

**MUDGEE HOSPITAL REDEVELOPMENT PROJECT  
PRELIMINARY WASTE MANAGEMENT PLAN**

**ENVIRONMENTAL IMPACT STATEMENT (EIS)  
FOR THE STATE SIGNIFICANT DEVELOPMENT (SSD)  
APPLICATION**

JUNE 2018 | 04



**Health**  
Western NSW  
Local Health District



**Health**  
Infrastructure



**TSA**  
MANAGEMENT

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### Document Control

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## 1.0 Introduction

### 1.1 Mudgee Hospital Main Works

The proposed development are subject to a environmental Impact statement (EIS) for the State Significant development (SSD) application, and include:

- Construction of a new two (2) storey plus plant acute clinical services building to accommodate relocated services including:
  - 26 acute/sub-acute beds for medicine, surgery, palliative care, rehabilitation, geriatric evaluation and conditions related to mental health and drug and alcohol
  - 2 paediatric beds;
  - 2 bed rooms suitable for birthing and short-term accommodation, 3 ante natal/post-natal rooms, 1 assessment room, 2 antenatal assessment and 1 procedure room with 2 special care neonatal cots.
  - 5 emergency department bays, 1 resuscitation bay, a mental health safe assessment room, an isolation room and a triage area;
  - 2 operating theatres, 4 recovery spaces and 8 day-only beds;
  - 4 Hospital in the Home chairs, 4 oncology chairs, 8 renal chairs and 5 oral health chairs;
  - Primary and Community Health services comprised of meeting, consult and interview rooms, Gymnasium, ADL Kitchen and bathroom and outdoor spaces; and
  - Clinical support services, including medical imaging, pathology, pharmacy, satellite CSD service and medical records.
- On-grade car parking and drop off facilities, and overall improved wayfinding and access throughout the campus, including new roadworks and footpaths;
- Upgrades to IT and engineering services infrastructure supporting the MHS;
- Non-clinical support services, including LHD offices, MHS administration offices, kitchen, stores, linen and maintenance services; Associated landscaping works; and
- Demolition of vacated buildings.

### 1.2 Site Description

The Mudgee Hospital site covers an area of approximately 38,092m<sup>2</sup>. The site is bound by Lewis Street to the north, Meares Street to the south, Church Street to the west and the abandoned Mudgee Railway Station to the north.

The hospital campus is generally surrounded by low density residential development and recreational zones such as Cahill Park. Mudgee Medical Centre is located to the west of the hospital campus on a separate lot.



Figure 1 Aerial – Mudgee Hospital

### 1.3 Purpose of this Report

The purpose of this report is to provide:

- Details of waste generated during the main and final works package; and
- A preliminary description of measures to be implemented to handle waste.

This report does not deal with waste generated during construction. Details of the amounts, handling methods and destinations of waste generated during construction will be provided by the construction contractor appointed to the project.

## 2.0 Waste Generated During Demolition

### 2.1 Waste Estimation

Table 1 below identifies the estimated volume of waste produced as part of the excavation works associated with the main works for the redevelopment of Mudgee Hospital (MHR). The calculation included in the table below assumes the maximum amount of waste material and zero reuse of fill. However it is noted that fill is likely to be reused on the site. The calculation included in the table below assumes no recycling of materials during demolition works.

| Description  | Quantity (m <sup>3</sup> ) |
|--|----------------------------|
| Removal of excavated material off site (assume no reuse) | 2,660                      |

|  |            |
|--|------------|
| <b>Removal of material from<br/>demolition works</b> | <b>860</b> |
|--|------------|

**Table 1 – Estimated volume of waste produced from excavated material and demolition works**

Building material impacts have been addressed via architectural design specification including the selection of responsible building materials – best practice PVC products and steel sourced from sustainable supply chains. Recycling & diversion from landfill targets for construction and demolition waste have also been set for the project.

## 3.0 Waste Generated During Operation

### 3.1 Waste Estimation

Mudgee Hospital has developed a Waste Management Plan which aligns with the WNSWLHD Waste Management Policy and Plan.

The key objectives of MHS's Waste Management Plan include:

- Review the plan annually or in the event of a waste related incident;
- Promote correct waste segregation and safe handling;
- Encourage staff to actively participate in waste management programs;
- Promote staff awareness of Work Health Safety and waste minimisation principles via annual training participation and WHS promotional calendar;
- Ensure policies and procedures are followed to minimise the environmental impact of waste treatment and disposal; and
- Measure compliance and improving waste management performance.

The aim of MHS's Waste Management Plan include:

- To protect public health and safety;
- To provide a safe work environment for staff;
- To minimise the environmental impact of waste generation treatment & disposal;
- To reduce waste handling & disposal volumes/costs without compromising health care and environmental issues; and
- To comply with relevant legislation, statutory requirements, Australian Standards and NSW Health Policy Directives.

Each facility is required to report to the Area Environmental Services Officer; 3 monthly Via KPI'S Report, the preceding 3 month's waste data. The waste streams are to be reported where The waste stream is undertaken at the facility. Figures are collated for benchmarking between similar external facilities and reported to the area Waste Management Committee.

Waste collection at the existing hospital was a focus during the consultation process. Currently, contaminated waste is kept outside and collections are done infrequently causing issues with odours. The new design will offer a temperature controlled, fully ventilated, dedicated room for the storage of contaminated and cytotoxic waste. Contaminated waste collection times with the private waste collection contractor will also be increased

as part of the new development's change management strategies. General waste will be kept in a large skip bin located in the new service yard, staff will collect and empty the bins gathered from throughout the facility into the large skip bin in the service yard. General waste will be collected from within the service yard. Bin wash and bin store spaces have been included as part of the new development. Recycling is a council service therefore staff will collect recycling and wheel bins out to a collection point on Church Street via the service yard, a concrete path has been provided to Church Street for access.

The scope of works that form the Mudgee Hospital Redevelopment Project and the works captured within the SSD development application will result in minimal increase in clinical activity and number of beds on the campus. There is no increase in the number of beds on the campus following the completion of the redevelopment and therefore there is no anticipated increase in waste.

Table 2 shows the volumes of general waste, recyclable waste and clinical waste currently generated by MHS and estimated waste following completion of the redevelopment. As noted above as there is no increase in bed numbers it is anticipated that there will be no increase in waste generated.

| Total Waste Per Week (kg) |            |                 |
|---------------------------|------------|-----------------|
| Waste Type                | Current    | Estimated Total |
| General Waste             | 440        | 440             |
| Recyclable Waste          | 159        | 159             |
| Clinical/Cytotoxic Waste  | 77         | 77              |
| <b>Total</b>              | <b>676</b> | <b>676</b>      |

Table 2 – Estimated Projected Waste Quantities

## 4.0 Preliminary Construction Waste Management Plan

### 4.1 Waste Management Principles

The Waste Avoidance and Resource Recovery Act 2001 (WARR Act) establishes the waste hierarchy and requires that resource management options are considered against the following priorities:

1. Avoidance – actions to reduce the amount of waste generated and undertaking activities.
2. Resource Recovery – including reuse, reprocessing, recycling and energy recovery, consistent with the most efficient use of the recovered resources.
3. Disposal – an 'end of pipe' option that must be undertaken carefully to minimise any negative environmental outcomes.



Figure 41 Waste Hierarchy (NSW. EPA 2015)

In accordance with the WARR Act, Waste Management Principles will be incorporated into a detailed construction waste management plan provided by the head contractor.

These include:

1) Waste Avoidance and Reduction

The preferred option in the waste hierarchy is to avoid the generation of waste, or reduce the amount or volume that is produced. Waste avoidance will be facilitated through:

- Careful project planning to minimise the amount of material brought to site. Waste will be avoided by specifying the exact project requirements.
- Good housekeeping practices including material acquisition and inventory control to avoid waste resulting from out-of-date, off specification or excess to project needs
- Appropriate Storage and Management of materials onsite to limit the potential for damage from weather or plant which will eliminate the need for purchase of replacement products and waste generation.

2) Waste Reuse/Recycling

Re-use and recycling of waste will be encouraged where the generation of waste cannot be avoided. Recycling of waste will be achieved through implementation of the following measures:

- Evaluating waste production processes and identifying potentially recyclable materials
- Identifying and recycling products that can be reintroduced into the construction and operation processes.
- Investigating and auditing external markets for recycling by other operations located in the neighbourhood or region of the site.
- Waste segregation on site – dedicated bins or areas for collection by a licenced waste contractor.
  - General Waste – Glass, Paper & Cardboard and Aluminium
  - Concrete from excavation to be sent to a recycling facilities



- Natural material will be classified as VENM for offsite reuse.

### 3) Waste Handling and Storage

Storage and segregation of waste and waste servicing arrangements will be carefully planned as the public will still be accessing the Hospital during the works. Planning for waste storage areas will be considered throughout the project as there are a changing locations of construction areas during the various project phases.

The following measures will be required to apply where onsite waste handling and storage is required:

- Provision of clear signage to mark the location and storage of different types of waste
- Stockpile Management
  - Within designated areas away from drainage lines
  - Limited to 2m height
  - Covered stockpiles
  - Storage on Hard Stand or Plastic sheeting
  - Stockpile concrete, bricks and scrap metal separately
- Clearly marked waste containers with information such as name of waste, composition (solid/liquid), restricted properties of the waste (corrosive, ignitable) and date of the first waste deposited into the container.
- All servicing arrangements will need to consider the safety of site users.

### 4) Waste Tracking and Disposal

Waste generated by the project that cannot be either recycle or reused onsite will be disposed of by a licenced waste contractor to an appropriately licenced landfill or recycling facility. All vehicles conveying waste soils will have covered loads when leaving site.

Prior to disposal, waste will be classified in accordance with the requirements of the NSW EPA Waste Classification Guidelines.

A waste inventory will be maintained.

A tracking system will be used to track the waste quantities and types disposed. Documentation will track wastes, including the handling steps and servicing arrangements followed to manage the wastes from the point of generation through to collection, storage, treatment and final disposal.

On and Offsite waste tracking will record for each waste generated:

- Waste generator facility and address
- Type and identity of transport vehicles associated with the collection and final disposal of waste
- Date for recycling, treatment and disposal
- Type of Waste
- Quantity of waste
- Method of recycle, treatment or disposal.
- Description of waste, including restricted characteristics (i.e. what makes it a restricted or non-restricted waste).

Waste tracking forms will be used for all wastes moved off-site. The tracking form will record appropriate information about each waste stream and enable control of the waste disposition by confirming receipt by the designated recipient.

## 4.2 Potential Waste Impacts and Management

Potential impacts associated with poor or inadequate management of wastes generated during the construction and operation of Mudgee Hospital are outlined in the table 4 below:

| Aspect of waste management  | Potential impacts  |
|---|--|
| Generation of waste (usage of resources)                          | <ul style="list-style-type: none"> <li>Extraction of resources.</li> <li>Energy and water consumption associated with processing.</li> </ul>   |
| On-site storage of waste in an urban setting                      | <ul style="list-style-type: none"> <li>Increased dust.</li> <li>Visual impact.</li> <li>Increased littering.</li> <li>Sediment laden runoff.</li> <li>Odours.</li> <li>Increased pest animals.</li> <li>Restricted space/site access.</li> <li>Health and safety of site users and workers.</li> </ul> |
| On-site storage and segregation of waste                          | <ul style="list-style-type: none"> <li>Reduction in reuse of materials.</li> <li>Cross-contamination of waste.</li> <li>Contamination of recycling centres.</li> </ul>   |
| On-site storage of liquid and/or contaminated waste               | <ul style="list-style-type: none"> <li>Contamination of surface soils, groundwater, and surface waters.</li> <li>Odours.</li> </ul>  |
| Hazardous materials such as clinical waste                        | <ul style="list-style-type: none"> <li>Risk to human health.</li> </ul>  |
| Waste transportation  | <ul style="list-style-type: none"> <li>Noise and dust impacts to surrounding sensitive receptors.</li> <li>Odours.</li> <li>Mud tracking on roads during construction.</li> </ul>  |
| Non-classified or incorrectly classified waste disposal/transport | <ul style="list-style-type: none"> <li>Regulatory non-compliance and associated penalties.</li> <li>Contamination of landfill/recycling centres.</li> </ul>  |
| Unlicensed waste transporters removing waste off-site             | <ul style="list-style-type: none"> <li>Regulatory non-compliance and associated penalties.</li> <li>Illegal dumping of waste.</li> </ul>   |

Table 4: Summary of aspects of waste management and potential impacts

## 4.3 Waste Management Methods

A detailed construction waste management plan will be developed by the Contractor as part of the Construction Environmental Management Plan. The plan will provide further details of the management required for the waste types generated under the works associated with the Mudgee Hospital Redevelopment. As the design progresses, accurate estimates of quantities of building materials prior to construction will ensure that a minimum of waste is generated. Records of waste and recycling collected and disposed of will be collated throughout the construction phase by the Contractor. Un-used materials in a good condition will often be collected by suppliers, facilitating the reduction of the amount of material sent to recyclers or landfill. All waste will be disposed of in strict compliance with the applicable Waste Management Guidelines for Health Facilities.

The Contractor will be required to achieve compliance with the EPA guidelines.

Following removal of all hazardous materials such as asbestos, lead-based paints, phenols and polychlorinated biphenyls (PCB), where possible, any waste material generated from the Works will be recycled apart from selected soft demolition materials.

A summary of likely waste streams to be generated through construction are identified in table 5 below, a proposed method for handling, storage and reuse/disposal of each type of waste are also presented.

| Activity  | Waste stream  | Management  |
|---|---|---|
| <b>Construction of a New Building</b>             | Structural steel  | <ul style="list-style-type: none"> <li>Segregation on site (Compound A or B)</li> <li>Transport or collection to a recycling facility.</li> </ul>   |
|   | Steel reinforcement   | <ul style="list-style-type: none"> <li>Segregation on site. (Compound A or B)</li> <li>Transport or collection to a recycling facility.</li> </ul>  |
|   | Concrete  | <ul style="list-style-type: none"> <li>Segregation on-site. (Compound A or B)</li> <li>Transport to a recycler or use on-site/off-site in road making activities, building, landscaping and construction works in accordance with the requirements of the Recovered Aggregate Resource Recovery Exemption 2014.</li> <li>Where reuse is not practical concrete has been pre-classified by the EPA as General Solid Waste (non-putrescible) and can be disposed to an appropriately licensed facility by a licensed contractor.</li> </ul> |
|   | Plasterboard  | <ul style="list-style-type: none"> <li>Landfill</li> </ul>  |
|   | Metals  | <ul style="list-style-type: none"> <li>Segregation on-site. (Compound A or B)</li> <li>Transport or collection to a recycling facility.</li> </ul>  |
|   | Asphalt (for roads and car parks)                                     | <ul style="list-style-type: none"> <li>Landfill</li> </ul>  |
|   | Mechanical - ductwork   | <ul style="list-style-type: none"> <li>Segregation on-site. (Compound A or B)</li> <li>Transport or collection to a recycling facility.</li> </ul>  |
|   | Electrical - metal cable trays, electrical cables, fibre optic cables | <ul style="list-style-type: none"> <li>Segregation on site. (Compound A or B)</li> <li>Transport or collection to a recycling facility.</li> </ul>  |
|   | Hydraulics – UPVC Piper, Copper pipe, HDPE pipe                       | <ul style="list-style-type: none"> <li>Segregation on site. (Compound A or B)</li> <li>Transport or collection to a recycling facility</li> </ul>   |
| <b>Site Office and Worksites</b>                  | General Office Waste – paper, printer cartridges                      | <ul style="list-style-type: none"> <li>Segregation of recyclable wastes and storage on-site</li> <li>Collection and transport to a recycler</li> </ul>  |
|   | Domestic Wastes – food scraps, glass bottles, cans, packaging.        | <ul style="list-style-type: none"> <li>Segregation of recyclable wastes and storage onsite</li> </ul>   |
|   | Septic and Sanitary systems waste                                     | <ul style="list-style-type: none"> <li>Sewerage treatment plant</li> </ul>  |
| <b>Plant Maintenance and Chemicals Management</b> | Drums and Containers  | <ul style="list-style-type: none"> <li>Segregation of recyclable wastes and storage onsite (Compound A or B)</li> <li>Collection and transport to a recycling facility</li> </ul>   |
|   | Waste Oil, great, lubricants, oily rags and filters                   | <ul style="list-style-type: none"> <li>Segregation of recyclable wastes and storage onsite (Compound A or B)</li> <li>Collection and transport to a recycling facility</li> </ul>   |

**Table 5: Waste Streams and Management during construction**

The storage of waste created by the site through demolition, excavation and general construction works will be specified within the site establishment zones.

#### **4.3.1 Demolition and Excavation Works**

The project scope includes the demolition of a number of existing buildings/departments including the Wellness Centre (partial demolition), Main Hospital Building, Workshop and Boiler House, Oral Health and Staff Accommodation demountable.

During the demolition phase it is expected that haulage trucks will use the existing vehicular access point from Lewis Street. This will be further detailed by the nominated contractor.

#### **4.4 Hazardous Materials Management**

Dangerous goods (such as petrol, diesel, oxy-acetylene, oils, glues etc) will be stored in a lockable compound with sufficient ventilation in accordance with relevant codes of practice and standards. Material safety data sheets on all of these flammable and potentially harmful liquids will be provided by the Contractor undertaking the Works.

#### **4.4.1 Hazardous Materials Audit**

A licensed demolition contractor and/ or the Contractor are to inspect the site to determine the presence of any hazardous materials in accordance with the requirements of AS2601.

#### **4.4.2 Hazardous Materials Management Plan**

- A Hazardous Materials Management Plan will be prepared in accordance with the requirements of AS2601 prior to the commencement of any demolition works;
- In accordance with the recommendations of the Hazardous Material Report prepared by EIS, the Contractor must prepare an Asbestos Removal Control Plan for the proposed works. The control plan should include an allowance for asbestos air fibre monitoring during the removal and thorough clean up works upon completion of the removal works;
- The removal, handling and disposal of asbestos materials are to be undertaken only by an appropriately licensed contractor and in accordance with the requirements of the NSW WorkCover Authority and the NSW Office of Environment and Heritage (NSW OEH);
- All asbestos and other hazardous materials are to be appropriately treated in accordance with the recommendations outlined within the Hazardous Material Report prepared by EIS;
- All asbestos and other hazardous materials are to be appropriately contained and disposed of at a facility holding the appropriate licence issued by the NSW OEH; and
- A sign displaying the words 'DANGER ASBESTOS REMOVAL IN PROGRESS' is to be displayed on sites where buildings to be demolished contain asbestos materials.

Any hazardous materials discovered during execution of the Works should be dealt with by the Contractor in accordance with the requirements set out in the HGC21 Preliminaries document (Section 5.6 – Hazardous Substances).

## **5.0 Responsibilities and Training**

### **5.1 Roles and Responsibilities**

The Head Contractor will be responsible for developing a detailed waste management plan prior to commencement of the construction works. That plan must be consistent with the approach, principles and management methods outlined in this plan.

The Contractor will also be responsible for:

- Inducting all contractors and visitors about the relevant aspects of this plan.
- Ensuring all waste management contractors have the necessary qualifications and licenses to remove waste from the site.
- Carrying out periodic audits to check compliance with the waste management plan.

### **5.2 Training and Induction**

During construction, all site personnel and subcontractors will be inducted into the requirements of this plan to in accordance to their level of responsibility. As such, the induction is expected to include the following components:

- The waste hierarchy and associated waste management principles (avoid, reuse, and recycle).
- NSW EPA Waste Classification Guidelines.

- Procedures for handling and storage of wastes.
- Location of waste disposal and storage facilities.
- Actions to be undertaken in the event of a hazardous material spill.

Once the hospital is operating, all staff, volunteers and hospital contractors will, as part of their induction, be briefed on the following aspects of waste management:

- The waste hierarchy and associated waste management principles (avoid, reuse, and recycle).
- Location of waste disposal and storage facilities.
- Actions to be undertaken in the event of a hazardous material spill.

Staff and contractors with specific responsibilities for waste management including for the handling and disposal of hazardous waste will be given additional training as required.