

Board 4: The Hydrological Catchment Area

Hydrological Catchment Area

Within the catchment area north of the town, rain falling will ultimately reach the River Cree (if not evaporated).

The catchment area north of the River Cree at the town centre is 370km².

Extreme River Flows

For the 1:200 year storm event, the estimated flow at the gauging station in Newton Stewart is 520m³/s. This is equivalent to 6,500 bathtubs a second.

The 1:200 year storm event is a common standard of protection in Scotland.

A computational model was used to estimate the maximum flow possible in the River Cree before any buildings within the town would flood. This flow has been estimated to be 195m³/s.

Future Climate Change

River flows and extreme coastal water levels will consider the potential for future climate change in the design process.

The computational river model will be used to assess the influence of estimated future climate change on the scheme design.

Catchment Management

Land use inside the catchment area can affect the speed with which water will reach the river.

Urban areas increase runoff rates because the surfaces are generally impermeable and smooth.

Other land uses within the catchment area can affect the runoff to the river. However, during the most extreme events water will flow over soil into the river at high rates.

Coastal Influence

The flood risk can be made worse by the influence of the coast.

Design of the scheme will take account of the influence of water from both hydrological catchment area and the coast.

Extreme storms will be considered for the worst case event from the river, the worst case event from the coast *and* a worst case combination of river and coast.

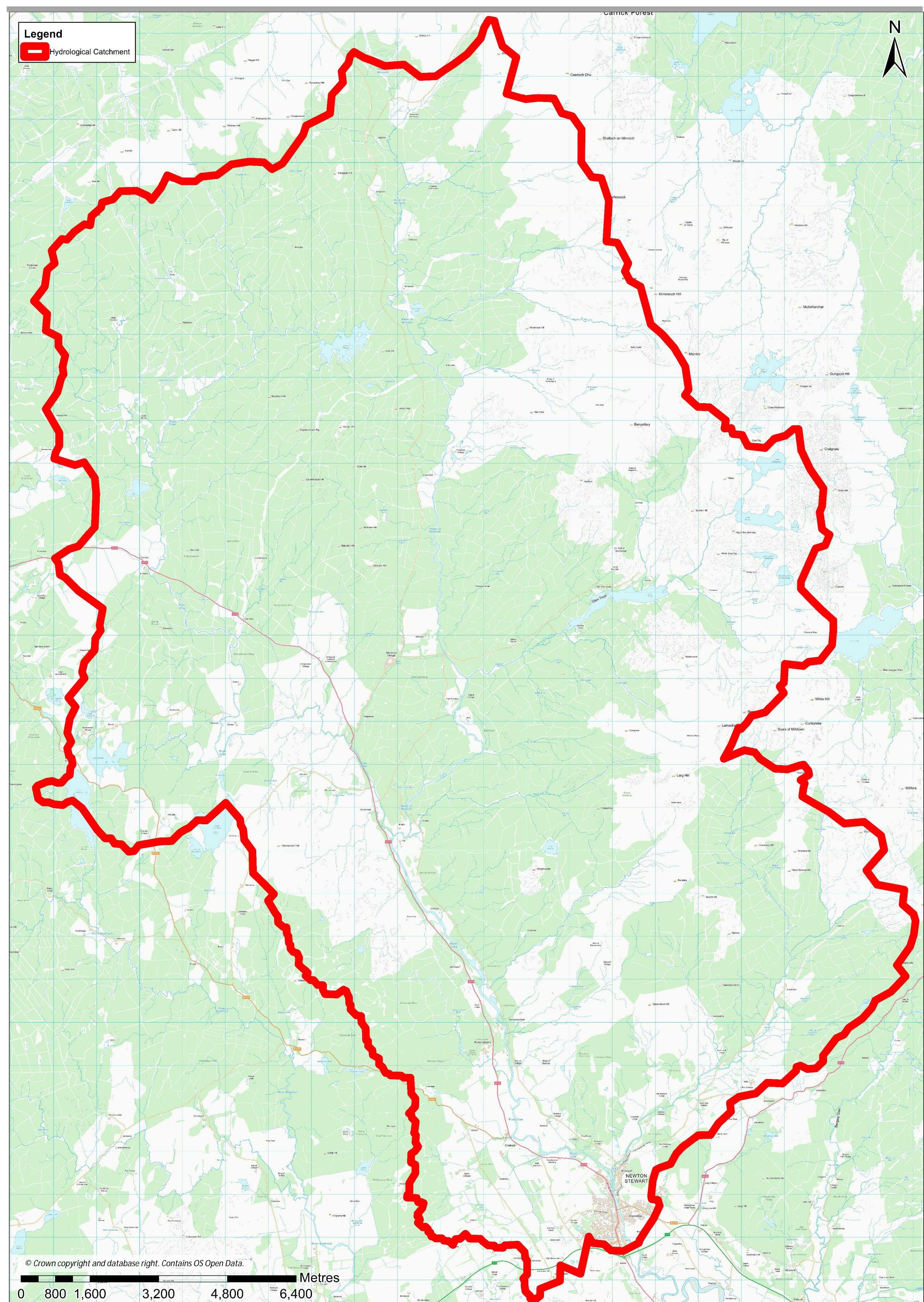


Figure 4-1: Hydrological Catchment Area