## Property Flood Protection Report – Flood assessment

**Dear Mr Calum Duncan,**

**Thank you for the opportunity to survey the properties located at Tyninghame Mill, Dunbar, East Lothian, EH42 1XL on 20th March 2018 in order to assess the requirements for property flood protection.**

**I apologise for the delay in getting this report to you – due entirely to changes in BSI certification standards for some of the products we usually include in this report. Awaiting appropriate accreditation is essential in suggesting products suitable for use in property flood protection. Additionally 3 property flood protection companies have gone into liquidation substantially affecting the availability of some products.**

**The Scottish Flood Forum:**

The Scottish Flood Forum is a charitable organisation dedicated to supporting flood risk communities in Scotland who are funded by the Scottish Government. They help people to recognise, understand, and reduce their flood risks and support communities to recover following a flood event. They have been working throughout Scotland for the past 8 years.

**Property Level Flood Protection:**

We understand the complexity of property flood protection and have no affiliation to any flood product manufacturer or organisation. We recognise that each property is unique and the needs and the requirements of the property owners must be taken into account in advising on the suitability of flood protection products.

The Scottish Flood Forum has a wide selection of suitable products available which can be viewed by prior notice

**We wish to state that any flood defence product cannot guarantee that the property will never flood; even the best products may allow a certain amount of seepage through. Flood water can always overtop a flood barrier and it is usually accepted that flood water over about 800 mm in height should be allowed into the property to minimise possible structural damage. Barriers above this height should only be installed upon the advice of a qualified structural surveyor.**

**Since the choice, installation and use of any flood defence product is out of the control of the Scottish Flood Forum, we cannot therefore accept any liability for product failure, incorrect installation, or usage. It is essential that you use a reputable flood product manufacturer and certified installer - who will demonstrate, following installation, the use and deployment of the products. Please ensure that the installer is competent in fitting the product – we cannot recommend strongly enough that all Flood Doors and Barriers are 'wet tested' upon completion of the installation there may be a small charge for this service but it is worth it.**

- **We strongly advise that wherever possible products are either BSI Kite-marked or PAS 1118 approved.**
- **Please check that your installer has the appropriate liability and Indemnity Insurance cover.**
- **Finally we are aware that some flood protection installations are just not up to standard we are now offering an independent assessment of any completed installation upon request. This includes advice on product use and deployment.**

**REPORT:**

Tyninghame Mill is located in a private setting on the edge of the conservation village of Tyninghame, and dates back to 1828 when it was built as a sawmill to provide timber for the Tyninghame Estate.

A Lade runs to the south side of the property grounds, which originally provided power to the Mill during its operations. The lade is supplied with upstream water via a weir which flows along the lade running to the south of the Mill House, before flowing under Dam Bridge and back into the River Tyne. It should be noted that the Tyne and Lade is tidal from beyond the Dam Bridge (ie to the East)

The grounds consist of three buildings all are variously used for accommodation.

- Tyninghame Mill House:
- Tyninghame Mill Cottage:
- Tyninghame Mill Outbuilding:

At your request, we visited and assessed the requirements of each of the properties for possible flood protection requirements.

The property-level flood protection approach now offers many owners an effective alternative to managing their flood risk.

This market has developed significantly in light of the recent flood events and is maturing rapidly. Excellent products are now available and manufacturers are responding with innovative solutions to challenging problems. Property owners now have a viable option for reducing the impact of any further flooding.

The Scottish Flood Forum (SFF) Advisor carried out a systematic flood appraisal to identify potential property vulnerability - covering door openings, airbricks, vents, pipes through walls and issues regarding ground water etc.
.
Specific areas of visual assessment included:

- External Door Openings of each property
- Condition of the outer timber cladding, where the property is of a timber frame construction.
- Condition of low level cement render, Brickwork and Courses on the exterior walls of the building.
- Condition of the Concrete floors on the ground floor level where these are accessible and installed.
- Potential vulnerabilities relating to groundwater
- Airbrick openings and vents at low level, cables and pipes through the walls
- Low level utilities, showers, toilets etc. within the property

The identified points of vulnerability mentioned above may allow possible flood water ingress into the property.

1 External Door Openings:

Whilst these openings, traditionally can be protected to a height of about 800 mm using a flood barrier,

The limitations of any barrier method are that these need to be installed prior to any flood event. Requiring the property owner or designated responsible person to be available to deploy these products in good time. Any periods of absence away from the property will potentially, if not deployed, may put the property at flood risk. You might want to nominate a suitable person (neighbour) to act in your absence.

As an alternative, consideration can be given to the use of a Flood Door – this is a product that provides full 24 hour flood protection at all times when the door is closed and latched properly. The design of the Flood Door can be chosen to maintain the style and character of the property. These products are generally reliable however, the care shown during installation is crucial to their satisfactory performance. They do require regular (annual) maintenance to the door seals to maintain the integrity of the door against water ingress.

2 Condition of the Cement Courses and Low Level Brickwork to the exterior walls of the building:

Where property has aged, brickwork often shows some signs of weathering over the years and the lower outer brick courses of the property frequently suffer some wear. Since the brickwork and cement, courses contribute to the flood protection of the property we would suggest that this is made good in areas where there are signs of weathering. This may also include cement render, which sometimes has lost adhesion to the underlying stonework. Cracks, holes, and other defects will need to be repaired to ensure the integrity of the outer protection of the building. Where brickwork is unduly weathered or particularly porous, a coating of breathable water-protective solution may need to be applied or a cement render but speak to your installer for advice.

3 Condition of the concrete floors within the ground floor of the property:

Whilst the greatest threat of water penetration into the property will be from surface water flooding, there is a need to protect the property from ground water. This is determined by the water table which can increase in height following rainfall. Ground water is quite difficult to manage and suspended wooden floors, basements and solum's (under floor void) are particularly vulnerable.

Where there is a wooden suspended floor, it is strongly recommended that a reliable float-activated sump pump of sufficient capacity is permanently installed under the floor to remove the ingress of ground water into the solum. Where the floor area is across two rooms or has a large ground floor area – you may want to consider the use of two sump pumps to provide back up in case of a pump failure or just being overwhelmed.

We suggest that existing concrete floors be made good and brought up to an acceptable standard. Where there is a Damp Proof Membrane installed (DPM) the joint between the DPM and the wall is sealed to reduce the effect of water seepage into the property. Where a concrete floor is installed this would remove the requirement of air vents within the property eliminating a further possible point of water ingress.

Where there is no DPM – we suggest that the installation of a Chemical Damp Course (CDC) is installed while the property is partially striped out and the skirting boards are removed. There are a number of specialist damp course companies who can provide this service.

4 Airbrick openings at low level including cables and pipes through the walls:

Airbrick openings allow a substantial amount of water into the property unless protected from flooding. Where vents are installed they will need to be removed and replaced with a 'smart air vent' which is automatic in its operation – it works by shutting out water flow through the airbrick rendering the amount of water entering the solum being considerably reduced. Where there are micro-vents in the outer wall these weep holes will need protecting during a flood and purpose made removable bungs can be used. All pipework, cables, etc passing through the walls should also be effectively sealed with a suitable waterproof sealant.

5 Low level utilities, showers, toilets etc within the property:

Backflow of water into a property through sewers and pipes is a real risk in a flood situation and particular attention should be shown to ground floor utilities to reduce this risk. We suggest where ever possible, where there are ground floor toilets, washbasins, showers, waste pipes etc. that a non-return valve (NVR) is fitted to prevent internal flooding to the property by sewage and surcharging drains. Alternatively an inflatable bung for use in the downstairs toilet with non-return valves used in down stairs wastepipes, (dishwasher, washing machine & ground floor shower) would be a suitable option.

Where utilities like Electric cables, Gas and Water pipes are brought into the property, a section of the outer wall through the property foundations is often removed (usually under the front door). The size of this hole can in some instance be quite large (several bricks) in other situations the utilities can be ducted into the property via a clay or plastic pipe. These openings will need to be sealed up with appropriate brickwork or sealant to prevent possible water ingress into the solum. This situation appears to affect many houses built more than 20 years ago – but do check. It may be less of a problem if you have a concrete floor. We strongly advise that this is checked out by a reputable builder.

6 Optional additional protections:

Property owners may wish to consider holding a small stock of synthetic sandbags, these versatile products filled with a water absorbent polymer can be deployed quickly and easily and have a high capacity to absorb water. Unlike sandbags they also act as an effective additional barrier against water flow, see appendix on sandbag limitations.

With the implementation of any flood protection and in a worst case scenario, we would recommend that a hand carried portable electric water pump be considered to remove any potential flood water seepage into the property. The pump can be used to pump water from various parts of the property should a breach of the defences occur – ensure the outlet pipe is long enough to reach out of the nearest window.

## RECOMMENDATIONS:

Note – all recommended products should be where ever possible BSI Kite-marked or PAS approved.

The flood protection assessor was informed by the client that all properties consisted of a concrete floor base and both the Mill and Cottage were of sandstone construction.

Random moisture meter readings taken on the day showed that the brickwork was relatively dry and showed minimal retention of water / rising damp. There were minimal signs of weathering and the brickwork free from vegetation.

The assessor understood whilst there was no recent history of flooding, an assessment of the grounds identified several vulnerabilities.

- To the south side of the Mill – a bridge spans the Lade and passes through a boundary wall between the Mill and the Cottage. (see Photo) – It would be recommended that a demountable flood barrier be fitted across this opening thus preventing the risk of flooding if the bridge / Lade was to block downstream of the property.

- The entrance driveway shows a significant drop to the grounds from the road (approx. 300mm) – in a flood situation where surface water from the road was substantial this could allow water to flood the grounds, thereby putting the properties at flood risk. Consider https://www.floodprotectionsolutions.co.uk/gallery

- The clearance under the Dam Bridge from the Lade is normally sufficient to allow water to flow freely. However if a spring tide and strong onshore winds were to prevent the Tyne and Lade from flowing out to the estuary there could be a tidal back flow allowing water to build up to sufficient depth to cause flooding. Keeping the Lade relatively free from un-necessary vegetation, fallen trees – in fact anything that could lead to an obstruction under the bridge may be beneficial.

Summary - see table at end of report:

1. Install Flood Doors or Door Barriers at all external openings that are at risk – don't forget to ask for a proper wet test following installation.

2. Repair damaged exterior rendering, brickwork and courses

3. Repair interior concrete floors and seal DPC or install a CDC where required

4. Remove airbricks and install water activated units (Smart Air-vent)

5. Install non-return valves on waste pipes from ground floor baths, basins, toilets and showers

6. Install Water activated Sump Pumps to the solum to remove ground water – suggest 400 l / min capacity.

7. Seal all vulnerable points of water entry below and above floor level (cables, pipes, utilities and services)

**If the above recommendations are implemented, the risk of flood water entering the building will be reduced – except where flood water is of significant depth to exceed the height of the defences themselves.**

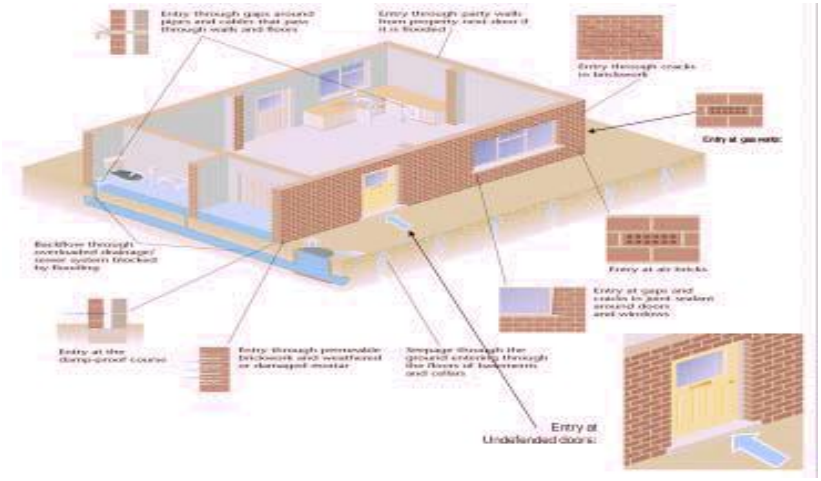
**Appendix:**

**Property Flood Protection:**

**There are 4 main types of flood resistance products** routinely used in combination, according to the specific requirements of each property in a scheme:

1. Barriers for doorways and airbricks
2. Non-return valves for domestic and foul drainage systems
3. Solum Sump pumps (Underfloor void)
4. Waterproofing and sealants

The most common and obvious types are the removable door and airbrick barriers. These are designed to fit across openings to prevent the ingress of floodwater. Most have some type of fixing system fitted directly to the property itself and thus closure depends upon timely and correct manual installation.



The diagram opposite illustrates the typical routes by which water can enter a property and all aspects need consideration as part of a property flood resilient approach. The product market is constantly evolving, with manufacturers developing new and innovative ideas and products, such as the move towards passive flood doors and automatically operating airbrick replacements which require little or no intervention.

**Insurance Issues:**

Changes to the way flood risk properties are covered by the insurance industry will be implemented within the UK from April 2016 onwards. The new scheme is called Flood-re and will enable private homeowners to be able to find lower cost and available home insurance. For further information please visit the Flood-re website or call in to the SFF to see us.
http://www.floodre.co.uk/

**Choice of Flood Protection:**

When considering the type of barrier for installation it is important to consider the type of person who will be using the product. Are those using the products able to fix the barrier in place on their own or would they need assistance? Would the barrier provide sufficient flood protection to the property? What are the risks if the property owner is away at the time of a potential flood incident? Who can you ask to assist or install the units if you are on holiday for instance? Develop a home flood plan – ask the SFF for a booklet or advice.

**Property Flood Protection Products to consider:**

**The List below is given as a guide and does not represent any endorsement by the SFF.**

1. Flood Gate: http://www.floodgate.ltd.uk
2. Smart Airbrick: http://www.ecocoverage.co.uk/the-smart-airbrick/
3. Coniston (also known as the Caro barrier) Flood Barrier: https://www.ukflooddefencealliance.com/products-services/demountable-flood-barriers/coniston/
4. Hydro-snakes: http://hydro-snake.com/
5. Aquobex Flood Safety Door: http://aquobex.com/products/flood-safety-door
6. Vent Guard: http://www.ventguard.org/
7. Sump Pump: http://www.jtatkinson.co.uk/contact-us-i3

8. Gate Barrier - https://www.floodprotectionsolutions.co.uk/gallery

**Please see below for further information on these products:**

**Flood Gate: Door Barrier – expands to fit door opening – Fixed Height**


No frames, just a simple expansion system which allows one flood barrier to fit a number of different size openings (choice of 4 sizes). This product due to its steel construction can be quite heavy particularly the larger sizes, some people may find this a problem.

These barriers can be joined together laterally with a jointing system to construct a barrier of variable width. Does not require a pre-existing frame to be installed to the property.

**Automatic (Smart) Airbrick**


These airbricks are designed to replace the existing Air Brick, fitted to the property. They work by preventing water from the outside of the property entering the solum. They do this with a clever floating ball valve arrangement which seals the ventilation holes when flood water reaches the airbrick.

Although more expensive than some products, they are a fit once protection to the property. They have the advantage of working even if one is away from the property on holiday or at work. Supplied in Grey or Terracotta colour.

**Sump Pump:**

Simple internal float activated sump pump located within the solum (underfloor area).

Please note – where there is limited or no access to the solum – the sump pump is able to be installed in an external sump – with a pipe work of sufficient capacity to bring water from the solum to the sump.

If you require further information please contact the DFAC

**Coniston / Caro Flood Barrier – Variable Height**

The ‘Coniston’ (Caro) flood barrier has been developed to provide a quick and convenient method



11, 2015, 2016, 2017

of “building” a water tight flood barrier, and is specifically designed for both smaller and wider commercial doorways.
The Water Door makes use of two permanently fixed vertical channels fitted either side of the doorway. This then allows the Aluminium panels to be dropped into position so that when deployed, a barrier is ready to protect your property. It is both simple and lightweight to install.

**Hydro-snakes: - Synthetic Sandbags**

The Hydro snake is a low cost and effective synthetic sandbag. On contact with water it quickly expands to absorb up to 20 litres of water, Hydro snakes can be quickly deployed, folded, stacked according to the protection required.

They act as a very effective barrier to flood water and if kept unopened in their original packaging have a very long shelf life so can be stored for many years ready for deployment.

**Aquobex:- Flood Safety Door**

A new generation in flood protection products, the flood door blends into its surroundings with an aesthetically pleasing structure.
Integral to the design are a number of safety mechanisms that ensure the door cannot be opened under flood conditions – a key factor in the prevention of injury to occupants

**Ventguard Air-vent cover – removable single fixing**


This Air brick cover is fixed quickly and simply with a single fastening through the centre of the airbrick, Its advantage is no predrilled holes in the wall, the neoprene seal is very effective at keeping flood water from flowing into the property. The Cover is easily removed once the risk of flooding has passed

**Please note the SFF do not sell flood protection products or have links with any product manufacturer. We only advise on the suitability of any products.**

**Sand Bags – limitations:**

Many property owners continue to rely on local authorities supplying sandbags during an emergency although this is not a statutory duty, many authorities will still try to assist during a flood event.
Whilst sandbags are seen as being a practical solution to flood protection, they are in fact costly to transport due to their weight and have a limited shelf life.
In a major emergency situation sandbags can divert essential staff and resources to deploy them in

sufficient quantity to protect your property. Finally sand bags do not prevent water entering a property unless a waterproof membrane (plastic sheet) is installed over the opening (door) and the sandbags are layered over it. Some may find traditional sandbags very heavy to carry and install.

## Follow-up and aftercare

The consistent failure of any Flood Protection Product is human error. It is important that products are fitted correctly, and used in accordance with the manufacturer's guidelines. Additionally where appropriate they need to be serviced and maintained to manufacturer's recommendations, particularly Flood Safety Doors.

It is important to ensure that you and other family members are instructed by the manufacturer or installer in the correct use and fitment of the products. We will be conducting community flood protection practice sessions to ensure that households are fully prepared. We recommend a regular 'Flood Drill' be carried out both during the day and night time. A simple flood alarm may be useful in indicating a flood situation in progress.

## Household – Emergency Plans

**We strongly recommend that you sign up to the Scottish Environment Protection Agency (SEPA) flood warning service.**

The SFF have a number of specific guides to assist with help and advice to flood risk properties. As part of this resilience approach we have available, a household flood plan, which provides essential information in enabling you to be prepared in an emergency. Copies of this can be made available by visiting us at the centre.

## The standards of flood protection

At some point any flood prevention measures that are used can be possibly overwhelmed by a severe flood event. Damage will still occur no matter what products are subsequently installed. The important issue is to work to reducing internal flood damage. Prepare a plan and consider what to do if the property is flooded, ensure you know how to exit the property safely.

Remember Flood protection products are there to protect the property not people, so if your home is flooded get out and stay out in good time and please never put yourself or others at risk – floodwater is dangerous.

There are additional risks arising from the need for property owners to correctly install products in a correct and timely manner. It will also be important to guard against complacency and ensure home emergency plans are developed and rehearsed and that equipment is maintained and operable.

The SFF has working samples of all the products mentioned in this document and we would strongly recommend looking at these before making a decision to purchase.

Specific details of your survey are listed on the next page:

**Property Flood Protection options to consider:**

| Product | Location / Action | Guide Price / each – inc VAT |
|---|---|---|
| **Front Door Protection – Mill House** | **Fit a Flood Barrier** | **Flood Barriers £600 – £900** |
| **Front Door Protection – Mill Cottage** | **Fit a Flood Barrier** | |
| **Front Door Protection - Outbuilding** | **Fit a Flood Barrier** | |
| **Patio / Conservatory Door – Mill House** | **Synthetic Sandbags (Hydro Snakes) – span too long to effectively protect from flood water.** | **£80 - £150** |
| **Lade Gate (Between Cottage & Mill)** | **Fit a Flood Barrier** | **Flood Barriers £800 - £1500** |
| **Front Drive Main Entrance** | **Fit a Flood Barrier – (Water-Gate)** | **Flood Barriers £800 - £1500** |
| **Front Drive Side Gate** | **Fit a Flood Barrier** | **Flood Barriers £450 – £800** |
| **Air-Vent Protection** | **n/a** | **£40 - £65 – each** |
| **Skimmer Pump** | **May be very useful to remove possible excess surface water** | **£230 – each** |
| **Waste Outlet Protection Non-Return Valve as required** | **Seek builder / plumber advice** | **£25 – each** |
| **Sewage Protection Non-Return Valve**<br><br>**Or Toilet Bung** | **Seek builder / plumber advice – essential where Septic Tank is used** | **£300 - £450**<br><br>**£30** |
| **Low Level Cables and pipes Protection, Including Utilities entering the property** | **Seal with appropriate sealant -** | **£50 - £300** |
| **Synthetic sandbags** | **Hydro snakes** | **£10 - £15** |

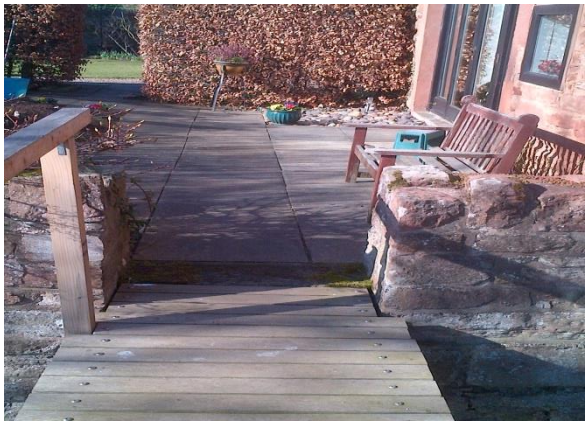
**Additional Comments:** - These are traditional stone built houses with cement floors, the vulnerably lies due to the proximity of the Lade and surface water run off. If the properties are listed – then probably the only safe barrier is the Floodgate. However it is quite heavy to deploy.

It is suggested that as an alternative flood protection could be of the barrier type and possibly the Caro System (details in report).

Ensure remedial work to the render and motor joints especially to the Outbuilding where appropriate would further assist in preventing flood water ingress - please seek advice from your builder.

A sump pump should be considered as necessary rather than an option especially if the 'courtyard' becomes a lake due to surface water runoff.

**Photos:**



**Lade Gate opening – requires Flood Barrier**

**Lade showing flow to Dam Bridge.**

**Entrance Gate requiring flood protection consider removable barrier -**

As a service to you, we list the following companies below who are able to provide flood protection quotations and arrange installation of the above products –

**This is given as a guide and does not represent endorsement in anyway by the SFF.**

1. **http://www.ukflooddefencealliance.com/**

   **Adam Crawford- Tel: 01228 586010 (estimate, supply and fit)**

2. **http://aquobex.com/services/**

   **John Alexander – Tel: 01923 518582 (estimate, supply and fit)**

3. **http://www.alliancegs.co.uk**

   **David Viles – Tel: - 01623 750231 (estimate, supply and fit)**

4. **http://www.ventguard.co.uk**

   **Richard Humphries – Tel: - 01382 679254 (vent guard - estimate and supply)**

5. **Water-Gate Barrier - https://www.floodprotectionsolutions.co.uk/gallery**

**Whilst every effort has been made to ensure the accuracy of this document – if a mistake has inadvertently been made, please forgive us and let us know so we can correct the relevant information.**

If you need further help or advice please contact me at

You can e-mail – paul@scottishfloodforum.org

Or phone on [redacted] and leave a text message

# Summary of Flood Risk Assessment Modelling - Methodology and Results

Kaya Consulting Limited

As discussed please see below some text on our initial assessment. We have predicted that the site would be at risk of flooding during a 200 year event.

## Hydrology

A Mill Lead flows past the site before passing under the A198 and returning to the River Tyne. Due to the size of the Tyne and its known floodplain, flood risk from the Tyne has been considered as the main flooding risk to the site. The River Tyne discharges into the Firth of Forth approximately 250 m to the east of the site. At the tidal limit close to the A198, the catchment area draining measures 313 $km^2$. Due to the large catchment, the flows in the river have been estimated based on WINFAP statistical analysis.

A pooling ground was created and refined based on standard methodologies. The final table is provided below.

| Station | Distance | Years of data |
|---|---|---|
| **20001 (Tyne @ East Linton)** | 0.032 | 47 |
| **43005 (Avon @ Amesbury)** | 0.254 | 49 |
| **22007 (Wansbeck @ Mitford)** | 0.284 | 52 |
| **10002 (Ugie @ Inverugie)** | 0.369 | 35 |
| **42010 (Itchen @ Highbridge & Allbrook Total)** | 0.394 | 56 |
| **39006 (Windrush @ Newbridge)** | 0.41 | 64 |
| **39019 (Lambourn @ Shaw)** | 0.454 | 52 |
| **22009 (Coquet @ Rothbury)** | 0.515 | 39 |
| **53008 (Avon @ Great Somerford)** | 0.52 | 51 |
| **45012 (Creedy @ Cowley)** | 0.544 | 42 |
| **23008 (Rede @ Rede Bridge)** | 0.569 | 45 |
| **43008 (Wylye @ South Newton)** | 0.586 | 43 |
| | | |
| **Total** | | 575 |
| **Weighted means** | | 575 |

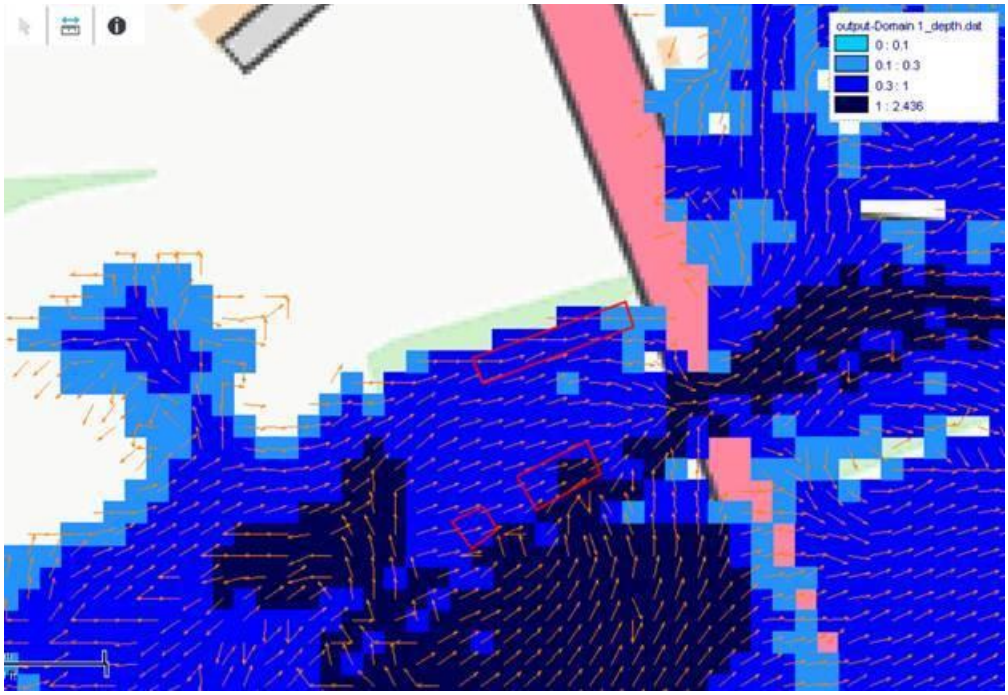
A SEPA hydrometric gauge is located at East Linton and this has been used as a donor gauge when determining Qmed. Based on the General Logistic distribution, a 200 year flow of 206 $m^3/s$ was calculated for the Tyne in the vicinity of the site.

## Mathematical Modelling

To assess risk of flooding at the site, a 2D mathematical model was constructed using Flood Modeller Pro software. The following parameters were used:

Topography: 5m resampled from 2m LiDAR DTM
Friction: 0.085 (0.025 modified for the Tyne channel)
Timestep: 0.5 sec
Duration: 26hours
Bridges: Removed
Upstream boundary: Inflow based on Rainfall Runoff hydrograph set to peak at 206 $m^3/s$
Downstream boundary: Constant stage (3.34 m AOD – 2 year extreme sea level)

The results of the 200 year flood extent are provided below. Model results indicate that maximum flood depths at the site could reach up to 0.5 m (5.4 m AOD). Adjacent to the site the A198 is raised therefore floodwaters back up slightly within the site before returning to the channel to drain from the site. It should be noted that the Tyne or Mill Lead bridge has not been modelled in detail in this assessment.




The modelling should be treated as indicative only at this stage. There are a number of limitations to the initial assessment we have undertaken but it provides an indication of the likely outcomes.

I trust the above initial assessment is sufficient for your requirements at this time.

**Callum Anderson**
Project Manager
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CALUM DUNCAN ARCHITECTS

RIBA Chartered Practice

N-045.D2.cd.04 (Rev A 27.06.18) 13 April 2018

Calum Duncan Architects are an award winning practice with considerable experience of making high quality design proposals in historic settings, including listed buildings, conservation areas and within Edinburgh's world heritage site. *Winner of The Scottish Design Award for Re-use of a Listed Building 2017.*www.calumduncan.com

## Design, Access + Flood Mitigation Statement

This document has been prepared in support of the above planning application, and is intended to outline the relevant principles behind the proposals, and provide information on the historic development and condition of the existing property.

**Location:** Tyninghame Mill, Tyninghame, East Linton, Dunbar
**Proposal:** The proposal extends the area of occupied accommodation (The Annex) within the envelope of the existing workshop/garage building.
**Case Officers previously consulted**: Neil Millar, Planning and Lesley Chapman, Listed Buildings

## Application History

Planning and Listed Building applications (17/00530/P + 17/00600/LBC) were submitted in July 2017. During the consultation process SEPA made objections on the grounds of flood risk and the application was withdrawn while flood risk assessment and mitigation strategies were developed further. Changes have been made to the design in relation to flood risk and recommendations made and summarised in this statement. Changes have been included which remain appropriate to the historic character of the existing Annex building and wider site context.

## Flood Risk Statement

There are no objections to this application except SEPA who 'do not consider that it meets with the requirements of Scottish Planning Policy' and who 'recommend that alternative locations be considered.'

We are clear that this view does not give consideration to this being an existing, and historically important building, and SEPA's view is not proportionate to the extremely limited extent of changes being proposed. The existing Annex building is to be marginally extended as a small 'granny flat,' within the existing roof area, and not extending the overall building footprint. This is not a first time conversion of a disused building but change from annex studio to annex granny flat. Where this historically significant building does not continue to be used, it will likely become unmaintained, go into disrepair and potentially lost in the long term. Taking on board the Flood Forum recommendations (see below) the site, including two residential buildings (to which this is an Annex), will be protected from flooding. **The proposals are making conditions better not worse.**

### Flood Risk Survey

Following a request from SEPA the client appointed Kaya Flood Risk Consultants who carried out modelling which established that the site is in the 1 in 200 year flood risk area but it is relevant to note:

- The building is on the very edge of the flood risk area. The 200 year flood level sits at approx. (400-500mm) above the site level. So the 200 year flood level would be approx. 175 - 275mm above the internal floor level. Therefore this does not present a health or safety risk to occupants.

- It is annex to the Mill House and Cottage within the site which are currently in residential use and from survey information received are more vulnerable than the Annex building. The ownership of the Annex will remain under the site.

- SEPA refer to a flood in 1948 which SEPA note 'virtually destroyed' the adjacent Mill building within the site. The Mill building is directly on the Lade and much closer than the Annex building for which this application relates, but the comments imply that the features (IE. iron diamond windows) would have been destroyed. The Mill building is in perfectly good order, including original listed features still present.

Mill and Cottage Buildings Presently

Historic image of the Mill Building and Cottage beyond

**Flood Forum Recommendations**
The Flood Forum Scotland has been consulted and report provided (Assessors Report 10.4.18), making recommendations for addressing flood risk concerns. Initial comments noted that **practical flood concerns were not of significant concern and there are practical methods by which mitigation can protect the building as well as the wider site.** This application includes the following recommendations to be progressed (see Design, Access, Mitigation Report for detail):

- Raising the level of glazing to front elevation
- Demountable flood barrier be fitted in two locations. This is of significant benefit as it would appear to protect all buildings on the site well above the 1 in 200 year flood level.
- Additional recommendations as detailed:

1. Install removable door Barrier to 3 external doors at all external openings that are at risk

2. Repair damaged exterior rendering, brickwork and stone courses at the lower levels.

3. Repair interior concrete floors and seal DPC or install a CDC where required, following consultation and recommendations by damp specialist to be consulted.

4. In relation to this recommendation (point 4) of the Flood Forum summary of recommendations, we note there are no air bricks and the existing and proposed construction is a concrete slab directly onto ground.

5. Install non-return valves on waste pipes from ground floor baths, basins, toilets and showers.

6. In relation to this recommendation (point 6) of the Flood Forum summary of recommendations, we note there is no ventilated solum as the existing and proposed construction is a concrete slab directly onto ground.

7. Seal all vulnerable points of water entry below and above floor level (cables, pipes, utilities and services).

## Access Statement
The access to the existing steading studio is situated on the side elevation. Two steps form the threshold, with a total rise of 225mm between the external ground level and internal floor level.

Existing Annex building

The proposed access to the studio in accordance with the Domestic Building Regulations does not make the access any worse than the existing situation. The entrance door is relocated to the main

elevation with a clear opening width of approximately 850mm (800mm is the minimum required for an accessible entrance door under Building Regulations) and an accessible threshold. An unobstructed entrance platt of at least 1.2m by 1.2m is provided at the entrance door. There is a step from the new entrance patio to the existing driveway of 210mm. In accordance with best practice changes in material are used to assist access and to distinguish thresholds, whilst remaining in keeping with the existing steading building.

**Technical Standards 4.1.10 Alteration and extension**
*Where a dwelling is altered or extended, this work should not adversely affect an existing accessible entrance.*
*Where a dwelling does not have an accessible entrance, one need not be provided to the existing dwelling, or to the extension, as this will not result in the building failing to meet the standard to a greater degree.*
*Where an accessible entrance exists, any works should ensure that the existing entrance remains accessible. If this is not possible, a new accessible entrance should be provided elsewhere into the dwelling. Such an entrance should also maintain accessibility within the dwelling, as set out in guidance to Standard 4.2.*

***Conversions** - in the case of conversions, as specified in regulation 4, the building as converted shall meet the requirements of this standard in so far as is reasonably practicable, and in no case be worse than before the conversions (regulation 12, schedule 6).*

## Roof Accessory Details

Ubink UB41 Universal Terminal for roof extract locations

Black 130mm dia. Rain cap and twin wall flue pipe to flue location for stove

NOTES

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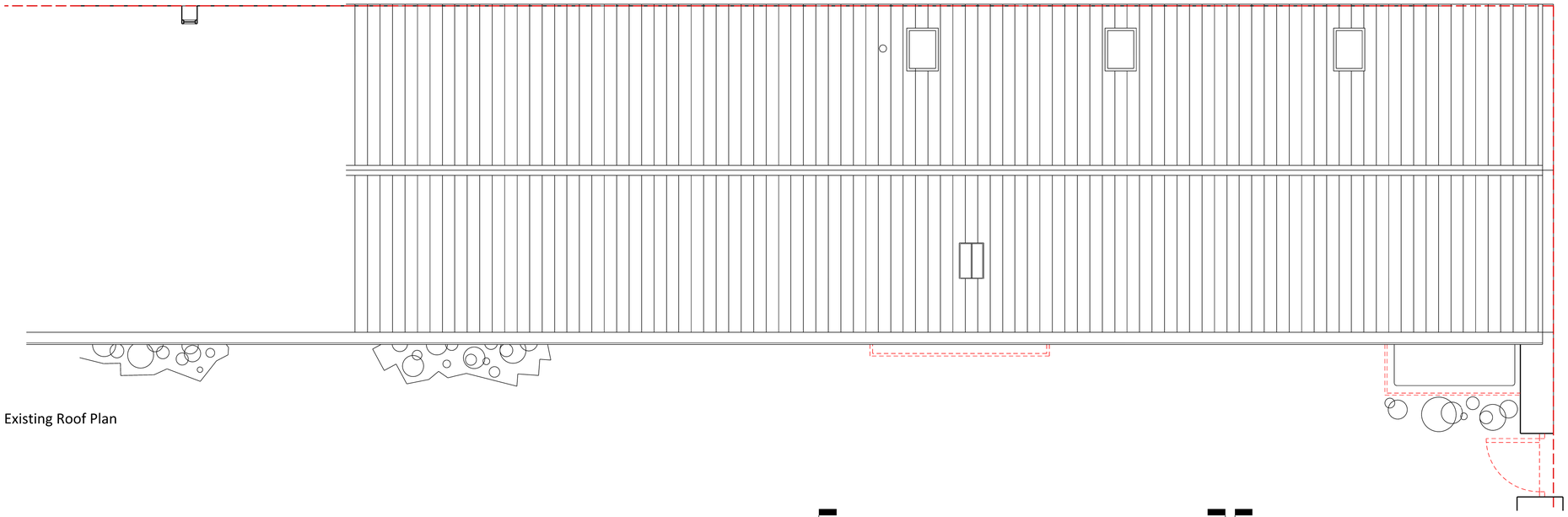
2 All dimensions to be checked on site: notify the architect immediately of any discrepancies from dimensions noted on the drawings



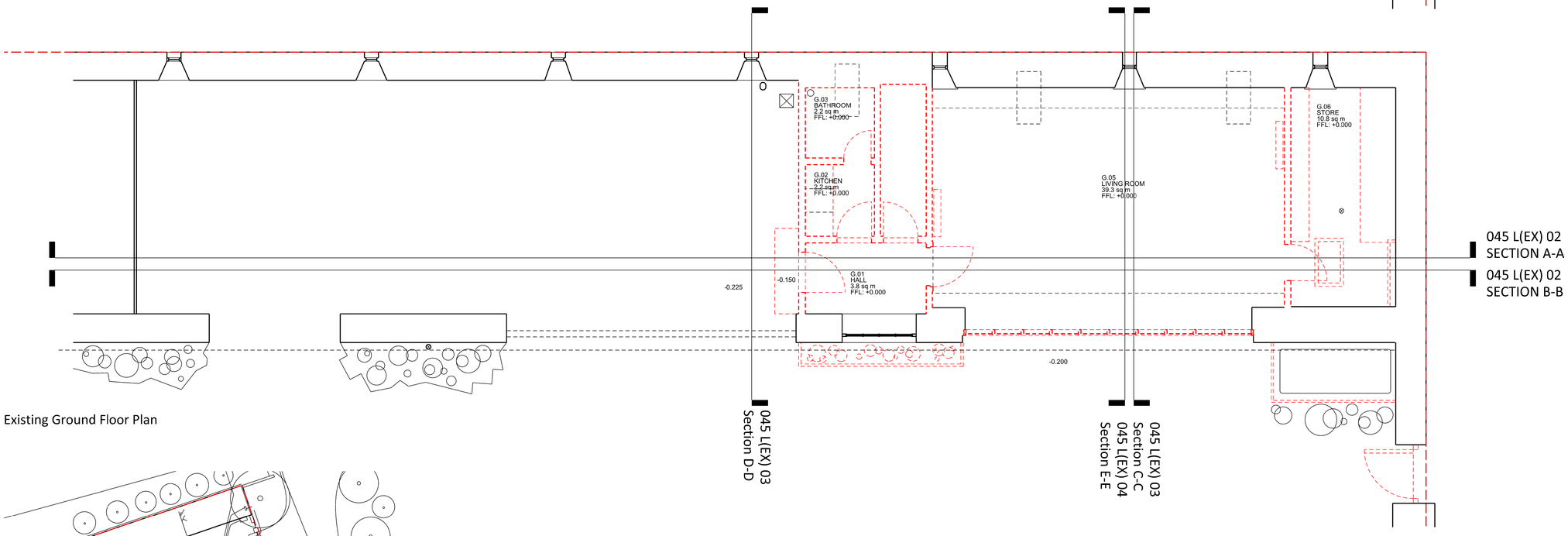
4 The issue of this drawing in cad DWG file format does not constitute a formal issue of our drawing

Key

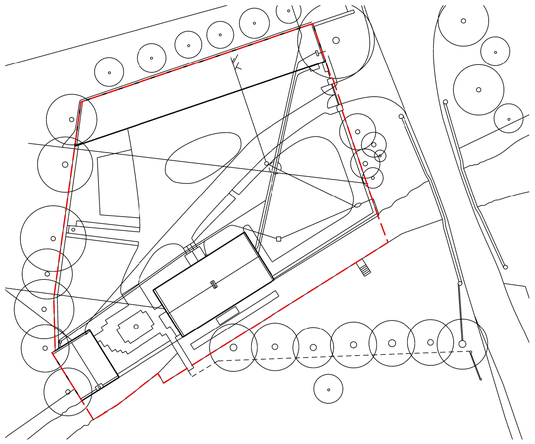
Site Boundary



Existing Roof Plan




Existing Ground Floor Plan



Existing Site Plan at 1:500

SCALE 1:500
0m 5m 10m 50m

SCALE 1:50
0m 1m 5m

N

| | | |
|---|---|---|
| C | SCALE BAR ADDED | 01.08.2017 |
| B | ROOFLIGHTS ADDED | 11.07.2017 |
| A | DOWNTAKINGS ADDED | 28.06.2017 |

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| REVISION | NOTE | DATE |
|---|---|---|
| SCALE | 1:50 @ A1 | 28.06.2017 |

Chris Gunstone & Morag Cook
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Tyninghame, EH42 1XL

EXISTING PLAN, ROOF PLAN & SITE PLAN

drawing no. 045 L(EX) 01 REV C

PLANNING

NOTES

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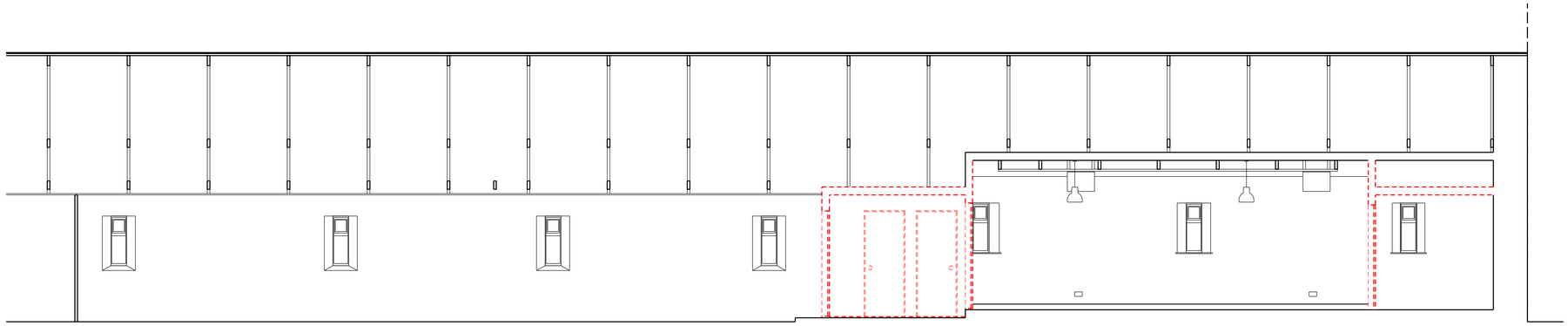
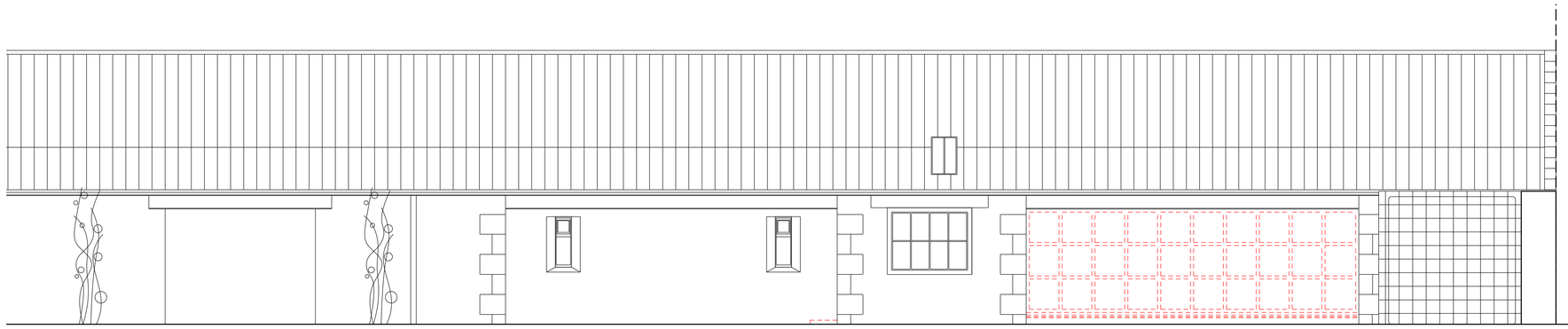
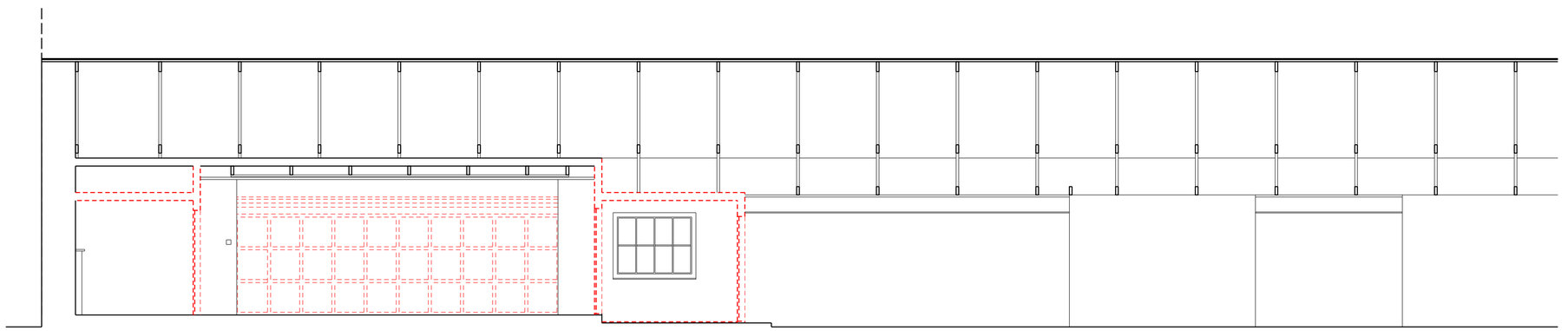
4 The issue of this drawing in cad DWG file format does not constitute a formal issue of our drawing



Existing Section A-A



Existing Front Elevation



Existing Section B-B

SCALE
0 0.5m 1m 2m 5m

| | | | |
|---|---|---|---|
| | A | DOWNTAKINGS ADDED | 28.06.2017 |
| **Calum Duncan Architects**<br>Officer's Club, The Drill Hall, 30-36 Dalmeny Street, Edinburgh, EH6 8RG<br>calum@calumduncan.com www.calumduncan.com | REVISION | NOTE | DATE |
| | SCALE | 1:50 @ A1. 1:100 @ A3 | 28.06.2017 |
| Chris Gunstone & Morag Cook<br>The Mill, Main St<br>Tyninghame, EH42 1XL | EXISTING SECTIONS A-A, B-B & FRONT ELEVATION | | |
| drawing no. 045 L(EX) 02 REV A | PLANNING | | |

NOTES

1 This drawing to be read in conjunction with all structural and services engineers drawings, and with reference to architects and engineers specification

2 All dimensions to be checked on site: notify the architect immediately of any discrepancies from dimensions noted on the drawings



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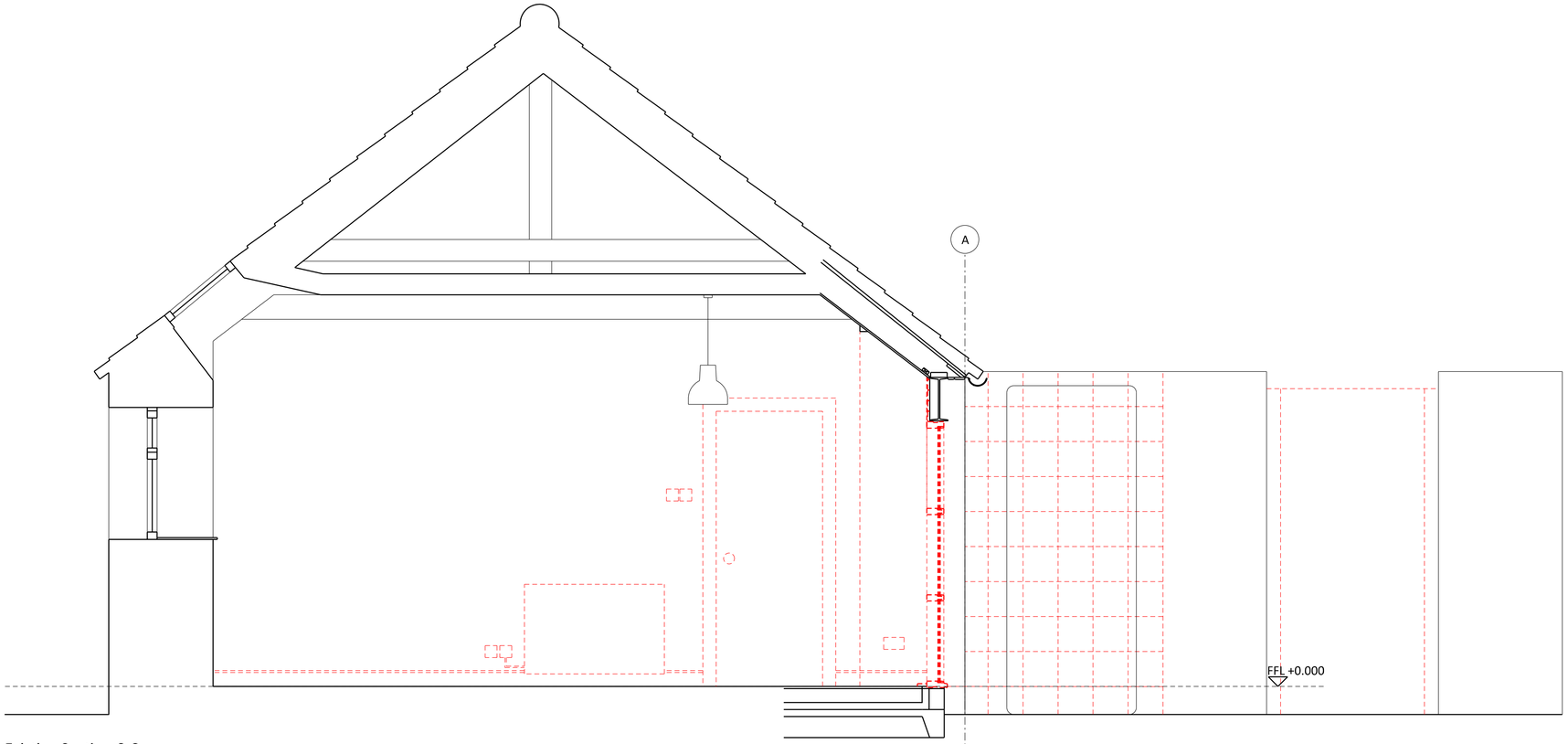
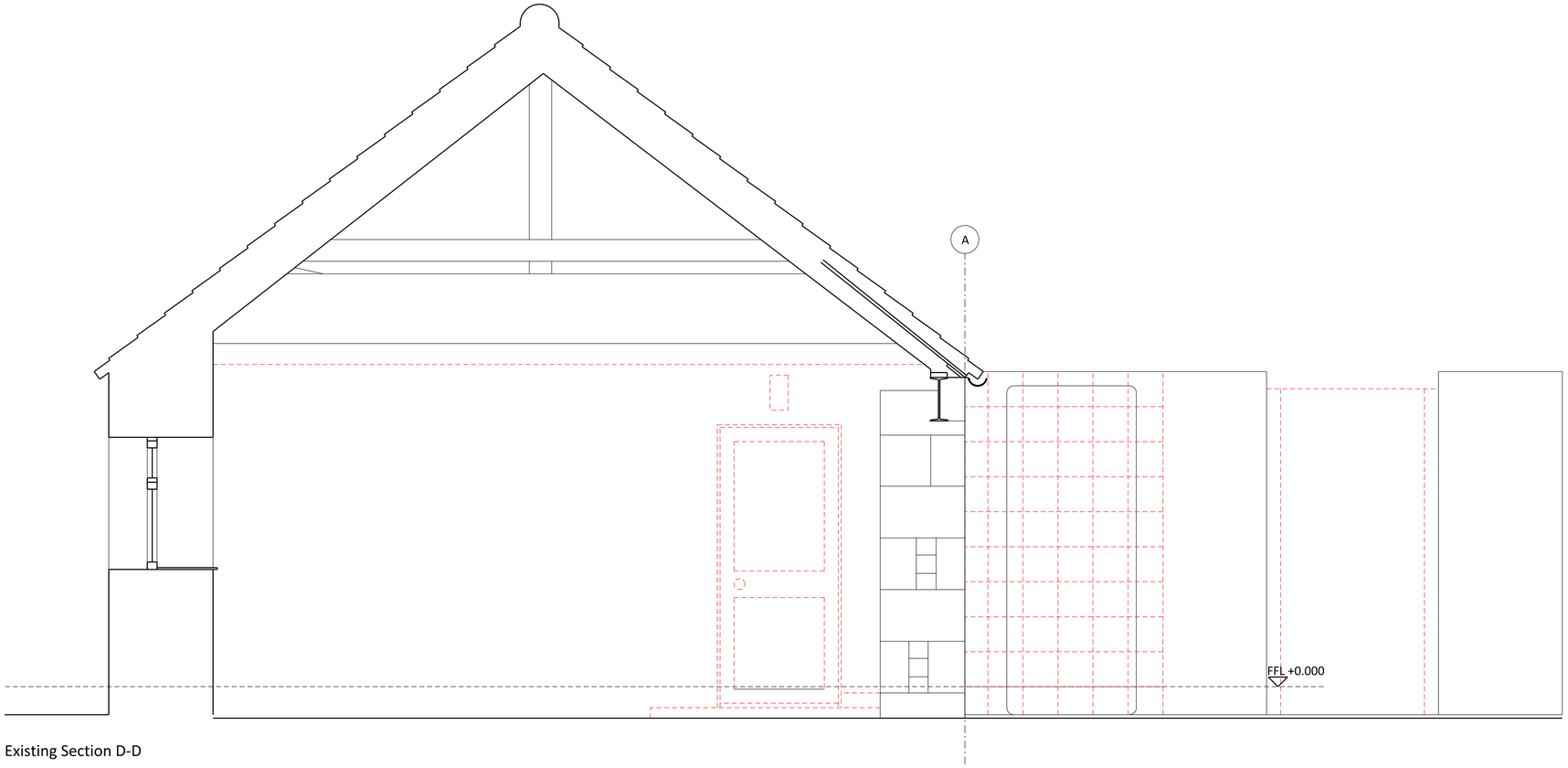



Existing Section C-C




Existing Section D-D

SCALE
0 0.25m 0.5m 1m 2m

| REVISION | NOTE | DATE |
|---|---|---|
| B | DOWNTAKINGS ADDED | 11.07.2017 |
| A | REVISED SECTION | 28.06.2017 |

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SCALE 1:20 @ A1 28.06.2017

EXISTING SECTIONS C-C & D-D

drawing no. 045 L(EX) 03 REV B

PLANNING

NOTES

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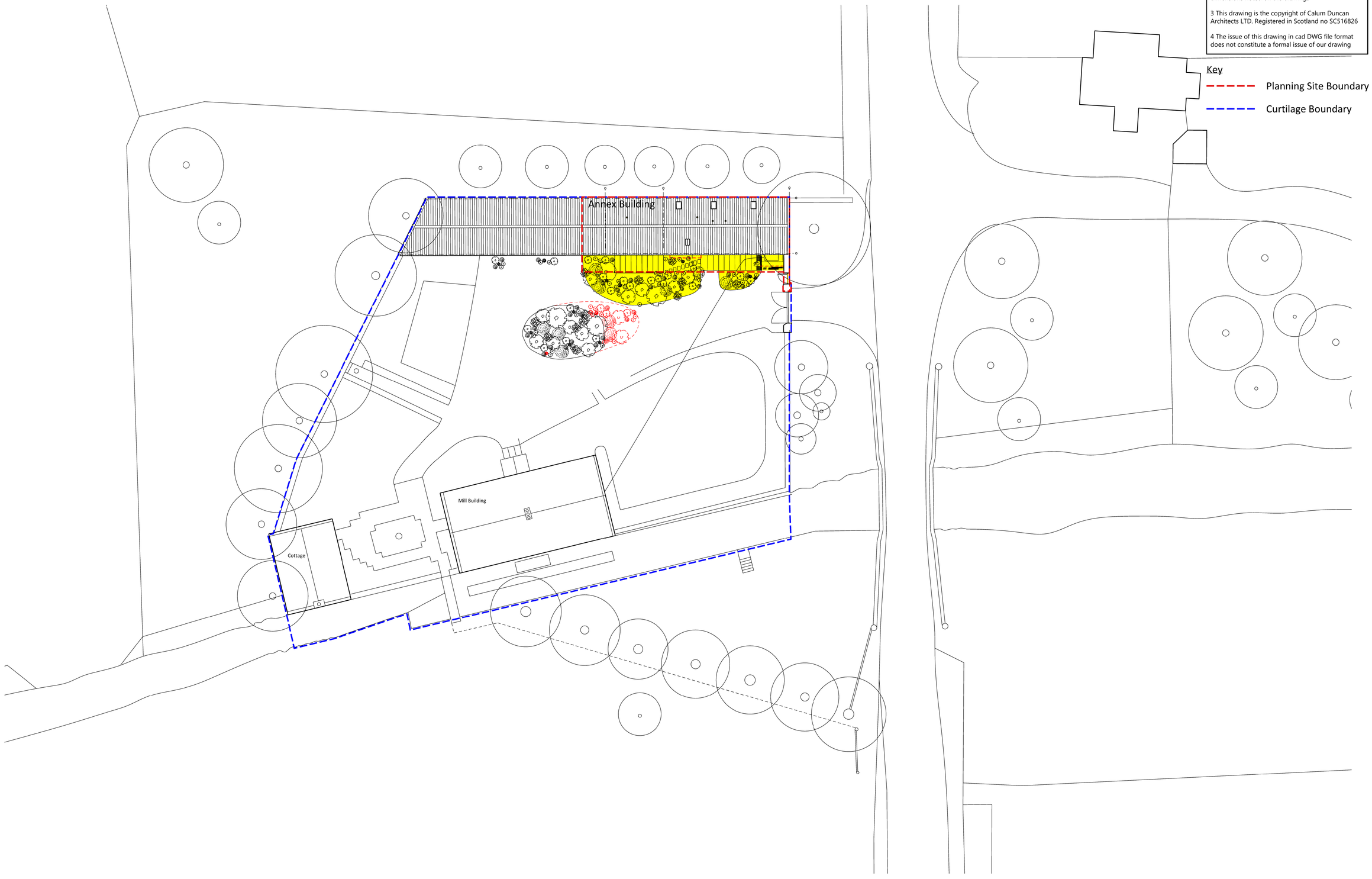
4 The issue of this drawing in cad DWG file format does not constitute a formal issue of our drawing

Key

Planning Site Boundary

Curtilage Boundary




SITE PLAN
1:200 @ A1

SCALE 1:200
0m 2m 4m 20m

N

| REVISION | NOTE | DATE |
|---|---|---|
| C | Scale + boundary amended | 24.04.2018 |
| B | ANNOTATIONS MODIFIED | 10.07.2017 |
| A | ROTATED PLAN | 03.07.2017 |

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| SCALE | 1:200 @ A1 | 28.06.2017 |
|---|---|---|

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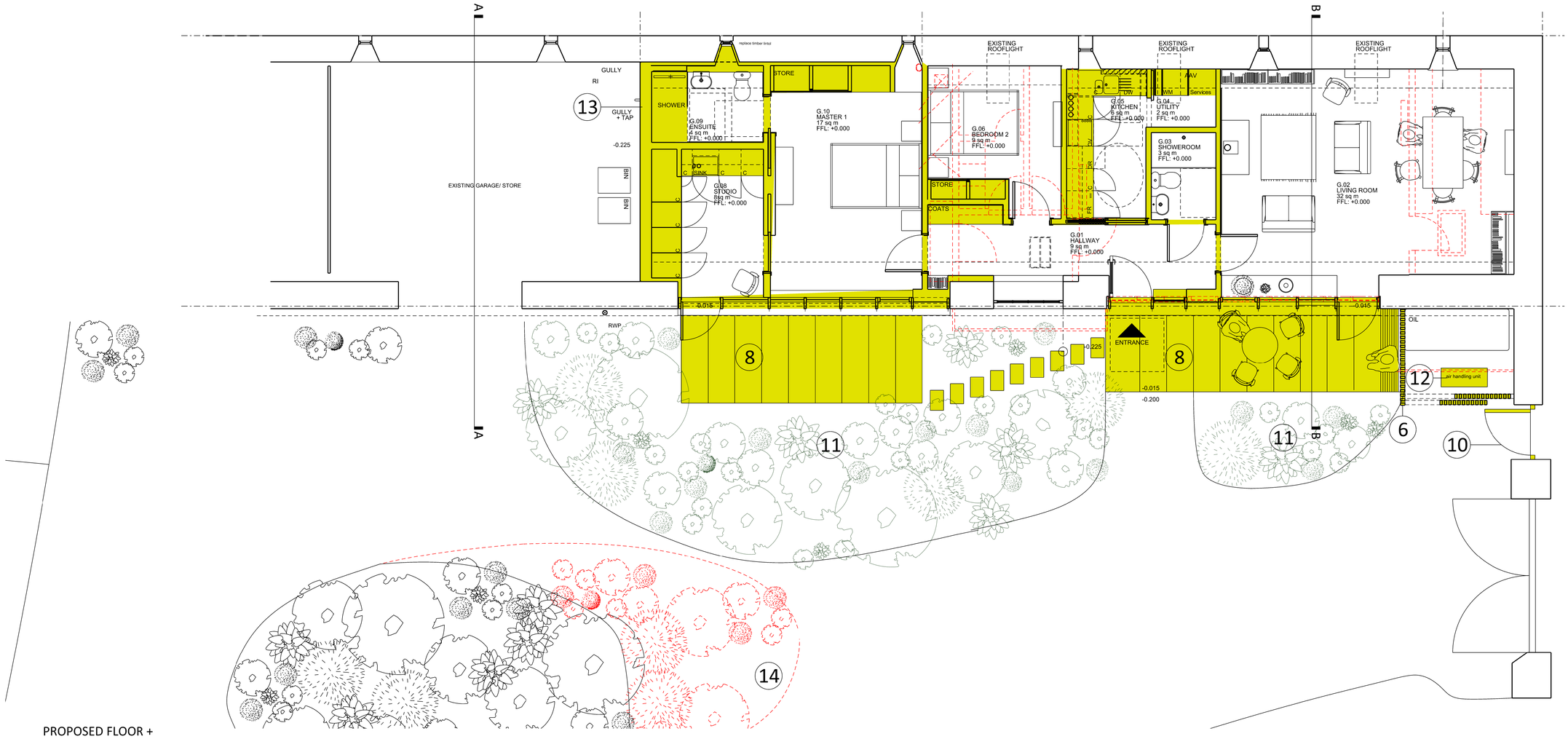
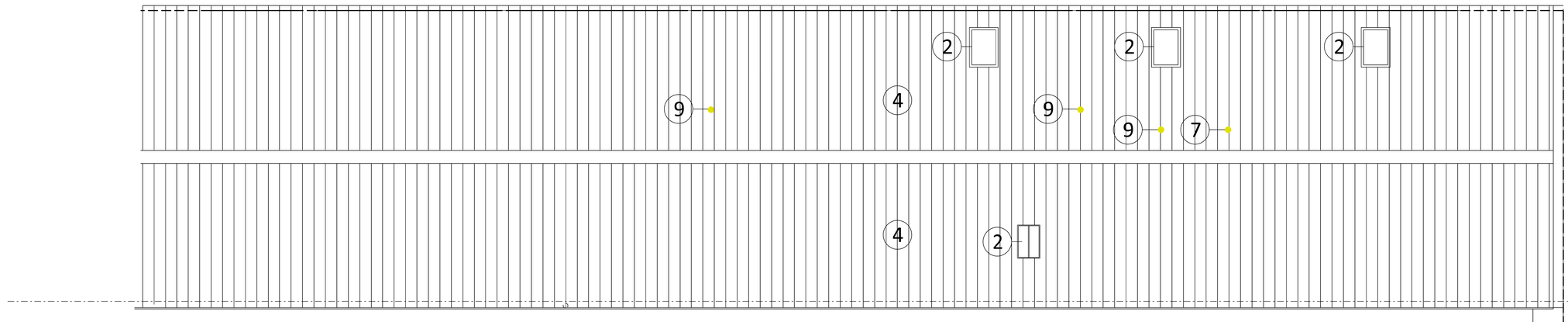
SITE PLAN

drawing no. 045 L(PL) 01 REV C

FOR PLANNING + LISTED BUILDING PURPOSES ONLY




PROPOSED FLOOR + GARDEN PLAN
1:50 @ A1




ROOF PLAN
1:50 @ A1

NOTES

1 This drawing to be read in conjunction with all structural and services engineers drawings, and with reference to architects and engineers specification

2 All dimensions to be checked on site: notify the architect immediately of any discrepancies from dimensions noted on the drawings

3 This drawing is the copyright of Calum Duncan Architects LTD. Registered in Scotland no SC516826

4 The issue of this drawing in cad DWG file format does not constitute a formal issue of our drawing

## Materials Key

1. Existing timber window
2. Existing rooflight
3. Existing stonework
4. Existing Pantiles
5. Stained or untreated timber windows
6. Stained or untreated timber screen to existing oil container
7. New stianless steel chimney flue to woodburning stove
8. Raised stone or timber patio
9. New kitchen mechancial ventilation outlet
10. Existing gate replaced with new timber gate
11. Area of new planting
12. Location of new air handling unit for domestic air source heating system
13. New external wall with timber cladding external finish (Siberian timber larch)
14. New gravel surface to match adjacent existing gravel

Downtakings

New works

N

SCALE 1:50
0m 1m 5m

| | | |
|---|---|---|
| D | New works tone amended | 24.04.2018 |
| C | Adjusted for raised glazing | 12.04.2018 |
| B | Annotation added | 10.07.2017 |
| A | Labelling updated | 28.06.2017 |

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| REVISION | NOTE | DATE |
|---|---|---|
| SCALE | 1:50 @ A1 | 28.06.2017 |

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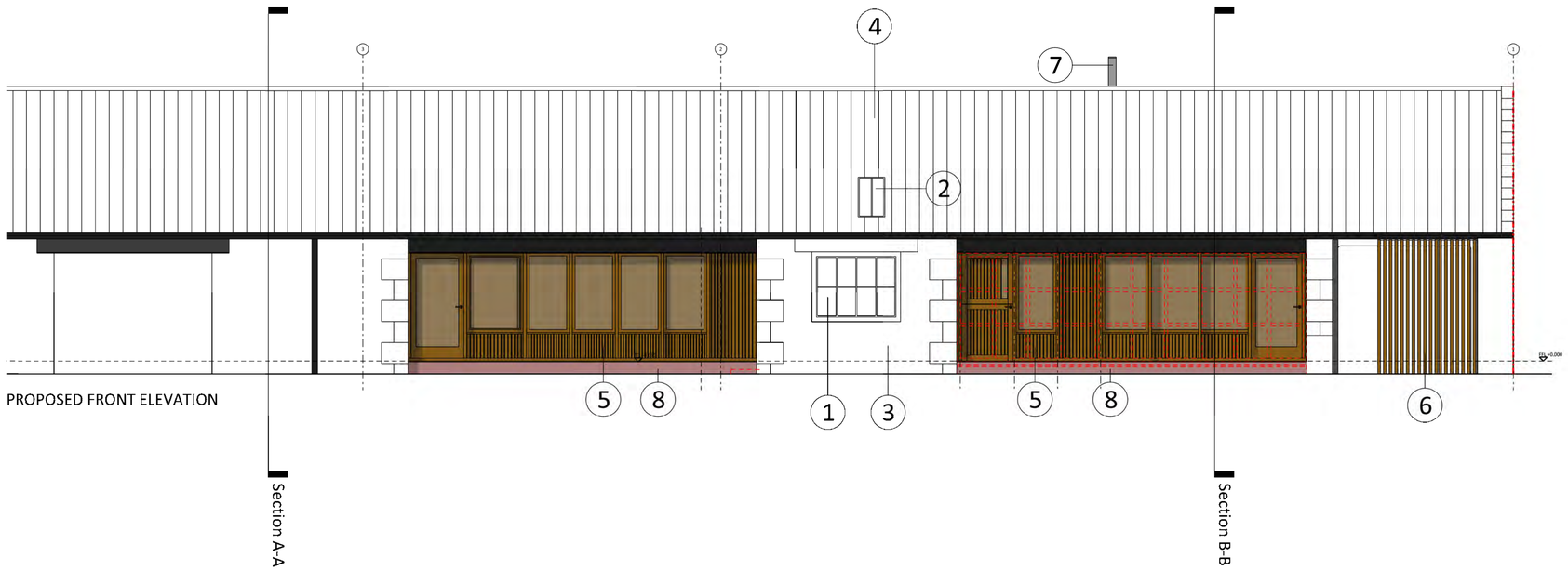
PROPOSAL PLAN + ROOF PLAN

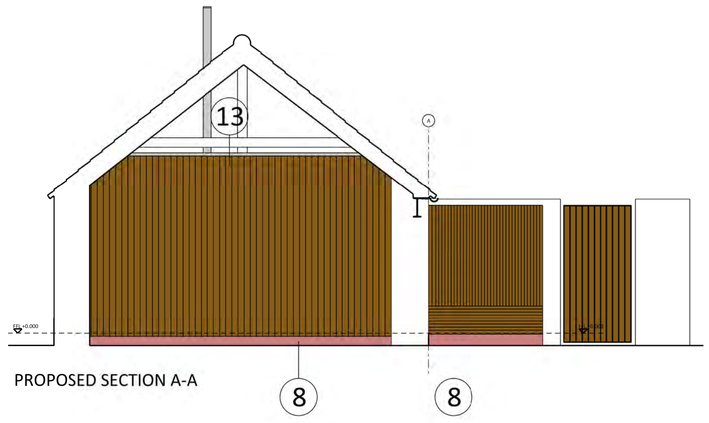
drawing no. 045 L(PL) 02 REV D

FOR PLANNING + LISTED BUILDING PURPOSES ONLY

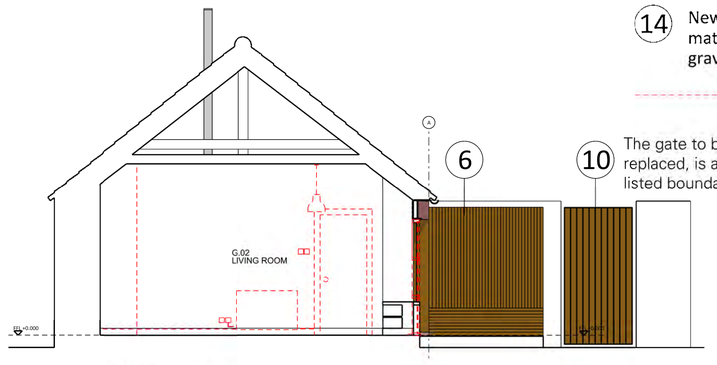



PROPOSED FRONT ELEVATION

SKETCH IMAGE




PROPOSED SECTION A-A




PROPOSED SECTION B-B

NOTES

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4 The issue of this drawing in cad DWG file format does not constitute a formal issue of our drawing

## Materials Key

1. Existing timber window
2. Existing rooflight
3. Existing stonework
4. Existing pantiles
5. Stained timber windows (24mm thick triple glazed units)
6. Stained timber screen to existing oil container
7. New stainless steel chimney flue to woodburning stove
8. Natural stone finish
9. New kitchen mechanical ventilation outlet
10. Existing gate replaced with new timber gate
11. Area of new planting
12. Location of new air handling unit for domestic air source heating system
13. New external wall with timber cladding external finish (Siberian timber larch)
14. New gravel surface to match adjacent existing gravel

Downtakings

10 The gate to be removed and replaced, is attached to the listed boundary wall.

SCALE 1:50
0m 1m 5m

| REVISION | NOTE | DATE |
|---|---|---|
| E | Notes amended - colour tone amended | 24.04.2018 |
| D | Elevation, Section and sketches updated + number changed | 07.03.2018 |
| C | Drawing Scale amended; raised deck coloured | 26.07.2017 |
| B | Section A-A Added | 11.07.2017 |
| A | Elevation Updated | 28.06.2017 |

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| | |
|---|---|
| SCALE | 1:50 @ A1 07.03.2018 |

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PROPOSAL ELEVATION, SECTIONS A-A, B-B + SKETCH

drawing no. 045 L(PL) 03 REV E

FOR PLANNING + LISTED BUILDING PURPOSES ONLY


View of existing timber gate which is to be replaced from road A198. Gate attached to boundary wall which is listed.

View of gate from within site; currently covered by vegetation. Gate attached to boundary wall which is listed.

| | | | |
|---|---|---|---|
| | | --- | --- |
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| | SCALE | NA @ A4 | 01.08.2017 |
| Chris Gunstone & Morag Cook<br>The Mill, Main St<br>Tyninghame, EH42 1XL | REFERENCE PHOTOGRAPHS | | |
| drawing no. 045 L(PL) 04 REV - | FOR PLANNING + LISTED BUILDING CONSENT PURPOSES ONLY | | |

NOTES

1 This drawing to be read in conjunction with all structural and services engineers drawings, and with reference to architects and engineers specification

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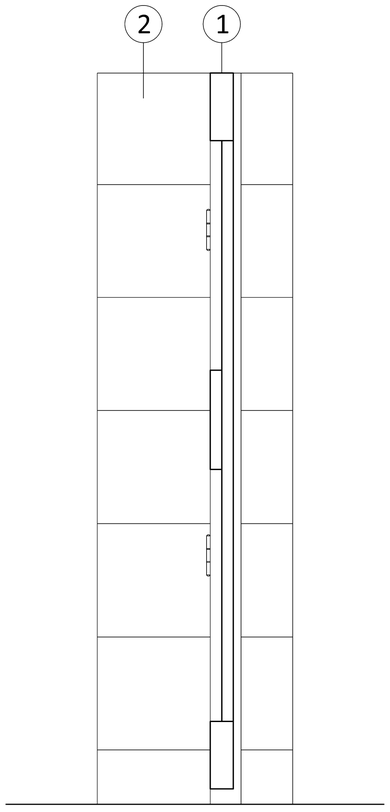
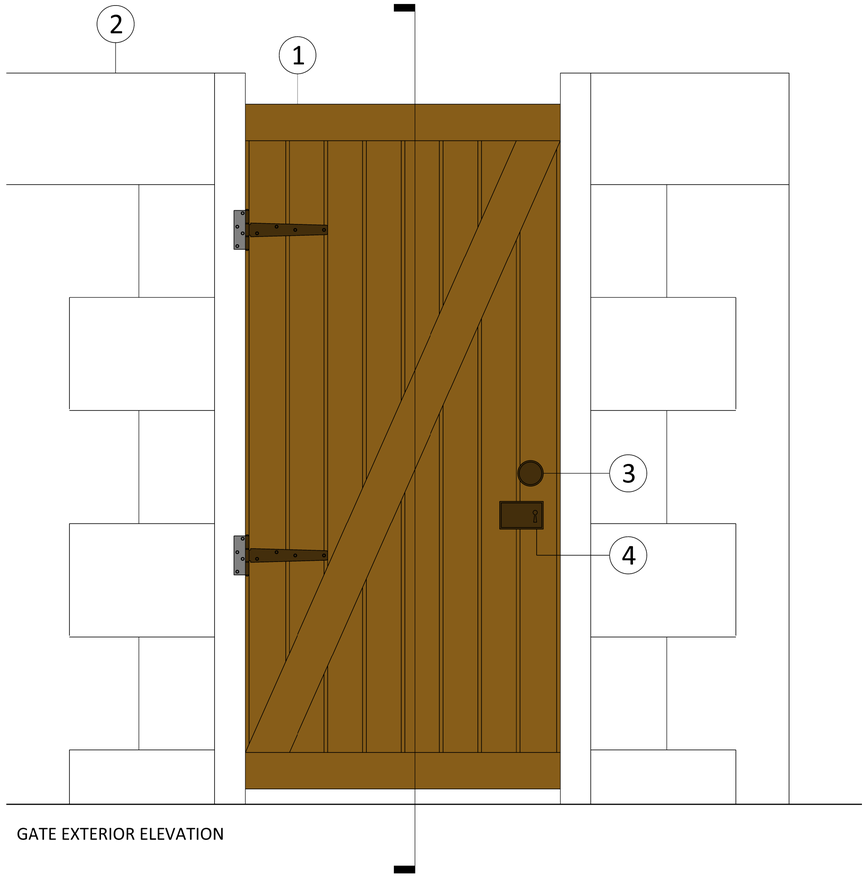
4 The issue of this drawing in cad DWG file format does not constitute a formal issue of our drawing

Materials Key

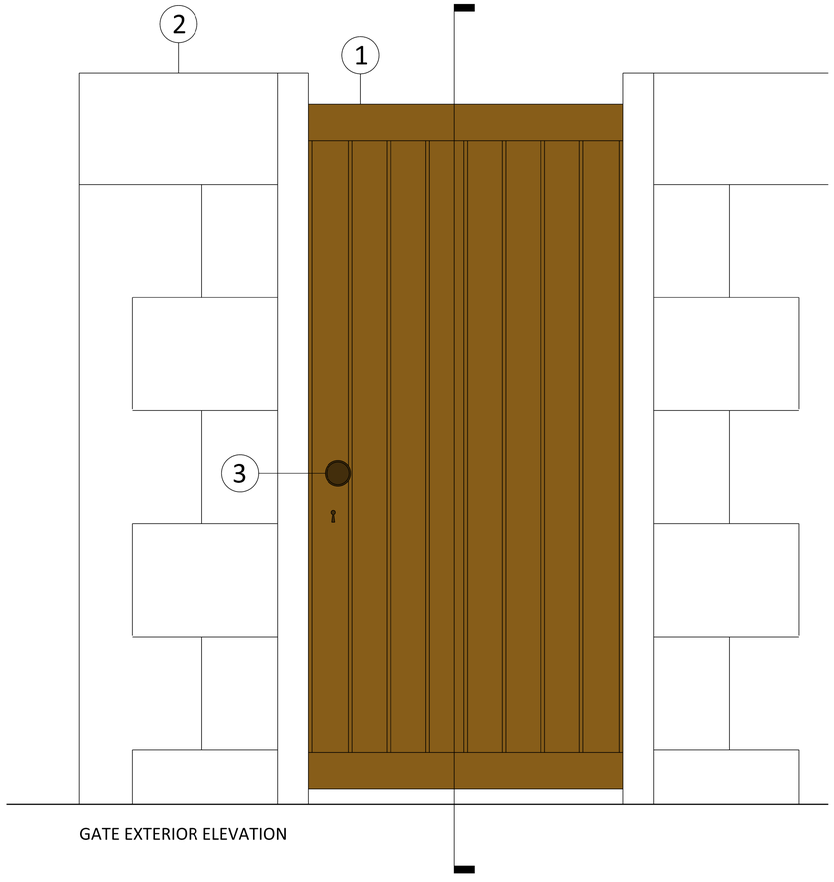
1. Hardwood oak gate replaced to match existing
2. Existing wall
3. New black painted steel handle
4. New black painted steel lock




SECTION THROUGH GATE




GATE EXTERIOR ELEVATION




GATE EXTERIOR ELEVATION

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drawing no. 045 L(PL) 05 REV

| REVISION | NOTE | DATE |
|---|---|---|
| SCALE | 1:10 @ A1 | 07.03.2018 |

GATE ELEVATIONS AND SECTION

FOR PLANNING + LISTED BUILDING PURPOSES ONLY