



# Shore Physical Education Centre Preliminary Waste Management Plan

Revision: E

Revision Date: 2/06/16

|                                                                                               |                |                    |
|-----------------------------------------------------------------------------------------------|----------------|--------------------|
| <b>EC1512 Shore Physical Education Centre</b><br><br><b>Preliminary Waste Management Plan</b> | Document No.   | <b>P02-TEM-012</b> |
|                                                                                               | Effective Date | <b>12/05/2016</b>  |
|                                                                                               | Version Date   | <b>12/05/2016</b>  |
|                                                                                               | Version No.    | <b>1.01</b>        |



epm Projects Pty Ltd  
Suite 2, Level 5, 655 Pacific Hwy  
ST LEONARDS NSW 2065  
☎ (02) 9452 8300  
[www.epmprojects.com.au](http://www.epmprojects.com.au)

*supporting clients nationally*

## Project Revision History:

| Date     | Author | Rev. No. | Scope of Revision       |
|----------|--------|----------|-------------------------|
| 24/05/16 | JG     | D        | Final For Review        |
| 2/06/16  | JG     | E        | Final for DA Submission |

## 1. Introduction

### 1.1. Shore Physical Education Centre

#### 1.1.1. Development Details

The Shore Physical Education Centre ('SPEC') is a development planned for the Sydney Church of England Grammar School at Blue St, North Sydney. The proposed development includes:

- Demolition of the existing 1970s 25m swimming pool and associated structures, gymnasium, change rooms, weights room, two squash court etc in the south-eastern corner of Shore Senior School and the residential flat buildings at 4 and 5 Hunter Crescent and 16 William Street
- Construction of new buildings to be known as the SPEC and alterations/additions to existing buildings comprising:
  - Aquatic Centre accommodating a 50m indoor swimming pool (eight lanes)
  - Multipurpose Sporting Complex including three basketball courts with tiered seating, gymnasium, weights rooms and other training facilities, change rooms, reception area, staff facilities and amenities
  - 11 new classrooms, flexible learning spaces, seminar rooms, other teaching and staff spaces
  - Alterations to BH Travers Stage 1 including change room and other upgrades
  - A net increase of 38 car parking spaces
  - Loading facilities on the Ground Floor of the proposed SPEC
- New open spaces/courtyards, tree removal/replacement and landscaping of the site including landscaped roof terraces
- Use of the completed buildings as an *educational establishment* including extension of Shore onto 4 and 5 Hunter Crescent and 16 William Street

A development application is to be lodged in June 2016. Its location is shown in Figure 1.

|                                                                                               |                |                    |
|-----------------------------------------------------------------------------------------------|----------------|--------------------|
| <b>EC1512 Shore Physical Education Centre</b><br><br><b>Preliminary Waste Management Plan</b> | Document No.   | <b>P02-TEM-012</b> |
|                                                                                               | Effective Date | <b>12/05/2016</b>  |
|                                                                                               | Version Date   | <b>12/05/2016</b>  |
|                                                                                               | Version No.    | <b>1.01</b>        |



Figure 1 - Site Plan

#### 1.1.2. State Significant Development Application

This report supports a Development Application for Shore Physical Education Centre to be submitted to the Department of Environment and Planning pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act)

#### 1.1.3. Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements have been issued for this development. They cover waste management as follows:

##### 14. Waste

*Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste. Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.*

This report responds directly to this requirement.

#### 1.1.4. Council Requirements

Section 19 – Waste Management of the North Sydney Development Control Plan 2013 has been used as a guide in the preparation of this Waste Management Plan.

|                                                                                               |                |                    |
|-----------------------------------------------------------------------------------------------|----------------|--------------------|
| <b>EC1512 Shore Physical Education Centre</b><br><br><b>Preliminary Waste Management Plan</b> | Document No.   | <b>P02-TEM-012</b> |
|                                                                                               | Effective Date | <b>12/05/2016</b>  |
|                                                                                               | Version Date   | <b>12/05/2016</b>  |
|                                                                                               | Version No.    | <b>1.01</b>        |



epm Projects Pty Ltd  
Suite 2, Level 5, 655 Pacific Hwy  
ST LEONARDS NSW 2065  
☎ (02) 9452 8300  
[www.epmprojects.com.au](http://www.epmprojects.com.au)

*supporting clients nationally*

## 2. Demolition

### 2.1. Waste Quantities

The types and quantities of waste that will be generated during demolition are shown in Table 1, based upon the estimates prepared by MBMpl, the project quantity surveyor.

| Material        | Tonnes       | Cubic Metres |
|-----------------|--------------|--------------|
| Metals          | 5            | 2            |
| Concrete        | 3,798        | 1,583        |
| Masonry & Tiles | 1,067        | 1,067        |
| Green Waste     | 608          | 466          |
| Glazing         | 3            | 5            |
| Mixed Waste     | 20           | 10           |
| <b>Total</b>    | <b>5,501</b> | <b>3,133</b> |

Table 1 - Demolition waste estimates

### 2.2. Waste Handling

#### 2.2.1. General Waste Management Procedures

### 2.3. Metals

Approximately 5 tonnes of metals (2 m<sup>3</sup>) are expected to be generated during demolition. The Site Supervisor would establish bins for this waste and record quantities. Metals will be collected by a metals recycler.

### 2.4. Concrete

Approximately 3,798 tonnes (1,583 m<sup>3</sup>) of concrete waste will be generated during demolition. The Site Supervisor will establish bins for this waste and record quantities. Concrete will be collected by a licenced waste contractor and transported to a licensed construction waste processing facility, possibly Kimbriki Resource Recovery Centre, at Ingleside.

### 2.5. Masonry and tiles

Approximately 1,067 tonnes (1,067 m<sup>3</sup>) of brick and tile waste will be generated during demolition. The Site Supervisor will establish bins for this waste and record quantities. Bricks and tiles will be collected by a licenced waste contractor and transported to a licensed construction waste processing facility, possibly Kimbriki Resource Recovery Centre, at Ingleside.

### 2.6. Green Waste

Approximately 608 tonnes (466 m<sup>3</sup>) of green waste (trees and plants) will be generated during demolition. The Site Supervisor will establish bins for this waste and record quantities. Green waste will be collected by a licenced waste contractor and transported to a licensed processing facility, possibly Kimbriki Resource Recovery Centre, at Ingleside.

### 2.7. Glazing

Approximately 3 tonnes (5 m<sup>3</sup>) of glazing waste (broken glass) will be generated during demolition. The Site Supervisor will establish a bin for this waste and record quantities. Glass will be collected by a licenced waste contractor and transported to a recycling facility or licenced disposal facility depending on its suitability for recycling.

|                                                                                               |                |                    |
|-----------------------------------------------------------------------------------------------|----------------|--------------------|
| <b>EC1512 Shore Physical Education Centre</b><br><br><b>Preliminary Waste Management Plan</b> | Document No.   | <b>P02-TEM-012</b> |
|                                                                                               | Effective Date | <b>12/05/2016</b>  |
|                                                                                               | Version Date   | <b>12/05/2016</b>  |
|                                                                                               | Version No.    | <b>1.01</b>        |



epm Projects Pty Ltd  
Suite 2, Level 5, 655 Pacific Hwy  
ST LEONARDS NSW 2065  
☎ (02) 9452 8300  
[www.epmprojects.com.au](http://www.epmprojects.com.au)

*supporting clients nationally*

## 2.8. Residual/mixed waste

Approximately 20 tonnes (10 m3) of residual and mixed waste will be generated during demolition. This material is expected to consist of:

- Small quantities of food and drink
- The packaging in which food and drink is sold or stored
- Packaging in which building material is delivered or stored
- Composite materials not able to be separated, and
- Small quantities of miscellaneous waste generated during the demolition process.

The Site Supervisor will establish bins for this waste and record quantities. Sub-contractors and suppliers will be expected to minimise this waste in particular and reusable and returnable containers will be encouraged to reduce packaging waste.

Cardboard, paper, other packaging and glass are likely to be included in this stream and these materials have been identified for separation for recycling.

General waste will be collected by a licenced waste contractor and disposed of at a licensed facility, possibly Artarmon transfer station.

## 3. Construction

### 3.1. Classification of Waste

A stage 1 environmental site assessment prepared by Environmental Investigation Services (EIS) reports of elevations of lead and B(a)P TEQ above Heath Investigation Levels (HILs) which are confined to areas of fill across the site. The proposed development will include the removal of the fill and natural soils over the majority of the site area and this will reduce the risk to future receptors.

The extent of contamination beneath the buildings is currently unknown. However, it is considered likely that fill would be present beneath the existing buildings. Isolated occurrences of fibre-cement fragments that may contain asbestos is always possible on sites with old buildings.

EIS recommend the implementation of the following:

1. Undertake additional sampling beneath the existing buildings to confirm the extent of fill and to address the data gaps identified in Section 10.3;
2. Prepare a Remediation Action Plan (RAP) to outline remedial measures for the site;
3. Prepare a Validation Assessment (VA) report on completion of remediation;
4. Prepare an Environmental Management Plan (EMP) for the ongoing management of contamination remaining on site. The EMP will require establishment of appropriate public notification under Section 149(2) of the E&PAA 1979 or a covenant registered on the title to land under Section 88B of the Conveyancing Act 1919; and
5. Undertake a Hazardous Materials Assessment (Hazmat) for the existing buildings prior to the commencement of demolition work.

### 3.2. Waste Quantities

The types and quantities of waste that will be generated during demolition are shown in Table 2, based upon the estimates prepared by MBMpl, the project quantity surveyor.



|                                                                                               |                |                    |
|-----------------------------------------------------------------------------------------------|----------------|--------------------|
| <b>EC1512 Shore Physical Education Centre</b><br><br><b>Preliminary Waste Management Plan</b> | Document No.   | <b>P02-TEM-012</b> |
|                                                                                               | Effective Date | <b>12/05/2016</b>  |
|                                                                                               | Version Date   | <b>12/05/2016</b>  |
|                                                                                               | Version No.    | <b>1.01</b>        |



epm Projects Pty Ltd  
Suite 2, Level 5, 655 Pacific Hwy  
ST LEONARDS NSW 2065  
☎ (02) 9452 8300  
[www.epmprojects.com.au](http://www.epmprojects.com.au)

*supporting clients nationally*

| <b>Material</b> | <b>Tonnes</b>    | <b>Cubic Metres</b> |
|-----------------|------------------|---------------------|
| Spoil           | 5,437            | 3,398               |
| Sandstone       | 88,482           | 38,139              |
| Metals          | 4                | 2                   |
| Concrete        | 360              | 150                 |
| Masonry & Tiles | 107              | 107                 |
| Green Waste     | 2                | 2                   |
| Glazing         | 0.14             | 0.24                |
| Mixed Waste     | 15               | 14                  |
| <b>Total</b>    | <b>94,407.14</b> | <b>41,812.24</b>    |

Table 2 - Construction waste estimate

### 3.3. Soil

During construction approximately 5,437 tonnes (3,398 m<sup>3</sup>) of soil is expected to be generated from excavation activities.

Most soil will be loaded directly into trucks for transport to licenced processing facilities to other sites where it can be lawfully used. Subject to the results of testing (see Section 3.1) some contaminated soil may not be able to be reused and will be disposed of at a site that can lawfully accept it. Some material may be retained for use during construction and stockpiled on-site.

### 3.4. Sandstone

The site is generally underlain by sandstone bedrock, between 1-2m below the existing ground levels. It is expected that approximately 88,482 tonnes (38,139 m<sup>3</sup>) of rock is to be excavated. The rock is expected to be of high quality. The project team are currently investigating the possibility for reuse of the sandstone, both on-site and off-site, in accordance with sustainability principles. Discussions with appropriate parties are required to determine the extent to which the sandstone can be reused.

### 3.5. Metals

Approximately 2 tonnes (2 m<sup>3</sup>) of metals are expected to be generated during construction. The Site Supervisor would establish a bin for this waste and record quantities. Metals will be collected by a metals recycler.

### 3.6. Concrete

Approximately 360 tonnes (150 m<sup>3</sup>) of concrete waste will be generated during construction. The Site Supervisor will establish bins for this waste and record quantities. Concrete will be collected by a licenced waste contractor and transported to a licensed construction waste processing facility, possibly Kimbriki Resource Recovery Centre, at Ingleside.

### 3.7. Masonry and tiles

Approximately 107 tonnes (107 m<sup>3</sup>) of brick and tile waste will be generated during construction. The Site Supervisor will establish bins for this waste and record quantities. Bricks and tiles will be collected by a licenced waste contractor and transported to a licensed construction waste processing facility, possibly Kimbriki Resource Recovery Centre, at Ingleside.

|                                                                                               |                |                    |
|-----------------------------------------------------------------------------------------------|----------------|--------------------|
| <b>EC1512 Shore Physical Education Centre</b><br><br><b>Preliminary Waste Management Plan</b> | Document No.   | <b>P02-TEM-012</b> |
|                                                                                               | Effective Date | <b>12/05/2016</b>  |
|                                                                                               | Version Date   | <b>12/05/2016</b>  |
|                                                                                               | Version No.    | <b>1.01</b>        |



epm Projects Pty Ltd  
Suite 2, Level 5, 655 Pacific Hwy  
ST LEONARDS NSW 2065  
☎ (02) 9452 8300  
[www.epmprojects.com.au](http://www.epmprojects.com.au)

*supporting clients nationally*

### 3.8. Green Waste

Approximately 2 tonnes (2 m<sup>3</sup>) of green waste will be generated during construction. The Site Supervisor will establish a bin for this waste and record quantities. Green waste will be collected by a licenced waste contractor and transported to a licensed processing facility, possibly Kimbriki Resource Recovery Centre, at Ingleside.

### 3.9. Glazing

Approximately 0.14 tonnes (0.24 m<sup>3</sup>) of glazing waste (broken glass) will be generated during construction. The Site Supervisor will establish a bin for this waste and record quantities. Glass will be collected by a licenced waste contractor and transported to a recycling facility or licenced disposal facility depending on its suitability for recycling.

### 3.10. Residual/mixed waste

Approximately 15 tonnes (14 m<sup>3</sup>) of residual and mixed waste will be generated during demolition. This material is expected to consist of:

- Small quantities of food and drink
- The packaging in which food and drink is sold or stored
- Packaging in which building material is delivered or stored
- Composite materials not able to be separated and
- Small quantities of miscellaneous waste generated during the demolition process.

The Site Supervisor will establish bins for this waste and record quantities. Sub-contractors and suppliers will be expected to minimise this waste in particular and reusable and returnable containers will be encouraged to reduce packaging waste.

Cardboard, paper, other packaging and glass are likely to be included in this stream and these materials have been identified for separation for recycling.

General waste will be collected by a licenced waste contractor and disposed of at a licensed facility, possibly Artarmon transfer station.

## 4. Operation

### 4.1. Waste Quantities

Table 3 shows the estimates of the quantities of waste likely to be generated on each level during on-going use. The number of bins likely to be required has been estimated and the quantities of the contents (garbage and recycling) calculated based on how full the bins might be. Bins are assumed to be either 10 L (in smaller areas) or 50 L (in larger areas) and 240 L in outdoor areas in use six days per week during term time.

| Level               | Number of Bins |                     | Estimate of Quantities per Week (litres) |           |
|---------------------|----------------|---------------------|------------------------------------------|-----------|
|                     | Garbage        | Recycling           | Garbage                                  | Recycling |
| <b>Basement</b>     | 1 x 240 L      | 1 x 240 L           | 600                                      | 600       |
| <b>Ground Floor</b> |                | 6 x 50 L, 2 x 240 L |                                          | 2,000     |

|                                                                                               |                |                    |
|-----------------------------------------------------------------------------------------------|----------------|--------------------|
| <b>EC1512 Shore Physical Education Centre</b><br><br><b>Preliminary Waste Management Plan</b> | Document No.   | <b>P02-TEM-012</b> |
|                                                                                               | Effective Date | <b>12/05/2016</b>  |
|                                                                                               | Version Date   | <b>12/05/2016</b>  |
|                                                                                               | Version No.    | <b>1.01</b>        |



epm Projects Pty Ltd  
Suite 2, Level 5, 655 Pacific Hwy  
ST LEONARDS NSW 2065  
☎ (02) 9452 8300  
[www.epmprojects.com.au](http://www.epmprojects.com.au)

*supporting clients nationally*

| Level                        | Number of Bins |                             | Estimate of Quantities per Week (litres) |                |
|------------------------------|----------------|-----------------------------|------------------------------------------|----------------|
|                              | Garbage        | Recycling                   | Garbage                                  | Recycling      |
| <b>Level 1</b>               |                | 6 x 10 L, 2 x 50 L          |                                          | 400            |
| <b>Level 2</b>               |                | 6 x 10, 4 x 50 L            |                                          | 400            |
| <b>Level 3</b>               |                | 4 x 50 L, 1 x 240 L         |                                          | 1 100          |
| <b>Level 4</b>               |                | 6 x 50 L, 2 x 240 L         |                                          | 1,950          |
| <b>Bishops Gate Car Park</b> |                | 2 x 240 L                   |                                          | 1,200          |
| <b>Total</b>                 | <b>1x240L</b>  | <b>12x10L,22x50L,8x240L</b> | <b>600 L</b>                             | <b>7,650 L</b> |

Table 3 - Waste Quantity Estimate - Operation

## 4.2. Storage and Collection

Waste bins will be provided in the SPEC buildings and within and around the SPEC site to separately all recyclable waste, including food waste along with non-recyclable waste. The school's cleaners will decant these bins into 660L bins on a regular basis and take the three waste streams to the three existing separate storage areas for collection located on the Southern side of the existing Dining Hall Building.

The anticipated path of travel for the waste bins from the SPEC site to the storage area for collection bins will be via trolleys and "club car" type vehicles

The larger storage bins are daily monitored and serviced routinely by a local private Waste Contractor. The Waste contractor will enter and exit the existing Senior School site via the Union Street driveway, adjoining the staff car park. Waste will then be taken to recycling stations. The School has a progressive waste strategy targeted at reducing landfill.

The Waste Management strategy for the SPEC site is consistent with the existing waste management arrangements on the Senior and Preparatory School sites. As there is no increase in student numbers and only a minor increase in staffing numbers, there will be no necessary change to this arrangement to accommodate the development.

## 5. Summary

### 5.1. Demolition

About 6,000 t, or 3,000 m<sup>3</sup>, of waste will be generated during demolition of which most will be concrete.

Waste types will be collected by a licenced waste contractor and transported to licenced processing facilities, possibly Kimbriki Resource Recovery Centre, or licenced disposal sites, possibly Artarmon Transfer Station.



|                                                                                               |                |                    |
|-----------------------------------------------------------------------------------------------|----------------|--------------------|
| <b>EC1512 Shore Physical Education Centre</b><br><br><b>Preliminary Waste Management Plan</b> | Document No.   | <b>P02-TEM-012</b> |
|                                                                                               | Effective Date | <b>12/05/2016</b>  |
|                                                                                               | Version Date   | <b>12/05/2016</b>  |
|                                                                                               | Version No.    | <b>1.01</b>        |



epm Projects Pty Ltd  
Suite 2, Level 5, 655 Pacific Hwy  
ST LEONARDS NSW 2065  
☎ (02) 9452 8300  
[www.epmprojects.com.au](http://www.epmprojects.com.au)

*supporting clients nationally*

## 5.2. Construction

About 94,000 t and 42,000 m<sup>3</sup> of waste will be generated during construction of which most will be sandstone. The project team are currently investigating the possibility for reuse of the sandstone. Soil will need to be tested to enable it to be classified for reuse and disposal.

Waste types will be collected by a licenced waste contractor and transported to licenced processing facilities, possibly Kimbriki Resource Recovery Centre, or licenced disposal sites, possibly Artarmon Transfer Station.

## 5.3. On-Going Use

About 0.6 m<sup>3</sup> of garbage and about 7.7 m<sup>3</sup> of recyclables are estimated to be generated each week during normal term time.

Waste bins will be provided in the SPEC buildings and within and around the SPEC site to separately all recyclable waste, including food waste along with non-recyclable waste.

The school's cleaners will decant these bins into 660L bins on a regular basis and take the three waste streams to the three existing separate storage areas for collection.

The larger storage bins are daily monitored and serviced routinely by a local private Waste Contractor. Waste will then be taken to recycling stations.

The School has a progressive waste strategy targeted at reducing landfill.