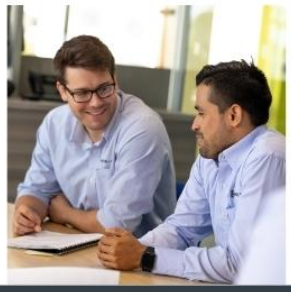
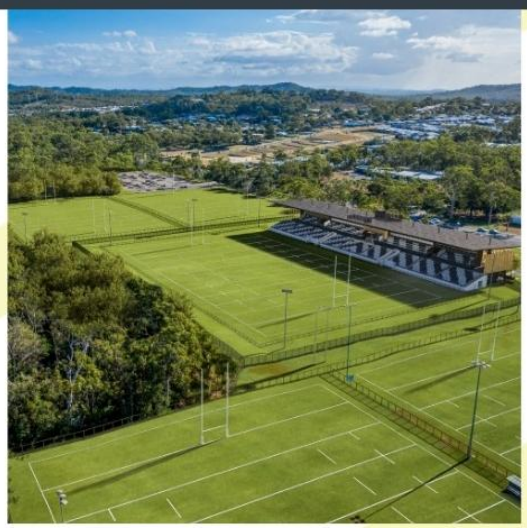
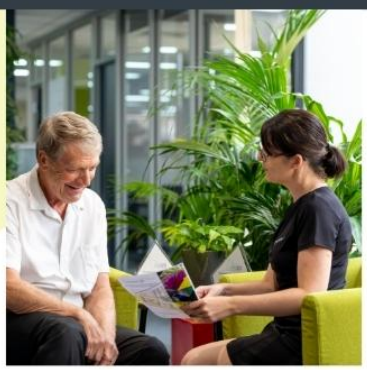
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1-15 & 20 Calume Court and 43 Noffke Court, Logan Reserve
Localised Flood Risk Assessment

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Executive Summary

Burchills Engineering Solutions was engaged by GDM Property to prepare a Localised Flood Risk Assessment (LFRA) to support a Development Application for a proposed subdivision (3 into 108 lots) across 1–15 & 20 Calume Court and 43 Noffke Court, Logan Reserve.

This LFRA demonstrates that the proposed development complies with the flood-related provisions of the Logan Planning Scheme V9.2 (2025). Compliance has been assessed through detailed hydraulic modelling of both pre- and post-development conditions.

The LFRA reaches the following key conclusions regarding flooding at the subject site:

- Hydraulic modelling indicates a minor increase in peak flood levels within the northern downstream property, confined to the future drainage channel. The downstream drainage corridor has sufficient capacity to accommodate the afflux generated by the proposed development, and freeboard to future developable lots within the northern property is not compromised;
- Modelling results show a reduction in flood levels (flood improvement) in the adjacent development area located northwest of the subject site;
- The modelling results also indicate an increase in peak water level within Noffke Road along the western site boundary. This is due to the proposed upgrade of Noffke Road and is not considered actionable with all flood conditions being within the requirements of QUDM;
- The modelling results indicate negative afflux in peak water velocity (improvement) located at the downstream property boundary as a result of the proposed development;
- All flood impacts are dissipated by the time that flows reach the regional Schmidts Creek highlighting the effective performance of the joint detention system in mitigating flows on a regional scale.
- The development does not cause any impact to occur on any external residential dwellings;
- the flood impacts associated with the proposed development is not expected to give rise to any actionable nuisance to adjacent properties; and
- The flood storage post-development is maintained with allowance of additional storage provided within the underground stormwater pipes.

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Appendices

Appendix A Further Information and Methods
Appendix B Burchills Engineering Civil Design Drawings
Appendix C Response to Flood Hazard Overlay Code
Appendix D Hydraulic Model Features
Appendix E Hydraulic Mapping Results

1. Introduction

Burchills Engineering Solutions were engaged by GDM Property to prepare a Localised Flood Risk Assessment (LFRA) to be considered as part of a Development Application for a 3 into 108 Lot Subdivision over 1-15 & 20 Calume Court and 43 Noffke Court, Logan Reserve.

This LFRA will detail the impacts of the proposed works on the existing overland flow regime in relation to the subject site.

1.1 Scope

This LFRA has been undertaken using the following scope:

- Model Development
  - Develop a local TUFLOW model based off Council Schmidts Creek model to ensure impact is assessed at a detailed level;
- Review of Model Results
  - Review of modelling results, including water level impacts, velocity impacts, hazards and modelling inefficiencies;
- Report and Mapping
  - Presentation of pre-development and post-development flow extents, depths, and velocities (where applicable);
  - Assessment of the development against Council's Flood Hazard overlay code;
- Impact assessment including afflux and risk assessment; and
  - Review of any impacts resulting from the proposal in the context of whether such afflux may give rise to potential actionable damage to surrounding properties.

2. Site Details

2.1 Property Description

The subject site is comprised of three (3) lots legally described as Lot 800 and 801 SP337868 and Lot 15 RP182451. The corresponding street address is 1-15 & 20 Calume Court and 43 Noffke Court, Logan Reserve.

The combined site is separated by the Calume Court and occupies an area of approximately 6.012 ha. The location of the subject site is shown on Figure 2.1.

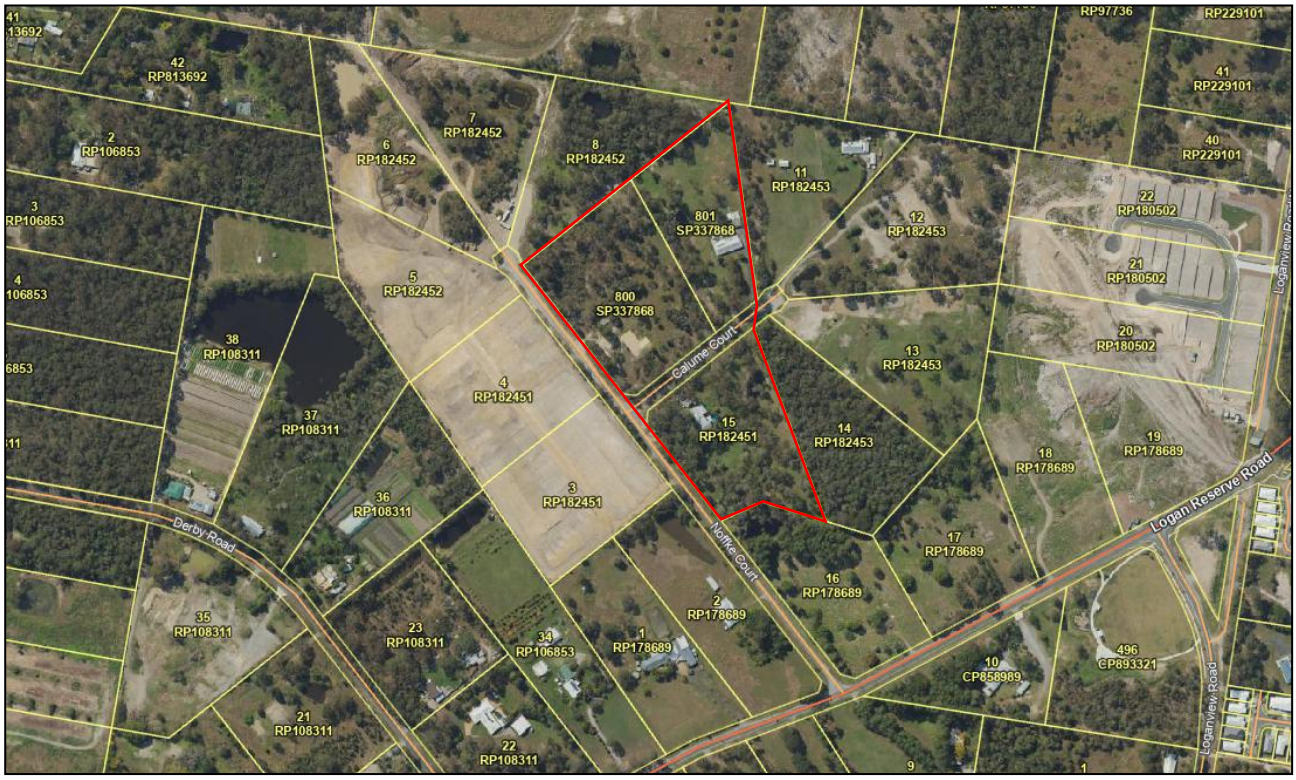


Figure 2.1 Site Locality Plan (Queensland Globe, 2025)

2.2 Development Description

The subject site is proposed to be reconfigured and developed from three (3) into 108 lots, including a stormwater treatment and detention basin.

The proposed development layout is shown below in Figure 2.2, and in Appendix B of this report.



Figure 2.2 Proposed Site Plan (Burchills, 2025)

2.3 Logan City Council Flood Mapping

Shown below in Figure 2.3 and Figure 2.4 are the Flood Risk Areas and Overland Flow Mapping provided via Logan City Councils Flood Portal.

A portion of the site along the existing waterway is within the High Flood Risk Areas and some regions on both site of the waterway corridor is identified as Low Flood Risk Areas.

The Overland Flow Mapping indicates that the site is subject to overland flow from multiple external catchments.

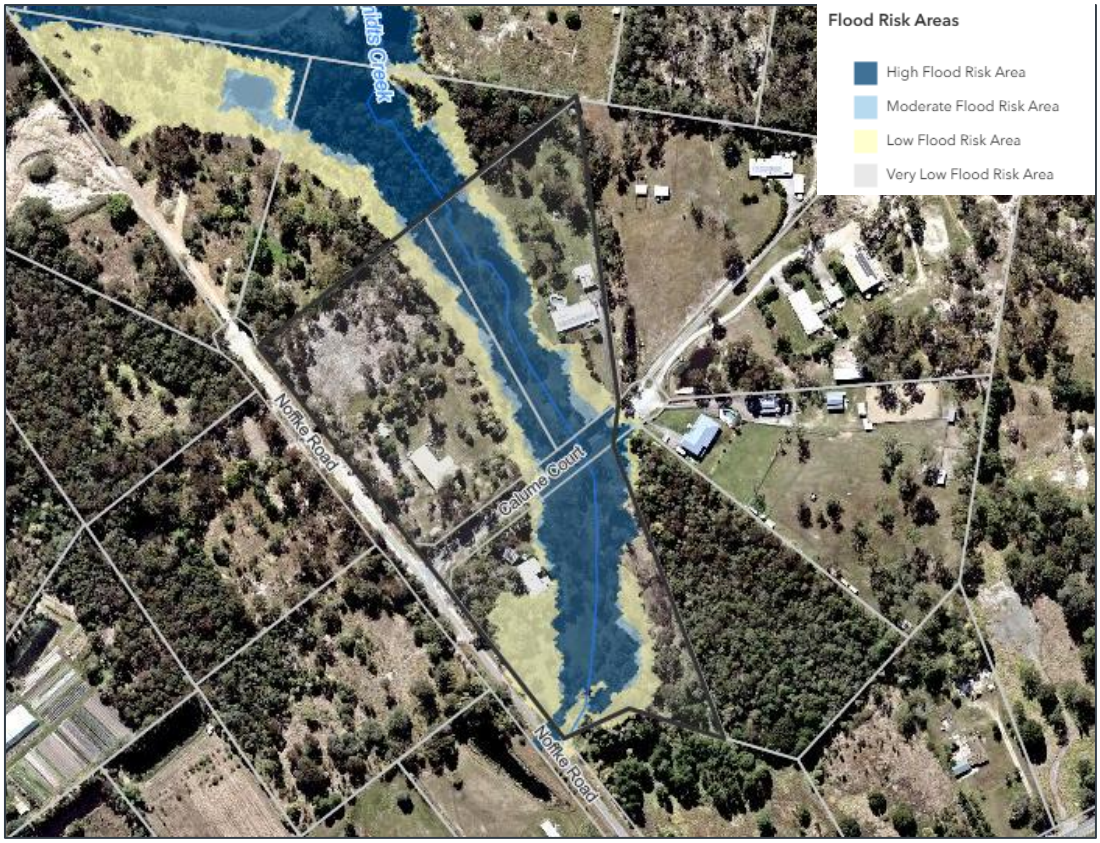


Figure 2.3 Logan City Council Flood Risk Areas Map

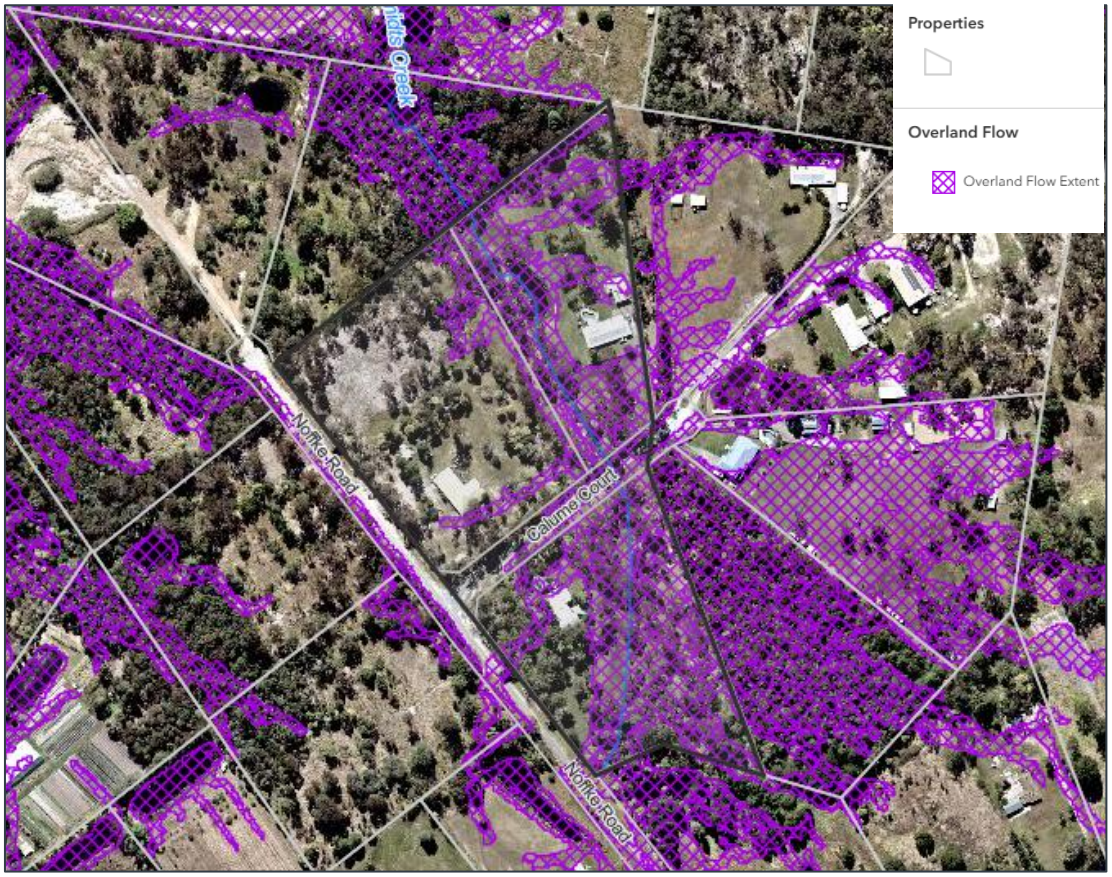


Figure 2.4 Logan City Council Overland Flow Map

3. Flood Risk Assessment Requirements

3.1 Hydraulic Impact Assessment

The purpose of this report is to assess the impact of the proposed development on the existing hydraulic regime. The local flow characteristics within the catchment have been modelled to ensure that the proposed development results in no adverse impacts on surrounding properties.

The AEP's simulated for this LFRA were the 50%, 20%, 10%, 5%, 2%, 1%, 1%CC, 0.5%, 0.2% AEP events and the PMF event. As there is a plethora of potential event durations for each AEP, the critical durations for the respective local floods were adopted for this assessment.

3.2 Regulatory Requirements and Technical Guidelines

In accordance with the Logan Planning Scheme 2015 Version 9.2 with TLPI No. 1/2024 (2025):

- Part 8.2.5 Flood hazard overlay code – The proposed development is situated within flood hazard overlay area and as such must meet all relevant requirements of the code.
- SC6.2.10 – Planning Scheme Policy 10 - Flood

Response to the Flood Hazard Overlay Code has been prepared and is included in Appendix C of this report.

The strategies proposed in HIA have also been prepared in accordance with the following guidelines:

- Queensland Urban Drainage Manual (QUDM) – Fourth Edition (IPWEAQ, 2017); and
- Australian Rainfall and Runoff – A Guide to Flood Estimation (Ball, et al., 2016).

4. Hydraulic Model

4.1 Overview

The software package TUFLOW has been used to undertake the hydraulic modelling presented in this report. For further information about TUFLOW, please refer to Appendix A.

4.2 Hydrology Summary

The hydrology input is based on Council's latest Schmidts Creek Flood Study TUFLOW model (TUFLOW Run File Reference: Schmidts_~s1~_~e1~_~e2~_~e3~_07.tcf).

The critical storms for existing and design scenario modelling under this HIA have been selected to be consistent with the critical storms under Council's latest Schmidts Creek Flood Study TUFLOW model.

4.3 Hydraulic Modelling Parameters

A TUFLOW model was developed to represent the flow behaviour of the subject waterway and environs which is locally affected by the subject site. The details of the parameters used for the TUFLOW model are presented in Table 4.1.

The pre-development and post-development model feature and roughness input are based on Council's latest Schmidts Creek Flood Study TUFLOW model.

The pre-development and post-development model feature maps along with roughness maps are presented in Appendix D.

The hydraulic model set up is detailed in the following table.

Table 4.1 Hydraulic Modelling Parameters

Parameters	Details
Scenarios	• Pre-development; and • Post-development.
Events and Critical Durations Modelled	Burchills Model (Based on Council Schmidts Creek model) • 50% AEP – 45 minutes; • 20% AEP – 45 minutes; • 10% AEP – 45 minutes; • 5% AEP – 45 minutes; • 2% AEP – 30 minutes; • 1%CC AEP – 30 minutes; • 1% AEP – 30 minutes; • 0.5% AEP – 30 minutes; • 0.2% AEP – 30 minutes; and, • PMF – 1 hour.
Topography	Pre-Development (Base Case): • 1m LiDAR – DTM (Council Schmidts Creek Model) • Detail Survey of development site over 1-15 & 20 Calume Court and 43 Noffke Court (included in appendix D) • Design Surface of downstream development (included in Appendix D). Post Development: • Burchills' Design Surface of proposed development over 1-15 & 20 Calume Court and 43 Noffke Court (included in Appendix D)

Initial Water Level	Pre-Development & Post Development • Per Council latest Schmidts Creek model
2D Resolution	• 3m grid.
Timestep	• Adaptive timestep. (HPC)
Inflows	• Hydrographs derived from Council Schmidts Creek model.
Downstream Boundary Condition	• HT Boundary
Hydraulic Structures	• Per Council latest Schmidts Creek model • Inclusion of proposed development drainage structures including stormwater network and basin as shown in Appendix D.
Surface Roughness (reflected as Manning 'n')	• 0.025 - Road Reserve • 0.200 - Specialised Centre • 0.045 - Recreation and Open Space • 0.055 - Rural Residential • 0.055 - Rural • 0.060 - Community Facilities • 0.090 - Environmental Management and Conservation • 0.100 - Low Density Residential • 0.200 - Low-Medium Density Residential • 0.300 - Centre/Industrial • 0.300 - Mixed Use • 0.050 - Vegetation - Light • 0.060 - Vegetation - Moderate • 0.080 - Vegetation - High • 0.035 - Waterway - Main (centreline) • 0.025 - Waterway - Concrete Channel • 0.025 – Waterbody • 0.250 - Emerging Community

5. Results

5.1 Pre-Development Flood Conditions

The results from the TUFLOW model determined that flood waters flow through the site's southern extents and continue to flow through the site, ultimately discharging into Schmidts Creek.

Flooding in the 1% AEP Climate Change (CC) event in the existing scenario are summarised as follows:

- Generally flooding does not occur over majority of the site and is located to the central channel;
- Peak water depths on the site reaches up to approximately 4m (at the existing pond), however, the water depths are generally less than 500mm;
- Peak velocities on site reach up to approximately 2.5 m/s at locations of hydraulic jump, however, the flow velocities are generally less than 1m/s;

The 1% AEP CC flood depth is shown below in Figure 5.1.

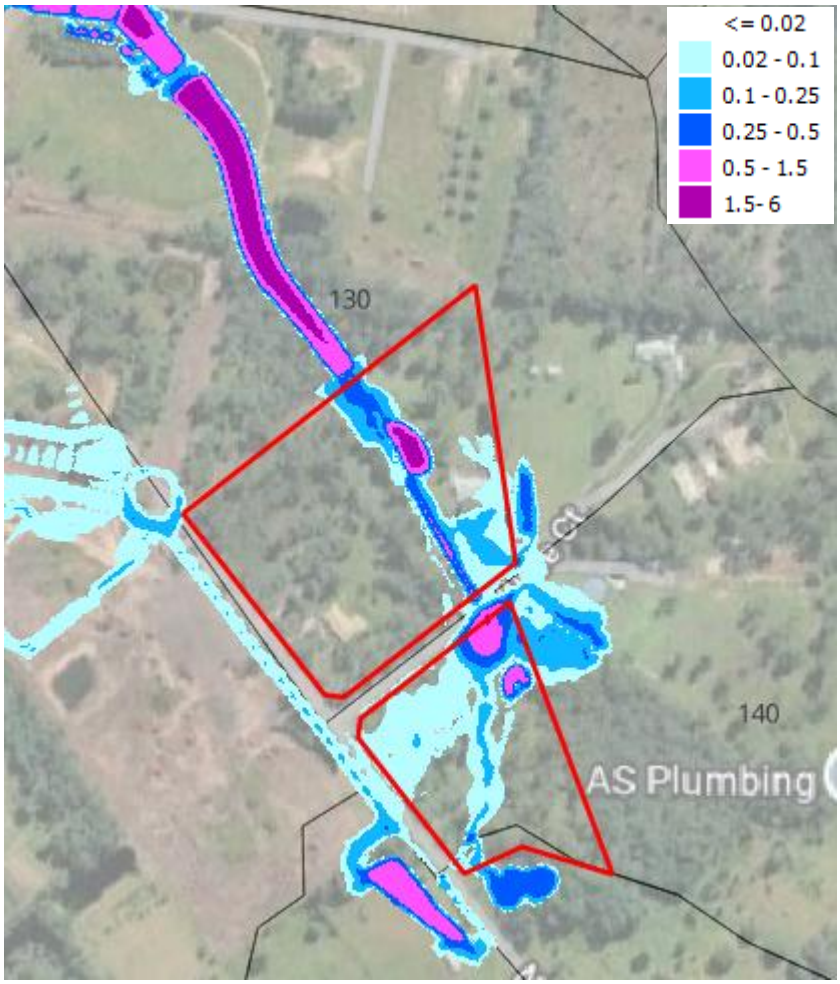


Figure 5.1 Depth Plot - 1% AEP CC Pre-Development

A velocity plot of the 1% AEP CC event is shown in Figure 5.2 below, generally low velocities are shown through the subject site, excluding those simulated in the existing overland flow path where 1% AEP CC velocities reach approximately 0.5 – 2.5 m/s.

Hydraulic model result maps including flood depth, velocity, hazard and water surface level have been included in Appendix E.

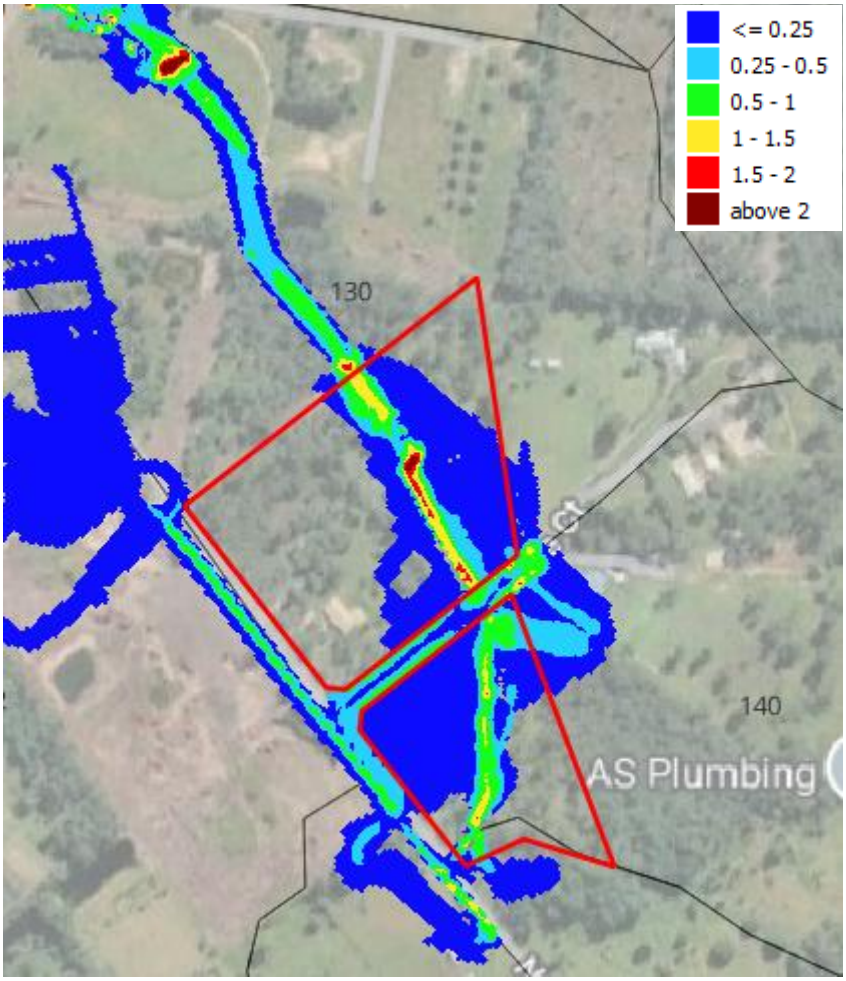


Figure 5.2 Velocity Plot - 1% AEP CC Pre-Development

5.2 Post-Development Flood Conditions

The results of the TUFLOW model determined that flood behaviour external to the site in the post-development scenario was similar to that of the pre-development scenario with some minor increases noted downstream.

The proposed development earthworks create a flood free development (lots) up to the 1% AEP CC.

The internal road corridors are utilised as overland flow flows under the 1% AEP CC design event. Per flood mapping results shown in Appendix C, flood hazard on internal roads is acceptable and compliant with QUDM depth and velocity requirements.

Cut off drains are proposed to capture and convey runoff from external catchments and direct the runoff into internal drainage. For detailed drain sizing, refer to the Burchills engineering drawings in Appendix B.

A detention basin is proposed near the northern extent of the subject lot, which reduces the increased runoff from site prior to discharging into the future drainage channel/detention system downstream (approved under MCUI/12/2023).

It should be noted that the proposed detention basin and the detention system downstream should be assessed as a combined detention system working together to ensure peak flood levels in the broader downstream area are maintained post-development.

The 1% AEP flood depth is shown below in Figure 5.3 below

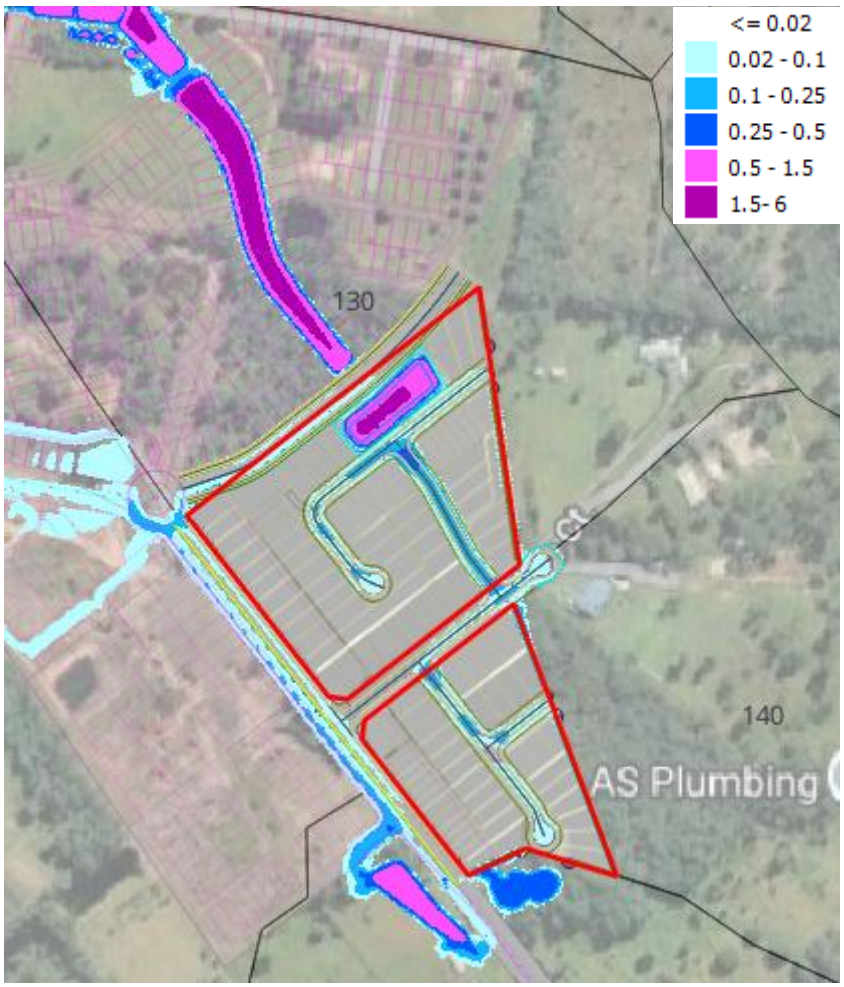


Figure 5.3 Depth Plot - 1% AEP CC Post-Development

A velocity plot of the 1% AEP event is shown in Figure 5.4 below

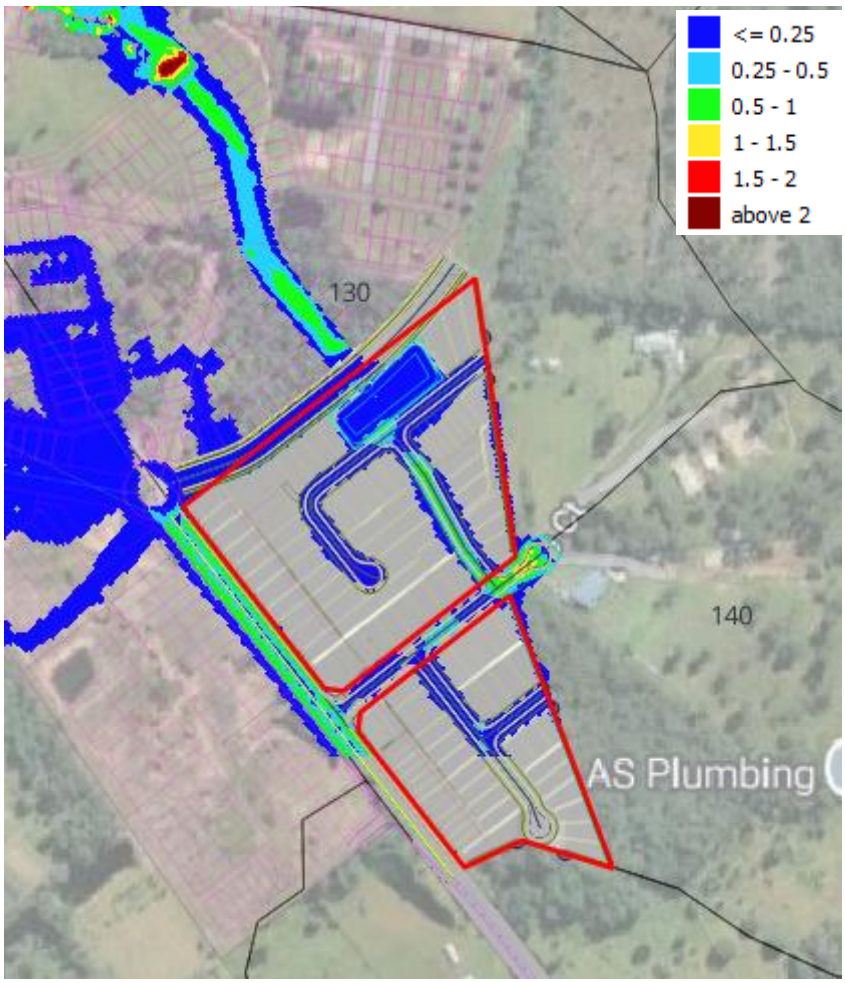


Figure 5.4 Velocity Plot - 1% AEP CC Post-Development

5.2.1 Hydraulic Impact Analysis

Water Level Afflux

Water levels at the properties external to the subject site in the 1% AEP CC event are generally similar between the pre-development and post-development scenario.

The modelling results indicate that there is a small increase in peak water level at the northern site boundary within the future drainage channel/detention system downstream (approved under MCUI/12/2023) in all events up to the 1% AEP CC event as a result of the proposed development.

A summary of the water level afflux occurred at the future drainage channel/detention system in the northern property are included in the following table.

Table 5.1 Maximum Water Level Afflux at Northern Property

Event	Impact (Increasing)
1% Climate Change (4.5% increase)	49mm
1% AEP	32mm
2%	20mm
5%	19mm
10%	40mm
20%	65mm
50%	12mm

The model results indicate that this drainage corridor is adequate to accept the water level afflux due to the proposed development. Freeboard to future development lots within the northern property is not compromised.

All flood impacts are dissipated by the time that flows reach the regional Schmidts Creek highlighting the effective performance of the joint detention system in mitigating flows on a regional scale.

In addition, the modelling results indicate decrease in water level (flood improvement) to the development area northwest from the subject site.

The modelling results also indicate that there an increase in peak water level within Noffke Road along the western site boundary. This is due to the proposed upgrade of Noffke Road and is not considered actionable with all flood conditions being within the requirements of QUDM.

Shown in Figure 5.5 below is a plot of the peak water level afflux experienced in the 1% AEP CC event.

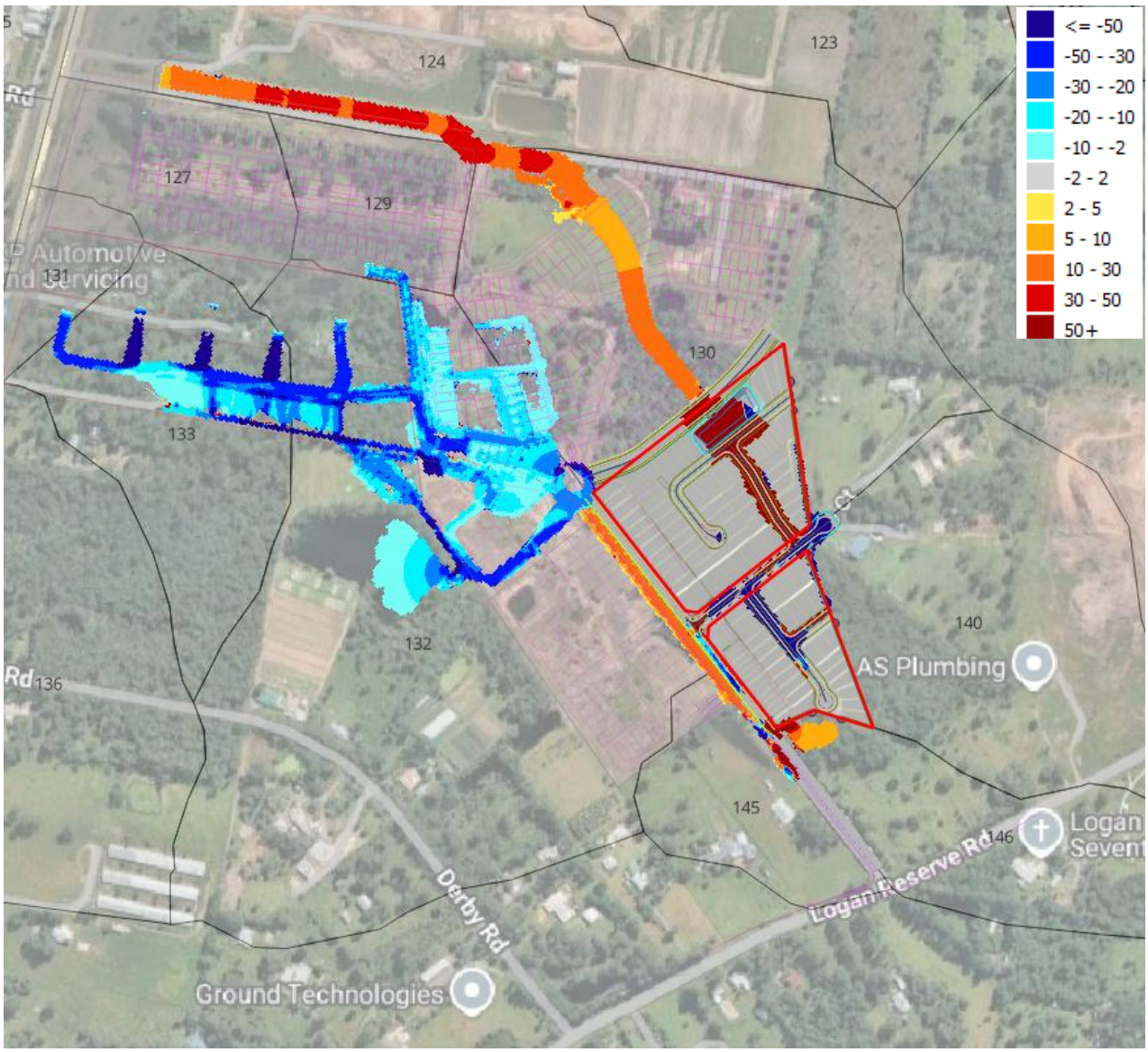


Figure 5.5 Afflux Plot - 1% AEP CC Event

Water Velocity Afflux

The modelling results indicate that there is negative afflux in peak water velocity located at the downstream property boundary in the 1% AEP CC event as a result of the proposed development, compliant with the Flood Hazard Overlay Code.

Shown in Figure 5.6 below is a plot of the peak water velocity afflux experienced in the 1% AEP CC event.

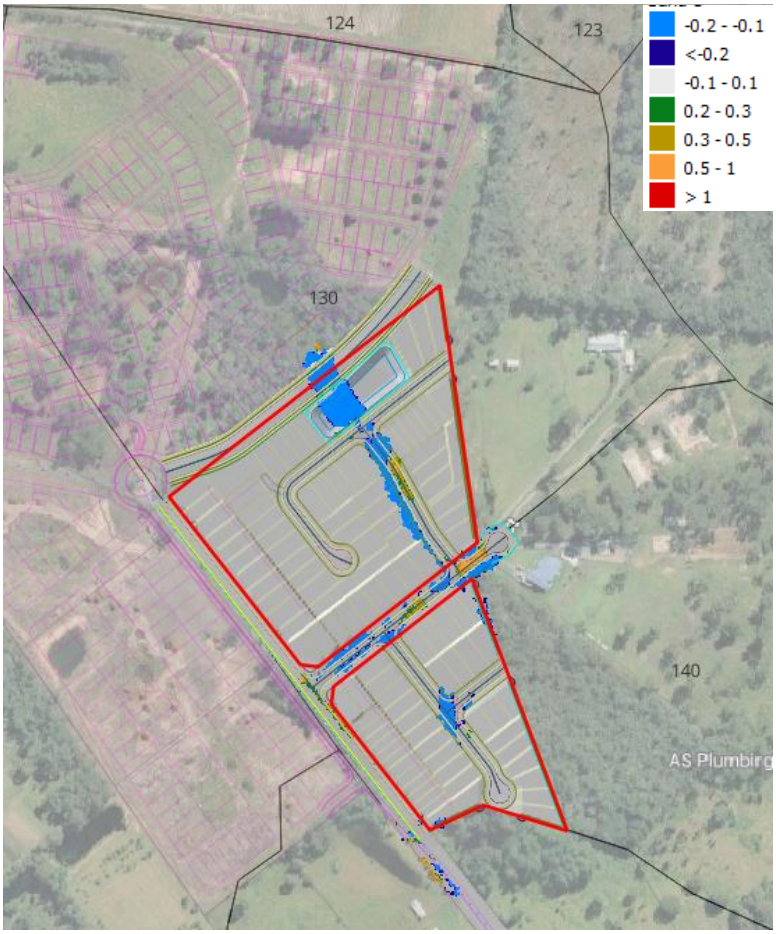


Figure 5.6 Afflux Plot - 1% AEP CC Event

In conclusion, the flood impacts associated with the proposed development is not expected to give rise to any actionable nuisance to adjacent properties.

5.3 Flood Storage

In accordance with the Logan Planning Scheme Flood Hazard Overlay Code, the existing flood storage over the subject site is to be maintained in the post-development scenario.

The pre-development flood storage is assessed as 2960.6m^3 and the post-development flood storage is assessed as 2748.7m^3, the proposed development results in a decrease of 212 m^3 in flood storage.

However, this difference in flood storage is proposed to be compensated via allowing flood storage in the proposed underground pipe network. The proposed development includes dual 1050mm diameter stormwater pipes with a length of approximately 138m, providing a flood storage volume of approximately 239 m^3, larger than the decrease in overlay flood storage due to the proposed development.

Therefore, the flood storage post-development can be maintained and comply with the Flood Hazard Overlay Code.

6. Conclusion

Based on the hydraulic modelling results presented in this report, the following conclusions have been made:

- The modelling results indicate that the development will cause an increase of peak water level immediately downstream at the property's northern boundary, and along the western boundary within the Noffke Road corridor;
- The water level impacts modelled in the northern adjacent property are located within the future drainage channel and do not impact future developability/viability of this parcel;
- The modelling results also indicate that there an increase in peak water level within Noffke Road along the western site boundary. This is due to the proposed upgrade of Noffke Road and is not considered actionable with all flood conditions being within the requirements of QUDM;
- The modelling results indicate decrease in water level (flood improvement) to the development area northwest from the subject site;
- The modelling results indicate that there is negative afflux in peak water velocity (improvement) located at the downstream property boundary as a result of the proposed development;
- All flood impacts are dissipated by the time that flows reach the regional Schmidts Creek highlighting the effective performance of the joint detention system in mitigating flows on a regional scale.
- The modelling results have indicated that the development does not cause any impact to occur on any external residential dwellings;
- the flood impacts associated with the proposed development is not expected to give rise to any actionable nuisance to adjacent properties; and
- The flood storage post-development is maintained with allowance storage within the underground stormwater pipes.

7. General Issues and Uncertainty

Design floods are hypothetical floods used for planning and floodplain management investigations. They are based on having a probability of occurrence specified either as:

- Annual Exceedance Probability (AEP) expressed as a percentage; or
- An Average Recurrence Interval (ARI) expressed in years.

This report uses the both ARI and AEP terminology. The table below provides a definition of AEP and the ARI equivalents mentioned in this report.

Table 7.1AEP and ARI Terminology

	AEP	ARI	Comments
Medium to Large Floods	20%	5 year	A hypothetical flood or combination of floods which is likely to have a 20% chance of occurring in any one year or, in other words, is likely occur once every 5 years on average.
	10%	10 year	A hypothetical flood or combination of floods which is likely to have a 10% chance of occurring in any one year or, in other words, is likely occur once every 10 years on average.
	5%	20 year	A hypothetical flood or combination of floods which is likely to have a 5% chance of occurring in any one year or, in other words, is likely occur once every 20 years on average.
	2%	50 year	A hypothetical flood or combination of floods which is likely to have a 2% chance of occurring in any one year or, in other words, is likely occur once every 50 years on average.
	1%	100 year	A hypothetical flood or combination of floods which is likely to have a 1% chance of occurring in any one year or, in other words, is likely occur once every 100 years on average.
Rare to Extreme Floods	0.2%	500 year	A hypothetical flood or combination of floods which is likely to have a 0.2% chance of occurring in any one year or, in other words, is likely occur once every 500 years on average.
Probable Maximum Flood	0%	1,000,000 year[1]	A hypothetical flood or combination of floods which represent a theoretical 'worst case' scenario. It is only used for special purposes (e.g. design of a dam spillway) where a high factor of safety is recommended, or in consideration of floodplain planning (e.g. evacuation and isolation of communities).

The interpretation of the flood maps and other design modelling results presented in this report should be done with an appreciation of any limitations in their accuracy. While the points below highlight these limitations, it is important to note that the results presented provide an up-to-date reliable and accurate prediction of design flood behaviour. Key elements are:

- Hydrologically determined inflows were not used within the refined hydraulic model. Instead, flows were derived from a local flood study report and used to calibrate at gauged locations within the model.
- Recognition that no two floods behave in exactly the same manner;
- Design floods are a best estimate of an 'average' flood for their probability of occurrence;

- The DEM has been generated from ALS data with a reported vertical accuracy of +/- 0.15 metre and interpolated in areas of dense vegetation. As flood depths and flood extents are determined using the DEM, their accuracy should be interpreted accordingly;
- The purpose of the Flood Risk Assessment is to represent regional flooding behaviour. Hence the resolution of the model is limited in urban areas. In particular, the flood model generally does not account for minor stormwater drainage infrastructure, such as street drainage. As such, urban areas may also experience local stormwater flooding in addition to the regional flooding presented in the flood maps; and
- The results are based on available data and numerical tools at the time of this report. Changes in technology and improved data collection may provide more accurate modelling in the future.

The accuracy of the hydrologic and hydraulic computer models is dependent on the amount and range of reliable rainfall and flood level recordings for model calibration. An uncalibrated model's results have a greater error margin than a calibrated model. The error margin in this Flood Risk Assessment is regarded as 'moderate' based on the following factors:

- The model parameters are generally typical of those used elsewhere; and
- The vertical accuracy of the ALS data used to develop the DEM.

Appendix A Further Information and Methods

A.1 TUFLOW

The 2D hydraulic modelling software package TUFLOW has been used to undertake the hydraulic modelling undertaken as part of this report.

TUFLOW solves the full 2D shallow water equations based on the scheme developed by Stelling (1984) and improved by Syme (1991) and Syme et al (1999). The solution is based around the alternating direction implicit finite difference method. A square grid is used to define the discretisation of the computational domain.

Improvements to the Stelling scheme (Stelling, 1984), including a robust wetting and drying algorithm and greater stability at oblique boundaries, and the ability to dynamically link a quasi-2D model were developed by Syme (1991). Further improvements including the insertion of 1D elements or quasi-2D models inside a 2D model, the modelling of constrictions on flow such as bridges and large culverts and automatic switching to upstream controlled weir flow have been developed subsequently.

TUFLOW models have been successfully checked against rigorous test cases (Syme 1991, Syme et al 1998 and WBM 2000), and calibrated and applied to a large range of real-world tidal and flooding applications. TUFLOW has the capability to dynamically link 2D domains to quasi-2D models as well as having numerous 2D domains with varying grid sizes dynamically nested.

Hydraulic structure flows (i.e. through large culverts and bridges) are modelled in 2D and include the effects of bridge decks and submerged culvert flow. Flow over roads, levees, bunds, etc is modelled using the broad-crested weir formula when the flow is upstream controlled. For smaller hydraulic structures such as pipes, 1D elements can be inserted at any points inside the 2D model area. Flow over a bridge or culvert that is modelled in 2D can be represented using a 1D weir equation.

Setting up a hydraulic model involves:

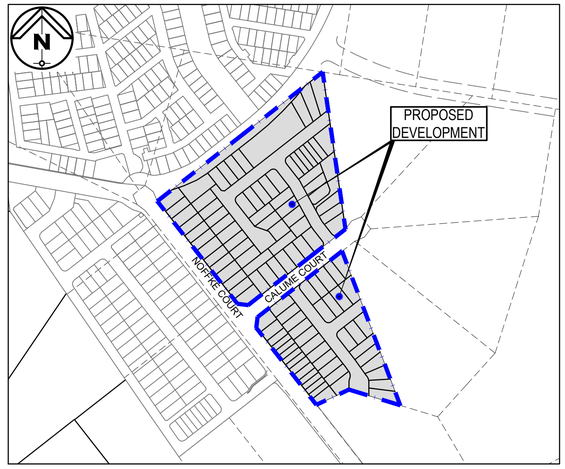
- Determining appropriate model extents;
- Creating a DEM of the model domain;
- Incorporating the post development floodplain roughness values as well as the topographic conditions post development;
- Allocation of model flow boundaries; and
- Application of appropriate flow resistance values (Manning's Coefficient of Roughness).
- The manning's roughness coefficients are developed with respect to the information provided in Open Channel Hydraulics (Chow, 1959), Natural Channel Design (Brisbane City Council, 2003), and the Road Drainage Manual (DTMR, 2010).

Appendix B Burchills Engineering Civil Design Drawings

PROPOSED LAND SUBDIVISION
AT 1-15 & 20 CALUME COURT AND 43-61 NOFFKE COURT
LOGAN RESERVE, QUEENSLAND

CONCEPT ENGINEERING DRAWINGS
PRELIMINARY DRAWING PACKAGE NO. BE250124

DRAWING INDEX	
SHEET NUMBER	DESCRIPTION
INTERNAL	
C000	COVER SHEET, LOCALITY PLAN, DRAWING INDEX
C200	BULK EARTHWORKS LAYOUT PLAN
C210	BULK EARTHWORKS SECTIONS
C220	EARTHWORKS NOTES AND DETAILS
C300	ROADWORKS AND DRAINAGE LAYOUT PLAN
C301	TYPICAL ROAD CROSS SECTIONS
C370	SWEPT PATH LAYOUT PLAN
C430	STORMWATER NOTES AND DETAIL
C450	BIO BASIN PLAN AND SECTIONS
C451	BIO BASIN TYPICAL DETAILS
C500	WATER RETICULATION LAYOUT PLAN
C600	SEWER RETICULATION LAYOUT PLAN
EXTERNAL ROADWORKS	
C800	PRELIMINARY COLLECTOR ROAD PLAN AND DETAIL
C810	PRELIMINARY COLLECTOR ROAD LONGITUDINAL SECTION
C820	PRELIMINARY COLLECTOR ROAD CROSS SECTION SHEET 1
C822	PRELIMINARY COLLECTOR ROAD CROSS SECTION SHEET 2



LOCALITY PLAN

N.T.S.

NOTE:
CONCEPTUAL ENGINEERING DESIGNS HAVE BEEN PREPARED USING LIDAR DATA IN LIEU OF SURVEY.

PREPARED FOR

GDM PROPERTY

PREPARED BY

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FAX: +61 7 5509 6411
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COOTE BURCHILLS ENGINEERING PTY LTD
ABN 76 166 942 365

PROJECT No.:	DRAWING No. :	VERSION:	DATE :
BE250124	C000	B	28-10-25

LEGEND

- EXISTING LOT BOUNDARY
- EXISTING SURFACE CONTOURS
- EXISTING FENCE
- EXISTING TELTRA
- EXISTING STORMWATER
- EXISTING ELECTRICITY
- EXISTING COMMS
- PROPOSED EASEMENT
- PROPOSED ROAD CONTROL LINE
- PROPOSED INVERT OF KERB
- PROPOSED RETAINING WALL (0.6m - 2.0m)
- PROPOSED SWALE
- AVID DESIGN

EARTHWORKS LEGEND

-2.5 TO -2.0 m		0.0 TO 0.5 m	
-2.0 TO -1.5 m		0.5 TO 1.0 m	
-1.5 TO -1.0 m		1.0 TO 1.5 m	
-1.0 TO -0.5 m		1.5 TO 2.0 m	
-0.5 TO 0.0 m		2.0 TO 2.5 m	

CONCEPT BULK EARTHWORKS SUMMARY

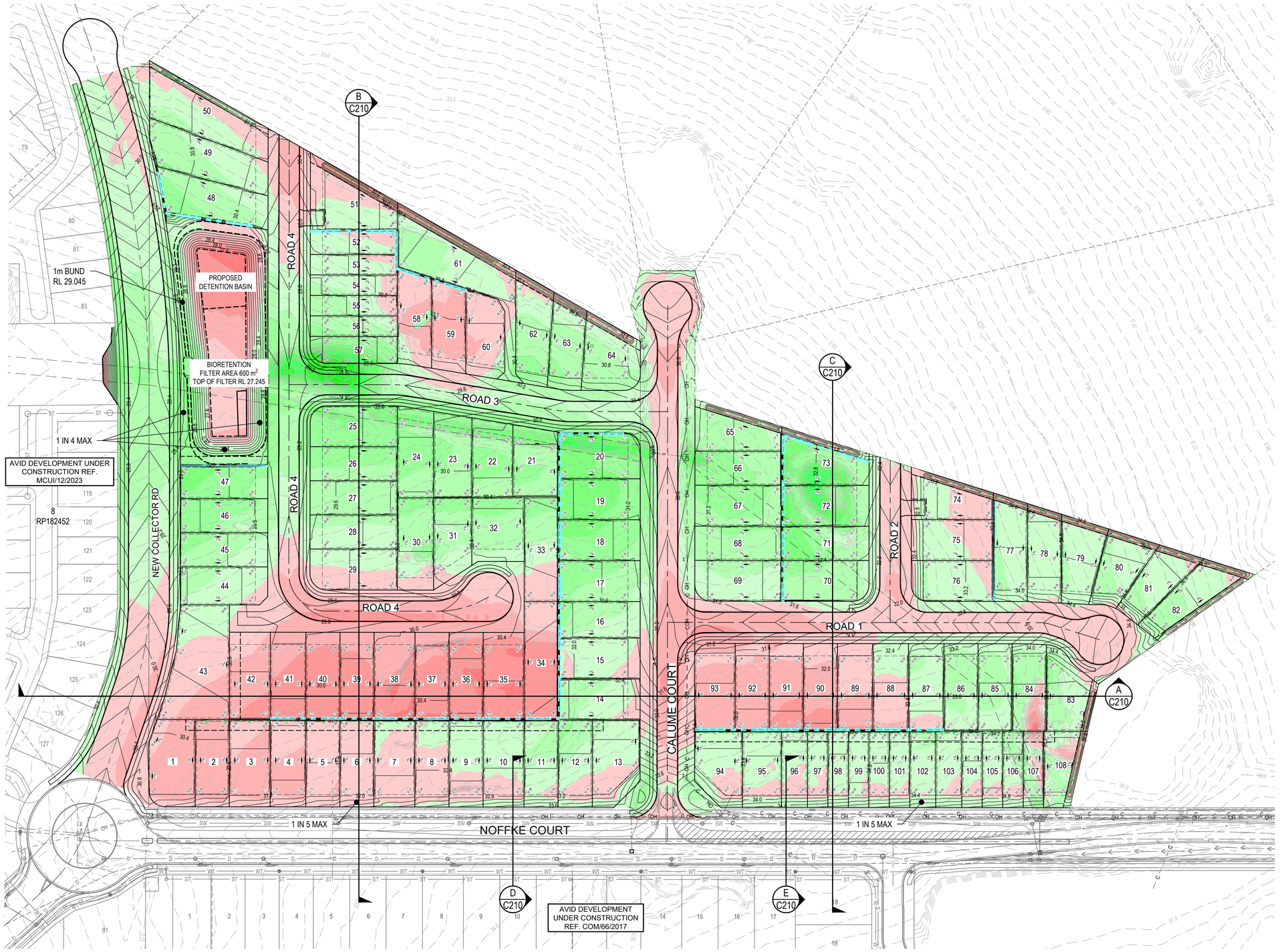
STRUCTURAL FILLING

AREA	NETT SOLID FILL
OVERALL FILLING	27.336 cu.m.

EXCAVATION

AREA	NETT CUT
OVERALL EXCAVATION	14,260 cu.m.

SUMMARY:
27,336 cu.m - 14,260 cu.m = 13,076cu.m IMPORT REQUIRED FOR COMPLETION OF EARTHWORKS.
INCLUDING 300mm ROAD BOXING DEPTH
INCLUDING 125mm TOPSOIL STRIP



BULK EARTHWORKS LAYOUT PLAN

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A	ISSUE FOR INFORMATION	22-09-25

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ABN 76 166 942 365

CLIENT : GDM PROPERTY

DRAWING TITLE : BULK EARTHWORKS LAYOUT PLAN

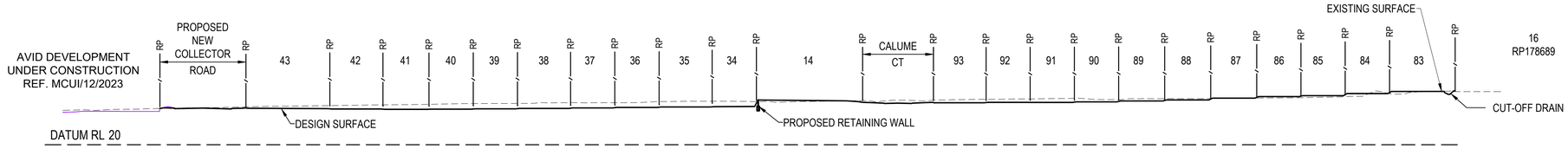
PROJECT : 1-15 & 20 CALUME COURT AND 43-61 NOFFKE COURT, LOGAN RESERVE

PRELIMINARY
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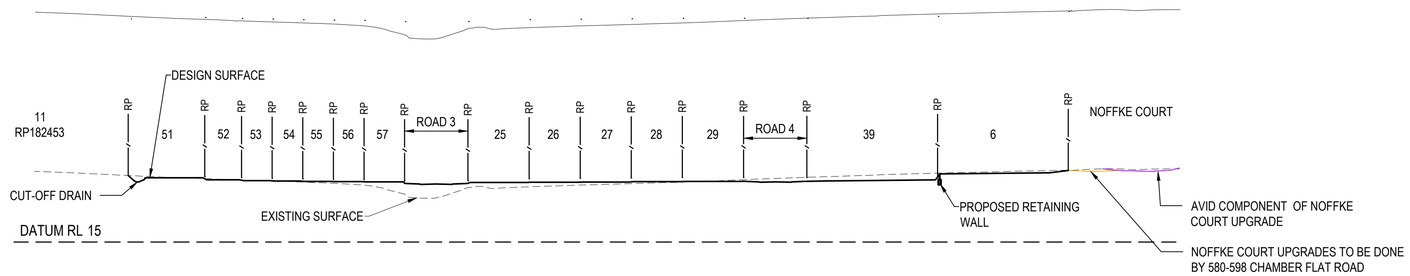
SCALE AT FULL SIZE (A1) :
10 0 5 10 15 20 25 30 35m
1 : 750 (FULL SIZE)

DEVEL. APPLIC. No. :
DATE : 28-10-25
PROJECT LEADER : FRASER LUCAS
DESIGNER : TG
DRAFTSPERSON : MT
CHECKED : HARRISON LISTER
APPROVED FOR AND ON BEHALF OF BURCHILLS ENGINEERING SOLUTIONS ABN 76 166 942 365

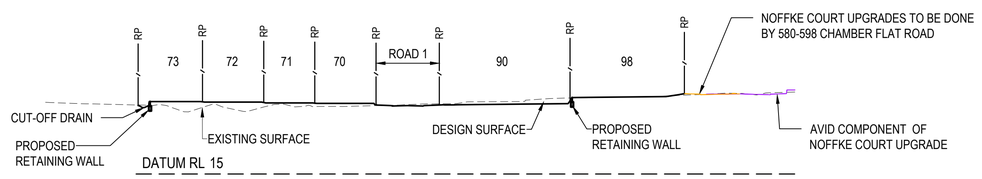
PROJECT No.: BE250124
DRAWING No. : C200
VERSION: B



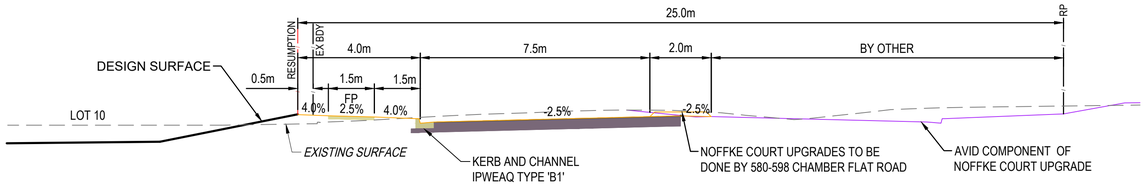
A C200 SECTION
SCALE 1:750



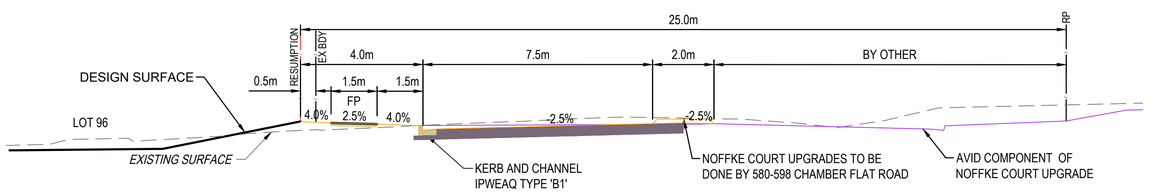
B C200 SECTION
SCALE 1:750



C C200 SECTION
SCALE 1:750



D C200 SECTION
SCALE 1:100



E C200 SECTION
SCALE 1:100

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ABN 76 166 942 365

CLIENT :
GDM PROPERTY

DRAWING TITLE :
BULK EARTHWORKS SECTIONS

PROJECT :
1-15 & 20 CALUME COURT AND 43-61 NOFFKE COURT, LOGAN RESERVE

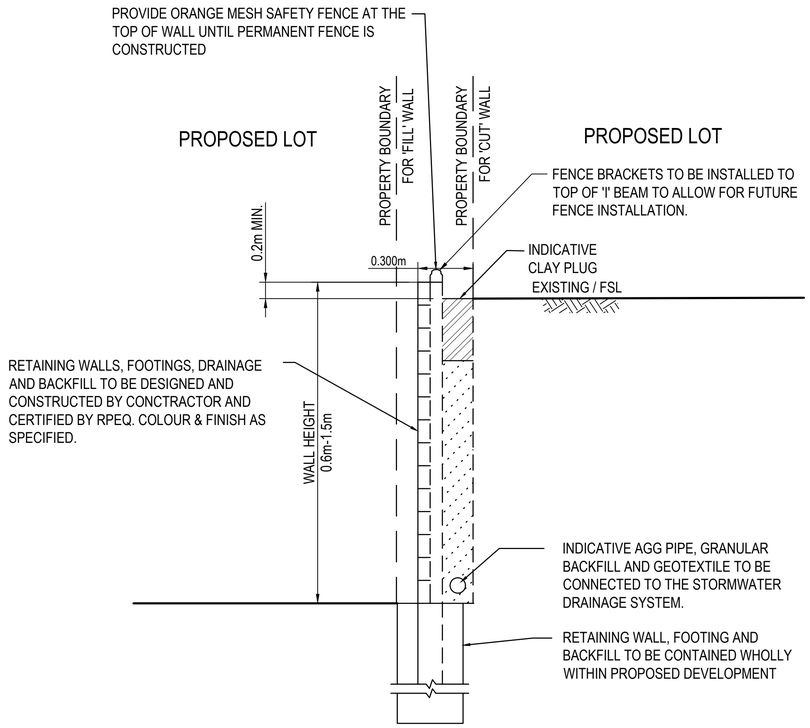
PRELIMINARY
NOT FOR CONSTRUCTION OR TENDER

SCALE AT FULL SIZE (A1) :
1 0 1 2 3 4 5m
1 : 100 (FULL SIZE)
10 0 5 10 15 20 25 30 35m
1 : 750 (FULL SIZE)

DEVEL. APPLIC. No. :
DATE : 28-10-25
PROJECT LEADER : FRASER LUCAS
DESIGNER : TG
DRAFTSPERSON : MT
CHECKED : HARRISON LISTER

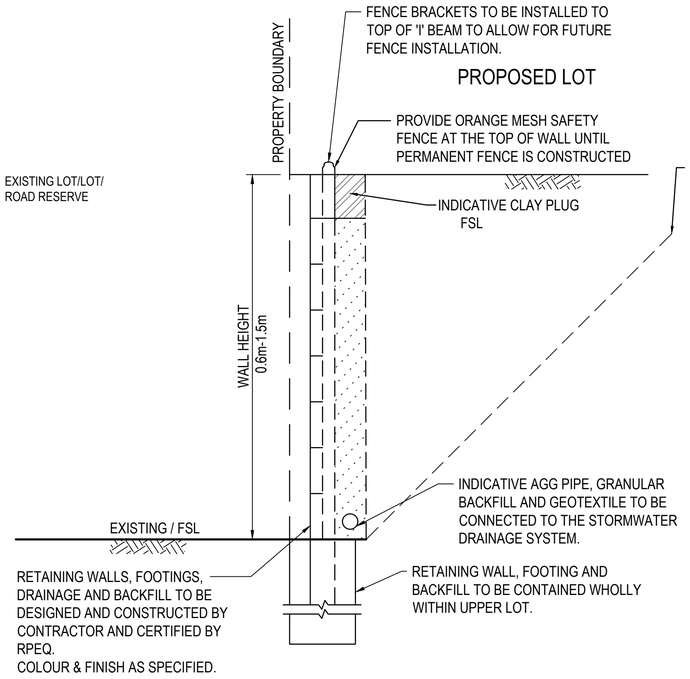
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PROJECT No.: BE250124
DRAWING No. : C210
VERSION: B



RETAINING WALL CONFIGURATION
- BETWEEN PROPOSED LOT AND ADJACENT PRIVATE PROPERTY

NTS



RETAINING WALL CONFIGURATION
- BETWEEN PROPOSED LOTS

NTS

NOTE:
RETAINING WALL DESIGN, CONSTRUCTION, SUPERVISION AND CERTIFICATION TO BE PROVIDED BY SPECIALIST SUB-CONTRACTOR.

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CLIENT :
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DRAWING TITLE :
EARTHWORKS NOTES AND DETAILS

PROJECT :
1-15 & 20 CALUME COURT AND 43-61 NOFFKE COURT, LOGAN RESERVE

PRELIMINARY
NOT FOR CONSTRUCTION OR TENDER

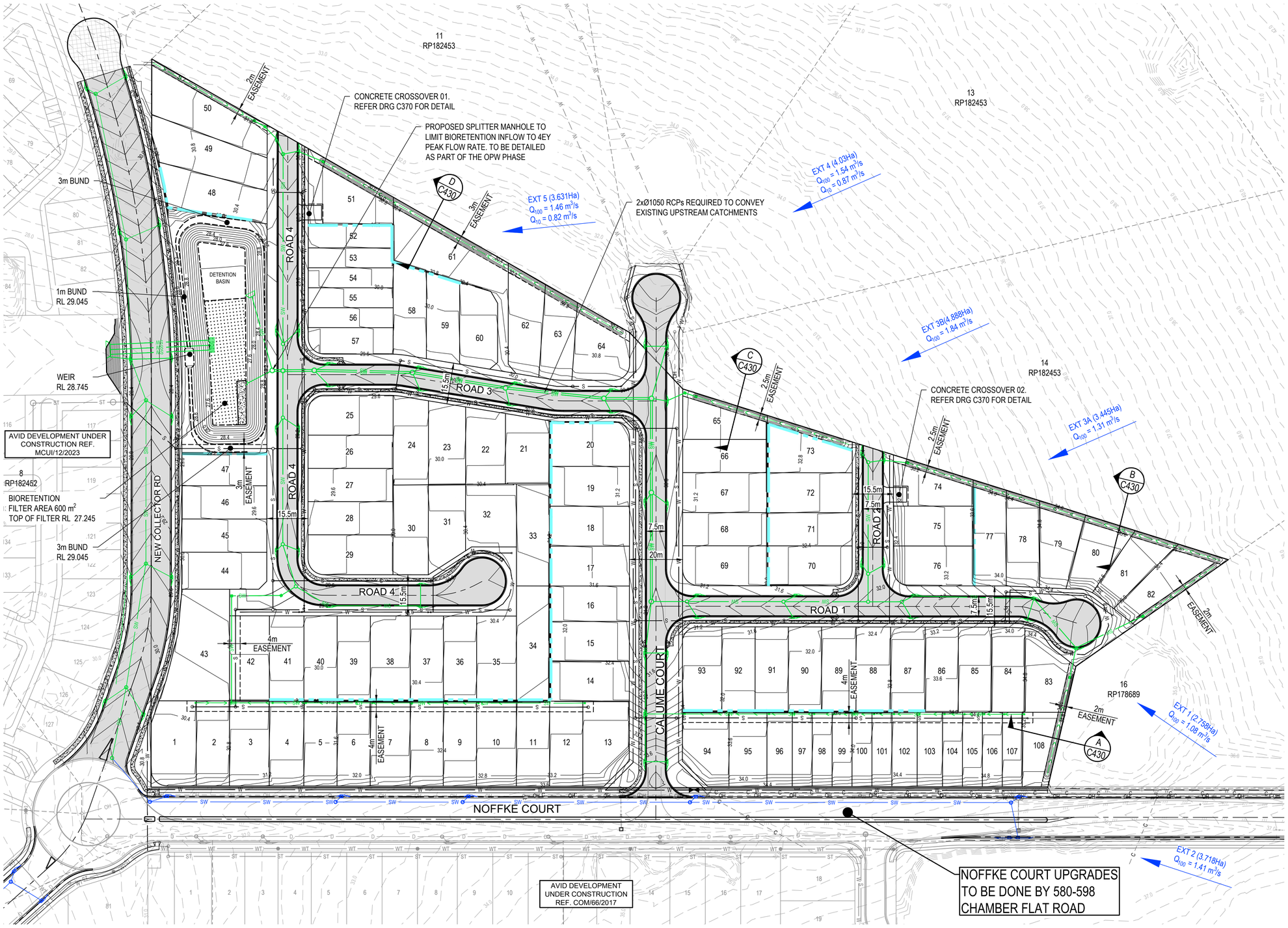
SCALE AT FULL SIZE (A1) :

DEVEL. APPLIC. No. :
DATE : 28-10-25
PROJECT LEADER : FRASER LUCAS
DESIGNER : TG
DRAFTSPERSON : MT
CHECKED : HARRISON LISTER
APPROVED FOR AND ON BEHALF OF BURCHILLS ENGINEERING SOLUTIONS ABN 76 166 942 365

PROJECT No.: BE250124
DRAWING No. : C220
VERSION: B

LEGEND

- EXISTING LOT BOUNDARY
- EXISTING SURFACE CONTOURS
- EXISTING FENCE
- EXISTING TELTRA
- EXISTING STORMWATER
- EXISTING ELECTRICITY
- EXISTING COMMS
- PROPOSED EASEMENT
- PROPOSED ROAD CONTROL LINE
- PROPOSED INVERT OF KERB
- PROPOSED RETAINING WALL
- PROPOSED SWALE
- PROPOSED STORMWATER
- PROPOSED LLZ DN150 WATER
- PROPOSED HLZ DN150 WATER
- PROPOSED SEWER
- PROPOSED EXTERNAL STORMWATER (TO BE DONE BY 580-598 CHAMBER FLAT ROAD)
- AVID DESIGN
- PROPOSED TRUNK WATER (BY OTHER)
- PROPOSED TRUNK SEWER (BY OTHER)
- PROPOSED ASPHAL PAVEMENT
- PROPOSED FOOTPATH



ROADWORKS AND DRAINAGE LAYOUT PLAN

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ABN 76 166 942 365

CLIENT : GDM PROPERTY

DRAWING TITLE : ROADWORKS AND DRAINAGE LAYOUT PLAN

PROJECT : 1-15 & 20 CALUME COURT AND 43-61 NOFFKE COURT, LOGAN RESERVE

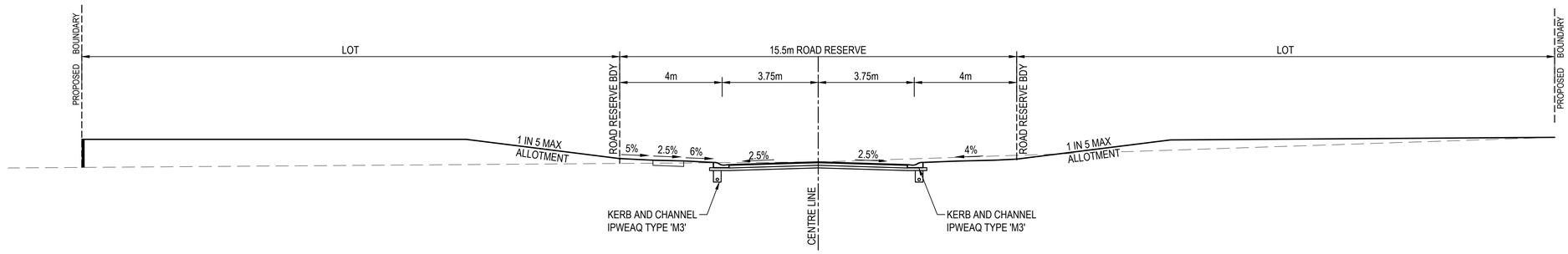
PRELIMINARY
NOT FOR CONSTRUCTION OR TENDER

SCALE AT FULL SIZE (A1) : 1 : 750 (FULL SIZE)

DEVEL. APPLIC. No. :	DATE : 28-10-25
PROJECT LEADER : FRASER LUCAS	DESIGNER : TG
DRAFTSPERSON : MT	CHECKED : HARRISON LISTER

APPROVED FOR AND ON BEHALF OF BURCHILLS ENGINEERING SOLUTIONS ABN 76 166 942 365

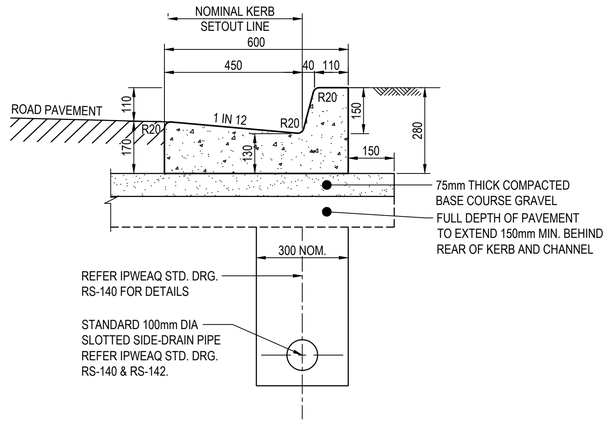
PROJECT No.:	DRAWING No. :	VERSION:
BE250124	C300	B



TYPICAL CROSS SECTION
15.5m K-K ACCESS STREET

1 0 1 2 3 4 5m

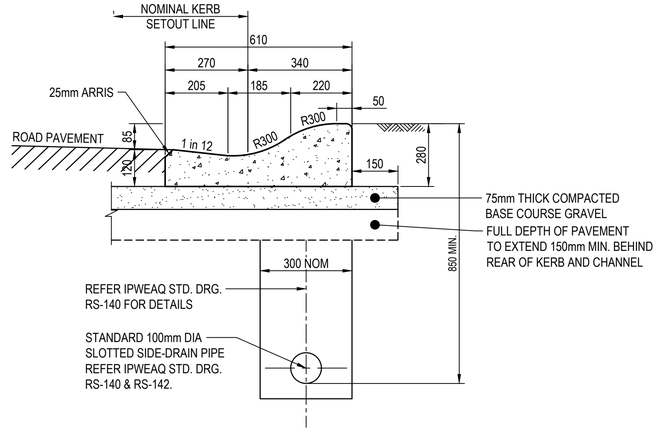
1 : 100 (FULL SIZE)



TYPICAL SECTION 'TYPE B1'
BARRIER KERB AND CHANNEL

0.1 0 0.1 0.2 0.3 0.4 0.5m

1 : 10 (FULL SIZE)



TYPICAL SECTION 'TYPE M3'
KERB AND CHANNEL (ROLL TOP)

0.1 0 0.1 0.2 0.3 0.4 0.5m

1 : 10 (FULL SIZE)

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ABN 76 166 942 365

CLIENT :
GDM PROPERTY

DRAWING TITLE :
TYPICAL ROAD CROSS SECTIONS

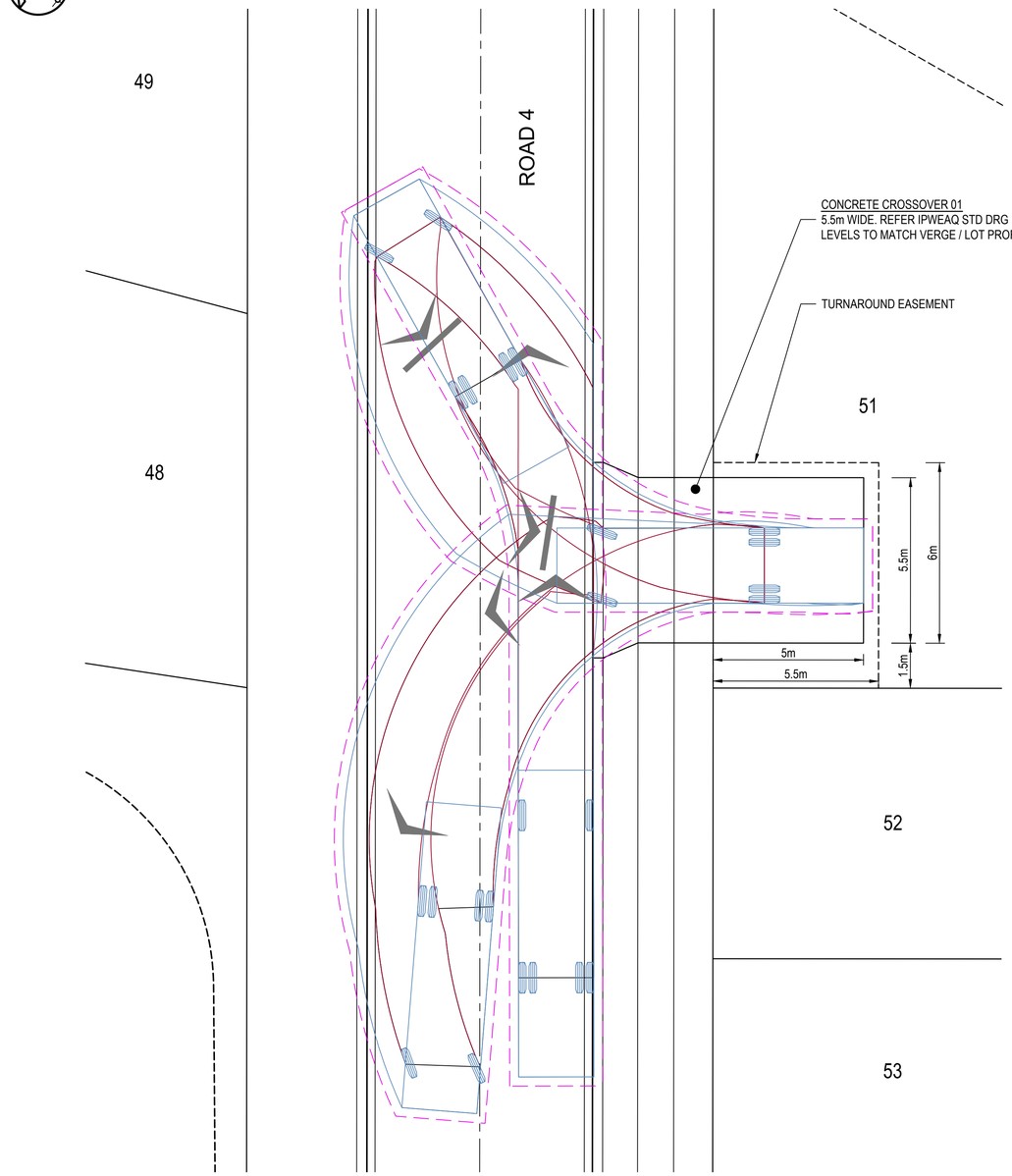
PROJECT :
1-15 & 20 CALUME COURT AND 43-61 NOFFKE COURT, LOGAN RESERVE

PRELIMINARY
NOT FOR CONSTRUCTION OR TENDER

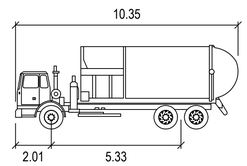
SCALE AT FULL SIZE (A1) :
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1 : 750 (FULL SIZE)

DEVEL. APPLIC. No. :
DATE : 28-10-25
PROJECT LEADER : FRASER LUCAS
DESIGNER : TG
DRAFTSPERSON : MT
CHECKED : HARRISON LISTER
APPROVED FOR AND ON BEHALF OF
BURCHILLS ENGINEERING SOLUTIONS ABN 76 166 942 365

PROJECT No.: BE250124
DRAWING No. : C301
VERSION: B

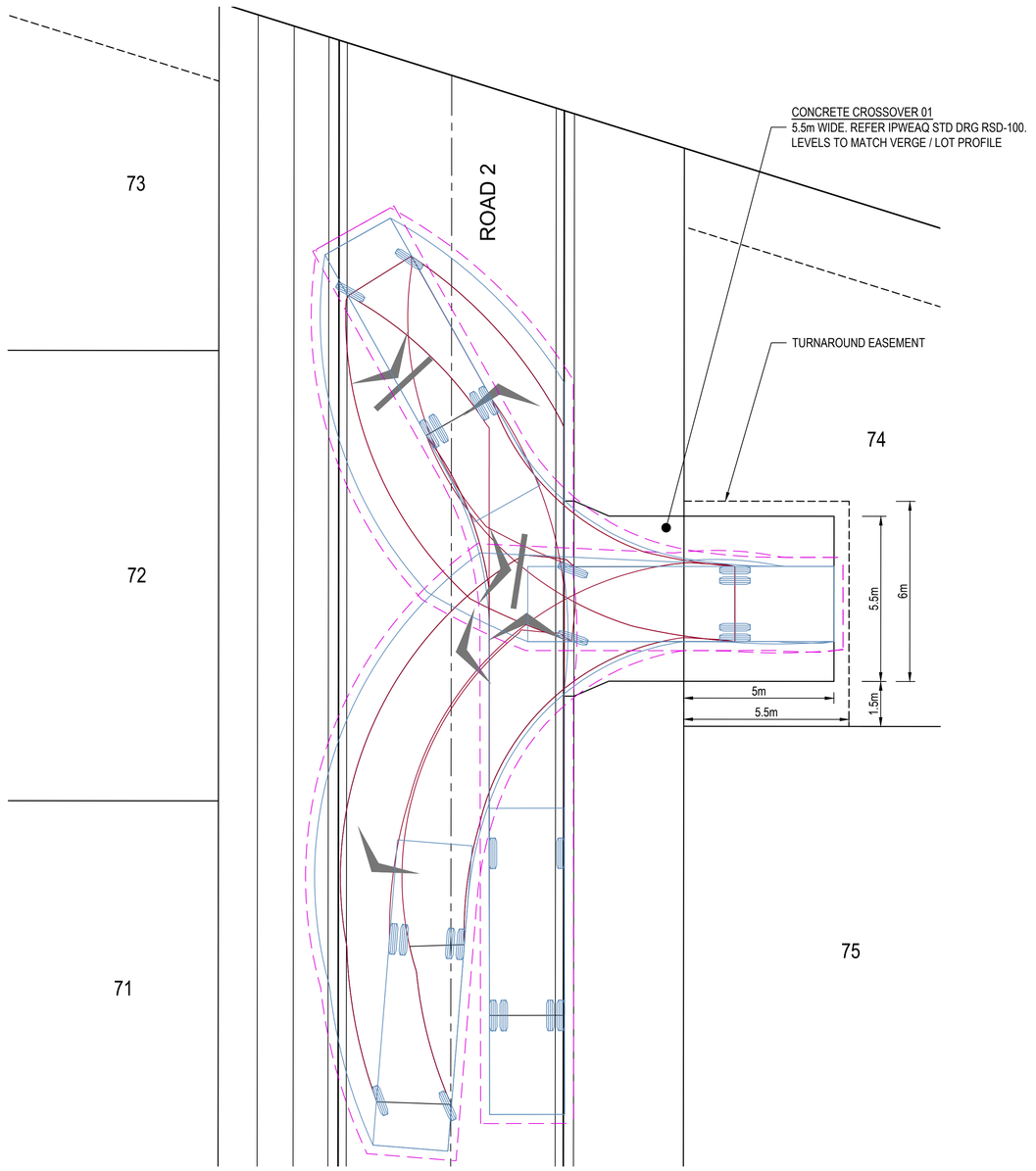


CONCRETE CROSSOVER 01



LCC Table 2 Refuge Vehicle

		meters
Width	:	2.45
Track	:	2.45
Lock to Lock Time	:	6.0
Steering Angle	:	34.0



CONCRETE CROSSOVER 02

LEGEND

- WHEEL PATH
- VEHICLE BODY ENVELOPE
- 0.3m OVERHANG

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COOTE BURCHILLS ENGINEERING PTY LTD
ABN 76 166 942 365

CLIENT : GDM PROPERTY

DRAWING TITLE : SWEPT PATH LAYOUT PLAN

PROJECT : 1-15 & 20 CALUME COURT AND 43-61 NOFFKE COURT, LOGAN RESERVE

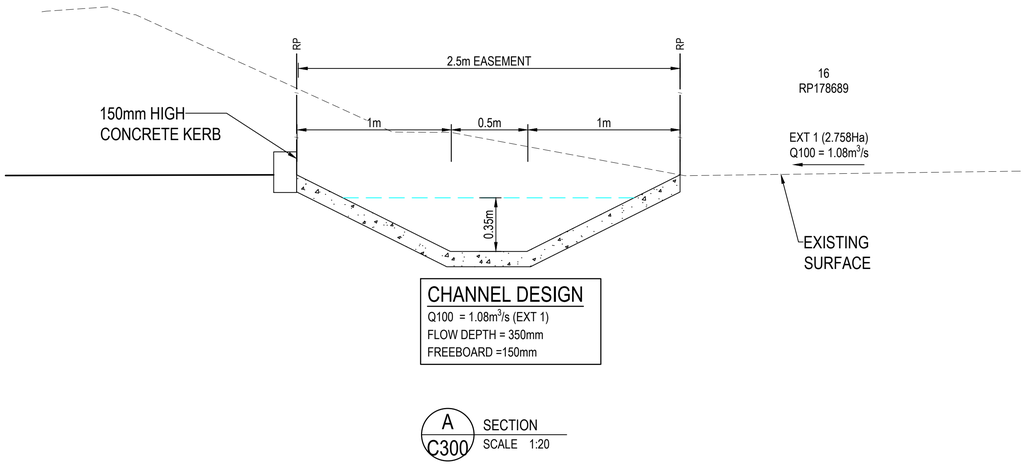
PRELIMINARY
NOT FOR CONSTRUCTION OR TENDER

SCALE AT FULL SIZE (A1) :
1 0 1 2 3 4 5m
1 : 100 (FULL SIZE)

DEVEL. APPLIC. No. : | DATE : 28-10-25
PROJECT LEADER : FRASER LUCAS | DESIGNER : TG
DRAFTSPERSON : MT | CHECKED : HARRISON LISTER

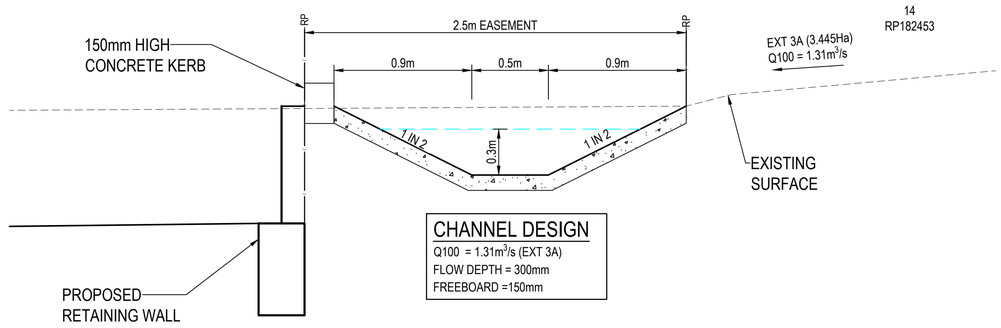
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BURCHILLS ENGINEERING SOLUTIONS ABN 76 166 942 365

PROJECT No.:	DRAWING No. :	VERSION:
BE250124	C370	A



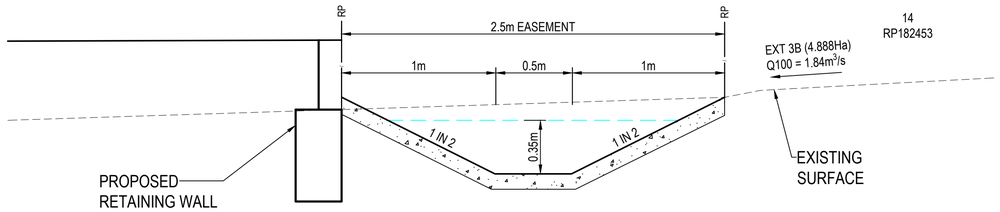
CHANNEL DESIGN
Q100 = 1.08m³/s (EXT 1)
FLOW DEPTH = 350mm
FREEBOARD =150mm

A / C300 SECTION
SCALE 1:20



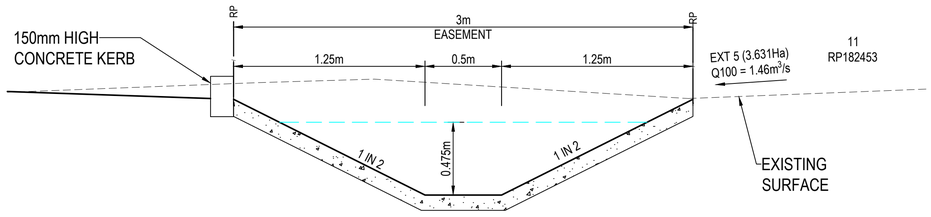
CHANNEL DESIGN
Q100 = 1.31m³/s (EXT 3A)
FLOW DEPTH = 300mm
FREEBOARD =150mm

B / C300 SECTION
SCALE 1:20



CHANNEL DESIGN
Q100 = 1.84m³/s (EXT 3B)
FLOW DEPTH = 350mm
FREEBOARD =150mm

C / C300 SECTION
SCALE 1:20



CHANNEL DESIGN
Q100 = 1.46m³/s (EXT 5)
FLOW DEPTH = 475mm
FREEBOARD =150mm

D / C300 SECTION
SCALE 1:20

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DRAWING TITLE :
STORMWATER NOTES AND DETAIL

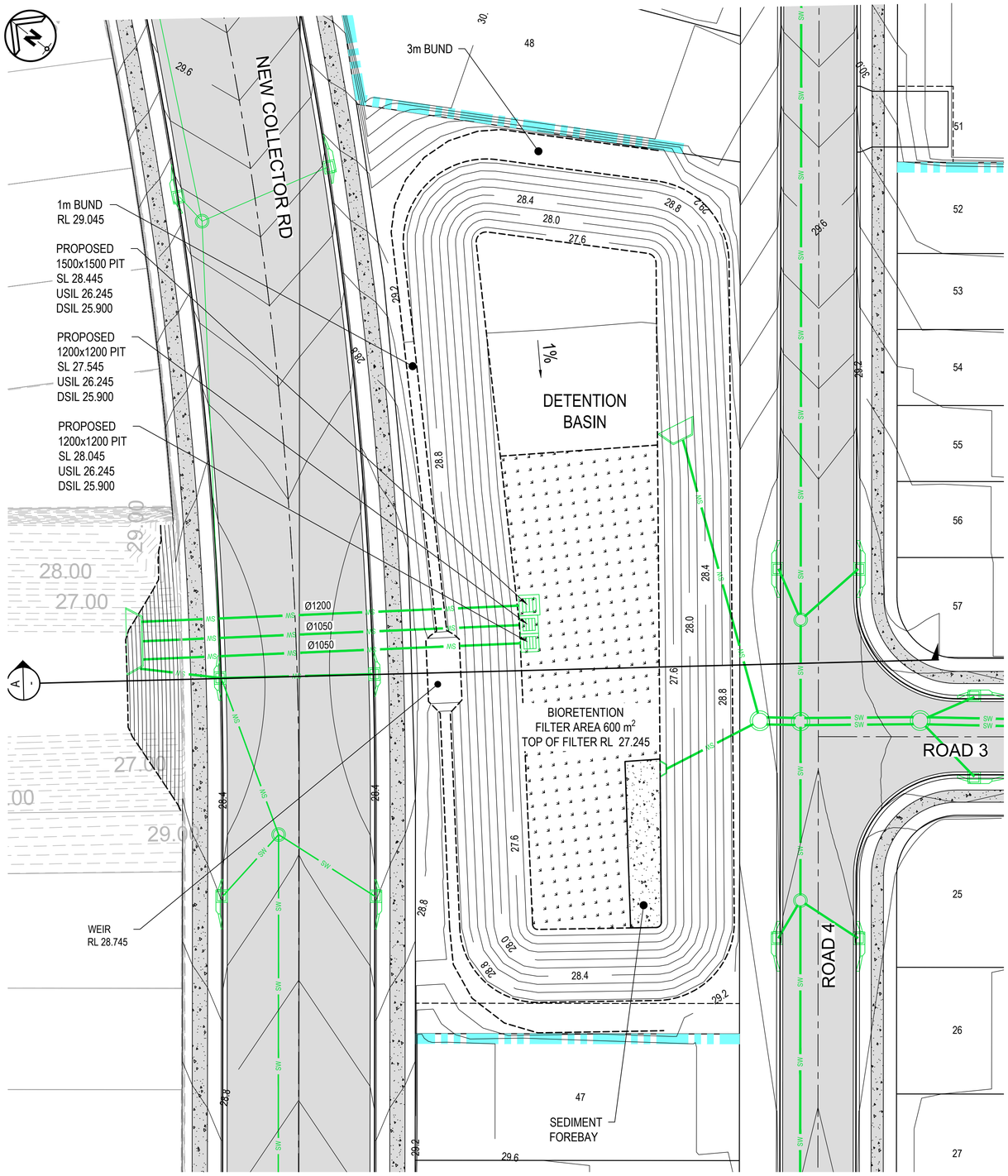
PROJECT :
1-15 & 20 CALUME COURT AND 43-61 NOFFKE COURT, LOGAN RESERVE

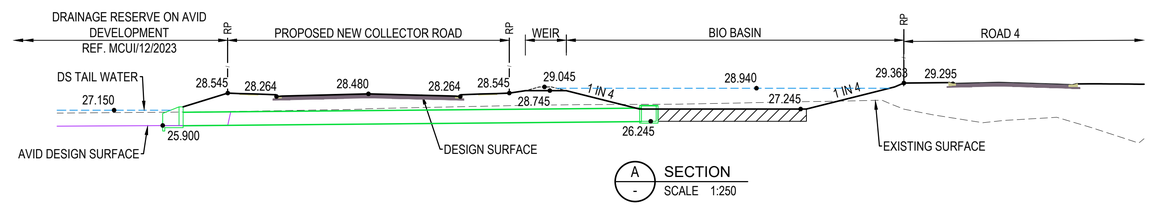
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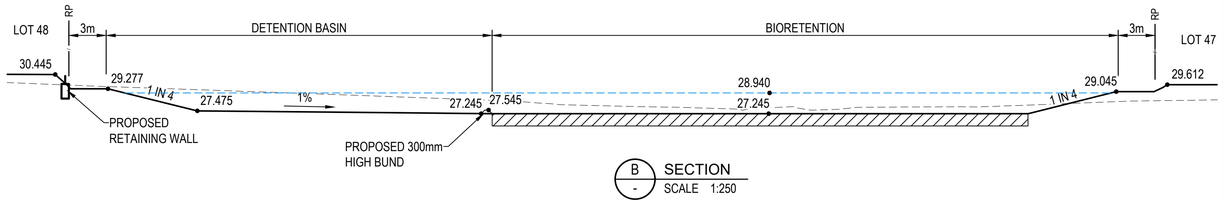
DEVEL. APPLIC. No. :
DATE : 28-10-25
PROJECT LEADER : FRASER LUCAS
DESIGNER : TG
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CHECKED : HARRISON LISTER
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PROJECT No.: BE250124
DRAWING No. : C430
VERSION: B





A SECTION
SCALE 1:250



B SECTION
SCALE 1:250

BIO BASIN PLAN AND SECTIONS

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DRAWING TITLE :
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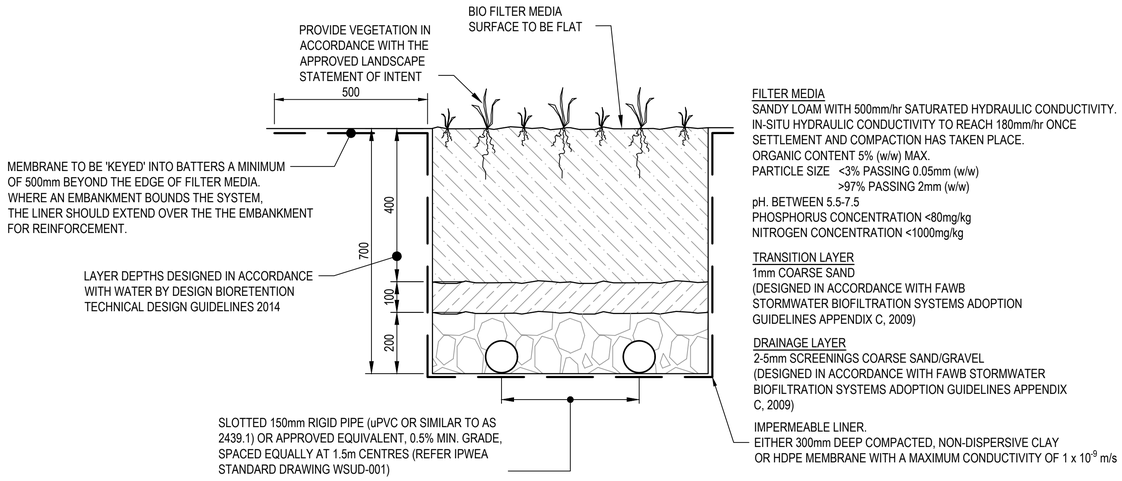
PROJECT :
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PRELIMINARY
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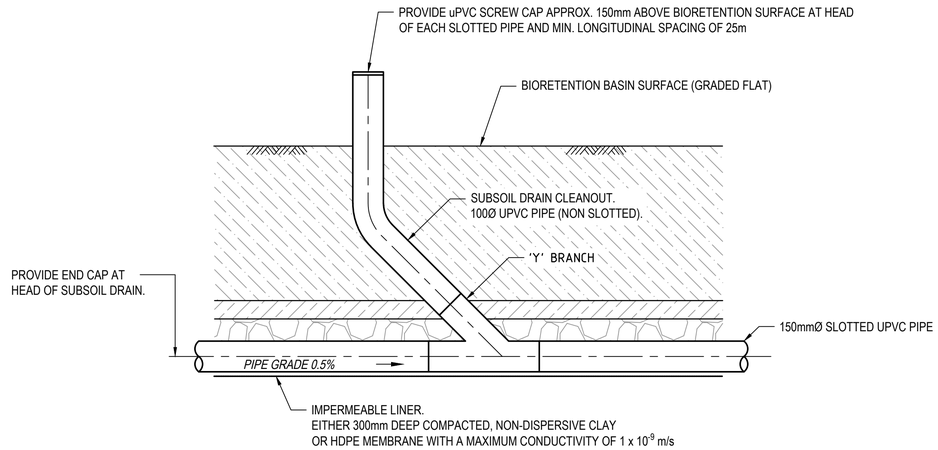
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DATE : 28-10-25
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PROJECT No.:	DRAWING No. :	VERSION:
BE250124	C450	B



TYPICAL BIO-RETENTION MEDIA CROSS SECTION

SCALE 0.1 0 0.1 0.2 0.3 0.4 0.5 (metres)
1 : 10 (FULL SIZE)



TYPICAL BIO-RETENTION BASIN SUBSOIL DRAIN CLEANOUT

NTS

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CLIENT :
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DRAWING TITLE :
BIO BASIN TYPICAL DETAILS

PROJECT :
1-15 & 20 CALUME COURT AND 43-61 NOFFKE COURT, LOGAN RESERVE

PRELIMINARY
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SCALE AT FULL SIZE (A1) :
0.1 0 0.1 0.2 0.3 0.4 0.5m
1 : 10 (FULL SIZE)

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DATE : 28-10-25
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DESIGNER : TG
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PROJECT No.: BE250124
DRAWING No. : C451
VERSION: B

LEGEND

- EXISTING LOT BOUNDARY
- EXISTING SURFACE CONTOURS
- EXISTING FENCE
- EXISTING TELTRA
- EXISTING STORMWATER
- EXISTING ELECTRICITY
- EXISTING COMMS
- PROPOSED EASEMENT
- PROPOSED ROAD CONTROL LINE
- PROPOSED INVERT OF KERB
- PROPOSED STORMWATER
- PROPOSED LLZ DN150 WATER
- PROPOSED HLZ DN150 WATER
- PROPOSED SEWER
- AVID DESIGN
- PROPOSED TRUNK WATER (BY AVID)
- PROPOSED TRUNK SEWER (BY AVID)
- PROPOSED WATER (BY OTHER)

21 RP97736

FUTURE ZONE BOUNDARY VALVE

PROPOSED WATER MAIN (BY OTHER)

12 RP182453

TEMPORARY END CAP TO BE INSTALLED

11 RP182453

PROPOSED WATER MAIN (BY OTHER)

13 RP182453

TEMPORARY END CAPS TO BE INSTALLED

14 RP182453

AVID DEVELOPMENT UNDER CONSTRUCTION REF. MCUI/12/2023

8 RP182452

7 RP182452

6 RP182452

NEW COLLECTOR RD

ROAD 4

ROAD 3

ROAD 2

ROAD 1

CALUME COURT

NOFFKE COURT

16 RP178689

TEMPORARY END CAP TO BE REMOVED ONCE HLZ RETICULATION IS EXTENDED DOWN NOFFE COURT

2 RP178689

CONNECTION TO EXISTING WATER

AVID DEVELOPMENT UNDER CONSTRUCTION REF. COM/66/2017

ZONE BOUNDARY VALVE INITIALLY OPEN

WATER RETICULATION LAYOUT PLAN

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CLIENT : GDM PROPERTY

DRAWING TITLE : WATER RETICULATION LAYOUT PLAN

PROJECT : 1-15 & 20 CALUME COURT AND 43-61 NOFFKE COURT, LOGAN RESERVE

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SCALE AT FULL SIZE (A1) : 10 0 10 20 30 40 50m
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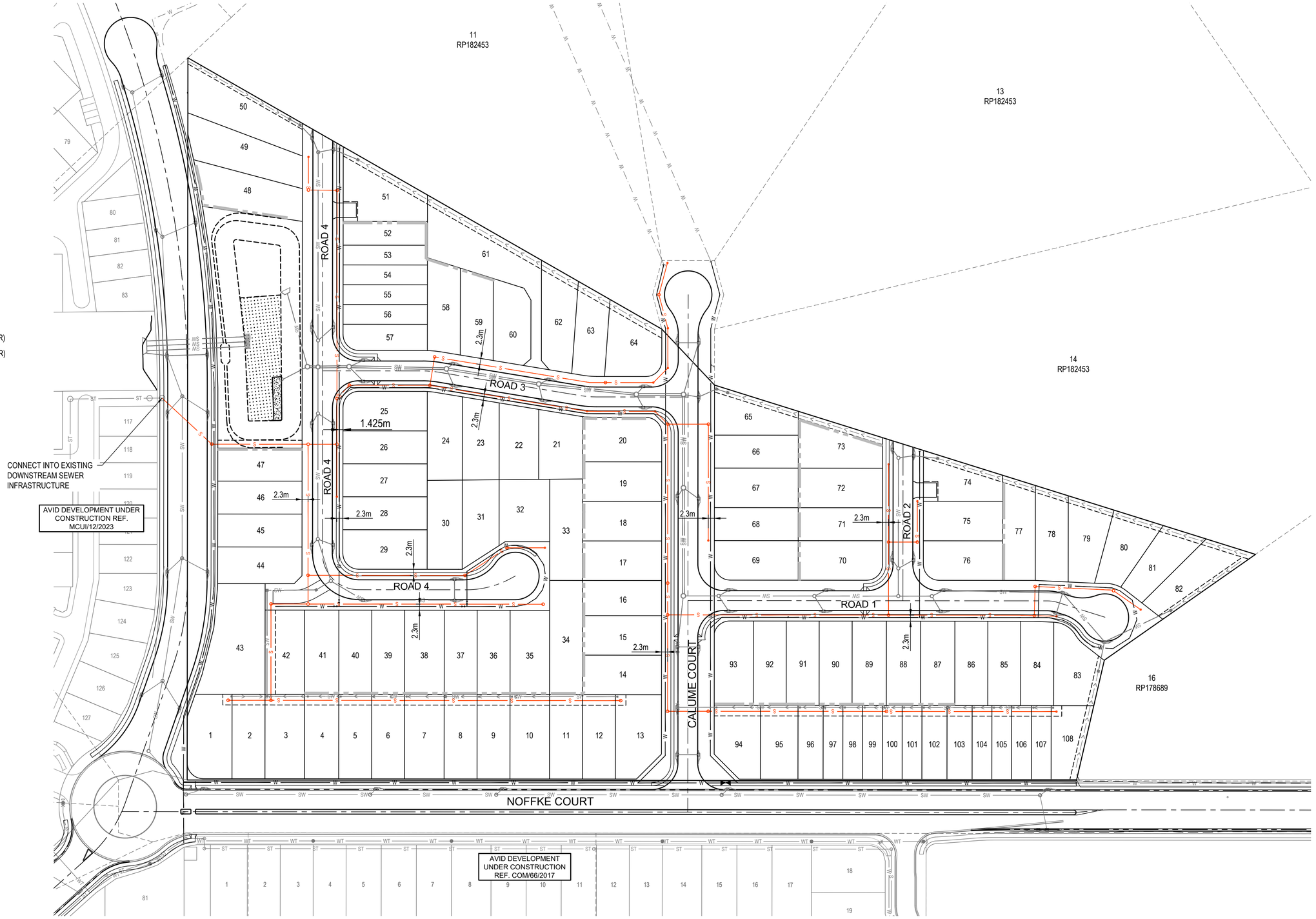
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PROJECT No.:	DRAWING No. :	VERSION:
BE250124	C500	B

LEGEND

- EXISTING LOT BOUNDARY
- EXISTING SURFACE CONTOURS
- EXISTING FENCE
- EXISTING TELTRA
- EXISTING STORMWATER
- EXISTING ELECTRICITY
- EXISTING COMMS
- PROPOSED EASEMENT
- PROPOSED ROAD CONTROL LINE
- PROPOSED INVERT OF KERB
- PROPOSED STORMWATER
- PROPOSED LLZ DN150 WATER
- PROPOSED HLZ DN150 WATER
- PROPOSED SEWER
- AVID DESIGN
- PROPOSED TRUNK WATER (BY OTHER)
- PROPOSED TRUNK SEWER (BY OTHER)



SEWER RETICULATION LAYOUT PLAN

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CLIENT : GDM PROPERTY

DRAWING TITLE : SEWER RETICULATION LAYOUT PLAN

PROJECT : 1-15 & 20 CALUME COURT AND 43-61 NOFFKE COURT, LOGAN RESERVE

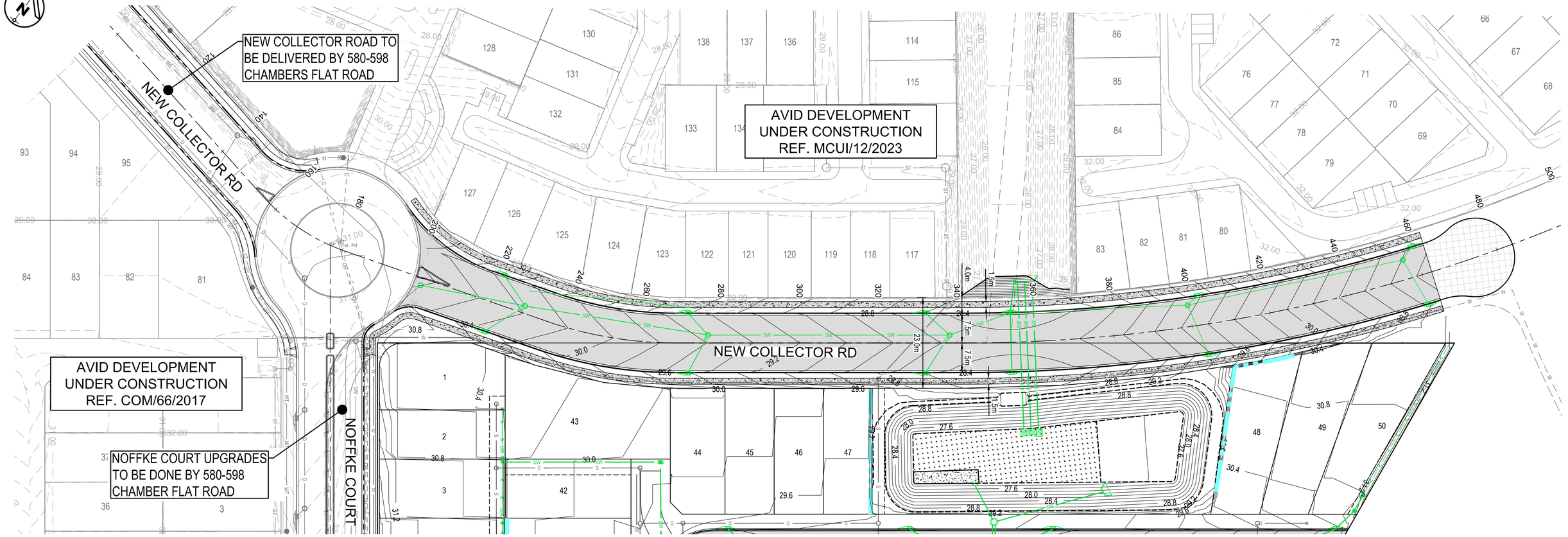
PRELIMINARY
NOT FOR CONSTRUCTION OR TENDER

SCALE AT FULL SIZE (A1) : 10 0 5 10 15 20 25 30 35m
1 : 750 (FULL SIZE)

DEVEL. APPLIC. No. : | DATE : 28-10-25
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DRAFTSPERSON : MT | CHECKED : HARRISON LISTER

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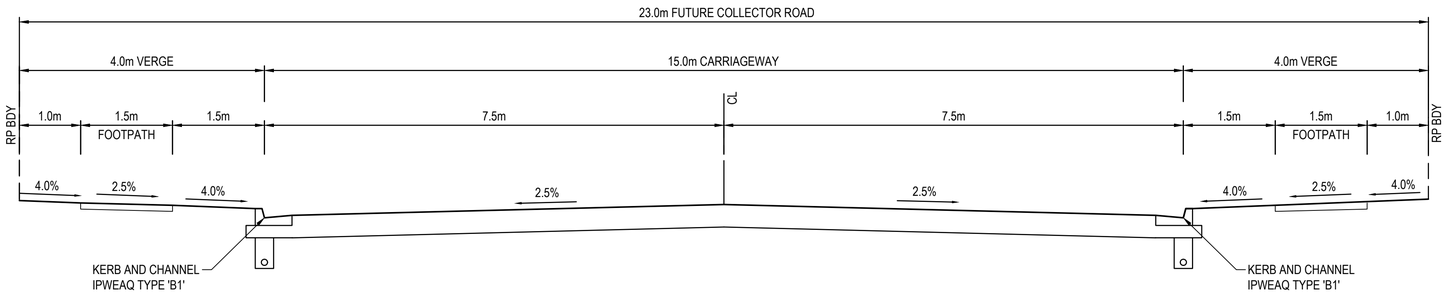
PROJECT No.:	DRAWING No. :	VERSION:
BE250124	C600	B



PRELIMINARY COLLECTOR ROAD PLAN AND DETAIL

5 0 5 10 15 20 25m

1 : 500 (FULL SIZE)



TYPICAL ROAD SECTION - COLLECTOR ROAD

1 0 1 2m

1 : 50 (FULL SIZE)

LEGEND

- EXISTING CONTOUR (13.0)
- STORMWATER (BY OTHER) (D)
- TRUNK WATER (BY OTHER) (WT)
- TRUNK SEWER (BY OTHER) (ST)
- PROPOSED LOT BOUNDARY
- DESIGN SURFACE CONTOURS (25.8)
- PROPOSED STORMWATER (SW)
- PROPOSED GULLY PIT
- PROPOSED ASPHALT PAVEMENT
- PROPOSED CONCRETE PAVEMENT

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DRAWING TITLE :
PRELIMINARY COLLECTOR ROAD PLAN AND DETAIL

PROJECT :
1-15 & 20 CALUME AND 43 NOFFKE COURT EXTERNAL ROADWORKS UPGRADES

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SCALE AT FULL SIZE (A1) :

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DATE : 28-10-25
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DESIGNER : TG
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PROJECT No.:	DRAWING No. :	VERSION:
BE250124	C800	B



PRELIMINARY COLLECTOR ROAD LONGITUDINAL SECTION

1 : 50 VERTICAL (FULL SIZE)
5 0 5 10 15 20 25m
0.5 0 0.5 1.0 1.5 2.0 2.5m
1 : 500 HORIZONTAL (FULL SIZE)

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DRAWING TITLE :
PRELIMINARY COLLECTOR ROAD LONGITUDINAL SECTION

PROJECT :
1-15 & 20 CALUME AND 43 NOFFKE COURT EXTERNAL ROADWORKS UPGRADES

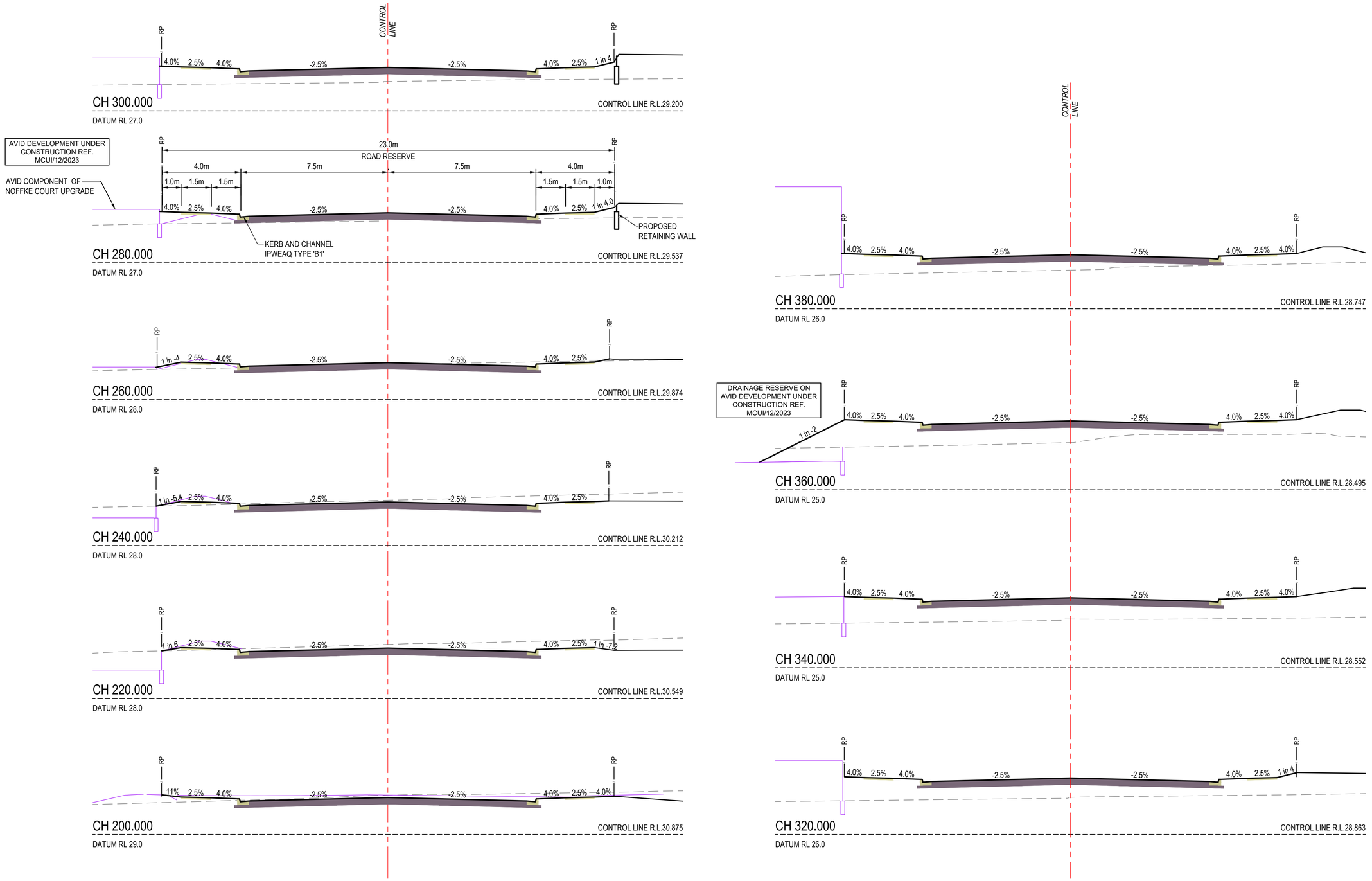
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DATE : 28-10-25
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PROJECT No.: BE250124
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DRAWING TITLE :

PRELIMINARY COLLECTOR ROAD CROSS SECTION SHEET 1

PROJECT :

1-15 & 20 CALUME AND 43 NOFFKE COURT EXTERNAL ROADWORKS UPGRADES

PRELIMINARY
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SCALE AT FULL SIZE (A1) :

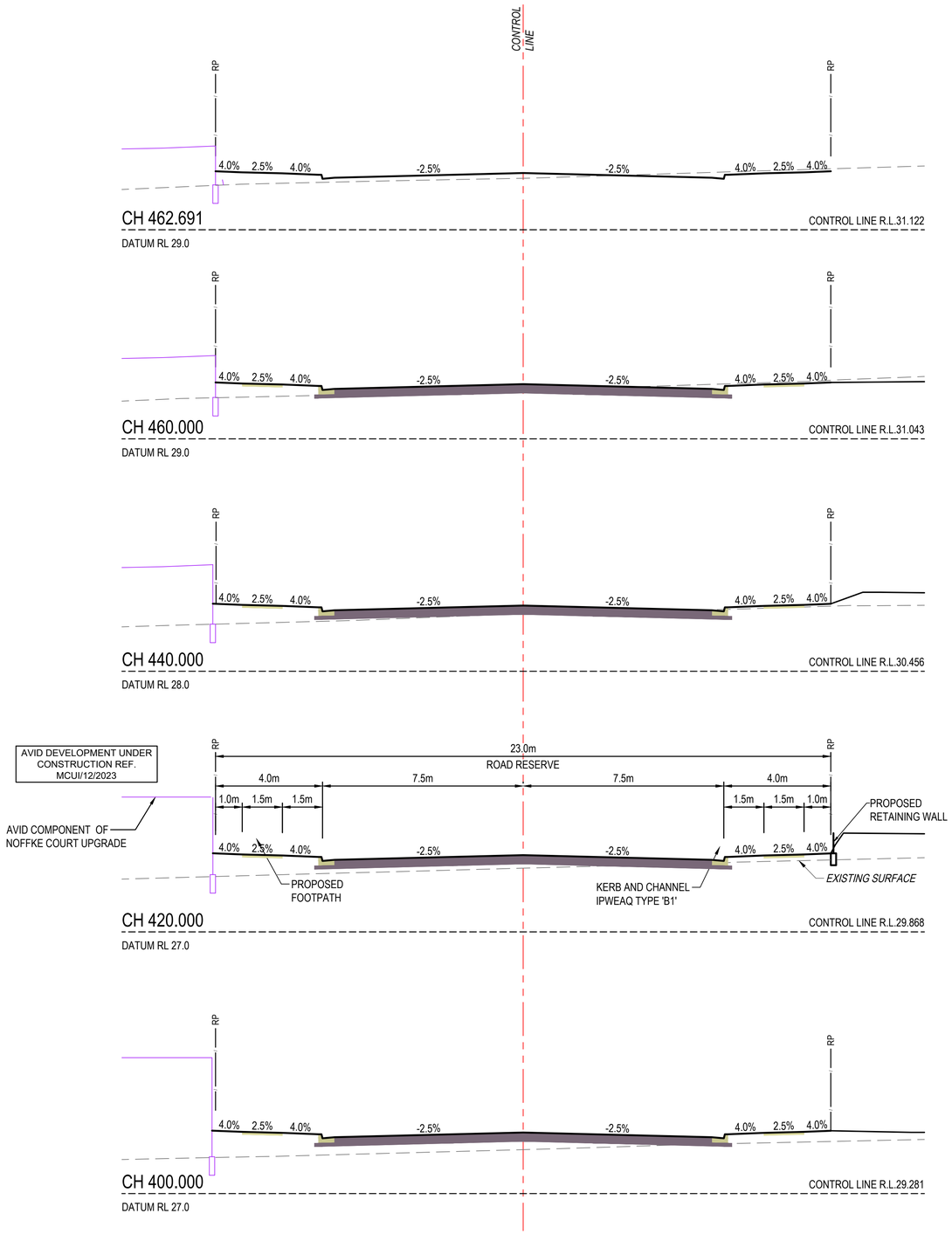
DEVEL. APPLIC. No. : | DATE : 28-10-25

PROJECT LEADER : FRASER LUCAS | DESIGNER : TG

DRAFTSPERSON : MT | CHECKED : HARRISON LISTER

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PROJECT No.:	DRAWING No. :	VERSION:
BE250124	C820	B



1 0 1 2 3 4 5m
1 : 100 (FULL SIZE)

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DRAWING TITLE :
PRELIMINARY COLLECTOR ROAD CROSS SECTION SHEET 2

PROJECT :
1-15 & 20 CALUME AND 43 NOFFKE COURT EXTERNAL ROADWORKS UPGRADES

PRELIMINARY
NOT FOR CONSTRUCTION OR TENDER

SCALE AT FULL SIZE (A1) :

DEVEL. APPLIC. No. :
DATE : 28-10-25
PROJECT LEADER : FRASER LUCAS
DESIGNER : TG
DRAFTSPERSON : MT
CHECKED : HARRISON LISTER

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PROJECT No.:	DRAWING No. :	VERSION:
BE250124	C822	B

Appendix C Response to Flood Hazard Overlay Code

8.2.5 Flood hazard overlay code

8.2.5.1 Application

1. This code applies to all development for which the Flood hazard overlay code is identified as an assessment benchmark in Part 5 - Tables of assessment.
2. When using this code, reference should be made to section 5.3.2 - Determining the category of development and category of assessment and, where applicable, section 5.3.3 - Determining the requirements for accepted development and assessment benchmarks and other matters for assessable development, in Part 5 - Tables of assessment.

Note - The following purpose, overall outcomes, performance outcomes and acceptable outcomes comprise the assessment benchmarks of this code.

Note - Pursuant to section 32(a) of the *Building Act 1975* and part 3, section 8(1)(a) of the *Building Regulation 2021*, land identified in a High flood risk area, Moderate flood risk area, Low flood risk area or Flood investigation area on Flood hazard overlay map OM-05.04 is the 'designated flood hazard area' for the National Construction Code and Queensland Development Code.

Note - For the purposes of section 32(a) of *Building Act 1975* and part 3, section 8(1)(b) of the *Building Regulation 2021*, where in the designated flood hazard area:

a. the defined flood level is the level of the defined flood event, unless otherwise specified in Table 8.2.5.3.3 of 8.2.5 Flood hazard overlay code or Table 9.3.2.3.3 of 9.3.2 Dual occupancy and Dwelling house code;
b. a freeboard greater than 300mm as identified in Table 8.2.5.3.3 of 8.2.5 Flood hazard overlay code or Table 9.3.2.3.3 of 9.3.2 Dual occupancy and Dwelling house code;
c. the finished floor level for class 1 buildings as identified in Table 8.2.5.3.3 of 8.2.5 Flood hazard overlay code or Table 9.3.2.3.3 of 9.3.2 Dual occupancy and Dwelling house code.

8.2.5.2 Purpose

1. The purpose of the Flood hazard overlay code is to ensure development:
    a. avoids flood risk or where not possible to avoid, mitigates the exposure of people, property, infrastructure and the environment to a tolerable level of flood risk;
    b. maintains the accessibility and functionality of Essential community infrastructure activities and Vulnerable use activities during and after all flood events;
    c. improves the resilience of buildings to flood risk, while maintaining built form and amenity expectations;
    d. supports safe, self-evacuation and does not increase the emergency management response or recovery burden;
    e. increases the community's resilience to flood risk and minimises flood recovery time;
    f. does not result in unacceptable flood risk to people, property, infrastructure and the environment;

g. minimises the exposure of people to isolation during flood events;
h. maintains the natural functions of the floodplain for the storage and conveyance of floodwaters and avoids adverse impacts on overland flow paths.

2. The purpose of the Flood hazard overlay code will be achieved through the following overall outcomes:
   a. Development in a High flood risk area identified on Flood hazard overlay map OM-05.04 does not expose people, property, infrastructure and the environment to intolerable flood risk by:
      i. limiting development to the following compatible land uses where consistent with the intent of the underlying zone:
         A. Rural activities other than Rural industry, Intensive animal industry or Intensive horticulture; or
         B. Nature-based tourism and where involving accommodation, development is located outside of areas impacted by flash flooding and there are no habitable buildings permanently attached to the land; or
         C. where in the Environmental management and conservation zone or Recreation and open space zone, a use other than an accommodation land use and, if involving Nature-based tourism, meets overall outcome 2(a)(i)(B); or
         D. a use other than an accommodation land use or Vulnerable use activities, and there is no increase to the existing lawful building footprint; or
         E. where associated with an existing lawful accommodation land use, there is no increase to the number of persons on the premises and there is no increase to the existing lawful building footprint;
      ii. limiting reconfiguring a lot to:
         A. realignment of boundaries where not materially increasing the exposure of new lots to a High flood risk area, unless for the purpose of a drainage or environmental reserve; or
         B. creating an additional lot where the development envelope area is located outside of a High flood risk area, or the additional lot is only for the purpose of a drainage or environmental reserve;
      iii. increasing the resilience of development to flood risk through building location, design and operations;
      iv. maintains the existing conveyance function of the High flood risk area.
   b. Development in a Moderate flood risk area identified on Flood hazard overlay map OM-05.04 incorporates building location, design and operations that mitigate flood risk to people, property, infrastructure and the environment to a tolerable or acceptable level.
   c. Development involving an accommodation land use located in a Low flood island identified on Flood hazard overlay map OM-05.01 does not expose people to an unacceptable level of risk.
   d. Other than for a Hospital located in the Meadowbrook flood assessment area identified on Flood hazard overlay map OM-05.03, Vulnerable use activities:
      i. are located outside of a Moderate flood risk area, High flood risk area or a High flood island identified on Flood hazard overlay map OM-05.04 and OM-05.01;
      ii. are located in a Low flood risk area identified on Flood hazard overlay map OM-05.04 only where:
         A. if people reside on the premises, buildings have a flood planning level above the probable maximum flood to protect vulnerable members of the community;

B. buildings are designed to be resilient to all flood events and reduce flood recovery time;
C. there is a low flood hazard vehicle evacuation route that leads outside the floodplain to a suitable area that supports the needs of evacuees;

iii. maintain functionality and accessibility during and after all flood events;
iv. do not increase the exposure of people to isolation during all flood events up to and including the probable maximum flood.

e. A Hospital in the Meadowbrook flood assessment area identified on Flood hazard overlay map OM-05.03 advances the intended health centre services while mitigating flood risk to people, property, infrastructure and the environment through:
i. incorporating a building location, design and operations that are resilient to flood events;
ii. maintaining functionality during and after all flood events, including the probable maximum flood;
iii. not exposing people or property to unacceptable risk during a defined flood event.

f. Essential community infrastructure activities are not located in the floodplain, unless:
i. there is an overriding planning need for the use that cannot be met in a location outside of the floodplain;
ii. development incorporates building location, design and operations that reduce the potential impacts of flooding;
iii. development maintains functionality during and after all flood events, including the probable maximum flood;
iv. where for Emergency services, development is accessible during and after all flood events up to and including the probable maximum flood.

g. Development in a Flood investigation area identified on Flood hazard overlay map OM-05.04:
i. does not increase exposure of people, property and infrastructure to flood risk; or
ii. demonstrates the development is compatible with the level of flood risk, including achieving the outcomes as relevant for a:
A. High flood risk area;
B. Moderate flood risk area;
C. Low flood risk area and High flood island where involving Essential community infrastructure activities or Vulnerable use activities.

Note - Planning scheme policy 10 - Flood provides guidelines on how to prepare a detailed localised flood risk assessment to assist with achieving Overall Outcome g(ii).

h. Development does not locate buildings or structures in a High flow area.
i. Development is able to function safely during flood events up to and including the defined flood event.
j. Development minimises flood recovery time, rebuilding costs and disruption to residents, businesses and the community.
k. Development does not compromise amenity, environmental, parks and open space outcomes in delivering flood risk mitigation strategies.
l. Development protects personal health, safety and the environment from the release of hazardous materials during a flood event.
m. Development does not add to emergency management or the evacuation burden during or after a flood event.
n. Development:
i. involving an accommodation land use or new lots intended for a future dual occupancy (auxiliary unit), dwelling house or accommodation land use, has safe vehicle access to a low flood hazard road and road network that supports safe and efficient access

to a suitable flood-free area that contains essential goods;
ii. not involving an accommodation land use (or new lots intended for a future accommodation land use) or Vulnerable use activities, has safe vehicle access to a low flood hazard road that supports safe and efficient self-evacuation, or is only isolated for a short duration from creek or overland flow flooding and has safe refuge available during flood events;
iii. plans for the orderly and safe evacuation of people, including being supported by a flood emergency management plan in particular circumstances;
iv. does not rely upon flood emergency management plans to alter land use tolerability to flood risk.

Editor's note - Flood emergency management plans should be utilised to assist in managing residual risk of development and should be implemented as a tool to plan for safe evacuation where an active management entity exists for the development.

o. Development does not directly, indirectly or cumulatively adversely impact the function of the floodplain and overland flow paths on the premises and off-site, including adjoining premises, infrastructure and the environment.
p. Development does not change the flood storage capacity or alter flood characteristics outside of a premises in a way that would result in:
i. loss of flood storage;
ii. loss or change to flow paths;
iii. alteration in the speed of water flows;
iv. reduction in flood warning times elsewhere in the floodplain.

8.2.5.3 Assessment benchmarks for assessment development and requirements for accepted development

Part A - Requirements for accepted development (subject to requirements) and assessment benchmarks for assessable development

Table 8.2.5.3.1 - Flood hazard overlay code: accepted development (subject to requirements) and assessable development

Performance outcomes	Acceptable outcomes	Comments
For accepted development (subject to requirements) and assessable development		
Part A - Risk compatibility (other than a Home-based business)		
Material change of use		
PO1	**AO1**	N/A as this application is for Reconfiguring a lot

A development envelope area is located outside of a High flood risk area identified on Flood hazard overlay map OM-05.04 unless complying with the requirements identified in Table 8.2.5.3.2 - Land use compatibility in a high flood risk area. Note - Planning scheme policy 10 - Flood includes guidance on demonstrating the qualifying criteria in Table 8.2.5.3.2 - Land use compatibility in a high flood risk area.	Development is contained in a development envelope area located outside of a High flood risk area identified on Flood hazard overlay map OM-05.04.	
PO2 Vulnerable use activities: a. are not located in a High flood island identified on Flood hazard overlay map OM-05.01; b. are located outside of the floodplain unless located in: i. a Low flood risk area identified on Flood hazard overlay map OM-05.04; or ii. the Meadowbrook flood assessment area identified on Flood hazard overlay map OM-05.03 and involving a Hospital.	**AO2** No acceptable outcome provided.	N/A as this application is for Reconfiguring a lot
PO3 Essential community infrastructure activities are not located in the floodplain unless: a. there is an overriding planning need for the use; b. there is no alternative site located outside of the floodplain that would address the identified need; c. development maintains functionality during and after all flood events, including the probable maximum flood;	**AO3** No acceptable outcome provided.	N/A as this application is for Reconfiguring a lot

d. where for Emergency services, the development remains accessible during and after all flood events, including the probable maximum flood. Note - Planning scheme policy 10 - Flood provides guidance on how to demonstrate compliance with this performance outcome.		
PO4 Development is located outside of a Flood investigation area identified on Flood hazard overlay map OM-05.04, unless it: a. is demonstrated to be compatible with the level of flood risk; b. delivers the relevant outcomes for the flood risk area, including a: i. High flood risk area; ii. Moderate flood risk area; iii. Low flood risk area and High flood island where involving Essential community infrastructure activities or Vulnerable use activities. Note - Planning scheme policy 10 - Flood provides guidelines on how to prepare a detailed localised flood risk assessment to assist with achieving this performance outcome. It also includes guidance on how to demonstrate compliance with this performance outcome.	**AO4** No acceptable outcome provided.	N/A as this application is for Reconfiguring a lot
Reconfiguring a lot		
PO5 Development provides a development envelope area that is: a. above the flood level during the defined flood event; b. of an area and dimensions to	**AO5** Development provides a development envelope area above the flood level during the defined flood event with a minimum size and dimension specified in Table 8.2.5.3.4 - Development envelope area.	Complies. The proposed lots are above the flood level during the defined flood event.

accommodate the activities associated with the intended use.		
PO6 Each lot has a development envelope area located outside a High flood risk area identified on Flood hazard overlay map OM-05.04, except where limited to: a. the rearrangement of boundaries and flood risk is not materially increased on new lots; or b. creating an additional lot for the purpose of a drainage or environmental reserve.	**AO6** No acceptable outcome provided.	Complies The proposed development envelopes are established outside of the high-risk flood hazard area. High risk hazard only persists in the proposed development drainage infrastructure.
PO7 Reconfiguring a lot involving a development envelope area located in a Flood investigation area identified on Flood hazard overlay map OM-05.04 is limited to: a. the realignment of boundaries where the development envelope area is located outside a High flow area identified on Flood hazard overlay map OM-05.02; or b. the development is demonstrated to be compatible with the level of flood risk, including delivering the relevant outcomes for a: i. High flood risk area; ii. Moderate flood risk area; iii. Low flood risk area and High flood island where involving Essential community infrastructure activities or Vulnerable use activities. Note - Planning scheme policy 10 - Flood provides guidelines on how to prepare a detailed localised flood risk assessment	**AO7** Each lot has a development envelope area located outside of a Flood investigation area identified on Flood hazard overlay map OM-05.04.	Complies. The proposed development is compatible with the level of flood risk, including delivering the relevant outcomes for a high flood risk area and low flood risk area.

to assist with achieving Performance Outcome 7(b).		
Part B - Resilient building location, design and operations (other than a Home-based business)		
PO8 Buildings and structures are located outside of a High flow area. Note - Planning scheme policy 10 - Flood provides guidance on how to demonstrate compliance with this performance outcome where located in a Flood investigation area and it is proposed to undertake a detailed localised flood risk assessment.	**AO8.1** New buildings and structures, other than fences, are located outside of a High flow area identified on Flood hazard overlay map OM-05.02. **AO8.2** Enclosure of existing structures or areas underneath an existing building, such as an undercroft, does not occur in a High flow area identified on Flood hazard overlay map OM-05.02.	N/A
PO9 A Hospital in the Meadowbrook flood assessment area identified on Flood hazard overlay map OM-05.03 ensures that the location, design and operation of development: a. mitigates the risk of flooding to buildings and structures; b. minimises risk of injury to life and damage to property and infrastructure; c. maintains functionality during and after all flood events, including the probable maximum flood. Note - Planning scheme policy 10 - Flood provides guidance on achieving this performance outcome.	**AO9** No acceptable outcome provided.	N/A
PO10 Buildings are designed to account for the potential risk of inundation during flood events by complying with the Minimum flood planning levels identified in Table 8.2.5.3.3 - Minimum flood	**AO10** No acceptable outcome prescribed.	N/A

planning levels. Editor's note - Planning scheme policy 10 - Flood provides guidance on obtaining available flood level information for a property from Council, and resilient design.		
PO11 Vehicle manoeuvring areas and car parking (other than a Parking station) are only located below the defined flood event where there is no increase in risk to: a. pedestrian and vehicular safety; b. a building or other structure. Note - Planning scheme policy 10 - Flood provides guidance on achieving this performance outcome.	**AO11** Vehicle manoeuvring areas and car parking (other than a Parking station) are located above the defined flood event.	To be conditioned.
PO12 Basement access and openings are designed and located to: a. ensure safety during a flood event; b. improve resilience to flood events; c. reduce recovery time after flooding; d. minimise economic loss to individual and public assets stored in the basement. Note - Planning scheme policy 10 - Flood provides guidance on achieving this performance outcome.	**AO12** All entry points and openings to a basement are located at or above the Minimum flood planning levels identified in Table 8.2.5.3.3 - Minimum flood planning levels.	N/A
PO13 Essential building services and infrastructure is located or designed to ensure their continued function during and immediately after flood events that are up to and including the: a. defined flood event for uses other than Essential community infrastructure activities or Vulnerable use activities; or b. probable maximum flood for Essential community infrastructure activities or	**AO13** The function of essential building services and infrastructure is maintained during a flood event by: a. locating the services and infrastructure outside of a High flood risk area identified on Flood hazard overlay map OM-05.04; b. locating the services and infrastructure above the flood planning level in accordance with Table 8.2.5.3.3 -	N/A

Vulnerable use activities. Note - Essential building services and infrastructure may include air conditioning ducts, communication equipment, charging units, pumps, motors, sensitive electrical equipment such as transformers, low voltage switch gear, high voltage switch gear, battery charges, and communal assets and materials (such as waste bins or chemicals). Note - Planning scheme policy 10 - Flood provides guidance on achieving this performance outcome.	Minimum flood planning levels; or c. designing and constructing essential services and infrastructure to exclude water infiltration for flood events up to and including: i. the defined flood event where not involving Essential community infrastructure activities or Vulnerable use activities; ii. the probable maximum flood where for Essential community infrastructure activities or Vulnerable use activities.	
PO14 Screening the understorey of a building: a. does not impede the passage of floodwater or overland flow in a High flood risk area identified on Flood hazard overlay map OM-05.04; b. maintains an attractive streetscape interaction and interface as intended by the zone, precinct or local plan. Note - Planning scheme policy 10 - Flood provides guidance on achieving this performance outcome.	**AO14** No acceptable outcome provided.	N/A
Storage, manufacturing or handling of hazardous materials		
PO15 Development protects public safety and the environment from release of hazardous materials into floodwaters by: a. locating hazardous materials and chemicals outside of a High flood risk area or High flow area identified on Flood	**AO15.1** Development involving the manufacturing or storage of hazardous materials, or involving hazardous chemicals at a hazardous chemical facility is located outside of a: a. High flood risk area identified on Flood hazard overlay map OM-05.04;	N/A

hazard overlay map OM-05.04 and OM-05.02; b. ensuring hazardous materials are stored to prevent the release or hazardous reaction of hazardous materials during flood events, including events rarer than the defined flood event.	b. High flow area identified on Flood hazard overlay map OM-05.02. **AO15.2** Development in a Moderate flood risk area identified on Flood hazard overlay map OM-05.04: a. does not involve the manufacturing or storage of hazard materials or hazardous chemicals at a hazardous chemical facility; or b. ensures the storage of hazardous materials is located above the 0.2% AEP at 2100 flood event.	
Part C - Access and evacuation (other than a Home-based business)		
PO16 Development involving Vulnerable use activities, other than a Hospital in the Meadowbrook flood assessment area identified on Flood hazard overlay map OM-05.03, has a low flood hazard vehicle evacuation route that leads outside the floodplain to a suitable area that supports the needs of evacuees. Note - Planning scheme policy 10 - Flood provides guidance on achieving this performance outcome.	**AO16** No acceptable outcome provided.	N/A
PO17 Development involving an accommodation land use has a low flood hazard vehicle route to a suitable flood-free area that contains essential goods to serve the needs of people. Note - Planning scheme policy 10 - Flood provides guidance on achieving this performance outcome.	**AO17** During the defined flood event, development for an accommodation land use has a: a. flood-free vehicle access to a road above the flood level; b. flood-free vehicle route that leads to a suitable flood-free area that contains	Complies Flood free evacuation is available to the south of the development along Noffke Road to the broader transport network.

	essential goods.	
PO18 Development has a low flood hazard vehicle route from dwellings to a flood-free or low flood hazard road.	**AO18** During the defined flood event, development involving a new dwelling or an increase in bedrooms, has a flood-free vehicle route from dwellings to the flood-free road. Editor's note - Figure 8.2.5.3.1 - Compliant dwelling with flood-free vehicle route illustrates an example of a development complying with this acceptable outcome. Figure 8.2.5.3.2 - Non-compliant dwelling with no flood-free vehicle route illustrates an example of a development that does not comply with this acceptable outcome.	Complies Flood free evacuation is available to the south of the development along Noffke Road to the broader transport network.
Figure 8.2.5.3.1 - Compliant dwelling with flood-free vehicle route		

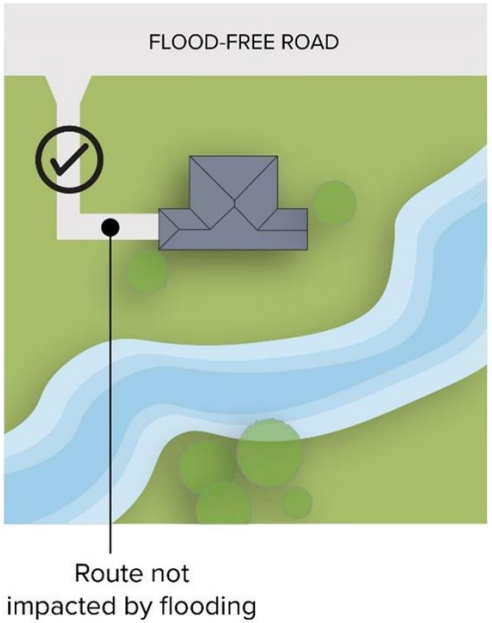
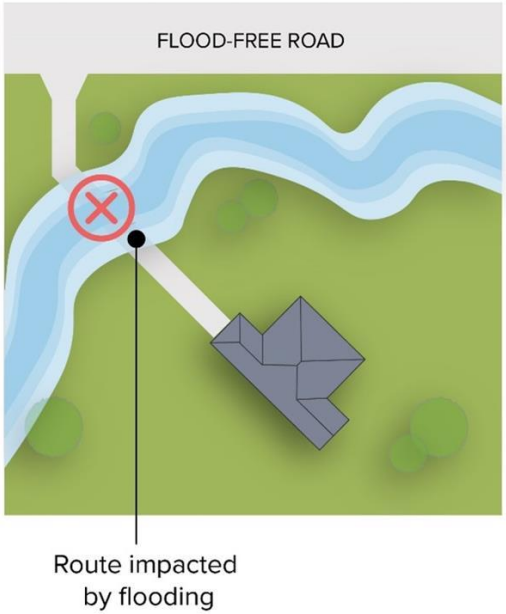


Figure 8.2.5.3.2 - Non-compliant dwelling with no flood-free vehicle route

		
PO19 Reconfiguring of a lot intended for a future dual occupancy (auxiliary unit), dwelling house or accommodation land use ensures each lot has internal low flood hazard vehicle access to a road and a low flood hazard vehicle route to a suitable flood-free area that contains essential goods to serve the needs of people. Note - Planning scheme policy 10 - Flood provides guidance on achieving this performance outcome.	**AO19** Reconfiguring of a lot in a residential zone category or Emerging community zone, or intended for a future dual occupancy (auxiliary unit), dwelling house or accommodation land use, ensures each lot during the defined flood event has a: a. flood-free vehicle access to a road above the flood level; b. flood-free vehicle route that leads to a suitable flood-free area that contains essential goods.	Complies Flood free evacuation is available to the south of the development along Noffke Road to the broader transport network.

PO20 Development, other than where PO16-PO19 is applicable: a. ensures safe self-evacuation by having, for a period of at least 10 hours, low flood hazard vehicle access to a low flood hazard road; or b. is only isolated for a period of less than 4 hours from a low flood hazard road and there is a suitable area on site that is: i. above the defined flood event; ii. not a Low flood island identified on Flood hazard overlay map OM-05.01 or an area impacted by flash flooding during the defined flood event. Note - Planning scheme policy 10 - Flood provides guidance on achieving this performance outcome.	**AO20** Where AO16-AO19 is not applicable, development has flood-free vehicle access to a road that is above the flood level during the defined flood event.	N/A
PO21 Development identified in Table 8.2.5.3.5 - Development requiring a flood emergency management plan appropriately plans for its safe operation and evacuation during a flood event to ensure there is no burden on emergency services, including during a probable maximum flood where involving Vulnerable use activities. Note - Planning scheme policy 10 - Flood provides guidance preparing a flood emergency management plan to achieve this performance outcome. Note - Flood emergency management plans do not alter the land use tolerability to a flood risk area, nor act as an alternative to achieving other specified mitigation measures required to ensure risk is mitigated to a tolerable or acceptable level. Flood emergency management plans should be utilised to assist in managing residual risk of	**AO21** No acceptable outcome provided.	N/A

development and should be implemented as a tool to plan for safe evacuation where an active management entity exists for the development.		
Part D - Preservation of floodplain function and overland flow paths (other than a Home-based business)		
PO22 Filling and excavation ensures the conveyance function of a High flood risk area and Flood investigation area identified on Flood hazard overlay map OM-05.04 is maintained. Note - Planning scheme policy 10 - Flood provides guidance on achieving this performance outcome.	**AO22** Where located in a High flood risk area or Flood investigation area identified on Flood hazard overlay map OM-05.04, filling and excavation, other than for stormwater quantity and quality infrastructure, does not exceed: a. a total volume of $20m^3$; b. a total area of $2,000m^2$.	Complies. The proposed earthworks are more than $20m^3$. However, the proposed development facilitate overland flow paths and do not comprise the conveyance function of the high flood risk area.
PO23 Development does not involve earthworks that would either directly, indirectly or cumulatively cause a loss of floodplain storage below the defined flood event. Note - Planning scheme policy 10 - Flood provides guidance on achieving this performance outcome.	**AO23** The total volume of fill is equal to or less than the total volume of cut where earthworks are below the level of the defined flood event in a Moderate flood risk area identified on Flood hazard overlay map OM-05.04.	Complies. Flood storage can be maintained by the proposed earthworks and utilising underground stormwater pipes for additional storage.
PO24 Development does not involve works that would either directly, indirectly or cumulatively: a. concentrate, intensify or divert floodwater or overland flow paths onto upstream, downstream or adjacent properties; b. result in an increase in flood levels or flood hazard on upstream, downstream or adjacent properties; c. result in a loss of floodplain storage up to and including the defined flood event;	**AO24** No acceptable outcome provided.	Complies. a: The proposed development does not concentrate, intensify or divert floodwater or overland flow paths onto upstream, downstream or adjacent properties b: The proposed development does not result in an adverse increase in flood levels or flood hazard on upstream, downstream or adjacent properties

d. adversely impact the role and function of waterways and areas of ecological significance; e. adversely affect adjoining premises, infrastructure and the environment. Note - Planning scheme policy 10 - Flood provides guidance on how to demonstrate compliance with this performance outcome.		c: Flood storage can be maintained by the proposed earthworks and utilising underground stormwater pipes for additional storage. d: The proposed development does not adversely impact the role and function of waterways and areas of ecological significance. e: The proposed development does not adversely affect adjoining premises, infrastructure and the environment
PO25 Development does not adversely change the following flood characteristics for all flood events up to and including the defined flood event: a. peak flow; b. flow of any part of the flood before the peak; c. flood flow velocity; d. level of flooding; e. flood time to peak. Note - Planning scheme policy 10 - Flood provides guidance on how to demonstrate compliance with this performance outcome.	**AO25** No acceptable outcome provided.	Complies a: The post-development peak flows are mitigated by proposed detention system. b: The proposed development generally maintains flood timing mechanics. c: The proposed development does not result in increase of flood flow velocity. Decrease in velocity is shown in downstream site. Refer flood mapping enclosed in this report. d: As detailed in the report, the proposed development results in afflux in level of flooding. However, it is considered that the impacts from water level afflux will not raise an actionable nuisance to surrounding properties. e: The proposed development does not cause a material change to flood timing in the context of the broader regional flood.

PO26 Development does not cause a rapid or unexpected increase in safety risks or flood damage during a flood event larger than the defined flood event, including flood events up to and including the probable maximum flood. Note - Planning scheme policy 10 - Flood provides guidance on how to demonstrate compliance with this performance outcome.	**AO26** No acceptable outcome provided.	Complies. The flood mapping enclosed in this report shows that the proposed development does not cause a rapid or unexpected increase in safety risks or flood damage in event up to and including the PMF.
PO27 A stormwater quality improvement device is located to retain existing floodplain storage capacity and ensure functionality of the stormwater quality improvement device. Note - Planning scheme policy 10 - Flood provides guidance on how to demonstrate compliance with this performance outcome.	**AO27** A stormwater quality improvement high flow outlet device is located: a. above the 5% AEP flood event caused by local flooding; b. above the 5% AEP flood event caused by regional flooding.	Complies. Stormwater quality improvement device is proposed within the development site and the high flow outlet is located above the 5% AEP flood level.
PO28 A stormwater quantity management device is located to retain existing floodplain storage capacity and ensure functionality of the stormwater quantity management device. Note - Planning scheme policy 10 - Flood provides guidance on how to demonstrate compliance with this performance outcome.	**AO28** A stormwater quantity management outlet device is located above the 2% AEP flood event.	Complies. A detention basin is proposed within the development site and the outlet is located above the 2% AEP flood level.
PO29 Stormwater infrastructure does not result in a loss of floodplain storage below the defined flood event.	**AO29** Filling and excavation associated with stormwater quantity and quality infrastructure has a total volume of fill equal to or less than the total volume of cut where below the defined flood event. Note - Planning scheme policy 10 - Flood provides guidance on stormwater management detention basins.	Complies. The floodplain storage below the defined flood event can be maintained by the proposed earthworks and utilising underground stormwater pipes for additional storage.
Part E - A Home-based business		

PO30 A Home-based business does not put additional people at risk of flooding during the defined flood event. Note - Where detailed flood information does not exist to determine the defined flood event, a Registered Professional Engineer of Queensland with expertise in flood studies may be required to determine the relevant defined flood event and demonstrate compliance with this outcome. Planning scheme policy 10 - Flood provides guidance on how to demonstrate compliance with this performance outcome.	**AO30.1** In a High flood risk area or Flood investigation area identified on Flood hazard overlay map OM-05.04, a Home-based business does not involve: a. non-resident staff or visitors to the premises; b. new buildings or structures associated with the home-based business. **AO30.2** Buildings, structures and storage of items associated with a Home-based business are located outside of a High flow area identified on Flood hazard overlay map OM-05.02.	N/A
PO31 A Home-based business being a bed and breakfast or farm stay has: a. low flood hazard vehicle manoeuvring areas; b. low flood hazard vehicle access to a low flood hazard road.	**AO31** A Home-based business being Short-term accommodation where a bed and breakfast or farm stay has: a. flood-free vehicle manoeuvring areas during a defined flood event; b. flood-free vehicle access to a road above the flood level during a defined flood event.	N/A

Table 8.2.5.3.2 - Land use compatibility in a high flood risk area

Zone	Land use (where consistent with the intent of the underlying zone)	Qualifying criteria
Environmental management and conservation zone or Recreation and open space zone	A use other than an accommodation land use	**N/A**
	Nature-based tourism other than involving accommodation	**N/A**

	Nature-based tourism involving accommodation	If - a. located outside an area of flash flooding; b. there are no permanent habitable buildings or structures attached to the land in a High flood risk area
Any zone other than Environmental management and conservation zone or Recreation and open space zone	Rural activities other than Rural industry, Intensive animal industry or Intensive horticulture	**N/A**
	Nature-based tourism other than involving accommodation	**N/A**
	Nature-based tourism involving accommodation	If - a. located outside an area of flash flooding; b. there are no permanent habitable buildings or structures attached to the land in a High flood risk area
	A use other than: a. accommodation land use; or b. Vulnerable use activities	If there is no increase to the existing building footprint
	An existing lawful accommodation land use	If - a. there is no increase to the existing building footprint; b. there is no increase in the number of persons on the premises in a High flood risk area

Table 8.2.5.3.3 - Minimum flood planning levels

Column 1 **Use**	**Column 2** **Minimum flood planning level**

Uses other than Essential community infrastructure activities and Vulnerable use activities (building floor level and essential building services)	
Where in a High flood risk area, Moderate flood risk area or Flood investigation area on Flood hazard overlay map OM-05.04 Note - Where located in a Flood investigation area, a Registered Professional Engineer of Queensland with expertise in flood studies is to determine the level of the flood event identified in Column 2 corresponding to the applicable use identified in Column 1.	
Accommodation land use	Habitable rooms and essential building services - defined flood event + 500mm freeboard Non-habitable rooms - above the defined flood event Basement Entry/Exit - defined flood event + 300mm freeboard
An industry activity involving the manufacture or storage of noxious or hazardous materials (e.g. a regional fuel storage facility)	0.2% AEP flood level at 2100
Educational establishment where for vocational trade training only	Building floor level - defined flood event + 500mm freeboard Essential building services - defined flood event + 500mm freeboard
Transport infrastructure as defined by the Regulation	No specific recommended level but development proponents should ensure that the infrastructure is optimally located and designed to achieve suitable levels of service, having regard to the processes and policies of the administering government agency
Warehouse, being a food storage warehouse	0.5% AEP flood level at 2100
Where involving the storage of valuable records or items of historic or cultural significance (e.g. galleries and libraries)	0.5% AEP flood level at 2100
Development involving the use of a Class 5, 6 & 9b building other than specified above	Defined flood event + 500mm freeboard
Development involving the use of Class 7(b) or 8 building other than specified above	Building floor level - defined flood event Essential building services - defined flood event + 500mm freeboard
Any other use other than listed above	Defined flood event + 500mm freeboard

Essential community infrastructure activities (building floor level and essential building services)	
Emergency services	0.2% AEP flood level at 2100 + 500mm freeboard
Major electricity infrastructure	0.2% AEP flood level at 2100 + 500mm freeboard
Renewable energy facility	0.2% AEP flood level at 2100 + 500mm freeboard
Substation	0.5% AEP flood level at 2100 + 500mm freeboard
Telecommunications facility Utility installation where not otherwise listed in this table	No specific recommended level but development proponents should ensure that the infrastructure is optimally located and designed to achieve suitable levels of service, having regard to the processes and policies of the administering government agency
Utility installation being power station	0.2% AEP flood level at 2100 + 500mm freeboard
Utility installation, being a sewage treatment plant or water treatment plant	0.2% AEP flood level at 2100 + 500mm freeboard
Vulnerable uses activities (building floor level and essential building services)	
Where located in Meadowbrook flood assessment area on Flood hazard overlay map OM-05.03	
Vulnerable use activities, being a Hospital	0.2% AEP flood level at 2100 + 500mm freeboard
Where located in the Low flood risk area on Flood hazard overlay map OM-05.04	
Vulnerable use activities	Above the flood level of the probable maximum flood

Table 8.2.5.3.4 - Development envelope area

Zone or precinct	Development envelope area specification	
	Minimum area	Minimum dimension (length and width)
Rural zone	2,000m^2	30m
Rural residential zone		

Environmental management and conservation zone - Environmental management precinct		
Environmental management and conservation zone - Rural environmental management precinct		
All other zones	The entire lot	-

Table 8.2.5.3.5 - Development requiring a flood emergency management plan

Use	Qualifier
Vulnerable use activities	Where involving an active management entity and in a Low flood risk area identified on OM-05.04
Nature-based tourism	Where involving accommodation and an active management entity
Resort complex	Where involving an active management entity
Tourist park	Where involving an active management entity
Multiple dwelling	Where involving an active management entity and in a: a. Moderate flood risk area identified on OM-05.04 and the premises or vehicle route during evacuation is inundated during the defined flood event; or b. Flood investigation area identified on OM-05.04
Rooming accommodation	
Rural workers' accommodation	
Short-term accommodation	
Any development	Where involving an active management entity and development involves an access easement to provide flood-free or low flood hazard vehicle access to a flood-free or low flood hazard road

Note - There may be other circumstances in which development will require a flood emergency management plan to manage the residual flood risk to the development.

Note - Flood emergency management plans do not alter the land use tolerability to a flood risk area, nor act as an alternative to achieving other specified mitigation measures required to ensure risk is mitigated to a tolerable or acceptable level. Flood emergency management plans should be utilised to assist in managing residual risk of development and should be implemented as a tool to plan for safe evacuation where an active management entity exists for the development.

Appendix D Hydraulic Model Features

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1-15 and 20 Calume and 43 Noffke Court

FIG 01 PRE DEVELOPMENT
TUFLOW MODEL FEATURE





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Inflow Location
- Downstream Boundary
- Pipe/Culvert
- Pit

Surface Elevation (mAHD)

10.0	22.0
13.0	25.0
16.0	28.0
19.0	31.0

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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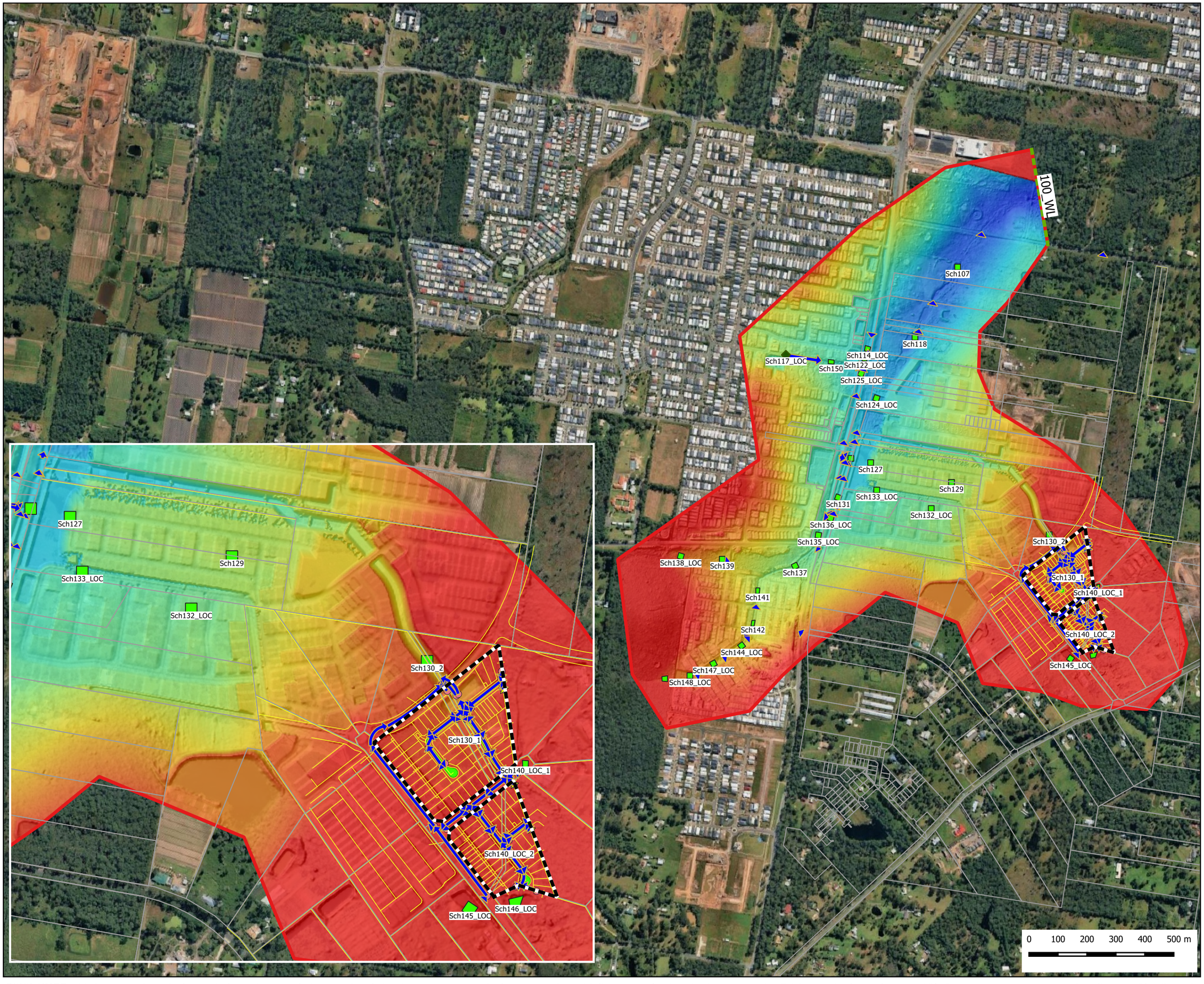
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FIG 02 POST DEVELOPMENT
TUFLOW MODEL FEATURE





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Inflow Location
- Downstream Boundary
- Pipe/Culvert
- Pit
- Proposed Pit

Surface Elevation (mAHD)

10.0	22.0
13.0	25.0
16.0	28.0
19.0	31.0

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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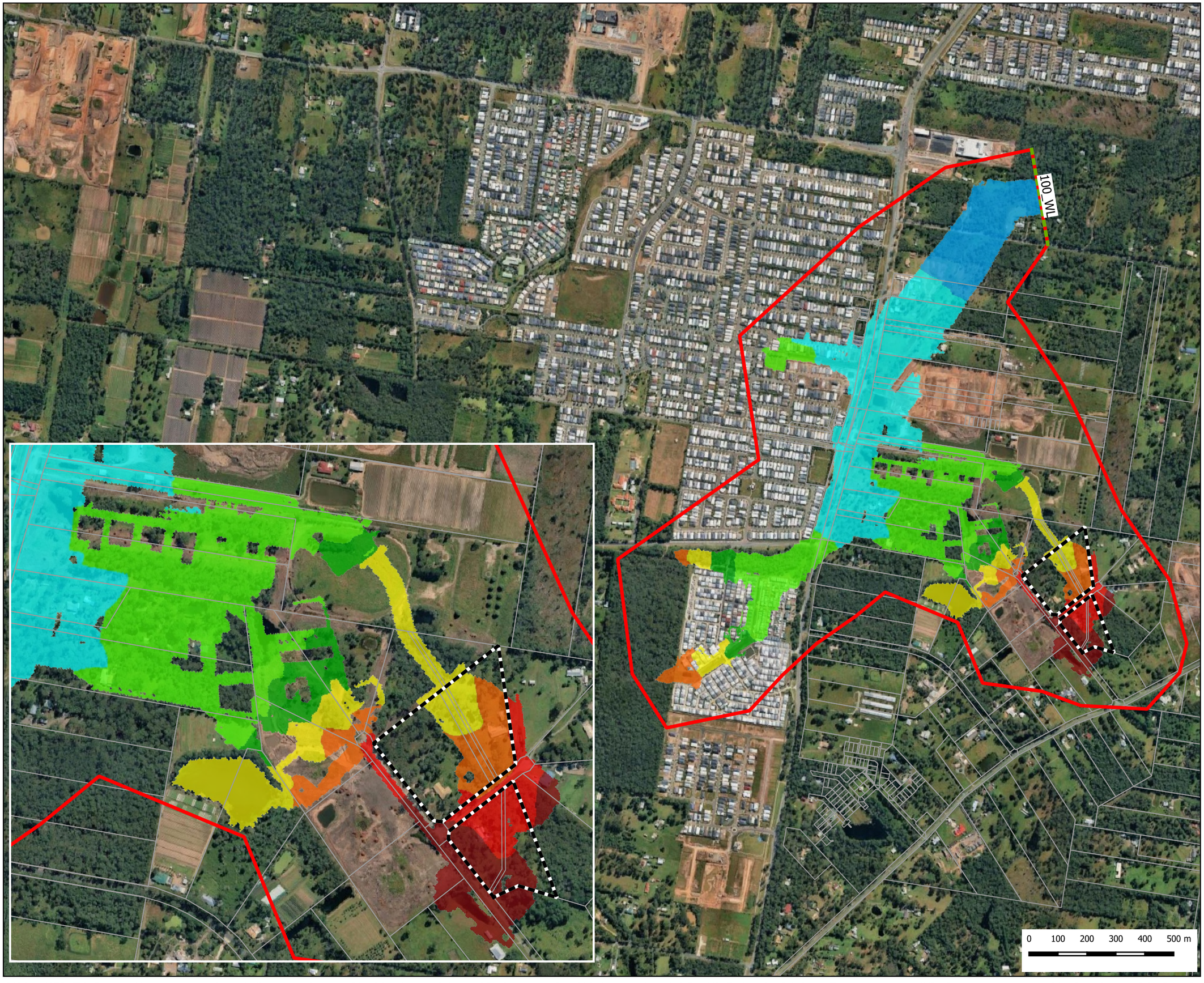
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Appendix E Hydraulic Mapping Results

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FIG A01 PRE DEVELOPMENT
PMF EVENT
FLOOD WATER LEVEL





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary

Water Level(mAHD)

<= 15.0	27.0 - 29.0
15.0 - 20.0	29.0 - 31.0
20.0 - 25.0	31.0 - 33.0
25.0 - 27.0	> 33.0

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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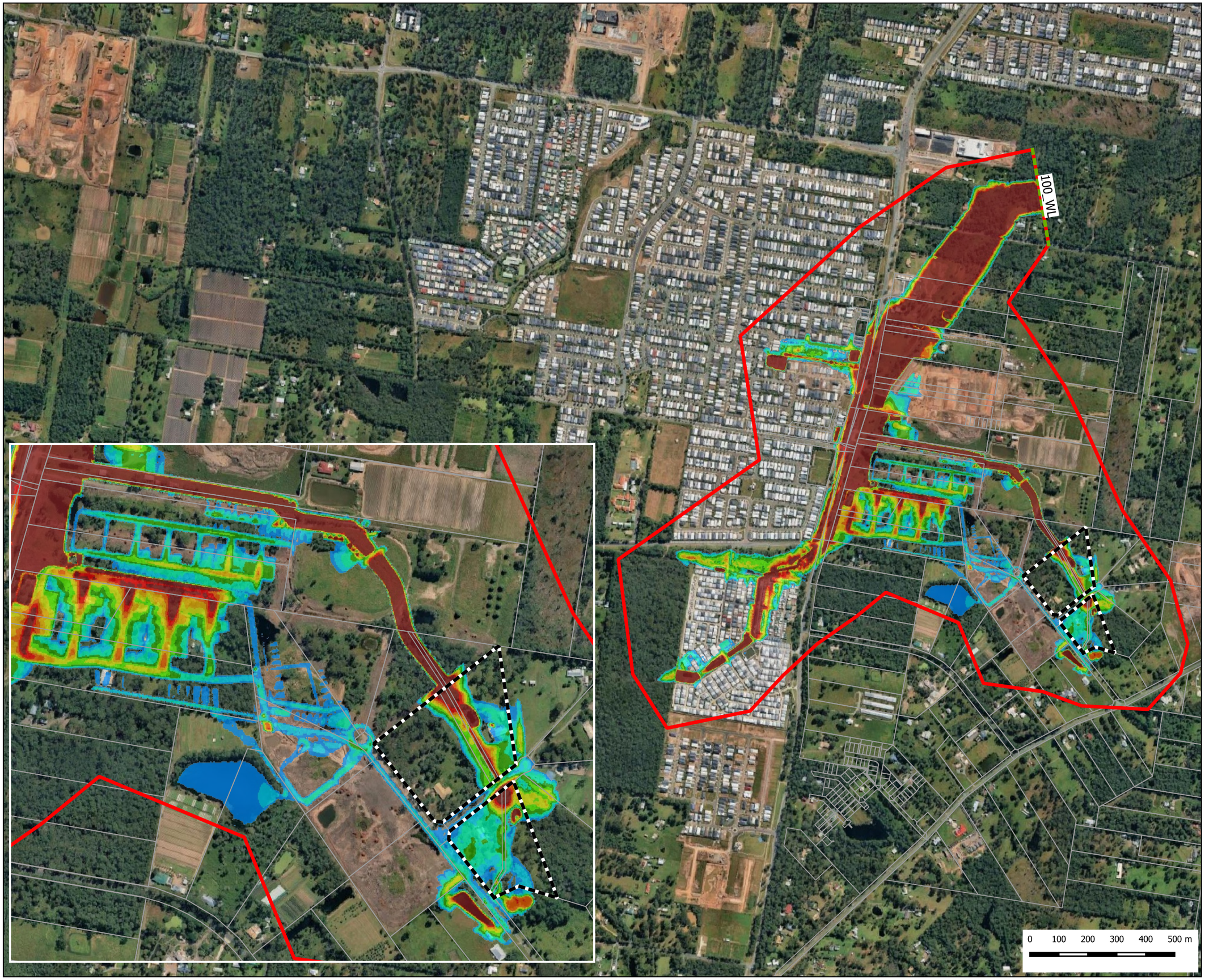
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FIG A02 PRE DEVELOPMENT
PMF EVENT
FLOOD WATER DEPTH





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary

Water Depth (m)

below 0.02	0.4 - 0.5
0.02 - 0.05	0.5 - 0.6
0.05 - 0.1	0.6 - 0.7
0.1 - 0.2	0.7 - 0.8
0.2 - 0.3	above 0.8
0.3 - 0.4	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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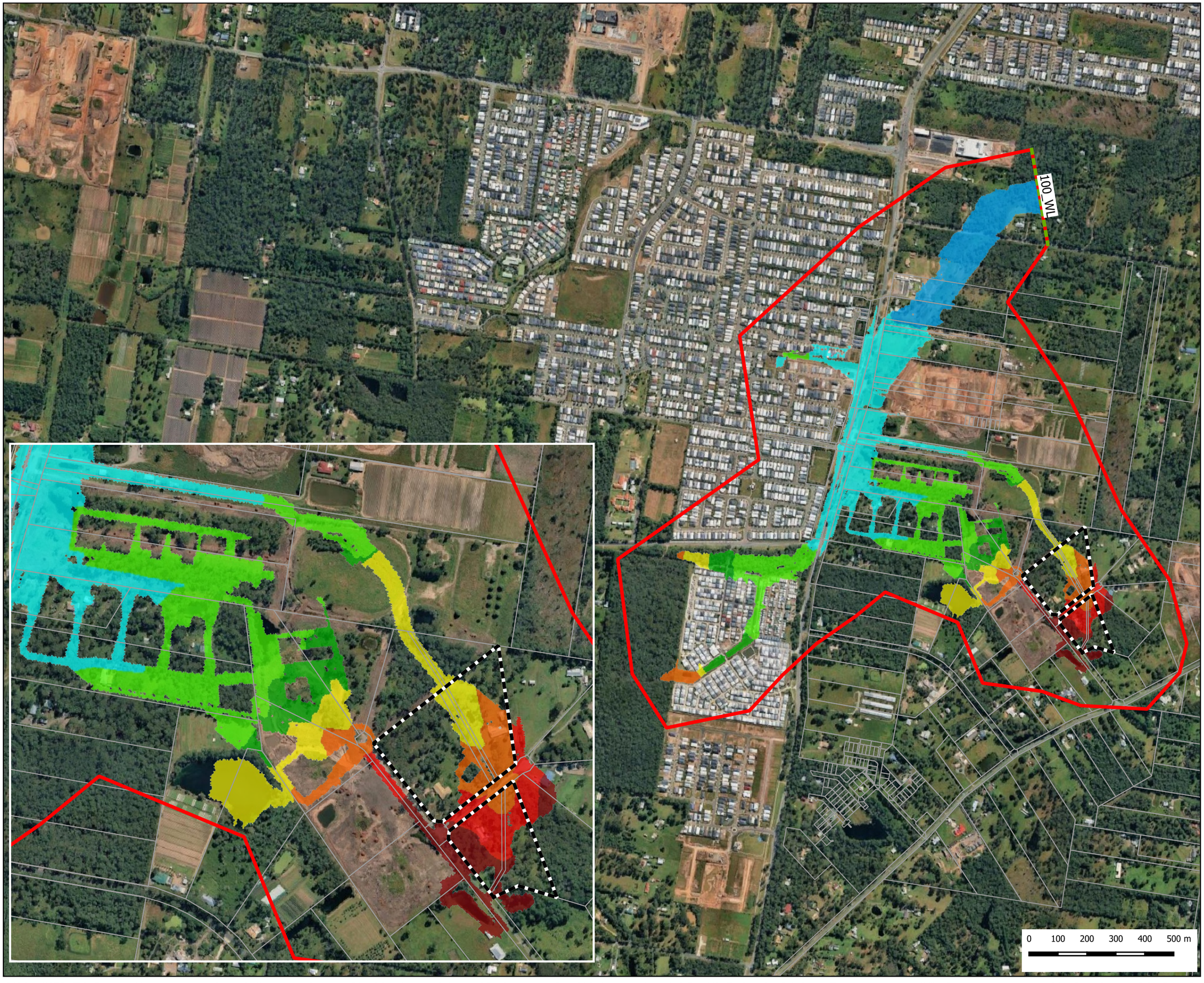
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FIG A03 PRE DEVELOPMENT
1%AEP
FLOOD WATER LEVEL




Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary

Water Level(mAHD)

<= 15.0	27.0 - 29.0
15.0 - 20.0	29.0 - 31.0
20.0 - 25.0	31.0 - 33.0
25.0 - 27.0	> 33.0

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

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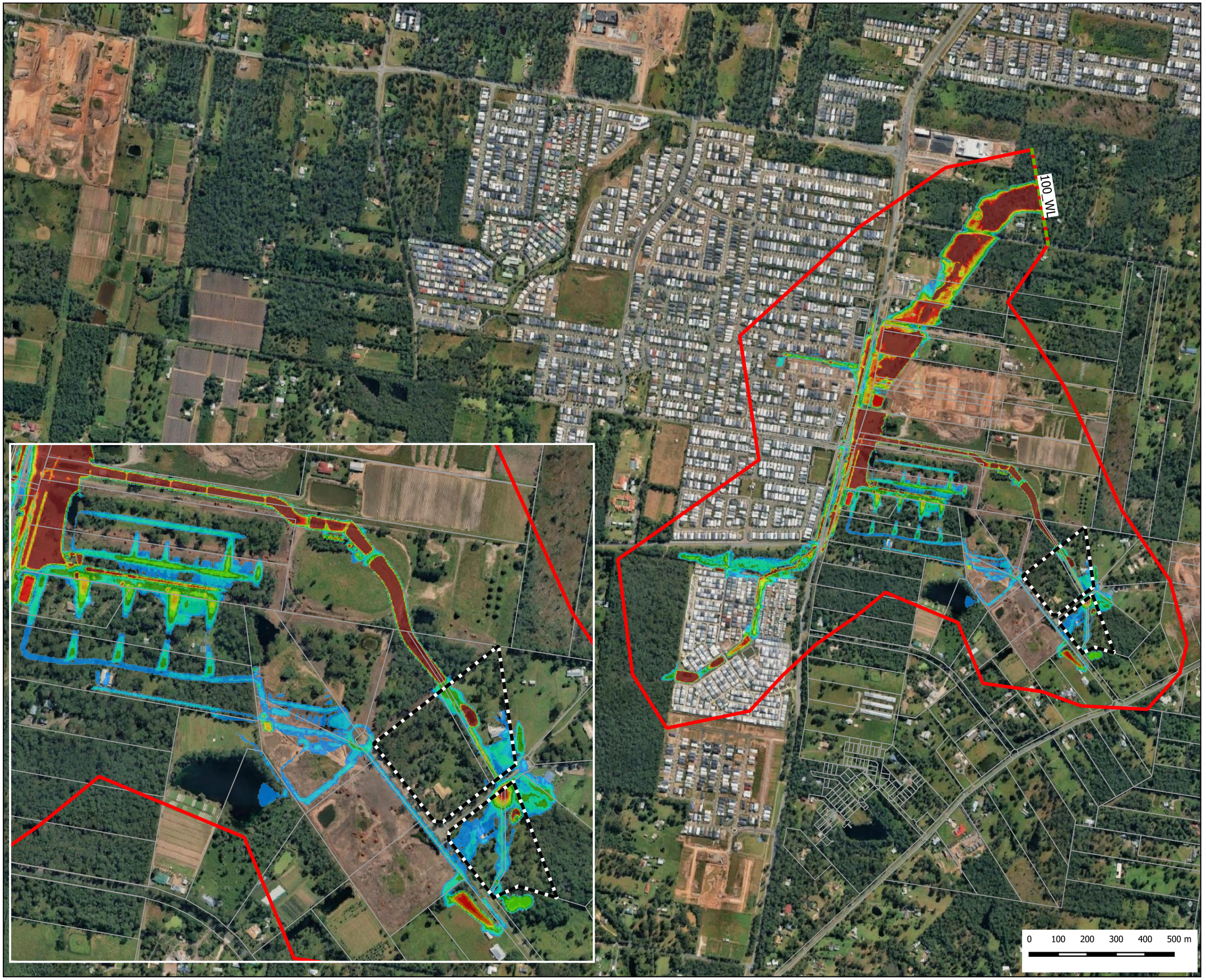
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FIG A04 PRE DEVELOPMENT
1%AEP
FLOOD WATER DEPTH





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary

Water Depth (m)

below 0.02	0.4 - 0.5
0.02 - 0.05	0.5 - 0.6
0.05 - 0.1	0.6 - 0.7
0.1 - 0.2	0.7 - 0.8
0.2 - 0.3	above 0.8
0.3 - 0.4	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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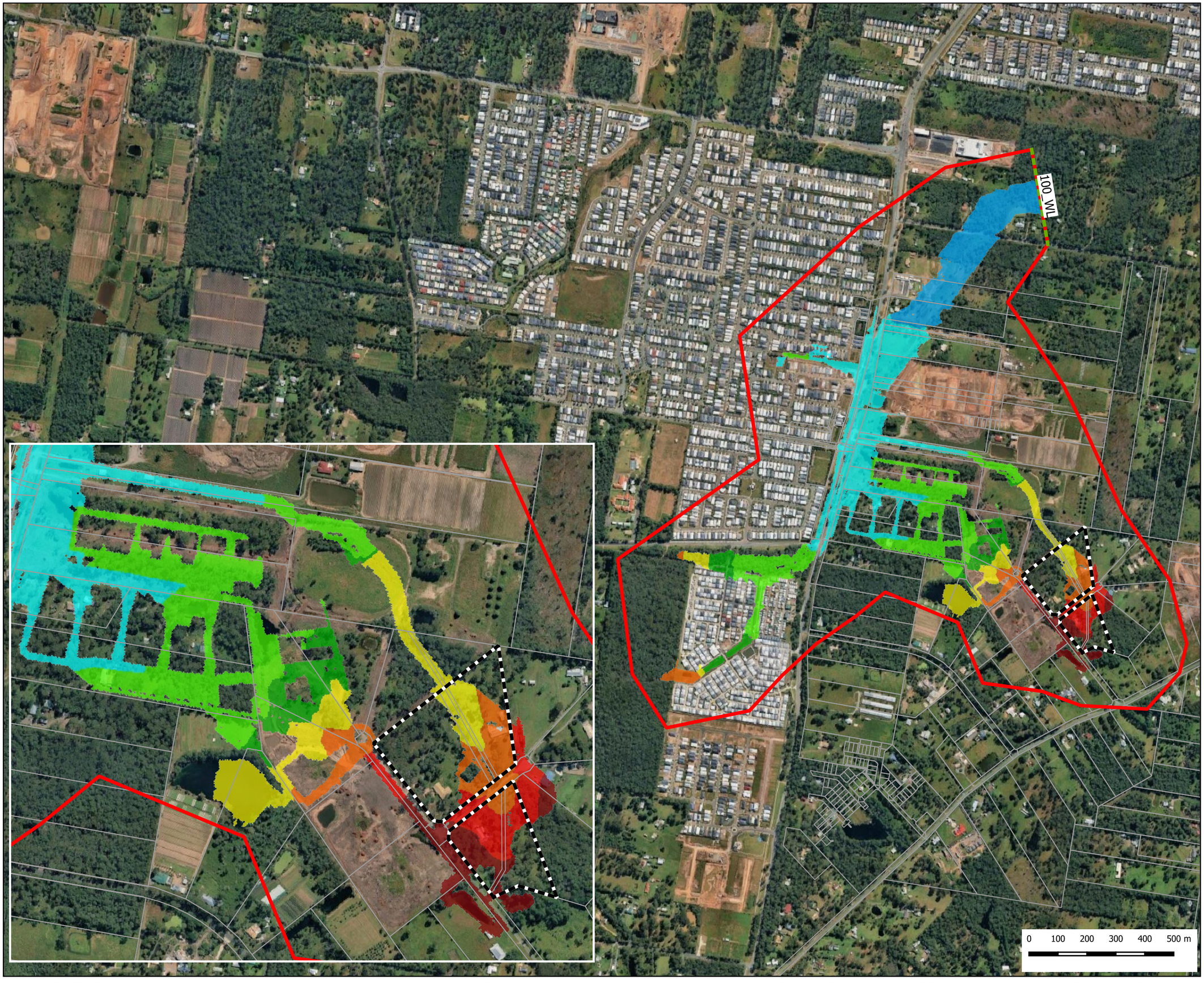
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FIG A05 PRE DEVELOPMENT
2%AEP
FLOOD WATER LEVEL




Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary

Water Level(mAHD)

<= 15.0	27.0 - 29.0
15.0 - 20.0	29.0 - 31.0
20.0 - 25.0	31.0 - 33.0
25.0 - 27.0	> 33.0

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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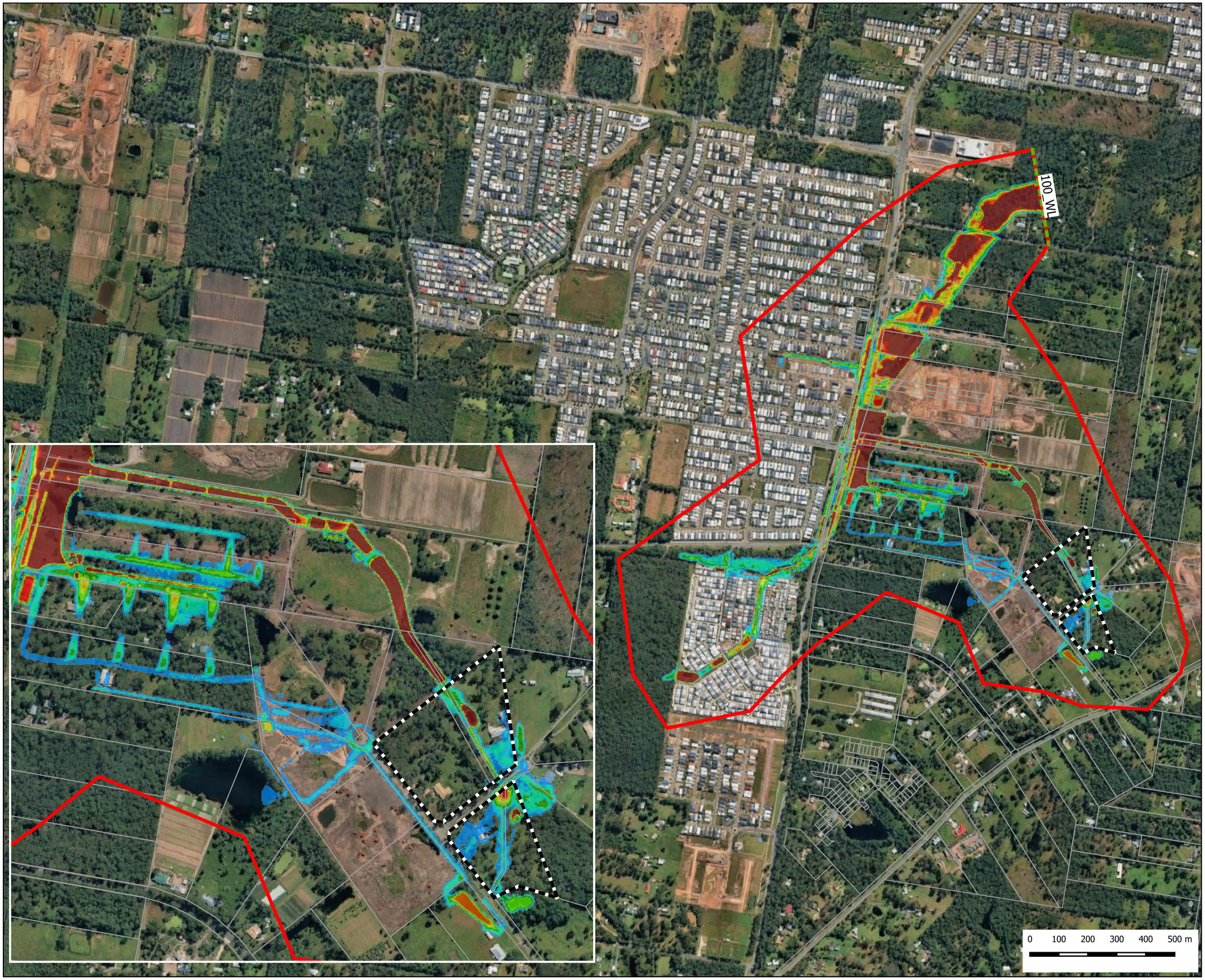
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FIG A06 PRE DEVELOPMENT
2%AEP
FLOOD WATER DEPTH




Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary

Water Depth (m)

below 0.02	0.4 - 0.5
0.02 - 0.05	0.5 - 0.6
0.05 - 0.1	0.6 - 0.7
0.1 - 0.2	0.7 - 0.8
0.2 - 0.3	above 0.8
0.3 - 0.4	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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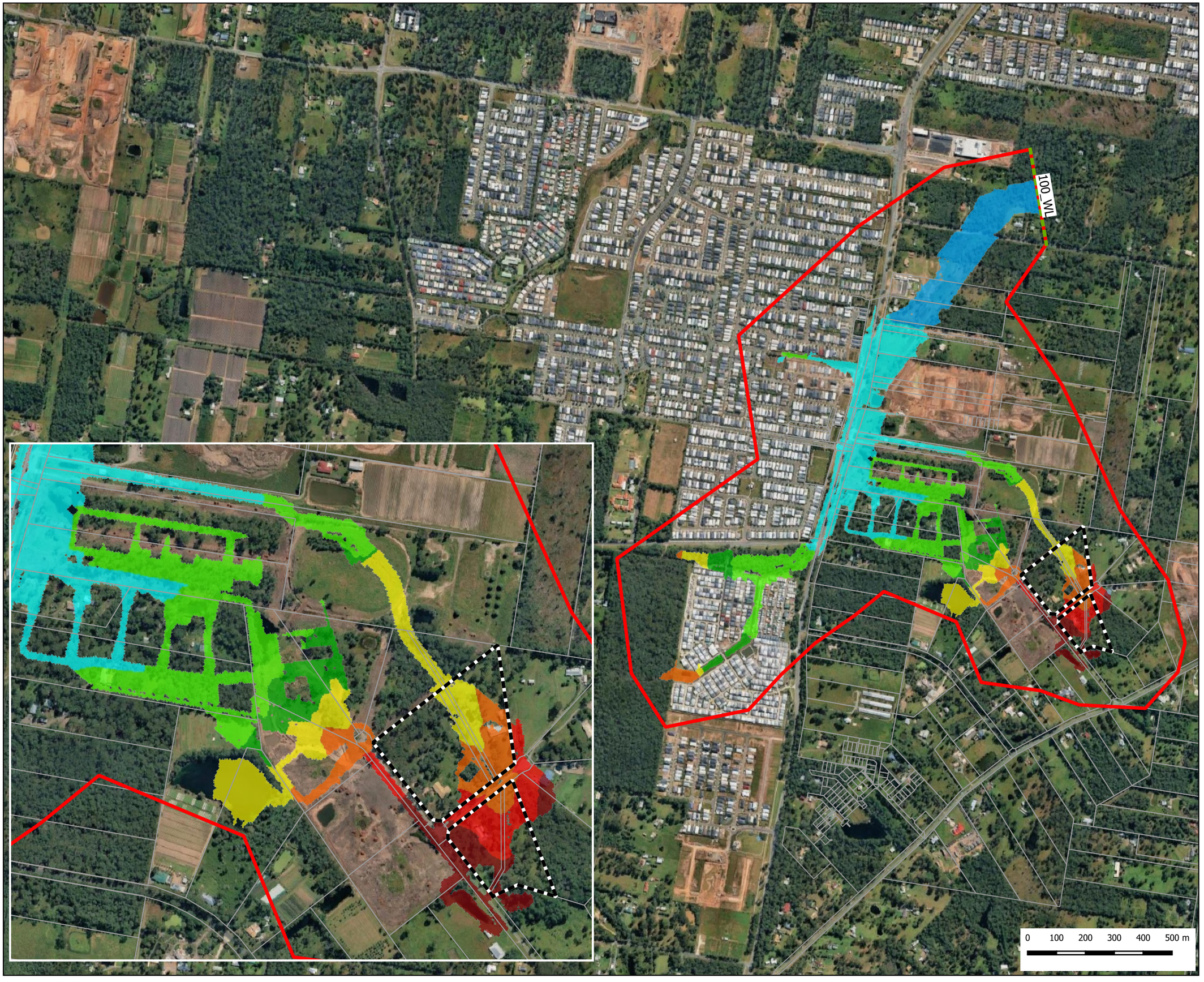
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FIG A07 PRE DEVELOPMENT
5%AEP
FLOOD WATER LEVEL





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary

Water Level(mAHD)

<= 15.0	27.0 - 29.0
15.0 - 20.0	29.0 - 31.0
20.0 - 25.0	31.0 - 33.0
25.0 - 27.0	> 33.0

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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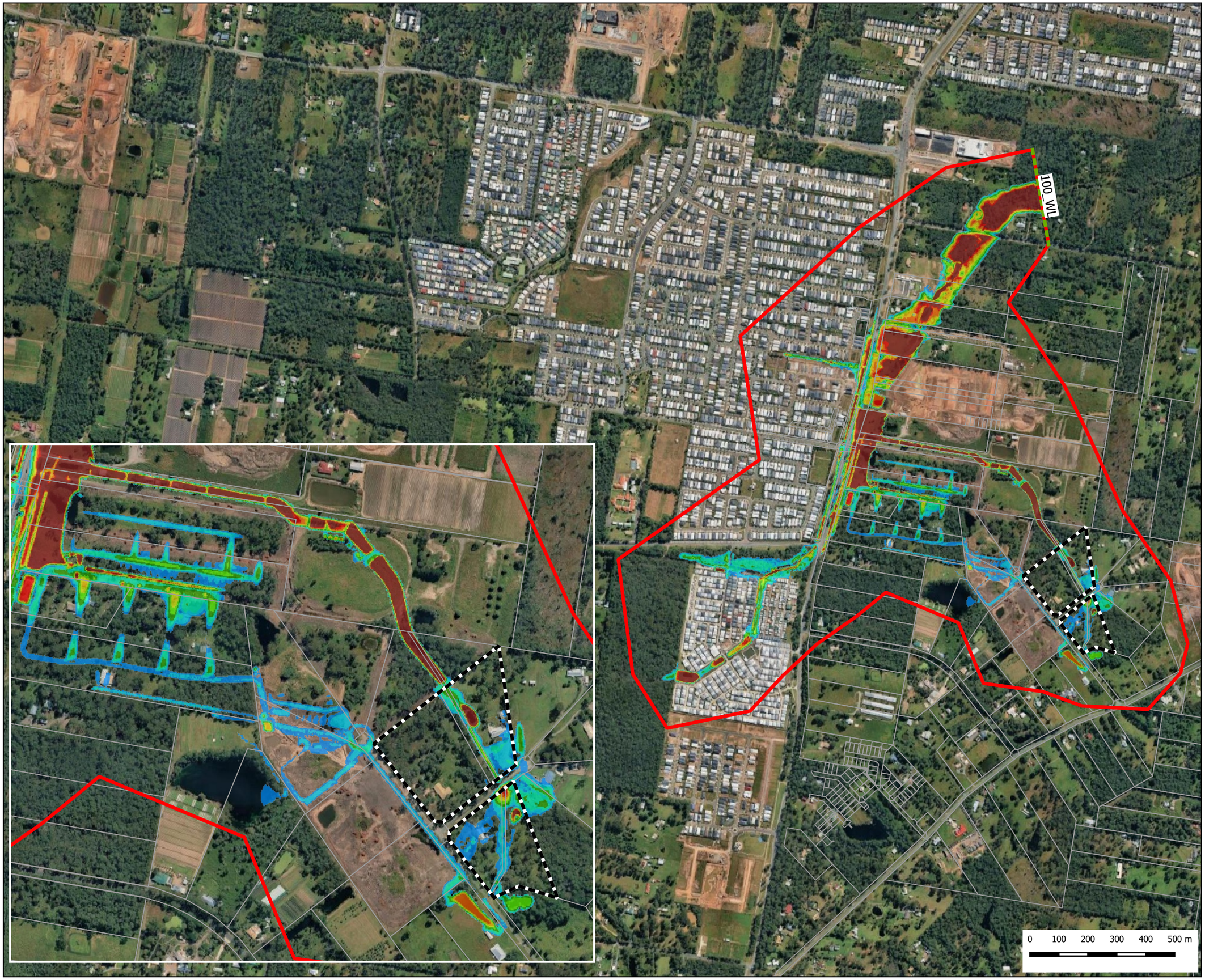
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FIG A08 PRE DEVELOPMENT
5%AEP
FLOOD WATER DEPTH




Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary

Water Depth (m)

below 0.02	0.4 - 0.5
0.02 - 0.05	0.5 - 0.6
0.05 - 0.1	0.6 - 0.7
0.1 - 0.2	0.7 - 0.8
0.2 - 0.3	above 0.8
0.3 - 0.4	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

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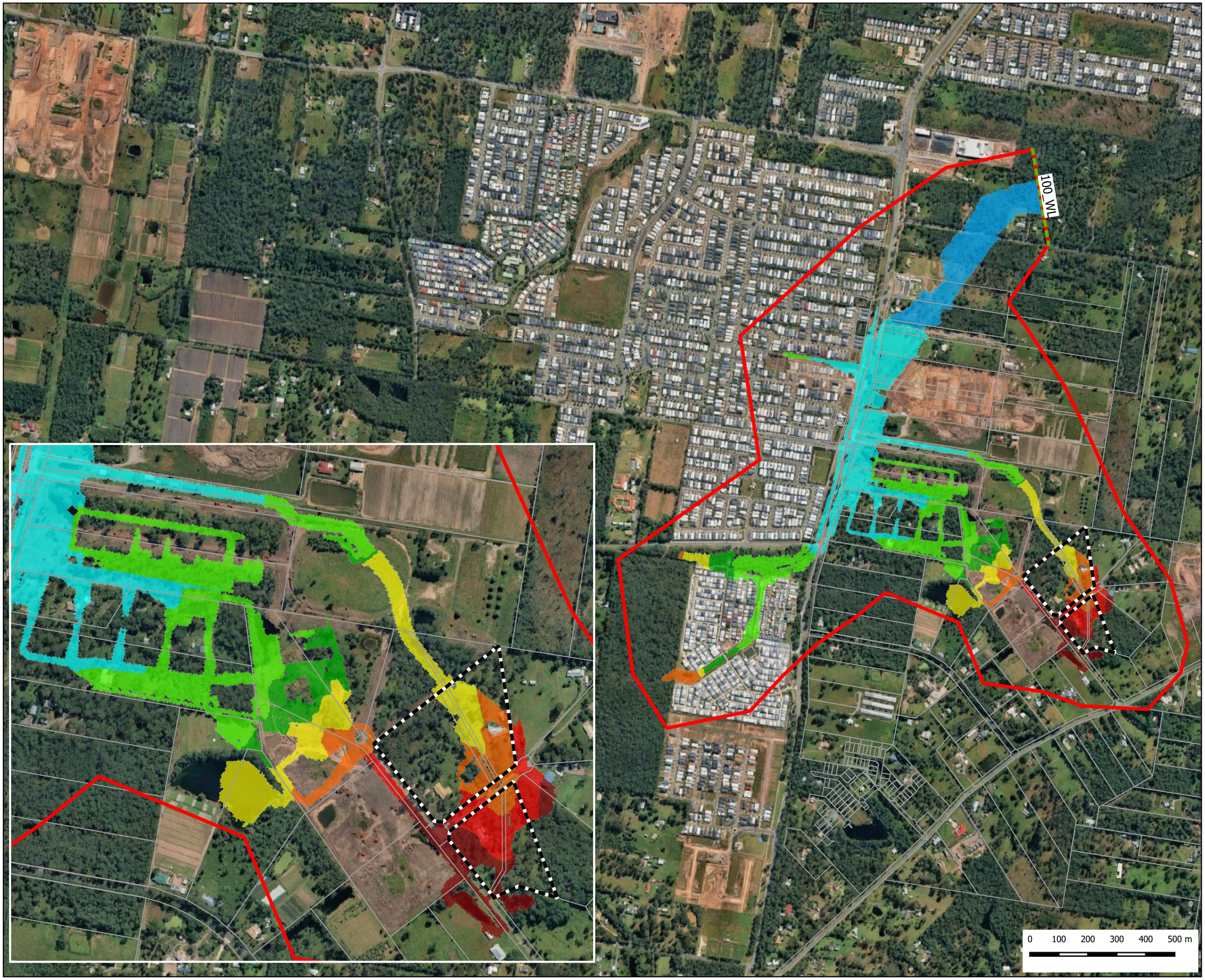
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FIG A09 PRE DEVELOPMENT
10%AEP
FLOOD WATER LEVEL




Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary

Water Level(mAHD)

- <= 15.0
- 15.0 - 20.0
- 20.0 - 25.0
- 25.0 - 27.0
- 27.0 - 29.0
- 29.0 - 31.0
- 31.0 - 33.0
- > 33.0

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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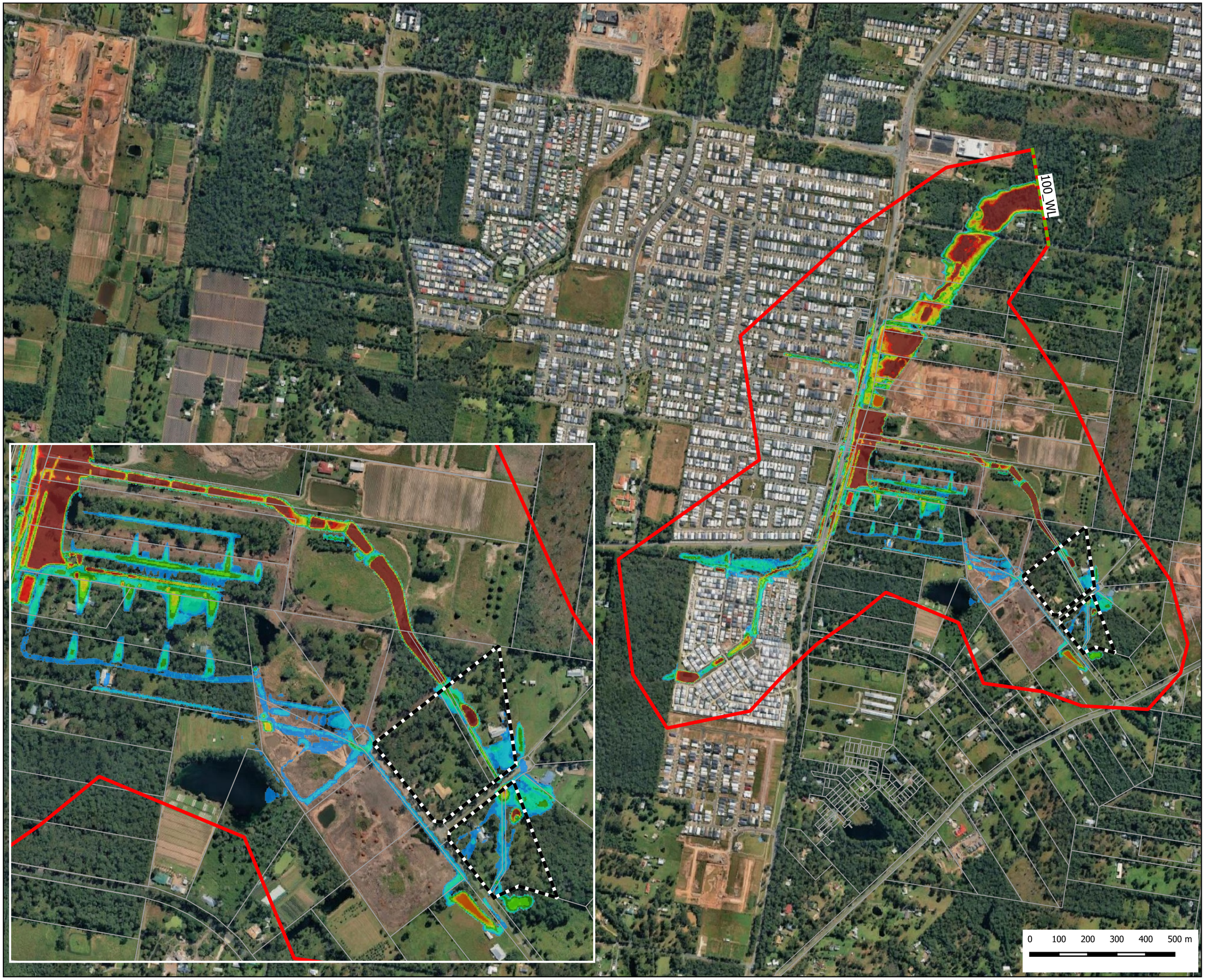
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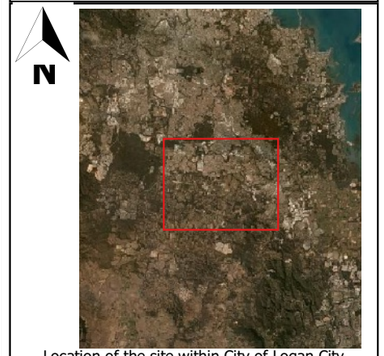
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FIG A10 PRE DEVELOPMENT
10%AEP
FLOOD WATER DEPTH





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary

Water Depth (m)

below 0.02	0.4 - 0.5
0.02 - 0.05	0.5 - 0.6
0.05 - 0.1	0.6 - 0.7
0.1 - 0.2	0.7 - 0.8
0.2 - 0.3	above 0.8
0.3 - 0.4	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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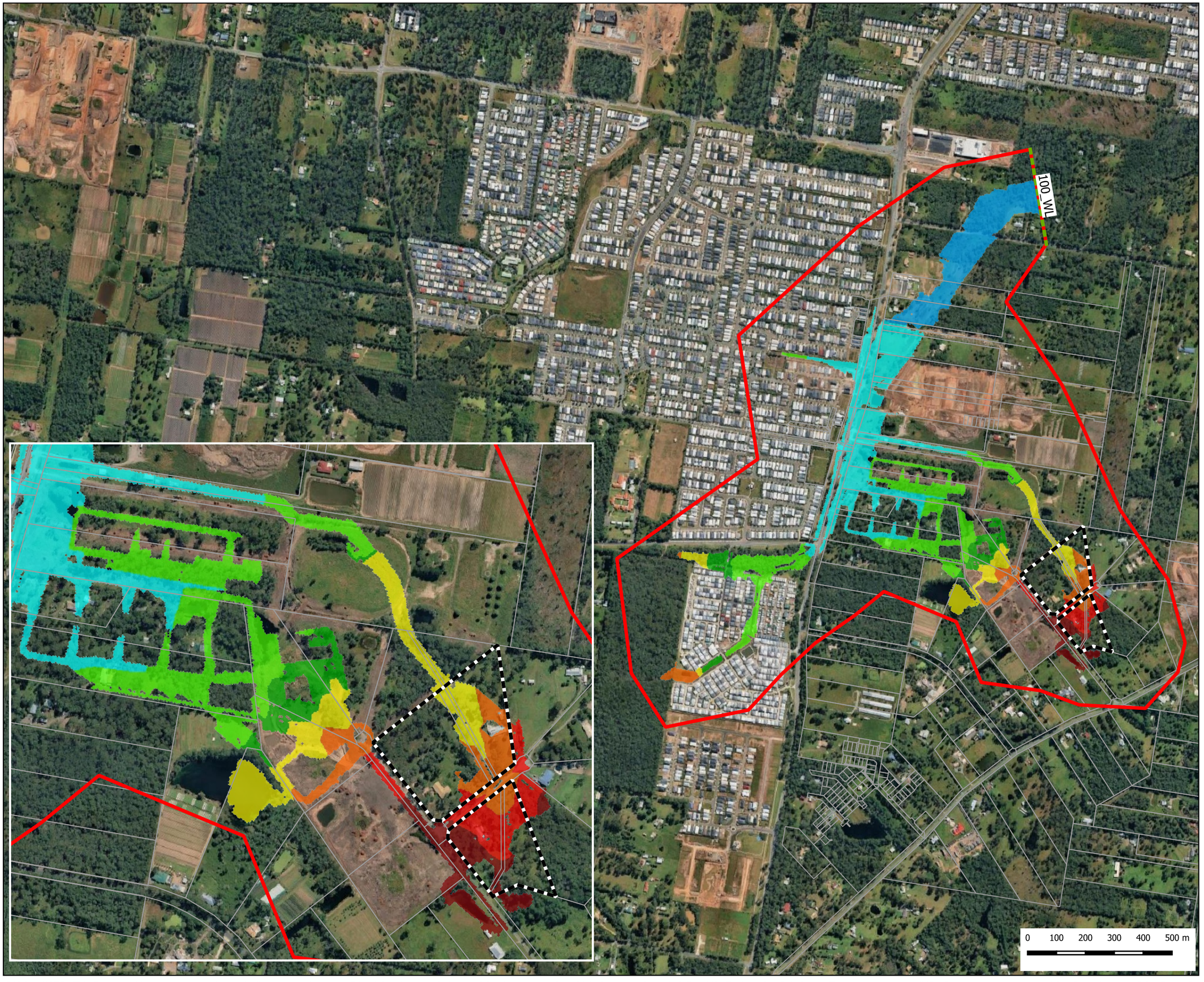
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FIG A11 PRE DEVELOPMENT
20%AEP
FLOOD WATER LEVEL




Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary

Water Level (mAHD)

<= 15.0	27.0 - 29.0
15.0 - 20.0	29.0 - 31.0
20.0 - 25.0	31.0 - 33.0
25.0 - 27.0	> 33.0

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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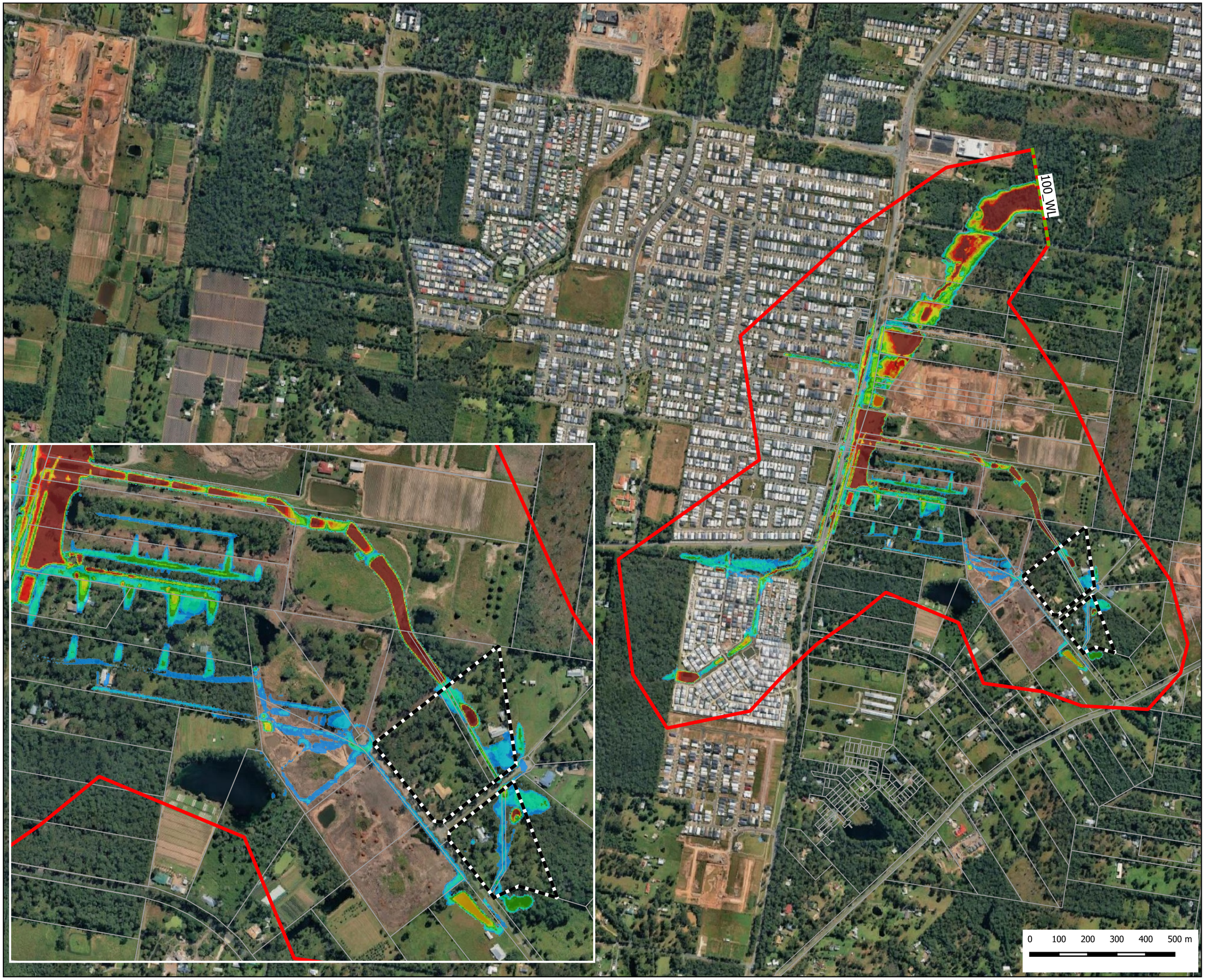
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FIG A12 PRE DEVELOPMENT
20%AEP
FLOOD WATER DEPTH




Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary

Water Depth (m)

below 0.02	0.4 - 0.5
0.02 - 0.05	0.5 - 0.6
0.05 - 0.1	0.6 - 0.7
0.1 - 0.2	0.7 - 0.8
0.2 - 0.3	above 0.8
0.3 - 0.4	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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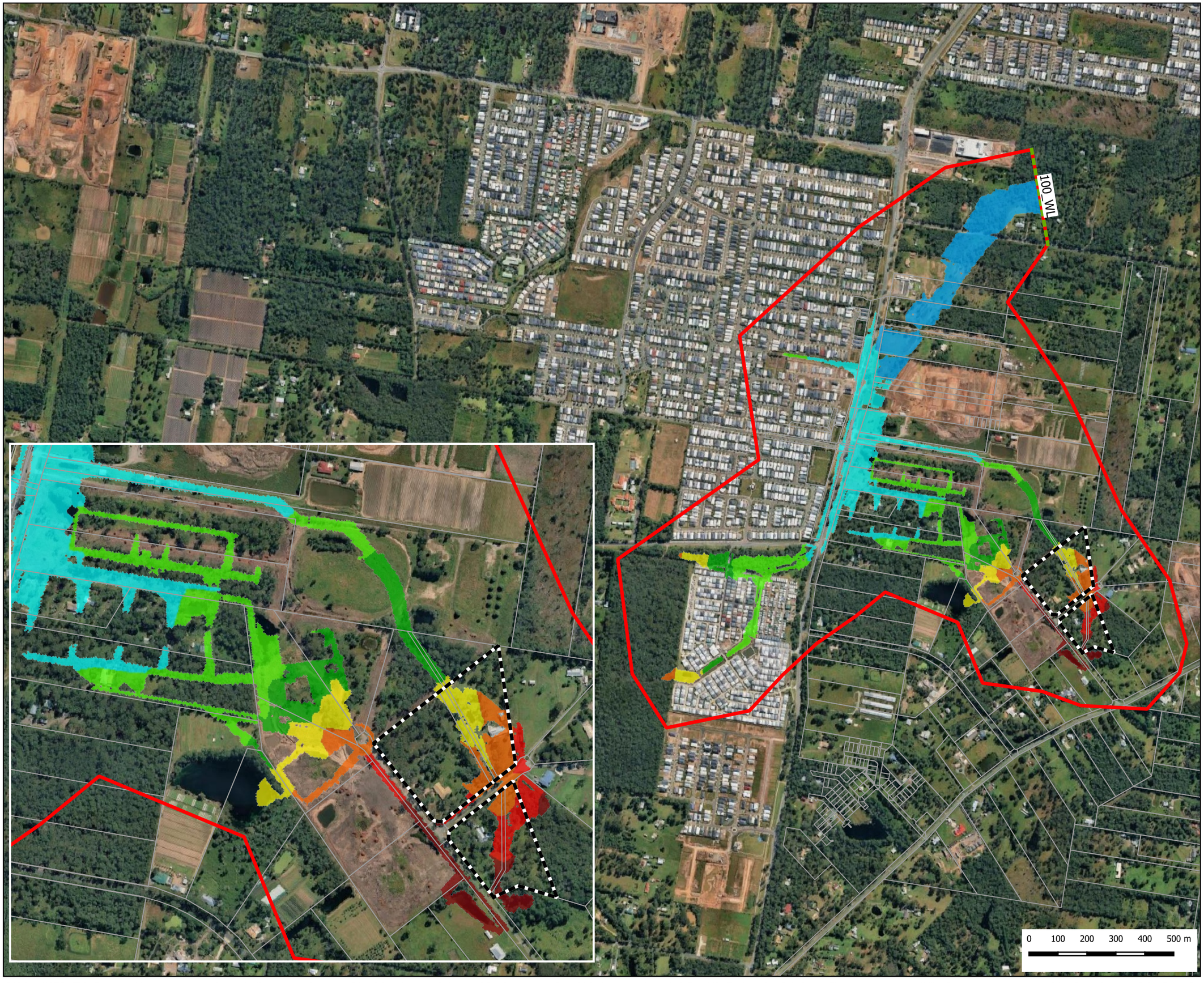
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FIG A13 PRE DEVELOPMENT
50%AEP
FLOOD WATER LEVEL




Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary

Water Level(mAHD)

<= 15.0	27.0 - 29.0
15.0 - 20.0	29.0 - 31.0
20.0 - 25.0	31.0 - 33.0
25.0 - 27.0	> 33.0

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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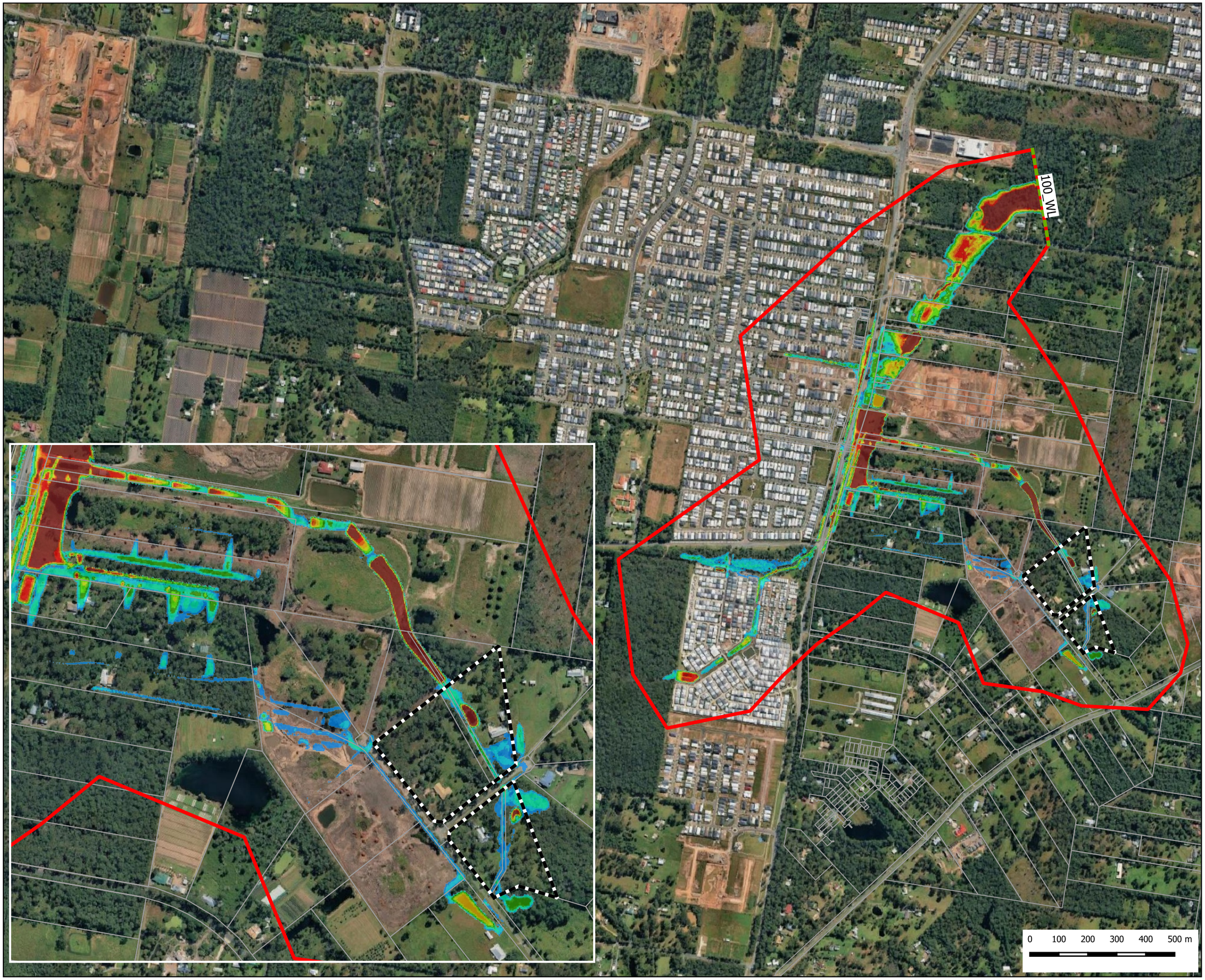
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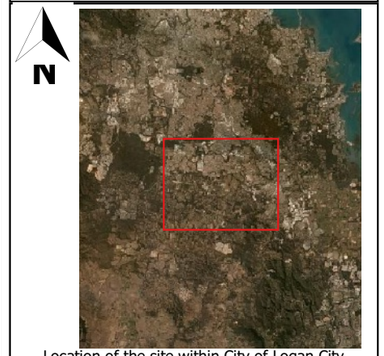
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FIG A14 PRE DEVELOPMENT
50%AEP
FLOOD WATER DEPTH





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary

Water Depth (m)

below 0.02	0.4 - 0.5
0.02 - 0.05	0.5 - 0.6
0.05 - 0.1	0.6 - 0.7
0.1 - 0.2	0.7 - 0.8
0.2 - 0.3	above 0.8
0.3 - 0.4	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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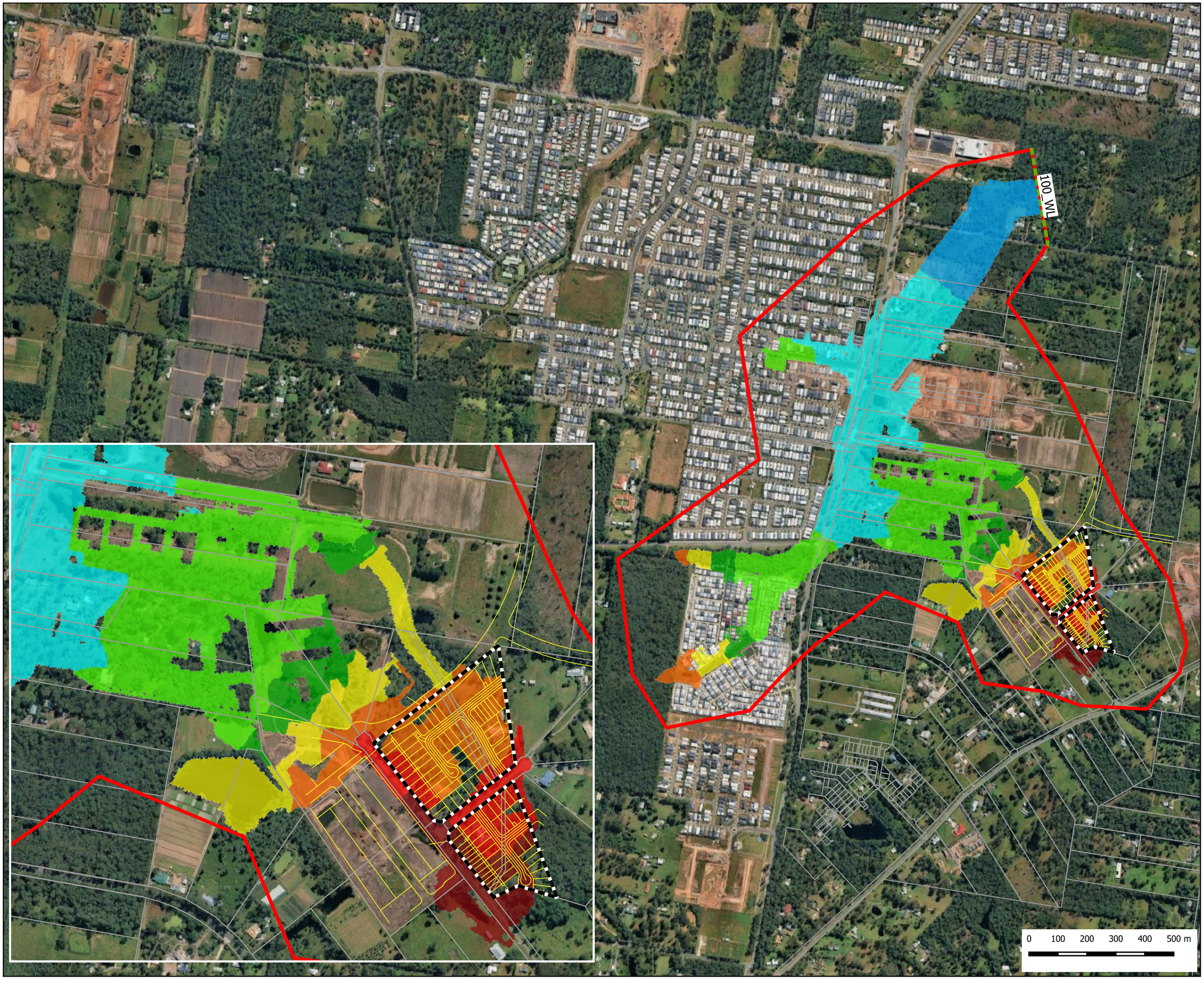
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FIG B01 POST DEVELOPMENT
PMF EVENT
FLOOD WATER LEVEL





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Level(mAHD)

<= 15.0	27.0 - 29.0
15.0 - 20.0	29.0 - 31.0
20.0 - 25.0	31.0 - 33.0
25.0 - 27.0	> 33.0

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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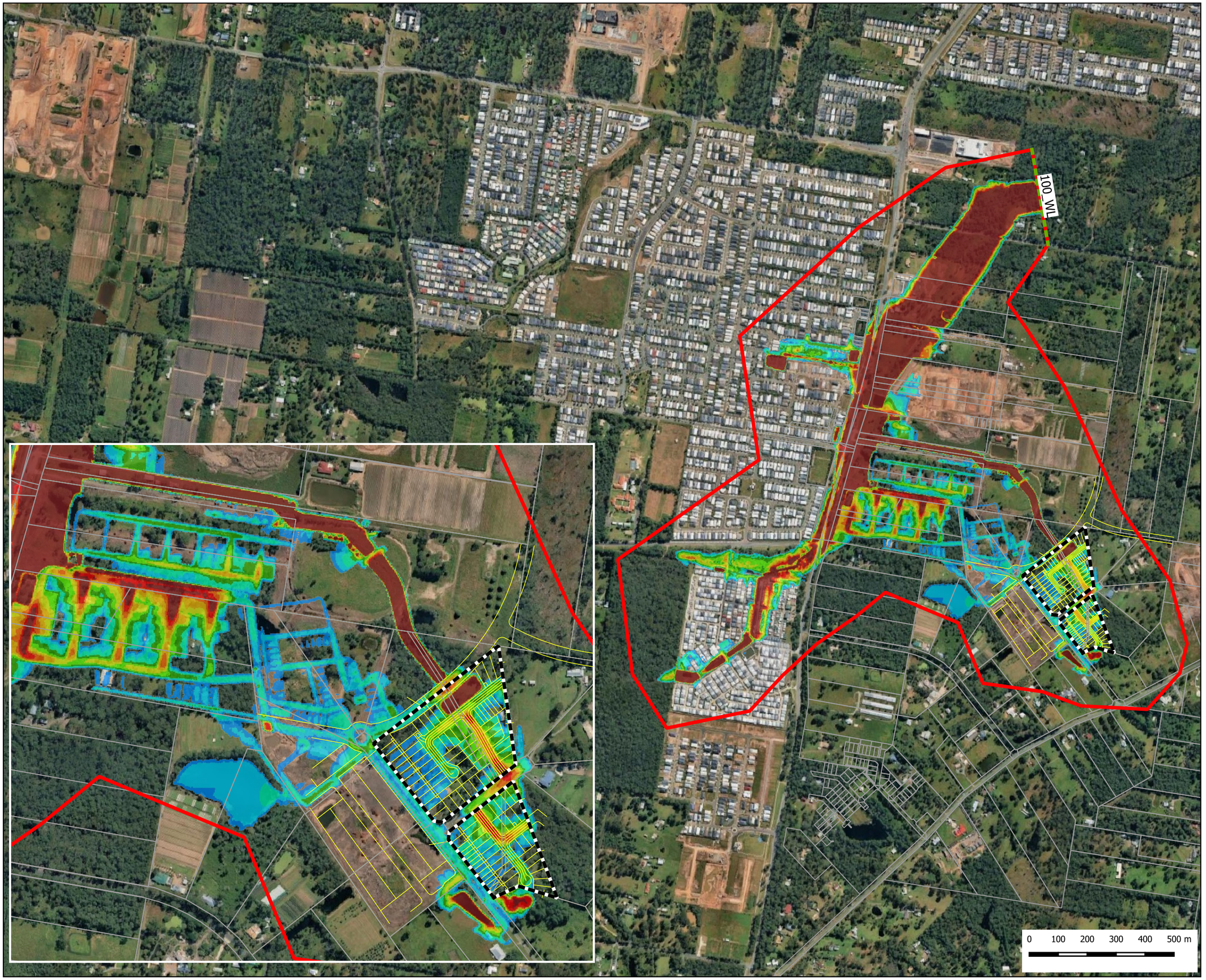
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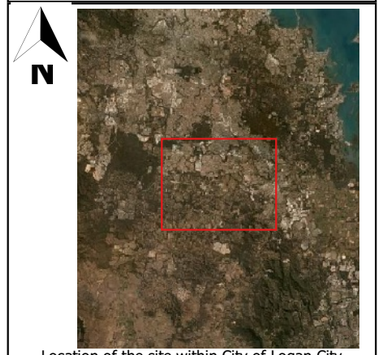
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FIG B02 POST DEVELOPMENT
PMF EVENT
FLOOD WATER DEPTH





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Depth (m)

below 0.02	0.4 - 0.5
0.02 - 0.05	0.5 - 0.6
0.05 - 0.1	0.6 - 0.7
0.1 - 0.2	0.7 - 0.8
0.2 - 0.3	above 0.8
0.3 - 0.4	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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FOR

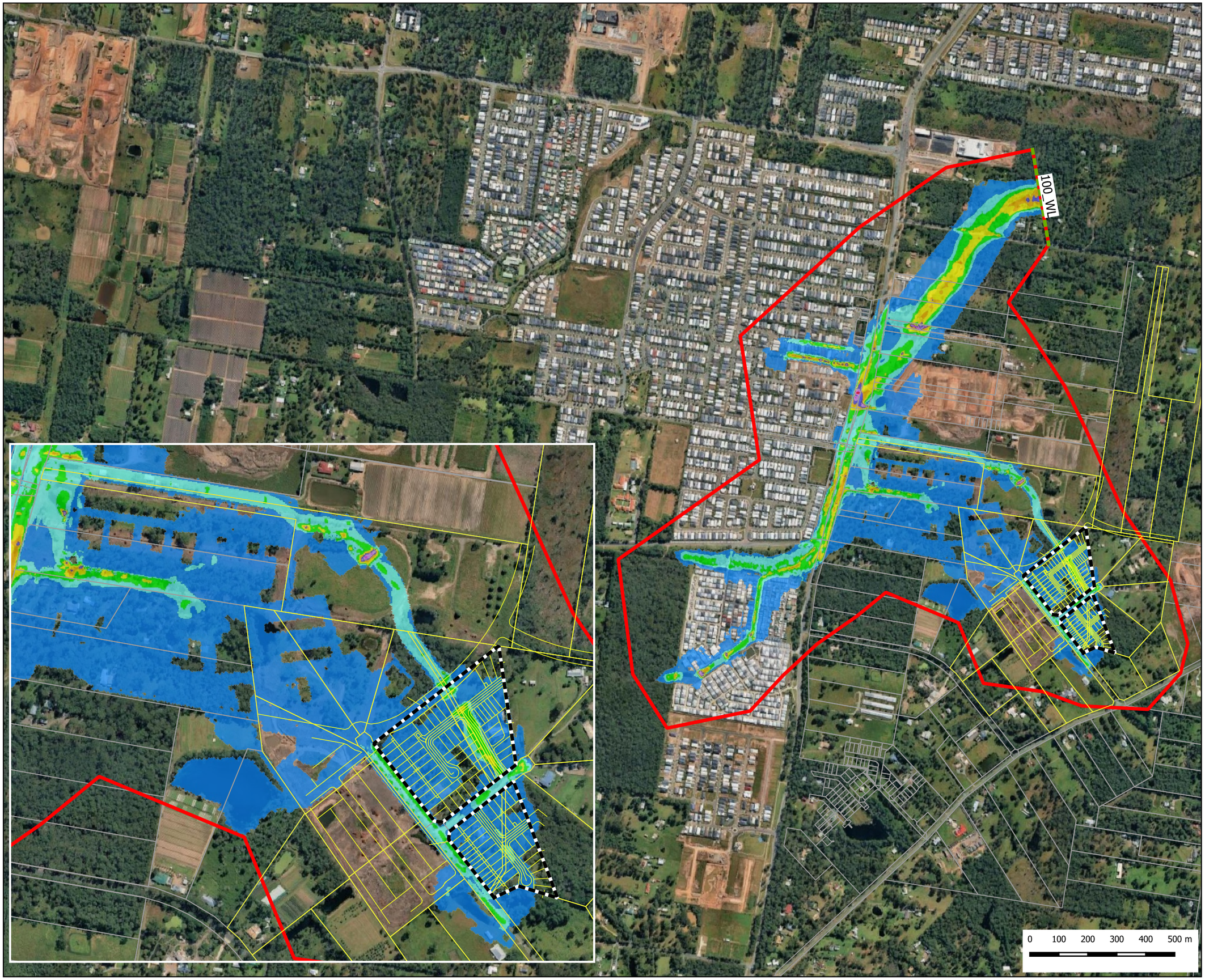
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FIG B03 POST DEVELOPMENT
PMF EVENT
FLOOD WATER VELOCITY





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Velocity (m/s)

below 0.5	2.5 to 3.0
0.5 to 1.0	3.0 to 3.5
1.0 to 1.5	3.5 to 4.0
1.5 to 2.0	above 4.0
2.0 to 2.5	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

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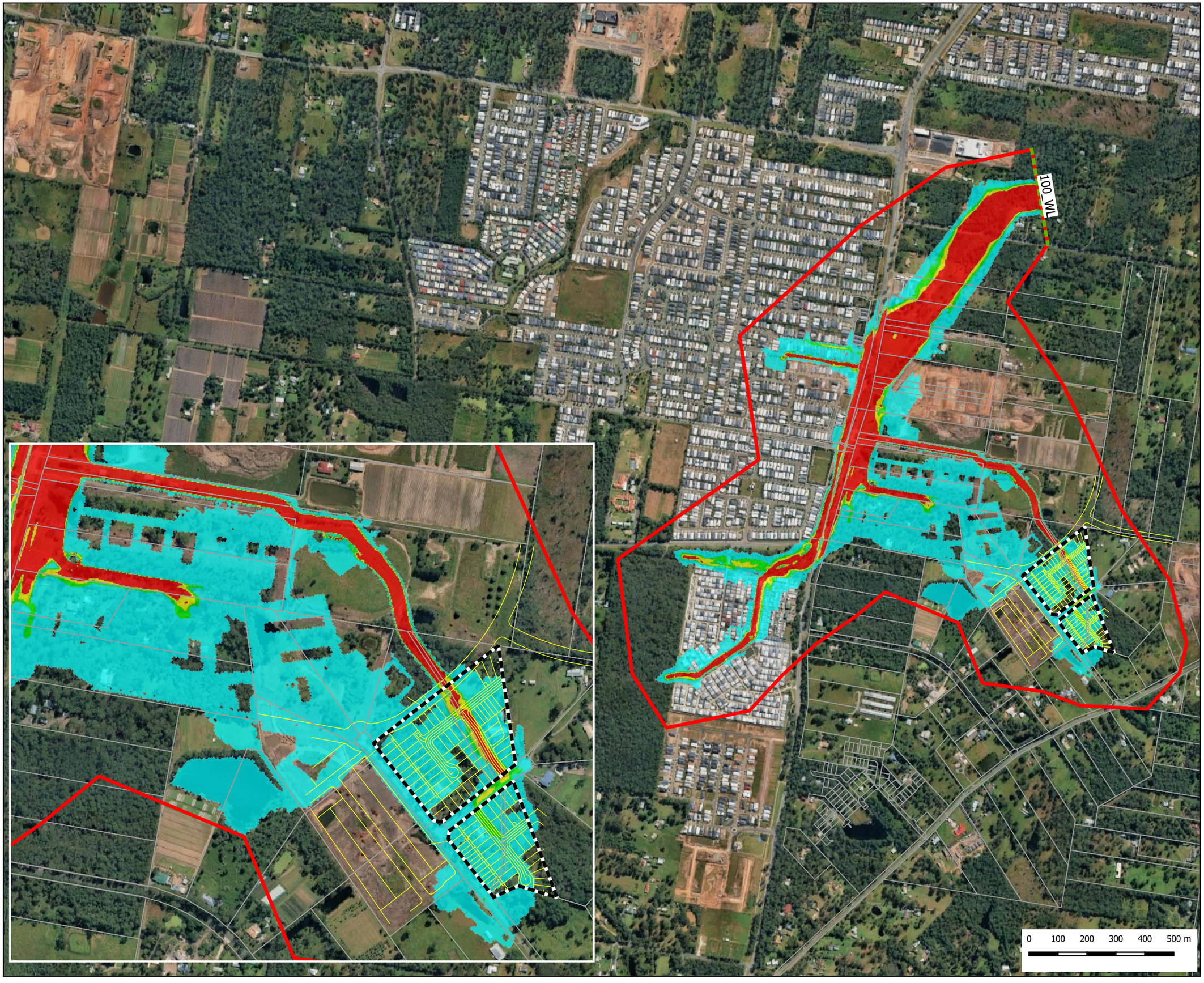
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FIG B04 POST DEVELOPMENT
PMF EVENT
FLOOD HAZARD





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Hazard (m2/s)

- Low Hazard (< 0.25)
- Moderate Hazard (0.25 - 0.4)
- Significant Hazard (0.4 - 0.6)
- Extreme Hazard (> 0.6)

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

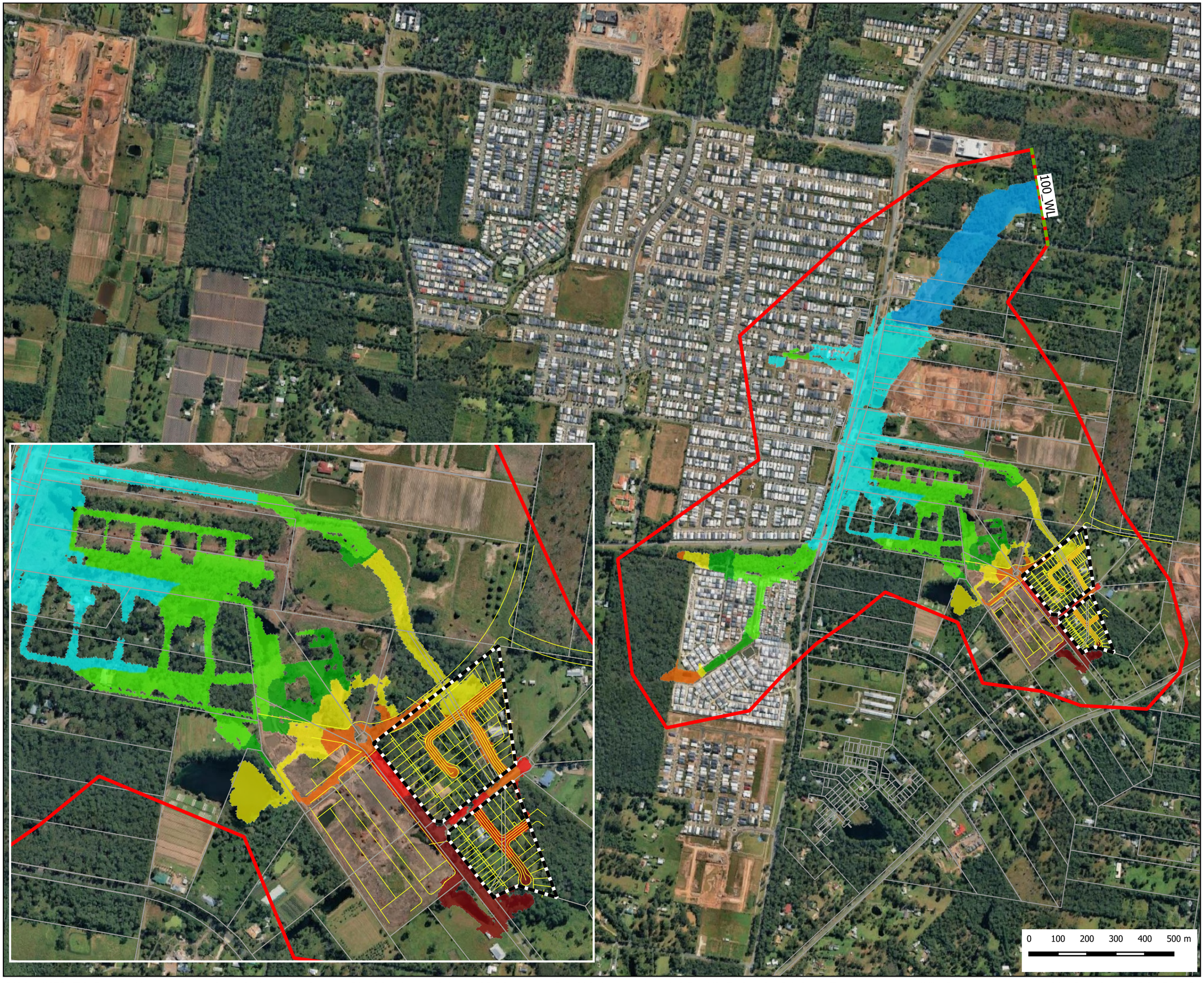
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FIG B05 POST DEVELOPMENT
1%AEP CLIMATE CHANGE
FLOOD WATER LEVEL





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Level(mAHD)

<= 15.0	27.0 - 29.0
15.0 - 20.0	29.0 - 31.0
20.0 - 25.0	31.0 - 33.0
25.0 - 27.0	> 33.0

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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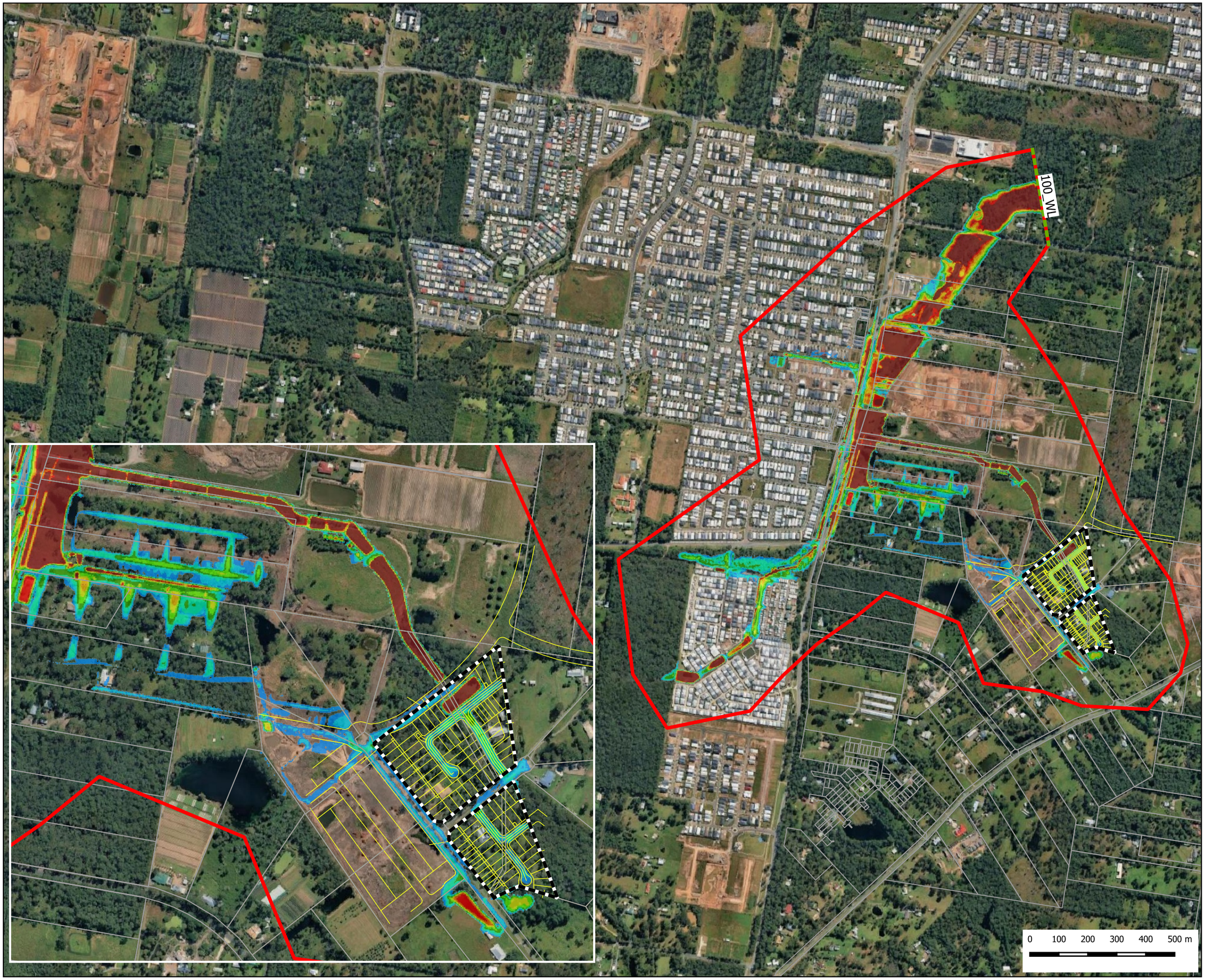
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FIG B06 POST DEVELOPMENT
1%AEP CLIMATE CHANGE
FLOOD WATER DEPTH





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Depth (m)

below 0.02	0.4 - 0.5
0.02 - 0.05	0.5 - 0.6
0.05 - 0.1	0.6 - 0.7
0.1 - 0.2	0.7 - 0.8
0.2 - 0.3	above 0.8
0.3 - 0.4	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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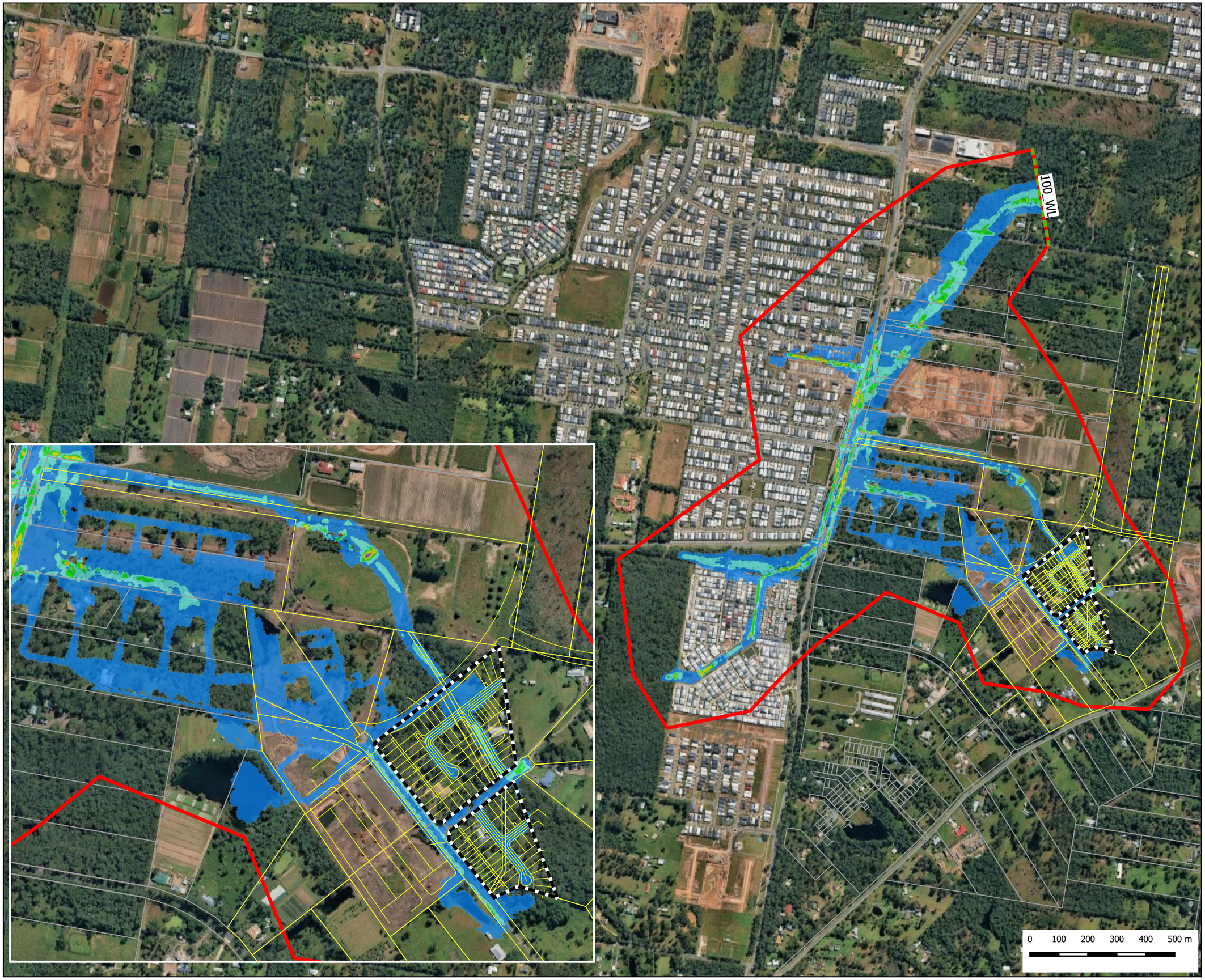
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FIG B07 POST DEVELOPMENT
1%AEP CLIMATE CHANGE
FLOOD WATER VELOCITY





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Velocity (m/s)

- below 0.5
- 0.5 to 1.0
- 1.0 to 1.5
- 1.5 to 2.0
- 2.0 to 2.5
- 2.5 to 3.0
- 3.0 to 3.5
- 3.5 to 4.0
- above 4.0

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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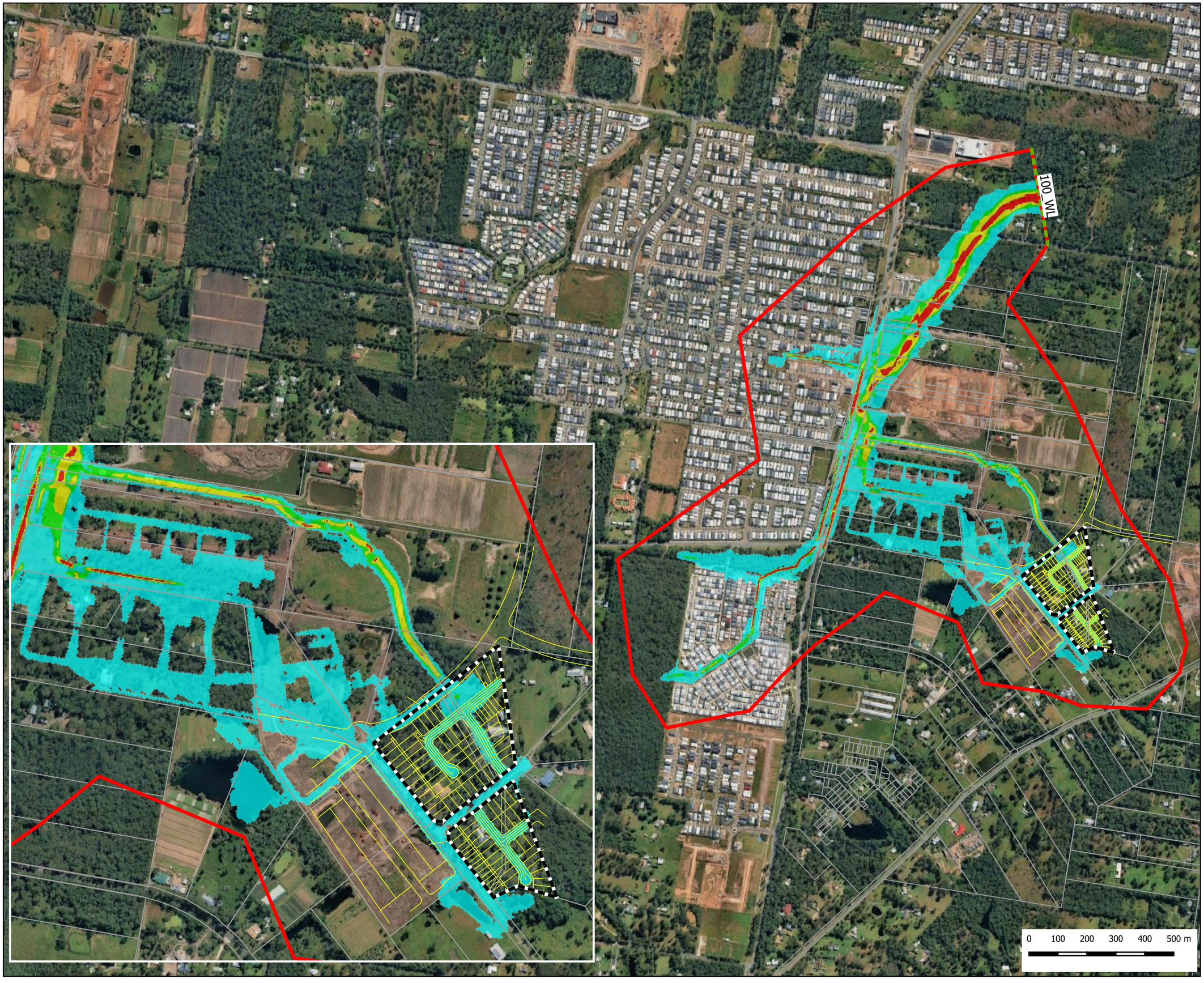
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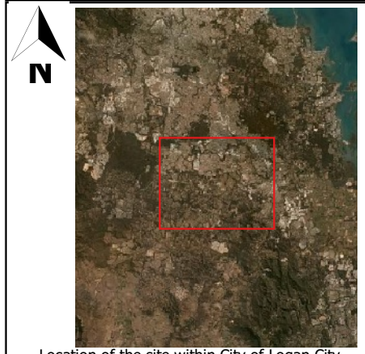
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FIG B08 POST DEVELOPMENT
1%AEP CLIMATE CHANGE
FLOOD HAZARD





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Hazard (m2/s)

- Low Hazard (< 0.25)
- Moderate Hazard (0.25 - 0.4)
- Significant Hazard (0.4 - 0.6)
- Extreme Hazard (> 0.6)

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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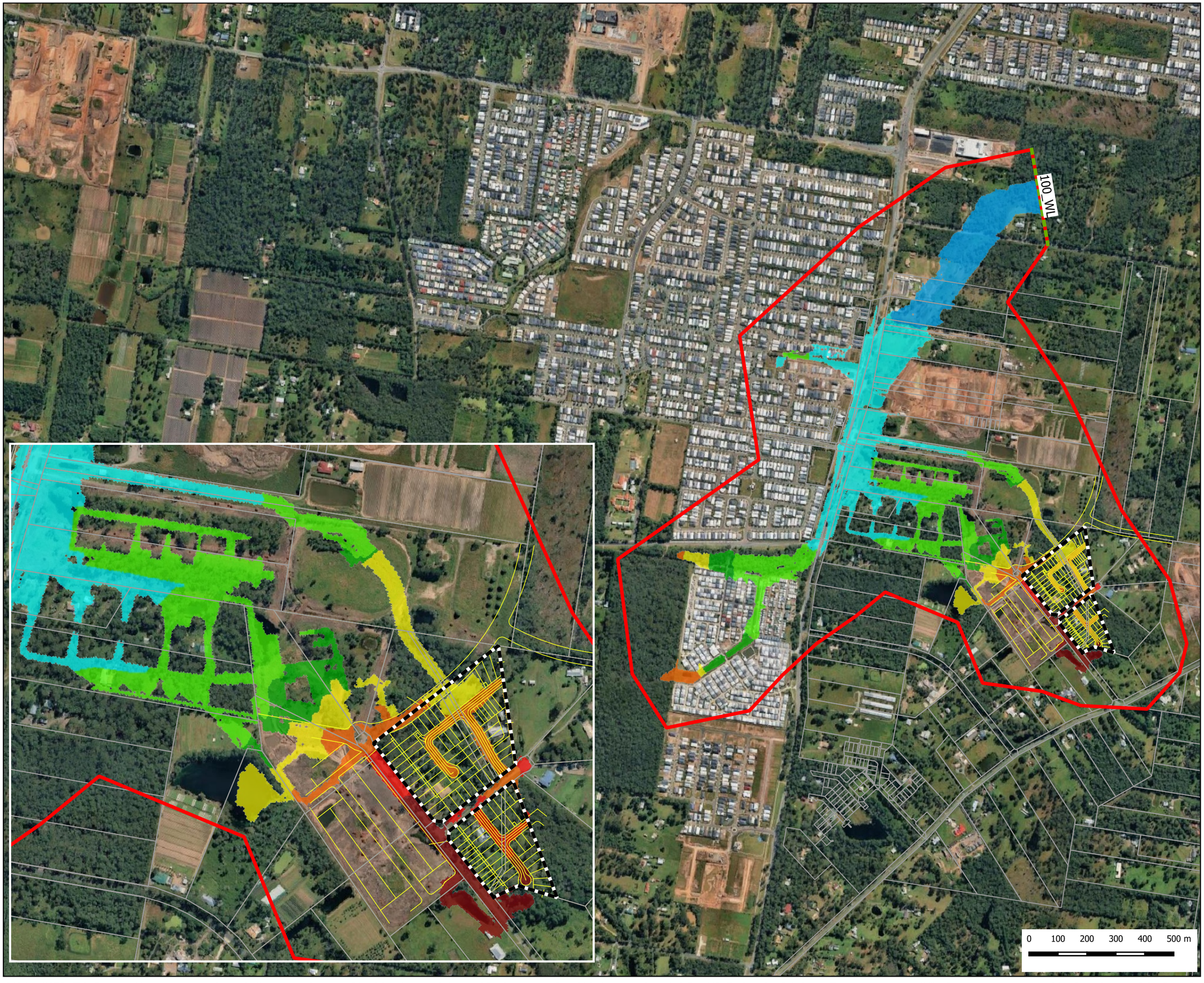
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FIG B09 POST DEVELOPMENT
1%AEP
FLOOD WATER LEVEL




Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Level(mAHD)

<= 15.0	27.0 - 29.0
15.0 - 20.0	29.0 - 31.0
20.0 - 25.0	31.0 - 33.0
25.0 - 27.0	> 33.0

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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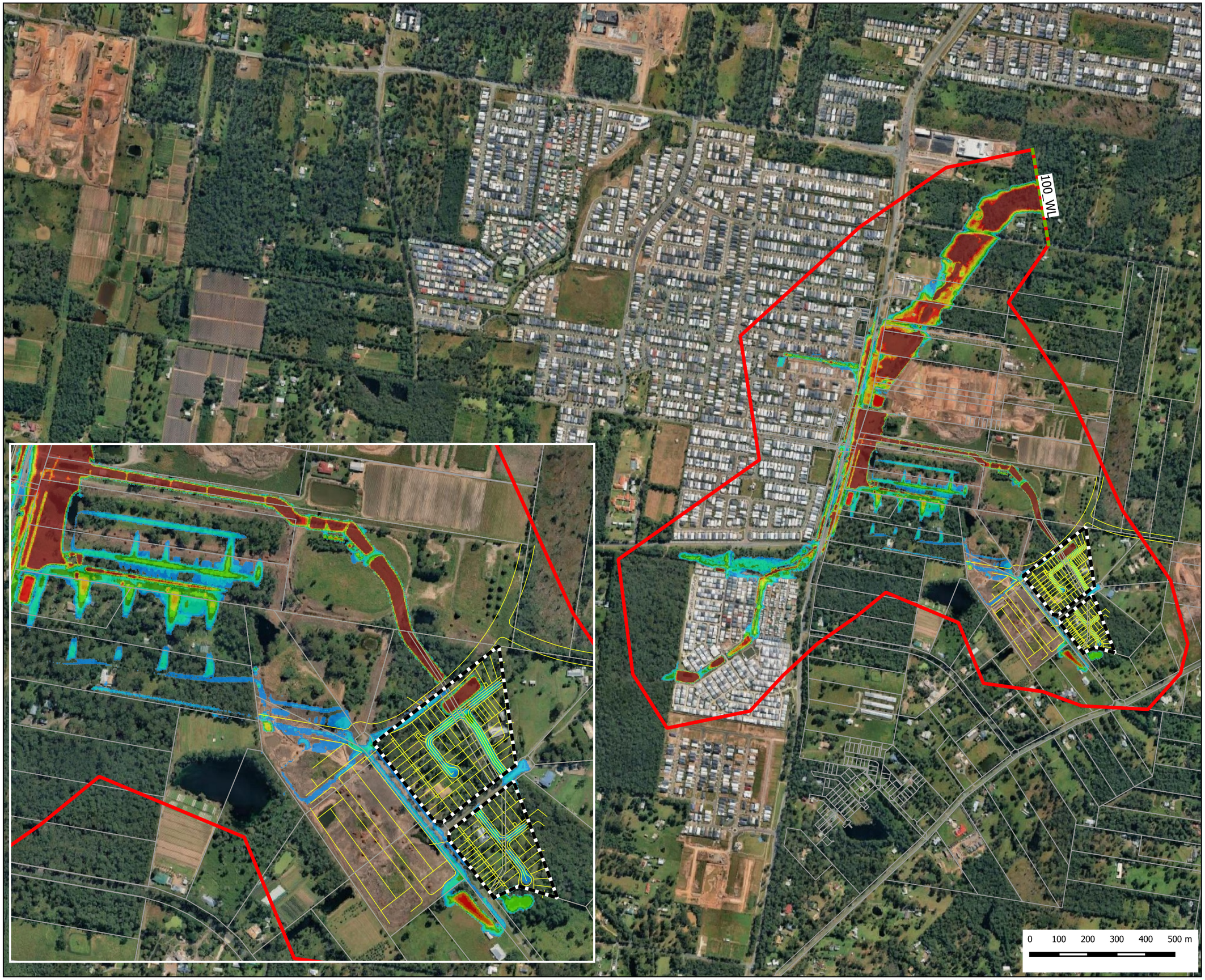
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FIG B10 POST DEVELOPMENT
1%AEP
FLOOD WATER DEPTH




Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Depth (m)

below 0.02	0.4 - 0.5
0.02 - 0.05	0.5 - 0.6
0.05 - 0.1	0.6 - 0.7
0.1 - 0.2	0.7 - 0.8
0.2 - 0.3	above 0.8
0.3 - 0.4	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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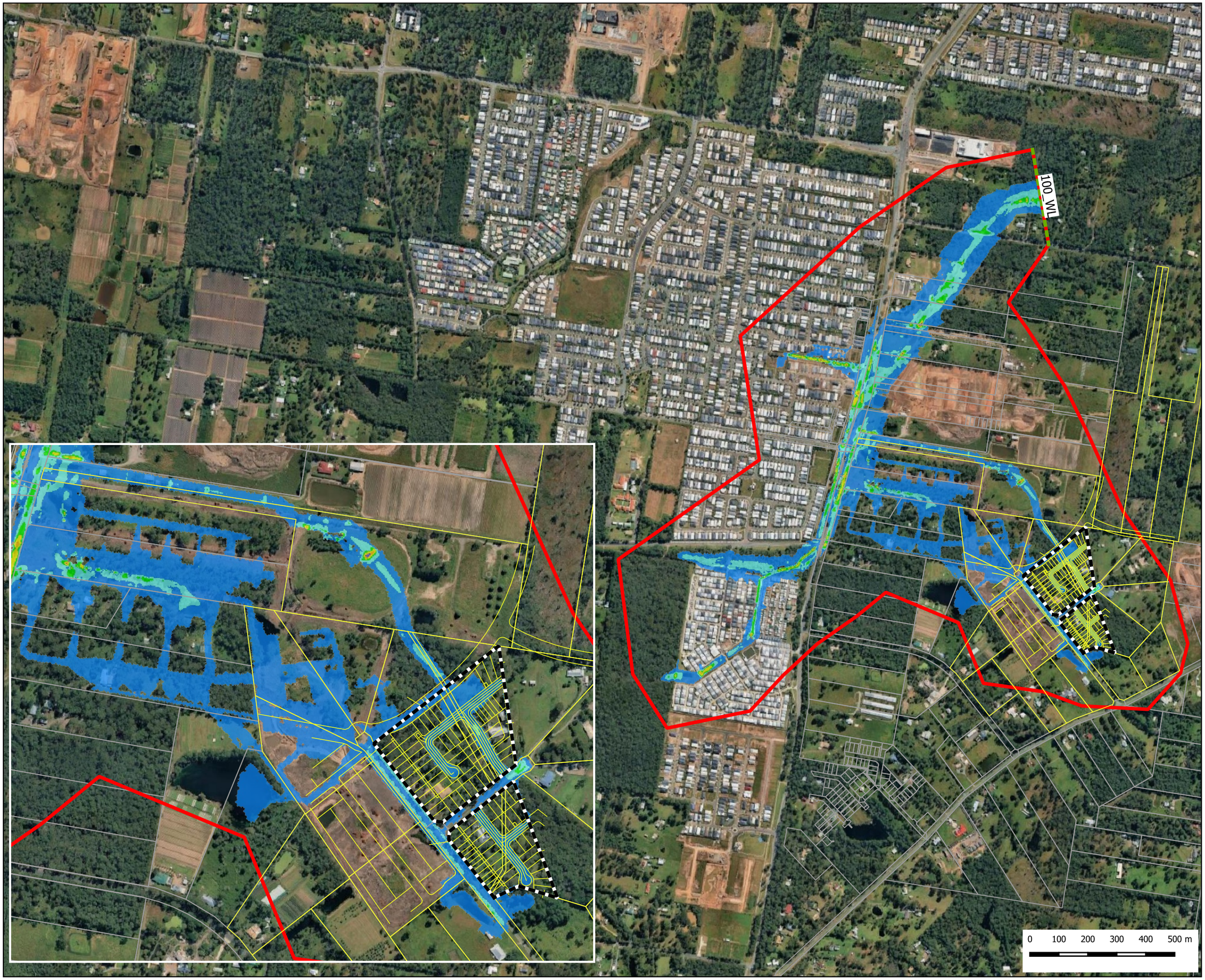
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FIG B11 POST DEVELOPMENT
1%AEP
FLOOD WATER VELOCITY





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Velocity (m/s)

below 0.5	2.5 to 3.0
0.5 to 1.0	3.0 to 3.5
1.0 to 1.5	3.5 to 4.0
1.5 to 2.0	above 4.0
2.0 to 2.5	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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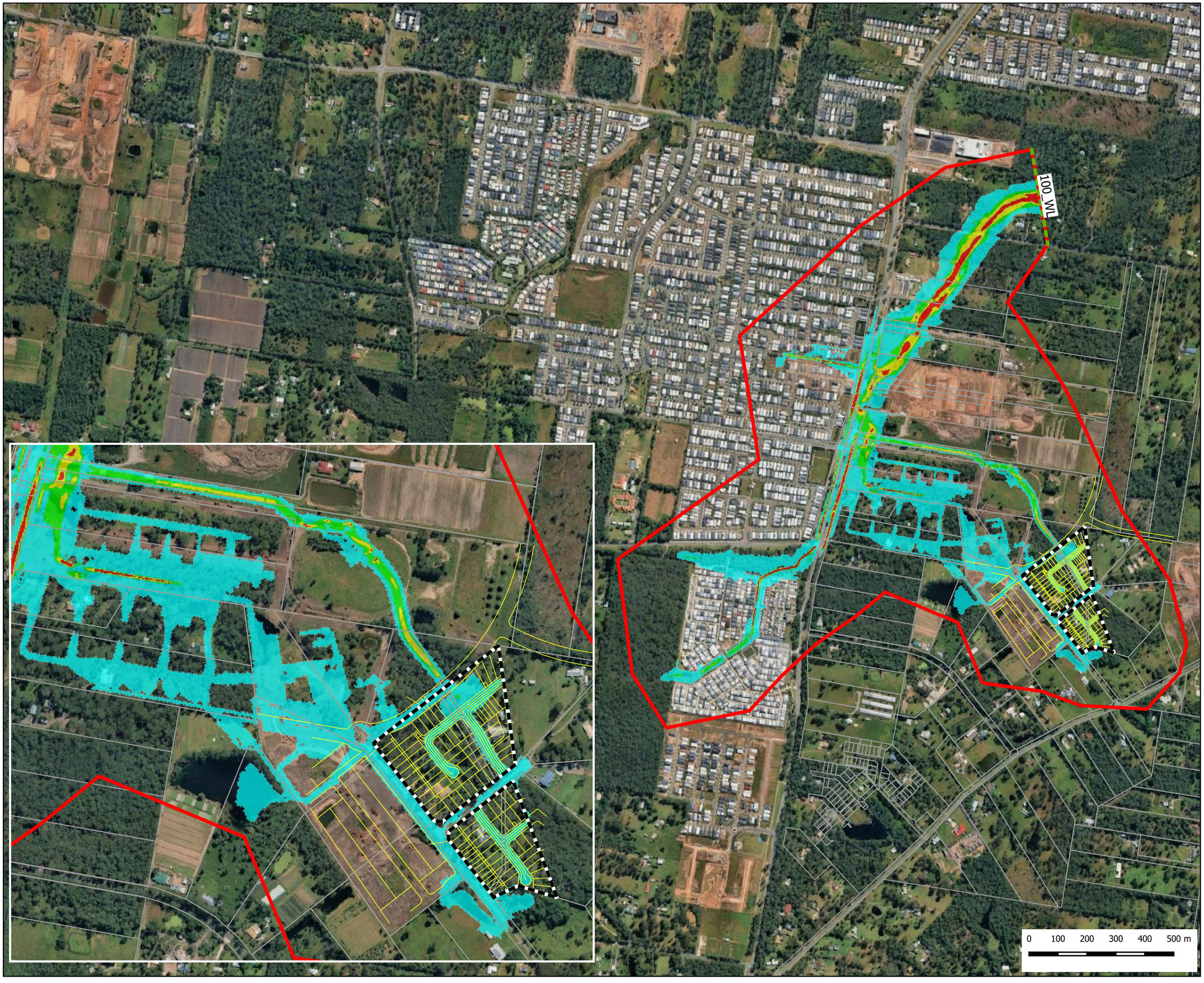
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FIG B12 POST DEVELOPMENT
1%AEP
FLOOD HAZARD





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Hazard (m2/s)

- Low Hazard (< 0.25)
- Moderate Hazard (0.25 - 0.4)
- Significant Hazard (0.4 - 0.6)
- Extreme Hazard (> 0.6)

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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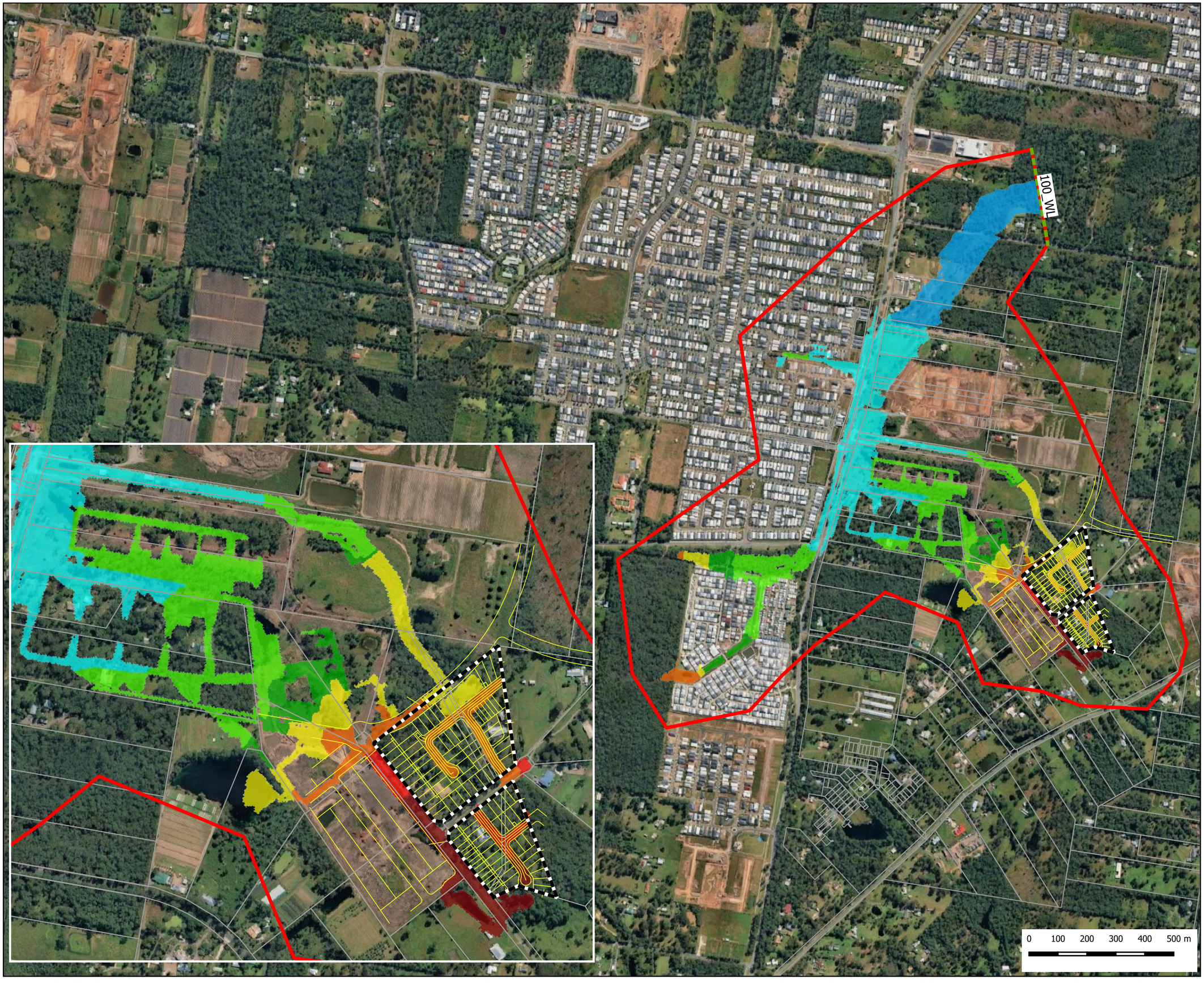
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FIG B13 POST DEVELOPMENT
2%AEP
FLOOD WATER LEVEL




Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Level(mAHD)

<= 15.0	27.0 - 29.0
15.0 - 20.0	29.0 - 31.0
20.0 - 25.0	31.0 - 33.0
25.0 - 27.0	> 33.0

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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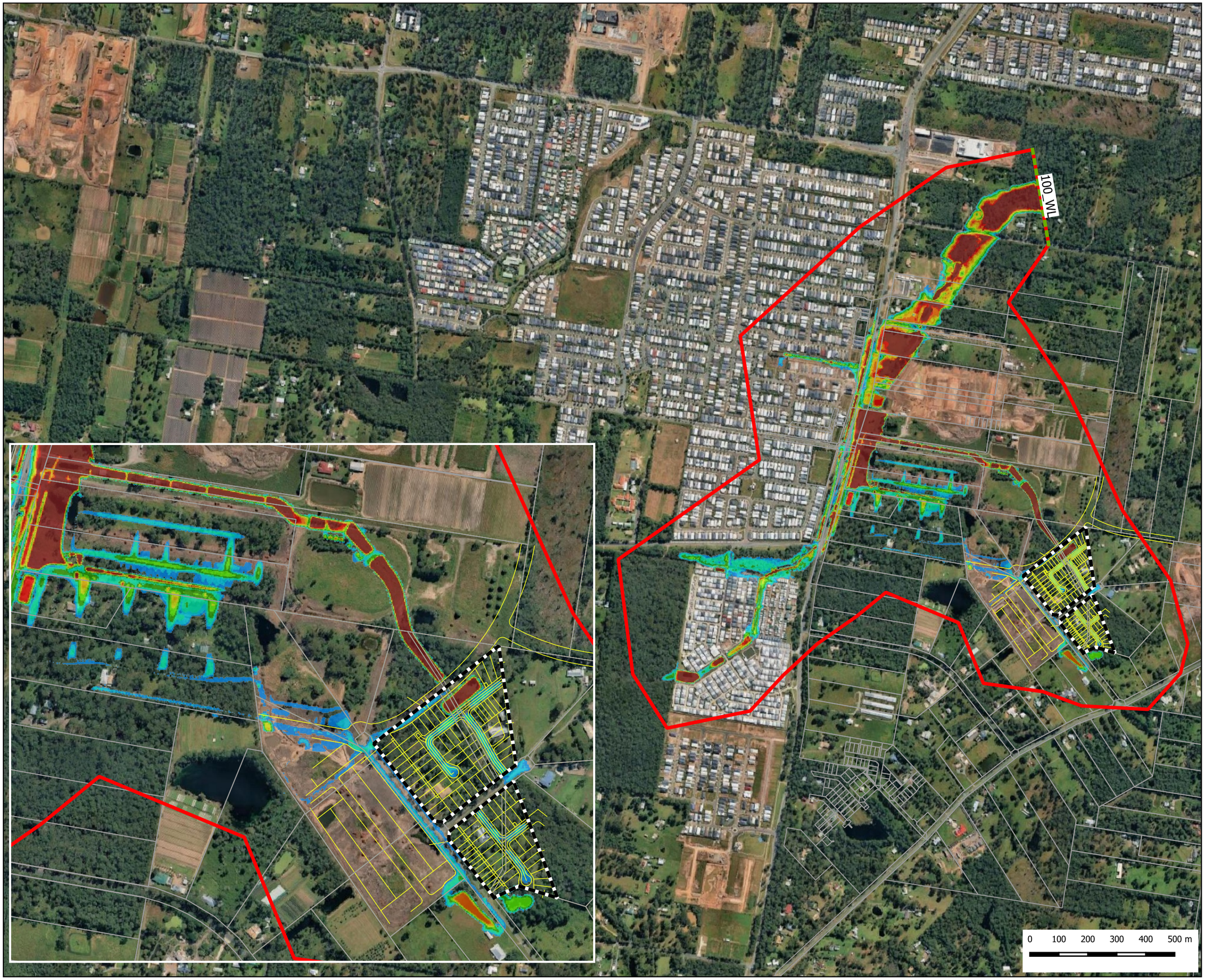
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FIG B14 POST DEVELOPMENT
2%AEP
FLOOD WATER DEPTH




Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Depth (m)

below 0.02	0.4 - 0.5
0.02 - 0.05	0.5 - 0.6
0.05 - 0.1	0.6 - 0.7
0.1 - 0.2	0.7 - 0.8
0.2 - 0.3	above 0.8
0.3 - 0.4	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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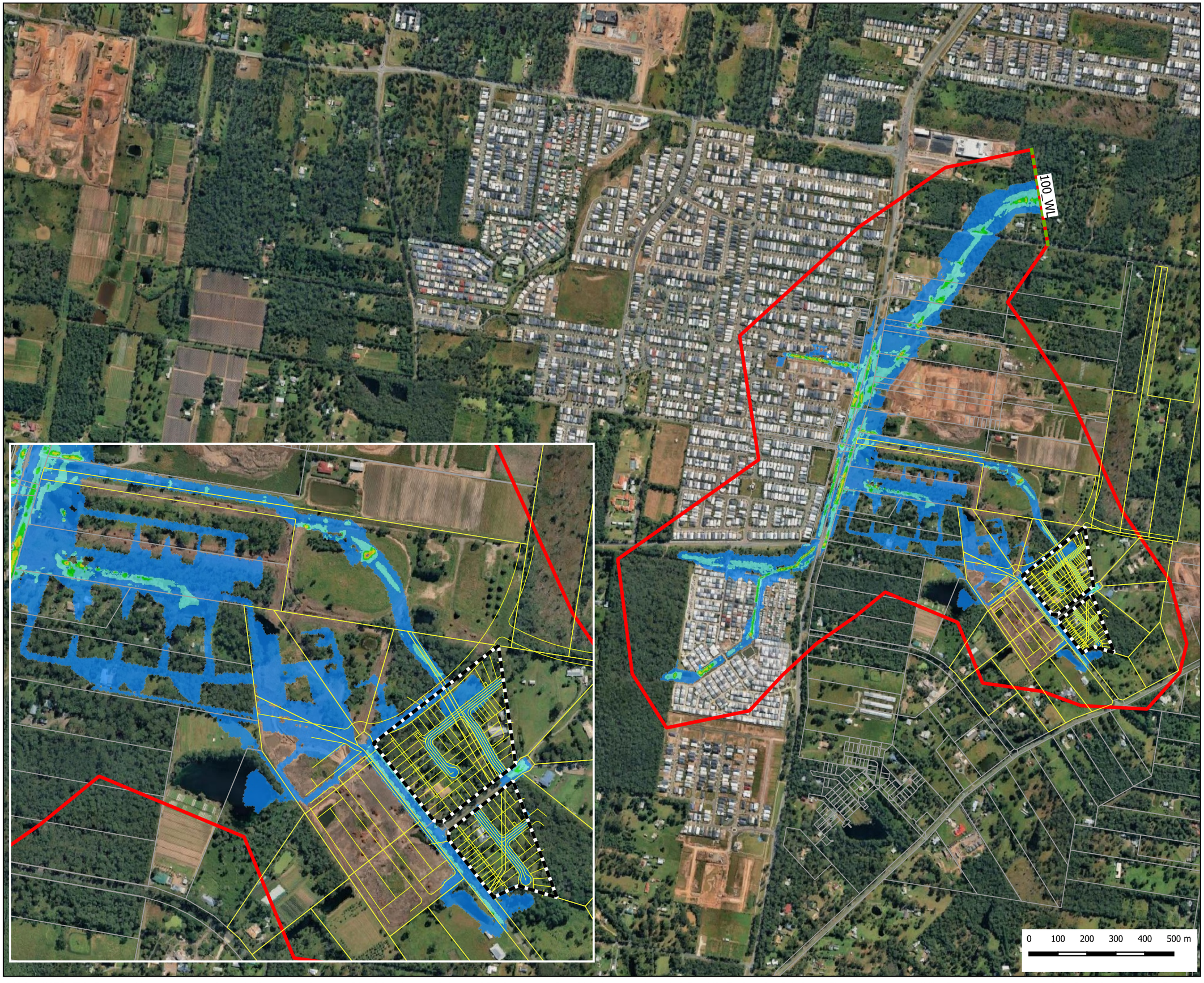
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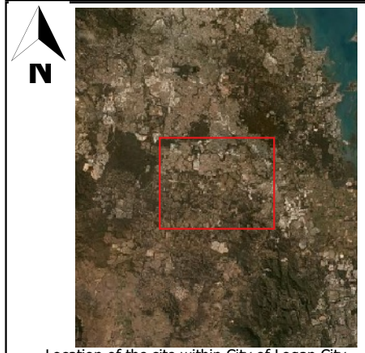
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FIG B15 POST DEVELOPMENT
2%AEP
FLOOD WATER VELOCITY





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Velocity (m/s)

- below 0.5
- 0.5 to 1.0
- 1.0 to 1.5
- 1.5 to 2.0
- 2.0 to 2.5
- 2.5 to 3.0
- 3.0 to 3.5
- 3.5 to 4.0
- above 4.0

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

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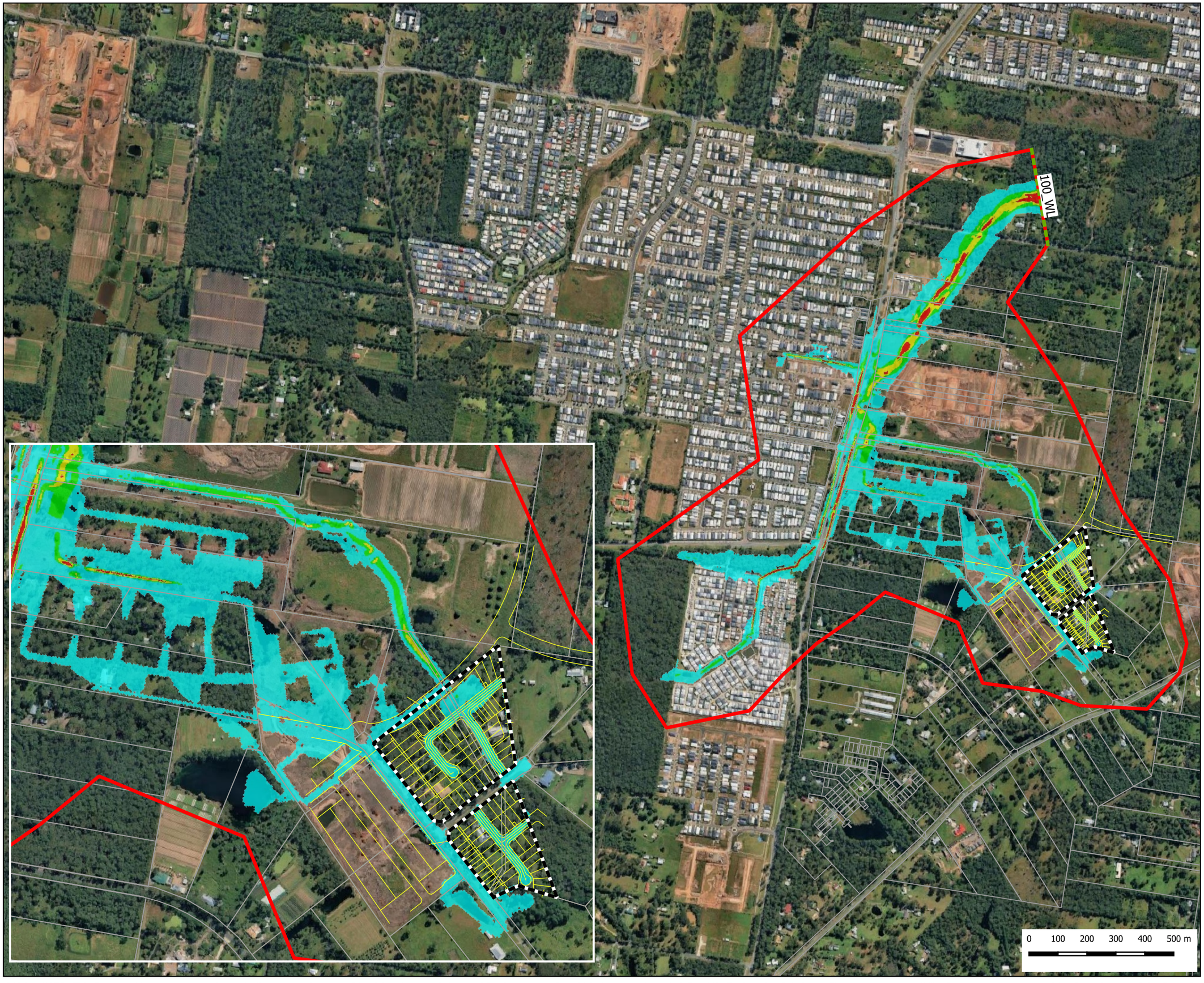
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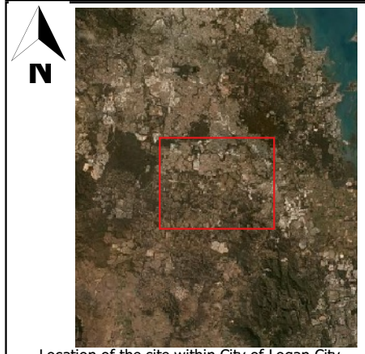
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FIG B16 POST DEVELOPMENT
2%AEP
FLOOD HAZARD





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Hazard (m2/s)

- Low Hazard (< 0.25)
- Moderate Hazard (0.25 - 0.4)
- Significant Hazard (0.4 - 0.6)
- Extreme Hazard (> 0.6)

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

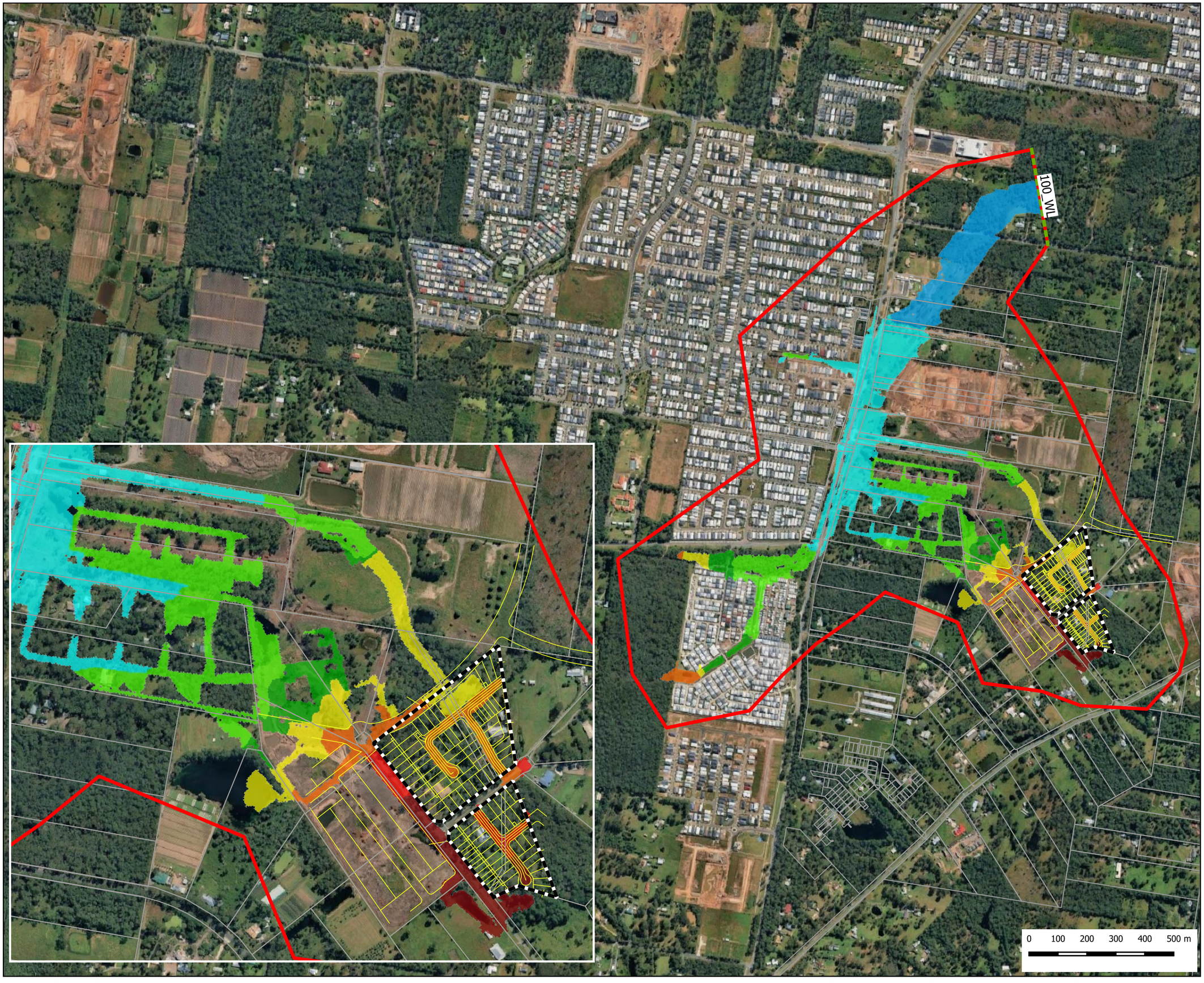
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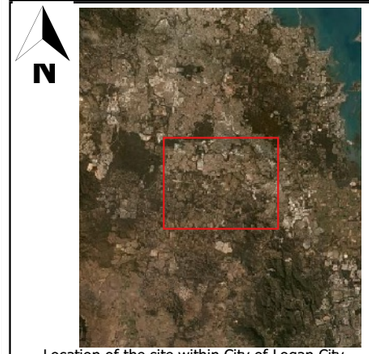
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FIG B17 POST DEVELOPMENT
5%AEP
FLOOD WATER LEVEL





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Level(mAHD)

<= 15.0	27.0 - 29.0
15.0 - 20.0	29.0 - 31.0
20.0 - 25.0	31.0 - 33.0
25.0 - 27.0	> 33.0

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

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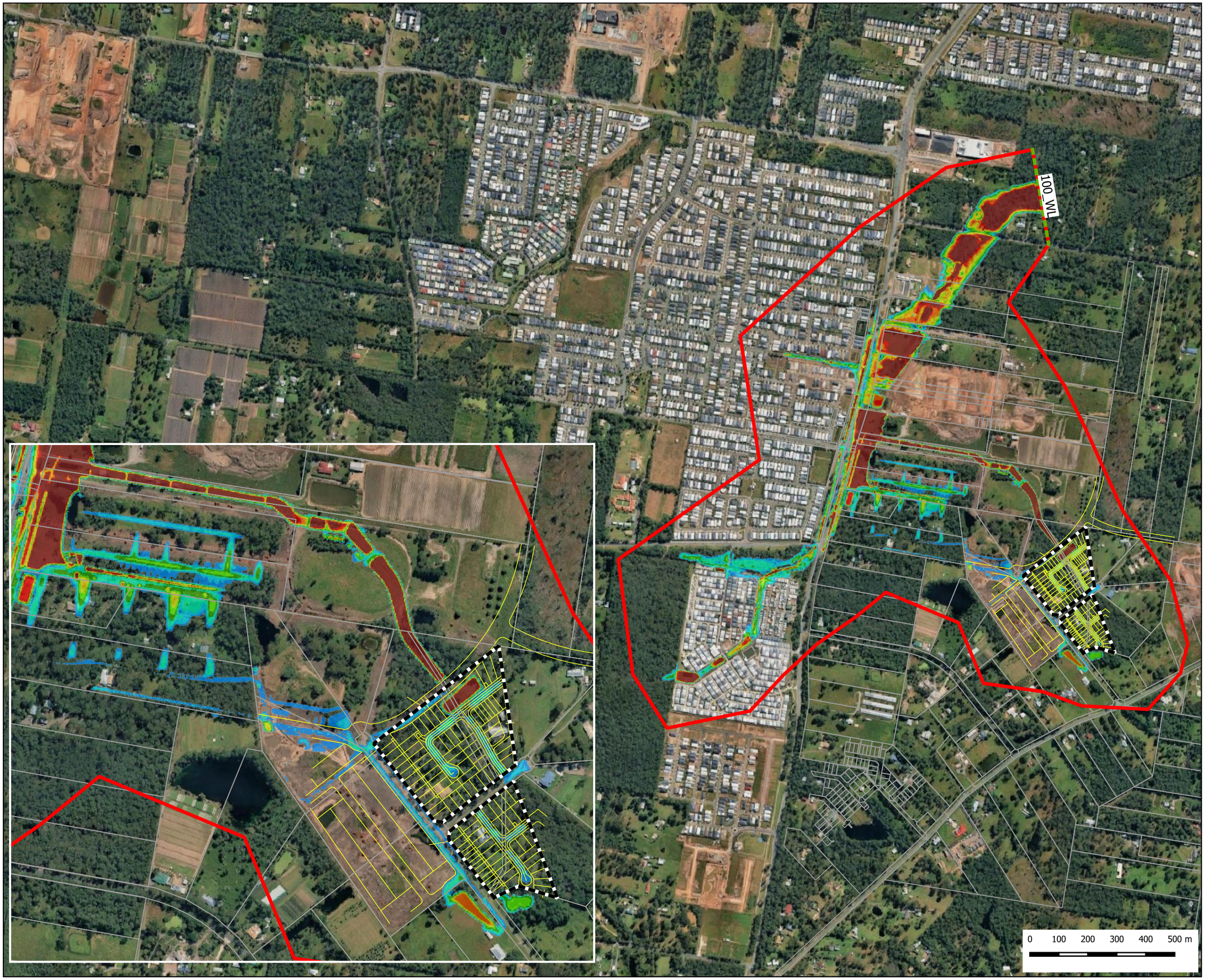
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FIG B18 POST DEVELOPMENT
5%AEP
FLOOD WATER DEPTH





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Depth (m)

below 0.02	0.4 - 0.5
0.02 - 0.05	0.5 - 0.6
0.05 - 0.1	0.6 - 0.7
0.1 - 0.2	0.7 - 0.8
0.2 - 0.3	above 0.8
0.3 - 0.4	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

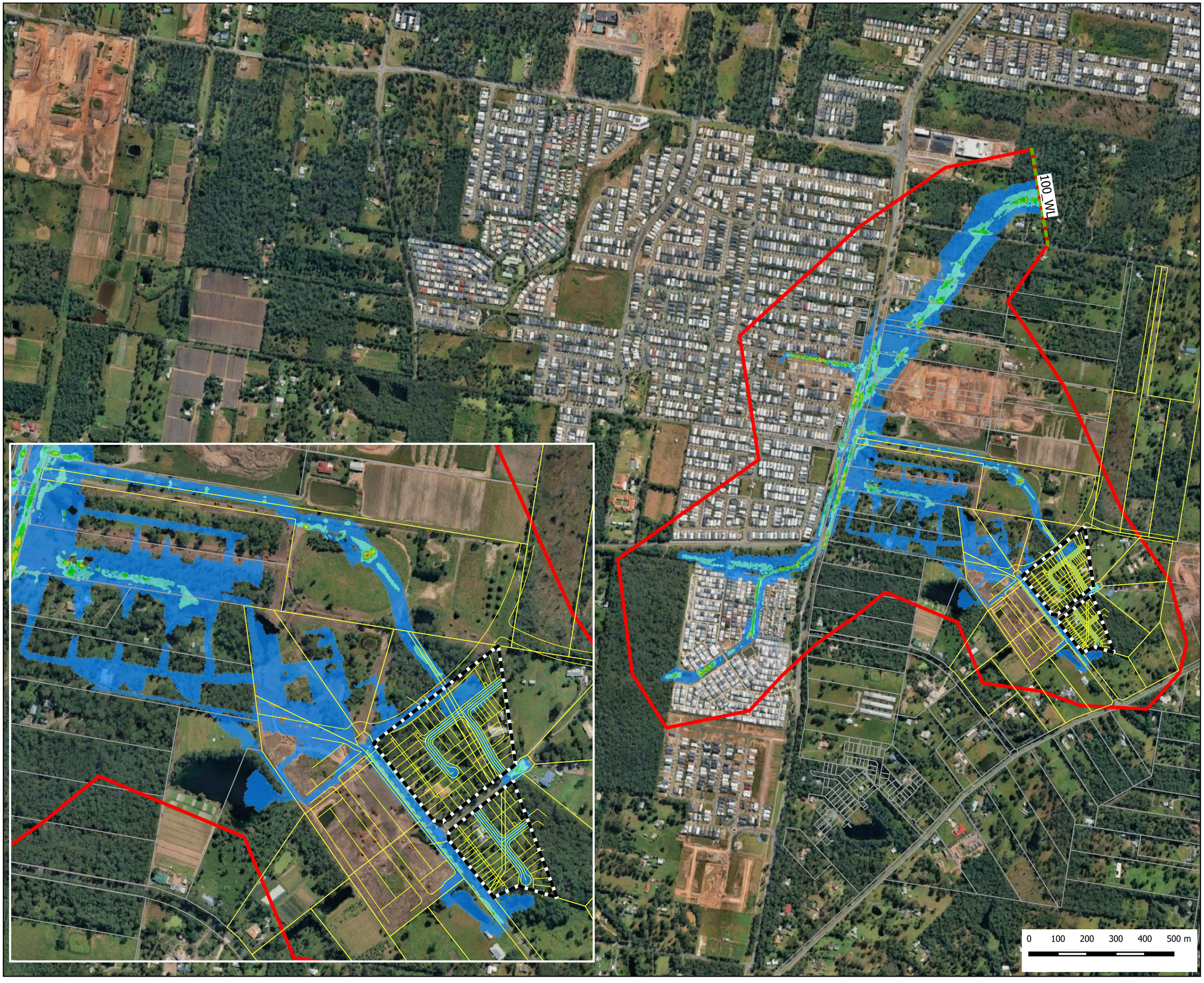
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FIG B19 POST DEVELOPMENT
5%AEP
FLOOD WATER VELOCITY





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Velocity (m/s)

below 0.5	2.5 to 3.0
0.5 to 1.0	3.0 to 3.5
1.0 to 1.5	3.5 to 4.0
1.5 to 2.0	above 4.0
2.0 to 2.5	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

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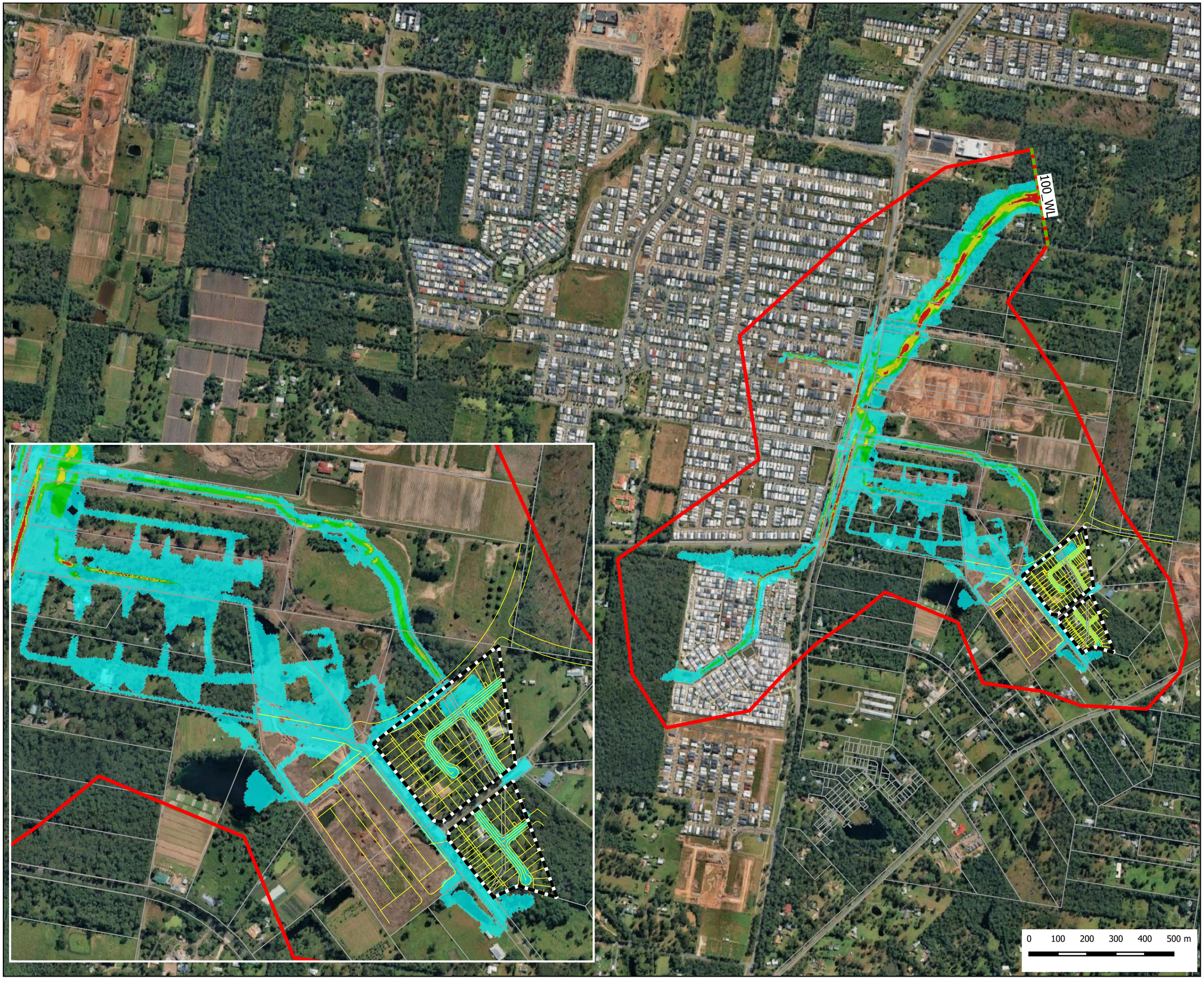
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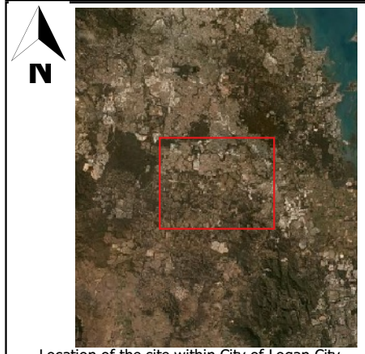
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FIG B20 POST DEVELOPMENT
5%AEP
FLOOD HAZARD





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Hazard (m2/s)

- Low Hazard (< 0.25)
- Moderate Hazard (0.25 - 0.4)
- Significant Hazard (0.4 - 0.6)
- Extreme Hazard (> 0.6)

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

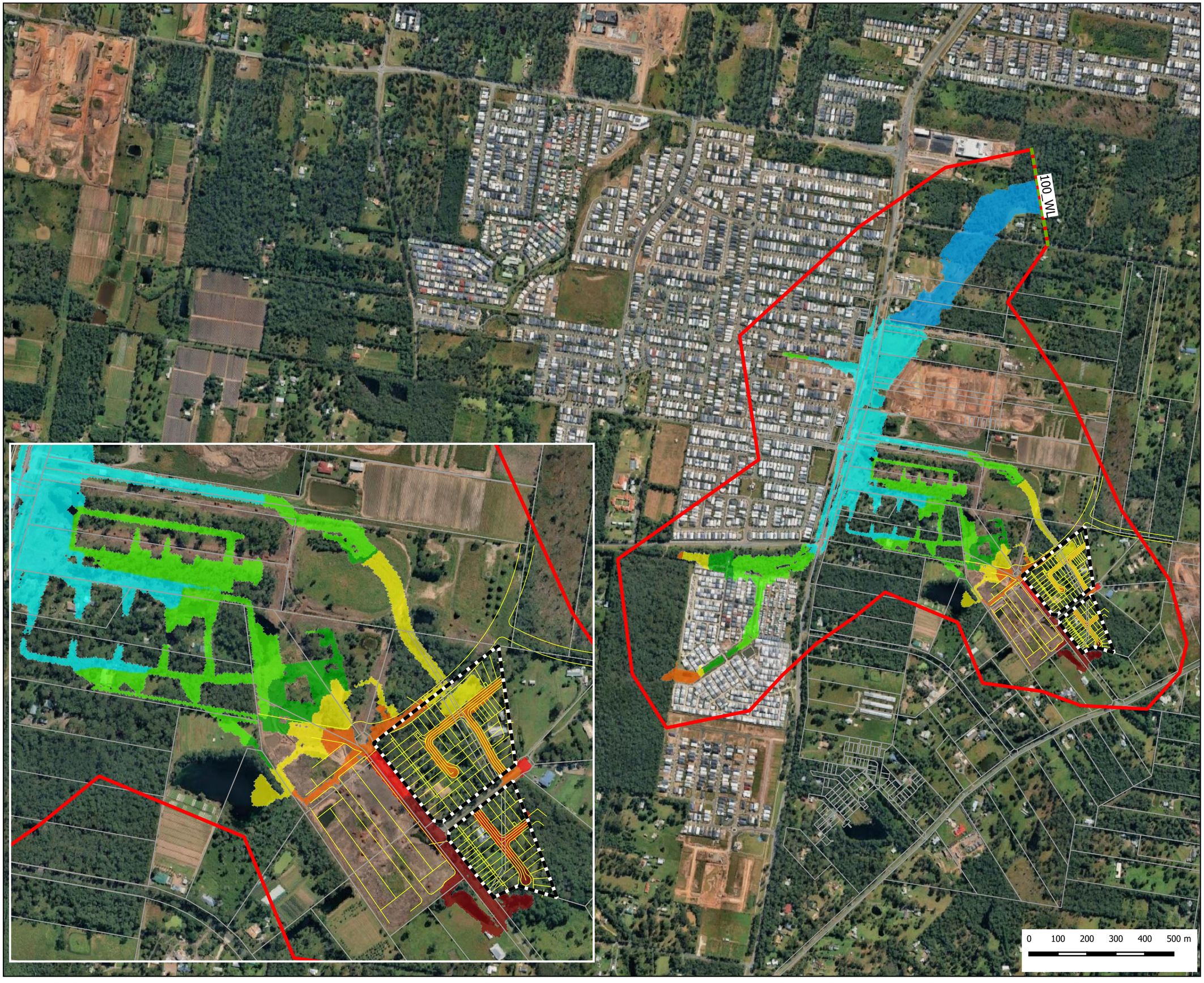
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FIG B21 POST DEVELOPMENT
10%AEP
FLOOD WATER LEVEL





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Level(mAHD)

<= 15.0	27.0 - 29.0
15.0 - 20.0	29.0 - 31.0
20.0 - 25.0	31.0 - 33.0
25.0 - 27.0	> 33.0

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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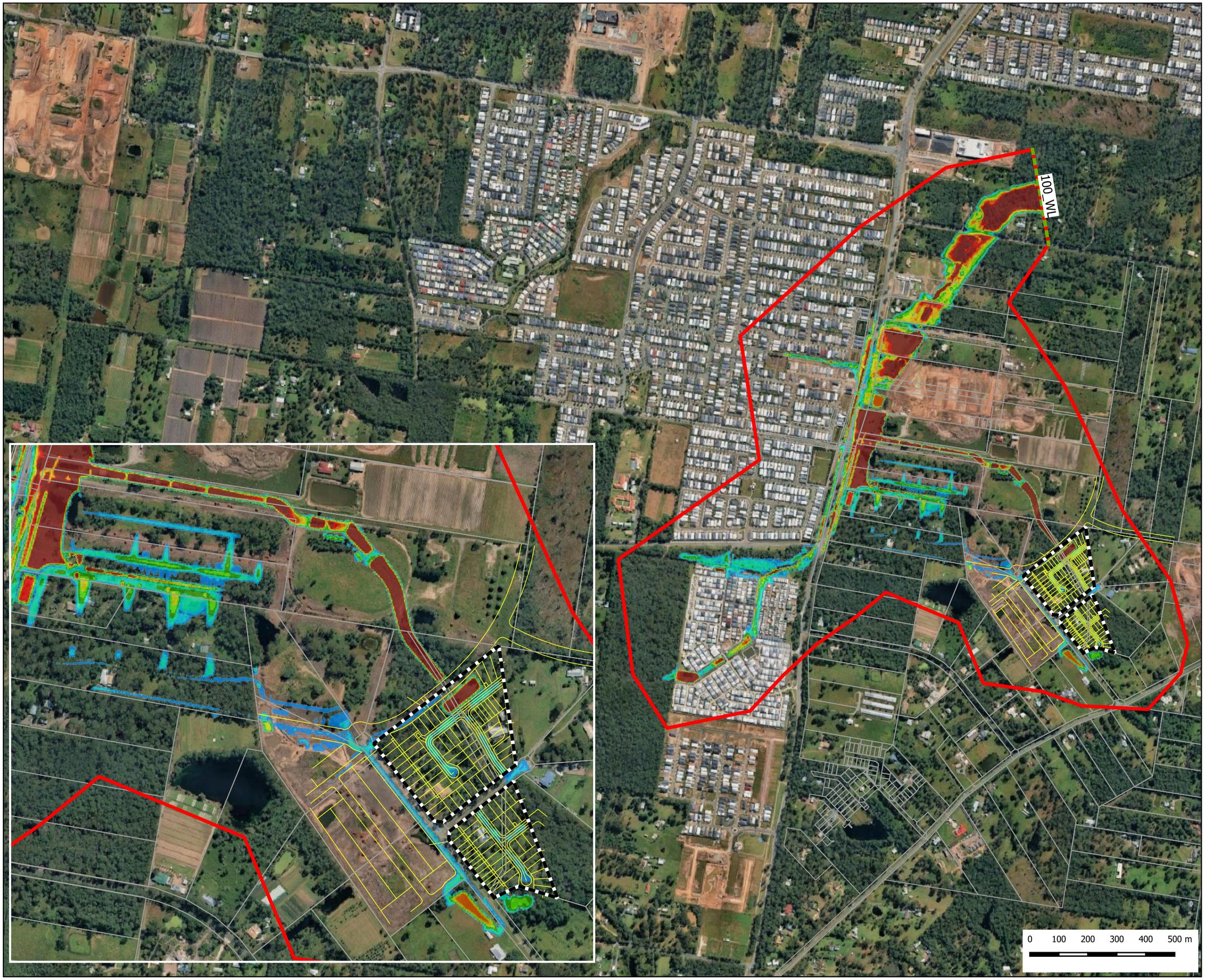
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FIG B22 POST DEVELOPMENT
10%AEP
FLOOD WATER DEPTH





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Depth (m)

below 0.02	0.4 - 0.5
0.02 - 0.05	0.5 - 0.6
0.05 - 0.1	0.6 - 0.7
0.1 - 0.2	0.7 - 0.8
0.2 - 0.3	above 0.8
0.3 - 0.4	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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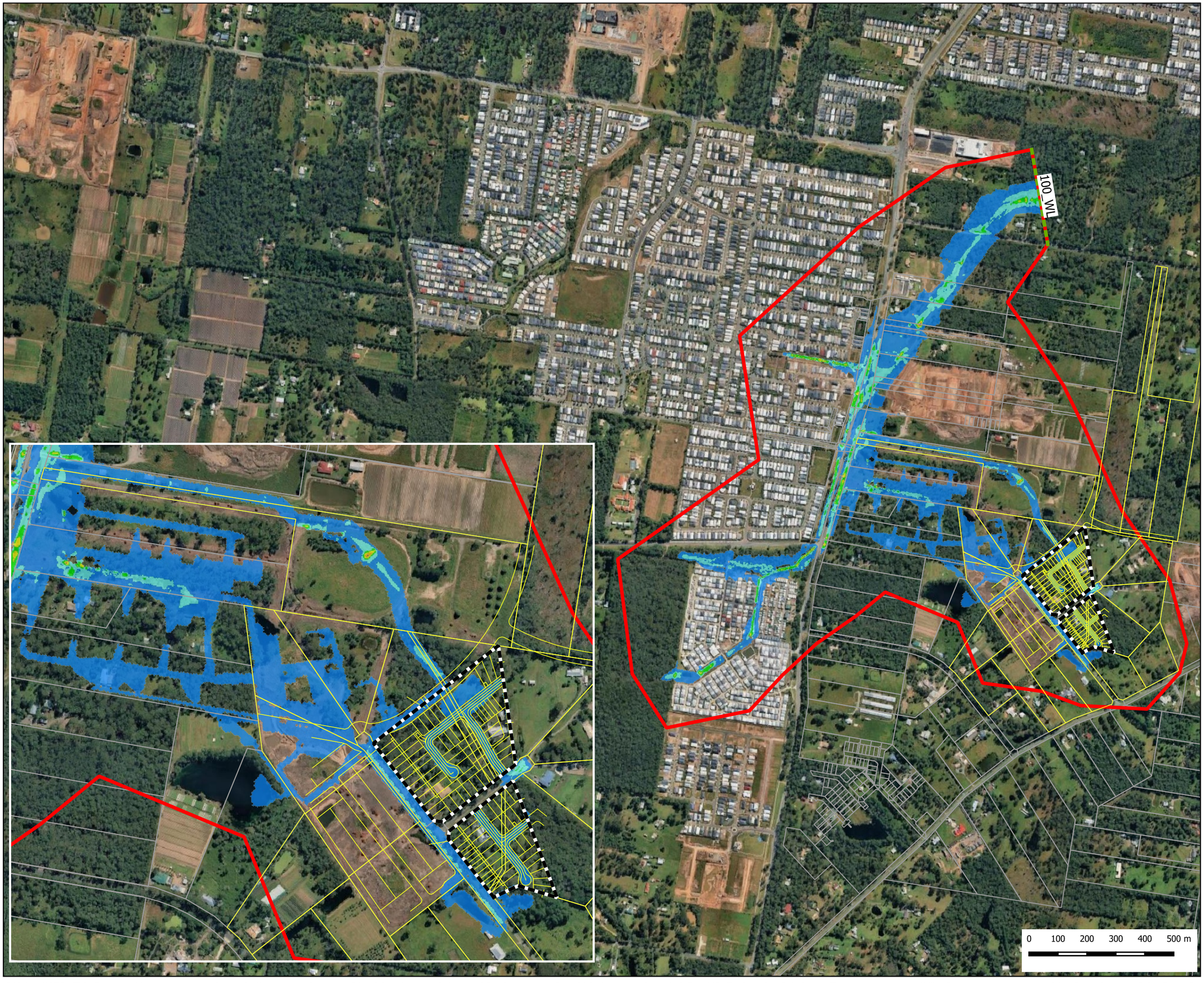
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FIG B23 POST DEVELOPMENT
10%AEP
FLOOD WATER VELOCITY





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Velocity (m/s)

below 0.5	2.5 to 3.0
0.5 to 1.0	3.0 to 3.5
1.0 to 1.5	3.5 to 4.0
1.5 to 2.0	above 4.0
2.0 to 2.5	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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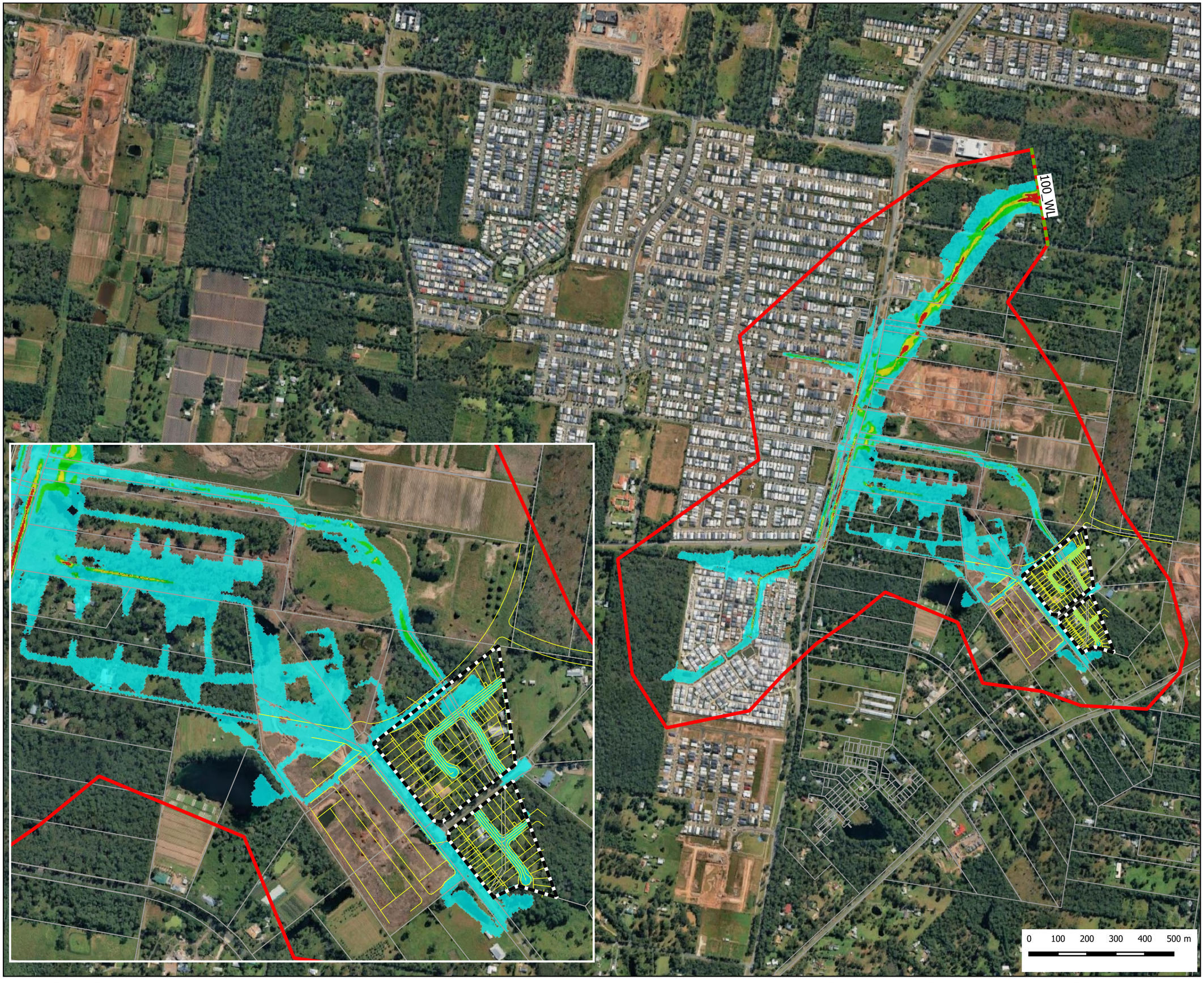
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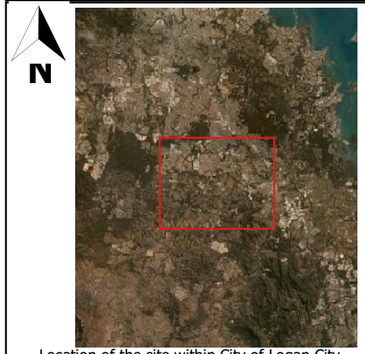
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FIG B24 POST DEVELOPMENT
10%AEP
FLOOD HAZARD





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Hazard (m2/s)

- Low Hazard (< 0.25)
- Moderate Hazard (0.25 - 0.4)
- Significant Hazard (0.4 - 0.6)
- Extreme Hazard (> 0.6)

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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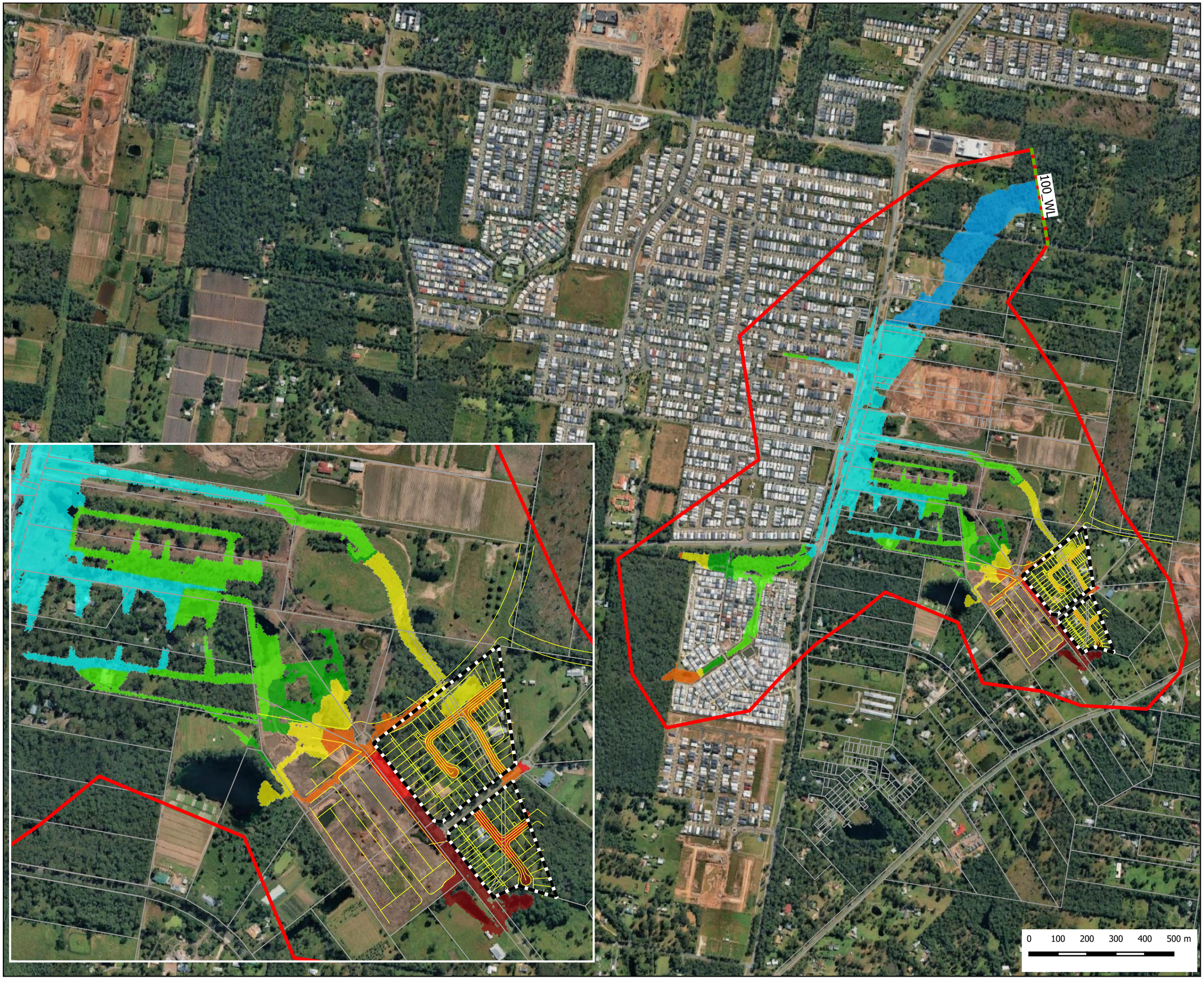
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FIG B25 POST DEVELOPMENT
20%AEP
FLOOD WATER LEVEL





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Level(mAHD)

<= 15.0	27.0 - 29.0
15.0 - 20.0	29.0 - 31.0
20.0 - 25.0	31.0 - 33.0
25.0 - 27.0	> 33.0

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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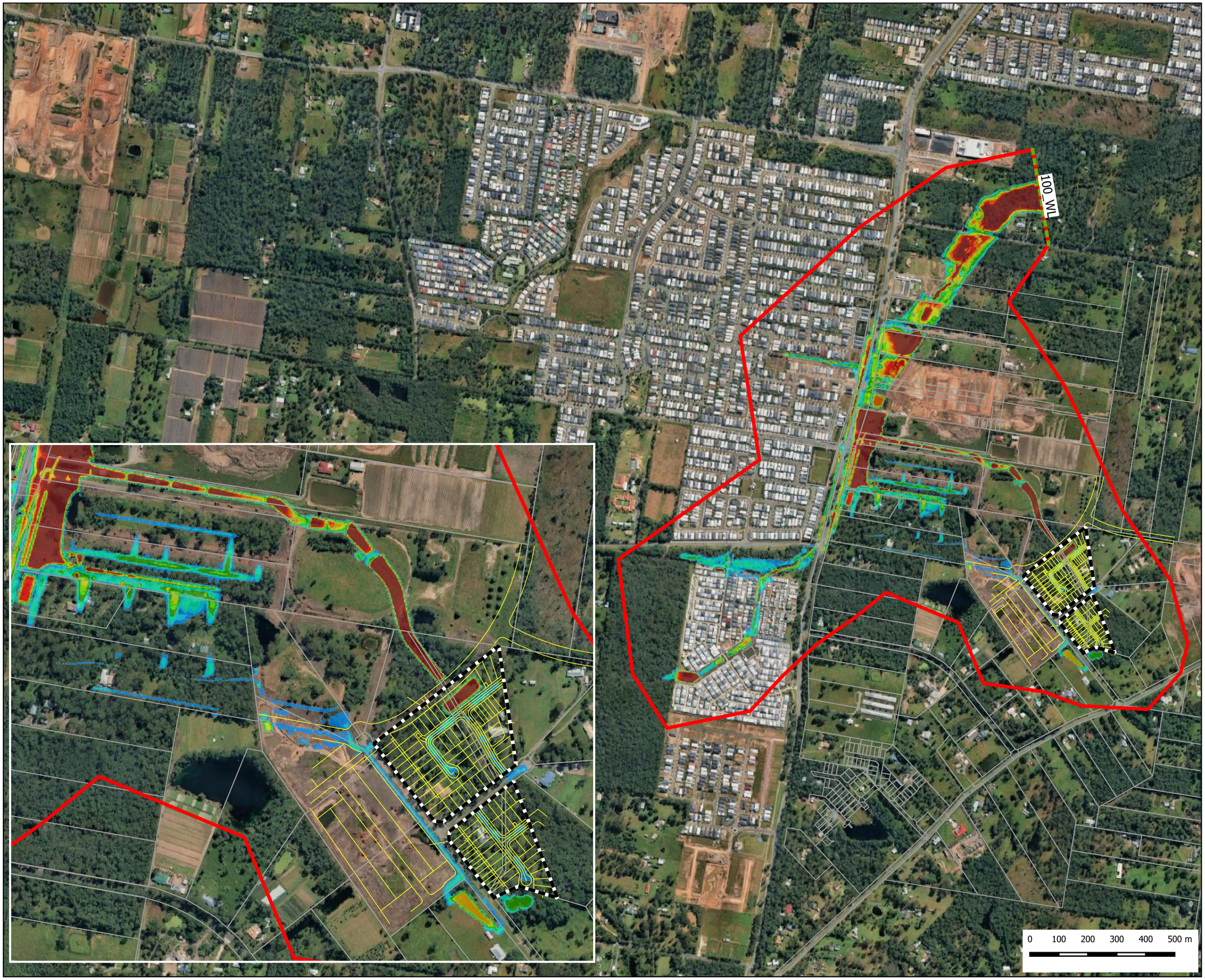
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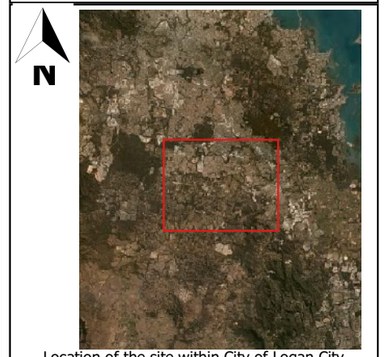
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FIG B26 POST DEVELOPMENT
20%AEP
FLOOD WATER DEPTH





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Depth (m)

below 0.02	0.4 - 0.5
0.02 - 0.05	0.5 - 0.6
0.05 - 0.1	0.6 - 0.7
0.1 - 0.2	0.7 - 0.8
0.2 - 0.3	above 0.8
0.3 - 0.4	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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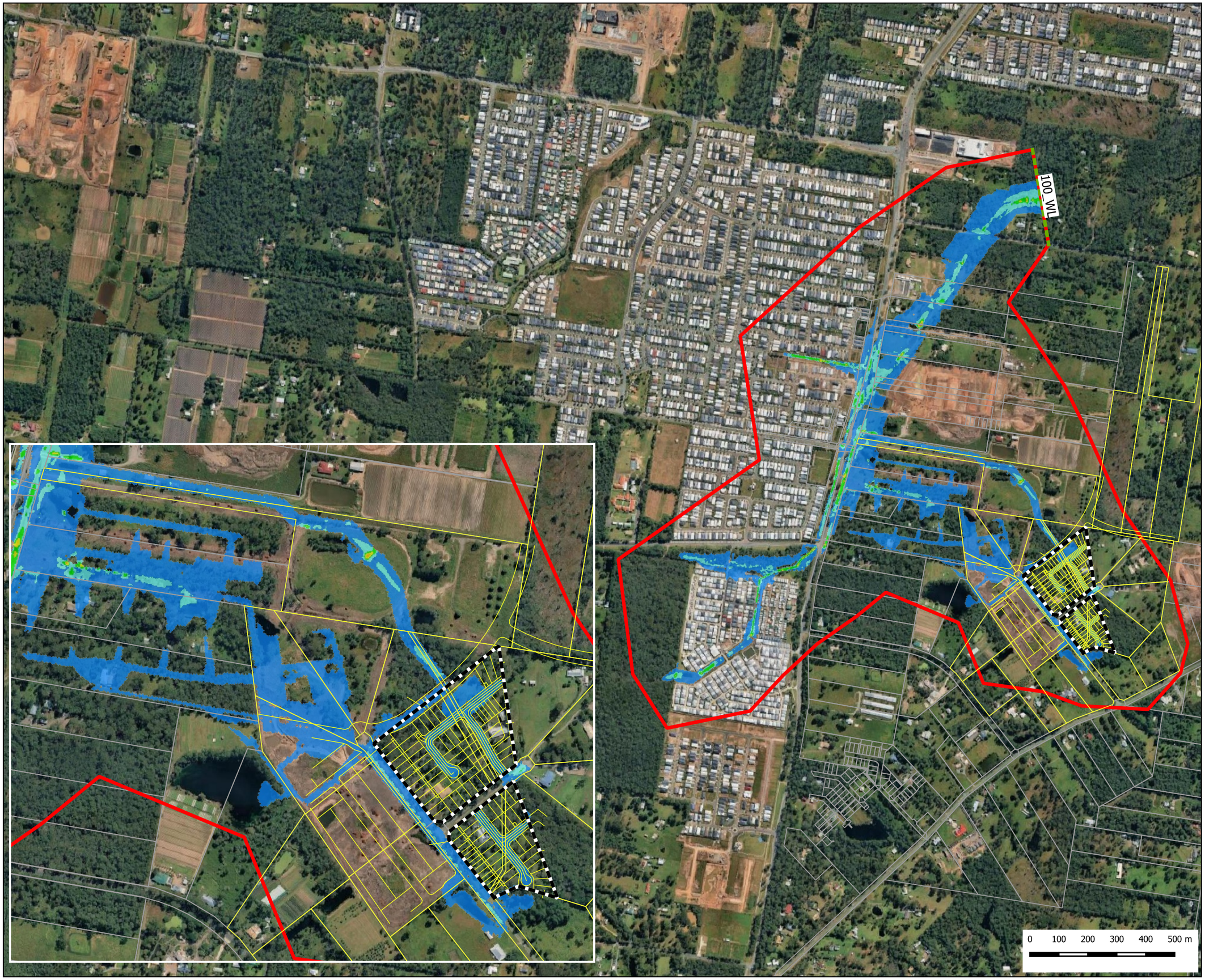
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FIG B27 POST DEVELOPMENT
20%AEP
FLOOD WATER VELOCITY





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Velocity (m/s)

below 0.5	2.5 to 3.0
0.5 to 1.0	3.0 to 3.5
1.0 to 1.5	3.5 to 4.0
1.5 to 2.0	above 4.0
2.0 to 2.5	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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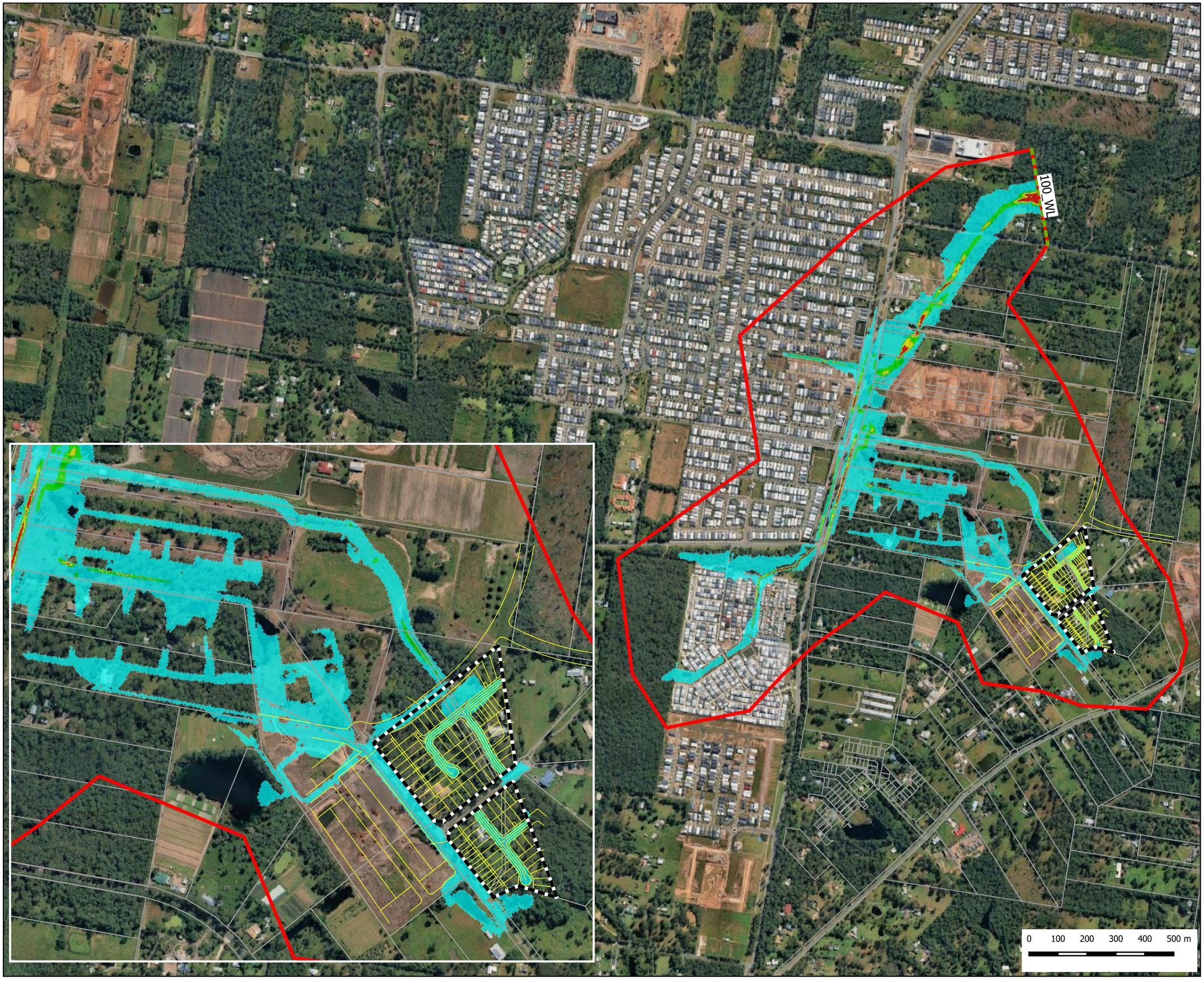
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FIG B28 POST DEVELOPMENT
20%AEP
FLOOD HAZARD





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Hazard (m2/s)

- Low Hazard (< 0.25)
- Moderate Hazard (0.25 - 0.4)
- Significant Hazard (0.4 - 0.6)
- Extreme Hazard (> 0.6)

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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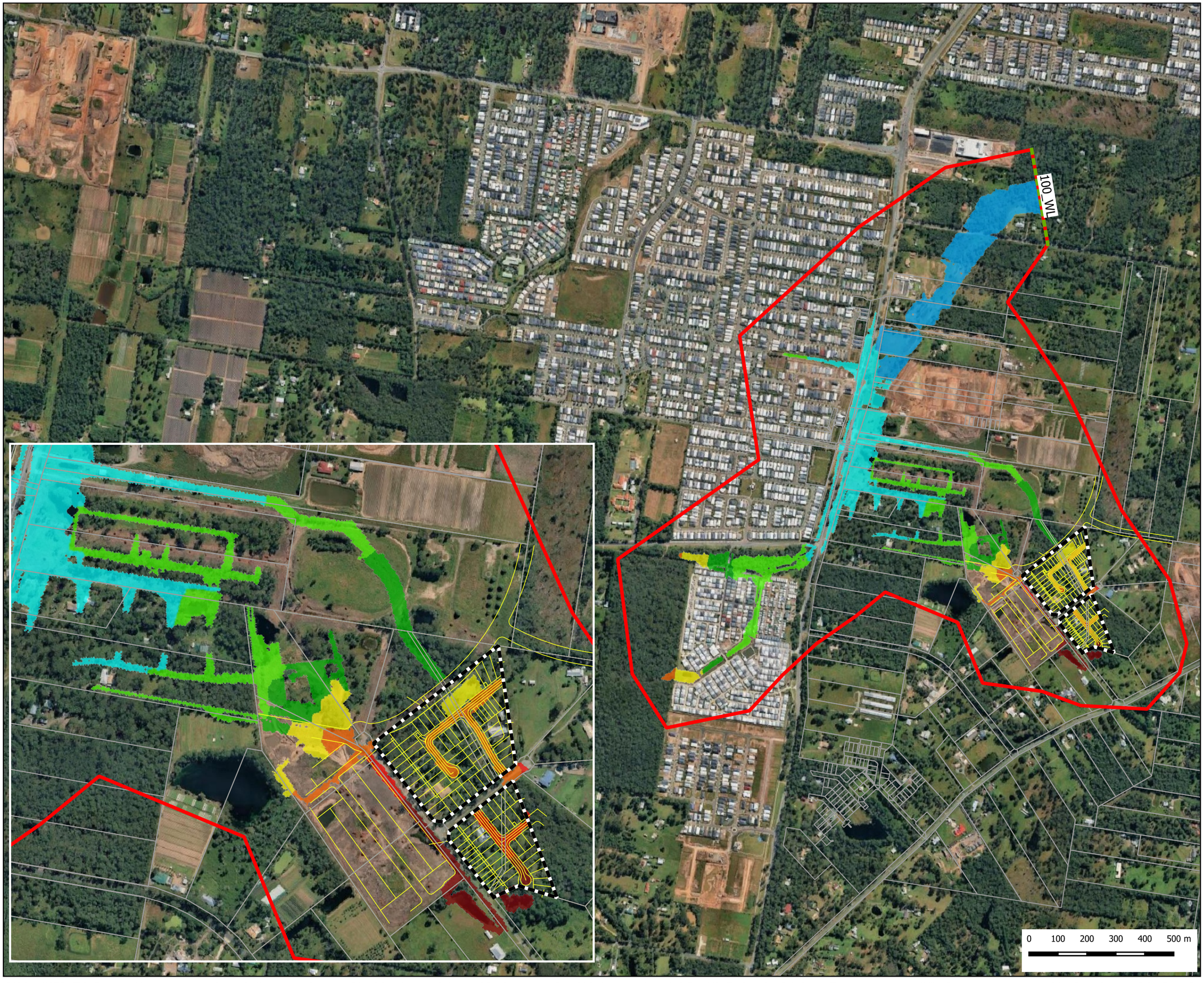
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FIG B29 POST DEVELOPMENT
50%AEP
FLOOD WATER LEVEL





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Level(mAHD)

<= 15.0	27.0 - 29.0
15.0 - 20.0	29.0 - 31.0
20.0 - 25.0	31.0 - 33.0
25.0 - 27.0	> 33.0

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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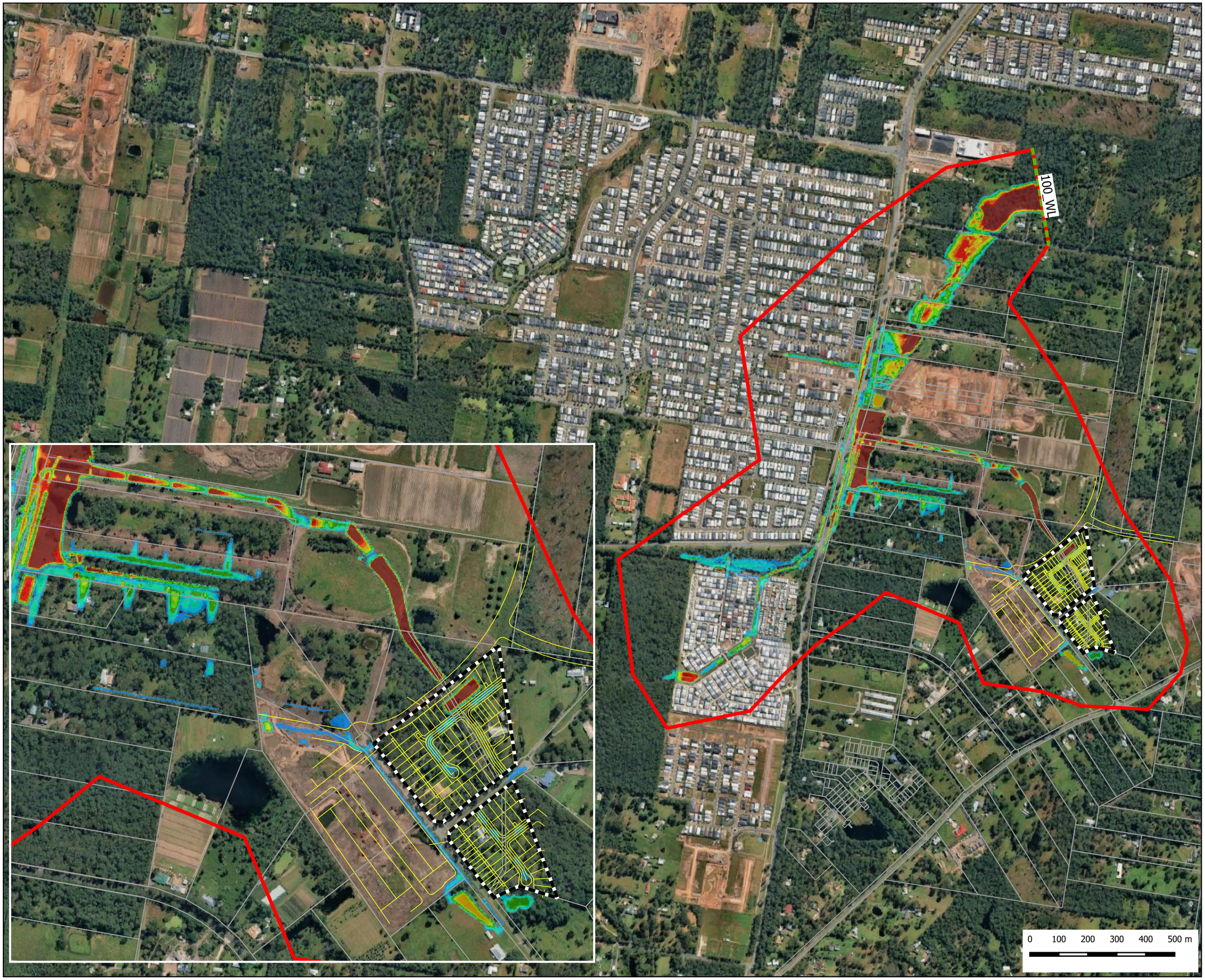
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FIG B30 POST DEVELOPMENT
50%AEP
FLOOD WATER DEPTH




Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Depth (m)

below 0.02	0.4 - 0.5
0.02 - 0.05	0.5 - 0.6
0.05 - 0.1	0.6 - 0.7
0.1 - 0.2	0.7 - 0.8
0.2 - 0.3	above 0.8
0.3 - 0.4	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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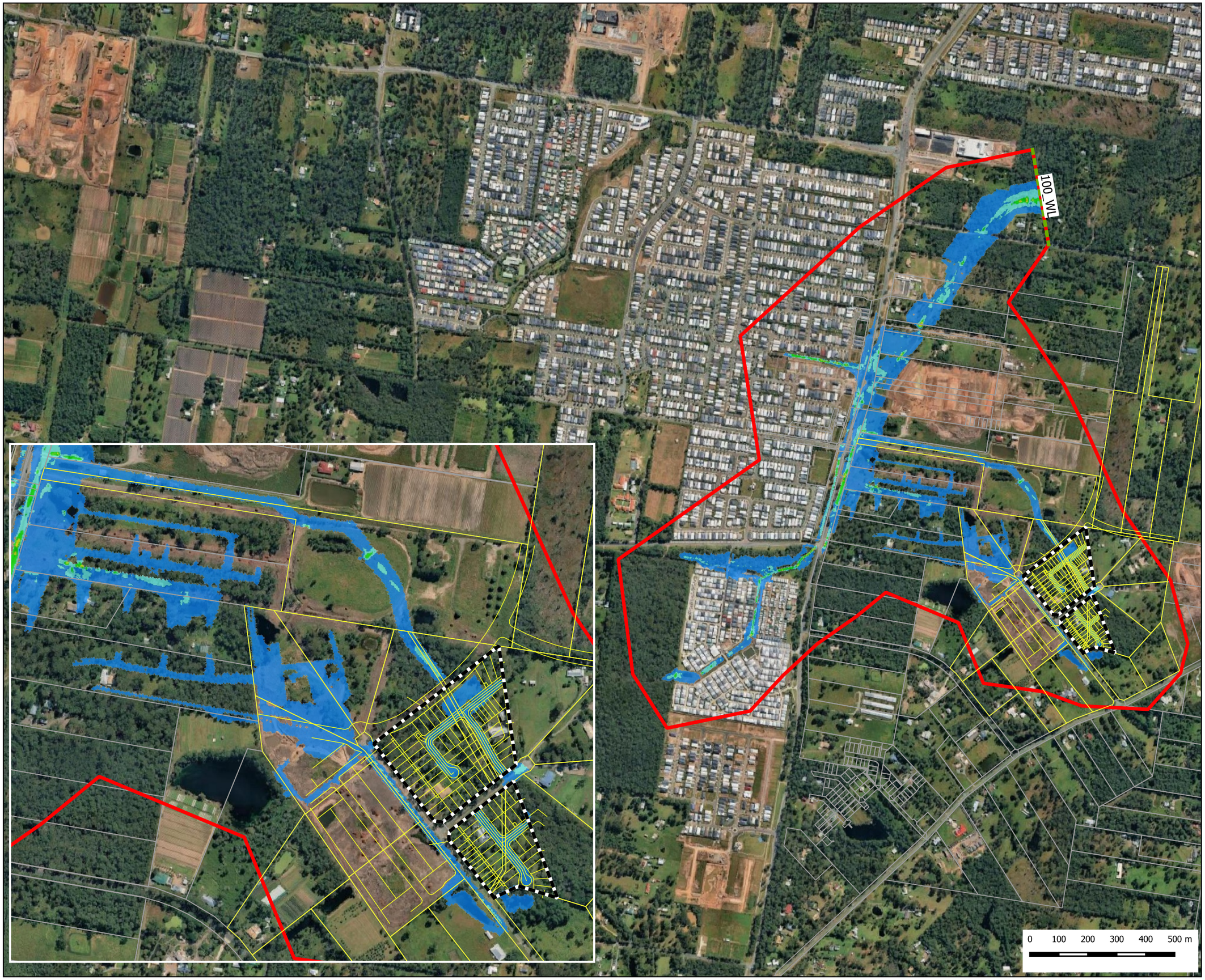
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1-15 and 20 Calume and 43 Noffke Court

FIG B31 POST DEVELOPMENT
50%AEP
FLOOD WATER VELOCITY





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Velocity (m/s)

- below 0.5
- 0.5 to 1.0
- 1.0 to 1.5
- 1.5 to 2.0
- 2.0 to 2.5
- 2.5 to 3.0
- 3.0 to 3.5
- 3.5 to 4.0
- above 4.0

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

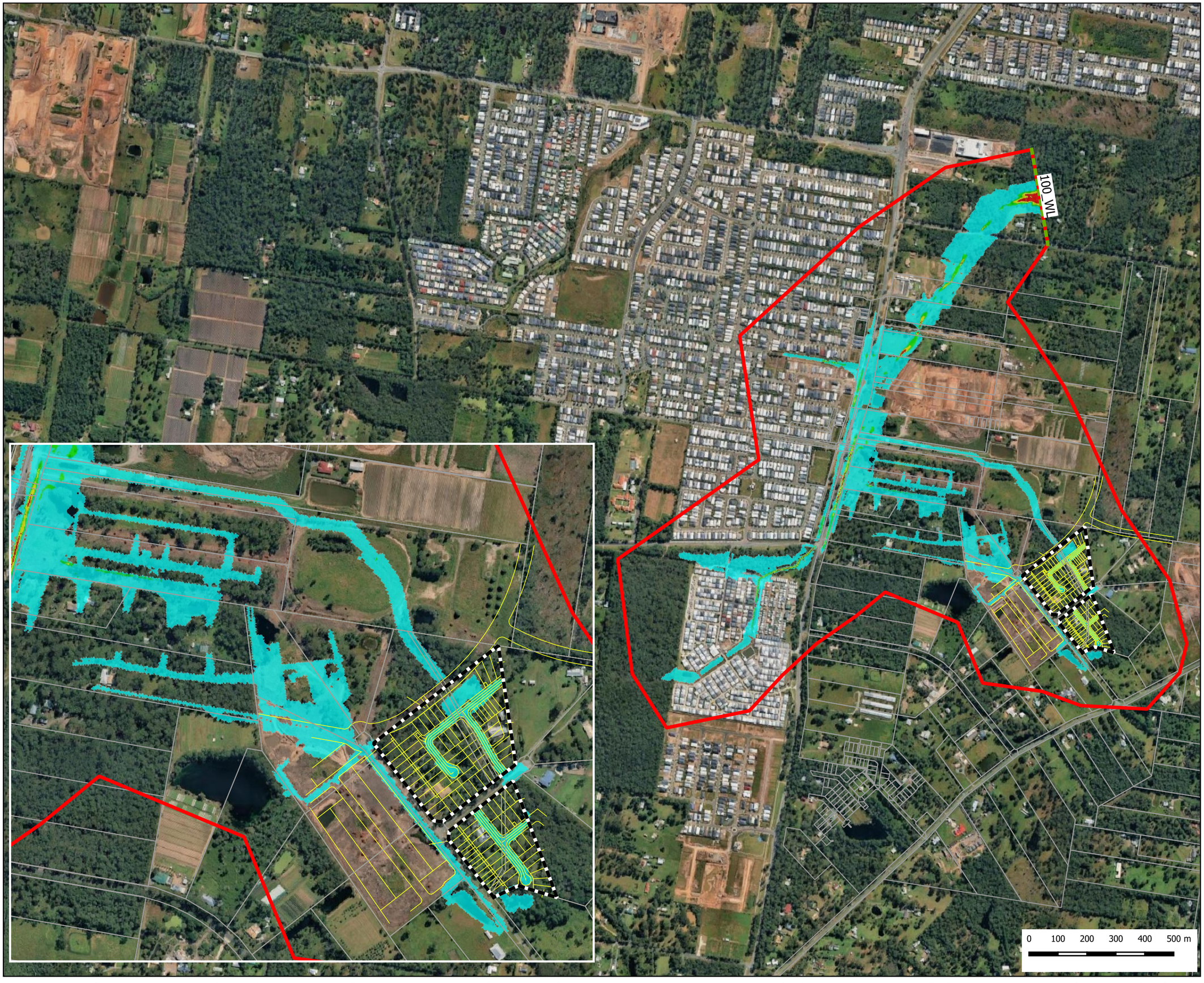
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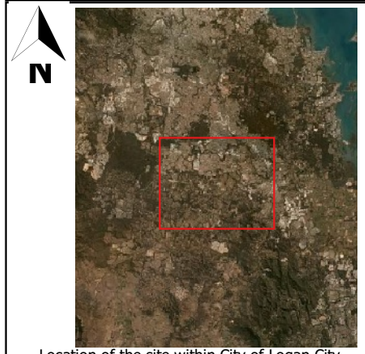
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FIG B32 POST DEVELOPMENT
50%AEP
FLOOD HAZARD





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Hazard (m2/s)

- Low Hazard (< 0.25)
- Moderate Hazard (0.25 - 0.4)
- Significant Hazard (0.4 - 0.6)
- Extreme Hazard (> 0.6)

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

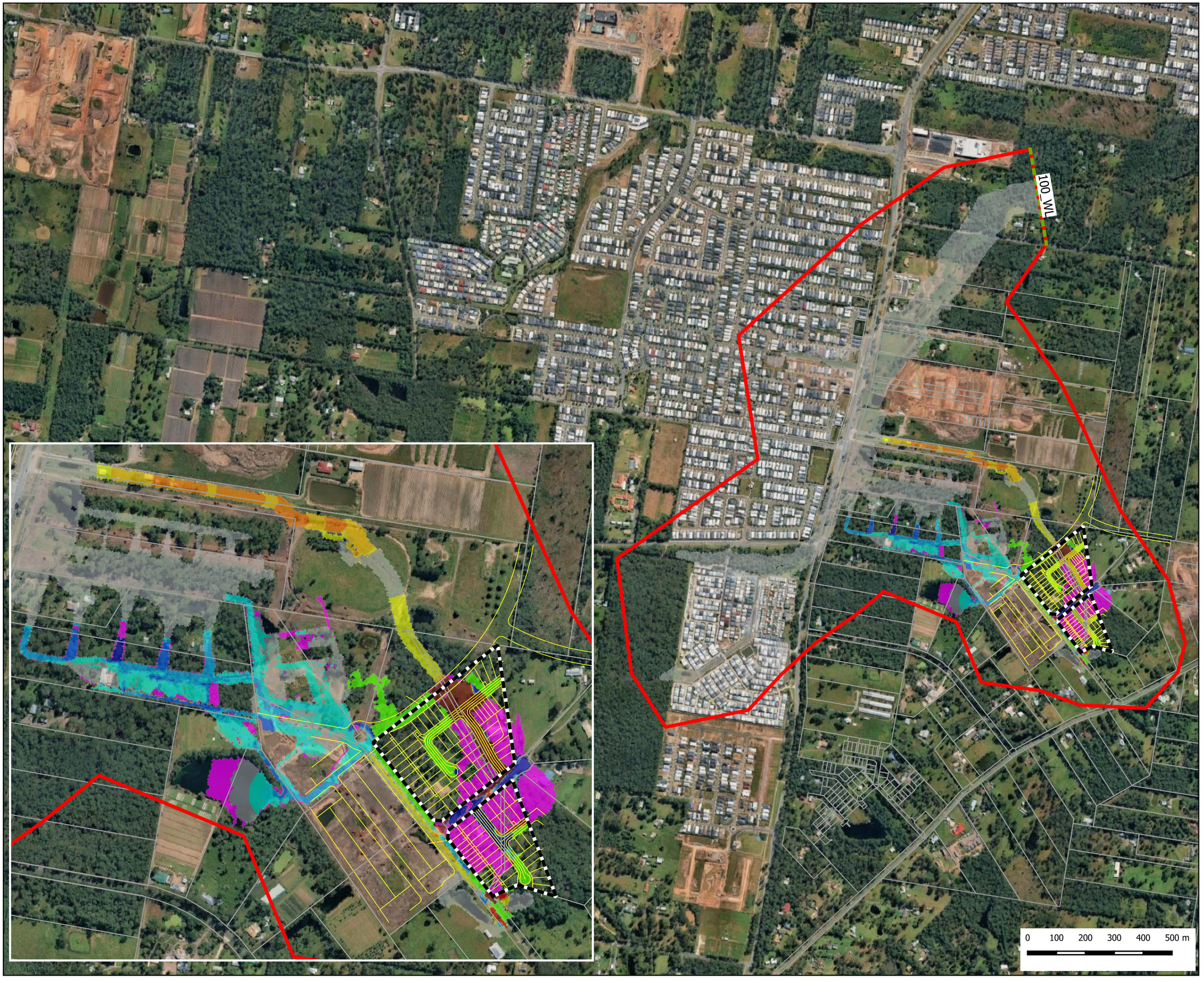
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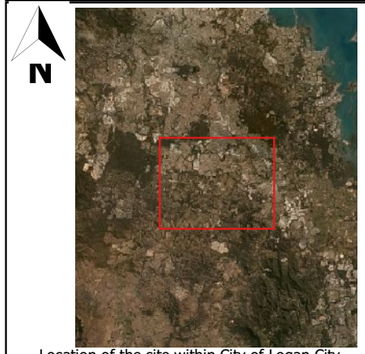
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FIG C03 POST DEVELOPMENT
1%AEP CLIMATE CHANGE
FLOOD WATER LEVEL AFFLUX





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Level Afflux (m)

<= -0.1	0.02 - 0.03
-0.1 - -0.05	0.03 - 0.05
-0.05 - -0.03	0.05 - 0.1
-0.03 - -0.02	0.1 - 1000
-0.02 - -0.01	Was Wet Now Dry
-0.01 - 0.01	Was Dry Now Wet
0.01 - 0.02	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

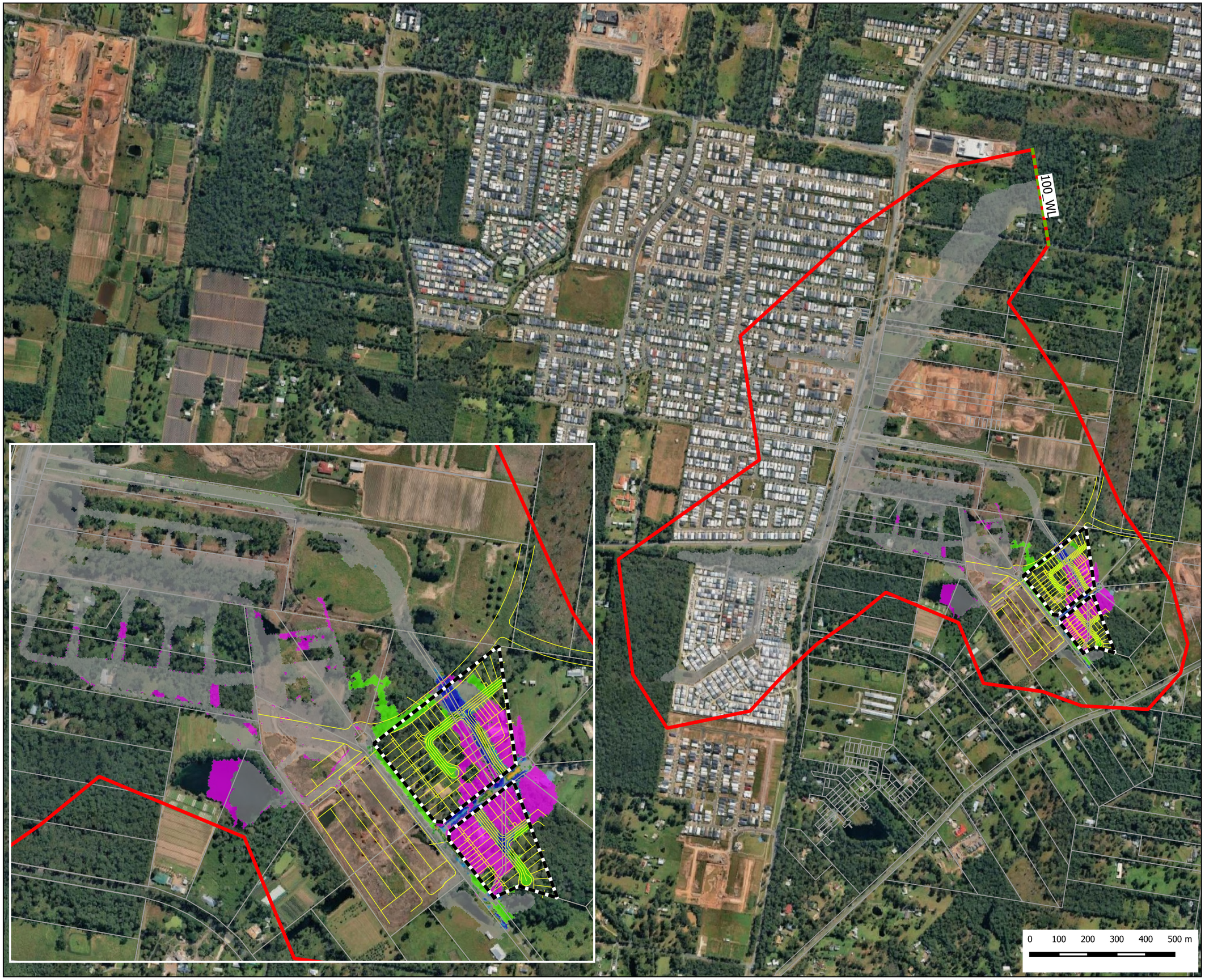
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FIG C04 POST DEVELOPMENT
1%AEP CLIMATE CHANGE
FLOOD WATER VELOCITY AFFLUX





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Velocity Afflux (m/s)

< -0.2	0.3 - 0.5
-0.2 - -0.1	0.5 - 1
-0.1 - 0.1	> 1
0.1 - 0.2	Was Wet Now Dry
0.2 - 0.3	Was Dry Now Wet

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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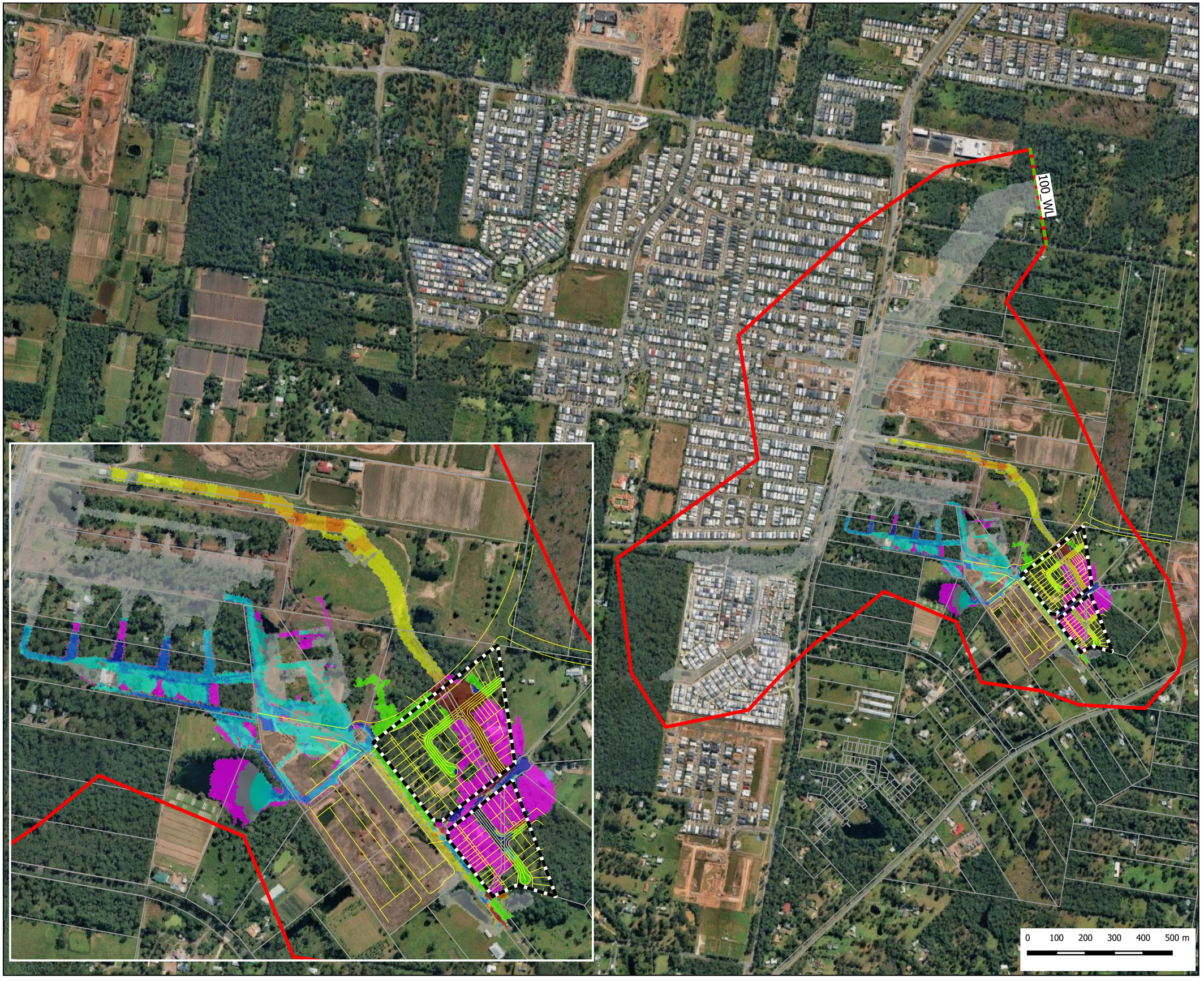
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FIG C05 POST DEVELOPMENT
1%AEP
FLOOD WATER LEVEL AFFLUX




Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Level Afflux (m)

<= -0.1	0.02 - 0.03
-0.1 - -0.05	0.03 - 0.05
-0.05 - -0.03	0.05 - 0.1
-0.03 - -0.02	0.1 - 1000
-0.02 - -0.01	Was Wet Now Dry
-0.01 - 0.01	Was Dry Now Wet
0.01 - 0.02	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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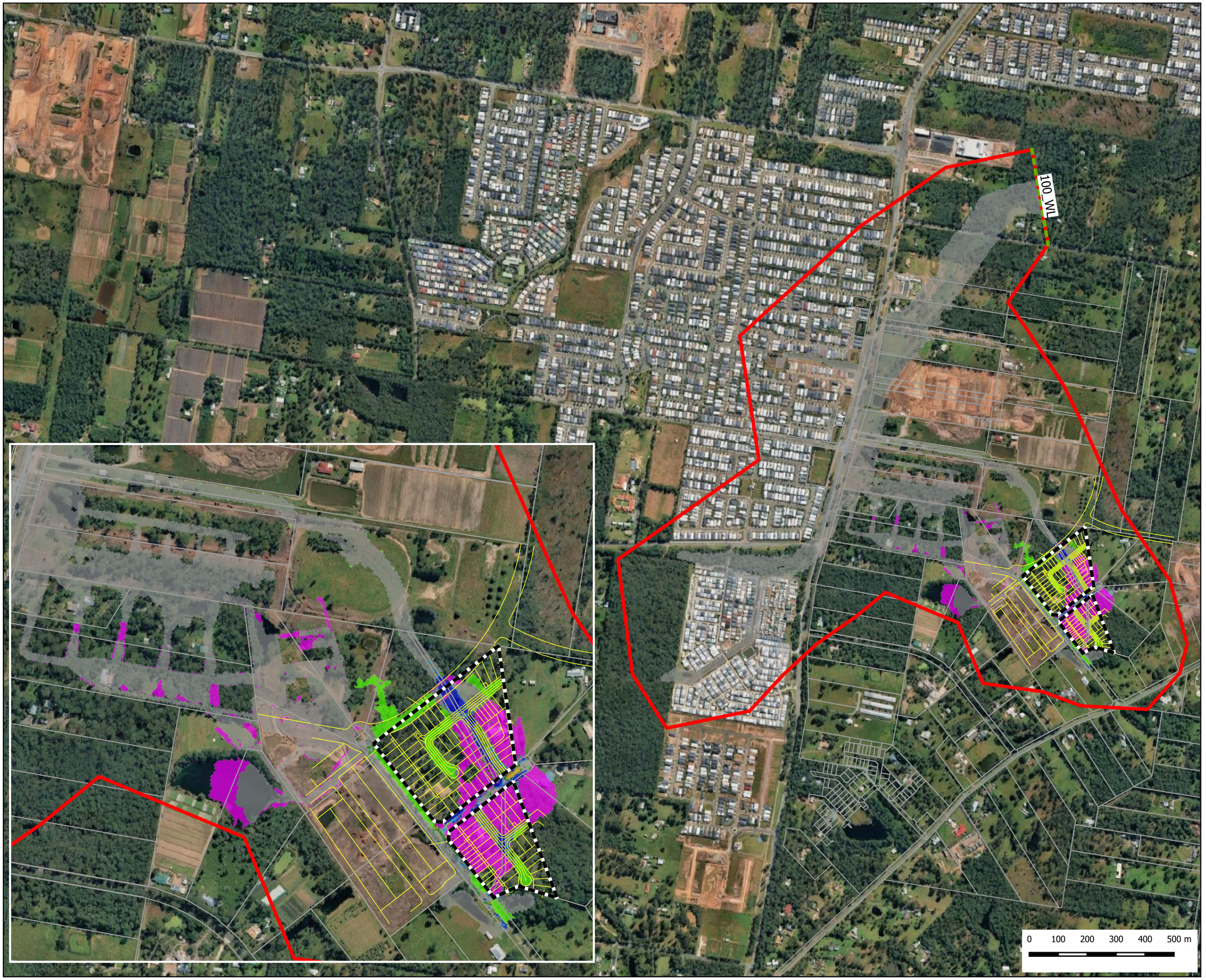
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FIG C06 POST DEVELOPMENT
1%AEP
FLOOD WATER VELOCITY AFFLUX





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Velocity Afflux (m/s)

< -0.2	0.3 - 0.5
-0.2 - -0.1	0.5 - 1
-0.1 - 0.1	> 1
0.1 - 0.2	Was Wet Now Dry
0.2 - 0.3	Was Dry Now Wet

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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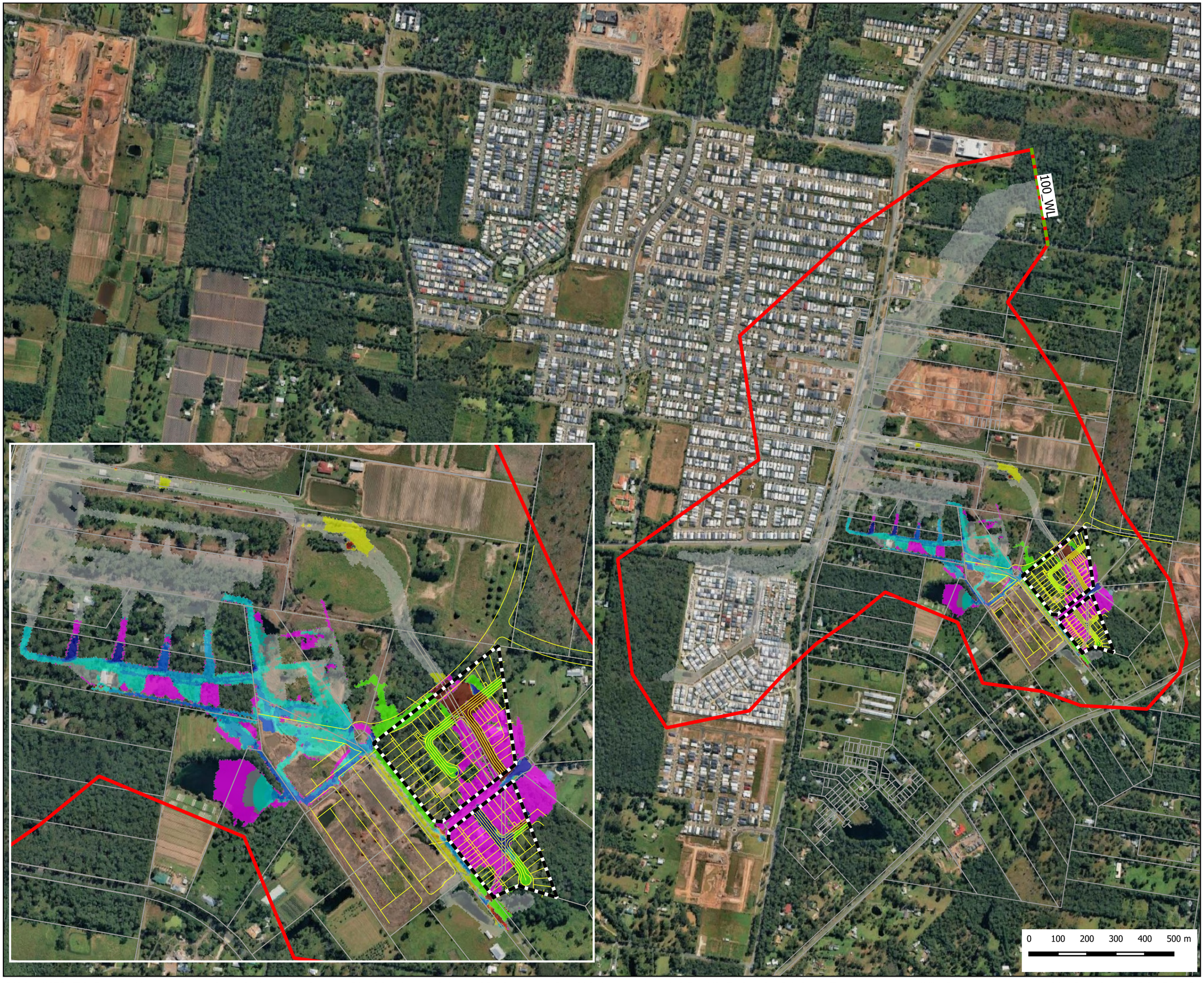
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FIG C07 POST DEVELOPMENT
2%AEP
FLOOD WATER LEVEL AFFLUX





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Level Afflux (m)

<= -0.1	0.02 - 0.03
-0.1 - -0.05	0.03 - 0.05
-0.05 - -0.03	0.05 - 0.1
-0.03 - -0.02	0.1 - 1000
-0.02 - -0.01	Was Wet Now Dry
-0.01 - 0.01	Was Dry Now Wet
0.01 - 0.02	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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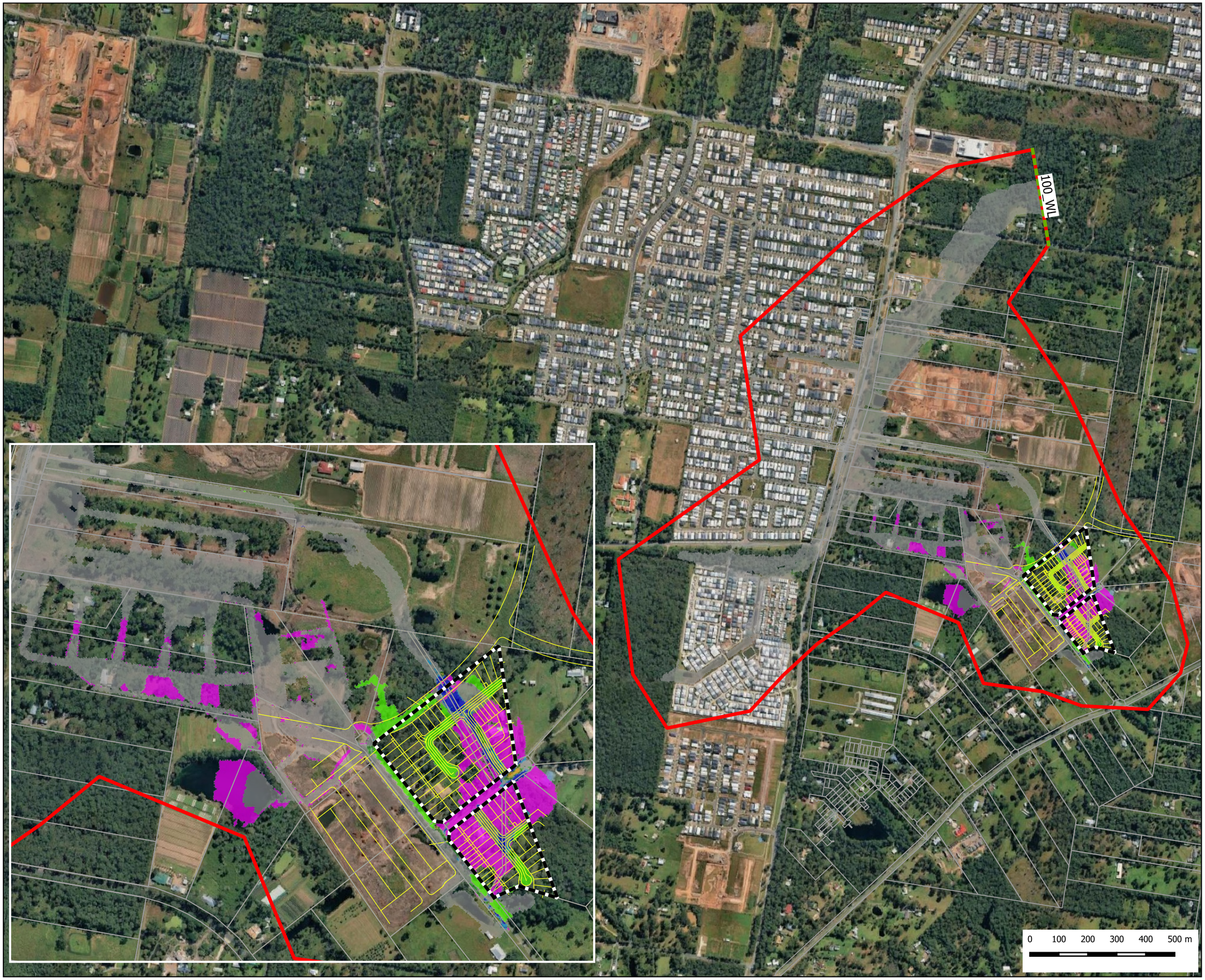
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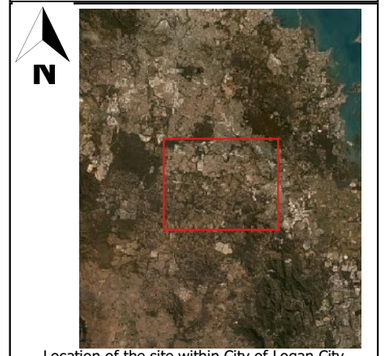
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FIG C08 POST DEVELOPMENT
2%AEP
FLOOD WATER VELOCITY AFFLUX





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Velocity Afflux (m/s)

< -0.2	0.3 - 0.5
-0.2 - -0.1	0.5 - 1
-0.1 - 0.1	> 1
0.1 - 0.2	Was Wet Now Dry
0.2 - 0.3	Was Dry Now Wet

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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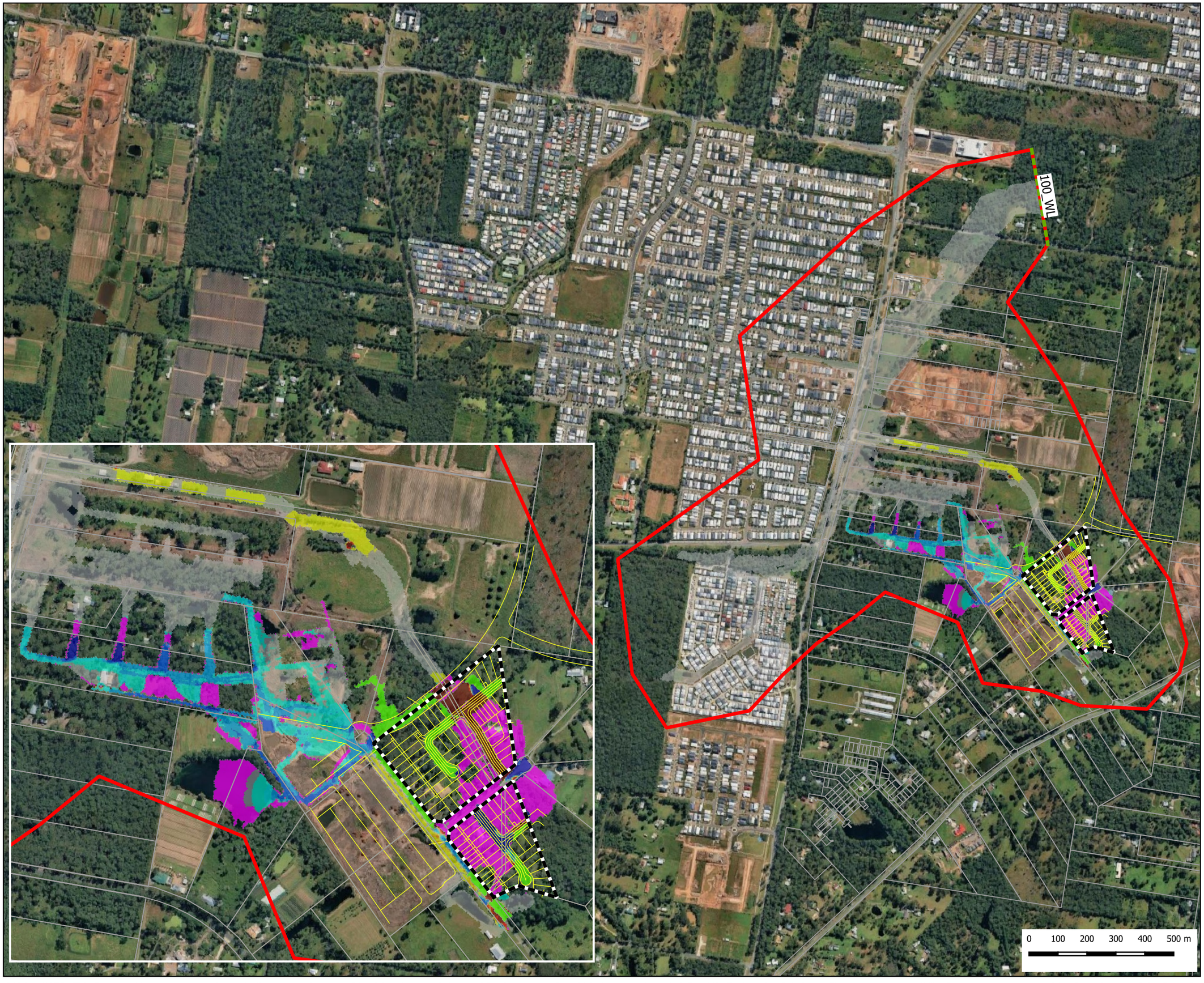
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FIG C09 POST DEVELOPMENT
5%AEP
FLOOD WATER LEVEL AFFLUX




Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Level Afflux (m)

<= -0.1	0.02 - 0.03
-0.1 - -0.05	0.03 - 0.05
-0.05 - -0.03	0.05 - 0.1
-0.03 - -0.02	0.1 - 1000
-0.02 - -0.01	Was Wet Now Dry
-0.01 - 0.01	Was Dry Now Wet
0.01 - 0.02	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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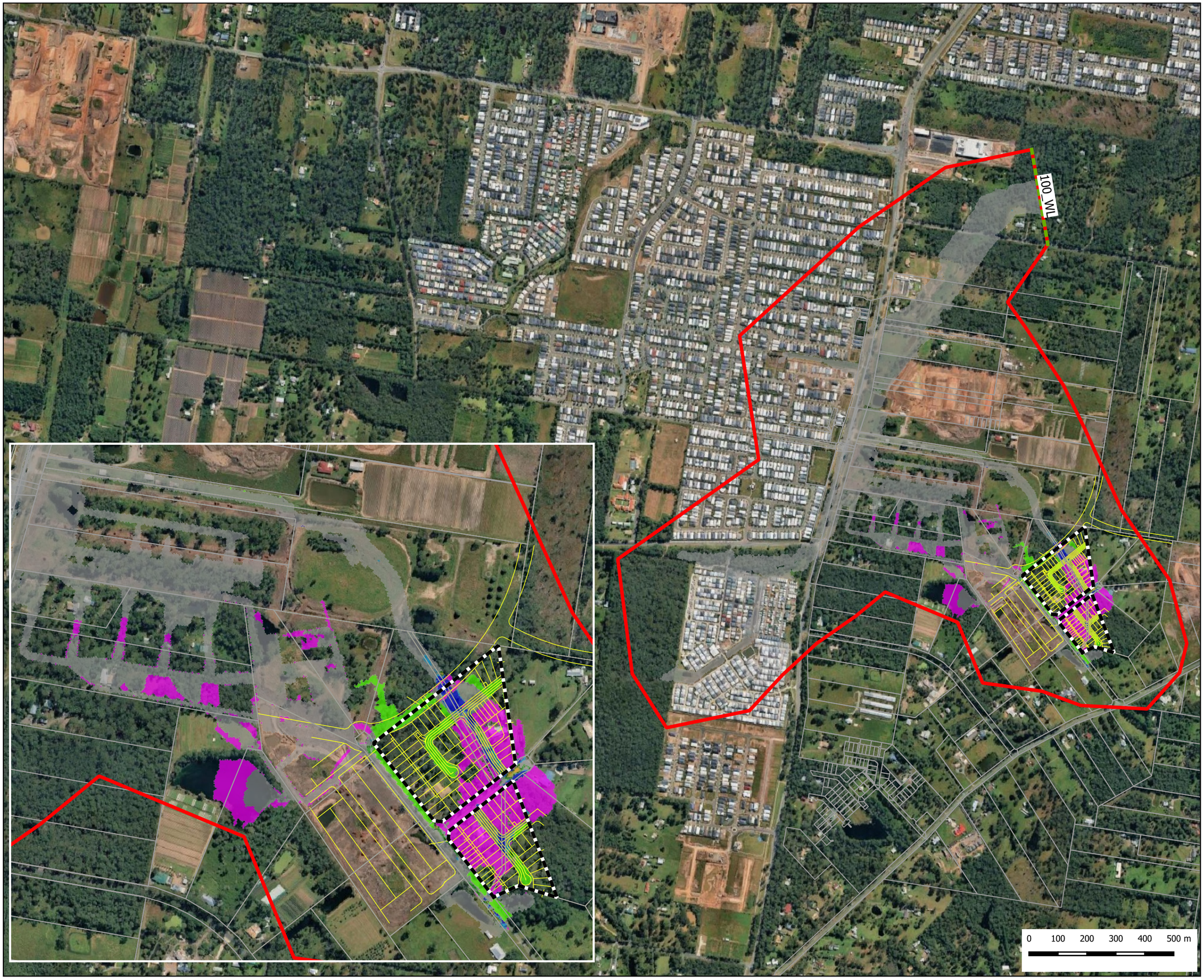
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FIG C10 POST DEVELOPMENT
5%AEP
FLOOD WATER VELOCITY AFFLUX





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Velocity Afflux (m/s)

< -0.2	0.3 - 0.5
-0.2 - -0.1	0.5 - 1
-0.1 - 0.1	> 1
0.1 - 0.2	Was Wet Now Dry
0.2 - 0.3	Was Dry Now Wet

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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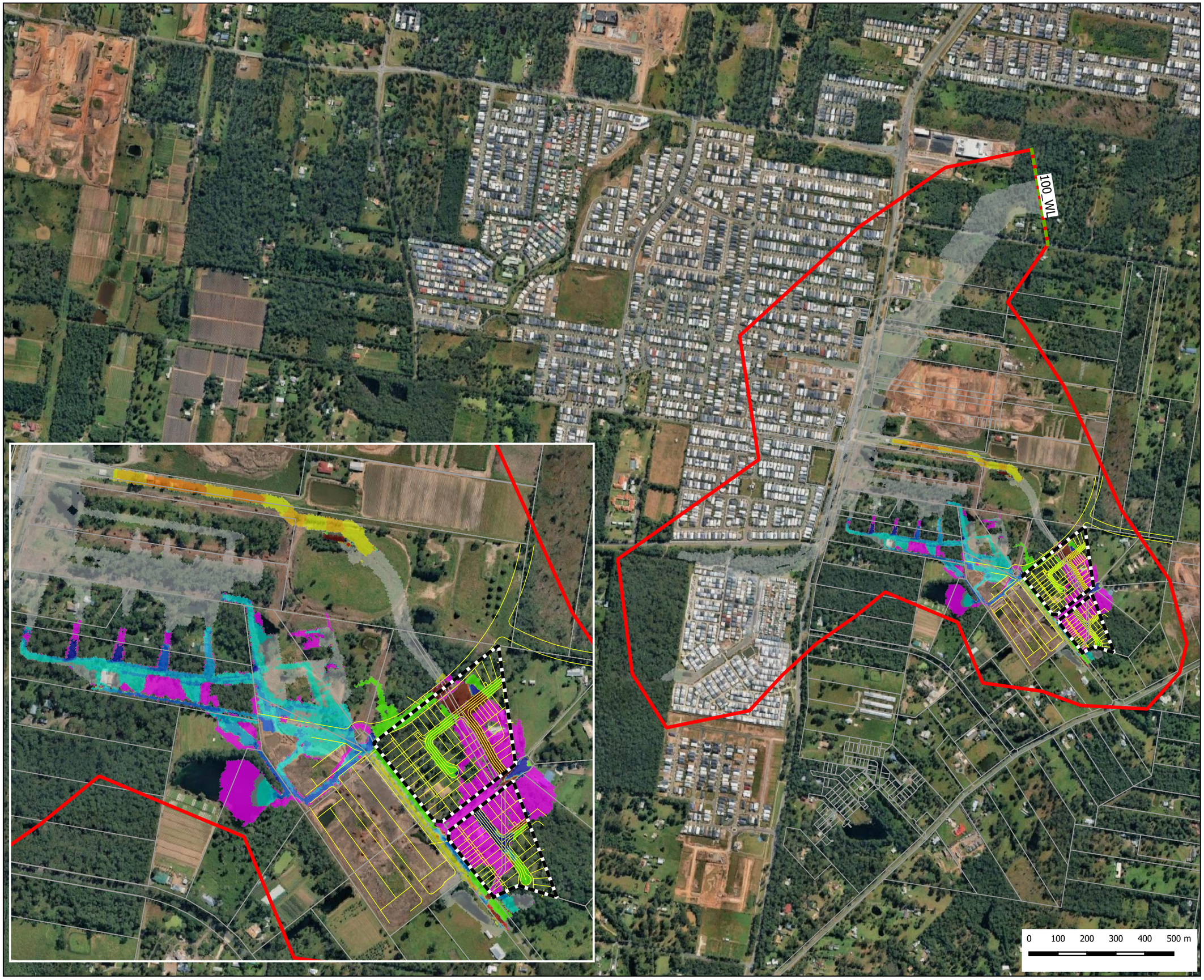
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FIG C11 POST DEVELOPMENT
10%AEP
FLOOD WATER LEVEL AFFLUX





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Level Afflux (m)

<= -0.1	0.02 - 0.03
-0.1 - -0.05	0.03 - 0.05
-0.05 - -0.03	0.05 - 0.1
-0.03 - -0.02	0.1 - 1000
-0.02 - -0.01	Was Wet Now Dry
-0.01 - 0.01	Was Dry Now Wet
0.01 - 0.02	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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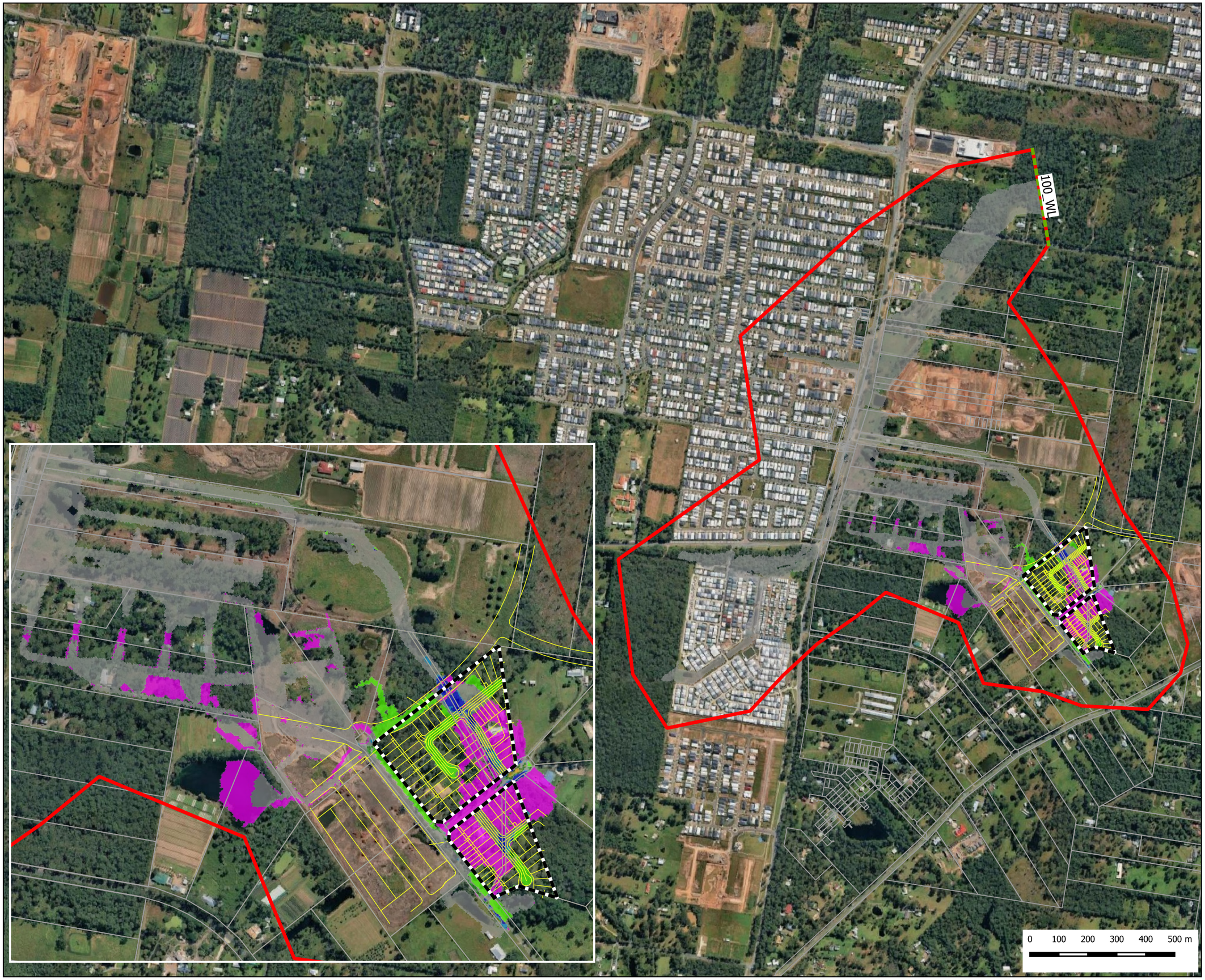
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FIG C12 POST DEVELOPMENT
10%AEP
FLOOD WATER VELOCITY AFFLUX





Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Velocity Afflux (m/s)

< -0.2	0.3 - 0.5
-0.2 - -0.1	0.5 - 1
-0.1 - 0.1	> 1
0.1 - 0.2	Was Wet Now Dry
0.2 - 0.3	Was Dry Now Wet

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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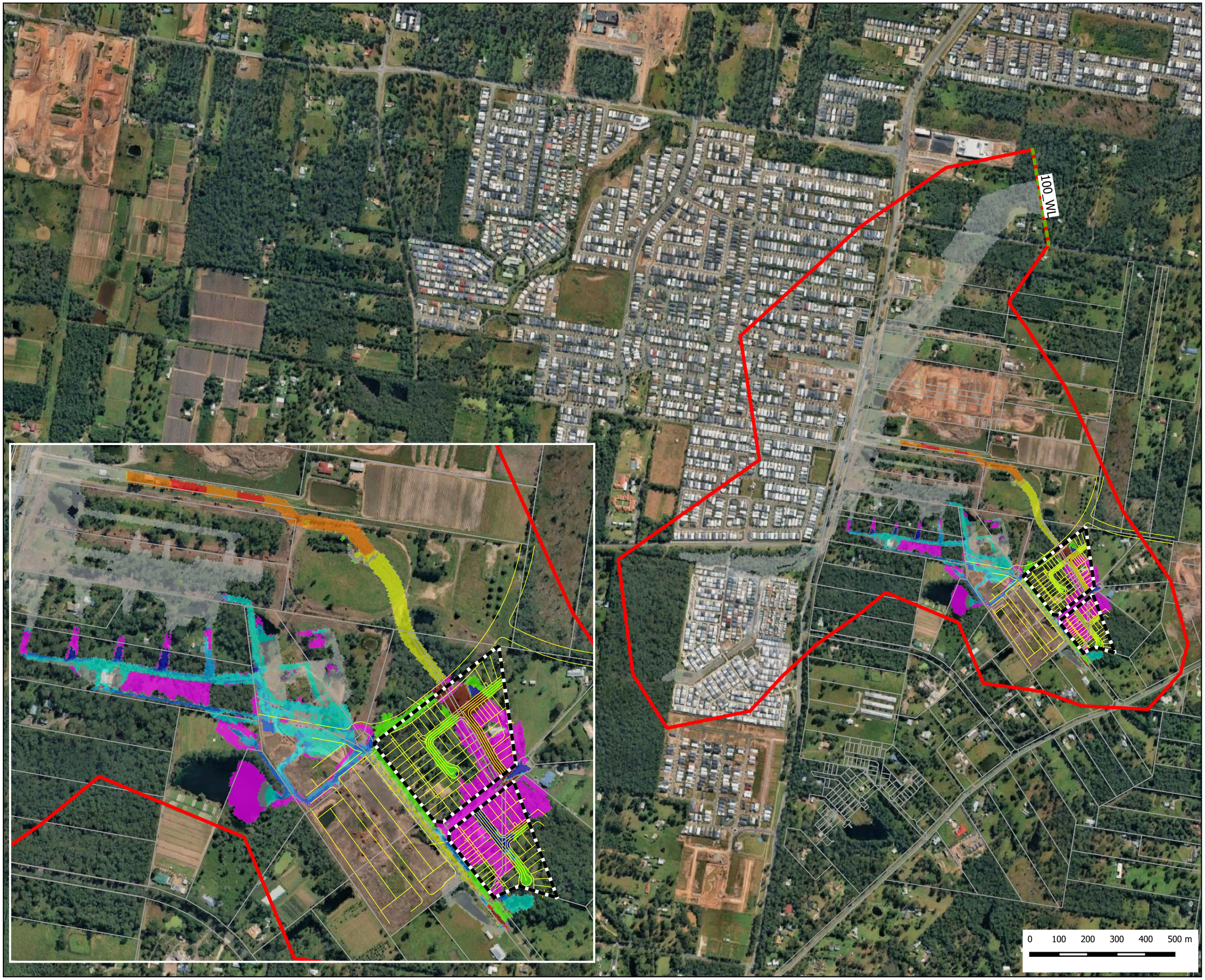
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FIG C13 POST DEVELOPMENT
20%AEP
FLOOD WATER LEVEL AFFLUX




Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Level Afflux (m)

<= -0.1	0.02 - 0.03
-0.1 - -0.05	0.03 - 0.05
-0.05 - -0.03	0.05 - 0.1
-0.03 - -0.02	0.1 - 1000
-0.02 - -0.01	Was Wet Now Dry
-0.01 - 0.01	Was Dry Now Wet
0.01 - 0.02	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

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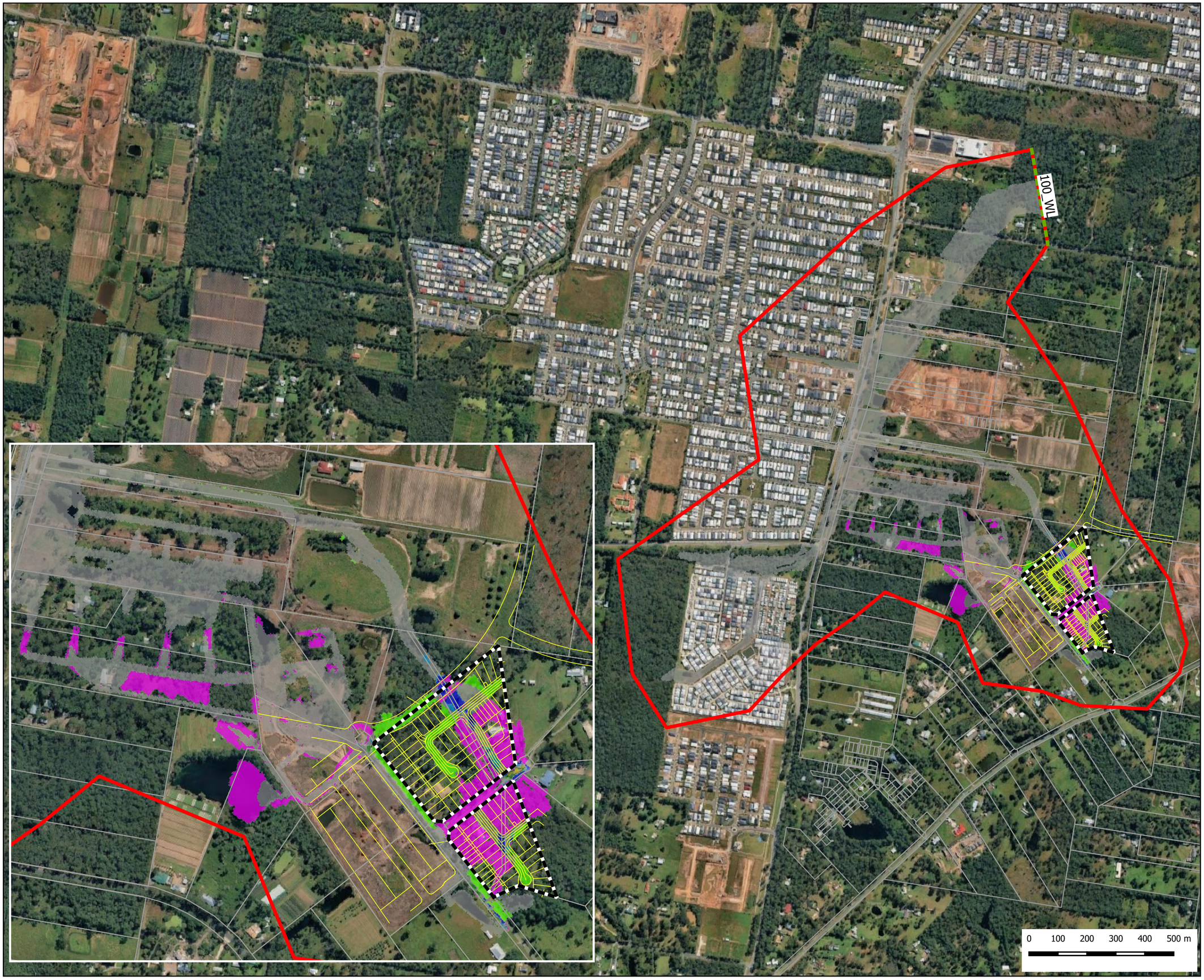
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FIG C14 POST DEVELOPMENT
20%AEP
FLOOD WATER VELOCITY AFFLUX




Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Velocity Afflux (m/s)

< -0.2	0.3 - 0.5
-0.2 - -0.1	0.5 - 1
-0.1 - 0.1	> 1
0.1 - 0.2	Was Wet Now Dry
0.2 - 0.3	Was Dry Now Wet

Project: BE250124
DATE: November 2025
Scale:1:12000 at A3
Projection: GDA 94/ MGA ZONE 56
Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

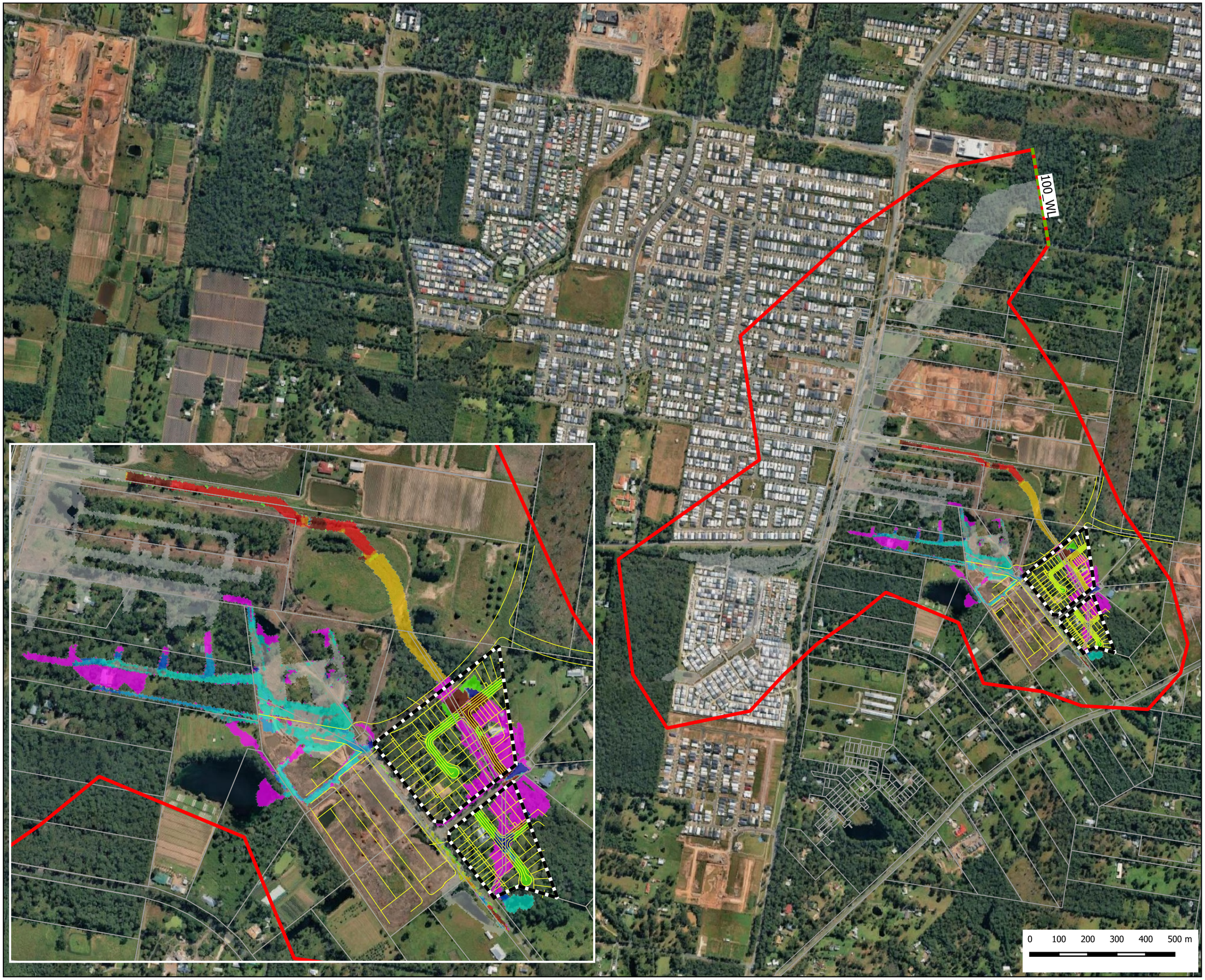
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1-15 and 20 Calume and 43 Noffke Court

FIG C15 POST DEVELOPMENT
50%AEP
FLOOD WATER LEVEL AFFLUX




Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Level Afflux (m)

<= -0.1	0.02 - 0.03
-0.1 - -0.05	0.03 - 0.05
-0.05 - -0.03	0.05 - 0.1
-0.03 - -0.02	0.1 - 1000
-0.02 - -0.01	Was Wet Now Dry
-0.01 - 0.01	Was Dry Now Wet
0.01 - 0.02	

Project: BE250124

DATE: November 2025

Scale:1:12000 at A3

Projection: GDA 94/ MGA ZONE 56

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

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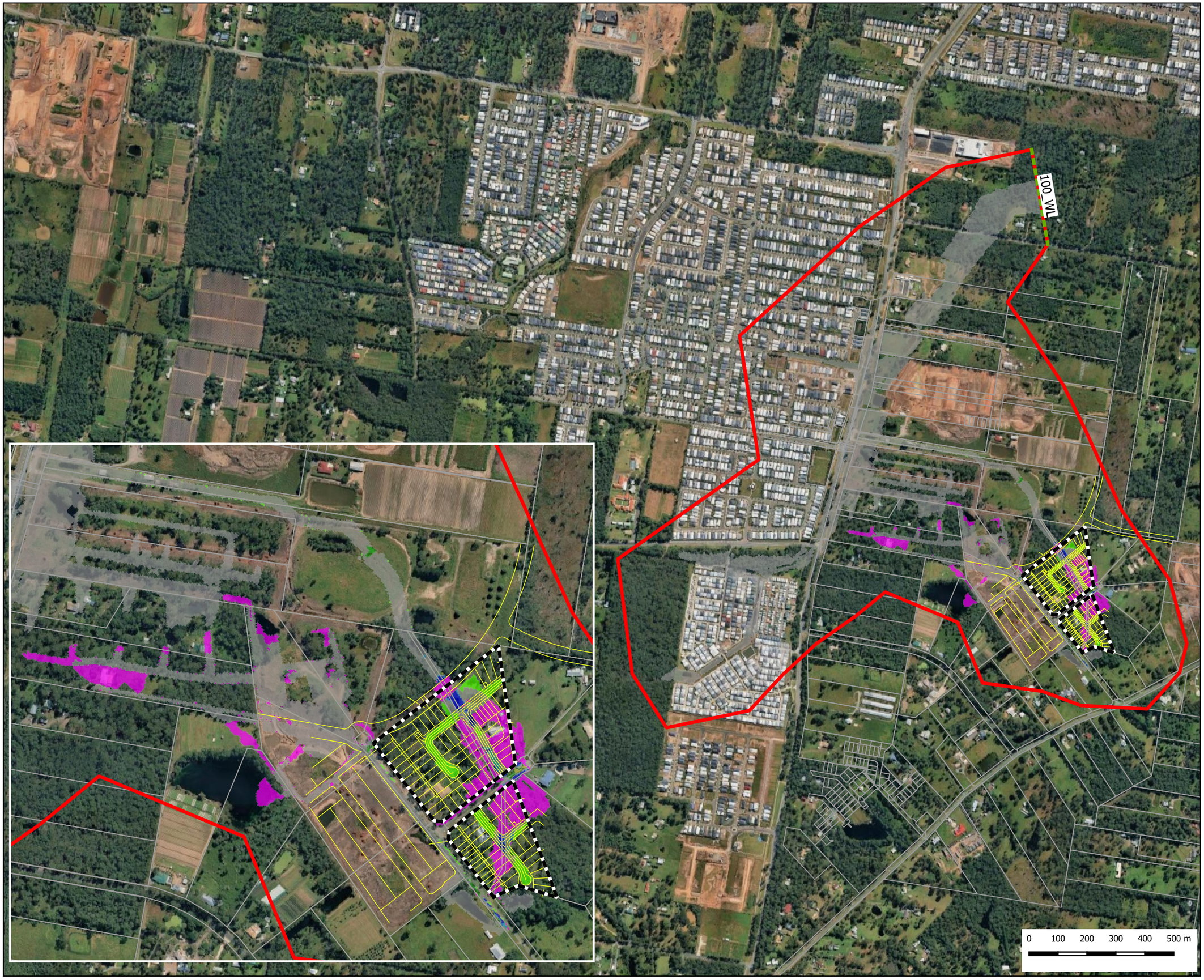
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1-15 and 20 Calume and 43 Noffke Court

FIG C16 POST DEVELOPMENT
50%AEP
FLOOD WATER VELOCITY AFFLUX




Location of the site within City of Logan City

Legend

- Model Extent
- Site
- Cadastral_Logan
- Downstream Boundary
- Layout

Water Velocity Afflux (m/s)

< -0.2	0.3 - 0.5
-0.2 - -0.1	0.5 - 1
-0.1 - 0.1	> 1
0.1 - 0.2	Was Wet Now Dry
0.2 - 0.3	Was Dry Now Wet

Project: BE250124
DATE: November 2025
Scale:1:12000 at A3
Projection: GDA 94/ MGA ZONE 56
Data Sources:

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FOR

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