

Sahibzada Fateh Singh Jee Inc.

**Lot 7 Kargotich Road, Oldbury,
Shire of Serpentine-Jarrahdale**

Stormwater Management Plan

May 2021





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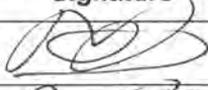
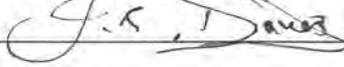
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1. INTRODUCTION

Lot 7 Kargotich Road, Oldbury is located 5km northwest of Mundijong in the Shire of Serpentine-Jarrahdale. Oaklands Main Drains traverse the property, dividing it in two: 15.5ha on the western side and 3.5ha on the eastern side (Figure 1).

A Sikh Community Centre is proposed on the eastern side of Water Corporation Oakland Drain, within the Oaklands Drain 100-year ARI floodplain. A Flood Water Management report for Lot 7 Kargotich Road Oldbury was completed by JDA based on Development Application Plans and issued on 24 November 2017. The Development Application was approved by Shire of Serpentine-Jarrahdale Letter on 30 April 2018, with attached plans (Appendix 1).

In order to comply with conditions stipulated by the Shire of Serpentine-Jarrahdale, an Urban Water Management Plan is also required (Condition 4).

JDA has interpreted Condition 4, in agreement with Carl Done (Coordinator Subdivisions, Shire of Serpentine-Jarrahdale) in March 2020, that a Stormwater Management Plan is actually required, consistent with the Shire's Stormwater Requirements which require the following to be addressed:

- Stormwater Manholes
- Soakwells
- Rainwater Tanks

JDA notes that stormwater is defined by the Shire as “surface water that originates during rains” (Appendix 1) and property owners have a statutory obligation, under common law precedents and the Local Government Act 1995, to confine stormwater within their boundaries.

2. STORM WATER MANAGEMENT

2.1 Stormwater Manholes

There is no stormwater manhole connection available to connect the property drainage to Shire drainage.

2.2 Stormwater Disposal

The geotechnical investigation (Local Geotechnics, 2019) states that onsite disposal of runoff and stormwater via soakwells is not appropriate for this site and in rural settings such as Lot 7 Kargotich Road soakwells are not required by the Shire.

JDA thus recommends that all stormwater not harvested in rainwater tanks be directed into an open swale within the property.

2.3 Open Swale / Basin

The area of tarmac is approximately 5,200m². The open swale or basin will be graded with 1:6 batters, and will be sized for the first 15mm of rainfall resulting in a storage volume of 78m³ (5,200m² x 0.015m). All remaining flows will be directed towards Oakland Drain.

A swale with the dimensions of 33.5m (L) x 11.5m (W) x 0.25m (D) would store 80m³.

An approximate location of this swale/basin is shown in Figure 3.

2.4 Rainwater tanks

Table 1 shows the roofed area of the proposed buildings.

Table 1: Roof area for proposed buildings at Lot 7 Kargotich Road. (Appendix 2)

	<i>Roof area (m²)</i>
<i>Kitchen</i>	265.00
<i>Front amenities</i>	180.00
<i>Rear amenities</i>	260.00
<i>Caretaker's quarters</i>	155.00
<i>Lunch hall</i>	1,170.00
<i>Meditation hall</i>	880.00
Total	2,910.00

Rainwater tanks will be constructed to collect rainfall from all building roof areas and piped between the buildings in 100 mm diameter buried PVC pipe to two 120,000 L collection tanks totalling 240,000 L (240m³). The total volume of these tanks combined is twice the Shire requirement of a water supply of at least 120,000L. These rainwater tanks will be located on the western edge of the development (Appendix 2, p15). Rainfall data is available for the Anketell monitoring station (BOM site ID: 009258), which is located approximately 9km northwest of the study site. Figure 2 shows that the average rainfall for the study area is 788 mm/yr. The total building roof area is 2,910 m², which with 788 mm/yr of rainfall and assumed 80% runoff produces an annual runoff volume of 1,800 m³/yr, more than seven times the capacity of the proposed rainwater tanks. Hence the tanks should fill every year from rainwater, with piped overflow at ground level to prevent erosion, directed towards Oakland Drain. The water tanks will be fitted with particulate and UV filters and the water will be tested for potable water quality according to Department of Health Guidelines.



On average, only 24% of rainfall falls between October and April inclusive. As such, the water demand might exceed supply during these summer months. If water demand exceeds the tank supply, additional water will be purchased from water carter company.

2.5 Flood Management

Floor levels will be a minimum of 18.1 m AHD, that is 0.5 m above the 1% AEP flood level in Oaklands Drain namely 17.6 m AHD. (see Appendix 3, Figure 2).



3. REFERENCES

Local Geotechnics (2019) *Report on Geotechnical Investigation: Lot 7 Kargotich Road, Oldbury WA.*

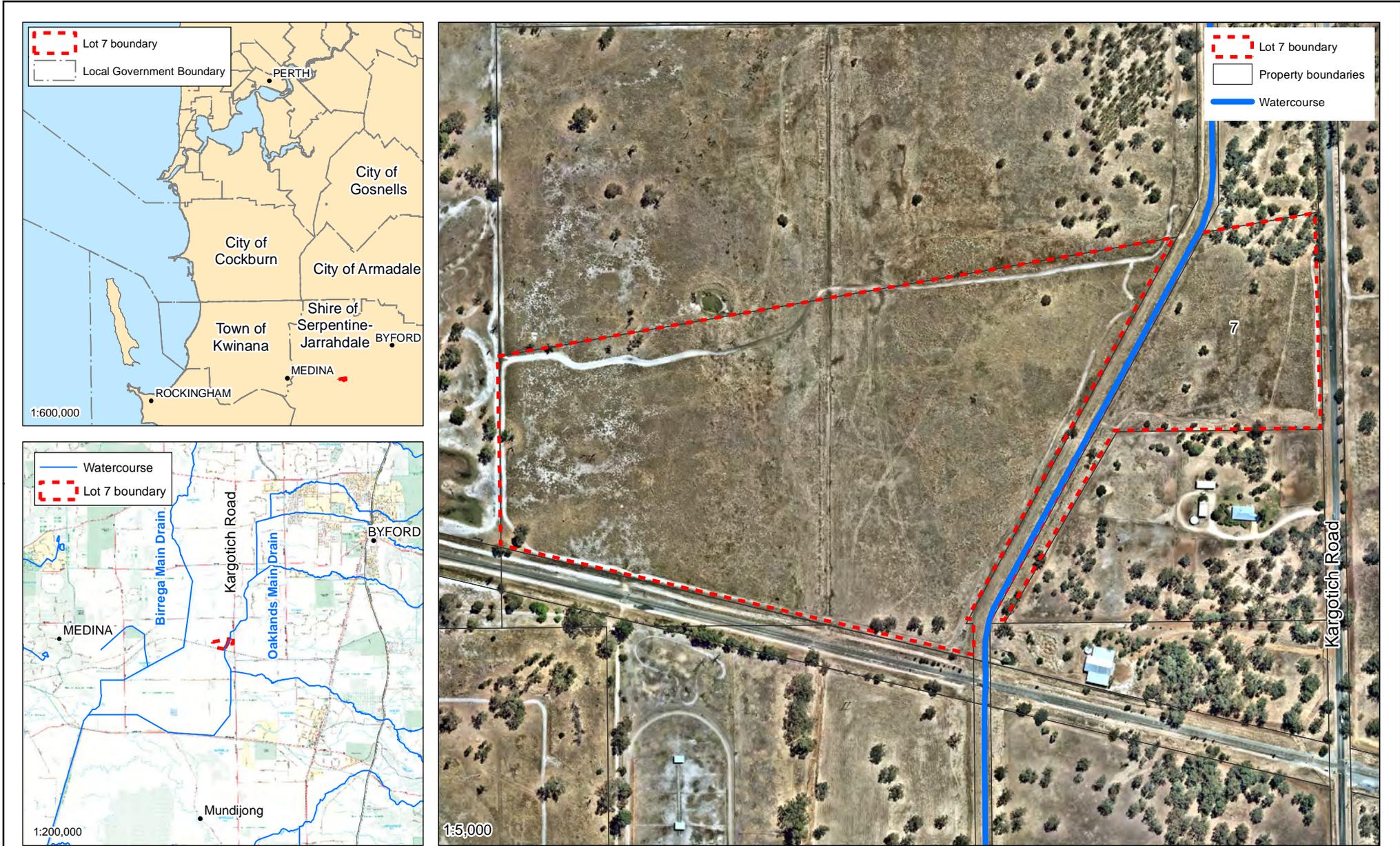
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FIGURES

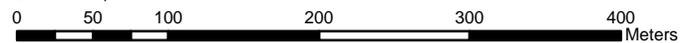


Data Source: Nearmap (2020), Street Express (2012), Hall (2015), Landgate (2018)

Coordinate System: GDA 94, Zone 50



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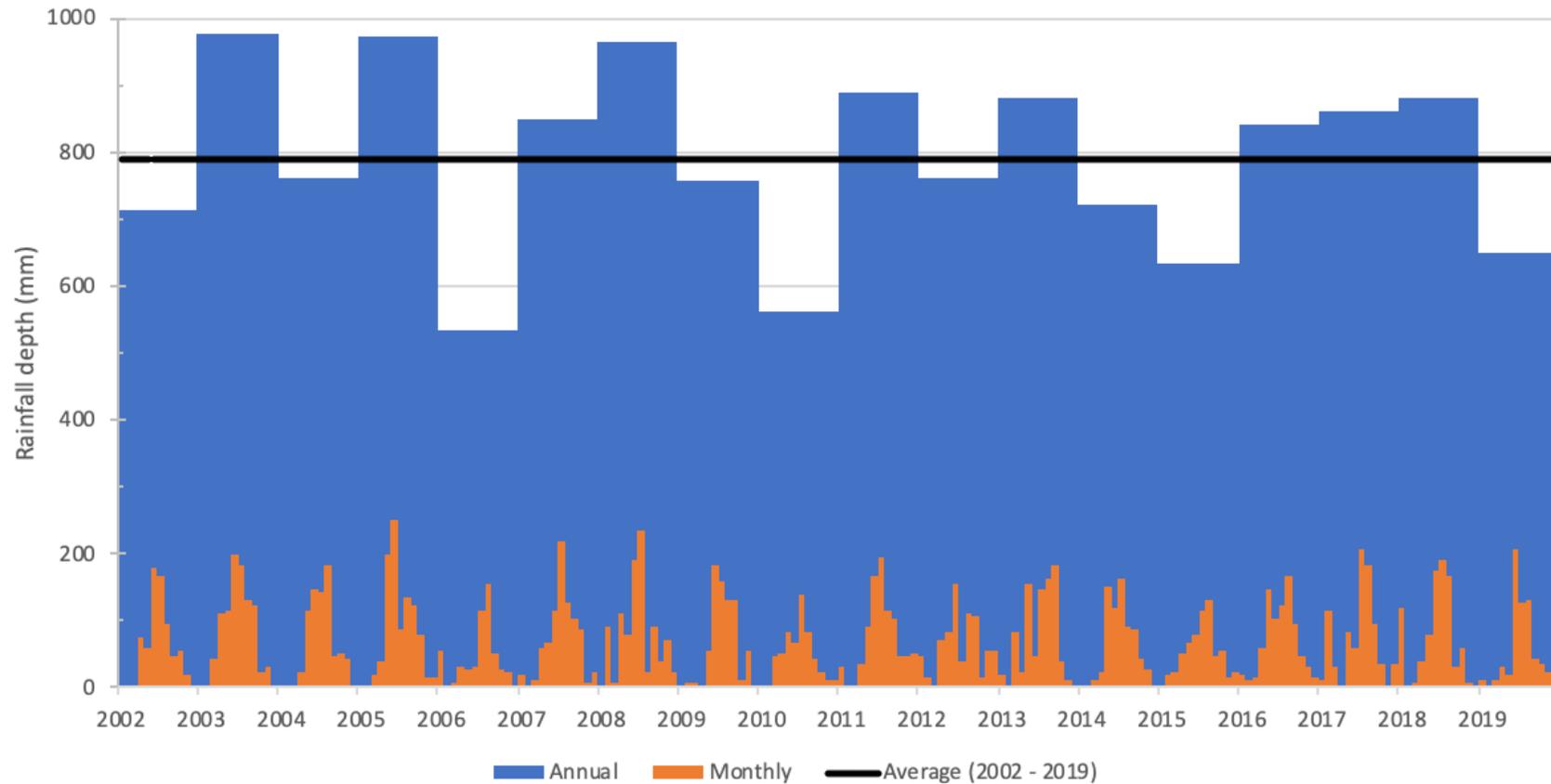


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Lot 7 Kargotich Road, Oldbury, Shire of Serpentine-Jarrahdale -
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Figure 1: Location plan



Data Source: Water Information Reporting, DWER (2020)

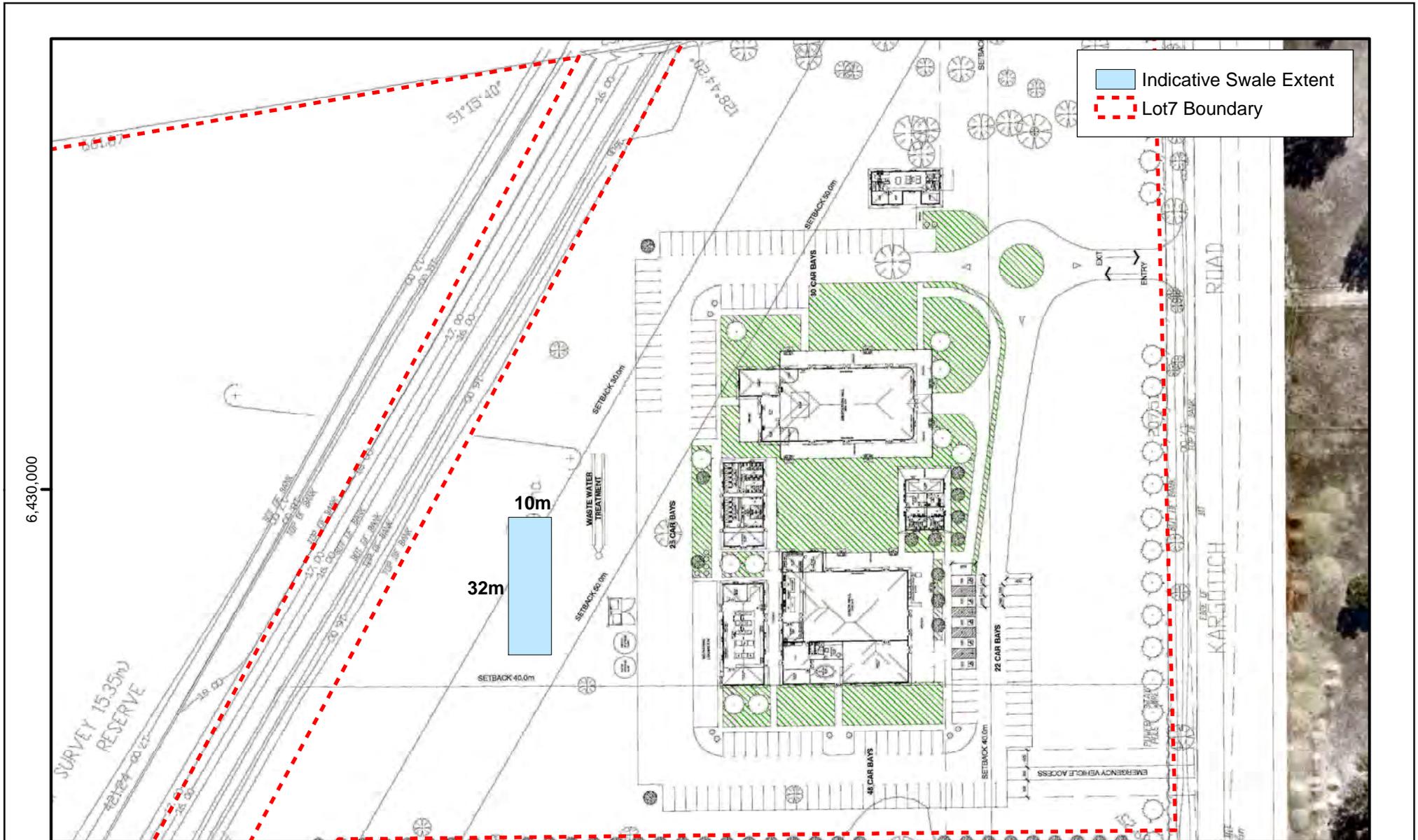


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Figure 2: Annual and monthly rainfall

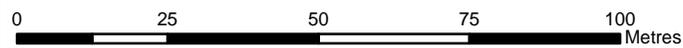


Data Source: Nearmaps (26 April 2021)

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Figure 3: Indicative Swale Location Plan