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2 April 2025

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Reditus Reference: 25093L01

**Amendment Report – Groundwater Related Submissions**
**Concept State Significant Development – Gregory Place Build-to-Rent (SSD-31179510)**
Proposed Mixed Residential & Commercial Development
2A Gregory Place, Harris Park NSW

# 1 Amendment Report – Groundwater Related Submissions

Reditus Consulting Pty Ltd (Reditus) has been engaged by 2A GREGORY PLACE PTY LIMITED to provide professional hydrogeological advice in response to the groundwater related submissions raised following submission of the Concept State Significant Development (SSD) application.

Reditus have provided responses to the corresponding groundwater related submissions within **Table 1** below.

**Table 1:** Groundwater Related Submission and Reditus' Response to Concept SSD Application.

| RAISED BY | SUBMISSION AND RESPONSE |
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| **Department of Planning and Environment Water Assessments** | *DPE Water has reviewed the Environmental Assessment and provides the following recommendations. The proponent should:*<br>1. *provide an assessment of the activities against the 'minimal impact considerations' of the NSW Aquifer Interference Policy (AIP).*<br>2. *provide estimates of groundwater take during construction and operation of the proposed development.*<br>3. *ensure sufficient water entitlement is held in a Water Access Licence/s to account for the maximum predicted take for each water source before any take commences (unless an exemption applies)* |
| **Reditus Response** | Based on a review of the proposed SSD concept design and the groundwater assessment results reported in the Geotechnical Investigation Report (Alliance 21 February 2022), Reditus provide the following opinions to the corresponding submission number above:<br>1. The basement for the concept SSD extends into a superficial alluvial aquifer, which is considered an 'aquifer interference activity' under the Water Management Act (WMA) 2000 and Aquifer Interference Policy.<br>The concept SSD is located within the Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2023 – Sydney Basin Central Groundwater Source.<br>The NSW DPE (October 2023) Groundwater Impact Assessment Criteria (Table E) list the impact assessment criteria that are applied by DPE Water in undertaking impact assessment for approval applications. The impact assessment criteria are triggered by drawdown distances of the proposal to (a) High-Priority Groundwater Dependent Ecosystems (GDEs) identified in the Water Sharing Plan, (b) 3rd or higher order connected surface water source, (c) other approved Water Supply Works.<br>Based on the above, the concept SSD (as either permanently drained or temporary dewatering for a tanked basement) is unlikely to exceed the above impact assessment criteria given that the drawdown from the concept SSD would be limited to <1m at approximately 65m distance, and that (a) the nearest high-priority GDE is located over 5km distance, (b) the nearest 3rd or high order stream is over 300m distance, and (c) the nearest water supply works is over 100m distance. As such, the concept SSD could be considered to have 'Minimal Impact' under the WMA 2000 and NSW Aquifer Interference Policy, therefore would have the ability to obtain necessary approvals under the WMA 2000.<br>Once detailed design information is available (providing accurate dimensions of the basement |

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| | structure), a Site Hydrogeology Report and Dewatering Management Plan, incorporating a groundwater take and impact assessment specific to final SSD design, can be completed to obtain the necessary approvals under the WMA 2000 from the department.<br>2. Conservative preliminary estimates of groundwater take of 4.7 to 57.5ML/year for the concept SSD was provided in the Geotechnical Investigation Report (Alliance 21 February 2022), based on a steady-state groundwater radial flow equation.<br>Once detailed design information is available (providing accurate dimensions of the basement structure), a Site Hydrogeology Report and Dewatering Management Plan, incorporating a groundwater take and impact assessment specific to final SSD design, can be provided to obtain the necessary approvals under the WMA 2000.<br>3. Reditus note that there are significant volumes (GLs) of unassigned groundwater entitlements available within the Sydney Basin Central Groundwater Source which can be sourced through controlled allocation orders, or otherwise simply purchased from a commercial water trader. Reditus note that if required (for volumes >3ML/yr), this would be form part of a condition to a Water Supply Works approval under the WMA 2000. |
| **Public Submission** | Heritage trees in the reserve are not adequately considered, nor their connection between cottages. |
| **Reditus Response** | The Heritage Trees are unlikely to be dependent on the groundwater based on the following:<br>• The NSW DCCEEW spatial layer of HEVAE Vegetation GDEs in NSW, does not map any vegetation GDEs within 300m of the concept SSD area.<br>• The Australian Government Bureau of Meteorology Groundwater Dependent Ecosystems Atlas does not map any potential terrestrial (vegetation) GDEs within 1.8km of the concept SSD area.<br>• The theoretical maximum groundwater drawdown directly at the basement edge would be approximately <5m depth. At 10m distance, the drawdown is estimated at <3m. Capillary rise from groundwater table in a Clay soil type is typically estimated at approximately 2.5m and up to several meters. Given that root depths of trees (including typical Sclerophyllous Forest trees of oaks and eucalyptus; coniferous pines and deciduous trees) typically extend >3m depth (and up to the 10s of metres deep), the groundwater is unlikely impact the Heritage Trees.<br>• Regardless, management and mitigation measures could be developed to ensure watering of Heritage trees is maintained. |
| **Department of Planning** | 1. *The proposal may require development within waterfront land as defined under the Water Management Act 2000 and the riparian zone as per the Guidelines for controlled activities on waterfront land (Natural Resources Access Regulator).*<br>2. *An assessment must be undertaken of the potential impacts of the development to waterfront land. This assessment must identify any appropriate mitigation measures and regulatory approvals, if applicable.*<br>3. *Provide an assessment of whether the development, including all construction activities, would meet the definition of an aquifer interference activity as defined by the Water Management Act 2000.* |
| **Reditus Response** | 1. Reditus consider that the development is exempt from requiring approval for works within waterfront land, as Clay Cliff Creek is a 'fully concrete lined' watercourse, under Part 2 Schedule 4 Clause 28 of the Water Management (General) Regulation 2018.<br>Clay Cliff Creek, a 'fully concrete lined' watercourse, traverses through the southwest section and along the southern boundary of the concept SSD property. The concept SSD would include development approximately 5m distance from the Clay Cliff Creek high-bank level. Therefore, a proportion of the proposed SSD will occur within 40m of the high-bank and as such is considered 'waterfront land' under the WMA 2000.<br>The Water Management (General) Regulation 2018 specifies a number of exemptions. Clause 42 states:<br>*"A person (other than a public authority) is exempt from section 91E(1) of the Act in relation to controlled activities specified in Part 2 of Schedule 4 that are carried out in, on or under waterfront land."*<br>the Act means:<br>"the Water Management Act 2000." |

Clause 91E (1) of the Water Management Act 2000 No 92 states:

*"91E Carrying out controlled activity without, or otherwise than as authorised by, a controlled activity approval*
*(1) A person—*

*(a) who carries out a controlled activity in, on or under waterfront land, and*

*(b) who does not hold a controlled activity approval for that activity, is guilty of an offence."*

Part 2 Schedule 4 of the Water Management (General) Regulation 2018 defines the controlled activities exemptions. Clause 28 relates specifically to Activities on waterfront land if river is concrete lined or in pipe, which states the following exemption:

*"Any activity carried out on waterfront land relating to a river where the channel of the river is fully concrete lined or is a fully enclosed pipe channel."*

This clause provides an exemption to the "Controlled Activities" in the Water Management Act 2000, including the requirement for a Riparian Zone Management Assessment.

2. Exemption applies for a Controlled Activity, for reasons stated above. Therefore, an assessment of the potential impacts of the development to waterfront land is not applicable.
3. The basement for the concept SSD extends into a superficial alluvial aquifer, which is considered an 'aquifer interference activity' under the Water Management Act (WMA) 2000 and Aquifer Interference Policy.
   NSW DCCEEW are the regulatory approval authority for these matters, which has been discussed in our previous responses above.

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We trust that this document meets your immediate requirements and has adequately addressed the submissions for the concept SSD application (prior to more detailed design SSD application). Should you have any queries please feel free to contact the undersigned.

Sincerely,

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**Reditus Consulting Pty Ltd**

# 2 Limitations

The report or document does not purport to provide legal advice and any conclusions or recommendations made should not be relied upon as a substitute for such advice. Reditus prepared this report in a manner consistent with the normal level of care and expertise exercised by members of the environmental and hydrogeological assessment profession.

The report does not constitute a recommendation by Reditus for the client or any other party to engage in any commercial or financial transaction and any decision by the client or other party to engage in such activities is strictly a matter for the client.

All groundwater models include some degree of uncertainty in their predictions as they are, by necessity, simplifications of complex real world systems. Whilst every effort is made to ensure that the primary model reflects the 'best case', 'most likely' case and 'upper case' understanding of site conditions, this cannot be guaranteed and any model result presented as a single number should be viewed with a degree of caution. Factors which significantly affect the groundwater model and impact assessment results include dewatering rate, dewatering design, dewatering period, aquifer characteristics and degree of aquifer variability (including hydraulic conductivity, specific yield/ storativity, porosity, recharge, heterogeneity).

The report relies upon data, surveys, measurements and results taken at or under the site at particular times and conditions specified herein. Any findings, conclusions or recommendations only apply to the aforementioned circumstances and no greater reliance should be assumed or drawn by the client. Furthermore, the report has been prepared solely for use by the client and Reditus accepts no responsibility for its use by other parties. The client agrees that Reditus' report or associated correspondence will not be used or reproduced in full or in part for promotional purposes and cannot be used or relied upon by any other individual, party, group or company in any prospectus or offering. Any individual, party, group or company seeking to rely this report cannot do so and should seek their own independent advice.

No warranties, express or implied, are made. Subject to the scope of work undertaken, Reditus assessment is limited strictly to identifying typical environmental conditions associated with the subject property based on the scope of work and testing undertaken and does not include and evaluation of the structural conditions of any buildings on the subject property or any other issues that relate to the operation of the site and operational compliance of the site with state or federal laws, guidelines, standards or other industry recommendations or best practice. Scope of work undertaken for assessments are agreed in advance with the client and may not necessarily comply with state or federal laws or industry guidelines for the type of assessment conducted.

Additionally, unless otherwise stated Reditus did not conduct soil, air or wastewater analyses including asbestos sampling of any kind. Nor did Reditus investigate any waste material from the property that may have been disposed off the site, or undertake and assessment or review of related site waste management practices.

The results of this assessment are based upon (if undertaken as part of the scope work) a site inspection conducted by Reditus personnel and/or information from interviews with people who have knowledge of site conditions and/or information provided by regulatory agencies. All conclusions and recommendations regarding the property are the professional opinions of the Reditus personnel involved with the project, subject to the qualifications made above.

While normal assessments of data reliability have been made, Reditus assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements from sources outside of Reditus, or developments resulting from situations outside the scope of this project/assessment.

Reditus is not engaged in environmental auditing and/or reporting of any kind for the purpose of advertising sales promoting, or endorsement of any client's interests, including raising investment capital, recommending investment decisions, or other publicity purposes. Reditus assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements from sources outside of Reditus, or developments resulting from situations outside the scope of this project.

Information relating to soil, groundwater, waste, air or other matrix conditions in this document is considered to be accurate at the date of issue. Surface, subsurface and atmospheric conditions can vary across a particular site or region, which cannot be wholly defined by investigation. As a result, it is unlikely that the results and estimations presented in this report will represent the extremes of conditions within the site that may exist. Subsurface conditions including contaminant concentrations can change in a limited period of time and typically have a high level of spatial heterogeneity.

From a technical perspective, there is a high degree of uncertainty associated with the assessment of subsurface, aquatic and atmospheric environments. They are prone to be heterogeneous, complex environments, in which small subsurface features or changes in geologic conditions or other environmental anomalies can have substantial impact on water, air and chemical movement.

Major uncertainties can also occur with source characterisation, assessment of chemical fate and transport in the environment, assessment of exposure risks and health effects, and remedial action performance. These factors make uncertainty an inherent feature of potentially impacted sites. Technical uncertainties are characteristically several orders of magnitude greater at impacted sites than for other kinds of projects.

Reditus' professional opinions are based upon its professional judgment, experience, and training. These opinions are also based upon data derived from the limited testing and analysis described in this report or reports reviewed. It is possible that additional testing and analysis might produce different results and/or different opinions or other opinions. Reditus has limited its investigation(s) to the scope agreed upon with its client. Reditus believes that its opinions are reasonably supported by the testing and analysis that has been undertaken (if any), and that those opinions have been developed according to the professional standard of care for the environmental consulting profession in this area at this time. Other opinions and interpretations may be possible. That standard of care may change and new methods and practices of exploration, testing and analysis may develop in the future, which might produce different results.