

Technical Support Statement

**LAND ADJACENT TO ROCKY LANE, SANDROCKS, ANSTY AND STAPLEFORD
RH16 4TW. [NGR: E 532514 / N 122168]**

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1. INTRODUCTION

1.1 This document has been prepared to support of the proposed development of shared electronic communications base station infrastructure to provide improved connectivity to a stretch of the Brighton Main Line. It should be read in conjunction with the other documentation provided by Cellnex Connectivity Solutions Limited in support of the development proposed.

1.2 This document provides information on the following technical aspects of the proposed base station:

- The radio frequencies to be deployed by the Mobile Network Operators who will provide coverage from this site
- A plan showing the extent of current deficiencies in the Operators network coverage along the Brighton Main Line in the authority's administrative area. This is also shows the indicative location of other base stations in our radio plan that have been identified to remedy these gaps in coverage
- A radio simulation plot showing the extent of improved connectivity to the railway line and beyond from the proposed site
- Health and Safety information, including compliance with the guidelines of the International Commission on Non-Ionizing Radiation Protection (commonly referred to as the ICNIRP guidelines).

2. RADIO FREQUENCY INFORMATION

2.1 The base station infrastructure proposed at the application site has been specifically designed to be shared by all four of the UK's Mobile Network Operators (MNOs). It is one of a number of new base stations being developed along the Brighton Main Line to remedy the gaps in the MNOs' network coverage between Brighton and London Victoria and London Bridge Railway Stations.

2.2 The principal objective of the Brighton Main Line project is to provide seamless fourthgeneration (4G) connectivity to passengers using the railway line. It will also

provide the important secondary benefit of providing improved 4G coverage and capacity to the areas either side of the railway line.

2.3 The antennas and other equipment to be installed at the site will operate in radio frequencies allocated to each MNO by Ofcom, who is the independent regulator of the UK's communications industries. To date, Ofcom has granted licences for each MNO to provide communications services to the public in the following frequency bands:

- EE Limited: 700MHz, 800MHz, 1800MHz, 2100MHz, and 2600MHz
- Telefónica UK Limited: 700MHz, 800MHz, 900MHz, 1800MHz, 2100MHz, 2300MHz, and 2600MHz
- Vodafone Limited: 800MHz, 1400MHz, and 2600MHz
- Hutchison 3G UK Limited: 700MHz, 800MHz, 1400MHz, 1800MHz, and 2100MHz.

2.4 The MNOs are under a legal obligation to comply with the conditions of their licences granted by Ofcom. These conditions ensure avoidance of interference with other radio systems, other electrical equipment, and instrumentation or air traffic systems. The conditions of the licence are mandated by Ofcom who are responsible for the regulation of the civilian radio spectrum.

Ofcom also has powers to investigate and remedy any reported significant interference.

3. PREDICTED COVERAGE

3.1 The plan in Annexe A shows the extent of the existing MNO coverage along the Brighton Main Lane by colour: green for adequate coverage to the railway line and for passengers in trains; and red for stretches of the railway line with inadequate coverage. In addition, this plan provides the following information:

- The indicative locations identified in our radio plan where base stations are required to provide macro-level radio coverage to the railway line to remedy these gaps. These are referred to by their Cellnex reference number, e.g. S3_13. The base station sites being progressed to remedy gaps in coverage will either involve the installation of antennas and other equipment on buildings or new ground based masts where buildings are unavailable

- The locations for Distributed Antenna System (DAS) solutions for those hardest to reach sections of the railway line such as cuttings or tunnels where macro-level coverage will not reach. DAS solutions will typically involve short masts on Network Rail land or the installation of antennas within tunnels.

3.2 The radio propagation plot in Annexe B shows the geographical extent of the expected coverage from the proposed site to the Brighton Main Line and the areas either side of it. The plot has been produced by computer modelling software to predict the extent of coverage and signal quality provided by the base station. In providing this information, we highlight that the extent of coverage is dictated by many factors including the height of the antennas above ground level, the frequency and type of the antennas, the surrounding topography, and the presence of buildings and trees that can cause reflections or absorb the radio signals.

3.3 The following information is shown on the plots:

- The location of the base station, which is indicated by its site reference number
- The extent of coverage to the railway line and land either side of it, which is illustrated by the coloured shading.

3.4 If provided, the coverage plot in Annexe C shows the relationship with the adjoining base station in our radio plan, which is again identified by its reference number with shading used to illustrate the extent of radio coverage to be provided.

4. COMPLIANCE WITH HEALTH AND SAFETY GUIDELINES

4.1 The proposed base station will provide radio coverage to the railway line using the radio frequencies allocated to the MNOs by Ofcom. Radio waves are electromagnetic fields and, unlike ionising radiation (such as X-rays or gamma rays), can neither break chemical bonds nor cause ionisation in the human body.

4.2 In the UK, radio waves have been used by a range of public and commercial communication networks since the dawn of radio services in 1922, when the BBC opened its first regular public broadcasting station (in the world) in London. Radio waves have underpinned the UK's growth, prosperity and social inclusion. Radio waves have ensured the safety of our communities and supported national security.

The UK's public radio and television broadcasting networks have been transmitting non-ionising radio waves in the UK since the 1920s.

- 4.3 Throughout the history of mobile connectivity there have been concerns raised with regards to the Health and Safety of these systems. A great deal of research has been undertaken throughout the world into the effects of electromagnetic radiation and radio signals and to date there has been no evidence to indicate that the systems so far operated and those intended to be operated have caused any discernible adverse health effects.
- 4.4 Over 50 years of scientific research has already been conducted into the possible health effects of the radio signals used for mobile phones, base stations and other wireless services including the 4G frequencies planned for the proposed base station. The health effects of exposure to radio waves have been researched extensively over several decades, and very many publications can be found in scientific journals and elsewhere. Coordinated research around the world has addressed concerns about the growth of mobile communications technologies from around the year 2000. Through extensive studies providing peer reviewed evidence, no causal link has been discovered between mobile connectivity and a risk to health.
- 4.5 Cellnex does not set its own health and safety standard but relies on these guidelines covering the safety of radio transmissions, which have been adopted by the UK Government on the advice of the UK Health and Security Agency (which is the statutory adviser on the safety of radio transmissions across all of the UK). Advice by other Government Public Health bodies in Scotland, Wales and Northern Ireland will therefore largely adopt the same guidance.
- 4.6 UK Health and Security Agency (UKHSA) guidance on the health and safety of mobile phone base stations can be found below:

<https://www.gov.uk/government/publications/mobile-phone-base-stations-radio-waves-and-health/mobile-phone-base-stations-radio-waves-and-health>

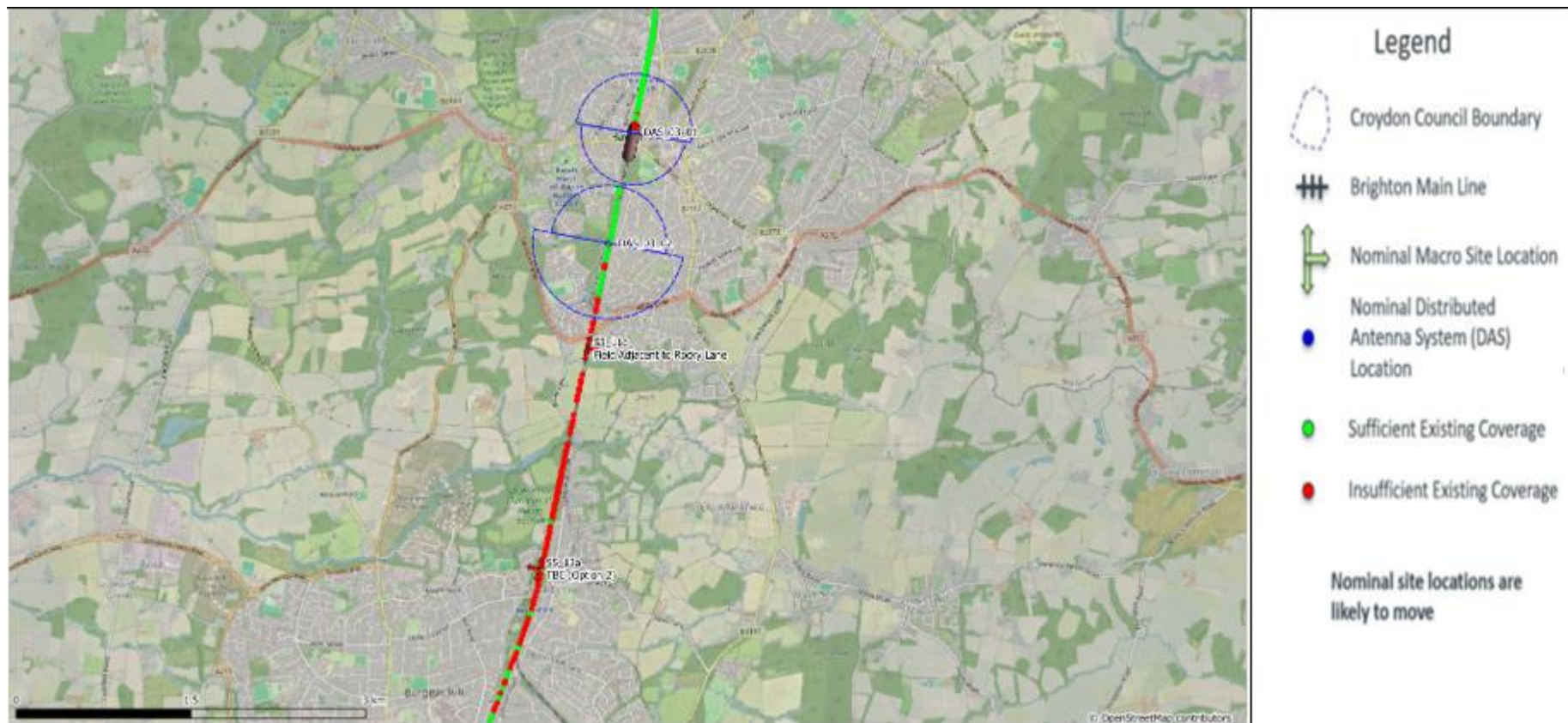
- 4.7 Significantly, UKHSA advises that:

“Independent expert groups in the UK and at international level have examined the accumulated body of research evidence. Their conclusions support the view that health effects are unlikely to occur if exposures are below international guideline levels”.

- 4.8 The proposed base station has been designed, and will be constructed and operated, in accordance with all relevant health and safety requirements. This includes the guidelines of the International Commission for Non-Ionizing Radiation Protection (ICNIRP), as adopted in the EU Council Recommendation of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0Hz to 300GHz). The ICNIRP guidelines are accepted by the UK Government as the appropriate safeguard to public health.
- 4.9 ICNIRP is a non-governmental organisation formally recognised by the World Health Organization. The ICNIRP guidelines were developed following reviews of all the relevant peer-reviewed scientific literature. The ICNIRP Public Guidelines, which incorporate a precautionary safety factor of 50 times, are designed to protect all members of the public 24 hours a day.
- 4.10 The certificate submitted with the planning application certifies that the base station, when operational, will meet the precautionary ICNIRP guidelines. For the avoidance of doubt, the certification relates to the radio coverage provided from the base station and any other electronic communications installations nearby.
- 4.11 Further information on health and safety guidelines can be found from the following sources:
- The ICNIRP guidelines, can be found here: www.icnirp.org/
 - ICNIRP FAQs: <https://www.icnirp.org/en/rf-faq/index.html>
 - Radio spectrum in the UK is regulated by Ofcom: www.ofcom.org
 - The Health and Safety Executive website describes the responsibilities of mobile communications network operators in relation to radio transmissions:
<https://www.hse.gov.uk/radiation/nonionising/emf.htm>
 - The NHS has also published advice: <https://www.nhs.uk/conditions/mobile-phonesafety/>

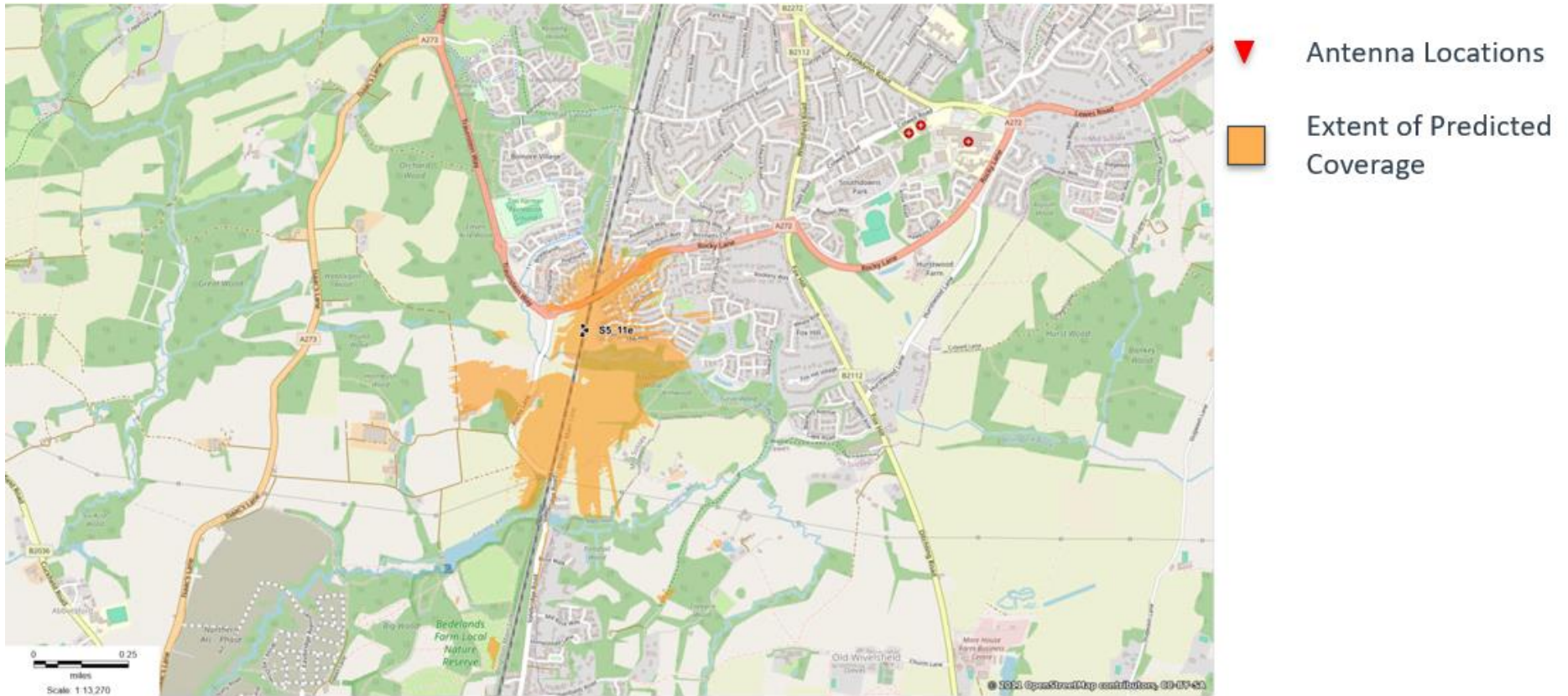
- Mobile UK is an organisation that represents the UK MNOs. It to, publishes health and safety information: <http://mobileuk.org/health-and-safety.html>

Annexe A – Overview of Coverage to the Brighton Main Line



Annexe B – Predicted Radio Coverage from the Proposed Site

Single Site – Incidental coverage



Annexe C – Network Coverage

