

**PROPOSED CHILD CARE CENTRE
103/105 SUMMERS STREET / 34 CHERITON STREET
PERTH**

**DEVELOPMENT APPLICATION
ACOUSTIC REPORT**

SEPTEMBER 2022

OUR REFERENCE: 30083-2-22301

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DA ACOUSTIC REPORT
CHILD CARE CENTRE – PERTH

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FOR

ROWE GROUP

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1.0 INTRODUCTION

Herring Storer Acoustics was commissioned by the Rowe Group to conduct an acoustic assessment of the expansion of the current Child Care Centre located at 103 - 105 Summers Street, Perth, to include 34 Cheriton Street, Perth, for the Development Application.

This report provides preliminary assessments with regards to:

- City of Vincent Policy 7.5.21.
- *Environmental Protection (Noise) Regulations 1997*; and
- State Planning Policy 5.4.

This report has been based on the drawing provided, as attached in Appendix A.

2.0 PROPOSED REDEVELOPMENT

The expanded Child Care Centre is to be located at 103 - 105 Summers Street and 34 Cheriton Street, Perth.

The centre will cater for up to 90 children, with the following breakdown in age groups:

Activity 1 (0 – 1 years)	8 children
Activity 2 (1 to 2 years)	12 children
Activity 3 (2 to 3 years)	30 children
Activity 4 (3 to 3.5 years)	30 children
Activity 5 (+3.5 years)	10 children

It is likely that the proposed child care centre would operate between 6:30am and 7:00pm, Monday to Friday (excluding Public Holidays). However, it is noted that although the proposed Child Care Centre would open before 7 am (ie during the night period), the outdoor play area would not be used until after 7am.

3.0 SUMMARY

3.1 OUTBOUND NOISE

We note that from information received from DWER, the bitumised area would be considered as a road, thus noise relating to the propulsion and breaking of motor vehicles is exempt from the *Environmental Protection (Noise) Regulations 1997*. We note that these noise sources are rarely critical in the determination of compliance. Thus, noise sources that need to comply with the requirements of the Environmental Protection (Noise) Regulations 1997, include:

- Children playing within the outside play areas of the child care centre;
- Mechanical services; and
- Car doors closing within the car park.

Given the location, (ie adjacent to Loftus Street) noise emission from these noise sources would, as shown in Section 6.0, with the proposed layout easily comply with regulatory requirements and the City of Vincent Policy 7.5.21.

Note: Although, we believe that noise emissions from car movements and car starts are exempt from the Regulations and would therefore, would not be required to be assessed under the Regulations, for completeness, along with the source listed above, they would be included in the full assessment that would be undertaken during the design process.

3.2 INBOUND NOISE (STATE PLANNING POLICY 5.4)

The State Planning Policy 5.4 is submitted as a separate report.

Based on the measurements and assessment undertaken, as shown in the separate SPP 5.4 noise Management Plan provided, noise received at the child care centre from trains passing on the neighbouring railway line, would comply with the base criteria, as outlined within State Planning Policy 5.4. Thus, no further action is required.

We also note that the “babies sleep” area / room is located on the western side of the “existing” child care. This being on the far side of the child care from the passenger railway line.

Based on the assessment undertaken, noise received at the child care centre would comply with the requirements of the City of Vincent’s Planning Policy 7.5.21 and State Planning Policy 5.4. Thus, in this case, no further action is required.

The development also complies with the Town of Vincent’s Sound Attenuation Policy would be achieved.

4.0 CRITERIA

4.1 TOWN OF VINCENT SOUND ATTENUATION POLICY 3.5.21

Outbound Noise

Noise emissions associated with a development are to comply with the Assigned Noise Levels in accordance with the *Environmental Protection (Noise) Regulations 1997*.

Inbound Noise Levels (SPP 5.4)

The Town of Vincent Sound Attenuation Policy specifies that inbound noise to premises other than residential, AS2107 is to be utilised for guidance as to the acceptable internal noise levels. Thus, for this development, internal sound levels should comply with the following:

Sleep Rooms	-	$L_{Aeq(Day)}$ of 35 dB(A).
Play Rooms	-	$L_{Aeq(Day)}$ of 40 dB(A).
Staff Room	-	$L_{Aeq(Day)}$ of 40 dB(A).
Reception	-	$L_{Aeq(Day)}$ of 45 dB(A).

It is noted that these internal design sound levels are congruent with other noise ingress policies (such as the WAPC State Planning Policy 5.4).

The L_{eq} noise level is not to be unduly biased toward the lower frequencies of the octave band spectrum (between 31.5Hz – 125Hz). If this is the case, the findings should be discussed with the Town of Vincent Environmental Health Officers.

4.2 ENVIRONMENTAL PROTECTION (NOISE) REGULATIONS 1997

The allowable noise level at the surrounding locales is prescribed by the *Environmental Protection (Noise) Regulations 1997*. Regulations 7 & 8 stipulate maximum allowable external noise levels. For noise sensitive premises this is determined by the calculation of an influencing factor, which is then added to the base levels shown below in Table 3.1. The influencing factor is calculated for the usage of land within two circles, having radii of 100m and 450m from the premises of concern. For commercial premises, the assigned noise levels are fixed throughout the day, as listed in Table 4.1.

TABLE 4.1 – ASSIGNED NOISE LEVELS

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		L _{A10}	L _{A1}	L _{Amax}
Noise sensitive premises: highly sensitive area	0700 - 1900 hours Monday to Saturday (Day)	45 + IF	55 + IF	65 + IF
	0900 - 1900 hours Sunday and Public Holidays (Sunday / Public Holiday Day)	40 + IF	50 + IF	65 + IF
	1900 - 2200 hours all days (Evening)	40 + IF	50 + IF	55 + IF
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays (Night)	35 + IF	45 + IF	55 + IF

Note: The L_{A10} noise level is the noise that is exceeded for 10% of the time.
The L_{A1} noise level is the noise that is exceeded for 1% of the time.
The L_{Amax} noise level is the maximum noise level recorded.

It is a requirement that noise from the site be free of annoying characteristics (tonality, modulation and impulsiveness) at other premises, defined below as per Regulation 9.

“impulsiveness” means a variation in the emission of a noise where the difference between L_{Apeak} and L_{Amax Slow} is more than 15dB when determined for a single representative event:

“modulation” means a variation in the emission of noise that –

- (a) is more than 3dB L_{A Fast} or is more than 3dB L_{A Fast} in any one-third octave band;
- (b) is present for more at least 10% of the representative assessment period; and
- (c) is regular, cyclic and audible:

“tonality” means the presence in the noise emission of tonal characteristics where the difference between –

- (a) the A-weighted sound pressure level in any one-third octave band; and
- (b) the arithmetic average of the A-weighted sound pressure levels in the 2 adjacent one-third octave bands,

is greater than 3 dB when the sound pressure levels are determined as L_{Aeq,T} levels where the time period T is greater than 10% of the representative assessment period, or greater than 8 dB at any time when the sound pressure levels are determined as L_{A Slow} levels.

Where the above characteristics are present and cannot be practicably removed, the following adjustments are made to the measured or predicted level at other premises.

TABLE 4.2 – ADJUSTMENTS FOR ANNOYING CHARACTERISTICS

Where tonality is present	Where modulation is present	Where impulsiveness is present
+ 5 dB	+ 5 dB	+ 10 dB

The influencing factor at the neighbouring residential premises has been determined as listed in Table 3.3.

TABLE 3.3 – INFLUENCING FACTORS

IF Factor Parameter	IF Factor (dB)
Secondary Road within inner circle	+2* (Summers Street)
Major Road within inner circle	-
Major Road within outer circle	+6* (Lord Street, East Parade and Graham Farmer Freeway)
Commercial Premises within the inner circle	+1.0 (20%)
Commercial Premises within the outer circle	+1.1 (23%)
Industrial Premises within the inner circle	+3.1 (31%)
Industrial Premises within the outer circle	+0.9 (9%)
TOTAL IF	+10.1 (Round down to +10)

* Maximum Traffic Influencing Factor is +6

TABLE 3.4 - ASSIGNED OUTDOOR NOISE LEVEL

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		L _A 10	L _A 1	L _A max
Noise sensitive premises	0700 - 1900 hours Monday to Saturday	55	65	75
	0900 - 1900 hours Sunday and Public Holidays	50	60	75
	1900 - 2200 hours all days	50	60	65
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	45	55	65
Commercial	All hours	60	75	80

Note: L_A10 is the noise level exceeded for 10% of the time.

L_A1 is the noise level exceeded for 1% of the time.

L_Amax is the maximum noise level.

For this development, we believe that the neighbouring residence of concern are as shown below in Figure 4.1.

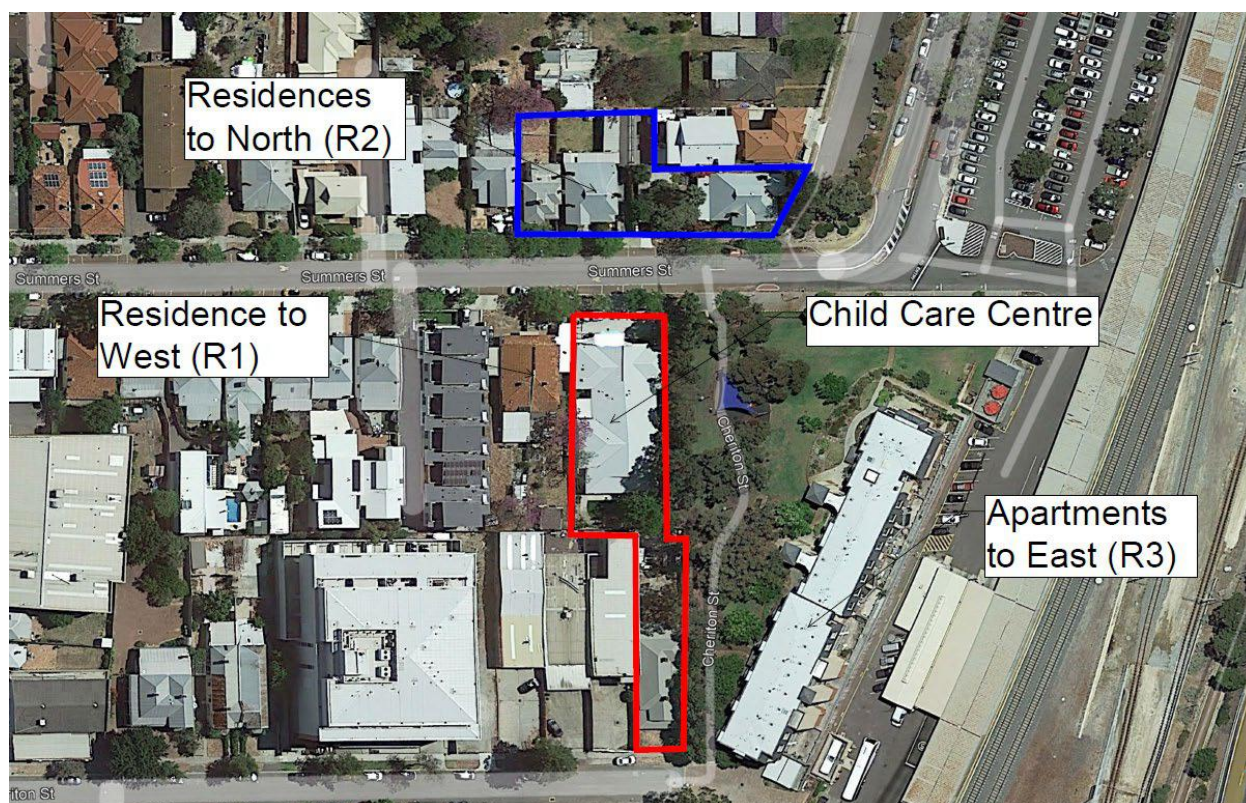


FIGURE 4.1 – NEIGHBOURING RESIDENCES

4.3 STATE PLANNING POLICY 5.4

Under State Planning Policy 5.4 *“Road and Rail Transport Noise and Freight Considerations in Land Use Planning”*, the external day period acoustic criteria are:

Target	55 dB(A) L_{Aeq}
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For this development, under the policy, noise received at least one outdoor area should be design to within the margins (ie between the Target and Limit). Thus, noise received at an outdoor play area should comply with an $L_{Aeq(Day)}$ of 55 dB(A).

We also note that under the policy, there is an internal criteria that should be achieved. Under the Policy, for non-residential noise sensitive premises, internal noise levels should meet the design sound levels as listed in Table 1 of AS/NZ 2107:2000 *“Acoustics – Recommended design sound levels and reverberation times for building interiors”*. Under AS 2017, the internal criteria would:

Sleep Rooms	-	$L_{Aeq(Day)}$ of 35 dB(A).
Play Rooms	-	$L_{Aeq(Day)}$ of 40 dB(A).
Staff Room	-	$L_{Aeq(Day)}$ of 40 dB(A).
Reception	-	$L_{Aeq(Day)}$ of 45 dB(A).

Note: The above criteria are for traffic 20 years in the future.

5.0 NOISE SOURCE IDENTIFICATION

The area of the proposed development was examined to ascertain the applicable noise sources.

Ambient noise levels during the afternoon peak period was ascertained to be the most critical for the design of the development.

Residual breakout noise from lifestyle uses and entertainment venues was ascertained to not be applicable for this development as there are no noise sources within an acoustically significant distance to the proposed area (i.e. within 100m) and it is a day period only usage.

The impact of traffic noise for the road network in the area is considered to be the most significant contributors to noise levels in this area.

Given the above noise source identification, it was determined from the traffic flows and train movements, the ambient noise levels during the afternoon peak period were the most pertinent for the design of the development.

6.0 NOISE FROM DEVELOPMENT

Noise sources that need to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997*, include:

- Children playing within the outside play areas of the Child Care Centre.
- Mechanical services; and
- Car doors closing within the car park.

Note: Although, we believe that noise emissions from car movements and car starts are exempt from the Regulations and would therefore, would not be required to be assessed under the Regulations, for completeness, along with the source listed above, they would be included in the full assessment that would be undertaken during the design process.

6.1 OUTDOOR PLAY

With regards to noise emissions from the outdoor play area, we believe that the neighbouring residences of concern, given the location of the outdoor play area, is the residence located to the west (ie 107 Summers Street); and the residences within the apartment building to the west of the child care centre. With the proposed boundary fence, the distance to the neighbouring residences and outdoor play being limited to the day period, noise received at all neighbouring residences would easily comply with the requirements of the *Environmental Protection (Noise) Regulations 1997*. However, to quantify this, noise modelling has been undertaken to all the residences, as shown on Figure 4.1, to be conservative even though the child care would only have a maximum of 90 children, based on a sound power level of 90 children within the outdoor area, with a sound power level of 83 dB(A) per group of 10 children. The calculated noise level at the worst case location (upper floors of apartments to west) was calculated to be 46 dB(A).

Noise emissions from children playing is a broadband noise and does not contain any annoying characteristics. Thus, the assessable noise level would be the calculated noise level of 46 dB(A). As the outdoor play area would only be used during the day period, compliance would be required with the assigned L_{A10} day period noise level of 55 dB(A). Thus, as stated above, noise received at the neighbouring residences would comply with the Regulatory criteria.

6.2 MECHANICAL SERVICES

The mechanical services for the existing child care centre are located on the eastern part of the roof of the existing building. From information provided, we understand that the air conditioning condensing units for the expansion (ie 34 Cheriton Street) would be located on the western side of the development, near the parapet wall to the neighbouring premises, as shown on Figure 6.1.

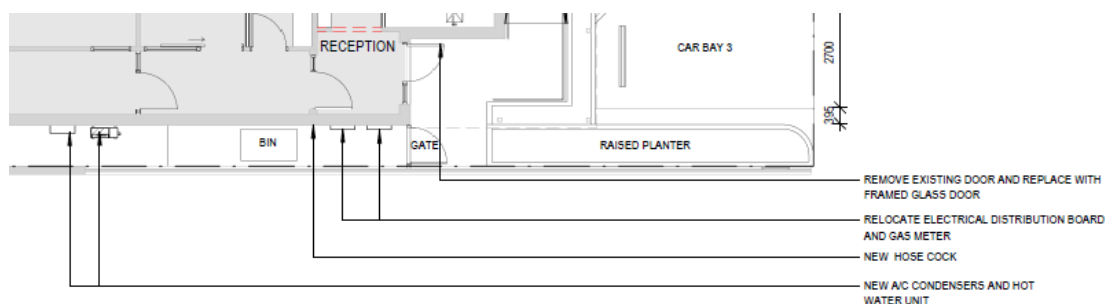


FIGURE 6.1 – CONDENSING UNITS LOCATION (34 CHERITON STREET)

At this stage of the development, the mechanical services have not been designed. However, given the assigned noise levels, the mechanical services would easily comply with the regulatory requirements. Even so, an assessment of the mechanical services has been undertaken based on the noise levels for the air conditioning as used for previous assessment of child care centres. From other studies, we understand that the noise associated with the condensing units would be conservative.

The sound power levels of the mechanical services use in this preliminary assessment were as listed in Table 6.1.

We note that other locations would be acceptable, however, to ensure compliance, an acoustic assessment of the mechanical services would be undertaken as part of the design process.

TABLE 6.1 – SOUND POWER LEVELS

Item	Sound Power Level, dB(A)
Air conditioning condensing Unit	2 @ 69

Based on the above, noise received at the worst case neighbouring location from the air conditioning associated with the expansion has been determined to be 25 dB(A) at the existing residence to the west (ie 107 Summers Street). Thus, noise received at the neighbouring residence from the mechanical services would not contribute to the noise received at the neighbouring residences. Thus, even with the addition of the +5 dB(A) compliance, would be required with the assigned L_{A10} night period noise level of 45 dB(A). Thus, as stated above, noise received at the neighbouring residences would comply with the Regulatory criteria.

6.3 CARS

Once again, given the assigned noise levels, noise received at the neighbouring residences from car doors closing would comply with regulatory requirements.

We note that from information received from DWER, the bitumised area would be considered as a road, thus noise relating to motor vehicles, including engine noise from car movements and cars starting are exempt from the *Environmental Protection (Noise) Regulations 1997*. We note that from numerous assessments undertaken of vehicle noise associated with child care and other developments these noise sources are not the critical sources in the determination of compliance. Thus, it is the noise received at the neighbouring residences from car doors closing that would be the critical noise source with regards to compliance with the Regulatory criteria.

For information it is noted that based on the definitions of tonality, noise emissions from car movements and car starts, being an L_{A1} and $L_{A\text{Max}}$ respectively, being present for less than 10% of the time, would not be considered tonal. Thus, no penalties would be applicable to the noise that would be received at the neighbouring residences from car movements and cars starts. However, noise emissions from car doors closing could be impulsive, hence, to be conservative, the +10dB penalty would be included in the assessment.

As noise emissions from car doors closing would be the critical noise relating to compliance with Regulations, we have undertaken noise modelling to the residences as shown on Figure 4.1, based on a sound power level of 87 dB(A). The calculated noise level at the worst case location from the expansion (ie: apartments to east) was determined to be 48 dB(A). Applying the +10 dB(A) penalty for impulsiveness, the assessable noise level would be 58 dB(A). This noise level would comply with the night period assigned $L_{A\text{Max}}$ noise level of 65 dB(A).

From the above, noise emission from the development would be designed to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997* and, hence also the requirements of the City's Sound Attenuation Policy 7.5.21. However, as part of the design process a full acoustic assessment would be undertaken to ensure that noise emissions from the development would comply with the requirements of the *Environmental Protection (Noise) Regulations 1997*. It is also noted, that although not required to be assessed, for completeness, noise emissions from car movements and car starts would, along with the source listed above, be included in the assessment.

7.0 INBOUND NOISE (STATE PLANNING POLICY 5.4)

To determine the noise that would be received at the proposed Child Care Centre from passenger trains passing on the Perth – Midland train line, noise level measurements were undertaken outside the front of 34 Cheriton Street. The measurement was carried out during the afternoon peak, between 4:15 and 4:45 pm Thursday 15th September 2002. The average noise level recorded during this time was an L_{Aeq} of 58 dB(A), which would be the worst case noise level for noise received at the child care centre. The octave band data for the loudest measurement is listed in Table 7.1.

TABLE 7.1 – TRAFFIC NOISE OCTAVE BAND DATA

Octave Band Centre Frequency (Hz) / Noise Level dB								
63	125	250	500	1K	2K	4K	8K	dB(A)
69	63	52	58	55	49	43	40	59

The noise levels recorded would be typical of train passes.

The State Planning Policy 5.4 assessment is submitted as a separate report.

However, we note that although the Child Care Centre has a “cots” room, this room has been positioned away from railway line. For the “cots” room the internal criteria would be 34 dB(A).

Based on the above number of train movements the L_{Aeq} for a peak hour would be 50 dB(A). Thus, noise received at the child care centre would be comply with the “Noise Targets” even during the peak hours. Thus based on the assessment undertaken, compliance with the requirements of the City of Vincent’s Planning Policy 7.5.21 and State Planning Policy 5.4 would be achieved with the constructions as out lined in the separate State Planning Policy 5.4 Noise Management Plan.

With the proposed fencing to the Outdoor play area, compliance with the outdoor criteria, as required under State Planning Policy 5.4 would also be achieved.

Thus, compliance with the Town of Vincent’s Sound Attenuation Policy would be achieved.

APPENDIX A

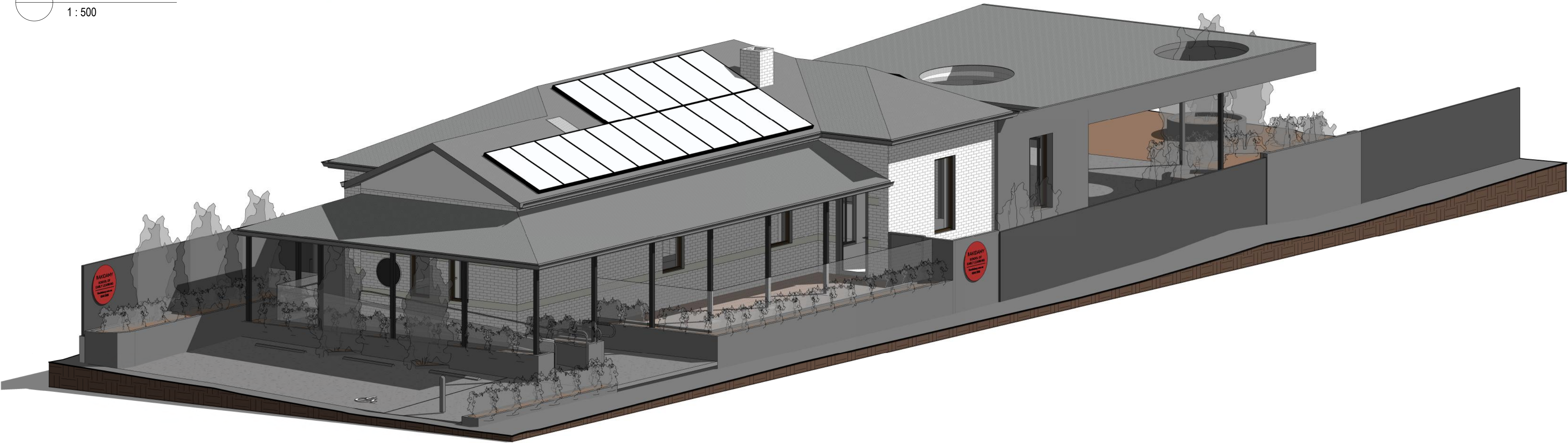
PLANS

AKIDAMY SCHOOL OF EARLY LEARNING - CHERITON STREET

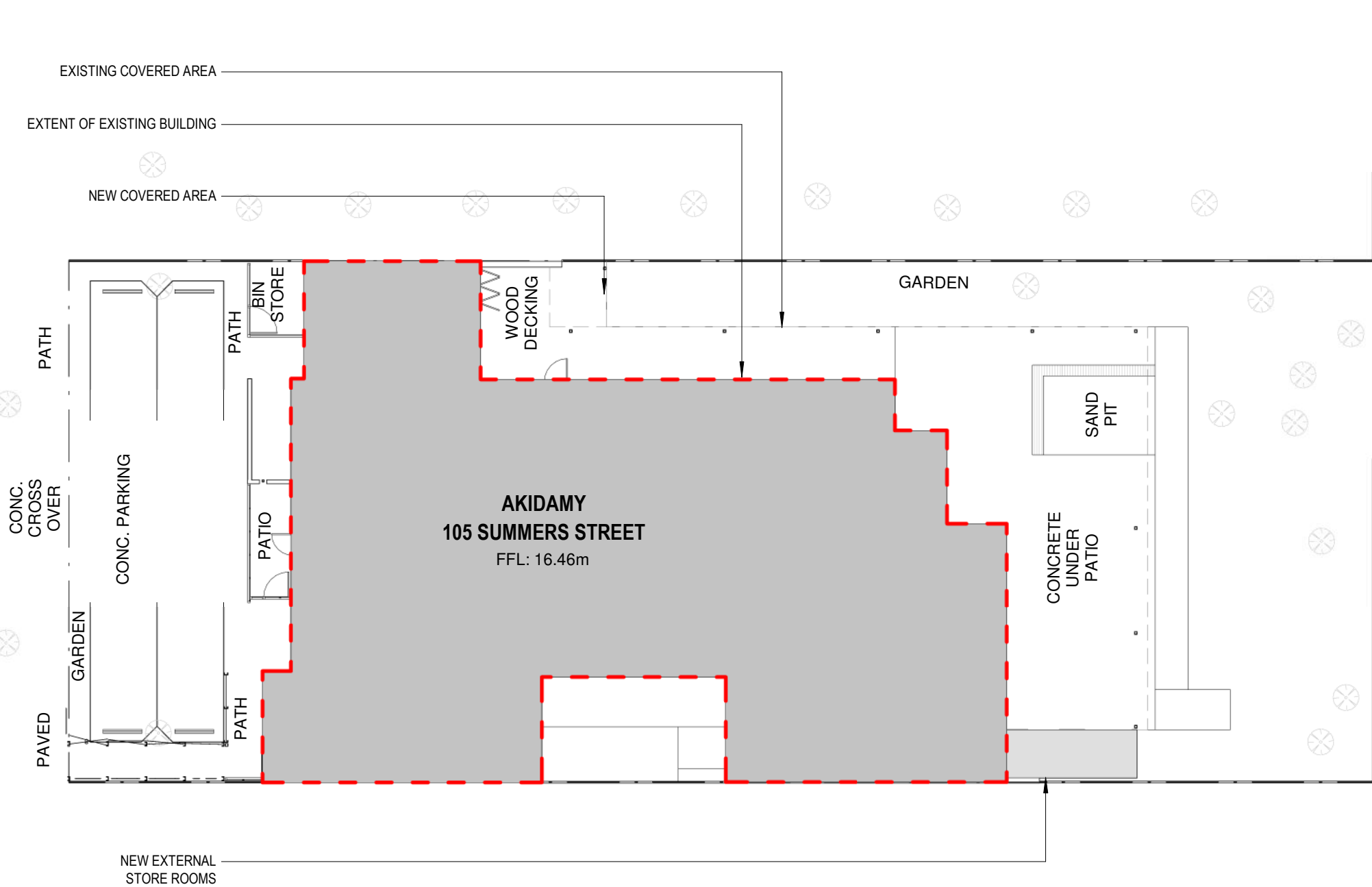
105 SUMMERS STREET & 34 CHERITON STREET, PERTH WA



1 LOCATION PLAN
1 : 500



SUMMERS STREET



1 SITE PLAN
1 : 200

CLASSROOM AREAS

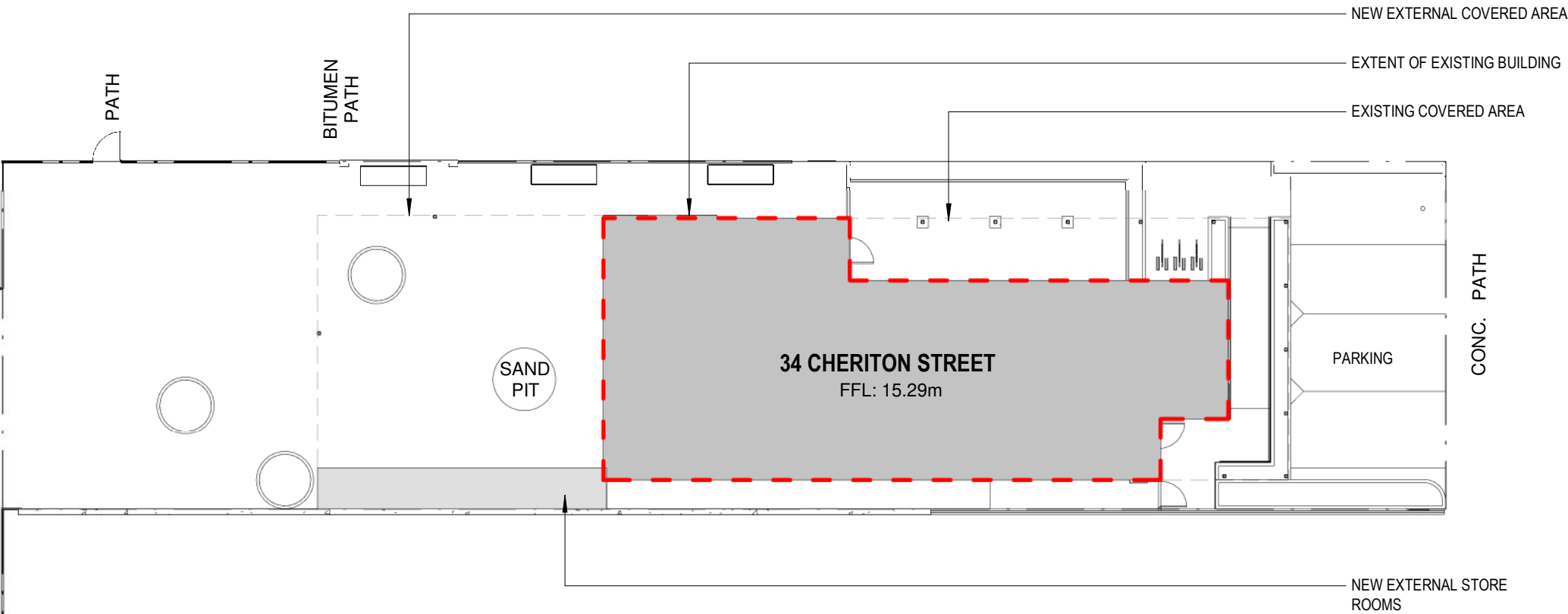
CLASSROOM AREA - SUMMER STREET	216.0 M²
CLASSROOM AREA - CHERITON STREET	90.3 M²
CLASSROOM AREA - TOTAL	306.3 M²

OUTDOOR PLAY AREAS

OUTDOOR PLAY AREA - SUMMER STREET	410.8 M²
OUTDOOR PLAY AREA - CHERITON STREET	287.9 M²
OUTDOOR PLAY - TOTAL	698.7 M²

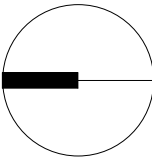
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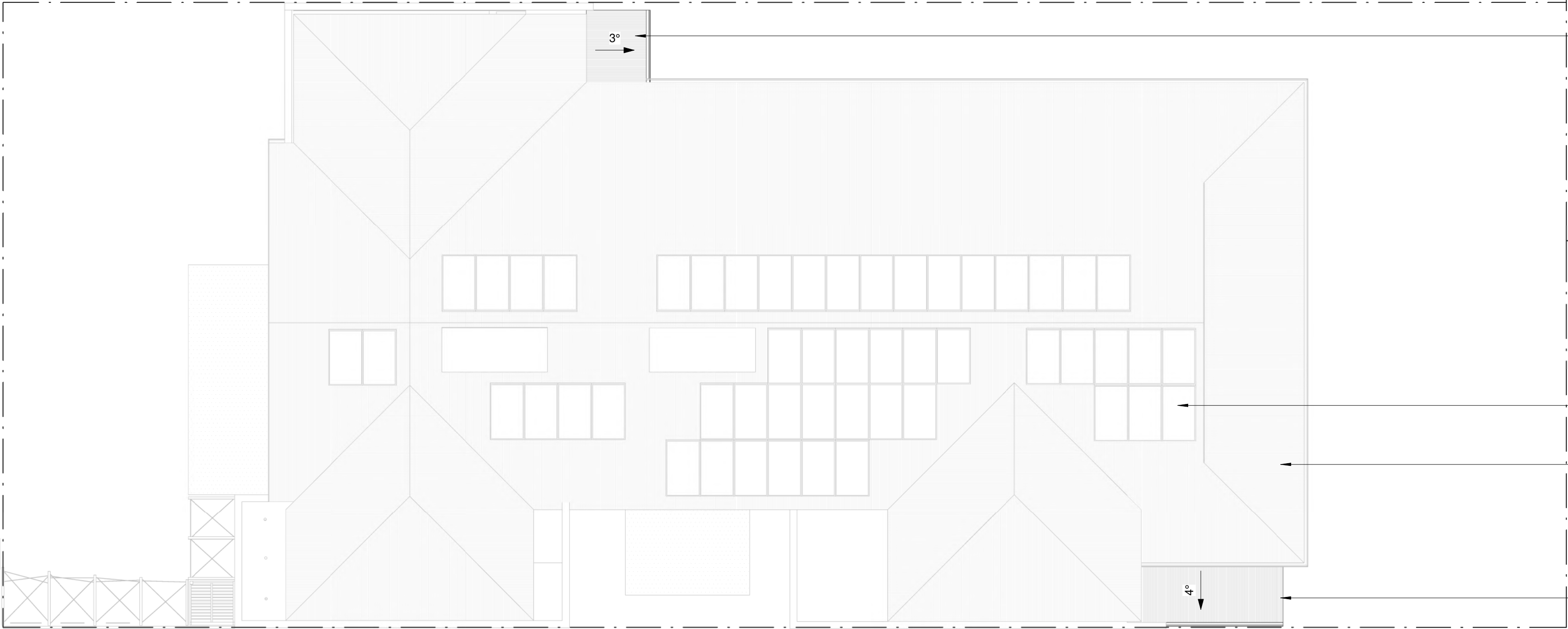


CHERITON STREET

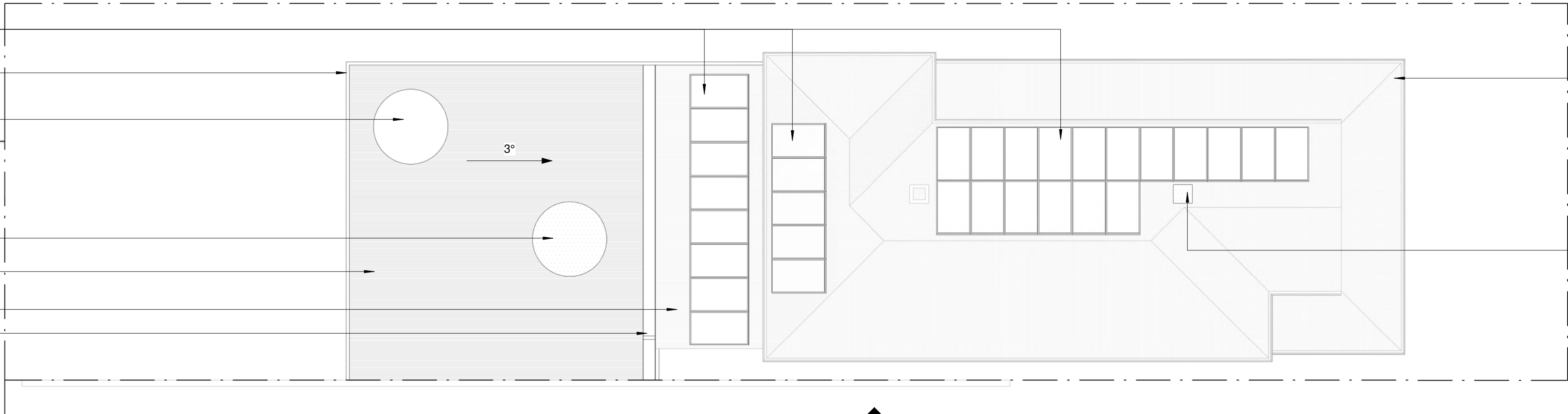
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Scale As indicated @ A2			Project AKIDAMY - 34 CHERITON STREET		Drawing Title SITE PLAN	
Dr: SP	Chk: PH	Appvd: PH	Client AKIDAMY		Job No PAR0099	Drawing No DA01

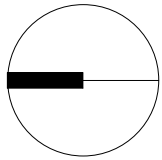


1 ROOF PLAN - SUMMERS STREET
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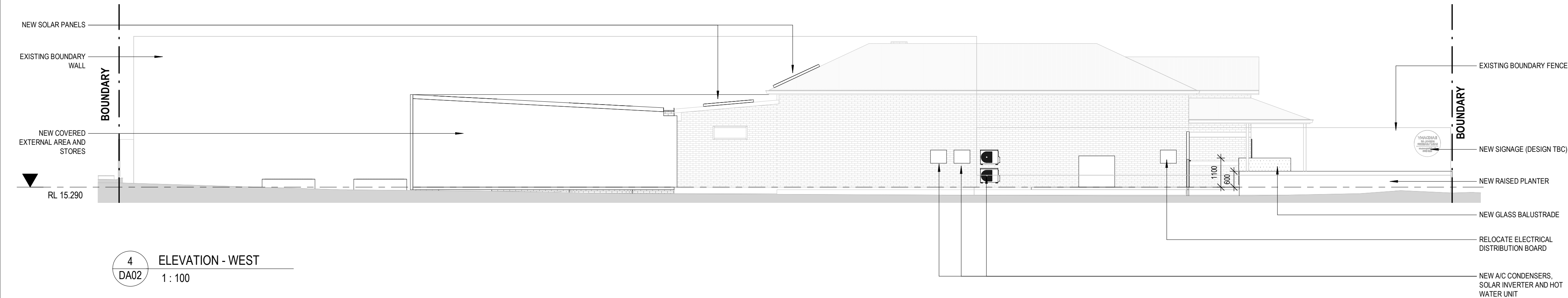
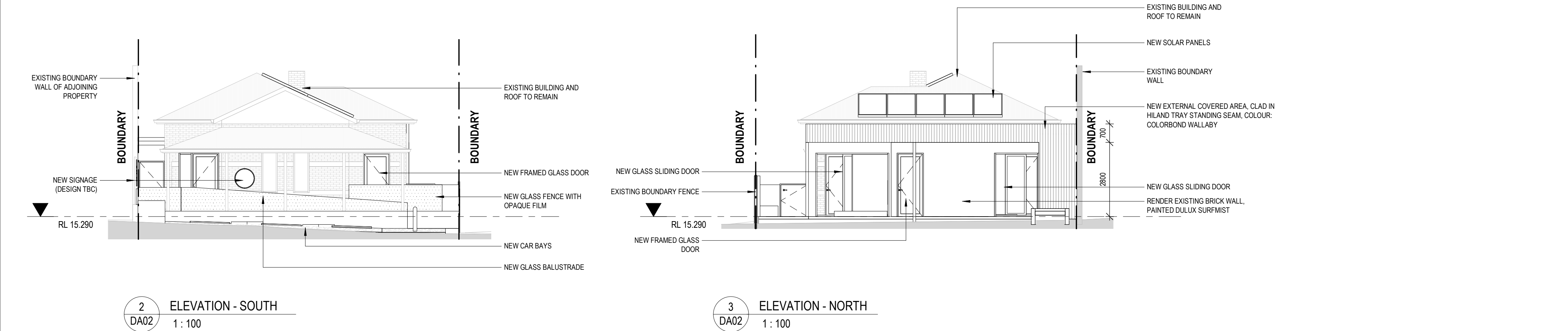
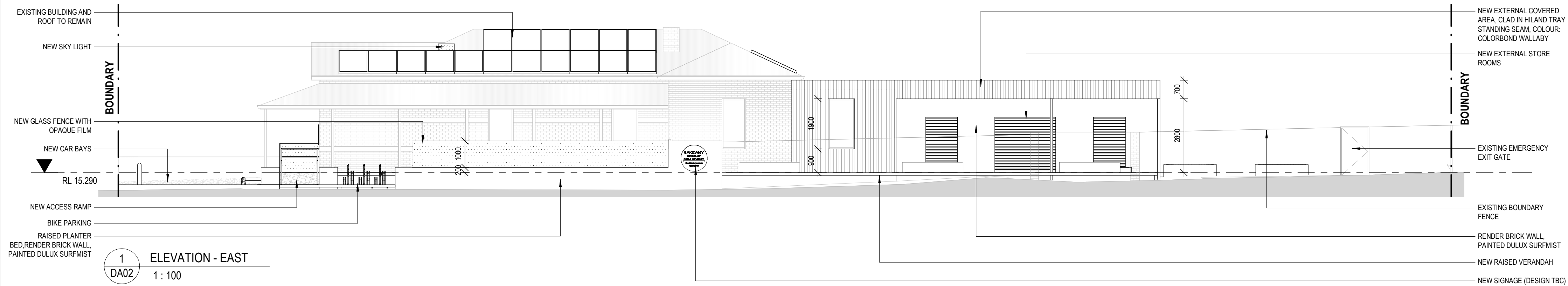


2 ROOF PLAN - CHERITON STREET
1 : 110

REV	DATE	STATUS	ISSUED
1	23.09.22	DEVELOPMENT APPLICATION	SP



Scale	1 : 110 @ A2			Project	AKIDAMY - 34 CHERITON STREET			Drawing Title	ROOF PLAN		
Dr:	SP	Chk:	PH	Appvd:	PH	Client	AKIDAMY	Job No	PAR0099	Drawing No	DA03



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4	19.09.22	COORDINATION		SP
5	23.09.22	DEVELOPMENT APPLICATION		SP

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Scale 1 : 100 @ A2

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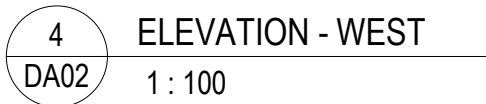
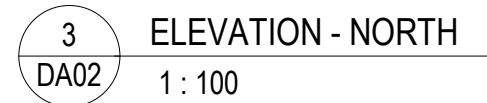
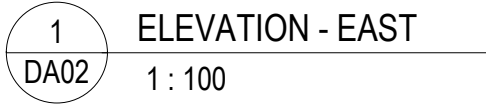
Project AKIDAMY - 34 CHERITON STREET

Client AKIDAMY

Drawing Title ELEVATIONS - CHERITON STREET

Job No PAR0099

Drawing No DA04





FRONT PERSPECTIVE - ARTIST IMPRESSION



REAR PERSPECTIVE - ARTIST IMPRESSION

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Scale @ A2			Project AKIDAMY - 34 CHERITON STREET		Drawing Title PERSPECTIVES	
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**PROPOSED CHILD CARE CENTRE
103/105 SUMMERS STREET / 34 CHERITON STREET
PERTH**

SPP 5.4 NOISE MANAGEMENT PLAN

SEPTEMBER 2022

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CHILD CARE CENTRE – PERTH

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1. INTRODUCTION

Herring Storer Acoustics were commissioned by the Rowe Group to carry out an acoustic study with regards to passenger train noise for the expansion of the current Child Care Centre located at 103 - 105 Summers Street, Perth, to include 34 Cheriton Street, Perth

The purpose of the study was to:

- Assess the noise that would be received within the development area from vehicles travelling on the "Midland Line" Passenger Railway Line.
- Compare the results with accepted criteria and if exceedances exist, develop the framework for the management of noise.

It is noted that with regard to State Planning Policy 5.4, that this forms a specialist acoustic assessment, taking into account the provided building design and as such, is more specific assessment than a "Quiet House Design Package" typically recommended with State Planning Policy.

Design plans are attached in Appendix A.

2. ACOUSTIC CRITERIA

2.1 ROAD AND RAIL TRAFFIC NOISE

The Western Australian Planning Commission (WAPC) released on 6th September 2019 State Planning Policy 5.4 "Road and Rail Noise". The requirements of State Planning Policy 5.4 are outlined below.

POLICY APPLICATION (Section 4)

When and where it applies (Section 4.1)

SPP 5.4 applies to the preparation and assessment of planning instruments, including region and local planning schemes; planning strategies, structure plans; subdivision and development proposals in Western Australia, where there is proposed:

- a) noise-sensitive land-use within the policy's trigger distance of a transport corridor as specified in **Table 1**.*
- b) New or major upgrades of roads as specified in **Table 1** and maps (**Schedule 1, 2 and 3**); or*
- c) New railways or major upgrades of railways as specified in maps (**Schedule 1, 2 and 3**); or any other works that increase capacity for rail vehicle storage or movement and will result in an increased level of noise.*

Policy trigger distances (Section 4.1.2)

Table 1 identifies the State's transport corridors and the trigger distances to which the policy applies.

*The designation of land within the trigger distances outlined in **Table 1** should not be interpreted to imply that land is affected by noise and/or that areas outside the trigger distances are un-affected by noise.*

Where any part of the lot is within the specified trigger distance, an assessment against the policy is required to determine the likely level of transport noise and management/ mitigation required. An initial screening assessment (**guidelines: Table 2: noise exposure forecast**) will determine if the lot is affected and to what extent.”

TABLE 1: TRANSPORT CORRIDOR CLASSIFICATION AND TRIGGER DISTANCES

Transport corridor classification	Trigger distance	Distance measured from
Roads		
Strategic freight and major traffic routes Roads as defined by Perth and Peel Planning Frameworks and/or roads with either 500 or more Class 7 to 12 Austroads vehicles per day, and/or 50,000 per day traffic volume	300 metres	Road carriageway edge
Other significant freight/traffic routes These are generally any State administered road and/or local government road identified as being a future State administered road (red road) and other roads that meet the criteria of either $\geq 23,000$ daily traffic count (averaged equivalent to 25,000 vehicles passenger car units under region schemes)	200 metres	Road carriageway edge
Passenger railways		
	100 metres	Centreline of the closest track
Freight railways		
	200 metres	Centreline of the closest track

Proponents are advised to consult with the decision making authority as site specific conditions (significant differences in ground levels, extreme noise levels) may influence the noise mitigation measures required, that may extend beyond the trigger distance.

POLICY MEASURES (Section 6)

The policy applies a performance-based approach to the management and mitigation of transport noise. The policy measures and resultant noise mitigation will be influenced by the function of the transport corridor and the type and intensity of the land-use proposed. Where there is risk of future land-use conflict in close proximity to strategic freight routes, a precautionary approach should be applied. Planning should also consider other broader planning policies. This is to ensure a balanced approach takes into consideration reasonable and practical considerations.

Noise Targets (Section 6.1)

Table 2 sets out noise targets that are to be achieved by proposals under which the policy applies. Where exceeded, an assessment is required to determine the likely level of transport noise and management/mitigation required.

In the application of the noise targets the objective is to achieve:

- indoor noise levels as specified in **Table 2** in noise sensitive areas (for example, bedrooms and living rooms of houses, and school classrooms); and
- a reasonable degree of acoustic amenity for outdoor living areas on each residential lot. For non-residential noise-sensitive developments, for example schools and child care centres the design of outdoor areas should take into consideration the noise target.

It is recognised that in some instances, it may not be reasonable and/or practicable to meet the outdoor noise targets. Where transport noise is above the noise targets, measures are expected to be implemented that balance reasonable and practicable considerations with the need to achieve acceptable noise protection outcomes.

TABLE 2: NOISE TARGETS

Proposals	New/Upgrade	Noise Targets		
		Outdoor		Indoor
		Day ($L_{Aeq}(\text{Day})$ dB) (6 am-10 pm)	Night ($L_{Aeq}(\text{Night})$ dB) (10 pm-6 am)	(L_{Aeq} dB)
Noise-sensitive land-use and/or development	New noise sensitive land use and/or development within the trigger distance of an existing/proposed transport corridor	55	50	L_{Aeq} (Day) 40(Living and work areas) L_{Aeq} (Night) 35 (bedrooms)
Roads	New	55	50	N/A
	Upgrade	60	55	N/A
Railways	New	55	50	N/A
	Upgrade	60	55	N/A

Notes:

- The noise target is to be measured at one metre from the most exposed, habitable façade of the proposed building, which has the greatest exposure to the noise-source. A habitable room has the same meaning as defined in State Planning Policy 3.1 Residential Design Codes.
- For all noise-sensitive land-use and/or development, indoor noise targets for other room usages may be reasonably drawn from Table 1 of Australian Standard/New Zealand Standard AS/NZS 2107:2016 Acoustics – Recommended design sound levels and reverberation times for building interiors (as amended) for each relevant time period.
- The 5dB difference in the criteria between new and upgrade infrastructure proposals acknowledges the challenges in achieving noise level reduction where existing infrastructure is surrounded by existing noise-sensitive development.
- Outdoor targets are to be met at all outdoor areas as far as is reasonable and practical to do so using the various noise mitigation measures outlined in the guidelines. For example, it is likely unreasonable for a transport infrastructure provider to achieve the outdoor targets at more than 1 or 2 floors of an adjacent development with direct line of sight to the traffic.

Noise Exposure Forecast (Section 6.2)

When it is determined that SPP 5.4 applies to a planning proposal as outlined in Section 4, proponents and/or decision makers are required to undertake a preliminary assessment using **Table 2**: noise exposure forecast in the guidelines. This will provide an estimate of the potential noise impacts on noise-sensitive land-use and/or development within the trigger distance of a specified transport corridor. The outcomes of the initial assessment will determine whether:

- no further measures is required;
- noise-sensitive land-use and/or development is acceptable subject to deemed-to-comply mitigation measures; or
- noise-sensitive land-use and/or development is not recommended. Any noise-sensitive land-use and/or development is subject to mitigation measures outlined in a noise management plan."

3. MEASUREMENTS AND OBSERVATIONS

To determine the noise received at the proposed expansion of the child care centre, noise level measurement of passing passenger trains on Thursday 15th September and handheld measurements of several passenger train passes were obtained. These noise levels are showing Table 3.1 below

Noise levels were measured with a Larson Davis 831 Sound Level Meter. A calibration check was carried out prior to and after measurements with a Bruel and Kjaer Sound Level Calibrator. All instruments used are currently factory calibrated. Calibration certificates are available if required.

TABLE 3.1 – MEASURED TRAIN NOISE LEVELS

Description	Noise Level - dB (L _{Aeq,T})
North Bound	59
South Bound	58
North Bound	56
South Bound	57
Average	58

Measurements were for a period of 30 seconds.

4. ASSESSMENT

We understand that during peak hours, the number of train movements of Perth – Midland passenger train line would be 20. Based on the above number of train movements the L_{Aeq} for a peak hour would be 50 dB(A). Thus, noise received at the child care centre would be comply with the “Noise Targets” even during the peak hours.

In accordance with the Policy, the following would be the acoustic criteria applicable to this project:

External

Day

Maximum of 55 dB(A) L_{Aeq}

Internal

Sleeping Areas

35 dB(A) L_{Aeq(night)}

Living Areas

40 dB(A) L_{Aeq(day)}

The results of the noise assessment indicate that noise received at the child care centre from the Perth – Midland passenger line would comply with the “Noise Targets”, and as a result, no Quiet House Design, nor Notifications on Title would be required at this development.

APPENDIX A

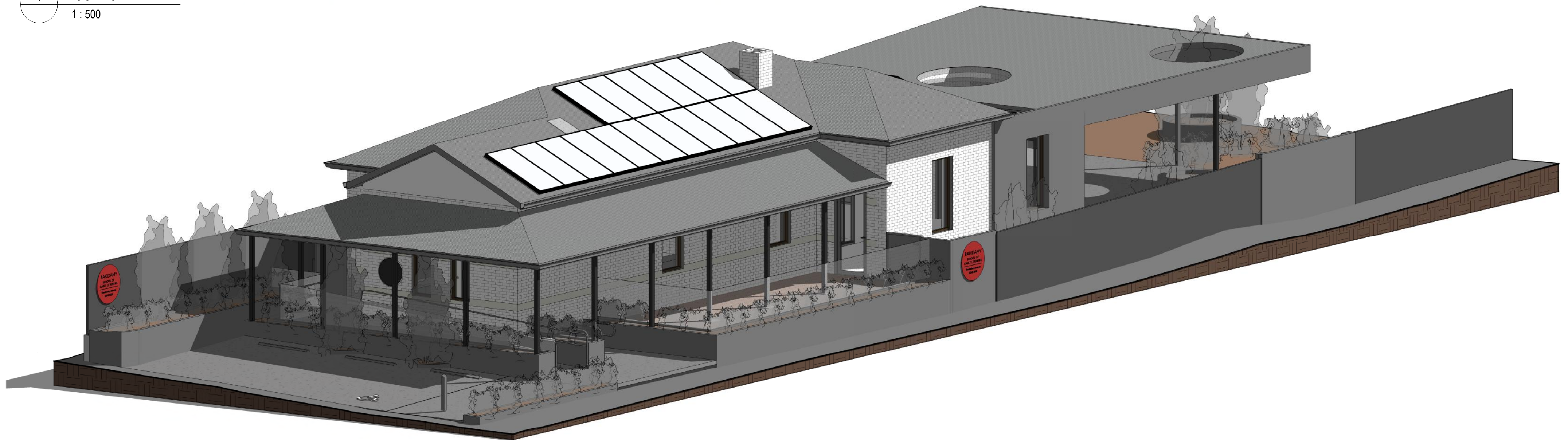
Plans

AKIDAMY SCHOOL OF EARLY LEARNING - CHERITON STREET

105 SUMMERS STREET & 34 CHERITON STREET, PERTH WA



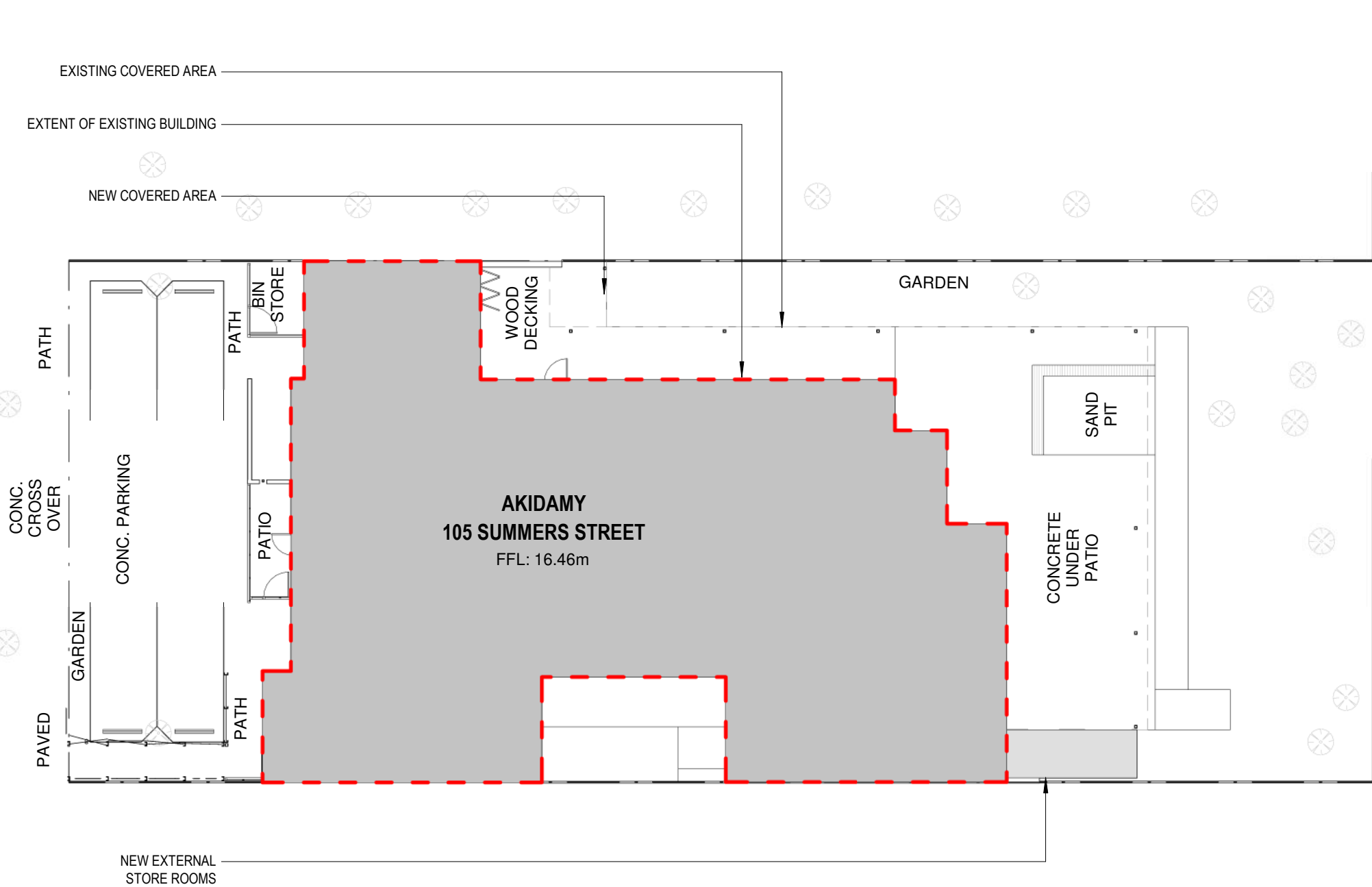
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REV	DATE	STATUS	ISSUED
1	16.09.22	COORDINATION	SP
2	19.09.22	COORDINATION	SP
3	23.09.22	DEVELOPMENT APPLICATION	SP

	Scale 1 : 500 @ A2			Project AKIDAMY - 34 CHERITON STREET		Drawing Title COVER PAGE & LOCATION PLAN	
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SUMMERS STREET



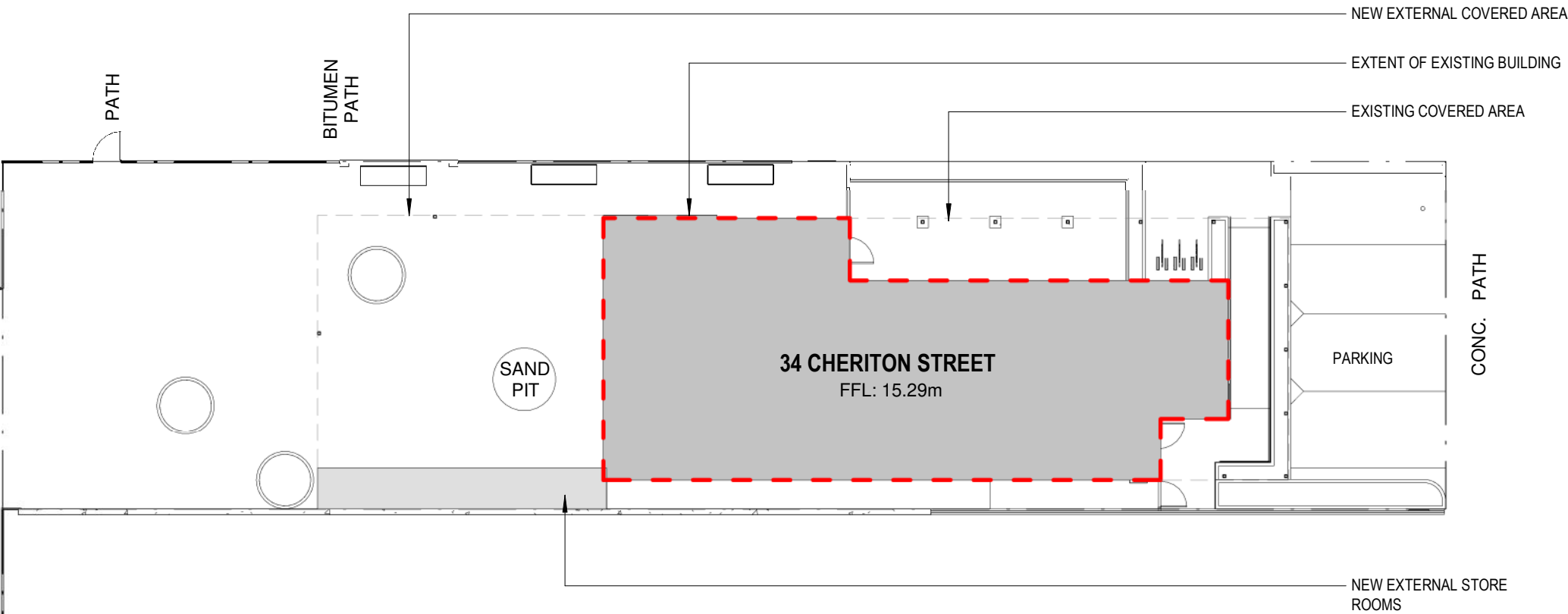
1 SITE PLAN
1 : 200

CLASSROOM AREAS

CLASSROOM AREA - SUMMER STREET	216.0 M²
CLASSROOM AREA - CHERITON STREET	90.3 M²
CLASSROOM AREA - TOTAL	306.3 M²

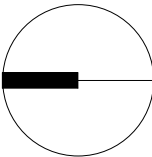
OUTDOOR PLAY AREAS

OUTDOOR PLAY AREA - SUMMER STREET	410.8 M²
OUTDOOR PLAY AREA - CHERITON STREET	287.9 M²
OUTDOOR PLAY - TOTAL	698.7 M²

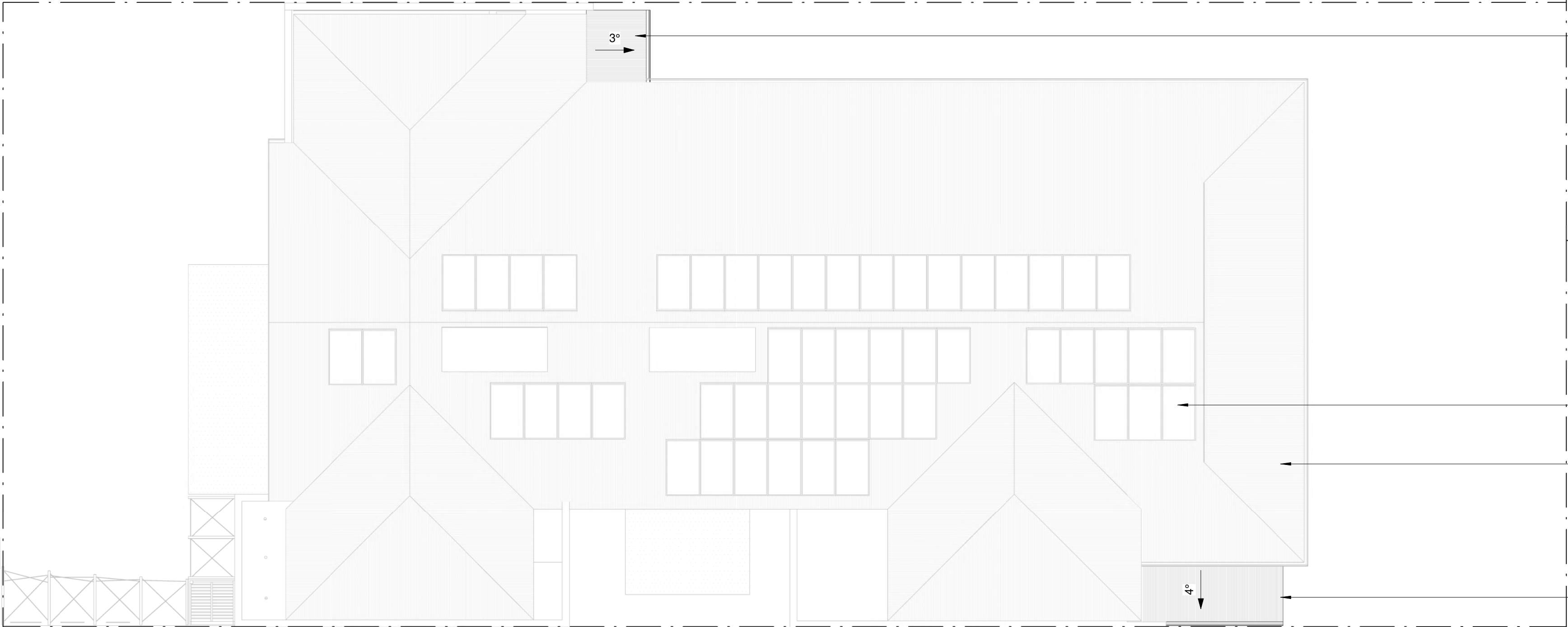


CHERITON STREET

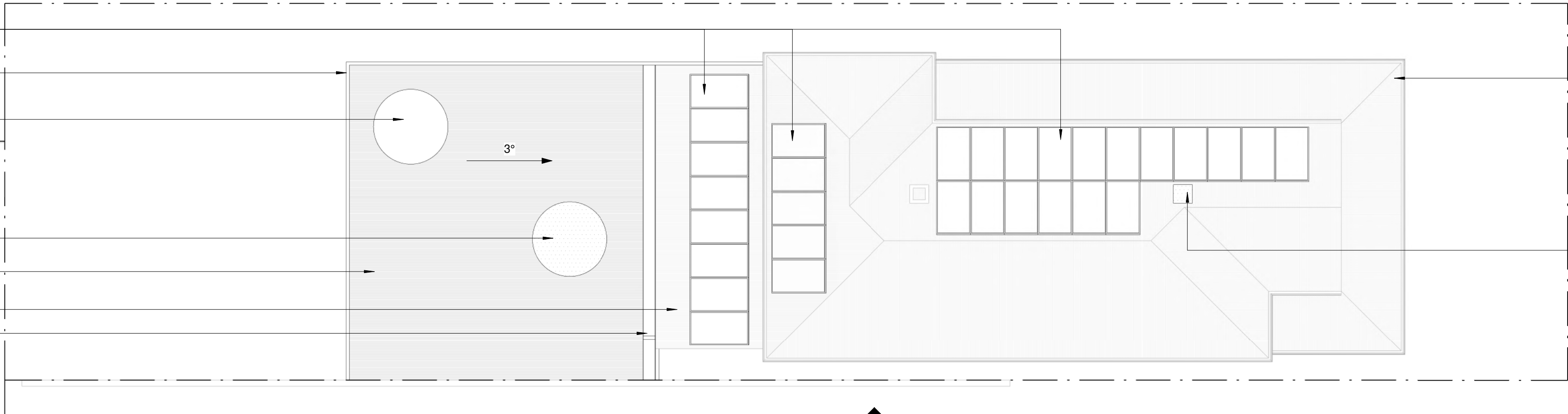
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3	16.09.22	COORDINATION	SP
4	19.09.22	COORDINATION	SP
5	23.09.22	DEVELOPMENT APPLICATION	SP



Scale As indicated @ A2			Project AKIDAMY - 34 CHERITON STREET		Drawing Title SITE PLAN	
Dr: SP	Chk: PH	Appvd: PH	Client AKIDAMY		Job No PAR0099	Drawing No DA01

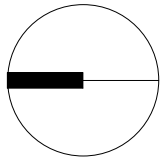


1 ROOF PLAN - SUMMERS STREET
1 : 110



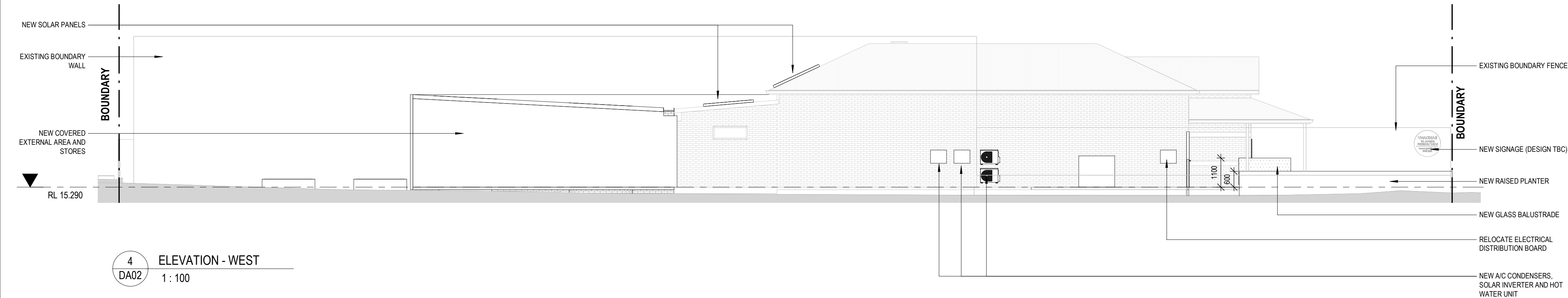
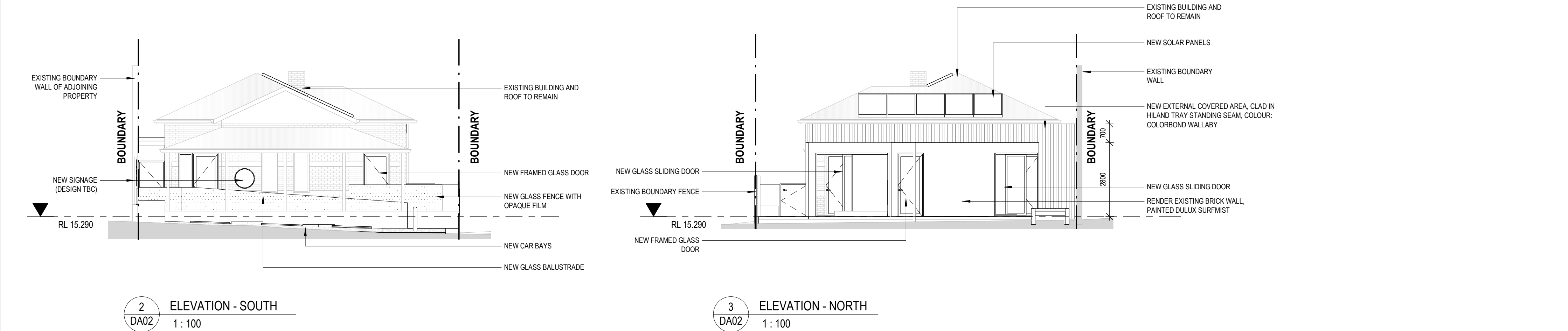
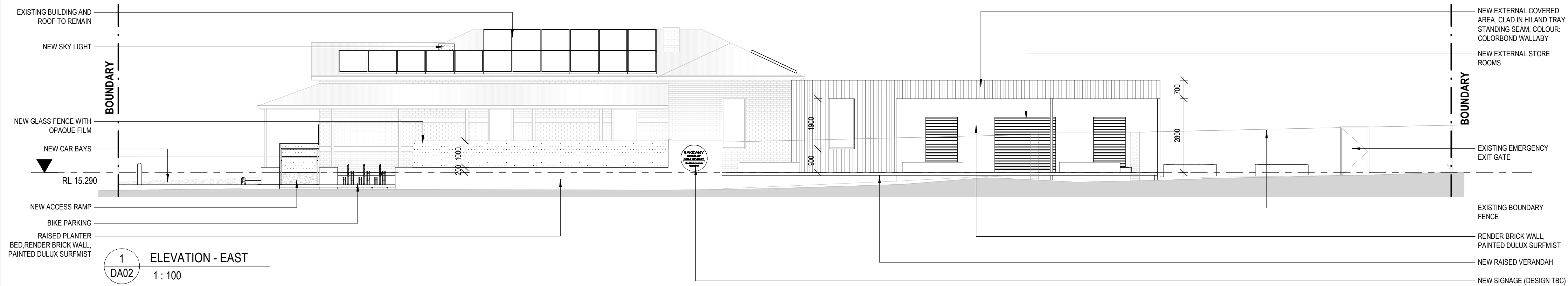
2 ROOF PLAN - CHERITON STREET
1 : 110

REV	DATE	STATUS	ISSUED
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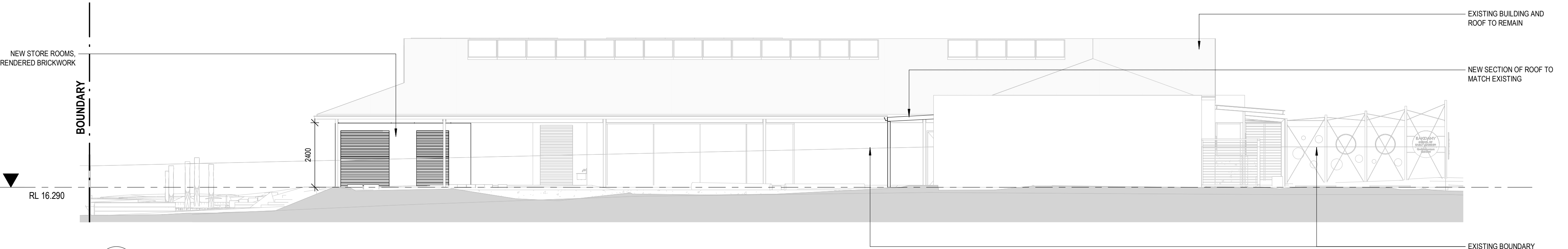
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Dr:	SP	Chk:	PH	Appvd:	PH	Client	AKIDAMY	Job No	PAR0099	Drawing No	DA03

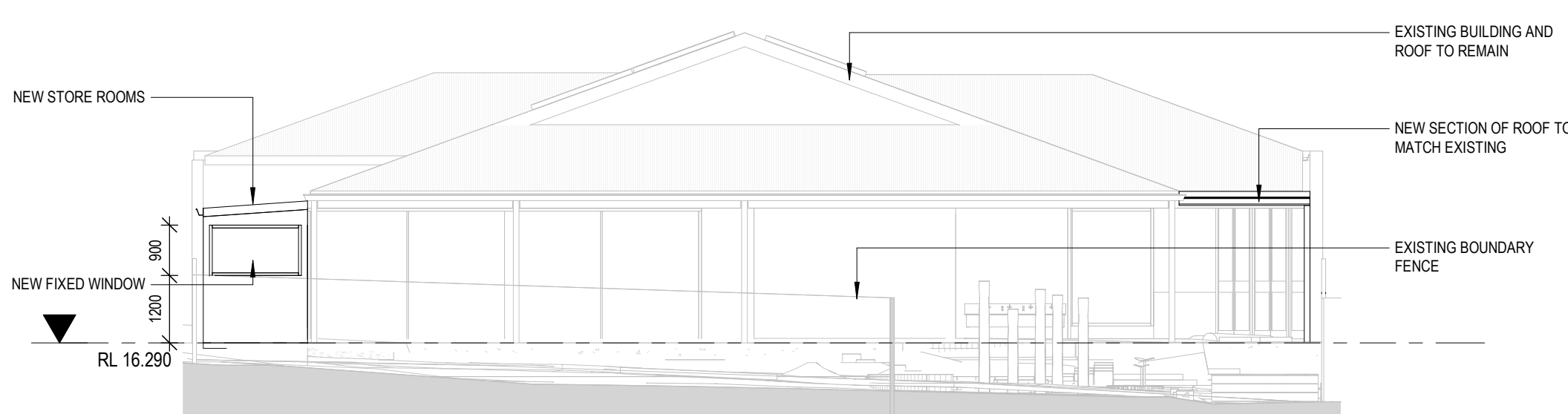


REV	DATE	COORDINATION	STATUS	ISSUED
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2	12.09.22	COORDINATION		SP
3	16.09.22	COORDINATION		SP
4	19.09.22	COORDINATION		SP
5	23.09.22	DEVELOPMENT APPLICATION		SP

Scale	1 : 100 @ A2			Project	AKIDAMY - 34 CHERITON STREET			Drawing Title	ELEVATIONS - CHERITON STREET		
Dr:	SP	Chk:	PH	Appvd:	PH	Client	AKIDAMY	Job No	PAR0099	Drawing No	DA04



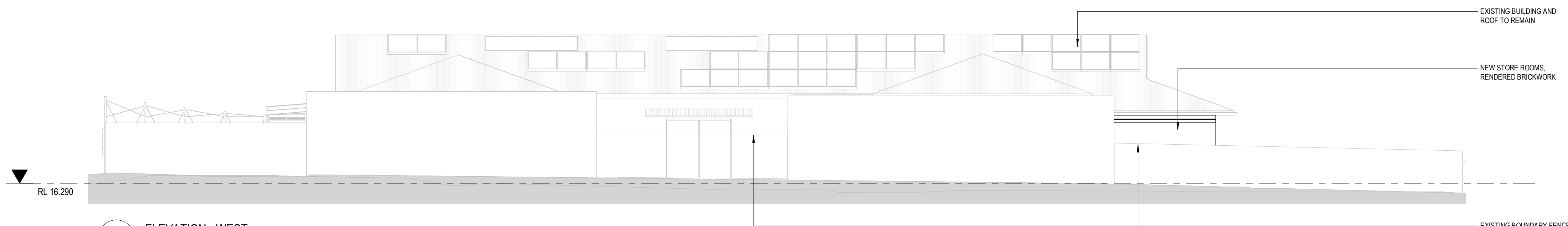
1 ELEVATION - EAST
DA02 1 : 100



2 ELEVATION - SOUTH
DA02 1 : 100



3 ELEVATION - NORTH
DA02 1 : 100



4 ELEVATION - WEST
DA02 1 : 100

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Client AKIDAMY

Drawing Title ELEVATIONS - SUMMERS STREET

Job No PAR0099

Drawing No DA05