



TRIAXIAL
CONSULTING

COMPLEX PROBLEMS
RESOLVED SIMPLY



**PROPOSED TOURIST ACCOMMODATION
29 HORATIO ST, MUDGEE**

STORMWATER MANAGEMENT REPORT

24 AUGUST 2023
REFERENCE: TX17615.00-01.RPT.JD-REV1

Document Control:

Client	James Consadine		
Prepared By:	Triaxial Consulting Ltd		
Report Author	Jim Disher BE(Civil), ME (Civil & Structural), MIE Aust		
File Reference:	TX17615.00-01.rpt.jd – Rev 1		
Report Date:	24 th August 2023		
Current Revision:	1		
Revision History:	Report Author	Reviewed By	Report Date
1	JD	MD	24/08/23

INDEX

1	INTRODUCTION AND PROJECT DESCRIPTION	4
	1.1 PROJECT OVERVIEW	4
2	EXISTING SITE CONDITIONS.....	5
	2.1 DEVELOPMENT SITE.....	5
	2.2 CURRENT FLOODING CHARACTERISTICS.....	6
3	STORMWATER MANAGEMENT MEASURES	6
	3.1 STORMWATER MODELLING	6
	APPENDIX A – FLOOD MAPPING – MUDGEE FLOOD STUDY DATA.....	8
	APPENDIX B – TRIAXIAL ENGINEERING PLANS.....	9

1 INTRODUCTION AND PROJECT DESCRIPTION

1.1 PROJECT OVERVIEW

Triaxial have been engaged by Mr James Consadine to undertake the preparation of a stormwater management report for the proposed development of Lot 1, DP 997883, 29 Horatio Street Mudgee into a tourist accommodation facility with 7 proposed units over the existing lot.

The new buildings will include the following items:

- 7 new units ranging between 63m² - 84m².
- New driveway along the Western side of the property.
- Carparking spaces for each unit.

Details on the layout of the proposed development are shown on architectural plans prepared by Preferred Design and Drafting, Project Number 114.22 sheets 01 through 17.

2 EXISTING SITE CONDITIONS

2.1 DEVELOPMENT SITE

The site is currently used as a residential premises, with two large sheds at the rear of the property and a residential building at the front along the Horatio Street frontage.

The site falls from the South to the North evenly with approximately 1.0m fall equivalent to a 1.2% grade from the rear of the site towards the front.

It is proposed to upgrade the existing driveway at the Horatio Street frontage.



Figure 1: Development Site

The proposed buildings are to be constructed as per the architectural layout shown below:



Figure 2: Architectural Layout of Site

2.2 CURRENT FLOODING CHARACTERISTICS

The proposed site sits within the Mudgee Flood Study mapped area for overland flow paths.

Flood data available from the NSW SES Flood information portal was downloaded and formatted to review the site inundation and hazard rating.

The flood data shows that the proposed site is not inundated in the 1% AEP flood event.

The 1% hazard level and 1% depths for the immediate area around the site are included in Appendix A of this report. The PMF flood level is also shown.

Refer Appendix A

As per feedback from council staff, the building floor levels will be set at 300mm above the PMF flood level. This is shown on Triaxial engineering plans included in Appendix B.

Refer Appendix B

3 STORMWATER MANAGEMENT MEASURES

3.1 STORMWATER MODELLING

In order to comply with the Mid Western Regional Council DCP for stormwater management, a DRAINS model was compiled to determine the site pre and post development flow rates and adequately size any drainage features required.

The modelling was conducted using DRAINS 2019 procedures including the following parameters:

- Temporal patterns for the Mudgee area input from the ARR Data hub online tool. CSV files used are attached to this report.
- Rainfall data was obtained from the BOM (Bureau of Meteorology) website for all storms from 1yr ARI through to 100yr ARI.
- Hydrological modelling used in the DRAINS model was an ILSAX/Horton model.

The following data and assumptions were used in evaluating the existing condition and proposed development condition:

- The existing and proposed site areas are 1664m².
- The existing site land use consists of approximately 65% impervious (predominantly hard surfaces including houses, sheds and driveway areas).
- Driveway areas and unit and carport roof areas were input as 100% impervious. Figures are as per stated in architectural plans.
- Dummy overflow routes were incorporated into the model to ensure all overflows from site were captured.

Results of the DRAINS modelling are summarised below:

- Pre-developed site flow rate was calculated as 51L/s in the 1% AEP event.
- Post-developed site flow rate was calculated as 63L/s in the 1% AEP event.
- Flow from roof areas to rainwater tanks = 27.6L/s in 1% AEP event.

With a dedicated 1m³ per unit from the rainwater tanks with a 30mm outlet at 1m above base, outflow from each tank calculated from the orifice equation is 1.9L/s. Total site roof outflow = 13.3L/s.

With the roof outflow from the tanks taken into account the total outflow from site is reduced to 49L/s, which is less than the pre-developed flow rate from the site of 51L/s.

Overflows from tanks and site drainage particulars are shown on Triaxial plans included in Appendix B.

APPENDIX A – FLOOD MAPPING – MUDGEES FLOOD STUDY DATA



(All layers)

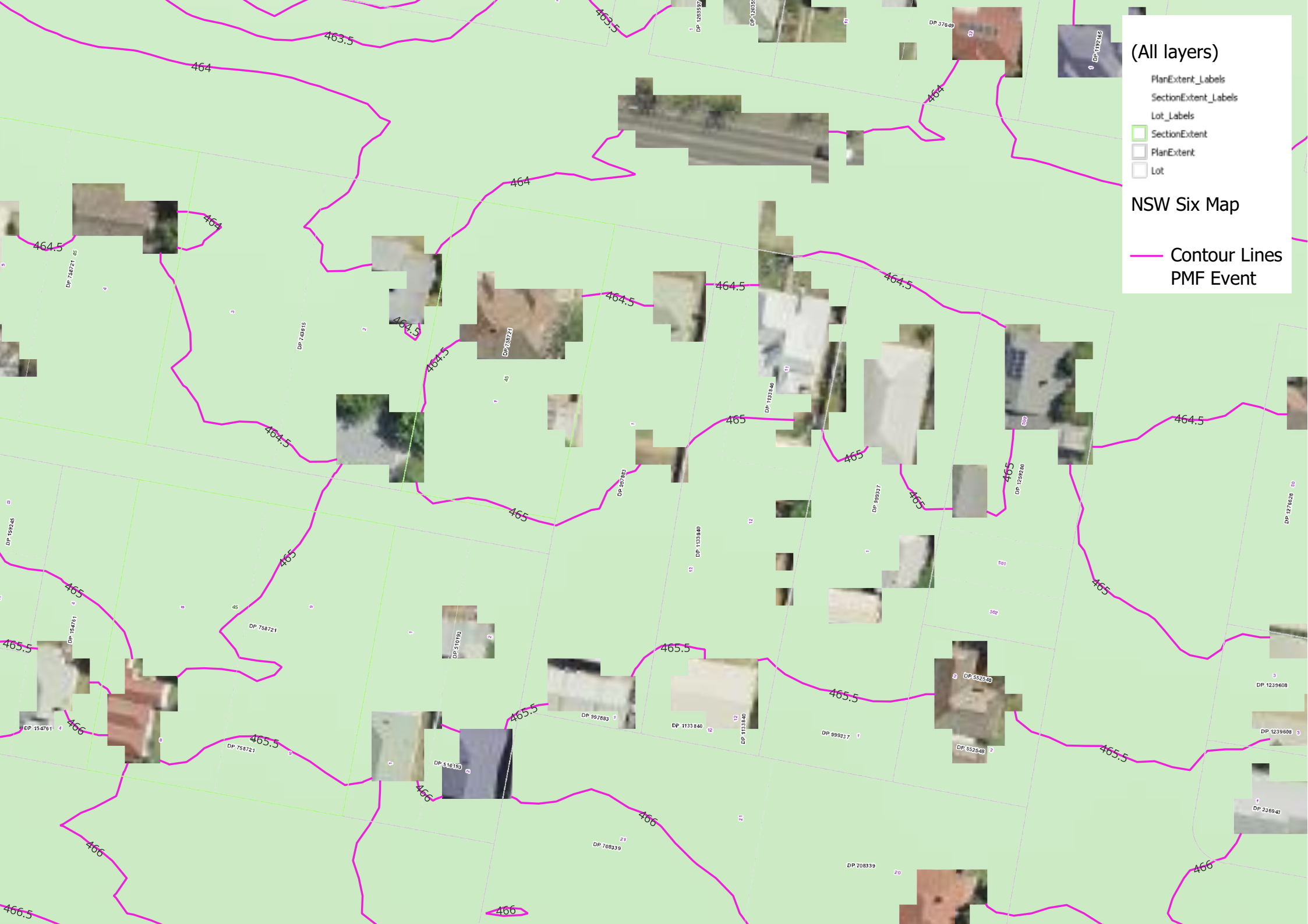
- PlanExtent_Labels
- SectionExtent_Labels
- Lot_Labels
- SectionExtent
- PlanExtent
- Lot

Mudgee 1% Depth NSW SES Flood Data

Band 1

- <= 0.3
- 0.3 - 0.5
- 0.5 - 0.8
- 0.8 - 1.0
- 1.0 - 1.3
- 1.3 - 1.5
- 1.5 - 1.8
- 1.8 - 2.0
- 2.0 - 2.3
- 2.3 - 2.5
- 2.5 - 2.8
- > 2.8

NSW Six Map



(All layers)

PlanExtent_Labels

SectionExtent_Labels

Lot_Labels

SectionExtent

☐ PlanExtent

Lot

NSW Six Map

— Contour Lines
PMF Event

APPENDIX B – TRIAXIAL ENGINEERING PLANS

RESIDENTIAL DEVELOPMENT
29 HORATIO STREET, MUDGEE
CIVIL DRAWINGS

DRAWINGS LIST

- C1.00 COVER SHEET
- C4.00 STORMWATER MANAGEMENT PLAN



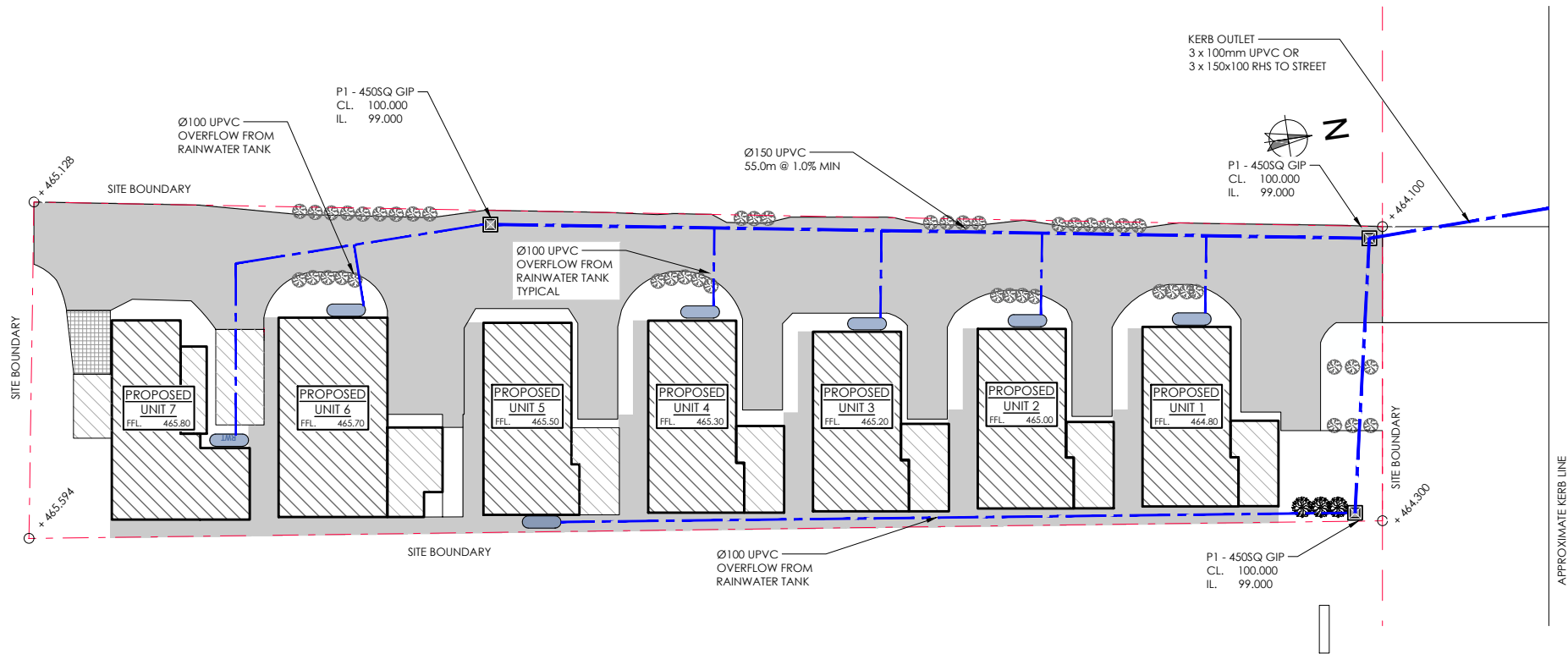
LOCATION PLAN
N.T.S.

NOTE:
THIS IS A PLANNING DRAWING ONLY, FOR THE PURPOSE OF
CONCEPTUAL DESIGN AND/OR PLANNING. FURTHER DETAILED
ENGINEERING DESIGN INCLUDING SPECIFICATIONS, SIZING
AND STORMWATER INVERTS TO BE PROVIDED PRIOR TO
CONSTRUCTION CERTIFICATE AND FOR CONSTRUCTION ISSUE.

GENERAL DESIGN NOTES
PIPE GRADE SELECTION - GENERAL GUIDELINES

uPVC GRADE CLASS DESCRIPTION
SN2 - LANDSCAPE AREA.
SN4 - LANDSCAPE AREA, FOOTPATH NOT SUBJECT TO TRAFFIC OR HEAVY LOAD.
SN6 - DRIVEWAY, CARPARKS EXCLUDING HEAVY VEHICLES.
SN8 - HEAVY DUTY, DETENTION SYSTEM WITH HIGH HGL.

RCP GRADE CLASS DESCRIPTION
CLASS 2 - LANDSCAPE AREA, FOOTPATH, CARPARK EXCL. DRIVEWAYS.
CLASS 3 - ROADWAY, DRIVEWAY, CARPARKS.
CLASS 4 - HEAVY DUTY, ROADWAY/DRIVEWAY, CARPARKS.



STORMWATER MANAGEMENT PLAN

SCALE 1:200 AT A1

LEGEND - STORMWATER

SYMBOL	DESCRIPTION
	DESIGN CONTOUR MAJOR (Xm)
	DESIGN CONTOUR MINOR (Xm)
	EXISTING STORMWATER LINE
	EXISTING PIT
	uPVC STORMWATER PIPE (SEALED) @ 1.0% MIN U.N.O.
	NEW STORMWATER LINE @ 1.0% MIN. FALL U.N.O.
	OPEN DRAINAGE CHANNEL (MIN. FALL 1:200 U.N.O.)
	Ø90 uPVC DOWNPIPE
	SURFACE INSPECTION OPENING
	GRATED INLET PIT (GIP) (U.N.O.)
	JUNCTION PIT (JP) (U.N.O.)
	CONCRETE HEADWALL
	OVERLAND FLOW PATH
	DESIGN LEVEL
	TOP OF KERB
	WATER TABLE
	FINISHED SURFACE LEVEL
	COVER LEVEL
	INVERT LEVEL
	FINISHED FLOOR LEVEL
	BENCH LEVEL
	NATURAL SURFACE LEVEL

STORMWATER DESIGN NOTES:

TOTAL SITE AREA = **1664m²**

PRE-DEVELOPED (EXISTING) SITE IMPERVIOUS AREA CALCULATED FROM AERIAL IMAGE = **1080m²** INCLUDING EXISTING RESIDENCE, DRIVEWAY AND LARGE SHEDS AT REAR OF PROPERTY.

POST-DEVELOPED SITE IMPERVIOUS AREA CALCULATED FROM ARCHITECTURAL PLANS = **1179m²**

PRE-DEVELOPED SITE IMPERVIOUS = **65%**
POST-DEVELOPED SITE IMPERVIOUS AREA = **71%**

PRE-DEVELOPED SITE DISCHARGE RATE = **51L/s**
POST DEVELOPED SITE DISCHARGE RATE = **63L/s**

FLOW RATE FROM ALL ROOF AREAS IN 1% AEP EVENT = **27.6L/s**
OUTFLOW FROM RAINWATER TANKS WITH 30mm DIAMETER ORIFICE AT 1m ABOVE BASE OF TANK = **13.3L/s**

TOTAL SITE OUTFLOW WITH RAINWATER TANK STORAGE OF 1m³ PER UNIT AND RESTRICTED OUTFLOW = **49L/s** SITE DISCHARGE = LESS THAN PRE-DEVELOPED RATE.

ROOF WATER DESIGN NOTES:

CABIN 6 = **85m²** FLOW = 3.7L/s FROM ROOF (5% AEP FLOW RATE)
CABIN 7 = **74m²** FLOW = 3.2L/s FROM ROOF (5% AEP FLOW RATE)
CABINS 1-5 = **67m²** FLOW = 3.0L/s FROM ROOF (5% AEP FLOW RATE)

ALL CABINS REQUIRE MINIMUM 2 x 90mm DOWNPIPES

ALL DOWNPIPES TO BE PLUMBED TO NEW 2000L TANKS.
OVERFLOW FROM TANKS TO BE DIRECTED TOWARDS NEW STORMWATER LINE.
MINIMUM EAVES GUTTER SIZE TO BE 7000mm² CROSS SECTIONAL AREA

WARNING:
BEWARE OF UNDERGROUND SERVICES. THE LOCATION OF SERVICES IF SHOWN, ARE INDICATIVE ONLY AND NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES HAVE BEEN DOCUMENTED. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL EXISTING SERVICES WITHIN THE WORKS AFFECTED AREAS PRIOR TO ANY ON-SITE EXCAVATION.

SERVICES NOTE:
1. EXISTING SERVICES SHOWN ARE BASED ON SURVEY DATA RECEIVED BY THIS OFFICE.
2. ALL EXISTING SERVICES ARE SHOWN DIAGRAMMATIC ONLY. ALL SERVICES ARE TO BE CONFIRMED ON SITE PRIOR TO CONSTRUCTION.

NOTE:
THIS IS A PLANNING DRAWING ONLY, FOR THE PURPOSE OF CONCEPTUAL DESIGN AND/OR PLANNING. FURTHER DETAILED ENGINEERING DESIGN INCLUDING SPECIFICATIONS, SIZING AND STORMWATER INVERTS TO BE PROVIDED PRIOR TO CONSTRUCTION CERTIFICATE AND FOR CONSTRUCTION ISSUE.

2.0m 0.0 4.0 8.0 12.0 16.0 20.0m
SCALE 1:200 AT A1 SHEET | 1:400 AT A3 SHEET

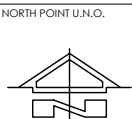
ISSUED FOR APPROVAL
AMENDMENTS

25.08.23
DATE

A
ISSUE

JD
BY

NOT FOR CONSTRUCTION



NORTH POINT U.N.O.
ARCHITECT
**PREFERRED DESIGN
AND DRAFTING**

CLIENT
P & J CONSADINE

PROJECT
**RESIDENTIAL DEVELOPMENT
29 HORATIO STREET
MUDGEES NSW 2850**

DESIGNED --
DRAWN --
DATE AUG 23
SIZE A1
CAD REF TX17615.00 - C01



**TRIAXIAL
CONSULTING**
COMPLEX PROBLEMS
RESOLVED SIMPLY

1300 874 294 | TRIAXIAL.COM.AU
SUITE 12, LEVEL 14, 327 PITT STREET, SYDNEY NSW 2000
PO BOX A203, SYDNEY SOUTH NSW 1235

TO BE PRINTED IN COLOUR

DRAWING TITLE
**STORMWATER MANAGEMENT
PLAN**

PROJECT No. TX17615.00 -
DRAWING No. C4.00
ISSUE A