

Landcom
Level 14, 60 Station Street
Parramatta NSW 2150

25/02/2026
Our Ref: 24-1057

Att: Laurence Lau

Re: Redleaf Orange – DA Engineering RFIs and Design Amendments

Introduction

This letter is an addendum to the original Water Cycle Management Report (24-1057-Water-Cycle-Management-Report-DA-C) prepared by Colliers Engineering & Design (CED), submitted as part of the development application for the Redleaf project.

The letter has been prepared in response to comments made by Council during the assessment phase of the development application. The purpose of this letter is to:

- Summarise the civil, stormwater & flood-related issues raised
- Describe any further modelling or analysis undertaken
- Demonstrate how Council comments have been addressed

On the 14th of October 2025, Orange City Council undertook engineering assessment of the development application and provided feedback regarding the design in an email to Landcom. The email from Jason Theakstone quotes:

“We are currently undertaking an engineering assessment of the Redmond PI plans and note there is a retaining wall of 1.5m – 2m traversing the western side of Road 4 with a stormwater inlet structure (Sheet 741) beneath the road. This structure was never discussed in our previous meetings.

Council wont accept that as a solution for the stormwater coming into the site at Chainage 390 (Road 4) from the west, you will need to find another solution.

Please note we are still undertaking our engineering assessment, it is not finalised yet.”

As part of addressing the Council comments, an updated post-development design surface TIN was developed and issued by the CED civil team. This required re-running of the developed case flood modelling to reflect the revised surface levels and site layout.

The revised site layout amendments are limited to internal areas and are minor in scope. As such, it is anticipated that there will be no material change in the flood behaviour associated with the proposed development. Hence, the findings and conclusions presented in the original Water Cycle Management Report remain valid and unchanged.

This flood assessment focuses solely on the south-western boundary where the external overland flow path intersects the site as highlighted in Figure 1.

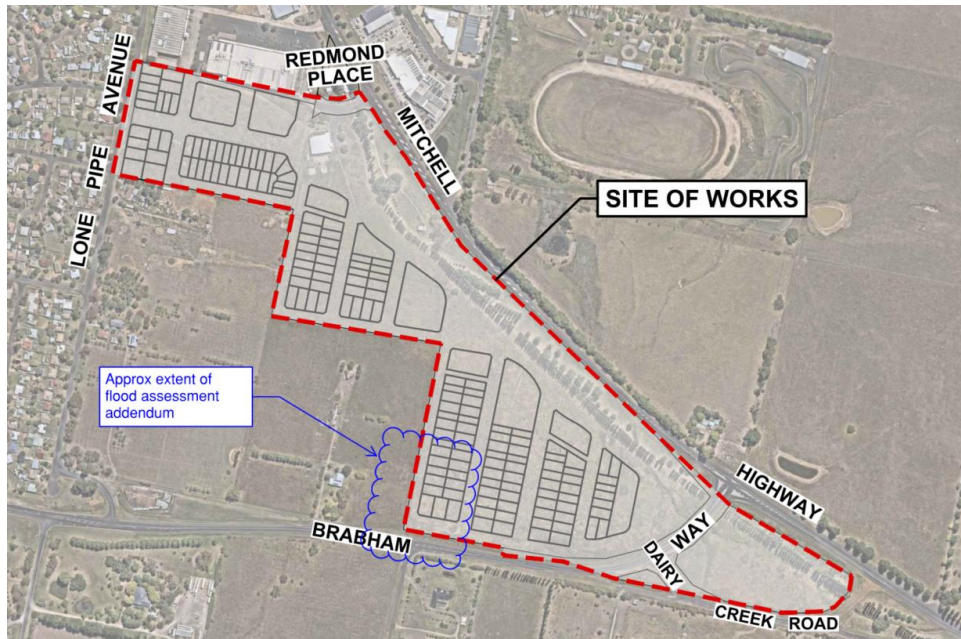


Figure 1: Approx extent of Flood Assessment Addendum

This letter supports the original report's conclusions and verifies that the proposed development changes meet all applicable flood risk management requirements and performance criteria.

Additional Work Undertaken

Updated Civil Design

During the assessment of the originally submitted development application, Council made comments, quoted above, of not supporting the civil design, particularly around the south-west portion of the site, due to the large retaining walls and inlet structure. Concerns were raised based on a number of factors including safety, maintenance, and effectiveness of the design.

Following meetings with Council to discuss the original design submitted as part of the development application, it was concluded that the Road No.04 at the south-west portion of the site be lowered such that levels begin to match existing levels along the boundary. The intention of this is to allow a portion of the external overland flow path to overtop onto the road and be conveyed by the road until the kerb is overtopped at the sag point and subsequently directed into the existing roadside swale along Brabham Way, which is proposed to be widened with a 3m base as part of the additional works undertaken.

In addition to lowering Road No.04, it was also concluded that the road be adjusted at the intersection of the external flow path and the site. It was proposed that the road blister into the site to create a cut-out opening for water to flow into the site rather than

it be captured at the boundary. This was proposed to allow water to be contained entirely within the site and not impact the adjacent property.

The updated civil design changes can be seen in the updated DA drawing set and in the Figure 2 below. The updated DEM relating to the updated civil design changes can also be seen in Figure 3.

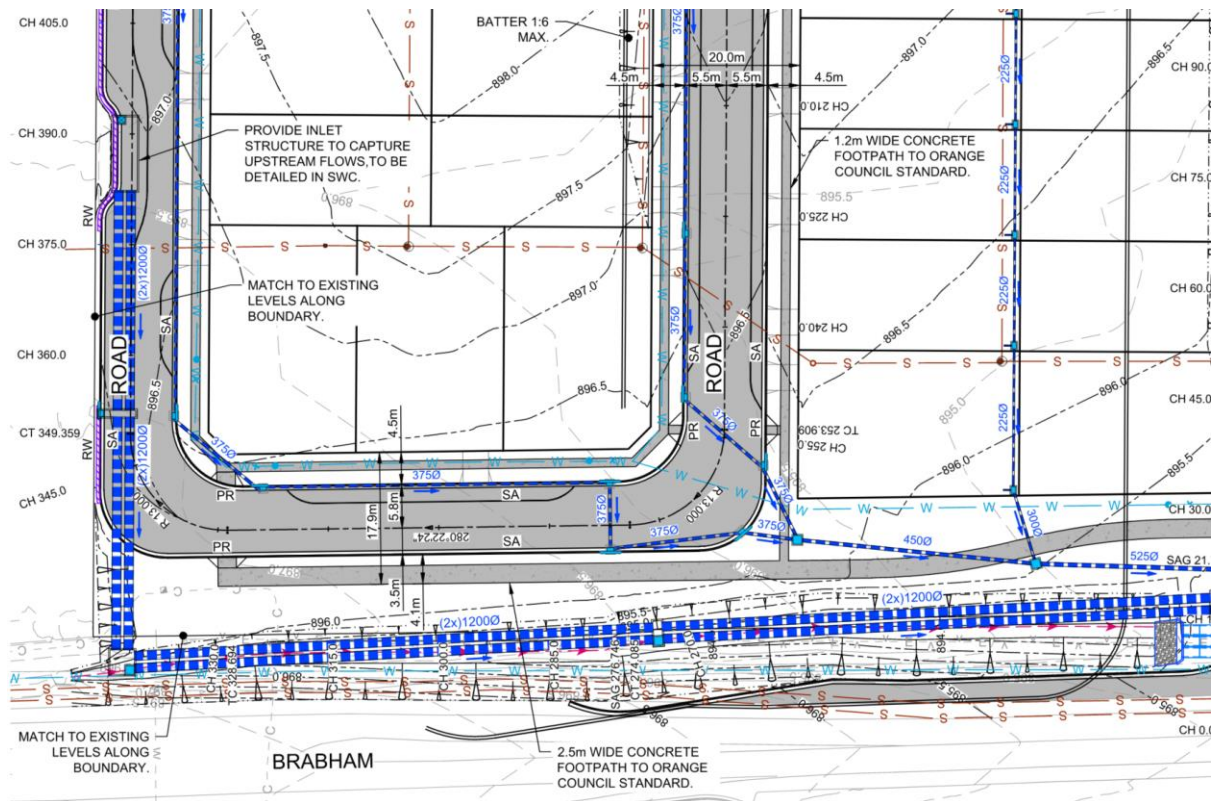


Figure 2: Updated DA Road and Drainage Plan along Road No.04

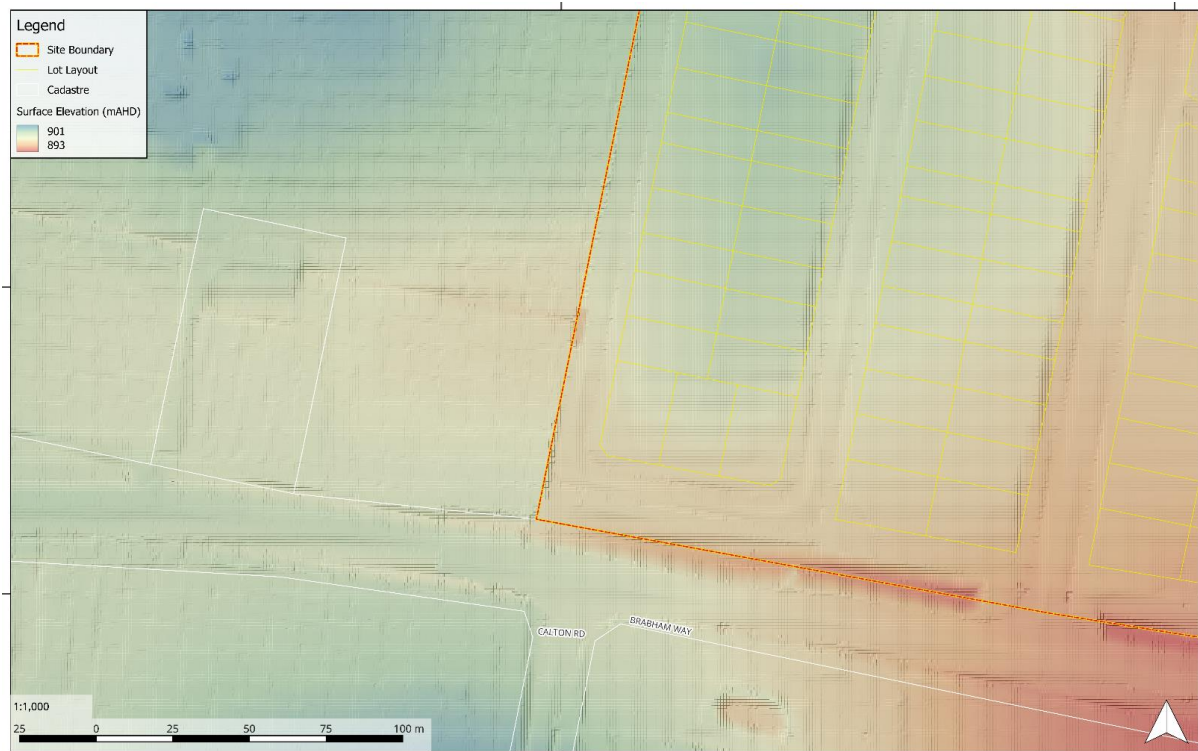


Figure 3: Updated DEM along Road No.04

Updated Hydraulic Modelling and Assessment Results

Following the receipt of the revised design surface tin, which incorporated the lowered Road No.04 and the updated road blister at the overland flow path intersection, the flood modelling for the post-developed scenario was re-run for the 1% AEP storm event.

The updated flood modelling results based on the revised terrain data informed the reduction of inlet structure size down to approximately 10m (subject to further detailing at SWC). The alignment of the trunk drainage line was also modified to suit the widened roadside swale. No other changes to the TUFLOW model were made.

The updated flood model with the above civil and stormwater changes indicates localised increases in afflux of up to 60 mm along the western boundary north of the inlet structure. These increases result from overland flow interacting with the retaining wall before reaching the inlet structure. This is not considered an undesirable flood outcome and is offset by reductions in water levels at the inlet itself. The results were also presented to Council's flood engineers who endorsed the updated results in an email on the 3rd of February 2026. The updated flood depth and afflux results can be seen in Figure 4 and Figure 5.

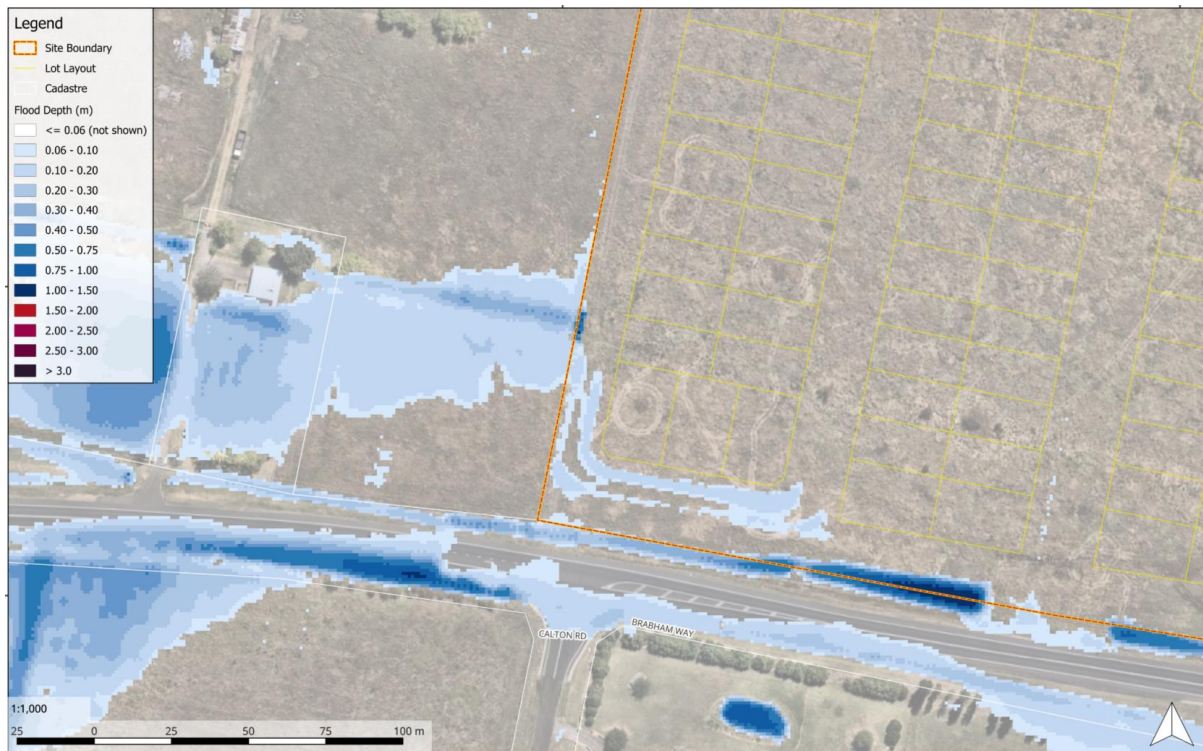


Figure 4: Updated Post-Development 1% AEP Flood Depths

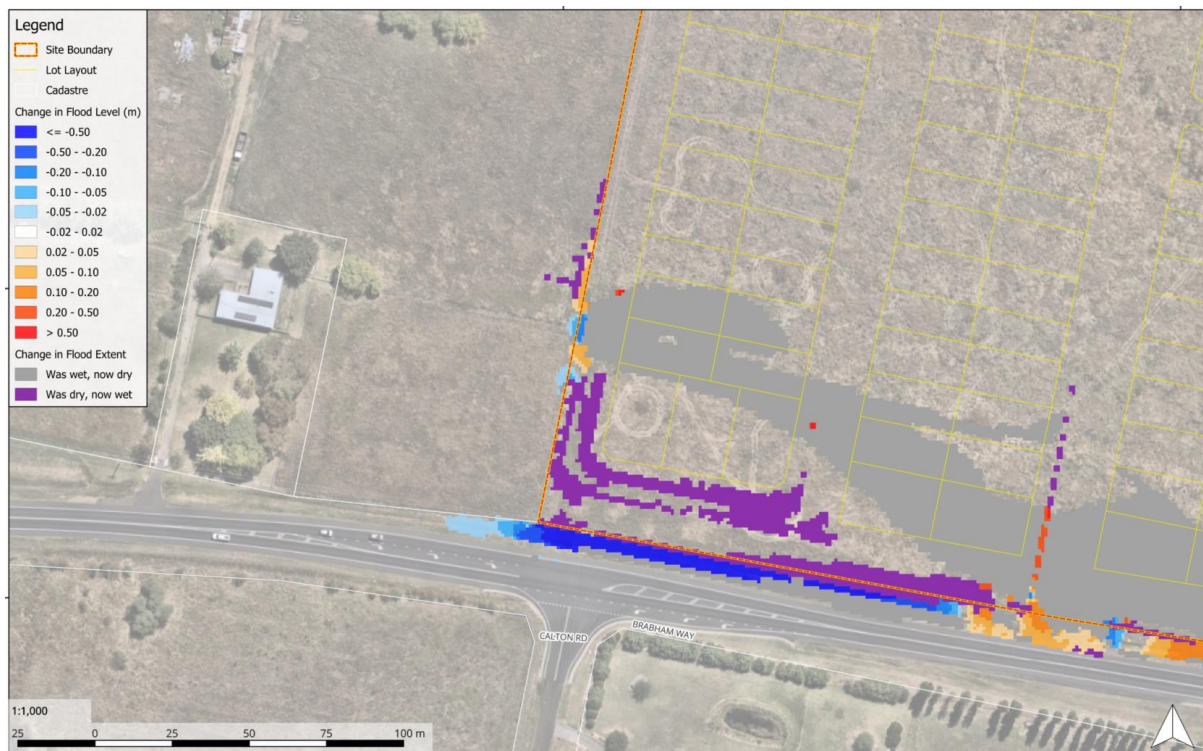


Figure 5: Updated Post-Development 1% AEP Flood Afflux

Overall, the revised road and drainage design produces acceptable flood afflux with no material adverse impacts on the neighbouring lot. The updated 1% AEP flood maps including levels, depths, velocity, hazard and afflux are attached in Appendix A.

Conclusion

This letter has been prepared to address the comments received by Orange City Council during the assessment of the development application for the Redleaf project.

In response to the comments, further civil, stormwater and flood impact assessments were undertaken. The revised developed scenario was assessed for 1% AEP stormwater event. Key outcomes of the updated assessment include:

- Reduced earthworks at the south-western portion of the site due to lowering of Road No.04
- Reduced retaining wall extents along the western boundary at the intersection of the external overland flow path and the site
- Reduced inlet structure size to capture the external overland flow path
- During the 1% AEP storm event, there are localised increases in flood afflux of up to 60 mm along the western boundary. These increases result from overland flow interacting with the retaining wall before reaching the inlet structure. This is not considered an undesirable flood outcome and is offset by reductions in water levels at the inlet itself. Overall, the revised road and drainage design produces acceptable flood afflux with no material adverse impacts on the neighbouring lot.

This letter confirms that all relevant civil, stormwater and flood-related comments have been addressed. The proposed updates continue to comply with the overall strategy of the report and supports the original report's conclusions. Therefore, this Flood Letter is able to reinforce the suitability of the proposed development with respect to flood risk.

Yours faithfully,

Prepared by

A handwritten signature in black ink, appearing to read "A Thim".

Alan Thim

Engineer, Civil

BEng (Civil)

Colliers Engineering & Design NSW

Reviewed by

A handwritten signature in black ink, appearing to read "Leo Zhou".

Leo Zhou

Principal, Water Resources & Flooding

BEng (Civil)

Colliers Engineering & Design NSW

Appendix A – Flood Maps

Existing Conditions

Maps 01 - 04

Developed Conditions

Maps 05 - 08

Afflux

Map 09



Colliers Engineering & Design (NSW) Pty Ltd endeavours to ensure that the information provided in this map is correct at the time of publication. Colliers Engineering & Design (NSW) Pty Ltd does not warrant, guarantee or make representations regarding the currency and accuracy of information contained within this map.

Map 01: 1% AEP Existing Water Level
Project: Redleaf
Project Number: 24-1057
Client: Landcom

697600

697800

Legend

Site Boundary

Cadastre

Flood Depth (m)

<= 0.06 (not shown)

0.06 - 0.10

0.10 - 0.20

0.20 - 0.30

0.30 - 0.40

0.40 - 0.50

0.50 - 0.75

0.75 - 1.00

1.00 - 1.50

1.50 - 2.00

2.00 - 2.50

2.50 - 3.00

> 3.0

6312600

6312500

1:1,000

25 0 25 50 75 100 m

CALTON RD

BRABHAM WAY

Colliers

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Map 02: 1% AEP Existing Depth

Project: Redleaf

Project Number: 24-1057

Client: Landcom

697600

697800

Legend

Site Boundary

Cadastre

Flood Velocity (m/s)

<= 0.03

0.03 - 0.05

0.05 - 0.10

0.10 - 0.20

0.20 - 0.30

0.30 - 0.40

0.40 - 0.50

0.50 - 0.75

0.75 - 1.00

1.00 - 2.00

2.00 - 3.00

> 3.00

6312600

6312500

1:1,000

25 0 25 50 75 100 m

CALTON RD

BRABHAM WAY



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Map 03: 1% AEP Existing Velocity

Project: Redleaf

Project Number: 24-1057

Client: Landcom

697600

697800

Legend

Site Boundary

Cadastre

Flood Hazard Category

H1 - no restrictions

H2 - unsafe for small vehicles

H3 - unsafe for vehicles, children and the elderly

H4 - unsafe for people and vehicles

H5 - unsafe for people and vehicles.
Buildings require special engineering design and construction

H6 - not suitable for people, vehicles or buildings

6312600

6312500

1:1,000

25 0 25 50 75 100 m

CALTON RD

BRABHAM WAY



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Map 04: 1% AEP Existing Hazard
Project: Redleaf
Project Number: 24-1057
Client: Landcom

697600

697800

Legend

Site Boundary

Lot Layout

Cadastre

Flood Depth (m)

<= 0.06 (not shown)

0.06 - 0.10

0.10 - 0.20

0.20 - 0.30

0.30 - 0.40

0.40 - 0.50

0.50 - 0.75

0.75 - 1.00

1.00 - 1.50

1.50 - 2.00

2.00 - 2.50

2.50 - 3.00

> 3.0

1:1,000

25 0 25 50 75 100 m

CALTON RD

BRABHAM WAY

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Map 06: 1% AEP Developed Depth

Project: Redleaf

Project Number: 24-1057

Client: Landcom

697600

697800

Legend

Site Boundary

Lot Layout

Cadastre

Flood Velocity (m/s)

<= 0.03

0.03 - 0.05

0.05 - 0.10

0.10 - 0.20

0.20 - 0.30

0.30 - 0.40

0.40 - 0.50

0.50 - 0.75

0.75 - 1.00

1.00 - 2.00

2.00 - 3.00

> 3.00

6312600

6312500

1:1,000

25 0 25 50 75 100 m

CALTON RD

BRABHAM WAY



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Map 07: 1% AEP Developed Velocity

Project: Redleaf

Project Number: 24-1057

Client: Landcom

697600

697800

Legend

Site Boundary

Lot Layout

Cadastre

Flood Hazard Category

H1 - no restrictions

H2 - unsafe for small vehicles

H3 - unsafe for vehicles, children and the elderly

H4 - unsafe for people and vehicles

H5 - unsafe for people and vehicles. Buildings require special engineering design and construction

H6 - not suitable for people, vehicles or buildings

6312600

6312500

1:1,000

25 0 25 50 75 100 m

CALTON RD

BRABHAM WAY



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Map 08: 1% AEP Developed Hazard

Project: Redleaf

Project Number: 24-1057

Client: Landcom

697600

697800

Legend

-  Site Boundary
-  Lot Layout
-  Cadastre

Change in Flood Level (m)

-  ≤ -0.50
-  $-0.50 - -0.20$
-  $-0.20 - -0.10$
-  $-0.10 - -0.05$
-  $-0.05 - -0.02$
-  $-0.02 - 0.02$
-  $0.02 - 0.05$
-  $0.05 - 0.10$
-  $0.10 - 0.20$
-  $0.20 - 0.50$
-  > 0.50

Change in Flood Extent

-  Was wet, now dry
-  Was dry, now wet

1:1,000

25 0 25 50 75 100 m

CALTON RD

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Map 09: 1% AEP Developed Flood Afflux

Project: Redleaf

Project Number: 24-1057

Client: Landcom