APPENDIX A MITIGATION MEASURES AND ENVIRONMENTAL RISK ASSESSMENT

The following section provides recommendation for mitigation measures in response to potential impacts identified in Section 6 of the EIS prepared in March 2022. The structure of mitigation measures is based on the DPIE's hierarchy of approaches for managing impacts identified in the *Draft Environmental Impact Assessment Guidance Series* released by DPE in June 2017, 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
Built Form, Urban Design and Visual Impacts	Built form scale and appearance will be readily visible when viewed from Kellyville Park and other key public vantage points.	O	D	3	Low	The overall built form has been designed to reduce any potential visual impacts and remains within the existing and future tree canopy and follows the topography of the site.	Pe	The proposed buildings and structures remain within the tree canopy of the park and have negligible visual impacts from the identified viewpoints.
Public space	Public space accessible for all and maximises permeability and connectivity, while addresses Crime Prevention Environmental Design principles. Potential vehicle, bicycle and pedestrian conflicts.	O	D	3	Low	Both buildings are accessed at grade from the existing car park with accessible parking bays located at both ends of the proposed development to enable direct access in and around the buildings. The design must meet the mandatory requirements of relevant Building Code, Australian Standards and the intent of the Federal Disability Discrimination Act. Cycle and pedestrian shared pathways are proposed in the development area on site to connect with Council's local cycleways, leading to storage and end of trip facilities for regular users for both the COE and CF.	Pe/Pr	The proposed development includes an active urban space to maximise social and commercial opportunities that address both the car park and vehicle drop off space at arrival, and the edge of the playing fields and community recreation areas. The pathway network will connect the proposed COE and CF with other areas within the park and the Strangers Creek area.
Heritage	Disturbance to sub-surface objects and artefacts. Construction workers/ contractors inappropriately handling or destroying potential artefacts or items of significance.	C & O	D	4	Low	During construction: ▪ A copy of the current draft report should be provided to the Registered Aboriginal Parties for their review. Any comments made by the Registered Aboriginal Parties should be incorporated into the final version of the report. ▪ No further Aboriginal archaeological assessment or investigation is required prior to commencement of the proposed development, and the works may proceed with caution. ▪ If any Aboriginal objects or bones suspected of being human are identified during construction, site workers must: ▪ Not further disturb or move these remains. ▪ Immediately cease all work at the location. In the case of suspected human remains only, notify NSW Police. In the case of Aboriginal objects, notify the Heritage NSW Environment Line on 131 555 as soon as practicable and provide available details of the objects or remains and their location. Deerubbin Local Aboriginal Land Council should also be notified to assist in the determination of appropriate management for the objects or remains.	Ma	All works are respectful of any archaeology significance.

SEAR	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						Not recommence any work at the location unless authorised in writing by Heritage NSW. In the unlikely event that human remains are uncovered during any site works, a Human Remains Procedure must be implemented.		
Traffic & Transport	Impacts on road network from construction and operational phase Additional demand on car parking spaces.	C & O	D	3	Medium	Traffic control would be required to manage and regulate construction vehicle traffic movements to and from the Site during construction. During construction, all loading and unloading of vehicles must be undertaken within a secured site area accessed from Stone Mason Drive. To facilitate manoeuvres in and out of this area, as well as in and out of the construction site gates, traffic controllers will be required as well as advanced warning signage. Green travel plan initiatives including shuttle buses during larger scale events between Kellyville/Bella Vista Stations and the site on peak event days and an additional 40 car parking spaces and public drop off and pick.	Pe	Management of traffic and transport impacts specifically during the construction phase and ongoing operation.
Noise & Vibration	Adverse noise generation during construction and operation on surrounding neighbours	C & O	C	3	Medium	Prior to the commencement of major construction works, the contractor should develop a Construction Noise and Vibration Management Plan (CNVMP). The CNVMP should: ▪ identify relevant construction noise and vibration criteria as detailed in this report ▪ identify neighbouring sensitive land uses for noise and vibration ▪ summarise key noise- and vibration-generating construction activities 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. Noise management measures may include the following which could be incorporated into during operation: ▪ Reduce the number of higher noise events.	Pr/Ma	Management of noise impacts on surrounding noise sensitive receivers specifically during the construction and operation phase.

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						▪ The current strategy would be for the Elite Level Game Days to occur 2-3 per year. ▪ Providing marshalling to usher visitors onto the site encouraging quiet arrival and departure noting the proximity of the adjacent residential area. ▪ Providing sufficient alternative transportation (such as shuttle buses) to the site for the Elite Level Games Days do reduce pressure on the nearby local road network. ▪ Driving to the speed limit. ▪ Limiting unnecessary acceleration and braking. ▪ Encouraging users of the site to find a parking space promptly and minimise idling time. ▪ Implement drop off and pick off points for shuttle buses and the like that are located away from adjacent sensitive receivers insofar as practical.		
Water, Drainage and Stormwater	Adverse impact on the quality of stormwater runoff	O	D	2	Low	Stormwater treatment devices will be incorporated in the design to manage surface runoff with additional treatment incorporated into the existing stormwater system. The Community Facilities building is defined as ‘Sensitive Uses and Facilities’ land use category. The DCP requires habitable floor levels are set to FPL4 or higher. The Centre of Excellence building is defined as ‘Commercial and Industrial’ land use category. The DCP requires habitable floor levels are set to FPL3 or higher. The proposed development has been design to ensure both buildings now achieve compliance with FPL4.	Pr	Flood compatible material would need to be considered to eliminate the risk of flood damage from overland flooding.
Construction Impacts	Adverse construction impacts on neighbouring properties	C	C	3	Medium	Appropriate hoarding / fencing (as specified in Australian Standards and Work Cover requirements) and safety barriers will be installed to the entire work areas prior to commencement of the works. Site Hoardings will be erected around the perimeter of the site and maintained to prevent public access. Site signage will provide 24-hour emergency contact details including contact name and telephone number.	Ma	Impacts on the amenity of neighbouring properties.

SEAR	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						Construction vehicle access / egress gates / Signage will be installed. These public and property protection measures will be reviewed at the time of contract award for the works to ensure alignment with proposed preferred methodologies and sequencing developments and to ensure that the safety of the general public is maintained at all times during the works. As part of the noise mitigation treatment for the project, the Main Contractor will be responsible for the management, checking of compliance maintenance regimes and statutory supervision of all equipment, such as making sure all trucks and machinery involved in the works are checked for defective exhaust systems and general servicing.		
Biodiversity	Unnecessary removal or damage to the TEC's or other retained vegetation	C	D	3	Low	▪ Minimise Weeds: minimise the spread of weeds throughout the subject land and adjoining areas, appropriate weed control activities will be undertaken prior to vegetation clearing. ▪ Tree Protection Measures: To avoid unnecessary or inadvertent vegetation and habitat removal or impacts on fauna, disturbance must be restricted to the delineated area and no stockpiling of equipment, machinery, soil or vegetation will occur beyond this boundary. ▪ Pre-clearance survey ▪ Staging of clearing ▪ Sedimentation control ▪ Landscaping and replacement plantings will be undertaken within the subject land using species associated with the TEC Cumberland Plain Woodland.	Pe	Unnecessary damage to trees to be retained
Landscaping and tree removal	Construction impacts on retained trees at the site.	C	C	3	Medium	A site-specific tree protection plan should form part of the final Construction Management Plan detailing the location of tree protection fencing, inspection and reporting protocols and any areas where ground protection will be required. All pruning must be conducted in accordance with AS4373-2007- The Pruning of Amenity Trees. No underground services are to be located within the TPZ or SRZ of any tree to be retained.	Pe	Loss of existing landscape and highly significant trees

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						All tree protection measures must be undertaken in accordance with the relevant Australian Standards. Where trees are intended to be retained and potential works areas may enter the TPZ or SRZ, exploratory root excavation will be undertaken in a manner that causes the least amount of damage to root material in the process. Trees [T1, T2 & T9] shall be protected prior to and during construction from all activities that may result in detrimental impact by erecting a suitable protective fence in the positions as indicated on the Tree Protection Plan. The BDAR outlines that where native trees are to be felled, suitable sections of the tree are to be salvaged for reuse as logs in retained and revegetated areas of Cumberland Plain Woodland. This will include sections of the tree trunk that are >25- 30cm DBH and approximately 2-3m in length. As outlined in this report existing tree No. 17 will be retained on site following it's felling and parts such as the trunk and large braches used for as part of the Connecting with Country design principles.		
Environmental amenity	overshadowing impacts within the site, on surrounding buildings and public spaces.	O	D	4	Low	Result in no overshadowing or detrimental solar impact to adjacent properties. The building orientation results in direct sunlight entering the Centre of Excellence, however, is controlled through sun shading element. This includes the relatively deep eaves and the roof overhang of the grandstand which will provide shade from direct sun for all but the final 1-2 hours of the day	Pe/Pr	No overshadowing impacts.
Waste Management	Amassing of waste as a result of both construction and operation	C & O	C	4	Low	Practical building design and construction techniques, including construction staging and ordering pre-cut materials at the required sizes. Appropriate collection and subsequent reuse, recycling or treatment offsite for items such as batteries, cardboard, timber, plastic, glass etc. during construction, demolition and operational phases. Careful on-site storage, sorting and separation of different waste products, especially for waste appropriate for recycling and reuse.	Pr	Threat of incorrect disposal of waste streams which have potential for environmental risk.

SEAR	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						Returning certain waste products (e.g. packaging) to the suppliers where possible. Acquiring materials and goods from waste reducing sources (e.g., recycled materials, fit for purpose packaging, leased equipment and machinery). Other operational, waste reduction and management practices (e.g., provision of take back services to clients, flattening cardboard waste, recycle collection in offices and tearooms). Hiring of qualified contractors for handling waste removal properly informing sub-contractors of waste management procedures. Waste Storage and Management during the demolition, construction and operational phases is to be undertaken in accordance with the Waste Management Plan.		
Air quality	Any air quality impacts during construction and operation.	C & O	C	4	Low	Signage should be displayed to remind drivers to turn off vehicle engines when idling at the site for longer than 1 minute to minimise exhaust emissions. General environmental awareness training should be provided to relevant staff and contractors. All staff and contractors should be instructed to report any undue pollutant release (including odour) and visible emissions from the exhaust vents to the Site Manager.	Ma	Risk of any adverse off-site air quality impacts.