PORT STEPHENS DEVEOPMENT CONTROL PLAN 2014 - CHAPTER B5 – FLOODING ASSESSMENT

Development Control	Assessment	Complies
Site Selection		
B5.1 - If multiple flood hazard categories are specified for a site on a flood certificate, the proposed development must be located on the land with the lowest flood risk	A small portion of the rear of the site is mapped as a 'high hazard floodway' and 'high hazard flood storage area' The proposed development is situated on the sites lowest hazard category area toward the front of the site, which is 'minimal risk flood prone land'.	Yes
Finished Floor Level (FFL)		
B5.2 - Development must meet the minimum FFL as specified in Figure BJ.	The proposed development is categorised within Figure BJ as 'Development vulnerable to emergency response, and critical infrastructure' and therefore requires a minimum FFL at or above the PMF level. The proposed gymnasium has an FFL of 7.3m AHD, which is above the Flood Planning Level of 5.7m AHD, but below the PMF level of 8.5m AHD. Despite the non-compliance the proposed variation is supported for the following reasons: • The PMF event is an extremely rare event that has been estimated having an annual probability of exceedance of 1 in 1,000,000. • The proposed development does not involve an increase to the maximum student or teacher capacity of the school. • The flood emergency evacuation plan submitted with the application demonstrates suitable evacuation and shelter in place strategies that are consistent with the principles of Renaldo Plus 3 Pty Limited v Hurstville City Council [2005] NSWLEC 315. • The proposal includes the installation of a flood trigger warning at the low point of the site near the river. • Although not adopted in the Port Stephens LEP 2013, the applicant	No – Variation supported

Development Control	Assessment	Complies
	has conducted an assessment against clause 5.22 of the Standard Instrument—Principal Local Environmental Plan, which applies to sensitive and hazardous development (including educational establishment) on land between the flood planning area and the probable maximum flood. The applicant's assessment finds that the proposal is consistent with the requirements of this clause. Figure BJ specifies the minimum FFL for car parking is the current day 1% AEP flood level. The proposed car park has a minimum FFL of 5.8m AHD which exceeds the current day 1% AEP level. Figure BJ does not specify minimum levels for sporting fields. The proposed FFL for the sporting field is 7m AHD which is above the flood planning level. This level of flood immunity is appropriate given there is no risk to property and the gymnasium is only 0.3m higher.	
Flood Compatible Design		
B5.3 - Development for a building (and/or an associated driveway or access) must be of a flood compatible design and construction and shall meet the relevant requirements in the Construction of Buildings in Flood Hazard Areas (Australian Building Codes Board). Council may also require structural certification for development proposed on land which becomes a floodway in the PMF.	The Site is classified as 'floodway' during PMF and therefore a condition has been recommended requiring the gymnasium be structurally certified up to the PMF level and made of flood compatible materials.	Yes
B5.4 - Fencing on flood prone land should be stable in events up to the current day 1% AEP flood event and not obstruct the flow of floodwater.	No fencing is proposed.	N/A
B5.5 - All incoming main power service equipment, including all metering equipment, and all electrical	A condition of consent is recommended, requiring all electrical fixtures be located in accordance with the requirements of this section.	Yes

Development Control	Assessment	Complies
fixtures, such as power points, light fittings, switches, heating, ventilation and other service facilities must be located above the FPL, or where possible above the PMF. Where the above cannot be achieved, the following features shall be used: • Electrical cabling is not to be installed within walls, or chased into walls; and • Any circuit containing switches, power points or any other electrical fitting that are located below the FPL, shall connect to the power supply through an individual Residual Current Device (RCD), located in the meter box.		
B5.6 - The storage of hazardous or potentially hazardous materials, potentially polluting material or material that could be washed from site and cause harm downstream must be stored above the FPL with appropriate bunding.	No hazardous or polluting material is expected to be stored on Site. Gas cylinders to be located above the FPL of 5.7mAHD and appropriately anchored, subject to conditions of consent.	Yes
B5.7 - Items that may wash away during flood events (e.g. rainwater tanks, hot water tanks, gas cylinders, shipping containers) must be elevated above the 1% AEP flood event level in the year 2100 (without freeboard) or anchored to resist buoyancy and impact forces.	A condition of consent is recommended, requiring storage of materials occur in accordance with the requirements of this section.	Yes
Flood Impact and Risk Assessment		
B5.8 - A flood impact and risk assessment is required for: • Any fill on land identified as floodway. • Any fill located in a flood storage area	No fill is proposed in areas identified as floodways and/or flood storage in the 1%AEP year 2100 scenario. A flood impact and risk assessment has been conducted following Council's request.	Yes
B5.9 - For residential accommodation, subdivision, commercial premises, industrial premises, garages, open car parking spaces and carports, a reduced planning horizon of 50 years from the date of determination will be accepted where the design facilitates ongoing flood adaptation (ie the future raising of the building).	N/A	N/A

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B5.10 - Where proposed alterations and additions to existing residential accommodation is less than 40% of the gross floor area of the existing residential accommodation, and does not involve a net increase in the number of bedrooms, Council will consider a FFL lower than the flood planning level (FPL), but not lower than the existing floor level. Any additional flood risk must include mitigation measures to reduce the overall flood risk of the development.	N/A	N/A
B5.11 - Access from the building envelope to the public road is to have a minimum finished access level of: • The flood immunity of the connecting public road; or • The current day 1% AEP flood event level for the site.	Dual access to the Site is proposed via Adelaide Street and Elkin Avenue. Both accesses are flood free in the 1%AEP event.	Yes
B5.12 - Earthworks for driveways and access must satisfy the objectives of B3.D of the DCP and LEP.	Complies – refer to assessment against B3.D of the DCP and clause 7.2 of the LEP elsewhere in this report.	Yes
B5.13 - Subdivision that creates the ability to erect additional dwellings is to indicate building envelopes above the FPL and comply with the requirements of B5.11, B5.12 and B5.14 of this Part.	N/A – no subdivision is proposed.	N/A
B5.14 - If evacuation egress from residential accommodation, a commercial premises, an industrial premises, fill or development vulnerable to emergency response and critical infrastructure to flood free areas cannot be achieved via a route that is flood free in the current day 1% AEP flood event or is a low hazard flood area, an onsite flood refuge must be provided meeting the following criteria: • Is located above the PMF level; • Is intrinsically accessible to all people on the site, plainly evident and self-directing; • Is accessible in sufficient time for all occupants with fail safe	The proposal includes two site egress locations which are not flooded in the current day 1%AEP level. However, in the current day 1%AEP, all evacuation routes from the Site are cut by flood water at several offsite locations, as detailed in a Flood Emergency Response Plan (FERP), Project no. A12187, Version 2, Prepared by BMT and dated 19 April 2023. Furthermore, in the event floodwaters rise to the PMF level, the site would be flooded. The Flood Emergency Response Plan submitted with the application includes a shelter in place strategy within the existing upper levels of	Yes

Development Control	Assessment	Complies
access and no reliance on elevators; • Has unobstructed external access for emergency boats during flooding; • Caters for the number of persons that could reasonably be expected on-site at any one time (approx. 2m² per person); • Provides adequate shelter from the storm and has natural lighting and ventilation; and • Contains sufficient clean water, a first aid kit, portable radio with spare batteries and a torch with spare batteries. Note: If a flood refuge is required, the DA must be accompanied by structural certification.	buildings Blocks G, H, I, J and K, which are located above the PMF flood level. The FERP identifies that 1.5m^2 of space would be available in the refuge when catering for 1,062 people, which does not comply with the 2m^2 per person requirement. Notwithstanding the proposed variation is acceptable for the following reasons: • The estimation of the total number expected on site is conservative, due to the fact that it is based on maximum projected number of enrolled students; • It is likely that most of the students would have already evacuated the Site and/or not attended the school due to severe (and easily predictable) weather circumstances; • The PMF event is an extremely rare event that has been estimated having an annual probability of exceedance of 1 in 1,000,000. The buildings are well ventilated and connected via an upper floor external covered walkway. The buildings can be equipped with sufficient emergency evacuation equipment subject to conditions of consent. A condition has been recommended requiring the school operator prepare a FERP, in accordance with the BMT FERP and the requirements of this control.	
B.15 - A site based overland flow report must be submitted for development located within a designated overland flow path. The purpose of this report is to demonstrate that the development: • Will not result in material increase in flood level or flood hazard upstream, downstream or surrounding properties; and • Will provide acceptable management of flood risk with appropriate development levels to ensure the safety of people.	N/A – The site is not located in a designated overland flow path.	Yes
Development on land identified as floodway		

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B5.16 - Development other than farm buildings and/or fill is not supported on land identified as either low hazard floodway or high hazard floodway.	N/A – no development is proposed in a floodway within a 1%AEP event for the year 2100.	N/A
B5.17 - Fencing in a floodway should not include non-permeable materials or fencing types that could restrict or redirect flood waters.	N/A – No fencing is proposed.	N/A
Application of performance-based solutions		
B5.18 - The proposed land use is consistent with Figure BI, which shows suitable land uses by flood hazard category (as identified on a flood certificate) and the proposed development incorporates adequate measures to manage risk to human life from flooding, including: • Evacuation access from an area affected by flooding to an area free of risk from flooding, taking into account any potential access restrictions; • Warning times and procedures to make people aware of the need to evacuate; • Consideration of the current and potential future occupants; and • Consistency with the most recent Council adopted flood study or floodplain risk management study that has been undertaken for the site.	The proposed land use is consistent with Figure BI, which is identified as being suitable on minimal risk flood prone land. However, the proposal does not comply with B5.2 and B5.14 controls, therefore consideration of the performance based solutions in this section within B.18-20 is required. The FERP submitted with the application includes details regarding evacuation, warning times, consideration of current and future occupants and is consistent with Council's Floodplain Risk Management Policy. On this basis, the proposal satisfies the requirements of this control.	Yes
B5.19 - The proposed development will not increase the potential individual or cumulative flood impacts on other development or properties that are likely to occur in the same floodplain. In determining any potential increase in flood impacts, Council will consider: • Future (in the year 2100) flood levels and/or velocities including, but not limited to the 5% AEP flood event, 1% AEP flood event and probable maximum flood (PMF) events; • Loss of flood storage in the immediate floodplain; and • Consistency with the most recent, Council adopted flood study or	The application includes a Flood Impact Assessment (FIA), Project no. A12077, Version 2, Prepared by BMT and dated 19 April 2023. The FIA categorises a small portion of the rear of the site as a 'high hazard floodway' and 'high hazard flood storage area', while the remainder of the site, where all existing and proposed buildings are located is 'minimal risk flood prone land'. Impacts to local flooding behaviour and cumulative flooding impact have been considered within the FIA up to and including the PMF event. The FIA concludes that the proposed development has no impact on flood behaviour and does not result	Yes

Development Control	Assessment	Complies
floodplain risk management study that has been undertaken for the site.	in flood impacts to other private properties or public roads.	
B5.20 - The proposed development must be compatible with the flood hazard category of the land (as identified on a flood certificate) or include mitigation measures or offsets to reduce the flood risk. In determining compatibility, Council will consider: • Whether there is other land on the site with lower flood risks where the development could be located; • Depth of flood inundation on the site and the adjacent land; • Flow velocity on the site as well as upstream and downstream from the site; • Suitability of design so that the development does not become isolated by high hazard floodwaters; and • Consistency with the most recent, Council adopted flood study or floodplain risk management study that has been undertaken for the site.	The development is compatible with the flood hazard category of the land ("Minimal Risk Flood Prone Lands", as show in flood information certificates in Annex B to this report"), in accordance with Figure BI. No development works is proposed for the portions of Lots with different (more severe) flood hazard categorisation.	Yes