

Innovative Approaches to Catchment Based Solutions

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Dr Peter Stone

Introduction – APEM and EuroMed

- Aquatic scientists with catchment management expertise
- Dedicated team of field staff
- Remote sensing capability including specialist camera technology and aircraft



Drivers for Catchment Based Work

- Improving water quality with the Catchment Based Approach is now widely recognised
- Driven by:
 - WFD
 - Bathing Water Directive
 - Drinking Water Inspectorate
- The success of the Catchment Based Approach will rely on building local awareness of the wider environment
- Evidence base to underpin local awareness is gradually improving with regard to diffuse pollution

Introduction

- Large body of work to understand processes in catchments
- Need for tools to develop interventions and solutions
- Integrated approach to catchment solutions to initiate a behavioural change using evidence based engagement

Walkover Surveys

- Our walkover survey approach has been adopted by the EA and NE
 - **Phase 1:** Preliminary desk top assessment, survey strategy and training
 - **Phase 2:** Baseline ground survey
 - **Phase 3:** Wet weather sampling / aerial
 - **Phase 4:** Data handling /delivery
 - **Phase 5:** Implementation of mitigation

Diffuse pollution walkover surveys



- Arable
- Livestock
- Conduits / pathways
- Urban / anthropogenic
- Others

Grading Sources

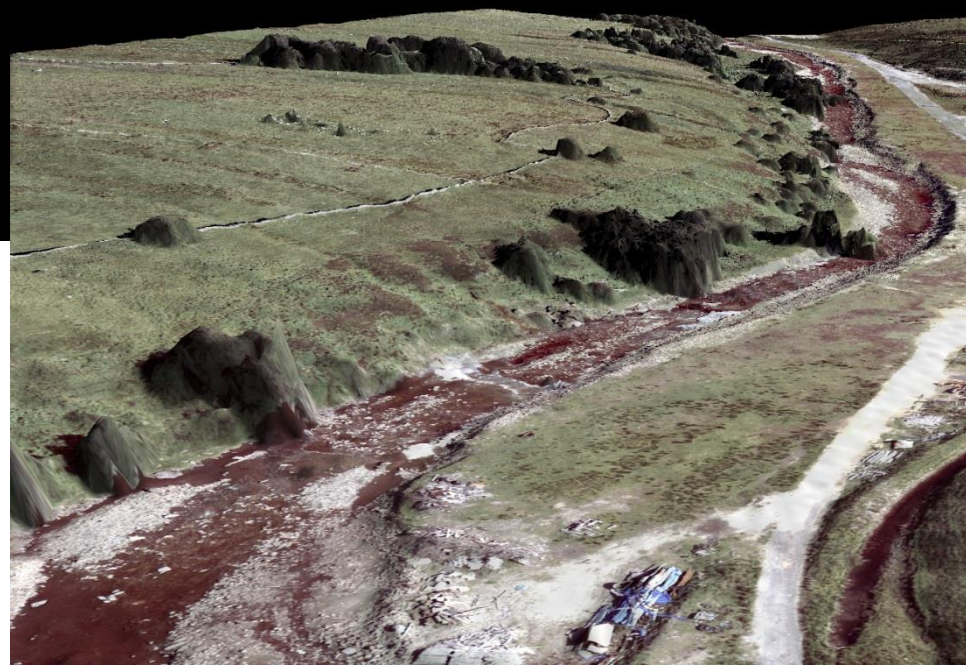
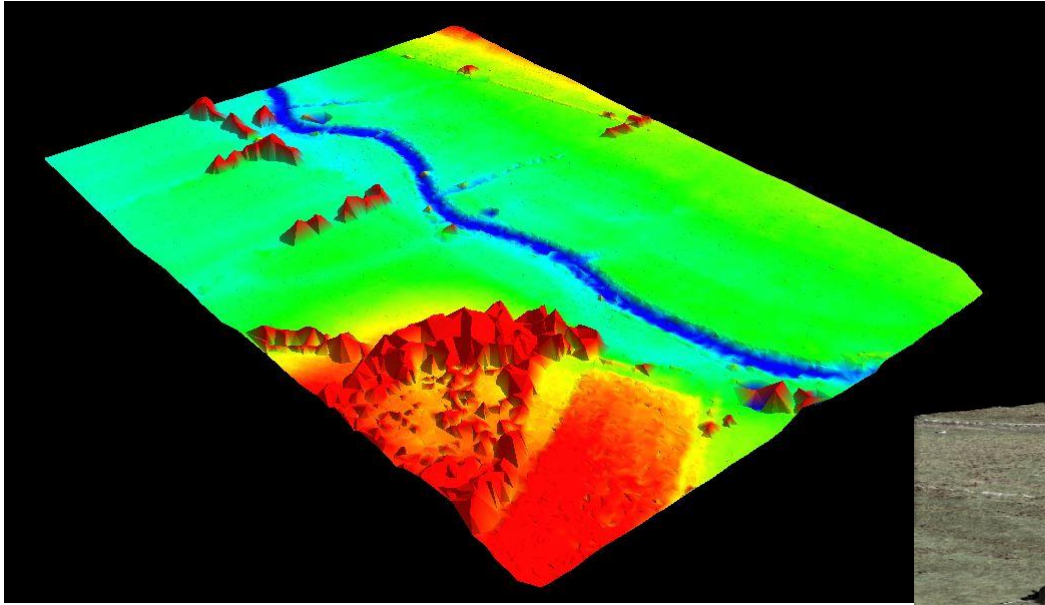
Grade	Definition	Example
1	Large scale deposition material causing predicted localised and widespread impacts over 100m from the inflow.	Overland arable gully
		Severe erosion /poaching
		Chronic discharges at road / track crossing
2	Deposition of material causing predicted impacts within 100m of the source.	Moderate erosion-controlled poaching
3	Minor deposition causing predicted localised impacts in the immediate vicinity of the input.	Minor land drainage. Road runoff - non arable

- Minimise grading subjectivity by using matrix
- Standardised delivery
- Compliance with EA standards

Remote Sensing and Catchment Management

- Alternatives for larger catchments
- Additional evidence from remote sources
- Potential application for solutions

Catchment Topography



3D Visualisations



Potential Point Source Discharge



Direction of Ploughing



Field Drainage



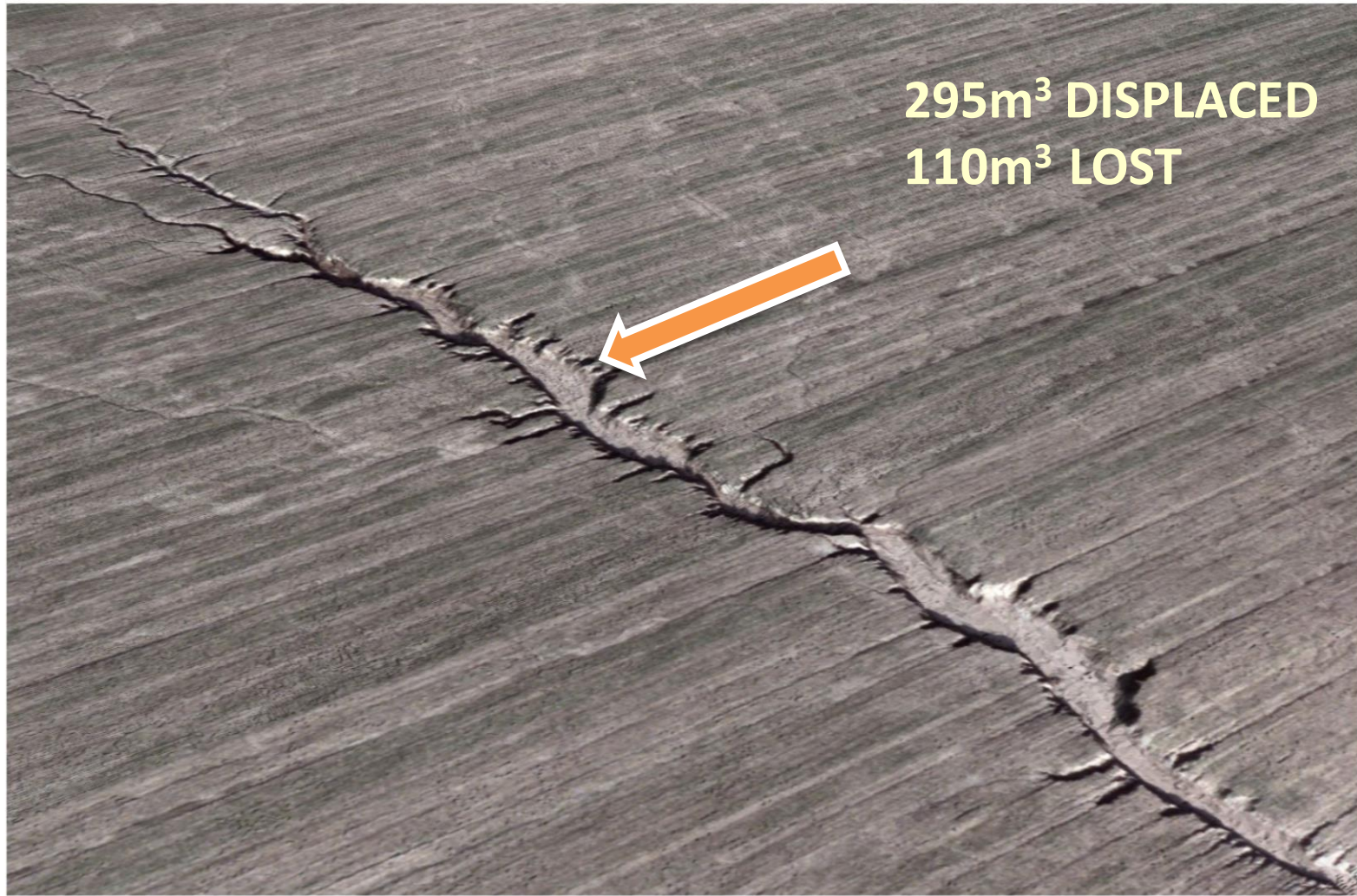
Erosion

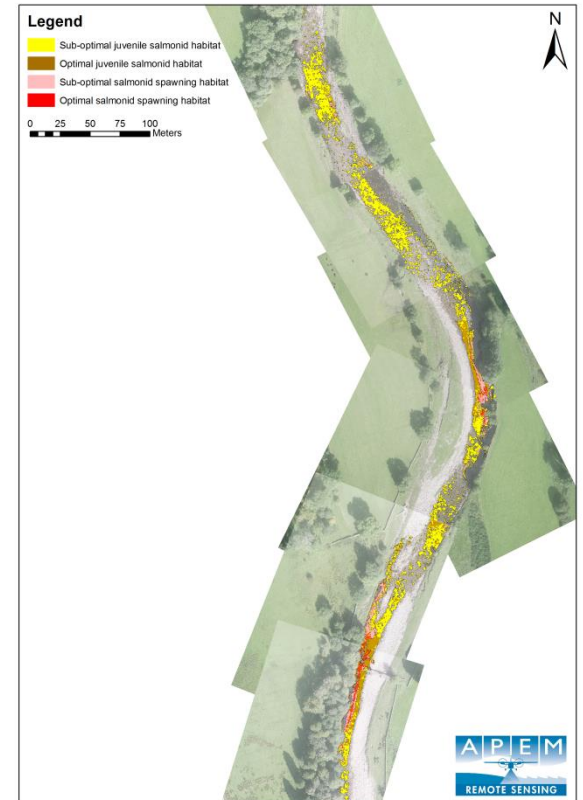
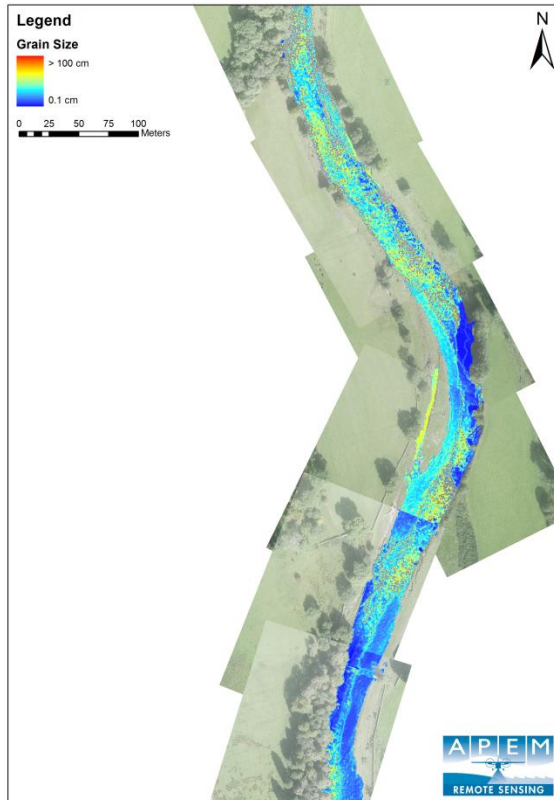
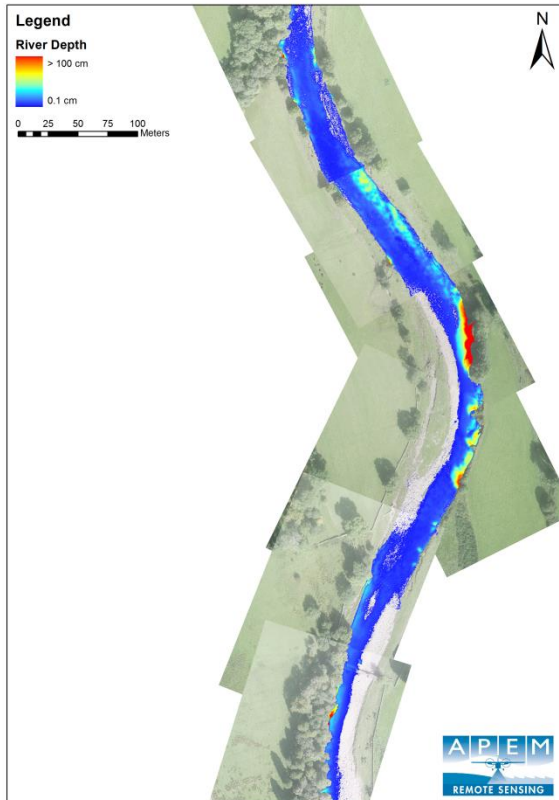


building reputation through excellence

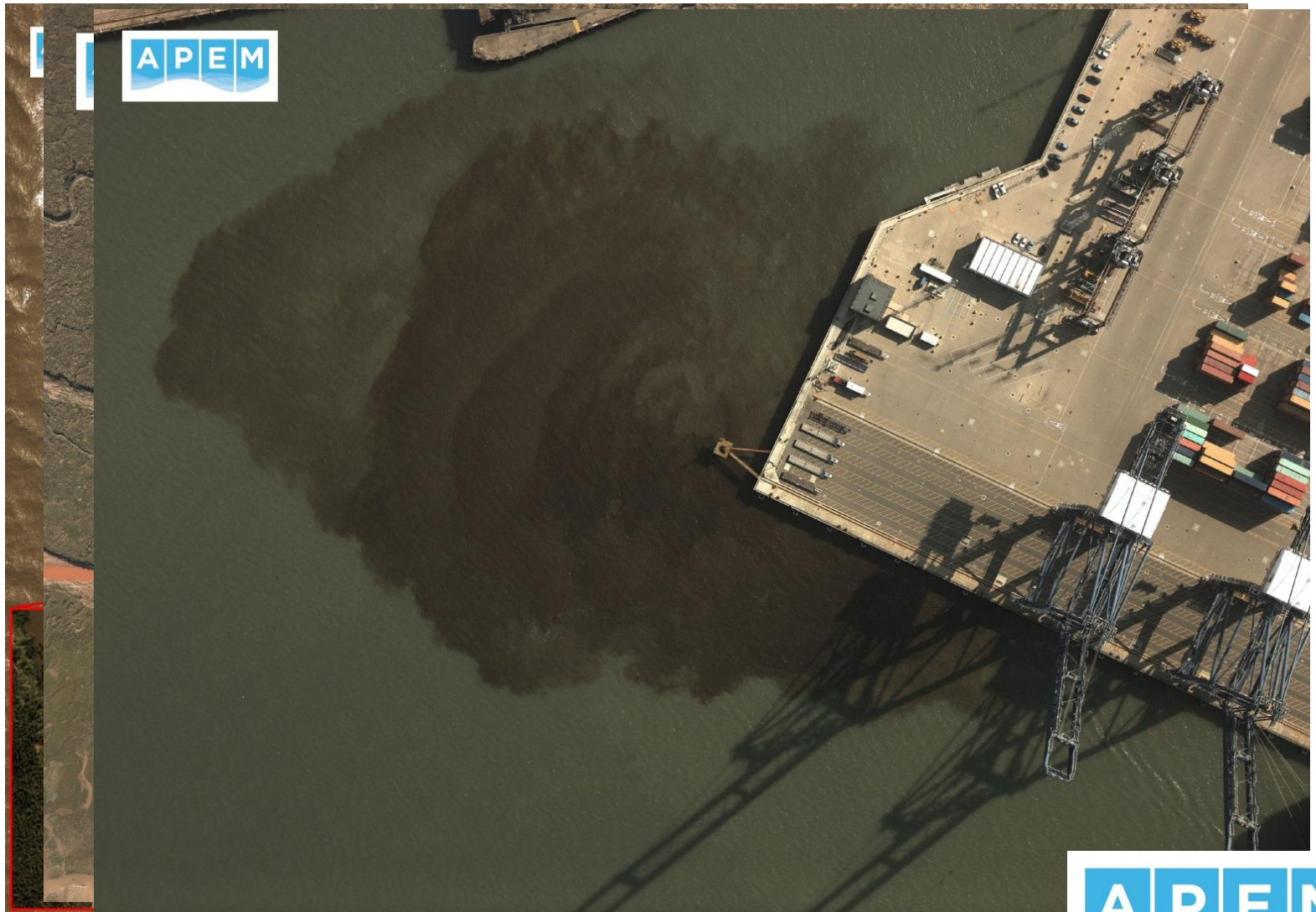


Erosion Gullies

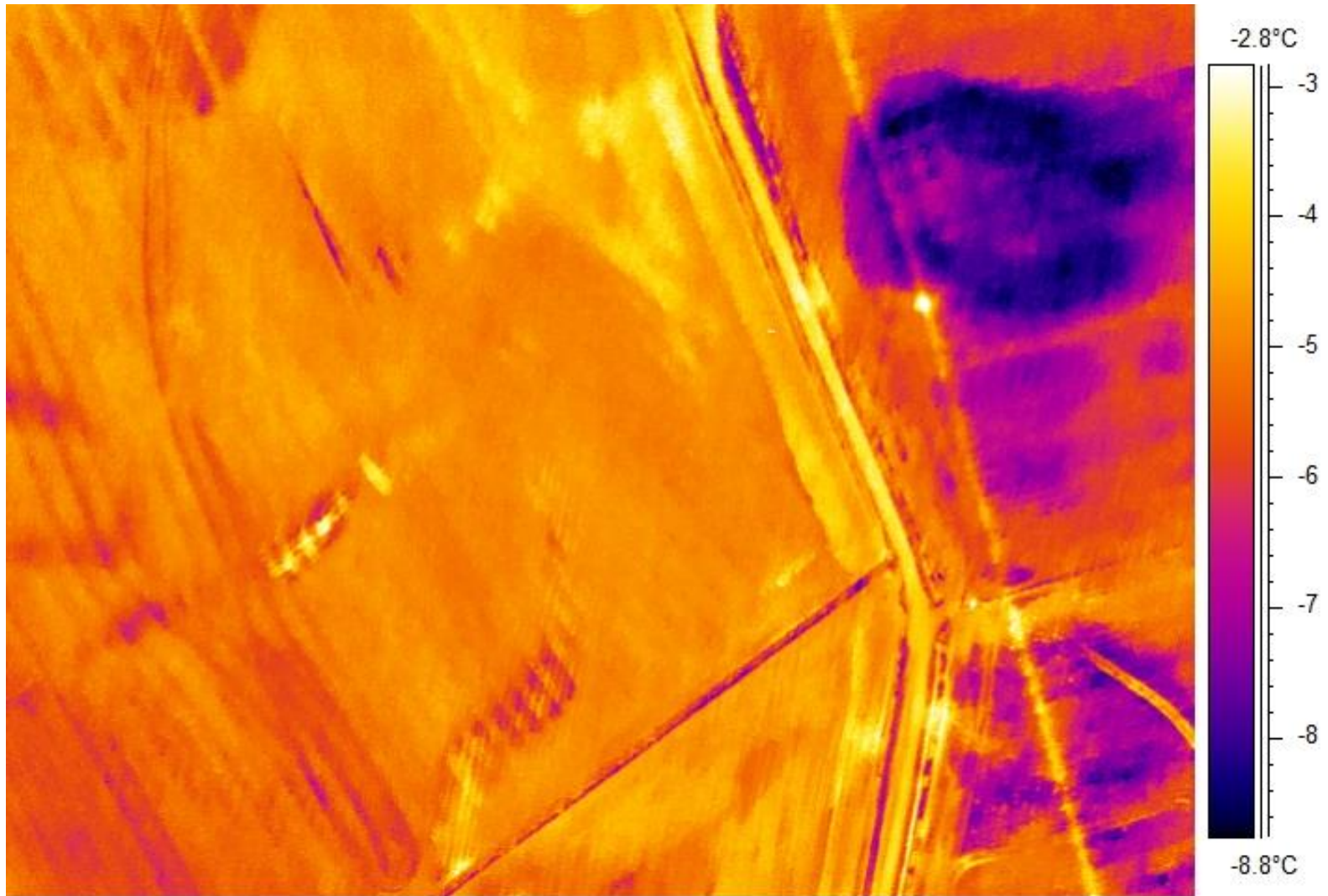




Coastal diffuse pollution



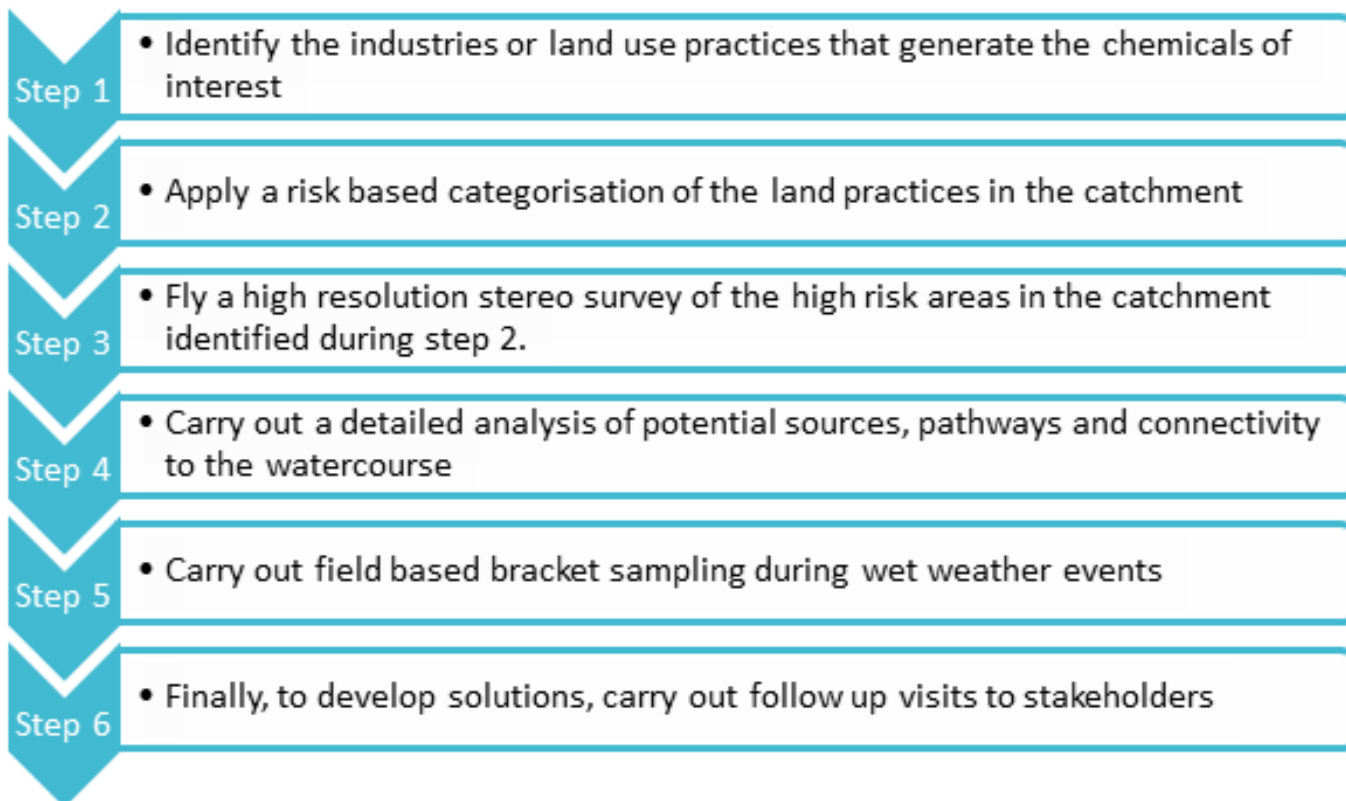
Heated effluent pipe leak using thermal



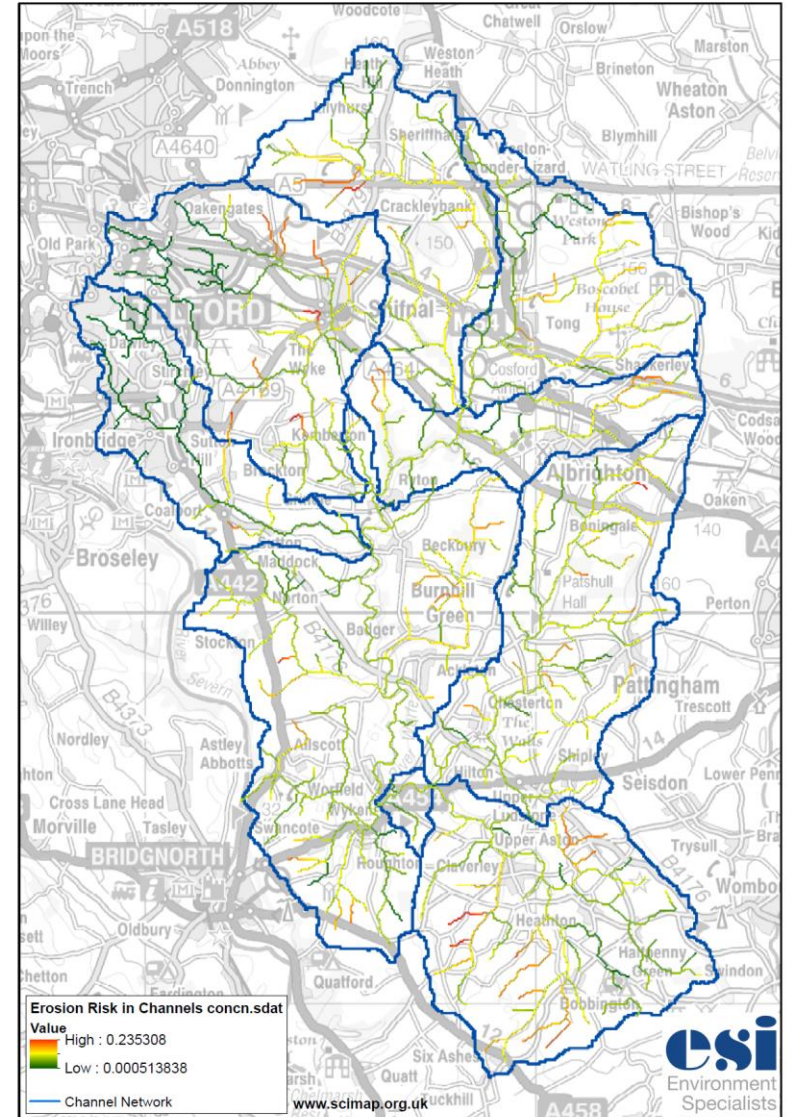
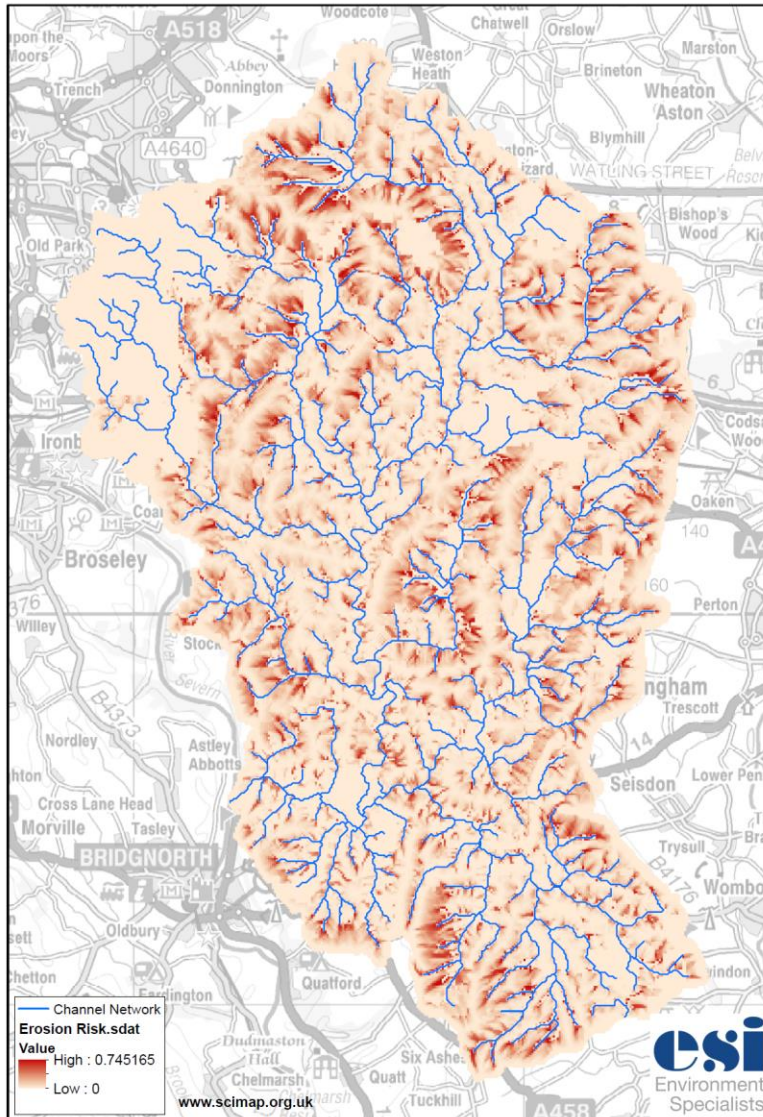
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Approach

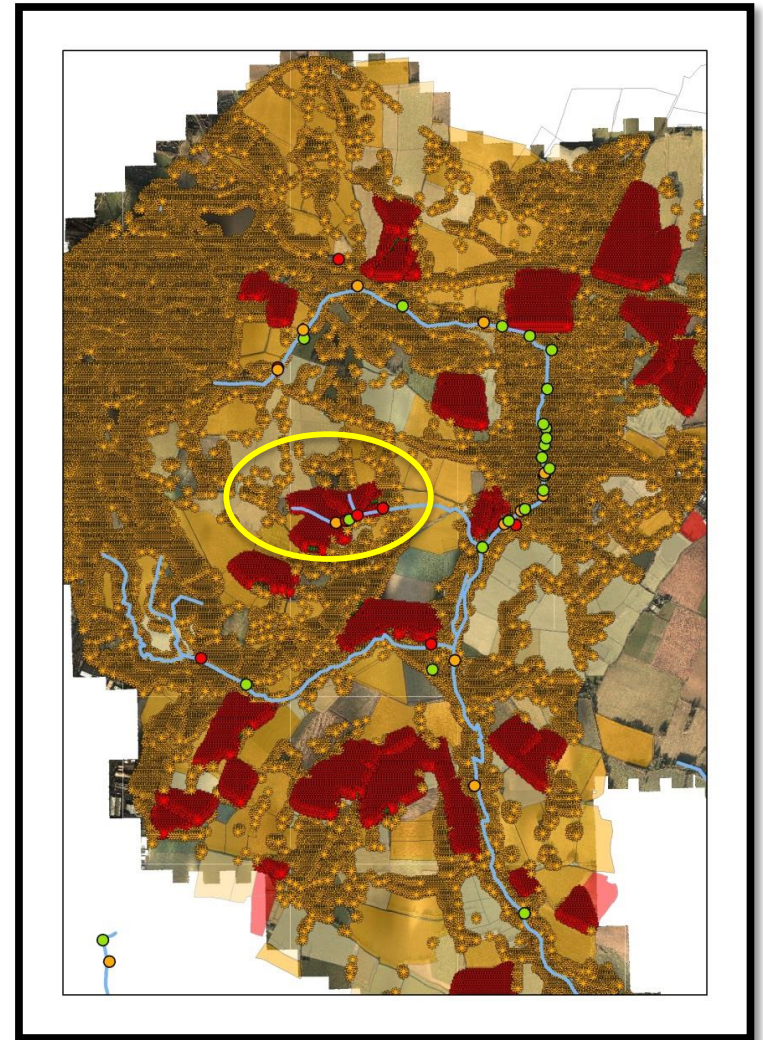


Desk based risk assessment

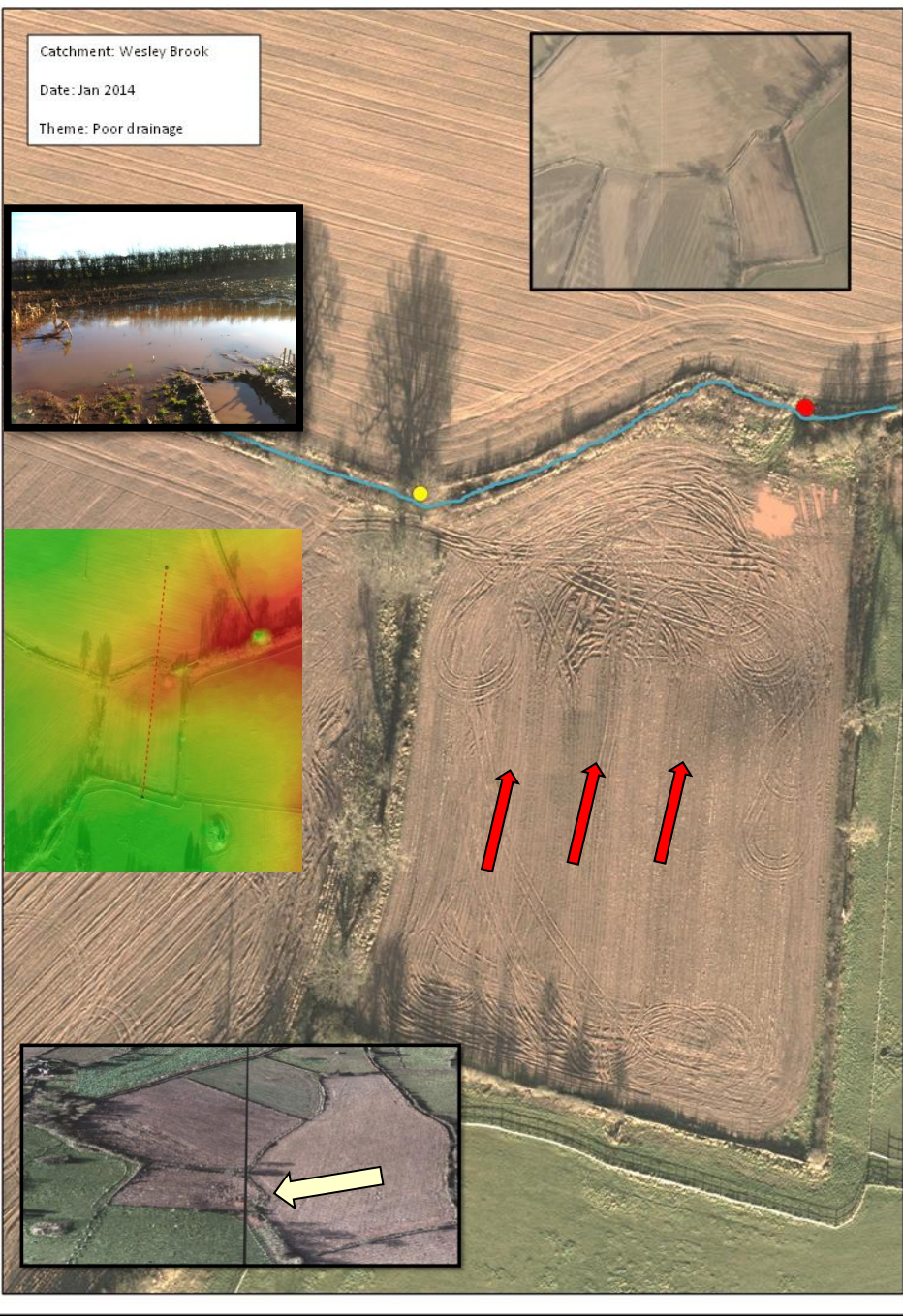


Technical – Case Study

- Wesley Brook small catchment study
- Risk based approach to start
- Matched to ground based observation
- Detailed bespoke aerial images

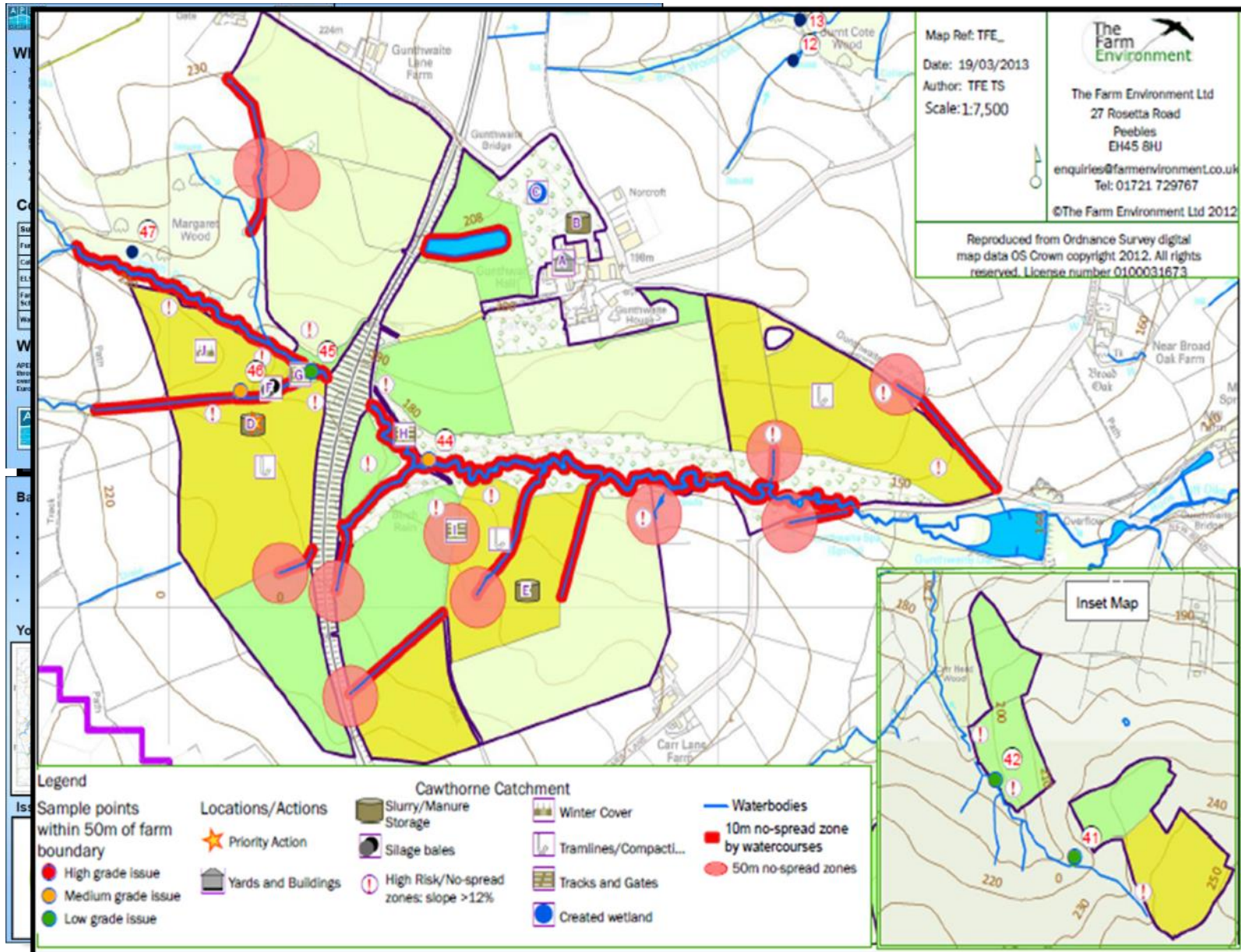


Case Study



- From risk based to detail
- Building evidence base
- Understand processes
- Propose solutions

Validation and engagement tools

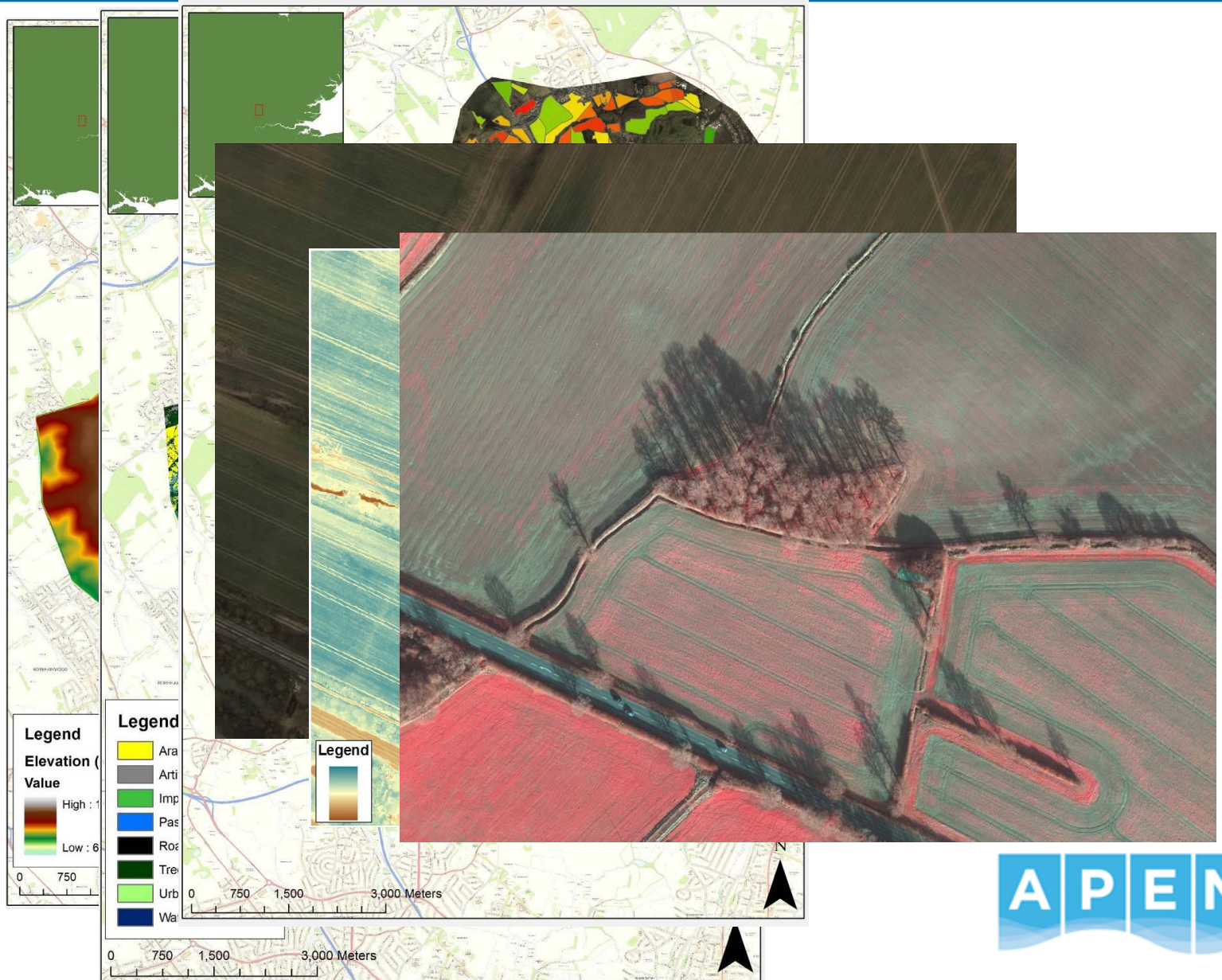


RFF

Pack



Case Study – Mimmshall Brook



Conclusions

- Good understanding of catchment pressures via focused evidence collection
- Evidence needs to be turned into stakeholder engagement
- Solutions often only practicable when supported by appropriate evidence
- Working in partnership with NFU, local farmers, EA and Utilities is crucial to catchment improvement
- Monitor improvements using a selection of tools

The End

ANY QUESTIONS?

Contact: p.stone@apemltd.co.uk

