# DESIGN AND ACCESS & HERITAGE STATEMENT

Kingsley
Stoke-On-Trent
Staffordshire
ST10 2AE

This Design and Access Statement is provided in conjunction with the Supplementary Information Template, drawings and supporting material that was submitted with this planning application.

In accordance with the Code of Best Practice on Mobile Network Development and published Government guidance, this proposal was drawn up having regard to the need for good design.

In particular:

- Considerations of design and layout are informed by the context, having regard not just to any immediate neighbouring buildings but the townscape and landscape of the wider locality. The local pattern of streets and spaces, building traditions, materials and ecology all help to determine the character and identity of the development.

- The scale, massing and height of proposed development have been considered in relation to that of adjoining buildings; the topography, the general pattern of heights in the area; and views, vistas and landmarks.

The following general design principles have been taken into account in respect of this proposed telecommunications development:

- A proper assessment of the character of the area concerned.
- That the design shows an appreciation of context;

## SITE CONDITIONS, TECHNICAL CONSTRAINTS, LANDSCAPE FEATURES AND CAPACITY REQUIREMENTS

### Introduction

It needs to be borne in mind that the proposed development is for a mobile telecommunications installation. Hence, access is deliberately restricted, where appropriate, for the security of the installation.

## Pre Application Discussions and Negotiations

Prior to the submission of this application the applicant initiated pre-consultation discussions with the local planning authority. This provides an opportunity for the LPA to discuss development proposals and identify site specific issues, however, due to the minimal nature of the proposal it was not considered necessary to pay the fee requested, therefore, no comments were received in respect to the consultation submitted at the time of submission.

Strategic level pre-rollout meetings are held with the LPA to discuss the necessities of the project, benefits and best practice going forward.

As emphasised during the roll out meeting the height increases are imperative for the combined 02 and VF network. The height increases will allow other masts in the area to be decommissioned once the CTIL project has been fully implemented in the UK. Please see the enclosed "height increase document" which gives further information on this specific topic

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Further consultation with the local Ward Councillors (Cllr Elsie Fallows, Ivor Lucas) and the MP Karen Bradley. Consultation letters sent on 05/09/2015.

## Documentation Submitted with Application

- Plans and elevations
- Supporting statement

## Design Component

The proposal is for an upgrade to an existing telecommunications site approximately 150m to the north west of Church Street in Kingsley, Stoke-On-Trent. The existing site is well screened benefitting from the masking effects provided by surrounding trees of up to approximately 12.5m in height.

The existing facility is a 14.5m high ADC 1003UP Lattice Tower supporting 3 no. antennas and the upgrade will involve the addition of a tower extension and the removal of the existing antennas to be replaced by 6 no. new antennas to a top height of 23m. The upgrade will also require the installation of 3 no. RRUs and 1 no. FTTA box to be mounted below the antennas. The existing 1 no. 300mm VF dish is to be relocated on to the tower extension. The upgraded ancillary equipment cabinets will be installed within the existing equipment cabin.

The existing site has been carefully selected in a well screened position and as far away as possible from housing so as to provide the required improved coverage whilst minimising visual intrusion for residential receptors.

It is imperative to consider that this is not a new additional telecommunications installation but merely an upgrade to an existing facility, with the proposed upgrade eliminating the need for the installation of a separate ground based facility within the locale.

Removal of existing 3 no. antennas to be replaced by 6 no. Huawei antennas mounted to crucifix support fixed to relocated antenna support pole mounted on proposed 6m tower extension. Proposed 6 no. lightning finials to be mounted on antenna support poles. Proposed 3 no. RRUs mounted on proposed 6m tower extension below antenna. Proposed 1 no. FTTA box mounted on proposed 6m tower extension below RRUs. Existing 1 no. 300mm VF dish mounted relocated on proposed 6m tower extension leg.

1 no. VF / TEF Huawei BTS3900AL Cabinet (600 x 450 x 1600).
1 no. VF Delta PSU (600 450 1800).

Access

Access to the development is by definition limited to the operator and its authorised agents.

The National Planning Policy Framework clearly states that authorities should not question the need for the service, nor seek to prevent competition between operators. Notwithstanding this fact, the Applicant considers it to be important to explain the technical justification for the site and how the facility fits into the overall network.

In February 2013, Vodafone and Telefónica were successful in their bids for 4G spectrum. 4G (sometimes called LTE (Long Term Evolution)) is the next major enhancement to mobile radio communications networks and will allow customers to use ultra-fast speeds when browsing the internet, streaming videos or sending emails. It also enables faster downloads. To meet this demand and improve the quality of service, additional base stations or upgrades to the equipment at an existing base station may be needed.

The site is required to provide enhanced coverage for Telefonica and Vodafone. This will improve coverage and capacity in the ST10 area of Staffordshire. The cell search areas for 3G and 4G are extremely constrained with a typical cell radius of approximately 250m meaning that it would not be feasible to site the column outside of this locale.

Further detail regarding the general operation of the network can be found in the accompanying document entitled 'General Background Information on Radio Network Development for Planning Applications'. This information is provided to assist the local planning authority in understanding any technical constraints on the location of the proposed development.

The radio coverage plots can be e-mailed to the LPA on request / Please refer to the radio coverage plots with this application

## RADIO PLANNING AND PROPAGATION

When planning cellular telecommunications networks it is important for engineers to predict, with a high degree of confidence, the behaviour of cellular transmissions. This then enables the operator to calculate how many cell sites are needed to provide the level of coverage required by the services they offer under the terms of their licence.

The strength of radio signals detected at a receiving device naturally reduces the further away it is from the transmitter. In general the reduction (or decay) in signal power is affected by a number of variables. The main factors are

- frequency,
- distance (from transmitter),
- terrain (such as hills),
- clutter (such as buildings, foliage, vehicles, and water)
- and atmospheric conditions (such as rain).

A reduction in the strength of the radio signal increases the likelihood of dropped calls and reduced data rates for internet browsing, for example.

### Clutter

Any physical object obstructing the propagation of radio signals causes a reduction in signal strength reaching a customer's device. A common term for these objects is 'clutter'. The more obvious examples are buildings and geographical terrain such as hills and trees.

Buildings cause a varying amount of signal reduction depending on their height, construction, thickness of walls, amount of windows etc. Glass causes a lower reduction in signal than brick/concrete walls.

Customers will inadvertently be aware of this by finding that sometimes they need to go near windows, a higher floor of a building or even outside in order to achieve a stronger signal for their mobile devices.

### Tree Clutter

The effects of trees on signal degradation should never be underestimated. Signal absorption and shadowing effects vary according to vegetation and density, and are caused by the main tree trunk, branches and leaves.

Cell sites located in or near trees will have signals significantly reduced. As a result a number of extra sites may need to be built locally in order to counter-effect this.

Signal variation throughout the seasons is also a practical concern. Leaves on trees in the spring and summer can cause shadowing and reduce radio voice quality and increase the number of dropped calls.

As a result the bottom of an antenna should be a) above the top level of the trees, b) allow greater height due to the antenna downtilt at build or for future requirements and c) allow some room for future growth of the trees.

In the case where the cell site utilises point-to-point microwave backhaul transmission the microwave dish should not be obscured at all.

Propagation Models

In essence these are mathematical formulae used to characterise radio wave propagation, in order to determine the received signal strength at a receiving device.

The most well-known propagation model used for mobile telecommunications is 'Okamura-Hata'. More specific studies have been performed to investigate specific clutter and terrain such as dense-urban and urban environments. Resulting from these are propagation models for specific clutter types.

Coverage Planning Tools

Radio planning engineers plan cellular networks using highly sophisticated computer programs that incorporate the above propagation models. Armed with data on cell site location, cell site configuration, maps, terrain etc they are used to predict areas of coverage deficiency (so called 'coverage holes'), new site requirements and configurations.

Network Changes

Over time the topography and clutter in an area is subject to change. For example, building developments, housing and tree growth can all change. As a consequence the signals received from local phone masts can degrade, as they are dependent on these factors. These reasons along with customer complaints, network consolidation (mast sharing) and new technologies (4G) require a re-evaluation of a network operator's telecommunications infrastructure.

Mast sharing can result in some masts no longer being needed. As a result they are decommissioned and physically removed.

Technical surveys undertaken for reasons above may highlight that antenna height increases are required – this is more likely for sites with low antenna heights around 15m AGL, particularly street furniture sites. More details on these reasons below.

While thus far this document is generic to mobile telephony masts it should be noted that each mast has to be dealt with on a case-by-case basis.

Site Height increases

There are a number of reasons why an operator may request a height increase on existing structures. The main ones are described below.

Maintaining existing coverage
The antennas inside, for example, street furniture sites are generally of 2 physical build designs – 'Single Stack' and 'Dual Stack'. The former describes when the set of antennas are all at the same height. The latter describes a site with 2 sets of antennas one above the other.

The 'Dual Stack' is by far the preferred option. This is due to a number of factors including greater flexibility & control for different technologies and providing optimum service performance to customers.

Network Consolidation between Vodafone and Telefonica and new 4G technologies facilitate a Single Stack structure being upgraded to a Dual Stack structure. In a straight swap scenario at equal height the new lower aperture antennas would be lower than they were originally - resulting in significantly

reduced coverage. To ensure existing coverage is maintained the whole structure needs to be increased in height.

Clutter changes

A more extreme example is when the local clutter or tree lines have changed, or are such that the mobile signals are blocked, resulting in lower quality calls and downloads for mobile device users. To provide sufficient services to customers height increases on existing masts or additional new masts are required. The former is the preferred option in many cases.

ICNIRP Compliance

The addition of new technologies and mast sharing affects ICNIRP compliance – a higher minimum mast height is required in some cases.

6. Site Selection Process – alternative sites considered and not chosen. Please note that this proposal is to upgrade an existing telecommunications facility.

If no alternative site options have been investigated, please explain why:

This is an upgrade to an existing site thus no other standalone new facilities have been investigated. A new additional mast to facilitate the upgrade would not be in line with NPPF. By upgrading the current facility the most sequentially preferable option has been progressed.

As part of the single grid consolidation our radio engineers considered a number of surrounding sites with a view to their upgrade as an alternative to the proposal site, however, it was found that upgrade of these sites could not provide the level of service to meet the local demand from residents and businesses in this specific locality and therefore it was deemed necessary to upgrade this site.

Land use planning designations:

The land designation of the site is not considered to be a material consideration.

Additional relevant information:

This specific proposal forms part of an integral requirement for 02 and Vodafone to expand their respective telecommunications network across Stoke-On-Trent specifically in this instance to enhance coverage levels and network capacity within the ST10 area.

Telefónica O2 UK Limited has entered into a network sharing agreement with Vodafone Limited pursuant to which the two companies plan to share network equipment on a number of sites across the UK. A joint project team has been created, called CTIL comprising Vodafone and O2 employees, to oversee these arrangements. This agreement allows both organisations to consolidate the number of base stations required through sharing which is in accordance with Government Policy, and therefore significantly reduce the environmental impact of network development

This partnership has resulted in the development and production of an array of "dual user" structures and cabinets, which have the ability to accommodate both operator's antenna systems and radio equipment.

Mobile phone base stations operate on a low power and accordingly base stations therefore need to be located in the areas they are required to serve. Increasingly, people are also using their mobiles in their homes and this means we need to position base stations in, or close to, residential areas.

A further limiting factor is that the position has to be one that fits in with the existing network. Sites have to form a patchwork of coverage cells with each cell overlapping to a limited degree with the surrounding base stations to provide continuous network cover as users move from one cell to the other. However if this overlap is too great unacceptable interference is created between the two cells.

DEVELOPMENT PLAN POLICY.

Development plan considerations have a special significance in law. Section 54A of the Town and Country Planning Act 1990 (The Act), and re-iterated in Section 38 of the Planning and Compensation Act 2004, it is stated that:

"Where in making any determination under the Planning Acts regard is to be had to the Development Plan, determination shall be made in accordance with the Development Plan unless material considerations indicate otherwise."

NATIONAL PLANNING POLICY

PPG8 and PPS1 have been replaced by the National Planning Policy Framework (NPPF) (March 2012). This document condenses the advice outlined previously although the broad principles of promoting the expansion of electronic communication networks remain the same:

The Government remain committed to promoting telecommunications and place emphasis on the importance of telecommunications to the wider economy. The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these are expected to be applied at the Local level. It provides a framework within which local people and their accountable Councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.

The purpose of the planning system is to contribute to the achievement of sustainable development. There are three dimensions of sustainable development, each of which give rise to the need for the planning systems to perform a number of roles including;

- Economic Role – contributing to building strong, responsive and competitive economy;
- Social Role – Supporting strong vibrant and healthy communities; and
- Environmental Role – Contributing to protecting and enhancing our natural, built and historic environment.

The NPPF contains at its core a presumption in favour of sustainable development which runs through both plan-making and decision-making processes.

Paragraph 19 states that:

"The Government is committed to ensuring that the planning system does everything it can to support sustainable economic growth. Planning should operate to encourage and not act as an impediment to sustainable growth. Therefore significant weight should be placed on the need to support economic growth through the planning system".

It continues in Paragraph 20 to confirm Central Government advice that:

"To help achieve economic growth, local planning authorities should plan proactively to meet the development needs of business and support an economy fit for the 21st century". The following paragraph states "Planning policies should recognise and seek to address potential barriers to investment, including a poor environment or any lack of infrastructure"

Section 4 of the NPPF (Paragraph 29) encourages the "smarter use of technologies" to reduce the need to travel and promote sustainable transport methods in accordance with the central sustainable development thread which travels through the Framework.

The most pertinent section of the NPPF to the proposed development is that contained within Section 5: Supporting High Quality Communications Infrastructure.

There is recognition from Central Government in Paragraph 42 that:

"Advanced, high quality communications infrastructure is essential for sustainable economic growth" which will in turn play a vital role in developing provisions within the local community of both facilities and services.

Paragraph 43 identifies the need to:

"keep the number of radio and telecommunications masts and the sites for such installations to a minimum consistent with the efficient operation of the network".

In doing so, Central Government encourages the use of existing masts, buildings and other structures unless the need for a new site can be justified. Where such new sites are required, it is suggested that, where appropriate, equipment should be sympathetically designed and camouflaged.

Paragraph 45 defines the evidence that should be supplied to justify the proposed development. This should include:

- "The outcome of consultations with organisations with an interest in the proposed development, in particular with the relevant body where a mast is to be installed near a school or college or within a statutory safeguarding zone surrounding an aerodrome or technical site; and
- for an addition to an existing mast or base station, a statement that self-certifies that the cumulative exposure, when operational, will not exceed International Commission on non-ionising radiation protection guidelines; or
- for a new mast or base station, evidence that the applicant has explored the possibility of erecting antennas on an existing building, mast or other structure and a statement that self-certifies that, when operational, International Commission guidelines will be met."

Confirmation that Local planning authorities must determine applications on planning grounds is also contained in Paragraph 46. In determining applications, it is the contention of Central Government that LPAs should not seek to prevent competition between different operators, question the need for the telecommunications system, or determine health safeguards if the proposal meets International Commission (ICNIRP) guidelines for public exposure.

Central Government attaches great importance to the design of the built environment and outlines this within Section 7 (para. 56). It states:

"Good design is a key aspect of sustainable development, is indivisible from good planning, and should contribute positively to making places better for people".

In respect to good design, decision making should aim to ensure that any proposal deemed appropriate would "function well and add to the overall quality of the area, not just for the short term but over the lifetime of the development" and "respond to local character and history, and reflect the identity of local surroundings and materials, while not preventing or discouraging appropriate innovation".

In determining planning applications "great weight should be given to outstanding or innovative designs which help raise the standard of design more generally in the area". Paragraph 63.

It is the intention of the NPPF that:

"Local planning authorities should not refuse planning permission for buildings or infrastructure which promote high levels of sustainability because of concerns about incompatibility with an existing townscape, if those concerns have been mitigated by good design (unless the concern relates to a designated heritage asset and the impact would cause material harm to the asset or its setting which is not outweighed by the proposal's economic, social and environmental benefits)". Paragraph 65.

Paragraph 66 clarifies that:

"Applicants will be expected to work closely with those directly affected by their proposals to evolve designs that take account of the views of the community. Proposals that can demonstrate this in developing the design of the new development should be looked on more favourably".

LOCAL PLAN POLICY

The relevant Local Plan policies (Staffordshire Moorlands District Council Core Strategy Development Plan Document – Adopted 26th March 2014) have been highlighted below. The telecoms policies that are not relevant to this application have been removed.

Policy Analysis

Staffordshire Moorlands District Council does not have a specific telecoms policy therefore the NPPF is of relevance. The National Planning Policy section of this supporting statement provides a detailed analysis of why this site complies with NPPF requirements.

It is important to note that the proposal is merely for the upgrading of an existing tower, the use of an existing site has therefore eliminated the need to develop an entirely new and separate ground based facility within the cell search area. The proposed existing and upgraded equipment has been carefully sited to benefit from the screening effects provided by surrounding tree coverage. Due to the aforementioned screening and the slim-line nature of the existing tower, the aesthetics of the location would not be affected to any notable degree.

Conclusion

We consider that the development is compliant with the council's policy and that in accordance with Section 38 (6) of the Planning and Compensation Act 2004 permission should be granted for the installation in particular as the proposed:

The proposed upgraded facility is of similar height and similar external appearance to the existing. The installation will provide environmental and commercial efficiencies by removing the need for an additional independent mast within the immediate vicinity and given the minor alternations to the visual appearance of the proposal it is not considered that it will result in any detrimental impacts on the surrounding area.

We consider the development complies with both central government and local planning policy guidance where the underlying aim is to provide an efficient and competitive telecommunication system for the benefit of the community while minimising visual impact.

Taking into account the factors of technical constraints, available sites and planning constraints we consider that this site and design clearly represents the optimum environmental solution.

On the basis of a recognised need to expand and promote telecommunications networks across the region, it is considered that the proposal fully accords with the requirements of the National Planning Policy Framework and the Council's Local Plan Policies.

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