

PLANNING APPLICATION

Status:

Reference

PLN-HOB-2025-0501

Address

34 DE WITT ST BATTERY POINT TAS
7004

Titles

112764/1

Before you start

Before you start your application, you will need to know if you require planning approval or not.

If you are unsure if you require a permit, use the [PlanBuild Tasmania Enquiry Service](#) to lodge a request for advice from the relevant Council.

Once your application has been submitted the Council will review your application. If payment has not been made, you will be sent a request for the payment of application fees via PlanBuild Tasmania.

Once the fees have been paid and the Council is satisfied with the information provided, the application will be assessed and you will be notified of the outcome.

If further action is required to assess your application you will receive an email notification containing a task to complete.

Pre-Application Advice

Have you spoken with anyone at Council about this application?

Yes - enter details below

No - continue to the next section

If yes, provide the name of the person you contacted

We had a pre-application meeting with Heritage Tasmania regarding the project on August 25th. Erin Rockliffe was the attendee from Heritage Tasmania.

Applicant

Name	Email	Phone	Address	Involvement
Personal Information Removed				

Owners

Name	Email Address	Address
Personal Information Removed		

Certificate(s) of Title

Selected Titles

112764/1

Total Area: 406m²

Owner Notification

Are you the sole owner of the land?

Yes - continue to the next section

No - answer question below

If no, have you notified all owners, joint or part owners of your intention to submit this application?

Yes - enter owner details below

No - you must notify all owners before proceeding with this application

List all owners, joint or part owners as recorded on the Title documents notified:

Susanne Beck, Jonathan Beck

Enter the date that the last owner, joint or part owner was notified

03/10/2025

Declaration

I declare that all land owners, joint or part owners have been notified of this planning application.

Crown Land Consent

Is Crown Land involved in the proposed use or development?

Yes - complete question below

No - continue to the next section - see further information below

Unsure

If yes, has written Crown Land consent been obtained?

Yes - upload written consent

No - application will not be progressed until consent has been provided

General Manager Consent

Is Council-owned or administered land involved in the proposed use or development?

Yes - complete question below

No - continue to the next section

Unsure

If yes, has written consent been obtained from the Council General Manager?

Yes - upload written consent

No - application will not be progressed until consent has been provided

Proposed Use or Development

What is the reason for your planning application?

I want to change how the property is used

I want to use the property for visitor accommodation

I want to subdivide

I want to undertake a new development or alteration

I want to do a minor boundary adjustment

I want to put up a sign(s)

I want to demolish

I want to do works only

Other

If your application is to subdivide, please enter the number of proposed lots.

0

If your application is for signage, please enter the number of signs.

Is the property a Tasmanian Heritage Listed Property?

Yes

No

Is the application for an EPA Activity under the Environmental Management and Pollution Control Act 1994?

Yes

No

Unsure

Is the proposed use or development permitted or discretionary?

Permitted

Discretionary

Unsure if permitted or discretionary

Provide a full description of the proposed use or development

The proposed works to 34 De Witt St involve the demolition of the existing rear lean-to and shed, renovation and repair to a portion of the original heritage dwelling, construction of a new rear extension, and the relocation of the existing timber outbuilding within the site.

Will the proposed use or development involve a road reserve?

Yes - complete the section below

No - continue to the next section

Unsure

If yes, enter the address(es) or locations below:

If yes, how will the road reserve be affected?

Value of Works

What is the estimated value of the works?

950000

Supporting Documents

Version	Document Date	Document Type	Description	Prepared By
1	3 Oct 2025	Heritage Impact Assessment	Heritage impact assessment and report of 34 De Witt Street, Battery Point	Lucy Burke-Smith from Purcell
1	2 Oct 2025	Architectural Plans	Architectural drawing package	Meg Olsen - Archier
1	30 June 2025	Geotechnical Report	Geotechnical report for reference	Envirotech
1	3 Oct 2025	Property Title Document	FolioPlan-112764-1.pdf	Project Lead
1	3 Oct 2025	Property Title Document	FolioText-112764-1.pdf	Project Lead

Next steps

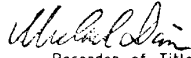
When you have completed all the necessary fields and attached all required documents to support your application, click on the green 'Save & Submit' button at the top right of this form.

Once submitted, the Council will review your application. A request for the payment of application fees will be sent to you via PlanBuild Tasmania.

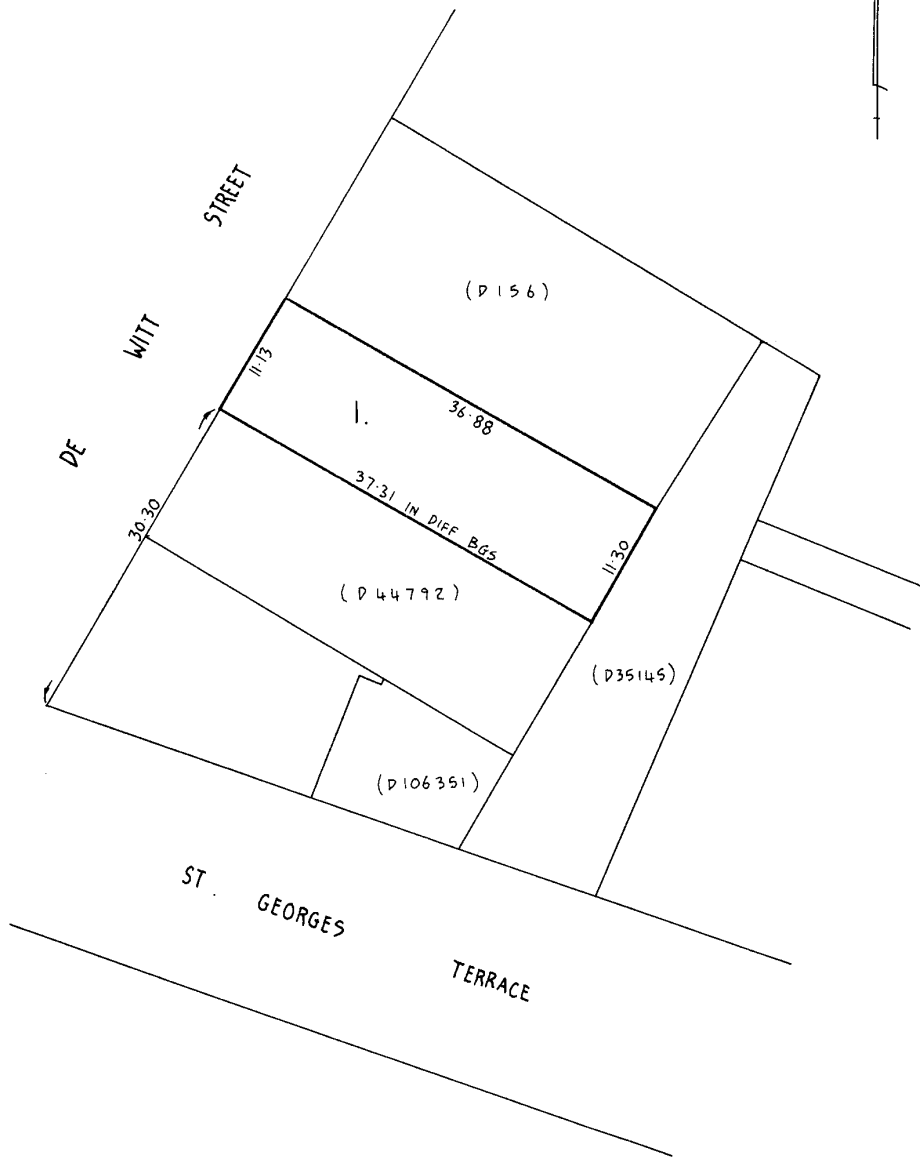
Once the fees have been paid and the Council is satisfied with the information provided, the application will be assessed and you will be notified of the outcome.

If further action is required to assess your application you will receive an email notification from PlanBuild which will tell you what you need to provide to continue the application.

Form published: 14/05/2025 15:58

FILE NUMBER A14778 GRANTEE PART OF 90-0-0 LOC TO WILLIAM SORELL		CONVERSION PLAN		REGISTERED NUMBER P112764
LOCATION CITY OF HOBART		CONVERTED FROM 31/4210		APPROVED 12 AUG 1994  Recorder of Titles
MAPSHEET MUNICIPAL CODE No. 21		LAST UPI No.		ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN
			NOT TO SCALE LENGTHS IN METRES	
			DRAWN J.G.	

SKETCH BY WAY OF ILLUSTRATION ONLY
 "EXCEPTED LANDS"



A-183

SEARCH OF TORRENS TITLE

VOLUME 112764	FOLIO 1
EDITION 2	DATE OF ISSUE 15-Jun-2023

SEARCH DATE : 30-Sep-2025

SEARCH TIME : 11.41 AM

DESCRIPTION OF LAND

City of HOBART

Lot 1 on Plan [112764](#)

Being the land described in Assent No. [31/4210](#)

Derivation : Part of 90-0-0 Located to W. Sorell

Derived from A14778

SCHEDULE 1

[N134746](#) TRANSFER to JONATHAN GEOFFREY BECK and SUSANNE
ELIZABETH BECK Registered 15-Jun-2023 at noon

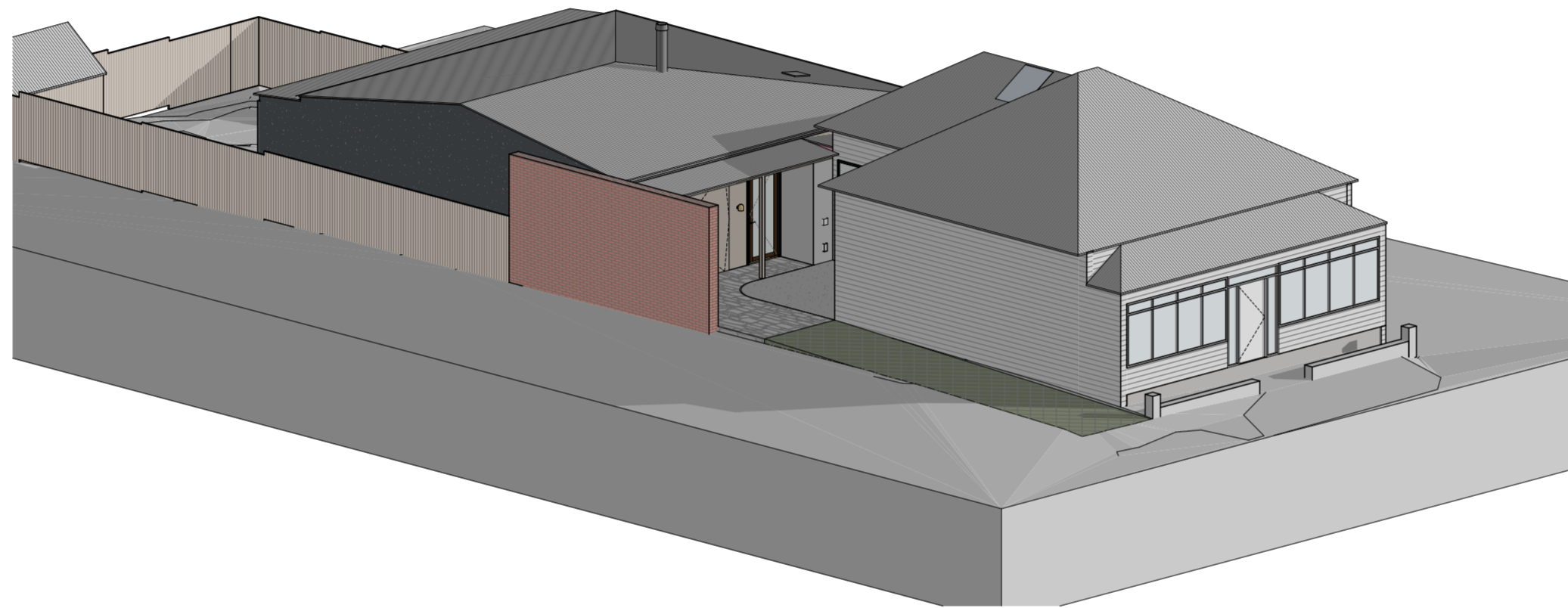
SCHEDULE 2

Reservations and conditions in the Crown Grant if any

[31/4210](#) INDENTURE BENEFITING EASEMENT: RIGHT TO LIGHT AND
AIR to the windows situated on the South Western
boundary

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations



PROJECT	CONTACT	DESIGNER	DATE	ISSUE	ID	NAME	ID	NAME
De Witt 34 De Witt Street Battery Point TAS 7004	Josh FitzGerald projects@archier.com.au	Archier Pty Ltd ARCHIER	5/11/2025		DA0.1...	Cover	DA8.1...	Sun Study
					DA0.1...	Design Approach	DA8.1...	Sun Study
					DA0.1...	Material Schedule	DA8.1...	Sun Study
					DA0.1...	3D Perspectives	DA9.2...	Schedule - Window
					DA0.1...	3D Perspectives		
					DA0.3...	Existing and Demolition Plan		
					DA0.3...	Proposed Site Plan		
					DA0.3...	Proposed Development Summary		
					DA1.1...	Proposed Ground Floor Plan		
					DA1.1...	Proposed Roof Plan		
					DA2.1...	Existing/Demo Elevations		
					DA2.1...	Proposed Elevations		
					DA2.1...	Proposed Street Elevation		
DA3.1...	Sections 1							
DA8.1...	Sun Study							

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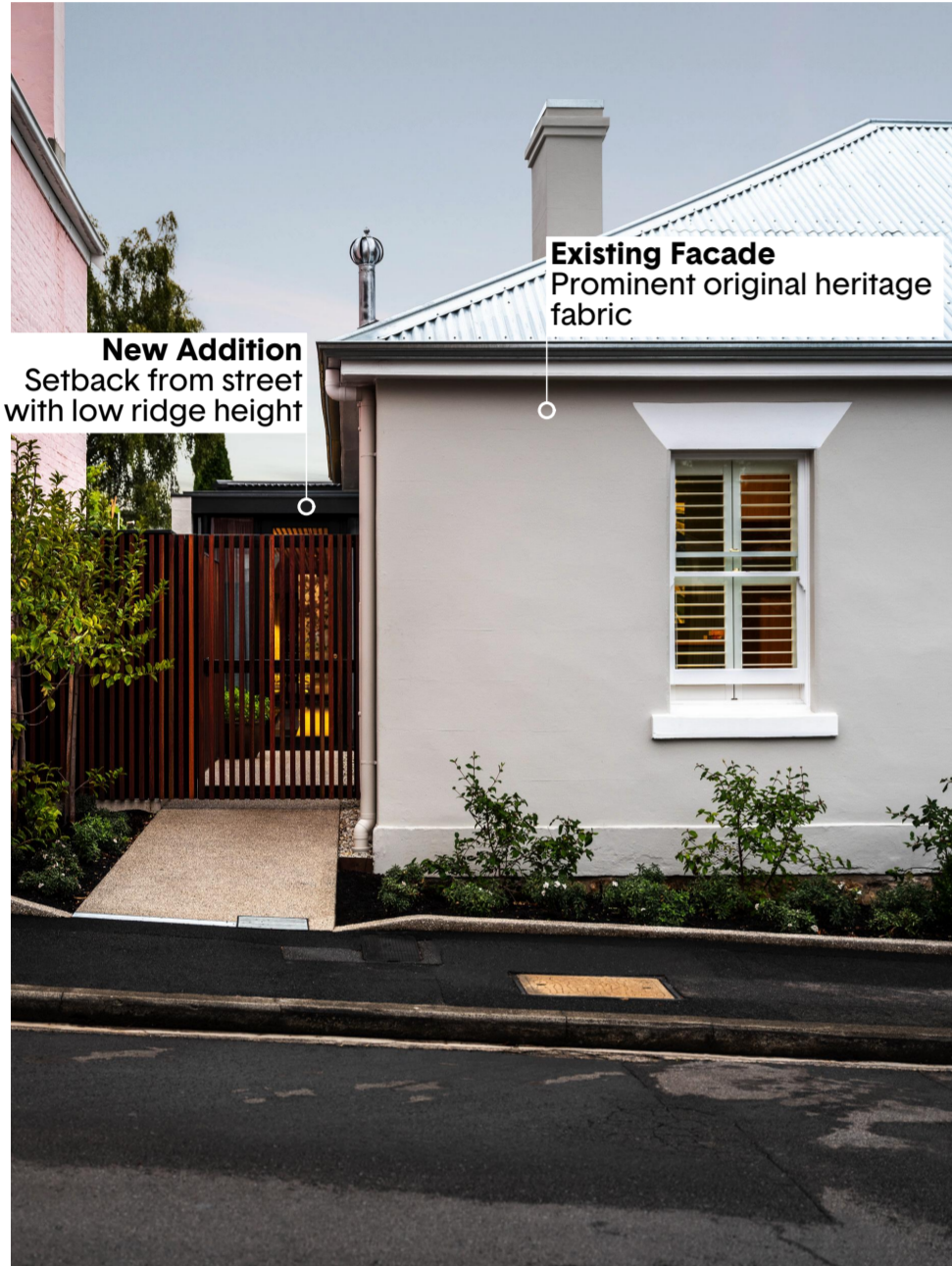
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PROJECT	DATE	SCALE	DRAWING	NORTH
De Witt 34 De Witt Street Battery Point TAS 7004	5/11/2025	As Shown @ A2	DA0.100	
CLIENT Archier Pty Ltd	CONTACT Josh FitzGerald — projects@archier.com.au		Cover	

Design Approach



Hampden Rd House
by Archier



Hampden Rd House
by Archier



Court House
by Archier



Court House
by Archier

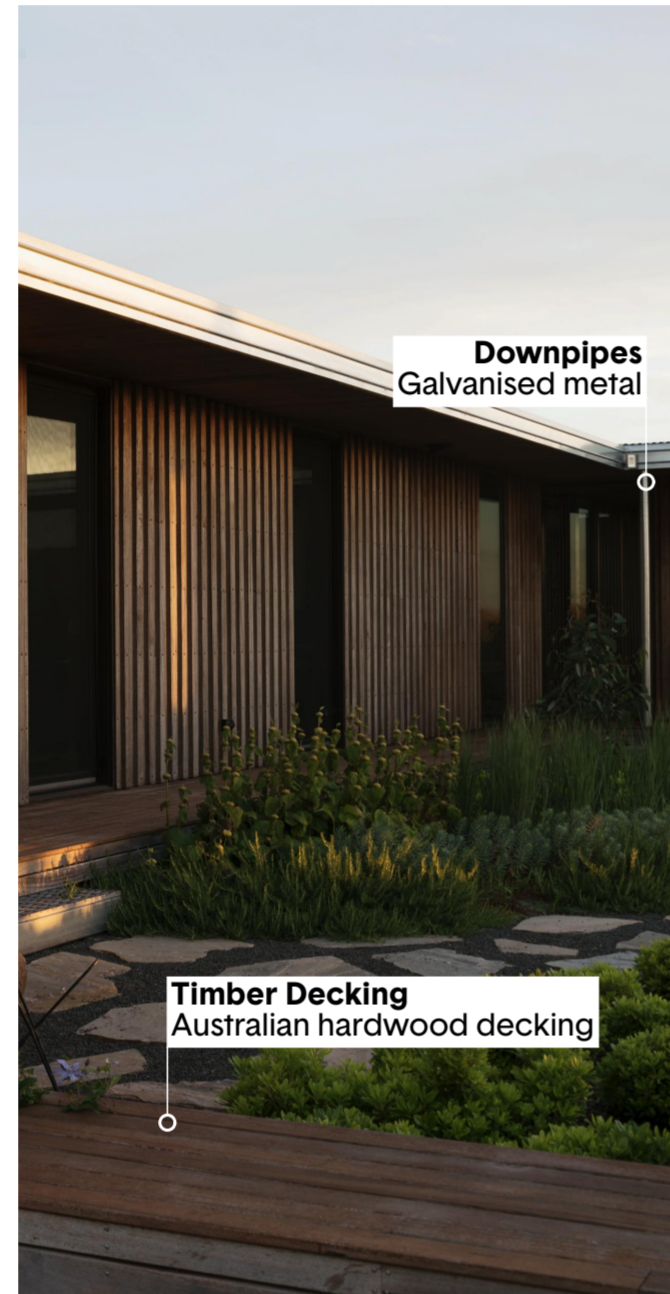
The proposal has been designed to ensure sensitivity to the heritage significance of the existing dwelling and the wider Battery Point precinct. The extension is intentionally located to the rear of the site, well set back from the principal heritage street elevation, thereby retaining the primacy of the original dwelling within the streetscape.

The new works are restricted to a single storey with a low-pitched roof, maintaining a recessive form that reduces bulk and avoids overshadowing of neighbouring properties. Courtyards are strategically introduced to improve natural light penetration into the interior, addressing the limitations imposed by adjacent neighbouring forms.

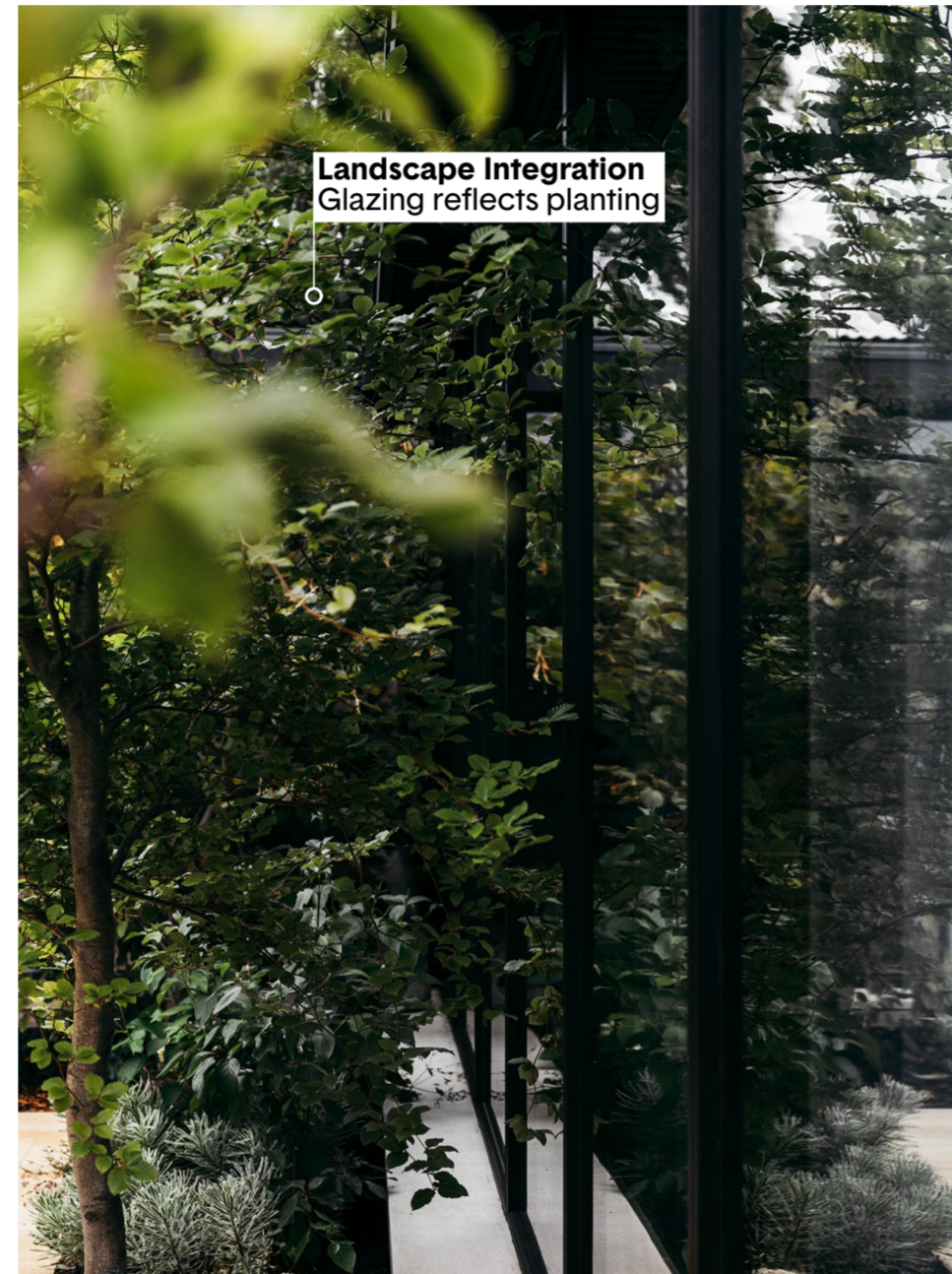
Materiality Approach



Farm House
by Archier



Farm House
by Archier



Hampden Rd
by Archier



Corner House
by Archier



Corner House
by Archier

The proposed material palette is modest, natural, and refined, reflecting the qualities of the Australian vernacular while supporting the heritage objectives of the Battery Point precinct.

Finishes have been selected to provide warmth and subtle contrast to the original dwelling, ensuring the new addition is visually distinguishable, while still complementary to the established character. The combination of restrained form and carefully considered materiality ensures that the proposal contributes positively to the site's ongoing heritage significance and residential functionality.

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PROJECT

De Witt
34 De Witt Street Battery Point TAS 7004

CLIENT

Archier Pty Ltd

DATE

5/11/2025

CONTACT

Josh FitzGerald — projects@archier.com.au

SCALE

As Shown @ A2

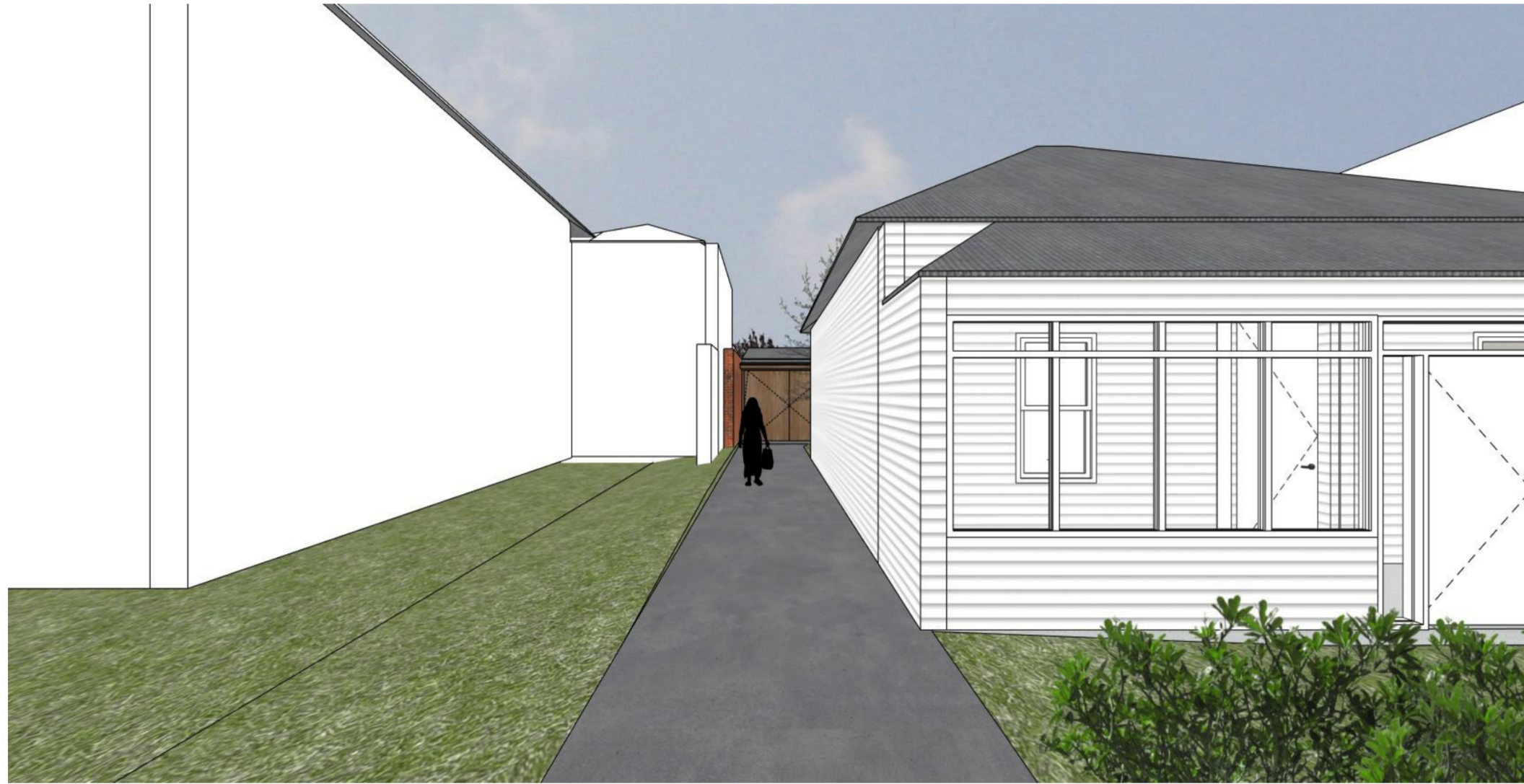
DRAWING

DA0.102

Material Schedule

NORTH





View looking from De Witt Street



Approach from drive way

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NORTH



CONTACT

Josh FitzGerald — projects@archier.com.au

3D Perspectives



East elevation - view from garden



East elevation - view from back boundary

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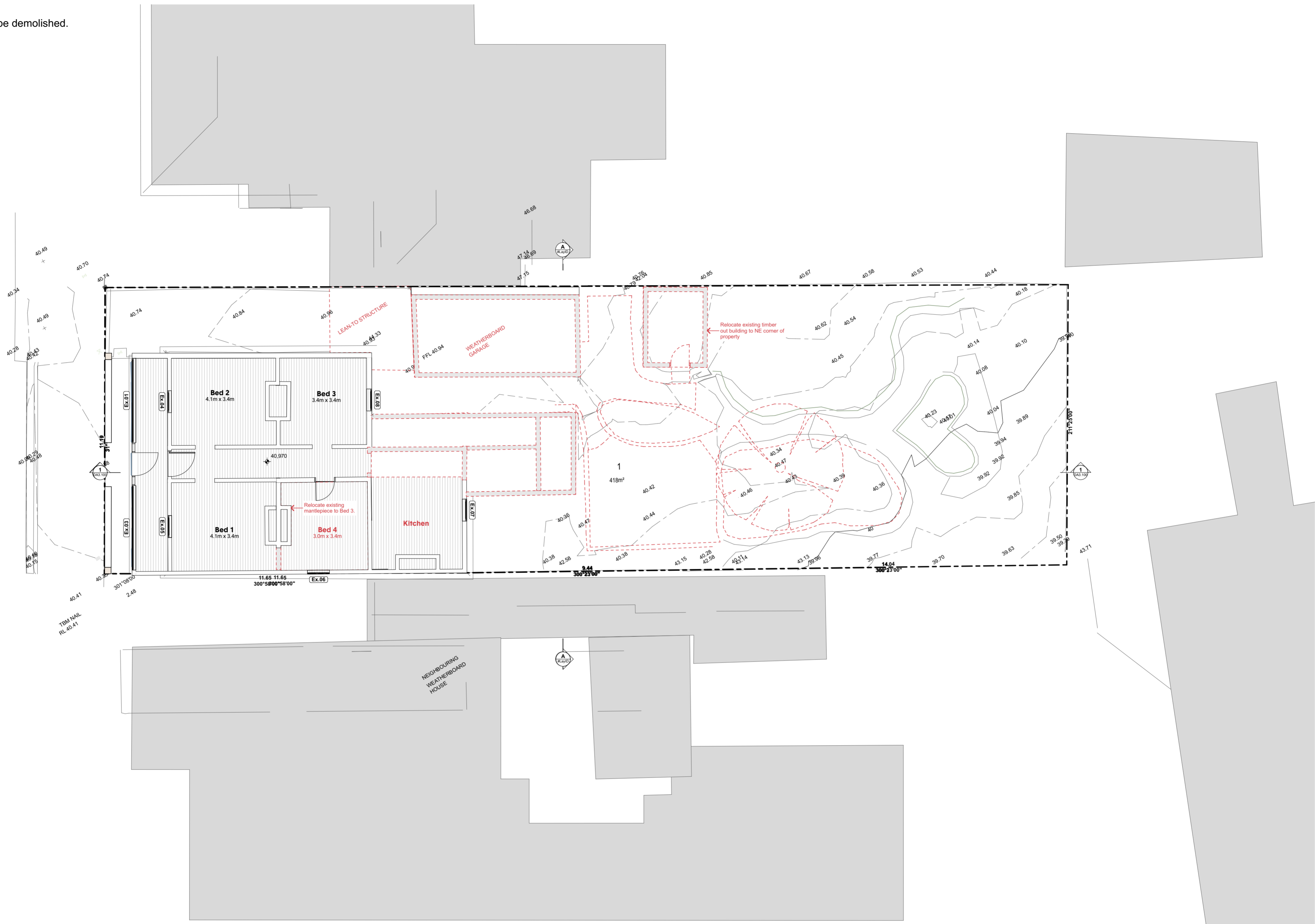
CONTACT

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3D Perspectives

Items shown in **RED** are to be demolished.

DE WITT STREET



Existing/Demolition

1:100

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DRAWING

DA0.300

NORTH

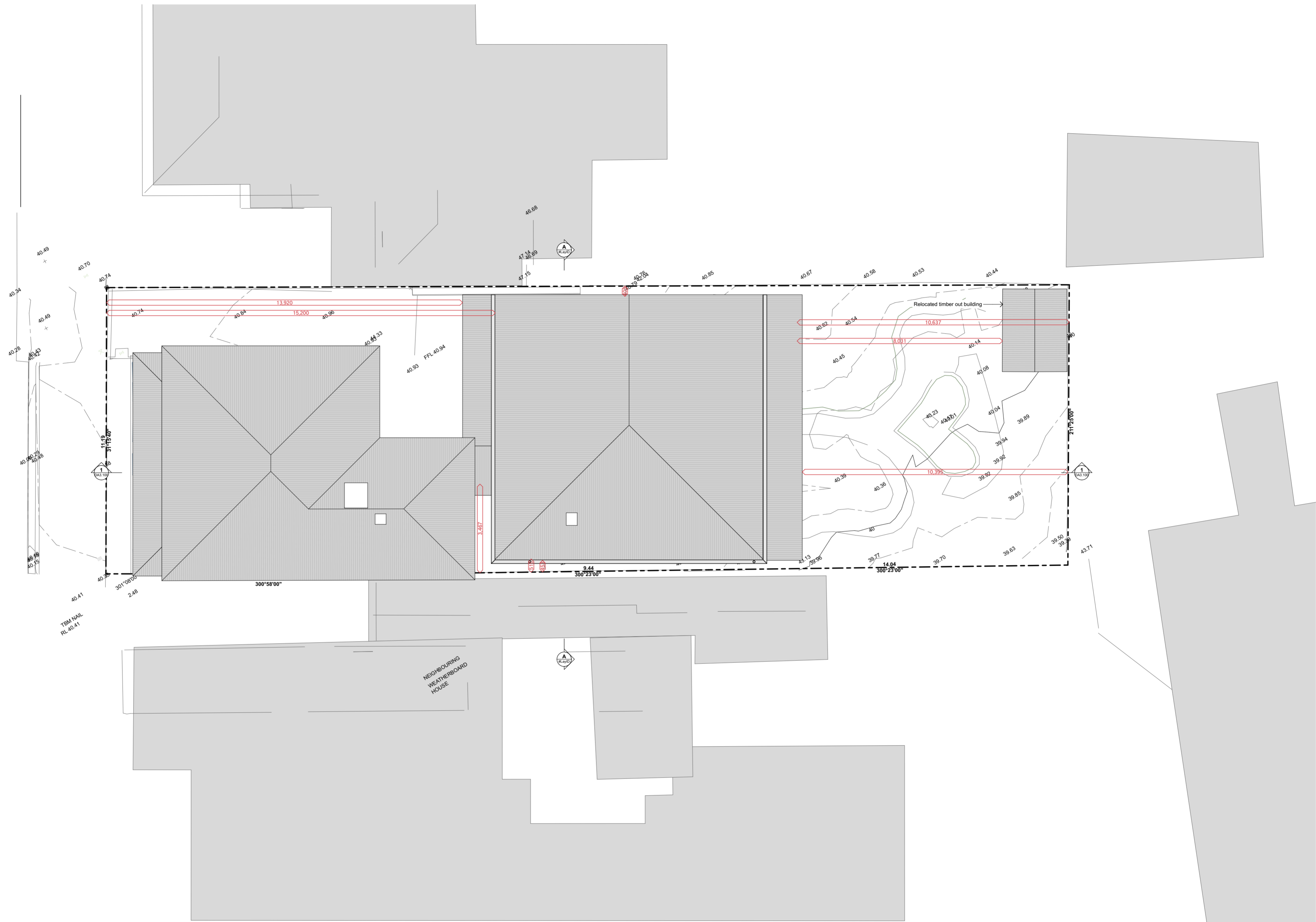
CONTACT

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Existing and Demolition Plan

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DE WITT STREET



Proposed Site Plan

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34 De Witt Street Battery Point TAS 7004

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As Shown @ A2

DRAWING

DA0.301

NORTH

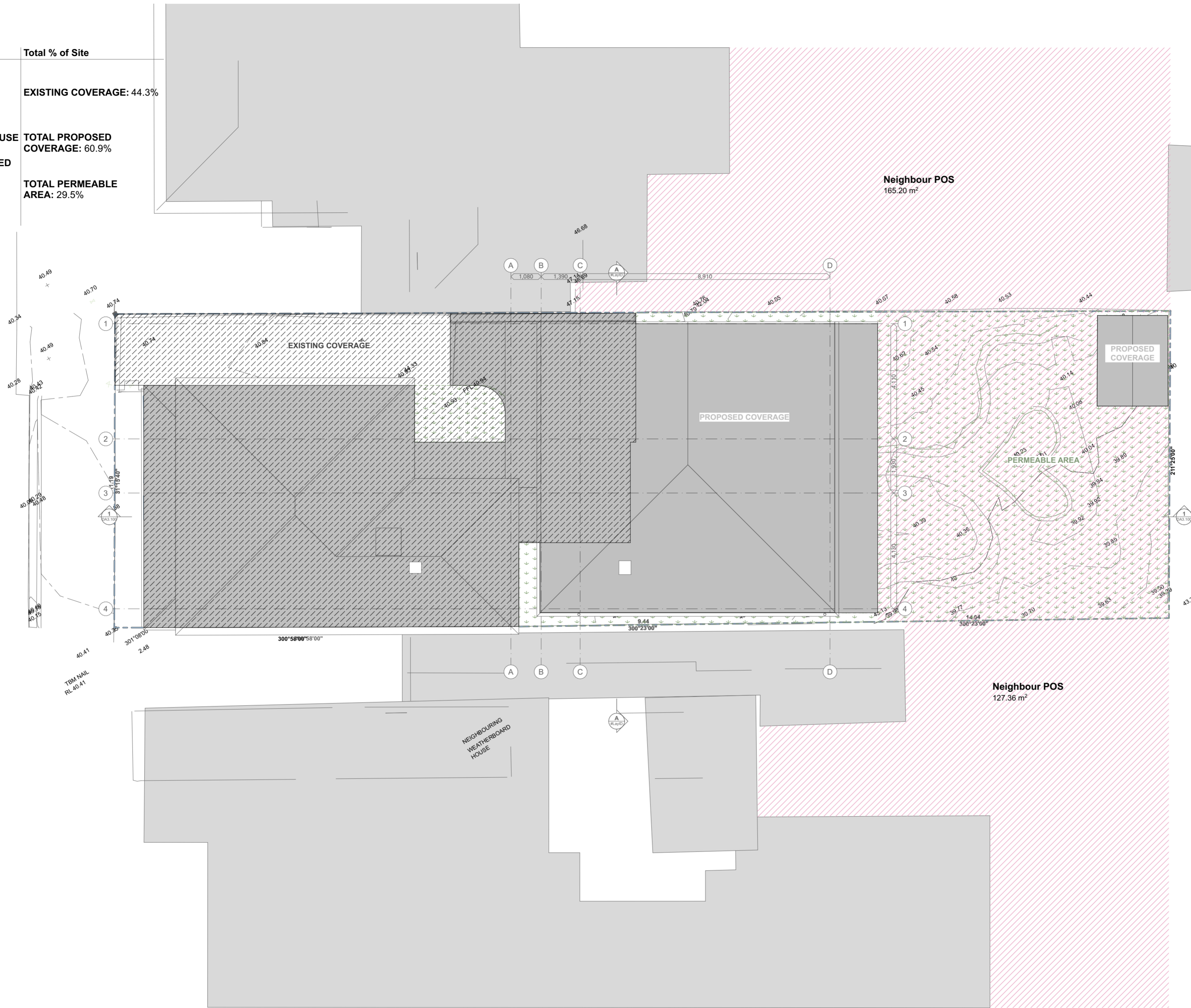
CONTACT

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Proposed Site Plan

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Site Area Schedule (m ²)	Total % of Site
SITE AREA 418.33 m ²	
EXISTING COVERAGE 185.65 m ²	EXISTING COVERAGE: 44.3%
POS 106.47 m ²	
PROPOSED COVERAGE HOUSE 246.99 m ²	TOTAL PROPOSED COVERAGE: 60.9%
PROPOSED COVERAGE SHED 8.13 m ²	
PERMEABLE COURTYARD 6.72 m ²	TOTAL PERMEABLE AREA: 29.5%
PERMEABLE YARD 116.79 m ²	



DE WITT STREET

Proposed Site Plan

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CONTACT

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SCALE

As Shown @ A2

DRAWING

DA0.302

Proposed Development Summary

NORTH



NOTE:
 - All works to the existing dwelling, excluding wet areas, are out of scope.
 - All hard and soft landscaping is out of scope

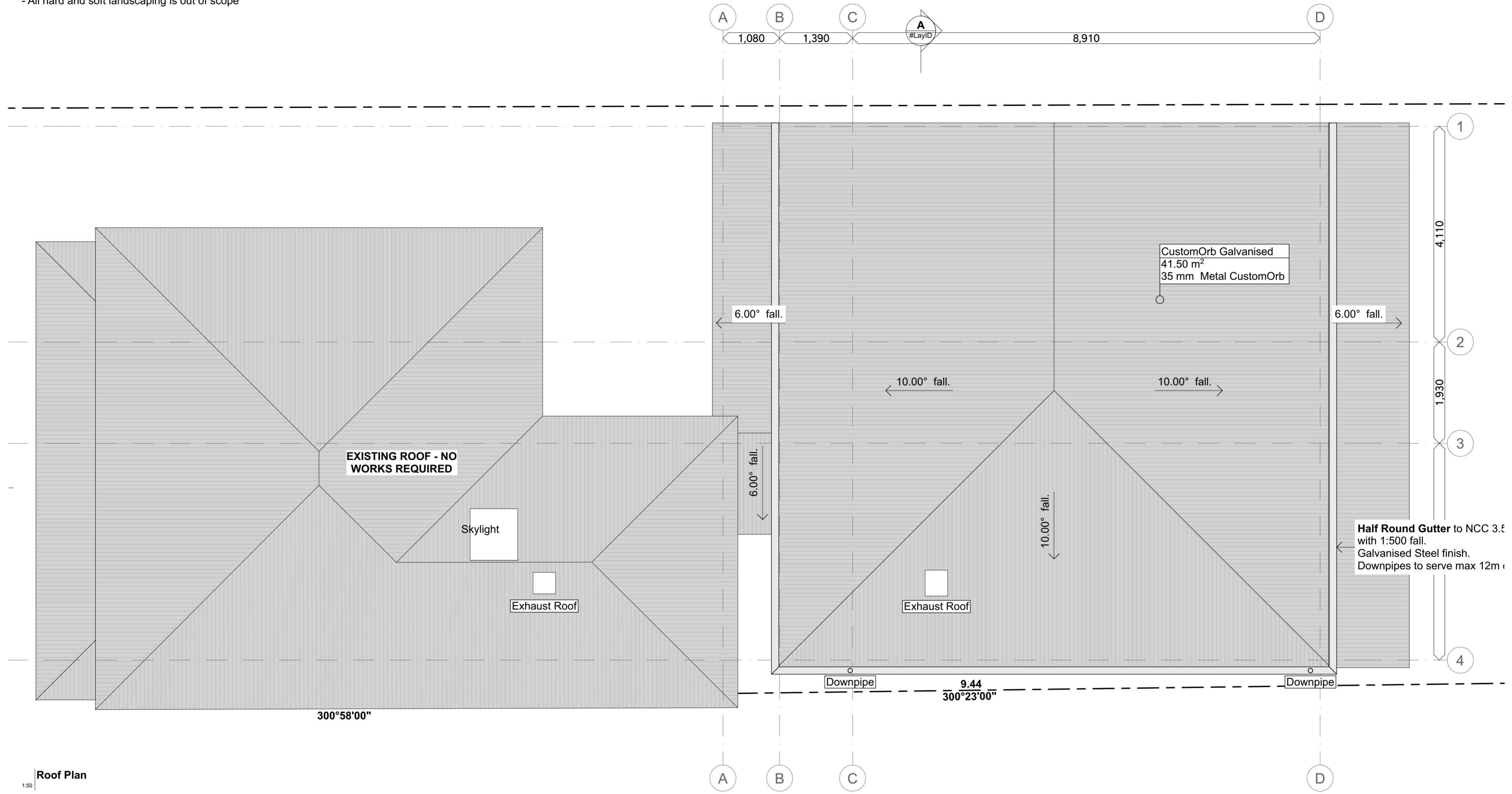


Ground Floor Plan
 1:50

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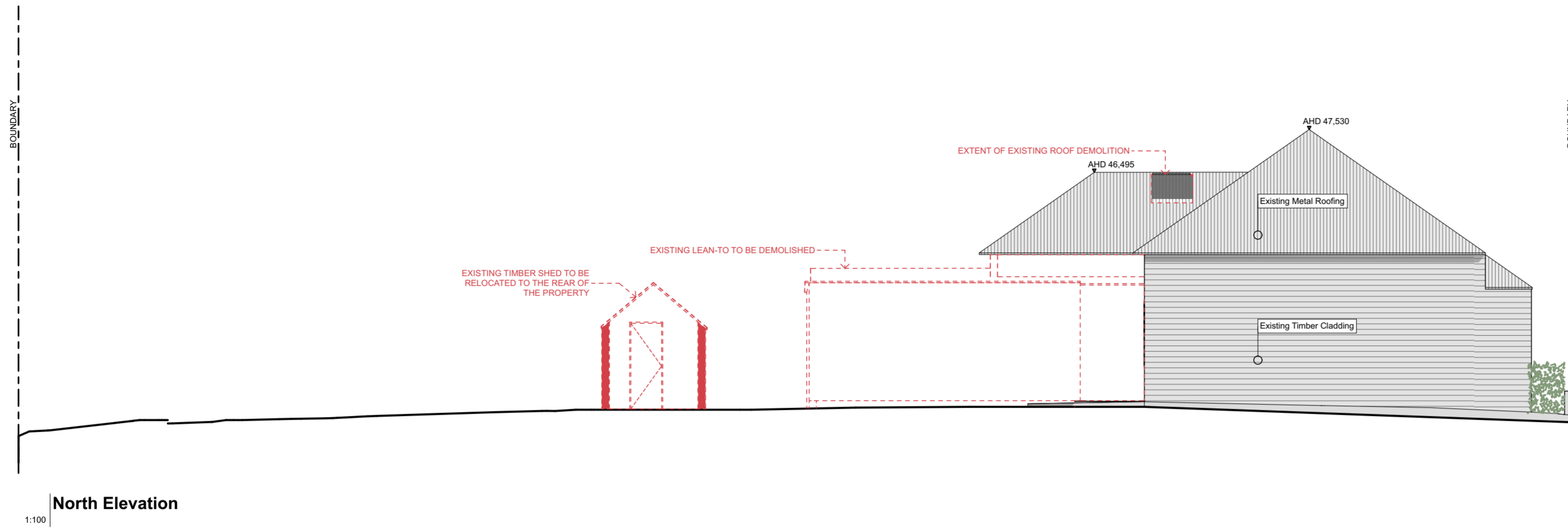
NOTE:
 - All works to the existing dwelling, excluding wet areas, are out of scope.
 - All hard and soft landscaping is out of scope



Roof Plan
1:50

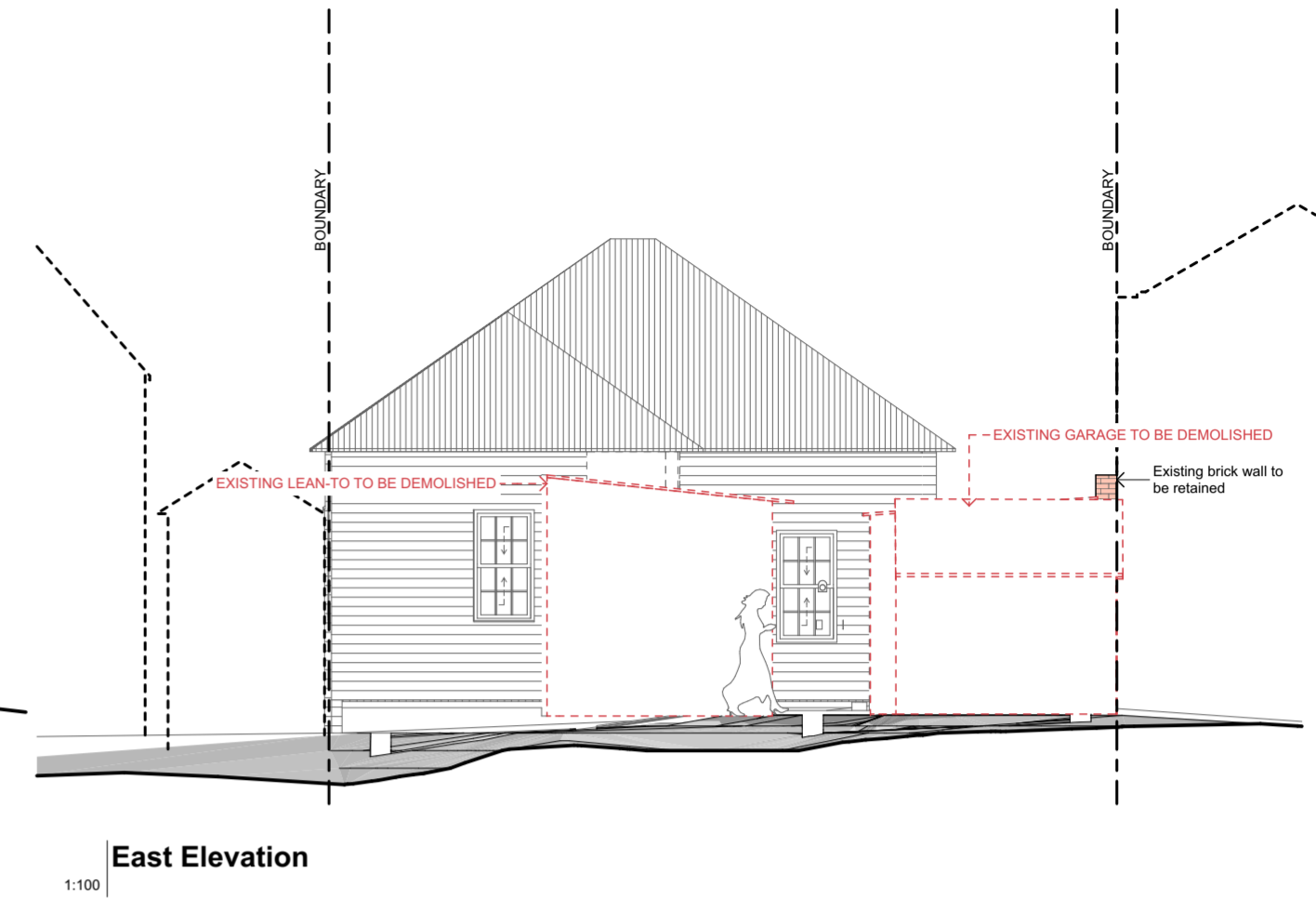
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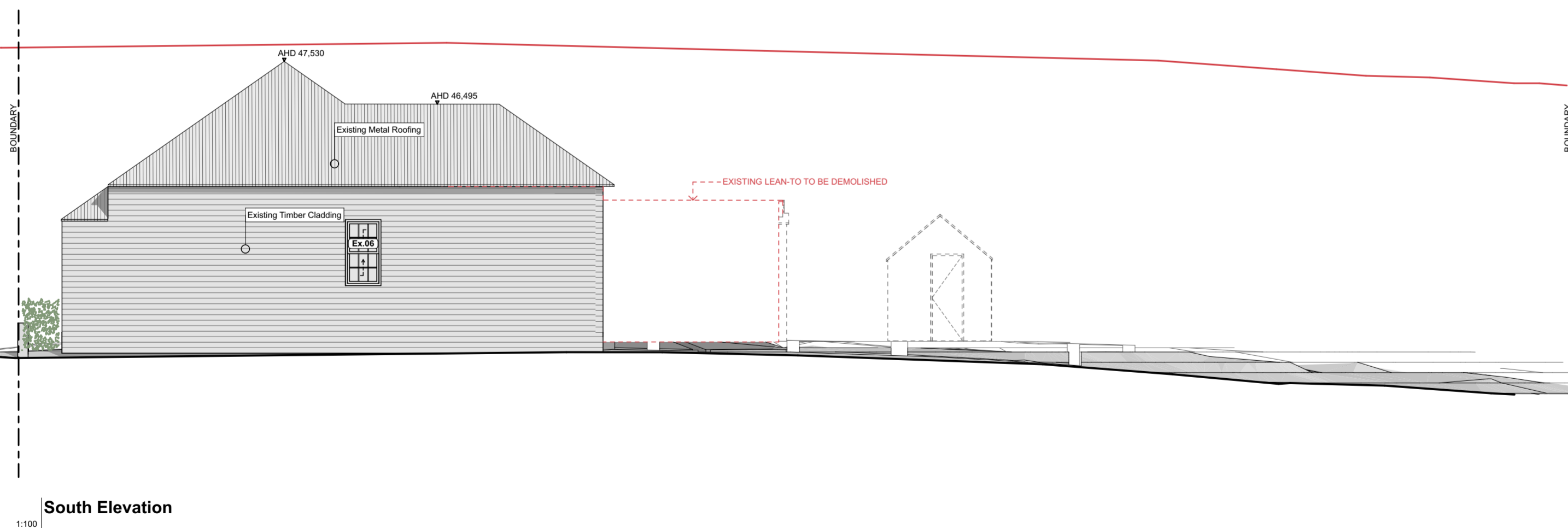
North Elevation

1:100



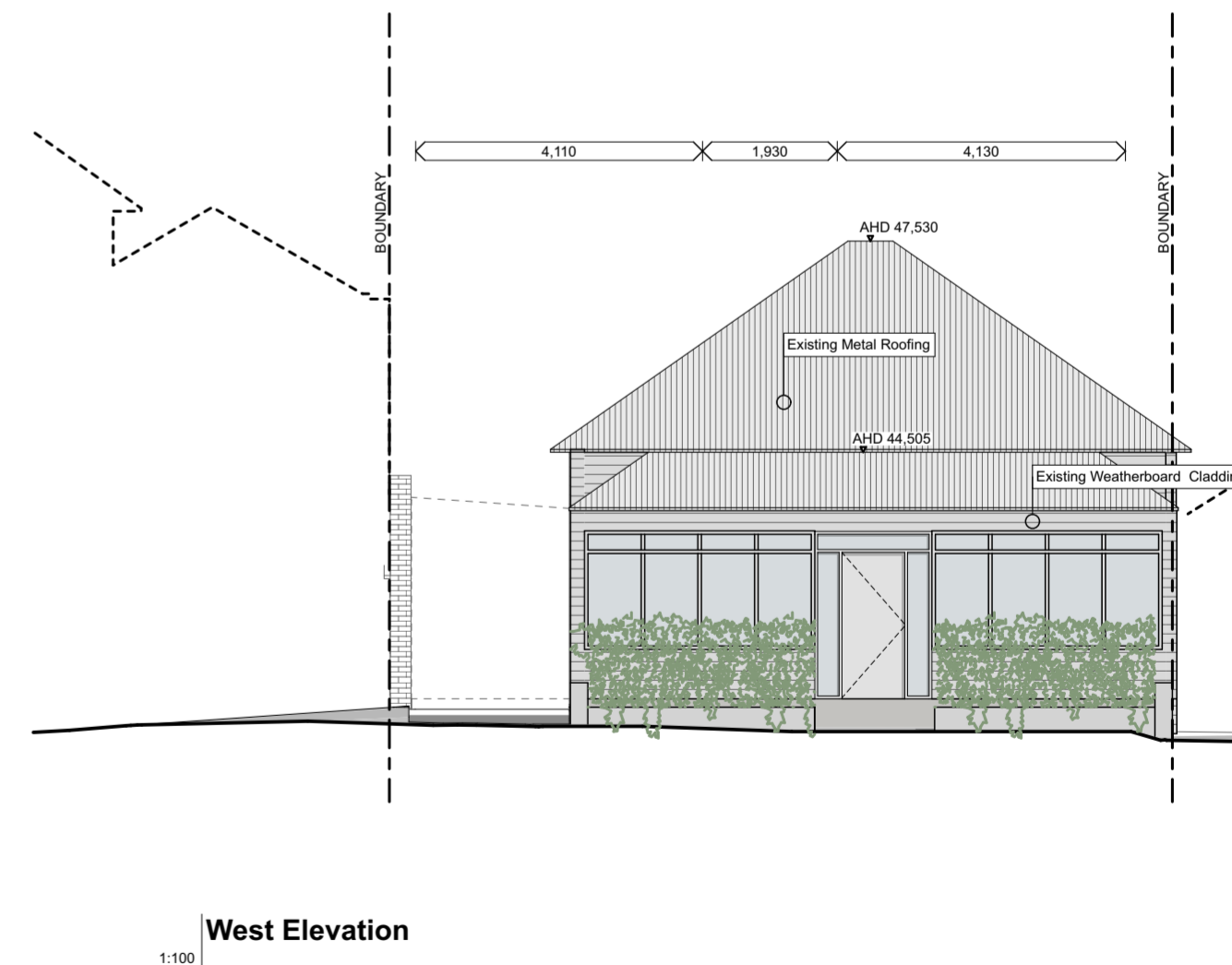
East Elevation

1:100



South Elevation

1:100



West Elevation

1:100

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SCALE

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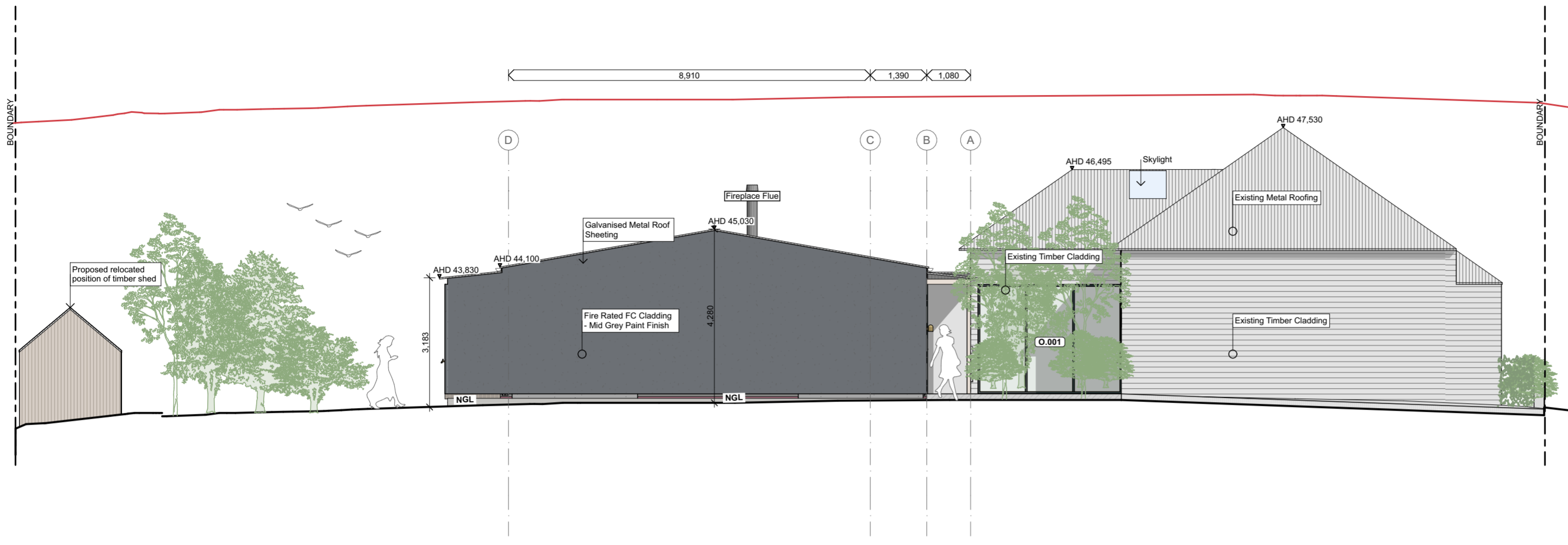
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Existing/Demo Elevations

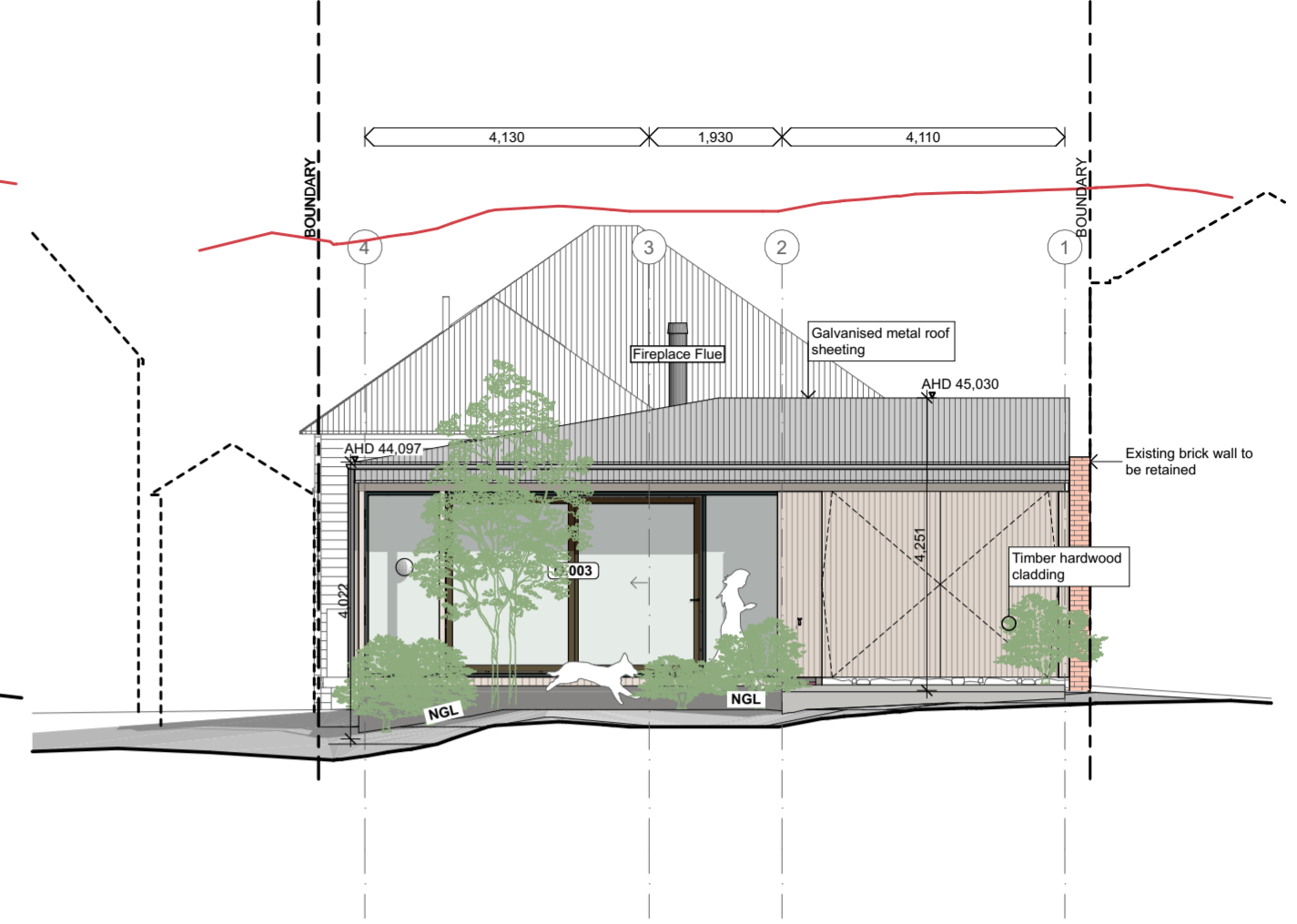
NORTH





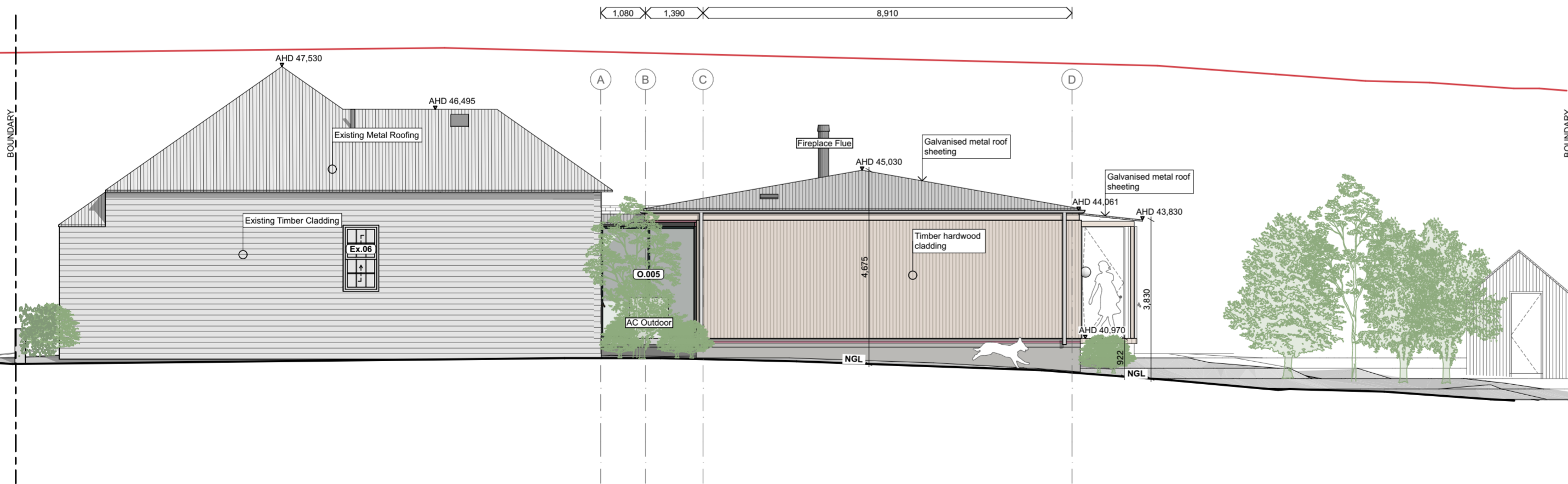
North Elevation

1:100



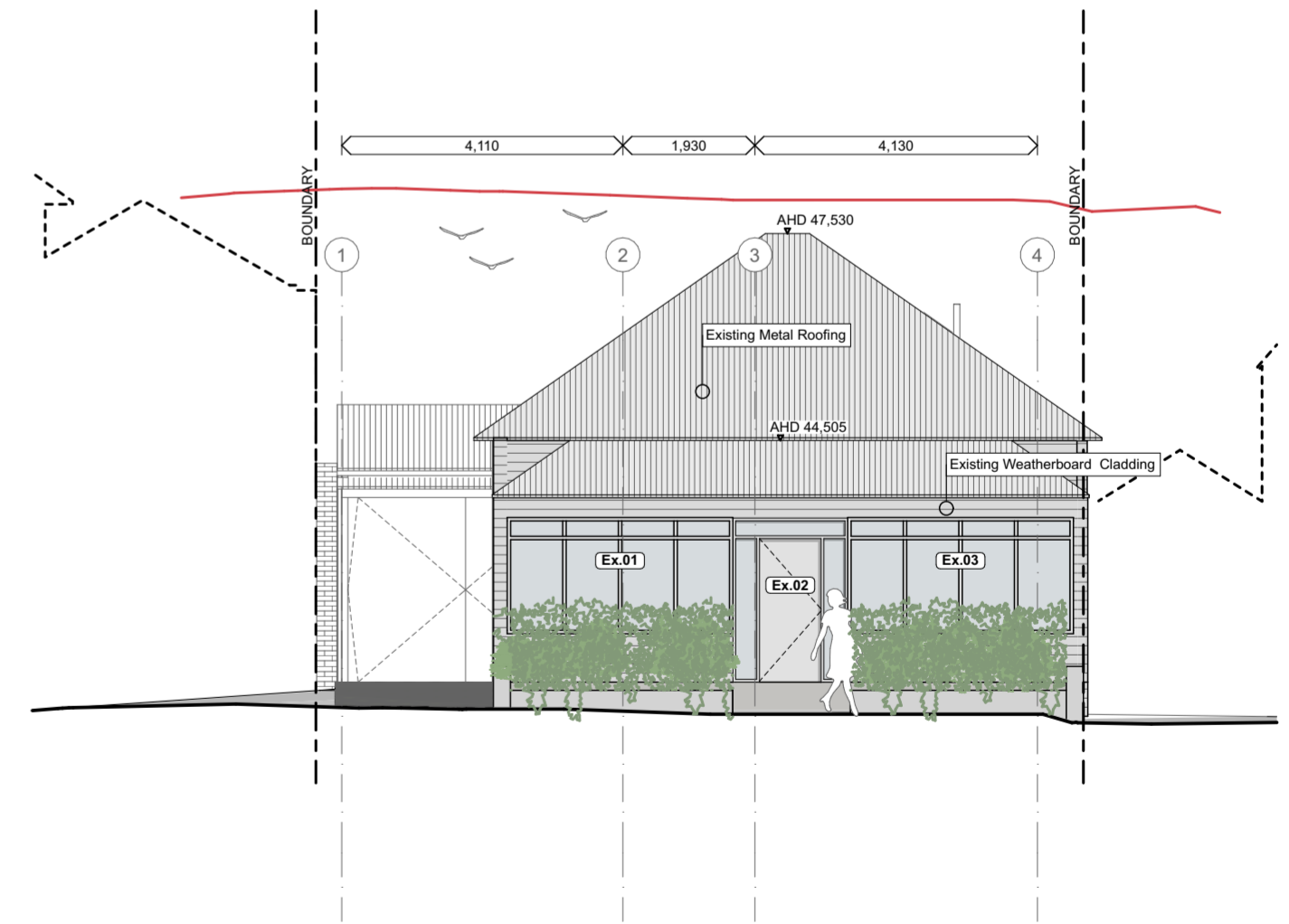
East Elevation

1:100



South Elevation

1:100



West Elevation

1:100

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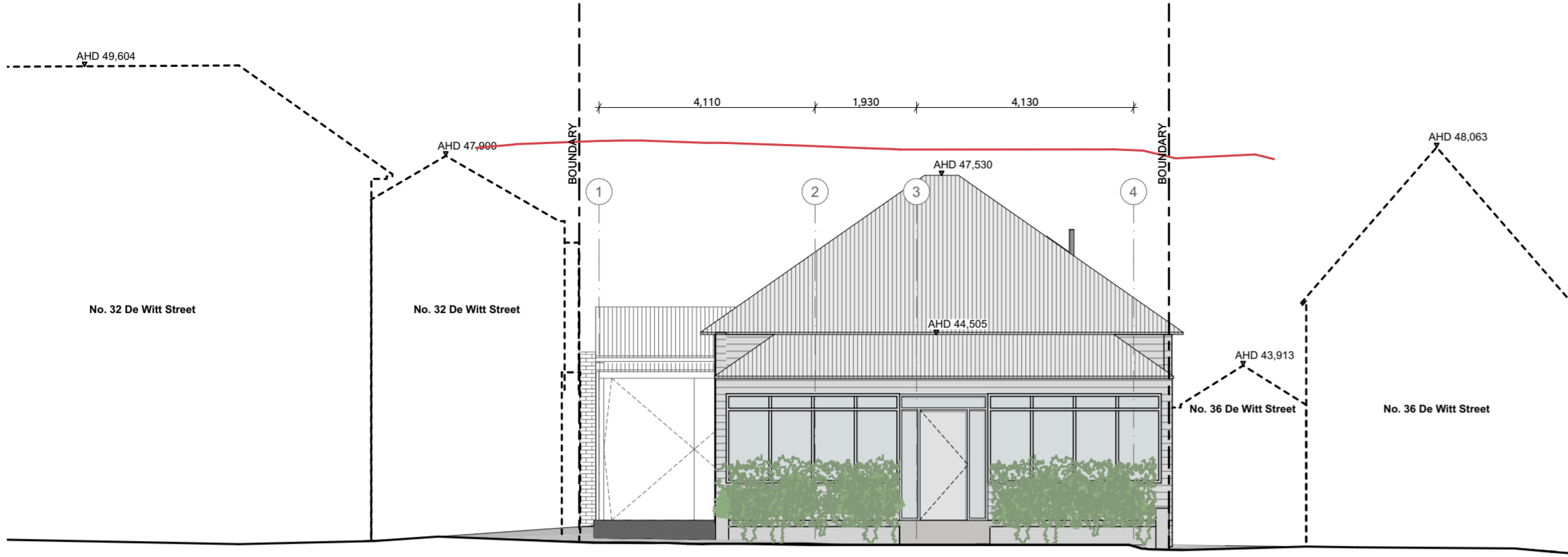
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CONTACT

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Proposed Elevations



1:100 | Proposed Street Elevation

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DA2.102

NORTH

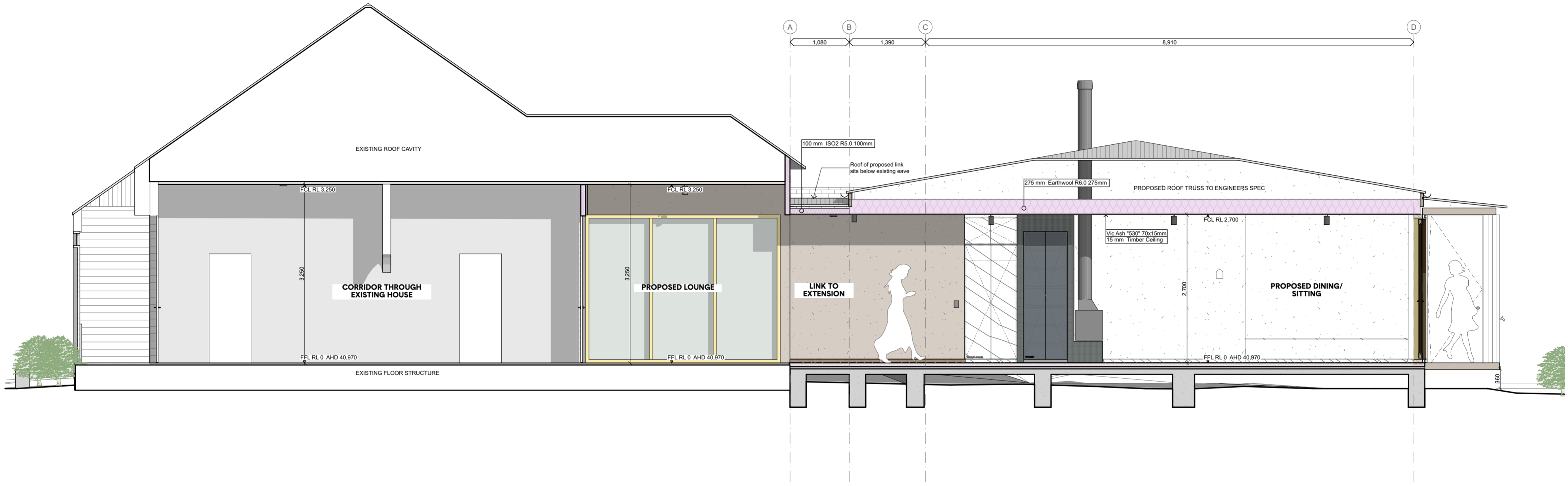


CONTACT

Josh FitzGerald — projects@archier.com.au

Proposed Street Elevation

ALL STRUCTURE INDICATIVE ONLY
 REFER ENG DRAWINGS FOR DETAIL
 NOTIFY ARCHITECT OF ANY DISCREPANCIES



Section 1
 1:50

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PROJECT

De Witt
 34 De Witt Street Battery Point TAS 7004
 CLIENT
 Archier Pty Ltd

DATE

5/11/2025

SCALE

As Shown @ A2

DRAWING

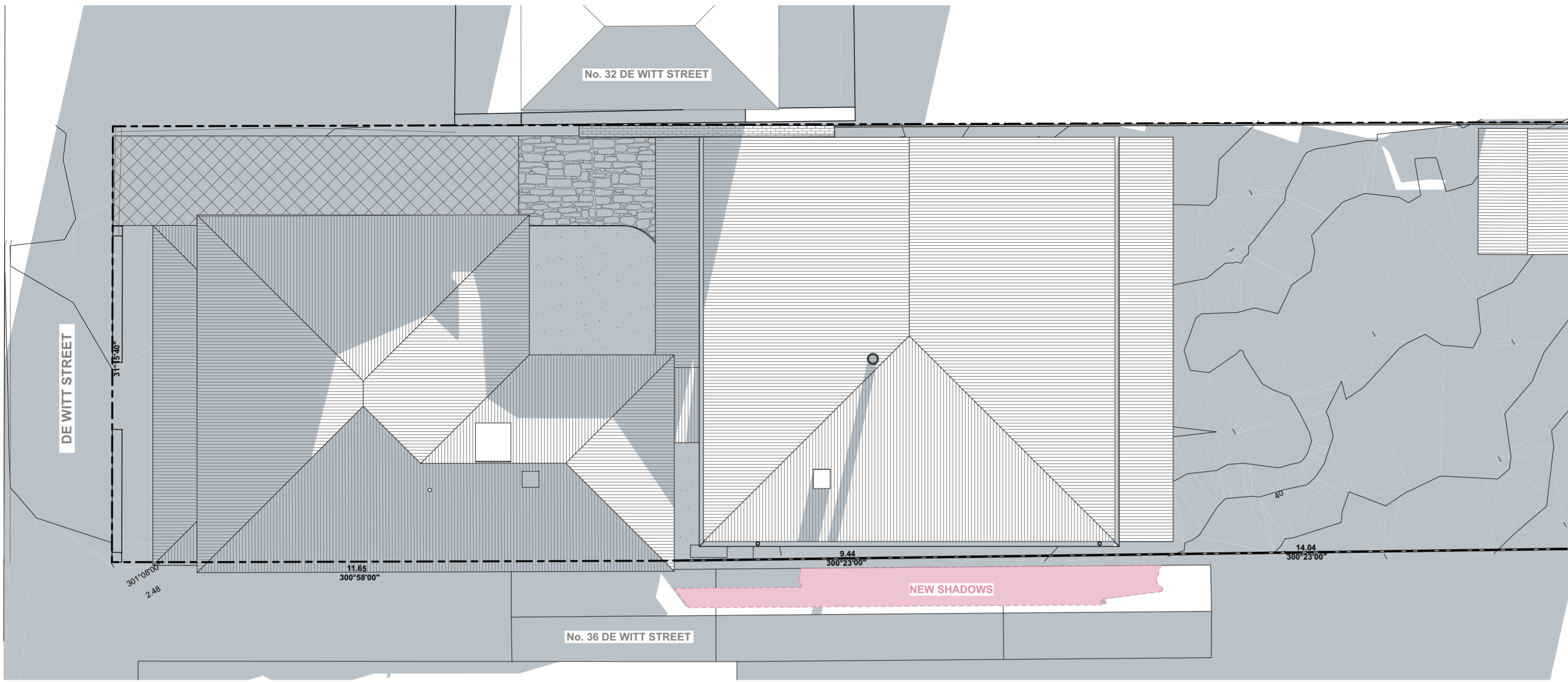
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CONTACT

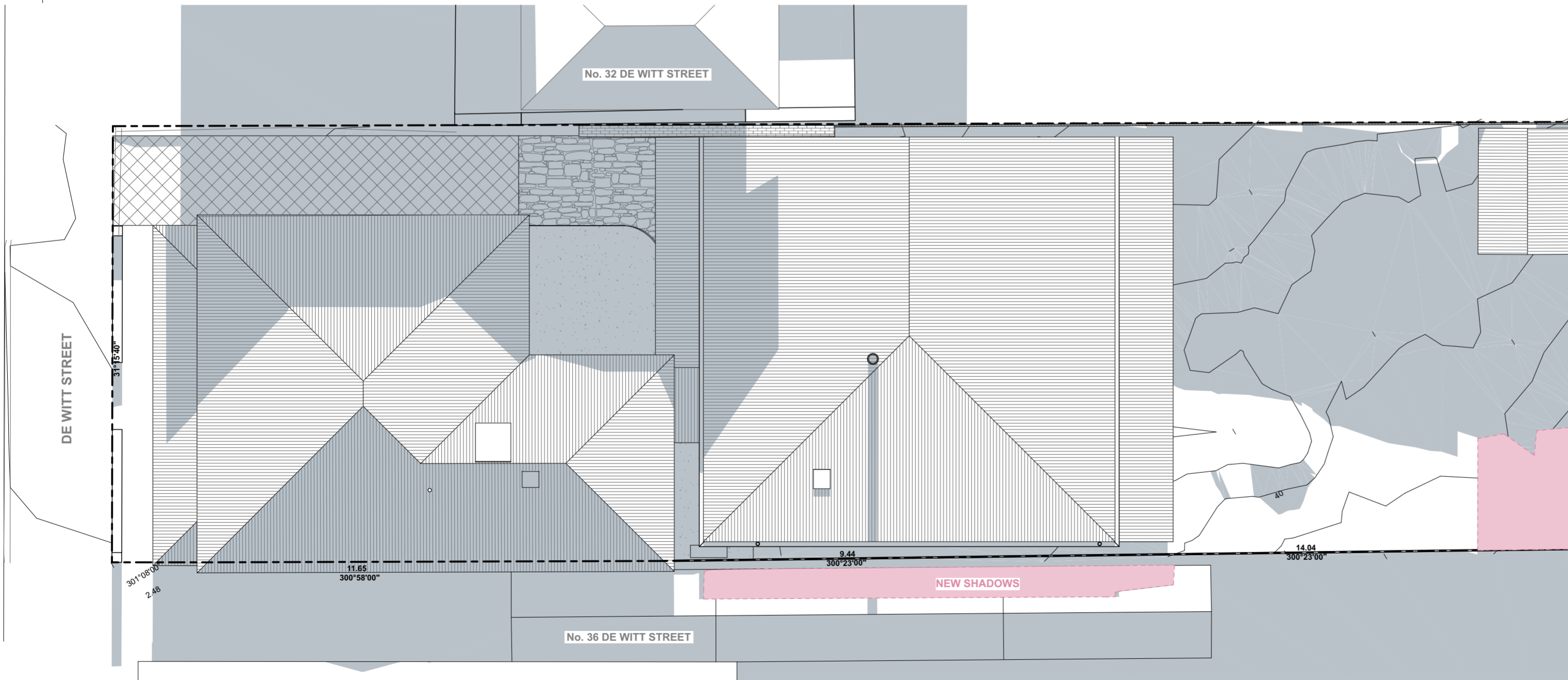
Josh FitzGerald — projects@archier.com.au

Sections 1



21 Jun 0900h - Proposed

1:100



21 Jun 1000h - Proposed

1:100

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PROJECT

De Witt
34 De Witt Street Battery Point TAS 7004

CLIENT

Archier Pty Ltd

DATE

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SCALE

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DRAWING

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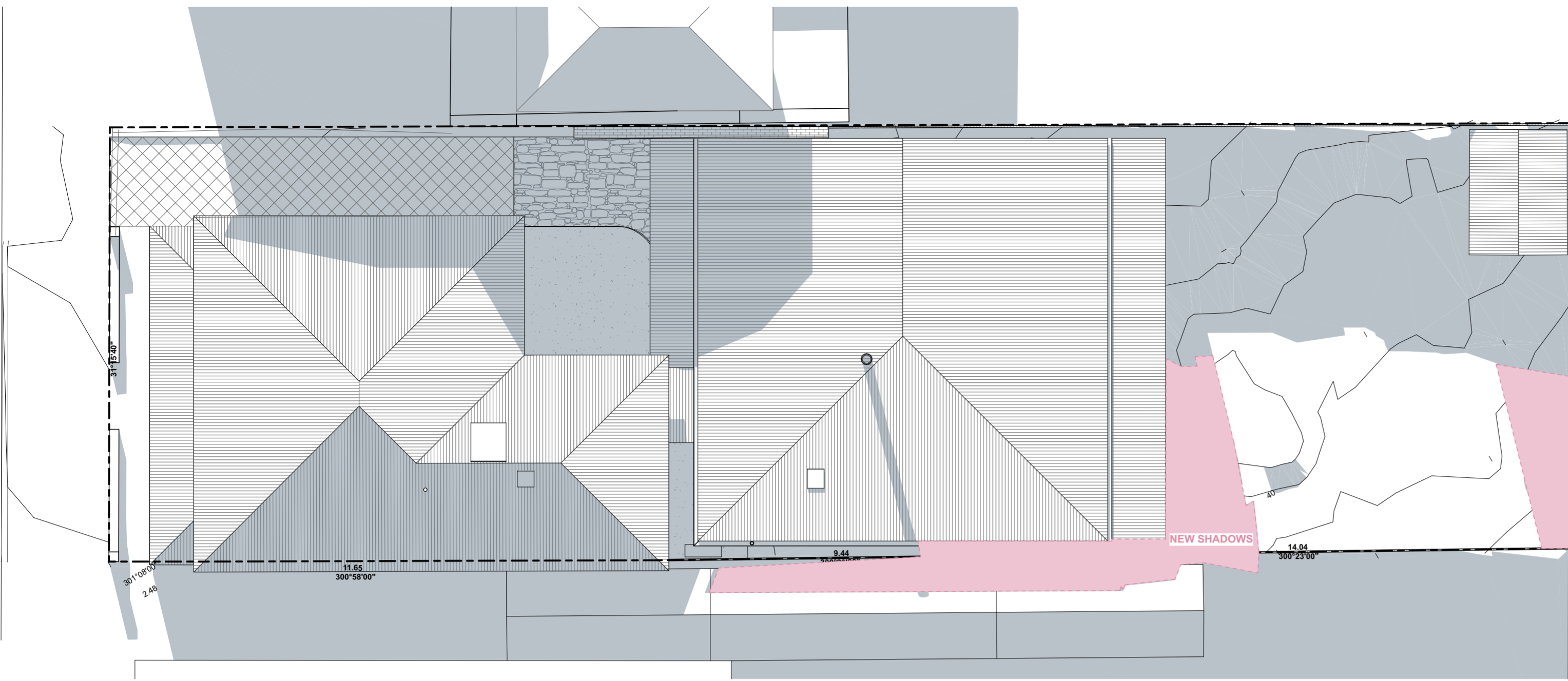
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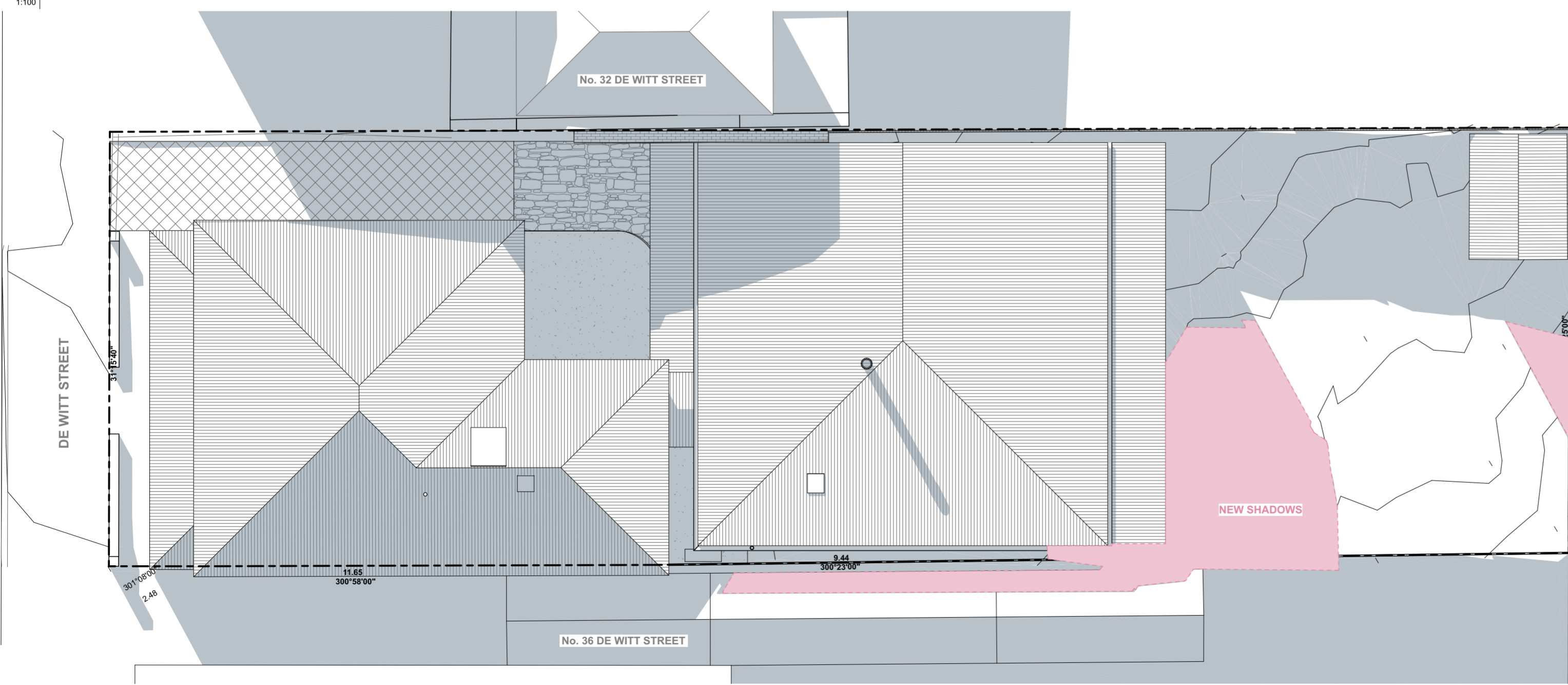
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Sun Study

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21 Jun 1100h - Proposed



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SCALE

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DRAWING

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NORTH

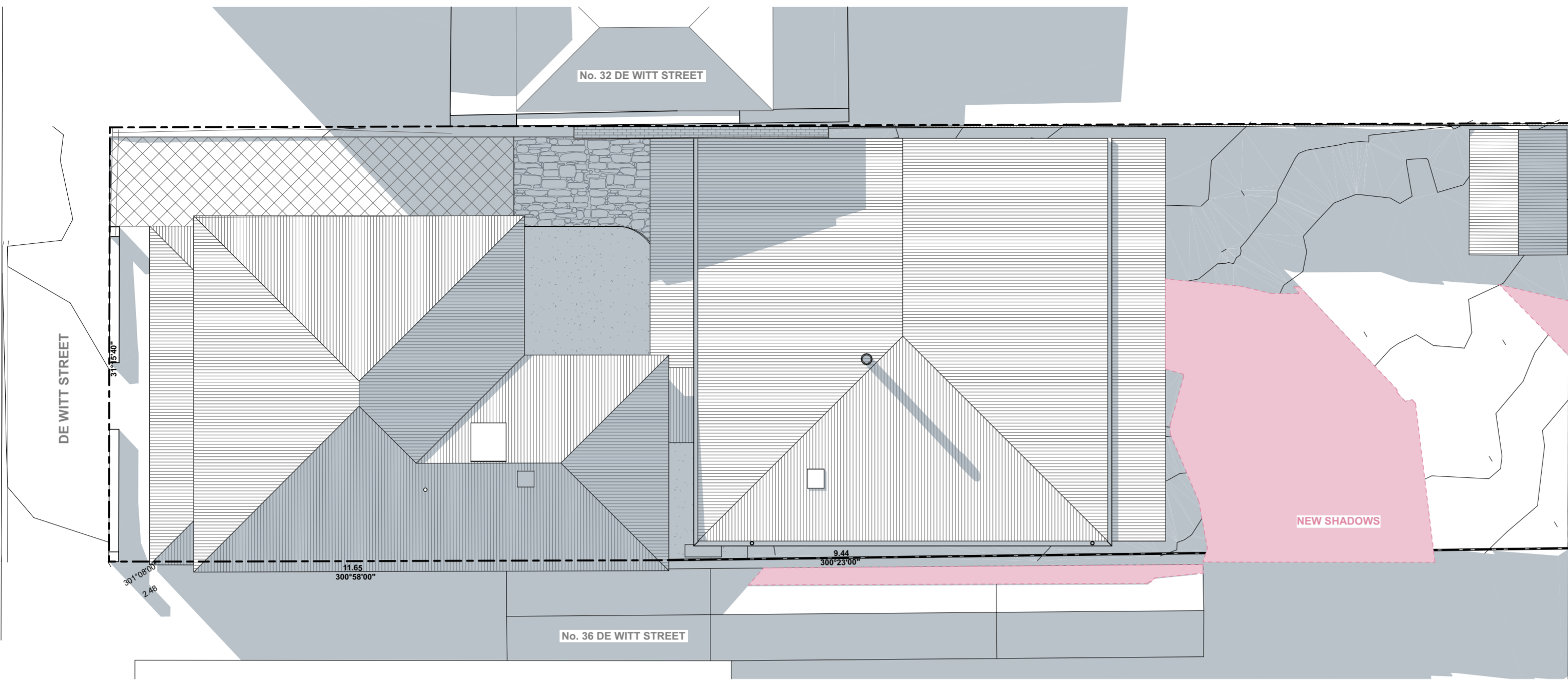


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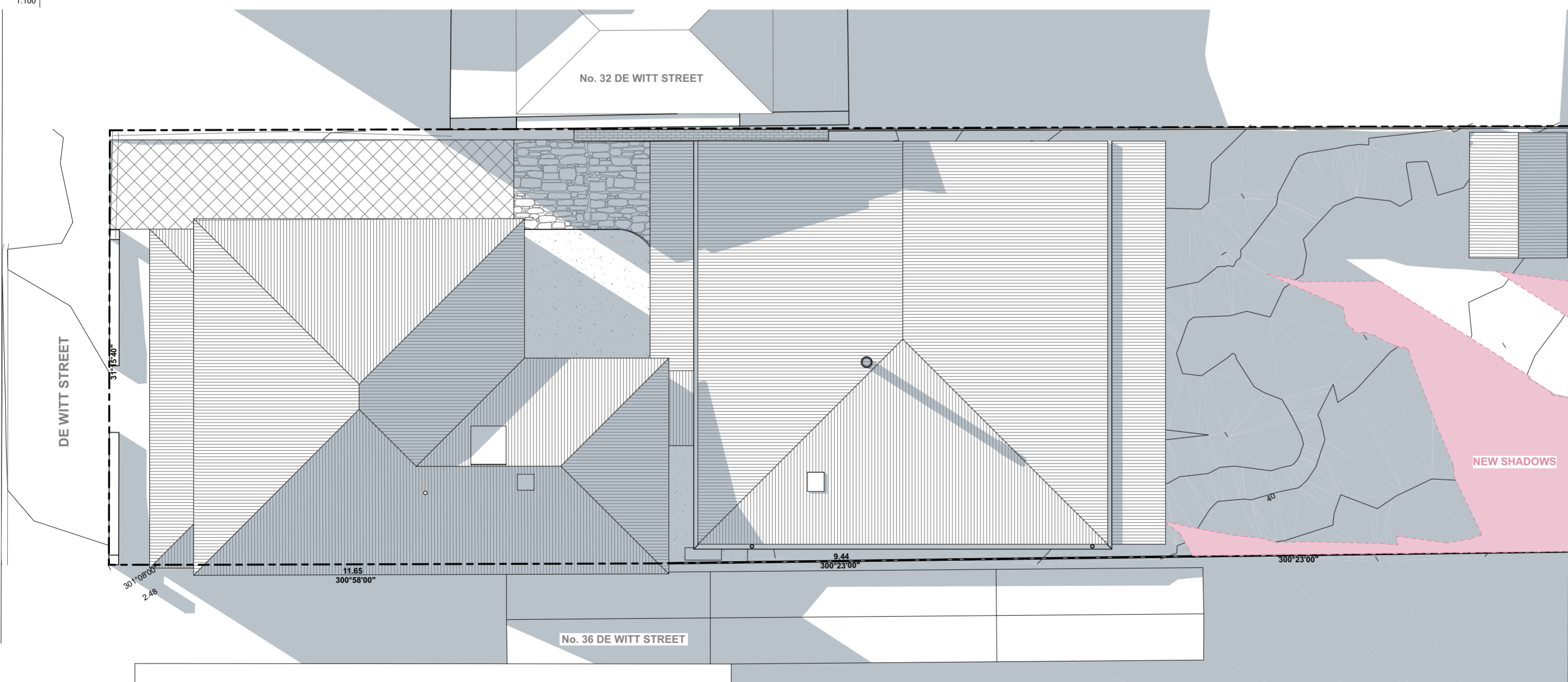
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De Witt
34 De Witt Street Battery Point TAS 7004

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SCALE

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DRAWING

DA8.102

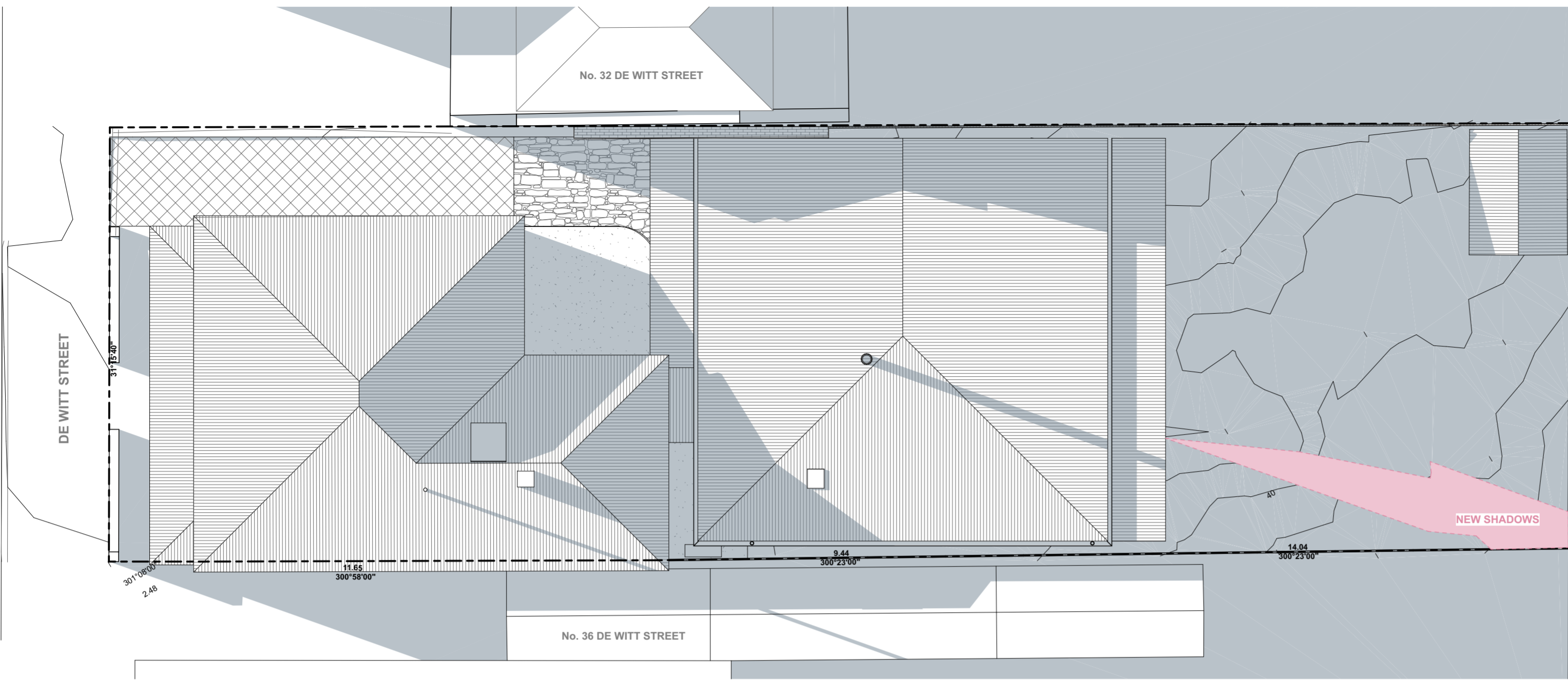
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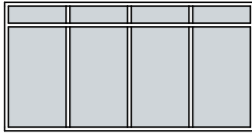
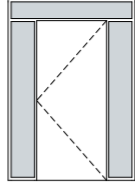
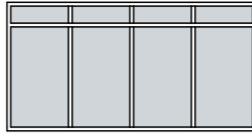
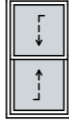
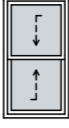
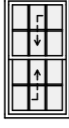
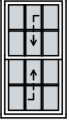
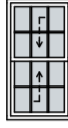
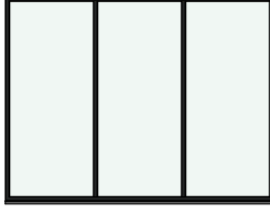
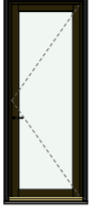

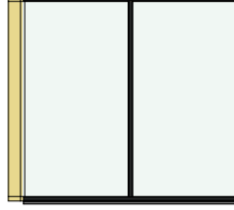
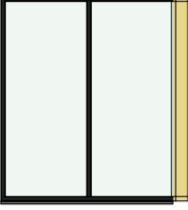


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1:100

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Name	Existing Window		Name	Existing Door & Sidelights		Name	Existing Window		Name	Existing Window		Name	Existing Window		Name	Structural Facade		Name	Existing Window	
Height x Width	1,700 x 3,300		Height x Width	2,400 x 1,678		Height x Width	1,700 x 3,300		Height x Width	1,595 x 860		Height x Width	1,595 x 860		Height x Width	1,595 x 860		Height x Width	1,595 x 860	
Model	Existing single glazed window		Model	Existing single glazing		Model	Existing single glazed window		Model	Existing single glazed window.		Model	Existing single glazed window.		Model	Existing single glazed window.		Model	Existing single glazed window.	
ID	Ex.08		ID	O.001		ID	O.002		ID	O.003		ID	O.004		ID	O.005				
Name	Existing Window		Name	Candour Facade		Name	Candour Facade		Name	Candour Facade		Name	Candour Facade		Name	Candour Facade				
Height x Width	1,595 x 860		Height x Width	2,700 x 3,552		Height x Width	2,700 x 1,100		Height x Width	2,700 x 6,064		Height x Width	2,700 x 2,888		Height x Width	2,700 x 2,272				
Model	Existing single glazed window.		Model	Fixed thermally broken double glazing.		Model	Timber entry door,		Model	Fixed thermally broken double glazing. Lift slide timber door.		Model	Fixed thermally broken double glazing.		Model	Fixed thermally broken double glazing.				

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De Witt
34 De Witt Street Battery Point TAS 7004

CLIENT

Archier Pty Ltd

DATE

5/11/2025

SCALE

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DRAWING

DA9.200

NORTH



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Schedule - Window

Heritage Impact Assessment

34 De Witt Street, Battery Point

03 October 2025

Date	Issue	Revision	Reviewed	Approved
25/09/2025	00	Draft	LBS	TS
03/10/2025	01	Final	LBS	TS

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Australia

ABN: 43 636 400 327

ARB Tas Registered Architect Firm: F157
Nominated Architect: Lucy Burke-Smith TAS:898/CC6606

ACKNOWLEDGMENT OF COUNTRY

Purcell pays respects to the original owners of the land upon which we work, the Muwinina people, who did not survive British colonisation.

We acknowledge the Tasmanian Aboriginal community as the continuing custodians of Lutruwita (Tasmania) and honour Aboriginal Elders past and present.

We value the history, culture and strength of the Tasmanian Aboriginal community, and commit to listen deeply to Story and be respectful of Country in our collaborations with First Nations Peoples.

Lutruwita milaythina Pakana – Tasmania is Aboriginal land.

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INTRODUCTION

Background

Mr & Mrs Beck commissioned Purcell to prepare this Heritage Impact Assessment (HIA) to accompany a Development Application for the proposed alterations and additions (Proposal) at 34 De Witt Street, Battery Point (Place).

The Place is Permanently Registered on the Tasmanian Heritage Register (THR) with THR ID 1729.¹ The Place is identified as Locally Significant in HOB-LPS-Table C6.1 Local Heritage Places (Ref No. HOB-C6.1.1001)² of the Hobart Local Provisions Schedule (HOB-LPS) of the Tasmanian Planning Scheme (TPS) 2025.

The Place is also included in HOB-LPS -Table C6.2 Local Heritage Precincts (Ref No. HOB-C6.2.1 – Battery Point).³

The following documentation details the Proposal assessed in this HIA:

- Architectural Plans, prepared by ARCHIER, dated 02/10/2025 (see Appendix A).

Lucy Burke-Smith (Partner), and Hugh Jones (Graduate of Architecture), of Purcell prepared this report, with review by Tracey Skovronek (Regional Partner). Lucy Burke-Smith visited the Site on 06/06/2025 and completed a physical inspection of the exterior and interior, streetscape, and context. Unless otherwise cited, all images were taken at this site visit.

Consultation was undertaken with Erin Rockliffe of Heritage Tasmania 25 August 2025, with Lucy Burke Smith and Josh FitzGerald of Archier presenting the proposed scheme for discussion.

Limitations

This HIA is limited to an assessment of the potential statutory built heritage impacts of the Proposal to the setting, context, and significant fabric of the registered built features on the Place. It is based on the current statutory heritage, and development, controls, and non-statutory guidelines, applicable to the local heritage listed Place at 34 De Witt Street, Battery Point. Desk-based research, and client-provided information to date form the basis of this report, no new archival research was undertaken.

Due to the listing status of the place this assessment does not consider the proposed works' responsiveness to the provisions of the Tasmanian Planning Scheme - State Planning Provisions (TPS-SPP), including that of C6.0 *Local Historic Heritage Code*.

All references to heritage, or heritage impacts, are to registered, built heritage only. This report does not consider potential heritage impacts of the Proposal, including, without limitation, to landscape, vegetation, sub-surface, archaeological, movable, or indigenous heritage.

Terminology

The conservation terminology used in this report is of a specific nature and is defined within The Burra Charter: 'The Australia ICOMOS Charter for Places of Cultural Significance', 2013, (the Burra Charter).

References

This HIA references the following documents:

- Tasmanian Planning Scheme - State Planning Provisions,
- The Hobart Local Provisions Schedule (HOB-LPS 2025)
- Tasmanian Heritage Council, 'Works Guidelines', November 2015

1 Tasmanian Heritage Council (THC), Tasmanian Heritage Register (THR) Datasheet, THR ID 1729, as accessed through [ListMap](#).

2 *Hobart Local Provisions Schedule* (HOB-LPS), updated 26 August 2025, HOB-Table C6.1 Local Heritage Places.

3 *Hobart Local Provisions Schedule* (HOB-LPS), updated 26 August 2025, HOB-Table C6.2 Local Heritage Precincts.

UNDERSTANDING THE SITE

Location

The Place's address is 34 De Witt Street Battery Point Hobart (Certificate of Title 112764/1). The Place is located at the South-western end of De Witt Street which is in the heart of the historic Battery Point on a prominent headland just south of the city centre.



Figure 1: Aerial view, the approximate Site boundary outlined in white dashes. (Source: LISTMap, modified by Purcell)

Historical overview and Description

34 De Witt Street is a modest single storey weatherboard house, dating from the Victorian era. It is between a double storey Georgian era home to the North-east and a double storey Victorian era house to the South-west. The house is demonstrative of Tasmanian Victorian era domestic design being more modest in its height, materials, and expression, than its adjacent Georgian and Gothic Revival neighbours.

The house has an enclosed glazed veranda that obscures the original primary façade. It has a sheet metal roof and two symmetrically placed chimneys with intact decorative cornices (missing chimney pots?), and a third chimney to the rear. The exterior is clad in painted horizontal weatherboards. There are a set of timber gates at the north street corner of the property and a driveway leading to a garage structure adjacent to the house. It has a modest, front garden behind a low a masonry fence which frames neatly trimmed plantings. There is small outbuilding in the rear garden.

The age of the garage and outbuildings is unknown. Various outbuildings appear to be present in the 1909 Metropolitan Drainage Board Plan (Figure 2) and Aerial images from 1946-65 (Figure 3-5). It is presumed that the current garage, indicated in Figures 5, 7, 8 and 9, dates from this time. The weatherboard profile of the garage and timber outbuilding match, which may indicate that they are contemporary to one another, or that the garden shed has been reclad. The roof of the shed retains galvanised iron sheets stamped 'Vincent Best'. The privy indicated in the 1909 Metropolitan Drainage Board Plan has since been removed.

Historical Images

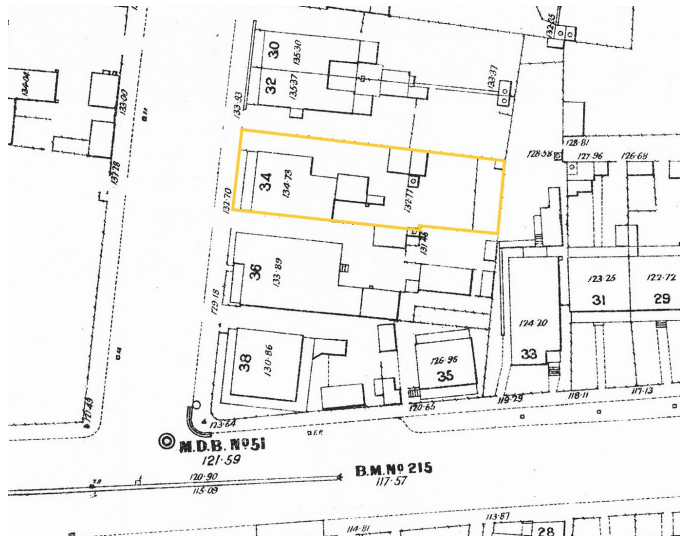


Figure 2: Approximate site boundary outlined in yellow, showing outbuildings and privy (Source: Metropolitan Drainage Board, 'City of Hobart Detail Plan No.37', Government Printer, Hobart Tasmania, June 1909, overlaid by Purcell)



Figure 3: Approximate site boundary outlined in yellow (Source: LandTasmania, 'Aerial Photo Viewer' [website], 26 Mar 1946, Film 0015; Frame 891; Run 1; Scale 7,920, overlaid by Purcell).



Figure 4: Approximate site boundary outlined in yellow, showing outbuildings consistent with the 1946 aerial (Figure 3) (Source: LandTasmania, 'Aerial Photo Viewer' [website], 12 Feb 1957, Film 0326; Frame 123; Run 9; Scale 14000).



Figure 5: 1965 aerial showing outbuildings, with a change in configuration and size to 1946 and 1957 aerials at Figure 3 and 4, Approximate site boundary outlined in yellow (Source: LandTasmania, 'Aerial Photo Viewer' [website], 17 Feb 1965, Film 0443; Frame 92; Run 7; Scale 3960).

Recent Images of the Place and its context



Figure 6: De Witt Street elevation (Source: Purcell)



Figure 7: Garage cum carport set back from De Witt Street elevation (Source: Purcell)



Figure 8: Rear elevation with extensions to the original building form and the rear of the garage (Source: Purcell)



Figure 9: Rear of garage (Source: Purcell)



Figure 10: Timber outbuilding (Source: Purcell)

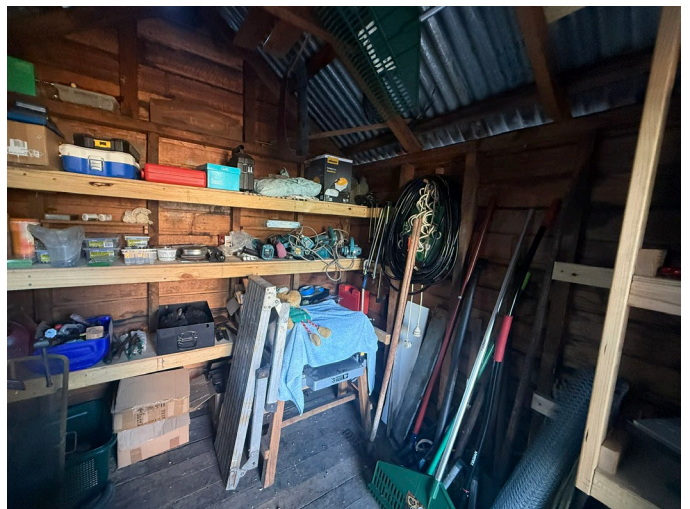


Figure 11: Interior of timber outbuilding (Source: Purcell)



Figure 12: Rear elevation of original building form, with extension to the left and garage to the right (Source: Purcell)



Figure 13: Kitchen with fire and inbuilt pantry joinery (Source: Purcell)



Figure 14: Hall with bedroom and living room doors and central arch (Source: Purcell)



Figure 15: Arch detail (Source: Purcell)

Statutory Listings and Overview of Significance

Historic Cultural Heritage Act (TAS) 1995

The Place is Permanently Registered as State Significant on the Tasmanian Heritage Register, with THR ID 1729⁴ The THR Datasheet identifies that the Site meets the following criteria from the *Historic Cultural Heritage Act 1995*:

- d) The place is important in demonstrating the principal characteristics of a class of place in Tasmania's history.**

34 De Witt Street is of historic heritage significance because of its ability to demonstrate the principal characteristics of a single storey Victorian Georgian weatherboard domestic building.

- f) The place has a strong or special association with a particular community or cultural group for social or spiritual reasons.**

This site is of historic heritage significance because its townscape associations are regarded as important to the community's sense of place.

Tasmanian Planning Scheme – Hobart Local Provisions Schedule

The Place is included in HOB-Table C6.1 Local Heritage Places (Ref No. HOB-C6.1.1001)⁵

The Place is included in HOB-Table C6.2 Local Heritage Precincts (Ref No. HOB-C6.2.1)⁶ (Figure 10)

The C6.0 Local Historic Heritage Code of the State Planning Provisions does not apply as the site is a registered place entered on the Tasmania Heritage Register and the Proposal does not include 'the lopping, pruning, removal or destruction of a significant tree'⁷.

Non-Statutory Listings

The National Trust list (in Tasmania) was rescinded by the Tasmanian Government after it was used as a base for the Tasmanian Heritage Council register and no longer has statutory force. The Tasmanian National Trust does not maintain a publicly available list of Tasmanian Heritage.⁸

The Register of the National Estate (RNE) ceased its role as a statutory register on 19 February 2012 when references to the RNE were removed from the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). Places can no longer be added to, or removed from, the RNE. The RNE is now a non-statutory archive. The Site is included on the RNE because of its inclusion in the 'Battery Point Urban Conservation Area' (Place ID 11397).⁹

The Statement of Significance from the RNE is:

*Defined geographical unity which has ensured its preservation as a homogeneous historic precinct. Wide variety of architectural styles ranging from early 19th Colonial Georgian through to Victorian and Edwardian period preserved intact as a continuous townscape. Contains a significant number of individual buildings of great architectural and historic merit.*¹⁰

4 THC, THR Datasheet, THR ID 1729, as accessed through [ListMap](#).

5 *Hobart Local Provisions Schedule* (HOB-LPS), updated 26 August 2025, HOB-Table C6.1 Local Heritage Places.

6 *Hobart Local Provisions Schedule* (HOB-LPS), updated 26 August 2025, HOB-Table C6.2 Local Heritage Precincts.

7 State Planning Provisions C6.2.3, updated 11 September 2025

8 Tasmanian National Trust, '[About us TAS](#)', accessed 12/05/2025

9 Department of Climate Change, Energy, the Environment and Water (DCCEEW), '[Search the Australian Heritage Database](#)' [website], accessed 08/05/2025.

10 DCCEEW, '[Battery Point Urban Conservation Area, Battery Point, TAS, Australia](#)' [website], accessed 14/05/2025.



Figure 16: HOB-C6.2.1 Battery Point Heritage Precinct shown hatched in purple, approximate Site boundary identified as white box (Source: ListMap, modified by Purcell).

HERITAGE IMPACT ASSESSMENT

Proposed Works

The proposal is for the demolition of c.1940s-1960s alterations and additions, and isolated demolition to the cottage interiors. An alternate extension and addition are proposed to the rear of the cottage. The existing outbuilding is nominated for relocation to the rear of the property.

Appendix A, Architectural Plans, Issue - WIP prepared by ARCHIER dated 18/09/2025 of the DA package has further details of the proposal.

Architect's Design Statement

The following design statement is taken from DA0.101.WIP & DA0.102.WIP, prepared by ARCHIER, 18.09.2025:

Design Approach

The proposal has been designed to ensure sensitivity to the heritage significance of the existing dwelling and the wider Battery Point precinct.

The extension is intentionally located to the rear of the site, well set back from the principal heritage street elevation, thereby retaining the primacy of the original dwelling within the streetscape.

The new works are restricted to a single storey with a low-pitched roof, maintaining a recessive form that reduces bulk and avoids overshadowing of neighbouring properties. Courtyards are strategically introduced to improve natural light penetration into the interior, addressing the limitations imposed by adjacent neighbouring forms.

Materiality Approach

The proposed material palette is modest, natural, and refined, reflecting the qualities of the Australian vernacular while supporting the heritage objectives of the Battery Point precinct.

Finishes have been selected to provide warmth and subtle contrast to the original dwelling, ensuring the new addition is visually distinguishable, while still complementary to the established character. The combination of restrained form and carefully considered materiality ensures that the proposal contributes positively to the site's ongoing heritage significance and residential functionality.

Guidance Documentation

This assessment follows the best practice management framework for historic sites contained in:

1. The Burra Charter: '[The Australia ICOMOS Charter for Places of Cultural Significance](#)', 2013.
2. Heritage Tasmania, '[Works Guidelines for Historic Heritage Places](#)' [website], last published on: 17/01/2017 2:45 PM.

Assessment Methodology

This assessment follows the provision of preliminary heritage advice through an iterative design process, intended to mitigate potential impact to the significance and values of the place. It is based on observations made during a site visit and a review of the design proposal. The assessment considers the potential for detrimental impacts as a result of the proposal, as well as all mitigation measures proposed, within the context of the *Historic Cultural Heritage Act 1995* and the *TPP-Local Historic Heritage Code*. Proposed works have been assessed for their impact to the heritage value of the Heritage Place as identified in its Statement of Significance, and the place's setting and context. The Proposal has also been considered against non-statutory guidelines published by Australia ICOMOS. Direct (fabric) and indirect (visual) impacts are both considered in this assessment.

Assessment against the Works Guidelines for Historic Heritage Places

The Site is identified as a Heritage Place under the *Historic Cultural Heritage Act 1995*. The following table assesses the Proposal against the relevant Works Guidelines for Historic Heritage Places, 2015.

6.0 DEMOLITION, RELOCATION AND MOVEABLE HERITAGE	
6.2 Partial demolition	<p>The scope of demolition is limited, as far as is practicable, to non-significant fabric, or fabric which does not directly contribute to the architectural design and characteristics of the place.</p> <p>The lean-to structure and weatherboard garage are intrusive and of little significance respectively. The -single-story extension is typical of alterations and additions to cottages of this period. While it contributes to the places historic pattern of development its removal will not result in loss of the characteristics of the place as a Victorian Georgian weatherboard domestic building.</p> <p>Internally demolition is limited to a portion of the wall separating Bedrooms 1 and 4, and later accretions such as non-significant joinery and fire surrounds which detract from the Victorian Georgian characteristics.</p> <p>The removal of the portion of wall separating Bedrooms 1 and 4 will not result in the loss of details or fabric which are otherwise well represented to the interiors. The relocation of the fire surround to Bedroom 4 will enable the repurposing of this room, and reconstruction of the altered fireplace to Bedroom 3.</p>
7.0 EXCAVATION AND ARCHAEOLOGICAL INVESTIGATION	
7.1 Initial investigation	<p>It is unknown if the site has significant archaeological values. Archaeological deposits may be disturbed by works to the interior of the house when converting Bedroom 4 into bathrooms, whether within the underfloor space (if any) or underground, or for excavation associated with the extension.</p> <p>Any unanticipated finds should be managed in accordance with the Tasmanian Heritage Council publication <u>'Managing Historical Archaeological Significance in the Works Process'</u></p>
7.2 Excavation and ground disturbance	
9.0 ALTERATIONS, ADDITIONS AND EXTENSIONS	
9.1 Internal partitions	<p>Internal partitions are limited to the conversion of Bedroom 4 to a bathroom and ensuite. Partitions have been placed to avoid conflicts with window fenestration. While the fireplace will be dissected by one partition this work will be reversible and support enhancement of residential amenity consistent with contemporary living standards.</p>
9.2 Alterations to significant structures	<p>Alterations are limited to parts of the interior which do not result in impact to the overall form and interior plan arrangement. Significant architectural detailing is retained as is the ability to interpret the room configuration remains.</p>
9.4 Internal alterations– (generally)	<p>Alterations are limited to parts of the interior which do not result in impact to the overall form and interior plan</p>

	<p>arrangement. Significant architectural detailing is retained as is the ability to interpret the room configuration remains.</p> <p>As noted with respect to demolition the removal of the portion of wall separating Bedrooms 1 and 4 will not result in the loss of details or fabric which are otherwise well represented to the interiors. The relocation of the fire surround to Bedroom 4 will enable the repurposing of this room, and reconstruction of the altered fireplace to Bedroom 3.</p>
9.5 Additions or extensions	<p>The proposed extension will not visually dominate the historic structure.</p> <p>Views to the place from the public domain are retained with the proposal set to the rear of the property and being of single storey overall form.</p> <p>The glazed links and placement of courtyards enable the original and proposed forms to be visually separated with expression of the overall form of the cottage retained.</p> <p>The design is of a contemporary residential vernacular, consistent with that of the place. The new addition will be legible as a contemporary extension given the internal and external expression of the roof form, which retains the prominence of the original roof form, its pitch and height.</p> <p>Material selection, application and detailing will ensure that the extension is legible as an addition. Overall, the design sympathetically avoids the pastiche of replicated period detailing.</p>
11.0 NEW SERVICES	
11.1 New services– (generally)	<p>Service intense uses of the kitchen and laundry are retained to the proposed extension. Bathrooms are contained within one converted bedroom with reticulation of water and sewer being contained to new partition walls. This avoids impact to perimeter walls of the room and their associated fabric, supporting reversibility in the future.</p>

Summary of Assessment

The proposal represents a well scaled and proportioned addition to this Victorian Georgian cottage. Its siting and overall height are such that the cottage remains the dominant built form within the streetscape. The limited work to the cottage sees the Victorian Georgian characteristics and key architectural features retained without impact to the historic cultural heritage values of the place.

The nominated materiality, generally, and roof form is complementary and compatible with the place. From both the streetscape and rear of the property the material, form and scale will not visually dominate the cottage.

Recommendations

The following recommendations are intended to mitigate potential impacts:

- Any unanticipated finds should be managed in accordance with the Tasmanian Heritage Council publication '[Managing Historical Archaeological Significance in the Works Process](#)'

APPENDICES

Appendix A Document and Drawing List

Author	Drawing / Document Name	Drawing No.	Rev	Date
ARCHIER	Cover	DA0.100	WIP	2/10/2025
ARCHIER	Development Summary	DA0.101		2/10/2025
ARCHIER	Design Approach	DA0.102	WIP	2/10/2025
ARCHIER	Material Schedule	DA0.103	WIP	2/10/2025
ARCHIER	3D Perspectives	DA0.104	WIP	2/10/2025
ARCHIER	3D Perspectives	DA0.105	WIP	2/10/2025
ARCHIER	Existing and Demolition Plan	DA0.200	WIP	2/10/2025
ARCHIER	Proposed Site Plan	DA0.201	WIP	2/10/2025
ARCHIER	Proposed Development Summary	DA0.202	WIP	2/10/2025
ARCHIER	Proposed Ground Floor Plan	DA1.100	WIP	2/10/2025
ARCHIER	Proposed Roof Plan	DA1.101	WIP	2/10/2025
ARCHIER	Existing/Demo Elevations	DA2.100	WIP	2/10/2025
ARCHIER	Proposed Elevations	DA2.101	WIP	2/10/2025
ARCHIER	Proposed Street Elevation	DA2.102		2/10/2025
ARCHIER	Sections 1	DA3.100	WIP	2/10/2025
ARCHIER	Sun Study	DA8.100	WIP	2/10/2025
ARCHIER	Sun Study	DA8.101	WIP	2/10/2025
ARCHIER	Sun Study	DA8.102	WIP	2/10/2025
ARCHIER	Sun Study	DA8.103	WIP	2/10/2025
ARCHIER	Schedule - Windows	DA9.200	WIP	2/10/2025

Appendix B Heritage Listing Datasheets

134 Macquarie Street (GPO Box 618)
Hobart Tasmania 7001
Phone: 1300 850 332 (local call cost)
Email: enquiries@heritage.tas.gov.au
Web: www.heritage.tas.gov.au

Name: House
Status: Permanently Registered
Tier: State

THR ID Number: 1729
Municipality: Hobart City Council
Boundary: Whole of Title

Location Addresses

34 DE WITT ST, BATTERY POINT 7004 TAS

Title References

112764/1

Property Id

5574062



Untitled
No copyright on file



Untitled
No copyright on file

Statement of Significance: (non-statutory summary)

No Statement is provided for places listed prior to 2007

Why is it significant?:

The Heritage Council may enter a place in the Heritage Register if it meets one or more of the following criteria from the Historic Cultural Heritage Act 1995:

- a) **The place is important to the course or pattern of Tasmania's history.**
- b) **The place possesses uncommon or rare aspects of Tasmania's history.**
- c) **The place has the potential to yield information that will contribute to an understanding of Tasmania's history.**
- d) **The place is important in demonstrating the principal characteristics of a class of place in Tasmania's history.**

34 De Witt Street is of historic heritage significance because of its ability to demonstrate the principal characteristics of a single storey Victorian Georgian weatherboard domestic building.

- e) **The place is important in demonstrating a high degree of creative or technical achievement.**

- f) **The place has a strong or special association with a particular community or cultural group for social or spiritual reasons.**

This site is of historic heritage significance because its townscape associations are regarded as important to the community's sense of place.

- g) **The place has a special association with the life or works of a person, or group of persons, of importance in Tasmania's history.**

- h) **The place is important in exhibiting particular aesthetic characteristics.**

Heritage approval is required for work that will result in changes to the nature or appearance of the fabric of a Heritage place, both internal and external.

Please refer to the Heritage Council's Works Guidelines (www.heritage.tas.gov.au) for information about the level of approval required and appropriate outcomes.

Heritage Advisors are also available to answer questions and provide guidance on enquiries@heritage.tas.gov.au or Tel 1300850332

This data sheet is intended to provide sufficient information and justification for listing the place on the Heritage Register. Under the legislation, only one of the criteria needs to be met. The data sheet is not intended to be a comprehensive inventory of the heritage values of the place, there may be other heritage values of interest to the Heritage Council not currently acknowledged.

Setting:

This building is a significant element in the urban streetscape.

Description:

A small weatherboard cottage with a central door and flanking double hung windows . The hipped roof has narrow boxed eaves. There is a verandah over the main facade that has been enclosed.

History:

No Data Recorded

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The Commons
388 George Street
Sydney
NSW 2000

+61(0) 426 047 474

sydneystudio@purcellau.com

www.purcellarchitecture.com

Nominated Architect: Tracey Skovronek ARN NSW 11029

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ARBV Registered Architectural Company: 600439

HOBART

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www.purcellarchitecture.com

ARB Tas Registered Architect Firm: F157

Nominated Architect: Lucy Burke-Smith TAS:898/CC6606

Other studio locations:

Hong Kong, Bristol, Cambridge, Canterbury,
Cardiff, Colchester, Leeds, London,
Manchester, Norwich, Oxford, York.



FOUNDATION CLASSIFICATION



34 DE WITT STREET - BATTERY POINT

PROPOSED ALTERATION AND ADDITION

Client: Susanne Elizabeth Beck

Certificate of Title: 112764/1

Investigation Date: 12/06/2025

Refer to this Report As

Enviro-Tech Consultants Pty. Ltd. 2025. Foundation Classification Report for a Proposed Alteration And Addition, 34 De Witt Street - Battery Point. Unpublished report for Susanne Elizabeth Beck by Enviro-Tech Consultants Pty. Ltd., 12/06/2025.

Report Distribution

This report has been prepared by Enviro-Tech Consultants Pty. Ltd. (Envirotech) for the use by parties involved in the proposed development of the property named above.

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Limitations of this report

In some cases, variations in actual Site conditions may exist between subsurface investigation boreholes. This report only applies to the tested parts of the Site at the Site of testing, and if not specifically stated otherwise, results should not be interpreted beyond the tested areas.

The Site investigation is based on the observed and tested soil conditions relevant to the inspection date and provided design plans (building footprints presented in Attachment A). Any site works which has been conducted which is not in line with the Site plans will not be assessed. Subsurface conditions may change laterally and vertically between test Sites, so discrepancies may occur between what is described in the reports and what is exposed by subsequent excavations. No responsibility is therefore accepted for any difference in what is reported, and actual Site and soil conditions for parts of the investigation Site which were not assessed at the time of inspection.

This report has been prepared based on provided plans detailed herein. Should there be any significant changes to these plans, then this report should not be used without further consultation which may include drilling new investigation holes to cover the revised building footprint. This report should not be applied to any project other than indicated herein.

No responsibility is accepted for subsequent works carried out which deviate from the Site plans provided or activities onsite or through climate variability including but not limited to placement of fill, uncontrolled earthworks, altered drainage conditions or changes in groundwater levels.

At the time of construction, if conditions exist which differ from those described in this report, it is recommended that the base of all footing excavations be inspected to ensure that the founding medium meets that requirement referenced herein or stipulated by an engineer before any footings are poured.

Investigation Summary

Site Classification

In accordance with AS2870 – 2011 and after thorough consideration of the known details pertaining to the proposed building and associated works (hereafter referred to as the Site), the geology, soil conditions, soil properties, and drainage characteristics of the Site have been classified as follows:

CLASS P based on the following problematic ground conditions identified at the site:

- Based on DCP testing, soft soil was encountered at the site at depths of up to 0.6 m in BH01.
- Low bearing capacity soil was encountered with allowable bearing capacities of less than 100 kPa to a depth of up to 0.8m depth.

Notwithstanding the problematic soil conditions observed/proposed at the Site, the soil would be classified as Class M.

Foundations

Concentrated loads including but not limited to slab edge or internal beam or strip footings shall be supported directly on piers or pads which are founded on dolerite bedrock at 0.8 to 0.9m depth (below problem soil layers with an allowable bearing capacity of 400 kPa).

Wind Load Classification

The AS 4055-2021 Wind loads for Housing classification is summarised.

Region:	A
Terrain category:	TC1
Shielding Classification:	FS
Topographic Classification:	T0
Wind Classification:	N2
Design Wind Gust Speed ($V_{h,u}$) m/s	40

I recommend that during construction, I and/or the design engineer are notified of any major variation in the foundation conditions as predicted in this report.



Kris Taylor, BSc (hons)

Environmental & Engineering Geologist

Site Investigation

The Site investigation is summarised in Table 1.

Table 1 Summary of Site Investigation

Client	Susanne Elizabeth Beck
Project Address	34 De Witt Street - Battery Point
Council	Hobart
Planning Scheme	Interim Planning Scheme
Inundation, Erosion or Landslip Overlays	None
Proposed	Alteration And Addition
Investigation	Fieldwork was carried out by an Engineering Geologist on the 12/6/2025
Site Topography	The building site has a moderate slope of approximately 9% (5°) to the west
Site Drainage	The site receives overland flow runoff directly from the east.
Soil Profiling	Two investigation holes were direct push sampled around the proposed alteration and addition (Appendix A):
Investigation Depths	The target excavation depth was estimated at 2.3 m. Borehole BH01 was direct push sampled to 0.9 m and borehole BH02 was direct push sampled to 1 m (both ending in DOLERITE). Borehole logs and photos are presented in Appendix B & C.
Soil moisture and groundwater	Recovered soil at the site was moist at the time of the investigation. Groundwater was not encountered.
Geology	According to 1:25,000 Mineral Resources Tasmania geological mapping (accessed through The LIST), the geology comprises of: Jurassic Dolerite and related rocks

Soil Profiles

The geology of the site has been documented and described according to Australian Standard AS1726 for Geotechnical Site Investigations, which includes the Unified Soil Classification System (USCS). Soil layers, and where applicable, bedrock layers, are summarized in Table 2.

Table 2 Soil Summary Table

#	Layer	Details	USCS	BH01	BH02
1	Clayey Sandy SILT	TOPSOIL: Clayey Sandy SILT, black, well sorted, low plasticity, trace organics, 5 % , VS-F	ML	0-0.2 DS@0.1	0-0.4
2	CLAY	CLAY, very dark brown, high plasticity, with gravel/sand, trace organics, 5 % , VS-S	CH	0.2-0.4 DS@0.3	
3	SILT	FILL: SILT with gravel/sand, black, well sorted, low plasticity, St	ML		0.4-0.5 DS@0.4
4	CLAY	SOIL & COBBLES: CLAY with sand, trace gravel, dark brown, high plasticity; 5% DOLERITE cobbles, VS-VSt	CH	0.4-0.8 DS@0.6	0.5-0.6
5	Silty CLAY	SOIL & COBBLES: Silty CLAY with sand/gravel, yellow, mottled olive brown, medium plasticity; 5% DOLERITE cobbles, St-VSt	CI		0.6-0.9 DS@0.8
6	DOLERITE	DOLERITE Bedrock		0.8-0.9 DS@0.8 REF	0.9-1 REF

Consistency¹ VS Very soft; S Soft; F Firm; St Stiff; Vst Very Stiff; H Hard. Consistency values are based on soil strengths AT THE TIME OF TESTING and is subject to variability based on field moisture condition

Density² VL Very loose; L Loose; MD Medium dense; D Dense; VD Very Dense

Rock Strength EL Extremely Low; VL Very Low; L Low; M Medium; H High; VH Very High; EH Extremely High

PL Point load test (lump)

DS Disturbed sample

PV Pocket vane shear test

FV Downhole field vane shear test

U50 Undisturbed 48mm diameter core sample collected for laboratory testing.

REF Borehole refusal

INF DCP has continued through this layer and the geology has been inferred.

¹ Soil consistencies are derived from a combination of field index, DCP and shear vane readings.

² Soil density descriptions presented in engineering logs are derived from the DCP testing.

Recommendations

General

For Class P Sites, the designer should be a qualified engineer experienced in the design of footing systems for buildings.

Dispersive soils

Findings

The results presented in Appendix D indicate:

- The majority of the samples collected from the Site were slightly dispersive, with Emerson Class 3

Site specific recommendations

- No specific recommendations apply to manage soil dispersion.
- The soils at the Site are only slightly dispersive with a low risk of soil/tunnel erosion.

Plumbing

Refer to hydraulic design drawings for detailed plumbing advice and requirements.

Refer to Table 3 to assess soil movement (Y_s) around pipework for different depth ranges.

It is recommended that service trenches are over excavated to 0.8m depth, ensuring pipework is supported onto crushed rock (7mm screening) laid over the bedrock surface.

*Table 3 Millimetres soil movement (Y_s) for determining plumbing requirements for various soil depths **

Building	Profiles	P*	E $Y_s >75$	H2 $Y_s 60-75$	H1 $Y_s 40-60$	M $Y_s 20-40$	S $Y_s 0-20$	A $Y_s 0$
Extension	BH01 BH02	No				0-0.4	0.4-0.9	0.9-3

* Depths in this table are based on surfaces at the time of testing and do not allow for the influence of any additional fill added to the soil profile unless the Iss calculation depth has been modified based on the proposed cut and fill (see 'Footing Minimum Target Depths'). Where additional fill is proposed (and not indicated in the attached plans) Enviro-Tech are to be advised of final FFL's so the Site classification can be recalculated according to the specific fill reactivity and thickness used in the design.

Class A and S

When pipework service trench bassetts fall within Class A to S depth range as shown in Table 3, and all plumbing recommendations herein have been implemented, the drainage system does not require any additional protection and should be installed following the AS/NZS 3500 series standards.

Class M

When pipework service trench bassetts fall within Class M depth range as shown in Table 3, and all plumbing recommendations herein have been implemented, all stormwater and sanitary plumbing drains should have fittings set at their midposition during installation to allow 0.5 y_s movement in any direction. Pipe wrappings can be used at critical points.

AS3500.2:2021 Appendix G of AS3500.2:2021 should be referred for general advice.

Site Drainage

Surface drainage shall be considered in the design of the footing system, and necessary modifications shall be included in the design documentation. The surface drainage of the site shall be controlled from the beginning of the preparation and construction of the site. The drainage system shall be completed after the completion of the building construction.

Ideally, the areas around the footprint of the building should be graded or drained so that the water cannot pond against or near the building. As soon as footing construction has been completed, the ground immediately adjacent to the building should be graded to a uniform fall of 50mm minimum away from the building over the first metre. The final provision of paving to the edge of the building can greatly limit soil moisture variations due to seasonal wetting and drying.

Temporary Site Drainage

It is recommended that drainage protection works (cut off drains/mounds) are put in place above (upgradient of) the work area to prevent water and sediment from accumulating in and around footings and reduce the risk of erosion and instability around any proposed earth retaining structures.

Bored Pier Impediments - Obstructions

There were no obvious impediments to auguring such as cobbles or boulders obstructions.

Bored Pier Impediments - Groundwater

Groundwater was not encountered during the investigation.

Footing Preparation

Footing excavations must be free of loose earth, tree roots, mud or debris immediately before pouring concrete, ensuring the footing is appropriately seated on the target layer.

Foundation Maintenance

Details on appropriate site and foundation maintenance practises from the CSIRO BTF 18 Foundation Maintenance and Footing Performance: A Homeowner's Guide are presented in Appendix F of this report.



Kris Taylor, BSc (hons)

Environmental & Engineering Geologist

Notes About Your Assessment

The Site classification provided and footing recommendations including foundation depths are assessed based on the subsurface profile conditions present at the time of fieldwork and may vary according to any subsequent *Site works* carried out. *Site works* may include changes to the existing soil profile by cutting more than 0.5 m and filling more than 0.4 to 0.8 m depending on the type of material and the design of the footing. All footings must be founded through fill *other than* sand not exceeding 0.4 m depth or sand not exceeding 0.8 m depth, or otherwise a Class P applies (AS2870 Clauses 2.5.2 and 2.5.3).

For reference, borehole investigation depths relative to natural soil surface levels are stated in borehole logs where applicable.

In some cases, variations in actual Site conditions may exist between subsurface investigation boreholes. At the time of construction, if conditions exist which differ from those described in this report, it is recommended that the base of all footing excavations be inspected to ensure that the founding medium meets the requirement referenced herein or stipulated by an engineer before any footings are poured.

The site classification assumes that the performance requirements as set out in Appendix B of AS 2870 are acceptable and that site foundation maintenance is carried out to avoid extreme wetting and drying.

It is the responsibility of the homeowner to ensure that the soil conditions are maintained and that abnormal moisture conditions do not develop around the building. The following are examples of poor practises that can result in abnormal soil conditions:

- The effect of trees being too close to a footing.
- Excessive or irregular watering of gardens adjacent to the building.
- Failure to maintain Site drainage.
- Failure to repair plumbing leaks.
- Loss of vegetation near the building.

The pages that make up the last six pages of this report are an integral part of this report. The notes contain advice and recommendations for all stakeholders in this project (i.e. the structural engineer, builder, owner, and future owners) and should be read and followed by all concerned.

References

AS 1289.6.3.2-2003 Soil strength and consolidation tests - Determination of the penetration resistance of a soil - 9 kg dynamic cone penetrometer test, Standards Australia, Sydney, Retrieved from SAI Global

AS 1289.7.1.1-2003 Methods of testing soils for engineering purposes Method 7.1.1: Soil reactivity tests—Determination of the shrinkage index of a soil—Shrink-swell index, Standards Australia, Sydney, Retrieved from SAI Global

AS 1726-2017, Geotechnical Site investigations, Standards Australia, Sydney, Retrieved from SAI Global

AS 2870-2011, Residential slabs and footings, Standards Australia, Sydney, Retrieved from SAI Global

AS4055 (2021). Australian Standard. Prepared by Committee BD-099, Wind Loads for Housing. Approved on behalf of the Council of Standards Australia on 1st June 2021 and published on 25th June 2021.

DPIPWE 2009. Dispersive Soils and their Management. Technical Reference Manual. Sustainable Land Use Department of Primary Industries Water and Environment.

Webster, S.L., Brown, R.W. and Porter, J.R. (1994) Force Projection Site Evaluation Using the Electric Cone Penetrometer (ECP) and the Dynamic Cone Penetrometer (DCP). Technical Report No. GL-94-17, Air Force Civil Engineering Support Agency, US Air Force, Tyndall Air Force Base, FL.

Appendix A Mapping

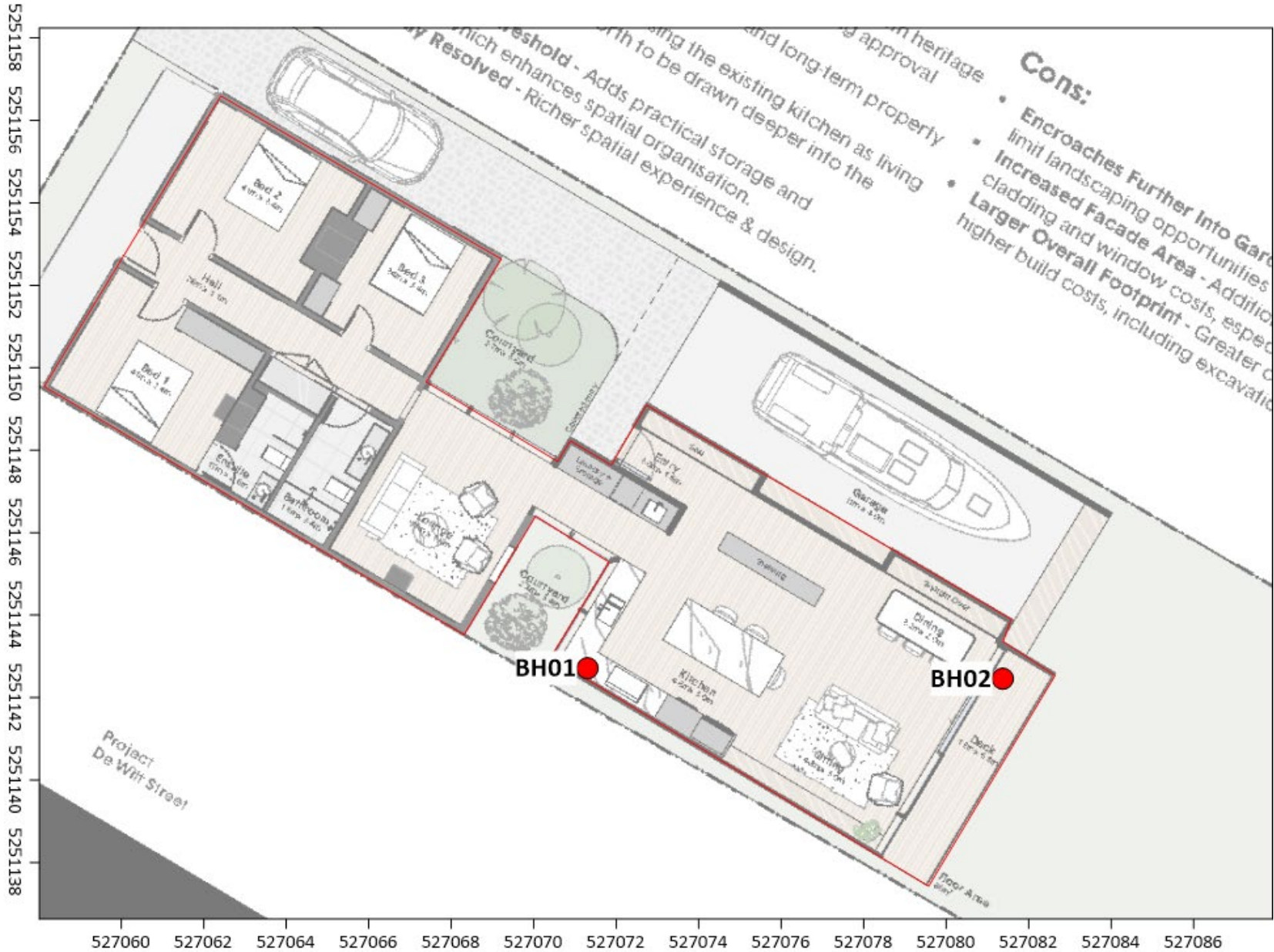



Figure 1 Site Borehole Locations

Appendix B Borehole Logs

		ASSESSMENT: Foundation Classification STRUCTURE: Alteration And Addition EASTING: 527071 HORIZONTAL NORTHING: 5251143 ACCURACY: 1m				HOLE ID NO.: BH01 DATE TESTED: 12/06/2025 LOGGED BY: M. Scalisi ELEVATION: 41.00									
		LOCATION: 34 De Witt Street - Battery Point CLIENT: SUSANNE ELIZABETH BECK				EQUIPMENT: 50mm Christie Post Driver NATURAL SURFACE (RL):									
DEPTH (m)	GRAPHIC	DESCRIPTION	LAYER	DENSITY CONSISTENCY STRENGTH	MOISTURE		SAMPLES	TEST	Cu (kPa)	UCS (kg/cm ²)	BLOW COUNT	DCP			
					INDEX	%						blows/100mm			
0.0	ML	TOPSOIL: Clayey Sandy SILT, black, well sorted, low plasticity, trace organics, 5 %	1	very soft to soft	Moist	35	DS				1.0				
	CH	CLAY, very dark brown, high plasticity, with gravel/sand, trace organics, 5 %	2		Moist	24	DS				0.9				
0.5	CH	SOIL & COBBLES: CLAY with sand, trace gravel, dark brown, high plasticity	4	very soft to firm	Moist	26	DS				0.4				
		DOLERITE Bedrock yellow	6			26	DS				1.7				
		Direct Push Sampler Refusal on DOLERITE Bedrock									REF				
		End of borehole at 0.9m depth.													
GROUNDWATER: Not Encountered											PAGE 1 of 1				
TESTING: Penetrometer: AS 1289.6.3.2 Where blows per 100mm are less than 1, distance travelled per penetrometer blow is measured and converted to blows per 100mm. DS - Disturbed Sample; U50 - Undisturbed 50mm Core; FV - Field Vane (Ømm); PP - Pocket Penetrometer; CBR - Californian Bearing Ratio; PV - Pocket Vane															



ASSESSMENT: Foundation Classification
STRUCTURE: Alteration And Addition
EASTING: 527081 **HORIZONTAL**
NORTHING: 5251142 **ACCURACY:** 1m

HOLE ID NO.: BH02
DATE TESTED: 12/06/2025
LOGGED BY: M. Scalisi
ELEVATION: 41.00

LOCATION: 34 De Witt Street - Battery Point
CLIENT: SUSANNE ELIZABETH BECK

EQUIPMENT: 50mm Christie Post Driver
NATURAL SURFACE (RL):

DEPTH (m)	GRAPHIC	DESCRIPTION	LAYER	DENSITY CONSISTENCY STRENGTH	MOISTURE		SAMPLES	TEST	Cu (kPa)	UCS (kg/cm ²)	BLOW COUNT	DCP				
					INDEX	%						blows/100mm				
0.0	ML	TOPSOIL: Clayey Sandy SILT, black, well sorted, low plasticity, trace organics, 5 %	1	very soft to firm	Moist						0.5					
	ML	FILL: SILT with gravel/sand, black, well sorted, low plasticity	3	stiff	Moist	20	DS				0.5					
0.5	CH	SOIL & COBBLES: CLAY with sand, trace gravel, dark brown, high plasticity	4	very stiff	Moist						0.5					
	Cl	SOIL & COBBLES: Silty CLAY with sand/gravel, yellow, mottled olive brown, medium plasticity	5	stiff to very stiff	Moist	21	DS				0.5					
1.0		DOLERITE Bedrock yellow	6								REF					
		Direct Push Sampler Refusal on DOLERITE Bedrock														
		End of borehole at 1m depth.														

GROUNDWATER: Not Encountered

TESTING: Penetrometer: AS 1289.6.3.2

PAGE 1 of 1

Where blows per 100mm are less than 1, distance travelled per penetrometer blow is measured and converted to blows per 100mm.

DS - Disturbed Sample; U50 - Undisturbed 50mm Core; FV - Field Vane (Ømm); PP - Pocket Penetrometer; CBR - Californian Bearing Ratio; PV - Pocket Vane

Appendix C Core Photographs

BH01



BH02



* 1 metre core tray length

Appendix D Geotechnical Testing

Dynamic Cone Penetrometer (DCP)

Dynamic cone penetrometer (DCP) testing was conducted according to AS 1289.6.3.2 with the results presented in Appendix B.

Soil Dispersion (Emerson aggregate test)

Select soil samples were tested for sodicity using the Emerson Class number method according to AS1289.3.8.1. The results presented in Table 4 demonstrate that:

- The majority of the samples collected from the Site were slightly dispersive, with Emerson Class 3

Table 4 Summary of the Emerson class results.

Layer	Soil	Depth	Sample ID	Emerson Class	Date Tested	Water	pH
1	Clayey Sandy SILT	0.1	BH01 0.1	Class >4	20/06/2025	DI 18°C	
2	CLAY	0.3	BH01 0.3	Class 3	20/06/2025	DI 18°C	7.53
3	SILT	0.4	BH02 0.4	Class 3	20/06/2025	DI 18°C	7.89
4	CLAY	0.6	BH01 0.6	Class 3	20/06/2025	DI 18°C	7.46
5	Silty CLAY	0.8	BH02 0.8	Class 3	20/06/2025	DI 18°C	7.55
6	Sandy SILT	0.8	BH01 0.8	Class 3	20/06/2025	DI 18°C	7.87

Appendix E Geotechnical Interpretation

Footing Minimum Target Depths

Footing design for the proposed structures are to consider the depths of limiting layers at the base of Class P soils where present. Where practical/allowable, thickened beams may be deepened through problematic soil layers according to engineering specifications (Table 5). Table 6 should be referred to where only 50kPa allowable bearing capacity is required.

Table 5 also presents a summary of the estimated soil depths and associated layers where less than 5mm of vertical soil movement can be expected due to soil moisture fluctuations from normal seasonal wetting and drying cycles. Where 5mm tolerances are required, concentrated loads including but not limited to slab edge or internal beam or strip footings shall be supported directly on piers in accordance with minimum target layer depths presented in Table 5, with considerations given to required bearing capacities in accordance with Table 6.

Table 5 Soil characteristic surface movements and recommended footing minimum target depths

Footing design parameters	BH01	BH02
Ys Calculation Depth	0m [^]	0m [^]
Surface movement Ys (mm)	30	15
Soil reactivity class	M	S
Base of problem soil layer (m)*	0.8	0.5
Layer at base of problem soil*	6	4
Pier/Footing minimum target depth (m) [#]	>0.9 [^]	>1 [^]
Pier/footing minimum target layer [#]	6	6
Allowable bearing capacity at min target depth (kPa) [#]	400	400

- No problem layers encountered

*Base of problematic soil layer depth at test location below top of borehole surface to achieve 100 kPa allowable bearing capacity or greater.

[#] Target soil layer depth below top of borehole surface where Ys values from normal wetting and drying cycles are estimated at less than 5mm vertical movement

[^] Calculated based on depth below cut (with negative value) or above fill (with positive value) borehole drilling depth. Inferred fill reactivity will be conservatively assessed unless requested otherwise.

Soil and Rock Allowable Bearing Capacity

Soil allowable bearing capacity was calculated from correlations with DCP blow counts. Where high clay and silt content is observed in the soil, soil allowable bearing capacity is determined from undrained shear strengths using field vane correlated DCP values. Interpretive bearing capacity values are presented in Table 6.

Table 6 Soil allowable bearing capacities and problematic ground conditions.

Depth from (m)	Allowable Bearing Capacity (kPa)	
	BH01	BH02
0	40~	FILL [^]
0.1	20~	FILL [^]
0.2	40~	FILL [^]
0.3	10~	FILL [^]
0.4	10~	FILL [^]
0.5	10~	200*
0.6	40~	REF
0.7	90~	
0.8	DOLERITE	
0.9	REF	DOLERITE

Correlations drawn from DCP and vane shear testing.

REF - Penetrometer Refusal

[^] Footings to be founded through the FILL

~ Problematic soil layer attributed to loose, soft, or low allowable bearing capacity soil (<100 kPa)

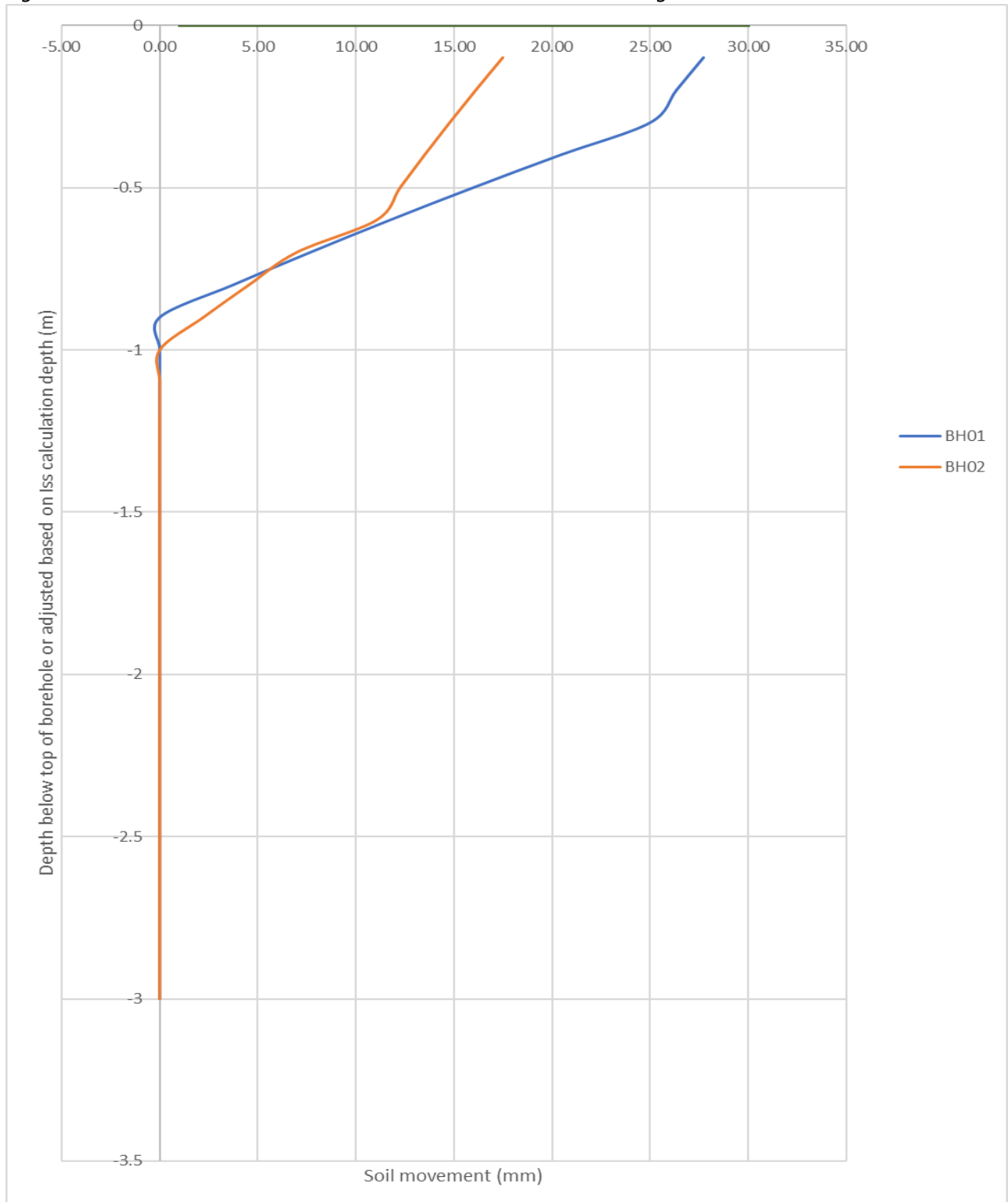
*Soil layer expected at the base of problematic soil layers at test location (or at surface where problematic soils not encountered) to achieve 100 kPa allowable bearing capacity or greater.

Characteristic Soil Movement (Ys)

The characteristic soil movement (soil reactivity) is calculated according to AS 2870 Section 2.3. The calculations are based on Iss % testing results where applicable and are based on complete soil profiles for boreholes drilled within the building Site. In the case of where cut and fill are proposed and building finished floor levels (FFL) are made available, the Iss value is recalculated based on the FFL and estimated cut and fill as per Table 5.

According to AS 2870 Section 2.3, calculations consider the depth of groundwater and bedrock. Soil characteristic soil movements from normal wetting and drying cycles are presented in Figure 2.

Figure 2 Calculated Characteristic Soil Movement Based on Soil Testing



Foundation Maintenance and Footing Performance: A Homeowner's Guide



CSIRO

BTF 18
replaces
Information
Sheet 10/91

Buildings can and often do move. This movement can be up, down, lateral or rotational. The fundamental cause of movement in buildings can usually be related to one or more problems in the foundation soil. It is important for the homeowner to identify the soil type in order to ascertain the measures that should be put in place in order to ensure that problems in the foundation soil can be prevented, thus protecting against building movement.

This Building Technology File is designed to identify causes of soil-related building movement, and to suggest methods of prevention of resultant cracking in buildings.

Soil Types

The types of soils usually present under the topsoil in land zoned for residential buildings can be split into two approximate groups – granular and clay. Quite often, foundation soil is a mixture of both types. The general problems associated with soils having granular content are usually caused by erosion. Clay soils are subject to saturation and swell/shrink problems.

Classifications for a given area can generally be obtained by application to the local authority, but these are sometimes unreliable and if there is doubt, a geotechnical report should be commissioned. As most buildings suffering movement problems are founded on clay soils, there is an emphasis on classification of soils according to the amount of swell and shrinkage they experience with variations of water content. The table below is Table 2.1 from AS 2870, the Residential Slab and Footing Code.

Causes of Movement

Settlement due to construction

There are two types of settlement that occur as a result of construction:

- Immediate settlement occurs when a building is first placed on its foundation soil, as a result of compaction of the soil under the weight of the structure. The cohesive quality of clay soil mitigates against this, but granular (particularly sandy) soil is susceptible.
- Consolidation settlement is a feature of clay soil and may take place because of the expulsion of moisture from the soil or because of the soil's lack of resistance to local compressive or shear stresses. This will usually take place during the first few months after construction, but has been known to take many years in exceptional cases.

These problems are the province of the builder and should be taken into consideration as part of the preparation of the site for construction. Building Technology File 19 (BTF 19) deals with these problems.

Erosion

All soils are prone to erosion, but sandy soil is particularly susceptible to being washed away. Even clay with a sand component of say 10% or more can suffer from erosion.

Saturation

This is particularly a problem in clay soils. Saturation creates a bog-like suspension of the soil that causes it to lose virtually all of its bearing capacity. To a lesser degree, sand is affected by saturation because saturated sand may undergo a reduction in volume – particularly imported sand fill for bedding and blinding layers. However, this usually occurs as immediate settlement and should normally be the province of the builder.

Seasonal swelling and shrinkage of soil

All clays react to the presence of water by slowly absorbing it, making the soil increase in volume (see table below). The degree of increase varies considerably between different clays, as does the degree of decrease during the subsequent drying out caused by fair weather periods. Because of the low absorption and expulsion rate, this phenomenon will not usually be noticeable unless there are prolonged rainy or dry periods, usually of weeks or months, depending on the land and soil characteristics.

The swelling of soil creates an upward force on the footings of the building, and shrinkage creates subsidence that takes away the support needed by the footing to retain equilibrium.

Shear failure

This phenomenon occurs when the foundation soil does not have sufficient strength to support the weight of the footing. There are two major post-construction causes:

- Significant load increase.
- Reduction of lateral support of the soil under the footing due to erosion or excavation.
- In clay soil, shear failure can be caused by saturation of the soil adjacent to or under the footing.

GENERAL DEFINITIONS OF SITE CLASSES

Class	Foundation
A	Most sand and rock sites with little or no ground movement from moisture changes
S	Slightly reactive clay sites with only slight ground movement from moisture changes
M	Moderately reactive clay or silt sites, which can experience moderate ground movement from moisture changes
H	Highly reactive clay sites, which can experience high ground movement from moisture changes
E	Extremely reactive sites, which can experience extreme ground movement from moisture changes
A to P	Filled sites
P	Sites which include soft soils, such as soft clay or silt or loose sands; landslip; mine subsidence; collapsing soils; soils subject to erosion; reactive sites subject to abnormal moisture conditions or sites which cannot be classified otherwise

Tree root growth

Trees and shrubs that are allowed to grow in the vicinity of footings can cause foundation soil movement in two ways:

- Roots that grow under footings may increase in cross-sectional size, exerting upward pressure on footings.
- Roots in the vicinity of footings will absorb much of the moisture in the foundation soil, causing shrinkage or subsidence.

Unevenness of Movement

The types of ground movement described above usually occur unevenly throughout the building's foundation soil. Settlement due to construction tends to be uneven because of:

- Differing compaction of foundation soil prior to construction.
- Differing moisture content of foundation soil prior to construction.

Movement due to non-construction causes is usually more uneven still. Erosion can undermine a footing that traverses the flow or can create the conditions for shear failure by eroding soil adjacent to a footing that runs in the same direction as the flow.

Saturation of clay foundation soil may occur where subfloor walls create a dam that makes water pond. It can also occur wherever there is a source of water near footings in clay soil. This leads to a severe reduction in the strength of the soil which may create local shear failure.

Seasonal swelling and shrinkage of clay soil affects the perimeter of the building first, then gradually spreads to the interior. The swelling process will usually begin at the uphill extreme of the building, or on the weather side where the land is flat. Swelling gradually reaches the interior soil as absorption continues. Shrinkage usually begins where the sun's heat is greatest.

Effects of Uneven Soil Movement on Structures

Erosion and saturation

Erosion removes the support from under footings, tending to create subsidence of the part of the structure under which it occurs. Brickwork walls will resist the stress created by this removal of support by bridging the gap or cantilevering until the bricks or the mortar bedding fail. Older masonry has little resistance. Evidence of failure varies according to circumstances and symptoms may include:

- Step cracking in the mortar beds in the body of the wall or above/below openings such as doors or windows.
- Vertical cracking in the bricks (usually but not necessarily in line with the vertical beds or perpend).

Isolated piers affected by erosion or saturation of foundations will eventually lose contact with the bearers they support and may tilt or fall over. The floors that have lost this support will become bouncy, sometimes rattling ornaments etc.

Seasonal swelling/shrinkage in clay

Swelling foundation soil due to rainy periods first lifts the most exposed extremities of the footing system, then the remainder of the perimeter footings while gradually permeating inside the building footprint to lift internal footings. This swelling first tends to create a dish effect, because the external footings are pushed higher than the internal ones.

The first noticeable symptom may be that the floor appears slightly dished. This is often accompanied by some doors binding on the floor or the door head, together with some cracking of cornice mitres. In buildings with timber flooring supported by bearers and joists, the floor can be bouncy. Externally there may be visible dishing of the hip or ridge lines.

As the moisture absorption process completes its journey to the innermost areas of the building, the internal footings will rise. If the spread of moisture is roughly even, it may be that the symptoms will temporarily disappear, but it is more likely that swelling will be uneven, creating a difference rather than a disappearance in symptoms. In buildings with timber flooring supported by bearers and joists, the isolated piers will rise more easily than the strip footings or piers under walls, creating noticeable doming of flooring.



As the weather pattern changes and the soil begins to dry out, the external footings will be first affected, beginning with the locations where the sun's effect is strongest. This has the effect of lowering the external footings. The doming is accentuated and cracking reduces or disappears where it occurred because of dishing, but other cracks open up. The roof lines may become convex.

Doming and dishing are also affected by weather in other ways. In areas where warm, wet summers and cooler dry winters prevail, water migration tends to be toward the interior and doming will be accentuated, whereas where summers are dry and winters are cold and wet, migration tends to be toward the exterior and the underlying propensity is toward dishing.

Movement caused by tree roots

In general, growing roots will exert an upward pressure on footings, whereas soil subject to drying because of tree or shrub roots will tend to remove support from under footings by inducing shrinkage.

Complications caused by the structure itself

Most forces that the soil causes to be exerted on structures are vertical – i.e. either up or down. However, because these forces are seldom spread evenly around the footings, and because the building resists uneven movement because of its rigidity, forces are exerted from one part of the building to another. The net result of all these forces is usually rotational. This resultant force often complicates the diagnosis because the visible symptoms do not simply reflect the original cause. A common symptom is binding of doors on the vertical member of the frame.

Effects on full masonry structures

Brickwork will resist cracking where it can. It will attempt to span areas that lose support because of subsided foundations or raised points. It is therefore usual to see cracking at weak points, such as openings for windows or doors.

In the event of construction settlement, cracking will usually remain unchanged after the process of settlement has ceased.

With local shear or erosion, cracking will usually continue to develop until the original cause has been remedied, or until the subsidence has completely neutralised the affected portion of footing and the structure has stabilised on other footings that remain effective.

In the case of swell/shrink effects, the brickwork will in some cases return to its original position after completion of a cycle, however it is more likely that the rotational effect will not be exactly reversed, and it is also usual that brickwork will settle in its new position and will resist the forces trying to return it to its original position. This means that in a case where swelling takes place after construction and cracking occurs, the cracking is likely to at least partly remain after the shrink segment of the cycle is complete. Thus, each time the cycle is repeated, the likelihood is that the cracking will become wider until the sections of brickwork become virtually independent.

With repeated cycles, once the cracking is established, if there is no other complication, it is normal for the incidence of cracking to stabilise, as the building has the articulation it needs to cope with the problem. This is by no means always the case, however, and monitoring of cracks in walls and floors should always be treated seriously.

Upheaval caused by growth of tree roots under footings is not a simple vertical shear stress. There is a tendency for the root to also exert lateral forces that attempt to separate sections of brickwork after initial cracking has occurred.

The normal structural arrangement is that the inner leaf of brickwork in the external walls and at least some of the internal walls (depending on the roof type) comprise the load-bearing structure on which any upper floors, ceilings and the roof are supported. In these cases, it is internally visible cracking that should be the main focus of attention, however there are a few examples of dwellings whose external leaf of masonry plays some supporting role, so this should be checked if there is any doubt. In any case, externally visible cracking is important as a guide to stresses on the structure generally, and it should also be remembered that the external walls must be capable of supporting themselves.

Effects on framed structures

Timber or steel framed buildings are less likely to exhibit cracking due to swell/shrink than masonry buildings because of their flexibility. Also, the doming/dishing effects tend to be lower because of the lighter weight of walls. The main risks to framed buildings are encountered because of the isolated pier footings used under walls. Where erosion or saturation cause a footing to fall away, this can double the span which a wall must bridge. This additional stress can create cracking in wall linings, particularly where there is a weak point in the structure caused by a door or window opening. It is, however, unlikely that framed structures will be so stressed as to suffer serious damage without first exhibiting some or all of the above symptoms for a considerable period. The same warning period should apply in the case of upheaval. It should be noted, however, that where framed buildings are supported by strip footings there is only one leaf of brickwork and therefore the externally visible walls are the supporting structure for the building. In this case, the subfloor masonry walls can be expected to behave as full brickwork walls.

Effects on brick veneer structures

Because the load-bearing structure of a brick veneer building is the frame that makes up the interior leaf of the external walls plus perhaps the internal walls, depending on the type of roof, the building can be expected to behave as a framed structure, except that the external masonry will behave in a similar way to the external leaf of a full masonry structure.

Water Service and Drainage

Where a water service pipe, a sewer or stormwater drainage pipe is in the vicinity of a building, a water leak can cause erosion, swelling or saturation of susceptible soil. Even a minuscule leak can be enough to saturate a clay foundation. A leaking tap near a building can have the same effect. In addition, trenches containing pipes can become watercourses even though backfilled, particularly where broken rubble is used as fill. Water that runs along these trenches can be responsible for serious erosion, interstrata seepage into subfloor areas and saturation.

Pipe leakage and trench water flows also encourage tree and shrub roots to the source of water, complicating and exacerbating the problem.

Poor roof plumbing can result in large volumes of rainwater being concentrated in a small area of soil:

- Incorrect falls in roof guttering may result in overflows, as may gutters blocked with leaves etc.

- Corroded guttering or downpipes can spill water to ground.
- Downpipes not positively connected to a proper stormwater collection system will direct a concentration of water to soil that is directly adjacent to footings, sometimes causing large-scale problems such as erosion, saturation and migration of water under the building.

Seriousness of Cracking

In general, most cracking found in masonry walls is a cosmetic nuisance only and can be kept in repair or even ignored. The table below is a reproduction of Table C1 of AS 2870.

AS 2870 also publishes figures relating to cracking in concrete floors, however because wall cracking will usually reach the critical point significantly earlier than cracking in slabs, this table is not reproduced here.

Prevention/ Cure

Plumbing

Where building movement is caused by water service, roof plumbing, sewer or stormwater failure, the remedy is to repair the problem. It is prudent, however, to consider also rerouting pipes away from the building where possible, and relocating taps to positions where any leakage will not direct water to the building vicinity. Even where gully traps are present, there is sometimes sufficient spill to create erosion or saturation, particularly in modern installations using smaller diameter PVC fixtures. Indeed, some gully traps are not situated directly under the taps that are installed to charge them, with the result that water from the tap may enter the backfilled trench that houses the sewer piping. If the trench has been poorly backfilled, the water will either pond or flow along the bottom of the trench. As these trenches usually run alongside the footings and can be at a similar depth, it is not hard to see how any water that is thus directed into a trench can easily affect the foundation's ability to support footings or even gain entry to the subfloor area.

Ground drainage

In all soils there is the capacity for water to travel on the surface and below it. Surface water flows can be established by inspection during and after heavy or prolonged rain. If necessary, a grated drain system connected to the stormwater collection system is usually an easy solution.

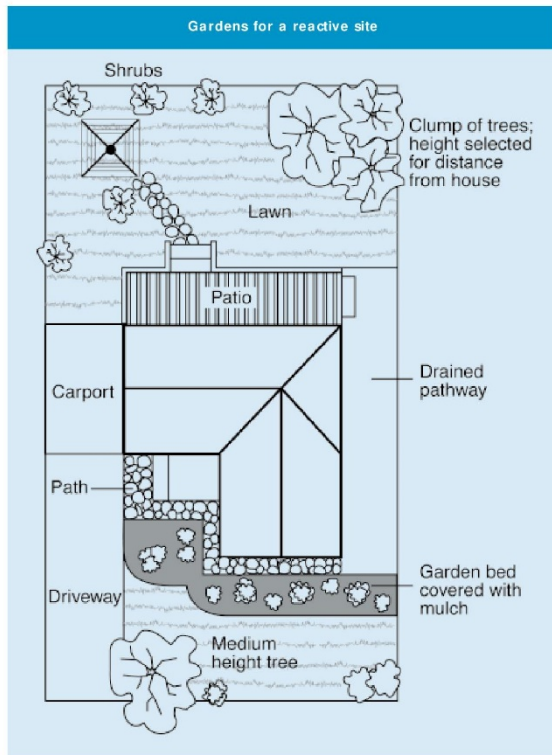
It is, however, sometimes necessary when attempting to prevent water migration that testing be carried out to establish watertable height and subsoil water flows. This subject is referred to in BTF 19 and may properly be regarded as an area for an expert consultant.

Protection of the building perimeter

It is essential to remember that the soil that affects footings extends well beyond the actual building line. Watering of garden plants, shrubs and trees causes some of the most serious water problems.

For this reason, particularly where problems exist or are likely to occur, it is recommended that an apron of paving be installed around as much of the building perimeter as necessary. This paving

CLASSIFICATION OF DAMAGE WITH REFERENCE TO WALLS		
Description of typical damage and required repair	Approximate crack width limit (see Note 3)	Damage category
Hairline cracks	<0.1 mm	0
Fine cracks which do not need repair	<1 mm	1
Cracks noticeable but easily filled. Doors and windows stick slightly	<5 mm	2
Cracks can be repaired and possibly a small amount of wall will need to be replaced. Doors and windows stick. Service pipes can fracture. Weathertightness often impaired	5–15 mm (or a number of cracks 3 mm or more in one group)	3
Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows. Window and door frames distort. Walls lean or bulge noticeably, some loss of bearing in beams. Service pipes disrupted	15–25 mm but also depend on number of cracks	4



- Water that is transmitted into masonry, metal or timber building elements causes damage and/or decay to those elements.
- High subfloor humidity and moisture content create an ideal environment for various pests, including termites and spiders.
- Where high moisture levels are transmitted to the flooring and walls, an increase in the dust mite count can ensue within the living areas. Dust mites, as well as dampness in general, can be a health hazard to inhabitants, particularly those who are abnormally susceptible to respiratory ailments.

The garden

The ideal vegetation layout is to have lawn or plants that require only light watering immediately adjacent to the drainage or paving edge, then more demanding plants, shrubs and trees spread out in that order.

Overwatering due to misuse of automatic watering systems is a common cause of saturation and water migration under footings. If it is necessary to use these systems, it is important to remove garden beds to a completely safe distance from buildings.

Existing trees

Where a tree is causing a problem of soil drying or there is the existence or threat of upheaval of footings, if the offending roots are subsidiary and their removal will not significantly damage the tree, they should be severed and a concrete or metal barrier placed vertically in the soil to prevent future root growth in the direction of the building. If it is not possible to remove the relevant roots without damage to the tree, an application to remove the tree should be made to the local authority. A prudent plan is to transplant likely offenders before they become a problem.

Information on trees, plants and shrubs

State departments overseeing agriculture can give information regarding root patterns, volume of water needed and safe distance from buildings of most species. Botanic gardens are also sources of information. For information on plant roots and drains, see Building Technology File 17.

Excavation

Excavation around footings must be properly engineered. Soil supporting footings can only be safely excavated at an angle that allows the soil under the footing to remain stable. This angle is called the angle of repose (or friction) and varies significantly between soil types and conditions. Removal of soil within the angle of repose will cause subsidence.

Remediation

Where erosion has occurred that has washed away soil adjacent to footings, soil of the same classification should be introduced and compacted to the same density. Where footings have been undermined, augmentation or other specialist work may be required. Remediation of footings and foundations is generally the realm of a specialist consultant.

Where isolated footings rise and fall because of swell/shrink effect, the homeowner may be tempted to alleviate floor bounce by filling the gap that has appeared between the bearer and the pier with blocking. The danger here is that when the next swell segment of the cycle occurs, the extra blocking will push the floor up into an accentuated dome and may also cause local shear failure in the soil. If it is necessary to use blocking, it should be by a pair of fine wedges and monitoring should be carried out fortnightly.

This BTF was prepared by John Lewer FAIB, MIAMA, Partner, Construction Diagnosis.

should extend outwards a minimum of 900 mm (more in highly reactive soil) and should have a minimum fall away from the building of 1:60. The finished paving should be no less than 100 mm below brick vent bases.

It is prudent to relocate drainage pipes away from this paving, if possible, to avoid complications from future leakage. If this is not practical, earthenware pipes should be replaced by PVC and backfilling should be of the same soil type as the surrounding soil and compacted to the same density.

Except in areas where freezing of water is an issue, it is wise to remove taps in the building area and relocate them well away from the building – preferably not uphill from it (see BTF 19).

It may be desirable to install a grated drain at the outside edge of the paving on the uphill side of the building. If subsoil drainage is needed this can be installed under the surface drain.

Condensation

In buildings with a subfloor void such as where bearers and joists support flooring, insufficient ventilation creates ideal conditions for condensation, particularly where there is little clearance between the floor and the ground. Condensation adds to the moisture already present in the subfloor and significantly slows the process of drying out. Installation of an adequate subfloor ventilation system, either natural or mechanical, is desirable.

Warning: Although this Building Technology File deals with cracking in buildings, it should be said that subfloor moisture can result in the development of other problems, notably:

The information in this and other issues in the series was derived from various sources and was believed to be correct when published.

The information is advisory. It is provided in good faith and not claimed to be an exhaustive treatment of the relevant subject.

Further professional advice needs to be obtained before taking any action based on the information provided.

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