

Document Information Cover Sheet

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BRIGHTON 3Ts:

Environmental Statement Non-Technical Summary

September 2011

Non-Technical Summary

1.1 This Non-Technical Summary (NTS) provides a summary of the findings of the Environmental Statement (ES) which is submitted on behalf of Brighton and Sussex University Hospitals (BSUH) NHS Trust for the Proposed Development of the Royal Sussex County Hospital (RSCH) site (the Site) in Brighton.

1.2 The ES and this NTS have been produced in accordance with the Town and Country Planning (Environmental Impact Assessment) (England) Regulations 2011, (the 'EIA Regulations') which require that, in certain cases, development proposals should be examined to measure their likely significant environmental effects upon the environment and to identify what action should be taken to mitigate those effects.

SITE DESCRIPTION

1.3 The Site comprises a number of existing hospital buildings and is centred and covers an area of approximately 2.75 hectares. The Site is located on the northern side of Eastern Road, and is bordered to the west by Upper Abbey Road and Whitehawk Hill Road and to the east by Bristol Gate. The Site is situated adjacent to south of the Royal Alexandra Children's Hospital and other hospital buildings which will be retained. Additional hospital buildings, including the Sussex Kidney Unit and Millennium Wing are located further to the north and the Sussex Eye Hospital and other hospital buildings are located to the south, on the opposite side of Eastern Road to the Site.

1.4 The Site has been in use as a hospital since 1828 and its original construction was a three storey building designed by Charles Barry. This original design has been substantially altered and extended, including significant additions in 1839 and 1841 respectively. The Jubilee and Latilla Buildings were subsequently built in a manner sympathetic to the Barry Building in the latter half of the nineteenth century. A large number of modern buildings and building extensions have been added to supplement the original buildings.

1.5 The external areas of the Site are dominated by hardstanding comprising footpaths, roadways or parking bays. The front portion of the Site, adjacent to Eastern Road, is utilised as an access road. A small soft-landscaped area comprising amenity grassland and a limited number of trees is present in the centre, to the north of the Latilla Building, and the western part of the Site. A further area of soft-landscaping is present on an embankment to the north of the Barry Building.

1.6 The Site extends from north of Eastern Road to the hospital's southern service road, which bisects the overall Hospital Site. A plan showing the Site location is provided as Figure 1 below. The planning application boundary includes the extent of the groundworks (ground anchors) which are required beneath existing buildings, including the Royal Alexandra Children's Hospital and Thomas Kemp Tower, due to the depth of the basement excavation proposed to construct the basement car park (see Description of Proposed Development below).

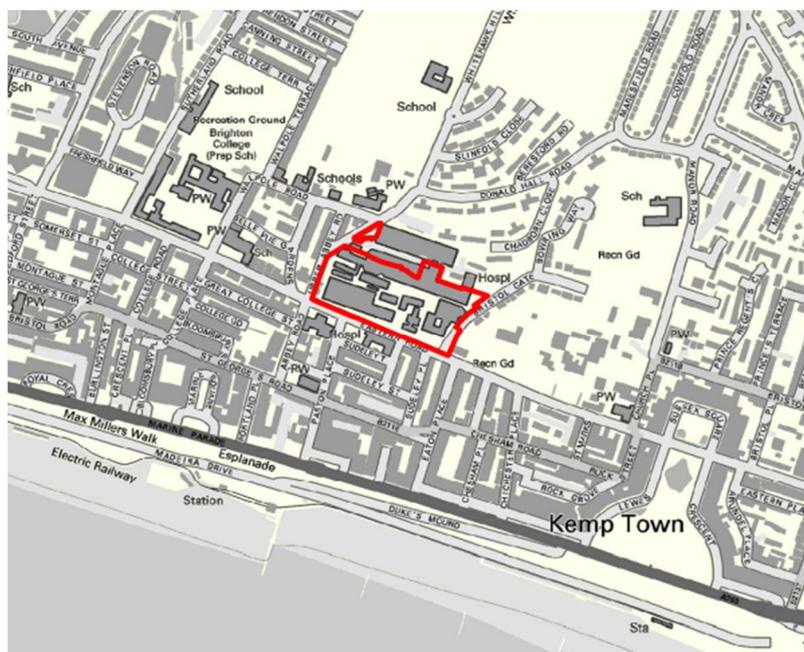


Figure 1: Site Location

CONSIDERATION OF ALTERNATIVES

1.7 The ES includes an outline of the main alternatives which have been considered, including the “do nothing” scenario, alternative sites and alternative designs, as detailed below.

1.8 The “do nothing” scenario would result in several key national and regional policy drivers not being addressed, including NHS targets for the illumination of mixed-sex accommodation, and improved healthcare facilities in addition to a Level One trauma centre for the South East not being provided. This would leave the need for improvements in services and care to be provided elsewhere within Sussex, and could potentially result in a failure to comply with national policy drivers in the event that suitable alternative site(s) cannot be found. The “do nothing” scenario would result in the currently out dated hospital facilities continuing to be used and the resulting continuation of hospital services operating below standards in terms of healthcare optimum provision and efficiency.

1.9 During the last 30 years several options have been explored for the provision of large-scale healthcare provision to replace the existing hospital buildings. Options remote from the Royal Sussex County Hospital Site have been explored and ruled out previously due to factors such as accessibility and financial considerations. In the 1980s it was identified that a minimum of 30-40 acres (approximately 12 to 16 hectares) would usually be required for such a development on a new site. It was found that a viable site of this size was not located within easy or convenient travelling distance for the majority of the District’s population who live within the Brighton area. Sites opposite the University of Brighton at Falmer and at Southlands Hospital in Worthing were considered, however given the travel distances this would entail for patients this concept was not examined further.

1.10 The need to redevelop the hospital was initially identified in 1969, following local and national reviews, and significant work has gone into identifying what services and buildings need to be redeveloped. The Trust has been developing a clinical model for the redevelopment and progressing the designs through consultation with Brighton and Hove City Council (BHCC), local residents, healthcare professionals, English Heritage and other stakeholders to ensure that the new buildings are designed sensitively in relation to the local area and meet the aspirations of the Trust and the wider community.

1.11 The initial option for the redevelopment was put forward by the Trust to the Strategic Health Authority in 2007-2008. During preliminary consultation and design development discussions concerning the massing of this scheme led to the requirement for a significant revision of the proposals. The initial option was then refined and two options, known as Options A and B, were produced in 2009. Option A was a more subtle refinement of the initial option and Option B represented a major redesign. Option B was identified as the preferred option in discussions with BHCC, local residents and English Heritage on the basis of the reduced visual bulk of the development, when viewed from more distant points (such as Palace Pier) and was taken forward for further design. Whilst clinically less efficient, this design afforded a greater percentage of patient bedrooms than the initial option and Option A.

1.12 In response to the comments from stakeholders the configuration of Option B was altered including moving the taller elements to the western part of the Site and reducing the height of the eastern building. The proposed multi-storey car park on Bristol Gate was also relocated underground. The culmination of these alterations, and those undertaken following completion of a study into the location of the helipad, referred to as Option B1, is submitted for planning approval and incorporates a helipad on top of the existing Thomas Kemp Tower. Further details related to these alternatives are provided in the Design and Access Statement which accompanies the planning application.

DESCRIPTION OF THE PROPOSED DEVELOPMENT

1.13 The Proposed Development will provide a modern, fit for purpose hospital for patients in Brighton and Hove and the wider region, bringing the standards of privacy and dignity in line with existing and emerging national priorities. This will include almost 70% of its inpatient accommodation in single rooms, currently only around 5% of the accommodation comprises single rooms.

1.14 The Proposed Development will allow the evolution of the hospital into the Major/Level One Trauma Centre for Sussex and the wider region, as set out in the NHS South East Coast Strategy 'Healthier People, Excellent Care' (2008). A helipad will be constructed on top of the existing Thomas Kemp Tower during the early stages of the works and will form an essential element of the role of the new hospital as a trauma centre.

1.15 Various studies have been undertaken to examine the technical viability of each of the options for the location of the helipad, including in terms of the structural engineering viability, wind turbulence and noise and vibration effects. These studies were used by the BSUH NHS Trust to inform the selection process, along with information and comments provided by other members of the project team, and other parties such as BHCC Planning Department, English Heritage and local interest groups.

1.16 It is proposed that the hours of operation for the helipad are 7am-7pm or for daylight hours, whichever is the shortest period. However, it is possible that there may be a requirement for night-time use in the event of a major incident on land or at sea (when the Coastguard may require access to the helipad). The helipad will be used primarily by the air ambulance operated by Kent, Surrey and Sussex Air Ambulance Trust who use one of the quietest helicopters available. The helipad will not be used for commercial purposes.

1.17 The Proposed Development comprises demolition of the existing hospital buildings and garages nearby on Bristol Gate and erection of a new hospital with ancillary restaurant and café facilities; associated car parking; drop-off space; an energy centre; and helipad. The Development includes the following:

- A two level underground car park;

- Cycle parking spaces;
- Addition of a helicopter landing pad, and associated trauma lift, to the existing Thomas Kemp Tower building;
- External amenity spaces;
- Public realm with associated landscaping fronting Eastern Road;
- Site-wide infrastructure including substation, energy centre and flues;
- Service yard;
- Relocation of Bristol Gate Piers;
- Reinstatement of the interior of the chapel;
- Engineering works including siting of ground anchors; and
- Associated highway works.

1.18 An aerial view of the Proposed Development is provided below as Figure 2.



Figure 2: The Proposed Development

1.19 The planning application for the Proposed Development is accompanied by two listed building applications which seek consent for:

- Demolition of Grade II listed Chapel (located within the Barry Building); and
- Demolition of Grade II listed Bristol Gate Piers (which will be reconstructed within the Proposed Development).

1.20 The mitigation measures which will be implemented in relation to the demolition of these listed structures are contained within the Planning Statement, Design and Access Statement and Heritage Statement which accompany the planning application.

CONSTRUCTION ACTIVITIES

1.21 The construction will be undertaken over a period of approximately 10 years which is anticipated to start in 2012 subject to planning approval. Current healthcare provisions on the site will be maintained during the construction works through a process referred to as “decanting”. Existing hospital services provided within the Site will be relocated temporarily to other areas in the vicinity. The majority of displaced clinical services within the main County Hospital campus will be relocated in suitable temporary accommodation until such time as their final locations within the new Development are commissioned and ready for use. The exceptions are Rheumatology and Physiotherapy Outpatients which will be relocated to refurbished accommodation at the Brighton General Hospital site. Displaced non-clinical services will move to the former St Mary’s Hall Senior School site approximately 200m east of the Site. The main stages and approximate durations of the works (some of which will overlap) are as follows:

- Diversions of existing services and pre-commencement works for decant and Stage 1 construction (5 months);
- Decant activities which will be phased (1 year);
- Helipad construction – relocation of existing services, structural alterations and steel frame construction (16 months);
- Stage 1 – site establishment, demolition, enabling works and surveys, excavation, construction works and commissioning (4 years);
- Barry Building decant, decommissioning, services diversions, surveys (6 months);
- Stage 2 – demolition / enabling works, excavation, construction works and commissioning (3.5 years);
- Existing Cancer Centre decant and decommissioning (3 months); and
- Stage 3 – demolition / enabling works, construction works and commissioning (9 months).

1.22 Construction traffic routes have been agreed with BHCC, whereby vehicles will use only principal roads to gain access to the Site.

1.23 Design for Manufacture and Assembly (DfMA) is a central principle to the design and is integral to the construction strategy. DfMA is an approach to construction that reduces the need for site installation works and employs the principles of manufacturing to deliver elements and assemble them on site only. The main benefits of a DfMA approach compared to a more traditional method of construction include:

- Reduced programme;
- Reduced onsite labour;
- Better quality of products (manufactured in a factory controlled environment rather than on site);
- Reduced waste; and
- Fewer material deliveries and associated vehicle movements.

1.24 To support the construction of the Proposed Development an off-site consolidation area will be used. The site of the consolidation centre is not identified at this stage and will be subject to a separate planning application. The off-site consolidation centre will include the following features which will reduce the number of construction vehicles, material storage and levels of dust on the Site:

- A logistics holding zone and a logistics centre to allow vehicles carrying construction materials to wait until the redevelopment site can accommodate them in order that the flow of traffic to the redevelopment site is controlled and managed efficiently;
- A waste transfer station and crushing facility;
- Construction workers car park to be used for the duration of the redevelopment project to minimise the traffic impact in and around the project and avoid on street parking;
- A site office and welfare facility, until such time as they can be constructed within the footprint of the redevelopment site;
- A materials lay down area; and
- A wheel washing facility.

1.25 A demolition and construction waste transfer station and crushing facility would be established within the consolidation facility to allow the segregation of reusable demolition and construction waste materials and minimise the amount of waste that is disposed of to landfill. This approach will reduce the amount of dust that is generated in and around the hospital as all compaction of waste will be done at the off-site consolidation facility.

1.26 A Construction Environmental Management Plan (CEMP) will be implemented for the Proposed Development and will include various control and mitigation measures to ensure that environmental impacts associated with the construction activities are minimised and that the effectiveness of control measures is monitored. A draft CEMP has been prepared and is included in the Environmental Statement.

1.27 Contractors will be required to sign up to the Considerate Constructors scheme in order to minimise environmental impacts and nuisance to neighbours during the construction phase.

EIA APPROACH

1.28 The proposals for the Site have been developed following the completion of comprehensive technical studies, including a transport assessment, townscape and cultural heritage study, noise monitoring, flood risk assessment and various studies which have been completed to inform preparation of the ES. This NTS outlines the findings of the ES which identifies the potential for significant environmental effects (both positive and negative) of the Proposed Development and identifies mitigation and enhancement measures to minimise any likely significant effects.

1.29 The scope of the ES has been agreed with BHCC where appropriate. In addition, the following organisations were consulted during the preparation of the ES:

- Various departments and officers at BHCC;
- East Sussex County Council;
- Environment Agency;
- English Heritage;
- Natural England; and
- BSUH NHS Trust.

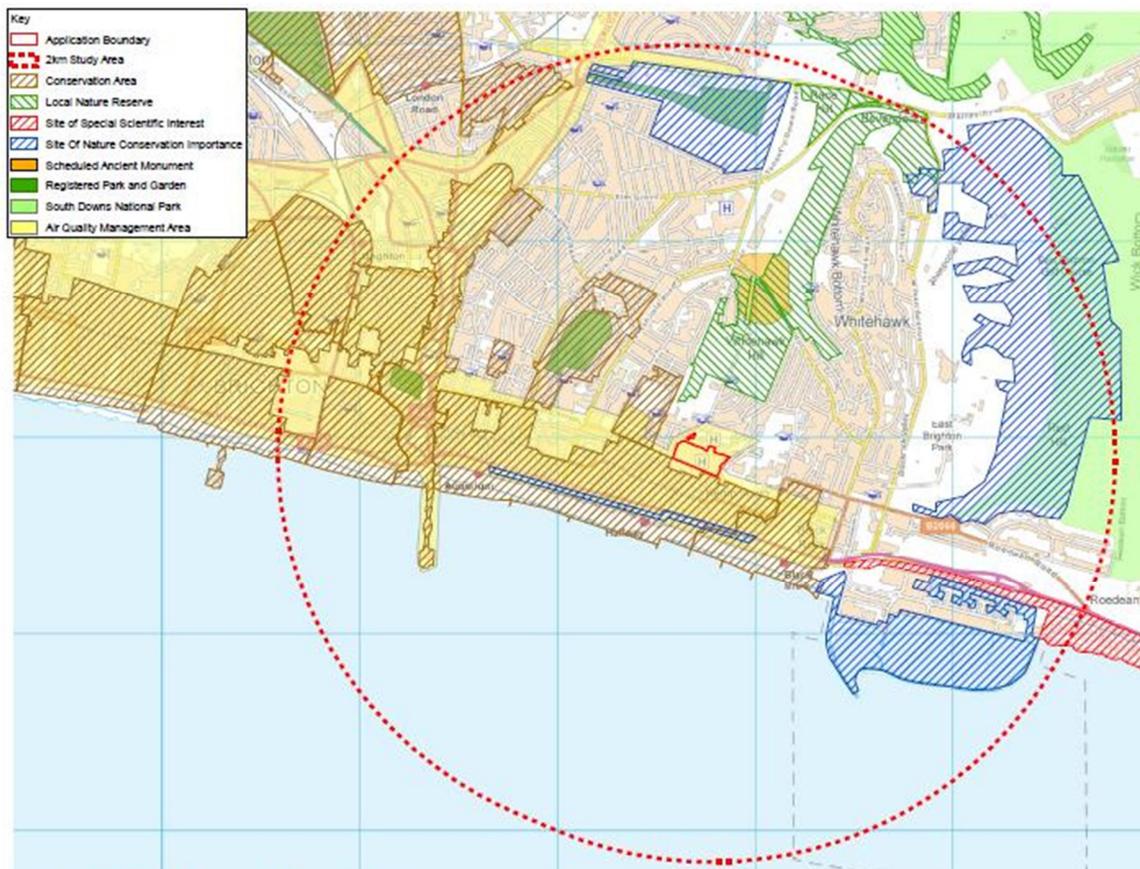


Figure 3: Environmental Constraints

PLANNING POLICY CONTEXT

1.30 The planning policy context against which the Royal Sussex County Hospital proposal is assessed includes relevant national, regional and local planning legislation, policy and guidance. The main policy documents include Planning Policy Statements and Guidance at a national level, the South East Plan (2009) at a regional level, and the BHCC Local Plan (2005) at the local level (as well as a host of Supplementary Planning Guidance and Documents produced by BHCC to supplement the Local Plan). At a local level, the emerging Core Strategy (draft 2009), having been through extensive consultation, but not yet formally adopted, is also considered a material consideration.

ENVIRONMENTAL EFFECTS OF THE PROPOSED DEVELOPMENT

1.31 Studies undertaken to assess the likely significant effects of the Proposed Development during the construction and operational phases (once the development is complete) include the following:

- Landscape and Visual Effects;
- Cultural Heritage;
- Noise and Vibration;
- Air Quality;
- Flood Risk, Drainage and Water Resources;
- Ground Conditions and Contamination;
- Ecology;
- Transport;
- Waste Management;
- Wind Environment;
- Daylight, Sunlight and Overshadowing;
- External Lighting;
- Socio-economic and Community Effects;
- Telecommunications; and
- Archaeology.

1.32 These and other studies have also advised on engineering aspects including the layout of the Proposed Development, building design measures, access arrangements, measures to minimise environmental effects, drainage and energy services for the Proposed Development.

Landscape and Visual Effects

1.33 A detailed study has been undertaken using maps and aerial photographs to identify various locations, topographical features, and landscape, visual and townscape features. Historic information regarding key landscape and townscape assets and heritage features, including nearby Conservation Areas, was also reviewed. This study was supplemented by a number of site visits determine the baseline conditions, inform the selection of assessment points, and to refine the selected viewing locations. This process yielded a selection of a long list of viewpoints, considered to be of significance for assessing the visual impact of the proposal.

1.34 The visual assessment is based on the production of verified views, and a comparison of each of these views with the existing 'baseline' view. These views have been used in conjunction with a site visit to better understand the potential impact. A three-dimensional computer model of the Proposed Development was created by the scheme architects (BDP) and the model was then superimposed on the existing views and a view produced. This is used to create an Accurate Visual Representation (AVR) to show how the Proposed Development will look. Materials and finishes were applied to this model to match the proposed elevations, examples of the images which were developed are provided in Figures 4, 7 and 8 below.

1.35 From these proposed views, a draft scoping report was submitted to BHCC for comment, containing a selection of potential view points. In consultation with BHCC, a number of these locations were amended, a number omitted, and a number added. A final list of views was agreed, and these 51 views,

together with three views at night represent a comprehensive selection, from a varying range of orientations and locations, and include a sample of long, mid and short range views. These include all significant viewing locations and landscape features.

1.36 The Proposed Development has been developed through an extensive design and consultation process, engaging with many stakeholders and interested parties in developing the final design. As such, the Proposed Development has a generally negligible to positive impact on the majority of views assessed, and a generally negligible impact on landscape features assessed, as it is assessed including all the described design mitigation. The Proposed Development will have the most significant impact on views in the immediate vicinity, where the scale of development is most pronounced, and the impact on views the most noticeable. Overall, the negative impacts on views are confined and the proposal would not result in an unacceptable or significant negative impact on either views or landscapes. Moderate positive effects are anticipated from several views in the wider area due to the redevelopment of the Site. Views from the bottom of Upper Sudeley Street and the end of the Palace Pier Impacts on landscaping and trees within the Site are considered to be moderate positive due to the extent of the landscaping which is proposed, including extensive green roofs.

1.37 In relation to construction, the impacts are generally negligible, with the most substantial impacts arising during the demolition of the buildings in the western part of the Site and during the construction of the taller elements in Stage 1 (resulting in moderate negative impacts in certain views). Once the majority of the buildings have been demolished, and the main structures of the Proposed Development erected, the impact will start to follow those identified during the operational phase. The CEMP outlines the mitigation measures to minimise these impacts.



Figure 4: View from Palace Pier

Cultural Heritage

1.38 A study has been undertaken to review the value of heritage assets within the Site and the surrounding area and assess the impact of the Proposed Development on these assessments. This has been supported by technical heritage studies including a Historic Buildings Appraisal, a Conservation Area Summary Assessment and a survey of the Hospital Chapel.

1.39 The Hospital Chapel within the Barry Building is Grade II listed and the Barry Building is locally listed. The boundary walls, Jubilee Block and Latilla Building are neither statutorily nor locally listed but contribute to overall streetscape character and history of the Site. The Bristol Gate Piers are Grade II listed.

1.40 The Site is not within a Conservation Area although it is located adjacent to the north of the East Cliff Conservation Area. Other Conservation Areas nearby include the College Conservation Area, the Kemp Town Conservation Area, the Queens Park Conservation Area and the Valley Gardens Conservation Area. The Conservation Areas vary in their character, streetscape value, the number of importance of listed buildings and association with the history and development of Brighton.

1.41 The Chapel is planned for demolition during Stage 2 of the Proposed Development. The Historic Buildings Appraisal identifies that the key significance of the Chapel lies in the symbolic and spiritual values inherent in its interior. Detailed consideration was given to retaining the Chapel in the exploration of hospital development options and the feasibility of these options was tested during the design process. However, the Chapel's retention would significantly compromise patient, visitor and staff amenity space and create considerable difficulties in relation to access. Throughout the design evolution the heritage values of the Chapel as a Grade II listed building were held in balance with these factors being considered in all the options.

1.42 Although the building will be demolished measures will be taken to preserve as much of the interior historic fabric as possible for reconstruction elsewhere on the Site. The building will be carefully dismantled and a reasonably accurate replica of the interior of the existing chapel will be created in a new Heritage Space within the Stage 1 building using as much building fabric from the original as possible. Any new building fabric required to create the facsimile Chapel interior will be of an appropriate and sensitive design and construction and will replicate, as accurately as possible the fabric which it replaces. The memorials, stained glass windows and other significant features will be reinstated in their original position in the new Heritage Space. The Chapel forms part of the overall history, development and understanding of the Site and its loss is regrettable but necessary if the future needs of the Hospital are to be realised.

1.43 The impact of the construction works on heritage assets within the Site is generally considered to be minor negative. There will be a minor positive impact on the Bristol Gate Piers, as their demolition and reconstruction will allow for much needed conservation and repair work.

1.44 The majority of construction traffic will be kept to the periphery of the Conservation Areas, including operative transfer from the consolidation centre to the Site. The impact of construction traffic on the East Cliff and Kemp Town Conservation Areas is considered to be minor negative and the impact of the transfer of construction workers on the Kemp Town Conservation Area is minor to moderate negative. The effect on the remaining Conservation Areas is considered to be negligible. The impact of helicopter noise on the surrounding Conservation Areas, given its irregularity, brevity and distance from the Conservation Areas is considered to be minor negative.

1.45 Construction phase impacts are largely restricted to the visibility of site infrastructure and as such only East Cliff and Kemp Town will be affected. The effects are considered to be moderate negative but will

vary across all three stages of construction depending on the extent of construction infrastructure that is present.

1.46 The operational impact of the Proposed Development on the surrounding Conservation Areas is negligible or minor negative based on an assessment of impacts on views and character. Where views are affected the impact is considered to be negative. The impact on the College, Valley Gardens and Queens Park Conservation Areas is negligible and there are very few views which will be impacted upon. Impacts on the East Cliff and Kemp Town Conservation Areas are predicted to be minor to moderate negative, especially with regards to views of Lewes Crescent and Sussex Square in Kemp Town and along streets around the Site within the East Cliff Conservation Area. The impact of operational traffic is anticipated to be moderate to minor negative on the East Cliff Conservation Area and moderate negative on the Kemp Town Conservation Area.



Figure 5: The Barry Building

Noise and Vibration

1.47 A study has been completed to determine the existing noise environment in the area surrounding the Site and predict the change in noise and vibration levels associated with the Proposed Development at locations in the surrounding area and within the Hospital site. Consideration has been given to noise and vibration from the construction works and noise from construction traffic, and during operation noise from road traffic and from use of the helipad. The likely noise and vibration effects associated with the construction and operation of the Proposed Development have been assessed, and measures have been proposed, where necessary, to ensure that significant effects would be minimised.

1.48 The assessment of the site preparation and construction phase has highlighted that potentially significant noise effects are likely, particularly in terms of the hospital itself. However, through the adoption of Best Practicable Means and other mitigation measures noise levels will be kept to a minimum, such that during the majority of the works the effects would be negligible to moderate negative at most. Notwithstanding this, any construction noise effects will be temporary and have no lasting effect.

1.49 A similar situation will exist with respect to vibration, some vibration effects will occur during the demolition and foundation works including construction of the basement car parks. However, following the implementation of mitigation measures, and in particular the careful selection of the most appropriate construction plant and techniques, and the separation of the operational elements of the hospital from the works, it is anticipated that vibration effects for most of the construction period will be moderate at worst and temporary.

1.50 For all of the receptors assessed in the vicinity of the local roads used by the construction related vehicles, the additional movements generated during the construction of the Proposed Development will result in, at most, a minor increase in road noise levels.

1.51 With the exception of the nearest receptors to Bristol Gate, the additional road traffic movements generated by the operation of the Proposed Development, as well as those associated with factors not associated with the Development, will result in a minor increase in noise levels. Based on the assessment of road traffic on Bristol Gate alone, the change in noise levels on this road are predicted to represent a moderate impact. However, having further considered the noise levels in relation to the measured, baseline noise levels, and taking into account the likely contribution from other sources of noise, the overall change is anticipated to be of minor to moderate significance.

1.52 The proposed service yard is both screened and located away from the neighbouring receptors, such that noise impacts are anticipated from its operation. The deliveries will also be limited to the hours of 07:00 to 19:00 hours, and, based on the assessment of the operational traffic flows the effect of the vehicles on the local roads will be negligible.

1.53 Suitable noise limits have been identified which will be used to control noise from any proposed buildings services plant and will prevent any significant effect from plant noise.

1.54 The assessment of the operation of the helipad has found that potentially significant noise impacts are likely to occur for the 6 minutes or so that the helicopters will be audible at the nearest noise sensitive receptors surrounding the hospital. Noise has been taken into account during the selection of the helipad location and its location on top of the Thomas Kemp Tower being the best in this regard – and the use, primarily, of the quietest helicopter available. Indeed, helicopters are inherently noisy and some disruption is inevitable. However, owing to the infrequent use of the helipad, and given the benefits it brings to the hospital and thus the local, and wider, area, it is anticipated that the overall impact will be negligible in the context of the daily noise levels.

Air Quality

1.55 Where the objectives set out in the Air Quality Regulations 2002 are not likely to be achieved by an identified year, Local Authorities are required to designate an Air Quality Management Area (AQMA). For each AQMA the Local Authority is required to draw up an Air Quality Action Plan to secure improvements in air quality and show how it intends to work towards achieving the air quality standards and objectives in the future.

1.56 BHCC has designated an AQMA covering a number of roads in central Brighton due to exceedences of the UK's Air Quality Strategy objectives for annual mean nitrogen dioxide (NO₂) concentrations. This AQMA includes Eastern Road which is adjacent to the southern boundary of the Site. The main sources of local air pollution in the vicinity of the Site are vehicles using Eastern Road, adjacent to the southern boundary of the Site and the local road network.

1.57 A qualitative assessment of the potential effects on local air quality from demolition and construction activities on the Proposed Development has been carried out. This showed that during site activities releases of dust and particulate matter (PM₁₀) are likely to occur and that the impact of the Proposed Development prior to mitigation is considered to be moderate negative. However, through good site practice and the implementation of suitable mitigation measures, the effect of dust and PM₁₀ releases will be reduced and excessive releases prevented. The residual effects of construction activities on air quality will be temporary and short-term and are consequently considered to range from minor negative to negligible. However, dust deposition monitoring will be undertaken during the construction phase to ensure that dust deposition levels on the Site and in the immediately surrounding area do not exceed an acceptable level. The mitigation measures employed for dust will be reviewed and if necessary additional mitigation put into place.

1.58 The impact of emissions to air from construction vehicles has been assessed and will be minor negative to negligible for NO₂ concentrations and negligible for PM₁₀ concentrations.

1.59 A quantitative assessment was undertaken using computer modelling to predict the changes in NO₂ and PM₁₀ concentrations that would occur at existing properties in the vicinity of the Site during the operational stage due to traffic flows associated with the Proposed Development and emissions from the proposed Energy Centre.

1.60 The Proposed Development is predicted to result in a negligible effect on annual mean NO₂ concentrations at 20 receptors, a minor negative effect at 24 receptors and a moderate negative effect at six receptors (on Eastern Road, Eaton Place, Bristol Gate, Turton Close and Chadborn Close). The Proposed Development is predicted to cause either an imperceptible change or no change in carbon monoxide and PM₁₀ concentrations.

1.61 In 2022, the completion year for the Proposed Development, the UK Air Quality Strategy (AQS) objective for annual mean NO₂ concentrations is predicted to be exceeded at just over a quarter of the existing assessment receptors, but will be met at the remaining existing receptors. At locations where NO₂ concentrations were close to the AQS objective (Eastern Road, Eaton Place and Chadborn Close), a small or medium increase in concentrations will lead to exceedences of the objective. The AQS objectives for annual and 24 hour mean PM₁₀ concentrations are predicted to be met, both with and without the Proposed Development.

1.62 The hospital is currently served by a number of boilers whose emissions to air were not included within this assessment. Consequently, the change in concentrations identified in the air quality assessment is considered to be larger than it would be had emissions from existing boilers serving the hospital been modelled within the assessment. Furthermore, the background concentrations used in the assessment assume no reduction in vehicle emissions year on year, which is considered to be a worst-case assessment. It is likely that there will be some improvement between now and 2022, the opening year of the Proposed Development, due to future improvements in technology and reductions in background air quality concentrations. These improvements will reduce the significance of the Proposed Development on

local air quality. Furthermore, the background concentrations have been assumed to remain the same with height, when in fact they will decrease with height.

1.63 In terms of exposure of future occupants/users of the Proposed Development, exceedences of the annual mean objective may occur on the Site and exceedences of the hourly objective may occur in the vicinity of the Thomas Kemp Tower at roof level (i.e. close to the release point of the emissions from the proposed Energy Centre). The majority of hospital buildings are served via mechanical ventilation systems which will help to reduce this exposure and the Proposed Development will also be mechanically ventilated.

1.64 The objectives for annual mean and 24 hour mean PM₁₀ concentrations are predicted to be met across the Site.

1.65 A number of mitigation measures are proposed in relation to air quality, including:

- Implementation of a CEMP and dust monitoring to reduce the impact of dust/particulate generation during the construction phase;
- The implementation of a number of measures to encourage sustainable modes of travel including the implementation of a Travel Plan; and
- The introduction of appropriate filters onto the intakes serving the mechanical ventilation systems within the hospital.

1.66 The implementation of the above mitigation measures will help to minimise the impact of the Proposed Development on local air quality, during both the construction and operational phases.

Flood Risk, Drainage and Water Resources

1.67 A desk study was undertaken to determine the water resources, drainage and flood risk conditions within and around the Site. An assessment was then made of the effect of the Proposed Development on water resources and the potential effect on flood risk, the management of foul and surface water drainage from the Site and the water resources required to supply the Proposed Development. Measures to prevent or minimise any negative effects were determined and the residual effects after these measures were implemented were subsequently assessed. A separate Flood Risk Assessment and Drainage Strategy have been prepared for the Proposed Development and will result in an improvement to the current drainage arrangements for the Site.

1.68 Due to the Site's urban nature there are no natural surface water features within the Site or in the immediate vicinity. The English Channel is the closest open water feature, and the high tide line is situated approximately 320 metres to the south of the Site.

1.69 The ground level across the Site varies and generally slopes downwards to the south with a level difference of approximately 10m from north to south. The Site is typically in the order of 52m Above Ordnance Datum (AOD) along the northern development area boundary, and typically 42m AOD along the southern development area boundary.

1.70 Measures to mitigate against the risk of contamination of surface water during construction will be implemented as set out in a CEMP. The CEMP will be developed in accordance with relevant legislation and guidance, including the Environment Agency's Pollution Prevention Guidance Notes, and will include measures for the effective management of surface water run-off and the appropriate storage of construction materials and fuels.

1.71 Measures to promote the re-use and / or recycling of water to reduce overall water demand will be integrated into the scheme. The Proposed Development will meet BREEAM 'Excellent' standard. Water efficiency measures will be consistent with best practice and will include measures such as water metering and monitoring in addition to efficient sanitary fixings and showers, dual flush WCs and spray taps.

1.72 Following implementation of the above mitigation measures and with a Sustainable Drainage System in place within the Proposed Development, an overall minor positive effect is anticipated on the drainage regime at the Site and a moderate negative effect on water resources and a minor to moderate negative effect on the foul sewerage network is anticipated during operation of the Proposed Development.

Ground Conditions and Contamination

1.73 An assessment has been undertaken of the potential impact of the Proposed Development on ground conditions and contamination at the Site, and the potential effects of contamination on the Development, and other identified receptors. The assessment includes an overview of the findings studies undertaken at the Site including an intrusive site investigation which included soil and groundwater testing and analysis. A review was also undertaken of site investigations carried out previously on the Site.

1.74 The following baseline conditions for the Site were identified:

- The underlying ground conditions beneath the Site are identified as varied thicknesses of Made Ground overlying White Chalk (Principal Aquifer). Groundwater is present at depths of more than 20m below ground level in the White Chalk.
- Historical records show that the hospital was first developed on the Site in the early 1820s with further buildings gradually added to the hospital complex. Notable historic land uses in proximity of the Site include a laundry (prior to 1898 until 1962) directly north of the Site and a brewery (prior to 1911 to pre-1973) approximately 160m south of the Site.
- Levels of heavy metals and hydrocarbons were detected above the relevant criteria in a four soil samples taken from the Made Ground and asbestos containing materials were found to be present in three samples of the Made ground. Ground gas conditions beneath the Site have been classified as very low risk.

1.75 Potential sources of contamination identified include asbestos that may make up part of the building materials on Site, or that is present in the Made Ground underlying the Site and construction plant or future vehicle use on Site which may potentially contaminate soils or groundwater in the event of a spillage.

1.76 The Made Ground will be removed during the construction phase to allow for excavation of the basement car parking areas and an asbestos survey and asbestos remediation will be undertaken prior to the demolition activities. This will result in the removal of known contaminated material and an improvement in ground conditions at the Site. Additional mitigation measures which will be implemented during construction include the appropriate use of personal protective equipment during construction and maintenance and implementation of appropriate site drainage including use of interceptor systems in car parking areas and service roads.

1.77 The residual impacts during operation have all been assessed as negligible based upon the above mitigation measures being implemented appropriately. Some minor negative residual impacts have been identified during the construction phase, but these will be temporary.

Ecology and Nature Conservation

1.78 The majority of the Site comprises predominantly existing buildings and hardstanding. The total amount of semi-natural habitat across the Site is of low biodiversity than site value due to the very small amount and low quality of the semi-natural habitat present.

1.79 The Site has the potential to support common nesting birds within trees, scrub and buildings on site. Whilst it is not thought that the local bird population is of significance above the Site scale, all wild birds are legally protected whilst breeding.

1.80 There are a number of designated statutory and non-statutory wildlife sites within the local area, the closest of which is the Whitehawk / Racehill Local Nature Reserve which is 350m to the north-east of the Site (see Figure 3 above). There will be no significant impacts to any of the designated wildlife sites, either as a result of the construction phase or the operation phase of the Development. This is primarily due to their distance from the Site and the presence of an existing urban environment on all sides of the Site.

1.81 There will be a temporary loss of semi-natural nesting bird habitat of Site value as a result of the construction activity on site. The scheme involves the provision of new landscape planting (see Figure 6), including substantial green roof planting. In the long term, there will be a net increase in semi-natural nesting bird habitat on the Site. These features will enhance the value of the Site for nesting birds in the long-term.

1.82 Overall, the development proposals are considered to lead to a minor positive impact to nesting birds due to the increase in semi-natural vegetation cover at the Site. This will also benefit other local wildlife in the area such as invertebrate species.



Figure 6: Landscape Masterplan

Transport

1.83 A study has been undertaken to assess the impact of the Proposed Development on traffic flows and conditions on the highway network. In particular it considers the potential impacts of the change in traffic on non-motorised road users in terms of severance and intimidation. Consideration has also been given to the transport effects associated with the Proposed Development together with those effects from identified consented development schemes in the local area. Highway and transportation conditions surrounding the Site have been assessed for the baseline year of 2011, the busiest construction year of 2014, the busiest year in terms of traffic flows 2018 (during construction of Stage 2 and following completion of Stage 1), and the anticipated completion year of 2022.

1.84 In the baseline and future baseline assessments, high traffic flows lead to traffic congestion and relatively low traffic flows, especially on Eastern Road. This is most apparent at the Eastern Road / Bristol Gate and Eastern Road / Arundel Road junctions during the peak hours, which leads to noticeable levels of pedestrian and driver stress and delay.

1.85 During the busiest construction and traffic years of 2014 and 2018 there will be a significant impact on the surrounding network due to the increase in HGVs entering and leaving the Site and alterations to pedestrian and cyclist environment outside the hospital. However, delays to the surrounding highway network will be minimised through the implementation of junction improvements at Eastern Road / Bristol Gate and Eastern Road Arundel Road. These will junction improvements will increase capacity for the construction traffic and general traffic and will also provide improved pedestrian crossing facilities.

1.86 Once the Proposed Development is complete there will be a varied impact on the surrounding highway network. Levels of severance and pedestrian delay will increase due to the estimated increase in traffic but pedestrian, cyclist and general patient amenity will be greatly improved as a result of the comprehensive transportation strategy that the Trust will implement as part of the Development. A moderate positive effect on pedestrian and cyclist amenity is anticipated.

Waste Management

1.87 Current waste arisings at the Site comprise those associated with existing components of the Hospital, including clinical and domestic waste. Waste arisings data related to the Hospital campus have been reviewed as part of the assessment of waste management effects associated with the Proposed Development.

1.88 The most significant effects of the Proposed Development from a waste management perspective include the generation of waste materials following demolition; during site clearance and earthworks; during construction activities; and subsequent operation. The proposed construction approach and strategy will minimise waste generation, including through application of Design for Manufacture and Assembly Principles. An off-site waste segregation and consolidation centre will be used during the construction phase and a Site Waste Management Plan (SWMP) and associated waste monitoring will be implemented. The effects on waste management during construction and operation will also be mitigated by the following initiatives where possible:

- Adherence to the waste hierarchy (reduce, reuse, recycle, recover);
- Completion of a pre-demolition audit;
- Reuse of demolition/earthworks/construction materials on-site or reuse/recycling off-site;
- Management of supply chains and good on-site storage of materials to prevent wastage;

- Segregation of recyclable materials within the new buildings;
- Provision of appropriate waste storage areas, including capacity to provide food waste containers; and
- Segregation of landscaping and grounds maintenance waste for composting off-site.

1.89 The Proposed Development will still result in a significant quantity of excavation material being generated from excavation of the basement levels, of which the majority would need to be removed from the Site and potentially disposed of to a suitably licensed facility. This will result in a minor to moderate negative effect at worst.

1.90 Following the implementation of mitigation measures the generation of waste during operation of the Proposed Development is likely to comprise a minor negative effect on off-site waste treatment and disposal facilities in the long-term.

Wind Environment

1.91 An assessment of the wind environment has been undertaken for the Proposed Development. The aim of the study was to evaluate the change in the wind environment in and around the Site from the Proposed Development, compared to the existing wind conditions, and its potential effect on pedestrian comfort and safety. The widely accepted Lawson's Criteria for pedestrian safety and comfort have been used to determine the significance of these changes. These criteria identify the threshold mean hourly wind speed for certain activities (e.g. business walking, standing and sitting) which is not to be exceeded for more than 5% of the time each year.

1.92 Computational Fluid Dynamics (CFD) modelling has been used to predict air flow patterns and wind speeds in and around the Site with the existing buildings and with the Proposed Development in place. The Site is subject to very windy conditions and there are several areas along the surrounding roads where wind acceleration occurs and wind speeds above Lawson's criteria for pedestrian safety and pedestrian comfort can be observed. This is mainly due to the high prevailing wind speeds, wind funnelling along streets and the local terrain.

1.93 The results of the pedestrian safety assessment for the 'Proposed Development Scenario' indicate that generally, the magnitude of change in the wind environment within and surrounding the Site as compared to the 'Baseline Scenario' is negligible. However, the assessment has identified localised zones of wind acceleration around the Site where the criteria for pedestrian safety is exceeded and which would benefit from mitigation. These typically include narrow passageways and the corners of buildings where wind acceleration is likely.

1.94 Likely zones of wind acceleration where the criteria for pedestrian safety include the passageway between the Thomas Kemp Tower and the Proposed Development, the passageway between the Thomas Kemp Tower and the Pathology Accident and Emergency Building, along the passageway between the north-east corner of the Royal Alexandra Children's Hospital and the existing multi storey car park, localised zones of the Eastern Road frontage of the Stage 2 Building, zones near the south-east corner of the Proposed Development along both Bristol Gate and Eastern Road and the north-east corner of the Proposed Development on Bristol Gate. These effects range from moderate to minor negative.

1.95 Some improvement in wind conditions compared to the baseline scenario is predicted near the Thomas Kemp Tower and along the Bristol Gate for certain wind directions, resulting in permanent minor positive effects. Strategic planting, street furniture, wind screens and landscaping will improve wind

conditions in the pedestrian areas of the Site and the surrounding area and will play a significant role in absorbing winds to mitigate the effects locally.

1.96 Suitable mitigation measures for the areas between the multi storey car park and the Children's Hospital on the North Service Road and between the Thomas Kemp Tower and Stage 1 on the South Service Road will be investigated, with consideration being given to the nature and use of these roads.

1.97 The residual effects of the Proposed Development on the pedestrian safety on the route (known as the southern service road) between the Thomas Kemp Tower and the Proposed Development and between the north-east corner of the Royal Alexandra Children's Hospital and the multi storey car park are considered to be permanent and varying from minor negative to negligible. The residual effects of the Proposed Development on the pedestrian safety of the remaining localised zones of wind acceleration identified are considered to be permanent and varying from moderate to minor negative.

1.98 The results of the pedestrian comfort assessment indicate that the wind environment of the Proposed Development broadly remains suitable for most pedestrian activities. This can be observed in the north north-east wind direction where the wind environment is mild within the Site and its immediate surroundings and velocities generally remain within the comfort limit suitable for sitting and standing (6 m/s). However the studies have identified areas of the Site where the wind velocities fall outside the recommended comfort criteria for pedestrian activities.

1.99 These zones of acceleration from the pedestrian comfort assessment include the proximity of corners of the blocks on the southern edge of the Site along Eastern Road, the north-west corner of the Site, the passageway between the Royal Alexandra Children's Hospital and the Proposed Development, the passageway between the Thomas Kemp Tower and the Proposed Development, the eastern edge of the Site along Bristol Gate and the western edge of the Site along Upper Abbey Road.

1.100 The mitigation identified for pedestrian safety will also improve conditions for pedestrian comfort. The residual effects of the Proposed Development on pedestrian comfort are considered to be long term and vary from negligible to minor negative for the identified localised zones.

Daylight, Sunlight and Overshadowing

1.101 An assessment was undertaken to determine the effect of the Proposed Development on the daylight and sunlight availability to identified sensitive receptors within the surrounding area. To assess these effects, a comparison was made to determine the changes to the baseline scenario as a result of the Proposed Development using computer modelling.

1.102 The assessment indicated the Proposed Development is likely to have a major negative effect on the daylight receptors of the Sussex Eye Hospital and a moderate negative effect on the daylight receptors of the Royal Alexandra Children's Hospital, six houses on Eastern Road to the south of the Site and the Audrey Emerton building. A minor negative effect on the daylight receptors with the Pathology, Accident and Emergency building to the north of the Proposed Development is also anticipated. The effect of the Proposed Development on all remaining daylight receptors in the surrounding area is likely to be negligible.

1.103 The majority of the receptors affected in terms of levels of daylight are properties within the NHS Trust's ownership or jurisdiction, with the exception of a small number of houses on Eastern Road, to the south of the Stage 1 building within the Proposed Development. As such the Trust has control over the majority of these buildings and has the option of modifications to the affected rooms within these properties to ensure adequate lighting levels are achieved.

1.104 The massing, layout and design of the Proposed Development has been determined by the clinical brief prepared by the NHS Trust, including the requirement for specific floor areas for treatments and inter-departmental dependencies. Extensive consultation has been undertaken during the design evolution, including with BHCC, English Heritage and the Commission for Architecture and the Built Environment (CABE), in order to minimise the effects of the Proposed Development including on local views and the setting of nearby Conservation Areas. The design evolution has included reducing the height and massing of the buildings as far as practicable to ensure provision of a quality design whilst ensuing clinical requirements and efficiencies can be achieved.

1.105 The residual effects on the daylight receptors of the Sussex Eye Hospital are likely be direct, permanent, long term and varying in significance from moderate to major negative while the residual effects on the daylight receptors of the Royal Alexandra Children's Hospital, the houses on Eastern Road and the Audrey Emerton Building are likely be direct, permanent, long term and varying in significance from minor to moderate negative.

1.106 The residual effects on the daylight receptors of the Pathology, Accident and Emergency Building of the Hospital are likely be direct, permanent, long term and varying in significance from negligible to minor negative. The residual effects on all remaining receptors are likely to remain negligible.

1.107 The receptors of the nearby residential buildings facing within 90° of due south (certain residential properties on Upper Abbey Road, including Courtney King House) were regarded as sensitive to sunlight and a detailed assessment to determine the effect of the Proposed Development on levels of sunlight within these properties was carried out. The sensitivity to sunlight of the receptors of non-domestic buildings is dependent on the nature of use and the extent to which the occupants can control their surroundings. For the purpose of this assessment, the receptors of the surrounding non-domestic buildings were not regarded as sensitive to sunlight and hence, not included in the assessment.

1.108 The sunlight assessment results indicate that there is likely to be a direct, permanent and long term minor negative effect on the sunlight receptors of the residential building on Upper Abbey Road (Courtney King House). The assessment indicated a negligible effect on the sunlight receptors of the residential buildings assessed on Upper Abbey Road. Overall, due to the low sensitivity of the sunlight receptors of the non-domestic buildings surrounding the Proposed Development and the relatively small proportion of receptors which lie below the recommended criteria, the Proposed Development is considered to have a permanent, direct, long term negligible residual effect on the sunlight receptors of the surroundings.

1.109 An assessment of overshadowing for the open spaces within the Proposed Development indicated that most of the proposed terrace spaces and roof gardens would receive adequate sunlight on the basis that more than 40% of these spaces would not be under constant overshadowing on the 21st of March.

1.110 Three internal courtyards within the Proposed Development would fall below the recommended criteria for sunlight availability to open spaces, one of which would not be used for sitting. Although the remaining two areas would fall below the recommended criteria they will receive sunlight during the summer months.



Figure 7: Stage 1 Entrance View

External Lighting

1.111 An assessment of the likely significant environmental effects on sensitive receptors arising as a result of the installation of artificial external lighting associated with the Proposed Development has been undertaken. In particular the assessment considered the potential for light nuisance from external lighting sources during construction and operation of the Proposed Development and included a review of the proposed external lighting design.

1.112 A survey of existing lighting levels at the Site and in the surrounding area was undertaken. The results indicated that lighting levels are in keeping with those of an urban centre with high levels of night-time activity. Therefore the study area is classified as an area of high brightness and lies within environmental zone 4, as defined by the Institute of Lighting Practitioners (ILP). However the lighting design has been prepared to comply with a more onerous classification, environmental zone 3.

1.113 The lighting calculations demonstrate that the proposed lighting presents no additional contribution to sky glow. Light spill will be controlled through the use of good performance luminaires, consideration of mounting height, location and screening and will remain within the confines of the Site. The same applies to source intensity towards all receptors which is well within the limits set by national guidance.

1.114 The exterior lighting design accords with appropriate requirements and complies with best practicable means with regard to minimising the potential for light pollution and light nuisance and will result in a negligible effect at sensitive receptors.



Figure 8: Stage 1 Entrance View at Night

Socio-Economic and Community Effects

1.115 The likely significant effects of the Proposed Development in terms of the socio-economic and community context of the Site and surrounding area, at local and regional levels has been assessed.

1.116 The scope of this assessment comprises the following:

- Employment and local economy;
- Community in the surrounding area;
- Hospital and healthcare facilities; and
- Key worker housing.

1.117 Brighton and Hove must respond to and provide for the needs of a growing population and a growing local economy over the next 15 years. The education and health sector is a key employer in the City and makes a significant contribution to the local economy. Brighton and Hove is a member of the World Health Organisation's Healthy Cities Network and as part of this aims to encourage healthy lifestyles and the provision of infrastructure that facilitates a healthy lifestyle, including access to healthy housing, sport facilities, recreation, cultural and community facilities, healthy food, care and health facilities.

1.118 Some of the existing buildings which form part of the Royal Sussex County Hospital date back to 1828 and the buildings and facilities have been identified for redevelopment in order to meet the current and future predicted demands of modern healthcare and clinical requirements.

1.119 Effects on levels of employment associated with the construction phase are assessed to be temporary and minor positive at the local level.

1.120 A minor positive effect at both a local level (due to employment) and district level (via indirect employment and spend in local shops and other facilities) is anticipated during the construction phase.

1.121 Community disturbance may arise during construction works associated with noise and dust, disruption for pedestrians and vehicle movements. The residual effect in relation to community disturbance during construction is judged to be a temporary minor to moderate negative effect of local significance. Mitigation includes the use of sustainable design and construction techniques, an off-site consolidation centre, improvement of pedestrian facilities in the area, and measures to control dust.

1.122 The potential for a negligible temporary impact at the local level on some patients and visitors during the construction works has been identified, particularly as movement to and from decanting facilities takes place.

1.123 The Proposed Development will provide approximately 100 additional beds at the Royal Sussex County Hospital and will mean that patient care can be provided in modern, purpose-built facilities as well as making the hospital more attractive, welcoming and easier for patients and visitors to get around.

1.124 The Proposed Development will involve the relocation of specialist treatment facilities from other hospitals in the area to the Royal Sussex County Hospital. Due to the specialist nature of such facilities it is anticipated that the Development will be the Level One trauma centre for the South East and will provide expanded cancer treatment services for the people of Sussex. The local community will also benefit from access to facilities, including the pharmacy and community and religious space in the multi-faith area. The Proposed Development will result in a permanent major positive impact at local, district and regional levels on the provision of healthcare facilities.

1.125 The development will help safeguard existing employment, create new employment (approximately 450 additional jobs) and improved research and training facilities for trainee medical staff and is considered to have a moderate positive impact on employment at the local, district and regional levels. A minor positive impact at the local and district level has been identified associated with indirect and induced employment.

1.126 The impact associated with the demand for key worker housing will be minor negative impact. The existing provision at St Mary's Hall School to the east of the Site is considered to be adequate.

Telecommunications Reception

1.127 Due to the height of the Proposed Development and the construction equipment which will be needed an assessment of the existing broadcast television and radio reception has been undertaken for the Site and the surrounding area through a combination of desk study and visual survey. Any electro-magnetic interference identified in terms of transmission shadows and reflections has been identified and, where necessary, mitigation has been determined.

1.128 During the construction phase the use of tower cranes and temporary structures on the Site may cause interference to both satellite and terrestrial TV and radio broadcasts. This interference would affect properties to the south-west of the Site. Fixing tower cranes in fixed positions when not in use would limit the adverse effects to the broadcast signals, although little else can be done to mitigate the effects of temporary structures used during construction on telecommunications reception. Due to the temporary and intermittent nature of the construction phase of the Site and low receptor sensitivity, the effect would be of negligible significance following the proposed mitigation.

1.129 Cable television services could be disrupted during excavation works. By obtaining cable route information from the appropriate service providers the issue would be fully mitigated, therefore the residual effect would be negligible.

1.130 Once the Development becomes operational, properties to the south-west of the Site may experience a reduced terrestrial television signal due to the transmission shadow created by the new buildings. Although this may cause disruption to users within the shadow path, with the recommended mitigation in place the effect would be negligible.

1.131 There would be a negligible effect on cable TV services once the Development is operational as no further excavation work, which could disrupt the cabling, would be required. The cabled nature of each service means that transmission shadows would not be created by the Development, therefore the effect would be negligible.

1.132 The main satellite radio transmissions received in the UK are broadcast using the same satellites as the Sky and Freesat television services. Therefore both satellite TV and radio are affected by interference in the same way. The transmission shadow would only reduce signal strength, if at all, to the properties to the north-west of the Site, the effect of which would be negligible.

1.133 Terrestrial radio transmissions are less affected by broadcast shadows from tall buildings than terrestrial television signals due to their lower frequencies and greater propensity to diffract around buildings. Based on this there would be a negligible effect on this type of transmission.

Archaeology

1.134 The available baseline evidence supports the conclusions that, while the Site was utilised predominantly within the prehistoric period, the level of subsequent disturbance has been so great as to have removed all evidence of this activity from the Site area.

1.135 Disturbance has been confirmed directly through the review of geotechnical data from locations across the Site area, which indicates that horizons capable of retaining archaeological assets are not present. There are therefore no significant impacts on archaeological assets are anticipated resulting from the Proposed Development.

ASSESSMENT OF CUMULATIVE EFFECTS

1.136 The potential for cumulative environmental effects to arise associated with the Proposed Development has been assessed. Two types of cumulative effects have been considered, impact interactions (effects of the Proposed Development on the same sensitive receptor) and the combined effect of the Proposed Development together with identified developments which were agreed with BHCC. These comprised the Marina Inner Harbour, Marina Outer Harbour, the American Express development and redevelopment of Rosaz House adjacent to the east of the Site.

1.137 The assessment of residual impact interactions during construction of the Proposed Development has identified the potential for up to moderate to major negative effects on Conservation Areas located in the surrounding area due to the visual impacts and changes to the heritage character during the construction phase. The overall impact on the listed Bristol Gate Piers is anticipated to be negligible to moderate negative due to the nature and extent of the construction works resulting in their relocation from Bristol Gate. Impacts on users of the local highway network will be temporary minor to moderate negative during the construction works due to the visual intrusion, disturbance from construction activities and the change in traffic. The overall effect of the construction phase on residents in the local area is anticipated to

be minor to moderate negative due to a combination of effects from transport, noise and air quality impacts. Staff, patients and visitors to the hospital are anticipated to experience overall effects of minor to moderate negative significance as a result of the construction activities.

1.138 However, the effects during the construction works will generally be temporary and intermittent, and a CEMP will be adopted to minimise and control any effects on the existing environment and on nearby sensitive receptors.

1.139 Once the Proposed Development is complete, the residual effects on residential properties near to the Site (as well as future patients, staff and visitors) are predicted to be up to minor to moderate negative but predominantly minor negative to negligible. This is based on the predicted changes in noise levels associated with traffic flows on certain local roads and from activities within the development, and the change in character of the Site as a result of the area being redeveloped (with some positive effects as a result of an increase in employment). The residual effects on the Conservation Areas and listed assets are anticipated to be minor to moderate negative overall, including as a result of changes in the local character. The overall effects on users of the local highway network will be moderate negative once the Proposed Development is complete.

1.140 The potential effects of the Proposed Development together with the identified developments have also been assessed. The construction works may result in negative effects should all the developments be built out at the same time (although it is noted that construction of Amex House will be completed prior to the proposed date for commencement of works for the Proposed Development), resulting in an increase in HGV traffic on the local road network (increasing noise levels at sensitive receptors). Some positive impacts may result once the schemes are operational, through the provision of additional healthcare facilities and employment opportunities.

MITIGATION MEASURES

1.141 The design of the Proposed Development incorporates many mitigation measures which have been implemented during the design evolution and assessment of options for the location of the helipad. In particular the design has changed considerably during the assessment of views, and the assessment presented in the Environmental Statement considers the impact including the inbuilt design mitigation.

1.142 Principles integrated within the construction strategy include use of an off-site consolidation centre which would contain facilities for the storage of materials, waste sorting and crushing and parking for construction workers. DfMA has been embedded into the design process and is an approach to construction that reduces the need for site installation works and employs the principles of manufacturing to deliver elements and assemble them on site only.

1.143 The mitigation and enhancement measures proposed during construction have been selected for their practical effectiveness and the responsibility for minimising the environmental effects of the construction activities will fall on the appointed construction contractor.

1.144 The CEMP will be put in place to manage and control all groundworks, including the management of materials, wastewater and the storage of fuels and construction plant. The CEMP will detail the procedures and methods that must be followed to minimise the potential effects of construction on the local environment, including local air quality, noise and vibration levels, lighting, visual amenity, ground conditions and wastewater quality and will be agreed with BHCC. Contractors working on the Site will be required to comply with the requirements of the CEMP through the provision of detailed method statements, and to regularly liaise with BHCC during implementation. A Site Waste Management Plan

(SWMP) will be implemented to minimise waste arisings and maximise opportunities for the re-use and recycling of waste materials.

1.145 The precise management structures for controlling mitigation measures during operation of the Proposed Development to ensure that effects are minimised will be defined at a later stage. Such measures include the maintenance of landscaped areas and implementation of plans and policies such as operational policies relating to waste management and Travel Plans.

SUMMARY

1.146 The Proposed Development is considered to be appropriate in terms of its location and viability including links to public transport services and for delivering healthcare facilities. The Proposed Development will provide a range of improved clinical facilities and areas of open space which will provide benefits to existing and future patients and staff, along with improved pedestrian, cycle and transport connections around the Site.

1.147 The Proposed Development will seek to ensure a high performance against relevant sustainability objectives through implementation of sustainable transport provisions and commitments to achieving BREEAM 'excellent'.

1.148 The likely significant environmental effects of the Proposed Development are considered to be those effects which are identified as being of moderate or major negative significance, as follows:

During construction (many of the following effects are temporary and short to medium term and will occur for limited periods during the construction works):

- Impact on the views from Eastern Road between College Place and Upper Abbey Road, and Intersection of Paston Place/Marine Parade, during Stage 2 construction activities (moderate negative);
- Operative transfer from the consolidation centre to the Site on the East Cliff Conservation Area (moderate to minor negative);
- Impact of the Stage 1 construction activities on Kemp Town and Valley Gardens Conservation Areas (moderate to minor negative);
- Increase in noise to existing local noise-sensitive receptors and operational elements of the hospital from on-site works (moderate to minor negative);
- Vibration affecting existing local noise-sensitive receptors and operational elements of the hospital from on-site works (moderate to minor negative);
- Generation of waste material during demolition, site clearance and earthworks phases (moderate to minor negative); and
- Effect of community disturbance during construction (moderate to minor negative).

During operation (these are permanent effects which will be long-term following completion of the Development):

- Impacts on landscaping and trees within the Site (moderate positive);
- Impacts on views from the bottom of Upper Sudeley Street (moderate negative);
- Impact on views from locations in the local and wider area (moderate positive);

- Impact of the Proposed Development on character and setting of the Seafront Sub-Area of East Cliff Conservation Area (moderate to minor negative);
- Impact of the Proposed Development on character and setting of the St. James Street and Kemp Town Village and Victorian Residential Streets Sub-Areas of East Cliff Conservation Area (moderate negative);
- Impact of operational traffic on the East Cliff Conservation Area (moderate to minor negative);
- Impact of operational traffic on the Kemp Town Conservation Area (moderate negative);
- Emissions of NO₂ generated by the Proposed Energy Centre (moderate negative to negligible);
- Increase in water demand (moderate negative);
- Increase in pressure on the foul sewer network (moderate to minor negative);
- Pedestrian and cyclist amenity (moderate positive).
- Wind acceleration (in relation to pedestrian safety) in proximity to the south-east corner of the Proposed Development along both Eastern Road and Bristol Gate, in localised zones of the Eastern Road frontage of the Stage 2 Building and in proximity to the north-east corner of the Proposed Development on Bristol Gate (moderate to minor negative);
- Effect on daylight receptors within Sussex Eye Hospital (major negative);
- Effect on daylight receptors within Royal Alexandra Children's Hospital, Houses on Eastern Road and Audrey Emerton Building (moderate to minor negative); and
- Effect of the Proposed Development on the provision of healthcare facilities (major positive); and
- Effect of direct employment associated with the Proposed Development (moderate positive).

1.149 The design of the Proposed Development and commitments that have been made to the proposed management practices during construction and operation incorporate a range of enhancement and mitigation measures. These measures will minimise any significant environmental effects and ensure that the sustainability credentials of the Proposed Development are maximised.

1.150 The Proposed Development will result in number of benefits to hospital-users but also quality of life and socio-economic benefits to the wider public.

1.151 The design of the Proposed Development and commitments that have been made to the proposed management practices during construction and operation incorporate a range of enhancement and mitigation measures. These measures will minimise any significant environmental effects and ensure that the sustainability credentials of the Proposed Development are maximised.

1.152 Planning conditions, obligations or other means may be used to secure the delivery of the mitigation and enhancement measures set out in this ES and in other documents submitted in support of the outline planning application.

Further enquiries

This Non-Technical Summary provides a general description and account of the environmental, social and economic effects of the Proposed Development. The full details of the assessment of likely significant environmental effects are presented in the Environmental Statement.

Copies of this document and the Environmental Statement are available for viewing on BHCC's website and at the council offices. For further information please contact BHCC on 01273 290000.

If you wish to order further copies of this document or a copy of the Environmental Statement please contact WSP Environmental Ltd on 01256 318800. A charge will be made to cover the cost of printing. These costs are available on request.

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