

Preliminary Stormwater Management Plan

Jindabyne Education Complex

80821348-05



Prepared for
SINSW

12 November 2021

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Appendix B	- Sedimentation and Erosion Control Plans

1 Introduction

This Preliminary Stormwater Management Plan accompanies an Environmental Impact Statement (EIS) pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act) in support of an application for a State Significant Development (SSD No 15788005). The SSDA is for a new education campus at Jindabyne, comprising of a new Primary and High School known as Jindabyne Education Complex(JEC).

There is a single storey TAFE Connected Learning Centre(CLC) within this land parcel. A separate DA for this TAFE CLC have already lodged with Council and this development is excluded from this report. The extend of this TAFE CLC (excluded from this report) is shown in Figure 2.1.

This report addresses the Secretary's Environmental Assessment Requirements (SEARs), notably:

"15. Stormwater Drainage

Provide:

- > *a preliminary stormwater management plan for the development that:*
 - *is prepared by a suitably qualified person in consultation with Council and any other relevant drainage authority.*
 - *details the proposed drainage design for the site including on-site detention facilities, water quality measures and the nominated discharge point.*
 - *demonstrates compliance with Council or other drainage authority requirements.*
- > *stormwater plans detailing the proposed methods of drainage without impacting on the downstream properties.*
- > *Where drainage infrastructure works are required that would be handed over to Council, provide full hydraulic details and detailed plans and specifications of proposed works that have been prepared in consultation with Council and comply with Council's relevant standards."*

And,

" 17. Soil and Water

Provide:

- > *an assessment of potential impacts on surface and groundwater (quality and quantity), soil, related infrastructure and watercourse(s) where relevant.*
- > *details of measures and procedures to minimise and manage the generation and off-site transmission of sediment, dust and fine particles.*
- > *an assessment of salinity and acid sulphate soil impacts, including a Salinity Management Plan and/or Acid Sulphate Soils Management Plan, where relevant.*

2 Proposal

The proposed development is for the construction of the Jindabyne Education Campus comprising a new primary school and a new high school at Jindabyne (the proposal). The proposal is located within the JSRC located at 207 Barry Way (the site) and will accommodate approximately 925 students with the capacity for expansion in the future.

The new primary school will be located generally in the northern portion of the site whilst the new high school will be to the south of the site. While the schools are inherently separate identities, with separate student entries, opportunities for integration are provided in a central shared plaza with co-located school administration facilities, as identified in Figure 2-1 below. This outdoor learning space is activated by the school canteen (shared) and separate core facilities including the primary school hall and library, and the high school gym and library, and provides opportunities for shared community use.

The new primary school will provide for a Core 21 school. This will comprise of 20 home base units and 2 support learning units, administration and staff facilities, covered outdoor learning area (COLA), hall, staff and student amenities, out of school care facilities, library and special programs. Landscaped areas include active and passive open space play areas, and a games court.

The new high school will provide for a stream 2 high school. This is to comprise of 20 general/specialised learning spaces and support learning units, administration and staff facilities, covered outdoor learning area (COLA), hall, staff and student amenities, library, an agricultural learning unit. Landscaped areas include active and passive open space play areas, a sports field and multipurpose games courts.

A new access driveway is proposed off Barry way Road along the western boundary of the site and includes car parking, bus and private vehicle drop-off zones, and delivery zones.

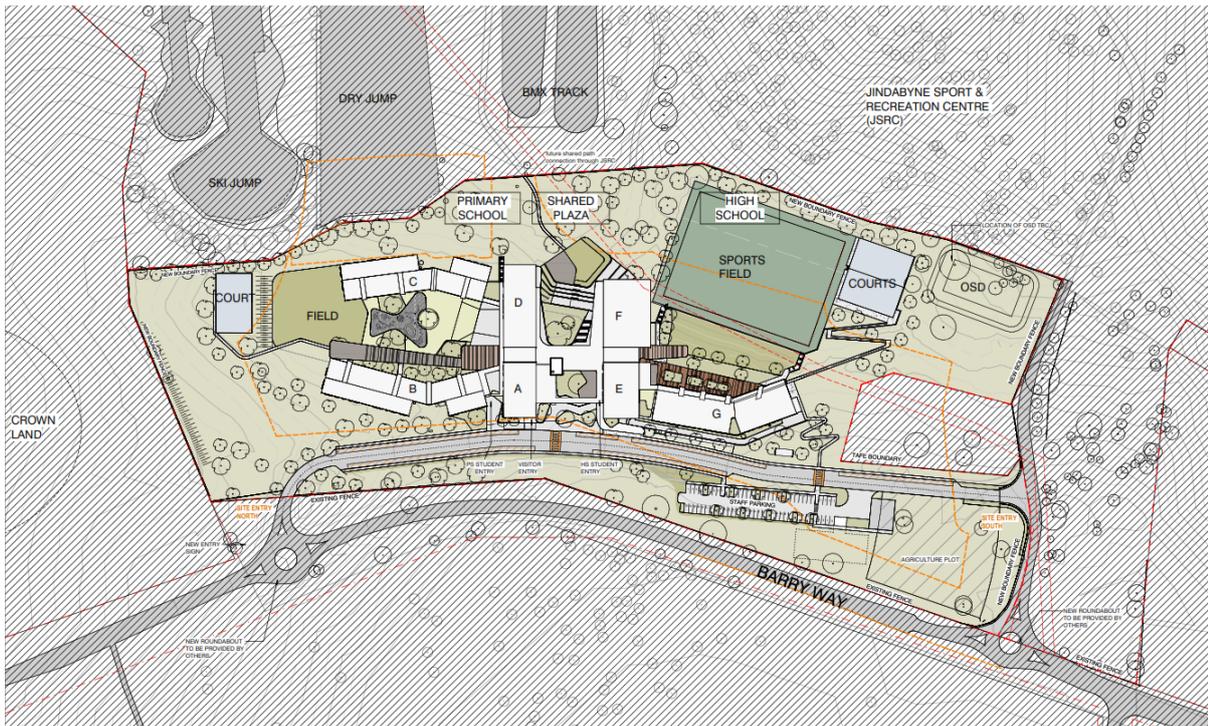


Figure 2-1 Proposed site plan

3 Site description

The site of the proposed new education campus at Jindabyne is located within the western extent of the existing JSRC at 207 Barry Way (101 DP1019527). The site is located within the Snowy Monaro Regional Council local government area and is approximately 2.2km south of the Jindabyne town Centre. A site aerial is provided in Figure 3-1.

The site is approximately 9ha in size, containing a former golf course and three existing workers cottages which were occupied during the construction of the Snowy Hydro Scheme. The majority of the site is undeveloped and contains maintained grasslands and scattered trees. Much of the surrounding land comprises remnant grassland, woodland and agricultural land.

As identified above, the site is within the existing JSRC which is a high performance and community sport centre located directly east of the site. The JSRC has a range of sporting facilities including a synthetic running track, cycling track, netball and tennis courts, fitness and indoor sports centres, and sporting ovals, as well as other services and accommodation facilities. The newly constructed BMX track is located directly east of the site with the new ski jump currently under construction to the northeast.

TAFE NSW have recently lodged a development application for a Connected Learning Centre (CLC) and Mobile Training Unit (MTU) which is proposed to the south of the site. The CLC and MTU will utilise interactive, digitally enabled, flexible, and multipurposed learning environments to provide high-quality training and learning experiences accommodating a maximum of 20-25 students and 3 teachers.

The surrounding locality is generally rural in character with other land uses also including the Jindabyne Aero Club located to the west of the site on Tinworth Drive, an industrial area to the southwest and the Jindabyne Community recycling centre is located east of the JSRC.



Figure 3-1 Site aerial: Source - DJRD

4 Response to Item 15 – Stormwater Drainage

4.1 Stormwater and environmental management philosophy

In preparing the Stormwater Management Plan, we have followed Snowy Monaro Regional Council's Development Engineering Specifications for Engineering Works: Design Part D5- Stormwater Drainage Design.

The general philosophy outlined by Council's planning and development guidelines is listed below:

- > To reduce the peak flows from the site to Council's drainage system.
- > To reduce the probability of downstream flooding.
- > To minimise run-off volumes and replenish ground water.
- > To provide drainage systems that integrates into Councils existing drainage network with minimal impact on existing users.
- > To provide drainage systems that are low maintenance and long lasting.
- > To prevent, or at worst minimise release of pollutants from the developed area.

- > To provide drainage systems that incorporate rainwater tanks or other systems to reduce the development's reliance on mains supplied water.
- > To encourage the production of high-quality drainage plans that can be quickly assessed.
- > To provide clear understanding of the information and documents that must be submitted with the drainage plans.
- > To provide drainage systems that improve the natural environment, or at worst have nil, or minimal impact on the surrounding environment.

4.2 Summary of performance criteria

The Performance Criteria for Stormwater drainage design requirements is specified below.

Table 4-1 Performance Criteria for Stormwater Drainage Design

Component	Performance Criteria
ARI design event for internal piped drainage system	5 years
ARI design event for roof drainage	5 years
Surcharging of Drainage System into road pavement	20 years
ARI design event for overland flow	100 years
ARI design event for onsite detention	100 years

4.3 Description of proposed stormwater system

The proposed stormwater system drawings are available in Appendix A and is described as follows:

- > All roof rainwater will be collected and piped directly into above ground rainwater tanks.
- > Overflow from the rainwater tank will be piped into the minor stormwater network, which will be conveyed via a trunk stormwater network running along the eastern edge of proposed school discharging onto a combined On-Site Detention Basin(OSD) and Bioretention Basin located at the south-eastern corner of the site. This basin will be referred as Dual-Purpose Basin(DPB) in the remainder of the document.
- > The retained water will be treated for quality and will be slowly discharged at the pre-development rates to Lees Creek via piped outlet with appropriately designed head wall and scour protection measures. An easement will be sought over the length of pipe from the site to the designated outfall.
- > Runoff from the carpark catchment will be collected in an inlet pit and treated for oil and hydrocarbon at source. Such treated runoff will then join runoff from other paved areas and will be conveyed to the DPB via the minor and trunk stormwater conveyance system mentioned above.
- > The DPB system has been designed for up to 100-year ARI storm events. In case of exceedance of the storm, events greater than 100-year ARI, overflow will flow towards the Lees Creek.
- > Details of the minor and major stormwater system is provided in Appendix A.
- > The building floor levels will be set in order to protect the buildings from water ingress from surface flows during large storm events (up to ARI = 100 years) and other occurrences when the capacity of the in-ground pits and pipes system has been exceeded (e.g. due to full or partial blockage of the system) as per the Building Code of Australia.
- > All drainage infrastructure, including all pits and pipes in the minor and trunk stormwater collection system and the DPB will be owned and maintained by the school.
- > No drainage infrastructure will be handed over to Council.

4.4 Rainwater harvesting

Rainwater tanks are required by Snowy Monaro Regional Council for this development to reduce adverse impacts like increased runoff and frequent overland flows caused by increasing impervious areas.

All roof water will be first collected in the Rainwater Tanks and will be used for irrigation purposes. Such details will be covered in the Building Services Documentation set.

4.5 Stormwater Quality

Runoff generated from this site will be treated for quality to protect and enhance ecosystems and ecological processes in natural watercourses and receiving environment. The following set for pollutant reduction guideline values will be met as set by the Environmental Sustainability requirements:

Table 4-2 Stormwater Quality Management Requirement Summary

Band	Reduction Target (%)			Reduction Achieved (%)
	A	B	C	B
Total Suspended Solids	80	80	90	91.6
Gross Pollutants	85	90	95	100
TN	30	45	60	46.9
TP	30	60	70	62.3
Total Petroleum Hydrocarbons	60	90	90	Satisfactory
Free Oils	90	90	98	Satisfactory

4.6 Stormwater quantity

Snowy Monaro Regional Council requires the OSD basin for JEC development to limit post development runoff to the pre-development level for 100-year ARI event. A DRAINS model has been developed to model the post development runoff conveyance to the OSD and the OSD has been sized to limit the runoff to the pre-development level for the design ARI. The OSD basin volume considering the ultimate development scenario including future TAFE campus is 1,900m³.

4.7 Consultations with Council

A meeting was held with Council staff on 2 July 2021 during which the stormwater management plan and concept drawings were presented.

Council confirmed their approval in principle.

5 Response to Item 17 – Soil and Water

5.1 Potential impacts on surface and groundwater (quality and quantity)

All surface water from developed areas will be captured and treated prior to discharge to Lees Creek as outlined in the sections above.

A flood assessment report by Martens, ref P2108169JR01VO3, dated July 2021 concluded that the *“proposed flooding conditions are expected to be unchanged from existing conditions...”* and *“As the proposed development area is flood free in all events up to and including the PMF, there will be no offsite impacts to the floodplain environment as a result of the proposed development.”*

5.2 Management of the generation and off-site transmission of sediment, dust and fine particles

Prior to commencing earthworks, Sediment and Erosion Control measures as per Snowy Monaro Regional Council's Development Specification, D7, Erosion Control and Stormwater Management and the NSW Department of Housing's Manual, "Managing Urban Stormwater Soil and Construction" 2004 (Blue Book) will be implemented. Such measures will be maintained throughout the construction period.

Please refer to Appendix B, for recommended Erosion and Sediment Control Plan for this site.

With such erosion and sediment control measures in place prior to commencing earthworks, adverse effects from sediment and erosion are considered to be nil or negligible.

5.3 Assessment of salinity and acid sulphate soil impacts

5.3.1 Salinity

A geotechnical investigation report was carried out by Douglas Partners ref 103109.02 dated June 2021.

Laboratory testing of selected samples were screened for salinity. The report concludes that the soil from the soil samples are *“considered to be “Non-Saline”*.

5.3.2 Acid Sulphate

A Preliminary Site Investigation (Contamination) report was carried out by Douglas Partners, ref 103109.03 dated July 2021.

The report notes that reference to *“CSIRO's Atlas of Australian Acid Sulfate Soils online mapping portal indicates that the site has no known occurrence of acid sulfate soil/extremely low probability of occurrence.”*

APPENDIX

A

PRELIMINARY STORMWATER MANAGEMENT
DRAWINGS



BARRY WAY

- NOTE**
- ONLY TRUNK STORMWATER MAIN HAS BEEN SHOWN IN THIS SCHEMATIC DESIGN. DETAILED STORMWATER NETWORK FOR ALL BUILDINGS AND PAVED AREAS ARE EXCLUDED FROM THIS SET AND WILL BE PROVIDED AT THE DA SET OF DRAWINGS.
 - EXISTING SEWER LINE IS INDICATIVE ONLY. REFER TO NDI DRAWINGS FOR PROPOSED DIVERSION AND MINOR SEWER LINES

LEGEND

	SITE BOUNDARY
	PROPOSED CONTOURS
	STORMWATER PIPELINE
	EXISTING WATER COURSE (MAPPED)
	DRAINAGE PIT LABEL
	EXISTING CONTOURS
	EXISTING SEWER LINE
	RETAINING WALL

INDICATIVE LOCATION OF 20KL RAINWATER TANK 2200 (D) X 3500 (H)

1 IN 3 BATTER UP TO EXISTING GROUND

1 IN 3 BATTER DOWN TO EXISTING GROUND

UPTO 2.0m RETAINING WALL

1 IN 4 BATTER DOWN TO EXISTING GROUND

CONNECT ALL ROOF DRAINAGE TO PROPOSED RAINWATER TANKS. DIRECT OVERFLOW PIPE TO STORMWATER NETWORK

CONNECT ALL ROOF DRAINAGE TO PROPOSED RAINWATER TANKS. DIRECT OVERFLOW PIPE TO STORMWATER NETWORK

INDICATIVE LOCATION OF 20KL RAINWATER TANK 2200 (D) X 3500 (H)

SW 5-3
SW 5-4

SW 5-1
SW 5-2

A
1651

RWT

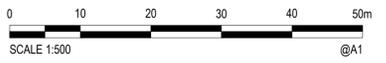
SW 1-7

SW 1-8

PRIMARY SCHOOL BUILDING B

PRIMARY SCHOOL BUILDING C

JOINS PLAN 1302



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Checked M.R.	Date AUG 2021
Designed A.L/C.K.	Date AUG 2021
Verified P.P.	Date AUG 2021
Approved	

Client	SCHOOL INFRASTRUCTURE NSW
Project	CIVIL ENGINEERING SERVICES
	207 BARRY WAY
	JINDABYNE 2627 NSW
Title	STORMWATER DRAINAGE PLAN SHEET 1

Status	SCHEMATIC DESIGN		
NOT TO BE USED FOR CONSTRUCTION PURPOSES			
Datum	AHD	Scale	1:500
Drawing Number	80820348-05-CI-1301-1303	Size	A1
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Rev.	Date	Description	Des.	Verif.	Appd.
5	27/10/2021	OPTIMIZED EARTHWORKS FOLLOWING VALUE ENGINEERING	AL/CK	MR	PP
4	22/10/2021	UPDATED FOLLOWING VALUE EXERCISE - EARTHWORKS OPTIMISATION	AL/CK	MR	PP
3	08/09/2021	ISSUED FOR DA	AL/CK	MR	PP
2	20/08/2021	ISSUED FOR DA	AL/CK	MR	PP
1	25/07/2021	ISSUED FOR DA	AL	MR	PP

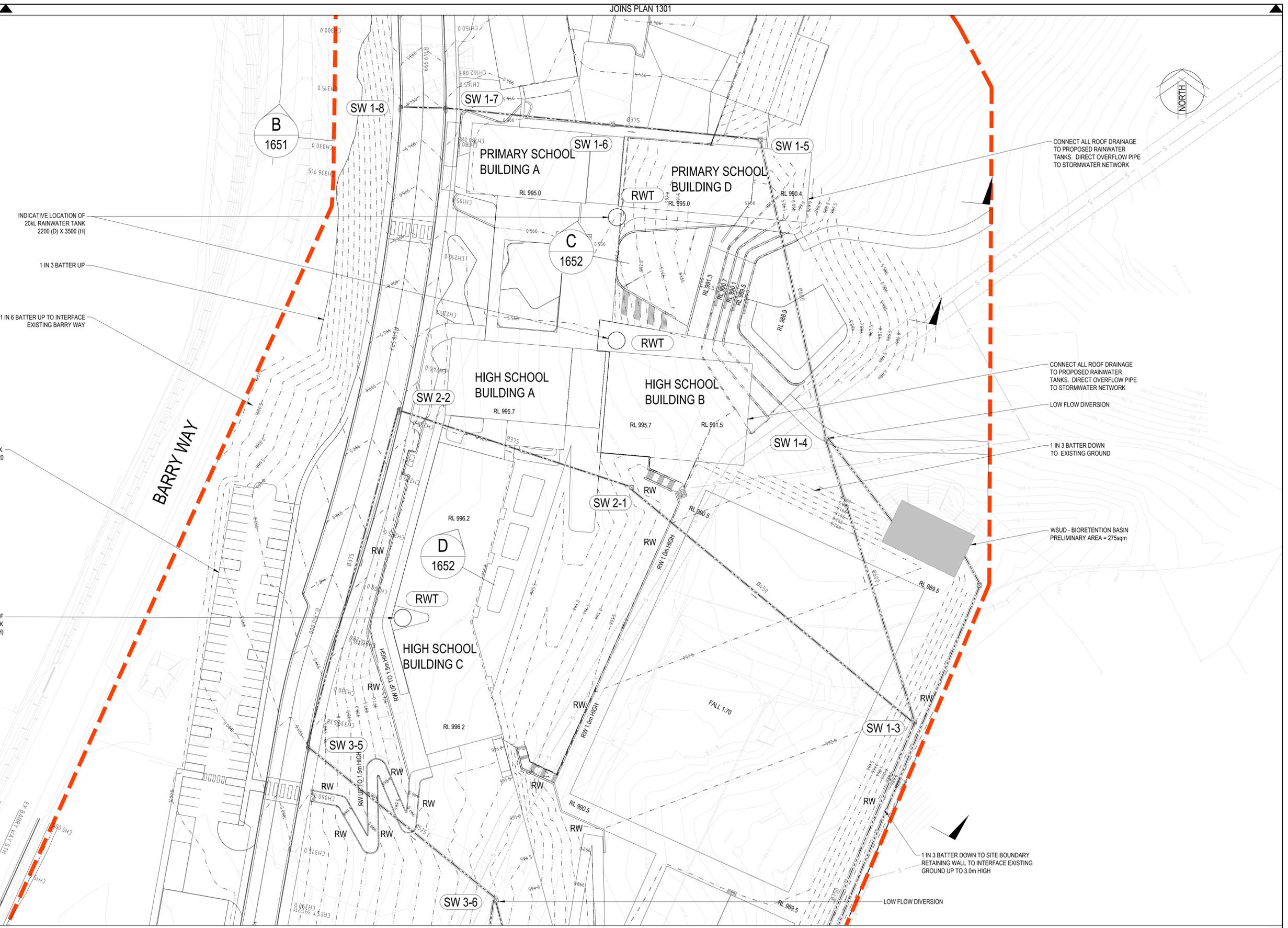
DATE PLOTTED: 26 October 2021 10:59 PM BY: GORAN MILINKOVIC

LEGEND

- SITE BOUNDARY
- PROPOSED CONTOURS
- STORMWATER PIPELINE
- EXISTING WATER COURSE (MAPPED)
- DRAINAGE PIT LABEL
- EXISTING CONTOURS
- EXISTING SEWER LINE
- RETAINING WALL

NOTE

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XREFs: ROAD LINE WORKS AND SITE SECTIONS; XREF-DESIGN CONTOURS; XREF-ROAD STRINGS; XREF-SURVEY; XREF DRAINAGE LAYOUT
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Client **SCHOOL INFRASTRUCTURE NSW**
Project **CIVIL ENGINEERING SERVICES**
207 BARRY WAY
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Title **STORMWATER DRAINAGE PLAN SHEET 2**

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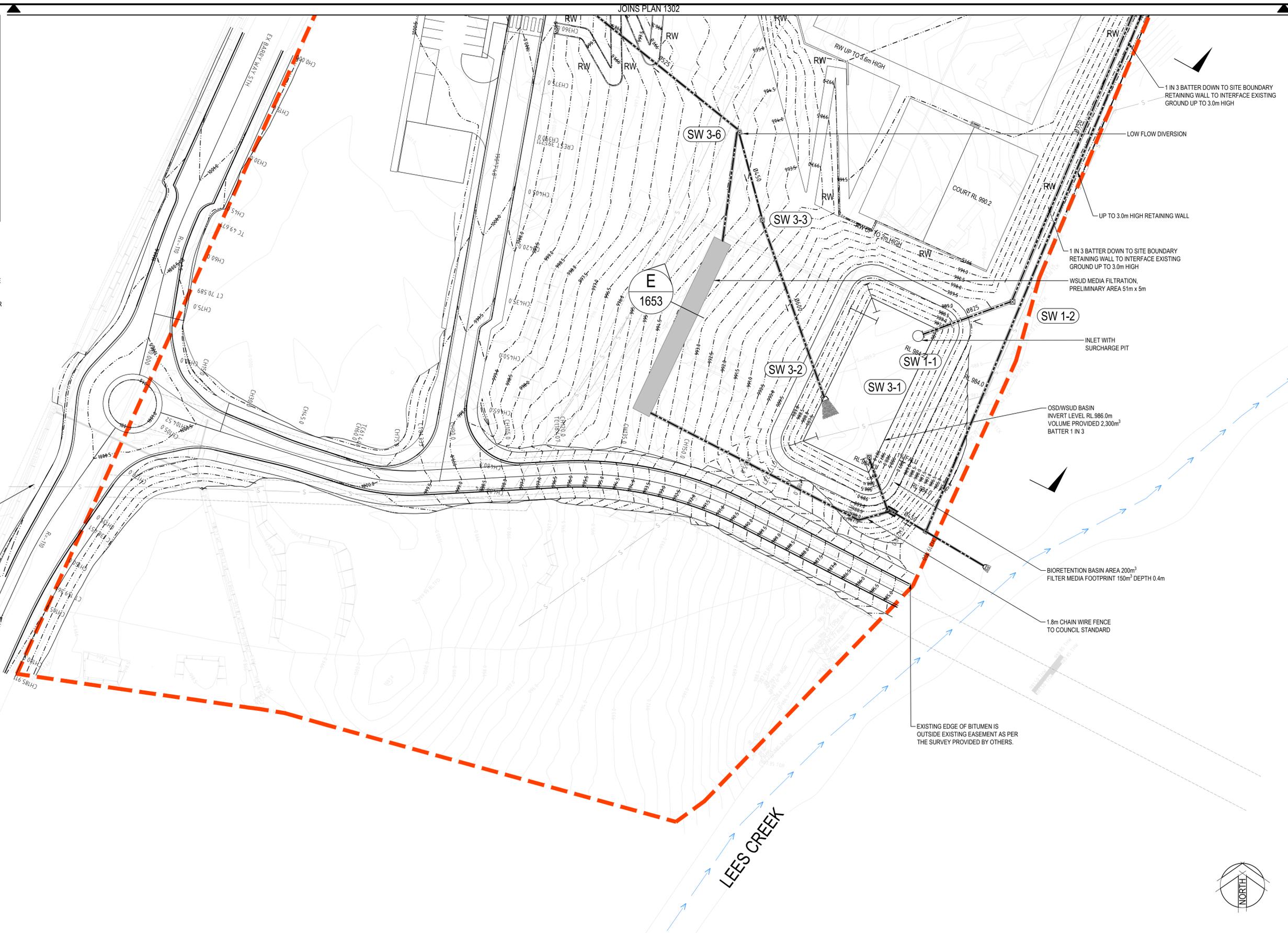
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LEGEND	
	SITE BOUNDARY
	PROPOSED CONTOURS
	STORMWATER PIPELINE
	EXISTING WATER COURSE (MAPPED)
	DRAINAGE PIT LABEL
	EXISTING CONTOURS
	EXISTING SEWER LINE
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1 IN 3 BATTER DOWN TO SITE BOUNDARY RETAINING WALL TO INTERFACE EXISTING GROUND UP TO 3.0m HIGH

LOW FLOW DIVERSION

UP TO 3.0m HIGH RETAINING WALL

1 IN 3 BATTER DOWN TO SITE BOUNDARY RETAINING WALL TO INTERFACE EXISTING GROUND UP TO 3.0m HIGH

WSUD MEDIA FILTRATION, PRELIMINARY AREA 51m x 5m

INLET WITH SURCHARGE PIT

OSD/WSUD BASIN INVERT LEVEL RL 986.0m VOLUME PROVIDED 2,300m³ BATTER 1 IN 3

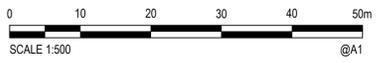
BIORETENTION BASIN AREA 200m² FILTER MEDIA FOOTPRINT 150m² DEPTH 0.4m

1.8m CHAIN WIRE FENCE TO COUNCIL STANDARD

EXISTING EDGE OF BITUMEN IS OUTSIDE EXISTING EASEMENT AS PER THE SURVEY PROVIDED BY OTHERS.



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5	27/10/2021	OPTIMIZED EARTHWORKS FOLLOWING VALUE ENGINEERING	AL/CK	MR	PP
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Approved			

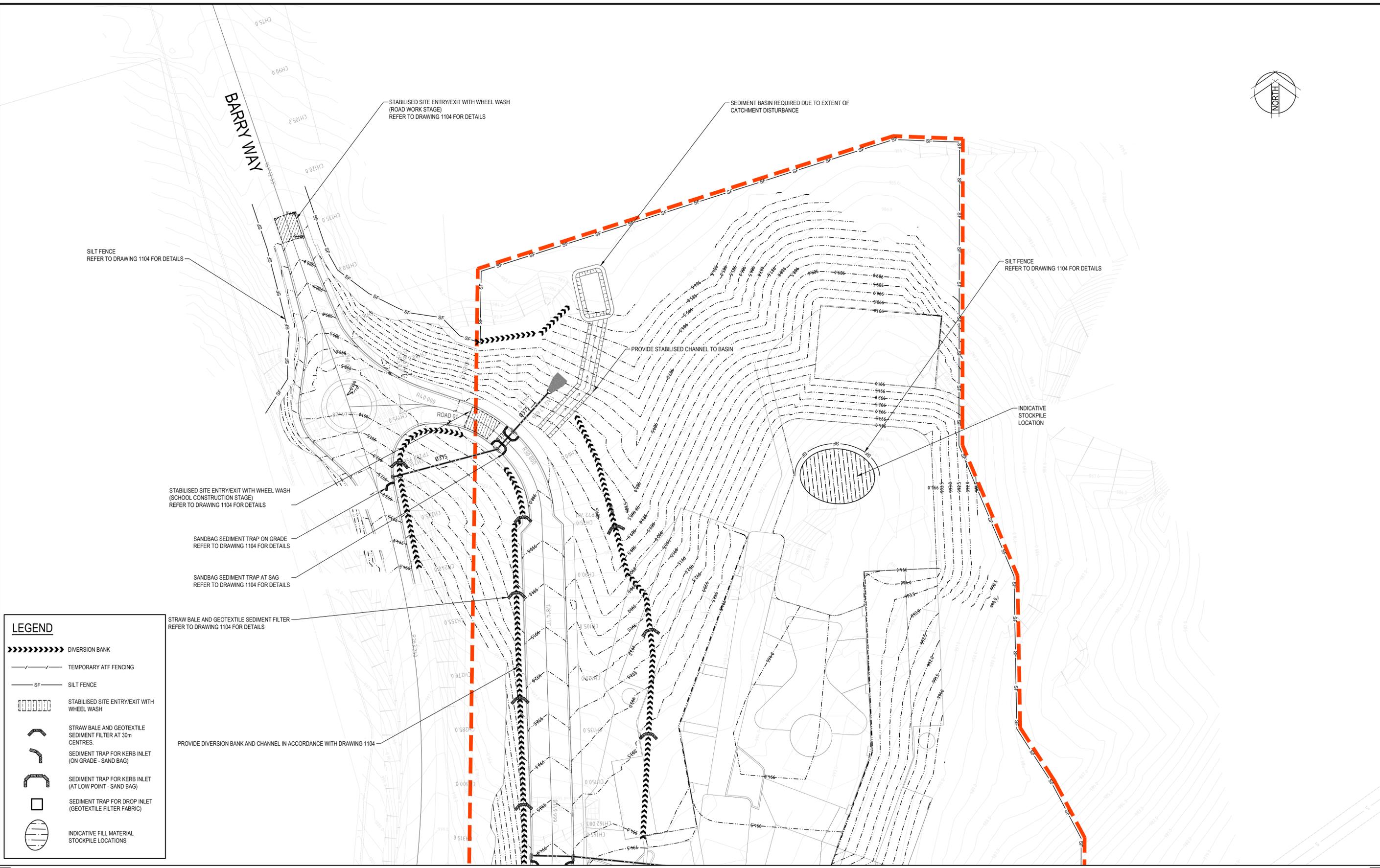
Client	SCHOOL INFRASTRUCTURE NSW
Project	CIVIL ENGINEERING SERVICES
	207 BARRY WAY
	JINDABYNE 2627 NSW
Title	STORMWATER DRAINAGE PLAN SHEET 3

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Drawing Number	80820348-05-CI-1301-1303		

APPENDIX

B

SEDIMENTATION AND EROSION CONTROL
PLANS



LEGEND

- DIVERSION BANK
- TEMPORARY ATF FENCING
- SILT FENCE
- STABILISED SITE ENTRY/EXIT WITH WHEEL WASH
- STRAW BALE AND GEOTEXTILE SEDIMENT FILTER AT 30m CENTRES
- SEDIMENT TRAP FOR KERB INLET (ON GRADE - SAND BAG)
- SEDIMENT TRAP FOR KERB INLET (AT LOW POINT - SAND BAG)
- SEDIMENT TRAP FOR DROP INLET (GEOTEXTILE FILTER FABRIC)
- INDICATIVE FILL MATERIAL STOCKPILE LOCATIONS

STABILISED SITE ENTRY/EXIT WITH WHEEL WASH (SCHOOL CONSTRUCTION STAGE) REFER TO DRAWING 1104 FOR DETAILS

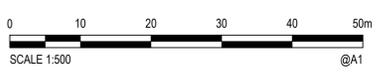
SANDBAG SEDIMENT TRAP ON GRADE REFER TO DRAWING 1104 FOR DETAILS

SANDBAG SEDIMENT TRAP AT SAG REFER TO DRAWING 1104 FOR DETAILS

STRAW BALE AND GEOTEXTILE SEDIMENT FILTER REFER TO DRAWING 1104 FOR DETAILS

PROVIDE DIVERSION BANK AND CHANNEL IN ACCORDANCE WITH DRAWING 1104

JOINS PLAN 1102



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	207 BARRY WAY
	JINDABYNE 2627 NSW
Title	SEDIMENTATION AND EROSION CONTROL
	PLAN
	SHEET 1

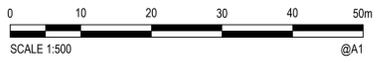
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4	03/11/2021	OPTIMIZED EARTHWORKS FOLLOWING VALUE ENGINEERING	AL/CK	MR	PP
3	27/10/2021	OPTIMIZED EARTHWORKS FOLLOWING VALUE ENGINEERING	AL/CK	MR	PP
2	20/08/2021	PRELIMINARY ISSUE	AL/CK	MR	PP
1	07/07/2021	PRELIMINARY ISSUE	KP	KP	PP



LEGEND	
	DIVERSION BANK
	TEMPORARY ATF FENCING
	SILT FENCE
	STABILISED SITE ENTRY/EXIT WITH WHEEL WASH
	STRAW BALE AND GEOTEXTILE SEDIMENT FILTER AT 30m CENTRES
	SEDIMENT TRAP FOR KERB INLET (ON GRADE - SAND BAG)
	SEDIMENT TRAP FOR KERB INLET (AT LOW POINT - SAND BAG)
	SEDIMENT TRAP FOR DROP INLET (GEOTEXTILE FILTER FABRIC)
	INDICATIVE FILL MATERIAL STOCKPILE LOCATIONS

Rev.	Date	Description	Des.	Verif.	Appd.
4	03/11/2021	OPTIMIZED EARTHWORKS FOLLOWING VALUE ENGINEERING	AL/CK	MR	PP
3	27/10/2021	OPTIMIZED EARTHWORKS FOLLOWING VALUE ENGINEERING	AL/CK	MR	PP
2	20/08/2021	ISSUED FOR DA	AL/CK	MR	PP
1	25/07/2021	ISSUED FOR DA	AL	MR	PP



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Drawn	G.M.	Date	AUG 2021
Checked	M.R.	Date	AUG 2021
Designed	AL/CK	Date	AUG 2021
Verified	P.P.	Date	AUG 2021
Approved			

Client	SCHOOL INFRASTRUCTURE NSW
Project	CIVIL ENGINEERING SERVICES
	207 BARRY WAY
	JINDABYNE 2627 NSW
Title	SEDIMENTATION AND EROSION CONTROL
	PLAN
	SHEET 2

Status	SCHEMATIC DESIGN		
NOT TO BE USED FOR CONSTRUCTION PURPOSES			
Datum	AHD	Scale	1:500
		Size	A1
Drawing Number	80820348-05-CI-1101-1103		Revision
			4

JOINS PLAN 1103

JOINS PLAN 1101



STRAW BALE AND GEOTEXTILE SEDIMENT FILTER
REFER TO DRAWING 1104 FOR DETAILS

PROVIDE DIVERSION BANK AND CHANNEL
IN ACCORDANCE WITH DRAWING 1104

PROTECTION TO EXISTING DRAINAGE HEAD WALL /STRAW BALE
REFER TO DRAWING 1104 FOR DETAILS

TEMPORARY SEDIMENT BASIN
EARTHWORKS AREA = 8.9 ha
BASIN VOLUME REQUIRED = 8.9 ha * 250 m³/ha = 2,225 m³
BASIN VOLUME PROVIDED = 2,300 m³
REFER TO DRAWING 1104 FOR DETAILS

STRAW BALE CHECK DAM
REFER TO DRAWING 1104 FOR DETAILS

SILT FENCE
REFER TO DRAWING 1104 FOR DETAILS

1.8 M CHAIN
WIRE FENCE

ROCK RIPRAP

LEES CREEK

LEGEND

- DIVERSION BANK
- TEMPORARY ATF FENCING
- SILT FENCE
- STABILISED SITE ENTRY/EXIT WITH WHEEL WASH
- STRAW BALE AND GEOTEXTILE SEDIMENT FILTER AT 30m CENTRES.
- SEDIMENT TRAP FOR KERB INLET (ON GRADE - SAND BAG)
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Rev.	Date	Description	Des.	Verif.	Appd.
4	03/11/2021	OPTIMIZED EARTHWORKS FOLLOWING VALUE ENGINEERING	AL/CK	MR	PP
3	27/10/2021	OPTIMIZED EARTHWORKS FOLLOWING VALUE ENGINEERING	AL/CK	MR	PP
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1	25/07/2021	ISSUED FOR DA	AL	MR	PP



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Verified	P.P.	Date	AUG 2021
Approved			

Client	SCHOOL INFRASTRUCTURE NSW
Project	CIVIL ENGINEERING SERVICES
	207 BARRY WAY
	JINDABYNE 2627 NSW
Title	SEDIMENTATION AND EROSION CONTROL PLAN SHEET 3

Status	SCHEMATIC DESIGN		
NOT TO BE USED FOR CONSTRUCTION PURPOSES			
Datum	AHD	Scale	1:500
Drawing Number	80820348-05-CI-1101-1103	Size	A1
Revision			4