



APPENDIX E – ENVIRONMENTAL RISK ASSESSMENT AND MITIGATION MEASURES

SSD-70817958 DHL LOGISTICS FACILITY, BADGERYS CREEK (NORTHERN SITE)

The following section provides recommendation for mitigation measures in response to potential impacts identified in Section 6 of the EIS. The structure of mitigation measures is based on the DPHI’s hierarchy of approaches for managing impacts identified in the Draft Environmental Impact Assessment Guidance Series released by DPHI in June 2017, and the July 2021 State Significant Development Guidelines as:

- **Performative based measure** – identify performance criteria that must be complied with to achieve an appropriate environmental outcome but do not specify how the outcome is to be achieved.
- **Prescriptive based measure** – require action to be taken or specify something that must be done.
- **Management based measure** - identify one or more management objectives that must be achieved through the implementation of a management plan.

Following the implementation of appropriate mitigation measures as recommended, it is determined that the proposal will not result in any significant adverse impacts on the surrounding environment. The following table illustrates how the matters raised within the SEARs will be addressed.

This analysis comprises a qualitative assessment consistent with AS/NZS ISO 31000:2009 Risk Management–Principles and Guidelines (Standards Australia 2009). The level of risk was assessed by considering the potential impacts of the proposed development prior to application of any mitigation or management measures. In accordance with the SEARs, the Environmental Risk Assessment (ERA) addresses the following significant risk issues:

- The adequacy of baseline data;
- The potential cumulative impacts arising from other developments in the vicinity of the site; and
- Measures to avoid, minimise, offset the predicted impacts where necessary involving the preparation of detailed contingency plans for managing any significant risk to the environment.

Risk comprises the likelihood of an event occurring and the consequences of that event. For the proposal, the following descriptors were adopted for ‘likelihood’ and ‘consequence’.

Likelihood		Consequence	
A	Almost certain	1	Widespread and/or irreversible impact
B	Likely	2	Extensive but reversible (within 2 years) impact or irreversible local impact

Likelihood		Consequence	
C	Possible	3	Local, acceptable or reversible impact
D	Unlikely	4	Local, reversible, short term (<3 months) impact
E	Rare	5	Local, reversible, short term (<1 month) impact

The risk levels for likely and potential impacts were derived using the following risk matrix.

		LIKELIHOOD				
		A	B	C	D	E
CONSEQUENCE	1	High	High	Medium	Low	Very low
	2	High	High	Medium	Low	Very low
	3	Medium	Medium	Medium	Low	Very low
	4	Low	Low	Low	Low	Very low
	5	Very low	Very low	Very low	Very low	Very low

The results of the environmental risk assessment for the proposed development are presented in the below table and are based upon the range of technical and specialist consultant reports appended to the EIS. The table has directly related mitigation measures responding to each impact also based upon the range of technical and specialist consultant reports appended to the EIS.

N.B. 'O' – Operational; 'C' – Construction

'Pe' – Performance based mitigation measure; 'Pr' – Prescriptive based mitigation measure; 'Ma' – Management based mitigation measure

SEAR	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
Urban Design and Visual Impact	Loss of existing visual landscape and threat to view corridors of local residents/ sensitive receivers.	C	C	3	Medium	<p>Extensive planting with a mix of low, medium and high level planting.</p> <p>Retention of existing vegetation where possible.</p> <p>Implementation of a landscape maintenance and management regime to ensure the planting successfully establishes and thrives.</p>	Pe	Loss of existing landscape and intrusion by unacceptable level of development.
Traffic and Transport	Increased traffic, impacting the local road network	C & O	A	3	Medium	<p>The primary approach to traffic management for the Burra Park site is via signalised access to Elizabeth Drive which is anticipated to accommodate three scenarios of increased traffic load.</p> <p>The anticipated traffic queues are expected to be accommodated within proposed storage lane capacity.</p> <p>The traffic impacts from the construction phase are anticipated to be minor and will be investigated in more detail during</p>	Pe	Management of traffic and transport impacts specifically during the construction phase and ongoing during operational.

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						the construction phase of this development		
Soil and Water	Changes to the flood level, excavation of contaminated land and effects on riparian and aquatic habitats.	C	D	D	Low	<p>Assessment of the site in regard to contamination and flooding have revealed that the land on which development will take place is not contaminated and proposed changes to the landscape and layout of the proposed warehouses will not increase risk of flooding or impact surrounding properties.</p> <p>Suitable erosion and sediment controls shall be provided by the Contractor and maintained throughout all stages of works in accordance with the ESCP. Assuming the design of all stormwater management measures are completed as outlined above and detailed within CIR report, no further mitigation measures are required to be implemented in relation to stormwater management.</p>	Ma	Subsequent management of riparian lands redirected as a result of the proposed works.

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Noise and Vibration	Construction Noise	C	C	3	Medium	<p>While noise exceedances are predicted in all construction scenarios, mitigatory measures are proposed to minimise these impacts. It is noted that no residential developments are in close proximity to the site.</p> <p>The use of standard mitigation measures to minimise the impacts is considered sufficient to control most of the impacts. Examples of measures which could be applied to the work are provided in the Roads and Maritime (<i>now Transport for NSW</i>) <i>Construction Noise and Vibration Guideline</i>.</p> <p>A Construction Noise and Vibration Management Plan (CNVMP) would be prepared before any work begins, once building contractors are engaged on the project.</p> <p>Additionally, the following standard scheduling procedures should apply:</p> <ul style="list-style-type: none"> ▪ Scheduling: 	Pe	Disturbance to local amenity, including proximal sensitive receivers. Given the high level of construction within the precinct, cumulative impact from construction remains a concern.

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						<ul style="list-style-type: none"> - Highly noisy intensive works should only be undertaken during the following Standard Construction Hours, unless otherwise assessed and justified: - 7 am to 6 pm Mondays to Fridays, inclusive. - 8 am to 1 pm Saturdays. - At no time on Sundays or public holidays. ▪ Provide appropriate respite periods as per the CNVG when noise intensive works are undertaken or during periods of high noise impacts. ▪ Carry out community consultation to determine the need and frequency of respite periods, if necessary. ▪ Avoid loading and unloading of materials / deliveries outside of daytime hours. 		
	Operational Noise	O	C	4	Low	While noise will emanate from the site constantly during its operation, effective screening measures will assist in	Pr	Risk of disturbance from cumulative operational impact

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						<p>neutralising the vast majority of the impacts with sleep disturbance impacts considered relatively minor.</p> <p>Recommended mitigation measures include:</p> <ul style="list-style-type: none"> ▪ Positioning of buildings to screen access roads and loading docks ▪ Quieter mobile plant and equipment such as electric forklifts instead of gas forklifts ▪ Use broadband and/or ambient sensing alarms on forklifts and trucks where they are required to reverse during the night-time. ▪ Roller doors should be kept closed when not in use for loading/unloading trucks ▪ Production of an Operational Noise Management Plan. ▪ Noise monitoring 		<p>with multiple tenants operating logistics facilities that has the potential to cause impact to nearby sensitive receivers.</p>

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Hazard and Risk	Warehouse 1 is proposed to be developed as a speculative warehouse to cater toward potential customers that require large quantities of DGs to be stored. No dangerous goods are proposed to be stored onsite as part of this SSDA	C & O	D	4	Low	<ul style="list-style-type: none"> ▪ The DG bunkers shall be equipped with spill kits that are compatible with the goods being stored and handled. ▪ Unloading / loading areas shall be equipped with spills that are compatible with the goods being stored and handled. ▪ The warehouse and/or site boundaries shall be capable of containing 90 minutes of sprinkler discharge (i.e. ceiling mounted, in-racks, and drenchers where required) in addition to 90 minutes of hydrant hose discharge assuming three (3) hydrants are operating. ▪ The civil engineers designing the site containment shall demonstrate the design is capable of containing the required water volume. ▪ A DG design report shall be completed for the warehouse to ensure all required design 	Pr	Potential risk from future dangerous goods to be stored on site within warehouse tenancies.

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						<p>items from the standard are captured and included within the site design.</p> <ul style="list-style-type: none"> ▪ The design report shall be prepared by a competent DG consultant with competencies in all the DG classes proposed to be stored at the warehouse. ▪ The warehouse shall be subject to a hazardous area classification to ensure that electrical equipment installed within Bunker 1 is compliant with the likely materials to be stored. ▪ Prior to acceptance and receipt of Class 9 products at the warehouse, the flash point of the product shall be reviewed to confirm that the product is not combustible prior to storage into Bunker 2. Where combustibility is identified, the product shall be stored in Bunker 1. ▪ The toxic substances shall be stored in a toxic substances 		

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						cabinet complying with AS 4552-1997.		
Biodiversity	Impacts on Biodiversity Values	C & O	C	3	Medium	The proposed works will impact the Cumberland Plain in the Sydney Basin Bioregion. Mitigation measures have been proposed for this valuable and vulnerable ecosystem relating to direct, indirect and prescribed impacts are detailed in the BAR report.	Pr	Increased and unnecessary mortality of native flora and fauna.
Heritage	Built form heritage impact or destruction	C & O	C	4	Low	The following recommendation is made for mitigation from the Statement of Heritage Impact from Baker Archaeology: <ul style="list-style-type: none"> None of the heritage elements identified in this SOHI warrant conservation. Archival recording is warranted prior to removal. A photographic archival record of the former CSIRO McMaster Field Station site, including all of its built and landscape elements, should be prepared by a suitably qualified heritage consultant prior to the Stage 1 	Pr	Total removal of a CSIRO Field station site.

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						development. This record should be prepared in accordance with the NSW Heritage Council's Photographic Recording of Heritage Items Using Film or Digital Capture (NSW Heritage Council, 2006).		
	Indigenous Heritage impact or destruction	C & O	C	4	Medium	The DHL warehouse study area does not contain any Aboriginal sites or Aboriginal heritage constraints as identified in the ACHAR for the Burra Park Concept and Stage 1 development	Pe	No management of Aboriginal heritage is required
Social Impact	Impacts of the construction and operation on surrounding residents, loss of community and Aboriginal heritage items.	C & O	C	4	Low	The Social Impact Assessment recommends the following mitigation measures: <ul style="list-style-type: none"> ▪ Create a workforce management plan ▪ Create a Business and Industry participation plan ▪ Create a community and engagement management plan 	Ma	Lack of acknowledgement of all relevant stakeholder groups subsequent to development approval.

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						<ul style="list-style-type: none"> ▪ Create a community and wellbeing plan ▪ Create a Cultural Heritage enhancement plan ▪ All prior to Stage 1 development works. 		
Contamination	Potential contamination sources or area of environmental concern (AEC) within site. In the event that contamination remains on site following remediation, a long-term environmental management plan will be required to consider the site suitable for the proposal.	C	D	4	Low	<p>If required, the long-term environmental management plan is to be prepared and implemented in accordance with Table 2.7 of NSW EPA (2020) <i>Consultants Reporting on Contaminated Land: Contaminated Land Guidelines</i>. The LTEMP is to include:</p> <ul style="list-style-type: none"> ▪ Provisions for the ongoing maintenance of the capping layer with associated recording of inspections/works completed. ▪ Methodology surrounding how to manage working with the cap and repairs to the cap when disturbed. 	Pr	Low

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						<ul style="list-style-type: none"> ▪ Identifying who is responsible for the ongoing management of the cap. ▪ Noting how the EMP is to be made legally enforceable (e.g., as a condition of consent). 		
Bushfire	Impact to the proposed development by threat of bushfire	O	D	4	Low	The advice of a relevant authority or suitably qualified professional should be sought, for certification of design and installation in accordance with relevant legislation, Australian Standards.	Ma	Predominant bushfire threat potentially posed to the proposal is unmanaged grassland in all directions. This hazard is considered temporary in nature and will be removed as the broader precinct is activated and further development occurs.

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Air Quality	Dust impacts due to construction work	C	A	3	Medium	<p>The following mitigation measures for dust impacts from construction works:</p> <ul style="list-style-type: none"> ▪ Avoid explosive blasting, using appropriate manual or mechanical alternatives. ▪ Bag and remove any biological debris or damp down such material before demolition. ▪ Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable. ▪ Use hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. ▪ Only remove the cover in small areas during work and not all at once. ▪ Avoid scabbling (roughening of concrete surfaces) if possible. 	Pe, Ma	Surrounding area have poor air quality for the duration of construction works.

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						<ul style="list-style-type: none"> ▪ 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. ▪ Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery. ▪ For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust. ▪ Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This 		

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						<p>may require the sweeper being continuously in use.</p> <ul style="list-style-type: none"> ▪ Avoid dry sweeping of large areas. ▪ Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport. ▪ Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. ▪ Record all inspections of haul routes and any subsequent action in a site log book. ▪ Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned. ▪ Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the 		

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						<p>site where reasonably practicable).</p> <ul style="list-style-type: none"> ▪ Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits. ▪ Access gates to be located at least 10 m from receptors where possible. 		
Waste Management	Amassing of waste as a result of both construction and operation.	C & O	C	4	Low	<p>Standard waste reduction measures are recommended to be conducted during the demolition, construction, and operational phases. These recommended procedures include the following:</p> <ul style="list-style-type: none"> ▪ Effective management of construction and demolition waste through reuse and recycling where practical. ▪ Practical waste storage areas that are large enough to adequately store all quantities 	Pr	Threat of incorrect disposal of waste streams which have potential for environmental risk.

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						<p>of operational waste and recycling between collections.</p> <ul style="list-style-type: none"> ▪ Regular monitoring and reporting of waste and recycling management arrangements, as well as visual assessments of bins and bin storage areas. ▪ Clearly communicate waste management initiatives and management measures. ▪ Provide appropriate signage within waste storage and collection areas, as well as the clear and correct labelling of waste and recycling bins. ▪ Reuse and recycling measures (e.g., establishing systems with in-house and supply chain stakeholders to transport products in re-useable packaging where possible). ▪ Other operational and waste avoidance measures (e.g., participating in take-back 		

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						<p>services to suppliers, avoid printing, and reviewing packaging design).</p> <ul style="list-style-type: none"> Hiring of qualified waste contractors for handling waste removal properly informing sub-contractors of waste management procedures. 		
Ecologically Sustainable Development	Development not being undertaken in a manner that adopts ESD principles	C	D	4	Low	<p>Assessment summary of ESD principles will assist future developments to achieve ESD certification. These principles include:</p> <ul style="list-style-type: none"> Design and management Façade performance Social Sustainability Minimising Transport Impact Optimising IEQ Minimising Energy Use Choosing materials 	Ma	Development potentially resulting in increased greenhouse gas emissions and not adopting best practice in ESD principles.
Airport Safeguarding	Matters like Obstacle Limitation	C & O	C	3	Medium	If approved, details of the Project must be reported to Airservices Australia via this email address:	Ma	Dangerous conditions for both aircraft and

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	Surfaces and lighting and reflectivity.					<p>vod@airservicesaustralia.com, and published in En Route Supplement Australia (ERSA) and other relevant aeronautical chart products.</p> <p>Consultation with Airservices Australia regarding PANS-OPS and CNS is required, and once public information available, it is recommended that the assessment is revisited.</p>		buildings if these matters are not considered.