

# **GEOTECHNICAL REPORT**

**FOR ALTERATION & ADDITION** 

**AT** 

**41 MILHAM CRESCENT** 

FORESTVILLE, NSW, 2087

**Prepared by: Prime Consulting Engineers Pty Ltd.** 

Ref: 22-291

Date: 05/05/2023

Amendment: -

Prepared by: BG

Checked by: KZ

Email: <u>info@primeengineers.com.au</u>
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Dear Amin & Roya Moslehi,

# Re: Geotechnical Report – Proposed alteration & addition at 41 Milham Crescent, Forestville, NSW, 2087

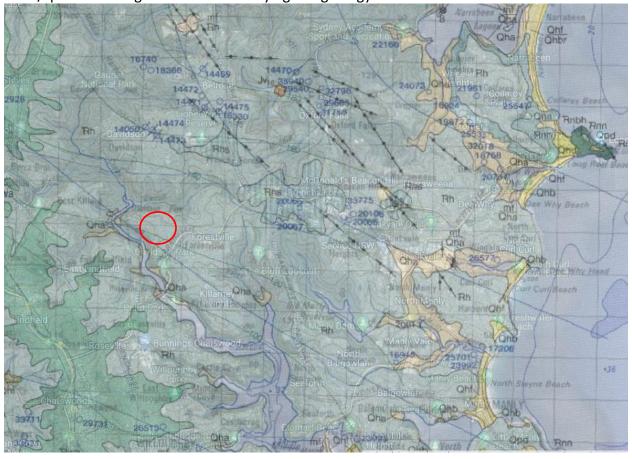
### Introduction

Prime Consulting Engineers has been engaged by Amin & Roya Moslehi to prepare a Geotechnical Report for alteration & addition at 41 Milham Crescent, Forestville.

# **Site Geology**

The underlying site geology consists of Wianamatta group Hawkesbury Sandstone. This is a Mesozoic era sandstone containing medium to coarse-grained quartz sandstone with very minor shale and laminate lenses. Refer to 1:100000 Sydney geologic mapping for more details (available via references).

From the observations from the site inspection, it was deemed unnecessary to perform any extra/special investigation of the underlying site geology.





WIANAMATTA GROUP

Rwb Shale, carbonaceous claystone, laminite, fine to medium-grained lithic sandstone, rare coal.

Rwm Fine to medium-grained lithic sandstone.

Rwa Black to dark-grey shale and laminite.

Rm Interbedded shale, laminite, and medium-grained quartz sandstone.

Rh Medium to coarse-grained quartz sandstone, very minor shale and laminite lenses.

Rhs Shale, laminite.

# **Preliminary Assessment**

# **Checklist for assessment:**

# 1.0 Landslip Risk Class:

As per Northern Beaches Council's Landslip Risk Map, the given property falls under Landslip Risk class 'B'.



Figure 2: Land slip risk map for 41 Milham Crescent, Forestville, NSW (site location marked in red)



#### Note

Landslip Risk Classes A to E, described in the following table, correlate to Areas A to E on the Warringah LEP 2011 - Landslip Risk Map.

LANDSLIP R	LANDSLIP RISK CLASS					
Landslip Risk Class	Topographic Position	Slope Angle (degrees)	Geology			
А	Plateau areas, ridge crests, major spur slopes, footslope areas; and beach, foredune and alluvial	< 5	At higher elevations, generally shallow residual soils developed on Hawkesbury Sandstone. Hawkesbury Sandstone exposed in occasional outcrops and in near vertical road cuts. Some areas of fill. At lower elevations, unconsolidated marine and alluvial sands often overlying deep marine sediments.			
В	Flanking slopes.	5 to 25	Colluvial and residual soils, possibly deeper than in Class A, developed on Hawkesbury Sandstone. Minor detached sandstone blocks, occasional exposures of sandstone in cliffs and road cuts. Occasional fill areas associated with playing fields, roads and some developments.			
С	Steeper slopes, generally near coastal areas and adjacent to creeks and major gullies.	> 25	Colluvial soils and bouldery talus, with detached blocks of sandstone on steep escarpment areas, developed on Hawkesbury Sandstone. Near vertical cliffs to approximately 50m high at Dee Why Head.			
D	Flanking slopes (Collaroy Plateau area)	5 to 15	Colluvial and residual soils (possibly deeper than in Class A) developed on Narrabeen Group or Hawkesbury Sandstone. Minor detached sandstone blocks, occasional exposures of sandstone in cliffs and road cuts. Occasional fill areas associated with playing fields, roads and some developments.			
Е	Steeper slopes (Collaroy Plateau area)	> 15	Colluvial & residual soils & bouldery talus, with detached blocks of sandstone on steeper escarpment areas, developed on Narrabeen Group or Hawkesbury Sandstone. Near vertical cliffs up to about 20m high.			

#### 2.0 Site Location

The property is bounded by the front Northern boundary of Milham Crescent, Forestville. with a upward slope from front to rear Southern Boundary (adjacent to 102 Arthur St). The Eastern Boundary is bounded by 39 Milham Crescent and Western boundary is by 43 Milham Crescent. Council Landslide risk map (Figure 1) places the property in land-slip risk zone 'B' (slope between 5 to 25 degree) – refer to figure 1.

# **3.0 Proposed Development**

The proposed development consists of alteration of internal space at ground and first floor level and the new cabana at the rear of the property as show on the architectural details prepared by 'JAH DESIGN SERVICES' refer Appendix 'C'.

These works may include minor excavation, filling, and new piered/piled footing systems to be founded on underlying rock.



## **4.0 Existing Site Description**

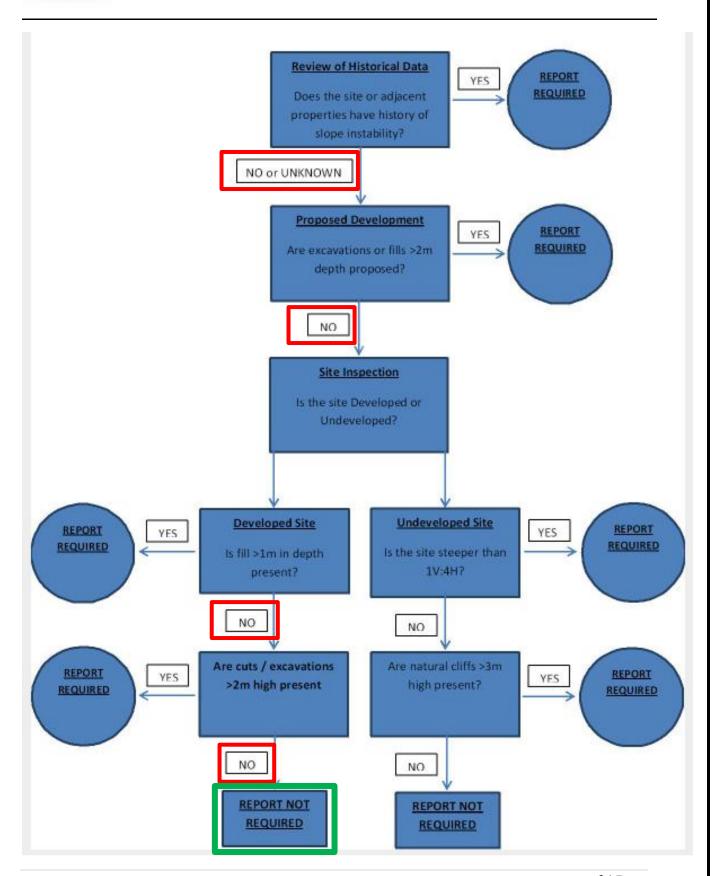
- The slope of the rear to front of the property is not excessive (approx. 11.5 degree).
- Topsoil profile is residual clay overlaying sandstone, removal of unconsolidated topsoil and depending on the depth to the rock layer, piering the structural footing would be required.
- No evidence of particularly high risk/hazard zones (unstable slip zones or localized areas of gradient greater than 15 degrees) across the entirety of the site.

Please refer to appendix A for the photographic record.

#### 5.0 Recommendations

Based on the above items, and the attached flowchart that indicates the principal factors considered in the assessment, it is recommended that Geotechnical assessment is not require.





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#### **6.0 Date of Assessment**

Date: 05/05/2023

## 7.0 Assessment By:

Bijaya Giri MIEAust, CPENG NER

### **Conclusions**

From evidence obtained during the site inspection, as well as assessment of existing geological data for the site, it has been determined that the proposed works will not adversely affect the geotechnical stability of the site.

Provided all recommendations above are adhered to, the works will be completed following good geotechnical and structural engineering practice.

The development will not cause detrimental impacts because of stormwater discharge from the land and will not cause detrimental impact on the existing subsurface flow conditions including those of other properties.

A full geotechnical report is therefore deemed unnecessary for the proposed development.

Your faithfully, Bijaya Giri MIEAust, CPENG NER

Signature:



### References

1. NSW Government

https://www.regional.nsw.gov.au/meg/geoscience/products-and-data/maps/geological-maps

https://search.geoscience.nsw.gov.au/product/135

- 2. Northern Beaches council Warringah Landslip Risk <a href="https://nb-icongis.azurewebsites.net/index.html">https://nb-icongis.azurewebsites.net/index.html</a>
- 3. Warringah Development control plan: E10 Landslip Risk <a href="https://eservices.northernbeaches.nsw.gov.au/ePlanning/live/pages/plan/Book.aspx?exhibit=DCP&hid=86">https://eservices.northernbeaches.nsw.gov.au/ePlanning/live/pages/plan/Book.aspx?exhibit=DCP&hid=86</a>
- 4. Google Maps

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# **APPENDIX A**



IMAGE



Six maps



Front of the property







# **APPENDIX B**



# **Risk Mitigation Practice**

# **Some Guidelines for Hillside Construction**

### Advice:

Geotechnical Assessment: Obtain advice from a qualified, experienced geotechnical practitioner at early stage of planning and before site works.

# Planning:

## Site Planning:

Having obtained geotechnical advice, plan the development with the risk arising from the identified hazards and consequences in mind.

# **Design & Construction:**

### House Design:

- Use flexible structures which incorporate properly designed brickwork, timber or steel frames, timber or panel cladding.
- Consider use of split levels.
- Use decks for recreational areas where appropriate.

## Site Clearing:

Retain natural vegetation wherever practicable.

#### Access & Driveways:

- Satisfy requirements below for cuts, fills, retaining walls and drainage. Council specifications for grades may need to be modified.
- Driveways and parking areas may need to be fully supported on piers

#### Earthworks:

Retain natural contours wherever possible

#### Cuts:

- Minimise depth.
- Support with engineered retaining walls or batter to appropriate slope.
- Provide drainage measures and erosion control.

#### Fills:

- Minimise depth.
- Strip vegetation and topsoil and key into natural slopes prior to filling.
- Use clean fill materials and compact to engineering standards.
- Batter to appropriate slope or support with engineered retaining wall.
- Provide surface drainage and appropriate subsurface drainage.

#### **Rock Outcrops & Boulders:**



Remove or stabilise boulders which may have unacceptable risk. Support rock faces where necessary.

#### Retaining walls:

- Engineer design to resist applied soil and water forces.
- Found on rock where practicable.
- Provide subsurface drainage within wall backfill and surface drainage on slope above.
- Construct wall as soon as possible after cut/fill operation.

#### Footings:

- Found within rock where practicable.
- Use rows of piers or strip footings oriented up and down slope.
- Design for lateral creep pressures if necessary.
- Backfill footing excavations to exclude ingress of surface water.

### **Swimming Pools:**

- Engineer designed.
- Support on piers to rock where practicable.
- Provide with under-drainage and gravity drain outlet where practicable.
- Design for high soil pressures which may develop on uphill side whilst there may be little or no lateral support on downhill side.

#### Drainage:

#### Surface:

- Provide at tops of cut and fill slopes.
- Discharge to street drainage or natural water courses.
- Provide general falls to prevent blockage by siltation and incorporate silt traps.
- Line to minimise infiltration and make flexible where possible.
- Special structures to dissipate energy at changes of slope and/or direction.

#### Sub-Surface:

- Provide filter around subsurface drain.
- Provide drain behind retaining walls.
- Use flexible pipelines with access for maintenance.
- Prevent inflow of surface water.

#### Septic & Sullage:

- Usually requires pump-out or mains sewer systems; absorption trenches may be possible in some areas if risk is acceptable.
- Storage tanks should be water-tight and adequately founded.

#### **Erosion Control & Landscaping:**

- Control erosion as this may lead to instability.



- Revegetate cleared area.

# **Drawing and site visits during construction:**

### **Drawings**:

- Building Application drawings should be viewed by geotechnical consultant.

### Site Visits:

- Site Visits by consultant may be appropriate during construction.

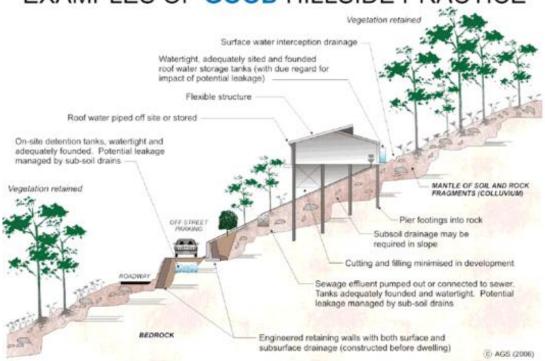
# Inspection and maintenance by owner:

# Owner's Responsibility:

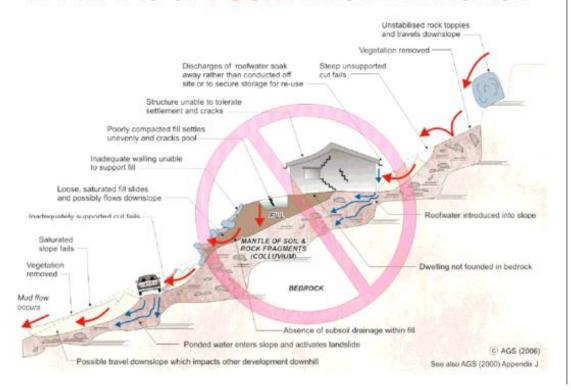
- Clean drainage systems; repair broken joints in drains and leaks in supply pipes.
- Where structural distress is evident see advice.
- If seepage observed, determine causes or seek advice on consequences.



# EXAMPLES OF GOOD HILLSIDE PRACTICE

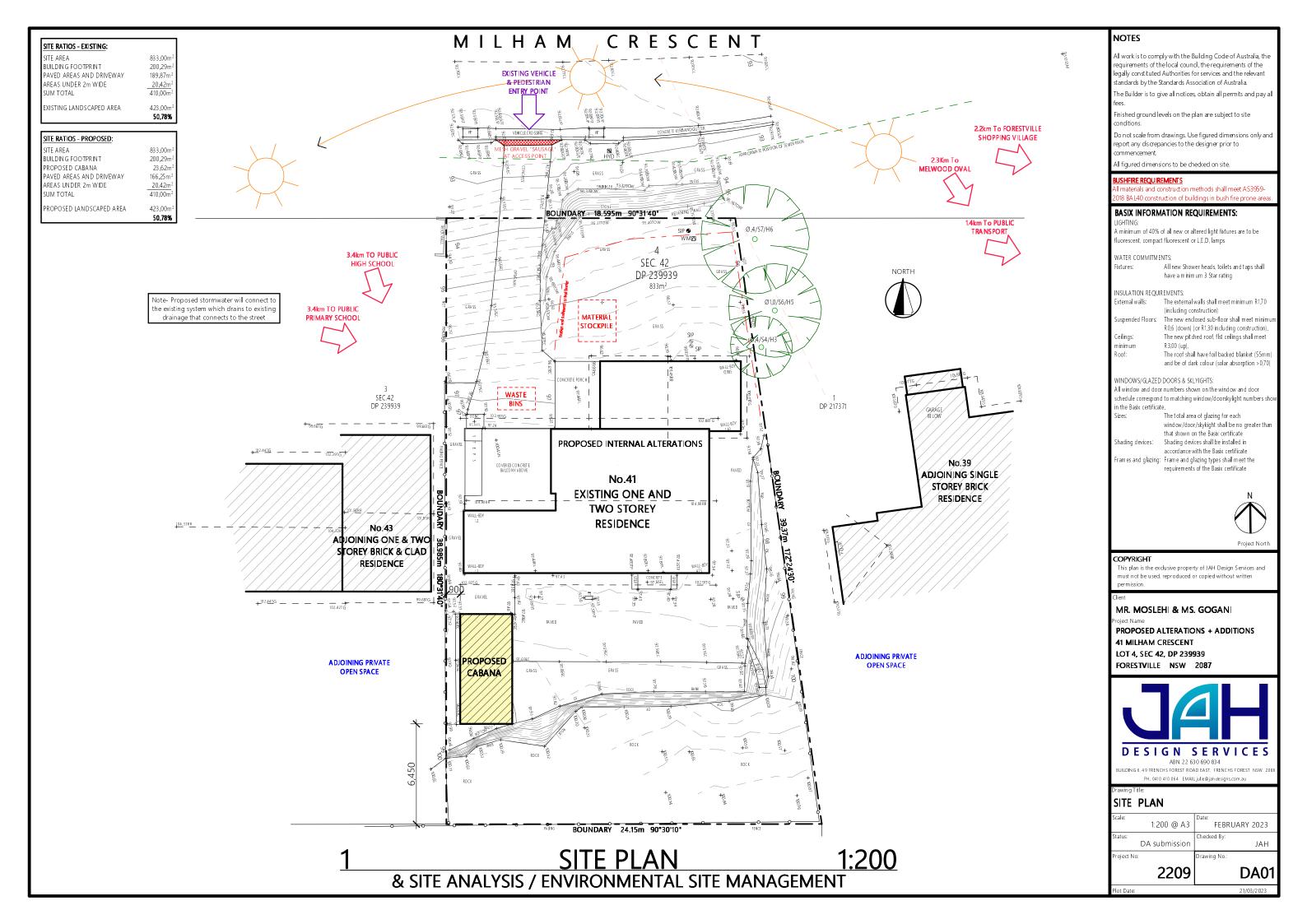


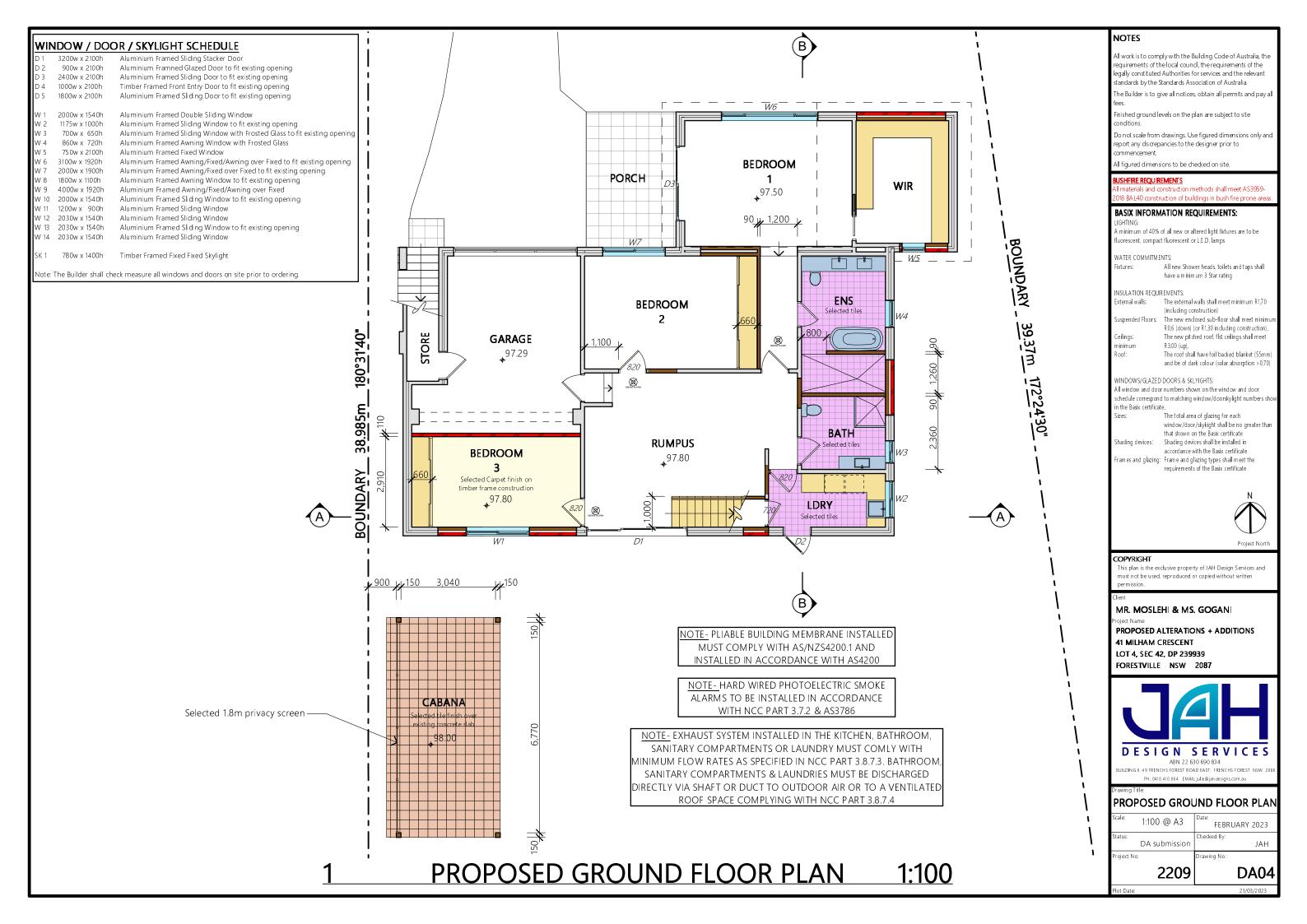
# EXAMPLES OF POOR HILLSIDE PRACTICE

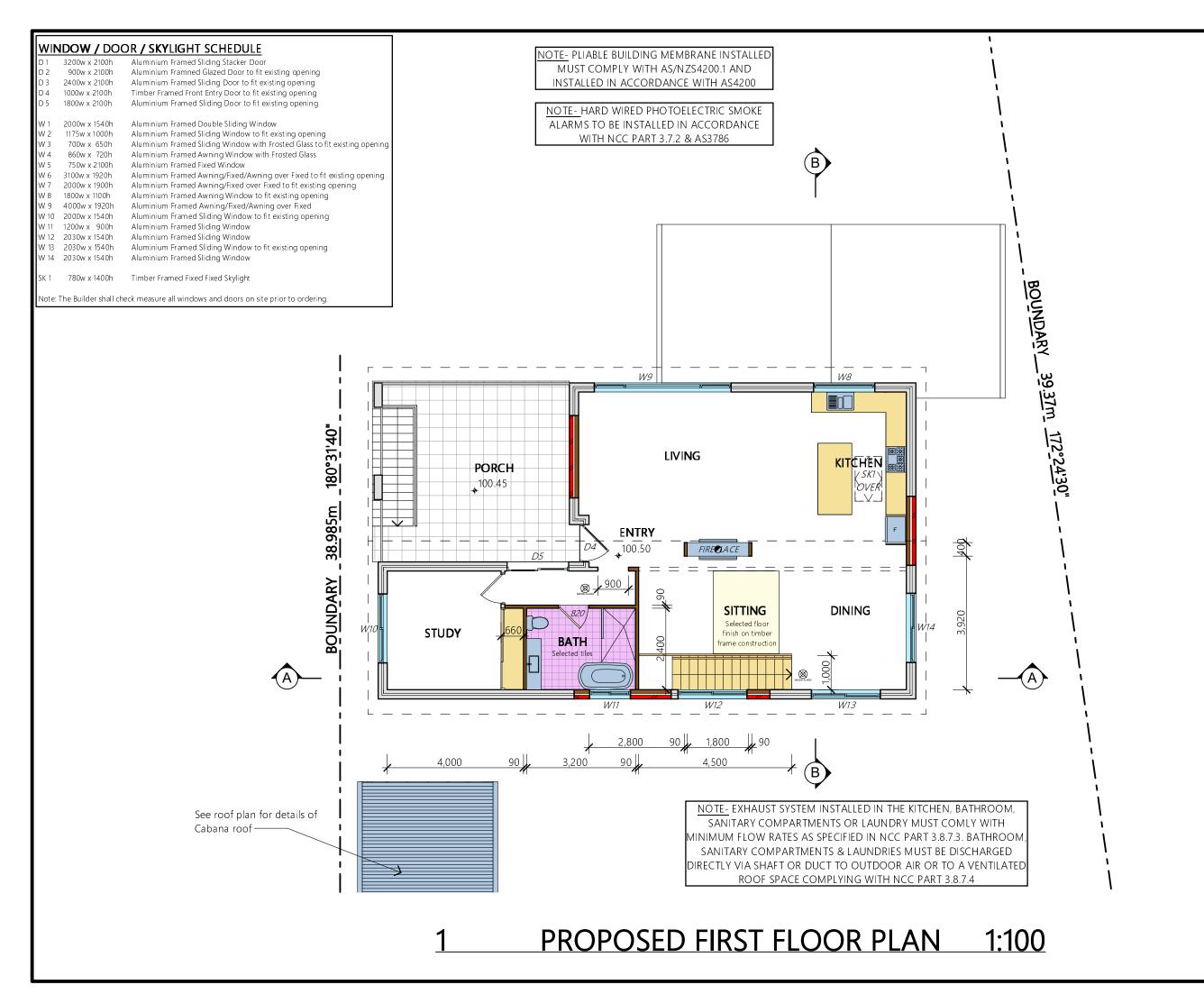




# **APPENDIX C**







#### NOTES

All work is to comply with the Building Code of Australia, the requirements of the local council, the requirements of the legally constituted Authorities for services and the relevant standards by the Standards Association of Australia.

The Builder is to give all notices, obtain all permits and pay all

Finished ground levels on the plan are subject to site conditions.

Do not scale from drawings. Use figured dimensions only ar report any discrepancies to the designer prior to commencement.

All figured dimensions to be checked on site.

#### **BUSHFIRE REQUIREMENTS**

All materials and construction methods shall meet AS3959-

#### BASIX INFORMATION REQUIREMENTS:

#### LIGHTING

A minimum of 40% of all new or altered light fixtures are to be fluorescent, compact fluorescent or L.E.D. lamps

#### WATER COMMITMENTS:

Fixtures:

tures: All new Shower heads, toilets and taps shall have a minimum 3 Star rating

#### ULATION REQUIREMENTS:

External walls: The external walls shall meet minimum R1,70 (including construction)

Suspended Floors: The new enclosed sub-floor shall meet minim

R 0.6 (down) (or R 1.30 including construction)
Ceilings: The new pitched roof, flst ceilings shall meet

minimum R 3,00 (up),

of: The roof shall have foil backed blanket (55mm

and be of dark colour (solar absorption >0,70)

#### WINDOWS/GLAZED DOORS & SKLYIGHTS:

All window and door numbers shown on the window and door schedule correspond to matching window/doorskylight numbers show in the Basix certificate.

The total area of glazing for each

window/door/skykight shall be no greater than that shown on the Basix certificate

Shading devices shall be installed in accordance with the Basix certificate

Frames and glazing: Frame and glazing types shall meet the

requirements of the Basix certificate



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MR. MOSLEH! & MS. GOGAN!

ject Name

PROPOSED ALTERATIONS + ADDITIONS
41 MILHAM CRESCENT
LOT 4, SEC 42, DP 239939
FORESTVILLE NSW 2087



ILDING 6, 49 FRENCHS FOREST ROAD EAST, FRENCHS FOREST NSW 2
PH. 0410 410 064 EMAIL julie@jahdesigns.com.au

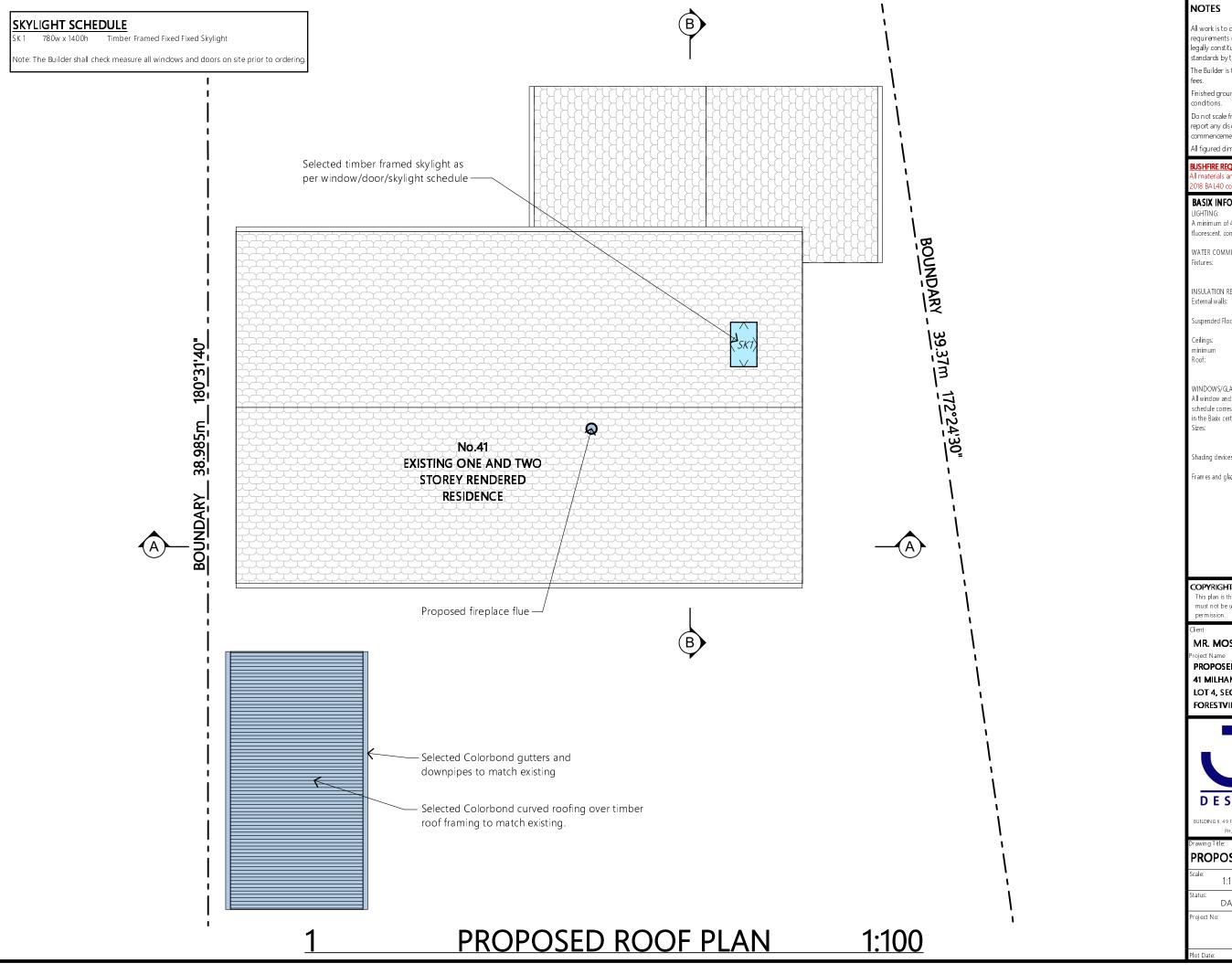
# Drawing Title: PROPOSED FIRST FLOOR PLAN

Scale:	1:100 @ A3	Date: FEBRUARY 2023	
Status:		Checked By:	
	DA submission	JAH	
Project No:		Drawing No.:	

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#### WATER COMMITMENTS:

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(including construction)

The new enclosed sub-floor shall meet minimu

R0.6 (down) (or R1.30 including construction). The new pitched roof, flst ceilings shall meet

R3.00 (up)

The roof shall have foil backed blanket (55mm) and be of dark colour (solar absorption > 0.70)

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PROPOSED ALTERATIONS + ADDITIONS 41 MILHAM CRESCENT LOT 4, SEC 42, DP 239939 FORESTVILLE NSW 2087



PH. 0410 410 064 EMAIL julie@jah designs.com.au

# PROPOSED ROOF PLAN

Status: DA submission Da submission Drawing No.:  Drawing No.:	2209	DA06
Status: Checked By:	Project No:	Drawing No.:
1.100 @ A3   FEBRUARY 2023		
Scale: Date:	Scale: 1:100 @ A3	Date: FEBRUARY 2023

