



LBFoster[®]

CUSTOMER

JM Murphy on behalf of
Network Rail

SECTOR

Control, Display &
Security

**Bridgestrike
Remote
Contract**

The Brief

Some 62 bridges Nationwide have been fitted with No.434 HD cameras and our 'Tell-Tale' devices – HD images are taken daily, as well as upon request after a bridgestrike, and transferred securely over a VPN via the mobile phone network to our secure servers.

Our contract with NWR demands a daily audit (Working days) of the operational status of every single image. This is for a period of three years, paid in advance. The equipment warranty is for five years.

This includes record of electronic transfer of the image, the time to transfer, and the quality of the image to be fit for the intended visual purpose. This includes reporting as a 'RAG' status to the following:

Dirty	Camera is unuseable due to dirt on lens
Dirty	Camera can be used but some of the images are obscured or blurred due to dirt on the lens
09/10/2014	Camera or Control Unit has not responded since the date shown

A change differentiator is required – to show change of status compared to the previous report.

The Reports:

L.B. Foster created a server reporting system that would report and store the data required for the SLA, as well as an image retrieval database to allow the daily status reporting. All exceptions are send to our support team.

As part of our internal processes we also capture and monitor remote battery voltages – as the system is totally solar powered. Any voltages out of limits generates an automatic email to our support team.

The server also has an auto audit facility which will build a CSV report of all camera status, against hardware serial numbers – which allows a true audit for warranty y purposes, in the event a camera has been changed.



The SLA

Any camera that has an issue of image quality will in the first instance, within 72 hours, have its focus reset by remote means, and if necessary the camera optics will be recalibrated. (By remote means.)

Any camera that fails connection will be checked via the connection logs to ascertain the 3G supplier has a service. Within 72 hours we will raise a fault report with the 3G supplier and progress the fault.

All remote diagnostics will be completed reference the 3G link, router LAN testing and power testing prior to a service visit.

In the event a service call to the bridge is required, we will manage the road closure permissions if required, and agree a method statement and risk assessment with the route control manager for that region. The visit will be billable for labour and TM, but all parts are included free of charge.



1. Solar Panel and Control Unit

2. High-Definition IP External Cameras (Vandal Resistant)

3. Custom Designed 'Tell-Tale' device

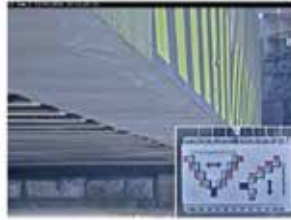
The Technology

- > A dedicated secure VPN within the 3G ISP space, with secure IPSEC links with active monitoring and failover systems in place to our secure 24/7 cloud server space
- > The bespoke software included a fast, easy to use operator interface – the system is designed to offer considerable savings in lost operation delay minutes
- > Within seconds the operator can remotely analyse differential images, examine our custom engineered movement 'tell-tale' device and declare normal safe operation with a few minutes, so saving considerable financial penalties against waiting for a bridge engineer to visit site.
- > The software also include customer administration pages, so that changes can be made dynamically 24/7 to both user permissions, and dynamic text to create a rapid event report.

Bridgestrike Remote Contract



Camera 1
Camera Description to follow



Camera 2
Camera description to follow



Camera 3
Camera Description to follow



Camera 4
Camera description to follow

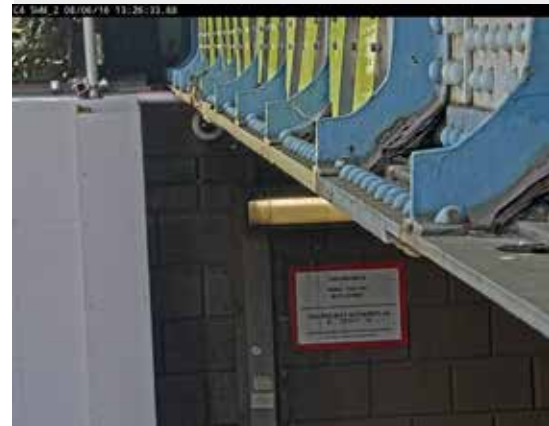


Camera 5
Camera description to follow



Camera 6
Camera description

All reference images are available in one view – then enlarged against the last auto update to see fine detail. (Right image)



Chestfield and Swalecliffe

At 1228 today Bridge 776 VIR was struck by a lorry. Report originated from a member of the public to Kent Police.

The Signaller was advised and owing to the bridge being a Red bridge all traffic was stopped.

At 1230 we dispatched the Ramsgate MOM (BSN) to site with an eta of 1255.

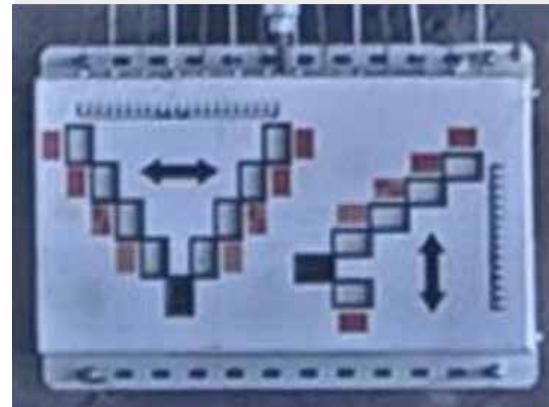
By 1239 the TEW plus system was interrogated to view the camera system on the bridge.

After inspection of the images downloaded the Route Control Manager authorised and Amber dispensation to be applied.

The Ramsgate MOM arrived on site and confirmed line speed from 1310 after on-site inspection.

As a result of these cameras working and the criteria to reopen at amber being met, the delay to trains was kept to around 8 minutes whilst the line was examined by train.

In this case, without the cameras working/being in place the line would have remained blocked until the bridge was examined on site; between 1230 and 1310 there were 3 booked trains that would have been unable to run and as a result would have incurred up to 30 minutes of delay.



The 'Tell-Tale' visually shows any deck movement to within 3mm. Reference image and last taken, side by side - digitally zoomed for convenience and speed.

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