

23 July 2025

Ref: L.30257.002

Joshua Botten
Economic Development Queensland
GPO Box 2202
Brisbane Qld 4001

Dear Joshua

Yumba-Meta Oonoona (Lot 5000 on SP302846)
Application Reference: DEV-2026-OBA-4730
Response to Information Request- Flooding

1. Purpose and Background

Item 6 of the information request relates to flooding.

'Flood impacts

6. Demonstrate that flood storage loss and floor levels comply with the Townsville City Plan flood overlay code.'

This letter provides a response to this item.

2. Floor Levels

2.1 Relevant Design Standard

Table SC1.2.2 of Schedule 1 of *Townsville City Plan* (Version 2025/01 current at the date of this letter, hereafter referred to as the **2025 Planning Scheme**) states that the defined flood event is the '*1% annual exceedance probability (AEP) flood*' and that the Defined Flood Level means '*the level to which it is reasonably expected that flood waters may rise.*'

It is noted that the definition of the Defined Flood Level has changed since Version 2024/1 of the planning scheme. For Version 2024/1 of the planning scheme, the defined flood level is the '*flood level relative to the Australian Height Datum (AHD) of the 1% AEP flood.*'

Given the lack of specificity in relation to the event associated with the Defined Flood Level, this letter assumes that the 1% AEP flood defined with respect to the Defined Flood Event is the Defined Flood Level. It is considered that this approach is consistent with the planning schemes for developments such as this that do not require additional flood immunity.

To comply Acceptable Outcome AO1.2 of the *Flood Hazard Overlay Code* of the 2025 Planning Scheme, it is necessary for :

- a) '*floor levels of all habitable rooms are a minimum of 300mm above the defined flood level;*
- b) '*floor levels of all non-habitable rooms (other than class 10 buildings) are above the defined flood event;*'

Section SC6.7.4.4.7 of the *Flood hazard planning scheme policy* of the 2025 Planning Scheme states that a sensitivity assessment should be undertaken as part of a flood study.

To provide appropriate immunity, it is considered appropriate to set habitable floor levels at the higher of:

- a) The 1% AEP flood level plus 300mm; and
- b) The 1% AEP flood level including climate change.

2.2 Flood Levels

2.2.1 Appropriate Source of Flood Level Data

It is understood that the current Council flood mapping is based on the previous flood study of the Ross River, as reported in the Ross River Flood Study, Base-line Flooding Assessment (Aecom, January 2013, the **2013 Ross River Flood Study**). Due to its age, the flood modelling captured conditions prior to the current development of the Onoonba area.

The flood mapping, flood levels and flood depths based on the 2013 Ross River Flood Study are presented in Figure 1.

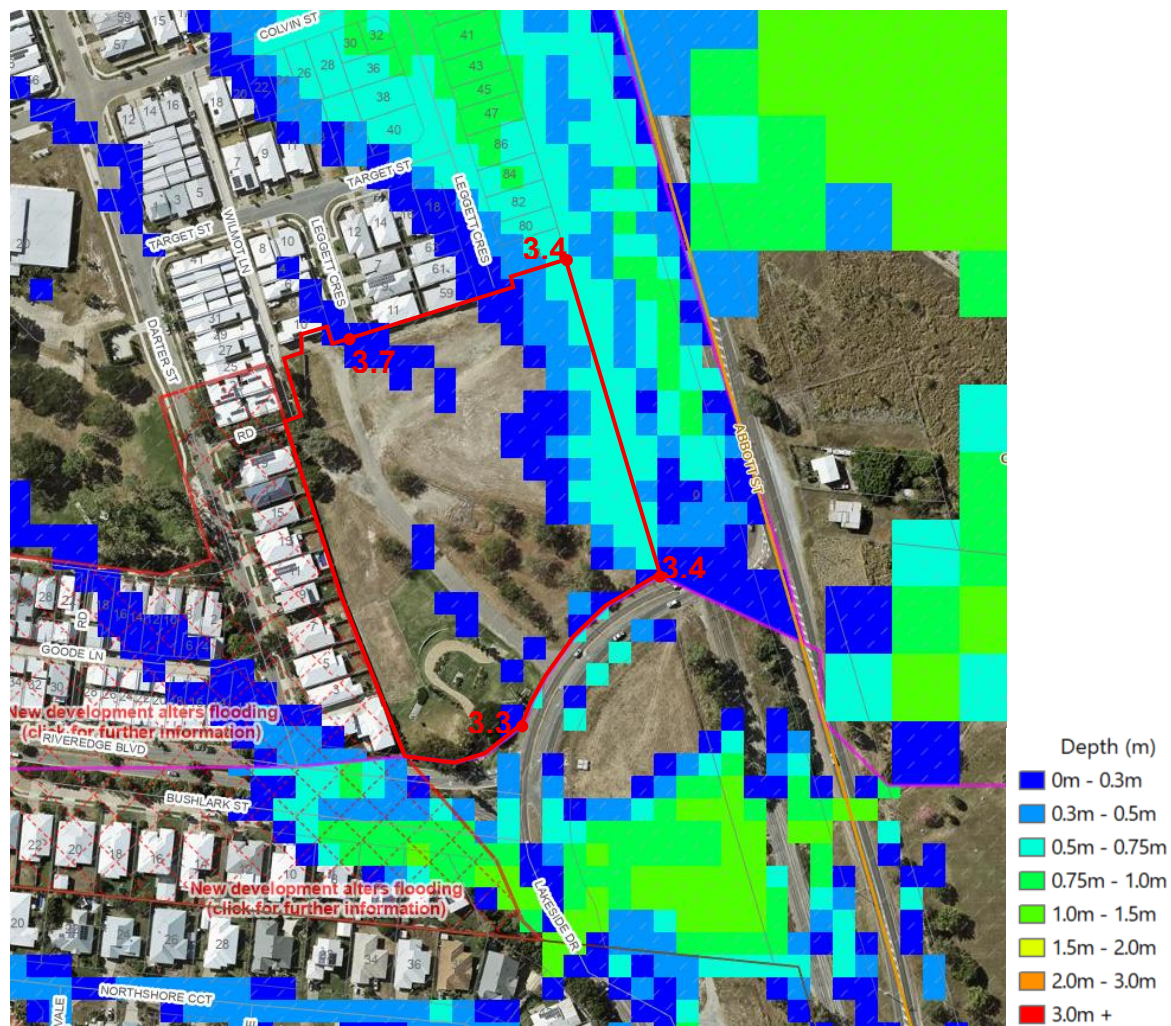


Figure 1 Flood Levels and Depths, 1% AEP Event, Current Planning Scheme

Subsequent to the February 2019 Event, Council commissioned new flood modelling of the Ross River. The results of the modelling are presented in the Aecom report Ross River Flood Study, Base-line Flooding Assessment (Revision A, October 2021, the **2021 Ross River Flood Study**).

Given that the mapping derived from the 2021 Ross River Flood Study reflects the most advanced modelling of the river system available and is expected to be adopted by Council in the short-medium term, it is considered that the flood level information contained in the Ross River Flood Study should be used in preference to the mapping under the current Planning Scheme.

It is noted that the flood levels at the Site nominated in the 2021 Ross River Flood Study are slightly higher than those nominated under the current Planning Scheme mapping.

The ground level data considered for the 2021 Ross River Flood Study was generally based on 2016 LiDAR data, with 2019 LiDAR data used in areas (including The Village in Oonoonba) where development has taken place since the capture of the 2016 LiDAR data (Section 3.1.2 of the Ross River Flood Study). This results in the flood mapping for the area reflecting the current situation rather than the situation prior to the development that has occurred.

2.2.2 Local and Regional Flooding

Figure 2 presents the peak flood depths for the 1% AEP event, with the figure annotated to show the levels associated with the 1% AEP climate change event.

It is relevant to note that the general mapping provided by the 2021 Ross River Flood Study includes local runoff modelling and regional (Ross River) modelling. It is necessary to differentiate between the two.

To demonstrate this, Figure 3 presents the flood levels and extent calculated with respect to regional flooding.

Comparing the two figures, it is noted that the shallow inundation nominated with respect to the northern part of the site is associated with local catchment runoff.

For the modelling of local catchment runoff, the 2021 Ross River Flood Study used a 'rainfall on grid' approach where rainfall is applied directly to each model cell.

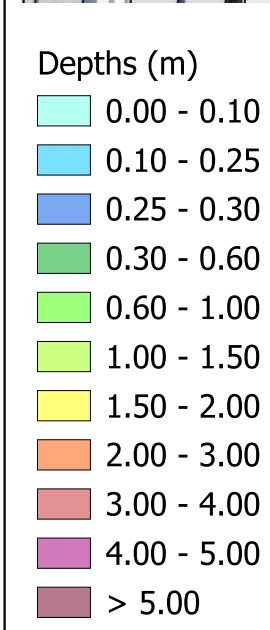
Based on a review of ground levels, it is considered that the local catchment relevant to the site is essentially the site itself. The existing lots to the west drain to the west away from the site, and the lots to the north are drained to the north. Consequently, it is considered that the inundation mapped with respect to local catchment modelling is effectively runoff from the site itself. Following from this point, this runoff can be managed using standard subdivisional drainage.

A similar conclusion is drawn in relation to the 3.7 mAHD level nominated at the northern site boundary on Figure 1 from the 2013 Ross River Flood Study.

Therefore, it is considered that it is only necessary to consider regional flooding and the levels shown on Figure 2 with respect to development/ floor levels.

2.3 Comparison to Proposed Levels

LCJ Engineers prepared civil engineering plans in support of the application. Drawings ROSE012-C08 Rev B and ROSE012 C09 Rev B present that earthworks plans for the site. The plans are shown on Figure 4.



Data Sources: Photography: Google Earth Topography: 2019 Lidar Cadastral: Queensland Globe Coordinate System: GDA94 / MGA zone 55 Water Engineering Partners endeavours to ensure that the information provided in this map is correct at the time of publication. Water Engineering Partners does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.	Legend: ● Peak 1% AEP Ross River Level (mAHD) □ Stage 7	N	PROJECT: The Village - Oonoonba CLIENT: Economic Development Queensland	FILE: Stage 7 Peak 1% AEP Flood Depths SCALE: 0 18 36 m FIGURE NUMBER: 2 DATE: 14-May-2025
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* Note: Depths below 100mm are not reported

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Data Sources:
Photography: Google Earth
Topography: 2019 Lidar
Cadastral: Queensland Globe
Coordinate System: GDA94 / MGA zone 55

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Legend:

- Peak 1% AEP Ross River Level (mAHD)
- Stage7



PROJECT: The Village - Ooononba

CLIENT: Economic Development Queensland

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TITLE: Stage 7 Peak Flood Levels

SCALE: 0 18 36 m

FIGURE NUMBER: 3

REVISION:

DATE: 14-May-2025

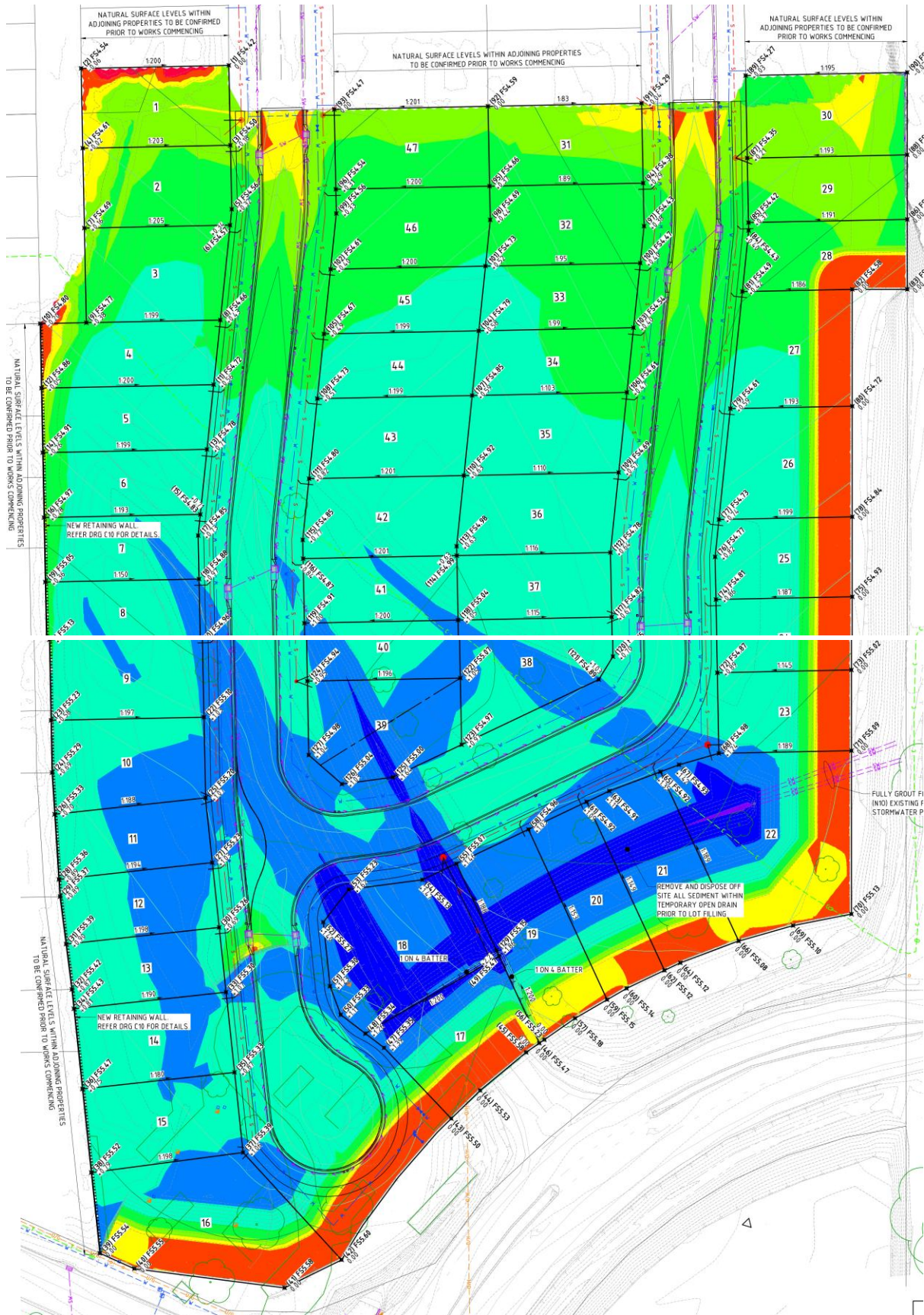


Figure 4 Earthworks Plans

With reference to Figure 4, lot levels range from a minimum of 4.27 mAHD in the north to a maximum of 5.6 mAHD in the south. These levels are well above the 1% AEP level plus 300 mm and the 1% AEP level including climate change nominated in the 2021 Ross River Flood Study.

Consequently, the formation of the lots will yield ground levels compliant with the requirements of the Planning Scheme and automatically result in floor levels in excess of those required to satisfy the Planning Scheme.

2.4 2019 Event

As a final consideration, the largest flood event in recent times occurred in February 2019. It is relevant to note that the February 2019 event was an extreme event well in excess of the design standard for flood immunity in the planning scheme. Based on available information, it is estimated that the 2019 event was in excess of a 0.05% AEP (2,000 year) event at Rooney's Bridge.

According to the 2021 Ross River Flood Study, relevant flood levels for the 2019 event in relation to the Site are:

- Ross River at Rooney's Bridge: 4.35 mAHD (Figure 23); and
- Debris level at Darter Street: 4.73 mAHD (Table 15).

Figure 5 presents the results of modelling of the 2019 event documented in Figure 4-1 of the BMT report *The Village Oonoonba – Review of Constructed Development Levels* (Revision 4, February 2020).

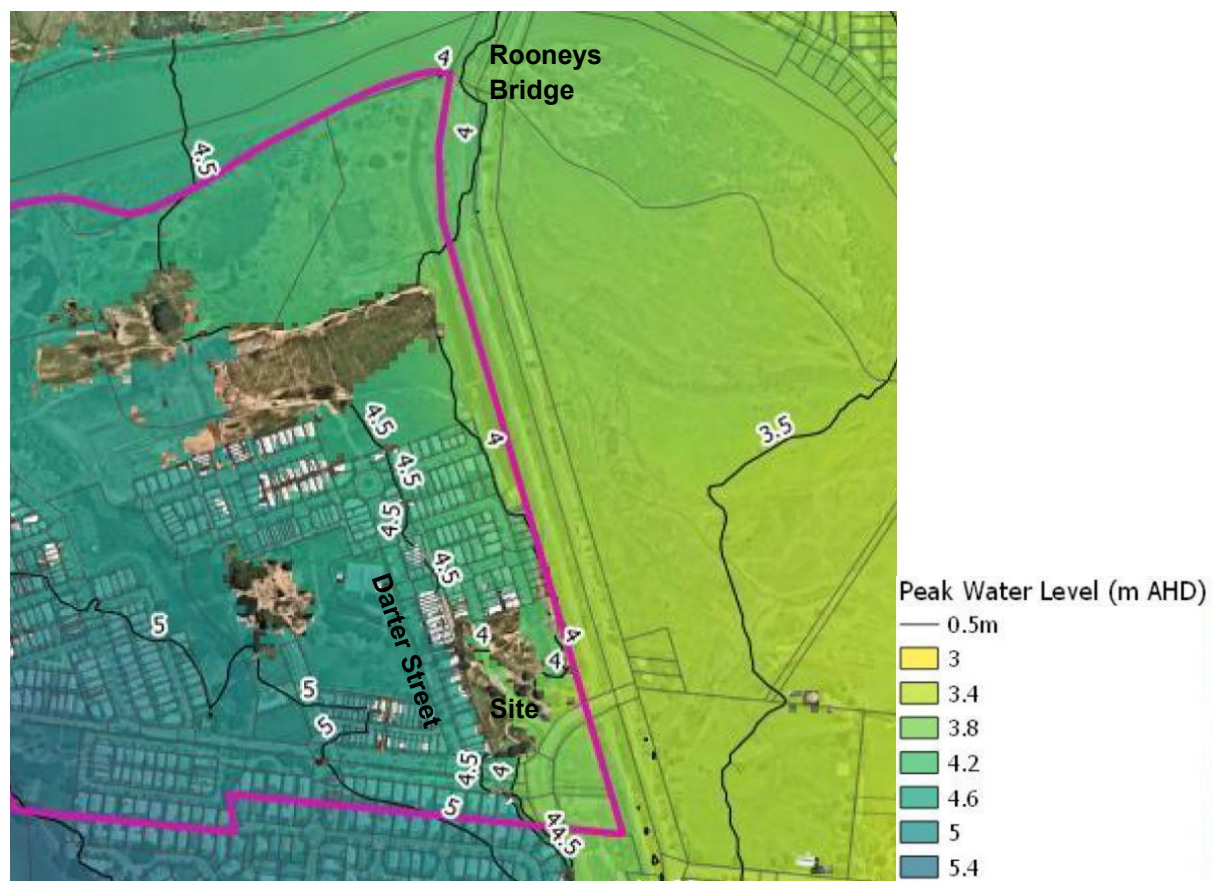


Figure 5 Modelled Flood Levels, 2019 Event

With reference to Figure 5, the flood level for the 2019 event at the eastern boundary of the Site is of the order of 4 mAHD, increasing to 4.5 mAHD to the north and west of the Site.

Noting that houses typically have slabs 200mm above ground level, it is considered that houses on the lots will be set at levels above those associated with the 2019 flood event, thereby providing a high level of immunity.

3.0 Flood Impacts

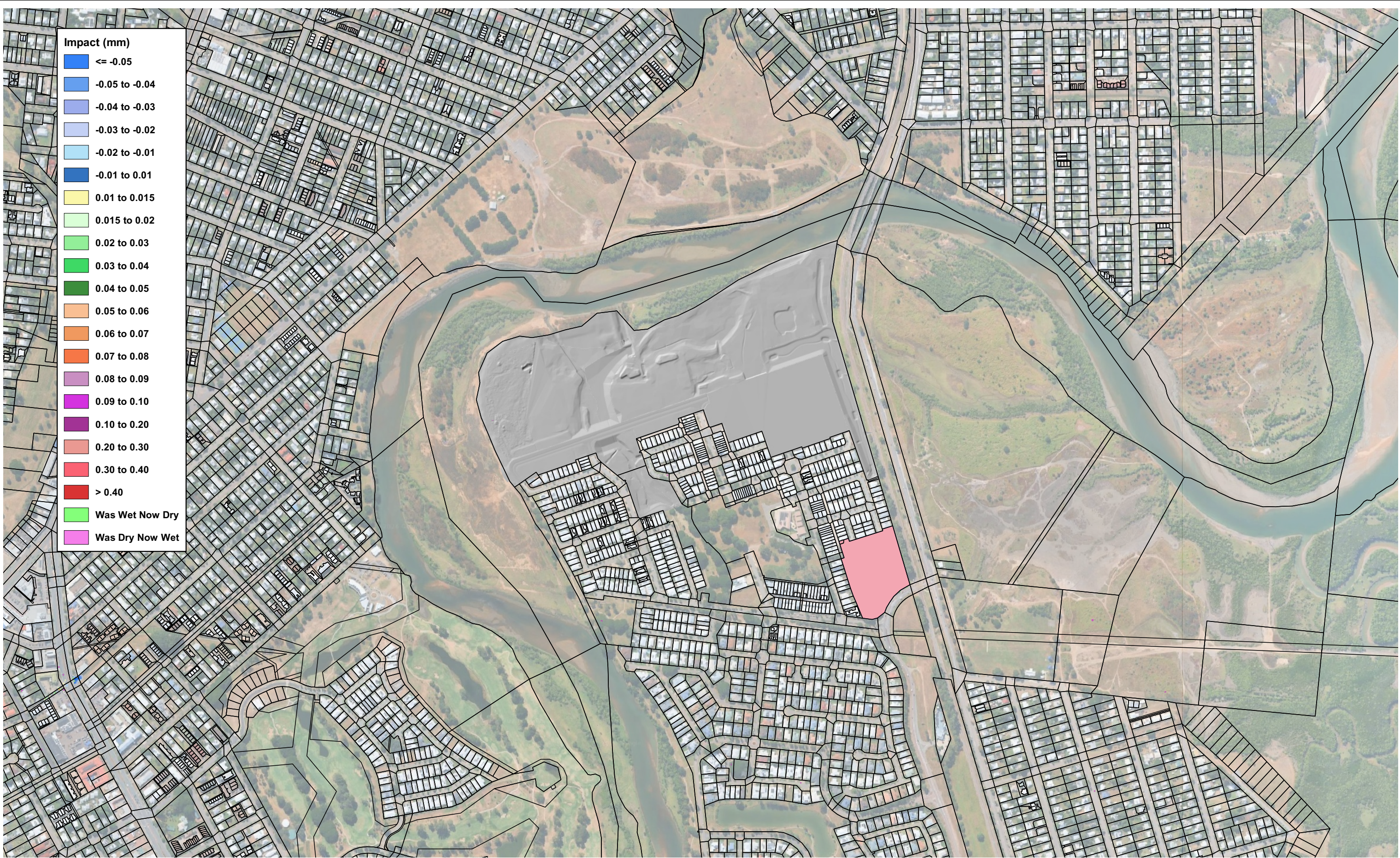
The flood model from the 2021 Ross River Flood Study was used to assess the impact of filling those parts of the Site not already above the 1% AEP event flood level to above the 1% AEP flood level. This conservatively included filling the entire site including the drainage/ open space area in the east and south.

For the assessment, to be conservative the identified future works in Oonoonba were considered for the base case. It is noted that an alternate base case would not yield a different result to that obtained in this case.

The resultant impact mapping is provided in Figure 6.

With reference to Figure 6, no impact is shown as the change in level is less than 0.1 mm.

It is considered that development of the Site can occur without impacting on flood levels.



DATA SOURCE:
Photography: Google Earth

Topography:

Cadastral: © The State of Queensland (Department of Resources), 2024

Coordinate System: GDA94 / MGA zone 55

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Legend

Property Boundaries Fill

PROJECT:
Flood Modelling - Whole of Site - Oonoonba

CLIENT:
Economic Development Queensland

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TITLE:
1% AEP Flood Impacts - (Dev06_Stage7-Dev06)

SCALE:
0 100 200 m

FIGURE:
6

REV:

DATE:
22-July-2026

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4.0 Flood Storage

Section 4 of the LCJ Engineers Engineering Report (Issue 2, March 2026) indicates that development of the site will involve the loss of 115 m³ of flood storage to a level of 3.51 mAHD (the 1% AEP climate change level rather than the lower 1% AEP level typically used for calculations).

As discussed in Section 3, this loss of storage will not result in any real impact on flood levels.

It is also relevant to note that development of the Site has been previously approved. The approved plans under DEV2016/749 include filling a greater area than that currently proposed. Figure 7 presents the preliminary bulk earthworks plan for the Site (Calibre Consulting Drawing 15-000745-SK16 Issue B).



Figure 7 Previously Approved Plan of Development

With reference to Figure 7, the proposed fill levels are of the order of 4.1 to 4.4 mAHD, which is above the 1% AEP event flood level (3.46 mAHD).

Consequently, it is considered filling the entire site to above the 1% AEP event flood level and its associated loss of storage has been previously approved. It is further noted that the proposed works will involve less filling than that previously approved due to the inclusion of the buffer areas to the east and south.

Given this, it is considered that the loss of flood storage associated with the proposed development is not relevant due to the previous approval that allowed filling of the entire Site.

5.0 Conclusion

Item 6 of the information request is as follows:

‘Demonstrate that flood storage loss and floor levels comply with the Townsville City Plan flood overlay code.’

Based on the material presented in the preceding sections, the response to the information request can be summarised as follows:

- In terms of flood storage, the small amount of filling associated with development of the Site was previously approved to occur and will not result in any change in regional flood level; and
- The formation of the lots will yield ground levels compliant with the requirements of the Planning Scheme and automatically result in floor levels in excess of those required to satisfy the Planning Scheme (and provide immunity to the flood levels associated with the 2019 flood).

Consequently, it is considered that the proposed development will comply with the Townsville City Plan Flood hazard overlay code with respect to flood storage and floor levels.

If you have any queries in relation to this information, please do not hesitate to contact me.

Yours faithfully



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Water Engineering Partners Pty Ltd