

David R Murray and Associates



**PROPOSED DEVELOPMENT AT
FROGSTON ROAD**

DRAINAGE STRATEGY

BARRATT HOMES EAST SCOTLAND
TELFORD HOUSE
3, MID NEW CULTINS
EDINBURGH
EH11 4DH

june 2014

E9876 – Frogston Road

Edinburgh

DRAINAGE STRATEGY

1) Existing Site Topography.

- Existing site is in green field condition. It has a ridge running in an east /west direction through the centre of the site with a higher hill in the centre of the ridge.
- The ground to the north of this ridge falls northwards towards Frogston Road east and to the north west to Broomhills Road.
- The ground to the south of the ridge falls southwards the Burdiehouse burn.
- An area of ground on the east side of the site falls eastwards Burdiehouse Road at the location of the proposed new road access.

2) Foul Drainage

- There are existing foul/combined sewers in three locations around the site. In Frogston Road East to the north, in Burdiehouse Road to the east and alongside the Burdiehouse Burn to the south.
- It is proposed that the foul drainage for the area to the north of the central ridge outfalls northwards to discharge into the existing combined sewer in Frogston Road East.
- It is proposed that the foul drainage for the area to the south of the central ridge outfalls southwards to discharge into the existing combined sewer alongside the Burdiehouse Burn.
- The foul drainage for a small area of the site adjacent to the proposed new road access onto Burdiehouse Road may connect to the existing combined sewer in Burdiehouse Road.
- The design of the Foul sewers will be in accordance with Sewers for Scotland 2 and it is intended that they will be adopted by Scottish Water.

3) **Surface Water Treatment**

- For a Development of this size SEPA will require that the drainage from all road and hardstanding areas receives 2 levels of treatment. It is proposed that the first level of treatment will be done in two methods...

A) In Filter trenches alongside the road in the case of the main spine road through the site.

B) By utilising permeable paving construction for a proportion of the housing roads within the site.

The second level of treatment will be done in an 'end of line' Detention Basin located on the southern boundary of the site close to the Burdiehouse Burn but set at a level which will be above the 200 year Flood Level as indicated in the Flood Risk Assessment.

- Plot Drainage from roofs and driveways will be treated 'in curtilage' by utilising permeable paving construction in the driveways or by the provision of a filter trench within each plot.

4) **Surface Water Attenuation**

- The Flood Risk Assessment indicated that the area of the site which lies to the north of the central ridge lies within the catchment area of the Stenhouse Burn. This burn, however, is some way to the north of the site and there is no obvious route for any surface water run-of to reach there, especially as there is some higher ground to the north of the site before it falls away again to the burn.
- It is therefore proposed to take all of the surface water drainage to the Burdiehouse Burn on the south boundary of the site. In order to do this the sewers will have to cross the central ridge and will therefore be slightly deeper than normal at this point. The lowest level on the ridge is on the western boundary therefore we have taken a main carrier sewer around the west boundary of the site to reach the southern boundary.
- It is proposed to utilise an 'end of line' Detention Basin on the south boundary of the site to provide attenuation sufficient to accommodate a 200 year storm event plus an allowance for climate change.
- A single Detention Basin is proposed as it will take up a smaller footprint overall than a number of smaller basins providing the same overall attenuation volume. It would also be difficult to provide detention basins in the central area of the site where the carrier sewer is deeper than normal.

- The discharge from the Detention Basin will be regulated by a Flow Control device.
The rate of discharge will be set at Green Field run-off levels and will be agreed with the City of Edinburgh Council's Flooding section.
- The design of the Detention Basin and all surface water sewers within the development will be in accordance with Sewers for Scotland 2 and it is intended that the Basin and sewers will be adopted by Scottish Water.