

**Attachment A – Detailed response to request for additional information**

**Glenwood High School Upgrade – State Significant Development Application**

Issue	Response
<b>DPE</b>	
<p><u><i>Flooding</i></u></p> <p><i>The Glenwood High School Stormwater Overland Flow Statement and Glenwood High School Civil Engineering Flood Study Report states that the site is not located within the 1% AEP flood level, however part of the site is affected by approximately 1m depth of water in a Probable Maximum Flood (PMF) event. In a PMF event, the surrounding streets including Glenwood Park Drive to the north and east would also be affected which impacts flood evacuation. The Report recommended a shelter-in-place approach during a PMF event. However, the Department considers that evacuation of the occupants prior to potential PMF events or early closure of the school prior to potential PMF events is preferred over shelter-in-place.</i></p> <p><i>You are requested to submit additional information which addresses the issues raised above and investigates the safe evacuation of occupants off the site prior to potential PMF events for both the construction and operation phases of the development and the closure of the school prior to potential PMF events.</i></p> <p><i>At a minimum this should include a revised Flood Study Report prepared by a suitably qualified and experienced person(s) which includes:</i></p> <ul style="list-style-type: none"> <li><i>i. a risk assessment for the safe evacuation prior to potential PMF events</i></li> <li><i>ii. a safe evacuation route/s based on the school catchment area including the total estimated time available in which the surrounding streets are safe to use as evacuation route/s</i></li> </ul>	<p>A Preliminary Flood Emergency Management Plan (PFEMP) has been prepared by enstruct which responds to items (i) to (v) and can be found at <b>Attachment B</b>. The PFEMP recommends early closure of the school over a shelter-in-place strategy. Although, in the unlikely event that the school is in operation during a PMF flood event and evacuation is not safe, it suggests that school occupants shelter in place.</p> <p>Notwithstanding this, it should be noted that the Department of Education (DoE) already has Emergency Management Protocols in place to proactively cease operations at the school temporarily during a flood emergency, thereby reducing the risk in which the school is in operation during an emergency. These emergency protocols are discussed in more detail below:</p> <p><u>Department of Education Emergency Management Protocols</u></p> <p>DoE's Work Health and Safety (WHS) Policy and Emergency Management Procedures set out the responsibilities of staff at all levels of DoE for emergency management, including during a flooding emergency, if applicable. In accordance with the procedures, each workplace must develop and manage its own emergency management plan (EMP). Each plan must identify the nature and range of emergencies to which students and staff may be exposed and provide the mechanisms for effective response and recovery in the event of an emergency. DoE WHS are involved in the development of the EMP with the school.</p> <p>DoE provides the following emergency fact sheets relating to a range of specific emergency situations that may be used, as required, in development of emergency planning and response, including in relation to floods.</p> <p>If a school is in a flood risk area, it will have a specific flood risk response, including evacuation, in its EMP. In its current form, the EMP for Glenwood High School does not</p>

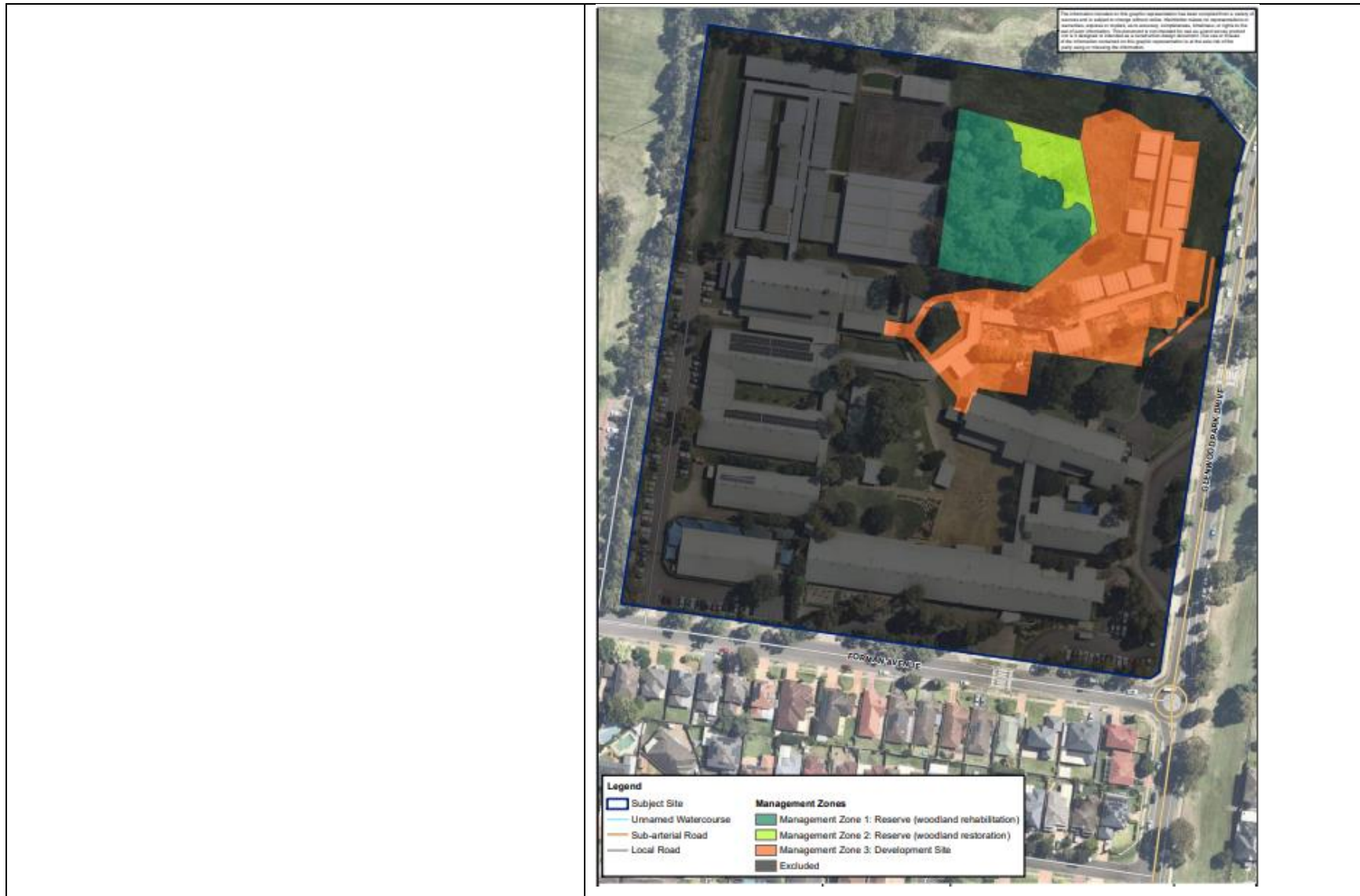
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Issue	Response
<p>iii. <i>if evacuation of students by caretakers in part, will be required, then identify the timeline for parents to arrive and depart the site ahead of potential PMF events.</i></p> <p>iv. <i>the flood warning time for safe evacuation, including the depth and time that flood waters would typically rise per hour the total estimated time taken for the PMF flood level:</i></p> <ul style="list-style-type: none"> <li>○ <i>to reach a depth where the roads used for the identified evacuation route/s are no longer safe to use, and</i></li> <li>○ <i>to recede to a level which allows for the evacuation route/s roads to be safely used again</i></li> </ul> <p>v. <i>a preliminary Emergency Response Plan which includes (at a minimum) flood notification details, evacuation routes, assembly points and evacuation protocols, as well as the authority or person with appropriate qualifications who will be responsible for determining the event trigger for evacuation.</i></p>	<p>have specific flood risk response given that the school has not been impacted by any flood events since it was built in 2003 and is considered low risk with respect to flooding as:</p> <ul style="list-style-type: none"> <li>– The flood study undertaken for the site indicates that site is susceptible to minimal flood inundation during the PMF storm event and the site is designated as a Low Flood Hazard Risk area due to the extent of the PMF flood.</li> </ul> <p>Note, the site is also considered to be a low flood risk inline with Council's own definitions for "low flood risk precinct" in Blacktown Council <i>WSUD developer handbook</i>.</p> <ul style="list-style-type: none"> <li>– DoE's Emergency Management Plan for the school, including a risk assessment undertaken by the Emergency Planning Committee, has not identified flooding as a foreseeable hazard that could result in an emergency at the school.</li> </ul> <p>Furthermore, specific flood procedures have not been developed for the school because although the school would experience minor flooding in a PMF event, across the Department's network, facilities are closed when State Emergency Operations Centre projections indicate an impact on school operations, including travel to and from a school site.</p> <p>DoE has procedures in place to proactively cease operations at the school temporarily in a flood emergency to safeguard the health and safety of students and staff. In some cases, such as adverse weather, this will relate to the operation of the school for the following day based on predicted weather conditions and increased risk. These procedures support schools in understanding the steps required to make a school non-operational, including communication requirements, and how to resume operations once safe.</p> <p>Notwithstanding, in the unlikely scenario of a flood event emergency while the school is in operation, the schools Emergency Management Procedures can be updated to manage these risks. As part of these plans, the DoE works with the NSW State Emergency Services, other state agencies and local Council Emergency Management Committees to ensure school considerations are included in wider emergency planning and response for the site.</p>

Issue	Response
	<p>In this case, although the DoE's protocols already provide an adequate framework to develop a response plan, a PFEMP has been prepared by enstruct to address DPE's correspondence.</p>
<p><u><i>Biodiversity Development Assessment Report</i></u></p> <p><i>The revised Glenwood High School Biodiversity Development Assessment Report (BDAR) submitted as part of the Response to Submissions (RtS) recommends measures be imposed to manage and regenerate the Cumberland Plain Woodland area, as part of a Biodiversity Management Plan (BMP). The EIS states that the BMP would be developed outside of the SSD application and by the school operator. The Department considers the regeneration of the Cumberland Plain Woodland a vital component of the site and SDD application, accordingly appropriate management of the regeneration area is required. You are requested to submit a preliminary strategy for the management and regeneration of the Cumberland Plain Woodland undertaken by a qualified ecologist or bush regeneration specialist.</i></p>	<p>A Biodiversity Management Plan (BMP) prepared by Kleinfelder – a qualified ecologist - is provided at <b>Attachment D</b>. The BMP includes a preliminary strategy for the management and regeneration of the Cumberland Plain Woodland. The key objectives of the BMP are as follows:</p> <ul style="list-style-type: none"> <li>– To minimise impacts to flora and fauna, and their habitats, during the construction phase of the Glenwood High School development.</li> <li>– To improve the condition of the Cumberland Woodland area and to ensure that it is maintained in a healthy condition.</li> <li>– To restore the existing derived grassland areas within the Cumberland Woodland area with species commensurate with that of Cumberland Plain Woodland and to ensure that it is maintained in a healthy condition.</li> <li>– To outline a strategy for the management of key weed species identified within the Biodiversity Development Assessment Report (BDAR) (Kleinfelder 2021) as key threats to the vegetation within the Cumberland Woodland area.</li> <li>– To augment ground habitat (e.g. ground timber and hollow logs) in the existing derived grassland areas and to maintain such habitat features throughout the Cumberland Woodland area.</li> </ul> <p>Section 2 of the BMP reiterates the key biodiversity values uncovered during the preparation of the BDAR which accompanied the EIS at Appendix S as well as key threats. Section 3 of the BMP identifies management zones, stages, performance criteria and specific measures for each stage.</p> <p>Regarding management zones, the BMP identifies four (4) management zones based on current condition/status, management requirements, and proposed future land use. For ease of reference, the proposed management zones are shown in the Figure below, which has been extracted from the BMP.</p>



Issue	Response
	<p>The Cumberland Plain Woodland area encompasses Management Zones 1 and 2. These zones both involve the restoration of the existing community and the habitat value of the area through the combination of entry restrictions, weed management, habitat augmentation, revegetation, and supplementary planting.</p> <p>Due to the reduced canopy in Management Zone 2, the focus in this zone is to restore canopy coverage via additional planting of canopy vegetation. Similar vegetation will also be planted in Management Zone 1 to increase canopy cover alongside restoration within Management Zone 2. Management Zone 3 will consist of planting to improve the overall condition of native vegetation at the site.</p> <p>The BMP will be implemented over a 5-year period. The timing of management tasks and performance criteria are based on Management Stages defined by the progress of the proposed development. The stages are defined as the following:</p> <ul style="list-style-type: none"> <li>– <b>Pre-Construction Phase:</b> Between development approval and the initiation of construction works on site (mainly pertaining to Management Zone 3).</li> <li>– <b>Construction Phase:</b> Between the initiation and completion of construction within the site (mainly pertaining to Management Zone 3).</li> <li>– <b>Post Construction Phase:</b> Between the completion of construction and the first monitoring event. Post-Construction Phase will include all restoration and rehabilitation works in Management Zones 1 and 2.</li> <li>– <b>Adaptive Management/Operational Phase:</b> Between the first monitoring event (Baseline) following the completion of works to the end of the implementation period, 5 years after the completion of construction (Year 5).</li> </ul> <p>Implementation and funding of this BMP is the responsibility of the school which will be the manager of the woodland area throughout the implementation period.</p>
<p><u>End-of-trip facilities</u></p> <p><i>The revised Glenwood High School Transport and Accessibility Impact Assessment (TAIA) forecasts, through the implementation of the School Travel Plan, a reduction in private travel by car with a shift to sustainable and active transport such as bike riding. In order to achieve the forecasted mode share targets, adequate</i></p>	<p>A Supplementary Response prepared by TTW can be found at <b>Attachment C</b> that specifically responds to the issues raised. The Supplementary Response addresses the matters raised by DPE as follows:</p>

Issue	Response
<p><i>end-of-trip facilities are required to support users arriving by active transport.</i></p> <p><i>As part of the request for a response to submissions, the Department queried the likelihood of achieving the forecast for staff without dedicated bicycle storage facilities. No response was provided.</i></p> <p><i>Furthermore, TfNSW have provided comment on the RtS including the revised TAIA and also recommends dedicated sheltered and secured bicycle storage facilities for staff. In addition to this, TfNSW also recommend an increase to the proposed 18 end-of-trip storage lockers to support SINSW active transport plan.</i></p> <p><i>You are requested to submit additional information which addresses:</i></p> <ul style="list-style-type: none"> <li><i>i. the adequacy of staff end-of-trip facilities for the forecasted active modes of transport</i></li> <li><i>ii. the issues raised by TfNSW in the advice attached.</i></li> </ul>	<ul style="list-style-type: none"> <li>i. TTW confirms the adequacy of staff end-of trip facilities (EOTF) for forecasted active modes of transport, particularly the short term forecasted staff targets (approximately 13 staff): <ul style="list-style-type: none"> <li>– A total of 84 bicycle parking spaces will be provided under the State Significant Development Application (SSDA) for staff and students. A minimum of 13 bicycle parking spaces are required to service the short-term targets for staff (approximately 5 years).</li> </ul> <p>If deemed necessary by DPE, these 13 spaces could be re-provided as sheltered spaces close to the staff EOTF and administration areas, instead of the current location for existing and proposed bicycle parking areas as nominated on the architectural plans.</p> <li>– NSW Planning Guidelines for Walking and Cycling recommends that 4 showers (2 male and 2 female) and 2 change rooms (1 male and 1 female) for a facility with 50-149 staff. The SSDA provides for 2 male and 2 female shower/change facilities as per the NSW guidance, which will include combined space for staff changing. TTW confirms that these facilities could accommodate 13 staff across a typical morning or afternoon usage period and should also accommodate long-term targets.</li> <li>– NSW Planning Guidelines for Walking and Cycling recommends 1 locker per 3 bike racks be provided for a facility with 50-149 staff. The proposal provides for 18 lockers. This provision substantially exceeds the NSW guidance as well as the short-term targets. However, this provision of lockers would be insufficient to cater for long term targets if demand necessitated one locker per staff member cycling to work (i.e. 23 staff).</li> </li></ul> <p>It is considered unnecessary to provide bicycle parking and locker facilities beyond the short-term targets, noting that in the long-term period (approximately 10 to 15 years), other sustainable modes may see more success. It should be noted that the School Transport Plan (STP) will be reviewed regularly and updated as required. Therefore, as demand grows for bicycle parking and lockers, such as towards the current long-term staff target, extra bicycle parking and lockers can be provided at that time.</p>



Issue	Response
	<p>Bicycle parking infrastructure and lockers are relatively low cost and low impact item/s, which would enable it to be installed at a later date.</p> <p>ii. The issues raised by TfNSW have been considered by TTW. These are addressed in further detail below.</p>
<p><u>Blacktown City Council</u></p> <p>You are requested to submit a response to the issues raised in Blacktown City Council's submission to the RtS (attached).</p>	<p>Issues raised in Blacktown City Council's submission have been considered in further below in the table.</p>
<b>Transport for NSW (TfNSW)</b>	
<p><u>Mode Share</u></p> <p>TfNSW appreciates the work that has gone into the improving the mode share reducing single car occupancy use and increasing sustainable transport modes for both students and staff. The TAIA advises that the mode share of Pick Up and Drop off can be decreased from 38% in the long term for students (the TAIA mentions this could potentially be dropped to 31%), and TfNSW would like to see this recognised in the current mode share table. TfNSW would also like to see an increase in students cycling, given 71% of students could cycle to school within 10 minutes.</p>	<p>A Supplementary Response prepared by TTW can be found at <b>Attachment C</b> that specifically responds to the issues raised.</p> <p>TTW note that the mode share targets submitted in the revised Traffic and Accessibility Impact Assessment (TAIA) for the Response to Submissions (i.e. the most recent revision) were updated to match targets proposed by TfNSW in its original submission.</p> <p>While TTW agree that reductions in private vehicle usage are the aim of the project's transport strategy, TTW do not consider that changing the targets at this time would be beneficial to the project. Mode share split targets are an estimate or goal only and will need to be revised over time as the STP is implemented and reviewed and the culture of the school evolves.</p> <p>Nevertheless, TTW note that a short-term modal split of 5% bicycle usage by students would be mostly accommodated on the site, given a provision of at least 71 bicycle spaces (total of 84 minus 13 for staff) for 1,820 students (3.9%).</p>

Travel Mode	STUDENTS	
	Short Term Target	Long Term Target
Walk	40%	44%
Bicycle / Scooter	5%	10%
Bus / Train	12%	12%
Drop-off & pick-up	35%	31%
Park & walk (passenger)	1%	<1%
Car (driver)	7%	6%
Total	100%	100%

Issue	Response
<p><u>Pedestrian infrastructure</u></p> <p><i>In order for the School Travel Plan to be successful implementing proposed increases to active transport mode shares, pedestrian infrastructure upgrades will need to be implemented; TfNSW notes the high priority put on these upgrades for this development; that current movements result in some level of conflict and crossover between pedestrians and vehicles, therefore requiring safe management. TfNSW would like to confirm that the timing of these upgrades will be completed prior to occupancy.</i></p>	<p>A Supplementary Response prepared by TTW is at <b>Attachment C</b> that specifically responds to the issues raised. In terms of proposed pedestrian infrastructure upgrades, this comprises of modifications to the existing footpath and fence to service the new pedestrian entry on Glenwood Park Drive, as per the TAIA. These upgrades will be completed prior to occupancy.</p>
<p><u>Monitoring and review</u></p> <p><i>TfNSW recommend that the STP is monitored and reviewed by the school every 12 months for the lifecycle of the development, to test the performance and efficacy of the STP.</i></p>	<p>A Supplementary Response prepared by TTW can be found at <b>Attachment C</b> that specifically responds to the issues raised. As per Section 5.6.2 of the TAIA, TTW have recommended that a review every two years would be appropriate after an initial review following six months of operation. Although if TfNSW insists on a review every 12 months, this can be conditioned.</p>
<p><u>End of Trip Facilities (EOTF)</u></p> <p><i>TfNSW recommends the applicant provides sheltered, and secure bike racks to encourage more staff and students to use bikes. Bicycle parking use should be reviewed on a regular basis, to ensure that there is good provision to encourage more cycling, and these facilities should also be promoted in the Implementation Strategy. It is noted that EoTF have been provided for staff, but consideration be given to an increase in the provision of lockers, which is currently proposed to be 18 lockers.</i></p>	<p>A Supplementary Response prepared by TTW can be found at <b>Attachment C</b> that specifically responds to the issues raised. Bicycle parking for staff and students is currently proposed outdoors. All bicycle parking on-site is considered secure in nature by SINSW, by being provided within the school site which is surrounded by secure fencing. TTW note that the provision of undercover spaces can be investigated during the detailed design phase which may result in bicycle storage locations differing from those shown on the submitted architectural plans or shelter being provided to the current locations. 18 lockers are considered sufficient for the proposed provision and would exceed short-term targets and substantially exceed the NSW guidelines. Additional lockers could be installed at a later date if required by increased demand.</p>
<p><u>Travel Access Guide</u></p> <p><i>TfNSW appreciate that there is an initiative to do a Travel Access Guide, however separate appendices with the proposed Travel</i></p>	<p>A Supplementary Response prepared by TTW can be found at <b>Attachment C</b> that specifically responds to the issues raised. The template shown in the TAIA was for</p>



Issue	Response
<p><i>Access Guide customised for the school (rather than a generic template) should be provided. This will include a high-quality Travel Access Guide (TAG) which provides information to staff, students and visitors and patrons about how to travel to the site by sustainable transport modes. The TAG should:</i></p> <ul style="list-style-type: none"> <li>i. Provide information advising staff and students (at the beginning of each term) that additional information about service routes and timetables for buses and trains is available on the Trip Planner at <a href="https://transportnsw.info/">transportnsw.info/</a></li> <li>ii. Provide information advising patrons and staff and students that additional information about cycling routes is available on the Trip Planner at <a href="https://transportnsw.info/">transportnsw.info/</a></li> <li>iii. Provide promotion of end of trip facilities, including the new cycling infrastructure available, and update number and location of bike parking facilities and End of Trip facilities, and locate on TAG.</li> <li>iv. For further helpful information – please access the document How to Create a Travel Access Guide via the link <a href="https://www.mysydney.nsw.gov.au/travelchoices/resources">https://www.mysydney.nsw.gov.au/travelchoices/resources</a></li> </ul>	<p>illustrative purposes only, and a customised document would be provided in the final STP to be conditioned as part of this SSDA.</p>
<p><u><b>Implementation Plan</b></u></p> <p><i>Whilst TfNSW appreciate the Implementation Plan has been put in place, this plan should hold all of the information about the initiatives within the Implementation Plan section, so that the Travel Plan Coordinator does not need to always refer back to previous sections to know what to implement. The STP will require more than one person to carry it out, to ensure efficacy, and</i></p>	<p>A Supplementary Response prepared by TTW is at <b>Attachment C</b> that specifically responds to the issues raised. TTW indicates that these comments will be considered in the preparation of the final STP post-approval.</p>

Issue	Response
<i>delegated specific dates and times for each task should also be set out to make implementation easier.</i>	
<p><u>Travel Survey</u></p> <p><i>TfNSW would recommend that a proposed Travel Survey be included as a separate appendix within this STP, as this will need to be distributed 3 months post-occupancy. The Survey does not need to be carried out before that time, only the proposed survey needs to be included. Staff and student travel surveys are conducted to obtain workforce data analysis (including staff residential postcodes) to identify the actual staff/student travel origin and destination patterns, to inform strategies that help to reduce car parking demand for staff and students to get to and from the site.</i></p>	<p>A Supplementary Response prepared by TTW is at <b>Attachment C</b> that specifically responds to the issues raised. TTW indicates that this will be considered in the preparation of the final STP.</p>
<b>Blacktown City Council</b>	
<i>The drainage system for the proposed development including OSD, RWT (i.e. water conservation), Stormfilter System (i.e. water quality), and flooding are to be designed in accordance with Council's WSUD Developer Handbook 2020, Engineering Guide for Development 2005 and Council's WSUD Standard Drawings.</i>	<p>Noted. A condition to this effect can be imposed on any consent granted.</p> <p>Refer to a recent consent issued for the New Marsden Park Public school project (SSD 9809) in Blacktown LGA for conditions that can be used as an example for this SSDA.</p>
<p><i>Civil Engineering Design Report by Enstruct Group Pty Ltd project no. 6393 revision C dated 9 November 2021 and Stormwater Management Plans in Appendix D of Civil engineering Design Report project no. 6393 revision a dated 9 November 2021, is to be amended to include the following details:</i></p> <p>i. A rainwater tank is required to meet the water conservation targets under Part J for the development. A minimum of 80% of non-potable water demand for the development is to be met through the reuse of rainwater. Non-potable water demand is to include landscape watering and toilet/urinal flushing. MUSIC is generally used to assess the performance of the rainwater tank</p>	<p>Enstruct has revised the Stormwater Management Plans in the Civil Engineering Design Report that accompanied the EIS at <b>Appendix X</b>. All matters have been addressed except for Items (i), (v), (viii), (ix), (x)(a), (x)(b), (x)(k), (xi)(b), (xi)(e), (xi)(j) and (xi)(l).</p> <p>Regarding Items (i), it should be noted that the Rainwater Tank is designed in accordance with the requirements of the Educational Facilities Standards and Guidelines (EFSG). As per the ESD Report which accompanied the EIS at <b>Appendix U</b>, the rainwater tank coupled with other design initiatives will ensure that the building achieves a 78% reduction in potable water compared to standard practice. It is considered that the rainwater provided is suitable for the proposed development.</p> <p>Items (x)(a), (x)(b) and (x)(k) request more details in relation to the proposed rainwater tank. Items (v), (viii), (ix), (xi)(b), (xi)(e), (xi)(j) and (xi)(l) require MUSIC modelling to be revised/updated. Notwithstanding, it is considered that these matters do not preclude the</p>

Issue	Response
<p>using the node water balance and an electronic copy of the MUSIC model needs to be provided to Council for assessment.</p> <p>ii. <i>Rename “Enviropods” to “OceanGuard” on the report and plans.</i></p> <p>iii. <i>All OceanGuards are to be clearly notated as “200 micron OceanGuards”.</i></p> <p>iv. <i>Provide OSD catchment plan demonstrating which areas drain to the OSD and areas bypassing.</i></p> <p>v. <i>Provide a MUSIC catchment plan that shows both the land use and the areas contributing to each specific device. To make this more understandable it may be easier in many cases to split these into two separate plans. Include all bypassing catchments. Ensure that a minimum fraction impervious of 90% is adopted for land-use in the MUSIC model.</i></p> <p>vi. <i>The 1% AEP flows from the site are to be directed to the OSD. Demonstrate how the surface flows in excess of the pipe capacity are directed to the OSD system.</i></p> <p>vii. <i>All pits deeper than 1.2 m must provide step irons at 300 cts.</i></p> <p>viii. <i>The OSD Deemed to Comply Tool Spreadsheet levels do not match the OSD design and also includes incorrect design details for the proposed Filter Cartridges. The spreadsheet is to be amended to include correct Design Filter Cartridge Flow and Filter Cartridges flow with 1% AEP HED and ensure the levels match the design.</i></p> <p>ix. <i>The MUSIC model includes total development area of 4000 m2 whereas the OSD Deemed to Comply Tool Spreadsheet includes 6500 m2. Provide details of the proposed development area and amend both OSD spreadsheet and MUSIC model accordingly.</i></p> <p>x. <i>On drawing 0201 (A):</i></p>	<p>SSDA from being determined in its current form. A condition can be imposed which requires these matters to be addressed prior to any Crown Certificate, in consultation with Council.</p> <p>Refer to consent issued for SSD 9809 for conditions that have been imposed for another school project in Blacktown Council that can be used as an example for this SSDA.</p>

Issue	Response
<ul style="list-style-type: none"> <li>a. <i>Show how the roof water gets to the rainwater tank. Provide a separate system for roof water and surface drainage. Pits between the roof lines (i.e. charged pipes) are to be sealed.</i></li> <li>b. <i>Provide details of the rainwater tank including pre-treatment, volumes, sections, dimensions etc.</i></li> <li>c. <i>The 375 mm diameter outlet to the existing stormwater Pit 1 is to be RCP.</i></li> <li>d. <i>Provide levels of the existing street Pit 1 and confirm the connection level to this pit.</i></li> <li>e. <i>It is unclear whether Pits 18 and 27 are treating surface flows and all or only part of the upstream pipe flows as well. Provide detail for Pit 18 and 27 showing all invert levels for all pipes.</i></li> <li>f. <i>OceanGuards should treat a maximum of 1000 m2 of non-roof areas and 1500m2 of roof areas. All OceanGuards are to be clearly notated as "200 micron OceanGuards".</i></li> <li>g. <i>OceanGuards treating only surface flows require a minimum clear depth of 500 mm below the grate to any inlet or outlet pipe obvert. OceanGuards treating surface flows and upstream pipe flows require a minimum clear depth of 500 mm from the invert of the upstream pipes to be treated, to the obvert of the outlet pipe. Where these pits are treating upstream pipe flows the inverts of all pipes in and out of the pit are to be shown.</i></li> <li>h. <i>Where OceanGuards (Enviropods) are designed to treat upstream pipe flows, the invert levels on all pipes discharging to and from the pit are to be clearly shown. Provide a minimum clear</i></li> </ul>	

Issue	Response
<p>depth of 500 mm from the invert of the upstream pipes to be treated to the outlet pipe obvert.</p> <ul style="list-style-type: none"> <li>i. Provide a pit detail with an Oceanguard fitted.</li> <li>j. Review the pit size as 600 * 600 mm pits are limited to 600 mm maximum depth and 600 * 900 mm pits are limited to 900 mm depth. Pits greater than 900 mm depth are all to be minimum 900 * 900 mm. All pits within the proposed development must comply with these requirements.</li> <li>k. Charge line cleanout pits are to be provided at the low point of all charge line systems for the rainwater tanks to facilitate cleaning of the system.</li> <li>xi. On drawing 0213 (A): <ul style="list-style-type: none"> <li>a. The 450 mm diameter inlet pipe into the Stormfilter chamber is smaller than the 375 mm diameter outlet pipe from the OSD tank discharging to Councils existing drainage system. Provide details to ensure that the overflow from the OSD tank can surcharge safely to the street and away from any class rooms and does not impact adjacent properties.</li> <li>b. The design levels in the OSD tank do not match the S3QM Certificate Results or the OSD Deemed to Comply Tool Spreadsheet. Ensure consistency between the design.</li> <li>c. Rename 100 year ARI to 1% AEP on all notes and plans.</li> <li>d. Rename 1.5 year ARI to 50% AEP on all notes and plans.</li> <li>e. Provide more details for the Stormfilter tank and how the overflow chamber will work.</li> </ul> </li> </ul>	

Issue	Response
<p>f. <i>Confined space entry warning signs are to be detailed on the drainage plans adjacent to all entries into the Stormfilter Chamber in accordance with Council's Engineering Guide for Development 2005.</i></p> <p>g. <i>Provide a minimum 2% slope in the OSD storage. For larger tanks this can be in the form of a 2% cross-slope to a central "V" drain with 2% longitudinal slope along the "V" drain. Reassess tank dimensions to achieve the minimum storage volumes.</i></p> <p>h. <i>There are insufficient access grates for the below ground detention tanks. Access grates to the below ground detention tank must be a minimum 900 mm by 900 mm and are positioned such that the maximum distance from any point in the tank to the nearest grate is not greater than 4 m.</i></p> <p>i. <i>The orifice within the Discharge Control Pit is to be protected by a suitable screen. Provide Maximesh Rh3030 for orifice diameters 150 mm or less with a minimum area of 50 times the orifice area and Weldlok F40/203 for orifices 150 mm diameter or more with a minimum area of 20 times the orifice area.</i></p> <p>j. <i>On the tank plan view, provide separate dimensions for the OSD tank and Stormfilter Chamber.</i></p> <p>k. <i>Provide a sealed impermeable baffle, or hood set 250 mm upstream of the Stormfilter weir and extending from the sealed underside of the tank to 400 mm below the top of the weir for the 690 mm Stormfilter cartridge to, to contain floatables</i></p>	



Issue	Response
<p>including oil. The Stormfilter weir level is to be set 770 mm above the false floor.</p> <p>i. The minimum length of the Stormfilter weir (L) is to be increased to provide a maximum velocity of 0.4 m/s under the baffle during peak flow (i.e. <math>L &gt; Q100 / (0.4 \times 0.25)</math>, or <math>L &gt; 10 \times Q100</math>) in m, where Q100 is in m<sup>3</sup>/s). Provide calculations</p>	
<p><i>Flood modelling and Flood report by Enstruct Group Pty Ltd project no. 6393 revision B dated 13 October 2021, is to be amended to address the following:</i></p> <p>i. The flood report is vague and does not provide critical information carried out for the flood modelling. Provide details of blockages, pipes, total catchment area, boundary conditions, flows, velocities etc.</p> <p>ii. Allow for a maximum isolated rise in flood level of 0.02 m external to the site in the 1% AEP event as a result of the development.</p> <p>iii. All buildings in the floodplain (including both existing and proposed) are to be modelled as complete (i.e. 100%) blockages in the flood model. Simply applying Mannings 'n' value as suggested in Table 1 of the report is not accepted.</p> <p>iv. The post-development DEM is to be included to accurately represent any proposed ground level changes (i.e. cut and fill areas) in the post development model. This includes fill for areas such as driveway.</p> <p>v. Adopt an impervious area of minimum 80% for the catchment. Amend the DRAINS model and flood report accordingly.</p> <p>vi. The maximum travel times for impervious catchment is 12 minutes and pervious catchment is 14 minutes. Amend the DRAINS model and catchment areas breakdown accordingly.</p>	<p>The Flood modelling and Flood Report prepared by enstruct which accompanied the EIS at <b>Appendix Y</b> have not been revised. Notwithstanding this, enstruct provides the following advice in relation to items (i) through to (iii):</p> <p>i. enstruct has advised that all pipes are assumed blocked and not included in modelling. All other information is included in the report and the TUFLOW model sent to Council.</p> <p>ii. enstruct has advised that this is not required as the development has On Site Detention (OSD) and the site is not impacted by overland flow flood water. Climate change would be a better reason to allow for a 0.02m increase.</p> <p>iii. This has been included in the modelling.</p> <p>In relation to Items (iv) to (xi), it should be noted that the DRAINS model is currently being reviewed by enstruct. Notwithstanding this, it is considered that these matters do not preclude the SSDA being determined in its current form. An updated DRAINS model and flood information can be provided prior to any Crown Certificate, in consultation with Council. A condition to this effect can be imposed on any consent granted.</p>

Issue	Response
<p>vii. <i>The flood report is to include flood maps for both the existing and post developed scenarios for the various storm events. This report is to include flood maps for the velocity, depths, hazard etc.</i></p> <p>viii. <i>Provide a flood difference map (developed - existing) for the 1% AEP. Include a 0 to 20 mm category with gradations below or above this figure.</i></p> <p>ix. <i>Ensure the inflow hydrograph in HECRAS matches the DRAINS model.</i></p> <p>x. <i>Provide a Flood Management Plan to address emergency flood management of the site include the use of appropriate warning signs, notices of procedures and depth gauges (if required).</i></p> <p>xi. <i>Provide the DRAINS hydrology and amended TUFLOW model electronically to Council.</i></p>	
<p><i>MUSIC Modelling is to be revised to address the following</i></p> <p>i. <i>The MUSIC model breakdown is incorrect and includes only one node representing the proposed development. The model is to be amended to include appropriate nodes representing the proposed land-use draining to the specific water quality devices. The MUSIC model is to include the total proposed development area (including bypass areas). The MUSIC model is to be in accordance with Council's WSUD Developer Handbook 2020.</i></p> <p>ii. <i>The proposed water quality system is to meet the required post development pollutant reduction targets indicated under Part J of Councils DCP.</i></p> <p>iii. <i>A Rainwater tank is required to meet the water conservation targets under Part J for the development. A minimum of 80% of non-potable water demand for the development is to be met through the reuse of rainwater. Non-potable water demand is to include landscape watering and toilet/urinal flushing.</i></p>	<p>It is considered that these matters do not preclude the SSDA from being determined. Revised MUSIC modelling can be provided prior to any Crown Certificate, in consultation with Council. A condition to this effect can be imposed on any consent granted.</p> <p>Refer to a recent consent issued for the New Marsden Park Public (SSD 9809) in Blacktown Council for conditions that that can be used as an example for this SSDA.</p>

Issue	Response
<p>iv. <i>MUSIC is generally used to assess the performance of the rainwater tank using the node water balance and an electronic copy of the MUSIC model needs to be provided to Council for assessment.</i></p> <p>v. <i>Allow for a minimum usage rate of 0.06 kL/day/toilet or urinal and a minimum of 0.4 kL/m<sup>2</sup>/ year for landscape watering (excluding turfed areas).</i></p> <p>vi. <i>Allow for a 10% loss in rainwater tank size volume in MUSIC to that shown on the design plans. e.g. where a 50kL tank is modelled, construct a 55kL tank.</i></p> <p>vii. <i>Ensure that the areas draining to surface inlet pits with OceanGuards match the engineering plans.</i></p> <p>viii. <i>Ensure that Blacktown Council's specific MUSIC modes are used for the total development area draining to the devices.</i></p> <p>ix. <i>The minimum Stormfilter chamber area is to be No. of Cartridges x 0.177 m<sup>2</sup>/cartridge excluding the area of the weir.</i></p> <p>x. <i>Ocean Protect has advised that the maximum storage permitted below the Stormfilter weir to ensure effective operation of the filter cartridges is limited to an equivalent volume derived from 2.0 mm of rainfall (20 m<sup>3</sup>/Ha) without losses, falling over the site area that drains to the Stormfilter chamber (ignoring any bypass area).</i></p> <p>xi. <i>When calculating the area of detention for Stormfilters, the design area for MUSIC is the area of the cartridge bay, less the area of the weir, less 0.177 m<sup>2</sup> per cartridge. The detention depth is the height of the Stormfilter weir above the filter false floor (i.e. the cartridge height plus 80 mm) and the low flow pipe diameter is determined from the combined cartridge flow at the Stormfilter weir height assessed as orifice flow. A spreadsheet is available from Ocean Protect.</i></p>	

Issue	Response
<p>xii. <i>The area above the on-site detention storage itself and the catchment areas draining to it are considered as bypass where they do not enter the Stormfilter chamber.</i></p>	
<p><i>Resubmit all models and OSD Deemed to Comply Tool spreadsheet electronically for Council assessment.</i></p>	<p>It is anticipated that this will be imposed as a condition. Refer to a recent consent issued for the New Marsden Park Public (SSD 9809) in Blacktown Council for conditions that can be used as an example for this SSDA.</p>
<p><i>We remain concerned that the provision of only 93 car parking spaces for the school with increased capacity for 1,820 students and 133 staff, will be relying on on-street parking to meet the parking demand. Our Traffic Engineer has been consistently opposed to this aspect of the proposal during our discussions with the School Infrastructure NSW. Our view remains that the reduced car parking provision on the site will put additional pressures onto nearby on-street parking as the school is isolated and is not frequently serviced by public transport. For these reasons, the proposal will not be supported in its current form.</i></p>	<p>A Supplementary Response prepared by TTW can be found at <b>Attachment C</b> that specifically responds to the parking issue.</p> <p>TTW notes that, if any usage of on-street parking should occur, the TAIA at <b>Appendix E</b> of the RtS has shown that the local street network could accommodate substantial increases in on-street parking usage.</p> <p>In a worst-case scenario in which there is no modal shift to other transport, only 58 additional vehicles could be expected because of the proposed development, which could be comfortably accommodated and would not put pressure onto nearby on-street parking.</p> <p>Notwithstanding this, through the implementation of the STP, it is likely that any growth in car parking demand generated by the additional student and staff population resulting from this SSDA should be offset by student and staff uptakes of other transport modes.</p> <p>Given the above, this matter is adequately addressed in the revised TAIA and STP that accompanied the RtS at Appendix F.</p>