



Tunbridge Wells Local Plan Update

Baseline Review Report

Tudeley Village

On behalf of **Tunbridge Wells Borough Council**

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Contents

- 1 Introduction..... 1**
 - 1.1 The Study 1
 - 1.2 Site Description 1
 - 1.3 Key Constraints 2
 - 1.4 Tunbridge Wells Borough Council Objectives for Site 2
 - 1.5 Possible High-Level Infrastructure Considerations 2
- 2 Transport..... 3**
 - 2.1 Introduction 3
 - 2.2 Local Plan Evidence Review 3
 - 2.3 Site Promotor Evidence Review 4
 - 2.4 Existing Transport Infrastructure 4
 - 2.5 Future Transport Considerations..... 6
 - 2.6 Transport Wider Context 7
- 3 Environment..... 9**
 - 3.1 Local Plan Evidence Review 9
 - 3.2 Site Promotor Evidence Review 9
 - 3.3 Air Quality 9
 - 3.4 Noise and Vibration 10
 - 3.5 Waste 11
 - 3.6 Sustainable Resources 11
- 4 Ecology..... 13**
 - 4.2 Designated Sites for Nature Conservation 13
 - 4.3 Habitats 14
 - 4.4 Species..... 14
 - 4.5 Opportunities 15
 - 4.6 Next Steps and Conclusion 16
- 5 Flood Risk 18**
 - 5.1 Introduction 18
 - 5.2 Sources of Flood Risk 18
 - 5.3 Masterplanning Observations..... 18
- 6 Geotechnical 21**
 - 6.1 Introduction 21
 - 6.2 Site Location..... 21
 - 6.3 Site History and Current Use..... 21
 - 6.4 Ground Conditions..... 22
 - 6.5 Hydrological and Hydrogeological Conditions..... 22
 - 6.6 Constraints and Opportunities 22
 - 6.7 Geotechnical Constraints 23
 - 6.8 Geoenvironmental Constraints 24

7	Utilities	26
	7.1 Introduction.....	26
	7.2 Local Plan Evidence Review.....	26
	7.3 Electricity.....	26
	7.4 Gas.....	27
	7.5 Potable Water.....	27
	7.6 Wastewater.....	27
	7.7 Telecommunications.....	28
8	Summary and Conclusion	29
	8.1 Summary.....	29
	8.2 Conclusion.....	30

Figures

Figure 1.1 Site Location (extracted from DLA plan).....	1
Figure 2.1: Tudeley Village Distribution.....	6
Figure 2.2: Wider Transport Context Plan.....	8

Tables

Table 8.1: Constraints and Opportunities for Tudeley Village.....	29
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1 Introduction

1.1 The Study

- 1.1.1 Tunbridge Wells Borough Council (TWBC) have commissioned David Lock Associates (DLA) and Stantec to evaluate the suitability of the location of a Garden Village in Tudeley allocated within the Tunbridge Wells Draft Local Plan.
- 1.1.2 A review of strategic framework masterplan opportunities, access and movement and infrastructure requirements have been explored for the sites surrounding Tudeley Village.
- 1.1.3 This report considers the key constraints and opportunities associated with future development at Tudeley.

1.2 Site Description

- 1.2.1 The site is considered within the Tudeley Village allocation. The site is to the north of the B2017 at Tudeley Village.
- 1.2.2 The site is within the vicinity of the A228 to the east and the A21 to the south, with the A26 to the west. The site is in a rural location, with the nearest towns are Tonbridge to the west and Tunbridge Wells to the south.
- 1.2.3 The site is illustrated on **Figure 1.1**.

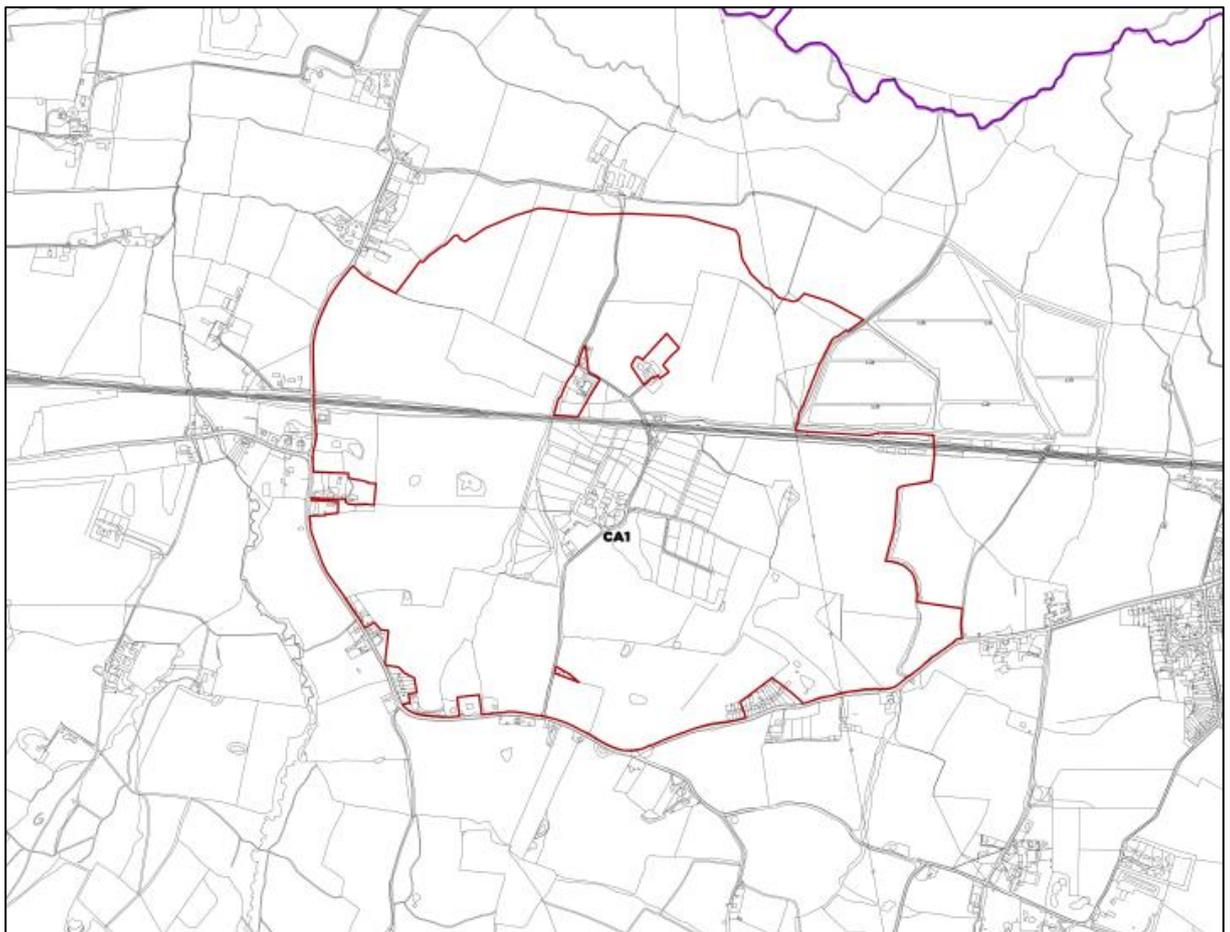


Figure 1.1 Site Location (extracted from DLA plan)

1.2.4 The site currently consists of agricultural land.

1.3 Key Constraints

1.3.1 The key constraints that have been identified for developing the site are:

- Access to the A26, and A228;
- Sustainable transport provision;
- Isolated site with limited transport connectivity;
- AONB/Green Belt;
- Capacity issues on existing highway network;
- Noise from local roads and the railway.

1.4 Tunbridge Wells Borough Council Objectives for Site

1.4.1 The masterplan review for this site is to consider the viability of a new residential community, incorporating local centres, schools and other social infrastructure. As part of the master planning a single scenario has been explored:

- 2,800 dwellings, 2,750sqm of office use, 8,250sqm retail of which 1,000sqm of supermarket has been assumed, 1 X 3FE Primary Schools, new 6FE secondary school, 1 Village centre, and 3 neighbourhood centres.

1.5 Possible High-Level Infrastructure Considerations

1.5.1 The Local Plan will need to quantify the infrastructure requirements to establish if development proposals for the site are viable. The report considers the following technical disciplines and sets out key constraints and opportunities to be explored in developing the masterplan options:

- Transport;
- Environmental;
- Ecology;
- Flood Risk;
- Geotechnical; and
- Utilities.

2 Transport

2.1 Introduction

2.1.1 This section reviews the existing transport infrastructure in the vicinity of the site and sets out the future transport considerations in relation to development at Tudeley Village. The Access and Movement report follows this baseline review and sets out how the masterplan responds to the baseline position.

2.2 Local Plan Evidence Review

2.2.1 A review has been undertaken of the Local Plan evidence base and the following items have been considered within this report;

- Cycling strategy actions
- Modal shift of 11%
- New bypass link of Colts Hill
- A26 corridor upgrade
- Additional capacity between A26 and Capel along B2017
- Link road to new Colts Hill bypass
- A26 Woodgate Way/B2017 Tudeley junction upgrade
- B2017 Tudeley Road/Hartlake Road junction upgrade
- A228 Whetsted Road/B2160 Maidstone Road upgrade
- BRT between Tudeley/Paddock Wood and Broadwater Down
- Cycle route between Paddock Wood and Tonbridge

Draft Infrastructure Delivery Plan – August 2019

- A228 Colts Hill capacity improvements;
- A26 - reallocation of road space with smart traffic management to improve journey time reliability and provide infrastructure for sustainable modes (walk, cycle and bus);
- New bypass link for Colts Hill reducing congestion at key junctions and increasing link capacity and installation of measures on existing A228 for bus and/or cycle priority use;
- Additional capacity between A26 and Capel on B2017;
- New link to Colts Hill bypass (above) from B2017 (to bypass Five Oak Green) or to north towards Paddock Wood;
- New roundabout at B2017 Tudeley Road/Hartlake Road to increase junction capacity;
- Upgraded roundabout at A26 Woodgate Way/B2017 Tudeley Road to increase capacity at junction;

- New bypass link for Colts Hill reducing congestion at key junctions and increasing link capacity and installation of measures on existing A228 for bus and/or cycle priority use
- Upgraded roundabout at A228 Whetsted Road/B2160 Maidstone Road to provide additional capacity;
- Highway improvements at A228/Badsell Road

Transport Strategy – 2015-2026

- A228 Colts Hill capacity improvements;
- Junction improvement at Badsell Road/Mascalls Court Road
- Junction improvements at Colts Hill roundabout
- A26 – Tonbridge to RTW town centre

2.2.2 It should be noted that there are some documents that have not yet been made public.

2.3 Site Promotor Evidence Review

Turnberry/Teachers

- 2.3.1 There have been several reports and technical notes written by WSP for the site at Tudeley village. The first report explored all the key themes for providing a sustainable garden village settlement. A bus strategy note was also provided which explains that an additional bus along the 205 route and through the development providing a 30 minute frequency and explores the financial implications of providing this additional capacity.
- 2.3.2 An additional technical note regarding traffic impacts on the local highway was undertaken for a development of around 2000 dwellings with a reduction in trips by 20% for internalisation. Junction assessments have been undertaken for 5 junctions and suggested mitigations where appropriate.
- 2.3.3 The latest technical note outlined the potential internalisation factors for different journey purposes.

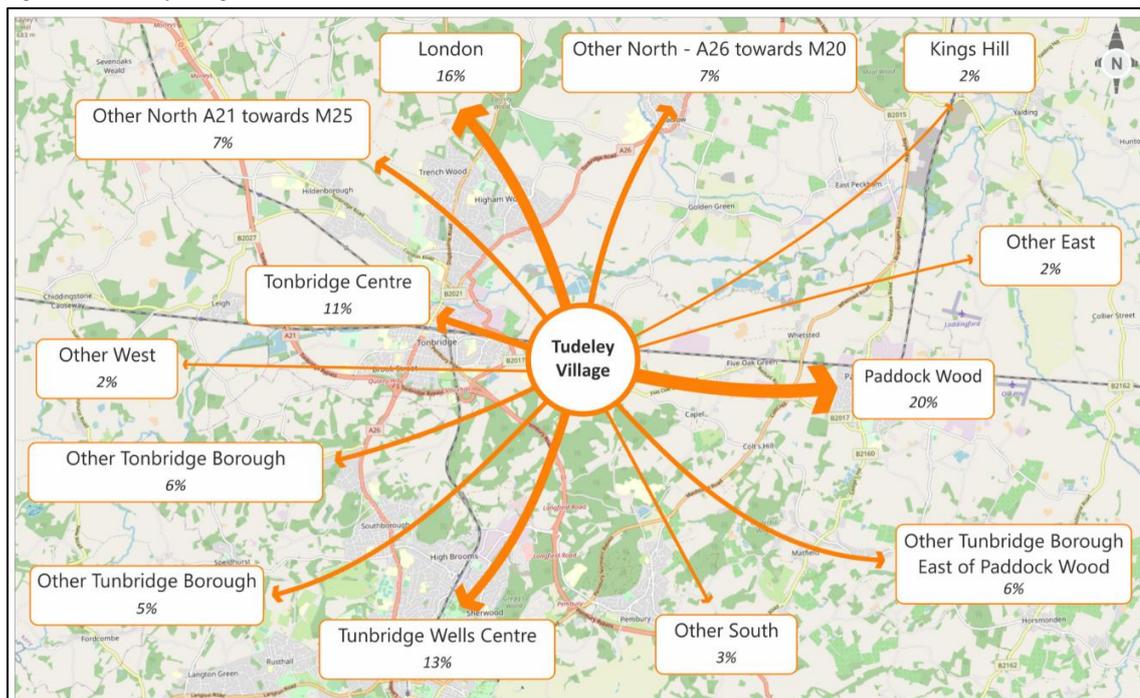
2.4 Existing Transport Infrastructure

- 2.4.1 The site is well related to the strategic highway network with the A228 to the east and the A26 to the West. The A228 leads to the A21 to the south west continuing to Tunbridge Wells, with the A26 passing to the east adjacent to Tonbridge aligning broadly in a north south direction, again linking with the A21 to the south.
- 2.4.2 In pure link capacity terms, the section of the A228 which passes through Colts Hill is not considered to present an issue to the delivery of the Masterplan. However, the as the nature of the traffic carried by the road has evolved to higher volumes and larger vehicles on more strategic journeys, the road itself is constrained in how it can be improved.
- 2.4.3 Analysis of publicly available Personal Injury Accident data confirms anecdotal representations of there being safety issues on this section of the A228, with the staggered crossroads junction with Alders Road / Crittenden Road in particular being the location of a substantial cluster of accidents.
- 2.4.4 Elsewhere along this section of the A228, there are a number of accidents recorded, included several classified as Fatal and Serious. Sections of the road narrow to as little as 5.0m, which

is a likely contributing factor to a proportion of the accidents and would also fall below standard for a new road of this type being designed today.

- 2.4.5 There is a long-held aspiration by Kent County Council to deliver a Colts Hill Bypass. This dates back to the early 1990s and has been revisited a number of times over the years in response to KCC funding bids to government. It is understood that the latest cost estimates for the scheme are in the region of £46m, and that recent applications for funding have been unsuccessful.
- 2.4.6 The B2017 passes broadly east/west from the B2160 within Paddock Wood through Tudeley Village to the A26, passing through Five Oak Green. As it passes through Five Oak Green, the B2017 is subject to a 30mph speed limit, with a number of properties taking direct vehicular access and others being wholly reliant on parking on the B2017. This acts to narrow the carriageway down to less than 4.5m wide, thus causing difficulties for two-way traffic. Furthermore, because of the historic nature of the village core footways narrow to less than 0.5m, creating significant hazards and constraints to the safe movement of pedestrians. Public accident data records show one fatal accident on the B2017 between Tudeley Village and the A26, along with a number of slight and serious accidents.
- 2.4.7 To the north of Tudeley Village, the roads are more rural in nature and are mainly country lanes.
- 2.4.8 Tudeley Village is served by the 205 and 789 bus services. The 205 service passes through the centre of Tudeley Village passing between Tonbridge and Paddock Wood. The 789 is a commuter service that goes between Paddock Wood and London, stopping in Tudeley Village and operates services in the morning and evening.
- 2.4.9 The nearest railway station to the site is Tonbridge, located approximately 4km from the centre of Tudeley Village. The station is on a confluence of four lines and lies on the main London line, with trains also going to Tunbridge Wells, Sevenoaks, Hastings, Dover and Ramsgate. It is possible to access the station via the B2017 and A26. There is currently no convenient walking route to the train station from the Site.
- 2.4.10 There are several public right of way routes surrounding Tudeley Village, which pass through the site.
- 2.4.11 The nearest National Cycle Network route to Tudeley Village is to the south approximately 4 miles away, which is route 18 which continues to Tunbridge Wells via Pembury.
- 2.4.12 The movement of people from the site to key destinations can be seen in **Figure 2.1**. It demonstrates that the main destinations future residents are likely to travel to for work will be Tonbridge, Tunbridge Wells, Maidstone and London. There will also be some level of internalisation within the Site due to the strategic nature of the Site and the promotor aspirations for high levels of employment provision.

Figure 2.1: Tudeley Village Distribution



2.5 Future Transport Considerations

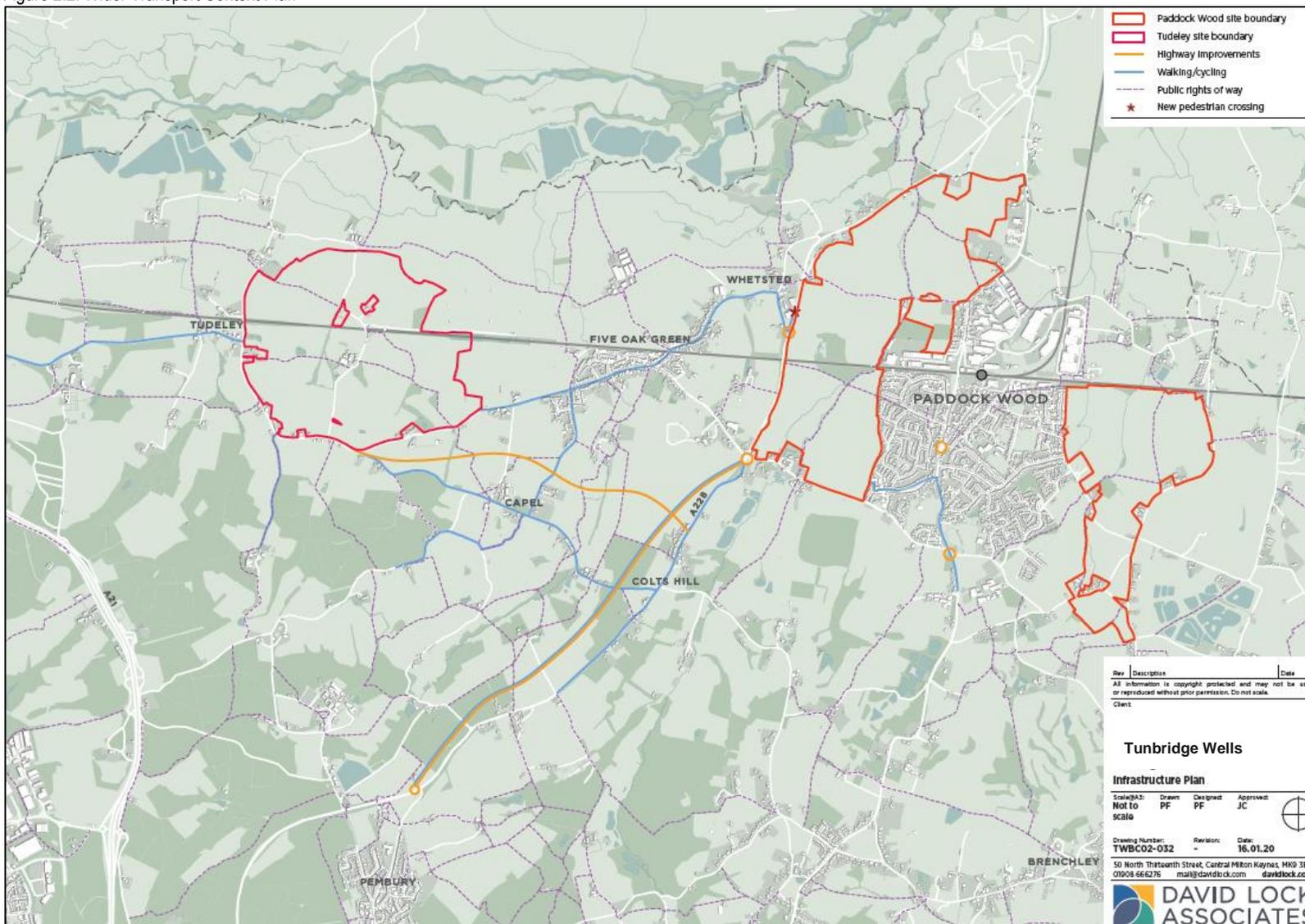
- 2.5.1 This section sets out the future transport infrastructure that will need to be considered to enable development to be delivered at Tudeley Village.
- 2.5.2 Multiple access points could be provided to the Site from the existing highway network from the B2017. Internally to the development a new road network will be required to connect all areas of the Site, which will provide walking, cycling and bus provisions.
- 2.5.3 To accommodate this development, off site infrastructure improvements will be required. There is a desire to provide a bypass at Colts Hill or potential online measures to resolve the safety and width constraint issues previously highlighted by stakeholders and which are confirmed by Personal Injury Accident records and review of the road.
- 2.5.4 Consideration of east / west traffic issues on the B2017 and communities through which development traffic would pass would be necessary, in particular issues around Five Oak Green where the emerging Local Plan identified a potential link road running south of Five Oak Green and linking with the A228.
- 2.5.5 Improvements are expected to be required at the Colts Hill Crossroads, the A228/B2017 roundabout, A26/B2017 roundabout and the A26/A21 Vauxhall Roundabout as identified in the emerging Tunbridge Wells Local Plan Reg 18 Transport Assessment.
- 2.5.6 Cycle improvements are anticipated along the B2017 and the A228 southbound towards Tunbridge Wells. Also, improvements will be considered between Tudeley Village and Paddock Wood to provide connectivity between the two large development areas. Cycle connections are also planned between Tudeley Village and Tonbridge and a green route to the North Farm Industrial Estate along Longfield Road, as identified in the Phil Jones Associates report prepared in support of the emerging Tunbridge Wells Local Plan.
- 2.5.7 It is considered that existing public rights of way through the site will be retained and developed and integrated through masterplanning.

- 2.5.8 Significant public transport infrastructure would be required to ensure the site provides sustainable travel opportunities to the local area. Potential opportunities to provide a new bus service through the site linking with key destinations would be explored.
- 2.5.9 A traditional bus service is possible in this location given the likely scale of development, destinations and potential routeing. This would fit with Local Plan aspirations and reach the level of patronage expected to underpin sustainable development and Garden Settlement Prospectus requirements.

2.6 Transport Wider Context

- 2.6.1 The wider transport context plan in **Figure 2.2**, illustrates the existing and future transport strategy across TWBC. It demonstrates how the future development at Tudeley Village and Paddock Wood, could connect into the wider transport strategy for the area.

Figure 2.2: Wider Transport Context Plan



3 Environment

3.1 Local Plan Evidence Review

- 3.1.1 1.1. A review of the Local Plan evidence base and the following documents and points of relevance are noted in relation to air quality, noise, waste, energy and sustainability:

Energy Topic Paper for Draft Local Plan – Regulation 18 Consultation (August 2019)

- 3.1.2 A proposed new policy for energy reduction in new buildings requires:

“1. A ‘fabric first’ approach in which all new development is required to reduce sitewide, operational CO2 emissions by at least 10% below the Target Emission Rate (TER) as set out in Building Regulations Part L (2013); and

2. Requirement for major development to reduce site-wide, operational CO2 emissions by 15% using renewable energy generating technology to be installed on site. The 15% reduction will be calculated only after the ‘fabric first’ approach has been applied.”

- 3.1.3 Compliance with this policy should be demonstrated with a design stage Energy Strategy Report (major development).

Development Constraints Study (October 2016)

- 3.1.4 Water consumption rates in Tunbridge Wells are higher than the national average and the area is defined by the Environment Agency (EA) as being an area in “Serious Water Stress”.

- 3.1.5 An Air Quality Management Area (AQMA) is designated along the A26 into Tunbridge Wells. Any additional development within this area or vicinity may have to provide funding towards mitigating measures to offset any increase in local pollutant emissions as a consequence of the proposed development.

Water Efficiency Background Paper (December 2017)

- 3.1.6 Tunbridge Wells Borough was classified by the EA as being under “Serious Water Stress”

- 3.1.7 It is recommended that a water efficiency policy be implemented requiring new dwellings to be designed to achieve water consumption of no more than 110 litres per person per day. A review has been undertaken of the Local Plan evidence base..

3.2 Site Promotor Evidence Review

- 3.2.1 No specific technical reports or assessments have been provided in relation to air quality, noise, waste, sustainability or energy for the Tudeley Village site.

3.3 Air Quality

- 3.3.1 The Site is not located in an Air Quality Management Area (AQMA). The nearest AQMA is located ~5km south west of the Site along the A26 which was declared by TWBC in 2005 due to exceedances of the National Air Quality Objective for annual mean Nitrogen Dioxide (NO2). The AQMA originally covered an area along the A26 London Road, Southborough Grosvenor Road and the junction with the A264 Mount Ephraim in Tunbridge Wells. Since the initial declaration of the AQMA it has been extended (most recently in 2018) and now extends to the A26 between the war memorial near the junction of Birchwood Avenue to the north and the

garden centre on Eridge Road to the south¹. The next nearest AQMAs are located >10km from the site in the neighbouring local authority areas. These are located in Borough Green and Maidstone.

- 3.3.2 The site is bordered by the B2017 Five Oak Green Road and Harlake Road to the south and west. Sherenden Road is located to the north of the Site and also bisects the Site in a north – south direction. A railway line is located to the north of Tudeley Village which crosses the Site from east – west, however this is not one with heavy traffic of diesel passenger trains.
- 3.3.3 During the development of the design, an assessment should be undertaken to ensure that set back distances from the surrounding roads and new residential and educational receptors (e.g. the proposed secondary school) are such that air quality at sensitive locations within the Site is acceptable. It is not anticipated that the surrounding roads are heavily trafficked and therefore only a nominal separation distance from the roads is likely to be required to ensure adequate air quality at sensitive locations within the Site. Less sensitive uses such as commercial and employment uses could be located closer to the highways which would also help negate potential noise impacts on sensitive receptors (See Section 2 below).
- 3.3.4 There are residential receptors located in close proximity to the Site along the surrounding roads, including the villages of Tudeley, Tudeley Hale and Five Oak Green. There are also several residential premises located along Sherenden Road that are surrounded by the Site.
- 3.3.5 The closest sensitive ecological site, Brookland Wood Site of Special Scientific Interest (SSSI) is located adjacent to the A21 Hastings Road, more than 8 km southeast of the Site.
- 3.3.6 Consideration will need to be given during the development of the Site to promote sustainable and active travel and the use of low emissions vehicles through (e.g. incorporating electric charging infrastructure) to help reduce potential deterioration in local air quality and potential adverse impacts on nearby sensitive receptors. This also aligns with garden city principles to create transport systems where walking, cycling and public transport are the most attractive forms of local transport.
- 3.3.7 An appropriately detailed air quality assessment will be required to accompany any planning application for the Site in order to demonstrate that the site layout is acceptable and development traffic is not predicted to have an undue impact on local air quality. However, with mitigation measures available, and continual improvements in vehicle NOx emissions expected in the future, air quality is not likely to be a significant constraint on the development of the Site.

3.4 Noise and Vibration

- 3.4.1 The railway line which runs through the Site is a likely significant source of noise and vibration. Development on either side of the railway line will need to consider proximity distance and/or barrier mitigation to ensure that development would be within guideline noise and vibration levels.
- 3.4.2 A setback from the railway line will need to be incorporated for noise sensitive uses (e.g. residential and educational uses). Less sensitive noise uses such as commercial and employment uses could be located closer to the railway and this would provide shielding for other more distant parts of the Site.
- 3.4.3 Although not particularly heavily traffic roads at present, the B2017 Five Oak Green Road, Harlake Road and Sherenden Road could also be a potential noise constraint with the introduction of additional vehicle movements associated with the development. The layout with

¹ <https://uk-air.defra.gov.uk/>

regards to locations of private external amenity areas would need to be considered in areas close to these highways.

- 3.4.4 An appropriately detailed acoustic and vibration assessment will be required to accompany any planning application for the site in order to demonstrate that the site layout is acceptable.

3.5 Waste

- 3.5.1 Kent County Council is the responsible waste and minerals planning authority for the area. The Kent Minerals and Waste Local Plan 2013-30 - Minerals Sites plan was adopted in September 2020 and identifies an extension to Stonecastle Farm Quarry for the extraction of sharp sands and gravel. At its closest point, the proposed extension is located just over 500m north of the site. A site has also been identified for sharp sand and gravel extraction at Moat Farm, Five Oak Green which is located ~600m north east of the Site at its closest point.
- 3.5.2 A number of development management criteria have been identified in the Minerals and Waste Local Plan which outline measures that will be required to be put in place to see that potential adverse effects from these extraction developments (e.g. to amenity, transport and water) are appropriately mitigated. It is not anticipated that this would be a significant constraint on the development of the Site, however, consideration should be given to masterplanning and phasing of the proposed development to manage potential effects, for example in relation to noise or visual impacts to new residential receptors on site.

3.6 Sustainable Resources

- 3.6.1 The development should implement sustainable design and construction principles and best practice including in relation to energy and water efficiency, and waste minimisation (e.g. in accordance with EN2: Sustainable Design and Construction of the emerging local plan). Other Policies, including EN3: sustainable design standards, and EN 5: Climate change adaptation, seek to reduce the ecological and carbon footprint of development, and promote wellbeing, and should be central to the design of the development. If appropriate, early consideration of garden settlement principles should be progressed through the masterplanning and design process to see that Tudeley Village can be planned holistically to *“enhance the natural environment, provide a comprehensive green infrastructure network, and ... Use[s] zero-carbon and energy-positive technology to ensure climate resilience”*².
- 3.6.2 There is also potential to use a natural capital approach and undertake a Natural Capital Assessment³ to promote and value natural resources through the design and decision-making processes.
- 3.6.3 The UK Government’s international climate change commitments (transposed into national and local planning policy) has sought to reduce CO2 emissions associated with new buildings through energy demand reduction and the incorporation of low and zero carbon technologies to deliver electricity and heat. In October 2019, the UK Government began a consultation on a proposed uplift to the energy efficiency requirements defined in the Building Regulations Part L, with the aim of implementing these changes in 2020, and a Future Homes Standard (FHS) for 2025. In his Spring Statement 2019, the then Chancellor Philip Hammond announced that from 2025 the end of fossil-fuel heating systems in all new homes would be mandated (though this has yet to be adopted as official policy). The proposed development will need to be delivered in accordance with the relevant building regulations, and this will need to be considered in relation to building design, energy infrastructure, and appropriate allowance for this within the cost plan.

² <https://www.tcpa.org.uk/garden-city-principles>

³ <https://www.gov.uk/guidance/enabling-a-natural-capital-approach-enca>

- 3.6.4 TWBC declared a climate emergency in July 2019 as part of which it set a goal to make the Borough carbon neutral by 2030, 20 years earlier than the government’s target of 2050. A short summary of the current and future requirements relating to energy is provided below.
- 3.6.5 TWBC Renewable Energy Supplementary Planning Document (SPD) (2007) identifies that “*all development (either new build or conversion) with ten or more residential units/over 0.5ha site area, or for non-residential developments with a floor space of 1,000sqm or over 1.0ha site area, to incorporate renewable energy technology on-site to reduce predicted CO2 emissions by least 10%.*”
- 3.6.6 TWBC updated their Renewable Energy SPD in 2019 to reflect changes to technology, policy and building regulations that have occurred since the original SPD was prepared in 2007. In their 2019 Energy Policy Position Statement, TWBC have identified that they are taking a more ambitious approach as part of the development of the new local plan. The Draft Local Plan (Regulation 18) identifies in policy EN4 zero carbon and low emission development are “*strongly supported*” and that new developments are required to “*reduce site-wide, operational CO2 emissions by at least 10% below the Target Emission Rate (TER) as set out in Building Regulations Part L (2013)*” and for major development to “*reduce site-wide, operational CO2 emissions by 15% using renewable energy generating technology, to be installed on site*”. It is not clear what percentage reduction is now required, and how this should be viewed in the context of the new building regulations. Consultation with the energy officer would be important at an early stage to clarify and develop appropriate strategies to meet these requirements.
- 3.6.7 The Tunbridge Wells Borough Local Plan Water Efficiency Background Paper (2017) identifies that the South East of England is an area which experiences severe water stress which may be exacerbated further by future climate change and housing growth. The proposed development will need to incorporate water efficiency measures such as rainwater harvesting and greywater recycling systems and implement a maximum water consumption rate of 110 litres per person per day in accordance with emerging policy EN 27 Conservation of Water Resources.

4 Ecology

- 4.1.1 A desk-based review has been completed to identify any high-level ecological constraints and opportunities that should be considered in relation to future development at the Tudeley Garden Village Allocation Site ('the Site').
- 4.1.2 The desk study included a review of freely available ecological baseline information from online sources. Information relating to statutory designated areas for nature conservation and European Protected Species licences within a 2km radius of the Site was obtained from Defra's 'MAGIC' database⁴. The search area was extended to 20km from the Site for International/European designated sites for nature conservation. Details of Habitats of Principal Importance (HPI)⁵, and Ancient Woodland within or adjacent to the Site was also identified. Aerial photography and Ordnance Survey mapping of the Site was reviewed to determine the broad habitats present within and immediately adjacent.
- 4.1.3 A review of pertinent information from the Biodiversity Evidence Base for the Draft Tunbridge Wells Local Plan (TWBC, 2019) and the online Kent Landscape Information Service (KLIS) was completed, in particular to ascertain the presence of non-statutory designated site for nature conservation within the Site and its locality, broad habitats as mapped by the 2012 Kent Habitat Survey and notable and protected species records. A review of the Draft Local Plan Habitats Regulations Assessment (HRA) (AECOM, 2019) was also completed, as was a review of available site promoter evidence.

4.2 Designated Sites for Nature Conservation

- 4.2.1 No statutory designated nature conservation sites are present within the Site. The closest International/European designated site within the local area are: North Downs Woodland Special Area of Conservation (SAC) located c.16.3 km north east, Ashdown Forest Special Protection Area (SPA)/SAC located c. 17.5km south west, and Peters Pit SAC located c.18.2km north of the Site.
- 4.2.2 The HRA of the Regulation 18 Tunbridge Wells Local Plan concludes that the Tudeley Village allocation site will not adversely impact the integrity of Ashdown Forest SPA/ SAC in relation to atmospheric pollution and recreational pressure. The Site also sits outside the 7km buffer for financial contribution to the Strategic Mitigation Strategy for the Ashdown Forest SAC/SPA and provision of Suitable Alternative Natural Greenspace (SANG) in order to address potential recreational impacts.
- 4.2.3 No SSSIs are present within 2km of the Tudeley Garden Village Site. The closest SSSI is the River Beult located c.7.6km to the north east of the Site. The Site sits within SSSI/ European site Impact Risk Zones (IRZ) as mapped on MAGIC. IRZs are a GIS tool used by Natural England to identify zones in the vicinity of Nationally and Internationally designated areas where certain development activities may adversely affect designated areas. The nature of the development to come forward within the Tudeley Garden Village Site (housing/ mixed use) is not listed as a development type that is likely trigger impacts on local SSSI/ European sites (aviation development).
- 4.2.4 From a review of the Biodiversity Evidence Base of the Draft Tunbridge Wells Local Plan, and KLIS website it appears that there are no non-statutory designated sites present within the Site. The nearest non-statutory nature conservation areas are Tudeley Wood Local Wildlife Site (LWS) c.140m south west and Somerset Park LWS located c. 1km west of the Site.

⁴ Defra. Multi-Agency Geographic Information for the Countryside (MAGIC) database. Available at: <https://magic.defra.gov.uk/> (Accessed 03/08/2020)

⁵ Habitat of Principal Importance under the NERC Act 2006, the presence of which are a material consideration during planning.

Tudeley Wood LWS represents multiple blocks of Ancient Woodland extending south towards Royal Tunbridge Wells.

- 4.2.5 The High Weald Biodiversity Opportunity Area (BOA) lies immediately to the south of the Tudeley Village Site. BOAs are a focus for biodiversity action and indicate areas where the greatest gains can be made from habitat enhancement, restoration and recreation, as these areas offer the best opportunities for establishing large habitat areas and/or networks of wildlife habitats. It is understood that BOAs will be reviewed within a wider mapping exercise to develop a Nature Recovery Network for Kent (2020/ 2021).

4.3 Habitats

- 4.3.1 The Site appears to comprise predominantly agricultural land, mostly set to arable with improved grassland also present. A network of hedgerows demarcate field boundaries, with standard trees also present. Discrete blocks of ancient woodland as mapped on MAGIC were identified within the Site. Waterbodies/ ponds, ditches are also present.
- 4.3.2 Three areas of Ancient Woodland are present within the Site, one to the east of Hartlake road, one to the north of Five Oak Green Road, and one to the southeast of Sherenden Road (as mapped by MAGIC and KLIS). Ancient Woodland and ancient/ veteran trees represent 'irreplaceable habitats' which are protected under the National Planning Policy Framework (NPPF). These ancient woodland blocks, are also likely to represent Deciduous Woodland HPI. Two discrete blocks of Traditional Orchard (HPI) as mapped on MAGIC are present within the Site. The Site may support other HPI/ valuable habitats including important / veteran trees, (important) hedgerows, species-rich grassland, ponds/ waterbodies, and ditches.
- 4.3.3 HPI, important hedgerows, ancient woodland, and veteran/ ancient trees are a material consideration during planning. As such, retention and protection of these habitats is the first step of masterplanning design, following the mitigation hierarchy, to ascertain areas that can be retained.
- 4.3.4 Areas of ancient woodland and ancient/veteran trees will need to be protected and retained within the scheme layout with appropriate buffers (30m minimum, ideally 50m). Areas of HPI or otherwise valuable habitats (as identified through surveys) should also be retained, protected (with suitable buffer) and enhanced where possible, most likely to include woodland blocks, mature trees, hedgerow network, species rich grassland and wetland habitats (ditches and waterbodies). Where unavoidable losses of HPI/ valuable habitats occur, suitable mitigation/ compensation planting/ habitat creation would be required.
- 4.3.5 Non-native, invasive plant species may also be present within the Site. It is an offence to cause plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) to grow in the wild. As such any invasive plant species such as Japanese knotweed should be eradicated, or appropriately managed in the long-term to avoid it spreading.

4.4 Species

- 4.4.1 The habitats present within the Site have the potential to support a range of notable and legally protected species including:
- **Flora** – given the varied habitat present within the site such as arable field margins, woodland, and wetland areas/ ponds, the site may support notable plant species;
 - **Bats** – the site provides potential for roosting bats most likely in older trees, woodland and on-site buildings. There is also potential for the Site to support foraging and/or commuting bats given the connected high-quality habitats such as woodland, hedgerow, tree lines, and ditches;

- **Breeding birds** – the Site provides potential to support a good variety of breeding birds associated with farmland and woodland;
- **Wintering birds** – the Site provides some potential to support wintering and passage bird species in particular those associated with farmland habitat;
- **Reptiles** – the Site likely provides potential to support common species of reptiles, where suitable habitat such as rough grassland and grassed field margins are present;
- **Badgers** – the Site provides suitable foraging and sett creation habitat for badgers, with any setts most likely to be associated with woodlands or hedgerows;
- **Great crested newt and amphibians** – great crested newt is known to be present in the local area. There is the potential for this species and other amphibian species to be present within on-site and nearby off-site ponds/ waterbodies and to use terrestrial habitats within the Site during their terrestrial phase (for great crested newt the core terrestrial area is c. 50m around pond, and this species can use habitat up to 500m from breeding ponds);
- **Dormouse** – the Site supports habitats which could support dormouse, including woodland and hedgerows, with good connectivity to similar off-site habitats;
- **Water vole**– this species has the potential to be associated with ditches within the Site, albeit connectivity to watercourses within the wider environment is limited; and
- **Invertebrates** – the Site likely provides a mosaic of habitats suitable to support notable invertebrates.
- **Other small mammals** – the site is likely to support a range of small mammals including hedgehog and field mouse.

4.4.2 A review of MAGIC confirmed that bat and great crested newt protected species licences have been granted for locations within the Site and within the local area. The Biodiversity Evidence Base for the Draft Local Plan (2019) contained a review of records of notable and protected species within the Tudeley Village Site as provided by Kent and Medway Biological Records Centre (KMBRC). Records of protected and notable species from within the Tudeley Village Site included: great crested newt, common reptiles, bats, barn owl, nightingale, and occasional notable invertebrates (mainly moths).

4.4.3 Should the presence of protected and notable species be confirmed within the Site, appropriate protection, mitigation and enhancement measures will be required. This will include retention of key supporting habitat, provision of additional suitable habitat, species translocation (to on-site or off-site areas), sensitive lighting design, and appropriate timing of works. A licence from Natural England may be required for certain works to proceed lawfully in relation to protected species. It is noted that great crested newt district licensing is available within Kent, such that this licensing (and mitigation) route may be an option should this species be present within the Site.

4.5 Opportunities

4.5.1 Significant opportunities for ecological enhancement are available for the Tudeley Village Site. In the first instance, the principles of the mitigation hierarchy (avoid, mitigate, compensate) should be followed in development of any masterplan; this approach would be critical to allow development at the Site to achieve Biodiversity Net Gain (anticipated to be mandated through the Environment Bill) whilst minimising the requirements for any off-setting and maximising enhancement opportunities on-site. Guidance on the level of biodiversity net gain to achieve within the development should be sought from the Tunbridge Wells Borough Council Ecologist. To achieve this the masterplan development at the site should include:

- Retention, protection and enhancement/ restoration of existing higher value habitats, including ancient woodland, areas of HPI or otherwise valuable habitats (as identified through surveys) with appropriate buffers. The scheme design should aim to create ecologically valuable habitats which are linked throughout the Site and connect to the wider landscape;
 - The creation of a variety of new habitats across the site, including wetlands, hedgerow, woodland planting and species-rich grassland. Such habitats would be able to provide habitat to accommodate the requirements of species-specific mitigation requirements (e.g. for great crested newts) and would ideally link up otherwise existing isolated habitat patches, linking into local habitat networks and biodiversity priorities;
 - A robust green/ blue infrastructure network should be secured across the Site, incorporating linked habitats, which connect to the wider environment. Green/ blue infrastructure proposals should have regard to key ecological features;
 - Species specific faunal enhancements incorporated within the scheme design, including integrated into the built form, where appropriate and within suitable habitats areas within the Site;
 - Multifunctional SUDs, and natural flood mitigation measures, restoration of existing watercourses where appropriate which should be designed to contribute to biodiversity improvement within the site; and
 - Wildlife friendly measures should be included where possible in private, semi-private and incidental green spaces within the development, including gardens, allotments to promote permeability of the site for wildlife.
- 4.5.2 The above measures will also count towards ensuring that development comes forward with regard to relevant policies within the emerging Local Plan including: Policy STR 8: Conserving and enhancing the natural, built, and historic environment; Policy STR/CA 1: The Strategy for Capel Parish; Policy EN11: Net Gains for Nature: biodiversity; EN 12: Protection of Habitats; Policy EN14: Trees, Woodland, Hedges and Development; Policy EN15: Ancient Woodland and veteran Trees; and Policy EN 16: Green, Grey, and Blue Infrastructure.
- 4.5.3 Consideration should also be given of the Kent Nature Partnership (www.kentnature.org.uk), the Kent Nature Partnership Biodiversity Strategy 2018-2044 and emerging Nature Recovery Networks when developing the scheme design to align, where possible, with the goals of this strategies/ organisations to secure more resilient and coherent ecological networks and healthy well-functioning ecosystems. There may be opportunities to link with local nature/ biodiversity initiatives, such as species reintroductions, which should be considered at an early stage of the masterplan design.

4.6 Next Steps and Conclusion

- 4.6.1 The following actions will likely be required to fully determine and assess the above key ecological issues, and to inform the evolving scheme design and any future planning application:
- Extended Phase 1 Habitat Survey (or UK HAB) & Preliminary Ecological Appraisal (PEA): should be completed of the Site at an early stage in the project programme, to confirm the ecological features present and scope the need for further Phase 2 surveys. The PEA will include a desk study which will secure up to date records from the Kent and Medway Biological Records Centre (KMBRC). The ecological baseline and desk study should be kept up to date as the project progress.
 - Phase 2 Surveys: Surveys for protected and notable species potentially present within the Site and detailed botanical surveys (potentially including hedgerow and woodland survey)

will be required to establish the ecological baseline for the site. Surveys are seasonal and should be completed early in the project programme to ensure pertinent information is available to inform masterplanning and to minimise any potential delays.

- Liaison with the Tunbridge Wells Borough Council Ecologist (and other key stakeholders, as required) in relation to the scheme, including to agree the scope of surveys, and validation requirements specific to ecology for a future planning application.
- Masterplanning Input: In order to protect key ecological resources and demonstrate biodiversity net gain, early ecological input to the scheme design is needed to ensure suitable mitigation for designated sites, habitats and species is embedded. There is an opportunity to provide a landscape scale integrated green and blue infrastructure network, which retains and/ or creates habitats for biodiversity within the masterplan in keeping with the requirement of the NPPF and the emerging new Tunbridge Wells Local Plan. Key priorities/objectives in relation to biodiversity should identified at an early stage in consultation with key stakeholders.
- Habitat Regulation Assessment (HRA) (Screening and potentially Appropriate Assessment): A project level shadow HRA may be required to assess the potential impacts of development of the Site on European designated sites and identify appropriate avoidance and mitigation measures to avoid potential impacts. Given the distance separation of European sites to the Tudeley Village Site, the need (or otherwise) for a HRA should be discussed with the LPA at an early stage of the project.
- Biodiversity Net Gain: Complete a Biodiversity Net Gain (BNG) calculation based of the Defra/ NE metric following 'Biodiversity Net Gain – Good practice principles for development' (CIEEM, CIRIA, IEMA). This can help inform the masterplanning process and define habitat creation/ enhancement measures required to achieve a net gain for biodiversity or define off-site offsetting requirements and secure appropriate measures to achieve BNG.
- Ecological Impact Assessment: An Ecological Assessment Report (EAR) and/ or an Ecological Impact Assessment as part of an Environmental Statement will be required to inform a planning application.

4.6.2 The above actions and assessments will be required to accompany any planning application for the Site in order to demonstrate that the site layout and design is acceptable in terms of biodiversity. However, with appropriate avoidance, mitigation and compensation measures, and the opportunity for biodiversity enhancement and net gain, biodiversity considerations are not likely to be a significant constraint on the future development of the Site.

5 Flood Risk

5.1 Introduction

- 5.1.1 This section has been prepared using information provided by JBA Consulting and details from Tunbridge Wells Borough Council's Level 1 and 2 Strategic Flood Risk Assessments, also prepared by JBA Consulting.
- 5.1.2 This section provides an appraisal of the flood risk and surface water drainage constraints and opportunities for development at Tudeley Village.

5.2 Sources of Flood Risk

- 5.2.1 The Site is located a short distance to the south of the River Medway. Some northern and north eastern parts of the site are within Flood Zones 2 and 3a, with an area of Flood Zone 3b sat between the site and the River Medway. The Alder Stream run to the east of the Site, with adjacent areas of Flood Zones 2, 3a and 3b. There are also a number of ordinary watercourses on site.
- 5.2.2 The Site may be at flood risk from the following sources, which may occur in combination:
- Fluvial (river) flooding, where the capacity of watercourses and their structures are exceeded and flood water flows onto the floodplain.
 - Pluvial (surface water) flooding, where rain falling onto the ground cannot infiltrate/drain and flows along the ground either results in flow routes away from rivers, or accumulation of water in depressions.
 - Sewer system flooding, where rainfall entering the sewer system results in exceedance of the network capacity (which may result in emergence of flood water directly from the sewer system) or the inability for areas of land to drain/discharge into the sewer system.
 - Localised drainage issues within the watercourses (e.g. blockages, siltation) or drainage infrastructure (e.g. blockages).

5.3 Masterplanning Observations

- 5.3.1 Important considerations for the masterplanning process are presented below. These are informed by the understanding of flood risk and drainage circumstances in the area, discussions held during the Tunbridge Wells Strategic Sites Technical Workshop ('Blue' session) held on 10 September 2020 and from inspection of the emerging site plans provided by site promoters.
- 5.3.2 Detailed review of current development proposals has not been completed, but planning approaches being considered by site promoters have been viewed and have helped frame the observations presented below.
- 5.3.3 **Development should be positioned according to a sequential approach.** Placement of development within areas of land should be in accordance with the sequential approach stipulated by the National Planning Policy Framework (NPPF). Built development should as far as possible be positioned in Flood Zone 1 (low probability of flooding). If there are wider reasons why development needs to be placed in Flood Zone 2 or 3a, then this must be justified, and the Exception Test may be required to be passed for certain classes of development. Flood Zone 3b has even greater protection. This principal is set out in the [Flood Risk and Coastal Change PPG](#), particularly [Table 2](#) and [Table 3](#).

- 5.3.4 **Obstructing overland flood pathways can provide opportunities and constraints.** The presence of development can influence flood pathways, deflecting water elsewhere. In some circumstances this can be to the detriment of areas of existing development and in other circumstances can potentially provide betterment. The layout of sites should normally be designed to limit or avoid obstruction to flood pathways.
- 5.3.5 **Modification of watercourses should be avoided unless providing ecological/environmental benefit.** Modification of watercourses, which would lessen the natural nature of the systems should be avoided. While modification could be shown to help reduce flood risk and realise development in certain regions, the practice should be avoided, particularly if existing areas at lower risk of flooding are current not being utilised for development (refer to the approach above describing the sequential approach to development).
- 5.3.6 **Agreement on and commitment relating to strategic flood risk management measures is essential.** Realising the planned scale of development, requires strategic interventions that need to be agreed and secured by firm commitments. Without agreement on how strategic flood management measures will be realised, significant uncertainty will remain, increasing the likelihood that the betterment that is aspired for does not occur.
- 5.3.7 **Cumulative impacts of development must be considered as well as impacts from specific developments.** While it is important to understand how individual development proposals change flood risk and drainage rates, so that appropriate decisions can be made to manage flood risk, it is also required under the NPPF to understand how other developments (either in groups or all combined) influence flood risk and drainage. As noted above, the presence of development in other areas may alter rates of flow and flow routes to provide the required betterment to existing areas of development, and these changes should be understood and planned for in a collaborative and strategic manner.
- 5.3.8 **Flood risk and drainage implications of infrastructure required to enable development should be planned for in a similar manner to residential or commercial development.** The sequential approach to development should apply to infrastructure and so too should the principle of ensuring development is safe for its lifetime and not increasing risk elsewhere. The Environment Agency have confirmed that there is no specific guidance relating to the construction of roads/bridges across the floodplain, but that the principles outlined in the NPPF should apply. Therefore, it is likely that the infrastructure associated with a development e.g. its roads, will be assigned the same vulnerability classification as the proposed development. This is likely to mean as a minimum that infrastructure should be positioned outside of (i.e. clear span across and suitable height above) the functional floodplain (Flood Zone 3b) and may require the Exception Test to be passed if any embankments encroach on Flood Zone 3a. Bridge crossings must cause no impediment of flows or increase in flood risk elsewhere and must be designed and constructed to remain safe and operational for users. Agreement would be needed with the Environment Agency on whether alteration to flood risk within a given site area is permissible, provided it accords with the plans for the site and does not extend beyond the site boundary.
- 5.3.9 **Management of surface water should be integrated with green infrastructure and open space provision to maximise opportunities for multi-functional use of space and delivery of multiple benefits.** Thoughtful landscape design (e.g. very shallow side slopes, use of topography) can allow public realm open space required for play, amenity and recreation to be utilised to store water both above ground and/or below ground during extreme events (long-term storage or exceedance). For example, amenity and play areas can be designed to flood and store excess volumes of water, as they are unlikely to be heavily used in extreme weather. Taking it a step further, sports pitches can be underlain by geocellular storage for smaller events, but designed to flood above ground during extreme events. They must be designed to drain down quickly so that amenity space is not lost for long periods. Consideration of who will adopt and maintain such features must be made at an early stage, and communication of the function of such features to residents is critical.

- 5.3.10 Vegetated SuDS features performing storage and conveyance functions can also help to deliver a number of other planning policy objectives including habitat connectivity and net biodiversity gain, amenity and educational value, climate change resilience etc. SuDS features must be designed to be easily maintained - from a masterplanning perspective vehicular access for maintenance must be provided and suitable buffers (see IDB and LLFA guidance) provided around basins and alongside watercourses and swales.
- 5.3.11 **Enough space for surface SuDS will be required in the right locations, and outside of fluvial Flood Zones.** To deliver the most cost-beneficial design, the space required for larger surface SuDS features such as attenuation storage and swales must be located strategically at the masterplanning stage, making the most use of the topography and sub-catchments, flow routes and potential discharge destinations. To enable gravity to move the water easily on the surface and avoid deep excavation, storage is best located in topographically low areas (groundwater levels permitting), and surface conveyance routes should retain existing flow routes such as ordinary watercourses and drains which can form blue-green corridors through the development. Culverting of watercourses will not normally be permitted by the LLFA or Environment Agency.
- 5.3.12 Storage for extreme events must be placed outside of the fluvial Flood Zones, because if they are inundated by fluvial water their capacity to hold surface water will be reduced and they may be damaged through erosion, meaning they will not operate as designed.
- 5.3.13 Of equal importance in terms of mimicking the response of a natural catchment, small rainfall events should be dealt with through source control components integrated in the urban design throughout the development (e.g. green roofs, raingardens, swales, permeable paving), which will also fulfil water quality objectives.
- 5.3.14 **Discharge rates, volumes and destination should be agreed early with the LLFA and IDB.** Rainwater harvesting and reuse should be incorporated into the design of the buildings wherever possible. Discharge rates should be agreed with the LLFA and IDB, greenfield rates and volumes are likely to be the expected starting point. Designs must take into account climate change and urban creep. Early estimates of sizing of SuDS features should be made at masterplanning stage to inform the plan.

6 Geotechnical

6.1 Introduction

- 6.1.1 This section presents a preliminary appraisal of the geotechnical and geoenvironmental conditions on the site to identify potential risks and hazards associated with ground contamination and geological/geotechnical hazards for a proposed residential redevelopment of the Site.
- 6.1.2 This assessment is based on a review of readily available geological maps, historical Ordnance Survey maps, published geological records and publicly available environmental data. It should be noted that there may be ground conditions on the Site that have not been disclosed by the information available and which therefore have not been taken into account in this appraisal.

6.2 Site Location

- 6.2.1 The Site comprises an approximately circular parcel of land located between Tonbridge to the west and Five Oak Green and Paddock Wood to the east.
- 6.2.2 The Site is situated on gently sloping land to the south of the River Medway. A tributary of the River Medway crosses the site flowing from south to north toward the river. In general, the natural ground levels fall gently from about 50 m above Ordnance Datum (mAOD) along the southern boundary of the Site towards the stream and the northern boundary of the Site where the ground level is about 20 mAOD.

6.3 Site History and Current Use

- 6.3.1 The Site is currently used as agricultural land, bisected by a railway with scattered farms and residences throughout.
- 6.3.2 Historically, the Site appears largely to have remained as undeveloped agricultural land, crossed by the South East Main Line constructed on a low embankment through the Site in 1842 on an approximately east-west alignment. The main significant changes are listed below:
- The excavation of a series of small ponds in the wooded area northeast of Brampton Bank in the southeast of the Site by the early 1900s and the subsequent construction of a 'tank' by the 1960s;
 - The development of Bank Farm in the centre of the Site throughout the 20th Century with additional outbuildings and associated cottages;
 - The construction of a covered reservoir in the centre of the Site, north of the railway line by the 1990s;
 - The demolition of a series of pre-1880s cottages and a well on the southern boundary of the Site, north of Glebe Farm, between the 1930s and the 1990s.
 - The construction and subsequent demolition of a small series of outbuildings between 1937 and the early 2000s, approximately 130m northeast of Lilley Farm;
 - The creation of a pond from a formerly marshy area to the north of All Saints Church on the Site's western boundary;
 - The construction of a cemetery on the western boundary of the Site, immediately south of the railway line by the 1960s; and,

- The construction of a line of pylons across the eastern half of the Site by the 1970s and the construction of an electrical substation in the centre of the Site (immediately north of the railway line, south of Lilley Farm).

6.4 Ground Conditions

6.4.1 The 1:50 000 scale geological map of the area indicates that:

- Approximately the northern half of the Site as well as a limited area along the Site's eastern boundary, is underlain by River Terrace Deposits (clay & silt);
- Head deposits (clay, silt, sand and gravel) are recorded in a very limited area in the southeast corner of the Site;
- Bedrock of the Wadhurst Clay Formation (mudstone) is present in approximately the southern third of the Site;
- The remainder of the Site is underlain by the Tunbridge Wells Sand Formation (interbedded sandstone and siltstone); and,
- The Ashdown Formation (sandstone, siltstone, mudstone) is present at depth.

6.5 Hydrological and Hydrogeological Conditions

6.5.1 From consideration of the hydrological and hydrogeological conditions, the geomorphological and topographical setting of the Site, together with the expected moderate mass permeability of the River Terrace Deposits and the single BGS archive borehole record present within the Site, it is expected that natural groundwater level is about or slightly above the base of the River Terrace Deposits (where present). Where superficial deposits are not recorded, groundwater is likely to be present at depth within the more permeable bedrock layers (sandstone).

6.6 Constraints and Opportunities

Geological and Geomorphological Constraints

- 6.6.1 There are no designated Regionally Important Geological Sites (RIGS), Local Geological Sites, Sites of Special Scientific Interest (SSSIs) with a geological designation, or geomorphological features of conservation value identified in the area affected by the proposed scheme.
- 6.6.2 On this basis, the constraints to the development of the Site associated with protected geological and geomorphological features are assessed to be Very Low.

Constraints Relating to Mineral Resources

- 6.6.3 The Kent County Council (KCC) Minerals and Waste Local Plan (MWLP) (KCC, 2020) shows the Tunbridge Wells Sand Formation and the River Terrace Deposits are Safeguarded Mineral for the extraction of minerals prior to development or of the compatibility with current or future mineral operations is undertaken in the determination of certain non-mineral planning applications.
- 6.6.4 As such, the constraints to the development of the site associated with mineral resources are assessed to be Moderate/High in areas underlain by the Tunbridge Wells Sand Formation and River Terrace Deposits and Very Low elsewhere.

Constraints Relating to Artificial and Natural Cavities

- 6.6.5 The Natural and National Mining Cavities Database maintained and updated by Stantec has been searched for relevant natural and mining cavity records.
- 6.6.6 Three records of natural cavities were found within a 5.0km radius of the centre of the Site as follows:
- Gulls/fissures due to Cambering at Knowles Bank Camber, approximately 900m south of the Site;
 - Gulls/fissures due to Cambering at Quarry Hill Road, Tunbridge, approximately 1.5km west of the Site; and,
 - Gulls/fissures due to Cambering at Devil's Gill Bulge, approximately 1.2km southwest of the Site.
- 6.6.7 The underlying geology in each of the above cases was the Wadhurst Clay Formation.
- 6.6.8 Two records of mining cavities were found within a 5.0km radius of the centre of the Site as follows:
- Multiple Bellpits/Iron Workings at Gorse Wood, approximately 2.9km southwest of the Site; and,
 - Multiple Bellpits/Iron Workings at Minepit Wood, approximately 3.3km southwest of the Site.
- 6.6.9 Based on the available records, geology and geomorphological setting of the Site the potential for natural and mining cavities to be present is considered to be Moderate in areas where the Tunbridge Wells Sand Formation overlies the Wadhurst Clay Formation on a slope, and Low elsewhere.

6.7 Geotechnical Constraints

- 6.7.1 The geotechnical constraints to the development are those relating to the natural ground conditions, geological hazards, and the constraints relating to the previous and current use of the site.

Ground Conditions

- 6.7.2 The natural ground conditions are, in general, expected to form a suitable platform for the construction of any proposed development.
- 6.7.3 Although expected to be suitable for construction of the proposed development, the mudstone and siltstone bedrock of the Wadhurst Formation and the Tunbridge Wells Sand Formation may be weathered in their upper horizons and present as clay. An assessment of shrinkability will be required and buildings and pavements founded on these clays will need to be designed in accordance with appropriate guidelines for building near trees.
- 6.7.4 The groundwater level on the Site may locally be close to ground level; hence excavations for the proposed development may extend below groundwater level. On this basis, groundwater control measures may be required to allow construction in dry conditions in the River Terrace Deposits.
- 6.7.5 Overall, the geotechnical constraint to the development of the site associated with the natural ground conditions is assessed to be Low.

Historic and Current Site Use

- 6.7.6 The vast majority of the Site has remained as undeveloped agricultural land since the mid-1800s. The exceptions to this are a small area of farm outbuildings constructed to the northeast of Lilley Farm by 1937 and demolished by the early 2000s, and a series of pre-1880s cottages on the Site's southern boundary that had been demolished by the 1990s.
- 6.7.7 Both of these are anticipated to have been founded on shallow strip or spread foundations resting on the near-surface soils. On the basis that both these areas are now actively farmed, it is likely that the foundations have been removed/destroyed.
- 6.7.8 Overall the geotechnical constraint to the development of the Site associated with its previous and current use is considered to be Very Low.

6.8 Geoenvironmental Constraints

Geoenvironmental Conditions

- 6.8.1 Publicly available information on the concentrations of potential contaminants or hazardous ground gases in the soils and groundwaters across the Site has not been located at the time of writing.
- 6.8.2 The majority of the Site is greenfield land, with no known significant sources of potential contaminants and hazardous ground gases and the agricultural setting of the site makes the presence of significant concentrations of contaminants and hazardous ground gases unlikely.
- 6.8.3 The railway that crosses the Site presents a potential source of hydrocarbon and herbicide contamination, though this is likely to be localised to the area covered by ballast and a limited fringe around it.
- 6.8.4 The mid-1900s electricity substation presents a potential localised source of hydrocarbon and Poly-Chlorinated Biphenyls (PCB) and asbestos contamination.
- 6.8.5 There is a low potential for limited and localised contamination to be present within Bank Farm, associated with the storage of agrochemicals and fuels, as well as the use of asbestos in farm buildings.
- 6.8.6 There is a limited potential for small scale contamination associated with domestic activities, e.g. use of pesticides in gardens, burning/burial of wastes, at the former cottages and at the various domestic properties within the Site.

Geoenvironmental Constraints

- 6.8.7 The geoenvironmental constraints to the development are those related to the potential effects of the Site and the proposed development on significant receptors such as construction/maintenance workers, future site occupiers and users, ground and surface waters, and ecology and wildlife. The identified constraints relate to the previous and current use of the Site and the nature of the ground conditions on the site, in particular the concentrations of potential contaminants within the ground.

Ground Conditions

- 6.8.8 The natural ground conditions, in general, are not expected to represent a particular risk of environmental hazard to the proposed development and the geoenvironmental constraint to the development of the Site associated with the natural ground conditions is expected to be Very Low.

Historic and Current Site Use

- 6.8.9 Given that historically the Site has been used primarily for agricultural purposes, the risk of significant contamination being present is expected to be Very Low.
- 6.8.10 The presence of localised areas of more significant contamination or hazardous ground gases associated with activities at Bank Farm, the substation, the former cottages and the railway line cannot be ruled out at this stage. However, on the basis of the likely limited scale of any contamination present the risk of significant contamination is expected to be Low in these localised areas.

7 Utilities

7.1 Introduction

7.1.1 This note reviews the existing utilities infrastructure (electricity, gas, telecommunications, potable water and wastewater) and available capacity for development growth at Tudeley Village and Paddock Wood in the borough of Tunbridge Wells.

7.1.2 A desktop study has been undertaken using the information available via Linesearch and the statutory undertakers' Long Term Development Statements (LTDS). Only freely available asset record data or information passed on from TWBC has been reviewed as part of this assessment.

7.2 Local Plan Evidence Review

7.2.1 The following documents have also been reviewed;

- UKPN Long Term Development Statement
- South East Water Infrastructure Charge and Local Area Long Term Development Strategy

7.2.2 Through the review of these documents the below were noted as some notable points to consider for utilities and the site-wide existing services constraints:

- It is recommended that utility planning starts early, so that opportunities are not missed to introduce new utility connection and diversion corridors into the early phases of development
- Need to undertake utility demand assessment to supplement site wide phasing strategy and identify early connection opportunities and constraints
- Carry out early engagement with the water authority to understand the timescales for local upgrades to the existing potable and foul water network. This will confirm whether a water-modelling study is required which can take 6 - 9 months to complete

7.3 Electricity

Existing Infrastructure

7.3.1 UKPN records shows 132kV EHV (extra high voltage) lines crossing the east of the Site from north to south. There are overhead HV (high voltage) lines and pole mounted transformers shown crossing the site from the south-west corner, heading north across the railway and branching east and west towards Sherenden Road and Hartlake Road.

7.3.2 Further underground and overhead LV (low voltage) cables are shown following the lines of the B2017 to the west of the site and Sherenden Road that crosses the Site from north to south.

Capacity

7.3.3 The total estimated electricity demand for Tudeley Village residential development, based on 2,800 homes is 4.7MVA for gas heated dwellings (15.5MVA for all-electric heating). Assuming 20% EV charging, a further 3.9MVA would be required for both scenarios.

- 7.3.4 Based on a brief review of UKPN's LTDS, it is envisaged that the Tudeley Village site would be fed from Tonbridge East Primary substation to avoid crossing the A228 from Paddock Wood. The maximum capacity at Tonbridge East is 22.2MVA and the forecasted load for 2023/24 is 15.7MVA. This suggests there is currently spare capacity of up to 6.5MVA in the network, which means that off-site network reinforcement will be required to serve the whole site, but initial phases of works may be accommodated by the existing capacity, subject to confirmation from UKPN.

7.4 Gas

Existing Infrastructure

- 7.4.1 Southern Gas Networks (SGN) are the incumbent gas network operator in this area, and their records show an existing 4" LP (low pressure) main running within the carriageway of the B2017 along the western and southern perimeter of the redline boundary for the development area. There are no other public gas mains shown within or around the site.

Capacity

- 7.4.2 Based on gas heated dwellings the anticipated peak hourly demand for the residential development is 18,600kW.

7.5 Potable Water

Existing Infrastructure

- 7.5.1 SEW records show 2"-4" PVCU (polyvinyl chloride) mains running within the B2017 around the western and southern perimeter of the site boundary, and a 3" PVCU main crossing through the development area from north to south along the length of Sherenden Road.
- 7.5.2 There is an abandoned main shown that has been left in-situ to the east of Sherenden Road, and a diverted 350mm DI (ductile iron) main that runs from the south of the site, in an easterly direction to Bank Farm Cottages, before crossing in a north-westerly direction to the west of Sherenden Road just below the railway line, and picking up the existing main in Sherenden Road to the north.

Capacity

- 7.5.3 The anticipated total peak flow for the residential development at Tudeley Village is 46.17l/s.

7.6 Wastewater

Existing Infrastructure

- 7.6.1 Southern Water own and operate the wastewater network in the area.
- 7.6.2 Small diameter sewers are likely to be connected to the existing properties on site and may have to be diverted to accommodate any new development.

Capacity

- 7.6.3 Through conversation with Southern Water it is known that a £4m sewer upgrade is planned to provide capacity for consented development in Paddock Wood. However, this upgrade does not include headroom to accommodate additional strategic development either in Tudeley Village.

- 7.6.4 If network reinforcement is required to accommodate the peak flows generated by the residential units, the costs will be recouped as a proportion of the infrastructure charge for each residential unit.
- 7.6.5 As well as southern water, consideration could be given to appointing a company via the Nee Appointments and Variations (NAV) process to run a foul water network based on site.

7.7 Telecommunications

Existing Infrastructure

- 7.7.1 Openreach records show overhead and underground infrastructure located within the B2017 around the southern and western sides of the perimeter of the development area. Further underground ducts are shown running along the northern side of Sherenden Road to the north of the Site, terminating at The Lodge at Sherenden Farm. There is no infrastructure shown within or along the eastern boundary.
- 7.7.2 In addition, there are overhead lines running along Sherenden Road from Mascalls Court Road at the south to Lilley Cottages to the north of the railway line.

Capacity

- 7.7.3 There is a Government led Nationwide planned programme of investment to provide full fibre broadband across the country by 2033. In addition, the draft Local Plan includes a development management policy which requires superfast broadband to be connected to all new developments in the borough - both residential and commercial to ensure full fibre connectivity.
- 7.7.4 Openreach has an obligation to serve new developments with both standard telecoms and broadband services. For developments comprising over 30 units they can also provide free of charge fibre to the premise (FTTP).

8 Summary and Conclusion

8.1 Summary

8.1.1 This report has considered the key constraints and opportunities associated with future development at Tudeley Village. **Table 8.1** summarises the key constraints and opportunities for each of the technical disciplines.

Table 8.1: Constraints and Opportunities for Tudeley Village

Opportunities		Constraints
Transport	The scheme could offer future strategic development opportunities and provide a bypass route avoiding Five Oak Green and upgrades to other highway routes and junctions.	The site currently has limited sustainable travel opportunities. Improvements would need to be delivered to connect the site to the local areas, including improvements to public transport and walking and cycling infrastructure.
Environmental		
Air Quality		An appropriate detailed air quality assessment will be required to accompany planning applications.
Noise		Development inside this area will need to consider proximity distance and/or barrier mitigation to ensure that development would be within guideline noise and vibration levels.
Waste		Development of the site will need to fit within the development criteria in the recently adopted Minerals and Waste Local Plan.
Sustainable resources	The development should implement sustainable design and construction principles and best practice including in relation to energy and water efficiency, and waste minimisation Policies which seek to reduce the ecological and carbon footprint of development, and promote wellbeing, and should be central to the design of the development	The South East of England is an area which experiences severe water stress which may be exacerbated further by future climate change and housing growth. The proposed development will need to incorporate water efficiency measures such as rainwater harvesting and greywater recycling systems and implement a maximum water consumption rate.
Ecology	The Site is >15km from European designated sites and the New Local Plan HRA concludes that site allocation (including this site) will not adversely impact the integrity of Ashdown Forest SPA/ SAC in relation to atmospheric pollution and recreational pressure.	The Site has the potential to support protected species, including bats, dormouse, badger, great crested newts, reptiles, birds, otter, and water vole. Therefore, if present, suitable mitigation measures/ habitat areas will need to be retained and incorporated into the masterplan. Early survey work would identify which species are present and need further consideration within masterplanning.
Flood Risk	Majority of site is within flood zone 1.	Parts of the site are within flood zones 2 and 3a.
Geotechnical		No known major sources potential contaminants and hazardous ground gases

		<p>within the site and the largely agricultural setting of the site makes the presence of significant concentrations of contaminants and hazardous ground gases unlikely.</p> <p>No designated geological or geomorphological features of conservation value in the area affected by the proposed scheme.</p> <p>Constraints to the development of the site associated geological and geomorphological features are, respectively, assessed to be Very Low and Low.</p> <p>The geotechnical constraint to the development of the site associated with the natural ground conditions is assessed to be Low.</p> <p>Geoenvironmental constraint to the development of the site associated with the previous and current use of the site is, in general, considered to be Very Low</p>
Utilities		
Gas	SGN assets located within vicinity of the site.	
Electric	A network of overhead and underground cables routes serves the existing area.	Capacity available for beginning phasing but reinforcements are needed to bring whole development forward.
Potable Water	There is an abandoned main shown that has been left in-situ to the east of Sherenden Road, and a diverted 350mm DI (ductile iron) main that runs from the south of the site.	
Foul Water	Potential to consider a NAV company (New Appointment and Varitation) to provide sewerage services on site.	Foul water network in and around the site is limited and would require reinforcement.
Telecoms	Openreach ducts present on site. Other providers would also be interested in providing infrastructure. Government to roll out fibre broadband to whole country by 2033.	

8.2 Conclusion

- 8.2.1 In conclusion, there are no insurmountable constraints and risks that have been identified that would prevent development at Tudeley Village.