# APPENDIX D - 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* released by DPE in November 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.

| | | **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 |
|---|---|---|---|---|---|---|---|---|
| **Traffic and Transport** | Potential traffic impacts from increased density on the site<br><br>Construction traffic impacts on car parking and local streets | C and O | D | 3 | Low | ▪ An Indicative Construction Traffic Management Plan (CTMP) has been prepared to establish the principles and objectives for construction traffic management and provides an indicative construction methodology to ensure the safety of the public and workers.<br>▪ The Indicative CTMP will be further developed and a detailed CTMP finalised prior to the commencement of construction activities.<br>▪ A Green Travel Plan (GTP) has also been prepared to encourage use of transport modes that have low environmental impacts, including walking, cycling, public transport, and better management of car use.<br>▪ The GTP will be implemented during the operational phase of the development, and includes provisions such as:<br>– Public transport maps provided on noticeboards, newsletters, websites, social media to alert students to the alternative transport options.<br>– Appoint a Travel Plan Coordinator (TPC) for the life of the development to ensure the successful implementation and monitoring of the GTP.<br>– The GTP will be monitored to ensure that it is achieving the desired benefits, including travel surveys to establish travel patterns and mode share of trips to and from the site. The GTP may be updated to influence further changes to the travel behaviour. | Pr<br><br>Ma | Low |
| **Noise and Vibration** | Potential noise of the development during operation (including plant noise)<br><br>Noise and vibration impacts from the existing train line.<br><br>Traffic noise from Bourke Road<br><br>Noise and vibration impacts during the construction phase. | C and O | D | 4 | Low | ▪ Prepare a detailed Construction Management Plan during detailed design (to be addressed as part as part of the detailed SSDA submission)<br>▪ Noise monitoring will need to be undertaken as required to monitor and help to minimise construction noise to avoid discomfort to occupants of the surrounding areas.<br>▪ The contractor shall carry out a preliminary vibration assessment at the commencement of operations for each vibration generating plant to determine whether the existence of significant vibration levels justifies a more detailed investigation.<br>▪ Provide information to neighbours before and during construction. Create a documented complaints process and keep register of any complaints.<br><br>Note: it is anticipated that these measures will form part of the conditions of consent for the future detailed SSDA to be submitted separately to DPE. No physical works are proposed as part of the Concept SSDA | Pr<br><br>Ma | Low |
| **Ground and Water Conditions** | Construction activities have potential to impact on stormwater system. | C and O | D | 4 | Medium | ▪ Storage of hazardous materials and refuelling to be undertaken in bunded areas.<br>▪ Spill kits to be kept onsite and staff informed of how to use them in an incident.<br>▪ Proper stormwater drainage installed and maintained to prevent groundwater infiltration onsite. | Pe<br><br>Ma | Low |

| SEAR | Potential Impact | Stage of Project | Likelihood | Consequence | Risk Level | Approach | Mitigation Measure (Pe/Pr/Ma) | Residual Impact |
|---|---|---|---|---|---|---|---|---|
| | Potential to impact groundwater during construction and operation.<br><br>Contamination of the aquifer due to the proposed development.<br><br>During excavation saline soils are identified. | | | | | Note: It is noted that the final design and basement configuration is subject to a design excellence competition and separate detailed State Significant Development application. Therefore, a high level ground water impact assessment has been prepared to examine potential future impacts to groundwater at the site. it is anticipated that the mitigation measures will form part of the conditions of consent for the future detailed SSDA to be submitted separately to DPE. No physical works are proposed as part of the Concept SSDA. | | |
| **Safety and security** | Potential opportunity for crime based on existing street lighting, security measures and crime statistics | O | E | 5 | Very low | ▪ Access to the building: provide adequate lighting; install CCTV and ensure the landscaping maintains clear sightlines and does not allow opportunities for concealment. Restrict access to the car park.<br>▪ Landscaping: landscaping should be maintained to have low shrubs and reduce density.<br>▪ Surveillance: maximise natural surveillance through the provisions of windows and doors.<br>▪ Lighting: provide lighting at entry/exit points, service areas and loading areas.<br>▪ CCTV: CCTV should be installed at all entry/exit points and external areas of the building.<br>▪ Materials: Materials and fixtures utilised should not create opportunities for vandalism.<br><br>Note: it is anticipated that these measures will form part of the conditions of consent for the future detailed SSDA to be submitted separately to DPE. No physical works are proposed as part of the Concept SSD | Pe<br><br>Pr<br><br>Ma | Low |
| **Stormwater and wastewater** | Potential impacts of proposed development on existing stormwater flow and quality. | C and O | D | 4 | Low | The erosion and sediment control measures adopted for the development during the construction phase will be designed in accordance with Council guidelines and Soils and Construction – Managing Urban Stormwater – Landcom. Stormwater quality improvement will be achieved through rainwater capture and re-use, and stormwater filter cartridges in the OSD tank.<br><br>Note: it is anticipated that these measures will form part of the conditions of consent for the future detailed SSDA to be submitted separately to DPE. No physical works are proposed as part of the Concept SSD | Ma | Low |
| **Contamination and Remediation** | Contaminated soils impact workers during construction or future occupants of the site in operation.<br><br>Concentrations of lead in soil are shown to be the most significant CoPC analysed within the site. | C and O | C | 3 | Medium | ▪ A detailed remediation action plan is to be developed in accordance with NSW Office of Environment and Heritage (OEH) (2020) Guidelines.<br>▪ Sampling and Analysis Quality Plan (SAQP) to be prepared for the data gap investigation and for this to be provided to the Auditor for review prior to works commencing.<br>▪ A Construction Environmental Management Plan (CEMP) will be required prior to commencing remedial works in accordance with the approved remediation action plan (RAP).<br><br>Note: it is anticipated that these measures will form part of the conditions of consent for the future detailed SSDA to be submitted separately to DPE. No physical works are proposed as part of the Concept SSD | Ma | Low |

| SEAR | Potential Impact | Stage of Project | Likelihood | Consequence | Risk Level | Approach | Mitigation Measure (Pe/Pr/Ma) | Residual Impact |
|---|---|---|---|---|---|---|---|---|
| **Flooding** | The site is located near a sag point on Bourke Road and is located in a high flood risk zone with major overland flow expected at or near the site. | C and O | C | 4 | Low | ▪ All entrance levels to the basement including the vehicle ramp, stairwells, ventilation and lifts will be designed to be protected from flooding during a PMF event. By ensuring all the entries to the basement are at the PMF level, Enstruct conclude the floor level of the basement is acceptable.<br>▪ During a major flood event, it is expected the flood evacuation strategy will follow a “shelter in place” system, given Bourke Road will be flood affected. The site is flood affected and hence multiple measures have been incorporated in the development of the concept envelope and the reference scheme to ensure all habitable floors and all basement entries are at least at the PMF level (10.40mAHD) to satisfy the Flood planning levels based on the City of Sydney flood model.<br>▪ The flood assessment concludes the site is in a flood safe area and is suitable for the proposed development subject to the adoption and implementation of the above mitigation measures. | Pr<br>Ma | Low |
| **Trees removal** | A Paperbark is proposed to be removed to facilitate the driveway into the new development, in accordance with Council’s laneway design. | C and O | D | 4 | Low | To mitigate the tree removal, the concept envelope provides deep soil at the Bourke Rd frontage to accommodate tree planting. As shown in the landscape concept, this provision will provide opportunity for planting of native trees along the Bourke Road frontage in to mitigate the loss of the tree due to the Council DCP laneway. | Pe | Low |
| **Waste management** | Potential impacts from waste generated during construction and operational phases | C and O | C | 4 | Low | ▪ Waste and recycling contractors will be required to comply with the Construction and Operational WMP requirements to achieve and maintain best practice.<br>▪ The laboratory and clinical operations special waste streams are to be managed in accordance with relevant hazardous waste disposal guidelines and legislative requirements.<br>▪ Clear signage identifying the various streams and appropriate use is to be prominently displayed.<br>▪ Provide bin hubs for common waste streams in common areas.<br>▪ Spill kits should also be made available in all areas where chemical waste areas generated.<br>▪ All sharps are to be collected in a rigid, puncture-proof container that meets Australian Standard requirements (AS 4031).<br>▪ An E-waste bin will be located in the waste storage area on Ground level.<br>▪ Active site management during the construction phase will ensure all waste/recyclable materials are disposed of appropriately and that all waste receptacles are of sufficient capacity to manage onsite activities.<br>▪ Hazardous construction materials should be disposed of in accordance with EPA guidelines in order to protect the environment and personnel.<br>Note: it is anticipated that these measures will form part of the conditions of consent for the future detailed SSDA to be submitted separately to DPE. No physical works are proposed as part of the Concept SSD | Pe<br>Ma | Low |
| **Ecologically sustainable development** | Potential increase in energy consumption associated with | C and O | D | 4 | Low | ▪ Employ passive ESD measures such as external shading or high-performance facades to reduce peak summer solar gain, maximise annual building energy, and create occupant comfort through effective daylighting. | Pe | Low |

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|---|---|---|---|---|---|---|---|---|
| | demolition, construction and operational phases | | | | | ▪ Consider implementing Water Sensitive Urban Design features such as water efficient fittings and appliances, rainwater tanks to reduce potable water consumption and costs, proprietary devices and other approved site-specific measures to reduce pollution from stormwater entering local waterways.<br>▪ Consider the use of low embodied carbon materials throughout the development in reducing upfront carbon emissions<br>▪ Consider high performance heating, ventilation and air conditioning (HVAC) systems.<br>Note: it is anticipated that these measures will form part of the conditions of consent for the future detailed SSDA to be submitted separately to DPE. No physical works are proposed as part of the Concept SSD | | |
| **Aboriginal cultural heritage** | Aboriginal objects are unlikely to be present in remnant natural soil deposits below the existing development. | C and O | D | 4 | Low | ▪ Consultation with the Registered Aboriginal Parties (RAPs) should continue until the finalisation of the proposed development to ensure the opportunity for community input.<br>▪ As suggested by the RAPs during the consultation process, Native planting should be considered within the proposal at Stage 2 of the SSDA.<br>▪ Any physical works in the subject area that impact undisturbed subsurface soil below a depth of 0.6m/1.9m should be further investigated to understand if Aboriginal archaeological resources are present.<br>▪ Once the detailed design and physical impacts from the proposal have been finalised as part of the separate detailed SSDA, the recommendations and potential harm and impacts to Aboriginal objects should be refined and reconsidered. | Ma | Low |
| **Environmental heritage and archaeology** | Potential impacts to surrounding heritage items and potential archaeological elements. | C and O | D | 4 | Low | ▪ Archival recording: Prior to the commencement of any works on the site (to be addressed as part of the future detailed SSDA), the existing buildings at the site are to be archivally recorded in accordance with the relevant guidelines published by the Heritage Council of NSW. The archival recordings should capture the existing buildings, externally and internally, and include images of their current setting.<br>▪ Once the detailed design and physical impacts from the proposal have been finalised at Stage 2 of the SSDA, the impact assessment, archaeological potential mapping and recommendations should be refined and reconsidered, and this report updated.<br>▪ At Stage 2 SSDA an Archaeological Research Design (ARD) should be prepared by a suitably qualified archaeologist to develop a methodology for the investigation and management of potential locally.<br>▪ significant relics across the subject site. This should include methodologies for monitoring and test excavation, as well as salvage excavation should that be deemed necessary.<br>▪ In the unlikely event that human remains are uncovered during any site works, the following must be undertaken:<br>– All works within the vicinity of the find immediately stop.<br>– Site supervisor or other nominated manager must notify the NSW Police and the Department of Premier and Cabinet. | Ma | Low |

| SEAR | Potential Impact | Stage of Project | Likelihood | Consequence | Risk Level | Approach | Mitigation Measure (Pe/Pr/Ma) | Residual Impact |
|---|---|---|---|---|---|---|---|---|
| | | | | | | – The find must be assessed by the NSW Police, and may include the assistance of a qualified forensic anthropologist.<br>– Management recommendations are to be formulated by the Police, Department of Premier and Cabinet and site representatives.<br>– Works are not to recommence until the find has been appropriately managed. | | |
| **Social impact** | Potential positive and negative social impacts arising from the proposed development | C and O | D | 5 | Low | ▪ Consider ways to partner and/or connect with RPA HealthOne as a referral pathway for patients who may not be able to afford the services provided at the facility. HealthOne is an integrated public health centre operated by the Sydney Local Health District and provides a range of health care services, including mental health services.<br>▪ Connect with Royal Prince Alfred Hospital (RPAH) and implement a referral pathway for patients whose condition worsens and who may require longer-term and/or involuntary care in the public system.<br>▪ The future operator of the facility to consider implementing affordable community outreach programs and/or events with a focus on early intervention, health promotion and prevention messaging to connect with the local community.<br>▪ Consider having GPs and/or allied health services that bulk bill or provide affordable care for people on lower incomes or without private health insurance.<br>▪ Implement a landscape maintenance plan for the site to ensure trees, low-level planting and climbers are well maintained.<br>▪ Consider implementing CCTV at car park entrances to minimise opportunities for crimes related to car theft and damage.<br>▪ At the detailed design stage, implement a lighting strategy with particular focus on the laneways, car parking areas and outdoor seating to ensure staff and visitors feel safe at all times of the day. | Ma<br>Pe | Low |
| **BCA and access** | Ensure compliance with the National Construction Code. | C and O | D | 5 | Low | Detailed documentation demonstrating compliance with the NCC/BCA will be required for assessment during detailed design. | Pe | Low |
| **Infrastructure requirements and utilities** | Increased demand for potable water, wastewater, power and gas services | O | D | 4 | Low | ▪ A water servicing coordinator is not yet assigned and the section 73 application process has not been commenced. The notice of requirements once received from Sydney Water will inform which sanitary drainage asset can have connections made to it and the available capacities.<br>▪ **Electrical**: The electrical demand for the development is estimated to be approximately 1719kVA including 20% spare capacity (2406Amps). It is anticipated that two (2x) kiosk-type substations are required to provide capacity for the proposal. An application for connection has been lodged with Ausgrid.<br>▪ **Communications**: the site can be connected to the NBN via the exiting Telstra infrastructure along Bourke Rd to provide telephone and data services. An application to Connect will be lodged with service type determined by NBN during detailed design. | Pe<br>Ma | Low |