



Managing Floods at Boscastle

Learning Objective:

- **Examine** the benefits of managing floods

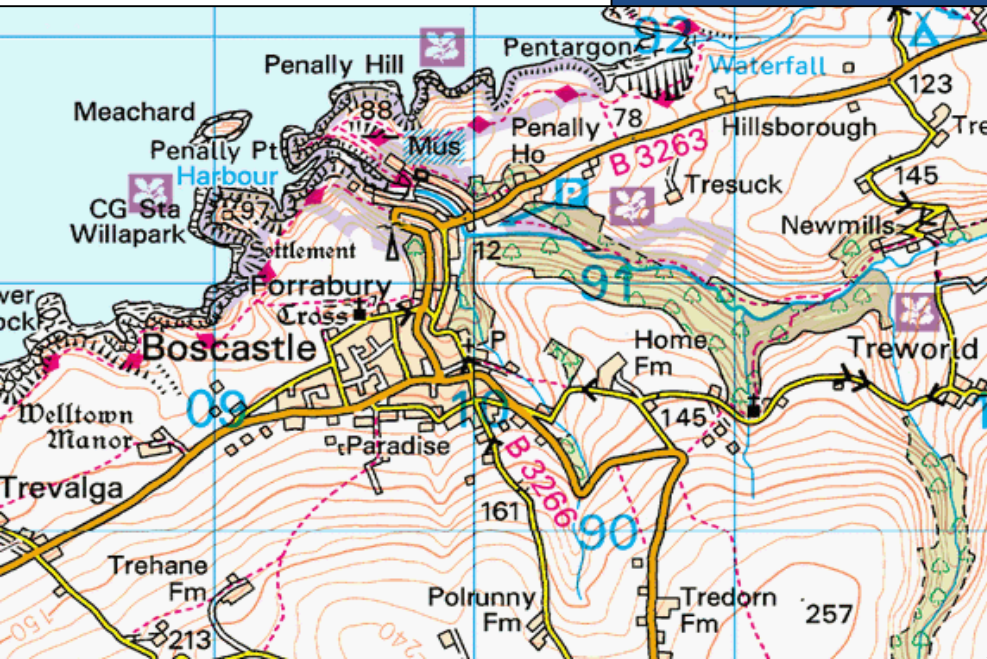


Learning Outcomes:

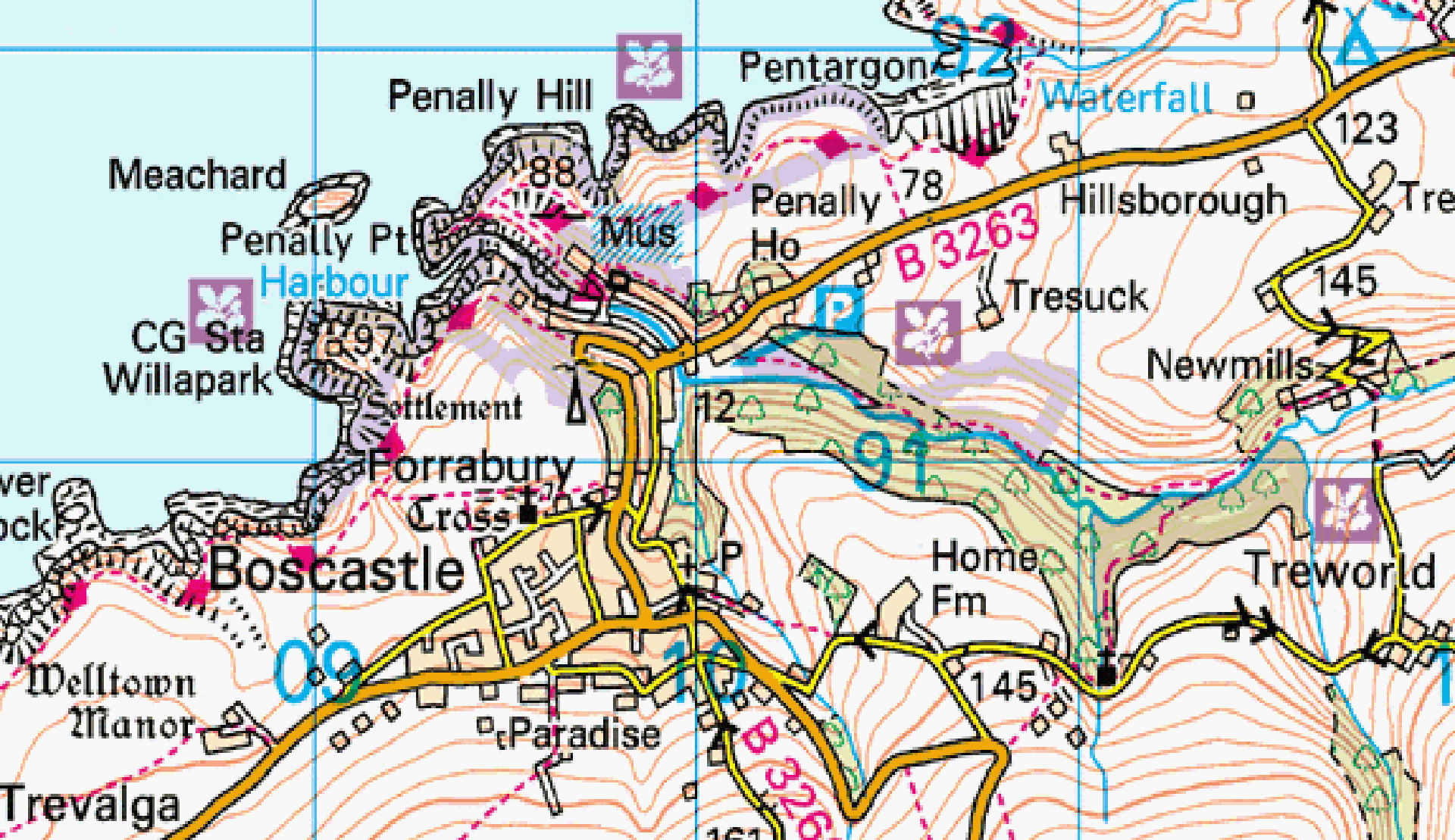
- **Describe** how Boscastle has been affected by flooding
- **Explain** strategies to reduce the risk
- **Evaluate** the social, economic and environmental costs and benefits



So where is
Boscastle?

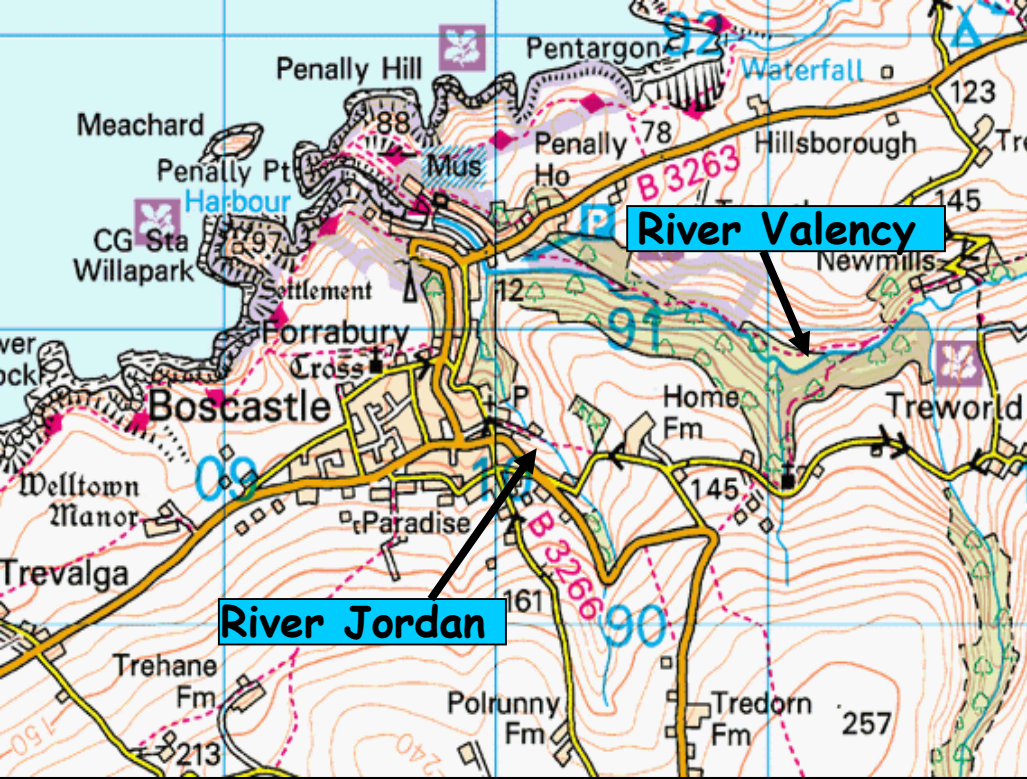


Video 1



Boscastle is located by the sea in the south-west of England, in the county of Cornwall. The land around the town is **steep** as the contour lines are close together. There are also two rivers that join together at a **confluence** in Boscastle.

Boscastle Timeline



12 noon:
Extreme rainfall
begins in North
Cornwall.

1pm: River Valency
and tributaries
begin to rise.

3pm: Visitors
cars almost
fill 170-space
car park

3:30pm:
Valency begins
to spill over
bank after 3hrs
of extreme
rainfall.

4pm: 3m wall of
floodwater sweeps
across Visitor
Centre car park;
B3263 is
impassable

5pm: Floods at their
peak; cars washed
down from car park;
most of Visitors
Centre collapses.

4:45pm: Helicopters
from Royal Navy,
RAF and Coastguard
arrive on scene;
people start
evacuating buildings

4:10pm: Main road
bridge blocked by
debris causing water
levels upstream to rise.

5:23pm:
Rescue
helicopters
begin winching
people from
buildings.

5:55pm: Truro
and Plymouth
hospitals put on
standby in case
of casualties.

6pm: Floods start to
recede.

8pm: Water levels
back within river
banks.

In 2004 England and Wales experienced its wettest summer since 1956; more than double the normal amount of rain fell. In Cornwall flash floods devastated the tourist village of Boscastle on 16th August 2004.

Weather report:

Heavy, thundery downpours developed by midday on 16th August (remnants of Hurricane Alex). Winds converged along the coast and the ground in the local area. There was extreme frontal activity at this time.

Key facts:

3 million tonnes of water was added to drainage basin (volume).

185mm rainfall in 5hrs, majority in first 2hrs (intensity).

Peak flow was about 140 m³/secs, between 5:00pm and 6:00pm BST.

The annual chance of this (or a greater) flood in any year is about 1 in 400

Soils were already saturated.

There was a high tide in the bay.

Storm hit in tourist season (settlement population doubled; more vehicles).

Settlement at Boscastle:

Development on a narrow flood plain on west coast of England where rainfall is often high.

There are 1000 permanent residents, who rely on tourist revenue.

Flood defences were set to built, but were not underway.

Geography of area:

Three rivers - Valency, Jordan and Paradise converge at Boscastle.

Drainage basin is just 40km².

The three river valleys are very steep and narrow.

Parent material (rock type) is hard sandstone.

Surrounding vegetation is agricultural land, but there is some forestry.

Impacts of the Boscastle flood of 2004

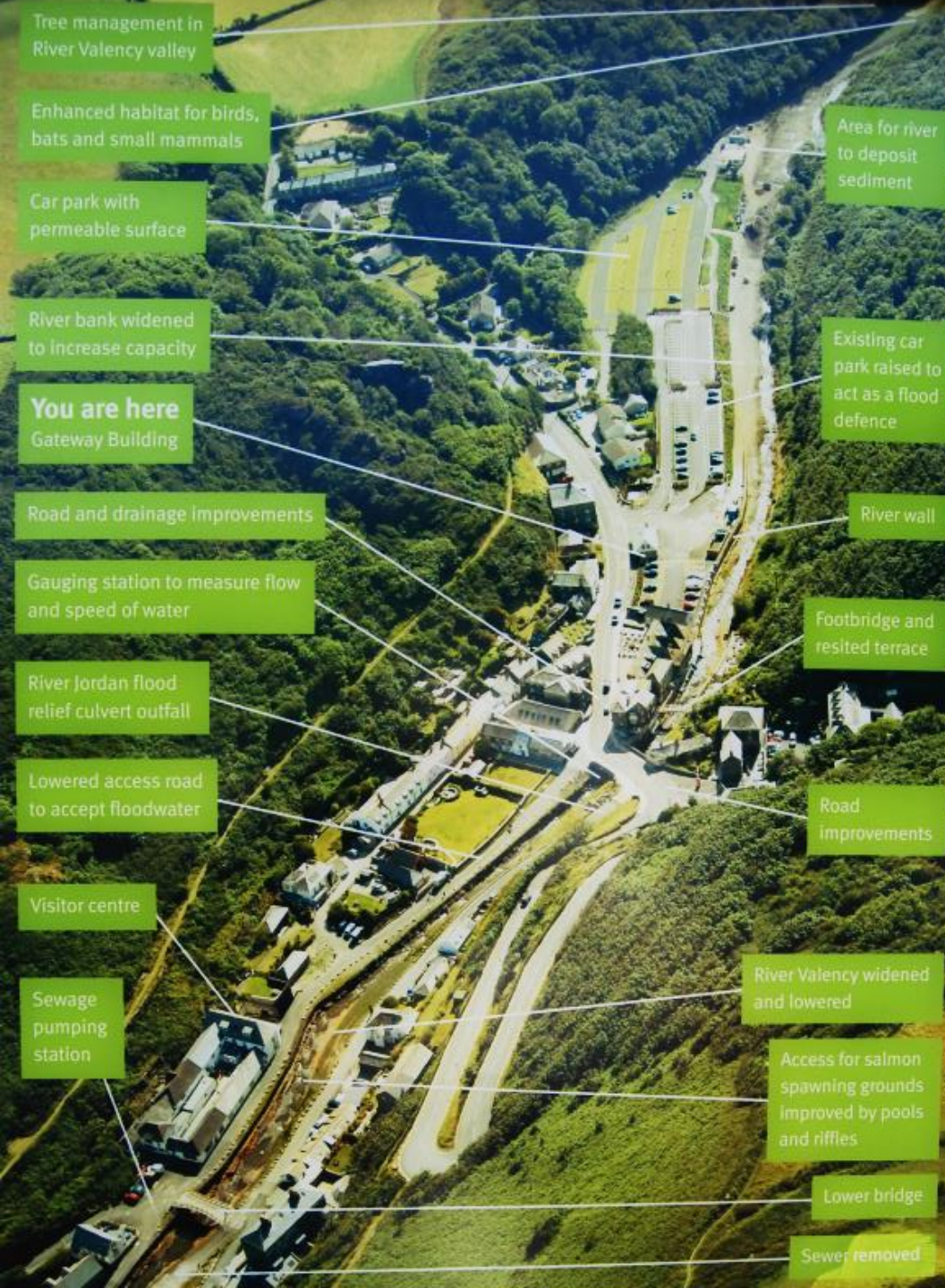
Social



Economic

Environmental

Boscastle Flood management scheme (by 2008)



1. Choose two hard engineering strategies and explain how they reduce the risk of flooding.
2. Choose two soft engineering strategies and explain how they reduce the risk of flooding.

Issues with the scheme

Social Issues	Economic Issues	Environmental Issues
<p>Homes and businesses are now less at risk of flooding. So there is less risk of expensive damage to property, loss of stock and business, and rising insurance costs.</p>	<p>Residents' lives were disrupted for years by rebuilding projects and the construction of flood defences.</p>	<p>Many residents do not like the new bridge, and think that it's not in keeping with the character of the village.</p>
<p>Vegetation and river habitats in the area are now continuously managed. Biodiversity and river habitats have been improved.</p>	<p>The flood management scheme cost over £4 million, but the scheme isn't as good as it could be – some options were still considered too expensive.</p>	<p>The new defences have made Boscastle a safer place to live in.</p>
<p>The defences will only protect against a 1 in 75 year flood – they won't prevent flooding of the same size as the 2004 flood. The defences needed for this would spoil the character of the village.</p>	<p>The new channel has been engineered to look natural and to function as a normal river.</p>	<p>The village is a popular tourist destination and 90% of the local economy relied on tourism before 2004. Flood protection has brought businesses and tourists back to the area.</p>

Explain how the Boscastle flood defence scheme benefits the local people and the environment.

(6 marks)

The residents that live there will now have a safer place to bring up their families and go to work. The defences have taken a long time to build, but can now protect businesses so tourism can return. **Consequently** more visitors will spend money in the area and improve the standard of living for people.

The new river channel blends in with the environment as it looks natural. **As a result** of the care for the environment, biodiversity has improved and habitats have grown in size.

True or False?

1) Boscastle flooded in 2004

2) Deepening and widening the river is hard engineering

3) The flood was a 1 in 100 year event

4) The flood management scheme took 4 years to complete

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