Appendix D

Mitigation Measures

ENVIRONMENTAL RISK ASSESSMENT AND MITIGATION MEASURES

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 DPE's hierarchy of approaches for managing impacts identified in the *State significant development guidelines – preparing an environmental impact statement* released by DPE in December 2021, as:

- **Performance 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 measure** – require action to be taken or specify something that must not 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
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.

CONSEQUENCE	LIKELIHOOD A	B	C	D	E
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

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
Design quality and design excellence	The development does not achieve design excellence.	O	E	2	Very Low	The future Detailed SSDA must implement the process outlined in the Sydney Metro West Design Excellence Strategy for Hunter Street Station.	Prescriptive measure	N/A
Built form and urban design	The development does not achieve built form and design objective for the site.	O	E	2	Very Low	The detailed design of the OSD is to be undertaken in accordance with the draft site-specific Design Guidelines. The Detailed SSDA must address the manner in which the design/proposal responds to the detail within this Concept SSDA and the Design Guidelines.	Prescriptive measure	N/A
Crime and public safety	Antisocial and criminal behaviour	O	D	3	Low	The Detailed SSDA must incorporate CPTED principles relating to natural surveillance, access control, territorial reinforcement and space management.	Management based measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						The Detailed SSDA must adopt the recommendations contained within the CPTED Assessment Report (Appendix L)		
Overshadowing	Increase in shadowing to surrounding public domain, including Martin Place and GPO.	O	C	2	Medium	Future development is to be consistent with the proposed maximum building envelope (and detailed in Appendices G) so as to ensure that the overshadowing impacts are not worse than those assessed in this concept proposal.	Prescriptive measure	N/A
Sky view	Create adverse impacts to public domain amenity including daylight access	O	C	2	Medium	Future development is to be consistent with the proposed maximum building envelope (and detailed in Appendices G) so as to ensure that the natural light levels in the public domain surrounding the site is protected.	Prescriptive measure	N/A
Reflectivity	Adverse solar reflectivity glare to	O	D	2	Low	As part of the future Detailed SSDA, the design and materiality of the façade should adopt a maximum 20	Prescriptive measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
	motorists and pedestrians					per cent specular reflectance for the glazed surfaces and must not exceed a veiling luminance limit of 500 cd/m2 to drivers.		
Wind impacts	Adverse wind environment along surrounding streets, publicly accessible open space.	O	D	2	Low	Further investigation of the wind conditions for the ground level and elevated areas within and around the development must be undertaken as part of the Detailed SSDA to verify the suitability of the relevant public domain areas. This would also include detailed wind tunnel testing of any proposed elevated and open communal areas in the OSD.	Prescriptive measure	N/A
Visual impacts	▪ Visual / view impacts from surrounding streetscape and key public vantage points	O	C	1	Medium	Future development is to be consistent with the proposed maximum building envelope (as detailed in Appendix G) so as to ensure that the visual and view impacts are not worse than those	Prescriptive measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
	▪ View impacts on heritage items					assessed in this concept proposal.		
Integration with station and public realm	Create adverse impacts on railway infrastructure, and the station podium below.	C & O	D	2	Low	The future Detailed SSDA would need to propose a building which is architecturally and structurally integrated with the station structure beneath and would be guided by the Draft Design Guidelines.	Prescriptive measure	N/A
Pedestrian amenity	Impacts to surrounding pedestrian network. Conflict with pedestrians	O	C	2	Medium	Future development is to be consistent with the proposed maximum building envelope including proposed maximum floor space (and detailed in Appendices G) so as to ensure that the amenity of surrounding pedestrian network is not worse than those assessed in this Concept SSDA. Any improvements to the surrounding pedestrian network should be investigated in consultation	Prescriptive measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						with key stakeholders such as the City of Sydney and Transport for NSW.		
Ecologically sustainable development	▪ Carbon emissions ▪ Energy consumption ▪ Thermal comfort of building occupants	C & O	D	2	Low	In order to achieve a high level of ecological sustainability, Detailed SSDA should comply with the sustainability framework and strategies, including the minimum targets identified in the ESD Report (Appendix P). Where practicable, a future Detailed SSDA should also consider and implement world best practice / innovation strategies.	Prescriptive measure and Management based measure	N/A
Transport, traffic and parking	▪ Increased traffic on surrounding roads	C & O	D	1	Low	A total of 70 spaces are to be provided between the eastern and western Hunter Street Station sites, with the number on each site to be determined in a future Detailed SSDA Provision of car share spaces to reduce individual car parking demands. Allocation	Prescriptive measure and Management based measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						and provision is subject to confirmation as the design evolves Implementation of dock management protocols and practices. Potential loading dock management measures, such as a booking system, extended operating dock hours and or appointing a sole delivery contractor A detailed Construction Traffic Management Plan (CTMP) for adoption during the construction phase should be prepared as part of the future Detailed SSDA. A travel plan should be created to reduce car trips and encourage the use of sustainable transport as part of the future Detailed SSDA		
Noise and vibration	▪ Increase in noise and vibration	C & O	D	2	Low	The future Detailed SSDA must address and meet the noise and vibration criteria	Prescriptive measure and Management	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
	associated with construction including from vehicles and machinery ▪ Increase in noise and vibration associated with emissions from building plant and services ▪ Increase in noise associated with vehicle movements					established within the Acoustic and Vibration Impact Assessment Report at Appendix S, and implement the recommendations in the report, including: <u>Construction stage</u> Prior to the commencement of major construction works, the future Detailed SSDA should develop a detailed CNVMP. The CNVMP should: ▪ identify relevant construction noise and vibration criteria as detailed in the Noise and Vibration Report ▪ identify neighbouring land uses that are sensitive to noise and vibration ▪ summarise key noise and vibration generating construction activities	based measure	

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						and the associated predicted levels at neighbouring land uses ▪ identify reasonable and feasible work practices to be implemented during the works ▪ summarise stakeholder consultation and complaints handling procedures for noise and vibration. ▪ appropriate management to ensure that there is no structural or cosmetic damage to surrounding building structures, including the heritage listed Former Skinners Family Hotel and Tank Stream. Further investigation should be undertaken in detailed design to manage construction noise		

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						exceedances, including the following: ▪ The criteria for non-residential sensitive receivers are only applicable when the receiver is in use. Therefore, further investigation into the operation of these nearby sensitive uses should be undertaken to manage these impacts. ▪ the noise levels for these scenarios represent a typical worst-case with all equipment operating concurrently. These levels are considered conservative and as more detail about the construction methods and equipment is developed this can be refined further within the Detailed SSDA.		

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						<u>Operational stage</u> ▪ Major noise and vibration emitting sources should be treated to meet the established criteria with the use of standard acoustic treatments. ▪ All major equipment, installed as part of the proposed development, should be mounted on isolation mounts. ▪ Appropriate reasonable and feasible acoustic treatments should be incorporated into the design of the OSD building as required to minimise sleep disturbance. ▪ It is expected that structure-borne noise and ground-borne noise relating to the operation of Sydney Metro station will be mitigated through		

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						track-form design. No further vibration isolation of the proposed development is anticipated. The detailed design of the development should ensure that it is fit for purpose and aligns with the intended use considered during the track-form design, otherwise further mitigation may need to be considered for more sensitive use. ▪ External noise intrusion will be controlled by the acoustic performance of the façade. The preliminary assessment recommends an indicative glazing thickness of 10.38mm thick laminated glass for office uses in the OSD building.		

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
Stormwater and wastewater	Impacts on quality of stormwater discharge into drainage system	O	D	2	Low	As part of the future Detailed SSDA, the following is required to finalise the stormwater and water quality design: ▪ design of connection to existing council drainage system ▪ final on-site detention requirements based on the finalised architectural scheme ▪ further authority coordination as required.	Prescriptive measure	N/A
Flooding	Potential flooding of development	O	D	2	Low	The mitigation measures described in the Flooding Assessment at Appendix V should be incorporated as part of the Detailed SSDA for further design refinement to ensure that floor levels would be situated at or above a level consistent with the requirements outlined as follows:	Prescriptive measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						▪ Any function which has the potential to compromise the flood immunity of the Stage 3 CSSI application - PMF event, or the 1% AEP climate change flood event level with an allowance for freeboard of 0.5 metres (whichever is greater) ▪ Critical facilities (including fire control room and critical infrastructure control equipment rooms) - PMF event, or the 1% AEP climate change flood event level with an allowance for freeboard of 0.5 metres (whichever is greater) ▪ Commercial uses (including OSD lobby, service facilities and access to and from critical facilities) - 1%		

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						AEP climate change flood event level ▪ Retail opportunities - balance of protection from the 1% AEP climate change flood event and achieving urban design outcomes. ▪ On-site flood risk, design solutions and operational flood emergency response plans to mitigate flood risk, if required, for specific functions should be included as part of the future Detailed SSDA.		
Contamination and remediation	Exposure of contamination of hazardous materials during construction	C	E	2	Very low	Contamination has been addressed as part of the Stage 2 and 3 CSSI Applications. No further contamination investigation is required for the Concept SSDA.	N/A	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
Waste management	Waste production associated with construction activities Waste production associated with operation of OSD	C & O	D	2	Low	A detailed waste management plan for the construction and operational phase of the development should be prepared and submitted as part of the Detailed SSDA. The detailed Waste Management Plan should address the following: Construction phase: ▪ careful procurement of materials ▪ better utilisation of materials already available on site ▪ reducing the amount of waste generated where it cannot be eliminated completely ▪ re-using and then recycling as much as practicably possible	Management based measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						Operational phase: ▪ Future detailed design should be generally consistent with the minimum waste area requirements proposed in the preliminary Waste Management Plan submitted under this SSDA, ▪ The area and spaces allocated for operational waste storage and collection for the proposed development may be subject to further design development as part of future Detailed SSDA.		
Aboriginal cultural heritage	Impacts to Aboriginal heritage that may result from the proposal.	C & O	D	2	Low	As the proposed development would have no impact on the ground surface or subsurface ground it is recommended that further assessment is not required.	Management based measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						If changes are made to the proposal that may result in impacts to areas not assessed by this ACHAR, further assessment would be required. If any aboriginal objects, or potential objects, are uncovered during the proposed development, all work in the vicinity should cease immediately and The Sydney Metro Unexpected Heritage Finds Procedure followed. A qualified archaeologist should be contacted to assess the find. If human remains, or suspected human remains, are found during the proposed development, all work in the vicinity should cease, the site should be secured, and the NSW Police and Heritage NSW should be notified, and The Sydney Metro Unexpected Heritage		

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						Finds Procedure and Exhumation Management Procedure should be followed.		
Environmental heritage	Potential impact of the proposed concept design on the heritage items, including the Former Skinners Family Hotel	C & O	D	1	Low	The Conservation Management Plan should be used to guide the future conservation and adaptive reuse of the former Skinners Family Hotel. Skinners Family Hotel should be maintained and protected from damage during the works. Skinners Family Hotel should be regularly monitored and maintained as required in accordance with the Minimum Standards of Maintenance and Repair (Heritage Council of NSW) while the building is unoccupied. Consider provision for the interpretation of	Prescriptive measure and Management based measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						archaeological findings from the surface demolition and excavation proposed in Stage 2 CSSI as Public Art in the proposed development where not incorporated into the station.		
Accessibility	Adequate access for people with a disability	O	D	3	Low	The Detailed SSDA must take into consideration the Australian Standards, Building Code of Australia, Federal Disability Discrimination Act (DDA) and Disability (Access to Premises – Buildings) Standards 2010), as relevant.	Prescriptive measure	N/A
Social impact	▪ General disruption to community associated with large scale construction ▪ Potential anti-social behaviour	C & O	D	3	Low	Pedestrian travel experience impact should be reassessed as part of the detailed SSDA for the Hunter Street West OSD, once further information about the detailed design of the Hunter Street East and West sites and their cumulative impact	Prescriptive measure and Management based measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
	associated with operation of the development					on pedestrian experience is available. To mitigate increased noise and vibration impact, the recommendations made in the Noise and Vibration Assessment should be implemented in the future Construction Noise and Vibration Management Plan.		
Infrastructure and utilities	▪ Adequate connection to infrastructure and utilities ▪ Adequate capacity to service building	O	D	3	Low	In accordance with the specific requirements of the individual utility service providers, the developer of the OSD must undertake detailed enquiries and arrange for final connections and associated approvals based on the final design.	Prescriptive measure	N/A
Construction	Construction impacts to pedestrians, road network, public transport, emergency access and other	C	D	2	Low	When the timeframe for construction of the OSD is determined at a later stage, a Construction Traffic Management Framework (CTMF) should be prepared as part of future Detailed	Prescriptive measure and Management based measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
	developments nearby.					SSDA. The CTMF should include measures to: ▪ Appropriate diversions to safely guide pedestrians around work zones. ▪ Limit construction vehicle movements during peak periods and major events. ▪ Provide principles and mitigation strategies to ensure that impacts on pedestrians, rail users, bus services and taxis are manageable for the two staging scenarios. ▪ Construction haulage routes are being further investigated with key stakeholders and will form part of the CTMP.		