

- It is not safe therefore to recover flammable refrigerant (hydrocarbon) using equipment designed only for non-flammable refrigerants such as R-12 and R-134a
- Should it be suspected that refrigeration or air-conditioning system contains an unidentified mixture or, if on asking the owner, examining the labels, and/or detecting instruments indicate that a hydrocarbon/fluorocarbon mixture or any other non-standard mixture of refrigerant may be present; the following procedure should be followed:
 - If a hydrocarbon or flammable mixture that contains hydrocarbon is suspected, use only equipment designed for the recovery of flammable gasses and recover the refrigerant into a specially marked container
 - In the case of refrigerant mixtures, it is not advisable to use recovery equipment as many mixtures have very high condensing pressures, which could result in equipment failure and/or injury to persons operating, or near the equipment
 - The safest method of recovery is to use an evacuated and preferably chilled container to depressurise the system
 - Label the container to show that it contains a mixture or the suspected composition, if known, and deliver it to a supplier for recycling
 - Purge the residual gas from the system with dry nitrogen before proceeding with any repairs

Health Effects

In addition to causing environmental degradation certain ozone depleting substances may present a risk to human health when they are improperly handled or released in to a poorly ventilated area.

Inhalation

The most significant exposure route for humans is through inhalation. Refrigerant gases displace oxygen in the air making breathing difficult.

Overexposure can cause central nervous system depression and oxygen deficiency. Effects of overexposure may include light-headedness, giddiness, shortness-of-breath, headaches, and in extreme cases, irregular heartbeats, cardiac arrest, asphyxiation and death.

Symptoms of overexposure at lower concentrations may include transient eye, nose and throat irritation.



Skin Contact

Contact with rapidly released refrigerant gas may cause frostbite. Symptoms of frostbite may include changes in skin colour to white or greyish yellow.

Other direct dermal contact may result in skin de-fatting, dryness, irritation or contact dermatitis.

Standard work clothes provide adequate protection of the skin but it is recommended that lined butyl gloves and goggles be used whenever handling liquid refrigerants.

Eye Contact

Eye contact with rapidly released refrigerant or air-conditioning gas may cause severe frostbite damage to eyes and eyelids. Eye irritation may occur if exposure occurs at lower concentrations.



FUEL STORAGE FACILITIES

In NSW the management of fuel storage tanks is administered by the local Council under the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2014 (UPSS Regulation) which aims to improve the environmental management of storage systems was made under the Act.

The UPSS Regulation requires underground fuel storage tanks be removed once they are no longer in use, unless there are extenuating circumstances i.e. their removal undermines permanent infrastructure. This is also stated in the Australian Standard *The Removal and Disposal of Underground Petroleum Storage Tanks* (AS 4976-2008).

Safework NSW is responsible for occupational health and safety issues relating to decommissioning and removal of A/USTs from a site. The following SafeWork NSW requirements must be met during decommissioning:

- The tank and contents made safe in line with *Code of Practice: Storage and handling of dangerous goods* (NSW WorkCover Authority 2005);
- Safework NSW must be notified of abandoned tanks within 7 days.

In accordance with the UPSS Regulation, removing, replacing or decommissioning of UPSS also requires that a validation report for the site must be predated by a 'duly qualified person' and submitted to the relevant local authority (usually the local Council);

Based on this information and for the long-term management of the sites with redundant fuel storage tanks, Robson Environmental Pty Ltd recommends that the USTs be removed in accordance with the requirements of Safework NSW and the relevant local authority. UPSS still in use are to be managed in accordance with the requirements of the UPSS Regulation.

Removal of UST's may require approvals from the relevant local authority and should be undertaken in accordance with the UPSS Regulation and Safework NSW Guidelines.

It is noted that the management of USTs is also referred to in Section 3.2 of AS4976 (2008) *The Removal and Disposal of Underground Petroleum Storage Tanks*, which states that the out-ofservice period for a UST should not exceed that laid down in any applicable regulation and should not normally be greater than twelve (12) months. The *Occupational Health And Safety (Dangerous Goods Regulation (2001)* states that where 2 years have elapsed since fuel was put into or taken from am above or underground tank it must be abandoned. Also, Section 366 of the NSW *Work Health and Safety Regulation (2011)* (Chapter 7, Part 7.1, Division 5, Subdivision 4) indicates that all decommissioned tanks must be removed unless there are specific operational or structural reasons as to why they must remain. These reasons must be outlined or substantiated by an experienced and competent person. Section 367 of the above additionally specifies that PCBU in charge of the UST must notify the regulator of the abandonment of the tank as soon as practicable after the tank is abandoned.



15 GLOSSARY ACM See asbestos containing material Air monitoring Air Monitoring means airborne asbestos fibre sampling to assist in assessing exposures and the effectiveness of control measures. Air monitoring includes exposure monitoring, control monitoring and clearance monitoring. Note: Air monitoring should be undertaken in accordance with the Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres [NOHSC:3003 (2005)] Airborne asbestos fibres Any fibres of asbestos small enough to be made airborne. For the purposes of monitoring airborne asbestos fibres, only respirable asbestos fibres (those less than 3µm wide, more than 5µm long and with a length to width ratio of more than 3 to 1) are counted. Amosite Grey or brown asbestos AR See Asbestos Register Asbestos Containing Material Any material, object, product or debris that contains asbestos. Inventory of ACM by type, form, location, risk and required action. Asbestos Register A competent person who performs asbestos removal work. Note: an Asbestos Removalist asbestos removal licence is required in all State and Territory jurisdictions. Asbestos Survey and Document covering the identification, risk evaluation, control and management of identified asbestos hazards, developed in Management Plan accordance with current legislation. Asbestos² The fibrous form of mineral silicates belonging to the serpentine and amphibole groups of rock-forming minerals, including actinolite, amosite, anthophyllite, chrysotile, crocidolite, tremolite or any mixture containing one or more of the mineral silicates belonging to the serpentine and amphibole groups. Asbestos-cement (AC) Products consisting of sand aggregate and cement reinforced with asbestos fibres (e.g. asbestos cement pipes and flat or corrugated asbestos cement sheets). ASCC See Safe Work Australia Council ACM that is bonded into a stable matrix and cannot be reduced to a Non-friable asbestos dust by hand pressure. White asbestos Chrysotile An inspection, carried out by a licensed Asbestos Assessor, to verify Clearance inspection that an asbestos work area is safe to be returned to normal use after work involving the disturbance of ACM has taken place. A clearance inspection must include a visual inspection, and may also include clearance monitoring and/or settled dust sampling. Clearance monitoring Air monitoring using static or positional samples to measure the level of airborne asbestos fibres in an area following work on ACM. An

area is 'cleared' when the level of airborne asbestos fibres is

	measured as being below 0.01 fibres/mL.
Control monitoring	Air monitoring, using static or positional sampling devices to measure the level of airborne asbestos fibres in an area during work on ACM. Control monitoring is designed to assist in assessing the effectiveness of control measures. Its results are not representative of actual occupational exposures, and should not be used for that purpose.
Crocidolite	Blue asbestos
Exposure monitoring	Air monitoring in the breathing zone to determine a person's likely exposure to a hazardous substance. Exposure monitoring is designed to reliably estimate the person's exposure, so that it may be compared with the National Exposure Standard.
HMSMP	See hazardous material survey re-inspection and management plan
In situ ²	Fixed or installed in its original position, not having been removed.
Inaccessible areas	Areas which are difficult to access, such as wall cavities and the interiors of plant and equipment.
Licensed Asbestos Assessor	Person who is qualified to undertake the identification and assessment of asbestos and provide recommendations on its safe management.
Membrane	A flexible or semi-flexible material, which functions as the waterproofing component in a roofing or waterproofing assembly.
NATA	National Association of Testing Authorities
NOHSC (now SWA)	National Occupational Health and Safety Commission (now known as Safe Work Australia)
PMCW	Person with management or control of a workplace
Safe Work Australia Council (SWAC)	A council that provides a national forum for State and Territory governments, employers and employees to consult and participate in the development of policies relating to OHS and workers' compensation matters, and promote national consistency in the OHS and workers' compensation regulatory framework.
SWMS	Safe Work Method Statement



16 REFERENCES

- How To Manage and Control Asbestos In The Workplace Code of Practice
- How To Safely Remove Asbestos Code of Practice
- Work Health and Safety Act 2011
- Work Health and Safety Regulations 2011
- ANZECC 1997, Identification of PCB-Containing Capacitors; An information Booklet for Electricians and Electrical Contractors
- Standards Australia, AS 4361.2 1998 Guide to lead paint management, Part 2: Residential and Commercial Buildings
- Standards Australia, HB 40.1 2001 The Australian Refrigeration and Airconditioning Code of Good Practice
- WorkSafe Australia, Sydney 1990, Synthetic Mineral Fibres: National Standard and National Code of Practice

GOULBURN AQUATIC CENTRE REDEVELOPMENT 85 DECCAN STREET, GOULBURN HYDRAULIC SERVICES

No.	DATE	REVISION	BY
P1	21.06.2018	PRELIMINARY - DESIGN DEVELOPMENT	SG

HYDRAULIC SERVICES DRAWING INDEX

H000 COVER SHEET H001 LEGEND H002 LOCATION PLAN

H100 SEWER DRAINAGE SCHEMATIC

H101 WATER SERVICES SCHEMATIC - PLANT ROOM

H102 GAS SCHEMATIC - CAFE

H200 DEMOLITION, EXISTING SERVICES, SITE LAYOUT

H201 PROPOSED NEW WORKS



GOULBURN AQUATIC CENTRE REDEVELOPMENT

85 DECCAN STREET, GOULBURN

HYDRAULIC SERVICES COVER SHEET





Preliminary

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TYPICAL LEGEND OF SYMBOLS

•	STACK, VENT, WASTE, COLI WATER, HOT WATER, WARN WATER RISER / DROPPER		BALL FLOAT VALVE
۲	TUNDISH	\bowtie	NEEDLE VALVE
●-+	HOSE TAP		BACKFLOW PREVENTION DEVI
M	ISOLATION VALVE	►	ALTERING PIPE
® ▼	BALANCING VALVE		FLOW
M	NON RETURN VALVE		CONTROL PANEL
	PRESSURE REDUCING VALV	/E	PUMP
	BUTTERFLY VALVE	M	WATER METER
\bowtie	CHECK VALVE	6	GAS METER
\overline{N}	GAUGE VALVE	HWU	HOT WATER UNIT
Ο, των Ο, ττν Ο, τν	THERMOSTATIC MIXING VA BEHIND ACCESS PANEL P THERMOSTATIC TEMPERIN VALVES BEHIND ACCESS TEMPERING VALVE ARRAN	ALVE LOCA ROVIDED B' NG VALVE L PANEL PRC NGMENT LO	TION COMPLETE WITH ISOLATION Y BUILDER (REFER TO SPEC) OCATION COMPLETE WITH ISOLA OVIDED BY BUILDER (REFER TO S CATION (REFER DETAIL) COMPLE PANEL PROVIDED BY BUILDER (F
	SPEC)		
●-× ●-×	BSN/ SK TAPS		
••	WC		
HYD 100	F/A T/A SERVICE TYPE SERVICE SIZE T/B F/B	IYD 100	SERVICE / REFERENCE
HYD 100	SERVICE TYPE SERVICE SIZE T/B F/B	IYD 100	F/A T/A SERVICE TYPE SERVICE SIZE
\neg	CUT IN & CONNECT NEW		(TO EXISTING
\bigotimes	FIRE HYDRANT		
$\bigotimes \bigotimes$	DUAL HEAD FIRE HYDR	ANT	

NON POTABLE HOT WATER	
RAIN WATER RE-USE	
SOLAR HOT WATER FLOW	SF
SOLAR HOT WATER RETURN	SR
WARM WATER	ww

GAS	
DISUSED GAS SERVICE	

EXISTIN - eANG _____ - - - - - ____ ____ NATURAL GAS MAIN EXISTING GAS NATURAL GAS PIPING

GAS

I

FIRE HOSE REEL

NOTE: TAG PREFIXES SHOW VARIATIONS OR PIPE SYSTEMS:

e - DENOTES EXISTING PIPE SYSTEM SERVICE Xe - DENOTES DISUSED/DEMOLISHED PIPE SYSTEM SERVICE

No.	DATE	REVISION	B
P1	30.05.2018	PRELIMINARY - DESIGN DEVELOPMENT	SC

GENERAL ABBREVIATIONS

	A /	ABOVE	е	EXISTING
	AAV	AIR ADMITTANCE VALVE	EJ	EXPANSION JOINT
LVE	AB	ACCESSIBLE BASIN	EW	EYE WASH
	AFFL	ABOVE FINISHED FLOOR LEVEL	F/A	FROM ABOVE
	A/P	ACCESS PANEL	F/B	FROM BELOW
EVENTION DEVICE (BEPD)	ASH	ACCESSIBLE SHOWER	FFL	FINISHED FLOOR LE
(211.2)	AWC	ACCESSIBLE WATER CLOSET	FH	FIRE HYDRANT
	В	BASIN	FHR	FIRE HOSE REEL
	BB	BABY BATH	F.L	FLOOR LEVEL
	BCWU	BOILING & CHILLED WATER UNIT	FL	FLUSH LINE
	BFPD	BACKFLOW PREVENTION DEVICE	FRC	FIBRE REINFORCED
<u>=L</u>	BO	BALCONY OUTLET	FSL	FINISHED SLAB LEV
	BR	BRANCH	FU	FIXTURE UNITS
	BT	BOUNDARY TRAP	FW	FLOOR WASTE
	BTFW	BASKET TYPE FLOOR WASTE	FWG	FLOOR WASTE GUL
	BTH	BATH	GA	GREASE ARRESTOR
	BTH/SHR	BATH WITH SHOWER OVER	GL	GROUND LEVEL
	BWU	BOILING WATER UNIT	GM	GAS METER
IIT	CEIL	CEILING	GMS	GALVANIZED MILD S
	CD	CONDENSATE DRAIN	GO	GRATED OUTLET
	CI	CAST IRON	GR.ST	GREASE STACK
WITH ISOLATION VALVES	CICL	CAST IRON CEMENT LINED	GR.V	GREASE VENT
R TO SPEC)	CIP	CAST IRON PIPE	GR.W	GREASE WASTE
	CO	CLEAR OUT	GTD	GRATED TRENCH DF
	CP	CONTROL PANEL	GV	GAS VALVE
cr (refer to spec)	CS	CLEANERS SINK	GV	GAS VENT
DETAIL) COMPLETE WITH	C/S	CEILING SPACE	GVP	GAS VENT PIPE
D BY BUILDER (REFER TO	CU	COPPER	HC	HOSE TAP
·	CV	CHECK VALVE - CV CONTROL VALVE	H&CW	HOT & COLD WATER
	CVP	CHAMBER VENT PIPE	HD	HEAVY DUTY
	CW	COLD WATER	HDPE	HIGH DENSITY POLY
	CWU	CHILLED WATER UNIT	HL	HIGH LEVEL
	D	DRAIN	HP	HIGH POINT
	DCV	DOUBLE CHECK VALVE	НТ	HOSE TAP - HT
	DCW	DOMESTIC COLD WATER	HW	HOT WATER
ENCE	DF		HWF	HOT WATER FLOW
	DG	DISCONNECTOR GULLY	HWR	HOT WATER RETUR
	DICL	DUCTILE IRON CEMENT LINED	HWU	HOT WATER UNIT
	DP	DOWN PIPE	1.0	INSPECTION OPENIN
	DV	DRAINAGE VENT	IL	INVERT LEVEI
	DTU	DRAINAGE TURN UP	lo	INSPECTION OPENIN
	DW	DISHWASHER	IPMF	INDUCT PIPE MICA F
	211			

EW	EYE WASH
F/A	FROM ABOVE
F/B	FROM BELOW
FFL	FINISHED FLOOR LEVEL
FH	FIRE HYDRANT
FHR	FIRE HOSE REEL
F.L	FLOOR LEVEL
FL	FLUSH LINE
FRC	FIBRE REINFORCED CEMENT
FSL	FINISHED SLAB LEVEL
FU	FIXTURE UNITS
FW	FLOOR WASTE
FWG	FLOOR WASTE GULLY
GA	GREASE ARRESTOR
GL	GROUND LEVEL
GM	GAS METER
GMS	GALVANIZED MILD STEEL
GO	GRATED OUTLET
GR.ST	GREASE STACK
GR.V	GREASE VENT
GR.W	GREASE WASTE
GTD	GRATED TRENCH DRAIN
GV	GAS VALVE
GV	GAS VENT
GVP	GAS VENT PIPE
HC	HOSE TAP
H&CW	HOT & COLD WATER
HD	HEAVY DUTY
HDPE	HIGH DENSITY POLYETHYLENE
HL	HIGH LEVEL
HP	HIGH POINT
HT	HOSE TAP - HT
HW	HOT WATER
HWF	HOT WATER FLOW
HWR	HOT WATER RETURN
HWU	HOT WATER UNIT
1.0	INSPECTION OPENING
IL	INVERT LEVEL
lo	INSPECTION OPENING
IPMF	INDUCT PIPE MICA FLAP
IRR	IRRIGATION SERVICE

JU	JUMP UP
LD	LIGHT DUTY
L/L	LOW LEVEL
MD	MEDIUM DUTY
M/L	MID LEVEL
NRV	NON RETURN VALVE
KE	KERB ENTRY
кРа	PRESSURE IN KILOPASCALS
_/s	FLOW IN LITRES PER SECOND
LL	LOW LEVEL
LT	LAUNDRY TUB/TROUGH
LU	LOADING UNITS
m/HEAD	PRESSURE IN METRES HEAD
MJ/hr	MEGAJOULE PER HOUR
NG	NATURAL GAS
NP	NON POTABLE WATER SERVICE
OF	OVERFLOW
OFG	OVERFLOW GULLY OVER
ORG	OVERFLOW RELIEF GULLY
PD	PLANTER DRAIN
PE	POLYETHYLENE
PFE	PORTABLE FIRE EXTINGUISHER
PLV	PRESSURE LIMITING VALVE
PP	POLYPROPYLENE
PRV	PRESSURE REDUCTION VALVE
Q	FLOW
RCP	REINFORCED CONCRETE PIPE
RL	REDUCED/RELATIVE LEVEL
RPZD	REDUCED PRESSURE ZONE DEVICE
RV	RELIEF VENT
RVP	REFLUX VALVE RELIEF VENT PIPE
RW	RAIN WATER RE-USE SERVICE OR RECYCLED WATER

FIXTURE ABBREVIATION, WASTE & WATER SUPPLY SIZE SCHEDULE

ABBREVIATION	FIXTURE TYPE	WASTE CONNECTION MINIMUM SIZE (mm)	WATER SUPPLY MINIMUM SIZE (mm)
AB	ACCESSIBLE BASIN	Ø40	Ø15 WARM WATER & CW BRANCHES
ASHR	ACCESSIBLE SHOWER	Ø100xØ100 IN GROUND; Ø100xØ50 (PALAZZI) ABOVE GROUND	Ø15 WARM WATER & CW BRANCHES
AWC	ACCESSIBLE WATER CLOSET	Ø100	Ø15 CW BRANCH WITH STOP TAP
В	BASIN	Ø40 INDIVIDUALLY TRAPPED	Ø15 WARM WATER & CW BRANCHES
BTFW	BUCKET TRAP FLOOR WASTE	Ø100xØ100 IN GROUND; Ø100xØ65 (PALAZZI) ABOVE GROUND	N/A
BTH	BATH	Ø40	Ø20 WARM WATER & CW BRANCHES
BWU	BOILING WATER UNIT	Ø40	Ø15 CW BRANCH WITH STOP TAP
	COMBI OVEN	Ø100xØ50 TUNDISH	Ø20 CW BRANCH WITH STOP TAP
СМ	COFFEE MACHINE	Ø100xØ50 TUNDISH	Ø20 CW WITH ISOLATION VALVE
CS	CLEANERS SINK	Ø50	Ø20 HW & CW BRANCHES
DF	DRINKING FOUNTAIN	Ø40	Ø15 CW WITH BALL VALVE OR STOP TAP
DW	DISHWASHER PASS-THROUGH	MANUFACTURER HOSE TO CONNECT TO Ø50 TRAP ON SK OR TO TRAPPED TD	Ø20 CW BRANCH WITH STOP TAP PRESSURE REDUCTION VALVE SET TO 400kPa MAX
DWM	DISHWASHING MACHINE	Ø50	Ø15 HW BRANCH WITH STOP TAP PRESSURE REDUCTION VALVE SET TO 400kPa MAX
FW	FLOOR WASTE GULLY	80x65 CHROME PLATED	Ø15 CW SUPPLY FOR ELECTRONIC TRAP PRIMING WHERE REQUIRED
GWM	GLASS WASHING MACHINE	Ø100 TRAPPED WASTE	Ø20 CW WITH STOP TAP
IM	ICE MACHINE	Ø100xØ50 TUNDISH	Ø20 CW WITH ISOLATION VALVETO SUPPLY RPZD PROVIDED BY KITCHEN CONTRACTOR INSTALLER
LT	LAUNDRY TROUGH	Ø50	Ø20 HW & CW BRANCHES
SHR	SHOWER	Ø100xØ100 IN GROUND; Ø100xØ50 (PALAZZI) ABOVE GROUND	Ø15 WARM WATER & CW BRANCHES
SK	SINK	Ø50 INDIVIDUALLY TRAPPED	Ø20 HW & CW BRANCHES
	STEAM KETTLE	Ø100xØ50 INDIVIDUALLY TRAPPED STAINLESS STEEL PIPING	CW WITH STOP TAP
TD	TUNDISH		
	-ON WALL	Ø100xØ50	n/a
	-IN WALL	Ø50 CONNECTED TO STAINLESS STEEL PROPRIETARY TUNDISH	n/a
TMV	THERMOSTATIC MIXING VALVE	n/a	SEE TMV SCHEDULE
UR	URINAL - FLOOR SLAB	Ø100xØ65 (PALAZZI)	Ø15 CW BRANCH WITH STOP TAP
UR	URINAL - WALL HUNG	Ø50	Ø15 CW BRANCH WITH STOP TAP
WC	WATER CLOSET	Ø100	Ø15 CW BRANCH WITH STOP TAP
WM	CLOTHES WASHING MACHINE	Ø50/DISCHARGE TO ADJACENT TR(L)	Ø20 HW & CW BRANCHES
ZIP 4 IN 1	ZIP 4 IN 1 BOILING/CHILLED WATER UNIT	VENT TRAY KIT; DRAINAGE - N/A	Ø15 CW BRANCH WITH STOP TAP

NOTE: REFER TO ARCHITECTURAL DOCUMENTATION FOR FIXTURE , TAPWARE MANUFACTURER AND MODEL OR DETAILS



GOULBURN AQUATIC CENTRE REDEVELOPMENT

85 DECCAN STREET, GOULBURN HYDRAULIC SERVICES LEGEND

S	SEWER
SEN	SENSOR TAP
SEP	SIDE ENTRY PIT
SHR	SHOWER
SK	SINK
SL	SURFACE LEVEL
SMH	SEWER MANHOLE
SMS	SEWER MAINTENANCE SHAFT
SRM	SEWER RISING MAIN
SSHR	SAFETY SHOWER
S/S	STAINLESS STEEL
SS	SUBSOIL RISING MAIN
SSI	
SST	SOIL STACK
ST	STACK - ST
STV	STACK VENT
SV	STOP VALVE/STOP TAP
SWD	STORMWATER DRAIN
SWRN	STORM WATER RISING MAIN
T/A	TO ABOVE
T/B	TO BELOW
TD	TUNDISH
TMV	THERMOSTATIC MIXING VALVE
TPR	TEMPERATURE & PRESSURE RELIEF VALVE
TV	TEMPERING VALVE
TDCV	TESTABLE DOUBLE CHECK VALVE
TW	TRADE WASTE
TWV	TRADE WASTE VENT
U/	UNDER
UNO	UNLESS NOTED OTHERWISE
UPVC	UNPLASTICISED POLYVINYL CHLORIDE
UR	URINAL
V	VENT
VCP	VITRIFIED CLAY PIPE
VP	VENT PIPE
VW	VERTICAL WASTE
W	WASTE
W&CW	WARM & COLD WATER
WC	WATER CLOSET
WM	WASHING MACHINE
WN	WATER METER
WW	WARM WATER
WT	WASH TROUGH
XLPE	CROSS LINKED POLYETHYLENE

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P2	21.06.2018	PRELIMINARY - DESIGN DEVELOPMENT	S



85 DECCAN STREET, GOULBURN

HYDRAULIC SERVICES LOCATION PLAN



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Preliminary

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P1	25.05.2018	ISSUED FOR COMMENT	SG
P2	30.05.2018	PRELIMINARY - DESIGN DEVELOPMENT	SG
P3	21.06.2018	PRELIMINARY - DESIGN DEVELOPMENT	SG



HYDRAULIC SERVICES SEWER DRAINAGE SCHEMATIC

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P3





No.

P1

P2

MECHANICAL PLANT RL 673.146



GOULBURN AQUATIC CENTRE REDEVELOPMENT

85 DECCAN STREET, GOULBURN

HYDRAULIC SERVICES WATER SERVICES SCHEMATIC - PLANT

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<u>NOTES</u> 1. DISCONNECT + REMOVE EXISTING RAINWATER TANKS DELIVER TO COUNCILS NEW LOCATION

	Existing Natural Gas Details										
			Distance gas ma Prope bounc	e from in to erty lary	Distance Prope bounda gas me	from rty ry to eter					
Existing	New			Direc			Natural	Gas			Index
meter	Gas Meter	Serial	Ditance	Pipe sizo dia	Ditance	Pine	main	Pressure	Fixtures		(meter
No.	No.	Number	(metres)	(mm)	(metres)	size	pressure	(kpa)	Connected	MJ/hr	es)
eGM1		P568423	1	32	12	32	-		Indoor Heated Pool		RE
eGM2		EC544673							Olympic Pool showers		R ST
eGM3		J976802	1.5	32	75	32			Olympic Pool Heater		SNE SNE
eGM4		EA049429							Goulburn Swimming Club		VER

COUNCIL



No.	DATE	REVISION	BY	
P1	30.05.2018	PRELIMINARY - DESIGN DEVELOPMENT	SG	
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No.

SGOU0101-H201 P1						
APPROVED	Approver	PROJECT No	SGOU0101			
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DESIGN	EM	SCALE	1 : 250 @A1			
ORAWN	JP	DATE	06/21/18			



APPROVED	Approver	PROJECT No	SGOU0101
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DESIGN	Designer	SCALE	1 : 400 @A1
DRAWN	Author	DATE	05/02/18

		ESSENTIAL ENERGY 2 x 1000kVA KIOSK SUBSTATIO	
		MECHANICAL SERVICES SWITCHBOARD	m) N
			DM
		2 HOUR FIRE RATED (6m x 4 - 2 TYPES OF EGRESS REQUIR	m) ED
		GENERAL LIGHTING & POWER DISTRIBUTION BOAI ON WALL OF PLANT ROO (W900mm x D300mm x H1800m	RD DM m)
		COMMUNICATIONS CABIN W600xD800xH15 EREE STANDING IN SECURED ADMIN AREA OR	ET
		DEDICATED CUPBOA	RD
		SWITCHBOARD LOCATED IN BASEMENT PLANT ROO FOR POOL EQUIPME	
ː <u>KEY</u> :	_		
SL65.1	UNDER ROOF - PLANT ROOM	MECHANICAL SERVICES SWITCHBOARD LOCATED	
ilbert5	GROUND FLOOR		
scott.g	LOWER GROUND FLOOR	GENERAL LIGHTING & POWER DISTRIBUTION BOAI	RD EA
2018_5	BASEMENT - PLANT ROOM	ELECTRICAL TENANT DISTRIBUTION BOARD FO	DR NG
EP_R			
01_M			
001			

No.	DATE	REVISION	BY
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P2	21.06.2018	PRELIMINARY - DESIGN DEVELOPMENT	SG





85 DECCAN STREET, GOULBURN

ELECTRICAL SERVICES SITE LAYOUT - ELECTRICAL SERVICES THE DR ANY F CONT THIS SET O REPRO

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AUSTRALIAN STANDARD AS2560.2.5-2007 'LIGHTING OF SWIMMING POOLS'

NOTES:

- LIGHTING DESIGN 'OPTION 1' IS COMPLIANT WITH THE REQUIREMENTS OF AUSTRALIAN STANDARD AS2560.2.5-2007 'LIGHTING FOR SWIMMING POOLS' CLUB, INTERCLUB OR DISTRICT COMPETITION.
 DUE TO THE GEOMETRY OF THE POOL THE 6 POLE ARRANGEMENT IN OPTION 2 WOLL D DE DEEMED NON COMPLIANT TO A \$2550.2.5 2007 AND
- OPTION 2 WOULD BE DEEMED NON-COMPLIANT TO AS2560.2.5-2007 AND AS SUCH THE POLE HEIGHTS WILL NEED TO REMAIN AT 15m.

No.	DATE	REVISION	BY
P1	30.05.2018	PRELIMINARY - DESIGN DEVELOPMENT	SG
P2	21.06.2018	PRELIMINARY - DESIGN DEVELOPMENT	SG



PLAN VIEW - OUTDOOR POOL

4 POLE ARRANGEMENT - COMPLIANT TO AS2560.2.5-2007

EAST ELEVATION



GOULBURN AQUATIC CENTRE REDEVELOPMENT

85 DECCAN STREET, GOULBURN

ELECTRICAL SERVICES POOL LAYOUT - LIGHTING OPTIONS THE DRA ANY FC CONTE THIS SET OF REPROI FOR BLAC

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INTERIOR POOLS



NOTE:

1. LUMINAIRE LOCATIONS AND ANGLES TO BE CONFIRMED.

No.	DATE	REVISION	BY
P1	21.06.2018	PRELIMINARY - DESIGN DEVELOPMENT	SG

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GOULBURN AQUATIC CENTRE REDEVELOPMENT

85 DECCAN STREET, GOULBURN

ELECTRICAL SERVICES LIGHTING LAYOUT - INTERIOR POOL



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SGOU0101-E450					

GOULBURN AQUATIC CENTRE REDEVELOPMENT 85 DECCAN STREET, GOULBURN MECHANICAL SERVICE

No.	DATE	REVISION	ΒY
P1	30.05.2018	PRELIMINARY - DESIGN DEVELOPMENT	SG
P2	21.06.2018	PRELIMINARY - DESIGN DEVELOPMENT	SG

MECHANICAL SERVICES DRAWING INDEX

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SGOU0101	M201	HHW PIPEWORK SCHEMATIC (STAGE 2&3)
SGOU0101	M300	MECHANICAL LAYOUT - BASEMENT
SGOU0101	M301	MECHANICAL LAYOUT - LOWER GROUND - A
SGOU0101	M302	MECHANICAL LAYOUT - LOWER GROUND - C
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SGOU0101	M312	MECHANICAL LAYOUT - ROOF PLANT
SGOU0101	M401	MECHANICAL SECTIONS SHEET



GOULBURN AQUATIC CENTRE REDEVELOPMENT

85 DECCAN STREET, GOULBURN

MECHANICAL SERVICE COVER SHEET -TO BE CONFIRMED

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LEGEND OF SYMBOLS

		S1	GRILLE TYPE (REFER SCHEDULE)
		250	AIK QUANTITY L/S
	- REFER SPECIFICATION FOR DETAILS		
<u> </u>	EXTERNALLY INSULATED DUCTWORK		
	FIRE RATED DUCTWORK		
	OVAL DUCTWORK	DUCTWO	RK LEGEND (CONT.)
<u> </u>	DUCT ACCESS PANEL		SIDEWALL RETURN/EXHAUST AIR GRILLE
	SOUND ATTENUATOR		DOOR GRILLE
	FLEXIBLE DUCT CONNECTION		DOUBLE LIGHT AIR BOOT
	TURNING VANES		SINGLE LIGHT AIR BOOT
SU _ }	DUCT SET UP	Ø	
SD }	DUCT SET DOWN	Ţ	LINEAR DIFFUSER C/W PLENUM BOOT
$\boxtimes]$	S/A DUCT RISER		
	R/A DUCT RISER	MSSB	
X	S/A DUCT DROPPER		WECHANICAL SERVICES SWITCHBUARD
	R/A DUCT DROPPER		
<u> </u>	SPIRAL WOUND CIRCULAR OR OVAL DUCTWORK		
+++++++++++++++++++++++++++++++++++++++	FLEXIBLE ACOUSTIC DUCTWORK	PIPEWOR	K LEGEND
	CIRCULAR DUCT TAKEOFF		PIPE CONNECTION
	CIRCULAR DUCT TAKEOFF WITH BUTTERFLY DAMPER		DIRECTION OF FLOW
(T)	ROOM TEMPERATURE SENSOR T THERMOSTAT	o ——	PIPE RISER/DROPPER
ĀH	AFTER HOURS CONTROLLER	b G	PIPE RISE
_ (0)	CARBON MONOXIDE SENSOR	-64	PIPE FALL
) (CO2)	CARBON DIOXIDE SENSOR	-	TEE DROP
) (H)		⊪	FLANGED END
	AIR FILTER - DUCT MOUNTED C/W ACCESS PANEL	 F	
		- 	
		<i>/</i> /k	
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	CEILING SUPPLY AIR DIFFUSER 3 WAY BLOW		CONDENSER COOLING WATER PIPING
	'THERMAFUSER'	R	REFRIGERANT PIPING
\bigotimes	CIRCULAR CEILING SUPPLY AIR DIFFUSER	——DHW——	DOMESTIC HOT WATER PIPING
	SIDEWALL SUPPLY AIR DIFFUSER	D	DRAIN
	CEILING RETURN/EXHAUST AIR GRILLE	NG	NATURAL GAS PIPING

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PIPEWORK LEGEND (CONT.)

ABE	BRE	VIAT	IONS

PIPEWOR	K LEGEND (CONT.)	S/A	SUPPLY AIR
N 4		R/A	RETURN AIR
	ISOLATING VALVE	O/A	OUTSIDE AIR
	ISOLATING VALVE - IN GROUND C/W PATH BOX	E/A	EXHAUST AIR
	METERING & BALANCING VALVE (STA-D)	T/E	TOILET EXHAUST
	CHECK VALVE	G/E	GENERAL EXHAUST
-₩-	BALANCING VALVE CARTRIDGE TYPE	K/E	KITCHEN EXHAUST
		S/E	SMOKE EXHAUST
	GAUGE VALVE	EF	EXHAUST FAN
	MOTORISED 2 WAY CONTROL VALVE	T/A	TO ABOVE
	MOTORISED 3 WAY CONTROL VALVE	F/A	FROM ABOVE
	PRESSURE REDUCING VALVE	T/B	TO BELOW
	PRESSURE REDUCING VALVE SET	F/B	FROM BELOW
S		SD	SET DOWN
	SOLENOID VALVE	SU	SET UP
 ~~	FLEXIBLE CONNECTION	AFL	ABOVE FLOOR LEVEL
-~~ +	STRAINER	FFFL	FROM FINISHED FLOOR LEVEL
	BUTTERFLY VALVE	OBD	OPPOSED BLADE DAMPER
— X —	NEEDLE VALVE	HC	HEATING COIL
		СС	COOLING COIL
	BLANKED / PLUGGED VALVE	FC	FUME CUPBOARD
$-\bowtie$	BALL FLOAT VALVE	FCU	FAN COIL UNIT
	STEAM TRAP	VAV	VARIABLE AIR VOLUME
— D —	SIGHT GLASS	UNO	UNLESS NOTED OTHERWISE
-#D#-	SEPARATOR	HHW	HEATING HOT WATER
OP		CHW	CHILLED WATER
		CCW	CONDENSER COOLING WATER
Y	TUNDISH	F	FLOW
ſ	OPEN VENT	R	RETURN
Ŷ	AUTOMATIC AIR VENT	CW	COLD WATER
е Х	DIAL PRESSURE GAUGE WITH VALVE	DHW	DOMESTIC HOT WATER
⊤ ⊼	PRESSURE RELIEF VALVE	C/W	COMPLETE WITH
ę			
Φ			
·	TEMPERATURE GAUGE		

FLOW SWITCH

DIFFERENTIAL PRESSURE SWITCH

TEMPERATURE SENSOR

THERMOMETER POCKET

UNIVERSAL TEST PLUG

PUMP

FLEXIBLE DUCT SCHEDULE								
AIR QUANTITY (L/s)	DIAMETER (mm)							
0 TO 50	150							
51 TO 100	200							
101 TO 200	250							
201 TO 250	300							
251 TO 350	350							
351 TO 450	400							

DOOR GRILLE SCHEDULE							
AIR QUANTITY (L/s)	SIZE (mm)	DESIGNATION					
UP TO 100	600x150	$A \triangleright$					
101 TO 200	600x300	вД					
201 TO 350	600x450	c⊅					
351 TO 500	600x600	D⊅					
25mm UNDERCU PARTITION CON	UC⊅						



GOULBURN AQUATIC CENTRE REDEVELOPMENT

85 DECCAN STREET, GOULBURN

MECHANICAL SERVICE LEGEND

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85 DECCAN STREET, GOULBURN

MECHANICAL SERVICE HHW PIPEWORK SCHEMATIC (STAGE 1) THE DI ANY CON THIS SET (REPR FOR BL

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BMS HHWG-2 HHWG-2 HHWP-2 BMS BMS HHWP-2 BMS	A
	BC) BUFFER TANK C/W
	AIR AN
OVERFLOW AND DRAIN	
25Ø QUICK FILL BRANCH WITH HOSE	

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85 DECCAN STREET, GOULBURN

MECHANICAL SERVICE HHW PIPEWORK SCHEMATIC (STAGE 2&3)

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MECHANICAL SERVICE MECHANICAL LAYOUT - BASEMENT

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85 DECCAN STREET, GOULBURN

MECHANICAL SERVICE MECHANICAL LAYOUT - GROUND - A

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GOULBURN AQUATIC CENTRE REDEVELOPMENT

85 DECCAN STREET, GOULBURN

MECHANICAL SERVICE MECHANICAL LAYOUT - MECHANICAL

Preliminary

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MAIN ROOF STRUCTURAL LAYOUT PLAN 1 : 250

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<u>LEGEND</u>

	MAIN ROOF STRUCTURAL MEMBER SCHEDULE					
REF	SIZE	DESCRIPTION				
R1	400 x 300 x 12.5 RHS	RAFTER				
R2	400 x 200 x 10 RHS	RAFTER				
R3	400 x 200 x 12.5 RHS	RAFTER				
C1	400 x 300 x 12.5 RHS	COLUMN				
C2	400 x 300 x 12.5 RHS	COLUMN				
C3	400 x 200 x 10 RHS	COLUMN				
C4	400 x 200 x 12.5 RHS	COLUMN				
C5	400 x 300 x 16 RHS	COLUMN				
C6	400 X 200 X 12.5 RHS	COLUMN				
B1	400 X 200 X 12.5 RHS	BEAM				
B2	200 SHS 6.0	BEAM				
H1	200 SHS 6.0	BEAM				

TRUSS MEMBER SCHEDULE								
REF	TRUSS HEIGHT	<u>VERTICAL</u>	DIAGONAL					
TR1	4800mm	250 x 150 x 12.5 RHS	150 SHS	150 SHS				
TR2	2400mm	250 x 150 x 12.5 RHS	150 SHS	150 SHS				
TR3	1200mm	150 x 100 RHS	100 SHS	100 SHS				





1 : 150



Client/Project: 172 Goldsborough House 423 Bourke Street Adelaide, SA 5000 Melbourne GOULBURN AQUATIC CENTRE REDEVELOPMENT

DrawingTitle:

MAIN ROOF STRUCTURAL LAYOUT PLAN

Status: PRELIMINAF	RY ISSUE							
Project No: S17_082	Dwg No: S030	Revision:	Dwg Size:					
Drawn: DL	Date: JAN 18	Checked: SH	Scale: 1:250 @ A1	A Rev:	12.04.18 Date:	PRELIMINARY ISSUE Notes:	DL By.	SH Chkd:

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	MAIN ROOF STRUCTURAL MEMBER SCHEDULE	
REF	SIZE	DESCRIPTION
R1	400 x 300 x 12.5 RHS	RAFTER
R2	400 x 200 x 10 RHS	RAFTER
R3	400 x 200 x 12.5 RHS	RAFTER
C1	400 x 300 x 12.5 RHS	COLUMN
C2	400 x 300 x 12.5 RHS	COLUMN
C3	400 x 200 x 10 RHS	COLUMN
C4	400 x 200 x 12.5 RHS	COLUMN
C5	400 x 300 x 16 RHS	COLUMN
C6	400 X 200 X 12.5 RHS	COLUMN
B1	400 X 200 X 12.5 RHS	BEAM
B2	200 SHS 6.0	BEAM
H1	200 SHS 6.0	BEAM

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DrawingTitle: STRUCTURAL ELEVATIONS AND SECTIONS

Status: PRELIMINARY ISSUE

Dwg No:	Re
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	Dwg No: S060 Date: JAN 18

	SECONDARY FRAMING MEMBER SCHEI	DULE
=	SIZE	DESCRIPTION
	150 x 50 x 3 RHS (LAID FLAT)	BEAM
	250 x 150 x 5 RHS	COLUMN
	250 x 150 x 8 RHS	COLUMN

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STRUCTURAL ISOMETRIC VIEW



DrawingTitle: CRACKERJACK STRUCTURAL STEEL ISOMETRIC VIEW STAGE 1

Status: PRELIMINARY ISSUE								
Project No: S17_082	Dwg No: SK100	Revision:	Dwg Size:					
Drawn: DL	Date: JAN 18	Checked: SH	Scale: NTS	A Rev:	12.04.18 Date:	PRELIMINARY ISSUE Notes:	DL By.] SH] Chkd:



STRUCTURAL POD OVER CAFE LAYOUT PLAN 1 : 100

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STRUCTURAL POD OVER CAFE ISOMETRIC VIEW



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DrawingTitle:

Level 7,Level 8,172 Goldsborough House423 Bourke StreetAdelaide, SA 5000MelbournePh. 08 82128439VIC 3000e: admin@cjc-engineers.com.auABN. 21 518 561 838

STRUCTURAL POD OVER CAFE LAYOUT

Status: PRELIMINA	RY ISSUE] []	
Project No: S17_082	Dwg No: S040	Revision: A	Dwg Size:					
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<u>LEGEND</u>

SPAN DIRECTION OF FLOOR JOISTS.

CAFE POD STRUCTURAL MEMBER SCHEDULE						
SIZE	DESCRIPTION					
150 PFC	BEAM					
150UC 37.2	BEAM					
89SHS 6.0	COLUMN					
C15024	JOIST @ 450 CTS, 1 ROW OF BRIDGING					



STRUCTURAL POD OVER CHANGING ROOMS LAYOUT PLAN 1:100

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CHANGING ROOMS POD STRUCTURAL MEMBER SCHEDULE							
REF	SIZE	DESCRIPTION					
PB3	150 PFC	BEAM					
PB4	150UC 23.4	BEAM					
PB5	150UC 37.2	BEAM					
PC2	89SHS 5.0	COLUMN					
PTR1	150UC 37.2	TRIMMER BEAM					
PTR2	150UC 23.4	TRIMMER BEAM					
PVBR1	50EA 6.0	VERTICAL BRACING					
PHBR1	50EA 6.0	HORIZONTAL BRACING					
J2	C150 12	JOIST @ 450 CTS. 1 ROW OF BRIDGING					



STRUCTURAL POD OVER CHANGING ROOMS ISOMETRIC VIEW

Status:



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DrawingTitle: CRACKERJACK STRUCTURAL POD OVER CHANGING ROOMS LAYOUT PLAN

PRELIMINARY ISSUE

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SPAN DIRECTION OF FLOOR JOISTS.

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GOULBURN AQUATIC CENTRE REDEVELOPMENT

Sustainability Report



Goulburn Mulwaree Council

S.GOU.0101 ESD-R003 12 April 2018 engineering sustainable environments

REPORT AUTHORISATION

PROJECT: GOULBURN AQUATIC CENTRE REDEVELOPMENT

REPORT NO: S.GOU.0101 ESD-R003

Date	Rev	Comment	Prepared by	Checked by	Authorised by
12/04/2018	А	Final Report	DAA	НМ	PE

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ABBREVIATIONS AND ACRONYMS

Acronym/Abbreviation/Unit	Expansion
BAS	Building Automation System
BoM	Bureau of Meteorology
BMS	Building Management System
COP	Coefficient of Performance
0C	degrees of Celsius
DHW	Domestic Hot Water
DTS	Deemed to Satisfy
DX	Direct Expansion
FTP	File Transfer Protocol
GFA	Gross Floor Area
GHG	Greenhouse Gas
GJ/yr/m ²	Giga Joules per year per square meter
GST	Goods and Service Tax
HHW	Heating Hot water
HVAC	Heating Ventilation and Air-conditioning
kgCO ₂ e/yr/m ²	kilo grams of carbon dioxide equivalent per year per square meter
kL/yr/m ²	kilo Litres per year per square meter
km	kilo meters
kW	kilo Watts
kWp	kilo Watt peak
LED	Light Emitting Diode
NCC	National Construction Code
NLA	Net Lettable Area
PV	Photo Voltaic
RT	Total Resistance
SHGC	Solar Heat Gain Coefficient
tCO ₂ e	tons of carbon dioxide equivalent
VOC	Volatile Organic Compounds
VSD	Variable Speed Drive
W/m ² K	Watts per square meter Kelvin
WELS	Water Efficiency Labelling and Standards



EXECUTIVE SUMMARY

The Goulburn Aquatic Centre Redevelopment Stage 1 works will focus on upgrading the indoor aquatic facilities at the existing site, and replace some of the aged infrastructure. The project seeks to achieve best practice in sustainable design and construction and ensure the long-term sustainability of the centre by reducing its environmental impact throughout its service life.

Umow Lai's sustainability strategy for the Goulburn Aquatic Centre Redevelopment project has focussed on the following key areas:

- Reduced energy consumption through best practice initiatives and the investigation of the offset of energy consumption with the application of renewable energy technologies
- Reduced water consumption and the offset of non-potable water demands through the application of rainwater harvesting and reuse systems; and
- Enhanced health and wellbeing through the avoidance of materials which contribute to poor indoor air quality and the provision of higher rates of outside air.

Umow Lai has, on the basis of previous experience with best practice health and aquatic centres, consolidated sustainability initiatives on the basis of those considered pragmatic, robust and of benefit to the City of Goulburn from an operational cost perspective.

The following sustainability initiatives have been considered as 'best practice' services design, and have been incorporated within Umow Lai's services concept design:

- Photovoltaic (PV) renewable energy generation
- Energy recovery to HVAC systems and increased outside air rates to provide better indoor air quality
- Application of high-efficiency, hybrid system of heat-pump and condensing boiler technology for pool heating, HHW and DHW
- Best practice lighting and the broad application of LED technology and advanced lighting control systems
- Comprehensive sub-metering to facilitate monitoring and management of utilities; and
- Rainwater harvesting and reuse system for non-potable water applications (irrigation and pool top-up).

While certain sustainability initiatives identified may present additional capital expenditure, they will offer the Goulburn Aquatic Centre reduced energy consumption and operational costs, and reduced greenhouse gas emissions associated with the operation of the facility.

Additionally the following architectural sustainability initiatives are highly recommended for inclusion into The Goulburn Aquatic Centre Redevelopment for both energy efficiency, operational cost benefit and improved indoor environment quality:

- Enhanced building fabric insulation and glazing performance beyond minimum Section J compliance
- High water efficiency fixtures and fittings to reduce water demand; and
- Low VOC finishes and products (i.e. paints and floor coverings).



Aquatic centres are exceptionally energy, water and emissions intensive. Implementing sustainability initiatives within the Goulburn Aquatic Centre Redevelopment will measurably impact GHG emissions, water consumption and operating costs, minimising life cycle costs for the benefit of the City of Goulburn and its community.



1 INTRODUCTION

1.1 THE PROJECT

The Goulburn Aquatic Centre Redevelopment Stage 1 works will primarily focus on upgrading the indoor aquatic facilities at the existing site, and replace some aged infrastructure including entrance foyer, change rooms and staff facilities. This work will consolidate all indoor facilities within a single structure with the capacity to open some doors to the outdoors when weather conditions permit. Some external site works are also proposed to enable the aquatic centre to cater for increased numbers including expanded car and pedestrian access points.

The redevelopment design incorporates the following core provisions:

- New amenities and services block.
- Expanded car parking.
- Modern indoor fitness facilities.
- Enhanced indoor program pool provision.
- Additional indoor lap pool provision.
- Modern water play area.

The project seeks to achieve best practice in sustainable design and construction and ensure the long-term sustainability of the centre by reducing environmental impacts throughout its service life. The building serves to deliver social sustainability, fitness, health and wellbeing benefits to the community and as such these should be strongly enhanced through all aspects of the design.

1.2 REPORT AIMS

The aim of this Sustainability Report is to outline the key sustainability initiatives for the Goulburn Aquatic Centre, such that the concepts and advantages of each initiative are understood.

1.3 SCOPE LIMITATIONS

This report is not intended to be a comprehensive summary of all possible sustainability initiatives which could be incorporated into the Goulburn Aquatic Centre Redevelopment.

Umow Lai has, on the basis of previous experience with best practice health and aquatic centres, consolidated sustainability initiatives to those considered pragmatic, robust and of benefit to Goulburn Aquatic Centre from an operational cost perspective.



2 SUSTAINABILITY CONTEXT AND STRATEGY

2.1 Best Practice in Recreation and Aquatic Centres

Umow Lai has considerable experience in the design of best practice recreation and aquatic centres, with strong emphasis on sustainability performance. The following attributes are considered intrinsic to best practice in recreation and aquatic centres:

- Heat loss is minimised through highly insulated building fabric and high-performance glazing, with attention to thermal bridge detailing.
- Minimisation of heat and water loss through the installation of insulated pool covers.
- Heat recovery to mechanical services ventilation systems.
- Pumps and fans provided with Variable Speed Drives (VSDs).
- Low maintenance LED lighting technology and intelligent control systems.
- Low-emission primary energy sources to meet heating energy demands (air-to-water heat pumps and high-efficiency condensing gas boilers).
- Renewable energy resources exploited for electricity generation and hot water.
- High-efficiency pool filtration systems to minimise backwash water.
- High water efficiency amenity fixtures and fittings (i.e. high WELS star ratings).
- Non-potable water use for pool top-up and irrigation.
- High rates of outside air to pool hall spaces to reduce odours, contaminants and humidity levels.
- High levels of daylight, without excessive solar gain, through well designed glazing elements.
- Internal finishes which are low VOC to limit poor indoor air quality.
- Comprehensive sub-metering to enable monitoring and management of utility consumption.

Some of these initiatives are now considered "best practice" in modern centre design and are not specifically addressed within this report.

2.2 AQUATIC CENTRE TYPICAL ENVIRONMENTAL PERFORMANCE

Aquatic centres are exceptionally energy, water and emissions intensive. Of all building types typical within Local Government property portfolios, aquatic centres can represent as the most resource intensive per unit area.

Table 1 summarises the water, electricity, gas and overall emissions performance of two existing recreation and aquatic centres, likely to be of comparable size to the Goulburn Aquatic Centre Redevelopment. Generic performance of a standard office building is also shown for comparison.



	Aquatic Facility A	Aquatic Facility B	Generic Existing Office*
<i>Water</i> – kL/yr/m² pool area	9.95	9.87	0.97
Electricity – kWh/yr/m² GFA	431	384	294
<i>Gas</i> – GJ/yr/m² GFA	5.87	2.98	0.14
<i>Emissions</i> – kgCO ₂ e/yr/m ² GFA	613	538	384

	Table 1	Nominal Ag	uatic Centre	Utility C	Consumption
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Normalised to NLA

Incorporating sustainability initiatives into the proposed redevelopment can measurably impact environmental performance and operational costs.



3 SUSTAINABILITY INITIATIVES

3.1 ENHANCED BUILDING FABRIC AND GLAZING PERFORMANCE

Building fabric is enhanced through high-performance insulation, with attention to thermal bridge detailing, and the application of high-performance double glazing with thermally broken framing systems for windows and roof lights.

The benefits of enhanced building fabric and glazing performance include:

- peak heating & cooling loads are minimised providing HVAC system capital cost savings,
- annual energy consumption required to maintain internal conditions is minimised, providing operational cost savings,
- greenhouse gas emissions are reduced, and
- condensation on certain elements can be mitigated (e.g. glazing), providing better visual amenity.

Minimum legislated requirements for building fabric and glazing performance within the National Construction Code (Section J) do not adequately address the issues specific to aquatic centres, which include:

- relatively high internal air temperatures (approximately 28°C) must be maintained to minimise heat loss from the pools; and
- internal temperatures must be maintained on a constant basis; 24 hours a day throughout all periods of the year (excluding peak summer conditions).

The combination of these two issues is that heat loss through building fabric and glazing elements is significantly more prominent in aquatic centres than other building types.



Figure 1 High-performance insulation, glazing & thermally broken frames

Table 2 and 3 provide a summary of the minimum Section J requirements and the recommended targets for the Goulburn Aquatic Centre Redevelopment, for building fabric and glazing elements respectively.



Fabric Element	Minimum Section J NCC 2016 Requirement	Target Performance
External Walls	R _T 2.8	R _⊺ 3.5
Internal Wall*	R⊤1.8	R⊤2.5
Roof/Ceiling	R _T 3.2	R⊤4.5
Suspended Floor	R⊤2.0	R⊤2.0
Concrete Slab on Ground	Not Required	Not Proposed

Table 2 Building Fabric Total R-value Targets

*Separating conditioned from non-conditioned spaces.

	Tabl	ible 5 Glazing r enormance rargets			
motor		Mini	mum Section J NCC 2016	Target Pa	

Clazing Performance Targets

Glazing Parameter	Minimum Section J NCC 2016 Requirement	Target Performance
Glass U-value	DTS'	≤ 1.9 W/m²K
Glass SHGC	DTS*	~ 0.50
Framing System	DTS*	Thermally Broken

*Deemed-to-Satisfy performance determined using the Glazing Calculators.

Tabla 2

Section J DTS calculations will be undertaken during design development stage.

3.2 SOLAR RENEWABLE ENERGY SYSTEMS

Located in the Southern Tablelands of New South Wales and approximately 195km south-west of Sydney, Goulburn is provided with excellent solar resources by world standards.

Climate data of the site indicates that Goulburn receives eight (8) hours of daily sunshine, on average annually. Which, as can be seen in Figure 2 below, is comparable to areas of northern Queensland. Data also suggest the average number of clear days are 105 per year, with a further 141 days which are partly sunny. This accounts for close to 70% of the year.





Figure 2 Average daily sunshine hours throughout Australia

The utilisation of abundant and free solar resources can realise significant benefits for recreation and aquatic centres, reducing both operational cost and environmental impact (emissions), through the application of two primary technologies:

Solar photovoltaics (PV) for the generation of electrical power

OR

• Solar thermal collectors for the generation of thermal energy.

Given the solar resources in Goulburn and the thermal and electrical energy demands of aquatic centres, both technologies are well suited for application to the Goulburn Aquatic Centre Redevelopment.

Both solar thermal and solar PV are mature and robust technologies with significant application throughout Australia.

3.2.1 Solar PV Renewable Energy

PV renewable energy can generate emissions free electricity and offset electricity consumption associated with the Goulburn Aquatic Centre Redevelopment.

Benefits of installing PV renewable energy systems include:

- reduced operating costs through the offset of grid electricity consumption, particularly at peak tariff periods,
- reduced exposure to increases in the price of electricity (i.e. future proofing),
- an on-site generation system which is silent and largely maintenance free, consisting of components with 20 plus years of warranted serviceable operation, and
- reduced greenhouse gas emissions through the offset of emissions-intensive grid electricity.



The past 4 to 5 years has seen significant change in the photovoltaic (PV) industry with technological improvements leading to increased efficiency and significant reductions in cost due to major expansions of manufacturing capacity.



Figure 3 Photovoltaic (PV) renewable energy generation

The improved efficiencies combined with significantly reduced costs have improved the financial performance of PV systems, however their financial performance is highly sensitive to tariff prices for sites with access to the grid and National Electricity Market.

The greenhouse gas emissions benefit of PV renewable energy generation is compelling, with these system generating emissions-free electricity at the point of consumption. For those organisations with targets for reduced environmental impact, best practice design and community responsibility, PV renewable energy offers distinct advantages over other low-emission or renewable technologies.

The advantages PV renewable technology are:

- PV is a mature technology which has been extensively tested and proven, with significant installed capacity world-wide,
- prediction of energy yield from PV is reliable and accurate, providing "bankable" figures for financial modelling,
- PV is silent in operation, free of mechanical components which are susceptible to failure, and is largely maintenance free,
- PV system components have guaranteed performance warrantees for extended periods of time (i.e. 25 years on PV modules), and
- PV generates power during peak periods (i.e. daylight hours) where tariffs are (generally) most expensive.

Given aquatic centres are exceptionally energy intensive, the integration of PV presents clear advantages and the extensive available roof area of this proposal presents considerable opportunities. To offset the significant ongoing electrical consumption and peak demand of this site it is proposed that the PV array capacity is maximised. Preliminary evaluations indicate that with all of the appropriate roof areas utilised, a system size of between 200-400kW_p can be achieved and furthermore, estimations suggest minimal export of energy with a system of this size.



Umow Lai has completed a PV Renewable Energy Concept, which identifies the opportunities for integration of PV arrays into the Goulburn Aquatic Centre Redevelopment. These are for further consideration in Design Development where detailed analysis can be conducted pending feedback and budgetary considerations.

The integration of PV also aligns with our strategy for pool water heating, HHW and DHW via electric heat-pumps, where the environmental and financial benefits of the heat-pump technology (to be discussed further in this report) can be further boosted when used in tandem with PV.

Umow Lai notes that a detailed analysis of the financial and environmental performance of proposed systems will be conducted in detailed design stage.

3.3 HEAT PUMP POOL HEATING TECHNOLOGY

Heat-pumps to provide baseload operational heating to the pool water, HHW and DHW systems. Heat-pump technology for pool heating can offer advantages to the projects emissions reductions and life cycle costs, as well as utilise an energy source that can be generated on-site through PV renewable energy.

Benefits of the application of heat pump technology for Goulburn Aquatic Centre include:

- reduced exposure to increases in the wholesale price of gas (i.e. future proofing) through the use of electricity,
- utilisation of a fuel source which can be generated on-site through PV renewable energy systems, and
- improved energy efficiency compared to other generation systems.

Heat-pump technology utilises the direct expansion (DX) vapour-compression cycle to transfer thermal energy from the atmosphere to water. This cycle is exactly the same as a common air conditioner, whereby heat is transferred between the atmosphere and the air on the inside of a building.



Figure 4 Commercial heat pump systems for hot water generation

The operational efficiencies of the DX vapour-compression cycle are highly influenced by the various temperatures associated with the cycle - the "source" temperatures of the heat "sinks" (the atmosphere and the flowing water within the water circuit) and the temperature achieved through the compression cycle (which varies with different working fluids).



Heat pumps are at their most efficient where there is a large temperature differential between the heat sink being heated and the temperature of the working fluid in the cycle. As this temperature differential diminishes and the heat sink temperature approaches the temperature of the working fluid, the efficiency of the process decreases, or more energy needs to be exerted into the system to achieve the same heat transfer (i.e. kW capacity).

In practical applications of heat pumps for water heating, this results in their highest cycle efficiency (highest COP) occurring when the water temperature is low and the ambient air temperature is hot. Conversely, a heat pump for water heating will have its poorest cycle efficiency (lowest COP) when the water temperature is high and the ambient temperature is cold.

Umow Lai has conducted a high-level concept stage energy analysis for the Goulburn Aquatic Centre investigating comparing the life cycle costs and emissions reductions of heat-pumps over condensing gas boilers. This analysis found, over a period of 25 years, heat-pump technology was advantageous in this application. Some key findings were:

- Annual operational cost saving (Year 1) of \$57,300 (incl. GST); \$368,800 (incl. GST) for gas boilers compared to \$311,500 (incl. GST) for heat pumps.
- A nominal payback compared to gas boilers of around 8-9 years. This was due to the heat pump solution having a capital cost of approximately \$641,000 (incl. GST) compared to \$128,000 (incl. GST) for the gas condensing boiler. The heat-pump solution therefore represents a cost premium to the project of \$514,000 (incl. GST).
- A cumulative life cycle cost of \$13.34 million compared to gas boilers at \$16.18 million, representing a saving of \$2.84 million over the analysis period.
- Cumulative GHG emissions of 20,200 tCO₂e compared to gas boilers at 26,800 tCO₂e, representing an abatement of 6,540 tCO₂e over the analysis period. Note that this is on the basis of assumed changes to energy emissions coefficients over the period (i.e. increased renewable energy in the grid)

It should be noted that this preliminary study is highly influenced by assumptions pertaining to gas and electricity prices. To further refine this analysis, Umow Lai will require input from Council with regards to their estimates of energy price escalations (electricity and gas).

Preliminary calculations of COP versus ambient temperature were also completed and indicate a significant drop in COP during at times of weather extremities (e.g. outdoor air temperature below 0 °C), a condition that is particular relevant to the Goulburn climate. Therefore a hybrid system is proposed - i.e. the use of heat pumps in combination with gas boilers, that's will allow redundancy and ensure efficient operation of the system in various ambient conditions. Furthermore it has been determined that the greatest efficiency can be achieved when the boilers operate during the warm-up load to bring pool water temperatures and pool hall air temperatures up to operational levels, before heat-pumps subsequently maintain baseload requirements.

3.4 CONDENSING BOILER TECHNOLOGY

Boilers to be incorporated into the Hybrid system for heating to the pool water, HHW and DHW systems, which will operate during warm-up load and at times of extreme ambient conditions. Systems are "condensing" type to achieve higher thermal efficiencies and reduced gas consumption.



Benefits of the application of condenser boiler technology as a supplementary system for pool heating include:

- reduced operating costs through lower gas consumption,
- reduced exposure to increases in the wholesale price of gas (i.e. future proofing), and
- reduced greenhouse gas emissions.

As mentioned above the high-level concept stage energy analysis for the Goulburn Aquatic Centre discovered heat-pump technology to be the more efficient system for this application, notwithstanding several limitations. Therefore a hybrid system has been proposed where the advantages of gas boilers can be captured when operating to bring pool water temperatures and pool hall air temperatures up to operational level, or at times of extreme ambient conditions.

To ensure gas consumption for both pool heating and DHW heating is minimised, it is proposed that high efficiency condensing boilers be utilised. This boiler technology can achieve thermal efficiencies of up to 94%. This exceeds the performance of traditional (non-condensing) boilers which typically only achieve efficiencies of 80 to 83%.

The concept underpinning condensing boiler technology is that the HHW return is passed through the cooler combustion exhaust gas and absorbs additional thermal energy (causing the water vapour in the exhaust gas to "condense") prior to passing into the main heat exchanger. Figure 5 displays the simplified concept of a condensing boiler.



Figure 5 The concept of a condensing boiler (left) and a unit (right)

Improved thermal efficiencies of condensing boilers results in less gas consumption than conventional boilers for the same thermal output. The cost premium associated with condensing boilers is offset through reduced gas consumption.

3.5 SUB-METERING WITH CLOUD-BASED UTILITY MANAGEMENT

The installation of electricity, gas and water sub-meters (connected to BMS) and the utilisation of latest in cloud-based utility monitoring & visualisation platforms to manage energy, water and emissions of the facility.

Benefits of incorporating sub-metering with cloud-based utility management for Goulburn Aquatic Centre include:

 obtain a detailed understanding of major electricity, gas and water end-use demands within the facility,



- operational cost savings through the identification of efficiency opportunities or quick alerting of excessive consumption events, and
- achieve a high level of end-user engagement for facility management with appropriate dashboards and reporting.

The application of sub-metering has generally been limited within recreation and aquatic centres, even though a well-developed sub-metering plan can provide critical insights into a facility's utility consumption characteristics.

Even where installed, if the information obtained from the sub-meters isn't communicated appropriately to key stakeholders the information is either not used to inform facility management or is not used to its full potential.

A "cloud-based" monitoring and visualisation system is a web-hosted proprietary software system which enables live analysis and visualisation of data received from sub-meters within a facility. Sub-meter data is collated and packaged by the BMS and "pushed" (via an email or FTP site) to the cloud hosted platform. This data is then processed and visualised through dashboard interfaces specific to the facility. To access the data, the facility manager simply needs to log in to through a website and review the data via any web-enabled device. Alternatively, data reports can be generated and emailed to users on a pre-determined basis.

These proprietary cloud-based energy monitoring and management systems have emerged over the past 3 to 4 years as the industry has recognised a need for tailor made systems that facilitate energy efficiency management. Commonly energy management systems that are an extension to a building's BMS/BAS frequently fail to meet facility manager expectations and are not designed nor well suited to processing, analysing and visualising energy data to produce engaging and powerful displays and reports, critical to an effective energy management system.



Figure 6 Example of utility "dashboards" available from cloud-based platforms



Advantages of a cloud-based energy monitoring and visualisation over traditional systems include:

- data visualisations and reports can be tailored to suit the exact needs of the particular facility and client. These systems can permit visualisations to be developed for different target audiences. Dashboards can be developed for specific systems within the building,
- usage and event notifications can be set up to provide automated alarms or warnings of excessive consumption,
- effective communication of building performance through engaging and user-friendly dashboards, to track and interpret trends or apply benchmarking tools,
- ability to overlay additional information on to the sub-meter data to better interpret consumption trends. These systems can easily access publicly available data from the BoM and plot temperature, humidity or solar radiation against sub-meter data,
- data can be processed and visualised down to 15min intervals. This is light years ahead of waiting for monthly bills etc. to track performance, and
- most BMS systems will be limited in their capacity to store historical data. Cloud-based systems are unlimited in their ability to securely store data and there is almost no risk of data being lost.

Costs associated with sub-metering and cloud-based monitoring and visualisation platforms are generally comprised of:

- initial implementation costs associated with sub-meters, communications hardware and account initiation, and
- annual subscription costs associated with the software service and data storage. These
 costs are usually indexed to the number of data points monitored within a facility.

3.6 Additional sustainability Initiatives

The following sustainability initiatives are now generally considered standard practice within modern recreation and aquatic centres.

3.6.1 Pool Hall Heat Recovery

Pool halls are typically provided with high rates of outside air (typically 100% outside air systems) to passively manage humidity levels and mitigate thermal discomfort and condensation issues.

An "100% outside air system" means that the air supplied to a space to achieve heating or cooling consists completely of fresh air drawn from outside. This is then heated or cooled to the desired temperature, passed into the pool hall and then exhausted to outside. Whilst providing excellent indoor air quality, 100% outside air systems result in significant ventilation energy consumption.

For example, in peak heating conditions air drawn from outside to be provided to the pool hall must be heated from -1.9°C (the winter design temperature) to in excess of 30°C to maintain an internal temperature of 28°C. However, the same rate of outside air which is provided into the pool hall must be exhausted from the pool hall (spill air), resulting in 28°C air being exhausted to outside. However, with heat recovery, the incoming air is warmed by the exhaust air as they both pass through a air-to-air heat exchanger.

The benefit of pool hall heat recovery include:


- high outside air rates can be provide to achieve excellent levels of indoor air quality without significant energy penalty,
- lower operational costs through reduced energy consumption, and
- reduced greenhouse gas emissions.

Figure 7 provides a diagrammatic explanation of heat recovery within a pool hall.



Figure 7 Pool hall heat recovery concept (right, in heating mode)

3.6.2 Water Efficient Fixtures & Fittings

The potable water demands of aquatic centres associated with amenities and showers is significant. These can be minimised through the application of highly water efficient fixtures and fittings.

The advantage of the incorporation of water efficient fixtures & fittings includes

- Reduced potable & non-potable water consumption and operational cost
- Reduced energy consumption and operational cost for domestic hot water consumption
- Better utilisation of rainwater harvest systems (where supplied to fixtures & fittings)





Figure 8 WELS label - a mark of efficiency

3.6.3 Non-Potable Water Reuse Systems

Rain water harvesting and reuse systems are an effective means of minimising the consumption of potable water. Rainwater can be collected from a number of hard surfaces and reused in a variety of ways. However there are ordinarily limited benefits to complex systems which do not justify the time required to design such systems or the infrastructure required to implement them.

As such, we are proposing the Goulburn Aquatic Centre Redevelopment implement a simple and suitably sized system, which collects water from selected roof planes and is used for irrigation and pool top up. Full system details will be worked through during design development.

3.6.4 LED Lighting

LED technology has matured such that for almost all lighting applications, an LED product exists which offers life cycle cost advantages over older technology alternatives.

The advantages of the incorporation of LED include:

- reduced peak electrical demand associated with lighting energy,
- reduced annual energy consumption and operational costs through efficient lamp technology,
- reduced operational costs associated with lamp replacement maintenance, and
- reduced greenhouse gas emissions associate with grid electricity consumption.

It is proposed that new lighting will be LED.

3.6.5 Low VOC Finishes & Materials

The term Volatile Organic Compounds (VOCs) is use to describe the several hundred organic chemicals which have a boiling point range falling below 250°C, and consist primarily of petrochemical solvents compounds. VOCs are emitted from fitout materials and are detrimental to occupant health and wellbeing.

The health effects of VOCs are known as 'sick building syndrome' with effects including eye, nose and skin irritation, headaches and lethargy. Young children, the elderly, people with respiratory problems (such as asthma) and people with heightened sensitivity to chemicals may be more at risk from VOCs

The advantages of the incorporation of low VOC finishes are to enhanced indoor air quality and the provision of spaces which are conducive to health & wellbeing.



4 **CONCLUSION**

Umow Lai has, on the basis of previous experience with best practice health & aquatic centres, consolidated sustainability initiatives for consideration in the Goulburn Aquatic Centre Redevelopment. These will be further considered during detailed design.

The sustainability initiatives identified were considered robust, pragmatic and deemed appropriate for a facility of this nature.



20/2/2019 / Goulburn Aquatic Centre Redevelopment

Traffic Impact Assessment





CREATING CERTAINTY.

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1. Introduction

1.1 Background

Ontoit were engaged by dwp Architects to undertake a comprehensive review of the existing and future transportation needs for the Goulburn Aquatic Centre (GAC) as part of the redevelopment proposals. At present the aquatic facility has a six-lane indoor 25m pool and a six-lane outdoor 50m pool which is open during the summer period only. The proposal is to redevelop this facility with a number upgraded and new facilities.

This traffic and parking assessment will inform planning for the redevelopment of the GAC. The purpose of the study is to examine the operation of the existing traffic network and parking arrangements and to assess the traffic and parking impacts arising from the redeveloped GAC facility. The study has assessed existing and future traffic conditions to ensure the transport infrastructure has sufficient capacity to support future development.

This report presents the analysis and results that have been undertaken as part of the Traffic Impact Assessment and will support the Development Application for the proposed redevelopment of the aquatic facility. The assessment of traffic and parking impacts generated by the proposed development has been based on the following information and guidelines:

- Proposed redevelopment plans and designs provided by dwp Architects;
- The NSW Roads and Maritime (RMS) Guide to Traffic Generating Developments (Version 2.2, October 2002);
- The Goulburn Mulwaree Council Development Control Plan 2009 (amended in 2016); and
- Review of existing traffic and parking conditions on the surrounding road network.

1.2 Site Context

The existing GAC facility is an important regional and local community facility providing for a number of facilities including:

- A heated indoor six lane 25m pool which includes a baby and toddler section;
- A seasonal outdoor six lane 50m pool;
- A seasonal toddler and baby pool;
- Basketball and handball courts; and
- A Health and Fitness Centre which includes personal and group training facilities.

The facility also offers a range of local services in the form of activities and supporting infrastructure, including:

- Toilets/Hot showers;
- Disabled access and amenities;
- Disabled aqua wheel chair;
- Sheltered playground;
- Manicured grassy areas for reclining;
- Picnic grounds with shelters, tables and chairs;
- Aquarobics;
- Learn to swim (Austswim Accr);
- Fitness Classes circuits, boxing, squad;
- Pool and lane hire;



- Beach volleyball area;
- Half-court basketball area;
- Hand ball court area;
- Goulburn Amateur Swimming Club;
- Triathlon/Aquathon; and
- RLSSA bronze/water rescue accreditation training.

Located to the north western edge of Goulburn City Centre (see figure 1) the site is located approximately 1.2km from the City Centre (Auburn Street) and is an integral feature of Victoria Park.



Figure 1 GAC location in Goulburn Regional City

1.3 Report Structure

This report provides advice and analysis on the potential future traffic and transport conditions that will result from the redevelopment of the GAC. The report has been structured as follows:

- Chapter 2 Existing Situation this section provides an overview of the current traffic and transport conditions in the vicinity of the GAC;
- Chapter 3 The Development Proposal this section provides an overview of the redevelopment proposal and associated transport and traffic infrastructure;
- Chapter 4 Future Traffic Conditions this section provides an overview of the likely impacts to the transport and traffic network as a result of the redevelopment; and
- Chapter 5 Summary and Conclusion this section summarises the analysis and key conclusions / recommendations of the study.



2. Existing Conditions

A comprehensive review of the transport and traffic network in the vicinity has been undertaken to establish a baseline of conditions. This section outlines and summarises the findings from this review.

2.1 Road Network

The GAC is located in Victoria Park (as illustrated in **Figure 2)** on the north western boundary which is bounded by:

- Deccan Street on the north west;
- Verner Street to the south west;
- Faithfull Street in the south east; and
- Clifford Street in the north east.



Figure 2 Victoria Park Aerial Image sourced from NSW Six Maps

All four roads around Victoria Park are currently classified as local roads with local road characteristics such as:

- Single traffic lanes in each direction;
- Regular property and commercial development accesses directly off the roads;
- Posted speeds 50kph; and
- Regular unsignalised intersections.



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Based on these characteristics the existing roadway capacities of these local roads would be approximately 600-900 vehicles per hour, per lane.

The existing GAC facility is accessed directly off Deccan Street via two access points to a purpose built off street car parks located directly in front of the facility. Regionally, the facility is accessible via a number of RMS State and Regional Roads as illustrated in **Figure 3**.



Figure 3 RMS NSW Regional Road Map

The existing facilities are located approximately 4km from the Hume Highway which is a critical arterial road link to the broader Southern Tablelands area of NSW. Links to the regional areas north of Goulburn are via Crookwell Road and Taralga Road which both provide direct links to the existing GAC facility through linking to the local roads such as Fitzroy Street, Goldsmith Street and Lagoon Street.



2.1.1 Vehicle Volumes

Goulburn Mulwaree Council (GMC) provided a range of traffic volume data for Deccan Street to inform the baseline data for the traffic impact assessment. The initial traffic data provided was collected over a six-week period by GMC in June and July of 2015. **Figure 4** and **Figure 5** illustrate the data captured over this period. Key conclusions from this data include:

- Southbound is the predominant flow with 84,817 vehicles captured over the survey period which equates to approximately 2,800 vehicles daily southbound;
- Northbound traffic volumes over the same period were 41,445 which equates to approximately 1,380 daily;
- Peak demand in both directions is on a Tuesday with approximately 18,000 vehicles captured southbound and 9,000 northbound which is approximately 4,500 vehicles daily along the corridor;
- The average speed in both directions was below the posted speed limit of 50kph at 47kph; and
- The 85th percentile speed in both directions was above the posted speed limit at 56kph northbound and 57kph southbound.



Figure 4 Deccan Street southbound





Figure 5 Deccan Street northbound

To further understand the traffic conditions along Deccan Street, Ontoit requested that further data was collected by GMC to provide a snapshot of traffic condition changes along Deccan Street between 2015 and 2018. GMC commissioned further surveys between Wednesday 24th of January 2018 and Monday 12th of February a 20-day period. The survey was scheduled to avoid the school holiday period and capture typical weekday traffic to inform the traffic impact assessment.

						Class								
	SV	SVT	TB2	TB3	т4	ART3	ART4	ART5	ART6	BD	DRT	TRT	Tota	ıl
km/h	1	2	3	4	5	6	7	8	9	10	11	12		
10- 20	97		4		2	2							105	0.1%
20- 30	397	5	19	1	2		1	3	1	1			430	0.5%
30-40	3252	86	197	46	8	4	34	9	8	16	2		3662	4.3%
40-50	32707	843	1745	191	53	37	106	79	109	54	6		35930	42.4%
50- 60	36318	812	1618	121	31	44	47	34	47	18	2		39092	46.1%
60-70	4821	89	238	1	4	7	2		4	3			5169	6.1%
70-80	322	6	23	1	3								355	0.4%
80-90	45		3		5				1				54	0.1%
90-100			2		1								3	0.0%
100-110	2												2	0.0%
110-120													0	0.0%
120-130													0	0.0%
130-140													0	0.0%
140-150	1		2										3	0.0%
150-160													0	0.0%
1													l i i i i i i i i i i i i i i i i i i i	
Total	77962	1841	3851	361	109	94	190	125	170	92	10	0	84805	
1	91.9%	2.2%	4.5%	0.4%	0.1%	0.1%	0.2%	0.1%	0.2%	0.1%	0.0%	0.0%	l i i i i i i i i i i i i i i i i i i i	
													AADT 446	53

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Figure 6 2018 Traffic Volume and Speed Survey Data

Traffic Impact Assessment

Key observations between the 2015 and 2018 survey include:

- Average daily traffic volumes remained consistent at approximately 4,500 vehicles a day;
- 88.5% of vehicles travelling along the corridor were travelling at 60kph or less;
- 6.6% of vehicles travelling along the corridor travelled at 60kph or more; and
- 1% of vehicles travelling along the corridor are Heavy Goods Vehicles.

The key conclusion from the existing data collection is that there has been little or no change in traffic conditions between 2015 and 2018.

2.1.2 RMS Proposals

GMC advised Ontoit that they are currently in discussions with RMS around the classification of Deccan Street. The current proposal is to reclassify Deccan Street from a Local Street to a RMS State Road as outlined in Figure 7.



Figure 7 Proposed reclassification of Deccan Street

As such, in undertaking this traffic impact assessment we have ensured that all proposal conform with RMS requirements and guidelines for accessing State Roads.

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2.2 Access

Existing access to the GAC facility is via two entry points off Deccan Street into two dedicated offstreet parking facilities. There is a single entry and single exit to both car parks and they currently operate, from a traffic circulation perspective, independently of each other. There is currently no vehicular access between the two car parks. Both car parks operate as a one way in and out. There is currently no dedicated pick up and drop off location.

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2.3 Parking

A site visit was completed on Sunday 21st of January 2018 to observe the parking conditions and utilisation. Both off street and on-street conditions were observed and at the time of visit were significantly underutilised. The survey was undertaken during the school holiday period on a particularly hot day in the anticipation of higher utilisation numbers, however, as demonstrated below this was not reflected in reality. Pictures of the car park utilisation were captured at 12pm and again at 3pm to observe utilisation throughout a weekend day with very hot weather conditions.

Figure 8 illustrates that the off-street car park utilisation at 12pm on the Sunday was approximately 20-30% with a further 3-4 vehicles observed parked on street. **Figure 9** illustrates the car park utilisation increased significantly to 60-70% however the on-street car parking was still heavily underutilised with only 2 vehicles observed on street.









Figure 9 Existing car park facilities and utilisation at 3pm Sunday 21st of January 2018

In addition, a review of the on-street parking conditions was undertaken on road corridors adjacent to the facility. There is a significant amount of on-street parking available within a 400m walking distance of the facility. Parking is currently available along:

- Deccan Street either parallel or 90-degree parking both sides of the corridor;
- Verner Street either 90-degree or parallel on the south and parallel on the north side of the road; and
- Clifford Street 90-degree or angled parking on both sides of the corridor.

It is estimated that there is approximately 400-500 on street parking spaces within a 400-500m walk of the existing facility. A further Site Visit was completed post the completion of the Traffic Impact Assessment and post the opening of the new Adventure Playground within Victoria Park, please refer to <u>Attachment 1</u> for details.

It is also noted that during a typical weekday, Ontoit has been advised that parking availability along Clifford Street is limited due to the Hospital and School facilities which induce a significant demand. During weekends and particularly during local events in the park and pool, it has also been brought to our attention that parking is limited along Verner Street. It is important to note the survey undertaken as part of this exercise was focused on a single day and it is acknowledged that transport and parking conditions will change daily on the adjacent road network.

2.4 Active Travel

Existing bicycle parking is available at the entrance to the facility however during the site visit no utilisation of these facilities were observed (see **Figure 10**). Deccan Street has pedestrian paths on both sides of the road corridor which are approximately 1.2m in width. Whilst the pedestrian paths adjacent to the GAC facility have some shade from the existing tree canopy, it would be worth considering further tree plantings to increase shade cover to improve walking conditions during the warmer periods of the year (see **Figure 11**). No on road cycle provisions are provided and due to the on-street parking there is an inherent conflict between vehicular movements and cyclists.



Figure 10 Existing bicycle parking



Figure 11

Existing pedestrian paths along Deccan Street

2.5 Public Transport

There are currently no regular public transport routes that service Deccan Street. The nearest bus stops to the GAC facility include:

- Deccan Street/Clinton Street located approximately 450m from the facility; and
- Goldsmith Street adjacent to Goulburn Hospital Entrance located approximately 650m from the facility.

Both stops are serviced by regular buses during Monday to Friday and on Saturdays. Neither stops are serviced on Sundays nor Public Holidays. The Deccan Street / Clinton Street stop is serviced by bus service number 823 operated by PBC Goulburn which provide:

- An hourly service Monday to Friday between 8:30am and 5:30pm; and
- An hourly service on Saturday between 9am and 3pm.

The 823 services currently connect West Goulburn to Goulburn Town Centre. The Goldsmith Street stop is serviced by bus service 821a, 821b and 824 which provide:

- An 80-minute service during Monday to Friday between 9am and 5:30pm (821a and 821b);
- An hourly service on Saturday between 9am and 3pm (821a and 821b);
- Three inbound services (two in the AM and 1 PM) by service 824; and



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The 823 service connects the north east area of Goulburn (Kenmore, Bradfordville, North Goulburn, Crestwood and Ifield) to the City Centre whilst 824 connects Crestwood to the City Centre. Figure 12, Figure 13 and Figure 14 illustrate the route maps for bus services 824, 823 and 821a and 821b.

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It is noted that there is a bus stop located on the corner of Deccan Street and Verner Street which does not appear to be serviced by a regular bus at present.



Figure 12 Service map for 824

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Figure 13 Service map for 823





Figure 14 Service map for 821a and 821b



3. Proposed Development

GMC commissioned dwp Architects to undertake an investigative study and preparation of the design documentation for the redevelopment of the GAC facility. In undertaking this exercise, the objective was to provide a modern contemporary facility that fulfilled the needs of the Goulburn City community and the surrounding Southern Tablelands Region. This section provides an overview of the proposed redeveloped facility and potential demand.

3.1 New Facilities

The original proposal from GMC was to undertake a staged development which would have seen an incremental redevelopment of the facility. The Council has now provided direction to progress the whole redevelopment proposals to maximise the benefits to the local and surround regional community. As such, the proposal is now to provide:

- Expanded Admin Facilities;
- Enhanced parking and access;
- A new creche;
- New casual meeting spaces;
- Expanded office space;
- Enhanced outdoor playground;
- New reception area and kiosk;
- New retail space;
- A new indoor pool with supporting concourse;
- Refurbished existing indoor pool;
- New sauna and steam room;
- A new warm water pool;
- A new café;
- Expanded parking and enhanced access arrangements;
- A new outdoor water play area;
- Enhanced outdoor pool area;
- An enhanced 50m pool;
- A new outdoor concourse to the 50m pool;
- A new Gymnasium and assessment rooms;
- Group exercise rooms; and
- Dry changing rooms.

An overview of the proposed redeveloped facility is provided in Figure 15.



Figure 15 Proposed redevelopment facility

3.2 Future demand

In consultation with the design team, Ontoit was provided with both the existing and future demands for the proposed facility. We understand that the existing patronage figures are as follows:

- 2013-14: approx. 60,000 annual visits
- 2014-15: approx. 53,000 annual visits

Ontoit were advised that the redevelopment will increase patronage significantly with an approximate 10-year average of 228,000 annual visitations.

Based on these figures peak patronage has been forecasted to be around 200 people (excluding major events such as school carnivals). In addition, hot weather or on public holiday weekends may result in an increased patronage up to 300-350 during peak periods, this however would be considered unusual and infrequent.

These figures will be used later in the study when analysing the future transport and traffic impact as a result of the redevelopment proposal.



3.3 Habitable Areas

For the purpose of the traffic impact assessment, dwp Architects have provided a schedule of habitable areas which will be used to determine future demand and access for the facility later in this report. For the purpose of the assessment, habitable area is defined as an area within the facility that would be utilised by a visitor or user and would therefore generate additional demand for the facility. Unlike other recreational facilities, aquatic facilities require large areas within the facility to accommodate building services such as plant and utility services that will unlikely induce additional demand for the facility once redeveloped. These areas have therefore been excluded from the total areas below.

Facility	Area (m²)
ENTRY	18.6
DISPLAY	29.0
FOYER	133.9
RECEPTION	37.8
CRECHE	77.4
CRECHE OFFICE	8.3
CRECHE WC	10.3
DRY FEMALE CHANGE	25.9
DRY MALE CHANGE	27.6
DRY ACC. WC	8.7
ADMIN	59.3
OFFICE	9.4
GYM	298.7
GROUP EXERCISE 1 & 2	285.1
GYM RECEPTION	8.9
ASSESSMENT	7.3
AQUATIC FEMALE CHANGE	58.8
AQUATIC MALE CHANGE	58.7
AQUATIC ACC WC	9.2
Family Change Rooms	9.7
PROGRAM/ REFURBISHED POOL	347.8
WARM WATER POOL	180.6
STEAM ROOM	17.7
WARM POOL CONCOURSE	264.1
WARM POOL ACC. WC	9
CHANGING PLACES	14.9

 Table 1
 Habitable areas of the redeveloped facility





TOTAL	5972.2			
OUTDOOR 50M ACC. WC	8.0			
OUTDOOR 50M MALE CHANGE	61.6			
OUTDOOR 50M FEMALE CHANGE	87.9			
OUTDOOR 50M CONCOURSE	1081.0			
OUTDOOR 50M POOL	1155.4			
CAFE ACC. WC	7.3			
CAFE WC	2.8			
CAFE	131.6			
SWIM CLUB	104.1			
FIRST AID	18.7			
25M POOL CONCOURSE	443.3			
INDOOR 25 POOL - 8 LANE	698.5			
LEISURE POOL	136.5			
STEAM	9.4			
SAUNA	9.4			

4. Traffic and Parking Generation

4.1 **Traffic Generation**

The Roads and Maritime Services 'Guide to Traffic Generating Development' does not outline specific trip generation rates for a swimming recreation facility. As such we have utilised two methodologies to assess the potential traffic generation rates:

- Patronage figures utilising peak demand number; and
- Institute of Transportation Engineers (ITE) Trip Generation Manual from the USA. _

4.1.1 Patronage

Utilising the existing and forecasted patronage demand figures we are able to estimate existing and future trip generation figures for the facility. To undertake this analysis, we have assumed that there is an average occupancy of 1.25 persons per vehicle attending the facilities. Table 1 illustrates the estimated vehicular trips for the existing facility and future proposed facilities.

Scenario	Yearly Patronage	Daily Patronage	Peak Patronage*	Estimate peak period vehicular trips
Existing	60,000	165	50	40
Future	228,000	628	200	160

Talala O Estimate vehicular trip generation for the Goulburn Aquatic Centre based on Patronage numbers

*Peak patronage does not represent major events or 'hot' days which would be considered unusual

Utilising the patronage data provided by dwp Architects it is estimated that the new facilities could generate up to 120 additional vehicular trips during the 'Peak Period'. We can also estimate the daily vehicle numbers based on the forecast daily patronage numbers which would result in an additional 500 vehicles a day along Deccan Street.

4.1.2 ITE Manual

The ITE Manual for Trip Generation in the USA outlines a range of trip generation rates for various land uses across the USA. Often this manual is referred to in Australia, specifically the RMS 'Guide to Traffic Generating Development' refers to this manual where trip generation rates for some land uses has not been specified. Utilising this manual and specifically the trip rates for 'Recreational Community Centre' we have calculated the trip rates for the existing and proposed facilities as displayed in Table 3.

Scenario	GFA*	Peak Trip rate per 100m ² GFA	Estimate peak period vehicular trips
Existing	2300	2.89	67
Future	5972.2	2.89	173

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* for the purpose of this analysis the GFA represents the habitable GFA of the facility



Utilising the ITE trip generation manual It is estimated that the new facilities could generate up to 106 additional vehicular trips during the 'Peak Period'. Utilising the ratio of the peak hour volume vs daily total vehicle volume presented in section 4.1.1, where the peak volume represents 24% of the daily value, we can estimate the daily volume based on the ITE manual to be an additional 454 vehicles along Deccan Street.

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4.1.3 Summary

Section 4.1.1 and 4.1.2 present two methodologies to calculate the future traffic demand for the proposed GAC facility. Key conclusions from this exercise include:

- The calculation for the existing facility demand utilising methodologies result in identical trip generation numbers;
- Utilising the ITE Trip Generation Manual methodology there is a difference of 13 additional vehicles forecasted for the peak hour; and
- Utilising the ITE Trip Generation Manual methodology there is a difference of 54 additional vehicles forecasted for the total daily volume.

In undertaking this analysis both methodologies present very similar results. For the purpose of the traffic assessment presented in Section 6 we will utilise the higher rates to assess a 'worse case' scenario.

4.2 Parking Generation

4.2.1 Development Control Plan Parking Rates

The Goulburn and Mulwaree Council Development Control Plan (DCP) outlines the parking requirements for any proposed development within the Regional Council area. For recreational facilities the DCP stipulates a parking requirement of 1 space for 40m² GFA for recreational uses not listed specifically within the DCP. Aquatic facilities are not specifically listed within the DCP and therefore the rate of 1 space per 40m² of GFA is applicable. Given aquatic facilities have large areas of inaccessible spaces we have applied a rate of 1 space per 40m² of habitable space to generate traffic and parking requirements for the facility.

Habitable floor area has been used as opposed to GFA as aquatic facilities generally have large areas contained within the facility that are inaccessible to users / visitors for areas such as building serves and plant. These areas do not induce demand for the facility and therefore habitable space was adopted for the calculation of parking requirements. The proposed total habitable area for the redevelopment is 5,972.2m² which would result in a requirement of 149 spaces, of which 3% would be allocated for disables access.

The current proposal for the redevelopment includes provision for 160 off street parking spaces of which 6 are allocated as disabled access spaces which meets the requirements of the DCP. In addition to the off-street parking, the development proposes 31 on street parking spaces along Deccan Street directly outside the aquatic facility. Utilising both the off street and on street parking spaces the facility provides sufficient parking to support the proposed upgrade to the aquatic facility.

If the parking demand was calculated on the GFA we would require a further 60 spaces above the 149 identified above, which would be a total parking demand of 209 spaces. If this methodology is applied the facility would fall short of the parking requirements by 18 spaces. In applying this methodology, we would also be using 2,397m² of building floor space which is inaccessible to the general public to generate parking demand for the facility. It is recommended that this methodology would not be a fair and reasonable calculation of the demand for parking generated by the redevelopment.



To ensure the parking generation rate is accurate and because an aquatic facility is not specifically identified within the DCP, Ontoit undertook a comparison of similar facilities and a review of the ACT Government's Parking and Vehicular Access General Code. The results of this analysis are presented below.

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4.2.2 ACT Government Parking and Vehicular Access General Code (PVAGC)

In reviewing the ACT Government's PVAGC code similar to the GMC DCP there is no specific criteria for an Aquatic Recreational Facility. The PVAGC states that aquatic facilities are subject to individual assessment in terms of parking requirements. The PVAGC however does stipulate requirements for swimming pools and provides a range of guidance on swimming pool facilities depending on location as illustrated in Table 4.

Development	City / Town / Group and Local Centres	Mixed Use Zone	Recreational Zone	Industrial Zone
Swimming Pool	5 spaces per	15 spaces per	20 spaces per	10 Spaces per
	100m ² of actual	100m ² of actual	100m ² of actual	100m ² of actual
	pool area	pool area	pool area	pool area

 Table 4
 PVAGC parking requirements for swimming pools

Whilst the numbers and ratios are somewhat dependent on the location of the facility, the methodology and application are consistent in that parking generation numbers are determined based on pool area. As such, we have reviewed the existing pool area and assessed against existing parking number to determine a ratio which can then be applied to the redeveloped facilities. The results of this analysis are as follows:

- Existing Pool:
 - > Estimated Existing Pool Area = 1540
 - > Existing Off-Street Parking Spaces = 58
 - > Parking Ration = 1540/100 = 15.4, 58/15.4 = **3.8 per 100m² of actual pool area**
- Redeveloped facility:
 - > Proposed Pool Area = **2382.3**
 - > Required parking provision utilising pool area methodology = 23.823*3.8 = 90 spaces

It is important to acknowledge in utilising this methodology we have only determined the parking provision required for the pool facilities. Nonetheless, this methodology would confirm we are providing a total parking provision above the required amounts within the PVAGC.

4.2.3 Pool Parking Comparison

To further confirm the proposed parking provision, Ontoit undertook a review of similar facilities located in the ACT and NSW. The results of this analysis are presented below:

- Gungahlin Aquatic Centre:
 - > Approximately 2000m² of pool area;
 - > 75 dedicated off-street parking spaces; and
 - > Approximate rate 4 cars 100m² of actual pool area.
- Tuggeranong Aquatic Centre:
 - > Approximately 2000m² of pool area;



- > 100 dedicated off-street parking spaces; and
- > Approximate rate 5 cars 100m² of actual pool area.
- Queanbeyan Aquatic Centre:
 - > Approximately 1450m² of pool area;
 - > 80 dedicated off-street parking spaces; and
 - > Approximate rate 5.5 cars 100m² of actual pool area.

The facilities above provide a snapshot of parking provisions for similar sized aquatic facilities within the ACT / NSW region. Utilising the average ratio of 5 cars 100m² of actual pool area this would result in a requirement to provide 122 off street parking provision. It is once again important to acknowledge that utilising this methodology we have only determined the parking provision required for the pool facilities. We are however proposing parking provision well above the provision required utilising this methodology.

5. Transport and Traffic Impact Assessment

5.1 Future Road Capacity

As noted in Section 3 of this report the existing capacity of Deccan Street would be between 1200-1800 vehicles per hour (600-900 per lane). Currently Deccan Street has an average daily traffic volume of 4,500 vehicles. This would equate to approximately 450 vehicles travelling along the corridor in the peak hour.

The traffic generation analysis demonstrates that the additional proposed redeveloped facilities at the GAC are likely to generate an additional 133 peak hour vehicular trips which would result in approximately 583 vehicles travelling along Deccan Street during the peak hour. Even with the additional vehicles as a result of the proposed development the corridor will continue to operate well within capacity.

It is highly likely that the peak hour use of the facility will not coincide with the peak hour for travel along Deccan Street, however for the purpose of our analysis and to demonstrate the road corridor will continue to operate within capacity we have assessed the 'worst case' scenario.

It is therefore concluded that the estimated additional 133 vehicles in the peak period and 554 vehicles a day would not impact on the capacity and operation of Deccan Street and the adjacent road and intersection network.

5.2 Access Arrangements

The proposed access arrangement for the new facility are very similar to the existing GAC access points. The current proposals include:

- For the western car park:
 - > A single point of entry at the same location as the existing facility entrance; and
 - > A new single point of egress which is further west than the existing exit and located approximately 20m to the north from the Deccan Street / Verner Street intersection.



Figure 16 Proposed western car park access arrangements

- For the eastern car park:
 - > A new single point of entry which is located approximately 20m to the east of the existing entry point; and







> Two exits that both utilise the existing entry point and existing exit point.

Figure 17 Proposed eastern car park access arrangements

The proposed access points to both car parks allow for all movements into the car park. For exit points the following recommendations are made:

- The western parking exit should be left out only this exit is located in close proximity to the Deccan Street / Verner Street intersection. To minimise conflicting movements and ensure the safety of road users it is proposed that this exit is a left out only;
- Eastern car park:
 - > Exit to the west of the disabled parking to minimise conflict between vehicles entering and exiting the facility consideration should be given to this exit being left turn only; and
 - > Exit to the east of the disabled parking this exit can provide for all movements.

In addition to the car park access roads there is a proposed access road to the rear of the facility. The civil designers have advised that 'the proposed access roads are modelled to enable truck access for chemical deliveries and aquatic maintenance along the west facing elevation of proposed building, following a grade of 1 in 12 typically to access the semi basement plant room'

5.2.1 Sight Distances

The Australian Standards 'AS/NZS 2890.1:2004 Parking Facilities Part 1: off street car parking' provides the requirements for access and egress sight distance for off-street parking facilities. As stipulated by the guidelines 'access driveways need to be located and constructed so that there is adequate entering sight distance to traffic on the frontage road'. Figure 18 provides a diagram of the requirements as per AS 2890.1:2004.





Figure 18 Site distance requirements at access driveways extracted from AS 2890.1:2004

The posted speed limit along Deccan Street is 50kph, as such there is a desirable sight distance requirement of 69m from the proposed access driveway. On reviewing the proposed access and egress arrangements, there is clear line of sight between the proposed new exit locations and the main carriageways on Deccan Street. The proposed limitations on exit movements from both car parking facility will also assist in mitigation of any risks of vehicle colliding on Deccan Street.

5.3 Parking Impacts

5.3.1 Layout Design

Ontoit have sought advice on the parking layout design from the civil designer who have provided the following advice:



The civils concept is developed to include 161 (total) carparking spaces which includes for 4 disabled parking bays. The proposed carparking is accessed off Deccan Street with a total of 5 No. cross overs connecting to the road. The carparking is set out in accordance with AS2890.1 based on two rows of 90-degree parking for User Class 2 conditions in accordance with Table 1.1. The minimum aisle width between parking bays is set as 5.8m. Levels have been set to fall away from the proposed entry building and away from the Gymnasium.

Carparking grades are set to follow the fall of the existing site contours based on a maximum grade of 1 in 40. The eastern carpark generally follows the fall of the existing road which is approximately 1 in 60 with cross falls at generally 1 in 42. This requires a tapering build up from existing site contour levels along the southern facing carpark boundary from approximately 600 mm build up to 1.4 m build up at the south east corner. GIP's will be running parallel within the site boundary along the public footpath boundary with below ground stormwater drains falling to a discharge point further along Deccan Street to the east.

The western carpark also follows the fall of the existing site contours with a varying grade of 1 in 100 to 1 in 40 falls towards the west. The graded levels adjacent to public footpath along this length of carpark requires varying depths of cut with a maximum retained height of approx. 1.2 m. The southern boundary requires filling to maintain the proposed carparking to the far western corner and achieve a compliant exit ramp grade of approximately 1 in 15. GIP's are located along the southern facing boundary to western carpark to minimise the extent of cut and fill with a discharge point to Verner Street.

Stormwater discharges from the carparking to adjoining streets will be captured and detained within the confines of the proposed site boundary, to restrict flows to meet pre-development 1 in 20-year ARI for a 5-minute duration.

5.3.2 Parking Provision and Utilisation

The proposed off-street parking provision is slightly below the requirements of the GMC DCP but exceeds the provisions determined through alternative methodologies (as presented in Section 4). The formalisation of parking facilities on Deccan Street allows the facility to provide sufficient parking in accordance with the GMC DCP through an additional 31 spaces. A further review of the aquatic facilities within the region also demonstrated that the parking provision proposed seem more than adequate to support the proposed facilities.

It is anticipated that there is sufficient parking provision on site and along Deccan Street to accommodate the day to day peak visitor demand periods. It is however acknowledged that there are likely to be periods when parking demand may exceed the proposed parking provisions. These periods are likely to be infrequent, unusual and will include events such as:

- School carnivals;
- Local events; and
- Extremely hot days.

During such times, the review of the existing situation (Section 3) highlighted that could be potential overflow parking through the on street parking provisions within an acceptable walking distance (400-500m) of the GAC facility. During 'event mode', it is highly recommended that consideration be given (in advance) of the local area traffic management and parking controls to control the impact of the 'overspill' of parking into adjacent side streets.

Please refer to <u>Attachment 1</u> for further details on how the recent opening of the new Adventure Playground facility in Victoria Park has impacted on the parking availability along Verner Street. Despite these impacts, on-street parking remains available within a short distance from the aquatic facility which could be utilised to accommodate overflow parking.



5.4 Public Transport Impacts

Based on the current road network capacity outlined in Section 6.1, public transport is unlikely to be impacted by the traffic generation associated with the proposed facility. It is however recommended that GMC give consideration to the potential to service the new facility with a public transport corridor. In providing a public transport service / route to the new facility this will decrease the demand for private vehicle access to the facility and provide patrons with alternative means of access.

Following discussions with GMC, a new dedicated bus zone is proposed directly outside the aquatic facility as illustrated in **Figure 19**.



Figure 19 Location of Bus Zone

5.5 Pedestrian and Cycle Impacts

No impacts are anticipated on pedestrian and cycle access to the facility. As part of the redevelopment proposals, enhanced cycle parking facilities and capacities have been included both at the access to the development and the rear of the facility through the inclusion of 16 bicycle loops. These facilities will allow patrons to access the facility on a bike with dedicated parking facilities whilst using the facility.

5.6 Waste Vehicle Access and Collection

Ontoit were provided with the proposed waste vehicle access and collection facility as illustrated in Figure 20, 21 and 22.





Figure 20 Waste access road





Figure 21 Waste collection bay, access road and turning circle







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Figure 22 Waste collection bay, access road and turning circle

The design illustrates that the waste vehicle will be able to the site and access the collection bay in a forward's direction minimising reversing movements. A purpose built turning bay located at the rear of the Aquatic Centre will confine reversing movements to a low pedestrianised area minimising conflicts between vehicles and pedestrians. Further separation between the park, pedestrian footpaths and the turning circle are achieved through kerbs. It is not anticipated that pedestrians will or should be using the dedicated access road to the waste collection bay.


6. Summary and Recommendations

6.1 Summary

A comprehensive traffic assessment has been undertaken of the proposed redevelopment of the GAC facility. In undertaking this assessment, Ontoit have assessed the likely impact to:

- Traffic and adjacent road network;
- Parking;
- Access;
- Public Transport; and
- Pedestrian and Cycle Impacts.

The analysis has demonstrated the following key conclusions:

- There is sufficient road capacity along the primary access corridor, Deccan Street, to support the
 additional trip generation that is likely to result from the redevelopment;
- Sufficient off-street and adjacent on street parking is provided for the proposed redevelopment facilities and services;
- Public Transport is unlikely to be impacted by the redevelopment due to the existing routes and capacity on the adjacent road network;
- No impacts are anticipated on pedestrian and cycle access to the facility.

6.2 Recommendations

In undertaking this transport and traffic impact assessment, Ontoit have identified a number of recommendations for further consideration post implementation:

- GMC should consider the potential for providing a public transport corridor closer to the redeveloped facility to encourage public transport use and improve accessibility;
- Enhancements to the pedestrian a cycle amenity to and from the facility should be considered to
 encourage walking and cycling to and from the redeveloped facility;
- Consideration of developing 'event day' traffic and parking management plans is encouraged in advance of any events held in the new facilities to minimise impact to the adjacent local road network – particularly in the context of the additional demand for the new Adventure Playground facility in Victoria Park – refer to <u>Attachment 1</u>;
- The western parking exit should be left out only this exit is located in close proximity to the Deccan Street / Verner Street intersection. To minimise conflicting movements and ensure the safety of road users it is proposed that this exit is a left out only; and
- For the eastern car park, the exit located to the west of the disabled parking should be considered as a left turn out only to minimise potential conflicts between vehicles entering and exiting the proposed facility.



A.1 Attachment 1 – Verner Street post report conditions

Introduction

On the 5th of May 2018, Goulburn Mulwaree Council opened a new Adventure Playground Facility in Victoria Park. It is acknowledged that this facility was opened post the completion of this report however, given the localised impacts resulting from the demand to use the facility. Ontoit has prepared this brief technical note to outline the impacts and assess whether the recommendations presented by this report need to be changed.

Observed Impacts

Following the opening of the new facility a further site visit was conducted on Sunday 27th of May 2018 to observe any changes in parking demand in the area. The new playground has significantly increased the demand for on street parking particularly along Verner Street, both the parallel parking on the north-east edge of the road and the 90-degree angle parking on the south west side of the road are now heavily utilised (refer to images below).



GMC new adventure playground – Victoria Park (photo courtesy of GMC)



Parking demand along Verner Street post opening of new Adventure Playground Facility

Whilst the on-street demand along Verner Street has significantly increased particularly on weekends, no additional demand was observed along Faithfull Street and Clifford Street. Some additional demand was observed on Deccan Street however the impacts were not to the extent observed on Verner Street.

Summary

The new Adventure Playground has increased parking demand significantly when compared to the initial Site visit conducted in January 2018 particularly along Verner Street. However, despite this, on street parking availability remained high particularly along Faithfull Street, Clifford Street and Deccan Street all of which could be utilised for overflow car parking during peak times for the proposed Aquatic Centre Redevelopment (if required).

As part of the proposals to redevelop the Goulburn Aquatic Centre, sufficient off-street parking is provided to accommodate the additional users of the facility. On street parking would only be utilised as overflow during peak times and sufficient on street parkin remains along Deccan Street, Clifford Street and Faithfull Street as well as Verner Street if required to accommodate any overflow.



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