Fernway Engineering Pty Ltd
901/5 Jersey Rd,
Artarmon NSW 2064
info@fernway.net.au
www.fernway.net.au
Phone: 1300 651 258
ABN 38 475 511 899

7 April 2021

STRATHFIELD
COUNCIL
RECEIVED

DA2021.87
Date
Recieved
03/05/2021

Mr Tan
C/- SWA Group
Suite 12, 16-18 Malvern Ave
CHATSWOOD NSW 2067

RE: AS2890 Parking Design Certification for 15 Coventry Rd, Strathfield NSW 2135

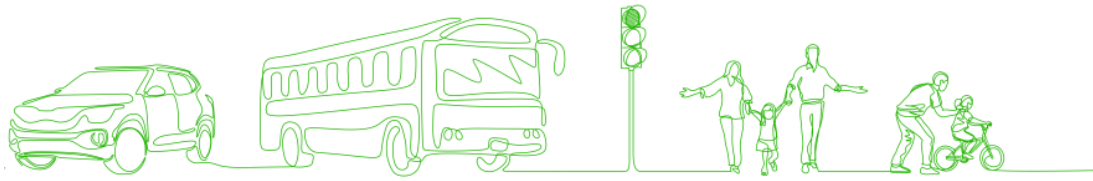
Fernway Engineering has been engaged to review and certify the parking design arrangements for the proposed residential development at 15 Coventry Road, Strathfield. This certification pertains to the AS2890 Series for parking facilities and is intended to form part of the Development Application submission to Strathfield Council.

The details of the parking design review are outlined in the proceeding sections of this technical note.

AS2890 Parking Facilities – Design Certification

A comprehensive design review has been undertaken for all components of the proposed parking arrangements. This included driveway access, ramp grading, headroom, parking modules and manoeuvring space. Following this review, Fernway Engineering certifies that the proposed plans are generally in compliance with AS2890.1:2004. In cases where full compliance has not been achieved, a suitable performance-based solution has been adopted.

A summary of the design review is provided in **Appendix A**.



Vertical Scraping Assessment

The proposed ramp grades comprise a series of closely spaced transitions to achieve a sufficiently raised section of ramp to address stormwater requirements. To satisfy AS2890.1:2004, a vertical scraping test has been undertaken, using the 85th percentile vehicle (B85) as the design vehicle as per AS2890 guidance.

This assessment demonstrated that a B85 vehicle can traverse the ramp without scraping, therefore satisfying AS2890.1. The scraping assessment is provided in **Attachment B.**

Parking Manoeuvrability

To investigate the anticipated manoeuvrability conditions of vehicles entering and exiting the proposed car spaces, swept path assessments were undertaken using AutoTURN software (the industry standard vehicle swept path assessment software). The following figure illustrates the template of the 85th percentile vehicle (B85 vehicle) used to simulate the swept paths (it is noted that this 85th percentile vehicle template is developed according to the dimensions specified in AS 2890.1-2004).

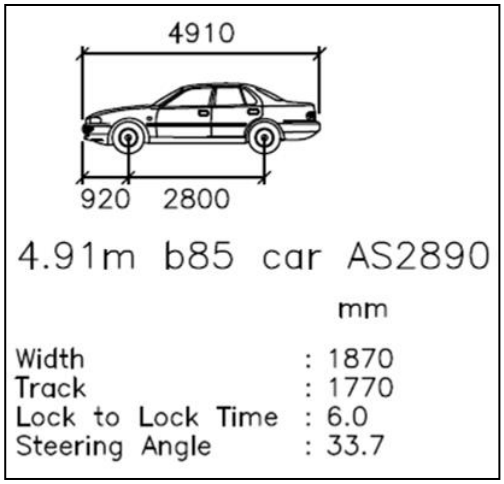


Figure 1: Template of an 85th percentile vehicle (as per AS2890.1-2004)

Space #1 and #2 are able to enter and exit in a standard 3-point turning manoeuvre. It was found that Space #3 requires a 5-point turning manoeuvre to enter and exit the parking. This is considered tolerable under AS2890.1 however, which acknowledges as low turnover parking with familiar users, residential drivers are generally prepared to accept additional turning manoeuvres. Safety is unaffected by this additional manoeuvre. Given that this proposal will enable vehicles to enter and exit the site in a forward's direction, it is considered an acceptable outcome.

Attachment C shows the results of the swept path tests obtained. The **Black** colour of the swept paths indicate the vehicle body envelop, while the **blue** lines indicate the wheel path and the **Red** lines indicate the 300mm clearance envelop of vehicles).

Conclusion

Fernway Engineering has undertaken a parking design review for the proposed development at 15 Coventry Road, Strathfield. It was found that the arrangement complies or is able to comply with all relevant design requirements of AS2890.1:2004. A swept path assessment was also undertaken, which demonstrated suitable accessibility of each parking space for a typical B85 vehicle whilst enabling vehicles to enter and exit the site in a forwards direction.

Should you require any further information relating to this assessment, please contact our office.

Yours sincerely,

Christopher J. Saunders

Director | Principal Traffic Engineer

Fernway Engineering Pty Ltd

BE (Civil), NER, RPEQ (#24648), MIEAust, M.AITPM

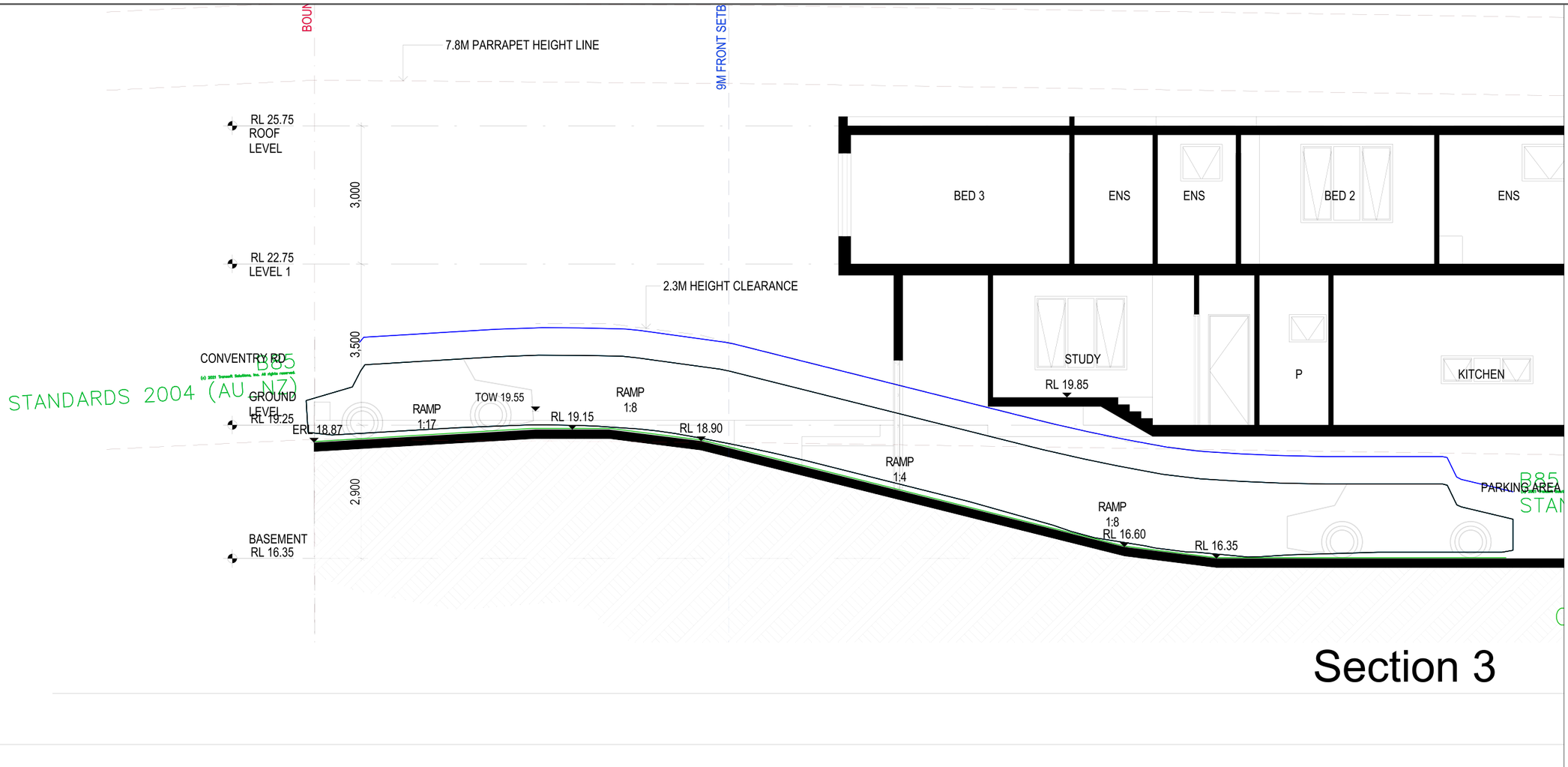
M: 0435 695 866 E: chris.saunders@fernway.net.au

Attachment A – AS2890 Design Compliance Checklist

Design Element	Requirement	Able to Comply	Deemed to Comply	Note
Access				
Access Category	1			
Access Width	3-5.5m (combined)		✓	
Located outside restricted intersection clearances	Figure 3.1, AS2890.1		✓	
Pedestrian Sight Splays maintained	Figure 3.3, AS2890.1		✓	
Parking Modules				
Parking Class	1			
Bay Width (min)	2.4m		✓	
Bay Length (min)	5.4m		✓	
Aisle Width (min)	5.8m		✓	
Door Clearances and entry splays (min)	0.3m As per Figure 5.2, AS2890.1		✓	
Blind Aisle extensions (min)	1m		✓	Note 1

Pavement Slop (maximum)	5%		✓	
Ramps & Circulation				
Maximum Grade	25%		✓	
Maximum Transition	12.5% over 2m		✓	
Circulation/Ramp Width	3m for single lane (between kerbs) 5.5m for dual lane (between kerbs)		✓	Note 2
Headroom				
Minimum Clearance	2.2m		✓	
Comments				
Note 1	Taking the technical width of Space 3 as 2400mm allows for an effective blind aisle extension of 750mm, falling short of AS2890.1 by 250mm. Notwithstanding, the proposed aisle width of 9.4m is more than sufficient to offset the blind aisle shortfall, providing more manoeuvrability than is required prescribed by AS2890.1 for end bays.			
Note 2	The aisle width is 2.9m between kerbs, falling short of AS2890.1 by 100mm. Considering that this is a domestic dwelling with constrained space, and that swept paths clearly demonstrate that users can navigate the driveway without infringement on the 300mm safety clearances, this is considered acceptable for a low turnover arrangement such as this.			
Note 3	This table is not intended to represent a summary of key design elements and is not an exhaustive list of all design element assessed in accordance with AS2890.			

Attachment B – Vertical Scraping Assessment



Section 3

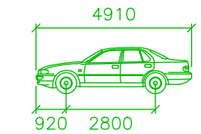
Ground Clearance (units: mm)

Part #	Front	Wheelbase	Rear
#1	120	120	120

RESULT: NO SCRAPING

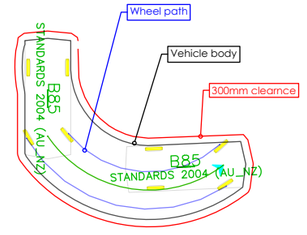
Notes:

1. THE COPYRIGHT OF THIS DRAWING IS VESTED IN FERNWAY ENGINEERING AND
IT MAY NOT BE REPRODUCED IN WHOLE OR PART OR USED FOR THE MANUFACTURE OF ANY ARTICLE WITHOUT THE EXPRESS PERMISSION OF THE COPYRIGHT HOLDERS.
2. WORK TO FIGURED DIMENSIONS ONLY.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, SERVICE ENGINEER'S AND FERNWAY ENGINEERING DRAWINGS
AND SPECIFICATIONS.



B85

	mm
Width	: 1870
Track	: 1770
Lock to Lock Time	: 6.0
Steering Angle	: 34.1



REV:	DESCRIPTION:	BY:	DATE:
X	X	X	X

STATUS:

fernway engineering

CLIENT: SWA Architects

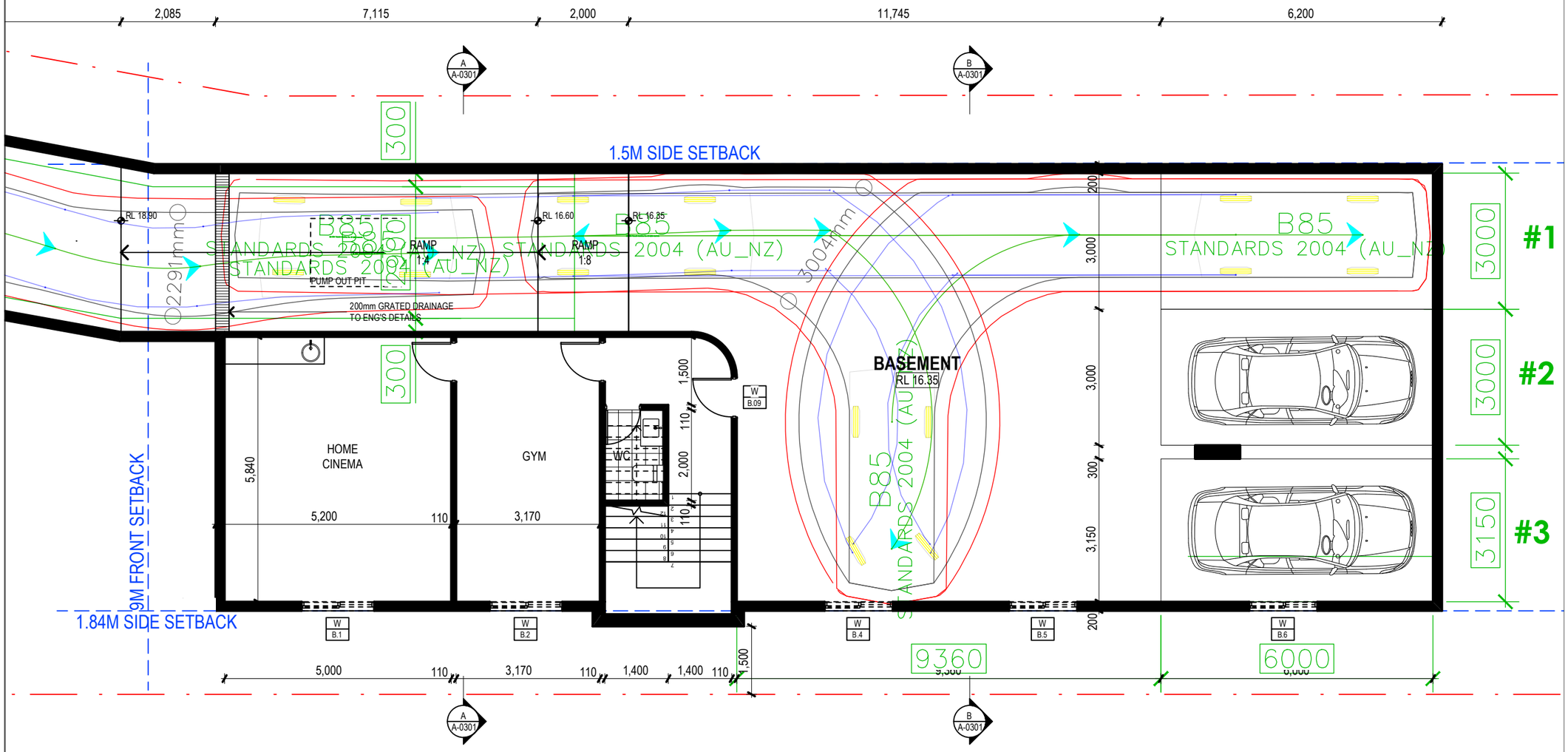
SITE: 15 Coventry Rd, Strathfield NSW

TITLE: Vertical Scraping Test

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
1:100	8.4.2021	CS	SP

PROJECT NO:	DRAWING NO:	REVISION:
020-082	TR-004	B

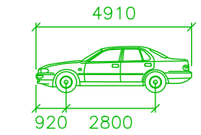
Attachment C – Swept Path Assessment



BASEMENT 1

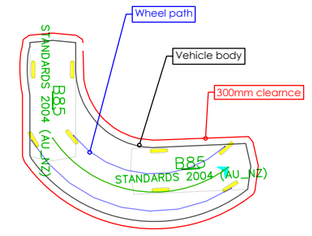
Notes:

1. THE COPYRIGHT OF THIS DRAWING IS VESTED IN FERNWAY ENGINEERING AND
IT MAY NOT BE REPRODUCED IN WHOLE OR PART OR USED FOR THE MANUFACTURE OF ANY ARTICLE WITHOUT THE EXPRESS PERMISSION OF THE COPYRIGHT HOLDERS.
2. WORK TO FIGURED DIMENSIONS ONLY.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S, SERVICE ENGINEER'S AND FERNWAY ENGINEERING DRAWINGS
AND SPECIFICATIONS.



B85

	mm
Width	: 1870
Track	: 1770
Lock to Lock Time	: 6.0
Steering Angle	: 34.1



REV:	DESCRIPTION:	BY:	DATE:
X	X	X	X

STATUS:

fernway engineering

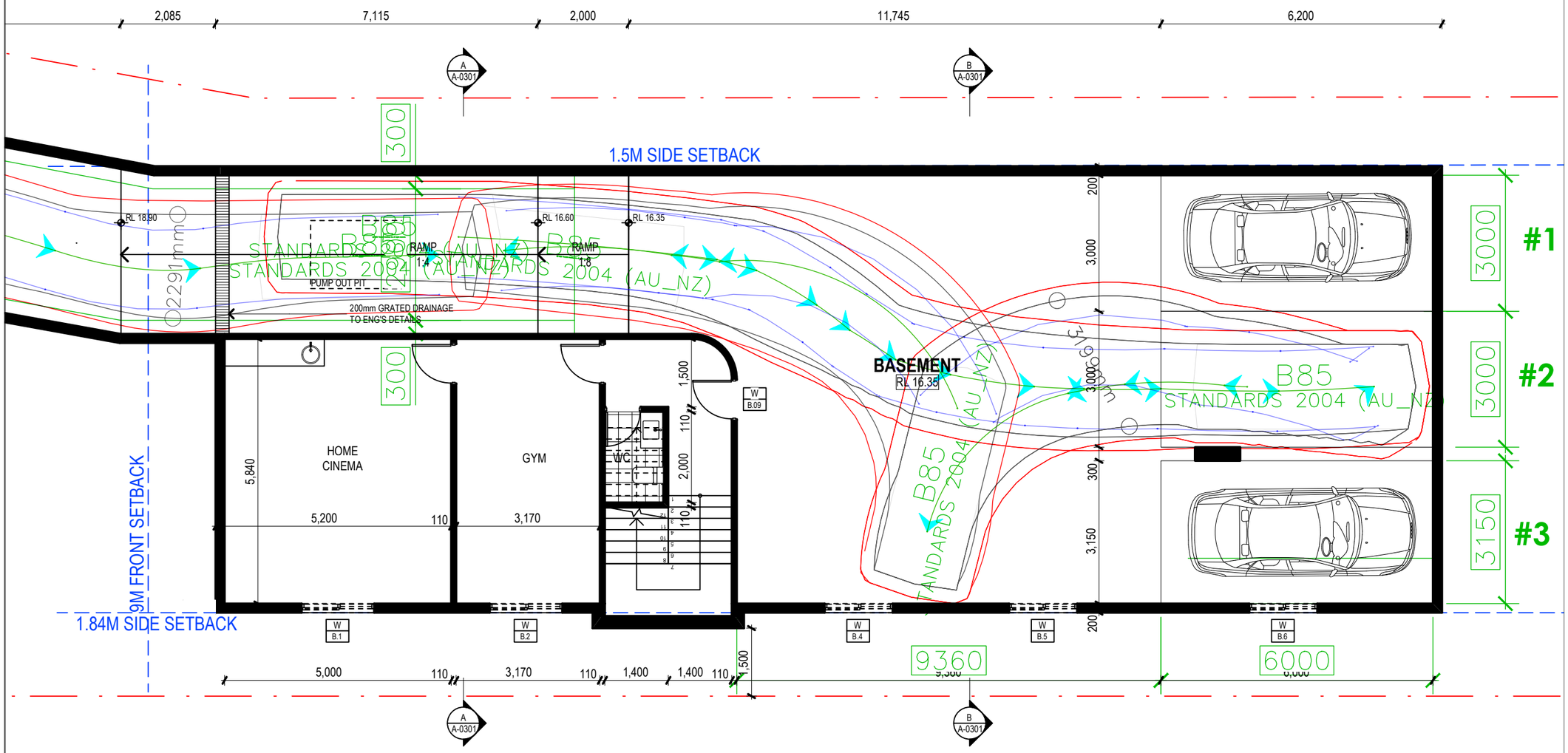
CLIENT: SWA Architects

SITE: 15 Coventry Rd, Strathfield NSW

TITLE: Swept Path Assessment, Space 1

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
1:100	8.4.2021	CS	SP

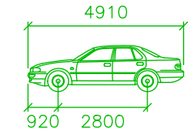
PROJECT NO:	DRAWING NO:	REVISION:
020-082	TR-001	B



BASEMENT 1

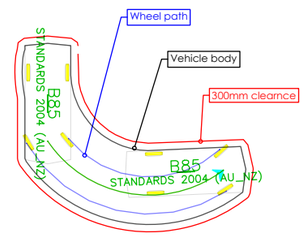
Notes:

1. THE COPYRIGHT OF THIS DRAWING IS VESTED IN FERNWAY ENGINEERING AND
IT MAY NOT BE REPRODUCED IN WHOLE OR PART OR USED FOR THE MANUFACTURE OF ANY ARTICLE WITHOUT THE EXPRESS PERMISSION OF THE COPYRIGHT HOLDERS.
2. WORK TO FIGURED DIMENSIONS ONLY.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S, SERVICE ENGINEER'S AND FERNWAY ENGINEERING DRAWINGS
AND SPECIFICATIONS.



B85

	mm
Width	: 1870
Track	: 1770
Lock to Lock Time	: 6.0
Steering Angle	: 34.1



X	X	X	X
REV:	DESCRIPTION:	BY:	DATE:

STATUS:

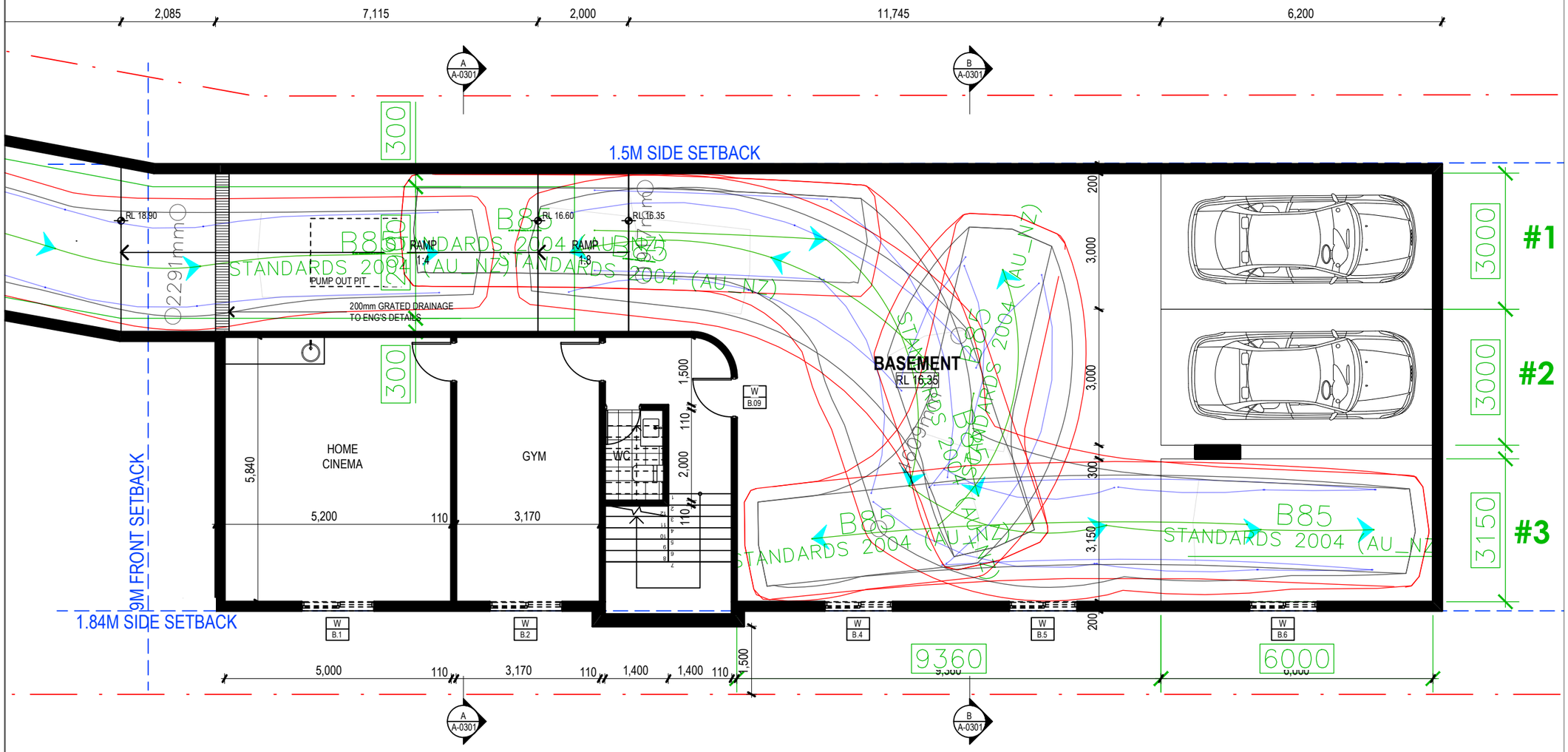
fernway engineering

CLIENT: SWA Architects

SITE: 15 Coventry Rd, Strathfield NSW

TITLE: Swept Path Assessment, Space 2

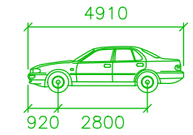
SCALE AT A3:	DATE:	DRAWN:	CHECKED:
1:100	8.4.2021	CS	SP
PROJECT NO:	DRAWING NO:		REVISION:
020-082	TR-002		B



BASEMENT 1

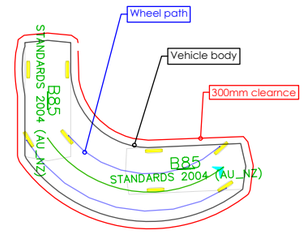
Notes:

1. THE COPYRIGHT OF THIS DRAWING IS VESTED IN FERNWAY ENGINEERING AND
IT MAY NOT BE REPRODUCED IN WHOLE OR PART OR USED FOR THE MANUFACTURE OF ANY ARTICLE WITHOUT THE EXPRESS PERMISSION OF THE COPYRIGHT HOLDERS.
2. WORK TO FIGURED DIMENSIONS ONLY.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S, SERVICE ENGINEER'S AND FERNWAY ENGINEERING DRAWINGS
AND SPECIFICATIONS.



B85

	mm
Width	: 1870
Track	: 1770
Lock to Lock Time	: 6.0
Steering Angle	: 34.1



X	X	X	X
REV:	DESCRIPTION:	BY:	DATE:
STATUS:			

fernway engineering

CLIENT: SWA Architects

SITE: 15 Coventry Rd, Strathfield NSW

TITLE: Swept Path Assessment, Space 3

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
1:100	8.4.2021	CS	SP
PROJECT NO:	DRAWING NO:		REVISION:
020-082	TR-003		B