Agenda
Extraordinary Meeting

Thursday, 23 May 2024

BYRON
SHIRE
COUNCIL

Agenda Extraordinary Meeting

held at Council Chambers, Station Street, Mullumbimby commencing at 2:00 PM

Public access relating to items on this agenda can be made between 9:00 and 10:30 am on the day of the meeting. Requests for public access should be made to the General Manager or Mayor no later than 12:00 midday on the day prior to the meeting.

Mark Arnold
General Manager

CONFLICT OF INTERESTS

What is a "Conflict of Interests" - A conflict of interests can be of two types:

Pecuniary - an interest that a person has in a matter because of a reasonable likelihood or expectation of appreciable financial gain or loss to the person or another person with whom the person is associated.

Non-pecuniary – a private or personal interest that a Council official has that does not amount to a pecuniary interest as defined in the Code of Conduct for Councillors (eg. A friendship, membership of an association, society or trade union or involvement or interest in an activity and may include an interest of a financial nature).

Remoteness – a person does not have a pecuniary interest in a matter if the interest is so remote or insignificant that it could not reasonably be regarded as likely to influence any decision the person might make in relation to a matter or if the interest is of a kind specified in the Code of Conduct for Councillors.

Who has a Pecuniary Interest? - a person has a pecuniary interest in a matter if the pecuniary interest is the interest of the person, or another person with whom the person is associated (see below).

Relatives, Partners - a person is taken to have a pecuniary interest in a matter if:

- The person's spouse or de facto partner or a relative of the person has a pecuniary interest in the matter, or
- The person, or a nominee, partners or employer of the person, is a member of a company or other body that has a pecuniary interest in the matter.

N.B. "Relative", in relation to a person means any of the following:

(a) the parent, grandparent, brother, sister, uncle, aunt, nephew, niece, lineal descends or adopted child of the person or of the person's spouse;

(b) the spouse or de facto partners of the person or of a person referred to in paragraph (a)

No Interest in the Matter - however, a person is not taken to have a pecuniary interest in a matter:

- If the person is unaware of the relevant pecuniary interest of the spouse, de facto partner, relative or company or other body, or
- Just because the person is a member of, or is employed by, the Council.
- Just because the person is a member of, or a delegate of the Council to, a company or other body that has a pecuniary interest in the matter provided that the person has no beneficial interest in any shares of the company or body.

Disclosure and participation in meetings

- A Councillor or a member of a Council Committee who has a pecuniary interest in any matter with which the Council is concerned and who is present at a meeting of the Council or Committee at which the matter is being considered must disclose the nature of the interest to the meeting as soon as practicable.
- The Councillor or member must not be present at, or in sight of, the meeting of the Council or Committee:

(a) at any time during which the matter is being considered or discussed by the Council or Committee, or

(b) at any time during which the Council or Committee is voting on any question in relation to the matter.

No Knowledge - a person does not breach this Clause if the person did not know and could not reasonably be expected to have known that the matter under consideration at the meeting was a matter in which he or she had a pecuniary interest.

Non-pecuniary Interests - Must be disclosed in meetings.

There are a broad range of options available for managing conflicts & the option chosen will depend on an assessment of the circumstances of the matter, the nature of the interest and the significance of the issue being dealt with. Non-pecuniary conflicts of interests must be dealt with in at least one of the following ways:

- It may be appropriate that no action be taken where the potential for conflict is minimal. However, Councillors should consider providing an explanation of why they consider a conflict does not exist.
- Limit involvement if practical (eg. Participate in discussion but not in decision making or vice-versa). Care needs to be taken when exercising this option.
- Remove the source of the conflict (eg. Relinquishing or divesting the personal interest that creates the conflict)
- Have no involvement by absenting yourself from and not taking part in any debate or voting on the issue as of the provisions in the Code of Conduct (particularly if you have a significant non-pecuniary interest)

RECORDING OF VOTING ON PLANNING MATTERS

Clause 375A of the Local Government Act 1993 – Recording of voting on planning matters

(1) In this section, **planning decision** means a decision made in the exercise of a function of a council under the Environmental Planning and Assessment Act 1979:

(a) including a decision relating to a development application, an environmental planning instrument, a development control plan or a development contribution plan under that Act, but

(b) not including the making of an order under that Act.

(2) The general manager is required to keep a register containing, for each planning decision made at a meeting of the council or a council committee, the names of the councillors who supported the decision and the names of any councillors who opposed (or are taken to have opposed) the decision.

(3) For the purpose of maintaining the register, a division is required to be called whenever a motion for a planning decision is put at a meeting of the council or a council committee.

(4) Each decision recorded in the register is to be described in the register or identified in a manner that enables the description to be obtained from another publicly available document, and is to include the information required by the regulations.

(5) This section extends to a meeting that is closed to the public.

OATH AND AFFIRMATION FOR COUNCILLORS

Councillors are reminded of the oath of office or affirmation of office made at or before their first meeting of the council in accordance with Clause 233A of the Local Government Act 1993. This includes undertaking the duties of the office of councillor in the best interests of the people of Byron Shire and the Byron Shire Council and faithfully and impartially carrying out the functions, powers, authorities and discretions vested under the Act or any other Act to the best of one's ability and judgment.

BYRON SHIRE COUNCIL

BUSINESS OF EXTRAORDINARY MEETING

1. PUBLIC ACCESS WILL BE HELD AT 9AM

1. APOLOGIES

2. DECLARATIONS OF INTEREST – PECUNIARY AND NON-PECUNIARY

3. NOTICES OF MOTION AND RESCISSION

Councillors are encouraged to ask questions regarding any item on the business paper to the appropriate Director prior to the meeting. Any suggested amendments to the recommendations should be provided to Councillor Support prior to the meeting to allow the changes to be typed and presented on the overhead projector at the meeting.

NOTICES OF MOTION

Notice of Rescission Motion No. 4.1

PLANNING - DA 10.2023.491.1 - Dual Occupancy (detached) – 541 Federal Drive, Federal

File No: I2024/771

We move that Council rescind Resolution No. 24-191 from its Ordinary Planning meeting held on 16 May 2024 which reads as follows:

24-191 Resolved that:

1. That determination of Development Application No. 10.2023.491.1 for New Dwelling to create Dual Occupancy (Detached), be deferred subject to an amended design to be considered with the applicants to relocate the subject dwelling 50 to 80 metres to the north or north west of the proposed site to avoid land slip areas and the water bore/well.

2. The matter to then be reported back to Council at the next available Council meeting prior to the Caretaker period (from 16 August 2024) following those discussions.

If successful we intend to move:

That pursuant to Section 4.16 of the Environmental Planning & Assessment Act 1979, Development Application No. 10.2023.491.1 for New Dwelling to create Dual Occupancy (Detached), be granted consent subject to the conditions of approval at the end of this report.

Signed: Cr Michael Lyon

Cr Mark Swivel

Cr Asren Pugh

STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

PLANNING - DA 10.2023.491.1 - Dual Occupancy (detached) – 541 Federal Drive, Federal

5 **Directorate:** Sustainable Environment and Economy

Report Author: Jordan Vickers, Planner

File No: I2024/772

Proposal:

DA No:	10.2023.491.1		
Planning Portal ref	PAN-398199		
Proposal description:	New Dwelling to create Dual Occupancy (Detached)		
Property description:	LOT: 5 DP: 793657		
	541 Federal Drive FEDERAL		
Parcel No/s:	22690		
Applicant:	Ms K J Ackland		
Owner:	Ms K J Ackland		
Zoning:	C2 Environmental Conservation / PART RU2 Rural Landscape		
Date received:	21 December 2023		
Integrated / Designated Development:	☐ Integrated	☐ Designated	☒ Not applicable
Concurrence required	No		
Public notification or exhibition:	– Level 1 advertising under Council's Community Participation Plan. – Exhibition period: 11/1/24 to 24/1/24		

	– Submissions received: 2 – Submissions acknowledged: ☒ Yes ☐ No ☐ N/A				
Concurrent approvals included with DA	☐ N/A	☐ ~~W & S (68)~~	☒OSMS (68)	☐ ~~ST (68)~~	☐ ~~RA (138)~~
	Other:				
Planning Review Committee	7 March 2024 – Decision Maker: Council Meeting				
Variation request to Development Standards under an EPI (eg clause 4.6)	Not applicable				
Estimated cost	$317,513.00				
Delegation to determine	Council				
Issues	Bushfire prone land Public submission				
Summary:	The DA proposes New Dwelling to create Dual Occupancy (Detached). The application appropriately addresses the relevant constraints applying to the site, and is recommended for approval subject to the conditions listed in the Recommendation of this Report below.				
Recommendation:	**Pursuant to Section 4.16 of the Environmental Planning & Assessment Act 1979, Development Application No. 10.2023.491.1 for New Dwelling to create Dual Occupancy (Detached), be granted consent subject to the conditions of approval at the end of this report**				

Summary:

This application seeks approval for new Dwelling to create Dual Occupancy (Detached). The proposed dual occupancy dwelling is comprised of two bedrooms, laundry, bathroom and an open-plan living and kitchen area. The dwelling is located 80m from the existing dwelling on the allotment and will gain access via the existing driveway at the property as required by the LEP, Clause 4.2A. It will be serviced by rainwater tanks and an On-site Sewage Management System. Minor cut/fill/batter is required to establish the driveway and building pad for the development, with excavation and retaining up to 1m.

Submissions have been received highlighting concerns regarding: the possibility of landslip in the vicinity, the driveway is not suitable for increased use, and that contaminated fill has been used at the site. In relation to slope and land stability, the site of the subject dwelling is located to the south of the existing dwelling and some 140 metres from the Landslip on Federal drive.

Council's Development Engineer reviewed a Geotechnical Report prepared by qualified geotechnical consultants for the development. It was found that that the site is a Low Risk and is suitable for the proposed dwelling. In terms of access to the dwelling existing and proposed arrangements from Federal Drive are adequate for this development. A Preliminary Contaminated Land assessment was submitted, and it is considered the location of the building is not contaminated and is suitable for a residential use.

The proposal is recommended to be approved, subject to conditions.

NOTE TO COUNCILLORS:

In accordance with the provisions of S375A of the Local Government Act 1993, a Division is to be called whenever a motion for a planning decision is put to the meeting, for the purpose of recording voting on planning matters. Pursuant to clause 2(a) under the heading Matters to be Included in Minutes of Council Meetings of Council's adopted Code of Meeting Practice (as amended) a Division will be deemed to have been called by the mover and seconder of all motions relating to this report.

RECOMMENDATION:

That pursuant to Section 4.16 of the Environmental Planning & Assessment Act 1979, Development Application No. 10.2023.491.1 for New Dwelling to create Dual Occupancy (Detached), be granted consent subject to the conditions of approval at the end of this report

Attachments:

1 DA10.2023.491.1 Plans for Approval, E2024/47892 , page 28
2 DA10.2023.491.1 Conditions of Consent, E2024/47893 , page 33
3 DA10.2023.491.1 Submissions redacted, E2024/48248 , page 54
4 DA10.2023.491.1 Geotechnical Report - New Dual Occupancy - 541 Federal Drive, Federal, E2024/47887 , page 63

Assessment:

1. INTRODUCTION

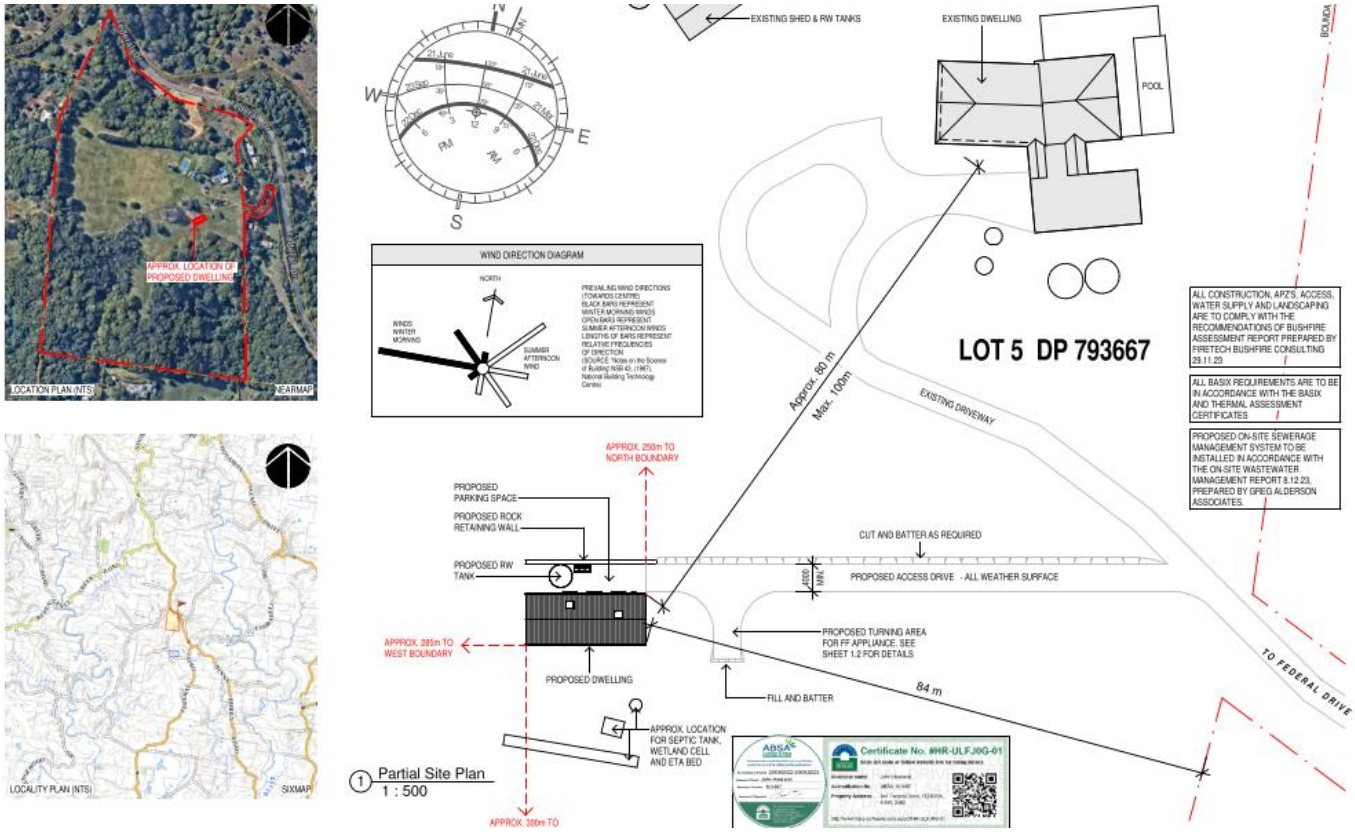
History/Background

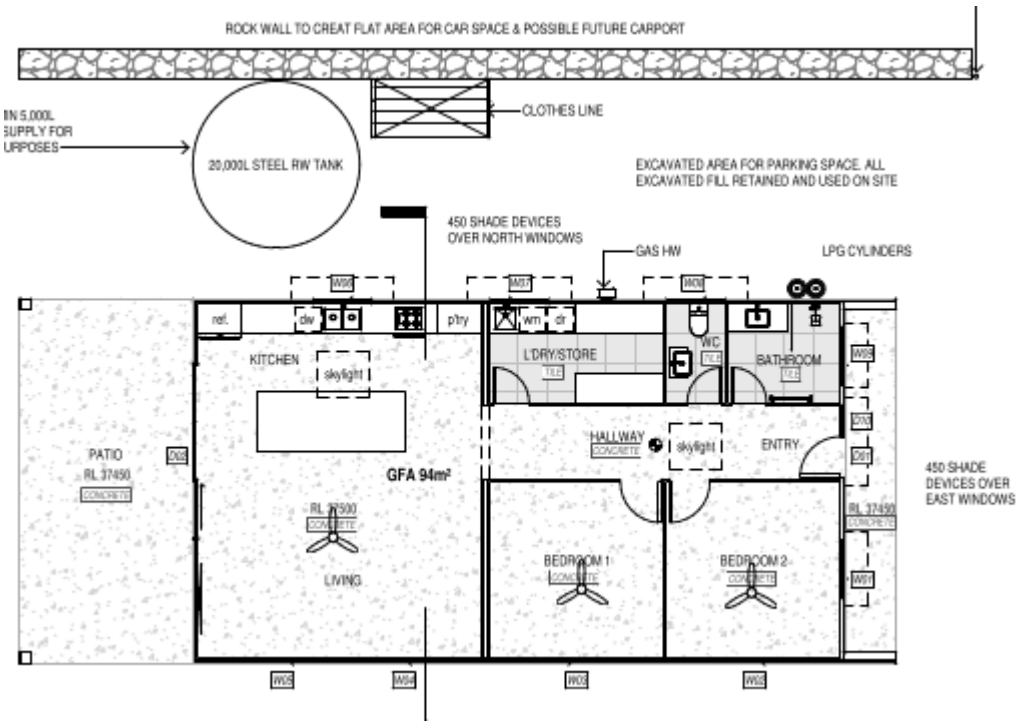
A search of Council records indicates the following relevant site history:

DA No.	Description	Outcome	Date
10.2003.417.1	Dwelling house & carport	Approved	28/10/2003
10.2003.417.2	Mod: OSMS	Refused	19/05/2005
10.2007.413.3	Mod: OSMS	Approved	17/08/2005
10.2017.175.1	Alts & Adds to Dwelling, new swimming pool	Approved	14/07/2017
10.2022.148.1	Tennis Court lighting	Approved	05/05/2022

Description of the proposed development

This application seeks approval for New Dwelling to create Dual Occupancy (Detached). The proposed dual occupancy dwelling is comprised of two bedrooms, laundry, bathroom and an open-plan living and kitchen area. The dwelling is located 80m from the existing dwelling on the allotment and will gain access via the existing driveway at the property. It will be serviced by rainwater tanks and an On-site Sewage Management System. Minor cut/fill/batter is required to establish the driveway and building pad for the development, with excavation and retaining up to 1m.


APPROX. LOCATION OF PROPOSED DWELLING
LOCATION PLAN (NTS)
NEARMAP
LOCALITY PLAN (NTS)
SIXMAP
WIND DIRECTION DIAGRAM
EXISTING SHED & RW TANKS
EXISTING DWELLING
POOL
LOT 5 DP 793667
ALL CONSTRUCTION, APZ'S, ACCESS, WATER SUPPLY AND LANDSCAPING ARE TO COMPLY WITH THE RECOMMENDATIONS OF BUSHFIRE ASSESSMENT REPORT PREPARED BY FIRETECH BUSHFIRE CONSULTING 29.11.23
ALL BASIX REQUIREMENTS ARE TO BE IN ACCORDANCE WITH THE BASIX AND THERMAL ASSESSMENT CERTIFICATES
PROPOSED ON-SITE SEWERAGE MANAGEMENT SYSTEM TO BE INSTALLED IN ACCORDANCE WITH THE ON-SITE WASTEWATER MANAGEMENT REPORT 8.12.23, PREPARED BY GREG ALDERSON ASSOCIATES.
Approx. 60 m
Max. 100m
EXISTING DRIVEWAY
APPROX. 250m TO NORTH BOUNDARY
PROPOSED PARKING SPACE
PROPOSED ROCK RETAINING WALL
PROPOSED RW TANK
CUT AND BATTER AS REQUIRED
4000 MIN
PROPOSED ACCESS DRIVE - ALL WEATHER SURFACE
APPROX. 285m TO WEST BOUNDARY
PROPOSED TURNING AREA FOR FF APPLIANCE. SEE SHEET 1.2 FOR DETAILS
PROPOSED DWELLING
FILL AND BATTER
84 m
TO FEDERAL DRIVE
APPROX. LOCATION FOR SEPTIC TANK, WETLAND CELL AND ETA BED
Certificate No: #HR-ULFJ0G-01
APPROX. 300m TO
1 Partial Site Plan
1 : 500

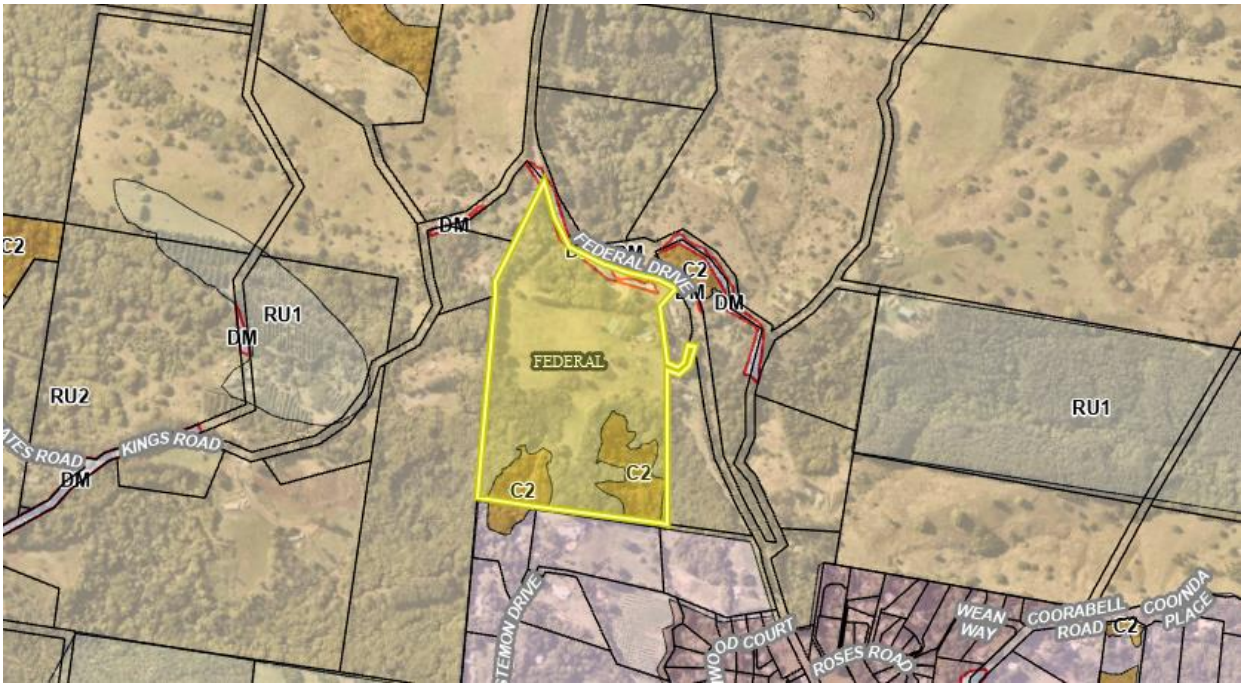

ROCK WALL TO CREAT FLAT AREA FOR CAR SPACE & POSSIBLE FUTURE CARPORT
CLOTHES LINE
IN 5,000L SUPPLY FOR URPOSES
20,000L STEEL RW TANK
EXCAVATED AREA FOR PARKING SPACE. ALL EXCAVATED FILL RETAINED AND USED ON SITE
450 SHADE DEVICES OVER NORTH WINDOWS
GAS HW
LPG CYLINDERS
KITCHEN
skylight
L'DRY/STORE
WC
BATHROOM
HALLWAY
ENTRY
PATIO
RL 37490
GFA 94m²
LIVING
BEDROOM 1
BEDROOM 2
450 SHADE DEVICES OVER EAST WINDOWS

Description of the site

The subject site known as 541 Federal Drive, Federal and legally described as Lot 5 on DP793657 has a site area of 22.41ha and is located within the Environmental Conservation (C2) and Rural Landscape (RU2) zones of the Byron LEP 2014. It is identified as Bushfire Prone land containing high environmental value vegetation, and is traversed by Essential Energy overhead infrastructure. The property is improved by an existing dwelling house, tennis court and shed. Access is granted to the property via an existing crossover at Federal Drive.

A site inspection was carried out on 12 February 2024

Land is legally described	LOT: 5 DP: 793657	
Property address	541 Federal Drive FEDERAL	
Land is zoned:	C2 Environmental Conservation / PART RU2 Rural Landscape	
Land area is:	22.41 ha	
Property is constrained by:	Bushfire prone land High Environmental Value	
	Is a BDAR required due to the location of the proposed development?	☐ Yes ☒ No
	Are there any easements in favour of Council affecting the site?	☐ Yes ☒ No
	Is there a Vegetation Management Plan which might affect the proposal?	☐ Yes ☒ No
	Is there a Voluntary Planning Agreement which might affect the proposal?	☐ Yes ☒ No


C2
DM
FEDERAL DRIVE
C2
DM
DM
RU1
DM
FEDERAL
RU2
RU1
KINGS ROAD
DM
C2
C2
TEMON DRIVE
OD COURT
ROSES ROAD
WEAN WAY
COORABELL ROAD
C2
COONDA PLACE


FEDERAL DRIVE
FEDERAL
CHARLTON

5

Figure 1: Dwelling site, viewed east - west

Figure 2: Dwelling site, viewed south - north

Figure 3: Proposed Driveway location. Viewed west - east

Figure 4: Disused windmill and well adjacent to proposed driveway location. Viewed west - east

Figure5: Disused windmill & well (1), proposed driveway (2) and dwelling location (3). Viewed east - west

2. SUMMARY OF REFERRALS

Referral	Issue

Referral	Issue
Environmental Health Officer*	No objections subject to conditions.
Development Engineer	No objections subject to conditions.
S7.11 / Contributions Planner	No objections subject to conditions.

3. SECTION 4.14 – BUSH FIRE PRONE LAND

Under section 4.14 of the Act, Council must be satisfied prior to making a determination for development on bush fire prone land, that the development complies with the document *'Planning for Bush Fire Protection 2019'*. The site is bush fire prone land. The development application is accompanied by a Report by FireTech dated 29/11/2023 which provides conditions. Conditions are included in the Recommendation of this Report requiring that the development must comply at all times with the requirements of the forementioned report.

Effect of 10/50 rule on significant vegetation

A search for the subject site was conducted on the Rural Fire Service website to determine the 10/50 status. The search identified the following:

> "*The parcel of land you have selected is located in a designated 10/50 vegetation entitlement clearing area. You must read the 10/50 Code of Practice carefully to ensure that you are only clearing in accordance with the 10/50 Code. For more information see our frequently asked questions.*"

Accordingly, the land owner may clear vegetation in accordance with the 10/50 Vegetation Clearing Code Of Practice For New South Wales.

4. SECTION 4.15C – MATTERS FOR CONSIDERATION – DISCUSSION OF ISSUES

Having regard to the matters for consideration detailed in Section 4.15(1) of the Environmental Planning & Assessment Act 1979 (EP&A Act), the following is a summary of the evaluation of the issues.

State Environmental Planning Policies (SEPP)

Considerations	Satisfactory	Unsatisfactory
Resilience and Hazards SEPP 2021	☒	☐

Considerations	Satisfactory	Unsatisfactory
Chapter 4: Remediation of land Consideration: Council's Environmental Health Officer (EHO) reviewed the submitted preliminary contaminated land assessment (PSI) and concurs that the site is suitable for the proposed residential use. Council's EHO gave specific regard to matters raised in public submissions pertaining to the deposition of "potentially contaminated fill" at the building pad. In this regard the soil samples used for the PSI were taken (27/11/2023) after the deposition of mulch at the location of the building pad, which occurred prior to 16 September 2023 (confirmed by aerial imagery).		
Sustainable Buildings SEPP 2022 Consideration: The proposal is accompanied by a valid BASIX and NatHers certificate. The SEPP has been addressed and the proposal is considered to comply.	☒	☐

4.2A Byron Local Environmental Plan 2014 (LEP 2014)

In accordance with LEP 2014 clauses 1.4 and 2.1 – 2.3:

(a) The proposed development is defined in the LEP 2014 Dictionary as Dual occupancy;

(b) The land is within the C2 Environmental Conservation / PART RU2 Rural Landscape according to the Land Zoning Map;

(c) The proposed development is permitted with consent; and

(d) Regard is had for the Zone Objectives as follows:

Zone Objective	Consideration
C2 Environmental Conservation	The proposal takes place entirely within the Rural Landscape (RU2) zone and assessment against the C2 zone is not required.
Rural Landscape (RU2) zone Objectives • To encourage sustainable primary industry production by maintaining and enhancing the	The proposal considers the continued use of the land for residential purposes. The Dual occupancy dwelling is proposed to

natural resource base. • To maintain the rural landscape character of the land. • To provide for a range of compatible land uses, including extensive agriculture. • To enable the provision of tourist accommodation, facilities and other small-scale rural tourism uses associated with primary production and environmental conservation consistent with the rural character of the locality. • To protect significant scenic landscapes and to minimise impacts on the scenic quality of the locality.	be located 80m from the existing dwelling on the property, and is unlikely to adversely impact on the rural character of the land. It is considered the proposal will not detract from the rural landscape character or scenic quality of the locality and is not inconsistent with the zone objectives.
Clause 4.2D Erection of Dual Occupancies and secondary dwellings in Zones RU1 and RU2	It is considered the proposed dual occupancy complies with the provisions of the clause as follows: • the dwelling located 80 metres from the primary dwelling, • will use the same driveway as the existing dwelling • the site is considered suitable for the dwelling in terms of agricultural uses and onsite effluent disposal • wont have an adverse impact scenic amenity or character of the rural environment.
Clause 4.3 Height of Buildings	The proposed single storey dwelling with a height of approximately 5 metres complies with the 9 metre height limit.
Clause 6.5 Drinking water catchments	The main potential impact from the proposal like others within the Wilsons River Drinking Water Catchment is from the disposal of effluent onsite. The proposal has been designed with a septic tank with secondary treatment via a wetland before disposal via an ETA bed. The proposal is considered suitable with conditions of consent to apply.
Clause 6.6 Essential Services	All necessary services are available for the development.

4.3 Any proposed Instrument that has been the subject of public consultation and has been notified to the consent authority

There are no proposed Environmental Planning Instruments of relevance to the proposal.

4.4 Byron Shire Development Control Plan 2014 (DCP 2014)

Chapter D2 Residential Accommodation and Ancillary Development in Rural Zones

The proposed dual occupancy is satisfactory in terms of the general provisions and is suitably setback from surrounding properties which are predominantly used for rural residential type purposes. As discussed above the proposal is unlikely to have an impact upon the scenic qualities of the locality and the dwelling is to be clad in dark color-bond as opposed to surf mist or other highly reflective materials.

Adequate room is available on site for car parking and effluent disposal and the dwelling is setback some 84 metres from the closest boundary complying with the minimum 10 metres as prescribed under the DCP.

The proposal is considered acceptable in terms of the provisions of D2 and raises no other issues under DCP 2014.

4.5 Environmental Planning and Assessment Regulation 2021

	Applicable to the proposal:	**Considered the control as it relates to the proposal:**	**If this control is applicable, does the proposal comply?**
Section 61 - Additional matters that consent authority must consider	☐ Yes ☒ No	☐ Yes ☐ No ☒ NA	☐ Yes ☐ No ☒ NA
Section 62 - Consideration of fire safety	☐ Yes ☒ No	☐ Yes ☐ No ☒ NA	☐ Yes ☐ No ☒ NA
Section 64 - Consent authority may require upgrade of buildings	☐ Yes ☒ No	☐ Yes ☐ No ☒ NA	☐ Yes ☐ No ☒ NA
Section 63 - Considerations for erection of temporary structures	☐ Yes ☒ No	☐ Yes ☐ No ☒ NA	☐ Yes ☐ No ☒ NA

** Non-compliances and any other significant issues discussed below*

4.6 The likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality

Impact on:	Likely significant impact/s?
Natural environment	No. The proposal will not have a significantly adverse impact on the natural environment of the locality.
Built environment	No. The proposal will not have a significantly adverse impact on the built environment of the locality.
Social Environment	No. The proposal will not have a significant social impact on the locality.
Economic impact	No. The proposal will not have a significant economic impact on the locality.
Construction Impacts	No. The development will generate minor impacts during its construction. Conditions of consent recommended to control hours of work, builders waste, construction noise, installation of sedimentation and erosion control measures and the like to ameliorate such impacts.

Marine Estate Management Act 2014

5 The development is unlikely to have an effect on the plants or animals within the Cape Byron Marine Park or their habitat.

Council Policies applicable to the proposed development?

Council Policies applicable to the proposed development have been considered through the assessment of this application with relevant conditions imposed where necessary.

10 ## 4.7 The suitability of the site for the development

Issue	Comment
Services - Water/ Sewer/ Stormwater - Ph/ power - Access	- The dwelling will be serviced by 40,000L rainwater tanks for domestic water supply. - An On-site Sewage Management System is proposed for the dwelling. - Stormwater can be accommodated on site - Telecommunications and electricity infrastructure are available at the property.

	- Access is provided to the property via Federal Drive.
Onsite Effluent Disposal	- An On-site Sewage Management System is proposed for the dwelling.
Bushfire	The land is identified as bushfire pone and a Bushfire Assessment report accompanies the proposal. Conditions of consent will apply as recommended.
Land Use conflicts	The proposal considers the continued use of the land for residential purposes. It does not introduce any land uses which may cause conflict within the locality. Surrounding land uses are predominantly rural residential, particularly on immediately adjoining lots.

Land Slip

A Geotechnics report was submitted by OB Geotechnics for the subject site. Slopes were considered moderate compared to the where the landslip occurred on Federal Drive. An extract from there plan is provided below.

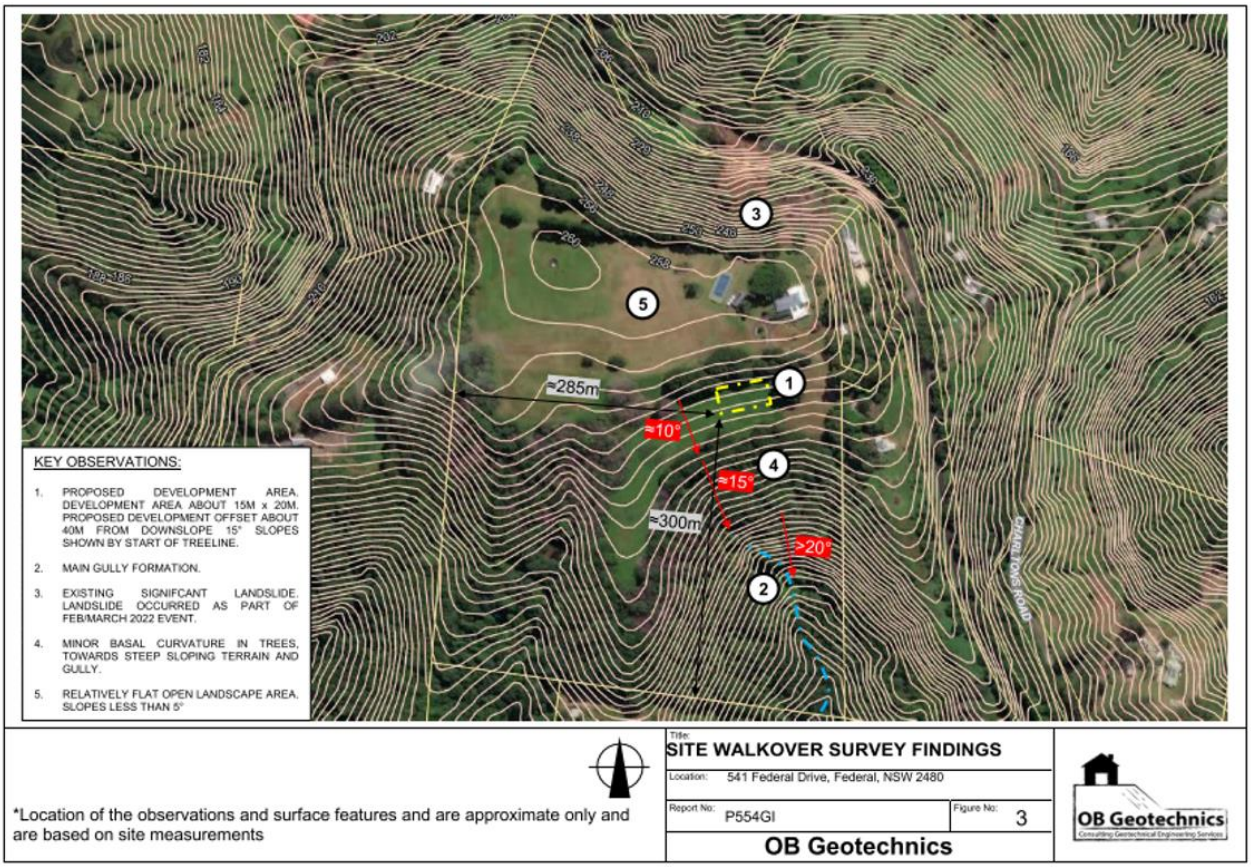
The review of the Geotechnical Report prepared by OB Geotechnics is based on a quantitative analysis in accordance with Australian Geomechanics Society, Practice Note Guidelines for Land Risk Management, Volume 42, No. 1, March 2007. The summary is tabulated below: -

LANDSLIDE SUSCEPTIBILITY ANALYSIS	
DA NO	10.2023.491.1
SITE	541 Federal Drive, Federal
DATE	30/04/2024

Relative Susceptibility Risk	**0.3**
Land Susceptibility Risk	**Low**

	Summary	Grade Factor	Level	Description
1	Natural Surface Slope	**0.8**	**M**	Between 15° to 30°
2	Slope Shape	**0.9**	**M**	Planar or convex
3	Site Geology	**1.1**	**H**	Volcanic Extrusive Rock
4	Soils	**0.9**	**M**	Residual Soils 1m to 3m deep
5	Fill Height	**1.1**	**M**	< 1m
6	Evidence of Groundwater	**0.7**	**L**	None apparent
7	Cut Height	**1.1**	**M**	< 1m
8	Slope of Cut Face	**0.5**	**L**	Less than 30°
9	Material in Cutting	**1.2**	**M**	Low Strength Rock
10	Cut Slope Support	**0.5**	**L**	Concrete/Block/Engineered Wall
11	Concentration of Surface Water	**0.9**	**M**	Upper slope
12	Waste Disposal	**1.5**	**H**	On-site Disposal - Soak Pit/Trenches
13	Stormwater Disposal	**1.5**	**H**	Stormwater Discharge to Site
14	Evidence of Instability	**0.8**	**L**	No signs of instability
Relative Susceptability (1×2×3×4×5×6×7×8×9×10×11×12×13×14)				

As discussed in the report, The landslip risk assessment results show the that the proposed new dual occupancy development has been assigned a risk instability of “Low” in accordance with AGS2007c. The proposal is supported by Councils development engineer who has recommended conditions of consent accordingly.



4.8 Submissions made in accordance with this Act or the Regs.

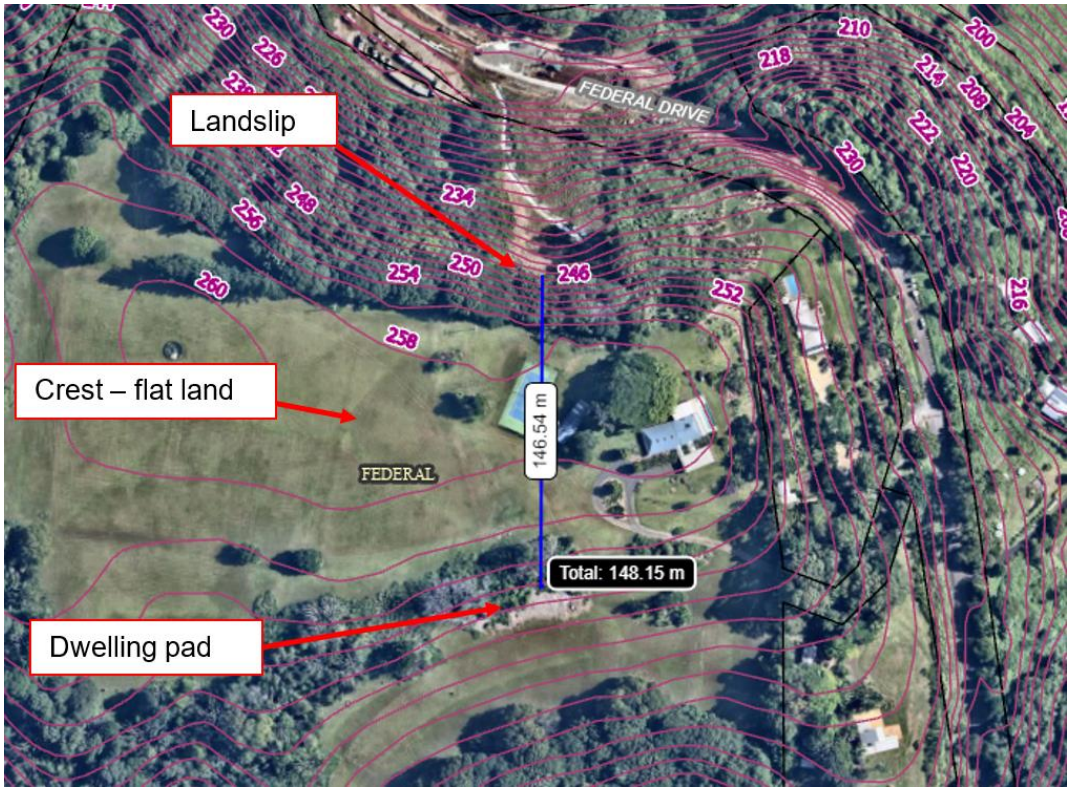
The development application was publicly exhibited.

There were **2** submissions of opposition made on the development application which are discussed hereafter:

- **Landslide hazard**

  The property is adjacent to the landslip which occurred at Federal Drive and highlights concerns that the location of the proposed Dual occupancy will contribute to further instability at their land. The submitter notes that the development site (and greater locality) are well known for underground springs which can cause landslip when disturbed.

  Comment:
  The Federal Drive landslip occurred within the northern portion of the development site, on significantly steep land. The proposed dwelling is located approximately 140m to the south of the landslip, with substantially less gradient, on the opposite site of the crest to the landslip (see below).



Council's Development Engineer reviewed the proposal and the submitted geotechnical report and it is considered that landslip is not an issue for this proposed development.

- **Relocation of Contaminated Soil to the site**

The submission notes that they were *advised* by a tip truck driver that the site was the destination of up to 60 tipper loads (approximately 600 tonnes) of soil, relocated from the landslip at Federal Drive. The submitter is concerned that this soil is contaminated (having come from former banana plantation land) and will contribute to contamination of the environment and water table. In this regard the submitter notes the soil was then mulched up.

Comment: The matter was raised with the applicant planning consultant Chris Pratt from Planning resolutions) who advised the following:

The owner advises that there *was no soil or fill delivered or moved to the site from the Federal Slip works. She was offered mulch created from fallen trees and some of the basalt rocks/ boulders that came from the Federal drive landslip area on her property. These were delivered by Byron shire Council contractors working on the Federal Slip. The basalt rocks and bounders were delivered to the tree line on the south side of the lower field away from the proposed dwelling site. The mulch and rocks are evident in the photograph. (See below) The land contamination assessment by Greg Alderson and Associates was carried out after this photo was taken.*

Council's Environmental Health Officer (EHO) reviewed the submitted preliminary contaminated land assessment (PSI) and concurs that the site is suitable for the proposed residential use. The soil testing was carried out after mulch was placed on house site. The report indicates the samples were taken on 22 November 2023. There is no evidence to suggest the land is contaminated. The area of the dwelling has a layer of mulch over it and there is no evidence of 60 trucks loads of soil being disposed of at the house site.

- **Use of shared driveway**

  It is suggested that the driveway is not designed for or in a condition to support additional dwellings, and that insufficient sight-distances exist.

  Comment: Council's Development Engineer has reviewed the proposal and notes that the driveway and access is suitable and can be upgraded via Roads Act consent to upgrade the driveway. It is understood the neighbour next door benefits from a right of way over the driveway on the subject land. It is considered the driveway can cater for the additional dwelling and the extra traffic that generates. Conditions of consent are recommended accordingly for the driveway crossover within the road reserve to be resealed.

- **Old windmill and bore**

  Proposal will have an impact on the bore and groundwater quality

  Comment: The applicant has advised the old windmill has not been in operation for pumping water since the 1990's and has been covered over with metal sheets and

concrete blocks. The well is also above the land application area. The applicant advises the windmill is to be removed and the well permanently sealed to prevent future use and any potential impacts of cross contamination. Conditions to apply.

- **Proposed dwelling location**

The proposed dwelling location is prone to landslip and contains contaminated soil, and is an inappropriate location for the proposed dual occupancy dwelling.

Comment: As discussed above the proposed site is considered suitable for the development.

4.9 Public interest

The proposed development is unlikely to prejudice or compromise the public interest or create an undesirable precedent.

5. DEVELOPER CONTRIBUTIONS

5.1 Water & Sewer Levies

No Section 64 levies will be required.

5.2 Developer Contributions

Section 7.11 Contributions will be payable.

6. DISCLOSURE OF POLITICAL DONATIONS AND GIFTS

Disclosure details	**Response**
Has a Disclosure Statement been received in relation to this application? If Yes, Provide Disclosure Statement register reference: 91.	Yes ☐ No ☒
Have staff received a 'gift' from anyone involved in this application that needs to be disclosed.	Yes ☐ No ☒

7. CONCLUSION

The DA proposes New Dwelling to create Dual Occupancy (Detached).

The proposed development is satisfactory having regard to the relevant environmental planning instruments and planning controls applicable to the site. The proposal raises no significant issues in terms of environmental impacts which cannot be managed. The site is a serviced, unconstrained property and is considered suitable for the proposed development.

The application appropriately addresses the relevant constraints applying to the site, and is recommended for approval subject to the conditions listed in the Recommendation of this Report.

DEVELOPMENT APPLICATION

SINGLE DWELLING TO CREATE DUAL OCCUPANCY

LOT 5 DP 793667
541 FEDERAL RD
FEDERAL, NSW, 2480

ACKLAND

SHEET LIST	
SHEET NUMBER	SHEET NAME
1.0	SITE PLAN, SITE ANALYSIS, LOCATION & LOCALITY PLAN
1.1	FLOOR PLAN
1.2	ROOF PLAN, CONCEPT SW/WATER PLAN, FF APPLIANCE TURNING HEAD PLAN
1.3	ELEVATIONS & SECTION

ALEXANDER BUILDING DESIGN
43 SEASWELL CRESCENT
LENNOX HEAD, NSW, 2478
0421 080 570
jared@alexanderbuildingdesign.com.au

PROJECT
Dual Occupancy Dwelling

ADDRESS
Lot 5 DP 793667
541 Federal Drive
Federal NSW

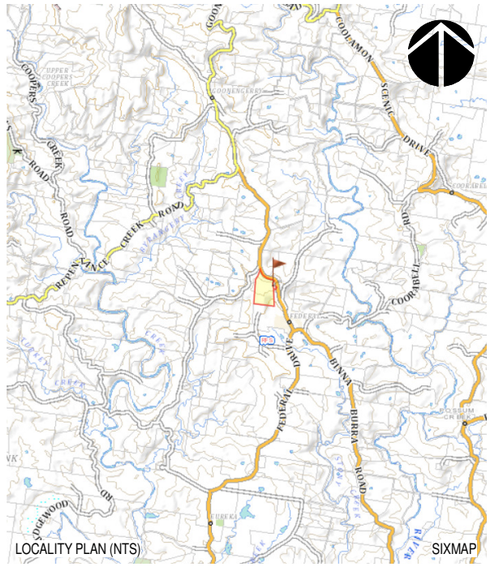
CLIENT
Ackland

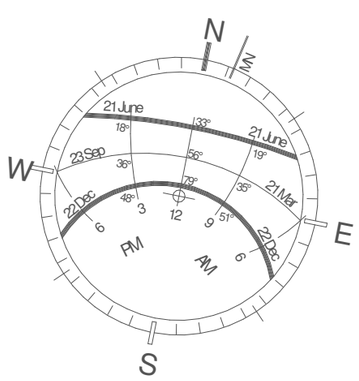
ISSUE	DATE	DESCRIPTION
A	14.12.23	DA PLAN SET
B	08.03.24	AMENDED DA PLAN SET AS PER COUNCIL RFI - 04.03.24

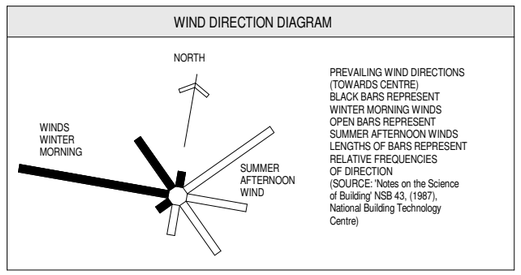
DEVELOPMENT APPLICATION

SHEET TITLE
COVER SHEET

DATE **08.03.24**
SCALE **1 : 10** **@A3**
DWG NO. **0.0**







1 Partial Site Plan
1 : 500

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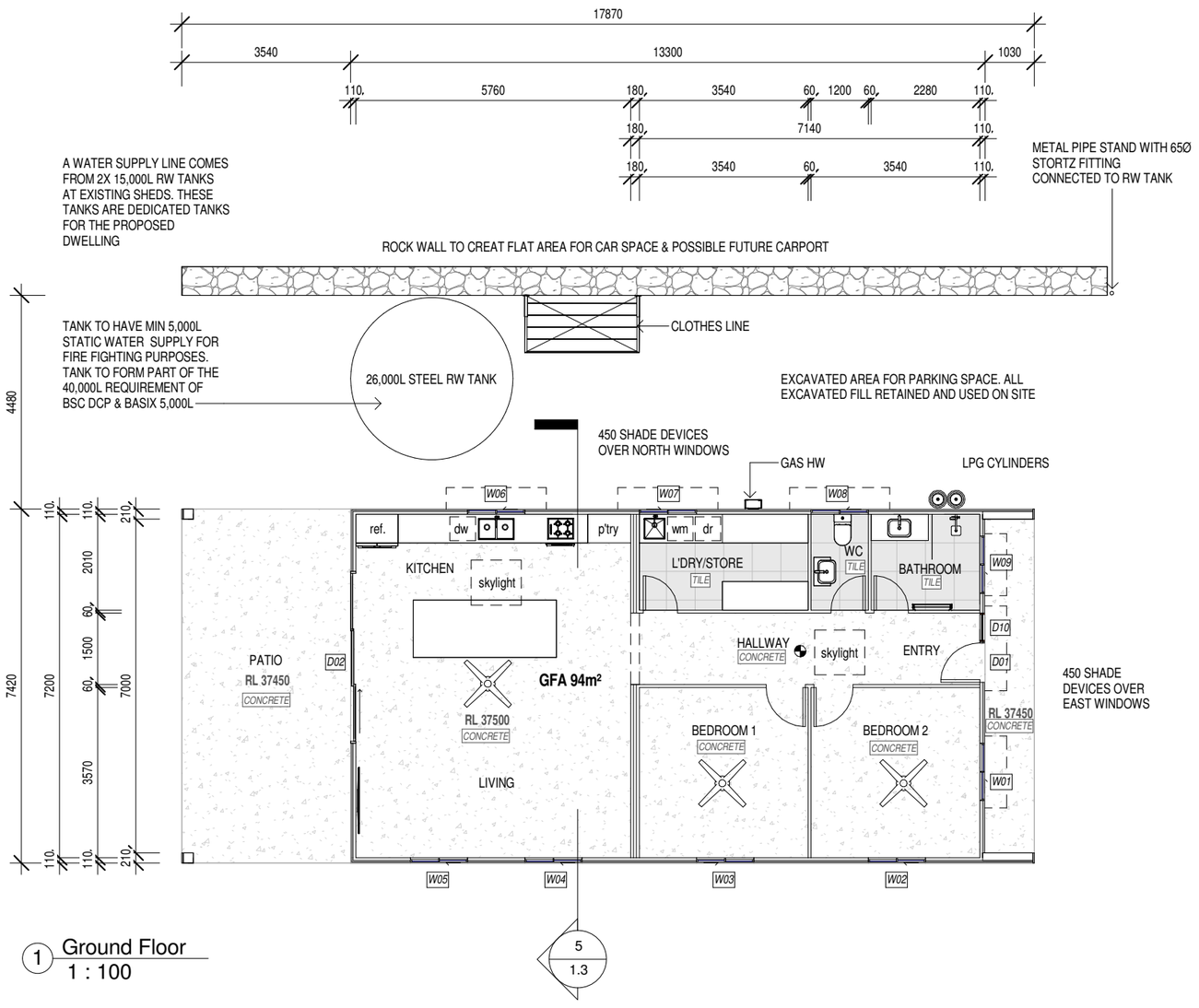
DEVELOPMENT APPLICATION

SHEET TITLE
SITE PLAN, SITE ANALYSIS, LOCATION & LOCALITY PLAN

0 5 25 50 m

DATE **08.03.24**
SCALE **As indicated @A3**
DWG NO. **1.0**



1 Ground Floor
1 : 100

450 SHADE DEVICES OVER EAST WINDOWS

WINDOW & DOOR SCHEDULE

No.	HEIGHT	WIDTH	SILL	TYPE
W01	1500	1200	600	S
W02	1500	1200	600	S
W03	1500	1200	600	S
W04	1500	1200	600	S
W05	1500	1200	600	S
W06	1200	1200	900	S
W07	1200	1200	900	S
W08	600	1200	1500	S
W09	600	1200	1500	S
W10	2100	600	0	L
D01	2100	920		HD
D02	2100	3520		SSD
S01	1200	1200		F
S02	1200	1200		F

S SLIDING
L LOUVRE
HD HINGED DOOR
SSD SLIDING STACKING DOOR
F FIXED

ALL CONSTRUCTION, APZ'S, ACCESS, WATER SUPPLY AND LANDSCAPING ARE TO COMPLY WITH THE RECOMMENDATIONS OF BUSHFIRE ASSESSMENT REPORT PREPARED BY FIRETECH BUSHFIRE CONSULTING 29.11.23

ALL BASIX REQUIREMENTS ARE TO BE IN ACCORDANCE WITH THE BASIX AND THERMAL ASSESSMENT CERTIFICATES

SMOKE DETECTORS ARE TO BE CONNECTED TO THE MAIN POWER SUPPLY AND HAVING A STAND BY POWER IN ACCORDANCE WITH AS3783-1993

PROPOSED ON-SITE SEWERAGE MANAGEMENT SYSTEM TO BE INSTALLED IN ACCORDANCE WITH THE ON-SITE WASTEWATER MANAGEMENT REPORT 8.12.23, PREPARED BY GREG ALDERSON ASSOCIATES.

BASIX SPECS -MINIMUM REQUIREMENTS
PLANS TO BE READ IN CONJUNCTION WITH BASIX & NATHERS CERTIFICATES.

WATER COMMITMENTS

FIXTURES:
-ALL SHOWER HEADS MUST BE INSTALLED WITH A MINIMUM 4 STAR RATING (>4.5 BUT <6L/M).
-ALL TOILETS MUST BE INSTALLED WITH A MINIMUM 4 STAR RATING.
-ALL NEW TAPS MUST BE INSTALLED WITH A MINIMUM 4 STAR RATING.

ALTERNATIVE WATER:
-A RAINWATER TANK MUST BE INSTALLED WITH A MIN. CAPACITY OF 5,000L AND RECEIVE RUNOFF FROM A MIN. 150M² OF ROOF AREA.
-RAINWATER TANK MUST BE INSTALLED TO ALL FIXTURES & MIN. ONE OUTDOOR TAP.

THERMAL COMFORT COMMITMENTS

WINDOWS, GLAZED DOORS, SKYLIGHTS:
-ALL GLAZING (22M²) MUST COMPLY WITH THE NATHERS CERTIFICATE.

FLOOR, WALLS & CEILING/ROOF:
FLOOR:
-CONCRETE SLAB ON GROUND: NIL

EXTERNAL WALL:
-METAL FRAMED (METAL CLAD): ROCKWOLL BATTS+FOIL/SARKING (R-VALUES AS PER NATHERS CERTIFICATE)

INTERNAL WALL:
-METAL FRAMED (PLASTERBOARD): NIL

CEILING & ROOF:
-RAKED CEILING, PITCHED OR SKILLION ROOF, METAL FRAMED, METAL ROOF: ROCKWOLL BATTS+FOIL/SARKING (R-VALUES AS PER NATHERS CERTIFICATE)

ENERGY COMMITMENTS

HOT WATER:
-INSTANTANEOUS GAS HW

COOLING SYSTEM:
-NIL

HEATING SYSTEM:
-NIL

VENTILATION:
-BATHROOM: NO MECHANICAL VENTILATION
-KITCHEN: DUCTED TO FACADE, MANUAL ON/OFF
LAUNDRY: NO MECHANICAL VENTILATION

ARTIFICIAL LIGHTING:
-A MIN. 80% OF LIGHT FIXTURES MUST BE FITTED WITH FLUORESCENT, COMPACT FLUORESCENT, OR LED LAMPS.

NATURAL LIGHTING:
-KITCHEN MUST HAVE A WINDOW OR SKYLIGHT

ALTERNATIVE ENERGY:
-A PHOTOVOLTAIC SYSTEM MIN. 2.0 KWH MUST BE INSTALLED AT AN ANGLE OF BETWEEN 25°-35° AND FACING NORTH.

OTHER:
-GAS COOKTOP AND ELECTRIC OVEN MUST BE INSTALLED.
-A FIXED OUTDOOR CLOTHES LINE MUST BE INSTALLED.

ALEXANDER BUILDING DESIGN
43 SEASWELL CRESCENT
LENNOX HEAD, NSW, 2478
0421 080 570
jared@alexanderbuildingdesign.com.au

PROJECT
Dual Occupancy Dwelling

ADDRESS
Lot 5 DP 793667
541 Federal Drive
Federal NSW

CLIENT
Ackland

ISSUE	DATE	DESCRIPTION
A	14.12.23	DA PLAN SET
B	08.03.24	AMENDED DA PLAN SET AS PER COUNCIL RFI - 04.03.24

DEVELOPMENT APPLICATION

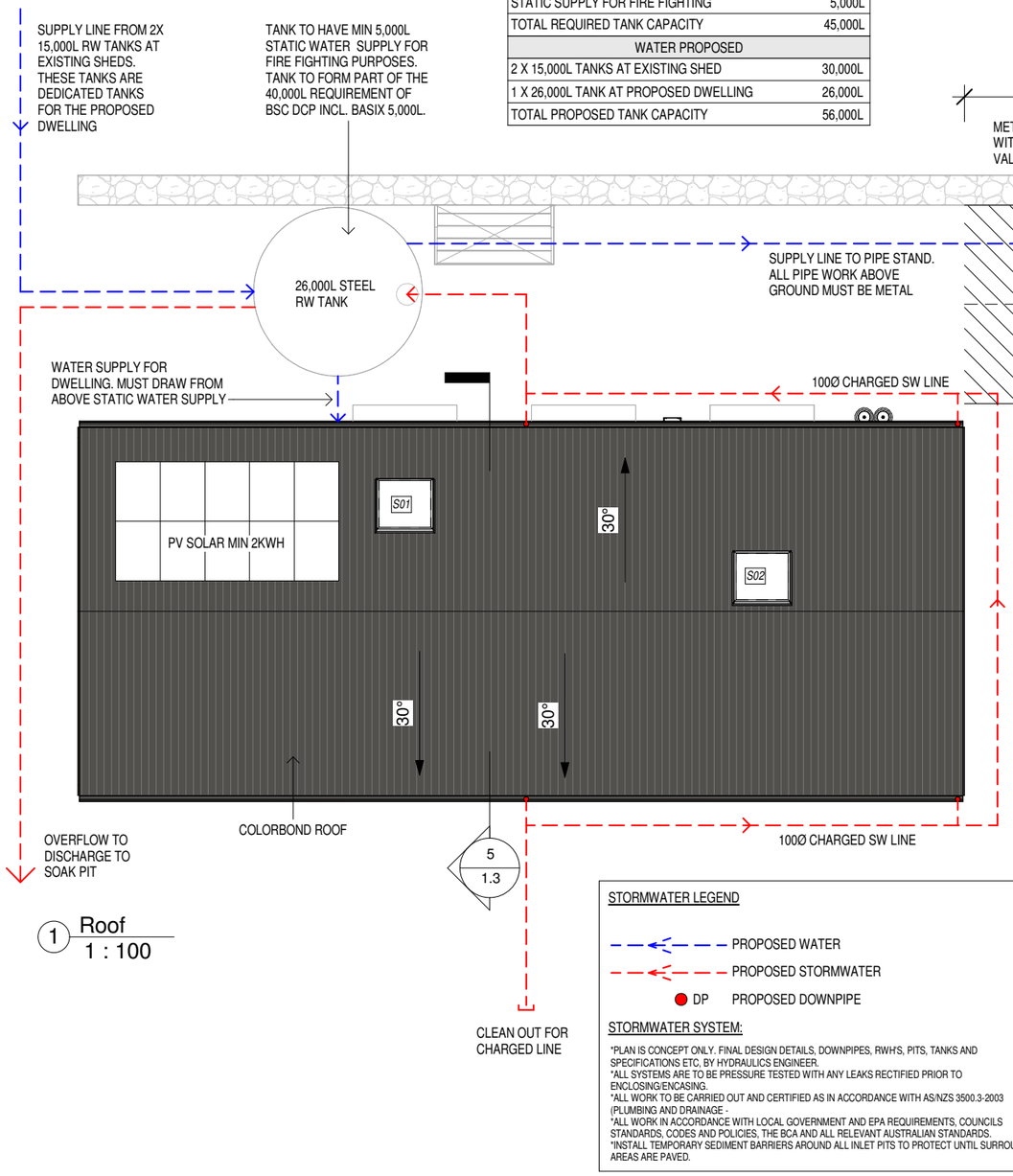
SHEET TITLE
FLOOR PLAN

0 5 10 m

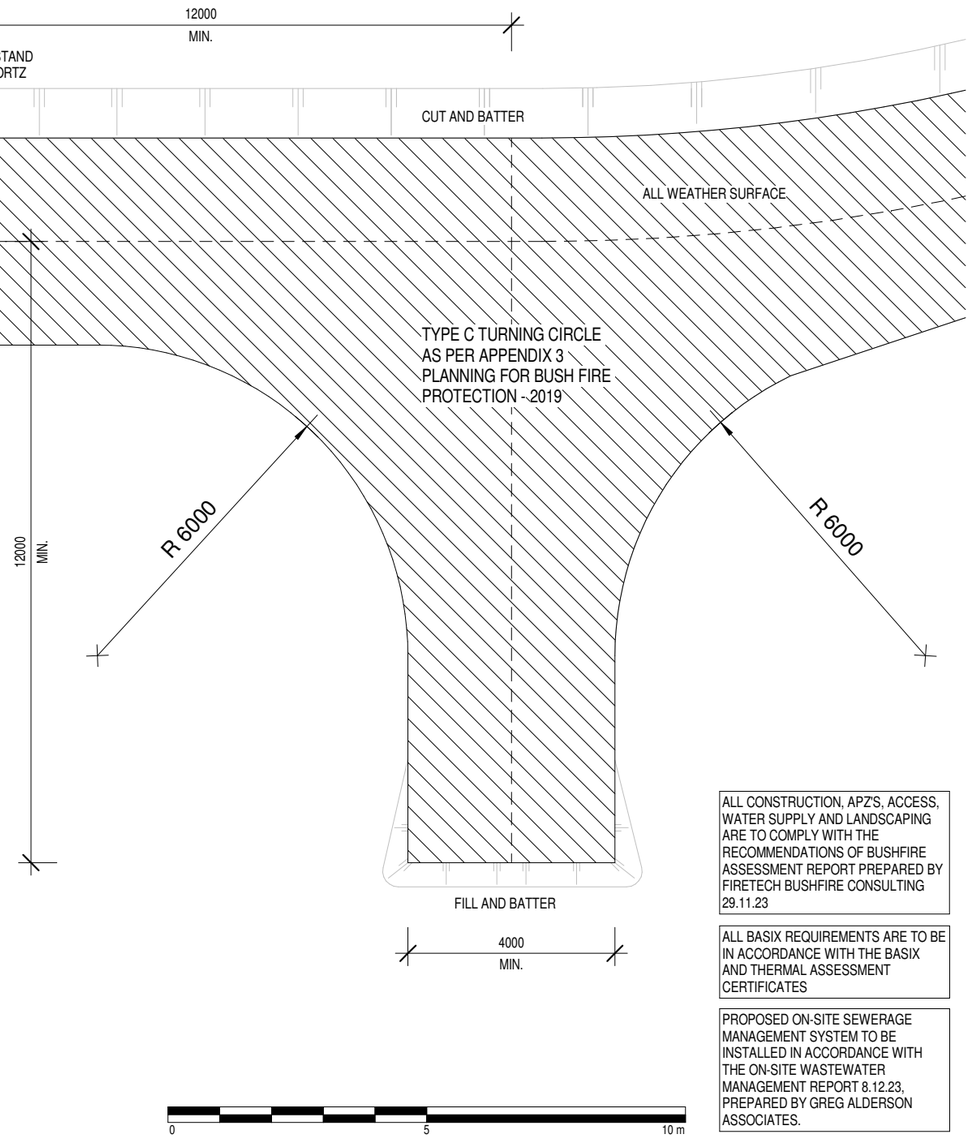
DATE **08.03.24**
SCALE **1 : 100** **@A3**
DWG NO. **1.1**

NOTE: BASIX COMMITMENTS ARE DEMONSTRATED IN THE BASIX COMMITMENTS TABLE ON SHEET 1.1

WATER REQUIREMENT	
BSC DCP (INCL. BASIX 5,000L)	40,000L
STATIC SUPPLY FOR FIRE FIGHTING	5,000L
TOTAL REQUIRED TANK CAPACITY	45,000L
WATER PROPOSED	
2 X 15,000L TANKS AT EXISTING SHED	30,000L
1 X 26,000L TANK AT PROPOSED DWELLING	26,000L
TOTAL PROPOSED TANK CAPACITY	56,000L



1 Roof
1 : 100



STORMWATER LEGEND

PROPOSED WATER
PROPOSED STORMWATER
DP PROPOSED DOWNPIPE

STORMWATER SYSTEM:

*PLAN IS CONCEPT ONLY. FINAL DESIGN DETAILS, DOWNPIPES, RWH'S, PITS, TANKS AND SPECIFICATIONS ETC, BY HYDRAULICS ENGINEER.
*ALL SYSTEMS ARE TO BE PRESSURE TESTED WITH ANY LEAKS RECTIFIED PRIOR TO ENCLOSING/ENCASING.
*ALL WORK TO BE CARRIED OUT AND CERTIFIED AS IN ACCORDANCE WITH AS/NZS 3500.3-2003 (PLUMBING AND DRAINAGE -
*ALL WORK IN ACCORDANCE WITH LOCAL GOVERNMENT AND EPA REQUIREMENTS, COUNCILS STANDARDS, CODES AND POLICIES, THE BCA AND ALL RELEVANT AUSTRALIAN STANDARDS.
*INSTALL TEMPORARY SEDIMENT BARRIERS AROUND ALL INLET PITS TO PROTECT UNTIL SURROUNDING AREAS ARE PAVED.

ALL CONSTRUCTION, APZ'S, ACCESS, WATER SUPPLY AND LANDSCAPING ARE TO COMPLY WITH THE RECOMMENDATIONS OF BUSHFIRE ASSESSMENT REPORT PREPARED BY FIRETECH BUSHFIRE CONSULTING 29.11.23

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0 5 10 m

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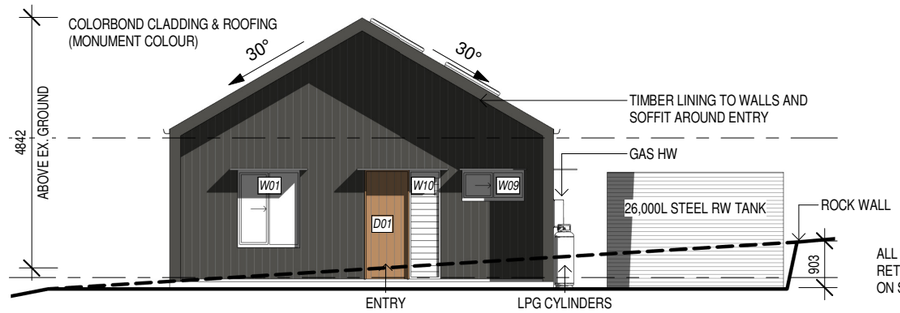
DEVELOPMENT APPLICATION

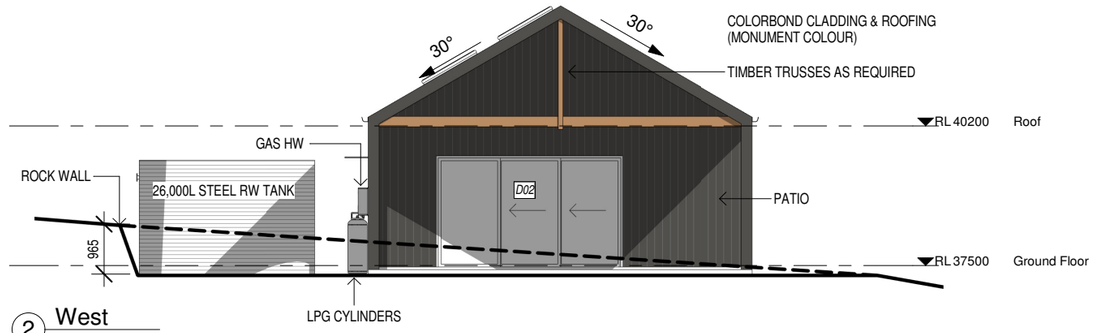
SHEET TITLE
ROOF PLAN, CONCEPT SW/WATER PLAN, FF APPLIANCE TURNING HEAD PLAN

DATE **08.03.24**
SCALE **1 : 100** **@A3**
DWG NO. **1.2**

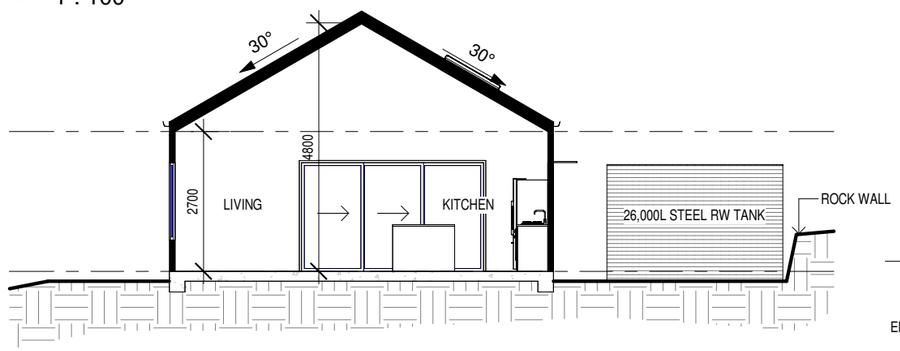


1 East
1 : 100

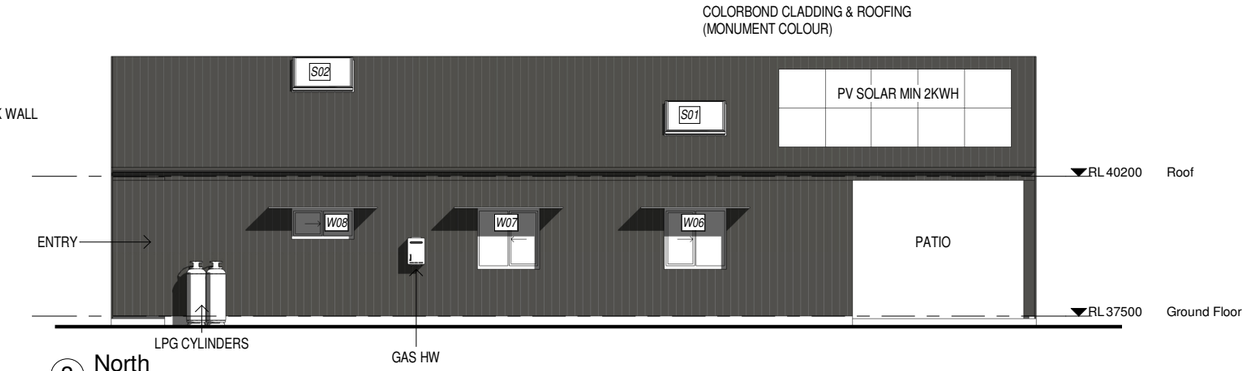
ALL EXCAVATED FILL RETAINED AND USED ON SITE



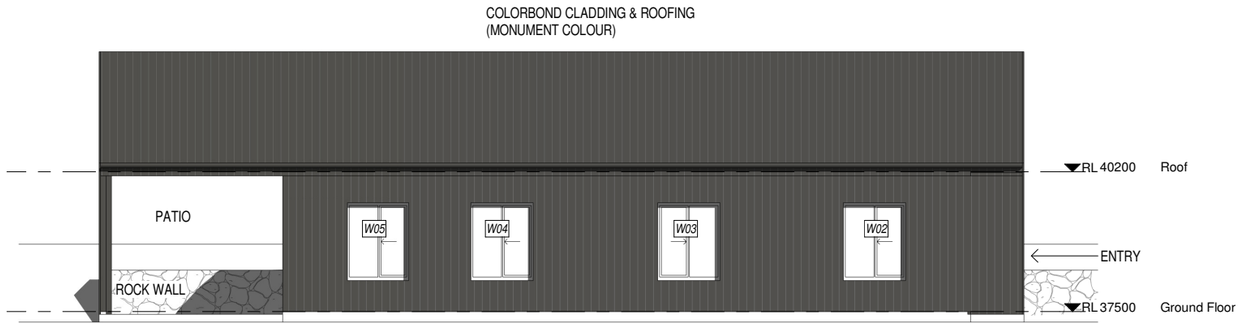
2 West
1 : 100



5 Section 1
1 : 100



3 North
1 : 100



4 South
1 : 100

ALL CONSTRUCTION, APZ'S, ACCESS, WATER SUPPLY AND LANDSCAPING ARE TO COMPLY WITH THE RECOMMENDATIONS OF BUSHFIRE ASSESSMENT REPORT PREPARED BY FIRETECH BUSHFIRE CONSULTING 29.11.23

ALL BASIX REQUIREMENTS ARE TO BE IN ACCORDANCE WITH THE BASIX AND THERMAL ASSESSMENT CERTIFICATES

PROPOSED ON-SITE SEWERAGE MANAGEMENT SYSTEM TO BE INSTALLED IN ACCORDANCE WITH THE ON-SITE WASTEWATER MANAGEMENT REPORT 8.12.23, PREPARED BY GREG ALDERSON ASSOCIATES.

CONSTRUCTION NOTES

FLOOR -	SLAB ON GROUND, POLISHED CONCRETE FINISH TO LIVING AREAS AND BEDROOMS, CERAMIC TILE FINISH TO WET AREAS.
EXT. WALLS -	DURRA PANEL WALL SYSTEM, EXTERNAL METAL BATTENS WITH COLORBOND CLADDING (MONUMENT). NO INTERNAL LININGS.
INT. WALLS	DURRA PANEL WALL SYSTEM. NO LININGS
ROOF -	DURRA PANEL CEILING SYSTEM WITH COLORBOND ROOF SHEETS OVER. NO INTERNAL LININGS. RAKED CEILINGS THROUGHOUT.
WINDOWS & DOORS -	ALUMINIMUM FRAMES, COLOUR TO MATCH WALLS.
ENTRY (EXT.)	SOFFIT AND SIDE WALL LININGS HW TIMBER

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DEVELOPMENT APPLICATION

SHEET TITLE
ELEVATIONS & SECTION

0 5 10 m

DATE **08.03.24**
SCALE **1 : 100** **@A3**
DWG NO. **1.3**

Condition recommendations re: DA10.2023.491.1 at 541 Federal Drive, Federal

SCHEDULE 1. CONDITIONS OF CONSENT

Parameters of consent

1. **Approved plans and supporting documentation**
Development must be carried out in accordance with the following approved plans and supporting documentation (stamped by Council), except where the conditions of this consent expressly require otherwise.

Plan No.	Rev. No.	Plan Title	Drawn by	Dated
1.0	B	Site Plan, Site Analysis, Location & Locality Plan	Alexander Building Design	08.03.24
1.1	B	Floor Plan	Alexander Building Design	08.03.24
1.2	B	Roof Plan, Concept SW/Water Plan, FF Appliance Turning Head Plan	Alexander Building Design	08.03.24
1.3	B	Elevations & Section	Alexander Building Design	08.03.24
P555LRA	-	REPORT ON GEOTECHNICAL SITE INVESTIGATION AND LANDSLIDE RISK ASSESSMENT for the Proposed Dual Occupancy and Wastewater System at Lot 5 DP 793657, 541 Federal Drive, Federal, NSW 2480	0B Geotechnics Consulting Geotechnical Engineering Services	22/04/2024

In the event of any inconsistency between the approved plans and the supporting documentation, the approved plans prevail. In the event of any inconsistency between the approved plans and a condition of this consent, the condition prevails.

Note: an inconsistency occurs between an approved plan and supporting documentation or between an approved plan and a condition when it is not possible to comply with both at the relevant time.

2. **Payment of security deposits**
Before the commencement of any works on the site or the issue of a construction certificate, the applicant must make all of the following payments to Council and provide written evidence of these payments to the certifier:

Security deposit	$ 3000.00
Inspection fee	In accordance with the current fees and charges.

The payments will be used for the cost of:
- making good any damage caused to any council property (including street trees) as a consequence of carrying out the works to which the consent relates,

- completing any public work such as roadwork, kerbing and guttering, footway construction, stormwater drainage and environmental controls, required in connection with this consent, and
- any inspection carried out by Council in connection with the completion of public work or the making good any damage to council property.

Note: The inspection fee includes Council's fees and charges and includes the Public Road and Footpath Infrastructure Inspection Fee (under the *Roads Act 1993*). The amount payable must be in accordance with council's fees and charges at the payment date.

3. **Car Parking to be available for the approved use**
Parking within the development, together with all driveways and turning areas, must be provided and maintained as follows:
a) 2 car spaces for each dwelling.

4. **Support for neighbouring buildings**
If an excavation extends below the level of the base of the footings of a building on an adjoining allotment of land, the person causing the excavation to be made or builder must:

a. Inform the neighbouring property owner immediately.
b. Engage a structural engineer to determine any remedial works that may need to be undertaken.
c. Preserve and protect the adjoining building from damage.
d. If necessary, underpin and support the building in an approved manner.

5. **Conditions prescribed by the Regulation**
This development consent is subject to the conditions prescribed by the regulations in accordance with subsection 4.17(11) of the Environmental Planning and Assessment Act 1979. Conditions are provided in a **Schedule** to this consent.

6. **Concurrent Approvals**
The following approvals are provided under Section 4.15 of Environmental Planning and Assessment Act:
Integrated Approvals under Section 68 of the Local Government Act 1993
C5 Installing constructing or altering a waste treatment device or a human waste storage facility or a drain connected to any such device or facility. (see Schedule 3 for details)

7. **Bush fire safety measures**
This land is identified as being designated bush fire prone land and under section 4.14 of the Environmental Planning and Assessment Act 1979, Council must be satisfied prior to making a determination for development on bush fire prone land that the development complies with "Planning for Bush Fire Protection 2019".

The development is approved subject to the development complying with the requirements of the Report by FireTech Busifre Consulting dated 29/11/2023.

The following conditions are to be complied with prior to issue of a Construction Certificate for building works

8. **Construction site management plan**
Before the issue of a construction certificate, the applicant must ensure a construction site management plan is prepared before it is provided to and approved by the certifier. The plan must include the following matters:

- location and materials for protective fencing and hoardings to the perimeter on the site

- provisions for public safety
- pedestrian and vehicular site access points and construction activity zones
- details of construction traffic management, including proposed truck movements to and from the site and estimated frequency of those movements, and measures to preserve pedestrian safety in the vicinity of the site
- protective measures for on-site tree preservation (including in accordance with AS 4970-2009 Protection of trees on development sites and Council's DCP, if applicable) and trees in adjoining public domain (if applicable)
- details of any bulk earthworks to be carried out
- location of site storage areas and sheds
- equipment used to carry out all works
- a garbage container with a tight-fitting lid
- dust, noise and vibration control measures
- location of temporary toilets.

The applicant must ensure a copy of the approved construction site management plan is kept on-site at all times during construction.

9. **Geotechnical Report certificate**
A certificate from a professional Engineer experienced in soil mechanics is to be provided to the Principal Certifying Authority, certifying that:
a) The design of the proposed engineering works are in strict adherence to the recommendations set out in Chapter 6 of the approved Geotechnical Report;
b) the design of the civil engineering works, including retaining walls and/or cut & fill batters, has been assessed as structurally adequate,
c) the civil engineering works will not be affected by landslip or subsidence either above or below the works; and
d) adequate drainage has been provided

10. **Plans of retaining walls and drainage**
The application for a Construction Certificate is to include plans and specifications that indicate retaining walls or other approved methods of preventing movement of the soil, where any excavation or filled area exceeds 600mm in height. Adequate provision must be made for drainage.

Such plans and specifications must be approved as part of the Construction Certificate.

11. **Sediment and Erosion Control Management Plan required**
The application for a Construction Certificate is to include plans and specifications that indicate the measures to be employed to control erosion and loss of sediment from the site. Control over discharge of stormwater and containment of run-off and pollutants leaving the site/premises must be undertaken through the installation of erosion control devices such as catch drains, energy dissipaters, level spreaders and sediment control devices such as filter fences and sedimentation basins.

Such plans and specifications must be approved as part of the Construction Certificate.

NOTE: The plans must be in compliance with Council's current "Northern Rivers Local Government Development Design & Construction Manuals and Standard Drawings".

12. **Consent required for Works within Road Reserve**
Consent from Council must be obtained for works within the road reserve pursuant to Section 138 of the Roads Act 1993. Three (3) copies of engineering construction plans must accompany the application for consent for works within the road reserve.

Such plans are to be in accordance with Council's current Design & Construction Manuals and are to provide for the following works:

a) Driveway Upgrade
The existing driveway must be resealed to comply with Council's current standards, in accordance with Council's Northern Rivers Local Government Development Design & Construction Manuals and Standard Drawings.

13. **Access & Parking**
The application for a Construction Certificate is to include plans and specification that indicate access, parking and manoeuvring details in accordance with the plans approved by this consent.

The access, parking and manoeuvring for the site is to comply with the requirements of AS 2890.1-2004: Parking facilities, Part 1: Off-street car parking. Plans are to include, but not be limited to, the following items:

a) minimum 150mm compacted pavement, sealed for grades greater than 12%;
b) site conditions affecting the access;
c) existing and design levels;
d) longitudinal and cross sections;
e) turning paths;
f) drainage details; and
g) access requirements of any bushfire safety conditions

Such plans and specifications must be approved as part of the Construction Certificate.

NOTE: The plans must be in compliance with Council's current "Northern Rivers Local Government Development Design & Construction Manuals and Standard Drawings".

14. **Terms of approval for on-site sewage management required**
Refer to Local Government Act Section 68 Application No. **70.2023.491.1** or Local Government Act Section 68 approvals issued subsequent to this consent.

15. **Potable Water Supply Management Plan**
Prior to the issue of a Construction Certificate provided to the Principle Certifying Authority a Quality assurance program (or drinking water management system). For further information refer to the following website http://www.health.nsw.gov.au/environment/water/Publications/private-water-supply-guidelines.pdf The QAP must be prepared by a suitable qualified professional.

16. **Compliance with BASIX Certificate requirements**
The development is to comply with Basix Certificate No. 1730563S, dated 16 December 2023.

The commitments indicated in the Certificate are to be indicated on the plans submitted for approval of the Construction Certificate.

The plans submitted must clearly indicate all windows numbered or identified in a manner that is consistent with the identification on the Basix Certificate.

Minor changes to the measures may be undertaken without the issue of any amendment under Section 4.55 of the Act, provided that the changes do not affect the form, shape or size of the building.

Such plans and specifications must be approved as part of the Construction Certificate.

17. **Building materials and colours to be specified**
The application for a Construction Certificate is to include plans and specifications that indicate the proposed building materials and colours consistent with the provisions of

Development Control Plan 2014 – Chapter D2.2.3 - Character and Visual Impact. Please note that colours must be non-reflective earth tone colours and that the use of white and near white colours is not permissible

Such plans and specifications must be approved as part of the Construction Certificate.

18. **Long Service Levy to be paid**
In accordance with Section 6.8 of the Environmental Planning and Assessment Act 1979 (as amended), a Construction Certificate for SUBDIVISION WORKS OR BUILDING WORKS shall NOT be issued until any Long Service Levy payable under Section 34 of the Building and Construction Industry Long Service Payments Act, 1986 (or where such levy is payable by instalments, the first instalment of the levy) has been paid (as applicable).

These payments can be made online at www.longservice.nsw.gov.au. Proof of payment is required to be submitted with the Construction Certificate application.

For further information regarding the Long Service Payment please refer to the website above.

19. **Developer Contributions to be paid**
Contributions set out in the schedule below are to be paid to Council prior to the release of a construction certificate. Contributions are levied in accordance with the Byron Shire Developer Contributions Plan 2012 (as amended). The Plan may be viewed on line at www.byron.nsw.gov.au or during office hours at the Council Offices located at Station Street, Mullumbimby. These contributions are to fund public amenities and services as listed in the schedule. Additional details on the specific amenities are to be found in the Byron Shire Developer Contributions Plan 2012 (as amended).

The contributions in the schedule are current at the **date of this consent**. The contributions payable will be adjusted in accordance with the relevant plan and the **amount payable will be calculated on the basis of the contribution rates that are applicable at the time of payment.** The schedule contains a date for which the schedule remains valid, after this date you will have to contact Council for an updated schedule.

20. **Waste Management Plan**
Before the issue of a construction certificate, the applicant is to ensure that a waste management plan is prepared in accordance with the EPA's Waste Classification Guidelines and the following requirements before it is provided to and approved by the certifier:
a. Council's Waste Management Development Control Plan

OR

b. details the following:
   - the contact details of the person(s) removing the waste
   - an estimate of the waste (type and quantity) and whether the waste is expected to be reused, recycled or go to landfill
   - the address of the disposal location(s) where the waste is to be taken

The applicant must ensure the waste management plan is referred to in the construction site management plan and kept on-site at all times during construction.

21. **Tree Removal**
No trees or vegetation to be cleared or removed until a Construction Certificate has been issued.

22. **Rainwater tanks - amendment to the plan required**
Rural dwellings without reticulated water must have minimum domestic tank capacity to ensure that adequate water supply is available.

The plans submitted for approval of the Construction Certificate must be amended to demonstrate that the approved rural dwelling has a dedicated minimum domestic tank capacity of 40,000 litres, exclusive of any additional water storage required for firefighting purposes required by this development consent.

Such plans are to be approved as part of the Construction Certificate.

The following conditions are to be complied with prior to any building or construction works commencing

23. **Erosion and sediment measures**
Where erosion of soils or runoff of any substance is likely to occur, erosion and sedimentation controls are to be in place in accordance with the Guidelines for Erosion & Sediment Control on Building Sites. This may include stockpiled materials such as sand, etc.

Any such measures that are deemed to be necessary because of the local conditions must be maintained at all times until the site is made stable (i.e. by permanent vegetation cover or hard surface).

24. **Toilet facilities**
Toilet facilities are to be provided, at or in the vicinity of the work site at the rate of one toilet for every 20 persons or part of 20 persons employed at the site. Each toilet provided must be a toilet connected to an accredited sewage management system approved by the Council or be a building and construction site portable chemical toilet.

Only one (1) such portable chemical toilet may be used during construction, should additional toilets be required during the construction they must be either:

a. Connected to an accredited sewage management system approved by the Council. or
b. Not installed or used until such time that approval under Section 68 of the Local Government Act 1993 is obtained for the installation of a human waste storage facility.

Note: The chemical toilet must be installed and serviced by a licensed contractor (including pump-outs)

25. **Rural House numbering**
The Rural Address Number for this property is No.541B. This number must be displayed at the main driveway entrance approved for your property, in accordance with the “Rural Property Address Guidelines”

The following conditions are to be complied with during any building or construction works

26. **Hours of work**
The principal certifier must ensure that building work, demolition or vegetation removal is only carried out between:

- 7am to 6pm on Monday to Friday.
- 8am to 1pm on Saturday.

The principal certifier must ensure building work, demolition or vegetation removal is not carried out on Sundays and public holidays, except where there is an emergency.

Unless otherwise approved within a construction site management plan, construction vehicles, machinery, goods or materials must not be delivered to the site outside the approved hours of site works.

Note: Any variation to the hours of work requires Council's approval.

27. **Inspection for on-site sewage management**
All plumbing and drainage works is to be installed by a suitably qualified person. The plumber must adhere to the requirements of the NSW Code of Practice and AS/NZ 3500. The plumber is to arrange for the following inspections to be undertaken:
    a. Internal drainage prior to covering of the works.
    b. External drainage prior to the covering of works.
    c. Irrigation installation prior to the covering of works.
    d. Final

28. **Construction Noise**
While building work is being carried out, and where a noise and vibration management plan is approved under this consent, the applicant must ensure that any noise generated from the site is controlled in accordance with the requirements of that plan.
OR
While building work is being carried out and where no noise and vibration management plan is approved under this consent, the applicant is to ensure that any noise caused by demolition, vegetation removal or construction does not exceed an LAeq (15 min) of 5dB(A) above background noise, when measured at any lot boundary of the property where the construction is being carried out.

29. **Implementation of BASIX commitments**
While building work is being carried out, the applicant must undertake the development strictly in accordance with the commitments listed in the BASIX certificate(s) approved by this consent, for the development to which the consent applies.

30. **Signs to be erected on building and demolition sites**
A sign must be erected in a prominent position on the work site:

    a. stating that unauthorised entry to the work site is prohibited, and
    b. showing the name of the person in charge of the work site and a telephone number at which that person may be contacted outside working hours.

Any such sign is to be removed when the work has been comsmipleted.

31. **Builders rubbish to be contained on site**
All builders rubbish is to be contained on the site in a 'Builders Skips' or an enclosure. Footpaths, road reserves and public reserves are to be maintained clear of rubbish, building materials and all other items.

32. **Prevention of water pollution**
Only clean and unpolluted water is to be discharged to Council's stormwater drainage system or any watercourse to ensure compliance with the Protection of Environment Operations Act.

Note: Council may impose on-the-spot fines for non-compliance with this condition.

33. **Removal of asbestos**
All asbestos wastes associated with removal of the existing building to be disposed of in accordance with the requirements of the Workcover Authority. The applicant/owner is to produce documentary evidence that this condition has been met.

Please note the Byron Resource Recovery Centre can not accept asbestos. You will need to arrange disposal at an alternate landfill site.

34. **Maintenance of sediment and erosion control measures**
Sediment and erosion control measures must be maintained at all times until the site has been stabilised by permanent vegetation cover or hard surface.

35. **Demolition**
Any required demolition works must be undertaken in accordance with the relevant requirements of Australian Standard AS 2601–1991: The Demolition of Structures published by Standards Australia, and the WorkCover Authority of NSW.

36. **Muted bushland tones external finishes**
To ensure the development is compatible with the surrounding environment, colours and finishes are to be muted bushland tones. In this regard white, light or bright roof colours are not permissible.

37. **All excavated soils to be disposed of off-site**
All excavated soils to be disposed of off-site and in accordance with NSW EPA *Waste Classification Guidelines* (2014) and approved environmental management plans.

38. **Removal of demolition and other wastes**
All wastes, including asbestos and lead-contaminated wastes, associated with these works are to be handled and disposed of in accordance with the requirements of the Work Cover Authority. The applicant/owner is to produce documentary evidence that this condition has been met. Wastes must be disposed of at a Licenced Waste Facility. All wastes removed from the site must be managed and disposed of in accordance with the NSW EPA Waste Classification Guidelines (2014)

39. **Excavated natural materials and demolition waste disposal**
Any and all excavated natural materials and demolition and builders waste transported from the site must be accompanied (a copy kept with the transporter) by a NSW Protection of The Environment Operations Act s143 Notice.

40. **Aboriginal Relics**
While demolition or building work is being carried out, all such works must cease immediately if a relic or Aboriginal object is unexpectedly discovered. The applicant must notify the Heritage Council of NSW in respect of a relic and notify the Secretary of the Department of Planning, Industry and Environment and the Heritage Council of NSW in respect of an Aboriginal object. Building work may recommence at a time confirmed by either the Heritage Council of NSW or the Secretary of the Department of Planning, Industry and Environment.

In this condition:

- "relic" means any deposit, artefact, object or material evidence that:
  a. relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and
  b. is of State or local heritage significance; and

- "Aboriginal object" means any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction and includes Aboriginal remains.

The following conditions are to be complied with prior to occupation of the building

41. **Works to be completed prior to issue of a Final Occupation Certificate**
All of the works indicated on the plans and approved by this consent, including any other consents that are necessary for the completion of this development including approvals issued under the Local Government Act 1993 and the Roads Act 1993, are to be completed and approved by the relevant consent authority/s prior to the issue of a Final Occupation Certificate.

Any Security bond paid for this application will be held until Council is satisfied that no further works are to be carried out that may result in damage to Councils road/footpath reserve.

42. **Land Risk Level Certification**
Certification from a professional Engineer experienced in Geotechnical Science is to be provided to the Principal Certifying Authority, certifying that all civil works has been undertaken in accordance with the approved plans, strict adherence with the recommendations of the approved Geotechnical Report and confirms that the land risk level is low or better in accordance with Appendix C of the Australian Geomechanics Society (AGS) "Practise Note Guidelines for Landslide Risk Assessment" March 2007.

43. **Plumbing Works**
All works in relation to any associated Section 68 Water and Sewerage approval must be fully complied with and have a Final Plumbing Certificate issued prior to the issue of an Interim or Final Occupation Certificate."

44. **Windmill and Bore**
The windmill is to be removed and the bore/ well is to be sealed or capped to prevent infiltration and contamination of ground water prior to the issue of the Occupation Certificate.

45. **Access and parking areas to be completed.**
The access and parking areas are to be constructed in accordance with the approved plans and Roads Act consent prior to the issue of an occupation certificate.

46. **Stormwater disposal**
Stormwater must be collected and disposed of in a controlled manner such that stormwater flows are:
a) Clear of buildings and infrastructure,
b) Clear of effluent disposal areas,
c) Not concentrated so as to cause soil erosion,
d) Not directly to a watercourse, and
e) Not onto adjoining land.

47. **Stormwater disposal**
Stormwater must be collected and disposed of in a controlled manner such that stormwater flows are:
a. Clear of buildings and infrastructure,
b. Clear of effluent disposal areas,
c. Not concentrated so as to cause soil erosion,

d. Not directly to a watercourse, and
e. Not onto adjoining land.

48. **On-site Sewage Management system must be completed**
The on-site sewage management system is to be constructed in accordance with approved plans and in accordance with current specifications and standards. The system is not to be used and/or operated until a Council Officer has inspected the system and authorised its use.

49. **Approval to Operate required**
In accordance with the Local Government Act, an Approval to Operate the onsite sewage management system must be obtained from Council. Forms may be downloaded from Council's website with 'http://www.byron.nsw.gov.au/on-site-sewage'.

50. **Compliance with bushfire conditions**
Documentary evidence from a suitably qualified professional is to be submitted demonstrating that the bush fire conditions of this Notice of Determination have been complied with.

51. **New Street number (if required)**
The street addressing for this property must be approved by Council. A written request seeking approval of street addresses is to be submitted to Council's Land Information Officer with an appropriate plan showing dwellings/units approved for separate occupation and pedestrian access to each dwelling/unit from the public road servicing the development. The approved street number must be displayed in a prominent location near the approved main point of access prior to issue of any occupation certificate.

The following conditions are to be complied with at all times

52. **Use of the dwelling house**
The dwelling house is not to be holiday let or used as tourist and visitor accommodation or as **short-term rental accommodation.**

53. **Rain Water Supply**
All rain water supply tanks are required to divert water from the first rainfall using a first flush or bypass device.

54. **Potable Water Supply Testing and Reporting**
The potable water supply must be maintained in accordance with the requirements of NSW Health's Private Water Supply Guidelines (2016) including annual water quality testing by a NATA accredited laboratory. Results must be kept on site and provided to Council on request.

55. **Site Waste Minimisation and Management**
All works must comply with the objectives of waste minimisation and waste management of Part B8.1.2 of DCP 2014.

SCHEDULE 2. PRESCRIBED CONDITIONS

The prescribed conditions in accordance with Division 2, Subdivision 1 of the Environmental Planning and Assessment Regulation 2021 as at the date of this development consent as are of relevance to this development must be complied with:

69 Compliance with Building Code of Australia and insurance requirements under the Home Building Act 1989

70 Erection of signs

71 Notification of Home Building Act 1989 requirements

72 Entertainment venues

73 Maximum capacity signage

74 Condition relating to shoring and adequacy of adjoining property

75 Fulfilment of BASIX commitments

Refer to the *Environmental Planning and Assessment Regulation 2021*, *Division 2, Subdivision 1* of for full text of the above clauses. This can be accessed at http://www.legislation.nsw.gov.au.

SCHEDULE 3. LOCAL GOVERNMENT ACT 1993 SECTION 68 CONDITIONS OF

Conditions of Approval

Notes:

- **It is the applicant's responsibility to obtain consent for any building or subdivision works. This consent does not imply approval of any future building or subdivision works.**
- **Consent will be required to connect all plumbing and drainage associated with future building works to the approved sewage management facility.**
- **Unless tree removal is depicted on the approved plans or identified in the application, this approval does not give consent to the removal of trees or vegetation protected by the Byron Shire Council Tree Preservation Order.**

1. This Section 68 application to Install an On-Site Sewage Management System is approved on the condition that DA No. 10.2023.491.1 (to which this is a concurrent application) is approved

1. The applicant shall install a Sewage Management Facility comprising the following:

Treatment 1	New minimum 3000l septic tank.
Treatment 2	New minimum 7.2m^2 Wetland reed bed
Disposal Type	New evapotranspiration bed 1.6m wide x 20m long x 0.45m deep

Note: All Waste Treatment Devices must be accredited by NSW Health. Tanks must bear the standard mark (AS1546-1990).

2. The proposed wastewater system shall be constructed generally in accordance with:

Plan/Report No.	Description	Prepared by	Dated:	Council Record
	Council specifications attached	Byron Shire Council	N/A	N/A
Approval No	70.2023.491.1 and 10.2023.491.1	Byron Shire Council	30/04/2024	A2024/22157
Report	24193_ww.docx	Greg Alderson Associates	08/12/2023	E2024/815
Stamped Plans	70.2023.491.1 and notations (IN RED).	Byron Shire Council	30/04/2024	E2024/49287

3. **Prior to work commencing** on construction of the on-site sewage management system the following is required:

    a) A licensed plumber is to be engaged to carry out the work. The plumber is to obtain a permit from Byron Council prior to commencing any work and must lodge a completed Notice of Work (NSW Fair Trading Notice of Work). If there is more than 1 plumber carrying out works then separate permits will have to be lodged stating specifically the works that are to be carried out.

4. The proposed on-site sewage management system has been designed for treatment of a wastewater loading of 345L/Day (3 persons / 2 bedrooms).

5. The OSMS is currently approved to connect to a Two Bedroom Dual Occupancy Dwelling (Detached).

6. The on-site sewage management system is to be installed by a licensed tradesman in accordance with approved plans, specifications and conditions of approval and the requirements of the NSW Code of practice and AS/NZS 3500 must be adhered to.

7. The sewage management system shall not be used until such time as it is completed, inspected and approval for use issued by Council. The owner is required to maintain the system in accordance with the approved plans, specifications and conditions of approval.

8. A user operation and maintenance manual shall be provided on completion of the system and prior to commissioning.

9. Shed and studio buildings must not be used for as dwelling without consent from Council. This condition does not imply that subsequent approvals will be granted by Council .

10. The following inspection/s will be required for the Water and Sewage Work:

    a) Internal drainage;

    b) External drainage & Irrigation area;

    c) Rough in / Stack (if applicable)

    d) Final Completion - A licensee is required to provide to Council and owner of the property after completion of the work and within 48 hours:

        i. a Compliance Certificate; and

        ii. Sewer Services Diagram/ Works as Executed drawings.

Note 1: Council will send each plumber proformas of these documents when the Notice of Work permit has been issued by Council to allow the plumber to commence work.

Note 2:: Inspections will not take place unless the plumber or the plumber's representative is on-site. Re-inspection fees will apply to plumbers not on-site for inspections. Fees will be charged for all inspections.

Plumbing Works Related Conditions

1. **Prior to commencement of works**

   In accordance with the Local Government Act and the NSW Code of Practice for Plumbing and Drainage your Plumber **must obtain a *Plumbing Permit* at least two (2) working days prior to commencing work**. Please forward this to your plumber to complete and to return to Council prior to commencement of work. All work is to be completed by a suitably qualified person licensed for the purpose by the NSW Department of Fair Trading. If the property is to be connected to council water mains, no internal sewer inspections shall take place until a water meter is installed. Drawing off of the council water main without a meter will result in a fine and possibly a stop works notice.

2. **During Construction**

   Plumbing, Water Supply and Sewerage works shall be installed in accordance with the Local Government Act 1993, Plumbers Code of Australia and AS/NZS 3500 Parts 0-5, the approved plans (any notations on those plans) and the approved specifications. The changes made are from Plumbers and Drainage Regulation 2012 NSW Government

   a) The licensee is to provide 24 hours notice and attend the site for the following **INSPECTIONS**, prior to covering of work. Inspections will be carried out a mutually convenient time for any works that fall under the following descriptions for inspections. (If there are no applicable works, for example, a new water supply with no sewer services, then an inspection for “external drainage“ will not be required)

Required Inspections are as follows:

Inspections for structures

EG Dwellings, sheds, studios etc with plumbing and drainage, up to the connection point of the OSMS.

Typical inspections **for Structures** that must be booked in include but are not limited to the following:

- Internal Drainage External Drainage
- Sewer connection to the OSMS
- Water Rough In (including any in ground water supply lines from water tanks or other buildings);
- Stack work/elevated drainage;
- Final - all work completed*. Note below.

Inspections for OSMS

Typical inspections **for OSMS** that must be booked in include but are not limited to the following:

- External Drainage (between components of the systems, for example, between Septic tanks and ETA beds)
- Pump lines between system components (for example; sewer pump lines must be inspected prior to covering)
- ETA Beds or trenches prior to back fill.
- Final - all work completed*. Note below.

***Prior to booking a final inspection**, a licensee is required to provide to Council and owner of the property a Compliance Certificate (COC), Sewer Services Diagram (SSD) and/or Works as Executed drawings (WAE).

SSD is development drainage up to the boundary shaft or Inspection Opening. See link below:
https://www.fairtrading.nsw.gov.au/trades-and-businesses/construction-and-trade-essentials/plumbers-and-drainers/plumbing-inspection-documents#sewer_service_diagram

WAE is the OSMS up to the boundary shaft or Inspection opening being the connection point of the dwelling/building.

WAE Plans require additional detail to that of the standard SSD for NSW fair trading as adopted by this Council:

1. Plans shall be done in BLACK PEN only, using a ruler. No freehand.
2. The plan must have dimensions and volumes for all components, Septic, Trenches etc.
3. The plan must include distance measurements to the nearest boundary and the location of the tank and trenches relative to the house (or other such building) i.e. the plans shall include the outline of the buildings and boundaries.
4. COC No. is the "70.20XX.XXX.X" number of the job.
5. Plan must show locations of all Inspection openings to surface.
6. Trenches shall show internal pipe layout
7. Plans shall accurately reflect the installation and be to the nominated scale in order to assess buffer offsets.

AOS-ETA

EVAPOTRANSPIRATION/ABSORPTION BEDS

OPERATION REQUIREMENTS

The evapotranspiration area (ETA) has been designed and constructed to have a limited hydraulic capacity. Where usage exceeds design capacity a public health risk or environmental harm may occur.

Effluent from the approved wastewater treatment system is designed to be evenly dispersed into each ETA field, ensuring the maximum opportunity for effluent to be taken up by the environment. The ETA provides the best opportunity for plant nutrient uptake and evaporation / transpiration.

ETA should be completely flat and level.

The characteristics of the natural soil are an important part of the functioning of ETA. In our climate of regular and heavy rainfall, ETA can be damaged by surface water flows. Diversion drainage or berms should be maintained to prevent ‘water logging’ of the ETA. Roof waters and rain water tank overflows should be piped away from the ETA.

ETA should be operated and maintained strictly in accordance with manufacturer’s instructions and regular maintenance and attention is required. Effluent from the approved treatment system shall be dispersed into each ETA bed field.

There are minimal maintenance requirements for ETA. The area should be protected from vehicle traffic, heavy stock grazing and large tree / root invasion. The best environment to support long term success of any ETA is a well maintained surface with even plant coverage and maximum sun. Bare or wet areas within such an area might indicate a point of failure.

MAINTENANCE REQUIREMENTS

1. The system operator should maintain the ETA in regard to adequate cover, elimination of weeds, maintenance of plants and shrubs. **If surcharging** effluent is observed or other signs of field malfunction are found, the system operator should contact their service provider or a licensed plumbing contractor to investigate.
   NOTE: Any alteration, extension or construction associated with your on-site sewage management system requires the prior approval of Council.

2. At least once each year a service should be carried out by a service provider of licensed plumbing contractor particularly for service of any associated pressure dosing systems.

3. A service report sheet shall be completed for every service. Operators should maintain records of all service inspections and pumpouts performed whilst the sewage management facility continues to operate. **Each year a copy of the service report should be provided to Council.**

4. Check for system failures which are generally indicated by:

   a. Effluent on the surface of the land application area.

   b. Surcharge of effluent from the land application area. Dead vegetation or excessively luxuriant growth of vegetation leading away from the land application area/s.

   c. Foul odours emanating from the land application area.

   d. Overflow at the septic tank or household plumbing fixtures.

AOS-ST

SEPTIC AND SULLAGE TANKS

OPERATIONAL REQUIREMENTS

The septic tank installed on the property is limited in the design of connected fixtures and maximum capacity of the system.

1. Minimise water usage in the building to reduce the volume of wastewater (hydraulic load) required to be stored and treated by the system. Overloading the system should be avoided.

2. Minimise biological and chemical substances entering the system by choosing to use a kitchen sink strainer, and minimising the use of laundry and general cleaning chemicals. Biologically harmful chemicals such as bleach and disinfectants should be used sparingly in any fixtures connected to the system.

3. Do not discharge grease, oil, paint, pesticides, chemicals or medications. The system does not have the complexity to properly decompose large quantities or complex organic compounds arising from such sources. The best option is to prevent such products from entering the system. Insoluble plastics and materials should not be added to the system.

4. Ensure that the septic tank is not connected to roof stormwater pipes or water tank overflow pipes. It is also important that the top of the tank is maintained sealed so as to prevent water entering the tank and overloading the system.

5. The septic tank will gradually fill with insoluble soil and materials over time through the process of storing and treating your wastewater. This reduction in the capacity of the tank is best managed by 'pumping out' the insoluble sludge at least every five years (more frequently if monitoring indicates that it is necessary). Licensed contractors can be found in the local "Yellow Pages" to perform this routine service. The use of unlicensed contractors may result in damage to the tank fittings.

Failure to regularly pump out your septic tank may result in costly failure of your land application area, and public health and environmental impacts on the land.

6. Protect the septic tank (and connecting pipes) from damage by vehicles, heavy animals such as cattle and horses, or large trees / roots.

MAINTENANCE REQUIREMENTS

1. Check sludge and scum depth at least annually. Pump out sludge every 3-5 years.

2. If an outlet filter is installed in the septic tank, clean as per manufacturer's instructions, and replace. Ensure that contaminated filter material is returned to the septic tank.

3. Check for system failures which are generally indicated by:

   (a) Plumbing fixtures and fitting not draining properly indicate a damaged or blocked pipe or possible septic tank failure.

   (b) Surcharge of effluent at ground level either around the tank, or down the slope at the land application area/s.

   (c) Foul odour emanating from the tank or land application area/s.
   Call a licensed plumber if you have concerns that your system is failing.

OS-WL

SUB-SURFACE FLOW WETLANDS

SPECIFICATION

DESIGN REQUIREMENTS

1. A minimum buffer of 10 metres to residential buildings is recommended.

2. *The outlet and inlet devices shall be accessible to allow for maintenance and operation inspections.*

3. *The outlet device shall be adjustable to allow for the effluent level in the wetland to be varied to suit vegetation and operational requirements.*

4. *Approved lining materials are as follows:*

   a) Stainless Steel

   b) Polyethylene Water Troughs

   c) "Canvacon" and similar rubberised dam liners. Plastic liners are not acceptable

   d) Brick and Concrete

e) Fibreglass

f) Geomembrane liners (Kays, 1996)

INSTALLATION REQUIREMENTS

1. All pipework and fittings shall comply with relevant Australian Standards.

2. All materials shall be durable and of non-corrosive components with an expected operating life of at least 15 years.

3. Planting with species such as Phragmites australis or other suitable local species.

OPERATION REQUIREMENTS

All wastewater treatment systems have a limited hydraulic capacity where usage exceeds design capacity a health risk or pollution incident may occur.

MAINTENANCE REQUIREMENTS

1. *Quarterly maintenance check of the wetland area including checking of water level, cleaning of drains and elimination of weeds*

2. *The wetland plantings should generally be thinned or harvested annually to maintain the nutrient removal capacity of the system.*

   Reference: Constructed Wetland Manual, Department of Land and Water Conservation. NSW. 1998.

3. Effluent quality exiting the wetland must be tested for total N, total P, BOD and suspended solids quarterly over the first 12 months of operation by a service contractor authorised by Council. Council may require adjustments to be made to the wetland design and land application area should the effluent quality fail to achieve its design target expectations.

These conditions have been imposed to ensure the effective operation of the sewage management facility for the protection of public health and the environment surrounding the installation site.

The application is determined in accordance with the above recommendation under delegated authority.

SCHEDULE 4. REASONS FOR DECISION, HOW COMMUNITY VIEWS WERE

Note: From July 1 2018, Council's are required to give and publicly notify reasons for a range of planning decisions where they are deciding if development should proceed to help community members to see how their views have been taken into account and improve accountability to stakeholders. A statement of reasons for the determination of this application is provided below.

Statement of Reasons
The proposed development complies with the provisions of Byron Local Environmental Plan 2014.
The proposed development complies with relevant State Environmental Planning Policies
The proposed development complies with relevant provisions of Development Control Plan 2014
The proposed development complies with Environmental Planning & Assessment Regulation 2021 considerations.
The proposed development will not have significant adverse impact on the natural, built or social environment or economic impacts on the locality.
The proposed development is considered suitable for the proposed site.
The development application was notified/advertised in accordance with Council's Community Participation Plan. Issues raised in the submissions have been addressed during assessment of the application.
The proposed development is unlikely to prejudice or compromise the public interest.

NOTES

Construction Certificate required:
This development consent is issued under the Environmental Planning and Assessment Act 1979 and does not relate to structural aspects or specifications of the building under the Building Code of Australia. All buildings and alterations require the issue of a Construction Certificate prior to works commencing.

Application for a Construction Certificate must be made online using the NSW Planning Portal.

Principal Certifying Authority:
Work must not commence until the applicant has:-
a. appointed a Principal Certifying Authority (if the Council is not the PCA); and
b. given Council at least two days notice of the intention to commence the erection of the building. Notice must be given by using the prescribed 'Form 7'.
c. notified the Principal Certifying Authority of the Compliance with Part 6 of the Home Building Act 1989.

Occupation Certificate required:
The building must not be occupied until the Principal Certifying Authority has issued an Occupation Certificate.

Protection of the Environment Operations Act 1997:
It is an offence under the provisions of the Protection of the Environment Operations Act 1997 to act in a manner causing, or likely to cause, harm to the environment. Anyone allowing material to enter a waterway or leaving material where it can be washed off-site may be subject to a penalty infringement notice ("on-the-spot fine") or prosecution.

Penalties apply for failure to comply with development consents
Failure to comply with conditions of development consent may lead to an on the spot fine being issued pursuant to section 4.2(1) of the Environmental Planning & Assessment Act 1979 or prosecution pursuant to section 9.50 of the Environmental Planning & Assessment Act 1979.

Plumbing Standards and requirements.

All Plumbing, Water Supply, Sewerage and Stormwater Works shall be installed in accordance with the Local Government Act 1993, Plumbers Code of Australia and AS/NZS 3500 Parts 0-5, the approved plans (any notations on those plans) and the approved specifications. Any plumbing inspections required under a Section 68 Approval are to occur in accordance with that approval.

Relics Provisions- Advice
Attention is directed to the NSW Heritage Act 1977 and the provisions of the Act in relation to the exposure of relics. The Act requires that if:

a) a relic is suspected, or there are reasonable grounds to suspect a relic in ground, that is likely to be disturbed damaged or destroyed by excavation; and/or
b) any relic is discovered in the course of excavation that will be disturbed, damaged or destroyed by further excavation;

Those responsible for the discovery must notify nominated management personnel who will in turn notify the Heritage Council of New South Wales or its delegate, the Office of Environment and Heritage, NSW Heritage Branch, and suspend work that might have the effect of disturbing, damaging or destroying such relic until the requirements of the NSW Heritage Council have been satisfied (ss139, 146).

Fire Ants
The importation of any of the following material from Queensland invasive ant biosecurity zones must be in accordance with the Biosecurity (Invasive Ant Carriers) Control Order 2023 (including any revised orders made under the Biosecurity Act 2015) and meet the requirements of NSW Department of Primary Industries:

- organic mulch (which includes manure, bark, wood chips, hay, straw, sileage, and sugar cane bagasse);
- baled materials;
- potted plants;
- agricultural or earth-moving machinery;
- fill or soil (which includes anything with soil on it such as turf); and
- mining or quarrying materials.

Prior to the importation of each material type, the supplier must provide the receiver and the Principal Certifying Authority with the relevant Certificate as identified within the Biosecurity (Invasive Ant Carriers) Control Order 2023 or revised biosecurity control orders. All material shall meet the requirements of the relevant Certificate.

It is an offence under the Biosecurity Act 2015 if this material comes from within five kilometres of a known invasive ant infested area (e.g. identified Fire Ant Biosecurity Zones in Queensland), or any other place at which the person knows, or ought reasonably to know, that an invasive ant has been detected, unless the carrier material has been managed and treated to reduce the risk and meets the certification requirements listed in the Control Order.

S7.11 Schedule of Development Contributions
The following contributions are current at the date of this consent. The contributions payable will be adjusted in accordance with the relevant plan and the **amount payable will be calculated on the basis of the contribution rates that are applicable at the time of payment.** The current contribution rates are available from Council offices during office hours. **Payments will only be accepted by cash or bank cheque**.

Section 7.11 contributions Schedule Rural South Catchment						
This schedule was calculated in spreadsheet #E2024/6353						
1bedroom units =		0	@	0.55 SDU	=	0
2 bedroom units =		0	@	0.75 SDU	=	0
3 bedroom units/dwellings =		0	@	1 SDU	=	0
Allotments =		2	@	1	=	2
Less Site Credits =		1	@	-1	=	-1
Total SDU					=	1
	No further indexation. Contributions are at the Ministerial cap.					
Local Open Space & Recreation	(OS-RS)	0.75	SDU @	$ -	=	$ -
LGA Wide Open Space & Recreation	(OS-SW)	0.75	SDU @	$ 828.74	=	$ 621.55
LGA wide Community Facilities	(CF-SW)	0.75	SDU @	$ 1,213.77	=	$ 910.33
Local Community Facilities	(CF-RS)	0.75	SDU @	$ -	=	$ -
Bikeways & Footpaths	#N/A	0.75	SDU @	$ -	=	$ -
Shire Wide Bikeways & Footpaths	(CW-SW)	0.75	SDU @	$ 89.04	=	$ 66.78
Urban Roads	#N/A	0.75	SDU @	$ -	=	$ -
LGA Wide Roads	(R-SW)	0.75	SDU @	$ 250.77	=	$ 188.08
Rural Roads	(R-RS)	0.75	SDU @	$ 16,364.14	=	$ 12,273.11
Administration Levy	(OF-SW)	0.75	SDU @	$ 1,253.53	=	$ 940.15
Total						**$ 15,000.00**

[redacted]

23 January 2024

The General Manager
Byron Shire Council

SUBMISSION DA 10.2023.491.1 – Lot 5 DP 793657 – 541 Federal Drive FEDERAL

I write to object to DA 10.2023.491.1 at 541 Federal Drive, Federal **(Objection).** *Please refer to the attached Aerial Map on the last page when considering this submission.* [redacted] proposed development on, and near, land that has experienced landslip that caused the closure of Federal Drive. [redacted] I have first-hand knowledge of the area and have applied this to draft my Objection and explain my personal views.

I object to the DA because it is not in the public interest and puts my house at risk due to **landslip** potential in an area with numerous springs and subterranean water, and a history of landslips. The closure of Federal Drive has had a significant cost on our community and for Council.

I object to the importation of around 600 tonnes of potentially **contaminated banana farm soil** immediately adjacent uphill to the north of the proposed site that poses a current threat to subterranean water and the environment, but is excluded from the soil assessment. There is a risk of contamination to underground water due to the proximity of the proposed dwelling and the contaminated soil to an existing well adjacent to the development that is not mentioned in the DA.

I object to **increased use of the shared driveway** that is not designed for, nor in a condition to handle, the increased load from another dwelling. The entrance has non-compliant sight distances in both directions, and it joins Federal Drive at a steep sharp angle, making entry and exit dangerous and heavy truck access impossible without a three-point turn on the main road. The **access is in the road reserve and on Council land and severely degraded**. Major road redesign and works would be required to make the road and access safe and compliant with road standards.

I object to the proposed **site** of the development. It is constrained by potentially contaminated soil next to a water well, is on sloping land that gets progressively steeper, and above existing landslip and a steep valley. There are multiple alternative dwelling sites that do not pose a risk to subterranean water and that require minimal earthworks.

RISK OF LANDSLIP AND DAMAGE [redacted]

There is an unacceptable risk of landslip, [redacted], further slippage [redacted] and road closures. The development is on sloping land, adjacent and diagonally above

[redacted] has previously slipped onto Federal Drive (from December 2017), causing road closure, and the proposed site is close to this previous landslip.
The development is in a fragile environment [redacted] on a hill renowned for its underground water, with many springs, is the source of numerous creeks, and it also has a history of landslips. However, there is little geotechnical information in the DA and no dedicated specialist report.

The proposed site is on sloping land that gets progressively steeper. It is above a steep valley that already has landslip and a cliff, a spring, and a creek that feeds into the bigger creek that flows through Federal village between properties on Coachwood Court and Callistemon Drive. The creek floods. The development is in the catchment of the creek, and with numerous springs. There is evidence of subterranean water close to the proposed site as evidenced by the windmill and a well nearby. I can find no mention of this water well in any of the consultants' reports. [redacted]

Based on what I saw, my opinion is that recent landslips that have closed Federal Drive were preceded by either trenching, earthworks, or land clearing, or a combination of these activities on the subject property, followed by heavy rain. The geotechnical engineer managing the current landslip roadworks on Federal Drive also managed the works on the previous landslip of my land.

By way of underlining the risk [redacted] of the proposed nearby development, the engineer recently contracted a detailed building condition report [redacted] before undertaking the current landslip roadworks on Federal Drive. Please refer to the attached aerial photo attachment showing the relatively close distance between the new road works [redacted] and the nearby proposed development site.

I have considerable first-hand knowledge of the area [redacted]. There has been constant movement of the hill landscape in that time, and a number of landslips in addition to those requiring road remediation by Council. With permission I have walked over much of the subject lot prior to purchase by the current owners who moved to Federal only recently after operating the property as a guest house for a number of years. It is understandable that they do not have knowledge of the constraints of the land.

Further, I have forecast previous landslip and written to Council to provide warnings prior to landslip on my own property [redacted] advice was ignored by Council. Subsequently there was considerable inconvenience for the local community (road closures) and expense for Council and taxpayers. Some of my local knowledge of the history of the subject land [redacted]

Risley's Hill was renowned with the original settlers and farmers for its water, and for being the source of a number of creeks. Any interference can cause unanticipated effects such as landslip and road closures. The development is close to recent landslips, including the current one on the subject lot that has closed Federal Drive. The landslip soil at the current road

remediation work site is old banana land which has then been imported by around 60 tipper loads of soil [redacted] The contaminated soil has been mounded immediately above the proposed dwelling and promptly mulched, with the soil testing done shortly after. Those soil tests failed to investigate the adjacent mounds of imported banana land fill (see Preliminary Contaminated Land Assessment - Soil Sample Location page).

Photo below from Bushfire Assessment Report p6. **Red highlight shows approximate location of cliff, landslip, spring, and start of creek.** Note that this formation is relatively new – [redacted]

FEDERAL DRIVE, THE DRIVEWAY AND ACCESS

The driveway and access is not designed for, nor in a condition to cope with, even more vehicle usage. I object to the increased use that will result from the development proposal.

The Statement of Environmental Effects claims that Development Consent for the main house granted on 27 October 2004 "included upgrading of the driveway from Federal Drive" (p4). This is factually incorrect – no works were actually undertaken in relation to that development at that time. I have not observed such works. Minor works were undertaken some years later and the driveway remains unaltered and has deteriorated. Consequently, **I request deferred commencement so the driveway can be upgraded as required in 2004 (Development Consent 10.2003.417.1)**.

ACCESS FROM ROAD: based on my research of the Council's Development & Design Manual for driveways and other road policies, Federal Drive does not meet road standards. I observe the following:

- The access does not meet the standard template
- The access is in a dangerous location on the crest of a high-speed arterial road
- The Statement of Environmental Effects claims incorrectly that there are "clear sight lines along the road" (p19). [redacted] and sight lines are not sufficiently clear with a blind bend in the road to the north and a steep slope to the south with visibility falling away sharply beyond the crest. Sight distances do not comply with Australian road design standards.
- The access is on Council land and in a poor state of repair
- Vehicles need to swing wide to enter from the south as the access angles back and is steep
- Heavy vehicles need to perform a three point (or more) turn to enter from the south
- Manual vehicles need to come to a stop on the road to engage first gear due to the steep access
- There is no room for an entering vehicle to pass an exiting one
- There is no passing lane on the road
- The road is 5.3 metres wide
- The roadside verge is only one metre wide
- There is no room for pedestrians and cyclists
- School buses use Federal Drive
- There is a steep drop-off on the side of the road opposite and no guardrail
- There is a house located below the drop-off opposite the access
- There have been a number of accidents at this access location

DRIVEWAY: The driveway has deteriorated with use by heavy building works vehicles and tipper trucks and access for unapproved use for many years by the two guest houses (the subject property and 543 Federal Drive) which has included mini buses.

- The driveway is unsealed, narrow, and slippery in wet weather
- The Statement of Environmental Effects refers to the DCP 2014 where a "Sealed driveway (is) required" and that the driveway complies with the requirement (p19). This is incorrect. The driveway is gravel and has never been fully sealed.
- There are no passing bays – it is effectively one way at a time.
- Fire trucks cannot pass.
- The dwelling is designed for 3 people (On-Site Wastewater Management Assessment p4), with the likelihood that 3 more cars will enter and exit the substandard driveway daily.

CONTAMINATED SOIL AND WATER TABLE CONTAMINATION

I object to the risk of contamination of the environment and the water table posed by the proposed development.

The consultant's soil test Executive Summary and Conclusion both state that "further soil contamination assessment is not required" (Preliminary Contaminated Land Assessment - p5

and p20 respectively). This is despite [redacted] the site being the destination of around 60 tipper loads (approx. 600 tonnes) of soil in August 2023 from the current landslip on Federal Drive (the subject property). I saw that the soil was then mounded and promptly mulched just prior to the site visit by the soil consultants who did no investigation of the mounds immediately adjacent upslope from the proposed site. The imported soil is on the same contour as the nearby water well and old windmill.

The Preliminary Contaminated Land Assessment report states "There are no groundwater bores within 250m of the investigation area" (p7). Of concern, there is no mention of the large well and windmill about 25 metres away. [redacted]

The mounds of soil are from the banana plantation referred to in the 1966 aerial photos: "Bananas can be seen on the northern portion of the property… However, this is not near the investigation area" (Preliminary Contaminated Land Assessment: p9). Based on what I saw, my view is that the importation of 600 tonnes of that soil immediately adjacent and above the investigation site should make wider assessment a requirement. The aerial photo of the sample locations (page at end of Preliminary Contaminated Land Assessment report) shows no samples were taken from the adjoining mounds of imported banana farm soil.

The Preliminary Contaminated Land Assessment report states that there were no signs of fill material observed (p13). Likewise, the Onsite Wastewater Management Assessment report by the same consultant claims "No fill observed in the proposed disposal area" (p7). Was the error in the reports because the fill was hidden by mulch? Clearly another, more thorough assessment should be required.

(continued over page)

Photo below from Bushfire Assessment Report (p4) shows mulched mounds of imported fill taken from the old banana farm and dropped adjacent to the proposed dwelling site. This is where most of the approx. 600 tonnes of potentially contaminated fill was deposited.

Note that the "land is mapped within the Drinking Catchment" (Statement of Environmental Effects: p18), but sited with the wastewater management system adjacent to the water well, and on the same contour. The proposed driveway to the new dwelling is also designed to follow this same contour (Statement of Environmental Effects p20).

SITE LOCATION

I object to the site location. The DA reports are inconsistent in their measurement from the principal house site, ranging from 75 metres to 100 metres. [redacted]

The consultant states in relation to the property that "no structures were present on site until 2006" (p14). This is factually incorrect – Risley's original farm house was sited near the middle of the large flat paddock on top of the hill. I have seen the footings, which I presume are still there. My opinion is that it is wholly inappropriate that the proposed dwelling site is on landslip prone land surrounded by subterranean water, and above and adjacent to existing landslips. There are numerous unconstrained sites within 100 metres of the main dwelling on the 22-hectare property that do not require risky earthworks for vehicle access, landscaping, burying of the sewage system, levelling of the site for the house, water tank etc. These proposed works are located close to, and on the same contour, as an existing viable water well.

The Statement of Environmental Effects states the "Additional landscaping will be provided" (p20). This is of particular concern given the history of development on the property and I saw in December 2017 tonnes of sediment had washed into Council's drains when trenching was washed out by heavy rain and sediment overflowed the sediment control barriers.

CONCLUSION

I submit that the proposed development poses risks [redacted], the environment, and Council's road due to the potential for further landslips in a landslip prone area. There is the likelihood of contamination to subterranean water due to the close proximity of the water well to contaminated soil and sewage. The development will add further traffic to the substandard driveway and dangerous road access. Therefore, I object to the development.

[redacted]

[redacted]

[redacted]Attachment over page)

ATTACHMENT: From Statement of Environmental Effects - p8 Aerial Photo

Landslip, cliff, spring, source of a creek. [redacted]

Landslip of previous banana plantation and source of approx. 600 tonnes of fill adjacent to and north of the proposed dwelling. Site of current landslip works on Federal Drive.

Approx location of original settlers (Risley's) farm house

Proposed dwelling. Contaminated banana soil adjacent uphill on north side.

Previous landslip area from 2017-19, road closure and landslip works in 2019

Windmill and well

[redacted]

Subject: DA no. 10.2023.491.1. Attn: General Manager
Date: Wednesday, 24 January 2024 4:15:43 PM

Dear General Manager,
Re: DA application no. 10.2023.491.1
We request Council seek expert advice specifically concerning the risk of further land slippage (which would directly affect [redacted], both properties being directly below the site of the proposed dwelling).

Chris Ward, who is currently overseeing the Federal Drive slip restoration, previously undertook the bank stabilisation works on Federal Drive [redacted]). His working knowledge of both slip sites, only a few hundred metres apart, would be invaluable.

As regards the DA, we are puzzled by the chosen house site. For such a large land parcel, it seems strange to position a new build on sloping land so close to a well given the danger this poses re water contamination.

We are very apprehensive about this DA (specifically the site) because this hill has had a number of slips over the years. The Federal Drive slip (which is massive) is [redacted]
And the previous Federal Drive bank stabilisation [redacted]. The latter was considered so dangerous we were evacuated from the main house (and warned not to use our driveway) due to the imminent threat of a catastrophic landslide. Thus we fear that the current DA site will do even more harm to this fragile hill.

As regards the shared driveway, not only is it in a dreadful state of repair, but when turning into the drive from the south, cars have to cross into the middle of the road in order to turn in. I have witnessed trucks driving onto the opposite side of the road (towards the blind corner) then reversing up the driveway (I have one such truck on video). As we know, building works means increased vehicles, hardly an issue whilst Federal Drive is closed, but if the work begins after the road reopens, the dangerous driveway entrance poses a risk to everyone using Federal Drive.
[redacted]

[redacted]

OB Geotechnics

Consulting Geotechnical Engineering Services

REPORT ON GEOTECHNICAL SITE INVESTIGATION AND LANDSLIDE RISK ASSESSMENT

PREPARED FOR

Kirsten Ackland

Proposed Dual Occupancy and Wastewater System

AT

Lot 5 DP 793657,

541 Federal Drive, Federal, NSW 2480

22 April 2024
Project Ref: P554LRA

OB Geotechnics
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1 INTRODUCTION

This report presents the results of a geotechnical site investigation and landslide risk assessment for the proposed new dual occupancy at 541 Federal Drive, Federal, NSW, 2480, described currently as Lot 5 on DP793657. The investigation was commissioned by email from Kirsten Ackland, 'The Owner' dated 20th of March 2024. The commission was based on our fee proposal (Ref. P554 Federal), dated 20th of March 2024. A Site Location Plan is presented as Figure 1.

The following plans have been provided to OB Geotechnics, and are attached in Appendix F:

- Development Application Plans, Issue B, Sheets Numbers. 1.0, 1.1, 1.2 and 1.3, Prepared by Alexander Building Design, dated 8th of March 2024.

Based on the provided information, we understand that a new dual occupancy is proposed to include a single dwelling, car parking area and driveway. Cut and fill earthworks are proposed along with the construction of a new retaining wall in order to prepare a new building envelope. Lastly, wastewater management is proposed through septic and evapotranspiration (ETA) beds.

A site walkover survey and geotechnical site investigation were carried out to determine subsurface ground conditions as well as to map and measure significant features in relation to the slope stability of the site. The site walkover was also used to identify hazards that were included in a landslide risk assessment. A landslide risk assessment has been undertaken in accordance with Australian Geomechanics Society (AGS), landslide risk management, Volume 42 No.1, March 2007[1] (*referred to below as AGS(2007c)*) to assess the risk to property damage.

The report then also provides geotechnical design recommendations and geotechnical constraints for the proposed development. Specific details regarding structural loads were not provided at the time of investigation and we have assumed typical loading for this type of development. It should also be made clear that other areas across the site may remain at risk of landslide. These have not been explored as part of the scope of works.

2 SITE WALKOVER SURVEY

A site walkover survey was undertaken on the 10th of April 2024. The site walkover survey involved mapping and measuring features of significance to slope stability, including but not pertaining to, slope angles and direction, erosion features, drainage features, vegetation density as well as the presence of any irregular surface features such as tension cracks, curved trees, slips, slumps, debris slides etc. A summary of findings/observations are presented in Figure 3, attached to Appendix D of this report.

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3 INVESTIGATION PROCEDURE

The fieldwork for the investigation was also carried out on the 10th of March 2024. The geotechnical investigation included the drilling of two (2) boreholes BH1 and BH2. Drilling was undertaken using a ute mounted drilling rig to termination depths of 3.5m (BH1) and 7.0m (BH2). In addition, two (2) Dynamic Cone Penetrometer (DCP) tests, DCP1 and DCP2, were carried out adjacent to the boreholes to refusal depths of 1.3m and 1.6m, respectively.

The boreholes and DCP test locations, are indicated on the attached Test Location Plan (Figure 2) and were set out using taped measurements from existing surface features. The surface reduced levels (RLs) at the test locations, were based on interpolation between contours shown on Byron Shire Council's GIS. An image taken from Byron Shire Council's GIS mapping forms the basis of Figure 2.

The nature and composition of the subsoils were assessed by logging the materials recovered during drilling, using visual and tactile methods. The relative compaction/density of the subsoils was assessed by interpretation of the DCP tests results, completed adjacent to the boreholes. The refusal depth of DCP tests can provide an indicative depth to bedrock, although refusal can also occur on buried obstructions, 'floaters', hard soil layers, and not necessarily on bedrock.

Groundwater observations were also made during and on completion of drilling individual boreholes.

The investigation has been undertaken generally in accordance with AS 1726-2017[2] (Geotechnical Site Investigation). Our senior geotechnical engineer was on site full time during the fieldwork and set out the test locations, nominated the sampling and in-situ testing, and logged the encountered subsurface profile. Borehole logs are attached to this report along with our report explanation notes, which describe the investigation techniques adopted and define the logging terms and symbols used.

4 RESULTS OF INVESTIGATION

4.1 Site Description

Lot 5 DP793657 is approximately 22.2ha and is irregular in shape. The allotment covers the top of an existing hillside and includes both the upper northern and south slopes of the hillside itself. The site can be considered rural residential and is bounded by local roads and other rural residential properties.

The existing main dwelling is positioned at the crest of the hillside towards the eastern boundary. The proposed new dual occupancy development lies towards the crest of the south facing hillside. More specifically, the dual occupancy can be found 285m offset from the western property boundary and 300m upslope from the southern property boundary. For the purpose of the site description areas adjacent (including upslope and downslope) to the proposed development will be described. Due to the considerable area in which the site pertains, description and review of other areas across the site were not included in the scope of works.

The proposed new dual occupancy is positioned approximately 80m southwest of the existing dwelling. The existing terrain consist of natural slopes at approximately 10° grading downwards to the southeast. The predominate ground cover consists of grass with a scatter of smaller or medium size trees directly upslope and also to the east of the new development area. The landform would be considered planar. 40m downslope from the development area, the terrain steepens to about 15° and the landform becomes rough and irregular. Ground cover also changes to a heavily dense cover consisting mature and large native trees. Further downslope and to the south east, a main gully is found and lantana and/or other shrubbery was seen. Slopes towards the gully exceed about 20° and become steep.

Although not considered as part of this assessment. A significant landslide has resulted in the upper slopes of northern hillside face. Natural slopes in this area are considered to be somewhat steeper, between 25° and up to 30° , as measured using contours on Byron Shire's GIS mapping portal.

4.2 **Subsurface Conditions**

Reference to geological mapping by the Geological Survey of New South Wales 1:250,000 series 'Tweed Heads' sheet indicates the site is underlain by formations from the Tertiary period of the Cainozoic Era. These formations are known as Lamington Volcanics, which are underlain by Nimbin Rhyolite and Lismore Basalt, which typically comprise "basalt (agglomerate, bole)".

The boreholes indicate a subsurface profile comprising a layer of topsoil, which overlie varied thickness of silty clay underlaid by an extremely weathered rock. The upper clay profile was assessed as being stiff (St) to very stiff (VSt) before becoming very stiff (VSt) to hard (H). Refusal of DCP tests , DCP1 and DCP2 indicate that at approximately 1.5m, clay soils become hard. Weathered basalt was intercepted between 3.5m, in borehole 1 and 7.0m in borehole 2.

For a more detailed description of the subsurface profile encountered at borehole locations, reference should be made to the attached borehole logs.

It should be noted that all boreholes were 'dry' during, on completion and again 2hrs after completion of drilling. However, moisture conditions of soils suggest that subsurface water may be present after prolonged heavy rainfall events. Generally, groundwater levels and subsurface water can be expected to vary with seasonal and climatic conditions.

5 LANDSLIDE RISK ASSESSMENT

5.1 General

Section 5 below details the methodology and results of landslide risk assessment completed for the new dual occupancy development at 541 Federal Drive, Federal, NSW 2481. Landslide risks have been explored for the proposed development itself, as detailed in the attached DA Plan drawing set. As such, other areas of the site and other structures within the site may remain at higher or lesser risks of future landslides but have not been considered as part of this assessment.

OB Geotechnics Pty Ltd is aware of significant landslide that resulted on the northern slope of the site as a result of the extreme wet weather events, which occurred in Feburary and March in 2022.

5.2 Risk Methodology

A landslide risk assessment for the proposed new dual occupancy site have been based on risk to property, where risk is the product of likelihood and consequence. The method is generally in accordance with guidelines developed by Australian Geomechanics Society (AGS), Practice Note Guidelines for Landslide Risk Management, Volume 42 No.1, March 2007, referred to in this report as AGS (2007c)[1].

5.3 Hazard Analysis

Based on the site walkover survey, a desk study and the results of geotechnical site investigation, the land stability hazards considered in the assessment are detailed below:

- **Hazard A:** Shallow translational instabilities/creep movements in sloped terrain, between 10° and 15°, downslope of new dual occupancy site.
- **Hazard B**: Deep rotational instabilities (up to 10m deep) of sloped terrain, between 10° and 15°, downslope of new dual occupancy site.

- **Hazard C**: Global instabilities (beyond about 10m deep) of sloped terrain, between 10° and 15°, downslope of the new dual occupancy site.

5.4 Evaluation of Likelihood Rating

The qualitative measures of likelihood of instability, presented in Table 1, have been adopted for this study, consistent with the terminology of the AGS (2007c), which is attached in Appendix E. A likelihood rating has been assigned for each hazard based on the identified site geotechnical features, subsurface conditions and observed slope angles. Previous signs of instabilities, applied surcharges aswell as any other parameters including drainage, vegetation density and other surface features have been considered in the assessment.

Practice Note Guidelines for Landslide Risk Management, 2007, Appendix C		
Likelihood descriptor	**Description**	**Adopted Indicative Value of Annual Probability**
Almost Certain	The event is expected to occur over the design life.	10^{-1}
Likely	The event will probably occur under adverse conditions over the design life	10^{-2}
Possible	The event could occur under adverse conditions over the design life	10^{-3}
Unlikely	The event might occur under very adverse circumstances over the design life	10^{-4}
Rare	The event is conceivable but only under exceptional circumstances over the design life	10^{-5}
Barely Credible	The event is inconceivable or fanciful over the design life	10^{-6}

Table 1: Likelihood Rating

Likelihood of instability ratings for Hazards A to C are presented below:

Hazard A: Unlikely
Hazard B: Rare
Hazard C: Barely Credible

5.5 Consequence Analysis

For each type of hazard, the analysis of consequence of any failure must be considered. The assessment considers risk to property damage for each above listed hazards. More specifically, damage to the proposed new dual occupancy including new dwelling, driveway and retention system as well as damage to the proposed new wastewater services have been considered.

Table 2 below presents the adopted consequences for each hazard. As previously indicated, the report does not consider any consequences or damage to the upslope residences (primary dwelling) or any existing structures on the site.

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5.6 Risk Estimation to Property

Appendix C of AGS (2007c) outlines a method of assessing risk to property. The likelihood and consequence of the specific hazards are based on the estimations carried out in the above sections of this report. The level of risk to property is then assessed for each specific hazard based on the Qualitative Risk Analysis Matrix as described in Appendix C of AGS (2007c). The Risk Assessment and assessed risk to property has been summarised in the below Table 2.

Hazard	Likelihood	Consequence	Assessed Risk
Hazard A: Shallow translational instabilities/creep movements in slope terrain, between 10° and 15°, downslope of dual occupancy site.	Unlikely	Medium	Low
Hazard B: Deep rotational instabilities (up to 10m deep) of sloped terrain , between 10° and 15°, downslope of dual occupancy site.	Rare	Major	Low
Hazard C: Global instabilities (beyond about 10m deep) of sloped terrain , between 10° and 15°, downslope of dual occupancy site.	Barely Credible	Catastrophic	Low

Table 2: Risk Assessment for proposed Dual Occupancy

5.7 Discussion of Risk Assessment

It should be noted that “Low” risk is usually acceptable to regulators for a proposed new development. “Moderate” risk may be tolerated but requires investigation, planning and implementation of mitigation to reduce the risk to “Low”. Following Appendix C of AGS (2007c), the potential implications for the associate risk level are outlined in Table 3 below:

Risk Level		Example Implications
VH	VERY HIGH RISK	Unacceptable without treatment. Extensive detailed investigation and research, planning and implementation of treatment options essential to reduce risk to Low; may be too expensive and not practical. Work likely to cost more than value of the property.
H	HIGH RISK	Unacceptable without treatment. Detailed investigation, planning and implementation of treatment options required to reduce risk to Low. Work would cost a substantial sum in relation to the value of the property.
M	MODERATE RISK	May be tolerated in certain circumstances (subject to regulator’s approval) but requires investigation, planning and implementation of treatment options to reduce the risk to Low. Treatment options to reduce to Low risk should be implemented as soon as practicable.
L	LOW RISK	Usually acceptable to regulators. Where treatment has been required to reduce the risk to this level, ongoing maintenance is required.
VL	VERY LOW RISK	Acceptable. Manage by normal slope maintenance procedures.

Note: The implications for a particular situation are to be determined by all parties to the risk assessment and may depend on the nature of the property at risk; these are only given as a general guide.

Table 3: Risk Level Implications following Appendix C of AGS (2007c)

The decision as to the level of risk to be accepted or tolerated needs to be considered by both the owner, consent authorities, insurance companies and other parties involved. Decision making

should be based on a number of factors, and not limited to, the effect of the consequences on people, the cost of repair to the structure, legal ramifications of accepting the risk and the future amplifications of damage to structure or to any further developments.

The landslide risk assessment results show that the proposed new dual occupancy development has been assigned a risk of instability of "Low" in accordance with AGS2007c. Notwithstanding the above, in order to maintain the a 'Low' risk of instability of the site in the long term ', strict adherence to all the below recommendations are required.

6 COMMENTS AND RECCOMENDATIONS

Section 6 of this report focuses on providing general recommendations and constraints for the proposed new dual occupancy dwelling, retaining wall, driveway, and wastewater management system. Recommendations outlined above are to be adhered to in order to maintain the stability of the site.

6.1 Earthworks

It is anticipated earthworks are to include cuts up to about 1.0m in preparation of the proposed dwelling and carparking area. New fills are also expected in preparation of the building pad and are to remain below 1.0m in height. Detailed excavations for new footings are also expected along with trench and pit excavations for the buried stormwater and wastewater infrastructure.

Generally, all earthworks are to be carried out in accordance with AS 3798 – 2007[3] (Guidelines on Earthworks for Commercial and Residential Developments). Any excavations on site should be completed by reference to the Safe Work Australia Code of Practice 'Excavation Work'[4], dated March 2015.

All 'Engineering' fill to support structural loads are to be placed and compacted as under 'Level 1 inspection and testing'. Engineering fill to support pavements are to be constructed under 'Level 2'.

Fills on-site are to remain below 1.0m in height unless otherwise approved by a geotechnical engineer. Prior to placement of new fills, topsoil and deleterious materials are to be removed and benching of the existing ground to allow for 'keying' of the engineering fill material into the natural ground prior is required.

Batter Slopes

Batter slopes presented in Table 4 are considered to be suitable for the purpose of the development. Notwithstanding this, some movement at, and behind the slope crest, as well as some localised slumping of batter faces may still occur.

Given slopes assume the batters are not underlain by lower bearing strata and with a maximum vertical height of 3.0 m. In addition, slope angles are based on surcharge loadings (ie. construction machinery, traffic loadings) being well away from the crest new batters.

All permanent batters are to be stabilised using techniques such as vegetation and mulching or similar to minimise erosion, and by use of appropriate drainage. Properly maintained vegetation should reduce the occurrence of surface erosion by impingent rainfall. If seepage is encountered or observed coming out of the face at any stage, the batter recommendations will need to be reassessed and OB Geotechnics Pty Ltd should be notified.

Material Description	Short Term (Maximum)	Long Term (Maximum)
'Engineering' Fill Batters	1V:2H (26°)	1V:2H (26°)
Residual Clay Soils	1V:1H (45°)	1V:2H (26°)
Very Low strength or better Rock	1V:0.75H (63°)	1V: 1.5H (33°)

Table 4: Recommended Slopes Angles for Batter

All fill batters should be overconstructed, compacted and trimmed back at no steeper than the maximum angle given in Table 4.

6.2 Retaining Wall Design Parameters

All retaining walls should be adequately designed in accordance with AS 4678-2002[5] (Earth-Retaining Structures).

Where some minor movements of retaining walls may be tolerated (these include landscape walls, cantilevered, single propped or anchored retaining walls) they may be designed using a triangular lateral earth pressure distribution and adopting the subsoil parameters and characteristic 'active' earth pressure coefficient (K_a) provided in Table 5 below.

For walls that are rigid and unable to rotate or tilt (i.e. conventional walls that will be supported by the structure), it is recommended the use of a triangular lateral earth pressure distribution with an 'at-rest' earth pressure coefficient (K_o), provided in Table 5 below.

The lateral earth pressure coefficients provided in Table 5 assume a horizontal backfill surface and have not made allowances for surcharge loadings. Any surcharge affecting the walls (e.g. nearby footings, compaction stresses, sloping retained surfaces, soil creep loads, construction loads etc) should be allowed for in the design using the appropriate earth pressure coefficient from above.

Material	Unit Weight (KN/m^3)	Cohesion *C'* (kPa)	*Φ* (degrees)	'Active' K_a	'At Rest' K_o
Silty Clay	20	3	27	0.38	0.56
Extremely Weathered Rock	21	10	30	0.33	0.50

Table 5: Earth pressure design parameters (assuming a horizontal backfill surface)

Conventional retaining walls should be designed for water pressures equal to 2/3H , where H = retained height, and provision made for permanent and effective drainage of the ground behind the walls. Subsurface drains should incorporate a non-woven geotextile fabric, such as Bidim A34, to act as a filter against subsoil erosion. The subsoil drains should discharge into the stormwater system. Any backfill placed behind the wall should be loose granular material.

Footings for the retaining walls may be designed in accordance with the below footing recommendations, See Section 6.3. The base of all footing must be clear of loose, disturbed, or wet soil, and concrete cast without delay.

6.3 Footings

Based on the geotechnical site investigation results, the subsurface conditions in the area of the proposed development will typically comprise topsoil over clay underlain by extremely weathered rock. Constructions loads are to be positioned lower than any topsoils, and not founded on any proposed or new builders fill.

In order to lower the risk of instability and for uniformity of support, to limit the potential for differential settlements, we recommend that all footings are to be embedded a minimum 300mm into consistent, uniform subsurface material.

High level footings, such as stiffened rafts, pads or strips may be suitable in areas of cuts and can be designed for an allowable bearing pressure of 100kPa in the stiff, or better, silty clay or for an allowable bearing pressure of 300kPa in the extremely low (EL) strength weathered rock profile.

Pile foundations, such as bored piles, are also an appropriate footing, especially in areas of fill. Bored piers found into residual stiff, or better, silty clay may be designed for an allowable end bearing pressure of 150kPa. Bored piers found into the extremely weathered rock may be designed for an allowable end bearing pressure of 400kPa.

For pile design, shaft adhesion should be negated in any new fills. An allowable shaft adhesion of 20kPa can be adopted in the design for residual clays atleast 1.0m below existing ground. An allowable shaft adhesion of 50kPa can adopted for bored piles embedded into the weathered rock profile.

Bored piers are to be designed in accordance with the recommendations of AS 2159-2009[6] (Piling – Design and Installation). Piles are to be design for axial loading aswell as lateral loadings, associated with long term soil creep.

All footing trenches and bored piers should be excavated, cleaned out, be 'dry' and poured with minimal delay. Inspection should be carried out by geotechnical engineer for confirmation of the above bearing pressures prior to placement of reinforcement and concrete.

6.4 **Site Classification**

Based on the subsurface profile encountered in the boreholes and the assessed characteristic surface movement, under normal soil moisture variations, a reactivity similar to **'Class M'** in accordance with AS 2870-2011[7] may be considered.

6.5 **Drainage**

Appropriately designed, constructed, and maintained surface and subsurface drainage is important to the long-term performance of the development in terms of slope stability, debris flow, soil creep and erosion. Furthermore, the stability assessment relies upon interception of surface and subsurface water in the upslope terrain and redirection away from down sloping terrain (>10˚) or prone sloping batters.

A review of site drainage is required by a qualified hydraulic engineer to consider existing stie drainage with regard to the catchment area. Water then must also be directed away from the building site. A suitable stormwater management plan will need to be implemented, and verified by a qualified hydraulic engineer. This is, however, outside the scope of this investigation and report.

Nevertheless, the following recommendations, regarding drainage at the site are reccomended so to ensure the stability of the new development in its' intended location:

- A surface drain (i.e swale, spoon, or dish drain) is to be installed to the north (upslope) of new dual occupancy. Captured water is to be directed away from the sloping terrain and into the designed stormwater system. The surface drain is to be designed by hydraulic engineer to ensure sizing and shape is adequate for the catchment area.

- Subsurface drainage is to be incorporated into all proposed retaining walls, including the proposed retaining wall upslope from the carparking area. The subsurface drainage is to extend past the termination of the building envelope and discharge into a designed stormwater system.

- All stormwater collected from roofs, gutters, downpipes, and paved areas should be collected and discharged via pipes or lined channels into the designed stormwater management system.

- The new water storage tank is in an acceptable position. It is however, paramount that provisions for overflow are provided and certified by a hydraulic engineer. New water tanks installed on the site must **not be** positioned on the upper slope of any sloping batters or be certified by a geotechnical engineer.

- Wastewater systems including septic tanks and evapotranspiration (ETA) beds may be acceptable, where slopes are less than 15°. Septic tanks should be buried and found on residual soils. For the purpose of slope stability, wastewater application areas are to be away from and **not directly downslope** of the existing dual occupancy. A wastewater management report is not part of the scope of works. Nevertheless, ETA beds may be positioned east or west of the proposed dual occupancy.

6.6 General Recommendations

Good hillside engineering construction practice is considered mandatory during the development of the site. 'Guidelines to Good and Bad Hillside Practices' and 'AGS Australian Geoguide LR7 (Landslide Risk)' are attached in Appendix G and both provide some guidance materials and additional information, which should be adopted during construction.

Appendix G also contains, 'AGS Australian Geoguide LR5 (Water and Drainage)', which should be understood in respect to groundwater and surface drainage.

7 REFERENCES

1. "Practice Note Guidelines for Landslide Risk Management, Australian Geomechanics Society (AGS), Volume 42 No.1, March 2007.
2. AS 1726-2017 'Geotechnical Site Investigation', Australian Standard
3. AS 3798-2007 'Guidelines on Earthworks for Commercial and Residential Developments', Australian Standard
4. 'Excavation Work' Code of Practice, March 2015, Safe Work Australia.
5. AS 4678-2002 'Earth-Retaining Structures', Australian Standard
6. AS 2159-2009 'Piling – Design and Installation', Australian Standard
7. AS 2870-2011 'Residential Slabs and Footings', Australian Standard

8 LIMITATIONS

This report has been prepared for the geotechnical site investigation and landslide risk assessment for the proposed dual occupancy development at 541 Federal Drive, Federal, NSW 2480. The recommendations given in this report are based on both the information provided regarding the proposed developments and the findings of the investigation and site walkover.

It should be noted that as with all landslide risk assessments, interpolation and extrapolation between test locations and engineering judgment is adopted, by our professional geotechnical engineers.

Occasionally, the subsurface conditions are found to be different. This can be due to soil changes in different locations to those tested. Variation can also occur with groundwater conditions, especially after climatic changes. If such differences appear to exist, we recommend that you immediately contact the team at OB Geotechnics.

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This report has been prepared for the proposed new developments described above and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose.

For and on behalf of OB Geotechnics Pty Ltd:

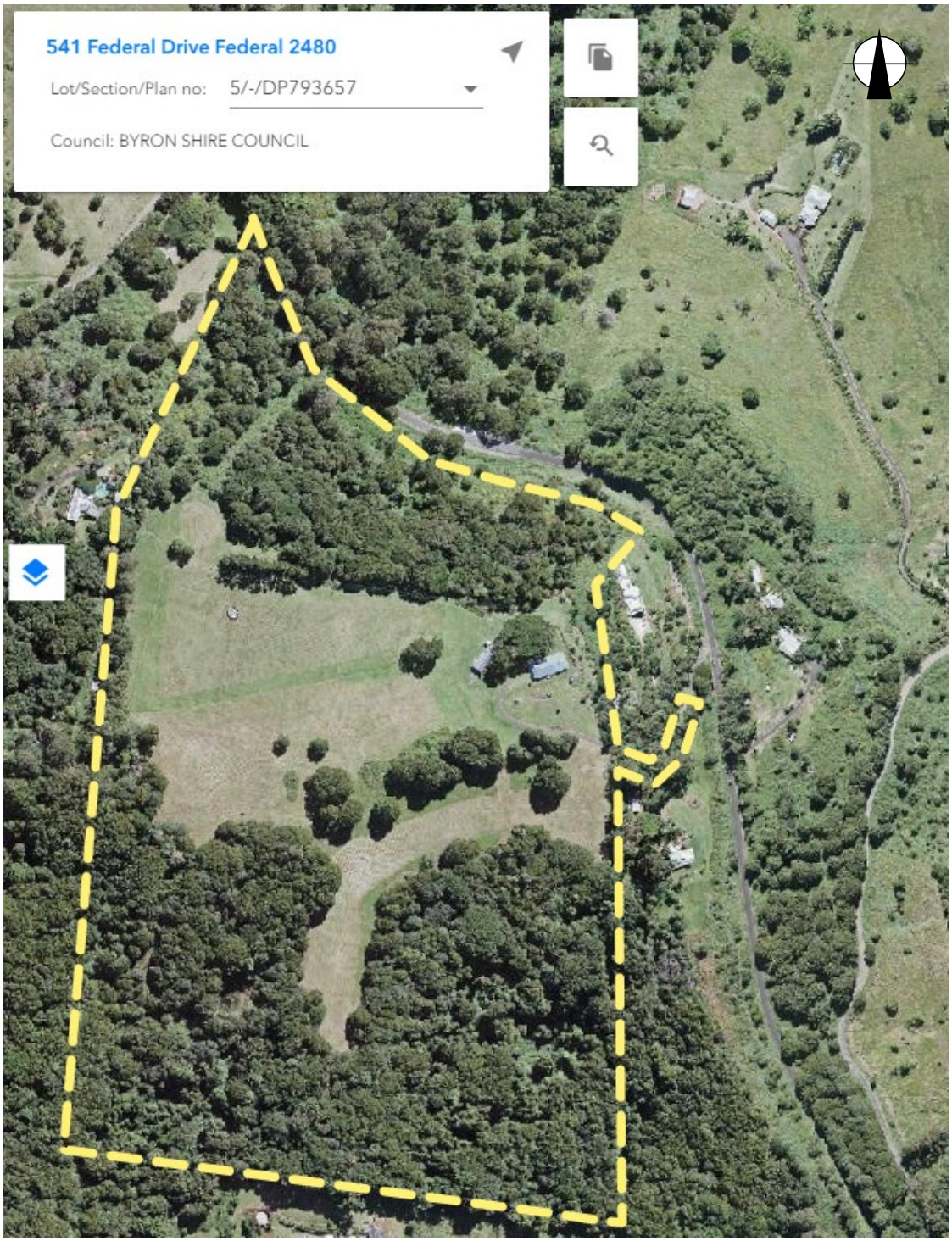
Report prepared by:

Danny Moses
MIEAust(Civil, Geotechnical), CPEng, NER
Principal Geotechnical Engineer

OB Geotechnics
Consulting Geotechnical Engineering Services

APPENDIX A:

FIGURE 1: SITE LOCATION PLAN
FIGURE 2: TEST LOCATION PLAN



Source: https://www.planningportal.nsw.gov.au

Title: **SITE LOCATION PLAN**

Location: 541 Federal Drive, Federal, NSW 2480

Report No: P554GI

Figure No: 1

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LEGEND

LOCATION OF BOREHOLES AND DCP TESTS

Title:	TEST LOCATION PLAN
Location:	541 Federal Drive, Federal, NSW 2480
Report No: P554GI	Figure No: 2
OB Geotechnics	

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APPENDIX B:

BOREHOLE LOGS AND DYNAMIC CONE PENETRATION TEST RESULTS

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BOREHOLE LOG

Borehole No.
BH1
Page 1 of 1

Client: Kirsten Ackland
Project: Geotechnical Site Investigation
Location: 541 Federal Drive, Federal, NSW 2480

Job No. P554GI | Method: Ute Mounted Drilling Rig | R.L. Surface: ≈ 250m
Date:10/04/2024 | Logged By: DM | Datum: AHD

Groundwater Record	Samples	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition / Weathering	Strength / Rel. Density	Hand Penetrometer Readings kPa.	Remarks
						TOPSOIL – Brown, Roots				GRASS COVER
		REFER TO DCP TEST RESULTS	0.5		CI	Silty CLAY: Medium plasticity, red brown	MC<PL	St - VSt		
			1.0		CI	Silty CLAY: Medium plasticity, brown, traces of gravel	MC<PL	VSt		
			1.5		CI	Silty CLAY: Medium plasticity, brown mottled grey, traces of gravel	MC<PL	VSt - H		
			2.0		CI	Silty CLAY: Medium plasticity, brown mottled grey, with gravel	MC≈PL	H		
			2.5		XW	Extremely Weathered ROCK: grey		EL-VL		TC BIT REFUSAL 3.5m
			3.0							

END OF BOREHOLE AT 3.5m

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BOREHOLE LOG

Borehole No.
BH2
Page 1 of 2

Client: Kirsten Ackland
Project: Geotechnical Site Investigation
Location: 541 Federal Drive, Federal, NSW 2480

Job No. P554GI | Method: Ute Mounted Drilling Rig | R.L. Surface: ≈ 248m
Date:10/04/2024 | Logged By: DM | Datum: AHD

Groundwater Record	Samples	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition / Weathering	Strength / Rel. Density	Hand Penetrometer Readings kPa.	Remarks
						TOPSOIL – Brown, Roots				GRASS COVER
		REFER TO DCP TEST RESULTS	0.5		CI	Silty CLAY: Medium plasticity, red brown	MC<PL	St - VSt		
			1.0		CI	Silty CLAY: Medium plasticity, brown, traces of gravel	MC<PL	VSt - H		
			1.5		CI	Silty CLAY: Medium plasticity, brown mottled grey, with gravel	MC<PL	H		
			2.0							
			2.5							
			3.0							

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BOREHOLE LOG

Borehole No.
BH2
Page 2 of 2

Client: Kirsten Ackland
Project: Geotechnical Site Investigation
Location: 541 Federal Drive, Federal, NSW 2480

Job No. P554GI | Method: Ute Mounted Drilling Rig | R.L. Surface: ≈ 248m
Date: 10/04/2024 | Logged By: DM | Datum: AHD

Groundwater Record	Samples	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition / Weathering	Strength / Rel. Density	Hand Penetrometer Readings kPa.	Remarks
			4.0		CI	Silty CLAY: Medium plasticity, brown mottled grey, with gravel	MC<PL	H		
			4.5		CI	Silty CLAY: Medium plasticity, brown mottled purple, traces of gravel	MC≈PL	H		
			5.0							
			5.5							
			6.0							
			6.5							
					XW	Extremely Weathered ROCK: grey		EL-VL		TC BIT REFUSAL AT 7.0m

END OF BOREHOLE AT 7.0m

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DYNAMIC CONE PENETRATION TEST RESULTS

Client:	Kirsten Ackland		
Project:	Geotechnical Site Investigation		
Location:	541 Federal Drive, Federal 2480		
Job No.	P554GI	Hammer Weight & Drop:	9kg/510mm
Date:	10-04-2024	Rod Diameter:	16mm
Tested By:	D.M	Point Diameter:	20mm

Number of Blows per 100mm Penetration

Test Location / Depth (mm)	DCP1 RL≈ 250m	DCP1 RL≈ 248m					
0 - 100	4	1					
100 - 200	4	2					
200 - 300	4	3					
300 - 400	8	4					
400 - 500	8	5					
500 - 600	10	8					
600 - 700	9	7					
700 - 800	10	10					
800 - 900	12	12					
900 - 1000	15	12					
1000 - 1100	18	15					
1100 - 1200	19	17					
1200 - 1300	Refusal	19					
1300 - 1400		19					
1400 - 1500		18					
1500 - 1600		Refusal					
1600 - 1700							
1700 - 1800							
1800 - 1900							
1900 - 2000							
2000 - 2100							
2100 - 2200							
2200 - 2300							
2300 - 2400							
2400 - 2500							
2500 - 2600							
2600 - 2700							
2700 - 2800							
2800 - 2900							
2900 - 3000							

Remarks:
1. The procedure used for this test is similar to that described in AS1289.6.3.2-1997, Method 6.3.2.
2. Usually 8 blows per 20mm is taken as refusal

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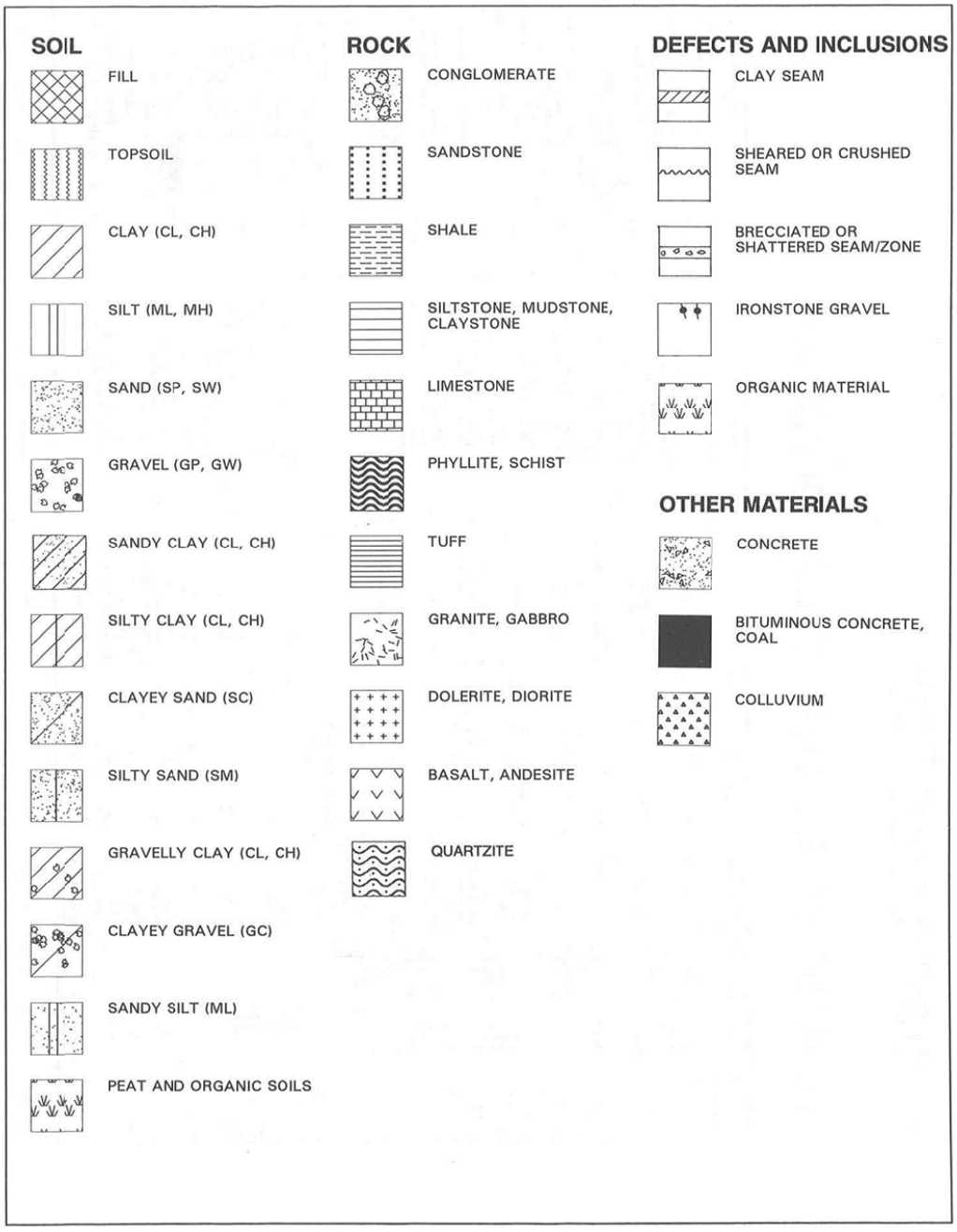
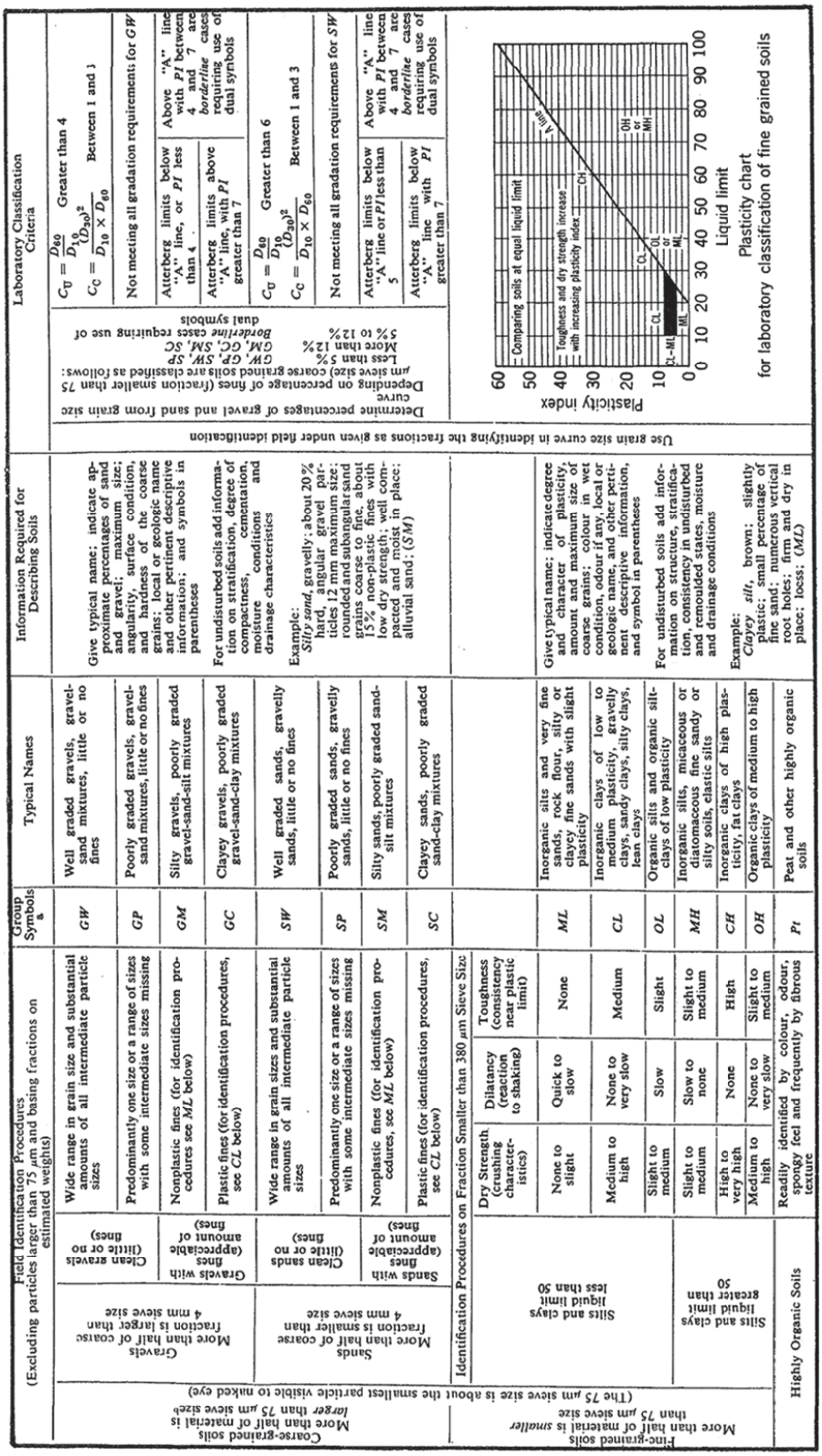
APPENDIX C:

REPORT EXPLANATION NOTES

GRAPHIC LOG SYMBOLS FOR SOILS AND ROCKS





UNIFIED SOIL CLASSIFICATION TABLE

Field Identification Procedures (Excluding particles larger than 75 μm and basing fractions on estimated weights)			Group Symbols[a]	Typical Names	Information Required for Describing Soils	Laboratory Classification Criteria
Coarse-grained soils More than half of material is *larger*[b] than 75 μm sieve size (The 75 μm sieve size is about the smallest particle visible to naked eye)	Gravels More than half of coarse fraction is larger than 4 mm sieve size	Clean gravels (little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes	*GW*	Well graded gravels, gravel-sand mixtures, little or no fines	Give typical name; indicate approximate percentages of sand and gravel; maximum size; angularity, surface condition, and hardness of the coarse grains; local or geologic name and other pertinent descriptive information; and symbols in parentheses For undisturbed soils add information on stratification, degree of compactness, cementation, moisture conditions and drainage characteristics Example: *Silty sand*, gravelly; about 20% hard, angular gravel particles 12 mm maximum size; rounded and subangular sand grains coarse to fine, about 15% non-plastic fines with low dry strength; well compacted and moist in place: alluvial sand; (*SM*)	$C_U = \frac{D_{60}}{D_{10}}$ Greater than 4 $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3
			Predominantly one size or a range of sizes with some intermediate sizes missing	*GP*	Poorly graded gravels, gravel-sand mixtures, little or no fines	Not meeting all gradation requirements for *GW*
		Gravels with fines (appreciable amount of fines)	Nonplastic fines (for identification procedures see *ML* below)	*GM*	Silty gravels, poorly graded gravel-sand-silt mixtures	Atterberg limits below "A" line, or *PI* less than 4 / Above "A" line with *PI* between 4 and 7 are *borderline* cases requiring use of dual symbols
			Plastic fines (for identification procedures, see *CL* below)	*GC*	Clayey gravels, poorly graded gravel-sand-clay mixtures	Atterberg limits above "A" line, with *PI* greater than 7
	Sands More than half of coarse fraction is smaller than 4 mm sieve size	Clean sands (little or no fines)	Wide range in grain sizes and substantial amounts of all intermediate particle sizes	*SW*	Well graded sands, gravelly sands, little or no fines	$C_U = \frac{D_{60}}{D_{10}}$ Greater than 6 $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3
			Predominantly one size or a range of sizes with some intermediate sizes missing	*SP*	Poorly graded sands, gravelly sands, little or no fines	Not meeting all gradation requirements for *SW*
		Sands with fines (appreciable amount of fines)	Nonplastic fines (for identification procedures, see *ML* below)	*SM*	Silty sands, poorly graded sand-silt mixtures	Atterberg limits below "A" line or *PI* less than 5 / Above "A" line with *PI* between 4 and 7 are *borderline* cases requiring use of dual symbols
			Plastic fines (for identification procedures, see *CL* below)	*SC*	Clayey sands, poorly graded sand-clay mixtures	Atterberg limits below "A" line with *PI* greater than 7
Identification Procedures on Fraction Smaller than 380 μm Sieve Size						Use grain size curve in identifying the fractions as given under field identification
Fine-grained soils More than half of material is *smaller* than 75 μm sieve size	Silts and clays liquid limit less than 50	Dry Strength (crushing characteristics)	Dilatancy (reaction to shaking)	Toughness (consistency near plastic limit)			Determine percentages of gravel and sand from grain size curve Depending on percentage of fines (fraction smaller than 75 μm sieve size) coarse grained soils are classified as follows: Less than 5% *GW, GP, SW, SP* More than 12% *GM, GC, SM, SC* 5% to 12% *Borderline* cases requiring use of dual symbols
		None to slight	Quick to slow	None	*ML*	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands with slight plasticity	Give typical name; indicate degree and character of plasticity, amount and maximum size of coarse grains; colour in wet condition, odour if any, local or geologic name, and other pertinent descriptive information, and symbol in parentheses For undisturbed soils add information on structure, stratification, consistency in undisturbed and remoulded states, moisture and drainage conditions Example: *Clayey silt*, brown; slightly plastic; small percentage of fine sand; numerous vertical root holes; firm and dry in place; loess; (*ML*)
		Medium to high	None to very slow	Medium	*CL*	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	
		Slight to medium	Slow	Slight	*OL*	Organic silts and organic silt-clays of low plasticity	
		Slight to medium	Slow to none	Slight to medium	*MH*	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	
		High to very high	None	High	*CH*	Inorganic clays of high plasticity, fat clays	
		Medium to high	None to very slow	Slight to medium	*OH*	Organic clays of medium to high plasticity	
Highly Organic Soils		Readily identified by colour, odour, spongy feel and frequently by fibrous texture			*Pt*	Peat and other highly organic soils	

Note: 1 Soils possessing characteristics of two groups are designated by combinations of group symbols (eg. GW-GC, well graded gravel-sand mixture with clay fines).

2 Soils with liquid limits of the order of 35 to 50 may be visually classified as being of medium plasticity.

LOG SYMBOLS

LOG COLUMN	SYMBOL	DEFINITION
Groundwater Record		Standing water level. Time delay following completion of drilling may be shown.
		Extent of borehole collapse shortly after drilling.
		Groundwater seepage into borehole or excavation noted during drilling or excavation.
Samples	ES	Soil sample taken over depth indicated, for environmental analysis.
	U50	Undisturbed 50mm diameter tube sample taken over depth indicated.
	DB	Bulk disturbed sample taken over depth indicated.
	DS	Small disturbed bag sample taken over depth indicated.
	ASB	Soil sample taken over depth indicated, for asbestos screening.
	ASS	Soil sample taken over depth indicated, for acid sulfate soil analysis.
	SAL	Soil sample taken over depth indicated, for salinity analysis.
Field Tests	N = 17 4, 7, 10	Standard Penetration Test (SPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration. 'R' as noted below.
	N_c = 5 7 3R	Solid Cone Penetration Test (SCPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration for 60 degree solid cone driven by SPT hammer. 'R' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	VNS = 25	Vane shear reading in kPa of Undrained Shear Strength.
	PID = 100	Photoionisation detector reading in ppm (Soil sample headspace test).
Moisture Condition (Cohesive Soils)	MC>PL	Moisture content estimated to be greater than plastic limit.
	MC≈PL	Moisture content estimated to be approximately equal to plastic limit.
	MC<PL	Moisture content estimated to be less than plastic limit.
(Cohesionless Soils)	D	DRY – Runs freely through fingers.
	M	MOIST – Does not run freely but no free water visible on soil surface.
	W	WET – Free water visible on soil surface.
Strength (Consistency) Cohesive Soils	VS	VERY SOFT – Unconfined compressive strength less than 25kPa
	S	SOFT – Unconfined compressive strength 25-50kPa
	F	FIRM – Unconfined compressive strength 50-100kPa
	St	STIFF – Unconfined compressive strength 100-200kPa
	VSt	VERY STIFF – Unconfined compressive strength 200-400kPa
	H	HARD – Unconfined compressive strength greater than 400kPa
	( )	Bracketed symbol indicates estimated consistency based on tactile examination or other tests.
Density Index/ Relative Density (Cohesionless Soils)		**Density Index (I_D) Range (%)** / **SPT 'N' Value Range (Blows/300mm)**
	VL	Very Loose <15 0-4
	L	Loose 15-35 4-10
	MD	Medium Dense 35-65 10-30
	D	Dense 65-85 30-50
	VD	Very Dense >85 >50
	( )	Bracketed symbol indicates estimated density based on ease of drilling or other tests.
Hand Penetrometer Readings	300 250	Numbers indicate individual test results in kPa on representative undisturbed material unless noted otherwise.
Remarks	'V' bit	Hardened steel 'V' shaped bit.
	'TC' bit	Tungsten carbide wing bit.
	T 60	Penetration of auger string in mm under static load of rig applied by drill head hydraulics without rotation of augers.

LOG SYMBOLS continued

ROCK MATERIAL WEATHERING CLASSIFICATION

TERM	SYMBOL	DEFINITION
Residual Soil	RS	Soil developed on extremely weathered rock; the mass structure and substance fabric are no longer evident; there is a large change in volume but the soil has not been significantly transported.
Extremely weathered rock	XW	Rock is weathered to such an extent that it has "soil" properties, ie it either disintegrates or can be remoulded, in water.
Distinctly weathered rock	DW	Rock strength usually changed by weathering. The rock may be highly discoloured, usually by ironstaining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
Slightly weathered rock	SW	Rock is slightly discoloured but shows little or no change of strength from fresh rock.
Fresh rock	FR	Rock shows no sign of decomposition or staining.

ROCK STRENGTH

Rock strength is defined by the Point Load Strength Index (Is 50) and refers to the strength of the rock substance in the direction normal to the bedding. The test procedure is described by the International Journal of Rock Mechanics, Mining, Science and Geomechanics. Abstract Volume 22, No 2, 1985.

TERM	SYMBOL	Is (50) MPa	FIELD GUIDE
Extremely Low:	EL		Easily remoulded by hand to a material with soil properties.
----------	----------	0.03	
Very Low:	VL		May be crumbled in the hand. Sandstone is "sugary" and friable.
----------	----------	0.1	
Low:	L		A piece of core 150mm long x 50mm dia. may be broken by hand and easily scored with a knife. Sharp edges of core may be friable and break during handling.
----------	----------	0.3	
Medium Strength:	M		A piece of core 150mm long x 50mm dia. can be broken by hand with difficulty. Readily scored with knife.
----------	----------	1	
High:	H		A piece of core 150mm long x 50mm dia. core cannot be broken by hand, can be slightly scratched or scored with knife; rock rings under hammer.
----------	----------	3	
Very High:	VH		A piece of core 150mm long x 50mm dia. may be broken with hand-held pick after more than one blow. Cannot be scratched with pen knife; rock rings under hammer.
----------	----------	10	
Extremely High:	EH		A piece of core 150mm long x 50mm dia. is very difficult to break with hand-held hammer. Rings when struck with a hammer.

ABBREVIATIONS USED IN DEFECT DESCRIPTION

ABBREVIATION	DESCRIPTION	NOTES
Be	Bedding Plane Parting	Defect orientations measured relative to the normal to the long core axis (ie relative to horizontal for vertical holes)
CS	Clay Seam	
J	Joint	
P	Planar	
Un	Undulating	
S	Smooth	
R	Rough	
IS	Ironstained	
XWS	Extremely Weathered Seam	
Cr	Crushed Seam	
60t	Thickness of defect in millimetres	

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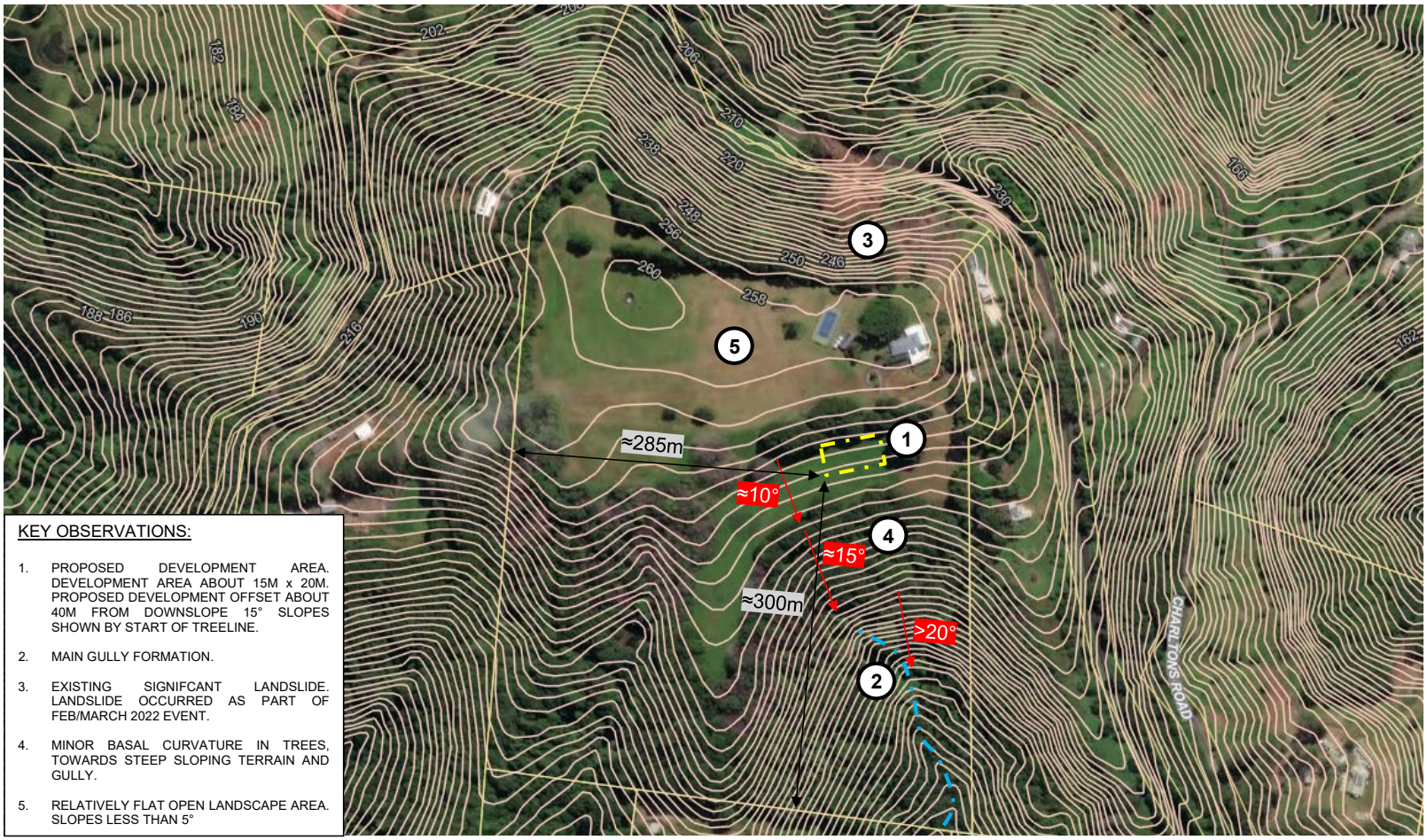
APPENDIX D:

FIGURE 3: SITE WALKOVER FINDINGS



*Location of the observations and surface features and are approximate only and are based on site measurements

Title: **SITE WALKOVER SURVEY FINDINGS**

Location: 541 Federal Drive, Federal, NSW 2480

Report No: P554GI

Figure No: 3

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APPENDIX E:

RISK MATRIX - EXTRACTED FROM AGS2007c

PRACTICE NOTE GUIDELINES FOR LANDSLIDE RISK MANAGEMENT 2007

APPENDIX C: LANDSLIDE RISK ASSESSMENT

QUALITATIVE TERMINOLOGY FOR USE IN ASSESSING RISK TO PROPERTY

QUALITATIVE MEASURES OF LIKELIHOOD

Approximate Annual Probability		Implied Indicative Landslide Recurrence Interval		Description	Descriptor	Level
Indicative Value	Notional Boundary					
10^{-1}	$5x10^{-2}$	10 years	20 years	The event is expected to occur over the design life.	ALMOST CERTAIN	A
10^{-2}	$5x10^{-3}$	100 years	200 years	The event will probably occur under adverse conditions over the design life.	LIKELY	B
10^{-3}	$5x10^{-4}$	1000 years	2000 years	The event could occur under adverse conditions over the design life.	POSSIBLE	C
10^{-4}	$5x10^{-5}$	10,000 years	20,000 years	The event might occur under very adverse circumstances over the design life.	UNLIKELY	D
10^{-5}	$5x10^{-6}$	100,000 years	200,000 years	The event is conceivable but only under exceptional circumstances over the design life.	RARE	E
10^{-6}		1,000,000 years		The event is inconceivable or fanciful over the design life.	BARELY CREDIBLE	F

Note: (1) The table should be used from left to right; use Approximate Annual Probability or Description to assign Descriptor, not *vice versa*.

QUALITATIVE MEASURES OF CONSEQUENCES TO PROPERTY

Approximate Cost of Damage		Description	Descriptor	Level
Indicative Value	Notional Boundary			
200%	100%	Structure(s) completely destroyed and/or large scale damage requiring major engineering works for stabilisation. Could cause at least one adjacent property major consequence damage.	CATASTROPHIC	1
60%	40%	Extensive damage to most of structure, and/or extending beyond site boundaries requiring significant stabilisation works. Could cause at least one adjacent property medium consequence damage.	MAJOR	2
20%	10%	Moderate damage to some of structure, and/or significant part of site requiring large stabilisation works. Could cause at least one adjacent property minor consequence damage.	MEDIUM	3
5%	1%	Limited damage to part of structure, and/or part of site requiring some reinstatement stabilisation works.	MINOR	4
0.5%		Little damage. (Note for high probability event (Almost Certain), this category may be subdivided at a notional boundary of 0.1%. See Risk Matrix.)	INSIGNIFICANT	5

Notes: (2) The Approximate Cost of Damage is expressed as a percentage of market value, being the cost of the improved value of the unaffected property which includes the land plus the unaffected structures.

(3) The Approximate Cost is to be an estimate of the direct cost of the damage, such as the cost of reinstatement of the damaged portion of the property (land plus structures), stabilisation works required to render the site to tolerable risk level for the landslide which has occurred and professional design fees, and consequential costs such as legal fees, temporary accommodation. It does not include additional stabilisation works to address other landslides which may affect the property.

(4) The table should be used from left to right; use Approximate Cost of Damage or Description to assign Descriptor, not vice versa

PRACTICE NOTE GUIDELINES FOR LANDSLIDE RISK MANAGEMENT 2007

APPENDIX C: – QUALITATIVE TERMINOLOGY FOR USE IN ASSESSING RISK TO PROPERTY (CONTINUED)

QUALITATIVE RISK ANALYSIS MATRIX – LEVEL OF RISK TO PROPERTY

LIKELIHOOD		CONSEQUENCES TO PROPERTY (With Indicative Approximate Cost of Damage)				
	Indicative Value of Approximate Annual Probability	1: CATASTROPHIC 200%	2: MAJOR 60%	3: MEDIUM 20%	4: MINOR 5%	5: INSIGNIFICANT 0.5%
A – ALMOST CERTAIN	10^{-1}	VH	VH	VH	H	M or **L** (5)
B - LIKELY	10^{-2}	VH	VH	H	M	**L**
C - POSSIBLE	10^{-3}	VH	H	M	M	**VL**
D - UNLIKELY	10^{-4}	H	M	**L**	**L**	**VL**
E - RARE	10^{-5}	M	**L**	**L**	**VL**	**VL**
F - BARELY CREDIBLE	10^{-6}	**L**	**VL**	**VL**	**VL**	**VL**

Notes: (5) For Cell A5, may be subdivided such that a consequence of less than 0.1% is Low Risk.
(6) When considering a risk assessment it must be clearly stated whether it is for existing conditions or with risk control measures which may not be implemented at the current time.

RISK LEVEL IMPLICATIONS

Risk Level		Example Implications (7)
VH	VERY HIGH RISK	Unacceptable without treatment. Extensive detailed investigation and research, planning and implementation of treatment options essential to reduce risk to Low; may be too expensive and not practical. Work likely to cost more than value of the property.
H	HIGH RISK	Unacceptable without treatment. Detailed investigation, planning and implementation of treatment options required to reduce risk to Low. Work would cost a substantial sum in relation to the value of the property.
M	MODERATE RISK	May be tolerated in certain circumstances (subject to regulator's approval) but requires investigation, planning and implementation of treatment options to reduce the risk to Low. Treatment options to reduce to Low risk should be implemented as soon as practicable.
L	LOW RISK	Usually acceptable to regulators. Where treatment has been required to reduce the risk to this level, ongoing maintenance is required.
VL	VERY LOW RISK	Acceptable. Manage by normal slope maintenance procedures.

Note: (7) The implications for a particular situation are to be determined by all parties to the risk assessment and may depend on the nature of the property at risk; these are only given as a general guide.

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APPENDIX F:

DRAWINGS

DEVELOPMENT APPLICATION

SINGLE DWELLING TO CREATE DUAL OCCUPANCY

LOT 5 DP 793667
541 FEDERAL RD
FEDERAL, NSW, 2480

ACKLAND

SHEET LIST	
SHEET NUMBER	SHEET NAME
1.0	SITE PLAN, SITE ANALYSIS, LOCATION & LOCALITY PLAN
1.1	FLOOR PLAN
1.2	ROOF PLAN, CONCEPT SW/WATER PLAN, FF APPLIANCE TURNING HEAD PLAN
1.3	ELEVATIONS & SECTION

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jared@alexanderbuildingdesign.com.au

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Federal NSW

CLIENT
Ackland

ISSUE	DATE	DESCRIPTION
A	14.12.23	DA PLAN SET
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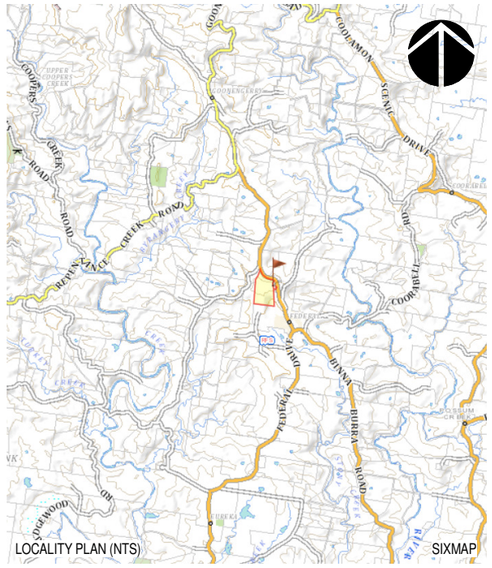
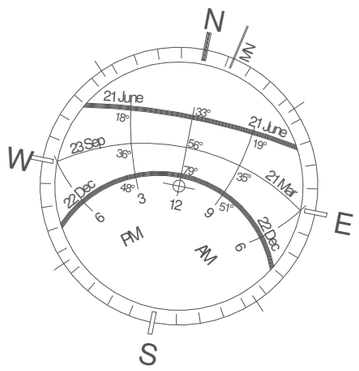
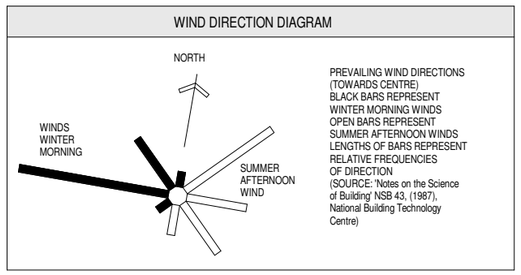
DEVELOPMENT APPLICATION

SHEET TITLE
COVER SHEET

DATE **08.03.24**
SCALE **1 : 10** **@A3**
DWG NO. **0.0**







1 Partial Site Plan
1 : 500

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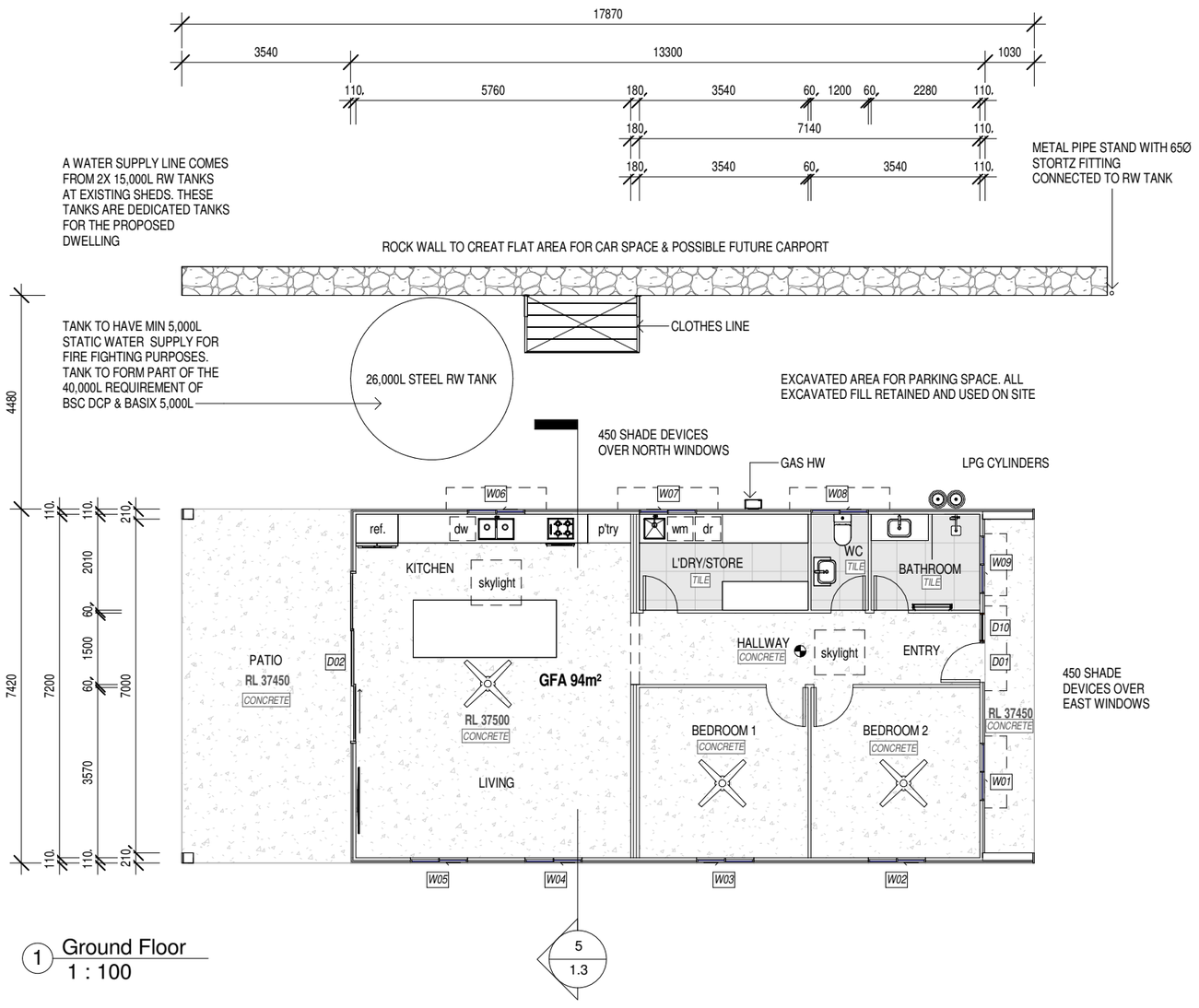
DEVELOPMENT APPLICATION

SHEET TITLE
SITE PLAN, SITE ANALYSIS, LOCATION & LOCALITY PLAN

0 5 25 50 m

DATE **08.03.24**
SCALE **As indicated @A3**
DWG NO. **1.0**



1 Ground Floor
1 : 100

450 SHADE DEVICES OVER EAST WINDOWS

WINDOW & DOOR SCHEDULE

No.	HEIGHT	WIDTH	SILL	TYPE
W01	1500	1200	600	S
W02	1500	1200	600	S
W03	1500	1200	600	S
W04	1500	1200	600	S
W05	1500	1200	900	S
W06	1200	1200	900	S
W07	1200	1200	900	S
W08	600	1200	1500	S
W09	600	1200	1500	S
W10	2100	600	0	L
D01	2100	920		HD
D02	2100	3520		SSD
S01	1200	1200		F
S02	1200	1200		F

S SLIDING
L LOUVRE
HD HINGED DOOR
SSD SLIDING STACKING DOOR
F FIXED

ALL CONSTRUCTION, APZ'S, ACCESS, WATER SUPPLY AND LANDSCAPING ARE TO COMPLY WITH THE RECOMMENDATIONS OF BUSHFIRE ASSESSMENT REPORT PREPARED BY FIRETECH BUSHFIRE CONSULTING 29.11.23

ALL BASIX REQUIREMENTS ARE TO BE IN ACCORDANCE WITH THE BASIX AND THERMAL ASSESSMENT CERTIFICATES

SMOKE DETECTORS ARE TO BE CONNECTED TO THE MAIN POWER SUPPLY AND HAVING A STAND BY POWER IN ACCORDANCE WITH AS3783-1993

PROPOSED ON-SITE SEWERAGE MANAGEMENT SYSTEM TO BE INSTALLED IN ACCORDANCE WITH THE ON-SITE WASTEWATER MANAGEMENT REPORT 8.12.23, PREPARED BY GREG ALDERSON ASSOCIATES.

BASIX SPECS -MINIMUM REQUIREMENTS
PLANS TO BE READ IN CONJUNCTION WITH BASIX & NATHERS CERTIFICATES.

WATER COMMITMENTS

FIXTURES:
-ALL SHOWER HEADS MUST BE INSTALLED WITH A MINIMUM 4 STAR RATING (>4.5 BUT <6L/M).
-ALL TOILETS MUST BE INSTALLED WITH A MINIMUM 4 STAR RATING.
-ALL NEW TAPS MUST BE INSTALLED WITH A MINIMUM 4 STAR RATING.

ALTERNATIVE WATER:
-A RAINWATER TANK MUST BE INSTALLED WITH A MIN. CAPACITY OF 5,000L AND RECEIVE RUNOFF FROM A MIN. 150M² OF ROOF AREA.
-RAINWATER TANK MUST BE INSTALLED TO ALL FIXTURES & MIN. ONE OUTDOOR TAP.

THERMAL COMFORT COMMITMENTS

WINDOWS, GLAZED DOORS, SKYLIGHTS:
-ALL GLAZING (22M²) MUST COMPLY WITH THE NATHERS CERTIFICATE.

FLOOR, WALLS & CEILING/ROOF:
FLOOR:
-CONCRETE SLAB ON GROUND: NIL

EXTERNAL WALL:
-METAL FRAMED (METAL CLAD): ROCKWOLL BATTS+FOIL/SARKING (R-VALUES AS PER NATHERS CERTIFICATE)

INTERNAL WALL:
-METAL FRAMED (PLASTERBOARD): NIL

CEILING & ROOF:
-RAKED CEILING, PITCHED OR SKILLION ROOF, METAL FRAMED, METAL ROOF: ROCKWOLL BATTS+FOIL/SARKING (R-VALUES AS PER NATHERS CERTIFICATE)

ENERGY COMMITMENTS

HOT WATER:
-INSTANTANEOUS GAS HW

COOLING SYSTEM:
-NIL

HEATING SYSTEM:
-NIL

VENTILATION:
-BATHROOM: NO MECHANICAL VENTILATION
-KITCHEN: DUCTED TO FACADE, MANUAL ON/OFF
LAUNDRY: NO MECHANICAL VENTILATION

ARTIFICIAL LIGHTING:
-A MIN. 80% OF LIGHT FIXTURES MUST BE FITTED WITH FLUORESCENT, COMPACT FLUORESCENT, OR LED LAMPS.

NATURAL LIGHTING:
-KITCHEN MUST HAVE A WINDOW OR SKYLIGHT

ALTERNATIVE ENERGY:
-A PHOTOVOLTAIC SYSTEM MIN. 2.0 KWH MUST BE INSTALLED AT AN ANGLE OF BETWEEN 25°-35° AND FACING NORTH.

OTHER:
-GAS COOKTOP AND ELECTRIC OVEN MUST BE INSTALLED.
-A FIXED OUTDOOR CLOTHES LINE MUST BE INSTALLED.

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CLIENT
Ackland

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DEVELOPMENT APPLICATION

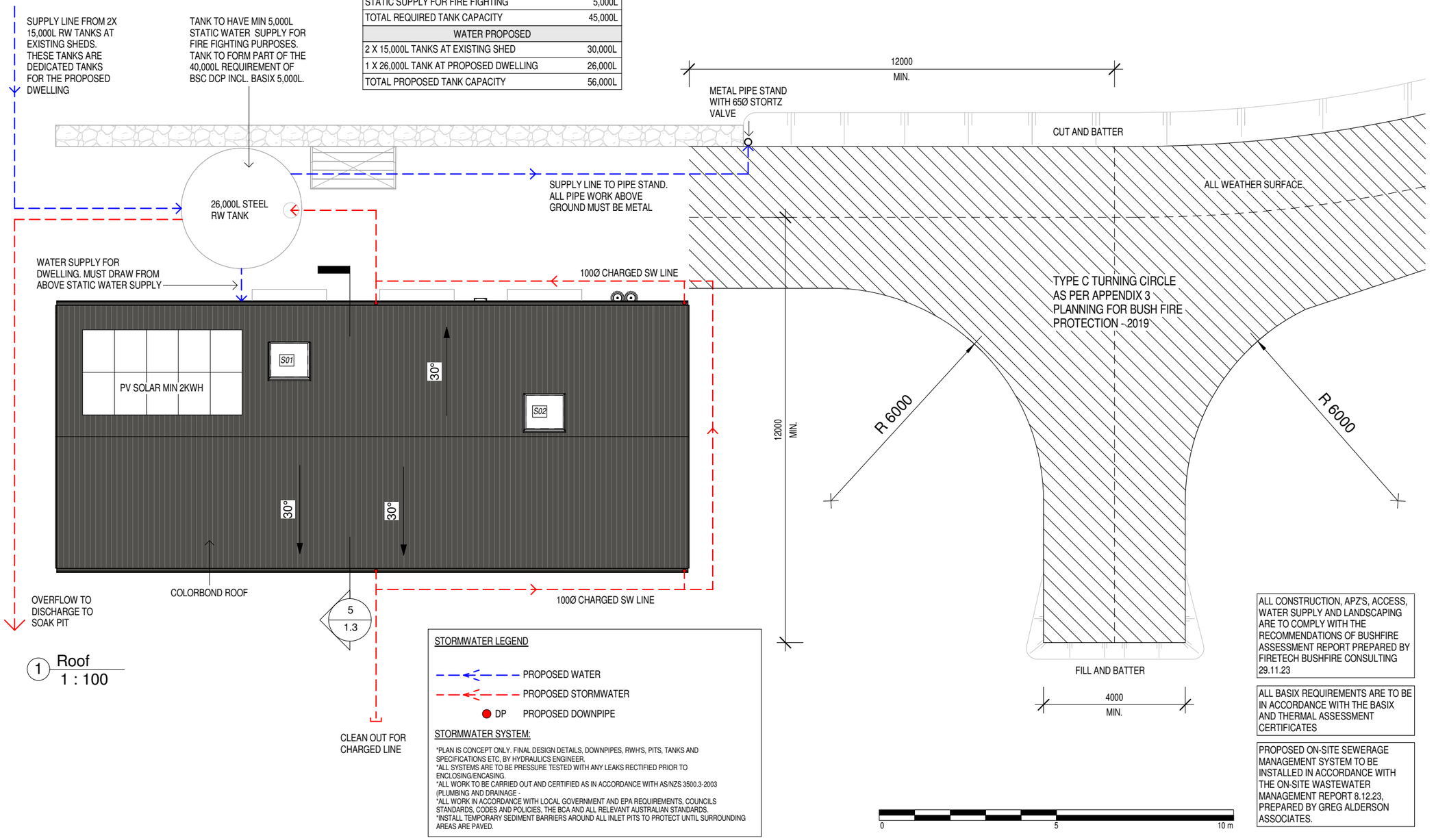
SHEET TITLE
FLOOR PLAN

0 5 10 m

DATE **08.03.24**
SCALE **1 : 100** **@A3**
DWG NO. **1.1**

NOTE: BASIX COMMITMENTS ARE DEMONSTRATED IN THE BASIX COMMITMENTS TABLE ON SHEET 1.1

WATER REQUIREMENT	
BSC DCP (INCL. BASIX 5,000L)	40,000L
STATIC SUPPLY FOR FIRE FIGHTING	5,000L
TOTAL REQUIRED TANK CAPACITY	45,000L
WATER PROPOSED	
2 X 15,000L TANKS AT EXISTING SHED	30,000L
1 X 26,000L TANK AT PROPOSED DWELLING	26,000L
TOTAL PROPOSED TANK CAPACITY	56,000L



STORMWATER LEGEND

PROPOSED WATER

PROPOSED STORMWATER

DP PROPOSED DOWNPIPE

STORMWATER SYSTEM:

*PLAN IS CONCEPT ONLY. FINAL DESIGN DETAILS, DOWNPIPES, RWH'S, PITS, TANKS AND SPECIFICATIONS ETC, BY HYDRAULICS ENGINEER.
*ALL SYSTEMS ARE TO BE PRESSURE TESTED WITH ANY LEAKS RECTIFIED PRIOR TO ENCLOSING/ENCASING.
*ALL WORK TO BE CARRIED OUT AND CERTIFIED AS IN ACCORDANCE WITH AS/NZS 3500.3-2003 (PLUMBING AND DRAINAGE -
*ALL WORK IN ACCORDANCE WITH LOCAL GOVERNMENT AND EPA REQUIREMENTS, COUNCILS STANDARDS, CODES AND POLICIES, THE BCA AND ALL RELEVANT AUSTRALIAN STANDARDS.
*INSTALL TEMPORARY SEDIMENT BARRIERS AROUND ALL INLET PITS TO PROTECT UNTIL SURROUNDING AREAS ARE PAVED.

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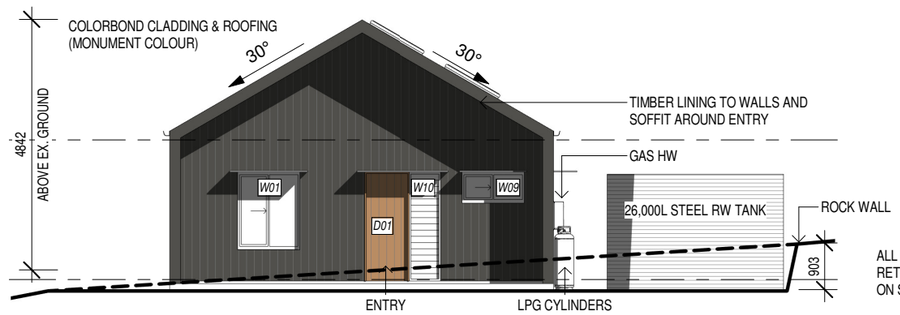
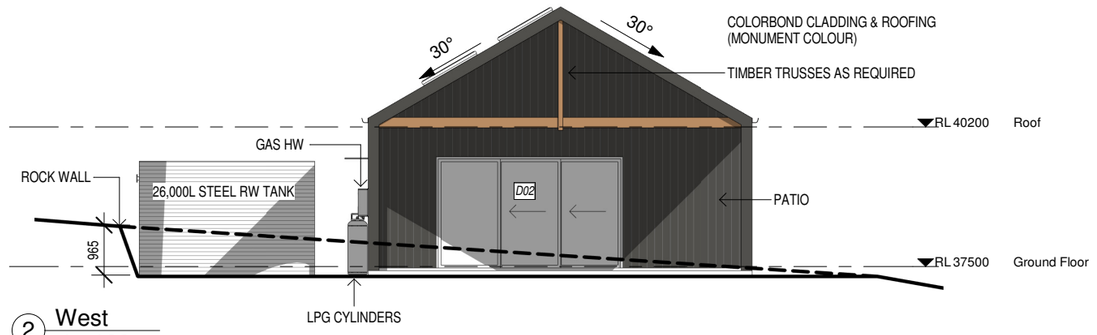
SHEET TITLE
ROOF PLAN, CONCEPT SW/WATER PLAN, FF APPLIANCE TURNING HEAD PLAN

DATE **08.03.24**
SCALE **1 : 100** **@A3**
DWG NO. **1.2**

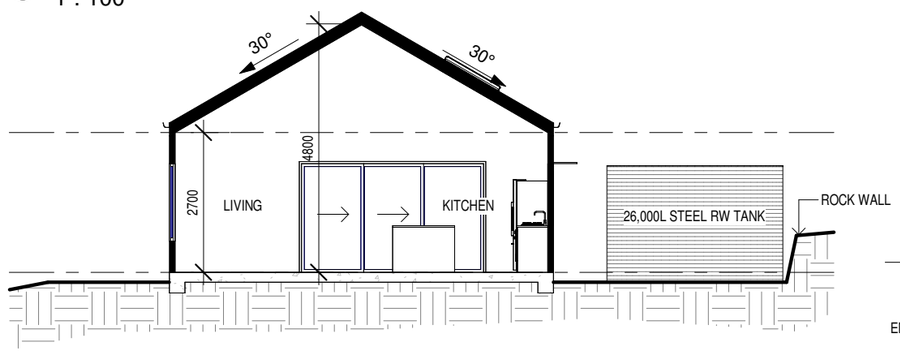


1 East
1 : 100

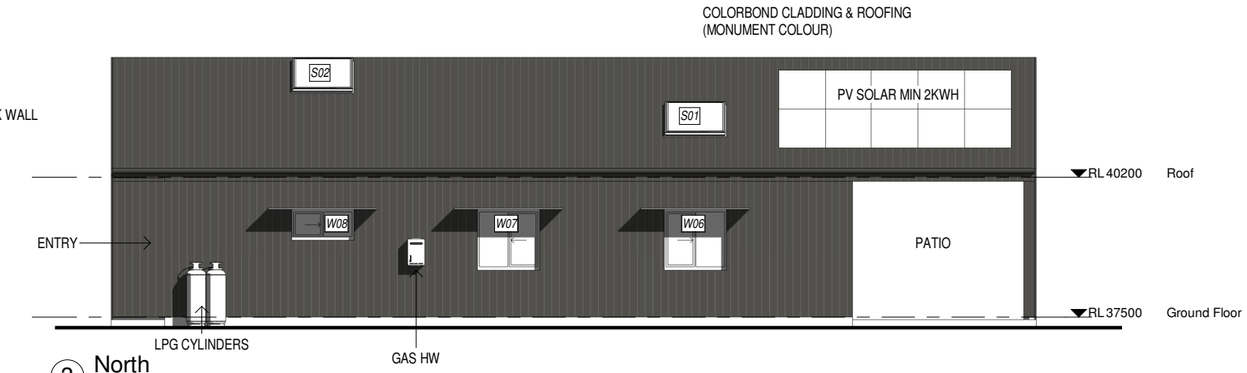
ALL EXCAVATED FILL RETAINED AND USED ON SITE



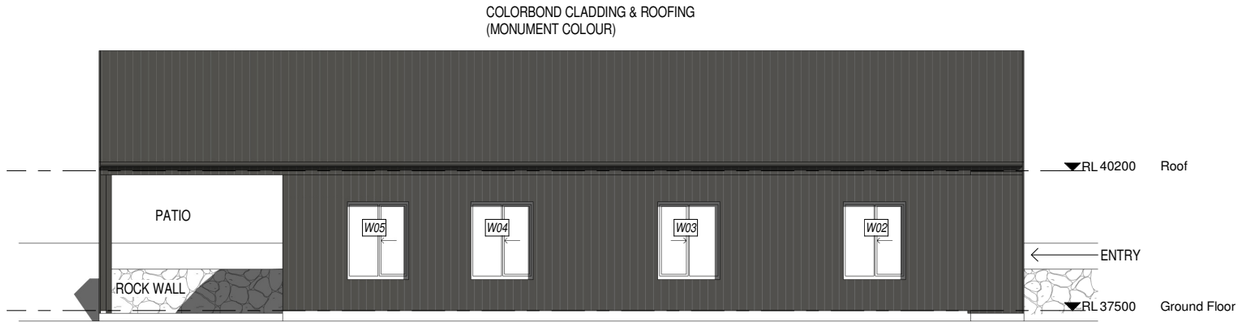
2 West
1 : 100



5 Section 1
1 : 100



3 North
1 : 100



4 South
1 : 100

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CONSTRUCTION NOTES

FLOOR -	SLAB ON GROUND, POLISHED CONCRETE FINISH TO LIVING AREAS AND BEDROOMS, CERAMIC TILE FINISH TO WET AREAS.
EXT. WALLS -	DURRA PANEL WALL SYSTEM, EXTERNAL METAL BATTENS WITH COLORBOND CLADDING (MONUMENT). NO INTERNAL LININGS.
INT. WALLS	DURRA PANEL WALL SYSTEM. NO LININGS
ROOF -	DURRA PANEL CEILING SYSTEM WITH COLORBOND ROOF SHEETS OVER. NO INTERNAL LININGS. RAKED CEILINGS THROUGHOUT.
WINDOWS & DOORS -	ALUMINIMUM FRAMES, COLOUR TO MATCH WALLS.
ENTRY (EXT.)	SOFFIT AND SIDE WALL LININGS HW TIMBER

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DEVELOPMENT APPLICATION

SHEET TITLE
ELEVATIONS & SECTION

0 5 10 m

DATE **08.03.24**
SCALE **1 : 100** **@A3**
DWG NO. **1.3**

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APPENDIX G:

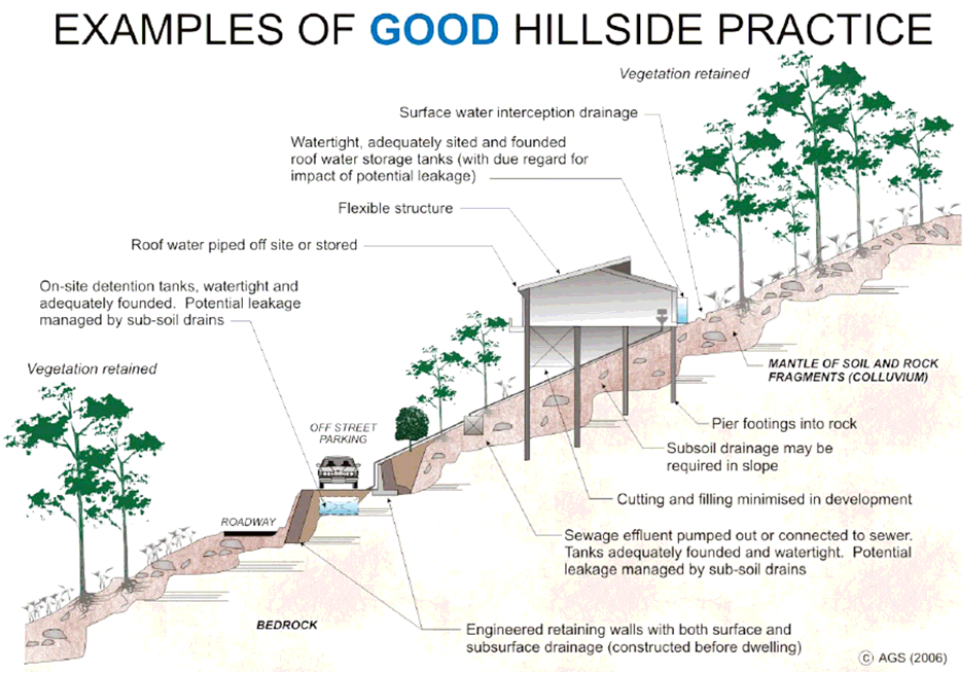
GUIDANCE MATERIAL

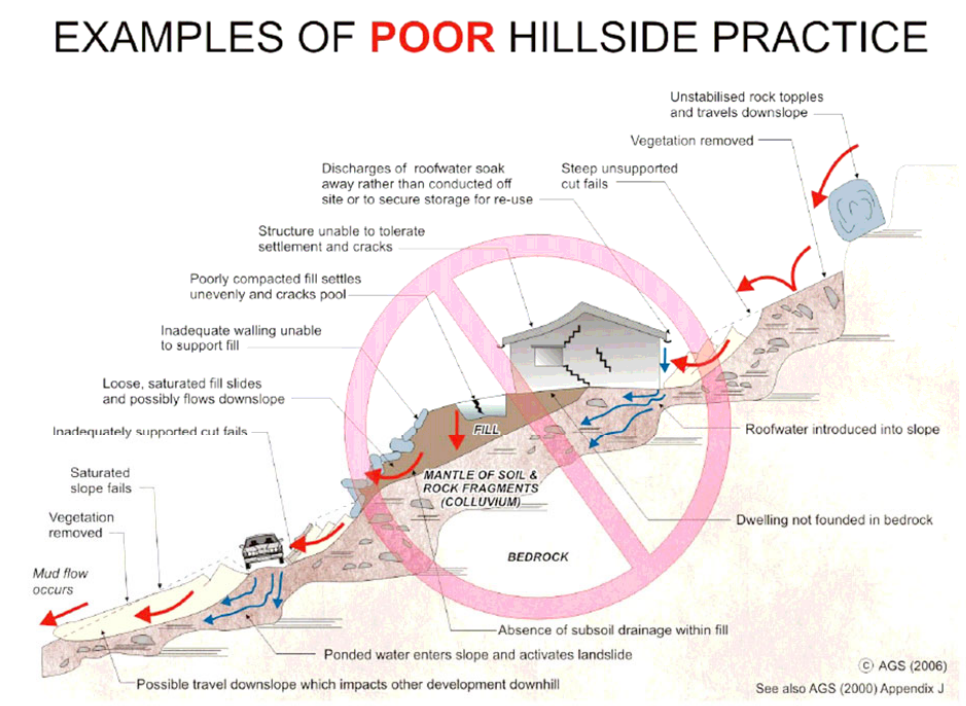
PRACTICE NOTE GUIDELINES FOR LANDSLIDE RISK MANAGEMENT 2007

APPENDIX G - SOME GUIDELINES FOR HILLSIDE CONSTRUCTION

	GOOD ENGINEERING PRACTICE	*POOR ENGINEERING PRACTICE*
ADVICE		
GEOTECHNICAL ASSESSMENT	Obtain advice from a qualified, experienced geotechnical practitioner at early stage of planning and before site works.	Prepare detailed plan and start site works before geotechnical advice.
PLANNING		
SITE PLANNING	Having obtained geotechnical advice, plan the development with the risk arising from the identified hazards and consequences in mind.	Plan development without regard for the Risk.
DESIGN AND 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.	Floor plans which require extensive cutting and filling. Movement intolerant structures.
SITE CLEARING	Retain natural vegetation wherever practicable.	Indiscriminately clear the site.
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.	Excavate and fill for site access before geotechnical advice.
EARTHWORKS	Retain natural contours wherever possible.	Indiscriminatory bulk earthworks.
CUTS	Minimise depth. Support with engineered retaining walls or batter to appropriate slope. Provide drainage measures and erosion control.	Large scale cuts and benching. Unsupported cuts. Ignore drainage requirements
FILLS	Minimise height. 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.	Loose or poorly compacted fill, which if it fails, may flow a considerable distance including onto property below. Block natural drainage lines. Fill over existing vegetation and topsoil. Include stumps, trees, vegetation, topsoil, boulders, building rubble etc in fill.
ROCK OUTCROPS & BOULDERS	Remove or stabilise boulders which may have unacceptable risk. Support rock faces where necessary.	Disturb or undercut detached blocks or boulders.
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.	Construct a structurally inadequate wall such as sandstone flagging, brick or unreinforced blockwork. Lack of subsurface drains and weepholes.
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.	Found on topsoil, loose fill, detached boulders or undercut cliffs.
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.	Discharge at top of fills and cuts. Allow water to pond on bench areas.
SUBSURFACE	Provide filter around subsurface drain. Provide drain behind retaining walls. Use flexible pipelines with access for maintenance. Prevent inflow of surface water.	Discharge roof runoff into absorption trenches.
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.	Discharge sullage directly onto and into slopes. Use absorption trenches without consideration of landslide risk.
EROSION CONTROL & LANDSCAPING	Control erosion as this may lead to instability. Revegetate cleared area.	Failure to observe earthworks and drainage recommendations when landscaping.
DRAWINGS 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.	

PRACTICE NOTE GUIDELINES FOR LANDSLIDE RISK MANAGEMENT 2007





AUSTRALIAN GEOGUIDE LR7 (LANDSLIDE RISK)

LANDSLIDE RISK

Concept of Risk

Risk is a familiar term, but what does it really mean? It can be defined as *"a measure of the probability and severity of an adverse effect to health, property, or the environment."* This definition may seem a bit complicated. In relation to landslides, geotechnical practitioners (GeoGuide LR1) are required to assess risk in terms of the likelihood that a particular landslide will occur and the possible consequences. This is called landslide risk assessment. The consequences of a landslide are many and varied, but our concerns normally focus on loss of, or damage to, property and loss of life.

Landslide Risk Assessment

Some local councils in Australia are aware of the potential for landslides within their jurisdiction and have responded by designating specific "landslide hazard zones". Development in these areas is often covered by special regulations. If you are contemplating building, or buying an existing house, particularly in a hilly area, or near cliffs, go first for information to your local council.

Landslide risk assessment must be undertaken by a geotechnical practitioner. It may involve visual inspection, geological mapping, geotechnical investigation and monitoring to identify:

- potential landslides (there may be more than one that could impact on your site)
- the likelihood that they will occur
- the damage that could result
- the cost of disruption and repairs and
- the extent to which lives could be lost.

Risk assessment is a predictive exercise, but since the ground and the processes involved are complex, prediction tends to lack precision. If you commission a landslide risk assessment for a particular site you should expect to receive a report prepared in accordance with current professional guidelines and in a form that is acceptable to your local council, or planning authority.

Risk to Property

Table 1 indicates the terms used to describe risk to property. Each risk level depends on an assessment of how likely a landslide is to occur and its consequences in dollar terms. "Likelihood" is the chance of it happening in any one year, as indicated in Table 2. "Consequences" are related to the cost of repairs and temporary loss of use if a landslide occurs. These two factors are combined by the geotechnical practitioner to determine the Qualitative Risk.

TABLE 2: LIKELIHOOD

Likelihood	Annual Probability
Almost Certain	1:10
Likely	1:100
Possible	1:1,000
Unlikely	1:10,000
Rare	1:100,000
Barely credible	1:1,000,000

The terms "unacceptable", "may be tolerated", etc. in Table 1 indicate how most people react to an assessed risk level. However, some people will always be more prepared, or better able, to tolerate a higher risk level than others.

Some local councils and planning authorities stipulate a maximum tolerable level of risk to property for developments within their jurisdictions. In these situations the risk must be assessed by a geotechnical practitioner. If stabilisation works are needed to meet the stipulated requirements these will normally have to be carried out as part of the development, or consent will be withheld.

TABLE 1: RISK TO PROPERTY

Qualitative Risk		Significance - Geotechnical engineering requirements
Very high	VH	**Unacceptable** without treatment. Extensive detailed investigation and research, planning and implementation of treatment options essential to reduce risk to Low. May be too expensive and not practical. Work likely to cost more than the value of the property.
High	H	**Unacceptable** without treatment. Detailed investigation, planning and implementation of treatment options required to reduce risk to acceptable level. Work would cost a substantial sum in relation to the value of the property.
Moderate	M	**May be tolerated** in certain circumstances (subject to regulator's approval) but requires investigation, planning and implementation of treatment options to reduce the risk to Low. Treatment options to reduce to Low risk should be implemented as soon as possible.
Low	L	**Usually acceptable** to regulators. Where treatment has been needed to reduce the risk to this level, ongoing maintenance is required.
Very Low	VL	**Acceptable**. Manage by normal slope maintenance procedures.

AUSTRALIAN GEOGUIDE LR7 (LANDSLIDE RISK)

Risk to Life

Most of us have some difficulty grappling with the concept of risk and deciding whether, or not, we are prepared to accept it. However, without doing any sort of analysis, or commissioning a report from an "expert", we all take risks every day. One of them is the risk of being killed in an accident. This is worth thinking about, because it tells us a lot about ourselves and can help to put an assessed risk into a meaningful context. By identifying activities that we either are, or are not, prepared to engage in we can get some indication of the maximum level of risk that we are prepared to take. This knowledge can help us to decide whether we really are able to accept a particular risk, or to tolerate a particular likelihood of loss, or damage, to our property (Table 2).

In Table 3, data from NSW for the years 1998 to 2002, and other sources, is presented. A risk of 1 in 100,000 means that, in any one year, 1 person is killed for every 100,000 people undertaking that particular activity. The NSW data assumes that the whole population undertakes the activity. That is, we are all at risk of being killed in a fire, or of choking on our food, but it is reasonable to assume that only people who go deep sea fishing run a risk of being killed while doing it.

It can be seen that the risks of dying as a result of falling, using a motor vehicle, or engaging in water-related activities (including bathing) are all greater than 1:100,000 and yet few people actively avoid situations where these risks are present. Some people are averse to flying and yet it represents a lower risk than choking to death on food. Importantly, the data also indicate that, even when the risk of dying as a consequence of a particular event is very small, it could still happen to any one of us any day. If this were not so, no one would ever be struck by lightning.

Most local councils and planning authorities that stipulate a tolerable risk to property also stipulate a tolerable risk to life. The AGS Practice Note Guideline recommends that 1:100,000 is tolerable in newly developed areas, where works can be carried out as part of the development to limit risk. The tolerable level is raised to 1:10,000 in established areas, where specific landslide hazards may have existed for many years. The distinction is deliberate and intended to prevent the concept of landslide risk management, for its own sake, becoming an unreasonable financial burden on existing communities. Acceptable risk is usually taken to be one tenth of the tolerable risk (1:1,000,000 for new developments and 1:100,000 for established areas) and efforts should be made to attain these where it is practicable and financially realistic to do so.

TABLE 3: RISK TO LIFE

Risk (deaths per participant per year)	**Activity/Event Leading to Death** (NSW data unless noted)
1:1,000	Deep sea fishing (UK)
1:1,000 to 1:10,000	Motor cycling, horse riding , ultra-light flying (Canada)
1:23,000	Motor vehicle use
1:30,000	Fall
1:70,000	Drowning
1:180,000	Fire/burn
1:660,000	Choking on food
1:1,000,000	Scheduled airlines (Canada)
1:2,300,000	Train travel
1:32,000,000	Lightning strike

More information relevant to your particular situation may be found in other AUSTRALIAN GEOGUIDES:

- GeoGuide LR1 - Introduction
- GeoGuide LR2 - Landslides
- GeoGuide LR3 - Landslides in Soil
- GeoGuide LR4 - Landslides in Rock
- GeoGuide LR5 - Water & Drainage
- GeoGuide LR6 - Retaining Walls
- GeoGuide LR8 - Hillside Construction
- GeoGuide LR9 - Effluent & Surface Water Disposal
  GeoGuide LR10 - Coastal Landslides
- GeoGuide LR11 - Record Keeping

The Australian GeoGuides (LR series) are a set of publications intended for property owners; local councils; planning authorities; developers; insurers; lawyers and, in fact, anyone who lives with, or has an interest in, a natural or engineered slope, a cutting, or an excavation. They are intended to help you understand why slopes and retaining structures can be a hazard and what can be done with appropriate professional advice and local council approval (if required) to remove, reduce, or minimise the risk they represent. The GeoGuides have been prepared by the Australian Geomechanics Society, a specialist technical society within Engineers Australia, the national peak body for all engineering disciplines in Australia, whose members are professional geotechnical engineers and engineering geologists with a particular interest in ground engineering. The GeoGuides have been funded under the Australian governments' National Disaster Mitigation Program.

AUSTRALIAN GEOGUIDE LR5 (WATER & DRAINAGE)

WATER, DRAINAGE & SURFACE PROTECTION

One way or another, water usually plays a critical part in initiating a landslide (GeoGuide LR2). For this reason, it is a key factor to be controlled on sites with more than a low landslide risk (GeoGuide LR7).

Groundwater and Groundwater Flow

The ground is permeable and water flows through it as illustrated in Figure 1. When rain falls on the ground, some of it runs along the surface ("surface water run-off") and some soaks in, becoming groundwater. Groundwater seeps downwards along any path it can find until it meets the water table: the local level below which the ground is saturated. If it reaches the water table, groundwater either comes to a halt in what is effectively underground storage, or it continues to flow downwards, often towards a spring where it can seep out and become surface water again. Above the water table the ground is said to be "partially saturated", because it contains both water and air. Suctions can develop in the partially saturated zone which have the effect of holding the ground together and reducing the risk of a landslide. Vegetation and trees in particular draw large quantities of water out of the ground on a daily basis from the partially saturated zone. This lowers the water table and increases suctions, both of which reduce the likelihood of a landslide occurring.

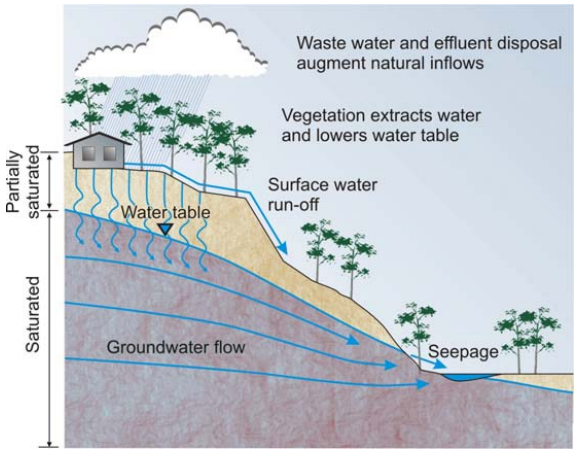


Figure 1 - Groundwater flow

Groundwater Flow and Landslides

The landslide risk in a hillside can be affected by increase in soak-away drainage or the construction of retaining walls which inhibit groundwater flow. The groundwater is likely to rise after heavy rain, but it can also rise when human interference upsets the delicate natural balance. Activities such as felling trees and earthworks can lead to:

- a reduction in the beneficial suctions in the partially saturated zone above the water table.
- increased static water pressures below the water table,
- increased hydraulic pressures due to groundwater flow,
- loss of strength, or softening, of clay rich strata,
- loss of natural cementing in some strata,
- transportation of soil particles.

Any of these effects, or a combination of them, can lead to landslides like those illustrated in GeoGuides LR2, LR3 and LR4.

Limiting the Effect of Water

Site clearance and construction must be carefully considered if changes in groundwater conditions are to be limited. GeoGuide LR8 considers good and poor development practices. Not surprisingly much of the advice relates to sensible treatment of water and is not repeated here. Adoption of appropriate techniques should make it possible to either maintain the current ground water table, or even cause it to drop, by limiting inflow to the ground.

If drainage measures and surface protection are relied on to keep the risk of a landslide to a tolerable level, it is important that they are inspected routinely and maintained (GeoGuide LR11).

The following techniques may be considered to limit the destabilising effects of rising groundwater due to development and are illustrated in Figure 2.

AUSTRALIAN GEOGUIDE LR5 (WATER & DRAINAGE)

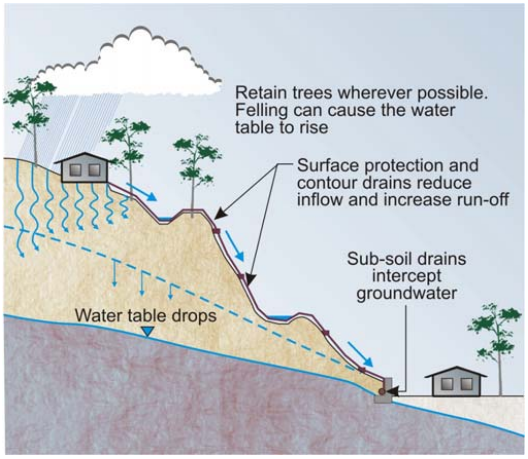


Figure 2 - Techniques used to control groundwater flow

Surface water drains (dish drains, or table drains) - are often used to prevent scour and limit inflow to a slope. Other than in rock, they are relatively ineffective unless they have an impermeable lining. You should clear them regularly, and as required, and not less than once a year. If you live in an area with seasonal rainfall, it is best to do this near the end of the dry season. If you notice that soil or rock debris is falling from the slope above, determine the source and take appropriate action. This may mean you have to seek advice from a geotechnical practitioner.

Surface protection - is sometimes used in addition to surface water drainage to prevent scour and minimise water inflow to a slope. You should inspect concrete, shotcrete or stone pitching for cracking and other signs of deterioration at least once a year. Make sure that weepholes are free of obstructions and able to drain. If the protection is deteriorating, you should seek advice from a geotechnical practitioner.

Sub-soil drains - are often constructed behind retaining walls and on hillsides to intercept groundwater. Their function is to remove water from the ground through an appropriate outlet. It is important that subsoil drains are designed to complement other measures being used. They should be laid in a sand, or gravel, bed and protected with a graded stone or geotextile filter to reduce the chance of clogging. Sub-soil drains should always be laid to a fall of at least 1 vertical on 100 horizontal. Ideally the high end should be brought to the surface, so it can be flushed with water from time to time as part of routine maintenance procedures.

Deep, underground drains - are usually only used in extreme circumstances, where the landslide risk is assessed as not being tolerable and other stabilisation measures are considered to be impractical. They work by permanently lowering the water table in a slope. They are not often used in domestic scale developments, but if you have any on your site be aware that professional maintenance is essential. If they are not maintained and stop working, the water table will rise and a landslide may even occur during normal weather conditions. Both an increase or a reduction in the normal flow from deep drains could indicate a problem if it appears to be unrelated to recent rainfall. If changes of this sort are observed, you should have the drains and your site checked by a geotechnical practitioner.

Documentation - design drawings and specifications for geotechnical measures intended to minimise landslide risk can be of great assistance to a geotechnical specialist, or structural engineer, called in to inspect and report on them. Copies of available documentation should be retained and passed to the new owner when the property is sold (GeoGuide LR11). You should also request details of an appropriate maintenance program for drainage works from the designer and keep that information with other relevant documentation and maintenance records.

More information relevant to your particular situation may be found in other Australian GeoGuides:

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- GeoGuide LR2 - Landslides
- GeoGuide LR3 - Landslides in Soil
- GeoGuide LR4 - Landslides in Rock
- GeoGuide LR6 - Retaining Walls
- GeoGuide LR7 - Landslide Risk
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