Tunbridge Wells Local Plan Update

Baseline Review Report

Paddock Wood and East Capel

On behalf of **Tunbridge Wells Borough Council**

Project Ref: 49653/5501 | Rev: A | Date: December 2020

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Document Control Sheet

Project Name: **Tunbridge Wells Local Plan Update**

Project Ref: **49653**

Report Title: **Baseline Review Report – Paddock Wood and East Capel**

Doc Ref: **8405**

Date: **December 2020**

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Revision	Date	Description	Prepared	Reviewed	Approved
A	04.03.2021	Updates to report following comments	FM	JL	JL

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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 an expanded settlement in Paddock Wood and east Capel allocated within the 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 Paddock Wood and east Capel.

1.1.3 This report considers the key constraints and opportunities associated with future development at Paddock Wood and east Capel.

1.2 Site Description

1.2.1 The sites considered within the Paddock Wood and east Capel allocation, all surround and infill around the centre of Paddock Wood. The sites to the north west and west are adjacent to the A228.

1.2.2 The site is within the vicinity of the A228 to the west and the A21 to the south. The site is in a rural location, with the nearest towns being Tonbridge to the west and Tunbridge Wells to the south west.

1.2.3 The site is illustrated on **Figure 1.1.** The Plan within Figure 1.1 and 2.1 is extracted from the Regulation 18 Draft Local Plan and the allocation boundaries are subject to change.

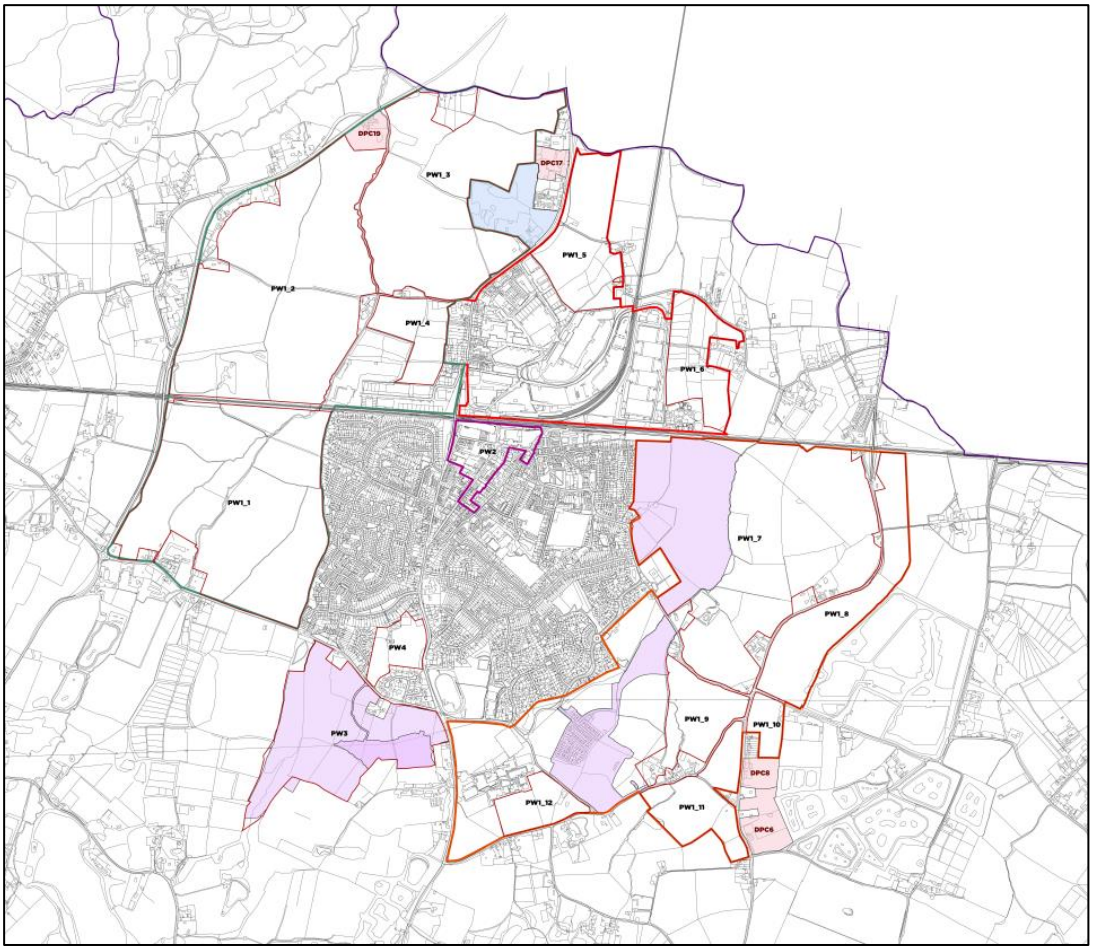


Figure 1.1 Site Location (extracted from DLA plan – Regulation 18 Draft Local Plan Boundaries)

1.2.4 The sites currently consist mainly of agricultural land.

1.2.5 At the time of writing this report, the plots within the Paddock Wood and east Capel allocation are referenced to as PW1-1 etc however, this has been changed by TWBC to merge land areas together. For the purpose of this report, each plot is referred to individually.

1.3 Key Constraints

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

- Access to the A228 and A21;
- Sustainable transport provision;
- Capacity and safety issues on existing highway network;
- Land falls within countryside and Greenbelt designations;
- Flood risk from the River Teise and other local streams, flood plain;
- AONB;
- Noise from local roads and the A21, rail, industry; and

- Ancient Woodland.

1.4 Tunbridge Wells Borough Council Objectives for Site

1.4.1 The masterplan review for these sites is to consider the viability of an expanded residential community, incorporating local centres, schools and other social infrastructure. The scheme will also aim to be designed with garden village principles embedded within the scheme. As part of the master planning a single scenario has been explored:

- Up to 4,000 dwellings, two 2FE Primary Schools, three Local Centres and a medical centre.

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;
- 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 Paddock Wood and east Capel. The Access and Movement report follows this baseline review and sets out how the masterplan responds to the baseline position. The plan below provides the broad outline of the allocation based on the Regulation 18 Draft Local Plan (subject to change).

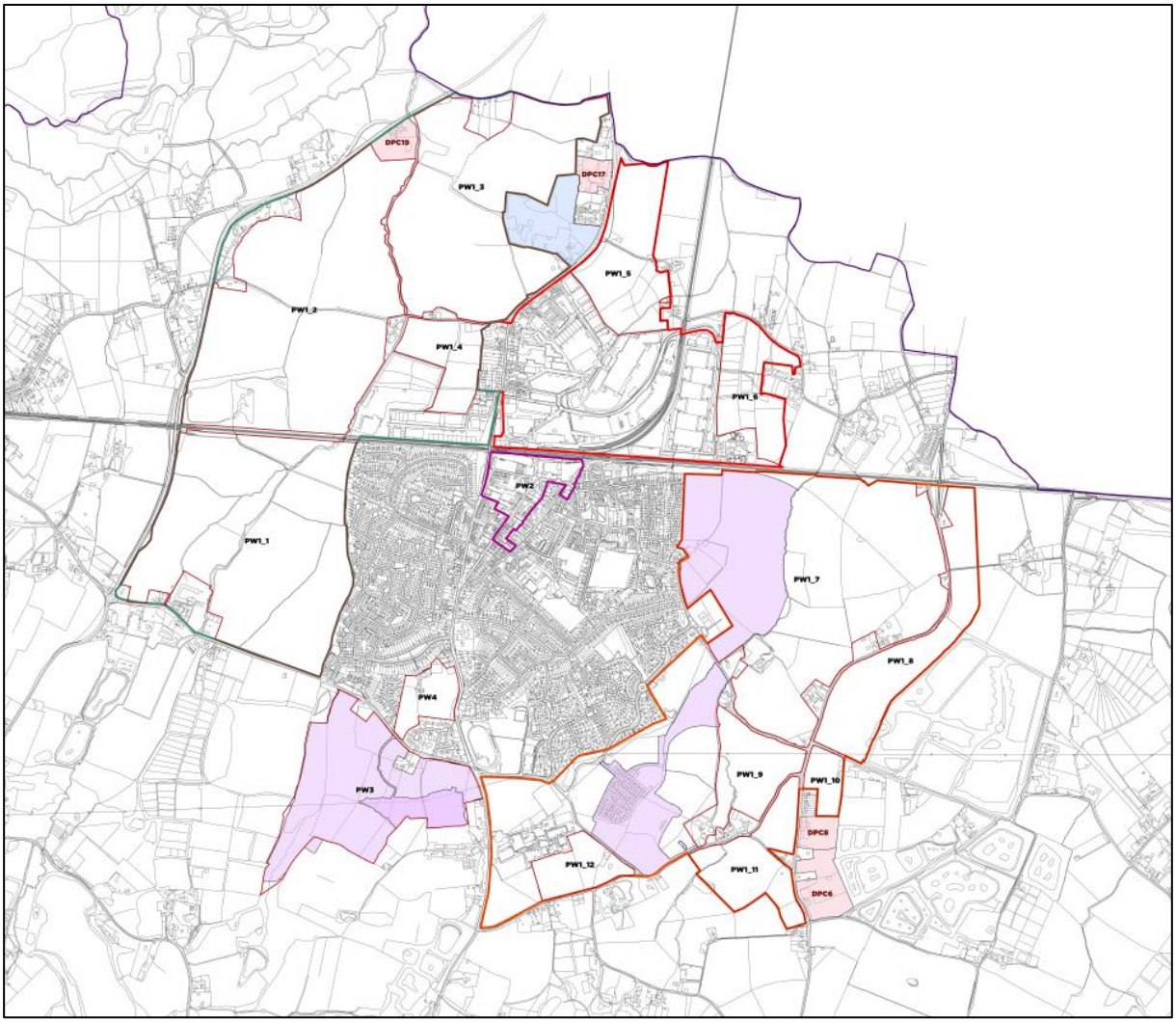


Figure 2-1 Broad development parcels from Regulation 18 Draft Local Plan (extracted from DLA plan)

2.2 Local Plan Evidence Review

2.2.1 A review has been undertaken of the Local Plan evidence base and the following documents have been considered below:

Local Plan Transport Evidence Base (SWECO, 2019):

- Cycling strategy actions:
  - Pembury to Tunbridge Wells via the A264

- Modal shift of 11% to base and new development traffic;
- New bypass of Colts Hill A228 link;
- A228 Whetsted Road/B2160 Maidstone Road upgrade;
- Distributor Road to the east of Paddock Wood and east Capel;
- B2017/B2160 Maidstone Road/Mascalls Court Road signals;
- Demand Responsive Bus (DRB) serving Paddock Wood and east Capel;
- Bus Rapid Transit (BRT) between Tudeley/ Paddock Wood and east Capel and Broadwater Down;
- Cycle route between Paddock Wood and east Capel and Tonbridge;
- Cycling infrastructure in Paddock Wood and east Capel.

Draft Infrastructure Delivery Plan – August 2019

- Junction improvement at Badsell Road/Mascalls Court Road;
- Junction improvements at Colts Hill roundabout ;
- 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;
- Distributor road to the east of Paddock Wood and east Capel: upgrade from single land links around allocated sites to reduce congestion on local links and remove through vehicle trips in Paddock Wood and east Capel;
- A potential southern bypass of Five Oak Green linking with Colts Hill in the east and Tudeley on the west;
- Upgrade junction at B2107 Badsell Road/B2160 Maidstone Road/Mascalls Court Road with signals to remove delay generated by additional new highway trip demand.

Transport Strategy – 2015-2026

- A228 Colts Hill capacity improvements;
- Highway improvements at A228/Badsell Road;
- Highway Improvements B2160/Mascalls Court Road/Badsell Road;
- Highway Improvements Mascalls Court Road/Green Lane;
- Traffic managements in Paddock Wood Town Centre.

2.2.2 It should be noted that there are some transport documents that have not yet been made public and are not included in the above list. Discussions have been held with SWECO and PJA in developing and understanding the baseline position.

2.3 Site Promotor Evidence Review

2.3.1 Information has been provided by site promoters as part of their due diligence work which have been reviewed and summarised below.

Crest Nicholson

2.3.2 RPS group have undertaken transport work for Crest Nicholson and have explored site layouts and outlined which of these options they believed to be best, along with indicative site access designs for both the A228 and the B2160. Assumptions were provided for costings for providing a diversion of the 6/6A and contribution towards a community bus. The report outlined 5 junctions that may require improvement works to be undertaken. Consideration have been made for the 'mantle' land.

2.3.3 Consideration has also been made to the history and complexity of providing the Colts Hill bypass.

Dandara

2.3.4 There has been no documentation provided by Dandara for Transport.

Persimmon/Redrow

2.3.5 Milestone Transport Planning have undertaken transport work for Persimmon/Redrow and have explored connectivity of the site, and potential vehicular accesses. The assessment explored person trip rates, the access and movement strategy, and proposals of walking cycling and bus enhancements.

2.3.6 The information within all the reports mentioned above has been taken into consideration when undertaking this report.

2.4 Existing Transport Infrastructure

2.4.1 The site is well related to the strategic highway network with the A228 to the west of Paddock Wood, which leads to the A21 to the south west, approximately 11km drive. The B2160 connects Paddock Wood town centre to the A228 to the north (onwards to the M20, West Malling and Maidstone) and the A21 to the south (towards Tunbridge Wells). The B2017 passes from the B2160 to the A228. To the east of Paddock Wood, a number of rural roads lead to surrounding rural villages.

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 Consideration has been previously made to the implementation of a bypass at Colts Hill, which has been included within the Reg 18 Draft Local Plan, Infrastructure Delivery Plan. This

route takes an 'offline' alignment to the west of the current A228, with the latest scheme design iteration dating back to c.2004.

2.4.6 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.

2.4.7 The B2017 passes broadly east/west from the B2160 within Paddock Wood through Tudeley 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 and the A26, along with a number of slight and serious accidents.

2.4.8 Paddock Wood is served by bus services 6, 205 and 789 bus services. The 6 service passes through the centre of Paddock Wood and goes between Maidstone and Tonbridge. The 205 passes between Tonbridge and Paddock Wood and stops outside Paddock Wood train station. The 789 is a commuter service that goes between Paddock Wood and London.

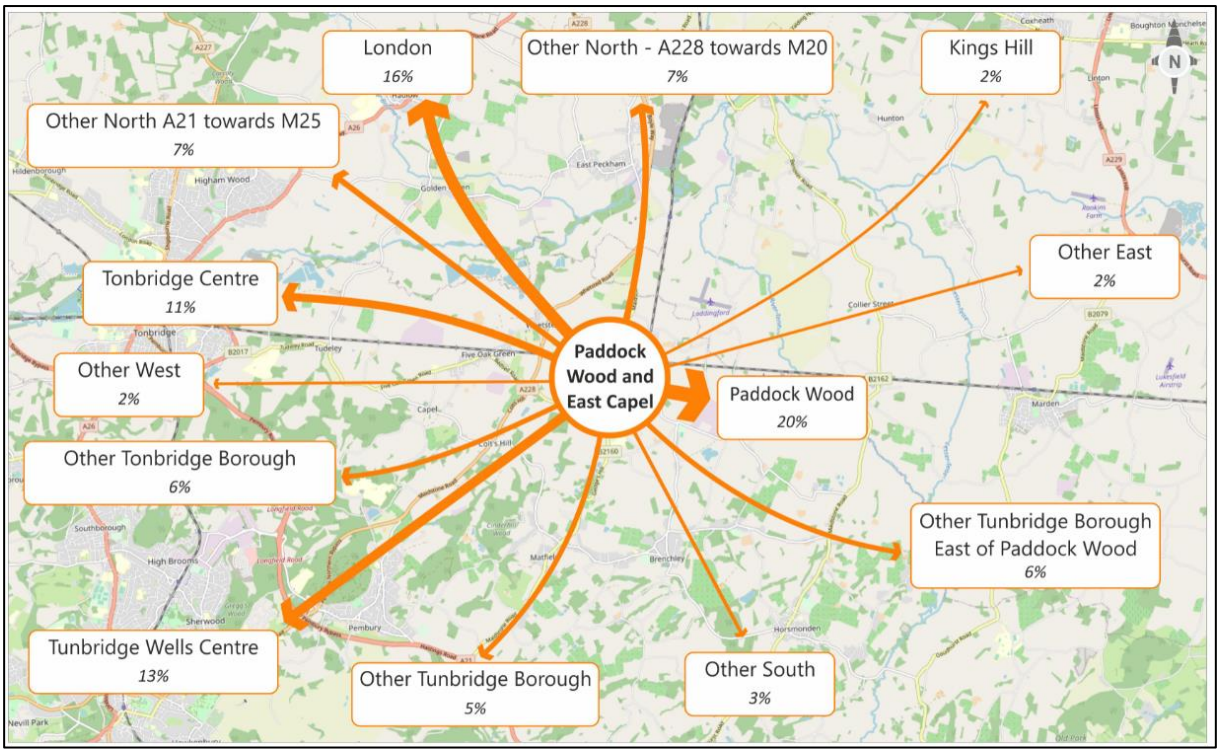
2.4.9 The nearest railway station to the sites is Paddock Wood, located within approximately 2km of all site locations. The station lies on the Ashford to London line via Tonbridge. It is possible to access the station via the B2160 where there are pedestrian footways on both sides of the carriageway. Some other local roads have no pedestrian facilities due to the rural nature of the roads.

2.4.10 There are several public rights of way routes in and around Paddock Wood, which pass through a number of the sites promoted and lead to Paddock Wood town centre. These routes also lead to the surrounding rural area. There is a promoted route that passes through the centre of Paddock Wood which is part of the Medway Valley Rail Trails - Paddock Wood section. Two public rights of way cross the rail line at grade adjacent to proposed allocation sites.

2.4.11 The nearest National Cycle Network route to Paddock Wood is to the south, which is route 18 which continues to Tunbridge Wells via Pembury. The route travels as far north east as Canterbury passing through Tenterden and Ashford.

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 trips to Paddock Wood due to the strategic nature of the site and the level of amenities, facilities and services already available within the settlement.

Figure 2.1: Paddock Wood and east Capel 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 Paddock Wood and east Capel.

2.5.2 NW and W Paddock Wood and east Capel Multiple access points could be provided to the sites from the existing highway network. The NW Paddock Wood and east Capel site could be accessed from the A228 and the B2160, providing a link road between the two. The access onto the B2160 has been explored as a right turn bay with ghost island, with the potential for a signal scheme if connection is made with land to the south. The junction with the A228 could take the form of a large roundabout, in line with other junctions on the wider route.

2.5.3 Access options have been considered within the Transport Report undertaken by RPS for Crest Nicholson.

2.5.4 It is desirable that a connection be made between the NW site and the site to the south of the railway line promoted by Dandara. However, this would need to cross the railway, so may be subject to viability.

2.5.5 The road network within the site would be designed to have a hub which will help to facilitate key walking, cycling and bus routes within the site that connect with the existing infrastructure and centre of Paddock Wood. It would be the aspiration for a bus service to pass through the site and onwards into Paddock Wood.

SE and E Paddock Wood and east Capel

2.5.6 Access to the south east and east plots within Paddock Wood and east Capel could be accessed from Mascalls Court Road and Church Road, which currently skirt the town to the south and east. A desire exists for an outer orbital route through the development sites if possible.

2.5.7 Consideration has been made to integrate a bus route through all sites to the south east of Paddock Wood and east Capel, however this would go through land controlled by Countryside who already have planning permission following their recent Reserved Matters Application. Discussions are ongoing with Countryside in respect of a potential foot/cycle/bus link to the north east of their site. It is still possible to provide a looped service through the SE of Paddock Wood and east Capel with the additional site not currently allocated. The loop would be to the north of the plot and would pass onto Mascalls Court Road. It is intended that all sites would be permeable for walking, cycling and bus trips. It is preferred that a link be provided through the Countryside site to ensure permeability.

2.5.8 To accommodate this development off site walking, cycling and highway infrastructure improvements will be required. Already permitted sites at Church Road (Countryside Properties), Mascalls Farm (Berkeley Homes) and Mascalls Court Farm (Persimmon Homes) are committed to S106 contributions at the Mascalls Court Road / Maidstone Road / Badsell Road and Badsell Road / A228 junctions. The former Maidstone Road signal junction has been the subject of further studies into junction capacity upgrades that provide capacity for further housing.

2.5.9 There is a desire to provide a bypass at Colts Hill as proposed by KCC. This aspiration being long standing since the early 1990's and justification being primarily made on safety and width constraints grounds. The bypass route passes through the Area of Outstanding Natural Beauty (AONB).

2.5.10 In advance of the delivery of a Colts Hill bypass or other suitable upgrade, improvements are expected to be required at the Colts Hill Crossroads and the A228/B2017 roundabout. Although, with the link in through the NW site, less traffic may use this roundabout to access the centre of Paddock Wood and east Capel and the north part of the town.

2.5.11 Cycle improvements are anticipated towards Tudeley, Tonbridge, Tunbridge Wells and Pembury. Phil Jones Associates is commissioned by Tunbridge Wells Borough Council to assess the feasibility of a number of walking and cycling connections in relation to the emerging Local Plan.

2.5.12 Existing public rights of way through the site will be retained and developed through masterplanning, with rail crossings being subject to further discussion with Network Rail.

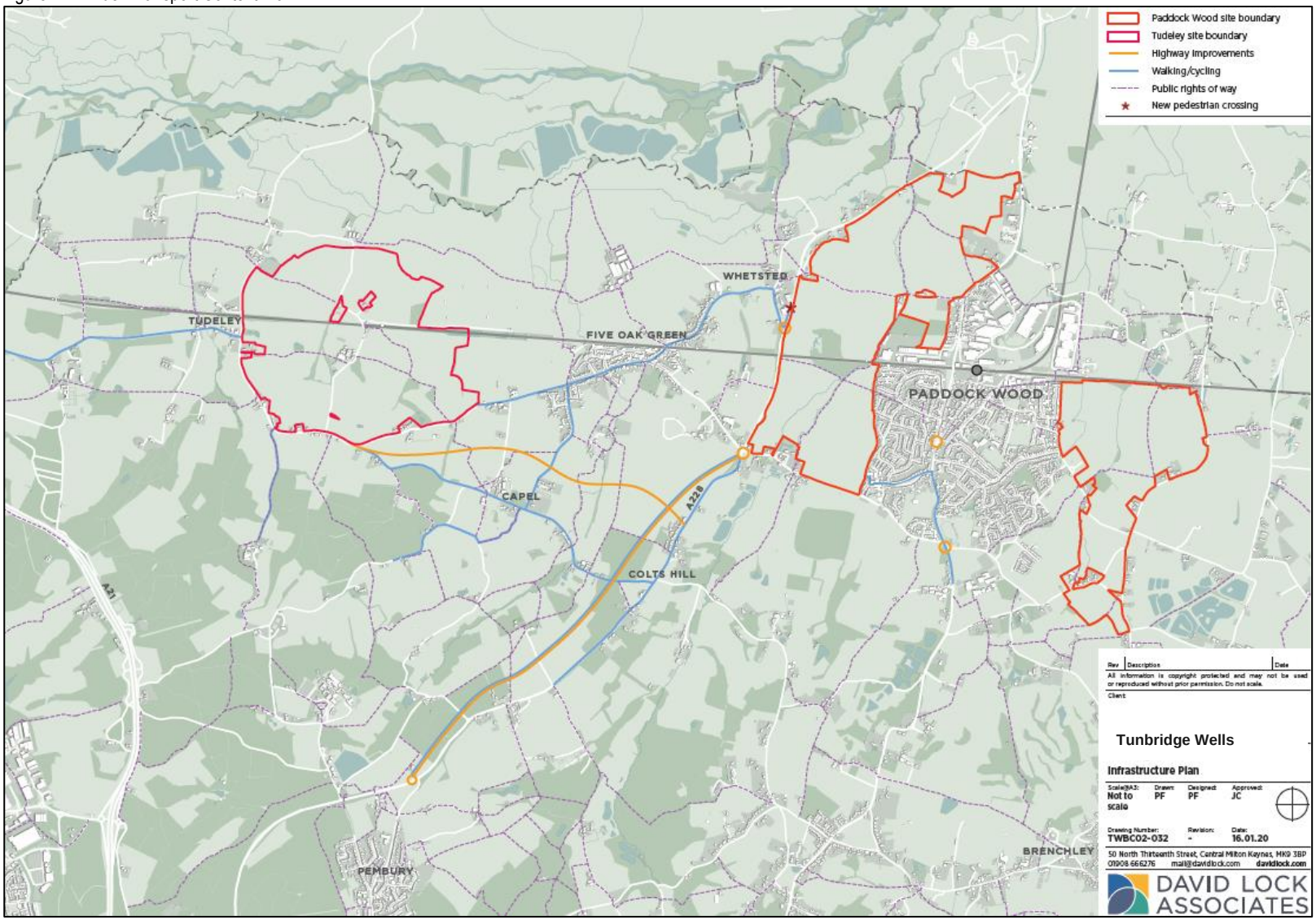
2.5.13 Significant public transport infrastructure would be required to ensure the site provides sustainable travel opportunities to the local area. Potential opportunities to provide a new bus service through the site would be explored.

2.5.14 There are a couple of options for bus travel in Paddock Wood and east Capel with both traditional bus services and smaller midi bus services possible in this location.

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 Paddock Wood and east Capel and Tudeley Village, 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 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)

• 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."

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

Development Constraints Study (October 2016)

• 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".

• 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)

• Tunbridge Wells Borough was classified by the EA as being under "Serious Water Stress"

• 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.

3.2 Site Promotor Evidence Review

3.2.1 WSP has written technical reports in relation to air quality and noise on behalf of Crest Nicholson for the Land West of Paddock Wood and east Capel site. Barton Wilmore has also prepared a review of the sustainability appraisal undertaken for the Tunbridge Wells Borough Draft Local Plan and the assessment of the Land West of Paddock Wood and east Capel site undertaken as part of this sustainability appraisal process.

3.2.2 The air quality and noise technical notes outline baseline conditions (informed by a desk-based review) and potential site constraints and delivery risks associated with development of the site are identifies.

3.2.3 The noise technical note outlines general principles to inform masterplanning. A noise constraints plan has been prepared which outlines where potential mitigation may be required, namely set back distances from the railway line and noise barriers adjacent to commercial uses to the east of the site. It concludes that the site is deemed to be suitable for residential

development, but careful consideration should be given to noise and vibration during the master planning process.

3.2.4 In relation to air quality, the technical note identifies that there are sensitive air quality receptors located in proximity to the site (residential, farms and industrial uses) which may be impacted by changes to air quality during construction and operation of the development. It also noted that there are no ecological receptors in close proximity to the site but there are two located further afield (6 -21km away - Brookland Wood SSSI and Ashdown Forest SAC/SPA) which could be impacted by changes in air quality associated with traffic increases on the surrounding road network. The report identifies that air quality on site does not pose a constraint to the type of development proposed. It also identifies that appropriate mitigation is required during construction and operation to reduce effects to sensitive receptors. With mitigation measures in place air quality is unlikely to provide a constraint to the development of the site. The report recommends that the EHO at TWBC should be consulted to confirm the findings of the desktop review.

3.2.5 The sustainability appraisal review report provides comments on the sustainability appraisal undertaken for the Tunbridge Well Borough Draft Local Plan and outlines where improvements could be made to the sustainability appraisal process and the sustainability appraisal report being prepared for the Regulation 19 stage. It should be noted no areas of major deficiency were identified. In relation to the Land West of Paddock Wood and east Capel site, the report identifies that it scores positively against 11 out of 19 of the sustainability appraisal objectives, that Paddock Wood and east Capel is a sustainable location.

3.2.6 The information within all the reports mentioned above has been taken into consideration when undertaking this report.

3.3 Air Quality

3.3.1 The site is not located in an Air Quality Management Area (AQMA). The nearest AQMA is located ~8km south west of the site along the A26 which was declared by TWBC in 2005 due to exceedances of the annual mean Nitrogen Dioxide (NO2) National Air Quality Objective. 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 south[1] . 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 There a number of roads located in proximity to or that run through the site including the A228, B2017 and B2160 and are in proximity to one or more of parcels land. A railway line runs through Paddock Wood from east – west and abuts or passes through several parcels of land included within the site.

3.3.3 During the development of the design, an assessment should be undertaken to ensure that set back distances between the surrounding roads and new residential and educational receptors (e.g. the proposed primary school) within the abutting land parcels are such that air quality at sensitive locations is acceptable. Less sensitive uses such as employment or green infrastructure could be located closer to the highways. This would also help negate potential noise impacts on sensitive receptors.

3.3.4 There are a range of commercial uses located in Paddock Wood which abut the northern parcels of the site and include storage and distribution, haulage and offices uses. It is not known what emissions are produced from the existing commercial premises, if any. It is not

[1] https://uk-air.defra.gov.uk/

anticipated that this would be a major source of emissions given their nature, however this should be confirmed as part of any future air quality assessment.

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 6 km south of the site.

3.3.6 There are residential receptors located in close proximity to the site including within Paddock Wood and the wider surrounding rural area which abuts the site. There are also a range of education facilities within Paddock Wood and in proximity to the a parcel (Mascalls Academy and also St Andrews school which is currently being constructed) which are sensitive to air quality.

3.3.7 Consideration will need to be given during the development of the site to promote sustainable and active travel (including providing walking, cycling and public transport links to enable access to Paddock Wood railway station from the site) 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.

3.3.8 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 undue impact on local air quality. However, with mitigation measures available, and continual improvements in vehicle NOx emissions expected in the future, this 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 a number of parcels within the site is a likely significant source of noise and vibration. Development within these parcels will need to consider appropriate setback distances 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). Less sensitive noise uses such as 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 Surrounding roads such as the A228, B2017 and B2160 may also be a potential source of noise, particularly when additional traffic from the development is added to the network. The layout with regards to locations of private external amenity areas would need to be considered in areas close to these highways. Barrier mitigation may be required where appropriate set back distances cannot be achieved.

3.4.4 Similarly, commercial uses located in proximity to the northern parcels of the site may be a source of noise that needs to be suitably mitigated where there are in proximity to more sensitive land uses, (such as residential or educational uses). Measures may include providing appropriate set back distances, acoustic barriers, positioning less noise sensitive uses such as new commercial or industrial adjacent to the existing commercial or internal layout and design considerations (e.g. in relation to glazing and façade specification).

3.4.5 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 area at Moat Farm, Five Oak Green for sharp sand and

gravel extraction which is located ~600m west of the site at its closest point (parcels P1_2 and P1_3). An extension to the Stonecastle Farm Quarry for the extraction of sharp sands and gravel is also identified in the plan, which is located >2km west of the site.

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.

3.6.2 There is also potential to use a natural capital approach and undertake a Natural Capital Assessment[2] 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.

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*

[2] https://www.gov.uk/guidance/enabling-a-natural-capital-approach-enca

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 sever water stress which may be exacerbate 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 Paddock Wood and east Capel 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' database[3]. 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)[4], 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 promotor 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 km north east, Peters Pit SAC located c.17km north, and Ashdown Forest Special Protection Area (SPA)/SAC located c. 20km south west of the Site.

4.2.2 The HRA of the Regulation 18 Tunbridge Wells Local Plan concludes that Paddock Wood and east Capel site allocation 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 Paddock Wood and east Capel Site. The closest SSSI is the River Beult located c.4km to the north of the Site and Brookland Wood SSSI c. 4.7km south 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 Paddock Wood and east Capel Site (housing/ mixed use) is not listed as a development type that is likely trigger impacts on local SSSI/ European sites (aviation development and livestock/poultry units specified).

4.2.4 A review of the Draft Tunbridge Wells Local Plan and proposals maps indicates that Candidate Local Nature Reserves (cLNRs) are present within or immediately adjacent to the Paddock Wood and east Capel Site. These are: Church Farm cLNR, Mascalls Court cLNR and Mascalls Court Farm cLNR. Under Policy EN12: Protection of Designated Sites and Habitats these cLNR will be treated in policy terms in a similar manner as Local Nature Reserves

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

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

(LNR). Foal Hirst Wood LNR is located adjacent to the Site (to the south of allocation land parcel PW1-1).

4.2.5 From a review of the Draft Tunbridge Wells Local Plan, the Biodiversity Evidence Base of the Local Plan, and KLIS website it appears that there are no non-statutory designated sites present either within or immediately adjacent to the Site. The nearest non-statutory nature conservation areas are Benchley Wood Local Wildlife Site (LWS) located c.0.6km south and East Tonbridge Copses and Dykes and River Medway LWS located c.0.9km northwest of the Site.

4.2.6 At present the Paddock Wood and east Capel site does not sit within a Biodiversity Opportunity Area (BOA) as mapped on KLIS. It is understood however, 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 and occasional intensive orchard planting also present. A network of hedgerows demarcate field boundaries with numerous blocks of woodland, and standard trees also present. Discrete blocks of ancient woodland as mapped on MAGIC were identified within the Site. Waterbodies/ ponds, ditches and minor watercourses are also present.

4.3.2 The on-site woodland Whetsted Wood is Ancient Woodland, along with an unnamed wood adjacent to Mascall's Court road (as mapped by MAGIC and KLIS). On-site likely veteran trees have also been identified by EPR in 2020 within land parcels PW1-7 and PW1-8. Ancient Woodland and ancient/ veteran trees represent 'irreplaceable habitats' which are protected under the National Planning Policy Framework (NPPF). These ancient woodland blocks, as well as other scattered woodland areas across the Site, are also likely to represent Deciduous Woodland HPI. Three 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 in other land parcels, (important) hedgerows, species-rich grassland, ponds/ waterbodies, watercourses (Tudeley Brook and tributary of River Teise) 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 (watercourse 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 the Site to support foraging and/or commuting bats given the connected high-quality habitats such as woodland, hedgerow, tree lines, ditches and watercourses;
- **Breeding birds** – the Site provides potential to support a good variety of breeding birds associated with farmland and woodland, and potentially species associated with watercourses, such as kingfisher;
- **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** – this species is known to be present in the local area; the Site supports habitats which could support dormouse, including woodland and hedgerows, with good connectivity to similar off-site habitats;
- **Otter and water vole**– these species have the potential to be associated with the Tudeley Brook and other watercourse/ ditches within the Site; 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 bats, great crested newt and dormouse protected species licences have been granted within 2 to 3km of the Site indicating these species are present in 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 Paddock Wood and east Capel Site as provided by Kent and Medway Biological Records Centre (KMBRC). Records of protected and notable species from within the Paddock Wood and east Capel Site included: common reptiles, bats, dormouse, barn owl, kingfisher, nightingale, a diverse assemblage of bird species, occasional notable invertebrates and eel.

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.

4.4.4 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 Paddock Wood and east Capel 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/PW 1: The Strategy for Paddock Wood; 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 these 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 (or UK HAB) Survey & 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 ecological 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 Paddock Wood and east Capel 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 current 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 a report prepared by JBA Consulting, who also prepared Tunbridge Wells Borough Council's Level 1 and 2 Strategic Flood Risk Assessments. At the time of writing this report the information provided by JBA is up to date. Additional information can be found in JBA's report "Masterplan development modelling at Paddock Wood" dated January 2021 which covers additional modelling.

5.1.2 This section provides an appraisal of the flood risk and surface water drainage constraints and opportunities for development at Paddock Wood and east Capel.

5.2 Sources of Flood Risk

5.2.1 Flooding and drainage problems within Paddock Wood and east Capel occur at both a wide-scale, occurring relatively infrequently (as typically presented in flood maps of different flood hazards), but also at a small-scale, occurring more frequently including multiple times per year (which is often not captured in mapping). While planning policy for zoning of development often considers these infrequent flood events (e.g. using the Flood Map for Planning and Flood Zone 3b from the SFRA), it is also important to consider these more frequent/persistent issues, which often is associated with poor drainage of land and/or watercourses.

5.2.2 Paddock Wood and east Capel may be at flood risk from the following sources, which as noted above may occur in combination:

- Fluvial (river) flooding, where the capacity of watercourses and their structures are exceeded and flood water flows onto the floodplain. For Paddock Wood and east Capel, fluvial flood risk may be associated with watercourse flowing from the south (e.g. Tudeley Brook, Gravelly Ways Stream, Paddock Wood Stream, Rhoden West and Rhoden East), or to the north (e.g. River Medway and River Teise).
- 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 Pathways for Flood Risk and Influential Factors

5.3.1 Flood pathways within Paddock Wood and east Capel are influenced by the natural topography (ground levels) and less natural features e.g. existing development and infrastructure. Some of key points to note are:

- Flooding to the north of the Masterplan area could be influenced by inflow from the southern watercourses at Paddock Wood and east Capel or the rivers Medway and Teise. While the Medway and Teise are relatively distant from the masterplan area, their flooding can be expansive and of longer duration than the smaller watercourses which flow though Paddock Wood and east Capel. This can cause flooding in its own right, or contribute to flooding by elevating water levels and impeding drainage in other watercourses.

- Overland flow routes from watercourses which flow through Paddock Wood and east Capel generally, flow in a north-northeasterly direction.

- However, the railway infrastructure intersecting the centre of Paddock Wood is influential to flood pathways. The capacity of flow routes under the railway line (where watercourses are culverted) is limited. This means that if flow rates exceed the capacity of the structures, water accumulates upstream of the railway line and may begin to flow eastwards. This easterly flow route can exacerbate flooding and may combine with surface water runoff and accumulation.

5.4 Masterplanning Observations

5.4.1 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.

5.4.2 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.

5.4.3 **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. Currently, some regions of site promoter's plans show residential development (more vulnerable) positioned within Flood Zone 3b and 3a, while large areas of Flood Zone 1 are shown as open space/recreational use (water compatible) development.

5.4.4 **Obstructing overland flood pathways can provide opportunities and constraints.** Flood modelling of indicative development layouts prepared for the SFRA identified that the presence of development can influence flood pathways, deflecting water elsewhere. In some circumstances this was to the detriment of areas of existing development, but in other circumstances this potentially provided betterment. The layout of sites was found to be influential to flood pathways and they should normally be designed to limit or avoid obstruction to flood pathways.

5.4.5 In the case of land at the southwest of Paddock Wood and east Capel (the Dandara site) partially and/or fully blocking the existing overland flow route that runs through the east of this land reduced flow rates eastward into Paddock Wood and east Capel providing betterment to the existing developed areas. This betterment is an outcome the Council are keen to realise through release of land for development. However, reducing the easterly flow of water deflected water west and northwards also potentially results in increased flow rates and flooding across the railway line and into the land at the northwest of Paddock Wood and east Capel (the Crest site) and beyond.

5.4.6 **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).

5.4.7 **Agreement on and commitment relating to strategic flood risk management measures is essential.** Realising the planned scale of development, while also requiring betterment to existing developed areas of Paddock Wood and east Capel (which goes beyond simply limiting on-site runoff rates) 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. A piecemeal approach to development is unlikely to secure the potential benefits.

5.4.8 In the case of overland flood flows originating from the Tudeley Brook catchment that enter Paddock Wood and east Capel from the east: if flood risk from this mechanism is to be reduced (or ideally removed entirely), whilst not increasing flood risk to land and receptors (including the railway line to the north) and still enabling the desired scale of development to occur, commitments will be needed to risk management measures. Details of the measures have not been determined and it may be necessary to consider how land off site (to the south) can be used to assist as well as land on site (which the SFRA reporting identified had potential for quite notable flood storage volumes).

5.4.9 These details have not yet been agreed. However, to address these circumstances the masterplan should consider this issue and identify expectations of site promoters and other relevant authorities. An approach at this stage could be for site plans to evidence how some benefit will be realised through proposed development, by partially reducing flood risk and developing the site in such a way that future enhancement to the flood management arrangements can take place in a straightforward manner. A simple example could be that a development constructs a defence that partially reduces flooding from an overland flow route, and mitigates the increased volume of water by storage on site. However, land beyond the current length of defence must be preserved in a manner that enables the defence to be extended in the future, enhancing the betterment elsewhere.

5.4.10 **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.

5.4.11 **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.

5.4.12 **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.

5.4.13 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.

5.4.14 **Infiltration potential is likely to be low.** Relatively impermeable geology and soils across the whole development area mean potential for infiltration is likely to be low. There are some superficial deposits of river gravels and sands which may have some permeability but also may be at risk of high groundwater. The north-west sites are over alluvial clays and silts which have low permeability. The implication of this is that adequate space will therefore be required within the developments to accommodate the required attenuation storage on the surface (detention basins, ponds, wetlands etc). There will be local variation within parcels of land and between the western and eastern development areas – early infiltration testing is recommended to locate areas with potential and maximise the infiltration from the system from the outset.

5.4.15 **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. The early drainage strategy within the Flood Risk Overview report for the Crest site suggests that a swale is proposed to route some flow from Tudeley Brook and surface water generated by the development around the eastern edge of the site, utilising some existing small drains which drain eastwards and then re-routing water back into the Tudeley Brook. This would change the natural catchment area, which drains towards the next watercourse to the east, so assessment of the hydro-geomorphological and ecological impacts of this design on both watercourses should be made.

5.4.16 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. This will be a significant constraint within many of the Paddock Wood and east Capel sites, particularly on the western side. The early drainage strategy within the Flood Risk Overview report for the Crest site suggests that some of the proposed attenuation basins are within the current Flood Zones.

5.4.17 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.

5.4.18 **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 – this has been done for the Crest site as part of the early drainage strategy within the Flood Risk Overview report.

5.4.19 Once any infiltration potential has been utilised, the main discharge destinations are likely to be to the Paddock Wood and east Capel watercourses, but this may be constrained by extreme water levels in them and further downstream in the River Medway, and climate change impacts. There are capacity limitations in the existing combined sewer network, and even if upgrades are made, this should be a last resort for discharge from new development.

6 Geotechnical

6.1 Introduction

6.1.1 This technical note 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 14No. parcels of land located around the perimeter of the town of Paddock Wood and one parcel within Paddock Wood, as shown by Map 8 of the Tunbridge Wells Local Plan (which also provides the parcel reference numbers used below). The parcels range in size from approximately 3 hectares (ha) to approximately 59 ha.

6.2.2 The various parcels are situated on gently sloping land to the south of the River Medway bisected by a number of tributaries flowing in general direction to the north toward the River Medway. The parcels lie upon low-lying land at between approximately 20m above Ordnance Datum (mAOD) to 15mAOD.

6.3 Site History and Current Use

6.3.1 The majority of the parcels are currently used as agricultural land and appear to have remained as undeveloped agricultural land, with the exception of:

- PW1_4 where a ‘brick yard’ was present by 1897. The brick clay pits remained until the mid-1900s and are not recorded on the 1964 Ordnance Survey (OS) mapping and appear to have been infilled. Following this, parcel PW1_4 is recorded as being used as a ‘sports ground’;
- PW1_7 where the Cranbrook (later Hawkhurst) branch of the South Eastern Railway was constructed (with areas of both embankment and cutting) through the parcel on an approximately northwest-southeast alignment. The railway was disused by the 1960s and by the 1990s is no longer recorded on mapping. A small clay pit is also recorded on the Site’s western boundary on 1908 mapping and appears to have been infilled by 1938;
- PW1_10 which appears to have been used as a ‘sports field’ by the 1990s;
- PW1_11 where a series of small buildings on the eastern boundary were present until the 1960s when all but one (which remains) were demolished;
- PW3 where the existing Mascalls Farm was constructed in the late 1800s and continued to be extended to its present-day footprint. A small ‘tank’ is recorded in the north of this parcel on 1885 mapping, and is not recorded on the 1897 or subsequent mapping; and,
- PW4 where 1964 mapping records the existing allotment gardens and recreation ground.

6.3.2 Parcel PW3 differs from the other parcels as it lies within Paddock Wood. Land use within this parcel is typically residential, with light industrial uses (cattle yard, cannery, 'works') and later, commercial and vehicle parking present in the north of the parcel, adjacent to the railway line immediately north of the parcel. Small scale light industrial uses such as a smithy and a builders yard are also present within the residential area.

6.3.3 The current and historical off-site land uses in the immediate vicinity of each parcel are typically agricultural (with limited residential) with the following exceptions:

- PW1_3 where a garden centre was constructed to the east, a skip hire/building materials supply yard was constructed during the 1990s/early 2000s and various 'works' are present to the south by the 1930s;
- PW1_4 where 'works' are present to the south by the 1960s and a builders yard is present to the east by the 1970s;
- PW1_5 where 'works' are present to the south and southwest by the 1930s (same works as for PW1_3);
- PW1_6 where a sewage works is was constructed at the turn of the 20th Century and remains today, and 'works' and an electrical substation were constructed to the west by the 1970s;
- PW1_7 where:
  - A 'portable building works' was present off-site to the northwest in the mid-1900s. This Site has since been investigated by Tunbridge Wells Borough Council under Part 2A of the Environmental Protection Act 1990, with further investigation undertaken by the Institute of Occupational Medicine due to the identified presence of asbestos within residential gardens. As a result, the site has not been classified as Contaminated Land under Part 2A; and,
  - An historical landfill (Park Farm) is recorded off-site approximately 90m southeast. The available information suggests that this landfill was operational between 1960 and 1974 and accepted inert waste. Historical mapping does not record the presence of this landfill. It is possible that this landfill represents infilling of the disused railway cutting.
- PW1_8 where the Park Farm landfill lies immediately southeast of, and marginally within, the parcel;
- PW1_9 where an historical landfill (Mascalls Court Road) is located approximately 150m to the west. Information regarding the operational dates and infill material is not included within the Environment Agency's publicly available dataset. OS mapping records a pond in this area on the 1964 map edition, which is no longer recorded on the 1990 edition, suggesting filling may have taken place between these dates;
- PW1_11 where Mascalls Court Road landfill is located approximately 250m west;
- PW1_12 where Mascalls Court Road landfill is located immediately north; and,
- PW2 where various 'works' are present to the east and north by the 1960s.

6.4 Ground Conditions

Superficial Deposits

6.4.1 The 1:50 000 scale geological map of the area (Solid and Drift Sheet 287 – Sevenoaks, BGS, 1997), indicates that the majority of Paddock Wood and east Capel and its surrounding area is underlain by superficial River Terrace Deposits (RTD) (clay, silt, sand & gravel).

6.4.2 Parcels PW1_1 to PW1_6, and PW4 are indicated to be entirely underlain by the RTD. Parcel PW1_7 is underlain by RTD in its northwestern corner. PW3 is almost entirely underlain by RTD.

6.4.3 Superficial deposits of Head (clay, silt, sand and gravel) are recorded in the west of PW1_9 and south of PW3.

6.4.4 Alluvium (clay, silt, sand and gravel) is recorded in the vicinity of the stream running through PW1_7.

6.4.5 Superficial deposits are not recorded in PW1_8, PW1_10 and PW1_12.

Bedrock Geology

6.4.6 The Tunbridge Wells Sand Formation (interbedded sandstone and siltstone) is indicated to underlie the superficial deposits (where present) in parcels PW3, PW4, PW1_1 and the southwestern half of PW1_2.

6.4.7 The remaining areas of the Site are indicated to be underlain by the Weald Clay Formation (mudstone).

6.5 Hydrological and Hydrogeological Conditions

6.5.1 Numerous surface water features are present across the Site as follows:

- The Tudeley Brook flows northwards through parcels PW1_1 and PW1_2 and adjacent to parcels PW1_3 and PW1_4. Numerous field drains are present in these parcels which typically flow towards the Brook;
- A stream flows northward along the western boundary and southeast corner of PW1_5;
- Field drains flow northwards within PW1_6;
- A stream flows northward through the west of PW1_11, through the western end of PW1_9 and through PW1_7. Multiple field drains are present in PW1_7 flowing either northwards or towards the stream;
- Several field drains are present within PW3; and,
- Many small ponds are present across the Site.

6.5.2 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 Alluvium 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). In areas directly underlain by the Weald Clay groundwater is not anticipated due to the largely impermeable nature of this stratum.

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 There are no records of natural or mining cavities within 2 km of the site boundaries.

6.6.7 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 Very Low.

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. The exception is any Alluvium that, owing to its relatively low strength and high compressibility is likely to require additional works to allow construction of any proposed development.

6.7.3 Although expected to be suitable for construction of the proposed development, the mudstone and siltstone bedrock may be weathered in its 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 guidance for building on shrinkable soils.

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 (with the exception of Parcel PW2) has remained as undeveloped agricultural land, or recreational fields since the mid-1800s. The exceptions to this are:

- The buildings of Mascalls Farm in PW3;
- The former and existing small buildings in the east of PW1_11;
- The former brick yards/clay pits in PW1_4 and PW1_7;
- The former railway (embankment and cutting) in PW1_7; and,
- The area of 'landfill' that marginally encroaches PW1_8.

6.7.7 The former and existing buildings are anticipated to have been founded on shallow strip or spread foundations resting on the near-surface soils. Where foundations remain, these may present an obstruction to future foundations or infrastructure and may need to be removed.

6.7.8 The former clay pits appear to have been infilled. For these areas, as well as the area of landfill and any areas of former railway cutting that have been infilled, compressible and collapsible ground stability hazards may be present due to the increased thickness of Made Ground and either deepened foundations placed within the natural soils, or some treatment of the ground may be required.

6.7.9 Overall, the geotechnical constraint to the development of the Site associated with areas of historical and current agricultural land use is considered to be Very Low. For the limited areas where foundations of former structures may be present, the geological constraint to the development of the Site is considered to be Low, and for areas where infilled ground may be present, the geological constraint is considered to be Moderate.

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 former railway branch line that crossed 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 landfills adjacent to the Site and the areas of infilled land (clay pits, railway cuttings, ponds etc.) present a potential source of contamination, depending upon the material with which they were infilled. Limited information is available only for Park Farm landfill which indicates it was filled with 'inert' material during the 1960s and 1970s. The manner of fill material used in other areas is unknown. These areas of infilled land present a potential source of ground gases, as well as potential for various hydrocarbon, metal & metalloid, inorganic forms of contamination, as well as the possibility for asbestos to be present, and will require further investigation.

6.8.5 The various light industrial land uses on PW2 and in the vicinity of the remaining parcels present a source of potential contamination including, but not limited to, hydrocarbons, metals & metalloids, inorganic contaminants, volatile (and semi-volatile) organic compounds, chlorinated solvents and asbestos. Where off-site works are considered, the risk principally relates to the migration of contaminated groundwater onto the Site, and therefore (on the assumption that groundwater flows northwards towards the River Medway) these risks are applicable only where works are located to the south of parcels (i.e. Parcels PW2 – PW6).

6.8.6 The mid-1900s electricity substation adjacent (off-site) to PW3 presents a potential localised source of hydrocarbon and Poly-Chlorinated Biphenyls (PCB) and asbestos contamination.

6.8.7 There is a low potential for limited and localised contamination to be present within Mascalls Farm, associated with the storage of agrochemicals and fuels, as well as the use of asbestos in farm buildings.

6.8.8 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 small buildings (if these were indeed residential) within PW1_11.

Geoenvironmental Constraints

6.8.9 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

6.8.10 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

6.8.11 Given that historically (with the exception of PW2) the Site has been used primarily for agricultural purposes, the risk of significant contamination being present as a result of on-Site sources across the majority of the Site is expected to be Very Low.

6.8.12 The presence of localised areas of more significant contamination or hazardous ground gases associated with activities at Mascalls Farm, the former cottages and residential properties in PW2 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.

6.8.13 For areas where infilled ground is present (former clay pits, former railway cutting, areas of on-site and off-site landfill), the route of the former railway branch line and the former ‘works’ and light industrial uses within PW2 the risk of contamination being present is expected to be Moderate pending further investigation. It should however be emphasised that the on-site identified areas of infilled ground are limited in their extent and, as such, the Moderate risk associated with these features applies to only a very localised area.

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 and east Capel 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 Records for Paddock Wood show an 11kV HV overhead line diagonally crossing the site from the Tudeley Brook pole mounted transformer at the north-west corner of the development growth area to the Eastlands Recloser substation at the corner of the track off the B2160 Maidstone Road. This substation provides LV connections to existing properties along the track and within the Paddock Wood area.

7.3.2 There are HV and EHV overhead lines crossing the development area to the south of the B2017 and to the north of Mascalls Court Road to the south / south-east of the site, with further substations and transformers located within the development area. The HV overhead continues north to cross the railway and runs within the development area, to the east of and adjacent to the rail line that heads north.

7.3.3 GTC records show that they also have electricity infrastructure in the area, serving the existing residential development off Green Lane to the south of the site.

Capacity

7.3.4 The total estimated electricity demand for Paddock Wood residential development, based on 4,000 homes, is 6.7MVA for gas heated dwellings (22.2MVA for all-electric heating). Assuming 20% EV charging, a further 5.6 MVA would be required for both scenarios.

7.3.5 It is envisaged that the site would be fed from Paddock Wood Primary substation, which has a maximum capacity of 22.3MVA and the forecasted load for 2023/24 is 14.1MVA. This suggests there is a spare capacity of up to 6.2MVA in the network.

7.3.6 UKPN advised the latest TWBC IDP (Infrastructure Development Plan) that it is currently investing around £10 million in the electrical infrastructure of Tunbridge Wells borough to accommodate current and future predicted growth in the area. However, where new infrastructure is required in response to an increase in demand across the local electricity distribution network, UKPN may request improvements to an existing National Grid substation or a new grid supply point.

7.4 Gas

Existing Infrastructure

7.4.1 The HSE Planning Advice Web App identified that the site lies within the consultation distance.

7.4.2 SGN records show a 180mm MP (medium pressure) main running within the nearside footway of the A228 Whetsted Road to the north-west of the site. A further 250mm MP main is shown running within the footways and carriageway of the B2160 Maidstone Road through the centre of the development area, branching off to the east into Transfesa Road with a 180mm main to serve the existing industrial estate.

7.4.3 There are LP (low pressure) mains shown running within the B2160 Maidstone Road, branching off to serve the existing developments within Paddock Wood at the centre of the development growth area.

7.4.4 GTC records show that they also have gas infrastructure in the area, serving the existing residential development off Green Lane to the south of the site.

7.4.5 From the records obtained to date, the proposed development does not appear to be impacted by the existing gas networks, as mains are shown to be located within the existing surrounding highways.

Capacity

7.4.6 Based on gas heated dwellings the anticipated peak hourly demand for the residential development is 26,572kW.

7.4.7 SGN's LTDS forecasts a steady decline in the requirement for gas going forward due to green initiatives and government guidelines.

7.4.8 The borough is served by two grids; Grid 307 West Kent IPMP, which serves Paddock Wood, Cranbrook and Hawkhurst, and Grid 312 Tunbridge Wells IPMP, which serves the west of the borough and Royal Tunbridge Wells. The TWBC IDP identifies that the Tunbridge Wells grid is quite robust, but that the West Kent grid is likely to require reinforcement to accommodate significant future growth.

Once detailed site layouts are available, a network feasibility study will be required in order to determine availability of capacity and points of connection to the existing network.

7.5 Potable Water

Existing Infrastructure

7.5.1 There are water mains of varying composite and diameter running within the main public highways around and within the site (A228 Whetstead Road to the west, B2017 Badsell Road and Mascalls Court Road to the south, B2160 Maidstone Road through the centre and Queen Street to the east). There are also further mains shown serving the existing developments within the area of Paddock Wood at the centre of the development growth area.

7.5.2 Similar to gas above, the records obtained to date suggest that the proposed development will not be impacted by the existing water mains, as they are shown to be located within the existing surrounding highways.

Capacity

7.5.3 The anticipated total peak flow for the residential development at Paddock Wood and east Capel is 66l/s.

7.5.4 SEW's WRMP (Water Resources Management Plan) 2019 identifies this area as within WRZ (water resource zone) 7 - Cranbrook and suggests that there is a low level of strategic risk in this zone. The document sets out improvements to accommodate growth by way of leakage reductions and water efficiency.

7.5.5 It is envisaged that, whilst there is likely to be some spare capacity within the existing water networks that could accommodate the initial development phases, off-site reinforcement will be required to accommodate the proposed whole site demands.

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 and east Capel. However, this upgrade does not include headroom to accommodate additional strategic development.

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.

7.7 Telecommunications

Existing Infrastructure

7.7.1 Openreach show overhead lines and underground ducts running within the footways and carriageways in the main public highways around the perimeter of the development growth area. There is also overhead and underground infrastructure running within the B2160 Maidstone Road, which branches out to serve the existing developments within the area of Paddock Wood and east Capel.

7.7.2 Zayo Group records show that they also have existing ducting located within the footways of A228 Whetsted Road to the north-west of the site

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 Paddock Wood and east Capel. **Table 8.1** summarises the key constraints and opportunities for each of the technical disciplines.

Table 8.1: Constraints and Opportunities for Paddock Wood and east Capel

	Opportunities	Constraints
Transport	The scheme could offer future strategic development opportunities and provide a new major bypass at Colts Hill.	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 sever 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	Opportunity to provide betterment to flood risk in areas around Paddock Wood. More information can be found in JBA's report "masterplan development modelling at Paddock Wood" dated January 2021.	High propensity to flooding in certain parts of the site

Geotechnical		No known major sources potential contaminants and hazardous ground gases within the site and the largely agricultural setting of the site makes the presence of significant concentrations of contaminants and hazardous ground gases unlikely. No designated geological or geomorphological features of conservation value in the area affected by the proposed scheme. Constraints to the development of the site associated geological and geomorphological features are, respectively, assessed to be Very Low. The geotechnical constraint to the development of the site associated with the natural ground conditions is assessed to be Low. 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. Localised areas of more significant contamination of hazardous ground gas in associated with activities at Mascalls Farm although due to scale is considered to be Low. Contamination in areas where infilled ground is present risk of contamination is considered to be Moderate but within localised areas.
Utilities		
Gas	SGN assets located within vicinity of the sites.	
Electric	A network of overhead and underground cables routes serves the existing properties within vicinity of the sites. Some of this infrastructure may need to be diverted to accommodate the new development.	Overheard cables across the land to the south east of Paddock Wood and east Capel may need to be rerouted. Reinforcements may be necessary to support the development.
Potable Water		SEW's WRMP (Water Resources Management Plan) 2019 identifies this area as within WRZ (water resource zone) 7 - Cranbrook and suggests that there is a low level of strategic risk in this zone. The document sets out improvements to accommodate growth by way of leakage reductions and water efficiency. Off-site reinforcements are likely required to accommodate the whole site.
Foul Water		Southern Water operates in the area. £4 Million investment in the area but this does not include the strategic development. Reinforcement for sewage will be required.
Telecoms	Openreach ducts present within vicinity of the site. Other providers would also be interested in providing infrastructure.	

8.2 Conclusion

8.2.1 In conclusion, there are no insurmountable constraints and risks that have been identified that would prevent development at Paddock Wood and east Capel.