Erosion and Sediment Control Plan

High Density Residential Development

40 The Retreat

Bradfield NSW 2556

CLIENT/ SCG Developments

DATE/ 7/06/2024

CODE/ 23-1110

Commercial in Confidence

Document Registration

Document Title	Erosion and Sediment Control Plan
Document File Name	REP004-04-23-1110 Erosion and Sediment Control Plan
Section	Civil Engineering
Document Author	Suzanne Mustafa / Tim Michel
	I, Tim Michel (CPESC No. 11555) of AT&L, certify that this ESCP has been prepared in accordance with the principles of The Blue Book (Landcom, 2004) and the *Technical guidance for achieving Wianamatta-South Creek stormwater management targets* (NSW DPE, 2022). This ESCP does not include all details required for ESCPs – further details will not be available until a Contractor has been appointed and construction sequencing and methods have been confirmed. The Civil Contractor appointed to construct the project will be responsible for preparation of compliant Progressive ESCPs.

Issue	Description	Date	Author	Checked	Approved
1	Issued for SSDA	17/04/2024	Suzanne Mustafa / Tim Michel	☒	☒
2	Issued for SSDA	09/05/2024	Suzanne Mustafa / Tim Michel	☒	☒
3	Issued for SSDA	03/06/2024	Suzanne Mustafa / Tim Michel	☒	☒
4	Issued for SSDA	07/06/2024	Suzanne Mustafa / Tim Michel	☒	☒

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Figures

Tables

1. Introduction

This Erosion and Sediment Control Plan (ESCP) has been prepared by AT&L on behalf of SCG Developments to support the State Significant Development Application (SSDA) of the proposed development at 40 The Retreat, Bradfield NSW 2556.

The site is located within the development area of the Western Sydney Aerotropolis Precinct. It is approximately 2.1 hectares in area and is currently occupied by a single house and presumed farmland. The main access point is via a vehicular driveway on The Retreat, on the southwest corner of the site. Refer to Figure 1 for location of the proposed development.

Figure 1: Site Location (Source: Nearmap image dated 30/03/2024)

1.1. Development Description

This State Significant Development Application seeks consent for the detailed design and delivery (including construction and use) of a new mixed use residential development, to be developed in two (2) stages. Specifically, development consent is sought for:

Stage 1

- Overall site clearing and preparation works, including demolition of all existing development on the Site;
- The redevelopment of the northern portion of the Site, comprising:
  - Temporary Site access to the northern portion of the Site from The Retreat;
  - Temporary bin enclosure adjacent the temporary access;

- Excavation works and construction of a shared two (2) storey basement to a maximum depth of RL 60.60, with capacity for 311 vehicle car spaces;
- Construction of three (3) individual mixed use buildings, comprising:
- Maximum building heights between 30.4m and 39.8m;
- A total Gross Floor Area (**GFA**) of 26, 204sqm, comprising 25,744 sqm of residential GFA, 248 sqm of non-residential GFA and 212 sqm of retail GFA, distributed across the three buildings;
- 254 residential units, distributed across the three buildings.
- Associated landscaping, communal open space and embellishment works; and
- Delivery and augmentation of services.

Stage 2

- The redevelopment of the southern portion of the Site, comprising:
  - Removal of the Stage 1 temporary access from The Retreat;
  - Connection and access of the Stage 1 basement to the western boundary (to become a future Collector Road);
  - Excavation works and construction of a shared three (3) storey basement to a depth of RL 56.35, with capacity for 336 vehicle car spaces;
  - Site and basement access from the western boundary (to become a future Collector Road);
  - Construction of three (3) individual mixed use buildings, comprising:
  - Maximum building heights between 23.8m and 39.9m;
  - A total Gross Floor Area (**GFA**) of 29,126 sqm, comprising 28,540 sqm of residential GFA, 212 sqm of retail GFA and 374 sqm of non-residential GFA, distributed across the three buildings;
  - 279 residential units, distributed across the three buildings.
  - Associated landscaping, communal open space and embellishment works; and
  - Delivery and augmentation of services.

A detailed description of the proposed development is detailed in Section 3.0 of the Environmental Impact Statement prepared by Ethos Urban.

Refer to Figure 2 for a conceptual ground level layout of site. The proposed development incorporates various landscaping measures including swales and a raingarden, in-line with Western Sydney Aerotropolis's vision for new high-density developments in the precinct.

Figure 2: Proposed Development (Source: DKO DA Drawings)

1.2. Scope of Report

This ESCP has been prepared to describe the approach to construction phase soil and water management and to summarise the key standards and guidelines that will inform detailed design, implementation and operation of erosion and sediment control measures.

This ESCP presents conceptual design of proposed measures to be implemented during the construction phase. The objectives of the proposed erosion and sediment control measures incorporated in this ESCP are to:

- Acknowledge the activities on a construction site which may contribute to erosion, sedimentation and water quality impacts.
- Conserve and protect soil resources.
- Minimise potential impacts on receiving land and waters from demolition, site clearing and construction activities.

- Describe industry best management practices to minimise adverse water quality and sedimentation impacts brought about through construction activities.
- Demonstrate compliance with relevant regulatory requirements.

The final sizing, location and sequencing of erosion and sediment control measures will be subject to the proposed construction sequencing, which will ultimately be determined by the principal civil contractor nominated by the Proponent. The principal civil contractor (or its representative) will be responsible for the preparation and implementation of detailed Progressive Erosion and Sediment Control Plans (PESCPs), which will be incorporated into an overarching Construction Environmental Management Plan (CEMP).

1.3. Key References

This ESCP references several guidelines that document minimum requirements and best practice for erosion and sediment control:

Document title	**Abbreviation**
International Erosion Control Association (IECA) Australasia*, Best Practice Erosion & Sediment Control*, November 2008	IECA (2008)
International Erosion Control Association (IECA) Australasia*, Appendix B; Sediment basin design and operation* (Revision – June 2018), www.austieca.com.au/documents/item/697	IECA Appendix B (2018)
Landcom, *Managing Urban Stormwater: Soils and Construction (Volume 1)*, 4th edition, March 2004	The Blue Book
NSW Department of Planning and Environment, *Technical guidance for achieving Wianamatta-South Creek stormwater management targets*, September 2022	DPE Technical Guidance (2022)

In addition to these documents, fact sheets prepared by Catchments and Creeks Pty Ltd have also been referred to throughout this ESCP.

1.4. Supporting Documentation

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

a) Civil Drawings (AT&L)
b) Civil and Utilities Infrastructure Report (AT&L)
c) Water and Stormwater Management Plan (AT&L)
d) Preliminary Geotechnical Investigation Report (Intrax, dated 22/02/2024)

2. Pre-Development Site Conditions

2.1. Site Geology

Based on the geotechnical investigation undertaken by Intrax Consulting Engineers (report dated 22/02/2024), the site is underlain by Bringelly Shale from the Wianamatta Group formation, typically comprising shale claystone, laminate, carbonaceous claystone and fine to medium-grained sandstone.

Based on Intrax's investigation, a summary of the inferred subsurface conditions across the site is summarised below:

- Topsoil/Fill (to depths of 0.1m) – generally Silty Sand; brown, fine to medium grained, medium dense and moist. Generally grey-brown to dark grey-brown, clayey silt and silty clay topsoil.
- Residual Soil (between 0.8m and 4.5m deep): Clay; high plasticity with variable minor sand content and lesser gravel.
- Extremely Weathered Bringelly Shale (EW BS – base ranging from 1.3m to 5.8mbgl) – extremely weathered siltstone or sandstone. Recorded as clay with high plasticity.
- Bringelly Shale (BS) – Siltstone or Sandstone bedrock, from moderately weathered to slightly weathered rock between 4.95 and 9.26 mbgl).

Further details can be found within Intrax's geotechnical investigation report.

2.2. Soil Landscapes

Reference to the *Soil Landscape Series Map – Penrith* (refer to **Figure 3**) shows that the soil landscape grouping for the Site is:

Blacktown *(bt) – gently undulating rises on Wianamatta Group shales. Local relief to 30 m, slopes usually >5%. Broad rounded crests and ridges with gently inclined slopes. Cleared Eucalypt woodland and tall open-forest (dry schlerophyll forest). Soils—shallow to moderately deep (>100 cm) hardsetting mottled texture contrast soils, Red and Brown Podzolic Soils (Dr3.21, Dr3.31, Db2.11, Db2.21) on crests grading to Yellow Podzolic Soils (Dy2.11, Dy3.11) on lower slopes and in drainage lines. Limitations—localised seasonal waterlogging, localised water erosion hazard, moderately reactive highly plastic subsoil, localised surface movement potential.*

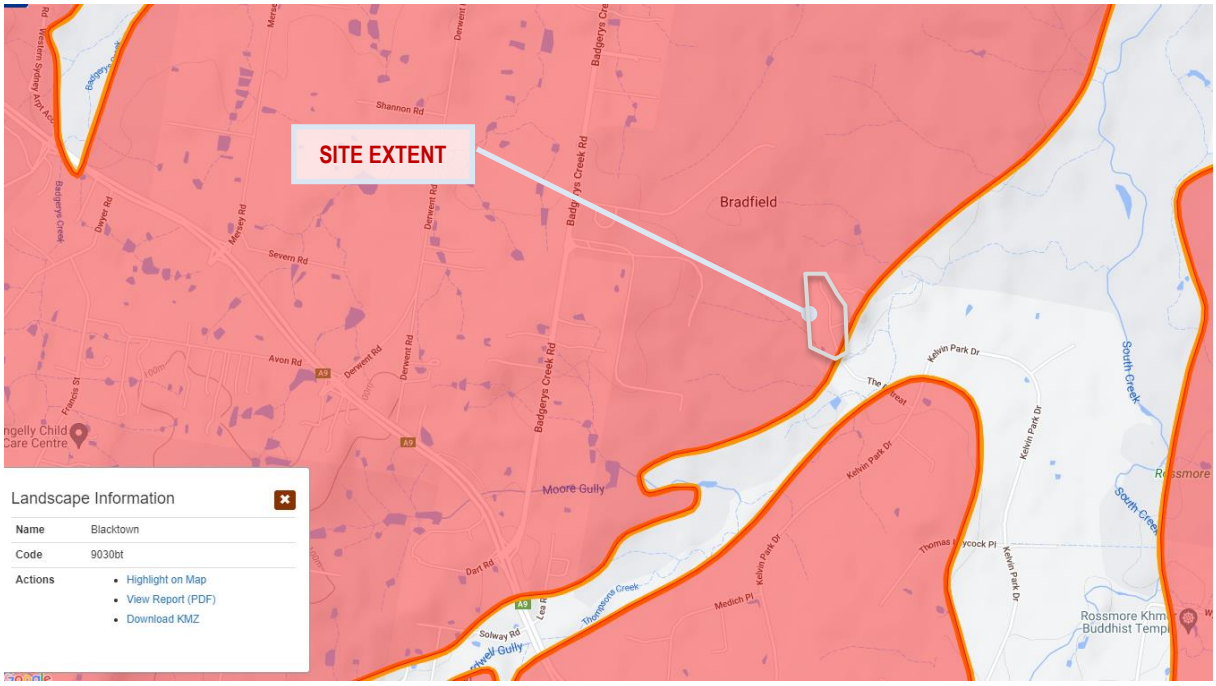


Figure 3: Soil landscape (eSPADE NSW Soil and Land Information)

3. Objectives and Controls

The Western Sydney Aerotropolis DCP establishes the construction and operational phase stormwater quality and quantity (flow) targets for the Site. This ESCP addresses construction phase water quality targets only. Operational phase targets are addressed in a separate Water and Stormwater Management Plan for the Site.

The construction phase stormwater flow targets adopted in the Western Sydney Aerotropolis DCP are summarised in Table 1.

Table 1: Construction phase stormwater quality targets adopted in the Western Sydney Aerotropolis DCP

Parameter	Construction Phase Target	Reference in this SWMP
TSS and pH	All exposed areas greater than 2500 square metres must be provided with sediment controls designed, implemented and maintained to a standard achieving at least 80% of the average annual runoff volume of the contributing catchment treated (i.e. 80% hydrological effectiveness) to 50mg/L TSS or less, and pH in the range 6.5–8.5. No release of coarse sediment is permitted for any construction or building site	**Section 5.3** **Section 6.2** **Section 6.3**
Oil, litter and waste contaminants	No release of oil, litter or waste contaminants.	The proposed management and mitigation measures outlined in **Section 5** would provide inherent capture of oil, litter and waste generated throughout the construction phase. It is expected that further specific measures to address potential impacts associated with the discharge of oil, litter and waste contaminants would be contained within a Construction Waste Management Plan.
Stabilisation	Prior to completion of works for the development, and prior to removal of sediment controls, all site surfaces must be effectively stabilised including all drainage systems. An effectively stabilised surface is defined as one that does not, or is not likely to result in visible evidence of soil loss caused by sheet, rill or gully erosion or lead to sedimentation water contamination.	**Section 5.4**

4. Potential Erosion and Sediment Impacts

4.1. Potential Impacts

The major potential impacts on receiving waters downstream of the Site relate to erosion of distributed areas or stockpiles and sediment transportation. Potential adverse impacts from erosion and sediment transportation can include:

- Loss of topsoil.
- Increased water turbidity.
- Decreased levels of dissolved oxygen.
- Changed salinity levels.
- Changed pH levels.
- Smothering of stream beds and aquatic vegetation.
- Reduction in aquatic habitat diversity.
- Increased maintenance costs.
- Decrease in waterway capacity leading to increased flood levels and durations.

4.2. Sources of Pollution

The activities and aspects of the works that have potential to lead to erosion, sediment transport, siltation and contamination of natural waters include:

- Earthworks undertaken immediately prior to rainfall periods.
- Work areas that have not been stabilised.
- Extraction of construction water from waterways during low rainfall periods.
- Clearing of vegetation and the methods adopted, particularly in advance of construction works.
- Stripping of topsoil, particularly in advance of construction works.
- Bulk earthworks and construction of pavements.
- Works within drainage paths, including depressions and waterways.
- Stockpiling of excavated materials.
- Storage and transfer of oils, fuels, fertilisers and chemicals.
- Maintenance of plant and equipment.
- Ineffective implementation of erosion and sediment control measures.
- Inadequate maintenance of environmental control measures; and
- Time taken for the rehabilitation / revegetation of disturbed areas.

4.3. Assessment of Erosion Hazard

To inform the design of the ESCP, an analysis using the Revised Universal Soil Loss Equation (RUSLE) has been undertaken in accordance with the “Blue Book”. This analysis has been undertaken to predict the long term, average and annual soil loss from sheet and rill flow from the site under specified management conditions.

Estimating soil loss for a proposed development has four important applications to soil and water management. These are to:

a) Assess the erosion risk at a site.
b) Identify suitable measures to overcome the erosion risk.
c) Estimate the required capacity of sedimentation basins.
d) Compare the effectiveness of various erosion control measured.

Refer to **Table 2** below for estimates of soil loss on the site.

Table 2: RUSLE Analysis

Parameter	Item (Blue Book Reference)	Value
Rainfall Erosivity Factor (R)	(Equation 2, Appendix A2)	1755
Soil Erodibility Factor (K) (Table C20, Blue Book)	(Table C19, Appendix C) For Blacktown (bt) soil landscape	0.038
Slope Length / Gradient Factor (LS)	Table A1, Appendix A	1.19
Slope length (m)	*Table A1, Appendix A*	*200*
Slope gradient (%)	*Table A1, Appendix A*	*3.4%*
Erosion Control Practice Factor (P)	Table A1, Appendix A5	1.30
Ground Cover and Management Factor (C)	Assumed that all soil is recently disturbed, thus a C factor of 1 is chosen.	1
Computed Soil Loss (tonnes per hectare per year)		**103**
Soil Loss Class	(Table 4.2 of the Blue Book)	1
Erosion Hazard	(Table 4.2 of the Blue Book)	Very low

It is noted that the computed soil loss, Soil Loss Class and Erosion Hazard values presented in **Table 2** are based on surfaces in an unstable state (i.e., C-factor of 1 based on an unsealed surface or no vegetative cover). Requirements for site stabilisation to minimise potential erosion hazard and to protect disturbed surfaces from erosive forces are further outlined in **Section 5.4**.

5. Erosion and Sediment Control Measures

5.1. Summary of Measures

This section outlines the proposed erosion and sediment control measures that have been incorporated in this ESCP. An indicative layout and details of these proposed measures is presented on a series of concept erosion and sediment control plan drawings, included in **Appendix A**.

As a minimum, the following erosion and sediment control measures and construction methodology will be adopted to minimise the impact of sedimentation due to construction works:

- Minimising the extent and duration of land disturbance
- Diversion of surface runoff from undisturbed areas away from disturbed areas and discharge via suitable scour protection.
- Provision of hay bale type flow diverters to catch drainage and divert to “clean” water drains.
- Diversion of sediment-laden water into temporary sediment control basins to capture the design storm volume and undertake flocculation (if required).
- Provision of construction traffic shaker grids and vehicle / wheel wash facilities to prevent vehicles carrying soils beyond the Site, in particular onto the road network adjacent to the Site.
- Provision of catch drains to carry sediment-laden water to sediment basins.
- Provision of silt fences to filter and retain sediments at source.
- Rapid stabilisation of disturbed and exposed ground surfaces with hydro-seeding areas where future construction and building works are not currently proposed.
- All temporary sediment basins will be located clear of the 1% AEP flood extents from local overland flow.

5.2. Design Criteria

All design, documentation, installation and maintenance of sediment and erosion controls has been undertaken in accordance with the requirements of:

- *Protection of the Environment Operations Act*
- The Blue Book
- IECA (2008) and IECA Appendix B (2018)
- DPE Technical Guidance
- Penrith City Council’s guidelines and specifications

5.3. Sediment Basins

Sediment basins will be required based on the area of the site that will be disturbed and the construction phase water quality targets adopted in the Western Sydney Aerotropolis DCP.

The *Technical guidance for achieving Wianamatta-South Creek stormwater management targets* specifies that to achieve the adopted construction phase water quality targets, sediment basins need to be sized and operated as either a Type-A or Type-B basin as per IECA Appendix B (2018). Type A and Type B basins incorporate automated flocculant dosing systems and a suitable supply of flocculant or coagulant.

An indicative location of the proposed Type B sediment basins is presented on drawing 23-1110-C0080 and C0081, refer to **Appendix A**. Ultimately, the final temporary sediment basin locations and sizes will be provided to suit development staging requirements and will be sized and maintained in accordance with the requirements of the above-mentioned authority documents.

5.4. Site Stabilisation

As per The Blue Book (Landcom, 2004), site stabilisation will be achieved to protect disturbed surfaces from erosive forces. Maximum cover factors (C-factor) applicable to the Site are specified in **Table 3**.

Table 3: Target cover factor (C) during and after construction (Landcom, 2004)

Land	Nominated duration	Maximum C-factor	Comments
Waterways and other areas subject to concentrated flows (e.g., downstream of proposed detention basin)	Post-construction	0.05	Applies after 10 working days from completion of formation and before they are allowed to carry any concentrated flows.
Material stockpiles	Post-construction	0.10	Applies after 10 working days from completion of formation.
All lands, including waterways and stockpiles	During construction	0.15	Applies after 20 working days of inactivity, even though works might continue later.

Various stabilisation methods can be implemented (refer to Table A3 of The Blue Book), such as:

- Biodegradable mulches (e.g., wood chip, hydromulching, bonded fibre)
- Rolled Erosion Control Products (RECPs) (e.g., jute, coir, plastic fibre netting)
- Hydraulic soil stabilisers (bitumen emulsion)
- Temporary seeding
- Rolled turf

6. Inspection, Maintenance and Monitoring

6.1. Site Inspection and Maintenance

The inspection and maintenance requirements outlined in this section must be carried out while earthworks are being conducted, and until all areas are re-established.

The Contractor will be required to inspect the Site after every rainfall event and at least weekly, and will:

- Inspect and assess the effectiveness of the ESCP and identify any inadequacies that may arise during normal work activities or from a revised construction methodology.
- Construct additional erosion and sediment control works as necessary to ensure the desired protection is given to downstream lands and waterways.
- Ensure that drains operate properly and to affect any repairs.
- Remove spilled sand or other materials from hazard areas, including lands closer than 5 metres from areas of likely concentrated or high velocity flows especially waterways and paved areas.
- Remove trapped sediment whenever less than design capacity remains within the structure.
- Ensure rehabilitated lands have affectively reduced the erosion hazard and to initiate upgrading or repair as appropriate.
- Maintain erosion and sediment control measures in a fully functioning condition until all construction activity is completed and the Site has been rehabilitated.
- Remove temporary soil conservation structures as the last activity in the rehabilitation.
- Inspect the sediment basin during the following periods:
  - During construction to determine whether machinery, falling trees, or construction activity has damaged and components of the sediment basin. If damage has occurred, repair it.
  - After each runoff event, inspect the erosion damage at flow entry and exit points. If damage has occurred, make the necessary repairs.
  - At least weekly during the nominated wet season (if any), otherwise at least fortnightly; and
  - Prior to, and immediately after, periods of 'stop work' or Site shutdown.
- Clean out accumulated sediment when it reaches the marker board/post and restore the original volume. Place sediment in a disposal area or, if appropriate, mix with dry soil on the Site.
- Do not dispose of sediment in a manner that will create an erosion or pollution hazard.
- Check all visible pipe connections for leaks, and repair as necessary.
- Check all embankments for excessive settlement, slumping of the slopes or piping between the conduit and the embankment, make all necessary repairs.
- Remove the trash and other debris from the basin and riser; and
- Submerged inflow pipes must be inspected and de-silted (as required) after each inflow event.

6.2. Sediment Basin Maintenance

The proposed development Site contains 'Type D' soils, or soils that contain a significant proportion of fine "dispersible" materials (<0.005mm) that do not settle unless flocculated.

Maintenance of the sediment basin should be undertaken in accordance with the guidance outlined in IECA Appendix B (2008). This includes de-silting of the basin if the next storm is likely to cause settled sediment to rise above the nominated marker post within the basin, or if the settled sediment has exceeded 90% of the nominated sediment storage volume.

6.3. Performance assessment

As required by IECA Appendix B (2018), ongoing review of sediment basin performance will need be carried out throughout the construction phase of the development. As noted in IECA Appendix B, '*sediment basins are not*

designed to achieve a specific water quality; rather, they are designed to either capture and treat a specific volume of runoff, or to treat discharges up to a specified peak flow'. Considering this, site specific water quality management practices such as those suggested in IECA Appendix B will need to be implemented by the Contractor responsible for implementation of the ESCP. Demonstration of adaptive management practices and decision-making processes such as that presented in **Figure 4** will provide greater certainty that all reasonable and practicable actions are being undertaken to minimise potential impacts associated with release of sediment laden water from the Site.

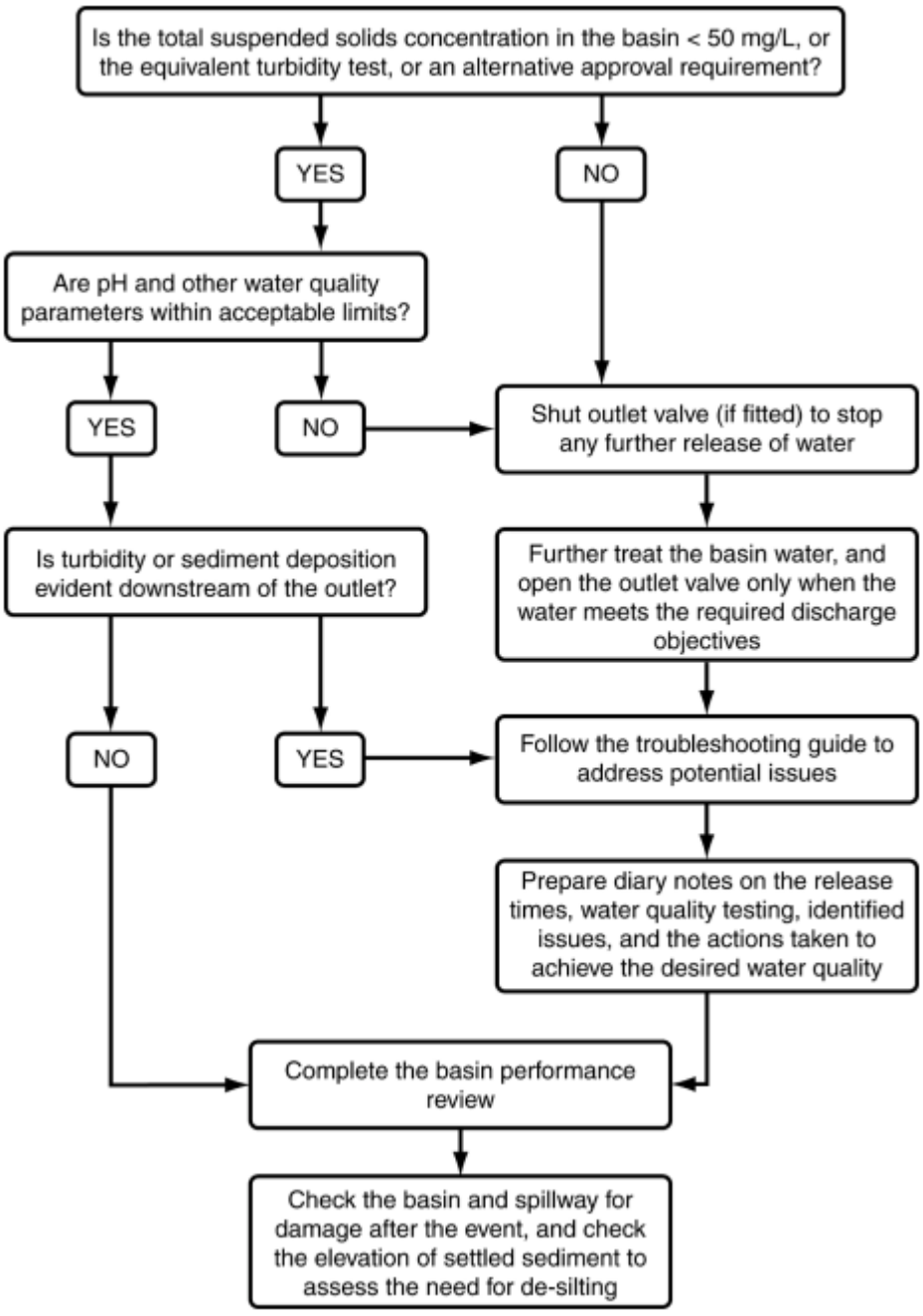


Figure 4: Sediment basin performance assessment process (IECA Appendix B, 2018)

7. Summary of Mitigation Measures

A summary of mitigation measures relevant to Sediment and Erosion Control are summarized in the table below.

ID	Mitigation Measure
Erosion and Sediment Control	
Impacts to water quality to properties downstream of site and to downstream water bodies during construction of proposed development.	To mitigate the risk of sediment and soil erosion being conveyed downstream during construction, several measures such as sediment basins, haybale and geotextile filters, sediment fence, geotextile filter pit surrounds and more have been proposed. This Erosion and Sediment Control Plan discusses the potential impacts and measures implemented to mitigate the risk of soil and erosion during construction.

Appendix A –
Concept Erosion and Sediment Control Plan Drawings

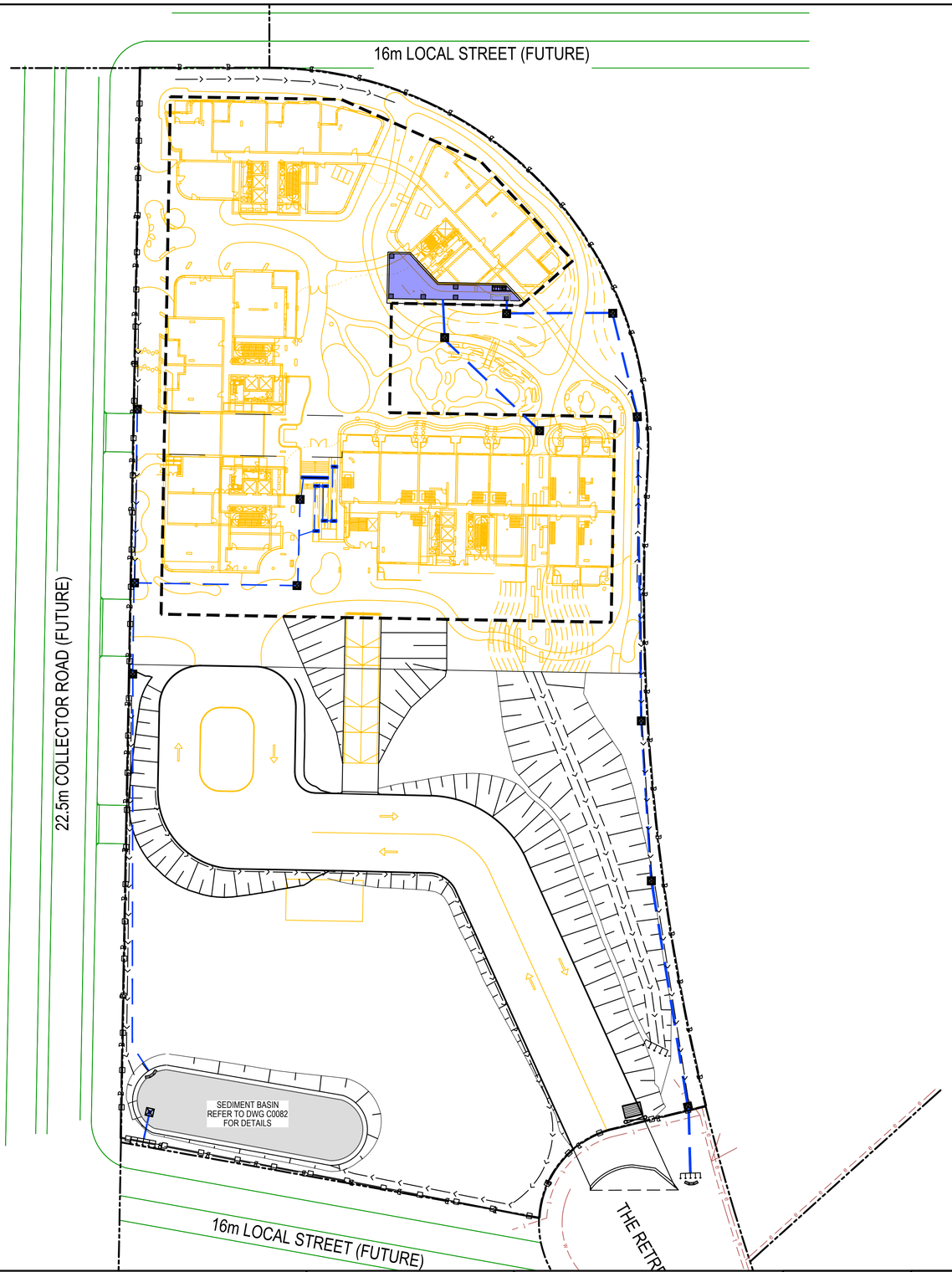
NORTH SYDNEY
LEVEL 7
153 WALKER STREET
NORTH SYDNEY NSW 2060
02 9439 1777
INFO@ATL.NET.AU

PARRAMATTA
SUITE 4 LEVEL 4
17-21 MACQUARIE STREET
PARRAMATTA NSW 2150
029068 8517
INFO@ATL.NET.AU

BRISBANE
SUITE A1 LEVEL 20
127 CREEK STREET
BRISBANE QLD 4000
07 3211 9581
INFO-QLD@ATL.NET.AU

MELBOURNE
LEVEL 4
50 MARKET STREET
MELBOURNE VIC 3000
03 9124 7350
INFO-VIC@ATL.NET.AU

atl.net.au



LEGEND

- SEDIMENT FENCE (SD 6-8)
- CATCH DRAIN
- BARRIER FENCE
- HAYBALE AND GEOTEXTILE FILTER (SD 6-7)
- MESH AND GRAVEL INLET FILTER (SD 6-11)
- GEOTEXTILE INLET (SD 6-12)
- STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA (SD 6-14)
- PROPOSED SITE ACCESS GATE
- SEDIMENT BASIN TYPE B

Issue	Description	Date
A	ISSUED FOR DA	05.04.2024

Bar Scales

0 5 10 15 20 25m

1 : 250 @ A1 1 : 500 @ A3

100mm on Original

Client

SATHIO GROUP

Scales	1:500
Grid	MGA2020
Height Datum	AHD
Drawn	RM
Designed	SM
Checked	SM
Approved	GJ

GDA2020

Project

40 THE RETREAT
BRINGELLY
NSW 2556

Title

EROSION AND SEDIMENT CONTROL PLAN
STAGE 1

Civil Engineers and Project Managers

at&l

Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status: ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

A1

Project - Drawing No.: 23-1110-C0080

Issue: A

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Issue	Description	Date
A	ISSUED FOR DA	05.04.2024

100mm on Original

Bar Scales

0 5 10 15 20 25m

1 : 250 @ A1 1 : 500 @ A3

Client

SATHIO GROUP

Scales	1:250
Grid	MGA2020
Height Datum	AHD

Drawn	RM
Designed	SM
Checked	SM
Approved	GJ

GDA2020

Project

40 THE RETREAT
BRINGELLY
NSW 2556

Title

EROSION AND SEDIMENT CONTROL PLAN
STAGE 2

Civil Engineers and Project Managers

at&l

Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status: ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

A1

Project - Drawing No.: 23-1110-C0081

Issue: A

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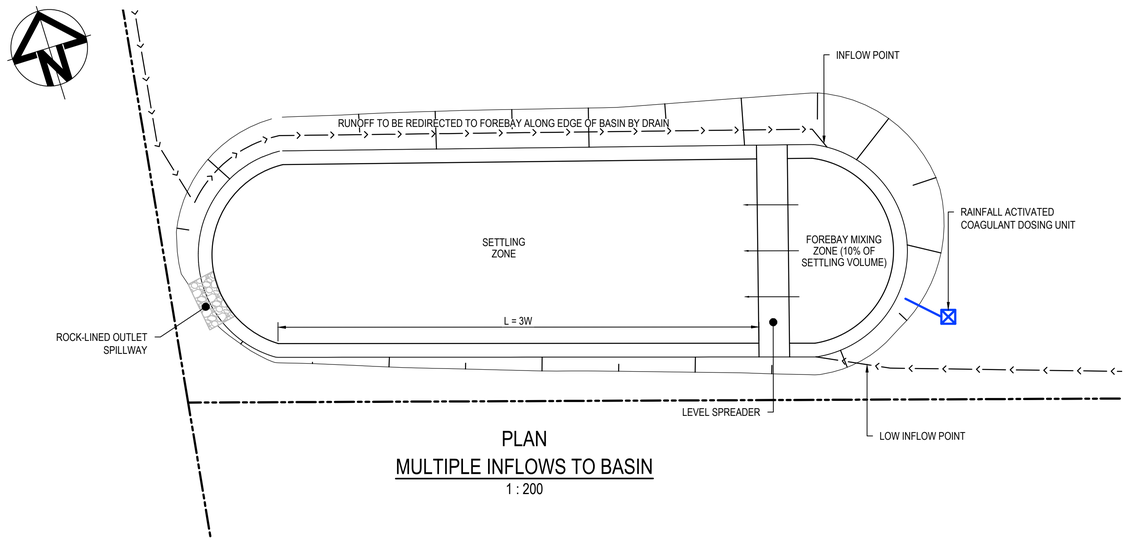
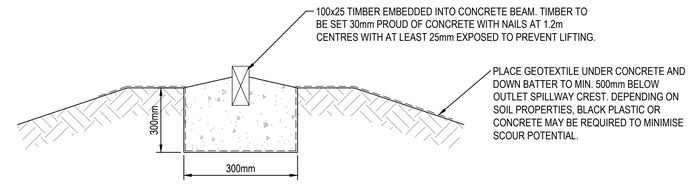


PLAN

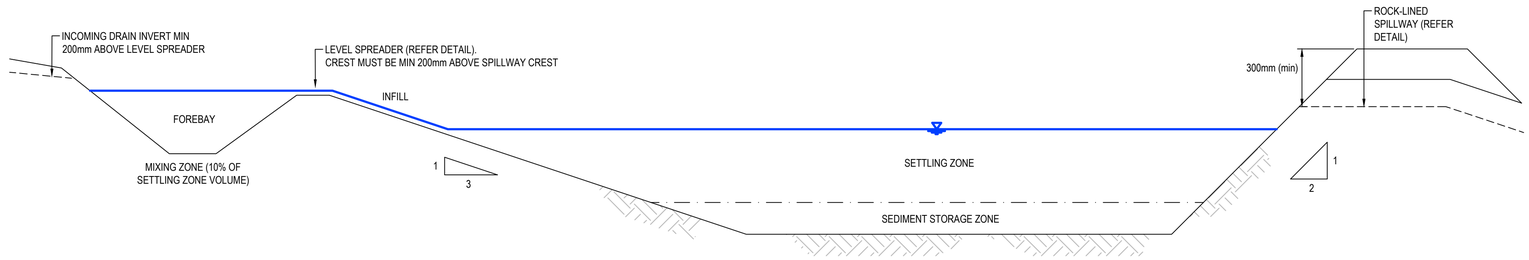
MULTIPLE INFLOWS TO BASIN

1 : 200



TYPICAL DETAIL FOR TYPE 'B' BASIN LEVEL SPREADER

NTS



LONG SECTION

TYPE 'B' BASIN

NTS

turbid WATER SOLUTIONS

Use this sheet to determine design parameters for Type B Basins (from IECA Option 2B). Scroll across to input data into yellow shaded cells.

			Q3mth Design Flowrate Calc.						Settling Zone						Forebay		Sediment Storage Zone			Overall Dimensions relative to spillway crest (excl. Forebay)			Spillway								
	Basin ID	Catchment Area (Ha)	C_{10}	C_1	tc	$I_{1yr,tc}$ (mm/hr)	Q1yr (m^3/s)	Q3mth (m^3/s)	Residence Time (hr)	Settling Zone Depth (m)	Ave. settling zone area (m2)	Settling Volume (m3)	W:L (1:X)	Scour Velocity (m/s)	Forebay Min. Depth (m)	Forebay Vol (m3)	Sed Storage Vol (m3)	Sed Storage depth (approx.) (m3)	Batter (1:X)	Width (m)	Length (m)	Depth (m)	Basin Design Life	Design ARI	C	I (mm/hr)	Q (m^3/s)	Head over spillway (m)	Spillway crest length (m)	Spillway Crest RL (m)	Min Embankment RL (m)
Example	*1*	*3*	*0.8*	*0.64*	*20*	*80*	*0.43*	*0.21*	*1*	*0.6*	*1280*	*768*	*3*	*0.017*	*1*	*77*	*230*	*0.2*	*3*	*22.5*	*67.4*	*0.8*	*3-12months*	*1:20yr*	*0.84*	*120*	*0.84*	*0.3*	*3.0*	*10*	*10.75*
	1	2.1	0.48	0.38	10	63.3	0.14	0.07	1.33	0.6	566	339	3	0.009	1	34	102	0.2	3	15.5	46.6	0.8	3-12months	1:20yr	0.50	144	0.42	0.3	1.5	63.5	64.25

Issue	Description	Date
A	ISSUED FOR DA	05.04.2024

100mm on Original

Bar Scales

0 5 10 15 20m

1 : 200 @ A1 1 : 400 @ A3

Client

SATHIO GROUP

Scales AS SHOWN

Grid MGA2020

Height Datum AHD

Drawn RM

Designed SM

Checked SM

Approved GJ

GDA2020

Project

40 THE RETREAT
BRINGELLY
NSW 2556

Title

SEDIMENT BASIN
TYPICAL ARRANGEMENT PLAN
STAGE 1

Civil Engineers and Project Managers

at&l

Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

A1

Project - Drawing No.

23-1110-C0082

Issue

A

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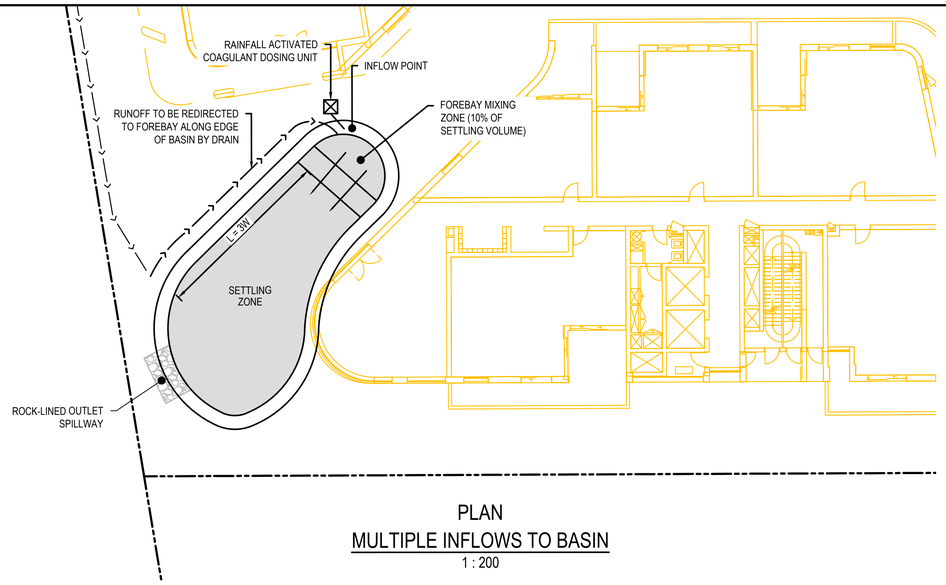
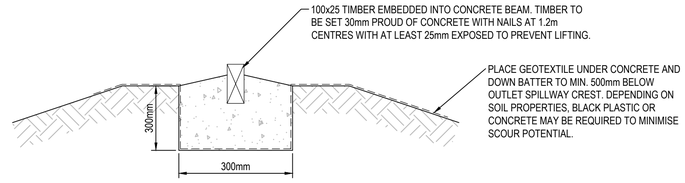
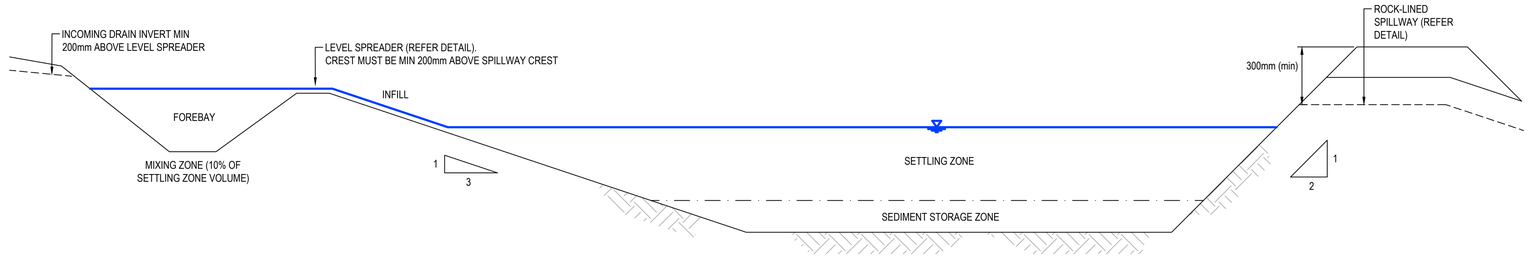


PLAN
MULTIPLE INFLOWS TO BASIN
1 : 200



TYPICAL DETAIL FOR TYPE 'B' BASIN LEVEL SPREADER
NTS



LONG SECTION
TYPE 'B' BASIN
NTS

turbid WATER SOLUTIONS

Use this sheet to determine design parameters for Type B Basins (from IECA Option 2B). Scroll across to input data into yellow shaded cells.

			Q3mth Design Flowrate Calc.						Settling Zone						Forebay		Sediment Storage Zone			Overall Dimensions relative to spillway crest (excl. Forebay)			Spillway								
	Basin ID	Catchment Area (Ha)	C_{10}	C_2	tc	$I_{1\,yr,tc}$ (mm/hr)	Q1yr (m^3/s)	Q3mth (m^3/s)	Residence Time (hr)	Settling Zone Depth (m)	Ave. settling zone area (m2)	Settling Volume (m3)	W:L (1:X)	Scour Velocity (m/s)	Forebay Min. Depth (m)	Forebay Vol (m3)	Sed Storage Vol (m3)	Sed Storage depth (approx.) (m3)	Batter (1:X)	Width (m)	Length (m)	Depth (m)	Basin Design Life	Design ARI	C	I (mm/hr)	Q (m^3/s)	Head over spillway (m)	Spillway crest length (m)	Spillway Crest RL (m)	Min Embankment RL (m)
Example	*1*	*3*	*0.8*	*0.64*	*20*	*80*	*0.43*	*0.21*	*1*	*0.6*	*1280*	*768*	*3*	*0.017*	*1*	*77*	*230*	*0.2*	*3*	*22.5*	*67.4*	*0.8*	*3-12months*	*1:20yr*	*0.84*	*120*	*0.84*	*0.3*	*3.0*	*10*	*10.75*
	1	1.04	0.48	0.38	10	63.3	0.07	0.04	1.33	0.6	280	168	3	0.006	1	17	50	0.2	3	11.5	34.4	0.8	3-12months	1:20yr	0.50	144	0.21	0.3	0.8	63.5	64.25

Issue	Description	Date
A	ISSUED FOR DA	05.04.2024

100mm on Original

Bar Scales
0 5 10 15 20m
1 : 200 @ A1 1 : 400 @ A3

Client
SATHIO GROUP

Scales AS SHOWN
Grid MGA2020
Height Datum AHD
Drawn RM
Designed SM
Checked SM
Approved GJ
GDA2020

Project
40 THE RETREAT
BRINGELLY
NSW 2556

Title
SEDIMENT BASIN
TYPICAL ARRANGEMENT PLAN
STAGE 2

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at&l
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North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

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A1

Project - Drawing No.
23-1110-C0083

Issue
A

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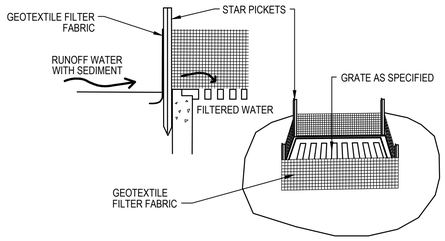
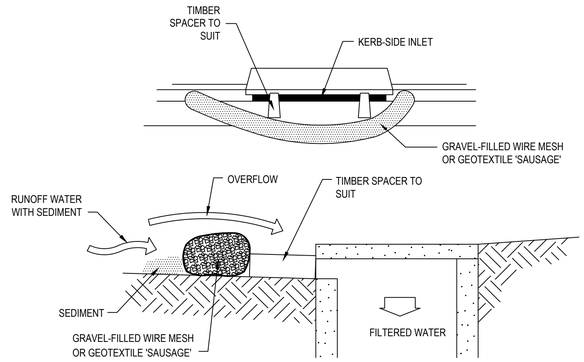


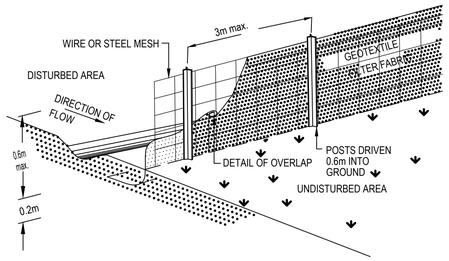
GEOTEXTILE FILTER PIT SURROUND

NTS



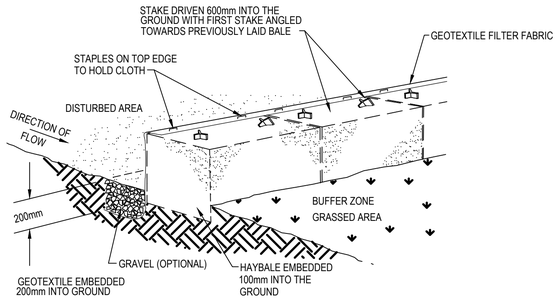
MESH AND GRAVEL INLET FILTER

NTS



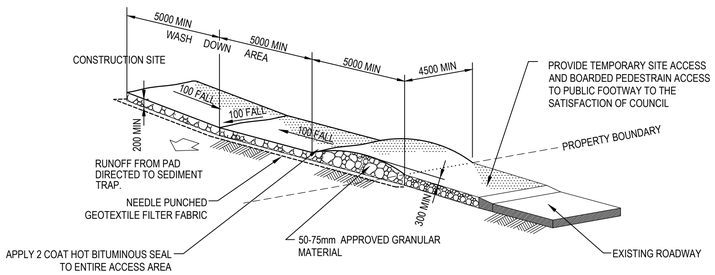
SEDIMENT FENCE

NTS



HAYBALE AND GEOTEXTILE SEDIMENT FILTER

NTS



STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA

NTS

Issue	Description	Date
A	ISSUED FOR DA	05.04.2024

100mm on Original

Bar Scales

Client

SATHIO GROUP

Scales NTS

Drawn RM

Designed SM

Grid MGA2020

Checked SM

Height Datum AHD

Approved GJ

GDA2020

Project

40 THE RETREAT
BRINGELLY
NSW 2556

Title

EROSION AND SEDIMENT CONTROL DETAILS

Civil Engineers and Project Managers

at&l

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Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

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A1

Project - Drawing No.

23-1110-C0090

Issue

A

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