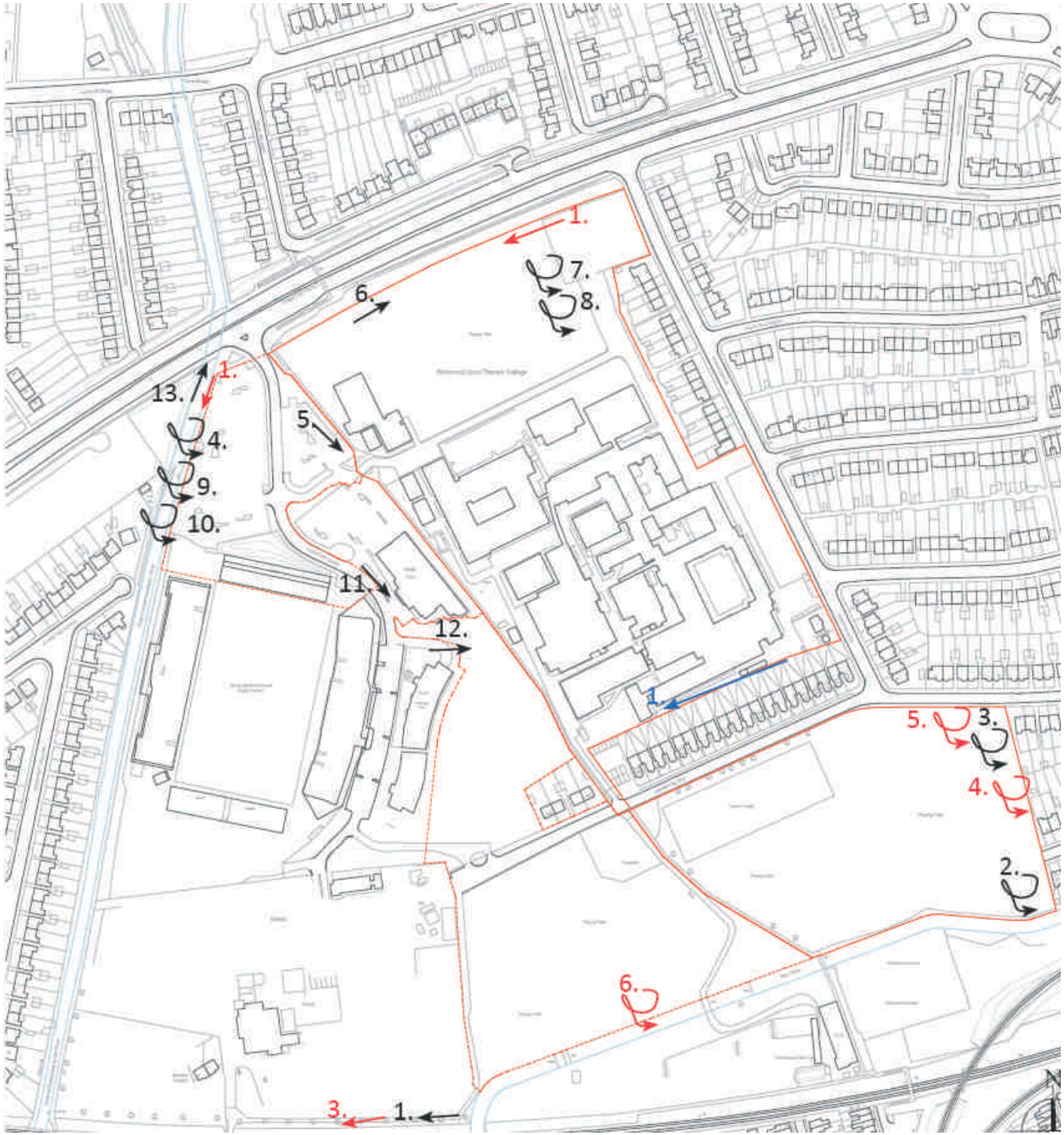


Legend

- Indicative Site Boundary
- Areas Surveyed
- 21 July 2014 - Sunset
- 5 August 2014 - Sunset
- 30 September 2014 - Sunset

Activity:

- Foraging/Feeding
- Commuting

N

CASCADE

Not to Scale

Note: All locations are approximate

Project Title:

Richmond Education and Enterprise Campus Development

Figure Title:

Bat Activity Survey

For Information Only

Figure Number:	Date:
Figure 15.3	June 2015

15.5.20 The College buildings held limited value to breeding birds, and were utilised only by feral pigeon / rock dove *Columbia livia*, carrion crow *Corvus corone* and magpies *Pica pica*. The College grounds held slightly greater interest, and were utilised by a range of typical garden species such as robin *Erithacus rubecula*, blackbird *Turdus merula*, wren *Troglodytes troglodytes*, blue tit *Cyanistes caeruleus*, great tit *Parus major* and greenfinch *Chloris chloris*. The open amenity areas within the study area held little interest, and were utilised only by wood pigeon *Columba palumbus*, stock dove *Columba oenas*, starling *Sturnus vulgaris* and blackbird. The watercourses adjacent to the site supported some specialist wetland species, including grey wagtail *Motacilla cinerea* and moorhen *Gallinula chloropus*.

15.5.21 A total of 33 species were recorded in the survey area, of which 29 species were considered to be breeding or potentially breeding. This included three Red-listed species in the RSPB's list of Birds of Conservation Concern (herring gull *Larus argentatus*, house sparrow *Passer domesticus*, starling) and seven Amber-listed species (dunnock *Prunella modularis*, whitethroat *Sylvia* communis, grey wagtail, mistle thrush *Turdus viscivorus*, stock dove, swift *Apus apus* and black-headed gull *Chroicocephalus ridibundus*). In spite of the Red- and Amber-listed species, none of those present on the site are considered to be especially scarce or unexpected. The population present, in terms of density and diversity, is considered to be typical of that found in southern England in the mosaic of habitat present.

15.5.22 Fuller (1980) provides a useful method of assessing the value of a site's ornithological interest according to three main attributes: population size, diversity and rarity. Considering these attributes, the survey area is considered to be of local importance for birds, and therefore holds biodiversity value at the **local scale**.

Bats

15.5.23 The presence of bats on the site was assessed using a variety of methods, in accordance with the Bat Conservation Trust (BCT) guidelines[13] on method and level of survey effort required (see **Appendix 15.2**) and following the Planning Practice Guidance on Bats: surveys and mitigation for development projects[14]. All surveys were completed in suitable weather conditions for bats to be active on the survey nights. The survey methods included:

- Building and mature tree inspections to identify potential roosting opportunities, with an initial inspection from the ground undertaken in June 2014 and a follow-up visual inspection of buildings in September 2014;

[13] Bat Conservation Trust (2012) *Bat Surveys - Good Practice Guidelines - 2nd Edition*. Bat Conservation Trust, London.
[14] Natural England and Department for Environment, Food & Rural Affairs (2015) *Bats: surveys and mitigation for development projects*.

- Activity surveys in July 2014 and August 2014, with a walked transect and eleven static anabat detectors around the site to identify bat activity levels and types across the site; and
- Roost emergence survey of buildings in September 2014, carried out by four surveyors with hand-held detectors and supplemented by four infra-red camcorders and lamps and eleven static anabat detectors, to ascertain whether features identified as suitable to support bats were in use as roosts.

15.5.24 The College grounds are considered to be relatively inhospitable for bats, with buildings and hard standing dominating the site, which are well illuminated after dark. The exception to this is the presence of undeveloped peripheral habitats close to the southern boundary which are unlit and support a number of trees and sheltered grassland areas. The semi-natural habitats hold value for commuting and foraging bats. Foraging and commuting activity was identified along the River Crane and Duke of Northumberland's River and within the grassland habitats to the north and south of the college and alongside Challenge Court (**Figure 15.4**). A total of four species were recorded using the survey area, with common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus* dominating those present. In addition to these, serotine *Eptesicus serotinus* and *Nyctalus sp*. were both recorded, in July and August respectively, in very low numbers.

15.5.25 None of the mature trees within the development site were found to have significant roosting potential, due to a lack of suitable features during the initial ground-level assessments.

15.5.26 Although the development site's buildings supported a small number of external features that had potential to support crevice dwelling bats, no bats were seen or filmed emerging from any of the buildings during the roost emergence survey. Furthermore, the survey identified negligible bat activity within the College grounds, confirming the assessment of the habitat as relatively inhospitable to bats and suggesting that the buildings on the site do not support roosting bats. The survey results did, however, suggest the presence of an off-site bat roost in close proximity to the development site. An early call detected in the July activity survey suggested the potential for a roost in the residential area to the east of the site and an early call in the August survey suggested the potential for a roost associated with the residential properties along Craneford Way.

Legend

- Areas of Value to Breeding Birds
- Site Boundary

N

CASCADE

Not to Scale

Note: All locations are approximate

Project Title:

Richmond Education and Enterprise Campus Development

Figure Title:

Bird Interest Areas

For Information Only

Figure Number:	Date:
Figure 15.4	June 2015

15.5.27 Following an approach proposed by Wray *et al.* (2010)[15], the survey area can be assessed as being of 'District, local or parish' value for foraging and commuting bats, with lines of trees, shrubs, waterways, scrub and gardens being the most important features. Bat presence was also noted in the GIGL records and in the National Biodiversity Network Database as part of the desk-based assessment. Therefore, the relatively limited presence of bats and the features that support them is considered to hold biodiversity value at the **borough scale**.

Common Reptiles

15.5.28 The site offers limited habitat opportunities for common reptiles, as grassland habitats are managed to a short sward for recreational and amenity purposes. As a result, common reptiles are considered unlikely to be present. No records of reptile species were obtained from the desk-based assessment. Habitats adjacent to the site do have potential to support common reptile species, notably the long grassland and scrub habitats around the periphery of the Craneford Way West playing fields. However, despite connectivity to wider habitats along the railway corridor, the very limited extent of suitable reptile habitat is likely to limit any presence to a low population. It was agreed with Tasha Hunter, LBRuT Ecology Policy and Planning Officer that reptile surveys were not required in support of the proposed development (see Section 15.2). Reptiles are listed as species of principal importance in the NERC Act Section 41 list. A low population of common reptiles is considered likely to be present in habitats adjacent to the proposed development site, and is considered to be of biodiversity value at the **local scale**.

Invertebrates

15.5.29 A terrestrial invertebrate walkover survey was completed in August 2014 to understand the value of the habitats within and adjacent to the site and identify the species utilising these habitats. Although it is not possible to survey all invertebrate groups present, specific groups were examined that would allow for meaningful comparison with other sites in order to establish the quality of the site and habitats present. Full detail on the survey and the species covered are provided in the terrestrial invertebrate survey report (see **Appendix 15.3**).

15.5.30 The vegetation growing on the College buildings and within the grounds yielded a diverse assemblage of species, including recently established naturalised species and local natives of individual conservation concern. The peripheral habitats of the site were also of particular note.

15.5.31 A total of 155 different species were identified in the survey area, which concentrated

[15] Wray, S., Wells, D., Long, E. and Mitchell-Jones, T. (2010) *Valuing Bats in Ecological Impact Assessment* In: IEEM (2010) In Practice 70, pp 23 - 25.

on the College grounds, rough grassland alongside Challenge Court and the margins of the amenity grassland habitat (Craneford Way West playing fields). The College grounds supported the greatest diversity of species of all the habitats, with 97 species present, although the rough grassland and amenity grassland margins also supported a good diversity of species (70 and 59 respectively).

15.5.32 Of the 155 species, five were considered to be of particular note and considered to be nationally scarce: *Nigma walckaenaeri* (a mesh-webbed spider) and *Ero aphana* (a pirate spider) were recorded in the college grounds; bicolored tree ant *Lasius brunneus* was frequently recorded across the survey area; stag beetle *Lucanus cervus* was recorded on tree stumps along the southern boundary; and *Nephus quadrimaculatus* (a ladybird) was recorded in the college grounds and park margins. The presence of three species of bumblebee *Bombus* species is of local conservation interest. The bicolored tree ant and stag beetle were also noted as present on the site from the desk-based assessment.

15.5.33 Considering the individual species present and the assemblage of species recorded in each location, the presence of this terrestrial invertebrate assemblage is considered to be of biodiversity value at the **local scale**.

Hedgehog

15.5.34 The desk study provided one record of hedgehog in 2006. It was not considered necessary to undertake specific hedgehog surveys, however ecological surveyors looked for signs of hedgehog during the completion of other field surveys. During these surveys no evidence of hedgehog was recorded on the Site. Although no sightings of hedgehog were recorded, an absence of the species from the survey area cannot be proven. Hedgehogs are suffering national declines and are listed under Section 41 of the NERC Act as species of principal importance for biodiversity conservation in England. They are also included within the London and LBRuT BAPs. Therefore, the potential presence of hedgehog is considered to be of biodiversity value at the **local scale**.

Future Baseline

15.5.35 No changes are anticipated to the current baseline reported, between collection of the field survey information and the commencement of demolition and construction activities on the site. The College will remain operational in this period, and therefore it is anticipated that the condition of the buildings and amenity areas will be maintained in their current state. Similarly, the playing fields to the north and south will continue to be maintained for this purpose, and thus no changes to their status or supporting potential are anticipated. However, the footpath being built through Twickenham Rough by others may be in place prior to construction of the REEC

development, thus the baseline in this area could change in terms of loss of habitat as a result of the footpath construction.

Baseline Limitations

15.5.36 The baseline surveys for the development were all undertaken in line with best practice or national guidelines and within optimum prescribed times for surveys. Nevertheless, all surveys represent a snapshot in time and may not capture some species or field signs that were not present at the time of survey.

15.6 SENSITIVE RECEPTORS

15.6.1 Sensitive ecological receptors that will be considered further for the impact assessment and mitigation are those that are legally protected (or legally restricted in the case of invasive non-natives) or have been valued at the local scale or above. Their biodiversity value and legal and policy implications are summarised in **Table 15.4**. Note that some of these receptors lie outside the REEC Site.

Table 15.4 Sensitive Ecological Receptors

Ecological Receptor	Biodiversity Value	Legal and Policy Implications
Crane Corridor SMINC	Metropolitan	The local plan affords a certain level of protection to the non-statutory designated sites. Rivers are listed as habitats of principal importance under Section 41 of the NERC Act and therefore there is a general duty on public bodies to have regard to their conservation when discharging their duties, including planning decisions. River habitat is also referenced in policy and has been identified as part of the London and London Borough of Richmond upon Thames River and Streams BAP Habitat.
Duke of Northumberland's River north of Kneller Road Borough I SINC	Borough	
Duke of Northumberland's River south of Kneller Road Borough II SINC	Borough	
River Crane at St. Margarets Borough II SINCs	Borough	
Twickenham Junction Rough Local SINC	Borough	
River Crane (non-designated section adjacent to site)	Local	Rivers are listed as habitats of principal importance under Section 41 of the NERC Act and therefore there is a general duty on public bodies to have regard to their conservation when discharging their duties, including planning decisions. Protection under the Environmental Damage (Prevention and Remediation) Regulations 2009, which make it an offence to have an adverse effect on a waterbody that is consistent with the deterioration in overall status and that of an element supporting the overall status under the Water Framework Directive. The habitat is also referenced in policy and has been identified as part of the London and London Borough of Richmond upon Thames River and Streams BAP Habitat.

Ecological Receptor	Biodiversity Value	Legal and Policy Implications
Broadleaved Semi-natural Woodland	Local	The habitat does not receive any legal protection, however it is listed as a habitat of principal importance under Section 41 of the NERC Act and therefore there is a general duty on public bodies to have regard to their conservation when discharging their duties, including planning decisions. The habitat has also been included as a London and London Borough of Richmond upon Thames BAP habitat.
Poor Semi-improved Grassland	Local	The habitat does not receive any legal protection, it is referenced in policy and parts of the site have been identified as falling within a London and London Borough of Richmond upon Thames BAP habitat (Urban Greenspace).
Scattered Trees	Local	The habitat does not receive any legal protection, it is referenced in policy and parts of the site have been identified as falling within a London and London Borough of Richmond upon Thames BAP habitat (Urban Greenspace).
Wall cotoneaster	Negligible (potentially harmful to biodiversity)	Identified on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), making it an offence to plant or otherwise cause it to grow in the wild.
Breeding Birds	Local	Protection under the Wildlife and Countryside Act 1981 (as amended) from killing and injury and/or destruction of an active nest. The Conservation of Habitats and Species Regulations 2010 (as amended) requires Local Planning Authorities to take account of wild bird habitats.
Bats	Borough	Fully protected through inclusion within the Conservation of Habitats and Species Regulations 2010 (as amended) for deliberate capture, injury or killing, damage or destruction of sites or places which bat species use for sheltering, hibernating or breeding, and disturbance. They also receive additional protection under the Wildlife and Countryside Act 1981 (as amended) for intentional or reckless disturbance whilst using a place of rest or shelter.
Common reptiles	Local	Protection under the Wildlife and Countryside Act 1981 (as amended) from killing or injury. Reptile species are listed as a species of principal importance under Section 41 of the NERC Act and therefore there is a general duty on public bodies to have regard to their conservation when discharging their duties, including planning.
Terrestrial Invertebrates	Local	The species present do not receive any legal protection[16], however some species are notable in policy terms through inclusion within the London or LBRuT BAPs.
Hedgehog	Local	The species does not receive any legal protection, however it is listed as a species of principal importance under Section 41 of the NERC Act and therefore there is a general duty on public bodies to have regard to its conservation when discharging their duties, including planning. The species has also been included within the London and LBRuT BAPs.

[16] The stag beetle is listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), but this is with respect to the trade or sale of specimens of the species only, and is not relevant to the assessment.

15.7 IMPACT ASSESSMENT

15.7.1 The following sections provide a summary of the predicted effects that could influence the designated sites, habitats and species identified for consideration in the EcIA. A full characterisation of the impacts arising as a result of the development is provided in **Appendix 15.4**.

Site Enabling, Demolition and Construction

Predicted Effects – Designated Sites

15.7.2 The REEC development will not result in direct habitat loss or fragmentation in any designated site. Adverse effects upon designated sites could, however, occur as a result of habitat deterioration, reducing its suitability to support significant species or inhibit its ecological function. Habitat deterioration can occur during construction works from site runoff affecting water quality, noise and dust generation, and temporary lighting.

15.7.3 The construction activities associated with the College playing fields south of Craneford Way could give rise to the discharge of sediments or pollutants into the River Crane. Works on the junction of Langhorn Drive and the A316 could also potentially give rise to discharge of sediments and pollutants to the Duke of Northumberland's River. There may also be a need to dispose of groundwater pumped out during dewatering of excavations. This could potentially cause deterioration of the River Crane at St. Margaret's Borough II SINC and the Duke of Northumberland's River south of Kneller Road Borough II SINC and Duke of Northumberland's River north of Kneller Road Borough I SINC as a result of potential impacts to water quality. Given the designated status and related borough value of these sites, the potential effect of the discharge is considered to comprise an adverse effect that is significant at the *borough scale* with *probable likelihood* for the discharge of sediments and pollutants such as oil and fuel from spillages. This equates to a **moderate adverse** effect.

15.7.4 The potential impact to water quality through spills or silt-laden run-off from the remaining works are considered unlikely to affect any of the designated sites, as foul drainage from the main college site will continue to be discharged to the Thames Water sewer and surface water to soakaways on site during the construction works (see Chapter 13 – Water Resources and Flood Risk).

15.7.5 Construction noise from plant and HGVs, dust generation and lighting of working areas could potentially affect those designated sites within close proximity to the Site, i.e. Twickenham Junction Rough SLINC and Duke of Northumberland's River south of Kneller Road Borough II SINC.

15.7.6 Noise modelling results in Chapter 9 - Noise and Vibration identify that impacts are likely to be very small or imperceptible. Noise levels calculated in the vicinity of the Duke of Northumberland's River, at Gladstone Close on the far side of the REEC development, were identified as comprising a negligible increase in noise levels. Noise levels at the closest receptor to the Twickenham Junction Rough SLINC, on Heatham Park, also show a negligible impact. As a result, the impact of noise upon the Twickenham Junction Rough SLINC is considered to comprise an *adverse* effect that is significant *within the zone of influence only* with *probable likelihood*. This equates to a **negligible** effect.

15.7.7 Although dust generated during the demolition and construction phases has the potential to adversely affect sensitive habitats, the level of deposition would need to be severe before adverse effects occur. The likely zone of influence of dust impacts is identified in guidance provided by the Institute on Air Quality Management[17], which identifies 50m from the boundary of the site, plus 50m from haulage routes used by construction vehicles for up to 500m from the site, is an appropriate screening criteria for assessment of impacts from construction and demolition sites. The scheme has potential to impact upon Twickenham Junction Rough Local SINC and the Duke of Northumberland's River south of Kneller Road Borough II SINC. The impact of dust upon these designated sites is considered to represent *an adverse* effect that is significant *within the zone of influence only* with *probable likelihood*. This equates to a **negligible** effect.

15.7.8 The provision of temporary lighting during the construction phase has the potential to adversely affect nearby designated sites where light is allowed to spill beyond the development site. The scheme has potential to impact upon Twickenham Junction Rough Local SINC and the Duke of Northumberland's River south of Kneller Road Borough II SINC. The latter site is already subject to lighting from the A316 so would be unaffected. Given the relatively small extent of the proposed works on Craneford Way East (pitch installation and fencing), the impact on Twickenham Junction Rough Local SINC is likely to be fairly limited. Therefore, the impact of any temporary construction lighting on this site is considered to comprise an *adverse* effect that is significant *within the zone of influence only* with *probable likelihood*. This equates to a **negligible** effect.

15.7.9 The works are not likely to result in significant effects on the other designated sites identified or their qualifying features due to the distance separation.

[17] Institute of Air Quality Management (2014) *Guidance on the assessment of dust from demolition and construction*. IAQM, London.

Predicted Effects – Habitats

15.7.10 Considering the urban context of the Site, the majority of the area to be developed comprises buildings and landscaping associated with the College, with semi-natural habitats of greater biodiversity value in the peripheral or adjacent habitats outside the Site.

15.7.11 The REEC development will result in the loss of relatively low value habitats. Scattered trees within the College grounds, which are considered to be a more sensitive habitat, will also be lost however this is the only sensitive habitat impacted as the remainder of the potentially sensitive habitats fall outside the Site boundary.

15.7.12 Approximately 71 trees will be lost, with 23 of these recommended to be removed due to poor structure and physiological condition. However, the trees located around the periphery of the site, notably along the A316 and Craneford Way, and some of the mature specimens on Marsh Farm Lane will be retained. Therefore, the loss of scattered trees within the Site boundary is considered to comprise an *adverse* effect that is significant *at the local scale* with *certain/near-certain likelihood*. This equates to a **minor adverse** effect.

15.7.13 No other sensitive habitats identified will be subject to habitat loss and or fragmentation.

15.7.14 Deterioration of sensitive habitats could occur during the site enabling, demolition and construction phase, as a result of the encroachment of construction activities, water quality impacts due to spills of fuel or chemicals and run-off, and dust generation.

15.7.15 The landscaping principles set out in the Design Code submitted as part of the OPA include provision for protection of the existing trees along the A316 and Egerton Road, including protection of the root areas of the trees. However, the encroachment of construction activities may have the potential to adversely affect the scattered trees retained during the development, for example due to damage to root protection zones or damage to trunks or branches due to construction works in close proximity. Such impacts upon the habitat considered likely to comprise an *adverse* effect that is significant *within the zone of influence only* with *probable likelihood*, equate to a **negligible** effect. The impact of encroachment of activities upon the broadleaved woodland habitat is restricted by the presence of the dividing wall between the College playing fields and the Craneford Way West playing fields, with the impact of construction personnel upon the recreational resource unlikely to be significant. The remaining habitats are either suitably protected by features, such as the dividing wall and fencing along the River Crane, or are not considered to be vulnerable to human incursion.

15.7.16 As with the designated sites, the REEC development has the potential to cause deterioration of the non-designated section of the River Crane habitat as a result of sediment and pollutant discharges to the watercourse from the College playing fields upgrade. The potential effect of the discharge of both sediments and pollutants is considered to comprise an *adverse* effect that is significant at the *local scale* with *probable likelihood* for the discharge of sediments and *unlikely probability* for the discharge of pollutants, equating to a **minor adverse** effect. The potential impact on water quality from spills or silt-laden run-off from the remaining works are considered unlikely to affect any other identified habitats, as surface water on the main College site will be collected, treated as necessary and discharged to soakaways both during and after the construction works (see Chapter 13 – Water Resources and Flood Risk and **Appendix 13.2**).

15.7.17 Dust generation is not likely to result in significant effects upon the habitats as floral species comprising the habitat are not considered likely to be susceptible to dust impacts at the levels likely to be generated.

Predicted Effects – Species

15.7.18 The site enabling, demolition and construction phase of the development has the potential to give rise to impacts on species through habitat loss, fragmentation, deterioration, disturbance and mortality or injury to sensitive faunal species or adverse effects as a result of the spread of invasive floral species.

15.7.19 The loss of semi-natural habitats associated with the northern playing field and Marsh Farm Lane, where some trees within the Site will be removed (see **Figure 15.5** and **Appendix 15.5**), and changes in the College playing fields south of Craneford Way will impact upon bat foraging habitat, which comprises a relatively important resource within the local area for a low number of bats. Although bats found to be using the site and its immediate surrounds are valued at the borough scale, the loss of bat foraging habitat within the site is considered to comprise an *adverse* effect that is significant only at the *local scale* with *probable likelihood,* and equates to a **minor adverse** effect.

Legend

- Category A Tree Removed
- Category B Tree Removed
- Category C Tree Removed
- Category U Tree Removed
- Category A Tree Retained
- Category B Tree Retained
- Category C Tree Retained
- Category U Tree Retained
- Indicative Site Boundary
- Indicative Replacement Planting

N

CASCADE

Not to Scale

Note: All locations are approximate

Project Title:

Richmond Education and Enterprise Campus Development

Figure Title:

Tree Removal Plan

For Information Only

Figure Number:	Date:
Figure 15.5	June 2015

15.7.20 The loss of semi-natural habitat within the Site will have an adverse effect on breeding birds, hedgehog and invertebrates, however the direct impacts will only occur in an area of low value habitat for these species and suitable habitats are available nearby. Therefore, the impact of any loss of semi-natural habitat within the site on breeding birds, hedgehog and invertebrates is considered to comprise an *adverse* effect that is significant *within the zone of influence only* with *probable likelihood*. This equates to a **negligible** effect.

15.7.21 Indirect impacts of habitat fragmentation may occur as a result of temporary lighting of the works area. The peripheral vegetation along the A316 and River Crane provides commuting routes for bats, whilst urban greenspace is important for the movement of hedgehog[18] and can be of value to the persistence of a population[19,20]. The impact of fragmentation on bats is considered to comprise an *adverse* effect that is significant at the *local scale* with *probable likelihood*, and equates to a **minor adverse** effect. The impact on hedgehog is considered to comprise an *adverse* effect that is significant *within the zone of influence only* with *probable likelihood*. This equates to a **negligible** effect.

15.7.22 The deterioration of habitats associated with the accidental incursion of plant or personnel into off-site peripheral habitats including retained scattered trees has the potential to reduce the suitability of habitats to support species. This could have potential for adverse impacts on commuting bats as a result of any gaps created in linear features. The encroachment of construction activities on bat habitats is considered to comprise an *adverse* effect that is significant at the *local scale* with *probable likelihood*. This equates to a **minor adverse** effect.

15.7.23 The breeding bird assemblage and abundance utilising peripheral habitats identified as being of value within the Site may be affected by noise generated during the site enabling, demolition and construction phase. However, the significance of the impact is low, as the surrounding habitat includes areas of vegetation which would not be subject to significant noise impacts and that could support breeding bird species. As a result, the impact of noise disturbance on breeding birds is considered to comprise an *adverse* effect that is significant at the *local scale* with *probable likelihood*, and equates to a **minor adverse** effect.

15.7.24 Vegetation clearance as part of the development has the potential to cause harm to or mortality of breeding birds, hedgehog and a number of important invertebrate

[18] Braaker, S., Moretti, M., Boesch, R., Ghazoul, J., Obrist, M. K. and Bontadina, F. (2014) Assessing habitat connectivity for ground-dwelling animals in an urban environment. *Ecological Applications* 24 (7) pp 1583 - 1595.
[19] Hodgson, J. A., Thomas, C. D., Wintle, B. A. and Moilanen, A. (2009) Climate change, connectivity and conservation decision making: back to basics. *Journal of Applied Ecology* 46 pp964 - 969.
[20] Doerr, V. A. J., Barrett, T. and Doerr, E. D. (2011) Connectivity, dispersal behaviour and conservation under climate change: a response to Hodgson *et al*. *Journal of Applied Ecology* 70 pp 33 - 46.

species. Although it is unlikely that the impacts upon each of the receptors will be significant to populations' conservation status, precautions will be put in place during the works to minimise the legal and policy implications of such impacts. The impact of direct injury or mortality on breeding birds, hedgehogs and invertebrates is considered to comprise an *adverse* effect that is significant *within the zone of influence only* with *probable likelihood*. This equates to a **negligible** effect.

15.7.25 The removal of wall cotoneaster during vegetation clearance has the potential to cause the species to spread if not undertaken in a planned and controlled manner. Allowing the spread of this species would have legal implications. The impact of spreading wall cotoneaster is considered to comprise an *adverse* effect that is significant *within the zone of influence only* with *probable likelihood*. This equates to a **negligible** effect.

Mitigation Measures

Pollution Prevention

15.7.26 Good practice methods, as set out in the Environment Agency's Pollution Prevention Guidelines, that minimise the risk of occurrence of pollution through accidental spillage of materials or surface run-off during the construction works will be used. These methods are detailed in Chapter 18 – Water Resources and Flood Risk and will be implemented through the outline CEMP (**Appendix 6.1)**.

General Site Practice

15.7.27 The working area will be clearly demarcated with barrier fencing to avoid the encroachment of works, both vehicular and contractor, into sensitive semi-natural habitats adjacent to the development site. Root protection zones for retained trees within or immediately adjacent to the Site should be demarcated to ensure construction activities to not result in severance or damage of significant tree roots. No dig construction methods will be used near root zones of retained trees, for example on the College playing fields for the installation of the artificial pitch surface.

15.7.28 All site works will be carried out in accordance with best environmental working practices, such as those described by the Environment Agency or in CIRIA publications. The site induction and toolbox talks will be held with contractors to ensure they are fully aware of their responsibilities with respect to nature conservation issues, including the nature and location of key sensitive receptors and how the works could affect them.

Vegetation Clearance

15.7.29 The removal of trees and scrub vegetation capable of supporting breeding birds will,

where possible, be undertaken outside the breeding bird season (March to August inclusive). If this is not possible, then all vegetation should be checked by a suitably qualified ecologist prior to removal to confirm the absence of breeding birds. In the event that breeding birds are present, the vegetation will need to remain in place with an exclusion zone around the nest until the young have fledged (the typical breeding season is between March and August, inclusive).

15.7.30 The removal of scrub and thick shrub vegetation capable of concealing a hedgehog nest should be undertaken in a staged manner, avoiding the breeding season between May and October where possible. Vegetation should be cleared in a phased approach, removing vegetation to approximately 150mm from the ground. This will allow for the identification of possible nests prior to clearance to the ground. In the event a nest is discovered, works should stop and further ecological advice sought.

15.7.31 In order to avoid causing wall cotoneaster to spread, a management plan will be developed detailing how the arisings from the removal of the bushes, and the brash, roots and soil will be controlled and either effectively managed on-site or transported off-site for disposal.

Lighting

15.7.32 To minimise potential habitat fragmentation and deterioration impacts associated with inappropriate lighting, all external lighting and illumination associated with the construction and demolition process will be in accordance with guidance provided by the Institution of Lighting Engineers (ILE). This will include, but not be limited to:

- Provision of minimum light levels necessary for safe working conditions;
- Avoidance of unnecessary light spillage through appropriate direction of lighting towards the area of works and shielding if necessary; and
- Inclusion of a period of darkness to allow bat species to commute across the Site.

Noise

15.7.33 Chapter 9 - Noise and Vibration identifies a number of mitigation measures that will be incorporated into the CEMP (**Appendix 6.1)** in order to reduce or negate adverse effects associated with noise generation. These include, but are not limited to, the following:

- Compliance of site plant and equipment with relevant EC/UK noise limits;
- Appropriate location of noisy plant to minimise impacts; and
- Erection of site hoarding surrounding particularly noisy works.

Landscaping

15.7.34 Mitigation for ecological impacts has been considered throughout the design process and a number of measures have been incorporated into the design principles for the Site, as follows:

- Retention of mature trees along the A316 and at the northern end of Marsh Farm Lane, on Egerton Road, north of the housing on Craneford Way, on College playing fields and along the River Crane;
- Setting back the car parking along the northern boundary to protect the mature trees that lie outside the Site on the A316;
- Providing an open space in the residential development along Egerton Road to protect mature trees;
- Landscaping the upgraded Marsh Farm Lane to provide additional habitat areas;
- Siting of sports pitches on the College playing fields to leave an 8m buffer area along the riverbank for future naturalisation of the river banks (by others); and
- Siting of sports pitches away from the southern and eastern boundaries of the College playing fields to protect habitat used by foraging bats.

15.7.35 Any habitat utilised during the construction period that is not permanently lost to the REEC development will be reinstated or landscaped once works are completed in each phase. The proposed soft landscaping areas and gardens within the residential development have the potential to provide semi-natural habitats suitable for species identified as present in the baseline. The provision of suitable habitat planting targeted to species would provide ecological benefits, including:

- Planting of additional native tree species along the site boundaries, to fill gaps along the A316 boundary and Marsh Farm Lane, to improve connectivity and provide commuting and foraging areas for bats and nesting sites for birds;
- Linear tree planting within the college, schools and residential development zones to provide commuting routes for bats and nesting sites for birds;
- Planting of native species-rich hedgerows to provide NERC Act/BAP habitat to improve connectivity and provide habitat for breeding birds;
- Provision of additional scrub habitats and unmown grassland around the periphery of the College playing fields for breeding birds, reptiles and hedgehog;
- Provision of unmanaged grassland areas in unlit parts of the site, including the College playing fields , to enhance the invertebrate and reptile population on site and improve the existing foraging resource for bats;
- Provision of bird nesting opportunities in suitable locations on the site through the installation of 15 bird boxes;
- Provision of bat roosting opportunities in suitable locations on the site through the installation of 6 bat boxes, incorporated into the fabric of the new buildings.

These will be located close to commuting routes or feeding areas and away from light sources; and

- Retention of felled trees for provision of additional deadwood habitat or a loggery along the southern boundary of the site for stag beetle and other invertebrates, contributing to the objectives of the London and LBRuT Species Action Plans.

15.7.36 These measures are shown in the Illustrative Landscape Plan (**Figures 5.2** and **5.3**)

15.7.37 In line with local and regional planning policy, building design will include provision of living roofs where feasible, with the aim of using at least 70% of any potential roof plate area as a living roof. For the purposes of this assessment, it has been assumed that the College, Sports, STEM, Secondary School, SEN School and Tech Hub buildings will be able to provide areas of living roofs, depending on space requirements for ventilation and other plant on the building roofs. Provision within the residential development zone may be restricted depending on roof design but could include the podium area over the car park.

15.7.38 Based on the Illustrative Masterplan (**Figure 5.1**), the area of flat roofs and podium within the REEC development is approximately 14,400m^2, which assuming a 70% provision, could provide an area of approximately 10,000m^2 of living roof as a result of the development. The design of living roofs will be completed with consideration of the technical report[21] supporting the London planning policy and other relevant guidance documents.

15.7.39 In the event that achievement of this area of living roof provision is technically infeasible, then alternate landscaping options such as living walls will be considered in the detailed design process in order to achieve a similar area of habitat provision.

Residual Effects

15.7.40 Incorporation of mitigation measures will reduce the magnitude and/or probability of impacts. For example, by incorporating pollution prevention measures through the CEMP (**Appendix 6.1**), the likelihood of sediments or pollutants being discharged into the River Crane or Duke of Northumberland's River and influencing the Borough I and II SINCs are reduced. In the event that an accidental discharge does occur, implementation of the measures would limit the magnitude of impact on the site and result in a **negligible** effect.

15.7.41 If the mitigation measures are applied, then the effects of habitat fragmentation and deterioration on designated sites and all habitats other than scattered trees (see

[21] Greater London Authority (2008) *Living roofs and Walls. Technical Report: Supporting London Plan Policy*. Greater London Authority, London.

below) during site enabling, demolition and construction are all considered to be **negligible**.

15.7.42 The planting of approximately 300 trees on the Site, many of which will be native, has the potential to reduce the significance of the minor adverse effect associated with the loss of the scattered tree habitat. Consequently the impact of the habitat enhancement is considered likely to comprise a *beneficial* residual effect that is significant at the *local scale* with *probable likelihood*. This equates to a **minor beneficial** effect.

15.7.43 The majority of the residual impacts on species are also considered to be **negligible,** notably with regards to habitat fragmentation, deterioration, disturbance, mortality / injury and the spread of invasive species.

15.7.44 However, there will be residual effects associated with habitat loss / gain for species. Landscape planting on the site has the potential to reduce the significance of the effect associated with the loss of bat foraging habitat as a result of the REEC development, by improving habitat provision for a range of prey species. However, during the construction phase there is likely to be a net loss in the extent of suitable foraging habitat for bats. This is considered likely to comprise an *adverse* residual effect that is significant at the *local scale* with *probable likelihood*, equating to a **minor adverse** effect.

15.7.45 Habitat enhancement for bats is proposed through the provision of bat roosting boxes or the incorporation of enclosed bat boxes into the external brickwork of new buildings. The installation of bat boxes in peripheral habitats and into new buildings would improve roosting habitat opportunities for bats on the Site; current opportunities are largely limited due to the relatively inhospitable environs of the College. The impact of the habitat enhancement is considered likely to comprise a *beneficial* residual effect that is significant at the *local scale* with *probable likelihood*. This equates to a **minor beneficial** effect.

15.7.46 Further habitat enhancement proposed for the Site includes the provision of deadwood habitat or a loggery (a hole in the ground with logs upended in it) for stag beetle and other invertebrates in the south-east corner of the College playing fields south of Craneford Way alongside the River Crane. Provision of this habitat will help to ensure the long-term safeguarding of the stag beetle population on the site and contribute to the objectives of the local and regional Species Action Plans for the species. The impact of this habitat enhancement is considered to comprise a *beneficial* residual effect that is significant at the *local scale* with *probable likelihood*, equating to a **minor beneficial** effect.

Monitoring

15.7.47 No site enabling, demolition or construction monitoring will be required, except that associated with the CEMP (**Appendix 6.1)**.

Operation

Introduction

15.7.48 As the Site is located within Greater London, the ecological receptors are already adapted to an urban environment. As a result, some of the impacts associated with operation of the REEC development are unlikely to result in an effect on the identified ecological receptors. For example, the breeding bird population will already be habituated to the noise and disturbance levels associated with an urban setting.

15.7.49 From the information in Chapter 18 – Water Resources and Flood Risk, during operation of the REEC development surface water drainage will be by soakways as at present, with no discharges to either the River Crane or Duke of Northumberland's River. Therefore there will be no effects on designated sites associated with the river corridors.

15.7.50 Although no details on lighting are available at outline stage, it is assumed that necessary lighting will be provided to meet Health and Safety requirements associated with both vehicular and pedestrian access routes, including car parking areas. Additional lighting is assumed to be provided around buildings. Floodlighting will be provided for the multi-use games area within the Schools Development Zone but not for the upgraded sports pitches on the College playing fields. The footpath through Twickenham Rough (provided by others) will not be lit.

Predicted Effects – Designated Sites and Associated Habitats

15.7.51 The operation of the REEC development could give rise to adverse effects upon designated sites and their associated habitats through lighting, and through deterioration of habitat from littering, trampling and encroachment by people using footpaths running within or alongside designated sites.

15.7.52 Lighting will only have a relatively small area of influence within the main Site and is not considered likely to adversely affect any designated sites. Carriageway lighting at the revised road junction on Langhorn Drive will be similar to that already present, so there will be no additional effect on the designated site along the Duke of Northumberland's River.

15.7.53 The increase in the educational and residential population within the Site could affect

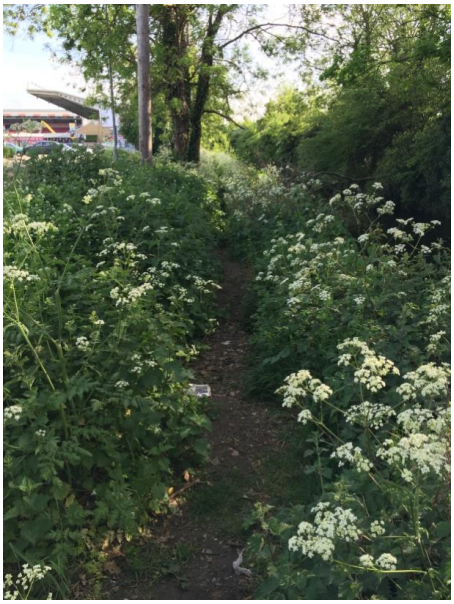
designated sites through use of the footpaths for commuting or recreational use. The number of staff and students at the College will be similar to those currently present (see **Table 5.3** in Chapter 5), but the change in access arrangements with the REEC development (restriction on egress from the east side of college) and the opportunity to use a new footpath to the station through Twickenham Rough may alter current pedestrian routes.

15.7.54 The Duke of Northumberland's River south of Kneller Road Borough II SINC is located alongside a local footpath utilised for activities such as dog walking (see **Figure 15.1** and **Plates 15.1-15.2**). In addition, a new footpath is to be built, by others and independent of this application, passing through the designated SLINC in Twickenham Rough. The approved Twickenham Junction Rough scheme (ref: 13/1147/FUL) incorporating the footpath, did not consider it likely that increased recreational use would have a significant adverse impact on the SLINC. Net pedestrian and cycle flows in each direction from the REEC development in the morning (AM) and afternoon (PM) peak periods are shown in Chapter 8, **Figures 8.5** and **8.6.** These indicate that be may be an increase of 324 pedestrians and 5 cycles using the Twickenham Rough path and 169 pedestrians and 4 cycles using the Duke of Northumberland's River footpath in the morning. In the afternoon peak period, 98 pedestrians and 3 cycles may use the Twickenham Rough footpath and 36 pedestrians and 3 cycles may use the Duke of Northumberland's River footpath.

15.7.55 The PM peak is less busy because of staggered finish times for schools, college students and residents. These are worst case estimates for the as some people may choose to use the road rather than the Duke of Northumberland's River footpath, and footpath usage may be higher in summer in good weather and lower in winter. The Twickenham Rough footpath is to be closed after dark hence usage in winter may be lower.

Plate 15.1 Footpath along Duke of Northumberland's River, north of the A316

Plate 15.2 Footpath along Duke of Northumberland's River, south of the A316



15.7.56 The Twickenham Rough application for the footpath was approved by LBRuT in the knowledge that students from the existing college would be able use it to access Twickenham and the station[22], and this footfall would therefore have been taken into account. However, the altered access arrangements for REEC (no egress from the east side of the college grounds) will change the desire lines and will increase the flows as set out above.

[22] Subject to other developments being approved and completed

15.7.57 Although it is likely that there will be increased numbers using the footpaths adjacent to or within the designated sites, this is unlikely to affect the integrity of designated features. The Duke of Northumberland's River is designated for aquatic and marginal vegetation habitats which are not directly connected to the footpath and therefore are unlikely to be impacted by the increased footfall. Twickenham Rough is designated for rough grassland, tall herbs, scrub and young woodland and whilst these may be adversely impacted by the construction of the footpath, the increased use as a result of the RECC development is considered likely to comprise an *adverse* effect that is significant within the *zone of influence only* with *probable likelihood*, equating to a **negligible** biodiversity effect.

15.7.58 However, there remains likelihood that designated sites may experience some impact from increased use, primarily due to the potential for increased littering. Whilst generally unsightly, the forms of litter likely to be deposited are unlikely to have a significant effect on species of conservation concern at the population level or those for which the sites have been designated. Very small mammals and invertebrates can become caught and drown in drinks containers but this constitutes more of a welfare impact than one that will affect the ecological integrity of the sites. Therefore this is considered likely to comprise an *adverse* effect that is significant within the *zone of influence only* with *probable likelihood*, equating to a **negligible** biodiversity effect.

Predicted Effects – Species

15.7.59 The operational phase of the REEC development has the potential to impact upon faunal species as a result of lighting and pitch fencing.

15.7.60 The installation of fencing around the sports pitches on the College playing fields is unlikely to have a significant adverse impact on bats using the Site. No published evidence has been found that suggests bats are adversely impacted by such fencing. In addition, the fencing does not intersect the linear features along the site boundaries, particularly the eastern boundary of the playing field, used by bats (as can be seen in **Figure 15.3**). Most bats avoid open spaces, even when these provide foraging habitat, because of the risk of predation, preferring the cover of trees and hedges. It is therefore highly unlikely that bats would cut across the open ground, where the pitches will be sited, to reach the habitats to the south and east. The linear features suitable as commuting and foraging corridors along the eastern and southern boundaries will be maintained.

15.7.61 The demountable 10m goal nets will only be erected during matches and as the pitches are not lit, this will be during daylight hours when bats are inactive. They will thus not provide a permanent barrier to movement for bats across the site or cause habitat fragmentation.

15.7.62 The installation of fences and the use of 10m demountable goal nets on the College playing fields pitches is considered to comprise an *adverse* effect that is significant *within the zone of influence only* with *probable likelihood*. This equates to a **negligible** effect on bats.

15.7.63 Noise from games on the pitches is likely to deter birds from entering the area while the goal nets are erected however, as this area is not particularly valuable for bird species this is also considered to comprise an *adverse* effect that is significant *within the zone of influence* only with *probable likelihood*. This equates to a **negligible** effect.

15.7.64 Despite the zone of influence of lighting being relatively small, provision of lighting along the northern access road in previously unlit areas has the potential to influence bat commuting activity associated with the mature tree line outside the northern boundary of the Site. The fragmentation of habitats as a result of lighting is considered to comprise an *adverse* effect that is significant at the *local scale* with *probable likelihood*, and equates to a **minor adverse** effect. Sensitive lighting design can provide excellent feeding sites for opportunistic bat species, including those recorded as present, with insect species commonly attracted to the light providing a foraging resource. However, in the context of this site the effect of such impact on bats is not considered to be significant.

15.7.65 Lighting of the Site that causes spill into peripheral vegetation has the potential to impact upon the breeding bird assemblage. Increased lighting of the boundary vegetation of value to breeding birds may disrupt diurnal activity patterns and may increase predation risk, thus reducing the value for nesting. The impact of this is considered to comprise an *adverse* effect that is significant at the *local scale* with *probable likelihood*, which equates to a **minor adverse** effect.

15.7.66 Although the lighting provision along the northern and southern boundaries of the Site has the potential to influence the movement of hedgehog, the absence of floodlighting on the College playing fields will ensure that some unlit areas suitable for the species remain. Therefore, the fragmentation of habitats for hedgehog as a result of lighting is considered to comprise an *adverse* effect that is significant *within the zone of influence only* with *probable likelihood*. This equates to a **negligible** effect**.**

Mitigation Measures

Lighting

15.7.67 The final lighting scheme will be sensitive to environmental receptors, whilst creating a safe and accessible environment, and will follow best practice guidance provided by

the ILE[23]. This will avoid unnecessary spill of light into boundary vegetation and adjacent habitats where possible. The reduction of light pollution and associated impacts of habitat fragmentation and deterioration will be achieved through the incorporation of some or all of the following measures, including recommendations by the Bat Conservation Trust[24]:

- Use of low pressure sodium lamps or high pressure sodium instead of mercury or metal halide lamps;
- Where possible, or in sensitive areas, keep the height of lighting columns to a minimum and consider using low level lighting if appropriate;
- Incorporate accessories such as hoods, cowls, louvres or shields to direct lighting to the intended area only, avoiding or minimising spill into boundary vegetation or lighting above the horizontal;
- Use flat glass and ultra-low profile light fittings;
- Avoid reflection of light off surfaces - roads, pavements, hard surfaces etc.
- Ensure floodlights are not poorly directed;
- Avoid 'over lighting';
- Ensure lights are switched off when they are not needed, either through the use of programmable fixtures or by PIR/motion sensor activation; and
- Establish zones of differing light level to ensure adequate lighting (for safety and security) is provided to publicly accessible areas, whilst peripheral areas (such as adjacent waterways and biodiversity and environmentally sensitive areas) can remain largely unlit.

Community Involvement

15.7.68 Ongoing initiatives by organisations such as FORCE and the Crane Valley Partnership are working towards providing education and information about the designated sites and associated habitats through the provision of interpretive boards and community involvement projects. While the potential impacts of the REEC development on designated sites and associated habitats from increased footpath use are not considered to be significant, it would be beneficial for RuTC to participate in a local community learning programme which includes practical conservation skills. Students may be able to assist in practical management of these sites as part of the learning programme.

15.7.69 The College and schools could also participate in an education programme for schools run by FORCE and programmes such as “Seeds of Change” (being consulted upon by LBRuT) which encourages outdoor learning for schools. This would provide both educational opportunities relating to practical nature conservation and

[23] Institute of Lighting Engineers (2005) *Guidance notes for the reduction of obtrusive light*. ILE.
[24] BCT (2009) *Bats and Lighting in the UK. Bats and the Build Environment Series*. BCT, London.

strengthen the links between REEC and the wider community. These measures are likely to increase students' understanding of the sites' habitats of importance, including the species they support, and together with FORCE's provision of interpretive boards will encourage users to respect and value them.

Residual Effects

15.7.70 Incorporation of mitigation measures to reduce light spill into boundary vegetation will minimise the impact of the REEC development upon bat activity on the Site, including commuting routes and foraging activity. Therefore, the residual effects on designated sites, habitats and species during operation will all be **negligible**.

Monitoring

15.7.71 No operational monitoring will be required.

15.8 SUMMARY OF RESIDUAL EFFECTS

15.8.1 A summary of impacts, mitigation and residual effects is provided in **Table 15.5**. In some cases, where an impact is considered to be significant within the zone of influence only and therefore of negligible effect, mitigation has nevertheless been included where this can be easily incorporated and / or is being used for other receptors.

Table 15.5 Summary of Residual Effects

Effect	Significance	Mitigation Measures	Significance of Residual Effect
Site Enabling, Demolition and Construction			
Designated Sites			
Deterioration of habitats as a result of construction site light spillage into adjacent vegetation.	Negative impacts on integrity of the receptor unlikely, however adverse effect significant within the zone of influence probable. Negligible effect.	Incorporation of best practice guidelines to minimise light spill and incorporation of periods of darkness, as set out in CEMP.	Negative impacts on integrity of the receptor unlikely, and adverse effects significant within the zone of influence unlikely. Negligible effect.
Deterioration of habitats as a result of construction site noise.	Negative impacts on integrity of the receptor unlikely. Negligible effect.	Incorporation of best practice guidelines to minimise noise, as set out in CEMP.	Negative impacts on integrity of the receptor unlikely, and adverse effects significant within the zone of influence unlikely. Negligible effect.
Deterioration of habitats as a result of construction site dust deposition on vegetation.	Negative impacts on integrity of the receptor unlikely. Negligible effect.	Incorporation of best practice guidelines to minimise dust, as set out in CEMP.	Negative impacts on integrity of the receptor unlikely, and adverse effects significant within the zone of influence unlikely. Negligible effect.
Impacts associated with sediment and pollutants in run-off on the River Crane at St. Margaret's and the Duke of Northumberland River Borough II SINCs.	Adverse effect significant at the borough scale probable. Moderate adverse effect.	Incorporation of best practice measures including pollution prevention measures, such as spill kits and sediment barriers, as set out in CEMP.	Negative impacts on integrity of the receptor unlikely and adverse effect within the zone of influence very unlikely. Negligible effect.
Non-designated Habitats			
Loss of scattered trees	Adverse effect significant at the local scale probable. Minor adverse effect.	Re-plant c.300 native trees as part of site landscaping plans.	Negative impacts on integrity/conservation status of the receptor unlikely and short-term adverse effect significant within the zone of influence only. Long-term beneficial effect. Minor beneficial effect.

Effect	Significance	Mitigation Measures	Significance of Residual Effect
Incursion of construction plant or personnel causing accidental damage to retained trees.	Negative impacts on conservation status of the receptor unlikely. Negligible effect.	Provision for protection of retained trees, as set out in CEMP.	Negligible effect.
Impacts associated with sediments and pollutants in run-off to the River Crane.	Negative impacts on integrity of the receptor unlikely, however adverse effect significant at the local scale probable. Minor adverse effect	Incorporation of best practice measures including pollution prevention measures, such as spill kits and sediment barriers, as set out in CEMP.	Negative impacts on integrity of the receptor unlikely and adverse effect significant within the zone of influence very unlikely. Negligible effect.
Species			
Loss of bat foraging habitat.	Negative impacts on conservation status of the receptor unlikely, however adverse effect significant at the local scale probable. Minor adverse effect.	Landscape planting to strengthen tree lines along northern and western site boundaries and in College playing field to provide improved habitat for a diversity of prey species.	Negative impacts on conservation status of the receptor unlikely, however adverse effect significant at the local scale probable. Minor adverse effect.
Loss of habitat for breeding birds, hedgehog and invertebrates.	Negative impacts on conservation status of the receptor unlikely. Negligible effect.	Provision of hedgerows within main site and unmown areas of grass on edge of College playing fields	Negative impacts on conservation status of the receptor unlikely. Negligible effect.
Habitat gain	-	Landscape planting and artificial bat roosts in the fabric of buildings to provide roosting opportunities in peripheral habitats.	Beneficial effect significant at the local scale probable. Minor beneficial effect.
Habitat gain	-	Provision of deadwood habitat/loggery to provide additional habitat.	Beneficial effect significant at the local scale probable. Minor beneficial effect.

Effect	Significance	Mitigation Measures	Significance of Residual Effect
Fragmentation of bat commuting corridors due to lighting.	Negative impacts on conservation status of the receptor unlikely, however adverse effect significant at the local scale probable. Minor adverse effect.	Incorporation of best practice guidelines to minimise light spill and incorporation of periods of darkness, as set out in CEMP.	Negative impacts on conservation status of the receptor unlikely and adverse effect significant within the zone of influence unlikely. Negligible effect.
Fragmentation of hedgehog habitat due to lighting.	Negative impacts on conservation status of the receptor unlikely and adverse effect significant within the zone of influence only. Negligible effect.	Incorporation of best practice guidelines to minimise light spill and incorporation of periods of darkness, as set out in CEMP.	Negative impacts on conservation status of the receptor unlikely and adverse effect significant within the zone of influence unlikely. Negligible effect.
Encroachment of construction activities into peripheral vegetation influencing bat commuting activity.	Negative impacts on conservation status of the receptor unlikely, however adverse effect significant at the local scale probable. Minor adverse effect.	Demarcation of habitats using appropriate fencing and identification of risks through site induction and toolbox talks, as set out in CEMP.	Negative impacts on conservation status of the receptor unlikely and adverse effect significant within the zone of influence very unlikely. Negligible effect.
Generation of noise during construction influencing breeding bird assemblage and abundance in adjacent habitats.	Negative impacts on conservation status of receptor probable at the local scale. Minor adverse effect.	Control of construction noise as set out in CEMP	Adverse impacts on conservation status of the receptor unlikely, however adverse effect significant within the zone of influence probable. Negligible effect.
Mortality/injury to common breeding birds as a result of vegetation removal.	Negative impacts on conservation status of the receptor unlikely and adverse effect significant within the zone of influence only probable. Negligible effect, however legal implications probable.	Avoidance of breeding season, or completion under ecological supervision as set out in CEMP.	Negative impacts on conservation status of the receptor unlikely, and adverse effect significant within the zone of influence very unlikely. Negligible effect.
Mortality/injury to hedgehog as a result of vegetation removal.	Negative impacts on conservation status of the receptor unlikely and adverse effect significant within the zone of influence only. Negligible effect.	Avoidance of breeding season where possible, and staged removal of vegetation to enable identification of nests, as set out in CEMP.	Negative impacts on conservation status of the receptor unlikely, and adverse effect significant within the zone of influence very unlikely. Negligible effect.
Mortality/injury to invertebrates as a result of vegetation removal.	Negative impacts on conservation status of the receptor unlikely, and adverse effect significant within the	None specific to invertebrate mortality. Enhancements to invertebrates' habitat as described	Negative impacts on conservation status of the receptor unlikely, and adverse effect significant within the zone of influence only.

Effect	Significance	Mitigation Measures	Significance of Residual Effect
	zone of influence only. Negligible effect.	above.	Negligible effect.
Spread of wall cotoneaster as a result of presence within development site.	Negative impacts on conservation status of valued receptors unlikely. Negligible effect, however legal implications probable.	Careful removal of vegetation and appropriate disposal in line with appropriate invasive species management plan, as set out in CEMP.	Negative impacts on conservation status of valued receptors unlikely, and adverse effects unlikely. Negligible effect and legal implications unlikely.
Operation			
Designated Sites			
Increased use of footpaths adjacent to or within protected sites could impact on habitats through increased trampling and littering	Negative impacts on integrity of receptor unlikely Negligible effect.	Involvement in community education and information programmes on outdoor learning and practical conservation measures	Negative impacts on integrity of receptor remain unlikely. Negligible effect.
Species			
Impact of fencing and goal nets around sports pitches on bats.	Negative impacts on conservation status of the receptor unlikely. Negligible effect.	Provision of demountable goal nets, only erected during games.	Negative impacts on conservation status of the receptor unlikely and adverse effects within the zone of influence unlikely. Negligible effect.
Impact of noise from sports pitches on birds.	Negative impacts on conservation status of the receptor unlikely. Negligible effect.	-	Negative impacts on conservation status of the receptor unlikely. Negligible effect.
Impacts of lighting on bat commuting activity around periphery of the site.	Adverse effect significant at the local scale probable. Minor adverse effect.	Incorporation of best practice guidelines to minimise light spill.	Negative impacts on conservation status of the receptor unlikely, and adverse effects within the zone of influence only. Negligible effect.
Impacts of lighting on breeding bird activity around periphery of the site.	Adverse effect significant at the local scale probable. Minor adverse effect.	Incorporation of best practice guidelines to minimise light spill.	Negative impacts on conservation status of the receptor unlikely, and adverse effects within the zone of influence only. Negligible effect.

15.9 CUMULATIVE EFFECTS ASSESSMENT

Site Enabling, Demolition and Construction

15.9.1 The REEC development has potential for cumulative effects with the Twickenham Railway Station London Road Twickenham redevelopment (10/3465/FUL) and the proposed scheme for the Land Known as Twickenham Rough - Open Land West of Twickenham Sorting Office Site (13/1147/FUL). Cumulative effects with the Former Twickenham Postal Sorting Office London Road, Twickenham redevelopment (12/3650/FUL) during the construction phase are considered unlikely as the scheme is currently under construction and will be completed prior to commencement of the REEC development.

15.9.2 Cumulative effects associated with air quality are not considered likely, as the area of influence associated with the developments, identified by the Institute of Air Quality Management (IAQM) as 50m from the boundary of the site and 50m from haulage roads up to 500m from the site, do not overlap. Therefore, as the schemes will influence different receptors, and the REEC development will have a negligible effect on the Twickenham Junction Rough SLINC, cumulative effects with respect to air quality will be **negligible**.

15.9.3 Cumulative effects associated with noise are also not considered likely, with the area of influence of the developments not overlapping. The only receptor that is likely to be influenced by all projects is the Twickenham Junction Rough SLINC, however the impacts associated with the Railway Station and Postal Sorting Office redevelopments will be restricted its eastern end and any noise and disturbance impacts from the REEC development will be restricted to the western end. Any impacts associated with the approved footpath scheme are considered likely to be small as this will not involve significant construction activity. As a result, cumulative effects with respect to noise will be **negligible**.

Operation

15.9.4 The Proposed Redevelopment has potential for cumulative effects with all three proposed schemes described above during operation.

Designated Sites

15.9.5 The proposed footpath through Twickenham Junction Rough SLINC was approved following approval of the other two redevelopments, and thus the likely impact of the increase in residential properties associated with these projects should have been considered in the application. Therefore, taking into account the community involvement proposed as part of the RREC development, the cumulative impact on the Twickenham Junction Rough SLINC is considered likely to comprise an *adverse*

*e*ffect *within the zone of influence only* with *probable likelihood*. This equates to a **negligible** effect that is not significant.

15.9.6 The remaining operational impacts associated with lighting of the REEC development are not considered likely to be influenced by the identified schemes, as impacts are negligible and the zones of influence do not overlap. Therefore cumulative effects associated with lighting are negligible.

Mitigation

15.9.7 No additional mitigation measures have been identified by the cumulative effects assessment.

Residual Effects

15.9.8 Residual effects remain as described in Section 15.8.

15.10 SUMMARY AND CONCLUSIONS

15.10.1 Demolition, site clearance and construction have potential to cause direct impacts to non-designated habitats within the site boundary. These include habitat loss, habitat damage, and habitat fragmentation. The development's landscaping proposals will include measures to replace lost habitat features such as trees. Habitat damage on site will be reduced by protecting any retained features such as trees and their roots.

15.10.2 Damage and disturbance to off-site habitats, including designated sites, which are of greater value, will be avoided through adherence to construction industry good-practice guidance on pollution prevention and dust containment, and measures to avoid encroachment into sensitive habitats such as site demarcation and briefings. These will be implemented through the CEMP (**Appendix 6.1**). Contributions will also be made to existing initiatives to enhance locally important habitats such as the local river corridors.

15.10.1 If the mitigation measures are applied, then the effects of habitat fragmentation and deterioration on designated sites and all habitats other than scattered trees during site enabling, demolition and construction are all considered to be **negligible**. The impact of the habitat enhancement, including planting of approximately 300 trees on the Site, is considered likely to provide a **minor beneficial** effect on the scattered tree habitat.

15.10.2 Potential injury or mortality of protected and notable species through site clearance and construction activity will be avoided through careful seasonal timing of works and pre-clearance habitat checks. Disturbance to species in retained habitat within and adjacent to the site will be reduced through industry good-practice measures for

reduction and containment of lighting and noise. The reduction in bat foraging habitat in the local area has been assessed as a **minor adverse** effect. The scheme includes measures to enhance the available nesting and roosting habitat for key species groups such as birds, bats and invertebrates through extensive tree planting, artificial roosting structures and dead-wood habitat features. These measures will result in a **minor beneficial** effect on these species.

15.10.3 Increased use by students and residents of footpaths adjacent to sensitive habitats, including the river corridors and designated habitats, could result in increased trampling and litter. However, this is not considered likely to have a significant adverse effect on the integrity of these sites or species associated with them and is considered to be a **negligible** effect.

15.10.4 The only significant post-construction, operational impact on notable species is from increased artificial lighting at night in previously unlit or dimly-lit areas of habitat. The night-time commuting and foraging activity of bats may be affected. Bird breeding activity may also be impacted. However these effects will be avoided or reduced through the use of industry good-practice techniques to limit light-spill into adjacent habitat areas and are considered **negligible**.

16 TOWNSCAPE AND VISUAL

16.1 INTRODUCTION AND KEY ISSUES

16.1.1 This chapter describes the likely townscape, views and visual amenity effects of the proposed Richmond Education and Enterprise Campus (REEC) development at Richmond upon Thames College (RuTC) in Twickenham, within the London Borough of Richmond upon Thames (LBRuT).

16.1.2 This chapter provides:

- A summary of the relevant planning policy context;
- The methodology used for the townscape and visual assessment;
- A description of the existing townscape character and quality in the vicinity of the site and key townscape and visual receptors and representative views towards the site with reference to the extent of visibility of the proposed development (zone of visual influence or ZVI);
- An evaluation of the potential for significant environmental effects having regard to the sensitivity of townscape and visual receptors to change and the nature of change as a result of the proposed development including whether the changes would be adverse, neutral or beneficial;
- The potential for the further mitigation of any significant adverse effects arising from the development;
- The residual townscape and visual effects of the proposals following any further mitigation; and
- A summary of the effects of the development on the townscape, visual receptors and visual amenity and conclusions.

16.1.3 **Appendix 16.1** includes plans, photographs and a summary assessment which should be read in conjunction with this chapter.

16.1.4 The key issues for the assessment are considered to be:

- Potential change to the townscape character of the site and surrounding areas arising from the demolition and replacement of existing buildings and the redevelopment of the site including currently open areas;
- The appropriateness of the scale, mass and design of the REEC development for its townscape context and the effect on trees that play a notable role in the townscape; and
- The potential effect on views obtained by people who may be susceptible to changes to views and visual amenity having regard to the quality of the existing view and the scale and nature of the change.

16.2 CONSULTATION

16.2.1 Consultation with LBRuT on the scope of the townscape and visual impact assessment in summer 2014 broadly confirmed the proposed method, scope and viewpoints but lead to the inclusion of the following additional representative viewpoints:

- London Road, crossing the Railway bridge ; and
- Richmond Terrace, Richmond Hill, Richmond (see **Appendix 16.1, Figure A16.11b** for location).

16.2.2 It is noted that the view from London Road is on the frontage of the former Sorting Office site that is currently undergoing redevelopment. When complete this development will significantly restrict the potential for views in the direction of the RuTC site and this has been considered in terms of the potential for cumulative effects.

16.2.3 Further to receipt of LBRuT's Scoping Opinion, a skyline assessment has been undertaken. As requested, the difference in levels across the site has also been considered. The existing ground levels are contained within the topographic survey contained in **Appendix 3.1.** In addition, further to the Scoping Opinion request that consideration is given to the potential for significant effects on the users of the playing pitches, Nuffield Health Club, The Stoop and the Council Depot these have been considered in the baseline of the townscape and visual assessment but are not susceptible to changes in visual amenity.

16.2.4 A response from the Heatham Alliance, which was provided as part of the Scoping Opinion, emphasised the importance of the College playing fields south of Craneford Way to the local community. The effect on this area has been considered as part of the townscape assessment.

16.3 LEGISLATION AND PLANNING POLICY

International / European

16.3.1 There is no International or European legislation that is relevant to the consideration of the townscape and visual effects arising from this proposal.

National

National Planning Policy Framework (2012)

16.3.2 At the heart of the NPPF is the achievement of sustainable development – this includes protecting and enhancing the natural and built environment and securing a high quality built environment (para 7).

16.3.3 Paragraph 57 emphasises the importance of achieving high quality design for all development, including individual buildings, public and private spaces and wider area development schemes. Paragraph 58 confirms that development should seek to optimise the potential of sites to accommodate development.

16.3.4 The section concerned with 'Conserving and Enhancing the Natural Environment' highlights the importance of the planning system in the protection and enhancement of valued landscapes, biodiversity and the wider ecosystem.

16.3.5 The core planning principles (para 17) confirm that, inter alia, a high standard of design should be sought and a good standard of amenity for existing and future occupants should be provided, account should be taken of the different roles and character of different areas, effective use of land that is not of high environmental value should be encouraged, mixed use development should be encouraged and heritage assets should be conserved.

16.3.6 Paragraph 64 notes that opportunities for improving the character and quality of an area and the way it functions should be taken.

Local

16.3.7 The statutory development plan for this area comprises:

- The London Plan – The Spatial Development Strategy for London Consolidated with Alterations since 2011 (2015);
- London Borough of Richmond upon Thames adopted Core Strategy, 2009;
- London Borough of Richmond upon Thames Development Management Plan, November 2011; and
- London Borough of Richmond upon Thames Saved Unitary Development Plan policies.

The London Plan – The Spatial Development Strategy for London Consolidated with Alterations since 2011 (2015)

16.3.8 London Plan Policy 7.7 relates to tall or large buildings. The supporting text gives a definition of tall buildings take from the Commission for Architecture and the Built Environment / English Heritage 2007 Guidance of Tall Buildings as:

"Buildings which are substantially taller than their neighbours and/or which significantly change the skyline."

London Borough of Richmond upon Thames Core Strategy (2009)

16.3.9 A number of policies within the Richmond Core Strategy are relevant.

16.3.10 Policy CP7 states that

"Existing buildings and areas in the Borough of recognised high quality and historic interest will be protected from inappropriate development and enhanced sensitively…"

16.3.11 It goes on to note that new development should:

"recognise distinctive local character and contribute to creating places of a high architectural and urban design quality that are well used and valued."

16.3.12 Proposals should be based on an understanding of development patterns, features and views. They should maintain appropriate levels of amenity and connect positively with their surroundings. Good design principles including layout, form, scale, materials, natural surveillance and orientation should be applied.

16.3.13 Policy CP10 confirms that the open environment, including metropolitan open land and other open land of townscape, importance, will be protected and enhanced for visual reasons. It notes that:

"All developments will be expected to incorporate appropriate elements of open space that make a positive contribution to the wider network."

16.3.14 CP11 confirms that the special character of the reaches of the River Thames identified in the Thames Landscape Strategy will be respected.

16.3.15 In relation to the Crane Corridor, Policy CP12 confirms that:

Developments in and adjacent to the River Crane Corridor will be expected to contribute to improving the environment and access, in line with planning guidance.

London Borough of Richmond upon Thames Development Management Plan (2011)

16.3.16 In relation to Metropolitan Open Land, Policy OS2 confirms that this will be protected and retained in predominantly open use, which includes as playing fields. Beyond the Metropolitan Open Land boundary:

"…any possible visual impacts on the character and openness of the Metropolitan Open Land will be taken into account."

16.3.17 The open space to the west of the site is designated as Other Open Land of Townscape Importance. In this regard Policy OS3, states that:

"…visual impacts on the character and openness of the designated other open land will be taken into account."

16.3.18 Public open spaces are protected and new open space should be provided to serve development (Policy OS6).

16.3.19 Regard will be had to Conservation Area Appraisals and other policy guidance in the consideration on the effect of development including on their settings (Policy HD1).

16.3.20 Development should be of "high architectural and urban design quality" (Policy DC1). It should:

"…respect local character including the nature of a particular road, and connect with, and contribute positively, to its surroundings based on a thorough understanding of the site and its context."

16.3.21 It confirms that regard will be had to *"compatibility with local character including relationship to existing townscape and frontages, scale, height, massing, proportions and form….; layout and access; space between buildings and relationship to the public realm; and detailing and materials."*

16.3.22 Policy DC3 notes that taller buildings will be inappropriate except for those in identified locations. The REEC Site is not within an identified location.

16.3.23 Proposals should retain existing trees and other important landscape features where practicable and include new trees and other planting. Appropriate replacement planting will normally be required where trees are removed (Policy DC4).

16.3.24 A number of views are identified on the Proposals Map including views from Richmond Terrace. Policy HD7 seeks to protect the quality of these views and opportunities to create attractive new views and vistas where appropriate.

London Borough of Richmond upon Thames Unitary Development Plan, (2005)

16.3.25 The proposal for the redevelopment of the College site remains extant (Policy T29). This states:

"Redevelopment to provide a new college and enabling residential development on

the site of the existing college and playing field south of the A316. Retention and upgrading of Craneford Way East Playing Field."

Thames Landscape Strategy Review (2012) - Hampton to Kew

16.3.26 This suggests that building heights on the Middlesex bank are limited to conserve the prominence of Richmond Hill and retain an impression of a tree-covered landscape, with buildings largely hidden beneath the canopies (9.3G page, 313).

Crane Valley Planning Guidelines (2005)

16.3.27 This provides specific guidance for the redevelopment of the College site and a number of surrounding sites in order that development is compatible in scale and character with the local area and the setting of the area in the West London Green Chain is respected and enhanced.

16.3.28 The urban design assessment confirms that the area has a backland character and that the buildings and sites relate poorly to one another and connections to the wider area are weak. The College site has poor urban grain, the playing fields are of mixed quality and the area has potential for enhancement.

16.3.29 A number of development objectives principles are identified including to:

- Improve the appearance and recreational value of open space including provision of a riverside walk;
- Enhance pedestrian and cycle linkages;
- Ensure that new development is compatible in scale and character with the local area;
- Incorporate improved sports facilities; and
- Mature trees should be retained where reasonable and practical.

16.3.30 A number of urban design objectives are also identified, including by; creating a movement network and connectivity, defining views, vistas and landmarks, creating gateways, maximising the riverside location, improving the public realm, buildings defining streets and spaces and creating a fine urban grain. It indicates that height should be determined by a design led approach to make efficient use of the land, noting the opportunity for development to create its own character away from existing residential properties. The scale and massing of buildings should be appropriate to the site characteristics, civic function and location in the townscape.

Planning Brief Richmond Upon Thames College (2008)

16.3.31 This provides specific guidance for the redevelopment of the REEC site. It notes that

the existing landscape and visual quality is incoherent and existing buildings are of poor architectural quality. The way-marking role of the existing fiver storey tower on the College fronting Egerton Road is noted, as is the way that building heights and massing increases from east to west. The potential for 'marker' buildings is identified including the potential to step up to 5 storeys at the 'gateway' on Chertsey Road adjacent to the Harlequins site and a lower 'marker' terminating the view along Court Way. Where development adjoins existing housing the scale and grain of the residential area should be reflected.

16.4 ASSESSMENT METHODOLOGY

Evaluation of Townscape and Visual Effects

16.4.1 The sensitivity of the townscape receptors to accommodate change has been categorised according to their "value" derived from character and quality (reflecting any local, national, or international designations) and their susceptibility to change arising from the development proposed considering factors such as rarity, robustness, frequency based on the criteria in **Appendix 16.2, Table A16.2**.

16.4.2 The assessment considers, at both a site-wide and character area level, the effects of the proposals on elements of the townscape that contribute to its character and on the wider character areas.

16.4.3 The nature of change to the townscape receptors (e.g. scale, duration, reversibility) which arises from the introduction of the development is then predicted, and is defined by the criteria in **Appendix 16.2, Table A16.3**, categorised as high, medium, low, negligible/nil. The parameter plans and other information used to predict the nature of change are listed in **Appendix 16.3**. The significance of townscape effects has been determined based on the judgement of experienced assessors having regard to both the sensitivity of the townscape receptor and the nature of the change. Consideration has also been given to the potential for adverse, neutral or beneficial effects on receptors in light of local/other relevant policy objectives.

16.4.4 The assessment of visual effects relates to the changes that will occur in views as a result of the development, viewers' responses to those changes and the effect the changes have on their visual amenity.

16.4.5 Visual impact assessment concerns:

- Direct effects (adverse, beneficial or neutral) due to proposed development upon representative views through intrusion or obstruction;
- The reactions and numbers of viewers who may be affected; and
- The overall effects on visual amenity.

16.4.6 Static Accurate Visual Representations (AVRs) of 9 selected views have been prepared to assist the assessment (these are contained in **Appendix 16.1**). The methodology for creating the visualisations is also presented in **Appendix 16.1**. The visualisations are AVR1[1] outlines to illustrate the height and mass of the development parameters. They do not show the junction works on Chertsey Road/Langhorn Drive as there is not sufficient detail at this stage to model the proposals. In undertaking the assessment of the effects of the proposed development regard has also been had to the parameter plans, the Design Code, Arboricultural Impact Assessment and Outline Construction Management Plan. Regard has also been had to the Illustrative Landscape Plan (see Chapter 5, **Figures 5.2** and **5.3**)-which has informed our assumptions on secondary mitigation provided through the landscape design.

16.4.7 Visualisations are used to assist the assessment, however, it should be recognised that they are based on the maximum development parameters and therefore show the maximum volume of development but none of the articulation in built form and appearance that would be evident in the detailed design of the elevations. The maximum height of the development envelope has been assumed to be that shown on the parameters plans for each building zone.

16.4.8 Photography has been taken using a digital SLR camera [Canon 500D] (further details contained in **Appendix 16.1**). The sensitivity of visual receptors (i.e. people at specific locations) to proposed change has been determined having regard to:

- The activity and expectations of the receptors (their susceptibility to change); and
- The importance or value of the view.

16.4.9 The criteria applied in assessing the susceptibility of visual receptors to change are set out in **Appendix 16.2, Table A16.4**. In assessing the value of views consideration has been given to whether they are a recognised viewing point, a protected view or relate to a particular vista or panorama that forms part of a designated or protected townscape. The criteria applied in assessing the value of views obtained by visual receptors are set out in **Appendix 16.2, Table A16.5**.

16.4.10 The sensitivity of receptors to change has been assessed as being high, medium, low or very low. This is based on the judgement of experienced assessors having regard to the susceptibility of the receptor to change and the value of the view/visual amenity.

16.4.11 The scale of the change to representative views which is introduced as a result of the development has been predicted using the visualisations together with the application plans. The nature of change is categorised as nil/negligible, low, medium or high and

[1] Taken from a definition within the London View Management Framework, this level of detail shows the location, size and degree of visibility of a proposal

are set out in **Appendix 16.2, Table A16.6**, having regard to the scale of change to the views, their composition, the contrast/integration of features with the prevailing landscape, whether the view of development is clear, partial/filtered or glimpsed.

16.4.12 A judgement is made by experienced assessors of the significance of the environmental effect at each of the representative view positions having regard to both the sensitivity of the receptor and magnitude/nature of change. This enables an assessment of the effects on a range of typical receptors in the surrounding area.

16.4.13 In addition, a skyline assessment has been undertaken at the request of LBRuT. The representative views that have the potential to be affected by changes to the skyline are identified as part of the baseline analysis. The sensitivity of each view location selected for AVR testing for changes to the skyline is considered having regard to the criteria of sensitivity of the skyline and the magnitude of change to the skyline that have been defined in **Appendix 16.2, Tables A16.8** and **A16.9**. A qualitative assessment of the significance of the effects on the skyline is set out in **Appendix 16.1** having regard to the sensitivity of the skyline and the magnitude of change arising from the proposed development. This relies on a subjective judgement made by experienced assessors.

Approach to Townscape and Visual Assessment

16.4.14 This study has been undertaken using a methodology for landscape and visual impact assessment based on wide experience of analysing the effects of developments in urban locations and devising measures to mitigate potential effects. The methodology is in general conformity with the approach set out in the Guidelines for Landscape and Visual Impact Assessment (GLVIA), by the Landscape Institute and Institute of Environmental Management and Assessment and Landscape Institute Advice Note 01/11 Photography and Photomontage in Landscape and Visual Impact Assessment.

16.4.15 The consideration of the townscape and visual effects involves two separate but inter-related assessments:

- Consideration of the effects on the character and quality of the townscape of this part of Twickenham, including the River Crane corridor, Rosecroft Gardens Conservation Area and the Grade I listed Church of All Hallows; and
- An evaluation of the visual effects of the development on views, viewers and visual amenity (with particular reference to local views obtained by people who may be susceptible to changes in visual amenity in surrounding residential areas, open spaces and from elevated land at Richmond Hill to the east).

16.4.16 The assessment has followed the stages set out below:

1. A desk based study and field survey to record the site and surroundings;

2. Analysis to establish the current character and quality of the site and the surrounding townscape, identify the views and viewers likely to be affected by the development, their sensitivity to change and the site's existing visual role;
3. A review of the proposed development and an assessment of the likely significant effects of the development on the character and quality of the surrounding townscape and on views, viewers and visual amenity; and
4. Making recommendations for mitigation of significant effect where these are required.

16.4.17 GLVIA3 adopts the Council of Europe definition of landscape:

"Landscape is an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors".

16.4.18 It further notes that the interpretation is broad covering not only landscapes that are recognised as special, but also the ordinary and every day, where people live, work and spend leisure time.

16.4.19 GLVIA3 provides the following definition of the landscape in its broadest sense:

"Landscape results from the interplay of the physical, natural and cultural components of our surroundings. Different combinations of these elements and their spatial distribution create the distinctive character of landscapes in different places, allowing different landscapes to be mapped, analysed and described. Character is not just about the physical elements and features that make up a landscape, but also embraces the aesthetic, perceptual and experiential aspects of the landscape that make different places distinctive."

16.4.20 GLVIA3 confirms that the term townscape relates to areas where built form is dominant. Townscape is a product of the interaction between a range of physical characteristics (e.g. topography, buildings and landscaping) and human activity (e.g. land use, human culture and history).

Extent of the Study Area

16.4.21 The extent of the study area has been established through a combination of desk-based study and initial fieldwork to define the ZVI (i.e. where views of the proposed development would be obtained). GLVIA3 confirms that the extent of the study area should be proportionate to the scale and nature of the proposal (para 6.2) and that the mapping visibility can be undertaken manually or digitally (para 6.7).

16.4.22 Desk based study has been used to identify potential townscape and visual receptors including review of ordnance survey mapping, aerial photography, historic environment record, local policies and guidance documents. A tree survey has been

undertaken and is included as **Appendix 15.5**.

16.4.23 Subsequent fieldwork was undertaken in April, July, August and December 2014 to identify and record available views of the site at different times of year, record townscape character and quality and identify and record sensitive receptors within the ZVI and their relationship to the site.

16.4.24 The ZVI has determined the general extent of the landscape / townscape character assessments, the identification of potential landscape and visual receptors and location of representative views.

Townscape and Visual Baseline

16.4.25 Reference has been made to planning guidance on 'Landscape Character and Seascapes Character Assessments, Natural England and DEFRA 2014[2], Natural England's National Character Map, Natural England's MAGIC database[3] and Richmond Design Quality SPD and Rosecroft Gardens Conservation Area Character Appraisal and Management Plan, together with on-site analysis to establish townscape character areas, areas that on the whole have similar characteristics (noting that there may be some anomalies within them). Fieldwork and desk study has been used to review existing studies of townscape / landscape character relevant to the assessment of the proposals and record and analyse townscape character within the ZVI.

16.4.26 For each character area identified, the key characteristics – the features, elements, experiential, aesthetic and perceptual factors - that give the area its distinct sense of place are set out. These are usually positive features but can also be negative in a degraded environment. Key positive characteristics are the townscape/landscape receptors that could be directly or indirectly affected by the development.

16.4.27 Best practice guidance in the Urban Design Compendium, English Partnerships and the Housing Corporation (2000/2007) has been referred to in addition to National Planning Practice Guidance on Design (March 2014)[4] and GLVIA para 5.5. This has considered the following aspects of townscape character where relevant:

- The context and setting
- Topography and relationship to built form
- Historic evolution of the area
- The urban grain – pattern and scale of streets, development plots and buildings

[2] https://www.gov.uk/landscape-and-seascape-character-assessments - accessed November 2014

[3] http://www.magic.gov.uk/ - accessed December 2014

[4] http://planningguidance.planningportal.gov.uk/blog/guidance/design/what-is-a-well-designed-place/ - accessed November 2014

- Land use
- Movement patterns
- The scale, mass and form of buildings
- Building style, details and use of materials including vernacular traditions
- The public realm including the role of open spaces and vegetation

16.4.28 The value of the townscape is established, as part of the baseline, having regard to any designations and the value of its component parts. It is noted that undesignated landscapes may also have value in their constituent elements. The existing townscape quality and value is categorised as high, medium, low or very low, based on the criteria in **Appendix 16.2, Table A16.1**.

16.4.29 The elements of value in the townscape are the townscape receptors.

16.4.30 The baseline studies also identify the range of visual receptors within the ZVI, the viewpoints likely to be affected by the development and the nature of the views at those points.

16.4.31 People have different responses to changes in views and visual amenity depending on context, and purpose for being at a particular place. The susceptibility of receptors to visual change arising from the proposed development is set out in **Appendix 16.2, Table A16.4**.

16.4.32 From the desk and field survey, together with an understanding of sensitive visual receptors, a total of 18 representative views have been identified within the ZVI. In selecting these views regard to a range of factors including the potential number and sensitivity of the viewers who may be affected; the viewing direction, distance and elevation; the nature of the viewing experience, the type of view and the accessibility to the public. Consideration has also been given to the potential for cumulative effects on important views.

16.4.33 The view locations are identified on **Figures A16.11a** and **A16.11b** in **Appendix 16.1** and provide a comprehensive coverage of long (+500m), medium (150m-500m) and short range (less than 150m) views. Baseline photographs from these locations are contained in **Appendix 16.1**.

16.4.34 The existing situation - the baseline - has been recorded, establishing the components, character and amenity of the existing scene within each representative view. An evaluation of the existing skyline and any component elements of value has been included at the request of LBRuT.

Significance of Effects

16.4.35 The level of significance is defined as follows:

- Major - considerable effects (by extent, duration or magnitude) or of more than local significance or breaching identified standards or policy and therefore of potential concern;
- Moderate – effects considered to have moderate importance to the immediate locality (may be significant);
- Minor – Slight, very short or highly localised effects; and
- Negligible – barely noticeable or of no significance.

16.4.36 The nature of the change to the character of the existing townscape and views is defined as beneficial, neutral or adverse, in light of the criteria set out in **Appendix 16.2, Table A16.7**.

Limitations of Assessment

16.4.37 The REEC development is applied for in outline and therefore the scale and extent of development is defined by a series of parameters set out in the Parameter Plans. Visualisations prepared using the parameters therefore illustrate the maximum height and maximum extent of the envelope within which new buildings on the site will be located. They do not show individual building massing, the detailed built form or the sense of scale provided by articulation of the elevations or give any indication of the architectural or landscape design and materials. The limitations in modelling the parameters of an outline scheme need to be recognised in that they show the maximum scale and extent of change from a particular location. They therefore show a more than worst case scenario which is interpreted in the townscape and visual assessment by experienced assessors.

16.4.38 It is further noted that this assessment has taken the maximum height shown on the parameters plans as being the maximum height of the building envelope, notwithstanding the reference to eaves on the parameters plans and in the Design Code. Assumptions have, however, been made about the potential for townscape and visual effects arising from minor projections above the envelope as set out in the Design Code (3m in the case of flues/ windcatchers and 3.5m in the case of lift overruns/ stair enclosures). It has also been assumed that such projections would be limited in number/grouped. The assessment has also assumed that plant enclosures would only be on non residential buildings, on less than 25% of the roof area and set at least 2.5m in from the parapet

16.4.39 The assessment of landscape/townscape effects requires a balance of objective and subjective techniques. Objective techniques usually involve measurement and quantification of the various components which make up the environment. These techniques establish the "character" of the area. Subjective approaches, on the other hand, rely on the judgement and responses of the surveyor. They are generally more descriptive and seek to evoke the aesthetic characteristics of the landscape/townscape

and the reactions of people to it. They establish the "quality" of the area.

16.5 BASELINE

Introduction

16.5.1 This section seeks to describe and evaluate the existing character and quality of the townscape in the ZVI of the REEC development. It also sets out the key representative views of the site and likely sensitive receptors of changes to the views and any views of particular value. This forms the basis against which the significance of the predicted landscape and visual effects can be evaluated.

16.5.2 This section and associated Appendices provide:

- A factual description of the study site and its surroundings;
- The extent of visibility of the study site and proposed development (ZVI);
- An evaluation of its existing landscape character and quality;
- Likely sensitive receptors within the ZVI; and
- The key representative views from the surrounding area that inform the assessment of the potential for significant effects.

Current Baseline

Site and Surrounding Area

16.5.3 The Site covers an area of approximately 9 ha and is located south of A316 Chertsey Road and west of Egerton Road and around 650m north-east of Twickenham Town Centre. The main features of the site and surrounding area can be seen on the Aerial Photograph at **Figure A16.1** in **Appendix 16.1**.

16.5.4 The site is currently in use by RuTC but also includes some land at the junction of Langhorn Drive and Chertsey Road to form the access. The area north of Craneford Way is referred to in the assessment as the 'main site'. The Chertsey Road frontage is occupied by a grass sports pitch and a car park. A line of primarily sycamore, horse chestnut and red chestnut trees define the northern edge of the College site. There is a narrow public footpath along Marsh Farm Lane that defines the site's western edge. Within the RuTC site is a collection of college buildings of varying scale, form and materials. The majority of buildings are three storeys with a taller element, equivalent to five storeys on the Egerton Road frontage. The majority of ground cover in this area is hard-surfaced. The main part of the site adjoins some two storey flats which front Craneford Way.

16.5.5 South of Craneford Way is an area of playing fields which are also owned and used by RuTC (referred to as the College playing fields south of Craneford Way). There are trees around the perimeter of the playing fields. To the east, the site adjoins Egerton

Road.

16.5.6 To the north of the site is the A316 Chertsey Road, a busy dual carriageway and main radial route connecting the A4 at Chiswick to the M3. There is a footpath/cycleway on the south side of the road and a pedestrian bridge connection to the suburban residential area to the north.

16.5.7 To the west of the site is the Harlequin FC rugby stadium, Twickenham Stoop, which is accessed from Langhorn Drive. There is an area of parking adjacent to Chertsey Road. On the east side of Langhorn Drive is the Nuffield Health and Fitness Centre, some four storey flats, Challenge Court, and an area of open space. To the south of The Stoop is a Council depot.

16.5.8 To the south of the College playing fields south of Craneford Way is the River Crane and an area of open land and allotments. Beyond this are railway lines and residential and industrial development to the north of Twickenham town centre.

16.5.9 To the east of the site is a suburban residential area of predominantly two storey housing. To the north-east, beyond the A316 is Twickenham Stadium, the Rugby Football Union, Twickenham ground, a substantial building and local landmark.

16.5.10 The topography of the site and surrounding area is generally flat, forming part of the valley of the River Thames with the exception of an area of higher ground to the east at Richmond Hill, around 2.65km away (**Figure A16.2** in **Appendix 16.1**).

16.5.11 A full description of the site and surrounding area is provided in Chapter 3 - Existing Site and Surroundings.

Zone of Visual Influence

16.5.12 In an urban environment a bare ground ZVI plot (without buildings or vegetation) is of limited use in defining the scope of a townscape and visual impact assessment owing to the considerable screening provided by buildings.

16.5.13 A combination of aerial photography, fieldwork and mapping has been used to estimate the extent of the immediately surrounding area from which views of the REEC development may be seen. This includes:

- A stretch of Chertsey Road and the residential area immediately to the north;
- The frontage to The Stoop and the western end of Gladstone Avenue to the west;
- Across public open spaces to the west and south-west in the vicinity of the Crane Corridor; and
- From the residential area immediately to the east, extending to Whitton Road.

16.5.14 In addition there may be views from elevated locations including the rail bridge on

London Road. Further to the east, there are elevated views in the direction of the Site from the west side of the high ground along Richmond Hill and in Richmond Park in which the existing College tower can be identified and where there is potential for views of buildings of similar or greater height as a small part of the panorama of the wider area.

Townscape Character and Value

16.5.15 The site lies within the London Basin Natural Area[5] and Thames Valley National Character Area 115[6] which covers an area of 86,062 ha of the River Thames catchment to the west and north-west of central London.

16.5.16 Natural England's National Character Area profile confirms that the wider character area has the following characteristics that apply to the ZVI area:

- Flat and low-lying land, rising to low, river-terraced hills;
- A geology of primarily river gravel deposits over London Clay and chalk, with chalk outcrops;
- Hydrological features including the River Thames and its tributaries give a unity to an otherwise varied area, which has an essentially urban character;
- The open Thames flood plain dominates to the south with a series of designed landscapes between Hampton and Kew;
- The area is important for recreation, both for residents and visitors.

16.5.17 The cultural value of the wider area, particularly along the Thames is noted. Of relevance to this assessment in particular, the view from Richmond Hill and its association with famous artists, poets and writers (including JMW Turner/William Wordsworth). The exceptional landscape value of this area and the view from this area of high land over the River Thames is also set out the in 2012 Thames Landscape Strategy Review – Hampton to Kew.

16.5.18 The Council's Design Quality SPD provides a Boroughwide overview of townscape character, confirming that the geology, topography, landscape and settlement pattern of the Borough have led to the evolution of a number of character areas. The Site lies within the Heathfield and Whitton Borough Character area (see extracts at **Appendix 16.4**). This is summarised as:

- A largely residential area, isolated as a result of heavy traffic on the A316 and the River Crane from other parts of the Borough;

[5] MAGIC database, http://www.magic.gov.uk/MagicMap.aspx, accessed 3/12/14

[6] Natural England, http://publications.naturalengland.org.uk/publication/3865943?category=587130, accessed 3/12/14

- Comprising large inter war residential estates in geometrical and sinuously curving streets;
- Terraced or semi-detached housing with small front gardens;
- Few street trees;
- Twickenham Stadium is a landmark.

16.5.19 Fieldwork to record the site character of the Site and surrounding area has confirmed that there is local variation in townscape character and therefore a finer grain assessment of the character of the townscape in the local ZVI has been undertaken. A series of plans has been prepared to analyse the existing townscape character including the pattern of land-use, urban grain, scale of buildings, movement patterns and levels of activity, open space and landscape elements. Reference has been made to the historic evolution of the area established by a review of the historic maps contained in **Appendix 17.1**.

16.5.20 A number of local character areas with broadly similar townscape characteristics have been defined. These local character areas are shown in **Appendix 16.5, Figure A16.9** including photographs and descriptions. The townscape characteristics of each area are summarised in **Table 16.1** below.

Table 16.1 Townscape Character

Character Area	Key Characteristics
Chertsey Road North	Predominantly residential area developed in the mid 20th century following the construction of the A316. The A316 is a broad, mainly tree lined arterial route, dominated by heavy traffic and is a barrier to pedestrian movement. Residential streets are arranged to create blocks between Chertsey Road and Kneller Road with frontage development oriented generally north-south. The built form is predominantly two storey, semi detached houses with hipped or pitched roofs. There are also some short terraced and detached forms. Houses are set back from the pavement with small front gardens. There are street trees within the pavements along some roads. Prevailing materials are red brick, render/pebble dash and red tile with some slate. Details are typical of speculatively built domestic buildings of their era. Occasional trees within the public realm, provide a degree of consistency and some visual separation from the A316.
Chertsey Road South	Predominantly residential area developed in the mid 20th century following the construction of the A316. Residential streets are arranged to create long, linear blocks with perimeter development generally oriented with an east west arrangement. The built form is predominantly two storey, semi detached houses with hipped or pitched roofs and short terraced forms. Houses are set back from the pavement with small front gardens. There are street trees within the pavements along some roads. Prevailing materials are red brick, render/pebble dash and red tile with some slate. Details are typical of speculatively built domestic buildings of their era.

Character Area	Key Characteristics
Rosecroft Gardens	An isolated estate of 1930s bungalows developed around the same time as the A316. The wider setting is defined by linear open space and vegetation along Chertsey Road, the River Crane/ Duke of Northumberland's River and Kneller Gardens. The layout of streets is triangular plan, reflecting the land available/ constraints of the river and road. The streets have a spacious character owing to the height of development, the set back and separation of the dwellings. The streets are defined by low boundary was with planting within the gardens. The architectural details of the bungalows are distinctive and reflect the modern style, although much original detail has been lost due to the replacement of windows. Materials are consistent and comprise, painted render with brick details.
Crane Corridor	Relatively narrow areas of open land along the River Crane and Duke of Northumberland's River, which are small tributaries of the Thames. Recreation and amenity uses predominate. The area forms part of a wider linear green space and footpath network. The spatial characteristics of the area vary with both relatively narrow river corridors enclosed by vegetation and more open areas such as playing fields and open space. The watercourses have been canalised which gives them a more urban character. The areas along the rivers are relatively well-vegetated with a variety of scrub and trees. Other areas include amenity grassland and scrub. Provides a contrast with densely developed surrounding areas which includes a variety of different land uses, some of which are intrusive.
Langhorn Drive	A distinct area of varied non-residential land-uses on the south side of A316 including a college, rugby ground, fitness centre, a Council depot and some flats. Urban blocks are large with limited subdivision. Buildings generally of larger mass than the surrounding residential areas including some buildings with large footprints. Heights of buildings range from single to around five storeys with three storey developments prevailing. Varied built form, materials and architectural character of development. Buildings generally of no architectural interest, although the mid 20th century College building is well-proportioned and typical of its era. Predominantly hard-surfaced or development with some areas of amenity grassland. Trees provide some amenity value and some separation from the A316. Local landscape value of The Stoop and the tower on Richmond College, Egerton Road frontage.

Character Area	Key Characteristics
Whitton Road	A predominantly residential area, with some retail use. Development primarily from the late 19th and early 20th centuries extending along Whitton Road with some piecemeal infill of flats in the mid-late 20th century. Heights predominantly 2 to 3 storeys. Variety of built form, but predominantly terraces but with some semi-detached, detached houses and larger footprint of blocks of flats. Buildings generally brick built in yellow stock brick but with render and red brick evident. The 19th century buildings have attractive details adding interest to the elevations including some bays, dormers, sash windows, stone windows and door surrounds. Generally short or no front gardens and some street trees along Whitton Road.
London Road	Varied office and other non-residential land uses on the edge of the town centre. The bridge marks the transition from a predominantly residential to a more commercial area. Generally larger footprint, taller buildings up to 10 storeys in the vicinity of the station. Buildings dating from the mid-late 20th century onwards. More urban character, closer to the town centre with high levels of activity – pedestrians and vehicles. Very little vegetation.

16.5.21 The townscape value of these areas has been considered having regard to the policy context, existence of designations and the individual characteristics of interest with reference to **Appendix 16.2, Table A16.1**. Townscape value is presented in **Table 16.2.**

Table 16.2 Townscape Value

Character Area	Townscape/ Planning Designations	Positive Aspects of Character	Townscape Value
Chertsey Road North	None	Trees and front gardens lend some amenity value to the street General cohesion of scale and pattern of development along streets	Not designated townscape Common building types, lacking individual architectural distinction but general cohesion to townscape The barrier to movement and noise associated with the A316 detracts from adjacent areas **Low**
Chertsey Road South	None	Trees and front gardens lend some amenity value to the street General cohesion of scale and pattern of development along streets	Not designated townscape Common building types, lacking individual architectural distinction but general cohesion to townscape **Medium**
Rosecroft Gardens	Conservation area	Buildings where original features remain Suburban character of area and uniformity of appearance of buildings along streets Setting of trees and landscape elements	Designated as conservation area **High**
River Crane Corridor	Metropolitan Open Land Conservation area along part Duke of Northumberland's River Public Open Space Other Site of Nature Importance	Open character Watercourses Vegetation that contributes to the amenity of the area	Locally valued area of amenity space with associated footpath/ cycle network Regional protection of openness Trees and vegetation contribute to the more vegetated character of this part of the area **Medium**
Langhorn Drive/ Richmond College	Development site Other land of Townscape Importance Building of Townscape Merit (Council depot)	Trees on Chertsey Road frontage Open space to east of flats on Langhorn Drive	Relatively undistinguished and incoherent area of townscape Limited architectural quality and interest **Low**
Whitton Road	None	Listed building (Heatham House) –distinctive local landmark at junction with London Road Trees and front gardens lend some amenity value to the street	Not designated townscape but relatively cohesive townscape character **Medium**

Character Area	Townscape/ Planning Designations	Positive Aspects of Character	Townscape Value
London Road	Twickenham Action Plan area – significant change anticipated	None	Not designated townscape Frequent building types, lack of coherence in townscape and architectural interest **Low**

Key Representative Views

16.5.22 As set out in the methodology, fieldwork was undertaken to establish the current visual role of the Site in the surrounding area. The fieldwork considered locations of where the views of the proposed development may be available during and after its construction. The views were selected to be representative of views obtained by a range of visual receptors over a short, medium and long distances, focussing on the potential for significant effects.

16.5.23 A total of 18 positions were considered. Baseline photographs from the following locations are contained in **Appendix 16.1** together with commentary on the visual amenity of the scene and the baseline visual role of the site in the view. At the request of LBRuT an overview of the characteristic of the existing skyline is given. Where features of value are identified these are noted.

1. London Road
2. Chertsey Road (looking west)
3. Heathfield South
4. Court Way
5. Egerton Road
6. Craneford Way
7. College playing fields south of Craneford Way (south-east)
8. Pedestrian footbridge over railway
9. Footpath to west side of the College playing fields south of Craneford Way
10. Craneford Way West playing field (south-west)
11. Footpath west of site
12. Public open space west of site
13. Footpath west of site
14. Langhorn Drive
15. Gladstone Avenue
16. Chertsey Road (looking east)
17. Talma Gardens
18. The Terrace, Richmond Hill

16.5.24 The following views were identified for further consideration through the preparation of AVRs prepared to show the maximum height and extent of the proposed development parameters:

1. London Road
2. Chertsey Road (looking west)
3. Heathfield South
4. Court Way
9. Footpath to west side the College playing fields south of Craneford Way
12. Public open space west of site
15. Gladstone Avenue
16. Chertsey Road (looking east)
18. The Terrace, Richmond Hill

Future Baseline

16.5.25 The following committed developments will alter the baseline assessment relevant to townscape and visual matters:

- The redevelopment of the former Twickenham Sorting Office. This residential led-redevelopment is 3 to 5 storeys in height and is under construction. The completed building will provide some screening of views from London Road in the direction of RuTC. Residents of the upper levels of the development with an aspect to the north-west will have views in the direction of the RuTC site;
- Changes of use of land to provide public amenity space and a footpath/cycleway link on land known as Twickenham Rough (west of the former Twickenham Sorting Office). This development was granted planning permission in August 2013. It provides public access and a new footpath cycle link that will connect via an existing bridge to the College playing fields south of Craneford Way. The users of the open space and cycle link will be future visual receptors. It is likely that this will be a well-used day-time, recreational route for people walking along the Crane Corridor and also accessing Twickenham Stoop and RuTC. Whilst the development will alter the use of this land, it will remain consistent with the character of the Crane Corridor Character Area. The open space will be a future townscape receptor, contributing to the aesthetic and amenity value of this part of the Crane Corridor; and
- The Twickenham Railway Station proposal includes a new station concourse a podium over the railway and bridge structure to provide access to the platforms together with three buildings of two to seven storeys in height (measured from London Road) providing a mix of retail and residential uses. The works to upgrade the station concourse and access to the platforms has been implemented, however, the timescale for the implementation of the upper floors

of the development is, however, uncertain. There may be the potential for views of the proposed development from the residential upper floors of this development although some screening will be provided by the intervening Sorting Office redevelopment.

Baseline Limitations

16.5.26 The fieldwork, for reasons of practicality and proportionality, considered only publicly accessible locations in assessing likely significant environmental effects. However, consideration has been given to the potential for significant visual effects on residents with a potential outlook from their main living accommodation over the site.

16.5.27 A series of representative views were identified in order to consider the likely effects on visual receptors. This has sought to reflect typical views from the surrounding area. The photographs are static record of the view at a particular location whereas the visual experience of a place is experienced as a dynamic sequence. The approach therefore considers a limited number of view locations. This is consistent with best practice guidance.

16.5.28 The inherent limitations of photography in capturing the view compared with the acuity of the human eye are also acknowledged. Photographs are 2-dimensional representations of a 3-dimensional scene and therefore the perception of distance and elements in the scene will not be the same as in real life. The contrast in printed photographs is also much less than can be discerned by the human eye. There is therefore a balance between showing a suitable context for the view and providing suitable clarity.

16.5.29 In this assessment most of the photographs have a wider horizontal field of view than 40 degrees in order to give sufficient context given the scale of the site and the relationship to the viewer. The printed size of images, at A3, is therefore smaller than the view that would be seen on site.

16.6 SENSITIVE RECEPTORS

Sensitive Townscape Receptors

16.6.1 The site is within the Langhorn Drive and Crane Corridor local character areas. The assessment of townscape effects therefore considers the direct effects on the townscape character of the site and those local character areas together with the effect on the wider Borough Whitton and Heathfield Character area. Townscape receptors within the site and surrounding area (i.e. aspects that contribute positively to the character of the wider area) include:

- Trees on the site frontage to Chertsey Road, along Marsh Farm Lane and around the College playing fields south of Craneford Way;
- The sense of openness of the College playing fields south of Craneford Way and along the Crane Corridor;
- The open space to the west of the site; and
- Building of Townscape Merit within the Depot site.

16.6.2 As noted above the change of use of Twickenham Rough will introduce a further open space to the south-east of the site.

16.6.3 In addition, the indirect effects on the following adjacent local townscape areas have also been considered:

- Chertsey Road North Local Character Area
- Chertsey Road South Local Character Area; and
- Rosecroft Gardens Local Character Area.

16.6.4 The effect on the townscape seen from elevated ground at The Terrace on Richmond Hill has also been considered.

16.6.5 Given a combination of distance from the site, extent of the zone of visual influence and townscape value, it is considered that there is no potential for significant townscape effects on the following local townscape character areas and these have been excluded from the assessment:

- Whitton Road; and
- London Road.

Sensitive Visual Receptors

16.6.6 The assessment of visibility is, in practical terms, constrained by the level of public accessibility to surrounding land and the assessment therefore focusses on public views. The potential effect on the visual amenities of residents has also been considered where the orientation of properties suggests that there could be significant visual effects, based on accessible views from that location.

16.6.7 The panoramic view from Richmond Hill is recognised in the NCA summary. An Act of Parliament (The Richmond, Ham and Petersham Open Spaces Act, 1902) sought to protect the open land along the River from development. View lines are shown on the proposals map. The view from Richmond Park, King Henry's Mound, looking east is also shown on the proposals map. In consultation with LBRuT through the EIA scoping process it was agreed that the view from The Terrace would be considered in the assessment as a worst case scenario, typical of available views from the high ground to the east.

16.6.8 No other protected views, vistas or viewpoints have been identified within the ZVI.

16.6.9 The following receptors are likely to be the most susceptible to changes to the views and visual amenity and have been considered:

- Residents adjoining and overlooking the Site;
- Views obtained by pedestrians walking through adjoining residential areas;
- Users of the public footpaths to the south and west;
- Users of the public open space to the west and south-west of the site; and
- Users of the footpath and cycleway to the north.

16.6.10 Other visual receptors of changes to views within the ZVI include:

- People visiting nearby rugby grounds and the health centre;
- People in nearby workplaces; and
- Motorists/vehicle drivers and their passengers on roads.

16.6.11 These receptors tend not to be focussed on visual amenity due to the activities they are involved in. They are not generally susceptible to visual change being focussed on the activities they are undertaking and have not been considered further in the assessment. People en-route to these locations are considered as pedestrians in the surrounding area. Future visual receptors will include students and staff at the College, Schools and Tech Hub and residents of the new housing area. They are also unlikely to be susceptible to visual change associated with the development proposals due to either their activity or expectation.

16.6.12 The location of sensitive townscape and visual receptors considered in the assessment is shown on **Figure A16.10** in **Appendix 16.1**.

16.7 IMPACT ASSESSMENT

The Application Proposals

16.7.1 The proposals are submitted in outline and therefore the assessment of landscape and visual effects has considered the effect of development based on the parameter plans listed in **Appendix 16.3**. Further information that sets out key principles for the detailed design of the buildings and public realm of the development has also been assessed. This is contained within the Design Code.

16.7.2 A full description of the proposed development is provided in Chapter 5 – Proposed Development.

16.7.3 The following aspects of the development proposals are relevant to this chapter:

- Land currently occupied by RuTC north of Craneford Way, including a grass sports pitch south of the A316, is proposed to be developed for a mix of education (college, secondary school and SEN school), commercial (a Tech Hub) and residential land uses. The land south of Craneford Way is retained as playing fields, with one all-weather pitch and one grass pitch, surrounded by up to 4m high mesh fencing. Demountable fencing up to 10m in height will be used during matches;
- Vehicular access to the College, Tech Hub and residential development would be from Langhorn Drive. A new traffic light controlled junction will be provided on the A316. Vehicular access to the secondary school is from the north end of Egerton Road and to the SEN school is from the southern end of Egerton Road;
- The existing street pattern is proposed to be extended for the residential area.
- The proposals include the upgrade of Marsh Farm Lane (the existing footpath on the western edge of the site), and connection to new footpath along the River Crane that will be provided as part of the Twickenham Rough proposals;
- The college comprises two blocks, the element fronting Chertsey Road (College Building zone 1) has a maximum height of between between 19.5m and 23.5m above ground level to eaves/parapet (max 5 storeys). The element parallel with Marsh Farm Lane (College Building Zone 2) has the same maximum height at the northern end and a storey lower at the southern end (between 18.5 and a maximum of 20m above ground level);
- The residential element is located on the Egerton Road frontage, north of the existing properties fronting Craneford Way and extending to residential access road and Marsh Farm Lane footpath. Maximum building heights are proposed to be between 6m and 10m above ground level (Residential Building Zone 1) on the Egerton Road frontage (2-3 storeys). They are 5-6 m above ground level to eaves to the rear of the properties fronting Craneford Way (Residential Building Zones 2 and 4). The maximum building heights step up to a maximum of 16m above ground level (3-5 residential storeys) to the south-west adjoining Marsh Farm Lane (Residential Building Zone 3);
- The schools are located to the west of properties on Egerton Road. The proposed school building is a maximum of 14.5m in height (3 storeys) on the side closest to residential properties, with the potential to step up to a maximum of 18.5m facing away from residential properties;
- The Tech Hub is a 3 storey building (between a minimum of 8m and a maximum of 16m in height) on the Chertsey Road frontage east of Marsh Farm Lane; and
- It is proposed that a strip of soft landscaping would be retained on the Chertsey Road frontage and existing good quality trees retained. The trees on the perimeter of the College playing fields south of Craneford Way are also proposed to be retained. A total of 17 trees / groups of trees are proposed to be removed

from along Marsh Farm Lane to accommodate the widening of the route (including one group on the edge of the College playing fields south of Craneford Way). Replanting with appropriate species will be undertaken along the new access road and upgraded footpath cycleway, where appropriate.

16.7.4 The maximum height of development shown on the parameter plans has formed the basis of the assessment of townscape and visual effects and is shown on the AVRs (the roof and minor projections are not show). The magnitude of change arising from minor roof projections (flues/ windcatchers/ lift overruns/ stair enclosures) and also the location and extent of plant enclosure on non-residential buildings based on assumptions regarding their height, location and extent set out in this chapter. Should future submissions propose development above the maximum height assumed in this assessment for the buildings or go beyond the assumptions relating to these projections, consideration would need to be given at that stage to the potential for significant townscape or visual effects.

16.7.5 GLVIA3 identifies a three tier mitigation hierarchy:

1. Primary measures, developed through an iterative design process and included in the project specification to avoid or reduce effects;
2. Standard construction and operational management practice to avoid and reduce effects which can be required by condition or legal agreement; and
3. Secondary measures to address residual effects remaining after 1 and 2 above.

16.7.6 The following primary measures have been built into the REEC development proposals, are reflected in the parameter plans and Design Code and have been considered as part of the assessment of townscape and visual effects:

- Lower built form adjoining existing residential properties on Craneford Way (2 storeys);
- Open frontage retained to Egerton Road as part of residential scheme;
- Taller built form of the College on A316/ along Marsh Farm Lane to assist wayfinding and located away from existing residential properties;
- Works to widen and improve Marsh Farm Lane, including landscaping and tree planting;
- Retention of healthy and prominent trees along the Chertsey Road frontage, Egerton Road, Craneford Way and River Crane;
- No floodlighting of sports pitches within the College playing fields south of Craneford Way;
- 'Soft edges' will be provided to the perimeter of the development;
- Planting within the College playing fields south of Craneford Way with an overall increase in the amount of open space provided at the Site (from 79% to 83.5 overall);

- The alignment of residential facades sympathetic to the character of the adjoining area;
- Creation of an entrance space off Langhorn Drive and identification of appropriate locations for landmark elements;
- High quality, visually permeable fencing to the formal pitches on College playing fields south of Craneford Way; and
- Planting to be integrated into the parking area, and further planting provided along A316 where it will not affect retained trees.

Sensitivity of Townscape and Visual Receptors to Change

16.7.7 The sensitivity of the townscape receptors on the site and in the surrounding area is set out in **Table 16.3** below and their sensitivity to change summarised having regard to their value and susceptibility to change specifically in relation to the type of development proposed.

Table 16.3 Sensitivity of Townscape Receptors to Change

Townscape Receptor	Susceptibility to Change	Value	Sensitivity
Within the site			
Existing trees on Chertsey Road frontage	Medium – buildings and hard-surfacing have potential to affect tree roots	Medium – trees contribute to amenity value of the A316 – a busy arterial route	Medium
Existing trees along Marsh Farm Lane	Medium - buildings and hard-surfacing have potential to affect tree roots	Medium - trees contribute to amenity of route	Medium
Existing trees around the College playing fields south of Craneford Way	Medium - buildings and hard-surfacing have potential to affect tree roots	Medium - trees contribute to amenity of open space	Medium
Playing field on Chertsey Road frontage	High – development would result in the loss of this townscape element	Low – limited amenity value and redevelopment anticipated by policy	Medium – overall sensitivity to change
Sense of openness on the College playing fields south of Craneford Way	Low – open, sports use proposed with good quality visually permeable fencing	Low – recreational use compatible with character area and policy objectives	Low
Local and Borough Character Areas			
Langhorn Drive Local Character Area	Low – redevelopment anticipated by policy	Low – townscape of no particular aesthetic merit, potential for enhancement Some interest in building in Council depot but not currently evident in wider area	Low
Open space to west of site	Low – potential for indirect effect from adjoining development	Medium - protected by policy but limited inherent interest	Medium
Crane Corridor Local Character Area	Low – proposals compatible with existing open recreational use and character	Medium – area locally valued by community, but limited quality and potential for enhancement noted in policy context	Medium
Rosecroft Gardens Local Character Area	Medium – potential for development to be seen within wider setting	Medium – protected by local heritage designation	Medium

Townscape Receptor	Susceptibility to Change	Value	Sensitivity
Chertsey Road North Local Character Area	Low – built form would have indirect effect on setting only. Separated from site by A316	Low – area dominated by noise and traffic on A316	Low
Chertsey Road South Local Character Area	Low – adjoining site. Built form would have indirect effect on setting only.	Medium – some limited value in the overall coherence of the townscape	Medium
Whitton and Heathfield Borough Character area	Low – existing largely development site within a large urban character area. No rare or vulnerable feature likely to be affected	Medium	Medium

16.7.8 The sensitivity of the visual receptors (i.e. people) on the Site and in the surrounding area to change arising from the proposed development is set out in **Table 16.4** below. Their sensitivity has been assessed having regard to the value of the view and susceptibility of receptors to visual change. Commentary on the value of representative views from the surrounding area is provided in **Appendix 16.1**.

Table 16.4 Sensitivity of Visual Receptors to Change

Visual Receptors	Susceptibility to Change	Value of View	Sensitivity
Within the site			
Users of the College playing fieldsouth of Craneford Way (representative view 7)	Medium – people using the space for formal recreation will be focussed on activity, however informal users will tend to be aware of visual amenity	Medium –limited scenic value, however pleasant contrast of greenspace and trees with urban area	Medium
Users of Marsh Farm Lane (representative views 9, 11, 13, 14)	Medium – Users of path may be aware in passing of amenity of route	Varies – Low passing the College and Medium passing the College playing fields south of Craneford Way	Medium
In the surrounding area			
Residents with an outlook over the development site from habitable rooms used during the daytime (Craneford Way / Egerton Road / Challenge Court / Talma Gardens)	High – people susceptible to changes to visual amenity	Low – Views of the present College site have limited amenity value	Medium
Pedestrians, cyclists and motorists along	Low – people likely	Low – limited	Low

Visual Receptors	Susceptibility to Change	Value of View	Sensitivity
London Road (representative view 1)	to be focussed on journey rather than amenity	visual amenity owing to busy road and outlook over vacant site/railway	
Users of the footpath and cycleway along the A316 (representative views 2 and 16)	Low – people likely to be focussed on journey rather than amenity	Low – limited visual amenity owing to effect of A316	Low
Pedestrians within adjoining residential areas (representative views 3, 4, 5 6 and 17)	Medium – residents within their local area will be susceptible to visual change	Low – limited scenic or aesthetic qualities	Medium
People crossing the footbridge over the railway (representative view 8)	Low	Low – elevated vantage point	Low
Users of footpaths along the River Crane Corridor (representative view 10)	Medium – people using the open space for informal recreation may have some awareness of amenity	Medium – areas of open space provide a foil to built development and are valued by the local community	Medium
Users of public open space to the west and south-west of the site (representative view 12)	Medium – people using this area may be more focussed on the amenity of their surroundings	Low – limited visual interest other than in terracing of landform.	Medium
Pedestrians within Rosecroft Gardens Conservation Area (representative view 15)	Medium – residents within their local area will be susceptible to visual change	High - designated as a conservation area therefore value associated with appearance	High
People on Richmond Terrace (representative view 18)	High – focus is on view and visual amenity	High – protected view/ particular interest and value	High
Visitors to Harlequins FC and Nuffield Health Centre	Low – activity of receptors not focussed on amenity of locality	Low – existing views from Langhorn Drive Marsh Farm Lane lack amenity value	Low

Site Enabling, Demolition and Construction

Programme and Assumptions

16.7.9 Details of the construction and demolition programme are set out within Chapter 6 – Demolition and Construction. The overall site enabling, demolition and construction period is 4.5 years (July 2015 - November 2019) with construction and demolition spilt into three phases to enable continued operation of the College. A summary of the

elements relevant to the consideration of townscape and visual effects during the construction phase are summarised below with an indication of the duration of each element:

- Phase 1 (2015-2017) – Construction and commissioning of main College building, Secondary School and SEN School / demolition of existing College buildings;
- Phase 2 (2017-2018) – Construction and commissioning of Sports Centre and pitches / STEM Centre / completion of external works / construction of first phase of residential development and access road / demolition of existing sports facilities and remaining existing College buildings; and
- Phase 3 (2018-2019) - Construction of Tech Hub/ improvements to A316 Langhorn Drive junction/ construction of second phase of residential development / final landscaping works.

16.7.10 A Construction Management Plan and Arboricultural Impact Assessment have been prepared and are included in the ES (**Appendix 6.2** and **Appendix 15.5** respectively). The following standard construction and operational management practices to avoid and reduce townscape and visual effects have been assumed:

- The recommendations of the Arboricultural Impact Assessment (AIA) are adopted including implementation of the areas where there should be no-dig zones to ensure the retention of trees, construction exclusion zones and appropriate protective fencing during the construction period;
- Erection of solid hoardings to the site perimeter;
- Location of site offices outside the Metropolitan Open Land at the College playing fields south of Craneford Way ; and
- Location of site offices and storage to minimise the effects on adjacent residents.

Predicted Townscape Effects (Construction Stage)

16.7.11 The following changes are predicted that will have an effect on townscape character within the site and surrounding area during the three main phases of the demolition and construction periods. The Scoping Opinion noted that: *"the applicant should assess each environmental impact (construction, operational, cumulative) on the basis of a worse-case scenario for development on a site wide basis and for development within individual development zones, all assessments taking into account the construction phases and occupancy phases and the consequential impacts. Of particular importance is the matter of timing of the phases which needs to be crystal clear."* To address this as far as is possible at outline stage we have assessed where possible, by phase, the effects on the identified receptors. Where the phasing of works is unknown (as with the removal of existing trees) this has been assumed to occur for the whole of the construction stage.

16.7.12 The activities that will have townscape and visual effects during the construction and demolition phases include;

- The activity associated with the demolition of existing buildings and change to the townscape
- Removal of 49 trees/groups of trees required by construction of roads and buildings (1 no cat A, 14 no cat B and 34 cat C)
- Removal of existing ground cover across the majority of the site (including amenity grassland/ planting and hardstanding)
- Construction activity and machinery associated with the erection of buildings (over a total period of 42 months, in 3 phases), formation of parking, roads and landscape areas during the 4.5 year construction period and the visual and auditory effects on the surrounding townscape.

16.7.13 The nature of the change to these townscape receptors and significance of the effects is summarised in **Table 16.5** below having regard to the scale, extent, duration, permanence of the effects.

Table 16.5 Nature and Significance of Townscape Effects - Construction

Townscape Receptor	Nature of Change (scale/ extent/ duration / permanence)	Sensitivity	Significance of Effect
Within the site			
Existing trees on Chertsey Road Frontage	The majority of existing trees on the frontage will be retained. Those that are proposed to be removed are category C. Low degree of change subject to no-dig proposed in the AIA	Medium	Negligible
Trees along Marsh Farm lane	A total of 17 trees/groups would be permanently removed from along Marsh Farm Lane including 5 category B trees, 6 category C trees and 6 category U groups to facilitate construction. 7 trees adjoining the route would be retained.	Medium	Adverse effect of moderate significance
Trees within the College playing fields south of Craneford Way	Permanent removal of tree group G155 to facilitate widening of Marsh Farm Lane and permanent removal of tree group G172 to facilitate construction of the 3G pitch	Medium	Adverse effect of minor significance
Sense of openness on the College playing fields south of Craneford Way	Construction activity during phase 2 during formation of 3G pitch. Effect on townscape character of limited duration (3 months).	Medium	Negligible
Local and Borough Character Areas			
Langhorn Drive Local Character Area	Low Demolition and construction activity associated with the	Low	Adverse effect of minor significance

Townscape Receptor	Nature of Change (scale/ extent/ duration / permanence)	Sensitivity	Significance of Effect
	development of the site over a 4.5 year period in 3 phases. Some loss of trees within existing area, most apparent along Marsh Farm Lane. No effect on building of townscape merit.		
Open space to west of site	Low Awareness of construction activity on adjacent parts of site for a limited period.	Medium	Negligible
Crane Corridor Local Character Area	Construction effect of limited duration relating to construction of 3G pitch, fencing and upgrading of Marsh Farm Lane. Majority of trees retained, 1 cat B group removed and 1 cat C group removed.	Medium	Negligible
Rosecroft Gardens Local Character Area	Negligible – due to separation from site	Medium	Negligible
Chertsey Road North Local Character Area	Low – effect on townscape of residential area due to construction activity over a limited period. Phase 1 construction evident across Chertsey Roadd.	Low	Negligible
Chertsey Road South Local Character Area	Low – effect on townscape of adjoining residential area due to construction activity over a limited period. Phase 1 construction evident from Egerton Road, residential in phase 2 evident from southern end Egerton Road.	Medium	Adverse effect of minor significance
Whitton and Heathfield Borough Character area	Negligible – construction effects limited to site and temporary in nature	Medium	Negligible

16.7.14 The removal of trees along Marsh Farm Lane would necessitate mitigation as part of the landscape proposals for the enhancement of Marsh Farm Lane, including the planting of suitable replacement trees along this edge.

Predicted Visual Effects (Construction Stage)

16.7.15 Visual effects associated with the construction of the proposed development will include:

- The removal of trees and groundcover evident in views from the wider area during the demolition phases

- Erection of hoardings, site compounds and site cabins for the duration of the construction for each phase
- The use of cranes, platforms, piling rigs and other machinery associated with the erection of buildings (and lighting of taller elements) that will be evident in views from the surrounding area during the erection and dismantling of structures
- Construction activity and general construction and lighting within the site
- Works associated with the proposed access arrangements.

16.7.16 The visual effects on the receptors at each of the key representative view locations for the whole construction stage is summarised in **Appendix 16.6, Table A16.15**. Effects on receptors are set out in **Table 16.6** and the following paragraphs below.

Table 16.6 Nature and Significance of Visual Effects - Construction

Visual Receptors	Nature of Change (scale/ extent/ duration / permanence)	Sensitivity	Significance of Effect
Within the site			
Users of Marsh Farm Lane (representative views 9, 11, 13, 14)	There would be a low magnitude of change adjoining the College playing fields south of Craneford Way and a medium magnitude of change passing the existing college	Medium	Temporary minor adverse visual effect
Users of the College playing fields on south of Craneford Way (representative view 7)	There would be a medium magnitude of change of short duration during the construction of the artificial pitches	Medium	Temporary minor adverse visual effect
In the surrounding area			
Residents with an immediate outlook over the main development site from habitable rooms used during the daytime (north side Craneford Way, adjoining the site /west side Egerton Road adjoining the site)	The scale of visual change will depend on the extent of outlook over the development site, effects transitory Medium	Medium	There may be a temporary visual effect of moderate adverse significance for those properties with an outlook over large parts of the site
Residents with an outlook over the main development site from habitable rooms used during the daytime (east side Egerton Road/Challenge Court)	Low magnitude of change	Medium	There may be a visual effect of minor adverse significance where there is an outlook over the development site
Residents with an outlook over the College playing fields south of Craneford Way	Low magnitude of change	Medium	Negligible
Pedestrians/cyclists on London Road (representative view 1)	Low magnitude of change	Low	Negligible
Users of the footpath and cycleway along the A316 (representative views 2 and 16)	Low magnitude of change	Low	Temporary minor adverse visual effect

Visual Receptors	Nature of Change (scale/ extent/ duration / permanence)	Sensitivity	Significance of Effect
Users of footpaths along the River Crane Corridor (representative view 9 and 10)	Low magnitude of change	Medium	Temporary minor adverse visual effect
Users of public open space to the west and south-west of the site (representative view 12)	Medium magnitude of change in winter/ low magnitude of change in summer	Medium	Temporary minor adverse visual effect
Pedestrians within adjoining residential areas (representative views 3, 4, 5 and 6)	Low – views of the development site limited by frontage development and hoardings, views of hoardings along parts of Egerton Road/Heathfield South and Court Way	Medium	Temporary minor adverse visual effect
Pedestrians within Rosecroft Gardens Conservation Area (representative view 15)	Low magnitude of change	High	Temporary minor adverse visual effect
People crossing the footbridge over the railway (representative view 8)	Low magnitude of change	Low	Temporary visual effect of negligible significance
People on Richmond Terrace (representative view 18)	Negligible	High	Temporary visual effect of negligible significance

Mitigation Measures (Construction Stage)

16.7.17 Details of the construction and demolition programme are set out within Chapter 6 – Demolition and Construction. A Construction and Environmental Management Plan and Arboricultural Impact Assessment have been prepared and are included in the ES (**Appendix 6.1** and **Appendix 15.5** respectively). They set out the following primary measures that have been incorporated to minimise townscape and visual effects:

- Tree protection measures for trees to be retained within and adjoining the site including no dig zones, protective fencing and construction exclusion zones;
- The phasing of demolition from the inside of the site outwards so peripheral buildings protect existing residents for part of the demolition works;
- The phasing of the construction so that the first phase of development will screen the construction of later phases from residents on Egerton Road;
- Erection of solid hoardings to the site perimeter;
- Location of site offices outside the MOL, i.e. not on the College playing fields south of Craneford Way, where possible; and
- Location of site offices and storage to minimise the effects on adjacent residents.

16.7.18 In addition, secondary mitigation will be required as part of the detailed design of the landscape proposals (as envisaged on the Illustrative Landscape Masterplan) to mitigate the moderate adverse effect arising from the removal of trees along Marsh Farm Lane.

Residual Construction Effects

16.7.19 The parameter plans indicate areas around the perimeter of the site for planting, including along Marsh Farm Lane. The adverse effect of moderate significance would be mitigated by the planting of appropriate tree species and other planting along the enhanced pedestrian and cycle route. Following mitigation there would be a **negligible** effect at year 1 and no adverse effect at year 15.

16.7.20 The use of hoardings, the location of cabins and compounds away from residential properties and the phased construction itself will help to mitigate the effect on their visual amenity during the construction period. A **minor adverse** temporary effect would occur for the duration of the construction period adjacent to the affected properties and areas.

16.7.21 No other construction effects have been identified that require secondary mitigation.

Monitoring

16.7.22 No monitoring of townscape and visual effects is required.

Operation

16.7.23 The following changes are predicted that will have an effect on townscape and visual receptors once the development has been completed. The assessment assumes a completion at the end of 2019. However, at this stage the application is in outline and therefore full details of the architecture, public realm and landscape designs are not yet known although some key principles have been established in the design code. As a result, the assessment of the predicted townscape and visual effects is based on the outline parameters which identify the location of the different uses on the site, the maximum height and extent of buildings, areas of open space, proposed access and linkages and the effect of development on trees and areas for planting and the design code. Assumptions relating to the scheme design and primary mitigation incorporated are set out above.

Predicted Townscape Effects

16.7.24 The nature of the change to townscape receptors and the significance of the effects is summarised in **Table 16.7** below having regard to the scale, extent, duration, permanence of the effect. The assessment has had regard to primary mitigation that

has been built into the proposals (see description of application proposals above).

Table 16.7 Nature and Significance of Townscape Effects – Operation

Townscape Receptor	Nature of Change (scale/ extent/ duration / permanence)	Sensitivity	Significance of Effect
Within the site			
Existing Trees on Chertsey Road Frontage	The prominent trees would be retained and will continue to provide a distinct visual edge that softens the effect of the busy road and forms part of a group that provide a green frontage to this stretch of the A316 (west)	Medium	Negligible
Pitch on College frontage	Permanent loss of frontage open area used as a private sports pitch and associated limited amenity value. Development of this area compatible with local policy. Alternative provision available at Craneford Way East.	Low	Neutral effect of minor significance
Marsh Farm Lane	Retained and enhanced in width. Loss of mature trees along route give rise to an adverse effect.	Medium	Adverse effect of minor significance
Trees within the College playing fields south of Craneford Way	Trees on site perimeter retained and will continue to contribute to the character of the site and surrounding area with the exception of one group in the south-west corner (Cat B). A group 3 Sycamore (Cat C) adjacent to the existing hardstanding will also be removed.	Medium	Negligible
Sense of openness on Craneford Way playing fields	Sense of openness would be maintained compatible with land use designation. There would be a low magnitude of change as a result of the introduction of fencing but its visual permeability and lightweight appearance would limit the effect.	Medium	Negligible
Local and Borough Character Areas			
Langhorn Drive Local Character Area	Increase in the general scale and height of buildings and introduction of built form to Chertsey Road frontage would result in a medium magnitude of change. The proposed scale of buildings is compatible with the larger footprint and scale of buildings in this character area. The scale and siting of the main college building would enhance Richmond College's prominence on the A316 and assist legibility and is appropriate for a use serving the wider community. Pedestrian linkages within the area enhanced. Redevelopment envisaged by planning policy and retention of trees on frontage to maintain 'green corridor' along A316. Some loss of trees along Marsh Farm Lane.	Low	Beneficial effect of minor significance Potential for more significant enhancement of this character area through the detailed design of buildings and landscape proposals
Open space to west of site	Residential development east of Marsh Farm Lane of up to 5 storeys (16m above ground level to eaves/parapet) would provide natural surveillance. Policy requires the consideration of effects on character and openness. The scheme will not affect the openness of the area and will benefit its	Medium	Beneficial effect of minor significance Potential for more significant enhancement of

Townscape Receptor	Nature of Change (scale/ extent/ duration / permanence)	Sensitivity	Significance of Effect
	character by replacing an undistinguished collection of college buildings with a residential edge that will be visually articulated and provide natural surveillance. Whilst development of this edge will be a storey taller than existing development at Challenge Court it would not be out of keeping given the generally larger scale of buildings in the Langhorn Drive Area		this character area through the detailed design of buildings and landscape proposals
Crane Corridor Local Character Area	The College playing fields south of Craneford Way will remain in recreational use consistent with the character of the area/ land use policy. Whilst the more intensive use would require fencing, this would be high quality, visually permeable and have a negligible effect on the sense of openness. The enhancement of Marsh Farm Lane and the existing bridge over the River Crane will contribute to the accessibility of this area for recreation. The scheme facilitates Environment Agency proposals to enhance the River Crane. The existing trees around the perimeter of the east playing field would be retained (with one exception). The use of artificial grass will minimise the visual effect of the change in ground cover. A group of trees in the centre would be removed but these are not good quality.	Medium	Beneficial effect of minor significance from the enhancement of accessibility and use consistent with policy
Rosecroft Gardens Local Character Area	There would be no direct effects on the townscape character of this area. Whilst the top of the proposed development will be evident from a limited part at the western end of the conservation area (an indirect visual effect), the immediate setting of dense tree planting will remain. As the existing setting comprises glimpses of taller buildings beyond the site, the change arising from the development is consistent with existing character and would be negligible in nature.	High	Neutral effect of minor significance
Chertsey Road North Local Character Area	There would be an indirect permanent effect of low magnitude to this character area arising from changes to views along adjoining streets and a direct effect arising from the junction works and introduction of the at grade crossing. The scale of development on the Chertsey Road frontage would be taller but is separated from residential areas to the north by a wide main road and the frontage to the site will continue to be defined by trees. The taller elements of the proposals are community uses and their increased prominence will benefit legibility. The junction works would not have a notable effect on the character of the townscape which is dominated by the road in this location. Accessibility would be slightly	Low	Beneficial effect of minor significance

Townscape Receptor	Nature of Change (scale/ extent/ duration / permanence)	Sensitivity	Significance of Effect
	enhanced by the ground level crossing.		
Chertsey Road South Local Character Area	There would be an indirect permanent effect of low magnitude to this character area arising from changes to views along adjoining streets. Existing trees on the frontage are proposed to be retained and new development site back. The proposed development along Egerton Road would be slightly lower than existing buildings and the relationship of the frontage buildings to the street is consistent with the existing situation. Views of taller buildings may just be seen from Court Way/ Heathfield North/ South but this would not be incompatible with existing townscape character.	Medium	Neutral effect of minor significance
Whitton and Heathfield Borough Character Area	The redevelopment of the site will have a direct effect through redevelopment of a small part of the character area. There would be generally localised views of the proposed new buildings. The proposed residential, educational and recreational uses are compatible with the existing and adjoining land use. The scale of the proposed residential development on the Egerton Road frontage is a maximum of three storeys which is slightly lower than the existing college buildings. The increase in the height of residential development to the west reflects the transition in scale between suburban residential area and the rugby stadium and flats at Challenge Court. Taller residential development would also be seen across the playing fields to the south in place of existing college buildings, and would not be out of keeping with the existing townscape character. The taller college buildings on the Chertsey Road frontage would be seen in the context of a major arterial route along which non-residential buildings that are taller and have a larger mass than the prevailing height of residential development are characteristic. The width of the road and the retention of trees along this edge will maintain the green character of the route and limit the visual role of taller buildings. The increased prominence of the college will enhance legibility within the area and is consistent with good urban design principles. None of the existing buildings are of any particular architectural quality and their replacement brings the opportunity for an enhancement consistent with planning policy.	Medium	Beneficial effect of moderate significance

16.7.25 No significant adverse townscape effects have been identified that require further

secondary mitigation. However, there would be further enhancement to the townscape arising from the detailed design of the buildings, public realm and landscape. A summary of the anticipated townscape effects at years 1 and 15 following completion of the development is provided below in **Table 16.8**.

Table 16.8 Residual Townscape Effects – Years 1 and 15 post completion

Townscape Receptor	Significance of Effect	Year 1	Year 15
Existing Trees on Chertsey Road Frontage	Negligible	Negligible	Negligible
Sports pitch on College frontage	Neutral effect of minor significance	Neutral effect of minor significance	Neutral effect of minor significance
Marsh Farm Lane	Adverse effect of minor significance	Beneficial effect of minor significance	Beneficial effect of moderate significance
Trees within the College playing fields south of Craneford Way	Negligible	Negligible	Negligible
Sense of openness on the College playing fields on Craneford Way	Negligible	Negligible	Negligible
Langhorn Drive Local Character Area	Minor townscape effect that would be beneficial	Moderate townscape effect that would be beneficial	Beneficial effect of moderate significance
Open space to west of site	Beneficial effect of minor significance	Beneficial effect of minor significance	Beneficial effect of moderate significance
Crane Corridor Local Character Area	Beneficial effect of minor significance	Beneficial effect of minor significance	Beneficial effect of minor significance
Rosecroft Gardens Local Character Area	Neutral effect of minor significance	Neutral effect of minor significance	Neutral effect of minor significance
Chertsey North Road Local Character Area	Beneficial effect of minor significance	Beneficial effect of minor significance	Beneficial effect of minor significance
Chertsey Road South Local Character Area	Neutral effect of minor significance	Beneficial effect of minor significance	Beneficial effect of minor significance
Whitton and Heathfield Borough Character area	Beneficial effect of moderate significance	Beneficial effect of moderate significance	Beneficial effect of moderate significance

Predicted Visual Effects - Operation

16.7.26 Visual effects associated with the proposed development once built will include:

- Removal of existing buildings from views
- Introduction of REEC development in views of the Site of the scale and location defined by the parameters and assumptions set out in this chapter
- Removal of existing trees from some views
- Introduction of fencing, artificial grass and a small area of hard surfacing to the College playing fields south of Craneford Way; and
- New public realm associated with the widening of Marsh Farm Lane.

16.7.27 The assessment of visual effects has considered the changes from a number of representative locations in the surrounding area. The maximum scale of change from a selected number of locations is illustrated in the AVRs contained in **Appendix 16.1**. The effect on visual amenity has been assessed with regard to the Parameter Plans and the Design Code submitted with the application. Commentary on the changes to the representative views is also provided in **Appendix 16.1**. **Appendix 16.7, Table A16.11** provides a summary of the assessment of the change to the representative views.

16.7.28 The effects of the REEC development on the visual amenities of receptors (people) in the surrounding area is considered in **Table 16.9** below.

Table 16.9 Nature and Significance of Visual Effects – Operation

Visual Receptors	Nature of Change (scale/ extent/ duration / permanence)	Sensitivity	Significance of Effect
Within the site			
Users of Marsh Farm Lane (representative views 9, 11, 13, 14)	Wider route, partly adjoining internal roadway, but separated by landscaping. V iews to more coherent built form of residential and College buildings to east Marsh Farm Lane, some loss of existing vegetation/ trees evident initially. Buildings within site noticeably taller but enhanced visual interest. Planting of trees and shrubs assumed to provide some filtering of views to buildings and contributes to amenity of the path Medium	Medium	Overall beneficial effect of minor significance
Users of the College playing fields south of Craneford Way (representative view 7)	The tops of the roofs of the taller residential buildings would be seen between the trees on the skyline. They would replace views of existing College buildings. Fencing around the artificial pitches would be evident in the foreground Medium	Medium	Neutral effect of moderate significance
Within the surrounding area			
Residents with an immediate outlook over the REEC Site from habitable rooms used during the daytime (north side Craneford Way)	Outlook would change from view over existing collection of College buildings to views over two storey residential development and associated rear gardens. Views of some of the taller buildings would be seen beyond Low	Medium	Beneficial effect of minor significance
Residents with an outlook over the REEC Site from habitable rooms used during the daytime (west side Egerton Road)	Existing collection of College buildings replaced by secondary and SEN schools. Extends further to north than existing built form	Medium	Adverse effect of minor significance – due to tree planting on edge to provide

Visual Receptors	Nature of Change (scale/ extent/ duration / permanence)	Sensitivity	Significance of Effect
	but potential for enhancement of appearance of buildings. 5 properties would change from outlook over hardstanding and playing fields to buildings. 8 properties would have outlook over buildings of similar scale to present situation. Planting to boundary shown and would provide some filtering of views		some screening as indicated on Landscape Plan in Chapter 5, Figure 5.2
Residents with an outlook over the REEC Site from habitable rooms used during the daytime (Challenge Court)	Outlook primarily towards open space. Views of existing collection of disparate College buildings through trees replaced by residential development. There would be a permanent increase in the scale of buildings seen, to a maximum of five storeys with some additional planting along Marsh Farm Lane but this is not considered to be out of keeping in this location. Low	Medium	Adverse effect of minor to moderate significance
Pedestrians/cyclists on London Road (representative view 1)	Negligible	Low	Negligible
Users of the footpath and cycleway along the A316 (representative views 2 and 16)	Filtered views of new College building and Tech Hub would be seen travelling along A316. Significant screening in summer from retained trees. Views across field and car park replaced by views across arrival space and parking to new building frontages. Medium to high	Low	Moderate adverse in places – potential or beneficial change through well-designed, detailed and articulated facades that contribute to visual interest.
Users of footpaths along the River Crane Corridor (representative view 9 and 10)	The tops of new buildings will be evident beyond frontage housing and between trees. Overall consistent with character of existing view. Medium	Medium	Moderate neutral
Users of public open space to the west and south-west of the site (representative view 12)	Partly filtered views of taller residential and College buildings would be obtained. The residential buildings would appear of similar scale to Challenge Court. There would be a reduction in the number of trees seen along Marsh Farm Lane Medium	Medium	Moderate adverse
Pedestrians within adjoining residential areas (representative views 3, 4, 5 and 6)	the existing trees on the frontage would be retained and proposed buildings set back and would replace existing College building	Medium	Minor neutral generally with a minor adverse effect along Court Way due to effect on local

Visual Receptors	Nature of Change (scale/ extent/ duration / permanence)	Sensitivity	Significance of Effect
	Low generally		landmark role of tower
People within the residential area north of Chertsey Road (representative view 17)	the existing trees on the frontage would be retained and would provide screening and filtering of views. The Tech Hub and College building would be seen beyond the frontage trees. Some changes arising from the formation of the junction may just be evident through frontage vegetation Low	Low	Minor beneficial
Pedestrians within Rosecroft Gardens Conservation Area (representative view 15)	the roofs of College buildings would be glimpsed beyond existing trees. They would be seen in the context of existing buildings on the skyline Low	High	Minor adverse
People crossing the footbridge over the railway (representative view 8)	new development would be largely screened by intervening buildings and trees, as at present some taller elements would be seen beyond the housing on the edge of the playing field. Low	Low	Minor neutral
People on Richmond Terrace (representative view 18)	The change to the view would be very small compared to the overall extent of the panorama. Development would be below the skyline and partly screened by trees in summer. Low	High	Minor neutral

16.7.29 The effects on the skyline have also been considered from the viewpoints tested using AVRs. A qualitative analysis is provided in **Appendix 16.1** and summarised in **Table 16.10** below. This is based on the maximum parameters and Design Code and therefore tests a worst case scenario.

Table 16.10 Assessment of Skyline Effects - Operation

View	Location	Magnitude	Sensitivity	Significance
1	London Road	Nil	Low	Nil
2	Chertsey Road (looking west)	Medium	Low	Beneficial effect of minor significance – creation of local landmark
3	Heathfield South	Low	Medium	Neutral effect of minor significance
4	Court Way	Medium	Low	Adverse effect of minor significance
9	Marsh Farm Lane at the College playing fields south of Craneford Way	Low	Low	Neutral effect of minor significance
12	Public open space west of site	Medium	Low	Neutral effect of minor significance
15	Gladstone Avenue	Medium	Medium	Adverse effect of minor significance
16	Chertsey Road (looking east)	Medium	Low	Neutral effect of minor significance
18	The Terrace, Richmond Hill	Nil	High	Nil

16.7.30 No significant skyline effects have been identified that require mitigation.

Mitigation Measures

16.7.31 Secondary mitigation will include the following, as set out in the Design Code, which would form part of the detailed design process and the approval of reserved matters for individual buildings:

- Articulation of the built form to reduce the apparent mass of buildings and create a visually interesting façade of appropriate scale for the street scape;
- Articulation of the roof scape to create a visual interest;
- Consideration of the design, siting and appearance of roof level projections and in the context of the overall architecture of the building including façade composition
- Detailed design to reinforce appropriate local landmark elements; and
- Well-detailed buildings with good quality elevational and roofing materials.

16.7.32 In addition there would be a landscape scheme which is assumed to be broadly consistent with the principles established in the Illustrative Landscape Masterplan (see Chapter 5, **Figure 5.2**).

Residual Visual Effects (+1 year and + 15 years)

16.7.33 **Table 16.11** below summarises the residual effects on visual receptors in the site and surrounding area, 1 year and 15 years after the completion of the development.

16.7.34 For the purpose of this assessment, it has been assumed that the REEC development will have been implemented with a good quality of architectural and landscape design as set out above (and in the Design Code) and that the public realm enhancements have been implemented. Tree planting has been assumed to be semi-mature.

16.7.35 After 15 years the landscape scheme will have matured and trees planted will have matured to the extent that they will have a noticeable visual role in views. Hedgerows will also have matured and will provide notable low level screening.

Table 16.11 Visual Effects – Operation – Incorporating Secondary Mitigation (Years 1 and 15)

Visual Receptors	Effect of outline parameters plus Design Code	Significance of effect incorporating secondary mitigation (Year 1)	Significance of effect (Year 15)
Within the site			
Users of Marsh Farm Lane (representative views 9, 11, 13, 14)	Varied Minor beneficial overall	Minor beneficial overall	Moderate beneficial overall
Users of the College playing fields south of Craneford Way (representative view 7)	Moderate neutral	Minor neutral	Minor neutral
Within the surrounding Area			
Residents with an immediate outlook over the REEC development from habitable rooms used during the daytime (north side Craneford Way)	Minor beneficial	Minor beneficial	Minor beneficial
Residents with an outlook over the REEC development from habitable rooms used during the daytime (west side Egerton Road)	Minor adverse	Minor adverse	Minor adverse (winter only)
Residents with an outlook over the REEC development from habitable rooms used during the daytime (Challenge Court)	Minor adverse	Minor adverse	Minor adverse (winter only)
Pedestrians/cyclists on London Road (representative view 1)	Negligible	Negligible	Negligible
Users of the footpath and cycleway along the A316 (representative views 2 and 16)	Moderate adverse (worse case)	Moderate beneficial	Moderate beneficial
Users of footpaths along the	Moderate neutral	Minor neutral	Minor neutral

Visual Receptors	Effect of outline parameters plus Design Code	Significance of effect incorporating secondary mitigation (Year 1)	Significance of effect (Year 15)
River Crane Corridor (representative views 9 and 10)			
Users of public open space to the west and south-west of the site (representative view 12)	Moderate adverse	Minor beneficial	Moderate beneficial
Pedestrians within adjoining residential areas (representative views 3, 4, 5 and 6)	Minor adverse along Court Way otherwise minor neutral	Minor beneficial	Minor beneficial
Pedestrians in residential areas to the north (representative view 17)	Minor beneficial	Minor beneficial	Minor beneficial (winter)
Pedestrians within Rosecroft Gardens Conservation Area (representative view 15)	Minor adverse	Minor neutral	Minor neutral
People crossing the footbridge over the railway (representative view 8)	Minor neutral	Negligible	Negligible
People on Richmond Terrace (representative view 18)	Minor neutral	Minor neutral	Negligible

Monitoring

16.7.36 No monitoring of the operational development is required.

16.8 SUMMARY OF RESIDUAL EFFECTS

16.8.1 **Table 16.12** and **16.13** below provides a summary of all significant effects both adverse and beneficial identified and the overall residual effect following secondary mitigation (inherent in the detailed design). It also includes those residual effects that are considered to be likely to be significant owing to the mitigation arising from good quality buildings, public realm and landscape design.

Table 16.12 Summary of Significant Residual Townscape and Visual Effects (including skyline) for Site Enabling, Demolition and Construction

Issue	Likely Significant Effect	Mitigation Measures	Likely Residual Effects (construction)
Townscape			
Existing Trees on Chertsey Road Frontage	Negligible	AIA recommendations	Negligible
Trees along Marsh Farm Lane	Moderate adverse	Replanting of trees and other planting, enhancement of public realm and detailed design of buildings	Negligible
Trees within Craneford Way Playing Fields	Minor adverse	Replacement planting	Negligible
Sense of openness on Craneford Way playing fields	Negligible	Not required	Negligible
Langhorn Drive Local Character Area	Minor adverse	Not required	Minor adverse
Open space to west of site	Negligible	Not required	Negligible
Crane Corridor Local Character Area	Negligible	Not required	Negligible
Rosecroft Gardens Local Character Area	Negligible	Not required	Negligible
Chertsey Road North Local Character Area	Negligible	Not required	Negligible
Chertsey Road South Local Character Area	Minor adverse	Not required	Minor adverse
Whitton and Heathfield Borough Character area	Negligible	Not required	Negligible

Issue	Likely Significant Effect	Mitigation Measures	Likely Residual Effects (construction)
Visual effects on users of Marsh Farm Lane	Minor adverse	Not required	Minor adverse
Visual effects on users of the College playing fields on Craneford Way	Minor adverse	Not required	Minor adverse
Residents with an immediate outlook over the development site from habitable rooms used during the daytime (north side Craneford Way, adjoining the site /west side Egerton Road adjoining the site)	Moderate adverse	Use of hoardings/ siting of cabins and site storage away from residential property	Minor adverse
Residents with an outlook over the development site from habitable rooms used during the daytime (East side Egerton Road/Challenge Court)	Minor adverse	Not required	Minor adverse
Residents with an outlook over College playing fields south of Craneford Way	Negligible	Not required	Negligible
Pedestrians/cyclists on London Road	Negligible	Not required	Negligible
Users of the footpath and cycleway along the A316	Minor adverse	Not required	Minor adverse
Users of footpaths along the River Crane Corridor	Minor adverse	Not required	Minor adverse
Users of public open space to the west and south-west of the Site	Minor adverse	Not required	Minor adverse

Issue	Likely Significant Effect	Mitigation Measures	Likely Residual Effects (construction)
Pedestrians within adjoining residential areas	Minor adverse	Not required	Minor adverse
Pedestrians within Rosecroft Gardens Conservation Area	Minor adverse	Not required	Minor adverse
People crossing the footbridge over the railway	Negligible	Not required	Negligible
People on Richmond Terrace	Negligible	Not required	Negligible

Table 16.13 Summary of Significant Residual Townscape and Visual Effects (including skyline) for Operation

Issue	Likely Significant Effect	Mitigation Measures	Likely Residual Effects (year 1)	Likely Residual Effect (year 15)
Townscape				
Existing Trees on Chertsey Road Frontage	Negligible	None	Negligible	Negligible
Sports field on College frontage	Minor neutral	New pitches	Minor neutral	Minor neutral
Marsh Farm Lane	Minor adverse	Design of buildings and detailed landscape proposals	Minor beneficial	Moderate beneficial
Trees within College playing fields south of Craneford Way	Negligible	None	Negligible	Negligible
Sense of openness on Craneford Way playing fields	Negligible	None	Negligible	Negligible
Langhorn Drive Local Character Area	Minor beneficial	Design of buildings and planting along Marsh Farm Lane	Moderate beneficial	Moderate beneficial

Issue	Likely Significant Effect	Mitigation Measures	Likely Residual Effects (year 1)	Likely Residual Effect (year 15)
Open space to west of site	Minor beneficial	Design of buildings and tree planting along Marsh Farm Lane	Minor beneficial	Moderate beneficial
Crane Corridor Local Character Area	Minor beneficial	None	Minor beneficial	Minor beneficial
Rosecroft Gardens Local Character Area	Minor neutral	None	Minor neutral	Minor neutral
Chertsey North Road Local Character Area	Minor beneficial	Design of buildings	Minor beneficial	Minor beneficial
Chertsey South Road Local Character Area	Minor neutral	Design of buildings	Minor beneficial	Minor beneficial
Whitton and Heathfield Borough Character area	Moderate beneficial	None	Moderate beneficial	Moderate beneficial
Visual				
Visual effects on users of Marsh Farm Lane	Minor beneficial	Tree planting, public realm enhancement and detailed design of buildings	Minor beneficial	Moderate beneficial
Visual effects on users of Craneford Way East playing field	Moderate neutral	Design of fencing and use of materials	Minor neutral	Minor neutral
Visual effects on residents with an immediate outlook over the REEC development from habitable rooms used during the daytime (north side Craneford Way)	Minor beneficial	Tree planting, public realm enhancement and detailed design of buildings	Minor beneficial	Minor beneficial
Visual effects on residents with an outlook over the REEC development from habitable rooms used during the daytime (west side Egerton Road)	Minor adverse (5 properties)	Tree planting on boundary	Minor adverse	Minor adverse (winter only)

Issue	Likely Significant Effect	Mitigation Measures	Likely Residual Effects (year 1)	Likely Residual Effect (year 15)
Visual effects on residents with an outlook over the REEC development from habitable rooms used during the daytime (Challenge Court)	Minor to moderate adverse	Replacement tree planting and detailed design of buildings	Minor adverse	Minor adverse (winter only)
Visual effects on pedestrians/cyclists on London Road	Negligible	None	Negligible	Negligible
Visual effects on users of the footpath and cycleway along the A316	Moderate adverse	Detailed design of College building	Moderate beneficial	Moderate beneficial
Visual effects on users of footpaths along the River Crane Corridor	Neutral effect of moderate significance	Design of fencing and use of materials	Minor neutral	Minor neutral
Visual effects on users of public open space to the west and south-west of the site	Moderate adverse	Detailed design of Residential, College buildings and planting along Marsh Farm Lane	Minor beneficial	Moderate beneficial
Visual effects on pedestrians within adjoining residential areas	Minor adverse (Court Way); Minor neutral otherwise	Detailed design of residential development	Minor beneficial	Minor beneficial
Visual effects on pedestrians within residential areas to the north	Minor beneficial	Detailed design of buildings	Minor beneficial	Minor beneficial (winter)
Visual effects on pedestrians within Rosecroft Gardens Conservation Area	Minor adverse	Detailed design of college building and planting along Marsh Farm Lane	Minor neutral	Minor neutral
Visual effects on people crossing the footbridge over the railway	Minor neutral	Detailed design of buildings and tree planting	Negligible	Negligible
Visual effects on people on Richmond Terrace	Minor neutral	Detailed design of buildings and tree planting	Minor neutral	Negligible

16.9 CUMULATIVE EFFECTS ASSESSMENT

Site Enabling, Demolition and Construction

16.9.1 The development of the Sorting Office site on London Road is likely to be largely complete by the time the development starts on site. No potential for significant additional townscape and visual effects during construction of the development has been identified.

16.9.2 It is not considered that the proposals for Twickenham Rough are of a nature that would give rise to significant cumulative townscape or visual effects at the construction stage in combination with the REEC development.

16.9.3 The Twickenham Station development is sufficiently distant from the application site that the two developments would not be seen in conjunction with each other in the townscape other than in long range views from Richmond Hill. The visibility of the developments under construction would have a negligible effect on this view.

16.9.4 As stated in Chapter 2 – EIA Methodology, the timescales for the proposals for the redevelopment of the Council Depot and for development associated with Harlequins FC's The Stoop are unknown and details of the projects are unclear. No additional significant townscape and visual effects during the construction of the REEC development have therefore been identified.

Operation

16.9.5 The implementation of the proposals for Twickenham Rough (application 13/1147/FUL) will result in an enhancement of the Crane Corridor Local Character Area as a result of the creation of a landscaped amenity area with footpath link, retention of some existing trees and new planting. No adverse townscape or visual effects are anticipated as a result of the combination of this proposal and the REEC development. There would, however, be further beneficial effects on the character of the Crane Corridor Local Character Area arising from its increased accessibility for recreation.

16.9.6 The sorting office redevelopment and the Twickenham Station redevelopment would not be seen in conjunction with the REEC development other than in the long range view from Richmond Hill to the east. The Twickenham Station redevelopment would be in part screened by intervening buildings and vegetation and was not considered to be unacceptable by officers. The Sorting Office development, sited beyond, would be largely screened. There would be no significant cumulative townscape or visual effect arising from the REEC development in combination with the Sorting Office and Twickenham Station developments. There is not considered to be the potential for a significant effect on the visual amenity of residents of these developments due to a

combination of the distance over which the views would be perceived, the extent of screening provided by trees and buildings. Moreover, given that the timescale for the occupation of the station redevelopment is unknown, there is a prospect that this would not be complete at the time at which the REEC development is complete and therefore this would already form an element in the view and the occupiers would not be susceptible to changes in visual amenity.

16.9.7 No significant adverse townscape and visual effects are anticipated to arise from proposals to develop the Council Depot and The Stoop in combination with the REEC Site. The effects on the character of the Langhorn Drive Character Area can only be considered in general terms due to the lack of information on the proposals, however, in combination with the REEC development there are considered to be the potential for significant beneficial effects on townscape character resulting from the regeneration and introduction of well-designed new development, public realm and landscaping in this area. Proposals are not far enough advanced to comment on the potential for visual effects in combination with the application scheme in the local area. However, in views from the elevated viewpoint on Richmond Hill, in combination development will occur over a wider area. Subject to the height and form of buildings, the cumulative effect is unlikely to be significant in combination with the REEC development.

Mitigation

16.9.8 No mitigation of cumulative townscape or visual effects is considered to be necessary as part of the REEC development.

16.10 SUMMARY AND CONCLUSION

16.10.1 This assessment has been prepared to consider the potential for significant townscape and visual effects associated with the REEC development. The potential townscape and visual receptors have been agreed with LBRuT.

16.10.2 No significant adverse residual townscape or visual effects have been identified. A number of moderate adverse effects have been identified that would require mitigation as part of the detailed design of the proposals. This would include replacement planting to mitigate the loss of trees along Marsh Farm Lane (as set out in the Illustrative Landscape Masterplan), and location of construction compounds and site offices to limit visual effects on residents during the construction period so far as is possible (as set out in the CEMP). However, these are temporary, short term effects.

16.10.3 Overall the development would have moderate beneficial effects on the townscape character of the Langhorn Local Character Area and the Whitton and Heathfield

Townscape Borough Character Area. There would be residual moderate beneficial visual effects from a number of locations including in views west along Chertsey Road and users of Marsh Farm Lane.

16.10.4 There would be potential for some minor adverse visual effects on surrounding residents with an outlook over the REEC development but these would not be significant and it is noted that the planning system does not protect views from private properties.

17 CULTURAL HERITAGE

17.1 INTRODUCTION AND KEY ISSUES

17.1.1 This chapter describes the likely cultural heritage effects of the proposed Richmond Education and Enterprise Campus (REEC) development at Richmond upon Thames College (RuTC) in Twickenham, within the London Borough of Richmond upon Thames (LBRuT).

17.1.2 Two figures accompany this chapter; the undesignated assets located within the Study Area are illustrated in **Figure 17.1**, with the designated assets shown in **Figure 17.2**.

17.1.3 Key issues relevant to cultural heritage are outlined below:

- Possible impacts upon archaeological sites located within the Crane APA that includes the College playing fields south of Craneford Way in the southern third of the site; and
- Possible impacts upon as yet unrecorded archaeological features that may exist on the Kempton Park gravels upon which the site is located.

17.2 CONSULTATION

17.2.1 Consultation was undertaken with relevant statutory consultees as necessary. All of the external sources that were consulted for data in the preparation of this chapter are listed in the Baseline (Section 17.5) below.

17.2.2 A copy of the Scoping Report (see **Appendix 2.1**) was sent to English Heritage (now Historic England)[1] in September 2014 and their comments on the proposed method were provided in a response on 20 October. They approved of the proposed method and scope of the study but commented (with reference to the potential for further works):

'The development covers a large area in a locality that is of recognised archaeological sensitivity and which has not been well served by previous archaeological investigations. I anticipate that a programme of archaeological evaluation will most probably be appropriate here and dependent upon the results of the DBA[2] this may be necessary predetermination of a planning decision. This would be in order to fully characterise the heritage asset and to determine the significance and value of the potential archaeological resource in order to make an informed planning decision'.

[1] Note that as of 1 April 2015 English Heritage became Historic England which is used throughout this chapter for consistency
[2] Desk Based Assessment

17.2.3 Historic England did not offer any comment on the Built Heritage and Historic Landscape aspects of the Scoping Report.

17.2.4 All the Cultural Heritage points listed in the Scoping Opinion from LBRuT have been addressed in this chapter.

17.3 LEGISLATION AND PLANNING POLICY

International

17.3.1 No international Cultural Heritage policies are relevant to the current proposed development.

National

National Planning Policy Framework (2012)

17.3.2 NPPF Chapter 12: Conserving and enhancing the historic environment provides guidance for planning authorities, property owners, developers and others on the conservation and investigation of heritage assets. Overall the objectives of Chapter 12 can be summarised as:

- Delivery of sustainable development;
- Understanding the wider social, cultural, economic and environmental benefits brought by the conservation of the historic environment; and
- Conservation of England's heritage assets in a manner appropriate to their significance.

17.3.3 Chapter 12 recognises that intelligently-managed change may sometimes be necessary if heritage assets are to be maintained for the long term. Paragraph 128 states that planning decisions should be based on the significance of the heritage asset and that level of detail supplied by an applicant should be proportionate to the importance of the asset and should be no more than sufficient to review the potential impact of the proposal upon the significance of the asset.

17.3.4 Heritage assets are defined in Annex 2 of NPPF as a building, monument, site, place area or landscape positively identified as having a degree of significance meriting consideration in planning decisions. They include designated heritage assets (as defined in NPPF) and assets identified by the local planning authority during the process of decision making or through the plan making process.

17.3.5 Annex 2 also defines 'archaeological interest' as a heritage asset which holds or potentially could hold evidence of past human activity worthy of expert investigation at some point. Heritage assets with archaeological interest are the primary source of

evidence about the substance and evolution of places and of the people and cultures that made them.

17.3.6 Designated heritage assets comprise World Heritage Sites, Scheduled Monuments, Listed Buildings, Protected Wreck Sites, Registered Park and Gardens, Registered Battlefields and Conservation Areas.

17.3.7 Significance is defined as the value of a heritage asset to this and future generations because of its heritage interest. This interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting.

17.3.8 In short, government policy provides a framework which protects nationally important designated heritage assets including:

- Protecting the settings of such designations;
- In appropriate circumstances, seeks adequate information (from desk-based assessment and field evaluation where necessary) to enable informed decisions; and
- Providing for the excavation and investigation of sites not significant enough to merit in-situ preservation.

17.3.9 In considering any planning application for development, the planning authority will be mindful of NPPF, in this instance through the current Development Plan Policy (DPP) and other material considerations.

Regional

The London Plan – Spatial Development Strategy for London Consolidated with alterations since 2011 (2015)

17.3.10 In The London Plan, the Mayor of London sets out the general planning policies for Greater London and provides guidelines for the London Boroughs to follow in their own Structural Plans. Policy 7.8 Heritage Assets and Archaeology states:

Strategic

A London's heritage assets and historic environment, including listed buildings, registered historic parks and gardens and other natural and historic landscapes, conservation areas, World Heritage Sites, registered battlefields, scheduled monuments, archaeological remains and memorials should be identified, so that the desirability of sustaining and enhancing their significance and of utilising their positive role in place shaping can be taken into account.

B Development should incorporate measures that identify, record, interpret, protect and where appropriate, present the site's archaeology.

Planning decisions

C Development should identify, value, conserve, restore, re-use and incorporate heritage assets, where appropriate.

D Development affecting heritage assets and their settings should conserve their significance, by being sympathetic to their form, scale, materials and architectural detail.

E New development should make provision for the protection of archaeological resources, landscapes and significant memorials. The physical assets should, where possible, be made available to the public on-site. Where the archaeological asset or memorial cannot be preserved or managed on-site, provision must be made for the investigation, understanding, recording, dissemination and archiving of that asset.

Local

Richmond upon Thames Core Strategy (2009)

17.3.11 The LBRuT Local Development Framework Core Strategy was adopted in April 2009. This set out the key planning policies which would, within the broader context of the London Plan, determine the future development of Richmond-upon-Thames over the following 15 years. The Core Strategy document contains Policy CP7: 'Maintaining and Improving the Local Environment' that states in section 7.A Existing buildings and areas in the Borough of recognised high quality and historic interest will be protected from inappropriate development and enhanced sensitivity.

17.3.12 Richmond-upon-Thames Council also adopted the Development Management Plan in November 2011. This took forward the main themes expressed by the Core Strategy with more detailed polices for the control of development. Policies DM HD1, 2 and 4 within this document addressed issues relating to the historic environment that will affect the current proposed development. These polices are reproduced below.

Policy DM HD 1: Conservation Areas - designation, protection and enhancement

The Council will continue to protect areas of special significance by designating Conservation Areas and extensions to existing Conservation Areas using the criteria as set out in PPS 5 and as advised by English Heritage.

The Council will prepare a Conservation Area Appraisal and Management Plan for each Conservation area, these will be used as a basis when determining proposals within or where it would affect the setting of, Conservation Areas together with other policy guidance.

Buildings or parts of buildings, street furniture, trees and other features which make a positive contribution to the character, appearance or significance of the area should be retained. New development (or redevelopment) or other proposals should conserve and enhance the character and appearance of the area.

Policy DM HD 2: Conservation of Listed Buildings and Scheduled Ancient Monuments

'The Council will require the preservation of Listed Buildings of special architectural or historic interest and Ancient Monuments and seek to ensure that they are kept in a good state of repair by the following means:

1. *consent would only be granted for the demolition of Grade II Listed Buildings in exceptional circumstances and for Grade II* and Grade I Listed Buildings in wholly exceptional circumstances following a thorough assessment of their significance;*

2. *retention of the original use for which the listed building was built is preferred. Other uses will only be considered where the change of use can be justified, and where it can be proven that the original use cannot be sustained;*

3. *alterations and extensions including partial demolitions should be based on an accurate understanding of the significance of the asset including the structure, and respect the architectural character, historic fabric and detailing of the original building. With alterations, the Council will normally insist on the retention of the original structure, features, material and plan form or features that contribute to the significance of the asset. With repairs, the Council will expect retention and repair, rather than replacement of the structure, features, and materials of the building which contribute to its architectural and historic interest; and will require the use of appropriate traditional materials and techniques;*

4. *using its legal powers to take steps to secure the repair of Listed Buildings, where appropriate;*

5. *protecting the setting of Ancient Monuments and Listed Buildings where proposals could have an impact;*

6. *taking a practical approach towards the alteration of Listed Buildings to*

comply with the Disability Discrimination Act 2005 and subsequent amendments, provided that the building's special interest is not harmed, using English Heritage advice as a basis'.

Policy DM HD 3: Buildings of Townscape Merit

'The Council will seek to ensure and encourage the preservation and enhancement of Buildings of Townscape Merit and will use its powers where possible to protect their significance, character and setting, by the following means:

1. consent will not normally be granted for the demolition of Buildings of Townscape Merit;

2. alterations and extensions should be based on an accurate understanding of the significance of the asset including the structure, and respect the architectural character, and detailing of the original building. The structure, features, and materials of the building which contribute to its architectural and historic interest should be retained or restored with appropriate traditional materials and techniques;

3. any proposals should protect and enhance the setting of Buildings of Townscape Merit;

4. taking a practical approach towards the alteration of Buildings of Townscape Merit to comply with the Disability Discrimination Act 2005 and subsequent amendments, provided that the building's special interest is not harmed, using English Heritage advice as a basis.'

Policy DM HD 4: Archaeological Sites

'The Council will seek to protect, enhance and promote its archaeological heritage (both above and below ground), and will encourage its interpretation and presentation to the public. It will take the necessary measures required to safeguard the archaeological remains found, and refuse planning permission where proposals would adversely affect archaeological remains or their setting.'

17.3.13 Policy DM HD 4 makes no direct reference to APAs, although a low resolution map of these areas, as defined by the Greater London Historic Environment Record (GLHER), is presented alongside the policy text in the LBRuT Core Strategy.

Crane Valley Planning Guidelines (April 2005)

17.3.14 The Crane Valley Planning Guidelines provide specific guidance for the redevelopment of the College site and a number of surrounding sites within the Crane

Valley. It sets out the proposed planning vision for the area and contains a series of broad development principles including a section on Urban Design and a sub-section (Section 11) which provides specific guidance upon the protection of Heritage. This states: :

17.3.15 The following buildings/structures of merit should be retained and restored and their settings respected and improved, this will be secured as part of the planning obligation(s):-

- Old Pump House (building of townscape merit).
- Section of wall between the two Craneford Way playing fields with original water culverts (Subject to further English Heritage advice).
- Cobbled section of road leading to the Council depot through the former Mereway Allotments.
- Heatham House (listed building).

17.4 ASSESSMENT METHODOLOGY

Evaluation of Effects

17.4.1 The proposed development has the potential to have an impact upon the cultural heritage of the area. Cultural heritage can be considered to fall into three main categories:

- Archaeological sites (both above and below ground);
- Historic buildings; and
- The historic landscape as a whole.

Summary of Potential Effects

17.4.2 Construction effects may include:

- Loss or damage to known but undesignated archaeological or heritage sites of potential regional, county and local significance within the development site footprint;
- Loss or damage to recorded archaeological or heritage sites (of potentially national through to local significance) whose survival, existence or condition is uncertain;
- Loss or damage to hitherto unrecorded archaeological or heritage sites (of potentially national through to local significance); and
- Loss of historic buildings associated with either the pre-industrial or industrial use of the site.

17.4.3 Operational effects may include:

- Permanent changes to the setting of designated sites (Listed Buildings, Scheduled Monuments) located within the environs of the site; and
- Permanent changes to the setting of historic buildings or structures within the site and its environs.

Scope

17.4.4 A 'study area' measuring 1 km in radius from the centre point of the proposed development site was established in order to place the Site in its local and regional cultural heritage context.

17.4.5 The following databases were used in the preparation of the current baseline:

- Data supplied by GLHER in April 2014;
- All available aerial photographs of the Site and the wider Study Area as held by the Historic England Aerial Photographic archive in Swindon were examined. This included 117 vertical and 31 oblique shots of the area. No archaeological sites or features not already identified by the GLHER were identified;
- All available historic map data as held by the LBRuT Local History Centre and the London Metropolitan Archive; and
- A site inspection survey carried out on 7 May 2014.

Site Specific Fieldwork

17.4.6 The Site has been the subject of a specialist targeted geophysical (magnetometer) survey carried out for the purposes of this project by a specialist archaeo-geophysics contractor. The survey was carried out on 18 February 2015 and concentrated upon the two principal areas of open ground (the college playing fields by the A316 and on Craneford Way East located within the Site. This survey was carried out in response to Historic England suggestion that some further evaluation may be necessary within the Site in order to further clarify the likely potential of the site (see Section 17.2). Full (intrusive) evaluation of the Site was unfeasible at this stage, due to the location, within the two undeveloped areas of the site, of currently utilised sports pitches which would have been significantly damaged by any intrusive evaluation. Geophysical survey was therefore carried out as a non-intrusive means of assessing the potential nature of the below ground deposits.

Methodology

17.4.7 The Cultural Heritage impact assessment was carried out in line with the relevant standards and guidance. It followed best practice methodologies as appropriate,

including:

- National Planning Policy Framework Chapter 12 (2012);
- The Institute of Field Archaeologists Standard and Guidance for Archaeological Desk-Based Assessment (1999);
- Design Manual for Roads and Bridges (DMRB), Volume II, Section 3, Part 2. Highways Agency August 2007 (HA 208/07). Although originally prepared as an assessment methodology for Highway Schemes, DMRB is now generally regarded as the industry standard for Cultural Heritage assessments;
- Seeing The History in the View: a method for assessing heritage significance within views. English Heritage May 2011; and
- The Setting of Heritage Assets. English Heritage 2011.

Significance of Effect

17.4.8 Determination of the importance of receptors (sites and features) was based mainly upon existing designations, but allowed for professional judgement where features were found that do not have any formal national or local designation. **Table 17.1** contains the criteria used to assess probable importance of receptors.

Table 17.1: Criteria Used to Determine Importance of the Receptor

Importance / Sensitivity of Receptor	Equivalent to
Very High	World Heritage Sites (including nominated sites). Sites, buildings or landscapes of acknowledged international importance. Historic landscapes of international value, whether designated or not, Extremely well preserved historic landscapes with exceptional coherence, time depth or other critical factors.
High	Sites of structures of demonstrated national Importance, such as: • Scheduled Monuments. • Grade I and II* Listed Buildings. • Historic England Registered Park and Gardens Grade I/II* Undesignated assets of schedulable quality or importance. Undesignated landscapes of high quality and importance and of demonstrable national value. Well preserved historic landscapes exhibiting considerable coherence, time depth and/or other critical factors.
Medium	Important sites on a Regional or district level, such as: • Grade II Listed Buildings. • Conservation Areas. • Sites with a regional value or interest for research, education or cultural appreciation. Averagely well preserved historic landscapes with reasonable coherence, time depth or other critical factors.
Low	Important sites on a local or parish level, such as: • Locally Listed Buildings • Sites with a local or parish value or interest for research, education or cultural appreciation. Robust undesignated historic landscapes Historic landscapes with importance to local interest groups.
Negligible	Sites or features with no significant value or interest or sites that are so badly damaged that too little remains to justify inclusion into a higher grade. Landscapes with little or no significant historical interest
Uncertain	Possible archaeological sites for which there is limited existing information. It has not been possible to determine the importance of the site based on current knowledge. Such sites might comprise isolated findspots or cropmarks visible on air photographs.

Source: adapted from Design Manual for Roads and Bridges (DMRB) (HA 208/07)

Assessment of Magnitude of Change

17.4.9 There are a number of variables in determining magnitude of change and these are laid out in **Table 17.2**. These include the sensitivity or vulnerability of a site to change (for example the presence of made-ground), the nature of past development or management effects, and the differing nature of proposed development processes such as piling and topsoil stripping.

Table 17.2 Criteria Used to Determine Magnitude of Change

Magnitude of Change	Description of Change
High	Complete destruction of the site or feature. Change to the site or feature resulting in a fundamental change in the ability to understand and appreciate the resource and its historical context and setting. This could be either adverse or beneficial.
Medium	Change to the site or feature resulting in an appreciable change in the ability to understand and appreciate the resource and its historical context and setting. This could be either adverse or beneficial.
Low	Change to the site or feature resulting in a small change in the ability to understand and appreciate the resource and its historical context and setting. This could be either adverse or beneficial.
Negligible	Negligible change or no material change to the site or feature. No real change in the ability to understand and appreciate the resource and its historical context and setting.
Uncertain	Extent and exact location of archaeology is uncertain; impact is therefore uncertain or because precise construction methods/impacts are uncertain.

Source: adapted from Design Manual for Roads and Bridges (DMRB) (HA 208/07)

17.4.10 The importance and/or sensitivity of the receptor and the magnitude of change are combined to indicate the significance of predicted effects, as shown in **Table 17.3**.

Table 17.3 Significance of Effects

		Importance of Receptor (sensitivity, value, importance)				
		Very High	**High**	**Medium**	**Low**	**Negligible**
Magnitude of Change (magnitude, probability, reversibility)	**High**	Major Significance	Major Significance	Major Significance	Moderate or minor significance	Negligible (not significant)
	Medium	Major Significance	Major Significance	Moderate significance	Minor significance	Negligible (not significant)
	Low	Major Significance	Moderate or Minor significance	Minor significance	Negligible (not significant)	Negligible (not significant)
	Negligible	Minor significance	Negligible (not significant)	Negligible (not significant)	Negligible (not significant)	Negligible (not significant)

Source: adapted from IEMA State of Environmental Impact Assessment Practice in the UK (2011)

17.4.11 Where the significance of effect is designated 'unknown' for whatever reason, then further elucidation of the issue is generally necessary in terms of further details on the impacts or further clarification of the cultural heritage resource.

17.4.12 It should be noted that **Table 17.3** is a starting point to guide decisions on significance of effect, whether positive or negative. Decisions will be based on professional judgement and in some circumstances it may be judged necessary to deviate from **Table 17.3**. Any deviations will be clearly recorded and justified.

Temporal Scope

17.4.13 The survey will assess the potential effects of the development during Construction Years and for a period of 15 years post-Construction.

Limitations of Assessment

17.4.14 At the time of writing no geotechnical survey results have been made available. If any such reports exist, they would be a great value in determining the extent and degree of ground disturbance within the proposed development footprint.

17.5 BASELINE

Introduction

17.5.1 This baseline is a summary of cultural heritage assets located within the 1km Study

Area. Known (non-designated) features are mapped on **Figure 17.1** and the designated sites on **Figure 17.2.** A gazetteer of known heritage assets is presented in **Appendix 17.1**, which describes those assets mapped on **Figure 17.1** and **17.2.**

Current Baseline

On Site Baseline

Designated monuments

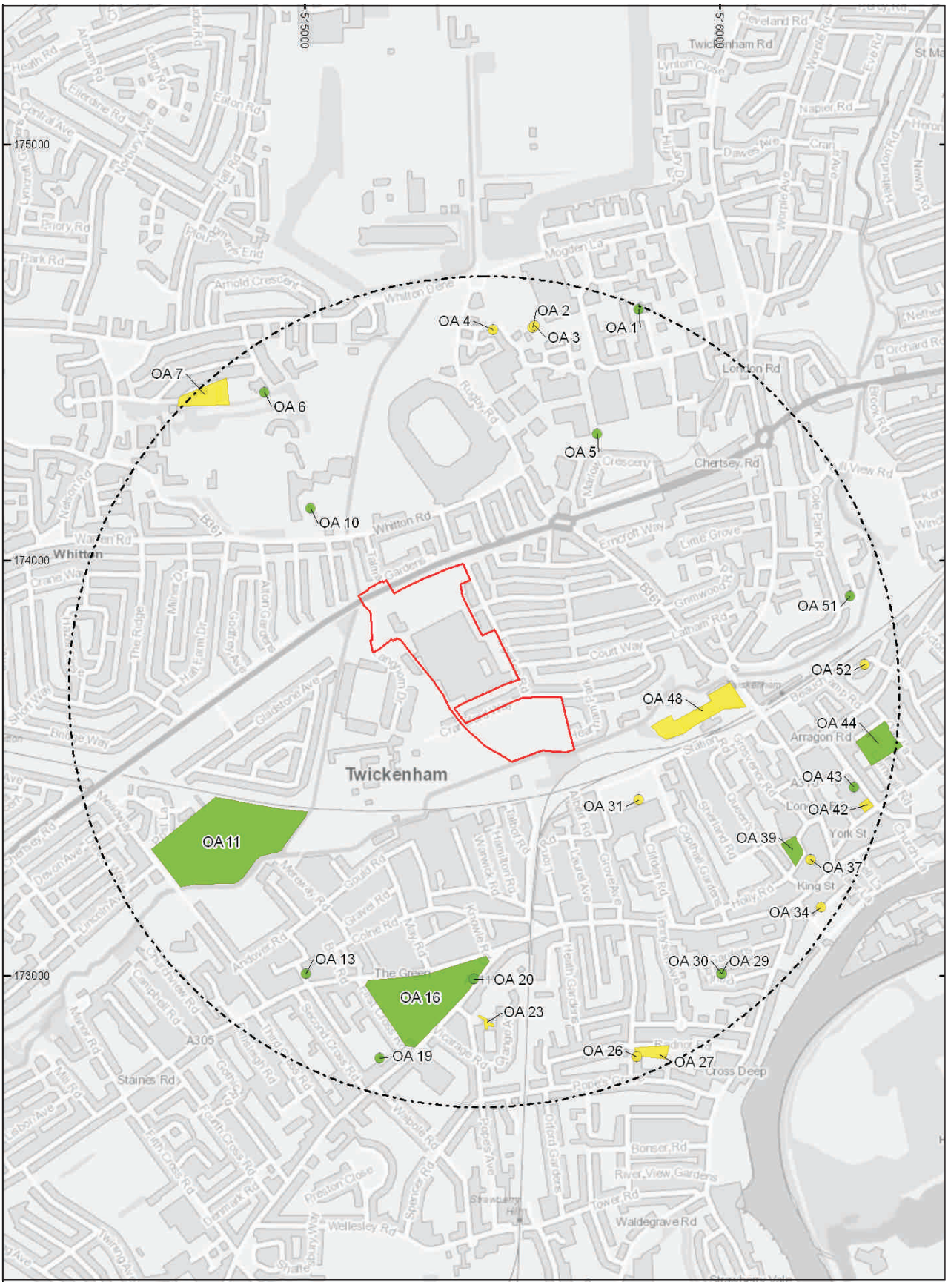
17.5.2 There are no designated monuments (Scheduled Monuments, Listed Buildings Registered Park and Gardens or World Heritage Site) located within the site, nor are there any undesignated assets.

Archaeological Priority Areas (APA)

17.5.3 The southern third of the site, currently occupied by recreation grounds, is located within the Crane Valley APA as defined by the LBRuT. This APA covers a zone on either side of the River Crane and comprises an area that has included a number of industries. Gunpowder manufacture was the most important of these Crane industries, one which was carried on for at least 400 years up to the 20th century. The River Crane was also used, at one time, for oil and paper mills, and a brewery. This part of the site was formerly marshland. Seasonal flooding could have sealed as yet unrecorded archaeological features below and between successive layers of alluvium. The remainder of the site is located upon Kempton Park Gravels which are known to contain Palaeolithic artefacts. These gravel terraces above the River Thames may have seen later prehistoric and Roman settlement although no evidence has been recorded within the site or the wider study area to this date.

Geology

17.5.4 The site is located on London Clay Formation, made up of clay and silt. This is a Sedimentary Bedrock formed approximately 34 to 56 million years ago in the Palaeogene Period. Above the clay is a superficial deposit of Kempton Park Gravel Formation formed of sand and gravel. These gravels have been deposited over the past 500,000 years (BGS website).



Legend

Site Boundary

Study Area

Events
(an area of archeological investigation/evaluation)

Monuments

N

0 CASCADE 0.5km

Note: All locations are approximate

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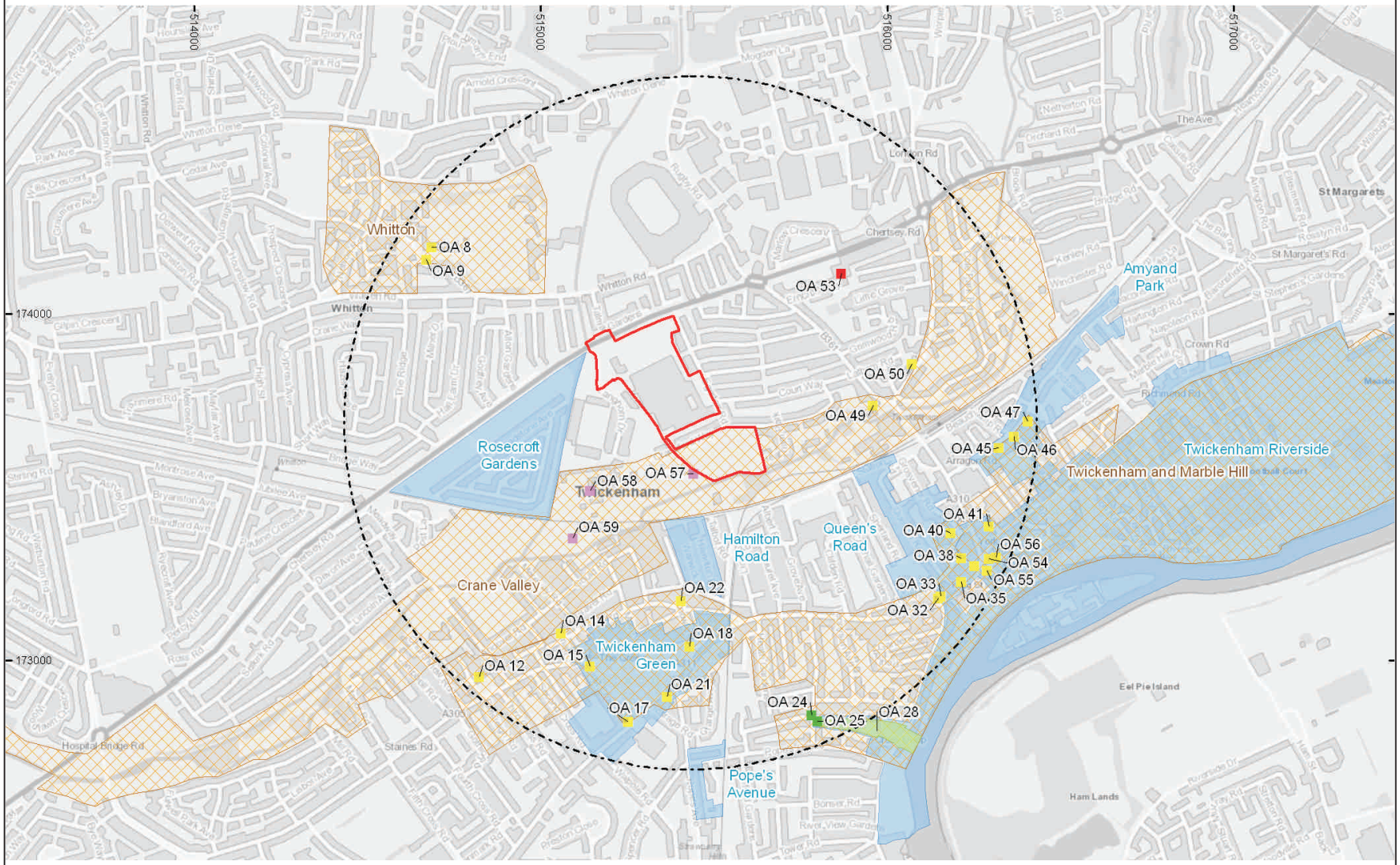
Contains Ordnance Survey Data

Project Title:	Richmond Education and Enterprise Campus Development
Figure Title:	Heritage Assets
	For Information Only
Figure Number:	Figure 17.1
Date:	June 2015



Legend

- Site Boundary
- Study Area
- Listed Building:
  - I
  - II*
  - II
- Structures of Townscape Merit
- Archaeological Priority Areas
- Conservation Areas
- Registered Parks & Gardens

N

0 0.5km

CASCADE

Note: All locations are approximate

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Contains Ordnance Survey Data

Project Title:
Richmond Education and Enterprise Campus Development

Figure Title:
Cultural Heritage Designated Sites

For Information Only

Figure Number:	Date:
Figure 17.2	June 2015

Potential Previous Impacts

17.5.7 Parts of the playing fields to the north of the college buildings may have been impacted by the construction of air raid shelters during the Second World War although this will not have removed all archaeological deposits. The construction of the current college buildings is likely to have had a major impact on any buried archaeological features within the structure's footprint. The archaeological potential within the building footprint is low. The open area immediately to the west of the college contains two large modern earthworks, which were created using excavated material from the building of Challenge Court. This area appears to have been extensively disturbed although its impact upon the gravels beneath is unclear at this stage.

Historic Mapping

17.5.8 Moses Glover's map of Isleworth Hundred, published in 1635, (VCH, 1962, 143), showed no detail over the area of the site itself, although open field systems are shown immediately to the north of Twickenham and c. 100 metres to the south of the site with the common land of Hounslow Heath reaching to within 700 metres to the west of the site.

17.5.9 Rocque's map of London, published in 1746 shows the eastern half of the site to be covered by part of a large arable field with pasture paddocks in the west. Milne's map of 1800 shows the site now covered by a series of enclosed fields of undefined land-use. The site itself appears to have been enclosed by the turn of the 18th century. The parish Enclosure Map that was published in 1819 shows the River Crane meandering across the southern third of the site now occupied by playing fields. By the publication of the first Ordnance Survey (OS) map of the area in 1871, a farm known as Marsh Farm has been established in this southern third, along with Marsh Lane, which still exists as Marsh Farm Lane, dividing the two parts of the playing fields. None of these early maps depict any buildings connected with the Crane Valley industries within the site.

17.5.10 The Rugby Union ground (hereafter referred to as `Rugby Football Union, Twickenham (RFU)) located in the north of the wider study area and opened in 1909) was noted on the OS map published in 1920. The original core of the college building was in place by publication of the 1938 OS Edition. During the Second World War it is believed that the site was used for military purposes (College Estates staff *pers comm*) and that air raid shelter may have been constructed in the northern third of the site beneath the current playing field by the A316 (ibid). The site has been established in more or less its present form by the mid-1960s (OS 1966 Edition 1:10000).

Off Site Baseline

Built Heritage Baseline

17.5.11 There are 27 Listed Buildings located within the wider study area (OA 8, 9, 12, 14, 15, 17, 18, 21, 22, 24, 25, 32, 33, 35, 36, 38, 40, 41, 45-47, 49, 50 and 53-56). Of these, one; the Church of All Hallows (OA 53) located 490m to the north east of the site, is Grade 1[3], while the underground passage that runs between St Catherine's School and Radnor Lodge c 723m to the south east of the site (represented by two separate entries; OA 24 and 25) is a Grade II* structure. The remaining 24 Listed Buildings are Grade II. There is one Registered Park and Garden located within the wider study area. This is Pope's Garden, a Grade II garden and which is located 760m to the south east of the site.

Conservation Areas

17.5.12 There are seven Conservation Areas, as defined by the LBRuT, located wholly or partially within the 1km wider study area (**Figure 17.2**). These are; Rosecroft Gardens Conservation Areas, located immediately to the west of the site; Hamilton Road Conservation Area, c 140m to the south; Twickenham Green Conservation Area, c 380m to the south; Queen's Road CA, c 260m to the south east; Amyand Park Conservation Area, c 600m to the east; Pope's Avenue Conservation Area, c 775m to the south and Twickenham Riverside Conservation Area, located c 645m to the south east of the site.

Buildings of Townscape Merit

17.5.13 The immediate area of the Site contains one building of Townscape Merit as defined by LBRuT. This is the Old Pump House (OA 58) which lies within the Council depot to the west of the Site. Two other structures, listed as being of particular heritage sensitivity by the Crane Valley Planning Guidelines (2005) also lie to the west of the site. These are the wall which divides the two playing fields on Craneford (OA 57) and a cobbled section of road through the former Mereway allotments (OA 59)

Archaeological Baseline

17.5.14 Upper Palaeolithic (c 500,000 BC - 8,000BC) and Mesolithic activity in the Greater London area has been found to be concentrated along the gravels and flood plains of the Thames and its tributaries (MoLAS, 2000, 49). The Kempton Park Gravels which cover the site are a well-known source of Palaeolithic material in the Greater London

[3] The church has stood on its present location since 1940 although the bell tower (and some of the internal furnishings)were relocated to the site from the 17th century church of All Hallows in Lombard Street in the City of London. This was found to be structurally unsound in the 1930's and its tower and furnishings were relocated to their present location following its demolition.

Area[4]. However, no human Palaeolithic artefacts have been found within the wider study area. Fragments of animal bone dating from the Devensian period (OA 20), c 100,000 BP, have been found 475 metres to the south of the site. Due to the nomadic nature of Mesolithic society, activity is not restricted to one type of landscape or geology and therefore isolated scatters of Mesolithic material can be found across the region. No heritage assets dating from the Mesolithic period (8,000– 4,000 BC) have been recorded within the site or the wider study area.

17.5.15 The introduction of agriculture saw the development of permanent settlements along the Thames valley although activity on the gravel terraces above the river seems to have been somewhat limited (MoLAS, 2000, 66). This view however may be simply due to a lack of archaeological field investigations on higher ground in the Greater London area. Sites along the Thames have been studied more intensely due to the large amount of gravel extraction carried out on the first river terrace in the 19th and 20th centuries. The well-drained soils of this terrace together with the nearby Whitton Brook, located c 360 metres to the north east of the site, would have been attractive to Neolithic farmers.

17.5.16 Neolithic assets within the wider study area currently amount to a Neolithic arrowhead found during an archaeological evaluation 585 metres to the north east of the site (OA 3) and two flint adzes found in the area of Pope's Grove Cutting (OA 30), 645 metres to the south east of the site.

17.5.17 The Bronze Age saw an expansion of settlement along the Thames valley, particularly in the Middle and Late Bronze Age. Evidence of settlement in the form of ditches and pottery dating from the Bronze Age were recorded during an evaluation carried out 585 metres to the north east of the site (OA 3). Other artefacts made from bone and stone have also been recovered from the Pope's Grove Cutting area (OA 30), 645 metres to the south east of the site.

17.5.18 The regional archaeological evidence suggests that the continued growth of population into the Iron Age. Archaeological investigations have, like studies of Neolithic and Bronze Age sites, primarily been confined to the gravel floodplains of the Thames due to late 20th century gravel extraction. No assets dated to the Iron Age have been recorded within the site or the wider study area.

17.5.19 The Roman period sees the founding of London and its development as the trading centre of southern Britain. Scattered settlements developed in relation to the trade coming in and out of the city, particularly along the Thames and its tributaries and especially at the bridging points for the main roads out of the new capital. The area

[4] Museum of London Archaeology Service. *The archaeology of Greater London: An assessment of the archaeological evidence for human presence in the area now covered by Greater London. 2000.*

to the west of London and above the Thames is thought to have been heavily forested at this time and little evidence for settlement or temporary occupation has been recorded to this date. The only Roman material to be recorded within the wider study area was pottery that was found during an archaeological evaluation at South Middlesex Hospital (OA 4) 570 metres to the north east of the site.

17.5.20 In the early medieval period there was a settlement at Twickenham by 704, (VCH, 1962, 139) and '*Tuican hom*' is mentioned in The Saxon Charters of 704 and 709. In the absence of any further evidence, it is assumed that the site, like much of the area to the west of London, was forested at this time. However, the large area of scrubland to the west of London known as Hounslow Heath is known to have extended as far as Twickenham Green c 400 metres to the south of the site and may have extended further (VCH, 1962, 140).

17.5.21 It is likely that the later medieval village of Twickenham was clustered along Riverside, in Church Street and King Street in the far south east of the wider study Area. Few archaeological finds dating from this period have been recorded. A medieval rubbish pit, containing pottery from the 15th century as well as animal bone, oyster shells and tile was recorded during an archaeological evaluation undertaken 700 metres to the south east of the site (OA 34). A moated site (OA 6) was possibly located 575 metres to the north-west of the site (Copley, 1958). It is likely that the site itself remained as open land to the north west of Twickenham village and to the east of Witton. In the absence of any further evidence, it is assumed that the site, like much of the area to the west of London, was forested at this time. However, the large area of scrubland to the west of London known as Hounslow Heath is known to have extended as far as Twickenham Green c 400 metres to the south of the site and may have extended further (VCH, 1962, 140).

17.5.22 In the post-medieval period the demand for gunpowder in the Seven Years War against France (1756-1763) led to the establishment of gunpowder manufacturing in 1757 along the north bank of the River Crane, an area now designated as an APA by LBRuT (GLHER, DLO33459). This area includes the southern third of the site, the College playing fields south of Craneford Way.

17.5.23 Moses Glover's map of Isleworth Hundred, published in 1635, (VCH, 1962, 143), showed open field systems immediately to the north of Twickenham and c 100 metres to the south of the site with the common land of Hounslow Heath reaching to within 700 metres to the west of the site. Milne's map of 1800 shows that much of the land within the wider study area had been enclosed in the intervening 50 years in a piecemeal manner and converted to market-gardens and orchards or to pleasure-grounds for the big houses which were being built around Twickenham to the south east and Whitton to the west. In 1818 the remaining open fields in the parish were

enclosed by Act of Parliament and these are shown in the Enclosure Map that was published in 1819.

17.5.24 By 1723 Twickenham had already become a fashionable suburb for the very wealthy, including the poet and writer Alexander Pope, who moved to Twickenham in 1719 and built a villa with large gardens to the rear, including a grotto and tunnel which gave access to 5 acres of land he also leased. These gardens still exist and are a Registered Park and Garden (OA 28), while the tunnel is a Grade II* Listed Building (OA 24 and 25).

17.5.25 A large number of villas were constructed along the river and around the town and common at this time including Brimsworth House, 670 metres to the south west of the site (OA 12); Briar House (OA 14), 430 metres to the south west; Knowle House (OA 22), 290 metres to the south; Nos 10, 12, 54, 60 and 62 King Street (OA 32-3 and 36) 620 metres to the south east; Grosvenor House (OA 40), 560 metres to the south east Heatham House (OA 49), 350 metres to the east and Neville House (OA 50), 570 metres to the north east. The number of houses in the area increased through the 19th century and by 1871 there were over 2000 houses in the parish. The arrival of the railway in the late 1840s did not stimulate a great increase in housing, the development of which was gradual up to the end of the 19th century.

17.5.26 There was a great increase in house building in the area at the beginning of the 20th century (VCH, 1962, 145). This is usually attributed to the creation of a tram service to Shepherd's Bush in 1902 that provided the first cheap commuter route into London from Twickenham. Around 11,000 houses were built in the last decade of the 19th century and nearly 17,000 in the next. Between the two World Wars (1919-1939) the main developments were at Whitton, to the north west of the site but there was also rapid building elsewhere and many of the remaining big houses disappeared. This expansion is not immediately reflected in the cartographic evidence with the 1920 OS map of the area showing that a sewage works had been established immediately to the south west of the site, but with no further construction. By the publication of the 1938 OS map however, new housing estates had been established all around the site while the Great Chertsey Road has been constructed.

17.5.27 The study area is currently occupied by spreads of early 20th century housing, mixed with later 20th century educational and recreational buildings, together with the Rugby Football Union, Twickenham (RFU) (originally built in the 1930s and re-built in the 1990s) and Harlequin FC (dating from the early 20th century and re-built in the 1980s).

Baseline Limitations

17.5.28 No baseline limitations have been identified.

17.6 SENSITIVE RECEPTORS

17.6.1 As detailed above in Section 17.5 the Site and its surroundings contain a number of potentially sensitive receptors. The southern half of the proposed development sites lies within the Crane Valley APA designated by LBRuT.

17.6.2 The proposed development will have no impact upon the settings of, or views from, 26 of the 27 Listed Buildings located within the wider study area as these are hidden from the site either by trees or by 20th century housing developments.

17.6.3 The proposed development may impact upon the views from and setting of, the Rosecroft Gardens Conservation Area, which is located immediately to the west of the Harlequins FC. The far north-east corner of Rosecroft Gardens Conservation Area and the far north-west corner of the site are divided by a thin line of mature and semi-mature trees, offering broken views between the two areas.

17.6.4 The southern boundary of the proposed development comes within 50m of the Hamilton Road Conservation Area. These two areas are divided by a line of mature trees and an area of 20th century housing which obscures the Conservation Area from the site, leaving no clear or partial views between the two. The REEC development will have no impact upon this Conservation Area.

17.7 IMPACT ASSESSMENT

Site Enabling, Demolition and Construction

Introduction

17.7.1 The Parameter Plans (see **Appendix 5.1**) have been used as the basis for the predicted effects of the scheme upon the cultural heritage resource.

17.7.2 The following receptors have been identified within and adjacent to the REEC development:

- The part of the site located within an LBRuT APA (within); and
- Rosecroft Garden Conservation Area (adjacent).

Predicted Effects

Archaeology

17.7.3 The College playing fields south of Craneford Way will re-developed from one grass

pitch to one all-weather sports pitch and one new grass pitch (College Playing Fields Development Zone Parameter Plan PL-16; see **Appendix 5.1**). These new facilities will have a different orientation to the east–west aligned pitch that currently exists here. This area has been identified as the most archaeologically sensitive part within the site and is located within the Crane Valley APA due to the potential here for sub-surface remains associated with the River Crane and potential deposits associated with the post-medieval gunpowder industry that was known to exist along this part of the River Thames. No such remains were identified during the 2015 geophysical survey (see **Appendix 17.2**). The survey detected considerable magnetic activity but the only identifiable findings were the sites of pipes, land drains and other recent disturbance disturbances. In their conclusion the authors state that `*the survey results cannot entirely exclude the possibility that archaeological features may be present but the survey has not produced any findings which can be plausibly interpreted as of archaeological relevance*'. The full report is reproduced as **Appendix 17.2**.

17.7.4 Although the absence of such remains does not entirely exclude the possibility that deposits or structures may be present it is reasonable to expect that the survey would have picked up the presence of substantial buried structures or deposits (such as those associated with the presence of mills or associated factory structures) and the negative results of the survey would appear to reduce the potential for the site to contain significant deposits.

17.7.5 The creation of the new all-weather pitch is likely to involve some ground disturbance (see Chapter 6 – Demolition and Construction). This disturbance would be likely to have an undefined (but potentially Medium) impact upon any potential features. Features (if present) are of uncertain but potentially low significance. The potential effect of the scheme on this area in this instance would therefore be **uncertain but probably minor adverse**.

17.7.6 The precise layout of the proposed Residential Site at the centre of the site has yet to be established although the elevations of the anticipated structures will be no more than 16 metres in height (see **Table 5.2**). This development however is likely to have a high impact upon this part of the Site. This area contains no evidence of prehistoric or Roman archaeological activity and appears to have been open farmland located to the north west of Twickenham through the medieval era. The area is likely to have been heavily impacted by the development of the college buildings through the later 20th century. It is therefore considered to be of negligible value. The overall effect of the scheme on this part of the site would therefore be **negligible.**

17.7.7 The location of the new college, secondary school and tech hub buildings (Building Zones Parameter Plan PL-04; see **Appendix 5.1**) in the College playing fields by the

A316 will involve the construction of a range of new buildings. The construction of the new buildings will have a high impact upon any potential archaeological features which may exist in this area, which is currently a large playing field. This area contains no evidence for prehistoric or Roman activity and appears to have been covered by open fields through the medieval era and up to the 20th century and therefore will not have been extensively disturbed, although there is some anecdotal evidence that air-raid shelters were constructed in this area during the Second World War. No potential archaeological features were identified within this area during the 2015 geophysical survey and the survey also did not produce any evidence for air-raid shelters within this site (see **Appendix 17.2**). The site therefore has an uncertain (but potentially low) potential to contain significant archaeological deposits. The high impact of the development on any as yet unrecorded archaeological features will therefore have an **uncertain but potentially minor adverse** effect upon the archaeological resource of the site.

Built Heritage

17.7.8 The construction of the proposed development will appear unlikely to have any effect upon the settings of, or views from, 26 of the 27 Listed Buildings located within the wider study areas as these are hidden from the site either by trees or by 20th century housing developments. It may have a negligible temporary impact upon the setting of the Grade I Listed All Hallows Church where this appears in long range views from Richmond Hill (the only area of high ground within the wider surroundings of the Site). The impact will be temporary and of very low magnitude (negligible). The tower is Grade I listed and therefore of high architectural interest, particularly as it represents the transplanted tower of a Wren Church which originally stood in the City of London. However its relocation will have affected (and probably to a large extent removed) its historic setting and this will not be significantly altered by the negligible change in the long range view from Richmond Hill.

17.7.9 Overall the Construction of the proposed development will have **no effect** upon the Grade II* or Grade II Listed Buildings within the environs of the scheme. It will have a temporary negligible impact upon the setting of the Grade I church tower which will result in a **temporary negligible** effect upon the structure.

17.7.10 The Construction of the proposed development may have a temporary Medium impact upon one of the three structures of Townscape Merit located within its vicinity. Construction activities associated with the creation of the All Weather pitches will have a short term temporary impact on the setting of the historic wall (OA 57) that currently forms the western boundary of the playing fields. This structure is of Low Importance and the impact will of Medium magnitude leading to a temporary minor visual effect. It will have no effect upon the other two structures

of Townscape merit (OA 58, 59).

Historic Landscape

17.7.11 The north western corner of the development site will be partially visible from the Rosecroft Gardens Conservation Area. This may have a temporary minor adverse visual impact on the setting of and views from this Conservation Area during the construction process. This will result in a **temporary minor adverse** visual effect.

Mitigation Measures

Archaeology

17.7.12 This assessment has suggested that the development of the northern and southern areas of the site have the potential to have an uncertain but probably minor effect upon the archaeological resource within these areas. Both areas are relatively undisturbed and located within an area of general archaeological potential suggesting that they may have the potential to contain hitherto undetected archaeological deposits. In their scoping advice, Historic England have suggested that an archaeological evaluation be carried out within the site as a part of the EIA process in order to further explore this potential. The 2015 geophysical survey was carried out as at least partial response to this advice, as a means of investigating the archaeological potential of the site without causing substantial damage to the area of sports pitches (see **Appendix 17.2**). This survey produced no evidence for archaeological deposits and although this does not preclude the potential for archaeological deposits to be present (as geophysical survey is not an infallible guide to the presence of deposits) it would appear to reduce the likely potential of the site to contain significant deposits.

17.7.13 The general potential of the site has therefore been graded as being of uncertain but low potential leading to a potential uncertain but minor adverse effect. This general potential may, in the light of the Historic England advice, require some further evaluation in order to further define the nature of the archaeological resource and facilitate the production of a mitigation strategy intended to remove or reduce any potential environmental effects and this will require discussion with Historic England during the determination period. Potential mitigation measures may include excavation and recording of any significant archaeological deposits present or the implementation of an archaeological monitoring action (Watching Brief) during intrusive construction activities.

Built Heritage

17.7.14 No mitigation measures are required.

Historic Landscape

17.7.15 No mitigation measures are required.

Residual Effects

17.7.16 The scheme will have no residual effects.

Monitoring

17.7.17 It is likely that the adopted mitigation strategy will effectively identify and mitigate any potential archaeological effects of the development. No further monitoring will be required during construction.

Operation

Predicted Effects

Archaeology

17.7.18 Any impacts from the development upon archaeological features within the site will occur during the construction phase. Once the development is completed and in operation, no further impacts to the archaeological resource are envisaged.

Built Heritage

17.7.19 The operation of the proposed development will have no effect upon 26 of the 27 Listed Buildings within the general environs of the scheme. It may have a low visual impact upon the views from Richmond Hill of the Grade I listed Church tower of All Hallows (see Chapter 16 Townscape and Visual). This will result in an overall minor (neutral) visual effect. The operation of the scheme will have no significant impact on any of the Buildings / Structures of Townscape Interest located within its environs.

Historic Landscape

17.7.20 No significant effects are predicted upon the Historic Landscape of the area.

Mitigation Measures

17.7.21 No mitigation measures are proposed.

Residual Effects

17.7.22 The operation of the scheme will have no residual effects upon the archaeology, built heritage or historic landscape of the area.

Monitoring

17.7.23 No further monitoring will be required following the completion of the construction phase.

17.8 SUMMARY OF RESIDUAL EFFECTS

17.8.1 A summary of residual effects is provided in **Table 17.4** below.

Table 17.4 Summary of Residual Effects

Issue	Likely Significant Effect	Mitigation Measures	Likely Residual Effect
Site Enabling, Demolition and Construction			
Archaeology			
College playing fields within Crane Valley APA	Uncertain potentially Minor adverse	Agreed programme of mitigation of any significant impacts identified. Mitigation is likely to comprise preservation by record (detailed excavation and recording) of any significant deposits identified during the evaluation.	Negligible
Layout of proposed residential site	Negligible	None	Negligible
College playing fields near A316	Uncertain potentially Minor adverse	Agreed programme of mitigation of any significant impacts identified. Mitigation is likely to comprise preservation by record (detailed excavation and recording) of any significant deposits identified during the evaluation.	Negligible
Built Heritage			
Grade II* or Grade II Listed Buildings	No effect	None	Negligible
All Hallows Church Tower	Negligible	None	Negligible
Historic Landscape			
Rosecroft Gardens Conservation Area	Minor adverse	None	Minor adverse
Operation			
Built Heritage			
All Hallows Church Tower	Minor neutral	None	Minor neutral

17.9 CUMULATIVE EFFECTS ASSESSMENT

Site Enabling, Demolition and Construction

17.9.1 No cumulative site enabling, demolition and construction effects have been identified.

Operation

17.9.2 No cumulative operation effects have been identified.

Mitigation

17.9.3 No mitigation measures are required.

Residual Effects

17.9.4 No residual effects have been identified.

17.10 SUMMARY AND CONCLUSIONS

17.10.1 The site contains no known archaeological or heritage features but it lies within an area of demonstrated archaeological activity and has the potential to contain hitherto unidentified archaeological deposits. Overall the southern third of the Site is considered to be the area of highest archaeological potential as it is located within the Crane Valley APA. This area was subject to an archaeological geophysical survey in order to attempt to clarify the likely potential of the site to contain preserved deposits. No such deposits were identified. Although the absence of such remains does not entirely exclude the possibility that deposits or structures may be present it is reasonable to expect that the survey would have picked up the presence of substantial buried structures or deposits (such as those associated with the presence of mills or associated factory structures) and the negative results of the survey would appear to reduce the potential for the site to contain significant deposits.

17.10.2 The construction of a new all-weather and grass pitches is likely to result in medium to low ground levels of ground disturbance. Any deposits within this area are therefore likely to be disturbed. The area has been assessed as being of uncertain but low potential and ground disturbance may therefore lead to an uncertain but potentially minor adverse effect upon the archaeological resource within this section of the site. This effect will be reduced to **negligible** following a programme od detailed excavation and recording.

17.10.3 The northern third of the site is relatively undisturbed and may contain as yet unrecorded archaeological features, although the geophysical survey of this area carried out as part of the EIA process produced no evidence of buried deposits. As with the southern area of the site this does not entirely exclude the possibility that deposits may be present the negative results of the survey would appear to reduce the potential for the site to contain significant deposits and on this basis the site is considered to have an uncertain but potentially low potential to contain significant deposits. The high impact of the proposed new college buildings in this area will create anything between a minor and significant effect on these potential features. This may therefore lead to an uncertain but potentially minor adverse effect upon the archaeological resource within this section of the site. This will reduced to **negligible** following a programme of excavation and recording.

17.10.4 The central third of the site, which has been earmarked for residential development, has been extensively disturbed by the construction of the existing college buildings and is of negligible value. Archaeological monitoring of this area during construction would mitigate any impacts caused by the development to as yet unrecorded archaeological features here.

17.10.5 The construction activities associated with the scheme will have no significant effect

upon the Listed Buildings within the environs of the scheme and may have a **minor adverse** temporary effect upon the Rosecroft Gardens Conservation Area.

17.10.6 The operation of the scheme will have no effect upon the archaeological resource within the site.

18 SOCIO-ECONOMICS

18.1 INTRODUCTION AND KEY ISSUES

18.1.1 This chapter describes the likely socio-economic effects of the proposed Richmond Education and Enterprise Campus (REEC) development at Richmond upon Thames College (RuTC) in Twickenham, within the London Borough of Richmond upon Thames (LBRuT).

18.1.2 The assessment principally focuses on the effects of the development on the local population, supply of housing, provision of employment space and impacts on the local labour supply, education facilities, open space and sport and recreation facilities in the local area.

18.1.3 The key socio-economic issues covered in this chapter include the following:

- Extent of the local impact area of the proposed development scheme;
- Prevailing socio-economic and labour market conditions, and provision of employment, education, open-space, sport and recreation facilities;
- Temporary construction employment likely to be generated by the proposed development scheme;
- Direct employment likely to be associated with the proposed development once operational;
- Effects on the local population and labour market arising from the proposed development scheme;
- Contribution of the scheme to local housing provision; and,
- The effects of the development on the provision of education, health facilities, open space, sport and recreation provision, and community facilities as well as the likely effects on a specified range of local stakeholders.

18.1.4 The OPA Site comprises 9.3 ha of land including the existing RuTC and College playing fields south of Craneford Way (comprising 8.7 ha in total). Chapter 3 - Existing Site and Surroundings and Chapter 5 - Proposed Development give a full description of the site and its surroundings, and the proposed REEC development.

18.2 CONSULTATION

18.2.1 The EIA Scoping Opinion received from LBRuT (see **Appendix 2.2**) included a number of comments relating to socio-economic matters. The comments have been taken into consideration in the drafting of this chapter in line with the scope set out in the Applicant's Response to EIA Scoping Opinion (see **Appendix 2.3**).

18.2.2 A Scoping Opinion was also received from Sport England (see **Appendix 2.2**) (the

national sport organisation was consulted with at pre-application stage of the development process) in order to ensure that the proposals provide for the local community's sporting needs. The key socio-economic issues raised include:

- The need to address how the proposed development accords with Sport England's Land Use Planning Policy Statement 'Planning for Sport Aims and Objectives';
- Address the impacts of the proposed development on playing field provision and address the need arising as a result of the development; and,
- The proposals should be informed by the recommendations of the Draft Playing Pitch Strategy for Richmond[1].

18.2.3 A response to these comments has been incorporated into the analysis included in this chapter.

18.2.4 In relation to education provision, 'Achieving for Children', the social enterprise company created by the Royal Borough of Kingston upon Thames and LBRuT to provide their children's services, has been consulted. It was agreed that as part of the baseline, this assessment would consider the capacity of existing facilities within a minimum 1.5 mile (2.4km) radius for primary provision and within a 3 mile (4.8km) radius for secondary provision.

18.2.5 The Heatham Alliance, a local community network, and Friends of the River Crane Environment (FORCE), a registered charity that represent the interests of local residents regarding the River Crane and Duke of Northumberland's River and their respective corridors within LBRuT were also consulted as part of the EIA process. The key issues identified by Heatham Alliance relate to:

- The inclusion of Metropolitan Open Land (MOL), areas of the West London Green Chain, the River Crane Corridor and the Crane Riverside Park Project within the scope of the assessment;
- The importance of Craneford Way East Field; and,
- The impact of the proposed campus and the new residential estate on the provision of utilities, schooling and local services to support the activities and accommodate the large population living, learning and working on the site.

18.2.6 FORCE's key concerns are set out in the 'Environmental Impacts: Statement of FORCE Position' (March 2015)[2]. This statement identifies a range of perceived environmental dis-benefits associated with the proposed development including:

[1] *Richmond upon Thames Sports, Open Space and Recreation Needs and Opportunities Assessment and Draft Playing Pitch Strategy* (2015). This strategy has since been adopted and is discussed in further detail in Section 18.3.3 below.

[2] *REEC Environmental Impacts: Statement of FORCE position* (March 2015)

- The fencing-off from public access a proportion of Craneford East Field. The replacement of natural turf by artificial surfacing in the fenced off area;
- Loss of open space of the North Playing Field;
- Increased wear-and-tear on Craneford West Field and other adjacent already crowded open spaces, consequent on increased usage from (1) members of the public excluded from Craneford East Field, (2) residents of the 200 new housing units, (3) secondary school students, (4) College students during break times and (5) junior football and rugby teams (and potentially others), both displaced by the development of the north and east fields;
- Increased usage of the new pathway through Twickenham Junction Rough; and,
- Prospective future lighting of the Craneford East Field.

18.2.7 Concerns relating to (1) Harlequin FC's future use of Craneford West Field and (2) projected levels of public use of Craneford West Field were subsequently raised by FORCE in May 2015.

18.2.8 In response to the future use of Craneford West Field, Harlequin FC wishes to continue with their programme of coaching for children in the community. The possibility of utilising the new pitches on the College playing fields once constructed was discussed informally during mid / late March 2015 and subject to agreeing fees for use of the pitches with RuTC, this was seen as a logical and mutually desirable potential option.

18.2.9 The projected levels of public use of Craneford West Field are considered in further detail in Section 18.7 below.

18.2.10 Meetings were held with FORCE to discuss potential enhancements that the REEC development could provide, in line with the Crane Valley Guidelines[3]. Restoration of the reach of the River Crane bordering the College's landholding (along College playing fields south of Craneford Way) could be undertaken as part of the scheme. However, constraints associated with the flood walls (i.e removal of the existing flood walls and re-grading of the bank on one side of the river could cause erosion and increased flood risk) and the possibility of any works subsequently being superseded and made redundant by the Environment Agency's planned programme of restoration works in the Crane Catchment, meant that, while desirable, this was not a practicable option. After further discussion with FORCE and the Environment Agency, it was concluded that it would be more appropriate for REEC to provide a contribution to support the Environment Agency's planned programme of improvement works within the Crane catchment, as set out in the Thames River

[3] *Crane Valley Planning Guidelines SPG* April 2005

Basin Management Plan (2009)[4].

These groups along with other local stakeholders have been consulted on an ongoing basis via a Community Liaison Forum set up as part of the consultation process for the REEC development.

18.3 LEGISLATION AND PLANNING POLICY

National

National Planning Policy Framework (2012)

18.3.2 The NPPF[5] places strong emphasis on sustainable development and planning to support national economic growth. Economic, environmental and social gains are sought jointly and simultaneously through both plan-making and decision-taking to achieve sustainable development. Paragraph 17 sets out 12 Core Planning Principles, including that planning should:

'Proactively drive and support sustainable economic development to deliver the homes, business and industrial units, infrastructure and thriving local places that the country needs…'.

18.3.3 In paragraph 18, the NPPF notes the Government's commitment to securing economic growth, jobs and prosperity to meet global competition and a low carbon future. It also indicates the planning system should do everything it can to support sustainable economic growth and that economic growth should be given significant weight in planning decisions.

18.3.4 In relation to planning for education facilities, Paragraph 72 states:

'the Government attaches great importance to ensuring that a sufficient choice of school places is available to meet the needs of existing and new communities. Local planning authorities should take a proactive, positive and collaborative approach to meeting this requirement, and to development that will widen choice in education. They should give great weight to the need to create, expand or alter schools….'.

Regional

The Mayor's Economic Development Strategy for London (2010)

18.3.5 The Mayor's Economic Development Strategy for London[6] (MEDSL) sets out a vision for London to be '*the best big city in the world*' by excelling amongst global cities,

[4] Consultation by the Environment Agency on updated RBMPs ended in April 2015

[5] CLG (2012) *National Planning Policy Framework,* March 2012.

[6] London Development Agency (2010*) The Mayor's Economic Development Strategy for London,* May 2010.

expanding opportunities for all its people and enterprises, achieving high environmental standards and quality of life, and leading the world in its approach to tackling 21st century urban problems such as climate change.

18.3.6 Underlying this vision is a strategy of enabling the strengths of London's economy to flourish and addressing the weaknesses. This strategy is based on a projection of continuing growth in London's economy and population up to 2031 and beyond. Key economic objectives include:

- To ensure that London has the most competitive business environment in the world; (para. A5 Objective 2);
- To give all Londoners the opportunity to take part in London's economic success, access sustainable employment and progress in their careers; (para. A5 Objective 4); and
- To attract investment in infrastructure and regeneration which London needs, to maximise the benefits from this investment (para. A5 Objective 5).

18.3.7 Within these objectives, there are a number of cross-cutting themes identified (para. A6), including:

- Value for money: promoting economic principles to ensure that investment is economic, efficient and effective;
- Sustainable development and environmental improvement: promoting economically, socially and environmentally sustainable forms of development and growth;
- Equality of opportunity and diversity: building success on diversity and ensuring vulnerable groups receive the support they need to improve their opportunities; and
- Health and health inequalities: Improving Londoners' health and quality of life.

The London Plan – The Spatial Development Strategy for London Consolidated with Alterations since 2011 (2015)

18.3.8 The London Plan sets out a number of core objectives for Greater London, the most pertinent of these for socio-economics being:

- Ensuring that London is a city that meets the challenges of economic and population growth in ways that ensure a sustainable, good and improving quality of life and help tackle the huge issue of deprivation and inequality (Objective 1);
- Ensuring that London is an internationally competitive and successful city with a strong and diverse economy; a city which is comfortable with – and makes the most of – its rich heritage and cultural resources. (Objective 2); and

- Ensuring that London is a city where it is easy, safe and convenient for everyone to access jobs, opportunities and facilities (Objective 6).

18.3.9 There are a number of specific policies which support the delivery of these objectives, the most relevant for the socio-economic assessment being, social infrastructure provision to meet the needs of its growing and diverse population (Policy 3.16) and improving employment opportunities for all (Policy 4.12).

18.3.10 In terms of educational facilities, the Plan supports development proposals which maximise the extended or multiple use of educational facilities for community and recreational use should be encouraged (Policy 3.18).

18.3.11 The Plan also aims to increase participation in and tackle inequalities of access to, sport and physical activity in London (Policy 3.19).

18.3.12 The London Plan (Table 1.1) sets out employment projections by borough; over the period 2011-2036 employment in LBRuT is expected to increase by 12.9%, equivalent to 12,000 additional jobs.

Local

LBRuT Unitary Development Plan (2005)

18.3.13 The majority of the UDP has been replaced by the Core Strategy and Development Management Guidelines however, a number of proposal site policies remain saved and have not been superseded.

18.3.14 Proposal T29 'Richmond upon Thames College Site' is a saved policy and allows for:

'*redevelopment to provide a new college and enabling residential development on the site of the existing college and enabling residential development on the site of the existing college and playing field south of the A316. Retention and upgrading of Craneford Way east playing field'.*

18.3.15 The justification for this is as follows:

'To provide rationalisation, expansion and improvements to the College (either on the site of the current buildings and / or on the College playing field to the immediate south of the A316) with enabling development and associated open space. If development takes place on the College playing field south of the A316 the College's Craneford Way playing field to be upgraded. All College facilities to have increased public use reflecting the Council's dual use policy. Access to the trunk and local road network will be addressed at the development control stage'.

LBRuT Core Strategy (2009)

18.3.16 A number of policies in the Core Strategy[7] are relevant to the REEC development. In para. 4.1.22, RuTC is identified as one of the locations where new development is likely to be concentrated over the Plan period (2009-2026).

18.3.17 Policy CP18.B outlines that land in educational use will be '*safeguarded*' and the '*potential of existing educational sites will be maximised through redevelopment, refurbishment or re-use to meet educational needs*'.

18.3.18 Policy CP12 seeks to improve the River Crane Corridor, '*The Council will improve the strategic corridor to provide an attractive open space with improvements to the biodiversity. Developments in and adjacent to the River Crane Corridor will be expected to contribute to improving the environment and access, in line with planning guidance'.*

18.3.19 The Core Strategy sets a target for a net increase of 700-1,100 residential units, 2,500 jobs (to 2021) and 400sq m of retail space in Twickenham by 2017 / 18.

LBRuT Development Management Plan (2011)

18.3.20 The DMP[8] includes the detailed policies which will be applied by the Council in the consideration of the proposed development.

Draft LBRuT Site Allocations Plan (2013)

18.3.21 The pre-publication version of the Site Allocations Plan (2013) which will eventually replace the saved policies of the UDP, includes proposal (TW10) which relates to part of the application site, it includes:

'Redevelopment to provide a new college, offices, secondary school and special school, residential including affordable and open space'.

18.3.22 The justification for this proposal states:

'To provide a new College, Secondary School, Special School, Headquarters Offices and residential uses, within a comprehensive scheme. A new College building and headquarter offices fronting the A316 on the existing playing fields. New open space, including for educational establishments, private residential enabling development to fund redevelopment of College to the south of the site and affordable housing (see proposal for Teddington Studios site)'.

[7] London Borough of Richmond upon Thames (April 2009) *Local Development Framework Core Strategy*

[8] London Borough of Richmond upon Thames (November 2011) *Local Development Framework Development Management Plan*

'If development takes place on the College playing field south of the A316 the College's Craneford Way playing field to be upgraded. All College and School facilities to have public use reflecting the Council's dual use policy. Access to the trunk and local road network will be addressed at the development control stage. Any vehicular access through Heatham Estate must take account of residential amenity.'

Richmond upon Thames Sports, Open Space and Recreation Needs and Opportunities Assessment (2015)[9] and Playing Pitch Strategy

18.3.23 This study considers open-space, playing pitches and outdoor sports as well as indoor sports facilities providing detail regarding provision, condition, distribution quality and value of facilities. The findings of the assessments are used to inform the Strategy. The Playing Pitch Strategy identifies three overarching objectives:

1. *'to protect playing pitches and ancillary facilities from loss as a result of redevelopment'* (Objective 1);
2. *'to enhance existing playing pitches and ancillary facilities through improving their quality, accessibility and management'* (Objective 2); and,
3. *'to provide new playing pitches and ancillary facilities that are fit for purpose to meet demands for participation now and in the future'* (Objective 3).

18.3.24 This document includes a range of recommendations that have been compiled to assist in achieving these objectives.

18.3.25 The Strategy seeks to maximise community use of outdoor sports facilities including education sites (recommendation c) and to improve pitch quality and changing facilities (recommendation d) to address quality issues and overplay, and to rectify quantitative shortfalls in current pitch stock (recommendation h).

18.3.26 Considering sport specific recommendations, for football the Strategy seeks '*to address current overplay and future demand at sites, including improvement of changing facilities and explore creation of new 3G AGPs 10, while for rugby it recommends working 'towards meeting identified current and future deficiencies and increase the quality of pitches and ancillary facilities as required'.*

[9] Knight Kavanagh & Page (April/May 2015) *Richmond upon Thames Sports, Open Space and Recreation Needs and Opportunities Assessment*. This assessment comprises the following reports: Open Space Assessment Report (April 2015), Indoor Sports Facility Needs Assessment (May 2015), Playing Pitch Strategy Needs Assessment (May 2015) and Playing Pitch Strategy (May 2015). The Cabinet resolved these documents are approved and adopted on the 11th June 2015, the Assessment and Strategy will come into force and may be implemented on 24th June 2015.

[10] Artificial grass pitch

Crane Valley Planning Guidelines (2005)

18.3.27 These Guidelines provide guidance for developers in the Crane Valley including RuTC and associated playing fields south of the A316. The overarching vision is to achieve the following:

'To develop the area to the highest environmental standards based around an improved riverside, a riverside walkway and improved open spaces, meeting the housing, recreational and educational needs of the area'.

18.3.28 There is also site specific guidance incorporated, proposal T37 RuTC Site makes provision for:

'Redevelopment to provide a new College and enabling residential development on the site of the existing college and playing field south of the A316. Retention and upgrading of Craneford Way East playing field'.

18.3.29 A number of development principles are set out against which developments will be tested. The following objectives are particularly relevant:

- *To improve the appearance and recreational value of the open space including the provision* of *a river walk and the associated pedestrian / cycle linkages; taking account river corridor ecology;*
- *To seek to* secure improved *sports facilities and possible improvements but not a significant expansion of student numbers at the College;*
- *To* contribute towards *meeting a range of housing needs; and*
- *To* ensure *the* provision *of appropriate local community facilities including for education and health and the community use of buildings and playing fields.*

18.3.30 In terms of open space, '*all areas of metropolitan land should be protected and enhanced for biodiversity and recreation, both to improve their value for residents and to enhance this part of the West London Green Chain.'*

Richmond upon Thames College Planning Brief (2008)

18.3.31 The Planning Brief establishes a development framework for the proposed comprehensive redevelopment of Richmond upon Thames College and set out the broad principles to guide development at the site.

18.3.32 It sets out that the '*focal points of the proposed redevelopment are the new educational buildings and sporting facilities. The rationale for the redevelopment of the college is to provide new, highly sustainable educational facilities, which will offer higher standards of Sixth Form provision throughout the Borough'* (para. 6.3).

18.3.33 In terms of residential development 'the site also has the potential to provide

enabling residential development, in accordance with the Council's UDP (2005) Policy T29' (para. 6.5).

18.3.34 In relation to open space, it states '*as part of the redevelopment the appearance and recreational value of the college's Craneford Way playing fields will be improved*' (para. 6.25).

18.4 ASSESSMENT METHODOLOGY

Evaluation of Effects

18.4.1 The assessment first establishes the baseline position in terms of local economic conditions, the current supply of housing and employment space as well as the provision of education, health, community, open space and sport and recreation facilities.

18.4.2 This assessment draws upon published Government, London and local authority statistics, and economic strategy documents relating to the area. The latest available data from the 2011 Census and other published national statistics have been used.

18.4.3 The assessment then examines the likely effects of the proposed development and their significance during both the construction and operational phases. Opportunities for the mitigation of any adverse effects and the enhancement of beneficial effects are then examined, including any built-in mitigation elements of the scheme.

Significance of Effects

18.4.4 Since there are no generally accepted criteria for assessing the significance of socio-economic effects, these have been assessed based on the scale of the increase over the baseline position, as well as the nature and context of the effect. Where relevant, the location of the effect and its likely duration has been taken into account although these do not apply to all socio-economic indicators. In some cases these factors cannot be quantified or measured, so the nature and context of the effects are considered more generally. Effects are identified as beneficial, neutral or adverse, while their magnitude are classified as either 'minor', 'moderate', 'major' or 'negligible'. Negligible effects are not considered significant.

18.4.5 Chapter 2, **Table 2.5** provides a matrix for determining the likely significance of identified development effects on the impact area.

Limitations of Assessment

18.4.6 The current planning application is seeking outline permission with some matters reserved. On this basis, where specific scheme details have yet to be determined, this

chapter considers the 'worst case scenario', for example the maximum likely population the residential element would be capable of accommodating in order to assess the maximum impact on community infrastructure and services. The assumptions used to inform this assessment are outlined in the relevant sections below.

18.5 BASELINE

Introduction

18.5.1 This section establishes the economic context, and any existing socio-economic effects of the development site and its surroundings. It also defines the scope for the assessment of socio-economic effects by identifying the area likely to be most strongly affected by the development proposals, and describes current socio-economic conditions and current provision of community and other facilities within that area.

18.5.2 The proposed REEC development site is located within the Middle Layer Super Output Area (MSOA) Richmond on Thames 011, to the north west of Twickenham town centre.

18.5.3 Given the site location, economic linkages, travel to work patterns as well as the scale of the proposed development, it is likely that some of the development effects may be spread over a wider impact area including the local authority area of Richmond-upon-Thames. However, it is likely that the most significant socio-economic effects will predominantly be felt close to the site, particularly those in relation to education, healthcare, open space, sport and recreation and community facilities. The impact area(s) considered for different uses or types of facilities are set out in each section below.

Current Baseline

18.5.4 This section sets out the economic and socio-economic context of LBRuT. Unless otherwise stated all statistics are derived from the Office of National Statistics (ONS) data.

Economic Context

18.5.5 The resident population in LBRuT in 2013 amounted to 191,400 and has risen by 8% over the decade 2003 to 2013[11]. Over the same period population growth in London was 13.8%. The number of people of working age (16-64 years) in LBRuT grew by 3.2% between 2003 and 2013 and in 2013 people of working age accounted for 65.2% of the population. This is higher than the national average (63.8%) but lower than the London average (68.4%).

[11] *ONS Mid-year Population Estimate Series* (various years)

18.5.6 In 2013, LBRuT had some 74,200 employee jobs. Between 2009 and 2013, over 5,800 jobs (8.5%) were gained in LBRuT. This was comparable to the general trend of employment growth in London (9.6%) and exceeded national job growth over the period significantly (2%)[12].

18.5.7 LBRuT's local economy is dominated by the service sector, in which nearly 94% of all the employees were employed in 2013. The three largest subsectors were financial and business services (30%), public administration, education and health (23%) and wholesale and retail, including motor trades (13%)[13]. These figures are comparable with the employment breakdown of London as a whole. A low job density ratio (0.74) compared to London (0.92) suggests that many residents commute to jobs outside the Borough[14].

18.5.8 Local economic activity rates in LBRuT averaged 82.1% between October 2013 and September 2014, higher than London (77.4%) and Great Britain (77.5%). This reflects the low unemployment rate[15].

18.5.9 Between October 2013 and September 2014, unemployment in LBRuT averaged 4.4%. This equated to 4,800 unemployed people and is lower than both the unemployment rate for London (7.1%) and Great Britain (6.5%)[16]. This relatively low level of unemployment reflects the longstanding trend of lower than average unemployment rates in the Borough. Over the last 10 years unemployment peaked at 5.9% in January 2010 – December 2010, significantly lower than the peak rates in London or the UK in this period.

18.5.10 Average gross weekly earnings for full-time employees in LBRuT (workplace earnings) were £579.10 in 2014. This is higher than the average for Great Britain (£520.20) and 12.3% lower than the London average (£660.50)[17].

18.5.11 Comparatively, resident earnings were significantly higher than both London and Great Britain averages. The average gross weekly pay for residents was £763.90 compared with £617.80 and £520.80 in London and Great Britain respectively[18]. This suggests that LBRuT residents travel out of the Borough for higher paid employment.

18.5.12 Overall, these indicators point to a local economy performing well in comparison to the rest of London. The recent recession had an impact on unemployment and

[12] *ONS, Business Register and Employment Survey* (2013)
[13] *ONS, Business Register and Employment Survey* (2013)
[14] *ONS, job density* (2012)
[15] *ONS Annual Population Survey* (2014)
[16] *ONS Annual Population Survey* (2014)
[17] *ONS Annual Survey of Hours and Earnings* (2014)
[18] *ONS Annual Survey of Hours and Earnings* (2014)

growth in LBRuT. However, this impact has been significantly less than elsewhere in London. Unemployment is low, new jobs are being created at a similar rate to the London-wide average growth rate and a strong base of private sector jobs exists.

Local Labour Market Conditions

18.5.13 LBRuT has a highly qualified population. 66.4% of 16-64 year olds have a qualification of NVQ level 4 and above, this rate is higher than London (49.1%) and significantly higher than the UK rate (35.2%)[19]. Just 3% of the population hold no formal qualifications, this is over half the rate recorded for London (7.8%) and nationally (9.3%).

Almost 70% of workers in LBRuT are in Standard Occupational Classification (SOC)[20] 2010 major group 1-3 (1 Managers, directors and senior officials, 2 Professional occupations, 3 Associate professional & technical) compared to an average of 54.6% across London and 44.6% across Great Britain. Of particular note are the high proportion of managers, directors and senior officials, 16.4% compared with a London average of 11.6%. LBRuT has few workers in jobs as process plant & machine operatives and elementary occupations, 3.5% compared to a London average of 8.8%, 10.7% across Great Britain[21].

18.5.14 LBRuT is one of London's most affluent boroughs. The population is highly qualified and this is reflected in a significantly above average number of workers in professional and managerial occupations.

Deprivation

18.5.15 The English Indices of Multiple Deprivation 2010 provides a measure of multiple deprivation at local authority area level, based on indicators such as income, employment, health, education and crime. Of the 326 local authorities in England, LBRuT is ranked 285th placing it amongst least deprived 20% of local authorities. It was the least deprived local authority in London[22].

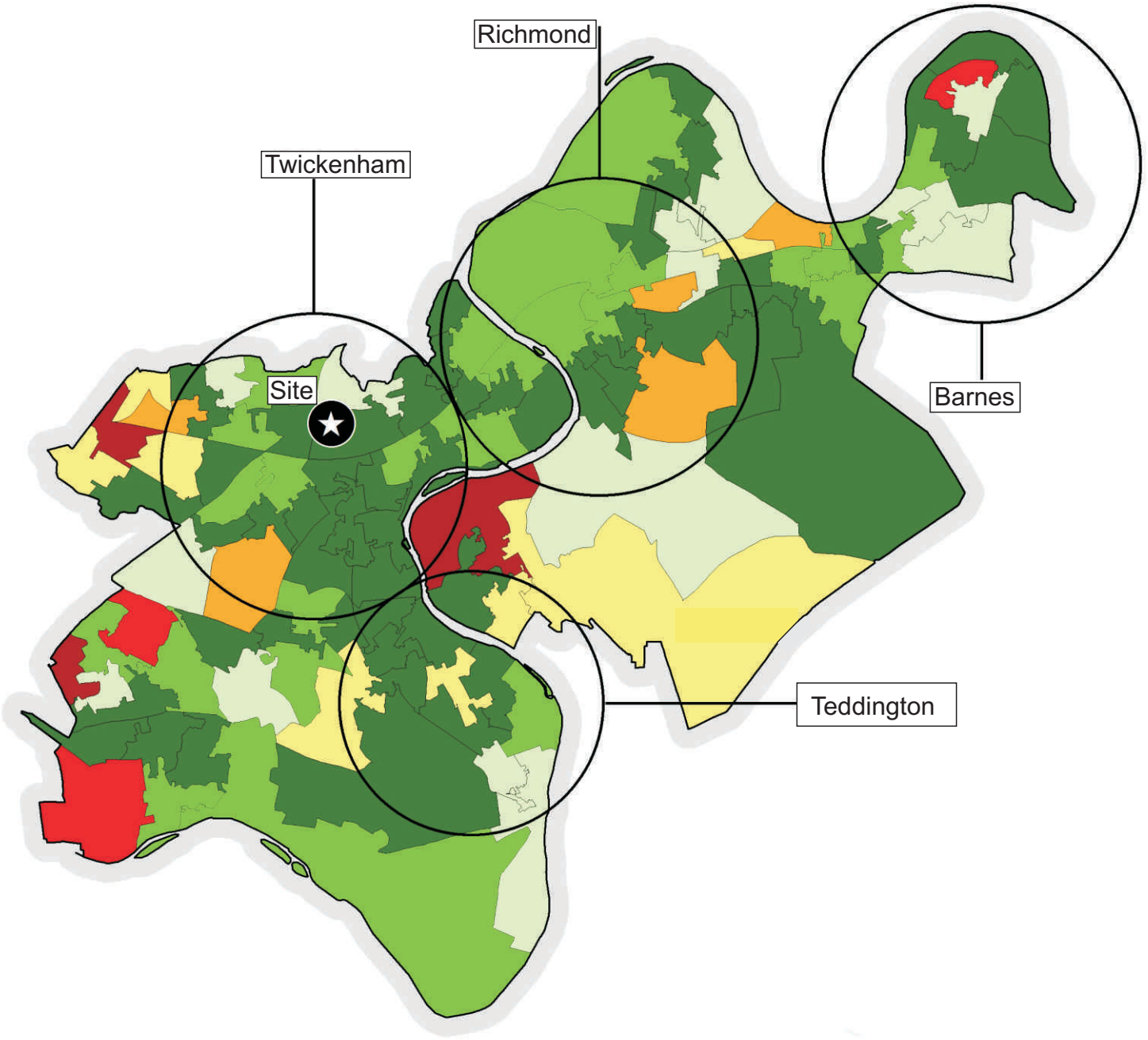
18.5.16 **Figure 18.1** maps the scale of deprivation across the Borough, while pockets of deprivation do exist, the area within which the application site is located is generally affluent.

[19] *ONS Annual Population Survey* (2013)

[20] Explanation of SOC Groupings available from the ONS: http://www.ons.gov.uk/ons/guide-method/classifications/current-standard-classifications/soc2010/soc2010-volume-1-structure-and-descriptions-of-unit-groups/index.html

[21] *ONS Annual Population Survey* (2014)

[22] *DCLG Indices of Multiple Deprivation* (2010)



Legend

Indices of Multiple Deprivation (IMD), 2010 - IMD Rank % (shown at LSOA)

Top 30% Lowest Ranked within England	MOST DEPRIVED
Top 40% Lowest Ranked within England	
Top 50% Lowest Ranked within England	
Top 60% Lowest Ranked within England	
Top 70% Lowest Ranked within England	
Top 80% Lowest Ranked within England	
Above 80%	LEAST DEPRIVED

N

CASCADE

Not to Scale

Note: All locations are approximate

Project Title:

Richmond Education and Enterprise Campus Development

Figure Title:

Deprivation Map of LBRuT

For Information Only

Figure Number:	Date:
Figure 18.1	June 2015

Commuting

18.5.17 Based on Census 2011 origin-destination data[23], 2,192 people aged 16 and over recorded MSOA Richmond upon Thames 011 as their place of work. Of these 34% live within LBRuT, a further 20% live in LB Hounslow. The greatest in-flows of labour come from the MSOAs adjoining Richmond 011 including Richmond upon Thames 015, 013 and 010.

18.5.18 Overall, 2,995 people aged 16 and over recorded Richmond upon Thames 011 as their usual residence; a large proportion of these residents work within areas of central London including the City and Westminster in particular. Approximately one quarter of residents work within LBRuT. As with in-commuting the strongest flows relate to the adjoining MSOAs of Richmond upon Thames 014, 008 and 007. Outflows of commuters to LB Hounslow are lower than inflows (13% compared to 20%). Just 3% of residents also work in the MSOA.

Economic Development

18.5.19 Businesses in LBRuT are concentrated in the main centres of Richmond, Twickenham and Teddington. In 2012, LBRuT had 300,000sqm of office and 176,000sqm of industrial floorspace[24]. Employment projections (as per the London Plan (as amended)) indicate that employment in the Borough is set to grow by 12,000 jobs or 12.9% between 2011 and 2036. The Borough is expected to see growth of office based activities but a decline in industrial activities.

18.5.20 The Council commissioned Review of Employment Land and Premises describes Twickenham as '*a secondary centre and somewhat struggling in comparison to Richmond borough standards*', reflected in '*high vacancy levels*' and dated office stock.

18.5.21 Nevertheless, the potential of the centre is also noted:

'it is recognised that Twickenham is in need of investment with a large share of its office stock at the end of their useful lives. In this sense the local property market is at a cross-road and the future of its sites will depend on the level of investment that can be raised to meet the objectives of the Area Action Plan. There is good scope for hybrid space currently'.

[23] ONS, 2011 Census Origin Destination Available online from: http://www.nomisweb.co.uk/query/select/getdatasetbytheme.asp?theme=26&subgrp=2011+Census+-+Origin+Destination [Accessed November 2014]

[24] PBA (2013) *Richmond Employment Land and Premises*

Existing Employment

18.5.22 Based on information received from the occupier, RuTC's existing facility supports 291 Full Time Equivalent (FTE) jobs.

18.5.23 The proposed development involves the relocation of some existing employment from elsewhere in LBRuT to the REEC site. Haymarket Media Group currently employs 1,200 people[25] at their Broom Road office in Teddington, though planning permission was recently granted for the re-development of this site (Application Ref. 14/0914/FUL). There are approximately 80 staff employed at Clarendon School at the current facility at Hanworth Road, of which, 30% occupy part-time roles (this equates to a total of 68 FTEs).

Housing

18.5.24 In 2011 there were 79,800 households in LBRuT, a 4.9% increase on 2001. Between 2001 and 2011, owner occupation declined from 69% to 64% of households. This is consistent with the trend across Outer London. However, owner-occupation remains much more prevalent in LBRuT than the outer London average (48%). Households in the private rental sector have increased from 17 % to 22% but this is less than the rise across the rest of outer London (from 15% to 25%) over decade 2001-11. Households in the social rented sector have remained proportionately broadly similar.

18.5.25 The average median house price in LBRuT (2013) was £475,000, over 2.5 times the national average of £187,000. Prices have increased by over 200% since 1998[26].

18.5.26 The South West London Strategic Housing Market Assessment[27] (2012) notes that area's housing market faces considerable affordability challenges '*the current active housing market is typified by high costs of accessing private sector housing (both to purchase and to rent)*'.

18.5.27 In 2013, Richmond's lower quartile affordability ratio equated to 14.50, significantly exceeding the equivalent rate for outer London (9.79) and nationally (6.45).

18.5.28 Richmond upon Thames's Core Strategy (2009) identifies a target of 270 additional homes per annum between 2007 and 2017. This target has been superseded by the FALP which identifies a target of 315 homes per annum for Richmond to deliver (over the period 2015-2025)[28]. The Core Strategy identifies Twickenham, Richmond and Teddington as target areas for the delivery of most of these new homes.

[25] According to planning application
[26] CLG Live Table 256
[27] Ecorys (2012) *South West London Strategic Housing Market Assessment Final Report*
[28] *London Plan* (as amended) 2015, Table 4.1

Socio-economic Factors

Education Provision

Early Years / Childcare

18.5.29 With early education funding, children are entitled to attend nursery for 15 hours per week (3 hours per day). There are 18 local authority nursery classes and one standalone nursery school, Windham, in the Borough. According to the 'School Place Planning Strategy 2015-2024[29]' each of these maintained nurseries is oversubscribed with applications and demand far exceeding supply. The Council is currently completing a 'Childcare Sufficiency Statement' to identify local demand and indicate where additional places need to be established.

18.5.30 There are 11 day nurseries within 1.5km of the application site[30]. Tenderlinks Nursery, which provides private childcare services for 0-5 year olds, located on Longhorn Drive is the closest facility and currently has vacancies. The facility is eligible for early education funded places and two year old funded places.

Primary and Secondary Education

18.5.31 The proposed residential element of the scheme is likely to have effects on education provision, with the main focus of these effects likely to be quite local, and mainly within LBRuT and to a lesser extent within LB Hounslow. Schools in LBRuT are the responsibility of Richmond Local Education Authority (LEA).

18.5.32 There are 53 schools within the Borough including 44 primary schools and 9 secondary schools. Seventeen of the primary schools also provide nursery units. There are two schools for children with special education needs (SEN), Oaklands School and Clarendon School.

18.5.33 Places in schools are allocated using a range of criteria, those with siblings attending a school and those with care needs are prioritised, and thereafter places are allocated based on the distance a child lives from the school. There are no specific catchment areas aside from at Waldegrave School for Girls. Places are only allocated to non-borough residents if there is surplus capacity available.

Primary Education

18.5.34 Demand for primary school places has increased across the Borough in recent years. The capacity position of schools has been identified through the School Census 2014

[29] London Borough of Richmond upon Thames (January 2015) *School Place Planning Strategy 2015-2024*
[30] http://www.richmond.gov.uk/fis_search.htm?type=FDC&postcode=TW2+7SJ&ward=Any&search=Search

as documented on Edubase[31]; the key information is set out in **Appendix 18.1, Table A18.1**. There are 36 primary schools located within c.3kms[32] of the application site. In total, these schools provide 15,613 school places[33]. In January 2014, there were 15,230 students[34] registered on the school roll of these facilities. This indicates that there was spare capacity of 383 places, equivalent to a 2% surplus.

18.5.35 Of these 36 primary schools, 20 are located within LBRuT, providing 8,280 school places. There are currently 8,161 registered students. This suggests that primary school places are constrained with just 119 surplus primary school places or just 1% of the total.

Secondary Education

18.5.36 A wider catchment is considered for secondary schools, there are 19 secondary schools that are located within 5km of the application site (a number of which are located in LB Hounslow). Overall, these schools provide 20,412[35] places and there are 18,879 pupils on the school rolls (see **Appendix 18.1, Table A18.2**). Eight of these schools are within LBRuT, combined they provide 7,513 school places and have 6,598 registered students.

18.5.37 The Audit Commission recommendation is that, to avoid the risk of having insufficient capacity as a result of unexpected fluctuations in pupil numbers and to allow for flexibility and reasonable parent choice, schools should plan for a surplus of 7-10% of places. This is particularly relevant in LBRuT given the current constraints at primary level combined with significant amounts of residential development underway or committed in the area, the demand for secondary school places is likely to increase in the short to medium term (this will be considered in further detail in Sections 18.7 and 18.9).

18.5.38 School capacity in the local impact area should also be considered in the wider context of trends in education including demographic trends (as described in the Planning Statement). The Mayor's London Infrastructure Plan[36] estimates that, as London's population rises to 11 million and beyond, 600 new schools and colleges will be needed in the Capital by 2050. London Councils' 'Do the Maths 2014' report[37], on

[31] Department for Education *EduBase public portal* Available online from: http://www.education.gov.uk/edubase/home.xhtml [Accessed November/ December 2014].
[32] The Council aims to provide places for children within 1.5 miles.
[33] No capacity figure was available for St Richard Reynold's Catholic Primary School therefore assumed that it the school is operating at capacity
[34] No figures were available for Alexandra Primary School therefore assumed that it the school is operating at capacity
[35] No capacity figure was available for St Richard Reynolds Catholic High School therefore assumed that it the school is operating at capacity catering for 125 pupils.
[36] Mayor of London *London Infrastructure Plan 2050*
[37] London Council *Do the Maths 2014 London's school places challenge*

the number of school places that will be required across London, predicts that between 2012/2013 and 2017/2018 there will have been a 23% increase in the state-funded school population within LBRuT, the fifth highest in London as a whole, 15-17% in the primary phase and 24.5%+ in the secondary phase.

18.5.39 Improvement in standards in many of London's schools (and in LBRuT) also means that London is a destination of choice for parents wishing to offer their children the best possible education. These factors have meant that the pupil growth rate in London as a whole is increasing at twice the rate of the national average[38].

18.5.40 Although significant progress has been made in LBRuT to address the shortfall of places within primary schools, as this growth in the school-age population moves through the school system there is now growing demand for secondary school places. Department of Education figures[39] show that the number of secondary school pupils in LBRuT is expected to increase from 6,884 in 2012/13 to 10,179 by 2019/20 – an increase of over 47%. Demand for places in the secondary schools within the Borough has grown considerably in recent years and the capacity within Year 7 is forecast to be exceeded by demand in September 2017 unless new provision is available from that point onwards. In January 2015, LBRuT Council's Cabinet adopted a revised 10-year School Place Planning Strategy[40], which sets out the need, and plans, for additional primary and secondary school places to meet demand until 2024.

18.5.41 This suggests that there is a need for additional capacity at primary and secondary level education facilities in the local impact area.

18.5.42 The Application Site accommodates RuTC; which offers a wide range of courses and subjects for 16-18 year olds including A levels. It also provides an extensive choice of vocational qualifications from entry level through to level 3 including Business and Technology Education Council (BTEC) qualifications, National Vocational Qualifications (NVQs) and apprenticeships, as well as a number of higher education courses and courses for adults, aimed at developing skills and enhancing employment opportunities. According to the occupier, currently RuTC has 3,150 students with approximately 500 evening students who access the site over three nights a week. The college is also used on Saturday mornings.

18.5.43 Clarendon School (SEN) is currently located on Hanworth Road in Hampton, the existing school has capacity for 120, in 2014, there were 117 registered students. The school caters for pupils aged 7 to 16 with moderate learning difficulties and autistic

[38] 2011 Census First Results: London Borough Population by Age and Sex Census Information Scheme GLA Intelligence July 2012

[39] DfE/ EFA School capacity: academic year 2012 to 2013 Table 5

[40] London Borough of Richmond upon Thames *School Place Planning Strategy 2015-2024*

spectrum conditions. The school is part of the continuum created to meet special educational needs within the LBRuT.

18.5.44 In terms of third level education, St. Mary's University is located in Twickenham. It provides a range of undergraduate, postgraduate, Postgraduate Certificate in Education (PGCE) and foundation courses.

18.5.45 The spatial distribution of primary, secondary and SEN schools in the local impact area are shown in **Figure 18.2**:

Health Provision

18.5.46 LBRuT is covered by the Richmond Clinical Commissioning Group (CCG) which serves a resident population of over 190,000 people living in the Borough. The CCG consists of all 29 GP practices in the Borough of Richmond and is responsible for planning and buying health services for people living in the Borough**.**

18.5.47 The CCG / NHS Choices database[41] lists five practices that are located in Twickenham, there are 22 GPs based at these facilities. These include:

- The Acorn Group Practice;
- Cross Deep Surgery;
- Oak Lane Medical Centre;
- Staines Road Medical Centre; and
- The York Medical Practice.

18.5.48 Each of the facilities is currently accepting new patients (see **Appendix 18.1, Table A18.4**).

18.5.49 West Middlesex University Hospital is located 2.7 km from the application site, providing health care services to the residents of LBRuT. It provides an accident and emergency department as well as maternity and a range of acute and outpatient services. The hospital has 437 beds and currently operates at 87% capacity[42].

18.5.50 In terms of dentists, the CCG / NHS Choices database lists nine dental practices located in Twickenham, accommodating 39 dentists in total providing dental and orthodontic services. Of these nine, five have spare capacity.

18.5.51 All of the practices are currently accepting new patients, including fee paying adults, charge-exempt adults and children.

[41] NHS Richmond Clinical Commissioning Group Available online from: http://www.richmondccg.nhs.uk/ [Accessed November 2014]

[42] NHS England, Average daily number of available and occupied beds open overnight by sector (KH03) July to September 2014, published November 2014.