AGENDA
ORDINARY COUNCIL MEETING

Somerset
REGIONAL COUNCIL

Date:	Wednesday, 12 February 2025
Time:	9am
Venue:	*Simeon Lord Room* *Esk Library Building* *19 Heap Street* *Esk*

OPERATIONS

HR AND CUSTOMER SERVICE

CHIEF EXECUTIVE OFFICER

GENERAL

Agenda Links

PLANNING

SOMERSET REGIONAL COUNCIL - OFFICER'S REPORT

To:	Andrew Johnson, Chief Executive Officer
From:	Michael O'Connor, Senior Planner
Director:	Luke Hannan, Director of Planning and Development
Date:	3 February 2025
Subject:	Development Application No. 25701 – Lowood Hills Road, Lowood Development Application for a Development Permit for Reconfiguring a Lot by Subdivision (two into 26 lots, drainage reserve, drainage easements and access easements)
File No:	DA25701 Action Officer: SP—MO
Assessment No:	02628-00000-000

1.0 APPLICATION SUMMARY

Property details

Location:	Lowood Hills Road, Lowood
Real property description:	Lot 1 SP243182 and 3 SP243182
Site area:	14.969 ha
Current land use:	Vacant land
Easements/encumbrances:	Emt A SP243182 (For Drainage and Services - Burdening Lot 1 and Benefitting Lot 3)

South East Queensland Regional Plan

Land use category:	Urban footprint

Planning scheme details

Planning scheme	Somerset Region Planning Scheme (Version 4.2)
Zone:	General residential zone
Precinct:	Not within a precinct
Overlays:	OM4 Bushfire hazard overlay OM7 Flood hazard overlay OM8 High impact activities management area overlay OM12 Scenic amenity overlay

Application details

Proposal:	Subdivision (two into 26 lots, drainage reserve, drainage easements and access easements)
Category of assessment:	Code assessment
Applicant details:	Lowood Hills Pty Ltd C/- Saunders Havill Group
Owner details:	Lowood Hills Pty Ltd
Date application received:	26 November 2024
Date application properly made:	26 November 2024

Referrals None required

Public notification Not required

RECOMMENDED DECISION

Approve the development application subject to the development conditions and requirements contained in the schedules and attachments of this report.

Locality Plan of Lot 1 SP243182 and 3 SP243182
Situated at Lowood Hills Road, Lowood

2.0 PROPOSAL

This development application seeks approval for a development permit for reconfiguring a lot by subdivision (two into 26 lots, drainage reserve, drainage easements and access easements), on land at Lowood Hills Road, Lowood, formally described as Lot 1 and 3 SP243182. The application seeks to create a new park residential development at the southern edge of the Lowood urban footprint, providing for 26 park residential lots.

The subject land is within the General residential zone (not within the Park residential precinct), and is benefitted by this zoning due to a previous development approval, now lapsed, that provided for 600m^2 residential allotments, including reticulated water and sewerage infrastructure. As such, the planning scheme anticipates that future development on the site would be afforded similar standards of service.

The proposal seeks to create a modified park residential offering, creating a logical transition between the Lowood urban area and the rural Lowood Hills. The minimum lot size is 3,011m^2, with seven lots provided between 3,000m^2 and <3,500m^2, four lots between 3,500m^2 and <4,000m^2 and 15 lots with lot sizes 4,000m^2 or greater. As a park residential estate, the proposal provides reticulated water, underground power and telecommunications, but does not provide for reticulated sewerage network.

The estate is designed to integrate a similar proposal on the adjoining land to the west (Development Approval No. 21989 – Development Permit for Reconfiguring a Lot by Subdivision (One Lot into 79 Lots, plus New Road, Park and Drainage Reserve) which was originally approved by Council on 29 June 2022, and is also benefitted by a General residential zoning.

There are 11 rear lots, ten of which are accessed via shared access and services easements. This process responds to the shape and topography of the development land, particularly the slope and the watercourse through the centre of the site, which limit the opportunity to provide internal road networks at a park residential density. Importantly, access easements are generally parallel to the slope where used in the steeper areas of the site, and have a minimum width of 10m (comprising 5 metres on each allotment). The recommended development conditions require that the internal driveways are constructed as part of the operational works by the developer.

Minor road works are required to ensure the safety of the road network. The recommended development conditions provide that Bauer Street is to be constructed to provide a future 8

metre seal width with kerb and channel to a General Residential Access Street standard for the full frontage of the site, whilst Lowood Hills Road is to be constructed to provide a future 8 metre seal to a Rural Collector Road standard for the full frontage of the site.

Due to the topography of Lowood Minden Road, a number of lots have limited or restricted access opportunities, with the proposal plan noting areas that access is unsuitable. The recommended development conditions require the developer to install crossovers for these allotments as part of the operational works, to ensure that safe access is provided when the lots are registered.

An existing easement, Emt A SP243182 for services and drainage, located on Lot 1 to the benefit of Lot 3 is proposed to be rescinded, replaced instead by easements in gross over the waterways, with the full extent of 1% AEP flows to be contained within easements. Note that the existing easement does not list Council as a beneficiary.

The application does not propose further improvements, building works, or additional land uses for each of the created lot. The proposed plan of subdivision is provided in the attachments to this report.

3.0 SITE DETAILS

3.1 Description of the land

The site comprises two irregular shaped allotments, with frontage to Lowood Hills Road at the eastern boundary and Bauer Street at the northern boundary. The site is currently vacant, undulating, and is bisected by a watercourse.

3.2 Site approval history

Reference:	Decision date:	Description:
DA7651	25 February 2009 (Council) Approval lapsed: 24 July 2019	Development Permit for Material Change of Use for Residential Purposes; and Development Permit for Reconfiguring a Lot for the creation of 129 lots
DA10362	24 August 2010 (Council)	Development Permit for Reconfiguring a Lot by Subdivision (3 Lot Rural Subdivision)

3.3 Connection to electricity and telecommunications

The land is within the General residential zone, and as such the recommended development conditions require the development to connect to the reticulated electricity and telecommunications networks in line with the planning scheme requirements.

4.0 PLANNING LEGISLATION

The application will be assessed against the matters set out in section 45 and decided in accordance with section 60 of the *Planning Act 2016*.

5.0 ASSESSMENT BENCHMARKS

The proposal requires assessment against the following assessment benchmarks.

5.1 State Planning Policy 2017

The State Planning Policy 2017 (SPP) came into effect on 3 July 2017 and is not identified as being reflected in the Somerset Region Planning Scheme. The application requires an assessment against the assessment benchmarks contained within Part E, and Council must have regard to each of the State Interests within the SPP, to the extent relevant to the application.

The application has been assessed against the assessment benchmarks and relevant state interests and the proposal is considered to comply (to the extent relevant).

5.2 South East Queensland Regional Plan

The site is located within the urban footprint. The application has been assessed against the provisions of the regional plan and the associated regulatory requirements and was considered to comply.

5.3 Schedule 10 of the *Planning Regulation 2017*

Schedule 10 of the *Planning Regulation 2017* establishes assessment triggers, requirements, and assessment benchmarks. An assessment of the development against an assessment benchmark from the Regulation was required and is discussed below. Where a referral agency undertakes an assessment against a matter as required by the Regulation, this is discussed in section 6.0 of this report.

The proposal:

(a) does not impact on any regulated vegetation;
(b) does not impact on any koala habitat areas;
(c) is not located within a koala priority area;
(d) is not located in proximity to a Queensland heritage place or local heritage place;
(e) is not on land designated for infrastructure;
(f) does not involve any environmentally relevant activities.

The proposal involves works that would impact on Category C (regrowth vegetation) as shown on the regulated vegetation management maps. However, the clearing is considered exempt clearing work under the Regulation and therefore no assessment or referral for the clearing native vegetation trigger applies.

5.3.1 Schedule 12A – Reconfiguring a lot

The proposal involves the subdivision of land involving new road in the General residential zone, and under the provisions of schedule 10, part 14, requires assessment against the assessment benchmarks within Schedule 12A of the regulation.

The assessment benchmark applies to all land within the General residential zone and Emerging community zone where creating residential lots and providing new or extended roads. The provisions do not apply to land within the Rural residential zone.

The assessment benchmark contains five provisions, which can be summarised as:

- connectivity for pedestrians is provided through a grid-like street layout responding to the local landscape;
- block lengths are a maximum of 250 metres;
- footpaths are provided on at least one side of local neighbourhood roads and on both sides of main streets;
- at least one street tree is provided per 15 metres on each side of all streets;
- blocks are within 400 metres of a park or open space to the extent topography and other physical constraints reasonably permit.

It is clear from the explanatory material accompanying the assessment benchmark that these provisions were not drafted for very low-density residential areas (such as the Park residential precinct), given the Regulation specifically excludes development in the Rural residential zone. Notwithstanding, as the Park residential precinct is within the General residential zone, the development application must be assessed against this assessment benchmark.

The proposal does not comply with any of the assessment benchmarks within the Schedule, as the layout does not represent a grid like development, has block lengths that if gridded would exceed 250m, and does not provide each lot within 400m walking distance of a park. It is also not considered reasonable to provide concrete footpaths or street trees to the standard outlined.

Despite the noncompliance with this assessment benchmark, the proposal is recommended for approval for the following reasons:

1. The proposal delivers a development outcome consistent with the local planning instrument's intent for the site.

2. The proposal provides for a layout and standard of infrastructure that is consistent with community expectations for development at this site.
3. The intent of the assessment benchmark (Schedule 12A) is to ensure that urban residential neighbourhoods have a layout and necessary infrastructure to support walkability. The proposal is for a park residential development, which is not contemplated by the assessment benchmark.
4. The assessment benchmark does not consider the unique situation of the Somerset Region Planning Scheme where park residential development is delivered outside of the Rural residential zone.
5. Requiring the development to comply with the assessment benchmark may result in development conditions that could be considered unreasonable, having regard to the anticipated level of service expected for a park residential development.

Section 60(2)(b) of the Act allows Council to approve a development application that does not comply with an assessment benchmark.

5.4 Temporary local planning instruments

There are currently no temporary local planning instruments in effect within the Somerset Region.

5.5 Variation approvals

The property is not benefitted by any variation approvals.

5.6 Somerset Region Planning Scheme (Version 4.2)

5.6.1 Relevant assessment benchmarks from the planning scheme

The following are the relevant sections of the planning scheme for the assessment of this application:

(a) 7.2.4 Bushfire hazard overlay code;
(b) 7.2.7 Flood hazard overlay code;
(c) 8.3.4 Reconfiguring a lot code;
(d) 8.3.5 Services works and infrastructure code; and
(e) 8.3.6 Transport access and parking code.

The above relevant sections may be supported by additional information contained within the balance of the planning scheme.

The site is mapped within the OM008 High impact activities management area overlay. As the use is not a high impact activity, as defined in the planning scheme, the overlay code does not apply.

Additionally, the site is mapped as containing areas of high scenic amenity value. However, the Scenic amenity overlay code is not relevant to reconfiguring a lot development.

5.6.2 Strategic framework assessment

An assessment against the strategic framework was not required as this development application was subject to code assessment.

5.6.3 Code compliance summary

The assessment below identifies how the development proposal achieves the relevant assessment benchmarks from the planning scheme (other than the strategic framework) and the proposal seeks an alternative outcome:

(a) to the identified acceptable outcomes satisfying or not satisfying the corresponding performance outcomes; or
(b) where no acceptable outcome is stated in the code and the proposed outcome does not satisfy the performance outcome.

Relevant code	Compliance with overall outcomes	Performance outcomes
Reconfiguring a lot code	Yes	PO1, PO11, PO13

Services works and infrastructure code	Yes	No alternative outcomes proposed
Transport access and parking code	Yes	PO11
Relevant overlay code	**Compliance with overall outcomes**	**Performance outcomes**
Bushfire hazard overlay code	Yes	No alternatives outcomes proposed
Flood hazard overlay code	Yes	PO16

The assessment of the development proposal against the performance outcomes of the applicable code(s) is discussed below.

5.6.4 Performance outcome assessment

Reconfiguring a lot code

Performance outcome	**Acceptable outcome**
Lot size and subdivision design	
PO1 *Lot* size and dimensions: (a) provide sufficient area for the siting and construction of buildings and structures; (b) provide for safe vehicular and pedestrian access; (c) respond appropriately to site characteristics including slope of the land and topography; and (d) are consistent with the intended character of the zone.	**AO1.1** The minimum *lot* size and dimensions complies with **Table 8.3.4.3.B**– Minimum Lot Size and Dimensions. **AO1.2** *Lots* in the General residential zone, Rural residential zone and Emerging community zone have an average slope of less than 12.5 percent.
Alternative outcome assessment The proposal provides for a park residential estate with lot sizes between 3,011m^2 and 12,542m^2, with each lot having less than 12.5% average slope. The minimum lot size for the land is 600m^2 with 18m frontage, as the property is within the General residential zone (not within the Park residential precinct). The minimum size and dimension for land within the Park residential precinct is 4,000m^2 with a 40m frontage. The proposal seeks to provide an alternative development outcome than anticipated for the site by the planning scheme, in a lower density development outcome more consistent with the Park residential precinct than the General residential zone. However, the proposal seeks for 11 of the 26 lots (42%) to be between 3,000m^2 and 4,000m^2, less than the minimum identified for a park residential development. The application has been accompanied by technical reports that appropriately demonstrate that lots can be reasonably serviced, the modified park residential layout, including 3,000m^2 lots and reduced frontages, is supportable. It is also considered that the conversion of the land to a lower density development outcome will provide an improved land use transition between the Lowood urban areas and the Lowood Hills, in a manner generally consistent with the development approval over land immediately west of the development site. It also mitigates character impacts that would otherwise be experienced over the scenic hillslopes south of the town. It is recommended that the alternative solution be accepted in this instance, subject to the recommended conditions package.	
Movement network and access	
PO11	**AO11**

Access to existing or future public transport services is provided where practicable and reasonably necessary having regard to the location of the *site* and access to public transport.	All lots are located within 500 metres (radial distance) of an existing or potential public transport route.
Alternative outcome assessment The proposal is not located within an area that may be serviced by an existing or potential public transport route. The subdivision is for a park residential development that is located at the edge of the urban footprint, away from any major roads. There is currently no public transport route within 500 metres radial distance of this location, as it is not practicable nor reasonably necessary to provide a service. It is considered that if were practical or reasonably necessary to provide a public transport route servicing this area, the route would be able to use the local road network. It is recommended that the alternative solution be accepted in this instance.	
PO13 Rear *lot* access is appropriately managed to reduce vehicular conflict and provide legal access.	**AO13.1** The minimum width of an access handle for rear lots is: (a) 6 metres for residential activities; and (b) 8 metres for other activities. **AO13.2** The maximum length of an access handle for a rear allotment is 50 metres. **AO13.3** Access easements are established over common access driveways to rear lots.
Alternative outcome assessment The proposal provides for 11 rear lots, with ten using joint access handles. The joint access handles each have a width of 5 metres, providing a total width of 10 metres over the shared areas, whereas the remaining rear lot has a width of 10 metres. Additionally, most access handles are more than 50 metres in length. The proposal provides for joint access, limiting the extent of driveways that will be required to service the dwellings. The recommended conditions require these handles to be built to the necessary standard for safe access as part of operational works, and appropriate easements be registered to maintain lawful access. With respect of the access handle length, the front allotments are all regularly shaped park residential sized lots which require more than 50m of depth to achieve the proposed 3,000m^2 and 4,000m^2 lot sizes. It is recommended that the alternative solution be accepted in this instance.	

Transport access and parking code

Performance outcome	**Acceptable outcome**
Vehicle standing and manoeuvring areas	
PO11 Long driveways are designed and treated to soften their visual appearance when viewed from the street frontage.	**AO11** Internal driveways (except in the Rural zone) do not exceed 50 metres in length.

Alternative outcome assessment
As identified in the Reconfiguring a lot code assessment above, many of the rear allotments have driveways that will exceed 50 metres in length. This length is necessary as the creation of regular shaped full frontage lots at the desired lot size results in lot depths of greater than 50 metres. Additionally, and as mentioned in the proposal section of this report, it is not feasible to develop the land with an internal road network due to the limited lot width, the topography, and the two bisecting watercourses.

The proposal incorporates ten allotments with shared driveways, which halves the number of driveways required. Additionally, with 10-metre-wide joint handles (and 5.5-metre-wide sealed driveways), the impact of the driveways are mitigated with sufficient open space along the property boundaries.

It is recommended that the alternative solution be accepted in this instance, subject to the recommended conditions package.

Flood hazard overlay code

Performance outcome	Acceptable outcome
Significant flood hazard area, Low flood hazard area or Potential flood hazard area	
PO13 Development is located and designed to: (a) maintain hydrological function of the premises; (b) not increase the number of people calculated to be at risk from flooding; (c) minimises the flood impact on adjoining premises; (d) ensure the safety of all persons by ensuring that a proportion of *buildings* are set above the *defined flood level*; (e) reduce the carriage of debris in flood waters; (f) reduce property damage; and (g) provide road access to *buildings* above the level of the 1% AEP flood level. Note—where the development is located in a Potential flood hazard area as identified on **Flood Hazard Overlay Map OM-007**, and there is no *defined flood level*, a hydraulic (flood hazard assessment) report prepared by a RPEQ is required in substantiation of a Performance Solution. Alternatively, the *defined flood level* from an adjacent representative hazard area may be used if deemed appropriate by Council.	**AO13.6** Additional lots, except where for the purposes of public open space: (a) are not located in areas of Significant flood hazard area, Low flood hazard area or Potential flood hazard area as identified on **Flood Hazard Overlay Map OM-007**; or (b) are demonstrated to be above the *defined flood level*.

Alternative outcome assessment
The proposal includes areas of flood hazard which are proposed to be contained within an easement for drainage, rather than in a lot for public open space.

The planning scheme mapping for the site includes part of the land as being within the potential flood hazard area, whilst newer flood modelling from the Lowood Local Floodplain Management Plan (LFMP) provides greater detail of flood depths and overall flood hazard, including for the 1% AEP event.

The development application has been supported by a Flood Study, which builds upon the modelling developed for the LFMP, and details the extend of flooding on the site pre- and post-development. The modelling demonstrates that, with some minor filling to limit sheet flow, the extent of the 1% AEP event is contained within the natural gullies, with limited impact to the proposed allotments.

The use of easements for park residential lots is supported, noting that sufficient areas exist outside of the easement areas for the development of dwelling houses, ancillary buildings and structures, and onsite wastewater treatment.

It is recommended that the alternative solution be accepted in this instance.

5.6.5 Overall outcome assessment

The proposal is considered to comply with all the relevant performance outcomes. As such, a detailed assessment of the overall outcomes was not required.

5.7 Local government infrastructure plan

5.7.1 Priority infrastructure area

The development land is not located within the priority infrastructure area as shown in the Local government infrastructure plan mapping.

5.7.2 Infrastructure charges

The proposed development is for a subdivision, which adopts a charge consistent with a three or more-bedroom dwelling under the *Somerset Regional Council Charges Resolution (No. 1) 2024*. The land is within Charge Area A for determining the relevant adopted charges.

The draft infrastructure charges notice is attached and identifies how the levied charge for the relevant local government networks have been worked out as required by the *Planning Act 2016*.

5.7.3 Trunk infrastructure requirements

As the development application is seeking approval for building works only, there are no trunk infrastructure or servicing requirements applicable to the proposal.

5.7.3.1 Drinking water and wastewater networks

The Bauer Street frontage is within connections area for the drinking water network; however, the balance of the land is outside of the connections area (including the future connections area). As park residential development, the developer will be required to install reticulated water infrastructure to service the new allotments.

The recommended conditions require the development to connect to the reticulated drinking water network to the satisfaction of Urban Utilities.

The whole of the land is outside of the connections area and future connections area for the wastewater network. Future development on each of the created lots will require an onsite wastewater treatment system, to be installed as part of the building development approval process for each new dwelling.

Infrastructure charges for the drinking water and wastewater networks (where applicable) are managed by Urban Utilities separately from this development application.

5.7.3.2 Stormwater network

Stormwater as a result of the development is not anticipated to result in an adverse impact on Council's trunk stormwater network infrastructure, and no additional trunk infrastructure has been identified as being necessary to deliver the development.

Standard development conditions are recommended to ensure no actionable nuisances occur and discharge to a lawful point of discharge is achieved, as required by the Queensland Urban Drainage Manual (QUDM).

An adopted charge for the stormwater network applies.

5.7.3.3 Public parks and community land network

The proposal is not considered to result in an unreasonable impact on Council's trunk public park and community land network infrastructure, and no trunk infrastructure has been identified as being required to support the development.

An adopted charge for the public parks and community land network applies.

5.7.3.4 Transport network

The proposal is not anticipated to result in an adverse impact on Council's trunk transport network infrastructure, and no additional trunk infrastructure has been identified as being required to deliver the development.

An adopted charge for the transport network applies.

6.0 REFERRAL

6.1 Referral agencies

In accordance with the *Planning Regulation 2017*, there are no referral agencies applicable for this application.

6.2 Third party advice

Council did not seek any third-party advice for this application.

7.0 PUBLIC NOTIFICATION

As the application is subject to code assessment, public notification was not required.

No comments or submissions were received.

8.0 OTHER RELEVANT MATTERS

There are no other relevant matters applicable for code assessment.

9.0 CONCLUSION

The proposed development is for the subdivision of land, creating a new park residential estate within the General residential precinct at Lowood. The proposal has demonstrated a logical approach to the subdivision of the site and provides a well-designed interface between the urban area of Lowood and the rural area of the Lowood Hills, and suitably integrates into the adjoining development approval (DA21989).

The proposal has demonstrated compliance with the relevant assessment benchmarks as outlined in this assessment, or reasons exist to approve the development despite any noncompliance as outlined in this report.

Having undertaken the assessment, and considered the relevant matters identified within the report, the officer's recommendation is to approve the application, subject to the imposition of reasonable and relevant conditions as outlined in the schedules and attachments to this report.

10.0 ATTACHMENT

1. Proposed subdivision plan
2. Approved plan for adjoining site
3. Stormwater management plan
4. Flood study
5. Goetechnical report
6. Dispersive soil management plan
7. Draft infrastructure charges notice

RECOMMENDATION

THAT Council:

1. approve Development Application No. 25701 for a Development Permit for Reconfiguring a Lot by Subdivision (two into 26 lots, drainage reserve, drainage easements and access easements) on land situated at Lowood Hills Road, Lowood,

formally described as Lot 1 SP243182 and 3 SP243182, subject to the recommended conditions and requirements contained in the schedules and attachments to this report.

2. publish the officer's report for this application to Council's website as the statement of reasons in accordance with section 63(5) of the *Planning Act 2016*.

SCHEDULE 1—GENERAL CONDITIONS Assessment Manager		
No.	**Condition**	**Timing**
GENERAL		
	Approved Plans and Documents	
1.1	Undertake the development generally in accordance with the material contained in the application, supporting documentation, and the approved plans and documents listed below, except as amended by these development conditions.	At all times.
	Proposal Plan, reference 12168 P 03 Rev A – PRO 1, drawn by Saunders Havill Group, dated 19 November 2024	
	Stormwater Quality Management Plan, reference C24043AR002, prepared by Hurley Consultant Engineers, dated 25 November 2024	
	Flood Study, reference 25020061_R01_V01, prepared by Water Technology, dated 21 November 2024.	
	Geotechnical Report, reference PG-12411 GR VER 2, prepared by Pacific Geotech, dated November 2024	
	Dispersive Soil Management Plan, reference PG-12411 DSMP VER2 prepared by Pacific Geotech, dated November 2024.	
	Civil Engineering Services Report, reference C24043AR001, prepared by Hurley Consulting Engineers, dated 25 November 2024.	
	Comply with planning scheme and local laws	
1.2	The development must comply with the relevant provisions of the Somerset Region Planning Scheme (Version 4.2) and Local Laws, to the extent they have not been varied by this Development Approval.	At all times.
	Availability of Development Approval (Works)	
1.3	A legible copy of this Development Approval, including the approved plans and documents bearing Council's stamp, must be available on the subject land for inspection by site workers and Council officers.	During site works, building works or operational works phases.
	No cost to Council	
1.4	All development conditions of this Development Approval must be complied with at no cost to, and free of compensation from, Council, unless stated otherwise in any specific development condition.	At all times.
RECONFIGURING A LOT		
	Survey marks	
1.5	A Registered Cadastral Surveyor must install new Survey Marks in their correct positions in accordance with the Plan of Subdivision.	Prior to the request for approval of the Plan of Subdivision.

1.6	Provide certification to Council from a Registered Cadastral Surveyor that Condition 1.5 has been complied with.	As part of the request for approval of the Plan of Subdivision.
	Pay outstanding rates and charges	
1.7	Pay to Council any outstanding rates or charges or expenses that are a charge over the subject land levied by Council, including any charges that are levied but not fully paid over the subject land.	Prior to the approval of the Plan of Subdivision.
	Valuation	
1.8	Pay to Council the applicable amount at the time of request for plan of subdivision endorsement for the issue of new valuations by the Department of Resources. Currently, the amount is set at $47.00 per allotment.	As part of the request for approval of the Plan of Subdivision.
PERIODS FOR THE DEVELOPMENT APRPOVAL		
	No provision for staging	
1.9	The development is to occur in one stage.	As indicated.
LAND		
	Transfer – Open space and drainage	
1.10	Transfer to Council the land shown on the Approved Plans as Proposed Lot 800 for the purpose of drainage. The transfer is to be at no cost to or compensation from Council and is to be given in fee simple on trust. This condition is imposed under section 145 of the *Planning Act 2016*.	As part of the registration of the Plan of Subdivision.
1.11	Provide the signed transfer documentation for the land required by Condition 1.10.	As part of the request for approval of the Plan of Subdivision.
1.12	Submit to Council evidence of the registration of the transfer documentation.	Within one month of the registration of the Plan of Subdivision.
	Easements – Stormwater and drainage	
1.13	Lodge for registration at the office of the Land Registry, easements for drainage. The easements are to be provided, in accordance with the current version of the Queensland Urban Drainage Manual, over: (a) all stormwater and inter-allotment drainage, sized 300mm or greater located within private property. (b) all stormwater and inter-allotment drainage that cross more than one property. (c) all concentrated overland flow paths that cross two or more properties.	As part of the registration of the Plan of Subdivision.

	The minimum easement width to be provided is 3m. Easement widths greater than 3m may vary but must extend to include the flood paths for the 1%AEP flood flows including provisions for freeboard and provide suitable means of access for machinery around headwalls and steep batters to enable maintenance operations to occur without encroachment onto private property and are to be in accordance with the current version of the Queensland Urban Drainage Manual (QUDM). Note: Easements required for the discharge of stormwater over adjacent properties must be agreed to in writing by the owner of the property.	
1.14	Provide the signed easement documentation for the easements required by Condition 1.13.	As part of the request for approval of the Plan of Subdivision.
	Easement – Reciprocal access and services easement	
1.15	Lodge for registration at the office of the Land Registry the following easements: (a) Reciprocal access and services easement having a minimum width of five metres over each of Proposed Lot 9 and Proposed Lot 10, favouring Proposed Lot 9 and Proposed Lot 10, as shown on the approved plans. (b) Reciprocal access and services easement having a minimum width of five metres over each of Proposed Lot 12 and Proposed Lot 13, favouring Proposed Lot 12 and Proposed Lot 13, as shown on the approved plans. (c) Reciprocal access and services easement having a minimum width of five metres over each of Proposed Lot 16 and Proposed Lot 17, favouring Proposed Lot 16 and Proposed Lot 17 as shown on the approved plans. (d) Reciprocal access and services easement having a minimum width of five metres over each of Proposed Lot 20 and Proposed Lot 21, favouring Proposed Lot 20 and Proposed Lot 21, as shown on the approved plans. (e) Reciprocal access and services easement having a minimum width of five metres over each of Proposed Lot 24 and Proposed Lot 25, favouring Proposed Lot 24 and Proposed Lot 25, as shown on the approved plans.	As part of the registration of the Plan of Subdivision.
1.16	Provide copies of the signed easement documentation for the easements required by Condition 1.15.	As part of the request for approval of the Plan of Subdivision.
	Easements – Services	
1.17	Provide copies of the easement documentation for easements required for water, and other services that are included on the Plan of Subdivision.	As part of the request for approval of the Plan of Subdivision.

LANSCAPING AND SCREENING		
Vegetation (minor)		
	Vegetation removal	
1.18	Where vegetation is cleared from the site, the vegetation waste shall be: (a) transported offsite for disposal at an approved waste disposal facility or reuse; or (b) processed onsite for use in landscaping or erosion and sedimentation control. No incineration of vegetation or waste will be permitted at the site.	At all times.
1.19	Apart from declared weeds and pests, areas with trees, shrubs and landscaping currently existing on the subject land must be retained where possible and action taken to minimize disturbance during construction work.	During site works, building works or operational works phases.
	Declared weeds	
1.20	All declared weeds and pests are to be removed from the subject land and kept clear of such nuisance varieties during the course of construction works (including on-maintenance). Note: The General Biodiversity Obligation under the *Biosecurity Act 2014* applies to the control of weed species.	At all times.
SERVICES AND CONNECTIONS		
	Reticulated drinking water	
1.21	Connect each lot to the reticulated drinking water network in accordance with the standards and requirements of the Central SEQ Distributor-Retailer Authority, trading as Urban Utilities.	Prior to the request for approval of the Plan of Subdivision.
1.22	Provide written evidence (e.g. connection certificate) from Urban Utilities that the connection to the reticulated networks are available as a standard connection and that all requirements of Urban Utilities have been satisfied.	As part of the request for approval of the Plan of Subdivision.
	Reticulated electricity and telecommunications	
1.23	Connect each lot to the underground reticulated electricity and telecommunications networks to the standards of the relevant service provider. Where proposed allotments front existing overhead electricity or telecommunication service, these lots may connect direct to such service to the approval and requirements of the service provider.	Prior to the request for approval of the Plan of Subdivision.
1.24	Provide written evidence (e.g. certificate of supply or agreement) from the relevant service provider that each lot has been connected to the reticulated networks, connection is available at a standard connection, or has a current supply agreement.	As part of the request for approval of the Plan of Subdivision.
	Services to remain within lots	

1.25	Provide certification from a Registered Cadastral Surveyor that all services (for example, water, drainage, electricity, telecommunications) are wholly contained within the lot that they serve.	As part of the request for approval of the Plan of Subdivision.
	Remove redundant services	
1.26	Remove any services made redundant as a result of the development and reinstate the land.	Prior to the request for approval of the Plan of Subdivision.
1.27	Certify in writing that all services made redundant as a result of the development have been removed and that the land is reinstated.	As part of the request for approval of the Plan of Subdivision.
SCHEDULE 2—ENGINEERING Assessment Manager		
GENERAL		
	Make operational works application	
2.1	Make an operational works application to Council, and pay the required fees, where the development involves assessable operational works, including as identified in the following conditions.	Prior to the commencement of any operational works.
	Design and construction standards	
2.2	All works are to be designed and constructed in accordance with the requirements of the Somerset Region Planning Scheme.	At all times.
	No cost of works	
2.3	Bear the costs of works carried out to Council and utility services infrastructure and assets, including any alterations and repairs resulting from compliance with these development conditions, unless otherwise identified in the condition.	At all times.
	RPEQ certification	
2.4	It is required that the design and construction of civil components of the Operational Work are to be certified by a Registered Professional Engineer Queensland (RPEQ), including: (a) plans and specifications must be prepared and certified with the Operational Work application; (b) certification that the works have been undertaken in accordance with the approved plans, specifications and to Council's requirements.	As follows: (a) as part of the relevant operational works application; (b) prior to the request for approval of the Plan of Subdivision.
OPEN SPACE AND LANDSCAPING		
	Entry statements	
2.5	All entry statements, fences, batters, retaining walls and buffer/screen plantings must be located entirely within private land and not within the road reserve, park or other public land.	At all times.
FLOOD HAZARD		
	Finished ground level above flood level	
2.6	Fill below the Defined Flood Level (DFL) is to be in accordance with the approved Flood Study, reference	As part of the operational works.

	25020061_R01_V01, prepared by Water Technology, dated 21 November 2024.	
EARTHWORKS		
	Earthworks	
2.7	All earthworks to be constructed in accordance with AS3798. Fill material is to be placed, compacted, and tested by a suitably qualified inspection and testing organisation.	At all times.
2.8	All earthworks to be constructed generally in accordance with a. Geotechnical Report, reference PG-12411 GR VER 2, prepared by Pacific Geotech, dated November 2024; and b. Dispersive Soil Management Plan, reference PG-12411 DSMP VER2 prepared by Pacific Geotech, dated November 2024. The landowner must advise all potential purchasers accordingly.	As part of the operational works.
	No contaminated materials	
2.9	Contaminated material must not be used as fill on the site. Any filling must be undertaken using inert materials only.	At all times.
	Stockpiles	
2.10	Any fill, cut and other stored material must be contained within properties comprising the development application. Fill cannot be placed on adjacent properties without providing Council with written permission from the respective property owner(s).	At all times.
	Removal of dams	
2.11	All dams are to be removed.	Prior to the request for approval of the Plan of Subdivision.
2.12	Rehabilitation of dam sites, including methods of construction, management and supervision is to ensure that the site will be suitable for the proposed use. Test results as required and a certificate of quality and uniformity is to be provided by a Registered Professional Engineer Queensland (RPEQ).	Prior to the request for approval of the Plan of Subdivision.
ROADWORKS		
	Complete roadworks	
2.13	Dedicate, design and construct all new roads as illustrated on the approved plans and any subsequent operational works approvals and in accordance with *Somerset Region Planning Scheme*.	Prior to the request for approval of the Plan of Subdivision.
2.14	Bauer Street is to be constructed to provide a 8 metre seal width for the full frontage of the site in accordance with *Somerset Region Planning Scheme.* Notes:	As part of Operational Works Application.

	The verge adjoining the development and the carriageway is to be constructed to a minimum sealed width containing: a. kerb and channel (development side only) b. travel lanes, minimum width generally in accordance with Civil Engineering Services Report, reference C24043AR001, prepared by Hurley Consulting Engineers, dated 25 November 2024. This condition is imposed under section 145 of the *Planning Act 2016*.	
2.15	Lowood Hills Road is to be constructed to provide a 8 metre seal to a Rural Collector Road standard for the full frontage of the site in accordance with *Somerset Region Planning Scheme.* Notes: The verge adjoining the development and the carriageway is to be constructed to a minimum sealed width containing: a. table drains b. travel lanes, minimum width generally in accordance with Civil Engineering Services Report, reference C24043AR001, prepared by Hurley Consulting Engineers, dated 25 November 2024. This condition is imposed under section 145 of the *Planning Act 2016*.	As part of Operational Works Application.
	Road design standards	
2.16	Provide verge and access in accordance with *Somerset Region Planning Scheme*.	As part of Operational Works.
2.17	Road reserve and carriageway widths are to be in accordance with the *Somerset Region Planning Scheme*.	As part of Operational Works.
2.18	Provide 6m (length) x 3 (no.) chord truncations on property boundaries at all road intersections.	As part of Operational Works.
	Remove improvements and obstructions	
2.19	Remove all improvements and obstructions from the area of the corner truncation(s) and area of dedicated road.	Prior to the request for approval of the Plan of Subdivision.
VEHICLE ACCESS		
	Landowners responsible for access (crossover)	
2.20	The landowner is responsible for the construction and maintenance of vehicular access for the property, from the road carriageway to property boundary, in accordance with *Somerset Region Planning Scheme*.	At all times.
	Construct access (crossover and driveway)	

2.21	Construct a minimum 5.5-metre-wide sealed shared driveway for the full length of the access handle for each of Proposed Lots 9, 10, 12, 13, 16, 17, 20, 21, 24, and 25. The driveway is to be generally centred within the reciprocal easements and provide safe and convenient access to both of the relevant lots served by each easement. The crossovers and driveways must be detailed as part of an Operational Works application.	Prior to the request for approval of the Plan of Subdivision.
2.22	Construct a minimum 3-metre-wide sealed driveway for the full length of the access handle for Proposed Lot 2 and Proposed Lot 25. The driveway is to be generally centred within the handle and provide safe and convenient access. For Lot 25, this requirement applies to the part of the handle not covered by the reciprocal easement. The driveway must be detailed as part of an Operational Works application.	Prior to the request for approval of the Plan of Subdivision.
2.23	Construct driveway crossovers for Proposed Lots 6, 14, 15, 18, 19, 22, 23 and 26. Unless forming part of an Operational Works approval, the property access (crossover) requires a Property Access Approval from Council prior to commencing works on the access (crossover).	Prior to the request for approval of the Plan of Subdivision.
	Service conduits	
2.24	Install underground water supply and conduits for electricity and telecommunications, installed for the full length of the access handles for each of Proposed Lots 2, 9, 10, 12, 13, 16, 17, 20, 21, 24, and 25. Conduits must be detailed as part of an Operational Works application.	Prior to the request for approval of the Plan of Subdivision.
STORMWATER		
	Approved Stormwater Management Plan	
2.25	Stormwater Drainage shall be constructed generally in accordance with: a. Stormwater Quality Management Plan, reference C24043AR002, prepared by Hurley Consultant Engineers, dated 25 November 2024; and b. Flood Study, reference 25020061_R01_V01, prepared by Water Technology, dated 21 November 2024.	As part of Operational Works.
	Lawful point of discharge	
2.26	Ensure Stormwater drainage is delivered to a lawful point of discharge.	At all times.

	No increase in peak discharge	
2.27	Stormwater drainage and flows are to have no increase in peak discharge immediately downstream of this development for a selected range of storm durations, and a selected range of AEP's up to the defined flood event.	At all times.
	No actionable nuisance	
2.28	Stormwater drainage and flows are to have no actionable nuisance effect on adjoining, upstream, or downstream landholders.	At all times.
	Stormwater design standards	
2.29	Design and construction of all stormwater drainage works must comply with the relevant section/s of the Queensland Urban Drainage Manual (QUDM) and the *Somerset Region Planning Scheme*.	As part of Operational Works.
	Attenuate flows	
2.30	Attenuate the difference between pre and post developed flows.	As part of Operational Works.
	All lots to drainage system	
2.31	Fill, compact and grade all low-lying land being subdivided to ensure each allotment is drained adequately by gravitation to the drainage system within the proposed development.	As part of Operational Works.
	Adjoining landowner consent	
2.32	Submit permission for the discharge of stormwater drainage to a lawful point of discharge from the owners of properties affected by any stormwater discharge from the site. *Note: Such consent may require supporting engineering plans and calculations.*	As part of Operational Works.
	Release of contaminants	
2.33	Containments or contaminated water must not be directly or indirectly released from the premises to surface water or groundwater at or outside the premises except for: (a) uncontaminated overland stormwater flow; or (b) uncontaminated stormwater to the stormwater system.	At all times.
EROSION AND SEDIMENT CONTROL		
	Erosion and sediment controls (generally)	
2.34	Erosion and sedimentation controls shall be implemented in accordance with current IECA best practice, and shall be maintained to Council's satisfaction at all times during the course of the project. Should Council determine that proposed controls are ineffective or a downstream drainage system has become silted, the developer will: (a) be required to install additional measures. (b) be responsible for the restoration work.	During site works, building works or operational works phases.

	Should the developer fail to complete the works determined by Council within the specified time, the Council will complete the work and recover all costs from the developer associated with the work.	
2.35	Measures shall be applied to prevent site vehicles tracking sediment and other pollutants onto adjoining streets during the course of the project, and to prevent dust nuisance.	During site works, building works or operational works phases.
	Erosion and sediment control plan	
2.36	Prepare an Erosion and Sediment Control Plan designed by a Registered Professional Engineer Queensland (RPEQ).	As part of the lodgement of the Operational Works application.
2.37	Implement all relevant sediment and erosion control measures and temporary fencing as identified on the approved engineering drawings as part of the operational works. All sediment control devices and sediment collection points shall be monitored monthly, sediment removed as necessary, and devices maintained responsibly during construction and maintenance period of the development works.	During site works, building works or operational works phases.
WASTE		
	Waste	
2.38	All wastes are to be managed in accordance with the relevant legislation and regulations with regulated waste to be disposed of at a licensed facility and general solid waste to be disposed of at approved landfill sites with the contractor covering all costs incurred for the receipt and management of the waste.	At all times.
2.39	Waste, other than vegetation waste, generated as a result of the development shall be disposed of at an approved waste disposal facility.	At all times.
SCHEDULE 3—INTERPRETATION AND ADVICE Assessment Manager		
No.	**Note**	
INTERPRETATION		
Notes and advice notes		
Notes contained within a development condition are part of the condition. Interpretation notes in this schedule form part the development conditions. Advice notes contained within a development condition are not part of the condition and are provided for additional guidance specific to the condition. Advice statements contained within this schedule are provided for guidance about the development. Advice statements are not exhaustive and are provided to assist applicants in meeting their obligations under other instruments.		
Interpretation of timing of development conditions		

Where the timing in a development condition requires compliance "prior to the commencement of the use" and a Plan of Subdivision is lodged for approval, the timing in the condition is taken to require compliance "prior to the commencement of the use or approval of the Plan of Subdivision, whichever occurs first".

Where the timing in a development condition requires compliance "prior to obtaining any development permit for building works or operational works" and no development permit is required for the relevant works, the timing in the condition is taken to require compliance "prior to carrying out any site works, building works, or operational works".

Where the timing in a development condition requires compliance "prior to obtaining a development permit for building works" or "prior to obtaining a development permit for operational works" and no development permit is required for the relevant works, the timing in the condition is taken to require compliance "prior to carrying out any building works" or "prior to carrying out any operational works" respectively.

When approval takes effect (Advice)

This approval takes effect in accordance with the provisions of section 71 of the *Planning Act 2016*, and development may commence in accordance with section 72.

Aboriginal Cultural Heritage Act (Advice)

The *Aboriginal Cultural Heritage Act 2003* establishes a Duty of Care for Indigenous Cultural Heritage. This applies on all land and water, including freehold land. The Cultural Heritage Duty of Care lies with the person or entity conducting an activity.

Penalty provisions apply for failing to fulfil the Cultural Heritage Duty of Care.

Persons proposing an activity that involves additional surface disturbance beyond that which has already occurred at the proposed site need to be mindful of the Cultural Heritage Duty of Care requirement.

Details on how to fulfil the Cultural Heritage Duty of Care are outlined in the Cultural Heritage Duty of Care Duty Guidelines gazetted with the Act.

Council strongly advises that you obtain a copy of the Cultural Heritage Duty of Care Guidelines and seek further information on the responsibilities of proponents under the terms of the current Aboriginal Cultural Heritage Act.

Information about the cultural heritage duty of care is available at qld.gov.au/firstnations/environment-land-use-native-title/cultural-heritage/cultural-heritage-duty-of-care

Fire ants (Advice)

Parts of the Somerset Region are within Fire Ant Biosecurity Zones.

If you are working with organic materials, you are legally obliged to check the fire ant biosecurity zones and use fire ant-safe practices before moving them to a new location (*Biosecurity Regulation 2016*).

If you are unable to do so, you must apply for a biosecurity instrument permit.

Penalties can also apply to individuals and businesses that do not use fire ant-safe practices before moving materials.

It is a legal obligation to report any sighting or suspicion of fire ants within 24 hours to Biosecurity Queensland on 13 25 23.

The Fire Ant Biosecurity Zones as well as general information can be viewed on the DAF website www.daf.qld.gov.au/fireants

Infrastructure charges (Advice)

An Infrastructure Charges Notice accompanies this Development Approval and Levied Charges are applicable. Details of the current value of the Levied Charge, how the Levied Charges were calculated, how the Levied Charge may be escalated, and when payment of the Levied Charge is required can be found on the Infrastructure Charges Notice or the accompanying information notice.

From 1 July 2014, Infrastructure Charges related to the water supply and wastewater network are given by and paid to the Central SEQ Distributor-Retailer Authority, trading as Urban Utilities, and are separate from this Development Approval and the accompanying Infrastructure Charges Notice.

Additional advice about the Infrastructure Charges Notice may be sought from Council's planning section, on (07) 5424 4000 or mail@somerset.qld.gov.au.

Water supply and wastewater (Advice)

Authorisation to connect the approved development to the water supply and wastewater networks and for property service connections require a Water Approval from the Central SEQ Distributor-Retailer Authority, trading as Urban Utilities.

For the approval of a Plan of Subdivision, written evidence from Urban Utilities must be provided to Council to verify that the conditions of any necessary Water Approval have been complied with.

Property access (Advice)

Landowners are responsible for the construction and maintenance of any vehicular access for the property, from the road carriageway to property boundary in accordance with Council's standards.

The application form for a property access approval may be downloaded from Council's website at somerset.qld.gov.au/our-services/roads.

The landowner must have the property access approval in place prior to commencing works on the crossover.

Vegetation clearing (Advice)

Clearing native vegetation, including native vegetation that is a koala habitat, may require additional permits or notifications that are outside of this Development Approval. The landowner is responsible for ensuring that any clearing undertaken complies with requirements of any State or Federal agencies.

Works hours (Advice)

Construction hours are 6:30 am to 6:30 pm Monday to Saturday, with no work to be undertaken on Sundays or public holidays. Noise levels from construction work shall at all times comply with the requirements of the *Environmental Protection Act 1994*.

Operational works (Advice)

Upon receiving the certification by a RPEQ, and submission and approval of as constructed drawings and documentation, Council will accept the works as "On Maintenance".

Council will bond the developer for an amount equal to 5% of the operational works and the Developer is required to maintain all works for a period of 12 months for civil works and 18 months for landscaping (maintenance period) from the date of "On Maintenance". Any defective works must be rectified within the maintenance period.

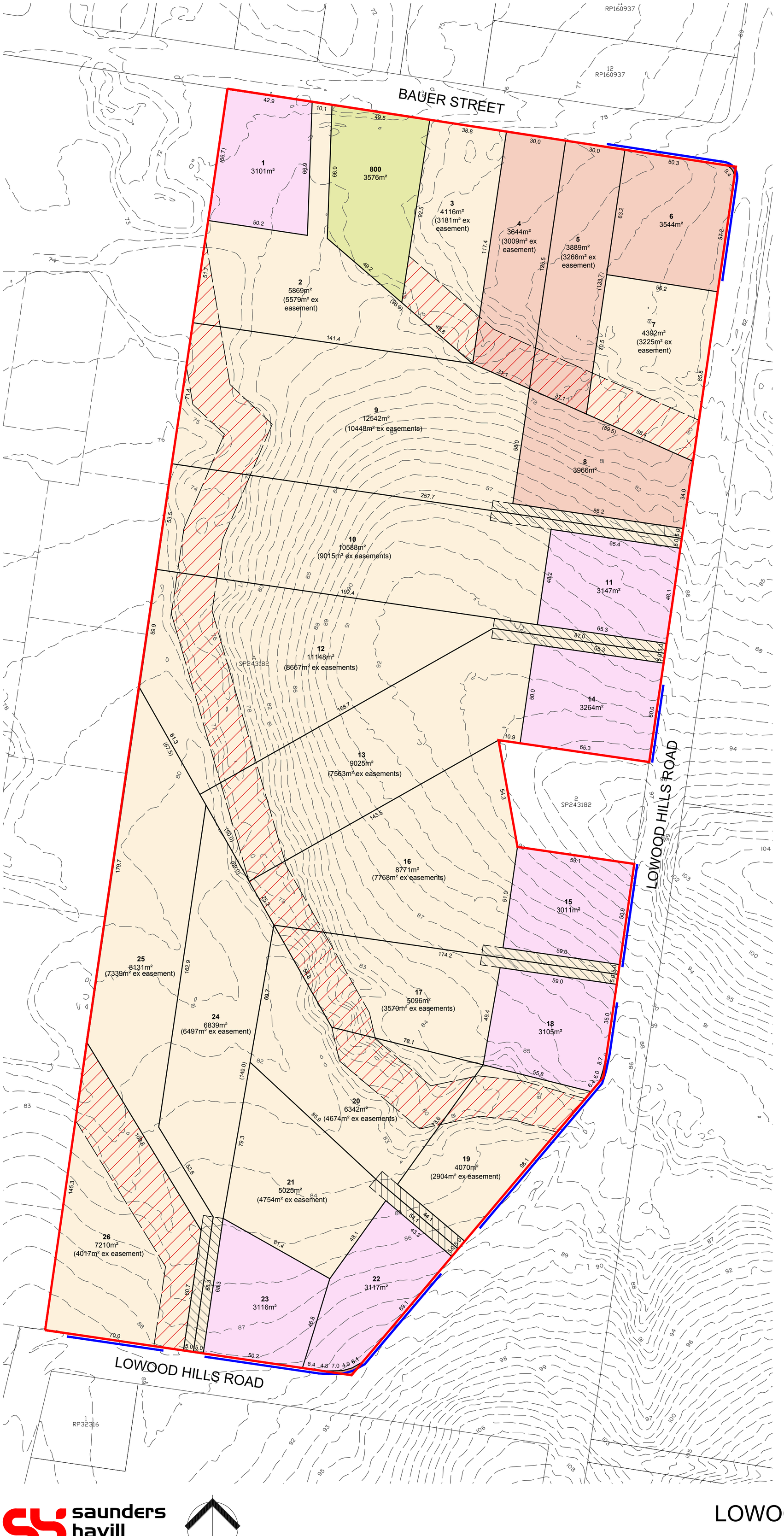
At the end of the maintenance period the works shall be inspected and if satisfactory, shall be placed “Off Maintenance”. Bonds or other securities will be released after the works have been placed “Off Maintenance”.
Approval of Plan of Subdivision (Advice)
The Plan of Subdivision will not be released until all works are completed to Council’s satisfaction or uncompleted works are suitably bonded.

Attachments for the Decision Notice include:

- Proposal Plan, reference 12168 P 03 Rev A – PRO 1, drawn by Saunders Havill Group, dated 19 November 2024
- Stormwater Quality Management Plan, reference C24043AR002, prepared by Hurley Consultant Engineers, dated 25 November 2024
- Flood Study, reference 25020061_R01_V01, prepared by Water Technology, dated 21 November 2024.
- Geotechnical Report, reference PG-12411 GR VER 2, prepared by Pacific Geotech, dated November 2024
- Dispersive Soil Management Plan, reference PG-12411 DSMP VER2 prepared by Pacific Geotech, dated November 2024
- Civil Engineering Services Report, reference C24043AR001, prepared by Hurley Consulting Engineers, dated 25 November 2024

This completes the report for Development Application No 25701.

PROPOSAL PLAN



NOT TO BE USED FOR ENGINEERING DESIGN OR CONSTRUCTION

NOTES

This plan was prepared as a conceptual layout only. The information on this plan is not suitable for any other purpose.

Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions.

No reliance should be placed on the information on this plan for detailed subdivision design or for any financial dealings involving the land.

Pavements and centrelines shown are indicative only and are subject to Engineering Design.

Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

PROJECTION: GDA2020 MGA56

SUBJECT BOUNDARIES: COMPILED FROM RECORD

CONTOURS: ELVIS - LIDAR

LOCAL OVERLAYS: SOMEREST REGIONAL COUNCIL

LEGEND

- Site Boundary
- Major Contour (1.0m interval)
- Proposed Easement for Drainage Purposes
- Proposed Access Easements 10m wide
- Road Widening
- No Access to Lowood Hills Road

NOTE: EXISTING EASEMENT A/SP243182 TO BE EXTINGUISHED

DEVELOPMENT STATISTICS			
RESIDENTIAL ALLOTMENTS	**No. Lots**	**%**	**Net Area**
3000m² - < 3500m²	7	26.9%	2.186 ha
3500m² - < 4000m²	4	15.4%	1.504 ha
> 4000m²	15	57.7%	10.916 ha
Total Residential Allotments	**26**	**100.0%**	**14.606 ha**
Land Budget	**Area (Ha)**	**%**	
Area of Subject Site / Stage	14.969 ha	—	
Net Residential Area (no roads)	14.607 ha	97.6%	
Detention / Drainage	0.358 ha	2.4%	
Road Widening	0.004 ha	0.0%	
Total	**14.969 ha**	**100.0%**	

RP DESCRIPTION: Lot 1&3 on SP243182

SCALE @A1 1:1000 @A3 1:2000 - LENGTHS ARE IN METRES

10 0 10 20 30 40 50 60 70 80 90 100 110 120

saunders havill group

LOWOOD HILLS PTY LTD

LOWOOD HILLS ROAD, LOWOOD • 19/11/2024 • 12168 P 03 Rev A - PRO 01

PROPOSAL PLAN

NOT TO BE USED FOR ENGINEERING DESIGN OR CONSTRUCTION

NOTES

This plan was prepared as a provisional layout to accompany a development application. The information on this plan is not suitable for any other purpose.

Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions.

No reliance should be placed on the information on this plan for detailed subdivision design or for any financial dealings involving the land.

Pavements and centrelines shown are indicative only and are subject to Engineering Design.

Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

PROJECTION - GDA2020 MGA56
SUBJECT BOUNDARIES OBTAINED FROM DETAIL SURVEY BY SHG DATED 12.05.2023

LEGEND

- Site Boundary
- Contour (2.0m interval)
- Proposed Easement for Drainage Purposes
- (1) Stage Number
- Stage Boundary

DEVELOPMENT STATISTICS			
RESIDENTIAL ALLOTMENTS	**No. Lots**	**%**	**Net Area**
3000m² - < 3500m²	40	50.6%	12.378 ha
3500m² - < 4000m²	5	6.3%	1.879 ha
4000m² - < 4500m²	30	38.0%	12.390 ha
> 4500m²	4	5.1%	1.848 ha
Total Residential Allotments	**79**	**100.0%**	**28.495 ha**
Land Budget	**Area (Ha)**	**%**	
Area of Subject Site / Stage	41.723 ha	—	
Net Residential Area (no roads)	28.495 ha	68.3%	
Detention / Drainage	1.096 ha	2.6%	
Open Space / Drainage Corridor	7.014 ha	16.8%	
Road Areas	5.118 ha	12.3%	
Total	**41.723 ha**	**100.0%**	

RP DESCRIPTION: Lot 346 on CH31687

SCALE @A1 1:2000 @A3 1:4000 - LENGTHS ARE IN METRES

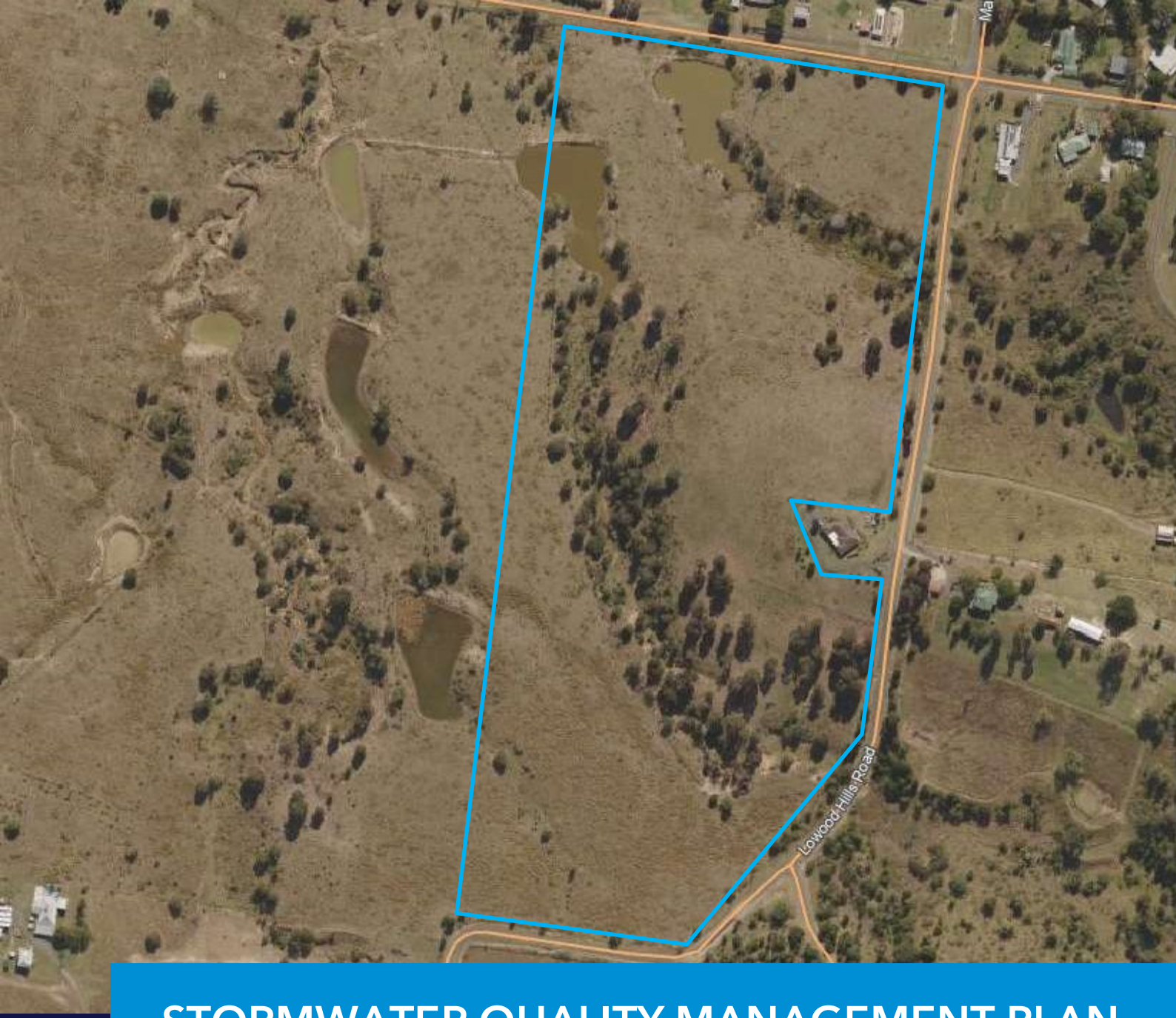
20 0 20 40 60 80 100 120 140 160 180 200 220

APPROVED
Somerset Regional Council
for the ASSESSMENT MANAGER
DA21989 14 February 2024

saunders havill group

NORFOLK ESTATES PTY LTD

BAUER STREET, LOWOOD ● 24/11/2023 ● 10620 P 04 Rev K-CON 01



STORMWATER QUALITY MANAGEMENT PLAN

PROPOSED RESIDENTIAL SUBDIVISION
LOWOOD HILLS ROAD, LOWOOD

PREPARED FOR LOWOOD HILLS PTY LTD
C24043AR002

HURLEY
CONSULTING ENGINEERS

TABLE OF CONTENTS

Revision	Date	Author	Verifier	Approver
A	25/11/2024	ND	MB	CH

Approved for issue for and on behalf of Hurley Consulting Engineers Pty Ltd

Craig Hurley BE(Civil) MIEAust CPEng RPEQ 15957
Director & Principal Civil Engineer

1 INTRODUCTION

Hurley Consulting Engineers has been commissioned by Lowood Hills Pty Ltd to prepare a Stormwater Quality Management Report for the proposed residential development located at Lowood Hills Road, Lowood. The development will involve dividing two large undeveloped lots into 26 large residential lots as shown on the Layout plan prepared by Saunders Havill Group enclosed in **Appendix A**.

The intent of this report is to consider potential impacts that the proposed development will have on stormwater runoff in the vicinity of the site and if required, propose strategies to manage any impacts for stormwater quality. This report will address the stormwater drainage requirements of the Somerset Regional Council planning scheme, Queensland Urban Drainage Manual, and the State Planning Policy (July 2017).

2 SITE DESCRIPTION

The subject site is located on land described as Lots 1 and 3 on SP243182. The site has a total area of approximately 14.97 hectares and is located within the Somerset Regional Council local government area.

Figure 2.1 – Locality Plan

Image Source: QLD Globe 2024

The site is bounded by Bauer Street to the north, Lowood Hills Road to the south and east and undeveloped land to the west. It is understood that the adjacent lot to the west is approved for a multi-stage residential development (one lot into 79 lots, new road open space and drainage) by Somerset Regional Council under the development approval reference DA21989.

The site is currently zoned for General Residential use. The site has previously been approved for a 129-lot subdivision under DA10362, Assessment No: 02628-00000-000. Details of the approved development including subdivision layout plan and decision notice have been attached in **Appendix C**.

3 STORMWATER QUANTITY

Somerset Regional Council online mapping identifies a portion of the site as a potential flood hazard area. Flows are conveyed north and ultimately discharge to the Brisbane River, north-east of the site. The site ranges in elevation from approximately RL 95m AHD at the centre of the eastern boundary to RL 74m AHD at the north-western corner of the site. The site generally grades from the southern and eastern boundaries to the north-western corner of the site.

Figure 3.1 - Somerset Regional Council Flood Hazard Overlay

There are three identified overland flow paths which receive flows from external upstream catchments that pass through the site. The overland flow paths discharge over the western boundary and over the north-western corner of the site.

It is proposed to generally maintain the existing flow paths and discharge points through the site. Minor earthworks will be performed to minimise the extent of overland flow overtopping the existing channel to maximise the developable area of the site. All lots will have sufficient flood free access and immunity from major storm events.

A flood study was prepared discussing the downstream impacts of the proposed development. The study found that downstream detention is required to manage flows. It is proposed that the existing dam at the north-western corner of the site be converted to a detention basin. Additional information is provided in the Flood Study prepared by Water Technology, including assessment of flood impacts resulting from the development.

A review of detailed survey data along with council's interactive infrastructure mapping tool revealed there is limited existing stormwater infrastructure surrounding the site. The existing infrastructure is limited to a number of culvert crossings along Bauer Street and Lowood Hills Road, as well as existing turf swales within verges.

Each lot is proposed to discharge flows overland, which will flow into one of the overland flow paths within the site. The internal and external stormwater drainage network is shown on the concept civil servicing plan enclosed in **Appendix B**. All details are subject to confirmation during detailed design.

4 STORMWATER QUALITY

4.1 Introduction

This section of the report aims to identify the requirements for stormwater quality treatment for the operational phase of the proposed development, and to identify suitable stormwater treatment requirements to comply with Somerset Regional Council planning scheme requirements.

4.2 Water Quality Objectives

Somerset Regional Council sets out the water quality objectives for any development in the Performance Outcome 11 (PO11) of the Services, Works and Infrastructure Code in the Planning scheme. An excerpt is provided below:

Water quality objectives	
PO11 *Development* implements stormwater quality treatment measures that do not *adversely impact on water quality*.	**AO11.1** A site-based stormwater quality management plan (SQMP) is prepared, and provides for achievable stormwater quality treatment measures that meet design objectives listed in Table 8.3.5.3.B (SQMP Construction Phase) and Table 8.3.5.3.C (SQMP Post Construction Phase), or current best practice environmental management.

Figure 4.1 - Except PO11 of the Services, Works and Infrastructure Code (Somerset Regional Council Planning Scheme)

Freehold residential subdivisions typically achieve the pollutant reduction targes via bioretention basins that are owned and maintained by the local government. However, given the topography of this site, multiple fractured bio-retention basins would be required, which would place an unnecessary maintenance burden on Council.

4.3 Water Quality Management Strategy

The development proposes to implement stormwater quality measures that achieve the WQO'S by minimising the development footprint, avoiding new public roads, and minimising the increase in impervious area across the development. These strategies reduce pollutant loads at the source without the need for an ongoing maintenance burden for Council and the community associated with end of line treatment devices such as bioretention.

The site is zoned as General Residential under the current planning scheme and has been previously approved for an urban residential subdivision (refer **Appendix C**). Rather than adopting the development density of the previous approval, the development proposes to provide a series of larger residential lots. The voluntary reduction in development density is intended to achieve similar residual pollutant loads as a higher density urban development with formal stormwater quality treatment measures.

This at-source pollutant reduction strategy satisfies AO11 of Somerset Regional Council Services, works and infrastructure code directly by implementing *current best practice environmental management*. We further note that this strategy eliminates the need for end of line treatment devices, reducing the maintenance burden imposed on Council.

Detailed MUSIC modelling has been undertaken to demonstrate the effectiveness of this strategy by comparing the stormwater quality outcomes of a treated higher density urban development (based on the previous lapsed approval) against the current proposed lower density development. Each scenario will be nominated as "Fully Developed Scenario" and "Proposed Layout Scenario" respectively.

4.4 Recorded Rainfall Data

Rainfall data used in the MUSIC model for the site was taken from the Kirkleigh Rain Station (ID 40318) between 01/01/1980 and 31/12/1989 in accordance with the Water by Design – MUSIC Modelling Guidelines (2010). Rainfall over this period was modelled using MUSIC and a 6-minute time step to calculate the pollutant generation and treatment effectiveness of the proposed treatment system.

4.5 Rainfall-Runoff Parameters

MUSIC rainfall-runoff parameters were taken in accordance with the Water by Design – MUSIC Modelling Guidelines (2010) using Urban Residential land use parameters, as tabulated in **Table 4.1** below:

Parameter	Value
Rainfall threshold (mm)	1
Soil storage capacity (mm)	500
Initial storage (%)	10
Field capacity (mm)	200
Infiltration capacity coefficient a	211
Infiltration capacity exponent b	5
Initial depth (mm)	50
Daily recharge rate (%)	28
Daily baseflow rate (%)	27
Daily deep seepage rate	0

Table 4.1 – Rainfall–Runoff Parameters

4.6 Catchment Areas & Source Nodes

4.6.1 Methodology

To analyse the effectiveness of this strategy, the impact of the change in development density was assessed. The catchment areas used for the water quality assessment are limited to the subject site and do not include the drainage easements and corridors running through the site. **Table 4.2** below shows the calculations and the average density for each development scenario.

Scenario	Number of Lots	Average Density
Fully Developed (DA10362)	129	10.75 lots/ha
Proposed Scenario	26	2.02 lots/ha

Table 4.2 - Average Development Density Yield Calculation

The fully developed scenario in the MUSIC model was split into separate land use catchments, based on the development density in **Table 4.2** and the recommended typical breakdown of surface type distribution as per the MUSIC Guidelines. The distribution was then applied to the proposed development footprint area of approximately 12.906 hectares.

The proposed scenario was also split into separate land use catchments based on the proposed layout plan prepared by Saunders Havill Group, enclosed in **Appendix A**. Areas for the roof node and road node have been assumed based on an average house (roof) size of 250m^2 per lot and driveway of 300m^2 per lot. A conservative fraction of imperviousness of 100% for driveways (road) has been adopted in this scenario. **Table 4.3** shows the proposed land-use catchment areas for each scenario.

Catchment	Sub-catchment	Breakdown	Area	Imperviousness
Fully Developed (DA10362)	Road	25%	3.227 ha	60%
	Roof	25%	3.227 ha	100%
	Ground	50%	6.453 ha	15%
	Total		**12.906 ha**	
Proposed Scenario	Road	6%	0.780 ha	100%
	Roof	5%	0.650 ha	100%
	Ground	89%	11.476 ha	15%
	Total		**12.906 ha**	

Table 4.3 – MUSIC Modelling Split Catchments

4.7 Pollutant Export Parameters

Pollutant export parameters were taken in accordance with Water by Design – MUSIC Modelling Guidelines (2010) using Urban land use parameters. The split catchment approach was utilised for each surface type, with the input parameters shown in **Table 4.4**.

Source	Land Use	Residential			Commercial			Industrial		
	Flow Type	Roof	Road	Ground	Roof	Road	Ground	Roof	Road	Ground
TSS	Baseflow	N/A	1.00	1.00	N/A	0.78	0.78	N/A	0.78	0.78
	St. Dev	N/A	0.34	0.34	N/A	0.39	0.39	N/A	0.45	0.45
	Stormflow	1.30	2.43	2.18	1.30	2.43	2.16	1.30	2.43	0.44
	St. Dev	0.39	0.39	0.39	0.38	0.38	0.38	0.44	1.92	0.44
TP	Baseflow	N/A	-0.97	-0.97	N/A	-0.60	-0.60	N/A	-1.11	-1.11
	St. Dev	N/A	0.31	0.31	N/A	0.50	0.50	N/A	0.48	0.48
	Stormflow	-0.89	-0.30	-0.47	-0.89	-0.30	-0.39	-0.89	-0.30	-0.59
	St. Dev	0.31	0.31	0.31	0.34	0.34	0.34	0.36	0.36	0.36
TN	Baseflow	N/A	0.20	0.20	N/A	0.32	0.32	N/A	0.14	0.14
	St. Dev	N/A	0.20	0.20	N/A	0.30	0.30	N/A	0.20	0.20
	Stormflow	0.26	0.26	0.26	0.37	0.37	0.37	0.25	0.25	0.25
	St. Dev	0.23	0.23	0.23	0.34	0.34	0.34	0.32	0.32	0.32

Table 4.4 – Pollutant Export Parameters

4.8 Proposed Treatment Device Details

4.8.1 Fully Developed Scenario

A generic treatment node was included in the Fully Developed model to represent a stormwater treatment system that achieves the water quality objectives as per Table 8.3.5.3.C – SQMP Post Construction Phase found in the Somerset Regional Planning Scheme Services, works and infrastructure code. A schematic of the MUSIC model for this scenario is shown in **Figure 4.2**.

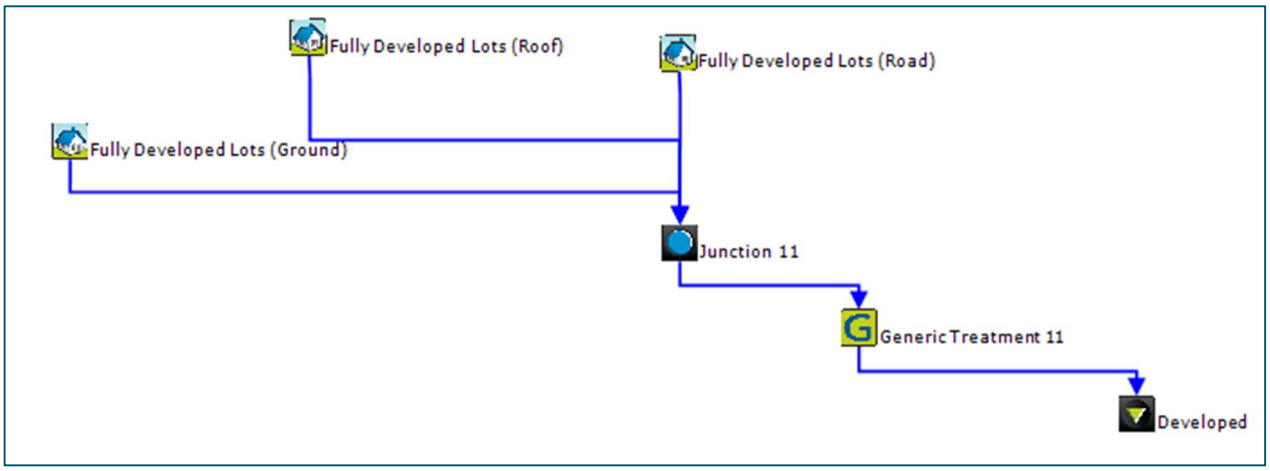


Figure 4.2 - MUSIC Model Schematic - Fully Developed Scenario

4.8.2 Proposed Developed Scenario

It is proposed that lawful points of discharge for each lot will be provided via a roofwater connection, discharging into a swale along the low side of the property. An assumed average swale length of 30m per lot will be provided at each outlet.

Flows captured in the swales will receive some treatment prior to being discharged into the overland flow path, and thus are included in the treatment train in the MUSIC model. The swale input paraments can be seen in **Table 4.5** below and a schematic of the MUSIC model for this scenario in **Figure 4.3**

Parameter	Value
Length (m)	780 (30m per lot average)
Bed Slope (%)	3
Base Width (m)	1
Top Width (m)	5
Depth (m)	0.5
Vegetation Height (m)	0.25

Table 4.5 – Swale Input Parameters

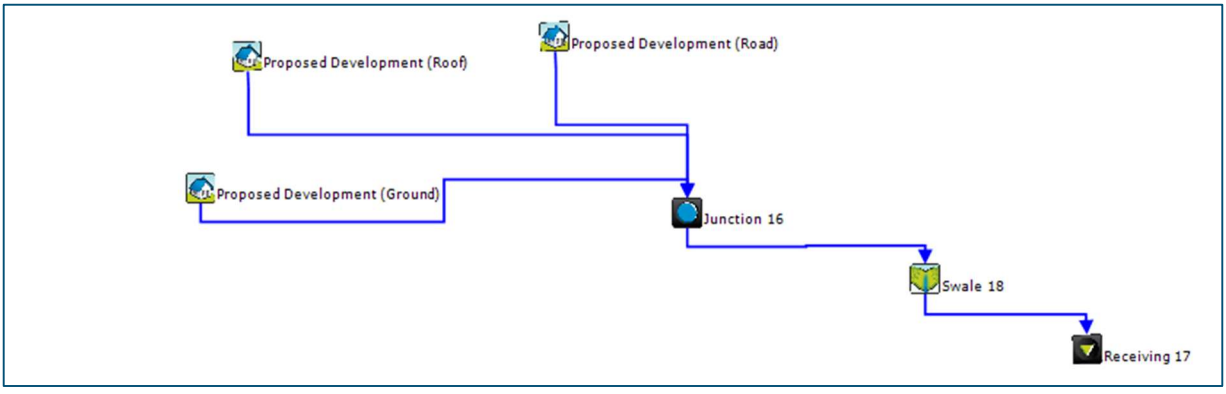


Figure 4.3 - MUSIC Model Schematic - Proposed Layout Scenario

4.9 MUSIC Modelling Results

Table 4.6 shows the residual pollutant load of the fully developed scenario after compliant treatment.

Pollutant	Source (kg/yr)	Residual Load (kg/yr)	Water Quality Targets	MUSIC Results
Total Suspended Solids	19799.80	**3959.96**	80%	80%
Total Phosphorus	33.90	**13.56**	60%	60%
Total Nitrogen	121.78	**66.98**	45%	45%
Gross Pollutants	1579.26	**0.00**	90%	90%

Table 4.6 – Water Quality Modelling Results – Fully Developed Scenario

The residual load generated by the proposed development are compared to the maximum permissible pollutant loads from the treated full developed scenario are presented in **Table 4.7**. These results compare the effectiveness of the at source pollutant load reduction (via a reduction in the road area and imperviousness) with bioretention or similar end of line treatment for an accepted higher density development outcome.

Pollutant	Residual Load (kg/yr)	
	Fully Developed	Proposed
Total Suspended Solids (kg/yr)	3959.96	1419.04
Total Phosphorus (kg/yr)	13.56	6.38
Total Nitrogen (kg/yr)	66.98	63.92
Gross Pollutants (kg/yr)	0.00	0.00

Table 4.7 – Water Quality Modelling Results

Table 4.7 demonstrates that the proposed development is expected to generate less pollutants than the treated Fully Developed scenario by reducing the development footprint and imperviousness and providing formal stormwater treatment via grassed swales. This treatment strategy avoids an ongoing maintenance burden for Council and the community by eliminating the need for several bioretention basins in public ownership.

As such, the proposed strategy and management plan has been demonstrated to comply with PO11 and AO11 of Somerset Regional Council Services, works and infrastructure code by adopting *current best practice environmental management* techniques and strategies.

5 CONCLUSION

Hurley Consulting Engineers has been commissioned by Lowood Hills Pty Ltd to prepare a Stormwater Quality Management Report for the proposed residential development located at Lowood Hills Road, Lowood. The development will involve dividing two large undeveloped lots into 26 large residential lots as shown on the Layout Plan prepared by Saunders Havill Group enclosed in **Appendix A**.

The site is identified as being impacted by overland flow and has been assessed in a separate report prepared by Water Technology. It is proposed to each lot will have a roofwater connection that discharges into a swale within each respective property, that ultimately discharges into the overland flow paths. The internal and external stormwater drainage networks are shown on the concept civil servicing plan enclosed in **Appendix B**.

The development proposes to manage residual pollutant loads by minimising the development footprint of the site and the increase in impervious area across the development. This reduces the pollutants generated by the development at the source without the need for end of line bioretention basins.

This report demonstrated that the proposed development will have no adverse stormwater quality impacts off site when compared to a fully developed scenario (based on the previous approval under Council reference number DA10362) with adequate stormwater quality treatment. The proposed strategy and management plan has been shown to comply with PO11 and AO11 of Somerset Regional Council Services, works and infrastructure code by adopting *current best practice environmental management* techniques and strategies.

Construction phase stormwater quality can be managed by implementing appropriate erosion and sediment control techniques during the construction phase. Erosion and sediment control guidance is given in the International Erosion Control Association (IECA) Australasia Best Practice Erosion and Sediment Control (BPESC) document. The IECA BPESC documents are available for download from the IECA website.

This report has reviewed stormwater drainage impacts associated with the proposed development for stormwater quality. The development can comply with Somerset Regional Council and QUDM requirements, and no stormwater drainage constraints have been identified that, in our opinion, would preclude approval of the proposed development with reasonable and relevant conditions.

Appendix A – Development Layout Plan

PROPOSAL PLAN

NOT TO BE USED FOR ENGINEERING DESIGN OR CONSTRUCTION

NOTES

This plan was prepared as a conceptual layout only. The information on this plan is not suitable for any other purpose.

Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions.

No reliance should be placed on the information on this plan for detailed subdivision design or for any financial dealings involving the land.

Pavements and centrelines shown are indicative only and are subject to Engineering Design.

Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

PROJECTION: GDA2020 MGA56

SUBJECT BOUNDARIES: COMPILED FROM RECORD

CONTOURS: ELVIS - LIDAR

LOCAL OVERLAYS: SOMERSET REGIONAL COUNCIL

LEGEND

- Site Boundary
- Major Contour (1.0m interval)
- Proposed Easement for Drainage Purposes
- Proposed Access Easements 10m wide
- Road Widening
- No Access to Lowood Hills Road

NOTE: EXISTING EASEMENT A/SP243182 TO BE EXTINGUISHED

DEVELOPMENT STATISTICS			
RESIDENTIAL ALLOTMENTS	**No. Lots**	**%**	**Net Area**
3000m² - < 3500m²	7	26.9%	2.186 ha
3500m² - < 4000m²	4	15.4%	1.504 ha
> 4000m²	15	57.7%	10.916 ha
Total Residential Allotments	**26**	**100.0%**	**14.606 ha**
Land Budget	**Area (Ha)**	**%**	
Area of Subject Site / Stage	14.969 ha	—	
Net Residential Area (no roads)	14.607 ha	97.6%	
Detention / Drainage	0.358 ha	2.4%	
Road Widening	0.004 ha	0.0%	
Total	**14.969 ha**	**100.0%**	

RP DESCRIPTION: Lot 1&3 on RP243182

SCALE @A1 1:1000 @A3 1:2000 - LENGTHS ARE IN METRES

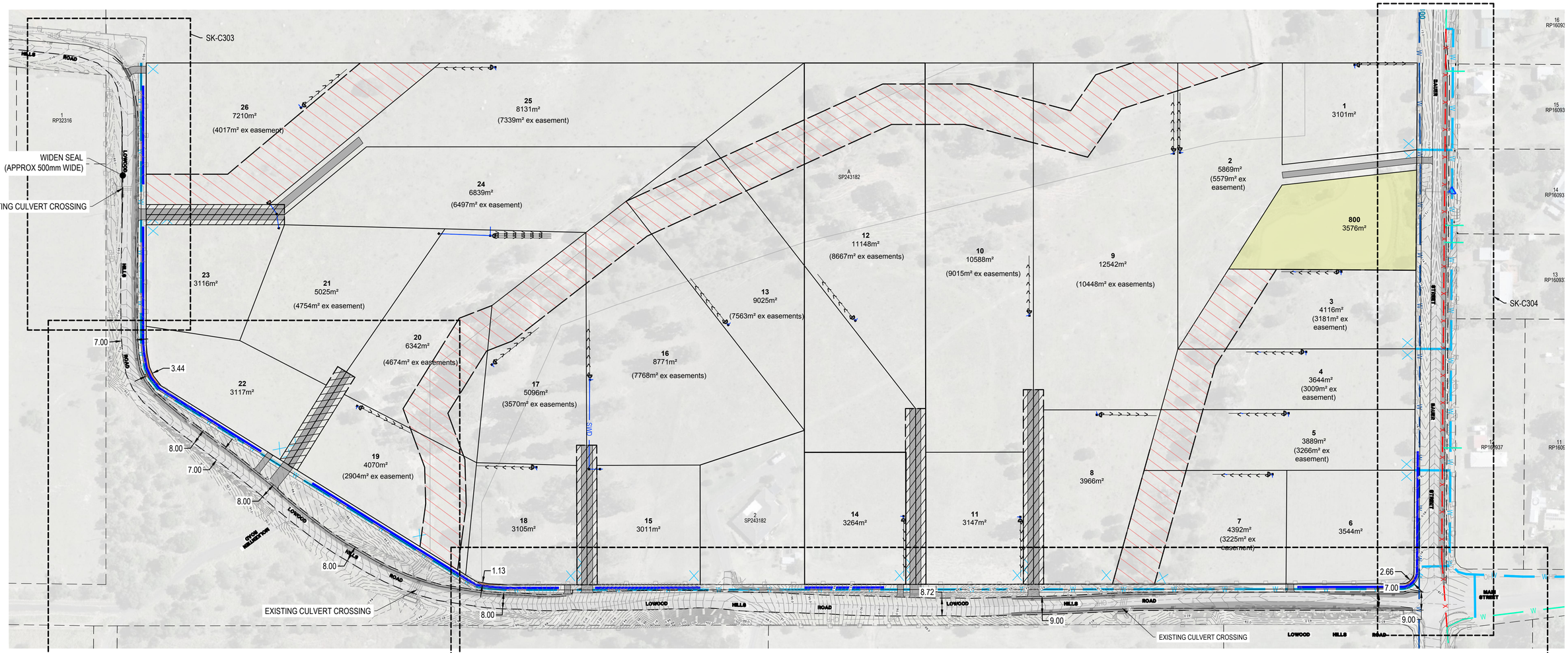
10 0 10 20 30 40 50 60 70 80 90 100 110 120

saunders havill group

LOWOOD HILLS PTY LTD

LOWOOD HILLS ROAD, LOWOOD • 19/11/2024 • 12168 P 03 Rev A - PRO 01

Appendix B – Conceptual Civil Plans

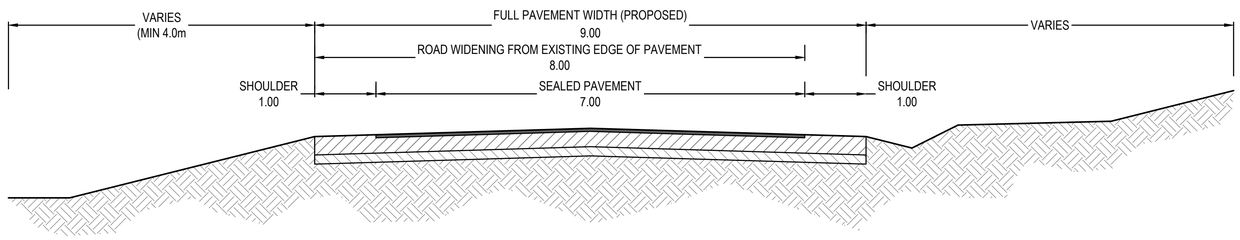


PROPOSED LEGEND

- WATER MAIN AND SERVICE/METER
- ROAD WIDENING, SHOULDER & EDGE OF BITUMEN
- SWALE DRAIN
- NO DIRECT ACCESS
- SHARED REAR LOT ACCESS EASEMENT
- OVERLAND FLOW EASEMENT

EXISTING LEGEND

- 600mm DIA. TRUNK WATER MAIN
- WATER RETICULATION MAIN
- REDUNDANT WATER MAIN
- ROAD CENTERLINE AND EDGE OF BITUMEN
- OVERHEAD POWER LINES
- EXISTING SURFACE CONTOUR



TYPICAL SECTION RURAL COLLECTOR ROAD
REFER TO COUNCIL'S STANDARD DRAWING SRC-ROAD-009 & 010

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LOT DESCRIPTION:
LOT 1 SP243182, LOT 3 SP243182 & LOT A SP243182
LEVEL DATUM:
-
APPROVED FOR AND ON BEHALF OF HURLEY CONSULTING ENGINEERS PTY LTD:
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RPEQ NO:

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PROJECT:
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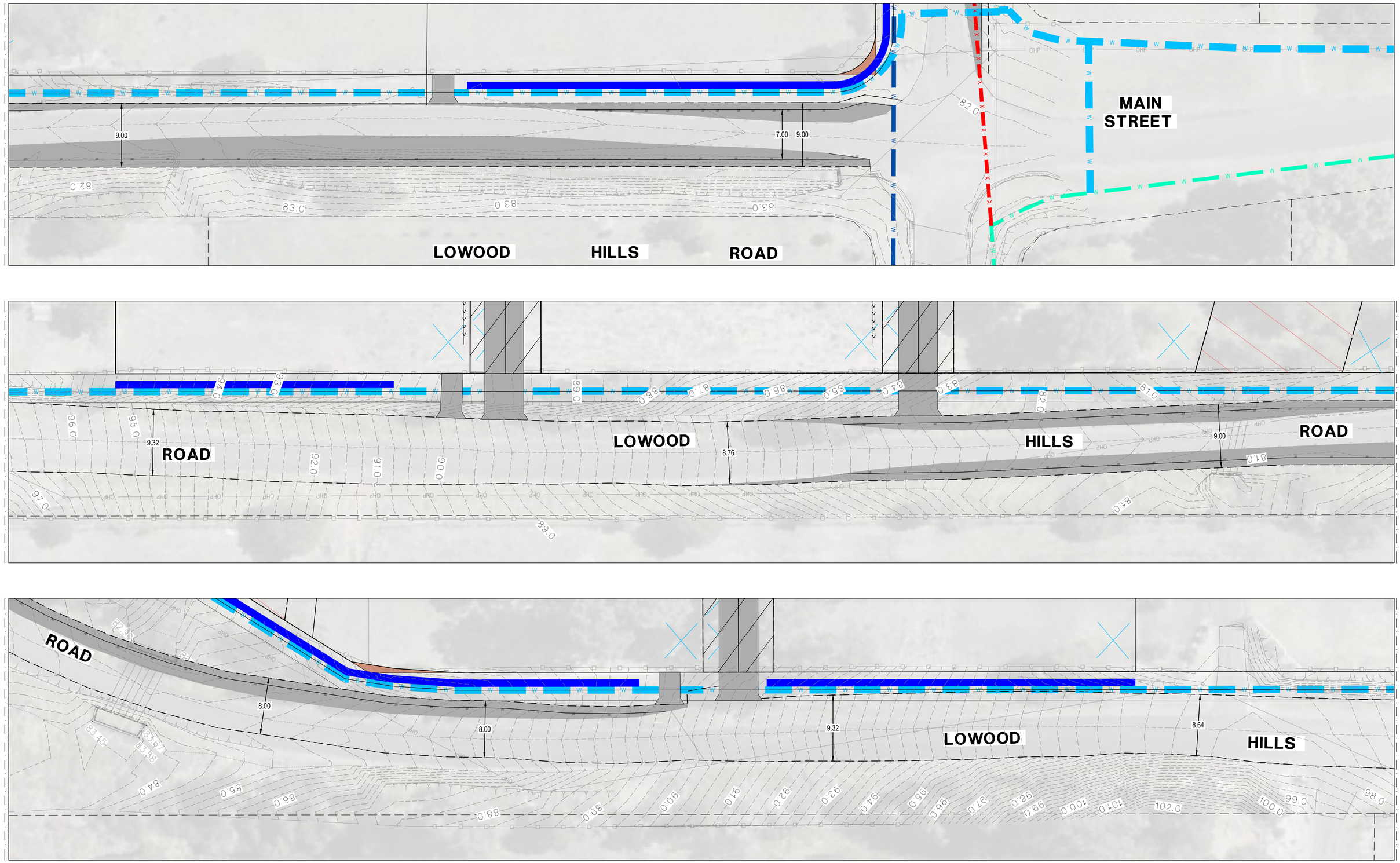
AT LOWOOD HILLS ROAD, LOWOOD
CLIENT:
LOWOOD HILLS PTY LTD

DRAWING TITLE:
CONCEPTUAL ROADWORKS LAYOUT PLAN
LOCAL GOVERNMENT AUTHORITY AND DEVELOPMENT APPLICATION NO:
SOMERSET REGIONAL COUNCIL
ORIGINAL SIZE: A1
DRAWING No.: C24043A-SK-C300



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CLIENT:
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DRAWING TITLE:
CONCEPTUAL ROADWORKS INSET LOWOOD HILLS ROAD 1 OF 3

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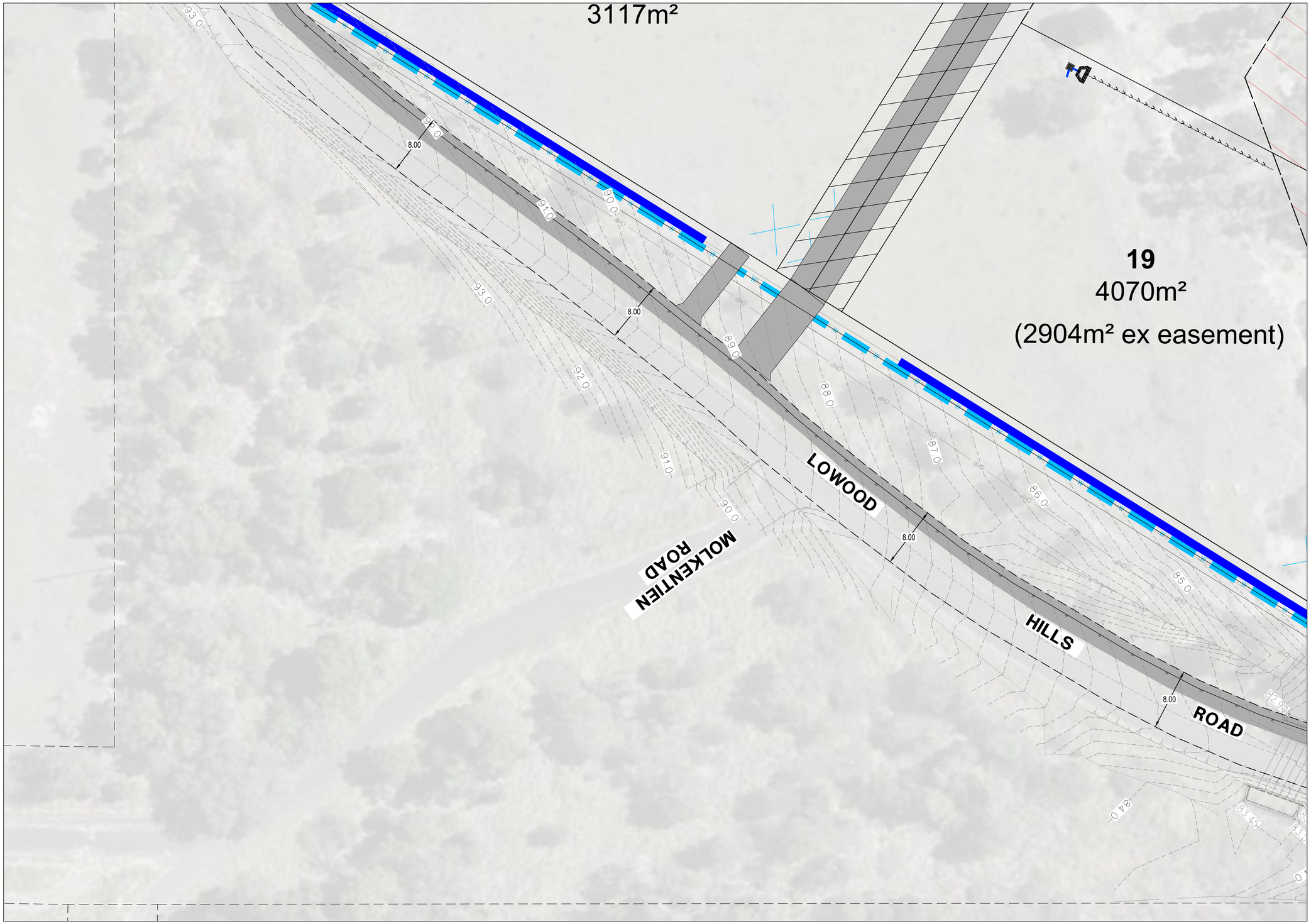

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AT LOWOOD HILLS ROAD, LOWOOD

CLIENT:
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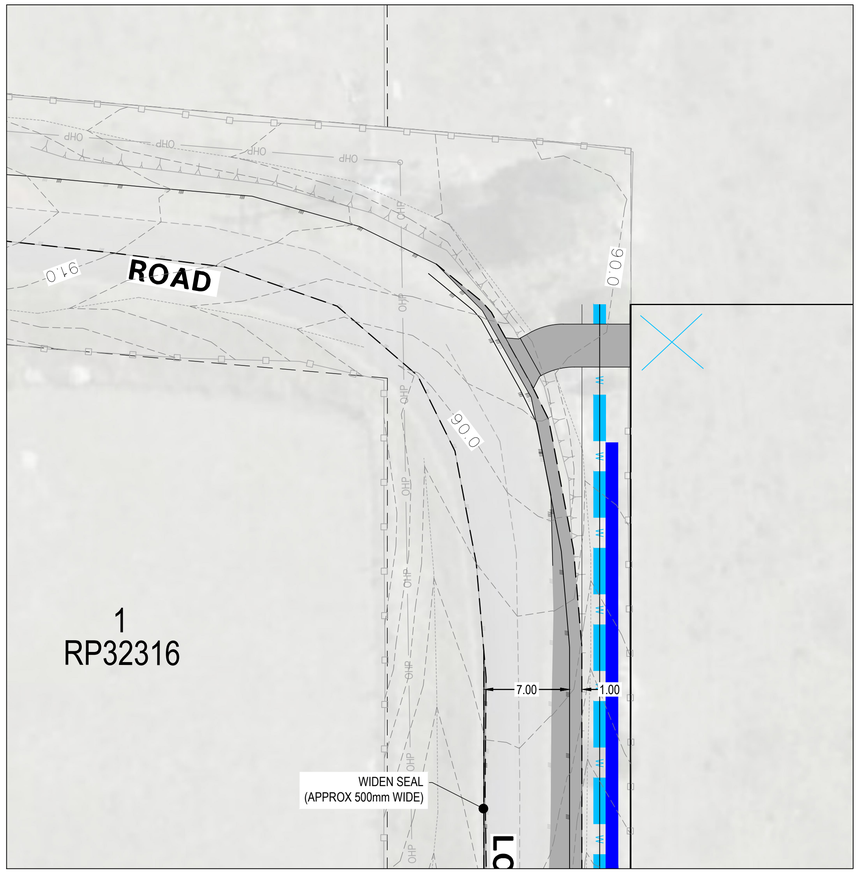

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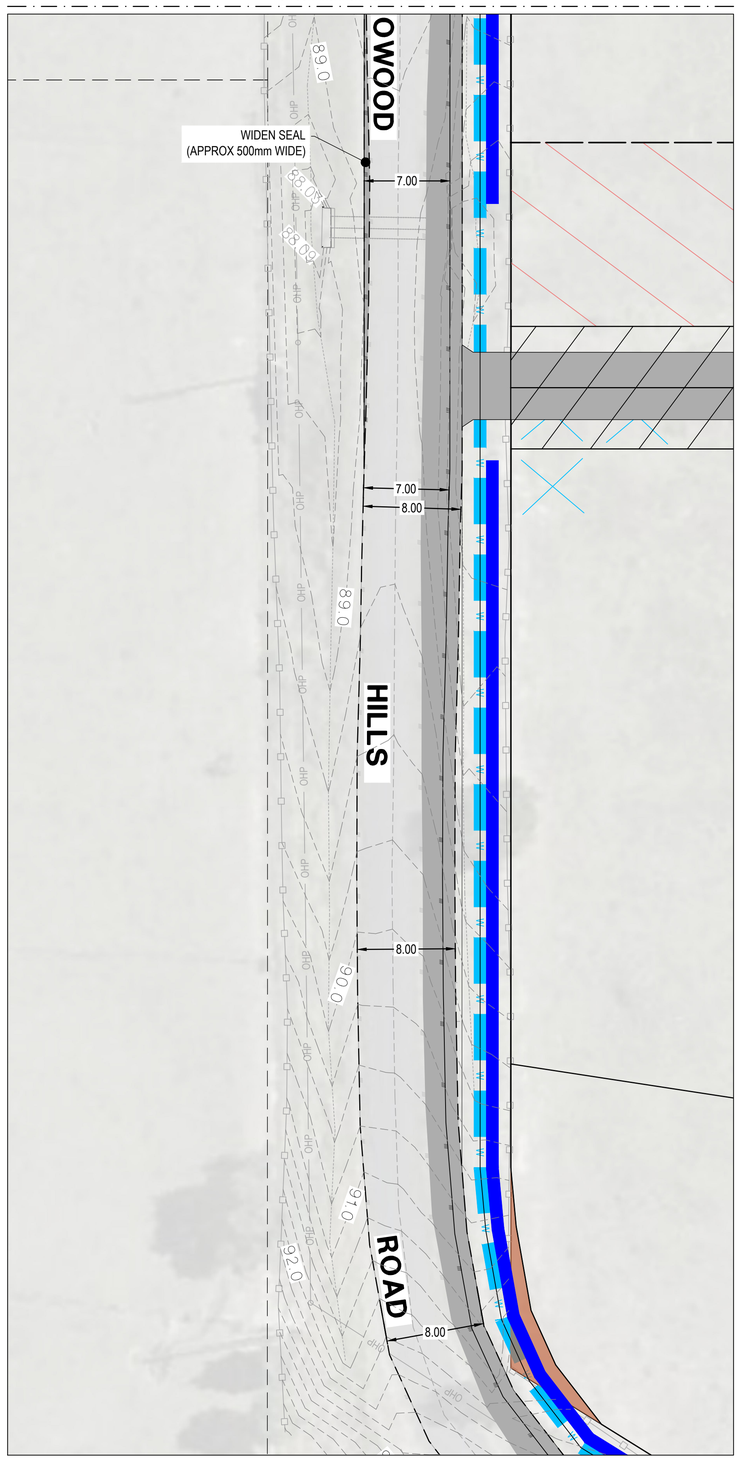

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AT LOWOOD HILLS ROAD, LOWOOD

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ORIGINAL SIZE:
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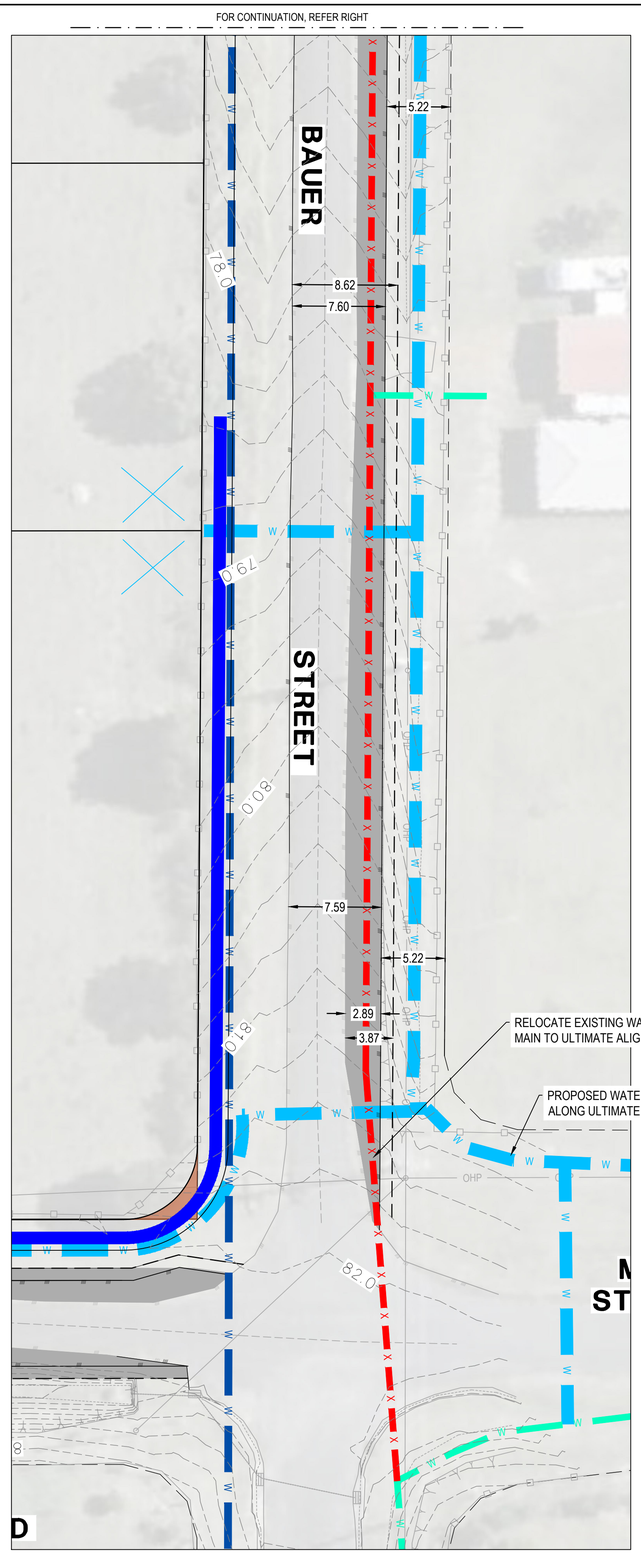

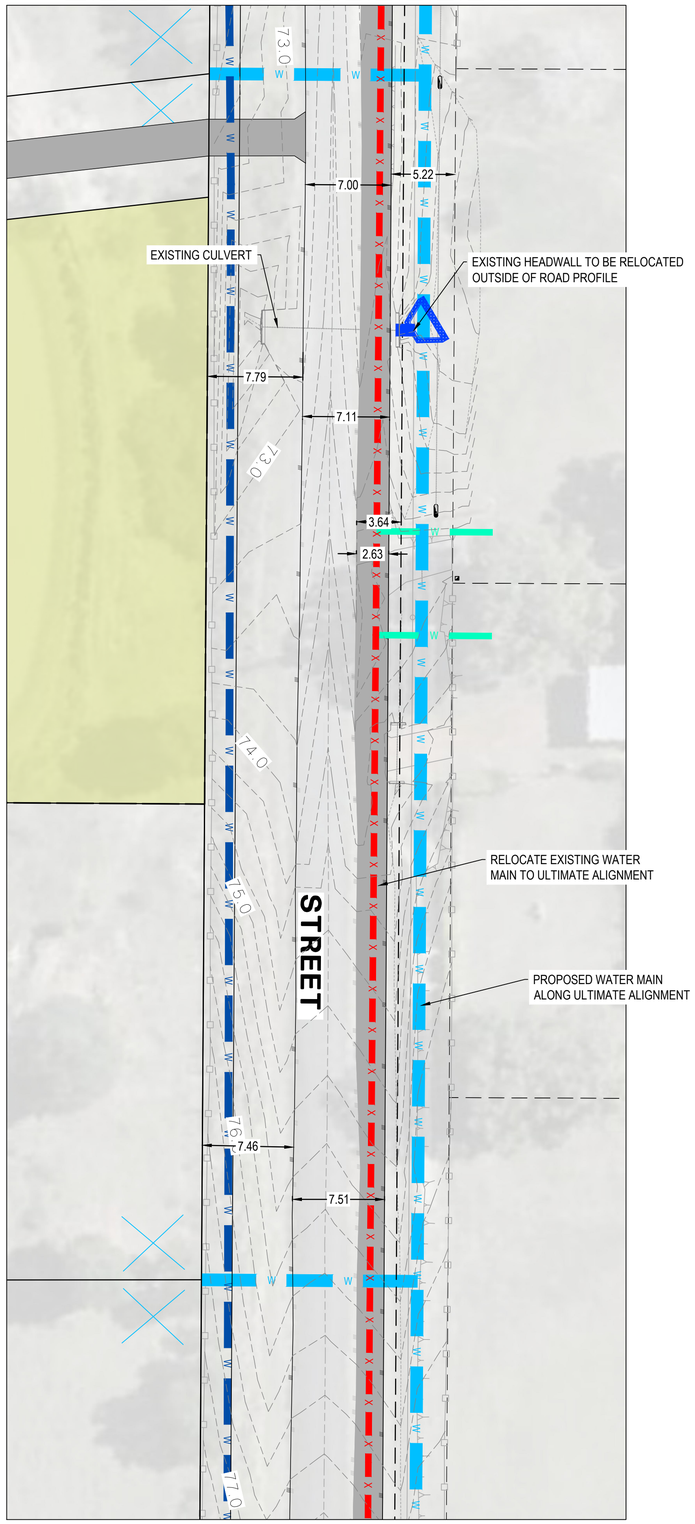

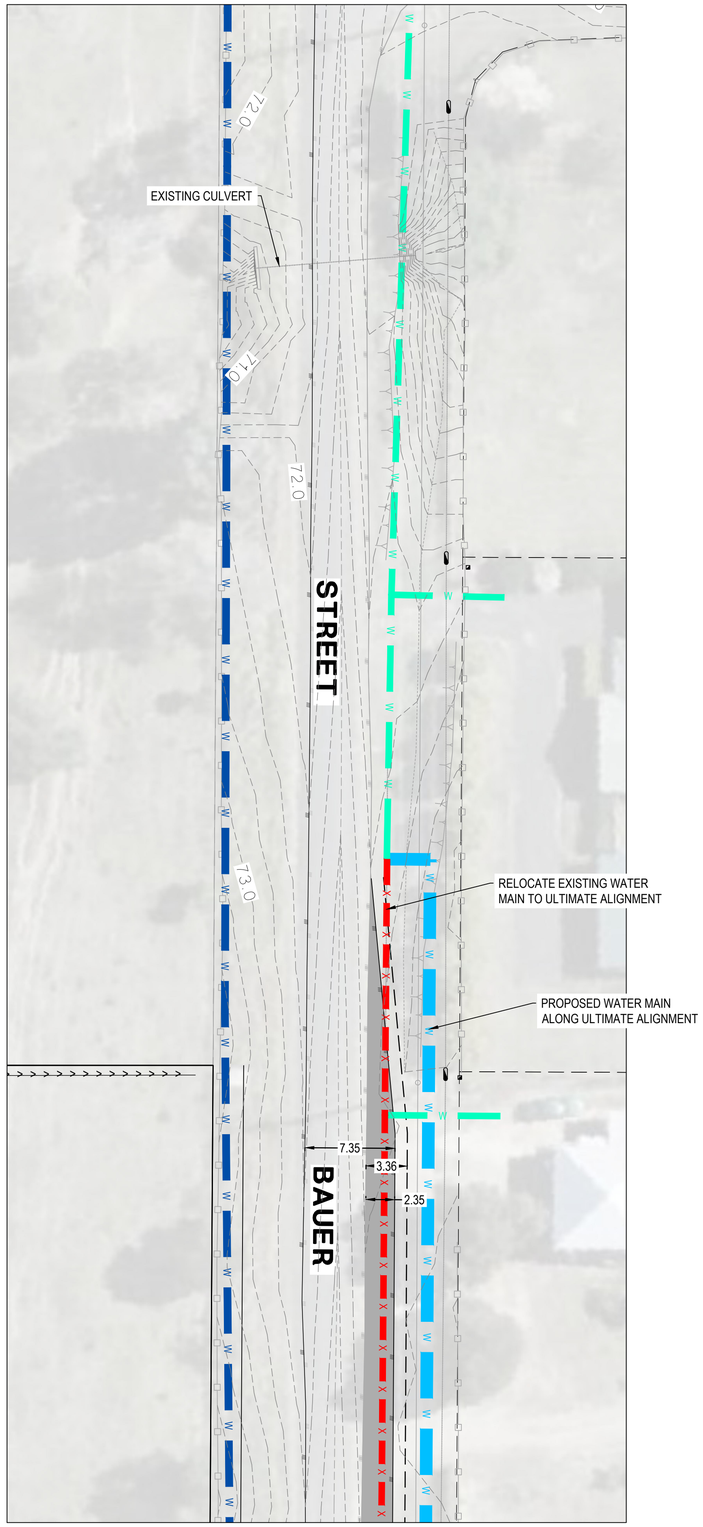

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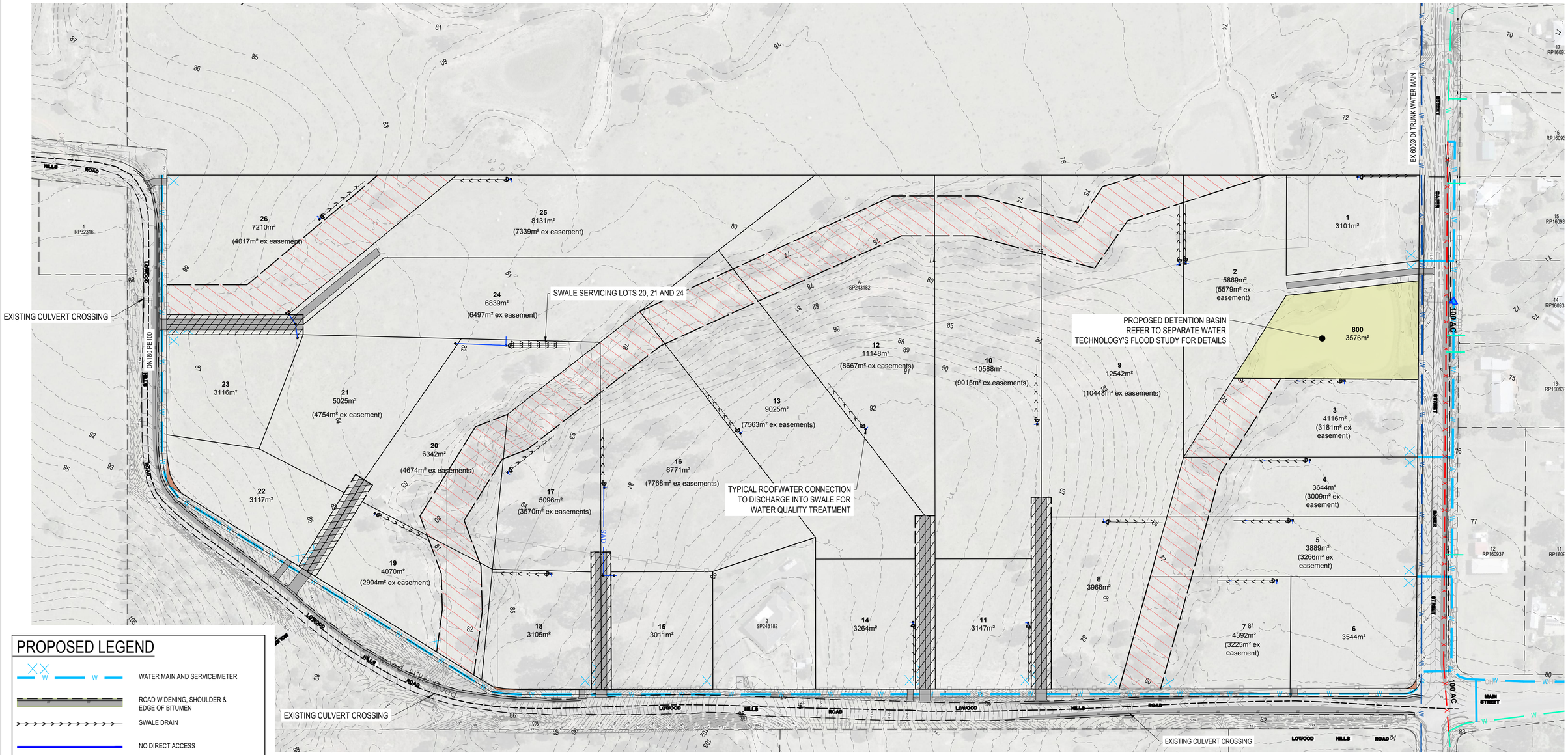
PROJECT:
RURAL RESIDENTIAL SUBDIVISION AT LOWOOD HILLS ROAD, LOWOOD
CLIENT:
LOWOOD HILLS PTY LTD

DRAWING TITLE:
CONCEPTUAL ROADWORKS INSET BAUER STREET
LOCAL GOVERNMENT AUTHORITY AND DEVELOPMENT APPLICATION NO:
SOMERSET REGIONAL COUNCIL
ORIGINAL SIZE: A1
DRAWING No.: C24043A-SK-C303



PROPOSED LEGEND

- WATER MAIN AND SERVICE/METER
- ROAD WIDENING, SHOULDER & EDGE OF BITUMEN
- SWALE DRAIN
- NO DIRECT ACCESS
- SHARED REAR LOT ACCESS EASEMENT
- OVERLAND FLOW EASEMENT

EXISTING LEGEND

- 600mm DIA. TRUNK WATER MAIN
- WATER RETICULATION MAIN
- REDUNDANT WATER MAIN
- ROAD CENTERLINE AND EDGE OF BITUMEN
- OVERHEAD POWER LINES
- EXISTING SURFACE CONTOUR

REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK
A	ORIGINAL ISSUE	25.11.24	MB	MB	CH

LOT DESCRIPTION:
LOT 1 SP243182, LOT 3 SP243182 & LOT A SP243182
LEVEL DATUM:
-

APPROVED FOR AND ON BEHALF OF HURLEY CONSULTING ENGINEERS PTY LTD:

NAME:
RPEQ NO:

ORIENTATION & SCALES:

0 2 4 8 12
Full Size 1:200 ; Half Size 1:400
Scale (m)

DO NOT SCALE FROM DRAWING

HURLEY
CONSULTING ENGINEERS
PO BOX 417
CARINA QLD 4152
TELEPHONE: 0432 418 815
EMAIL: mail@hurleyce.com

PROJECT:
RURAL RESIDENTIAL SUBDIVISION
AT LOWOOD HILLS ROAD, LOWOOD

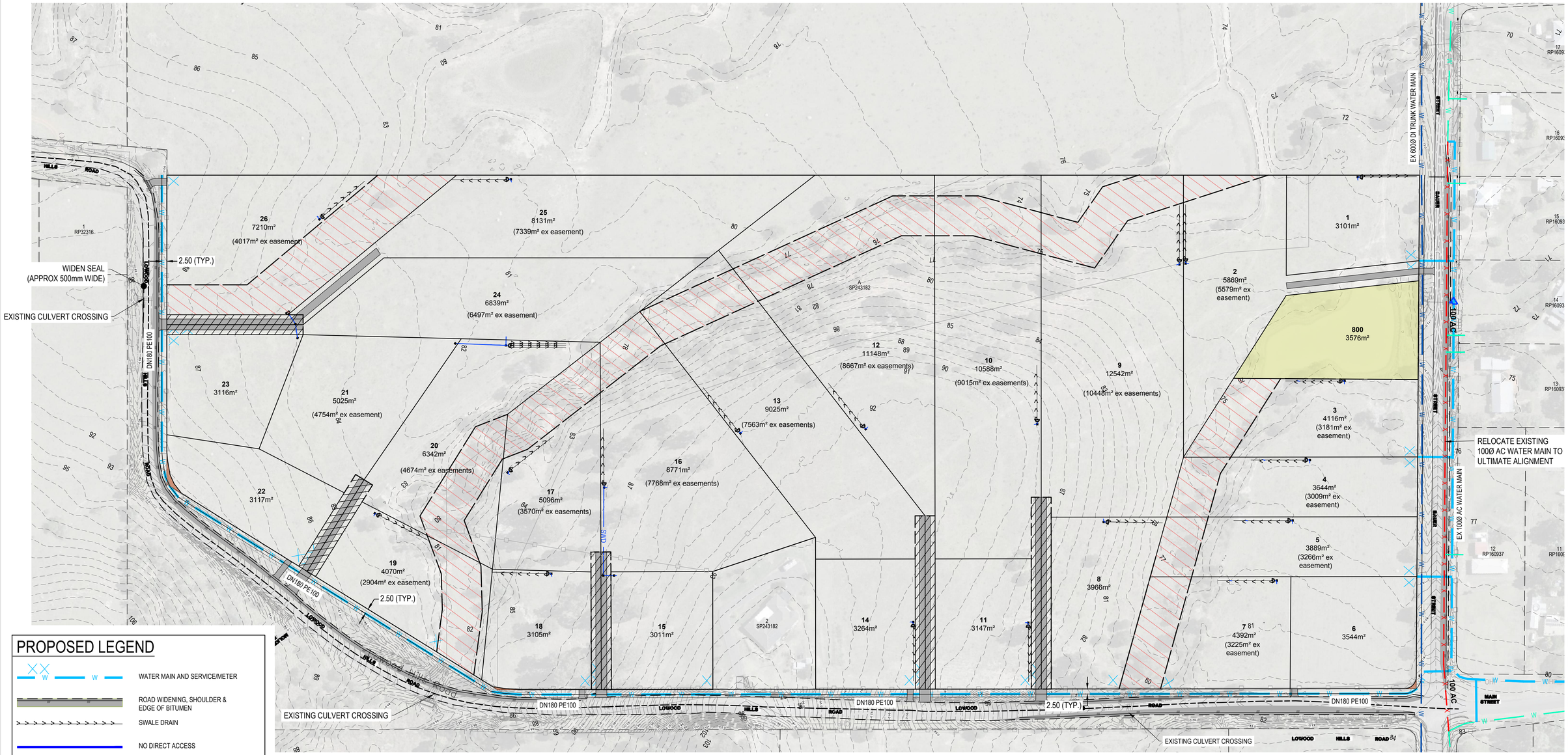
CLIENT:
LOWOOD HILLS PTY LTD

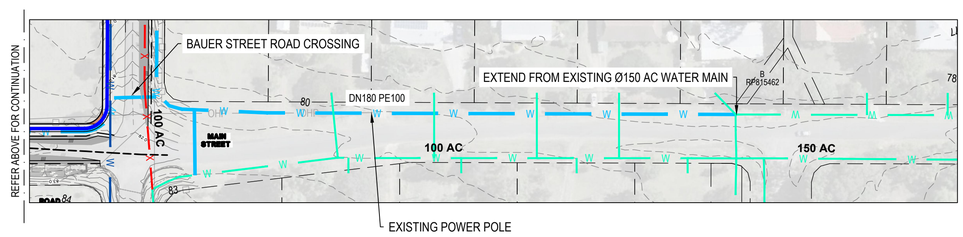
DRAWING TITLE:
CONCEPTUAL STORMWATER SERVICING LAYOUT PLAN

LOCAL GOVERNMENT AUTHORITY AND DEVELOPMENT APPLICATION NO:
SOMERSET REGIONAL COUNCIL

ORIGINAL SIZE: A1

DRAWING No.: C24043A-SK-C400





PROPOSED LEGEND

- WATER MAIN AND SERVICE/METER
- ROAD WIDENING, SHOULDER & EDGE OF BITUMEN
- SWALE DRAIN
- NO DIRECT ACCESS
- SHARED REAR LOT ACCESS EASEMENT
- OVERLAND FLOW EASEMENT

EXISTING LEGEND

- 600mm DIA. TRUNK WATER MAIN
- WATER RETICULATION MAIN
- REDUNDANT WATER MAIN
- ROAD CENTERLINE AND EDGE OF BITUMEN
- OHP — OVERHEAD POWER LINES
- 87 — EXISTING SURFACE CONTOUR

REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK
A	ORIGINAL ISSUE	22.11.24	MB	MB	CH
B	DEVELOPMENT APPLICATION ISSUE	25.11.24	MB	MB	CH

LOT DESCRIPTION:
LOT 1 SP243182, LOT 3 SP243182 & LOT A SP243182
LEVEL DATUM:
-

APPROVED FOR AND ON BEHALF OF HURLEY CONSULTING ENGINEERS PTY LTD:

NAME:
RPEQ NO:

ORIENTATION & SCALES:

0 2 4 8 12
Full Size 1:200 ; Half Size 1:400
Scale (m)

DO NOT SCALE FROM DRAWING

NOTES:
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THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS NOTED OR INSTRUCTED OTHERWISE BY HURLEY CONSULTING ENGINEERS.

EXISTING SERVICES ARE SHOWN FOR INFORMATION ONLY AND NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF THIS INFORMATION. ALL EXISTING SERVICES IN THE VICINITY OF THE SITE SHALL BE LOCATED BY THE CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION.

HURLEY CONSULTING ENGINEERS
PO BOX 417
CARINA QLD 4152
TELEPHONE: 0432 418 815
EMAIL: mail@hurleyce.com

PROJECT:
RURAL RESIDENTIAL SUBDIVISION
AT LOWOOD HILLS ROAD, LOWOOD

CLIENT:
LOWOOD HILLS PTY LTD

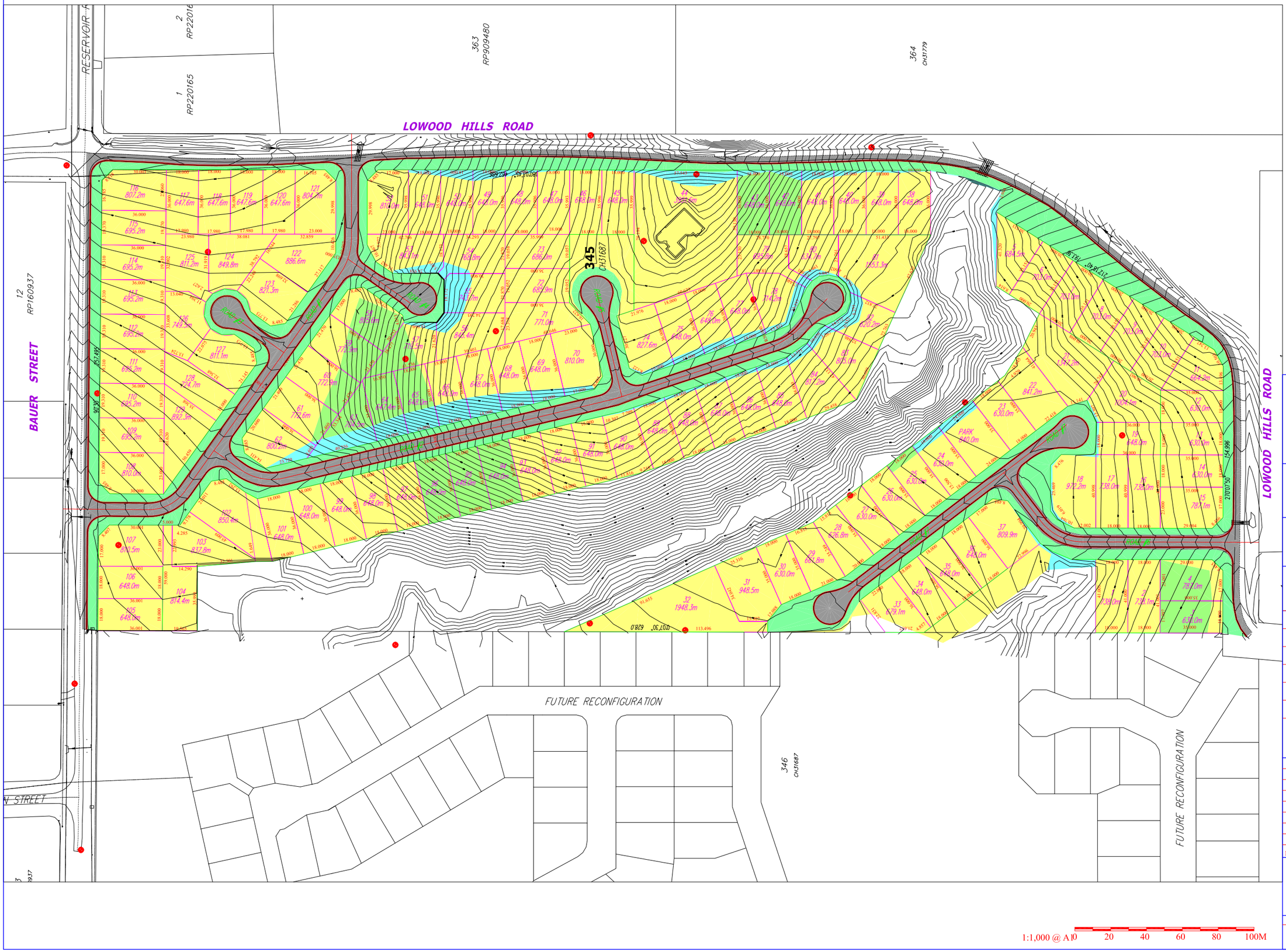
DRAWING TITLE:
CONCEPTUAL WATER SERVICING LAYOUT PLAN

LOCAL GOVERNMENT AUTHORITY AND DEVELOPMENT APPLICATION NO:
SOMERSET REGIONAL COUNCIL

ORIGINAL SIZE: A1

DRAWING No.: C24043A-SK-C600

Appendix C – Previous Approved Development DA10362



1:1,000 @ A1 — 10 20 40 60 80 100M

CLA Consultants
Civil & Structural Engineers
8/43 Tallebudgera Creek Road
West Burleigh Qld 4219
Ph: 07 5520 1066
Fax: 07 5520 1077
mail@claconsultants.com.au

CLIENT
PMP Property Investments Pty Ltd

PROJECT
LOWOOD HILLS RESIDENTIAL ESTATE

ASSOCIATED CONSULTANTS
PLANNING - BAIRD & HAYES

PROPERTY DESCRIPTION	Lot 345 CH31687
UBD REF.	
DESIGNED	CBL
DRAWN	ACAD
REVIEWED	CBL
DATE	15 JULY 2008
APPROVED	FIEAust CPEng RPEQ 4293

REV.	DESCRIPTION	BY	DATE	APPR'D
-	-	-	-	-
A	DA PROPOSAL	CBL	14/06/08	CBL

NAME
SLOPE ANALYSIS

PROJECT REF.	DRAWING NO.	REVISION
08431	002	A

Somerset
REGIONAL COUNCIL

Officer: Julie Bertsos

Telephone: (07) 5424 400

Our Reference: DA10362, Assessment No: 02628-00000-000

Date: 2nd December 2010

River Park Super Pty Ltd
& Global Promotion Management Pty Ltd
C/- Adam Sparkes Town Planning & Development
PO Box 1000
Buddina Qld 4575

Notice of Decision
Request for Permissible Change for a Development Approval

Section 369 of the
Sustainable Planning Act 2009

Details of development approval for which change is requested

Type of approval – Development Permit for a Request to Change – Permissible Change under Section 369 of the Sustainable Planning Act 2009.

Reference number of development approval – DA10362

Property description: Lot 345 on CH31687, situated 42 Lowood Hills Road, Lowood

Date the original development application was decided – 25th February 2009

Details of request for change

Date request for change was made – 27th October 2010

Description of requested changes – *Staging of the approved subdivision*

REQUEST

The applicant:

- seeks a permissible change under section 369 of the *Sustainable Planning Act 2009* to change a condition of the approved development to facilitate the staging of the 129 allotments over two (2) separate and recently approved allotments, being Lots 1 & 3 as per Council's approval under DA10362. *Copy of approved layout is provided at Attachment 2;*
- seeks to facilitate the proposed staging of the approved development in accordance with the Proposed Staging Plan prepared by Baird & Hayes Surveyors, which is provided at *Attachment 3*. The proposed Staging Plan

outlines the approved 129 lot subdivision, with Lot 1 to be created in three (3) stages, and Lot 3 to be constructed over two (2) separate stages, being Stages 4 & 5; and

- requests that Condition No. 1.1 be amended to make reference to the proposed Staging Plan and the recently approved allotments, being proposed Lots 1 & 3 on the approved Plan of Reconfiguration prepared by Baird & Hayes (Drawing Reference P01-01B). Condition 1.1 states the following:
    - *Carry out the development in accordance with the material contain in the development application, supporting documentation and the plan listed below, except where amended by these conditions of approval.*
        - *Proposed Plan of Subdivision: Project Reference: 08431 Drawing No: 001 Revision B.*
- requests that Condition 1.1 be amended to state the following:
    - Carry out the development in accordance with the material contained in the development application, supporting documentation and the plans listed below, except where amended by these conditions of approval.
        - Proposed Staging Plan prepared by Baird & Hayes; Project Reference: 12438 Drawing No. P03-01 Revision B
        - Approved Plan of Reconfiguration prepared by Baird & Hayes; Project Reference: 12438 Drawing No P01-01 Revision B.

REPRESENTATIONS

That Council approve the Request to Change a Development Approval under section 369 of the *Sustainable Planning Act 2009* for DA7651 and DA10362 over land described as Lot 345 on CH31687, situated along Lowood Hills Road, Lowood subject to the conditions contained in the Schedules and Attachments:

PLANNING COMMENTS

The original Development Permit under DA7651 gave a Material Change of Use and Reconfiguration of a Lot approval for subdivision of 129 lots on land described as Lot 345 on CH31687. This application was approved by Council on 25th February 2009.

Since the original approval was granted, the site has been purchased by Riverpark Super Pty Ltd and Promotion and Managers Pty Ltd, and it is now proposed to develop the approved 129 lots over a number of stages for financial purposes. In order to undertake the staged development in a more managed sequence and to secure the finances needed to develop the site, the creation of three (3) separate titles was required. Approval to subdivide the site into three (3) lots was granted by Council on 14th September 2010 under DA10362.

The proposed changes comply with the definition of a "permissible change" as defined in section 367 of the Sustainable Planning Act 2009 (SPA). The Act permits an Assessment Manager to consider a change to an approval where the change is a "permissible change". In this instance:

- The proposed amendments would not result in a substantially different development;
- There were two concurrence agencies for the original application with no conditions or requirements; and the proposed amendments would not require any additional referrals to concurrence agencies;
- The original application was impact assessable and the proposed changes will not affect the level of assessment; and
- The proposed amendments do not involve prohibited development.

It is considered the proposed changes constitute a 'permissible change' to the approved development.

Responsible entity for deciding the request – Somerset Regional Council

Dear Sir/Madam

Decision: Moved - Cr Bechly Seconded - Cr Kammholz

Re: RESOLUTION FOR DA10362

"That Council approve the Request to Change a Development Approval under section 369 of the *Sustainable Planning Act 2009* for DA7651 and DA10362 over land described as Lot 345 on CH31687, situated along Lowood Hills Road, Lowood subject to the conditions contained in the Schedules and Attachments

Appeal rights

If the responsible entity for deciding this request is the assessment manager or a concurrence agency, the person who made the request to change the development approval may appeal against the decision in this notice to the Planning and Environment Court, by lodging a written notice of appeal with the registrar of the Court.

For more information about your appeal rights and how to commence an appeal, see the *Sustainable Planning Act 2009*, chapter 7, parts 1 and 2.

Yours sincerely

Robert Bain
Chief Executive Officer

Attachment 1

DA10362		
SCHEDULE 1 – GENERAL CONDITIONS		
No	**Condition**	**Timing**
1.1	Carry out the development in accordance with the material contained in the development application, supporting documentation and the plans listed below, except where amended by these conditions of approval. • Proposed Staging Plan prepared by Baird & Hayes; Project Reference: 12438 Drawing No. P03-01 Revision B • Approved Plan of Reconfiguration prepared by Baird & Hayes; Project Reference: 12438 Drawing No P01-01b.	At all times
1.2	Pay to Council any outstanding charges or expenses levied by Council over the subject land.	Prior to endorsement of the Plan of subdivision for each stage
1.3	Meet the cost of all works carried out to infrastructure, services and public utilities, including any alterations resulting from compliance with these conditions whether carried out by Council, or otherwise.	Prior to endorsement of the plan of subdivision for each stage
1.4	Repair any damage to Council infrastructure that occurs during any works carried out in association with the approved development.	Prior to endorsement of the plan of subdivision for each stage
SCHEDULE 2 – Engineering Assessment Manager		
2.1	Bear the cost of any alterations necessary to public utilities resulting from compliance with the conditions of this approval.	Prior to Council's endorsement of the Plan of subdivision for each stage
Recreation Contribution in Lieu		
2.2	Pay to Council at the rate applicable at time of payment, a monetary contribution towards the provision of recreational space and facilities within the Region in accordance with the Council's Planning Scheme Policy No. 7, *Provision of Park.* The current rate of park contribution is $3,912 per new allotment, giving a total of $7,824.	Prior to Council's endorsement of the Plan of subdivision for Stage 1
Electricity/Telecommunications		
2.3	Submit development applications to Energex and Telstra's Smart Community to either obtain design layout plans or certification letters to Council that any existing infrastructure or wayleave's are to their satisfaction and	Prior to Council's endorsement of the Plan of subdivision for each stage

	that they can provide services when required at the cost of a normal house connection.	

SCHEDULE 3 – ADVISORY NOTES

This approval has effect in accordance with the provisions of *Division 5 Section 339* of the ***Sustainable Planning Act 2009***. *[A copy of Section 339 will be enclosed with the Decision Notice]*

Relevant Period - Pursuant to *Section 341* of the *'Act'* the approval will lapse if a plan for the reconfiguration not requiring operational works is not given to Somerset Regional Council within two (2) years *starting the day the approval takes effect.*

This approval requires ***'Compliance Assessment'*** by Somerset Regional Council as the *'Compliance Assessor – the nominated entity'*, pursuant to Part 10, Section 398 of the ***Sustainable Planning Act 2009.***

The mandatory form ***IDAS for Compliance Assessment – form 32*** *[Sustainable Planning Act 2009 version 1.0 effective 18 December 2009]* must be completed by the person requesting compliance assessment of this conditional approval. The form must be submitted to Council as the Compliance Assessor and must be accompanied by any fees required by the compliance assessor. If there is insufficient space on the form, the person must attach extra pages outlining compliance. *[A copy of Form 32 will be enclosed with the Decision Notice]*

Pursuant to Division 8 Section 461 of the ***Sustainable Planning Act 2009,*** the Applicant has the Right of Appeal to the ***Planning & Environment Court*** regarding any condition of this approval; another matter stated in the development approval and the identification or inclusion of a code under *section 242* of the *'Act'*. *[A copy of the Right of Appeal will be enclosed with the Decision Notice]*

Landowners are responsible for the construction and maintenance of any vehicular access for the property, from the road carriageway to property boundary in accordance with Council's standards."

DA7651
SCHEDULE 1 – Planning
Assessment Manager

No	Condition	Timing
1.1	Carry out the development in accordance with the material contained in the development application, supporting documentation and the plan listed below, except where amended by these conditions of approval. • Staging Plan prepared by Baird & Hayes; Project Reference: 12438 Drawing No. P03-01 Revision B	At all times
1.2	Comply with the relevant provisions of the former Esk Shire Planning Scheme 2005 (as amended 17.10.2008), Planning Scheme Policies and Local Laws.	At all times
1.3	Pay to Council any outstanding charges or expenses	Prior to Council's

	levied by Council over the subject land.	endorsement of the Plan of Subdivision for each stage
1.4	A Licensed Surveyor must install new Survey mark in their correct positions in accordance with the Plan of Reconfiguration and the work must be certified in writing.	Prior to Council's endorsement of the Plan of Subdivision for each stage
1.5	The access strip must be clearly signed to state that the use is restricted to emergency vehicles only.	Prior to Council's endorsement of the Plan of Subdivision
1.6	A covenant for the development must be implemented that restricts building envelopes on lots sharing a boundary with the vegetated drainage channel. This covenant is to ensure building envelopes do not encroach within 20m of remnant vegetation.	Prior to Council's endorsement of the Plan of Subdivision
1.7	The development's covenant is to inform all residents of the potential risk of bushfire. Each lot is to be maintained and cleared of dead vegetation, debris and other potential fire risks. Lots on Road 2 backing onto the vegetated drainage channel are required to have building envelopes that maintain a buffer of at least 10m to the channel.	Prior to Council's endorsement of the Plan of Subdivision
SCHEDULE 2 – DA7651 **Environmental** Assessment Manager		
2.1	All lots backing onto the mapped 1st order stream are to be fenced. In addition the verge with this mapped area is to be vegetated with hedges or groundcover to prevent erosion.	Prior to Council's endorsement of the Plan of Subdivision for the relevant stage
SCHEDULE 3 – DA7651 **Engineering** Assessment Manager		
3.1	A certificate shall be issued by RPEQ certifying that the work has been constructed in accordance with Council construction standards and in compliance with the construction plans and specifications. All work shall be supervised by a RPEQ competent in the construction of the works. Council may request evidence of the principal contractor's competency. It is expected that the RPEQ will undertake all the necessary inspections to validate the certification.	Upon completion of the Operational Works
3.2	Make an Operational Works application to Council and pay the required fees where an application involves any of the following: car parks, road works, water supply, sewerage connections and stormwater drainage.	Within 4 years of the development approval

3.3	The proponent will bear the cost of any alterations necessary to public utilities resulting from compliance with the conditions of this approval.	Prior to Council's endorsement of the Plan of Subdivision for each relevant stage
3.4	The proponent shall implement appropriate measures to ensure that the approved use or works on site do not cause any adverse impact on the amenity of the neighbourhood by reason of the emission of noise, vibration, smell, glare, fumes, smoke, dust, waste water, waste products or otherwise.	Prior to Council's endorsement of the Plan of Subdivision for each relevant stage
3.5	The proponent is to carry out all works required by the conditions of approval at no cost to Council.	Prior to Council's endorsement of the Plan of Subdivision for each relevant stage
Monetary Contributions/Headworks/Securities		
	Sewerage Headworks	
3.6	Pay to Council at the rate applicable at time of payment, the sewerage headworks contribution towards the cost of augmenting the sewerage scheme in accordance with Council's Planning Scheme Policies. In accordance with the current sewerage headworks contribution, an amount of $3,793 per allotment is payable, giving a total of $489,297 (129 lots)	Prior to Council's endorsement of the plan of subdivision for each stage
	Water Supply Headworks	
3.7	Pay to Council at the rate applicable at time of payment, the water supply headworks contribution towards the cost of augmenting the water supply scheme in accordance with Council's Planning Scheme Policies. In accordance with the current water supply headworks contribution, an amount of $$3,586 per allotment is payable, giving a total of $462,594 (129 lots)	Prior to Council's endorsement of the plan of subdivision for each stage
	Recreation Contribution in Lieu	
3.8	Pay to Council at the rate applicable at time of payment, a monetary contribution towards the provision of recreational space within the Shire in accordance with the former Esk Shire Planning Scheme Policies. In accordance with the current park contribution, an amount of $3,912 per allotment is payable, giving a total of $504,648 (129 lots)	Prior to Council's endorsement of the plan of subdivision for each stage
Operational Works – DA7651		
	Footpaths	

3.9	Provide a 1.5 metre wide footpath on the western side of Lowood Hills Road and the southern side of Bauer Street for the full frontage of the development.	Prior to Council's endorsement of the plan of subdivision for Stage 1
3.10	To prevent damage to the footpath described above the proponent may choose either of the following two options: 1) Prior to the commencement of Operational Works the proponent shall provide a bank security equal to the amount to construct the internal footpath. This cost will be equal to $150 per meter of footpath. 2) Increase the concrete thickness from 125mm to 175mm with F82 mesh reinforcement for the entire length of the footpath.	Prior to Council's endorsement of the plan of subdivision for Stage 1
	Roads	
3.11	Prior to Operational Works being lodged, or in the case of the development of Lot 245 proceeding prior to the development of the lot subject of this approval (Lot 345), a Traffic Impact Report is to be prepared by the owner of Lot 345. This report must provide an intersection analysis of the Bauer and Lowood Hills Road intersection and specify the type of intersection required to provide a satisfactory level of service at this location for traffic volumes resulting from the completion of the Lot 345 development and also the combined traffic volumes resulting from development both Lots 345 and 346. This report is to be to the satisfaction of Council's Design and Development Engineer and will require the intersection to be constructed to meet the level of service determined by this report. In the event of the development for Lot 346 proceeding prior to the development of Lot 345 and the Traffic impact Report determines that an intersection of a greater capacity than a Type B as proposed, then the owner of Lot 345 will pay the additional cost required.	Prior to Operational Works
3.12	Dedicate, design and construct all new roads as illustrated on the approved plans, with concrete kerb and channel, together with associated works in accordance with Council's Development Manual and Standard Drawings.	Prior to Council's endorsement of the staged subdivision
3.13	External Roads of Bauer Street and Lowood Hills Road are to be upgraded for half of their width to a collector standard as per Esk Development Manual. This will require a minimum road reserve width of 20m	Prior to Council's endorsement of the staged subdivision

	and a seal width of 6m with the development side as kerb and channel and the other side with a 1.5m shoulder.	
3.14	Install all traffic signs in accordance with the Manual of Uniform Traffic Control Devices	Prior to Council's endorsement of the plan of subdivision for each stage
3.15	Provide 6m x 3 chord truncations on property boundaries at all road intersections.	Prior to Council's endorsement of the plan of subdivision
	Street Lighting	
3.16	Install street lighting in accordance with AS1158 – Code of Practices for Public Lighting as follows: • Install all street lighting on the same side as footpaths, where applicable. • Obtain certification of street lighting installation by a RPEQ.	Prior to Council's endorsement of the plan of subdivision for each stage
	Sewerage Supply	
3.17	Obtain written permission from the owners of properties affected by any required sewerage supply construction works to enter their properties and undertake the works.	With Operational Work Plans
3.18	Submit Operational Works Plans and pay the prescribed fee for the design of a gravitational sewerage supply with appropriate house connection branches, designed so as to command the whole of each of the proposed lots with appropriate pump stations and manholes in accordance with the Sewerage Code of Australia WSAA Code WSA-02. All work on live sewer mains is to be carried out by Council at no cost to Council.	Prior to Operational Works approval
3.19	Construct the approved sewerage supply and submit as constructed drawings certified by a RPEQ that the work has been constructed in accordance with the approved plans. The works will be then placed on maintenance for a period of 12 months after payment of a maintenance bond being 5% of the cost of the work.	Prior to Council's endorsement of the Plan of Subdivision
	Vehicle Access	
3.20	All vehicular access for new allotments will provide convenient and safe access and egress from the site in accordance with Council's standards.	Prior to Council's endorsement of the Plan of Subdivision
	Water Supply	
3.21	Obtain written permission from the owners of properties affected by any required water supply construction works to enter their properties and undertake the works.	With Operational Works Plans

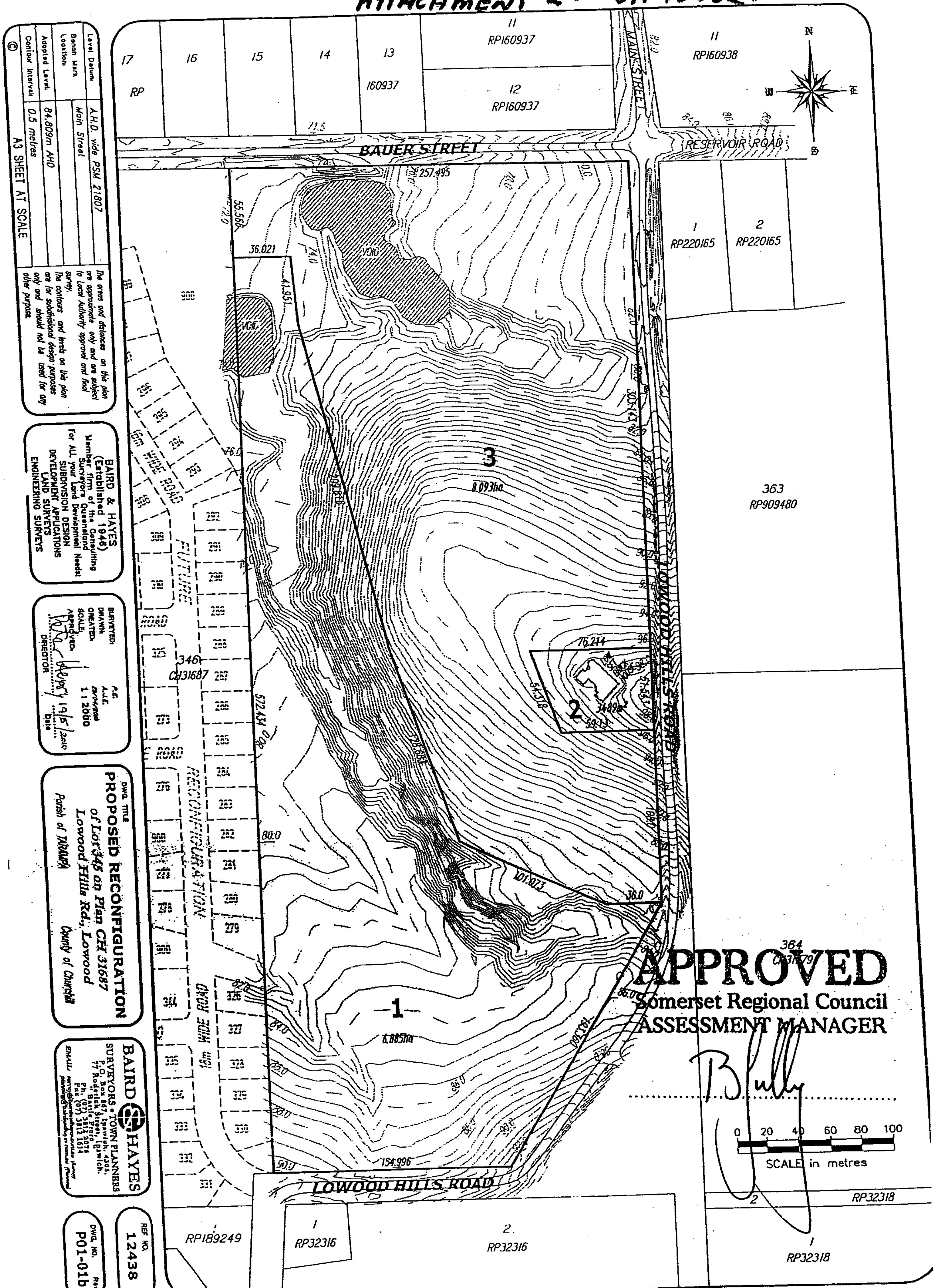
3.22	Submit Operational Works Plans and pay the prescribed fee for the design of a reticulated water supply system together with any necessary valves and fire hydrants, in accordance with the Water Supply Code of Australia WSAA Code WSA-03, which connects into Council's existing reticulation system.	Prior to Operational Works approval
3.23	Construct the approved water reticulation mains and submit as constructed drawings certified by a RPEQ that the work has been carried out in accordance with the approved plans. The works will be then placed on maintenance for a period of 12 months after payment of a maintenance bond being 5% of the cost of the work.	Prior to Council's endorsement of the plan of subdivision
3.24	Water mains at cul-de-sac heads are required to be looped around to join back onto itself.	Prior to Operational Works approval
3.25	Supply and install all service conduits required in connection with the development prior to completion of road works and footpaths. Service conduits are to be installed under roads and concrete footpaths where required.	Prior to Council's endorsement of the plan of subdivision
3.26	Place blue raised pavement markers on the centreline of the road opposite each fire hydrant and where serviced by kerb and channel, place brass water and electricity markers in the kerb line at each service crossing.	Prior to completion of Operational Works approval
3.27	Submit detailed design drawings of proposed on-line gross pollutant traps.	Prior to Operational Works approval
	Stormwater Management	
3.28	Obtain permission for the discharge of stormwater drainage to a lawful point of discharge from the owners of properties affected by any stormwater discharge from the site. Note: Such consent may require supporting engineering plans and calculations.	Prior to Operational Works approval
3.29	Where stormwater cannot be discharged to the kerb and channel provide inter-allotment drainage designed in accordance with QUDM.	Prior to Operational Works approval
3.30	Provide where applicable appropriate measures designed in accordance with QUDM to mitigate the adverse affects of stormwater drainage on landowners upstream and downstream of the development.	Prior to Council's endorsement of the Plan of Subdivision

3.31	Provide a report clearly demonstrating how the measures proposed to mitigate the adverse affects of stormwater drainage on landowners upstream and downstream of the development will achieve the desired outcome of a situation which is no worse than the present situation in terms of adverse stormwater run-off with appropriate calculations provided for pre development and post development scenarios.	With Operational Works application
3.32	Fill, compact and grade all low lying land being subdivided to ensure each allotment is drained adequately by gravitation to the drainage system within the subdivision.	Prior to Council's endorsement of the Plan of Subdivision
	Easements	
3.33	Provide an easement in accordance with the former Esk Shire Development Manual section 5.15. The easement is to be dedicated at no cost to Council. The proponent in a form satisfactory to Council's Solicitor shall prepare all easement documentation. Note: Easements required for the discharge of stormwater over adjacent properties must be agreed to in writing by the owner of the property.	Prior to Council's endorsement of the Plan of Subdivision
3.34	Dedicate land subject to flooding during an ARI 100 year flood event or land required for detention basins or similar as an easement for drainage purposes or open space. The easement is to be dedicated at no cost to Council. The proponent in a form satisfactory to Council's Solicitor will prepare all easement documentation.	Prior to Council's endorsement of the plan of subdivision
	Utilities	
	Electricity/Telecommunications	
3.35	Connect the approved development to underground electricity/telecommunications infrastructure in accordance with acceptable standards of the relevant regulatory authority.	Prior to Council's endorsement of the Plan of Subdivision
3.36	Landowners are to construct and maintain any vehicular access for the property, from the road carriageway to the property boundary to Council standards and the satisfaction of Council's Operations Manager; and the applicant is to advise potential landowners accordingly.	Following Operational Works approval
3.37	The Plan of Subdivision will not be released until all works are completed or uncompleted works are suitably bonded and approved by Council.	Until all works are completed or uncompleted works are suitably bonded and approved by Council

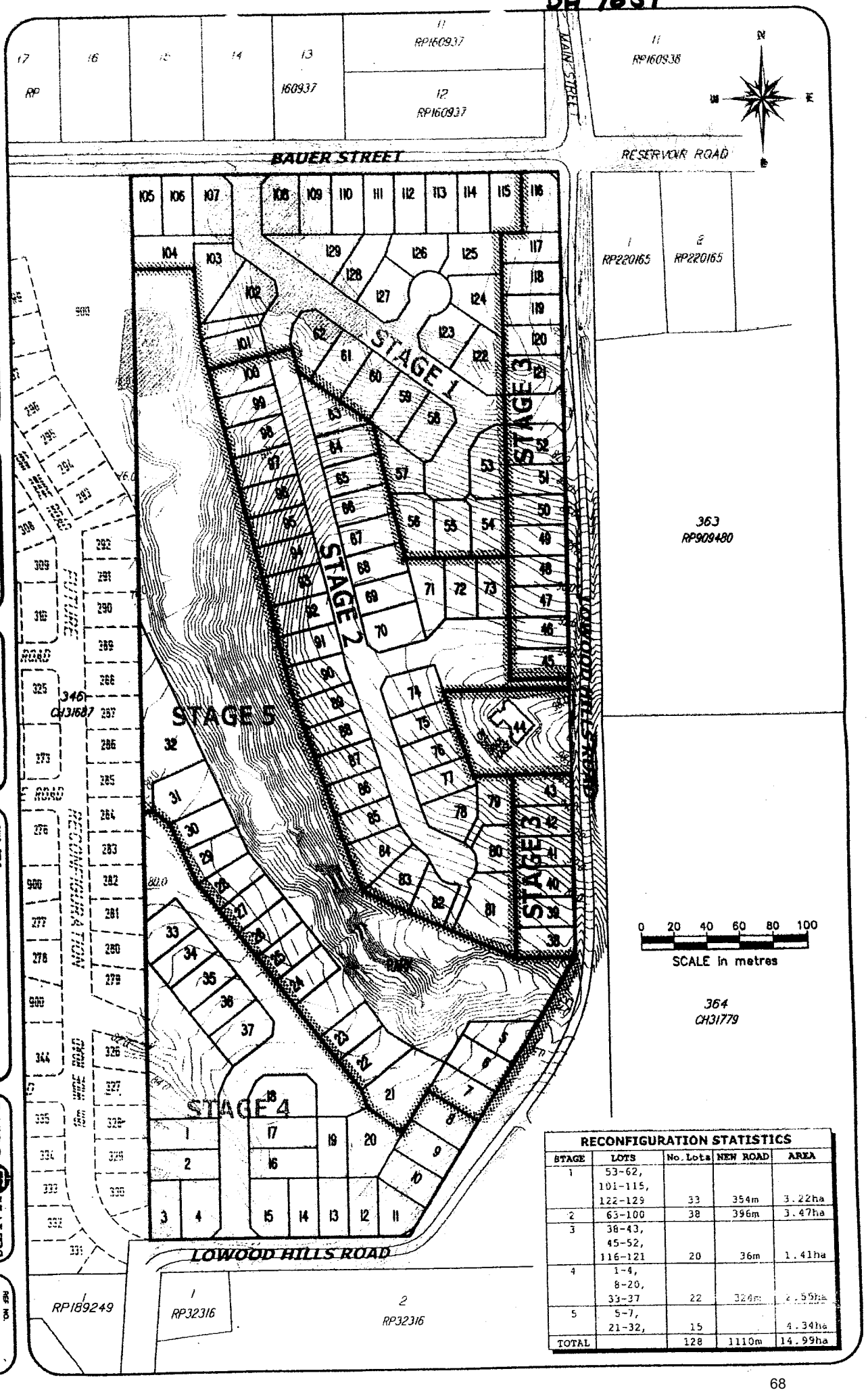
3.38	The applicant or the applicant's agent is to complete the required documentation and arrange a pre start meeting with Council's Operations Department.	Prior to works commencing onsite
3.39	The contractor must implement all relevant sediment and erosion control measures and temporary fencing as identified on the approved engineering drawings for this development. Initially, those measures which are applicable prior to the commencement of the proposed development works shall be implemented. Council's Engineer will assess the sediment and erosion control measures and temporary fencing implemented, and any alterations and/or supplementary works required are to be incorporated during the construction process. All sediment control devices and sediment collection points are to be regularly monitored, sediment removed as necessary and devices maintained responsibly during construction and maintenance period of the development works.	During the construction process and the maintenance period of works
3.40	Where vegetation is removed, the vegetation waste shall be disposed of by milling; chipping and./or mulching; and burning provided fire permits are in place from the local Fire Warden. Waste other than vegetation waste, generated as a result of the operational works shall be disposed of to an approved disposal facility via an approved waste receptacle and/or collection service.	Prior to completion of operational works
3.41	Construction work is to be carried out only between the hours of 7am and 6pm Monday to Saturday, with no work to be undertaken on Sundays or public holidays. Noise levels from construction work must comply with the requirements of the Environmental Protection Act 1994.	During Operational Works
3.42	The applicant is responsible for protecting nearby property owners from dust pollution arising from the construction and maintenance of the works required by this approval and will comply with any lawful instruction from Council's Operations Manager if in his opinion a dust nuisance exists.	During Operational Works
3.43	A Certificate is to be issued by a RPEQ certifying that the work has been constructed in accordance with Council's construction standards and in accordance with the construction plans and specifications. All work is to be supervised by a RPEQ competent in the construction of	Upon completion of the internal civil works

	the works. Council may request evidence of the principal contractor's competency. It is expected that the RPEQ will undertake all the necessary inspections to validate the certification.	
3.44	Upon receiving the certification by a RPEQ, and submission and approval of 'as constructed drawings and associated documentation', Council will accept the works as 'On Maintenance'. Council will bond the Developer for an amount equal to 5% of the Operational Works and the Developer is required to maintain all works for a period of 12 months (maintenance period) from the date of "On Maintenance". Any defective works must be rectified within the maintenance period. At the end of the maintenance period the works shall be inspected and if satisfactory shall be placed "Off Maintenance". Bonds or other securities will be released after the works have been placed "Off Maintenance".	'On maintenance' and 'Off maintenance'
3.45	**Restoration Work at Developers Expense** Should Council determine that erosion or sediment damage has occurred on the site, or a downstream drainage system has become silted, the Developer will be responsible for the restoration work. Restoration work will be completed within fourteen days from the time of notification. Should the Developer fail to complete the works determined by Council within the specified time the Council will compete the work and recover all costs from the Developer associated with the work."	During Operational Works Stage *Carried*

ATTACHMENT 2 - DA 10362.



ATTACHMENT 3 - DA 10362. DA 7651



RECONFIGURATION STATISTICS				
STAGE	LOTS	No. Lots	NEW ROAD	AREA
1	53-62, 101-115, 122-129	33	354m	3.22ha
2	63-100	38	396m	3.47ha
3	38-43, 45-52, 116-121	20	36m	1.41ha
4	1-4, 8-20, 33-37	22	324m	2.59ha
5	5-7, 21-32,	15		4.34ha
TOTAL		128	1110m	14.99ha

Land Datum: A.H.D. vide PSM 21807
Bench Mark Location: Main Street
Adopted Level: 84.869m AHD
Contour Intervals: 0.5 metres
A3 SHEET AT SCALE

The areas and distances on this plan are approximate only and are subject to Local Authority approval and final survey.
The contours and levels on this plan are for subdivisional design purposes only and should not be used for any other purpose.

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SURVEYED: P.E.
DRAWN: A.J.E.
CHECKED: 09/06/2010
SCALE: 1:2000
APPROVED: Peter Hayes
DIRECTOR

DWG. TITLE
PROPOSED STAGING PLAN
over Lot 345 on Plan CH 31687
Lowood Hills Rd., Lowood
Parish of TARAMPA
County of Churchill

BAIRD HAYES
SURVEYORS & TOWN PLANNERS
P.O. Box 667, Ipswich 4305.
71 Roderick Street, Ipswich.
Ph. (07) 3812 2076
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REF. NO. 12438
DWG. NO. P03-01b Rev.

Flood Study

Lowood Hills Road, Lowood

Lowood Hills Pty Ltd

21 November 2024

Document Status

Version	Doc type	Reviewed by	Approved by	Date issued
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ACKNOWLEDGEMENT OF COUNTRY

The Board and employees of Water Technology acknowledge and respect the Aboriginal and Torres Strait Islander Peoples as the Traditional Custodians of Country throughout Australia. We specifically acknowledge the Traditional Custodians of the land on which our offices reside and where we undertake our work.

We respect the knowledge, skills and lived experiences of Aboriginal and Torres Strait Islander Peoples, who we continue to learn from and collaborate with. We also extend our respect to all First Nations Peoples, their cultures and to their Elders, past and present.

Artwork by Maurice Goolagong 2023. This piece was commissioned by Water Technology and visualises the important connections we have to water, and the cultural significance of journeys taken by traditional custodians of our land to meeting places, where communities connect with each other around waterways.

The symbolism in the artwork includes:

- *Seven circles representing each of the States and Territories in Australia where we do our work*
- *Blue dots between each circle representing the waterways that connect us*
- *The animals that rely on healthy waterways for their home*
- *Black and white dots representing all the different communities that we visit in our work*
- *Hands that are for the people we help on our journey*

CONTENTS

APPENDICES

LIST OF FIGURES

LIST OF TABLES

1 INTRODUCTION

Water Technology Pty Ltd (WT) has been commissioned by Lowood Hills Pty Ltd to prepare a hydraulic design report for a proposed development consisting of a 2 into 26 lot realignment of lot (ROL). The proposed development is located at Lots 1 & 3 SP243182 on Lowood Hills Road, Lowood (the site) in the Somerset Regional Council (SRC) local government area as illustrated in Figure 1-1. The site is mapped with potential flood hazard area under the SRC planning scheme Flood hazard overlay as illustrated in Figure 1-2. This necessitates further investigation to establish the defined flood level (DFL) and assess the potential for development works to cause a worsening in flooding offsite.

WT undertook flood modelling for several towns in the SRC LGA in 2020 (Somerset Flood Study by Water Technology dated September 2020) (WT 2020), including Lowood. This study therefore seeks to refine the previous modelling works by WT to incorporate site-specific data, determine the potential for offsite flood impacts and specify mitigation measures if required.

Figure 1-1 Site Imagery (Source: MetroMap 2024)

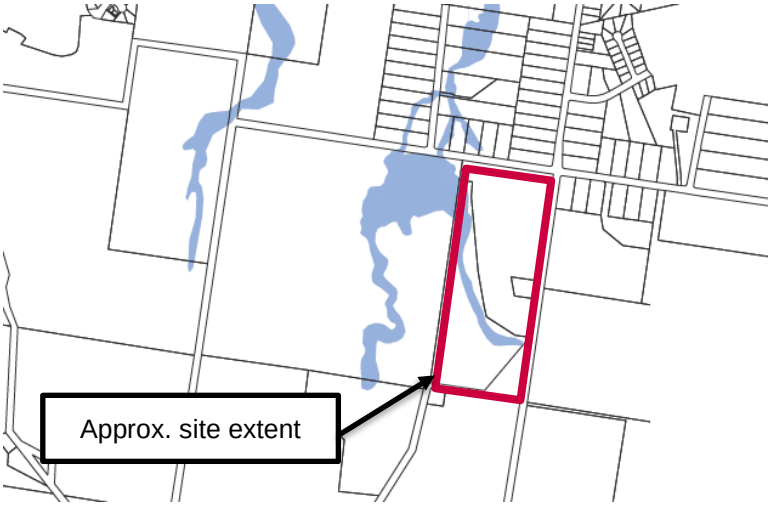

Figure 1-2 SRC Flood Hazard Mapping Overlay

2 EXISTING SITE DESCRIPTION

The site is located on the southern side of Bauer Street and western side of Lowood Hills Road, Lowood and is described as Lots 1 & 3 SP243182. The site is approximately 15ha in overall area and is predominantly grassed, with some smaller stands of trees/shrubs adjacent to the gullies. The locality is characterised by rolling hills, with generally well-defined gullies. The site has three flowpaths transecting the site, described as the 'southern', 'central' and 'northern' flowpaths as illustrated in Figure 2-1 with the Lowood Flood Study (WT 2020) 1% AEP peak depth results. Each of the three flowpaths includes an existing farm dam, which are visible in the aerial imagery and site topographical data obtained from LiDAR, which we understand to be captured in circa 2009.

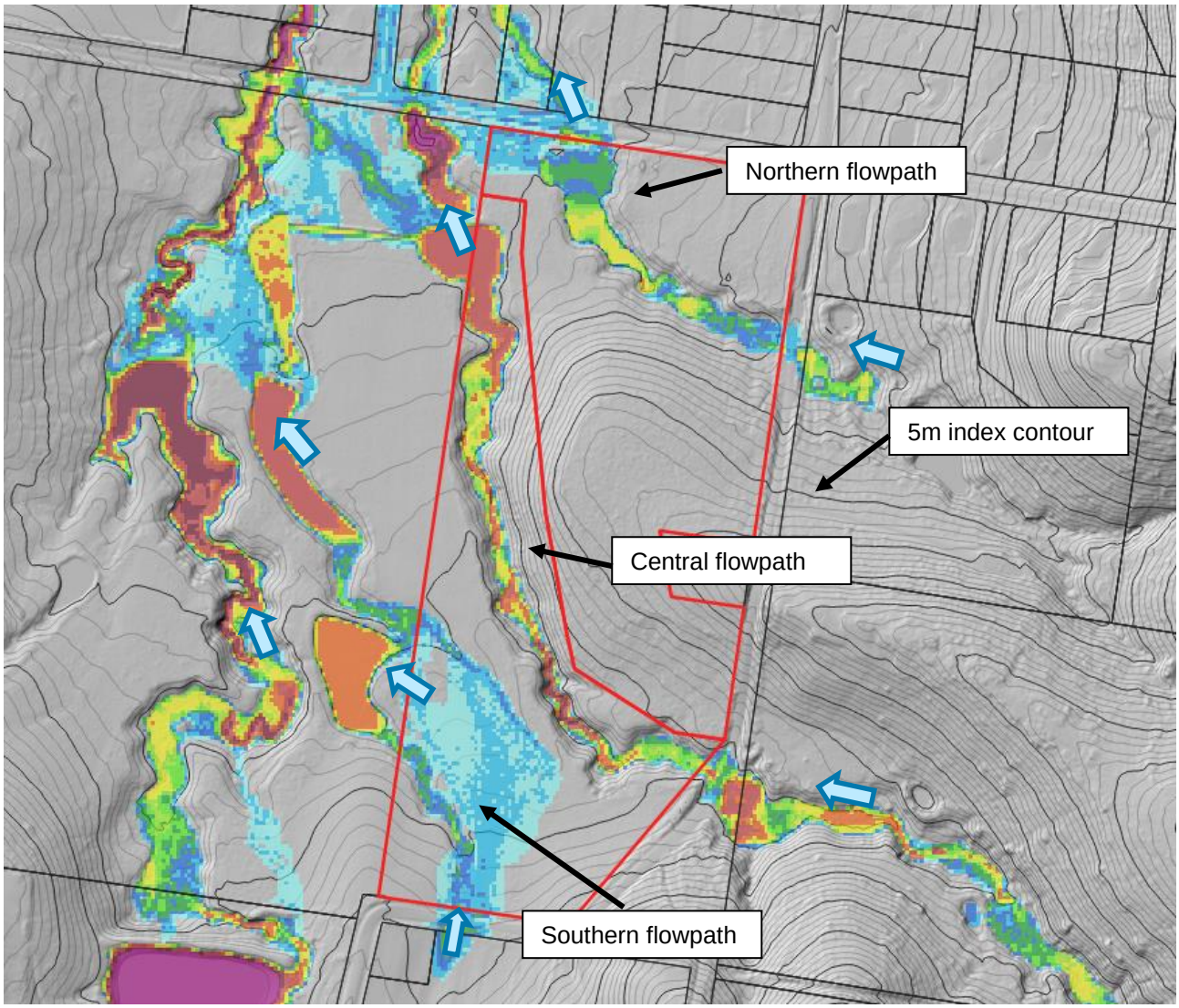

Figure 2-1 Site Topography and 1% AEP Flood Depth (WT 2020)

3 PROPOSED DEVELOPMENT

3.1 Proposal

The proposed development consists of a 2 into 26 lot realignment of lot subdivision, with a lot size ranging from approx. 3000m^2 to 12,500m^2. The proposed layout is illustrated in Figure 3-1. The earthworks are further detailed in the Civil Engineering Report, however the key design elements relevant to the hydraulic study include:

- Creation of flood-free building envelopes in Lots 21, 23-25 using minor earthworks to prevent the existing break-out flows from the southern flowpath,
- Creation of flood-free land in the north-western corner of the site in Lot 1 using earthworks to prevent the existing breakout flows from the northern flowpath across the western site boundary,
- Conversion of the existing farm dam on the northern flowpath to a formal onsite detention basin to provide attenuation of floodwaters to the benefit of downstream properties, and
- Frontage works on Bauer Street and western Lowood Hills Road, including provision of roadside drainage.

3.2 Relationship with Approved Development to the West

SRC have approved development on the site to the west, being Lot 346 on CH3168. The approval was granted for a 1 into 72 lots associated with DA21989 which was approved on 8/7/2022. Relevant to this flood study, the adjacent development included drainage reserves and easements which facilitate the discharge of stormwater from the site to the adjacent site.

The Stormwater Management Plan (SMP) for the adjacent site was completed by RMA Engineers, dated 1 February 2022 (RMA 2022) and included hydraulic modelling of the site in the pre and post development scenarios. The hydraulic modelling has not been reviewed in detail; however, it is noted that the site has incorporated provision to receive stormwater runoff from the site as follows and illustrated in Figure 3-2:

- Provision of two drainage easements associated with the southern flowpath. These easements appear to incorporate constructed channels to convey runoff to a drainage reserve through the centre of their site.
- Inclusion of a drainage reserve in the north-eastern corner of their site, which will allow stormwater from the central and northern flowpaths to cross the site boundary. The drainage reserve includes a large detention basin, although it is noted that runoff from our site is not mapped as entering this basin.

Based on the SMP by RMA (2022), the downstream development to the west has included provision to provide our site with lawful points of discharge (LPD) on the western site boundary.

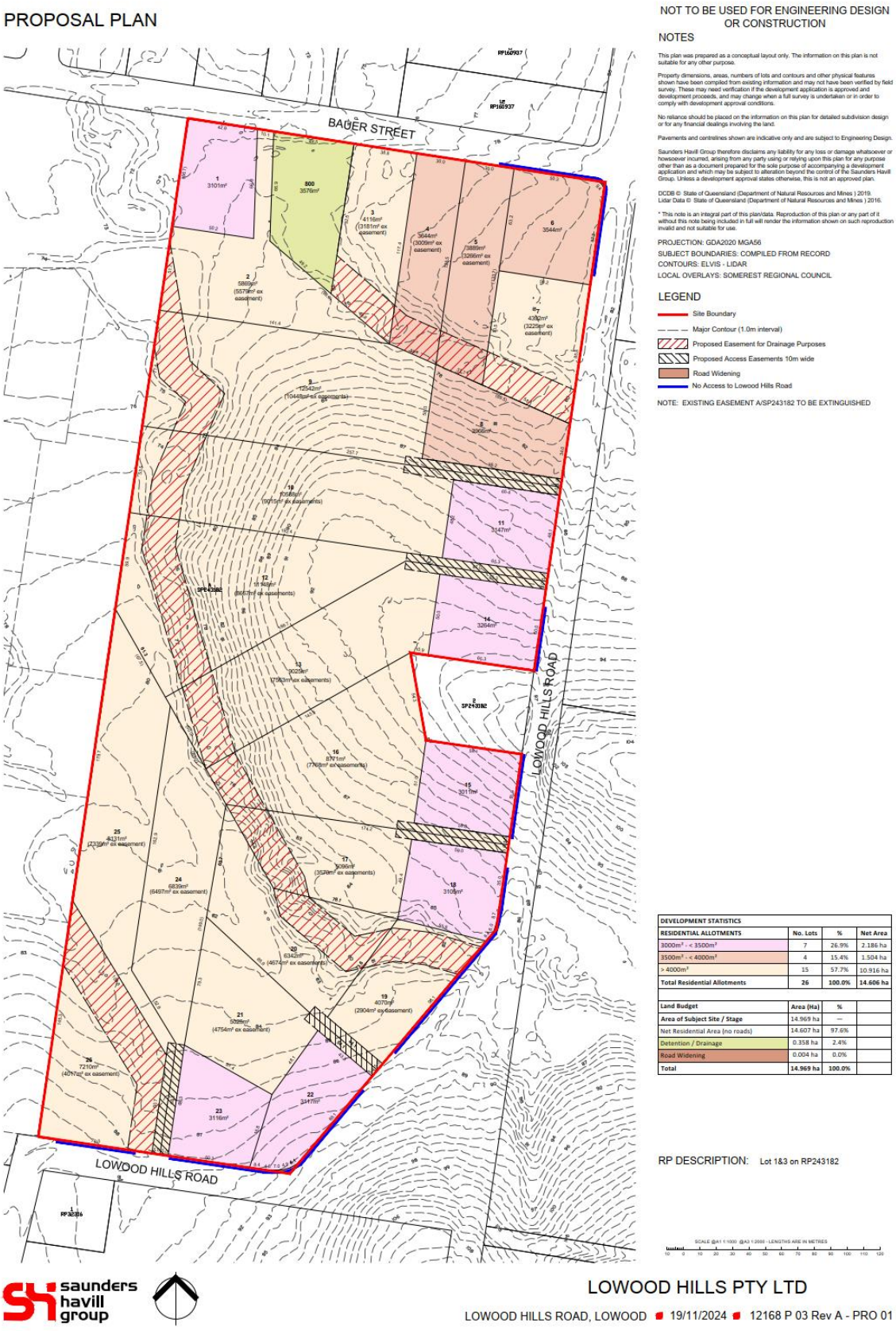

Figure 3-1 Concept Layout (Source: Saunders Havil Group 2024)

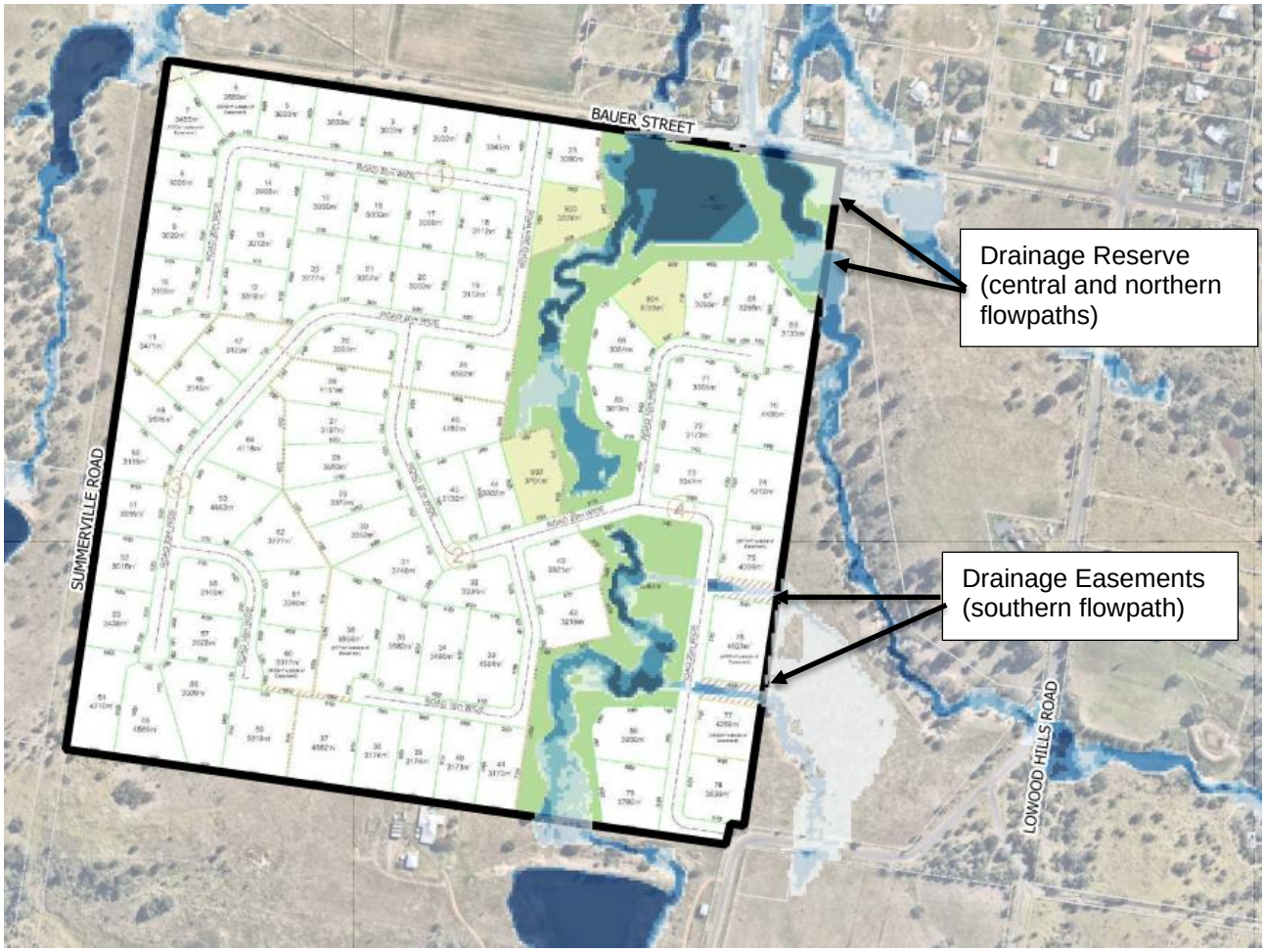

Figure 3-2 Post Development 1% AEP Depth for Adjacent Development (Source: RMA 2022)

4 HYDROLOGICAL MODEL DEVELOPMENT

4.1 Overview

The Lowood flood study by WT was completed in 2020 and was a broad scale 'whole of town' flood study. The hydrological model associated with the flood study was based on XP-RAFTS software and utilised the ARR19 hydrological methodology. On review, the sub-catchment delineation was found to be relatively coarse in the upper catchment of the Lowood township which limited the ability to accurately estimate changes in flow conditions across each of the three flow paths across the site.

The Lowood flood study sub-catchment delineation was therefore further refined at the site and upper reaches of the catchment. As XP-RAFTS is no longer a supported software package, the hydrological assessment was repeated using WBNM using the same methodology and validated back to the Lowood flood study XP-RAFTS results.

The following sections provide a summary of the refinement to the hydrological assessment completed as part of this study.

4.2 Catchments, Landuse and Parameters

The sub-catchment delineation prepared for the WBNM model is illustrated in Figure 4-1 and the associated areas are presented in Table 4-1. The sub-catchments were generally retained as per the Lowood Flood Study (WT 2020), with only sub-catchment refinement upstream of and within the immediate vicinity of the site. The hydrological model extended north to the Brisbane River and remained unchanged downstream of the site.

The land-use layers from the previous Lowood Flood Study by WT were utilised for this assessment, which we understand are based on the current planning scheme overlays. The site has been represented with a FI of 0 in the existing scenario, consistent with the current rural usage despite the zoning for general residential. The development outcome sought will result in a lot size consistent with a rural residential outcome. Therefore, sub-catchments within the site were represented with a FI of 0.2 in the developed scenario.

A catchment lag parameter of 1.6 was adopted in the WBNM model for the pervious portion of the catchment and 0.1 for the impervious catchment portion. These parameters represent standard values in accordance with the WBNM model guidelines. Stream lag factors of 1.0 have been used for all sub-catchments. Again, these parameters all fall within the recommended parameter guidance ranges for WBNM. Note that all stream lag factors will be replaced with hydraulic routing in the 2D hydraulic model.

The ARR Data Hub was accessed to obtain Intensity-Frequency-Duration (IFD) data based on the enveloped LIMB data and associated loss values for this assessment. Initial loss values were altered by StormInjector to account of rainfall pre-burst, consistent with the Lowood Flood Study (WT 2020).

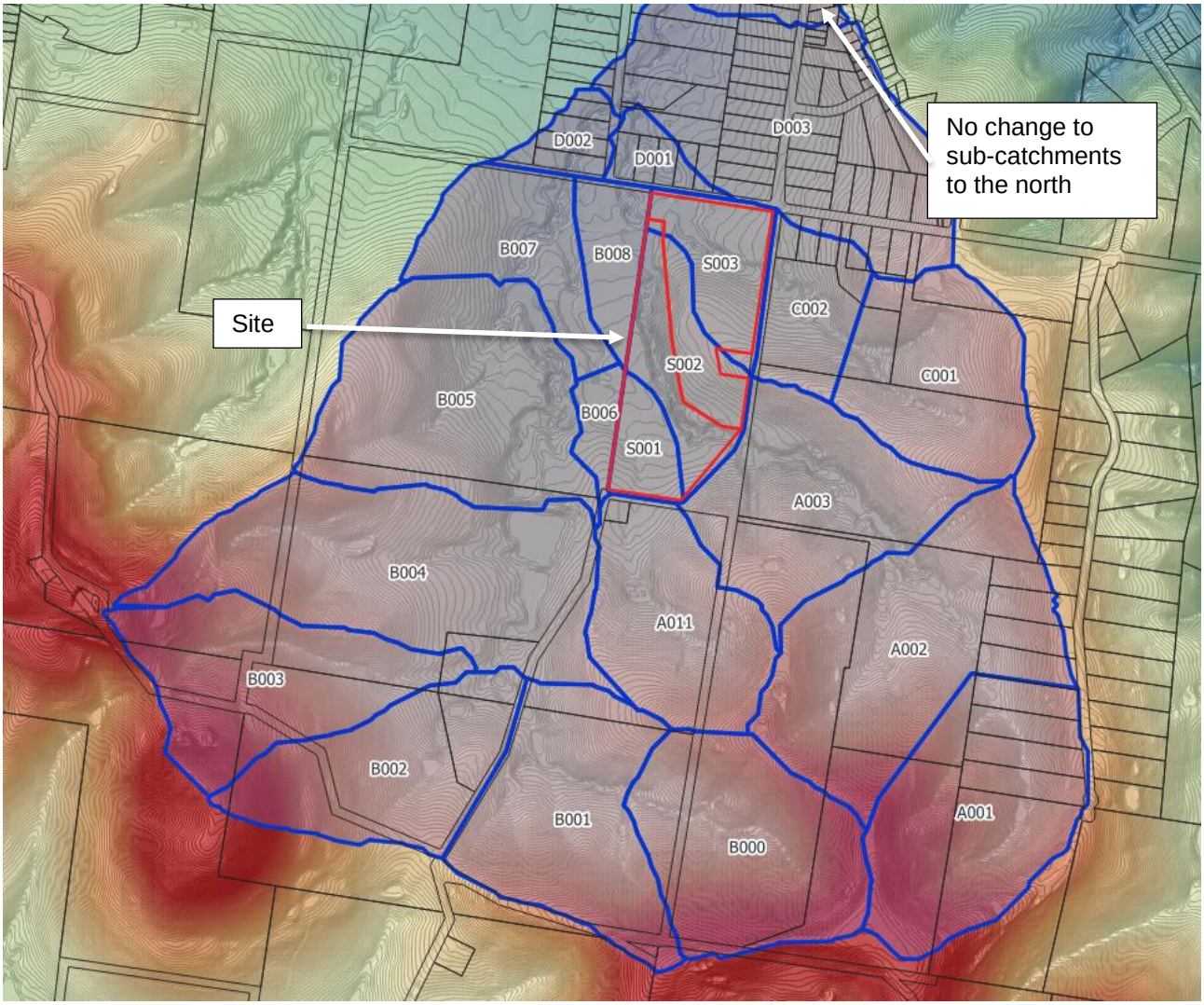

Figure 4-1 Existing Scenario Sub-Catchment Breakdown

Table 4-1 WBNM Existing and Developed Scenario Sub-Catchments

Sub-Catchment Name	Area (ha)	Fraction Impervious (%)	Downstream Sub-Catchment
A001	19.23	9.95	A002
A002	24.37	9.03	A003
A003	16.90	3.13	S002
S002(1) (central flowpath)	7.54	0.00 (20% developed)	B008
B008	4.20	62.14	D001
C001	13.84	15.45	C002
C002	6.50	49.04	S003
S003(1) (northern flowpath)	5.86	0.00 (20% developed)	D001
A011	13.86	9.26	S001
S001(1) (southern flowpath)	2.93	0.00 (20% developed)	B006
B006	1.95	63.23	B007
B000	17.93	9.41	B001
B001	17.19	9.50	B004
B002	14.28	5.82	B004
B003	16.36	4.13	B004
B004	26.64	2.64	B005
B005	22.37	57.72	B007
B007	9.04	63.50	D002
D001	2.37	53.72	D003
D002	2.75	55.31	D003
D003	25.05	55.63	D004
D004	15.97	57.35	D005
D005	17.86	51.24	D006
D006	7.29	45.73	D008
D007	29.89	29.29	D008
D008	28.94	44.33	D009
D009	45.69	46.77	D010
D010	26.44	24.86	SINK

(1) Site Catchment

4.3 WBNM Validation

The WBNM models were run for a range of standard design events, durations and temporal patterns for the purposes of identifying the appropriate durations and TPs for use in the hydraulic model and for validation. The WBNM models were operated using StormInjector, which can be used to utilise ARR19 ARR Data Hub specified preburst and losses.

The revised hydrological model has been compared and validated to the outputs from the XP-RAFTS model for the 1% AEP event as reported in WT 2020. The refined hydrological model generated peak flows within 5% of the adopted Lowood flood study as illustrated in Table 4-2. Therefore, the refined hydrological model is considered to provide flow estimates consistent with WT 2020 and is suitable to provide inflow hydrographs for the TUFLOW model.

Table 4-2 Comparison of WBNM Peak Flow to XP-RAFTS Peak Flows

Event	RAFTS 1% AEP Flow (m^3/s)	WBNM 1% AEP Flow (m^3/s)	Difference (m^3/s)	Difference (%)
1% AEP	48.0	50.1	2.1	4.4

4.4 Change in Peak Discharge

The hydrological model has been used to assess the potential for the development to result in increases in peak discharge at the downstream site boundary and further downstream of the site.

This analysis has indicated that the change in land use from rural to rural residential (change in fraction impervious from 0% to 20% within the site) results in no fundamental change in peak discharge across the three site discharge locations, being S001, S002 and S003. As illustrated in Table 4-3, the post-development flows are generally within +/-30L/s of the pre-development peak discharge at the downstream site boundary.

The results do show that further downstream, being at D006 (or the Lowood Main Street), an increase in peak discharge of approximately 8% occurs in the 10% AEP and 50% AEP design events, although the larger 1% AEP design event peak flows remain fundamentally unchanged.

These results indicate that for larger storm events, the development will not result in an increase in peak discharge downstream of the site. However, in smaller events mitigation measures may be required to attenuate flows to pre-development peak flow rates.

Table 4-3 Comparison of Pre and Post Development

Location	Event (AEP)	Existing Flow (m^3/s)	Developed Flow (m^3/s)	Difference in Flow (m^3/s)	Difference in Flow (%)	Critical Duration and TP
S001 (southern flowpath)	1% AEP	4.02	4.03	0.01	0.2	1.5hr, TP3
	10% AEP	1.90	1.91	0.01	0.5	1hr, TP7
	50% AEP	0.80	0.80	0	0.0	1.5hr, TP1
S002 (central flowpath)	1% AEP	13.11	13.07	-0.04	-0.3	1.5hr, TP5
	10% AEP	5.66	5.63	-0.03	-0.5	2hr, TP9
	50% AEP	2.05	2.02	-0.03	-1.5	2hr. TP8
S003 (northern flowpath)	1% AEP	6.04	6.06	0.02	0.3	1.5hr, TP3
	10% AEP	2.83	2.84	0.01	0.4	2hr, TP7
	50% AEP	1.17	1.20	0.03	2.6	1.5hr, TP7
D006 (Main St)	1% AEP	50.10	50.17	0.07	0.1	2hr, TP1
	10% AEP	19.76	21.26	1.5	7.6	2hr, TP6
	50% AEP	6.59	7.13	0.54	8.2	2hr, TP7

4.5 2100 Climate Change

The WT 2020 study included an analysis of climate change impacts on flooding and adopted a factored increase in rainfall intensity of 11.5% which was consistent with RCP 6.0 year 2090 as per the guidance provided in Book 1, Chapter 6 of ARR2019. Since this time, new climate change factors have been released which do not directly correlate to the previously adopted factors and are generally significantly higher.

For this study, the climate factor SSP1-2.6 for the year 2090 has been adopted, which for the shorter duration events applicable at the site corresponds with an increase in rainfall intensity of 20% to 23%. This is a significant increase in climate change allowance compared to WT 2020. The increase in peak flow rates at the key locations discussed previously are compared in Table 4-4.

The increased rainfall intensity climate change scenario has been assessed within the context of establishing minimum development control and planning levels for the site only.

Table 4-4 Increase in Peak Flow Associated with Climate Change Scenario SSP1-2.6

Location	1% AEP Peak Flow (m^3/s)	1% AEP CC Peak Flow (m^3/s)	Difference (m^3/s)
S001 (southern flowpath)	4.03	4.98	0.95
S002 (central flowpath)	13.07	16.28	3.21
S003 (northern flowpath)	6.06	7.49	1.43
D006 (Main St)	50.10	61.76	11.66

4.6 Hydrological Assessment Summary

The preparation of a refined WBNM hydrological model to replace the Lowood Flood Study (WT 2020) hydrological model has resulted in consistent results to the previous works and is considered appropriate to inform the hydraulic analysis. Further, the hydrological analysis has indicated that the proposed development would not result in any fundamental worsening in peak discharge at the downstream site boundary, but may result in minor increase in flows further downstream (north) in the smaller design events.

5 HYDRAULIC MODELLING

5.1 Overview

The Lowood Flood Study (WT 2020) TUFLOW hydraulic model was adapted for use in this assessment with some minor updates for this site-specific assessment. The following sections outline the model updates and results of the hydraulic assessment.

5.2 Model Refinements

The following refinements were made to the Lowood Flood Study TUFLOW model:

- Reduction of the hydraulic model extent to include only the local catchment to the Brisbane River as illustrated in Figure 5-1 and reduction in the modelled cell size from 3m to 2m to increase model resolution.
- Adjustment of the hydrological model inflow locations to suit the updated hydrological model sub-catchment delineation.
- Inclusion of survey data for the roads and associated cross-drainage structures adjacent to the site as illustrated in Figure 5-2.
- Review and update of initial water levels for all dams within and upstream of the site.

No changes were made to the materials layer (roughness delineation) or downstream boundary conditions.

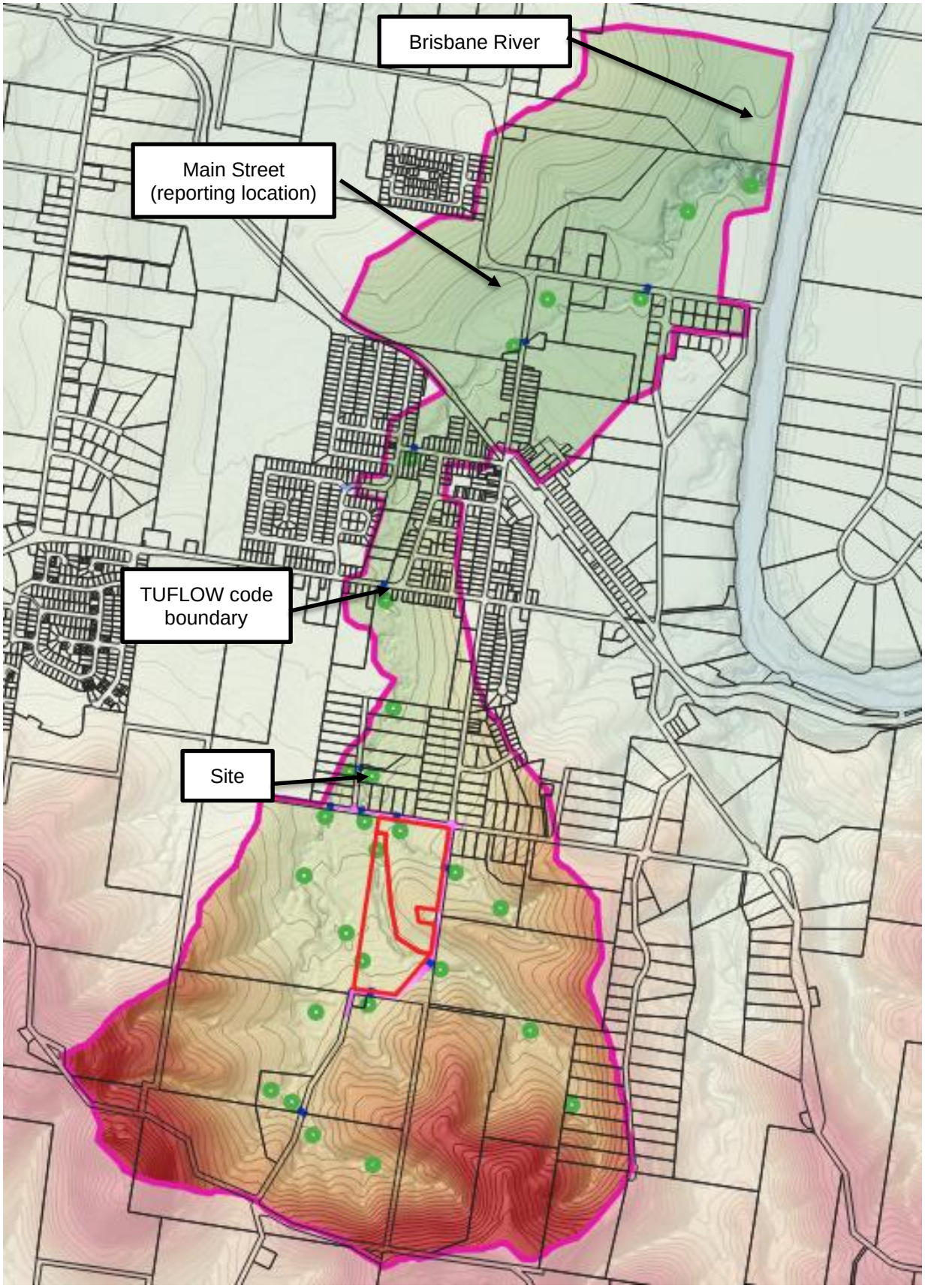

Figure 5-1 TUFLOW Model Overview

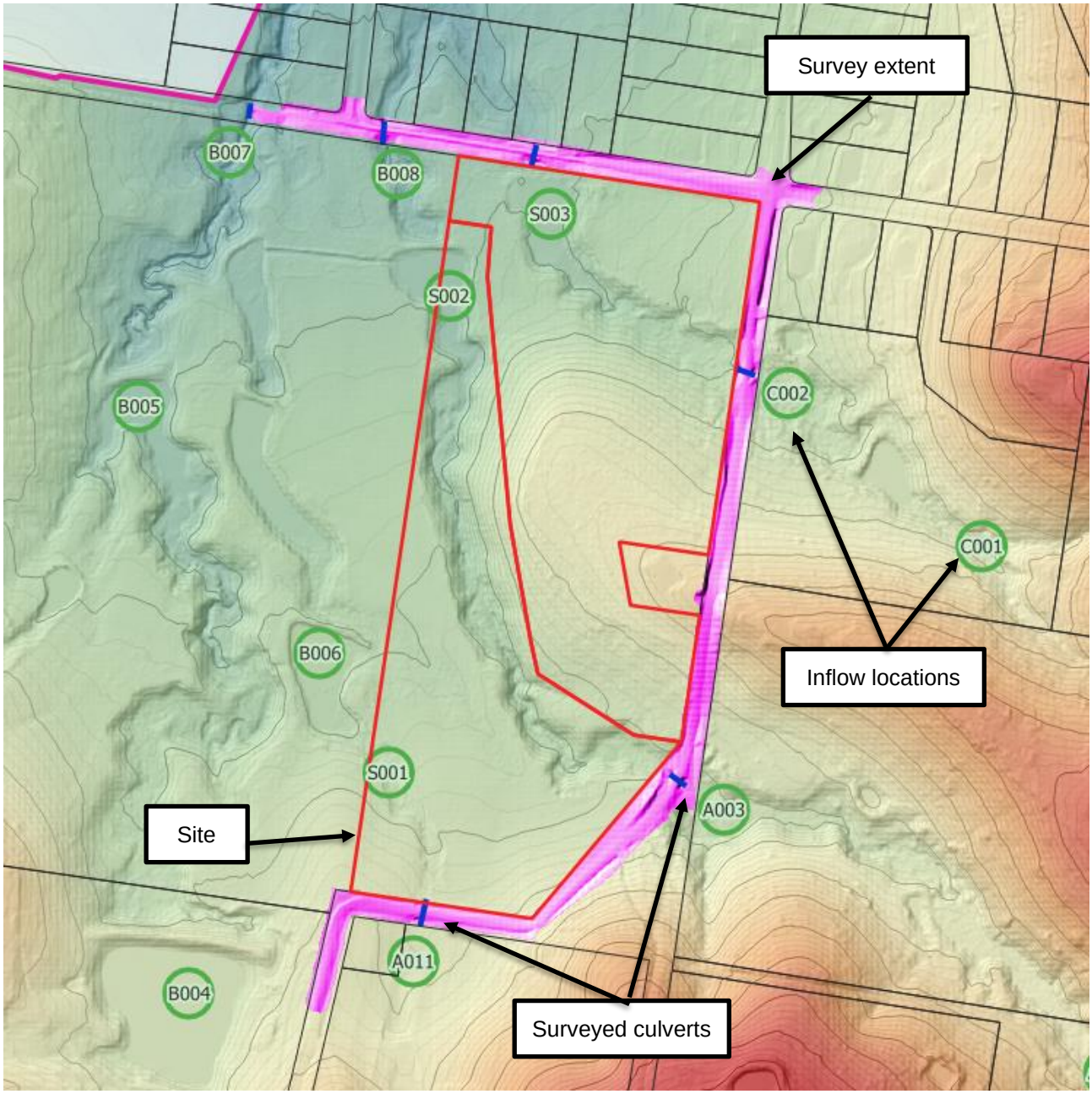

Figure 5-2 TUFLOW Model – Site Locality

5.3 Events

The TUFLOW model was run for the critical duration events identified in the hydrological model as presented in Table 4-3, with all 10 temporal patterns (TPs) run per duration.

- 1% AEP - 1.5hr and 2hr events,
- 10% AEP - 2hr event, and
- 50% AEP – 1.5hr and 2hr events.

For peak water surface levels, depth and velocity results, the peak grids were processed for the median TP and critical duration.

5.4 Existing Scenario Results

The existing scenario results are provided in Appendix B. The following points discuss the existing scenario hydraulic conditions at the site associated with each of the three flowpaths.

- The southern flowpath:
  - Has a well-defined primary flowpath, however there are areas of shallow 'break out' flows. These breakout flows are typically less than 30mm deep even in the 1% AEP design event.
  - The road frontage on the southern site boundary is not inundated in the 10% AEP event, and is subject to no more than approximately 100mm inundation in the 1% AEP event.
  - Discharges into the adjacent property to the west at up to three locations, being associated with the well-defined flowpath and two secondary locations associated with the breakout flow. Only the well-defined flopwath enters the dam on the downstream property, with the breakout flows bypassing the dam.
- The central flowpath:
  - Is a well-defined flowpath which exists in a highly channelised gully.
  - The road frontage on the eastern site boundary is not inundated in the 50% AEP event but is subject to up to 150mm inundation in the 10% AEP event and 300mm in the 1% AEP event. The road frontage at this location is therefore trafficable in the 10% AEP event. Due to the relatively small upstream catchment, any inundation of the road at this location will be relatively brief.
  - Enters a dam that straddles the downstream property boundary, with the embankment existing across both the site and adjacent site. The dam does not appear to have a well-defined spillway, with overtopping flows occurring on the downstream property which discharge to the north and west.
- The northern flowpath:
  - Is generally well defined, although towards the northern site boundary a dam is present with no clearly defined spillway. This dam overtops and discharges both north towards the cross-drainage structure on Bauer Street and as shallow sheet flow to the west, across the western site boundary.
  - The eastern road frontage associated with the northern flowpath is not inundated in the 50% AEP and 10% AEP events but is subject to less than 50mm inundation in the 1% AEP event.
  - The northern road frontage associated with the northern flowpath is not inundated in the 50% AEP and 10% AEP events but is subject to inundation on the road crown to no more than approximately 70mm in the 1% AEP event.

Further north (downstream), the site discharge associated with the three flowpaths merge approximately 170m north of Bauer Street. From here, stormwater flows north through the township of Lowood and ultimately to the Brisbane River.

5.5 Unmitigated Developed Scenario Modelling

The proposed development consists of relatively large lots and does not propose substantial changes to the existing landform to manage flooding/overland flow from the three flow paths across the site. The key updates to the TUFLOW model to represent the proposed development include:

- Revision of the inflows from sub-catchments S001, S002 and S003 to represent an increase in fraction impervious from 0% to 20% as per a rural residential usage.
- Minor earthworks / filling on the northern side of the southern flowpath to otherwise restrict the shallow breakout flows in the existing scenario as illustrated in the background of Figure 5-3.
- Minor earthworks / filling in the north-western corner of the site to otherwise restrict the shallow breakout flows in the existing scenario.
- Removal of the existing dam on the northern flowpath.
- Provision for a new / upgraded table drain between cross-drainage culverts on Bauer Street to replicate the pre-development flow distribution between these two cross drainage structures as illustrated in Figure 5-3.

Roadworks on the Bauer Street site frontage were not included in the unmitigated developed scenario modelling, however are noted to have been assessed by RMA (2022) associated with the approved development to the west.

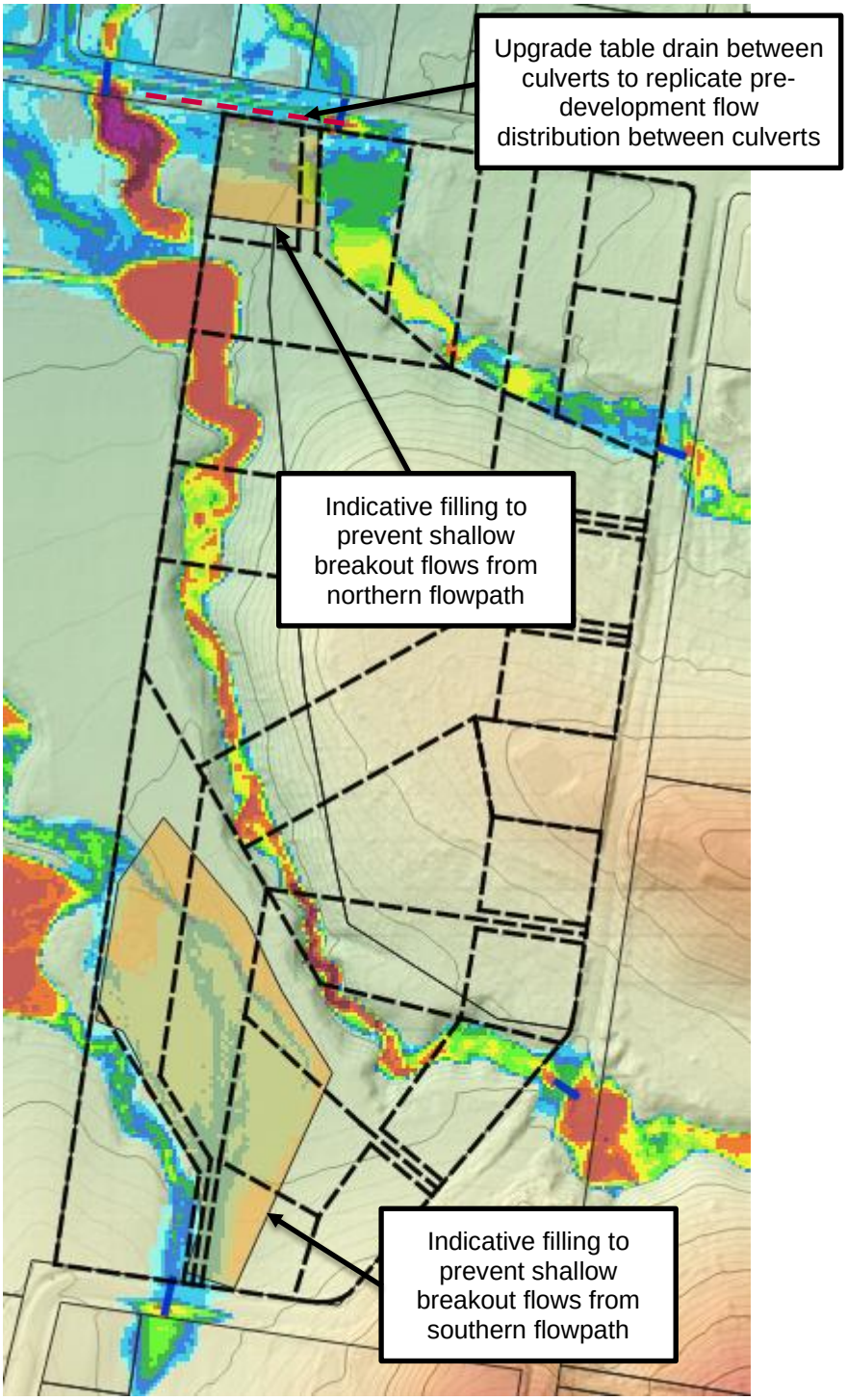

Figure 5-3 Representation of the Proposed Development in the TUFLOW Model and Pre-development 1% AEP Peak Depths

The results from the unmitigated scenario modelling indicates that the site can achieve an outcome with no fundamental changes in peak water levels offsite for all design events modelled. A detailed description of the results is as follows:

- There were minor increases in peak water surface levels immediately downstream of the southern flow path in the 1% AEP event, in the order of 11mm as illustrated in Figure 5-4. These increases were

restricted to the footprint of an existing dam and are not considered a worsening or nuisance. These increases were not noted to occur in the smaller design events.

  - The approved development to the west has indicated removal of this dam, but will include provision of two drainage easements and constructed channels to receive stormwater runoff from the site. Therefore, these impacts are likely to be restricted to a dedicated drainage channel.

- There were no impacts on the downstream property associated with the central flowpath.
- There were several changes to peak water levels noted to occur associated with the northern flowpath, which are compared for the 1% AEP, 10% AEP and 50% AEP event in Figure 5-5.
  - In the 1% AEP event, there were reductions in peak water levels on the private property to the north of Bauer Street. This was achieved by balancing the flows between the culvert fronting the site, and the next culvert to the west fronting the adjacent development via roadside drainage works. This has resulted in slight increases in peak water levels in the order of 11mm on the site to the west. This is not considered of consequence as it is within the drainage reserve and does not impact on the proposed lots. Further, it does not occur in the smaller design events.
  - The flowpath north of the site experienced increases in peak water levels of up to 20mm in the 10% AEP event and 50mm in the 50% AEP event. The increases in water level are associated with the removal of the existing dam and associated sheet flow across the western site boundary. This water now flows north via the culvert structure fronting the site.
  - There was no change noted in the inundation of Bauer Street.
- There we no increases in water levels further north of the site for the 1% and 10% AEP events, however there were increases of up to 30mm noted to occur over an approximate 750m stretch of the downstream drainage channels in the 50% AEP event as illustrated in Figure 5-6. These increases are restricted to an existing well defined drainage channel and have not resulted in a fundamental increase in flooding extent.

The results of the unmitigated scenario has indicated that the proposed development will not result in fundamental worsening in flooding conditions downstream of the site in the 1% AEP event. However there were minor impacts noted to occur in the smaller design events assessed on private property downstream of the site.

Figure 5-4 1% AEP Change in Peak WSL for Southern Flowpath

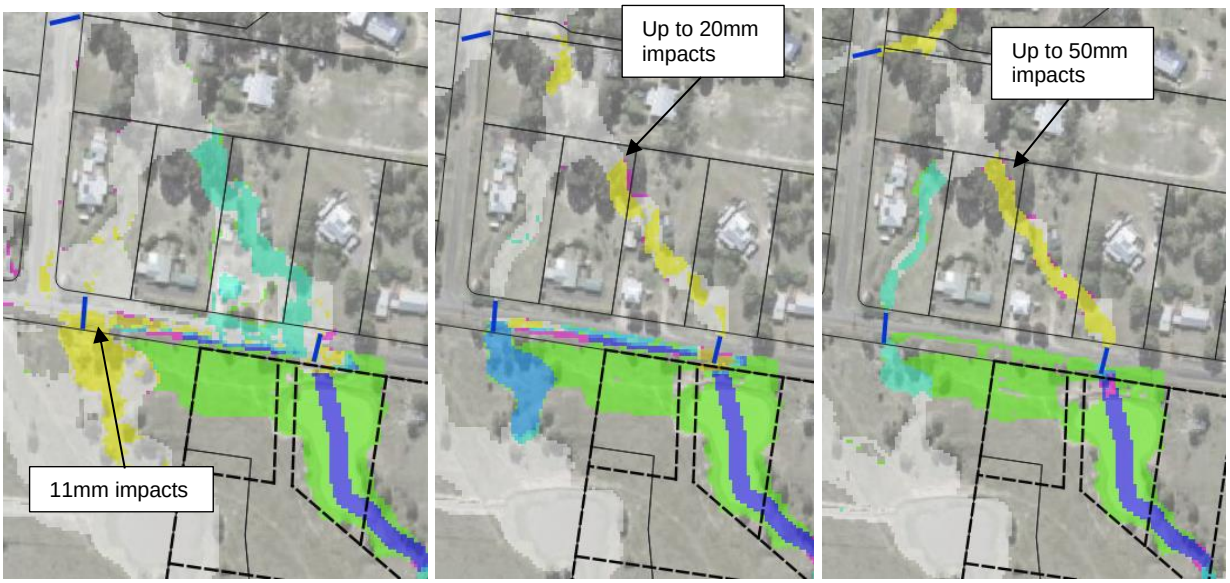

Figure 5-5 Unmitigated Offsite Impacts for the 1% AEP (LHS), 10% AEP (Central) and 50% AEP (RHS)

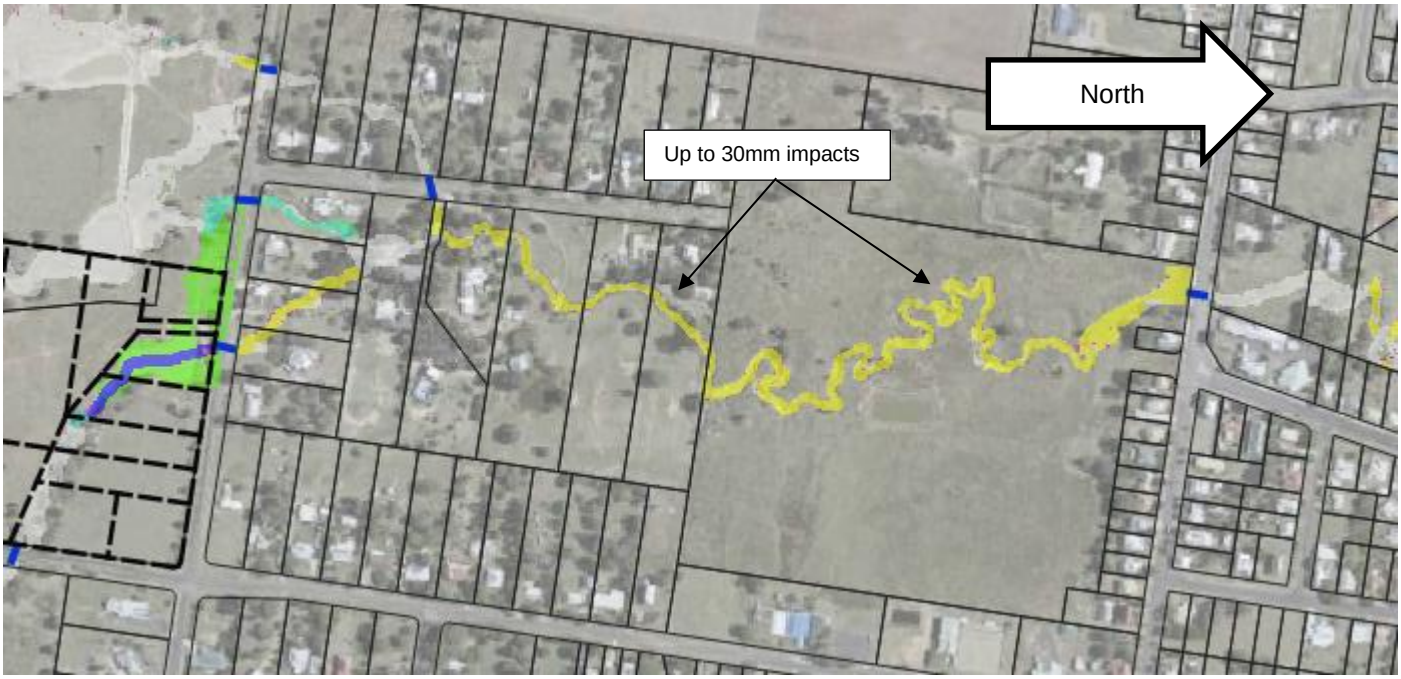

Figure 5-6 50% AEP Unmitigated Impacts North of the Site

5.6 Concept Mitigation Scenario Modelling

To address the minor impacts to private property, a stormwater mitigation strategy was developed consisting of a detention basin located at the downstream end of the northern flowpath to manage peak discharge from the site from the smaller design events.

A conceptual detention basin with the following parameters has been assessed using the TUFLOW model:

- 2,000m^2 footprint with approximately 1% cross-fall on the base towards the outlet pipe;
- Low flow outlet consisting of a single 600mm RCP with upstream invert of 72.7m AHD; and
- High flow weir with a width of 12m and invert of 74.5m AHD.

The above has only been approximated in TUFLOW and is intended to be refined at a later design stage including preparation of a bulk earthworks model for more accurate representation in TUFLOW. The approximate basin topography as generated by TUFLOW is illustrated in Figure 5-7, and resulting peak water surface levels and depths in Table 5-1.

The inclusion of the conceptual detention basin in the developed scenario has addressed the minor increase in peak water levels observed to the north of the site in the 50% AEP and 10% AEP design events, as illustrated in the results extract in Figure 5-8 and Figure 5-9. Full results are included in Appendix D.

The concept detention basin can readily be accommodated within the proposed drainage reserve and mitigate the minor increases in peak water levels that were otherwise observed to the north of the site if mitigation measures were not adopted.

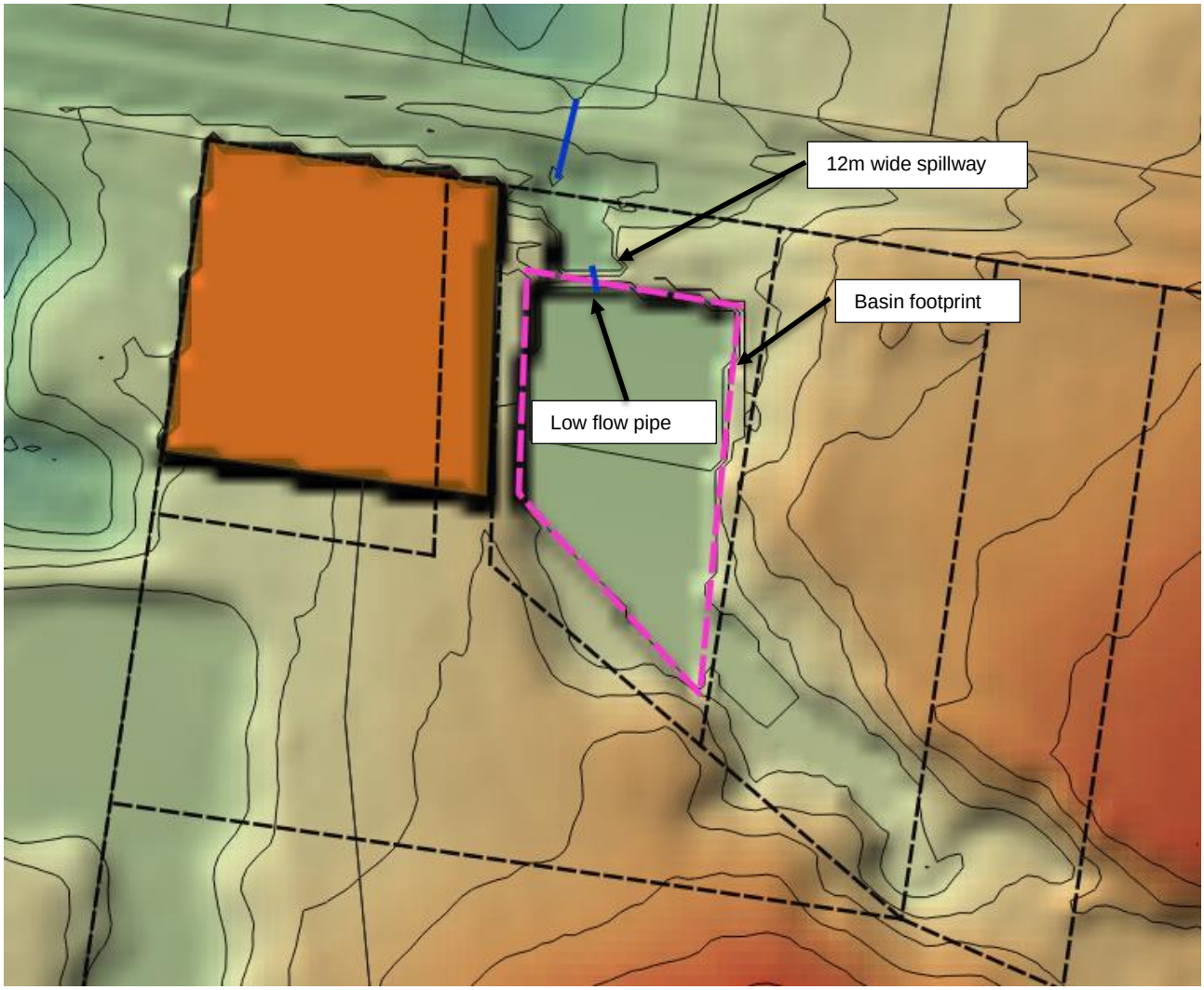

Figure 5-7 Conceptual Detention Basin for Northern Flowpath

Table 5-1 Conceptual Detention Basin Results

Design Event	Peak WSL (mAHD)	Depth (m)
1% AEP	74.9	2.2
10% AEP	74.7	2.0
50% AEP	73.5	0.8

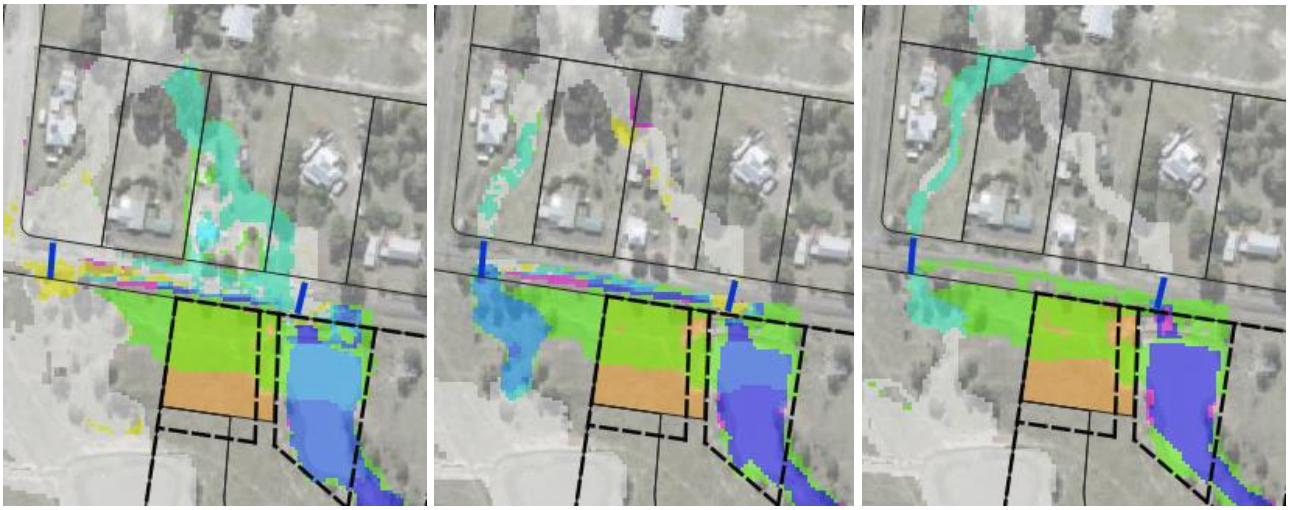

Figure 5-8 Mitigated Offsite Impacts for the 1% AEP (LHS), 10% AEP (Central) and 50% AEP (RHS)

Figure 5-9 50% AEP Mitigated Impacts North of the Site

5.7 Defined Flood Event

The developed scenario DFE level through the site has been established as part of the local hydraulic study, with the DFE based on a climate factor SSP1-2.6 for the year 2090. For the shorter duration events applicable at the site, this corresponds with an increase in rainfall intensity of 20% to 23% over the 1% AEP design storm event.

The resulting peak water surface levels for the mitigated developed scenario are included in Appendix E. The results indicate that there is sufficient flood free land available within each of the proposed lots to locate a building envelope outside of the flood extent. Finished floor levels will require provision of at least 300mm freeboard above the DFE.

6 CONCLUSION

Water Technology Pty Ltd (WT) has been commissioned by Lowood Hills Pty Ltd to prepare a hydraulic design report for a proposed development consisting of a 2 into 26 lot realignment of lot (ROL) over Lots 1 & 3 SP243182 which are located on Lowood Hills Road, Lowood in the Somerset Regional Council (SRC) local government area. The site is mapped with potential flood hazard area under the SRC planning scheme Flood hazard overlay, which necessitates further investigation to establish the defined flood level (DFL) and assess the potential for development works to cause a worsening in flooding offsite.

WT undertook flood modelling for several towns in the SRC LGA in 2020 (Somerset Flood Study by Water Technology dated September 2020) (WT 2020), including Lowood. This study formed the basis for this technical analysis of flooding matters, noting that refinements were made to hydrological and hydraulic model for this study.

The analysis has established that:

- Minor earthworks can be completed within the site to restrict the 'breakout' flows that occur associated with the southern and northern flowpaths, as these breakout flows are relatively shallow and do not provide a significant conveyance function.
- The proposed development will result in minor impacts on the adjacent property to the west, in the order of 11-12mm increase in peak water levels in the 1% AEP event. However, it is noted that these impacts occur in areas that have been dedicated to providing a stormwater conveyance function, being either constructed channels or drainage reserve, in the associated development approval.
- The removal of the existing dam in the northern flowpath and associated containment of breakout flows may result in localised increases in flood levels on private properties on the northern side of Bauer Street in smaller design events, noting that the increases do not occur in the larger design events such as the 1% AEP event.
- The minor increase in peak water levels to the north of the site in smaller design events can readily be mitigated though the provision of onsite detention in the northern flowpath, within the footprint of the existing dam. This technical analysis has considered a conceptual detention basin arrangement with a footprint of approximately 2,000m^2, with the basin design to be refined at a later design stage.
- The road frontage to Bauer Street and Lowood Hills remains trafficable in the 10% AEP design event
- The lot layout provides sufficient space within each lot to locate a building envelope outside of the defined flood event extent, which in this case adopted the climate factor SSP1-2.6 for the year 2090. For the shorter duration events applicable at the site, this corresponds with an increase in rainfall intensity of 20% to 23% over the 1% AEP design storm event.

On the basis of the above, it is contended that the development can be readily supported by Council.

APPENDIX A
PLAN OF DEVELOPMENT

PROPOSAL PLAN

NOT TO BE USED FOR ENGINEERING DESIGN OR CONSTRUCTION

NOTES

This plan was prepared as a conceptual layout only. The information on this plan is not suitable for any other purpose.

Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions.

No reliance should be placed on the information on this plan for detailed subdivision design or for any financial dealings involving the land.

Pavements and centrelines shown are indicative only and are subject to Engineering Design.

Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

PROJECTION: GDA2020 MGA56

SUBJECT BOUNDARIES: COMPILED FROM RECORD

CONTOURS: ELVIS - LIDAR

LOCAL OVERLAYS: SOMERSET REGIONAL COUNCIL

LEGEND

- Site Boundary
- Major Contour (1.0m interval)
- Proposed Easement for Drainage Purposes
- Proposed Access Easements 10m wide
- Road Widening
- No Access to Lowood Hills Road

NOTE: EXISTING EASEMENT A/SP243182 TO BE EXTINGUISHED

DEVELOPMENT STATISTICS			
RESIDENTIAL ALLOTMENTS	**No. Lots**	**%**	**Net Area**
3000m² - < 3500m²	7	26.9%	2.186 ha
3500m² - < 4000m²	4	15.4%	1.504 ha
> 4000m²	15	57.7%	10.916 ha
Total Residential Allotments	**26**	**100.0%**	**14.606 ha**
Land Budget	**Area (Ha)**	**%**	
Area of Subject Site / Stage	14.969 ha	—	
Net Residential Area (no roads)	14.607 ha	97.6%	
Detention / Drainage	0.358 ha	2.4%	
Road Widening	0.004 ha	0.0%	
Total	**14.969 ha**	**100.0%**	

RP DESCRIPTION: Lot 1&3 on RP243182

SCALE @A1 1:1000 @A3 1:2000 - LENGTHS ARE IN METRES

10 0 10 20 30 40 50 60 70 80 90 100 110 120

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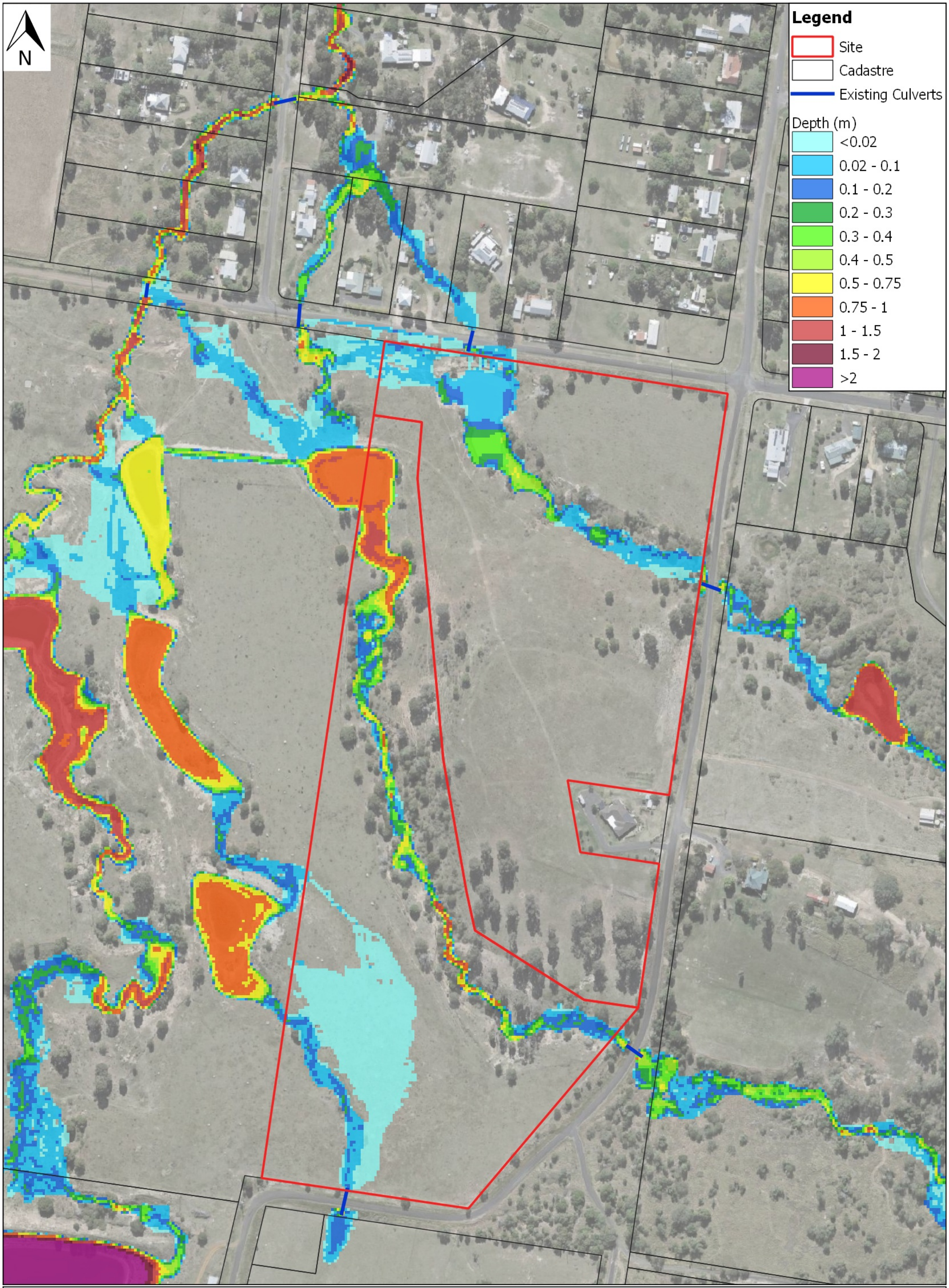
LOWOOD HILLS PTY LTD

LOWOOD HILLS ROAD, LOWOOD • 19/11/2024 • 12168 P 03 Rev A - PRO 01

APPENDIX B
EXISTING SCENARIO GIS FIGURES



Projection: GDA20 MGA56

Imagery Source: QLD Globe

Water Technology Pty Ltd

0 50 100 150 200 m

1:2,500

Lowood Hills Road Flood Study

50% AEP Existing Scenario Peak Water Depth

WATER TECHNOLOGY

N

Legend

- Site
- Cadastre
- Existing Culverts

Depth (m)

- <0.02
- 0.02 - 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4
- 0.4 - 0.5
- 0.5 - 0.75
- 0.75 - 1
- 1 - 1.5
- 1.5 - 2
- >2

Projection: GDA20 MGA56

Imagery Source: QLD Globe

Water Technology Pty Ltd

0 50 100 150 200 m

1:2,500

Lowood Hills Road Flood Study

10% AEP Existing Scenario Peak Water Depth

WATER TECHNOLOGY

N

Legend

- Site
- Cadastre
- Existing Culverts

Depth (m)

- <0.02
- 0.02 - 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4
- 0.4 - 0.5
- 0.5 - 0.75
- 0.75 - 1
- 1 - 1.5
- 1.5 - 2
- >2

Projection: GDA20 MGA56

Imagery Source: QLD Globe

Water Technology Pty Ltd

0 50 100 150 200 m

1:2,500

Lowood Hills Road Flood Study

1% AEP Existing Scenario Peak Water Depth

WATER TECHNOLOGY

N

Legend

- Site
- Cadastre
- Existing Culverts

Velocity (m/s)

- < 0.20
- 0.20 to 0.40
- 0.40 to 0.60
- 0.60 to 0.80
- 0.80 to 1.00
- 1.00 to 1.20
- 1.20 to 1.40
- 1.40 to 1.60
- 1.60 to 1.80
- 1.80 to 2.00
- > 2.00

Projection: GDA20 MGA56

Imagery Source: QLD Globe

Water Technology Pty Ltd

0 50 100 150 200 m

1:2,500

Lowood Hills Road Flood Study

50% AEP Existing Scenario Peak Water Velocity

WATER TECHNOLOGY

N

Legend

- Site
- Cadastre
- Existing Culverts

Velocity (m/s)

- < 0.20
- 0.20 to 0.40
- 0.40 to 0.60
- 0.60 to 0.80
- 0.80 to 1.00
- 1.00 to 1.20
- 1.20 to 1.40
- 1.40 to 1.60
- 1.60 to 1.80
- 1.80 to 2.00
- > 2.00

Projection: GDA20 MGA56

Imagery Source: QLD Globe

Water Technology Pty Ltd

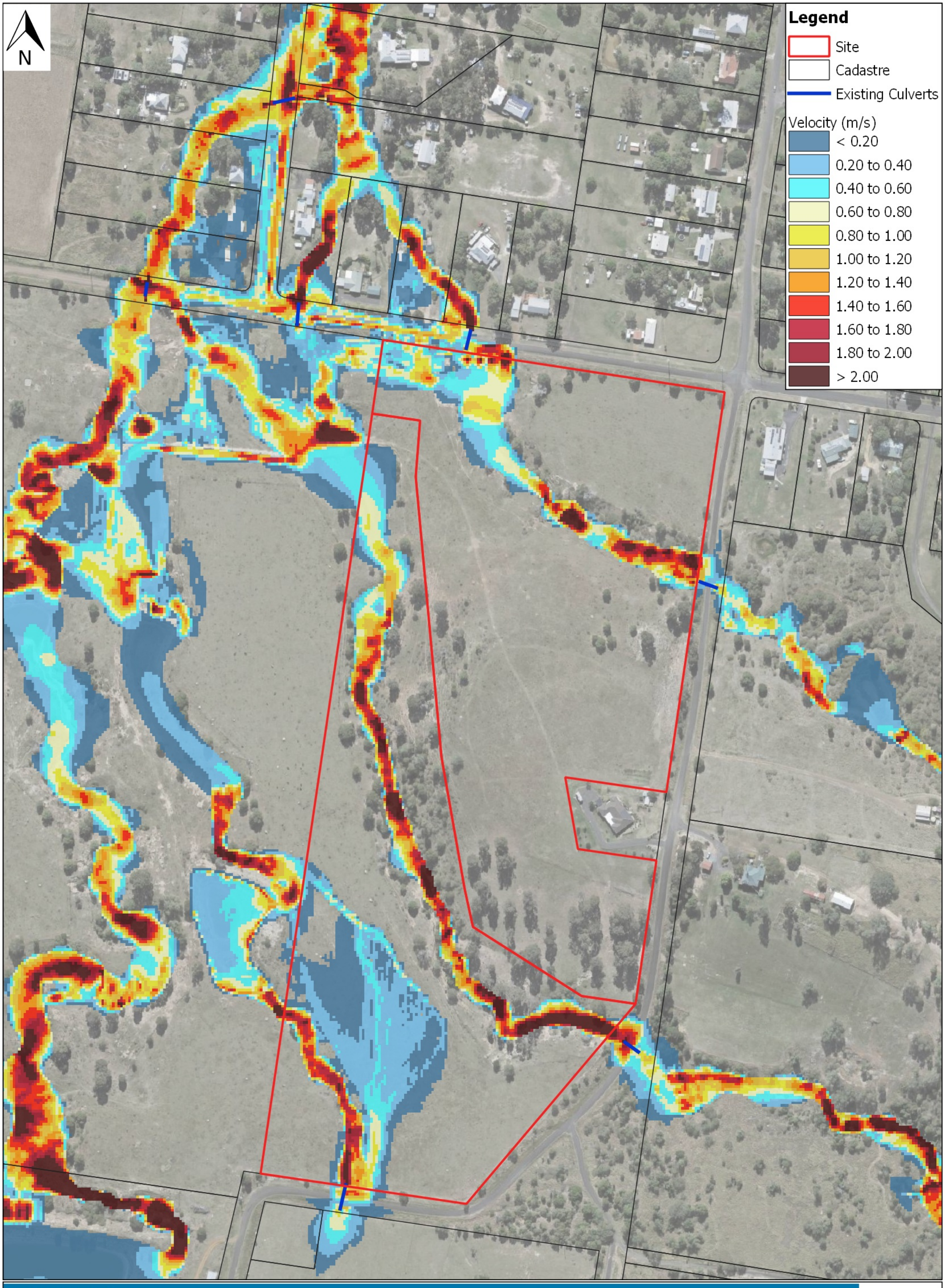
0 50 100 150 200 m

1:2,500

Lowood Hills Road Flood Study

10% AEP Existing Scenario Peak Water Velocity

WATER TECHNOLOGY



Projection: GDA20 MGA56

Imagery Source: QLD Globe

Water Technology Pty Ltd

0 50 100 150 200 m

1:2,500

Lowood Hills Road Flood Study

1% AEP Existing Scenario Peak Water Velocity

WATER TECHNOLOGY

APPENDIX C
DEVELOPED SCENARIO GIS FIGURES

N

Legend

- Development Layout
- Cadastre
- Existing Culverts
- Earthworks to Exclude Flooding

Depth (m)

- <0.02
- 0.02 - 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4
- 0.4 - 0.5
- 0.5 - 0.75
- 0.75 - 1
- 1 - 1.5
- 1.5 - 2
- >2

Projection: GDA20 MGA56

Imagery Source: QLD Globe

Water Technology Pty Ltd

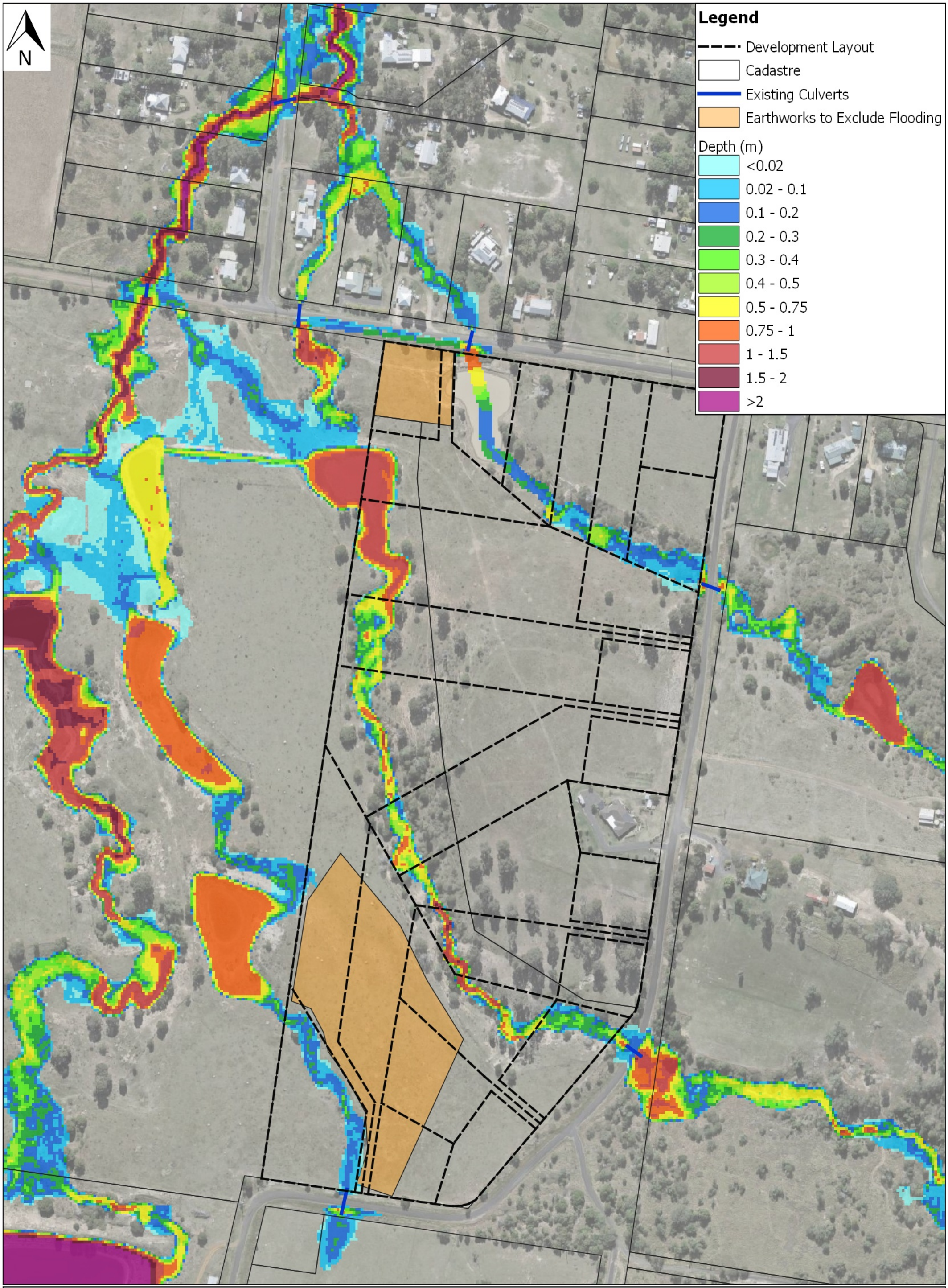
0 50 100 150 200 m

1:2,500

Lowood Hills Road Flood Study

50% AEP Developed Scenario Peak Water Depth

WATER TECHNOLOGY



Projection: GDA20 MGA56

Imagery Source: QLD Globe

Water Technology Pty Ltd

0 50 100 150 200 m

1:2,500

Lowood Hills Road Flood Study

10% AEP Developed Scenario Peak Water Depth

WATER TECHNOLOGY

N

Legend

- Development Layout
- Cadastre
- Existing Culverts
- Earthworks to Exclude Flooding

Depth (m)

- <0.02
- 0.02 - 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4
- 0.4 - 0.5
- 0.5 - 0.75
- 0.75 - 1
- 1 - 1.5
- 1.5 - 2
- >2

Projection: GDA20 MGA56

Imagery Source: QLD Globe

Water Technology Pty Ltd

0 50 100 150 200 m

1:2,500

Lowood Hills Road Flood Study

1% AEP Developed Scenario Peak Water Depth

WATER TECHNOLOGY

N

Legend

- Development Layout
- Cadastre
- Existing Culverts
- Earthworks to Exclude Flooding

Velocity (m/s)

- < 0.20
- 0.20 to 0.40
- 0.40 to 0.60
- 0.60 to 0.80
- 0.80 to 1.00
- 1.00 to 1.20
- 1.20 to 1.40
- 1.40 to 1.60
- 1.60 to 1.80
- 1.80 to 2.00
- > 2.00

Projection: GDA20 MGA56

Imagery Source: QLD Globe

Water Technology Pty Ltd

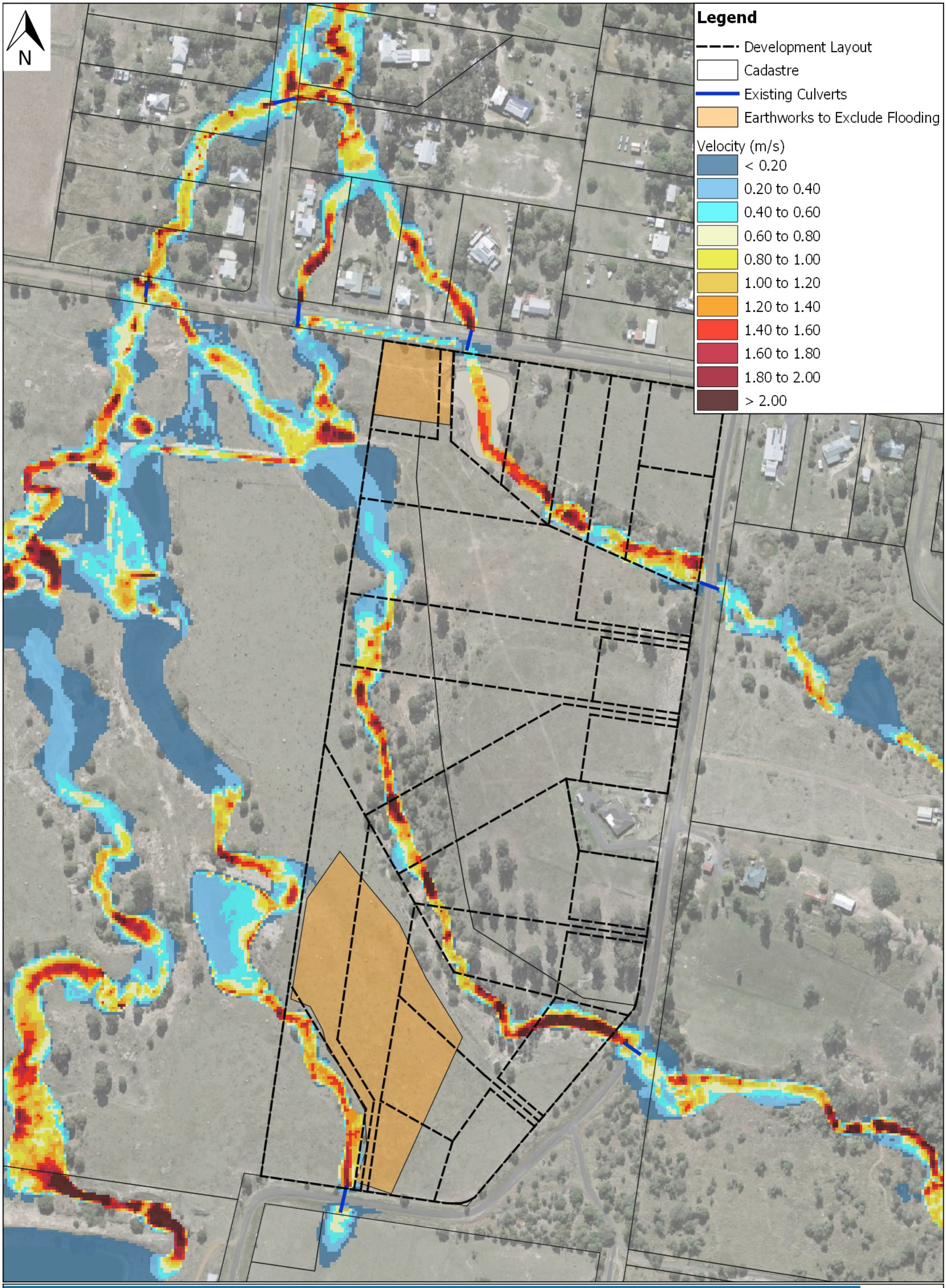
0 50 100 150 200 m

1:2,500

Lowood Hills Road Flood Study

50% AEP Developed Scenario Peak Water Velocity

WATER TECHNOLOGY



Projection: GDA20 MGA56

Imagery Source: QLD Globe

Water Technology Pty Ltd

0 50 100 150 200 m

1:2,500

Lowood Hills Road Flood Study
10% AEP Developed Scenario Peak Water Velocity

WATER TECHNOLOGY

N

Legend

- Development Layout
- Cadastre
- Existing Culverts
- Earthworks to Exclude Flooding

Velocity (m/s)

- < 0.20
- 0.20 to 0.40
- 0.40 to 0.60
- 0.60 to 0.80
- 0.80 to 1.00
- 1.00 to 1.20
- 1.20 to 1.40
- 1.40 to 1.60
- 1.60 to 1.80
- 1.80 to 2.00
- > 2.00

Projection: GDA20 MGA56

Imagery Source: QLD Globe

Water Technology Pty Ltd

0 50 100 150 200 m

1:2,500

Lowood Hills Road Flood Study

1% AEP Developed Scenario Peak Water Velocity

WATER TECHNOLOGY

N

Legend

- Development Layout
- Cadastre
- Existing Culverts
- Earthworks to Exclude Flooding

Depth Impacts (m)

- <= -0.3
- -0.3 - -0.2
- -0.2 - -0.1
- -0.1 - -0.05
- -0.05 - -0.01
- -0.01 - 0.01
- 0.01 - 0.05
- 0.05 - 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- > 0.3
- Was Wet Now Dry
- Was Dry Now Wet

Projection: GDA20 MGA56

Imagery Source: QLD Globe

Water Technology Pty Ltd

0 50 100 150 200 m

1:2,500

Lowood Hills Road Flood Study

50% AEP Developed Scenario Change in Peak Water Surface Levels

WATER TECHNOLOGY

N

Legend

- Development Layout
- Cadastre
- Existing Culverts
- Earthworks to Exclude Flooding

Depth Impacts (m)

- <= -0.3
- -0.3 - -0.2
- -0.2 - -0.1
- -0.1 - -0.05
- -0.05 - -0.01
- -0.01 - 0.01
- 0.01 - 0.05
- 0.05 - 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- > 0.3
- Was Wet Now Dry
- Was Dry Now Wet

Projection: GDA20 MGA56

Imagery Source: QLD Globe

Water Technology Pty Ltd

0 50 100 150 200 m

1:2,500

Lowood Hills Road Flood Study

10% AEP Developed Scenario Change in Peak Water Surface Levels

WATER TECHNOLOGY

N

Legend

- Development Layout
- Cadastre
- Existing Culverts
- Earthworks to Exclude Flooding

Depth Impacts (m)

- <= -0.3
- -0.3 - -0.2
- -0.2 - -0.1
- -0.1 - -0.05
- -0.05 - -0.01
- -0.01 - 0.01
- 0.01 - 0.05
- 0.05 - 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- > 0.3
- Was Wet Now Dry
- Was Dry Now Wet

Projection: GDA20 MGA56

Imagery Source: QLD Globe

Water Technology Pty Ltd

0 50 100 150 200 m

1:2,500

Lowood Hills Road Flood Study

1% AEP Developed Scenario Change in Peak Water Surface Levels

WATER TECHNOLOGY

N

Legend

- Development Layout
- Cadastre
- Existing Culverts
- Earthworks to Exclude Flooding

Velocity Impacts (m/s)

- <= -0.5
- -0.5 - -0.25
- -0.25 - -0.1
- -0.1 - 0.1
- 0.1 - 0.25
- 0.25 - 0.5
- > 0.5
- Was Wet Now Dry
- Was Dry Now Wet

Projection: GDA20 MGA56

Imagery Source: QLD Globe

Water Technology Pty Ltd

0 50 100 150 200 m

1:2,500

Lowood Hills Road Flood Study

50% AEP Developed Scenario Change in Peak Water Velocity

WATER TECHNOLOGY

N

Legend

- Development Layout
- Cadastre
- Existing Culverts
- Earthworks to Exclude Flooding

Velocity Impacts (m/s)

- <= -0.5
- -0.5 - -0.25
- -0.25 - -0.1
- -0.1 - 0.1
- 0.1 - 0.25
- 0.25 - 0.5
- > 0.5
- Was Wet Now Dry
- Was Dry Now Wet

Projection: GDA20 MGA56

Imagery Source: QLD Globe

Water Technology Pty Ltd

0 50 100 150 200 m

1:2,500

Lowood Hills Road Flood Study

10% AEP Developed Scenario Change in Peak Water Velocity

WATER TECHNOLOGY

N

Legend

- Development Layout
- Cadastre
- Existing Culverts
- Earthworks to Exclude Flooding

Velocity Impacts (m/s)

- <= -0.5
- -0.5 - -0.25
- -0.25 - -0.1
- -0.1 - 0.1
- 0.1 - 0.25
- 0.25 - 0.5
- > 0.5
- Was Wet Now Dry
- Was Dry Now Wet

Projection: GDA20 MGA56

Imagery Source: QLD Globe

Water Technology Pty Ltd

0 50 100 150 200 m

1:2,500

Lowood Hills Road Flood Study

1% AEP Developed Scenario Change in Peak Water Velocity

WATER TECHNOLOGY

APPENDIX D
MITIGATED DEVELOPMENT GIS FIGURES

N

Legend

- Development Layout
- Cadastre
- Earthworks to Exclued Flooding
- Existing Culverts

Depth (m)

- <0.02
- 0.02 - 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4
- 0.4 - 0.5
- 0.5 - 0.75
- 0.75 - 1
- 1 - 1.5
- 1.5 - 2
- >2

Projection: GDA20 MGA56

Imagery Source: QLD Globe

Water Technology Pty Ltd

0 50 100 150 200 m

1:2,500

Lowood Hills Road Flood Study

50% AEP Mitigated Scenario Peak Water Depth

WATER TECHNOLOGY

N

Legend

- Development Layout
- Cadastre
- Earthworks to Exclued Flooding
- Existing Culverts

Depth (m)

- <0.02
- 0.02 - 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4
- 0.4 - 0.5
- 0.5 - 0.75
- 0.75 - 1
- 1 - 1.5
- 1.5 - 2
- >2

Projection: GDA20 MGA56

Imagery Source: QLD Globe

Water Technology Pty Ltd

0 50 100 150 200 m

1:2,500

Lowood Hills Road Flood Study

10% AEP Mitigated Scenario Peak Water Depth

WATER TECHNOLOGY

N

Legend

- Development Layout
- Cadastre
- Earthworks to Exclued Flooding
- Existing Culverts

Depth (m)

- <0.02
- 0.02 - 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4
- 0.4 - 0.5
- 0.5 - 0.75
- 0.75 - 1
- 1 - 1.5
- 1.5 - 2
- >2

Projection: GDA20 MGA56

Imagery Source: QLD Globe

Water Technology Pty Ltd

0 50 100 150 200 m

1:2,500

Lowood Hills Road Flood Study

1% AEP Mitigated Scenario Peak Water Depth

WATER TECHNOLOGY