

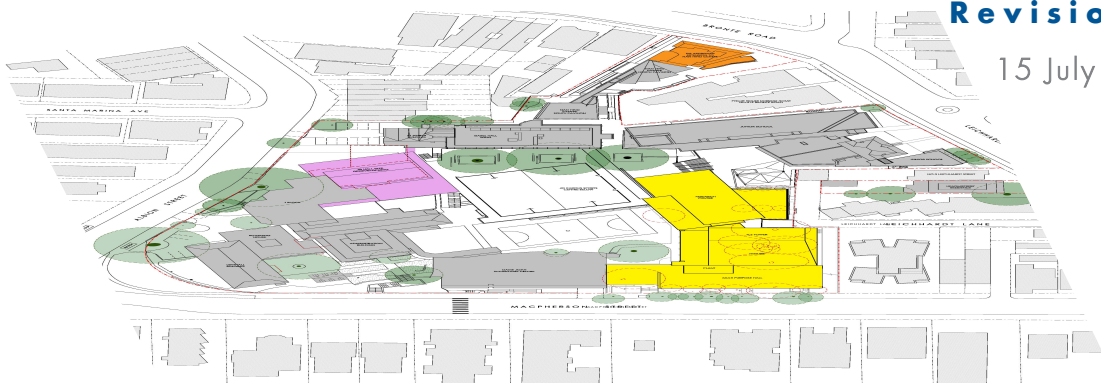


ST CATHERINE'S SCHOOL

PRELIMINARY CONSTRUCTION MANAGEMENT PLAN FOR RESEARCH, PERFORMING ARTS & AQUATIC CENTRE (RPAC)

Revision A

15 July 2014



CLUBBED
(STAGE 11
STAGE 12)

<p>ST. CATHERINE'S SCHOOL 200 ADELAIDE STREET ADELAIDE SA 5000</p>	<p>DESIGNED BY DE. MAXON PTY LTD 100/101 GURDIE STREET ADELAIDE SA 5000</p>	<p>PROJECT ST. CATHERINE'S SCHOOL RESEARCH, PERFORMING ARTS & AQUATIC CENTRE (RPAC)</p>	<p>CLIENT ST. CATHERINE'S SCHOOL 200 ADELAIDE STREET ADELAIDE SA 5000</p>	<p>MASTER PLAN - ROOF PLAN</p>	<p>DATE: 15 JULY 2014 DRAWN BY: A.025 CHECKED BY: SK7</p>
--	---	---	---	------------------------------------	---

Contents



- **Site Description**
- **Proposed Works**
- **Site Protection**
- **Site Access**
- **Materials Handling**
- **Tree Protection**
- **Traffic Management**
- **Noise & Vibration Monitoring**
- **Sediment, Erosion & Dust Controls**
- **Waste Management**
- **Sample Waste Management Plan**
- **Site Management Plan**

Site Description

The proposed development site for Stage 1 works (RPAC) is situated in the south eastern corner of the existing school campus and borders Macpherson Street to the south and Leichhardt Lane to the east.

A number of residential apartment blocks adjoin the site on the eastern boundary.

Presently, the site is largely covered by an existing open air swimming pool and associated changing rooms along with a demountable classroom block, all of which will be demolished and removed from site as part of the construction of Research, Performing Arts and Aquatic Centre (RPAC).

The remainder of the proposed development site is open space that is either landscaped or paved.

The site currently falls from the north down towards Macpherson Street, the difference in levels being in the order of 15 metres.

The Macpherson Street frontage has a number of large trees and a bus stop towards the eastern end of the Macpherson Street boundary.

Proposed Works

The proposed works comprise the following:

- Demolition of the existing swimming pool, changing rooms and demountable classrooms
- Basement car parking and plant rooms, to a level approximately 3m below the existing pavement. Due to the sloping topography of the site, shoring/retaining walls will be required to the perimeter of the basement.
- Construction of a 12 lane swimming pool and a learn to swim pool on level 2 suspended above the car park. Associated changing rooms will be below ground on the higher portion of the site.
- Level 3 comprises fitness rooms, orchestra pit and back of house facilities associated with the Performing Arts Auditorium.
- Level 4 forms the stage to the Performing Arts Auditorium, a multi-purpose hall, terrace and foyer spaces and at ground level adjoins the neighbouring Jo Karaolis Sports Centre.
- Level 5 comprises tiered seating to the Performing Arts Auditorium as well as a new boardroom.
- At level 6, there is a research centre suspended over the open space next to the existing Jo Karaolis Sports Centre (level 4).
- Level 7 comprises teaching space at mezzanine level within the Research Centre.

Subject to further design development it is anticipated that the structure of the building will be reinforced in-situ concrete with a steel roof structure.

Site Protection

Site protection is a key element of the Construction Management Plan. It is important for several reasons; the protection of pedestrians outside of the school/site boundaries, the protection of school employees and students and the protection of workers employed on the construction site.

The confines of the site are such that it is not possible to contain all construction activities wholly within the site boundaries and as described later a tower crane will be required which will necessitate the need to provide overhead protection to pedestrians on Macpherson Street.

Overhead protection in the form of B Class hoarding rated to 10kPa is required due to the need to lift materials from a construction work zone on Macpherson Street over the public footpath into the site.

Options considered for the location of B Class hoarding and construction work zone are:

1. Directly in front of the Site (entire Macpherson Street frontage)
In practical terms this is the preferred location as materials can be lifted over the footpath onto the site, with the B Class hoarding providing overhead protection to the footpath. However, the hoarding will impact on trees presently lining the footpath in this section of Macpherson Street.
2. Directly in front of the site (25m off Macpherson Street site frontage)
To reduce the impact on the trees in Macpherson Street, the length of the B Class hoarding could be reduced to 25m in length and still provide overhead protection for pedestrians and a location for temporary site accommodation.
3. Directly in front of the existing Dame Joan Sutherland Arts Centre
Whilst a hoarding in this position has no impact on street trees, it does mean that materials would be lifted over an occupied building.
It is unlikely the building roof has the required 10kPa rating required to provide protection to the building occupants.
4. Opposite side of Macpherson Street to the site
A construction work zone on the opposite side of Macpherson Street would still require a B Class hoarding along the site boundary as materials would be lifted across the footpath.
This option would also result in materials being lifted across a public road with no overhead protection and is therefore not considered practical.

Following investigation of each of the aforementioned options, it has been determined that in order to maximise the number of street trees retained without compromising safety throughout the construction duration, a minimum of 25m frontage will be required for the erection of B Class hoarding (Option 2). It is anticipated that 4 trees will need to be removed to allow for erection of B Class hoarding. These trees will be replaced upon completion of construction.

It is envisaged that the site boundaries will be protected as follows:

- B Class hoarding for the 25m site frontage on Macpherson Street. This hoarding will be designed to take temporary site sheds and provide 10kPa for overhead protection. The hoarding will be artificially illuminated during the hours of darkness.
- Solid A Class hoarding to the eastern boundary between the site and the neighbouring block of apartments. This hoarding will provide protection from falling debris as well as noise and dust.
- The remaining site boundaries within the school will also be protected with solid A class hoardings for the reasons mentioned above.

Site Protection

The proposed location of these hoardings is shown on the accompanying site establishment plan.

It is envisaged that the B Class hoarding will be in place from the commencement of work on site, before demolition begins and remain in place until such time as the façade of the building is complete and the tower crane removed. At which time it will be replaced with a temporary fence to maintain the security of the site.

Site Access

Access to the site is limited due to its confined nature, the topography of the ground and its proximity to neighbouring buildings.

The site is bordered by two roads, Leichhardt Lane to the east and Macpherson Street to the south.

Leichhardt Lane is a narrow single lane cul de sac with no real turning space for heavy articulated vehicles. For this reason and to minimise disruption to Leichhardt Lane residents it is not suitable as a means of access to the site. It will be made clear to all suppliers and sub-contractors that deliveries are not to be made via Leichhardt Lane.

Macpherson Street is a two lane carriageway with parking on either side. The advantages it has are:

- Roadside parking allows for the implementation of a construction work zone (subject to Council agreement) without impeding traffic.
- The basement level, the lowest part of the proposed building is directly adjacent to the road.
- A two lane carriageway means that site vehicles do not have to turn.
- Due to the size of the road it is less susceptible to damage by heavy vehicles than Leichhardt Lane.

Therefore Macpherson Street is the preferred location for the site access.

Materials Handling

The design and type of construction of the proposed building are such that both the horizontal and vertical movement of materials will be extensive.

The confines of the site make the use of mobile cranes contained within the site impossible to achieve.

Therefore, a fixed tower crane will be required. The preferred location of the crane, central within the site is shown on the accompanying site management plan.

The crane will likely be erected upon completion of the excavation of the basement and remain in place until the external envelope of the building is completed.

To reduce noise for the benefits of neighbours and students, the crane will be powered by electricity.

Deliveries of materials will be offloaded from trucks parked in the construction work zone proposed on Macpherson Street.

During concrete pours, mobile concrete pumps will be stationed in the construction work zone.

Major concrete pours and material deliveries will be scheduled to take place outside of school drop off and pick up times.

During the excavation of the basement, trucks will enter the site in a forward direction, turn within the site and exit, turning left on Macpherson Street in a forward direction.

When the construction works zone is in use and materials are delivered or trucks are entering and exiting the site, the footpath along Macpherson Street and the road itself will be patrolled by qualified Traffic Controllers to ensure the safety of pedestrians and motorists.

Tree Protection

Externally, along Macpherson Street, there are number of existing trees within the council footpath.

As outlined earlier, to gain access to the site for the purposes of demolition and excavation it is anticipated that 4 trees will need to be removed to allow for erection of a B Class hoarding. These trees will be replaced upon completion of construction.

In addition, the erection of a B class hoarding along Macpherson Street to protect pedestrians will in all likelihood encroach on the canopies of the trees.

Tree and Landscape Consultants (TALC) has been engaged by the school to prepare an Arborist Report assessing all trees impacted on by the proposed development to accompany the Development Application.

All recommendations and protection measures detailed within the report will be followed for the duration of construction.

Trees impacted by the proposed development will be inspected at regular intervals by the Arborist to ensure that adequate protection measures are in place and being adhered to.

Traffic Management

As described earlier under Site Access, the proposed building and the nature of the site limits access to and from the site by means of Macpherson Street only.

Preliminary Construction Traffic Management Planning advice has been prepared by ARUP with advice from ADCO and will form the basis of a detailed Construction Management Plan as required prior to construction commencement.

During the initial phases of construction, demolition and excavation, it will be necessary for vehicles to enter the site.

Vehicles will enter the site forwards, turn within the confines of the site and exit in a forward direction. No reversing off or onto Macpherson Street will be permitted.

All vehicles approaching the site, whether entering or parking in the construction work zone, will do so from Albion Street and leave by continuing down Macpherson Street into Leichhardt Street (left in, left out).

Qualified traffic controllers will be employed to ensure the safety of pedestrians and motorists when vehicles are entering or exiting the site or using the construction work zone.

Noise & Vibration Monitoring

▲ NOISE

Wilkinson Murray has been engaged by the school to prepare an Acoustic Report to accompany the Development Application. Background noise levels have been determined and appropriate construction noise mitigation strategies have been identified within the report.

During construction noise monitors will be set up in locations recommended by the Acoustic Report and data collected downloaded on a regular basis, to ensure noise levels comply with the Interim Construction Noise Guideline (DECC) and the recommendations of the report.

All construction work within the site will be carried out in accordance with the working hours stipulated in the Development Approval.

Preliminary Geotechnical investigations undertaken by J&K Group reveal that the proposed basement excavation will involve the removal of rock of varying degrees of hardness.

Normally this would be carried out by excavators with hydraulic rock breakers. Whilst this an efficient method it can, depending upon the strength of the rock, result in levels of noise and possibly vibration that prove unacceptable in a built up area.

To alleviate this problem, the rock could be sawn into blocks and removed. Whilst this may be possible for the bulk excavation, detail foundation excavation may have to use hydraulic breakers.

In such circumstances, the noise impact can be reduced by restricting the use of hydraulic breakers to blocks of 2 hours interspersed by 1 hour of nil hydraulic breaker activity throughout the working day.

To minimise and mitigate any potential impacts on neighbouring properties, the following measures would be adopted:

- Noise monitors set up
- Solid "Class A" hoardings to the site perimeter.
- Where possible, rock sawing to be utilised in lieu of hydraulic breakers.
- Rock excavation carried out in two hour blocks with 1 hours break in between.

▲ VIBRATION

With the exception of demolition and excavation activities, construction does not generally generate problems of vibration to neighbouring buildings.

As detailed above, there are ways to lessen the impacts.

The works proposed involve both the demolition of an existing reinforced concrete swimming pool and a masonry changing room building and the excavation into rock of a basement.

Prior to work commencing a dilapidation report will be carried out of all neighbouring buildings to establish and record any existing defects.

Vibration monitors will be set up at the perimeter of the site. These will raise an alarm if vibration exceeds preset limits. Upon the alarm sounding, work would immediately stop until such time as an alternative method of working is developed that will not cause a reoccurrence of the vibration.

Methods to be used to reduce vibration to a minimum are;

- Use of hydraulic crushers to demolish the existing swimming pool, rather than hydraulic breakers.
- Controlled removal in sections of walls to prevent large areas crashing to the ground.
- Where possible, rock sawing utilised in lieu of hydraulic breakers.

Sediment, Erosion & Dust Controls

▲ SEDIMENT & EROSION CONTROL

Preliminary sediment and erosion controls measures have been prepared by the Civil Engineer (Henry & Hymas) to the requirements of the relevant guidelines, namely; Managing Urban Storm water – Soils & Construction Volume 1 2004 (Landcom)

Typically, these measures will include:

- stabilised site access and shaker grid
- sedimentation fence to low site boundaries
- incorporation of catch drains within the site to channel surface flow to sediment basin
- straw bale filters to catch drain
- sediment basin to collect water
- mesh and gravel inlet filter to storm water drain in Macpherson Street

These measures will be installed at the outset as the site is established and inspected daily to ensure they remain properly in place.

As construction proceeds, the adequacy and efficiency of the sediment controls will be reviewed and adjusted as necessary to provide continual protection to Macpherson Street and neighbouring properties.

▲ DUST CONTROLS

Dust control measures will be incorporated in Site Management Plans to prevent dust arising from construction causing a nuisance to the School and neighbouring properties.

The measures included will be prepared in accordance with Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA).

The construction activities that give the greatest potential for causing dust are demolition and excavation.

During both of these activities, hoses will be employed to dampen down dust caused by excavators and similar machinery.

Waste

Construction activities by their nature generate waste. Prior to the commencement of work on site a Construction Waste Management Plan will be formulated detailing the likely source of waste, how and where it will be disposed of.

Demolition and excavation produce bulk waste e.g. reinforced concrete, masonry, soil and rock, that will be removed from site to licensed recycling facilities where the waste will be sorted and as much as possible recycled. The remainder will be disposed of at a licensed landfill.

The school engaged Environmental Investigation Services (EIS) to prepare a preliminary Environmental Site Assessment in accordance with Managing Land Contamination: Planning Guidelines – SEPP55 Remediation of Land (DUAP).

Based on soil samples taken during field investigations, excavated material within the proposed development footprint is anticipated to be a combination of General Solid Waste and Virgin Excavated Natural Material (VENM).

The remainder of the waste generated from day to day construction will be collected on site in bins, then taken to recycling facilities for sorting and disposal as described above. The waste will include the following which are recyclable:

- cardboard, paper and plastic packaging
- brick waste
- plasterboard waste
- timber off cuts
- concrete waste
- steel reinforcement

The bin suppliers produce monthly reports indicating the percentage of waste removed that is subsequently recycled. Typically, this is around 80%.

A sample Waste Management Plan is enclosed.

Sample Waste Management Plan



PROJECT WASTE MANAGEMENT

ON SITE MANAGEMENT	<i>General</i>	<ul style="list-style-type: none"> Waste products will be recycled wherever possible off site. Waste bins will be provided and emptied regularly. General construction waste will be stored in skip bins. Waste that is unsuitable for recycling will be disposed to an approved landfill site. No burning of rubbish, wood or other materials is allowed on site. Tipping dockets will be obtained and a register of removed materials maintained. External WRAP report will be obtained for recycling.
	<i>Solids and liquids</i>	<ul style="list-style-type: none"> Disposal of solid and liquid waste will be by an approved contractor to an approved location. Liquid waste will be stored in impervious bunded containers at a nominated location on site.
	<i>Concrete</i>	<ul style="list-style-type: none"> A concrete wash out area will be nominated on site.
	<i>Paints and solvents</i>	<ul style="list-style-type: none"> A paint wash out area will be nominated on site.
	<i>Contaminated</i>	<ul style="list-style-type: none"> Contaminated materials identified on site will be managed in accordance with a Hazardous Material Report. Contaminated materials will be managed and disposed of by a licensed contractor.
	<i>Stockpiles</i>	<ul style="list-style-type: none"> Stockpiles will be in areas approved by the Site Manager. Stockpiles will be managed to prevent pollution by covering and/or re seeding.
	<i>Sewer</i>	<ul style="list-style-type: none"> Ablution blocks will be connected to the main sewer system.
	<i>Site water</i>	<ul style="list-style-type: none"> Any site water will be tested prior to disposal. Permits will be obtained as required for disposal of site water.
WASTE CONTRACTOR/S	<p>During the construction of the project, removal and recycling of waste will be provided by a certified contractor.</p> <p>Waste removed from site will be transported to an approved waste or recycling facility. All waste removed from site will be tracked through waste documents and/or monthly waste reports provided by the contractor.</p>	
WASTE MATERIAL	<i>Concrete and masonry product</i>	<p>Concrete waste generated during demolition will be recycled</p> <p>Concrete wash out will be used for access paths and road where possible. All other concrete waste will be placed in designated skips on site.</p> <p>Excess concrete will be returned to the supplier.</p> <p>Masonry recovered during demolition will be recycled where possible by the demolition contractor.</p> <p>Masonry off cuts from construction may be reused on site for temporary access ways or placed in designated skip bins for recycling.</p>
	<i>General waste</i>	<p>All general waste generated on site including food scraps will be placed in the bins provided in the amenities buildings.</p> <p>Such waste will be removed from site by an approved contractor.</p>

Sample Waste Management Plan



	<i>Excavated material</i>	<p>Normal excavation methods will be used by the approved contractor.</p> <p>Work areas will have identification barriers to prevent unauthorised access. All personnel will be required to follow the safety management plan while conducting excavations works.</p> <p>Any contaminated soil to be removed will be tested prior to removal directly to waiting trucks. Contaminated material will be transported by the most direct route to an approved treatment/landfill facility.</p> <p>The transport of all materials from the site will conform to the requirements of the EPA, Local Councils, RTA and other relevant authorities.</p> <p>Where contaminated material is to be stockpiled the area is to be designated by the approved consultant or site manager. Protective barriers are to be in place to warn and protect workers on site.</p> <p>Trucks removing material from site will have the loads securely covered to prevent spillage. Drivers are required to ensure that no materials are tracked onto the road. All traffic leaving the site is to use the designated wash down bay to remove mud, dust and other debris.</p> <p>Materials to be removed from site may include:</p> <ul style="list-style-type: none"> • General waste including organic material, concrete and other hard waste • Imported fill material • Topsoil • Landfill waste • General fill • Unsuitable material • Contaminated material
	<i>Green waste</i>	<p>Green waste generated as a result of tree felling, mulching or top soil removal will be:</p> <p><input type="checkbox"/> Maintained on site and reused during landscaping works.</p> <p><input checked="" type="checkbox"/> Removed from site and transported to an accredited waste facility.</p>
	<i>Plasterboard</i>	<p>During the construction of the project, such products will be placed in designated bins for recycling.</p>
	<i>Polystyrene</i>	<p>During the construction of the project, such products will be placed in designated bins for recycling.</p>
	<i>Steel and aluminium</i>	<p>Where practicable, such products recovered during the demolition process will be recycled</p> <p>During the construction of the project, such products will be placed in designated bins for recycling.</p>
	<i>Timber</i>	<p>Timber recovered during the demolition process will be assessed on site by the demolition contractor and recycled where possible</p> <p>Timber will be used and cut in the most economical fashion where ever possible.</p> <p>Timbers for formwork, temporary structures and handrails will be reused and maintained at full lengths wherever possible.</p> <p>Rainforest timbers and Australian high conservation timbers will not be used on this project.</p>

Site Management Plan

