Harwell WSA Groundwater Remediation Update

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Jon Blackmore, Senior Project Manager

Chemical Contamination of Groundwater at Harwell

- Groundwater contamination by chemicals identified in 1989
- Linked to waste disposal in unlined pits at two sites:
  - The Southern Storage Area or SSA
  - The Western Storage Area or WSA
- The chemicals are mainly chlorinated solvents - widely used in the past for metal degreasing etc
- The rock directly underlying the area is Chalk – an aquifer, regionally used for public water supply and locally for private water supplies
- Significant programme work carried out over 35 years to deal with the issue

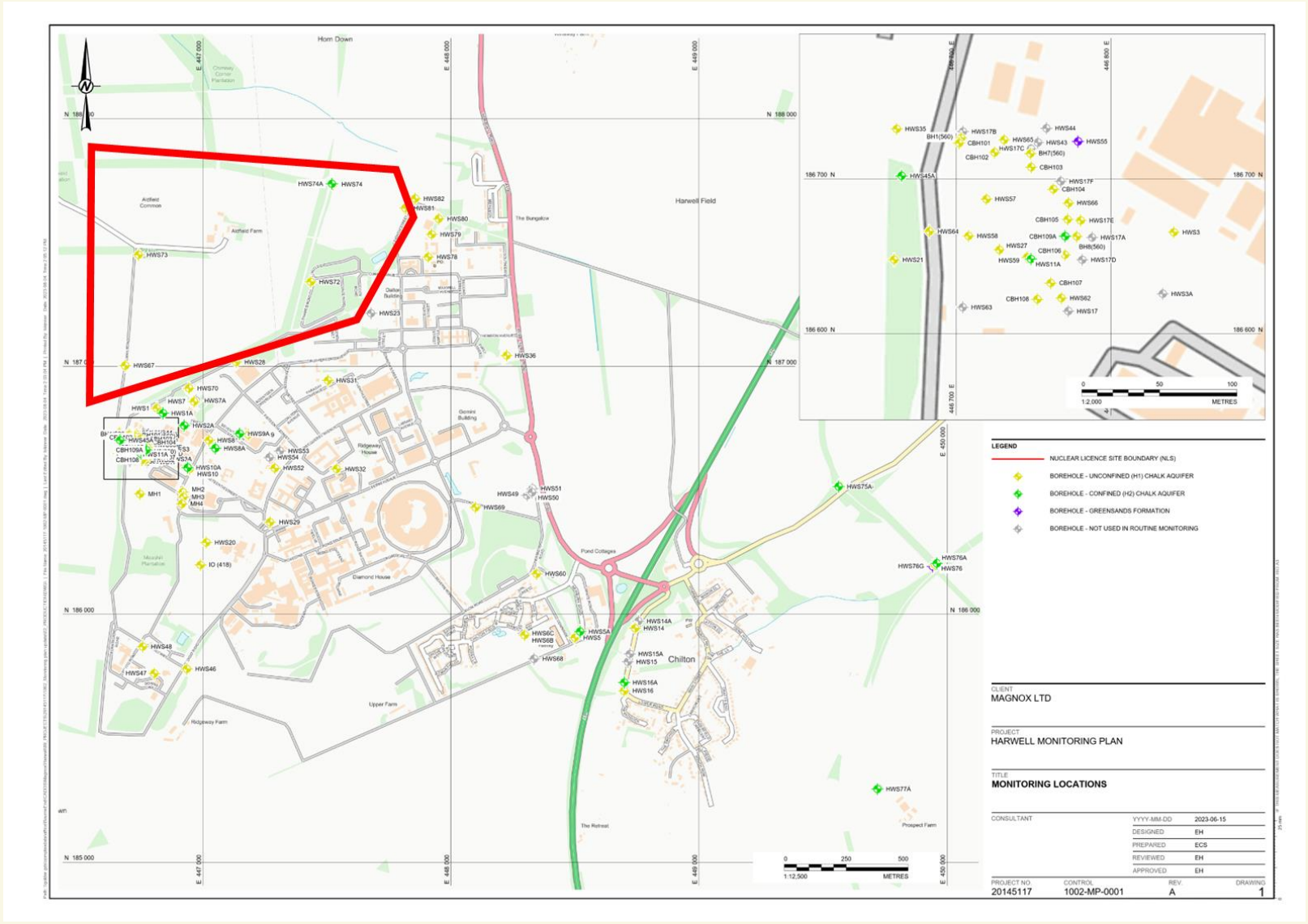
Groundwater Remediation Strategy

- Sources:
  - Hydraulic groundwater containment plants (SSA 1994 – 2002; WSA 1994 - present)
  - Pit contents removed (SSA and WSA)
  - Unsaturated zone remediation at WSA
- Pathway:
  - Borehole & surface water monitoring (1990 to present) – data summarised in this presentation
  - Will continue long-term
- Receptors:
  - Public water supply boreholes in the area no longer in use for other reasons
  - Ongoing liaison with Environment Agency (EA) and local authority Environmental Health teams regarding potential new private water supplies in the plume area

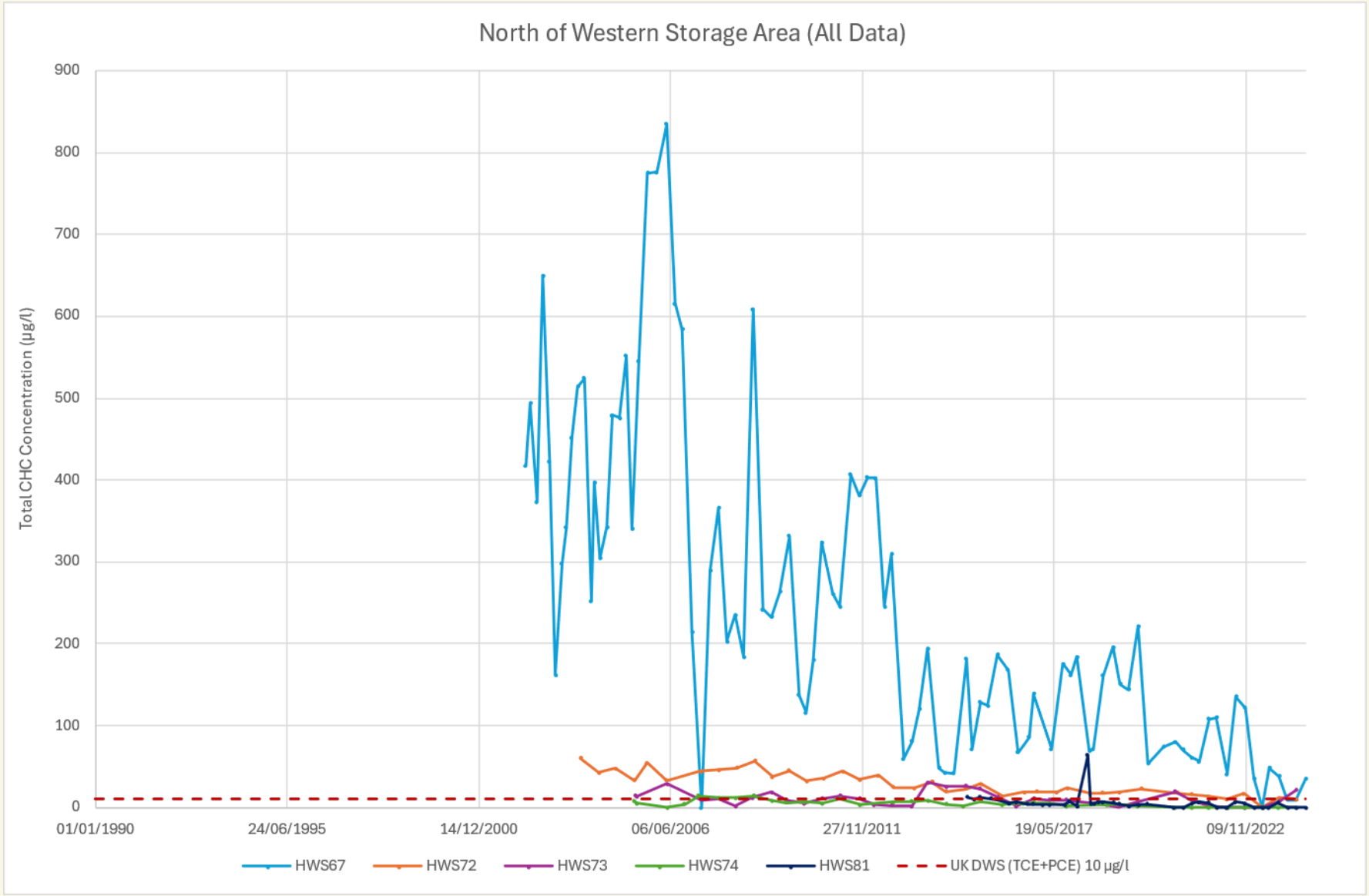
Groundwater Monitoring Data Summary 1990s-2024

1. Selected time-series graphs for locations downgradient of NRS Harwell
2. Maps showing averaged data for 5-year time slices

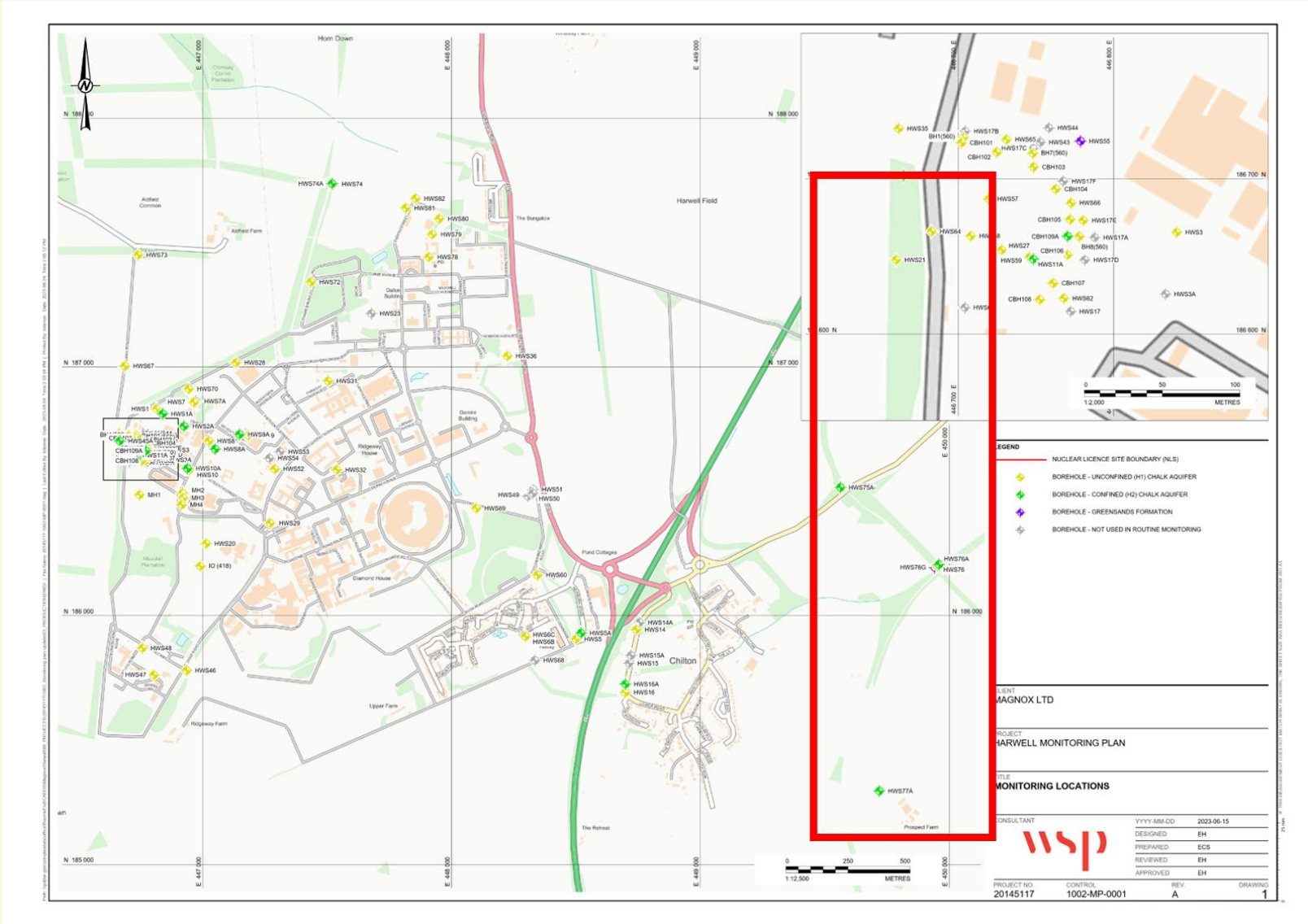
Boreholes Downgradient – North: Locations



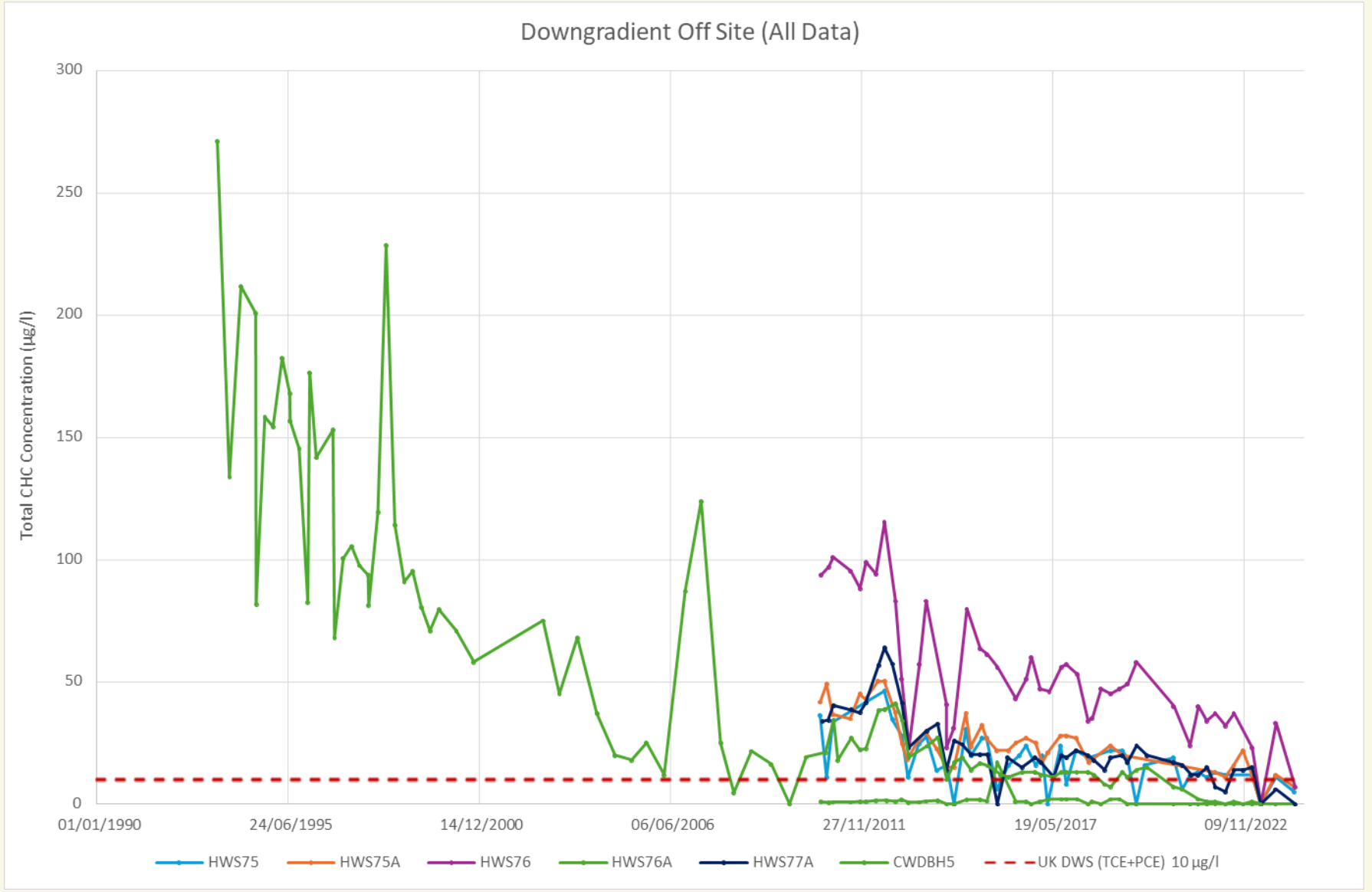
Boreholes Downgradient – North: Data



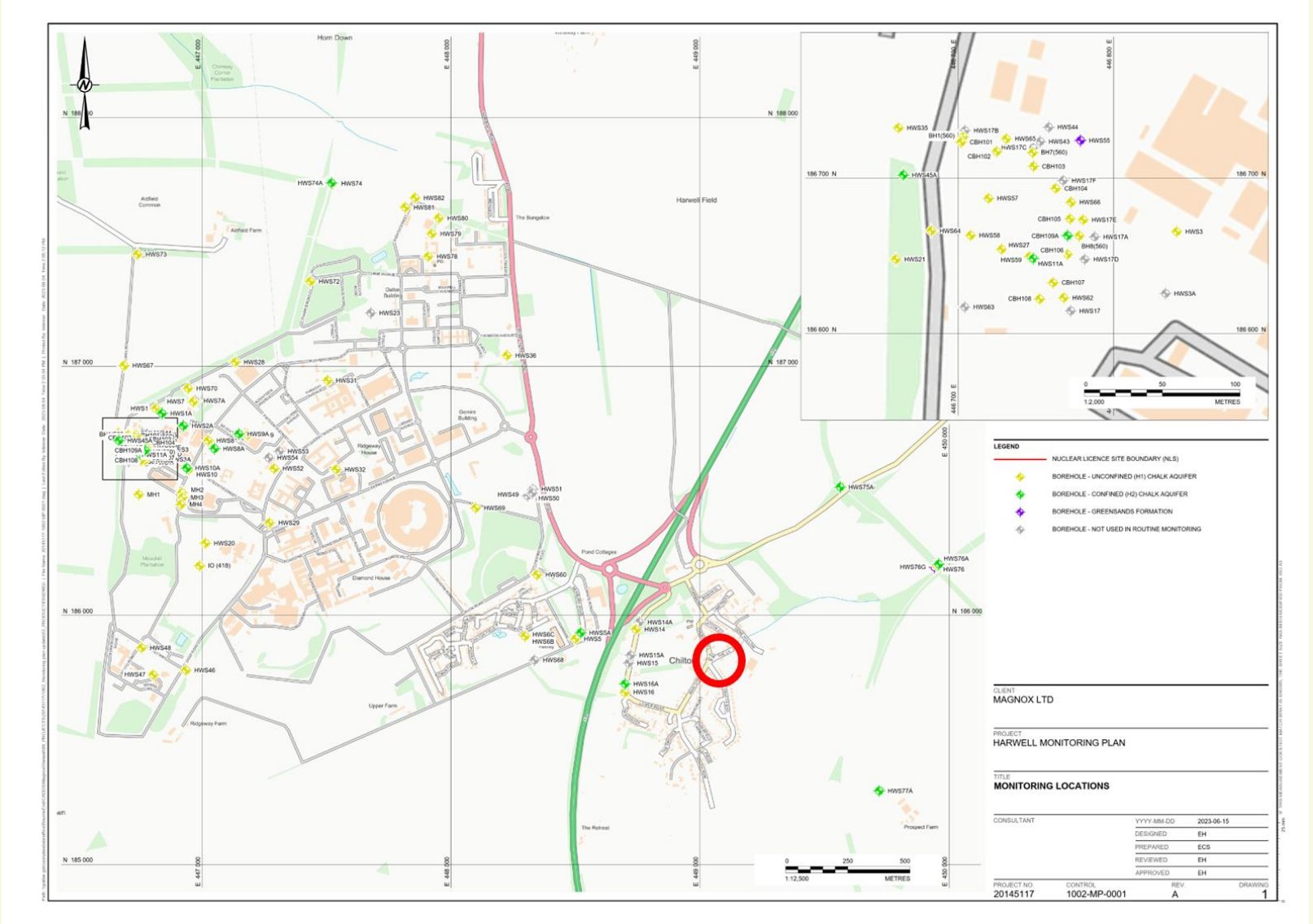
Boreholes Downgradient – East: Locations



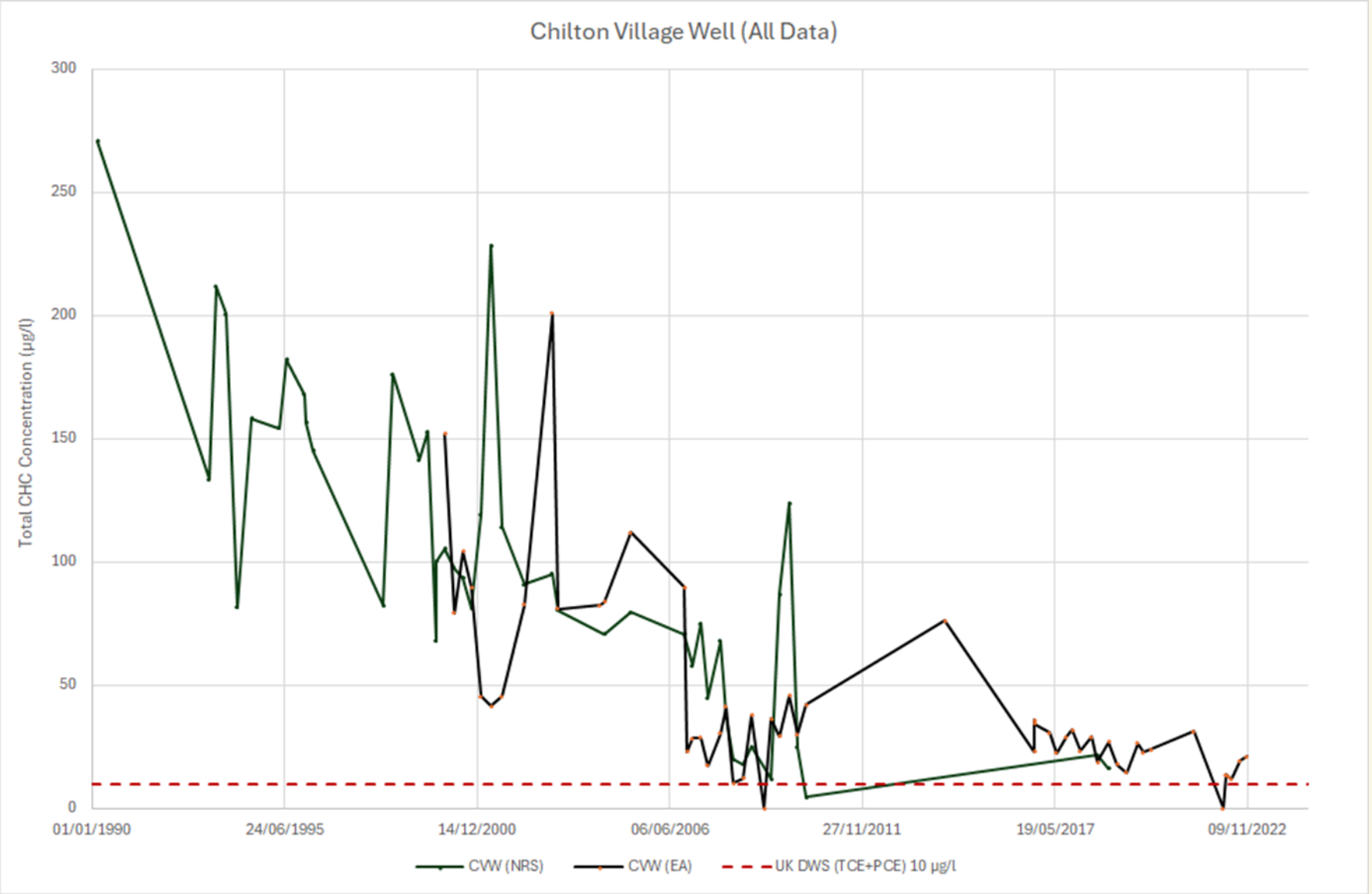
Boreholes Downgradient – East: Data



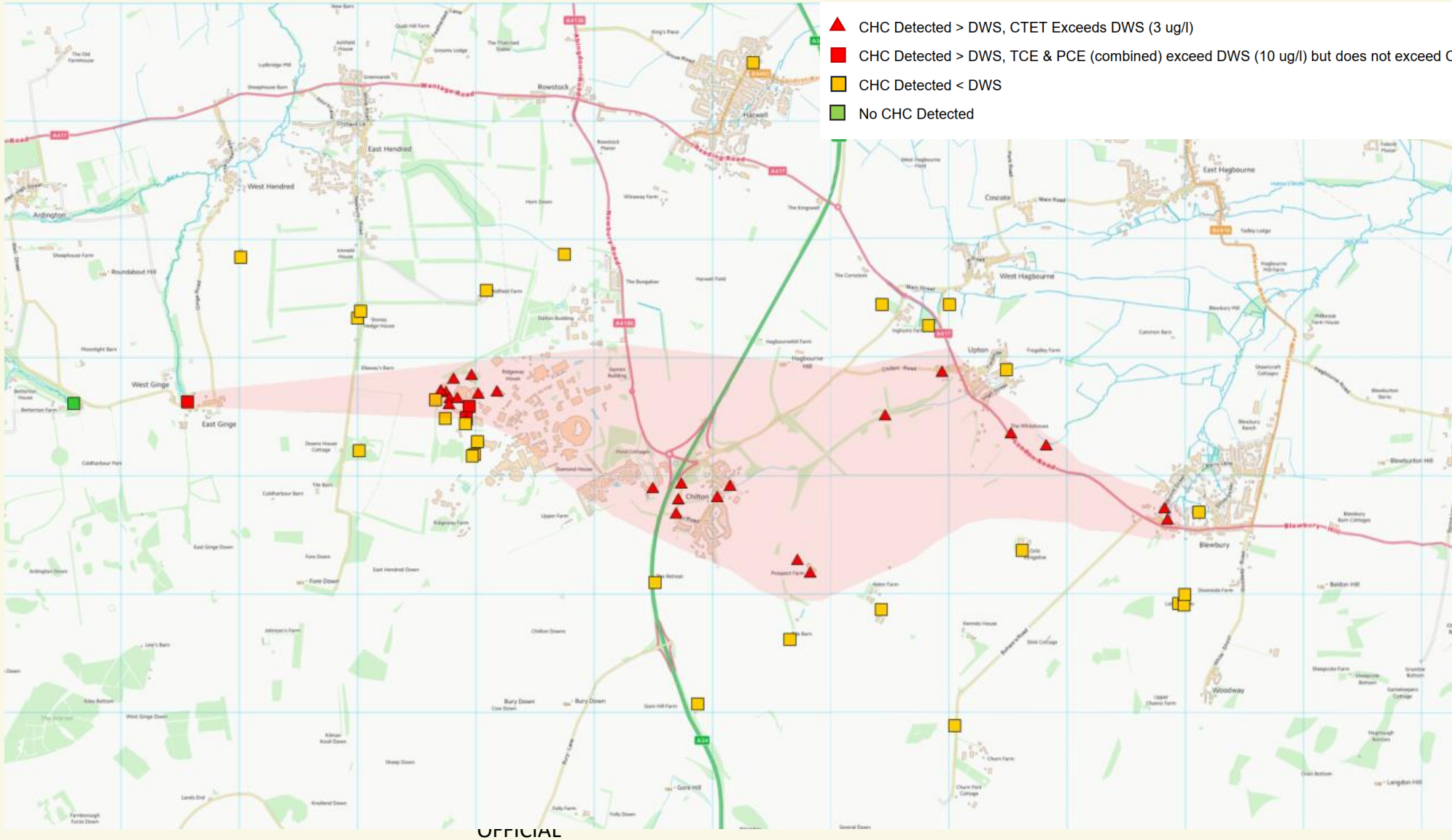
Downgradient – Chilton Village Well: Location



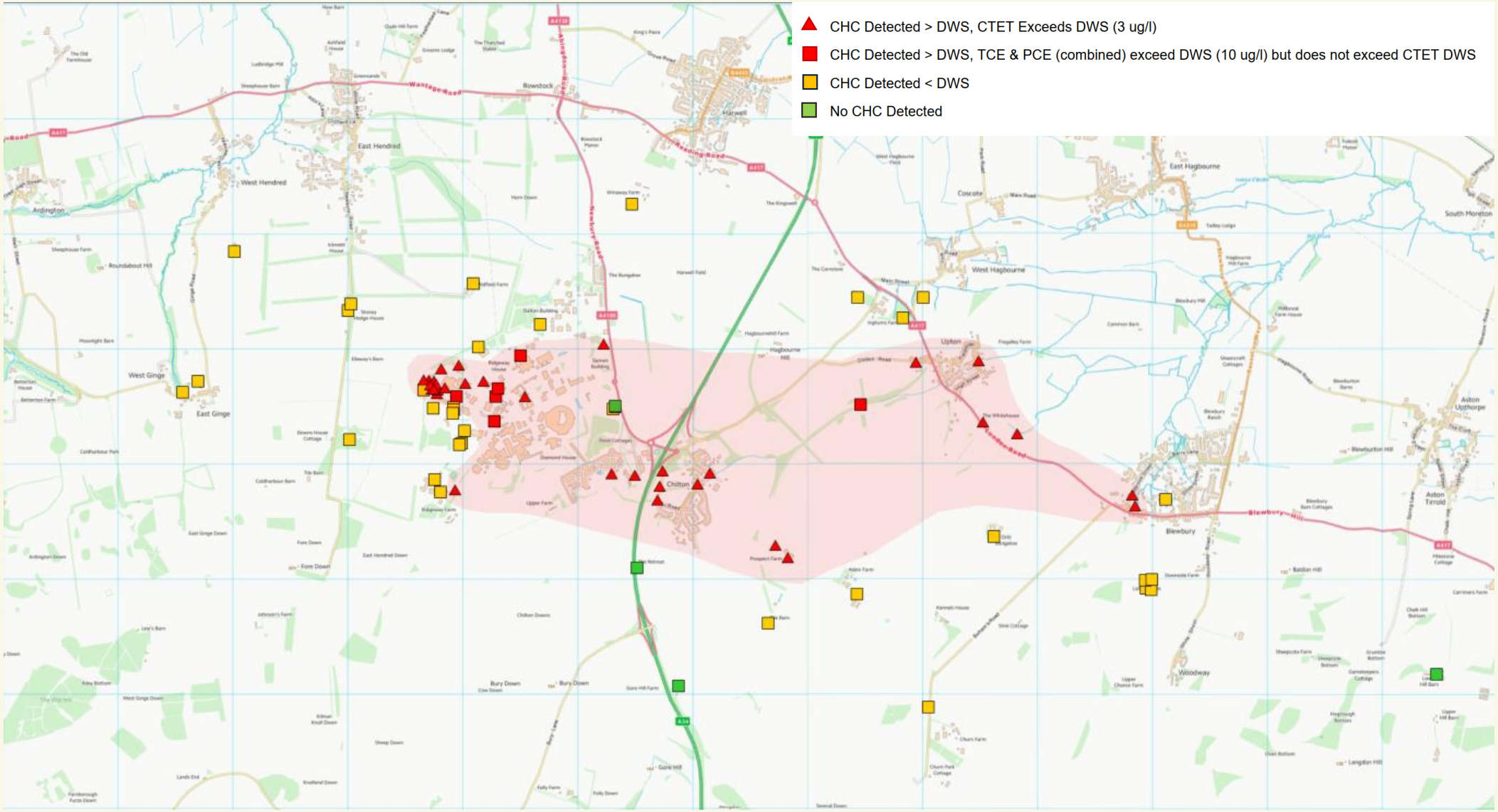
Downgradient – Chilton Village Well: Data



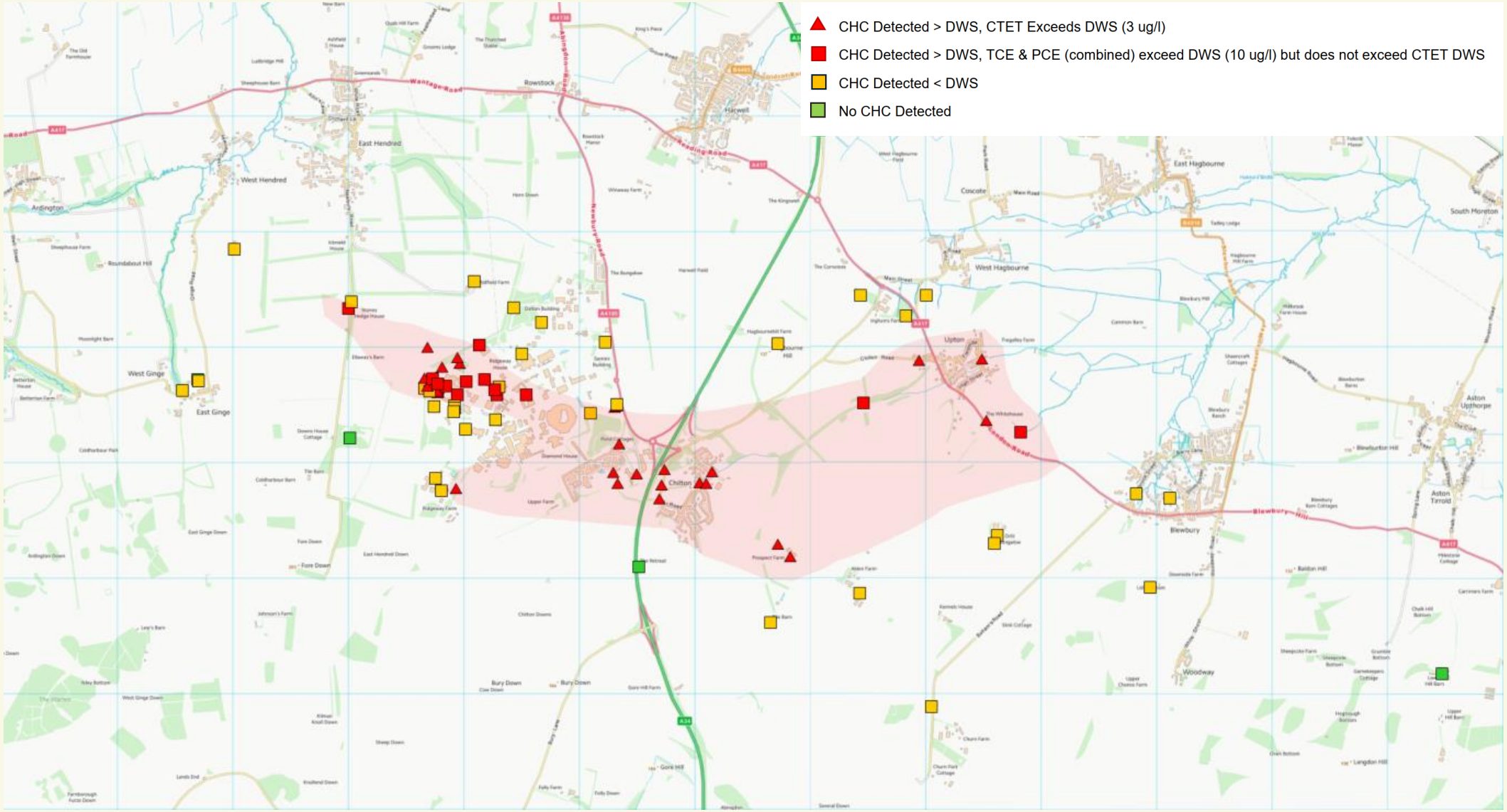
Regional maps 1990-1994



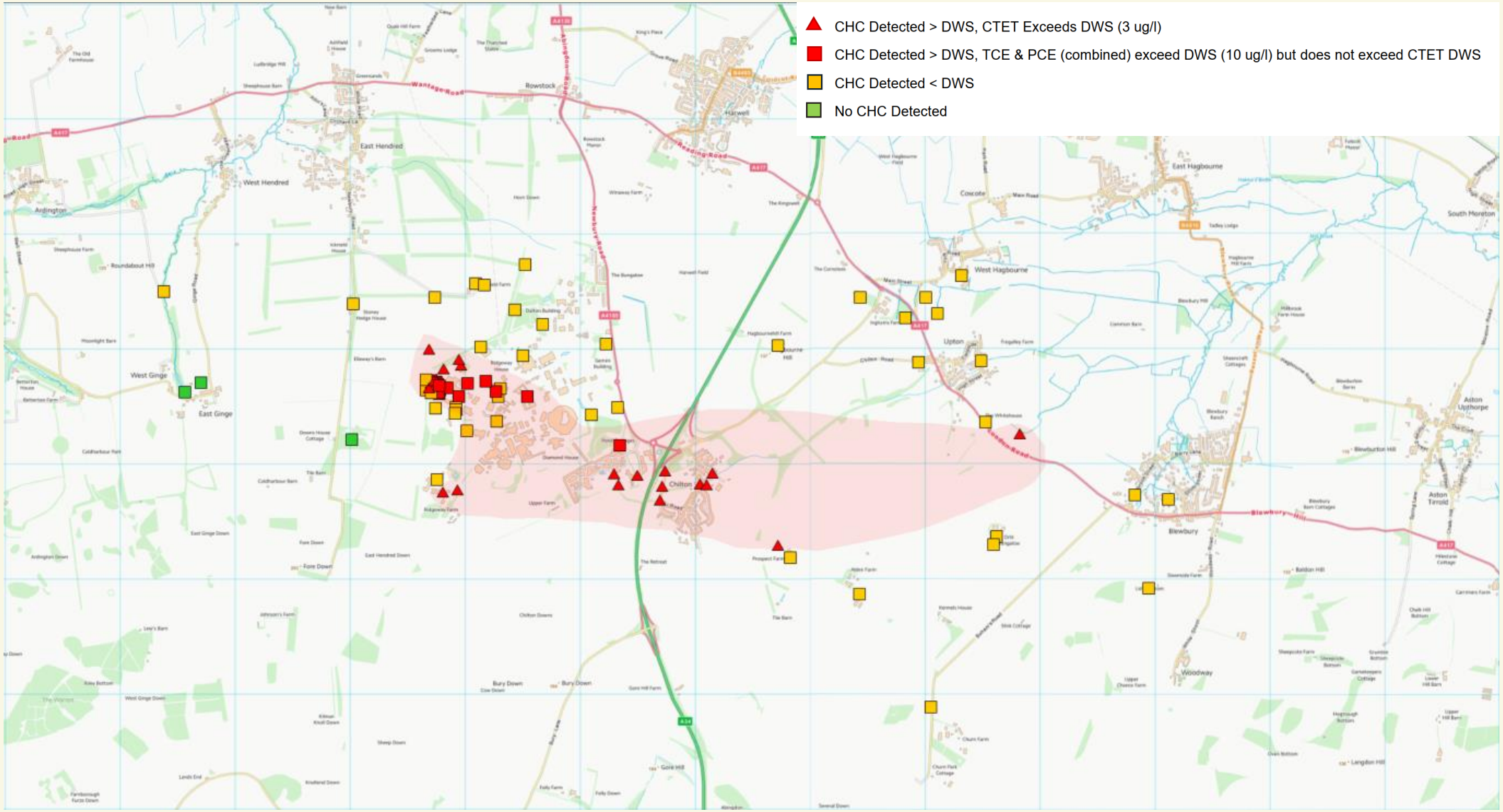
Regional maps 1995-1999



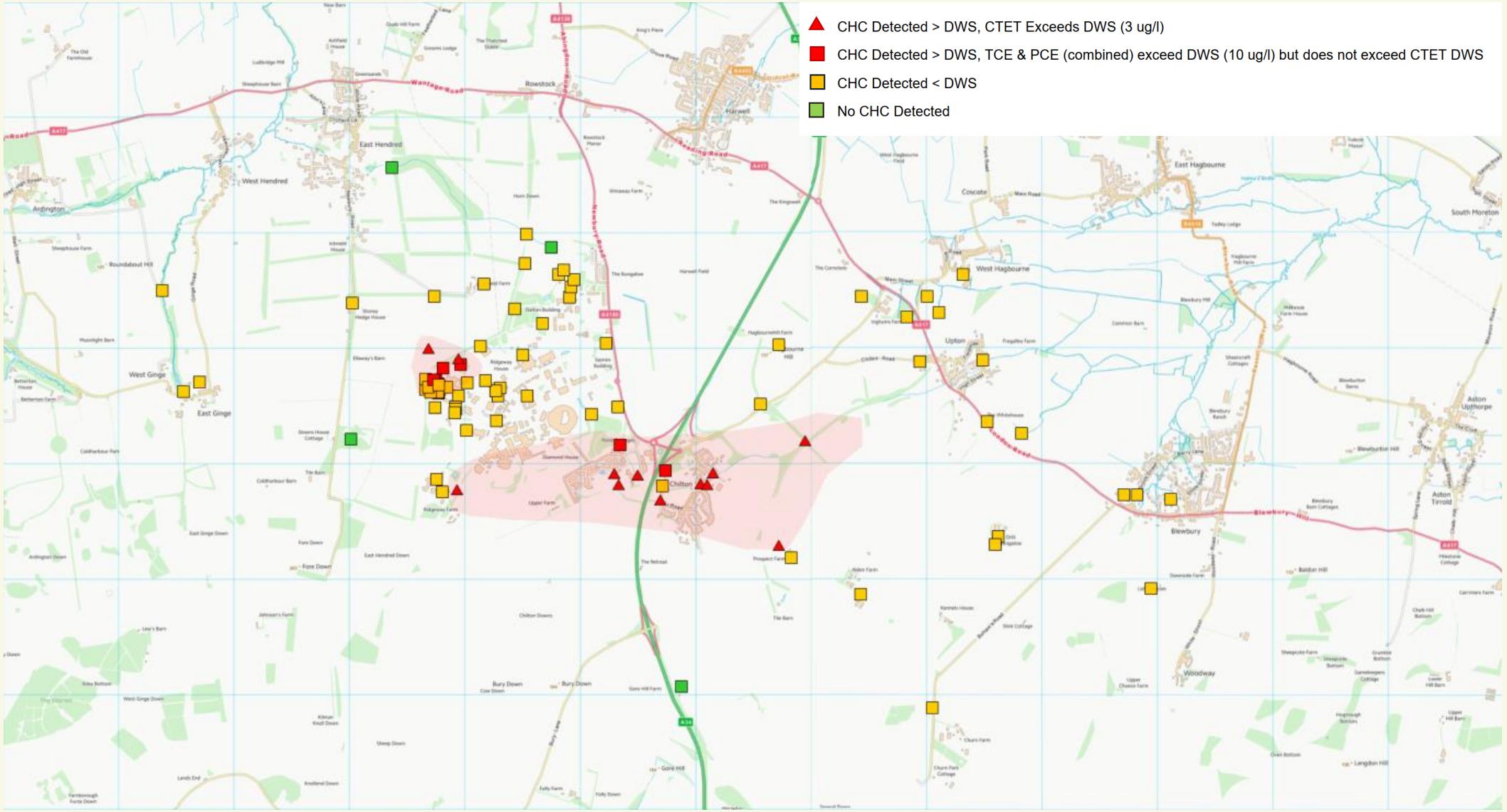
Regional maps 2000-2004



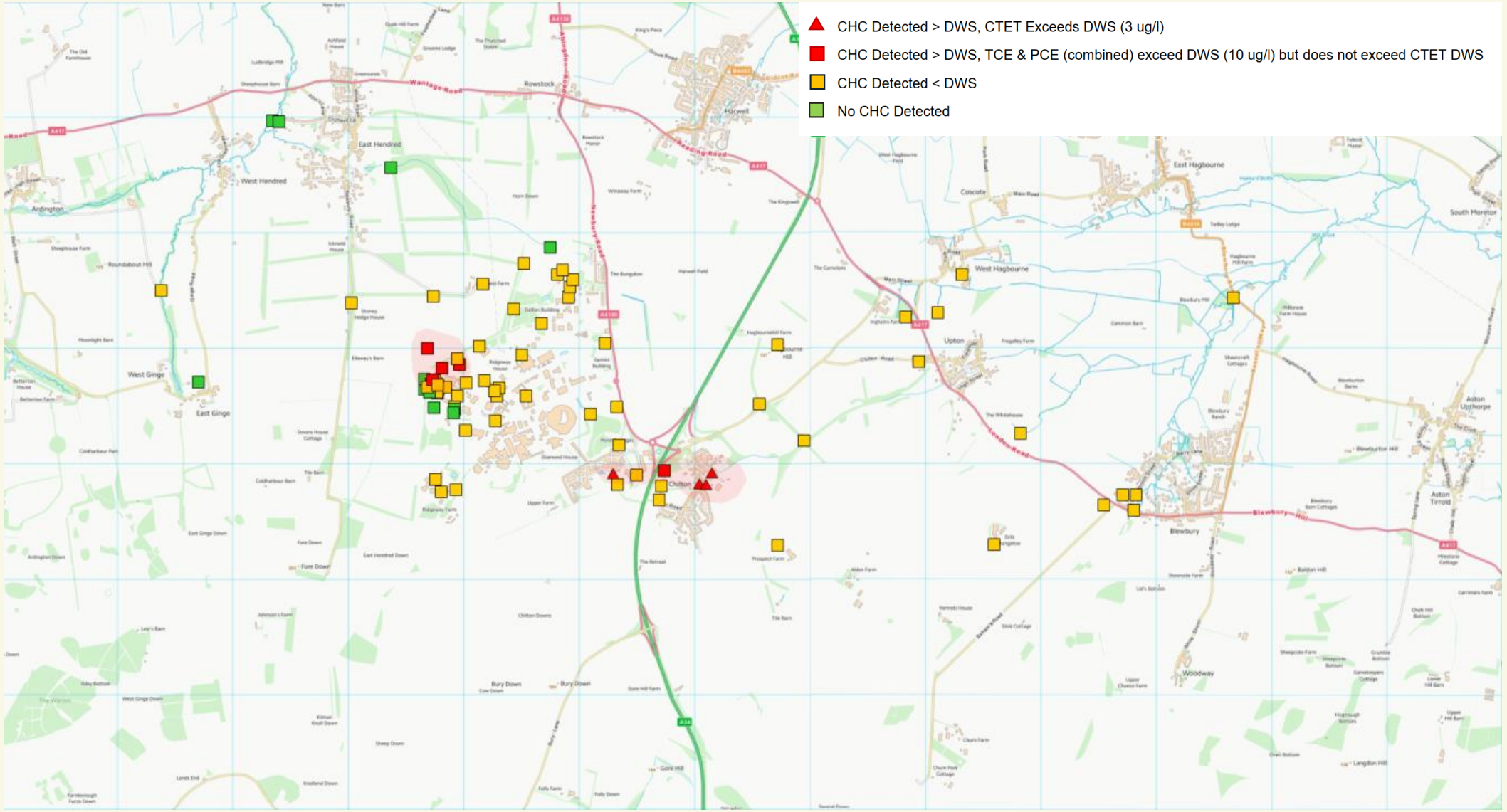
Regional maps 2005-2009



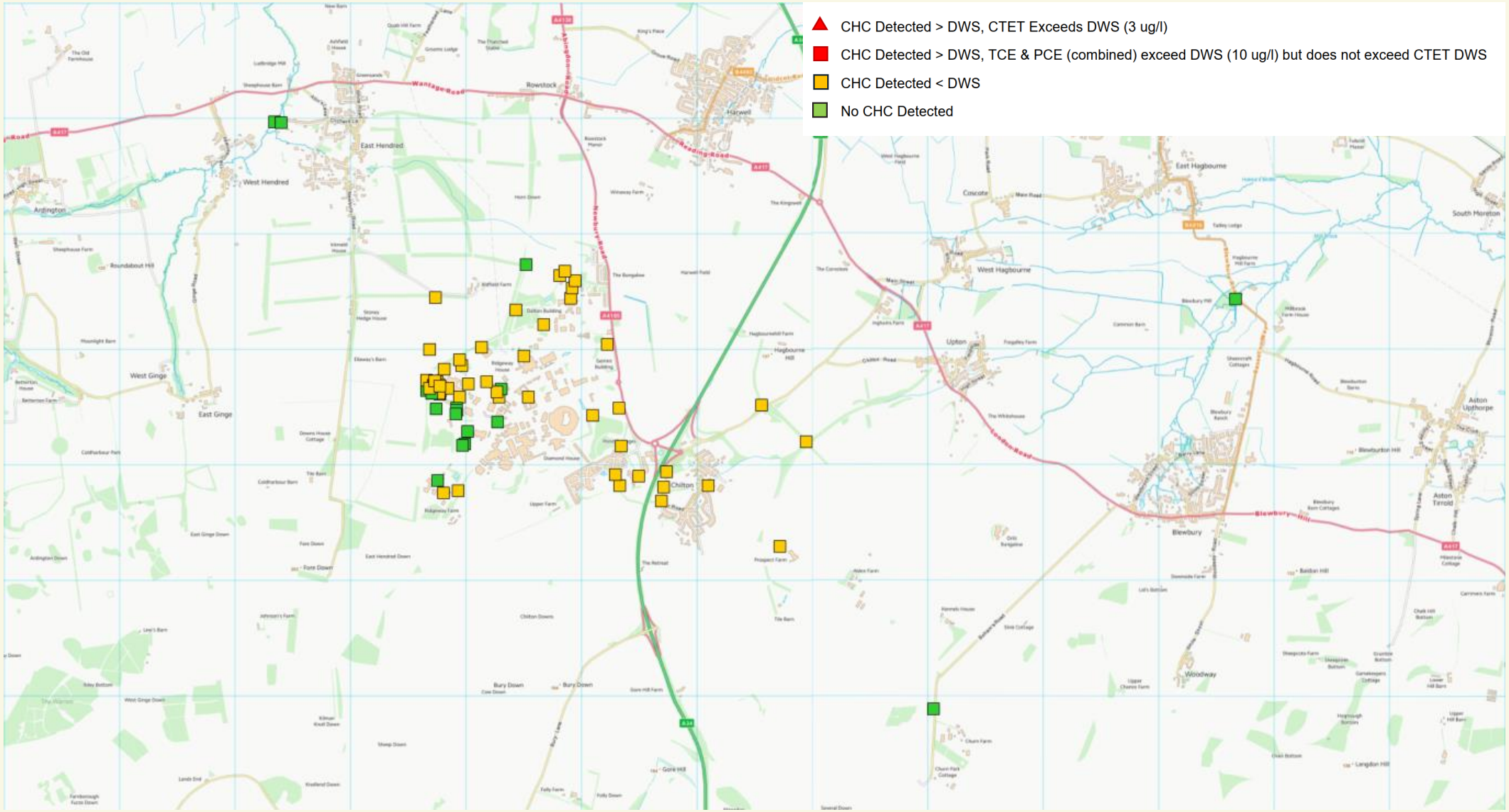
Regional maps 2010-2014



Regional maps 2015-2019

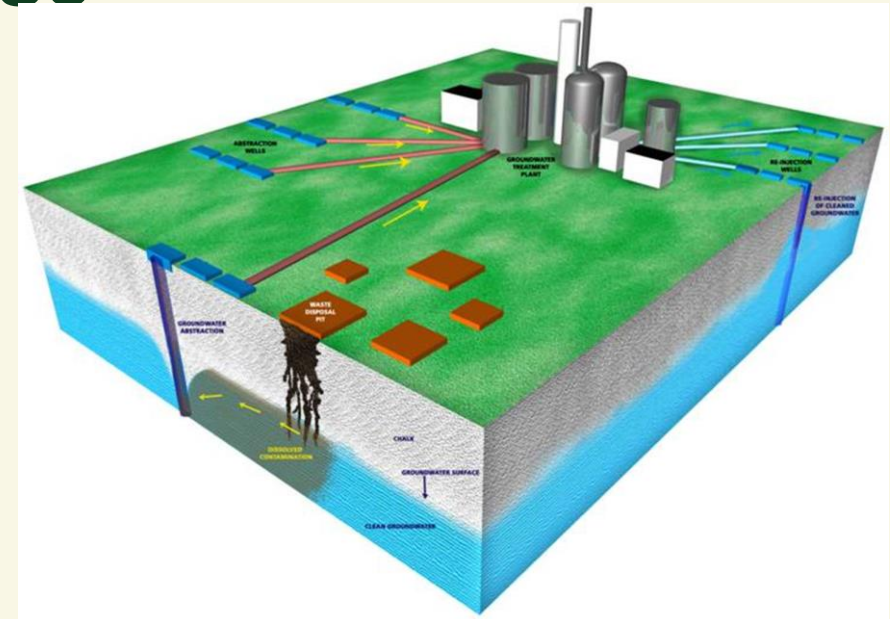


Regional maps 2020-2024



WSA Groundwater Plant Closure Case

- Concentrations of contaminants in the water before treatment are now often less than drinking water standards
- Estimates (WSP 2024) suggest that low quantities of contaminants remain at the WSA
- The financial and environmental impact of running the plant are significant (200,000 kWh of electricity per year)
- Approach to closure case agreed with the EA last year
- Risk Assessments & options assessments carried out by WSP and shared with EA – meeting held in September
- Next step – additional assessments to be carried out by WSP, further engagement with the EA



Groundwater Remediation - Summary

- Chemical contamination of groundwater took place from 1950s to 1980s
- Since groundwater contamination identified in 1989, extensive work undertaken to successfully address the issue
- Work ongoing for groundwater plant closure case
- Groundwater monitoring will continue for many years, but scope will be subject to ongoing review to ensure fitness for purpose