

202041L001A

1 April 2022

Troppo Architects  
28 East Terrace  
Adelaide SA 5000

Attention: Andrew O'Loughlin

Dear Andrew,

### **FLOOD STUDY REPORT FOR WILCANNIA WELLBEING CENTRE**

Tonkin has been engaged to provide a flood study report for the site of the proposed Wilcannia Wellbeing Centre (WWC). The proposed development is to be built across Lots 2, 3 and 111 (ref DP 1201089 & DP 1201028), Bonney St, Wilcannia, (refer attached survey). The site borders the Darling River and is approximately 1 km upstream of the Wilcannia river gauge (no. 425008).

The site of the proposed development generally slopes from the east to west, with natural surface elevations within the extents of the proposed development ranging from 76.3 mAHD at the eastern corner of the property to 73.8 mAHD at the western extent of the development, adjacent to the Darling River.

### **Requirements**

This flood study report addresses the following requirements:

- The Finished Floor Level (FFL) is at least 500 mm above flood waters. Review of the plans provided shows that the proposed FFL of the development is 77.42 mAHD.
- The development will be compatible with the existing flood function and behaviour of the land.
- The development will not adversely affect flood behaviour that detrimentally increases flood risk of surrounding properties.

### **Determination of flood level**

The survey which has been provided identifies a shallow flow path which flows to the north east of the proposed development site. The flow path originates from a side entry pit on Ross Street, and discharges flows to the Darling River. It is not considered likely that flows from this flow path will impact the proposed development. Review of the survey shows that the site is also likely to experience some runoff from private property to the south east. It is considered that the relatively small volume and non-concentrated nature of these flows means that they do not represent a flood risk to the proposed development.

The primary flood risk is therefore considered to be associated with flooding from the adjacent Darling River. No specific information regarding flood risk and flood levels can be found using the Department of Planning, Industry and Environment's Spatial Viewer and SIX Maps, however the south western portion of the property is identified as being within the floodplain.



### Review of historic flood levels and flows

No previous flood studies for the Darling River at Wilcannia were identified during the preparation of this flood study. Information provided by the Central Darling Shire Council (Council) suggested that, in the absence of other information, the 1976 flood level be used for planning purposes.

Historical data obtained from WaterNSW ([realtimedata.watersnsw.com.au](http://realtimedata.watersnsw.com.au)) includes data for 51 years of flood level for Wilcannia (425008). The maximum recorded level is 11.592 mAH, corresponding to 74.814 mAH. WaterNSW records the maximum flow for the corresponding day to be 68,804 ML/day.

In 2005, the community newsletter *Wilcannia News* published notable floods for the town from 1879 to 2001. Consistent with the recorded data, this source also reported the 1976 flood as the highest historical flood level for Wilcannia.

We understand that information provided by Council during the planning process indicated that the flood marker on the ablutions block at the caravan park represents the highest recorded water level and is at 76.655 mAH. During the process of preparing this study we attempted to speak to Council but were not able to talk to anyone who was able to provide any further information on historical flooding, nor an explanation for the discrepancy between the height marker and the recorded flood level in 1976 reported by WaterNSW.

The Bureau of Meteorology's flood frequency analysis tool estimates a 1 in 100-year flood to discharge 850 cumec (73,440 ML/day) of flow along the Darling river at Wilcannia. This is slightly (7%) greater than the recorded discharge during the 1976 flood.

### Assessment of proposed development

The FFL of the proposed development is set at 77.42 mAH. This is 2.6 m above the highest recorded water level (associated with the 1976 flood) and 0.765 m above the water level marker in the caravan park.

On the basis of the above and in the absence of more detailed information it is considered that the proposed FFL meets the requirement of being a minimum of 500 mm above the flood level.

### Consideration of impacts on flood risk of surrounding properties

Review of the available survey shows that the site currently slopes such that runoff is directed towards the Darling River in the form of shallow sheet flow. Review of the provided plans indicate this behaviour will continue after construction of the proposed development (Drawings 00 and 01, attached).

The increase in impervious area on the site will not materially impact the volume of flows discharging to the Darling. The plans show that rainwater tanks are to be installed, which will help to offset the increased frequency and volumes of runoff, particularly during minor events.

On the basis of the above, it is considered that the proposed development is compatible with the existing flood function and behaviour of the land and will not impact the flood risk of neighbouring properties.

During the detailed design process, consideration will need to be given to ensuring that the design can withstand the forces associated with a potential flood.

### Summary

Based on the available information, it is concluded that:



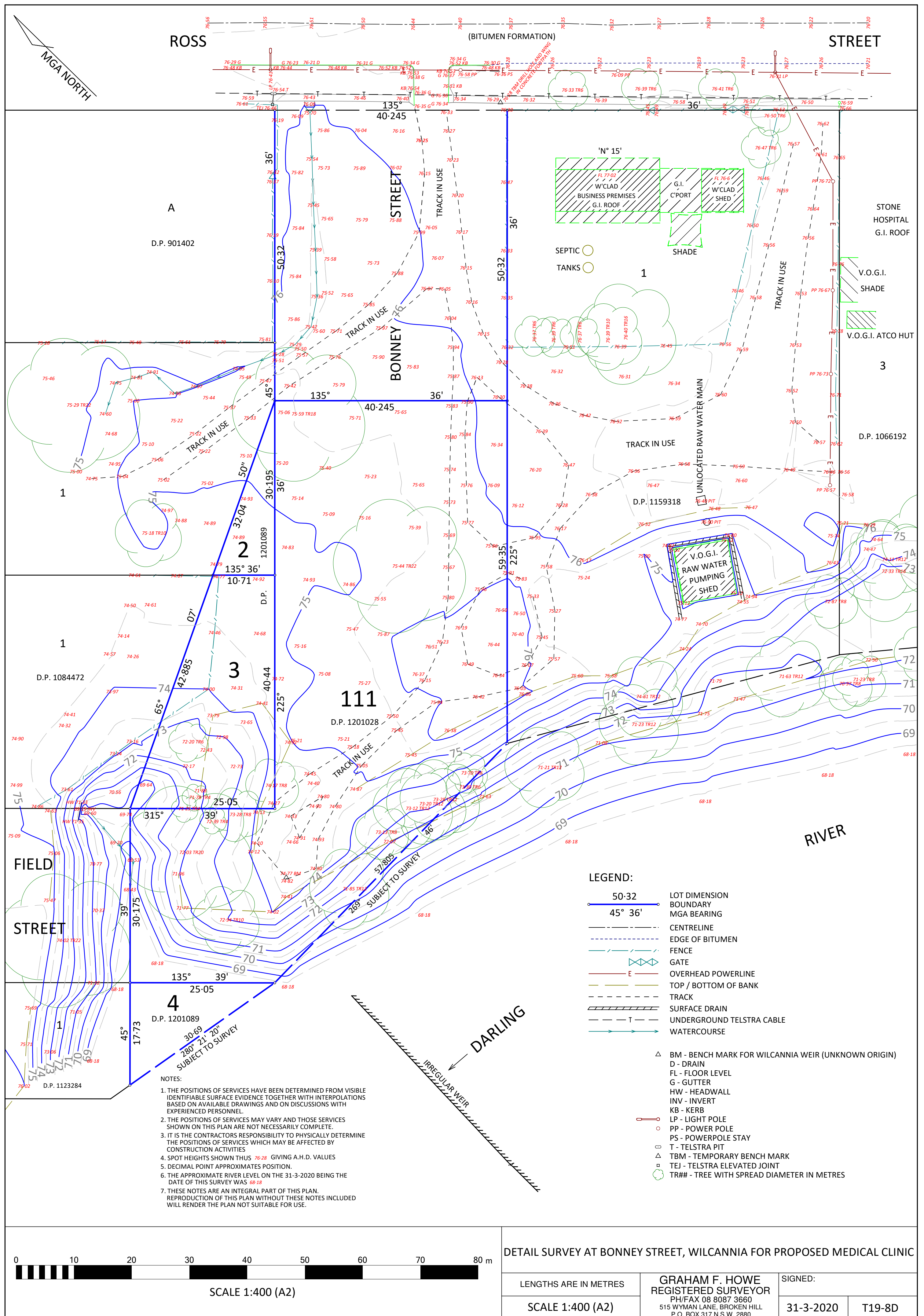
- The site experiences no significant inflows from external catchments. The Darling River is the primary source of flooding.
- There is no flood study for the Darling River in Wilcannia, however based on historic data, it is considered that the proposed FFL meets the requirements for a minimum freeboard of 500 mm in a flood event.
- The current flood function of the land will not be impacted, and there will be no change to the flood risk of adjacent properties.

If you have any questions about any of the above, please do not hesitate to call me on (08) 8273 3100.

Yours sincerely,

**Olivia Oliver**  
**Chief Operating Officer**  
**Tonkin**

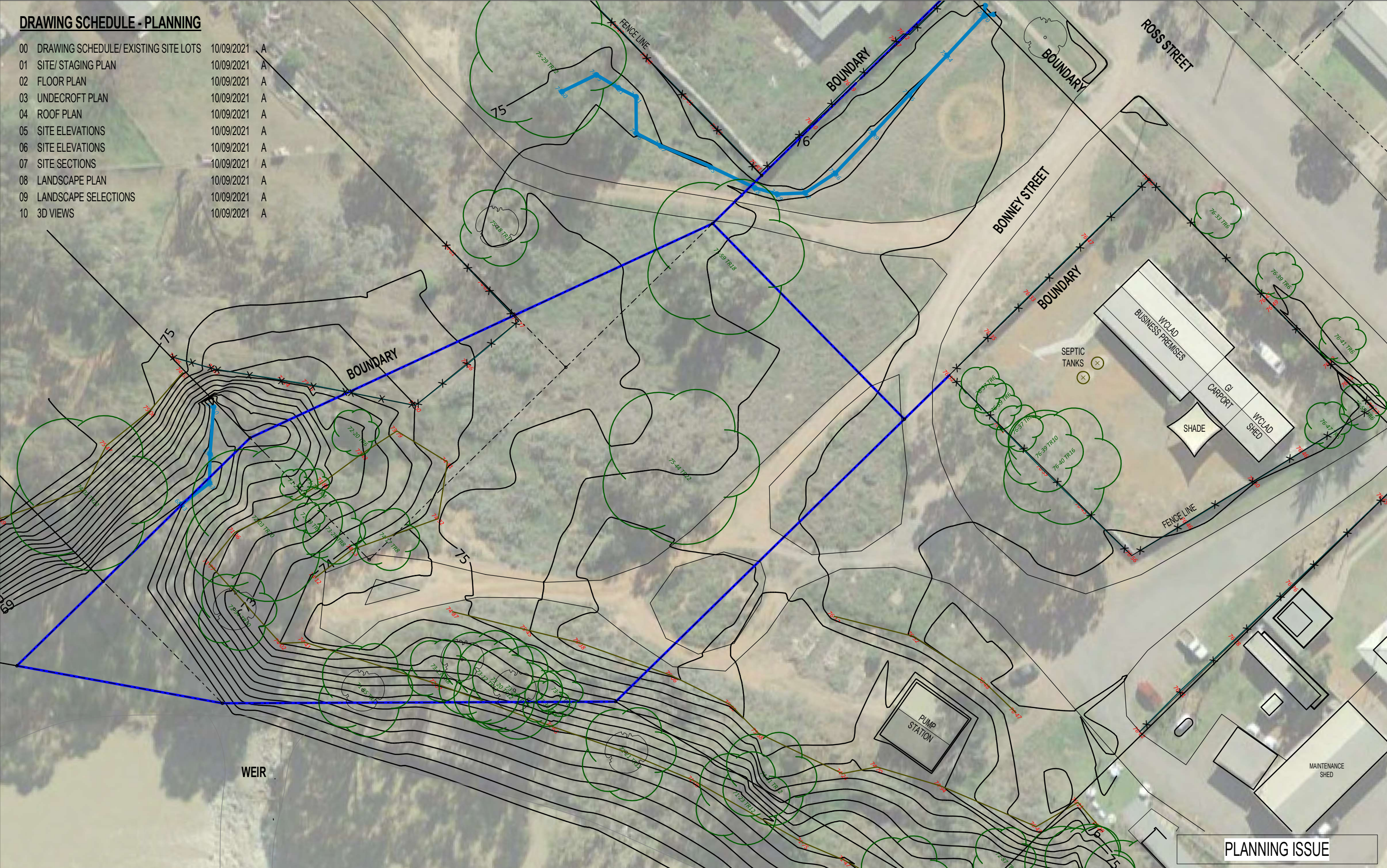
Enc    T19-8D – Site survey  
        Drawing 00 – Existing site lots  
        Drawing 01 – Site/staging plan





DRAWING SCHEDULE - PLANNING

00	DRAWING SCHEDULE/ EXISTING SITE LOTS	10/09/2021	A
01	SITE/ STAGING PLAN	10/09/2021	A
02	FLOOR PLAN	10/09/2021	A
03	UNDECROFT PLAN	10/09/2021	A
04	ROOF PLAN	10/09/2021	A
05	SITE ELEVATIONS	10/09/2021	A
06	SITE ELEVATIONS	10/09/2021	A
07	SITE SECTIONS	10/09/2021	A
08	LANDSCAPE PLAN	10/09/2021	A
09	LANDSCAPE SELECTIONS	10/09/2021	A
10	3D VIEWS	10/09/2021	A

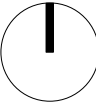
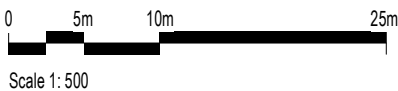


PLANNING ISSUE

tropo architects©

28 East Terrace, Adelaide SA 5000  
T. +(61) 8 8232 9696 F. +(61) 8 8232 9797  
E: adelaide@tropo.com.au

SETTING OUT OF WORK IS THE RESPONSIBILITY OF THE CONTRACTOR. VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCEMENT OF WORKS. WORK TO FIGURED DIMENSIONS AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE SUPERINTENDANT BEFORE PROCEEDING. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION.



MAARI MA WILCANNIA  
WELLBEING CENTRE  
BONNEY STREET WILCANNIA

FOR MAARI MA ABORIGINAL HEALTH

DRAWING SCHEDULE/ EXISTING  
SITE LOTS

			Job No:	480	Issue:	A
			Scale:	1 : 500 @ A3		
			Issue Date:	05.10.2021	Dwg No:	00
			Drawn:	ML	Checked:	AOL
A	05.10.2021	PLANNING ISSUE				
ISSUE	DATE	AMENDMENT				



STAGING LEGEND



STAGE 1



STAGE 2



FUTURE STAGE 3

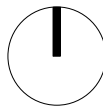
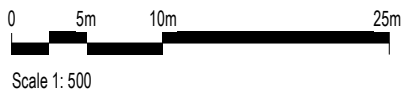


PLANNING ISSUE

troppo architects©

28 East Terrace, Adelaide SA 5000  
T. +(61) 8 8232 9696 F. +(61) 8 8232 9797  
E: adelaide@troppo.com.au

SETTING OUT OF WORK IS THE RESPONSIBILITY OF THE CONTRACTOR. VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCEMENT OF WORKS. WORK TO FIGURED DIMENSIONS AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE SUPERINTENDANT BEFORE PROCEEDING. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION.



MAARI MA WILCANNIA  
WELLBEING CENTRE  
BONNEY STREET WILCANNIA

FOR MAARI MA ABORIGINAL HEALTH

SITE/ STAGING PLAN

			Job No:	480	Issue:
			Scale:	As indicated @ A3	A
			Issue Date:	05.10.2021	Dwg No:
			Drawn:	ML	Checked:
				AOL	01
A	05.10.2021	PLANNING ISSUE			
ISSUE	DATE	AMENDMENT			