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**PROPOSED INDUSTRIAL DEVELOPMENT
SYDNEY ROAD
MUDGEE NSW 2850**

STORMWATER MANAGEMENT PLAN

19 FEBRUARY 2024

REFERENCE: TX15883.01-01.RPT.JO.M

SYDNEY | ADELAIDE | BAROSSA | DARWIN | MUDGEE

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1 PROJECT DESCRIPTION AND BACKGROUND

Triaxial have been engaged to prepare a stormwater management plan for the proposed industrial estate to be developed at 20 Sydney Road, Mudgee.

The development consists of a new shed on lot 6 of the industrial staged subdivision located at 20 Sydney Road, Mudgee.

2 EXISTING SITE

2.1 STORMWATER MANAGEMENT PLAN

The existing site is partially developed with industrial sheds and a residential dwelling. The access road has been sealed to provide a turning head for the existing industrial buildings.



Figure 1. Existing site plan.

The existing site slopes towards the Northeast at approximately 2%. The site is bordered to the Northeast by adjacent industrial / commercial land and to the West by Redbank Creek.

3 SITE MODELLING AND STORMWATER CALCULATIONS

The lot proposed for development will convey roof water, including tank overflows, to a detention basin. The remaining hardstand and access is to be sheet flow across the lot as it does currently.

The proposed development will reduce the post-developed stormwater flow to below pre-developed rates before it is discharged into the Mid Western Regional Council stormwater network on Sydney Road.

A stormwater management plan TX15883.01-C4.00 showing the proposed layout and sizing of the stormwater network and detention basin has been prepared and is included in Appendix A.

Refer Appendix A

3.1 DRAINS MODELLING

A DRAINS model was developed in order to determine the size of the stormwater pipes required and confirm the size of required detention to achieve matching post-developed flows to pre-developed flows.

The hydrological model used in the modeling of the stormwater was an Initial Loss Continuing Loss (IL-CL) type model with the following characteristics typical to the Mudgee area and are based on the 2021 Flood Study calibrated loss values:

Initial loss = 10mm

Continuing loss = 2.8mm/hr

Rainfall data was then input for a range of storms directly into the Australian Rainfall and Runoff (2019) module in the DRAINS program.

Rainfall data was input into DRAINS using the procedures outlined in ARR 2019 including the following assumptions:

- Median pre-burst rainfall depths imported from ARR data hub.
- Neutral burst initial losses were imported from ARR data hub.

A schematic of the updated DRAINS model including sub-catchment areas and model results are included in Appendix B.

Refer Appendix B

In order to determine the permissible site discharge, a pre-developed site catchment was included in the modelling with 100% pervious area. Flow rates from this catchment were adopted as the permissible site discharge from proposed development.

The results of the DRAINS modelling is presented in

AEP (%)	Existing (m3/s)	Developed (m3/s)
50	0.315	0.314
20	0.51	0.504
10	0.615	0.606
5	0.673	0.663
2	0.842	0.841
1	1.02	1.02

below.

Table 1. DRAINS results summary.

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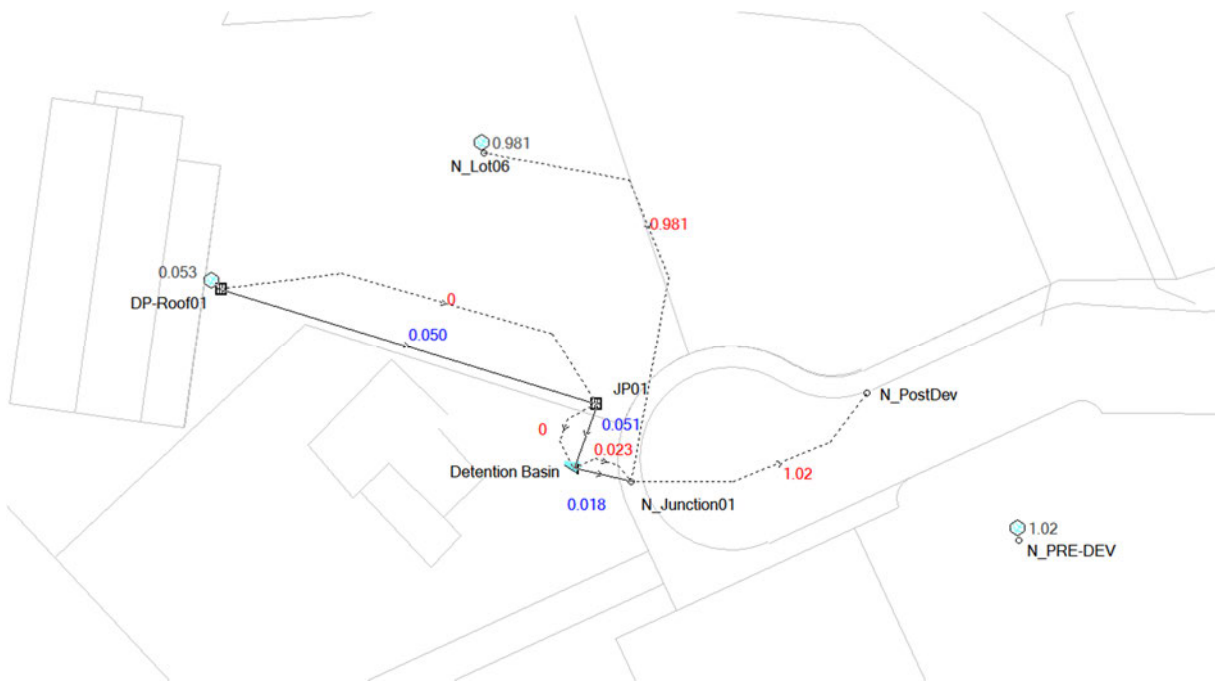


Figure 2: DRAINS model schematic and output during 1% AEP event.

DRAINS modelling has confirmed that the volume required for the basin is 7.8m³.

The DRAINS modelling also allowed preliminary sizing of the stormwater pits and pipes for the development. These are reflected on Triaxial plan TX15883.01-C4.0.

3.2 FLOOD INFORMATION

After consultation with Mid-Western Regional Council, a 1%AEP flood map was obtained to determine if the site would be classified as flood prone, especially with the proximity to Redbank Creek along the Western boundary.

The flood map included in Appendix C shows that the site will not be inundated during the 1%AEP event. Floor levels for the proposed industrial sheds will be set at 300mm above the 1% level, Finished Floor Level for site to be 471.400m (A.H.D.).

Refer Appendix C

4 SUMMARY

In summary, the stormwater for the proposed development has been modelled using DRAINS

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stormwater models. The modelling reflects the requirements of Mid-Western Regional Council DCP.

Results of the modelling indicate that the stormwater as designed on the concept stormwater management plan TX15883.00-C4.00 will comply with Mid-Western Regional Council requirements for stormwater treatment and detention storage. The site is also out of the 1% AEP flood inundation level.

We trust this meets your current requirements and should you wish to discuss the matter further please do not hesitate to contact Triaxial Consulting.

Yours faithfully,

TRIAXIAL CONSULTING PTY LTD



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APPENDIX A – TRIAXIAL PLAN TX15883.01 – C4.0

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APPENDIX B – DRAINS MODELLING INPUTS

APPENDIX C – MWRC FLOOD INFORMATION

The flood information shown below is a direct download from the NSW SES Flood Data Portal. The mapping indicates the depth during the 1%AEP event. As can be seen the site is not flood affected.

