

SecondSite Property Holdings Limited

Northfleet West Sub-Station site, Swanscombe

**Environmental Statement
Volume 3 - Non-Technical Summary**

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PART A

1. INTRODUCTION

- 1.1 SecondSite Property Holdings Limited (hereafter referred to as SecondSite Property) is the property arm of National Grid Transco. The company own and manage the occupied and surplus property that formerly belonged to British Gas and National Grid. The company's role is to manage National Grid Transco's diverse non-operational portfolio with the aim of regenerating this surplus land for beneficial use.
- 1.2 SecondSite Property own a site known as Northfleet West Sub-Station (shown edged red on the Site Location and Application Site Plans at Appendix 1 and 2 respectively), which is located in the south-eastern corner of a larger area known as Eastern Quarry, situated to the south of Swanscombe. The Sub-Station site measures approximately 36 hectares (90 acres) in size and includes three electricity sub-stations, a number of power lines and pylons. The remainder of the site is farmland.
- 1.3 Power is generated at the Littlebrook power station in Dartford and transmitted through power lines to the Northfleet West Sub-Station site where it is transformed down. However, there is another sub-station site – known as the Northfleet East Sub-Station site – at Pepper Hill in the adjoining borough of Gravesham a short distance to the east, which has recently been upgraded. Therefore, two of the sub-stations on the Northfleet West Sub-Station site are due to be decommissioned and the third sub-station (located close to the southern boundary of the site) will be rationalised and reduced in size. A number of power lines and pylons will also be removed. Planning of the decommissioning work is currently being undertaken. The decommissioning process creates an excellent opportunity to regenerate and revitalise the site in accordance with national, regional, strategic and local planning policy and guidance.
- 1.4 To help realise this opportunity, SecondSite Property is seeking outline planning permission for the development of the Northfleet West Sub-Station site to provide a sustainable, mixed use scheme including up to 1,500 dwellings and up to 24,500m² of non residential floorspace. A full description of the proposed development is set out in Section 3 of this Summary. The outline planning application is accompanied by a Planning Statement, an Environmental Statement (including a Transport Assessment Report and Design Statement) and a Consultation Assessment Report. In addition, a Masterplan Report and a Masterplan have been prepared in support of the application but are for illustrative purposes only.

- 1.5 This document is a non-technical summary of the Environmental Statement that has been prepared as part of the outline planning application.
- 1.6 The Eastern Quarry site, including the Northfleet West Sub-Station site is identified in Dartford Borough Council's adopted Planning Brief for the site as the largest potential development site in the Thames Gateway sub-region. The adopted Planning Brief specifically emphasises that maintaining momentum in the development of Kent Thameside needs Eastern Quarry to proceed as quickly as possible, with the early development of the Northfleet West Sub-Station proceeding in tandem with the early development of the eastern part of the Eastern Quarry site. SecondSite Property share the desire of the Borough Council in this respect.

2. SITE LOCATION

- 2.1 The site is situated immediately north of the A2 and to the west of Southfleet Road. It lies at the eastern end of the site known as Eastern Quarry and adjacent to the new Channel Tunnel Rail Link (CTRL) development, currently being built at Ebbsfleet, to the east. Swanscombe is located about 1.6 kms (1 mile) to the north, Dartford about 9.6 kms (6 miles) to the west and Gravesend about 3.2 kms (2 miles) to the north east.
- 2.2 The site itself currently comprises 36 hectares (90 acres) of undulating, arable farmland, three electrical sub-stations, and a number of power lines and pylons. It also includes planted strips and mature hedgerows. The A2 bounds the site to the south, Southfleet Road to the east and to the north, it is bounded by farmland. Beyond the western boundary of the site is a public footpath along with trees and planting, which then opens onto a steep cliff face, dropping down to the Eastern Quarry.

3. THE PROPOSED DEVELOPMENT

- 3.1 In accordance with the hierarchy of relevant planning guidance and policy at the national, regional strategic and local levels, the outline planning application seeks permission for a sustainable, mixed use scheme that makes optimum use of the land, that maximises the opportunity for walking, cycling and the use of existing and proposed public transport facilities and is well related to adjacent land uses and well integrated with existing communities.

- 3.2 In particular, the application has been prepared with careful consideration of Dartford Borough Council's adopted Planning Brief for the Eastern Quarry (July 2002) and complies with its requirements. The adopted Planning Brief, which is Supplementary Planning Guidance, covers the whole of the Eastern Quarry, including the Northfleet West Sub-Station site.
- 3.3 The application seeks permission for development comprising a mixed use scheme of up to 1,500 dwellings (Class C3) and up to 24,500m² of non-residential floorspace for:
- Business and employment uses (Class B1(a), (b) and (c)); up to 10,000m²;
 - Shopping, food and drink and professional services (Class A1, A2 and A3); up to 5,000m²;
 - Hotel use (Class C1); up to 5,000m²;
 - Community, health, education and cultural uses (Class D1); up to 4,000m²;
 - Assembly and leisure facilities (Class D2); up to 500m²;
- and ancillary facilities and services including:
- Means of access via the two roundabouts on Southfleet Road; cycleways, pedestrian routes and public transport facilities;
 - Vehicle parking;
 - Provision and/or upgrading of infrastructure;
 - Groundworks and re-profiling of site levels;
 - Landscaping (including water features);
- and ancillary engineering and other operations.
- 3.4 The scheme will provide a wide range of size and type of residential properties, with a mix of apartments, townhouses, semi detached and detached houses, ranging from studio and one-bedroom apartments to four bedroom properties. The scheme provides three main forms of residential development, comprising higher density (apartments), medium density (apartments, townhouses) and lower density (semi-detached, detached houses) areas. This mix will help meet housing needs in the area, by providing a diverse range of dwellings, whilst also providing 30% affordable housing in accordance with the requirements of the up-to-date Local Plan Review and the adopted Planning Brief.
- 3.5 The development incorporates the principles of sustainable development as an overarching and integral part of the design evolution. This has determined the choice of house mix,

supporting land-uses and transportation proposals, creating an urban village development aimed at minimising the use of the car and encouraging movement by foot, bicycle and the local public transport network.

- 3.6 The extensive footpath and cycleway network proposed within the site, shown on the attached Parameters Plans in Appendix 3, will encourage movement on foot and bicycle, allowing residents to access the various uses on the site minimising the need to utilise the car. In addition, the range of uses proposed in the scheme would help bring all activities within closer reach enabling people to work closer to where they live and vice versa, thereby reducing the overall need to travel.
- 3.7 The proximity of the site to the Ebbsfleet Channel Tunnel Rail Link (CTRL) station a short distance to the east of the site will further enhance the accessibility of the site. The proposed Ebbsfleet station is located around 800 metres away from the north eastern part of the site and the permeability of the scheme will enable residents to access the station by foot or bicycle, in accordance with the sustainable aims of the development. The proposals also incorporate a mix of uses, including high density residential adjacent to a proposed Fastrack stop close to the northern boundary of the site.
- 3.8 Fastrack is a comprehensive bus-based public transport system centred on a network of dedicated "track" consisting of bus-only roads, on-street bus lanes and priority at junctions. Fastrack is proposed to link Dartford in the west, with the Bluewater Regional Shopping Centre, Eastern Quarry, the Northfleet West Sub-Station site and the Ebbsfleet CTRL station with Gravesend to the east.
- 3.9 The proposed development will provide a range of benefits for local people, both to the new residents of the site and the existing residents living close to the site. In addition to the benefits already outlined above, the proposals will facilitate the removal of two existing sub-stations and a number of pylons and power lines. This will enhance the aesthetics of the local landscape and will provide a rationalised sub-station close to the southern boundary of the site.
- 3.10 The proposals will provide up to 24,500m² of non-residential floorspace, which will provide a range of uses incorporating Class A1, A2, A3, B1, C1 and D2 uses. These uses will provide a range of benefits to the community, with a substantial number of new jobs being created within the proposed office, retail, leisure and hotel floorspace uses. Both the direct and indirect employment benefits of the proposal are addressed in more detail in Section 5 (Socio-

Economic Assessment) of the Environmental Statement and are summarised in Section 10 of this document.

- 3.11 The proposals will provide up to 4,500m² of Class D1 and D2. The broad range of land uses within these two Use Classes will provide appropriate flexibility to accommodate the precise facilities that are agreed as appropriate and required on site following further discussion with the County, Borough and Town Councils. The provision of a new primary school, if agreed as appropriate, will help to meet the primary school education needs of the area.
- 3.12 The proposals will provide a network of extensive, high quality open spaces for all residents to enjoy, which together comprise 33% of the total site area and complies with local policy guidelines as well as the adopted Planning Brief. It is proposed to include a central park situated around the new water features, and the creation of a 'town square' within the high density mixed use area in the north of the site. The proposals will also provide a network of footpaths and cycleways which will aid the permeability of the scheme and the surrounding community, in accordance with Green Grid principles whilst providing residents with ease of access to public transport facilities.
- 3.13 The proposals comply with relevant policies and guidelines at national, regional, strategic and local levels and specifically the aims and objectives of Dartford Borough Council's adopted Planning Brief for the Eastern Quarry site of July 2002.

4. THE ENVIRONMENTAL STATEMENT

- 4.1 The Environmental Statement (ES) sets out the findings of the Environmental Impact Assessment (EIA), and consists of the following sections:
- Volume 1 - Main Report;
 - Volume 2 - Figures and Appendices;
 - Volume 3 - Non-Technical Summary
- 4.2 This document is the non-technical summary of the ES.
- 4.3 The ES (including a Transport Assessment Report and Design Statement) is one of three documents produced to be read in conjunction with the planning application. The application as a whole comprises a:

- Planning Statement;
- Environmental Statement; and
- Consultation Assessment Report

4.4 The scope of the submitted documents has been the product of consultation between the applicant, the EIA team, Dartford Borough Council (DBC) and other consultees.

5. CONSULTATION

5.1 An extensive consultation process with a number of statutory and non-statutory organisations, interest groups, environmental bodies and local residents was undertaken. Consultees included:

- Dartford Borough and Kent County Council Officers
- Swanscombe and Greenhithe Town Council
- Dr Howard Stoate MP
- Bean Residents' Association
- North Kent Chamber of Commerce
- Urban Thames Gateway Kent
- SEEDA
- Thames Gateway Kent Partnership
- Groundwork Kent Thames-side
- ODPM Thames Gateway Delivery Unit
- Kent Thameside Delivery Board

5.2 Consultation has comprised discussions, consultation meetings, presentations, one-to-one meetings and a three day public exhibition and consultation which was held on Thursday 21 October 2004 at Greenhithe Community Centre and on Friday 22 October and Saturday 23 October at Swanscombe Leisure Centre. A website was also created to provide information on the proposals (www.northfleet.info).

6. THE SITE AND ENVIRONS

- 6.1 The Eastern Quarry site, including the Northfleet West Sub-Station site is identified in Dartford Borough Council's adopted Planning Brief for the site as the largest potential development site in the Thames Gateway sub-region. Land Securities, who own all of the Eastern Quarry excluding the Sub-Station site, have submitted two planning applications to Dartford Borough Council. These planning applications are known as Eastern Quarry 1 (EQ1) and Eastern Quarry 2 (EQ2). EQ1 is an outline planning application (with all matters reserved for future consideration). It was submitted to Dartford Borough Council in January 2003 and the application site is the whole of the Eastern Quarry (including the Northfleet West Sub-Station site). The application seeks permission for a mixed use development including 7,250 dwellings and 280,000m² of non-residential floorspace. The application is undetermined.
- 6.2 Subsequently, in December 2003, Land Securities submitted a planning application known as Eastern Quarry 2 (EQ2). This is also an outline planning application (with all matters reserved). It seeks permission for a mixed use development including 6,250 dwellings and 231,000m² on a site comprising Eastern Quarry but excluding the Northfleet West Sub-Station site. This application is also undetermined.
- 6.3 The existing quarrying operations on the Eastern Quarry site are due to cease in 2008. Following the closure of works at Eastern Quarry, production will transfer to the new cement works at Holborough in the Medway Valley, which was granted planning permission by the Secretary of State in November 2001.
- 6.4 SecondSite Property's application is designed to be compatible with the adopted Planning Brief for the Eastern Quarry and complimentary to Land Securities proposals on the adjacent Eastern Quarry land.

7. SITE DEVELOPMENT AND PHASING

- 7.1 At this stage, the precise phasing of the works is not known. However, it is envisaged that the development could commence in 2006 with the overall development taking place over four phases – of two years each, from 2006-14. The respective assessment disciplines have

assessed likely environmental effects, for each of the phases, and according to the agreed assessment of significance criteria (See Section 9 below).

7.2 For the purposes of the assessment, the general phasing assumptions are as follows:

Phase 1- 2006-2008: Construction work will have begun on site with approximately 25% of the dwellings constructed, with some infrastructure in place.

Phase 2- 2008-2010: A significant amount of housing will have been constructed, with approximately 50% of the dwellings constructed, with 25% of the community facilities completed. A significant amount of infrastructure will be in place.

Phase 3- 2010-2012: All employment generating floorspace will have been constructed, with approximately 85% of the dwellings completed, and the remaining community facilities. The majority of the infrastructure will be in place, with Fastrack completed.

Phase 4- 2012-2014: The site would be completed and 100% of the project cost expended.

8. PLANNING POLICY AND SUPPLEMENTARY PLANNING GUIDANCE

- 8.1 A broad range of planning policies are relevant and relate to the site from national policy, to Regional Planning Guidance, the Kent Structure Plan, the Dartford Borough Local Plan and the Borough Council's adopted Planning Brief for the Eastern Quarry site (which is Supplementary Planning Guidance) and includes the Northfleet West Sub-Station site.
- 8.2 The Eastern Quarry, including the Northfleet West Sub-Station site, is identified in national, regional, strategic and local planning policy terms as one of the 'key opportunities' for development in the Thames Gateway.
- 8.3 National planning guidance contained in PPG's and PPS's emphasise the need for sustainable, high quality, mixed use development on previously developed urban land in accessible locations, particularly in relation to public transport.

- 8.4 At the national level, the Sustainable Communities Plan (February 2003), identifies the Thames Gateway as one of the principal areas of the south east to provide for employment, housing and transport facilities to meet the needs of the sub-region. In particular, the Government's strategy is for housing development to be concentrated in the Thames Gateway, providing sustainable, high quality, well planned communities.
- 8.5 At the regional level, Regional Planning Guidance (RPG) 9A identifies the Kent Thameside (which includes Eastern Quarry and the Northfleet West Sub-Station sites) development as one of the two main centres of development.
- 8.6 At the strategic level, Policy NK1 of the Kent County Structure Plan identifies Eastern Quarry (including the Northfleet West Sub-Station site) for comprehensive mixed use development, with an emphasis on housing provision, together with open space, schools, community facilities and employment land to be developed in accordance with a masterplan and integrated with an enhanced public transport and road network.
- 8.7 At the local level, Policy DD2 and Policy MDS5 of the emerging Dartford Borough Local Plan and the adopted Planning Brief identify Eastern Quarry (including the Northfleet West Sub-Station site) as a new, compact, mixed use urban village, including an estimated 7,250 new dwellings.
- 8.8 The proposals have been designed to comply with the broad range of planning policies, in particular the requirements of the adopted Planning Brief. The proposed development also conforms with the objectives and criteria outlined in Policy MDS5 for the Eastern Quarry and Policy DD2 dealing with Mixed Use Urban Villages.
- 8.9 The site currently includes three electricity sub-stations, a number of power lines and pylons and the remainder of the site is farmland. It is significantly under-utilised and provides an excellent opportunity to be developed in compliance with relevant emerging Local Plan policies, the guidelines in the adopted Planning Brief and to be compatible with the current Land Securities planning application (known as EQ2) on the adjacent Eastern Quarry (excluding the Northfleet West Sub-Station site).

9. OVERALL ASSESSMENT METHOD

- 9.1 The Environmental Impact Assessment was undertaken in accordance with the Town and Country Planning (Assessment of Environmental Effects) (England and Wales) Regulations

1999 (SI 1999 No 293). The Regulations set out procedures for undertaking an EIA and the information which is required to be included within an ES.

9.2 The overall scope of the EIA was drawn up using the team's relevant experience on similar projects, professional judgement and in consultation with Dartford Borough Council, in accordance with the requirements of the relevant 1999 Regulations.

9.3 The exercise was undertaken by identifying the significant issues relating to the development and subjecting them to the appropriate level of assessment.

9.4 The range of issues and potential environmental effects identified for consideration comprised the following:

- Socio-Economic Assessment
- Transportation
- Air Quality and Climate Change
- Water Resources
- Ground Conditions & Contamination
- Noise
- Archaeology
- Ecology
- Landscape and Visual

Baseline Assumptions

9.5 The proposed development is envisaged to take place over the period 2006 to 2014. Baseline assumptions form the basis by which the Environmental Assessment has been undertaken and has taken account, where relevant, of 'natural' or other changes outside of the control of SecondSite Property e.g., the baseline transportation assessment takes account of some other development taking place in the surrounding area. The respective assessment areas consider the effects of the development during both the constructional lifetime of the project and future 'operational' years.

Significance Criteria

9.6 Unless as otherwise stated in the individual sections of the ES, the extent and level of environmental impact for each assessment area has been carried out using four main levels of

significance against which positive or negative impact (beneficial or adverse) would be assigned. The significance criteria are set out in Table 1 below:

High or Major Impact	High (or Major) significance: Considerable impact (by extent, duration or magnitude) possibly of national significance and at least likely to be important on a local or district scale or in breach of recognised acceptability, legislation, policy or standards. If adverse impact, then may form a major part of the decision making process.
Moderate Impact	Moderate Significance: Limited (by extent, duration or magnitude) which may be considered significant on a local scale.
Minor Impact	Minor Significance: High localised, very short or slight impact of no significant consequence.
Negligible Impact	Negligible Significance: No discernable impact of no significant consequence to an environmental resource or receptor.

Mitigation

9.7 Required levels of mitigation for each discipline are set out in each of the respective sections of the ES and residual effects are identified.

Cumulative Effects

9.8 In addition to an assessment of the direct effects, the 1999 EIA Regulations (Schedule 4) require an assessment of the likely significant indirect, secondary and cumulative effects. Cumulative effects may be described as interactions between different effects at the same

location or interactions or different effects over time. The result is such that the impact is of greater significance than the sum of its constituents.

- 9.9 The assessment of the interactions and cumulative effects has been carried out using a variety of techniques including professional judgement, spatial analysis and modelling. Various future baseline assessment scenarios have been addressed and this has assisted in the identification of potential impact interactions and cumulative effects associated with other significant developments in the area.

PART B

10. SOCIO-ECONOMIC EFFECTS

Assessment Methodology

- 10.1 The Socio-Economic section of the ES examines the potential socio-economic effects arising from the proposed development. The assessment considered what impacts the proposed development is likely to have on the housing, employment, construction employment and community facilities at the local, district and sub-regional level and was undertaken for both during the construction process and the completed development.
- 10.2 In assessing the scale of the potential impacts of the development the following geographical scales were considered:
- Local: The site- Northfleet West Sub-Station;
 - District: Borough of Dartford; and
 - Sub-Regional: Kent Thameside (comprising the two Boroughs of Dartford and Gravesham).

Baseline Conditions

Population

- 10.3 At both the district and sub-regional level, the population is expected to grow significantly in size by 2011. However, while the population is set to grow, there is a decline in the 16-24 age group, representing a possible shortage of young, newly qualified labour.

Housing

- 10.4 Dartford Borough Council has identified the Northfleet West Sub-Station site (part of Eastern Quarry) as a strategic housing site and indicates that an estimated 7,250 dwellings could be provided. At the district level, Dartford Borough Council's Local Plan has identified the potential for approximately 7,000 dwellings in the period to 2011. At the sub-regional level, Kent Thameside predicts there will be the need for 30,000 new homes over the next 25-30 years.

Employment

- 10.5 Currently the level of employment on site is negligible. The electricity sub-stations employ up to 10 people and the tenanted farmland on the site also has negligible employment.
- 10.6 Employment within the Borough of Dartford is centred around the manufacture of cement, engineering and papermaking. These industries have declined in recent years, but the areas proximity to motorways and improvements to the transport system have meant the economy has remained relatively buoyant.

Community Facilities

- 10.7 There are no existing community facilities on the site. There are a number of primary and secondary schools in the vicinity of the site such as Swanscombe Infant School and Swan Valley Community School.
- 10.8 Nearby recreational facilities are provided at Cascades and Cygnet Leisure Centres which provide a range of sports facilities within Dartford and Gravesham.
- 10.9 There are also extensive health facilities within the locality such as doctor's surgeries and dental practices. In addition, there are a number of hospitals within the area such as Darent Valley and The Livingstone. All the emergency services are also represented within the vicinity of the site.

Assessment of Impacts

- 10.10 Although employment is not the predominant land use within the proposed development the employment element of the scheme along with the construction process will generate significant employment opportunities. Employment is a positive impact as it provides benefits to both the economy and the community generally by virtue of wealth creation. In total, the development both during the construction process and the completed development is likely to generate 1725 employment jobs, which is considered to be a beneficial impact. This equates to 662 full time jobs during the construction phase, and 1063 when the development is completed. This is considered to be a beneficial impact.
- 10.11 Housing is the largest single element of the scheme and the development provides for up to 1500 units of which 30% will be affordable units. This includes 1050 private market units and 450 affordable units. This brings forward 15% of Dartford Borough's total market housing requirement, and 13% of the Boroughs affordable housing requirement. It is considered that this is a beneficial impact.

- 10.12 Community facilities are an important component of the proposed development as they help meet the needs of the existing community and the new population. The development seeks permission for up to 4,500m² of community, health, education, cultural and leisure facilities which include a wide range of community facilities.
- 10.13 The broad mix of land uses accompanying the application have the flexibility to accommodate the precise facilities that are agreed as appropriate and required on site following further discussions with the County, Borough and Town Councils. Subject to those discussions, on site provision may include a primary school and community hall if it is agreed these are appropriate. It is considered that this is a beneficial impact.

11. TRANSPORTATION

- 11.1 The Transportation section of the ES examines the potential transportation effects arising from the development proposals. Specifically, it considers all of the transport effects associated with the movement of people to and from the completed development. These relate to traffic generated by the development; public transport; cycling and walking. In addition, impacts during construction are considered.
- 11.2 Considerable infrastructure and public transport improvements are proposed in the vicinity both as part of the Channel Tunnel Rail Link (CTRL) and Ebbsfleet developments and also as part of the wider Eastern Quarry area. As such, travel patterns, including route and mode choice are expected to change significantly over the next ten to fifteen years.

Methodology

- 11.3 The assessment of the transport effects of the development has concentrated on the capacity of the infrastructure. The assessment has been carried out looking at future year traffic flows during and after the construction period of the application proposals. This exercise results in a pattern of flows used to quantify the impact of the scheme. Thereafter, locations where the predicted changes in flows might cause adverse impact are highlighted and any mitigating measures necessary to offset these predicted impacts are identified. Finally, the residual impacts are assessed.
- 11.4 Key to the assessment of capacity on the highway network is the operation of the junctions. Where new infrastructure meets existing highway, or where parts of the existing highway network are predicted to receive significant amounts of additional traffic associated with the

development, appropriate junction capacity programmes have been run to test performance. Where necessary, improvements are planned to mitigate adverse capacity impacts and the revised geometry has been re-tested.

- 11.5 The accessibility of the area by non-car modes has also been reviewed. The assessment looks at all aspects, including public transport, walking and cycling. The changes proposed as part of the wider area redevelopment and how they affect the Northfleet West Sub-Station site are described.

Baseline Conditions

- 11.6 Due to the proposed infrastructure changes, base traffic flows have been extracted from the Kent Thameside Model, a model developed for the purpose of assessing transport impacts associated with development sites in the Dartford area.
- 11.7 The provision of the new infrastructure and public transport services associated with the CTRL works will significantly improve accessibility by non-car in the locality. Currently, although there is an existing footpath that runs along the western and northern boundaries of the site, continuing up Southfleet Road to Swanscombe, there are no footpaths on Southfleet Road adjacent to the site, the provision for cyclists is poor and no bus services pass the site. In addition, the closest mainline railway stations are approximately 1.5km away.

Proposed Development

- 11.8 The philosophy behind the design of the highway infrastructure within the Northfleet Sub-Station site has been to produce a people and public transport orientated development rather than car based. (See Parameters Plans at Appendix 3 and Illustrative Masterplan at Appendix 4). The guiding principle in developing the strategy has been that the layout should be permeable to pedestrians and cyclists and barriers such as roads and built form should be minimised. Footpaths and cycleways within the development will be provided adjacent to roads and across open spaces as dedicated routes.
- 11.9 Public transport provision will be by two primary means, Fastrack and local bus services. Fastrack is the key element of public transport provision in the wider Eastern Quarry area. The Fastrack service will be bus based and will be able to provide direct, fast and frequent links from the Sub-Station site to Dartford and Gravesend Town Centres, Bluewater Park, Ebbsfleet Station and employment areas and the remainder of the Eastern Quarry Development. Within the Sub-Station planning application full provision for Fastrack will be made on SecondSite Property land. Along the northern boundary of the site, a Fastrack corridor will be provided

along with for a halt to serve the Sub-Station site and the adjacent Eastern Quarry area. In addition, existing local bus services could be extended into the site and a circular route linking Swanscombe, the Sub-Station site and nearby rail stations at Ebbsfleet, Northfleet and Southfleet could be implemented.

Potential Impact and Mitigation Measures

- 11.10 The development of the Northfleet Sub-Station site, which effectively forms the first part of the wider Eastern Quarry area, is expected to be complete by 2014. The potential impacts of the proposals have been considered both during construction and after completion. During construction, traffic is expected to be associated with the decommissioning of the sub-stations, the import of building materials, the import and export of any cut or fill and the movement of construction workers. However, it is not expected that a significant volume of fill material will be imported or exported. The most significant transport related impact will be that arising from the traffic associated with the development upon completion.
- 11.11 The greatest traffic impact will be associated with the new junctions currently being constructed as part of the CTRL works; two on the re-aligned Southfleet Road and the new A2 (T) roundabout. The results of the capacity assessments demonstrate that without enhancement, all three new junctions will be operating over capacity.
- 11.12 In light of the above, it is proposed to signalise both of the roundabouts on Southfleet Road. The assessments of these signalised junctions demonstrate an improvement when compared to the Base Scenario. The analysis demonstrates that with development of the Northfleet Sub-Station site and the proposed highway improvements, the system operates within capacity and is better than with no development on the Sub-Station site, but no highway improvements. This is the basic test of development control and shows “nil detriment” on the highway network. Furthermore, sensitivity tests have been undertaken assuming overall flows through the roundabouts increase by 10%. With these flows the improved junctions still operate within capacity.

Residual Impact

- 11.13 The development proposals provide significant improvements to the accessibility of the site by non-car modes, including the creation of a network of footpaths and cycleway, allowance for provision of a section of the Fastrack route along the northern perimeter of the site and the provision of improved bus services. Therefore, compared to the existing situation where the

site is inaccessible by non-car modes, we consider this will lead to a benefit and this has been assessed as a significant benefit.

- 11.14 Mitigation measures have been suggested on Southfleet Road to cater for the additional traffic generated by the site. These mitigation measures lead to an improvement in highway conditions compared with the Base Scenario. Therefore, we consider that, with these mitigation measures, the development will lead to a moderate benefit in traffic terms.

12. AIR QUALITY

- 12.1 The proposed development has the potential to impact on local air quality through increased traffic on the local road network. Vehicle exhaust contains a number of pollutants, which are of concern in respect of their impacts on human health. In addition, road transport within the UK accounts for a significant proportion of pollutants associated with global warming.
- 12.2 The impacts of the proposed development on local air quality have been determined through the use of a complex mathematical model commercially available for the assessment of road traffic, based on the volume of traffic, the types of vehicles and the speeds at which they move. Consideration of the existing levels of air pollution within the vicinity of the site show that both Dartford Borough Council and Gravesham Borough Council have shown that problems with air quality exist. Road traffic has been identified as the main source of pollution within the area, with nitrogen dioxide (NO₂) and fine particulates (PM₁₀) being the two main pollutants of concern in respect of human health.
- 12.3 The assessment has confirmed existing problems in air quality exist in relation to NO₂ and PM₁₀ in the vicinity of the site. Moreover, these problems are set to continue in the future or, in the case of PM₁₀, worsen if the relevant health-based standards are tightened. The occurrence of elevated levels of NO₂ and PM₁₀ in the vicinity of roads located adjacent to the site is not unique. The current national perspective on air quality highlights a widespread occurrence of problems with NO₂ and PM₁₀ I, with up to 120 separate Air Quality Management Areas across the UK. Whilst some of these areas may be small (reflecting only one or two properties in close proximity to busy roads) other areas affected are greater in extent. For example, many London Boroughs have declared whole Borough Air Quality Management Areas, reflecting the regional nature of the problem.

- 12.4 The assessment has shown that the impact of the development-related traffic on concentrations of both pollutants is insignificant. Changes in the annual mean (the mean pollutant levels over 365 days) are less than 1.5%, when compared to the situation where the development does not take place. Similar small changes are shown to occur in those pollutants associated with global warming. The assessment shows that the development in itself would not give rise to significant air quality problems.
- 12.5 The assessment has additionally included consideration of the short-term (temporary) impacts often associated with the occurrence of construction activities taking place within an area. It considers the potential for increased levels of dust arising from certain construction activities and highlights that, with the adoption of best practice, these can be significantly reduced or removed altogether.

13. WATER RESOURCES

- 13.1 The Water Resources assessment has been based on a fully developed application site as this is considered the worst case scenario. Construction effects of the proposed development have also been considered. The assessment is based on a desk top study and consultations with various agencies. The findings from the above have been used to determine the major features of the proposals relating to water resources. Any potential impacts on ground water have been identified, assessed and mitigation needs and measures outlined. The principal issues of drainage, flood protection and groundwater quality have been addressed.
- 13.2 There are no watercourses within the application site though there is a water course, River Ebbsfleet, approximately 450m from the eastern boundary. As a proportion of the site is in agricultural use, excepting the presence of sub-stations, most of the surface water gets absorbed into ground or results in surface runoff at the eastern boundary of the site. The surface water runoff in turn discharges to the River Ebbsfleet. It is assumed that the existing surface runoff from the site will not exceed 7l/ha/s which lies within the range of the 2-8l/ha/s stipulated by the Environment Agency as 'greenfield' target discharge rates. There is no surface and foul water drainage network belonging to Southern Water in the vicinity of the site.
- 13.3 Surface water attenuation measures on site will ensure that the rate of surface water runoff from the site is comparable to the existing condition. The likelihood of increased flooding will be negated by the attenuation ponds.

- 13.4 The principles of Sustainable Urban Drainage Systems (SUDS) will be explored throughout the development where feasible.
- 13.5 Soakaways will be used for uncontaminated residential roof areas. They will not be used for contaminated soil areas or non contaminated areas where oil is likely to enter and might contaminate ground water. The site is classified as ground water source protection zone 1 and the detailed design will therefore take this classification into account.
- 13.6 The foul water from the site will be collected in piped system and taken to the Southern Water Treatment Works. The Treatment Works will be upgraded by Southern Water to accommodate the additional intake from the application site and rest of the Eastern Quarry site. The risk of contamination of ground water due to foul water discharges is assessed to be negligible as the sewage effluent will not be discharged to the ponds or controlled waters.
- 13.7 The foul water pumping station and rising main will be constructed during the early stages of the project to ensure that the first phase of housing development gets connected into Southern Water's foul drainage system.
- 13.8 During construction, all fuels, oils and chemicals will be stored on site on an impervious base within a bund and secured area to avoid leakage. Silt prevention measures will be adopted on site to prevent entry of silt into ground water and the local water course. The contractor will provide a temporary septic tank or cesspit for disposal of sewage from the toilet facilities.
- 13.9 In order to ensure that the surface runoff to River Ebbsfleet does not exceed existing runoff, two ponds will be included in the landscaping features. The ponds will help in attenuation of water and will restrict the outflow to a maximum standard of 7l/ha/s during the 1 in 100 year event. Any residual flow will be discharged to River Ebbsfleet via a public sewer. The details of the public sewer will be agreed with Southern Water, Highway Agency and CTRL during detailed design.

14. GROUND CONDITIONS AND CONTAMINATION

- 14.1 There is little evidence of potential contaminative activities on site prior to the development of the sub-stations in the 1960's and early 1970's. The construction of the southern, larger sub-station in the 1960's apparently included "cut and fill" to provide a level site within the sloping natural topography. It is possible that waste or contaminated materials could have been imported to the site as part of the construction programme, although there is no visual

evidence. Prior to redevelopment of the sub-stations, investigations will be carried out of the nature of made ground.

- 14.2 The pathway for exposure of humans to contaminants, if present in the soils beneath the existing substations, will be short term and confined to the construction period. The provision of personal protection equipment and hygiene facilities will reduce the risk to construction personnel; hence the residual impact is considered negligible. It is likely that the areas and volume of potentially contaminated soils will be small and it is concluded that the remediation process, if necessary, will not impact significantly on the proposed development.
- 14.3 Spillage of hydrocarbons may have taken place during routine maintenance and servicing, which may have lead to contamination of either made ground or in-situ soils. The principal potential receptor for potential hydrocarbon products arising from historical spillages from the sub-stations is the soil and groundwater in the Chalk aquifer beneath the site. The potential impact on groundwater resources is considered a moderate adverse impact, although the probability of realising the risk is considered low due to the unsaturated zone of fine-grained granular materials including the Thanet Beds above the Chalk aquifer.
- 14.4 Hardstanding from the sub-stations will be broken out, processed and reused where appropriate. It is possible that, as demolition and breaking out of areas of hardstanding takes place, localised hydrocarbon contamination will be encountered. Potentially contaminated soils will be analysed and, if necessary, excavated and treated or removed from site to remove the contaminant source.
- 14.5 The removal or treatment of contaminated soils, if present, in the vicinity of the current sub-stations will lead to a net decrease in the contamination load, reducing the potential impact on groundwater or exposure to humans and ecosystems on subsequent development. Similarly, the construction of barriers to contain contaminants would result in a minor beneficial effect on groundwater and human health by isolating the source.
- 14.6 Off-site sources of potential contaminants include former landfills to the east and north east of the site and the former petrol filling station to the south east of the site. It is considered that the distance from the Northfleet landfill is such that migration to the application site is unlikely. Similarly, it is considered unlikely that Volatile Organic Compounds from spilled hydrocarbons from the former filling station on the A2(T) would migrate as far as the application site.
- 14.7 There are no high faces within the application site. The faces in East Quarry lie outside the application site and ownership of SecondSite Property and the responsibility for maintaining

the stability of the slopes lies with the owners of the quarry. Construction of buildings at the top of high faces will introduce a loading on the strata on which they are founded. Detailed investigation and design will therefore be necessary to ensure stability of the adjacent slopes is not impaired. Solution features are reported both in Eastern Quarry to the west of the application area and the CTRL works to the east. A cavity has been recorded in a borehole on the western site perimeter, which may represent a man made feature or collapse induced by a solution feature. Collapse of natural or man made cavities can lead to subsidence or instability of foundations of structures. Further investigation will, therefore, be necessary at the detailed design stage to identify potential cavities and design appropriate foundation solutions.

15. NOISE AND VIBRATION

- 15.1 The likely noise effects of the proposal at the Northfleet West Sub-Station site have been reported by the Sharps Redmore Partnership (SRP) as part of the ES.
- 15.2 Having undertaken a site inspection, noise surveys and calculations, noise impacts to and from the proposed development were assessed as follows:
- 15.3 Noise impacts on to the proposed development:
- i Railway noise from the new Channel Tunnel Rail Link
 - ii Road traffic noise from the A2 and the re-aligned Southfleet Road
 - iii Noise from the Eastern Quarry
- 15.4 Noise impacts from the proposed development:
- i Demolition and construction noise
 - ii Noise from road traffic generation
 - iii Noise from mechanical services plant
- 15.5 Baseline information was gathered by both noise surveys of the existing noise climate, and calculations as to the future situation with the re-surfaced A2, the re-aligned Southfleet Road and the new Channel Tunnel Rail Link. The expected impacts to and from the proposed development were assessed against this future calculated baseline situation.

- 15.6 With regard to the suitability of the site for residential development, the majority of the site is at a noise level where Government guidance requires an adequate or commensurate level of protection from noise in the design and construction of the development. A small part of the south eastern corner of the site is subject to a noise level where residential development should not normally be allowed.
- 15.7 In respect of the impact of the development on the surrounding area, it has been assessed that there would be a low impact from changes in road traffic noise levels, a low impact from noise from mechanical services plant and a moderate impact from construction noise.
- 15.8 Mitigation measures have been proposed as follows:
- 15.9 The noisiest part of the site in the south eastern corner has been allocated for a commercial use and measures to control noise to that use (e.g. a hotel) would be incorporated into the building design. Heavy, sealed acoustic glazing with air conditioning to any sensitive commercial use would be an appropriate example.
- 15.10 The residential areas closest to the southern and eastern boundaries of the site would be in Noise Exposure Category (NEC) C, and as such mitigation measures such as barriers (solid timber fencing or brick walls to amenity areas) and/or acoustic double-glazing with acoustically treated alternative ventilation should be provided to those residential units on the extreme southern and eastern boundaries.
- 15.11 As the site is so large, the majority of the site would be well protected from noise by the development on the extreme southern and eastern boundaries. There are no other significant noise sources in the vicinity, so careful layout and attention to construction on the eastern and southern boundaries can provide adequate protection for all potential occupiers of the proposed buildings.
- 15.12 Noise from construction shall be controlled to within guidance criteria and/or limits as agreed with the Local Authority.
- 15.13 Noise from mechanical services plant shall be controlled to a reasonable limit so as not to adversely affect the amenity of residents.
- 15.14 It is concluded that the development could proceed without the likelihood of existing and likely noise harming the amenity of potential residents, or subsequent operations harming the amenity of existing local residents.

- 15.15 A worst-case assessment of long-term residual impacts from the development once construction is complete shows that there will be a minor impact.

16. ARCHAEOLOGY

- 16.1 The Archaeological assessment has shown that the Northfleet West Sub-Station site lies in an area of varying archaeological potential (depending on period). There are no recorded archaeological remains on the site, although a flint flake dated to the Lower Palaeolithic period was found by chance during a walkover survey conducted in preparation of the ES. There are also a considerable number of important archaeological sites in the surrounding area. The most significant finds date to the Palaeolithic period, and include the fragmentary skull of an early human estimated to be c 250,000 years old, which is of international importance, animal remains on an adjacent site and a large corpus of flint artefacts of national importance. Sites and finds of at least regional importance include assemblages of Mesolithic struck flints and Neolithic pottery from the banks of the Ebbsfleet, a major Roman road (Watling Street), the Northfleet villa and the nearby Roman settlement and religious centre of Vagniacis. This evidence suggests that there is a high potential for archaeological remains on the site.
- 16.2 The impact of the proposed development on any surviving archaeology present would consist of excavations for building foundations, services, road construction and landscaping required for the proposed development.
- 16.3 The site lies within the Thames Gateway; an area identified for regeneration and development at all levels of planning policy and guidance. Therefore the guidance on archaeological matters in PPG16 and the Dartford Local Plan need to be and have been considered in the proposals.
- 16.4 The results of investigations on sites contiguous to the site provide a model from which a detailed mitigation scheme can be derived. It is intended that mitigation will take the form of appropriate responses (design modification at detailed planning stage to ensure preservation in situ or excavation and recording) to the archaeological remains identified on the site in accordance with their significance. Selective archaeological evaluation will allow an assessment to be made as to whether or not any archaeological remains encountered should be preserved in situ or be excavated and recorded.

17. ECOLOGY

- 17.1 Ecology Solutions were commissioned by SecondSite Property, to undertake an ecological assessment of the Northfleet West Sub-Station site as part of an EIA.

Designated sites for nature conservation

- 17.2 The application site itself is not subject to any statutory or non-statutory nature conservation designation. The nearest statutorily designated site is Darenth Wood SSSI, which is located over 2km to the west.
- 17.3 The nearest non-statutory designation to the application site is Ebbsfleet Marshes etc, Site of Nature Conservation Interest (SNCI), which is located approximately 1km to the north-east of the site.
- 17.4 Both of these sites are sufficiently removed from the proposed development site as to remain unaffected by the proposals.

Habitats

- 17.5 The site was surveyed in August 2003, with further checks surveys undertaken between March and May 2004, based upon an extended Phase 1 survey methodology, as recommended by English Nature, whereby the habitat types present are identified and mapped, together with an assessment of the species composition of each habitat. This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential.
- 17.6 The surveys found that the site does not support any habitats that could be considered as being of high ecological importance, with the majority of the site comprising of arable fields, buildings and hardstanding. The proposals would result in the loss of large areas of arable fields, and the partial loss of poor semi-improved grassland, with some very small areas of chalk grassland, wooded shelterbelts, scrub and hedgerows, although overall this loss is considered to be of little ecological significance.

Hedgerow Assessment

- 17.7 In addition, a specific assessment of the hedgerows along the western and northern boundaries of the site was undertaken in relation to specific criteria contained within the Hedgerow Regulations 1997. Hedgerow H1 does not qualify as important under the

Hedgerow Regulations 1997, but H2 was found to qualify as 'important'. H2 is to be retained and enhanced through management for the benefit of nature conservation with new hedgerows also being planted.

Protected Species

17.8 The site was also examined for evidence of the potential presence of protected species, species of conservation interest or Biodiversity Action Plan (BAP) species, whilst general observations were also made of obvious faunal activity during the period of the surveys.

17.9 Protected faunal species recorded within the site include common Birds that are protected during the nesting season, and common Reptiles, which are present within an area of semi-improved grassland.

Mitigation & Enhancements

17.10 The proposals will create areas of new woodland, wildflower grasslands (including calcareous grassland) and waterbodies. These measures would enhance habitat diversity on the site and further the aims of the Kent BAP.

17.11 Mitigation measures have been put forward that would safeguard protected species both during and post-development. In some cases, e.g. birds, enhancements have been put forward that would positively benefit this group.

Conclusion

17.12 On the present evidence, both from Ecology Solutions' surveys and background data searches, there is no evidence to suggest that there are any overriding ecological constraints to the development of the site. The development proposals are in conformity with national, county and local policy, and as such it appears that there are no ecological reasons to withhold the grant of planning permission.

18. LANDSCAPE AND VISUAL

Purpose of the assessment

18.1 The purpose of the assessment has been to identify and describe the landscape and visual impact of the proposals illustrated in the Parameters Plans (Appendix 3), at key stages of its development from the present day to the residual impact once it is built on site. The

assessment has been based on an understanding of the existing landscape both in context and in detail and visibility from and to the site. The assessment has been used to contribute to the process to improve the landscape and visual quality of the scheme and help assimilate it into the broader landscape context.

Assessment Methodology

18.2 The landscape and visual analysis and assessment follow the guidelines of the Countryside Agency published in 2002 and the Landscape Institute and Institute of Environmental Management and Assessment. Further guidance for landscape character was gained from 'The Kent Thames Gateway Landscape' and 'North West Kent Landscape Assessment and Guidelines' publications by Kent County Council.

18.3 The methodology for undertaking landscape and visual assessment involved the following stages:

- Desk top study
- Field study
- Baseline Condition
- Assessment of landscape and visual impact for the development proposals
- Recommendations for mitigation measures

18.4 This initial stage of the survey establishes the site and its context, planning policy, environmental and existing landscape character designations. Topographical maps and cross sections provide analysis of topography. The likely zone of visual influence is plotted to be verified on site. The geology and land use of the area is analysed during this study.

Field Study

18.5 A number of site visits were made during 2003 to survey of key physical features, land uses verify the zone of visual influence, establish and photograph key views; and log visual baseline information regarding receptors, magnitude and angle of view. Visits were carried out during summer and winter to establish the change in the visual baseline caused by loss of leaves on screening vegetation. The desk study and field surveys, established the baseline condition from which the development proposals can be assessed.

Assessment of Development Proposals

- 18.6 An assessment of the landscape impact and visual impact of the proposed development on the surrounding landscape and users has been carried out for the construction period and completion of the scheme. It is anticipated that the development of the site will be from 2006 to 2014 and therefore it is proposed that the assessment will be made for the years 2008 during construction and 2014, on completion.
- 18.7 The impact of the development is assessed against the 'do nothing' scenario, but in this location significant changes are either planned or under construction near the site. There are therefore several scenarios to take into account. The first considers the development that is occurring currently, but not that which is planned. This scenario assumes that the Eastern Quarry will be restored to farmland. The second is to assume that all the planned development occurs at Ebbsfleet and that Eastern Quarry is developed along the lines of the current planning applications (EQ1 and EQ2) to Dartford Borough Council.

Recommendations for Mitigation

- 18.8 Following the assessment, recommendations to reduce the landscape and visual impact can be made. Taking these into account the residual impact of the development can be determined.

Landscape Assessment.

- 18.9 The assessment of impact on the landscape is derived from knowledge of the following key criteria:-
- Landscape character – refers to the features and patterns which create distinct landscapes,
 - Land value – assesses the importance of the landscape based on national or local designations.
 - Landscape quality – describes how unspoilt, or intact the landscape is.
 - Landscape sensitivity – assesses the ability of the landscape to accommodate change
 - Magnitude of change – assessing the amount of change the development will have on the landscape

Landscape Sensitivity

- 18.10 Plans indicating the landscape character, value and quality of the site and its surrounding context have been produced which are the precursor information required to assess the sensitivity of the landscape and its ability to accommodate change.

Landscape Magnitude of Change

- 18.11 The other key element required to assess the impact of the development on the landscape is the magnitude of the change to the landscape.

Landscape Impact

- 18.12 The sensitivity to change and magnitude of change can be used to assess the landscape impact.

Visual Assessment

- 18.13 Visual impact is assessed by studying the following key drivers:-

- Sensitivity of receptors – what type of receptor is affected
- Magnitude of change - how much of the view changes
- Zone of Visual Influence – how many receptors are affected

- 18.14 Following desk studies and site visits the sensitivity of receptors and the zone of visual influence was mapped. Note was made of views obscured by vegetation during the summer and if views were seen from all floors or upper floors only. A series of key views were established and photographed during summer and winter. These views are reproduced in the ES and can be used to assess the visual impact of the development on the surrounding areas.

Visual Receptor Sensitivity

- 18.15 These are the people who will see the site and include residents, workers, visitors, and users of public footpaths, roads and other public rights of way. The sensitivity of the receptors is categorised as high, moderate or low. There are examples of all three surrounding this site.

Visual Magnitude of Change

- 18.16 The magnitude of change can depend on how far away the receptor is from the proposed development, if the view of the development is obscured and on the angle of view from the receptor to the site.

Visual Impact

- 18.17 Together, the sensitivity of receptor and magnitude of change are used to assess the visual impact.

Policy Framework

- 18.18 A number of policy statements and designations have direct relevance to the assessment of landscape and visual impact. These include:

Dartford Borough Council adopted Eastern Quarry Planning Brief

- 18.19 The Brief states in para 4.14 that the development of the Eastern Quarry should be guided by the following factors (which include):-
- 18.20 'the need to provide areas for strategic parks, lakes and green spaces as part of the site infrastructure'
- 18.21 'The need to ensure the landform maximises the integration of the quarry and the sub-station site inasmuch as this is possible'

Policy MDS5 Eastern Quarry

- 18.22 This policy in the Local Plan Review relates to the development of the Eastern Quarry (for which the afore mentioned Brief has been developed by the Local Authority). The main criteria related to this section of the report are: -
- 18.23 The creation of a landform which will provide a suitable environment for a new compact urban village,
- 18.24 Substantial areas of public open space, water features and landscaping comprising a minimum of 33% of the site area, which will form part of the Green Grid network,
- 18.25 Preservation and enhancement of any areas of ecological and archaeological significance.

Green Grid

- 18.26 The overall vision for the Thames Gateway Green Grid represents transformation of the present environment into a highly attractive and distinctive place in which to live, work or invest. Key to this is the provision of a framework of attractive open spaces, linked by a web of multi-functional corridors. These connections will link existing communities with new development, the River Thames and the wider Kent countryside. Major development sites

have a vital role in the development of the Grid as they will provide strategic Green Grid features, as well as connections.

- 18.27 This site development represents a significant element within the Green Grid network and the proposals must ensure that Green Grid provision and connectivity are fully integrated within the design.
- 18.28 Any areas of significant ecological value that might be identified by surveys will be required to be incorporated in the Green Grid and/or other mitigating measures undertaken.
- 18.29 According with this strategy the site development will add a variety of green spaces linked by a number of greenways. These are proposed to connect to the existing footpath beyond the north and west boundaries, thereby accessing the wider area. Potential exists for additional connections beyond the site boundary to be linked in the future to expand the north/south and east/west network of footpaths, cycleways and bridleways.

Landscape Character Designations

- 18.30 The landscape character of North Kent has been described and categorised by The Countryside Agency, and Kent County Council's 'Kent Thames Gateway Landscape' and 'North West Kent Landscape Assessment and Guidelines'. The Countryside Agency character initiative groups landscapes into character areas. The Northfleet West Sub-Station site is in the 'North Kent' Plain (Area113), and the initiative recommends ways for shaping the future of the landscape:-
- 18.31 Landscape enhancement measures are an essential part of the future development of the 'Thames Gateway' initiative and as a part of the development of the Channel Tunnel High Speed Rail Link,
- 18.32 Sympathetic design and layout for road schemes are important in the open landscape of the North Kent Plain,
- 18.33 Many disused mineral workings and landfill sites would benefit from restoration.

Baseline Condition

Landscape Character

- 18.34 The undulating, small scale agricultural character of the site accommodates a significant amount of electricity generating infrastructure within its boundary, providing a mixed but separate character, one incongruous to the other. There are several areas of interest within the

site where the characters are distinct. To the north east of the site lies an area of undulating land with trees and an ephemeral pond, which appears set apart from the surrounding landscape. Along the western boundary a number of mature trees lie within the shelterbelt planting which screens the quarry from the site. These trees are likely to be remnants of Swanscombe Park Wood that covered the areas before the quarry was developed.

- 18.35 Set within the broader landscape of mineral workings, trunk roads and strategic rail development, all its borders, the site and its surroundings can be seen to be a truly fringe landscape. The older, pastoral land uses appear as relics in the highly modified landscape of the present, dominated by industry and transport infrastructure.
- 18.36 The character classification of Kent Council described this area as "land that is either significantly degraded by adjacent intrusive urban or industrial areas (sometimes characterised by an abrupt urban/rural transition) or contains features which significantly intrude upon or detract from its once rural character".

Landscape Quality

- 18.37 The quality of the landscape assesses the purity of the character, or how unspoilt it is. The electrical sub-stations and associated pylons represent significant interventions in the landscape which degrade its character. Shelterbelt screening around the sub-stations mitigates, in part, views of these elements, however their impact on the quality of the landscape is significant. The farmland appears well maintained and the hedgerows are well kept and quite extensive.
- 18.38 Overall the landscape quality of the site is poor although a number of elements within it are of interest and have moderate quality.

Landscape Value

- 18.39 The site has no national or local landscape or ecological designations value. Therefore the site is considered as being of low landscape value.

Landscape Sensitivity

- 18.40 The sensitivity assesses the site's ability to accept change and is determined by the landscape character, quality and value. This site has an urban fringe character with low landscape quality and value. The number of sensitive receptors close to the site is low, being restricted to one footpath, and residences that have oblique or distant views. Taken together this suggests that the site has a low landscape sensitivity to change.

Visual Baseline

- 18.41 The visual baseline determines who in the community will see the site, how much they will see and what is the extent of the views. The types of people that will see the site, such as residents, workers, road users, are called the 'visual receptors'. How much of the site they see is called the 'visual magnitude' and the extent of views of the site is shown as the 'zone of visual influence'. Together these factors are used to determine the baseline condition and assess the visual impact of the proposed development.
- 18.42 Key views around the site have been photographed during the summer and winter to show the effect of vegetation on the view. These views will be used to assess the visual impact of the proposed visual impact.

Visual Receptors

- 18.43 These are the people who will see the site and include residents, workers, visitors, and users of public footpaths, roads and other public rights of way. The sensitivity of the receptors is categorised as high, medium or low. There are examples of all three surrounding this site.
- 18.44 High sensitivity receptors include residences and public footpaths. The properties with high sensitivity are located on Leonard Avenue in Swanscombe; extensive numbers along the cliff facing the site at Northfleet and several south of the A2 at Northend Farm and along Station Road. The main footpath receptor is located next to the site boundary and continues north along Southfleet road and south across the fields to Northend Farm.
- 18.45 Receptors of medium sensitivity are limited to the three schools; infants, junior and community high schools in Swanscombe, which all have views of the site.
- 18.46 Low sensitivity receptors include business premises such as Springhead nursery, Springhead Enterprise Park, Northfleet East Sub-Station, parts of the A2 and local road network. The receptors are noted on a drawing within the main ES.

Visual Magnitude

- 18.47 This records how much of the site is seen from the receptors and is determined by the following items:-
- 18.48 Distance from the site – this determines how much of the site forms the view from the receptor. This is particularly relevant to those receptors in Northfleet which have clear views but are some distance from the site.

- 18.49 Angle of view – determines if the view of the site is ahead or oblique, and therefore affects its dominance. Oblique views are experienced by receptors in Swanscombe, the footpath from Bean and the B2175 road bridge over the A2.
- 18.50 Landform – views can be partially obscured by landform. Around this site features such as Eastern Quarry, Stonewood Hill and the mounds immediately to the east of the site obscure the views of the site.
- 18.51 Vegetation – groups or lines of trees can obscure views. Usually this has a seasonal effect, revealing more views of a site during the winter. There are a number of significant groups of vegetation around the site, which will have some seasonal effect on the views. However because of other factors such as distance, angle of view or landform the effect is not significant.

Zone of Visual Influence

- 18.52 This is the extent of views to the site, but actually is limited to views beyond which the site becomes indistinguishable in the landscape. Because of complex landform around the site that includes Eastern Quarry, infrastructure works to Ebbsfleet Channel Tunnel Rail Link development, Stonewood Hill and the disused quarry cliffs at Northfleet, some areas within the zone of visual influence boundary do not have views of the site. Also because of the on going infrastructure works some areas are not accessible and assumptions based on desk top and field studies have been made as to whether the site is visible or not. Details of the visual baseline are included in the main ES.
- 18.53 The zone of visual influence is restricted, in the main, to the nearest line of properties facing the site, in Swanscombe and Northfleet. These properties effectively screen the site from the remaining properties. The exception is at North Kent Road in Northfleet where parallel terraces line the steep slope facing Ebbsfleet and the site providing views of the site to a number of streets. The A2 corridor provides ever diminishing views of the site to the east, but views effectively cease at the B2175 Road Bridge. To the south, small clusters of properties gain views of the site from Station Road and Northend Farm. Stonewood Hill effectively screens the site from Bean and its surroundings, with distant views across Eastern Quarry of the site being seen from Bean Lane.

Landscape and Visual Impact Analysis

Introduction

- 18.54 There are two scenarios with which to describe the landscape and visual impact of the proposed development. The first, is to assume that only currently known developments will occur. Adjacent to the site this includes the completion of the new highway interchange and the first phase of the Ebbsfleet development currently under construction. This includes the new CTRL station and associated building development. The second scenario, assumes that all the currently planned development takes place. This will involve the substantial office and residential development at Ebbsfleet and the development of Eastern Quarry (EQ) into a mixed use urban village. Assessment of landscape character and visual impact is carried out for each scenario.

Do Nothing Baseline with Known Development

- 18.55 Significant development adjacent to the site will include the completion of the new CTRL station and associated first phase development at Ebbsfleet and the associated highway works which link it to the A2. By 2008 quarrying works in Eastern Quarry will cease. It is assumed that the area will be restored in accordance with an agreed restoration plan. Within the site there will be a reduction in the size of the main electrical sub-station and an associated reduction in the number of pylons and power lines. The arable farmland will continue.

Landscape Character

- 18.56 The patchwork nature of the urban fringe landscape between the communities of Swanscombe and Northfleet and the A2 trunk road will be highlighted in this scenario. The development of Ebbsfleet and associated highways will present a more urban character, whereas the reduction in electrical sub-station facilities on the site and the restoration of the quarry will present a more rural fringe character. The landscape quality of the site will improve slightly because of the reduction of electrical sub-station elements, although its landscape value will remain low.

Do Nothing Baseline with All Planned Development

- 18.57 This scenario includes those items discussed above and additional development at Ebbsfleet and the development of Eastern Quarry into a mixed use settlement.

Landscape Character

- 18.58 The planned development will result in the site becoming an incongruous outlier of semi rural land use in an otherwise developed extension to the communities of Swanscombe and

Ebbsfleet. The urban fringe character will become more structured and coherent than the current transitional stage. The site will appear as a remnant of former land use and character.

Viewpoints

18.59 The planned development will have significant impact on the surrounding receptors. In the main this planned development lies between the receptors and the site. Only those receptors to the south of the A2 will experience a slight reduction in visual impact associated with the reduction in electrical sub-station infrastructure.

Proposed Mitigation

18.60 It is intended that the visual impact of the development is mitigated by the inclusion of screening vegetation to the boundaries of the site and within the site, visually filtering the extent of built development that is seen from outside the site. To the west the existing mature tree planting adjacent to the site will be retained and augmented within the site boundary with tree and shrub planting. To the north formal street planting will be incorporated along the boundary, whilst to the eastern and southern boundary extensive native tree and shrub planting will be incorporated.

18.61 The proposed building heights are limited to 70AOD, ensuring that at the highest point on the site (55AOD), buildings will be of moderate height and their visual impact limited.

18.62 The development will be phased over an 8 year period, resulting in incremental impact of the development. Where possible screening vegetation will be incorporated into the scheme at the earliest opportunity, so that its mitigating effect can be experienced at an early date.

Residual Effects

18.63 The views to the site will become more urban, with increased light levels from street lights and buildings. Views from Swanscombe will be of a building frontage with formal street trees that will filter views of the development. To the east boundary planting augmented by significant structural planting within the site will in time filter the views of the built development. To the south the extensive proposed woodland planting will in time provide a beneficial impact to receptors.

Visual Impact

18.64 The presence of adjacent large scale development will result in less of the proposed development on the site being seen from some sensitive receptors and a reduction in the significance of the impact on the view, seen in context of extensive adjacent development.

This has the overall effect of reducing the visual impact of the scheme for those receptors to the north and east of the site. To the south the impact remains similar to the 'known development scenario' as much of the EQ development is hidden from view and only the Ebbsfleet development at Springhead alters the context of the view.

- 18.65 The most sensitive views of the site from receptors on Leonard Avenue and the adjacent public footpath in Swanscombe, will be significantly affected by the EQ development which will occupy much of the land between the site and the receptors. The height and extent of the EQ development will restrict views of the site to the northern boundary where proposed building heights reach 70AOD, the same as the maximum height of the EQ development in this area. It is therefore considered that the impact of this restricted view beyond the EQ development is not significant.
- 18.66 The receptors to the north east in Northfleet will view the site across the Ebbsfleet development and in context with the EQ development. The low magnitude of impact and distance from the site will render the impact insignificant. To the east receptors adjacent to Springhead will have their view of the site significantly reduced by the proposed development at Springhead, reducing to insignificant the impact of development on the site.
- 18.67 To the south the impact of the development remains as for the known development, varying from low beneficial to insignificant.

19. DESIGN STATEMENT

Design Concept

- 19.1 The design concept for the Northfleet West Sub-Station site centres on creating a sustainable community with a unique group of public spaces that become the setting for the various forms and densities of development proposed. It is therefore the public realm that is proposed to shape the development, rather than treating open space as a residual element that is formed once the physical development is set. The central features of the Illustrative Masterplan (Appendix 4) are set out below.
- 19.2 A residentially led scheme that incorporates a progressive change in density across the site, from a high density mixed use nucleus focused on the Fastrack stop which is proposed to be located to benefit both the Sub-Station site and the adjacent scheme through to a lower density development furthest away from the Fastrack stop.

- 19.3 Retail provision which supports the residential and employment floorspace being proposed for the scheme and which is located centrally to serve a greater proportion of the on-site residents who are moving by foot.
- 19.4 A central park, surrounded by a range of residential areas creating a highly supervised environment. The park is proposed to be several acres in size and could accommodate the community buildings that form part of the proposed land use mix.
- 19.5 A primary ring road, serving the proposed development areas on the site and which is laid out so as to maximise accessibility and yet minimise the perceived importance of the car as a means of movement.
- 19.6 A network of pedestrian and cycle links, which will allow free and safe movement of people in a well-supervised environment.
- 19.7 Sensitive accommodation of retained operational elements, including both the power lines and the rationalised sub-station. The aim will be to minimise the visual impact of these features and to ensure that the setback distances from powerlines recommended by the National Grid are followed.
- 19.8 Location of a school (if agreed appropriate) so as to offer access to both residents from the proposed scheme and also children from the local catchment area.
- 19.9 Stormwater attenuation features, located so as to ensure that the site does not adversely effect the local run-off network, whilst providing amenity features that contribute to a high quality environment.

Development potential and the accommodation of constraints

- 19.10 The determining factors in establishing an appropriate level of development for the Sub-station site are summarised as follows:
- 19.11 Retained power lines. The need to retain the 400 kV power lines creates a non-developable corridor within which infrastructure and landscape features, but no physical development can occur. This has been created to be consistent with the requirements of the National Grid Guidelines, A Sense of Place.
- 19.12 The adopted Planning Brief and the Green Grid. The Brief calls for 33% of the gross site area to be set aside for open space and landscape.

- 19.13 The retained 132 kV Sub-Station. This feature will be reduced in size during the rationalisation of the operational use of the site.
- 19.14 Setbacks from boundaries. It is anticipated that setback from the eastern and southern boundaries of the site will be provided.
- 19.15 Density. The recommended density called for in the adopted Planning Brief produces a number of theoretical development targets when considering the potential density of residential development. This leads to a concentric ring of development density, radiating from the location of the proposed Fastrack stop, allowing the creation of a schedule of target residential units.

Definition of Character Areas

- 19.16 A development of the scale of the new community proposed for the Sub-Station site will need to avoid a homogeneous approach in both layout and the built environment. Whilst the gradation of density across the site will generate a change in character, it is also important that the scheme should be composed of a number of distinct 'neighbourhoods' that are each capable of offering a distinct and unique sense of place. Methods that should be applied to future detailed design to achieve this quality of placemaking include consideration of density, high quality architectural and landscape design, the provision of accessible open space, the introduction of variety in type and style of accommodation and flexibility in the Parameters Plans to allow for future adaptation.

Disposition of Land Uses

- 19.17 The positioning of the proposed land uses will directly influence the success of the future scheme and the particular sensitivities that control the location of non-residential uses are to be considered when drawing up proposals. The following issues guide the strategy:
- 19.18 Residential. The grading of density from the Fastrack stop has been explained earlier. This results in an exclusively apartment-based townscape in the vicinity of the stop and the core urban square that has evolved in the masterplanning study. Many of these apartment blocks will be developed with alternative uses occupying the ground floor.
- 19.19 Where the density reduces, townhouses are introduced and this gradation of density continues into the lower density neighbourhoods, where semi-detached and detached family accommodation are located.

- 19.20 Retail. Sufficient retail is proposed to accommodate the needs of the on-site community and not attract shoppers from existing centres. This use is proposed to be arranged on the ground floor of buildings either side of the new core square, with a view to creating a lively heart to the scheme.
- 19.21 Employment. This is likely to be developed as predominantly office accommodation and will also be arranged on the ground floor of the central buildings, rather than in a remote location on the site. It is also possible that multi-level office accommodation could be developed, provided that this contributes to the quality of the townscape sought in the core.
- 19.22 Primary School. Logic suggests that a school should be located with the potential for access onto Southfleet Road. This would improve access for parents who are bringing their children from surrounding communities and is also a reasonably short walk from the Fastrack stop.
- 19.23 Hotel. The south-eastern corner of the site is the least suitable for residential or school use, due to its proximity to the A2. However, this is the best location for the proposed hotel, with greater visibility, and this is a use that is less sensitive to potential noise.
- 19.24 Community facilities. Whilst the precise type and mix of facilities is yet to be determined, it is proposed that appropriate uses should be placed in the core space and central park, in order to ensure that they are convenient for all residents.

Architectural Design Principles

- 19.25 The general scheme design strategy for the site and its constituent parts includes:
- Efficient utilisation of site resources
 - Effective integration of buildings into the new landscape
 - Positioning of the buildings within the environment to take advantage of optimum solar orientation and climatic response
 - Creation of buildings which are attractive, varied and versatile, relating positively to the public realm
 - In the case of employment buildings, these should be flexible and adaptable to absorb changes of use and technology

Building Strategy

- 19.26 The building procurement strategy proposes to employ best practice standards in respect of both layout and design. These include:
- Careful orientation of the building, considering its relationship with the external environment and maximising the use of natural daylight and ventilation
 - Workplace integration with technology to achieve efficiency and effectiveness
 - Creation of environments which encourage both interaction and autonomy
 - Creation of an environment which caters for a diverse community, including the elderly and mobility-impaired
 - Using long-lasting 'green' materials, best practice and techniques such as passive and solar energy, thermal mass and rain water recycling to ensure energy efficient and sustainable buildings
 - Creation of facilities which enable the community to raise their quality of life, including both active and passive leisure pursuits, ancillary retail facilities and on-site management
 - All buildings proposed for the Northfleet West Sub-station scheme will provide a high degree of flexibility and have strong design elements, incorporating a variety of complementary styles and materials.

Architectural Design Guidelines

- 19.27 A number of simple and clear guidelines have been drawn up to act as a yardstick against which proposals for the scheme should be measured as individual applications are brought forward.
- 19.28 The prime aim is to create a high quality environment which applies all of the benefits of the modern community to a relatively densely developed scheme in an urban fringe location. It is therefore recognised that buildings should not be entirely uniform. Indeed, it is considered preferable that there should be some variance in architectural treatment, provided that the resulting scheme works within a set of guidelines that contribute positively to the masses and spaces created, such that the resulting scheme is greater than the sum of its parts.

Landscape Strategy

- 19.29 The landscape strategy has evolved from detailed site analysis, landscape and visual impact assessment. It aims to create a green framework for the development through a series of green spaces and routes. This strategy incorporates the Local Authority policies for Green Grid and Community Woodland. The main elements of the strategy are described below.

Existing Vegetation

- 19.30 Where possible the existing vegetation will be retained. Two areas of interest have been identified, they are the woodland planting areas to the south west and north east of the site. In these locations it is planned to retain and enhance the existing native species.

Infrastructure Routes

- 19.31 There is a hierarchy of roads, pedestrian and cycle routes proposed for the site. The roads and greenways will have significant amounts of planting associated with them and will form a key part of the structural planting within the site.

Green Spaces

- 19.32 The heart of the site, the central valley feature will be a park, providing a green core easily accessible to the rest of the development and through the greenway network, to the wider public. It is proposed to incorporate various elements such as a stream and lake, children's playground, woodland areas and café. It will, however, primarily be an open space of grass and meadow which celebrates the dramatic valley landform that provides wide, distant views within the site.
- 19.33 On a smaller scale a number of 'Greens' are proposed. Located close to residential communities these small formal spaces will have differing themes. Some may be purely ornamental, with trees, shrub beds and lawns, whilst others may allow for facilities such as tennis courts, bowling greens or toddler play areas. Where possible these spaces will be linked by greenways to the footpath and cycleway network.

Infrastructure

- 19.34 The infrastructure planting represents a significant element of the on site planting and will help establish the site character as well as help filter views both into the site and within the site.

- 19.35 Roundabouts create opportunities to enhance the character of the road corridor further with innovative formal planting designs. The two main roundabouts have been highlighted as potential locations to site sculptures or other public art.

Core plaza public space

- 19.36 This plaza will be the main focus for retail and employment within the site and access to the Fastrack interchange. It will be a pedestrian area with dedicated cycle routes and parking facilities. It will be characterised by a series of terraces divided by steps and ramps, which accommodate the change in level. Potential exists to incorporate a stepped water feature that will provide a distinctive character to the space and link with the proposed stream and lake feature in the central park.

Greenways

- 19.37 The introduction of broad greenways will separate development areas and will provide passive links through the scheme.
- 19.38 Native planting will be used throughout the greenways, providing a distinctive character and aiding nature conservation. The boundaries with development plots will be planted with native hedges and where width allows broad areas of native tree and shrub planting will be provided.

Woodland

- 19.39 A central requirement of the adopted Planning Brief for the site calls for the integration of the proposals into the broader Green Grid initiative. This will be accommodated through the introduction of broad, contiguous belts of native tree planting that will be linked with opportunities for habitat creation and passive recreation.

Local Greens

- 19.40 These will be predominantly located in residential areas and consist of formal grass areas with differing features and activities located within them. They may include ornamental planting beds, tennis courts, bowling greens and toddler play equipment.

Central Park

- 19.41 This will be the central landscape and recreational feature on the site and the largest single area of open space. It is intended that the park be used as a destination itself and a route to destinations within and beyond the site boundary, in order that it is used as much as possible.

Strategic Views and Screening

- 19.42 The visual assessment within the Northfleet West Sub-Station ES has highlighted the importance of retaining certain key views and providing screening to others less desirable. The view over the Eastern Quarry is recognised as one that should be retained. It is proposed that a viewing platform be created to allow the safe enjoyment of this view.

Landscape Management and Maintenance

- 19.43 It is likely that a management company will be set up to undertake the management of the common areas, whilst individual development plots will be managed under separate arrangements.

APPENDIX 1
SITE LOCATION PLAN

APPENDIX 2

APPLICATION SITE PLAN

APPENDIX 3

PARAMETERS PLANS

APPENDIX 4

ILLUSTRATIVE MASTERPLAN

APPENDIX 5
MEANS OF ACCESS PLAN

GLOSSARY AND ABBREVIATIONS

APPENDICIES