SHEPPARTON SOUTH EAST PRECINCT STRUCTURE PLAN

Formal submission to PSP

Property: 105 McPhees Road (lot 2)

Owners: V & A Tassoni

Area of Lot: 13.6 ha

Date Submitted: 15th April 2024 before 5pm

Prepared By: Infrastructure Solutions

31 Welsford Street Shepparton

INFRASTRUCTURE SOLUTIONS

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APPENDICIES:

APPENDIX A – COMMUNITY FLOOD INTELLIGENCE REPORT FOR 105 MCPHEES ROAD

1 Introduction

Infrastructure Solutions has been engaged by V & A Tassoni of 105 McPhees Road Shepparton, to make a formal submission to the Victorian Planning Authority (VPA) that outlining their concerns regarding a number of the background technical reports that inform and guide the decision making of the Shepparton South East Precinct Structure Plan (PSP).

2 Current site conditions

105 McPhee Road is located approximately 5km southeast of the Shepparton CBD, McPhees Road is accessed off Channel Road.

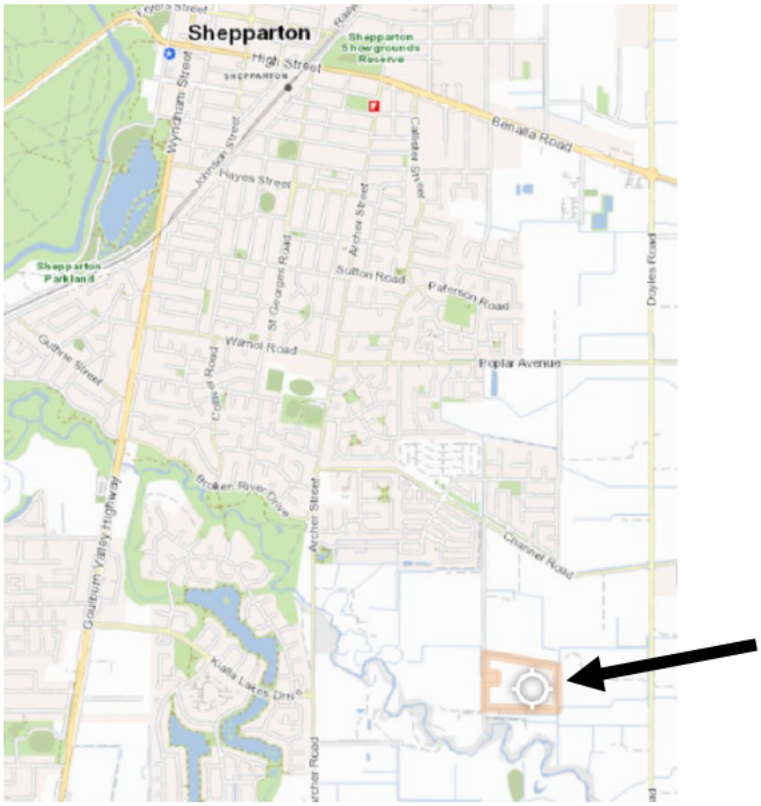


Figure 1 above, subject site in Shepparton context (Greater Shepparton City Council Pozi Mapping system)

The Subject site is 13.6ha in size and is in close proximity to the Broken River.

The site is within the Farming Zone and covered by the Special Controls Overlay 3. The majority of the site is covered by the Land Subject to Inundation Overlay (LSIO). The Bushfire Management Overlay (BMO) covers the bottom left corner of the subject site.

3 Proposed changes

Infrastructure Solutions understands the PSP proposes to apply the following planning controls to 105 McPhees Road within the Shepparton Planning Scheme:

- Rezone the site from Farming Zone (FZ) to Urban Growth Zone – Schedule 2 (UGZ2)
- Apply the Environmental Audit Overlay
- Apply the Public Acquisition Overlay 39 (Stormwater Infrastructure) & 41 (Drainage Assets)
- Part removal of LSIO, application of Floodway Overlay (FO)
- Apply Development Contributions Plan Overlay Schedule 05 (DCPO5)

4 Loch Garry Weir

Loch Garry is a 680-hectare wetland on the lower Goulburn River floodplain about 20 kilometres north of Shepparton.

The wetland incorporates a former course of the Goulburn River and is more than two metres deep at its deepest point.

Loch Garry is bound by artificial levees and has a large regulating structure managed by Goulburn- Murray Water to control floodwater.

Loch Garry provides flood protection to downstream landholders during minor flood events. During large flood events (when flow exceeds 10.36m at Shepparton or about 40,000 ML/day) the regulating structure is opened to divert water through the floodplain to protect and minimise flooding impacts to the Shepparton and Mooroopna townships.

Loch Garry policy change

In October 2022, widespread rainfall in the Goulburn catchment caused river levels to rise across the region. At Shepparton, the river peaked at 12.03m on 17 October 2022.

The operating rule of 2022 stated that when the river level at Shepparton reached 10.36m, notification would be given to Loch Gary Flood Protection District customers that the removal of the bars would commence in accordance with the previous operating rules.

Given the magnitude and speed of the flood not all bars were able to be removed. The Loch Garry Reference Committee was formed in January 2023 by Goulburn-Murray Water (GMW), to review the service requirements of the Loch Garry Flood Protection District infrastructure and its operating rules.

<u>Event (above 10.36m but below 11.0m)</u>

When the Bureau of Meteorology (BoM) forecasts the river level at the Shepparton Gauging Station 405204 will exceed 10.36m but will not exceed 11.0m the following operating rule will apply:

1. GMW will send out a notification to the Loch Garry Flood Protection District customers by SMS as soon as practicable after the forecast is available to notify customers that bars will start to be removed 24 hours after the Shepparton gauge reaches 10.36m.

2. GMW will send out a notification to the Loch Garry Flood Protection District customers by SMS as soon as practicable when the Shepparton gauge reaches 10.36m.

3. Bars will start to be removed 24 hours after this level has been reached.

4. The formula for bar removal is that 24 hours after the Shepparton gauge exceeds 10.36 m, 25 bars (based on 140mm bars) are removed for every 31mm rise. If the river continues to rise to 10.96 meters then all bars would be removed from the Loch 24 hours after this height is reached.

5. The replacement of bars is a reversal of this procedure.

<u>Large event (exceeds 11.0m)</u>

When the Bureau of Meteorology (BoM) forecasts the river level at the Shepparton Gauging Station 405204 will exceed 11.0m the following operating rule will apply:

1. GMW will send out a notification to the Loch Garry Flood Protection District customers by SMS as soon as practicable after the forecast is available to notify customers that all bars will be removed on the day that the Shepparton gauge reaches 10.36m.

2. GMW will send out a notification to the Loch Garry Flood Protection District customers by SMS as soon as practicable when the Shepparton gauge reaches 10.36m.

3. On the day that the Shepparton gauge reaches 10.36m, all bars will be removed during daylight hours.

4. The replacement of bars is the same procedure as for below 11.0m.

Loch Garry policy change relating to flooding – Recommendation:

The flood studies and associated background documentation for the PSP, does not contain nor include any reference to the updated operation policy regarding Loch Garry Weir. All flood studies and mapping used to inform the PSP should be remodelled to the reflect the outcomes of this policy change. At present these models do not reflect the most up to date flood information. Remodelling the impact of Loch Garry Weir has the potential to enable more developable across the PSP and 105 McPhees Road. This then has the benefit to enable more green open space throughout the PSP, not just the majority of open space area surrounded by the Broken River.

5 Flood Modelling

The latest Flood Model prepared for the Goulburn Broken Catchment Management Authority (GBCMA) and Greater Shepparton City Council (GSCC) are located on the GBCMA website known as the 'Goulburn Broken Community Flood Intelligence Portal' where flood information including estimated 100-year ARI plus Climate Change flood levels are available for each property. In relation to the Community Flood Intelligence Report for 105 McPhees Road (Refer Appendix A) and Precinct Scheme Report we outline the following concerns.

- The Flood Model does not appear to have included the revised operating rules for Loch Garry by Goulburn Murray Water (July 2023) as a result of learnings from the October 2022 flood.
- The Flood Model within the Shepparton South East PSP -1% AEP Flood Mapping Project (Water Tech) August 2021 has used a lidar survey, however, it is unclear if enough or any feature surveys were done between Channel Road and the south end of 105 McPhees Road to verify lidar levels and determine a comprehensive FO boundary.
- The Council Flood Overlay Map 2016 shows the land as only LSIO, but importantly also shows Goldfields land as LSIO and with current modelling with Climate Change Goldfields does not have any land subject to flooding which is a quandary (refer to figure 3 below). The Goldfields land is identified as landowners (48,49,50,51,52,53,54,59) Property numbers defined by the Shepparton South East PSP as 48,49,50,51,52,53,54,59.
    - The Flood Model has not included the east side of McPhees Road north of the irrigation channel, as such it should be amended to include:
        - A permanent survey mark is located in the road pavement at McPhees Road/Channel Road intersection has an RL 114.3m AHD.
        - The property known as Goldfields (Property numbers 48,49,50,51,52,53,54,59), abutting the north end of 105 McPhees Road has a low point in the middle of the properties and discharges into the GMW drain (1A/2), then discharges to GMW drain 2 discharging to the Broken Creek, not south through 105 McPhees Road. Existing Catchment has been redirected. Refer to Figure 2 and 3 below.

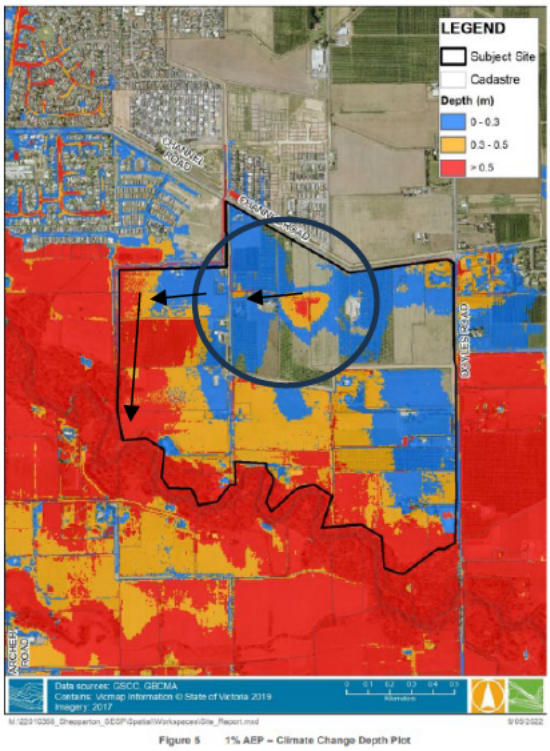


Figure 2: 1% AEP Flood Mapping Project SSE Addendum (Water Tech) May 2022

- The Alluvium Plan –It would appear the northern properties in question have more favourable results due to the model being cut off at McPhees Road north and east of the irrigation channel (Refer to figure 3 below). Flows can clearly backflow down the existing GMW drain 2 into the low-lying areas within this catchment as shown in Figure 2 above. The GBCMA flood portal needs to be updated to address this issue. To further add, the model needs to reflect the future decommissioning and filling of the irrigation channel as outlined in the Alluvium Report July 2022.

Figure 3: GBCMA Flood Portal Q100 with CC mapping cut off at Irrigation channels

Therefore, the Flood Model boundary needs to be revised to include McPhees Road/ Channel Road intersection, Channel Road and Goldfields. The 1% AEP plus Climate Change at 105 McPhees Road shows a Minimum Water Level RL114.73m AHD and Maximum Water Level RL114.96m AHD, all higher than RL

114.30m and higher than the irrigation channel when decommissioned at approximately RL 114.5m AHD which may alter the flood area if the model boundary was extended.

6 Amending Flood Controls

V & A Tassoni have lived at 105 McPhees Road since 1991. During the 1993 flood (Broken River dominant), similar to the 1974 flood (Goulburn River dominant), water reached the purposed Flood Overlay (FO) on the site. To Infrastructure Solutions information the 1993 flood event set the 1 in 100-year flood level. The flow of water receded quickly as the Tassoni's were spraying fruit trees the next day where the flood water had been on the site.

The water depth during the 1993 flood event was deepest at the farm drainage outlet, located south west corner of the property, with no water encroaching further than the purposed FO. This would indicate that the proposed FO is inaccurate as the area identified as FO further extended LSIO would most likely not be over as much area if based on this flood event plus climate change.

The Greater Shepparton City Council submission to the Legislative Council Environment and Planning Committee: Inquiry into the 2022 Flood Event in Victoria stated " The availability of flood mapping information for individual properties via the Goulburn Broken Catchment Management Authority was invaluable". However, significant differences between the flood information shown within the GBCMA flood intelligence portal which uses the Shepparton Mooroopna Flood Mapping and Flood Intelligence Study (Water Technology,2018) and the Shepparton Mooroopna 1% AEP Flood mapping Project (Water Technology, 2021) shows the current site flood mapping controls within the Shepparton Planning Scheme of the LSIO to be accurate as derived from the 1993 flood. However, the proposed FO to be applied at 105 McPhees Road and the associated PAO is being applied with minimal tangible evidence to justify current site conditions.

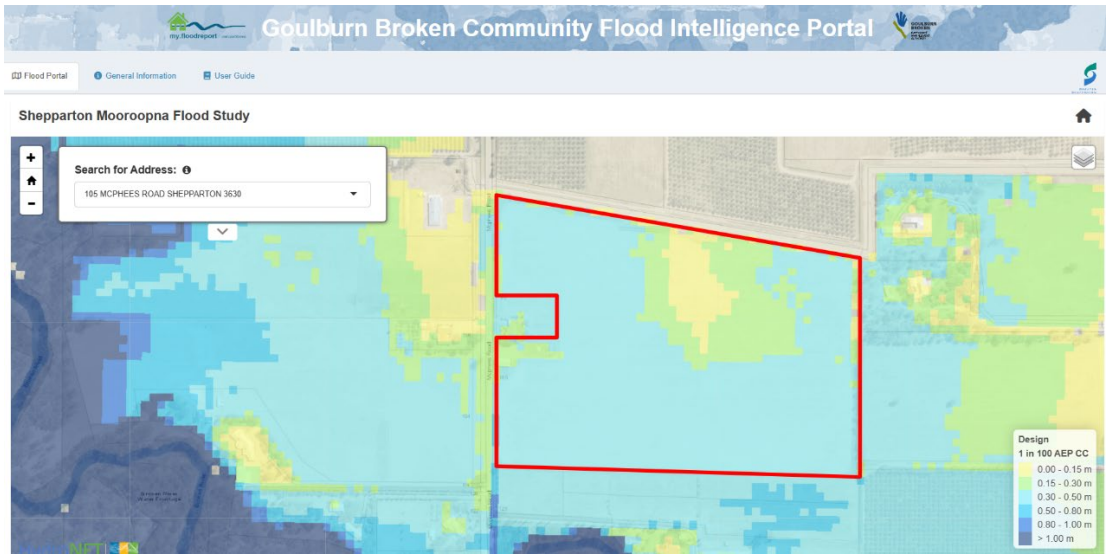


Figure 4, above, is the flood intelligence portal for 105 McPhee Road from the GBCMA website.

The Shepparton South East PSP – 1% AEP Flood Mapping Project SSE Addendum (Water Tech) May 2022 has run two scenario's based of concept plans developed on behalf of the VPA (shown below in figures 5&6).

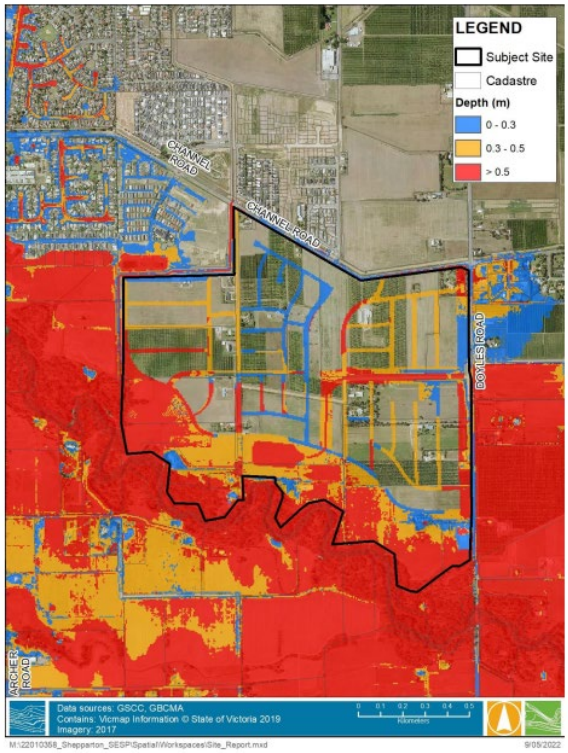


Figure 6 Development Option 1 – Flood Depth (1% AEP with Climate Change)

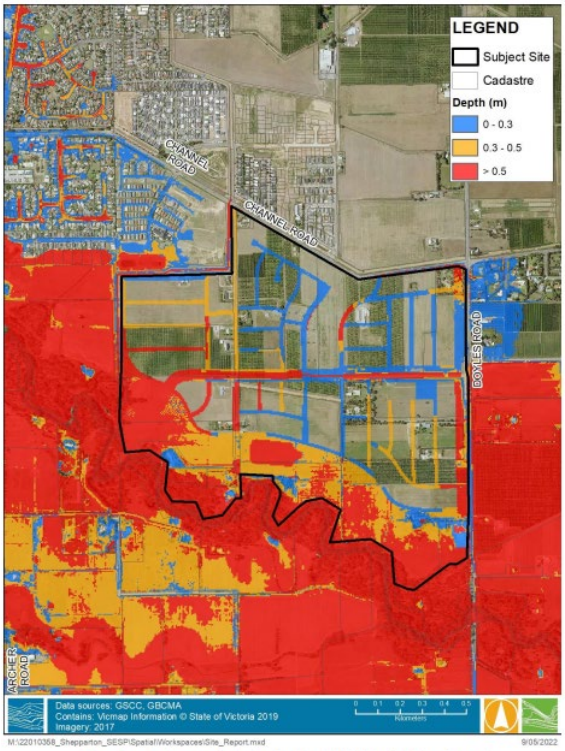


Figure 7 Development Option 2 – Flood Depth (1% AEP with Climate Change)

Figure 5 & 6 in the Shepparton South East PSP – 1% AEP Flood Mapping Project SSE Addendum (Water Tech) May 2022

These development scenarios show that the lack of a retention basin on the site immediately to the north, being property numbers 48,49,50,51,52,53,54,59 defined by the Shepparton South East PSP unfairly impact the developable land for 105 McPhees Road.

The development scenarios show a >0.5m flood depth, where the PSP has indicated a retention basin for 105 McPhees Road. However, the existing conditions of 105 McPhees Rd including both current and climate change being applied of 0.3-0.5 shown below in figure 7 and 8. This is not acceptable as justification to apply the FO to 105 McPhees Road.

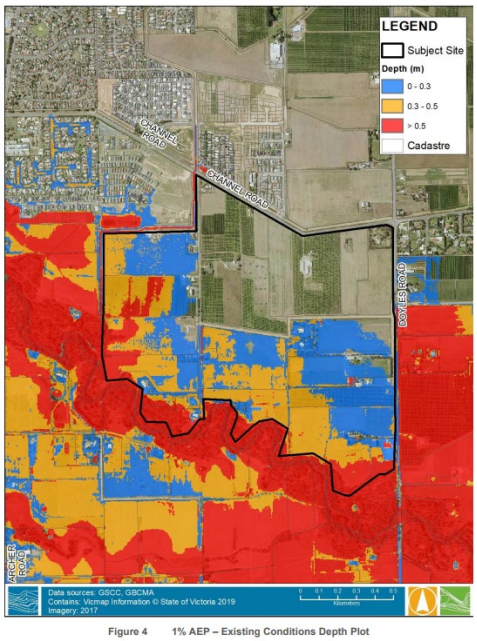


Figure 4 1% AEP – Existing Conditions Depth Plot

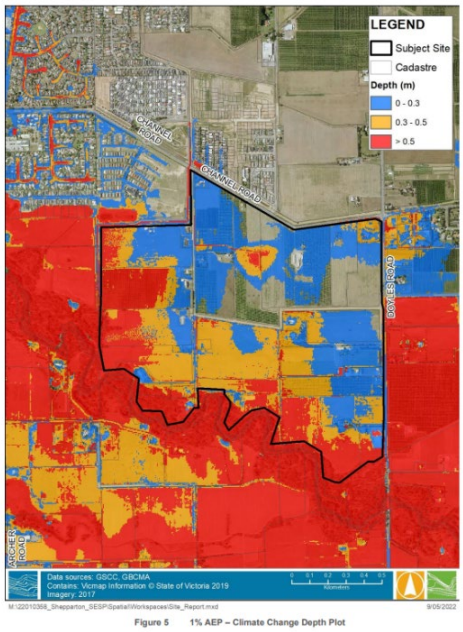


Figure 5 1% AEP – Climate Change Depth Plot

Figure 7 & 8 in the Shepparton South East PSP – 1% AEP Flood Mapping Project SSE Addendum (Water Tech) May 2022

The PSP concept plans and stormwater management plans, PAO39 and FO must be amended to not unfairly detriment 105 McPhees Rd, in benefit of more developable land for property numbers 48,49,50,51,52,53,54,59 defined by the Shepparton South East PSP.

7 Stormwater Management within Southern Section of PSP

The only basin proposed for the area bounded by Channel Road/ Doyles Road, McPhees Road (east side) and Broken River is proposed at 105 McPhees Road at the south end of the catchment.

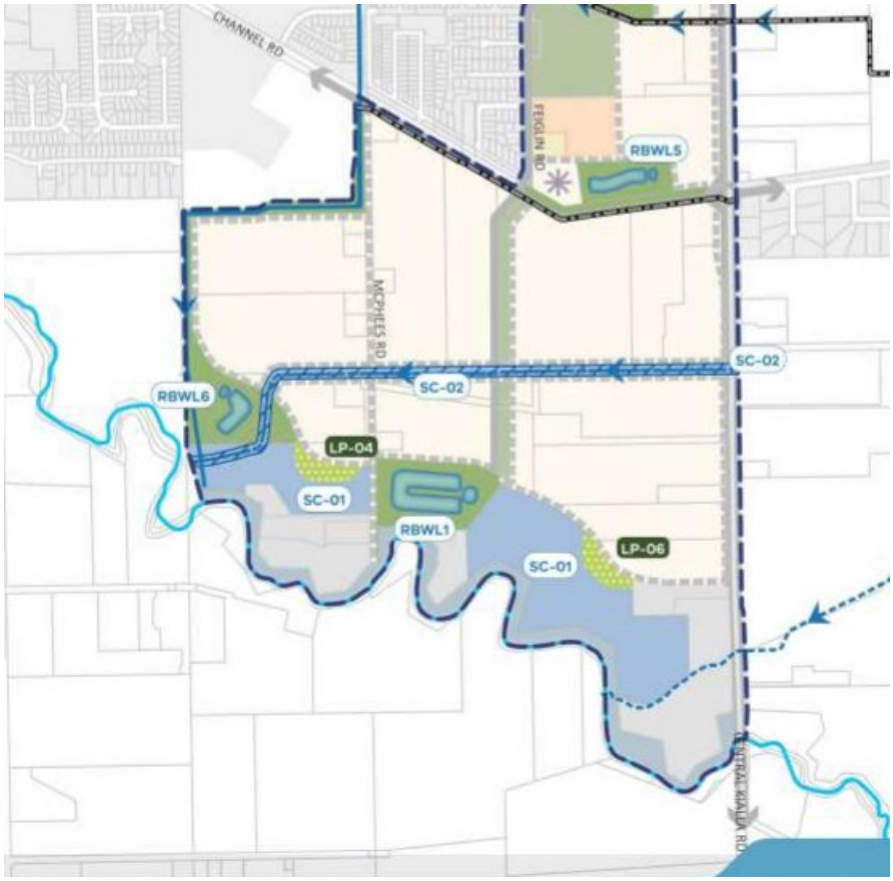


Figure 9: Image above from Plan 12 Integrated Water Management of Shepparton South East PSP

The stormwater design of the southern section of the PSP unfairly favours lots to the north. A retention basin must be located within property numbers 48,49,50,51,52,53,54 & 59 defined by the Shepparton South East PSP for the following reasons:

- The pipe network for properties numbers 48,49,50,51,52,53,54 & 59 is approximately 1.2 to 1.4 km from the proposed Basin (RBWL1 and linear reserve LP-05). This would require the gravity pipe network for the residential subdivision to the proposed Basin at 105 McPhees to be in the order of 6m deep (pipes on average are laid at a 1 in 300 (minimum IDM standard) grade plus cover plus pipe size and pit drops) being much deeper than the Functional Design proposed at 4.5m. (Refer Alluvium Functional Design RBWL 1.). This proposed design unnecessarily increases the internal stormwater pipe sizes and subsequently a substantial cost increase to the overall development. This would also result in a large length of “wet pipe” which is not favourable to council for long term maintenance works. There will also need to be in the order of 1-2m of fill at the Channel Road end to achieve an overland flow path to RBWL1 in accordance with IDM standards. A basic concept aligning with IDM standards has not been complete to ensure catchment 1 can even drain to RBWL1, this needs to be considered within the strategy (refer to figure 10 for the Catchment 1 in blue).

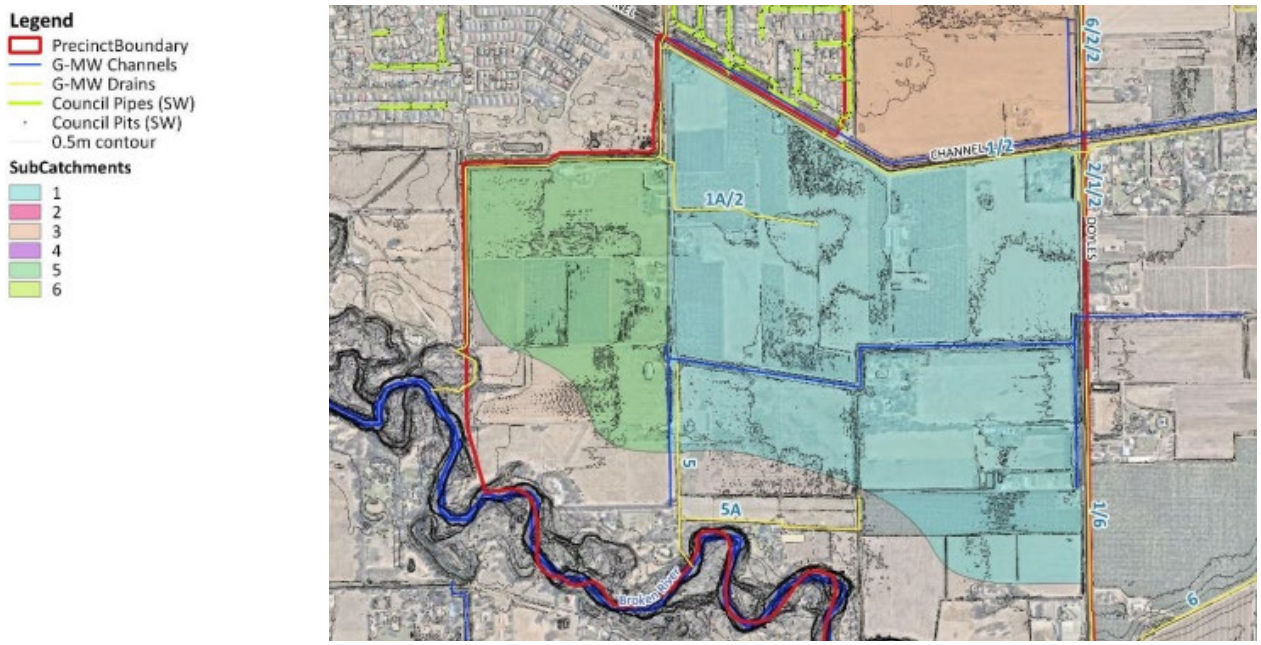


Figure 10: Catchments within Shepparton SE PSP– 1% AEP Flood Mapping Project SSE Addendum (Water Tech) May 2022

- Based on the points outlined above, there needs to be a basin located within the Goldfields area, to minimise fill on lots, avoid impact on groundwater, minimise costs for councils maintenance of wet pipe and reduce the large lengths of major pipe to the basin.

- If the above scenario of an additional Basin on properties 49 & 50 land area is applied the 105 McPhee Road basin size can be reduced to cater for its own stormwater and be of a much smaller footprint. This basin for 105 McPhees could be located in the BMO that already covers the southwest corner of the property. This has a further added advantage of the precinct requiring smaller stormwater pipe sizes and minimising development costs.

- The Water Technology Report – 17 May 2022 reports that groundwater is at 3.5m below existing surface which indicates that the proposed Basin RBWL 1 will have groundwater infiltration and not hold the required retention volume.

- The development concepts used in the PSP and the flood modelling scenario's used from this design unfairly inhibits otherwise useable and developable land within 105 McPhees Road.

Having reviewed the Alluvium Functional Designs, Infrastructure Solutions has the following comments:

- The Alluvium Functional Design for RBWL 1 and Water Technology Model – May 2022 does not appear to have considered subdivision overland flow paths to the basin at the south end of 105 McPhees Road property. The location of RBWL 1 would suggest that property numbers 48,49,50,51,52,53,54 59 allotments in Goldfields will require significant amounts of allotment fill to achieve an overland sawtooth flow to Basin RBWL 1.

- The Alluvium Functional Design for RBWL 1 should demonstrate how Sub-Catchment No. 1 can drain via pipe and overland flow to the Basin using the Council adopted Infrastructure Design Manual (IDM) design principals.

It is important that the issues raised in regards to the flood modelling and in summary includes but not limited to :

- Recalibrate the area of flooding on 105 McPhees Road deeper than 0.3m,
- the need for an additional Basin within Goldfields area due to groundwater depths,
- depth of basin and overland flow path for subdivided residential land requiring significant amounts of lot filling towards Channel Road to comply with Councils adopted IDM

8 Land Prices – Public Acquisition

The scheme has identified two parcels of land on 105 McPhees Road for inclusion in the Public Acquisition Overlay and Developer Contributions Scheme (DCP).

The two parcels of land in the DCP are as follows:

RBWL 1 – Retention Basin Area	6.11 ha
LP-05 - Linear Park	2.31 ha
Total	8.42 ha

The RBWL 1 land area of 6.11ha is based on acquiring land deemed as LSIO in the current GBCMA – Community Flood Intelligence Portal and has been valued as FO land and subdivision overland flow path. As shown above, the development scenario's unfairly impact 105 McPhees Rd.

If the area of RBWL1 identified in Plan 12 of the Integrated Water Management with the PSP was to remain at its currently identified area, we require the value of the land to be reassessed as it does not take into account the clear advantage to properties 48,49,50,51,52,53,54 & 59 which at present has no basin requirements and allowing at minimum 35 more allotments betterment compared to 105 McPhees Road which is on abutting land at a much reduced DCP price. This also applies to other benefitting landowners in this sub catchment to the north of 105 McPhees Road. This issue will need to be addressed immediately if the Basin area is not reduced, likewise, it will need to be addressed if the proposed flood remodelling is updated and there is no need for linear reserve LP-05 or RBWL1. We suggest the scheme, DCP and PAO be amend before the Minister for Planning adopts the proposed amendment.

We request that land valuation and land size to be reassessed immediately and be of fair value if any Basin and Linear Park is required for the property numbers 48,49,50,51,52,53,54 & 59 before the PSP and DCP are adopted.

The DCP states that the land budget has been prepared to reflect current advice from Council – land required for drainage assets may be subject to **minor refinement**. This is concerning to the property owners given the Public Land areas required and material benefit adjoining sites are seeing in the context of the serious question along with the corresponding land value.

9 Conclusion

The owners of 105 McPhees Road appreciate what the VPA and GSCC are trying to achieve with the Shepparton South East Precinct Scheme and accompanying Developers Contributions Plan. However, there are some significant issues raised which are impacting the property in an unfair way as outlined in this submission to the Shepparton South East Precinct Structure Plan.
As a result, for the wellbeing of the owners, we request that all issues raised are addressed as soon as possible and any relevant changes are made to the Scheme, DCP and POA before being adopted by VPA, GSCC and Minister for Planning.

Infrastructure Solutions would be happy to meet with the VPA, GSCC and any subsequent sub consultations to talk through the issues raised.

APPENDIX A

Community Flood Intelligence Report for 105 McPhees Road

Community Flood Intelligence Portal

Goulburn Broken CMA / Greater Shepparton City Council
Shepparton Mooroopna

my.floodreport.com.au/gbcma/?fp=SheppartonMooroopna

This is a Flood Information Report for 105 MCPHEES ROAD SHEPPARTON 3630, and Property ID (PI) 5372475

This report provides a summary of the latest flood information for the selected property but may not represent relevant flood overlay and zoning controls in the municipal planning scheme. You are encouraged to seek advice from your local Council if you propose to carry out works or construct buildings. An application for floodplain management advice can be requested from the Catchment Management Authority by submitting a flood advice request. Such information or advice does not constitute any approvals that may be required under a municipal planning scheme.

PROPERTY FLOOD INFORMATION

AEP	Water Level Min (m AHD)	Water Level Max (m AHD)	Water Depth Min (m)	Water Depth Max (m)	Max Velocity (m/s)	Max Hazard
1 in 5	114.62	114.84	0.00	0.39		
1 in 10	114.65	114.86	0.00	0.41		
1 in 20	114.67	114.87	0.00	0.44		
1 in 50	114.68	114.89	0.00	0.47		
1 in 100	114.68	114.90	0.00	0.61	0.34	H3
1 in 100 Climate Change	114.73	114.96	0.01	0.54	0.36	H3

Notes to table:

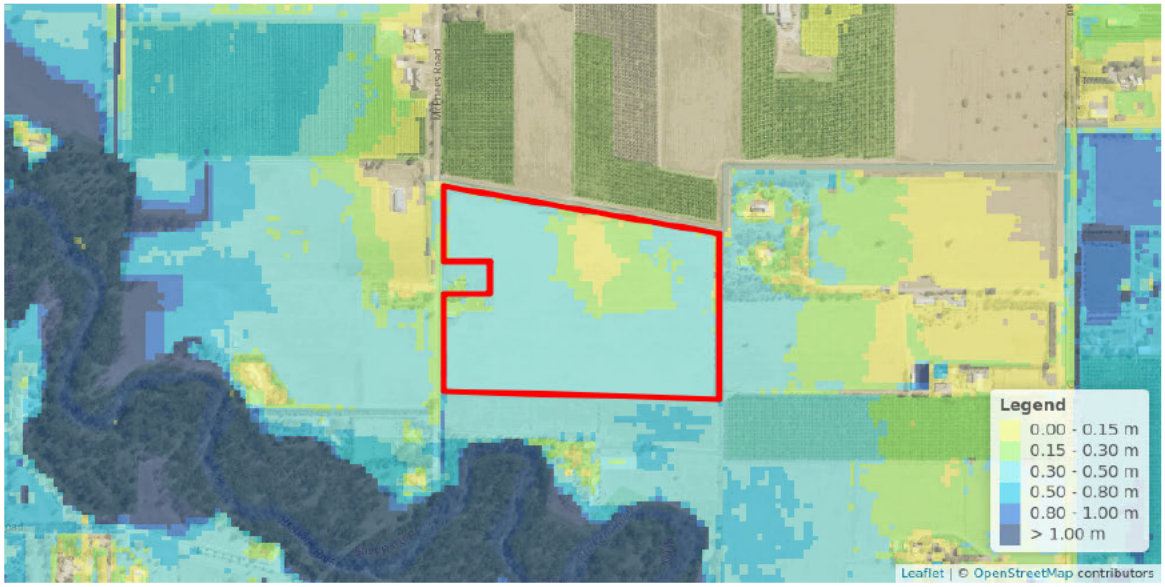
- Flood data is sourced from the Shepparton Mooroopna Flood Mapping and Flood Intelligence Study (Water Technology, 2018).This flood risk information indicates the likely effects of riverine flooding and NOT the effects of local stormwater runoff and drainage.
- The 1 in 100 AEP with Climate Change is the design flood event used for land use planning, development and building decisions. Design events (AEP) are based on current climate conditions unless noted otherwise.
- "-" in the table means that there is no flooding for that AEP. "NA" in the table means that there is no data available.
- Water Level refers to metres above AHD. Water Depth refers to metres above natural ground level.
- Min and Max refer respectively to the minimum and maximum water level or depth on the property.
- Max Hazard shows the maximum Hazard Category across the property. Refer to page 3 for more information.

DEFINITIONS

AEP - Annual Exceedance Probability The probability that a flood of a given (or larger) magnitude will occur within a period of one year. For example, a 1 in 100 AEP flood in this portal means you have a 1 in 100 or 1% chance that a flood of that size (or larger) could occur in any one year.

AHD - Australian Height Datum The adopted national height datum that generally relates to height above mean sea level.

INDICATIVE MAP OF THE EXTENT AND DEPTH OF THE 1 IN 100 AEP (CLIMATE CHANGE) FLOOD



Note: Dark grey areas are outside the flood study boundary. For available regional flood information, please visit the GBCMA Floodplain and Drainage page

FLOOD PREPAREDNESS TABLE

Scenario	Gauge Level: Goulburn River @ Shepparton (m)	AEP	Water Level(1) (m AHD)	Water Depth over floor(1) (m)
Goulburn Dominant	9.5	-	-	NA
	10.1	-	-	NA
	10.7	-	-	NA
	10.9	-	-	NA
	11.1	1 in 5	-	NA
	11.3	1 in 10	-	NA
	11.7	1 in 20	114.76	NA
	12.1	1 in 50	114.84	NA
	12.2	1 in 100	114.86	NA
	12.3	1 in 100 CC	114.89	NA
Broken / Sevens Dominant	9.5	-	-	NA
	10.1	-	-	NA
	10.7	-	-	NA
	10.9	-	114.71	NA
	11.1	1 in 5	114.82	NA
	11.3	1 in 10	114.84	NA
	11.7	1 in 50	114.87	NA
	12.1	1 in 100	114.91	NA
	12.2	1 in 100 CC	114.95	NA
	12.3	-	114.96	NA
Neutral	9.5	-	-	NA
	10.1	-	-	NA
	10.7	-	-	NA
	10.9	-	-	NA
	11.1	1 in 5	-	NA
	11.3	1 in 10	-	NA
	11.7	1 in 20	114.77	NA
	12.1	1 in 50	114.89	NA
	12.2	1 in 100	114.94	NA
	12.3	1 in 100 CC	114.98	NA
	12.5	-	-	NA
Historic	Modelled 1974 Flood	-	114.88	NA
	Modelled 1993 Flood	-	114.89	NA
	Modelled 2010 Flood	-	-	NA

Notes to table:

- There is no floor survey available for this property, and is sourced from the Shepparton Mooroopna Flood Mapping and Flood Intelligence Study (Water Technology, 2018) and the Shepparton Mooroopna 1% AEP Flood Mapping Project (Water Technology, 2021), where available.
- "-" in the table means that the AEP has not been determined for that gauge height. "NA" in the table means that there is no data available. Unless otherwise stated, design ARI's and flood class levels are based on current climate conditions.
- Hydrologic analysis has shown that the 1 in 100 AEP with climate change (CC) is equivalent to 1 in 200 AEP.
- (1) The 'Water Level' is the maximum water level on the property and 'Water Depth Over Floor' is the difference between this maximum water level and the surveyed floor level at the location shown in the map.
- If your property is not affected by flooding, you may be impacted indirectly by road closures, isolation & disruption to essential services.

FLOOD CATEGORIES AND THEIR EXPECTED IMPACTS

Minor Flood

Water Levels reach the tops of river banks and could affect some low lying areas, roads, bridges, equipment and livestock along waterways.

Moderate Flood

Water Levels spill over river banks and spread across low lying areas threatening some buildings, roads, rail, power and other developments and causing road closures and evacuations in some areas.

Major Flood

Water Levels cause widespread flooding, threatening many buildings, businesses, houses, roads, rail, power and other developments and disrupting major roads and transport routes. Widespread evacuations are required. Whole areas or properties may be isolated by water.

HAZARD VULNERABILITY CLASSIFICATION

The Max Hazard shown in the Property Flood Information Table on page 1, if available, can be summarised as shown below. Please note however that understanding hazard vulnerability is complex. Refer to book 6, chapter 7 of the Australian Rainfall & Runoff Guidelines for more detail.

Hazard (D*V)	Water Depth (m)	Velocity (m/s)	Hazard Category	Description
<= 0.3	<=0.3	<=2.0	H1	Generally safe for vehicles, people and buildings.
<= 0.6	<=0.5	<=2.0	H2	Unsafe for small vehicles.
<= 0.6	<=1.2	<=2.0	H3	Unsafe for vehicles children and the elderly.
<= 1.0	<=2.0	<=2.0	H4	Unsafe for vehicles and people.
<= 4.0	<= 4.0	<=4.0	H5	All buildings vulnerable to structural damage. Some buildings subject to failure.
> 4.0	-	-	H6	All building types considered vulnerable to failure.

FURTHER INFORMATION

Please note that there is a partial overlap between the Shepparton Mooroopna Flood Mapping and Flood Intelligence Study (2018) and the Shepparton East Overland Flow Urban Flood Study (2017). The two studies encompass different flooding mechanisms (river and overland) in this area of overlap. Please download a property report in the portal from both flood studies to get a complete picture for your property. Further definitions, information and resources relevant to this report is available in the 'General Information' document available for download in the Community Flood Intelligence Portal.

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