

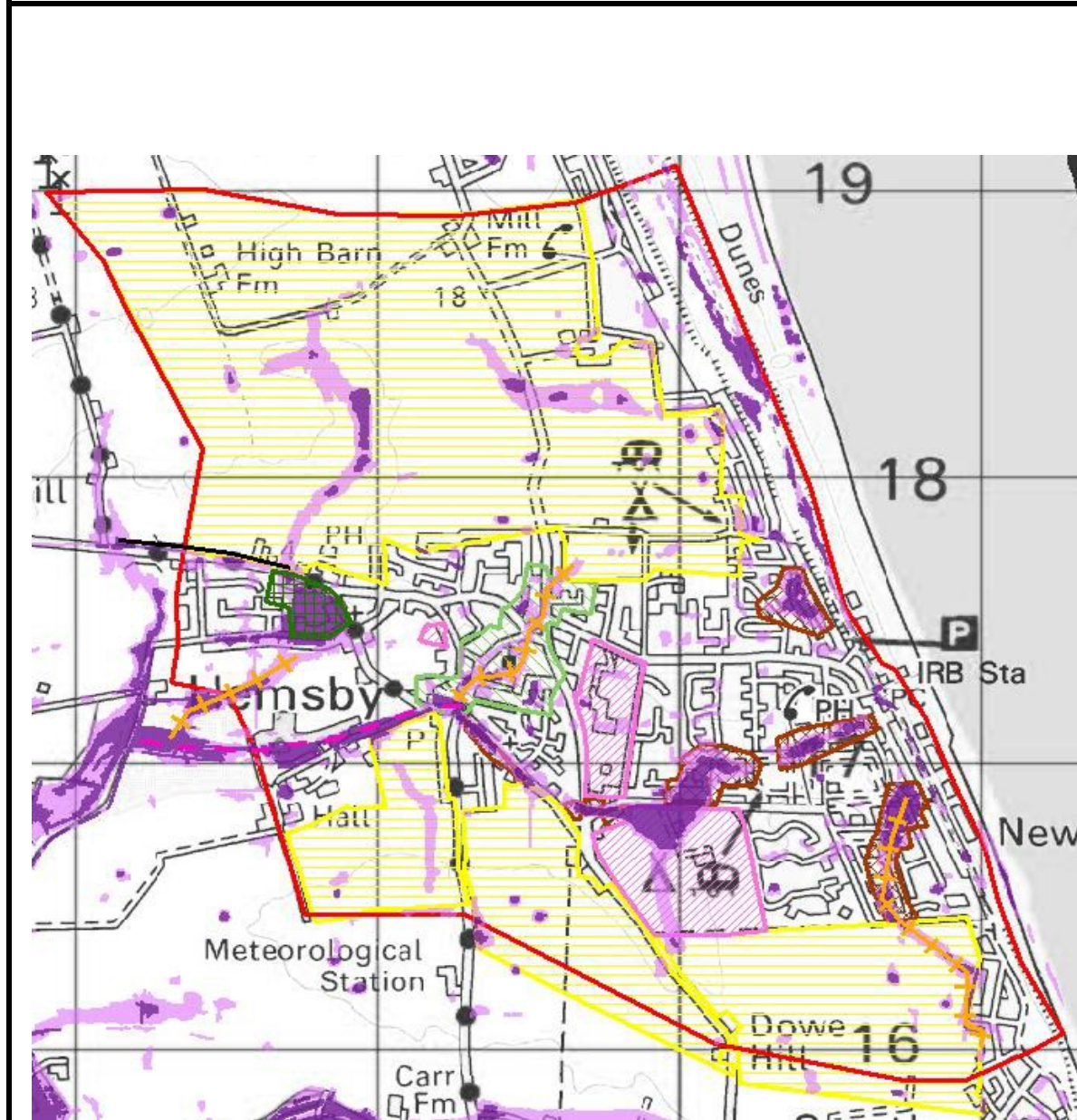
Great Yarmouth Surface Water Management Plan - Options Appraisal Summary

PROBLEM IDENTIFIED:

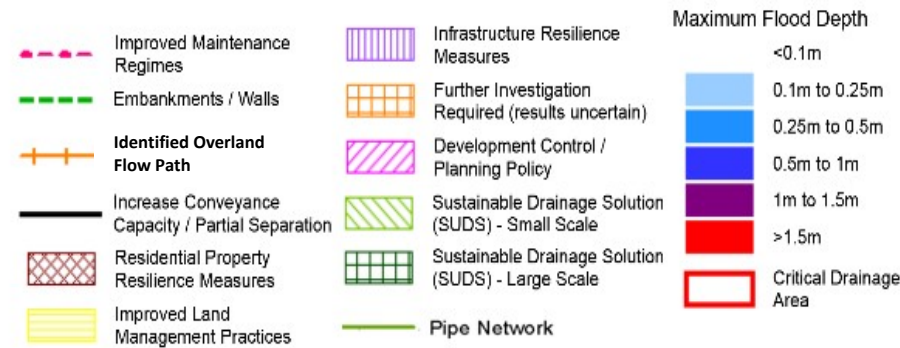
This CDA is located in the Hemsby area of Great Yarmouth. Surface water flows generally from west to south away from Hemsby and the coast, towards the Norfolk Broads south west of Hemsby. The Flood Map for Surface Water indicates surface water flooding in a 1 in 200 year event on the western edge of Hemsby between Martham Road, Summerfield Road and Common Road; to the South of Hemsby in the Bermuda Holiday Park area and in a number of smaller areas across the central and eastern portions of the CDA. Fluvial Flood Zones 2 and 3 enters a small portion in the west of the CDA and along the coast. Potential developments exist at Hemsby Holiday centre and west of Pit Road. The Flood Map for Surface Water shows small areas of flooding within the site at Hemsby Holiday centre. The site to the west of Pit Road is not currently susceptible to surface water flooding. Under the National Planning Policy Framework, the increased runoff generated by any new development must be managed on site and the discharge restricted to greenfield rates. It is therefore anticipated that the new developments will not increase the existing surface water flooding.

Critical Drainage Area

Hemsby



LEGEND



Great Yarmouth Borough



PREFERRED OPTIONS SUMMARY:

Options Summary	Available Option	Preferred
Do Nothing		
Do Minimum		
Improved Maintenance		
Planning Policy		
SUDS (Source Control - Small Scale)		
SUDS (Large Scale - Flood Storage)		
Separate Surface Water and Foul Water Sewer Systems		
De-culvert / Increase Conveyance		
Identified Overland Flow Routes		
Community Resilience		
Infrastructure Resilience		
Other - Improvement to Drainage Infrastructure		
Other or Combination of Above		

Flood Risk Source

Surface Water	Yes
Groundwater	No
Ordinary Watercourse	No
Fluvial	Yes
Tidal	No

Validation

Historic Events	Yes
Site Inspection	Yes

**GREAT YARMOUTH SURFACE WATER MANAGEMENT PLAN
SURFACE WATER OPTIONS**

HIGH LEVEL CONSTRUCTION COST ESTIMATE

Critical Drainage Area ID: Hemsby

Description	Unit Type	Unit Measure	Unit Rate	Quantity (approx)	Cost (rounded)	Assumptions
Managed overland flows - open spaces	Managing overland flows - Non-Road Aras	Volume of excavation m ³	£5	2875	£13,000	2300m long by 5m wide by 0.25m deep
Property level resilience	Improved resilience and resistance measures	per property protected	£5,000	90	£450,000	
SUDS - Small Scale	Water butts & rainwater harvesting	m ³ of stored volume	£1,188	100	£119,000	
SUDS - Small Scale	Road side Rain Garden	m ² area	£21	3000	£62,000	1.5km of road - 1m wide rain gardens on both sides
SUDS - Large Scale	Swales	m ² Surface Area	£20	500	£10,000	
Ditch Diversion			£1,100	600	£660,000	600m of 1200mm pipe at £1100 / m (including headwalls, outlet and manholes)
Improved maintenance						No capital cost - assumed to be paid for by revenue budgets
Development Policy						No cost associated - set policy to be implemented by developer
Improve Land Management						No cost associated - assumed that land owner can implement changes at no additional cost
				TOTAL	£1,314,000	

NOTES:

The following standard assumptions have also been applied:

The costs are the capital costs for implementation of the scheme only.

Costs do not include provisions for consultancy, design, supervision, planning process, permits, environmental assessment or optimum bias.

No provision is made for weather (e.g. winter working).

No provision is made for access constraints.

Land acquisition costs are not included

No operational or maintenance costs are included.

No provision is made for disposal of materials (e.g. for flood storage or soakaway clearance).

These should be considered as approximate order of magnitude costs only.