

GCE AS/A LEVEL



WJEC GCE AS/A level in BUILT ENVIRONMENT



EXEMPLAR SCENARIOS UNIT 4: CONSTRUCTION PRACTICES

For Teaching From September 2022

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Scenario A: New built residential estate

Development summary: 248 residential dwellings, including up to 30% affordable housing.

A. Location

The site is located adjacent to a village of around 2000 dwellings in a semi-rural location. The road that runs adjacent to the land is a B road, which brings traffic from the local town. Major roads are approximately 20 minutes away via the B road, which is a single carriageway with no pedestrian paths. The village is on the east of the B road and the new development is on the west side.

The village has a community centre and a small parade of shops in the middle of the village, which includes a post office and a pharmacy. There is a doctor surgery and one primary school in the village that also serves nearby villages.

A. Brief

The proposed site is a green field site that currently has access via the most southernly point of the site on to the B road. This access will be in place for the majority of the construction time. However, a new access is proposed on to the finished development from the B road further up the road.

The site has 248 residential houses, which have achieved full planning permission. They will be between three and five bedrooms, with integral or detached garages. Parking will be available for each dwelling for at least two cars.

The houses will be constructed from timber frame with a brick exterior to the lower part of the property and a timber cladding on the upper elevations. The foundations will be trench foundations with a suspended beam and block floor. Ground conditions are good with a high water table.

The construction is to be completed in phases across a 36-month schedule, with the first handover scheduled six months after work has started on site and then regular handovers every three months until completion. The first priority on site is building a sales home for demonstration purposes.



A. Maps

Scenario A: Existing site plan



Scenario A: Proposed site plan



Scenario B: Rear extension to a mid-terrace house

Development summary: A single-storey rear extension to a dwelling house with associated structural work.

B. Location

The site is located in a busy market town within the central area. The only access to the street is via a one-way system. The street itself is narrow, with car parking likely preventing very large vehicles through.

B. Brief

The proposed development is to the rear of the property. Access is available either through the dwelling or the rear gate in the garden, which is accessible from the road that runs adjacent to the property.

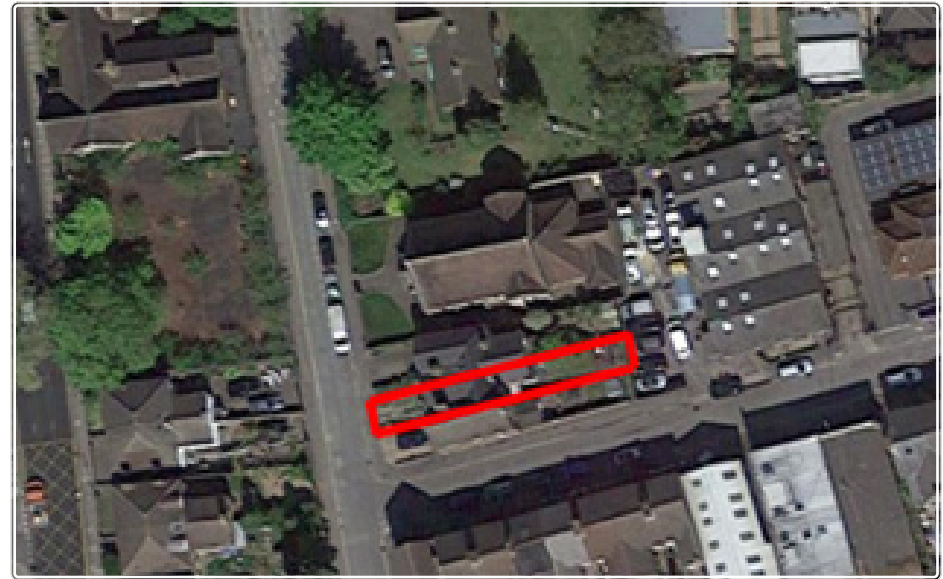
The extension is to create a large family room at the rear of the property. There will be two steel beams that need to support the upper storeys and associated foundation work. The back of the extension will have a large bifold door that opens into the garden. The ground conditions are very good and a ground bearing floor slab can be used. The roof to the extension should be pitched with adequate rainwater drainage installed. Currently, rainwater from the rear of the property goes into public sewers, however this will need be ceased following a planning condition.

There will be no access to facilities within the house throughout the duration of the construction project.

There is a small driveway to the front of the property that can be used, however it is currently in poor condition and not flat.



B. Maps



Scenario C: An infill extension to a hospital

Development summary: An infill extension at a small rural hospital with access via a small car park.

C. Location

The site is located in a rural area, surrounded by woodlands, close to a medium town and with good links to major roads. Although the site is rural, the road access for the hospital is from a roundabout, which serves the main A road for the area. This provides good access to the town.

The hospital is for geriatric out-patients and serves as an in-patient palliative care centre, as well as providing a base for a large community nursing team. It has one ward with 25 beds, which is served by a good-sized car park. There are no on-site facilities for the hospital, such as shops or restaurants.

C. Brief

The proposed extension is for extending the existing kitchen to include a greater storage area so that food for the patients can be cooked on site, as well as providing a small selection of food available for visitors. The extension is to be built between two parts of the building, as shown by the blue rectangle on the maps.

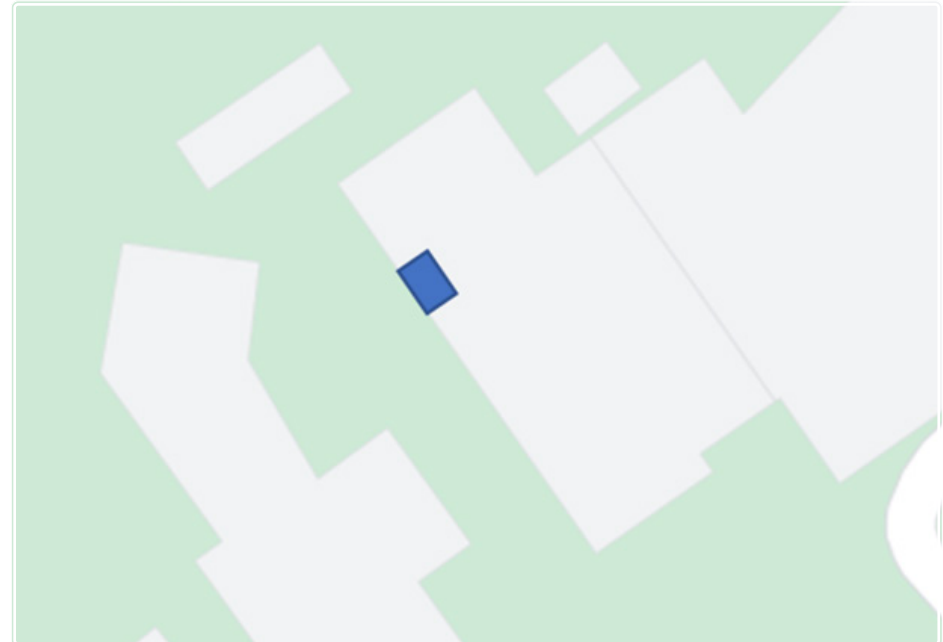
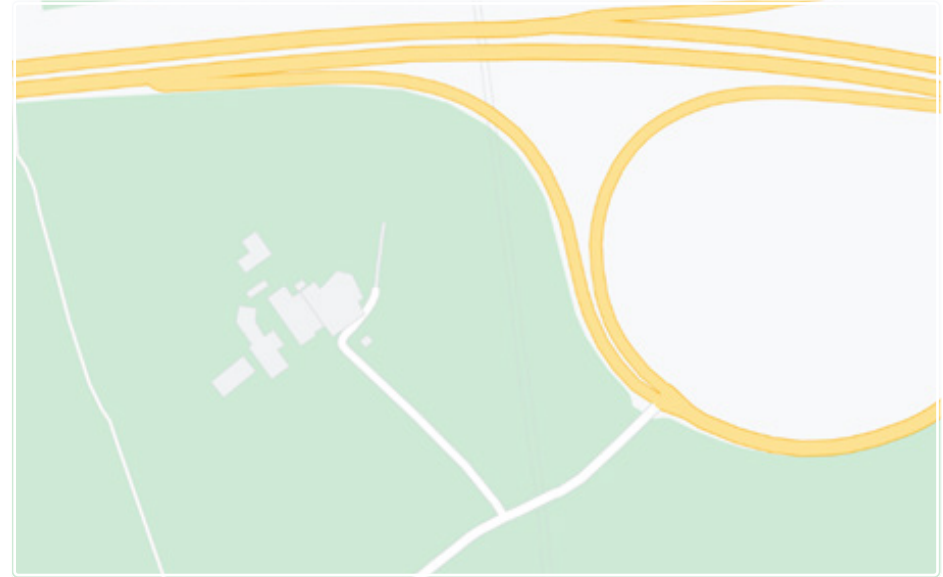
The ground conditions are poor, and it is likely that piled foundation will be necessary. A suspended floor will need to be used with a brick cavity wall, in keeping with the appearance of the Edwardian construction of the original hospital. Under the proposed extension is existing services, such as electricity and water mains, this must not be disturbed during construction.

As the hospital will be in full operation during the construction time, it is a requirement that noise be kept to a minimum. There is also a requirement for a restriction on dust on-site. The construction is expected to last 20 weeks.

Access to the construction area is through the main hospital entrance driveway and through the car park to a small access road behind the hospital, which leads to the area for development.



C. Maps



Scenario D: A four-storey office building in a city centre

Development summary: A four-storey office building in a city centre with a small parking area.

D. Location

The site is in a commercial area of the city centre, with a railway station close by and a car park to the west of the site. This area has been allocated an area for regeneration to increase its attractiveness for businesses to set up their offices within a prime location, which has good transport links and offers parking for employees as well as visitors.

The city has received a large amount of investment as part of the regeneration of the area and it has recently been identified as having a growing economy, which has increased the demand from business owners for office space.

D. Brief

The proposed site is a brown field site, which has been used for vehicle storage from a previous garage that was on the site. The above-ground structures have been removed, however below-ground structures and contamination are likely. There are a number of old storage containers currently abandoned on site.

The office block has been designed to fill a large percentage of the available land, with a small, above-ground car park for visitors and a larger, below-ground car park for employees. There will be four storeys, each offering a reception area and an open-plan office space to be divided up as per the business requirements of those that rent each floor. Each floor should have kitchen and bathroom facilities available and a central staircase with a lift will serve all floors.

The property is to be a concrete frame construction with curtain wall cladding providing aspects to all sides.

The project has a deadline of 12 months.



D. Maps

