

OEH comment in letter dated 28 February, 2019	GHD response	EES response Nov 2019	GHD final response – Amended BDAR
<p>The site is not identified as a future business hub within the Western Sydney Parklands SEPP, and as such, the proposal is inconsistent with the vision for the parklands.</p>	<p>AE Design have advised this item is no longer relevant as the application is no longer for a 'Business Hub', rather for 'Tourism purposes with associated facilities'.</p> <p>GHD noted the site falls within Precinct 11 (Cecil Park North) of the Western Sydney Parklands Plan of Management 2030 (adopted in December 2018). This updated Plan of Management notes that precinct 11 is <i>"isolated from the main parklands corridor by the M7 Motorway, the future M12 motorway and Elizabeth Drive"</i>. It also notes that the desired future character of the precinct is <i>"to provide for bushland and semi-rural paddocks as interim land uses, with future investigation into potential business or tourism uses. Allowance will be made for the future M12 Motorway corridor and associated infrastructure, if required"</i>.</p> <p>The Wallgrove Road Business Hub is noted to be under investigation about 480 metres to the north of the site in the WSP PoM. Given the potential for a business hub within the precinct, in close proximity to the site, the proposal is not inconsistent with the updated vision for the precinct.</p> <p><b>Section 1.6</b></p>	<p>EES notes the revised proposal includes a:</p> <ul style="list-style-type: none"> <li>• Highway Service Centre (in the original proposal also)</li> <li>• Tourist and Visitor Accommodation</li> <li>• Eco-Tourist Facility</li> <li>• Food and Drink Premises</li> <li>• Recreation Areas</li> <li>• Recreation Facilities (indoor; outdoor)</li> <li>• Information and education facility</li> </ul> <p>All the above uses are for business generating purposes and are still considered to be uses consistent with a Business Hub.</p> <p>The Western Sydney Parklands SEPP requires land uses on this site to be consistent with maintaining the parklands and the protecting and enhancing the natural systems of the parklands including threatened fauna and flora and communities and riparian corridors. Given the SEPP is an environmental planning instrument the responsibility of Place, Design and Public Space Group in DPIE, PDPSG should comment on the applicability of the SEPP to this major project.</p> <p><b>Not GHD</b></p>	<p><b>Not GHD</b></p>
Two creeks traverse the site along both the northern boundary	The creeks around the subject site have been heavily modified and fragmented by	The connectivity of the site to the parklands and an adjoining bushland	<b>The proponent has been notified that a portion of the lot will be acquired by</b>

<p>and eastern boundary and the site is part of the Ropes Creek riparian corridor system. This creek provides linkages between vegetation communities and this development has the potential to fragment a key biodiversity corridor.</p>	<p>existing infrastructure, including, but not limited to, Elizabeth Drive, Cecil Road and Wallgrove Road, as well as by historical land clearing and agricultural use. As such, drainage patterns around the site are significantly modified. Drainage lines around the site are particularly impacted by the presence of the M7, Wallgrove Road, Cecil Road and Elizabeth Drive, with the natural topography and drainage of the surrounding area heavily influenced by the construction of these roads. Further modification resulting from construction of the Elizabeth Drive upgrade and M12 motorway is likely.</p> <p>The existing road infrastructure around the south and east of the site forms a barrier to the movement of all but highly-mobile fauna. There is minimal vegetative connectivity to the north of the site, with a small patch of native vegetation extending about 430 metres to the north of the site, before giving way to cleared agricultural land with no vegetative connectivity. Development of the site will not result in a significantly greater degree of fragmentation of key biodiversity corridors than that already experienced in the locality of the site.</p> <p>A revised proposal footprint has been suggested following the recent meeting with the Department of Planning and Environment (DPE) and OEH, which reduces the proposal footprint, increasing the proposed vegetation reserve in the north of the site, which in turn increases the buffer of the riparian corridor in the</p>	<p>corridor along all site boundaries is clear on the GHD plans at Attachment B—Location map showing proposed development areas and existing vegetation and patch size.</p> <p>The site is within Western Sydney parklands (WSP) and forms part of a corridor linking core habitat of CEEC CPW in the parklands.</p> <p>The proposed footprint further fragments this connectivity.</p>	<p>Transport for NSW (TfNSW) as part of the proposed M12 Motorway Project (layout shown in Figure 5-1). The proposed M12 motorway project is likely to impact all vegetation along the western and northern portions of the lot, resulting in the fragmentation of vegetation along the riparian area once it is constructed.</p> <p>The site will eventually be surrounded by the M7 Motorway, M12 Motorway, Wallgrove Road and Elizabeth Drive. These barriers will act as a hostile gap to fauna movement, limiting connectivity to the site. The site will be largely cut off from vegetation to the south, west and north, with only a small patch of vegetation left between the site and Wallgrove Road to the east</p> <p>The vegetated riparian corridor to the Northeast of the site will not be directly impacted by the proposed works at 1111 Elizabeth Drive.</p>
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	<p>north of the site. This would continue to maintain the limited connectivity associated with the drainage line in the north of the site. There are no plans to remove vegetation associated with the drainage line that runs along the north western boundary of the study area, as it is outside of the subject site. As such, the proposal is unlikely to further fragment the “biodiversity corridor” associated with this drainage line.</p> <p><b>Section 3.1.8</b></p>		
<p>The development proposed currently fails to meet the objectives of the BC Act as it does not avoid and minimise impacts on biodiversity values including:</p> <ul style="list-style-type: none"> <li>• CPW in good condition</li> <li>• Vegetation with near benchmark values for native plant species richness</li> <li>• A vegetation integrity score of 68 reflecting a high diversity of biodiversity values that provide a range of foraging, roosting and shelter resources for threatened and protected fauna species</li> <li>• Mature and hollow-bearing trees</li> <li>• Regeneration of all canopy species</li> <li>• Abundance of native frogs and bats, including four</li> </ul>	<p>A revised proposal footprint has been prepared (see Attachment A) following the recent meeting with the Department of Planning and OEH, which reduces the proposal footprint, increasing the proposed vegetation reserve in the north west of the site. The footprint has reduced the impacts to CPW from 2.35 ha to 2 ha and has increased the width of retained vegetation in the northern portion of the site. This reduced footprint further demonstrates the proponent's willingness to avoid impacts to native vegetation where possible.</p> <p>The project has also included a range of mitigation measures, as required by the BAM, to reduce and manage impacts where possible.</p> <p>Finally, the BDAR includes a variety of biodiversity credits that will be required to be secured and retired and/or via an investment into the Biodiversity Conservation Fund (BCF) to offset residual impacts.</p>	<p>It is noted that the revised proposal footprint has reduced the amount of CPW to be cleared by 0.35ha and the BDAR includes biodiversity credits. However, this revised footprint is not necessarily the final footprint, as the BDAR has not assessed all the direct impacts of the proposal i.e. it remains unknown where the stormwater infrastructure and on-site wastewater management system will be located. As such, the calculations in the BDAR, regarding the amount of CPW to be cleared and the offsets required for this, cannot be considered final. Furthermore, it is not clear if the revised proposal footprint represents the operational footprint and/or the construction footprint. The BAM requires both to be included in the BDAR (see Table 25 of the BAM) and this will need to be addressed with the next BDAR revision.</p> <p><b>Noted</b></p>	<p>The proposed footprint represents the operation footprint and the construction footprint and has been designed to encompass all proposed impacts on biodiversity associated with the subdivision.</p> <p>All ancillary infrastructure including stormwater, on-site wastewater management system, roads and Asset Protection Zones will occur within the proposed footprint (Figure 5-1).</p> <p>GHD took a conservative approach to calculating the biodiversity credits impact by assuming all vegetation within APZ's would be cleared which is unlikely to be the case. This means the project will require additional credits than if we calculated a higher future integrity score ('partial removal') for the vegetation within the APZ. This approach also provides additional credits to account for indirect impacts.</p>

<p>threatened bat species recorded on site</p> <ul style="list-style-type: none"> <li>• Many native birds and several mammals</li> <li>• Two creeks that traverse the site, one creek is part of the Ropes Creek riparian corridor system that provides linkages between vegetation communities and act as a key biodiversity corridor</li> </ul>	<p>Section 5.2 and 5.3</p>		
<p>The proposal does not avoid impacts on 2.35 ha of CPW and is therefore inconsistent with the BC Act as it does not avoid impacts to biodiversity values.</p>	<p>The revised proposal footprint has been prepared following the recent meeting with the Department of Planning and OEH, which reduces the proposal footprint, increasing the proposed vegetation reserve in the north of the site. The footprint has reduced the impacts to CPW from 2.35 ha to approx.. 2 ha and has increased the width of retained vegetation in the northern portion of the site. This reduced footprint further demonstrates the proponents willingness to avoid impacts to native vegetation where possible.</p> <p>GHD will update the BDAR to reflect the final project footprint.</p>	<p>It is noted that the GHD response includes reference to the revised proposal footprint and a final project footprint. Following on from the comment above, these two footprints may be different and the final one (or ones, if the construction footprint is different to the operational footprint) needs to be included as part of the next BDAR revision.</p> <p><b>Noted</b></p>	<p>The current footprint represents a third iteration of the proposal, and was devised following ongoing consultation with DPIE regarding the need to avoid impacts on the CEEC Cumberland Plain Woodland (PCT 849), as well as consultation with TfNSW regarding compulsory acquisition of a portion of the lot. The revised proposal footprint has reduced the proposed impacts to CPW from 2.35 ha to 1.15 ha.</p>
<p>There has been no attempt to apply the 'avoid, minimise and offset' framework established by the BC Act and the BAM.</p>	<p>The avoid and minimise approach has been detailed in the GHD report in the sections listed in next column.</p> <p>A revised proposal footprint has been prepared following the recent meeting with the Department of Planning and OEH, which reduces the proposal footprint, increasing the proposed</p>		<p>The proposal has aimed to avoid impacts on native vegetation and habitat values by focusing development in areas of exotic grassland where possible, and adjusting the proposal footprint to limit impacts on better quality (i.e. native) vegetation within the portion of the lot not subject to acquisition by TfNSW (see Figure 5-1).</p>

	<p>vegetation reserve in the north of the site. The footprint has reduced the impacts to CPW from 2.35 ha to 2 ha and has increased the width of retained vegetation in the northern portion of the site. This reduced footprint has been prepared to further demonstrate the projects consideration of the 'avoid, minimise and offset' framework.</p> <p>GHD will update the BDAR to reflect the final project footprint</p>		<p>The original proposal sought to impact 2.35 ha of PCT 849 (GHD 2018). This amount was reduced to 2.00 ha in October 2019 following consultation with DPIE to agree on an acceptable quantum of impacts. This amount has been further reduced to 1.15 ha in the current BDAR, taking into account the constraints associated with the proposed land acquisition TfNSW for the M12 Motorway, while still achieving a viable development.</p>
Limited site analysis has occurred with the view to avoid impacts on the CPW CEEC, based on text in the Urban Design Report ("Due to the site's area of 7.38 ha, there is limited scope for retention of extensive vegetation which should not result in any reduction of the size of the development footprint"). OEH considers that adequate planning/siting of the proposal has not been carried out that avoids the CPW.	<p>The revised proposal footprint has further reduced impacts to CPW while maintaining a viable development yield for this site.</p>		<p>See above response and section 5.1 in the BDAR</p>
Only one vegetation zone was identified across the study area (see BDAR Figure 4) which shows the vegetation was considered homogenous across the site.	<p>One native vegetation zone was identified in the study area, as well as one exotic vegetation zone (Exotic grassland, refer to Figure 4). Vegetation within each zone was considered relatively homogenous, however was not considered homogenous across the entire site.</p> <p>GHD has added a sentence to the BDAR noting presence of one exotic vegetation zone to clarify vegetation present on site. <b>Section 3.2.3</b></p>	<p>Noted.</p>	<p>Field surveys confirmed the presence of one native PCT within the subject site, as shown on Figure 3-1 and summarised in Table 3-2 of the BDAR. One exotic vegetation zone (Exotic grassland, refer to Figure 3-1) was also identified. Vegetation within each zone was considered relatively homogenous, however noting variations across the entire site in the vegetation descriptions.</p>
The proposal does not limit impacts on 'better quality'	<p>Two vegetation zones were identified within the subject site (as per previous</p>	<p>1. The proposal does not avoid impacting threatened species as</p>	<p>The overall condition of vegetation was assessed through general observation during</p>

<p>vegetation because vegetation was assessed as having a relatively homogenous condition (or 'quality') across the entire study area (refer to BDAR text: "The proposal has aimed to avoid impacts on native vegetation and habitat values by focusing development in areas of exotic grassland where possible and adjusting the proposal footprint to limit impacts on better quality vegetation within the remainder of the site (see BDAR Figure 5)". OEH considers that through better site planning that the CPW on site can be protected and retained.</p>	<p>line item response); one exotic and one native. There are unavoidable impacts proposed on areas of native vegetation as a result of the proposal footprint.</p> <p>A revised proposal footprint has been prepared following the recent meeting with the Department of Planning and OEH, which reduces the proposal footprint, increasing the proposed vegetation reserve in the north of the site.</p> <p>The nature of these types of development means that it is difficult to avoid all native vegetation on site while delivering a viable project. These developments need to consider the need for such things as large regular shaped lots, road networks which allow large reticulated vehicles to move safely through the site etc. Under these design limitations it is not possible to retain all native vegetation at the site.</p> <p>GHD has also included a 2nd Figure (see Attachment B) which shows the site context giving consideration to future development and infrastructure in the locality. Considering the construction of the M12, upgrade of Elizabeth Drive, the existing M7 and Wallgrove Road and surrounding urban development, the proposal footprint has considered these constraints to maintain vegetation connectivity in the north west of the site.</p>	<p>the proposed subdivision layout/lot configuration impacts on the area of native vegetation comprising a critically endangered ecological community of CPW – PCT 849. This is evident in the diagram in the GHD response Attachment A – Revised Proposal Footprint.</p> <p>This statement implies that no development that impacts on threatened species will be approved. This is not how the BAM is meant to be applied. Yes, you are to do all you can within the constraints of your development to avoid impacts where possible. Where this is not able to be achieved, a BAM assessment is completed to support and application. Where that impact includes an SAI entity that does not have a listed clearing threshold, then the SAI assessment is completed as we have done.</p> <p>If the principal of what EES is stating above is applied then there wouldn't be a Biodiversity Offsets Scheme (BOS) and/or a methodology to assess impacts on threatened species as no impacts would occur.</p> <p>2. The site is located within an area designated as a 'Major Urban Parkland &amp; Reserve' under the District Plan. The Revised Proposal provides for a subdivision layout inconsistent with this direction in the District Planning &amp;</p>	<p>a stage 1 preliminary survey. Plot/transects were then completed allowing comparison against the PCT condition benchmark data as well as using parameters such as species diversity, history of disturbance, weed invasion and canopy health.</p> <p>Two vegetation communities were identified on the subject site, 1.15 ha of CPW and 3.05 ha of exotic grasslands. The native vegetation within the site is in moderate condition, generally regenerating (relatively young) and with few weeds present. The proposed development was centred on the exotic grasslands and the edges of a patch of CPW, avoiding impacts to the majority of CPW within the study area (granted this is no the subject of acquisition by TfNSW).</p>
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<p>The proposal's biodiversity impacts are as follows:</p> <ul style="list-style-type: none"> <li>• Removing 2.35 ha of PCT 849</li> <li>• Remove habitat for the Southern Myotis</li> </ul>	<p>The impacts listed by OEH are from the original version of the report (May 2018), drafted prior to the completion of targeted threatened species surveys at appropriate seasonal times. Since the original BDAR was drafted in May 2018, targeted searches for relevant species have been completed. These results indicate that</p>	<p>OEH reviewed the BDAR dated November 2018 i.e. <i>1111 Elizabeth Drive Pty Ltd Elizabeth Drive Biodiversity Development Assessment Report</i> (GHD November 2018). OEH did not review a version dated May 2018.</p>	<p><b>The proposal would result in the following impacts:</b></p> <ul style="list-style-type: none"> <li>• Removal of 1.15 ha of PCT 849 – Grey Box - Forest Red Gum grassy woodland on flats, which is listed as Cumberland Plain Woodland in the Sydney Basin Bioregion CEEC under the BC Act and Cumberland Plain</li> </ul>

<ul style="list-style-type: none"> <li>Removal of 2.35 ha of assumed habitat for <ul style="list-style-type: none"> <li>Threatened flora species <i>Pultenaea pedunculata</i></li> <li>Bush Stone-curlew</li> <li>Cumberland Plain Land Snail</li> <li>Southern Myotis</li> </ul> </li> </ul>	<p>there would be no removal of assumed habitat for <i>Pultenaea pedunculata</i>, Bush Stone-curlew or the Cumberland Plain Land Snail.</p> <p>The current version of the BDAR (November 2018) summarises the impacts as:</p> <ul style="list-style-type: none"> <li>Removal of 2.35 ha of PCT 849 – Grey Box - Forest Red Gum grassy woodland on flats, which is listed as Cumberland Plain Woodland in the Sydney Basin Bioregion CEEC under the BC Act and Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest CEEC under the EPBC Act.</li> <li>Removal of 0.87 ha of known habitat for the Southern Myotis.</li> <li>Potential indirect impacts to adjoining vegetation associated with edge effects, light spill, noise and introduction of weeds and pathogens.</li> </ul> <p>The BDAR will now be updated to reflect the revised proposal footprint and associated 2 ha impact.</p> <p><b>Updated in section 6</b></p>		<p>Shale Woodlands and Shale-Gravel Transition Forest CEEC under the EPBC Act.</p> <ul style="list-style-type: none"> <li>Removal of 1.06 ha of known habitat for the Southern Myotis.</li> <li>Potential indirect impacts to adjoining vegetation associated with edge effects, light spill, noise and introduction of weeds and pathogens.</li> </ul>
<p>The BDAR has failed to appropriately apply S.9 of the BAM (Assessment of impacts) as it has not assessed all of the proposed impacts. Direct and indirect impacts have not been</p>			<p>N/A – all now assessed</p>

addressed relating to the following items:			
<ul style="list-style-type: none"> <li>A co-located flood detention basin and bioretention area and their associated spillway (see Appendix B Stormwater Management Plan).</li> </ul>	<p>The detention basin is currently undergoing redesign in accordance with the revised proposal footprint and amended land use. AE design have provided the following:</p> <ul style="list-style-type: none"> <li>the basin to be located outside saleable portions of any lot, as part of an easement or required setback. Opportunities to locate the basin within APZ's is being investigated.</li> <li>The basin could potentially be in a separate lot which would be dedicated back to Council or Parklands after rehabilitation.</li> <li>Confirmation of the size of the basin that includes civil design batters will be needed to determine the size of the lot required and if it needs to encroach into</li> <li>any saleable area to not have significant impacts on the revised environmental conservation</li> </ul> <p>Should the basin design determine it needs to encroach outside the revised proposal footprint then impacts associated with construction would be included in the amended BDAR.</p>	<p>The detention basin, bioretention area and associated spillway have not been assessed in the BDAR. All direct and indirect impacts of the proposal, including those relating to detention basins, bioretention areas and spillways, need to be assessed in the BDAR as per section 9 of the BAM. Without an assessment of all the direct impacts in the BDAR, the correct offsetting requirements cannot be determined, nor can all the appropriate mitigation measures. Similarly, without an assessment of all the indirect impacts (during construction and operation, see section 9.1.1.2 of the BAM), appropriate mitigation measures cannot be fully considered and determined.</p> <p><b>The final BDAR is now completed.</b></p>	N/A – all now assessed
<ul style="list-style-type: none"> <li>An on-site wastewater management system (see EIS and Preliminary Onsite Wastewater Assessment).</li> </ul>	<p>GHD has been advised any infrastructure associated with the on-site waste water system will be located within the revised proposal footprint as shown in Attachment A.</p>	<p>The on-site wastewater management system has not been assessed in the BDAR. The direct and indirect impacts of this system will need to be assessed as per section 9 of the BAM.</p>	N/A – all now assessed

<ul style="list-style-type: none"> <li>Deferment of the details regarding onsite wastewater management to the DA stage for each individual building on each lot is inconsistent with the BAM given the potential direct or indirect impacts on vegetation and the creeks/water quality.</li> </ul>	<p>GHD has been advised any infrastructure associated with the on-site waste water system will be located within the revised proposal footprint. Therefore, impacts associated with the onsite waste water system will be included in the updated BDAR.</p>	<p>Noted. All impacts (direct and indirect, during both the construction and operation phases of the development) need to be assessed in the BDAR as per section 9 of the BAM.</p>	<p>N/A – all now assessed</p>
<ul style="list-style-type: none"> <li>In the assessment of SAIIs, the BDAR states that the proposed vegetation reserve will not be impacted by the proposal, however this area will be directly and indirectly impacted by the proposed stormwater works.</li> </ul>	<p>As advised by AE Design, should the basin design determine it needs to encroach outside the revised proposal footprint then impacts associated with construction would be included in the amended BDAR.</p>	<p>As stated above, all direct and indirect impacts of the proposal need to be assessed in the BDAR, otherwise the necessary and appropriate offsetting requirements and mitigation measures cannot be determined.</p>	<p>N/A – all now assessed</p>
<p>Potential impacts on aquatic fauna have not been adequately addressed. The BDAR states that there is no permanent aquatic habitat occurring within the subject site.</p>	<p>The BDAR states:</p> <p><i>“No permanent aquatic habitat occurs within the subject site. There is a small ephemeral drainage depression that runs through a small section of the subject site in the west. The nature and condition of this drainage line was not assessed for fauna habitat values, given the absence of water and the small area which it occupies in the subject site.”</i></p> <p>GHD will update this paragraph to better portray aquatic habitat present on site.</p> <p>Updates to include:</p>	<p>All direct and indirect impacts on the dam and associated creek line, which lie to the north and north west of the site, need to be addressed in the BDAR as per section 9 of the BAM. Note that even if direct impacts will not occur in these areas, indirect impacts will need to be assessed as the dam and creek line are adjacent to the proposed development (see section 9.1.1.2 of the BAM).</p>	<p>N/A – The area referred to in EES response is now the subject of acquisition by TfNSW for the M12 project. Impacts associated with this area would be addressed via the M12 approvals process.</p>

	<p>Permanent aquatic habitat within the study area is limited to constructed farm dams, with water levels that vary depending on the amount of rainfall received. There is a small ephemeral drainage line (dam inflow) that leads to the large dam within the study area, to the north of the subject site. This lacked flowing water at the time of all field surveys, with only small, shallow pools present, and as such, it was not surveyed for aquatic habitat.</p> <p>The large dam and associated ephemeral inflow drainage line are not within the proposed subject site. They sit within the proposed vegetation reserve in the north of the site and are not proposed for removal.</p>		
<p>The BDAR states that the “larger artificial water body in the north west of the study area lacks any fringing, emergent or aquatic vegetation and as such, is unlikely to provide suitable habitat for wetland species such as the Australasian Bittern or the Green and Golden Bell Frog”. However, aerial photos and the photograph of the front page of the stormwater report show fringing vegetation near the dam.</p>	<p>Photographs taken on site during field surveys demonstrate the lack of fringing, emergent or aquatic vegetation within the subject site.</p> <p>[photo]</p> <p>The preferred habitat of the Green and Golden Bell Frog “always contain plenty of vegetation in and around water” (<i>Best practice guidelines Green and golden bell frog habitat</i>; DECC 2008). Further, they are known to prefer sites that support <i>Typha</i> spp. or <i>Eleocharis</i> spp. which are unshaded and have a grassy area and/or rubble as shelter/refuge habitat nearby. The assessment contained within the BDAR that no suitable habitat for the</p>	<p>Noted.</p>	<p>N/A – The area referred to in EES response is now the subject of acquisition by TfNSW for the M12 project. Impacts associated with this area would be addressed via the M12 approvals process.</p>

<p>Green and Golden Bell Frog is considered accurate and appropriate, given the conditions present on site. There is no vegetation in the water, limited vegetation around the water (limited to exotic grasses such as Kikuyu and patchy native grasses or canopy trees with no understorey species and bare earth), and no occurrences of <i>Typha</i> spp. or <i>Eleocharis</i> spp.</p> <p>The Australasian Bittern favours permanent freshwater wetlands with tall dense reedbeds, particularly <i>Typha</i> spp. and <i>Eleocharis</i> spp. With adjacent shallow, open water for foraging. Roosts during the day amongst dense reeds of rushes. Feeding platforms may be constructed over deeper water from reeds trampled by the bird; platforms are often littered with prey remains. The photos taken on site confirm that there is no suitable habitat present for this species on site (see below and above).</p> <p>Further, a review of aerial photographs of the subject site do not show fringing, emergent or aquatic vegetation around the dam in the subject site.</p> <p>Notwithstanding, the farm dam and associated ephemeral drainage line in the north of the site is within the proposed vegetation reserve, and is proposed for retention.</p> <p>[photo]</p>		
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<p>The proposed co-located flood detention basin and bioretention area at the northern boundaries of the site appear to be in the vegetation reserve where the onsite dam is presently. This may necessitate dam removal and an adequate assessment of aquatic ecology is required. This may need to include a management plan for dam dewatering/decommissioning to ensure aquatic fauna are relocated prior to dewatering occurring, as well as to manage water quality impacts, contamination etc.</p>	<p>The biodiversity assessment has been prepared on the basis that all items within the proposed vegetation reserve are to be retained.</p> <p>If impacts are likely and dam removal and/or dewatering required, GHD can add some line items to the mitigation measures table to reflect the potential need for a management plan for dam dewatering/decommissioning etc however, we understand the dam will be retained within the reserved land.</p>	<p>All direct and indirect impacts need to be assessed in the BDAR as per section 9 of the BAM. if dewatering/decommissioning of the dam is proposed, a management plan will be required for this.</p> <p><b>Decommissioning of the dam is not proposed</b></p>	<p><b>N/A – all now assessed</b></p>
<p>There has been no assessment of the potential impacts of APZs on biodiversity values, nor of any potential impacts of WSUD infrastructure.</p>	<p>The BDAR assumes that the entire subject site will be cleared of vegetation, and that all APZs and WSUD infrastructure will fall within the area to be cleared. GHD often completes BAM assessments in this manner as a conservative approach. This means the project will require additional credits than if we 'clipped out' the APZ's in the credit calculations and only included these areas as 'partial removal'. This approach also provides additional credits to account for indirect impacts. This approach has previously been endorsed by OEH on other BAM and BBAM assessments.</p> <p>GHD can also add additional text that talks to potential impacts of APZs and WSUD infrastructure on biodiversity values if required, largely through reference to text included in the mitigation measures table (Table 5-1) relating to</p>	<p>As previously stated, all direct and indirect impacts need to be assessed in the BDAR as per section 9 of the BAM.</p>	<p><b>N/A – all now assessed</b></p>

	<p>vegetation clearing, introduction of weeds and pathogens and water quality and aquatic habitats.</p> <p>GHD has previously noted in this response that if the re-design of the collocated basin encroaches on the proposed vegetation reserve area then impacts will be included in the amended BDAR.</p>		
<p>The report states that "given the scale and nature of the proposal, the character of the study area and the proposed impact mitigation measures there are unlikely to be any notable indirect impacts on biodiversity values arising from the proposal". OEH notes that this is unlikely, given:</p> <ul style="list-style-type: none"> <li>• The bulk earth works required for the construction of roads (25,055m<sup>3</sup> of cut)</li> <li>• The stormwater management system</li> <li>• The connection of the site to the Ropes Creek corridor</li> <li>• Its proximity to extensive areas of native vegetation conserved within the WSP</li> <li>• The high threat status of CPW which is an SAI</li> <li>• CPW on site meeting the definition of a CEEC under both state and federal legislation.</li> </ul>	<p>GHD to delete those words from the BDAR.</p>	<p>Noted. Also, all indirect impacts will need to be assessed in the BDAR as per section 9 of the BAM. These impacts may include those identified on page ii of GHD (November 2018), along with others like: eutrophication of the creek and dam and associated damage to fauna and their habitat; and on-going disturbance such that fauna can no longer use the area. Other indirect impacts may also require consideration e.g. if decommissioning of the dam is proposed.</p>	<p><b>Wording deleted. N/A – all associated infrastructure now assessed</b></p>

<p>OEH considers the description of the proposal is inadequate, with a misleading operational footprint and no construction footprint.</p>	<p>There is no defined operational or construction footprint in the BDAR. It is assumed that the entire subject site would be impacted and cleared of vegetation (as per Figure 5), and impacts have been assessed based on this assumption. The BDAR states that "The proposal would result in the total clearing of the subject site" (Section 5.4.1), which is fully transparent about the degree of impact.</p> <p>All impacts will be within the subject site boundary as shown in Attachment A (pending confirmation the co-located basin doesn't encroach on the vegetation reserve area).</p>	<p>The minimum information requirements for BDARs include an operational footprint and a construction footprint (Table 25 of the BAM).</p> <p>It is once again noted that the location of the flood detention basin, bioretention area and associated spillway have not been confirmed. The BAM requires all direct and indirect impacts of a proposal to be assessed in a BDAR. If this is not done, appropriate calculations cannot be made for offsetting, and appropriate consideration cannot be given to mitigation measures.</p>	<p><b>Project description has been updated to reflect the final proposal. The accredited assessor has assumed that all impacts associated with the development, including construction and operational impacts, are included within the footprint provided, including all impacts associated with water infrastructure.</b></p>
<p>The 1.12 ha of 'better quality' native vegetation that has been avoided is related to flood extent and depth. The failure of the BDAR to mention the flood extent and depth is not in accordance with the BAM which requires the BDAR to identify the full range of site constraints.</p>	<p>A revised proposal footprint has been prepared following the recent meeting with the DPE and OEH, which reduces the proposal footprint, increasing the proposed vegetation reserve in the north of the site.</p> <p>The BDAR was prepared on the assumption that the project report would include detailed information on flood constraints, rather than in the BDAR. Additional wording can be added to the BDAR if required.</p>	<p>The full comment made by OEH in February 2019 was "Chapter 5.2 of the BDAR also states (page 32) "The proposal includes 14 industrial lots that would result in impacts to 2.35 ha of native vegetation but has avoided impacts to 1.12 ha of native vegetation that could have yielded additional industrial lots within the proposed subdivision of the study area." However, it seems that the 1.12 ha of 'better quality' vegetation identified in BDAR Figure 5 (i.e. the vegetation reserve) is related to flood extent and depth (see <i>aeDesign Partnership Pty Ltd 2126819-REP-1111-1141 Elizabeth Drive DA Stage Stormwater, Flooding and Dam</i> (GHD October 2018))."</p> <p>In relation to flood extent and depth the following comment was also made "Section 8.1.1.5 of the BAM requires</p>	

		<p>“Justifications for project location decisions should identify any other site constraints that the proponent has considered in determining the location and design of the project, e.g. bushfire protection requirements including clearing for asset protection zones, flood planning levels, servicing constraints.”</p> <p>Both comments still apply.</p>	
The BDAR has not adequately addressed S. 10.2 of the BAM (impact assessment of potential entities of SAII on biodiversity values) because assessment under S. 10.2.2.1 (a) and 10.2.2.1 (b) cannot be carried out until all impacts are first identified.	<p>From the BAM:</p> <p><i>10.2.2.1 The assessor is required to provide the following further information in the BDAR or BCAR about potential ecological communities:</i></p> <p><i>(a) the action and measures taken to avoid the direct and indirect impact on the potential entity for an SAII</i></p> <p><i>(b) the area (ha) and condition of the TEC to be impacted directly and indirectly by the proposed development. The condition of the TEC is to be represented by the vegetation integrity score for each vegetation zone</i></p> <p>It has been assumed throughout the BDAR that all biodiversity values within the subject site will be lost. There will be no indirect impacts on matters within the subject site, as all impacts will be direct and final. The BDAR has been completed on the understanding that the mitigation measures proposed would limit the potential for indirect impacts on any biodiversity values outside of the subject site.</p>	<p>The locations of the flood detention basin, bioretention area and associated spillway have not been confirmed, and the on-site wastewater management system has not been assessed in the BDAR. As such, there may be more direct and indirect impacts for this proposal than currently assessed. All impacts need to be identified (and in this case, confirmed) before section 10.2 of the BAM can be adequately addressed. All direct and indirect impacts need to be assessed in the BDAR as per section 9 of the BAM.</p> <p><b>Noted</b></p>	N/A – all now assessed

	<p>Regardless, GHD took a conservative approach to calculating the biodiversity credits impact by assuming all vegetation within APZ's would be cleared which is unlikely to be the case. This means the project will require additional credits than if we 'clipped out' the APZ's in the credit calculations and only included these areas as 'partial removal'. This approach also provides additional credits to account for indirect impacts.</p> <p>Section 10.2.2.1(a) of the BAM has been addressed in Section 5.2 of the BDAR.</p> <p>Section 10.2.2.1(b) of the BAM has been addressed in Section 3.2.3 and 5.4 of the BDAR.</p>		
<p>The claim that the subject site would make a minor contribution to regional biodiversity values and is unlikely to be considered an important area of the PCT/TEC is not supported, given:</p> <ul style="list-style-type: none"> <li>The large patch size (&gt;100ha) calculated for the site and its proximity to major drainage lines, riparian areas and conservation areas within the WSP</li> <li>The vegetation integrity score for the site (86) and the near benchmark values for native plant species richness and</li> </ul>	<p>The apparent values of the subject site are identified by OEH as:</p> <ul style="list-style-type: none"> <li>patch size &gt;100ha</li> <li>proximity to major drainage lines, riparian areas and conservation areas within the WSP</li> <li>a vegetation integrity score of 86</li> <li>records of native fauna species on site</li> <li>records of four threatened bat species on site</li> <li>the presence of a CEEC listed at both a state and federal level)</li> </ul> <p>There are numerous detracting factors not considered by that assumption:</p> <ul style="list-style-type: none"> <li>Proximity to major motorways and roads, including Elizabeth Drive,</li> </ul>	<p>The comment made by OEH in February 2019 still applies.</p> <p>The Cumberland Plain Woodland on the site is critically endangered under both state and federal legislation. The subject area is adjacent to an extensive area of threatened vegetation located and protected within Western Sydney Parklands, as reflected by the large patch size calculated for the site in the BDAR.</p> <p>The vegetation integrity score for the CPW (68) and reflects a high diversity of biodiversity values that provide a range of foraging, roosting and shelter resources for threatened and protected fauna species (see Appendix B of the BDAR). This includes near benchmark</p>	<p>The northern portion of the site will be acquired in the future by TfNSW as part of the proposed M12 Motorway Project. The area of vegetation acquired by TfNSW comprises the more intact area of vegetation within the study area due to the connectivity values and reduced impacts from edge effects.</p> <p>The remaining vegetation within the study area would be fragmented and surrounded by the M7 Motorway, M12 Motorway, Wallgrove Road and Elizabeth Drive. These roads would form connectivity barriers to the site isolating the vegetation from the surrounding patches to the south, west and north, with only a small patch of vegetation left between the site and Wallgrove Road to the east</p>

<p>most vegetation cover attributes</p> <ul style="list-style-type: none"> <li>Records of 49 native fauna species on site</li> <li>Positive anabat recordings for four threatened bat species on site, with as many as 14 other bat species also having been recorded</li> <li>The CPW on the site is a CEEC under both the BC Act and EPBC Act.</li> </ul>	<p>Wallgrove Road, the M7 Motorway and Cecil Road.</p> <ul style="list-style-type: none"> <li>Isolation from much of the WSP by existing infrastructure (as listed above)</li> <li>The desired future character of the larger precinct as it sits within the WSP, which is: <i>"To provide for bushland and semirural paddocks as interim land uses, with future investigation into potential business or tourism uses. Allowance will be made for the future M12 Motorway corridor and associated infrastructure, if required."</i> A very small portion of the subject site is earmarked as an 'Environmental Conservation Area' and the north eastern boundary of the site is designated as a 'Bushland corridor' under the WSP PoM. With this in mind, it is clear that at a landscape scale, the land around and including the subject site is not considered an important area of the PCT, or it would be identified as such within the WSP PoM. Further, the subject site is in close proximity to the possible site of the Wallgrove Road Business Hub, indicating that WSPT plans to develop land within the precinct (with a final location to be determined). This adds to the argument that the site is not an important area of vegetation, as the future focus of the precinct is to be on <i>"potential business or tourism uses"</i>, with</li> </ul>	<p>values for native plant species richness and most vegetation cover attributes (see page 24), along with at least four large trees (with a diameter at breast height greater than 50 cm) and four hollow bearing trees and an appreciable amount of fallen logs (for example see Table A6 of the report). An abundance of native frogs and bats were noted in the BDAR (page 16), including four species of threatened bats and up to 14 other species of bats too. Many native birds were also recorded, including the Red-rumped Parrot, Satin Bowerbird and Little Pied Cormorant. Records were also given for the Sugar Glider and Common Brushtail Possum.</p> <p>The BC Act 2016 that requires proposals to first and foremost avoid impacts on biodiversity values, secondly to minimise such impacts and thirdly, as a last resort, offset unavoidable impacts. OEH considers that there has been no attempt to apply the avoid, minimise and offset framework as established by the BC Act (section 1.3(k)) and the Biodiversity Assessment Method (BAM).</p> <p>OEH considers that adequate planning/siting of the proposal has not been carried out that avoids impacts on significantly threatened and in this case critically endangered ecological community</p>	
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	<p>acknowledgement that there may need to be an allowance made <i>“for the future M12 Motorway Corridor and associated infrastructure, if required”</i>. This reflects the position of the site at a major infrastructure junction in the existing road network, and likely future impacts.</p> <ul style="list-style-type: none"> <li>• Anabat records of three threatened microbats were collected on site, with the fourth threatened bat being the Grey-headed Flying-fox. All of the threatened bat species recorded on site are highly mobile species capable of flying large distances to forage throughout the landscape. There was no evidence of a roost camp of any species within the study area.</li> <li>• The subject site and surrounding areas are under significant development pressure from a range of sources, with the proposed M12 Motorway, Elizabeth Drive upgrade, urban land release investigation area to the north etc.</li> </ul> <p>Given the site context of the proposal including the release of the route option for the M12 and the ongoing and escalating development pressures around the site (as shown in Attachment B), and other developments as noted in the WSP PoM, RMS website and Greater Sydney Commission website, it is highly unlikely that the site would ever attain any greater</p>	<p>The site is 7.37 ha in size with a proposed developable footprint that will accommodate 10 lots despite there being an existing cleared area of 3.66 ha comprising exotic vegetation on site.</p>	
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	<p>degree of connectivity. Similarly, the existing degree of fragmentation and isolation from large tracts of remnant, intact vegetation means the potential for vegetation improvement is limited.</p>		
<p>The BDAR has not assessed prescribed biodiversity impacts in accordance with S. 6.7 and 9.2 of the BAM. Areas reportedly not requiring assessment were buildings, infrastructure, dumped fill and a 0.25ha artificial waterbody without any fringing vegetation. These features may provide habitat for threatened species including the CPLS, Eastern Bentwing-bat and Southern Myotis.</p>	<p>6.7.1.1 There are no occurrences of karst, caves, crevices or cliffs within the study area.</p> <p><b>Section 3.1.5</b></p> <p>6.7.1.2 There are no occurrences of rock within the study area.</p> <p>6.7.1.3 There are occurrences of human made structures and non-native vegetation, shown on Figure 3 in the BDAR, mapped as 'Buildings, infrastructure and dumped fill' and 'Exotic grassland', and discussed in text in <b>Section 3.1.9</b> of the BDAR.</p> <p>The Eastern Bentwing-bat and Southern Myotis were recorded on site. GHD will add text to the BDAR to indicate that man-made structures may provide potential habitat for these species on occasion.</p> <p>Targeted threatened species searches for the CPLS were carried out across the study area, including within areas of human-made rubbish and debris within patches of exotic vegetation. GHD will update text in the BDAR to reflect this.</p> <p><b>Section 3.3 and Table 2.4</b></p>	<p>The BDAR needs to assess prescribed biodiversity impacts in accordance with sections 6.7 and 9.2 of the BAM.</p>	<p>These have been assessed in the final BDAR.</p>
<p>No spatial data (map) relating to targeted surveys for the CPLS was provided. S. 6.5.1.5 of the BAM requires information to be</p>	<p>Figure 3 of the BDAR notes that "habitat assessments, active searches for the Cumberland Plain Land Snail and other ground-dwelling fauna, visual inspection</p>	<p>In accordance with sections 6.5.1.3 – 6.5.1.5 of the BAM, the spatial data required is a line, or lines, showing where the traverses were carried out.</p>	<p>Extensive searches for CPLS were undertaken throughout the entire study area. Parallel transects less than 5 m apart were walked across the entire site with the litter</p>

<p>provided on the timing, method and effort used for threatened species surveys. Further, surveys failed to search around any form of human-made ground cover, and so may be impacted by prescribed biodiversity impacts.</p>	<p>of potential roost/nest trees and systematic traverses for threatened plants were conducted across the entire study area".</p> <p>GHD can add a polygon to Figure 3 to identify the areas covered during field surveys if required, however the note at base of figure was considered more useful so as not to add too much complexity to the figure.</p> <p>It was an oversight from GHD not to include detailed text in the BDAR detailing that targeted threatened species searches for the CPLS were carried out across the study area, including within areas of human made rubbish and debris within patches of exotic vegetation. Text in the BDAR will be updated to reflect this. Photos taken on site reflect type of debris that was searched during field surveys within areas of exotic grassland, in addition to piles of debris and leaf litter around the base of trees within areas of Cumberland Plain Woodland.</p>	<p>Table 2-4 of GHD (November 2018) describes the survey methods utilised for CPLS as "Active searches around woody debris and around the base of trees where leaf litter is present." with the comment "Additional October/November surveys comprised optimal survey conditions with a damp leaf litter and soil around the base of most trees." (page 14). No mention is made of prescribed impacts.</p> <p>The next revision of the BDAR needs to include spatial data that shows where the traverses were carried out, and prescribed biodiversity impacts need to be assessed in accordance with sections 6.7 and 9.2 of the BAM.</p>	<p>under all trees, debris and rocks searched multiple times. Details of the targeted searches for Cumberland Plain Land Snail are provided in Table 2.4, Table 2.5, Section 2.3, Figure 2.1 and Section 3.3</p> <p>Photos of habitat resources provided in section 3.3.</p>
<p>No spatial data (map) relating to targeted surveys for threatened flora was provided. S. 6.5.1.3 and 6.5.1.5 of the BAM requires it.</p>	<p>Figure 3 of the BDAR notes that "habitat assessments, active searches for the Cumberland Plain Land Snail and other ground-dwelling fauna, visual inspection of potential roost/nest trees and systematic traverses for threatened plants were conducted across the entire study area".</p>	<p>Section 6.5.1.3 of the BAM refers the <i>NSW Guide to Surveying Threatened Plants</i> (OEH 2016), which requires the locations of field traverses to be shown on a geo-referenced map or aerial photograph (page 15). As such, the spatial data required is a line, or lines, showing where the traverses were carried out. The next revision of the BDAR needs to include spatial data</p>	<p>Details of the targeted searches for threatened flora species provided in Section 2.2.4, Table 2.3, Section 4.2.1 and Figure 2.1 (approach similar to that summarised above for CPLS).</p>

	<p>GHD can add a polygon for this to identify the areas covered during field surveys if required, however a note at base of figure was considered more useful so as not to add too much complexity to figure, as a polygon would simply cover the entire study area.</p>	<p>that shows where the traverses were carried out, in accordance with sections 6.5.1.3 – 6.5.1.5 of the BAM.</p>	
<p>Chapter 4.1.2 (species credit species) of the BDAR states “Further targeted surveys are required for some species credit species. These surveys will be completed at the appropriate time of year to target these species (refer to Table 4-2)”. It is not clear from Table 4-2 which species need to be surveyed.</p>	<p>This is an error within the BDAR and will be corrected – adequate survey effort has been achieved for all required species. Error in the BDAR stems from previous versions of the report not being thoroughly updated following targeted threatened species searches.</p> <p><b>Section 4.1.2</b></p>	<p>OEH reviewed GHD (November 2018) and not a previous version.</p>	<p><b>Details of survey adequacy in section 4.1.2 and Table 4.2.</b></p>
<p>The method used to calculate the species polygon for the Southern Myotis (Chapter 6.6 of the BDAR) grossly under mapped the habitat components for this species. No mapped drainage lines, on or adjacent to the site were used to map the polygon because they were not considered to be foraging habitat.</p> <p>The method used to develop a species polygon for the Southern Myotis must be as per S. 6.4.1.33 of the BAM, Table 1 of ‘<i>Species credit’ threatened bats and their habitats: NSW survey guide for the BAM</i> (OEH 2018) and from information contained within the TBDC:</p>	<p>GHD acknowledges that OEH’s comments on calculation of the species polygon for the Southern Myotis are correct, with reference to the new BAM bat survey guidelines, which were published in September 2018.</p> <p>Prior to the publication of the 2018 BAM microbat survey guidelines, the Southern Myotis was assumed to be present at the site, and a species polygon was mapped in early 2018. The approach used to generate the species polygon (i.e. a 100m buffer around permanent riparian habitat) had been accepted by OEH on previous BioBanking assessments on numerous occasions. GHD recognised that this should be increased to a 200m buffer in the updated BDAR to ensure consistency with the new guidelines. Drainage lines within the study area and subject site do not comprise habitat for the Southern</p>	<p>The method used to calculate the species polygon for Southern Myotis must follow:</p> <ul style="list-style-type: none"> <li>• section 6.4.1.33 of the BAM</li> <li>• Table 1 of ‘<i>Species credit’ threatened bats and their habitats: NSW survey guide for the Biodiversity Assessment Method</i> (OEH 2018) and</li> <li>• the Threatened Biodiversity Data Collection.</li> </ul> <p>Note that these references do not refer to permanent water.</p>	<p><b>Section 6.6 described the methods used to calculate the species polygons used in the credit calculations. Polygon shown on Figure 6.2.</b></p>

<ul style="list-style-type: none"> <li>The features to include in the polygon are all habitats on the subject land where the subject land is within 200 m of a waterbody with pools and/or stretches 3m or wider including rivers, creeks, billabongs, lagoons, dams and other water bodies on the subject land;</li> <li>The approach to create the polygon needs to use aerial imagery to map waterbodies with pools and/or stretches 3m of wider that are on, or within 200m of the subject land;</li> <li>Following on from this, the polygon boundaries need to align with the PCTs on the subject land to which the species is associated (as listed in the TBDC) that are within 200m of the mapped waterbodies.</li> </ul> <p>Note the correct buffer is twice the size of that used for the BDAR, with the correct method not being reliant on HBTs. Additionally, it seems likely that a large waterbody located next to the subject land between Cecil Road and Elizabeth Drive, would</p>	<p>Myotis, as they do not support permanent water, and do not have pools/stretches 3 m or greater wide, as required by the BAM bat survey guidelines (pp. 14).</p> <p>GHD will update the species polygon in the BDAR (and associated species credit calculations, mapping and text) to reflect the BAM bat survey guidelines, by mapping all waterbodies with permanent water with pools/stretches 3m or wider, on or within 200m of the subject site, and then buffer them with a 200m polygon, clipped to PCTs known to be associated with the species.</p> <p><b>Section 6.6</b></p>		
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constitute a waterbody for mapping a species polygon for Southern Myotis at this site, ie it is within 200m of the subject land and it is more than 3m wide.			
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