





Amendment C131 – Land Subject to Inundation Overlay and Floodway Overlay

Peer Review Report

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Executive summary

The Latrobe City Council (Council) engaged Venant Solutions to undertake a peer review of the mapping and background documents for the Planning Scheme Amendment C131 and to assist Council in establishing a path forward. Amendment C131 will update the Land Subject to Inundation Overlay (LSIO) and Floodway Overlay (FO). The Planning and Environment Act 1987 (Vic) (the Act) and the Victoria Planning Provisions (VPPs) place a clear onus on the planning authority (Council) to ensure that flooding information is clearly shown in planning schemes and taken into consideration as part of the planning application process. Amendment C131 assists in Council meeting these obligations.

The scope of the peer review included:

- Identify the FO and LSIO updates and the flood modelling work undertaken that underpins the updates
- Review the suitability of the modelling work for planning scheme amendments
- Review the overlay mapping to determine if it provides a good representation of the flood modelling outputs and floodplain topography
- Review how climate change considerations have been addressed
- Review the other related planning scheme amendments and development plans to determine if they impact on overlays
- Review the submissions and subsequent amendments following the exhibition of Amendment C131
- In consultation with Council, the West Gippsland Catchment Authority (WGCMA) and the Department of Transport & Planning (DTP) to establish whether or not to proceed with the amendment, and if proceeding recommend changes, if any, to the amendment.

Venant Solutions prepared an initial report which documented the review findings. This document informed a workshop held on the 28 July 2023 with representatives from Council, WGCMA, DTP and Venant Solutions. The outcome from this process is a recommendation that Amendment C131 proceed with the following key revisions:

- Exclude the areas where the revised or new overlays are not supported by documentation
- Document the reasoning and method for revisions made to the current overlays by WGCMA
- Update the draft versions of the flood study documents to final version
- Adopt the 20% increase rainfall intensity scenario mapping from the Latrobe Flood Study to include allowance for climate change along the Latrobe River floodplain
- For Morwell North-West Development Contribution Plan (DCP) area update the overlays to represent developed conditions
- Up the FO area to the north of Baldwin Rd within the General Residential Zone (Amendment C138) to be LSIO
- Remove the areas of urban stormwater flooding in Traralgon from the LSIO.

1 Introduction

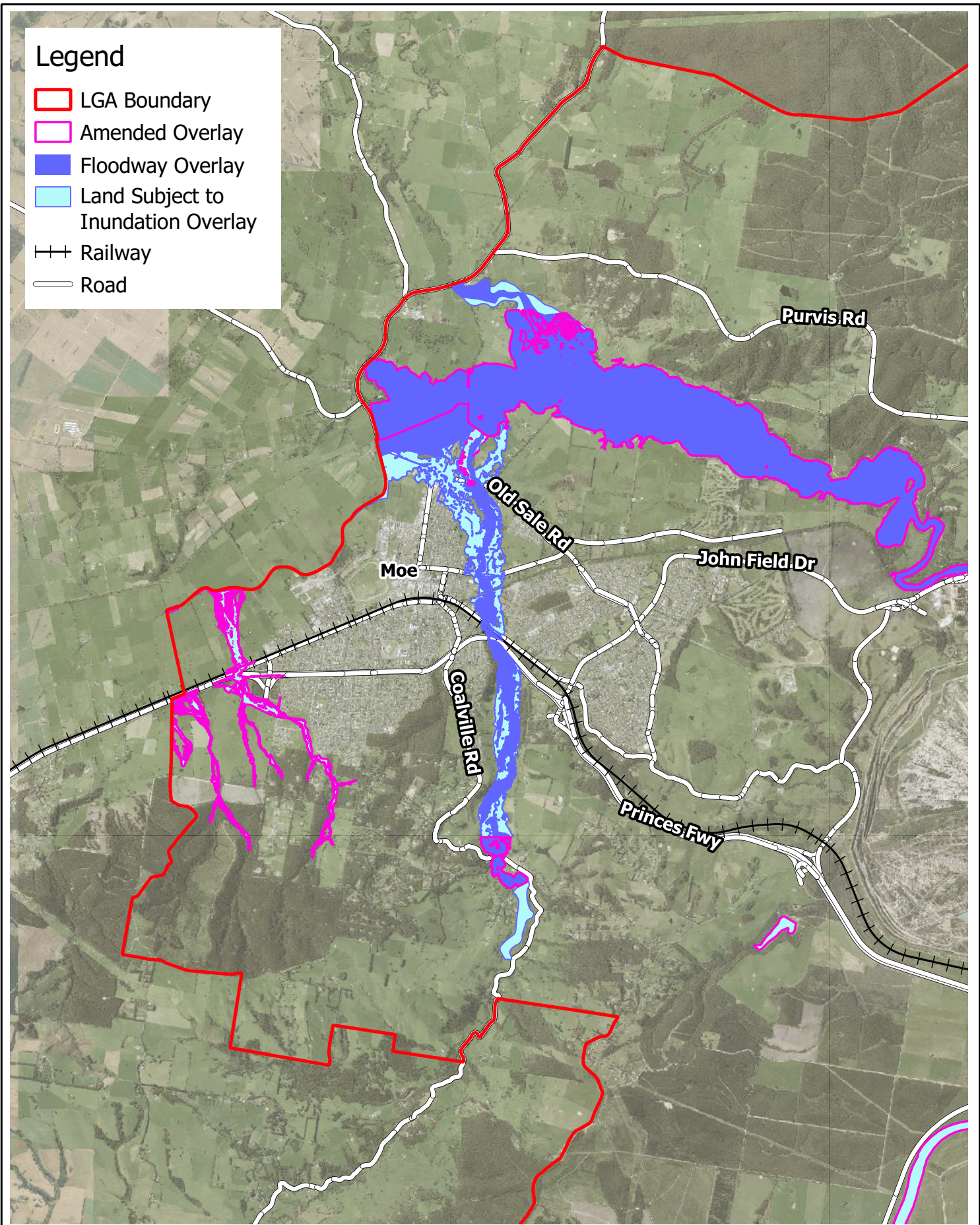
The Latrobe City Council (Council) has engaged Venant Solutions to undertake a peer review of the mapping and background documents for the Amendment C131. Amendment C131 will update the Land Subject to Inundation Overlay (LSIO) and Floodway Overlay (FO).

The purpose of this report is to summarise the findings of the review, the outcomes of the workshop with Council, West Gippsland Catchment Management Authority (WGCMA) and the Department of Transport and Planning (DTP) and present our recommendations on the required changes to the amendment before progressing:

The scope of the peer review included:

- Identify the FO and LSIO updates and the flood modelling work undertaken that underpins the updates
- Review of the suitability of the modelling work for planning scheme amendments
- Review the overlay mapping to determine if it provides a good representation of the flood modelling outputs and floodplain topography
- Review how climate change considerations have been addressed
- Review the other related planning scheme amendments and development plans to determine if they impact on overlays
- Review the submissions and subsequent amendments following the exhibition of Amendment C131

The extent of Amendment C131 is mapped in Figure 1-1, Figure 1-2 and Figure 1-3 where the magenta lines indicate the extent of the proposed new or amended overlays . Please note that the mapping presented in these figures represents that which was subject to this review and does not include any recommended updates.



Legend

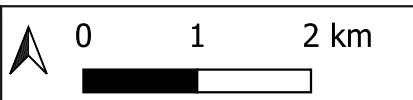
- ▭ LGA Boundary
- ▭ Amended Overlay
- ▭ Floodway Overlay
- ▭ Land Subject to Inundation Overlay
- Railway
- Road

Title: **Amendment C131 Extent (Moe and surrounds)**



Figure: **1-1**

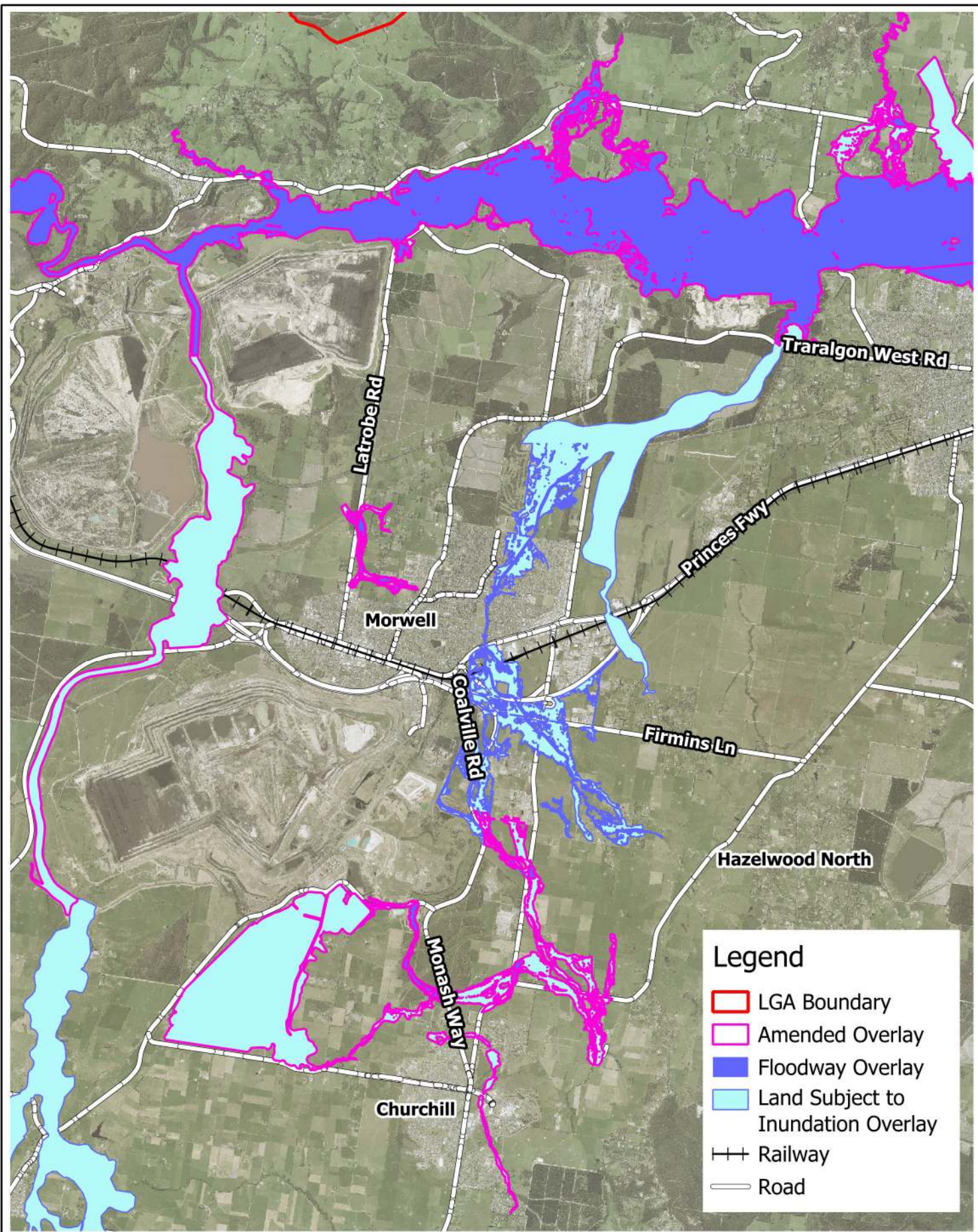
Rev: **A**



This mapping product is based on techniques and data in accordance with the study scope. Users should consider the mapping in the context of the report. No two floods are the same and care should be taken in the use and interpretation of the results presented.

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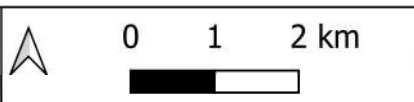


Title: **Amendment C131 Extent (Morwell, Churchill and surrounds)**



Figure: **1-2**

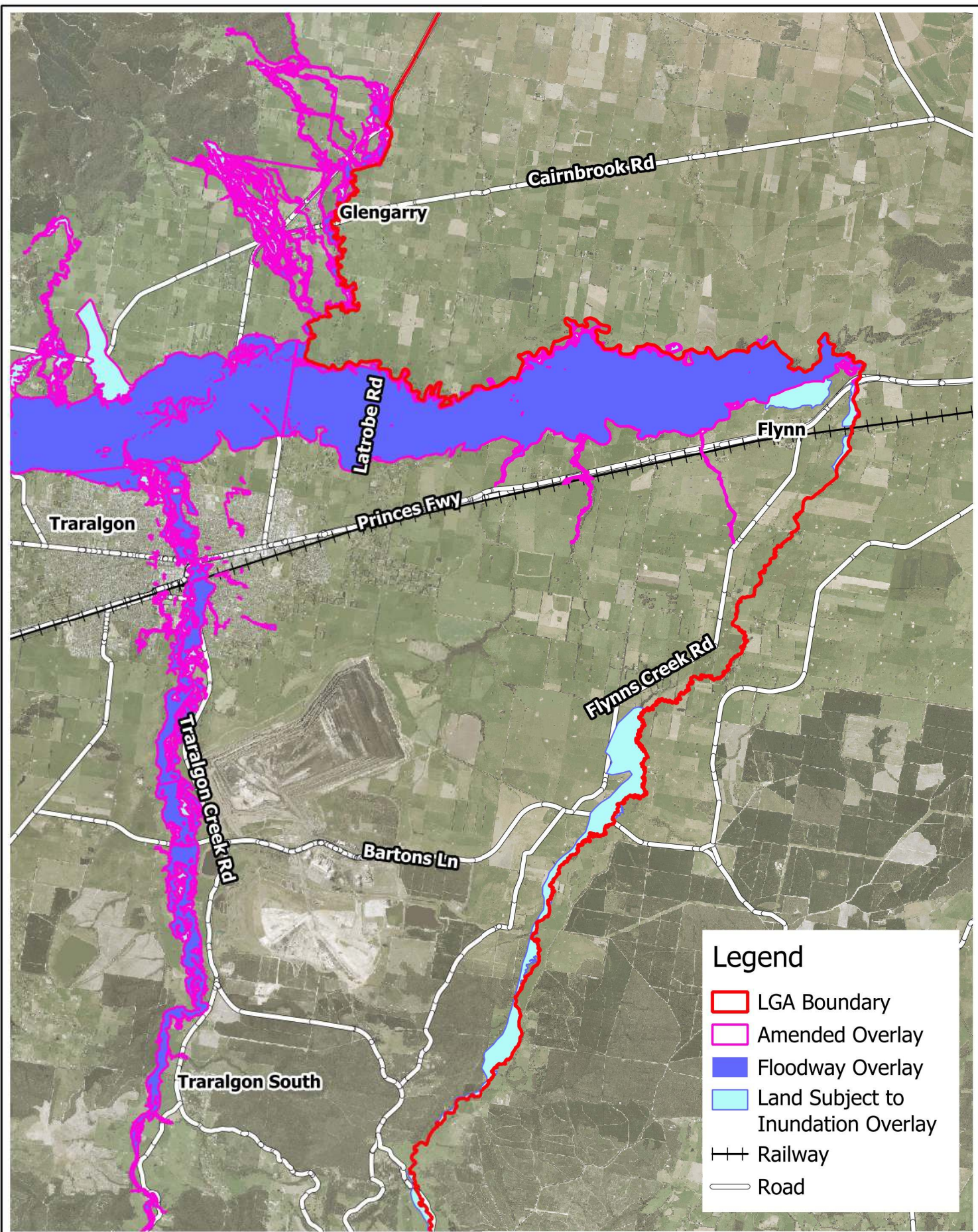
Rev: **B**



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Legend

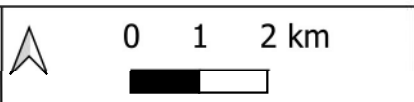
- LGA Boundary
- Amended Overlay
- Floodway Overlay
- Land Subject to Inundation Overlay
- Railway
- Road

Title: **Amendment C131 Extent (Traralgon, Glengarry and surrounds)**



Figure: **1-3**

Rev: **B**



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2 Statutory and policy context

The Planning and Environment Act 1987 (Vic) (the Act) and the Victoria Planning Provisions (VPPs) place a clear onus on the planning authority (Council) to ensure that flooding information is clearly shown in planning schemes and taken into consideration as part of the planning application process.

As set out in Section 4 of the Act the objectives of planning in Victoria include:

- a) to provide for the fair, orderly, economic and sustainable use and development of land;
- b) to provide for the protection of natural and man-made resources and the maintenance of ecological processes and genetic diversity;
- c) to secure a pleasant, efficient and safe working, living and recreational environment for all Victorians and visitors to Victoria
- e) to protect public utilities and other assets and enable the orderly provision and coordination of public utilities and other facilities for the benefit of the community;
- f) to facilitate development in accordance with the objectives set out in paragraphs a), b), c), d) and e);
- g) to balance the present and future interests of all Victorians.'

The inclusion of the best available flood information in the planning scheme supports these objectives.

Section 6 of the Act requires planning schemes to 'further the objectives of planning in Victoria' and Section 6(2)(e) enables planning schemes to '*regulate* or prohibit any use or development in hazardous areas, or in areas which are likely to become hazardous'.

The VPPs as implemented through the Latrobe Planning Scheme, address flood risk in Clause 13.03 (Floodplains) with the objective to assist the protection of:

- 'Life, property and community infrastructure from flood hazard, including coastal inundation, riverine and overland flows.
- The natural flood carrying capacity of rivers, streams and floodways.
- The flood storage function of floodplains and waterways.
- Floodplain areas of environmental significance or of importance to river, wetland or coastal health.'

The strategy to achieve these objectives includes 'identify land affected by flooding, including land inundated by the 1 in 100 year flood event (1 per cent Annual Exceedance Probability [AEP]) or as determined by the floodplain management authority in planning schemes'.

It is the inclusion of new and revised 1% AEP flood mapping in the form of Land Subject to Inundation (LSIO) and Floodway (FO) Overlays that forms the basis of Amendment C131.

2.1 Climate change

Under the Local Government Act 2020 under 9(2)(c) Councils have an overarching governance principle to promote 'the economic, social and environmental sustainability of the municipal district, including mitigation and planning for climate change *risk*'. This places an onus on Council to incorporate consideration of climate change into processes like strategic planning. Further, incorporating an allowance for climate change in Amendment C131 would also be consistent with Latrobe City Council Position on Climate Change and its impacts in acknowledging that '**Climate Change is real and impacts our community**'.

Clause 13.03 (Floodplains), specifically Clause 13.03-1S (Floodplain management) does not specify including an allowance for climate change when identifying land affected by flooding in the 1% AEP event. Managing the potential increased flooding risk associated with climate change is also not addressed in the purpose of

Clause 44.03 (Floodway Overlay) and Clause 44.04 (Land Subject to Inundation Overlay). An allowance for climate change is also not specified in Planning Practice Note 12 - Applying the Flood Provisions in Planning Schemes (DELWP 2015) when stating that the DFE for land use planning and building purposes in Victoria is the 1% AEP event.

However, Clause 13.01-1S (Natural hazards and climate change) of the Latrobe Planning Scheme has the objective to 'minimise the impacts of natural hazards and adapt to the impacts of climate change through risk-based planning' by:

- 'Considering the risks associated with climate change in planning and management decision making processes
- Identifying at risk areas using the best available data and climate change science
- Ensure planning controls allow for risk mitigation or risk adaptation strategies to be implemented'

Victorian Floodplain Management Strategy (DELWP 2016) also does not explicitly state a policy to include climate change in planning decisions. However, in relation to climate change it does state in the introduction that 'decision-making must be responsive to the latest scientific information, and this information should be consistently and transparently applied through planning schemes'.

In other recent similar planning scheme amendments to flood overlays such as [Melbourne Planning Scheme Amendment C384](#) and [Wangaratta Planning Scheme Amendment C81](#) the Planning Panels have interpreted the above as a requirement to include an allowance for climate change mapping in the definition of the overlays. The Panel Report for the Wangaratta Planning Scheme Amendment C81 states that 'State policy clearly requires Council to identify at risk areas using the best available data and climate change science'.

3 Data Collection

Council and WGCMA provided the following datasets for review:

- Latrobe Planning Scheme Amendment C131 Explanatory Report and other supporting documents from exhibition
- Post-exhibition GIS layers of the FO and LSIO and list of amendments
- Flood study reports
 - Latrobe Flood Study (Cardno 2015)
 - Floodplain mapping for Rintouls Creek (WGCMA 2015)
 - Floodplain mapping for Tyers River (WGCMA 2015)
 - Traralgon Flood Study (WaterTech 2016)
 - Morwell North-West DCP Drainage Report (WaterTech 2016)
 - Morwell North-West DCP Drainage - WR04 (WaterTech 2017)
 - Floodplain mapping for Unnamed Reach South of Contour Drain (WGCMA 2020)
 - Floodplain mapping for Unnamed Reach South-East of Contour Drain (WGCMA 2020)
 - Floodplain mapping for Upper Traralgon Creek (WGCMA 2021)
 - Floodplain mapping for Glengarry/Eaglehawk Creek (WGCMA 2021)
- Victorian Flood Database format flood study mapping outputs and flood model grid outputs
- Sixty-seven submissions from the exhibition of Amendment C131
- Meeting minutes and reports from Council Meetings held on 1 August 2022, 5 September 2022, 7 November 2022
- Latrobe Planning Scheme Amendment C138 rezoning mapping and associated reports
- Morwell North Development Contributions Plan flood modelling and drainage design documentation
- Email dated 5 April 2023 indicating that flood mitigation works are being assessed by Council that could impact on the mapped overlays in Glengarry

Additional data such as the current FO and LSIO, and aerial photography were sourced from publicly available sources.

4 Documentation and mapping review

The proposed LSIO and FO GIS layers and associated reports and other supporting information were reviewed to understand:

- The location and nature of the changes from the current overlays
- Whether the changes were supported by a flood study
- If the changes were supported by a flood study, the technical veracity of the work and the consistency in approaches between the flood studies
- If the overlay extents match the 1% AEP grid outputs from the flood models and the underlying topography and land use
- Whether an allowance for climate changes was available in the mapping products
- If the proposed overlay type is appropriate
 - specifically should a Special Building Overlay (SBO) be used rather than a LSIO or FO in urban areas noting that an SBO is used for urban stormwater flooding and LSIO and FO are used for flooding from creeks and rivers
- Whether the proposed overlays would be impacted by related planning scheme amendments, Development Contribution Plans or other works

Review of the flood models were not part of the scope of this peer review so the findings of this review rely on the information presented in the reports.

The findings of the initial review were presented in Venant Solutions (2023) for discussion and resolutions in the workshop held on 28 July 2023 with representatives from Council, WGCMA and the DTP.

The outcomes of the review are summarised in Section 6.

4.1 Flood study documentation and methodologies

The flood study documents were reviewed to understand:

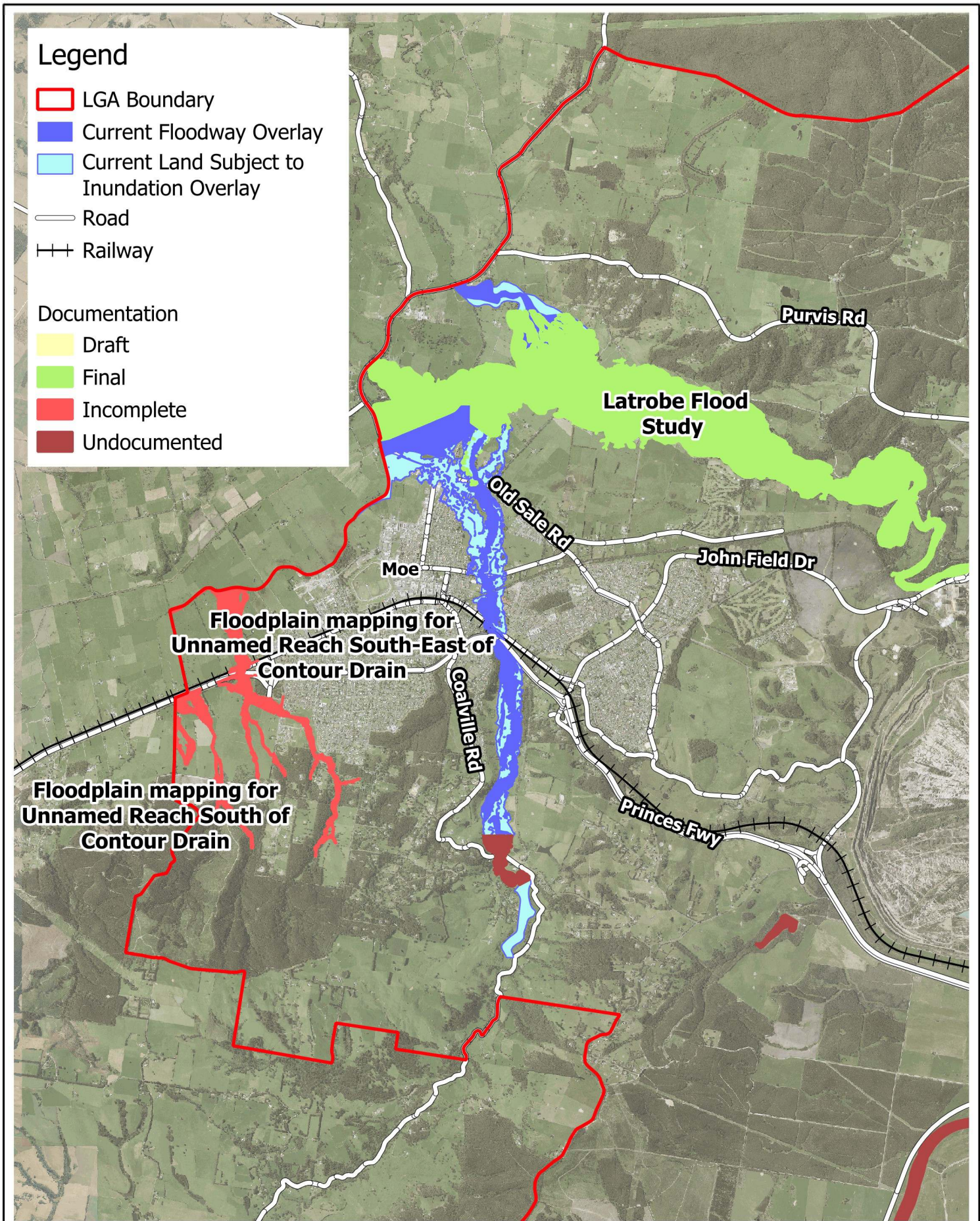
- Whether the changes were supported by a flood study and the status of the flood study
- The revision of the Australian Rainfall and Runoff guidelines used
- The calibration and validation methodology
- Whether the studies were peer reviewed


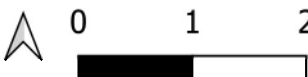
Table 4-1 presents a summary of the flood study documentation and methodologies reviewed while Figure 4-1, Figure 4-2 and Figure 4-3 map the areas of Amendment C131 to which each flood study applies. The figures map the extents of the proposed amendments using different colours to represent the status of the documentation as listed in Table 4-1. Current flood overlays for which there is no proposed amendment are also shown.

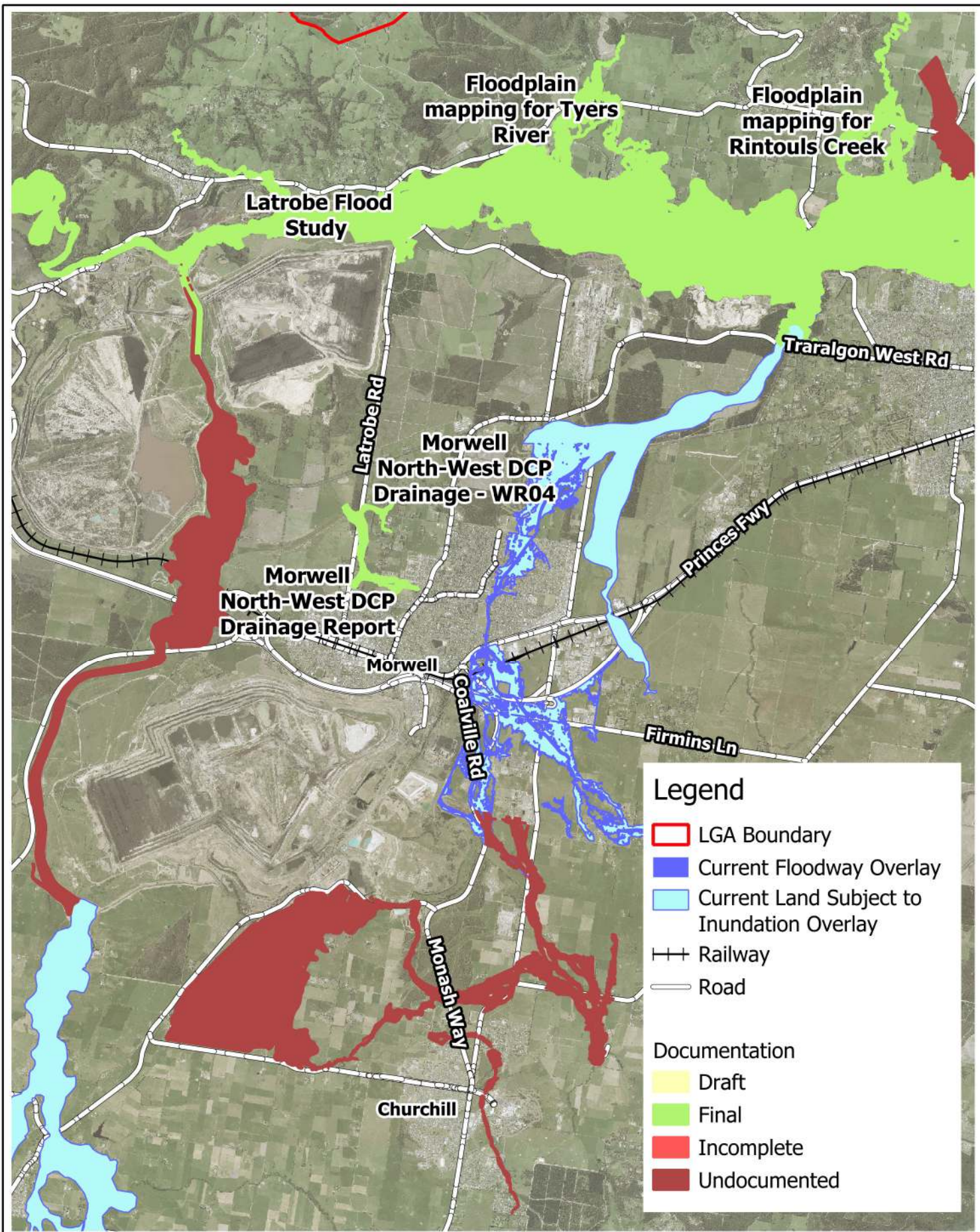
Table 4-1 Flood study review summary

Location	Study	Status	ARR Revision	Calibration / Validation Methodology	Peer Reviewed	Comments
Latrobe River across LGA, and downstream reaches of Tanjil River, Morwell River, Anderson Creek, Wades Creek, Boyds Creek, Sheepwash Creek and Flyyns Creek	Latrobe Flood Study	Final	1987	Hydrology calibrated to historic events for each catchment and hydraulic model calibrated to gauged levels, flood marks and flood extents for 1978 and 1993 events. Design event flows validated to Flood Frequency Analysis.	Yes	20% Increase in Rainfall Intensity climate change scenario was assessed.
Rintouls Creek and unnamed tributary from Fitzgibbons Road to Latrobe River	Floodplain mapping for Rintouls Creek	Final	1987	Hydrology validated to Rational Method and regional Kc routing parameter equations.	No	
Tyers River from upstream of Brown Coalmine Road to Latrobe River	Floodplain mapping for Tyers River	Final	1987	Believed hydrology calibrated to 2005 flood event at the Morgans Hill and Browns stream gauges with standard loss parameters adopted and critical event selection via comparison to Flood Frequency Analysis results at Browns stream gauge.	Yes	
Traralgon Creek from downstream of Mattingley Hill Road to Latrobe River.	Traralgon Flood Study	Final	1987	Calibrated to 1993, 2012 and 2013 events with hydrology calibrated to the Koornalla, Traralgon South and Traralgon stream gauges and hydraulics to Traralgon stream gauge, flood marks and event photography. Design event parameters validated to Flood Frequency Analysis at Traralgon stream gauge.	Yes	Developments around Bread Street/Badman Boulevard that would not have been included in 2008/10 LiDAR have been included in model or mapping altered.
Morwell North-West DCP area	Morwell North-West DCP Drainage Report	Final	1987	Hydrology validated to rational method	No	LSIO and FO represent pre-developed conditions. As of January 2023 (Google Earth) development not commenced.
Morwell North-West DCP Drainage - WR04 area	Morwell North-West DCP Drainage - WR04	Final	1987	Hydrology validated to rational method	No	LSIO and FO represent pre-developed conditions. As of January 2023 (Google Earth) development not commenced.

Unnamed watercourse west of Moe to Princes Highway	Floodplain mapping for Unnamed Reach South of Contour Drain	Incomplete	2019			The report is not completed to a stage that review is possible.
Unnamed watercourse west of Moe to Princes Highway	Floodplain mapping for Unnamed Reach South-East of Contour Drain	Incomplete	2019	Documentation incomplete but it appears that hydrology has been validated to regional Kc equations with design losses achieved by validating Regional Flood Frequency Estimated flows to Monte Carlo simulation results by applying the initial loss factor.	No	Review and update report to represent final version. <Draft> still included on Document details page as well as Version in <>. Page headers include the study name <Waterway>. No reviewers listed. Table of contents references Upper Traralgon Ck figures. Review hydrology section as references Flike (FFA) which isn't used for this assessment. Section C Hydraulics appears to be from the Floodplain mapping for Upper Taralgon Creek (WGCMA 2021).
Traralgon Creek from upstream of Koornalla to downstream of Mattingley Hill Road	Floodplain mapping for Upper Traralgon Creek	Draft	2019	Hydrology calibrated to the June 2012 event at the Koornalla gauge and WaterTech (2012) hydrograph at outlet. Losses validated using Monte Carlo simulation to Flood Frequency Analysis at Koornalla gauge.	Yes	Update report to represent final version. <Draft> still included on Document details page as well as Version and Reviewers in <>.
Eaglehawk Creek and unnamed watercourses from hills north of Glengarry to Latrobe River	Floodplain mapping for Glengarry/Eaglehawk Creek	Draft	2019	Hydrology validated to Pearse et al. regional Kc routing parameter adopted based on Stephens (2019) with Regional Losses without Pre-burst. Design events defined using Monte Carlo simulation.	Yes	Review and update report to represent final version. <Draft> still included on Document details page as well as Version in <>. Page headers include the study name <Waterway>. Reviewers listed in <>.



Title:		Amendment C131 Flood Studies (Moe and surrounds)			
Figure:	Rev:		<small>This mapping product is based on techniques and data in accordance with the study scope. Users should consider the mapping in the context of the report. No two floods are the same and care should be taken in the use and interpretation of the results presented.</small>	By: MS	Level 1, Suite 101 26-30 Rokeby St Collingwood VIC 3066 T. (03) 9089 6700 www.VenantSolutions.com.au
4-1	B			Date: Sep 2023	
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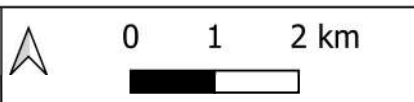


Title: **Amendment C131 Flood Studies (Morwell, Churchill and surrounds)**



Figure: **4-2**

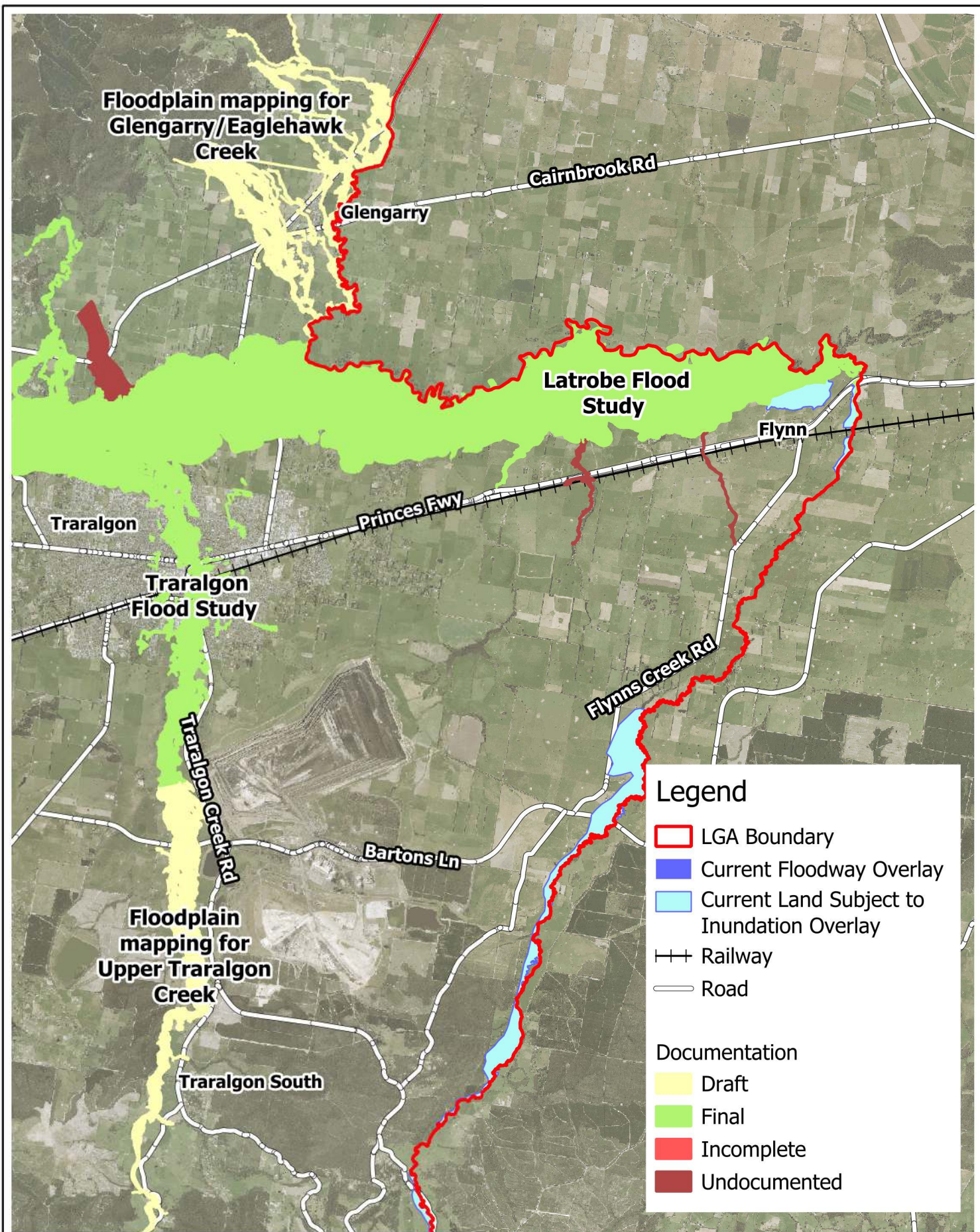
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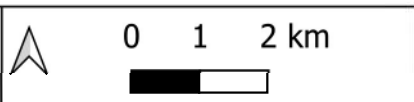


Title: Amendment C131 Flood Studies (Traralgon, Glengarry and surrounds)



Figure: 4-3

Rev: B



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4.1.1 Undocumented amendments

As listed in Table 4-2 and Table 4-3 and mapped in Figure 4-1, Figure 4-2 and Figure 4-3 there are several areas of Amendment C131 that are undocumented. These fall into two categories:

- Amendments based on flood modelling studies that the documentation is not available for as they were undertaken for 3rd parties and the documentation not made available to Council or the WGCMA
- Revisions made to the current overlays by WGCMA

While the technical veracity of the flood modelling studies might be suitable for a planning scheme amendment and the mapping presents the best available flood risk information for that area, without documentation this cannot be confirmed. Our experience in providing expert witness services for these types of amendments is that the panel requires assurance as to the technical veracity of the modelling work informing the amendment. As such it was agreed during the workshop to not proceed with amendments not supported by documentation.

For the revisions made to the current overlays by WGCMA it was agreed during the workshop that reasoning and method behind these revisions would be documented in either a standalone technical report or the Amendment C131 Explanatory Report.

Table 4-2 Undocumented amendments

Flood study documentation not available
Narracan Creek at Coalville Road (Flood modelling and mapping undertaken to support a development assessment)
Bennetts Creek from Mackeys Road to Monash Way and Eel Hole Creek to Hazelwood Cooling Pond (Flood modelling and mapping undertaken for Hazelwood Dam Break & Consequence Assessment with documentation unable to be provided for privacy reasons)
Two unnamed watercourses crossing Princes Highway west of Flynn (Flood modelling and mapping undertaken to support Princes Fwy upgrade)
Tributary of Eel Hole Creek between Monash Way and Silocks Road (source undetermined)

Table 4-3 WGCMA overlay revisions

WGCMA overlay revision
Glengarry West (Minor revisions to extent of current LSIO)
Hazelwood Cooling Pond (Revised current FO to LSIO)
Morwell River from Strzelecki Highway to Yallourn Mine channel diversion (LSIO revised to represent Morwell River diversion around Hazelwood Mine)
Lake Haywood (Revised current FO to LSIO)
Witts Gully Reservoir (Revised current FO to LSIO)

4.1.2 Documentation status

As listed in Table 4-1 several of the flood study documents were still at draft version or were incomplete. These include:

- Floodplain mapping for Unnamed Reach South of Contour Drain
- Floodplain mapping for Unnamed Reach South-East of Contour Drain
- Floodplain mapping for Upper Traralgon Creek
- Floodplain mapping for Glengarry/Eaglehawk Creek

Following the workshop it was agreed that the WGCMA would review and update these documents to final version.

Due to the flood modeller who undertook the modelling for Floodplain mapping for Unnamed Reach South of Contour Drain (WGCMA 2020) being unavailable, WGCMA do not believe it will be possible to finalise this study. As such it was agreed during the workshop to not proceed with this overlay for this area.

4.1.3 Australian Rainfall and Runoff revision

Australian Rainfall and Runoff (ARR) is a national guideline document, data and software suite that can be used for the estimation of design flood characteristics in Australia. In 2019 these guidelines were updated from the previous revision which occurred in 1987. The revision of ARR adopted for each flood study is listed in Table 4-1.

During the period between 1987 and 2019 industry practice, data and flood modelling software used in flood studies evolved. The methodologies and flood modelling software adopted in the Amendment C131 flood studies which were all completed from 2015 onwards are completed mostly in line with ARR 2019 except for the design rainfall inputs based on 1987 Intensity-Frequency-Design (IFDs) and 1987 temporal patterns.

For the flood studies that were validated to at-Site Flood Frequency Analysis (FFA) or regional flow estimate estimation techniques other than the Rational Method, the adoption of 1987 design rainfall inputs will not significantly influence the estimation of the 1% AEP event and represent the best available information. To update these flood studies would come at a significant cost, result in years of delay and unlikely to result in significant changes to the overlay extents. Therefore it is recommended and was agreed during the workshop that flood studies completed in accordance with ARR 1987 be used for Amendment C131.

4.1.4 Calibration and validation methodology

The calibration and validation method adopted for each flood study is summarised in Table 4-1. There is no industry standard for the calibration and validation methodology required for flood studies and the methodology adopted is made on study-by-study basis based on the characteristics of the study catchment, the available stream and rainfall data available and the objectives of the flood study.

For Amendment C131, the flood studies undertaken on the larger river/creek systems such as the Latrobe River and Traralgon Creek were calibrated to historic flood events and validated to at-Site FFAs as appropriate. On the smaller waterways the flood models were validated to regional parameters or peak flow estimation techniques. This is considered industry best practice.

The Floodplain mapping for Rintouls Creek, Morwell North-West DCP Drainage Report and Morwell North-West DCP Drainage - WR04 were validated to the Rational Method which is no longer recommended in ARR 2019. However, as noted above it is recommended and was agreed during the workshop that flood studies completed in accordance with ARR 1987 be used for Amendment C131.

4.1.5 Peer review

As presented in Table 4-1 several flood studies have not been independently peer reviewed. There is no formal requirement or industry standard for flood studies to be independently peer reviewed and the decision to have a flood study peer reviewed is made on a study-by-study basis, generally based on the complexity of the study. Internal quality assurance and reviews should ensure the quality of flood studies that are not independently peer reviewed. It was agreed at the workshop that independent peer review is not required for the flood studies underpinning Amendment C131 as they represent the best available information.

4.2 Flood mapping

The older flood studies: Floodplain mapping for Rintouls Creek and Floodplain mapping for Tyers Creek produced lower resolution flood mapping outputs than more recent flood studies. Following discussion at the workshop it was concluded that this mapping represented the best available information and to update the models to provide higher resolution mapping would be time and cost prohibitive, and unnecessarily delay the implementation of Amendment C131.

4.3 Climate change

As described in Section 2.1 there is no documented specific requirement for climate change to be allowed for in planning controls for non-coastal areas. However, including an allowance for climate change in the proposed overlays would be consistent with the broader planning context, with other similar recent planning scheme amendments, and with requirements in other acts as discussed in Section 2.1.

The only study that has a climate change scenario available in the flood mapping outputs is the Latrobe Flood Study (Cardno 2015) which included a 1% AEP with 20% increases in rainfall intensity scenario. Whilst a required/recommended climate change scenario for increased rainfall intensity is not documented in Victoria, the most commonly adopted is the Representative Concentration Pathways (RCP) 8.5 Scenario to 2100 which equates to an 18.4% increase in rainfall intensity in the Latrobe region which is comparable to the 20% allowed for in the Latrobe Flood Study. Therefore, it is recommended that the 20% increases in rainfall intensity scenario mapping be used to define the LSIO and FO in the Latrobe River.

As concluded by the planning panel in the Panel Report for the Wangaratta Planning Scheme Amendment C81, for all the other areas of the amendment where an allowance for climate change was not available in the mapping outputs, these outputs still represent the best currently available information about the risks of flooding and is sufficient to inform the LSIO and FO amendments which are a trigger for further consideration through the planning permit process where the expected impacts of climate change can then be addressed. As such it is recommended that the amendment, with the exception of the Latrobe River proceed without an allowance for climate change in the LSIO and FO.

4.4 Consideration of Special Building Overlays (SBO)

The Planning Practice Note 12 - Applying the Flood Provisions in Planning Schemes (DELWP 2019) specifies that Special Building Overlays SBOs can be applied in urban land that is inundated if the capacity of the drainage system is exceeded during heavy rainfall. It is currently used in Melbourne but can be applied in regional towns.

The Traralgon Flood Study is the only study included in Amendment C131 that represents overland flow originating from the capacity of the urban underground drainage network being exceeded and hence being appropriate to represent as SBO. As this area is currently subject to an urban flood mapping study it is recommended that these areas of flooding be removed from Amendment C131 and be incorporated in a future amendment as SBO (or LSIO) once the urban flood study is complete.

Other urban areas included in the overlays are from flood studies representing flooding originating from rivers, creeks, small watercourses and other overland flowpaths as opposed to the capacity of underground (pipe and pit) drainage systems being exceeded resulting in overland flow. As an example, while it is possible that undersized or blocked bridges, culverts and other drainage structures are contributing to the inundation in Glengarry (Figure 4-4), the flood model does not apply flow to the urban drainage network, rather all flow is applied to the watercourses and floodplain upstream of the township. Therefore while the mapped LSIO extends into the developed area the mechanism of this inundation is consistent with LSIO as opposed to SBO.

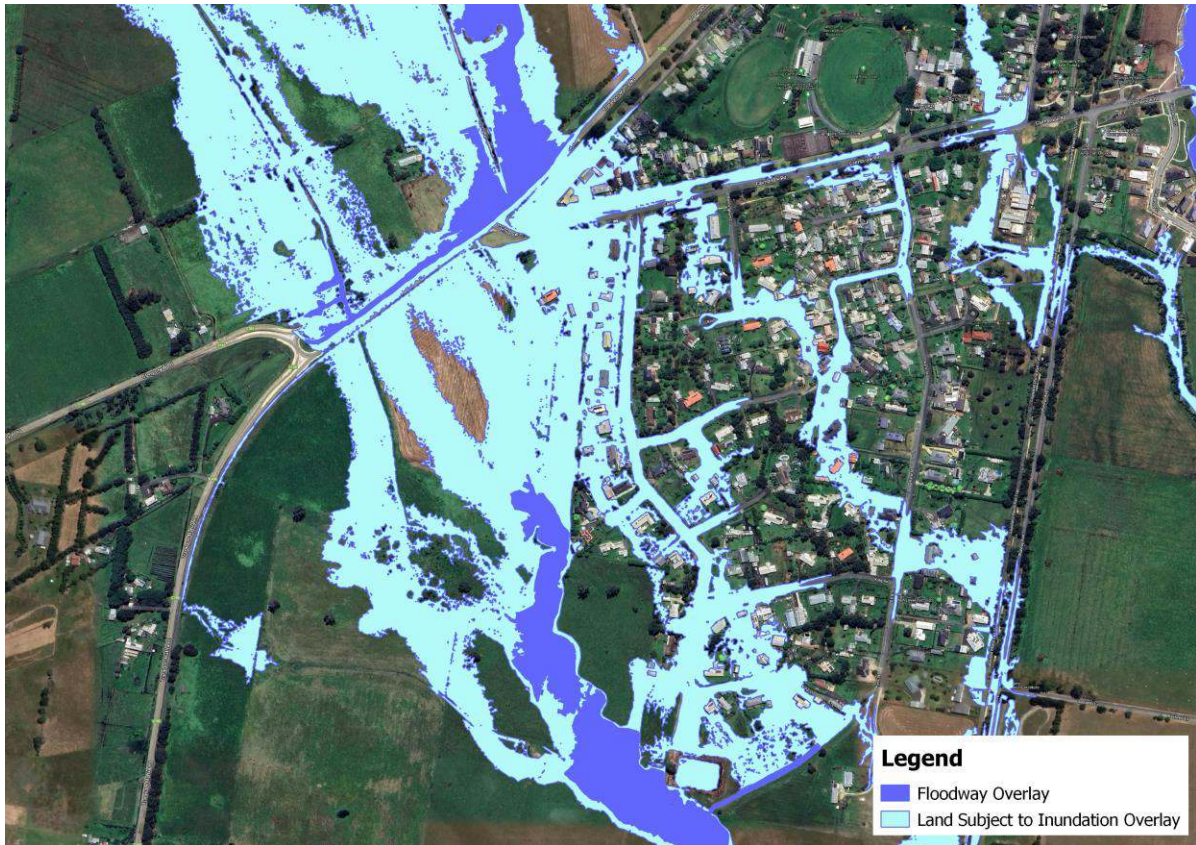


Figure 4-4 Example of flooding in urban area (Glengarry)

4.5 Related planning scheme amendments, Development Contributions Plans and other works

The influence of the following related planning scheme amendments, Development Contribution Plans (DCP) and other works were reviewed:

- **Morwell North-West Development Contribution Plan** – The existing conditions flood mapping was used to define the overlays. It was confirmed in the workshop that the major drainage design detailed in the DCP will be implemented. As such it was resolved that the overlays will represent developed conditions concept design as per Figure 7-3 of WaterTech (2016^a).
- If the concept designs presented have made it to detailed design and approval then consideration can be given to amend the overlays to match as part of Amendment C131.
- **Morwell North-West Development Contribution Plan WR04** – The proposed LSIO is downstream of the DCP area with the major drainage works mitigating changes to the flood extent. As such no change to the LSIO extent is required.
- **Planning Scheme Amendment C138** – The proposed FO covering the Latrobe River floodplain extends slightly into the area to be rezoned to General Residential as part of Planning Scheme Amendment C138. Based on the development layout presented in the Stormwater Management Strategy Report – Baldwin

Road Traralgon 3844 (Miller | Merrigan 2022) it does not appear that the sub-division will result in any parcels being located entirely within the FO. The report states that there is only a road in the LSIO. Further, the WGCMA provided a letter of support on 23 February 2023 for the rezoning that agrees there is only a small encroachment onto the floodplain. Therefore it is considered that Amendment C131 would not impact on Amendment C138 regarding flood related planning controls. However, there could be other issues such as perceptions around land value, insurance, etc.

In a follow up meeting between Council and WGCMA on 15 August 2023 it was agreed that the area of flooding in the General Residential Zoned section to the north of Baldwin Road will remain as Land Subject to Inundation instead of Floodway Overlay

- **Traralgon – Maffra Road Flood Mitigation Works** - In an email dated 5 April 2023, Council indicates that flood modelling has been commissioned to investigate constructing a swale along the northern side of Brooks Lane and the northern side of Glengarry – Maffra Road (Traralgon – Maffra Road) in Glengarry. If these mitigation works are constructed in the future the overlays can be revised as appropriate but with regards to Amendment C131 it appears they are in the early stages of development and there is no guarantee that these works will be constructed and if they are the overlays can be amended to suit at a later date.

5 Exhibition submissions

Sixty-seven submissions were received of which eight supported and fifty-nine objected to the Amendment. Of the fifty-nine objections sixteen were subsequently withdrawn following consultation with Council and the WGCMA. In most cases where the objection was withdrawn there was an agreement to adjust the overlay. The reasons given by objectors were quite varied but generally consistent with this type of amendment. Table 5-1 summarises the reasons for objections and the number of objectors who gave that reason. Some objectors gave multiple reasons. Withdrawn objections are not included in these statistics.

The most common reason given was the flooding on the lot was a result of stormwater inundation rather than flooding from a watercourse and in eight of these cases the objector thought this was because of poor maintenance. In some cases there was an understanding that an LSIO or FO should not be applied to stormwater flooding and hence these overlays should not be used. As noted in Section 4.4 the areas in Traralgon which are subject to urban stormwater flooding and would normally be subject to an SBO will be removed from Amendment C131. Therefore it is expected that a number of objectors from Traralgon would withdraw.

A Planning Panel would not contemplate removal of an overlay for the majority of the reasons given. Probable exceptions would be local topography effects, inconsistencies with neighbouring properties, requests for minor modifications and removal of overlay from lots where the encroachment is minor. As noted above Council and the WGCMA engaged with numerous objectors on similar issues resulting in changes to the overlay and the withdrawal of the objection. The WGCMA advised at the workshop that they believed this process had been exhausted. However, it is recommended that the objectors in Traralgon whose property will no longer be subject to the overlay as noted above be contacted to discuss withdrawing their objection.

Table 5-1 Reasons for objection

Reasons for objection	Number
Stormwater not watercourse flooding	14
Lot has never flooded	11
Maintenance of stormwater systems	8
Mitigate rather than implement overlay	7
Insurance will increase	6
Local topography would not allow flooding	6
Property value	5
Inconsistent with neighbouring properties	4
Reason was not clear	3
Will create difficulties for future development	3
Support introduction of overlay but wants change	2
Has experienced flooding but still objecting	1
Minor encroachment	1
No consultation	1
Other developments impacting flooding at lot	1

6 Recommendations

Following peer review of the mapping and background documents for the Amendment C131 and as agreed in the workshop as detailed in Table 6-1 it is recommended that Amendment C131 proceed with the following key revisions:

- Exclude the areas where the revised or new overlays are not supported by documentation
- Document the reasoning and method for revisions made to the current overlays by WGCMA
- Update the draft versions of the flood study documents to final version
- Adopt the 20% increase rainfall intensity scenario mapping from the Latrobe Flood Study to include allowance for climate change along the Latrobe River floodplain
- For Morwell North-West DCP area update the overlays to represent developed conditions
- Up the FO area to the north of Baldwin Rd within the General Residential Zone (Amendment C138) to be LSIO
- Remove the areas of stormwater flooding in Traralgon from the LSIO

Table 6-1 Peer review and recommendations summary

Location	Update	Assessment Documentation	Incomplete, Draft or Final	Climate Change	ARR Revision	Existing Overlay	Potentially Affected by PSA/DCP	Proceed?	Amendments
Traralgon Creek from upstream of Koornalla to downstream of Mattingley Hill Road	LSIO and FO	Floodplain mapping for Upper Traralgon Creek	Draft	No	2019	Yes		Yes, with amendments	Update report to represent final version.
Narracan Creek at Coalville Road	LSIO and FO	No				Yes		No	No
Morwell North-West DCP area	LSIO and FO	Morwell North-West DCP Drainage Report	Final	No	1987	No	Yes	Yes, with amendments	Mapping inline with Figure 7-3 of Morwell North-West DCP Drainage Report (WaterTech 2016).
Morwell North-West DCP Drainage - WR04 area	LSIO	Morwell North-West DCP Drainage - WR04	Final	No	1987	No	Yes	Yes	
Bennetts Creek from Mackeys Road to Monash Way and Eel Hole Creek to Hazelwood Cooling Pond	FO	No			1987	No		No	
Two unnamed watercourses crossing Princes Highway west of Flynn	LSIO and FO	No			1987	No		No	
Latrobe River across LGA, and downstream reaches of Tanjil River, Morwell River, Anderson Creek, Wades Creek, Boyds Creek, Sheepwash Creek and Flyns Creek	FO	Latrobe Flood Study	Final	Yes	1987	Yes	Yes (Amendment C138)	Yes, with amendments	Update overlays to represent 20% Increases in Rainfall Intensity scenario. Area to the north of Baldwin Rd within the General Residential Zone (Amendment C138) to be LSIO.
Rintouls Creek and unnamed tributary from Fitzgibbons Road to Latrobe River	LSIO and FO	Floodplain mapping for Rintouls Creek	Final	No	1987	Yes		Yes	
Eaglehawk Creek and unnamed watercourses from hills north of Glengarry to Latrobe River	LSIO and FO	Floodplain mapping for Glengarry/Eaglehawk Creek	Draft	No	2019	Yes (Partially)		Yes, with amendments	Update report to represent final version.
Tyers River from upstream of Brown Coalmine Road to Latrobe River	LSIO and FO	Floodplain mapping for Tyers River	Final	No	1987	No (Outside of Latrobe River floodplain)		Yes	

Unnamed watercourse west of Moe to Princes Highway	LSIO and FO	Floodplain mapping for Unnamed Reach South of Contour Drain	Incomplete			No		No	
Unnamed watercourse west of Moe to Princes Highway	LSIO and FO	Floodplain mapping for Unnamed Reach South-East of Contour Drain	Incomplete	No	2019	No		Yes, with amendments	Update report to represent final version.
Traralgon Creek from downstream of Mattingley Hill Road to Latrobe River.	FO	Traralgon Flood Study	Final	No	1987	Yes		Yes, with amendments	Remove areas of stormwater flooding from overlays
Glengarry West	LSIO	No				Yes		Yes, with amendments	WGCMA to document amendment method.
Hazelwood Cooling Pond	LSIO and FO	No				Yes		Yes, with amendments	WGCMA to document amendment reasoning.
Morwell River from Strzelecki Highway to Yallourn Mine channel diversion	LSIO	No				Yes		Yes, with amendments	WGCMA to document amendment reasoning.
Lake Haywood	LSIO	No				Yes		Yes, with amendments	WGCMA to document amendment reasoning.
Tributary of Eel Hole Creek between Monash Way and Silocks Road.	LSIO	No				Yes		No	
Witts Gully Reservoir	LSIO	No				Yes		Yes, with amendments	WGCMA to document amendment reasoning.

7 References

Cardno (2015), Latrobe Flood Study, Cardno.

(DELWP) Department of Environment, Land, Water and Planning (2016), The Planning Practice Note 12 - Applying the Flood Provisions in Planning Schemes, The State of Victoria Department of Environment, Land, Water and Planning.

(DELWP) Department of Environment, Land, Water and Planning (2016), Victorian Floodplain Management Strategy, The State of Victoria Department of Environment, Land, Water and Planning.

Miller | Merrigan (2022), Stormwater Management Strategy Report – Baldwin Road Traralgon 3844, Miller | Merrigan.

Venant Solutions (2023), Amendment C131 – Land Subject to Inundation Overlay and Floodway Overlay – Peer Review: Initial Review Summary, Venant Solutions.

(WaterTech) Water Technology (2016), Traralgon Flood Study, Water Technology.

(WaterTech) Water Technology (2016^a), Morwell North-West DCP Drainage Report – Final Study Report, Water Technology.

(WaterTech) Water Technology (2017), Morwell North-West DCP Drainage - WR04, Water Technology.

(WGCMA) West Gippsland Catchment Management Authority (2015), Floodplain mapping for Rintouls Creek, West Gippsland Catchment Management Authority.

(WGCMA) West Gippsland Catchment Management Authority (2015), Floodplain mapping for Tyers River, West Gippsland Catchment Management Authority.

(WGCMA) West Gippsland Catchment Management Authority (2020), Floodplain mapping for Unnamed Reach South-East of Contour Drain, West Gippsland Catchment Management Authority.

(WGCMA) West Gippsland Catchment Management Authority (2020), Floodplain mapping for Unnamed Reach South of Contour Drain, West Gippsland Catchment Management Authority.

(WGCMA) West Gippsland Catchment Management Authority (2021), Floodplain mapping for Upper Traralgon Creek, West Gippsland Catchment Management Authority.

(WGCMA) West Gippsland Catchment Management Authority (2021), Floodplain mapping for Glengarry/Eaglehawk Creek, West Gippsland Catchment Management Authority.