

# **TWEED VALLEY HOSPITAL**

## **– STAGE 2**

### **CONSTRUCTION AIR QUALITY AND DUST MANAGEMENT PLAN - PRELIMINARY**

12/09/2019 | Revision No: 4.0



Sub Plan Revision Status				
Date	Revision (in numbers)	Purpose and Summary of Amendments	Reviewed by	Approved by
30/01/17	2	General update including LLB GMR and legislative amendments.	Tracey Wallbridge	Brian Falls
09/07/219	3.0	Project Specific - Preliminary	Monique Windley	Luis Biaggini 
12/9/19	4.0	Update for EIS	Monique Windley	Luis Biaggini 

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## 1. OVERVIEW

### 1.1 Overview

On the 11 June 2019 the Minister for Planning and Public Spaces granted approval for the Concept Plan and Stage 1 Early and Enabling Works for the new Tweed Valley Hospital (SSD 18\_9575) located at 771 Cudgen Road, Cudgen (Lot 11 DP1246853).

The Environmental Impact Statement (EIS) has been prepared to assist in the State Significant Development (SSD) Stage 2 Application for the Tweed Valley Hospital which will be assessed under Part 4 Division 4.1 of the Environmental Planning and Assessment Act. This, along with supporting documentation, will provide a clear outline of the Stage 2 Application.

The Tweed Valley Hospital Project broadly consists of:

- Delivery of the Tweed Valley Hospital; a new Level 5 major regional referral hospital to provide the health services required to meet the needs of the growing population of the Tweed-Byron region (in conjunction with the other hospitals and community health facilities across the region);
- Delivery of the supporting infrastructure required for the Tweed Valley Hospital, including green space and other amenities, roads and car parking, external road upgrades and connections, utilities connections, and other supporting infrastructure.

#### 1.1.1 Concept Proposal and Stage 1 Early and Enabling Works

The Concept Proposal and Stage 1 Early and Enabling Works were approved for the new Tweed Valley Hospital (SSD 18\_9575) by the Minister of Planning and Public Spaces on 11 June 2019. All documents relating to the Concept Proposal and Stage 1 Early and Enabling Works can be found on the project website at <https://www.planningportal.nsw.gov.au/major-projects/project/10756>

#### 1.1.2 Stage 2 Hospital Delivery - Main Works and Operation

The Stage 2 SSD component will seek consent for the Main Works and Operation of the Tweed Valley Hospital, including:

- **Construction of Main Hospital Building**
  - Main entry and retail area
  - Administration
  - Community health
  - In-Patient units
  - Outpatient clinics and day only units
  - Child and Adolescent Services
  - Intensive Care Unit
  - Mental Health Unit
  - Maternity Unit and Birthing Suites
- Back of House services
- Rooftop Helipad
- **Construction of Support Building, referred to as the 'Health Hub', containing:**
  - Oral Health
  - Community Health
  - Aboriginal Health
  - Administration
  - Education, Training and Research
- **Internal Roads and carparking, including multi-**

- Renal Dialysis
  - Pathology
  - Pharmacy
  - Radiation Oncology as part of integrated Cancer Care
  - Emergency Department
  - Perioperative Services
  - Interventional Cardiology
  - Medical Imaging
  - Mortuary
  - Education, Training, Research
- **deck parking for staff, patients and visitors;**
  - **External road infrastructure upgrades and main site access**
  - **Environmental and wetland rehabilitation, including rehabilitation of existing farm dam as outlined in the Biodiversity Development Assessment Report (BDAR) prepared for the Concept Proposal and Stage 1 works**
  - **Site landscaping**
  - **Signage**
  - **Utility and service works**

Plans for Stage 2 Main Works and Operation are attached in Appendix B of the EIS. Approval of Stage 2 will enable the new Tweed Valley Hospital to be built which will provide a much-needed contemporary health service facilities for the surrounding region.

### 1.1.3 Potential Future Expansions

Any subsequent stages or modifications to the proposal would be subject to separate applications as required including the potential future expansion of the facility.

## 2. SCOPE OF PROJECT AND SUB PLAN

Project Details	
Scope of the Sub Plan	<p>This Air Quality Management Sub Plan provides strategies and mitigation measures to minimise and control the generation of dust, odour and emissions to the environment during the delivery of Main Works of the project.</p> <p>Refer to Section 1.1 and 3.1 of the Project EHS Management Plan for clarification on how the EHS Sub Plans form part of the Lendlease Building (LLB) EHS management system.</p>
Objectives of the Sub Plan	<ul style="list-style-type: none"> <li>• To prevent emissions to the environment (air).</li> <li>• To maintain current levels of local air quality during construction activities.</li> </ul>

	<ul style="list-style-type: none"> <li>• To provide an adequate monitoring regime to allow real-time assessment of various dust/odour generating construction activities on the site.</li> <li>• To prevent nuisance and ecological impacts (associated with air emissions) on the local community and environment.</li> <li>• To achieve compliance with the project approval.</li> </ul>
Scope of Works	<p>This Sub Plan has been prepared based on the following scope of works:</p> <ul style="list-style-type: none"> <li>• Site establishment including ATF, fixed temporary fence and hoarding installation, office and compound setup;</li> <li>• Civil Works, including carparks and roads for Stage 2;</li> <li>• Monitoring and maintenance of existing Sedimentation Basins;</li> <li>• Construction of the multi-level Main Works Stage. This new build will include a new emergency department, helipad, IPUs, ICU, MAU, expanded rehab and ambulatory care facilities and operating theatres</li> <li>• Landscaping</li> </ul>
Key Issues and Risks	<p>The works described above have the potential to generate dust, odour and emissions primarily associated with:</p> <ul style="list-style-type: none"> <li>• Traffic movements and plant operation;</li> <li>• Spoil handling and stockpiling;</li> <li>• Storage and handling of materials; and</li> </ul> <p>Compliance with the Project EHS Plan and this Air Quality Management Sub Plan is intended to mitigate the risks and potential impacts of these activities on air quality. If appropriate controls are not implemented and maintained on the site, the potential exists for construction related air emissions to:</p> <ul style="list-style-type: none"> <li>• Cause a nuisance or health effects to the local community;</li> <li>• Result in complaints;</li> <li>• Impact on the natural environment; or</li> <li>• Create unsafe working conditions.</li> </ul> <p>The closest receptors to the site are located (Appendix A):</p> <p>Catchment Area A</p> <ul style="list-style-type: none"> <li>• Residential</li> <li>• Educational</li> </ul>

	<ul style="list-style-type: none"> <li>- Kingscliff High School to the southeast (closest and most affected educational receiver)</li> <li>- Kingscliff Library to the northeast</li> <li>• Passive Recreation Area - Jack Julius Park</li> <li>• Commercial including <ul style="list-style-type: none"> <li>- Kingscliff Community Health Centre</li> <li>- Civic Swimming Pool</li> <li>- Life Bridge Australia</li> </ul> </li> </ul> <p>Catchment Area B</p> <ul style="list-style-type: none"> <li>• Residential</li> <li>• Educational – North Coast TAFE Kingscliff Campus (TAFE)</li> <li>• Agricultural / Commercial</li> </ul> <p>Catchment Area C</p> <ul style="list-style-type: none"> <li>• Residential</li> <li>• Agricultural</li> </ul> <p>A&amp;B Hydroponics (west boundary);</p> <p>The set out of the site compound including the location of the site access, internal roads, carparking, waste collection, storage and stockpile areas, and the planning of new works will consider these receptors. The planned location of heavy equipment/machinery and topography of the site works favourably to reducing potential impacts of construction activities on their operation and property.</p> <p><a href="#">NOTE: Background air quality data may be required to facilitate an assessment of construction impacts on local air quality. This may necessitate monitoring prior to the commencement of construction if local air quality data is unavailable and should be considered in the construction program.</a></p>
Legislation, Project Approval and Guidelines	<p><b>Federal/National:</b></p> <ul style="list-style-type: none"> <li>• National Environment Protection (Ambient Air Quality) Measure (NEPM) 1998</li> <li>• AS 3580.14:2014 Methods for Sampling and Analysis of Ambient Air – Meteorological monitoring for ambient air quality monitoring applications</li> <li>• DR 102288 CP Methods for sampling and analysis of ambient air Part 14 - Meteorological monitoring for ambient monitoring applications</li> <li>• AS 3580.1.1:2007 Methods for Sampling and Analysis of Ambient Air - Guide to Siting Air Monitoring Equipment</li> <li>• National Environment Protection Council's (NEPC) – NEPM for Ambient Air Quality Guidelines</li> </ul>

	<ul style="list-style-type: none"> <li>• Protection of the Environment Operations (Clean Air) Regulation, 2002</li> <li>• AS 2922 Ambient Air Guide for Citing of Sampling Equipment</li> <li>• Air Quality Monitoring Criteria for Deposited Dust (DEC Guideline).</li> </ul> <p><b>State:</b></p> <ul style="list-style-type: none"> <li>• NSW Workplace Health and Safety Act 2011</li> <li>• NSW Workplace Health and Safety Regulation 2017</li> <li>• Protection of the Environment Operations Act 1997</li> <li>• Environmental Planning &amp; Assessment Act 1979</li> <li>• Protection of the Environment Operations (Waste) Regulation 1996</li> <li>• Environmentally Hazardous Chemicals Regulation 1994</li> <li>• AS 3580.10.1-2003 Methods of Sampling Analysis of Ambient Air</li> <li>• Action for Air 2009 (NSW DEC)</li> <li>• Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in New South Wales (DEC 2005)</li> </ul> <p><b>Local:</b></p> <ul style="list-style-type: none"> <li>• Local Government Act 1993</li> </ul> <p>Lendlease requirements:</p> <ul style="list-style-type: none"> <li>• GMR 4.10: Occupation Health Exposure (for unexpected findings);</li> <li>• GMR 4.13: Degradation or Pollution of the Environment</li> <li>• GMR 4.15: Uncontrolled Release of Stored Energy (non-electrical))</li> <li>• Lendlease Building Workplace Delivery Code (WDC)</li> </ul>
Summary of Site Controls	<p>Works must be undertaken in accordance with the Lendlease GMRs, the Project EHS Plan, this Sub Plan and the Lendlease Building WDC. These documents detail Lendlease's approach and commitment to pro-active and responsible site management.</p> <p>Site specific controls, monitoring, reporting and performance measures have been identified in this Sub Plan to prevent or minimise the impacts of construction related air emissions on the environment and community. These may include but are not limited to:</p> <ul style="list-style-type: none"> <li>• Clear definition of trafficable and material storage areas to prevent unnecessary vehicle movement into other areas;</li> <li>• Use of water cart to dampen work areas and exposed soils to prevent the emission of excessive dust;</li> </ul>

	<ul style="list-style-type: none"> <li>• Installation of a wheel shaker grid and/or wash down facilities at the vehicle egress point;</li> <li>• Ensuring trucks transporting materials to and from the site use covers to prevent windblown dust or spillage;</li> <li>• Ensuring truck tailgate locking mechanisms are operational and in use;</li> <li>• Periodic inspection of surrounding roads to ensure no construction contamination and initiation of road sweeping if required;</li> <li>• Careful selection of materials for temporary road surfacing;</li> <li>• Watercarts/water trucks will be in permanent use on site during excavation and civil works.</li> <li>• Temporary stockpiles that are not required for imminent use will be stabilised with spray grass or appropriate fabric.</li> <li>• Continuous monitoring of weather forecast to stop dust generating activities in case that high winds are expected.</li> <li>• Before extended breaks (e.g., Easter, Christmas), areas will be treated with spray grass.</li> <li>• Only those areas where immediate structures are to be build will be stripped. Areas will be stripped at the latest possible date to comply with the program.</li> <li>• Construction haul roads and temporary carparking will maximise the use of permanent infrastructure. These roads/carparks will have a sacrificial seal to minimise dust generation.</li> <li>• Subcontractors to maintain equipment / machinery to ensure exhaust emissions comply with relevant legislation and guidelines;</li> <li>• All waste material to be sorted, collected and removed from site (for recycling where possible);</li> <li>• Air quality monitoring;</li> <li>• Dust screens and airlocks to be utilised with interior works;</li> <li>• Controlling dust close to its source by installing sprays and sprinkler systems to prevent off-site migration; and</li> <li>• Maintaining the site access to prevent dust generation and tracking off-site.</li> <li>• No blasting will be performed as part of the proposed construction works program.</li> </ul> <p>Construction dust, odour and emission management requirements must be included in relevant specifications, contract agreements, quality assurance documents, and subcontractor work method statements.</p> <p>Site inspections, monitoring and reporting will be undertaken by Lendlease and subcontractors as detailed in the Project EHS Plan and the following implementation table to ensure controls remain effective overtime.</p>
Location of Monitoring Equipment	<p>Monitoring logs will be in place during high risk works</p> <ul style="list-style-type: none"> <li>• 3 No. along the Cudgen Road site boundary (to monitor the emissions close to the TAFE, residents and businesses).</li> </ul>



### 3. IMPLEMENTATION OF THE SUB PLAN

Control Measure	Timing	Methodology	Responsibility	Monitoring and Reporting	Performance Measurement
<b>Planning and Site Establishment</b>					
Include information in the Site Induction about the risks and potential impacts of dust and emissions on the environment and community.	Before works commence and ongoing	Revise Lendlease induction package to include site specific information.	CM/SM	Subcontractor WMSs address dust, odour and emissions control	Site induction delivered to all workers on site.
Design, document and implement an agreed air quality monitoring program, where required.	Prior to commence of high risk areas	Confirm requirement for background and/or construction stage monitoring (as per project approval or contract). Engage consultant (NATA accredited).	CM	Results of air quality monitoring program. Reports for approval authority or Client as required.	Monitoring performed correctly and accurate data available. Monitoring undertaken by a NATA accredited consultant.
Stop work Procedure if performance objectives are not being met	During High Risk works	Regular monitoring of devices. Signal type to be distinguished during site induction.	SM	Reports for approval authority or Client as required. Incident Log.	Limit duration of works causing deference from performance objectives.
Prepare a site-specific Air Quality Management Diagram.	Prior to works commencing. Ongoing review.	Prepare diagram showing sensitive receivers, monitoring locations, device type, waste/ storage/contaminated areas etc.	CM	Diagram referenced in the planning of the site and new works. Review of diagram prior to works commencing.	Diagram covers all key areas and site-specific operation.
Install fabrics to perimeter fencing and wind barriers at internal excavation boundaries.	Site establishment and ongoing	Identify and install hoardings/ shade cloth considering the location of neighbours, key work zones and prevailing winds. Mark on Air Quality Environmental Management Diagram (Appendix 1).	SM/ Foreman	Daily fencing/hoarding inspection checklist. Weekly/monthly inspection checklist.	Number of complaints.

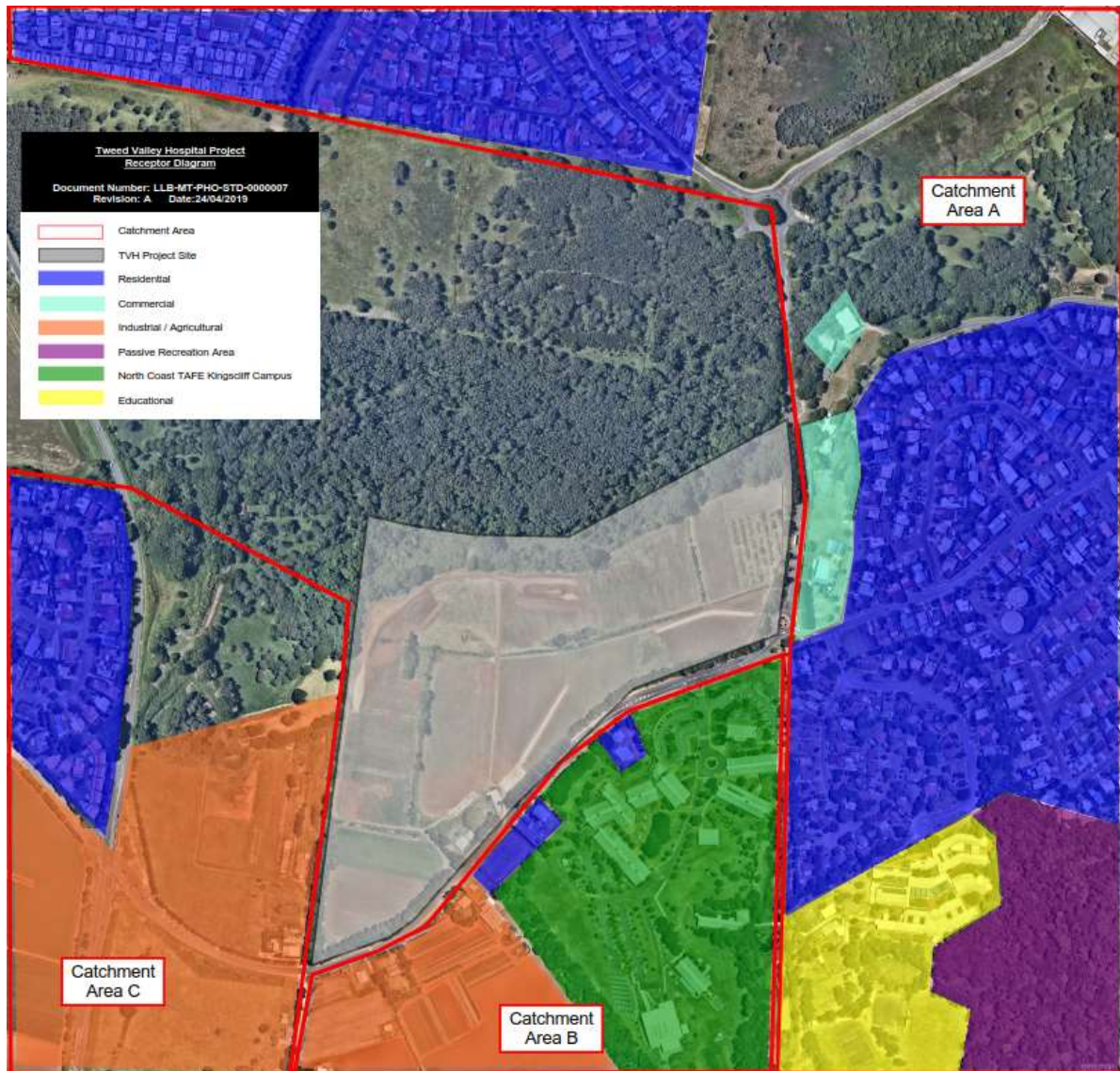
Seal or construct the site access, roads, turning and parking areas using gravel or non-dust generating materials.	Prior to construction commencing	Retain hardstand areas where existing. Construct new stable areas using road base as a minimum. Install wheel shaker facility	SM	Pre-construction inspection. Weekly/monthly inspection checklist.	No dust generation associated with vehicle movements. No tracking of materials onto public roads.
Staging of stripping to an as need basis.	Prior to construction commencing	Identify which areas will need to be stripped for works to occur (i.e. building footprint, slip lane area, roadways).	CM/SPE/S M/SE	Staging Plan	Limit dust generation from vegetation removal.
<b>Dust Control During Construction</b>					
Regular monitoring of weather and news updates to ensure site is adequately managed to minimise air quality impacts.	During Construction	Set up alert notification.	SM	Daily review and if necessary notification in daily builder brief	Minimal air quality impacts during adverse meteorological conditions and extraordinary events
Limit speed to 20km/hr on internal roads and access ways to reduce dust and vehicle emissions.	During construction	Install speed limit signage.	SM	Daily surveillance to monitor vehicle speed. Reminders in daily builder brief	Minimal dust generated by traffic on construction roads/access. No speeding vehicles.
Maintain the site access and traffic routes in a clean, dust free condition.	Ongoing	Maintain shaker grid for site heavy duty plant. Engage sweeper. Limited hosing of hard surfaces only. Clean up spilled soil immediately.	SM	Daily inspection of site access and local roads. Weekly/monthly inspection checklist. Inspections immediately after rainfall events.	No complaints from public or authorities. No dust generated on public roads.
Avoid excavation and handling during periods of high wind and extreme (wet) weather conditions.	As required	Only enter areas that need to be worked. Work in areas away from sensitive receptors.	SM	Constant surveillance during unfavourable conditions. Monitor meteorological reports.	No works performed during high wind or rainfall events. No complaints.

		Maintain site access controls and clean roadways.  Stop work until conditions are more favourable if dust and/or tracking cannot be controlled.			
Reduce requirements for the handling and stockpiling of excavated materials.	At all times	Pre-test and validate soils to enable direct transport off-site (rather than stockpiling).  Dampen down materials during handling.	SM/ Foreman	Include requirements in tenders for subcontractors.  Daily surveillance of activities.	Controls maintained and effective.
Locate and maintain stockpiles to minimise wind erosion and dust.	At all times	Locate stockpiles away from sensitive receptors.  Keep stockpiles to a manageable size and cover.  Keep exposed surfaces moist and compacted to reduce erosion potential.  Stabilise or cover stockpiles left for >4 weeks.	SM	Daily surveillance.  Weekly/monthly inspection checklist.	No visible dust from stockpiles.  No reported dust complaints or exceedances.
Dampen down exposed areas and activities with the potential to create dust (eg excavation faces, handling areas, stockpiles etc)	At all times	Identify the risk of dust/nuisance impacts (IHRA) associated with key activities/areas.  Establish appropriate watering/fogging/misting/spray systems to control dust at the source.	CM/SM	Daily surveillance.  Weekly/monthly inspection checklist.  Monitoring results.	Limited dust generation.  No complaints.
Cover trucks transporting loose material to prevent dust generation and spills.	At all times	Include in subcontractor WMS.  Cover all loads.  Clean up spills immediately.	SM/ Foreman	Vehicle inspection prior to entering and leaving the site.	No visible loose material.  No community complaints.
Undertake progressive stabilisation and landscaping of disturbed areas	Ongoing	Incorporate rehabilitation activities into the construction program if possible.	CM/SM	Weekly/monthly inspection checklist.	Disturbed areas stabilised.

(particularly over long breaks i.e. Christmas, Easter).		Apply temporary and/or permanent vegetation and mulch to stabilise.		Project planning and design meetings.	No areas left exposed for prolonged periods.
Prevent build-up of silt and other materials within erosion control structures through regular inspections.	At all times	Include in SM checklist. Onerous on subcontractor that installed the device to maintain.	SM/ Foreman	Daily surveillance. Weekly/monthly inspection checklist.	No build-up of silt and other materials within erosion control structures
<b>Air Quality Controls (Contamination/Hazardous materials)</b>					
Prevent potentially contaminated dust being generated during the disturbance and handling of contaminated soil.	At all times	Identify contaminated areas on the Air Quality Management Diagram (required above). Engage a specialist environmental consultant (as required). Implement recommended controls eg spray systems. <i>Refer to Contaminated Soil and Water Management Sub Plan.</i>	SM	Dust monitoring results. Soil test results.	Dust controlled. No contaminants detected in dust monitoring samples.
Control odour generation related to contamination including Volatile Organic Compound (VOC) vapours within work areas.	At all times	Engage a specialist hygienist/ environmental consultant (as required). Use VOC permit Implement dampening and monitoring as recommended.	CM/SM	Air vapour monitoring (and personal air monitoring if required) during and after works.	No elevated VOCs detected during works. No works performed whilst elevated VOCs are detected in work areas.
<b>Combustion Emission Controls (TSP, PM10, NOx, CO and BTEX)</b>					
Burning of waste on site is banned.	At all times		SM	Daily surveillance.	No fires or incineration on site.
Fit plant and equipment with emission control devices and maintain.	At all times	Include requirements in subcontractor documents.	SM	Routine and random inspections of plant.	Copies of service records and/ or inspection to be supplied.

		Documented plant condition inspections by subcontractors.  Verify than plant/equipment has been regularly maintained to minimise visible smoke and emissions.		Emissions not visible for >10secs (as a rule).	No complaints from site personnel or neighbours.
Turn equipment and plant engines off when not in use for extended periods.	At all times	Address in contractor's WMS.	SM	Daily surveillance.	No excessive (visible) emissions or odour.

## Appendix 1: Surrounding Land Uses





## Appendix 2: Approximate Location of Dust Monitors (If required for Stage 2)

