LNER
LONDON NORTH EASTERN RAILWAY

NetworkRail

DeterCam

DeterCam Case Study

Hambleton, United Kingdom

Target Animals: Deer Detection and Deterrence Along Railway Infrastructure

Project Overview

The project began in March 2026 after Network Rail approached Innovation Factory to address frequent deer–train collisions at Hambleton. The location presented several challenges, including unfenced railway boundaries, damaged fencing and adjoining woodland where deer regularly lived and moved close to the track.

A total of **300 DeterCam** units were installed across more than four miles of railway, providing coverage on both sides. The deployment extended into nearby woodland to intercept deer approaching the railway, creating a virtual deterrence boundary. The team completed the installation in **one day**, using a combination of tree mounts, fence mounts and ground spikes.

Challenge

Missing and damaged fencing allowed deer to enter the railway from multiple directions. The track was at a similar level to the surrounding ground, making it easy for animals to cross. During installation, the team observed a deer attempting to cross the track, demonstrating the immediate risk at the site.

Nearby woodland provided habitat close to the railway, meaning that protection needed to address deer movement beyond the track boundary. Repairing or adding fencing alone was considered insufficient to address all potential access routes.

The open terrain also presented installation challenges. Some areas lacked suitable trees or fence posts, requiring alternative mounting arrangements to maintain coverage.

Solution / Deployment

DeterCam units were positioned along open approaches, damaged boundary sections and routes connecting the woodland to the railway. Tree-mounted units within the adjoining forest created a **virtual deterrence boundary**, designed to detect deer and discourage them from continuing towards the track.

The system uses **on-device AI** to identify deer and automatically activate audible and visual deterrents. Recorded events support the review of animal responses and help identify locations requiring further attention.

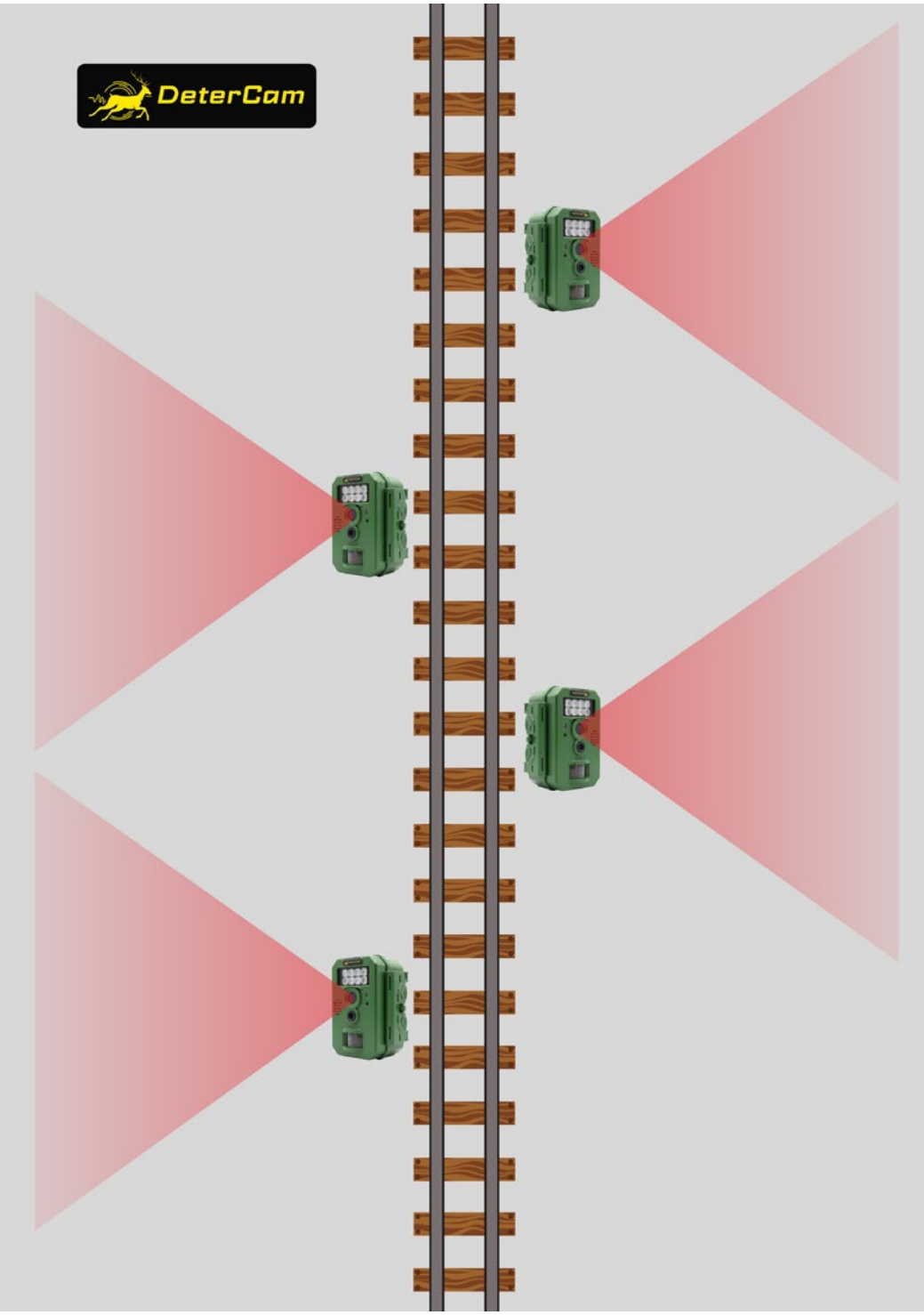
The deployment used three mounting methods:

- **Tree mounts:** Positioned within woodland and along approaches to the railway.

- **Fence mounts:** Used where existing fencing provided suitable installation points.

- **Ground spikes:** Installed in open areas without suitable trees or fence posts.

This flexible mounting approach enabled the team to install all **300 units in one day**, adapting coverage to the site's varied conditions.



Installation Layout

Objective

The project aims to reduce deer–train collisions by detecting and deterring animals before they reach the track, helping protect wildlife, reduce train damage and minimise service disruption.

It also evaluates the use of a non-lethal virtual deterrence boundary across open railway approaches and adjoining woodland. Monitoring deer activity and responses to deterrence will help the team refine unit positioning and assess where additional coverage may be required.

🔍 Key Findings / Observations

- **100% Collision Reduction:** Zero deer strikes have been reported within the protected areas during their monitored deployments since 12th March 2026.

- **High-Volume Deterrence:** Over 3,500 This figure till (11th October 2026) **deer deterrence** events have been recorded to date.

- **Behavioral Insights:** The system tested over 20,000 unique deterrence combinations (visual lights, audible sounds, and ultrasonic frequencies), automatically labeling which alarm profiles were most effective for specific deer species.

DeterCam Milestones

0
Deer Strikes

3,500
Deer Deterred

** Figures from 12th March 2026 to October 11, 2026**

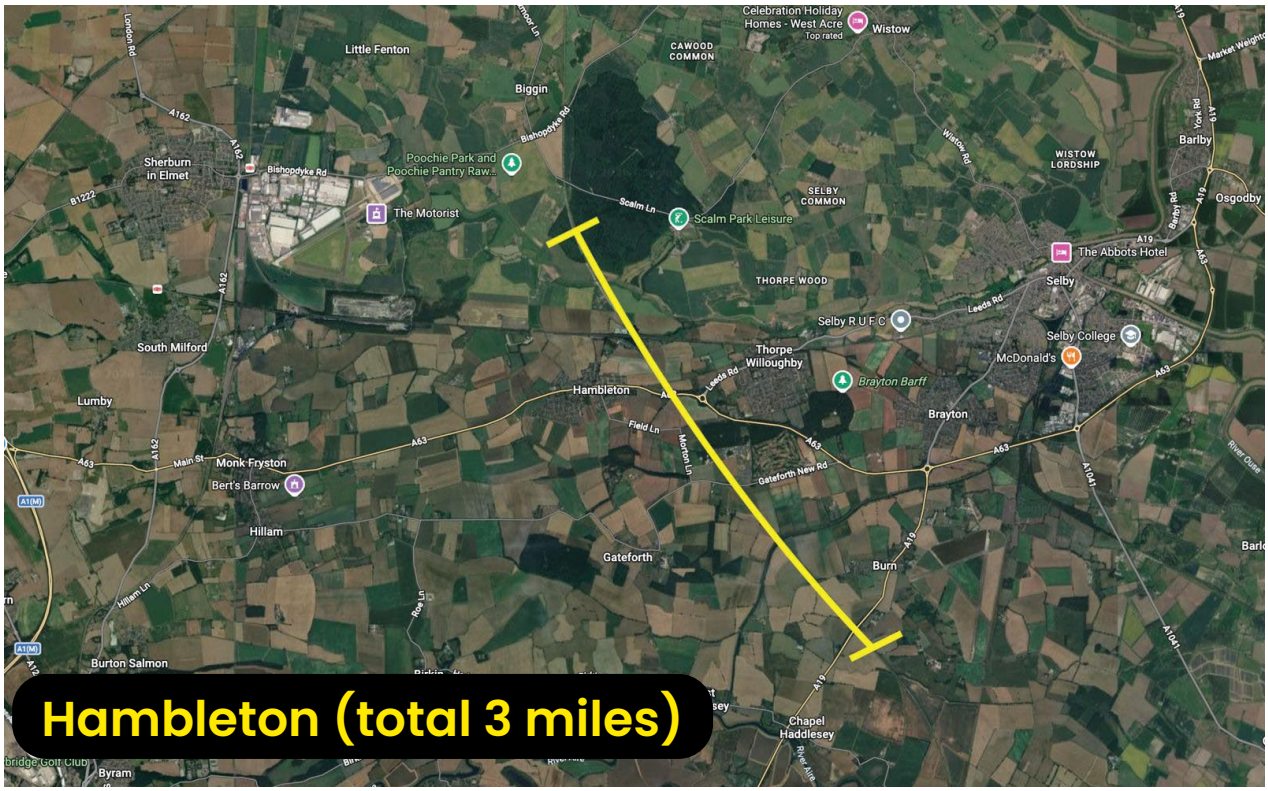
Going Forward

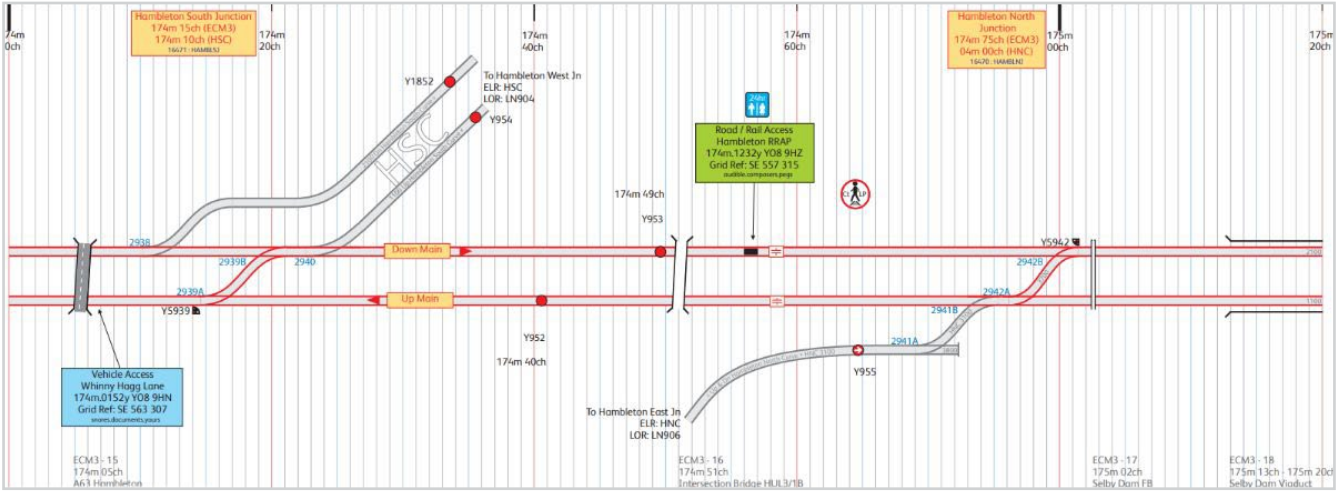
Continued monitoring will assess detection activity, deer responses and any changes in crossing patterns. These findings will guide adjustments to unit positioning, deterrence settings and coverage, particularly if animals begin using alternative approaches.

Reviewing recorded events alongside Network Rail's collision records will help assess the deployment's effectiveness over time. The findings can also inform future installations at other locations with open boundaries, nearby deer habitat and similar railway access challenges.

DeterCam Versions

LNER and Network Rail — UK





Hambleton, United Kingdom

Unfenced sections

Hambleton Unfenced sections allow deer to access and cross the railway easily.

Fresh deer tracks

Hambleton Fresh deer tracks indicate high levels of deer activity in the area.

DeterCam v4

Deployed by Leading Organisations