



# **SEED Stage 1B**

**State Significant Development – SSD-99079487  
1669-1723 Elizabeth Drive, Badgerys Creek**

## **Water and Stormwater Management Plan**

**CLIENT/ Mirvac  
DATE/ March 2026  
CODE/ 16-369**

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Document Registration

|                    |                                                                                                                   |
|--------------------|-------------------------------------------------------------------------------------------------------------------|
| Document Title     | SEED Stage 1B – Water and Stormwater Management Plan                                                              |
| Document File Name | REP009B-05-16-369-SSDA WSMP                                                                                       |
| Section            | Civil / Urban Water Management                                                                                    |
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| Issue | Description                   | Date       | Author                       | Checked                             | Approved                            |
|-------|-------------------------------|------------|------------------------------|-------------------------------------|-------------------------------------|
| 01    | Draft Issue                   | 17/12/2025 | Dane Segail and Winston Phan | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 02    | Draft Issue                   | 29/01/2026 | Dane Segail and Winston Phan | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 03    | Draft Issue                   | 23/02/2026 | Dane Segail and Winston Phan | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 04    | Issue for Test of Adequacy    | 02/03/2026 | Dane Segail and Winston Phan | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 05    | Reissued for Test of Adequacy | 04/03/2026 | Dane Segail and Winston Phan | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
|       |                               |            |                              |                                     |                                     |

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# 1. Introduction

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Mirvac is seeking approval for a new DA for the construction and operation of Warehouses 1, 4, 5, 7 and 8, a café and regional stormwater basin at 1669-1723 and 1669A Elizabeth Drive, Badgerys Creek. This forms the second stage of development works envisaged under the SEED Stage 1 Concept Proposal (SSD-19618251) and is referred to as the "**SEED Stage 1B**".

For clarity, any reference to the now approved SSD-19618251, which covers the Stage 1A and Concept Masterplan approval for the SEED Site, is referred to as EEP Stage 1A, consistent with the Stage 1A application and naming conventions. The use of the newer name, SEED, is applied to all subsequent applications, including this SSD application for the Stage 1B works.

The development of the SEED Site has been separated into multiple stages:

- **Stage 1A** was assessed as a State Significant Development by the NSW Department of Planning, Housing and Infrastructure under SSD-19618251. EEP Stage 1A (SSD-19618251) was approved on 04/02/2026, and includes the development of the Stage 1 infrastructure and the development of Warehouses 2 and 6 on Lots 2 and 6 respectively.
- **Stage 1B** (specifically related to the Lots 1, 4, 5, 7, 8, Café (Lot 3) and Regional Stormwater Basin SC09), being the subject of this report.
- **Stage 2** development of the balance of the SEED site, which will be the subject of a future development application.

The SEED Stage 1B Development seeks approval for the following:

- Construction of the following warehouse buildings for the purpose of warehouse and distribution centres (including warehouse building GFA, ancillary office GFA, hardstand areas for loading/unloading/vehicular manoeuvring and on-lot car parking):
  - ▶ Warehouse 1 (Lot 1) comprising 4,130sqm of GFA and 31 car parking spaces;
  - ▶ Warehouse 4 (Lot 4) comprising 8,990sqm of GFA and 55 car parking spaces;
  - ▶ Warehouse 5 (Lot 5) comprising 6,840sqm of GFA and 42 car parking spaces;
  - ▶ Warehouse 7 (Lot 7) comprising 40,410sqm of GFA and 183 car parking spaces;
  - ▶ Warehouse 8 (Lot 8) comprising 21,370sqm of GFA and 98 car parking spaces; and
  - ▶ Operating hours for Warehouse Buildings 1, 4, 5, 7 and 8 for 24 hours, 7 days a week.
- Estate café comprising 300sqm of GFA, 24 car supporting parking spaces as part of the Edge Amenity node. Operating hours for the Estate café from 5am to 5pm, 7 days a week;
- Construction of Sydney Water Regional Stormwater Basin SC09 (through a Developer Works Agreement with Sydney Water Corporation (SWC) which will eventually be acquired by SWC);
- Landscaping, including on-lot landscaping and amenity areas, street reserve landscaping and estate amenity nodes;
- Construction of some new on-lot retaining walls to manage level differences between development lots; and
- Estate wayfinding signage.

— The SEED Stage 1B SSDA masterplan is shown below in **Figure 1**.

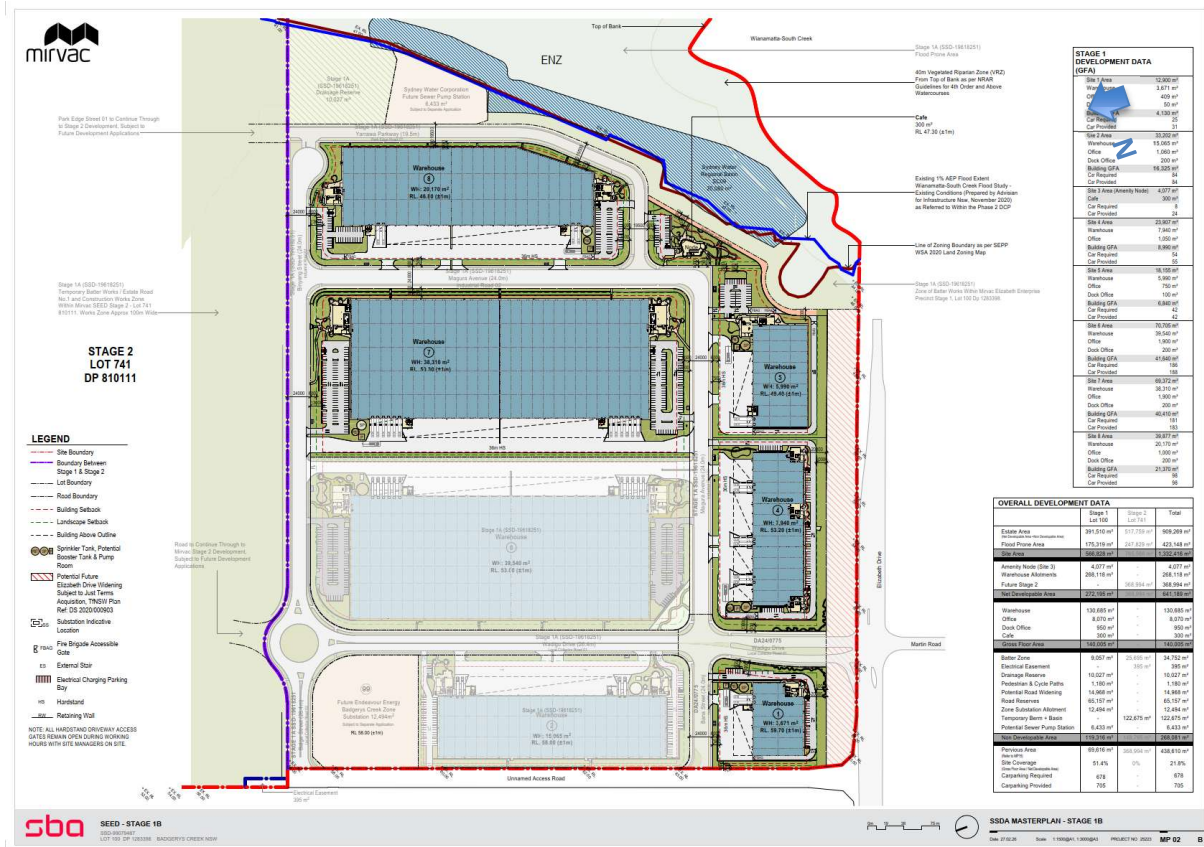


Figure 1: SEED Stage 1B SSDA Masterplan (from SBA Architects dated 27 Feb 2026)

This proposal concerns the construction and operation of remaining warehouse buildings established under the SEED Stage 1 Concept Masterplan and further to the site preparation works approved under the Stage 1A Development approval.

## Modifications to SEED Stage 1

- Re-distribution of warehouse and ancillary office GFA across Warehouse Buildings 1, 4, 5, 7 and 8 to align with the proposed SEED Stage 1B designs (net-zero change to the total GFA across these warehouse buildings);
- Minor increase to the café GFA by 150sqm for consistency with SEED Stage 1B requirements;
- Refinement to the approved levels and retaining walls for consistency with SEED Stage 1B requirements. This includes adjustment to Lot 8s FFL as well as refinements to the design of some approved retaining walls;
- Update to the cumulative stormwater management strategy for SEED to reflect changes to the intended development outcome at the Aspect Industrial Estate (AIE) site that is being progressed under a separate application; and
- An optional contingency to modify the interim evaporation basin within the SEED Stage 2 land.

The development sought as part of this proposal and the development under SSD-19618251 will deliver a unified, staged development of the overall Precinct. Refer to Stage 1A MOD 1 drawing package 16-369-C1000 MOD 1 Series for more information.

Further, EEP Stage 1A MOD1 will be submitted concurrently to Stage 1B SSDA to support the minor amendments to the infrastructure retaining walls located within Lots 1, 4 and 7, as well as an update to the stormwater management strategy to align with SEED Stage 1B.

The proposed developments for Stage 1B (Lots 1, 4, 5, 7, 8, Café), except for the Regional Basin SC09, will be supported by the water management strategy from Stage 1A which includes the interim evaporation basin in Stage 2 lands. The Stage 1B water management strategy builds on the Stage 1A estate water management

strategy and proposes three development scenarios, **Scenario A**, **Scenario B** and **Scenario C** (further described below). The proposed SEED Stage 1B stormwater management strategy supersedes the cumulative water management strategy proposed in EEP Stage 1A.

The three development scenarios include the following general development across both SEED and the Aspect Industrial Estate (AIE) sites:

- Development **Scenario A**
  - ▶ AIE is assumed to **not** be linked to SEED, and as such, compliance is sought for the development at SEED only under this development scenario.
  - ▶ EEP Stage 1A, including warehouses 2 and 6 (SSD-19618251)
  - ▶ SEED Stage 1B, including warehouses 1, 4, 5, 7, 8 and cafe (i.e. the development being sought as part of this SSDA)
  - ▶ Sydney Water Basin SC09 (offline)
- Development **Scenario B**
  - ▶ AIE Stage 6, including warehouses 4 and 6 (warehouses 1, 2, 3, 7, 8 and 9 are removed due to SSA allocation) and
  - ▶ EEP Stage 1A, including warehouses 2 and 6 (SSD-19618251)
  - ▶ SEED Stage 1B, including warehouses 1, 4, 5, 7, 8 and cafe (i.e. the development being sought as part of this SSDA)
  - ▶ Sydney Water Basin SC09 (offline)
  - ▶ An amendment to the cumulative stormwater management strategy will be submitted as a future modification to AIE SSDA-10448. If required, a modification will also be submitted as a future modification to EEP Stage 1A SSD-19618251 to align the cumulative stormwater management.
- Development **Scenario C**
  - ▶ AIE Stage 5, including warehouses 1, 2, 3, 6, 7 (incl. Café), 8 & 9, and
  - ▶ EEP Stage 1A, including warehouses 2 and 6 (SSD-19618251)
  - ▶ SEED Stage 1B, including warehouses 1, 4, 5, 7, 8 and cafe (i.e. the development being sought as part of this SSDA)
  - ▶ Sydney Water Basin SC09 (offline)
  - ▶ An amendment to the cumulative stormwater management strategy will be submitted as a future modification to AIE SSDA-10448. If required, a modification will also be submitted as a future modification to EEP Stage 1A SSD-19618251 to align the cumulative stormwater management.

The following documentation are referred to throughout and should be read in conjunction with this report:

- EEP Stage 1A Civil Infrastructure Report (AT&L, December 2025)
- EEP Stage 1A Water and Stormwater Management Plan (AT&L, December 2025)
- EEP Stage 1A Erosion and Sediment Control Plan (AT&L, December 2025)
- SEED Stage 1B Civil Infrastructure Report (AT&L, March 2026)
- SEED Stage 1B Erosion Sediment Control Plan (AT&L, March 2026)
- SEED Stage 1B Services Infrastructure Assessment (AT&L, March 2026)
- SEED Lot 1 Onlot Civil Works Package 8300 Series (AT&L, December 2025), and SEED Lot 1 ESCP Package 8350 Series (AT&L, January 2026)
- SEED Lot 4 Onlot Civil Works Package 8400 Series (AT&L, December 2025)
- SEED Lot 5 Onlot Civil Works Package 8500 Series (AT&L, January 2026), and SEED Lot 4 & Lot 5 ESCP Package 8550 Series (AT&L, January 2026)
- SEED Lot 7 Onlot Civil Works Package 8100 Series (AT&L, November 2025), and SEED Lot 7 ESCP Package 8150 Series (AT&L, November 2025)
- SEED Lot 8 Onlot Civil Works Package 8200 Series (AT&L, January 2026), and SEED Lot 8 ESCP Package 8250 Series (AT&L, November 2025)

- SEED Cafe Onlot Civil Works Package 8600 Series (AT&L, January 2026), and SEED Café ESCP Package 8650 Series (AT&L, February 2026)
- Regional Basin SC09 Functional Design 4000 Series Drawings (AT&L, January 2026)
- SEED Stage 1B SSD Stormwater Management 12000 Series Drawings (AT&L, January 2026)
- Flood Impact Assessment: Elizabeth Drive Enterprise Precinct, Stantec, March 2024.
- Flood Impact Risk Assessment, SEED – Stage 1B, Badgerys Creek, Stantec, February 2026.
- Elizabeth Enterprise Precinct, Badgerys Creek (SEED), Stage 1B Geotechnical Assessment for SEARs, Pells Sullivan Meynick, PSM3530-048L, Rev 3, March 2026
- Various geotechnical reports including:
  - ▶ 1669-1723 Elizabeth Drive Badgerys Creek (EDEP), Stage 1 – Desktop Study and Results of Geotechnical Investigation, Pells Sullivan Meynick, PSM3530-002L Rev6, September 2022
  - ▶ Elizabeth Enterprise Precinct (EEP) Stage 1 and 2 Geotechnical Investigation Report, Pells Sullivan Meynick, PSM3530-018R Rev4, March 2025
  - ▶ 1669-1723 Elizabeth Drive, Badgerys Creek SEED Stage 1 & 2 – Bulk Earthwork Specification Filling, Cutting and Testing, Pells Sullivan Meynick, PSM3530-004S Rev 9, 16 October 2025
  - ▶ Interim Geotechnical Design Advice, Pells Sullivan Meynick, PSM3530-003L Rev7, March 2025
  - ▶ Soil Salinity and Aggressivity Investigation, Pells Sullivan Meynick, PSM3530-020L Rev3, March 2025
  - ▶ Soil Salinity Management Plan, Pells Sullivan Meynick, PSM3530-011L Rev4, March 2025
  - ▶ Mirvac SEED, Elizabeth Drive, Badgerys Creek – Evaporation Basin – Results of Infiltration Investigation, Pells Sullivan Meynick, PSM3530-030L Rev1, April 2025
  - ▶ Groundwater Seepage Analysis, Pells Sullivan Meynick, PSM3530-035L Rev2, October 2025
  - ▶ Geotechnical Advice for Evaporation basin and Basin A, Pells Sullivan Meynick, PSM3530-041L, November 2025

## 2. Conditions of Consent & Compliance with SEARs

### 2.1. SSD-19618251 Conditions of Consent Relating to Future Development Works

The Concept Masterplan and EEP Stage 1A works for the Site was assessed and approved under SSD-19618251. The approval of SSD-19618251 includes conditions of consent for future development applications, which will apply to the proposed development of Lots 1, 4, 5, 7, 8 and Café.

Relevant conditions of consent that are addressed in this report are summarised in **Table 1**.

**Table 1: Conditions of consent under SSD-19618251 applicable to the proposed development of Lots 1, 4, 5, 7, 8 and Café**

| Condition                                                                                                                                                                                                                                                                                                                                                                                               | AT&L Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Stormwater Management</b>                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <i>B12. Future development on the site must achieve compliance with the Integrated Water Cycle Management (IWCM) controls in the DCP and the waterway health objectives and targets in the Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets (Technical Guidance) (NSW Government, 2022).</i>                                                                       | <p>Refer to <b>Section 9</b>, <b>Section 10</b> and <b>Section 11</b> of AT&amp;L's SEED Stage 1B Water and Stormwater Management Plan for the performance assessment demonstrating compliance to IWCM controls.</p> <p>The other DCP required stormwater management measures include the provision of a gross pollutant trap (refer <b>Section 12.4</b>), on-site detention (refer <b>Section 8.3.3</b>) and passively irrigated street trees (refer <b>Section 8.3.1</b>).</p> <p>The construction phase erosion and sediment controls are detailed in AT&amp;L SEED Stage 1B Erosion and Sediment Control Plan.</p> |
| <i>B13. The Applicant must ensure sufficient land is reserved on site for stormwater management purposes (such as irrigation areas, bioretention, stormwater basin and/or undeveloped land), unless the Applicant provides evidence to the satisfaction of the Planning Secretary that an agreement is in place to demonstrate that the development is connected to the Regional Stormwater Scheme.</i> | Refer to <b>Section 8.3</b> of AT&L's SEED Stage 1B Water and Stormwater Management Plan for the proposed stormwater management measures.                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <i>B14. Future DAs must include an updated Stormwater Management System Design. The design must:</i>                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <i>(a) be prepared in consultation with the CPHR, Sydney Water and Council;</i>                                                                                                                                                                                                                                                                                                                         | AT&L confirm that the SMS has been prepared in consultation with CPHR, Sydney Water and Council.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <i>(b) be prepared by a suitably qualified chartered professional engineer with experience in modelling, design, and supervision of WSUD systems;</i>                                                                                                                                                                                                                                                   | <p>AT&amp;L confirm that the SMS has been prepared by a suitably qualified chartered professional engineer with experience in modelling, design, and supervision of WSUD systems.</p> <p>If and when required, AT&amp;L can provide further details to confirm this requirement.</p>                                                                                                                                                                                                                                                                                                                                   |

| Condition                                                                                                                                                                                                                                                                                                      | AT&L Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>(c) consider the approved stormwater management system for preceding stages of the development, including compliance of this system with the IWCM controls of the DCP and the findings of the Independent Review required under condition D32;</i>                                                          | <p>Refer to AT&amp;L's SEED Stage 1B Water and Stormwater Management Plan for details.</p> <p>The Stage 1B WSMP will be updated with the findings and recommendations from the Independent Review of the Stage 1A stormwater management system prior to formal lodgement.</p>                                                                                                                                                                                                                                                        |
| <i>(d) demonstrate the relevant stage can comply with the IWCM controls of the DCP and the Technical Guidance, including updated MUSIC modelling that includes the relevant stage and other approved and constructed stages of the Concept Proposal;</i>                                                       | <p>The proposed SMS considers the relevant stage and other approved constructed stages and is confirmed through updated MUSIC modelling. Refer to <b>Section 9, Section 10</b> and <b>Section 11</b> of AT&amp;L's SEED Stage 1B Water and Stormwater Management Plan for the performance assessment demonstrating compliance to IWCM controls.</p>                                                                                                                                                                                  |
| <i>(e) include details of the design and delivery of regional stormwater basin 09 as required by condition A13, that has been prepared in consultation with the Regional Stormwater Authority;</i>                                                                                                             | <p>Refer to <b>Section 8.3.4</b> of AT&amp;L's SEED Stage 1B Water and Stormwater Management Plan for details.</p> <p>AT&amp;L can confirm that the design of regional stormwater basin 09 was prepared in consultation with Sydney Water. Refer to AT&amp;L 16-369 C4000 Series Basin SC09 Functional Design Drawings.</p>                                                                                                                                                                                                          |
| <i>(f) include details of the design and delivery timeframe for regional stormwater basins 10, 11 and 12 located on Lot 741 in DP 810111, including details of consultation with the Regional Stormwater Authority;</i>                                                                                        | <p>Regional basins SC10, SC11 and SC12 located in SEED Stage 2 lands, are intended to form part of a future development by Mirvac as part of the Stage 2 SSDA. Subject to the timing of the Stage 2 SSD approval, completion of the Regional Basins SC10, SC11 and SC12 are forecast to be completed in Q1/Q2 2028. The Regional basins SC10, SC11 and SC12 form part of the SEED Stage 2 interim stormwater management strategy and will be required to be constructed prior to operation of the first building within Stage 2.</p> |
| <i>(g) include an assessment of any impacts on salinity and sodic soils from the future development including any proposed WSUD infrastructure; and</i>                                                                                                                                                        | <p>Refer to Geotechnical report addressing salinity and sodic soils.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <i>(h) detail any infrastructure required to connect the relevant stage to the Regional Stormwater Scheme and how interim infrastructure (including rainwater tanks, bio-retention, stormwater basin and irrigation system) will be decommissioned following connection to the Regional Stormwater Scheme.</i> | <p>Refer to <b>Section 8</b> of AT&amp;L's SEED Stage 1B Water and Stormwater Management Plan for details.</p>                                                                                                                                                                                                                                                                                                                                                                                                                       |

## 2.2. SEED Stage 1B Secretary's Environmental Assessment Requirements (SEARs)

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (SEARs) dated 8 December 2025 and issued for the SSDA (SSD-99079487). Specifically, this report has been prepared to respond to the SEARs requirement and government agency comments issued below in **Table 2**.

**Table 2: Planning Secretary's Environmental Assessment Requirements addressed in this report**

| Key issues listed in the SEARs                                                                                                                                                                                                                                                                                                                                                                    | Response                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Water Management</b> – a Water and Stormwater Management Plan prepared in accordance with Department's 'Technical guidance for achieving Wianamatta–South Creek stormwater management targets' (2022) and 'MUSIC modelling toolkit for Wianamatta–South Creek', including:                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                  |
| A site water balance detailing the potable and non-potable water demands, minimisation measures, and water supply and licensing requirements for the development                                                                                                                                                                                                                                  | Refer to <b>Section 6.3</b> of the AT&L Stage 1B Water and Stormwater Management Plan report.                                                                                                                                                                                                                                                                                                    |
| Details of the proposed stormwater/wastewater drainage design including the capacity of any onsite detention system(s), onsite sewage management and measures to treat, reuse or dispose of water, consistent with the requirements of the Western Sydney Aerotropolis Development Control Plan 2022 and the Blue Green Infrastructure framework of the Western Sydney Aerotropolis Precinct Plan | Refer to <b>Section 6</b> of the AT&L Stage 1B Water and Stormwater Management Plan report for stormwater management and drainage design.<br><br>The existing estate stormwater system is documented in approved EEP Stage 1A WSMP and the Stage 1A Civil 16-369-C1000 drawing package.<br><br>Refer to AT&L Stage 1B Services Infrastructure Report for details regarding wastewater servicing. |
| Details of how the proposed stormwater drainage system will connect to Sydney Water's regional stormwater system, including details of any interim solution, demonstrating compliance with the 'Technical guidance for achieving Wianamatta–South Creek stormwater management targets' (DCCEEW, 2022)                                                                                             | Refer to <b>Section 8.2.1</b> of the AT&L Stage 1B Water and Stormwater Management Plan report.                                                                                                                                                                                                                                                                                                  |
| Detail how the development will deliver planned regional stormwater infrastructure on the site in accordance with Sydney Water's draft Aerotropolis Integrated Stormwater Scheme Plan for Wianamatta-Badgerys Creek and Draft Scheme Infrastructure Design Guideline (Sydney Water, 2024)                                                                                                         | Refer to the <b>Section 8.2.1</b> and <b>Section 8.3.4</b> AT&L Stage 1B Water and Stormwater Management Plan report                                                                                                                                                                                                                                                                             |
| Demonstrate how the development and the Aspect Industrial Estate (SSD-10448) comply with the Technical guidance for achieving Wianamatta–South Creek stormwater management targets' (DCCEEW, 2022) for all stages of the development, including any interim stormwater management systems, and provision of MUSIC modelling files                                                                 | Refer to the <b>Section 9</b> and <b>Section 10</b> of AT&L Stage 1B Water and Stormwater Management Plan report                                                                                                                                                                                                                                                                                 |

| Key issues listed in the SEARs                                                                                                                                                                                                                                                                                                                                                                                               | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Completion of a Feasibility Assessment with Sydney Water, and evidence of Sydney Water's endorsement of the stormwater strategy                                                                                                                                                                                                                                                                                              | <p>A Feasibility Assessment was completed with Sydney Water, refer to Sydney Water Feasibility Letter dated 8 April 2025 (case number 221546).</p> <p>The stormwater strategy is unchanged from the stormwater strategy from Stage 1A which was endorsed by Sydney Water. Through our continual consultation with Sydney Water, we have discussed our proposed stormwater strategy including the Regional Basin SC09 and Sydney Water confirmed they were satisfied with progressing the delivery to Stage 1B, notwithstanding that it was not required for the interim stormwater strategy.</p> |
| An assessment of potential surface and groundwater impacts (both quality and quantity) associated with the development, including potential impacts on watercourses, riparian areas, groundwater, and groundwater-dependent communities nearby in accordance with relevant water quality guidelines and the Department of Climate Change, Energy, the Environment and Water - Water Group (DCCEEW-Water) Groundwater Toolkit | <p>Refer to <b>Section 3.3.2</b>, <b>Section 4.2</b> and <b>Section 4.3</b> of the AT&amp;L Stage 1B Water and Stormwater Management Plan report.</p> <p>Further details are documented:</p> <ul style="list-style-type: none"> <li>■ PSM's Elizabeth Enterprise Precinct (EEP) Stage 1 and 2 Geotechnical Investigation Report</li> <li>■ PSM's Groundwater Seepage Analysis Report</li> <li>■ PSM's Evaporation Basin – Results of Infiltration Investigation Report</li> </ul>                                                                                                                |
| Details of any mapped waterways or riparian corridors on site                                                                                                                                                                                                                                                                                                                                                                | <p>Refer to <b>Section 4</b> of the AT&amp;L Stage 1B Water and Stormwater Management Plan report.</p> <p>Further details are documented:</p> <ul style="list-style-type: none"> <li>■ Ecologique's (14 Aug 2025) EEP Watercourse Assessment Summary letter</li> <li>■ EEP Stage 1 Biodiversity Development Assessment Report (Ecologique, Rev2 Jul 2025)</li> <li>■ SEED Stage 1B BDAR Waiver Request (Ecologique, Feb 2026)</li> </ul>                                                                                                                                                         |
| A description of groundwater and surface water conditions and all works/activities that may intercept, extract, use, divert or receive surface water and/or groundwater (both temporary and permanent)                                                                                                                                                                                                                       | <p>Refer to <b>Section 3.3.2</b> of the AT&amp;L Stage 1B Water and Stormwater Management Plan report.</p> <p>Further details are documented:</p> <ul style="list-style-type: none"> <li>■ PSM's Elizabeth Enterprise Precinct (EEP) Stage 1 and 2 Geotechnical Investigation Report</li> <li>■ PSM's Groundwater Seepage Analysis Report</li> <li>■ PSM's Mirvac SEED Groundwater Seepage Analysis (PSM3530-035L, Rev 2)</li> </ul>                                                                                                                                                             |
| A surface water discharge assessment in accordance with relevant EPA guidelines that provides characterisation of water quality at the point of discharge against the relevant water quality criteria using a MUSIC water quality model                                                                                                                                                                                      | <p>Refer to <b>Section 9.3.1</b> and <b>Section 10.3.1</b> of the AT&amp;L Stage 1B Water and Stormwater Management Plan report.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

| Key issues listed in the SEARs                                                                                                                                                                                                                                                                                                                                                      | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Where water and drainage infrastructure works are required that would be handed over to the local council, or other drainage or water authority, provide full hydraulic details and detailed plans and specification of proposed works that have been prepared in consultation with, and comply with the relevant standards, the local council or other drainage or water authority | <p>All proposed stormwater and drainage works within Lot 1, 4, 5, 7, 8 and Café are to be owned and maintained by the Proponent. All internal stormwater and drainage works within Lots Lot 1, 4, 5, 7, 8 and Café are to connect to the wider SEED Estate Stormwater network, established and constructed as part of EEP Stage 1A SSD-19618251.</p> <p>Regional basin SC09 drainage and infrastructure works have been prepared in consultation with Sydney Water. Sydney Water will be the asset owner of Regional basin SC09 in the ultimate stage/after the defect liability period. Refer to AT&amp;L Basin SC09 Feasibility Strategic Design 16-369-C4000 drawing package.</p> |
| Details of any surface or groundwater mitigation, management and monitoring activities and methodologies.                                                                                                                                                                                                                                                                           | <p>For surface water mitigation and management, refer to <b>Section 8</b> of AT&amp;L the AT&amp;L Stage 1B Water and Stormwater Management Plan report.</p> <p>For ground water mitigation and management, refer to PSM's EEP Stage 1 and 2 Geotechnical Investigation Report for more information.</p> <p>Further details are documented:</p> <ul style="list-style-type: none"> <li>■ PSM's Elizabeth Enterprise Precinct (EEP) Stage 1 and 2 Geotechnical Investigation Report</li> <li>■ PSM's Mirvac SEED Groundwater Seepage Analysis (PSM3530-035L, Rev 2)</li> </ul>                                                                                                        |

### 3. Statutory and Development Control Requirements

#### 3.1. Statutory Planning Controls

The Site is zoned *Enterprise (ENT)* and *Environment and Recreation (ENZ)* under the [State Environmental Planning Policy \(Precincts – Western Parkland City\) 2021](#). As the Site is located in the Badgerys Creek Precinct of the Western Parkland City, development of the Site will be subject to controls outlined in the [Western Sydney Aerotropolis Development Control Plan 2022](#).

The Site includes land that is adjacent to South Creek, including a riparian corridor and land below the extent of the 100-year ARI (1% AEP) flood that is zoned *ENZ – Environment and Recreation*.

#### 3.2. Development Control Plans

The [Western Sydney Aerotropolis Development Control Plan 2022](#) (Version 2, 26 September 2024) identifies the precinct planning principles, objectives and performance outcomes to allow precinct planning to progress.

#### 3.3. Other Relevant Policies and Guidelines

Other policies and guidelines that are relevant to the proposed development of the Site, and that should be considered as part of the planning and design development of the Site, are summarised below.

##### 3.3.1. Guidelines for Controlled Activities on Waterfront Land

Controlled Activities, as defined in the *NSW Water Management Act 2000*, are certain types of activities that are carried out on waterfront land. Waterfront land is defined under the Act as the bed of any river, lake or estuary, and the land within 40 metres of the river banks, lake shore or estuary mean high water mark.

Examples of controlled activities include erection of a building, removing or depositing material, erosion control works, channel realignment, waterway crossings (e.g., bridges or culverts) and stormwater outlets.

No works are proposed to be undertaken within 40 metres of the eastern Site boundary, which is defined by the top of bank of South Creek.

In the BDAR Waiver Request (Rev 1, Feb 2026) was prepared by Ecologique for Mirvac, the proposed construction of the Regional Basin SC09 is located in an area that does not contain any biodiversity values.

##### 3.3.2. NSW Aquifer Interference Policy

The SEARs for the SSDA for the proposed development of the Site refer to consideration of the *NSW Aquifer Interference Policy (2012)*. The *Water Management Act 2000* defines an Aquifer Interference Activity as that which involves any of the following:

- The penetration of an aquifer.
- The interference with water in an aquifer.
- The obstruction of the flow of water in an aquifer.
- The taking of water from an aquifer in the course of carrying out mining or any other activity prescribed by the regulations.
- The disposal of water taken from an aquifer in the course of carrying out mining or any other activity prescribed by the regulations.

Initial Geotechnical Site investigations undertaken by PSM in April 2018 encountered no groundwater in any of the test pits or boreholes across the Site. PSM note that based on the results of the Site investigation and the proposed earthworks, it is not expected that groundwater would be encountered during the bulk earthworks. There may be minor groundwater inflows into deep excavations (e.g. stormwater or sewer works) while perched water tables drain initially and after rain.

Additional geotechnical investigations were undertaken by PSM (fieldwork 11 Dec 2023–8 Jan 2024; report PSM3530-018R Rev 4, issued 3 Mar 2025), and no groundwater was observed during drilling. Groundwater

monitoring installed in BH02 and BH06 subsequently indicated steady levels at approximately RL 59 m (BH02) and RL 46.7 m (BH06) between 13 December 2023 and 1 February 2024.

Since the original SSDA submission, PSM have undertaken a groundwater seepage analysis in response to DCCEEW's queries, with PSM's findings in a letter dated 2<sup>nd</sup> September 2025. The letter concludes that there is no significant impact on groundwater due to the proposed development, and that the observable seepage and estimated inflows are less than daily evaporation losses. According to the letter, a water access license is not required for the proposed development given the level of predicted water inflow is less than 3ML/year.

### **3.3.3. Wianamatta-South Creek Water Quality Objectives**

In September 2022, the NSW Department of Planning and Environment (DPE) released the final version of the guideline document titled *Performance criteria for protecting and improving the blue grid in the Wianamatta–South Creek catchment*, which describes the background and methods for developing instream water quality and flow objectives for the catchment. The performance criteria adopted in the guideline were informed by extensive data collection and analysis across the Wianamatta-South Creek catchment, refer to **Figure 2**.

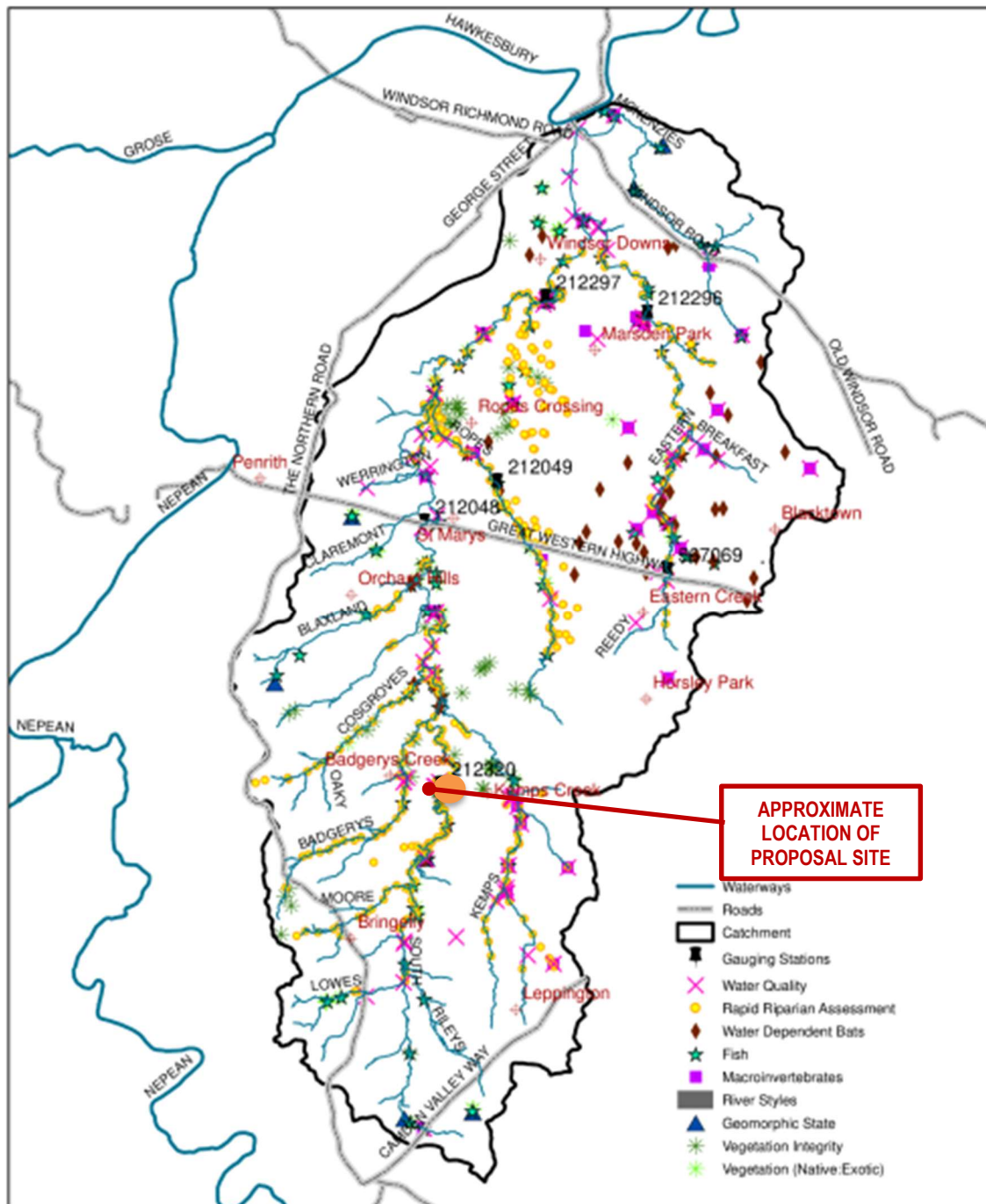


Figure 2: Locations of field monitoring sites in the Wianamatta-South Creek catchment (DPE, 2022)

The ambient water quality objectives (WQOs) of waterways and waterbodies in the Wianamatta-South Creek catchment that have been adopted in the DPE guideline are reproduced below in **Table 3**.

**Table 3: Ambient water quality of waterways and waterbodies in the Wianamatta-South Creek catchment**

| Water quality objectives             | Value      |
|--------------------------------------|------------|
| Total Nitrogen (TN)                  | 1.72 mg/L  |
| Dissolved Inorganic Nitrogen (DIN)   | 0.74 mg/L  |
| Ammonia (NH <sub>3</sub> -N)         | 0.08 mg/L  |
| Oxidised Nitrogen (NO <sub>x</sub> ) | 0.66 mg/L  |
| Total Phosphorus (TP)                | 0.14 mg/L  |
| Dissolved Inorganic Phosphorus (DIP) | 0.04 mg/L  |
| Turbidity (NTU)                      | 50 NTU     |
| Total Suspended Solids (TSS)         | 37 mg/L    |
| Conductivity                         | 1103 µS/cm |
| pH                                   | 6.20–7.60  |
| Dissolved Oxygen (DO, %SAT)          | 43–75 %SAT |
| Dissolved Oxygen (DO)                | 8 mg/L     |

## 4. Site Description and Pre-Development Site Conditions

### 4.1. Location

The SEED Site is located in the suburb of Badgerys Creek, within the Penrith Local Government Area (LGA), approximately 15 km south-east of the Penrith CBD and approximately 4 km north-east of the under-construction Western Sydney Airport. Refer to **Figure 3** below.

The Site is currently characterised as rural land and comprises some agricultural sheds and several farm dams.



**Figure 3: The Site**

### 4.2. Waterways and Vegetation

Based on large-scale topographic mapping (1:25,000 from NSW SIX Maps), there are two hydrolines that generally drain in an easterly direction towards South Creek, refer to **Figure 4**. According to Ecologique's (14 Aug 2025) EEP Watercourse Assessment Summary letter, riparian land investigations undertaken by ELA in 2019 and later confirmed through site investigations by Ecologique in 2024, found that the two mapped hydrolines do not meet the criteria to be considered a watercourse.

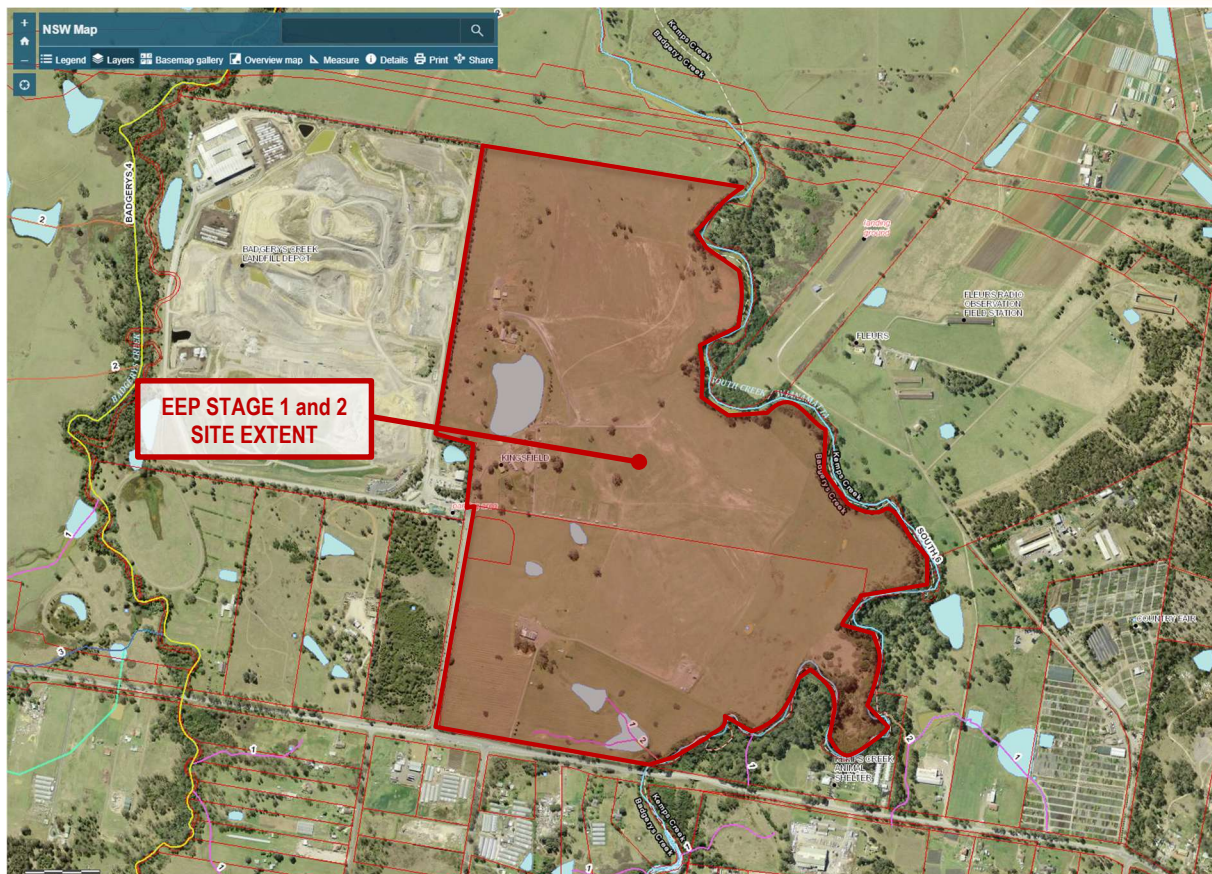


Figure 4: Hydrolines within SEED Stage 1 and 2 (Source: [NSW Online ArcGIS Map](#))

The [Western Sydney Aerotropolis \(Initial Precincts\) Riparian Corridors Assessment](#) (Sydney Water, December 2021) presents the extents of waterways in the Badgerys Creek Precinct that have been the subject of a desktop review and field assessment to confirm the presence or otherwise of the following:

- Key Fish Habitat (KFH)
- Groundwater Dependent Ecosystems (GDE)
- High Ecological Value Water Dependent Ecosystems (HEV)
- Stream order and waterways for assessment
- Waterways validated with no top of bank present
- Waterways validated with top of bank present and mapped
- Farm dam ecological assessment

A summary of the findings of the Riparian Corridors Assessment relevant to the SEED Stage 1 Site are as follows:

- The length of South Creek adjacent to the SEED Site is generally Type 2 Class 2 KFH (moderately sensitive).
- South Creek is considered an aquatic GDE. In an undeveloped state, Wianamatta-South Creek would be typically charged by groundwater. However, due to development within the catchment, the associated increase in stormwater inflows to the creek system are likely to comprise the majority of flow in Wianamatta-South Creek.
- The extent of HEV is limited to the areas within the 1% AEP flood extent and the vegetated riparian zone (VRZ) as defined by the *Water Management Act 2000*. These areas are wholly contained within the ENZ zoned land on the Site.
- There are no field validated waterways with a defined top of bank within the ENT zoned portion of the SEED Site.
- There are no waterways or dams nominated to be retained in the Riparian Corridors Assessment that are located within the ENT zoned portion of the SEED Site.

- Ecologique conducted a watercourse assessment and delivered findings in their report dated 14<sup>th</sup> of August 2025. The assessment concluded that, due to prior works undertaken by Sydney Water for the AWRC Kemps Creek pipeline installation, and absence of any defined bed, bank, or evidence of geomorphic processes, the mapped first and second order hydro lines are not watercourses.
- In a subsequent report, the SEED Stage 1B BDAR Waiver prepared by Ecologique (Rev 1 Feb 2026) includes a waterway assessment in Table 2 of the report. The waterway assessment reiterates that mapped hydro lines do not meet the criteria to be considered a watercourse. The report refers to the following factors in its assessment:
  - ▶ Absence of a defined bed or bank
  - ▶ Absence of geomorphic processes
  - ▶ No evident flow path from the farm dam to South Creek
  - ▶ Small catchment size(s) contributing to each mapped hydro line would not generate sufficient flow to sustain a watercourse
  - ▶ Recent aerial photography in 2024 does not show the 2<sup>nd</sup> order watercourse and mapped 1<sup>st</sup> order streams.

### 4.3. Water Quality

South Creek is the primary water resource that has the potential to be affected by development of the site. As discussed in **Section 2.3.2**, PSM have undertaken geotechnical investigations in 2018 and 2024 and found that there are no likely significant impacts on groundwater resources due to the proposed development. These findings were later compiled in a report by PSM 'Groundwater Seepage Analysis' dated October 2025.

The measures incorporated into the Erosion and Sediment Control Plan (applicable during the construction phase of the development) and the stormwater management strategy outlined in **Section 8.3** (applicable during operation of the proposed development) will ensure that the development of SEED Stage 1B will not impact water quality in South Creek. Further details are contained within AT&L's SEED Onlot ESCP packages.

Water quality monitoring data in South Creek near the SEED site has been reported in '[CTENVIRONMENTAL \(2025\) December 2024 Biannual Aquatic Ecosystem Monitoring Report](#)' (Prepared for Liverpool City Council). This report summarises water quality monitoring data taken at various sites, including one location at South Creek just upstream (south) of SEED. The report noted that '*water quality was variable across all freshwater monitoring sites and all sites recorded degraded water quality and impairment typical of urban streams*'.

A summary of the water quality results recorded by CTEnvironmental between July 2024 and December 2024 is presented in the following sections.

#### 4.3.1. Total Nitrogen

Total Nitrogen (TN) concentrations were typically above the WQO for South Creek (1.72 mg/l) between July 2024 and December 2024— refer to **Figure 5**.

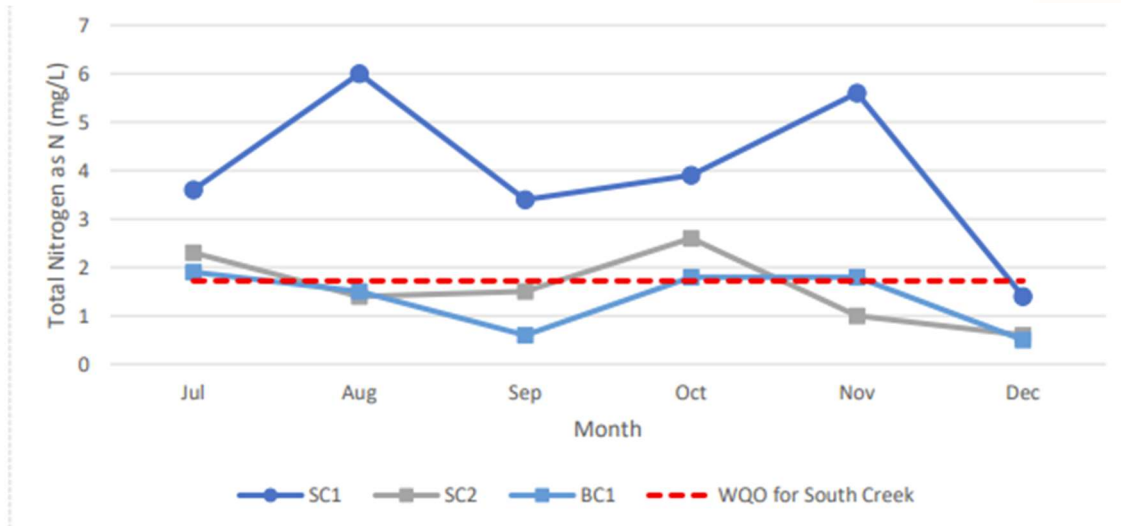


Figure 5: Total Nitrogen concentrations at South Creek and Badgerys Creek (July to November 2024)

#### 4.3.2. Total Phosphorus

Total Phosphorus (TP) concentrations were typically above the WQO for South Creek (0.14 mg/l) – refer to Figure 6.

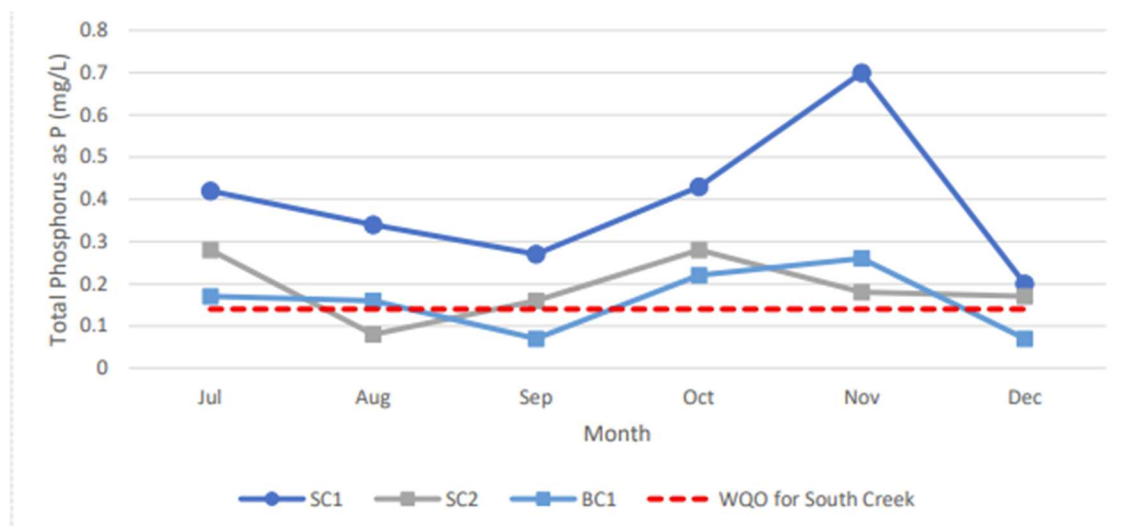


Figure 6: Total Phosphorus concentrations at South Creek and Badgerys Creek (July to November 2024)

#### 4.3.3. Turbidity

Turbidity measurements were typically below the South Creek WQO of 50 NTU – refer to Figure 7.

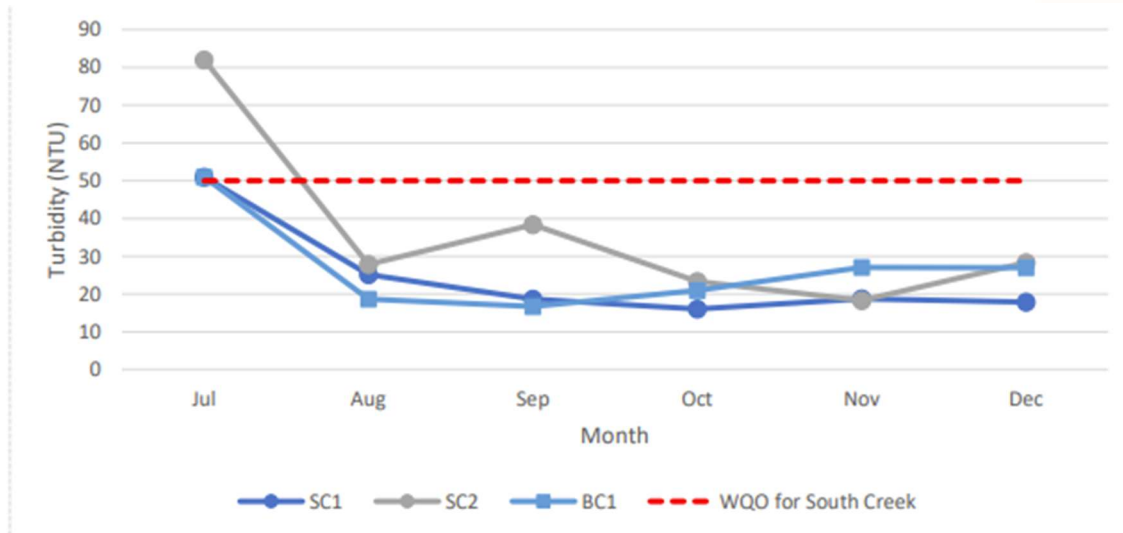


Figure 7: Turbidity measurements at South Creek and Badgerys Creek (July to November 2024)

#### 4.3.4. Electrical Conductivity

Electrical Conductivity (EC) values were found to be highly variable, with measurements in July and December being below the WQO for South Creek and the measurements in August to November inclusive being slightly below or exceeding the WQO – refer to Figure 8.

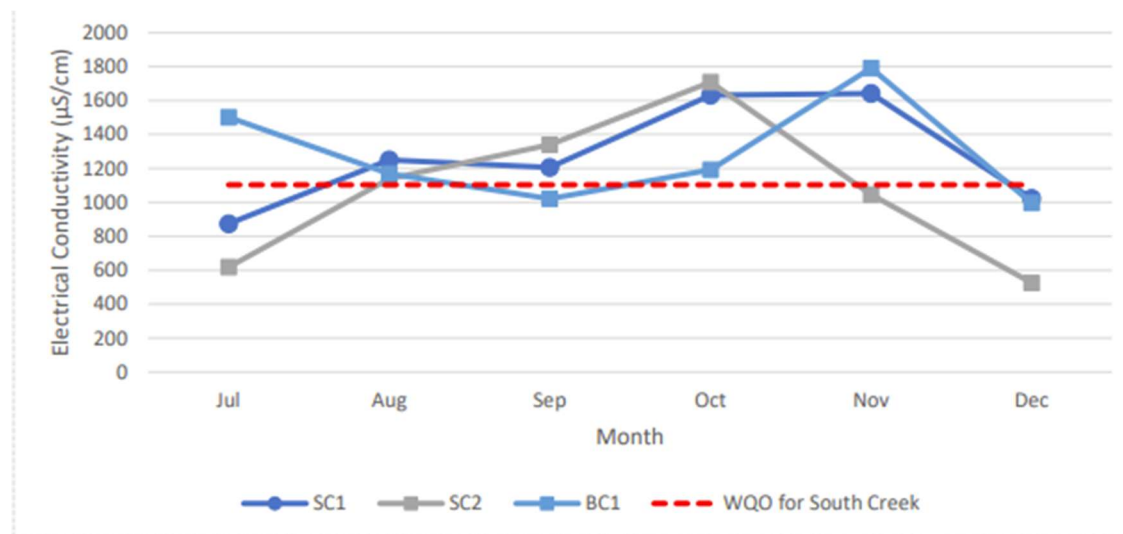


Figure 8: Electrical Conductivity measurements at South Creek and Badgerys Creek (July to November 2024)

#### 4.3.5. pH

pH measurements were within the WQO range of 6.2-7.6 at SC1. At SC2 the pH measurements generally exceeded 7.6 – refer to Figure 9

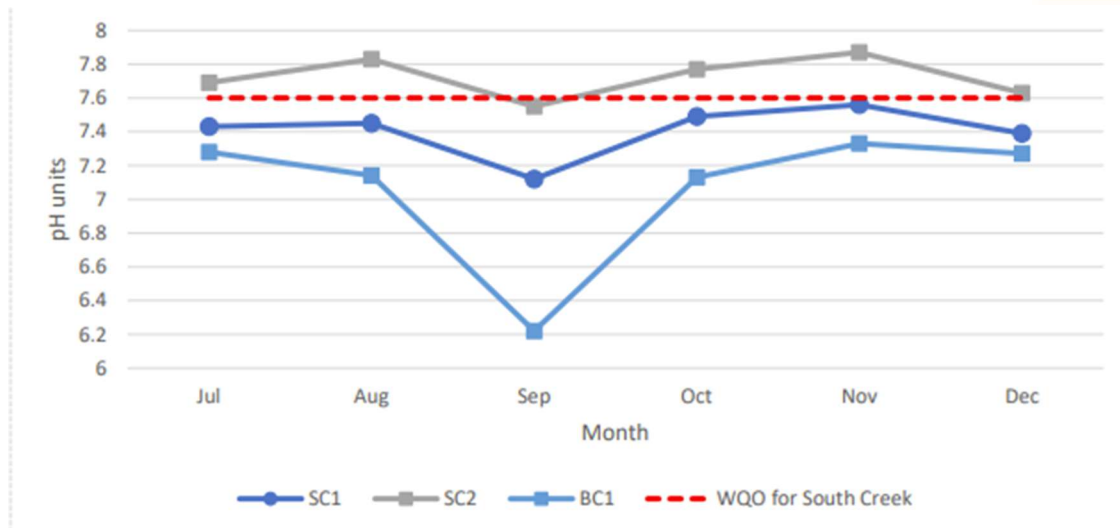


Figure 9: pH measurements at South Creek and Badgerys Creek (July to November 2024)

#### 4.3.6. Dissolved Oxygen

Dissolved Oxygen (DO) levels were above the WQO (43% saturation) in July, August and September, before falling in October to values below the WQO – refer to Figure 10.

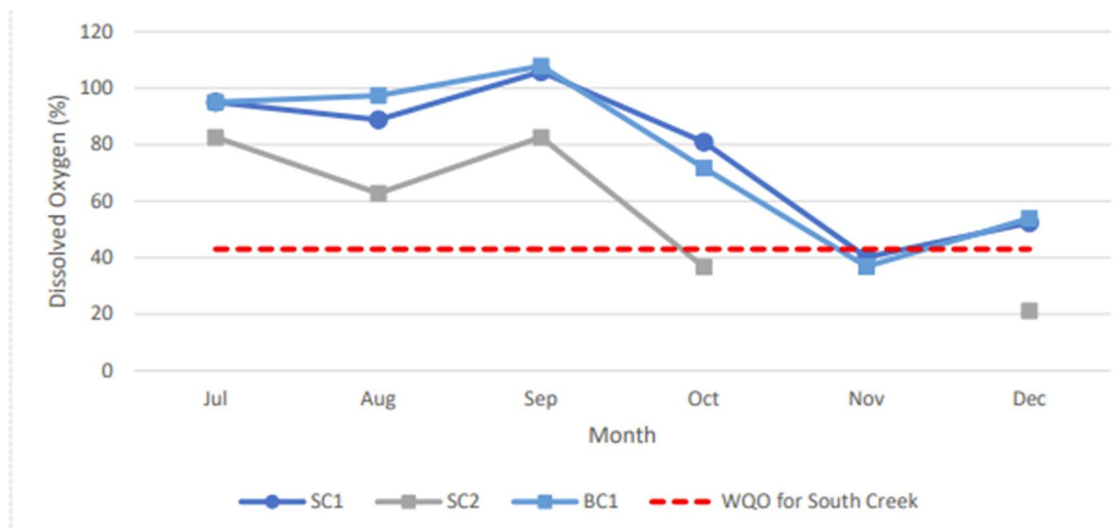


Figure 10: Dissolved Oxygen measurements at South Creek and Badgerys Creek (July to November 2024)

#### 4.4. Geology and Soils

A geotechnical investigation has been prepared for the Site by PSM (3<sup>rd</sup> March 2025 reference PSM3530-018R Rev 4). The study, while specific to pre-development conditions, is still relevant to underlying site geology for this SSD.

This study identified the following geological units within the Site extent:

- (Qal) – fluvial fine-grained sand, silt and clay in areas close to South Creek and Kemps Creek.
- (Rwb) – Bringelly shale of the Wianamatta Group consisting of shale, carbonaceous claystone, claystone, laminate, fine to medium-grained lithic sandstone, rare coal and tuff.

PSM undertook site investigation works between 11<sup>th</sup> December 2023 to 8<sup>th</sup> January 2024, consisting of 35 boreholes (to depths between 1.4m and 10.2m). Based on these tests, a summary of the inferred subsurface conditions across the Site is summarised below:

- Topsoil (up to 0.2m deep) – CLAY high plasticity, brown to dark brown grey, rootlets observed
- Fill (0 to 0.2m deep) – CLAY medium to high plasticity, pale brown to dark grey, gravel is sub-rounded to angular, up to 40mm.
- Natural soil (0.1 to 4.2m deep) – CLAY high plasticity, brown grey to grey mottled red
- Bedrock A (2.2 to 8.0m deep) – SILTSTONE grey to dark grey, extremely to moderately weathered, very low to low strength and LAMINATE (60 to 70%) SANDSTONE and (30 to 40%) SILTSTONE pale grey and yellow to brown, sandstone is medium grained, thinly laminated, extremely to highly weathered, very low strength.
- Bedrock B (3.2 to 9.6m deep) – SILTSTONE grey to dark grey, extremely to moderately weathered, very low to low strength and LAMINATE (20 to 60%) SANDSTONE and (40 to 80%) SILTSTONE pale grey to pale yellow/grey and brown, sandstone is fine to medium grained, thinly to thickly laminated, moderately to slightly weathered, with some highly weathered, low to medium strength

It shall be noted that the PSM geotechnical investigation study was prepared in support of the EEP Stage 1A SSD-19618251, and relates back to pre-development site conditions. Bulk earthworks, contemplated as part of the EEP Stage 1A SSD-19618251, have been assumed to have been completed, which include cutting and filling across the SEED Stage 1B works areas. The geotechnical investigation is still relevant for any underlying geology.

PSM have also prepared a Bulk Earthworks Specification (3<sup>rd</sup> March 2025, reference PSM3530-004S Rev 8) and provided Interim Geotechnical Design Advice (3<sup>rd</sup> March 2025, reference PSM3530-003L Rev 7), both of which formed part of the EEP Stage 1A SSD-19618251. These reports are of relevance to the completed cutting and filling across the SEED site and should be read in conjunction with the geotechnical investigation referred to above.

PSM have completed a Basin Infiltration Assessment (PSM3530-030L Rev 1, Apr 2025) which assessed the permeability of the ground at the proposed temporary evaporation basin. Through lab testing, PSM has found that the existing material at the design basin has a permeability of less than  $1 \times 10^{-9}$  m/s. As a result, they consider the use of impervious liner to be not required as the existing material achieves the same permeability as an impervious liner.

In addition, PSM have completed a geotechnical assessment on the Evaporation Basin and Basin A embankments and geotechnical aspects (PSM3530-041L, Nov 2025). The assessment found that the proposed embankments for Basin A based on AT&L 16-369-C7166 [P1] to be adequate from a geotechnical perspective.

To support the SEED Stage 1B SSD, PSM have also prepared a corresponding Geotechnical Assessment for the Stage 1B SSD, which referred to as PSM3530-48L. The assessment considers the impacts of the proposed Stage 1B works, considering the previous completed works across SEED as part of the EEP Stage 1A EEP works. The report finds that the Stage 1B proposed development including Regional Basin SC09 has close to no impact on the soil resources, soil erosion and soil salinity at the Site.

#### **4.4.1. Salinity**

Based on site investigations undertaken by PSM in 2018, consisting of 10 soil samples across the Stage 1 Site area, the soils on site are classified as “non-saline” (9 out of 10 samples) to “moderately saline” (2 out of 10 samples). The remaining 4 out of 10 samples were classified as “slightly saline”.

Additional salinity testing was undertaken within the Stage 2 area of SEED, as part of the geotechnical investigation by PSM between 11 December 2023 and 8 January 2024 (ref PSM3530-018R Feb 2024). The investigation found that three samples were “non-saline”, six samples as “slightly saline” and one sample was “moderately saline”.

A Construction Salinity Management Plan (CSMP) will be prepared and incorporated into the Construction Environmental Management Plan (CEMP) for EEP Stage 1A, as well as future applications, including SEED Stage 1B. It is anticipated that the CSMP will outline practical salinity management measures relating to bulk

earthworks, erosion and sediment controls, salinity testing of imported materials, surface water management and construction of civil infrastructure (roads, footpaths and hardstands).

#### 4.4.2. Sodicty

The Exchangeable Sodium Percentages (ESPs) calculated from tests undertaken by PSM ranged from 7.4% to 51.7%, which indicates that the natural soil on the site is classified as “sodic” to “highly sodic” (>15% ESP).

#### 4.4.3. Acid Sulfate Soils

Based on NSW Government Acid Sulfate Soil Risk Mapping (accessed via the online NSW Soil and Land Information portal eSPADE), the site is not located in the vicinity of any known or potential occurrence of acid sulfate soil.

### 4.5. Existing Topography and Catchments

#### 4.5.1. Pre-Development Existing Topography

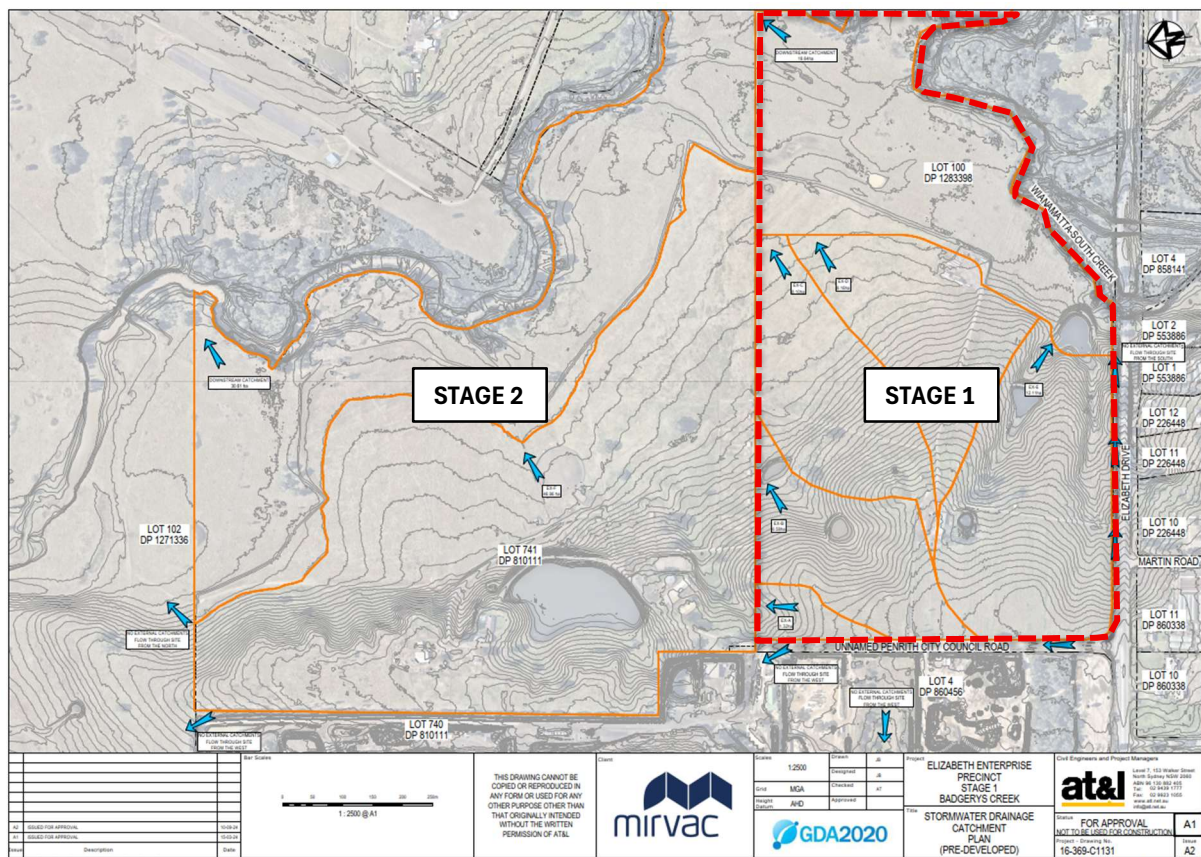
The Site in its pre-development existing condition (prior to any works at the SEED site, notably the EEP Stage 1A SSD-19618251) generally grades from west to east towards South Creek.

In a pre-developed state, the western portion of the Site generally has ground slopes between 1% and 6%, with steeper sections of around 15% adjacent to local drainage depressions. The eastern portion of the Site is generally much flatter, with ground slopes of between 0.5% and 2%.

#### 4.5.2. Pre-Development Existing Stormwater Drainage Catchments

Most of the Site in its pre-developed existing condition is pervious, other than some small structures and access driveways.

Delineation of the existing internal drainage catchments is presented as **Figure 11**.



**Figure 11: Catchment extents under existing conditions**

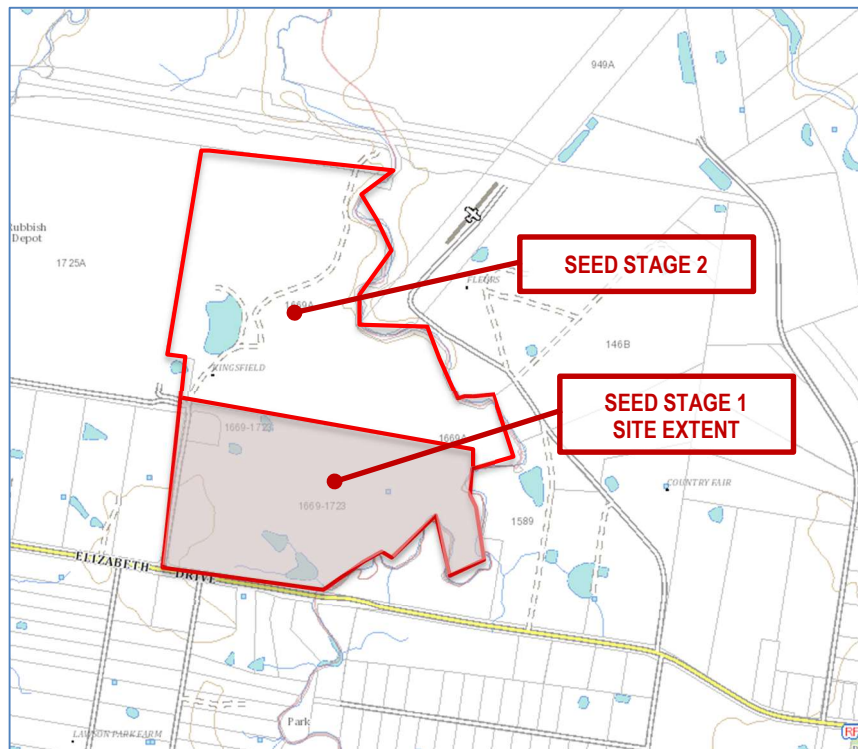
A summary of the internal catchments under existing conditions is as follows:

- Existing Catchment A (1.28 ha) – discharges towards a local drainage depression near the north-western corner of the Site and ultimately to South Creek.
- Existing Catchments B, C and D (40.27 ha) – discharge across the northern and eastern boundary of the Site and ultimately to South Creek.
- Existing Catchment E (13.32 ha) – discharges towards a local drainage depression near the south-eastern corner of the Site and ultimately to South Creek.

Prior to any development as part of the EEP Stage 1A SSD-19618251, there is no engineered stormwater drainage infrastructure within the Site.

#### 4.5.3. Pre-Development Existing External Stormwater Catchments

There are no external catchments that drain through the Site from Elizabeth Drive or surrounding properties.



**Figure 12: Topographic mapping showing drainage lines within the Site (Source: NSW SIX Maps)**

## 5. EEP Stage 1A Development Works

### 5.1. Overview

The EEP Stage 1A development works are approved under SSD-19618251 for the following scope of development:

- Concept Masterplan for EEP Stage 1 comprising seven (7) industrial buildings, internal road network layout, building locations, GFA, car parking, concept landscaping, building heights, setbacks and built form parameters.
- Stage 1 infrastructure works, including:
  - ▶ Demolition and removal of existing rural structures;
  - ▶ Heritage salvage works (if applicable);
  - ▶ Creation of roads and access infrastructure, including a signalised intersection with Elizabeth Drive;
  - ▶ Clearing of existing vegetation on the subject site and associated dam dewatering and decommissioning;
  - ▶ On-site bulk earthworks including any required ground dewatering;
  - ▶ Construction of boundary retaining walls;
  - ▶ Delivery of catchment level stormwater infrastructure, trunk service connections, utility infrastructure;
- Construction and fit out of warehouse and distribution buildings on proposed Lots 2 and 6 (approximately 58,000 m<sup>2</sup> GFA), which will operate 24 hours per day, seven days per week.
- Office buildings on proposed Lots 2 and 6 (approximately 3,000 m<sup>2</sup> GFA).
- Ancillary works including signage, fencing and landscaping.
- Subdivision of the Site
- Construction of an earth bund within Stage 2 lands to form an interim evaporative storage basin.
- Implementation of construction-phase erosion and sediment controls

For further details regarding the Stage 1A development works, refer to the Stage 1A Civil Infrastructure Report (REP005A-09-16-369-SSDA). The proposed Stage 1B development is designed to build upon the completed earthworks and infrastructure established during Stage 1A, which represents the current condition of the EEP Stage 1 area.

### 5.2. EEP Stage 1A Stormwater Management System

The EEP Stage 1A stormwater management system is an interim cumulative water management system that incorporates Mirvac's Aspect Industrial Estate (AIE) and SEED sites. The AIE development is located at 788-882 Mamre Road, Kemps Creek, with initial development consent granted in May 2022 under SSD-10448. A number of subsequent modifications to SSD-10448 have been submitted and approved. Of most recent relevance, is Modification 11 (MOD11) to AIE SSD-10448, which sought to align the cumulative water management strategy across AIE and SEED to align with the EEP Stage 1A SSD.

Refer to AT&Ls AIE Water and Stormwater Management Plan for SSDA-10448 MOD11 (REP025-05-18-596-MOD11 WSMP) for details of the proposed stormwater management measures proposed to be implemented as part of the AIE development.

A summary of the proposed water management measures to be implemented as part of the EEP Stage 1A SSDA that would be required to satisfy the stormwater quality, quantity and flow objectives is outlined below:

- **Street trees** – either passively or actively irrigated, subject to ongoing discussions and coordination with Sydney Water and Penrith City Council.
- **Evaporation Basin** – with the potential for evaporative losses. Large evaporation basin is proposed within SEED Stage 2 lands via an earth bund to store all stormwater runoff generated from Stage 1 development.

Required to satisfy stormwater quality and flow controls on proposed Lots 2 and 6 in Stage 1 as an interim measure.

- **On-site stormwater detention (Basin A)** – required to satisfy stormwater quantity controls.
- **Gross pollutant traps (GPTs)** – are installed as on-lot water quality treatment for Lots 2 and 6 in Stage 1A development. The ultimate stormwater management strategy involves the provision of a GPT system to each on-lot development to treat stormwater runoff prior to discharge into the estate drainage system and ultimately Sydney Water Regional Infrastructure.

The Ultimate stormwater management strategy that will service development of all of SEED Stage 1 (EEP Stage 1A and SEED Stage 1B) and SEED Stage 2 is presented on drawing 16-369-C1152 (refer to **Appendix A**). In general, it will involve connection to regional stormwater management system, including the Regional Stormwater Basin SC09.

It is noted that the Stage 1B development works includes the construction of the Regional Stormwater Basin SC09, which will be constructed as an *offline* structure, that is, under the SEED Stage 1B SSDA, Regional Stormwater Basin SC09 will not have any stormwater intake from the SEED estate. Under the SEED Stage 1B SSDA, Regional Stormwater Basin SC09 is not being used to for the purposes of achieving interim compliance with the stormwater objectives, being offline. It is proposed for Regional Stormwater Basin SC09 to receive stormwater from the SEED estate as part of a future SSDA application for SEED, intended to form part of the future SEED Stage 2 SSDA application.

### 5.3. AIE Lot 4 SSD (SSD-98407710)

Mirvac have lodged a concurrent SSD application for the development of Lot/Warehouse 4 at AIE. To facilitate the Lot/Warehouse 4 development, a modification to the cumulative stormwater management strategy described above in **Section 5.2** is required. The amended cumulative stormwater management strategy is documented in the AT&L Lot 4 Civil Infrastructure Report (January 2026), and is further supported by separate modifications to be lodged for both AIE and SEED, so that the cumulative stormwater management strategy is consistent across both AIE and SEED. More specifically, Modification No. 12 (MOD12) is to be submitted to AIE SSD-10448, and Modification No.1 (MOD1) will be submitted to EEP Stage 1A SSD-19618251.

Specifically, the amendment per AIE MOD12 and EEP MOD1 will be to exclude the catchment area of AIE Lots 1, 2, 3, 7 (including café), 8 and 9 and include AIE Lot 4 proposed warehouse. Excluding AIE Lots 1, 2, 3, 7 (including café), 8 and 9 is subject to Mirvac obtaining Sydney Water Stormwater Scheme Served Area (SSA) allocation letter, which provides sufficient SSA allocation to cover AIE Lots 1, 2, 3, 7 (including café), 8 and 9 (approximately 37ha), therefore no longer requiring AIE Lots 1, 2, 3, 7 (including café), 8 and 9 to be included within the cumulative stormwater management strategy.

As defined by Sydney Water; *The SSA is an area of land that can be developed without the need for interim/temporary on-lot stormwater quality/quantity infrastructure, excluding those that are required specifically in the DCP (i.e. gross pollution traps, on-site detention and construction phase sediment and erosion controls).* Consequently, the cumulative stormwater strategy for AIE + EEP will be updated to remove AIE Lots, 1, 2, 3, 7 (including café), 8 and 9 and include AIE Lot 4.

It shall be noted that under **Development Scenario B**, the cumulative stormwater management strategy which forms part of the SEED Stage 1B SSD, assumes that the above amendment is approved, that is, AIE Lots 1, 2, 3, 7 (including café), 8 and 9 are removed from the cumulative MUSIC model for consistency. The cumulative stormwater management strategy in SEED Stage 1B also considers AIE Lot 4 to be developed as part of AIE Stage 6.

Alternatively, **Development Scenario C** which is further discussed in **Section 8.2.3**, provides a cumulative stormwater management strategy that considers AIE Lot 4 as undeveloped and is an extension to the stormwater strategy adopted in AIE SSD-10448 MOD 11. Under **Development Scenario C**, AIE development remains at Stage 5 which includes 1, 2, 3, 6, 7 (incl. Café), 8 & 9, which is per AIE SSD-10448 MOD 11.

## 6. Proposed Development

### 6.1. Scope of SSDA

SSD-99079487 seeks approval for the following scope of development:

#### Stage 1B Development Works

The Stage 1B Development, the second development works of the EEP Stage 1 Concept Plan (the EEP Stage 1 Concept Plan has been approved under SSD-19618251), comprises:

- Construction of the following warehouse buildings for the purpose of warehouse and distribution centres (including warehouse building GFA, ancillary office GFA, hardstand areas for loading/unloading/vehicular manoeuvring and on-lot car parking):
  - ▶ Warehouse 1 (Lot 1) comprising 4,130sqm of GFA and 31 car parking spaces;
  - ▶ Warehouse 4 (Lot 4) comprising 8,990sqm of GFA and 55 car parking spaces;
  - ▶ Warehouse 5 (Lot 5) comprising 6,840sqm of GFA and 42 car parking spaces;
  - ▶ Warehouse 7 (Lot 7) comprising 40,410sqm of GFA and 183 car parking spaces;
  - ▶ Warehouse 8 (Lot 8) comprising 21,370sqm of GFA and 98 car parking spaces; and
  - ▶ Operating hours for Warehouse Buildings 1, 4, 5, 7 and 8 for 24 hours, 7 days a week.
- Estate café comprising 300sqm of GFA, 24 car supporting parking spaces as part of the Edge Amenity node. Operating hours for the Estate café from 5am to 5pm, 7 days a week;
- Construction of Sydney Water Regional Stormwater Basin SC09 (through a Developer Works Agreement with Sydney Water Corporation (SWC) which will eventually be acquired by SWC);
- Landscaping, including on-lot landscaping and amenity areas, street reserve landscaping and estate amenity nodes;
- Construction of some new on-lot retaining walls to manage level differences between development lots; and
- Estate wayfinding signage.

Generally, the proposed developments on Lots 1, 4, 6, 7, 8 and Café, located within SEED Stage 1, includes minor on lot earthworks, installation of on-lot infrastructure, and the construction of a warehouse, landscaping, hardstand and car parking. This also includes the construction of heavy vehicle crossings and car park crossings to the local industrial roads. The lot location and built form configuration will align with that intended to be established under the SSD-19618251.

The proposed development of Regional Stormwater Basin SC09 will include earthworks, construction of the wetlands, bioretention and retention pond components along with the associated access road connection to Yarra Parkway. The Regional Stormwater Basin SC09 will be constructed as an offline structure that does not have any stormwater intake from the SEED estate and does not provide any water management measures.

The Regional Basin SC09 will include the following components:

- Wetland Inlet Pool – area 1,624m<sup>2</sup> and volume 3,248m<sup>3</sup>
- Wetland – area 2,339m<sup>2</sup> and volume 702m<sup>3</sup>
- Bioretention basin – filter area 1,581m<sup>2</sup>
- Storage Pond – area 11,824m<sup>2</sup> and volume 25,455m<sup>3</sup>

The developments on Lots 1, 4, 5, 7 and 8 will comprise one (1) warehouse building each. It is proposed to be used for warehouse and distribution premises 24 hours a day, 7 days a week. **Table 4** below provides a summary of the proposed development for each lot.

**Table 4: Summary of proposed Stage 1B lot developments**

| Lot                 | Total Building Gross Floor Area (sqm) | Developments                                                                                                                                                                                                                                                                             | Landscape Area (sqm) | Landscape Area (% of site area) | Carparking Spaces |
|---------------------|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------------|-------------------|
| 1                   | 4,130                                 | <ul style="list-style-type: none"> <li>Construction and fitout of a warehouse building 3,671m<sup>2</sup></li> <li>Ancillary two level office space 409m<sup>2</sup></li> <li>Dock office 50m<sup>2</sup></li> <li>Hardstand</li> </ul>                                                  | 3,701                | 28.7                            | 31                |
| 4                   | 8,990                                 | <ul style="list-style-type: none"> <li>Construction and fitout of a warehouse building (4a, 4b, 4c) total 7,940m<sup>2</sup></li> <li>Three ancillary two level office buildings, total 1,050m<sup>2</sup></li> <li>Hardstand</li> </ul>                                                 | 5,342                | 22.3                            | 55                |
| 5                   | 6,840                                 | <ul style="list-style-type: none"> <li>Construction and fitout of a warehouse building 5,990m<sup>2</sup></li> <li>Ancillary two level office space 750m<sup>2</sup></li> <li>Dock office 100m<sup>2</sup></li> <li>Hardstand</li> </ul>                                                 | 4,992                | 27.5                            | 42                |
| 7                   | 40,410                                | <ul style="list-style-type: none"> <li>Construction and fitout of a warehouse building (7a and 7b) total 38,310m<sup>2</sup></li> <li>Two ancillary two level office buildings, total 1,900m<sup>2</sup></li> <li>Two dock offices, total 200m<sup>2</sup></li> <li>Hardstand</li> </ul> | 10,594               | 15.3%                           | 183               |
| 8                   | 21,370                                | <ul style="list-style-type: none"> <li>Construction and fitout of a warehouse building 20,170m<sup>2</sup></li> <li>Two ancillary two level office buildings, total 1,000m<sup>2</sup></li> <li>Two dock offices, total 200m<sup>2</sup></li> <li>Hardstand</li> </ul>                   | 6,108                | 15.3%                           | 98                |
| <b>Café (Lot 3)</b> | 300                                   | <ul style="list-style-type: none"> <li>Construction and fitout of Café building 275m<sup>2</sup></li> <li>Office 25m<sup>2</sup></li> </ul>                                                                                                                                              | 2,489                | 61.0                            | 24                |



*Figure 13: Catchment extents under proposed development conditions*

## 6.3. Site Water Balance

### 6.3.1. Water Requirements

Water requirements within SEED will be typical of large format warehouses and distribution centres. Sources of demand for water within the proposed allotments and public domain will include:

- Office amenities (kitchen, bathrooms)
- Landscape irrigation
- Dust suppression (depending on end user requirements)

Estimated potable water demands based on Sydney Water's [Average Daily Water Use](#) document indicate daily average water demand of 2.82 litres per square metre of developed floor area (equivalent to 28.2 kL/ha/day). Across the proposed development of SEED Stage 1 (approximately 34.16ha) this equates to an estimated potable water demand of 963 kL/day.

Non-potable water demands across the development will include toilet flushing, landscape irrigation and vehicle washdown. It is estimated that around 25% of the total water demand across SEED Stage 1 could be supplied by non-potable water. This equates to:

- An average daily recycled water demand of 241 kL/ha/day; and
- A residual potable water demand of 722 kL/ha/day.

The water requirements within SEED Stage 1B are consistent with Stage 1A Water and Stormwater Management Plan.

### 6.3.2. Water Sources

The primary source of water to the Estate will be Sydney Water's potable water reticulation network. Details of existing and proposed infrastructure that will be required to service the estate is presented in the Stage 1A Civil Infrastructure Report (AT&L, 2023).

A "third-pipe" reticulated recycled water network will supply non-potable water throughout the Western Sydney Aerotropolis. Non-potable water will be supplied from two sources:

- Stormwater harvested within precinct-wide wetlands / ponds, to be delivered and operated by Sydney Water as part of a regional stormwater management scheme.
- Recycled water from the planned Upper South Creek Advanced Recycled Water Centre.

The SEED Stage 1B water sources outlined above are consistent with EEP Stage 1A Water and Stormwater Management Plan.

### 6.3.3. Water Use Minimisation

Sydney Water provides a wide range of advice and guidance relating to water use minimisation and water efficiency. Whilst warehouses and distribution centres are relatively low water users in comparison to other industrial users, the following water use minimisation principles will apply to development within the Estate:

- **Avoid using water** where possible, such as sweeping hard surfaces instead of washing them.
- **Reduce water use** by installing water-efficient appliances and equipment (e.g., toilets, urinals, shower heads).
- **Reuse water** from manufacturing or cooling processes to toilet flushing, landscape irrigation and dust suppression.

As outlined in the EEP Stage 1 ESD Report (Stantec, March 2025) a variety of water efficiency measures can be applied to the development. These include:

- **Water efficiency fixtures and fittings** such as low-flow water fixtures (taps, wash basins, shower heads and urinals)

- **Water efficient appliances** such as dishwashers and washing machines for office spaces.
- **Water use metering and monitoring** (to identify leaks)

Implementation of the measures listed above will contribute to the ability of the development to minimise water consumption throughout the operational phase of the development.

## 7. Stormwater Targets

The Western Sydney Aerotropolis DCP establishes the construction and operational phase stormwater quality and quantity (flow) targets for the Site. This Water and Stormwater Management Plan address operational phase targets only. Construction phase targets are addressed in an Erosion and Sediment Control Plan for the Site.

For the operational phase targets there are two options available for stormwater quality and two options available for stormwater flow.

Stormwater quality targets for Option 1 (annual load reduction) and Option 2 (allowable loads) are summarised in **Table 5**.

**Table 5: Operational phase stormwater quality targets – Options 1 and 2**

| Parameter                                                             | Option 1 Target<br>(reduction in mean annual load<br>from unmitigated development) | Option 2 Target<br>(allowable mean annual load<br>from development) |
|-----------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| Gross pollutants (anthropogenic litter >5mm and coarse sediment >1mm) | 90%                                                                                | < 16 kg/ha/yr                                                       |
| Total suspended solids (TSS)                                          | 90%                                                                                | < 80 kg/ha/yr                                                       |
| Total phosphorus (TP)                                                 | 80%                                                                                | < 0.3 kg/ha/yr                                                      |
| Total nitrogen (TN)                                                   | 65%                                                                                | < 3.5 kg/ha/yr                                                      |

Stormwater quantity (flow) targets for Option 1 (mean annual runoff volume) and Option 2 (flow percentiles) are summarised in **Table 6**.

**Table 6: Operational phase stormwater quantity (flow) targets – Options 1 and 2**

| Parameter                                                              | Option 1 Target<br>(MARV)                                    | Option 2 Target<br>(flow percentiles) |
|------------------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------|
| Mean annual runoff volume (MARV)                                       | ≤ 2 ML/ha/yr at the point of discharge to the local waterway | n/a                                   |
| 95%ile flow (L/ha/day at the point of discharge to the local waterway) | n/a                                                          | 3000 – 15000                          |
| 90%ile flow (L/ha/day at the point of discharge to the local waterway) | 1000 – 5000                                                  | 1000 – 5000                           |
| 75%ile flow (L/ha/day at the point of discharge to the local waterway) | n/a                                                          | 100 – 1000                            |
| 50%ile flow (L/ha/day at the point of discharge to the local waterway) | 5 – 100                                                      | 5 – 100                               |
| 10%ile flow (L/ha/day at the point of discharge to the local waterway) | 0                                                            | n/a                                   |
| Cease to flow                                                          | n/a                                                          | Between 10% to 30% of the time        |

## 8. Water Management Strategy

This section summarises the proposed water management strategy for the scope of work for which approval is being sought under SSD-19618251. Outlined below is a description of the proposed stormwater quality, quantity and flow management measures that will satisfy the Performance Outcomes described in the *Western Sydney Aerotropolis Development Control Plan 2022*.

As noted above in **Section 5.3**, the proposed water management strategy for this SSD builds upon the amended cumulative stormwater management strategy last amended as part of the AIE Lot/Warehouse 4 SSD (SSD-98407710) and AIE SSD-10448 MOD 12.

The proposed developments for Stage 1B (Lots 1, 4, 5, 7, 8, Café) except for the Regional Basin SC09 will be supported by the water management strategy from Stage 1A which includes the interim evaporation basin in Stage 2 lands. The Stage 1B water management strategy builds on the Stage 1A estate water management strategy and proposes three development scenarios, **Scenario A**, **Scenario B** and **Scenario C**. The proposed SEED Stage 1B stormwater management strategy supersedes the cumulative water management strategy proposed in EEP Stage 1A.

The three development scenarios include the following general development across both SEED and the Aspect Industrial Estate (AIE) sites:

- **Development Scenario A**
  - ▶ AIE is assumed to **not** be linked to SEED, and as such, compliance is sought for the development at SEED only under this development scenario.
  - ▶ EEP Stage 1A, including warehouses 2 and 6 (SSD-19618251)
  - ▶ SEED Stage 1B, including warehouses 1, 4, 5, 7, 8 and cafe (i.e. the development being sought as part of this SSDA)
  - ▶ Sydney Water Basin SC09 (offline)
- **Development Scenario B**
  - ▶ AIE Stage 6, including warehouses 4 and 6 (warehouses 1, 2, 3, 7, 8 and 9 are removed due to SSA allocation) and
  - ▶ EEP Stage 1A, including warehouses 2 and 6 (SSD-19618251)
  - ▶ SEED Stage 1B, including warehouses 1, 4, 5, 7, 8 and cafe (i.e. the development being sought as part of this SSDA)
  - ▶ Sydney Water Basin SC09 (offline)
  - ▶ An amendment to the cumulative stormwater management strategy will be submitted as a future modification to AIE SSDA-10448 (AIE MOD12). If required, a modification will also be submitted as a future modification to EEP Stage 1A SSD-19618251 to align the cumulative stormwater management.
- **Development Scenario C**
  - ▶ AIE Stage 5 AIE SSDA-10448 (AIE MOD11), including warehouses 1, 2, 3, 6, 7 (incl. Café), 8 & 9, and
  - ▶ EEP Stage 1A, including warehouses 2 and 6 (SSD-19618251)
  - ▶ SEED Stage 1B, including warehouses 1, 4, 5, 7, 8 and cafe (i.e. the development being sought as part of this SSDA)
  - ▶ Sydney Water Basin SC09 (offline)
  - ▶ An amendment to the cumulative stormwater management strategy may be required to be submitted as a future modification to AIE SSDA-10448. If required, a modification will also be submitted as a future modification to EEP Stage 1A SSD-19618251 to align the cumulative stormwater management.

For all these scenarios, the water management strategies are an interim arrangement only (refer to drawings 16-369-C12151 and C12153 in Appendix A), for which approval is being sought under SSD-99079487. The interim stormwater arrangements are intended to be implemented to satisfy stormwater quality, quantity and flow controls in the absence of regional stormwater management interventions.

It is intended that the development scenarios are an either/or approach, rather than a staged or consecutive approach. That is, compliance is shown to be achieved for both development scenarios, such that SEED Stage 1B can be compliant in either development scenario above.

## 8.1. Strategy Objectives

The main objectives pertaining to the management of stormwater within the proposed development Site are outlined in Section 2.3.2 of the *Western Sydney Aerotropolis Development Control Plan 2022*. The overall objectives relating to stormwater management and water sensitive urban design (WSUD) outlined in the DCP are as follows:

- O1. *Manage indirect and ongoing impacts of development on waterways to ensure that Wianamatta-South Creek Catchment water quality and flow objectives in the Aerotropolis Precinct Plan are achieved and maintained.*
- O2. *Ensure development is integrated with water cycle management to meet the Wianamatta-South Creek Catchment stormwater management targets.*
- O3. *Utilise stormwater for passive irrigation of street trees to promote healthy trees, optimise canopy cover and contribute to streetscape, urban cooling and amenity.*
- O4. *Ensure overland flows are conveyed in a safe manner to the trunk drainage system.*
- O5. *Protect, maintain and restore the ecological condition, hydrology and hydrogeology of aquatic ecosystems (including but not limited to wetlands and riparian lands).*

Performance Outcomes (POs) and benchmark solutions relating to stormwater management and WSUD, as well as the proposed response to these, is summarised below in Table 7.

**Table 7: Response to DCP performance outcomes relating to stormwater and WSUD**

| Performance Outcome                                                                                                                                                                                                                                                 | Response                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PO1</b> <i>Development applications must demonstrate compliance with the stormwater quality targets either through interim temporary stormwater management measures incorporated within the development, or by connection to the regional stormwater system.</i> | Refer to <b>Section 8.3.1 (Scenario A)</b> , <b>Section 9.3.1 (Scenario B)</b> and <b>Section 11.3.1 (Scenario C)</b> for details of compliance of the proposed stormwater management measures with the stormwater quality targets adopted in the Phase 2 DCP.     |
| <b>PO2</b> <i>Development applications must demonstrate compliance with the stormwater flow targets either through interim stormwater management measures incorporated within the development, or by connection to the regional stormwater system.</i>              | Refer to <b>Section 9.3.3 (Scenario A)</b> , <b>Section 10.3.3 (Scenario B)</b> and <b>Section 11.3.311.3.1 (Scenario C)</b> for details of compliance of the proposed stormwater management measures with the stormwater flow targets adopted in the Phase 2 DCP. |
| <b>PO3</b> <i>Development applications must include a Water Management Strategy (WMS)</i>                                                                                                                                                                           | Refer to <b>Section 7</b> outlining the proposed approach to WSUD, how the approach will be implemented and how it is consistent with the <i>Technical guidance for achieving Wianamatta-South Creek stormwater management targets</i> (DPE, 2022).                |
| <b>PO4</b> <i>The regional stormwater system includes requirements for on lot as well as streetscape measures to ensure the Targets in PO1 and PO2 are met.</i>                                                                                                     | Refer to <b>Section 8.3</b> for a summary of the proposed on-lot and streetscape measures that have been adopted.                                                                                                                                                  |
| <b>PO5</b> <i>[NOT USED IN PHASE 2 DCP]</i>                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                    |

| Performance Outcome                                                                                                                                      | Response                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PO6</b> <i>Development must not increase existing urban salinity or result in increased salt loads in waterways, wetlands, drainage line or soils</i> | Water management, soil management and vegetation management measures have been incorporated into the design and will be incorporated into detailed design and operation of the Site that will mitigate potential impacts associated with salinity and sodicity.<br><br>Refer to Salinity and Aggressivity Investigation undertaken by PSM (April 2018).  |
| <b>PO7</b> <i>Drainage is designed to safely convey overland flows</i>                                                                                   | Drainage has been designed to safely convey overland flows for all design storm events up to and including the peak 1% AEP design event.<br><br>Refer to Civil Infrastructure Report (AT&L) for a summary of drainage design criteria and trunk drainage design parameters.                                                                              |
| <b>PO8</b> <i>Lots achieve minimum perviousness to meet stormwater drainage manager requirements and green and cooling objectives</i>                    | Refer to drawings MP 15 and MP 15.5 in the Architectural design package (SBA Architects) showing the pervious fraction of the proposed Lots 1, 4, 5, 7, 8 and Café.<br><br>Refer to summary of catchments and WSUD elements in <b>Appendix B</b> , which summarises the proportion of landscape and undeveloped (pervious) areas across the development. |

Performance Outcomes (POs) and benchmark solutions relating to regional stormwater infrastructure and waterways, as well as the proposed response to these, is summarised below in **Table 8**.

**Table 8: Response to DCP performance outcomes relating to regional stormwater infrastructure and waterways**

| Performance Outcome                                                                                                                                                  | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PO1</b> <i>Regional infrastructure Stormwater assets (including land and infrastructure) are managed and maintained by the stormwater drainage manager.</i>       | The interim stormwater management measures incorporated into the water management strategy are proposed to be delivered in advance of regional stormwater infrastructure.<br><br>Subsequent development applications for future stages of development will require regional stormwater infrastructure, which will be managed and maintained by Sydney Water as the Waterway Manager for the Wianamatta-South Creek catchment.<br><br>The Stage 1B SSD includes the delivery of the Sydney Water Regional Stormwater Basin SC09 as an offline structure. |
| <b>PO2</b> <i>Development provides opportunities to enable public access to waterways as well as providing management access to the stormwater drainage manager.</i> | Public access to waterways is address in the EEP Stage 1 concept masterplan under SSD-19618251.<br><br>Basin SC09 includes a perimeter maintenance access track and a connection to Yarrowa Parkway which will provide maintenance access for Sydney Water to maintain Basin 09.                                                                                                                                                                                                                                                                        |

| Performance Outcome | Response                                                                |
|---------------------|-------------------------------------------------------------------------|
|                     | Refer to AT&L Regional Basin 09 Functional Design drawings for details. |

## 8.2. Strategy Overview

The *Western Sydney Aerotropolis (Initial Precincts) Stormwater and Water Cycle Management Study* (December 2021) (SWCMS) addresses links between waterway health, hydrology and water quality targets. The stormwater management objectives outlined in the SWCMS Report were developed by applying the *Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions* (NSW OEH, 2017). The effects-based assessment outlined in the SWCMS Report addressed three primary metrics relating to stormwater management for waterway health:

1. Flow volume – mean annual runoff volume (MARV), measured in ML/ha/year. The target adopted in the SWCMS is 2 ML/ha/year.
2. Seasonal pulses – as shown by flow duration curves.
3. Water quality – as indicated by stormwater pollution reduction.

The Water Management Strategy for SEED Stage 1B has been developed for three development scenarios, **Scenarios A, B, and C** which are discussed in more detail in **Section 7.2.3**.

The three development scenarios include the following general development across both SEED and the Aspect Industrial Estate (AIE) sites:

- Development **Scenario A**
  - ▶ AIE is assumed to **not** be linked to SEED, and as such, compliance is sought for the development at SEED only under this development scenario.
  - ▶ EEP Stage 1A, including warehouses 2 and 6 (SSD-19618251)
  - ▶ SEED Stage 1B, including warehouses 1, 4, 5, 7, 8 and cafe (i.e. the development being sought as part of this SSDA)
  - ▶ Sydney Water Basin SC09 (offline)
- Development **Scenario B**
  - ▶ AIE Stage 6, including warehouses 4 and 6 (warehouses 1, 2, 3, 7, 8 and 9 are removed due to SSA allocation) and
  - ▶ EEP Stage 1A, including warehouses 2 and 6 (SSD-19618251)
  - ▶ SEED Stage 1B, including warehouses 1, 4, 5, 7, 8 and cafe (i.e. the development being sought as part of this SSDA)
  - ▶ Sydney Water Basin SC09 (offline)
  - ▶ An amendment to the cumulative stormwater management strategy will be submitted as a future modification to AIE SSDA-10448 (AIE MOD12). If required, a modification will also be submitted as a future modification to EEP Stage 1A SSD-19618251 to align the cumulative stormwater management.
- Development **Scenario C**
  - ▶ AIE Stage 5 AIE SSDA-10448 (AIE MOD11), including warehouses 1, 2, 3, 6, 7 (incl. Café), 8 & 9, and
  - ▶ EEP Stage 1A, including warehouses 2 and 6 (SSD-19618251)
  - ▶ SEED Stage 1B, including warehouses 1, 4, 5, 7, 8 and cafe (i.e. the development being sought as part of this SSDA)
  - ▶ Sydney Water Basin SC09 (offline)
  - ▶ An amendment to the cumulative stormwater management strategy may be required to be submitted as a future modification to AIE SSDA-10448. If required, a modification will also be submitted as a future modification to EEP Stage 1A SSD-19618251 to align the cumulative stormwater management.

For all these scenarios, the water management strategies are an interim arrangement only (refer to drawings 16-369-C12151 and C12153 in Appendix A), for which approval is being sought under SSD-99079487. The interim

stormwater arrangements are intended to be implemented to satisfy stormwater quality, quantity and flow controls in the absence of regional stormwater management interventions.

A summary of the proposed water management measures to be implemented as part of the EEP Stage 1A SSDA that would be required to satisfy the stormwater quality, quantity and flow objectives is outlined below (refer to AT&Ls AIE Water and Stormwater Management Plan for SSDA-10448 MOD11 (REP025-05-18-596-MOD11 WSMP) for details of the proposed stormwater management measures proposed to be implemented as part of the AIE SSDA development):

- **Street trees** – either passively or actively irrigated, subject to ongoing discussions and coordination with Sydney Water and Penrith City Council. Refer to **Section 8.3.1** for further details.
- **Evaporation Basin** – with the potential for evaporative losses. The large evaporation basin has been approved under EEP Stage 1A located within SEED Stage 2 lands via an earth bund to store all stormwater runoff generated from Stage 1 development. Required to satisfy stormwater quality and flow controls on proposed Lots 2 and 6 in Stage 1 as an interim measure. Refer to **Section 8.3.2** for further details.
- **On-site stormwater detention** (Basin A) – required to satisfy stormwater quantity controls. Refer to **Section 8.3.3** for further details.
- **Gross Pollutant Traps** – are installed as on-lot water quality treatment for Lots 2 and 6 in Stage 1A development. The ultimate stormwater management strategy involves the provision of a GPT system to each on-lot development to treat stormwater runoff prior to discharge into the estate drainage system and ultimately Sydney Water Regional Infrastructure.

The Ultimate water management strategy that will service development of EEP Stage 1 and SEED Stage 2 is presented on drawing 16-369-C12155 (refer to **Appendix A**). In general, it will involve connection to regional stormwater management measures that will be delivered by (or on behalf of) Sydney Water and funded by a stormwater infrastructure contribution. With reference to AT&L drawings, C1141 and C1143, AT&L has outlined how the configuration of Basin A will be adjusted to redirect stormwater flows from the interim Evaporation Basin to the north, to discharge into the Sydney Water Regional Basin SC09.

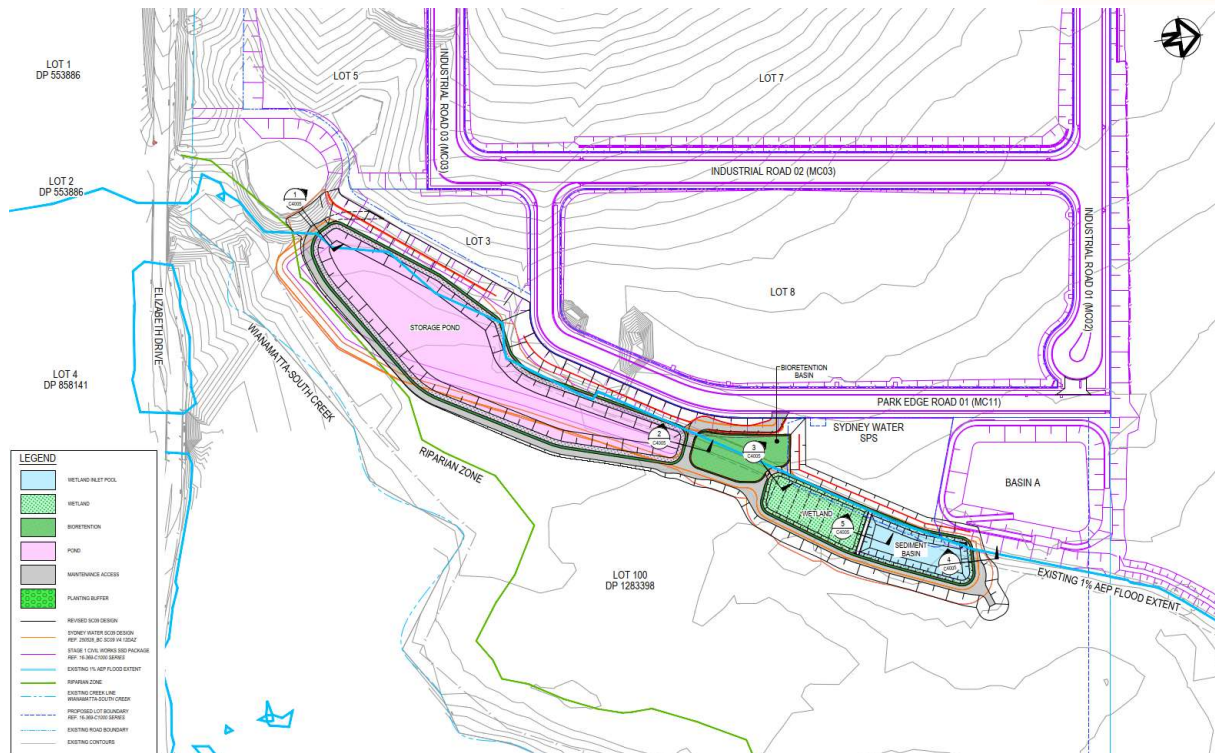
Similar to the [Mamre Road Precinct Integrated Stormwater Scheme Plan](#), it is anticipated that regional measures including wetlands, bio-retention systems, storage ponds and a recycled water reticulation system will form part of a Stormwater Scheme Plan that will ultimately service SEED Stage 1. Apart from the future regional stormwater management measures, the proposed Basin A that forms part of the Interim Arrangement would be retained in the Ultimate water management strategy to satisfy stormwater quantity management controls.

### 8.2.1. Sydney Water Regional Stormwater Basin SC09

It is noted that the Stage 1B development works includes the construction of the Regional Stormwater Basin SC09, which will be constructed as an *offline* structure, that is, under the SEED Stage 1B SSDA, Regional Stormwater Basin SC09 will not have any stormwater intake from the SEED estate. Under the SEED Stage 1B SSDA, Regional Stormwater Basin SC09 is not being used to for the purposes of achieving interim compliance with the stormwater objectives, being offline. It is proposed for Regional Stormwater Basin SC09 to receive stormwater from the SEED estate as part of a future SSDA application for SEED, intended to form part of the future SEED Stage 2 SSDA application.

In consultation with Sydney Water, AT&L have developed the Functional Design (50-70%) for Regional Basin SC09. Further design details are provided in the AT&L Regional Basin SC09 Functional Design Drawings.

The regional basin SC09 is proposed to be located on the eastern boundary of Lot 100 DP1283398 between the EEP Stage 1A development and the Wianamatta-South Creek. **Figure 14** below shows the proposed Functional Design regional basin SC09 layout.



**Figure 14: Sydney Water Regional Basin SC09 Layout (AT&L, 16-369-C4003 Rev D)**

Under the ultimate stormwater management strategy, SEED Stage 1 development will be connected to the Regional Basin SC09 for water management through the wetland, bioretention and storage pond systems. It is proposed for Regional Stormwater Basin SC09 to receive stormwater from the SEED estate as part of a future SSDA application for SEED, intended to form part of the future SEED Stage 2 SSDA application; the drainage connection between OSD Basin A and the proposed Sydney Water Regional Basin SC09 will remain capped in this interim scenario. The estate drainage system constructed under EEP Stage 1A discharges stormwater into the OSD Basin A which includes an ultimate drainage connection to the SC09 wetland inlet pool.

The proposed Basin SC09 will operate as an offline structure, meaning it will not form part of the interim water management strategy described in this report. During the interim phase, the basin will not receive stormwater inflows from upstream catchments, including the SEED Stage 1 development area. Consistent with the EEP Stage 1A water management strategy, OSD Basin A, which services the Stage 1 development catchment, will discharge into the interim evaporation basin located within the SEED Stage 2 lands.

The interim stormwater drainage design (i.e. discharge to the proposed evaporative basin within the SEED Stage 2 lands) and a final design (i.e. low flow discharge to Basin SC09 and high flow discharge towards South Creek) is shown on drawings C1141 and C1143.

AT&L has also prepared an interim and ultimate Post-Development Stormwater Catchment Plan, which can be seen on drawings C1132 and C1132A. These drawings provide a high-level overview of where stormwater discharge from OSD Basin A is to change between the interim (towards the Evaporation Basin in Stage 2) and ultimate scenarios (to Basin SC09 and South Creek).

Sydney Water's draft Aerotropolis Integrated Stormwater Scheme Plan for Wianamatta-Badgerys Creek includes the delivery of Regional Basins SC09, SC10, SC11 and SC12. Mirvac have been working with Sydney Water to finalise designs to deliver regional stormwater basins SC09, SC10, SC11 and SC12 to address both AIE and EEP/SEED. Regional basins SC10, SC11 and SC12 located in SEED Stage 2 lands, are intended to form part of a future development by Mirvac as part of the Stage 2 SSDA.

## 8.2.2. Interface of this Strategy with Aspect Industrial Estate (SSD-10448)

### 8.2.2.1. Existing approvals with AIE Stage 5

Mirvac Projects Pty Ltd is currently developing the Aspect Industrial Estate (AIE) Site at 788-882 Mamre Road, Kemps Creek. Development consent for the AIE Site was granted by the NSW Department of Planning in May 2022 ([SSD-10448](#)) for a Concept Proposal for staged development of the AIE Site and Stage 1 development.

Subsequent to the development consent for SSD-10448, staged SSDAs and modification applications have been lodged and approved to facilitate the timely development of the AIE. As of the time of writing, the latest approvals across the AIE are SSD-10448 Modification 10 and the development for Stage 5 (WH8) of AIE. Of relevance, previous modification applications were progressed for SSD-10448 to establish a cumulative stormwater management approach across Mirvac's AIE and SEED sites identified as "SSD-10448-Mod-4" and "SSD-10448-Mod-8" as described below.

- **SSD-10448 MOD 4:** the fourth modification to SSD-10448 was approved on 21 December 2023 and updated the stormwater management approach for AIE to incorporate the undeveloped SEED site into the overall development site for AIE, in order to meet the Integrated Water Cycle Management targets as required by Mamre Road DCP. This was established as an interim measure in advance of regional stormwater management infrastructure to be delivered by Sydney Water, as a means of demonstrating compliance against the operational water quality and flow volume targets at the AIE site.
- **SSD-10448 MOD 8 / SSD-46516461 MOD 3 / SSD-58257960 MOD 1 / SSD-60513208 MOD 1:** modifications approved on 7 May 2025 to change the total undeveloped parcel of land related to the SEED site in the cumulative stormwater management approach, reducing down from 132Ha to 127Ha. The reduction in area was to align with the lodgement separate DA application, which sought works in a small 5.5ha land parcel towards the SW corner of the Stage 1 EEP site.

Further with the development of SEED Stage 1A, a cumulative stormwater strategy was designed to incorporate the AIE site and support the EEP Stage 1A infrastructure works and development of Warehouse 2 and Warehouse 6. Subsequently, **SSD-10448 MOD 11** (not approved at the time of writing this report) sought to amend the cumulative stormwater management strategy to align to the SEED Stage 1A (SSD-19618251) development works and remove the existing limitations within the AIE consents to allow for SEED Stage 1A development.

Further details of the amended Strategy for the AIE Site are presented in the MOD4 Water and Stormwater Management Plan (AT&L, December 2023), MOD8 Water and Stormwater Management Plan (AT&L, September 2024) and the MOD11 Water and Stormwater Management Plan (AT&L December 2025).

The stormwater management strategy for AIE Stage 5 development (including estate-wide infrastructure and development of lots 1, 2, 3, 6, 7, 8 and 9 at AIE), which is documented in the MOD4, MOD8 and MOD11 Water and Stormwater Management Plan, has been used as the basis for the proposed stormwater management strategy to service EEP Stage 1 (WH 2 and 6) development. It is worth noting that the stormwater management strategy and measures required to be implemented at AIE are unchanged between MOD4, MOD8 and MOD11.

### 8.2.2.2. Proposed AIE Stage 6 (SSD-98407710)

In consideration of AIE Stage 6 (SSD-98407710) for the development of AIE Lot 4, Mirvac are seeking to obtain Sydney Water Stormwater Scheme Serviced Area (SSA) offsets for the AIE Lots 1, 2, 3, 7, 8 and 9 development areas. The SSA strategy would allow AIE Lots 1, 2, 3, 7, 8 and 9 to be developed without the need for interim/temporary on-lot stormwater quality/quantity infrastructure, excluding those that are required specifically in the DCP (i.e. gross pollution traps, on-site detention and construction phase sediment and erosion controls).

With the proposed SSA offsets to AIE Lots 1, 2, 3, 7, 8 and 9, the cumulative stormwater management strategy submitted as part of SEED Stage 1A and AIE MOD 11 will need to be amended to exclude AIE Lots 1, 2, 3, 7, 8 and 9 development area. A proposed modification to both the EEP Stage 1A SSDA ([SSD-19618251](#)) (this will be known as EEP MOD1) and AIE ([SSD-10448](#)) (this will be known as AIE MOD12) will be prepared and submitted to incorporate the removal of AIE Lots 1, 2, 3, 7 (including café), 8 and 9 and inclusion of Lot 4 as developed in the cumulative MUSIC model.

### 8.2.2.3. Interface with SEED Stage 1B

The SEED site development has advanced under this application (SSD-99079487), and a separate modification application may be required to be prepared for the AIE site (SSDA-10448) to amend the previously approved cumulative stormwater management strategy. If required, this amendment will incorporate the proposed **Development Scenario B** water management strategies sought under this SSDA.

### 8.2.3. Development Scenarios

As outlined above, at present, the current approved stormwater management strategy which contemplates AIE Stage 5 and proposed AIE Stage 6 (AIE Lot 4 and Lot 6) also requires the use of SEED on a cumulative basis to meet the interim stormwater targets.

The three development scenarios include the following general development across both SEED and the Aspect Industrial Estate (AIE) sites:

- **Development Scenario A**
  - ▶ AIE is assumed to **not** be linked to SEED, and as such, compliance is sought for the development at SEED only under this development scenario.
  - ▶ EEP Stage 1A, including warehouses 2 and 6 (SSD-19618251)
  - ▶ SEED Stage 1B, including warehouses 1, 4, 5, 7, 8 and cafe (i.e. the development being sought as part of this SSDA)
  - ▶ Sydney Water Basin SC09 (offline)
- **Development Scenario B**
  - ▶ AIE Stage 6, including warehouses 4 and 6 (warehouses 1, 2, 3, 7, 8 and 9 are removed due to SSA allocation) and
  - ▶ EEP Stage 1A, including warehouses 2 and 6 (SSD-19618251)
  - ▶ SEED Stage 1B, including warehouses 1, 4, 5, 7, 8 and cafe (i.e. the development being sought as part of this SSDA)
  - ▶ Sydney Water Basin SC09 (offline)
  - ▶ An amendment to the cumulative stormwater management strategy will be submitted as a future modification to AIE SSDA-10448 (AIE MOD12). If required, a modification will also be submitted as a future modification to EEP Stage 1A SSD-19618251 to align the cumulative stormwater management.
- **Development Scenario C**
  - ▶ AIE Stage 5 AIE SSDA-10448 (AIE MOD11), including warehouses 1, 2, 3, 6, 7 (incl. Café), 8 & 9, and
  - ▶ EEP Stage 1A, including warehouses 2 and 6 (SSD-19618251)
  - ▶ SEED Stage 1B, including warehouses 1, 4, 5, 7, 8 and cafe (i.e. the development being sought as part of this SSDA)
  - ▶ Sydney Water Basin SC09 (offline)
  - ▶ An amendment to the cumulative stormwater management strategy may be required to be submitted as a future modification to AIE SSDA-10448. If required, a modification will also be submitted as a future modification to EEP Stage 1A SSD-19618251 to align the cumulative stormwater management.

**Scenario A** would rely on AIE being able to either:

- Obtain separate approval for an alternative interim stormwater management strategy that does not rely on EEP for achieving interim stormwater targets, OR
- The regional stormwater system becomes operational with the Mamre Road Precinct, meaning that AIE is no longer required to meet interim stormwater targets

The key difference between **Scenario B** and **Scenario C** is with respect to the development at AIE, with **Scenario B** considering the AIE Lot 4 SSD as approved and operational, whilst **Scenario C**, considers an alternative scenario when the AIE Lot 4 SSD is not approved, or is not able to proceed due to delays in SSA allocation.

AT&L and Mirvac have considered both **Scenario A**, **Scenario B** and **Scenario C** as part of the EEP Stage 1B SSDA application to provide Mirvac with greater flexibility subject to how the timing of development occurs across AIE and at EEP, especially noting that AIE and EEP are located in different precincts, and regional stormwater infrastructure within the Mamre Road Precinct, is somewhat more advanced in its delivery compared to that within the Western Sydney Aerotropolis.

The proposed measures described in **Section 7.3** and the performance assessment of the stormwater management strategy outlined in **Section 8**, **Section 9**, and **Section 11** consider development of both AIE and SEED in advance of regional stormwater management infrastructure to be delivered by Sydney Water. Where relevant, any changes to the proposed stormwater management measures required between **Scenario A**, **Scenario B** and **Scenario C** are denoted as such.

### 8.3. Proposed Stormwater Management Measures on the SEED Site

A series of stormwater quantity and quality control measures are proposed to be adopted within the SEED Site to satisfy the stormwater management strategy objectives listed in **Section 8.1**. A general description of the proposed stormwater treatment train components is presented in the following sections. The following stormwater management measures are applicable to both Scenario A and B on the SEED site.

#### 8.3.1. Passively Irrigated Street Tree Pits

The Passively Irrigated Street Tree Pits are assumed to be constructed by Stage 1A development works and is consistent with the water management strategy of Stage 1B. The implementation of passively irrigated street tree pits are unchanged in Stage 1B.

In accordance with the Western Sydney Aerotropolis DCP, street tree planting in the public road reserve will need to be designed to be passively irrigated through the stormwater drainage system. As such, the street trees in Stage 1A road reserves are proposed to be Passively Irrigated Street Trees (PIST). This is detailed within the AT&L civil drawing package and Site Image landscape package for EEP Stage 1A. The PIST are proposed to be planted at 8 metre intervals in accordance with the DCP and Sydney Water Stormwater Scheme Infrastructure Design Guidelines. As part of detailed design, it may be necessary to remove/relocate proposed street trees due to site line requirements, and in-ground/above ground service clashes. The removal of any street trees will be sought to be limited as much as possible.

Considering the relatively small volumes of stormwater that would be diverted towards street trees and despite the added improvement to the MUSIC modelling results, the MUSIC model does not incorporate street tree pits. Excluding street tree pits from the MUSIC model is considered to be a conservative approach to assessing the overall performance of the stormwater treatment train as it discounts their potential effectiveness at removing pollutants from road runoff (suspended solids and nutrients) and reducing the volume of surface water runoff from the site.

AT&L have included details of the proposed Passively irrigated street tree (PIST) detail within the AT&L civil drawing package for EEP Stage 1A. Please refer to drawing 16-369-C1026.

The detail proposed is the same detail that has been accepted by Penrith City Council within the Mamre Road Precinct and Interim Evaporation Basin.

The inclusion of passively irrigated street tree pits at SEED is consistent and unchanged between Stage 1A and Stage 1B water management strategies. All three **Scenario A**, **Scenario B** and **Scenario C** of the Stage 1B water management strategy include the street tree pits and is unchanged.

#### 8.3.2. Evaporation Basin

The stormwater treatment train for EEP Stage 1A consists of an end-of-line interim evaporative basin as a means of stormwater treatment and volume management. Evaporative basins have the benefit of reducing stormwater volumes through evaporative processes.

The interim evaporation basin completed as part of EEP Stage 1A is consistent with the evaporation basin proposed as part of **Development Scenario B** and **Scenario C** of SEED Stage 1B. This means there are no structural changes proposed to the evaporation basin in **Development Scenario B** and **Scenario C**. The design of evaporation basin completed in Stage 1A EEP is further discussed in **Section 7.3.2.1**.

Further discussion is included below in **Section 7.3.2.2** on how the evaporation basin may need to be adjusted to suit development **Scenario A**. These required amendments are relatively minor, and would be proposed to be brought forward as part of EEP Stage 1A MOD1, so that future augmentation of the evaporation basin is not required. The

Key parameters adopted for the interim evaporation basin are summarised in **Table 9**.

**Table 9: Evaporation Basin parameters to service EEP Stage 1 development**

| Parameter:                                                                              | Interim Evaporation Basin<br>(within Stage 2) – Development<br>Scenario A | Interim Evaporation Basin<br>(within Stage 2) – Development<br>Scenario B and Scenario C |
|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Inflow from:                                                                            | Detention Basin                                                           | Detention Basin                                                                          |
| Outflow to:                                                                             | ENZ zone adjacent to South Creek                                          | ENZ zone adjacent to South Creek                                                         |
| Surface area (m <sup>2</sup> )                                                          | 95,300                                                                    | 95,300                                                                                   |
| <b>Effective surface area (m<sup>2</sup>) –<br/>applied in MUSIC</b>                    | 81,960 (effective surface area factor<br>0.86)                            | 81,960 (effective surface area factor<br>0.86)                                           |
| Permanent pool volume (m <sup>3</sup> )                                                 | 38,300                                                                    | 38,300                                                                                   |
| Low flow outlet pipe diameter<br>(mm)                                                   | 100                                                                       | N/A                                                                                      |
| Exfiltration rate (mm/hr)                                                               | 0                                                                         | 0                                                                                        |
| Evaporative loss (% of PET)                                                             | 100                                                                       | 100                                                                                      |
| Extended detention depth (m)                                                            | 0.3                                                                       | 0.3                                                                                      |
| Outlet (equivalent pipe<br>diameter) (mm)                                               | 705                                                                       | 705                                                                                      |
| Adopted reuse (kL/yr)<br>(applied as Monthly Pattern as<br>per MUSIC Modelling Toolkit) | 0                                                                         | 0                                                                                        |

The interim evaporation basin shape is defined by the natural topography of the Stage 2 lands, which generally has a slope towards South Creek. As previously noted, an earth embankment is proposed to form the basin and retain water. Although evaporation basin has an irregular shape, the general cross section is triangular in nature.

In MUSIC, the interim evaporation basin is represented using a *Pond* treatment node, which requires input parameters such as surface area and volume. Due to a modelling limitation within MUSIC, ponds apply a constant surface area across the full depth of the water column when calculating evaporation (effectively representing the pond as a rectangular prism in shape).

To more accurately reflect the variable water surface area in the interim evaporation basin, a factor of 0.86 was applied to the basin surface area, resulting in an effective surface area of 81,960 m<sup>2</sup>. This effective surface area factor was determined using an iterative process aimed at identifying an equivalent surface area for evaporation that aligns with the average water volume stored in the basin over the ten-year daily rainfall dataset used in MUSIC. This modelling approach was adopted for the revised MUSIC model due to its simplicity (relying on a single treatment node), while avoiding the limitations encountered with the alternative method discussed below. Further detail on the derivation of the effective surface area factor is provided in **Section 8.3.2.1**.

AT&L tested an alternative method, which attempted to represent the change in volume with height through the introduction of a series of pond nodes in MUSIC. While this method provided a clearer visual representation of the change in volume and surface area, there were other issues encountered with this method which were not easily solved. Each pond node in MUSIC has parameters relating to the extended detention depth which affected notional detention time, low-flow and high-flow bypass and evapotranspiration. The method would likely over-estimate the evapotranspiration when all nodes were activated and had difficulty representing the notional detention time of 10hours as per Sydney Water guidelines.

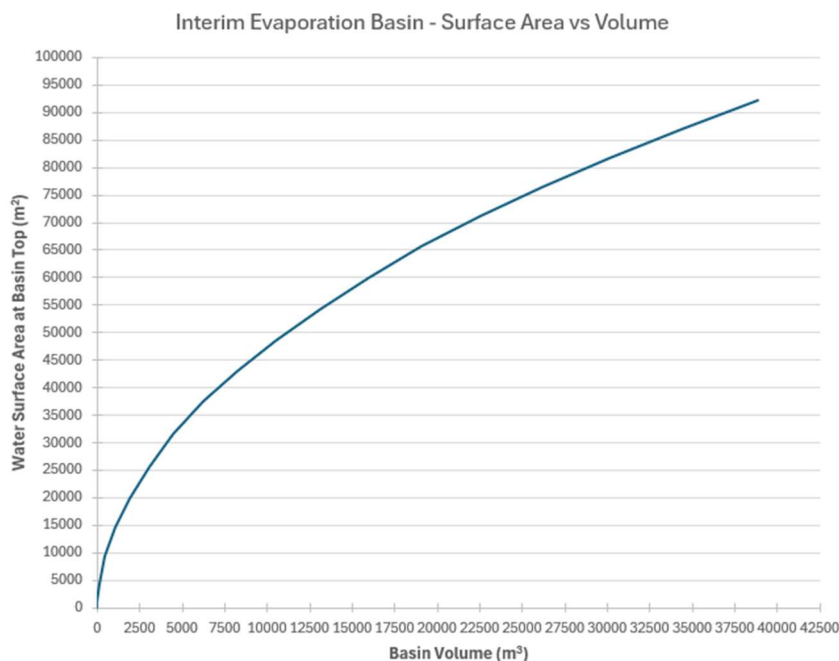
The interim evaporation basin has the potential to attract wildlife (primarily birds), which poses a risk to the operation of Western Sydney Airport. To mitigate potential risks associated with bird strike and its potential impact on aviation safety and airport operation, various design and operational interventions could be implemented for the interim evaporation basin (subject to ongoing monitoring and adaptive management). Recommendations and mitigation options are outlined in a Wildlife Hazard Assessment prepared by Avisure (February 2025) and include:

- Regular monitoring of the interim evaporation basin and application of wildlife dispersal as required.
- Implementation of a Wildlife Hazard Management Plan to document activities, responsibilities and passive or active management techniques.

### 8.3.2.1. Effective Surface Area Factor

The process of calculating the effective surface area factor involves multiple iterations of running the MUSIC model and using the outputs to determine the actual surface area based on the basin's average storage volume. The step-by-step methodology is outlined below.

- 1) First, a storage calculation report is exported from the 3D (12d) model of the evaporation basin, providing volume vs surface area data. Using this information, a line chart illustrating the relationship between surface area and volume is generated. The evaporation basin volume vs surface data chart is presented in **Figure 15**. As can be seen from **Figure 15**, the surface area does not increase in a linear fashion with, which is expected, given the notional cross section of the evaporation basin, being somewhat triangular in section.



**Figure 15: Chart showing relationship between surface area and volume for evaporation basin**

- 2) An initial best-guess area reduction factor is then applied to the basin's surface area to determine the effective surface area used in the MUSIC evaporation basin node. After running the MUSIC model with the applied area reduction factor, the storage results are exported and the average storage volume over the 10-year daily rainfall sequence is calculated. The calculated average storage volume is then plotted against the above graph, and the resultant surface area is determined. The inferred surface area of the basin as a percentage of the total area is then compared to the initial area reduction factor (as a percentage). Where the inferred surface area is significantly different to the initial reduction factor, the reduction factor will need to be revised to more closely match. The revised factor is then used to update the evaporation basin node in MUSIC and the process is repeated to check the new inferred surface area percentage. Note as the effective area factor increases, evapotranspiration also increases, which in turn reduces the average basin

storage volume. The iterative process continues until the effective surface area factor closely aligns (within a  $\pm 2\%$  tolerance) with the actual surface area percentage derived from the storage–area relationship.

- 3) This process is better explained through the below example. An initial area reduction factor of 0.8 may be selected, resulting in an effective basin surface area of 76,240 m<sup>2</sup> (0.8 x 95,300m<sup>2</sup>). If the MUSIC output indicates an average storage volume of 32,500 m<sup>3</sup> over the 10-year period, the chart in **Figure 14** suggests this volume corresponds to an actual water surface area of approximately 85,000 m<sup>2</sup>, or 89% of the total surface area. Because the initial factor of 0.8 (80%) is significantly lower than the interpolated 89%, it is evident that the initial factor underestimates the representative surface area of the evaporation basin. The factor is therefore revised—typically increased to a value between 0.8 and 0.89—and the MUSIC model is rerun.

It is important to note that the effective surface area factor is model-specific and must be reassessed for each stormwater strategy using the iterative procedure described above. This is due to variations in upstream water quality treatment measures and catchment properties.

### 8.3.2.2. Evaporation Basin – Development Scenario B and Scenario C

As discussed above, EEP Stage 1B assumes that the evaporation basin has been constructed as part of EEP Stage 1A development and is consistent with **Development Scenario B and Scenario C**.

No amendments are needed to the Evaporation Basin as proposed and constructed as part of EEP Stage 1A. Refer to the EEP Stage 1A civil drawings and AT&L EEP Stage 1A Water and Stormwater Management Plan (AT&L, December 2025) for more details regarding the evaporation basin.

The intent of the Evaporation Basin is to capture and store surface water runoff from both the developed portion of EEP Stage 1 and the undeveloped portion of EEP Stage 2 upstream of the embankment. The Basin would promote the evaporation of surface water across a large area to contribute to the stormwater flow targets adopted in the Aerotropolis DCP in advance of delivery of the regional stormwater management scheme.

Refer to drawing 16-369-C12153 for the proposed interim stormwater management plan layout.

### 8.3.2.3. Evaporation Basin – Scenario A

EEP Stage 1B assumes that the evaporation basin has been constructed as part of EEP Stage 1A development, however under **Development Scenario A**, where EEP is not linked with the AIE, modifications would be required to the interim evaporation basin to ensure compliance with the stormwater management targets.

In **Development Scenario A**, the interim evaporation basin is the same size and volume as above in **Development Scenario B and Scenario C** but is to now include a DN100 low-flow outlet pipe from the base of the evaporation basin to the outlet pit. In Stage 1B, the low-flow pipe inlet will be uncapped to allow stormwater runoff into South Creek so that the stormwater flow volume is not reduced to under the DCP targets. It is proposed that this low flow outlet be constructed and capped as part of the Stage 1A works, which will form part of the EEP Stage 1A MOD1 application.

Refer to drawing 16-369-C12151 for the proposed interim stormwater management plan layout.

### 8.3.3. On-site stormwater detention

The on-site stormwater detention is to be constructed by Stage 1A development works and is consistent with the water management strategy of Stage 1B. The OSD is unchanged in Stage 1B.

The basis of design for on-site stormwater detention (OSD) for EEP Stage 1 is as follows:

- As per Section 1.4.2 of the *Western Sydney Aerotropolis DCP 2022* (Amendment 1, September 2024), guidance on street design and engineering standards is to reference the *Western Sydney Engineering Design Manual* (WSPP, April 2021).
- Section 9.3 of the *Western Sydney Engineering Design Manual* outlines specific design criteria for OSD. The key criteria being that ‘*maximum site discharge from the post-development site shall not exceed the pre-development flows for all storm events for: the 50% AEP up to and including the 1% AEP*’.

The stormwater on the lots and within the road reserve for the overall development of the Site is proposed to be collected via pits and pipes and connect into the EEP Stage 1A approved detention basin (Basin A) to be located east of Road 1. For the post-development scenario, the design solution will result in post-development peak flow rates being no greater than pre-development peak flow rates for design storm events between and including the 50% AEP and 1% AEP at the proposed point of discharge from the detention basin into the interim evaporation basin within Stage 2. Refer to Drawing 16-369-C1141 in **Appendix A** for details of OSD Basin A and outlet to the evaporation basin.

The required OSD volume is a function of the outlet arrangement from the OSD basin, which has been determined based on iterative DRAINS modelling and design to derive a solution that satisfies the peak flow attenuation criteria outlined above.

It shall be noted that the OSD Basin A was sized to provide detention for the entirety of the SEED Stage 1 development catchment, assuming that SEED Stage 1 was fully developed. Refer to the EEP Stage 1A civil drawings and AT&L EEP Stage 1A Water and Stormwater Management Plan (AT&L, December 2025) for more details regarding the OSD Basin A.

#### **8.3.4. Stormwater Regional Basin SC09 (Offline)**

The Regional Basin SC09 forms part of the Sydney Water regional stormwater scheme which is an end-of-line WSUD to achieve the Wianamatta-South Creek stormwater targets. The regional basin consists of a series of water quality treatment components which include the wetland (and inlet pool), bioretention system and a storage pond. Treated water in the storage pond is used for stormwater harvesting and recycled water distribution.

It is noted that the construction of the Regional Stormwater Basin SC09, which will be constructed as an *offline* structure, that is, under the SEED Stage 1B SSDA, Regional Stormwater Basin SC09 will not have any stormwater intake from the SEED estate. Under the SEED Stage 1B SSDA, Regional Stormwater Basin SC09 is not being used to for the purposes of achieving interim compliance with the stormwater objectives, being offline. It is proposed for Regional Stormwater Basin SC09 to receive stormwater from the SEED estate as part of a future SSDA application for SEED, intended to form part of the future SEED Stage 2 SSDA application.

The offline regional basin will not provide water quality treatment for the EEP Stage 1 development. The inlet system from OSD Basin A to the regional basin SC09 will be capped. The regional basin SC09 is included from the MUSIC modelling for EEP Stage 1B (**Development Scenarios A and B**) but does not receive any upstream stormwater catchment flows for treatment. The regional basin SC09 is modelled on MUSIC using the same treatment nodes in the Sydney Water MUSIC model *Aero Cluster Model\_Badgerys\_03\_V3* dated 11/04/25.

The regional stormwater basin has the potential to attract wildlife (primarily birds), which poses a risk to the operation of Western Sydney Airport. To mitigate potential risks associated with bird strike and its potential impact on aviation safety and airport operation, various design and operational interventions could be implemented for the interim evaporation basin (subject to ongoing monitoring and adaptive management). Recommendations and mitigation options are outlined in a Wildlife Hazard Assessment prepared by Avisure (February 2025) and include:

- Regular monitoring of the interim evaporation basin and application of wildlife dispersal as required.
- Implementation of a Wildlife Hazard Management Plan to document activities, responsibilities and passive or active management techniques.

The various components of the stormwater regional basin are outlined below.

##### **8.3.4.1. Constructed Wetlands**

Constructed wetlands consist of three components which include the inlet pool that acts as a sediment basin, a macrophyte zone with aquatic plants to remove fine particles and pollutants and a high-flow bypass channel. The wetland facilitates the evapotranspiration of stormwater and enhances aesthetics with cooling effects on the surrounding environment.

#### **8.3.4.2. Bioretention System**

Bioretention systems provide efficient stormwater pollution removal properties and are implemented in combination with the constructed wetland system. The bioretention system consist of a detention zone planted with nutrient removing plants over filter media which allows stormwater to be filtered through removing key nutrients such as nitrogen and phosphorous, heavy metals and sediments. The bioretention increases stormwater attenuation and provides evapotranspiration as stormwater is detained in the system.

#### **8.3.4.3. Storage Pond**

Storage ponds are the final downstream treatment element of the regional basin. Overflows from the storage pond will be discharged into the riparian corridor towards South Creek. The storage pond contributes to achieving WWH targets through extended detention of stormwater and supplying the regional non-potable reuse scheme.

## 9. Performance Assessment – Development Scenario A

### 9.1. Hydrological and Hydraulic Modelling

DRAINS modelling software has been used to calculate the Hydraulic Grade Line (HGL) of the proposed estate-wide stormwater network, including pits, pipes, overland flow paths and detention basins. DRAINS is a computer program used for designing and analysing urban stormwater drainage systems and catchments. It is widely accepted by Councils across NSW as the basis for stormwater design and has been confirmed by Penrith City Council as the preferred stormwater software analysis package.

A summary of the key hydrological and hydraulic design parameters adopted in DRAINS to develop a major and minor system drainage design for the proposed development are as follows:

- Rainfall intensities have been adopted using the Bureau of Meteorology Design Rainfall Data System (2016).
- Hydrological input parameters:
  - ▶ Paved (impervious) area depression storage: 1 mm
  - ▶ Grassed (pervious) area depression storage: 5 mm
  - ▶ Soil Type: 3
- Times of concentration for each sub catchment have been determined using the friend's equation.
  - ▶ Minimum tc: 5 minutes
  - ▶ Maximum tc: 20 minutes
- Pit Loss coefficients have been calculated in accordance with the Missouri-Hare Charts as documented in the Queensland Urban Drainage Manual.
- Onsite detention methodology: Post development flows are to be less than Predevelopment site flows.

The above is consistent across both **Development Scenario A, Development Scenario B and Development Scenario C.**

### 9.2. Stormwater Quality Modelling

#### 9.2.1. MUSIC Model Parameters

The Model for Urban Stormwater Improvement Conceptualisation (MUSIC, Version 6.3.0) software package has been used to estimate pollutant loads from the estate based on proposed Site development. Modelling has been undertaken in accordance with the *MUSIC Modelling Toolkit – Wianamatta* (NSW DPE, September 2022).

MUSIC model parameters including rainfall and evaporation, rainfall-runoff and source node pollutant generation are consistent with the parameters adopted in the *MUSIC Modelling Toolkit – Wianamatta* (NSW DPE, September 2022).

The above is consistent across both **Development Scenario A, Development Scenario B and Development Scenario C.**

#### 9.2.2. Scenario Modelling

A MUSIC model was created to simulate post-development mean annual loads under the Interim Arrangement **Development Scenario A.**

As discussed in **Section 7.2.3, Development Scenario A** assesses EEP on its own to service EEP Stage 1A (WH 2 & 6) and EEP Stage 1B (WH1, 4, 5, 7, 8 and Café with Regional basin SC09 as offline).

The post-development (Interim Arrangement – Scenario A) model has been created based upon the proposed post-development catchment extents presented in **Figure 13**. Source nodes for each of the proposed lots have been adopted based on typical large-scale industrial land uses, including those depicted in the Estate Plan prepared by SBA. The layout of the post-development **Development Scenario A** is presented in **Figure 16**.

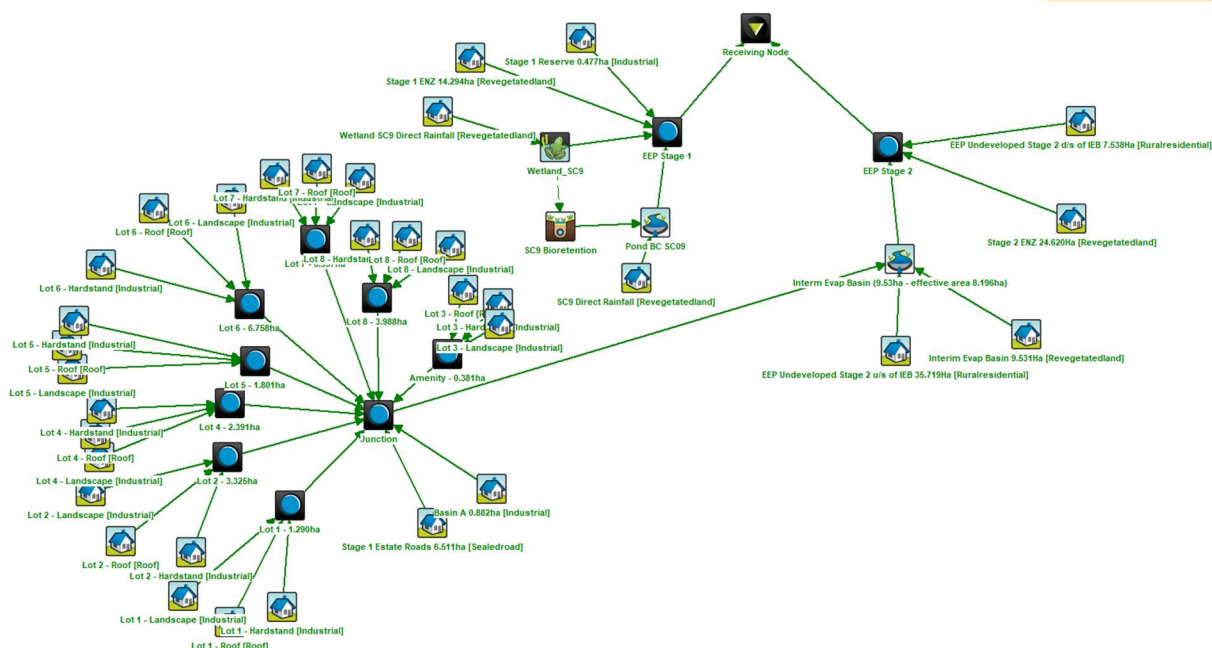


Figure 16: MUSIC model layout for the Interim Arrangement (Scenario A)

The proposed land use breakdown for each of the catchments under the post-development scenario is presented in **Appendix B**.

The post-development scenario model incorporates the following stormwater management measures:

- Evaporation Basin, as per the parameters described in **Section 7.3.2**.

The attributes for each of the proposed stormwater management measures have been determined such that they will satisfy the stormwater quality, quantity and flow targets outlined in **Section 8.1**.

For clarity, and consistent with AT&L drawing C12151, the MUSIC model above does not include the catchment areas for the Endeavour Energy site and Sydney Water's wastewater pump station. These areas are excluded as the works on these lots are subject to separate approvals by others, namely Part 5 approvals sought and obtained by both Endeavour Energy and Sydney Water.

## 9.3. Performance against stormwater targets

### 9.3.1. Stormwater quality

MUSIC modelling results presented as mean annual loads at the receiving node indicate that the adopted target reductions are achieved for both **Development Scenario A**, as shown in **Table 10**.

Table 10: Summary of MUSIC modelling results against stormwater quality targets – Development Scenario A

| Parameter                | Sources – Post-Development | Residual Load Post-Development | Reduction (%) | Mean annual load (post-treatment) (kg/ha/yr) | DCP Target Option 2 (allowable mean annual load) |
|--------------------------|----------------------------|--------------------------------|---------------|----------------------------------------------|--------------------------------------------------|
| TSS (kg/yr)              | 29600                      | 4470                           | 84.9          | 34.4                                         | < 80.0 kg/ha/yr                                  |
| TP (kg/yr)               | 62.3                       | 15.2                           | 75.6          | 0.12                                         | < 0.3 kg/ha/yr                                   |
| TN (kg/yr)               | 513                        | 169                            | 67            | 1.30                                         | < 3.5 kg/ha/yr                                   |
| Gross Pollutants (kg/yr) | 6380                       | 379                            | 94.1          | 2.92                                         | < 16.0 kg/ha/yr                                  |

### 9.3.2. Stormwater quantity

The on-site stormwater detention is to be constructed by Stage 1A development works and is consistent with the water management strategy of Stage 1B. The OSD and associated flow rates are unchanged in Stage 1B, as the OSD basin was sized based to accommodate the fully developed Stage 1 catchment area. Note the OSD basin peak flow rates for **Scenario A**, **Scenario B** and **Scenario C** are the same as they are independent of AIE.

Table 11 presents the pre-development and post development flow rates for all storm events at the outlet of the proposed OSD basin. The OSD within the basin has been designed to achieve the following outcomes for all pre and post developed cases.

**Table 11: Pre-development and post-development peak flow rates from the proposed development**

| Design Storm Event | Pre-Development Peak Flow Rate (m <sup>3</sup> /s) | Post-Development Peak Flow Rate (m <sup>3</sup> /s) |
|--------------------|----------------------------------------------------|-----------------------------------------------------|
| 50% AEP            | 1.08                                               | 1.04                                                |
| 20% AEP            | 2.20                                               | 2.17                                                |
| 10% AEP            | 3.09                                               | 2.89                                                |
| 5% AEP             | 4.07                                               | 4.07                                                |
| 1% AEP             | 7.90                                               | 7.90                                                |

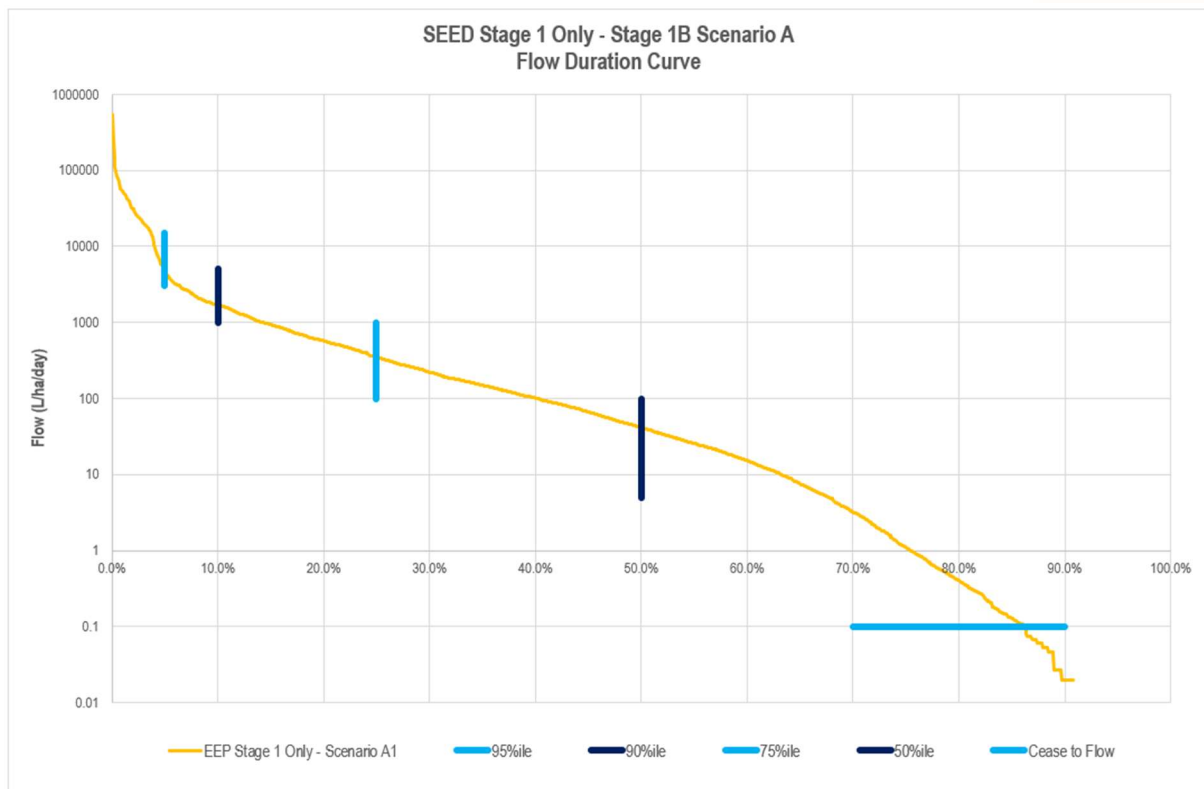
### 9.3.3. Stormwater flow volume

MUSIC model results demonstrating performance of the proposed stormwater management measures in the Interim Arrangement against the stormwater flow targets are presented below for **Scenario A** in **Table 12**. The resultant flow duration curve is presented as **Figure 17**.

The MUSIC model results demonstrate that compliance is met with both **DCP Option 1** and **DPC Option 2**.

**Table 12: Summary of MUSIC model results against stormwater flow targets (Interim Arrangement Scenario A)**

| Parameter                            | Result | DCP Target    | Complies with DCP target     |                                             |
|--------------------------------------|--------|---------------|------------------------------|---------------------------------------------|
|                                      |        |               | DCP Option 1 (MARV approach) | DCP Option 2 (Flow Duration Curve approach) |
| Mean annual runoff volume (ML/ha/yr) | 0.90   | 2.0           | Yes                          | n/a                                         |
| 95%ile flow (L/ha/day)               | 4767   | 3000 to 15000 | n/a                          | Yes                                         |
| 90%ile flow (L/ha/day)               | 1694   | 1000 to 5000  | Yes                          | Yes                                         |
| 75%ile flow (L/ha/day)               | 349.5  | 100 to 1000   | n/a                          | Yes                                         |
| 50%ile flow (L/ha/day)               | 41.6   | 5 to 100      | Yes                          | Yes                                         |
| 10%ile flow (L/ha/day)               | 0.02   | 0             | Yes**                        | n/a                                         |
| Cease to flow                        | 13.9%* | 10% to 30%    | n/a                          | Yes*                                        |



**Figure 17: Flow duration curve for the proposed stormwater management measures (Interim Arrangement Scenario A)**

\* Note that the MUSIC model for SEED Stage 1B rounds off at below 0.02L/ha/day, whereas the benchmark examples from the *Technical Guidance for Achieving Wianamatta-South Creek Stormwater Management Targets* (DPE, Sep 2022) show cease to flow occurring at 0.1L/ha/day. Using this benchmark, SEED Stage 1B Scenario A achieves 13.9% cease to flow. The large amount of ENZ land downstream of the development and downstream of the stormwater management controls, naturally provide soil baseflows which extends the tail of the graph, and are not directly related to the development works themselves.

\*\* Further discussion on the 10-percentile flow results is presented below:

- The 10-percentile values of up to 0.02 L/ha/day equates to a total runoff from SEED Site of approximately 2.59 litres per day over the 129.8ha catchment area (equivalent to around 0.108 litres per hour). Whilst it is acknowledged the values that generate the flow duration curve represent a statistical probability of the exceedance of a particular flow value, in reality the calculated 10-percentile flow from the site represents a value too small to practically measure. To put this into perspective, a flow of 0.108 L/h is roughly equivalent to a slow tap drip—about one small droplet every two seconds. If you placed a bottle underneath it, it would take over two hours just to half-fill up a 600mL bottle of water. In practical terms, this represents a flow so minimal that it would be difficult to reliably observe or measure in the field. Another way to look at this, the 0.108 L/h flow rate at the discharge point is less than pouring a quarter full 600mL water bottle every hour for catchment area of approximately 180 soccer fields.
- Although the 10-percentile flow from the model exceeds the DCP target marginally by 0.02 L/ha/day, it is important to note that the stormwater management strategy is temporary only and will ultimately be replaced by the Sydney Water Regional Infrastructure, meaning that marginal exceedance, will only be applicable during this interim phase. The temporary condition, in addition to the significantly low flow discussed above will mean that the adverse impacts of this strict non-compliance, will be reliable.
- Existing approvals of the AIE SSDA (SSD-10448), specifically both the stormwater management strategies for AIE MOD4 and AIE MOD8 which are both approved, both included technical non-compliance with the Cease-to-Flow and/or 10-percentile flow targets. Both AIE MOD4 and AIE MOD8 incorporated the cumulative land use of AIE and EEP for the purposes of the approved stormwater management strategy. The existing approvals should be considered when assessing the cumulative stormwater strategy and results in this report. With reference to the AIE MOD 4 WSMP (REP008-08-18-596-MOD4 WSMP), the 10-

percentile flow for the Stage 5 development (Lots 1, 2, 3, 9, 6, 7, 8, 9 and Café) was 0.08 L/ha/day. Similarly, reference to the AIE MOD 8 WSMP (REP016-03-18-596-MOD8 WSMP), the 10-percentile flow for the Stage 5 development (Lots 1, 2, 3, 9, 6, 7, 8, 9 and Café) was 0.09 L/ha/day. Comparatively, the stormwater strategy contemplated in SEED Stage 1B Scenario A, provides a more favourable result with lower 10-percentile flows of 0.02 L/ha/day.

- The 10-percentile flow results indicate how often zero flows occur at the receiving node or outlet. Due to a limitation in MUSIC, smaller catchments tend to produce more zero-flow results because the model rounds very low flows down to zero when equivalent treatment controls are applied. In contrast, the Stage 1B SEED Scenario A model, representing the total SEED catchment area of approximately 129.8 ha, reports fewer zero-flow events simply because the larger catchment generates higher baseline flows than an equivalent model with a smaller catchment area and treatment train. As such, it is likely that a comparable smaller site, would achieve compliance, however, given the larger combined site area, rounding errors have possibly contributed to the non-compliance.
- Given the above discussion, AT&L consider the resultant 10%ile flow of 0.02L/ha/day to be effectively a zero flow result (the flows are effectively negligible), considering the significant catchment area, limitations of the MUSIC model and temporary timeline that this interim stormwater strategy will be in place for. As such, compliance with the DCP stormwater flow target Option 1 is also reached.

## 9.4. Interim Evaporation Basin Performance

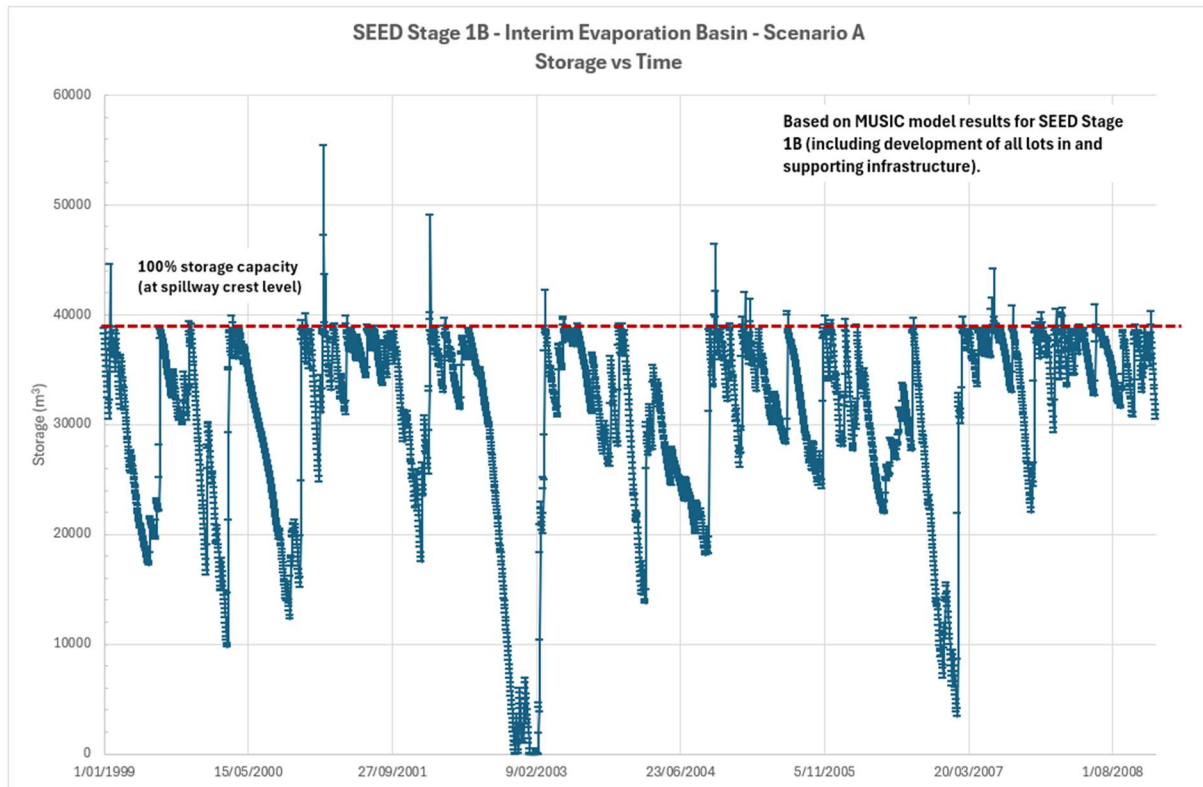
MUSIC model results of the interim evaporation basin have also been used to predict the storage volume of water within the basin over an extended period of time. The rainfall data used in the MUSIC model is over a period of 10 years from recorded rainfall events between 1999 to 2008 inclusive.

As discussed previously, **Scenario A** refers to the evaporation basin with a low-flow outlet pipe. Storage volumes over time are presented in **Figure 18** for **Scenario A**. This graphic can be used to predict percentage of time periods where the basin holds a certain volume of water.

In summary for **Scenario A**:

- Pond is empty (less than 0.1% full) – approximately 0.8% of the time over the modelling period
- Pond is between 0-25% full – approximately 3.2% of the time over the modelling period
- Pond is between 25-50% full – approximately 6.5% of the time over the modelling period
- Pond is between 50-75% full – approximately 22.6% of the time over the modelling period
- Pond is between 75-100% full – approximately 64.1% of the time over the modelling period
- Pond is over 100% capacity – approximately 2.7% of the time over the modelling period

Based on the MUSIC model results, and shown in **Figure 18**, the interim evaporation basin is predicted to only store water to 50% of its capacity up to approximately 10.5% of the time. The MUSIC model results also indicate that the basin would be empty around 0.8% of the time. It is noted and emphasised that these results are based on water balance modelling using historical rainfall records, and do not necessarily provide an indication or prediction of water levels given variability in climate and rainfall.



**Figure 18: Interim Evaporation Basin storage over time (based on MUSIC model results) – Scenario A**



The attributes for each of the proposed stormwater management measures have been determined such that they will satisfy the stormwater quality, quantity and flow targets outlined in **Section 8.1**.

For clarity, and consistent with AT&I drawing C12133, the MUSIC model above does not include the catchment areas for the Endeavour Energy site and Sydney Water's wastewater pump station. These areas are excluded as the works on these lots are subject to separate approvals by others, namely Part 5 approvals sought and obtained by both Endeavour Energy and Sydney Water.

## 10.3. Performance against stormwater targets

### 10.3.1. Stormwater quality

MUSIC modelling results presented as mean annual loads at the receiving node indicate that the adopted target reductions are achieved, as shown in **Table 13** Error! Reference source not found..

**Table 13: Summary of MUSIC modelling results against stormwater quality targets – Scenario B**

| Parameter                | Sources – Post-Development | Residual Load Post-Development | Reduction (%) | Mean annual load (post-treatment) (kg/ha/yr) | DCP Target Option 2 (allowable mean annual load) |
|--------------------------|----------------------------|--------------------------------|---------------|----------------------------------------------|--------------------------------------------------|
| TSS (kg/yr)              | 44500                      | 4820                           | 89.2          | <b>32.5</b>                                  | < 80.0 kg/ha/yr                                  |
| TP (kg/yr)               | 90.8                       | 19.1                           | 79.0          | <b>0.13</b>                                  | < 0.3 kg/ha/yr                                   |
| TN (kg/yr)               | 676                        | 215                            | 68.2          | <b>1.45</b>                                  | < 3.5 kg/ha/yr                                   |
| Gross Pollutants (kg/yr) | 8410                       | 123                            | 98.5          | <b>0.83</b>                                  | < 16.0 kg/ha/yr                                  |

### 10.3.2. Stormwater quantity

Refer to Error! Reference source not found. in **Section 8.3.2** for pre-development and post development flow rates for all storm events at the outlet of the proposed OSD basin. Note the OSD basin peak flow rates for **Scenario A, B and C** are the same as they are independent of AIE.

### 10.3.3. Stormwater flow volume

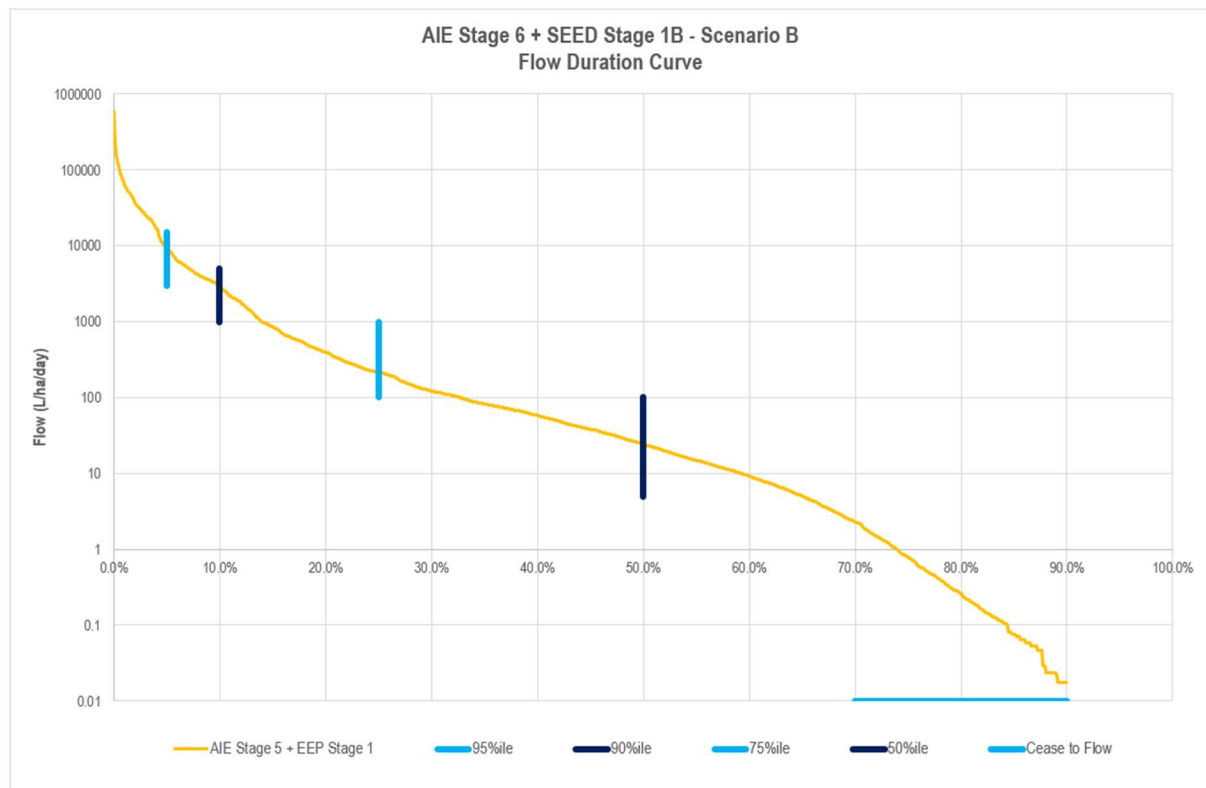
MUSIC model results demonstrating performance of the proposed stormwater management measures in the Interim Arrangement against the stormwater flow targets are presented below in **Table 14**. The resultant flow duration curve is presented as **Figure 20** Error! Reference source not found..

The MUSIC model results demonstrate compliance is met with **DCP Option 1 and Option 2**.

**Table 14: Summary of MUSIC model results against stormwater flow targets (Interim Arrangement) – Scenario B**

| Parameter                            | Result | DCP Target    | Complies with DCP target     |                                             |
|--------------------------------------|--------|---------------|------------------------------|---------------------------------------------|
|                                      |        |               | DCP Option 1 (MARV approach) | DCP Option 2 (Flow Duration Curve approach) |
| Mean annual runoff volume (ML/ha/yr) | 1.08   | 2.0           | Yes                          | n/a                                         |
| 95%ile flow (L/ha/day)               | 9361   | 3000 to 15000 | n/a                          | Yes                                         |
| 90%ile flow (L/ha/day)               | 2873   | 1000 to 5000  | Yes                          | Yes                                         |
| 75%ile flow (L/ha/day)               | 217.3  | 100 to 1000   | n/a                          | Yes                                         |
| 50%ile flow (L/ha/day)               | 24.1   | 5 to 100      | Yes                          | Yes                                         |
| 10%ile flow (L/ha/day)               | 0.00   | 0             | Yes                          | n/a                                         |

|               |       |            |     |     |
|---------------|-------|------------|-----|-----|
| Cease to flow | 10.0% | 10% to 30% | n/a | Yes |
|---------------|-------|------------|-----|-----|



**Figure 20: Flow duration curve for the proposed stormwater management measures (Interim Arrangement) – Scenario B**

The results presented in **Figure 20** demonstrate the proposed stormwater management measures that will be implemented under the Interim Arrangement satisfy both **DCP Option 1** and **Option 2** stormwater flow targets.

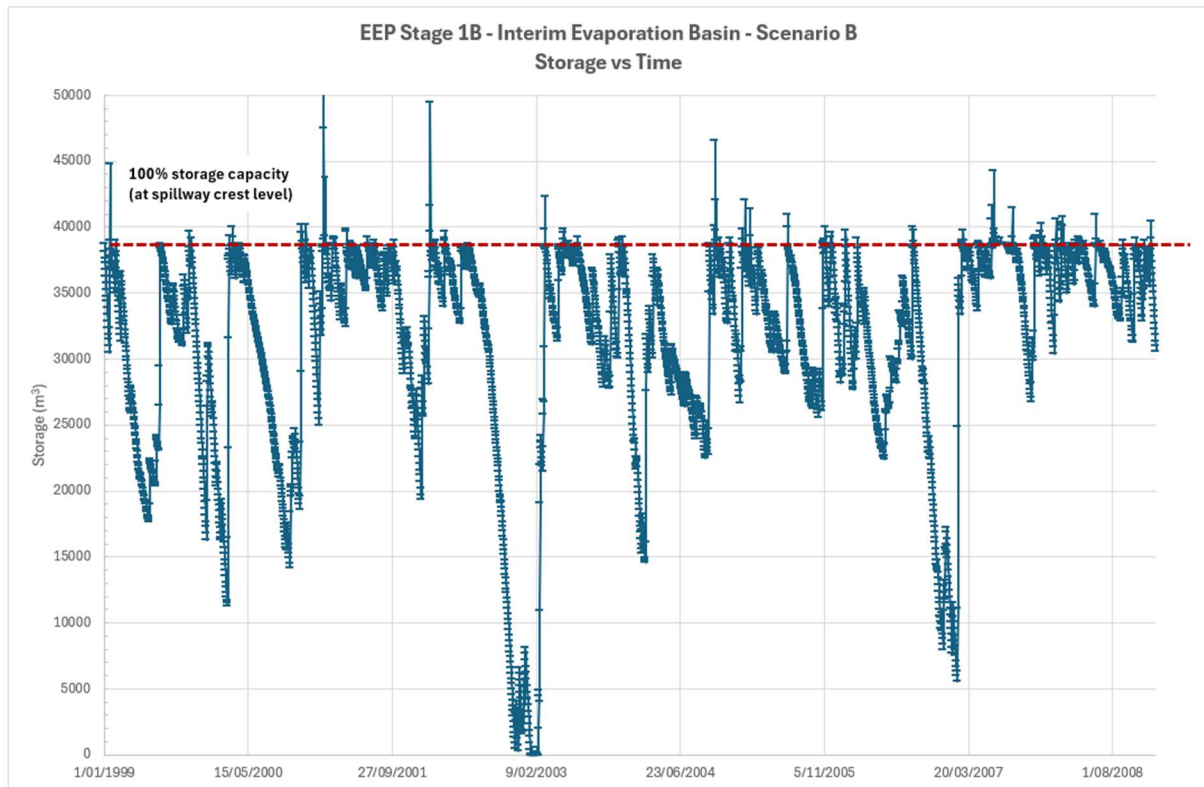
## 10.4. Interim Evaporation Basin Performance

MUSIC model results of the interim evaporation basin have also been used to predict the storage volume of water within the basin over an extended period of time. The rainfall data used in the MUSIC model is over a period of 10 years from recorded rainfall events between 1999 to 2008 inclusive.

Storage volumes over time are presented in **Figure 21***Error! Reference source not found.*. This graphic can be used to predict percentage of time periods where the basin holds a certain volume of water. In summary:

- Pond is empty (less than 0.1% full) – approximately 0.7% of the time over the modelling period
- Pond is between 0-25% full – approximately 2.9% of the time over the modelling period
- Pond is between 25-50% full – approximately 5.6% of the time over the modelling period
- Pond is between 50-75% full – approximately 19.7% of the time over the modelling period
- Pond is between 75-100% full – approximately 67.7% of the time over the modelling period
- Pond is over 100% capacity – approximately 3.4% of the time over the modelling period

Based on the MUSIC model results, and shown in **Figure 21**, the interim evaporation basin is predicted to only store water to 50% of its capacity up to approximately 9.3% of the time. The MUSIC model results also indicate that the basin would be empty around 0.7% of the time. It is noted and emphasised that these results are based on water balance modelling using historical rainfall records, and do not necessarily provide an indication or prediction of water levels given variability in climate and rainfall.



**Figure 21: Interim Evaporation Basin storage over time (based on MUSIC model results) – Scenario B**



The attributes for each of the proposed stormwater management measures have been determined such that they will satisfy the stormwater quality, quantity and flow targets outlined in **Section 8.1**.

For clarity, and consistent with AT&I drawing C12133, the MUSIC model above does not include the catchment areas for the Endeavour Energy site and Sydney Water's wastewater pump station. These areas are excluded as the works on these lots are subject to separate approvals by others, namely Part 5 approvals sought and obtained by both Endeavour Energy and Sydney Water.

## 11.3. Performance against stormwater targets

### 11.3.1. Stormwater quality

MUSIC modelling results presented as mean annual loads at the receiving node indicate that the adopted target reductions are achieved, as shown in **Table 15** Table 13.

**Table 15: Summary of MUSIC modelling results against stormwater quality targets – Scenario C**

| Parameter                      | Sources –<br>Post-Development | Residual Load<br>Post-Development | Reduction (%) | Mean annual load<br>(post-treatment)<br>(kg/ha/yr) | DCP Target<br>Option 2<br>(allowable mean<br>annual load) |
|--------------------------------|-------------------------------|-----------------------------------|---------------|----------------------------------------------------|-----------------------------------------------------------|
| TSS (kg/yr)                    | 62600                         | 12500                             | 80.1          | <b>67.8</b>                                        | < 80.0 kg/ha/yr                                           |
| TP (kg/yr)                     | 134                           | 44.5                              | 66.9          | <b>0.24</b>                                        | < 0.3 kg/ha/yr                                            |
| TN (kg/yr)                     | 1050                          | 481                               | 54.1          | <b>2.61</b>                                        | < 3.5 kg/ha/yr                                            |
| Gross<br>Pollutants<br>(kg/yr) | 13000                         | 79.7                              | 99.4          | <b>0.43</b>                                        | < 16.0 kg/ha/yr                                           |

### 11.3.2. Stormwater quantity

Refer to **Section 8.3.2** for pre-development and post development flow rates for all storm events at the outlet of the proposed OSD basin. Note the OSD basin peak flow rates for **Scenario A, B and C** are the same as they are independent of AIE.

### 11.3.3. Stormwater flow volume

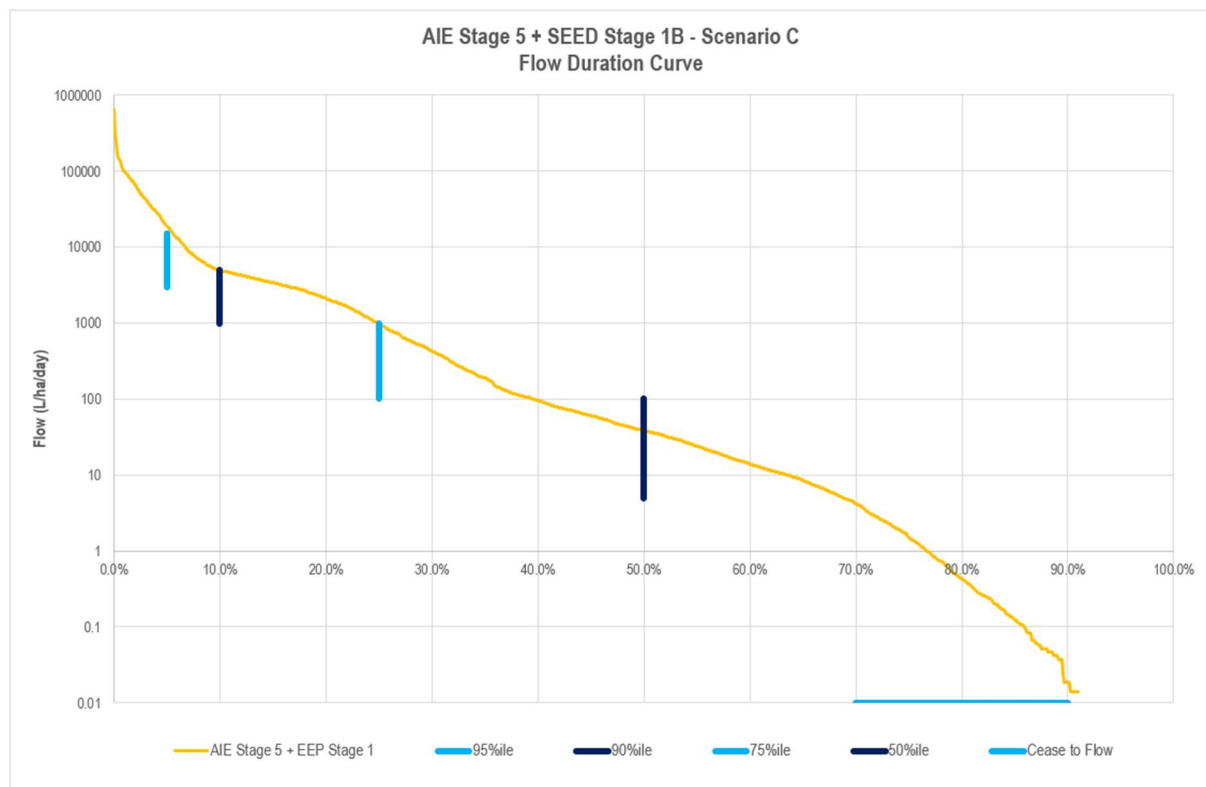
MUSIC model results demonstrating performance of the proposed stormwater management measures in the Interim Arrangement against the stormwater flow targets are presented below in **Table 16**. The resultant flow duration curve is presented as **Figure 23**.

The MUSIC model results demonstrate compliance is met with **DCP Option 1**.

**Table 16: Summary of MUSIC model results against stormwater flow targets (Interim Arrangement) – Scenario C**

| Parameter                               | Result | DCP Target    | Complies with DCP target           |                                                   |
|-----------------------------------------|--------|---------------|------------------------------------|---------------------------------------------------|
|                                         |        |               | DCP Option 1<br>(MARV<br>approach) | DCP Option 2<br>(Flow Duration<br>Curve approach) |
| Mean annual runoff<br>volume (ML/ha/yr) | 1.71   | 2.0           | Yes                                | n/a                                               |
| 95%ile flow (L/ha/day)                  | 19235  | 3000 to 15000 | n/a                                | No                                                |
| 90%ile flow (L/ha/day)                  | 4928   | 1000 to 5000  | Yes                                | Yes                                               |
| 75%ile flow (L/ha/day)                  | 979.8  | 100 to 1000   | n/a                                | Yes                                               |
| 50%ile flow (L/ha/day)                  | 38.3   | 5 to 100      | Yes                                | Yes                                               |
| 10%ile flow (L/ha/day)                  | 0.02*  | 0             | Yes*                               | n/a                                               |

|               |      |            |     |    |
|---------------|------|------------|-----|----|
| Cease to flow | 9.0% | 10% to 30% | n/a | No |
|---------------|------|------------|-----|----|



**Figure 23: Flow duration curve for the proposed stormwater management measures (Interim Arrangement) – Scenario C**

The results presented in **Table 16** show that the proposed stormwater management measures that will be implemented under the Interim Arrangement satisfies **DCP Option 1** stormwater flow targets.

\* Further discussion on the 10-percentile flow results is presented below:

- The 10-percentile values of up to 0.02 L/ha/day equates to a total runoff from the combined AIE and EEP Site of approximately 3.46 litres per day over the 184.4ha catchment area (equivalent to around 0.144 litres per hour). Whilst it is acknowledged the values that generate the flow duration curve represent a statistical probability of the exceedance of a particular flow value, in reality the calculated 10-percentile flow from the site represents a value too small to practically measure. To put this into perspective, a flow of 0.144 L/h is roughly equivalent to a slow tap drip—about one small droplet every two seconds. If you placed a bottle underneath it, it would take over two hours just to half-fill up a 600mL bottle of water. In practical terms, this represents a flow so minimal that it would be difficult to reliably observe or measure in the field. Another way to look at this, the 0.144 L/h flow rate at the discharge point is less than pouring a quarter full 600mL water bottle every hour for catchment area of approximately 260 soccer fields.
- Although the 10-percentile flow from the model exceeds the DCP target marginally by 0.02 L/ha/day, it is important to note that the stormwater management strategy is temporary only and will ultimately be replaced by the Sydney Water Regional Infrastructure, meaning that marginal exceedance, will only be applicable during this interim phase. The temporary condition, in addition to the significantly low flow discussed above will mean that the adverse impacts of this strict non-compliance, will be reliable.
- Existing approvals of the AIE SSDA (SSD-10448), specifically both the stormwater management strategies for AIE MOD4 and AIE MOD8 which are both approved, both included technical non-compliance with the Cease-to-Flow and/or 10-percentile flow targets. Both AIE MOD4 and AIE MOD8 incorporated the cumulative land use of AIE and EEP for the purposes of the approved stormwater management strategy. The existing approvals should be considered when assessing the cumulative stormwater strategy and results in this report. With reference to the AIE MOD 4 WSMP (REP008-08-18-596-MOD4 WSMP), the 10-percentile flow for the Stage 5 development (Lots 1, 2, 3, 9, 6, 7, 8, 9 and Café) was 0.08 L/ha/day.

Similarly, reference to the AIE MOD 8 WSMP (REP016-03-18-596-MOD8 WSMP), the 10-percentile flow for the Stage 5 development (Lots 1, 2, 3, 9, 6, 7, 8, 9 and Café) was 0.09 L/ha/day. Comparatively, the cumulative stormwater strategy contemplated in SEED Stage 1B Scenario C, provides a more favourable result with lower 10-percentile flows of 0.02 L/ha/day.

- The 10-percentile flow results indicate how often zero flows occur at the receiving node or outlet. Due to a limitation in MUSIC, smaller catchments tend to produce more zero-flow results because the model rounds very low flows down to zero when equivalent treatment controls are applied. In contrast, the Stage 1A EEP cumulative model, representing the combined AIE and EEP catchment area of approximately 184.4 ha, reports fewer zero-flow events simply because the larger catchment generates higher baseline flows than an equivalent model with a smaller catchment area and treatment train. As such, it is likely that a comparable smaller site, would achieve compliance, however, given the larger combined site area, rounding errors have possibly contributed to the non-compliance.
- Given the above discussion, AT&L consider the resultant 10%ile flow of 0.02L/ha/day to be effectively a zero flow result (the flows are effectively negligible), considering the significant catchment area, limitations of the MUSIC model and temporary timeline that this interim stormwater strategy will be in place for. As such, compliance with the DCP stormwater flow target Option 1 is reached.

## 11.4. Interim Evaporation Basin Performance

The interim evaporation basin storage performance for **Scenario C** is identical to **Scenario B**, as the contributing catchments and evaporation basin characteristics remain unchanged. Refer to **Section 9.4** for detailed interim evaporation basin performance results under **Scenario C**.

## 12. Onlot Stormwater Drainage

### 12.1. Proposed Site Stormwater Drainage

Lots 1, 4, 5, 7, 8 and Café are part of the catchments that will ultimately discharge to the EEP Stage 1 estate OSD Basin A that has been constructed under SSD-19618251. Refer to AT&L's Stage 1A Civil Infrastructure Report (December 2025) and the Stage 1A Water and Stormwater Management Plan (December 2025) for further information regarding the estate basin and Staged works, including the overall stormwater management strategy addressing the requirements of the MRP DCP.

#### 12.1.1. Lot 1

One point of stormwater discharge from the Lot/Warehouse 1 has been provided as part of the estate works which all drain into the estate stormwater network within Bana Street, constructed under SSD-19618251. The point of discharge is located in the north-east corner as an existing DN525 pipe stub.

All stormwater discharging via the nominated drainage stubs are proposed to be pre-treated by a GPT constructed as part of the Lot/Warehouse 1 works prior to discharge into Bana Street.

The proposed stormwater drainage system within the Lot/Warehouse 1 is presented on drawings 16-369-C8321 to C8322.

#### 12.1.2. Lot 4

A single point of stormwater discharge from the Lot/Warehouse 4 has been provided as part of the estate works which all drain into the estate stormwater network within Magura Avenue, constructed under SSD-19618251. The point of discharge is located in the north-east corner as an existing DN750 pipe stub.

All stormwater discharging via the nominated drainage stubs are proposed to be pre-treated by a GPT constructed as part of the Lot/Warehouse 4 works prior to discharge into Magura Avenue.

The proposed stormwater drainage system within the Lot/Warehouse 4 is presented on drawings 16-369-C8421 to C8422.

#### 12.1.3. Lot 5

A single point of stormwater discharge from the Lot/Warehouse 5 has been provided as part of the estate works which all drain into the estate stormwater network within Magura Avenue, constructed under SSD-19618251. The point of discharge is located in the north-east corner as an existing DN900 pipe stub.

All stormwater discharging via the nominated drainage stubs are proposed to be pre-treated by a GPT constructed as part of the Lot/Warehouse 5 works prior to discharge into Magura Avenue.

The proposed stormwater drainage system within the Lot/Warehouse 5 is presented on drawings 16-369-C8521 to C8522.

#### 12.1.4. Lot 7

Two points of stormwater discharge from the Lot/Warehouse 7 has been provided as part of the estate works which drain into the estate stormwater network on Binyang Street and Magura Avenue, constructed under SSD-19618251. These include:

1. DN1050 pipe stub located at the northwest corner of Lot/Warehouse 7
2. DN1500 pipe stub located at the south-west corner of Lot/Warehouse 7

All stormwater discharging via the nominated drainage stubs are proposed to be pre-treated by a GPT constructed as part of the Lot/Warehouse 7 works prior to discharge into Estate Road 03.

The proposed stormwater drainage system within the Lot/Warehouse 7 is presented on drawings 16-369-C8121 to C8124.

#### 12.1.5. Lot 8

The Lot 8 onlot stormwater drainage system have a single point of discharge located on the north-eastern corner of the lot. The point of discharge is a DN1050 pipe stub constructed as part of the EEP Stage 1 estate works under SSD-19618251.

The site stormwater discharging via the nominated drainage stub is proposed to be pre-treated by a GPT constructed as part of the Lot/Warehouse 8 works prior to discharge into Yarrawa Parkway.

The proposed stormwater drainage system within the Lot/Warehouse 8 is presented on drawings 16-369-C8221 to C8226.

#### 12.1.6. Café

A single point of stormwater discharge from the Lot 3/Café has been provided as part of the estate works which all drain into the estate stormwater network within Yarrawa Parkway, constructed under SSD-19618251. The point of discharge is located in the north-east corner as an existing DN675 pipe stub.

All stormwater discharging via the nominated drainage stubs are proposed to be pre-treated by a GPT constructed as part of the Lot 3/Café works prior to discharge into Yarrawa Parkway.

The proposed stormwater drainage system within the Lot 3/Café is presented on drawings 16-369-C8621 to C8622.

#### 12.1.7. Regional Basin SC09

The stormwater drainage system for the regional basin SC09 consists of the following:

- Inlet pipe with headwall and scour protection from OSD Basin A (constructed as part of EEP Stage 1A)
- Overflow pit and pipe systems in the wetland inlet pool, wetland and pond
- Box culvert connection between wetland and bioretention
- Water level control pits in the wetland inlet pool, bioretention and pond
- Pump pit from pond to future stormwater harvesting and recirculation to SC09 wetland

The regional basin will be designed and constructed in compliance with *Sydney Water Stormwater Scheme Infrastructure Guidelines V01 August 2024*. The design of the regional basin will be further developed in the detail design (100%) phase. The proposed stormwater drainage system within the Regional Basin SC09 is presented on drawings 16-369-C4101.

## 12.2. Design Criteria

The proposed stormwater drainage within Lots 1, 4, 5, 7, 8, Café and Regional Basin SC09 has been designed to comply with the following standards and guidelines:

- AS 3500.3 – *Plumbing and drainage – Stormwater drainage*.
- Commonwealth of Australia (Geoscience Australia), *Australian Rainfall and Runoff: A guide to flood estimation*, 2019
- *Mamre Road Precinct Development Control Plan 2021*
- Western Sydney Planning Partnership, *Western Sydney Engineering Design Manual*, December 2020
- *Sydney Water Stormwater Scheme Infrastructure Guidelines V01 August 2024*

Specific design, construction and operational requirements that apply to the proposed stormwater drainage on Lots 1, 4, 5, 7, 8 and Café are as follows:

- Finished Floor Levels (FFLs) of the proposed warehouse and office buildings on Lots 1, 4, 5, 7, 8 and Café will have a minimum 500mm freeboard to the peak 1% AEP flood levels within the lot. The lot will not be subject to mainstream or overland flow flooding up to and including the 1% AEP. Peak 1% AEP flood levels will be governed by the capacity of major and minor system drainage within the respective lots.

- All stormwater drainage within Lots 1, 4, 5, 7, 8 and Café, including pit and pipe drainage and the proposed GPT(s), will be owned and operated by the Proponent.

## 12.3. Major and Minor System Drainage.

### 12.3.1. General Design

Stormwater modelling software (DRAINS or equivalent) will be used undertake a hydrologic and hydraulic analysis of the proposed stormwater drainage within Lots 1, 4, 5, 7, 8 and Café during detailed design. DRAINS is confirmed by Penrith City Council as the preferred stormwater design and analysis package.

### 12.3.2. Catchments

Delineation of catchments within the Lots 1, 4, 5, 7, 8 and Café site is based on the proposed grading of the hardstand and carpark pavements, as well as concept building hydraulic design (roof gutters and downpipe locations), which will be subject to some refinement at the detailed design phase.

### 12.3.3. Hydrology and Hydraulics

The following design criteria is to be adopted in the development of the hydrological and hydraulic analysis of the proposed stormwater drainage system that will service Lots 1, 4, 5, 7, 8 and Café:

- Minor system (pit and pipe) drainage has been designed to accommodate the 5% AEP storm event.
- The combined pit and pipe drainage and overland flow paths have been designed to accommodate the 1% AEP storm event.
- Where trapped low points are unavoidable and potential for flooding private property is a concern, an overland flowpath capable of carrying the total 1% AEP storm event has been provided. Alternatively, the pipe and inlet system has been upgraded to accommodate the 1% AEP storm event.
- Rainfall intensities have been adopted using the Bureau of Meteorology Design Rainfall Data System (2016).
- Times of concentration for each sub catchment have been determined using the kinematic wave equation.
- The width of flow in the gutter does not exceed 2.5 metres and pits are spaced no further than 75 metres apart.
- Velocity x depth product shall not exceed 0.4 m<sup>2</sup>/s for all storms up to and including the 1% AEP event.
- Bypass from any pit on grade shall not exceed 15% of the total flow at the pit.
- Blockage factors of 20% and 50% shall be adopted for on-grade and sag pits respectively.
- A hydraulic grade line HGL design method shall be adopted for all road pipe drainage design.
- A desirable minimum grade of 1% for all pipelines is preferred for self-cleansing under low flow velocities.
- An absolute minimum grade of 0.5% has been adopted.
- The minimum cover over pipes shall be 450mm in grassed areas and 600mm under hardstand and carpark areas.
- Where minimum cover cannot be achieved due to physical constraints the pipe class shall be suitably increased.
- All pipes in trafficable areas will be Reinforced Concrete Pipes (RCP) or Fibre Reinforced Concrete (FRC) equivalent.
- Pit Loss coefficients have been calculated in accordance with the Hare Charts as documented in the Queensland Urban Drainage Manual.
- A minimum 150mm freeboard has been maintained between pit HGL and pit surface levels for the minor design storm event (5% AEP).
- Minimum freeboard of 500mm above the 1% AEP peak water level has been adopted.

## 12.4. On-lot water management measures

Stormwater quality and flow management measures have been incorporated into the estate-wide infrastructure works approved under SSD-19618251. As demonstrated in this report, these measures have been designed to satisfy the stormwater quality and flow controls outlined in the Mamre Road Precinct DCP for the EEP Site, including Lots 1, 4, 5, 7, 8 and Café as part of Stage 1B development.

On-lot measures that will be constructed as part of the Stage 1B development include:

- Lot 1 Warehouse – One Gross Pollutant Trap (GPT) to be provided at the north-east point of discharge connecting to the existing estate drainage system on Bana Street via the DN525 pipe stub.
- Lot 4 Warehouse – One GPT located on the north-east point of discharge from the internal onlot drainage to the existing DN750 stormwater stub connecting to Magura Avenue estate drainage system.
- Lot 5 Warehouse – One GPT located on the north-east point of discharge from the internal onlot drainage to the existing DN900 stormwater stub connecting to Magura Avenue estate drainage system.
- Lot 7 Warehouses – One GPT located on the northern point of discharge from the internal stormwater drainage network to the existing DN1050 stormwater stub connecting to Binyang Street. The second GPT is located on the southern point of discharge from the internal stormwater drainage network to the DN1500 stormwater stub off Magura Avenue.
- Lot 8 Warehouse – One GPT located on the north-east point of discharge from the internal onlot drainage to the existing DN1050 stormwater stub connecting to Yarrowa Parkway and discharging to OSD Basin A.
- Lot 3 Café – One GPT located on the north-east corner of the lot treating stormwater from the Café building and carpark before connecting to the DN675 pipe stub point of discharge on Yarrowa Parkway.

The proposed on-lot measures described above are consistent with the measures incorporated into the Water Management Strategy outlined in Stage 1A SSD-19618251 Water and Stormwater Management Plan and the water management strategy in Stage 1B (subject of this report). As per Section 8 and Section 9, the Water Management Strategy has been developed such that the stormwater quality and flow targets adopted in the *Mamre Road Precinct DCP* will be satisfied for Stage 1B development (Lots 1, 4, 5, 7, 8 and Café).

## 12.5. Water Demands and Sources

Water demands that will be generated by the proposed development of Lots 1, 4, 5, 7, 8 and Café will include:

- Internal potable water (e.g., employee amenities, kitchen and showers)
- Internal non-potable water (e.g., toilet and urinal flushing)
- External non-potable water (e.g., landscape irrigation)
- Fire management services (e.g., sprinklers, hydrants)

The SEED Site will be serviced by reticulated potable and recycled water. The recycled water to be provided via future reticulated recycled water. The provision of these services will form part of the infrastructure works approved under SSD-19618251. Refer to SEED Stage 1B Services Infrastructure Assessment for more information.

## 13. Maintenance and Operations

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All proposed water management measures that make up the Interim Arrangement of the water management strategy would be managed and maintained by the proponent. An Inspection and Maintenance Plan will be prepared and lodged with the construction certificate for the subdivision works once final design details and the extent and layout of all proposed water management measures is confirmed. It is anticipated that the Inspection and Maintenance Plan would be prepared using current best practice guidance such as [\*Water sensitive urban design inspection and maintenance guidelines\*](#) (Penrith City Council, 2022) and would describe:

- Each of the functional components of each water management measure
- Expertise required to inspect, maintain and (where necessary) repair or replace components
- Minimum required frequency of inspection, repair or replacement activities
- Inspection and maintenance forms that list all necessary activities and contain a record of activities completed.

The Ultimate Arrangement would incorporate some estate-based measures such as GPTs and an estate-wide detention basin. These measures would be managed and maintained by the proponent, with inspection and maintenance requirements consistent with those described above. The planned regional stormwater management scheme, which would incorporate measures to manage stormwater quality and volume across the Western Sydney Aerotropolis, would be managed and maintained by Sydney Water.

## 14. Draft Inspection and Maintenance Plan

Inspection and maintenance of the stormwater management measures that will be implemented under EEP Stage 1B shall be undertaken at the minimum frequency as outlined in **Table 17**. The majority of these requirements have been derived from the Penrith City Council guideline titled [\*Water sensitive urban design \(WSUD\) inspection and maintenance guidelines\*](#) (Version 1.0, 2022).

Refer to **Appendix E** for Inspection and Maintenance Sheets for each of the stormwater management elements that will be owned, operated and maintained by the Property Owner (or representatives), including:

- On-lot stormwater drainage
- Gross pollutant traps
- Estate-wide stormwater drainage
- OSD Basin
- Interim evaporation basin in Stage 2 lands
- Passively irrigated street trees

**Table 17: Inspection and monitoring requirements**

| Inspection / Monitoring Requirement                                                | Responsibility       | Timing / Frequency                       | References / Notes                                                                                                           |
|------------------------------------------------------------------------------------|----------------------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| 1. On-lot stormwater drainage                                                      |                      |                                          |                                                                                                                              |
| Eaves / box guttering system and downpipes                                         | Property Owner       | At least once every six months           | Refer to Inspection and Maintenance Sheets for on-lot stormwater drainage in <b>Appendix E</b> .                             |
| On-lot stormwater drainage – grates and pits                                       | Property Owner       | At least once every year                 |                                                                                                                              |
| On-lot stormwater pits and pipes (by CCTV)                                         | Property Owner       | At least once every three years          |                                                                                                                              |
| 2. Gross pollutant traps                                                           |                      |                                          |                                                                                                                              |
| GPT components (lids and surrounds, inlet, outlet, sump, screens, oil baffles)     | Property Owner       | At least once every six months           | Refer to GPT Operation and Maintenance Manual provided by manufacturer. Specific GPT to be confirmed during detailed design. |
| 3. Estate-wide stormwater drainage (within road reserve)                           |                      |                                          |                                                                                                                              |
| Stormwater drainage elements visible at ground level (grates, lintels, headwalls)  | Penrith City Council | To be determined by Penrith City Council | Assets to be incorporated into Council’s asset management system                                                             |
| Stormwater pits and pipes (by CCTV)                                                | Penrith City Council | To be determined by Penrith City Council |                                                                                                                              |
| 4. OSD Basin                                                                       |                      |                                          |                                                                                                                              |
| Basin inlet and outlet (blockage, scour, erosion)                                  | Property Owner       | At least once every six months           | Refer to Inspection and Maintenance Sheets for OSD Basin in <b>Appendix E</b> .                                              |
| Basin discharge control pit (grates, orifices, screens)                            | Property Owner       | At least once every six months           |                                                                                                                              |
| Basin embankments (erosion, vegetation cover, litter, rock protection at spillway) | Property Owner       | At least once every six months           |                                                                                                                              |

| Inspection / Monitoring Requirement                                                                                                                                                              | Responsibility       | Timing / Frequency                           | References / Notes                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------------------------------------|----------------------------------------------------------------------------|
| <b>5. Interim evaporation basin</b><br><b>NB: interim measure that will be made redundant once connection to Sydney Water’s regional stormwater infrastructure is made, refer to Section 6.2</b> |                      |                                              |                                                                            |
| <b>Pond inlet and outlet (blockage, scour, erosion)</b>                                                                                                                                          | Property Owner       | At least once every six months               | Refer to Inspection and Maintenance Sheets for pond in <b>Appendix E</b> . |
| <b>Pond embankments (erosion)</b>                                                                                                                                                                | Property Owner       | At least once every six months               |                                                                            |
| <b>Pond storage zone (sediment accumulation, floating vegetation or debris)</b>                                                                                                                  | Property Owner       | At least once every six months               |                                                                            |
| <b>6. Passively irrigated street trees</b>                                                                                                                                                       |                      |                                              |                                                                            |
| <b>Street sweeping to minimise sediment, garbage, leaf litter etc. accumulation along the gutter and the kerb inlet</b>                                                                          | Penrith City Council | As per Council’s street maintenance routine  |                                                                            |
| <b>Flush PVC pipe riser/maintenance point to remove accumulation/blockage of kerb inlet</b>                                                                                                      | Penrith City Council | At least once every six months               | Refer to soakwell manufacturer maintenance manual.                         |
| Clean soakwell pit of debris and restore original volume                                                                                                                                         | Penrith City Council | As required, if sediment blockage is evident |                                                                            |