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CONSTRUCTION NOISE AND VIBRATION MONITORING SYSTEMS, PAST, PRESENT AND FUTURE

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1 INTRODUCTION

This paper reviews the noise and vibration monitoring systems that have been used over the last 20 years on major construction projects in the United Kingdom. It examines how technologies have developed in terms of the instrumentation available, its connectivity and the presentation of data. It also examines how legislative and contractual requirements have developed in line with the available technologies. The focus is on long-term unattended monitoring systems, rather than attended monitoring.

A case study is provided for systems currently in use on construction projects and the author's views on where monitoring systems may progress in the future are presented.

2 BACKGROUND AND SCOPE

2.1 Background

The author has been responsible for the noise and vibration issues associated with a number of major construction projects within the UK over the last 20 years. This paper is drawn from the author's personal experience and is not intended to cover all Projects undertaken during that period, nor all types of monitoring systems available. It is based on experience from the following projects (each given with approximate dates):

- West Coast Main Line (Euston area remodeling): (circa 1998)
- Channel Tunnel Rail Link Contract 570 (2000 – 2002)
- Docklands Light Railway – City Airport Extension (2003 – 2005).
- West Coast Main Line route modernisation (2003).
- Docklands Light Railway New Woolwich Crossing (2005 to 2009)
- Kings Cross Redevelopment (2007 to 2013)
- East London Line (2008 to 2012)
- Thameslink - Blackfriars station and bridge redevelopment (2009 – 2013)
- Crossrail Contract C512 (Whitechapel Station) (2012 – ongoing)
- Thames Tideway Tunnel (2015 – ongoing)

2.2 Scope

Noise and vibration monitoring systems for major construction projects have developed significantly over the last 20 years or so. This paper examines a number of areas where developments have occurred and how legislation and/or Project requirements have changed to incorporate the latest available technology. The following areas are examined:

- Legislation