LENDLEASE BUILDING PTY LTD | 97 000 098 162

TWEED VALLEY HOSPITAL – STAGE 2

CONSTRUCTION AIR QUALITY AND DUST MANAGEMENT SUB-PLAN

14/08/2020 | Revision No: 3.4

Sub Plan Revision Status				
Date	Revision (in numbers)	Purpose and Summary of Amendments	Reviewed by	Approved by
30/01/2017	2	General update including LLB GMR and legislative amendments.	Tracey Wallbridge	Brian Falls
09/07/2019	3.0	Project Specific - Preliminary	Monique Windley	Luis Biaggini
05/09/2019	3.1	Updated Introduction	Amanda Wilmot	Luis Biaggini
24/07/2020	3.2	Updated to include new SSD 10353 Conditions	Monique Windley	Geoff Barrow
06/08/2020	3.3	Updated to include Client Feedback	Monique Windley	Geoff Barrow
14/08/2020	3.4	Updated to include feedback from Hygenist and Council	Monique Windley	Geoff Barrow

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1. SSD CONDITIONS

State Significant Development Conditions	
Name of this Plan (as per SSD Conditions): Construction Air Quality Management and Dust Management Sub-Plan (CAQDMSP)	
B20. The Construction Air Quality Management and Dust Management Sub-Plan (CAQDMSP) and the plan must address, but not be limited to the following:	
(a) be prepared by a suitably qualified expert, in consultation with Council;	Refer to Section 3: Scope of Project and Sub plan, Item: Preperation of Sub Plan
(b) be consistent with the air quality and dust control measures adopted in the CAQDMSP for SSD-9575;	Refer to Section 3: Scope of Project and Sub plan, Item: Consistency with SSD 9575
(c) describe the measures that would be implemented on Site to ensure: **(i) the control of air quality and odour impacts of the Development, in particular, during rock crushing and piling activities;** **(ii) that these controls remain effective over time;** **(iii) that all reasonable and feasible air quality management practice and measures are employed, with specific reference to the rock crushing and piling activities;** **(iv) the air quality impacts are minimised during adverse meteorological conditions or extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by the Planning Secretary; and** **(v) compliance with the relevant conditions of this consent.**	i) As per the Staging Report developed in response to Condition A11, this plan is developed to cover only activities for scope for the first stage of Main Works Scope and works within Lendlease scope. There is no further rock crushing and piling activites by Lendlease to be performed and consequently no mitigation measures incorporated into the site activities to manage these items. Prior to the commencement of works requiring rock crushing or piling (i..e the Multideck Carpark or Health Hub) the Air Quality Management Plan will be updated by either Lendlease or a separate contractor. Details of other mitigation measures to address not specified acitivtes are listed in '*Section 3: Impletemention of the Sub Plan*'. ii) The CAQDMSP is reviewed quarterly as a requirement of Lendlease internal process, with each revision the plan and associated mitigation measures will be reviewed for efficiency, in addition monthly monitoing data reports are produced as part of the monitoign program, which will also be reviewed with each iteration. iii) As above. iv) Section 3: Scope of Project and Sub plan & Section 4: Implementation of the Sub plan v) Addressed within Section 1 Table: *State Significant Development Conditions.*
(d) include performance objectives for monitoring dust and ensuring no off-site air quality impacts to users of Kingscliff TAFE, and nearby residences and other businesses;	Refer to Section 3: Scope of Project and Sub plan, Item: Manaing Impacts on Stakeholders
(e) includes an air quality monitoring program that: **(i) is capable of evaluating the performance of the construction works;** **(ii) includes a protocol for determining any exceedances of the relevant conditions of consent and responding to complaints;**	Refer to *Section 3: Scope Of Project and Sub Plan* which details the location, frequency of reports and the documentation contained within each report. In addition refer to Appendix 3 which details the reporting that has been issued under SSD 9575. The monthly reporting for SSD 10353 will be completed by an Occupational Hygeinst and will follow a similar or eqauivalent template as to Appendix 3. The report details exceedences, and coupled with when an exceedednce on site lasts longer than 5 minutes an alert will be issued to the key represenatives of the site team advising which monitor has had the exceedance. In those instances it will

(iii) adequately supports the air quality performance objectives; and **(iv) evaluates and reports on the effectiveness of air quality management for the construction works.**	be to the site managers discretion relevant mitigation measures to be taken nominated in Section 3 for resolving exceedences. For the handling of complaints refer to Comms Community Management Plan prepared by HI.
(f) details on monitoring weather conditions and communicating changing conditions to the workforce.	Refer to Section 3: Scope of Project and Sub plan, Item: Summary of Site Controls
C23. The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.	Refer to Section 4: Implementation of the Sub plan, Item: Dust Control During Construction
C24. During construction, the Applicant must ensure that: **(a) exposed surfaces and stockpiles are suppressed by regular watering;** **(b) all trucks entering or leaving the site with loads have their loads covered;** **(c) trucks associated with the development do not track dirt onto the public road network;** **(d) public roads used by these trucks are kept clean;** **(e) land stabilisation works are carried out progressively on site to minimise exposed surfaces; and** **(f) minimise air quality impacts of the project during adverse meteorological conditions.**	a, b, c, d, e and f) Refer to Section 4: Implementation of the Sub plan, Item: Dust Control During Construction
C25. The Applicant must install and operate equipment in line with best practice to ensure that the construction works comply with all load limits, air quality criteria / air emission limits and air quality monitoring requirements as specified in the CAQMSP.	Refer to Section 3: Scope of Project and Sub plan, Item: Monitoring Equipment Quality
C26. Dust deposition monitoring must be undertaken during the construction works (as per AS/NZS 3580). Monitoring locations must include sensitive receivers that are most likely to be affected. The locations and frequency of the monitoring are to be detailed within the CAQMSP.	Refer to Section 3: Scope of Project and Sub Plan, Item: Legislation, Project Approval and Guidelines; and Refer to Section 4: Implementation of the Sub plan, Item: Dust Control During Construction
C41. The Applicant must ensure that the removal of hazardous materials, particularly the method of containment and control of emission of fibres to the air, and disposal at an approved waste disposal facility is in accordance with the requirements of the relevant legislation, codes, standards and guidelines.	Refer to Hazardous Materials Management Plan.

B25: Environmental Management Plan Requirements - Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:

(a) detailed baseline data;	Available via Tweed Valley Hopsital project website. Montly reports uploaded: http://www.tweedvalleyhospital.health.nsw.gov.au/
(b) details of: (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions); (ii) any relevant limits or performance measures and criteria; and (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	i) Refer to Section 2: Scope of Project and Sub Plan. Subheading: Legislation, Approval and Guidelines ii) As determined after consultation with council. iii) Dust Monitoring, Visual inspection and community complaints.
(c) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Refer to Section 3: Implementation of the Sub plan
(d) a program to monitor and report on the: (i) impacts and environmental performance of the development; and (ii) effectiveness of the management measures set out pursuant to paragraph (c) above.	Refer to Section 3: Implementation of the Sub Plan, Item: Duration of Report and Frequency of Reports
(e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	1. Stop work protocol. 3. Incorporate Air and Dust Pollution minimisation measures.
(f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Quarterly review of CAQDMSP, review of monitoring data, or as needed depending on work activity.
(g) a protocol for managing and reporting any: (i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria); (ii) complaint; (iii) failure to comply with statutory requirements; and (iv) a protocol for periodic review / update of the incidents or matters of non-compliance.	Refer to Community Consultation Strategy prepared by HI.

2. OVERVIEW

The Tweed Valley Hospital Project broadly consists of:

- Construction of 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 Stage 2 Hospital Main Works and Operation

The Stage 2 SSD component is 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
  - Renal Dialysis
  - Pathology
  - Pharmacy
  - Radiation Oncology as part of integrated Cancer Care
  - Emergency Department
  - Perioperative Services
  - Interventional Cardiology
  - Medical Imaging
  - Mortuary
  - Education, Training, Research
  - Back of House services
  - Rooftop Helipad
- **Construction of Support Buildings, referred to as the 'Health Hub', containing:**
  - Oral Health
  - Community Health
  - Aboriginal Health
  - Administration
  - Education, Training and Research
- **Internal Roads and carparking, including multi-deck parking for staff, patients and visitors;**
- **Construction of a temporary building for the 'Tweed Valley Skills Centre'**
- **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**

The works outlined above comprise five key components, which are subject to various funding allocations and may be delivered independently to each other. Stage 2 has therefore been defined in the following sub-stages:

Stage 2A – Main Hospital Building complete with supporting roads, services infrastructure and landscaping
Stage 2B – Main Hospital Building incremental expansion areas
Stage 2C – Health Hub
Stage 2D – Tweed Valley Skills Centre
Stage 2E – Multi-deck car park.

Refer to the Staging Report for details of staging.

3. SCOPE OF PROJECT AND SUB PLAN

Project Details	
Scope of the Sub Plan	This Construction Air Quality Management and Dust Management Sub Plan (CAQMDMSP) 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. 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.
Preperation of Sub Plan	Lendlease Building Australia has a project Environment, Health & Safety Management Plan. This plan forms an integral part of the Lendlease Building Environment, Health and Safety Management System and includes input from the following: • Global Minimum Requirements Environment, Health and Safety • Workplace Delivery Code • Legal & Compliance Legislation, Standards and Codes • Impacts & Hazards Risk Assessment Specific to the Workplace One of the sub-plans have this EHS plan is the Air Quality Management Sub Plan (relabelled to satisfy the SSD 10353 requirements to be the 'Construction Air Quality Management and Dust Management Sub-Plan'). This plan has been developed by Lendlease's Environment Manager from our National EHS Team Tracey Wallbridge, and review by Ross Trethewry the Head of Environment, Health & Safety for Lendlease Building Australia. This project has since been refined to be project specific for Tweed Valley Hospital Stage 2 scope, by Monique Windley – Lendlease Building Site Environmental Engineer and reviewed by Senior Site Manager Geoff Barrow to include comments made from Greencap's Biodiversity Development Assessment Report & Biodiversity Management Plan developed for SSD 10353. <u>Report Reviewed by:</u> • Review by Sutiably Qualified Occupational Hygenist – Refer to Appendix

	• Council – To be reviewed Post Approval from TSA.
Objectives of the Sub Plan	• 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	This Sub Plan has been prepared based on the following scope of works: • Site establishment including ATF, fixed temporary fence and hoarding installation, office and compound setup; • Civil Works, including carparks and roads for Stage 2; • Monitoring and maintenance of existing Sedimentation Basins; • 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 • Landscaping
Consistency with SSD 9575	The Construction Air Quality Management and Dust Management Sub-Plan was also a requirement of the first SSD conditions for SSD 9575. This plan has been developed from the most recent version from Stage 1 works, to include the new scope of works. As such this new plan is be consistent with the air quality and dust control measures adopted in the Stage 1 CAQDMSP for SSD-9575.
Key Issues and Risks	The works described above have the potential to generate dust, odour and emissions primarily associated with: • Traffic movements and plant operation; • Spoil handling and stockpiling; • Storage and handling of materials; and Compliance with the Project EHS Plan and this 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: • Cause a nuisance or health effects to the local community; • Result in complaints;

	• Impact on the natural environment; or • Create unsafe working conditions. The closest receptors to the site are located (Appendix A): Catchment Area A • Residential • Educational - Kingscliff High School to the southeast (closest and most affected educational receiver) - Kingscliff Library to the northeast • Passive Recreation Area - Jack Julius Park • Commercial including - Kingscliff Community Health Centre - Civic Swimming Pool - Life Bridge Australia Catchment Area B • Residential • Educational – North Coast TAFE Kingscliff Campus (TAFE) • Agricultural / Commercial Catchment Area C • Residential • Agricultural A&B Hydroponics (west boundary); 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. NOTE: Air quality data (speicifcally from dust monitoring during early works) has been undertaken and can be utilised to facilitate an assessment of construction impacts on local air quality.

Legislation, Project Approval and Guidelines	**Federal/National:** • National Environment Protection (Ambient Air Quality) Measure (NEPM) 1998 (varied 2015). • 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 3580.1.1:2016 Methods for Sampling and Analysis of Ambient Air - Guide to Siting Air Monitoring Equipment • National Environment Protection Council's (NEPC) – NEPM for Ambient Air Quality Guidelines • Protection of the Environment Operations (Clean Air) Regulation 2010. • Air Quality Monitoring Criteria for Deposited Dust (DEC Guideline). **State:** • NSW Workplace Health and Safety Act 2011 • NSW Workplace Health and Safety Regulation 2017 • Protection of the Environment Operations Act 1997 • Environmental Planning & Assessment Act 1979 • Protection of the Environment Operations (Waste) Regulation 2014. • Environmentally Hazardous Chemicals Regulation 2017 • AS 3580.10.1-2016 Methods of Sampling Analysis of Ambient Air • Action for Air 2009 (NSW DEC) • Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW (2016) **Local:** • Local Government Act 1993 Lendlease requirements: • GMR 4.10: Occupation Health Exposure (for unexpected findings); • GMR 4.13: Degradation or Pollution of the Environment

	• GMR 4.15: Uncontrolled Release of Stored Energy (non-electrical)) • Lendlease Building Workplace Delivery Code (WDC)
Summary of Site Controls	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. 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: ● 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 windblown 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; ● Watercarts/water trucks will be in permanent use on site during excavation and civil works. ● Temporary stockpiles that are not required for imminent use will be stabilised with spray grass or appropriate fabric. ● Continuous monitoring of weather forecast to stop dust generating activities in case that high winds are expected. ● Before extended breaks (e.g. Easter & Christmas), areas will be treated with spray grass. ● 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. ● 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. ● 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 only); ● Dust screens and airlocks to be utilised with interior works; ● 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. Construction 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 following implementation table to ensure controls remain effective overtime.
Manaing Impacts on Stakeholders	Visual monitoring of air quality to verify the effectiveness of controls and enable early intervention; Public roads and entrances to nearby residences and other businesses and will be inspected each day at main entry and exit points (and near high generating activity) to and from areas where construction activities are taking place and compound. Material tracked onto the road pavement will be removed. Dust levels are to be monitored. Monitoring equipment will remain in place until completion of the construction works and/or where ground conditions are stable. Results will be captured monthly and collected in accordance with DEC's "Approved Method for the Sampling and Analysis of Air Pollutants in NSW" guidelines.
Location of Monitoring Equipment	Monitoring logs (for dust only) will be in place during high risk works: • 3 No. along the Cudgen Road site boundary (to monitor the emissions close to the TAFE, residents and businesses). Refer to Appendix 2 for locations.
Duration of Report and Frequency of Reports	Monitoring will be installalled from the commencement date of SSD 10353 works and will remaing for the entirety of project (i.e. 27 months), unless it is determined they are not required for full duration due to work activites on site. Reports will be generated by an Occupational Hygenist Consutlant responsible for the monitoring equipment each month. This report will summarise the data from the month and discuss any exceedances. Calculation may be performed to determine the dust at the sensitive receivers across the road (i.e. residents and tafe).
Monitoring Equipment Quality	Equipment will be installed and operated in line with best practice to ensure that the construction works comply with all load limits, air quality criteria / air emission limits and air quality monitoring requirements (when required).

4. 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.	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 duriation of works causing deference from perfomance 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.

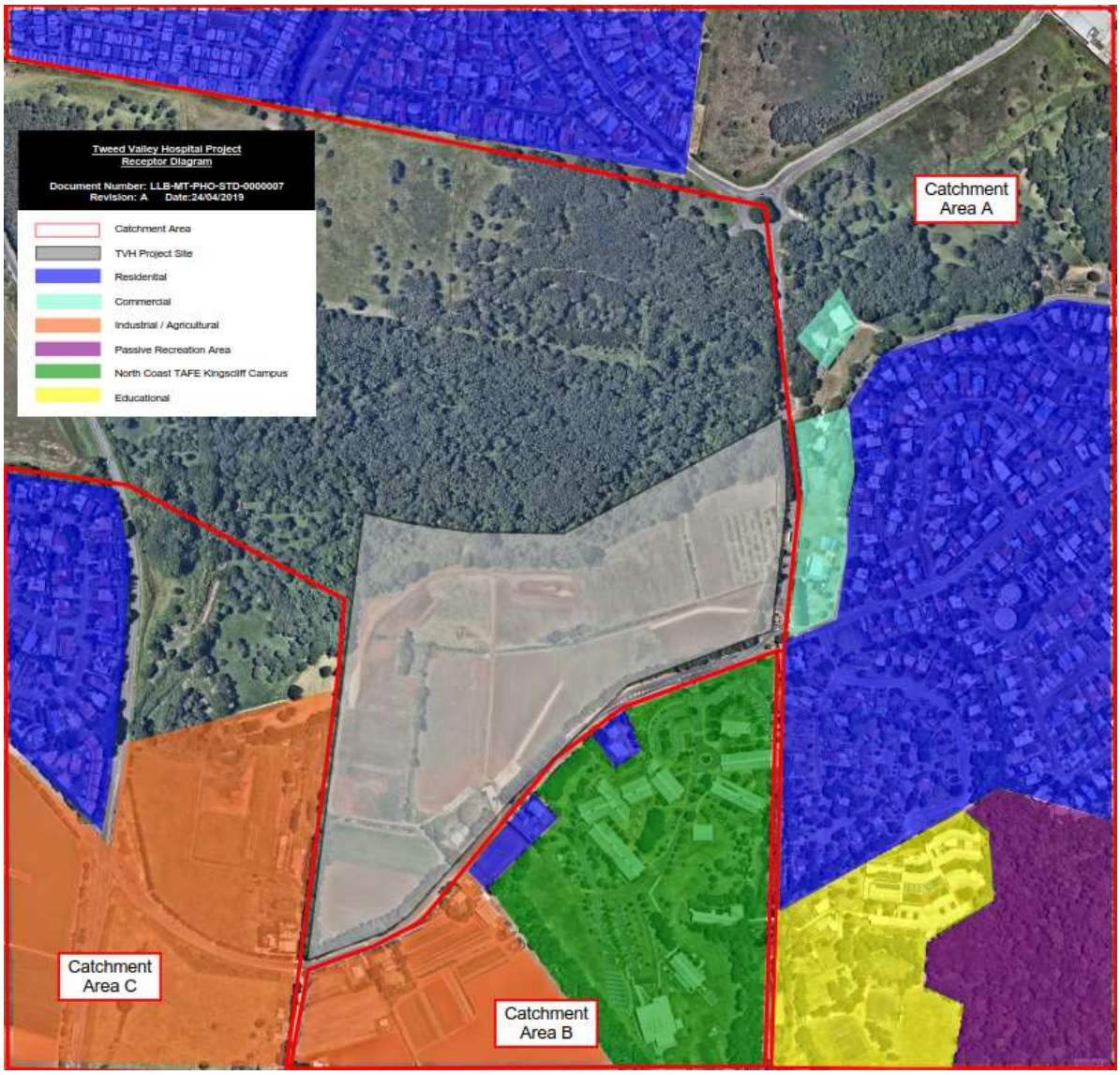
Seal or construct the site access, roads, turning and parking areas using gravel or non-dust generating materials.	Prior to construction commencing	Retain hardstand areas where existing. Construct new stable areas using road base as a minimum. Install wheel shaker facility	SM	Pre-construction inspection. 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/SM/SE	Staging Plan	Limit dust generation from vegetation removal.
Dust Control During Construction					
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 (particularly over long breaks i.e. Christmas & Easter).	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.
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
Air Quality Controls (Contamination/Hazardous materials) – Remediation of contaminated materials was compelted in Stage 1 (Early Works) not expected to be required under Stage 2 (Main Works)					
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. *Refer to Contaminated Soil and Water Management Sub Plan.*	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.
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.

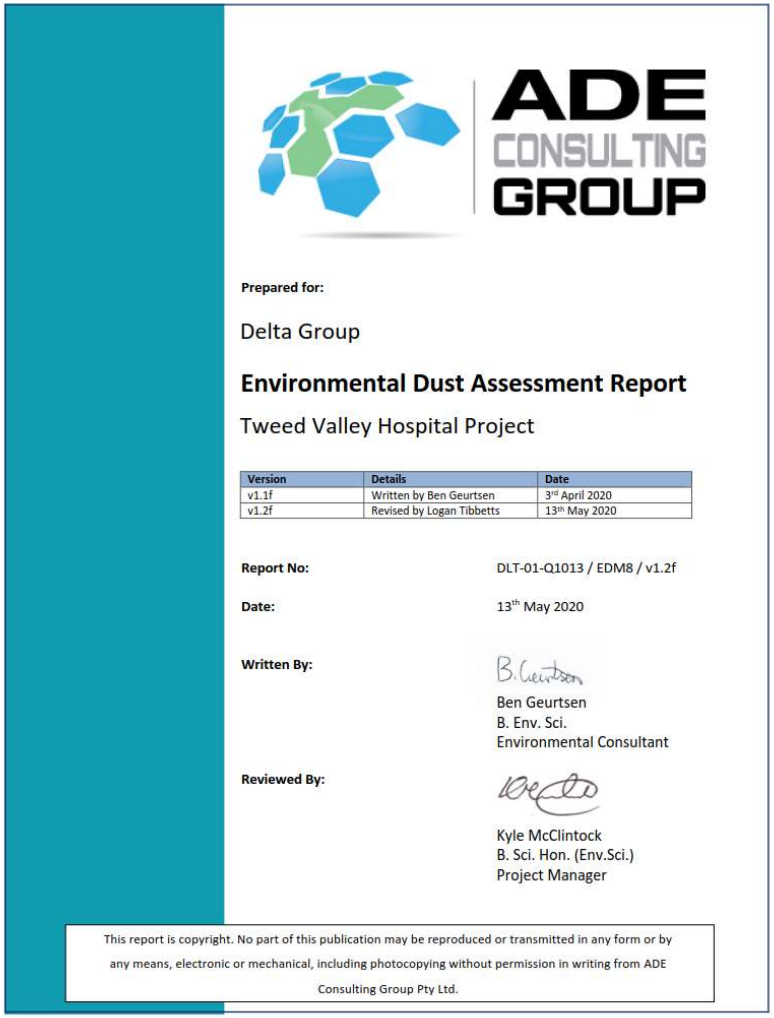
Fit plant and equipment with emission control devices and maintain.	At all times	Include requirements in subcontractor documents. Documented plant condition inspections by subcontractors. Verify than plant/equipment has been regularly maintained to minimise visible smoke and emissions.	SM	Routine and random inspections of plant. Emissions not visible for >10secs (as a 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 contractor's WMS.	SM	Daily surveillance.	No excessive (visible) emissions or odour.

Appendix 1: Surrounding Land Uses



Appendix 2: Approximate Location of Dust Monitors

Appendix 3: Example Environmental Dust Assessment Report



ADE CONSULTING GROUP

Prepared for:

Delta Group

Environmental Dust Assessment Report

Tweed Valley Hospital Project

Version	Details	Date
v1.1f	Written by Ben Geurtsen	3rd April 2020
v1.2f	Revised by Logan Tibbetts	13th May 2020

Report No: DLT-01-Q1013 / EDM8 / v1.2f

Date: 13th May 2020

Written By:

Ben Geurtsen
B. Env. Sci.
Environmental Consultant

Reviewed By:

Kyle McClintock
B. Sci. Hon. (Env.Sci.)
Project Manager

1 INTRODUCTION

1.1 General

ADE Consulting Group Pty Ltd (ADE) was commissioned by Delta Group (DLT) Pty Ltd to measure the levels of dust within the Tweed Valley Hospital Project, located at 771 Cudgen Road, Kingscliff NSW hereafter referred to as 'the Site'. At the time of the dust monitoring, Delta Group are continuing to conduct earthworks.

Real time dust monitoring was carried out to determine and quantify the levels of dust created during the days in which the contractors/employees are undertaking the earthworks.

Table 1. Summary of Site Information and Project Information.

Site and Project Details	
Client:	Delta Group
ADE Project No.:	DLT-01-Q1013
Site Location:	771 Cudgen Road, Kingscliff NSW
Monitoring Time and Dates:	Sunday 1st March – Tuesday 31st March (continuous): - Day shift from 07:00 to 17:59 - Night Shift from 18:00 to 06:59
Date of Report:	03.04.2020
Monitoring Parameters:	Particulate Matter <10 micrometers (PM10); and Data recording frequency: 1 minute.
Exposure Standard	Australian Institute of Occupational Hygienists (AIOH) recommendation for PM10 Dust **5 mg/m³** (expressed as 8-hour time weighted average)

1.2 Scope of Work

The scope of work involved the following:

- Completion of a Safety, Health & Environment Work Method Statement prior to undertaking any works;
- Real time continuous monitoring of PM10 in seven locations along the Eastern, Southern and Western boundaries of the site; and
- Preparation of an Environmental Dust Assessment Report outlining the site data, conclusions and recommendations.

1.3 Whole Report

No one section or part of a section, of this report should be taken as giving an overall idea of this report. Each section must be read in conjunction with the whole of this report, including its appendices and attachments.

1.4 Previous Report

Refer to the previous report (DLT-01-Q1013 / EDM7 / v1.2f) for details from earlier monitoring periods.

1.5 Monitoring Locations

The Site is located at 771 Cudgen Road, bounded by Tweed Coast Road to the West, Turncock Street to the East and Cudgen Road to the South at Kingscliff, NSW as per the Figure 1 on the following pages.

The DustTrak monitoring locations are indicated by the blue dots in Figure 1, all within the confines of the construction barriers in compliance with condition C29 of the consent.

Dust levels are recorded at these locations to determine the dust levels at the western, eastern and southern boundaries of the project during the alterations on site, and ensure the nearby sensitive receivers listed in the Lendlease Air Quality Management Plan remain undisturbed. Dust monitoring location 001 was installed on the 2nd of August 2019. Dust monitoring locations 002 & 003 were installed on the 31st of July 2019. Dust monitoring locations 004, 005, 006 & 007 were installed on the 16th of January 2020. All dust monitors have been operational 24 hours a day since their installation.

1.6 Exposure Limits

ADE has adopted the recommended exposure standard for PM10 to be 5 mg/m³ (8-hour time weighted average) as per the recommendation of the Australian Institute of Occupational Hygienists (AIOH) for works on-site. If this standard is exceeded, cease works immediately, and review controls and relevant practices listed in the Lendlease Tweed Valley Hospital Management Plan – Air Quality (2019). An action limit of 2.5 mg/m³ (8-hour time weighted average) has been implemented to minimize the likelihood of an exceedance.

1.7 Bureau of Meteorology (BOM) Climate Data

Summary of climate data for Coolangatta has been included in Table 2 below.

Table 2. Summary of Climate Data at Coolangatta, QLD.

Date	Wind direction	Highest wind gusts (km/h)	Time of maximum wind gust	Minimum temperature (°C)	Maximum temperature (°C)	Rain (mm)
01/03/20	ESE	35	13:09	21.4	29.6	2.4
02/03/20	NNE	30	12:48	20.2	30.8	0
03/03/20	SE	52	19:56	21.1	31.3	0
04/03/20	SE	44	08:13	21.9	28.1	11.6
05/03/20	NE	33	01:37	23.7	30.0	2.4
06/03/20	N	37	16:02	23.5	30.1	0.8

Table 2. Continued...

Date	Wind direction	Highest wind gusts (km/h)	Time of maximum wind gust	Minimum temperature (°C)	Maximum temperature (°C)	Rain (mm)
07/03/20	S	63	16:26	23.3	29.0	6.0
08/03/20	SE	43	10:55	21.4	28.4	0
09/03/20	ESE	44	15:39	20.0	21.9	2.8
10/03/20	S	44	16:20	18.6	25.0	56.6
11/03/20	SSE	31	15:00	18.8	26.8	21.0
12/03/20	SE	52	14:44	18.7	23.7	
13/03/20	SSE	48	13:57	18.1	26.5	42.2
14/03/20	SE	52	13:03	19.7	27.3	0
15/03/20	SSE	63	18:06	18.9	26.2	0
16/03/20	S	63	03:56	18.8	26.3	0
17/03/20	SSE	59	10:29	18.2	25.9	1.8
18/03/20	SE	48	13:28	18.7	26.7	0
19/03/20	ENE	30	13:35	16.3	27.3	0
20/03/20	NNE	35	15:07	16.3	27.8	0
21/03/20	SE	46	14:37	20.2	30.6	0
22/03/20	NNW	28	19:07	21.6	28.6	0
23/03/20	SE	52	12:41	20.9	28.1	0
24/03/20	SE	39	11:56	19.3	25.9	11.6
25/03/20	NE	24	14:25	18.9	26.4	2.6
26/03/20	SE	35	13:38	17.8	27.5	0.2
27/03/20	S	43	15:57	18.8	22.4	11.6
28/03/20	SSW	35	11:16	18.8	27.2	3.6
29/03/20	ESE	30	12:56	18.4	27.1	0.6
30/03/20	NNE	28	13:58	17.5	27.3	0.2
31/03/20	ESE	22	15:00	21.8		0

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Brisbane Office: ADE Consulting Group Pty Ltd, Unit 3 / 22 Palmer Place, Murarrie QLD 4172
Contact Us: Site: www.ADE.Group, Email: info@ade.group, Phone: 1300 976 922

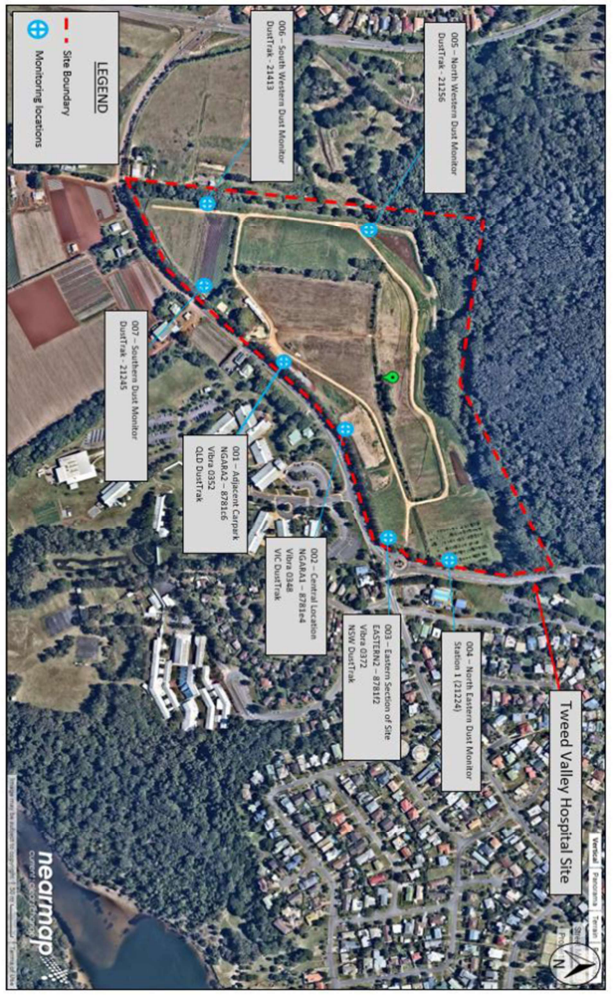

Figure 1. Aerial photograph of the DLT works area at 771 Cudgen Road, Kingscliff NSW.

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Melbourne Office: ADE Consulting Group Pty Ltd, Unit 4 / 95 Salmon Street, Port Melbourne, VIC 3207
Newcastle Office: ADE Consulting Group Pty Ltd, Unit 9 / 103 Glenwood Drive, Thornton, NSW 2322
Brisbane Office: ADE Consulting Group Pty Ltd, Unit 3 / 22 Palmer Place, Murarrie QLD 4172
Contact Us: Site: www.ADE.Group, Email: info@ade.group, Phone: 1300 976 922

2. SAMPLING METHODOLOGY

2.1 Air Monitoring Samples

The implementation of continuous dust monitoring using a light scattering instrument (Dust Trak™ DRX Aerosol Monitor) as a supplemented analysis technique for dust deposition and directional dust analysis techniques. This supplemental technique is used as a guide and first response to allow change to dust control measures to be implemented to avoid exceedances within deposition and directional dust analysis techniques.

The Dust Trak™ DRX continuous dust monitor was used to determine the concentration of the dust that has been created by the earthworks. Two (2) Dust Trak™ DRX continuous dust monitors were installed on the 31st July 2019, one (1) was installed on the 2nd August 2019 and an additional four (4) were installed on the 16th of January 2020.

2.2 Controls

As per Lendlease Tweed Valley Hospital Management Plan – Air Quality (2019):

"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.

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:

- *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 windblown 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;*
- *Watercarts/water trucks will be in permanent use on site during excavation and civil works;*
- *Temporary stockpiles that are not required for imminent use will be stabilised with spray grass or appropriate fabric;*
- *Continuous monitoring of weather forecast to stop dust generating activities in case that high winds are expected;*
- *Before extended breaks (e.g., Easter, Christmas), areas will be treated with spray grass;*
- *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;*

- *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;*
- *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);*
- *If rock crushing is assessed to be safe and feasible (i.e. cost effective and meets Nosie restrictions) the following management provisions will be in place:*
  - *Rock crushers will have a water attachment for dust suppression at the source. The water is sprayed at the face of the crusher before, during and after the crushing;*
  - *Crushers will be located as far as practicable from Cudgen Road and immediate neighbours (i.e., on the north-west area of the site);*
  - *All crushed rock suitable for re-use will be recycled on site as fill, sediment control, pavements, hardstands, construction exits and pipe bedding materials;*
  - *Where possible, the oversize material from hard rock projects is also reused for vehicle entry shake downs and erosion control;*
- *Air quality monitoring is required for dust only. Given all plant and equipment will be fitted with air filter caps, analytical air quality monitoring except for asbestos works is not required;*
- *Dust screens and airlocks to be utilised with interior works;*
- *Controlling dust close to its source by installing sprays and sprinkler systems to prevent off-site migration;*
- *Maintaining the site access to prevent dust generation and tracking off-site; and*
- *No blasting will be performed as part of the proposed construction works program.*

Demolition (e.g., existing inground services), 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 to ensure controls remain effective overtime".

3. DATA

Note – All graphs below express dust levels as an hourly average and values <0.01 not be graphed.

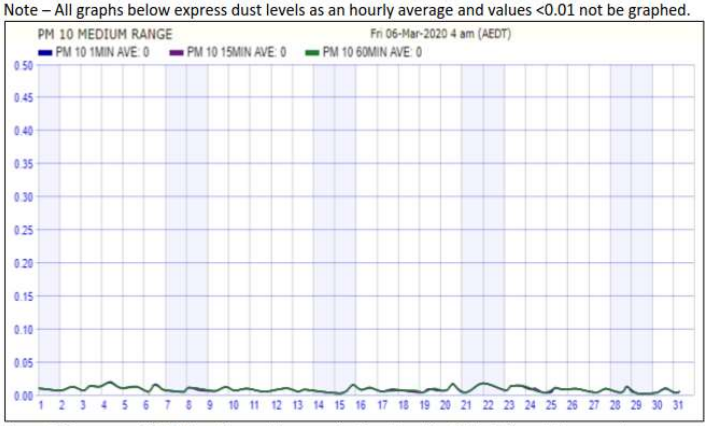

Figure 2. Summary of PM10 from the real time monitoring at location 001 – Adjacent the carpark.

Figure 3. Summary of PM10 from the real time monitoring at location 002 – Central location.

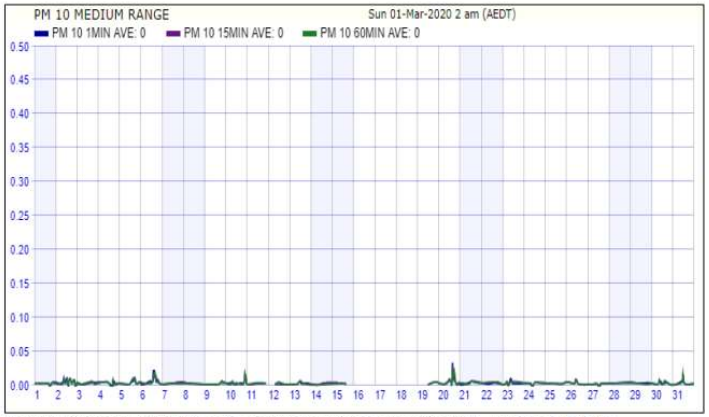

Figure 4. Summary of PM10 from the real time monitoring at location 003 – Eastern end of site.

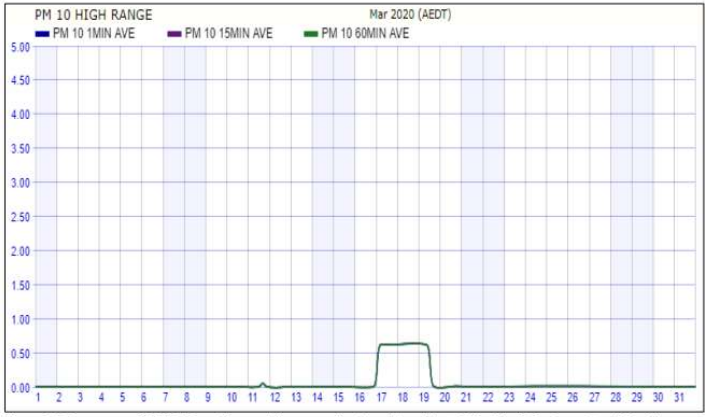

Figure 5. Summary of PM10 from the real time monitoring at location 004 – North Eastern Dust Monitor.

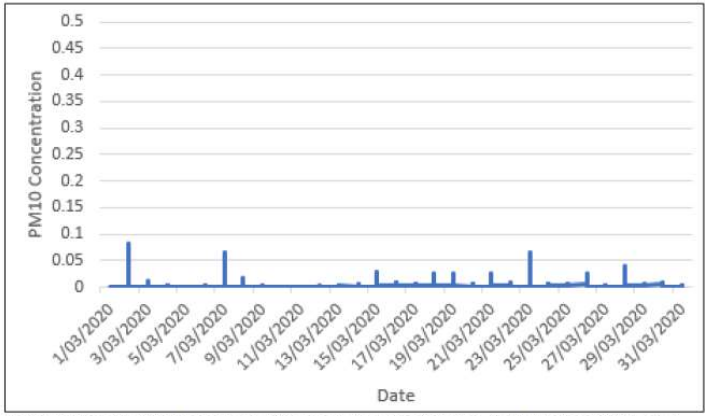

Figure 6. Summary of PM10 from the real time monitoring at location 005 – North Western Dust Monitor.

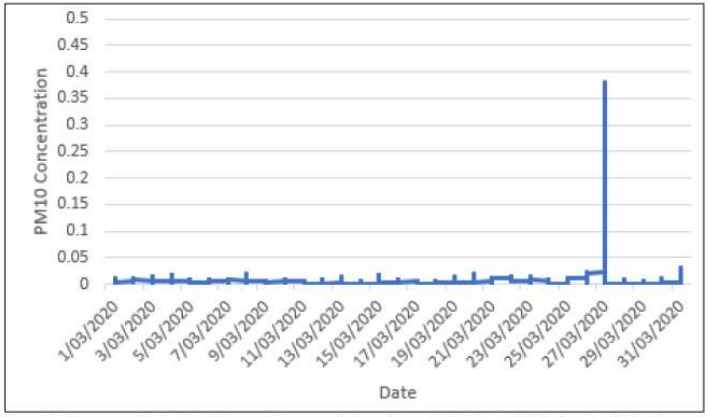

Figure 7. Summary of PM10 from the real time monitoring at location 006 – South Western Dust Monitor.

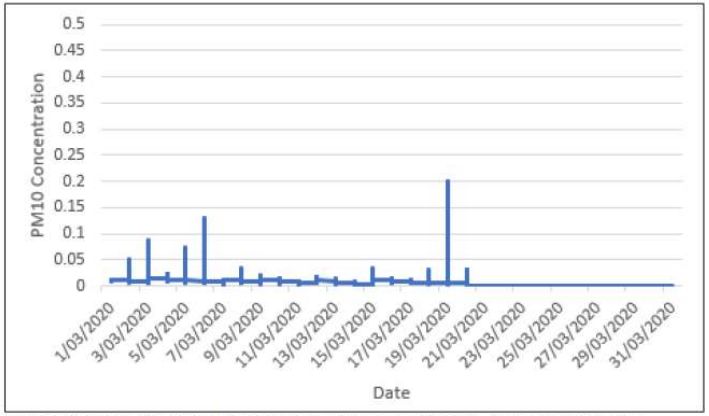

Figure 8. Summary of PM10 from the real time monitoring at location 007 – Southern Dust Monitor.

4. CONCLUSIONS

The peak dust concentration recorded during the month of March was 0.612mg/m³ at monitoring location 004 only. The peak occurred at 12:13am on the 17th of March 2020 and continued until 11:55am on the 19th of March 2020. The start time of the initial peak indicates the spike was not as a result of construction activities and suggested a fault within the DustTrak intake. ADE attended the Site on the 19th March 2020 to investigate and discovered a blockage within the intake which was then rectified.

All other dust levels remained below 0.5mg/m³ during the month of March 2020 (*refer to **Section 3. Data***).

Slightly elevated dust concentrations were recorded on the 27th of March 2020 at monitoring location 006 (0.38mg/m³) and the 6th and 19th of March 2020 (0.14mg/m³ and 0.20mg/m³ respectively) at 007. The concentrations observed on the 6th and 19th of March 2020 may be partially due to North and East-North Easterly winds respectively (refer to Table 2). The concentrations observed on the 27th of March 2020 cannot be correlated with wind direction and may have been caused by localized construction activities. ADE notes that concentrations were below the action limit of 2.5 mg/m³.

It should be noted that the DustTrak minimum concentration reading is 0.001mg/m³ and values of lower concentration will be recorded as zero.

Data gaps were identified and resolved during the following period / monitoring location:

- 8th-11th March: monitoring location 002. Low battery voltage occurred on Sunday 8th March 2020. The issue was noted by ADE and informed the Client. Visual inspection was carried out with no immediate issues identified. Site visit by ADE on the 11th March 2020 resolved the issue; and
- 15th-19th March: monitoring location 003. A short circuit occurred on Sunday 15th March 2020. The issue was noted by ADE and informed the Client. Visual inspection was carried out with no immediate issues identified. Site visit by ADE on the 19th March 2020 resolved the issue.

Dust concentrations across all monitoring location remained **below the action limit of 2.5 mg/m³** (refer to Section 3. Data).

5. RECOMMENDATIONS

Ensure adequate dust control measures are being implemented as per the Lendlease Weed Valley Hospital Management Plan - Air Quality (2019) and continued monitoring of PM10 for the duration of the project. If the action limit of 2.5 mg/m³ (8-hour time weighted average) is exceeded, cease works and review and implement additional dust prevention techniques.

6. LIMITATIONS

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only and has been based on information provided by the client. The advice herein relates only to this project and all results, conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose. ADE Consulting Group Pty Ltd accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced or amended in any way without prior approval by the client or ADE and should not be relied upon by any other party, who should make their own independent enquiries.

ADE's professional opinions are based upon its professional judgment, experience, training and results from analytical data. In some cases, further testing and analysis may be required, thus producing different results and / or opinions. ADE has limited investigation to the scope agreed upon with its client.

ADE has used a degree of care and skill ordinarily exercised in similar investigations by a reputable member of the Environmental Industry within Australia. No other warranty, expressed or implied, is made or intended.

7. REFERENCES

- AIOH Position Paper, Dust not otherwise specified (Dust NOS) AND Occupational Health Issues, published by the Australian Institute of Occupational Hygienists (AIOH), May 2016.
- Lendlease Building Pty Ltd Tweed Valley Hospital Management Plan – Air Quality, dated 07/02/2019.

Sydney Office:
ADE Consulting Group Pty Ltd
Unit 6 / 7 Millennium Court
Silverwater, NSW 2128

Melbourne Office:
ADE Consulting Group Pty Ltd
Unit 4 / 95 Salmon Street
Port Melbourne, VIC 3207

Newcastle Office:
ADE Consulting Group Pty Ltd
Unit 9 / 103 Glenwood Drive
Thornton, NSW 2322

Brisbane Office:
ADE Consulting Group Pty Ltd
Unit 3 / 22 Palmer Place
Murarrie QLD 4172

Contact Us:
Site: www.ADE.Group
Email: info@ade.group
Phone: 1300 976 922

Appendix 4: Review from Expert Hygenist and Qualification

Windley, Monique

From: Lobdell, Geoffrey
Sent: Monday, 10 August 2020 10:12 AM
To: Windley, Monique
Subject: FW: [EXT]:RE: Proposed Main Works Air and Dust Management Plan

FYI

Regards,

Geoff Lobdell
Site Engineer, Tweed Valley Hospital Project
771 Cudgen Road, Cudgen, 2487 NSW Australia
M 0450 095 648
Geoffrey.Lobdell@lendlease.com | www.lendlease.com

Please consider the environment before printing this e-mail.

From: Kyle McClintock <Kyle.M@ade.group>
Sent: Monday, 10 August 2020 10:10 AM
To: Lobdell, Geoffrey <Geoffrey.Lobdell@lendlease.com>
Subject: [EXT]:RE: Proposed Main Works Air and Dust Management Plan

Good Morning Geoff,

I have reviewed the Air & Dust Management Plan, there are no comments from my end.

Kind Regards,

Kyle McClintock
B.Sc. (Hons) Env. Sci.
Operations Manager (QLD)

ADE CONSULTING

3/22 Palmer Place,
Murarrie QLD, 4172
Phone: +61 2 8541 7214
Mobile: 0450 603 252
E-mail: kyle.mcclintock@ade.group
Website: ade.group

Follow Us

From: Lobdell, Geoffrey <Geoffrey.Lobdell@lendlease.com>
Sent: Friday, 7 August 2020 1:01 PM

1

Kyle McClintock

SENIOR ENVIRONMENTAL CONSULTANT/ PROJECT MANAGER

Kyle is suitably qualified Environmental Consultant with 10 years' experience in various environmental settings. Kyle has worked within contaminated land teams throughout Australia (ACT, QLD, NSW & VIC), United Kingdom and Ireland for a wide variety of clients ranging from major infrastructure and utility companies as well as regional and local governments.

Since starting work with ADE Consulting Group Pty Ltd in 2014, Kyle has continued his development and understanding of large scale industrial/commercial contaminated sites and the processes involved with the remediation and validation relating to soil, soil vapour and groundwater contamination.

QUALIFICATIONS

Bachelor of Physical Geography

AFFILIATIONS

Australian Land and Groundwater Association (ALGA)

CONTACT DETAILS

Kyle.McClintock@ade.group

0450 603 252

www.ade.group

22 Palmer Place
Murarrie QLD 4172

SKILLS

- Project management
- Technical reporting

HALLMARK PROJECTS

Enviropacific Services Multiple Projects NSW/ACT Environmental Consultant (Site Works/Reporting)

- The scope of works for Enviropacific include UST validations, Phase II Site Investigations and waste classification. The following project undertaken at Caringbah NSW included the following works:
- As part of the DA of the Site, an Environmental Investigation was undertaken to locate several USTs and assess the surrounding soil materials;
- ADE was engaged to undertake the locating of the USTs and soil characterisation. During the investigation, shallow groundwater was encountered. Upon consulting the client, ADE proposed the installation of a small network of shallow groundwater monitoring wells to determine groundwater contamination (if any) and direction of groundwater flow;
- The investigation concluded that impacted groundwater was localised around the existing USTs, a RAP was developed to remediate the Site which in turn allowed for MNA of groundwater.

Richard Crookes Construction 1a Coulson Street, Erskineville NSW Environmental Consultant (Site Works/Reporting)

- This Site was an NSW EPA audited remediation and validation Site, with the proposed future land use of high-density residential development;
- ADE was engaged mid-project in order to rectify the supervision of remedial works. This was to ensure that all controls and the scope of works outlined within the RAP were adhered to;
- As part of the works, ADE conducted further characterisation of soils within the Site. ADE concluded that the upper fill material was suitable for re-use (Auditor approved), in doing so reducing the volume exported for off-site disposal and overall increasing the sustainability of the project;
- The further characterisation of soils also identified B(a)P, TRH and friable asbestos hotspots not initially identified within the original RAP but were subsequently remediated/validate by ADE;
- The Site was successfully remediated and validated with SAS/SAR gained April 2015; and
- Investigative works and validation of perimeter setbacks are ongoing.

Meriton 82-94 Epsom Road, Zetland NSW Environmental Consultant (Site Works/Reporting)

- This Site was an NSW EPA audited remediation and validation Site, with the proposed future land use of high-density residential development;
- A large-scale cradle to grave project for ADE, with exclusive involvement of all stages of the Phase I – Preliminary Site Investigation through to the Phase IV – Validation Report;
- The project involved extensive assessments of soil, soil vapour and groundwater utilising:
  - MIP;
  - Groundwater Monitoring;
  - Soil Characterising;
  - Ash Exemption;
  - Soil Vapour Assessment; and
  - Acid Sulphate Soils Assessment.
- ADE developed a RAP in order to remediate the complex contamination issues, which involved UST removals, VHCs, TRHs, PAHs and Asbestos impacted soils as well as VHC impacted groundwater;
- The Site was successfully remediated and validated with SAS/SAR gained November 2015.

Aurizon Long Term Train Support Facility, Hexham NSW Environmental Consultant and Project Manager

- This Site was an NSW EPA audited remediation and validation Site, with the proposed future land use of commercial/industrial;
- ADE was engaged mid-project in order to undertake supervision of liming works undertaken on several Coal Wash Reject (CWR) treatment pads, with the intended outcome for reuse on Site. Upon completion of the remediation works, ADE was tasked with producing a final Site Validation Report assessing the soils conditions as well as groundwater conditions;
- ADE concluded that treatment pads were suitably neutralised (as per the SAC) and were suitable for reuse on site and that the treatment pads did not pose a risk to groundwater.

Khater Property Group 29-33 Mile End Road, Rouse Hill, NSW Environmental Consultant (Site Works/Reporting)

- As part of the DA of the Site, a Phase I – Preliminary Site Investigation was undertaken. Consequently, ADE recommended and undertook a Phase II – Detailed Site Investigation and Hazardous Material Survey of on-site buildings;
- ADE concluded that the concentrations of the potential contaminants within the soil samples collected were below the assessment criteria and that no significant contamination, the site was suitable for its proposed land use and DA was successfully acquired by the client.

Meriton Rosebery Avenue/Dalmeny Avenue, Rosebery NSW Environmental Consultant (Site Works/Reporting)

- This Site was an NSW EPA audited validation Site, with the proposed future land use of high-density residential development;

- ADE was engaged to undertake the final site validation report and to supervise the remediation of the Site as per the RAP. This involved the following remediation works – UST removal, friable bonded asbestos, TRH and PAH hotspots;
- The Site was successfully remediated and validated with the objectives stated in the relevant RAP achieved. The Site gained the SAS/SAR in 2015; and
- Investigative works and validation of perimeter setbacks are ongoing.

Downer in Situ Soil Material – Memorial Drive, RAAF Base Richmond NSW Environmental Consultant (Site Works/Reporting)

- The objective of works issued to ADE by the client was to classify the subject area in accordance with the NSW Environment Protection Authority (NSW EPA) Waste Classification Guidelines Part 1: Classifying Waste (2014) for off-site disposal and the Consistency of Toxicology or Ecotoxicology based Environmental Screening Levels for PFOS, PFOA, 6:2 FTS, Defence Contamination Directive #8 Interim Screening Criteria (2015) for land fill acceptance.

Sydney Water Environmental Services Panel Senior Environmental Consultant (Project Management/Technical Report Writing)

- Working directly with the Disposal/POP Environmental Program, ADE undertook multiple Site investigations of properties/assets identified by Sydney Water that could be sold off. The works included:
  - Phase I – Preliminary Site Investigations;
  - Phase II – Detailed Site Investigations;
  - Remediation Cost Estimates;
  - Remediation Action Plans;
  - Periodic Landfill Gas Assessments;
  - Asbestos Assessment – In-situ / Stockpiled Soils; and
  - Hazardous Material Survey of on-site buildings.

Fulton Hogan In Situ Soil Material Classification/Assessment – Rozelle Train Stabling Yard, NSW Senior Environmental Consultant (Project Management/Technical Report Writing)

- The scope of works undertaken to assess the 117 Ha Site included the in-situ classification of the top 0.5 of fill material across the Site in accordance with the NSW Environment Protection Authority (NSW EPA) Waste Classification Guidelines Part 1: Classifying Waste (2014) for off-site disposal. The remaining material was assessed for future land use as commercial/industrial in accordance with the Assessment of Site Contamination, National Environmental Protection Measure (NEPM) 1999, NEPM (2013) "Schedule B (1) Guideline on the Investigation Levels for Soil and Groundwater". This included the interpretation of analytical results and field observations in accordance with relevant guidelines, collation of a results table inclusive of previous environmental investigations by ADE Waste Classifications and PB / AECOM.

CPB Contractors WestConnex Stages 2 Senior Environmental Consultant (Project Management/Technical Report Writing)

- The scope of works included the management and control of asbestos contaminated soils, potential acid sulfate soils, investigation and monitoring of groundwater / ground gases, remediation action plans, completion of hazardous materials surveys, preparation of clearance reports and air monitoring (asbestos, silica, lead & PAHs).
- The following example demonstrates how appropriate management of asbestos contaminated soils allowed for notable cost savings for the client.

- **Kingsgrove Noise Mounds:**
  - Golder Associates Detailed Site Investigation deemed the Kingsgrove northern and southern noise mounds as special waste 'asbestos' approximately 300,000 t;
  - CDS-JV engaged ADE Consulting group and a remedial contractor to explore options in how to best manage the asbestos waste;
  - Results were presented to an NSW EPA accredited Contaminated Lands Auditor through a Remedial Action Plan proposing ADE's adopted methodology for managing and sorting soil materials to minimise offsite disposal;
  - ADE and the remediation contractor successfully managed the sorting of soil materials. Spoil management within the mounds total cost was below the target; and
  - The Project required 24-hour turnaround time for laboratory analysis of samples which was representative of over 1,000 m3 per day.

Lendlease The Northern Road Project – Stage 3 Senior Environmental Consultant (Project Management/Technical Report Writing)

- The scope of works included an extensive soil assessment within the 4 km road corridor as part of the Stage 3 works, to provide a qualitative assessment on the asbestos risk within soils. This included a four (4) week test pitting program, with the information used to guide excavation works during the project i.e. asbestos risk mapping.
- Waste classification of soils within the Lendlease worksite (both in-situ and stockpiled material) were conducted to enable best for project outcome offsite classifications. Soil characterisations were also undertaken on soil stockpiles to determine their suitability for re-use onsite. All works undertaken and completed in accordance with relevant legislative requirements. Additionally, ADE was involved in the supervision of excavation works, during standard work hours, night and weekend possessions.
- Kyle provided ongoing dialogue with Lendlease staff to provide advice with regards to asbestos spoil management strategies to minimise cost, increase efficiency, ensure compliance, and ensure the most sustainable outcomes are achieved.

Laing O'Rourke Sydney Central Upgrades Senior Environmental Consultant (Project Management/Technical Report Writing)

- ADE have been engaged by Laing O'Rourke to provide geotechnical, environmental and occupational hygiene services to support the construction of Central Station Metro Underground Platforms and Station Upgrade. As part of this project Kyle managed the environmental component of the works. This included in-situ assessment of soil materials under platforms within the central station. Due to the location of the works, timeframes to undertake the works were always tight. But working closely with the Laing's project engineers, we were able to classify materials ahead of excavation so as not to slow the program. As a flagship project for Laing's, with high community interaction, safety expectations were paramount. ADE have yet to record downtime for work safety incidents

---

BMD Constructions Pty Ltd P0007 National Airfields Maintenance Works Project, RAAF Base East Sale VIC Senior Environmental Consultant (Bid Coordinator/Client Liaison/Technical Reporting)

- The SAQP outlined the methodology and suite of analysis to be undertaken. The SAQP was reviewed and signed off by the Contracts Administrator and Department of Defence environmental representative as well as the PFAS team.
- The broad objectives of the project were to provide BMD with environmental consulting services to characterise existing materials at the Site as part of the National Airfields Maintenance Works, Pavement Works, AGL and NAVAIDS Upgrades.
- The objective of this environmental assessment was to characterise the in-situ materials at the Site in order to outline waste material management options and recommendations for remediation and/or management, if required.

SNAPSHOT PROFESSIONAL EXPERIENCE

COMPANY/ ORGANISATION	POSITION	DURATION
ADE Consulting Group Pty Ltd	Senior Environmental Consultant/ Project Manager	2014 - Current
Dept. Natural Resources and Mines (QLD)	Environmental Consultant	2012 – 2014
Whiteford Geoservices Ltd (UK & Ire)	Environmental Consultant	2009 – 2012

Appendix 5: Review and Feedback from Council

Windley, Monique

From: Lindsay McGavin <LMcGavin@tweed.nsw.gov.au>
Sent: Friday, 7 August 2020 10:20 AM
To: Windley, Monique
Cc: Danny Rose; Stuart Clark; Jacqui Cord; Denise Galle; Vince Connell
Subject: [EXT]:RE: TVH - Air Quality Management Plan for Council Review

Hi Monique,

Thank you for the opportunity to provide comment.

Council's Environmental Health Officer has reviewed the draft plan and the following amendments are recommended:

1. B20 (c)(i) page 3 – Refers to Stage 1 not Stage 2. It appears that rock crushing and piling activities are limited to Stage 1.

2. B25(b)(iii) page 5 – Recommend including ongoing monitoring that can pick up non-compliances or concerns early rather than rely on visual inspection and community complaints. Dust monitoring equipment noted on page 12 and air vapour monitoring equipment noted on page 16. Additional monitoring equipment may be required for works in areas other than "high risk works".

3. Section 3 page 9 – "*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*". Recommend this be completed prior to construction works commencing to satisfy B25(a). Note Environmental Dust Assessment Report (ADE Consulting Group, 13 May 2020) for Stage 1.

4. Legislation and guidelines pages 9-10 have been updated/superseded including:
   a. National Environment Protection (Ambient Air Quality) Measure (NEPM) 1998 (varied 2015).
   b. *Protection of the Environment Operations (Clean Air) Regulation 2010.*
   c. *Protection of the Environment Operations (Waste) Regulation 2014.*
   d. *Environmentally Hazardous Chemicals Regulation 2017.*
   e. AS 3580.1.1 (2016).
   f. AS 3580.10.1 (2016)
   g. AS2922 superseded by AS3580.1.1 (2016).
   h. Approved methods for the modelling and assessment of air pollutants in NSW (2016) .

Thanks

Lindsay

From: Windley, Monique [mailto:Monique.Windley@lendlease.com]
Sent: Thursday, 6 August 2020 2:07 PM
To: Lindsay McGavin <LMcGavin@tweed.nsw.gov.au>
Cc: Danny Rose <DRose@tweed.nsw.gov.au>; Stuart Clark <Stuart.Clark@tsamgt.com>
Subject: TVH - Air Quality Management Plan for Council Review

Hi Lindsay,

Danny has passed me your contact as we understand you were the main rep for TSC during the Tweed Valley Hospital (TVH) State Significant Development Approval process.

We have received our conditions on consent, and if you see highlighted below, we are required to negation and consult with council in the development of the Construction Air Quality Management and Dust Management Sub-Plan (CAQDMSP) plan.

I have attached the current version of the plan (in DRAFT FORM) as it has been updated from our Early/Enabling Works version to incorporate the new SSD Stage 2 conditions, however, we would appreciate Council's feedback and welcome any requests from council to be reviewed and possible incorporated.

B20. The Construction Air Quality Management and Dust Management Sub-Plan (CAQDMSP) and the plan must address, but not be limited to the following:
- (a) be prepared by a suitably qualified expert, in consultation with Council;
- (b) be consistent with the air quality and dust control measures adopted in the Stage 1 CAQDMSP for SSD-9575;
- (c) describe the measures that would be implemented on Site to ensure:
  - (i) the control of air quality and odour impacts of the Development, in particular, during rock crushing and piling activities;
  - (ii) that these controls remain effective over time;
  - (iii) that all reasonable and feasible air quality management practice and measures are employed, with specific reference to the rock crushing and piling activities;
  - (iv) the air quality impacts are minimised during adverse meteorological conditions or extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by the Planning Secretary; and
  - (v) compliance with the relevant conditions of this consent.
- (d) include performance objectives for monitoring dust and ensuring no off-site air quality impacts to users of Kingscliff TAFE, and nearby residences and other businesses;
- (e) includes an air quality monitoring program that:
  - (i) is capable of evaluating the performance of the construction works;
  - (ii) includes a protocol for determining any exceedances of the relevant conditions of consent and responding to complaints;
  - (iii) adequately supports the air quality performance objectives; and
  - (iv) evaluates and reports on the effectiveness of air quality management for the construction works.
- (f) details on monitoring weather conditions and communicating changing conditions to the workforce.

Kind Regards,

Monique Windley
Site Engineer / Design Manager, New Tweed Valley Hospital Project
Site Address: 771 Cudgen Road, Cudgen, 2487 NSW Australia
Brisbane Office: Level 3, Kings Gate, 2 King Street, Bowen Hills, 4006 QLD Australia
Tweed Office: Suite B, Level 2, 21 Bretts Street, Tweed Heads, 2485 NSW Australia
M +61 437 137 210
monique.windley@lendlease.com | www.lendlease.com

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