Rewarding Learning

Centre Number

71	

Candidate Number

General Certificate of Secondary Education
January 2015

Construction and the Built Environment

Assessment Unit 1: The Construction Industry for the 21st Century

GCB11

[GCB11]

WEDNESDAY 7 JANUARY, AFTERNOON

TIME

1 hour 30 minutes.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
Write your answers in the spaces provided in this question paper.
Answer **all eleven** questions.
Questions 1, 2, 3, 9 and 10 should be answered in relation to the enclosed house drawing and specifications previously issued as pre-release material.
You should not bring any of the material previously issued into this examination.
You will be provided with a clean copy of the pre-release material.

INFORMATION FOR CANDIDATES

The total mark for this paper is 120.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.
Quality of written communication will be assessed in Questions **8** and **10**.

A scale ruler is required.

For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
Total Marks	

Section A

Answer **all** questions

Use the pre-release material to assist with answering questions 1, 2, 3, 9 and 10.

Examiner Only	
Marks	Remark

1 **(a)** State the **external finish** used to **weatherproof** the roof shown in the pre-release material.

_____ [1]

(b) What type of fascia board is specified for this dwelling?

_____ [1]

(c) List below **seven performance requirements** of doors.

1. _____ [1]
2. _____ [1]
3. _____ [1]
4. _____ [1]
5. _____ [1]
6. _____ [1]
7. _____ [1]

(d) Give the correct name for the piece of timber used to make **the top of the door frame**.

_____ [1]

(e) Give the correct name for the pieces of timber used to make **the sides of the door frame**.

_____ [1]

Examiner Only	
Marks	Remark

2 **(a)** Identify **three of the main roles** that a Quantity Surveyor would have in relation to the building shown in the pre-release material.

Quantity Surveyor

1. _____

_____

2. _____

_____

3. _____

_____ [3]

(b) Identify **three of the main roles** that the following operatives would have for the project shown in the pre-release material.

Joiner

1. _____

_____

2. _____

_____

3. _____

_____ [3]

Site Manager

1. _____

_____

2. _____

_____

3. _____

_____ [3]

Examiner Only	
Marks	Remark

3 **(a)** Using the attached pre-release material give the following dimensions in **millimetres**.

Some dimensions may need to be scaled.

(i) The length and width of the kitchen.

Length _____ Width _____ [2]

(ii) The overall width of the dwelling.

Width _____ [2]

(iii) The length and width of the hall where the dimension lines are shown.

Length _____ Width _____ [4]

(b) How many internal single doors are in the ground floor of the dwelling?

_____ [2]

(c) What is the total floor area of the wet room?

_____ square metres [4]

Examiner Only	
Marks	Remark

4 Health and Safety is an important aspect of any construction site. This is particularly true when craft operatives are using small hand tools.

(a) List **four critical checks** that should be carried out before using any power tool on site.

_____ [1]

_____ [1]

_____ [1]

_____ [1]

(b) What is the correct electrical voltage for use with hand held power tools on a construction site?

_____ [1]

(c) The Health and Safety at Work Order (NI) 1978 stipulates duties that must be carried out by both the Employer and the Employee.

(i) List **four** duties of the employer on any construction site.

1. _____ [1]

2. _____ [1]

3. _____ [1]

4. _____ [1]

(ii) List **three** duties of the employee on any construction site.

1. _____ [1]

2. _____ [1]

3. _____ [1]

5 **Fig. 1** shows the eaves detail for a timber pitched roof.

Examiner Only	
Marks	Remark

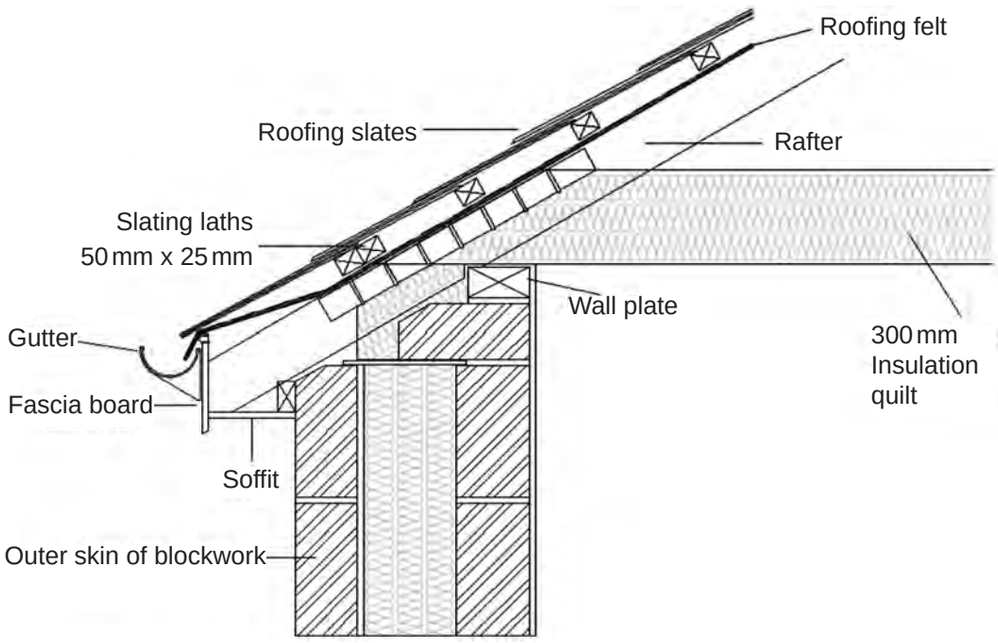


Fig. 1

State below the function of the following roof members as shown in **Fig. 1**:

1. Wall plate _____

_____ [1]

2. Gutter _____

_____ [1]

3. Roofing felt _____

_____ [1]

4. Slating laths _____

_____ [1]

5. Fascia board_____

_____ [1]

Examiner Only	
Marks	Remark

6 **(a)** List **six** different **building services** that you would normally expect to find inside a hospital.

1. _____ [1]

2. _____ [1]

3. _____ [1]

4. _____ [1]

5. _____ [1]

6. _____ [1]

(b) List **four** examples of Civil Engineering projects that can be found in most major towns or cities.

1. _____ [1]

2. _____ [1]

3. _____ [1]

4. _____ [1]

Examiner Only	
Marks	Remark

7 **(a)** List **three** of the main functions of a ground floor of a typical dwelling.

1. _____

_____

_____

2. _____

_____

_____

3. _____

_____

_____ [3]

(b) List **six** of the main functions of a wall of a typical dwelling.

1. _____ [1]

2. _____ [1]

3. _____ [1]

4. _____ [1]

5. _____ [1]

6. _____ [1]

Section B

Answer **all** questions

Examiner Only	
Marks	Remark

8 The Construction Industry has a major impact on **Society**, the **Economy** and the **Environment**.

Discuss how the location of the 2012 Olympic Games was a stimulus for a previously rundown area of London.

As part of your answer you should consider short and long term benefits.

[10]

Examiner Only	
Marks	Remark

9 **Fig. 2** below shows an incomplete head detail of a window in the rear wall of the dwelling shown in the pre-release material.

(a) Complete the drawing.

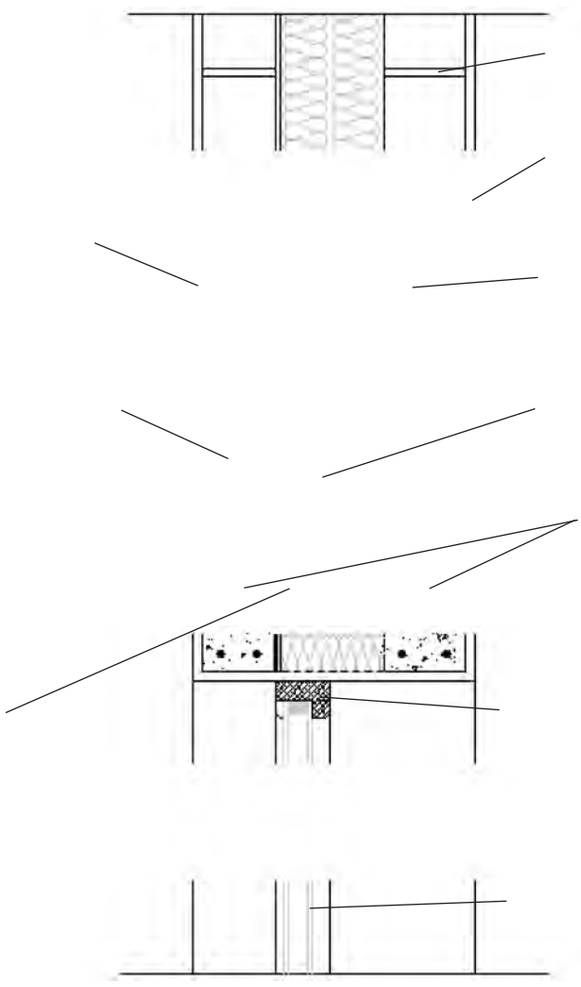


Fig. 2

[10]

(b) Add the labels from the list below.

Sand and cement render	Mortar joint
100 mm outer skin of blockwork	Internal plaster
Inner skin of blockwork	Cavity Insulation
Double glazing	D.P.C.
Concrete heads	Window frame

[10]

10 A similar dwelling to the one shown in the pre-release material has to be constructed within a **thirty week time frame** starting in November.

Discuss the advantages and disadvantages of using wet or dry finishes for the proposed dwelling, giving **at least two appropriate examples of each** as part of your answer.

[10]

Examiner Only	
Marks	Remark

Examiner Only	
Marks	Remark

11 **(a)** State how structural stability is achieved within a cellular framed structure.

_____

_____

_____

_____

_____ [2]

(b) How are the loads of the building transferred from the building to the supporting subsoil?

_____

_____

_____

_____

_____ [1]

(c) Describe **two** common methods of constructing external walls in cellular construction.

1. _____

_____

_____

_____

_____ [1]

2. _____

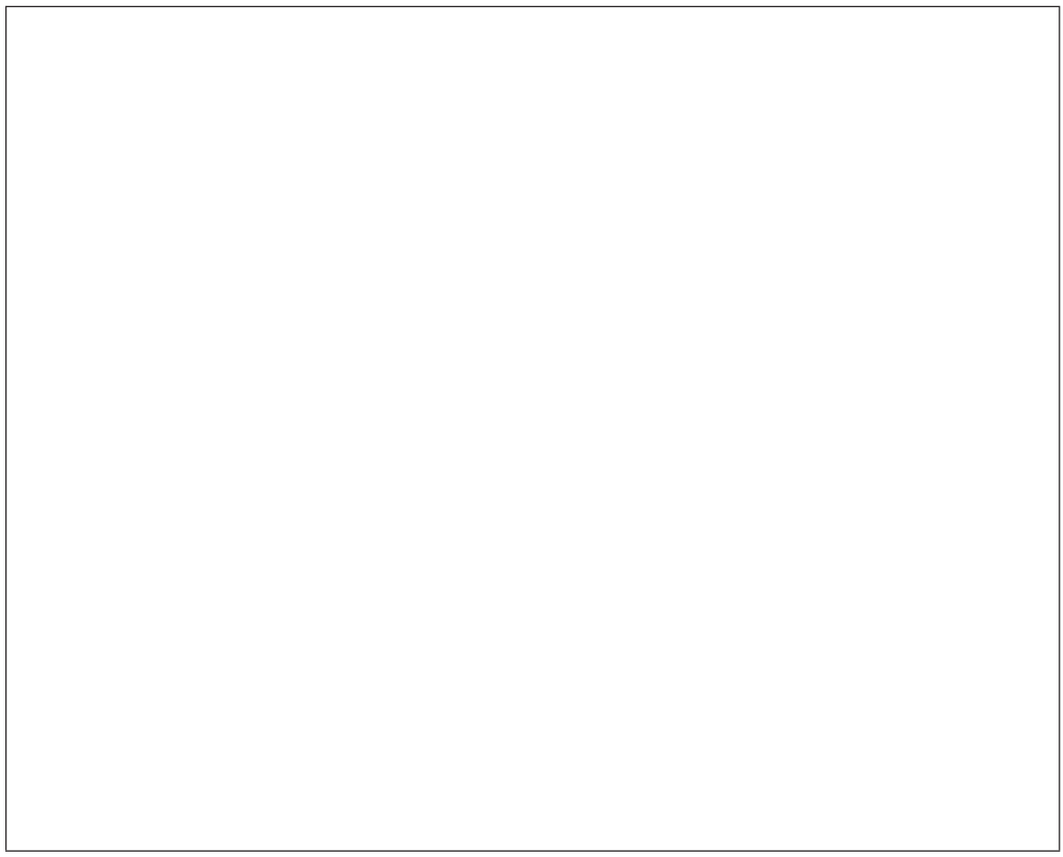
_____

_____

_____

_____ [1]

(d) In the box below make a sketch of a cellular structure with at least **three** cells.



[5]

Examiner Only	
Marks	Remark

THIS IS THE END OF THE QUESTION PAPER

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Rewarding Learning

General Certificate of Secondary Education

Construction and the Built Environment

Pre-Release Material

Assessment Unit 1: The Construction Industry for the 21st Century

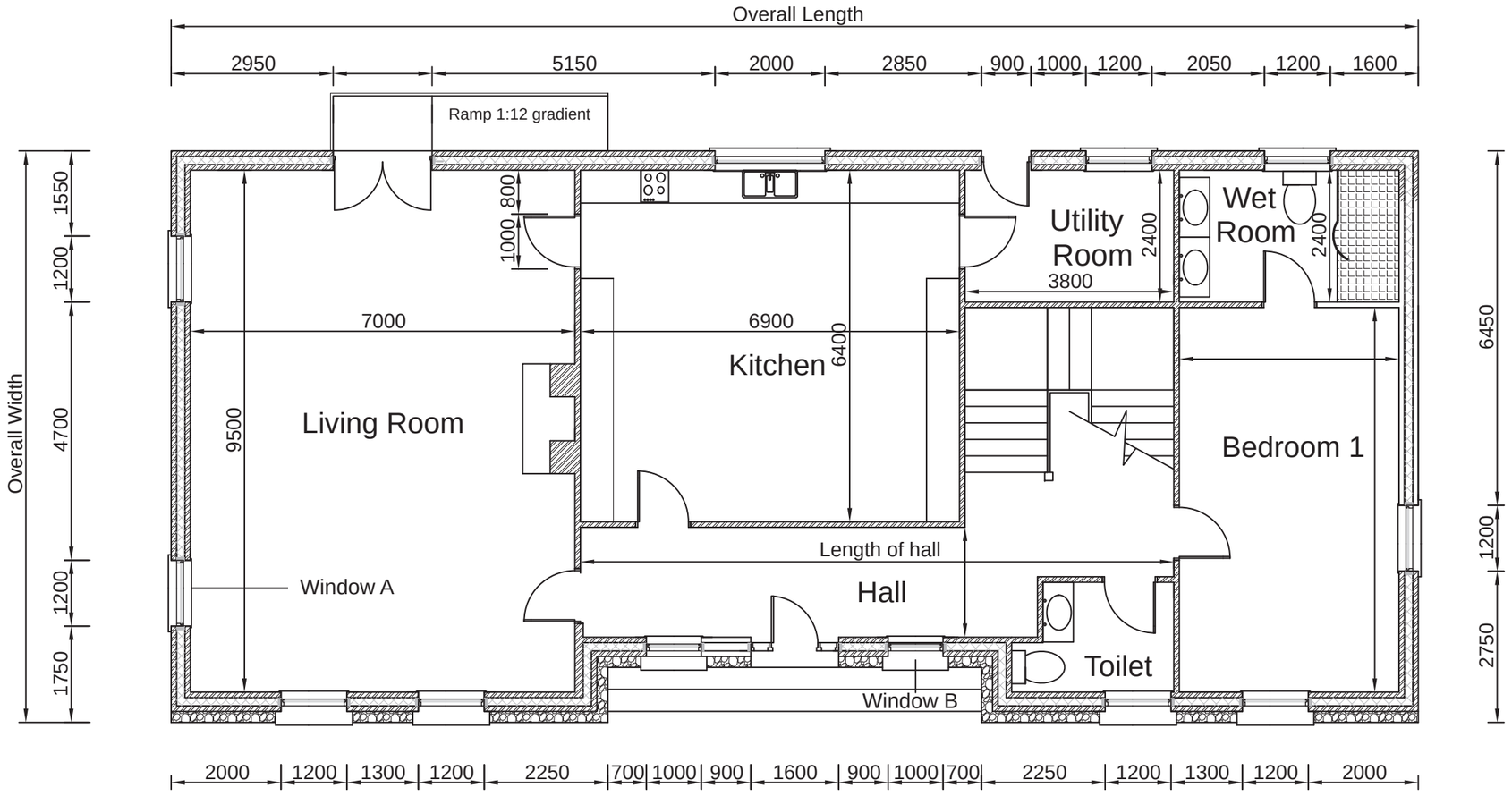
[GCB11]

GCB11

JANUARY 2015 AND SUMMER 2015

A copy of the Pre-Release Material for this examination is included in the following pages.

NOTE: Students will require the use of a scale ruler during the examination.



GCSE Construction and the Built Environment

Plan View Drawing No 1

Unit 1
Pre-Release Material
January 2015 - Summer 2015
SCALE: 1: 100

Introduction

A copy of the Pre-Release Material is included in the following pages.

The Pre-Release Material contains an A3 drawing, photographs and specifications relating to a dwelling. Photographs 1–5 relate to the floor plan included (Drawing 1). This dwelling has been constructed close to a scenic mountain range on the edge of a small village.

Photograph 1

The landowner is a private client who has employed the following people to oversee the design of his development:

Architect
Building Services Engineer
Quantity Surveyor
Contractor

The Contractor will employ the following team:

Site Engineer/Manager
Plasterers
Joiners
Electricians
Plumbers

Your client has strict planning guidelines with which he must comply, including a maximum ridge height, and external wall finishes.

Specification

Cavity Wall construction

Outer leaf: 100 mm concrete block, 150 mm cavity, 150 mm insulation held in position using stainless steel insulation retaining wall ties to BS 1243.
Inner leaf: 100 mm concrete block work. Provide sand/cement plaster and carlite finish to inner face. Wall ties to be spaced at 750 mm horizontally, 450 mm vertically and un-bonded jambs ties to be spaced 300 mm vertically. 25 mm insulation to all jambs, between lintels and behind sill. D.P.C. in front of insulation in each case.

External Finishes walls

The front elevation is to be faced with a 200 mm skin of natural stone sourced from the local area, in keeping with surrounding rock types.

Remaining external walls to be wet dash, painted white.

External finishes roofs

Natural slate in standard sizes.
Dark brown plastic fascia board.
Dark brown 100 mm half round gutter.

Photograph 2

Window

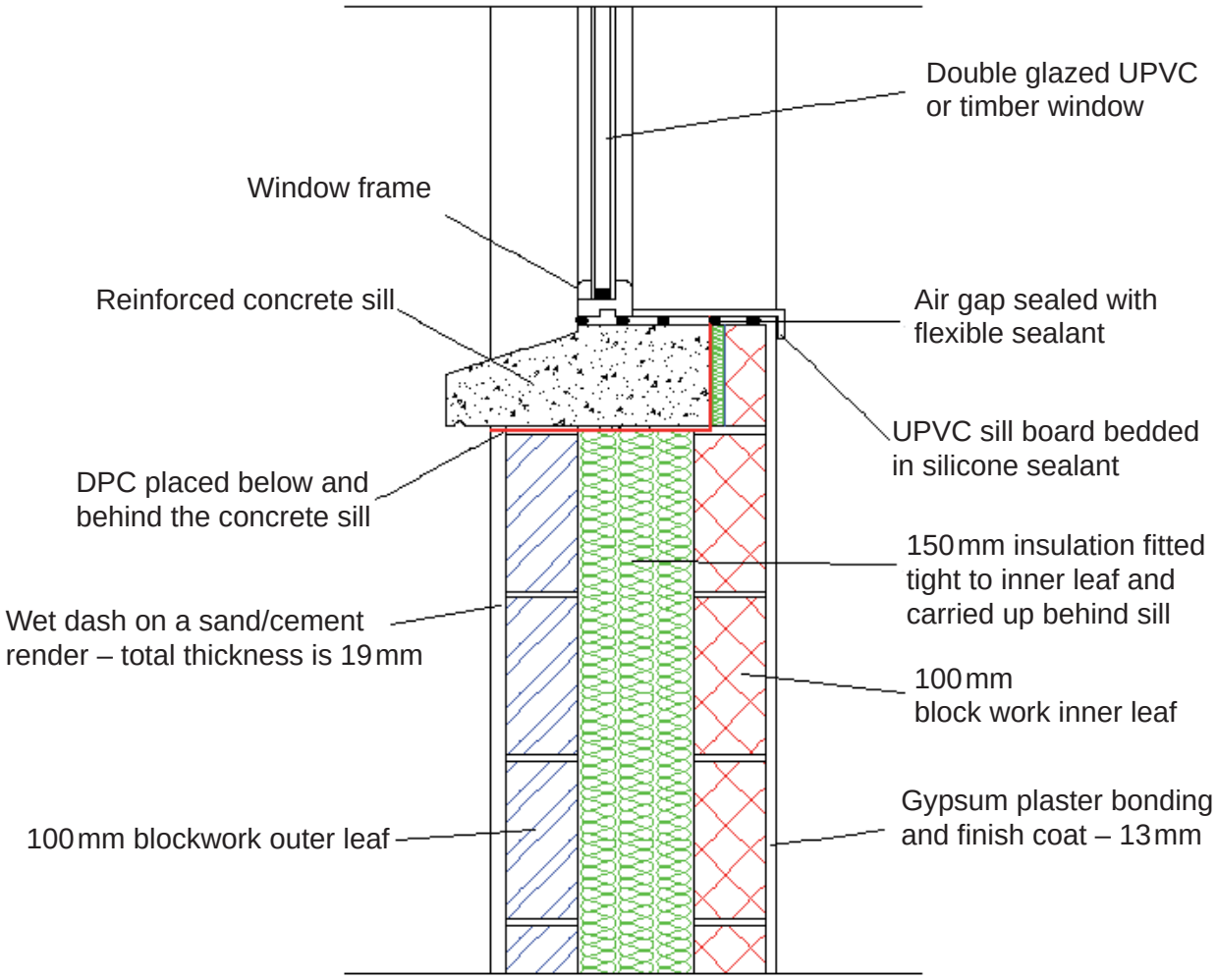
Dark brown plastic windows.
Dormer window structure sheeted with white plastic cladding.

Photograph 3

Solid floor construction

Seal all floors with two coats of penetrating liquid dust proofer, 100 mm fine aggregate screed, 100 mm high density floor insulation. Visqueen 1200 grade D.P.M., 100 mm concrete sub-floor, 150 mm consolidated hard core.

Sill Detail for Living Room window A



Damp proof course
Vertical D.P.C.'s to all window and external door jambs, horizontal D.P.C. behind and under sills and stepped lintels. Wall D.P.C.'s to external skin, layers at 150 mm minimum above finished ground levels.
D.P.C.'s to internal walls to overlap and be bonded to floor D.P.M. by a minimum of 215 mm.

Foundations
600 mm x 300 mm foundations to 300 mm walls.
450 mm x 300 mm foundations to 100 mm walls.
The above to be concrete strip foundations. The size and depth of foundations shown to be determined and agreed with Building Control when sub/soil bearing pressures are known.
Cavity fill to external walls to stop a minimum of 150 mm below D.P.C.

Photograph of a window as constructed on site for the external elevation

Photograph 4

Photograph of Window B as constructed on site for the internal elevation

Photograph 5

Photograph 6

Dry stone wall used to construct the boundary fence around the garden.

Excavation to reduce levels in preparation for construction of the dwelling.

Photograph 7