

SITE

Name: Brampford Speke

Parish: Brampford

Local Authority: East Devon

National Grid Ref: SX 930 986

OS Sheets: 1:50K, 192, 1:10K, SX99 NW

Locality Description: 2km stretch of the River Exe in the broad floodplain to the north of Exeter. The site lies immediately to the east of the village of Brampford Speke.

Nature and Status of Site: Meandering river and floodplain. It forms part of a [Site of Special Scientific Interest](#) (SSSI).

Summary of Geological / Geomorphological Interest: This part of the River Exe is important in illustrating two types of floodplain development, principally through small-scale, high frequency discharge events. The floodplain has developed through lateral meandering movement and overbank sedimentation. Detailed study has shown that discharge events producing maximum erosion have occurred approximately every 2½ years.

Safety Considerations: The Exe is wide and deep here and the site will be hazardous if flooded.

Educational Age Groups: Primary, Secondary, College/6th Form, University.

Parking and Access: This area can be reached by taking the A377 north from Exeter in the direction of Crediton and following a minor road to the village of Brampford Speke. In addition, the site can be accessed on foot via The Exe Valley Way and there is also a public footpath which leads across the site and on to Stoke Cannon. Although the land is privately owned, an existing conservation agreement provides for public access to the area shown on the plan. Alternatively, there are a number of buses which leave each day from Exeter. For timetable details, visit www.traveline.org.uk.

References

Hooke J. M. (1977). The Distribution of Changes in River Channel Patterns; The Example of Devon. In Gregory K. J. (Ed) River Channel Changes, Chichester, John Wiley.

Hooke J. M. (1980). Magnitude and Distribution of Rates of River Erosion. Earth Surface Processes and Landforms 5., 143-157.

Gregory, K. J. (ed.) 1998. Fluvial Geomorphology of Great Britain. GCR Series No., Joint Nature Conservation Committee, Peterborough, and Chapman and Hall,

Detailed Geology: Riverbank erosion is geomorphologically important as an integral part of changes in river channel course and floodplain development. This site illustrates two mechanisms of floodplain development, both caused by small-scale, high-frequency discharge events. The two mechanisms are: -

1. Lateral meander movement and channel accretion
2. Overbank sedimentation in abandoned palaeochannels.

This site has been subject to a detailed study of meander bends by Hooke (1977). The study was designed to relate the amount of riverbank erosion measured to the meteorological and hydrological conditions. Factors considered were: -

1. River discharge conditions and hydrography
2. Storm rainfall characteristics
3. Time between peak flows
4. Soil moisture conditions
5. Temperature, including frost

The measurements concluded that changes around bends tend to be gradual and consistent in time, taking place by progressive erosion and deposition rather than by catastrophic changes. This maximum river bank erosion occurred during discharge events with a recurrence interval of 2 to 5 years and not through large scale flood erosion. The other main conclusion was that the characteristics of the site are important (i.e. the magnitude of erosion is related to catchment area as a surrogate of discharge and width). The two types of riverbank erosion at the site were corrasion (influenced by river flow level) and slumping (influenced by antecedent precipitation).

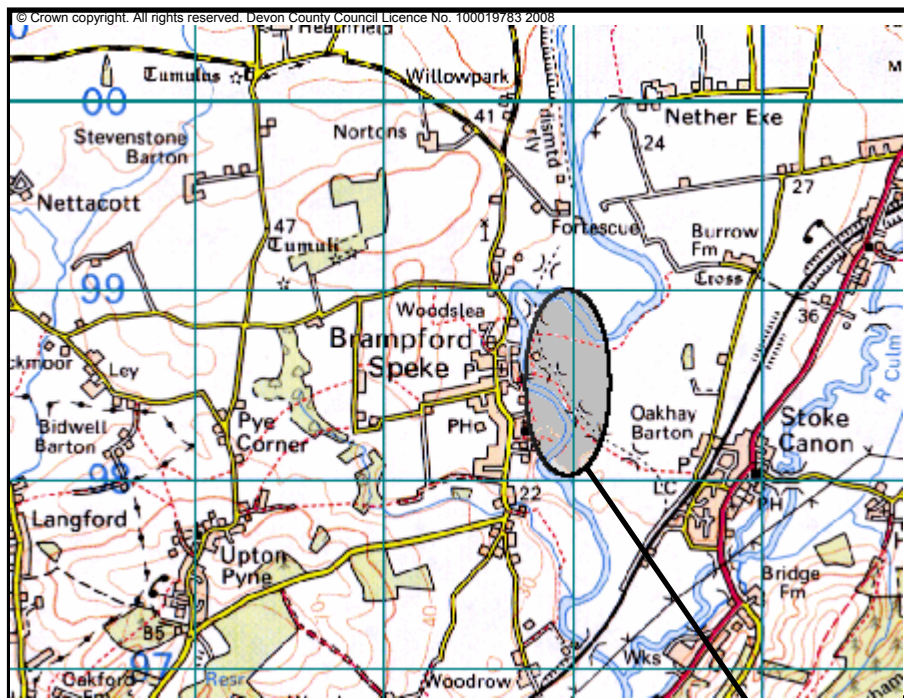
Suggested Questions

1. Draw a labelled diagram of the flood plain, detailing the geomorphological features produced by the meandering river.
2. What part of the riverbank is the most affected by river erosion and what part has most deposition? How does this relate to river meandering?

LOCATION PLAN

BRAMPFORD SPEKE, SSSI BRAMPFORD, EAST DEVON

National Grid Ref: SX 930 986



Scale 1: 40,000



Site Locality

Site in floodplain
of River Exe at
Brampford Speke

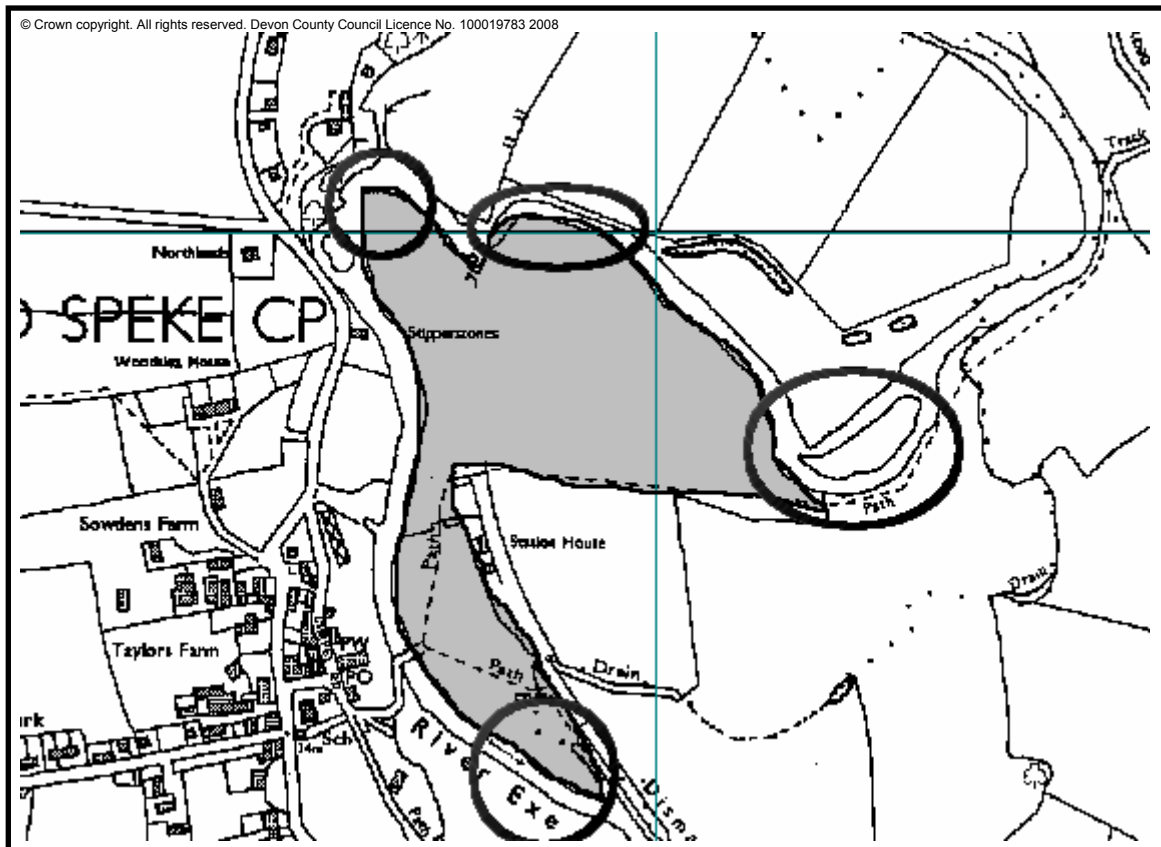
Parking and Access

- Limited parking for cars and minibuses in Brampford Speke village. Follow footpath down hill from school and cross footbridge. Open access to fields alongside river, as shown on site plan.
- Alternatively, follow public footpath from Stoke Cannon.

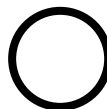
SITE PLAN

BRAMPFORD SPEKE BRAMPFORD, EAST DEVON

National Grid Ref: SX 930 986



Scale 1: 8,000



Main areas of
interest showing
river processes



Site Area

Main Points of Interest:

- Important site illustrating two types of flood plain development, principally through small-scale, high frequency discharge events.
- Two mechanisms of flood plain development are shown: lateral meander movement and channel accretion coupled with overbank sedimentation.

BRAMPFORD SPEKE

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Eroding riverbank with deposition area in front

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Abandoned meander within the floodplain. Note formally eroding, steeper right hand bank, and deposition area to the left with a more gentle slope.