

Hot Axle Bearing Detectors: National HABD Renewals Programme



CASE STUDY



Overview of Deliverables

In order to detect and prevent overheated axle bearings (and therefore preventing damage/failure to both rolling stock and infrastructure) Hot Axle Bearing Detectors are now in widespread use globally. Vertex was contracted by Network Rail to provide multidisciplinary Engineering Support Services for the introduction of two new Hot Axle Bearing Detector Systems. These systems replaced the existing equipment at over 200 locations. The project was completed across a period of 6 years, in order to reduce the impact of the renewals on network operation.

Deliverables Included:

- Product Acceptance/Assurance Services;
- Project Engineering;
- Development of the overall national programme and then each of the 4 phase programmes;
- Options analysis of HABD locations, including analysis of traffic patterns to determine suitability of the location;
- Engineering Safety Management and Analysis, including consideration of Human Factors for end users;
- Delivery of Statements of Safety Verification via the Competent Independent Person in compliance with ROGS regulations;
- Asset Integrity Analysis;
- Development (in conjunction with equipment manufacturers) of technical manuals;
- Development of NR training materials;
- Stakeholder Management (Including Operations);
- Management of Entry Into Service documentation, as required by Network Rail testing and commissioning requirements;

- ROGS assurance;
- Contribution to BS/EN standard development for HABD; and
- Product trials and acceptance.

Technical competencies applied in the delivery of the contract

- Vertex employed the following competencies during these works:
- Optioneering of technical, operations, maintenance to develop the suite of feasible options and demonstration of acceptability to stakeholders' requirements;
- Provided specialist support roles within Network Rail as defined in the Network Rail Standard "Engineering Management for Projects" providing Designated Project Engineers;
- Responsible for the coordination and integration of technical and engineering aspects of this multi-disciplinary project (Signalling, Civils, Track, Power, Telecoms, Operations and Maintenance);
- Carried out "Approved for Construction" design reviews, supporting program development & review, setting technical scope, resolving technical issues and liaising with suppliers for over 230 locations spread across the breadth of the UK rail network;
- Requirements analysis of the system as a whole, including impacts analysis on other stakeholders;
- Product acceptance approvals for the two HABD systems, the GETS FUS and SST Phoenix HABD as per client request; and
- Development of training materials, including review in real-life training sessions.

Value added initiatives

Vertex liaised with the equipment manufacturers in order to ensure that the standard documentation provided to Network Rail was as closely aligned to the Client's requirements as possible. This avoided the need to re-write generic documentation to meet Network Rail standards and ensured consistency of appearance to staff.

A methodology was developed for the determination of a HABD (single or multiple) site location. This was tested and then offered as the common approach for the determination of HABD locations (new and existing). The process removed the possibility of duplication and rework of the same information for s presentation to separate parties and therefore a lower cost and more efficient delivery programme. Also, early in the project Vertex developed a template design package which enabled the project to progress

CASE STUDY

Hot Axle Bearing Detectors: National HABD Renewals Programme



rapidly for each subsequent site implementation. Lessons from the early commissioning's were reflected in a revised template. This resulted in lower unit costs for the design to commissioning stages.

Programme start and completion dates

Programme dates were March 2006- August 2011. Vertex supplied the required within the timescales specified by Network Rail.

Resources utilised

Vertex utilised its team of Railway Systems Engineers and Project Managers for this project. Qualification held includes membership of the Institution of Railway Signalling Engineers, membership of the Association of Project Managers (MAMP), Project Management Professionals (PMP). Combined railway experience of the project team (4 persons) exceeded 70 years.

London, UK

221 St John Street
Clerkenwell, London
EC1V 4LY
United Kingdom
T: +44 (0)207 688 2561

Reading, UK

Soane Point
6-8 Market Place, Reading
RG1 2EG
United Kingdom
T: +44 (0)1189 255 462

Sydney, Australia

Level 6, 69 Reservoir Street
Surry Hills, Sydney
NSW 2010
Australia
T: +61 (0)2 8218 2130

For more information visit:

www.vertex-se.com

Vertex Systems Engineering is the trading name of AMCL Systems Engineering Ltd.

Registered in the UK,
Number: 04440268.