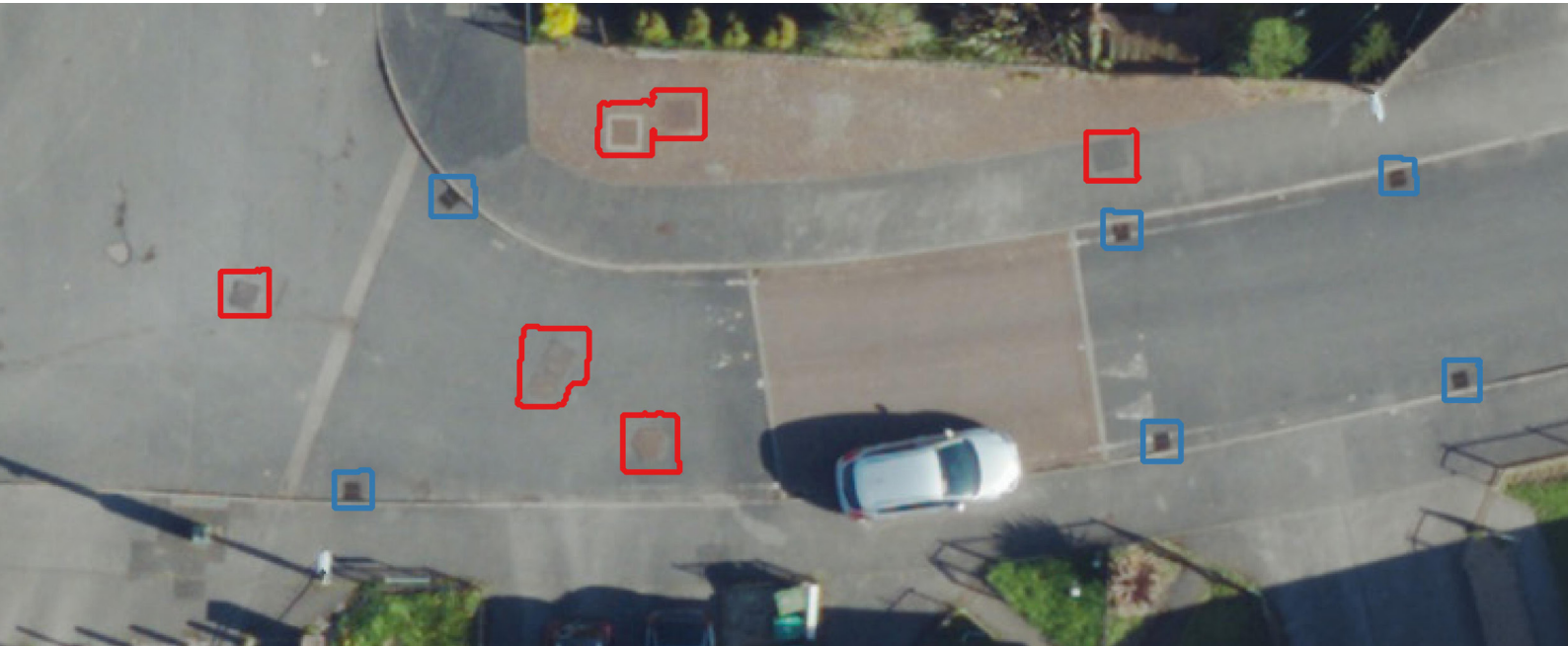




GeoAI Powered Utilities Intelligence

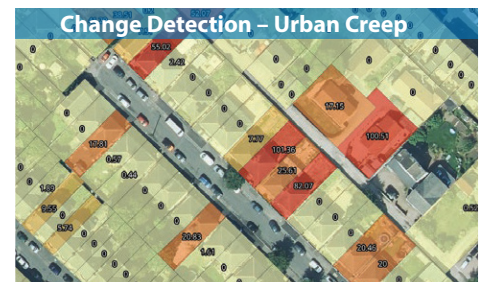
Bluesky is combining its industry-leading aerial imagery and height data with GeoAI to help utility providers better understand, manage, and futureproof their infrastructure networks.

Using high-resolution multi-epoch aerial imagery, captured nationally across Britain and Ireland on a rolling update cycle, we are developing scalable solutions that detect change, identify previously unknown assets, and deliver richer environmental intelligence across utility networks.

Our GeoAI workflows leverage Bluesky's 5cm urban imagery, national height datasets, and National Tree Map™ (NTM™) to address real utility industry challenges including surface change detection, automated asset identification, and enhanced vegetation intelligence for network risk assessment, resilience, and planning.

Applications

- Urban creep analysis
- Catchment change detection
- Manhole and gully detection
- Drainage asset validation
- Root incursion prediction
- Vegetation risk assessment
- Evergreen vegetation mapping
- Enhanced tree intelligence



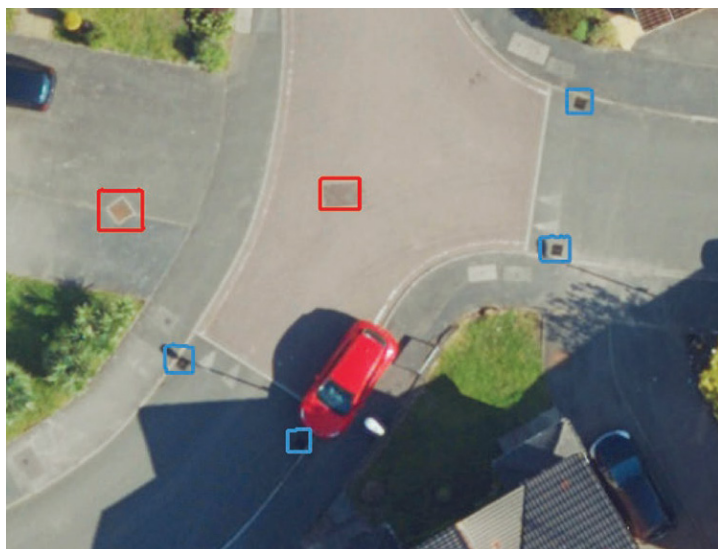
Change Detection – Urban Creep

Automated detection and quantification of green->grey change using multi-epoch, 4-band aerial imagery.

Use case: Surface change impact on flood risk and drainage infrastructure.

Key components:

- Object-based change detection to identify vegetation to hard-surface change
- Integration with cadastral boundaries to enable reporting at property level
- Multi-epoch analysis to support identification of trends, volumes, and velocities of change to support infrastructure planning



Asset Detection

Automated detection of utility covers (gullies, manholes) from high resolution (5cm) imagery to support asset inventory.

Use case: Mapping surface-level assets for infrastructure management.

Key components:

- Object detection of small, surface level infrastructure features
- Classification of multiple asset types
- Application across urban environments to generate large-scale asset inventories
- Outputs suitable for integration with existing geospatial asset registers

Vegetation Intelligence / Impact

Designed as an add-on service to the NTM™, this enhanced environmental intelligence can serve both above and below ground assessments for the utility sector needing an understanding of root spread or canopy cover extent.

Advanced tree type analysis leverages seasonal and multi-epoch imagery to enhance classification performance.

Key components:

- Three model approach: multi-epoch, spring only, summer only
- Utilises 5 indices and applies majority voting for final classification
- Multi-epoch model achieving 95% accuracy, single epoch models ~90%
- Designed for scalable application across national datasets and tree-inventory integration



Get in touch today at info@woolpert.com