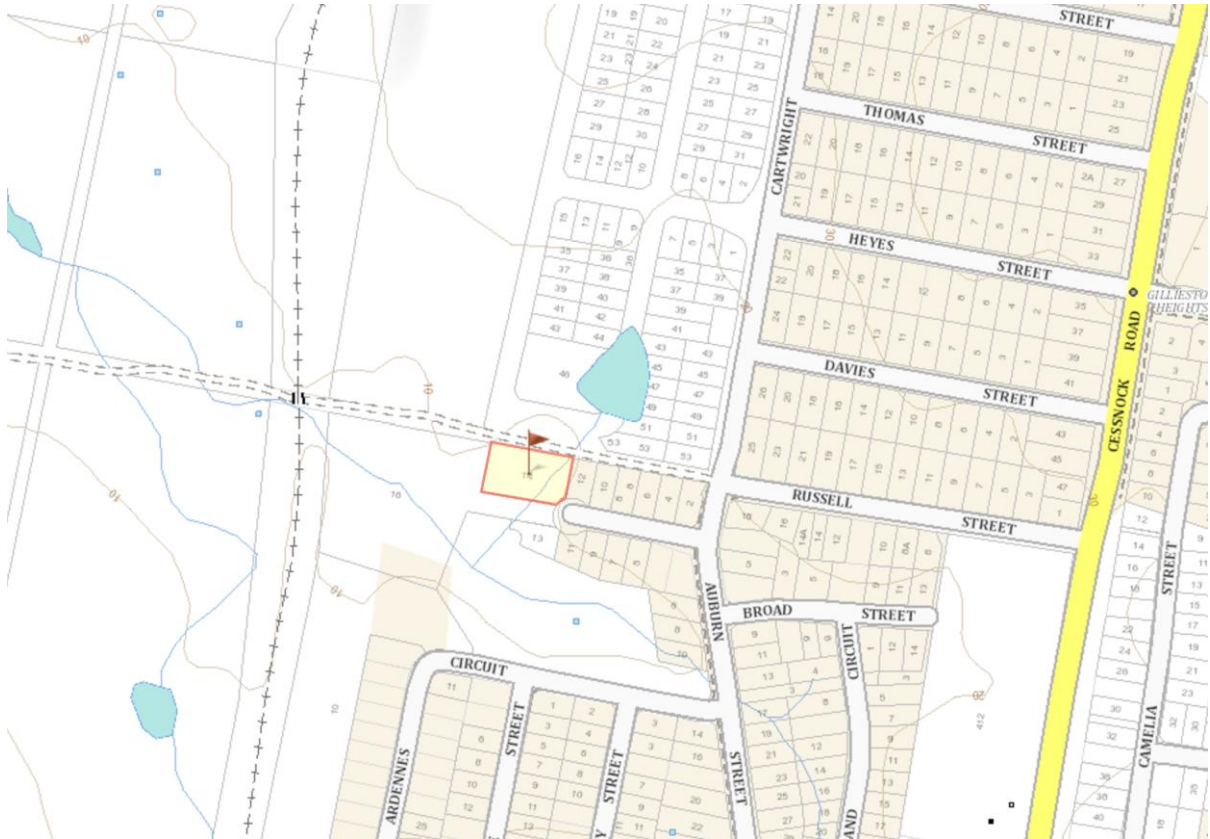


OVERLAND FLOW ASSESSMENT REPORT

PROPOSED CHILDCARE CENTRE

AT 14 LAVENDER CLOSE, GILLIESTON HEIGHTS



(Source: Six Maps 2024)

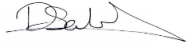
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Document Revision Table

Revision	Date	Issue Description	Issued by	Approved by	Signed
A	30/11/2024	Issue for D.A.	M.N.	D.S.	

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Project Detail

Site Address	14 Lavender Close, Gillieston Heights NSW 2321
Lot/DP	205 / DP1212073
Site Area	2591m ²
Development Type	Childcare Centre
LGA	Maitland City Council

1. Introduction

In response to your request, Vanguard Consulting Engineers (VCE) has prepared a Overland Flow Assessment Report for the proposed childcare centre at 14 Lavender Close, Gillieston Heights NSW 2321.

This document reviews the existing site conditions, upstream catchment draining towards the subject site, and more the overland flow from the upstream catchment being managed through the site so that the stormwater run-off does not impact the proposed development or any other neighbouring properties.

2. Existing Site Characteristics

The existing site is a vacant land with the main access at the end of Lavender Close cul-de-sac, to the East of the site. The site is situated adjacent to other existing residential properties on other directions. The topography of the site is generally sloping from North-western corner of the site, which is the high point, falling to the South-western corner. There is an existing drainage easement 6.0m wide traversing the site. The drainage easement includes the existing culvert headwall coming from the upstream property.

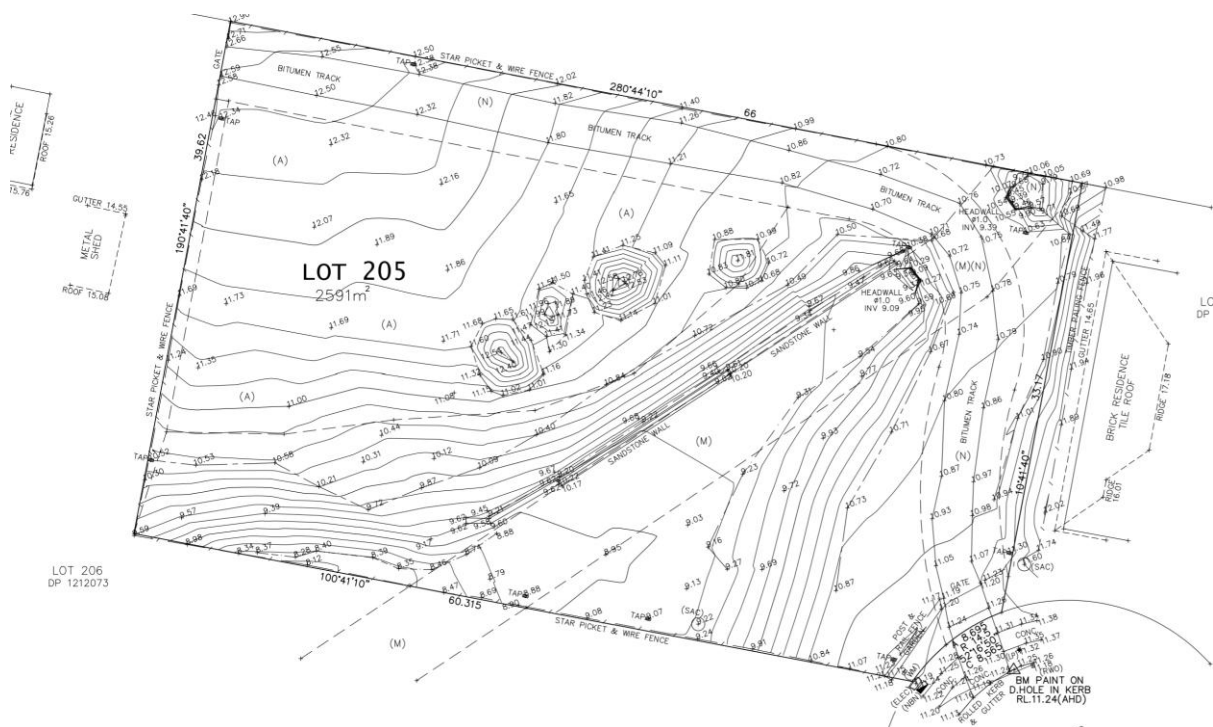


Figure 1: Survey Plan

It is noted that there is the new subdivision to the north of the subject site and is also the upstream catchment of the site. The subdivision has been designed and constructed with sufficient on-lot drainage system and a local On-site Detention system for its catchment.



Figure 2: Site Location Aerial (Source: Nearmap Oct 2024)

3. Proposed Development

The proposed development consists of the construction of the childcare centre.

The figure below illustrates the proposed locality plan for the subject site. Reference shall be made to Architectural plans for further details.

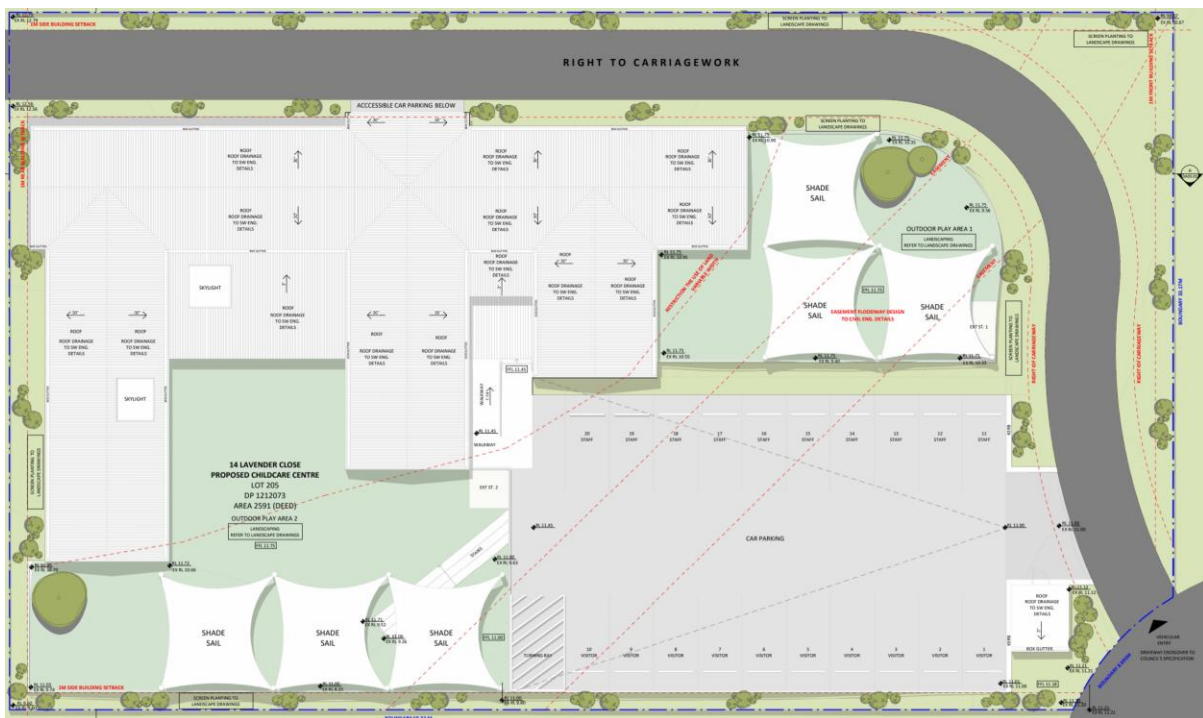


Figure 3: Architectural Plan

4. Existing Flood Information

As noted in the Pre-Lodgement Meeting Minutes, the site is identified as being subject to localised flooding, being backwater from Wallis Creek. However, upon investigating and reviewing of the 'Wallis and Swamp Fishery Creek Flood Study' by WMA (Feb 2019) for Maitland City Council, it is noted that the flood level from the swamp does not affect the subject property. The nearest 1%AEP flood contours to the subject site is at RL7.5m AHD whilst the lowest natural ground level at the site is RL 8.47m AHD at the end of the drainage easement. Generally, the ground level of the site is at RL9.5m AHD to RL12.5m AHD. Therefore, the site is not affected by Mainstream flooding.

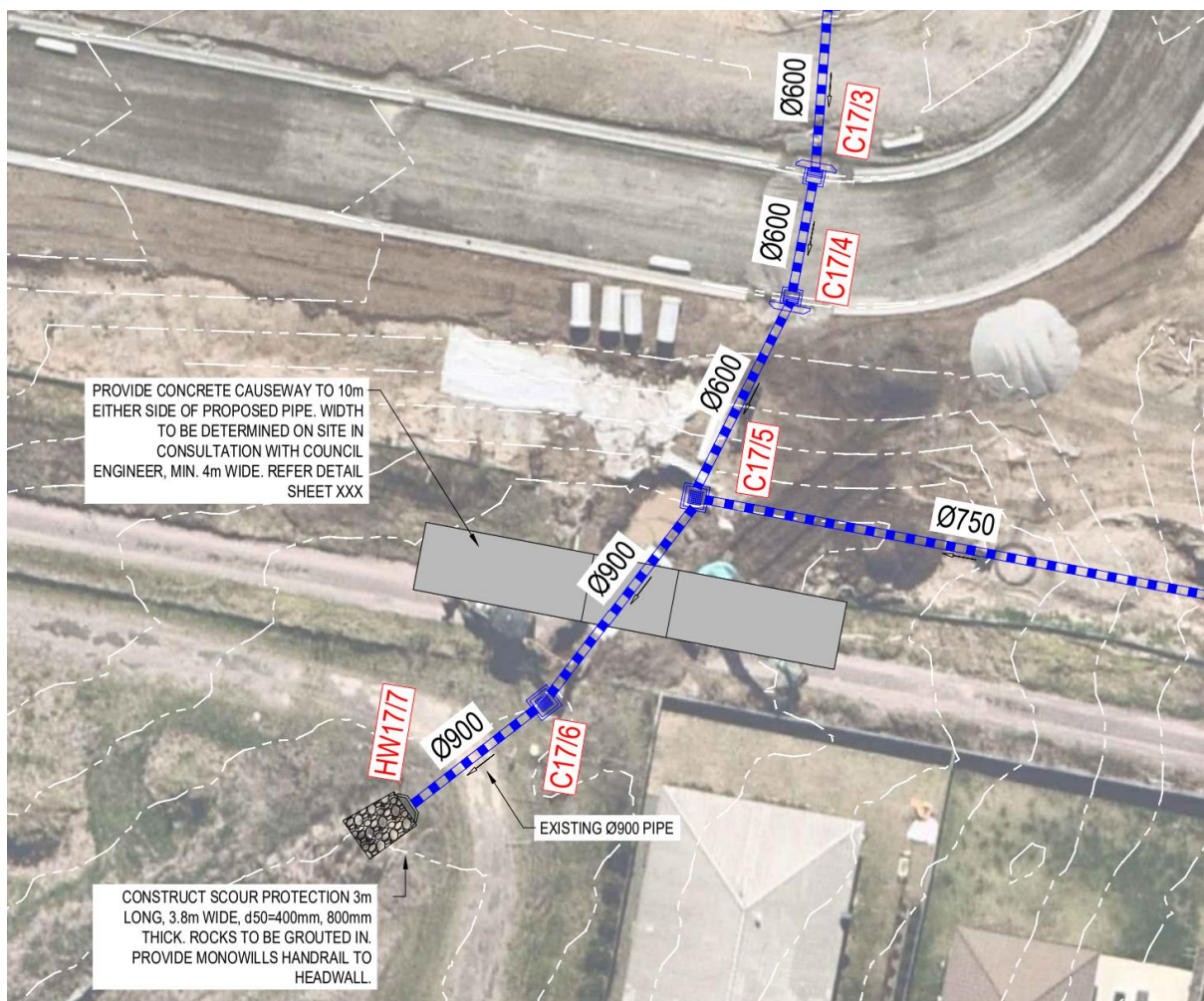


Figure 4 - 1% AEP Flood Extents
(Source: Wallis and Swamp Fishery Creek Flood Study)

In regards to the overland flow flooding, it is noted that the upstream catchment of the site is the new subdivision to the north. The subdivision has been designed and constructed with sufficient drainage system to cater for its subdivision and also the upstream properties of the subdivision. Section 5 of this report will detail how this water is managed from the subdivision through to the subject site.

5. Overland Flow Assessment

It is noted that the upstream subdivision proposed to discharge the stormwater run-off from its site and the upstream catchment via the culvert headwall on to the subject site within the 6m wide drainage easement. In addition, there is stormwater overflow from the subdivision. Therefore, stormwater run-off will go through No.14 by both stormwater culvert and overland flow over the existing causeway.



**Figure 5 – Discharge to No.14 Lavender Close
(Extract from BRS Subdivision Design)**

Based on the subdivision design Engineering Plans prepared by Baker Ryan Stewart (ref. 210325), the upstream catchment of the No.14 Lavender Close is established as per figure 5 below.



Figure 6 – Upstream Catchment Trough No. 14 Lavender Close

The catchments and existing drainage pits and pipes from the subdivision are used as input in DRAINS model to analyse the pipe flow and overland flow coming from the subdivision through No.14 Lavender. DRAINS model is shown in figure 7.

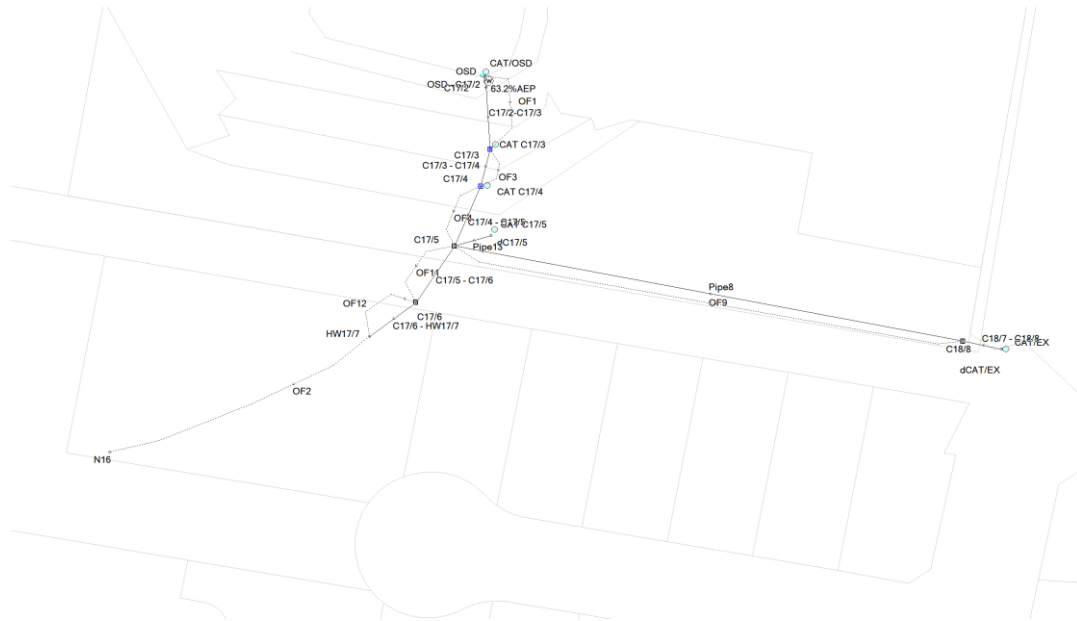


Figure 7 – DRAINS model

The DRAINS model is run in 1%AEP to determine the maximum flow. DRAINS model result is shown in figure 8 below.

At the culvert headwall, it is proposed that in the development of No.14, the easement shall be formalised into a 6m wide channel to carry the overland flow. On either side of the easement/channel, the development shall construct retaining walls up to the building level. The proposed building structures shall be constructed up to the architectural design level, except for at the easement/channel location, the proposed structures shall be suspended over the easement to provide a dedicated area for overland flow path to go through.

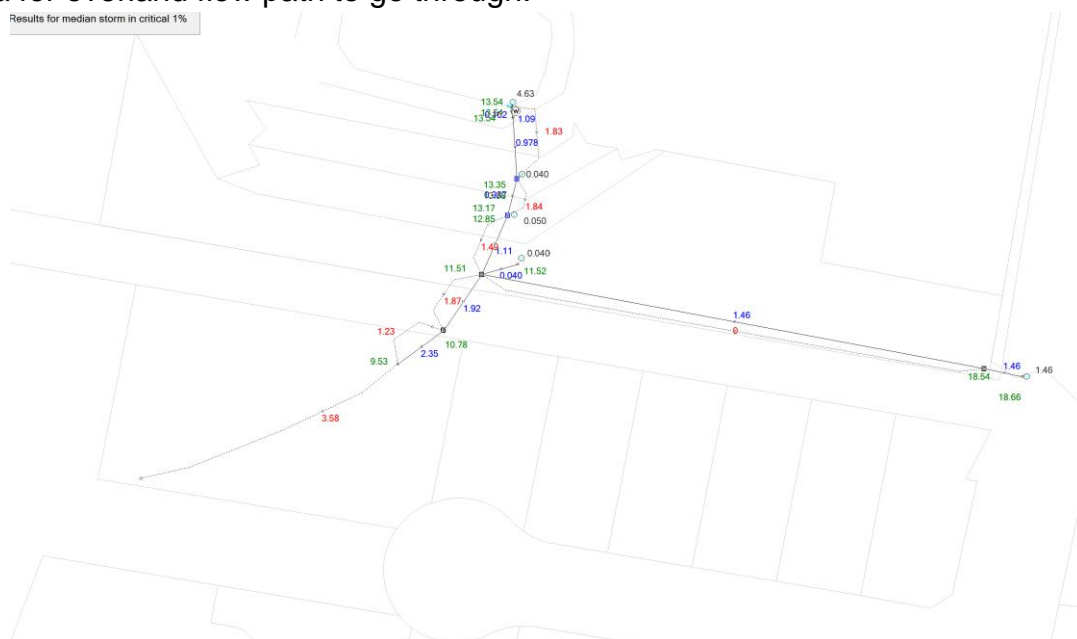


Figure 8 – Upstream Catchment Through No. 14 Lavender Close

The main channel through the subject site which carries the overland flow stormwater from the upstream catchment is observed to be fully contained within the 6m wide easement channel (figure 9).

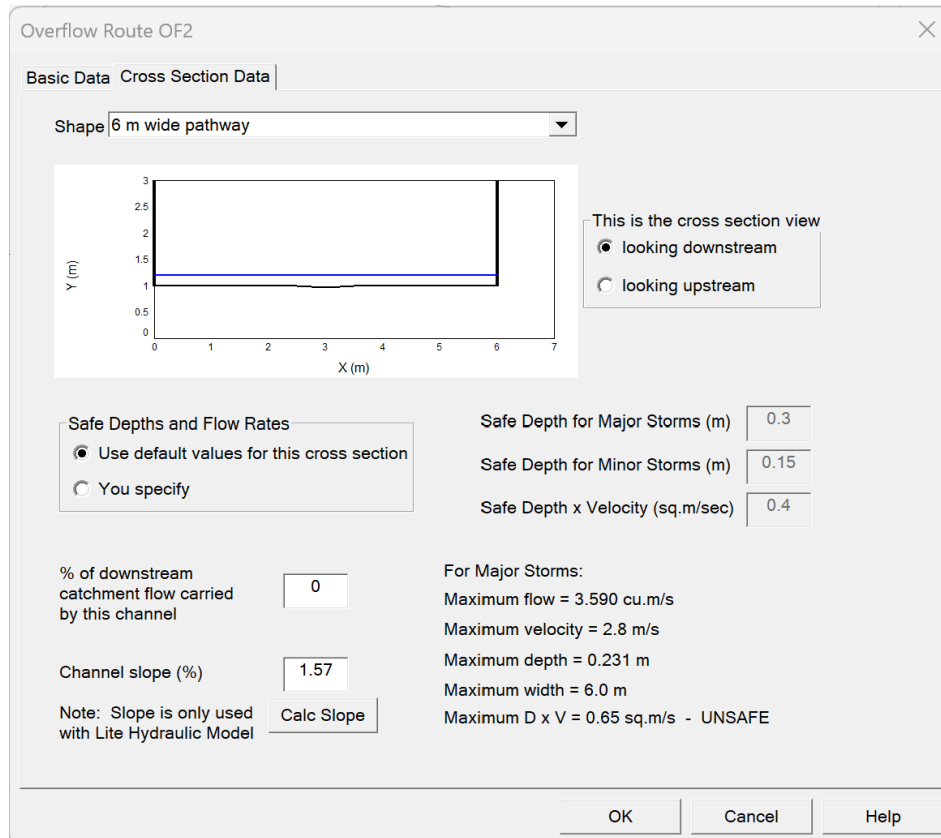


Figure 9 – Overland Flow Channel Capacity DRAINS Results

It is proposed that the proposed building structures shall be constructed in a way that the structures are suspended over the easement channel. There is no blockage between the existing causeway and the building that can potentially block the natural flow path from the causeway to the channel below.

Adequate fencing to prevent falling from the childcare centre shall be provided to architectural and acoustic consultants details. In addition, it is proposed that guardrails shall be provided along the causeway so that it prevents the vehicle from falling off the embankment. Refer to figure 10 below.

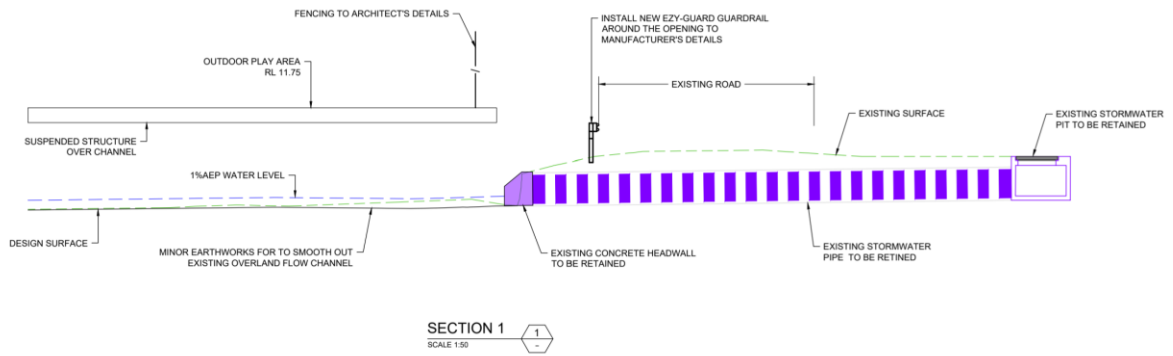


Figure 10 – Section through Channel and Existing Culvert Headwall

6. Conclusion

This Overland Flow Assessment Report has been prepared in accordance with Maitland City Council's requirements. Based on the details in Section 5, the proposed childcare centre has safely managed the stormwater run-off from the upstream catchment through the site without creating any impacts to the development or any other neighbouring properties.

We trust that this information is sufficient for your purposes.

Should you have any queries in regards to this document please feel free to contact the undersigned.

Yours faithfully,

VANGUARD CONSULTING ENGINEERS



Moussa Youssef | Director

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