



Ref: 0536r01v03

15/03/2023

Rob Miller
20 The Serpentine
Bilgola Beach NSW 2107

**RE: 18 – 20 THE SERPENTINE, BILGOLA BEACH
DEVELOPMENT APPLICATION FOR THE CONSTRUCTION OF A STUDIO AND CAR PARKING STRUCTURE
PARKING DESIGN STATEMENT**

Dear Rob,

PDC Consultants has been commissioned to provide traffic consultancy advice for a Development Application (DA) relating to the construction of a studio and car parking structure (the Proposal) at an existing residential dwelling at 18 – 20 The Serpentine, Bilgola Beach.

A Pre-lodgement meeting (ref: PLM 2021 / 0305) was held on the 09/12/2021 between the Applicant and Council's representatives with a number of aspects discussed relating to the Proposal including parking design. Council's comments are reproduced below, which are highlighted, for reference.

Sight Lines

The applicant is to provide a site line analysis to address traffic safety for the proposal given the proximity to the road bend. Should the site line analysis recommend additional tree removal, the arborist report must take this into consideration. Please refer to Council's landscape officer comments regarding tree removal in the Council reserve.

Development Engineering

2. The proposed driveway crossing, and internal driveway is to be designed in accordance with Pittwater 21 DCP 2014 Clause B6.1 Access Driveways and Works on the Public Road Reserve and B6.2 Internal Driveways. In this regard, the applicant must provide a Traffic Engineer's report to assess the sight distance requirements of the above DCP controls and AS/NZS 2890.1:2004. Where the sight distances required cannot be achieved, the proposal will not be supported.

3. The driveway grades must be in accordance with Council's standard drawing A4/330/3 NL. Sections through the proposed crossing are to be submitted demonstrating compliance. The 1:4 Max grade shown on the submitted drawings must include a transition in accordance with the above standard drawing. This will require the proposed parking area to be raised to suit.

4. As the driveway is elevated, barriers in accordance with AS/NZS2890.1:2004 must be provided for the driveway and parking structure. The above-mentioned Traffic Engineer's report must take into account the barrier walls in the sight distance assessment.

5. The proposed off-street parking is to be in accordance with Pittwater Council's Pittwater 21 DCP 2014 Clause B6.3 Off-Street Vehicle Parking Requirements.

PDC Consultants

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In response to the above, a sight distance and design assessment of the development proposal has been undertaken to assess compliance with the relevant requirements of Australian Standard (AS) 2890.1. Our findings are provided herein.

Sight Distance Assessment

Figure 3.2 of AS 2890.1 outlines minimum sight distance requirements at vehicle access driveways.

Based on the posted speed limit of 40km/h along The Serpentine, a stopping sight distance (SSD) requirement of 35 metres would be required to the northeast and southwest of the proposed driveway. Reference should be to the Sight Distance Diagram included as **Attachment 3** which illustrate the Proposal will achieve the following sight distances:

- To the northeast: The Proposal achieves a sight distance of 35 metres, measured to the kerbside of The Serpentine
- To the southwest: The Proposal achieves a sight distance in excess of 35 metres, measured to the centreline of The Serpentine.

As demonstrated by the architectural drawings included as **Attachment 1**, the Proposal will include pruning of the underside of the trees and removal of shrubs and any other visual obstacles to the northeast of the driveway along the site frontage, resulting in improved sight lines along the The Serpentine to the northeast the proposed vehicle access.

Having regard for the above, the Proposal therefore achieves compliant approach sight distances to both the northeast and southwest along The Serpentine.

In addition, a site inspection was undertaken on 27/07/2022 and has identified that advisory speed signs are located in both directions of The Serpentine, near the site, recommending drivers to negotiate the horizontal curve (located northwest of the site) at a reduced speed of 35km/hr. In practice, drivers would adhere to the advisory speed limit of 35km/hr and travel past the proposed driveway access at a lower speed of approximately 35km/hr, thereby reducing the required minimum sight distance to less than 35 metres (required for a 40km/h posted speed limit).

Access Design

- With two (2) User Class 1A car parking spaces, the proposal requires a Category 1 Driveway under Table 3.1 of AS 2890.1, being an entry / exit driveway of width 3.0 metres to 5.5 metres. In response, the development proposes a combined entry / exit driveway with a width of 3.8 metres onto The Serpentine, which satisfies the requirements of AS 2890.1.
- Swept path analysis was undertaken of the proposed driveway access in accordance with AS 2890.1, using a B85 Design Vehicle. The results of the analysis are provided in **Attachment 2** demonstrate that the width of the driveway access ensures that left in / left out movements, being the most critical turns, can be performed adequately.

Internal Design

The proposed internal parking arrangements comply with the relevant requirements of AS 2890.1, with the following design aspects considered noteworthy:

- The driveway has a maximum grade of 1 in 7.1 (14%) and therefore satisfies the ramp and driveway grade requirements of AS 2890.1. The maximum grade transition is a sag transition of 1 in 7.1 (14%) which satisfies the requirements of Clause 2.5.3.(d) of AS2890.1.
- The car parking spaces are provided in the form of a double vehicle carport, having an opening width of 5.7 metres, an internal width of 5.7 metres and internal length of 5.7 metres, therefore complying with the relevant requirements of Clause 5.4 of AS 2890.1.
- The proposed double carport is provided with a minimum clear head height of 2.4 metres with satisfies the requirements of Clause 5.3.1 of AS 2890.1.
- A mechanical vehicle turntable is provided in front of the proposed double carport to assist manoeuvrability, given the narrow internal dimension of the car platform. The turntable ensures all vehicles can enter and exit the site in a forward direction.
- The turntables allow for a 6.0 metre clearance diameter and can accommodate vehicles up to a B99 Design Vehicle of length 5.2 metres, per Appendix A of AS 2890.1.. The internal diameter of the turntable itself will be dependent on the product selected by the client however, it is expected to be in the order of 4.8 metres.
- All walls are located outside of the space design envelope, as required under Figure 5.2 of AS 2890.1.
- Swept path analysis was undertaken of the proposed carport and turntable arrangements using a B85 Design Vehicle as defined under AS 2890.1. The results are provided as **Attachment 2** and the following movements were tested:
 - Forward entry movements to the turntable from The Serpentine.
 - Reverse entry movements from the turntable into the double carport.
 - Forward exit movement from the double carport onto The Serpentine.
- It is evident from the swept path analysis that the reverse entry and forward exit movements to / from the proposed double carport can be achieved with satisfactory clearance provided on both sides of the vehicle.
- As shown by the architectural drawings included as **Attachment 1**, barriers are provided along the perimeter of the car parking platform. The barriers would not have any impact on driver's sight line to the northeast and to the southwest.
 - AS 2890.1 requires that barriers are required along the edges of the driveway wherever a drop from the edge of the deck to a lower level exceeds 600mm. The architectural drawings included in **Attachment 1** shows that the road reserve on both sides of the proposed driveway will be battered to eliminate the drop in level. Barriers are therefore not required along the edges of the driveway.

In summary, the proposed car parking platform have been designed in accordance with AS 2890.1. Any minor amendments considered necessary (if any) can be dealt with prior to the release of a Construction Certificate.



We trust the above is of assistance. Please contact the undersigned should you have any queries or require anything further.

Yours sincerely,

A handwritten signature in black ink, appearing to be 'Jay Wu', with a stylized, cursive script.

Jay Wu

Traffic Engineer, PDC Consultants

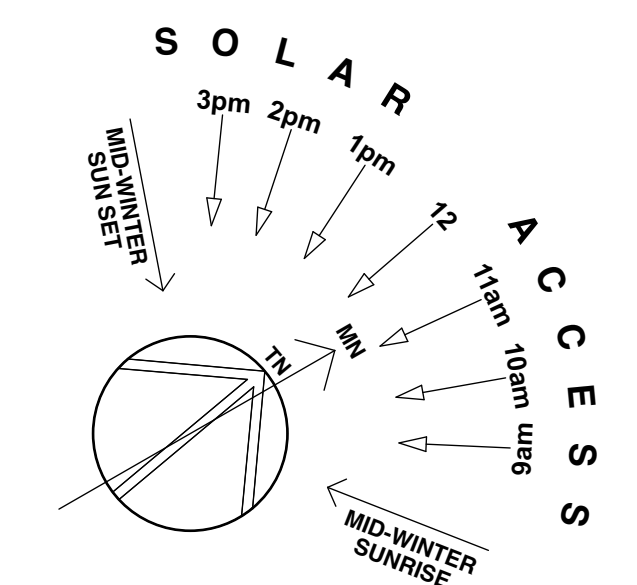
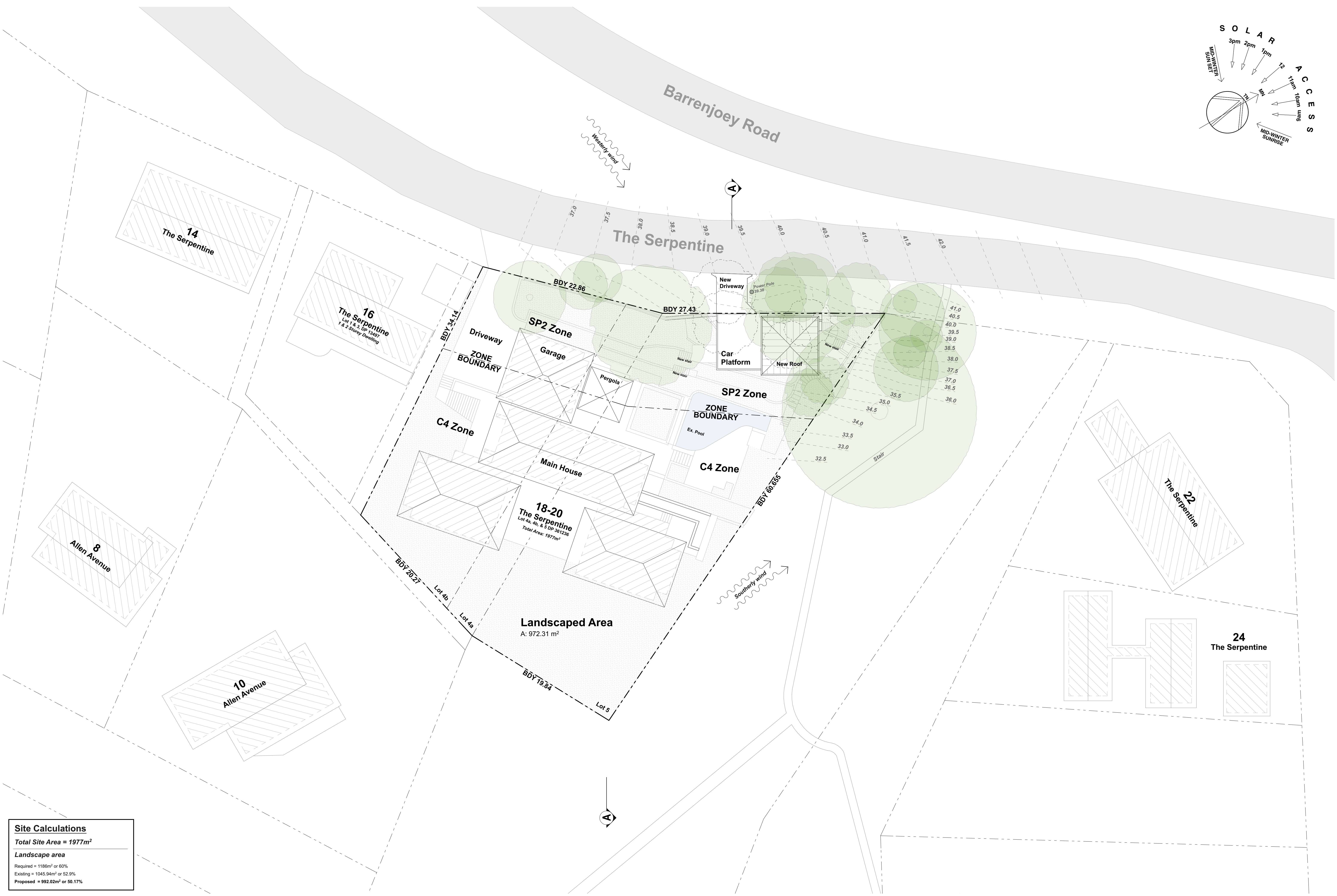
Email: jay@pdcconsultants.com.au

Attachments:

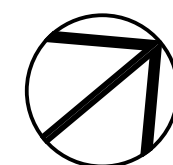
- 1) *Architectural Drawing*
- 2) *Swept Path Analysis Drawing*
- 3) *Sight Distance Analysis*



Attachment 1



Site Calculations	
Total Site Area = 1977m ²	
Landscape area	
Required = 1188m ² or 60%	
Existing = 1045.94m ² or 52.9%	
Proposed = 992.02m ² or 50.17%	



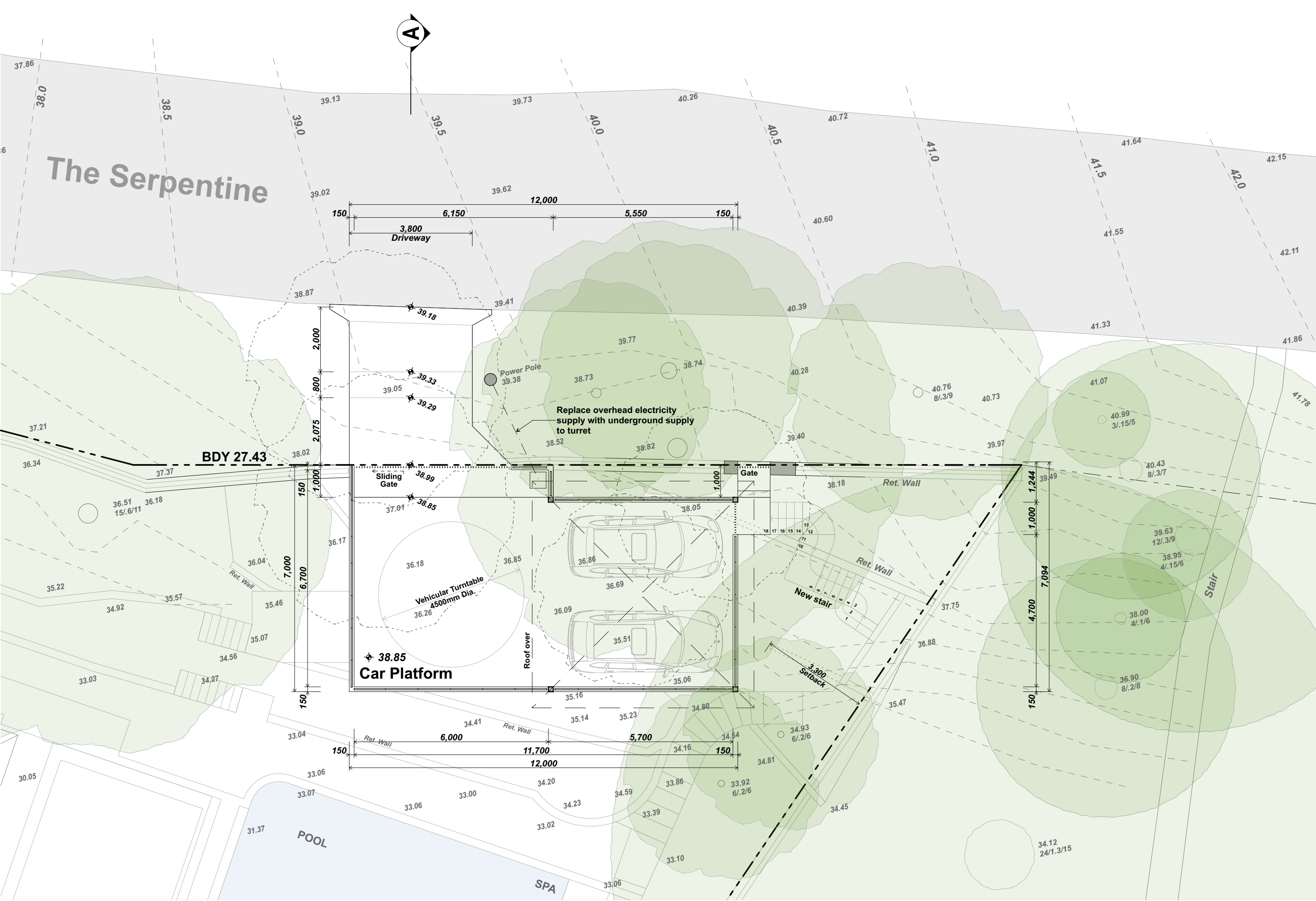
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24/2/23	A	DA

PROJECT
New Studio + Car Parking Structure
18-20 The Serpentine, Bilgola Beach
NSW 2107
Lots 4a, 4b, & 5 DP 361236
FOR Rob & Cheryl Miller

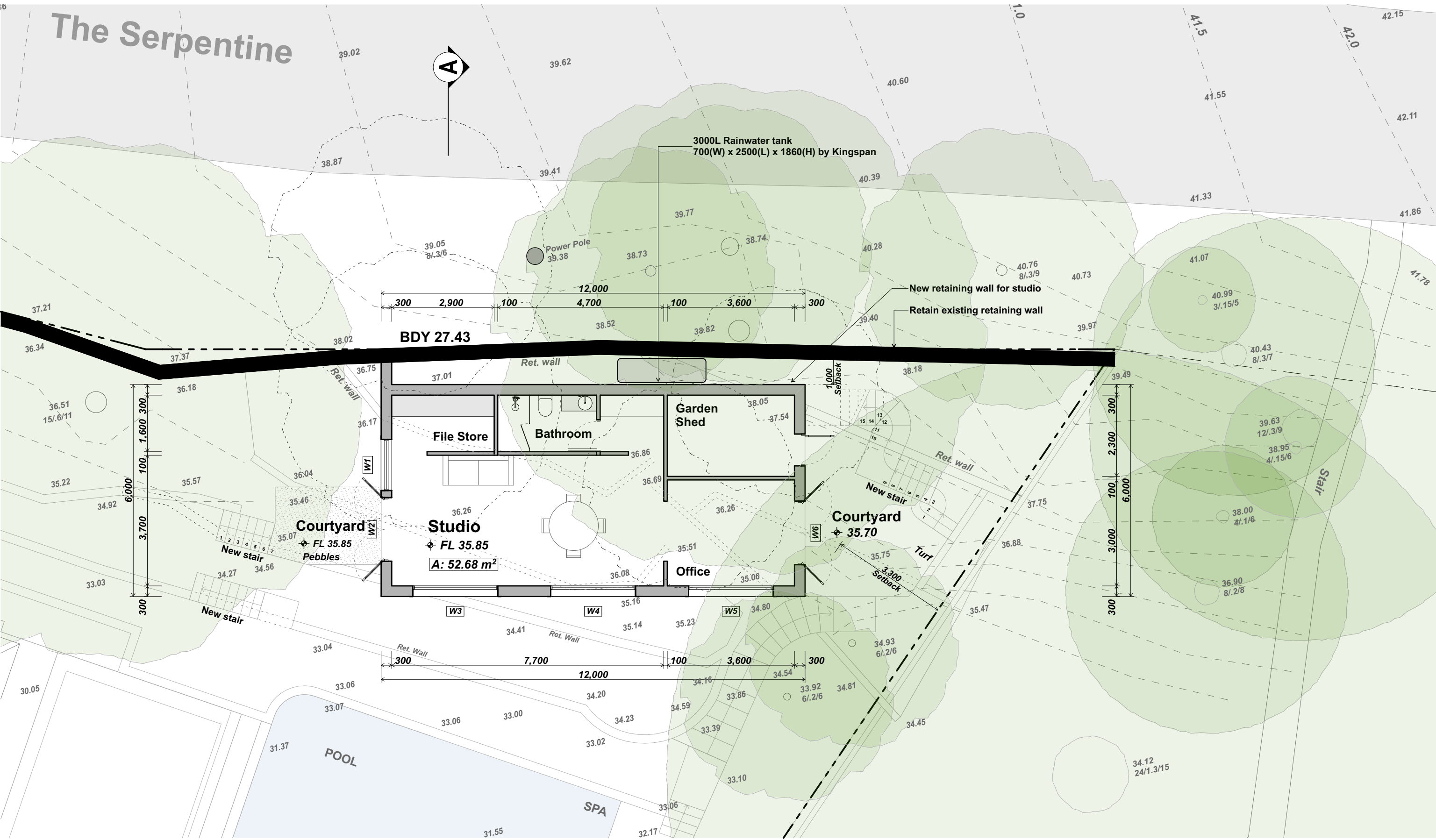
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PROJECT NO.
2236
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AB / SG
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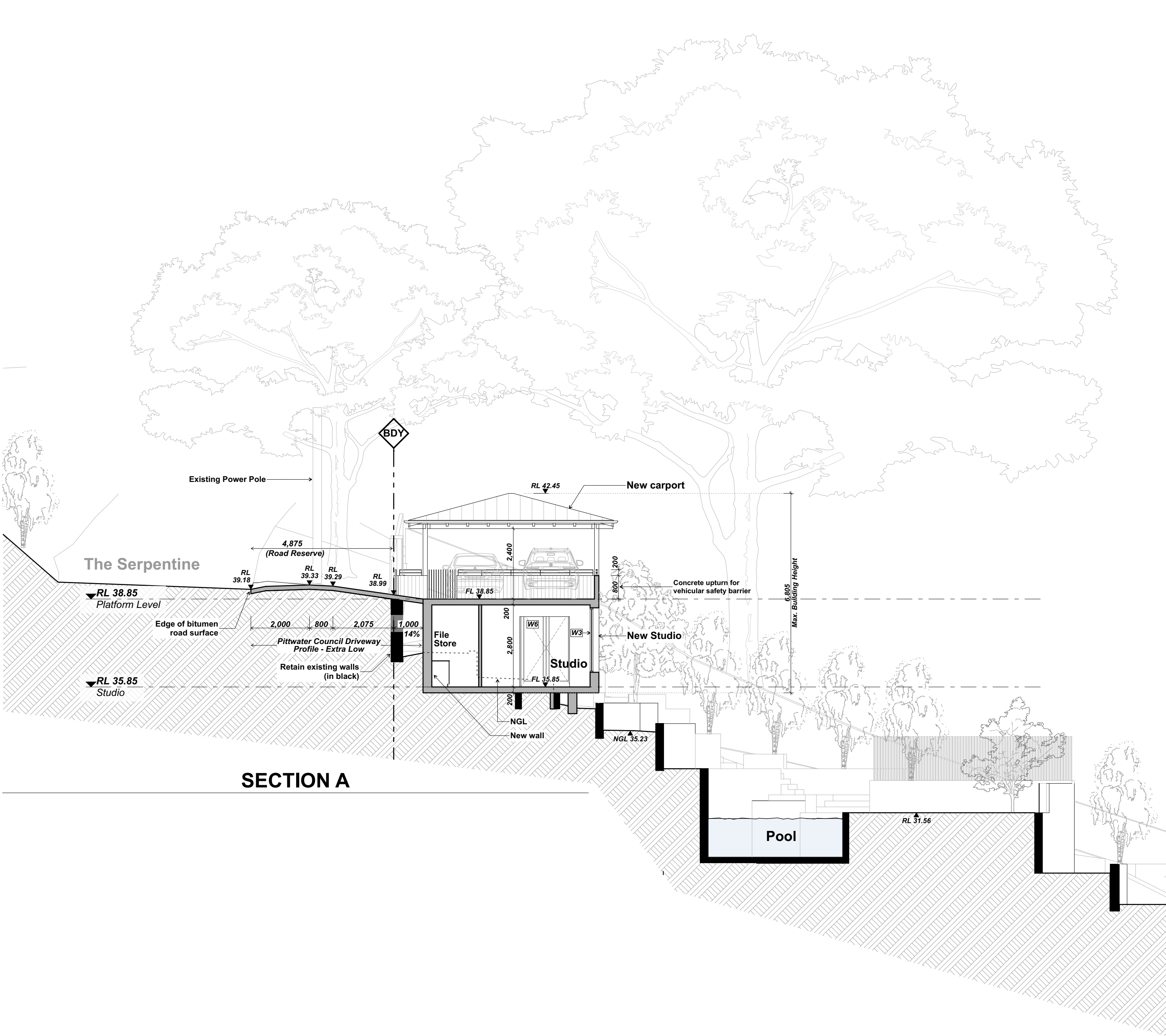
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24/2/23
REVISION
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CAR PLATFORM

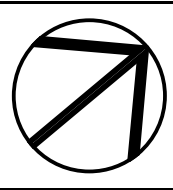


STUDIO



SECTION A

WINDOW SCHEDULE				
	Width	Height	Sill	Area
W1	1,450	2,200	500	3.19
W2	1,800	2,700	0	4.86
W3	2,400	2,200	500	5.28
W4	2,400	2,200	500	5.28
W5	2,400	1,800	900	4.32
W6	1,800	2,700	0	4.86
				27.79 m²



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FOR Rob & Cheryl Miller

DRAWING TITLE
FLOOR PLANS + SECTION
PROJECT NO.
2236
SCALE
1:100 @ A1


DRAWN BY
AB / SG
DRAWING NO.
A.02

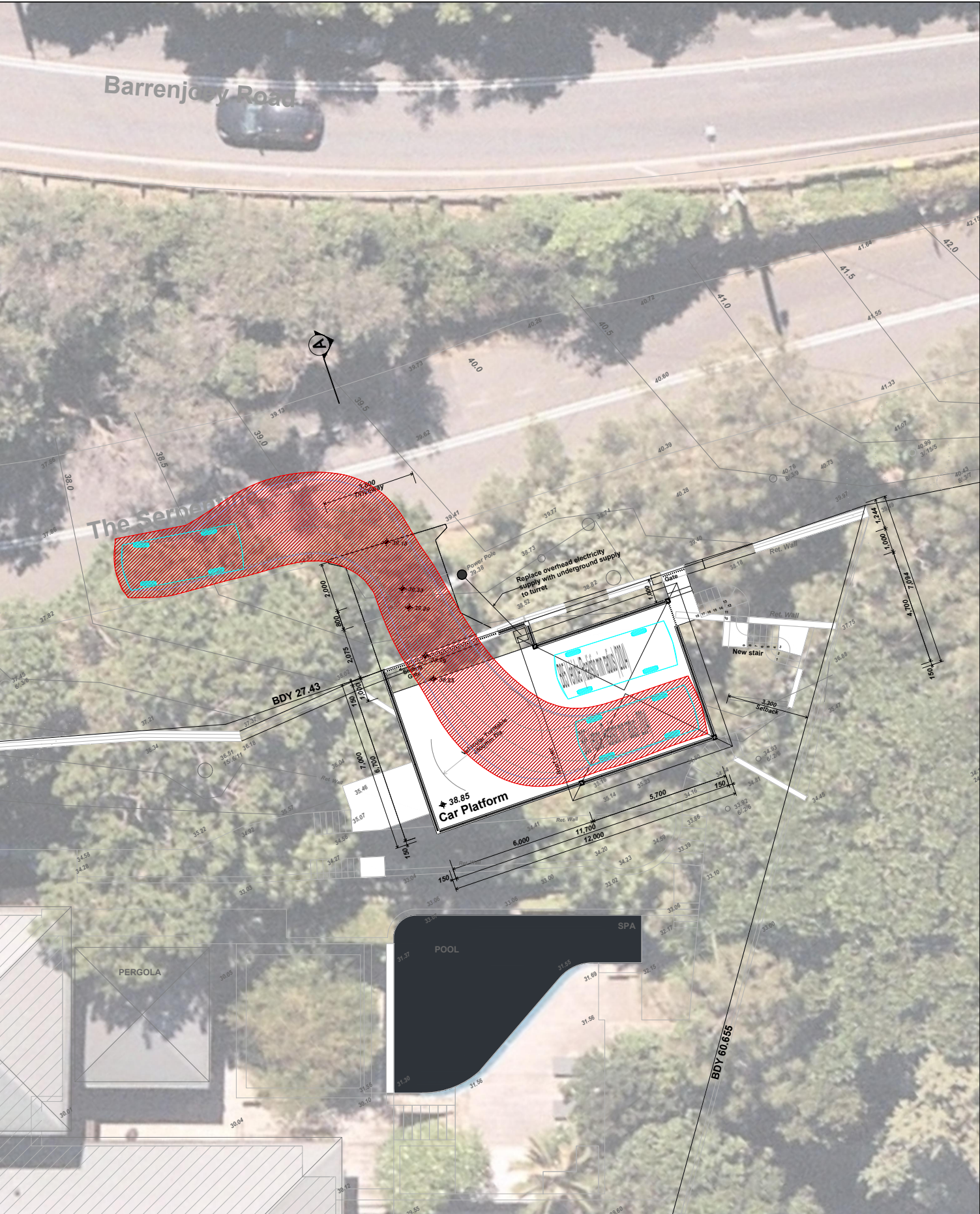
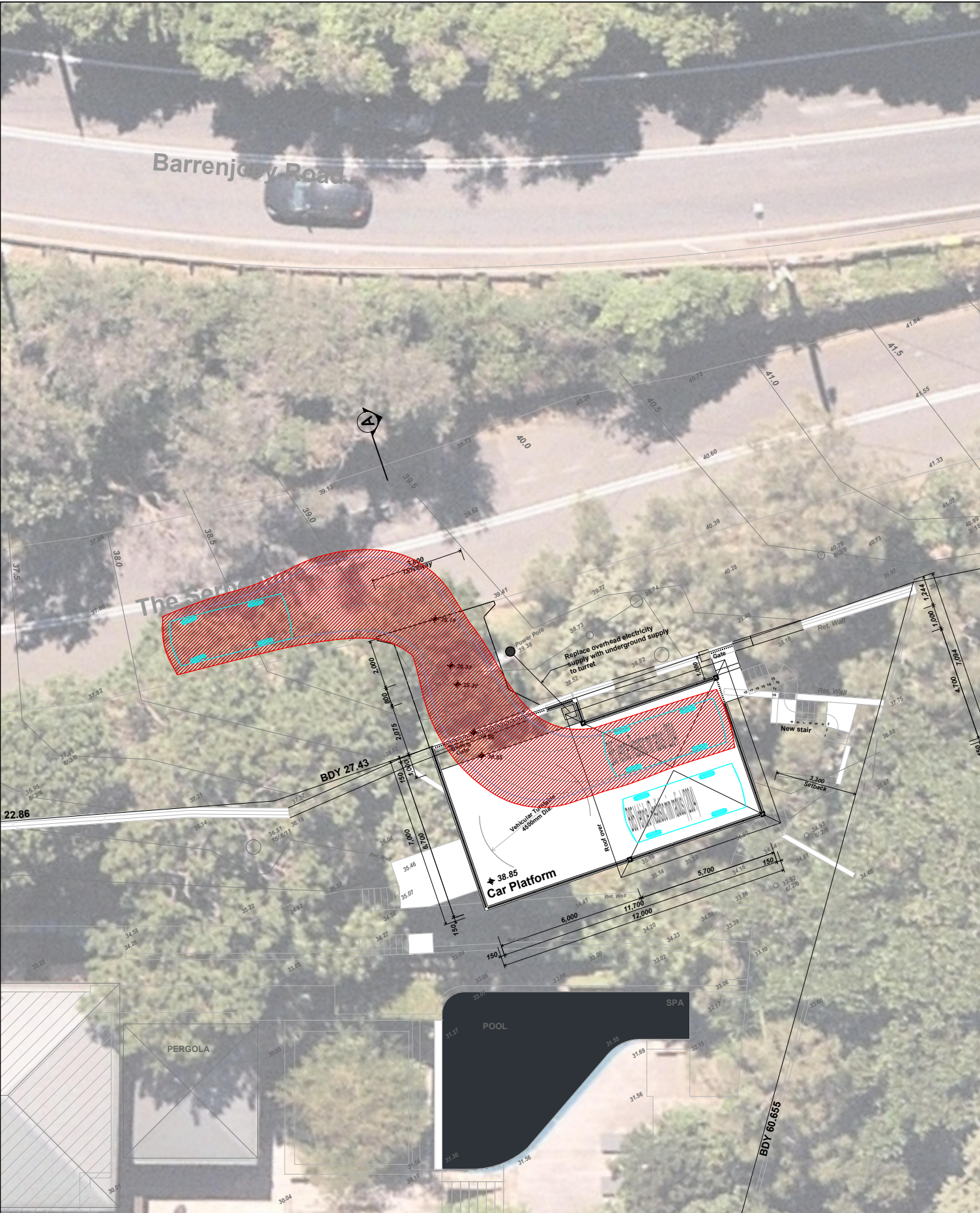
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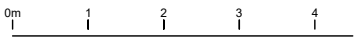


Attachment 2



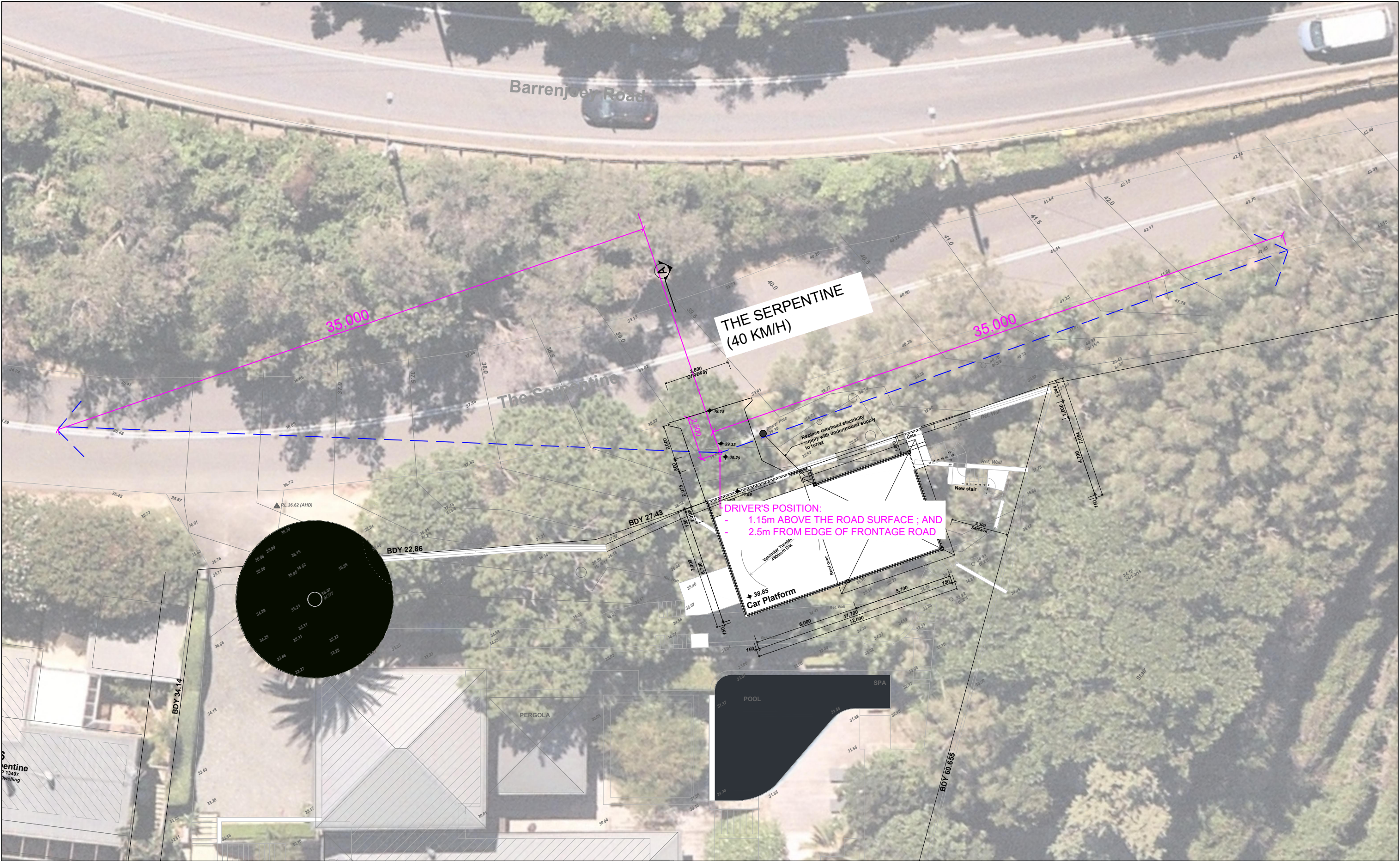
No.	Date	Description	<div>Swept Path Key</div> <div><div>-----</div> Vehicle Wheel Path</div> <div><div>-----</div> Vehicle Body Envelope</div> <div><div>-----</div> 300mm Vehicle Clearance</div>	North <div></div>	<div>Drawing Prepared By</div> <div><div><div>PDC Consultants</div><div>Level 14, 100 William Street</div><div>Woolloomooloo NSW 2011</div><div>t: +61 2 7900 6514</div><div>w: www.pdcconsultants.com.au</div><div>ABN: 70 615 064 670</div></div></div>	<div>Architect</div> <div>GARTNER TROVATO ARCHITECTS</div>	<div>Project</div> <div>20 The Serpentine</div>	<div>Drawing Title</div> <div>Car Platform</div> <div>B85 Swept Path Analysis</div> <div>Entry Movement From Turntable to Carport</div>	<div>Drawing No.</div> <div>002</div> <div>Revision No.</div> <div>-</div>
						<div>Client</div> <div>Ron Miller</div>	<div>Project No</div> <div>0536</div>	<div>Sheet Status</div> <div>NOT FOR CONSTRUCTION</div>	<div>Drawn By</div> <div>JW</div> <div>Date</div> <div>27/02/2023</div>
								<div>Scale</div> <div>1:100 @ A3</div> <div><div>0m</div><div>1</div><div>2</div><div>3</div><div>4</div></div>	





No.	Date	Description	Swept Path Key	North	Drawing Prepared By	Architect	Project	Drawing Title	Drawing No.	Revision No.
			----- Vehicle Wheel Path ----- Vehicle Body Envelope ----- 300mm Vehicle Clearance		 <p>PDC Consultants Level 14, 100 William Street Woolloomooloo NSW 2011 t: +61 2 7900 6514 w: www.pdcconsultants.com.au ABN: 70 615 064 670</p>	GARTNER TROVATO ARCHITECTS	20 The Serpentine	Car Platform B85 Swept Path Analysis Exit Movements to The Serpentine	003	-
						Client Ron Miller	Project No 0536	Sheet Status NOT FOR CONSTRUCTION	Drawn By JW	Date 27/02/2023
									Scale 1:100 @ A3	



Attachment 3



No.	Date	Description	<div>Swept Path Key</div> <div><div>-----</div> Vehicle Wheel Path</div> <div><div>-----</div> Vehicle Body Envelope</div> <div><div>-----</div> 300mm Vehicle Clearance</div>	<div>North</div> <div><div>N</div><div></div></div>	<div>Drawing Prepared By</div> <div><div></div><div><div>PDC Consultants</div><div>Level 14, 100 William Street</div><div>Woolloomooloo NSW 2011</div><div>t: +61 2 7900 6514</div><div>w: www.pdcconsultants.com.au</div><div>ABN: 70 615 064 670</div></div></div>	<div>Architect</div> <div>GARTNER TROVATO ARCHITECTS</div>	<div>Project</div> <div>20 The Serpentine</div>	<div>Drawing Title</div> <div>Car Platform Driveway Sight Distance Analysis</div>	<div>Drawing No.</div> <div>S.001</div>	<div>Revision No.</div> <div>-</div>
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