

RANDWICK CAMPUS REDEVELOPMENT INTEGRATED ASB (IASB) ADDITION MANAGEMENT SUB-PLAN - AIR QUALITY

5/08/2019 | Revision No: 2.7



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
12/09/18	2.1	New Project	Chloe Manning	Elliot Hicks
4/12/18]	2.2]	Regular three month review]	Chloe Manning	Elliot Hicks]
24/3/19	2.3	Addition of specific dust suppression plan	Chloe Manning	Elliot Hicks
21/05/19]	2.4]	Regular three month review, updated EMD]	Chloe Manning	Elliot Hicks]
16/07/19]	2.5]	Updated from comments received]	Chloe Manning	Elliot Hicks]
22/7/19	2.6	Updated from comments received	Chloe Manning	Elliot Hicks
05/08/19]	2.7]	Updated from comments received]	Chloe Manning	Richard Yarad]

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1. 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 site establishment activities and construction 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"> • To prevent emissions to the environment (air). • To maintain current levels of local air quality during construction activities. • To provide an adequate monitoring regime to allow real-time assessment of various dust/odour generating construction activities on the site. • To prevent nuisance and ecological impacts (associated with air emissions) on the local community and environment. • To achieve compliance with the project approval.
Scope of Works	<p>This Sub Plan has been prepared for the Integrated Acute Service Building (IASB) Addition. The core scope elements of the IASB Addition are:</p> <ul style="list-style-type: none"> • The UNSW Eastern Extension (base building only) • Associated modifications within the ASB • Lowering of Hospital Road • Landscaping

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"> • Ground disturbance • Traffic movements and plant operation; • Rock cutting and hammering; • In ground services installation • Contiguous piling, • Concrete structure • Spoil handling and stockpiling; • Storage and handling of waste materials, • Disturbance/remediation of potentially contaminated soil or groundwater (odour). <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"> • Cause a nuisance or health effects to the local community; • Result in complaints; • Impact on the natural environment; or • Create unsafe working conditions. <p>The closest receptors to the site are located at approximately:</p> <ul style="list-style-type: none"> • Ainsworth Building • Royal Hospital for Women • Magill Street residences • Sydney Children's Hospital • UNSW to the West of Botany Street
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	<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 the proximity of these receptors and the potential impacts of construction activities on their operation and property.</p> <p>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.</p>
Legislation, Project Approval and Guidelines	<p>Federal/National:</p> <ul style="list-style-type: none"> • National Environment Protection (Ambient Air Quality) Measure (NEPM) 1998 • AS 3580.14:2014 Methods for Sampling and Analysis of Ambient Air – Meteorological monitoring for ambient air quality monitoring applications • DR 102288 CP Methods for sampling and analysis of ambient air Part 14 - Meteorological monitoring for ambient monitoring applications • AS 3580.1.1:2007 Methods for Sampling and Analysis of Ambient Air - Guide to Siting Air Monitoring Equipment <p>State:</p> <ul style="list-style-type: none"> • NSW Workplace Health and Safety Act 2011 • NSW Workplace Health and Safety Regulation 2017 • Protection of the Environment Operations Act 1997

	<ul style="list-style-type: none"> • Environmental Planning & Assessment Act 1979 • Protection of the Environment Operations (Waste) Regulation 1996 • Environmentally Hazardous Chemicals Regulation 1994 <p>Local:</p> <ul style="list-style-type: none"> • Local Government Act 1993 <p>Lendlease requirements:</p> <ul style="list-style-type: none"> • GMR 4.10: Occupation Health Exposure • GMR 4.13: Degradation or Pollution of the Environment • GMR 4.15: Uncontrolled Release of Stored Energy (non-electrical)) • LLB Workplace Delivery Code (WDC)
Summary of Site Controls	<p>Works must be undertaken in accordance with the LLB GMRs, the Project EHS Plan, this Sub Plan and the LLB WDC. These documents detail LLB'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"> • Clear definition of trafficable and material storage areas to prevent unnecessary vehicle movement into other areas; • Use of water cart to dampen work areas and exposed soils to prevent the emission of excessive dust; • Installation of a wheel shaker grid and/or wash down facilities at the vehicle egress point; • Ensuring trucks transporting materials to and from the site use covers to prevent wind blown dust or spillage; • Ensuring truck tailgate locking mechanisms are operational and in use; • Periodic inspection of surrounding roads to ensure no construction contamination and initiation of road sweeping if required; • Careful selection of materials for temporary road surfacing; • Subcontractors to maintain equipment / machinery to ensure exhaust emissions comply with relevant legislation and guidelines; • All waste material to be sorted, collected and removed from site (for recycling where possible); • Air quality monitoring; • Dust screens and airlocks to be utilised with interior works; • Provide construction filters to air intake vents; and

- Use of temporary exhaust fans and filters to circulate construction zone air to exterior of building.
- Installing site perimeter dust protection measures;
- Controlling dust close to its source by installing sprays and sprinkler systems to prevent off-site migration; and
- Maintaining the site access to prevent dust generation and tracking off-site.
- No blasting will be performed as part of the proposed construction works program.

Excavation and construction stage dust, odour and emission management requirements must be included in relevant specifications, contract agreements, quality assurance documents, and subcontractor work method statements.

Site inspections, monitoring and reporting will be undertaken by Lendlease and subcontractors as detailed in the Project EHS Plan and the following implementation table.

2. IMPLEMENTATION OF THE SUB PLAN

Control Measure	Timing	Methodology	Responsibility	Monitoring and Reporting	Performance Measurement
Planning and Site Establishment					
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.	Construction Manager / Site Manager (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.	Prior to works commencing	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.
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 solid hoardings (if required) at the site perimeter and wind barriers at internal excavation boundaries.	Site establishment and ongoing	Identify and install hoardings/ shade cloth giving consideration to 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.	No reported dust monitoring exceedances. Number of complaints.

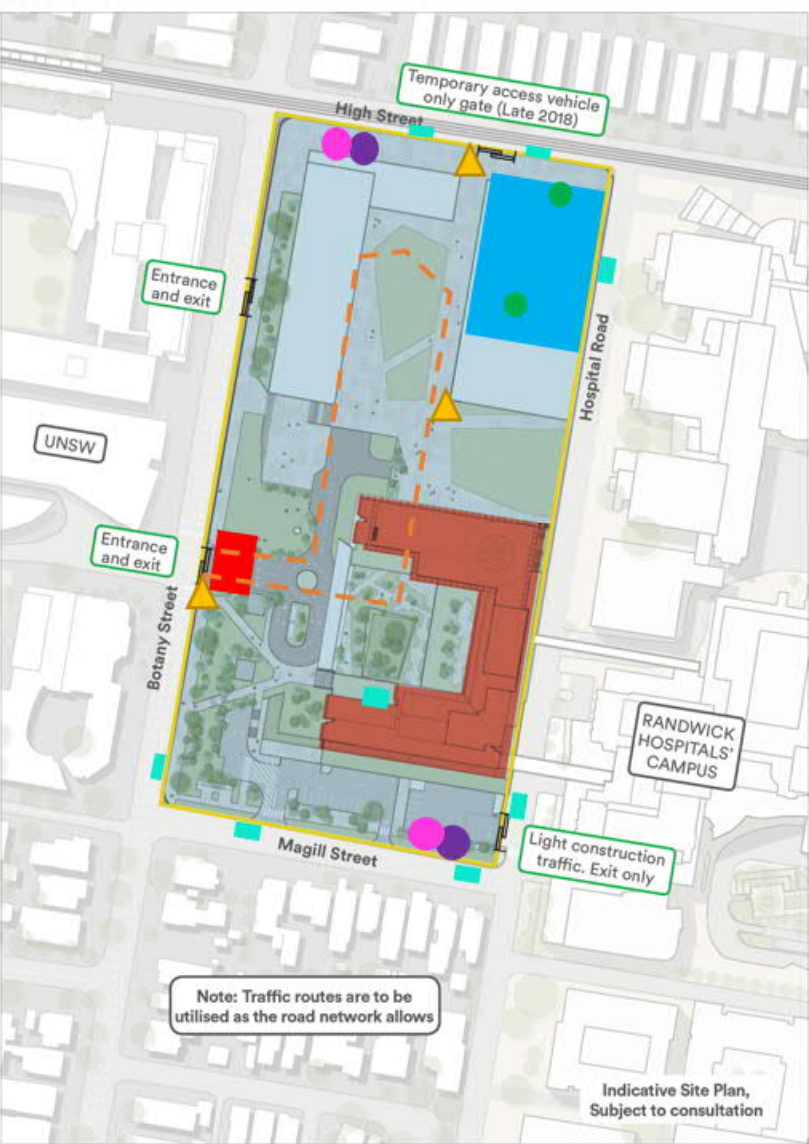
Seal or construct the site access, roads, turning and parking areas using gravel or non-dust generating materials.	Prior to construction commencing	Retain hardstand areas where existing. Construct new stable areas using road base as a minimum. Install wheelshaker facility	SM	Pre-construction inspection. Weekly/monthly inspection checklist.	No dust generation associated with vehicle movements. No tracking of materials onto public roads.
Dust Control During Construction					
Limit speed to max 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. Maintain site access controls and clean roadways. Stop work until conditions are more favourable if dust and/or tracking cannot be controlled.	SM	Constant surveillance during unfavourable conditions. Monitor meteorological reports.	No works performed during high wind or rainfall events. No complaints.

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. Apply temporary and/or permanent vegetation and mulch to stabilise.	CM/SM	Weekly/monthly inspection checklist. Project planning and design meetings.	Disturbed areas stabilised. No areas left exposed for prolonged periods.
Air Quality Controls (Contamination/Hazardous materials)					
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 Groundwater Management Sub Plan.</i>	SM	Dust monitoring results. Soil test results.	Dust controlled. No contaminants detected in dust monitoring samples.
Implement controls for the removal and handling of hazardous building materials (eg asbestos or lead-based paints)	At all times.	Engage a specialist hygienist/environmental consultant (as required). Install appropriate dust control devices/sprays. Install appropriate monitoring equipment. <i>Refer to Hazardous Substances and Dangerous Goods Management Sub Plan.</i>	CM/SM	Air quality monitoring during and after works. Clearance by occupational hygienist.	Building and area cleared of hazardous dust. Non-detection of asbestos/lead dust during monitoring.

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.
Combustion Emission Controls (TSP, PM10, NOx, CO and BTEX)					
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. Documented plant condition inspections by subcontractors. Verify that plant/equipment has been regularly maintained to minimise visible smoke and emissions.	SM	Routine and random inspections of plant. Emissions not visible for >10secs (as a general rule).	Copies of service records and/or inspection to be supplied. 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 contractors WMS.	SM	Daily surveillance.	No excessive (visible) emissions or odour.

ENVIRONMENTAL MANAGEMENT DIAGRAM– RANDWICK CAMPUS REDEVELOPMENT PROJECT



EXTENT MAP



KEY ENVIRONMENTAL ISSUES

- Dust both within site and leaving the site perimeter
- Unexpected finds
- Noise to general public
- Water Run Off
- Sediment Run Off

SENSITIVE RECEPTORS

- UNSW
- Randwick Hospital Campus (including Sydney Children's Hospital, Royal Women's Hospital, Prince of Wales Public & Private Hospital)
- Local Residents (High Street & Magill Street)

KEY CONTROL MEASURES

- Soil is to be managed in accordance with the RAP
- Silt barriers consisting of geotextiles with secondary filtering material will be established at one meter offsets from drains
- Geotextile to cover over drains to filter water along with sand bags when required
- Additional dust monitors in place within the Hospital Buildings along Hospital Road
- Sprinklers and water carts to reduce dust
- Dirt Glue to be used for unconsolidated material

KEY CONTACTS PERSONS

Construction Manager:
Elliot Hicks 0418 221 276

Site Manager:
Dane Lalic 0411 406 559

Emergency Services:
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EHS Coordinator:
Chloe Manning 0427 563 644

LEGEND

Icon	Descriptions
	Perimeter A-Class Hoarding
	Vehicle Entry Gate
	Site Accommodation and Offices
	Spill Kits
	Air Monitors
	Vibration Monitors
	Acoustic Monitors
	Stormwater inlet
	Haul Road
	All Weather Gravel Layback

Location of Dust Monitors on Randwick Hospital Campus