COLD STORAGE FACILITY EXTENSION

554-562 Reservoir Road, Prospect, NSW

Air Quality Review

Beca

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Report
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1. INTRODUCTION

1.1 Overview

Trinity Consultants Australia company (Trinity) was commissioned by Beca on behalf of Americold to provide an air quality assessment of the proposed expansion to an existing cold storage facility at 554-562 Reservoir Road, Prospect, NSW. The expansion includes an additional cold storage facility, plant rooms and other ancillary facilities.

A qualitative review has been undertaken to assess potential air quality impact on nearby receptors as a result of the extension. This air quality assessment was prepared to address the Secretary's Environmental Assessment Requirements (SEARs, application SSD-9577613) as presented below:

*"**Air Quality** – including:*

- a description of all air quality impacts (including dust) from the development, particularly from the outdoor storage area;

- an assessment of the air quality impacts at receivers during construction and operation of the development, in accordance with the relevant Environment Protection Authority guidelines;

and - details of any mitigation, management and monitoring measures required to prevent and/ or minimise emissions, particularly dust control during site preparation and civil works.

It is noted that there is no outdoor storage area (referred to in the SEARs). A qualitative review of impacts has been undertaken and relevant mitigation/management measures have been identified.

1.2 Scope

This report describes the assessment of air quality impacts based on the following tasks:

- Identify key air emission sources and pollutants.
- Collate local meteorological data and background pollution data.
- Identify relevant legislation and ambient air quality goals.
- Undertake a qualitative review of potential impacts, with respect to several factors, including the following:
  - The scale of operations and air emission sources
  - Type of construction activity proposed
  - Prevailing wind conditions
  - Sensitive receptor locations
- Identify air quality mitigation/management measures for construction and operation.

2. STUDY AREA DESCRIPTION

The proposed development is to be located at the existing Americold facility at 554-562 Reservoir Road, Prospect. The site location is shown in **Figure 2.1**. The red section shows the boundary of the site. The proposed extension is located to the east of the existing south building discussed further in **Section 3**.

Figure 2.1: Site Location

The proposed development is surrounded by the following sensitive uses (refer **Figure 2.1**):

- To the north: Houses (associated with commercial/industrial activity) adjacent to the northern site boundary, along the Reservoir Road
- To the north-east: Prospect Hotel, located 590 metres away on the opposite side of the Western Motorway (M4).
- To the east: Residential area located 510 metres away and across the Clunies Ross street.
- To the south: Various industrial uses. To the west: St. Mark's Coptic Catholic Church Prospect (160 metres away), residential settings (3) (300 metres away) and a recreational park (580 metres away) along the Reservoir Road as well as across the Prospect Highway.
- To the south-west: Childcare centre across the Prospect Highway (100 metres away)

3. PROPOSED DEVELOPMENT

The site is currently occupied by an existing cold storage warehousing facility operated by Americold Logistics which supplies food for supermarkets. Existing site facilities includes:

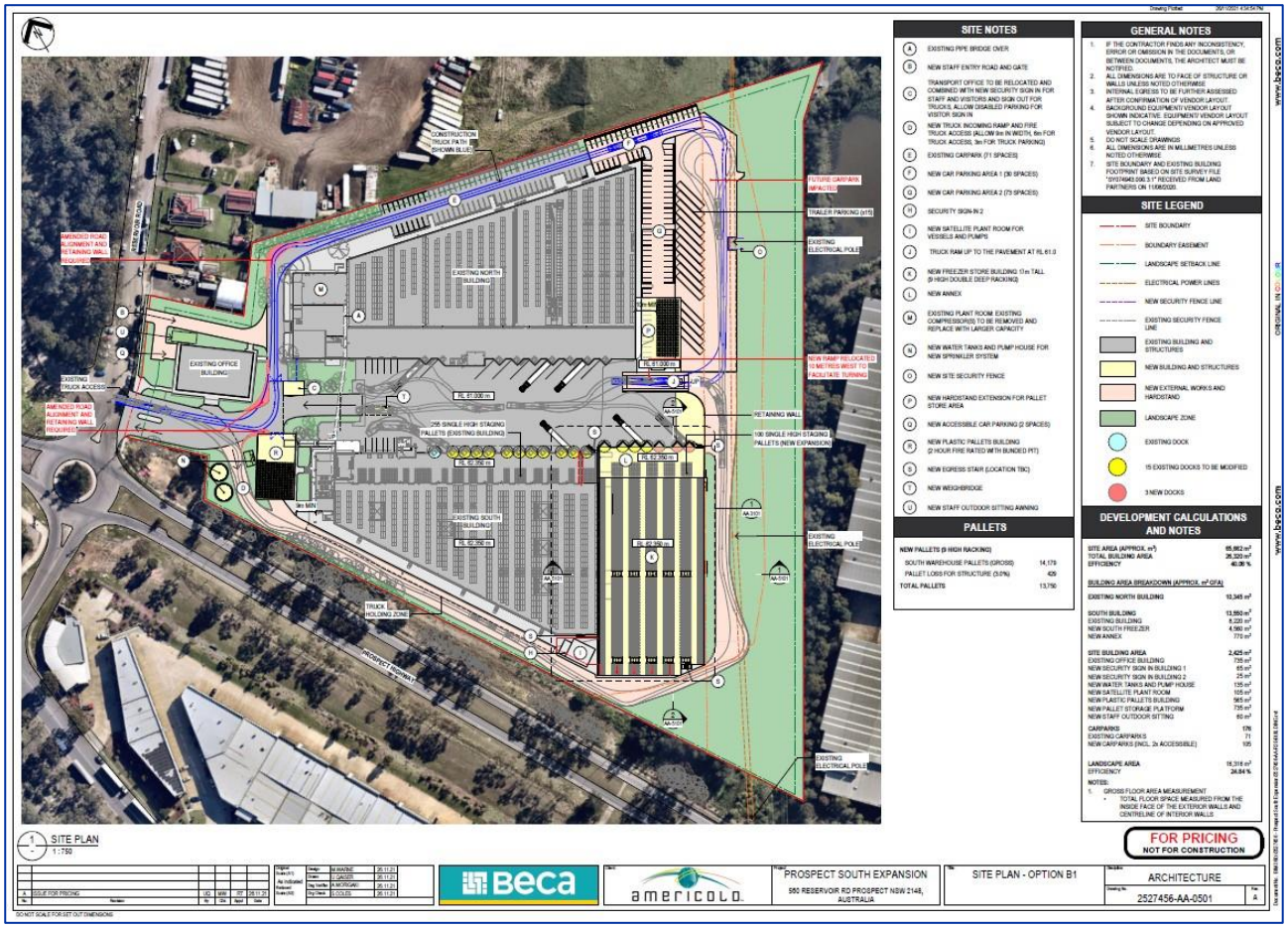
- North: north building, carpark (71 spaces)
- East: Truck ramp up to the pavement
- South: South building, truck holding zone, security sign-in
- West: Office building, pipe bridge over, plant room

The proposed development includes the following components:

- Construction of a new cold store building (extension to southern building) and ancillary staging areas
- Upgrades and amendments to vehicle accessways and carparking areas
- New plant rooms
- A new entry gate
- Other minor amendments associated with the ongoing use and operation of the site.

The proposed building plans **Figure 3.1**.

Figure 3.1: Site Layout



4. EXISTING ENVIRONMENT

4.1 Local Air Emission Sources

Based on a desktop review of the surrounding area, the key air emission source in the locality is road traffic emissions from the local network, including major highways such as the Great Western Highway, Western Motorway, Prospect Highway. There are a number of industrial and commercial uses to the south and north, however, these are generally limited to warehousing and other enclosed uses. There are a number of waste industries and smash repair businesses located far south in the Wetherill Park industrial precinct (approximately 2 km away). However, any major industrial air emission sources such as concrete batching plants, asphalt plants and manufacturing plants with elevated stacks have not been identified.

4.2 Background Air Quality

The nearest ambient air monitoring station is located at William Lawson Park, Prospect, almost 2 km north-north-west to the subject site. **Table 4.1** presents a summary of the measured PM_{10} and $PM_{2.5}$ concentrations at the Prospect station since 2015.

Table 4.1: Ambient Monitoring Data - Prospect

Year	PM_{10}			$PM_{2.5}$		
	Annual Average (µg/m³)	Max 24-hour	No. of Exceedances of 50 µg/m³	Annual Average (µg/m³)	Max 24-hour	No. of Exceedances of 25 µg/m³
2015	17.6	68.7	1	8.2	29.6	1
2016	18.9	110.0	4	8.7	84.9	3
2017	18.9	61.1	1	7.7	30.1	3
2018	21.9	113.3	8	8.5	47.5	4
2019	26.0	182.8	25	11.9	134.1	25
2020	20.2	245.8	10	8.6	70.8	13
2021	17.2	44.6	0	6.9	37.3	2

The annual average PM_{10} and $PM_{2.5}$ concentrations are typically less than 20 µg/m³ and 9 µg/m³, respectively. Bush fires occurred in the years 2019 and 2020, which resulted in a greater number of exceedences of the 24-hour average air quality goals.

4.3 Local Meteorology

Historical (2015-2019) winds measured at Prospect air quality station (2 km to the north-west) have been reviewed to gain understanding of the prevailing winds in the Cumberland region. Based on the wind rose presented in **Figure 4.1**, predominant wind directions are north to north-westerly and south-easterly (with minimal directly westerly and easterly components). Seasonal wind roses are presented in **Figure 4.2**. Similar to the annual wind rose, north to north-westerly and south-easterly winds define the area during Autumn, Winter and Spring. During Summer, winds with an easterly component occur more frequently.

The nearest residential is located to the north and north-west, therefore, the dominant northerly wind reduces likelihood of these receptors being impacted by potential emissions by dispersing potential pollutants towards the south, which is occupied by mostly industrial premises.

Figure 4.1: Annual Wind Rose (2015-2019)

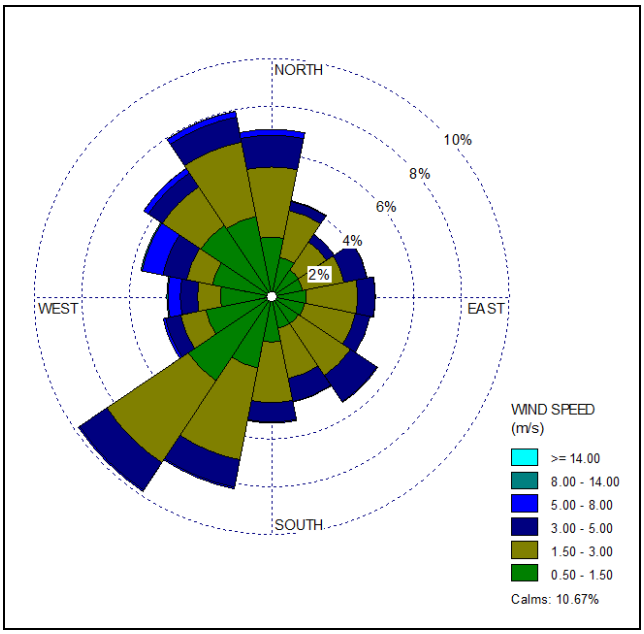
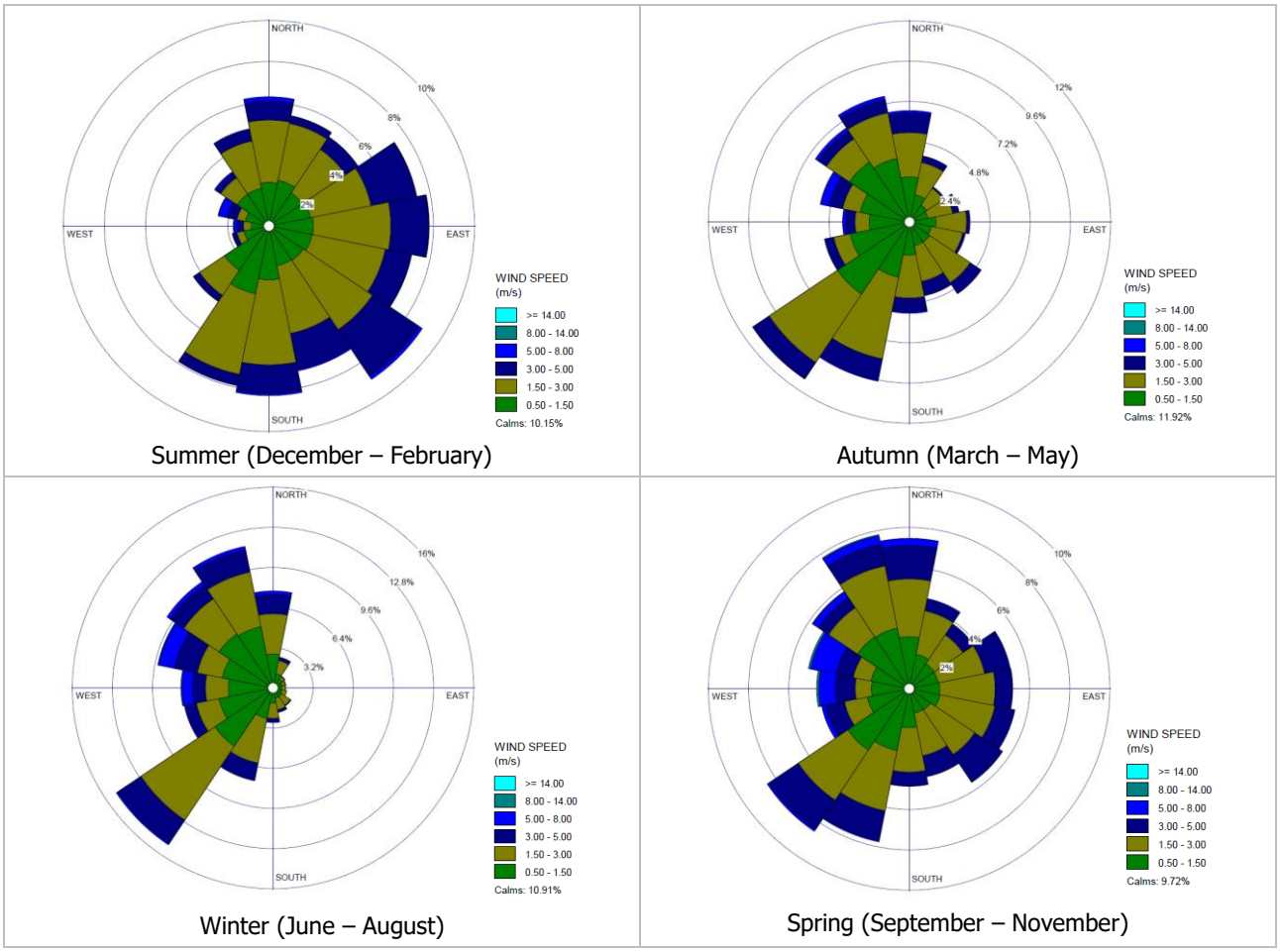


Figure 4.2: Seasonal Wind Rose (2015-2019)



5. REGULATORY FRAMEWORK

5.1 NSW Environmental Legislation

The objective of the Protection of the Environment Operations Act 1997 (POEO Act) is to achieve the protection, restoration and enhancement of the quality of the NSW environment. Part 5.4 Division 1 contains provisions relating to air emissions that are relevant to industrial operations. The relevant sections are summarised in brief below:

- Section 124 and 125 – a requirement to maintain and operate plant in an efficient manner
- Section 126 – a requirement to handle materials in a proper and efficient manner
- Section 127 – proof of causing pollution
- Section 128 – air emission standards not to be exceeded
- Section 129 – emissions of offensive odour
- Section 130-132 – additional provisions, exclusions and penalties

The Protection of the Environment (Clean Air) Regulation 2021 is another important piece of legislation which contains air quality provisions that support the objectives and implementation of the POEO Act. In terms of relevant to the proposed development, the Regulation specifies requirements for the following:

- Part 4 defines requirements for the use of motor vehicles, addressing circumstances of excessive air impurities and maintenance requirements.
- Part 5 (along with Schedules 3 to 7) defines requirements for air emission standards for scheduled and non-schedule premises.

5.2 Air Quality Criteria

The relevant ambient air quality goals are defined in the NSW EPA document 'Approved methods for the modelling and assessment of air pollutants in New South Wales (2017)'. For the development site, the key air pollutants are associated with the use of trucks (i.e. combustion pollutants) and particulate matter (construction activity and road surface dust). Ammonia is also associated with site operations (as a refrigerant). Ammonia will be used in an enclosed refrigeration system, and therefore, would not be emitted unless there was an accidental spill. **Table 5.1** presents the ambient air quality goals relevant to the site operations.

Table 5.1: Ambient Air Quality Goals

Compound	Air Quality Criteria (µg/m^3)	Averaging Period
Carbon monoxide	100,000	15 minutes
	30,000	1 hour
	10,000	8 hours
Nitrogen dioxide	246	1 hour
	62	Annual
TSP	90	Annual
PM_{10}	50	24 hours
	25	Annual
$PM_{2.5}$	25	24 hours
	8	Annual
Sulfur dioxide	712	15 minutes
	570	1 hour

Compound	Air Quality Criteria (µg/m^3)	Averaging Period
	228	24 hours
	60	Annual
Ammonia	330	1 hour
Deposited dust	4 g/m^2/month total 2 g/m^2/month maximum increase	Annual

6. CONSTRUCTION AIR QUALITY

6.1 Overview

For the proposed development, standard construction works will only be required. This includes minor earthworks using diesel heavy machinery to clear the ground for the main extension. Exhaust emissions are also expected from truck movements and heavy machinery. A summary of proposed construction works is provided below:

- North-western corner of site, outside existing office building – construction of new driveway for staff access and fencing (which involve clearing of a few trees).
- North-eastern portion of site, behind existing northern building – construction of a car park.
- South-western portion of the site, behind existing southern building – new cold storage building (17 metres high).
- Along southern boundary of building – new hardstand truck route.

The majority of works will occur on the eastern side of the existing buildings, where the new cold storage facility and car park will be located.

6.2 Review of Potential Impacts

To provide an assessment of construction air quality impacts, reference has been made to the guideline 'Guidance on the assessment of dust from demolition and construction (2014)' prepared by the Institute of Air Quality Management (IAQM). The guideline provides a method for assessing construction air quality risks and for identifying relevant mitigation measures. Where sensitive receptors are located within 350 metres of construction, a detailed risk assessment review is undertaken taking into account the following factors:

- The dust emission magnitude of different aspects/stages of construction (i.e. demolition, earthworks, construction and trackout).
- The type of receptor (categorised as high/medium/low sensitivity).
- Sensitive receptor separation distances from construction activity.
- Existing background particulate concentrations.

Based on the above factors, the potential for nuisance dust impacts and health-related impacts are identified (negligible/low/medium/height) and mitigation measures are recommended.

The relevant inputs into the risk assessment approach are summarised in the following tables:

Table 6.1: Dust Emission Magnitude

Activity	Rating	Comments
Demolition	Small	Minor demolition works required; main works is associated with erection of new structures at the rear of the existing facility.
Earthworks	Small	Minimal earthworks required. Existing site landform is acceptable for proposed construction.
Construction	Medium	Medium magnitude applies to a total building volume 25,000 m^3 – 100,000 m^3. The proposed building is less than 60,000 m^3.
Trackout	Small	Site is currently paved and minimal earthworks proposed, therefore, limited trackout expected.

Table 6.2: No. of Receptors within Construction Works

Receptor Sensitivity	No. of Receptors	Demolition	Earthworks	Construction	Trackout
High	< 20	0	0	0	0
	< 50	2 (houses[a])	2 (houses[a])	2 (houses[a])	>100[b] (childcare, church)
	< 100	2 (houses[a])	2 (houses[a])	2 (houses[a])	>100[b] (childcare, church)
	< 200	2 (houses[a])	2 (houses[a])	2 (houses[a])	>100[b] (childcare, church)
	< 350	> 100 (childcare, church, houses)	> 100 (childcare, church, houses)	> 100 (childcare, church, houses)	> 100[b] (childcare, church, houses)
Medium	< 20	1 industrial	1 industrial	1 industrial	1 industrial
	< 50	2 industrial	2 industrial	2 industrial	1 industrial
	< 100	Multiple commercial/industrial	Multiple commercial/industrial	Multiple commercial/industrial	Multiple commercial/industrial
	< 200	Multiple commercial/industrial	Multiple commercial/industrial	Multiple commercial/industrial	Multiple commercial/industrial
	< 350	Multiple commercial/industrial	Multiple commercial/industrial	Multiple commercial/industrial	Multiple commercial/industrial
Low	< 20	0	0	0	1 (Bike path)
	< 50	1 (Bike path)	1 (Bike path)	1 (Bike path)	1 (Bike path)
	< 100	1 (Bike path)	1 (Bike path)	1 (Bike path)	1 (Bike path)
	< 200	1 (Bike path)	1 (Bike path)	1 (Bike path)	1 (Bike path)
	< 350	1 (Bike path)	1 (Bike path)	1 (Bike path)	1 (Bike path)

[a] Includes 2 houses on adjacent industrial lots to north-west
[b] > 100 value accounts for 84 child capacity at childcare, and assumes multiple occupants at church. Identification of church as a high sensitivity receptor may be considered conservative, as the IAQM considers high to be associated with prolonged exposure (whereas church attendees are likely to remain at the church for short periods of time).

Table 6.3: Sensitivity of the Area to Dust Impacts – IAQM Rating Matrix

Receptor Sensitivity	No. of Receptors	Distance from Construction (m)			
		<20	<50	<100	<350
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Table 6.4: Sensitivity of the Area to Health Impacts – Adjusted IAQM Rating Matrix

Receptor Sensitivity	Annual PM_{10} $\mu g/m^3$	No. of Receptors	Distance from Construction (m)				
			<20	<50	<100	<200	<350
High	>25	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	21-25	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	17-21	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<17	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>25	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	21-25	>10	Medium	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	17-21	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<17	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

Note: This adjusted IAQM matrix is based on the matrix developed by SLR Consulting[1]. The original IAQM matrix defines low/medium/high sensitivity based on ambient PM_{10} concentrations in the Europe. SLR Consulting has adjusted this based on the ambient air quality goal for PM_{10} adopted in Australia.

[1] SLR Consulting Australia, Austrak Cold Storage Air Quality Impact Assessment, 610.30007-R01-v1.0, 21 October 2020.

Table 6.5: Sensitivity of the Area to Dust Impacts

Receptor Sensitivity	No. of Receptors	Demolition	Earthworks	Construction	Trackout
High	< 20	-	-	-	-
	< 50	Low	Low	Low	High
	< 100	Low	Low	Low	Medium
	< 350	Low	Low	Low	Low
Medium	< 20	Medium	Medium	Medium	Medium
	< 50	Low	Low	Low	Low
	< 100	Low	Low	Low	Low
	< 350	Low	Low	Low	Low
Low	< 20	-	-	-	Low
	< 50	Low	Low	Low	-
	< 100	-	-	-	-
	< 350	-	-	-	-
Adopted/Worst-case		Medium	Medium	Medium	High

Table 6.6: Sensitivity of the Area to Health Impacts

Receptor Sensitivity	No. of Receptors	Demolition	Earthworks	Construction	Trackout
High	< 20	-	-	-	-
	< 50	Low	Low	Low	Medium
	< 100	Low	Low	Low	Low
	< 350	Low	Low	Low	Low
Medium	< 20	Low	Low	Low	Low
	< 50	Low	Low	Low	Low
	< 100	Low	Low	Low	Low
	< 350	Low	Low	Low	Low
Low	< 20	Low	Low	Low	Low
	< 50	Low	Low	Low	Low
	< 100	Low	Low	Low	Low
	< 350	Low	Low	Low	Low
Adopted/Worst-case		Low	Low	Low	Medium

Note: The sensitivity outcomes are based on the annual mean PM_{10} between 17-21 µg/m^3 (refer to **Section 4.2** for background air quality at Prospect).

Based on the above ratings for each construction stage, the risk outcome is presented in **Table 6.7**. The derived risk ratings are based on **Section 7.4** of the IAQM guideline, which provides risk matrices for each construction stage. A negligible/low/medium/high risk is derived based on the magnitude of each construction stage (

Table 6.1) and worst-case risk rating for each stage (and **Table 6.6**). Overall, it is concluded that the construction works have a low risk of air quality impacts.

Table 6.7: Risk Outcome

Source	Dust Soiling	Human Health
Demolition	Low	Negligible
Earthworks	Low	Negligible
Construction	Low[a]	Low
Trackout	Low	Negligible

[a] It is noted that a medium magnitude and medium area sensitivity corresponds to a risk rating of medium. However, the medium area sensitivity is defined by a single industrial lot adjacent to the driveway works near the existing office building. The major construction works are to the east at a distance of more than 180 metres away. On this basis, it is appropriate to consider a small magnitude for this particular receptor.

6.3 Construction Management Measures

The IAQM guideline provides recommended dust control measures based on the risk ratings for each construction stage. Dust control measures are provided for low, medium and high risk sites, and are identified as H (highly recommended), D (desirable) and N (not required). **Table 6.8** presents the dust control measures applicable to the site based on the IAQM guideline. Furthermore, as a standard practice, where any activities on-site are observed as producing excessive dust, these emissions should be reduced by water sprays.

Table 6.8: Construction Dust Mitigation Measures

Mitigation Measure	Low Risk
H = highly recommended, D = desirable, **Note: Measures are numbered according to the IAQM guideline, measures not required for low risk sites have been omitted. Where appropriate, measures are updated to reflect Australian standards.**	
General	
2. Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.	H
3. Display the head or regional office contact information	H
4. Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site.	D
Site Management	
5. Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.	H
6. Make the complaints log available to the local authority when asked.	H
7. Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book.	H
Monitoring	
9. Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary, with cleaning to be provided if necessary.	D
10. Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked	H

Mitigation Measure	Low Risk
11. Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.	H
13. Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.	H
14. Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.	H
15. Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period	D
16. Avoid site runoff of water or mud.	H
17. Keep site fencing, barriers and scaffolding clean using wet methods.	D
18. Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.	D
19. Cover, seed or fence stockpiles to prevent wind whipping.	D
Operating vehicle/machinery	
20. Ensure all on-road vehicles comply with the requirements of the relevant Australian Design Rules.	H
21. Ensure all vehicles switch off engines when stationary – no idling vehicles.	H
22. Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.	H
23. Impose and signpost a maximum-speed-limit of 25 km/h on surfaced and 15 km/h on un-surfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate)	D
Operations	
26. Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.	H
27. Ensure an adequate water supply on the site for effective dust/particulate matter sup-pression/mitigation, using non-potable water where possible and appropriate.	H
28. Use enclosed chutes and conveyors and covered skips.	H
29. Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.	H
30. Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.	D
Waste management	
31. No burning of waste materials.	H
Demolition	
32. Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).	D
33. Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.	H
34. Avoid explosive blasting, using appropriate manual or mechanical alternatives.	H
35. Bag and remove any biological debris or damp down such material before demolition.	H

Mitigation Measure	Low Risk
Construction	
39. Avoid scabbling (roughening of concrete surfaces) if possible	D
40. Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.	D
Trackout	
43. Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.	D
44. Avoid dry sweeping of large areas.	D
45. Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.	D
47. Record all inspections of haul routes and any subsequent action in a site log book.	D
49. Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).	D

7. OPERATIONAL AIR QUALITY

7.1 Review of Potential Impacts

Site operations have been reviewed with respect to the proposed activities and key air emissions sources. The potential air quality risks are discussed below.

Ammonia Use

The main chemical that will be used on site is the facility refrigerant, which is anhydrous ammonia. The refrigeration system throughout the existing facility and this development will be fully sealed, recirculating system, hence, air quality impacts are unlikely under normal operations. The main potential for ammonia emissions is in the event of an emergency (i.e. leakage). For refrigerant systems this may occur in the following circumstances:

- condenser tube corrosion failure
- general mechanical damage to plates and hose connections
- component fatigue
- impact by mobile plant on pipework
- piping failures due to corrosion

Ammonia is a pungent and colourless gas, with toxic and corrosive properties. A leakage can have an immediate impact to workers on site, and depending on the prevailing wind conditions, a plume can disperse towards sensitive receptors in the surrounding area.

The relevant ongoing maintenance procedures for the refrigeration system should be implemented as required. It is recommended that an emergency plan to be used in the event of an ammonia leakage be developed for the site in accordance with relevant guidelines and standards (e.g. AS/NZS 2022 Anhydrous Ammonia – Storage and Handling).

Truck movements and engine exhausts

Pollutants that could be emitted as a result of truck movements include vehicular emissions, dust and non-exhaust PM emissions from brakes, tyres and road wear. Currently, truck movements per day range between 160 to 200. With the upcoming development, truck movement numbers would range between 300-350 per day. Trucks which operate in the premises include combination of rigids, semi-trailers and B-doubles.

Truck emissions would pose minimal risk on the closest sensitive receptors as well as the childcare centre based on predominant north to north-westerly and south-easterly wind directions. Furthermore, emissions would be relatively minor compared to the local road network including the Western Highway. As best management practice, all on-site surfaces will be paved.

Generator (diesel generator)

In the event of a power outage, up to 2 x 1000 kVA generators are required and supplied by sub-contractors. Power outages are a rare occurrence, with the last event occurring almost 3 years ago. The potential for air quality impacts is low given the limited frequency and low number of generators required.

There is no other fixed plant on site with a potential for air emissions (e.g. boilers).

Solid waste

On-site waste is stored in a designated location and is associated with odour. Waste on site is typical commercial type waste, and as there is no processing on site (only storage of food), food waste associated with operations is not expected. Furthermore, as noted above, generators are used on site in the event of a power outage, which will ultimately prevent food spoilage and associated odour.

7.2 Operational Management Measures

It is important that good operating procedures are implemented to minimise the risk of air quality impacts. Overall, the potential for air quality impacts associated with the proposed development is considered to be minimal, nonetheless, impacts can still arise in specific circumstances, such as where regular maintenance on equipment is not undertaken or contingency plans are not in place in emergencies (e.g. ammonia leakage). The following is a list of recommended management measures for the site in relation to air quality:

- General
  - Include air quality management measures (such as those given in this section) in the environmental management plan developed for the site.
  - Provide information and training to staff and contractors on key air quality issues as outlined in this report.
  - All relevant records should be maintained (e.g. complaints, environmental incidents such as a leakage, maintenance logs).
  - Implement a complaints handling procedure to respond to air quality issues. This may be covered off by a general complaints procedure which typically includes an identification of the issue, complaint details (e.g. complainant, time/date), responding person, immediate and long-term response actions.
  - Provide spill kits and PPE around any chemical/fuel storage areas.
- Vehicles and mobile plant
  - Ensure all vehicles and mobile plant used on site are properly maintained according to manufacturing specifications.
  - Undertake unscheduled inspections of vehicles where visible and excessive smoke is being emitted from the exhaust.
  - Where possible, do not leave vehicles idling.
- Generator usage:
  - Locate any standby generators as far as practicable from the nearest houses
  - Where possible, locate standby generators in an open area (away from major buildings/structures) to allow for improved dispersion of combustion pollutants.
- Waste storage:
  - Keep waste storage areas appropriately ventilated to avoid build-up of odour (e.g. if in an enclosed room, provide louvres and passive whirlybird vents).
  - When not in use, ensure waste receptacles are closed.
- Ammonia use:
  - Develop an emergency plan in the event of an ammonia leakage. It is not within the scope of this review to develop such a plan, which would involve many operational aspects not directly related to air quality, however, procedures (e.g. maintenance, emergency response mechanisms, clean up) which properly respond to a leakage will subsequently assist in minimising the potential for emissions of ammonia.
  - Ensure the refrigerant system is properly and regularly inspected and maintained to minimise the potential for leakage/spills.
  - Provide access to PPE.
  - Maintain Safety Data Sheets maintained on site.

8. CONCLUSION

A qualitative air quality assessment has been conducted for the proposed expansion of the existing cold storage facility at 554-562 Reservoir Road, Prospect. Based on the review the following conclusions have been drawn:

- The main potential operational air emission sources include truck movements and associated engine exhausts, standby generators and solid waste. During construction, there may be dust emissions associated with minor earthworks only to clear the existing structures for the cold room extension.
- The nearest sensitive receivers include houses (associated with industrial/commercial uses) along the northern site boundary; residential houses 300 metres from the western site boundary; a residential area 510 metres from the eastern site boundary; a childcare centre 100 metres from the south-western site boundary; a hotel 590 metres from the north-eastern boundary; a church 160 metres from the northern boundary and a recreational park 580 metres from the western boundary.
- The site operations are not considered to have any major air emission sources, which is reflective of the type of operations undertaken (i.e. cold storage warehouse). Therefore, combined with the predominate wind directions blowing away from the nearest receptors, the potential for air quality impacts on off-site sensitive receptors is low.
- Air quality impacts could occur in the event of an ammonia leakage. The refrigeration system shall be regularly inspect and maintained to minimise the potential for leakage. Furthermore, it is recommended that an emergency plan to be used in the event of an ammonia leakage be developed for the site in accordance with relevant guidelines and standards (e.g. AS/NZS 2022 Anhydrous Ammonia – Storage and Handling).
- Construction impacts are also expected to have minor dust impacts, due to minimal earthworks being required. A risk assessment based on the IAQM guideline identifies the risk of nuisance dust and health impacts is low for the site. Where any activities on-site are observed as producing excessive dust, these emissions should be reduced by water sprays. Dust management measures outlined in **Section 6.3** are also recommended.

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