# Verizon UK5 2 St Pancras Way London NW1 0QG

# DESIGN AND ACCESS STATEMENT (REVISED SCHEME PROPOSAL)



Client: Verizon UK

# Project:

Proposed Installation of Plant Deck, Installation of Air Intake Louvers and Exhaust Ducts (revised proposals) **GL Hearn** 20 Soho Square London W1D 3QW

020 7851 4900



July 2010

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Appendix - Statement of case for Verizon UK and its new plant requirement

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#### 1. Introduction

This Design and Access Statement accompanies the revised application for full planning permission for the installation of a new external plant deck, air intake louvres and roof mounted exhaust ducts for Verizon Business at UK5, 2 St Pancras Way, London LN1 0QG.

The new plant is essential for the future of this important data-centre "hub" building in Camden.

The revisions follow the withdrawal of the original planning application submitted in February 2010. Subsequent design discussions with LB Camden planning and design officers have resulted in a lower extension at roof level. An adjusted noise impact assessment and further visual impact testing.

#### 2. Background

The existing facility is a data-centre that processes telecommunication and internet data. The building was originally constructed as a Post Office mail and parcel sorting office in 1985, but was subsequently altered in 1999 for use as a data-centre; its function results from the substantial increase in data and telecommunication traffic associated with e-mail, internet, online banking and other electronic transaction services.

The alterations to the building in 1999 included the introduction of additional mezzanine floors and the division of the building into technical rooms. As the building contains banks of servers that generate heat, a key feature of the building is that it should be effectively cooled to allow for the business to be maintained.

The new plant deck is to allow for an extension of the cooling plant as a result of the expansion of the existing facilities, as well as radiators for three new generators that are to be installed to provide UPS ("uninterrupted power supply"). These generators are to be located within the store which is located at ground floor level within the existing building and are considered vital to the building's resilience

The roof plant enclosure houses five new chillers and two radiators (a further radiator is to be located on the existing external plant deck). Three of the chillers are required immediately as part of the requirement to install servers and equipment in technical rooms 101 and 203. The chillers are needed to prevent rooms from overheating from the waste heat generated by the servers and technical equipment. The further two chillers are to be installed to allow for the removal of the relatively inefficient water tower coolers. These water towers are noisy and obtrusive as they generate steam plumes in cold weather conditions and discharge hot water onto the roof of the building.

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#### 3. Local area description

The site is located in an area of mixed commercial use, close to the Regent's Canal and to the west of the Kings Cross commercial regeneration area.

Opposite the property on St Pancras Way is a builders merchants and the section of the building to the north is occupied by office and mixed commercial use. On the opposite side of Granary St to the south of the data-centre are the facilities of St Pancras Hospital. To the east of the building is the Regent's Canal and, on the opposite bank of the canal are mixed commercial facilities and housing.

The building is located within the Regent's Canal Conservation Area.

It should be noted that the revised scheme proposals are barely visible from street level (see submitted visual impact testing images) and no unacceptable impact on the CA will occur for the area (see Section 5 of this document).

#### 4. Building usage and economic benefits

The data-centre building continues extensive computer-based equipment and operates a 24 hour service for customers.

The building has a low impact on the surrounding area, even though it does require roof mounted plant to maintain the working environment of the facility. Given traffic movements and noise generated from normal activities present within an urban area, the cooling plant that is located on the roof produce low levels of noise - all new plant will have sound attenuation to reduce any further airborne sound. New generators provide back-up power in the infrequent event of a power cut, although they are tested from time to time to ensure that they operate satisfactorily. Sound attenuation is to be provided to a high level to reduce noise levels and to contain such noise within the building.

The facility provides a working environment for 120 full time staff and is therefore a useful local employer. The alterations to the building including those for which this planning application is sought will have an increase in the requirements for full time staff.

The alterations to the building associated with the expansion of the facilities will generate approximately £1m of building construction work, £8m of M and E installations and a further £6m of large item plant purchases, most of which will be sourced in the UK. This project will employ a labour force of nearly 200 including design and project management professionals, joiners, fabricators, electricians, and specialist M and E employees. Once the work is completed, further fit out work undertaken by telecoms and computer specialists will take place.

The project represents a major investment for employment and growth and shows confidence in the future of London as a major international centre for finance and commerce utilising new technology and state of the art communications.

The importance of Verizon to the Camden area and national economy is also described in the "Statement of Case" in the Appendix to this document.

#### 5. Design and visual impact

The new steelwork structure and mezzanine has been designed to sit adjacent to the existing plant room. The plant platform is approximately 16m by 32 m and will accommodate two radiators and five large chillers. The chillers have been selected to minimise noise, and the platform will be surrounded by louvred cladding and baffling to achieve sound attenuation and to provide appropriate visual screening of the plant.

In order to minimise the visual impact, the new platform will be set a minimum distance above the existing lower roof line to allow access beneath for maintenance and the upper level of the perimeter baffling will be set approximately 2m below below the existing ridge line.

The upper level of the plant room remains two metres below the ridge level of the existing building and the plant platform is fully enclosed by sound baffling that is clad in a way which enhances the external appearance of the building.

The plant will be 0.4 metres lower than the previous application proposal.

Computer generated 3D models of the building as viewed from the Regent's Canal tow path and drawings show that there is no notable visual impact in the area or the Canal tow-path (see accompanying visual impact report). From street locations around the site to the south, west and north, virtually no visibility occurs due to the set-back positioning and low profile. To the east, only the canal bridge viewpoint is affected and this is a minimal impact, obscured for most of the year via tree cover.

#### 6. Planning policy aspects

The following local planning policy relates to the scheme proposals:

- 1. Camden's Unitary Development Plan 2006 (as amended following the Secretary of State's Direction dated 10 June 2009)
- 2. Camden Planning Guidance, December 2006
- 3. Regent's Canal Conservation Area Appraisal and Management Statement 2008.

General policies in the UDP regarding design require that building plant is suitably screen and maintained in a low profile form - this is fully achieved via the amended scheme proposal.

Other policies in the UDP encourage commercial development in appropriate locations to provide employment and economic benefits to the borough. The Mayor of London's London Plan (2007) also encourages employment growth and viability via its relevant economic policies.

The site is located in a Conservation Area and government policy PPS5 and associated UDP policies require that any development "preserves" the character of the CA.

Camden Planning Guidance dated December 2006 states the following:

10.8. All applications relating to properties and sites in conservation areas and development affecting the setting of conservation areas should demonstrate that the proposal preserves or enhances the character or appearance of the area.

In terms of Regents Canal CA Impact, as previously described, the proposals have very little visual impact on the area at or the CA itself and therefore effectively "preserve the character of this part of the CA which is commercial in nature. The reduction in height of the new revised proposals further achieve this (as shown in the visual impact testing images).

#### 7. Plant requirements – open location

For technical design reasons, it is not possible to locate this plant in a basement or within the building. The high heat output and importance of effective cooling requires a rooftop location, in common with similar commercial design requirements.

Verizon are refreshing their existing chilled water cooling system. The existing system is based on a pressurised cooled water scheme with cooling towers located on the existing roof deck. The existing system is over 14 years old. The pumps and value sets are worn and the roof top cooling towers are in a bad state of repair. The combination of this is that the system is running very inefficiently. There is limited access to maintenance spares so the option of refreshing the existing equipment is not viable.

Verizon want to invest in newer, energy efficient technologies, with their planned infrastructure refresh programme. They have developed a cooling system design that is able to utilise lower outside temperatures to help deliver their cooling loads. This design uses Free Air cooling chiller units. These need to be mounted on the outside of the building with the idea being that all the time the external air temperature is less than that of the internal rooms (22 degrees C), there is the ability to use this temperature delta to help cool the inside. Whilst we are enjoying a particular warm summer spell the ambient temperature is very much often way below this run point and as such Free Air cooling is readily available. This technology means that the chilling infrastructure is very much more efficient to run than the existing system (up to 45%) which represents a significantly reduced carbon foot print. The roof top location provides the necessary air flow to support the Free Air chillers. The units also benefit from the damp external condition, again enhancing their efficiency." This type of technology cannot be located within the existing building enclosure.

The level of plant provided is vital to the data-centre operation and is the minimum needed for viability. It has been located in an appropriate position with adequate low profile screening and has very little visual impact

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#### 8. Appearance

The existing hard landscaping within the curtilage of the application plot will be retained or reinstated. It will not be necessary to make major alterations to the existing site or building to make this construction possible.

The new plant platform will have a rectangular open mesh floor that will allow rainwater to run through onto the existing roof and drain via the existing surface water drainage system. The handrails, stanchions and kick plates will all be constructed from galvanised steel and clad with flat panel sheeting of the colour indicated on the drawings to minimise visual impact.

Any alterations to the elevations in the form of louvered panels will be undertaken to match the existing louvres and cladding.

The concentration of the cooling facilities to one area of the roof of the building will allow, at a future stage, the opportunity of waste heat recovery (assuming that there will continue to be efficiency and cost benefit improvements in the generation of power from low grade heat).

#### 9. Access

Due to the nature of the new structure and its position in relation to the existing building, it will not be a requirement to provide new access, or to reconfigure the existing arrangement of access and circulation onto or around the site.

The plant deck will be positioned to the centre and directly adjacent to the existing plant deck and access will be from this deck. The building was converted in the late 1990's to comply with part M of the building regulations and it is not intended to change any aspects associated with disabled access.

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A noise impact assessment has been undertaken (Hann Tucker revised report July 2010) and the noise impact complies with normal noise restrictions for this type of development.

No unacceptable impact occurs on residential and sensitive uses. The adjoining office building window at No. 8 is not detrimentally affected via the new plant proposals (see Hann Tucker revised report).

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#### 11. Conclusions

- 1. The Verizon data-centre facility is a very important economic/employment asset to the local area and region and it is of national and international importance.
- 2. This site is located on a major fibre-optic cable line and the building acts as a "hub" for other data-centre facilities. It is not possible to locate the facility elsewhere and the new plant is needed to maintain the activity.
- 3. The new plant is required to upgrade the resilience and future maintenance of this important commercial premises.
- 4. The new plant will be more efficient and sustainable than the existing equipment.
- 5. No unacceptable visual impact occurs as a result of the scheme in the street scene.
- 6. The proposals preserve the character of this part of the Conservation Area.
- 7. No adverse or unacceptable noise impact will occur as a result of the plant proposals or adjoining building.

# Appendix

Statement of case for Verizon UK and

its new plant requirement

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# Verizon UK5 Statement of Case; Plant Change Application

14<sup>th</sup> 2010

UK5, Canal Reach, 3-6 St Pancras Way, Camden, London NW1 0QG



#### 1.0 Overview

Verizon are an international telecommunications service provider. They have a Headquarters in the United States but offer services throughout the world. They have a large telecommunications network within the UK.

The Camden facility is a major network switching site. This houses automated switching equipment and some customer dedicated server/IT equipment. The facility forms one of their major network and Internet switching hubs and serves Greater London and the remainder of the UK. It has to operate 24 hrs per day.

The building was fitted-out 12 years ago and was designed to provide very resilient power and cooling services to the housed equipment. The power and cooling systems are both N+1 design configuration. The old generator and cooling plant equipment urgently need replacing in order to maintain site reliability and to leverage reduced energy running cost via the use of the latest infrastructure technologies and meet with contemporary and more sustainable energy criteria.

Planning permission is being sought to install new Free Air Cooling chiller equipment, on the roof of the building, which over time will be used to replace the current inefficient cooling tower infrastructure. In addition permission is being sought to replace the existing generator systems with new Diesel Rotary Uninterruptable Power supply (DRUPS) systems, again to make use of the operational benefits that these systems offer. The engines on these DRUPS units will only be run in emergency other than for maintenance purposes.

#### 2.0 Local and International Importance

The facility provides a working environment for 120 full time staff and is therefore a useful local employer. The alterations to the building including those for which this planning application is sought will have an increase in the requirements for full time staff.

The alterations to the building associated with the expansion of the facilities will generate approximately £1m of building construction work, £8m of M and E installations and a further £6m of large item plant purchases, most of which will be sourced in the UK. This project will employ a labour force of nearly 200 including design and project management professionals, joiners, fabricators, electricians, and specialist M and E employees. Once the work is completed, further fit out work undertaken by telecoms and computer specialists will take place.



The project represents a major investment for employment and growth and shows confidence in the future of London as a major international centre for finance and commerce utilising new technology and state of the art communications.

### 3.0 Power Upgrade Need

Currently the building is supported by three emergency 2200kVa generators. These are housed in a single garage. The units are only ever used in the event of a power failure on the mains feeds. There are two diverse mains feeds supplying the building and provide 6MVa.

Verizon UK intends to create some additional internal technical areas within the building to support additional network and IT equipment. To do this there is a need to upgrade the existing back up power systems. The plan is to replace the 3 old generators with 6 no DRUPS units that will split across two garages on the ground floor. Again, the engines on the DRUPS will be run only in the event of an external power outage or for maintenance purposes. This latter activity is not expected to be for more than one hour on a monthly basis. The new DRUPS will be installed in acoustically treated garages so as not to exceed the existing buildings noise emissions.

# 4.0 Chilled Water System

The buildings technical areas are cooled using a common chilled water system. There are 2 chillers and 4 Cooling towers mounted on the plant room roof. The Chiller pump units are housed below within the pump room. It is initially planned to construct a new plant deck, on the roof, adjacent to the existing plant area. This deck will ultimately be able to house 5 chiller units. These 5 machines will then enable the replacement of all the existing chiller and cooling towers.

It is planned to replace the existing Chiller units with combined Chiller and free air cooling units. Initially it is intended to install only 3 of the 5 new chillers. This is to allow the new independent chilled water system to be brought on-line without interfacing with the existing system. Once this has been completed successfully it is planned, over time, to replace the existing infrastructure in a phased programme, to minimise the change-out risks to the operational building. The new system has been designed to include variable - run speed pumps and free air cooling chillers. It has been calculated that the new system will offer a 26% saving in energy consumption, compared with the existing infrastructure. The new chillers will be enclosed within a louvered acoustic shroud to minimise noise emissions.



## 5.0 Conclusions

The provision of the new plant, via the power upgrade and the additional new chiller units, will result in a much more energy efficient and reliable infrastructure for the future of this very important telecommunications service operation.

The design team has worked hard to ensure that the proposed changes will not lead to any unacceptable noise or negative visual impact on the surrounding area.

