Stormwater Management Plan

Tangaratta Feed Mill

Date 05 April 2024

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Revision Status

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Client: Tangaratta Stockfeeds Pty Ltd

Site Address: 771 Wallamore Road, Wallamore NSW

Report Title: Stormwater Management Plan

Document Control

Version	Date	Author	Reviewer	Approved	RPEQ
Draft Issue	9/02/2024	Ben Tarrant	Lachlan Stephenson		16903
Issue A	5/04/2024	Ben Tarrant	Lachlan Stephenson		16903

Contents

Table of Figures

Table of Tables

Table of Appendices

1 > Executive Summary

This report has been commissioned by Tangaratta Stockfeeds Pty Limited for the Environmental Impact Statement, to be lodged as part of the Development Application, for the proposed Tangaratta Feed Mill at 771 Wallamore Road, Wallamore.

This report addresses the following Engineering aspects of the proposed development:

- Topography
- Flooding
- Stormwater quality management
- Stormwater quantity management
- Erosion and sediment control.

2 > Purpose

This Stormwater Management Plan has been prepared to support the Environmental Impact Statement, to be lodged as part of the Development Application for the proposed Tangaratta Feed Mill.

3 > Introduction

3.1 Project Description

The current proposal includes the construction of a new poultry feed mill to the south of the existing feed mill, along with new car parking, loading docks, access roads, drainage swales, and a detention basin.

The proposed development is depicted on the architectural plans prepared by LGPM, attached in Appendix A, with excerpt below.

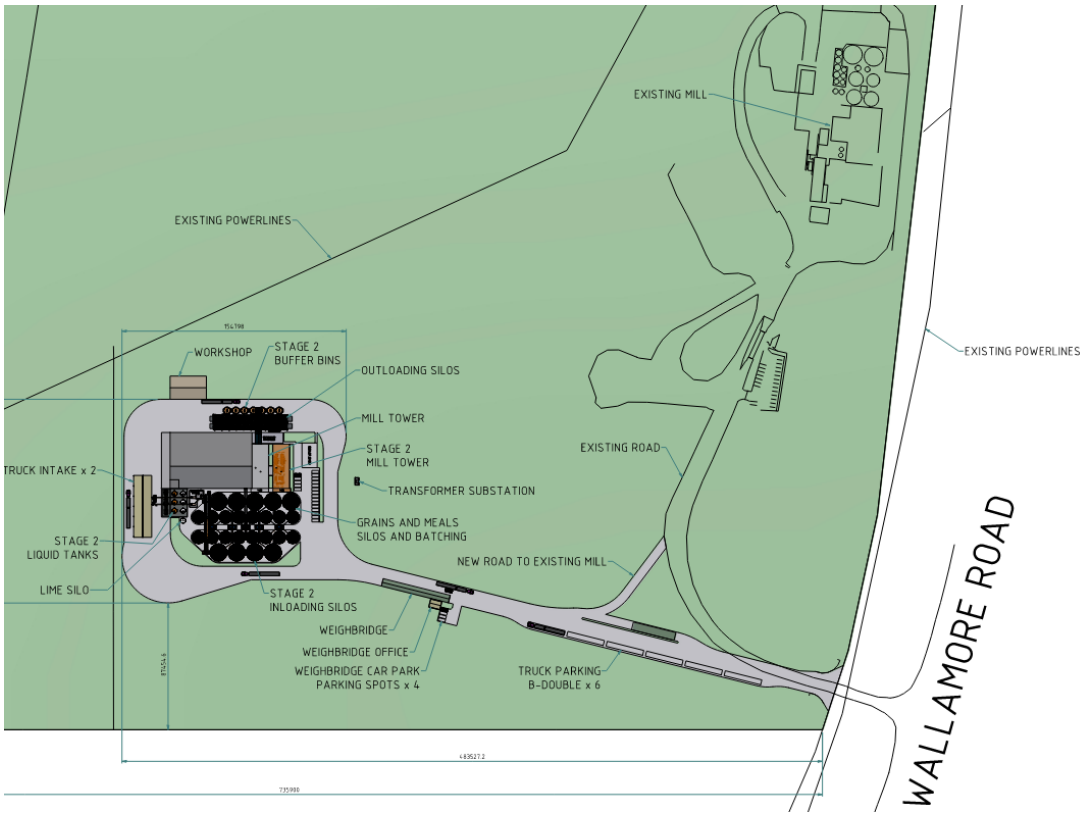

Figure 1 - Proposed Development

4 > Site Characteristics

4.1 Site Location

The site is located at 771 Wallamore Road, Wallamore on 40.62ha of rural land, formally described as Lot 4 on DP 578865.

The site is bounded by Wallamore Road to the East, Tangaratta Creek to the West and rural farmland to the North and South.

Figure 2 - Site Location

4.3 Topography and Existing Site Drainage

The site currently contains the current Tangaratta Stockfeeds mill, which will be expanded with the addition of the proposed new feed mill. The site is largely cleared and has been recently revegetated with native plants. There is an existing detention basin which was constructed to treat and detain the stormwater runoff from the existing development.

The site generally falls from the southern boundary to the north towards Wallamore Road, where there are a series of cut off drains directing stormwater flow to the western dam and the road table drains.

No external catchments appear to flow through the site, as the southern neighbour cuts off their overland flow with bunds and swales and directs it along the boundary toward Wallamore Road.

5 > Site Data

Site data has been obtained from the following sources of information:

- As constructed plans
- New South Wales Environmental Protection Authority (EPA)
- Tamworth Regional Council
- Satellite imagery
- Relevant reports
- Discussions with relevant authorities
- DBYD
- Survey plans.

6 > Stormwater

6.1 Flooding

Current flood mapping in the area indicates the site is not subject to flooding from any sources.

6.2 Site Based Stormwater Management Plan

The aim of the Stormwater Management Plan outlined below is to:

- Prevent or minimise adverse social or environmental impacts from stormwater runoff originating from the proposed development.
- Achieve acceptable levels of stormwater runoff quality and quantity.

The Stormwater Management Plan aims to identify Stormwater Quantity and Quality Best Management Practice for the site and demonstrate that water quantity and quality impacts will be minimised in receiving water.

The Stormwater Management Plan outlines the site in two sections, the operational phase and the construction phase. The operational phase addresses treatment of contaminated runoff from the developed site by natural methods before discharging into receiving waters, whilst the construction phase of the Stormwater Management Plan addresses erosion and sediment control to prevent contamination of water sources by stormwater runoff during construction of the site.

6.3 Operational Phase

6.3.1 Proposed Site Drainage

The site has been split into three main sub-catchments – an upstream catchment (Catchment C) that has been cut and redirected West toward the existing dam, a catchment running North-West through the main site (Catchment A, B & D), sheet flowing toward the Northwest boundary, and a catchment discharging toward Wallamore Road (Catchment E & F), North-East of the site. The catchment locations and extents are shown on MPN Plans 9883-SKC.01 attached in Appendix B, with excerpt below.

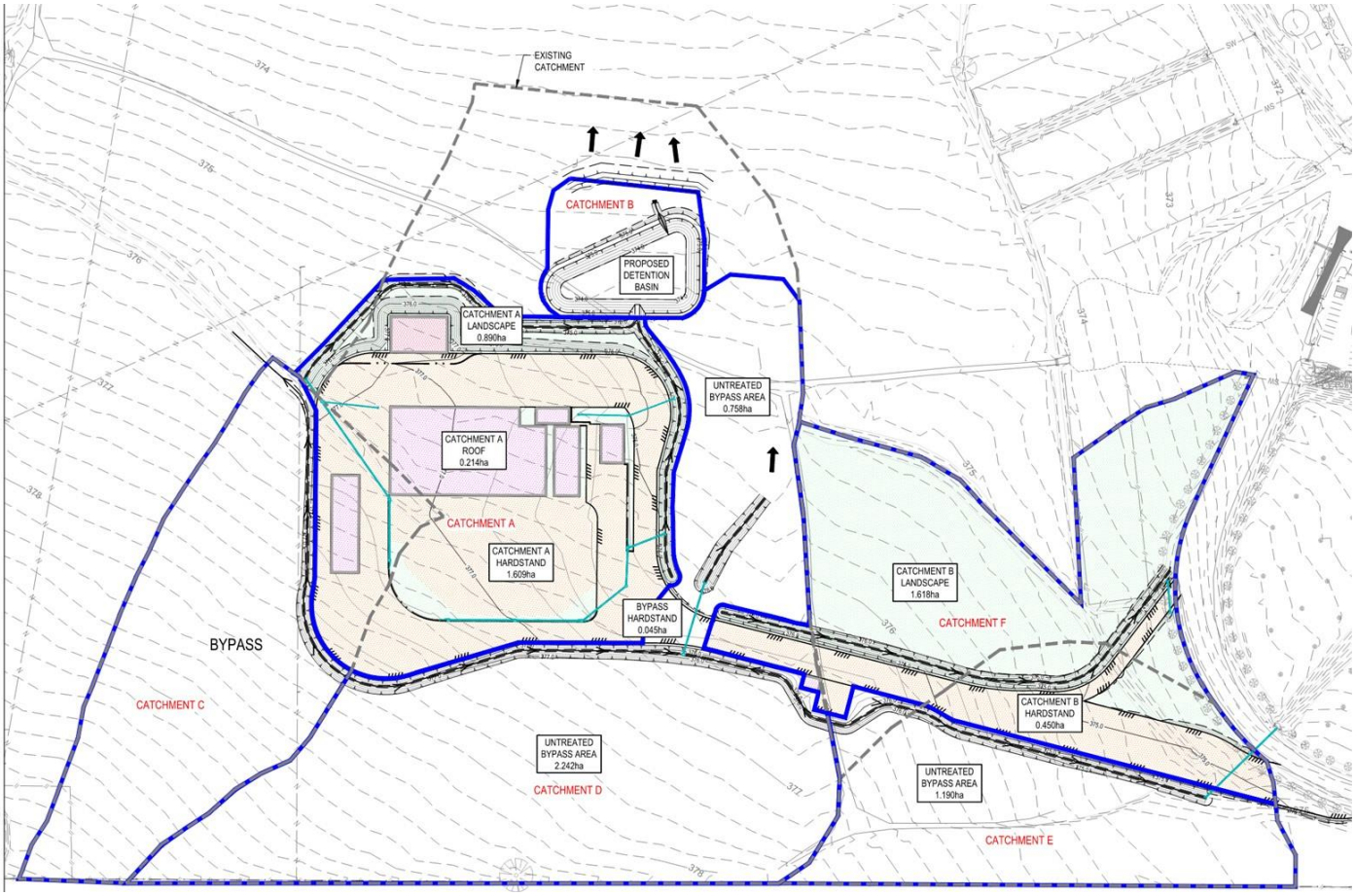

Figure 3 - Proposed Site Catchments (SKC.01)

Stormwater runoff from each of the main sub-catchments will be collected and conveyed in a new internal stormwater pit, pipe and open channel network. Stormwater runoff from catchments C, D, E and F will be collected in grassed swales prior to discharge toward the site boundaries via overland flow.

The catchment running through the proposed site (Catchment A) will be discharged to a detention basin. Stormwater will discharge from the basin via overland flow toward the site boundaries, mimicking the existing catchment. Litter baskets will also be fitted to the new field inlet pits to capture gross pollutants.

The existing detention basin constructed as part of the existing development will be retained to service Catchment C.

The proposed site stormwater infrastructure is shown on MPN Plans 9883-SKC.02, attached in Appendix B.

6.3.2 Stormwater Quantity Management Strategy

For the management of stormwater quantity for the proposed development, a DRAINs computer model was used to calculate the stormwater runoff quantity for the existing and post-development conditions.

In order to limit the site stormwater discharge, stormwater runoff from Catchment A will be detained within a detention basin. The basin will be over-sized to cater for the areas which will bypass detention (Catchments B, D, E, F). The location and configuration of the basin is shown on MPN Plans 9883-SKC.02-03, attached in Appendix 2. The properties of the basins are listed in Table 1 below.

Property	Detention Basin
Max Detention Volume (Incl. Freeboard)	1,477.80m^3
Max Water Depth (1% AEP) (Including Extended Detention)	0.72m
Max Water Depth (10% AEP) (Including Extended Detention)	0.53m
Base of Basin	374.00m
Top of Bund (min)	375.00m
Freeboard (1% AEP)	280mm
Outlet V-Notch Arrangement	2.4m Width @ RL 375 IL @ 374m

Table 1 - Detention Basin Properties

Runoff flows for the Annual Exceedance Probability (AEP) from 0.5EY (2-year ARI) to 1% AEP (100-year ARI) and durations of 5 minutes to 3 hours were calculated to ensure that peak runoff flows from the proposed development would not exceed peak runoff flows from the existing site. The most critical stormwater events for the site's catchment are compared in Table 2 and 3 and summarised in Table 4.

AEP Event (%)	Pre-Development Discharge (m^3/sec)	Post-Development Discharge (m^3/sec)	Post-Development Detained Discharge (m^3/sec)
39.3	0.237	0.577	0.230
20	0.445	0.831	0.366
10	0.625	1.056	0.508
5	0.790	1.288	0.665
2	1.070	1.637	0.883
1	1.290	1.888	1.054

Table 2 - Existing and Proposed Peak Flows with Detention (Catchments A, B, D) (DRAINS ILSAX)

AEP Event (%)	Pre-Development Discharge (m^3/sec)	Post-Development Discharge (m^3/sec)
39.3	0.128	0.152
20	0.238	0.260
10	0.320	0.356
5	0.427	0.445
2	0.578	0.599
1	0.694	0.705

Table 3 - Existing and Proposed Peak Flows of bypass catchments (Catchments E & F) (DRAINS ILSAX)

AEP Event (%)	Pre-Development Discharge (m^3/sec)	Post-Development Discharge (m^3/sec)	Net Discharge Change (m^3/sec)
39.3	0.365	0.382	0.017
20	0.683	0.626	-0.057
10	0.945	0.864	-0.081
5	1.217	1.110	-0.107
2	1.648	1.482	-0.166
1	1.984	1.759	-0.225

Table 4 - Existing and Proposed Peak Flows combined catchments (DRAINS ILSAX)

Table 4 above compares all catchments that are impacted by the site imperviousness, where the main catchment A has been over detained to offset the increase from the bypassing catchments.

6.3.3 Stormwater Quality Management Strategy

In order to reduce overall post-development pollutant loads and concentrations being discharged from the site, treatment solutions have been provided to remove hydrocarbons, suspended solids and nutrients prior to being discharged from site.

6.3.3.1 Potential Pollutants Generated

The pollutants that could be potentially generated as a result of the development use are as follows:

- Litter
- Sediment
- Nutrients (Nitrogen and Phosphorous)
- Hydrocarbons (oils and grease)
- Surfactants
- Pathogens/Faecal Coliforms (bacteria and viruses).

The MUSIC computer modelling program developed by the Co-operative Research Centre for Catchment Hydrology was used to predict the performance of the proposed stormwater treatment train.

At this stage the pollutants modelled in MUSIC are Total Suspended Solids (TSS), Total Phosphorous (TP) and Total Nitrogen (TN).

6.3.3.2 Rainfall

The rainfall data used in the model was based on the Bureau of Meteorology data from rainfall station 55054 Tamworth Airport. The model was run from 16 August 1993 to 31 December 2003. The modelling time step was 6 minutes.

6.3.3.3 Rainfall Runoff Properties

The rainfall runoff properties listed in Table 5 below were adopted for the MUSIC modelling undertaken for the development.

Parameter	Roof	VALUE Road	Ground Level
Rainfall Threshold (mm)	0.3	1.5	1.5
Soil Storage Capacity (mm)	100	100	100
Initial Storage (% of capacity)	25	25	25
Field Capacity (mm)	87	87	87
Infiltration Capacity Co-efficient a	250	250	250
Infiltration Capacity Co-efficient b	1.3	1.3	1.3
Initial Depth (mm)	10	10	10
Daily Recharge Rate (%)	60	60	60
Daily Base Flow Rate (%)	45	45	45
Deep Seepage (%)	0	0	0

Table 5 - MUSIC Rainfall Runoff Parameters

6.3.3.4 Pollutant Export Parameters

The adopted Pollutant Export Parameters for each source node type are presented in Table 6 below.

Runoff pollutant concentrations are generated stochastically from the defined mean and standard deviation.

		Log 10 TSS (mg/L)		Log 10 TN (mg/l)		Log 10 TP (mg/L)	
		Base Flow	Storm Flow	Base Flow	Storm Flow	Base Flow	Storm Flow
Roof	Mean	0	1.30	0	-0.89	0	0.30
	Std. Dev.	0	0.32	0	0.25	0	0.19
Roads	Mean	0	2.43	0	-0.30	0	0.34
	Std. Dev.	0	0.32	0	0.25	0	0.19
Ground Level	Mean	1.20	3.00	-0.85	-0.30	0.11	0.34
	Std. Dev.	0.17	0.32	0.19	0.25	0.12	0.19

Table 6 - Pollutant Export Parameters

6.3.3.5 Water Quality Objectives

In the absence of specific Water Quality Objectives from Tamworth Regional Council, the industry standard pollutant reduction targets listed in Table 7 below have been adopted.

WATER QUALITY OBJECTIVES				
Total Suspended Solids (TSS) % Reduction	**Total Nitrogen (TN) % Reduction**	**Total Phosphorous (TP) % Reduction**	**Litter/ Gross Pollutants % Reduction**	**Oils/ Grease**
85	45	65	90	No visible films or odours

Table 7 - Water Quality Objectives

6.3.3.6 Treatment Plan

In order to achieve the pollutant load reduction targets for the development, it is proposed to use mechanical and natural treatment methods to treat the runoff prior to discharge from the site.

Stormwater runoff from Catchment A will be treated by GPTs and/or buffer strips prior to discharging via swales to the detention basin.

Stormwater runoff from Catchments B, D & E will be treated by buffer strips and swales.

The treatment plan for the site is depicted on MPN Plans 9883-SKC.01, attached in Appendix 2, with MUSIC excerpt shown below.

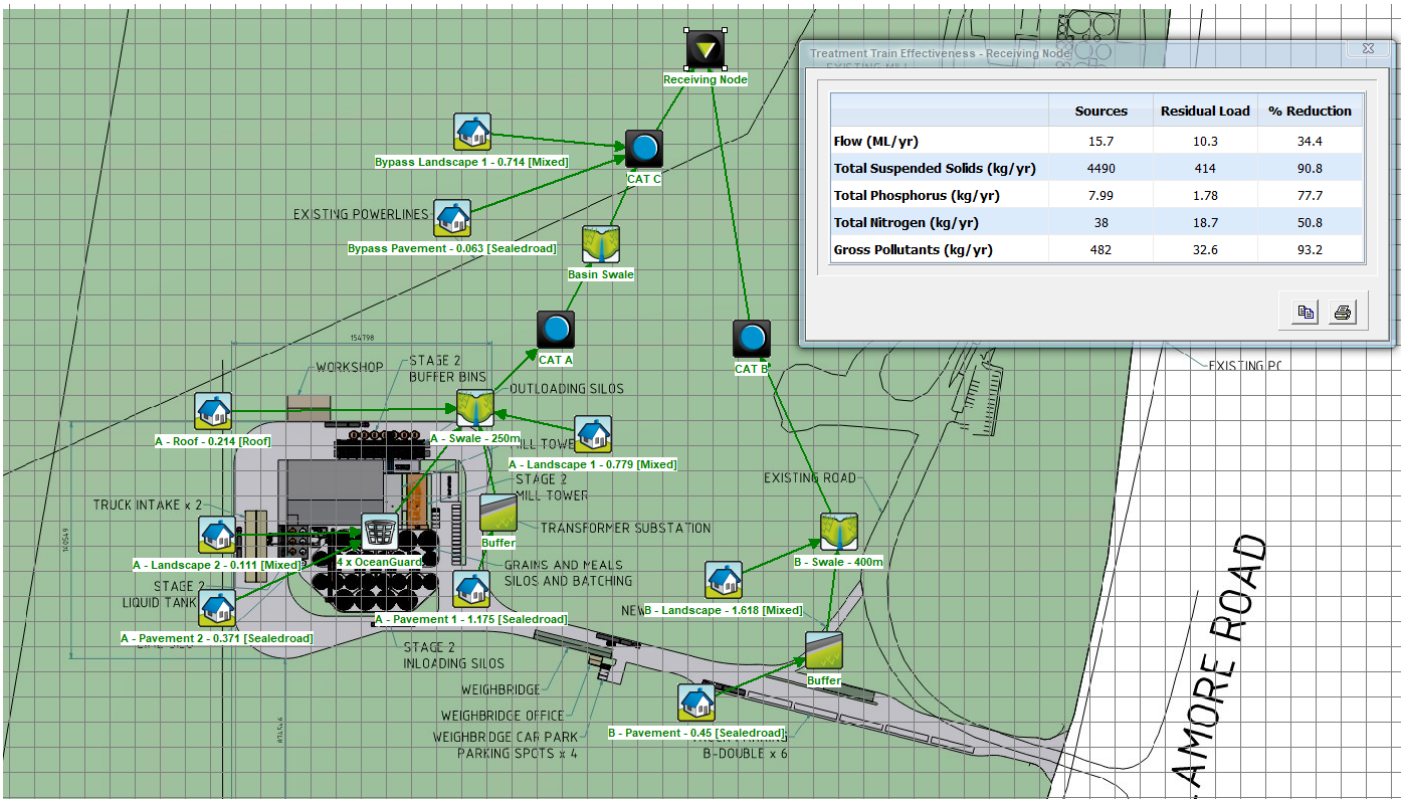

Figure 4 - Treatment Plan

6.3.3.7 MUSIC Results

The resulting percentage-based load reductions at the site outlet is shown in Table 8 below, together with the Water Quality Objectives for the receiving waters.

	Sources	Residual Load	%Reduction	Target %
Total Suspended Solids (kg/yr)	4490	414	90.8	85
Total Phosphorous (kg/yr)	7.99	1.78	77.7	65
Total Nitrogen (kg/yr)	38	18.7	50.8	45
Gross Pollutants (kg/yr)	482	32.6	93.2	90

Table 8 - Percentage Based Load Reduction Results

6.3.3.8 POD Pollutant Reduction

6.3.3.8.1 Litter

Rubbish bins will be located within the development buildings and car parks for use by staff and visitors. As a result of this and with the installation of the GPTs and swales, levels of litter exiting the site via stormwater are expected to be negligible.

6.3.3.8.2 Sediment

The TSS outflow is identified in Table 8 above. As can be seen the pollutant load reduction achieves the Water Quality Objectives. The TSS level is therefore considered acceptable.

6.3.3.8.3 Nitrogen and Phosphorous

The TN and TP loads are identified in the above Table 8. As can be seen the TN and TP loads leaving the site achieve the Water Quality Objectives. Significant reductions in Nitrogen and Phosphorous have been achieved. The Nitrogen and Phosphorous residual loads are therefore considered acceptable.

6.3.3.8.4 Hydrocarbons

Hydrocarbons will be digested and processed by soil microorganisms within the swales and attachment to vegetation where biological breakdown of the hydrocarbons can occur. Hydrocarbons will also be captured within the GPTs.

6.3.3.8.5 Surfactants

If car or truck washing occurs on site it will be within a bunded area where surfactants will be captured and treated prior to discharging into the stormwater network.

6.3.3.8.6 Heavy Metals

Heavy metals in stormwater runoff generally become attached to fine sediment. The swales will remove the majority of this fine sediment. The removal of the fine sediment should effectively remove most of the heavy metals in the runoff.

6.3.3.8.7 Pathogen/Faecal Coliforms

Domestic animals within the development will be under the control of their owners at all times and the owners will be expected to clean up after them.

6.3.3.9 Proposed Stormwater Quality Treatment Devices

6.3.3.9.1 Locations

The location of the proposed stormwater quality treatment devices is shown on MPN Plans 9883-SKC.01, attached in Appendix 2.

6.3.3.9.2 Device and Size

The device type and sizes are shown on MPN Plan 9883-SKC.01, attached in Appendix 2.

6.3.4 Construction Phase (Sediment and Erosion Control)

6.3.4.1 Intent of Erosion and Sediment Control Management Plan

To prevent stormwater contamination (of watercourses) and the release of contaminated stormwater and wastewater by ensuring compliance with the Protection of the Environment Operations Act 1997.

6.3.4.2 Implementation Strategy

Establish control measures and best practice approaches to prevent stormwater contamination and minimise the risk and adverse effects of erosion and sedimentation. All Erosion and Sediment Control measures must be designed, constructed and maintained in a manner that is commensurate with the site's erosion risk.

6.3.4.1 Erosion and Sediment Control Measures

- Obtain a license or approval to operate activities that are classed as environmentally relevant activities (i.e. they have the potential to cause environmental harm).
- Implement and maintain appropriate control measures to prevent sediment laden wastewater and other potential pollutants such as oil, paint and wet concrete from entering the stormwater system via stormwater drains and gullies. The control measures which must be considered to be adopted are:
  - Limitation of site access during construction to minimise disruption to traffic. Install a temporary construction entry/exit sediment trap at all site accesses to minimise mud and sediment from the site being tracked onto public road, particularly during wet weather or when the site is muddy.
  - Install and maintain appropriate sediment fences around construction areas.
  - Divert clean stormwater runoff, using catch drains, around construction areas to existing or new stormwater drainage system.
  - Install sandbags and other pollution containment devices around stormwater drains and any other locations where required to prevent sediment entering the trunk stormwater system.
  - Cover open earth/soil areas progressively (with concrete slabs and pavements or mulch) to minimise areas of bare earth/soil.
  - Any stockpiles of excavated soil and demolition/construction waste must be located where risk of erosion and sedimentation is minimal and must be protected from wind and water erosion.
  - Implement and maintain appropriate control measures such as catch drains and sediment fences to prevent ponding of stormwater or discharge of stormwater from the site to adjacent properties.
  - Provision of spill/pollution control equipment that is readily accessible to clean up spills and leaks.
  - Ensure spill/pollution control measures are available and maintained in working condition.
  - Sediment contained by the sediment control devices such as sandbags, sediment fences and containment bunds must be frequently removed and placed in a controlled area.
  - Implement an inspection schedule for any spill or leaks of any potential polluting areas or activities.

6.3.4.2 Erosion and Sediment Control Management Goals

- Licenses, approvals, permits, and inspection reports are in order.
- Sediment or pollution control devices such as sandbags, sediment fences and containment bunds are in place, maintained and effective.
- Spill/pollution control equipment is readily accessible at designated locations.
- No accumulated sediment is contained by the sediment control devices such as hay bales, sediment fences and containment bunds.
- No sediment exceeding a depth of 300mm in the pollution control devices (e.g. silt trap).

6.3.4.3 Erosion and Sediment Control Implementation Program

- Licenses, permits or approvals for each environmentally relevant activity must be obtained prior to the commencement of the particular activity.
- Appropriate control measures such as sediment fences, temporary construction entry/exit sediment traps, pollution containment devices (e.g. sandbags), stormwater diversion, and administrative controls must be installed and established prior to commencement of the earthworks and construction activities.
- Pollution control devices such as spill control equipment must be inspected on a regular basis (at least weekly).
- Other sediment and pollution control equipment such as containment bunds, hay bales and sediment fences must be inspected on a regular basis (at least daily).
- Inspection for any leaks, spills or potential contaminating activity must be performed on a regular basis (at least daily).
- Remove accumulated sediment or other contaminants from sediment/pollution control devices on a regular basis.
- All erosion and sediment control measures must be inspected within 24 hours of expected rain and within 18 hours of a rainfall event.

6.3.4.4 Responsible Person or Organisation

The contractor shall be responsible for the implementation and maintenance of the Erosion and Sediment Control Measures.

6.3.4.5 Reporting/Review

Records such as licenses, approvals, permits and inspection reports must be reviewed on a regular basis (e.g. at least monthly) to ensure that legal compliance is met, complaints are reviewed and systems are working to prevent contamination.

6.3.4.6 Corrective Actions

- Perform clean-up of any spills immediately.
- Any mud or sediment which is tracked onto public roads is to be immediately removed using dry clean-up methods (i.e. shovel and broom).
- Remove or relocate any stockpiles of waste where there is a reasonable risk of erosion and sedimentation.
- Replace or repair sediment or pollution control devices if they are not maintained in good working condition.

7 > Conclusion

This Stormwater Management Plan demonstrates that under the proposed concept plan, stormwater quality and quantity treatment is achievable to the levels required by Tamworth Regional Council and Industry Best Management Practice.

Stormwater detention for the development will be provided in a detention basin located downstream of the site to suit the site's existing catchments. The detention basin will be over-sized to compensate for the areas of the site which bypass detention, and runoff from the basin will be evenly distributed via a level spreading bund.

Stormwater treatment for the development will be provided by a series of GPT's and swales located throughout the site, along with buffer strips along the internal roads.

8 > Limitations of Report

MPN have prepared this report for the proposed Tangaratta Feed Mill in accordance with MPN's proposal to Tangaratta Stockfeeds Pty Limited. This report is provided for the exclusive use of Tangaratta Stockfeeds Pty Limited for this specific project and its requirements. It should not be used or relied upon by a third party and MPN accept no responsibility for the use of this report by any party other than Tangaratta Stockfeeds Pty Limited.

Appendix A. Architectural Plans

854406

504041

EXISTING MILL

EXISTING POWERLINES

154798

WORKSHOP

STAGE 2
BUFFER BINS

OUTLOADING SILOS

MILL TOWER

STAGE 2
MILL TOWER

TRANSFORMER SUBSTATION

GRAINS AND MEALS
SILOS AND BATCHING

TRUCK INTAKE x 2

140549

STAGE 2
LIQUID TANKS

LIME SILO

STAGE 2
INLOADING SILOS

WEIGHBRIDGE

WEIGHBRIDGE OFFICE

WEIGHBRIDGE CAR PARK
PARKING SPOTS x 4

87454.6

EXISTING ROAD

NEW ROAD TO EXISTING MILL

TRUCK PARKING
B-DOUBLE x 6

EXISTING POWERLINES

WALLAMORE ROAD

483527.2

735900

REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED
D	MILL TOWERS WIDENED	18/10/2023	

LGPM
PROCESS INNOVATION
Bulk Materials Handling & Processing Systems
47-49 OVERSEAS DRIVE
NOBLE PARK, VIC 3174
PHONE: +61 (03) 9702 4855
EMAIL: info@lgpm.com.au
WEBSITE: www.lgpm.com.au

MDL	JC	3/07/2023
DRN	JC	24/07/2023
CHK		

CLIENT & PROJECT LOCATION
BAIADA TFM - TANGARATTA, NSW

PROPOSED FEEDMILL
GENERAL SITE LAYOUT
OVERALL SITE

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN mm

SCALE 1 : 1200

THIRD ANGLE PROJECTION

A1

P&ID ITEM No.	DRG No.	REV.	SHT
	9873-00002	D	1 OF 4

153340
84000
56500
21500

B SHEET 4

WORKSHOP

STAGE 2
BUFFER BINS

WAREHOUSE
(ROOF AND AWNING HIDDEN)

OFFICES AND
AMMENITIES

BOILER SHED

BULK BAG INLOADING

4 x 15T BINS

BOILER SHED

STAGE 2
MILL TOWER AND MCC

TRANSFORMER SUBSTATION

MCC

MCC

9958

124500

OPERATOR AND CONTRACTOR CARPARK
PARKING SPOTS x 20

22904

38600

42720

19700

14056.94

TRUCK INTAKE x 2

BUNDING

LIQUIDS
STAGE 1 & 2

GRAINS AND MEALS SILOS

9300

13000

16049

STAGE 2
GRAINS AND MEALS SILOS

B SHEET 4

WEIGHBRIDGE

A SHEET 4

A SHEET 4

WEIGHBRIDGE OFFICE

WEIGHBRIDGE CAR PARK
PARKING SPOTS x 4

REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED
D	MILL TOWERS WIDENED	18/10/2023	

LGPM
PROCESS INNOVATION
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EMAIL: info@lgpm.com.au
WEBSITE: www.lgpm.com.au

MDL	JC	3/07/2023
DRN	JC	24/07/2023
CHK		

CLIENT & PROJECT LOCATION
BAIADA TFM - TANGARATTA, NSW

PROPOSED FEEDMILL
GENERAL SITE LAYOUT
NEW MILL OVERVIEW

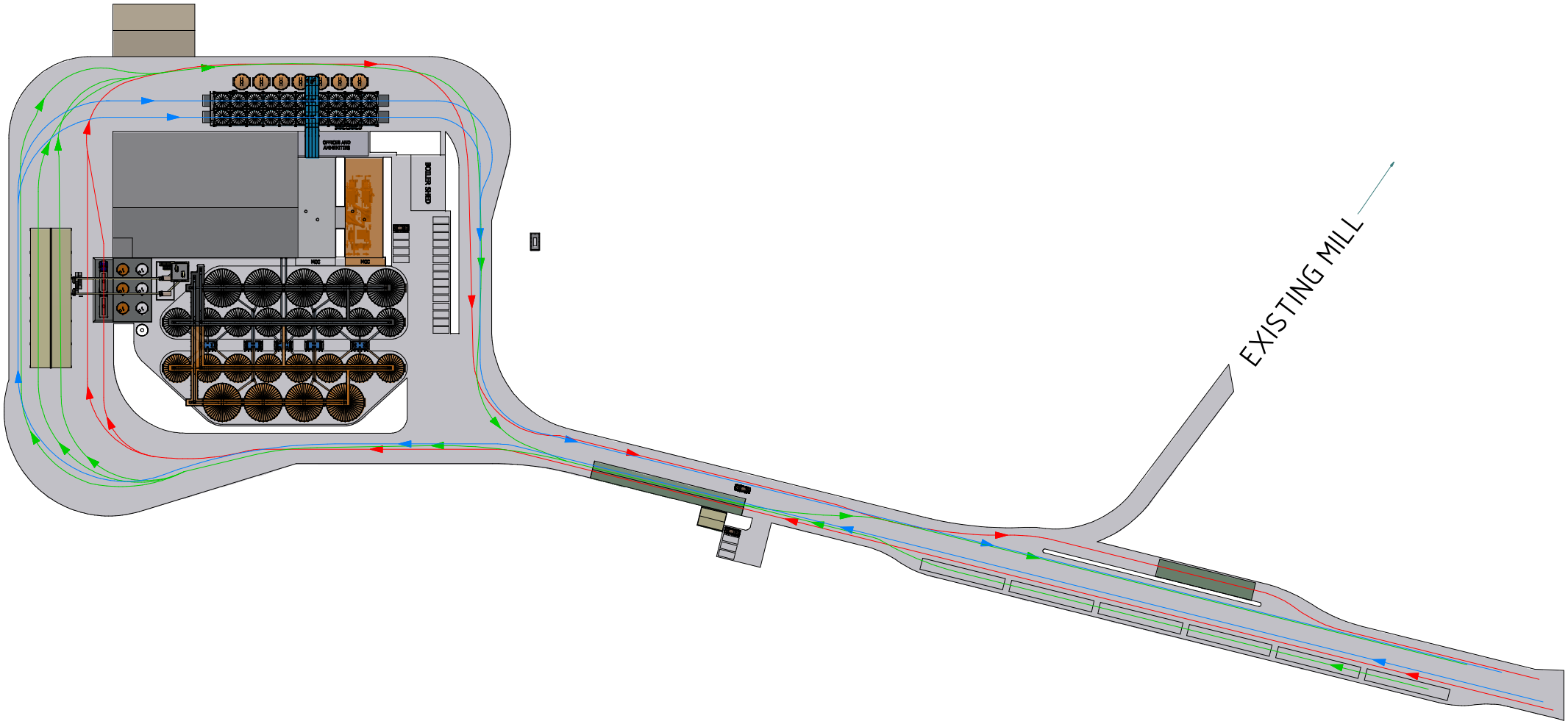
UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN mm

SCALE 1 : 400

THIRD ANGLE PROJECTION

A1

P&ID ITEM No.	DRG No.	REV.	SHT
	9873-00002	D	2 OF 4



REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED
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MDL	JC	3/07/2023
DRN	JC	24/07/2023
CHK		

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN mm

SCALE 1 : 600

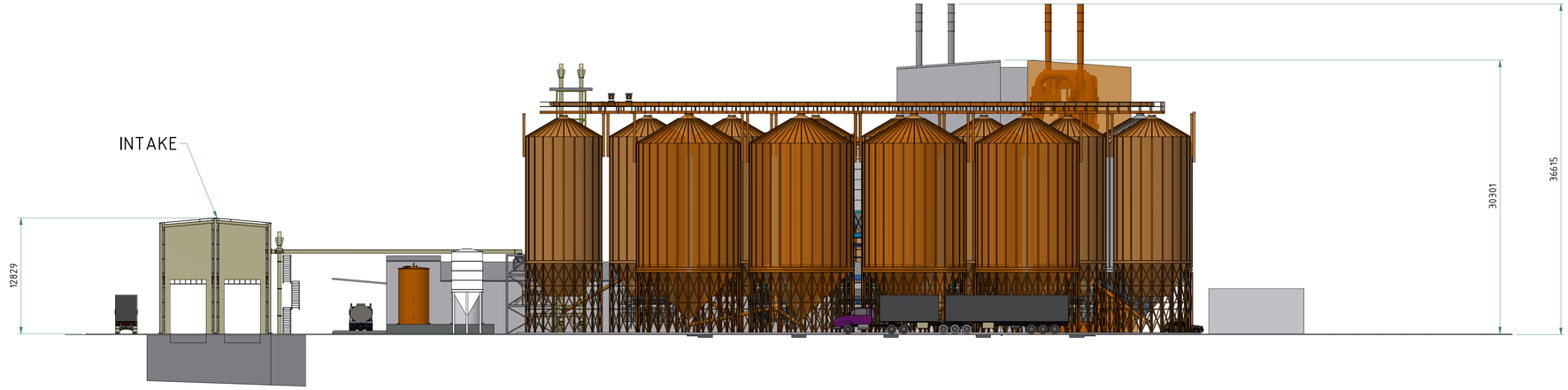
THIRD ANGLE PROJECTION

A1

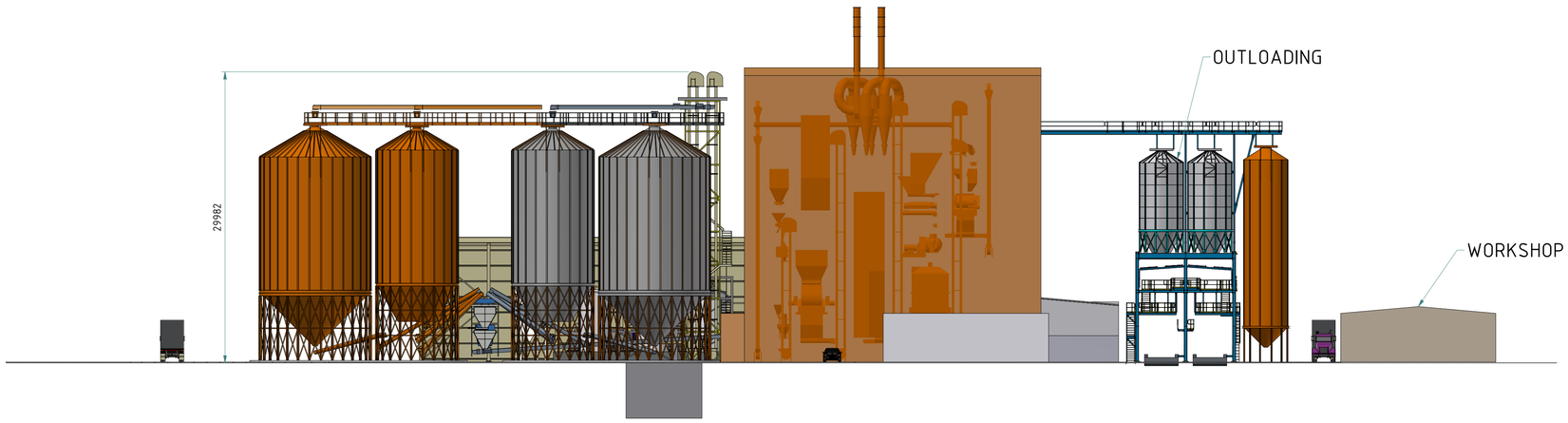
CLIENT & PROJECT LOCATION
BAIADA TFM - TANGARATTA, NSW

PROPOSED FEEDMILL
GENERAL SITE LAYOUT
TRAFFIC FLOW OVERLAY

P&ID ITEM No.	DRG No.	REV.	SHT
	9873-00002	D	3 OF 4



SECTION A-A
1 : 300



SECTION B-B
1 : 300

REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED
D	MILL TOWERS WIDENED	18/10/2023	

47-49 OVERSEAS DRIVE
NOBLE PARK, VIC 3174
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LGPM PROCESS INNOVATION
Bulk Materials Handling & Processing Systems

MDL	JC	3/07/2023
DRN	JC	24/07/2023
CHK		

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN mm

SCALE 1 : 300

THIRD ANGLE PROJECTION

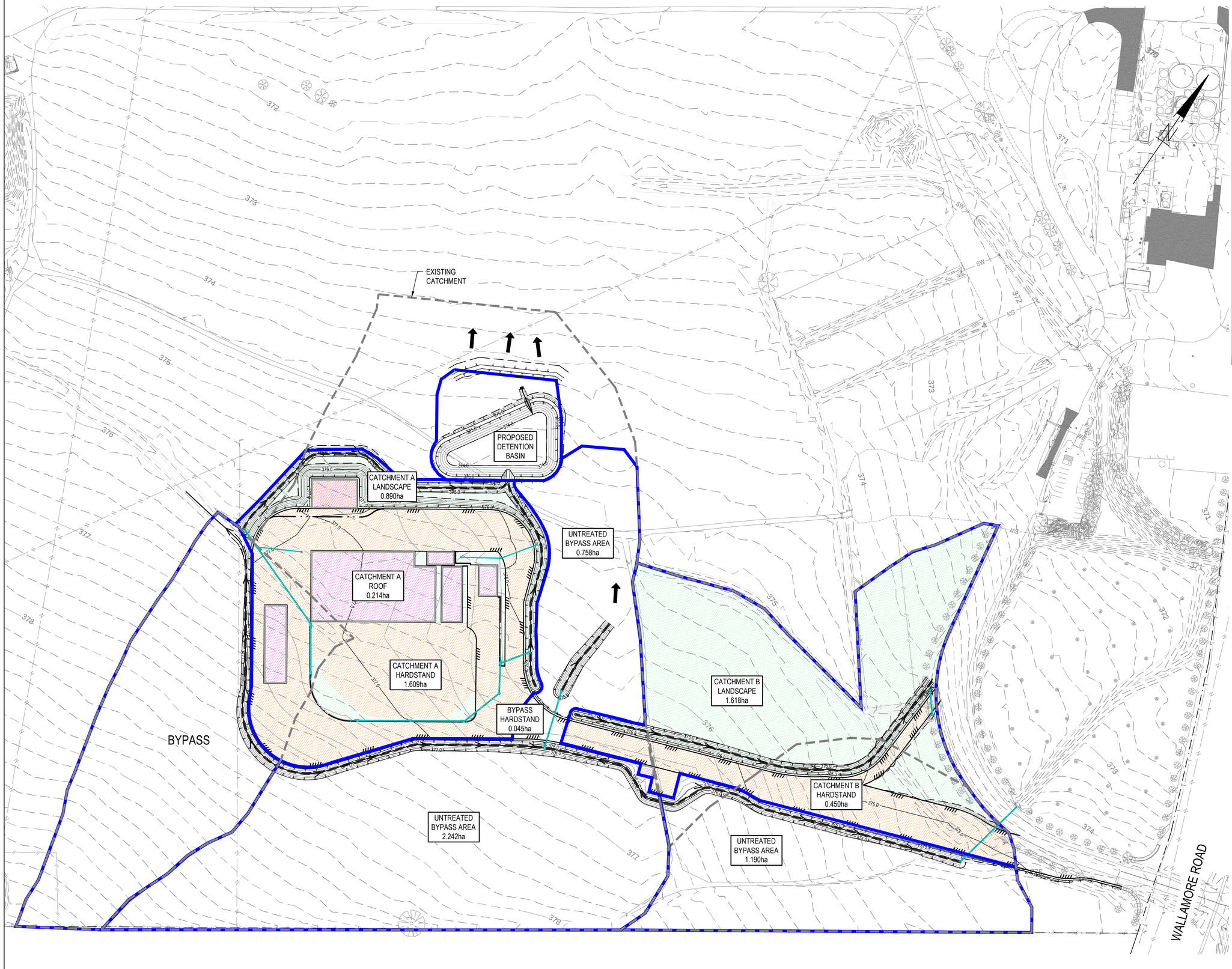
A1

CLIENT & PROJECT LOCATION
BAIADA TFM - TANGARATTA, NSW

PROPOSED FEEDMILL
GENERAL SITE LAYOUT
ELEVATION VIEWS

P&ID ITEM No.	DRG No.	REV.	SHT
	9873-00002	D	4 OF 4

Appendix B. MPN Plans



LEGEND

- PROPOSED BUILDING
- PROPOSED EDGE OF PAVEMENT
- PROPOSED BARRIER KERB
- PROPOSED KERB AND CHANNEL
- PROPOSED STORM WATER MAIN
- PROPOSED TOP OF BATTER
- PROPOSED TOE OF BATTER
- PROPOSED CATCHMENT BOUNDARY
- PROPOSED SWALE DRAIN
- EXISTING CATCHMENT
- CONTOURS EXISTING
- CONTOURS PROPOSED
- SHEET FLOW
- PROPOSED ROOF AREA
- PROPOSED HARDSTAND AREA
- PROPOSED GROUND LEVEL AREA

CATCHMENT SCHEDULE

CATCHMENT	TYPE	AREA (ha)	TREATMENT
A	ROOF	0.214	SWALE
	HARDSTAND	1.609	BUFFER, SWALE
	LANDSCAPE	0.890	BUFFER, SWALE, GPT
B	HARDSTAND	0.450	BUFFER, SWALE
	LANDSCAPE	1.618	SWALE

NOTE:
LITTER BASKETS TO BE FITTED TO FIELD INLETS LOCATED IN THE HARDSTAND AREAS.

ISSUE	DATE	AMENDMENT	BY	APP
A	05.04.24	DA ISSUE	BT	LS

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CLIENT:
BAIADA TFM

PROPOSED FEEDMILL
GENERAL SITE LAYOUT
TANGARATTA, NSW

STORMWATER CATCHMENT PLAN

DESIGN:	JB	DRAWN:	LM	SCALES:	AS SHOWN
CHKD:	LS	APPRD:	LS	DATE:	

mpn JOB	DRAWING No.	REV
9883	SKC.01	A

PRELIMINARY

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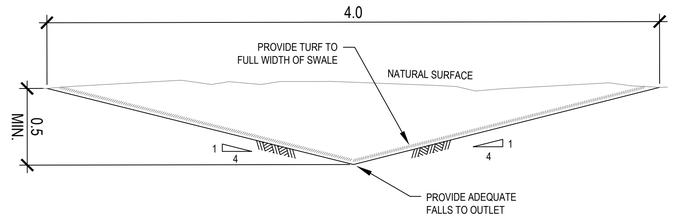
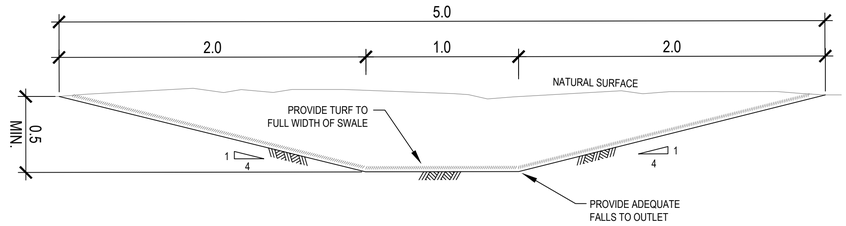
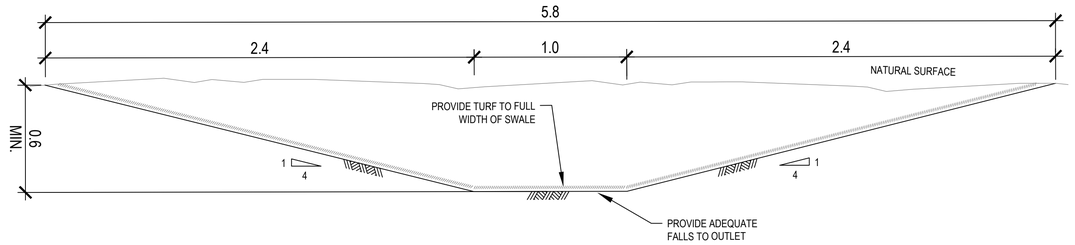


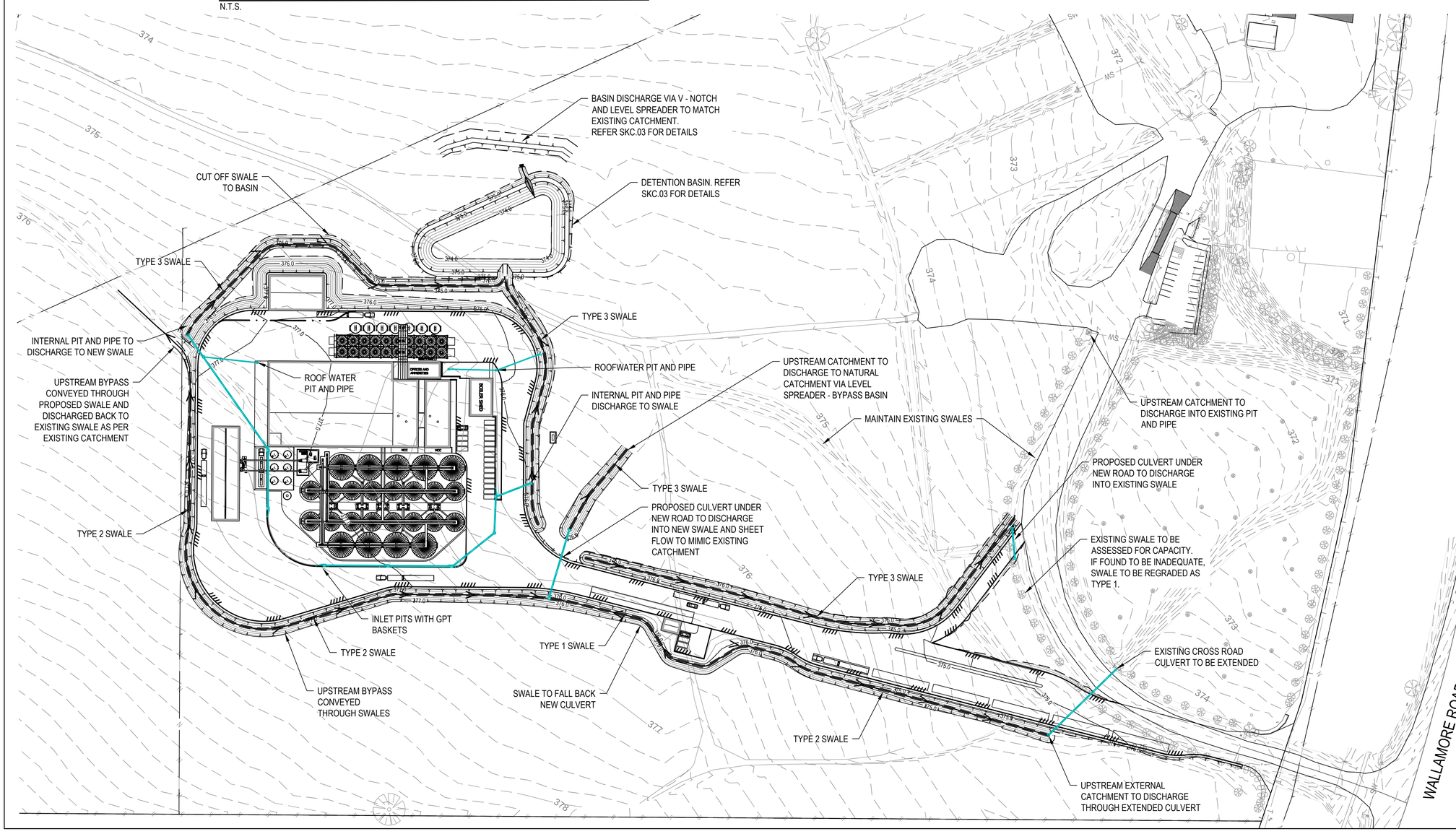
TYPICAL SWALE DRAIN DETAIL - TYPE 1 (0.5m DEEP)
N.T.S.



TYPICAL SWALE DRAIN DETAIL - TYPE 2 (0.5m DEEP WITH 1.0m BASE)
N.T.S.



TYPICAL SWALE DRAIN DETAIL - TYPE 3 (0.6m DEEP WITH 1.0m BASE)
N.T.S.



LEGEND

- PROPOSED BUILDING
- PROPOSED EDGE OF PAVEMENT
- PROPOSED BARRIER KERB
- PROPOSED STORM WATER MAIN
- PROPOSED TOP OF BATTER
- PROPOSED TOE OF BATTER
- PROPOSED SWALE DRAIN
- EXISTING CATCHMENT
- CONTOURS EXISTING
- CONTOURS PROPOSED

0 10 20 30 40 50
SCALE 1:1000 A1 1:2000 (A3)

ISSUE	DATE	AMENDMENT	BY	APP
B	05.04.24	DA ISSUE	BT	LS
A	09.02.24	DRAFT ISSUE	JB	LS

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CLIENT:
BAIADA TFM

PROPOSED FEEDMILL
GENERAL SITE LAYOUT
TANGARATTA, NSW

POST DEVELOPMENT PLAN

DESIGN:	JB	DRAWN:	LM	SCALES:	AS SHOWN
CHKD:	LS	APPRD:	LS	DATE:	

mpn JOB	DRAWING No.	REV
9883	SKC.02	B

PRELIMINARY

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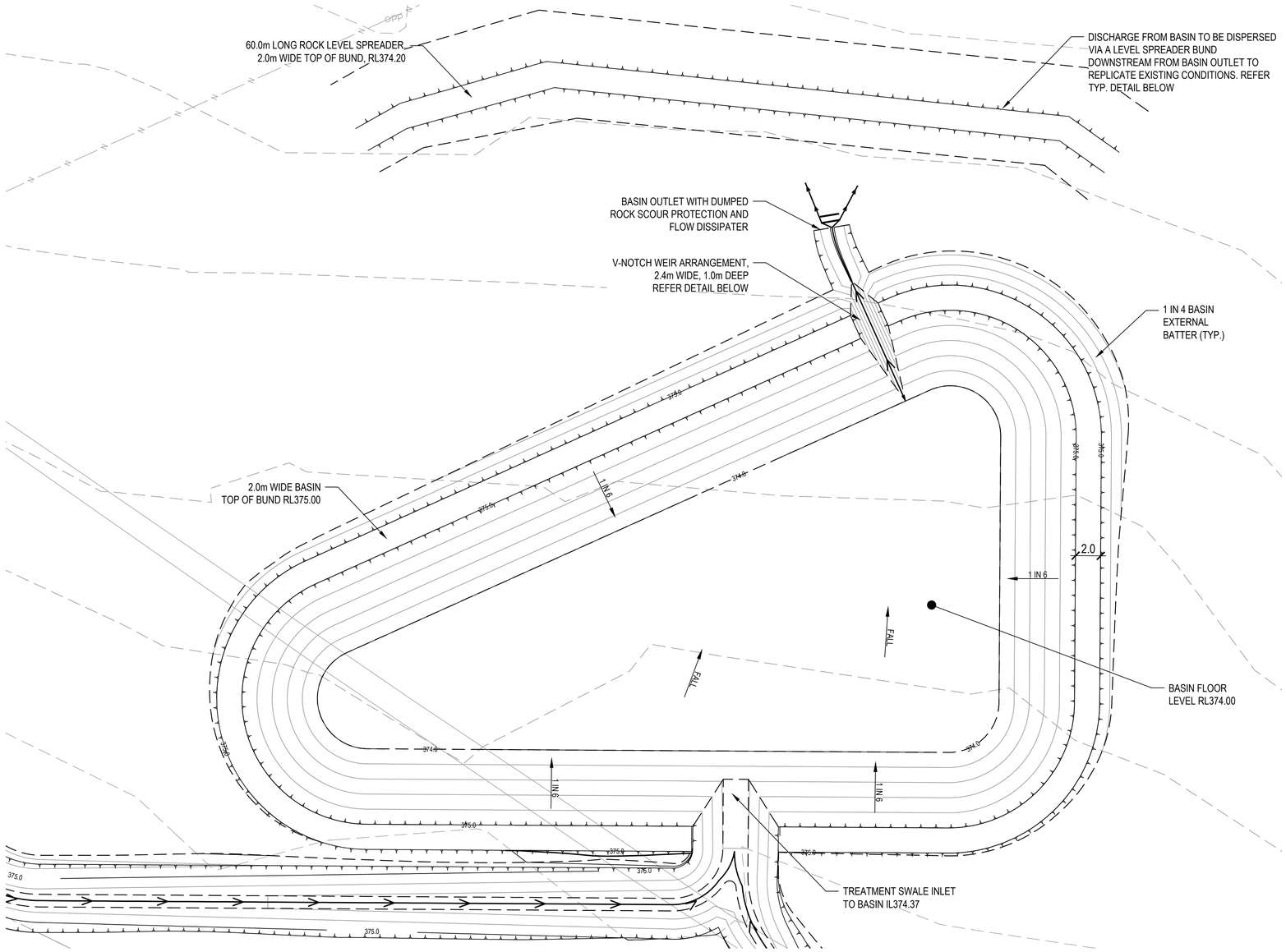
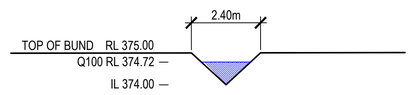


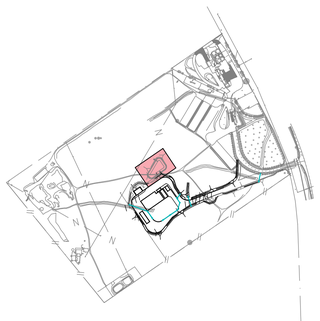
TYPICAL ROCK LEVEL SPREADER DETAIL

N.T.S.



TYPICAL V-NOTCH WEIR DETAIL

SCALE 1:10



KEY PLAN

NTS

LEGEND

- PROPOSED TOP OF BATTER
- PROPOSED TOE OF BATTER
- PROPOSED SWALE DRAIN
- CONTOURS EXISTING
- CONTOURS PROPOSED

BASIN DEPTH-AREA-VOLUME

DEPTH (m)	ELEVATION (m)	AREA (m^2)	Δ VOLUME (m^3)	VOLUME TO HEIGHT (m^3)
0.000	374.00	1019.1	0.0	0.0
0.125	374.13	1119.6	133.1	133.1
0.250	374.25	1232.3	147.0	280.1
0.375	374.38	1348.6	161.3	441.3
0.500	374.50	1468.3	176.0	617.3
0.625	374.63	1591.6	191.2	808.6
0.750	374.75	1718.5	206.8	1015.4
0.875	374.88	1848.8	222.9	1238.3
1.000	375.00	1982.7	239.4	1477.8

0 2 4 6 8 10

SCALE 1:200 (A1) 1:400 (A3)

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B	03.04.24	DA ISSUE	BT	LS
A	09.02.24	DRAFT ISSUE	JB	LS

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CLIENT: BAIADA TFM

PROPOSED FEEDMILL GENERAL SITE LAYOUT

TANGARATTA, NSW

BASIN DETAILS AND LAYOUT

DESIGN:	JB	DRAWN:	LM	SCALES:	AS SHOWN
CHKD:	LS	APPRD:	LS	DATE:	

mpn JOB	DRAWING No.	REV
9883	SKC.03	B

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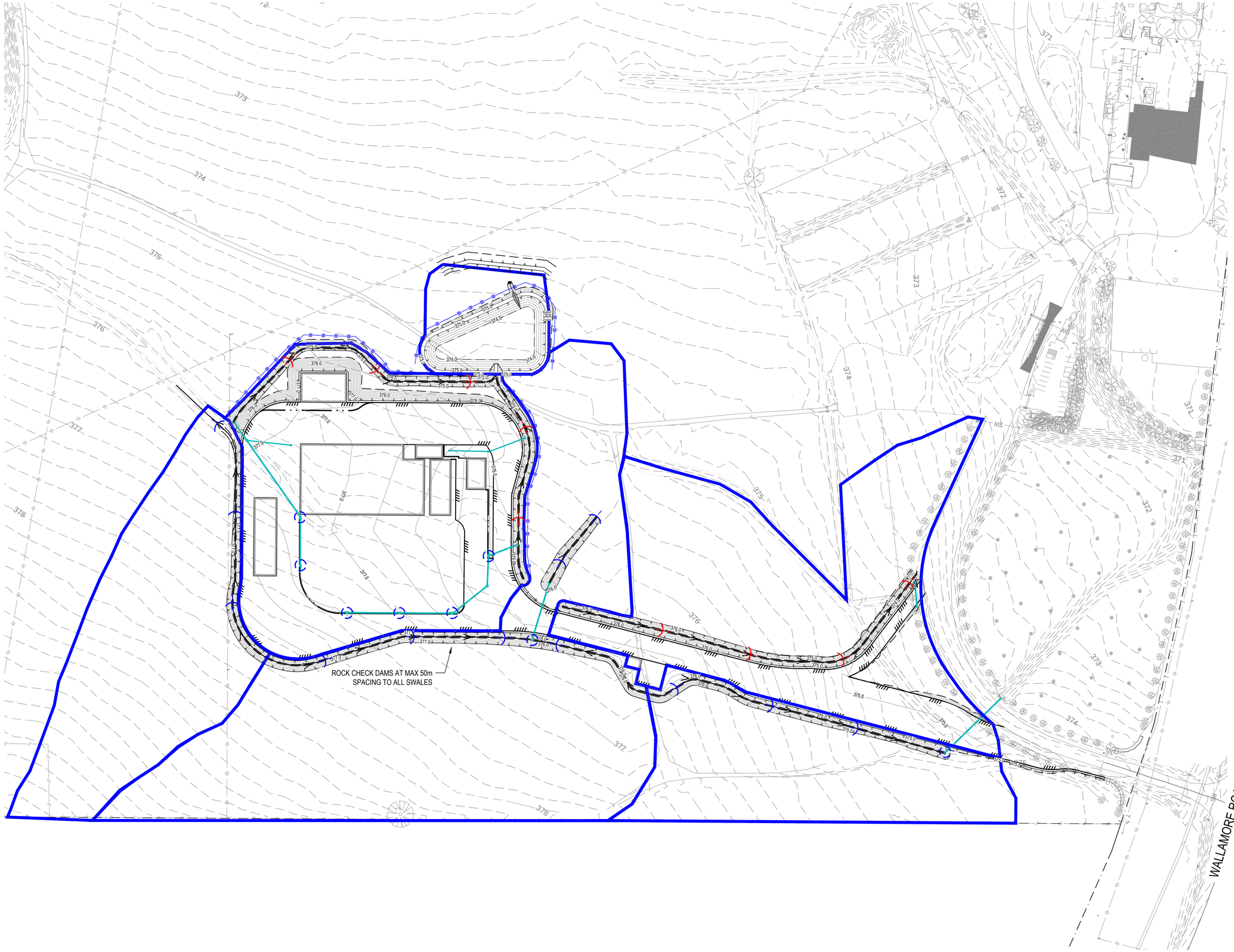
PRELIMINARY



LEGEND

EXISTING		PROPOSED
	PROPERTY BOUNDARY	
	EASEMENT BOUNDARY	
	CONTOUR	5.00
	BUILDING	
	CONCRETE	
	EDGE OF BITUMEN	
	KERB AND CHANNEL	
SW	STORM WATER MAIN	SW
	RETAINING WALL	
	TOP OF BATTER	
	FACE OF BATTER	
	TOE OF BATTER	
	ESC CATCHMENT BOUNDARY	
	CLEAN CUT OFF DRAIN	
	DIRTY CUT OFF DRAIN	
	CLEAN WATER CUT OFF BUND	
	DIRTY WATER CUT OFF BUND	
	SEDIMENT FENCE	
	CONSTRUCTION ENTRY / EXIT	
	CHECK DAM	
	ROCK FILTER DAM	
	INLET SEDIMENT TRAP	

0 2 4 6 8 10

SCALE 1:200 (A1) 1:400 (A3)

ISSUE	DATE	AMENDMENT	BY	APP
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PROPOSED FEEDMILL
GENERAL SITE LAYOUT
TANGARATTA, NSW

EROSION AND SEDIMENT LAYOUT

DESIGN:	JB	DRAWN:	BT	SCALES:	AS SHOWN
CHKD:	LS	APPRD:	LS	DATE:	

mpn JOB	DRAWING No.	REV
9883	SKC.04	A

PRELIMINARY

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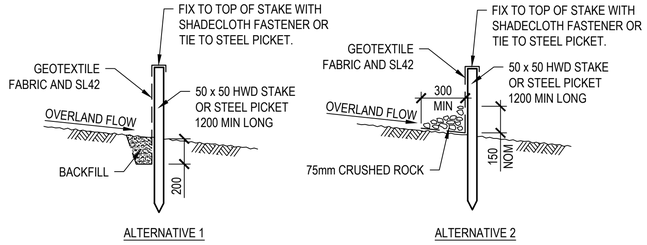
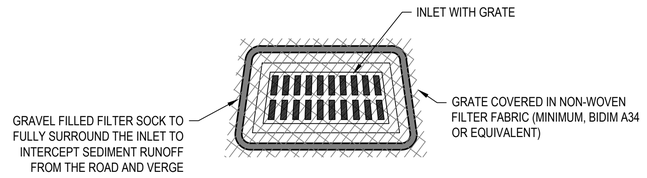


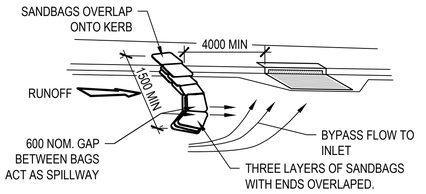
TYPICAL SEDIMENT FENCE SECTIONS

N.T.S.



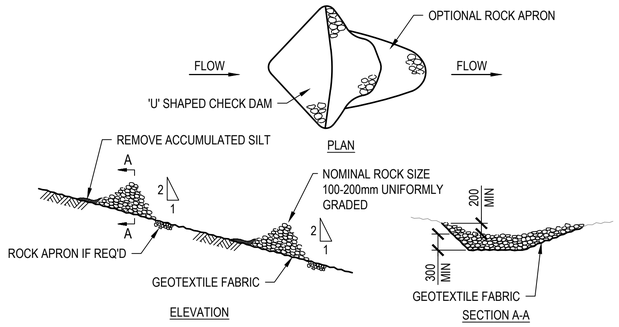
TYPICAL FIELD INLET SEDIMENT TRAP

N.T.S.



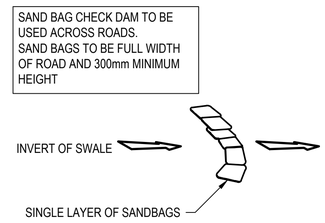
TYPICAL ON GRADE KERB INLET SEDIMENT TRAP

N.T.S.



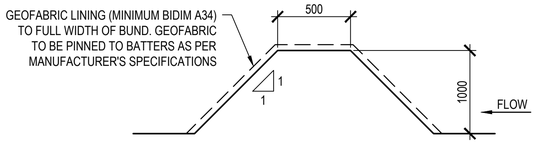
TYPICAL CHECK DAM FLOW CONTROL

N.T.S.



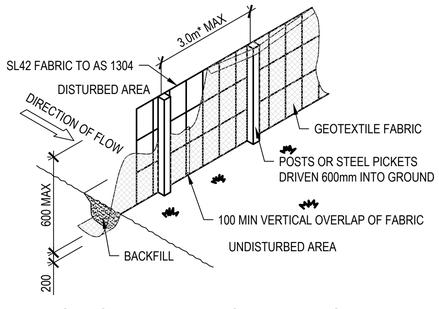
TYPICAL SAND BAG CHECK DAM

N.T.S.



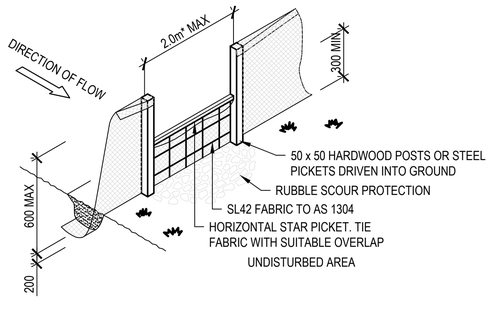
TYPICAL CLEAN / DIRTY WATER CUT OFF BUND

N.T.S.



TYPICAL SEDIMENT FENCE ELEVATION

* 2000 MAX WITH OUT SL42 MESH
N.T.S.



TYPICAL SEDIMENT FENCE SPILL THROUGH

N.T.S.

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EROSION AND SEDIMENT DETAILS

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CHKD:	LS	APPRD:	LS	DATE:	

mpn JOB	DRAWING No.	REV
9883	SKC.05	A

PRELIMINARY