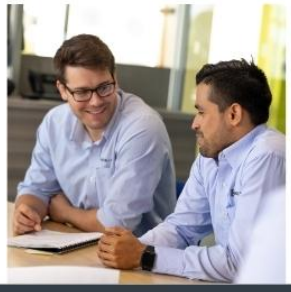
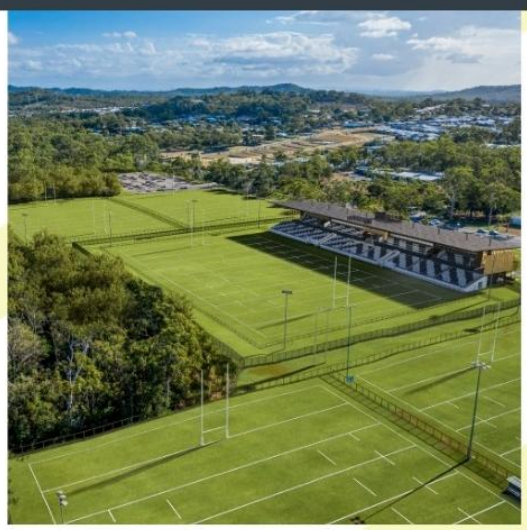
BURCHILLS
ENGINEERING SOLUTIONS



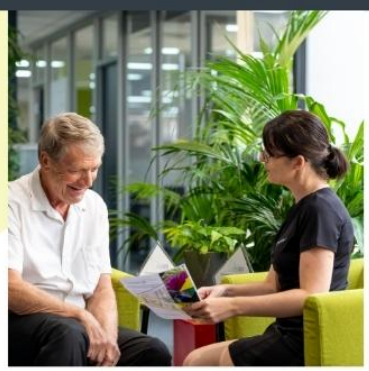




The experience **you deserve**







2 Karingal Drive, Pimpama
Hydraulic Impact Assessment

Client:	Bosform Pty Ltd
Project Number:	BE200223
Document Number:	BE200223-RP-HIA-02
Date of Issue:	July 2026

Document Control Record

Prepared by:	Joshua Micallef
Position:	Civil and Water Engineer
Signed:	
Date:	14/07/2026

Approved by:	Rod Barry
Position:	Principal Engineer
Signed:	 RPEQ 7067
Date:	14/07/2026

Version No.	Description	Date	Prepared	Approved
00	Initial Issue	7/01/2021	FL	JC
01	Updated Layout	19/03/2026	JM	RB
02	Information Request Response	14/07/2026	JM	RB

Recipients are responsible for eliminating all superseded documents in their possession.

Coote Burchills Engineering Pty Ltd ACN: 166 942 365

GOLD COAST – Level 2, 26 Marine Parade Southport QLD 4215 - PO Box 3766, Australia Fair Southport QLD 4215
BRISBANE – Level 25, 215 Adelaide Street Brisbane QLD 4000 – GPO Box 3083, Brisbane QLD 4001
TOOWOOMBA – Unit 4, 462 Ruthven Street Toowoomba QLD 4350 - PO Box 1439, Toowoomba QLD 4350
SUNSHINE COAST - Level 1, 8 First Avenue, Maroochydore QLD 4558
FRASER COAST – 6 Liuzzi Street, Pialba QLD 4655

MORETON BAY I ROMA I IPSWICH I BANGALOW

RELIANCE, USES and LIMITATIONS

This report is copyright and is to be used only for its intended purpose by the intended recipient and is not to be copied or used in any other way. The report may be relied upon for its intended purpose within the limits of the following disclaimer.

This study, report and analyses have been based on the information available to Burchills Engineering Solutions at the time of preparation. Burchills Engineering Solutions accepts responsibility for the report and its conclusions to the extent that the information was sufficient and accurate at the time of preparation. Burchills Engineering Solutions does not take responsibility for errors and omissions due to incorrect information or information not available to Burchills Engineering Solutions at the time of preparation of the study, report or analyses.

Executive Summary

This Hydraulic Impact Assessment has been prepared for Bosform Pty Ltd the proponent of this Development Application. The proponent is seeking Development Approval for a proposed 57 lot multi-unit townhouse development over 2 Karingal Drive, Pimpama properly described as Lot 19 on RP 152380 (the subject site). Based on the hydraulic modelling results presented in this report, the following conclusions have been made:

- The proposed development maintains floodplain storage in the regional event
- The proposed development generally maintains local catchment hydraulic conditions; and
- Modelled water-level increases are generally contained within the subject site, with the exception of an increase of approximately 14 mm within the downstream Council-owned drainage reserve during the 2% and 1% AEP events.
- Under both existing and post-development conditions, modelled flood depths at the Karingal Drive culvert crossing exceed 200 mm during the 10% AEP event and 500 mm during the 1% AEP event. These depths exceed the applicable flow-depth limits prescribed by QUDM;
- The proposed development does not worsen the existing flooding conditions at the Karingal Drive culvert crossing.

Table of Contents

1. Introduction 1
   1.1 Response to Information Request – 27/04/2026 - COM/2026/92 1
   1.2 Scope 2
   1.3 Proposed Development 2
   1.4 Designated Flood Level 3
2. Local Catchment Hydrology 5
3. Hydraulic Impact Requirements 7
   3.1 Hydraulic Impact Assessment 7
   3.2 Regulatory Requirements and Technical Guidelines 7
      3.2.1 Flood Storage Balance 7
4. Hydraulic Model 8
   4.1 Overview 8
   4.2 Hydraulic Modelling Parameters 8
5. Results 10
   5.1 Flood Behaviour Pre-Development 10
   5.2 Flood Behaviour Post-Development 12
      5.2.1 Hydraulic Impact Mapping 13
   5.3 Inundation of Karingal Drive 14
6. Conclusion 15
7. General Issues and Uncertainty 16
8. References 18

Tables

Table 2.1 Local Sub-Catchment Hydrology 5
Table 2.2 Comparison of XP-RAFTS and Rational Method Estimated Peak Flow Of 1%AEP 6
Table 3.1 Flood Events Required 7
Table 4.1 Hydraulic Modelling Parameters 8
Table 5.1 List of Hydraulic Impact Assessment Mapping 13
Table 7.1 AEP and ARI Terminology 16

Figures

Figure 1.1 Proposed Site Layout 3
Figure 1.2 Gold Coast City Plan Flood Depth Overlay Map 4
Figure 5.1 Pre-Development 1% AEP Peak Flood Level 10
Figure 5.2 Pre-Development 1% AEP Peak Flood Depth 11
Figure 5.3 Pre-Development 1% AEP Peak Flood Velocity 12
Figure 5.4 Post-Development 1% AEP Peak Flood Depth 13
Figure 5.5 Post-Development 1% AEP Flood Level Afflux 14

Appendices

Appendix A – Further Information and Methods

Appendix B – Proposed Plans of Development

Appendix C – Time of Concentration and Rational Method Calculation

Appendix D – Hydraulic Model Features Map

Appendix E - Hydraulic Mapping Results

Appendix F - Burchills Engineering Solutions Preliminary Civil Engineering Drawings

1. Introduction

Burchills Engineering Solutions were engaged by Bosform Pty Ltd to prepare a Hydraulic Impact Assessment (HIA) for the design of the 57 lot multi-unit development over 2 Karingal Drive, Pimpama properly described as Lot 19 on RP 152380. This HIA has been updated to respond to a request for information received on 27/04/2026 under application COM/2026/92.

This HIA will detail the impacts of the proposed works on the existing flooding regime in relation to the proposed development.

1.1 Response to Information Request – 27/04/2026 - COM/2026/92

Item	Information Requested	Response
Landscape		
Stormwater outlets		
8.	Post development flood impacts appear to impact upon Council Drainage Reserve Lot 900 SP347477. The applicant is requested to demonstrate owners' consent for the acceptance of this increase in flood volume or alternatively amend all plans to mitigate flood impacts within the subject site.	Communications have begun with Property services to obtain consent for the minor increase in flood levels over Council Drainage Reserve Lot 900 SP347477. The updated Hydraulic Impact Assessment prepared by Burchills demonstrate that water level increases over Drainage Reserve Lot 900 SP347477 have been reduced from what was originally reported on in HIA-01 as a result of updated survey data being included in the hydraulic modelling.
Civil Engineering		
Hydraulics Impact Assessment – neighboring lots affected		
21.	Council officers acknowledge the Hydraulics Impact Assessment (HIA) prepared by Burchills Engineering Solutions (dated 19 March 2026). The report indicates that post-development conditions result in afflux impacts on neighboring lots immediately to the east during the 1% and 2% AEP flood events. Compliance with PO6 requires that afflux impacts remain within the limits prescribed in the Council's Flood Model Noise Practice Note. Specifically: - For open space, designated drainage areas, road reserves/corridors, and council parks, the tolerable afflux must not exceed 10 mm. - For ancillary areas (outside a building footprint) of residential properties in an urban setting, the tolerable afflux must not exceed 5 mm. Based on the submitted modelling, the afflux impact on neighboring lots ranges between 0.02–0.03 m (noting that the legend incorrectly identifies units as millimeters rather than meters). Accordingly, the development does not comply with PO6 of the Flood Overlay Code. The applicant is requested to provide one of the following:	
	a) Remodel the post-development scenario to mitigate impacts on neighboring lots ensuring consistency with the outcomes of the above practice note and provide amended HIA report and plans; or	The post-development flood model has been updated to incorporate the latest survey information, including recently constructed infrastructure. The revised modelling results are presented in the updated Hydraulic Impact Assessment (HIA). The modelled

		outcomes still results in some areas with water level increases of greater than 10mm however Burchills have begun communications with council to obtain owners consent for the water level increases over Drainage Reserve Lot 900 SP347477.
	b) Provide written consent from all affected property owners.	Communications have begun with Property services to obtain consent for the minor increase in flood levels over Council Drainage Reserve Lot 900 SP347477. The updated Hydraulic Impact Assessment prepared by Burchills demonstrate that water level increases over Drainage Reserve Lot 900 SP347477 have been reduced from what was originally reported on in HIA-01 as a result of updated survey data being included in the hydraulic modelling. Please see correspondence attached to the RFI response package.

1.2 Scope

This HIA has been undertaken in accordance with the following scope:

- Assessment of Existing Flooding Conditions
- Local Model Development
  - Construct a Hydrology model for contributing catchments;
  - Construct a TUFLOW model to assess the impact of the proposed works;
- Review of Model Results
  - Review of modelling results, including water level impacts, hazards and modelling inefficiencies.
- Report and Mapping
  - Presentation of pre-development and post-development flood extents, depths, and velocities (where applicable);
  - Impact assessment including afflux contours; and
  - Review of any impacts resulting from the proposal in the context of whether such afflux may give rise to changes in flood damage, risk or hazard.

1.3 Proposed Development

The proposed development is seeking Council approval for Material Change of Use (multiple dwellings), Reconfiguring a Lot (2 management lots and a park Lot) and Operational Works (change to ground level and vegetation clearing). Specifically, the proposal involves a new townhouse development which comprises a complex of 16 townhouses accessing from Imelda Way and a complex of 41 townhouses accessing from Karingal Drive. The reconfiguring a lot component involves creation of management lots for these two townhouse developments and a park lot to be dedicated to Council for the drainage reserve traversing the site.

For further details, please refer design drawings prepared by MPS Architects attached in Appendix B of this report. Figure 1.1 below provides an excerpt taken from the development's site plan.

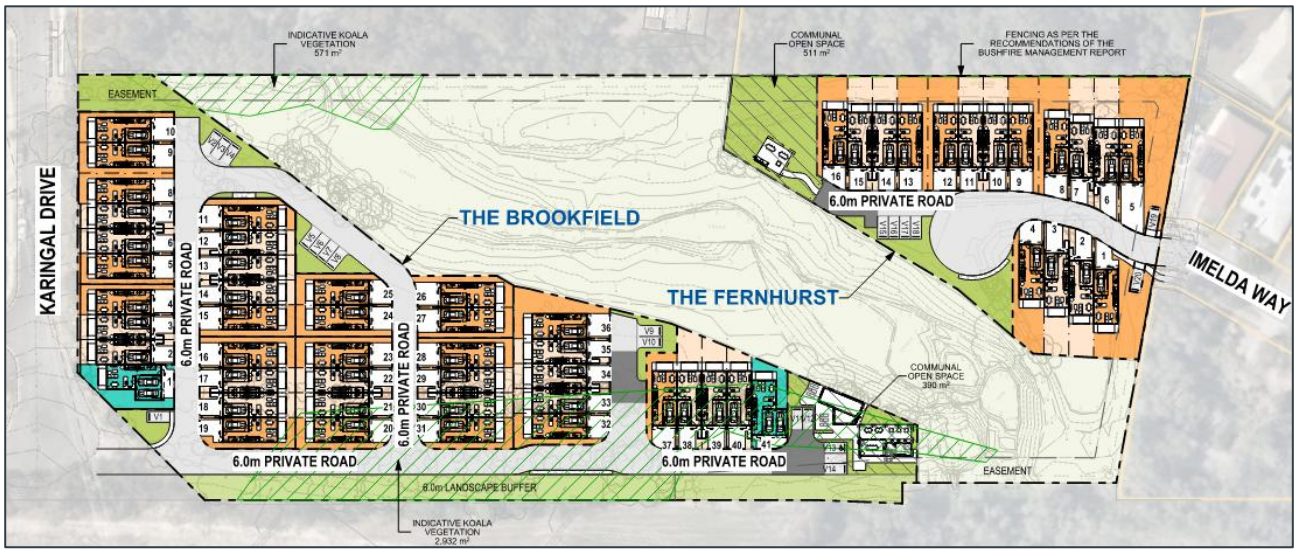


Figure 1.1 Proposed Site Layout

1.4 Designated Flood Level

Councils Defined Flood Level model is limited to the subject sites downstream boundary, to determine flooding extents over the site a hydrological model has been developed for the local upstream catchment and validated using the Rational Method to validate runoff from the sub-catchments. The hydrology was then used in a 2D TUFLOW model to establish peak flood levels across the site and assess impacts of the proposed development.

Figure 1.2 (below) provides an extract of the City Plan's Flood Overlay depicting the extent of flooding in relation to the subject site and the surrounding road network.

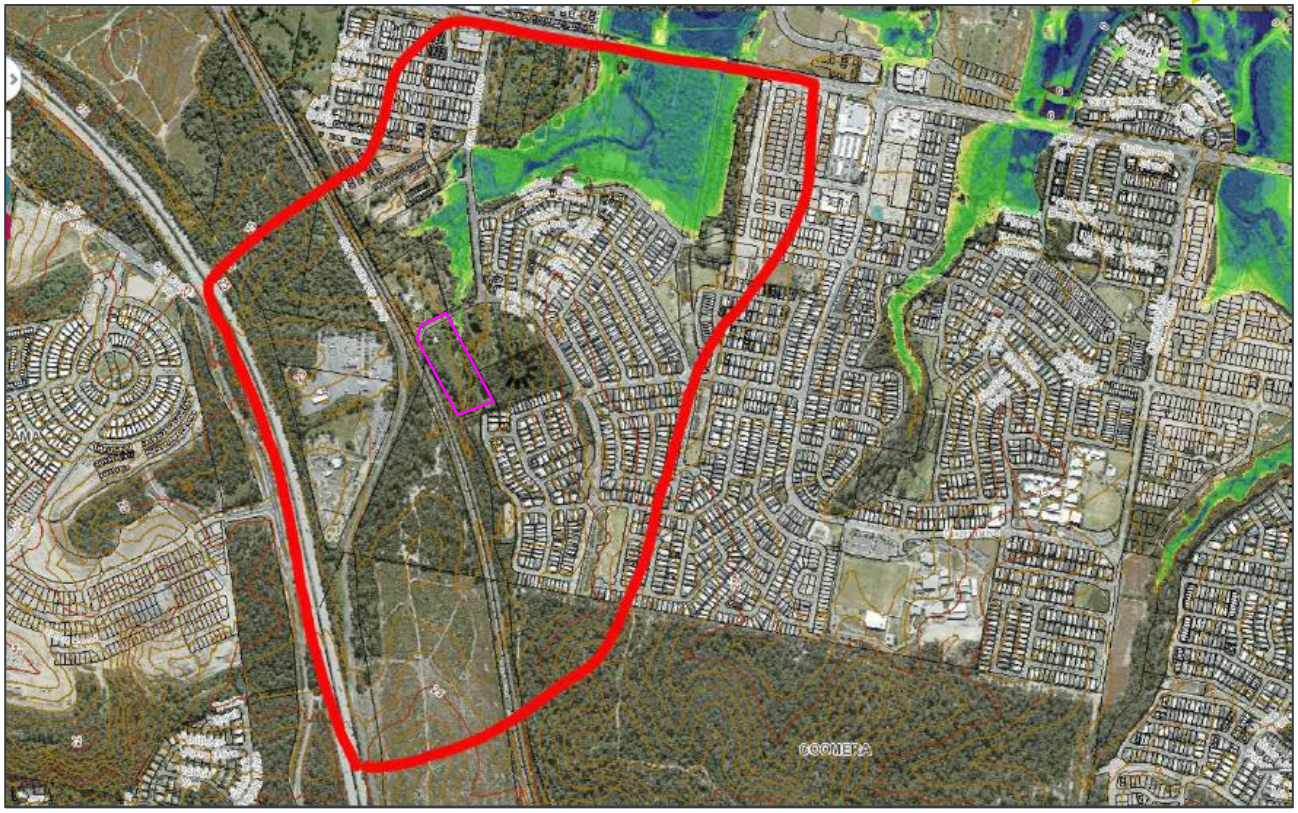


Figure 1.2 Gold Coast City Plan Flood Depth Overlay Map

2. Local Catchment Hydrology

A catchment plan for the local catchments has been prepared and presented in Appendix D.

Flows from the upstream catchments are conveyed to the site through a drainage system under the Pacific Motorway, Old Pacific Motorway and the Railway Line. The catchment details are summarised in Table 2.1 and Table 2.2 shows the comparison of XP-RAFTS and Rational Method peak flows from the 1% AEP event. The upstream catchment permeability has been set using the current land use plan published in the City Plan. A summary of rational method calculations have been provided in Appendix C.

A XP-RAFTS model runoff hydrologic model has been set up and compared against the Rational Method to validate runoff from the sub-catchments for the 1% AEP event.

Table 2.1 Local Sub-Catchment Hydrology

Catchment Name	Percentage Impervious (%)	Catchment Slope (%)	Area (ha)
1	58.8	2.7	5.42
2	13.6	3.3	3.37
3	11.9	7.2	5.72
4	53.3	4.4	9.67
5	3.0	4.3	16.90
6	30.0	10.4	16.01
7	15.0	3.5	12.74
8	5.6	5.8	15.33
9	3.0	6.7	13.90
10	0.0	2.1	7.58
11	39.4	3.6	4.00
12	15.0	7.9	15.77
13	17.4	5.7	13.24
14	60.0	4.6	8.49
15	7.6	9.0	13.65
16	60.0	6.8	4.44
17	2.9	5.7	3.41
18	11.6	5.9	25.54
19	65.0	5.7	14.97
20	60.0	2.9	15.29
21	41.3	4.4	11.08
22	50.0	4.1	12.22
23	7.0	0.6	8.38
24	18.4	2.9	7.12

Table 2.2 Comparison of XP-RAFTS and Rational Method Estimated Peak Flow Of 1%AEP

Sub-Catchment	Estimated Peak Flow (m3/s)		% Diff
	XP-RAFTS	Rational Method	
1	2.75	3.22	14.6
2	1.20	1.32	9.1
3	2.45	2.58	5.0
4	4.39	5.51	20.2
5	5.09	6.11	16.6
6	7.70	8.87	13.2
7	5.64	4.49	-20.4
8	4.99	4.64	-7.0
9	4.37	4.55	4.0
10	2.17	2.26	4.1
11	1.71	2.04	16.0
12	6.97	6.13	-12.1
13	5.16	4.37	-15.2
14	5.17	5.31	2.7
15	6.03	5.93	-1.8
16	2.52	2.95	14.4
17	1.11	1.38	19.6
18	7.58	9.12	16.8
19	7.98	9.61	17.0
20	7.06	8.63	18.2
21	4.66	5.65	17.5
22	6.39	6.83	6.5
23	1.32	1.17	-11.1
24	2.50	2.32	-7.0

The peak discharges generated by XP-RAFTS and the Rational Method compare well and are considered acceptable for this assessment.

3. Hydraulic Impact Requirements

3.1 Hydraulic Impact Assessment

The purpose of this report is to assess the hydraulic impact of the proposed 57 lot multi-unit development. The local flooding conditions within the catchment have been modelled to ensure that the proposed development results in no adverse impacts upon adjoining properties. When undertaking a HIA, the Gold Coast City Plan Flood Overlay Code specifies the following events to be modelled and assessed by an RPEQ when addressing the Performance Outcomes of **PO6** of the code:

Table 3.1 Flood Events Required

AO6.2 a)	Minimum Local Floods:	50%, 20%, 10%, 5%, 2% and 1% Annual Exceedance Probability (AEP) for local flood events
AO6.2 b)	Minimum Regional Floods:	5%, 2%, and 1% AEP floods
AO6.2 c)	Additional Regional Floods	0.2% AEP (on Request by the Assessment Manager)

The AEP's simulated for this HIA were the 39%, 18%, 10%, 5%, 2%, and 1% events for this development. As there is a plethora of potential event durations for each AEP, the critical durations for the respective regional floods were simulated. Due to the site's location, local floods (short durations) would directly drain to the main river and any drainage issues are generally addressed in a stormwater management plan.

The critical durations were determined by interrogating the result files from the TUFLOW model providing the event duration which produced the peak water level at site.

3.2 Regulatory Requirements and Technical Guidelines

This report assesses the proposed development against the requirements set out in the following City of Gold Coast City Plan Version 13 (Council) City Plan Codes:

- 8.2.8 Flood Overlay Code – The proposed development is situated within the flood assessment area and as such must meet all relevant requirements of the code.

The strategies proposed in this HIA have been developed to address the requirements of the Gold Coast City Plan, and 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).

3.2.1 Flood Storage Balance

A requirement of City of Gold Coast as stated in the Flood Overlay Code, is that flood storage is to be maintained to the Regional Designated Flood Level (DFL) in the post-developed condition.

The proposed development will maintain regional flood storage up to the Regional Designated Flood Level (DFL) defined by the City of Gold Coast.

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 Hydraulic Modelling Parameters

The details of the parameters used for the TUFLOW model are presented in Table 4.1. The pre-development and post-development model feature maps along with roughness maps are presented in Appendix D.

Table 4.1 Hydraulic Modelling Parameters

Parameters	Details
Scenarios	> Pre-development; and > Post-development.
Events and Critical Durations Modeled	> 39% AEP – 3hr; > 18% AEP – 3hr; > 10% AEP – 3hr; > 5% AEP – 3hr; > 2% AEP – 1hr; and > 1% AEP – 1hr.
Topography	Pre-Development > 2014 1m LiDAR o Vertical data: Spatial Accuracy: 0.15m @ 67 % CI (95% confidence level or 2 sigma) o Horizontal Data: Spatial Accuracy: 0.40m @ 67 % CI (95% confidence level or 2 sigma) > Site Survey – (Michel Group Services, February 2026) > Additional Survey over Lot 900 SP347477 (Michel Group Services, May 2026) Post-Development > Civil Design DEM of the proposed site prepared by Burchills Engineering Solutions; (Please refer to Appendix F for further detail) > Site Survey – (Michel Group Services, February 2026) > Additional Survey over Lot 900 SP347477 (Michel Group Services, May 2026)
Initial Water Level	Pre-Development > Lakes level survey in site.
2D Resolution	> 2m grid.
Timestep	> Adaptive timestep. (HPC)
Inflows	> Regional Catchment Inflows represented at 2D boundary conditions o 2 inflows represented as flow-time boundary conditions – taken from XP RAFTS model o 22 inflow represented from as a source area inflow – taken from XP RAFTS model

Downstream Boundary Condition	> A normal depth condition with a slope of 0.003 was adopted for the TUFLOW's downstream boundary
Hydraulic Structures	> 1D Link Network representing: o Total of 23 culvert located in 2D model extent as presented in Appendix D
Surface Roughness (reflected as Manning's 'n')	> n = 0.15 – Sugar Cane/Trees > n = 0.030 – Water body > n = 0.075 – Medium Trees > n = 0.022 – Road > n = 1.0 – Building > n = 0.035 – Grass (Remaining/default model area)

5. Results

5.1 Flood Behaviour Pre-Development

Figure 5.1 to Figure 5.3 below show the maximum floodwater levels, depths and velocity for Q100 event.

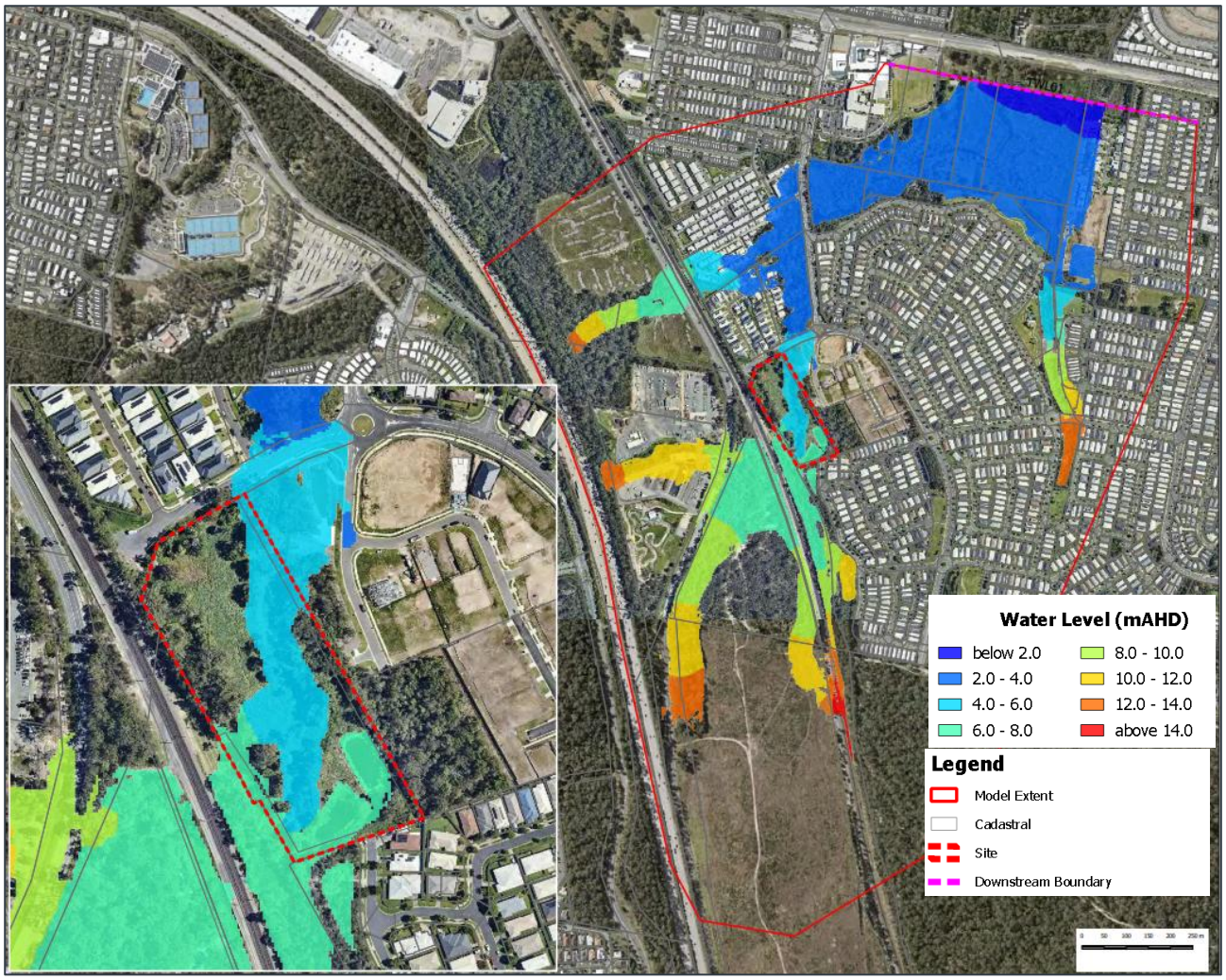


Figure 5.1 Pre-Development 1% AEP Peak Flood Level

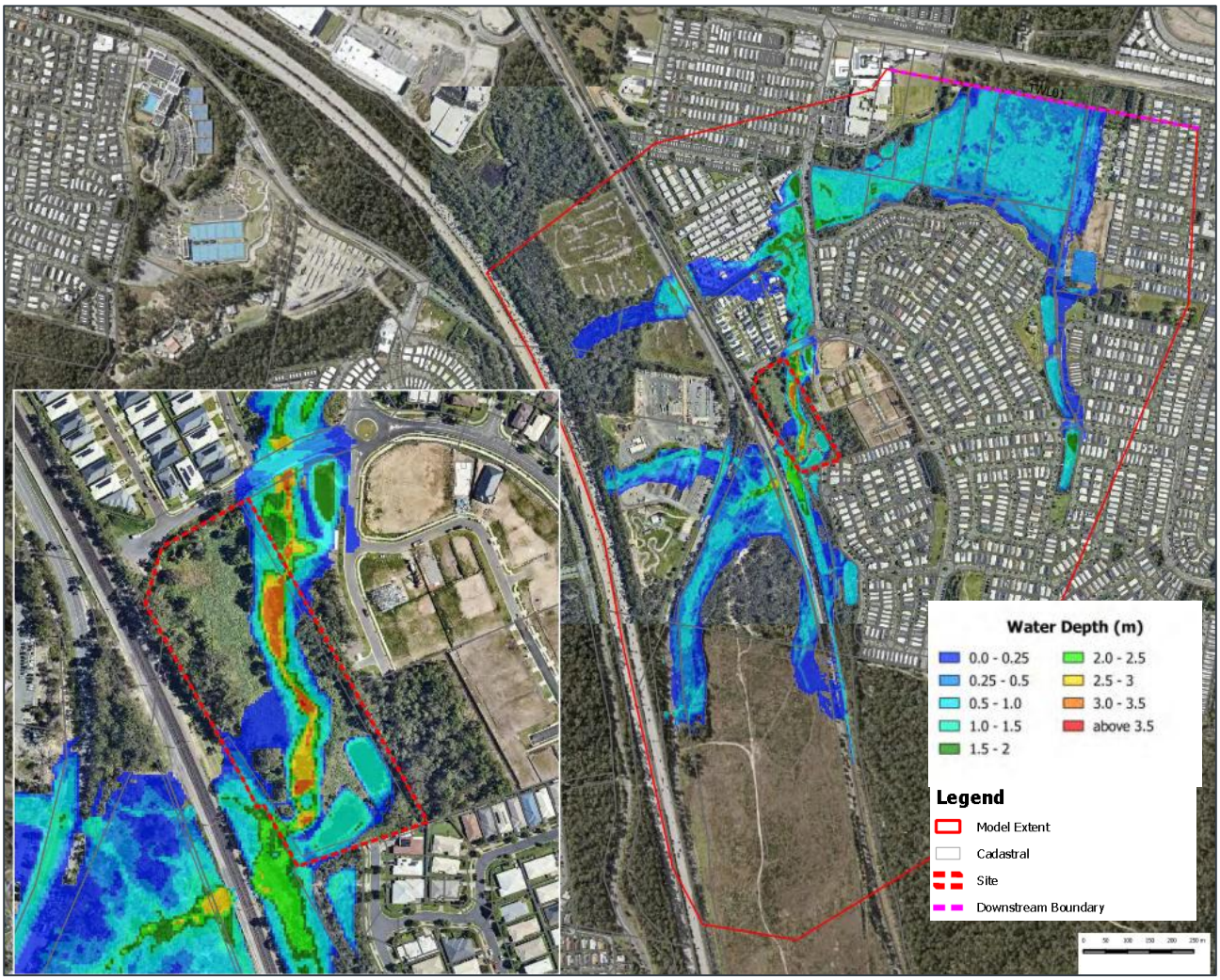


Figure 5.2 Pre-Development 1% AEP Peak Flood Depth

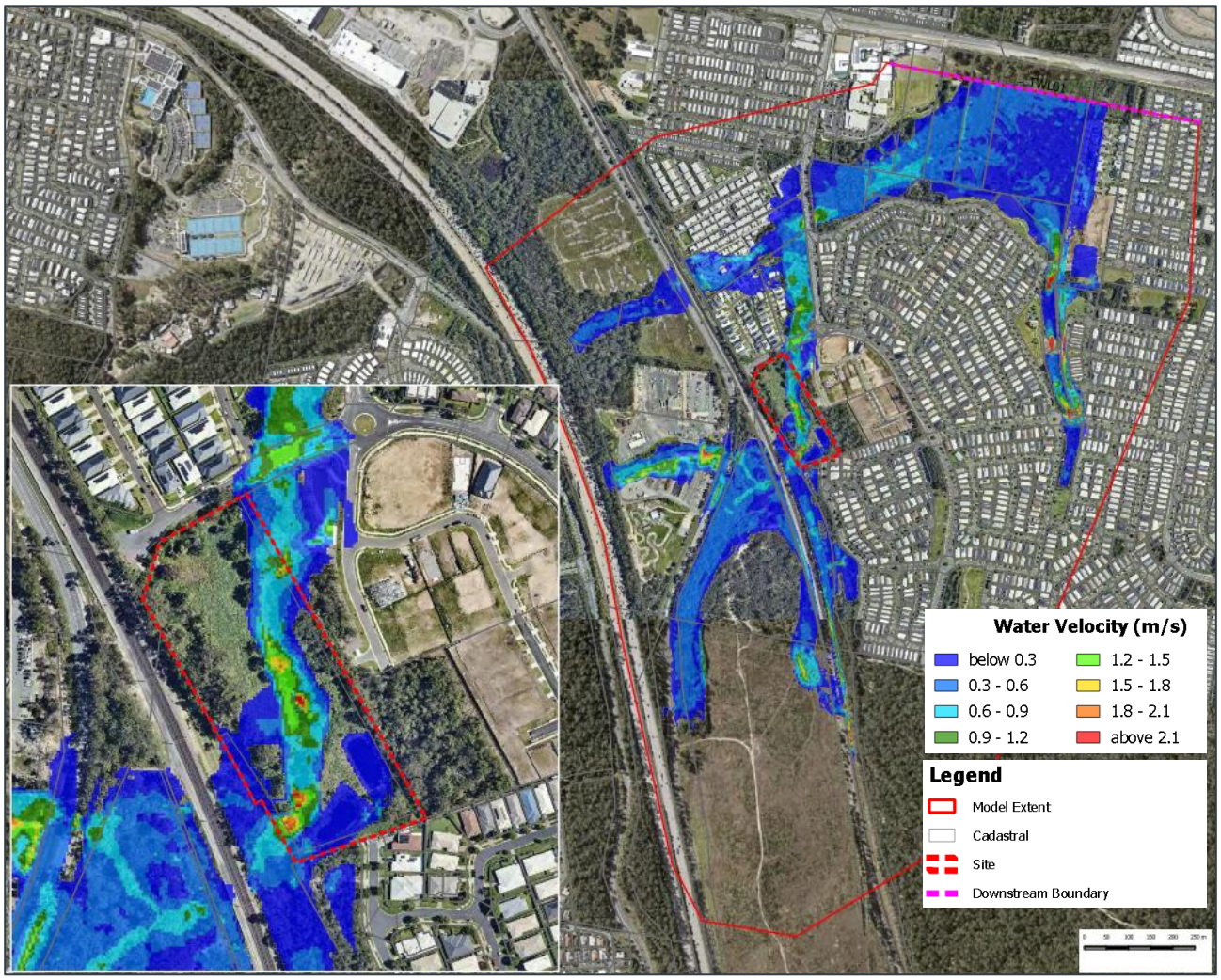


Figure 5.3 Pre-Development 1% AEP Peak Flood Velocity

5.2 Flood Behaviour Post-Development

The post development TUFLOW model was used to assess whether the proposed development causes any change to flood damage, risk or hazard.

Generally, the proposed development and earthworks are limited to the extent of the existing waterway and the flood behaviour in the post developed scenario is similar to the pre-developed. Shown below in Figure 5.4 is the post-developed 1% AEP flood depth map, all proposed lots have been designed to be flood free in the design 1% AEP event with an additional 300mm of freeboard to finished floor levels.

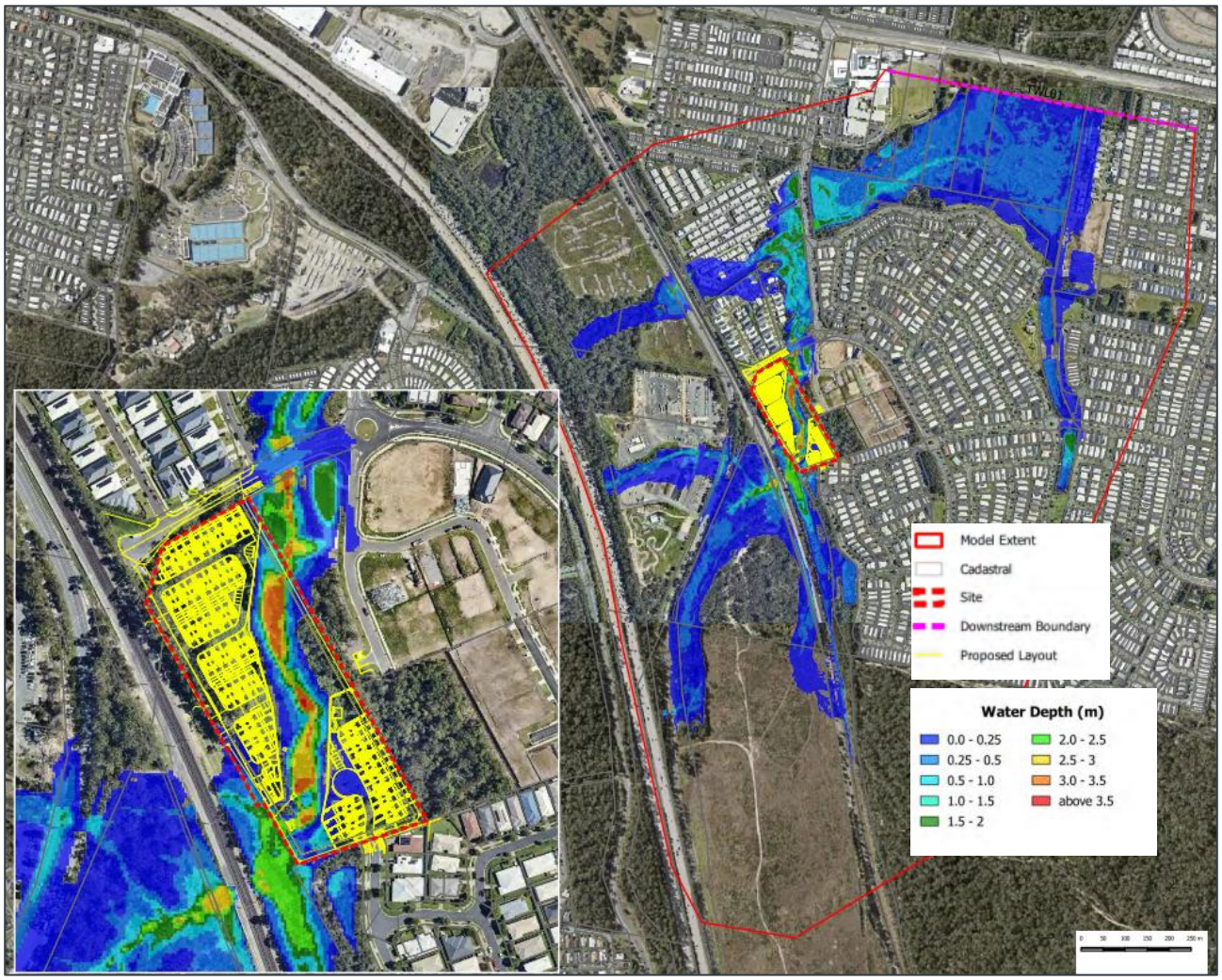


Figure 5.4 Post-Development 1% AEP Peak Flood Depth

5.2.1 Hydraulic Impact Mapping

Afflux maps (change in water level) have been prepared to depict impacts resulting from the proposed development, and are included within Appendix E. Table 5.1 presents an index of the afflux mapping prepared for proposed residential development.

Table 5.1 List of Hydraulic Impact Assessment Mapping

Appendix No.	Figure No.	AEP (%)	Critical Duration (h)	Result
Appendix E	C06	39	3	Water Level Afflux
	C05	18	3	Water Level Afflux
	C04	10	3	Water Level Afflux
	C03	5	3	Water Level Afflux
	C02	2	1	Water Level Afflux
	C01	1	1	Water Level Afflux

No external increases in water level have been modelled to occur with the exception of the 1% and 2% AEP events. The external increase in water level is limited to approximately 14mm and is generally contained within the council owned drainage corridor.

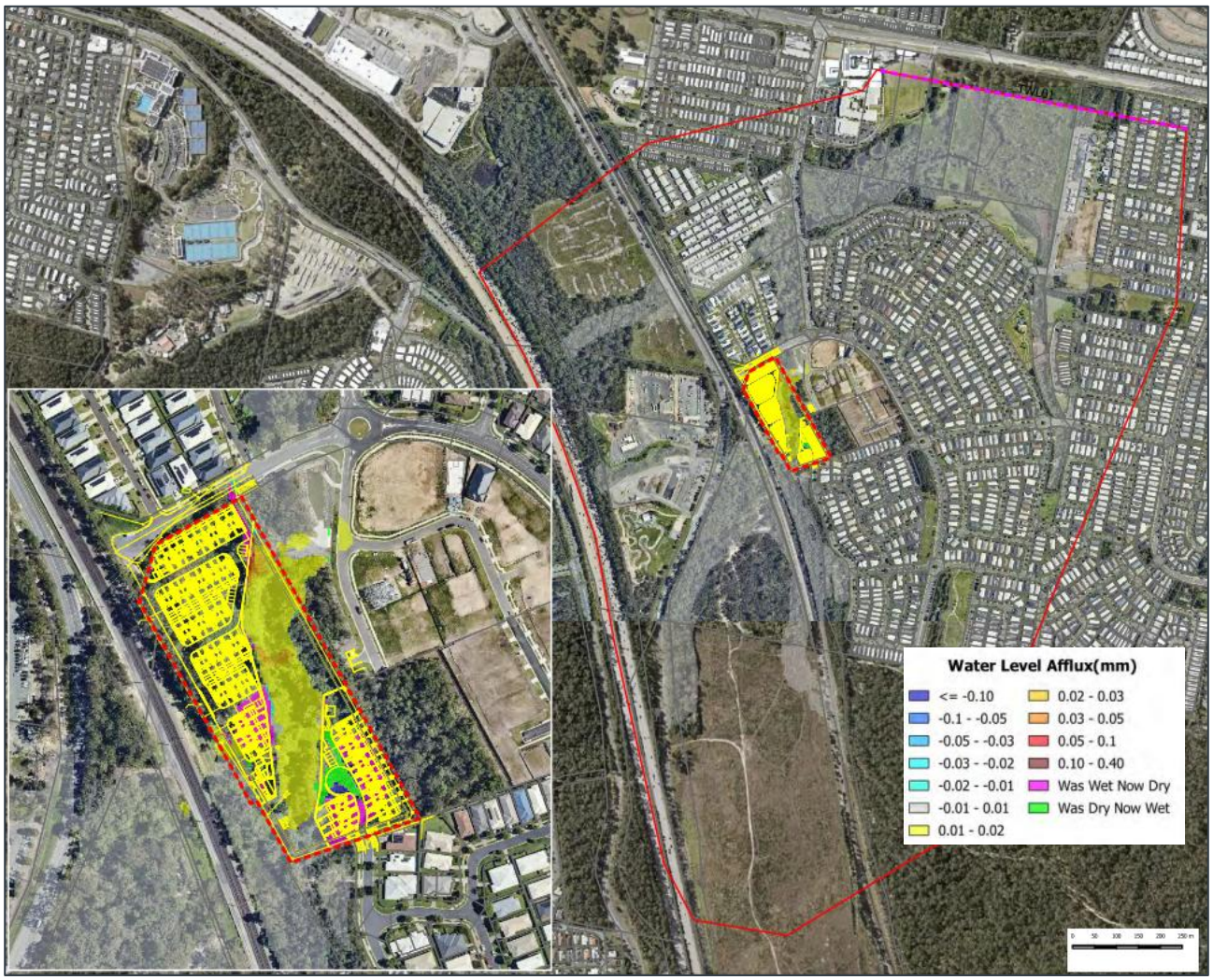


Figure 5.5 Post-Development 1% AEP Flood Level Afflux

5.3 Inundation of Karingal Drive

Modelling results indicate that in the existing (and post-developed scenario) depths over Karingal Drive at the culvert crossing immediately to the north-east of the site, exceed 0.5m of depth in the 1% AEP event and 0.2m of depth in the 10% AEP events at the crown of the roadway. These depths exceed the allowable flow depth limits prescribed by QUDM for flow over road crossings.

It should be noted that the proposed development does not cause any worsening to the flooding conditions over Karingal Drive.

6. Conclusion

This Hydraulic Impact Assessment has been prepared for Bosform Pty Ltd in support of a Development Application for a proposed 57-lot multi-unit townhouse development at 2 Karingal Drive, Pimpama, legally described as Lot 19 on RP152380.

Based on the hydraulic modelling undertaken for this assessment, the proposed development will generally preserve existing local catchment hydraulic conditions. Modelled water-level increases are generally contained within the subject site. External afflux of approximately 14 mm is modelled within the downstream Council-owned drainage reserve during the 2% and 1% AEP events.

The proposed development will maintain regional flood storage up to the Regional Designated Flood Level (DFL) defined by the City of Gold Coast.

Under both existing and post-development conditions, modelled flood depths at the Karingal Drive culvert crossing exceed 200 mm during the 10% AEP event and 500 mm during the 1% AEP event. These depths exceed the applicable flow-depth limits prescribed by QUDM. However, the modelling indicates that the proposed development does not worsen the existing flooding conditions at this location.

Overall, the assessment indicates that the proposed development generally maintains existing flood behaviour, subject to the identified afflux within the downstream Council-owned drainage reserve.

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 7.1 AEP 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:

- 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 +/- 0.25 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 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 Hydraulic Impact Assessment is regarded as 'moderate' based on the following factors:

- The flood models were verified against another two events;
- The model parameters are generally typical of those used elsewhere; and
- The vertical accuracy of the ALS data used to develop the DEM.

8. References

R. P. Canterford (Editor in Cheif), 1987. Australian Rainfall and Runoff: A Guide to Flood Estimation, Volume 2 The Institute of Engineers, Australia.

BMT WBM, 2010. TUFLOW User Manual, GIS Based 2D/1D Hydrodynamic Modelling. Brisbane: BMT WBM.

Chow, V. T., 1959. Open-Channel Hydraulics. St. Louis: McGraw Hill Book Company.

CoGC, 2016. Gold Coast City Plan SC6.9 City Plan Policy - Land Development Guidelines. Gold Coast (Queensland): CoGC.

Department of Energy and Water Supply, 2008. Queensland Urban Drainage Manual. Brisbane: State of Queensland.

Department of Energy and Water Supply, 2013. Queensland Urban Drainage Manual. Third Edition 2013 - provisional ed. Brisbane(Queensland): State of Queensland.

Department of State Development, Infrastructure and Planning, 2014. State Planning Policy - Part D Planning for the environment and heritage. Brisbane: State of Queensland.

Department of Transport and Main Roads, 2010. Road Drainage Manual. Brisbane: State of Queensland.

Modelling Systems: Part One - Flow Through a Constriction, Conference on Hydraulic in Civil Engineering, Adelaide, 1998.

Pilgrim, D., 1987. Australian Rainfall & Runoff - A Guide to Flood Estimation. Barton, ACT: Institute of Engineers Australia.

Stelling, G.S. (1984) *On the Construction of Computational Methods for Shallow Water Flow Problems*. Rijkswaterstaat Communications, no. 35/1984, The Hague, The Netherlands.

Syme, W.J. (1991) *Dynamically Linked Two-Dimensional/One-Dimensional Hydrodynamic Modelling Program for Rivers, Estuaries and Coastal Waters,* William Syme, M.Eng.Sc (Research) Thesis, Dept of Civil Engineering, The University of Queensland, May 1991.

Syme, W.J., Nielsen, C.F., Charteris, A.B. (1998) *Comparison of Two-Dimensional Hydrodynamic*

WBM (2000) *Byron Shire Coastline Hazard Definition Study – Final Report*, WBM Oceanics Australia, November 2000.

.

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.

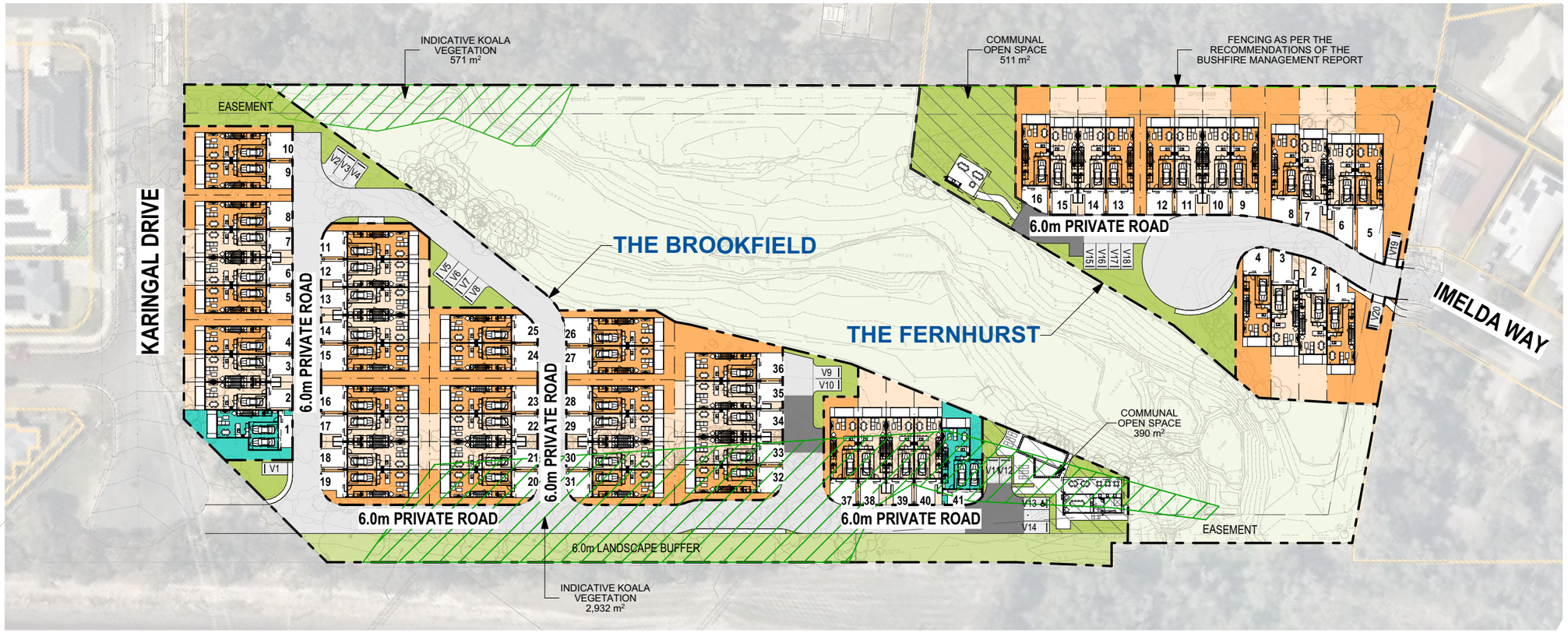
TUFLOW models have been successfully checked against rigorous test cases (Syme 1991, Syme et al 1998 and WBM 2000), and calibrated and applied to a large range of real-world tidal and flooding applications. TUFLOW has the capability to dynamically link 2D domains to quasi-2D models as well as having 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 using a combination of ALS data (DNRM, 2014) for the pre-development conditions including a detailed survey of the subject site;
- 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 – Proposed Plans of Development



PARCEL A - THE FERNHURST
60 IMELDA WAY

SITE SUMMARY
APPROX. NET SITE AREA 0.491 ha
APPROX. NET DENSITY 32.59 du/ha

DEVELOPMENT SUMMARY

TYPE C 3 BEDROOM 1+1 CAR 2 STOREY	8
TYPE C END 3 BEDROOM 1+1 CAR 2 STOREY	8
TOTAL	16

PARCEL B - THE BROOKFIELD
2 KARINGAL DRIVE

SITE SUMMARY
APPROX. NET SITE AREA 1.073 ha
APPROX. NET DENSITY 38.21 du/ha

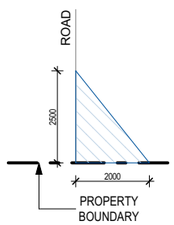
DEVELOPMENT SUMMARY

TYPE C 3 BEDROOM 1+1 CAR 2 STOREY	19
TYPE C END 3 BEDROOM 1+1 CAR 2 STOREY	20
TYPE D 3 BEDROOM 1+1 CAR 2 STOREY	2
TOTAL	41

NOTE: GCCC

LOT BOUNDARIES AND AREAS ARE BASED OFF PDF PLAN AND ARE INDICATIVE ONLY SIZES TO BE CONFIRMED

INDICATIVE KOALA VEGETATION AREA



PEDESTRIAN SIGHT TRIANGLES TO BE KEPT CLEAR OF OBSTRUCTIONS TO VISIBILITY. LOW LEVEL LANDSCAPING PERMITTED TO A MAXIMUM MATURE HEIGHT OF 500mm ABOVE DRIVEWAY LEVEL.

SITED STRUCTURE PLAN

0 10 20 30 40 50m
Scale 1:1000 @ A3

F:\Projects\4104-Karingal Drive, Pimpama\03 Drawings\02 Da\260617 KARINGAL DRIVE, PIMPAMA.pln

2 KARINGAL DRIVE & 60 IMELDA WAY
PIMPAMA

The use of standard products from the MPS SmartHomes range are for the purposes of feasibility analysis only and the copyright of these designs rests solely with MPS International Pty Ltd. Reproduction or further use of these plans is not permitted in any form without the express and written permission from MPS International Pty Ltd.

BOS PROPERTY

MPS Architects
07 5509 6800
www.mps.net.au
22 Jun 2026
MPS 4104
DA02
© copyright 2026
MPS International P/L

Appendix C – Time of Concentration and Rational Method Calculation

Design storm event flows across the site were derived using the Rational Method as per the above-mentioned manuals. This involved:

- Determination of a C10 value (derived in accordance with QUDM Table 4.05.3(b) and Council guidelines). A value of 0.66 was applied to the pre-development catchment and 0.83 was applied to the post-development catchment;
- Adoption of design rainfall using BoM IFD data; and
- Calculation of design flows through the site for Q100, Q50, Q20, Q10, Q5, Q2, and $Q3_{month}$, where $Q3_{month}$ is deemed to be 50% of Q1.

Summaries of the hydrologic calculations are contained in Table C.1 and for pre and post-development (un-mitigated) scenarios respectively.

Table C.1 Pre-Development Hydrology

Catch.	Area (ha)	tc (min)	I_{100} (mm/hr)	C	Q_{100} (m^3/s)	I_{50} (mm/hr)	C	Q_{50} (m^3/s)	I_{20} (mm/hr)	C	Q_{20} (m^3/s)	I_{10} (mm/hr)	C	Q_{10} (m^3/s)	I_5 (mm/hr)	C	Q_5 (m^3/s)	I_2 (mm/hr)	C	Q_2 (m^3/s)	I_1 (mm/hr)	C	Q_{3month} (m^3/s)
Pre 1	5.42	17.00	195.00	0.94	**2.746**	177.00	0.90	**2.388**	153.00	0.82	**1.885**	134.00	0.78	**1.572**	116.00	0.74	**1.293**	93.30	0.66	**0.931**	74.40	0.62	**0.698**
Pre 2	3.37	25.00	162.00	0.79	**1.200**	147.00	0.76	**1.043**	126.00	0.69	**0.816**	110.00	0.66	**0.679**	95.40	0.63	**0.559**	76.60	0.56	**0.402**	61.10	0.53	**0.302**
Pre 3	5.72	17.00	195.00	0.79	**2.452**	177.00	0.76	**2.133**	153.00	0.69	**1.683**	134.00	0.66	**1.404**	116.00	0.63	**1.155**	93.30	0.56	**0.831**	74.40	0.53	**0.624**
Pre 4	9.67	21.00	177.00	0.92	**4.391**	160.00	0.89	**3.804**	138.00	0.81	**2.996**	120.00	0.77	**2.481**	105.00	0.73	**2.062**	84.00	0.65	**1.476**	67.00	0.62	**1.108**
Pre 5	16.90	35.00	137.00	0.79	**5.094**	123.00	0.76	**4.383**	105.00	0.69	**3.416**	91.40	0.66	**2.832**	79.00	0.63	**2.326**	63.20	0.56	**1.665**	50.40	0.53	**1.249**
Pre 6	16.01	17.00	195.00	0.89	**7.700**	177.00	0.85	**6.698**	153.00	0.78	**5.287**	134.00	0.74	**4.410**	116.00	0.70	**3.626**	93.30	0.63	**2.610**	74.40	0.59	**1.959**
Pre 7	12.74	16.00	201.00	0.79	**5.635**	182.00	0.76	**4.889**	157.00	0.69	**3.851**	137.00	0.66	**3.200**	119.00	0.63	**2.641**	96.00	0.56	**1.906**	76.60	0.53	**1.432**
Pre 8	15.33	30.00	148.00	0.79	**4.991**	134.00	0.76	**4.331**	114.00	0.69	**3.364**	99.60	0.66	**2.799**	86.30	0.63	**2.304**	69.10	0.56	**1.651**	55.10	0.53	**1.239**
Pre 9	13.90	32.00	143.00	0.79	**4.374**	129.00	0.76	**3.782**	110.00	0.69	**2.944**	96.10	0.66	**2.450**	83.20	0.63	**2.015**	66.60	0.56	**1.443**	53.10	0.53	**1.083**
Pre 10	7.58	39.00	130.00	0.79	**2.168**	116.00	0.76	**1.854**	98.90	0.69	**1.443**	85.90	0.66	**1.194**	74.20	0.63	**0.980**	59.20	0.56	**0.699**	47.20	0.53	**0.525**
Pre 11	4.00	23.00	169.00	0.79	**1.486**	153.00	0.76	**1.289**	131.00	0.69	**1.008**	115.00	0.66	**0.843**	99.70	0.63	**0.694**	80.10	0.56	**0.499**	63.90	0.53	**0.375**
Pre 12	15.77	16.00	201.00	0.79	**6.972**	182.00	0.76	**6.050**	157.00	0.69	**4.765**	137.00	0.66	**3.960**	119.00	0.63	**3.268**	96.00	0.56	**2.359**	76.60	0.53	**1.771**
Pre 13	13.24	21.00	177.00	0.79	**5.155**	160.00	0.76	**4.466**	138.00	0.69	**3.517**	120.00	0.66	**2.913**	105.00	0.63	**2.421**	84.00	0.56	**1.733**	67.00	0.53	**1.301**
Pre 14	8.49	12.00	228.00	0.96	**5.165**	207.00	0.92	**4.493**	178.00	0.84	**3.528**	156.00	0.80	**2.945**	135.00	0.76	**2.421**	109.00	0.68	**1.749**	86.80	0.64	**1.311**
Pre 15	13.65	16.00	201.00	0.79	**6.034**	182.00	0.76	**5.236**	157.00	0.69	**4.124**	137.00	0.66	**3.427**	119.00	0.63	**2.828**	96.00	0.56	**2.041**	76.60	0.53	**1.533**
Pre 16	4.44	14.00	213.00	0.96	**2.522**	193.00	0.92	**2.190**	167.00	0.84	**1.730**	146.00	0.80	**1.441**	127.00	0.76	**1.190**	102.00	0.68	**0.855**	81.30	0.64	**0.642**
Pre 17	3.41	30.00	148.00	0.79	**1.111**	134.00	0.76	**0.964**	114.00	0.69	**0.749**	99.60	0.66	**0.623**	86.30	0.63	**0.513**	69.10	0.56	**0.368**	55.10	0.53	**0.276**
Pre 18	25.53	36.00	135.00	0.79	**7.584**	121.00	0.76	**6.514**	103.00	0.69	**5.063**	89.90	0.66	**4.209**	77.70	0.63	**3.456**	62.20	0.56	**2.475**	49.60	0.53	**1.858**
Pre 19	14.97	17.00	195.00	0.98	**7.981**	177.00	0.94	**6.942**	153.00	0.86	**5.479**	134.00	0.82	**4.570**	116.00	0.78	**3.758**	93.30	0.70	**2.705**	74.40	0.66	**2.030**
Pre 20	15.29	22.00	173.00	0.96	**7.055**	156.00	0.92	**6.097**	134.00	0.84	**4.781**	118.00	0.80	**4.010**	102.00	0.76	**3.293**	82.00	0.68	**2.369**	65.40	0.64	**1.778**
Pre 21	11.08	24.00	166.00	0.91	**4.658**	150.00	0.87	**4.034**	129.00	0.80	**3.167**	112.00	0.76	**2.619**	97.50	0.72	**2.166**	78.30	0.65	**1.556**	62.40	0.61	**1.167**
Pre 22	12.22	16.00	201.00	0.94	**6.386**	182.00	0.90	**5.542**	157.00	0.82	**4.365**	137.00	0.78	**3.627**	119.00	0.74	**2.993**	96.00	0.66	**2.161**	76.60	0.62	**1.623**
Pre 23	8.38	47.00	118.00	0.48	**1.319**	105.00	0.46	**1.124**	88.90	0.42	**0.869**	77.00	0.40	**0.717**	#N/A	0.38	**#N/A**	#N/A	0.34	**#N/A**	42.10	0.32	**0.314**
Pre 24	7.12	30.00	148.00	0.85	**2.495**	134.00	0.82	**2.165**	114.00	0.75	**1.682**	99.60	0.71	**1.399**	86.30	0.67	**1.152**	69.10	0.60	**0.825**	55.10	0.57	**0.619**

Appendix D – Hydraulic Model Features Map

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

2 Karingal Drive

FIG 01 CATCHMENT PLAN



Location of the site within the City of Gold Coast

Legend

- Cadastral
- Flowpath
- Site
- Sub_Catchment

Surface Elevation (mAHD)

0	40
10	50
20	60
30	70

Project:	BE200223
Date:	Oct 2020
Scale:	1:8000 at A3
Projection:	
Data Sources:	

BURCHILLS ENGINEERING SOLUTIONS

FOR

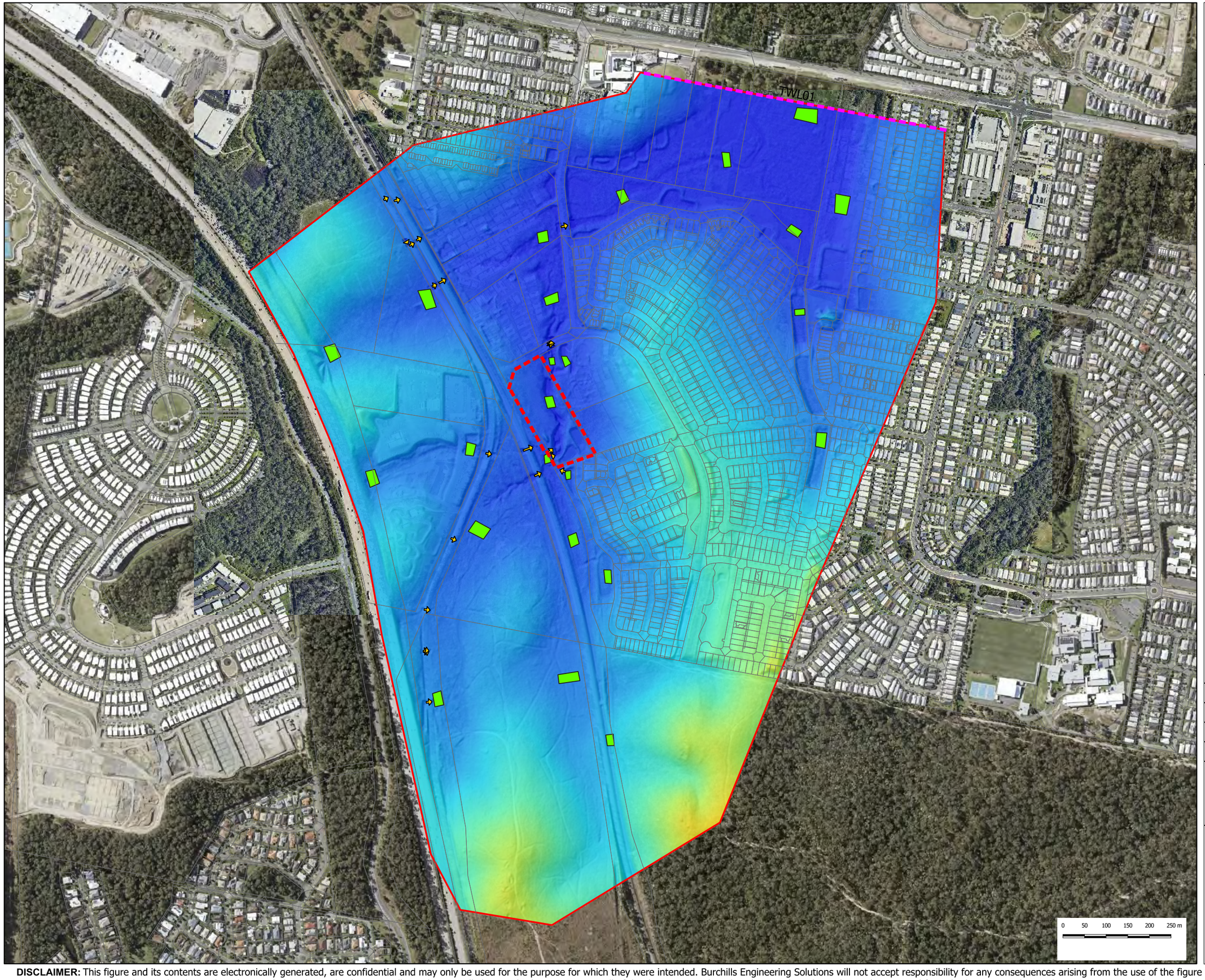
CLIENT

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

2 Karingal Drive

FIG 02 PRE DEVELOPMENT
TUFLOW MODEL FEATURE





Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Inflow Location
- Downstream Boundary
- Hydraulic Structure

Surface Elevation (mAHD)

0	40
10	50
20	60
30	70

Project: BE200223

DATE: July 2026

Scale: 1:8000 at A3

Projection:

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

TWL01

0 50 100 150 200 250 m

2 Karingal Drive

FIG 04 POST DEVELOPMENT TUFLOW MODEL FEATURE

N



Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Inflow Location
- Downstream Boundary
- Hydraulic Structure
- Proposed Layout

Surface Elevation (mAHD)

0	40
10	50
20	60
30	70

Project: BE200223

DATE: July 2026

Scale: 1:8000 at A3

Projection:

Data Sources:

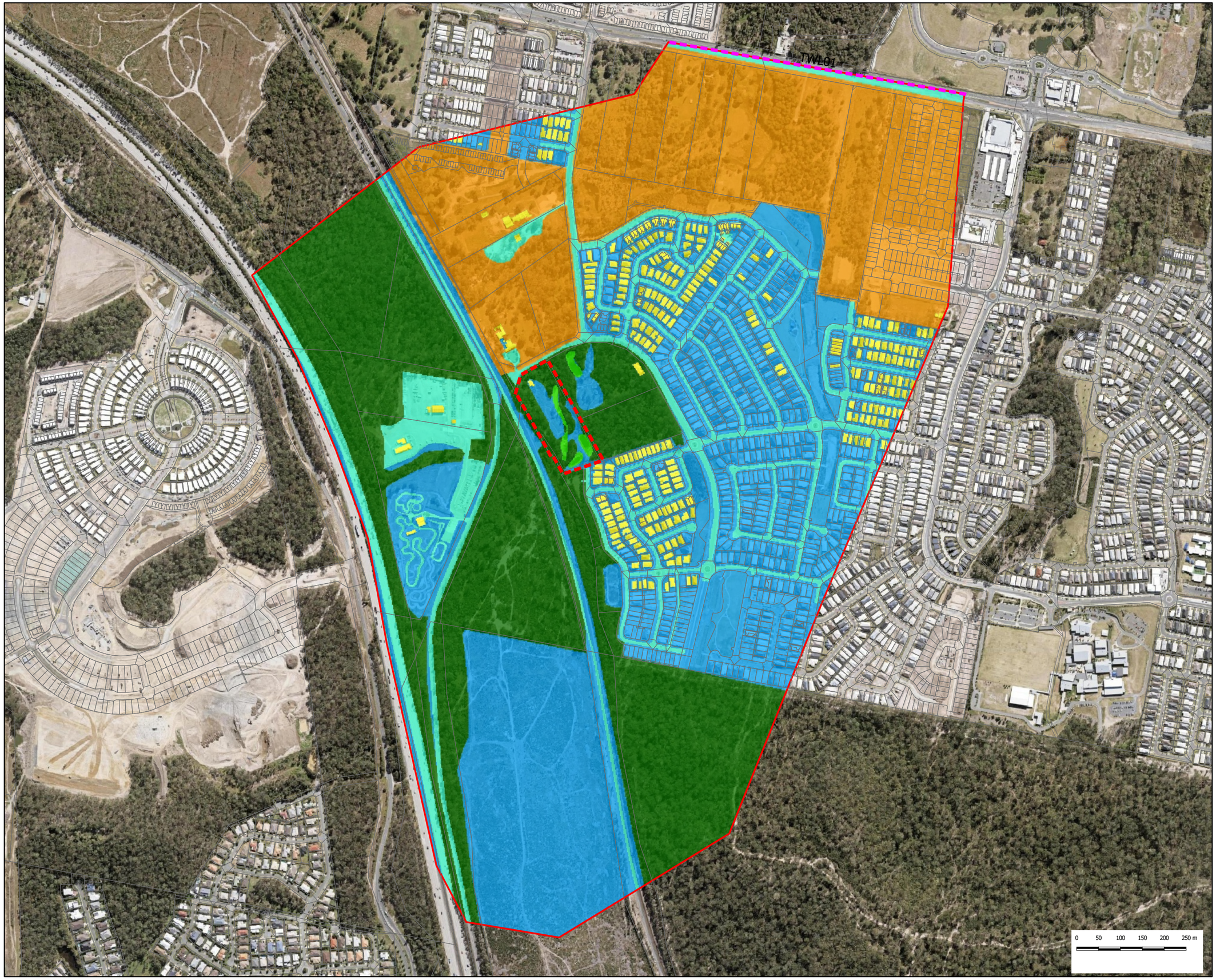
BURCHILLS ENGINEERING SOLUTIONS

FOR

BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.



2 Karingal Drive

FIG 03 PRE DEVELOPMENT
TUFLOW MANNING MAP

N



Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary

Manning Value

- Sugar Cane/Trees (n=0.15)
- Water Body (n=0.03)
- Road (n=0.022)
- Buildings (n=1)
- Grass (n=0.035)
- Medium Trees (n=0.075)

Project: BE200223

Date: Dec 2020

Scale: 1:8000 at A3

Projection:

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

CLIENT

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

2 Karingal Drive

FIG 05 POST DEVELOPMENT TUFLOW MANNING MAP



Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary

Manning Value

- Sugar Cane/Trees (n=0.15)
- Water Body (n=0.03)
- Road (n=0.022)
- Buildings (n=1)
- Grass (n=0.035)
- Medium Trees (n=0.075)

Project: BE200223

Date: Dec 2020

Scale: 1:8000 at A3

Projection:

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

CLIENT

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

Appendix E - Hydraulic Mapping Results

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

TWL01

2 Karingal Drive

FIG A01 PRE DEVELOPMENT
1%AEP
FLOOD WATER LEVEL

N



Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary

Water Level (mAHD)

below 2.0	8.0 - 10.0
2.0 - 4.0	10.0 - 12.0
4.0 - 6.0	12.0 - 14.0
6.0 - 8.0	above 14.0

0 50 100 150 200 250 m

Project:	BE200223
DATE:	July 2026
Scale:	1:8000 at A3
Projection:	
Data Sources:	

BURCHILLS ENGINEERING SOLUTIONS

FOR

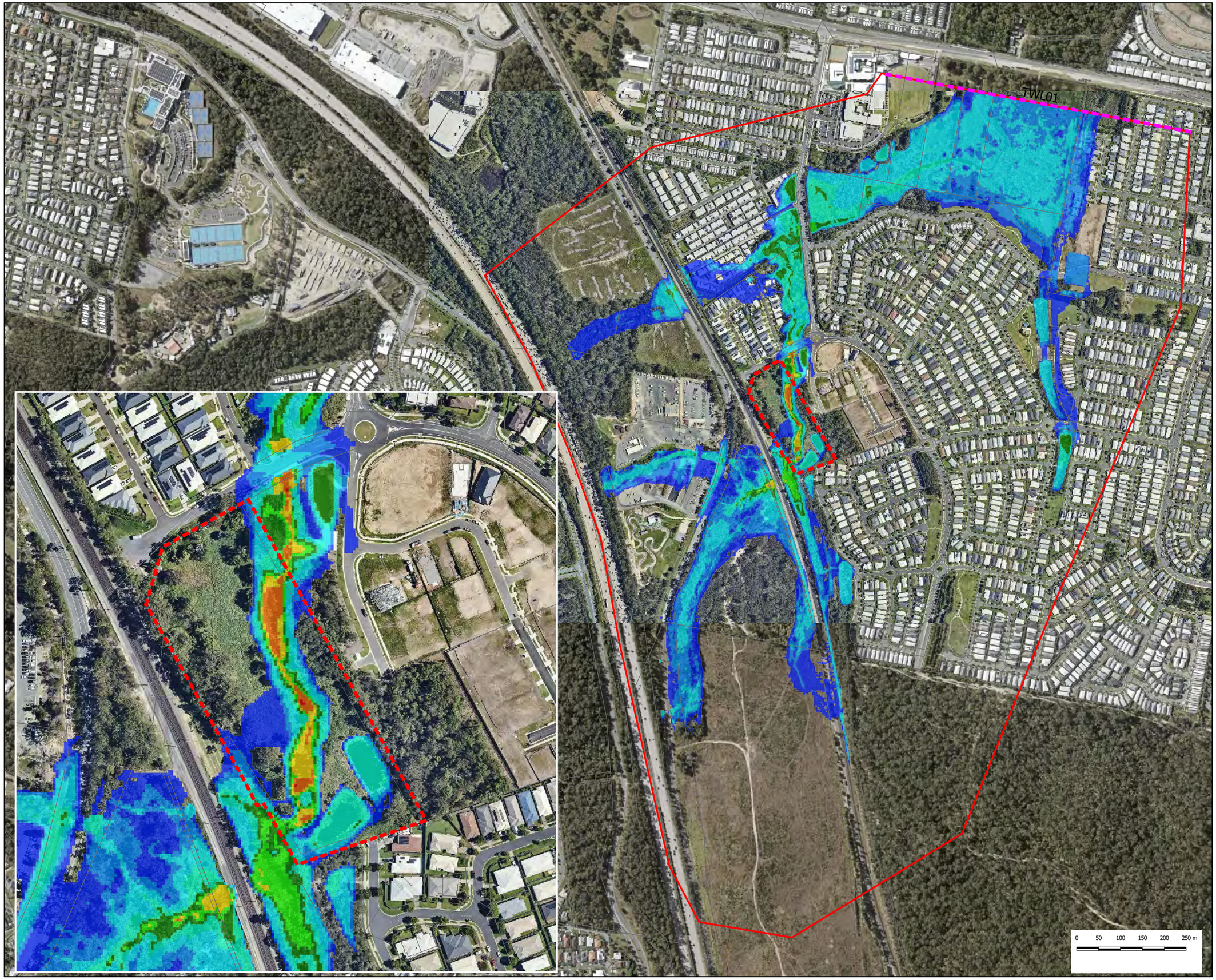
BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

2 Karingal Drive

FIG A02 PRE DEVELOPMENT
1%AEP
FLOOD WATER DEPTH





Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary

Water Depth (m)

- 0.0 - 0.25
- 0.25 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2
- 2.0 - 2.5
- 2.5 - 3
- 3.0 - 3.5
- above 3.5

Project: BE200223

DATE: July 2026

Scale: 1:8000 at A3

Projection:

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

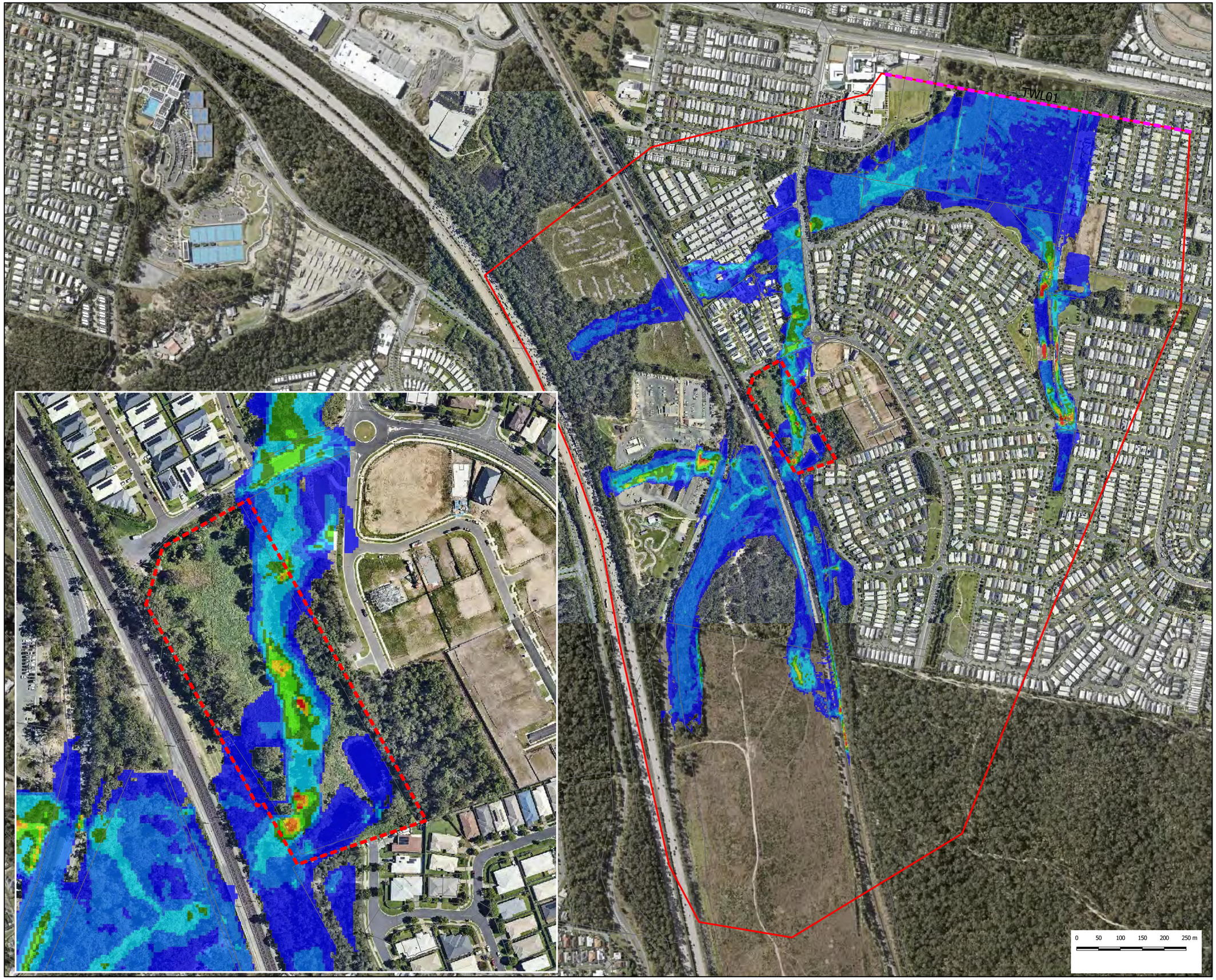
BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

2 Karingal Drive

FIG A03 PRE DEVELOPMENT
1%AEP
FLOOD WATER VELOCITY





Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary

Water Velocity (m/s)

below 0.3	1.2 - 1.5
0.3 - 0.6	1.5 - 1.8
0.6 - 0.9	1.8 - 2.1
0.9 - 1.2	above 2.1

Project: BE200223

DATE: July 2026

Scale: 1:8000 at A3

Projection:

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

TWL01

0 50 100 150 200 250 m

2 Karingal Drive

FIG A04 PRE DEVELOPMENT
2%AEP
FLOOD WATER DEPTH

N



Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary

Water Depth (m)

- 0.0 - 0.25
- 0.25 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2
- 2.0 - 2.5
- 2.5 - 3
- 3.0 - 3.5
- above 3.5

Project: BE200223

DATE: July 2026

Scale: 1:8000 at A3

Projection:

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

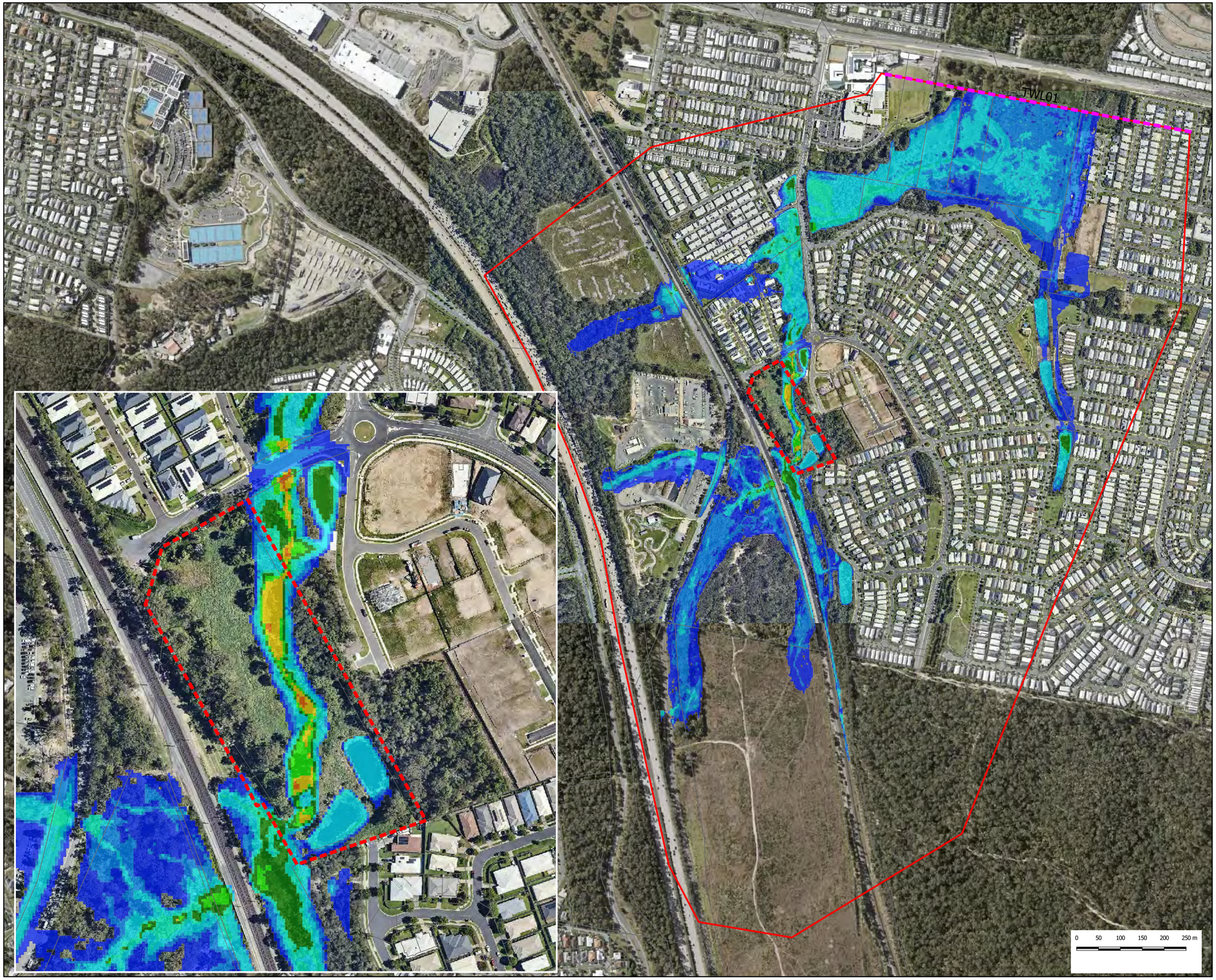
BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

2 Karingal Drive

FIG A05 PRE DEVELOPMENT
5%AEP
FLOOD WATER DEPTH





Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary

Water Depth (m)

- 0.0 - 0.25
- 0.25 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2
- 2.0 - 2.5
- 2.5 - 3
- 3.0 - 3.5
- above 3.5

Project: BE200223

DATE: July 2026

Scale: 1:8000 at A3

Projection:

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

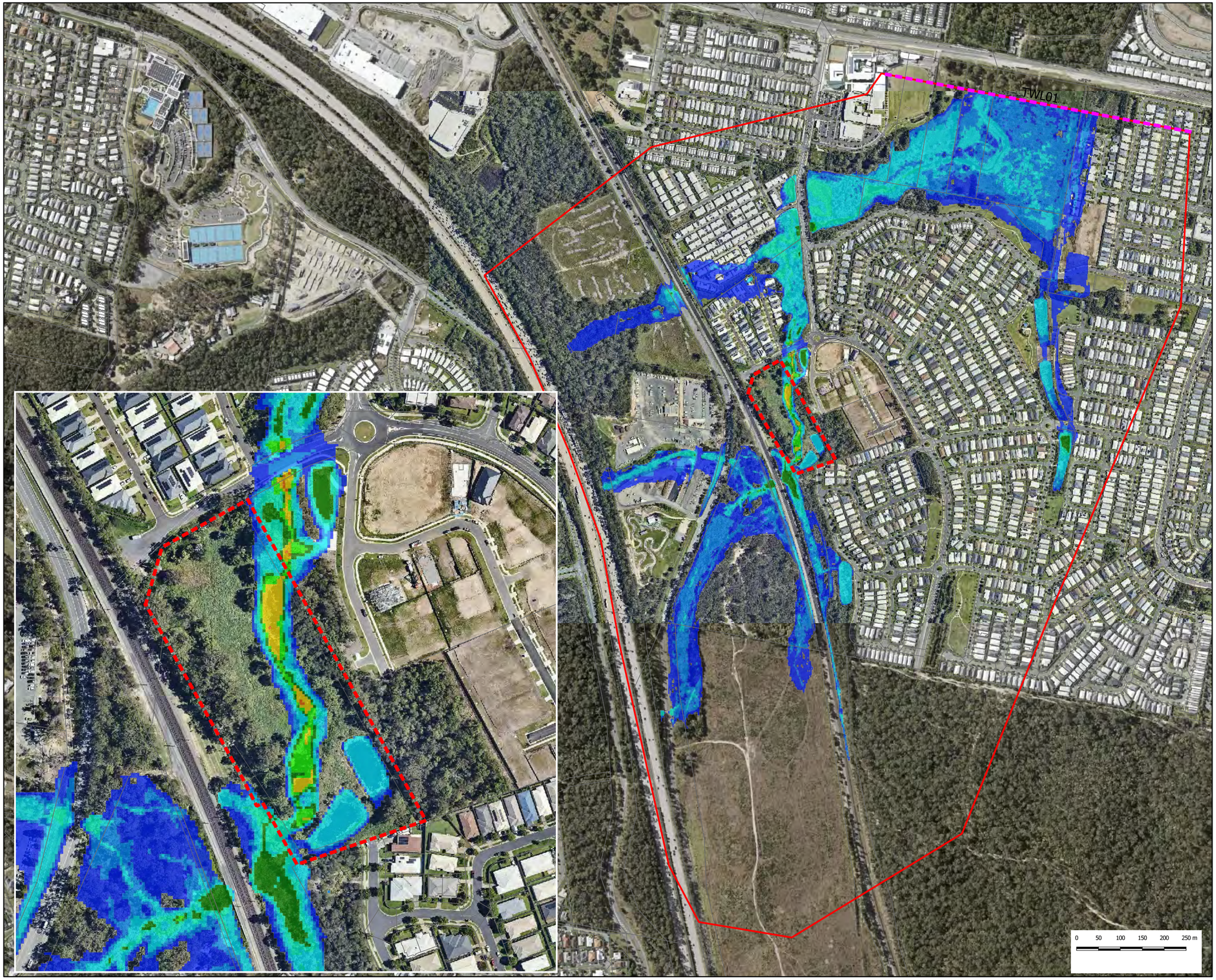
BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

2 Karingal Drive

FIG A06 PRE DEVELOPMENT
10%AEP
FLOOD WATER DEPTH





Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary

Water Depth (m)

- 0.0 - 0.25
- 0.25 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2
- 2.0 - 2.5
- 2.5 - 3
- 3.0 - 3.5
- above 3.5

Project: BE200223

DATE: July 2026

Scale: 1:8000 at A3

Projection:

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

TWL01

0 50 100 150 200 250 m

2 Karingal Drive

FIG A07 PRE DEVELOPMENT
20%AEP
FLOOD WATER DEPTH

N



Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary

Water Depth (m)

0.0 - 0.25	2.0 - 2.5
0.25 - 0.5	2.5 - 3
0.5 - 1.0	3.0 - 3.5
1.0 - 1.5	above 3.5
1.5 - 2	

Project: BE200223

DATE: July 2026

Scale: 1:8000 at A3

Projection:

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

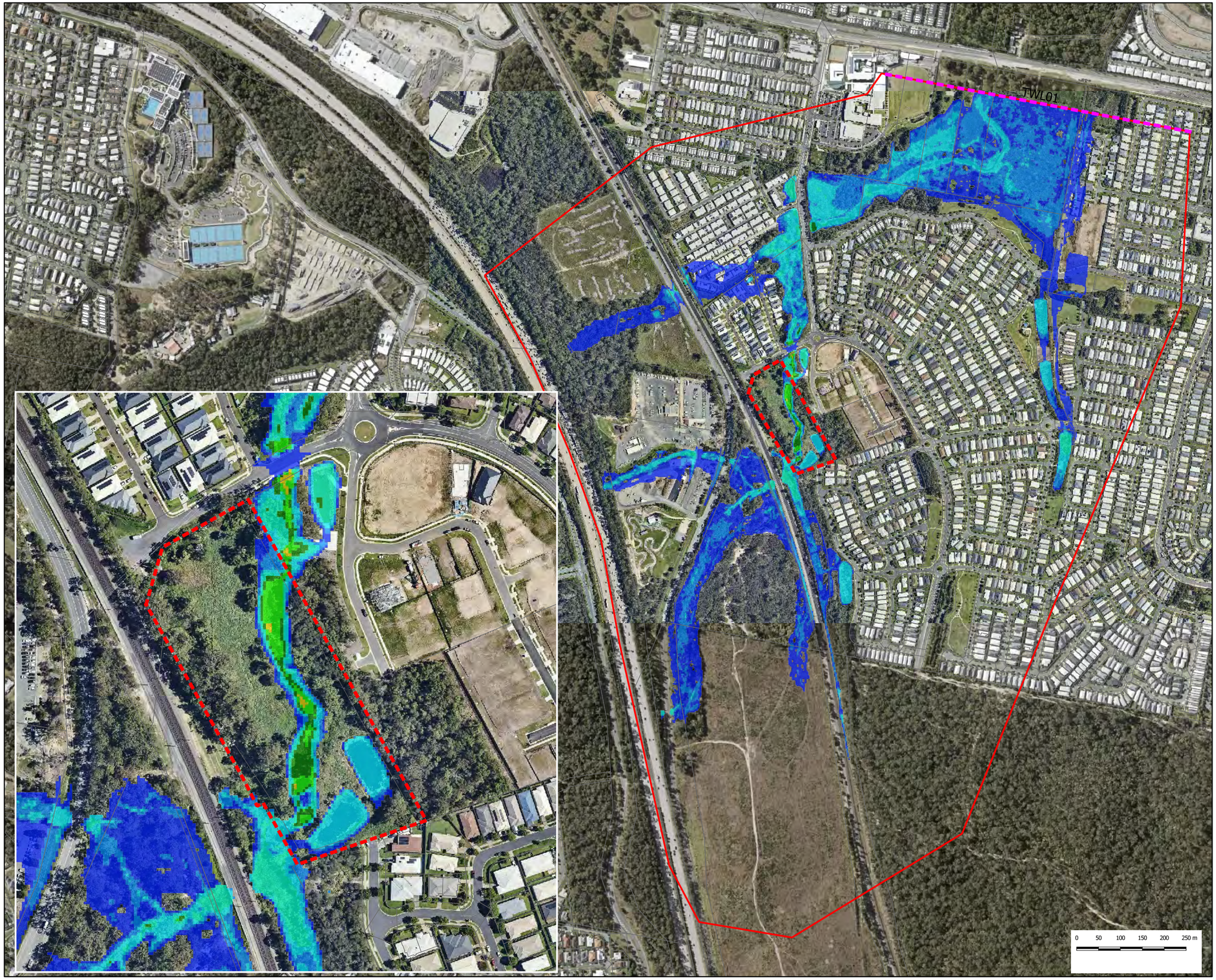
BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

2 Karingal Drive

FIG A08 PRE DEVELOPMENT
39%AEP
FLOOD WATER DEPTH





Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary

Water Depth (m)

- 0.0 - 0.25
- 0.25 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2
- 2.0 - 2.5
- 2.5 - 3
- 3.0 - 3.5
- above 3.5

Project: BE200223

DATE: July 2026

Scale: 1:8000 at A3

Projection:

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

TWL01

0 50 100 150 200 250 m

2 Karingal Drive

FIG B01 POST DEVELOPMENT
1%AEP
FLOOD WATER LEVEL

N



Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary
- Proposed Layout

Water Level (mAHD)

Band 1	
below 2.0	8.0 - 10.0
2.0 - 4.0	10.0 - 12.0
4.0 - 6.0	12.0 - 14.0
6.0 - 8.0	above 14.0

Project: BE200223

DATE: July 2026

Scale: 1:8000 at A3

Projection:

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

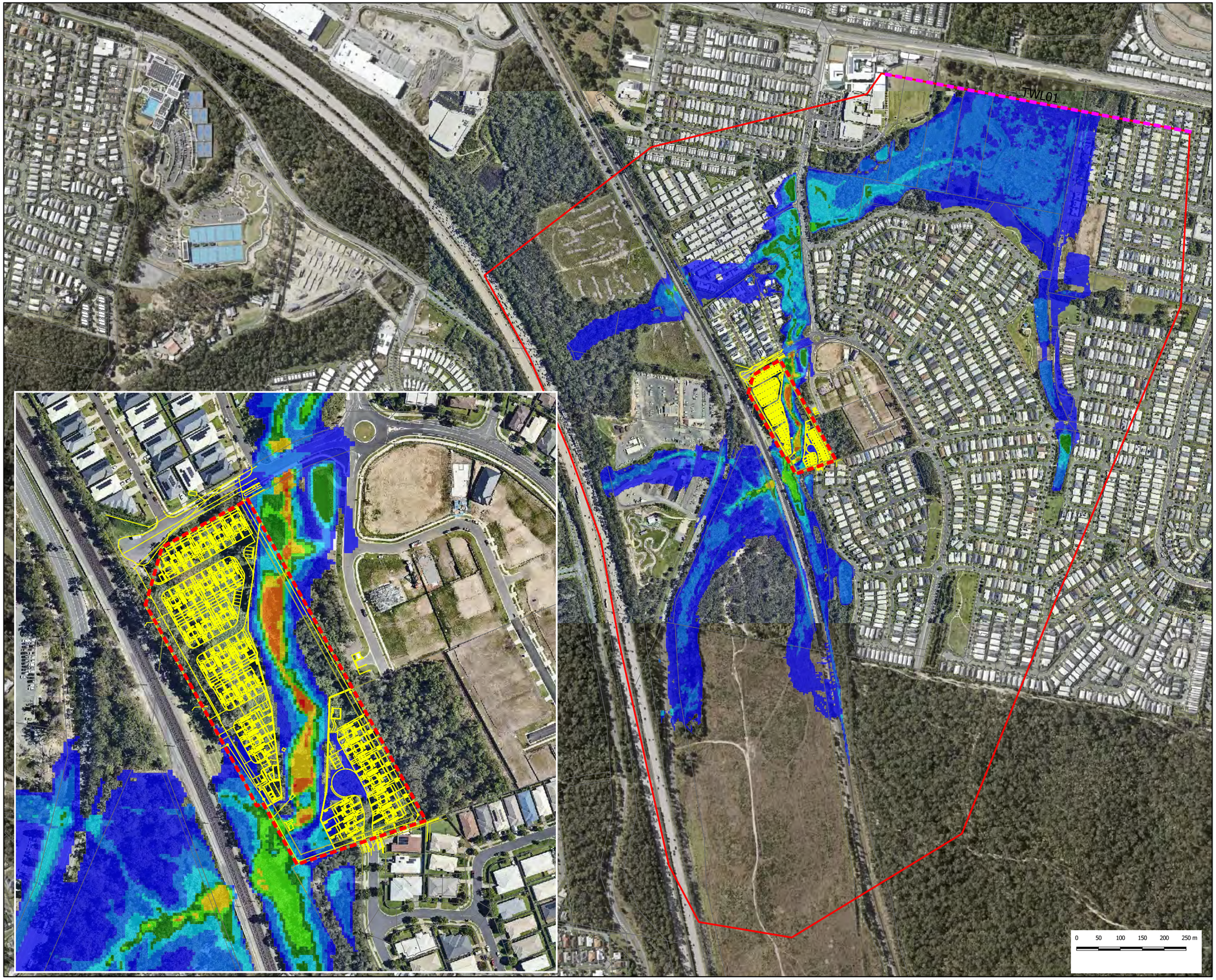
BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

2 Karingal Drive

FIG B02 POST DEVELOPMENT
1%AEP
FLOOD WATER DEPTH





Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary
- Proposed Layout

Water Depth (m)

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

Project: BE200223

DATE: July 2026

Scale: 1:8000 at A3

Projection:

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

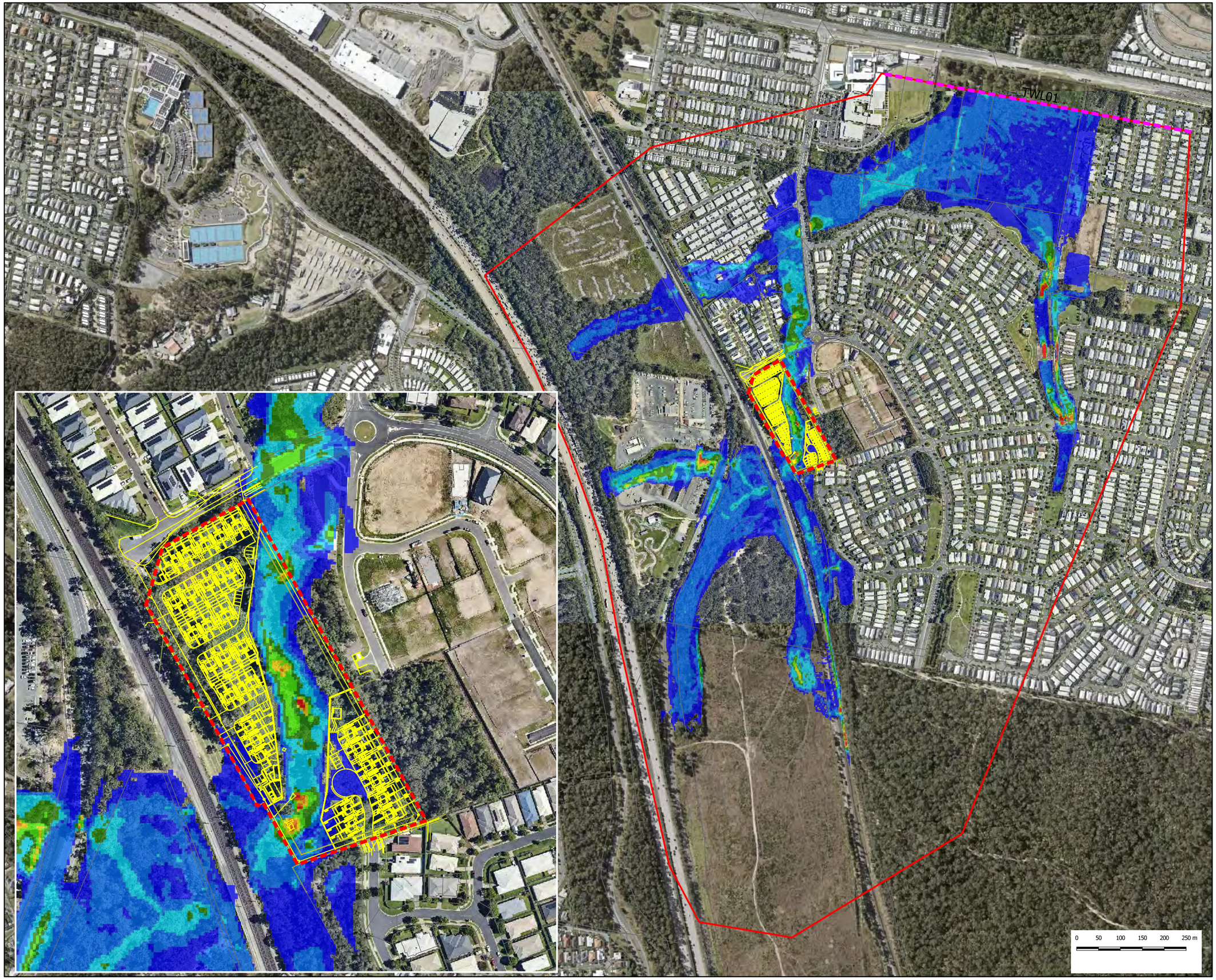
BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

2 Karingal Drive

FIG B03 POST DEVELOPMENT
1%AEP
FLOOD WATER VELOCITY





Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary
- Proposed Layout

Water Velocity (m/s)

below 0.3	1.2 - 1.5
0.3 - 0.6	1.5 - 1.8
0.6 - 0.9	1.8 - 2.1
0.9 - 1.2	above 2.1

Project: BE200223

DATE: July 2026

Scale: 1:8000 at A3

Projection:

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

TWL01

2 Karingal Drive

FIG B04 POST DEVELOPMENT
2%AEP
FLOOD WATER DEPTH



Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary
- Proposed Layout

Water Depth (m)

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

0 50 100 150 200 250 m

Project: BE200223

DATE: July 2026

Scale: 1:8000 at A3

Projection:

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

TWL01

0 50 100 150 200 250 m

2 Karingal Drive

FIG B05 POST DEVELOPMENT
5%AEP
FLOOD WATER DEPTH

N



Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary
- Proposed Layout

Water Depth (m)

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

Project: BE200223

DATE: July 2026

Scale: 1:8000 at A3

Projection:

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

TWL01

0 50 100 150 200 250 m

2 Karingal Drive

FIG B06 POST DEVELOPMENT
10%AEP
FLOOD WATER DEPTH

N



Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary
- Proposed Layout

Water Depth (m)

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

Project: BE200223

DATE: July 2026

Scale: 1:8000 at A3

Projection:

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

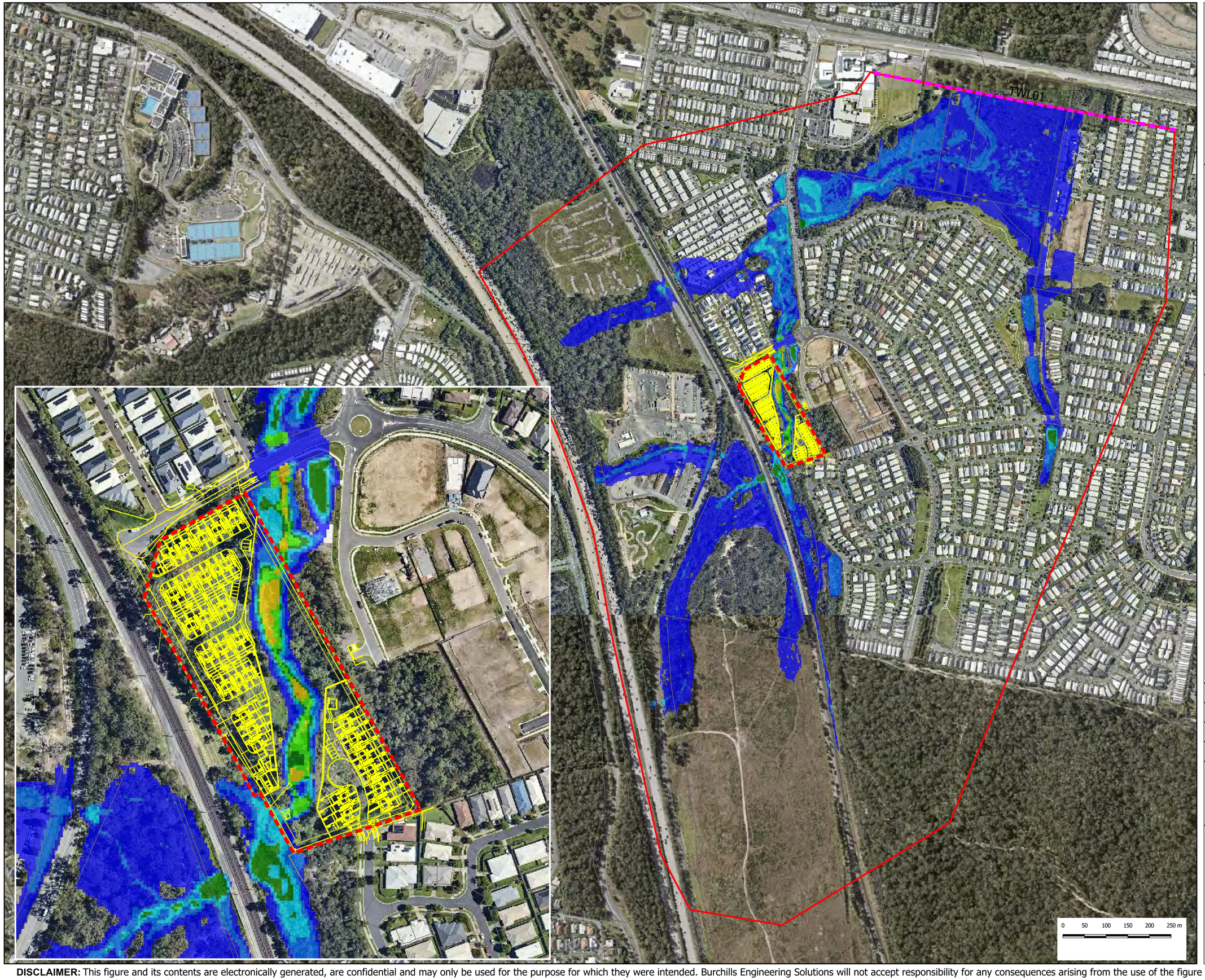
BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

2 Karingal Drive

FIG B07 POST DEVELOPMENT
20%AEP
FLOOD WATER DEPTH





Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary
- Proposed Layout

Water Depth (m)

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

Project: BE200223
DATE: July 2026
Scale: 1:8000 at A3
Projection:
Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

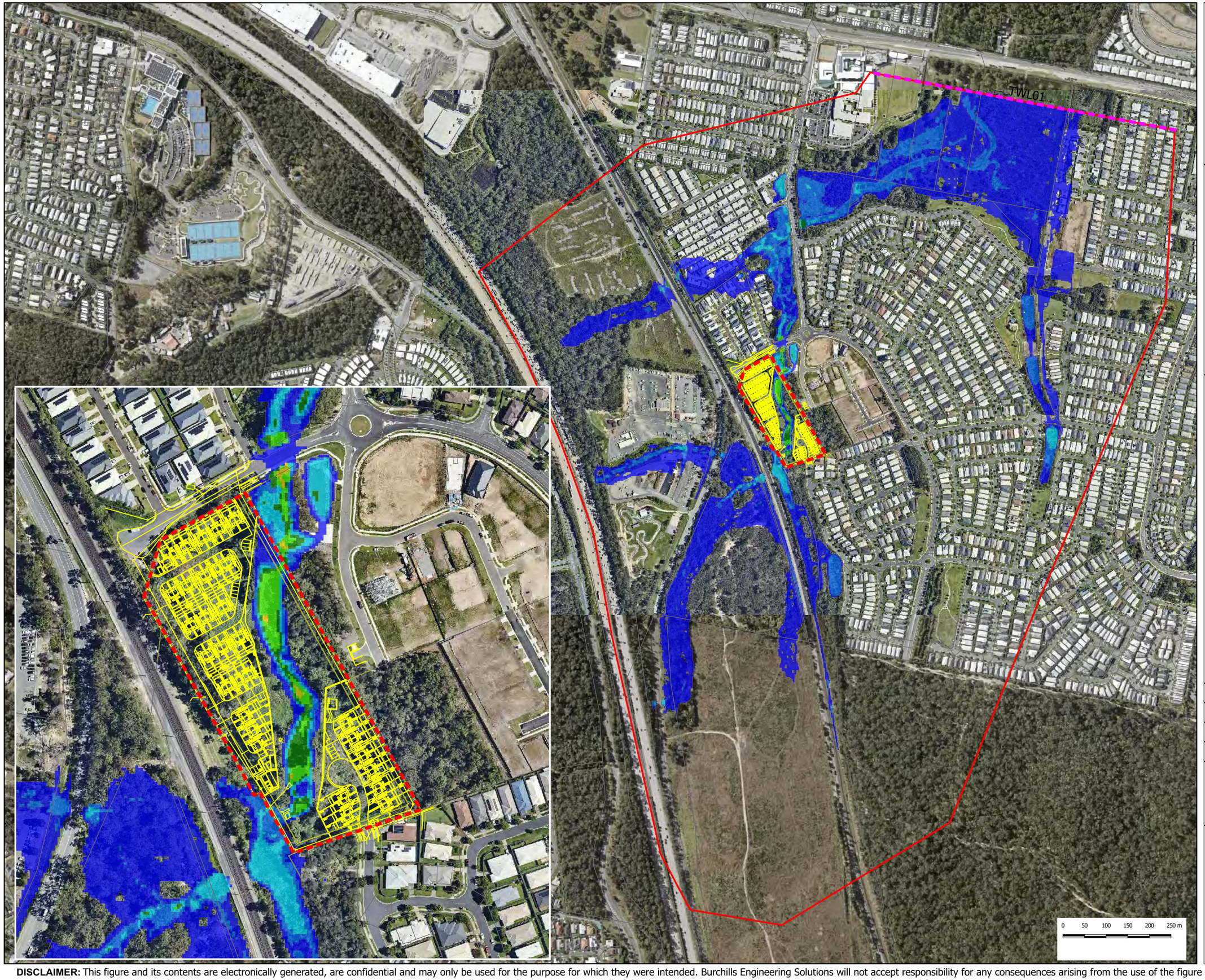
BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

2 Karingal Drive

FIG B08 POST DEVELOPMENT
39%AEP
FLOOD WATER DEPTH





Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary
- Proposed Layout

Water Depth (m)

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

Project: BE200223

DATE: July 2026

Scale: 1:8000 at A3

Projection:

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

TWL01

0 50 100 150 200 250 m

2 Karingal Drive

FIG C01 POST DEVELOPMENT
1%AEP
FLOOD WATER LEVEL AFFLUX

N



Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary

Water Level Afflux(m)

- <= -0.10
- -0.1 - -0.05
- -0.05 - -0.03
- -0.03 - -0.02
- -0.02 - -0.01
- -0.01 - 0.01
- 0.01 - 0.02
- 0.02 - 0.03
- 0.03 - 0.05
- 0.05 - 0.1
- 0.10 - 0.40
- Was Wet Now Dry
- Was Dry Now Wet

Project: BE200223

DATE: July 2026

Scale: 1:8000 at A3

Projection:

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

TWL01

0 50 100 150 200 250 m

2 Karingal Drive

FIG C02 POST DEVELOPMENT
2%AEP
FLOOD WATER LEVEL AFFLUX

N



Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary
- Proposed Layout

Water Level Afflux(m)

<= -0.10	0.02 - 0.03
-0.1 - -0.05	0.03 - 0.05
-0.05 - -0.03	0.05 - 0.1
-0.03 - -0.02	0.10 - 0.40
-0.02 - -0.01	Was Wet Now Dry
-0.01 - 0.01	Was Dry Now Wet
0.01 - 0.02	

Project: BE200223

DATE: July 2026

Scale: 1:8000 at A3

Projection:

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

TWL01

0 50 100 150 200 250 m

2 Karingal Drive

FIG C03 POST DEVELOPMENT
5%AEP
FLOOD WATER LEVEL AFFLUX

N



Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary
- Proposed Layout

Water Level Afflux(m)

<= -0.10	0.02 - 0.03
-0.1 - -0.05	0.03 - 0.05
-0.05 - -0.03	0.05 - 0.1
-0.03 - -0.02	0.10 - 0.40
-0.02 - -0.01	Was Wet Now Dry
-0.01 - 0.01	Was Dry Now Wet
0.01 - 0.02	

Project: BE200223

DATE: July 2026

Scale: 1:8000 at A3

Projection:

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

2 Karingal Drive

FIG C04 POST DEVELOPMENT
10%AEP
FLOOD WATER LEVEL AFFLUX





Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary
- Proposed Layout

Water Level Afflux(m)

<= -0.10	0.02 - 0.03
-0.1 - -0.05	0.03 - 0.05
-0.05 - -0.03	0.05 - 0.1
-0.03 - -0.02	0.10 - 0.40
-0.02 - -0.01	Was Wet Now Dry
-0.01 - 0.01	Was Dry Now Wet
0.01 - 0.02	

Project: BE200223

DATE: July 2026

Scale: 1:8000 at A3

Projection:

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

2 Karingal Drive

FIG C05 POST DEVELOPMENT
20%AEP
FLOOD WATER LEVEL AFFLUX





Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary
- Proposed Layout

Water Level Afflux(m)

<= -0.10	0.02 - 0.03
-0.1 - -0.05	0.03 - 0.05
-0.05 - -0.03	0.05 - 0.1
-0.03 - -0.02	0.10 - 0.40
-0.02 - -0.01	Was Wet Now Dry
-0.01 - 0.01	Was Dry Now Wet
0.01 - 0.02	

Project: BE200223

DATE: July 2026

Scale: 1:8000 at A3

Projection:

Data Sources:

BURCHILLS ENGINEERING SOLUTIONS

FOR

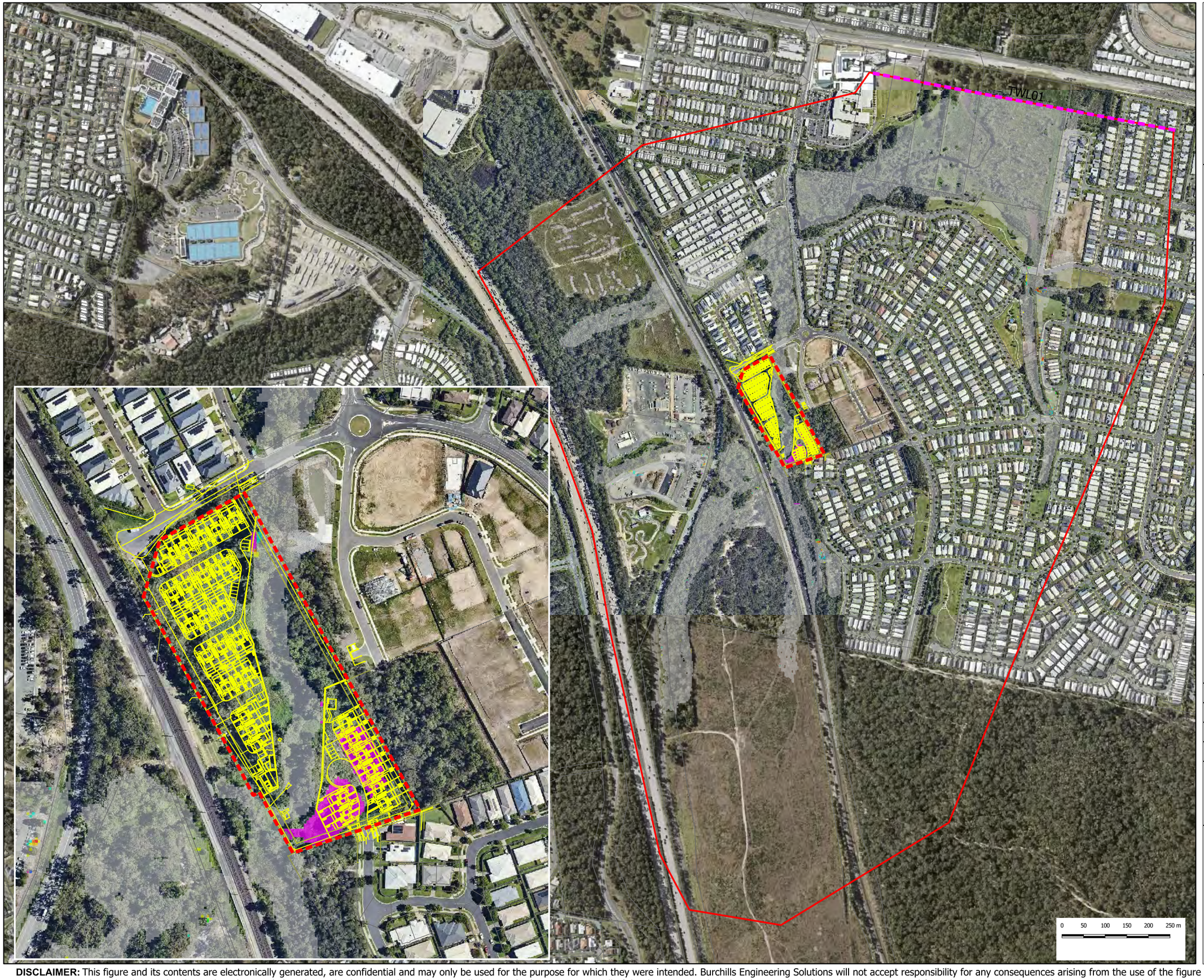
BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

COPYRIGHT © This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

2 Karingal Drive

FIG C06 POST DEVELOPMENT
39%AEP
FLOOD WATER LEVEL AFFLUX





Location of the site within the City of Gold Coast

Legend

- Model Extent
- Cadastral
- Site
- Downstream Boundary
- Proposed Layout

Water Level Afflux(m)

<= -0.10	0.02 - 0.03
-0.1 - -0.05	0.03 - 0.05
-0.05 - -0.03	0.05 - 0.1
-0.03 - -0.02	0.10 - 0.40
-0.02 - -0.01	Was Wet Now Dry
-0.01 - 0.01	Was Dry Now Wet
0.01 - 0.02	

Project: BE200223

DATE: July 2026

Scale: 1:8000 at A3

Projection:

Data Sources:

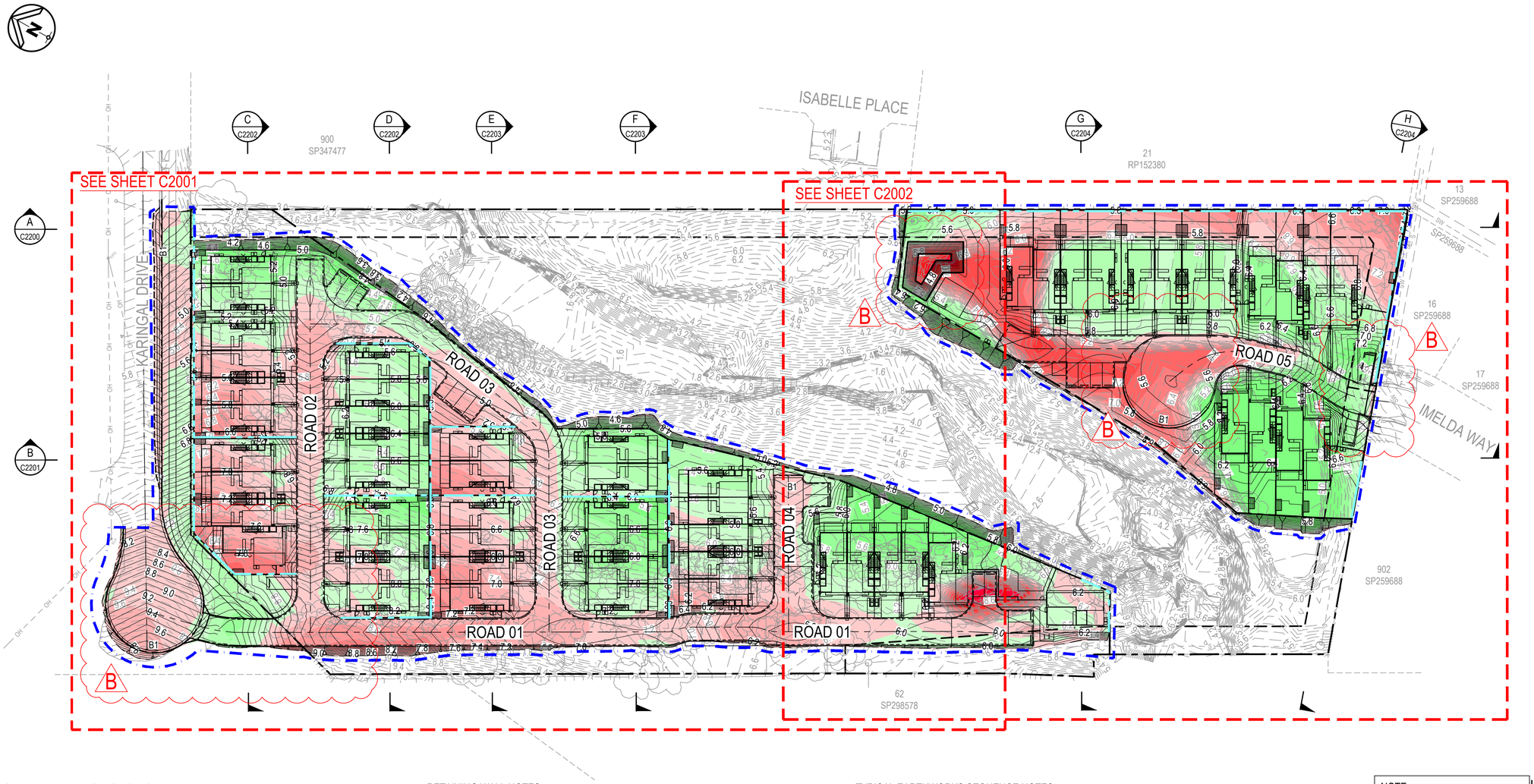
BURCHILLS ENGINEERING SOLUTIONS

FOR

BOSFORM PTY LTD

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

Appendix F - Burchills Engineering Solutions Preliminary Civil Engineering Drawings



LEGEND

- PROPERTY BOUNDARY
- LIMIT OF WORKS
- EXISTING EASEMENT
- EXISTING FENCE
- EXISTING WATER
- EXISTING STORMWATER
- EXISTING SEWER
- EXISTING OVERHEAD ELECTRIC
- EXISTING CHANGE GRADE
- EXISTING EDGE OF BITUMEN
- EXISTING ROAD CONTROL LINE
- EXISTING TOP OF BANK
- EXISTING BOTTOM OF BANK
- EXISTING LOT BOUNDARY
- EXISTING SURFACE CONTOURS
- EXISTING ROAD CONTROL LINE
- EARTHWORK SURFACE CONTOUR
- PROPOSED ROAD CONTROL LINE
- PROPOSED EDGE RESTRAINT TYPE ER2
- PROPOSED BARRIER KERB TYPE B1
- PROPOSED RETAINING WALL
- PROPOSED BATTER
- PROPOSED CUTBACK

EARTHWORKS DEPTH ANALYSIS LEGEND

LOWER		UPPER	COLOUR
-3.0m	TO	-2.75m	
-2.75m	TO	-2.50m	
-2.50m	TO	-2.25m	
-2.25m	TO	-2.0m	
-2.0m	TO	-1.75m	
-1.75m	TO	-1.50m	
-1.50m	TO	-1.25m	
-1.25m	TO	-1.0m	
-1.0m	TO	-0.75m	
-0.75m	TO	-0.50m	
-0.5m	TO	-0.25m	
-0.25m	TO	0.0m	
0.0m	TO	0.25m	
0.25m	TO	0.50m	
0.50m	TO	0.75m	
0.75m	TO	1.0m	
1.0m	TO	1.25m	
1.25m	TO	1.50m	
1.50m	TO	1.75m	
1.75m	TO	2.0m	
2.0m	TO	2.25m	
2.25m	TO	2.50m	
2.50m	TO	2.75m	
2.75m	TO	3.0m	

GENERAL EARTHWORKS NOTES:

1. ALL EARTHWORKS CONSTRUCTION UNDER THIS CONTRACT IS TO BE PERFORMED STRICTLY IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT PREPARED BY THE PRINCIPAL'S GEOTECHNICAL CONSULTANT.
2. ALL COMPACTION TESTING UNDER THIS CONTRACT IS TO BE CARRIED OUT TO AS3798 LEVEL 1 STANDARD BY A NATA-ACCREDITED TESTING AUTHORITY. CERTIFICATION FOR ALL EARTHWORKS CONSTRUCTION AND TESTING IS TO BE PROVIDED BY A REGISTERED PROFESSIONAL ENGINEER QUEENSLAND (RPEQ) ENGAGED BY THE CONTRACTOR.
3. ALL DESIGN LEVELS SHOWN ON THE CONTRACT DRAWINGS ARE FINISHED SURFACE LEVELS FOLLOWING TOPSOIL REPLACEMENT.
4. ALL STRUCTURAL FILL MATERIAL PLACED SHALL BE COMPACTED TO THE FOLLOWING MINIMUM DENSITY IN ACCORDANCE WITH THE SPECIFICATION AND THE GEOTECHNICAL REPORT:
   a) 95% DENSITY RATIO FOR GENERAL STRUCTURAL FILL (COHESIVE MATERIAL)
   b) 98% DENSITY RATIO FOR THE TOP 300mm DEPTH BELOW PAVEMENT SUBGRADE LEVEL (COHESIVE MATERIAL)
5. FILL MATERIAL USED IN WETLAND BATTERS IS TO BE STIFF TO HARD CLAYS OR OTHER SUITABLE MATERIAL AS DIRECTED BY GEOTECHNICAL ENGINEER.
6. ALL EARTHWORKS BATTERS STEEPER THAN 1 IN 4 ARE TO BE LANDSCAPED IN ACCORDANCE WITH LANDSCAPE ARCHITECTS PLANS.
7. EXISTING DAMS ARE TO BE DE-WATERED AND CLEANED-OUT. ALL UNSUITABLE OR SATURATED MATERIAL IS TO BE REMOVED AND REPLACED WITH SELECTED ON-SITE STRUCTURAL FILL MATERIAL AND COMPACTED AS SPECIFIED.
8. PROVIDE CONDITION SURVEY OF ADJACENT RESIDENTIAL BUILDINGS FOR ALL PROPERTIES LOCATED WITHIN NOMINAL 100m OF EARTHWORKS OPERATIONS. CONDITION SURVEY TO BE UNDERTAKEN BY QUALIFIED PERSONNEL WITH BUILDING EXPERIENCE.

RETAINING WALL NOTES:

1. RETAINING WALLS, FOOTINGS, DRAINAGE, BACKFILL AND CONNECTION OF AGGREGATE DRAINS TO STORMWATER DRAINAGE SYSTEM TO BE DESIGNED AND CONSTRUCTED BY THE CONTRACTOR AND CERTIFIED BY AN SUITABLY QUALIFIED RPEQ.
2. THESE DRAWINGS IDENTIFY SURFACE PROFILES, RETAINING WALL LOCATIONS, AND SETOUT INFORMATION ONLY. REFER TO CONTRACTOR SUPPLIED DRAWINGS FOR RPEQ STRUCTURAL DETAILS, WALL MATERIALS AND COMPACTION SPECIFICATIONS AND CONTRACTIBILITY INFORMATION.
3. RETAINING WALL DESIGN ENGINEER TO PROVIDE RPEQ FORM 15 STRUCTURAL CERTIFICATE INCLUDING GEOTECHNICAL GLOBAL STABILITY CERTIFICATION BY GEOTECHNICAL ENGINEER. WALL DESIGN TO ASSUME SURCHARGE LOADING BEHIND WALL. DESIGN TO BE IN ACCORDANCE WITH AS4678 INCLUDING ALL REQUIRED DESIGN LOAD CASES AND COMBINATIONS.
4. RETAINING WALLS TO BE DESIGNED TO CONSIDER ALL LOADS INCLUDING CONSTRUCTION LOADS AND OPERATIONAL LOADS.
5. ANY GEOTECHINCAL INFORMATION PROVIDED BY THE PRINCIPAL OR THE SUPERINTENDENT SHALL BE FOR INFORMATION PURPOSES ONLY. THE CONTRACTOR AND THE RETAINING WALL DESIGN ENGINEER SHOULD SATISFY THEMSELVES OF THE DESIGN SOIL PARAMETERS AND UNDERTAKE AND ADDITIONAL GEOTECHNICAL INVESTIGATION DEEMED NECESSARY BY THE DESIGN ENGINEER.
6. THE CONTRACTOR SHALL ENSURE THAT ANY CONFLICT BETWEEN THESE PROJECT DRAWINGS AND THE RETAINING WALL DRAWINGS PREPARED BY THE RETAINING WALL DESIGN ENGINEER IS RESOLVED WITH THE SUPERINTENDENT PRIOR TO CONSTRUCTION COMMENCING.
7. A COPY OF THE RETAINING WALL DESIGN DRAWINGS, INCLUDING CONNECTION OF AGGREGATE DRAINS TO THE STORMWATER DRAINAGE SYSTEM, DESIGN PARAMETERS AND CERTIFICATION BE PROVIDED TO THE SUPERINTENDENT AT THE PRE-START MEETING PRIOR TO CONSTRUCTION COMMENCING.
8. ANY RETAINING WALL AND BATTER EXCEEDING THE HEIGHT OF 1.5m, THE CONTRACTOR SHALL UNDERTAKE A THIRD PARTY RPEQ REVIEW OF THE PROPOSED DESIGN.

TYPICAL EARTHWORKS SEQUENCE NOTES:

1. CONSTRUCT DIVERSION DRAINS AS DIRECTED TO DIVERT SITE RUNOFF AWAY FROM CONSTRUCTION AREAS. ESTABLISH DE-WATERING CONTROLS TO ENSURE THAT THE CONSTRUCTION AREAS REMAIN FREE OF SURFACE WATER AND PONDING.
2. FOLLOWING COMPLETION OF CLEARING OPERATIONS AND REMOVAL OF RESIDUAL VEGETATION AND DEBRIS, STRIP TOPSOIL TO A NOMINAL 200mm DEPTH AND PLACE IN TEMPORARY STOCKPILES IN LOCATIONS APPROVED BY THE SUPERINTENDENT.
3. PROOF-ROLL AND COMPACT THE PROPOSED FILL AREAS FOLLOWING TOPSOIL STRIPPING, TO THE SATISFACTION OF THE SUPERINTENDENT.
4. ANY STRIPPED AREAS WHICH DEMONSTRATE EXCESSIVE MOVEMENT OR DO NOT IMPROVE SUFFICIENTLY UNDER PROOF-ROLLING ARE TO BE REMOVED, REPLACED WITH APPROVED SITE MATERIAL AND COMPACTED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT.
5. ANY UNSUITABLE MATERIAL ENCOUNTERED, INCLUDING SILTY MATERIAL AND UN-CONTROLLED FILL IS TO BE EXCAVATED TO THE EXTENTS AND DEPTHS NOMINATED BY THE PRINCIPAL'S GEOTECHNICAL CONSULTANT, REMOVED TO NON-STRUCTURAL FILL AREAS OR TAKEN OFF-SITE AS DIRECTED AND REPLACED WITH APPROVED, COMPACTED FILL MATERIAL.
6. PLACE STRUCTURAL FILL MATERIAL FROM SITE EXCAVATIONS TO NOMINATED SITE FILL AREAS, INCLUDING BENCHING AND COMPACTION IN ACCORDANCE WITH THE GEOTECHNICAL REPORT AND TRIMMING AND FINAL PROFILING OF BATTERS.

B

CONCEPT BULK EARTHWORKS SUMMARY

STRUCTURAL FILLING

AREA	NETT SOLID FILL
OVERALL FILLING	3,672 cu.m.

EXCAVATION

AREA	NETT CUT
OVERALL EXCAVATION	3,049 cu.m.

SUMMARY:
TOTAL MATERIAL ON LEADS (NETT FILL) = 3,672 cu.m.
i.e. 3,672 cu.m. - 3,049 cu.m. = 623 c.um.

- ALLOWANCE FOR 450mm FOR BUILDING SLAB THICKNESS
- ALLOWANCE FOR 325mm FOR ROAD PAVEMENT THICKNESS
- ALLOWANCE FOR 300mm TOPSOIL RESPREAD TO FOR LANDSCAPE AREAS

BULK EARTHWORKS VOLUMES INCLUDE A NOMINAL 200mm OF TOPSOIL STRIPPING VOLUME WITHIN EARTHWORKS AREA

NOTE:
ALL RETAINING WALL AGGREGATE PIPES TO BE CONNECTED TO THE STORMWATER DRAINAGE SYSTEM.

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

NOTE:
ALL DESIGN/SETOUT INFORMATION SHOWN ON THIS DRAWING IS AVAILABLE IN DIGITAL FORMAT FROM THE OFFICE OF THE SUPERINTENDENT UPON REQUEST BY THE CONTRACTOR.

WARNING: UNDERGROUND SERVICES:
UNDERGROUND SERVICES EXIST IN THIS VICINITY. THE CONTRACTOR IS TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRm EXACT LOCATION OF SERVICES ON SITE PRIOR TO ANY EXCAVATION OR CONSTRUCTION COMMENCING.

COPYRIGHT ©
This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

DISCLAIMER
This drawing and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the drawing for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party.

NOTE
This is an uncontrolled document issued for information purposes only, unless the checked sections are signed or completed. Figured dimensions take precedence over scale. Do not scale reduced size drawings. Verify dimensions prior to commencing any on-site or off-site works or fabrication.

VER.	DESCRIPTION	DATE
B	ISSUED FOR APPROVAL	08-07-26
A	ORIGINAL ISSUE	06-05-26

BURCHILLS ENGINEERING SOLUTIONS
GOLD COAST | BRISBANE | TOOWOOMBA
IPSWICH | MORETON BAY
PHONE: +61 7 5509 6400
FAX: +61 7 5509 6411
EMAIL: ADMIN@BURCHILLS.COM.AU
COOTE BURCHILLS ENGINEERING PTY LTD
ABN 76 166 942 365

CLIENT : BOS

DRAWING TITLE : OVERALL BULK EARTHWORKS LAYOUT PLAN

PROJECT : 2 KARINGAL DRIVE & 60 IMELDA WAY, PIMPAMA

PRELIMINARY
NOT FOR CONSTRUCTION OR TENDER

SCALE AT FULL SIZE (A1) :
SCALE (metres) 2.5 0 2.5 5 7.5 10 12.5
1 : 500 (FULL SIZE)

DEVEL. APPLIC. No. :
DATE : 08-07-26
PROJECT LEADER : -
DESIGNER : BNB
DRAFTSPERSON : BNB
CHECKED : -

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

PROJECT No.: BE200223
DRAWING No. : C2000
VERSION: B

B

CONCEPT BULK EARTHWORKS SUMMARY

STRUCTURAL FILLING

AREA	NETT SOLID FILL
OVERALL FILLING	1,744 cu.m.

EXCAVATION

AREA	NETT CUT
OVERALL EXCAVATION	1,569 cu.m.

SUMMARY:
TOTAL MATERIAL ON LEADS (NETT FILL) = 1,744cu.m.
i.e. 1,744 cu.m. - 1,569 cu.m. = 174 c.um.

- ALLOWANCE FOR 450mm FOR BUILDING SLAB THICKNESS
- ALLOWANCE FOR 325mm FOR ROAD PAVEMENT THICKNESS
- ALLOWANCE FOR 300mm TOPSOIL RESPREAD TO FOR LANDSCAPE AREAS

BULK EARTHWORKS VOLUMES INCLUDE A NOMINAL 200mm OF TOPSOIL STRIPPING VOLUME WITHIN EARTHWORKS AREA

NOTE:
ALL DESIGN/SETOUT INFORMATION SHOWN ON THIS DRAWING IS AVAILABLE IN DIGITAL FORMAT FROM THE OFFICE OF THE SUPERINTENDENT UPON REQUEST BY THE CONTRACTOR.

WARNING: UNDERGROUND SERVICES:
UNDERGROUND SERVICES EXIST IN THIS VICINITY. THE CONTRACTOR IS TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRm EXACT LOCATION OF SERVICES ON SITE PRIOR TO ANY EXCAVATION OR CONSTRUCTION COMMENCING.

EARTHWORKS DEPTH ANALYSIS LEGEND

LOWER		UPPER	COLOUR
-3.0m	TO	-2.75m	
-2.75m	TO	-2.50m	
-2.50m	TO	-2.25m	
-2.25m	TO	-2.0m	
-2.0m	TO	-1.75m	
-1.75m	TO	-1.50m	
-1.50m	TO	-1.25m	
-1.25m	TO	-1.0m	
-1.0m	TO	-0.75m	
-0.75m	TO	-0.50m	
-0.5m	TO	-0.25m	
-0.25m	TO	0.0m	
0.0m	TO	0.25m	
0.25m	TO	0.50m	
0.50m	TO	0.75m	
0.75m	TO	1.0m	
1.0m	TO	1.25m	
1.25m	TO	1.50m	
1.50m	TO	1.75m	
1.75m	TO	2.0m	
2.0m	TO	2.25m	
2.25m	TO	2.50m	
2.50m	TO	2.75m	
2.75m	TO	3.0m	

LEGEND

- PROPERTY BOUNDARY
- LIMIT OF WORKS
- EXISTING EASEMENT
- EXISTING FENCE
- EXISTING WATER
- EXISTING STORMWATER
- EXISTING SEWER
- EXISTING OVERHEAD ELECTRIC
- EXISTING CHANGE GRADE
- EXISTING EDGE OF BITUMEN
- EXISTING ROAD CONTROL LINE
- EXISTING TOP OF BANK
- EXISTING BOTTOM OF BANK
- EXISTING LOT BOUNDARY
- EXISTING SURFACE CONTOURS
- EXISTING ROAD CONTROL LINE
- EARTHWORK SURFACE CONTOUR
- PROPOSED ROAD CONTROL LINE
- PROPOSED EDGE RESTRAINT TYPE ER2
- PROPOSED BARRIER KERB TYPE B1
- PROPOSED RETAINING WALL
- PROPOSED BATTER
- PROPOSED CUTBACK

COPYRIGHT ©
This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

DISCLAIMER
This drawing and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the drawing for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party.

NOTE
This is an uncontrolled document issued for information purposes only, unless the checked sections are signed or completed. Figured dimensions take precedence over scale. Do not scale reduced size drawings. Verify dimensions prior to commencing any on-site or off-site works or fabrication.

VER.	DESCRIPTION	DATE
B	ISSUED FOR APPROVAL	08-07-26
A	ORIGINAL ISSUE	06-05-26

BURCHILLS ENGINEERING SOLUTIONS
GOLD COAST | BRISBANE | TOOWOOMBA
IPSWICH | MORETON BAY
PHONE: +61 7 5509 6400
FAX: +61 7 5509 6411
EMAIL: ADMIN@BURCHILLS.COM.AU
COOTE BURCHILLS ENGINEERING PTY LTD
ABN 76 166 942 365

CLIENT : BOS

DRAWING TITLE : BULK EARTHWORKS LAYOUT PLAN - SHEET 1 OF 2

PROJECT : 2 KARINGAL DRIVE & 60 IMELDA WAY, PIMPAMA

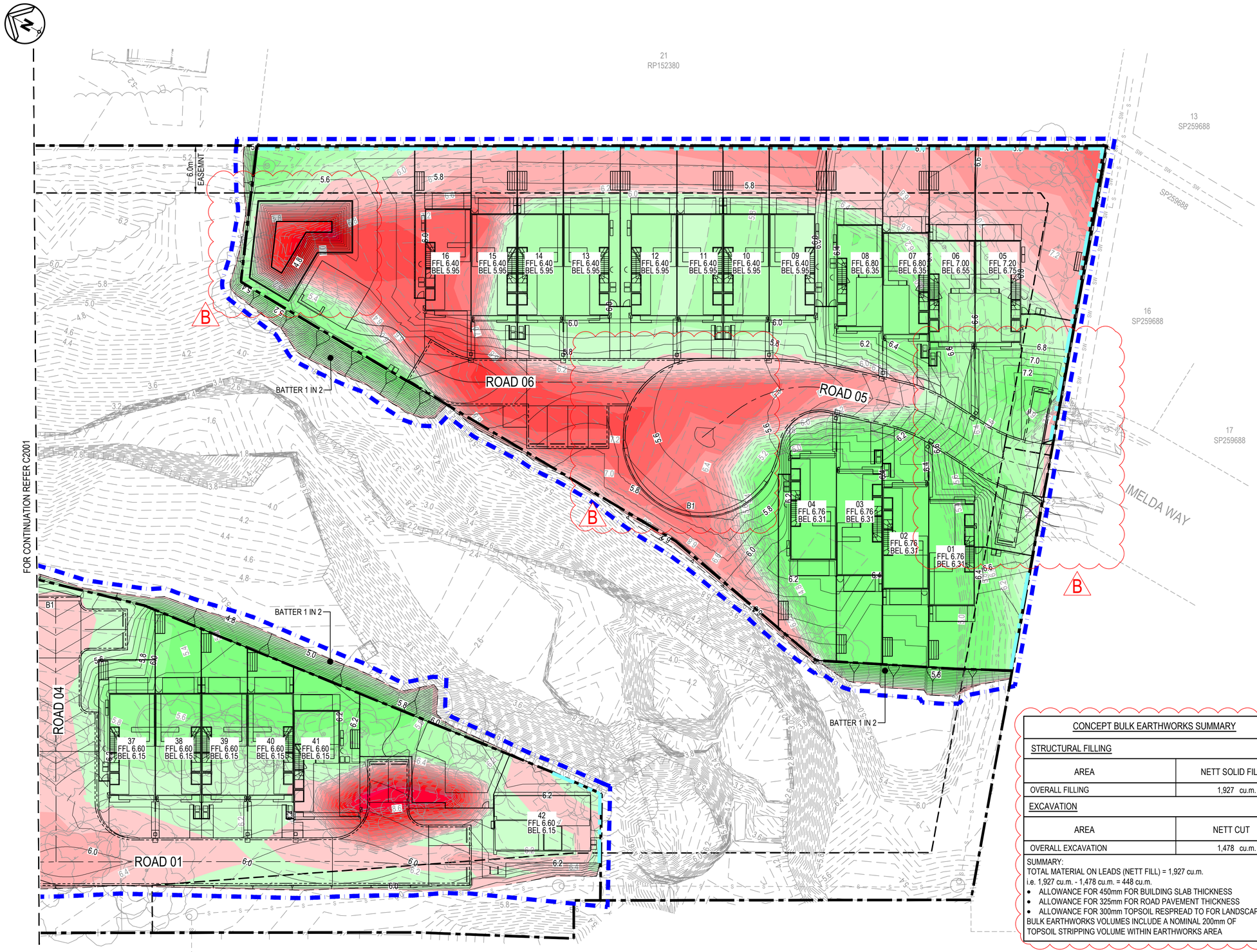
PRELIMINARY
NOT FOR CONSTRUCTION OR TENDER

SCALE AT FULL SIZE (A1) :
SCALE (metres) 5 0 5 10
1 : 250 (FULL SIZE)

DEVEL. APPLIC. No. :	DATE : 08-07-26
PROJECT LEADER : -	DESIGNER : BNB
DRAFTSPERSON : BNB	CHECKED : -

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

PROJECT No.:	DRAWING No. :	VERSION:
BE200223	C2001	B



LEGEND

- PROPERTY BOUNDARY
- LIMIT OF WORKS
- EXISTING EASEMENT
- EXISTING FENCE
- EXISTING WATER
- EXISTING STORMWATER
- EXISTING SEWER
- EXISTING OVERHEAD ELECTRIC
- EXISTING CHANGE GRADE
- EXISTING EDGE OF BITUMEN
- EXISTING ROAD CONTROL LINE
- EXISTING TOP OF BANK
- EXISTING BOTTOM OF BANK
- EXISTING LOT BOUNDARY
- EXISTING SURFACE CONTOURS
- EXISTING ROAD CONTROL LINE
- EARTHWORK SURFACE CONTOUR
- PROPOSED ROAD CONTROL LINE
- PROPOSED EDGE RESTRAINT TYPE ER2
- PROPOSED BARRIER KERB TYPE B1
- PROPOSED RETAINING WALL
- PROPOSED BATTER

EARTHWORKS DEPTH ANALYSIS LEGEND

LOWER		UPPER	COLOUR
-3.0m	TO	-2.75m	
-2.75m	TO	-2.50m	
-2.50m	TO	-2.25m	
-2.25m	TO	-2.0m	
-2.0m	TO	-1.75m	
-1.75m	TO	-1.50m	
-1.50m	TO	-1.25m	
-1.25m	TO	-1.0m	
-1.0m	TO	-0.75m	
-0.75m	TO	-0.50m	
-0.5m	TO	-0.25m	
-0.25m	TO	0.0m	
0.0m	TO	0.25m	
0.25m	TO	0.50m	
0.50m	TO	0.75m	
0.75m	TO	1.0m	
1.0m	TO	1.25m	
1.25m	TO	1.50m	
1.50m	TO	1.75m	
1.75m	TO	2.0m	
2.0m	TO	2.25m	
2.25m	TO	2.50m	
2.50m	TO	2.75m	
2.75m	TO	3.0m	

CONCEPT BULK EARTHWORKS SUMMARY

STRUCTURAL FILLING

AREA	NETT SOLID FILL
OVERALL FILLING	1,927 cu.m.

EXCAVATION

AREA	NETT CUT
OVERALL EXCAVATION	1,478 cu.m.

SUMMARY:
TOTAL MATERIAL ON LEADS (NETT FILL) = 1,927 cu.m.
i.e. 1,927 cu.m. - 1,478 cu.m. = 448 cu.m.

- ALLOWANCE FOR 450mm FOR BUILDING SLAB THICKNESS
- ALLOWANCE FOR 325mm FOR ROAD PAVEMENT THICKNESS
- ALLOWANCE FOR 300mm TOPSOIL RESPREAD TO FOR LANDSCAPE AREAS

BULK EARTHWORKS VOLUMES INCLUDE A NOMINAL 200mm OF TOPSOIL STRIPPING VOLUME WITHIN EARTHWORKS AREA

NOTE:
ALL DESIGN/SETOUT INFORMATION SHOWN ON THIS DRAWING IS AVAILABLE IN DIGITAL FORMAT FROM THE OFFICE OF THE SUPERINTENDENT UPON REQUEST BY THE CONTRACTOR.

WARNING: UNDERGROUND SERVICES:
UNDERGROUND SERVICES EXIST IN THIS VICINITY. THE CONTRACTOR IS TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRm EXACT LOCATION OF SERVICES ON SITE PRIOR TO ANY EXCAVATION OR CONSTRUCTION COMMENCING.

COPYRIGHT ©
This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

DISCLAIMER
This drawing and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the drawing for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party.

NOTE
This is an uncontrolled document issued for information purposes only, unless the checked sections are signed or completed. Figured dimensions take precedence over scale. Do not scale reduced size drawings. Verify dimensions prior to commencing any on-site or off-site works or fabrication.

VER.	DESCRIPTION	DATE
B	ISSUED FOR APPROVAL	08-07-26
A	ORIGINAL ISSUE	06-05-26

BURCHILLS ENGINEERING SOLUTIONS
GOLD COAST | BRISBANE | TOOWOOMBA
IPSWICH | MORETON BAY
PHONE: +61 7 5509 6400
FAX: +61 7 5509 6411
EMAIL: ADMIN@BURCHILLS.COM.AU
COOTE BURCHILLS ENGINEERING PTY LTD
ABN 76 166 942 365

CLIENT : BOS

DRAWING TITLE : BULK EARTHWORKS LAYOUT PLAN - SHEET 2 OF 2

PROJECT : 2 KARINGAL DRIVE & 60 IMELDA WAY, PIMPAMA

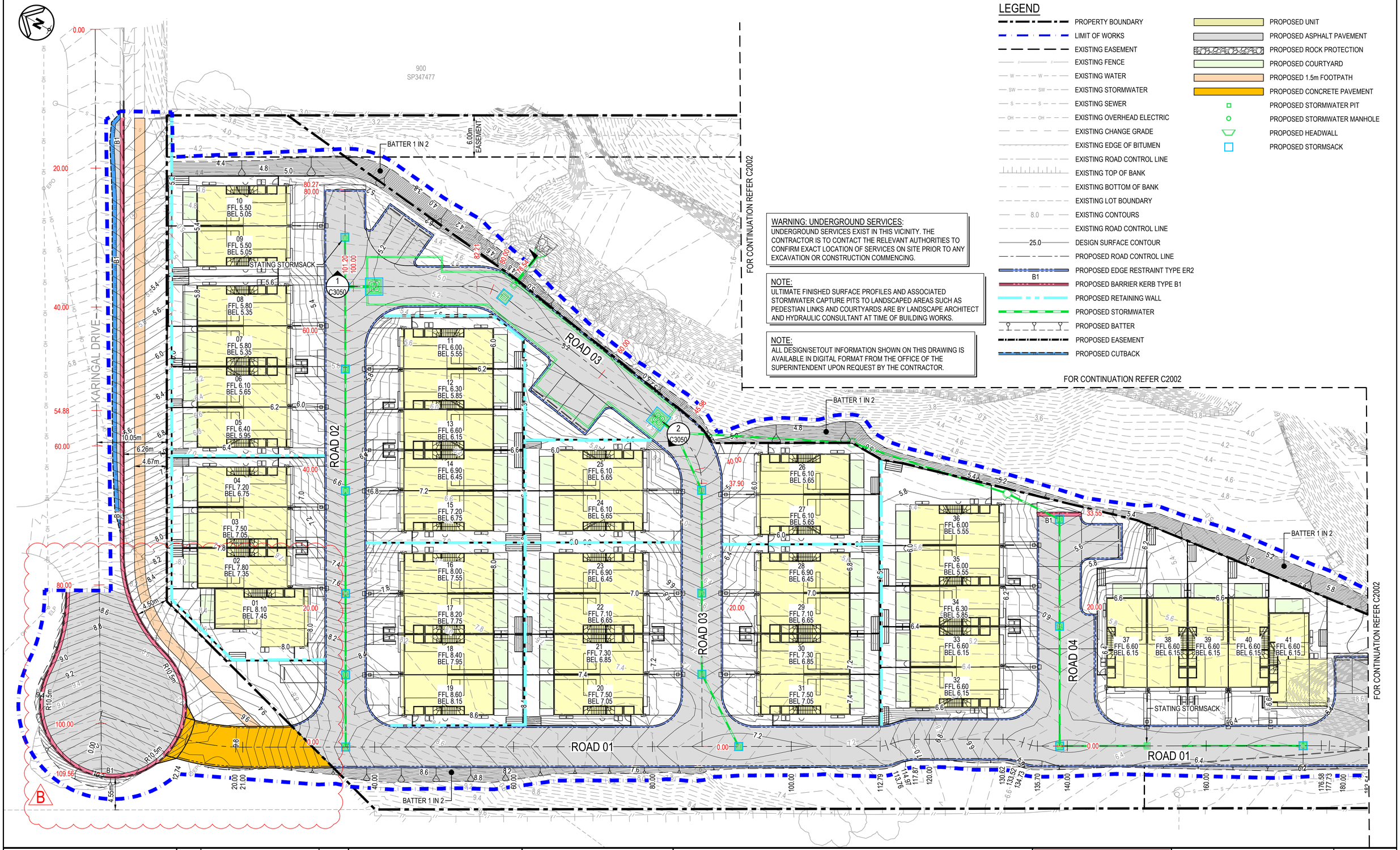
PRELIMINARY
NOT FOR CONSTRUCTION OR TENDER

SCALE AT FULL SIZE (A1) :
SCALE (metres) 5 0 5 10
1 : 250 (FULL SIZE)

DEVEL. APPLIC. No. : | DATE : 08-07-26
PROJECT LEADER : - | DESIGNER : BNB
DRAFTSPERSON : BNB | CHECKED : -

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

PROJECT No.: BE200223 | DRAWING No. : C2002 | VERSION: B



COPYRIGHT ©
This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

DISCLAIMER
This drawing and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the drawing for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party.

NOTE
This is an uncontrolled document issued for information purposes only, unless the checked sections are signed or completed. Figured dimensions take precedence over scale. Do not scale reduced size drawings. Verify dimensions prior to commencing any on-site or off-site works or fabrication.

VER.	DESCRIPTION	DATE
B	ISSUED FOR APPROVAL	08-07-26
A	ORIGINAL ISSUE	06-05-26

BURCHILLS ENGINEERING SOLUTIONS
GOLD COAST | BRISBANE | TOOWOOMBA
IPSWICH | MORETON BAY
PHONE: +61 7 5509 6400
FAX: +61 7 5509 6411
EMAIL: ADMIN@BURCHILLS.COM.AU
COOTE BURCHILLS ENGINEERING PTY LTD
ABN 76 166 942 365

CLIENT : BOS

DRAWING TITLE : ROADWORKS AND DRAINAGE LAYOUT PLAN - SHEET 1 OF 2

PROJECT : 2 KARINGAL DRIVE & 60 IMELDA WAY, PIMPAMA

PRELIMINARY
NOT FOR CONSTRUCTION OR TENDER

SCALE AT FULL SIZE (A1) : SCALE (metres) 5 0 5 10 — 1 : 250 (FULL SIZE)

DEVEL. APPLIC. No. :	DATE : 08-07-26
PROJECT LEADER : -	DESIGNER : BNB
DRAFTSPERSON : BNB	CHECKED : -

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

PROJECT No.:	DRAWING No. :	VERSION:
BE200223	C3001	B



LEGEND

- PROPERTY BOUNDARY
- LIMIT OF WORKS
- EXISTING EASEMENT
- EXISTING FENCE
- EXISTING WATER
- EXISTING STORMWATER
- EXISTING SEWER
- EXISTING OVERHEAD ELECTRIC
- EXISTING CHANGE GRADE
- EXISTING EDGE OF BITUMEN
- EXISTING ROAD CONTROL LINE
- EXISTING TOP OF BANK
- EXISTING BOTTOM OF BANK
- EXISTING LOT BOUNDARY
- EXISTING CONTOURS
- EXISTING ROAD CONTROL LINE
- DESIGN SURFACE CONTOUR
- PROPOSED ROAD CONTROL LINE
- PROPOSED EDGE RESTRAINT TYPE ER2
- PROPOSED BARRIER KERB TYPE B1
- PROPOSED RETAINING WALL
- PROPOSED BATTER
- PROPOSED EASEMENT
- PROPOSED STORMWATER
- PROPOSED HEADWALL
- PROPOSED STORMSACK
- PROPOSED UNIT
- PROPOSED ASPHALT PAVEMENT
- PROPOSED ROCK PROTECTION
- PROPOSED COURTYARD
- PROPOSED BIORETENTION BASIN
- PROPOSED CONCRETE PAVEMENT

WARNING: UNDERGROUND SERVICES:
UNDERGROUND SERVICES EXIST IN THIS VICINITY. THE CONTRACTOR IS TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM EXACT LOCATION OF SERVICES ON SITE PRIOR TO ANY EXCAVATION OR CONSTRUCTION COMMENCING.

NOTE:
ULTIMATE FINISHED SURFACE PROFILES AND ASSOCIATED STORMWATER CAPTURE PITS TO LANDSCAPED AREAS SUCH AS PEDESTIAN LINKS AND COURTYARDS ARE BY LANDSCAPE ARCHITECT AND HYDRAULIC CONSULTANT AT TIME OF BUILDING WORKS.

NOTE:
ALL DESIGN/SETOUT INFORMATION SHOWN ON THIS DRAWING IS AVAILABLE IN DIGITAL FORMAT FROM THE OFFICE OF THE SUPERINTENDENT UPON REQUEST BY THE CONTRACTOR.

COPYRIGHT ©
This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

DISCLAIMER
This drawing and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the drawing for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party.

NOTE
This is an uncontrolled document issued for information purposes only, unless the checked sections are signed or completed. Figured dimensions take precedence over scale. Do not scale reduced size drawings. Verify dimensions prior to commencing any on-site or off-site works or fabrication.

VER.	DESCRIPTION	DATE
B	ISSUED FOR APPROVAL	08-07-26
A	ORIGINAL ISSUE	06-05-26

BURCHILLS ENGINEERING SOLUTIONS
GOLD COAST | BRISBANE | TOOWOOMBA
IPSWICH | MORETON BAY
PHONE: +61 7 5509 6400
FAX: +61 7 5509 6411
EMAIL: ADMIN@BURCHILLS.COM.AU
COOTE BURCHILLS ENGINEERING PTY LTD
ABN 76 166 942 365

CLIENT : BOS

DRAWING TITLE :
ROADWORKS AND DRAINAGE LAYOUT PLAN - SHEET 2 OF 2

PROJECT :
2 KARINGAL DRIVE & 60 IMELDA WAY, PIMPAMA

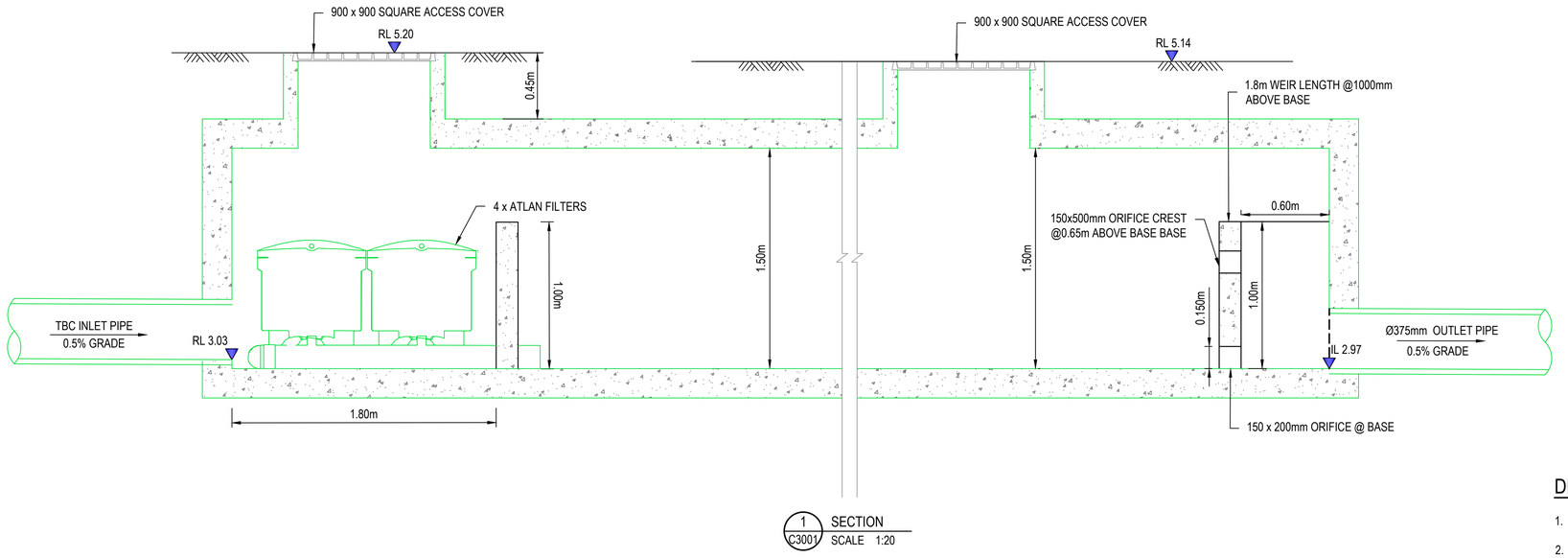
PRELIMINARY
NOT FOR CONSTRUCTION OR TENDER

SCALE AT FULL SIZE (A1) :
SCALE (metres)
5 0 5 10
1 : 250 (FULL SIZE)

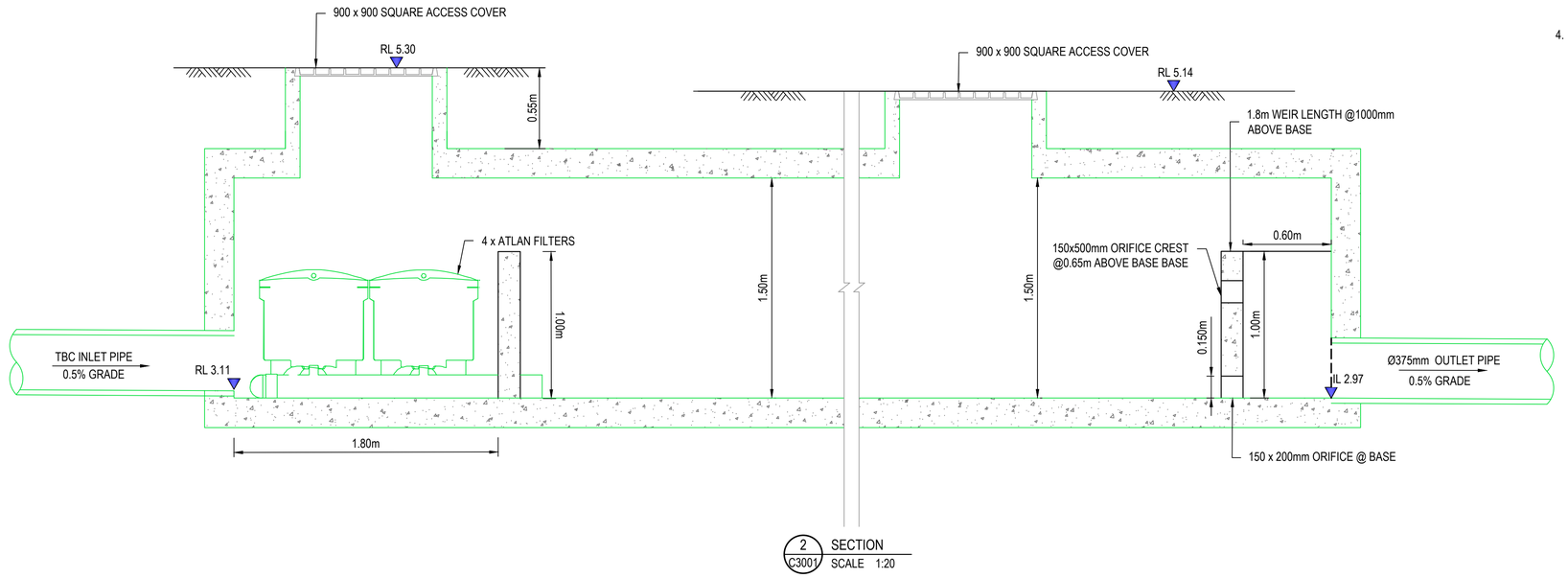
DEVEL. APPLIC. No. :	DATE : 08-07-26
PROJECT LEADER : -	DESIGNER : BNB
DRAFTSPERSON : BNB	CHECKED : -

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

PROJECT No.:	DRAWING No. :	VERSION:
BE200223	C3002	B



1 / C3001 SECTION
SCALE 1:20



2 / C3001 SECTION
SCALE 1:20

DETENTION TANK NOTES:

1. INLET AND OUTLET PIPES TO BE IN ACCORDANCE WITH APPROVED PLANS.
2. ALL WATER QUALITY TREATMENT DEVICES REQUIRE PERIODIC MAINTENANCE. REFER TO OPERATION AND MAINTENANCE MANUAL FOR GUIDELINES AND ACCESS REQUIREMENTS.
3. ENTIRE STRUCTURE INCLUDING THE CARTRIDGE CHAMBER, ACCESS, AND SURROUNDING TANK TO BE DESIGNED AND CONSTRUCTED BY OTHERS. REFER TO STRUCTURAL DRAWINGS.
4. THE INVERT LEVEL AND THE INLET PIPE MUST BE GREATER THAN THE RL OF THE FINISHED FALSE FLOOR WITHIN THE CARTRIDGE CHAMBER.

COPYRIGHT ©
This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

DISCLAIMER
This drawing and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the drawing for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party.

NOTE
This is an uncontrolled document issued for information purposes only, unless the checked sections are signed or completed. Figured dimensions take precedence over scale. Do not scale reduced size drawings. Verify dimensions prior to commencing any on-site or off-site works or fabrication.

VER.	DESCRIPTION	DATE
B	ISSUED FOR APPROVAL	08-07-26
A	ORIGINAL ISSUE	06-05-26

BURCHILLS ENGINEERING SOLUTIONS
GOLD COAST | BRISBANE | TOOWOOMBA
IPSWICH | MORETON BAY
PHONE: +61 7 5509 6400
FAX: +61 7 5509 6411
EMAIL: ADMIN@BURCHILLS.COM.AU
COOTE BURCHILLS ENGINEERING PTY LTD
ABN 76 166 942 365

CLIENT : BOS

DRAWING TITLE : STORMWATER TANK DETAILS

PROJECT : 2 KARINGAL DRIVE & 60 IMELDA WAY, PIMPAMA

PRELIMINARY
NOT FOR CONSTRUCTION OR TENDER

SCALE AT FULL SIZE (A1) :
SCALE (metres) 0.2 0 0.2 0.4 0.6 0.8 1.0
1 : 20 (FULL SIZE)

DEVEL. APPLIC. No. :	DATE : 08-07-26
PROJECT LEADER : -	DESIGNER : BNB
DRAFTSPERSON : BNB	CHECKED : -

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

PROJECT No.:	DRAWING No. :	VERSION:
BE200223	C3050	B