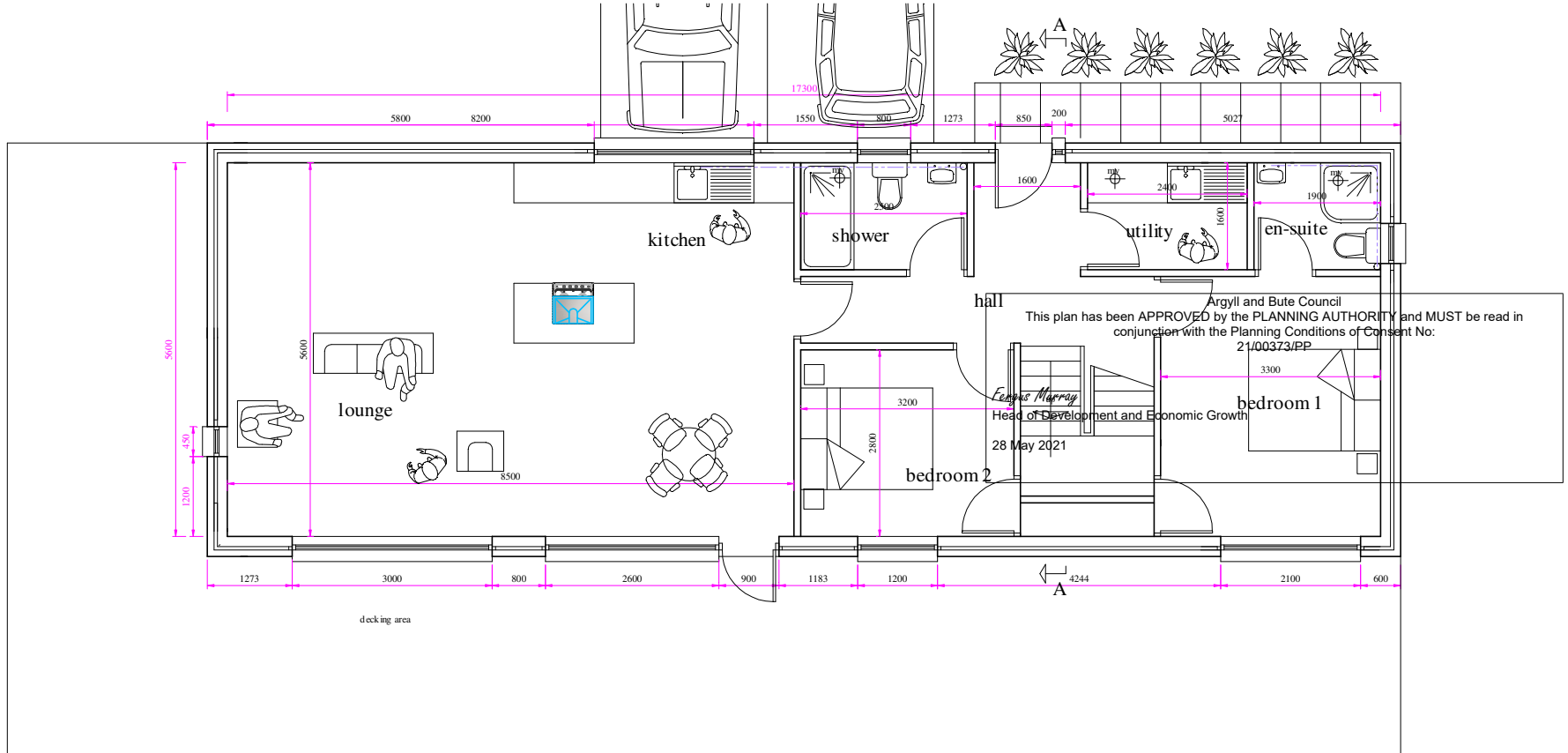
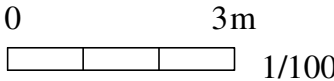
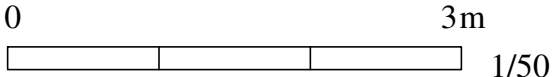
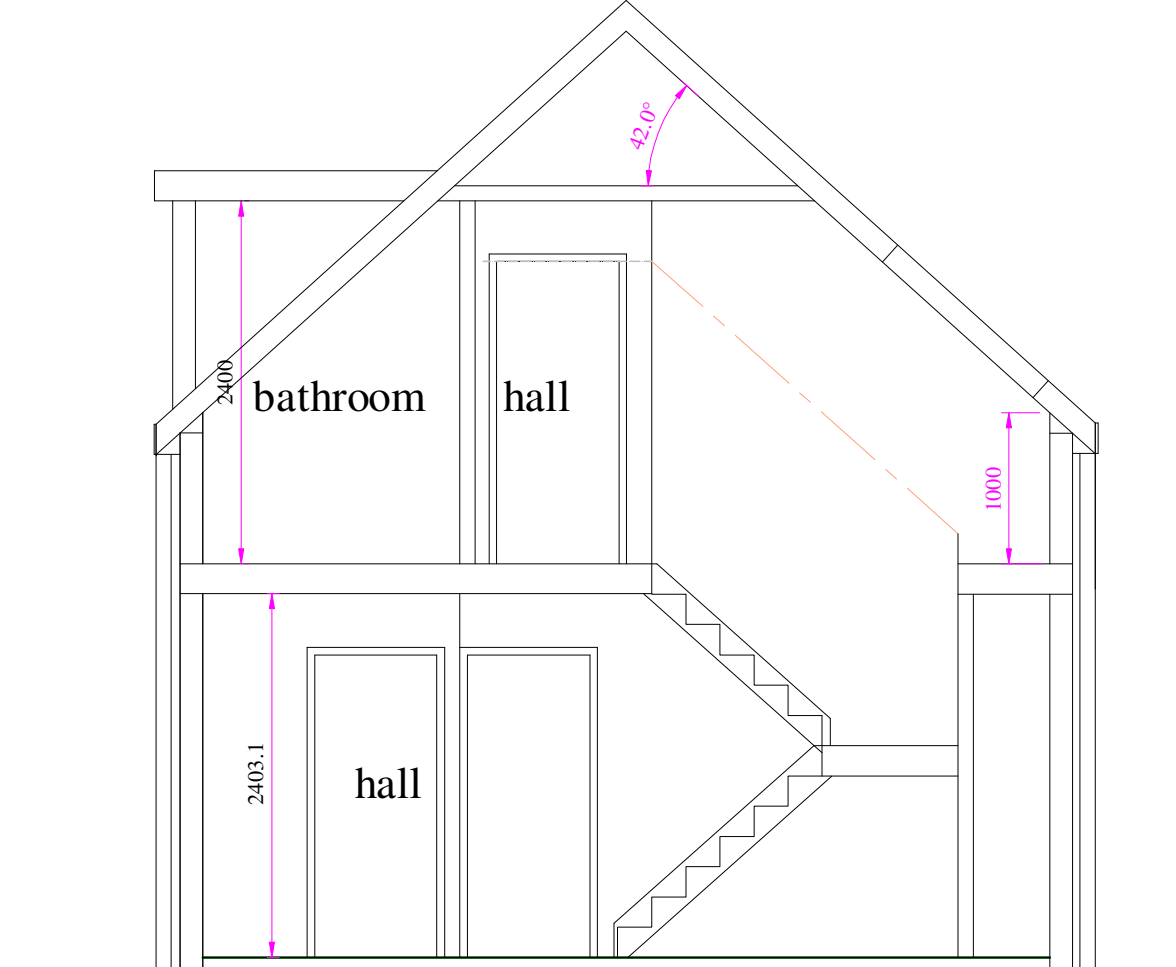


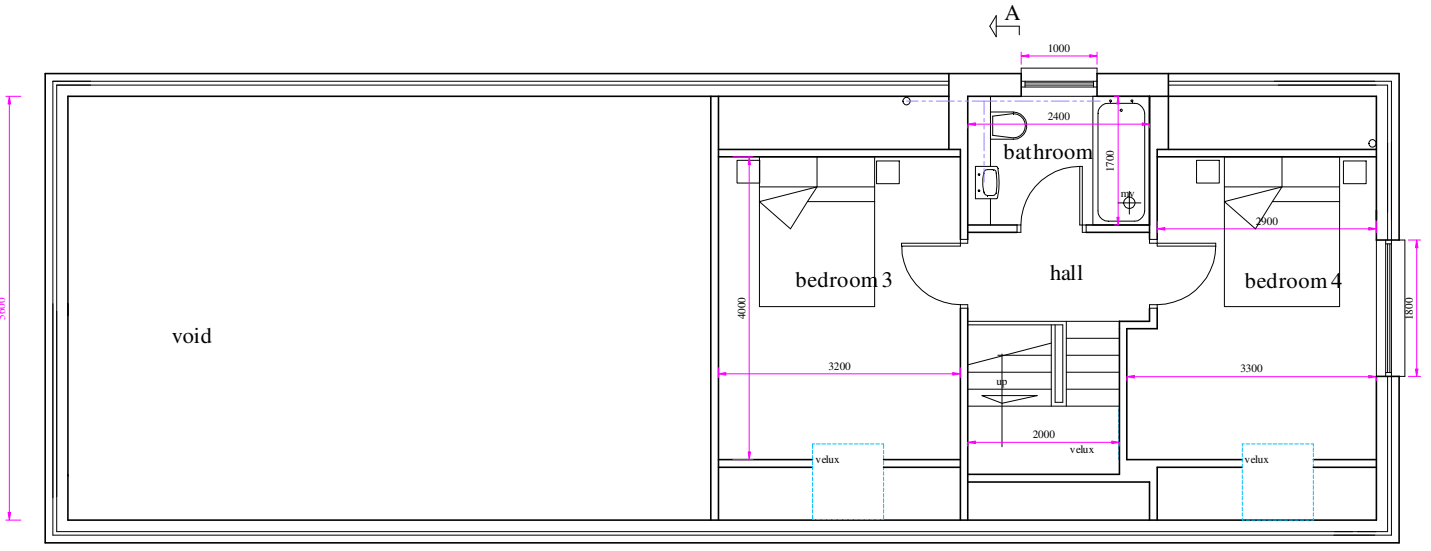
All sizes to be checked on site prior to ordering materials  
 All work to be carried out only from stamped approved plans  
 These plans are for obtaining Planning Permission and Building Warrant  
 Refer to Engineers plans regarding any structural work



PROPOSED GROUND FLOOR



SECTION A-A



PROPOSED FIRST FLOOR

A : Planning changes 23.5.21

Client: Matt Paton

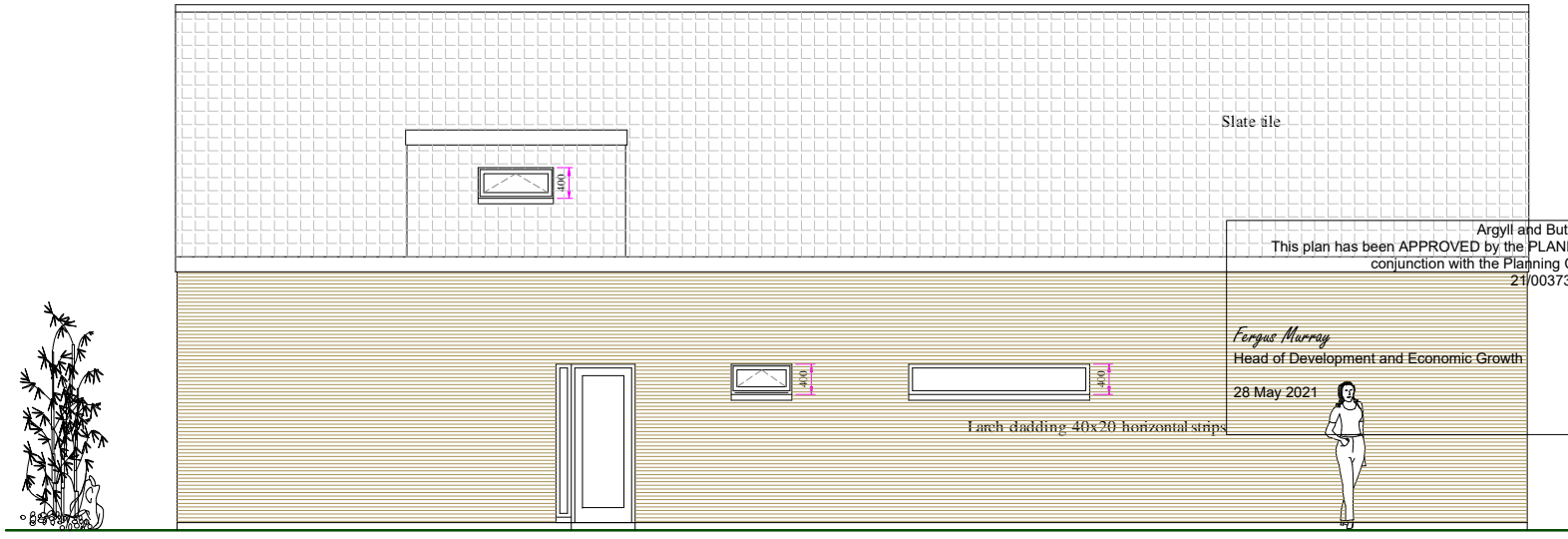
Project: Erection of house and associated associated works at plot 4 west of Kenmore cottage Bonawe, Argyll and Bute

Scale: 1/50 : 1/100  
 Drg.No.: BA205A

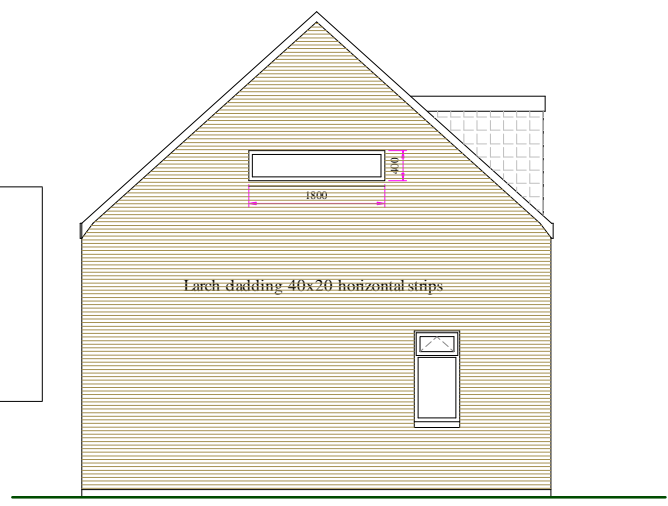
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 m. 07941 339644  
 m. 07905 825346

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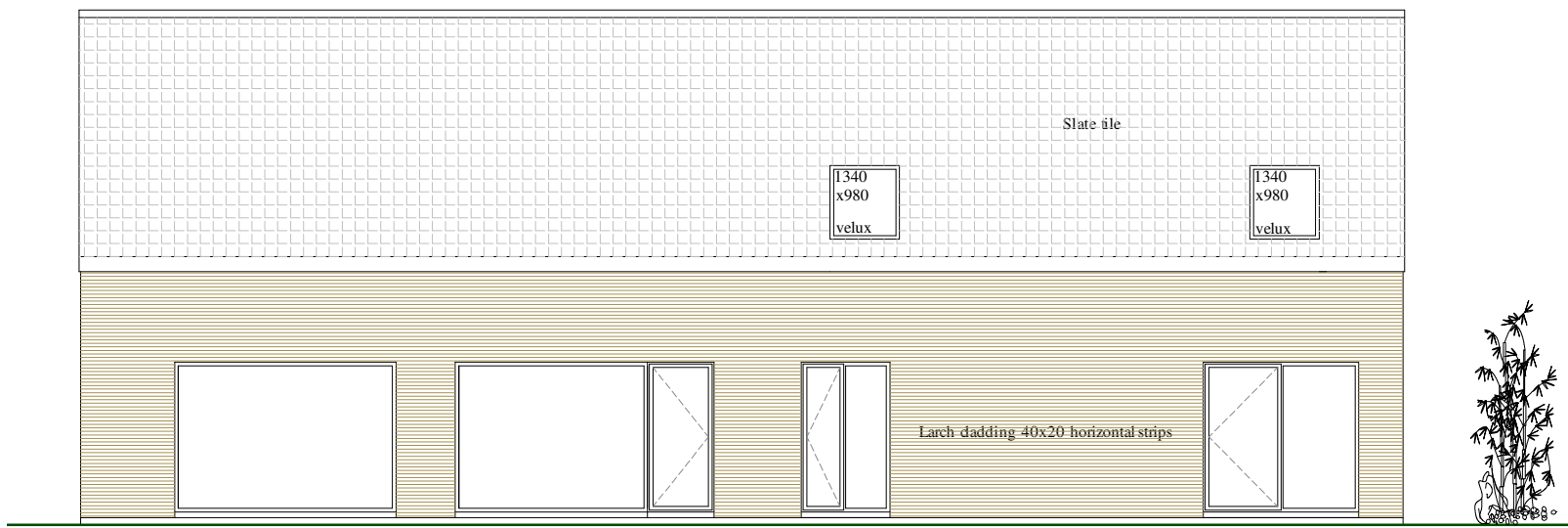
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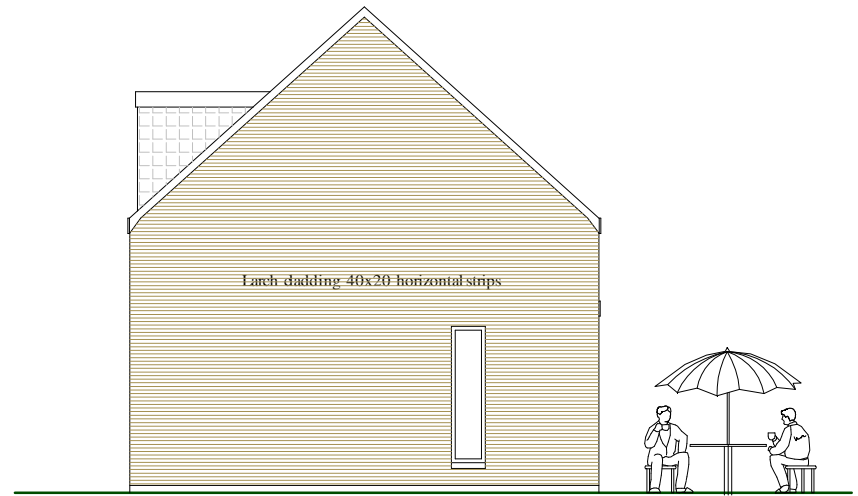
PROPOSED FRONT VIEW



PROPOSED SIDE VIEW



PROPOSED REAR VIEW



PROPOSED SIDE VIEW

A : Changes to window	3.11.20
B : Layout changed	14.12.20
C : Layout changed	18.12.20
D : Windows changed	3.2.21
E : Planning changes	23.5.21

Client:  
**Matt Paton**

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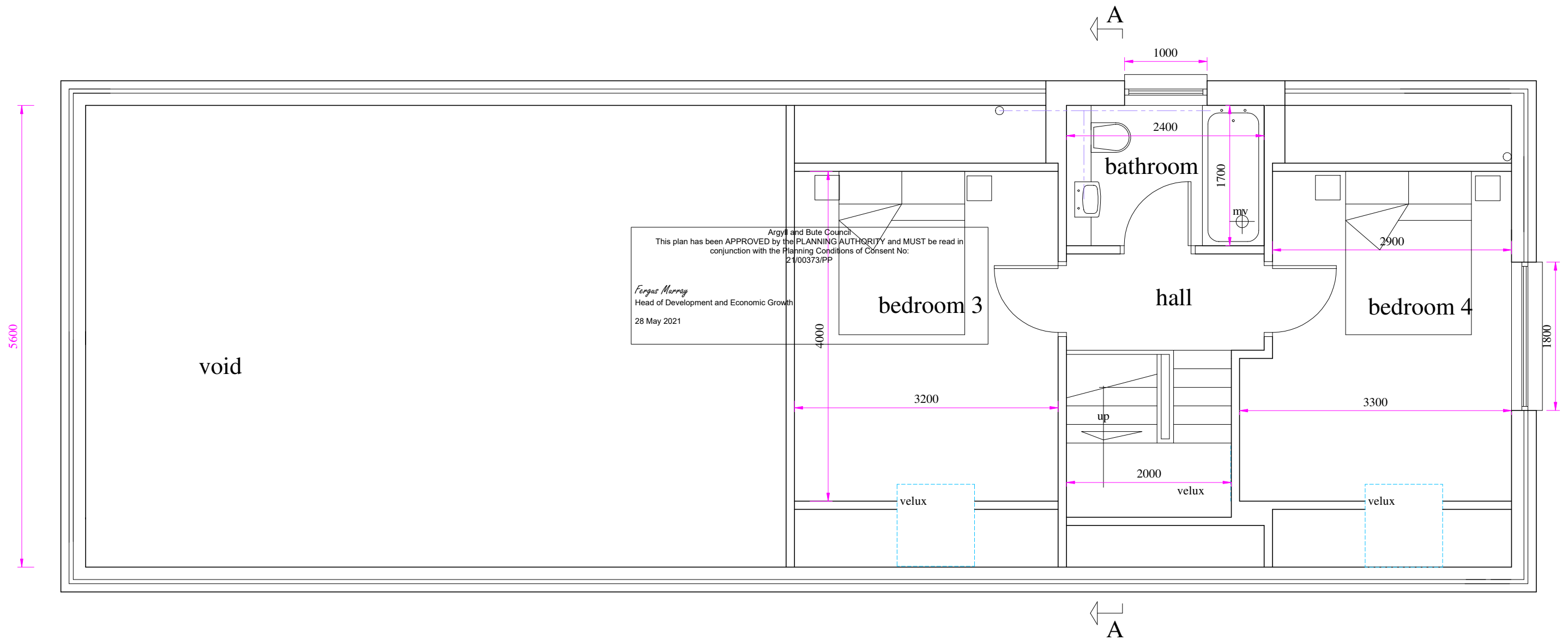
Project:  
 Erection of house and associated associated works at plot 4 west of Kenmore cottage Bonawe, Argyll and Bute

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Scale: 1/100  
 Drg.No.:BA204E

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 m. 07905 825346



PROPOSED FIRST FLOOR

A : Changes to window	3.11.20
B : Layout changed	14.12.20
C : Layout changed	18.12.20
D : Bedroom windows changed	3.2.21
E : Planning changes	23.5.21

Client:  
**Matt Paton**

---

Project:  
Erection of house and associated  
associated works at  
plot 4 west of Kenmore cottage  
Bonawe, Argyll and Bute

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Scale: 1/50  
Drg.No.:BA203E

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**PROPOSED DEVELOPMENT OF NINE DWELLING HOUSES  
AT TWO AREAS OF LAND  
NORTH AND SOUTH OF KENMORE COTTAGE  
BONAWÉ  
ARGYLL & BUTE  
WATER SUPPLY ASSESSMENT**

*Petard Investments Ltd.*  
This plan has been APPROVED by the PLANNING AUTHORITY and MUST be read in  
conjunction with the Planning Conditions of Consent No:  
247033/2018  
Head of Development and Economic Growth  
28 May 2021

**Water-Tech  
Kilmore House  
Kilmore  
Oban  
Argyll PA34 4XT  
Tel: 01631 770369  
Fax: 01631 770329**

Signed



**PROPOSED DEVELOPMENT OF NINE DWELLING HOUSES  
ON TWO AREAS OF LAND  
NORTH AND SOUTH OF KENMORE COTTAGE  
BONAWE  
ARGYLL & BUTE  
WATER SUPPLY ASSESSMENT**

Argyll and Bute Council This plan has been APPROVED by the Planning Committee and MUST be read in conjunction with the Planning Conditions of Consent No: 21/00373/PP			
<b>1</b>		<b>Introduction</b>	<b>3</b>
	<b>1.1</b>	<b>Terms of reference</b>	<b>4</b>
	<b>1.2</b>	<b>Structure of report</b>	<b>4</b>
	<b>1.3</b>	<b>Authorship of report</b>	<b>4</b>
<b>2</b>		<b>Overview of Site</b>	<b>9</b>
	<b>2.1</b>	<b>Site description</b>	<b>9</b>
<b>3.1</b>		<b>Water catchment and storage</b>	<b>9</b>
<b>4</b>		<b>Rainfall records</b>	<b>10</b>
<b>5</b>		<b>Water Quality and treatment</b>	<b>10</b>
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## 1. INTRODUCTION

### 1.1 Terms of reference

Water-Tech was commissioned by Petard Investments to prepare an assessment of the private water supply for the Proposed group of five new dwellings at 2 areas of Land North and South of Kenmore Cottage, Bonawe to support the Planning application, and the usual planning conditions regarding a private water supply for Planning consent 17/03093/PP.

*Fergus Murray*  
Head of Development and Economic Growth  
28 May 2021

TOWN AND COUNTRY PLANNING (SCOTLAND) ACT 1997 (AS AMENDED) TOWN  
AND COUNTRY PLANNING (DEVELOPMENT MANAGEMENT PROCEDURE)  
(SCOTLAND) REGULATIONS 2013

PLANNING PERMISSION

REFERENCE NUMBER: 17/03093/PP

Petard Investments Ltd C/O Bell Ingram Bell  
Ingram Design  
22 Market Brae  
Inverness Scotland  
N2 3AB

#### PRIVATE WATER SUPPLY

5. No development shall commence until an appraisal of the wholesomeness and sufficiency of the intended private water supply and the system required to serve the development has been submitted to and approved in writing by the Planning Authority.

The appraisal shall be carried out by a qualified hydrologist and shall include a risk assessment having regard to the requirements of Part 3 of the Water



Intended for Human Consumption (Private Supplies) (Scotland) Regulations 2017 which shall inform the design of the system by which a wholesome and sufficient water supply shall be provided and maintained. The appraisal shall also demonstrate that the wholesomeness and sufficiency of any other supply in the vicinity of the development, or any other person utilising the same source or supply, shall not be compromised by the proposed development.

The development shall not be brought into use or occupied until the required water supply system has been installed in accordance with the agreed specification and is operational.

*Reason: In the interests of public health and in order to ensure that an adequate private water supply in terms of both wholesomeness and sufficiency can be provided to meet the requirements of the proposed development and without compromising the interests of other users of the same or nearby private water supplies.*

#### Note to Applicant:

Regulatory requirements for private water supplies should be discussed with the Council's Environmental Health Officers in the first instance.

**Figure 1 Planning condition relating to a private water supply**

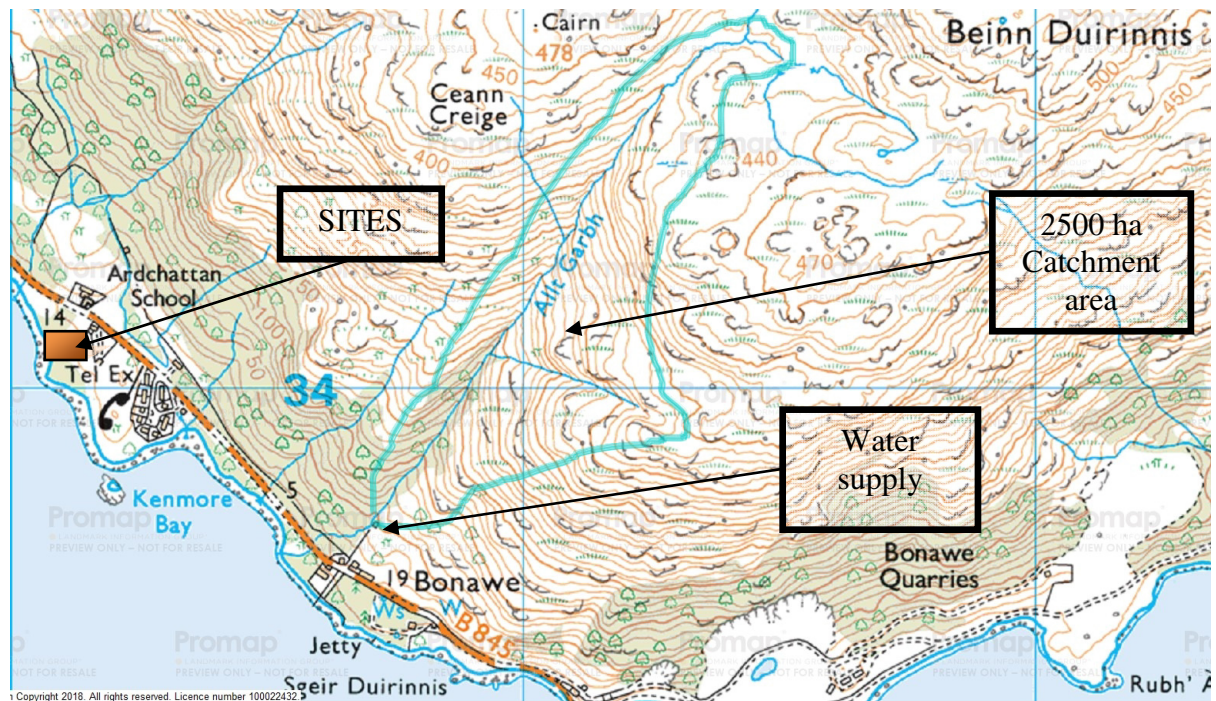
### 1.2 Structure of Report

The report will be structured to address all the points required by the council. This will be approached by providing an overview of the water source, with particular reference to the extent of the water catchment, natural storage capacity of the area, proposed storage arrangements, and water treatment, and taking into account existing users. General conclusions will be drawn and recommendations made.

### 1.3 Authorship of Report

The site visit and the report has been prepared by Colum B Scott, M.R.I.C.S  
Mr.Scott is a Chartered Surveyor and a subscriber to the British Hydrological Society.

Argyll and Bute Council  
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28 May 2021



**Figure 2 Ordnance Survey map showing location of the site, and catchment area.**



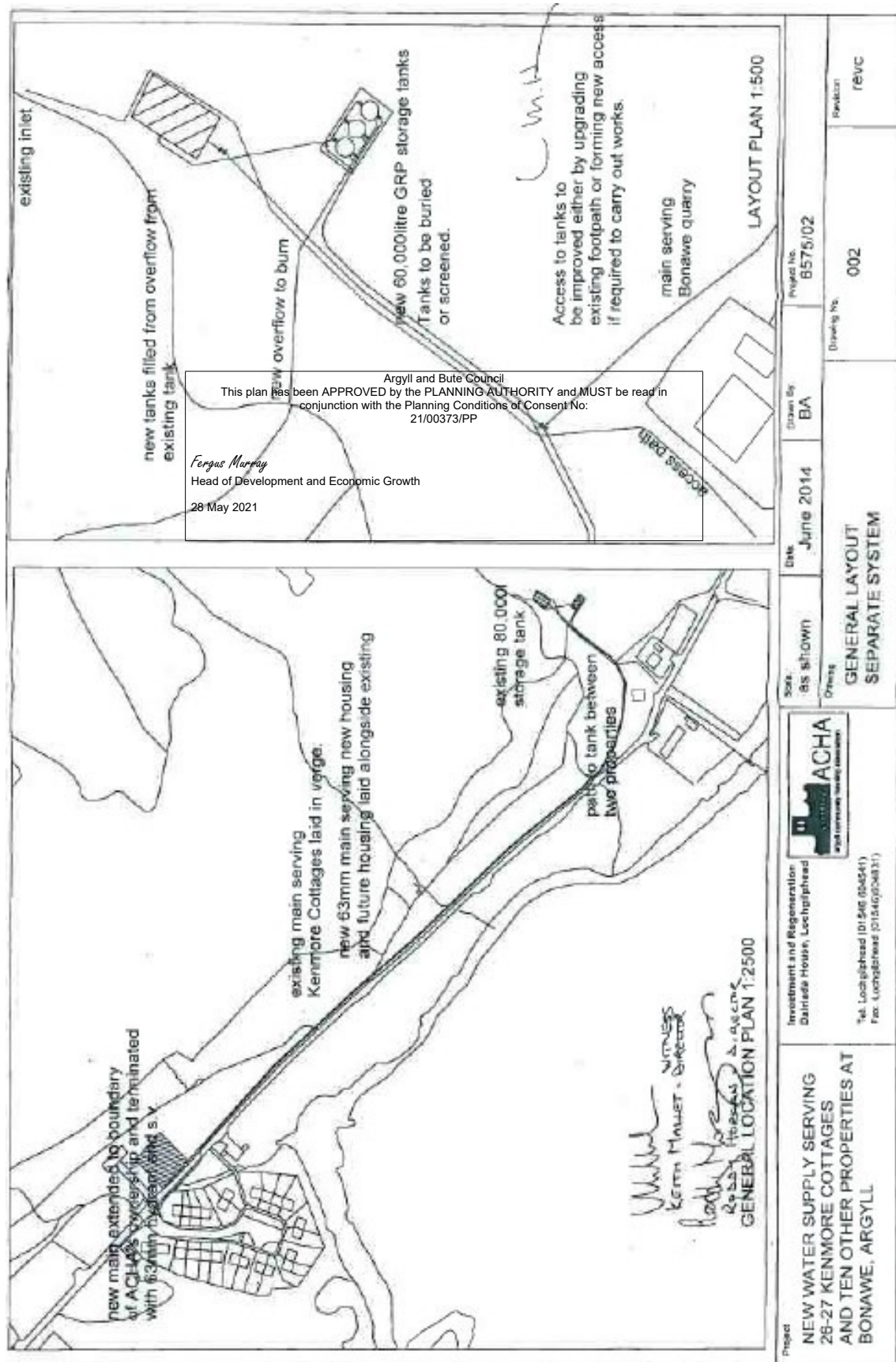


Figure 3 Layout plan of the water supply



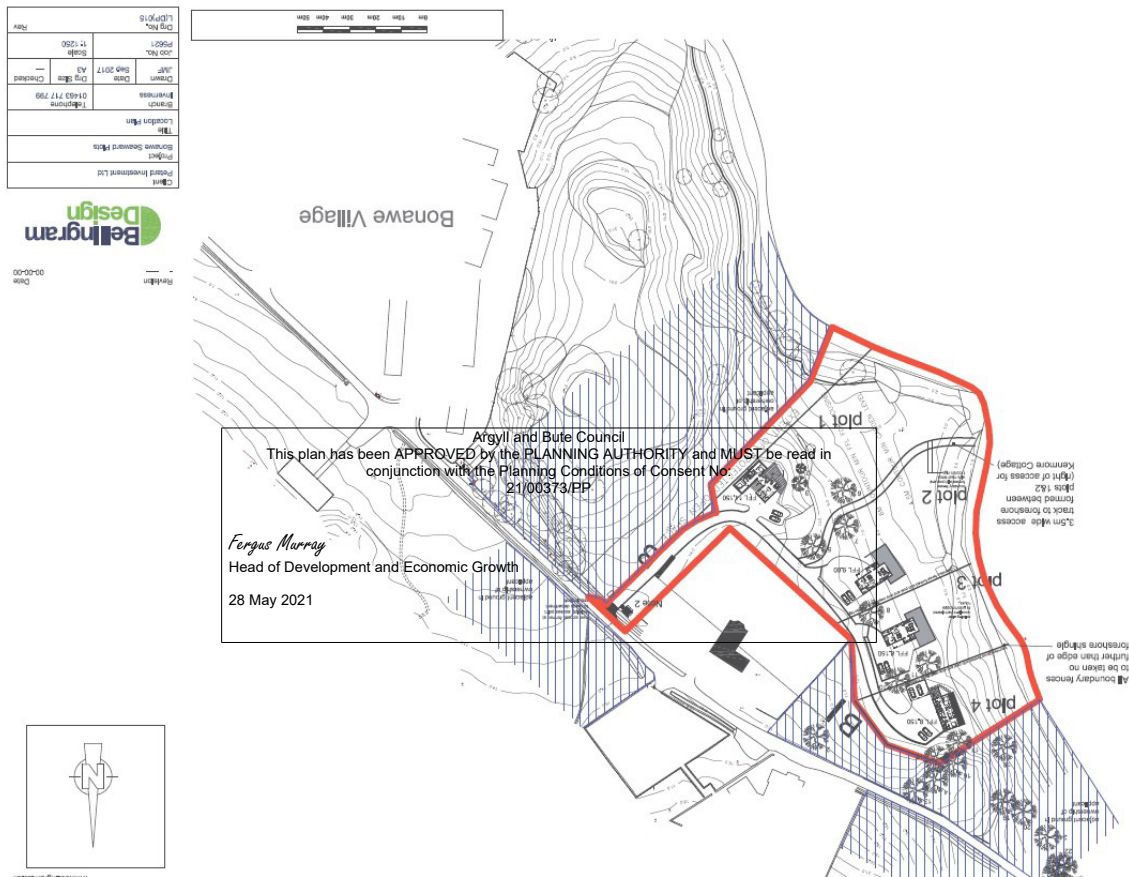


Figure 4 Site plan of the proposed site 17/03093/PP



Figure 5 Aerial Photo of the site





**Figure 6** The source burn Allt Garbh entering the settlement intake

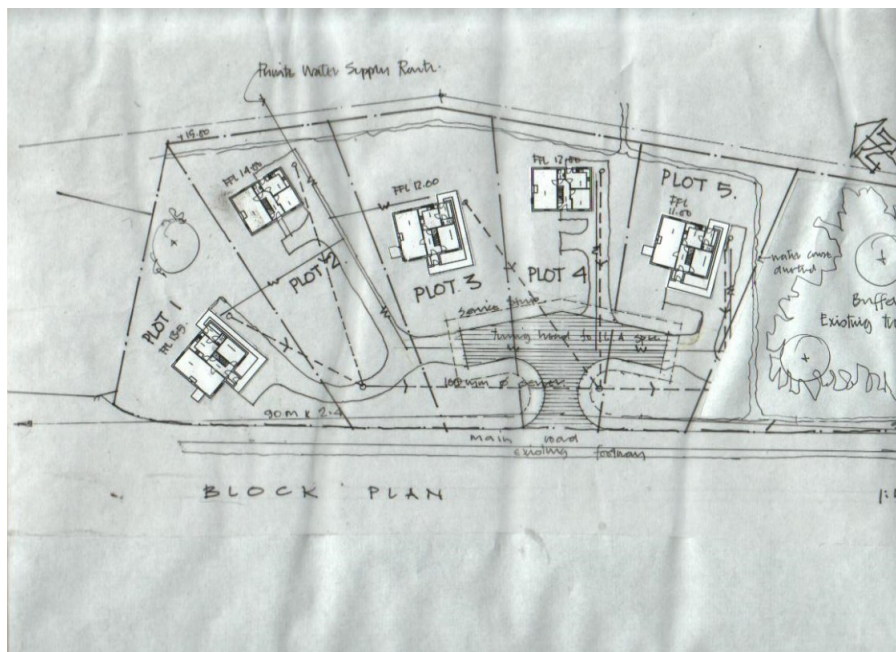


**Figure 7** The original storage tank for supplying Kenmore Cottages and Properties on Eilean Duirinnis





**Figure 8** 80 cubic metre (80,000 litres) water storage tank



**Figure 9** Site plan of 5 sites North Kenmore Cottage

## OVERVIEW OF BONAWE

## 2.1 Site description

Bonawe is a small settlement originally sustained mainly by the granite quarry at Bonawe.

The proposed development consists of 4 dwellings to the south of Kenmore Cottage. There is a second development area of 5 sites to the North of Kenmore Cottage for the future.

## 3.1 Water Catchment

The water supply derives from Allt Garbh, a steep hill burn arising above the 500 metre contour, with a catchment of some 2,500 hectares. There is a dam and collector delivering water to the first Concrete storage tank which delivers water to

Kenmore Cottages comprising 24 council houses  
5 houses on Eilean Duirinis  
Manager's House, Bonawe  
The Cottage  
Cnoc na sith  
Ardchoile

Argyll and Bute Council  
This plan has been APPROVED by the PLANNING AUTHORITY and MUST be read in  
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21/00373/PP  
Head of Development and Economic Growth  
28 May 2021

Bonawe Parsonage plus the new adjacent property.

The above properties amount to 35 (**C1 to 35**). Assuming that the average occupancy is 4 (140 persons)

When two new social houses were to be built by ACHA the constructed a new sectional storage tank with 80,000 litres storage. The new storage is supplied by the overflow from the original tank. The flow rate in the burn was measured after a very dry spell of weather.

Flow rate per minute	Flow rate per hour	Flow rate per 24 hours
70 litres	4,200 litres	100,800 litres

It is accepted that the daily requirement of water per person for domestic purposes is 200 litres, therefore there is sufficient water for 500 people. There is ample water for the proposed development.

**3.2 Water Storage** There is storage 80,000 litres in the new tank which supplies water to the 2 ACHA homes North of Kenmore Cottages and the new Petard developments (**C36 to 47**) (**Figure 8**).

## 4 Rainfall records

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Total
Year	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch	inches	mm
2000	12.6	11.9	6.9	2.9	1.5	3.9	1.9	4.9	9.3	15	7.1	10.2	88.1	2238
2001	6.7	3.3	3.1	3.1	1.7	5.8	5.7	6.7	5.1	13.1	8.6	4.5	67.5	1715
2002	12.4	12.1	6.2	4.7	6.2	5.9	5.4	4.3	3.2	6.1	8.6	3.2	78.4	1991
2003	6.5	3.0	4.3	1.5	7.7	5.2	4.5	2.5	4.7	3.1	10.3	7.9	61.3	1557
2004	12.2	3.3	5.7	6.3	3.3	7.1	3.4	9.3	11.4	9.4	6.4	11.9	90.0	2286
2005	10.6	5.0	6.0	4.9	4.6	6.2	2.5	8.3	6.8	7.6	6.1	4.0	72.8	1849
2006	6.0	4.7	3.6	5.2	6.3	4.3	3.8	3.8	9.2	8.2	12.6	15.1	83.0	2108
2007	11.7	4.7	6.3	3.1	5.4	4.8	4.8	6.0	5.6	6.4	7.3	7.5	74.3	1887
2008	10.9	8.9	8.0	3.0	3.0	3.0	3.0	10.7	10.7	7.0	6.6	6.6	75.5	1918
2009	9.3	2.4	7.1	5.4	6.1	3.7	5.6	10.3	5.8	7.4	12.6	2.8	78.4	1991
2010	2.8	2.6	3.0	5.2	1.4	1.1	7.8	4.7	5.3	9.2	7.1	1.9	51.99	1320
2011	8.0	9.8	10.4	4.8	10.6	3.9	3.4	7.1	13.4	11.5	9.7	15.4	101.75	2584
2012	9.7	6.1	2.9	3.2	3.1	4.9	4.5	5.3	8.3	7.1	11.2	10.0	76.9	1953
2013	8.9	3.7	0.88	5.5	5.9	2.2	1.6	5.4	5.5	9.2	7.6	15.3	71.8	1824
Mean														1944

Rainfall figures at Kilmore from 2000 to 2013

Figure 10 Rainfall records at Kilmore

### 4.1 Annual records

The rainfall records have been collected at Kilmore by Julian Overnell, who is a retired scientist from SAMS, Dunstaffnage

## 5 Water quality and treatment

The analysis has been carried out by ALS Environmental (**Figure 11**). There are coliforms - 30 colony forming units (CFU's) present, 2 e-coli CFU's Enterococci CFU's, and 50 Clostridium perfringens CFU's. These bacteria will be satisfactorily treated with particle treatment followed by Ultra violet treatment. The water is high in iron at 591 ug/litre as opposed to the Maximum recommended level of 200, which can be treated with the installation of a Filox unit if it persists, but as it is a domestic supply it is not mandatory to bring it below the recommended level of 200. ACHA as managers of the supply are not obliged to provide water treatment. It is the responsibility of each house holder to provide their own treatment.

## 6 Conclusion

It is the opinion of the writer that following treatment the water supply is adequate for existing and proposed development.

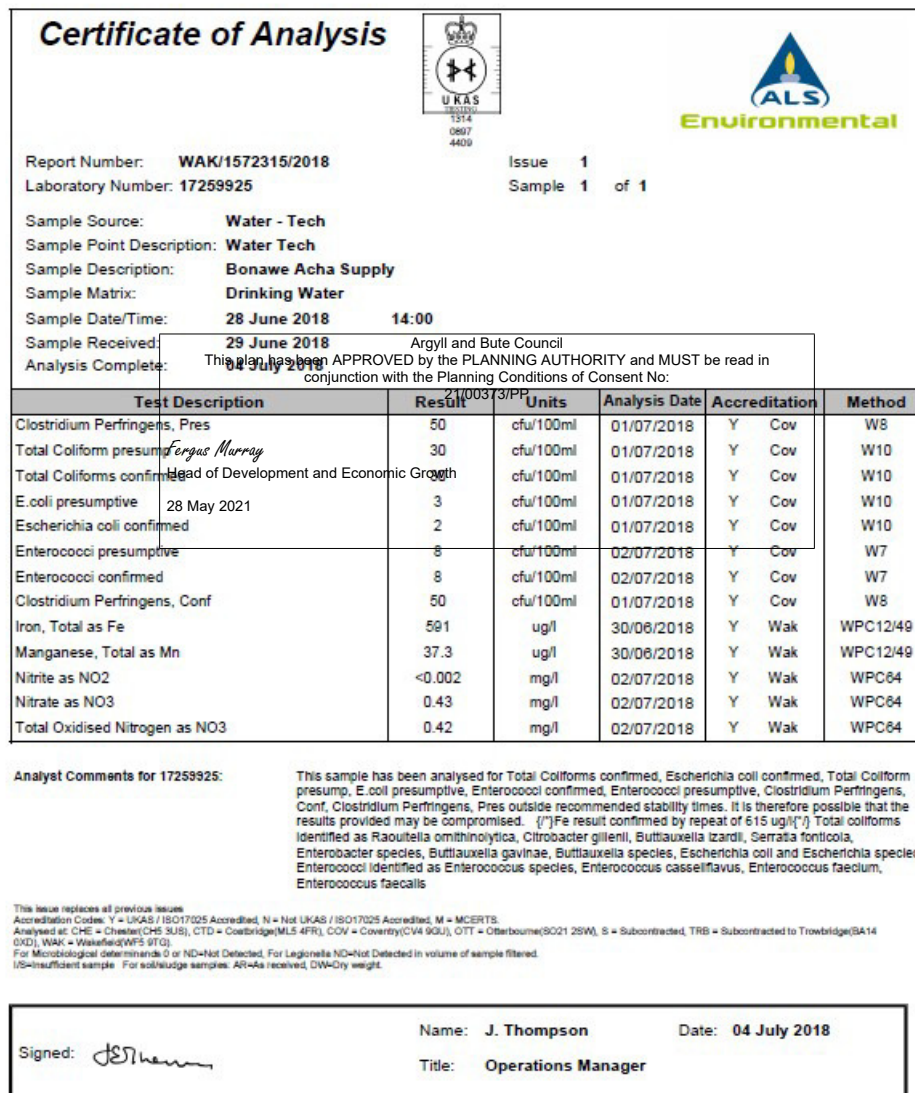
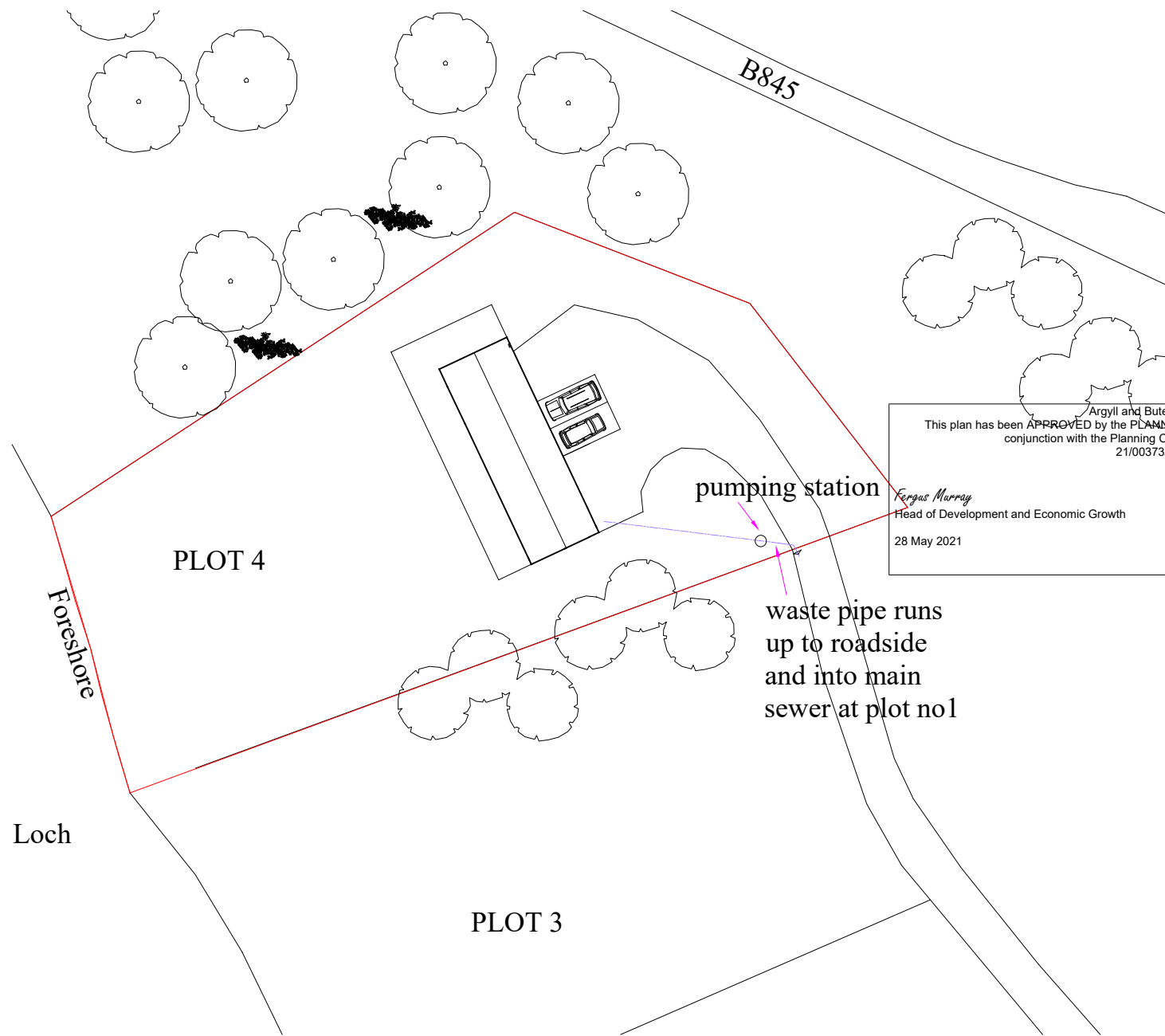
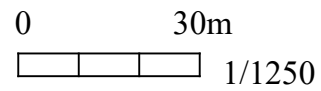


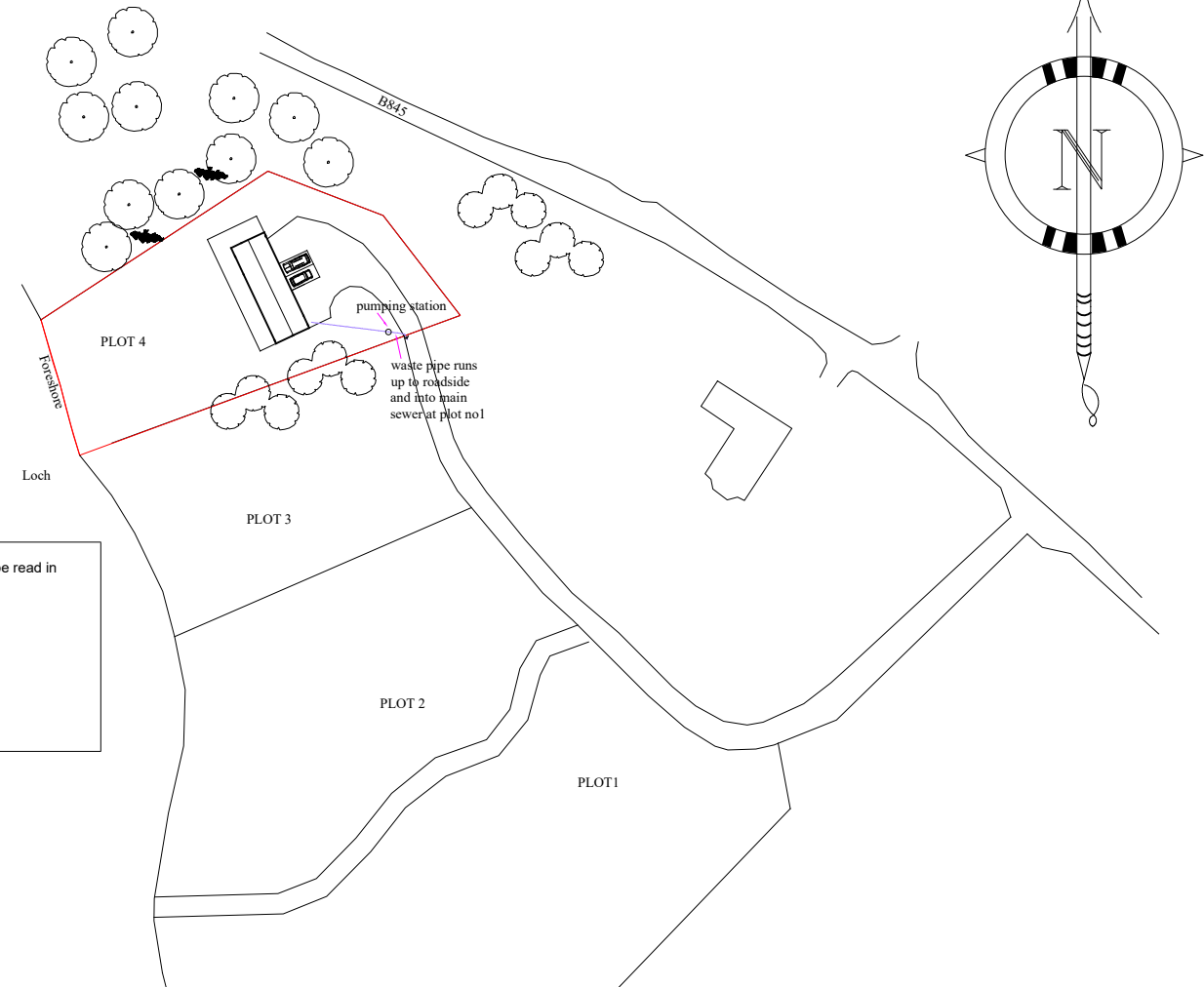
Figure 11 Water analysis by ALS Environmental

The risk assessment required under the Private Water Supplies (Scotland) Regulations 2006 and Water intended for human consumption (Private Supply) (Scotland) Regulations 2017 will follow under separate cover.



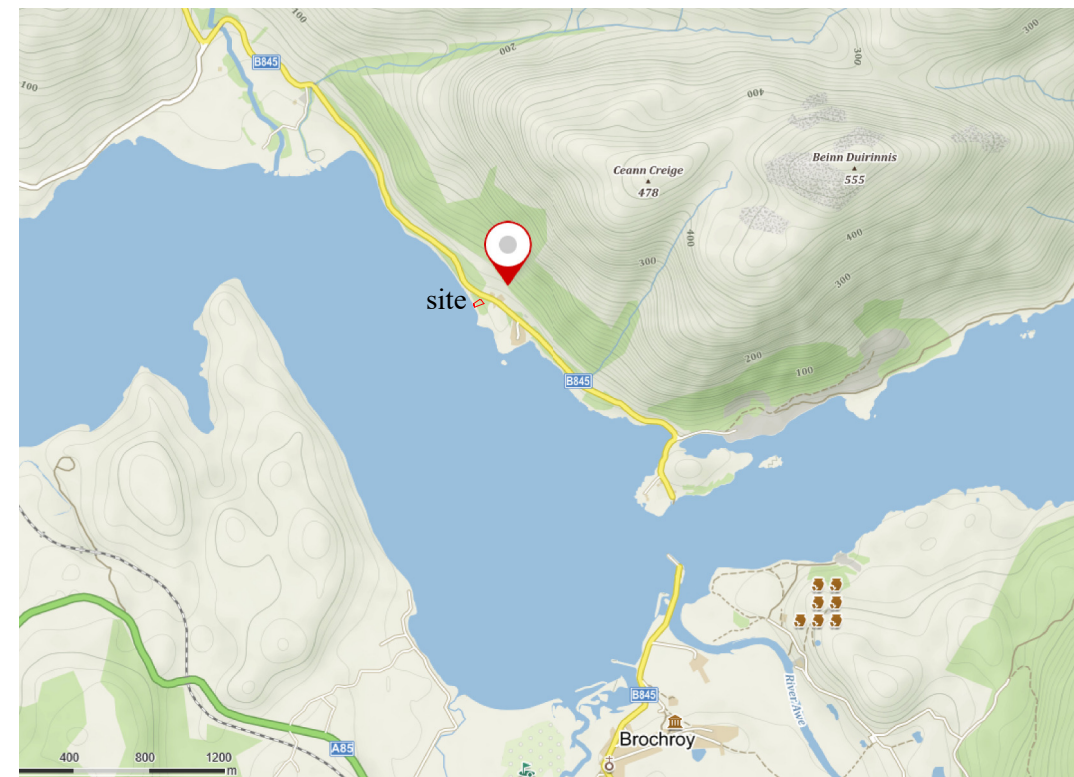


SITE PLAN



LOCATION PLAN

Argyll and Bute Council  
 This plan has been APPROVED by the PLANNING AUTHORITY and MUST be read in conjunction with the Planning Conditions of Consent No: 21/00373/PP  
 Fergus Murray  
 Head of Development and Economic Growth  
 28 May 2021



LOCATION PLAN

All sizes to be checked on site prior to ordering materials  
 All work to be carried out only from stamped approved plans  
 These plans are for obtaining Planning Permission and Building Warrant  
 Refer to Engineers plans regarding any structural work

A : Location plan added 8.3.21  
 Client:  
**Matt Paton**  
 Project:  
**Erection of house and associated associated works at plot 4 west of Kenmore cottage Bonawe, Argyll and Bute**  
 Scale: 1/1250 : 1/500  
 Drg.No.:BA201A  
 WitheyDesigns@Gmail.com  
 m. 07941 339644  
 m. 07905 825346



## **Bonawe Seaward Sites**

### **Description of services and infrastructure provision**

#### **Access Road**

3.7m wide access road formed from junction with public road to entrance of each site with bellmouth of 1m depth formed into each site.

Junction at public road formed to Argyll and Bute Council standards for first 5m with tarmacadam surface, remainder of road is formed with blinded hardcore, the road is designed to accommodate the load of a fire tender

Argyll and Bute Council  
Planning Department  
conjunction with the Planning Conditions of Consent No:  
28 May 2021

*Fergus Murray*  
Head of Development and Economic Growth

#### **Sewer Connection**

A gravity mains sewer pipe is installed from the mains sewer pipe in public road to the edge of site No1, with a connection manhole for sites 2,3 &4 provided at this location

The system beyond this point is a 'pumped' system; a separate 50mm UPVC pipe is taken from the connecting manhole to each plot, each purchaser will be responsible for the installation a pump connecting to this pipe as required to serve the respective development on each site.

#### **Water Supply**

A water supply installed to boundary of each site.

This is a private water supply installed by Argyll Community Housing Association serving this and other properties.

Each purchaser shall have a shared responsibility for ongoing maintenance of the supply infrastructure.

Water treatment and filtering will be required to be installed by each purchaser within each property

#### **Electricity**

Electric supply is installed to the boundary of each site, each purchaser shall be responsible for the final property connection and installation of a meter

#### **BT**

A duct with draw cord is provided from the BT line running down the public road to each plot, installation of the BT cable will be carried out to each plot on the application for installation of BT by each purchaser.

# Erection of House and associated works at Plot 4 west of Kenmore cottage, Bonawe. Argyll and Bute For Matt Paton

## SPECIFICATION

### ROOF

Slate tile to suit roof pitch of 55° on 25x50mm tiling battens on 19x35mm counter battens on untearable roofing felt on SIPs panels

U=0.15 W/m<sup>2</sup>°C

### DORMER CHEEKS

Slate tile finish or similar to match existing battens and 25x12.5mm treated counterbattens on building paper on SIPs panels finished with 12.5mm plasterboard.

U= 0.22 W/m<sup>2</sup>°C

### WALLS (Timber Frame)

Larch cladding- 40x20mm horizontal strips on 100mm blockwork, 50mm cavity, breather membrane on SIPs panels. All timber to be treated.

Cavity ties be Hydro Air P6 Stainless steel single nail 600mm horiz. 450mm vert. Doubled in number at reveals DPC's to be provided at all door thresholds window cills jambs and lintols. All brick to comply to 1:1:6 Brick class 20.5.

Block class 7.0, with expansion joints at 7m centres in accordance with manufacturer's instructions.

Cavity sealed at wallhead and every 8m. with 50x50mm treated cavity barriers wrapped in D.P.C. Vertical cavity barriers to be inserted at corners. Cavity perpend vents to be installed at high and low level every 1.2 metre centres and also above and below horizontal cavity barrier.

Galv. Anchor straps fixed to timber studs with 75mm galv. nails at 1.2 metre centres. Anchor straps to be provided at corners and openings to timber frame.

U= 0.22 W/m<sup>2</sup> °C.

### UNDERBUILDING

To engineer's specification

### FOUNDATIONS

To engineer's specification

### INTERNAL PARTITIONS

Timber stud partitions 47x97mm studs at 600mm cts. 12.5mm plasterboard both sides 100mm mineral quilt insulation between studs minimum 10kg/m<sup>3</sup>. Sound performance 43dB Rw. Minimum door widths to be 775. Impervious finish to shower area.

### FLOOR

22mm flooring on timber battens on concrete base

### FIRST FLOOR

To engineer's spec

### INTERNAL STAIR

Headroom 2000mm, Rise 200mm, Going 225mm, Width 800mm, max. pitch 42°, handrail 900mm above pitch line max. spacing 100mm.

### EXTERNAL STAIR

Rise 170mm, Going, 250mm, Width 1000mm, Handrail 900mm above pitch line max. spacing 100mm.

### DRAINAGE

All drainage to BS 8301, BS 5572 1994 BS EN 12056-2:2000 and subject to site meeting.

The joint between the floor and the external wall and all service penetrations require to be caulked with mastic to limit infiltration per Technical Standard. All drains to be lintolled over when passing through the foundations. All drainage passing below or within 1m of building to be encased to the underside of foundations in concrete. All drainage to BS 8301, BS 5572 1994 BS EN 12056-2:2000 and subject to site meeting.

W.C. 100mm dia. supported horizontally at 0.9m and vertically at 1.8m

Sink. 38mm dia. supported horizontally at 0.5m and vertically at 1.2m

Shower 38mm dia. supported horizontally at 0.5m and vertically at 1.2m

Bath 38mm dia. supported horizontally at 0.5m and vertically at 1.2m

W.H.B 32mm dia. supported horizontally at 0.5m and vertically at 1.2m

Min. trap depth 75mm

Min. gradient 1:80 anti-syphon traps to be fitted to Sink, W.H.B. when drainage length is excessive.

Hot water discharge from sanitary fittings

Guidance to the Water Byelaws recommends that, to prevent the development of Legionella or similar pathogens, hot water within a storage vessel should be stored at a temperature of not less than 60° C and distributed at a temperature of not less than 55° C.

If water is supplied at high temperature, from any source, there is a danger of scalding to building users. Risk of severe injury increases proportionally with increase in temperature and with extent of contact.

Facilities used for personal hygiene

To prevent scalding, the temperature of hot water, at point of delivery to a bath or bidet, should not exceed 48° C. A device or system limiting water temperature should not compromise the principal means of providing protection from the risk of Legionella. It should allow flexibility in setting of a delivery temperature, up to a maximum of 48° C, in a form that is not easily altered by building users. This will allow reduction of temperature where, for example, facilities are used by those more at risk from injury, such as elderly people or unsupervised children.

[www.tmva.org.uk](http://www.tmva.org.uk) Where both hot and cold water are supplied to a facility, the above may be achieved by use of a thermostatic mixing valve (TMV) or fitting complying with BS EN 1111: 1999 or BS EN 1287: 1999, fitted as close to the point of delivery as practicable. Guidance on the installation, use and maintenance of thermostatic mixing valves and fittings can be found in BRE information domestic | safety | danger from heat | 2006 4.9.3 — 4.9.5

Paper IP 14/03 and from the Thermostatic Mixing Valve Association (TMVA).

Water efficient fittings should be provided to all WCs and WHBs within a dwelling.

Dual flush WC cisterns should have an average flush volume of not more than 4.5 litres. Single flush WC cisterns should have a flush volume of not more than 4.5 litres. Taps serving wash or hand rinse basins should have a flow rate of not more than 6 litres per minute.

## UNDERGROUND DRAINAGE

To be 100mm UPVC Marley or similar to BS 4660 pipes laid in granular bed.

Where building works are proposed within 3 metres of a communal drain the builder will be responsible for contacting the Water Department regarding their requirements

All drainage to the satisfaction of the Local Authority.

## RAINWATER SYSTEM

To be Marley 125mm nominal half round gutter and 68mm circular downpipe in UPVC to Guttering and downpipes to be in accordance with BS EN 12056-3: 2008.

System to be trapped prior to entering sewer system. Rodding access to be provided.

## WINDOWS

Anthracite colour triple glazed to match existing to client's requirements. Ventilation to be 1/30th of the floor area. Daylighting to be 1/15th of the floor area. Upstairs windows max. 4m or cleanable from inside. Trickle vents 12000m<sup>2</sup> min. 1750mm above floor level.

Upstairs windows to have openable area of at least 0.33m<sup>2</sup> 450mm wide 450mm high to comply with Technical Standards. Maximum opening height to be 1100mm from floor level and min. 800mm.

Mech.vent to kitchen intermittent extract 60 lts./sec. and 1 air change per hour at low speed. When ducting exceeds 3m a centrifugal or mixed flow impeller fan should be used.

Mech. vent to bathroom intermittent extract 15 lts./sec. When ducting exceeds 3m a centrifugal or mixed flow impeller fan should be used.

Mech. vent to utility room intermittent extract 30 lts./sec. When ducting exceeds 3m a centrifugal or mixed flow impeller fan should be used.

Rooms to have intermittent extract rate of 3 a.c./hour and continuous operation at low speed to give 1a.c./hour.  
Double glazed (low-E, En=0.05) gap between panes 16mm. U= 1.6 W/m<sup>2</sup>°C  
All glazing below 800mm to be toughened or laminated to BS6262: Part 4 2005. All safety glass will be suitably Kite Marked

## ELECTRICAL

Outlets and controls of electrical fixtures and systems should be positioned at least 350mm from any internal corner, projecting wall or similar obstruction and unless the need for a higher location can be demonstrated not more than 1.2m above floor level. This would include fixtures such as sockets switches, fire alarm call points and timer controls or programmers within this height range.

Light switches should be positioned at a height of between 900mm and 1.1m above floor level.

Standard switched or unswitched socket outlets and outlets for other services such as telephone or television should be positioned at least 400mm above floor level. Above an obstruction, such as a worktop, fixtures should be at least 150mm above the projecting surface.

Where sockets are concealed, such as to the rear of white goods in a kitchen, separate switching should be provided in an accessible position to allow the appliance to be isolated.

All rooms of more than 4square metres to be provided with an electrical light and switch the light to be positioned in the ceiling.

Lighting to bathroom/en-suite to be a shrouded fitting and switch to be pull cord or mounted outside bathroom/en-suite.

Kitchen to be provided with 6 No. power points and other new habitable rooms fitted with min.

4 No. power points.

Smoke detector to be fitted to new hallway and hardwired back to mains complying with BS 5839: part 6 2019. Smoke alarms and heat alarms should be ceiling mounted and located such that their sensitive elements are in the case of a smoke alarm, between 25mm and 600mm below the ceiling, and at least 300mm away from any wall or light fittings and in the case of a heat alarm, between 25mm and 150mm below the ceiling. Heat alarm to comply with BS 5446: Part 2: 2003.

Carbon Monoxide detector fitted to comply with BS EN 50291-1:2010.

A minimum of 100% of the fixed light fittings and lamps installed within a [dwelling](#) should be low energy type, with a luminous efficacy at least 45 lumens/circuit watt, for example tubular fluorescent and compact fluorescent fittings (CFL's).

## GENERAL NOTES

The building will be constructed in accordance with the provisions of BRE report BR 262:1994. Infiltration of air into the building must be limited as far as reasonably possible by sealing the gaps between dry linings and masonry walls at the edges of windows, doors, skirtings and roof.

Windows and doors to have a neoprene seal at all joints, all external openings to have joints sealed with mastic.

Air infiltration and thermal bridging to be to BRE report 262: 2002

All hot water pipes and radiator pipework to be insulated in accordance with Standard 6.4.1 and to comply with BS 5422: 2009

All dimensions to be checked on site

No HAC

All demolition's and downtakings to BS 6187 2011 and HASW.

All work to be finished to a good decoratable standard.

All builderwork to the satisfaction of the Local Authority, in accordance with relevant British Standards and in accordance with manufacturers written instructions.

This specification is to be read in conjunction with the accompanying drawings.

Prior to the removal of any loadbearing or supporting walls, the existing structure must be adequately propped and remain so until all the alteration work is complete and cured.

These plans are for the purpose of Planning Permission and Building Control Approval

All work to be carried out only from stamped approved plans.

All electrical works should be to BS7671:2018 and the 18th Edition I.E.E

All drainage to the entire satisfaction of the Local Authority

Heating controls to be TRV's on all radiators

Brick to match existing and to comply with BS EN771-1, suitable for moderate exposure. F1

Doors to comply with Section 2 of "Secured by Design"

A door or window in the locations described in clause 4.13.1 should be tested and certified by a *notified body* as meeting a recognised standard for security such as BS PAS 24: 2007 for doorsets or BS 7950: 1997 for windows.

To ensure a robust, basic standard of security, a doorset or window in the locations described in clause 4.13.1 should be designed and constructed in accordance with the general recommendations of the product standard appropriate for the material used, such as:

- BS 7412: 2007, for PVCu units;
- BS 644: 2009, for timber window units;
- BS 4873: 2009, for aluminium alloy units;
- BS 6510: 2005, for steel-framed units.

Vulnerable windows should be constructed to resist attempts to force frames and, if openable, ironmongery.

Windows which can be opened should be fitted with either:

- a keyed locking system that uses a removable key; or
- a keyless locking system, together with glazing which incorporates laminated glass or a similarly robust glazing material.

Where a material standard for a doorset is not available, it should be designed and constructed in accordance with the recommendations in Annex

A of BS 8220-1: 2000, together with the following recommendations, to ensure a robust basic standard of security.

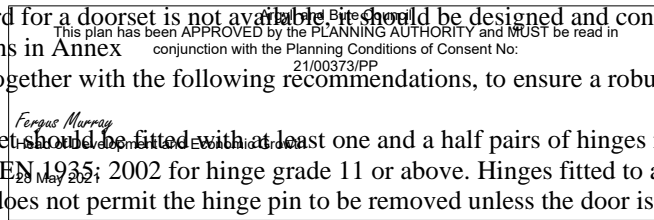
If single swing the doorset should be fitted with at least one and a half pairs of hinges meeting the recommendations of BS EN 1935: 2002 for hinge grade 11 or above. Hinges fitted to an outward-opening door should be of a type that does not permit the hinge pin to be removed unless the door is open. Otherwise, hinge bolts should be fitted to ensure the door leaf will remain secure when closed.

A doorset should include a single-point locking device to BS 3621: 2007 (for keyed egress) or to BS 8621: 2007 (for keyless egress) or a multipoint locking system. A deadlocking facility should be provided. Any lock cylinder should be in accordance with BS EN 1303: 2005, grade 5 key security and grade 2 attack resistance as a minimum.

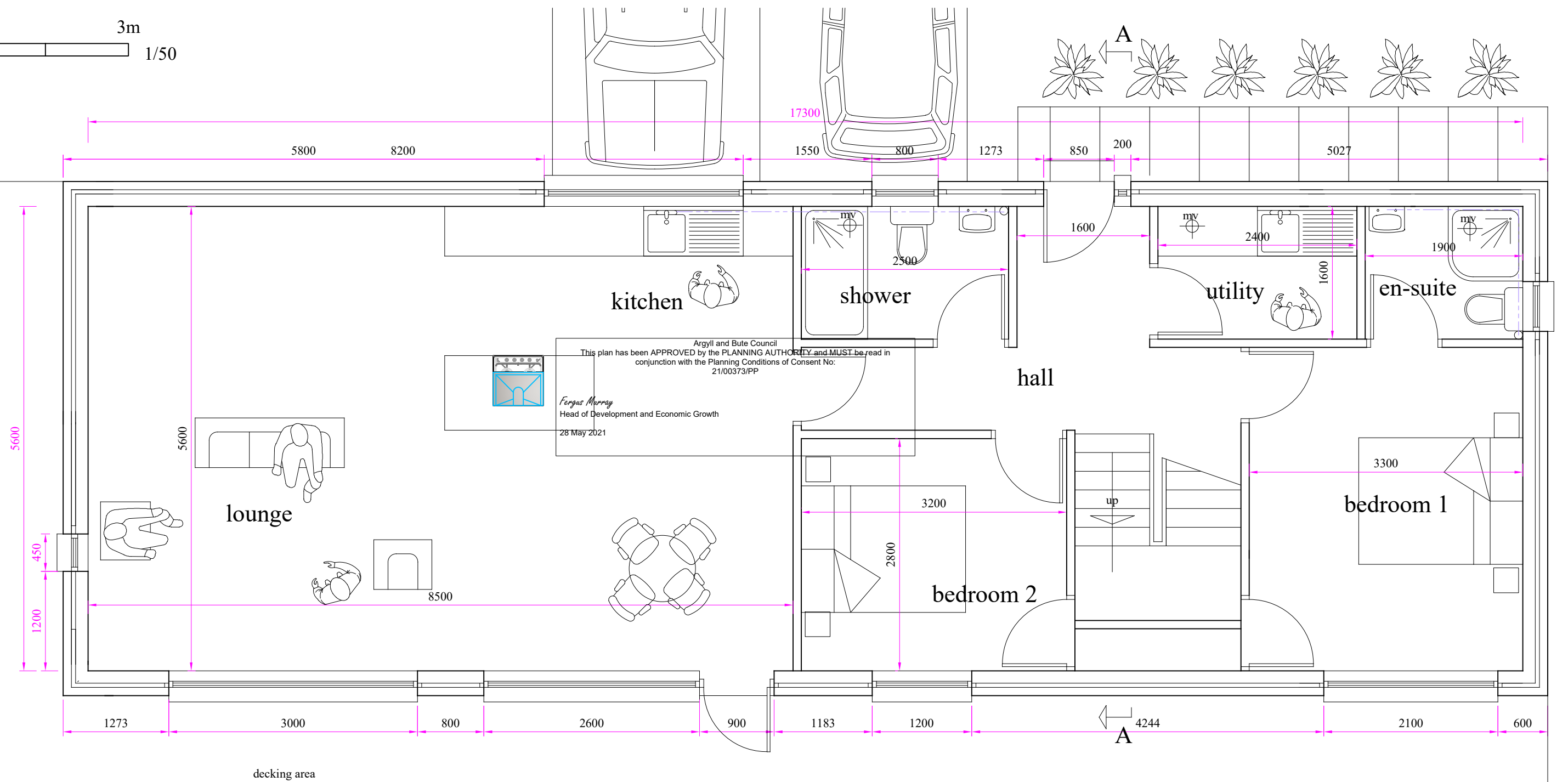
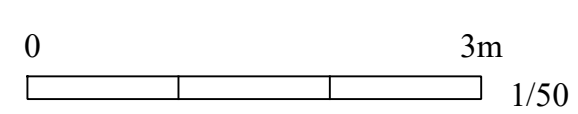
Access to door locks from outside by breaking of glazing, in or adjacent to a door leaf should be prevented by use of laminated glass or a similarly robust glazing material.

A sliding door should have a multi-point deadlocking system with 3 or more hook or similar bolts. To prevent removal of the door, an anti-lift device should be fitted. Shoot bolts, if used, should locate into the head of the frame.

A doorset with more than one door leaf should include a means of securing locked.







## PROPOSED GROUND FLOOR

A : Changes to window 3.11.20  
B : Layout changed 14.12.20  
C : Layout changed 18.12.20

Client:  
**Matt Paton**

Project:  
Erection of house and associated  
associated works at  
plot 4 west of Kenmore cottage  
Bonawe, Argyll and Bute

Scale: 1/50  
Drg.No.: BA202C

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