

East Devon - Options Appraisal for a potential New Settlement

Final Report

Options Appraisal

East Devon District Council

October 2022

Contents

- Executive Summary
- 1. Introduction.....
- 2. Background.....
- 3. Identifying Locations.....
- 4. The Vision.....
- 5. Landscape
- 6. Environmental Constraints
- 7. Sustainable Accessibility Assessment.....
- 8. Highways Impact.....
- 9. Utility and Net Zero Carbon Infrastructure.....
- 10. Deliverability
- 11. Engagement
- 12. Assessment of the Options
- 13. Conclusions and Next Steps.....
- Appendix A – Landscape Assessment
- Appendix B – Sustainable Access Review.....
- Appendix C – Ecological Report.....
- Appendix D – Highways Impact Modelling Report.....
- Appendix E – Utilities Due Diligence Report.....
- Appendix F – Zero Carbon Assessment

Executive Summary

CBRE are leading a multi-disciplinary technical team including urban designers Tibbalds, infrastructure specialists Hydrock and ecologists TEP to advise East Devon District Council (EDDC) on whether to include a new settlement in its next Local Plan. Legal and financial specialist Pinsent Masons are also part of the team and will become involved as a business case is prepared during 2023.

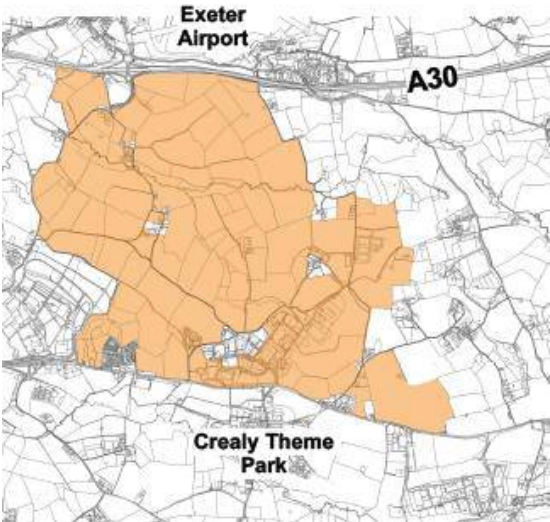
If taken forward, the new settlement will provide up to 8,000 high-quality, sustainable homes as well as a range of community facilities and amenities, in a biodiverse and zero-carbon environment, and would be an exemplar for future towns.

A land budget of 251 hectares has been identified as sufficient to accommodate the development.

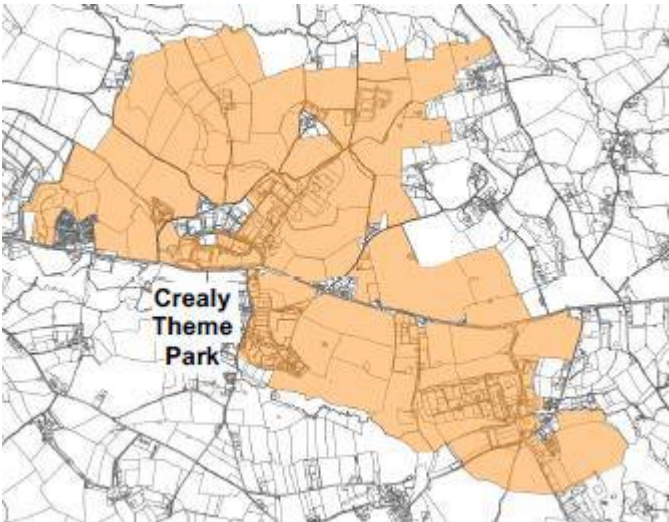
This Options Appraisal report outlines the outcome of technical work undertaken to date to assess potential site locations from environmental, landscape, infrastructure, development and delivery perspectives. It provides a Vision for the new settlement, summarises the outputs from two workshops held with elected Councillors from the District Council. It concludes with a scored assessment of each Option against technical criteria and identifies a Preferred Option. The report will be used by EDDC during their consultation on their Draft Local Plan (November to December 2022).

The location of the three Options are identified on the plans below:

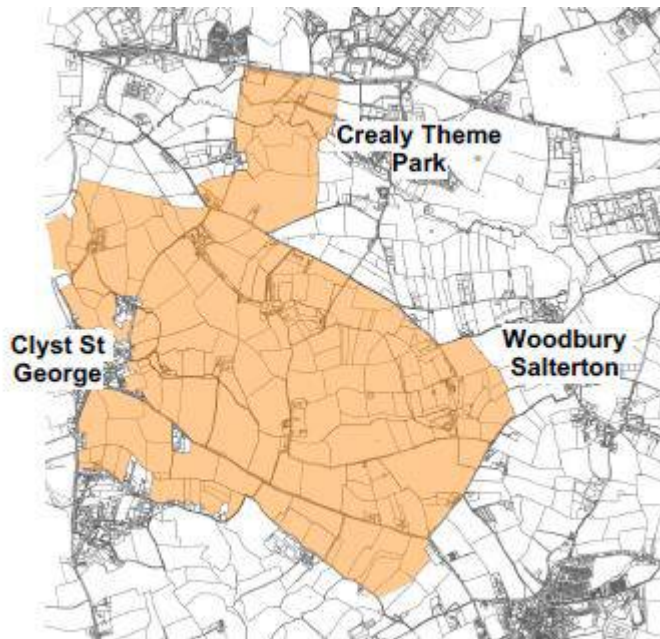
Option 1



Option 2



Option 3



A Vision statement has been prepared to provide a clear narrative for the potential provision of a second new settlement in East Devon in response to housing need over the next Local Plan period. This Vision outlines the ambition of EDDC for a potential new community over the next 30 years. An ambition that has been influenced by the lessons learnt from the planning and delivery of Cranbrook. The following proposed Vision has been tested and refined with EDDC officers and Councillors.

A second new settlement in East Devon with a self-sufficient, healthy and dynamic community with distinctive character. Delivering up to 8,000 high-quality homes with a range of tenures, places of work and a diverse mix of uses that are easily accessible via sustainable and active travel such that these become the dominant transport modes.

This new town will be more than just a settlement, it will be an ambitious and highly desirable place that supports the growth of a self-governing and self-sustaining community that establishes its culture at the outset in order to develop and thrive into the future.

The structure of the settlement will promote innovative design that will draw inspiration from the local context, including the unique surrounding historic environment, to create a rich character. Streets and spaces will be designed to encourage social interaction and will be embedded in a well-connected and integrated active travel network with comprehensive links to nearby employment, surrounding countryside and the city of Exeter.

It will be underpinned at its core by sustainability, wellbeing, and healthy living, creating an exemplar zero-carbon town both in terms of self-sufficiency and design and by doing so it will provide a legacy to the benefit of future generations.

This sustainable community will be sensitively and seamlessly integrated with the outstanding East Devon natural environment and contribute to the delivery of the Clyst Valley Regional Park whilst protecting nearby internationally recognised habitats.

It will provide a rich network of substantial open space and diverse landscaping, including areas of enhanced ecology and biodiversity, as well as opportunities for play, recreation and opportunities for food growing.

This vibrant and adaptable new settlement will preserve East Devon’s legacy as an outstanding place to live. The use of local materials and labour will be promoted to deliver on local priorities, creating somewhere residents can be proud of and where people of all ages and lifestyles will prosper.

The three alternative site Options have been scored against the following technical criteria, with the highest scores representing lower potential adverse impact/ higher benefit.

Assessment Criteria and Scoring

Criteria	Scoring
Landscape sensitivity	Sensitivity: High – 1 Medium/High - 2 Medium – 3 Low/Medium - 4 Low – 5
Ecological impact/Biodiversity	Impact: High – 1 Medium/High - 2 Medium – 3 Low/Medium - 4 Low – 5
Environmental constraints (flooding, minerals, historic environment)	Constraint’s level: High – 1 Medium/High - 2 Medium – 3 Low/Medium - 4 Low – 5

Sustainable Accessibility	<p>Sustainability: High – 5 Medium/High - 4 Medium – 3 Low/Medium - 2 Low - 1</p>
Highways Impact	<p>Impact: High – 1 Medium/High - 2 Medium – 3 Low/Medium - 4 Low – 5</p>
Utilities Infrastructure	<p>Capacity: High – 5 Medium/High - 4 Medium – 3 Low/Medium - 2 Low - 1</p>
Net Zero Carbon Infrastructure	<p>Contribution to Net Zero: Low exposure/vulnerability or high opportunity – 5 Low-medium exposure/vulnerability or medium-high opportunity - 4 Medium exposure/vulnerability or medium opportunity – 3 Medium-high exposure/vulnerability or low-medium opportunity - 2 High exposure/vulnerability or low opportunity – 1</p>
Net Zero Carbon Infrastructure	<p>Climate Resilience: Low exposure/vulnerability or high opportunity – 5 Low-medium exposure/vulnerability or medium-high opportunity - 4 Medium exposure/vulnerability or medium opportunity – 3 Medium-high exposure/vulnerability or low-medium opportunity - 2 High exposure/vulnerability or low opportunity – 1</p>
Deliverability (land)	<p>Impact: Limited i.e., simple land ownership, all land put forward in call for sites, majority of landowners known, few businesses to relocate – 5 Limited to Medium - mixed land ownership, majority of landowners known, all land put forward in call for sites, few businesses to relocate – 4 Medium i.e., mixed land ownership, majority of land put forward in call for sites, but some land assembly needed, some landowners known, some businesses to relocate – 3 Medium to Extensive - complicated land ownership, few landowners known, some land put forward in call for sites, but land assembly needed, lots of businesses to relocate – 2 Extensive i.e., complicated land ownership, significant land assembly required, lots of businesses to relocate and no landowners known – 1</p>

Source: CBRE (2022)

The score per Option has been used to identify the Preferred Option/s as indicated on the table below.

Options Appraisal Technical Assessment – Scoring Summary

Assessment Category	Option 1	Option 2	Option 3
Landscape Sensitivity	2	2	3
Ecological Impact/Biodiversity*	3.4	3.6	3
Flood Risk	4	4	4
Minerals	3	1	5
Historic Environment	3	3	3
Sustainable Accessibility*	3.8	1.8	4.3
Highways*	4.8	4.1	4.6
Utilities*	3	2.3	2.3
Net Zero Carbon*	3.3	2.3	3
Climate Resilience*	2.7	3.4	2.7
Deliverability*	4.5	3	2.5
TOTAL	37.5	30.5	37.4

Source: CBRE (2022) Note: a higher score represents lower potential adverse impact/ higher benefit of each Option.

Key: *Where a number of assessments inform a technical category the average score per Option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

In light of the marginal difference between Options 1 and 3 we recommend that both Options are consulted upon by EDDC as potential Preferred Options. In terms of ranking Option 1 is marginally the preferred, with Option 3 the second ranked Option and Option 2 the least preferred and it is recommend that as a result Option 2 is not taken forward.

We summarise the outcome of the reasons underpinning the recommendation to consult upon Options 1 and 3 in the table below:

Options Appraisal Technical Assessment – Summary

Assessment Category	Option 1	Option 3
Landscape Sensitivity	This represents: a high-medium overall landscape sensitivity to proposed development. Unique sensitivities are the quality and integrity of the historic rural landscape and associated river corridors which flow east-west through the middle of the defined area; the elevated land in the east, and the slopes forming the setting to the Clyst Valley in the west. These areas are particularly sensitive and it would be very difficult to mitigate for this through masterplanning.	This represents a medium overall landscape sensitivity to proposed development. Higher landscape sensitivity occurs in the south and east of this Option, and is associated with elevated and steeper land; a smaller-scale historic landscape; land intervisible with the East Devon AONB, and the setting of Clyst St George. Lower sensitivity land is found in the north of the Option. Levels of landscape and visual effects could be mitigated by focussing development in the northern part of the Option.

<p>Ecological Impact/Biodiversity</p>	<p>A medium impact on existing ecology and biodiversity. However the location and integration of future green and blue infrastructure for the new settlement will be able to accommodate existing and future ecological processes and biodiversity.</p>	<p>A higher potential impact on existing ecology and biodiversity, due to the proximity of the southern part of the Option to designated sites in the Exe Estuary. However the location and integration of future green and blue infrastructure for the new settlement will be able to accommodate existing and future ecological processes and biodiversity.</p>
<p>Flood Risk</p>	<p>A low to medium flood risk that can be reduced by well designed and implemented drainage and water mitigation strategies.</p>	<p>A low to medium flood risk that can be reduced by well designed and implemented drainage and water mitigation strategies.</p>
<p>Minerals</p>	<p>A medium minerals risk but the area is outside coal mining areas with no nitrate and phosphate areas identified. Other mineral constraints can be addressed by informed masterplanning.</p>	<p>A low minerals risk.</p>
<p>Historic Environment</p>	<p>A medium risk on the historic environment, though again this can be mitigated by thoughtful masterplanning. Ensuring the new settlement doesn't abut existing places and densely planted landscape buffers are introduced to protect the environment around historic buildings and assets.</p>	<p>A medium risk on the historic environment, though again this can be mitigated by thoughtful masterplanning. Ensuring the new settlement doesn't abut existing places and densely planted landscape buffers are introduced to protect the environment around historic buildings and assets.</p>
<p>Sustainable Accessibility</p>	<p>A medium risk in terms of sustainable accessibility but with thoughtful integration into the new community of walking, cycling and public transport infrastructure routes these risks can be mitigated. It benefits from potential for sustainable access to existing and future employment sites.</p>	<p>A low risk in terms of sustainable accessibility but with thoughtful integration into the new community of walking, cycling and public transport infrastructure routes these risks can be mitigated. It benefits from potential for sustainable access to existing and future employment sites.</p>
<p>Highways</p>	<p>A low adverse impact and high benefit it terms of proximity to existing highway infrastructure and it appears that the development of 2,500 new homes up to the end of the Plan period could be accommodated without significant highways interventions. It shows relatively small changes in traffic on the M5, A30 and A380, resulting in</p>	<p>A medium adverse impact and medium benefit in terms of proximity to existing highway infrastructure requiring improvements at the Clyst St Mary Roundabout. Based on an initial desktop reviews, it appears that, despite their larger delay impacts, it would be possible to mitigate the impacts this Option were to be taken forward. This would be through either localised</p>

	generally small increases in delay. Minor highways mitigation works may be needed and could be reviewed and addressed as part of the normal planning process, with no strategic interventions required.	capacity improvements or demand reduction schemes.
Utilities	A low-medium adverse impact to diverting existing utilities due to overhead HV networks and high benefit in terms of access to existing utilities with the potential to access existing power, water and telecom connections with proximity to the site	A medium adverse impact and medium benefit in terms of access to existing utilities.
Net Zero Carbon	A low adverse impact and high benefit in terms of net zero carbon.	A medium adverse impact and medium benefit in terms of net zero carbon
Climate Resilience	A medium level of resilience and medium exposure and/or vulnerability.	A medium level of resilience and medium exposure and/or vulnerability.
Deliverability	A low adverse impact and high benefit due to the majority of landownerships being known and owned by a limited number of parties. The control of land was one of the key learning points from the ten year review of Cranbrook. It is assumed that any existing land uses that are not relocated will be suitably screened and this will be addressed in the masterplanning.	A high adverse impact and low benefit due to many of the landownerships being unknown with significant land assembly required to package a sufficient quantum of land together. Significant land assembly would still be required to enable this to come forward and gain the required level of control, which is a risk. It is assumed that any existing land uses that are not relocated will be suitably screened and this will be addressed in the masterplanning. There are no known barriers to delivery presented by existing land uses in the area.

Source: CBRE (2022)

1. Introduction

- 1.1 CBRE are leading a multi-disciplinary technical team including urban designers Tibbalds, infrastructure specialists Hydrock and ecologists TEP to advise East Devon District Council (EDDC) on whether to include a new settlement in its next Local Plan. Legal and financial specialist Pinsent Masons are also part of the team and will become involved as a business case is prepared during 2023.
- 1.2 If taken forward, the new settlement will provide up to 8,000 high-quality, sustainable homes as well as a range of community facilities and amenities, in a biodiverse and zero-carbon environment, and would be an exemplar for future towns.
- 1.3 This Options Appraisal report outlines the outcome of technical work undertaken to date to assess potential site locations from environmental, landscape, infrastructure, development and delivery perspectives. It provides a Vision for new settlement, summarises the outputs from two workshops held with elected Councillors from the District Council. It concludes with a scored assessment of each Option against technical criteria and identifies a Preferred Option. The report will be used by EDDC during their consultation on their Draft Local Plan (November to December 2022).
- 1.4 The remainder of the report is structured as follows:
- Section 2 provides the Local Plan background to the potential new settlement;
 - Section 3 outlines how the location of the Options were identified, the assumptions made on land budget and the assessment criteria;
 - Section 4 introduces the Vision and its strategic objectives;
 - Section 5 summarises work undertaken on landscape sensitivity and capacity;
 - Section 6 provides the outputs from the assessment of environmental constraints including ecology/biodiversity, flooding, minerals and the historic environment;
 - Section 7 outlines the findings of a sustainable traffic accessibility assessment;
 - Section 8 considers highways impact;
 - Section 9 looks at utility constraints and provides commentary on net zero carbon infrastructure;
 - Section 10 considers deliverability factors;
 - Section 11 summarises the engagement undertaken to date;
 - Section 12 provides the outcome of the scored assessment of each Option against technical criteria and identified the Preferred Option; and
 - Section 13 identifies the conclusions and next steps.

2. Background

- 2.1 This section provides the Local Plan background to the provision of a potential second new town in East Devon District.

Context

- 2.2 EDDC is currently progressing a review of their Local Plan, which will replace the existing Local Plan (2013 to 2031) which was adopted in January 2016. The new Local Plan will shape the way East Devon will develop and will direct housing and employment growth and development in the District to 2040.
- 2.3 There is a history of bringing forward and delivering large scale development proposals in East Devon. Within the adopted East Devon Local Plan (2013-2031) the western area of the district is due to accommodate over 10,000 new homes in the period 2011 to 2031 alongside strategic employment sites. It is enshrined with a deliberate spatial strategy due to the district's distinctive characteristics and qualities and is guided by the fact that two thirds of the District is within designated Areas of Outstanding Natural Beauty.
- 2.4 Within this spatial strategy the new town of Cranbrook is being delivered and will provide over 7,750 new homes, 18.4 hectares of employment, Gypsy and traveller provision, a town centre and social, community and education facilities.
- 2.5 EDDC are unique nationally in terms of seeking to deliver two new towns at the same time. It is essential that lessons are learnt from Cranbrook before embarking on this second new town and these aspects have been considered in this Options Appraisal.
- 2.6 Development of the new town at Cranbrook began in 2011 and some ten years later the Council took the opportunity to review successes and challenges to date and to consider when bringing forward and delivering future large scale development proposals in East Devon in response to housing need.
- 2.7 There is considerable learning from the current generation of strategic development sites in terms of what is needed to ensure the delivery of great places alongside the local planning process. This learning underpins the work to date on a second new town, and alongside the emerging Vision and its strategic objectives will inform the development of a preferred Option, business case and a delivery vehicle for the new town. This learning includes:
- 1 Clarity of vision
 - 2 Local leadership
 - 3 Sustained financial support
 - 4 Beyond planning
 - 5 Understand the delivery model

- 6 Control of land is key
 - 7 Infrastructure led approach
 - 8 Importance of master developer role
 - 9 Mixed and balanced communities are hard to achieve
 - 10 Look forward and future proof
- 2.8 The Council have contemplated the potential to adopt a more proactive approach going forward and prior to appointing the CBRE led team undertook a review of the different delivery Options available to the Council and the type of delivery vehicle that could be established. The CBRE led team are working alongside the Council and during 2023 will produce a business case for the establishment of a delivery vehicle to run alongside the Local Plan review process.
- 2.9 Significant consideration has already been given to the type of delivery vehicle that will be needed to support the Local Plan review process and realise key strategy and policy objectives. The CBRE led team will advise further on this during 2023.
- 2.10 The progression of the Local Plan review has raised that there is a need for a second new settlement in East Devon directly responding to housing need to create a self-sufficient, healthy and dynamic community with distinctive character that can deliver up to 8,000 high quality homes and employment that is easily accessible. A settlement of 8,000 homes is the appropriate scale for self-containment and to deliver supporting infrastructure, employment and services etc. The current assumption is that up to 2,500 homes will be delivered up to 2040 and the remaining 5,500 after.
- 2.11 An initial Issues and Options consultation took place between January and March 2021 which included questions on the distribution and form of new housing development, including identifying an Option for one or more new towns.
- 2.12 Alongside the Issues and Options consultation was a call for sites as part of a Housing and Employment Land Availability Assessment (HELAA). In response to the call for sites proposals for new settlements and adjoining land areas with potential to form a new settlement were put forward. Given the constraints of the district which include two Areas of Outstanding Natural Beauty (AONB) covering two thirds of the district, there is a strong likelihood that one or more of these new settlements (or a combination of them) will need to come forward in the plan period.
- 2.13 A high-level assessment has been undertaken on the potential areas of search for the new town and three broad areas of search for the new settlement have been established (see Section 3). The consultant team and key stakeholders, including councillors and officers have been working together through a series of meetings and workshops to develop a 30-year Vision for the new settlement. This Vision sets out the councils' requirements and ambitions for the new settlement.

2.14 The role of this report is to analyse and score the three Options for the new settlement by conducting a detailed multi-disciplinary review of each Option. Taking account of the key infrastructure already available and what is needed for this new town including:

- Transport infrastructure both within and around the site including impacts on the major road network and the ability to promote active travel and choice of modes of transport;
- Energy infrastructure and the ability to support zero carbon development;
- Green infrastructure including the ability to mitigate potential impact on key habitat sites and to provide biodiversity net gain;
- Community infrastructure, for example to support improved health and wellbeing outcomes; and
- Connections to key services such as electricity, water, drainage and broadband as well as community and other infrastructure needed to support the development.

2.15 This Options Appraisal report will conclude (see Sections 12 and 13) by making a recommendation on the preferred Option which will be consulted upon by the Council during their Draft Local Plan consultation between November and December 2022.

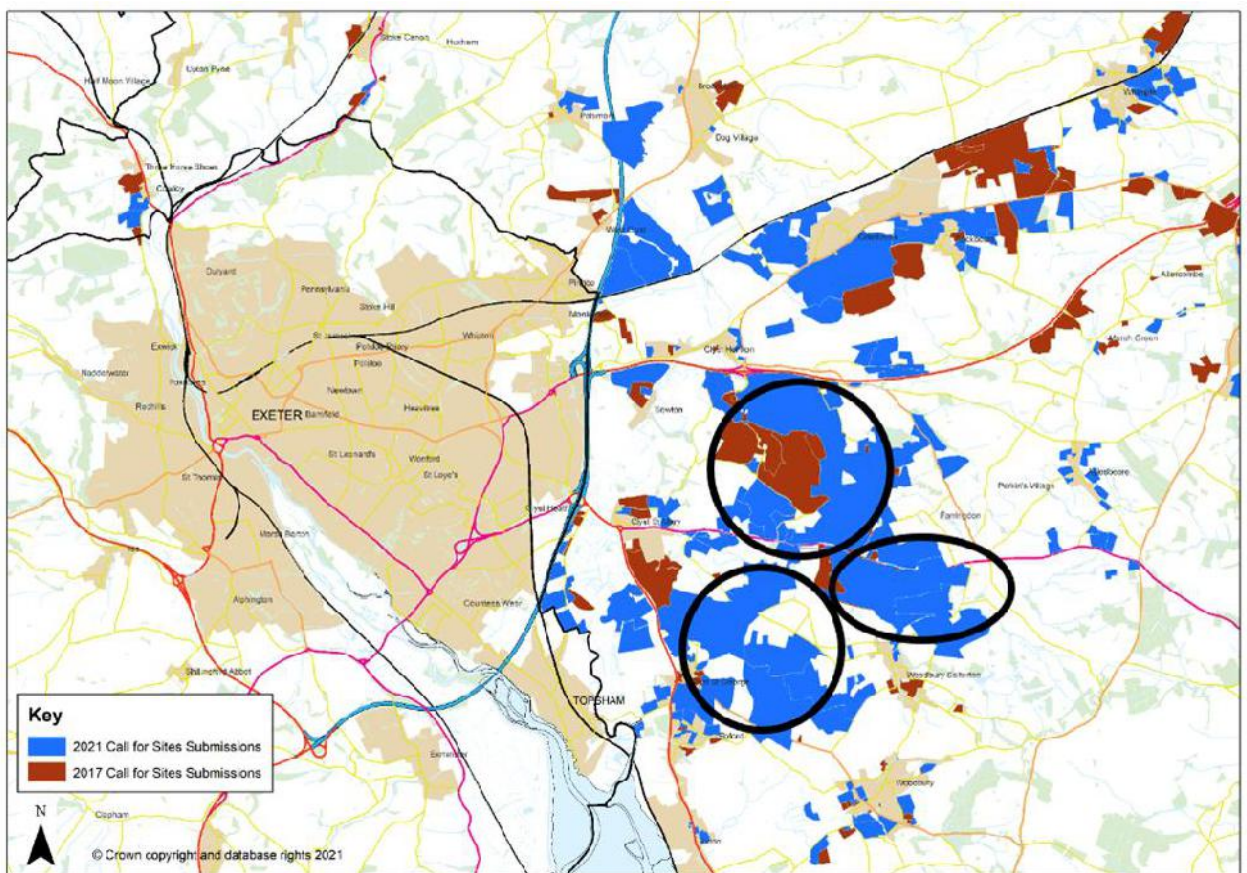
3. Identifying Locations

3.1 This section outlines how the location of the Options were identified, the assumptions made on land budget and the assessment / scoring criteria developed.

Potential Locations

3.2 As referenced in the previous section the potential areas of search were based upon the call for sites exercises undertaken in support of the Local Plan in 2017 and 2021, as shown in Figure 3.1 below.

Figure 3.1 - Broad areas of search for the potential new community



Source: EDDC

3.3 This was later added to with land promoted from a third call for sites undertaken in 2022 and an exercise was undertaken to understand how suitably sized land parcels for the potential new community could encompass this land, thus reducing the inclusion of need of additional land yet to be promoted.

3.4 The CBRE led consultant team used these broad areas of search as the basis for the technical assessments.

3.5 The development of a land budget was a key first step.

Land Budget

- 3.6 In order to determine the quantum of land likely to be required for a settlement of 8,000 dwellings CBRE prepared a land budget which was agreed with EDDC.
- 3.7 This was based upon industry standard density assumptions for residential and employment use, including offices (Use Class E), industrial (Use Classes B2 & B8) and retail/leisure/health (Use Classes E & F2) per square metre (sqm) and the Department for Educations (DfE) published guidelines on space per square metre (sqm) per student.
- 3.8 To align with planning policy land was also identified for gypsy sites and a significant quantum of land identified for public open space, SANGS, Biodiversity Net Gain (BNG) compliance, public realm and infrastructure, based upon the likelihood that there will need to be sufficient landscaped buffers between the new community and existing built development, infrastructure and environmental designations. Table 3.1 shows the land budget and the assumption on which it is based.

Table 3.1 – Land Budget Assumptions

Use	Hectares	Assumptions
Housing	180	Applied densities of 35, 45 & 50 dwellings per hectare including a mixture of 2, 3 & 4 bed homes based on industry standard house sizes per sqm which are compliant with nationally described space standards
Employment – offices (E class)	10	Based on analysis of the likely quantum of economically active people, growth and demand factors and employment densities per sqm converted to a land requirement in hectares (ha): <ul style="list-style-type: none"> Offices (E class) – 4,000 sqm per ha; Industrial (B2 & 8) – 4,500 sqm per ha; Retail (E & F2) – 5,000 sqm per ha.
Employment – industrial (B2)	18	
Employment – industrial (B8)	20	
Retail – including leisure & health (E & F2)	15	
Education – primary & secondary schools	23	That all children are educated in schools located in the development. With space requirement based on assumptions of number of children, schools and DfE guidelines on space requirements per student per sqm
Public Open Space – SANGS, BNG, public realm and infrastructure	254	Based upon experience of extent of requirement in other settlements of a similar size and including the requirement for at least 10% BNG
Gypsy and Traveler pitches	1	Compliant with the Local Plan which requires 37 Gypsy and Traveler pitches and 3 plots for travelling show people should be provided up to 2034.
Total	521	

Source: CBRE, 2022

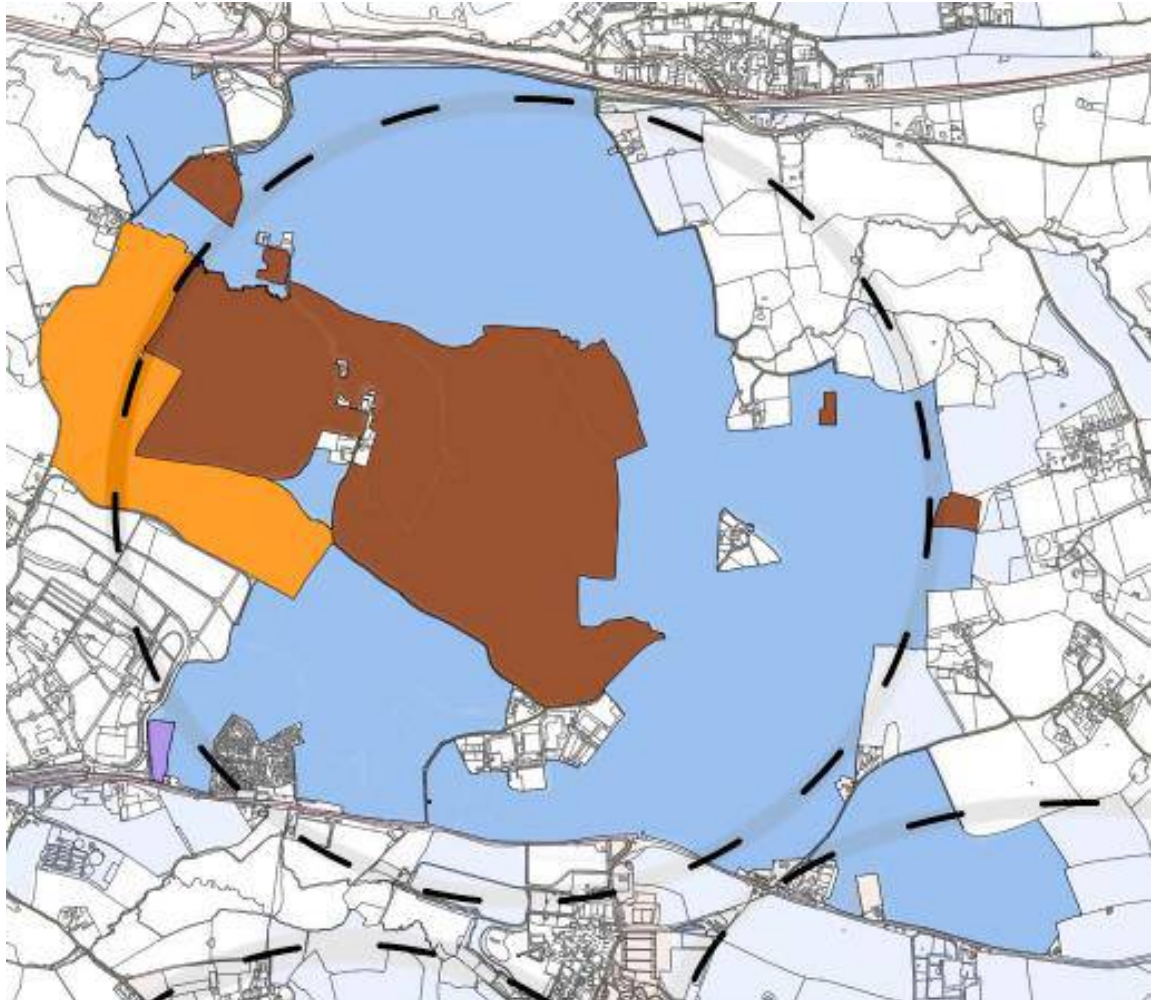
Option Refinement

- 3.9 Based on the above land budget and the broad areas of search the team have undertaken a number of technical assessments (see Sections 3 – 8) to refine the locations and identify three locations for the potential new community. This has considered environmental, infrastructure, utilities and highways assessments including access from existing roads, site constraints and deliverability factors.
- 3.10 In addition we have drawn upon work undertaken by Fiona Fyfe Associates for EDDC (separate to the CBRE led commission) on the landscape sensitivity and capacity across the area of search.
- 3.11 A number of variations have been considered and the chosen location of the three Option sites have been refined to ensure that the existing settlements in the area would not be subject to convergence with the potential new community. Where the Options do abut existing settlements, the intention at the masterplanning stage of the project will be to ensure that adequate separation, through a substantially sized landscape buffer, is provided to respect the character of the existing settlements.
- 3.12 The three site locations have been developed to provide as far as possible nucleated, compact settlements. This form of development is conducive to the application of active travel measures.
- 3.13 The boundaries for the three site locations have been defined using landscape features, including existing watercourses, field boundaries and hedgerows, to create rational settlement edges.
- 3.14 In addition to the above and as advised by EDDC a number of other areas have been excluded from the 521 ha land take for either environmental i.e. flood risk or economic reasons i.e. existing established business where it would be prohibitive to relocate, these include:
- Hill Barton Business Park and Greendale Business Parks (close to Options 1&2);
 - Crealy Adventure Park (close to Option 1);
 - Flood zone land as far as possible (all Options) but it is recognised that this land could be used for BNG, nature recovery and integrated water management if required;
 - Land and property within the historic environment (all Options);
 - Large group of buildings to the south east of the junction between the A3052 and Oil Mill Lane including a commercial scale anaerobic digester plant with associated noise and smells which may make siting homes close by difficult for environmental reasons (close to Options 2&3);
 - Exeter Athletic Rugby Club - recently developed at substantial cost (close to Options 2&3);
 - Exeter City FC training pitches (close to Option 3) and
 - Land west of Crealy (all Options).
- 3.15 For the avoidance of doubt these land areas are shown on the following indicative plans as being within the Option but do not form part of the circa 521 hectares required. At this level of detail it is not possible to

show this separation but this will form part of the masterplanning undertaken for the preferred Option in 2023.

3.16 The plans below show the outcome of these technical assessments and identifies land promoted through three call for sites exercises undertaken by EDDC, Option 1 is below.

Figure 3.2 – Option 1 Land Take



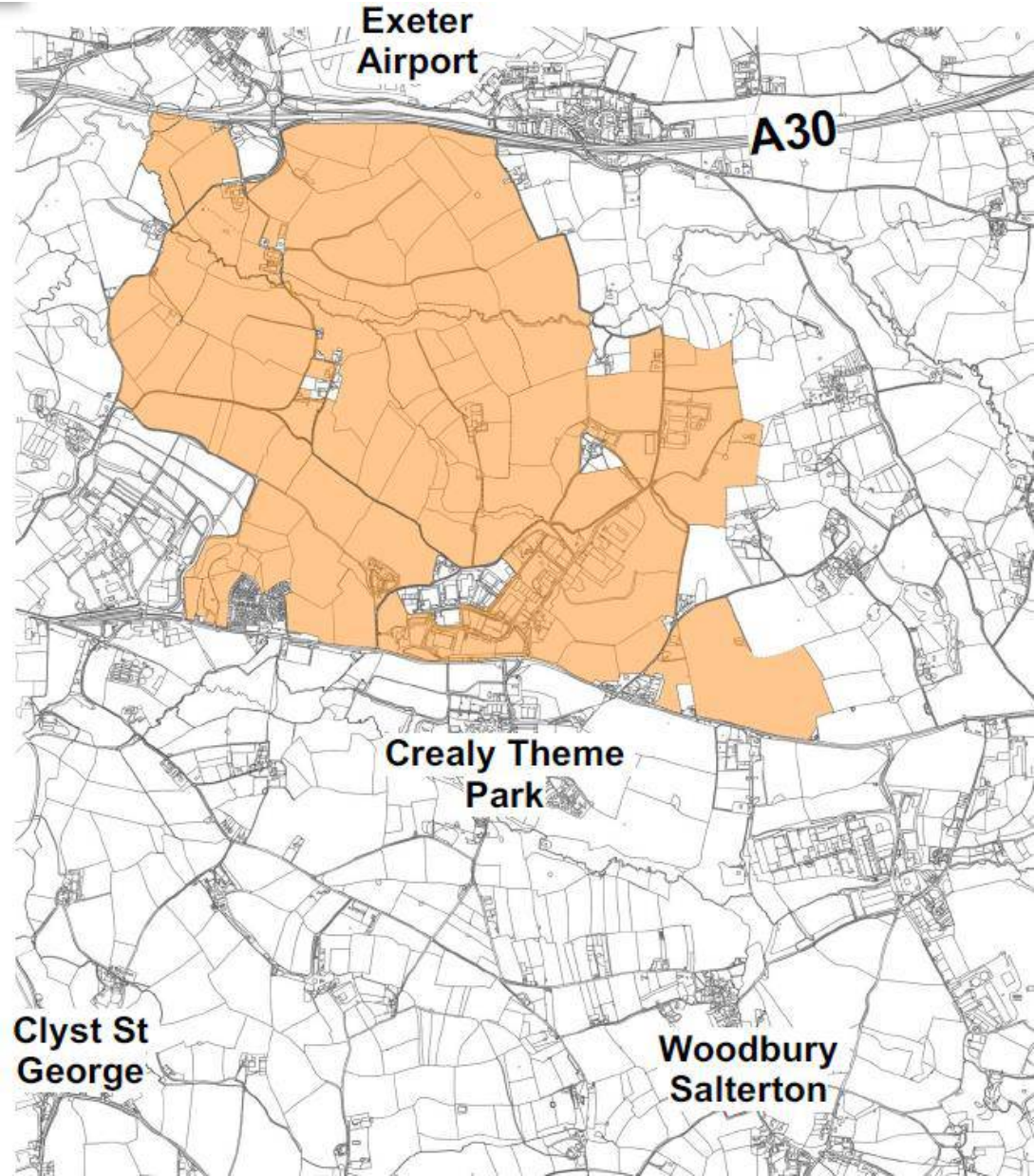
KEY

-  2017 Call for site submission
-  2021 Call for site submission
-  2022 Call for site submission
-  Indicative additional land required not currently included in call for sites

Source: Tibbalds (2022)

3.17 This Option encompasses 521 hectares of land with only a small proportion to the North West additional to that already promoted. Figure 3.3 below confirms the extent of land in Option 1.

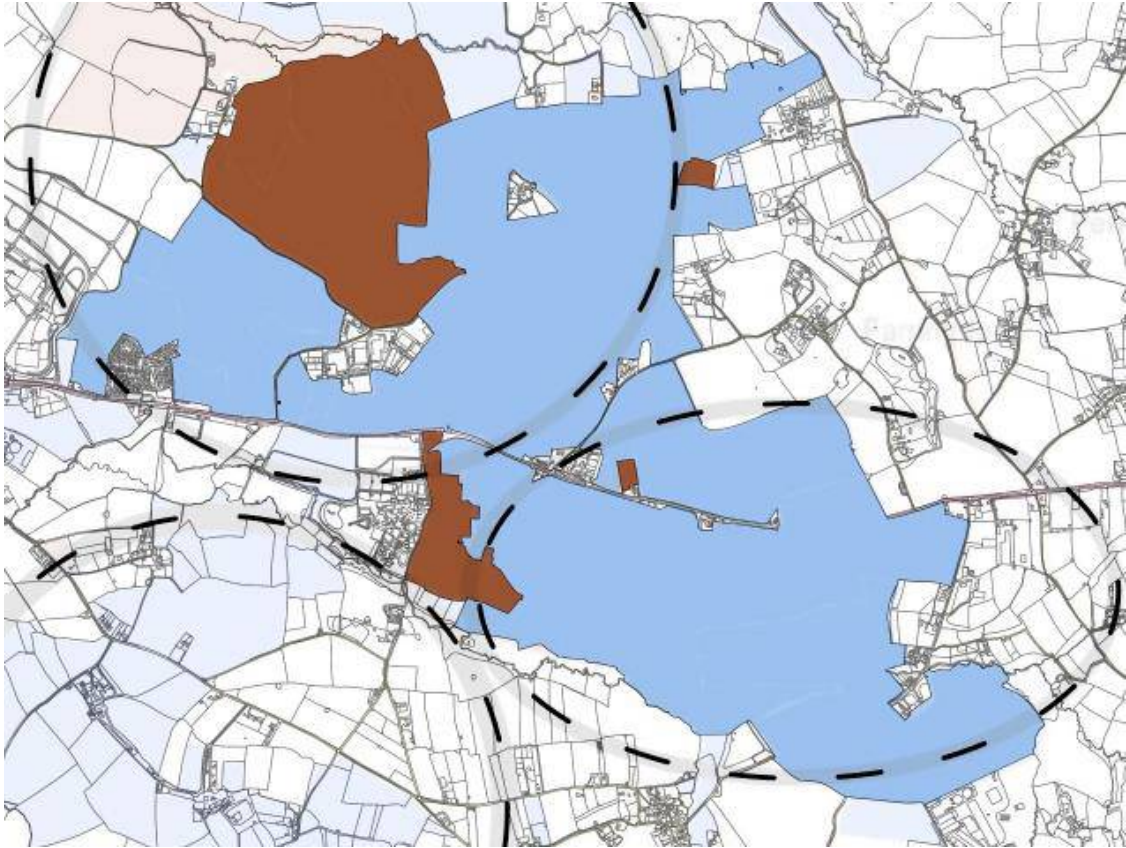
Figure 3.3 - Option 1: Land to the north of A3052



Source: Tibbalds (2022)

3.18 The land take promoted through three call for sites exercises undertaken by EDDC included in Option 2 is provided in the plan below.

Figure 3.4 – Option 2 Land Take



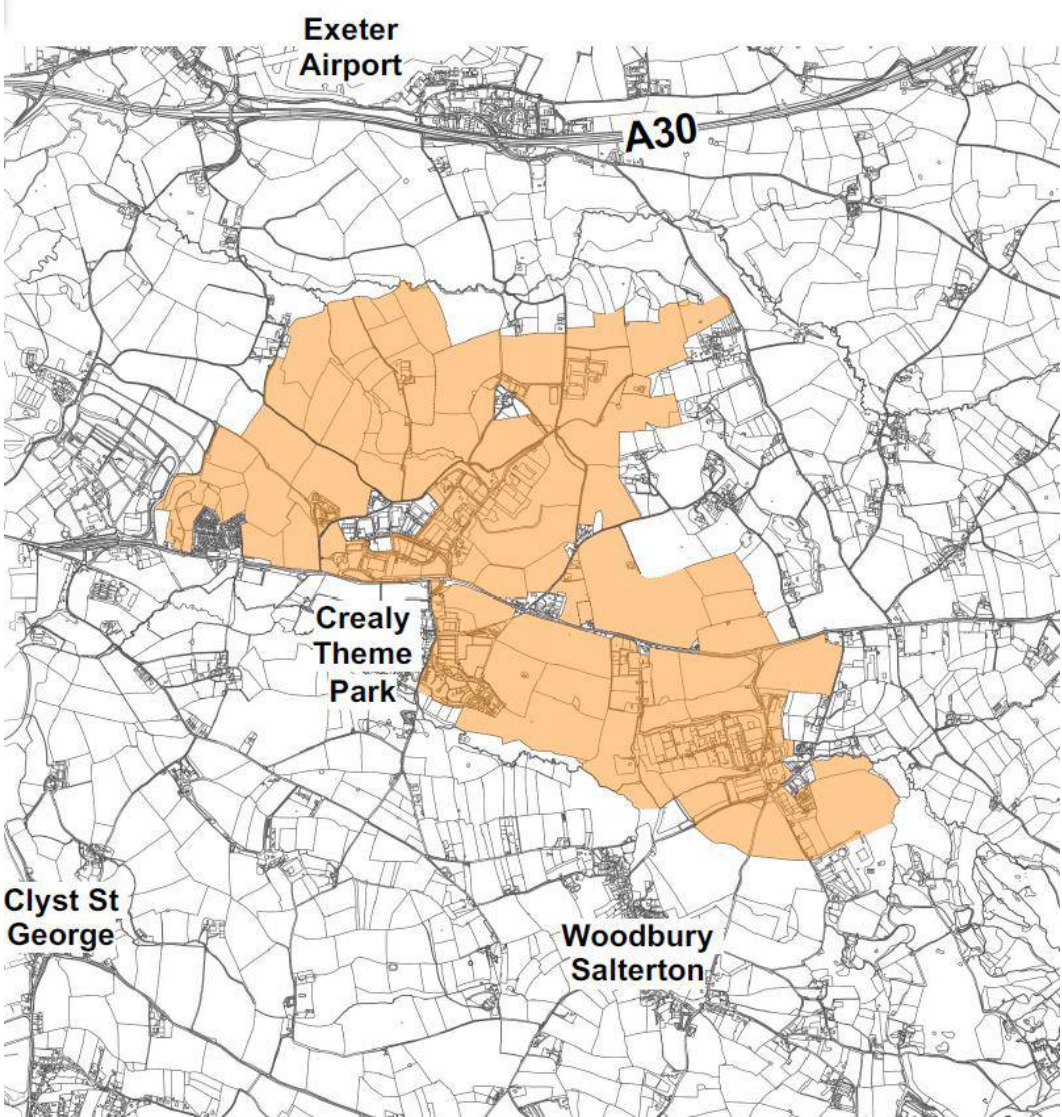
KEY

-  2017 Call for site submission
-  2021 Call for site submission
-  2022 Call for site submission
-  Indicative additional land required not currently included in call for sites

Source: Tibbalds (2022)

3.19 This Option encompasses 521.5 hectares of land all of which has already been promoted. Figure 3.5 below confirms the extent of land in Option 2.

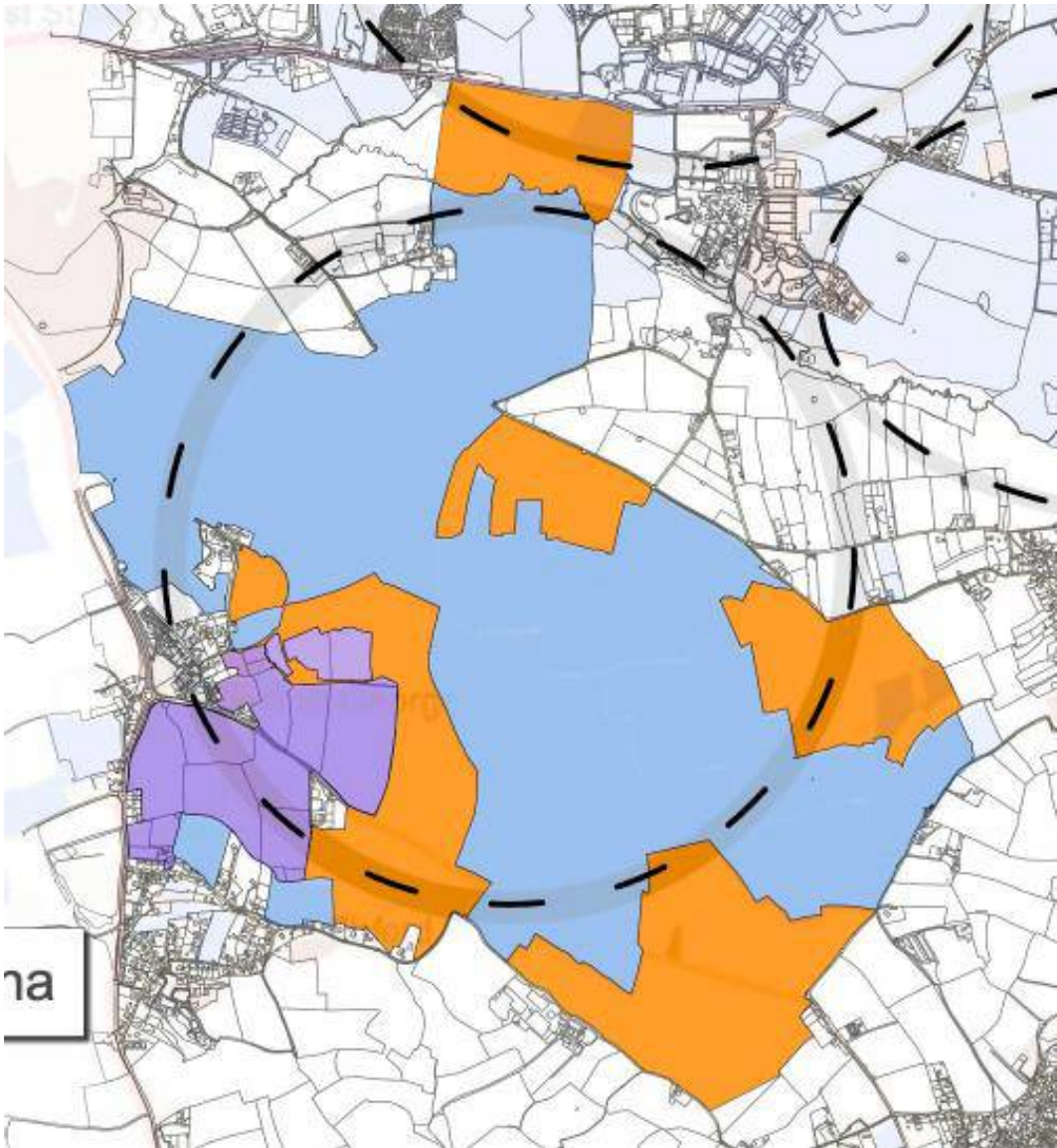
Figure 3.5 - Option 2: Land adjacent to the A3052



Source: Tibbalds (2022)

3.20 The land take promoted through three call for sites exercises undertaken by EDDC included in Option 3 is provided in the plan below.

Figure 3.6 – Option 3 Land Take



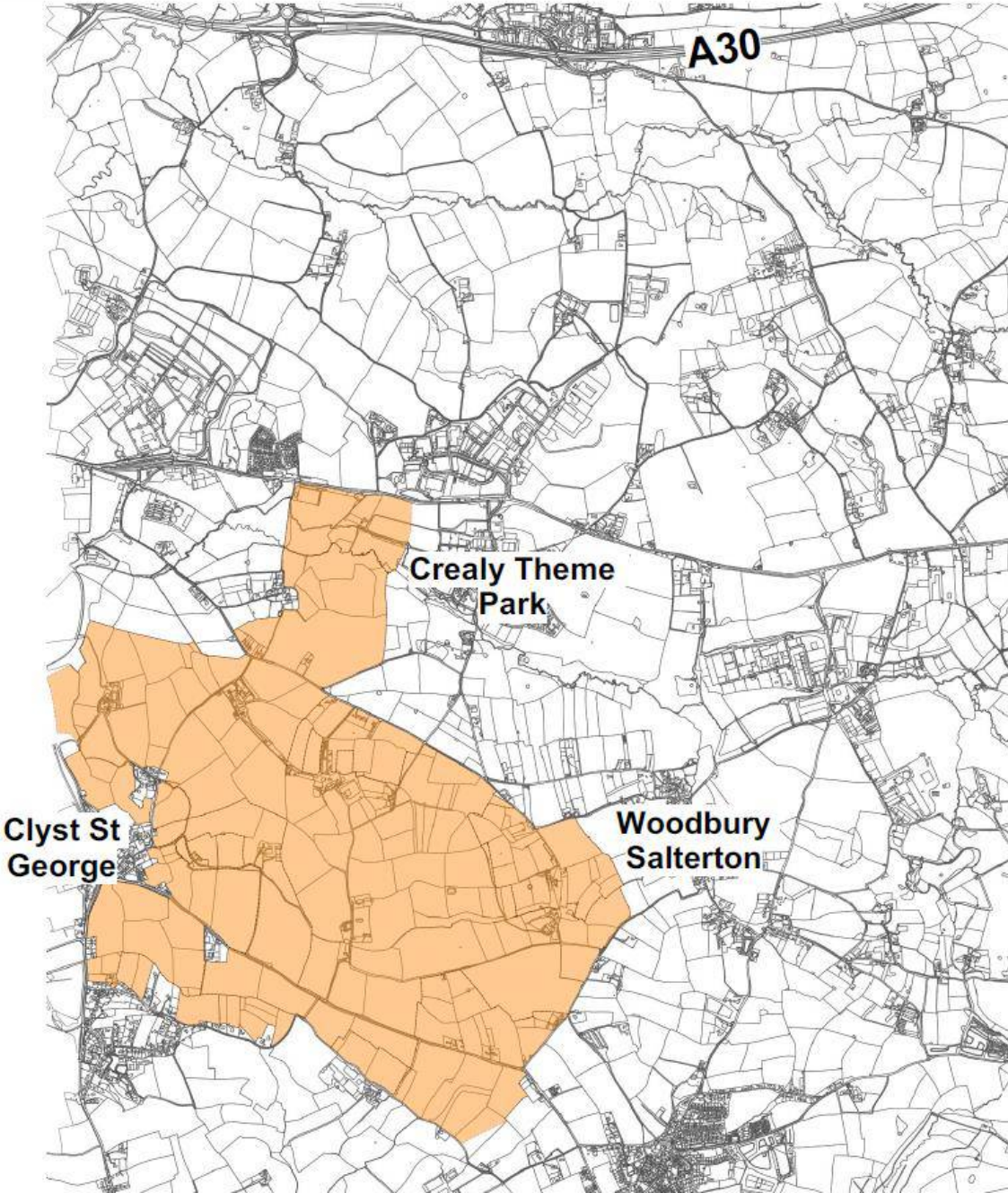
KEY

- 2017 Call for site submission
- 2021 Call for site submission
- 2022 Call for site submission
- Indicative additional land required not currently included in call for sites

Source: Tibbalds (2022)

3.21 This Option encompasses 523.2 hectares of land and of all the Options has the largest proportion of land that has not already been promoted. Figure 3.7 below confirms the extent of land in Option 3.

Figure 3.7 – Option 3: Land to the south of the A3052



Source: Tibbalds (2022)

Assessment Criteria

3.22 Following extensive discussions with EDDC the following technical criteria were confirmed as those by which the three Option sites would be assessed.

Table 3.2 – Assessment Criteria

Landscape sensitivity
Ecological impact/Biodiversity
Sustainable transport
Environmental constraints (flooding, minerals and historic environment)
Highways impact
Utilities Infrastructure
Net Zero Carbon Infrastructure (contribution to net zero and climate resilience)
Deliverability to include land ownership, presence of businesses/other land uses that need to be relocated and proximity of development to bad neighbours i.e. noise/traffic

Source: CBRE (2022)

3.23 Based on these assessment criteria the following scoring has been developed alongside EDDC to assess the three Option sites against a basket of criteria. These are outlined in Table 3.3 below. The highest scores represent potential lower adverse impact / higher benefit.

Table 3.3 – Assessment Criteria and Scoring

Criteria	Scoring
Landscape sensitivity	Sensitivity: High – 1 Medium/High - 2 Medium – 3 Low/Medium - 4 Low – 5
Ecological impact/Biodiversity	Impact: High – 1 Medium/High - 2 Medium – 3 Low/Medium - 4 Low – 5
Environmental constraints (flooding, minerals, historic environment)	Constraint’s level: High – 1 Medium/High - 2 Medium – 3 Low/Medium - 4 Low – 5
Sustainable Accessibility	Sustainability: High – 5 Medium/High - 4 Medium – 3 Low/Medium - 2 Low - 1

Highways Impact	<p>Impact: High – 1 Medium/High - 2 Medium – 3 Low/Medium - 4 Low – 5</p>
Utilities Infrastructure	<p>Capacity: High – 5 Medium/High - 4 Medium – 3 Low/Medium - 2 Low - 1</p>
Net Zero Carbon Infrastructure	<p>Contribution to Net Zero: Low exposure/vulnerability or high opportunity – 5 Low-medium exposure/vulnerability or medium-high opportunity - 4 Medium exposure/vulnerability or medium opportunity – 3 Medium-high exposure/vulnerability or low-medium opportunity - 2 High exposure/vulnerability or low opportunity – 1</p>
Net Zero Carbon Infrastructure	<p>Climate Resilience: Low exposure/vulnerability or high opportunity – 5 Low-medium exposure/vulnerability or medium-high opportunity - 4 Medium exposure/vulnerability or medium opportunity – 3 Medium-high exposure/vulnerability or low-medium opportunity - 2 High exposure/vulnerability or low opportunity – 1</p>
Deliverability (land)	<p>Impact: Limited i.e., simple land ownership, all land put forward in call for sites, majority of landowners known, few businesses to relocate – 5 Limited to Medium - mixed land ownership, majority of landowners known, all land put forward in call for sites, few businesses to relocate – 4 Medium i.e., mixed land ownership, majority of land put forward in call for sites, but some land assembly needed, some landowners known, some businesses to relocate – 3 Medium to Extensive - complicated land ownership, few landowners known, some land put forward in call for sites, but land assembly needed, lots of businesses to relocate – 2 Extensive i.e., complicated land ownership, significant land assembly required, lots of businesses to relocate and no landowners known – 1</p>

Source: CBRE (2022)

3.24 Each technical assessment undertaken (see Sections 5 to 10) has been assessed against this scoring. Where a number of criteria have informed a technical assessment the average score is used to identify the

Preferred Option and the second and third ranked Option and this will feed through to the cumulative assessment in Section 12.

4. The Vision

Introduction

- 4.1 This Vision has been prepared by CBRE and Tibbalds alongside the consultant team to provide a clear narrative for the potential provision of a second new settlement in East Devon in response to housing need over the next Local Plan period.
- 4.2 It has been developed based upon the consultant team's knowledge of the area and draws upon the technical work undertaken to date.
- 4.3 It is important that the Vision clearly outlines the ambition of EDDC for this potential new community over the next 30 years. It has also been based on lessons learnt from the planning and delivery of Cranbrook.
- 4.4 We recommend that the Vision is supported by a set of strategic objectives and design principles.
- 4.5 This Vision has been tested and refined with EDDC officers and Councillors at the second workshop (see Section 11) on Monday 10th October 2022.

Vision

- 4.6 The proposed Vision is:

A second new settlement in East Devon with a self-sufficient, healthy and dynamic community with distinctive character. Delivering up to 8,000 high-quality homes with a range of tenures, places of work and a diverse mix of uses that are easily accessible via sustainable and active travel such that these become the dominant transport modes.

This new town will be more than just a settlement, it will be an ambitious and highly desirable place that supports the growth of a self-governing and self-sustaining community that establishes its culture at the outset in order to develop and thrive into the future.

The structure of the settlement will promote innovative design that will draw inspiration from the local context, including the unique surrounding historic environment, to create a rich character. Streets and spaces will be designed to encourage social interaction and will be embedded in a well-connected and

integrated active travel network with comprehensive links to nearby employment, surrounding countryside and the city of Exeter.

It will be underpinned at its core by sustainability, wellbeing, and healthy living, creating an exemplar zero-carbon town both in terms of self-sufficiency and design and by doing so it will provide a legacy to the benefit of future generations.

This sustainable community will be sensitively and seamlessly integrated with the outstanding East Devon natural environment and contribute to the delivery of the Clyst Valley Regional Park whilst protecting nearby internationally recognised habitats.

It will provide a rich network of substantial open space and diverse landscaping, including areas of enhanced ecology and biodiversity, as well as opportunities for play, recreation and opportunities for food growing.

This vibrant and adaptable new settlement will preserve East Devon's legacy as an outstanding place to live. The use of local materials and labour will be promoted to deliver on local priorities, creating somewhere residents can be proud of and where people of all ages and lifestyles will prosper.

Strategic Objectives/ Design Principles

4.7 The Vision will be supported by the following strategic objectives and design principles which will be developed to inform the preferred Option drawing upon the feedback from the two workshops (see Section 11):

1. Climate resilience, future proofing and net zero carbon;
2. Greening, landscape and biodiversity net gain contributions;
3. Community ownership of land & stewardship of assets;
4. Townscape, design and placemaking including public realm and open space;
5. Relationship to existing settlements;
6. Phasing and delivery of land uses through a flexible masterplan framework to enable the vision to be fulfilled;

7. A truly sustainable self-sufficient settlement incorporating homes, local employment, shops, community amenities, public realm and open space;
8. Sustainable access, transport, utilities, infrastructure and movement and
9. Connected and integrated transport infrastructure that alleviates pressure on the existing highway network.

5. Landscape

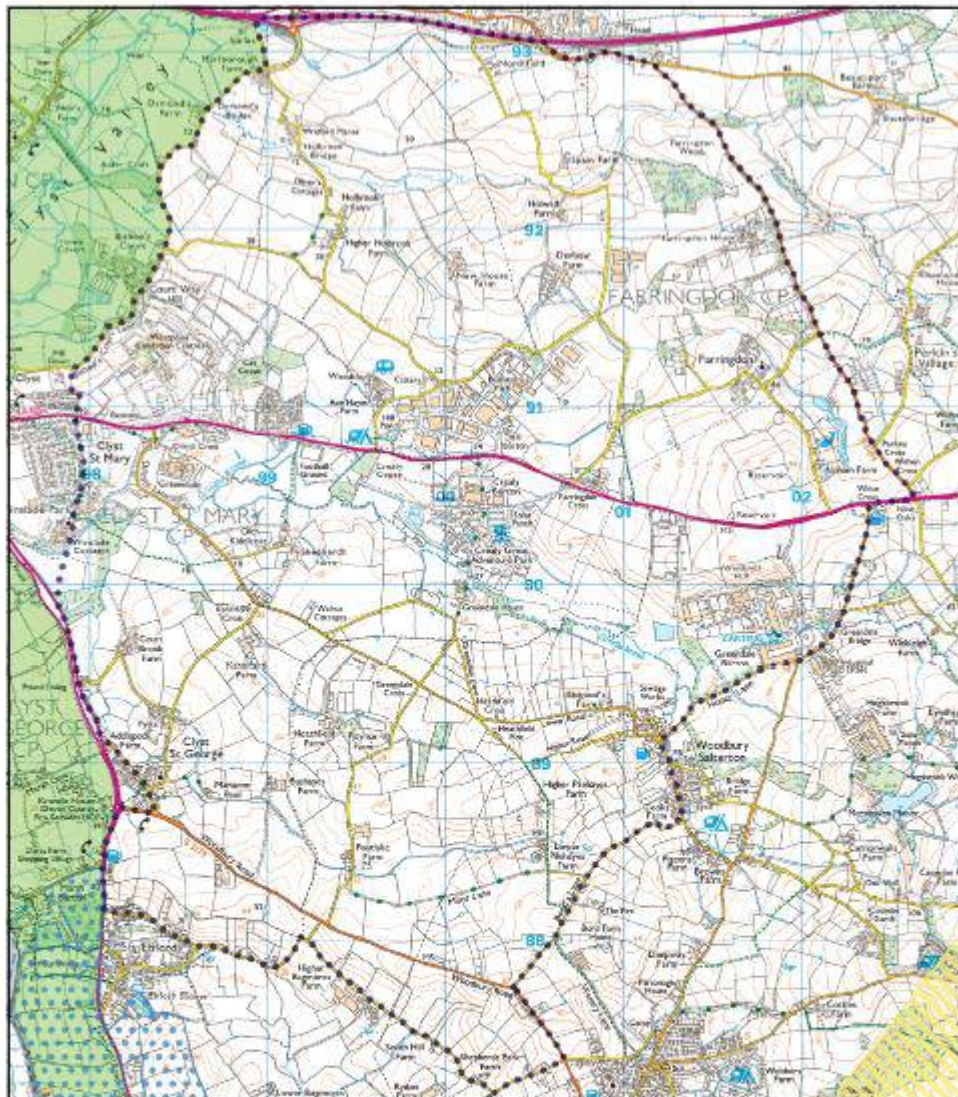
Introduction

- 5.1 Separate to the CBRE led consultant team Fiona Fyfe Associates (FFA) were commissioned by EDDC to undertake a Landscape Sensitivity Assessment (LSA) and Landscape Capacity Assessment (LCA) for the study areas.
- 5.2 These have both fed into the CBRE led work and FFA have worked alongside EDDC to inform this report. The scope and outcomes of the LSA is most relevant for this report as it covers the same study area and this is provided at Appendix A.
- 5.3 We provide an overview below of the key findings from the LSA and LCA of relevance to this Options Appraisal.

Landscape Sensitivity Assessment





- 5.4 The current NPPF Planning Practice Guidance states that Landscape Sensitivity Assessments (LSA) and Landscape Capacity Assessments (LCA) can be used to assess the scale and type of development which can be accommodated without compromising landscape character. The methodology used in the LSA is in line with current best practice guidelines published by Natural England. It considers landscape sensitivity to three different types of development: Residential; Employment/Commercial, and Very large scale warehousing/distribution. It also considers the potential for cumulative effects in relation to proposed allocations.
- 5.5 The Area of Search for the LSA broadly aligns with that in the CBRE led study as shown on the plan below. This covers the land from the A30 in the north to Ebford in the south, and from the A376 and Bishop's Court Lane in the west to the B 3184 and Woodbury Salterton in the east. Most of the Area of Search is within the Clyst Lowland Farmlands Devon Character Area, but the eastern, higher part is within the Pebble Bed Heaths and Farmland Devon Character Area.

Figure 5.1 – Area of Search

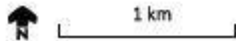


**Landscape Sensitivity Assessment for
a New Community East of Exeter
September 2022**

Map 1. Area of search

-  Area of Search
-  East Devon AONB
-  Coastal Preservation Area
-  Green Wedge

Policy boundaries are taken from the
East Devon Local Plan 2013-31
(Adopted January 2016)



Contains Ordnance Survey data.
© Crown copyright and database rights 2021. 100019783

(FFA, 2022)

5.6 The Area of Search was divided into nine Local Landscape Units (LLUs). Within each LLU, the landscape character, current land uses and likely levels of sensitivity are broadly consistent. LLUs represent broad areas of landscape rather than individual field parcels, and provide a strategic assessment of landscape sensitivity across the Area of Search.

5.7 Desk studies and fieldwork were undertaken to establish and evaluate a range of landscape and visual criteria for each LLU (namely scale, landform, land cover, built environment, perceptual qualities, visual and landscape value). The assessment considers the sensitivity of key landscape and visual characteristics of each LLU to the three different potential development types. A rating is attributed against each criterion using a 5-point scale of High, High-Medium, Medium Medium-Low and Low. The Landscape Sensitivity Assessment is appended to this report.

5.8 In order to provide an overall score for the purposes of numerical comparison of the options, it is necessary to use the findings of the Landscape Sensitivity Study for each component LLU (and the relative proportions of the LLUs) within each option to inform a judgement on the overall landscape sensitivity for each option. The table setting out how this judgement was reached is set out in Section 7.11 of the Landscape Sensitivity Assessment provided at Appendix A. The scoring assessment referenced earlier is replicated below.

Table 5.1 – Assessment Criteria and Scoring

Criteria	Scoring
Landscape sensitivity	Sensitivity: High – 1 Medium/High - 2 Medium – 3 Low/Medium - 4 Low – 5

Source: CBRE (2022)

5.9 The overall landscape sensitivity scores for each option are as follows:

Table 5.2– Landscape Sensitivity Options Appraisal Scoring

Option	Score	Sensitivity
1	2	High-Medium
2	2	High-Medium
3	3	Medium

Source: FFA (2022)

5.10 The study found that the Area of Search contains a number of sensitivities which occur throughout, such as the character of rural lanes, the presence of large trees and hedges, and the character of existing historic settlements on the peripheries. Much of the Area of Search is visible from surrounding high land, including parts of the East Devon AONB.

5.11 In addition to these general sensitivities, there are sensitivities which are unique to each option.

5.12 Unique sensitivities for Option 1 are the quality and integrity of the historic rural landscape and associated Holbrook river corridors which flow east-west through the middle of the defined area. Option 2 includes land at its eastern end which has the highest elevation within the study area which is widely visible in the

- surrounding landscape. It also overlaps with Option 1 to include sensitive land within the Holbrook area. For Option 3 particularly high sensitivity occurs in the south (along the Ebford slopes and the ridge followed by Woodbury Road) which has intervisibility with land to the south and the East Devon AONB, and in the east (towards Woodbury Salterton) where the land is relatively steep and elevated with intact medieval field patterns. The setting of Clyst St George, in the south-west of the Option, is also sensitive.
- 5.13 Within the Area of Search (particularly in the northern part) there are also a number of constraints to development such as floodplains, main roads, and existing land uses. However, some of these form potential opportunities as well as constraints.
- 5.14 The LSA concluded that the lowest levels of landscape sensitivity are found in the west-central part of the Area of Search, around the A3052 and the Grindle Brook Valley. The next lowest is found further south, to the north-east of Clyst St George.
- 5.15 As would be expected, landscape sensitivity for residential use is slightly lower than for commercial/employment use. Landscape sensitivity for very large scale warehousing/distribution is high across the Area of Search, suggesting that the key characteristics and qualities of this landscape are highly vulnerable to change from this development type.
- 5.16 Of the three Options identified, overall Option 3 is slightly less sensitive than Options 1 and 2 in landscape terms. However, within the area covered by Option 3 landscape sensitivity varies, and within Option 3 there are some areas of higher sensitivity where development would be likely to cause significant landscape and visual impact.
- 5.17 The land with the lowest levels of sensitivity is found in the southern part of Option 1 (overlapped by the western part of Option 2) and the northern part of Option 3. FFA proposed that these areas could potentially be combined to form a new 'Western Option'. This was considered by the CBRE led consultant team alongside EDDC but it was recognised that landscape was just one of the technical criteria being assessed as part of the Options Appraisal and that this alone should not drive the need to consider an additional Option.
- 5.18 As mentioned earlier in this report an iterative process was followed in identifying the location of land for the three site Options based upon a basket of factors including the outcome of technical assessments, mitigation of constraints and deliverability including land ownerships. Further, any additional Option would have required all the technical assessments to be updated to cover the proposed additional land take which would lead to programme delay. It was therefore decided to retain the three Options and not consider additional areas or Options.

Landscape Capacity Assessment

- 5.19 The FFA team prepared a Landscape Capacity Assessment that focussed on the land which was identified in the LSA as being of lower sensitivity. It includes the A3052 corridor between Clyst St Mary and Crealy Great Adventure Park, and extends south to the ridge followed by Woodbury Road (B3179). The study area for the Landscape Capacity Study includes the majority of Option 3, and parts of Options 1 and 2. It has not been appended to this report because it does not consider all the Options in their entirety.
- 5.20 Within this Study Area there are a number of landscape constraints. These include topography (watercourses, floodplains, elevated land, ridgelines and steep slopes); vegetation and ecology (deciduous woodland, grassland, traditional orchards, stream corridors, trees and hedges); roads and access (A roads, B roads, minor roads, public rights of way); cultural heritage (Listed Buildings, other historic farmsteads, historic villages, historic field systems, other non-designated heritage assets); views, character and approaches (landscape character, expansive views, approaches to Exeter); existing development, land uses and services (existing residential, industrial and recreational development which will remain for the foreseeable future). Some of these constraints are also opportunities. For example floodplains can be used for public open space and biodiversity net gain, and main roads allow easy access.
- 5.21 Taking all these factors into account, the Study Area contains land ranging from High to Low capacity to accommodate new residential development. All flood zones are assumed to be of low capacity.
- 5.22 The land with higher landscape capacity is associated with the north-central part of the study area, specifically the A3052 corridor (north and south of the road), and the valleys of the Grindle Brook (west of Greendale House) and the unnamed stream which runs past Kenniford Farm. Elsewhere within the Study Area there is lower capacity to accommodate development.
- 5.23 Looking at Option 3, the land with highest capacity to accommodate new development is found within the valleys of the Grindle Brook (west of Greendale House) and the unnamed stream which runs past Kenniford Farm. This part of Option 3 has a relatively high capacity to accommodate new development due to its relatively flat and low-lying topography, the existing trees which form a strong structure to the landscape and would help to screen development, and its lack of visibility from surrounding areas.
- 5.24 The southern and eastern parts of Option 3 were found to have lower capacity to accommodate built development for a variety of reasons including topography, visibility (particularly from East Devon AONB and Woodbury Road), landscape character, lack of mature trees and hedges, and the setting of Clyst St George village. Access into this part of the Option 3 is also challenging.
- 5.25 Within Options 1 and 2, the land with the highest capacity to accommodate development is found on the northern side of the A3052 (between the County Showground and Hill Barton Business Park). There is capacity here to accommodate residential development, and also land parcels in the vicinity of existing commercial/industrial premises where carefully designed new industrial land uses could be accommodated with relatively low landscape and visual impacts.

6. Environmental Constraints

Introduction

- 6.1 This section provides an overview of the environmental constraints that have been considered including ecological impact/biodiversity, flooding, minerals and historic environment.

Ecological Impact/Biodiversity

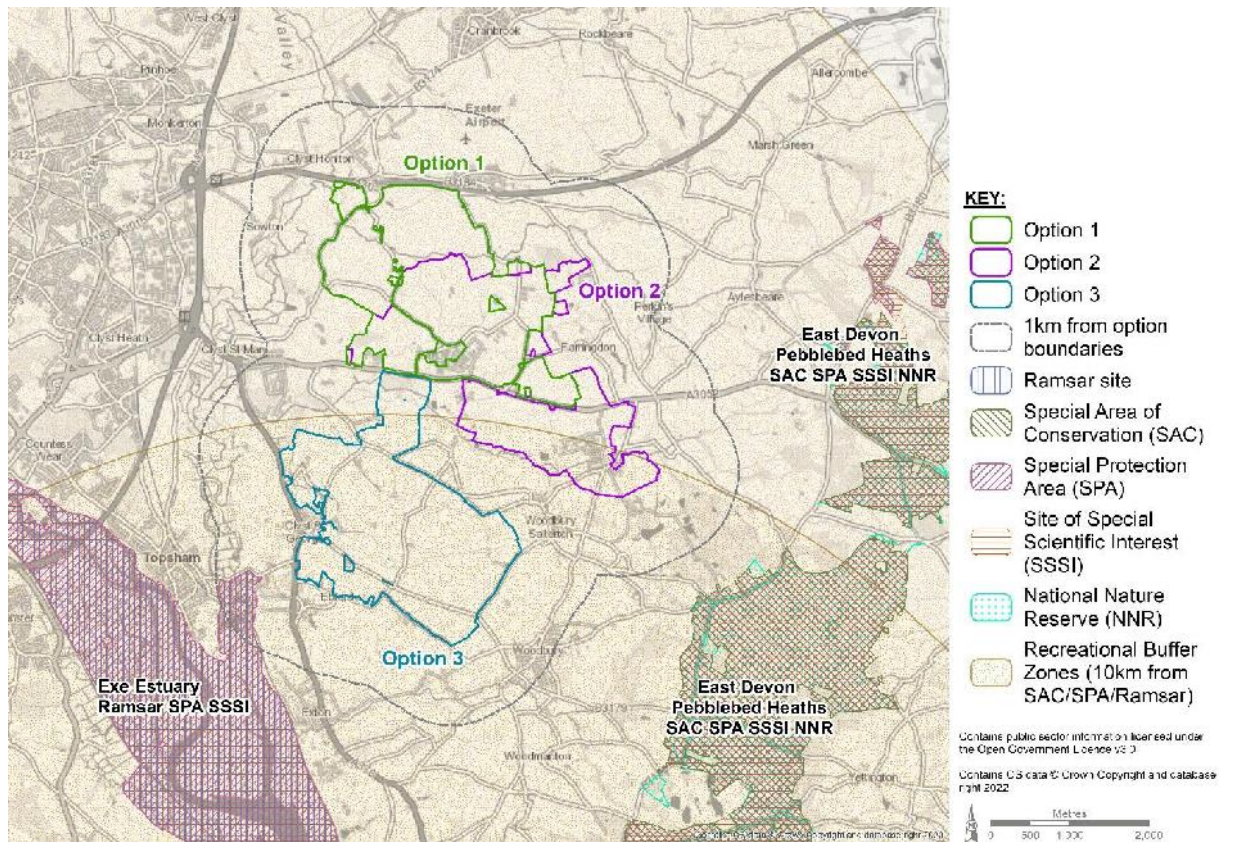
- 6.2 A high-level ecological desk-based appraisal has been completed to inform the Options Appraisal. Methods, data sources and findings are detailed in the Ecological Desk Study Report (Appendix C).

Statutory Wildlife Sites

- 6.3 The Ecological Desk Study Report (Appendix C) details the statutory wildlife designations of international, national, regional or local significance present within the area containing the Options.
- 6.4 No Option contains or lies adjacent to any statutory wildlife designation (refer to Figure 4.1). Option 2 is 1.6km from the East Devon Pebblebed Heaths (SAC, SPA, SSSI, NNR). Option 3 is 0.4km from the Exe Estuary (SPA, Ramsar, SSSI)
- 6.5 Strategy 47 of the EDDC East Devon Local Plan 2013-2031 (adopted 28 January 2016) (EDLP) applies a 400m buffer zone around the East Devon Pebblebed Heaths within which no new residential development is permissible. A 400m zone around the Exe Estuary also applies within which project specific measures are required to identify supporting habitats for SPA qualifying bird species. None of the Options are located within 400m of the East Devon Pebblebed Heaths or the Exe Estuary, although Option 3 is approximately 400m east of the Exe Estuary at its nearest point.
- 6.6 The Exe Estuary and East Devon Pebblebed Heaths, and also Dawlish Warren (located in Teignbridge) have a 10km Recreational Buffer Zone applied, within which all residential schemes will be required to provide mitigation for visitor pressures under Strategy 47. All Options are fully within the 10km buffers from the Exe Estuary and East Devon Pebblebed Heaths. No part of Option 1 falls within the 10km buffer from Dawlish Warren, the southern portion (c 20% by area) of Option 2 and the majority (c 95%) of Option 3 are within the 10km buffer for Dawlish Warren.
- 6.7 Mitigation for diffuse additional recreational pressure will be required under Strategy 47 for all Options which has been accounted for in the land budget. In due course this will be supported by a Habitats Regulations Assessment (HRA).

6.8 There are no overriding ecological constraints for any of the Options arising from statutory wildlife designations of international or national significance.

Figure 6.1 – Statutory wildlife designations most relevant to the Options



Source: TEP (2022)

Non-Statutory (Local) Wildlife Sites

6.9 Policy EN4 of the EDDC EDLP protects the network of local wildlife sites in East Devon. There is a presumption against development within or otherwise adversely affecting local wildlife sites and other important local wildlife sites. To comply with Policy EN4, local wildlife sites and important connecting or supporting habitat features should be retained and protected.

6.10 Figure 6.2 shows local wildlife sites within 1km of the Options. They fall into categories: County Wildlife Sites (CWS), Other Sites of Wildlife Interest (OSWI), Unconfirmed Wildlife Sites (UWS), Special Verge Sites and Exeter Green Spaces. Further explanation of these sites and their position in the ecological network for Devon is provided in the Ecological Desk Study Report (Appendix C).

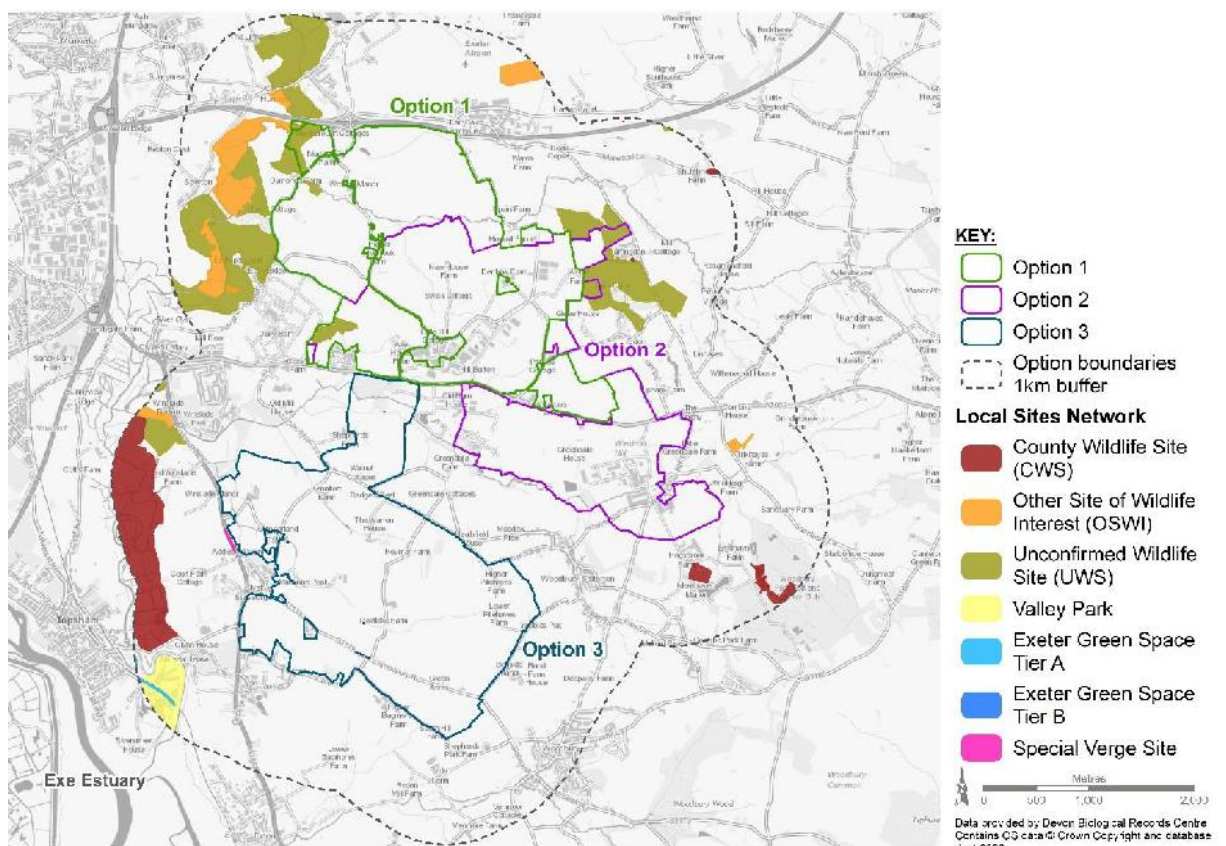
6.11 Option 1 contains two UWS and part of a third. It lies adjacent to several other local wildlife sites to the east and west (refer to Figure 6.2). A further ten local wildlife sites were identified within 1km of Option 1, the majority east or west of the Option area. Option 1 also contains, in the west and northwest, land allocated by Strategy 10 of the EDDC EDLP for the Clyst Valley Regional Park. The majority of this allocated area

extends from Bishop’s Court Lane to the M5 and encompasses a number of local wildlife sites associated with the River Clyst. Details are presented in the Ecological Desk Study Report (Appendix C).

6.12 Option 2 contains one UWS and part of two others. A further 12 local wildlife sites were identified within 1km of the Option, mostly to the west and east. Option 2 does not contain land allocated for the Clyst Valley Regional Park.

6.13 Option 3 does not contain any local wildlife sites, although a Special Verge Site (a central reservation along Exmouth Road) lies approximately 10m to the west boundary. A further 11 local wildlife sites were identified within 1km of the Option. The Option is positioned between a corridor of local sites along the River Clyst (including the Clyst Marshes CWS) in the west and a cluster of CWS (comprising ancient woodlands) further to the east.

Figure 6.2 – Non-statutory wildlife sites within 1km of the Options



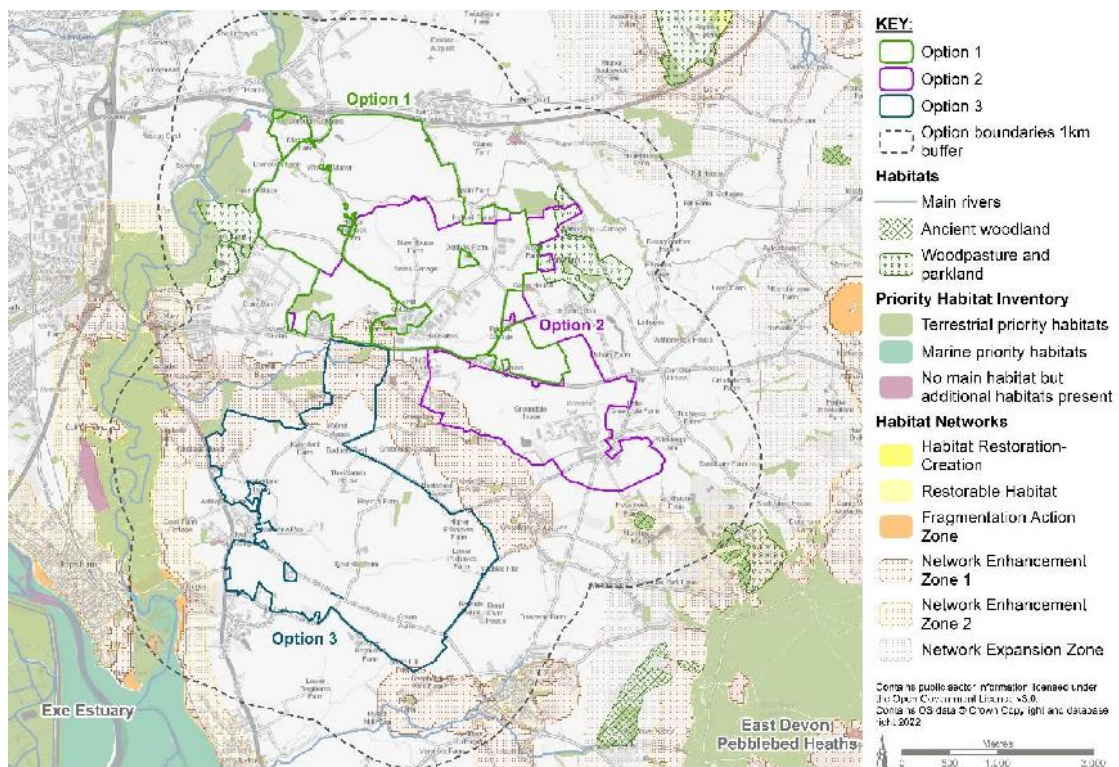
Source: TEP (2022)

Important Habitats and the National Habitat Network

6.14 Loss of irreplaceable habitats (e.g. ancient woodland, veteran trees), must be avoided and they must be adequately protected to comply with NPPF. Based on available data, there is no ancient woodland present or adjacent to any of the Options, but there is a high likelihood that small, previously unrecorded, fragments of ancient woodland or trees or veteran trees may occur within each Option. Field survey is required to verify presence of irreplaceable habitats.

- 6.15 Policy EN5 of the EDDC EDLP protects important wildlife habitats and features. There is a presumption against development adversely affecting important wildlife habitats and features. Positive opportunities for habitat creation are encouraged through the development process.
- 6.16 All three Options comprise a similar landscape of predominantly agricultural fields (cereal and arable grasslands) with a comprehensive field boundary network. Some woodlands, traditional orchards, native hedgerows, ponds, watercourses, some grasslands and arable field margins all have potential to qualify as national Habitats of Principal Importance (HPI). Rivers, streams, floodplains and grazing marsh, some woodlands, traditional orchards, some uncultivated grasslands and most hedges may qualify as Devon Biodiversity Action Plan (DBAP) habitats. To comply with Policy EN5, there should be a presumption to retain HPI and DBAP habitats and protect them against construction and recreation-related pressures with appropriate and functioning buffers.
- 6.17 While all Options will certainly include national or regional priority habitats, Natural England’s National Habitat Network does not identify key habitat areas and opportunity zones as significant constraining factors for the Options. The Ecological Desk Study Report (Appendix C) explains the context for the National Habitat Network. A broad east-west corridor identified within the network as Enhancement Zone 1 promotes connectivity from the Pebblebed Heaths across to the River Clyst corridor. This corridor is generally associated with Grindle Brook and passes south of Options 1 and 2, with only minor overlap, and north of Option 3 with moderate overlap in the north and northwest. This corridor can be incorporated into development frameworks; it would not sterilise against development.

Figure 6.3 – Position within the ecological network (priority habitats and National Habitat Network Combined)



Source: TEP (2022)

Protected Species

6.18 The Ecological Desk Study Report illustrates and summarises existing species records within the search areas. Field study would be needed to fully ascertain presence or otherwise of protected or notable species within the Option areas. Nevertheless, great crested newts are likely to be present within Options 1 and 2 and hazel dormice are highly likely to be present within each Option. A moderate to high diversity of bats should be anticipated, with roosting and important commuting routes and foraging areas being found. Option 3 encompasses land thought to be previously subject to protected species mitigation licensing; pre-existing mitigation delivered under EPS licences should be safeguarded against future development. Option 3 appears to have a higher diversity of birds, invertebrates and flora recorded in the locality. This is likely to be related to its position relative to the designated wildlife sites at the Exe Estuary (west) and Pebblebed Heaths (east) illustrated at Figure 6.1.

Key Findings

6.19 Table 6.1 summarises the key findings of the ecological desk study. Full details of the findings and associated drawings are presented in the Ecological Desk Study Report (Appendix C)

Table 6.1 – Summary Appraisal

Assessment Category	Option 1	Option 2	Option 3
Statutory Wildlife Sites of International & National Significance (closest proximity)	>2km	>1km	<0.5km
Strategy 47 Applies (Recreational Pressure)	Exe Estuary East Devon Pebblebed Heaths	Exe Estuary East Devon Pebblebed Heaths	Exe Estuary East Devon Pebblebed Heaths Dawlish Warren
SSSI Impact Risk Zones	Infrastructure Wind / Solar Energy Minerals, Oil & Gas Air Pollution Combustion Waste Discharges Strategic Solutions	Infrastructure Wind/Solar Energy Minerals/Oil/Gas Rural non-Residential Residential Rural Residential Air Pollution Combustion Waste Composting Discharges Water Supply Strategic Solutions	All Planning Applications Infrastructure Wind/Solar Energy Minerals, Oil & Gas Rural non-Residential Residential Rural Residential Air Pollution Combustion Waste Composting Discharges Water Supply Strategic Solutions
Statutory Wildlife Sites of Regional / Local Significance (closest proximity)	>5km	>5km	<5km

Assessment Category	Option 1	Option 2	Option 3
Local Wildlife Sites	Contained Within Option	Contained Within Option	Not Contained Within Option
Potential for Impact on Wildlife Sites Network (in absence of mitigation)	High risk of local severance or fragmentation impact (east-west)	Moderate risk of local severance or fragmentation impact (east-west)	Moderate risk of local severance or fragmentation impact (east-west)
National or Devon Priority Habitats <i>(note that field surveys would be required to confirm habitats present and status of habitats)</i>	Coastal floodplain and grazing marsh Traditional Orchard Woodland Veteran/Ancient Trees Devon Hedgerows Arable field margins Ponds/Lakes Rivers/Streams	Woodland Veteran/Ancient Trees Devon Hedgerows Arable field margins Ponds/Lakes Rivers/Streams	Traditional Orchard Woodland Veteran/Ancient Trees Devon Hedgerows Arable field margins Ponds/Lakes Rivers/Streams
Overall Risk to Ecological Network (in absence of mitigation)	Limited overlap but contains land allocated for Valley Park, HPI and position within wider network has potential for fragmentation effects	Limited overlap. Avoids key areas identified within Habitat Network for enhancement or expansion but contains some HPI.	Some overlap, especially links east-west. Closer proximity to statutory sites and supporting habitats. Contains HPI. Position in wider network has potential for fragmentation effects.
Diversity of protected or notable species records in locality <i>(note that field surveys would be required to confirm presence or likely absence of species)</i>	12 plants 4 amphibians 2 reptiles 21 birds 10 bats 8 other mammals 5 invertebrates	9 plants 4 amphibians 2 reptiles 18 birds 10 bats 10 other mammals 62 invertebrates	39 plants 3 amphibians 2 reptiles 2 fish 58 birds 11 bats 10 other mammals 70 invertebrates

Source: TEP (2022)

6.20 The scoring assessment referenced earlier is replicated below.

Table 6.2 – Assessment Criteria and Scoring

Criteria	Scoring
Ecological impact/Biodiversity	Impact: High – 1 Medium/High - 2 Medium – 3 Low/Medium - 4 Low – 5

Source: CBRE (2022)

6.21 This scoring assigns a score ranging from 1 for high impact to 5 for low impact. In adopting this scoring system, the scores are assigned according to a high level comparison between Options (e.g. where impacts may be more complex or extensive across one Option compared with another, it scores lower). The scoring

system is not intended to prejudice conclusions of any ecological impact assessment; it aims to assess the range of ecological constraints that a development framework would need to consider.

Table 6.3– Scoring

Assessment Category	Option 1	Option 2	Option 3
Statutory Wildlife Sites of International & National Significance	5	4	3
Strategy 47 Applies (Recreational Pressure)	3	3	2
SSSI Impact Risk Zones	5	4	3
Statutory Wildlife Sites of Regional / Local Significance	5	5	5
Local Wildlife Sites	3	3	5
Potential for Impact on Wildlife Sites Network (in absence of mitigation)	2	3	3
National or Devon Priority Habitats	2	3	2
Overall Risk to Ecological Network	3	4	2
Diversity of protected or notable species records in locality	3	3	2
TOTAL	31	32	27
AVERAGE	3.4	3.6	3

Source: TEP (2022) Note – the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

Key: As a number of assessments inform this technical category the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

Summary

- 6.22 Overall, in terms of ecological risk, Option 2 performs best while Option 3 would be least preferred. However, the Option sites themselves have relatively few absolute ecological constraints, and such constraints can typically be accommodated within a sensitively-designed green and blue infrastructure framework.
- 6.23 The landscapes to the west and east of the Option areas have particular local, regional, national and international significance for wildlife, including mobile species with particular seasonal sensitivities.
- 6.24 Option 3, closest to the Exe Estuary (400m to the south), and with relatively greater proportion of an ecological network enhancement zone, is more vulnerable than the other two Options to the need to provide significant ecological management zones within its boundary.
- 6.25 Opportunities to strengthen and/or diversify the ecological network should be sought within the preferred Option area, making use of existing habitats and features and seeking opportunity to expand habitat or create new habitat to contribute towards biodiversity gains. Opportunities for biodiversity gains would also be presented by the land allocated within Option 1 for the Clyst Regional Valley Park, lands identified within network enhancement or expansion zones, SANGS and flood zone land.

Other Environmental Constraints

6.26 The scoring assessment referenced earlier is replicated below.

Table 6.4 – Assessment Criteria and Scoring

Criteria	Scoring
Environmental constraints (flooding, minerals and historic environment)	Constraint's level: High – 1 Medium/High - 2 Medium – 3 Low/Medium - 4 Low – 5

Source: CBRE (2022)

Flooding

6.27 As previously referenced the assessment of potential flood risk was undertaken at the outset to inform the Option refinement and whilst these areas of flood risk appear to be included within each Option they have not been included in the land budget. More detail will be provided in the masterplanning of the preferred Option.

6.28 The land budget identifies over 200 hectares of land that will be used for public open space etc and we would expect that any flood attenuation is incorporated into this.

6.29 Flood zones are divided into four – Flood Zones 1, 2, 3a and 3b. The Environment Agency only maps three, but Local Authorities split Zone 3 into 3a and 3b.

Zone 1

6.30 Flood Zone 1 is Low Probability with areas been shown to be at less than 0.1% chance of flooding in any year. Land having a less than 1 in 1,000 annual probability of river or sea flooding.

6.31 There are very few restrictions in terms of flood risk to development on flood zone 1 areas, the exception is for development over 1 hectare in size which must have a flood risk assessment undertaken as part of a planning application and areas deemed to be at high risk of flooding from rainfall known as Critical Drainage Areas.

Zone 2

6.32 Flood Zone 2 is Medium Probability with areas been shown to have between 0.1% – 1% chance of flooding from rivers in any year or between 0.1% – 0.5% chance of flooding from the sea in any year. Land having

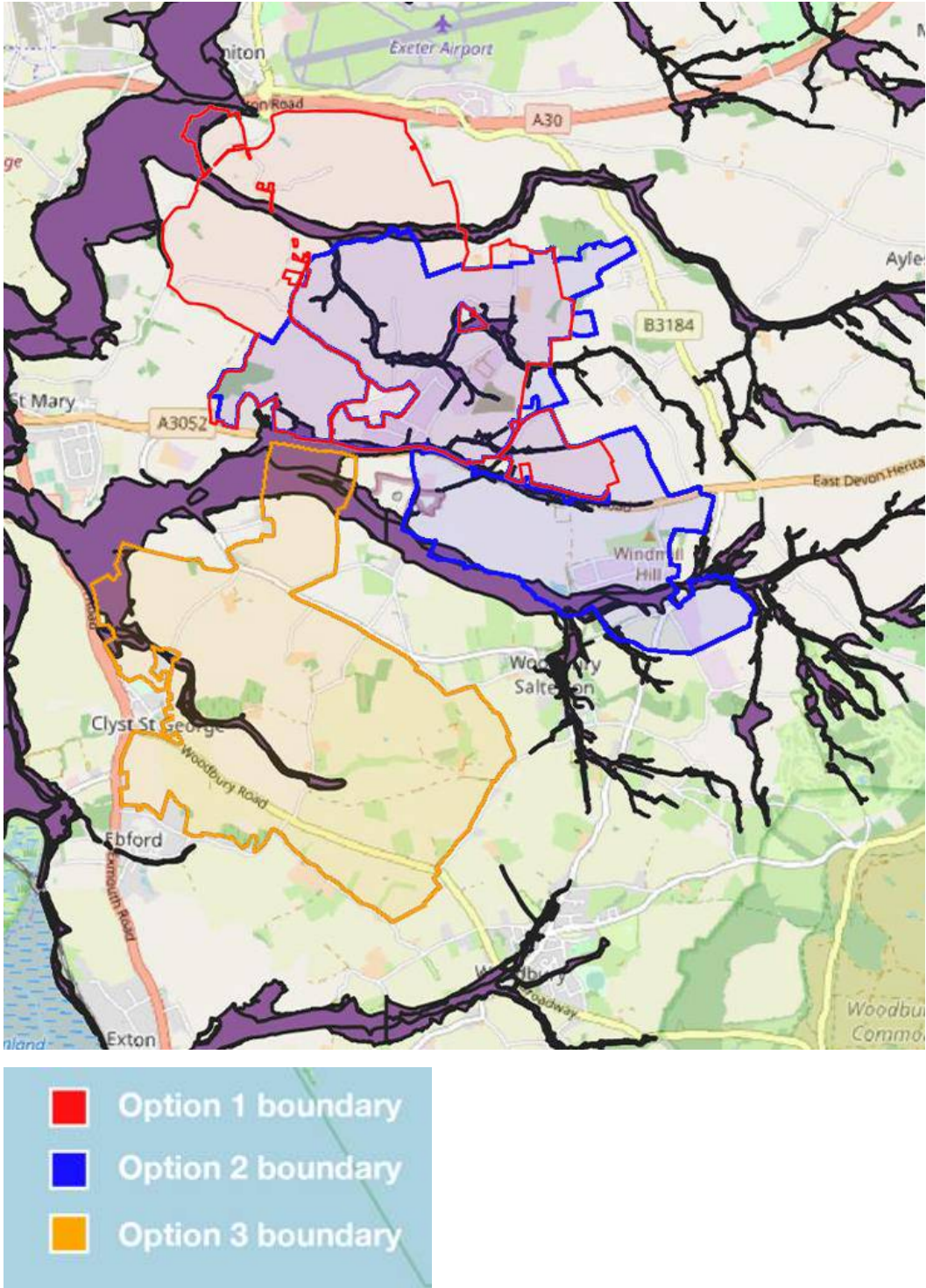
between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding.

- 6.33 Flood zone 2 development needs to submit a flood risk assessment as part of its planning application which shows the risk of flooding to the site.

Zone 3

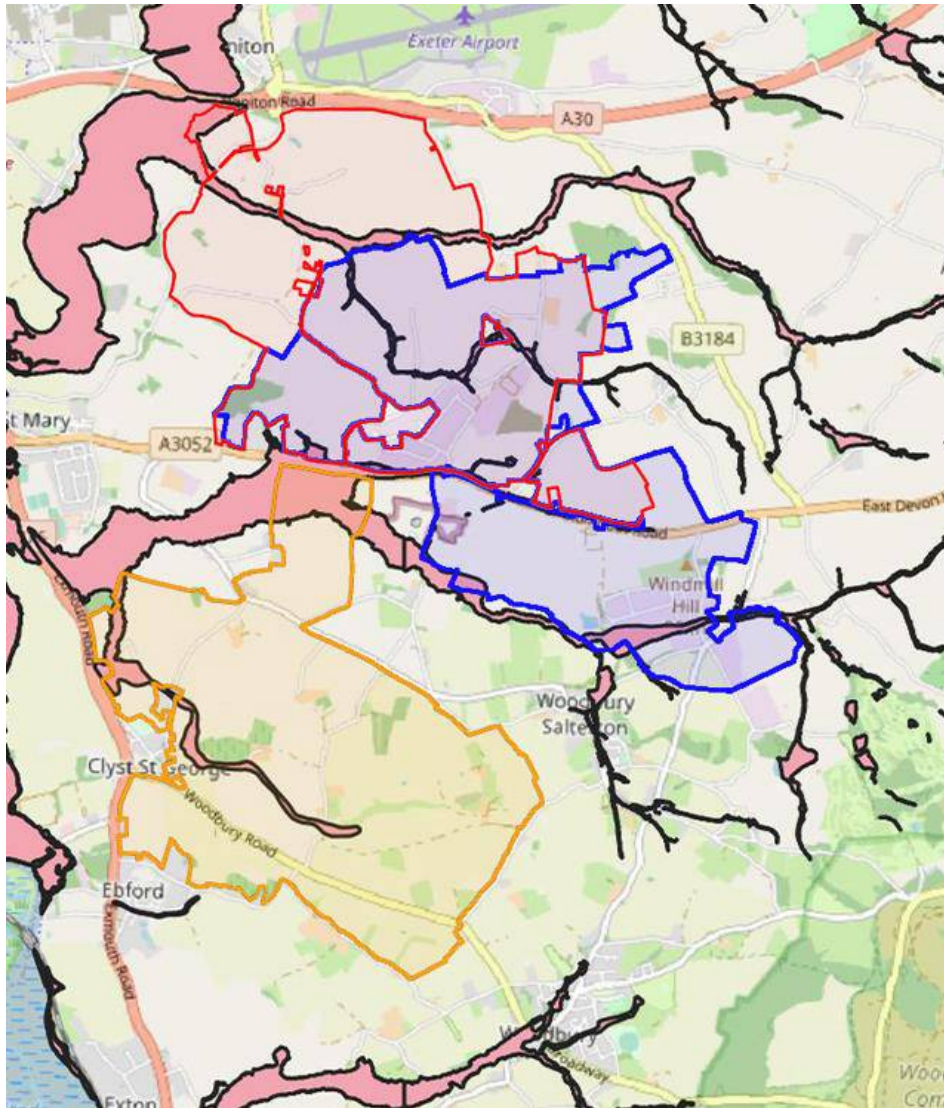
- 6.34 Flood Zone 3a is High Probability with areas been shown to be at a 1% or greater probability of flooding from rivers or 0.5% or greater probability of flooding from the sea. Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding.
- 6.35 Flood zone 3 development needs to submit a flood risk assessment as part of its planning application which determines if the site is classified as flood zone 3a or 3b as well as reviewing flood risk on the site and proposing suitable mitigation.
- 6.36 Flood Zone 3b is the Functional Floodplain and is deemed to be the most at risk land of flooding from rivers or the sea. Local planning authorities have classified areas at significant risk of flooding to be within flood zone 3b. This classification is usually classified as land which had a 5% probability of flooding also known as a 1:20 chance.
- 6.37 This zone comprises land where water has to flow or be stored in times of flood. Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency.
- 6.38 A large proportion of the land in all Options are within Flood Zone 1 which is the lowest risk but all sites have some areas that fall within Flood Risk Zones 2 and 3 as the following plans indicate.

Figure 6.1 – Flood Risk Zone 2



Source: Tibbalds (2022)

Figure 6.2 – Flood Risk Zone 3



Source: Tibbalds (2022)

6.39 In Option 1 and running through the centre of the site some areas around the water courses are in Flood Zones 2 and 3a with surface water flooding a possibility but a low to medium risk.

6.40 It is a similar story for Option 2 with areas at risk from Zone 2 flooding running through the centre of the site. Areas to the south fall with Zone 3a which is a medium risk. As with Option 1 these are located around the water courses and will be prone to surface water flooding a possibility but this is a low to medium risk.

6.41 In Option 3 and running through the centre of the site some areas around the water courses are in Flood Zones 2 and 3a with surface water flooding a possibility but a low to medium risk.

Table 6.4 – Flood Risk

Option	Score
1	4
2	4
3	4

Source: CBRE (2022)

6.42 All Options have land within Flood Zones 1-3 but as the majority is within Zone 1 this is a low to medium flood risk. Land at flood risk will be incorporated into well designed and implemented drainage and water mitigation strategies and the land used for space for SANGS and biodiversity gains during masterplanning of the Preferred Option.

Minerals

6.41 The three Options have been assessed in line with the East Devon Local Plan 2013-2031, Devon Minerals Plan 2011-2033 and Devon Waste Plan 2011-2031. The key outcomes are shown below.

6.42 The potential impact of minerals per Option site is summarised below.

Table 6.5 – Minerals Presence

Option	Impact	Score
1	Outside of coal mining affected areas. No nitrate and phosphates identified Mineral safeguarding Zone at Hill Barton Business Park (Policy M2 of the Devon Minerals Plan) Established Strategic Waste facility at Hill Barton Business Park (Policy W10 of Devon Waste Plan)	3
2	Outside of coal mining affected areas Within water source protection zone Within nitrate vulnerable zone Medium priority phosphates Mineral safeguarding Zone at Hill Barton Business Park (Policy M2 of the Devon Minerals Plan) Established Strategic Waste facility at Hill Barton Business Park (Policy W10 of Devon Waste Plan) Established Strategic Waste facility at Greendale Barton (Policy W6 of Devon Waste Plan)	1
3	Outside of coal mining affected areas No nitrate and phosphates identified	5

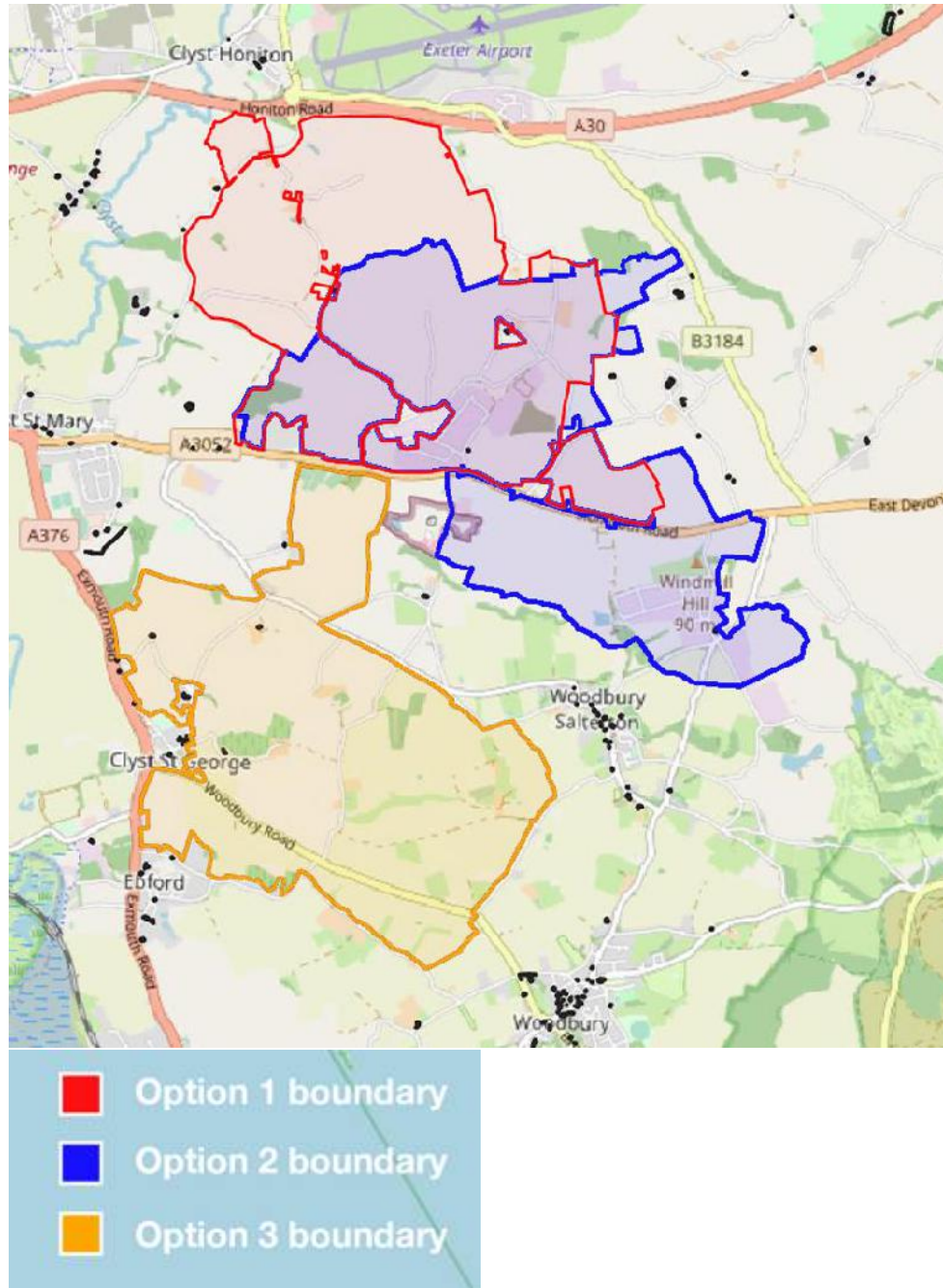
Source: CBRE (2022)

- 6.43 All Options were identified as outside of coal mining areas and Options 1 and 3 have no nitrate and phosphate areas identified.
- 6.44 Option 2 is the most constrained as it contains zones for water source protection, nitrate vulnerability and an area of medium priority for phosphates.
- 6.45 It has also been noted that there is a mineral safeguarding zone at the Hill Barton industrial estate which related to an existing asphalt plant (Devon Mineral Plan – Policy M2). There is also established strategic waste facilities at both Hill Barton Business park and Greendale Barton (Devon Waste Plan – Policy W10 and W6) – this affects both Options 1 and 2.

Historic Environment

6.46 We have undertaken an assessment of land and property within the historic environment with the key findings summarised below.

Figure 6.2 – Listed Buildings



Source: Tibbalds (2022)

6.47 In Option 1 there is one Grade II listed property to the south east that remains in the site area. All other land and property (including Grade II and II*) has been excluded from the land identified for the proposed settlement. A registered park and garden is also located close to its north western boundary.

6.48 In Option 2 there is one Grade II listed property that remains in the site area. All other land and property (including multiple Grade II and II*) has been excluded from the land identified for the proposed settlement.

6.49 In Option 3 there are three Grade II listed properties that remain in the site area. All other land and property (including multiple Grade II and II*) has been excluded from the land identified for the proposed settlement. There is a scheduled monument (Animal Pound) off Woodbury Road located on the western boundary of the site.

Table 6.6 – Historic Environment

Option	Score
1	3
2	3
3	3

Source: CBRE (2022)

6.50 This assessment identifies that in each Option there remains at least one and a maximum of three Grade II listed buildings and as a result these are all scored equally as a medium risk but would be subject to appropriate mitigation. As we indicated in Section 3 the land budget excludes land that is part of the historic environment. That said even though historic buildings and registered parks/gardens are outside the site areas of the Options the potential impact upon the setting of those places will be protected as part of the masterplanning of the preferred Option.

6.51 A number of variations have been considered for each Option and the chosen location have been refined to ensure that the historic environment would not be subject to convergence with the potential new community. Where the Options do abut the historic environment, the intention at the masterplanning stage of the project will be to ensure that adequate separation, through a substantially sized landscape buffer, is provided to respect the character of the existing settlements. The masterplanning will allow for any potential impact on the historic environment to be sufficiently screened given the extensive public open space land budget.

6.52 The three site locations have been developed to provide as far as possible nucleated, compact settlements. This form of development is conducive to the application of active travel measures.

6.53 The boundaries for the three site locations have been defined using landscape features, including existing watercourses, field boundaries and hedgerows, to create rational settlement edges.

Agricultural Land Classification:

- 6.54 Based on high level data of the quality of agricultural land across the Option it would appear that land within Option 1 is likely to be entirely grade 3. There are however pockets of land within grade 2 within Option 2 land and some larger areas to the north and west of Option 3.
- 6.55 Whether these areas are being used for food production or could feasibly be used for this purpose is unclear and without detailed soil investigations it is hard to draw any firm conclusions on the quality of agricultural land and soil resources in the area. Further work would be needed to conclude on this issue and as a result this hasn't been scored as part of the assessment.

7. Sustainable Accessibility Assessment

Introduction

- 7.1. This section of the report has been based on the Sustainable Access Review (SAR) completed by Hydrock and included in full at Appendix B.
- 7.2. The SAR focuses on the opportunities and constraints for enabling and facilitating travel by sustainable transport modes, given the requirements of local and national policy, and the climate emergency context. It also provides preliminary commentary on the nature and quality of provision for access by sustainable modes to be embedded in the design of the new community, and the integration of new and emerging transport technologies – with greater detail to be provided once a preferred Option is progressed.
- 7.3. The 2021 NPPF sets out the government’s planning policies for England, focusing on the promotion of sustainable transport at Chapter 9, where it states “Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes.” The provision of development with sustainable transport is supported by a number of publications by the Department for Transport, including the Transport Decarbonisation Plan (2021), Gear Change: a bold vision for cycling and walking (2020), and The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy (2018).
- 7.4. Furthermore, EDDC is committed to becoming carbon neutral by 2040, with a five-year strategy and action plan in place to support this goal. This recognises that transport has a large part to play in tackling climate change, as the transport sector has been the largest greenhouse gas (GHG) emitting sector in the UK since 2016.
- 7.5. The new settlement will be shaped by a vision which places an emphasis on active travel, greater connectivity and innovative transport technologies, in line with the Exeter Transport Strategy (2021). This will include a step change in transport planning, embedding Triple Access Planning and with a shift from ‘Predict and Provide’ to ‘Vision and Validate’, supported by:
- Chartered Institution of Highways and Transportation (CIHT) – Better planning, better transport, better places (August 2019);
 - Town and Country Planning Association; Garden City Standards – Guide 13; Sustainable Transport (September 2020); and

- TRICS Guidance Note: On the Practical Implementation of the Decide and Provide Approach (February 2021).

- 7.6 Central to delivering this approach will be the inclusion of the 20-minute neighbourhood principle. The concept is based on ensuring that the daily needs of most people can be met within a short walk or cycle. This results in multiple benefits including improved mental and physical wellbeing, reduced traffic congestion, improved noise and air quality and a stronger local community. The integration of land-use planning and transport planning is a key mechanism to facilitate 20-minute neighbourhoods alongside the Triple Access considerations: physical mobility – spatial proximity – digital connectivity.
- 7.7 As such, the three Options have been analysed and assessed based on their ability to deliver sustainable accessibility. Each Option has been provided with a score across four key areas; walking, cycling, public transport, and proximity to employment.
- 7.8 We summarise below the key findings of the assessment of each Options proximity to employment as well as their existing and future potential to accommodate walking, cycling, and public transport. It also summarises the high level consideration of future-proofing for new and emerging modes of transport, which will need to be integrated within the design of whichever Option site is ultimately preferred by EDDC.

Assessment by Mode

Walking

- 7.9 As the Options are located in predominantly rural locations, internal pedestrian connectivity within all three Options is presently relatively undeveloped. However, the new community will require a network of convenient, direct, permeable, safe and easy to navigate pedestrian routes that are able to accommodate the needs of all users.
- 7.10 These routes will vary in their nature - e.g. running alongside carriageways, in public open space, and adjacent to cycle routes. They should be consistent with the requirements of guidance including Manual for Streets (or its successor documents) and provide a level of priority over motorised modes in line with the Highway Code.
- 7.11 The development should include areas of low- or no-traffic, following the principles of shared-space, or play streets, and green/tree-lined streets promoted in guidance and required by policy.
- 7.12 External connectivity also reflects the Options' rural locations, with footways along the A3052 and B3174 Old Honiton Road providing the key pedestrian facilities in the immediate vicinity of all three Options. These routes offer suitable east/west connections. The footway on the A3052 terminates in Cat and Fiddle, with no existing provision further into Option 2.

- 7.13 The proposed Clyst Valley Trail, which was subject to public consultation earlier in 2022, offers a north/south link adjacent to Exeter’s eastern boundary and within the vicinity of Options 1 and 3. The topography of Option 2 poses a challenge to a potential pedestrian route of this nature linking into Option 2.
- 7.14 The new community will need to provide connectivity into existing walking networks and, in many cases, significant upgrades to provision in order to incentivise walking. For the purposes of this comparative exercise, summary scores have been attributed to each of the Options based on the above factors.
- 7.15 Scores have been attributed to each of the Options based on these factors, provided in the table below.

Table 7.1 – Sustainable Accessibility Scoring Assessment – Walking

Assessment Category	Option 1	Option 2	Option 3
Walking	3	1	4

Source: Hydrock (2022)

Cycling

- 7.16 The Local Highway Network in the vicinity of the Options has limited dedicated cycling infrastructure, but the rural nature of many of the local lanes results in relatively low traffic volumes, meaning that they can be suitable for cyclists. As evidenced by Strava heat maps and observations during Hydrock’s site visit, cyclists frequent the roads in and around the three Options.
- 7.17 Whichever site is taken forward by EDDC for the new community, it will need to be served by high quality, safe and direct cycle routes that accommodate the needs of all users and provide appropriate priority over motor vehicles, in line with LTN1/20, the NPPF and the recently-revised Highway Code.
- 7.18 Cycle connectivity from Option 3 is comparatively strengthened by the proximity of the Option to the National Cycle Network (NCN) Route 2, which is located approximately 1.5km south-west from the centre of the Option. NCN Route 2 provides a largely traffic-free link along the eastern flank of the Exe estuary, connecting Option 2 to Exeter City Centre and Exmouth Town Centre.
- 7.19 Similarly, Option 1 benefits from a shared footway/cycleway along Old Honiton Road to the north of the Option. This high-quality route connects the north of Option 1 to Cranbrook to the north, and Exeter to the west via the Science Park.
- 7.20 Option 2 is isolated from existing dedicated cycle infrastructure, and local topography is not conducive to facilitating cycle movements internally. The emergence of micro-mobility modes (such as eScooters) and the continued growth of e-bikes could mitigate these issues in the future.
- 7.21 Each Option would benefit from the inclusion of an on-site mobility hub to facilitate these emerging modes of travel.
- 7.22 Based on this information, summary scores have been assigned to each of the Options as set out below:

Table 7.2 – Sustainable Accessibility Scoring Assessment – Cycling

Assessment Category	Option 1	Option 2	Option 3
Cycling	3	2	4

Source: Hydrock (2022)

7.23 As with the comparative assessment of current/potential access by other modes, it is expected that new and upgraded cycle connections will be required to support the new community, ensuring attractive and safe access to surrounding settlements, local facilities, employment and education. Further detail regarding the nature of these connections forms part of the scope of the next stage of assessment work.

Public Transport

7.24 The new community will require high-quality, frequent and direct public transport provision linking with nearby settlements, employment, education, retail and other services beyond those which will be provided within the settlement.

7.25 The level and convenience of provision should make public transport an attractive proposition for all parts of the community, reinforcing the vision that the private car should be the mode of last choice for residents and visitors.

7.26 Mirroring the wider transition away from internal combustion engine vehicles, the public transport fleet should focus towards a zero-emissions strategy.

7.27 The A3052, which bisects Option 2 and runs adjacent to the southern boundary of Option 1 and the northern boundary of Option 3, is a primary east/west bus corridor into Exeter, and contains stops in close proximity to all three Options. A range of service frequencies (14 to 85 mins) are available to and from Exeter from these stops.

7.28 Other stops and services are found in close proximity to Option 1 (to the north towards Cranbrook/Clyst Honiton, albeit it is noted within the SAR that improvements to pedestrian infrastructure would be required in order to improve connectivity.), to the south of Option 2 (Woodbury Salterton) and to the south-west of Option 3 (Ebford and Topsham). As such, all three Options have a good level of existing connectivity by bus.

7.29 All three Options are expected to need improvement to local bus services. Analysis has demonstrated that given the size of the development, a c.10-minute frequency service for the development is likely to be commercially viable. This, coupled with the upgrading of existing bus stop facilities, would provide a significant enhancement on the existing services within the area of all three Options, for both existing local communities and future residents of the new settlement.

7.30 In relation to rail, Options 1 and 3 benefit from their proximity to Exeter and the series of stations located along the Avocet Line. Cranbrook station is from the closest station to Option 1, providing prospective residents with the opportunity to travel directly to London Waterloo. Option 2 has comparatively poor connections to rail, with the closest railway station being Digby & Sowton. Option 3’s closest station is Topsham.

7.31 The public transport summary score for each of the Options accounts for both bus and rail considerations, and is presented below this accounts for current provision and the ability to deliver suitable future upgrades to incentivise public transport use:

Table 7.3 – Sustainable Accessibility Scoring Assessment – Public Transport

Assessment Category	Option 1	Option 2	Option 3
Public Transport	4	2	5

Source: Hydrock (2022)

Employment Accessibility Context

7.32 In line with the ethos of the 20-minute neighbourhood, the new community will contain a mix of uses that includes employment, and will focus on minimizing external trips. However, the importance of proximity to employment is recognized, as it facilitates sustainable transport modes ensuring that they become viable and realistic modal Options for commuters.

7.33 In all Option locations, sustainable transport links to these employment areas will need to be upgraded to be sufficiently attractive to ensure they are used from the outset of the development, and so the proximity of the locations has been taken as the key comparative difference between the Options.

7.34 Options 1 and 3 benefit from their proximity to Exeter due to the volume of employment opportunities located within the city. The employment centres located in proximity to Option 2 are limited to the Hill Barton and Greendale Business Parks. Option 3 is also located in close proximity to a range of facilities in addition to Exeter (Winslade Park, Topsham Town Centre etc.). Option 1 benefits from the largest amount of employment opportunity which in addition to Exeter include Exeter Airport and the associated Airport Business Park as well as the SkyPark, Science Park and Exeter Business Park/Met Office facility.

7.35 The employment accessibility summary scores reflect the proximity to employment, shown below:

Table 7.4 – Sustainable Accessibility Scoring Assessment – Employment Accessibility

Assessment Category	Option 1	Option 2	Option 3
Employment	5	2	4

Source: Hydrock (2022)

Summary

7.36 The scoring assessment referenced earlier is replicated below.

Table 7.5 – Assessment Criteria and Scoring

Criteria	Scoring
Sustainable transport	Sustainability: High – 5 Medium/High - 4 Medium – 3 Low/Medium - 2 Low - 1

Source: CBRE (2022)

7.37 These scores are presented in the table below.

Table 7.6 – Sustainable Accessibility Scoring – all modes

Assessment Category	Option 1	Option 2	Option 3
Walking	3	1	4
Cycling	3	2	4
Public Transport	4	2	5
Employment	5	2	4
TOTAL	15	7	17
AVERAGE	3.8	1.8	4.3

Source: Hydrock (2022) Note – the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

Key: As a number of assessments inform this technical category the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

7.38 For the avoidance of doubt the average score per Option is used only to identify the Preferred Option/s in the summary section for each technical assessment.

7.39 As can be seen Options 1 and 3 perform strongly across all categories, with Option 3 performing marginally better. Option 2 would require the greatest level of intervention, and provides the lowest opportunity to promote sustainable transport.

7.40 We summarise below the key findings of the assessment of each Options proximity to employment as well as their existing and future potential to accommodate walking, cycling, and public transport. It also summarises the high level consideration of future-proofing for new and emerging modes of transport, which will need to be integrated within the design of whichever Option site is ultimately preferred by EDDC.

Future Proofing

- 7.41 The new community will need to provide for new and emerging transport technologies from the outset – e.g. in the case of Electric Vehicles (EVs) – and should, as far as possible, seek to avoid unintentional constraints on the integration of future technologies as they emerge.
- 7.42 The SAR describes the current EV context for the EX5 postcode area and East Devon more generally. Highlighting the key role of on-plot residential chargers, on-street, and destination public charging in enabling EV uptake in line with National Grid and other's projections. Some of the required provision will be in line with the specifications set out in Building Regulations it is noted that East Devon and the EX5 area in particular has comparatively high EV charging demand which will increase further in the near future.
- 7.43 Research by the RAC Foundation indicates that 29% of the potential future EVs in the area will not have access to an off-street private charger. Using the highest National Grid projection, this would equate to more than 2,500 EVs in the area based solely on current households. Consequently, the number, type and location of EV charging will be a key consideration in the design of the new community, to enable the EV transition in line with policy and demand.
- 7.44 Linked considerations will include the availability of electrical power for EV charging (alongside the site's wider power requirements) and the use of EVs within a shared-mobility solution (e.g. Co-Cars).
- 7.45 Alongside this, the SAR notes the important role of e-bikes and micro mobility (e.g. scooters) within the modal mix for the new community. E-bikes already have a proven role in enabling widespread cycle use, overcoming topographical issues, reducing car usage and encouraging active lifestyles. In respect of micro mobility, it is expected that the forthcoming Transport Bill will build on data from ongoing e-scooter hire schemes, and will legalise private e-scooter usage alongside other micro mobility technologies. The design of the new community will encompass provision for such modes from the outset and into the future.
- 7.46 The SAR also addresses the need for the new community to integrate emerging and future Autonomous Vehicle (AV) technologies which are likely to include private and shared-use road vehicles, public transport vehicles, and delivery drones (ground-based and, potentially, airborne – subject to discussion with Exeter Airport and the relevant authorities).
- 7.47 The need to integrate AVs is not simply a function of technological advances. Rather, the masterplan needs to provide for AVs in a way which benefits all users – e.g. geometry and materials choice can enable both AV movements and also users including pedestrians, cyclists and people with mobility/sensory difficulties – minimising street clutter and maximising clarity in the layout.

8. Highways Impact

Overview

- 8.1 This section of the report explores the highways impacts associated with three potential locations for the new town. The note concentrates on highways capacity and delay, informed by a SATURN traffic model held by Devon County Council (DCC) which has been run by WSP.
- 8.2 The new community will be shaped by a vision which places an emphasis on active travel, greater connectivity and innovative transport technologies, in line with the Exeter Transport Strategy (2021). However the potential impacts that such a development would have on the operation of the local and strategic highway networks remain a key consideration, resulting from the duties set out within Section 16 of the Traffic Management Act 2004:

The network management duty:

(1)It is the duty of a local traffic authority [or a strategic highways company (“the network management authority”)] to manage their road network with a view to achieving, so far as may be reasonably practicable having regard to their other obligations, policies and objectives, the following objectives—

(a)securing the expeditious movement of traffic on the authority's road network; and

(b)facilitating the expeditious movement of traffic on road networks for which another authority is the traffic authority.

(2)The action which the authority may take in performing that duty includes, in particular, any action which they consider will contribute to securing—

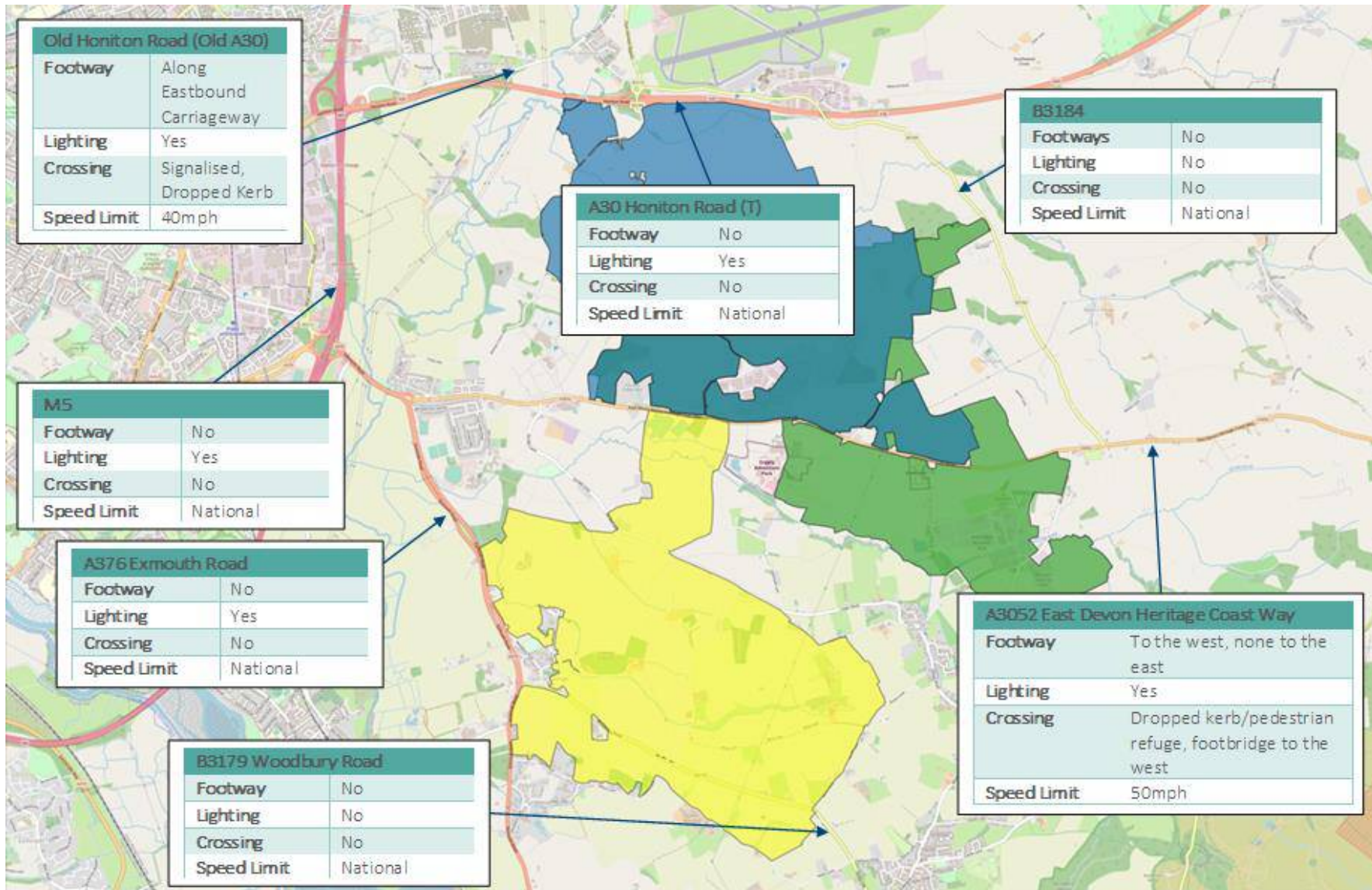
(a)the more efficient use of their road network; or

(b)the avoidance, elimination or reduction of road congestion or other disruption to the movement of traffic on their road network or a road network for which another authority is the traffic authority; and may involve the exercise of any power to regulate or co-ordinate the uses made of any road (or part of a road) in the road network (whether or not the power was conferred on them in their capacity as a traffic authority).

Local Highway Network

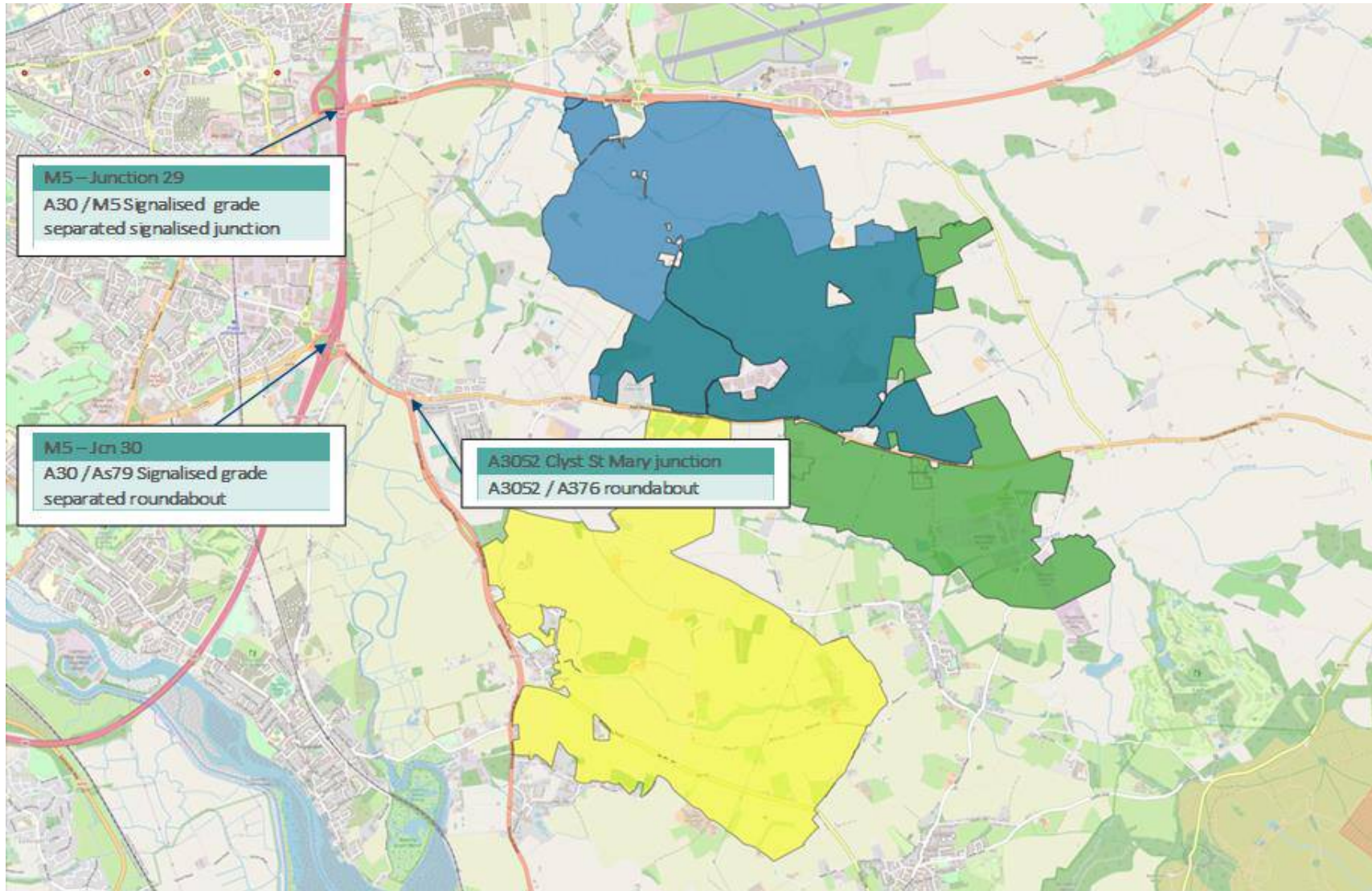
- 8.3 The local highway network in the vicinity of the three Options is summarised at Figure 8.1, with key junctions highlighted in Figure 8.2.

Figure 8.1: Local Highway Network



Source: Hydrock (2022)

Figure 8.2: Key Junctions



Source: Hydrock (2022)

Highways Impact

Introduction

- 8.4 This section has been prepared in liaison with DCC as the Local Highway Authority (LHA). It is based on a modelling report commissioned by DCC from WSP, using DCC's traffic model of the Greater Exeter (GE) area (referred to as the "GE Model") using the SATURN strategic modelling software package.
- 8.5 The GE Model is understood to have been developed by DCC in liaison with National Highways (NH – the Strategic Highway Authority, responsible locally for the M5 and A30). It covers the Local Planning Authority (LPA) areas of Exeter, East Devon, Mid Devon, and Teignbridge, which has a combined population of approximately 475,000 people.
- 8.6 The work commissioned included a review of base year and 2030 forecast models, reflecting the current and anticipated highway conditions, review and modification of the forecasting process, and the production of an updated end-of-Plan 2030 scenario.
- 8.7 The GE base model represents a typical weekday in November 2017, covering the following time periods:
- AM Peak: 08:00 – 09:00
 - Inter-Peak: Average hour 10:00 – 16:00
 - PM Peak: Average hour 16:00 – 18:00
- 8.8 Within the WSP work, the model examines three future development scenarios equivalent to Options 1, 2 and 3, with 2,500 dwellings in each scenario – an assumed level of build-out up to the 2040 end of the Plan period. These developments have a modelled year of 2030, which due to lack of growth on major roads within the model, is stated to be a suitable proxy for 2040 for the local road network. No additional local plan or background growth beyond the existing adopted Local Plans for the districts of Exeter, Mid Devon, East Devon and Teignbridge has been included and the purpose is solely to compare the three options. Junction analysis is included later in this chapter but this is likely to change once this additional development is added into the model which will take place at the next stage of work.
- 8.9 The WSP model report sets out the reasoning for modelling 2,500 dwellings at this time, as opposed to the potential full 8,000 homes within the new community. As confirmed by DCC, the reasons for this include:
- The nature of the DCC model, alongside Local Plan timescales, means that a traditional approach has had to be taken to trip generation, based on typical trip rates for the proposed land-uses. As part of the next stage of work, exploring in more detail the transportation effects of whichever site is preferred by EDDC, the impact of 8,000 homes can be reviewed using a Vision & Validate approach. This would enable greater account to be taken of the trip reduction, mode shift (to sustainable modes)

and internalisation effects that can be achieved as part of the overall masterplan – with ‘economies of scale’ based on the overall quantum of development.

- The existing DCC model has a forecast year of 2030. The timescales for delivering a development of 8,000 new homes are unclear, and the model does not include other future development beyond what is in the current adopted Local Plans for the surrounding districts. Consequently, the simple addition of traffic from an 8,000-home development would not represent the overall future development scenario within East Devon or the wider area, which are currently unknown.
- New national and regional traffic growth projections (‘TEMPRO’) from the Department for Transport become official in November 2022 and include multiple future scenarios reflecting economic, technological, regional and behavioural metrics. This will replace the current version of TEMPRO. The DCC model would need to be updated to reflect the new version of TEMPRO when it becomes current.
- Notwithstanding that the new DfT traffic projections enable forecasting up to 2061, longer-term forecasts in particular need to be treated with caution given the rapid pace and scale of change in travel behaviours and technologies, as well economic factors.
- The existing model cannot take account of the above, meaning that testing a development of 8,000 homes would currently have the potential to result in unrealistic or unsuitable re-routing of vehicles within the model, unreliable results and the potential design of unwarranted or excessive mitigation infrastructure.

8.9 The detailed report prepared by WSP for 2,500 homes is attached as Appendix D and has been approved by DCC. Development impacts have been extracted and summarised within this chapter, which also explores potential mitigation Options.

Option 1

8.10 Option 1 shows relatively small changes in traffic on the M5, A30 and A380, resulting in generally small increases in delay. However M5 J29 sees some increases in delay in the AM and PM models, mostly on the east side of the M5. Clyst St. Mary Roundabout also shows some impacts from the development site, with 33 seconds of extra delay on the westbound approach in the AM model and 35 seconds of extra delay on the eastbound approach in the PM model, plus additional turning delay at the roundabout itself.

Option 2

8.11 Option 2 shows relatively small changes in traffic on the M5, A30, A38, and A380, and minimal changes to delay as a result.

8.12 There are however significant impacts at the Clyst St Mary Roundabout. This sees 277 seconds of additional delay on the westbound approach in the morning peaks and 160 second increases on the eastbound approach in the afternoon peak.

8.13 In addition, there are increases in delay to the east of Exeter, particularly at Bond’s Lane / Woodbury Road junction and at the Topsham Road junction.

Option 3

8.14 Option 3 is similar in terms of its impacts in the morning peak, but sees more significant impacts in the afternoon peak.

8.15 There are minimal overall changes in delay on the mainline at M5 J29 and J30 and on most of the road network to the east of Exeter. M5 J29 and J30 see some increases in delay in the AM and PM models, focused on the east side of the M5 at J29 and the north side of the junction at J30. However, Clyst St. Mary Roundabout shows some significant impacts from the development site, with around 50 seconds of extra delay on both the eastbound and westbound approaches in the AM model and 136 seconds of extra delay on the eastbound approach in the PM model, plus additional turning delay at the roundabout itself.

Summary

8.16 Table 8.1 below summarises the delay impacts identified within the WSP modelling: Impacts have been scored from 1 to 5, with minimal adverse impacts scoring 5, minor impacts 4, moderate impacts 3 and significant impacts 1.

Table 8.1: Highways Delay Impact Summary

Assessment Category	Option 1	Option 2	Option 3
M5 Junction 29	Minimal impact (5)	Minimal impact (5)	Minimal impact (5)
M5 Junction 30	Minimal impact (5)	Minor delay increases (4)	Minor delay increases (4)
M5 Junction 31	Minimal impact (5)	Minimal impact (5)	Minimal impact (5)
A30	Minimal impact (5)	Minimal impact (5)	Minimal impact (5)
A3052	Minor delay increases (4)	Minor delay increases (4)	Minor delay increases (4)
A38 and A380	Minimal impact (5)	Minimal impact (5)	Minimal impact (5)
Clyst St Mary Junction	Moderate delay increases (3)	Significant delay increases (1)	Significant delay increases (1)
East of Exeter Network Impacts	Minimal impact (5)	Significant delay increases (1)	Minimal impact (5)
TOTAL	37	30	34

Source: Hydrock (2022)

8.17 Based on the above, WSP forecasts that Option 1 has the least significant highways impact and it appears that the development of 2,500 new homes up to the end of the Plan period could be accommodated without significant highways interventions. Whilst there would be increases in traffic in some areas, the modelling carried out suggests that these would not lead to significant increases in delays. Minor highways mitigation

works may be needed and could be reviewed and addressed as part of the normal planning process, with no strategic interventions required.

- 8.18 WSP's modelling indicates that Option 3 can also be accommodated with relatively little in terms of mitigation works, with only the Clyst St Mary junction anticipated to see significant delay increases. An improvement of this junction or other appropriate mitigation would be required. It should however be noted that, due to the proximity of the Clyst St Mary junction and the M5 Junction 30, there is likely to be interaction between the two, and increasing capacity at the Clyst St Mary junction may have impacts at Junction 30, with traffic arriving at the junction more freely than it does at present.
- 8.19 Option 2 can generally be accommodated, but has significant impacts at both Clyst St Mary and the East of Exeter road network, with improvements likely to be required at both locations.
- 8.20 It should be noted that the WSP modelling accounts for development traffic up to the end of the new Plan period only. Additional testing would be required in order to determine the potential impact and mitigation requirements for a potential 8,000 new homes. In addition, this is based on only modelling the 2,500 dwellings and not the other allocations in the East Devon Local plan or additional development in Exeter, Teignbridge and Mid Devon. This will take place at the next stage and may change these outputs.

Mitigation Potential

Overview

- 8.21 Table 8.1 sets out the development impact without mitigation (i.e. without making improvements to address the changes to delay). The main individual junction that will require improvement is the Clyst St Mary roundabout. Whilst there are some increases in delay at M5 Junction 30, this is already a significant piece of highways infrastructure, with grade separation, traffic signals and multiple lanes for most movements. It is therefore unlikely that any significant physical capacity improvements could be achieved.
- 8.22 There is likely to be potential to achieve minor improvements to J30 such as more efficient operation of traffic signals or minor changes to lane markings to accommodate heavier traffic movements. These could only be identified through detailed modelling work, so are not considered further in this report – this would be addressed in the next stage of transport assessment work, once a preferred site has been identified by EDDC. However, any physical works associated with these initial minor adjustments to the junction are likely to be minor and deliverable.

Clyst St Mary Roundabout

- 8.23 The existing Clyst St Mary roundabout is a conventional roundabout with two lane entries on the A3076 (west) and A3052 arms, three lanes on the A3076 (south) entry and a single lane on the northern arm. It has a central 'throughabout' lane running from west to east and south. This is not in general use, and is only

opened under supervision of marshals during events at the nearby Westpoint Arena. The junction has an inscribed circle diameter of approximately 80m.

Figure 8.1: Existing Clyst St Mary Roundabout Layout



Source: Hydrock (2022)

Improvement Options

8.24 Five initial Options for mitigation works at this junction have been considered at this stage:

- Signalisation of existing layout
- Signalisation and full use of throughabout
- Replacement with signals
- Removal of northern arm
- Westpoint park and ride

8.25 These are discussed in more detail below. It should be noted that none of these schemes has been subjected to detailed modelling and significant scheme development will still be required as part of future assessment work for the preferred Option site. However, high-level engineering judgement has been applied at this stage to consider whether the schemes would be likely to succeed.

Signalisation of Existing Layout

Potential scheme

- 8.26 The modelling does not indicate overall capacity issues, but rather individual arms experiencing delays due to the tidal nature of the traffic flows. The large size of the junction means that it would be possible to part-signalise it to allow flows to be rebalanced.
- 8.27 With four-arm junctions, the most efficient operation is generally achieved by signalling three of the four arms, with the remaining arm operating on a priority basis (as a conventional roundabout). In this instance, it is likely that the northern arm would not be signalised due to its relatively low traffic flows. A sketch of this arrangement is shown below:

Figure 8.2: Signalised Roundabout Option



Source: Hydrock (2022)

Deliverability

- 8.28 A scheme of this nature would allow capacity to be rebalanced to address the tidal nature of the traffic flows and has a high probability of addressing capacity issues. There is also potential to coordinate the traffic signals with Junction 30 and the Clyst Road signals.

- 8.29 The scheme requires relatively minimal physical works and no additional land. It is therefore considered to be deliverable. Detailed design and modelling would be required to test the circulatory queuing.

Signalisation and Use of Throughabout

Potential scheme

- 8.30 As above, use of the throughabout section could help to address the tidal nature of the traffic flows. A sketch of a potential scheme is shown below:

Figure 8.3: Throughabout Option



Source: Hydrock (2022)

Deliverability

- 8.31 The size of the junction means that stacking capacity for queues would be limited, and it is unlikely that enough queue storage could be provided on the circulatory, leading the junction to 'lock up'. As a result, this is not considered to be a realistic approach.

Replacement with Signals

Potential scheme

- 8.32 Under this Option, the roundabout would be removed and the junction would become a signalised crossroads. Removal of the roundabout would free up a significant amount of highways land, allowing for multiple lanes to be created as required.

Figure 8.4: Signalised Crossroads



Source: Hydrock (2022)

Deliverability

- 8.33 This scheme would be deliverable within highways land, and the amount of space available means that it should be possible to provide adequate capacity. However, the amount of engineering required is significant and, as a result, it is likely that the scheme would be costly to implement.

Removal of northern arm

Potential scheme

- 8.34 Simply removing the northern arm of the junction would reduce the potential vehicle interactions on the roundabout, and in theory should therefore free up some capacity. However, the impacts of this are unpredictable without modelling, as flows may become unbalanced. There would also be a significant impact on residents in the Frog Lane area to the north of the junction, which would now take its main access from the Bishops Clyst priority junction. This may also impact on emergency access to the area.

Deliverability

- 8.35 Removal of the northern arm would be highly deliverable in terms of physical engineering works, but its capacity impacts are unpredictable without modelling. It is also unlikely to be popular with local residents without improvements to the Bishops Clyst junction. Additional traffic would also be forced along Bishops Clyst, which is narrow and goes past a school. As a result, this scheme is not recommended.

Westpoint Park and Ride

Potential scheme

- 8.36 The Westpoint Arena lies to the east of the junction and provides a large, open area with a well-developed access junction. It is well located to intercept trips into Exeter from the east and therefore to limit traffic through both the Clyst St Mary junction and M5 junction 30 Junction. There are already park and ride services operating from the Sowton site, so this route could potentially be extended to the Westpoint Arena, minimizing the number of additional vehicles required.

Deliverability

- 8.37 Physical costs should be relatively minimal due to the infrastructure already in place at the Arena. There would however be an ongoing revenue cost in terms of bus operation and lease / rent of the Arena. In addition, consideration would need to be given to how the park and ride service could operate during events such as the Devon County Show. However, the service could also help people to access these events by bus, so there are benefits for both parties.
- 8.38 This scheme is considered to be highly deliverable, and would be fully policy compliant in terms of encouraging use of sustainable modes. It would also benefit M5 Junction 30.

Clyst St Mary Roundabout

- 8.39 There are a number of potential Options for improvement of the junction, the majority of which are likely to be deliverable. Due to the large size of the junction, acquisition of third-part land is unlikely to be required.

As with any major highways re-design, utilities within the road are likely to be a major risk item in terms of costs and would need to be clarified as part of the next assessment steps. An improvement scheme requiring minimal physical intervention would reduce this risk, so signalisation of the existing layout or creation of a new park and ride are likely to be preferred ways forward. A new park and ride would also encourage sustainable transport use and have a knock on benefit at Junction 30 due to reduced traffic demand. All mitigation options would require detailed design and junction capacity modelling.

East of Exeter Mitigation

- 8.40 The area to the east and south of Clyst St Mary is only significantly affected by Option 2, particularly around Woodbury Salterton and at the A376 junction with Topsham Road. The Woodbury Salterton impacts are likely to be a result of the section of Option 2 that lies close to the village. Due to their proximity to the site, it is likely that these impacts could be addressed through the planning application process, as the minor local roads are likely to require improvement in any event. It is unlikely that a strategic-level highway improvement would be required. However, these highway improvements would be an additional cost on the development, and may therefore affect viability and / or affordable housing provision.
- 8.41 The A376/Topsham Road junction is effectively a mini-roundabout, and is closely fronted by third-party land. A straightforward capacity improvement through the creation of additional lanes does not appear to be achievable within the existing highway boundary. On the southwest corner of the junction, there is an open field, and it would need to be confirmed whether it is possible to obtain part of this to provide room to create either a larger roundabout or signalised junction. The levels and vertical alignment of the field also appear to be favorable to achieve this without requiring highways structures. A sketch of a potential roundabout Option is provided below.

Figure 8.7: A376 / Topsham Road Junction Enlargement



Source: Hydrock (2022)

8.42 In engineering terms, this appears at high-level to be deliverable, but would require acquisition of third party land, which is a risk item. Overall, likely deliverability is considered to be moderate. The scheme would require detailed design and junction capacity modelling.

Summary

8.43 The modelling work undertaken shows that Options 2 and 3 would have traffic impacts at the Clyst St Mary Roundabout, with Option 2 also impacting on surrounding local roads.

8.44 In terms of their highways impacts, Option 1 would be the preferred development scenario, followed by Option 2 and then Option 3. Option 1 appears to require no mitigation measures (other than those that would be addressed as part of the normal planning approval process), Whilst Options 2 and 3 would require improvements at the Clyst St Mary Roundabout, with Option 2 also requiring improvements around Woodbury Salterton and at the A376 / Topsham Lane junction.

8.45 Based on an initial desktop reviews, it appears that, despite their larger delay impacts, it would be possible to mitigate the impacts of both Option 2 and 3 if these were to be taken forward. This would be through either localised capacity improvements or demand reduction schemes.

8.46 As a result, it is concluded that at this stage there are no fundamental highways constraints that would prevent any of the development Options coming forward based on the results of the DCC model run by WSP,

which has tested the effect of 2,500 new homes up to the end of the new Plan period (2040). However, additional modelling will need to be carried out to further test the network at the next stage, including additional local plan growth.

8.47 The table overleaf summarises development impacts, and the likely deliverability of appropriate improvements. Where no improvements are required, deliverability has been scored a 5-4 depending on likely costs and risks, good deliverability a 3-4, moderate deliverability 2-3, poor deliverability scores 1 and a fundamental highways constraint would score 0.

8.48 The scoring assessment referenced earlier is replicated below.

Table 8.2 – Assessment Criteria and Scoring

Criteria	Scoring
Highways Impact	Impact: High – 1 Medium/High - 2 Medium – 3 Low/Medium - 4 Low – 5

Source: CBRE (2022)

Table 8.3: Highways Delay Impact and Mitigation Summary

Assessment Category	Option 1		Option 2		Option 3	
	Impact	Deliverability	Impact	Deliverability	Impact	Deliverability
M5 J29	5	5	5	5	5	5
M5 J30	5	5	4	5	4	5
M5 J31	5	5	5	5	5	5
A30	5	5	5	5	5	5
A3052	4	5	4	5	4	5
A38 & A380	5	5	5	5	5	5
Clyst St Mary junction	3	4	1	4	1	4
East of Exeter Network Impacts	5	5	1	2	5	5
TOTAL	37	39	30	36	34	39
IMPACT & DELIVERABILITY AVERAGE	38		33		36.5	
AVERAGE	4.8		4.1		4.6	

Source: Hydrock (2022) Note – the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

Key: As a number of assessments inform this technical category the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

8.49 Option 1 is preferred in terms of highways impact, followed by Option 3, with Option 2 being least preferred.

8.50 Next steps would be to carry out more detailed modelling at the Clyst St Mary Roundabout and the A376 / Topsham Lane junction based on the flows predicted by updated SATURN modelling, which will include other local plan development. This would allow mitigation schemes to be developed in greater detail to gain an understanding of likely costs and risks. It is also recommended that preliminary discussions are held with the owners of Westpoint Arena to determine the potential to use the site for a park and ride, as this could have wider benefits.

9. Utility and Net Zero Carbon Infrastructure

Introduction

- 9.1 This section of the report provides an overview of the potential capacity of utilities and net zero carbon infrastructure to serve the three Option sites and the potential for these sites to contribute to net zero carbon development. Further detail is provided in Appendix E for utilities and Appendix F for net zero carbon.
- 9.2 The scope of the utilities assessment includes the following utility services:
- Electricity (heat and power);
 - Gas (including district heating);
 - Potable Water;
 - Telecommunications (fibre); and
 - Foul Drainage.
- 9.3 We also consider the impact of a Net Zero Carbon development and climate resilience factors.
- 9.4 Hydrock have undertaken due diligence on utilities for the proposed locations and have investigated whether the existing nearby utility infrastructure could support development. We provide an overview of existing utility services, high level capacity and new supply strategy advice, and advise the extent at which diversionary works might be required.
- 9.5 The primary challenges expected in bringing forward a new settlement in East Devon with respect to utilities will be around capacity and infrastructure to support the increased demand. Early engagement with the utility providers will be key. As well as developing a detailed, thought-out and collaborative strategy that considers both the immediate needs of the site and the local community, and the need for futureproofed utility and energy infrastructure. Taking the development through its years of construction and in-use for years to come.
- 9.6 It should be acknowledged that the opportunities and constraints of the three Options within this report are only marginally impacted by geographical location. An example being the presence of extra-high voltage electricity infrastructure on two of the three sites and not the other. Or proximity to existing clean water trunk mains possibly reducing the distance from the main Source of Water (SoW). This would make an Option slightly more favourable, but would not exclude the other Option from any opportunity, or present an unavoidable obstacle for that Option. A suitable utility strategy would be employed at each of the three Option sites and may face equal challenges, as only marginal differences between the sites.
- 9.7 Within the Utilities assessment in Appendix E, consideration is made for some Options to ensure a futureproofed and net-zero utilities infrastructure delivery strategy, such as incorporation of; Smart micro-grid systems, EV Charging, energy generation and battery storage solutions, as well as Options for

alternative operator/ownership models such as NAVs (New Appointments and Variations), IDNOs (Independent Distribution Network Operator), ICPs (Independent Connection Provider) and ESCos (Energy Services Company).

- 9.8 No infrastructure deemed to be "showstopping" to development has been identified on any three of the Option sites. However, Option 2 does contain a National high pressure gas main which is classed by the Health and Safety Executive as a "major accident hazard pipeline" and poses some considerable design limitations, particularly with regards to proposals for public residence.
- 9.9 It is highly likely all Options will require some level of utility diversion and disconnection to facilitate any new development. Some areas have utility services that are more problematic to divert than others. Equally, some of the areas have services running in existing highways which may help limit the number of diversions required, depending on the proposed masterplans and variations to existing
- 9.10 This assessment is based upon utility information that has been provided by third parties and is a desktop assessment only. The presence of onsite infrastructure should be confirmed by the client's contractors, and safe working practices adhered to at all times. Please note that utility asset information is only valid for three months from the point of issue as networks are constantly changing. Therefore, we recommend updating any enquiries once this time has elapsed.

Utilities Capacity Overview

- 9.11 This section provides an overview of the utility network's capacity in the study area and offers advice on a likely new utility supply strategy for all three Options, before differentiating the Options by their opportunities in this regard.
- 9.12 As stated in the introduction, the geographical location only marginally affects the outcomes of a capacity assessment with a development of this scale. Each of the three Options would proceed with a new supply strategy that will trigger reinforcements and new major infrastructure installations, regardless of site location.
- 9.13 The main differentiator in this case is only proximity to existing Extra High-Voltage (EHV) networks, presenting an option for a bulk Point Of Connection (POC) and land opportunities for new substation infrastructure directly beneath, and similarly, proximity to clean water trunk mains.

Electricity

- 9.14 As part of this report existing capacities on Western Power Distribution's (now "National Grid Electricity Distribution" – referred to as NGED) grid infrastructure have been assessed using Long Term Development Statements and heat maps in order to identify the level of constraint in the local electrical infrastructure, and to identify opportunities for securing capacity.
- 9.15 The full site load of all Option sites is to be determined; however, given the targets for decarbonisation of heat and transport (i.e. the energy strategy would likely incorporate some form of electric heating, either by

Air Source Heat Pumps (ASHPs) or other technology, and the provision of EV charge points for futureproofing), we expect the power load for this development to be significant – in the region of 30MVA to 50MVA.

9.16 This load calculation is based on an assumption that all homes will be electrically heated via air source heat pumps and that each home with an associated car parking space will have a fast EV charge point.

9.17 It is unlikely that the Option sites can be served from the existing available capacity in the grid. Therefore, both reinforcements and new dedicated bulk and primary infrastructure installations are anticipated, and a phased ramp up and use of capacity is recommended in line with the phasing of the development.

9.18 It is expected that the most likely feasible strategy would focus on providing a new Bulk Supply Point (BSP) for the site from a POC to NGED's existing 132kV infrastructure. Timescales for this would need to be determined with NGED once an understanding of the likely phasing is developed.

9.19 A supply for initial phases of the development could potentially be formed via POCs to existing local infrastructure, such as the 11kV, which would not require Primary substation infrastructure. This would also be dependent on capacity available at the time, and/or local HV reinforcements that could be undertaken on the 11kV networks in the short term.

9.20 Engagement with NGED once site loadings are able to be produced will assist in the formation of a strategy, as above, with their own network assessment, commentary and advice.

9.21 NGED have made a number of commitments to deliver a smart and flexible network, which includes a) minimising the requirement for load related reinforcement by adopting a 'flexibility first' approach in order to maximise the utilisation of the existing network; and b) unlocking capacity from the existing grid and therefore the need for reinforcement. This can be utilised with the development of the East Devon settlement to ensure a coordinated, smart and efficient connection strategy is implemented.

9.22 There are two existing BSP substations which provide the greatest opportunity of securing capacity from WPD's grid network for an initial phase of development:

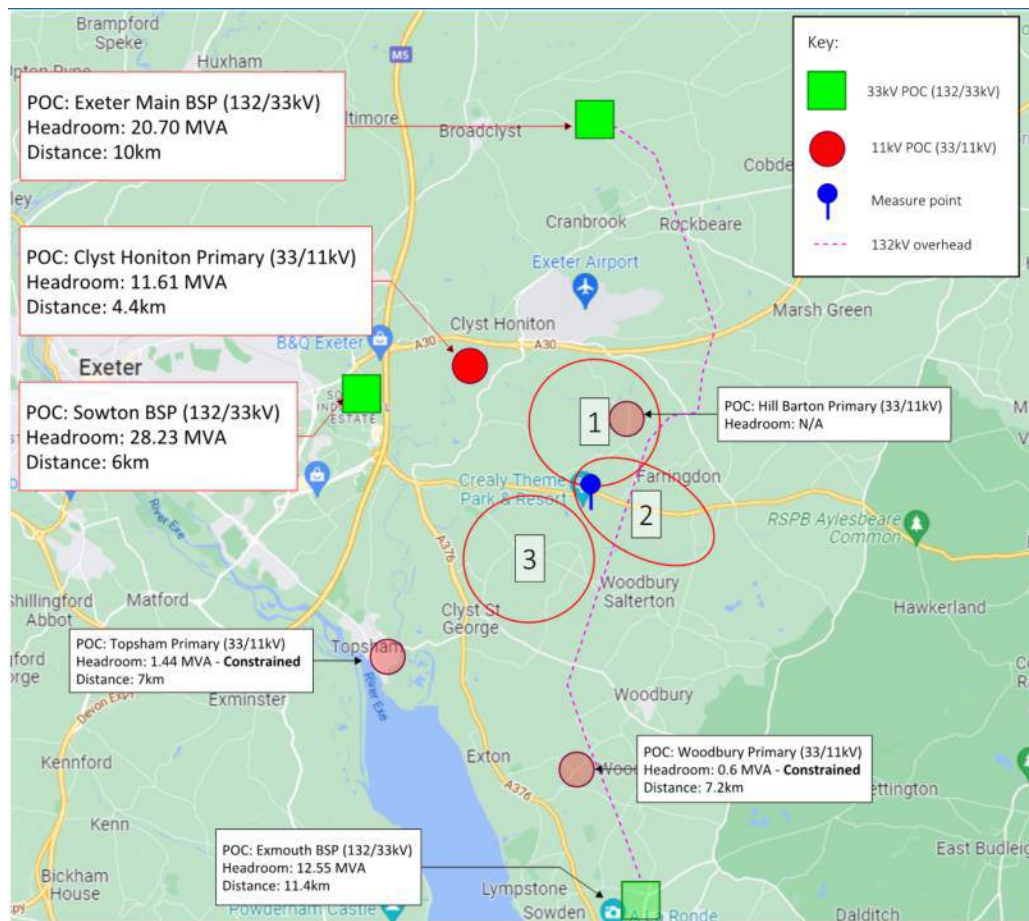
- 1 Sowton BSP, c.6km from site, has ~28.23MVA of capacity available which is a significant amount of power and could certainly serve the earlier phases of delivery;*
- 2 Exeter Main BSP, c.10km to site, has ~20.70MVA of capacity available which is also a significant amount of power which could serve the earlier phases of delivery;*

**Noting this is only a snapshot of the current situation and should be reviewed regularly for changes and updates.*

9.23 On Option 1, there is also a 33kV/11kV Substation 'Hill Barton Primary' which may present an opportunity for early phase connections, however, capacity information on this substation is not currently available. This substation is located within Hill Barton Business Park, so it's expected to be at capacity serving the existing industrial estate and any proposed connections to this would trigger some level of reinforcements. There may be an opportunity to expand this substation however, given that the land is already within NGED ownership.

- 9.24 A Reservation Of Capacity Connection Offer (ROC) could be a suitable Option for EDDC, as the full site capacity could be reserved on NGED’s network, and be delivered in line with the build programme.
- 9.25 With regards to Utility Delivery Models, there are opportunities to engage with Independent Distribution Network Operators to provide an embedded network within WPD’s (now “National Grid”) wider supply area, and offer ‘Asset Value’ discounts under the Competition in Connections (CiC) market that OFGEM commits to as mechanism to benefit consumers through increased quality, or decreased prices, or both. This Option is equally suitable for any site location.
- 9.26 Smart Microgrids also offer an alternative delivery model, benefitting both Net Zero Carbon targets with regards to ensuring renewable electricity generation is maximised and utilised on site within a smart controlled network with storage facilities, as well as lowering site electrical demand and thus slightly less reliance from the Grid or the Distribution Network Operator (DNO) network, and being able to set energy prices for customers through the creation of an Energy Services Company (ESCo). Further benefits are detailed within the Net Zero Carbon Infrastructure section, and within the technical appendices. An overview of the major power infrastructure in reference to all three Option sites is shown below.

Figure 9.1 – Power Infrastructure



Source: Hydrock (2022)

Gas

- 9.27 As of 2025, gas boilers will be banned in the UK for newly built homes. Therefore, it is assumed gas will not be part of the sites heating strategy.
- 9.28 For further commentary on heat sources and Net Zero targets, see the following section on “Contribution to Net Zero”.

Water

- 9.29 South West Water (SWW) is the incumbent water provider for East Devon, who will need to undertake assessments on their network to be able to provide a strategy to move forward with.
- 9.30 It is expected that all three site Options will require a significant level of reinforcements to the potable water network, potentially including offsite trunk main upgrades.
- 9.31 SWW’s strategic team have been made aware of the proposals and have expressed their desire to engage with EDDC to ensure a solution can be offered and infrastructure upgrades undertaken in line with the proposed build programme.
- 9.32 Without undertaking a water load calculation (which requires information currently undeveloped, such as a detailed building schedule or schedule of accommodation), SWW will only be able to comment from a high level perspective on the current state of their networks with regards to new supply provision, trunk main capacity etc.
- 9.33 In order to understand the implications of obtaining a clean water supply from SWW in more detail, a pre-development enquiry will need to be submitted including the expected water loads. For a scheme of this size, it is common for the water utility company to undertake water modelling. This process will allow SWW to assess their network and determine a strategy for how they will supply the site, and where the POC will be, whilst still serving their existing customers without negative affects to their water supply.
- 9.34 Water modelling typically takes 12 months to complete (6 months for modelling and 6 months for detailed design). A further 6 months is estimated for SWW to install the proposed supply solution, although this could extend depending on the level of upgrades needed.
- 9.35 It is unlikely that a site of this size would achieve a POC to a distribution main, but rather to a trunk main with a pressure reduction valve to reduce the water pressure down to be suitable for distributing to residential customers.
- 9.36 There is a key Ductile Iron (DI) trunk main shown to run along the A3052, which is in close proximity to all three Options, and runs directly through Option 2. SWW records also show the presence of a trunk main network shown to run in London Road and Honiton Road, north west of Exeter Airport, which is north-west of Option 1.
- 9.37 Given these locations, each Option is presented with an opportunity to connect to a trunk main, and the reinforcements required to accommodate the new development would not be differentiated between the

Options. The cost of reinforcement works are covered through infrastructure charges. Infrastructure charges are a one off charge, charged by all water companies for first time connections. Each new connection that adds a demand to the water and sewerage network will incur these costs. These charges ensure the upkeep and maintenance of the network.

- 9.38 New appointments and variations (“NAVs”) allow companies to offer water, sewerage or water and sewerage services to a specific geographic area instead of the existing incumbent company. As a result, similarly to the electricity market, developers and large business customers can choose their supplier for these services and enjoy the benefits of this competitive market.
- 9.39 Although the main Source of Water (SoW) will ultimately come from a SWW supply such as a reservoir or trunk main network, the ownership, operation, maintenance and wholesale of the water supply will then be under the chosen NAV. Therefore any issues with supply, quality of service, leaks, faults etc with the new water network will not be with SWW to resolve, but the newly appointed provider. Further detail on the process and list of active NAV operators in the UK is within the Appendix E.

Foul Drainage

- 9.40 An assessment has been made of the potential foul flows that could be delivered by the whole development in order to ascertain the level of impact on the existing sewerage network.
- 9.41 Flows have been calculated using the recommendations contained within the Water UK Sewerage Sector Guidance, Appendix C, Homes & Community Employment Density Guide 2015, Section 4, and the British Water Flows and Loads.
- 9.42 On the basis of the above, the total Peak Flow is predicted to be 422 l/s and the total DWF 79 l/s. This is further broken down in the Appendix E.
- 9.43 It should be noted that this figure may be adjusted subject to discussions with SWW who may have their own factors to apply to large scale developments.
- 9.44 Due to the proximity of the three Option they all fall within the same catchment area for the existing sewerage network.
- 9.45 From an inspection of the SWW sewer record plans, existing foul and combined drainage in and around the development areas all drain generally to the west and ultimately discharge to the Countess Wear treatment works near Topsham. This is done via a mixture of gravity sewers and pumped mains, both foul only and combined systems.
- 9.46 In general, the three Options are in relatively rural settings and therefore there are not significant existing foul/combined drainage networks present. Those systems that are available are of small diameter (150/225mm) and therefore unsuitable to cope with the projected development flows.
- 9.47 At this stage it is anticipated that two opportunities exist for the disposal of foul drainage from all three Options as set out below.

(a) Discharge to Local Watercourse via New Treatment Works

- 9.48 In view of the potential size of the development, it may be considered economic to provide a standalone treatment works which can discharge to the local watercourse network.
- 9.49 Option 1 has a tributary of the River Clyst running approximately through the centre of the site.
- 9.50 Option 2 benefits from the same tributary on its northern boundary as noted for Option 1, and from the Grindle Brook passing through the southern part of the site.
- 9.51 Option 3 has the Grindle Brook passing just within the northern boundary of the site area. An additional watercourse lies within the southern part of the site however it is likely to be too minor and possibly discontinuous to act as a receptor for treated water.
- 9.52 As a very high level guide, a new waste water treatment works may require an area of some 3 ha and have a potential overall cost of circa £10m. This option would also be subject to obtaining the necessary approvals from the Environment Agency.

(b) Connect to Existing SWW Sewerage Network

- 9.53 As noted above, there are existing foul and combined sewers in and around the 3 Options. None at present will be of a sufficient size to cater for the proposed development flows.
- 9.54 Assuming that a point of connection is to be made to the existing network, it is evident that significant upgrades will be required to the system. Under normal charging arrangements, such upgrade works would be carried out by SWW at their own cost under the assumption that they will recoup their costs through standard charges for new house connections. However, this only applies from the point on the existing network where the size of the sewer is 'like for like' for the pipe diameter needed to serve the development on its own. In this instance, and using the estimated flows set out in section 2.2.2 above, this would approximately equate to a 700mm diameter pipe.
- 9.55 From an inspection of the available sewer record plans, there is no point on the existing network where a connection could be made to a 700mm diameter pipe. On this basis the developer would be responsible for all costs relating to the upgrading of the existing network.
- 9.56 The alternative could be to requisition a new outfall sewer purely serving the development site to the treatment works at Countess Wear. Given their relative locations, Option 1 would have a slightly longer distance and therefore potentially greater cost than Options 2 and 3 however this is likely to be relatively insignificant as a whole.
- 9.57 Improvements are likely to be required to the existing Countess Wear treatment works given the scale of the proposed development. These works would be undertaken by SWW as part of their 5 year Asset management Plan (AMP) for the relevant period.

9.58 In the case of all three Options, it is assumed that there will be one main point of discharge, either via a new treatment works specifically for the development, or connection to the Countess Wear works.

9.59 Due to the topography of each of the sites, local pumping stations will be required at a number of locations to convey flows to the main discharge point.

Telecommunications

9.60 Procurement of telecom services is a low-risk item and is relatively straightforward to complete.

9.61 Openreach (who own and manage most of the existing telecoms infrastructure around the UK) along with Virgin Media and an increasing number of independent companies, will install fibre infrastructure to new developments at heavy discounts and rebates based on projected revenue from their new customers.

9.62 The traditional model for servicing a site, and buildings, with telecoms is for the service provider (e.g., Openreach) to run a fibre to a local cabinet (FTTC) and then run copper cables from the cabinet to serve individual units. This generally achieves between 67MBps to 100MBps. The step up from FTTC is fibre to the premise (FTTP), replacing the previous copper cable from the cabinet with a fibre connection. FTTP can provide speeds of up to 950MBps for their Jurassic fibre offer.

9.63 Hyperfast Broadband providers can offer speeds of up to 1GBps and guarantee connections for customers from day 1. These types of providers are enabling a futureproofed digital network within which new communities can be serviced with data connections suitable for a fast-moving data-focused communications landscape.

9.64 All three Options will be equally suitable for competitively tendered fibre offerings given the number of new residential and business customers that will be connecting to the networks.

Existing Utilities Infrastructure

9.65 This section aims to provide an overview of existing utilities infrastructure which may pose constraints predominantly with regards to spatial limitations (i.e. easements and safety clearance distances to be adhered to within layout designs). Thus feeding into the scoring of the Option feasibilities with regards to the extent of the impacts or limitations posed and/or expected financial impact of reducing or removing such constraints through infrastructure diversions.

9.66 Option 2 has the most significant constraints, including a National Grid high pressure (HP) pipeline which is considered by the HSE as a “major accident hazard pipeline” or “hazardous installation”.

9.67 Option 2 is therefore considered to be the least viable for development, although not impossible to proceed with as there are numerous workarounds at the design stage for this constraint.

- 9.68 It is important to note that while existing onsite infrastructure poses some design considerations, in general it also presents opportunities for connections and upgrades to provide for a new town. With a utility requirement this large, a lack of onsite infrastructure would be more problematic than an abundance.

Option 1

- 9.69 Option 1 has a large amount of electrical infrastructure and relatively small amounts of other utilities infrastructure.
- 9.70 A significant number of 11kV & 33kV cabling routes are present throughout the site. As most of the assets do not follow existing highways, it is assumed they are distributed via overhead lines. Therefore, diversions would likely be required to clear them from site or incorporate them into the masterplan with clearance strips.
- 9.71 Hill Barton Primary Substation exists within the Hill Barton Business Park/industrial estate.
- 9.72 A service corridor containing intermediate pressure gas, telecoms and a water main runs through the western half of the area. These mostly run in or near to existing highways and it should be possible to avoid any diversions. However, asset record information is indicative only and although aims to be as accurate as possible, the exact positioning can sometimes differ when onsite investigations are completed i.e. ground penetrating radar surveys or trial holes. Therefore it may transpire that these routes don't fully run in the highways and may require diversions if they cannot be accommodated with the masterplan.
- 9.73 The intermediate gas main could pose a key constraint depending on what portion is outside of the highways, due to the high costs and long timescales to divert.

Figure 9.2 – Option 1 Existing Utility Infrastructure



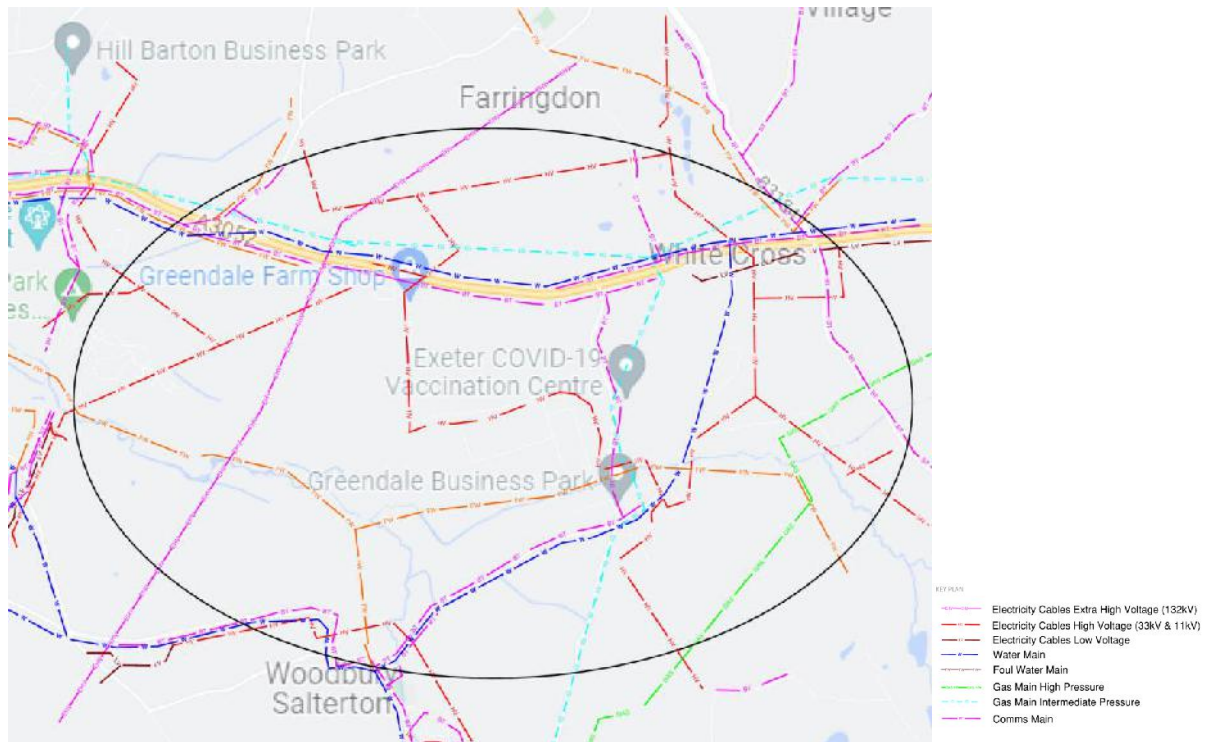
Source: Hydrock (2022)

Option 2

- 9.74 Option 2 has the most significant constraints including a high pressure gas main (HP), intermediate pressure gas mains (IP) gas mains and Extra high voltage electricity cables (EHV) which will need to be designed around due to the cost and time implications of diverting them.
- 9.75 EHV (132kV) overhead cabling routes through the site, which is a spatial constraint. Asset specific clearance distances must be kept between the cables and any permanent structure, and between cables and the ground. Additionally, a 30m zone must be kept free around the base of each tower for access for maintenance.
- 9.76 An intermediate gas main routes through various areas of this site. This could be a spatial design constraint depending on how much runs within highways and what portions impact the masterplan. An easement and no-build strip would need to be considered within any site layout designs.
- 9.77 A wider network of 33kV and 11kV cables are located in multiple locations across the area, which will likely require diversions.
- 9.78 Foul water and potable water mains are present across this area. The potable water mains look to run within existing highways.

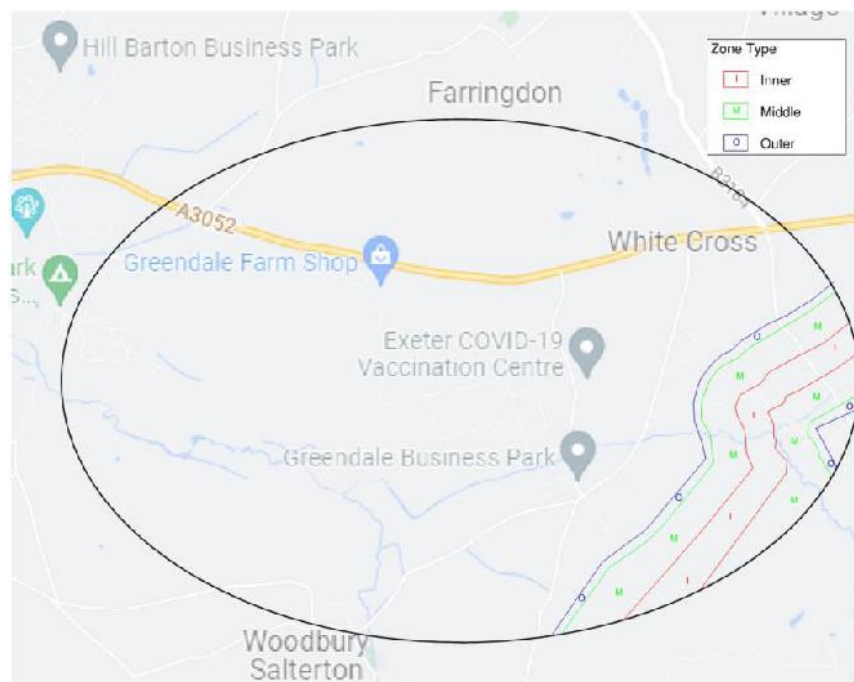
9.79 Comms is present in this area and it's anticipated these will be within existing highways and therefore no diversions will be required.

Figure 9.3 – Option 2 Existing Utility Infrastructure



Source: Hydrock (2022)

Figure 9.4 – HSE consultation zones

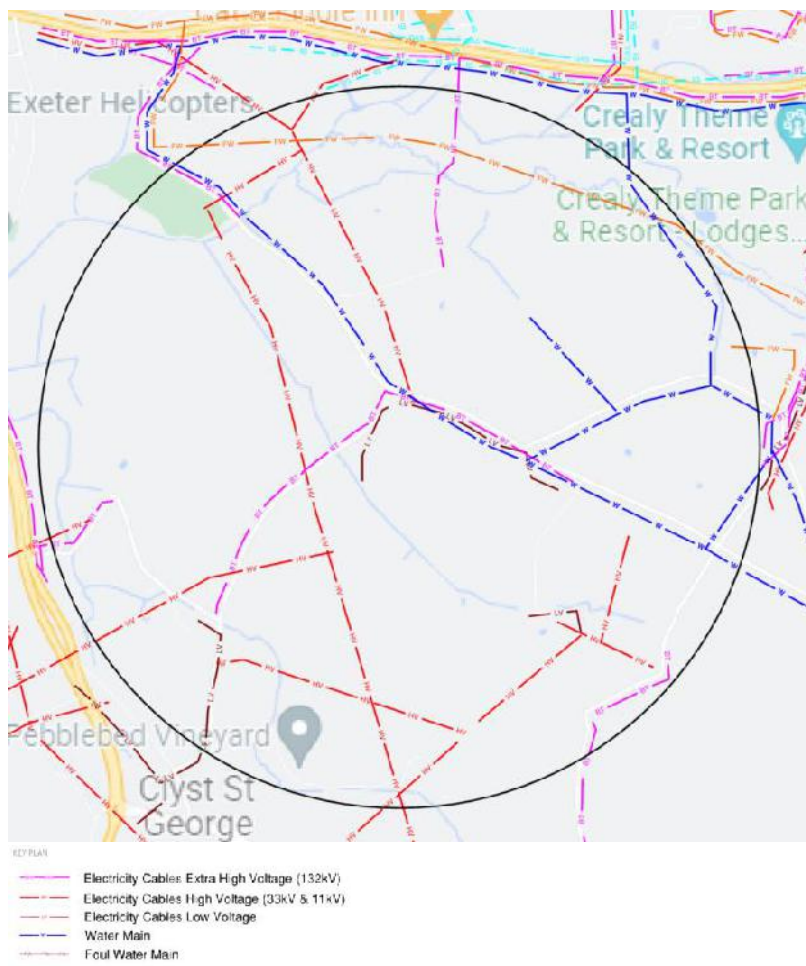


Source: Hydrock (2022)

Option 3

- 9.80 Option 3 has a higher density of services than Option 1 however, a number of these look to run within existing highways and may in turn require a fewer number of diversions.
- 9.81 Various 11kV & 33kV cabling route through the site. As most of the assets do not follow existing highways, it is assumed they are distributed via overhead lines. Therefore, diversions would likely be required to clear them from site or incorporate them into the masterplan.
- 9.82 Multiple water mains are present with a primary route running through the centre of the site. The water mains generally look to be within existing highways which could limit the number of diversions required.
- 9.83 Foul water drainage routes through the northern edge of this area.
- 9.84 A relatively small amount of comms is present and its anticipated these will be within existing highways and therefore no diversions will be required.

Figure 9.5 – Figure 9.3 – Option 3 Existing Utility Infrastructure



Source: Hydrock (2022)

Key Findings - Utilities

9.85 The three Options have been analysed based on the two categories; impact of existing utility infrastructure; and utility capacities or new connection opportunities. The outcome of the scored assessment is provided in the table below.

9.86 The scoring assessment referenced earlier is replicated below.

Table 9.1 – Assessment Criteria and Scoring

Criteria	Scoring
Utility & Net Zero Carbon Infrastructure	Capacity: High – 5 Medium/High - 4 Medium – 3 Low/Medium - 2 Low (limited) - 1

Source: CBRE (2022)

9.87 The outcome of the scored assessment is provide in the table below.

Table 9.2: Utilities – scored assessment

Assessment Category	Option 1	Option 2	Option 3
Utility capacities and opportunities for connection	4 Good opportunity	4 Good opportunity	2 Limited opportunity
Foul Drainage capacities and opportunities for connection	2 Limited opportunity	2 Limited opportunity	2 Limited opportunity
Existing Infrastructure Impact	3 Medium impact	1 Significant impact	3 Medium impact
TOTAL	9	7	7
AVERAGE	3	2.3	2.3

Source: Hydrock (2022) Note – the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

Key: As a number of assessments inform this technical category the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

9.88 Option 1 is the highest scoring site from a utilities perspective due to the relatively minimal impact from existing major infrastructure, whilst also providing an opportunity to connect to WPD’s 132kV overhead for a new Bulk Supply Point to service the site with power.

- 9.89 Option 2 whilst a good opportunity for power connection similar to Option 1, is lower scoring due to the presence of the National High Pressure gas main, which will restrict development and layout.
- 9.90 Option 3 has an extensive amount of existing infrastructure to consider for either diversions to free up developable space, or layout impacts with clearance zones. It does not present as good an opportunity for electrical connection to the 132kV network.
- 9.91 All three Options are constrained for foul drainage capacities due to the rural locations not being served with extensive existing infrastructure. None of the three Options present any better opportunity than the other, with the strategy for providing a connection being the same.

Contribution to Net Zero

- 9.92 The energy and carbon performance expectations for new developments are rapidly evolving as the UK moves towards a legislated net zero commitment by 2050.
- 9.93 At national level, the updated Building Regulations Part L (2021) revised the SAP methodology and carbon factors. The new regulations support the electrification of heat as a result of decarbonisation of the national power grid and a transition away from fossil fuel heating systems i.e. gas boilers. Significant carbon reductions are delivered through very high fabric standards, improved building services and use of on-site low carbon technology such as heat pumps or solar PV systems.
- 9.94 Part L 2021 requires a 31% carbon reduction (on regulated energy uses) when compared to Part L 2013. This is a 'stepping stone' to Future Homes Standard (FHS) which will ensure that all new homes built from 2025 produce 75-80% less carbon emissions than homes delivered under the 2013 regulations. New commercial buildings such as offices and shops must cut emissions by 27% under Part L 2021, as further work is undertaken to set a firm target on carbon reduction requirements within the Future Buildings Standard (FBS) for non-residential buildings.
- 9.95 Based upon expected delivery timescales, the new town for East Devon will require compliance with the incoming Future Homes and Buildings standards as a minimum and must deliver upon the emerging policy requirement for net zero from the outset to ensure that no further energy efficiency retrofit work will be necessary to make buildings zero-carbon as the electricity grid decarbonises.
- 9.96 In terms of industry best practice, Energy Use Intensity (EUI) metrics are used to set a net zero target. EUI, measured in kilowatt hours per m² per year (kWh/m²/annum) is the total amount of energy consumed by a building over a year divided by floor area, allowing easy and direct comparison of building performance and removing 'carbon intensity' which will have less relevance as fossil fuels are removed for heating.
- 9.97 EDDC declared a climate emergency in 2019 and has pledged to become a carbon neutral district by 2040. Based upon 2019 data, more than a quarter of the total CO₂ emissions in East Devon (4.25 tonnes of CO₂ emissions per capita) are contributed by the domestic sector, at circa 1.41 tonnes CO₂ per capita.

- 9.98 Emerging Strategic Policy 26 (Net-Zero Carbon Development) will require that all new residential and commercial development delivers net-zero carbon emissions. In addition, future development must maximise opportunities for delivery of renewable energy, district heat networks, zero-carbon energy and energy storage facilities.
- 9.99 Energy demand reduction provides the greatest opportunity for minimising CO2 emissions, which in turn also helps to address concerns with respect to fuel poverty as buildings with lower energy demand require less heating. This begins with appropriate passive design features at site level such as orientation, form and massing which must be considered from the earliest stages to benefit the masterplanning response.
- 9.100 In addition, carbon sequestration as part of offsetting for net zero in initial phases of development requires further assessment, influenced by the existing landscape and the ecology and biodiversity work by TEP.
- 9.101 Whilst passive design considerations and carbon sequestration contributions to net zero will predominantly be addressed by masterplanning and building performance design at the chosen site, this section considers the site Options in terms of opportunities and constraints for technologies and infrastructure that could contribute to achieving net zero.
- 9.102 Each Option is ultimately provided with a score across three key areas; network capacity (generation), zero or low carbon energy technologies and energy storage.

Network Capacity (Generation)

- 9.103 Given the need to include energy generation within the new town proposals, an assessment of network capacity for export to the national grid is beneficial.
- 9.104 The WPD upstream bulk supply points (BSP) assessed for supply have therefore also been reviewed for generation headroom. Where existing infrastructure cannot accommodate the theoretical output of the energy generation being exported onto its network then the DNO will not allow connection without first upgrading the equipment.
- 9.105 The BSPs from the existing WPD network in the vicinity of the site Options have been assessed for reverse power headroom (the amount of generation that can go back through the transformer) to provide an indication of the capacity for connection of new generators to export to the grid.
- 9.106 The results indicate that the available export capacity at Sowton BSP and Exeter Main BSP is committed by existing connection agreements for generators connecting upstream in the network and that network upgrades will be required to accommodate large scale new generation. This is likely to impact all three Options, noting however that there is some inconsistency with how future export connections and upgrades are presented with some included at a budget application (for which connection dates are often delayed) and some only at formal offer stage.
- 9.107 Whilst the upstream constraints must be acknowledged, at primary substation level there is some export capacity remaining at Clyst Honiston (7.04MVA) and Pinhoe (10.51MVA), both in closest proximity to site Option 1 and also at Topsham (2.37MVA), in relation to Option 3.

- 9.108 Further details are needed in relation to the Hill Barton Primary substation indicated on the WPD network map which would be most easily accessed by site Options 2 and 1.
- 9.109 On-site renewable energy generation 'behind the meter' for self-consumption within the site is more likely to be able to accept a certain level of export limitation (as a result of network constraints) when considering the significant carbon and cost savings against grid supplied power. Solar inverters can also be used to monitor and control the utilisation of power to the site (see Energy Storage).
- 9.110 It may be possible to secure some export capacity so that the limitation process is not activated the moment generation exceeds demand whilst allowing upgrade costs to be avoided or shared between stakeholders though 'fault levels' for the network would also need to be taken into consideration to ensure loss of power to connected customers is avoided.
- 9.111 A WPD budget estimate for the selected Option will inform the solution and provide budgetary costs, however, a formal application will need to be submitted for WPD to determine the exact export solution for the site.

Low or Zero Carbon Energy Technologies

- 9.112 Creating the right low or zero carbon technology mix for the new town will be essential. An emphasis is placed upon technology options that can aid the decarbonisation of heat as well as options for onsite power generation.
- 9.113 There are a small number of energy generation or low carbon heat technologies operating in the wider area including:
- Gorst Energy, Enfield Farm Anaerobic Digestion plant at Oil Mill Ln, Clyst St Mary;
 - Brook Energy, Biomass plant at Hill Barton Industrial Estate (and associated proposals for a 7.5km district heating interconnector from this facility with an available 37Mth of heat).
- 9.114 A public consultation was also undertaken in June 2022 in relation to a large solar farm (29ha) known as Ford Oaks Solar & Green Infrastructure Facility, proposed off Wescott Lane, close to Exeter Airport and Marsh Green village and bounding the A30. The planning application associated with the proposals is yet to be determined by EDDC but has met with a significant level of local objection at this location.

Decarbonisation of Heat

- 9.115 Where housing densities and heat demands are sufficient, low temperature site-wide heat networks, following the Danish model, can provide efficient and cost-effective low carbon heat to homes and buildings.
- 9.116 Air source heat pumps could be equally incorporated across all sites, with potential to install commercial scale heat pumps within energy centres to serve specific phases with a centralised system. It is noted however that when comparing the centralised and decentralised networks, decentralised dwelling level

systems represent the lowest CAPEX when compared to site scale solutions, due mainly to the additional costs associated with the buried district heating network.

9.117 The potential use of ground source heat pumps presents a key opportunity for the new town. There are a number of different ways to implement the technology, some of which may be influenced by the site selection.

9.118 Ground loop systems can operate as follows:

- **Closed loop:** in either horizontal or vertical configuration use the relatively constant temperature of the earth to heat refrigerant fluid instead of the outside air temperature.
- **Open loop:** Extracts groundwater which passes through a heat pump where heat is extracted. Running in reverse during summer months can also 'recharge' the ground, making it easier for a centralised system to work efficiently through the winter months

9.119 Two of the three sites (Options 1 and 3) demonstrate potential locations for open loop ground source technology which could be utilised as part of a technology mix for a low carbon heat network. Option 1 includes areas at the north and west of the location which are underlain by a moderately productive aquifer (12L/s) which is also captured by the western boundary of Option 3. Option 2 is underlain by rocks with no or very low levels of groundwater which would limit ground source heat pump technology potential to closed loop systems.

9.120 Where space is limited, vertical boreholes can be used in place of ground loop systems. This is usually more expensive than digging trenches and borehole depth depends on the heat demand of a property and the underlying site geology. Specialist ground (thermogeological) survey work would be required to confirm the suitability of each Option.

9.121 Hybrid models combining both ground and air heat sources could also be explored further for the chosen site to balance upfront costs with low operating costs, resulting in maximum system efficiency, cost effectiveness, and the potential for net zero emissions.

9.122 Whilst a heat network solution may offer improvements in carbon reductions, this must be considered alongside the potential increased cost of the infrastructure as well as ongoing operation and maintenance of the network. The extensive works undertaken to date by East Devon County Council on the extension to the Monkerton scheme and the connection of the Cranbrook scheme should be taken in to consideration. Heat network delivery, would be influenced further by site phasing and the heating (and cooling) demand profiles within each phase.

9.123 Decentralised dwelling level systems represent the lowest CAPEX when compared to site scale solutions, due mainly to the additional costs associated with the buried infrastructure of a district heat network.

9.124 The previous Low Carbon Study details the potential for Solar Thermal generation following the Danish Solar thermal interfacing with heat networks model. This solution has the potential to benefit any of the three Options however it is highly dependent on the selection of a heat network to deliver heat to the residences.

- 9.125 The selection of this delivery method may be dismissed due to the high capital outlay of the technology. If heat network delivery is a selected technology, solar thermal has the potential to lower heat price tariffs for residents. However, the technology may not be the best use of land if Energy from Waste (EfW) is able to provide the full load heating demand of the development.
- 9.126 Should a heat network not be selected in favour of a low CAPEX alternative, solar thermal should be reconsidered at an individual plot level for residential buildings.
- 9.127 EDDC have undertaken extensive feasibility and development works in relation to a potential heat network connector solution to deliver heat from the Hill Barton Energy from Waste (EfW) facilities which are presently under construction.
- 9.128 The combined heat output of the EfW plants is 37MWth and therefore connecting to this heat supply should be considered during site selection.
- 9.129 Due to the EfW plant location at Hill Barton each of the sites would be suitable for connection to the heat network interconnector/ extension. Option 1 transits the proposed route of the interconnector and is therefore preferred in relation to this technology.
- 9.130 Connecting to this scheme would allow the "PipeCo" (a special purpose vehicle owned by EDDC for ownership and management of the buried infrastructure) and the potential future ESCo operator of the network to provide competitive heat tariffs in line with tariffs proposed for the existing users and with the potential benefit of reductions due to the economy of scale presented by connecting the new development.

On-site Power Generation

- 9.131 For solar, all three Options fall within the areas previously assessed EDDC Low Carbon Study as suitable for solar energy. The suitable areas identified within the study highlight that Option 1 has reduced overall coverage of suitability for solar and this may also be affected by proximity to Exeter Airport as further assessment with regard to glint and glare is likely to be required for significant solar arrays. All Options will require also further consideration of landscape and visual impacts.
- 9.132 Where possible within the constraints of identified land, ground mount arrays are recommended in order to most easily and efficiently accommodate a site wide power generation approach which could utilise microgrid technology across the development proposals.
- 9.133 Option 2 is in closest proximity to an area identified by the EDDC Low Carbon Study as suitable for wind energy. However, standoff distances to residential properties would need to be carefully considered for the technology, particularly with respect to noise (to meet ETSU-R-97 noise limits). It is unlikely that wind could be deployed at a sufficient scale to address the Additional consideration would also need to be given to the influence that large scale wind infrastructure could have on operations at Exeter Airport.

Energy Storage

- 9.134 Energy storage forms an essential element of the replacement of fossil fuels for heat and transport with renewable or low carbon energy alternatives to allow for intermittent power generation (electrical storage) or to store heat until it is needed (thermal storage).
- 9.135 The draft policies within the emerging Local Plan support proposals for renewable and zero carbon energy storage systems in principle. A number of criteria will need to be met with respect to mitigating landscape impacts, not having an unacceptable impact on designated heritage or nature sites and not emitting excessive noise which would harm amenity for nearby residents.
- 9.136 Should EDDC select the EfW energy strategy and the connection to the Hill Barton EfW facilities the need for the storage of heat can be mitigated. The Hill Barton facilities are intended to be made up of three heat source EfWs and therefore their operational routines can be coordinated to ensure heat is always available. In spite of this, and should CAPEX permit, we would advocate an amount of thermal storage capacity be installed in the immediate vicinity to the EfW plants. This should be sized to store approximately 1 days' energy supply and will provide an immediate resilience benefit to the project and moving forward it will allow for flexibility and the creation of variable heat tariffs.
- 9.137 Grid connected battery storage naturally compliments on-site generation as it provides a platform for moderating and managing the intermittency of renewable technologies and providing a number of benefits for development:
- Flexibility to match generation and demand;
 - Shift generated energy from off peak times to when it is needed;
 - Grid stabilisation to maintain voltage and frequency levels;
 - Continued resilience of supply in the event of grid failure; and
 - Rationalising on-site generation from PV and use of renewable electricity.
- 9.138 These grid connected ('In front of the meter') battery storage solutions are essentially viewed as generators and the demand and export capacities are critical components of viability. Based upon the assessment undertaken, grid connected batteries is not currently recommended at any of the Option locations.
- 9.139 With respect to 'behind the meter' applications, all Options have the potential to use battery storage in 'island mode' and as part of a microgrid solution for the development. Further detail on development mix and phasing is needed to undertake a more detailed assessment.

Key Findings – Net Zero Carbon

- 9.140 The three Option have been analysed based on three categories; impact of existing utility infrastructure; and utility capacities or new connection opportunities
- 9.141 The scoring assessment referenced earlier is replicated below.

Table 9.3 – Assessment Criteria and Scoring

Criteria	Scoring
Net Zero Carbon Infrastructure	<p>Contribution to Net Zero:</p> <p>Low exposure/vulnerability or high opportunity – 5 Low-medium exposure/vulnerability or medium-high opportunity - 4 Medium exposure/vulnerability or medium opportunity – 3 Medium-high exposure/vulnerability or low-medium opportunity - 2 High exposure/vulnerability or low opportunity – 1</p>

Source: CBRE (2022)

9.142 The outcome of the scored assessment is provided in the table below.

Table 9.4: Contribution to Net Zero - scored assessment

Assessment Category	Option 1	Option 2	Option 3
Network Capacity (Generation)	2	2	2
Low or Zero Carbon Energy Technologies	5	2	4
Energy Storage	3	3	3
TOTAL	10	7	9
AVERAGE	3.3	2.3	3

Source: Hydrock (2022) *Note – the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.*

Key: As a number of assessments inform this technical category the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

9.143 Options 1 and 3 both perform strongly in relation to low and zero carbon energy technologies, with Option 1 performing marginally better. Option 2 would require the greatest level of intervention, and in our assessment provides the lowest opportunity to contribute to net zero.

9.144 A number of recommendations are made in the detailed Technical Report provided at Appendix F for further work, much of which is required after site selection in alignment with the masterplanning process.

Climate Resilience

- 9.145 Assessing the impacts of climate change and possible mitigation and adaption measures that can be delivered by strategic development such as the new town is a key opportunity for EDDC.
- 9.146 A regional level climate risk assessment for Devon, Cornwall and the Isles of Scilly (DCIoS) is currently in preparation which will provide strategic level indications of climate risk, sitting above authority level or site-specific assessments. The work is not sufficiently advanced to feed into the Options assessment for EDDC.
- 9.147 Whilst the specific climate change risks and broader environmental, social and economic challenges local to the Options that will be picked up as part of the Sustainability Appraisal work stream will be key to ensuring the future resilience of the new town proposals, there should be consideration of future climate risks to infrastructure within the site selection process.
- 9.148 The latest scientific evidence and industry guidance, including Met Office UK Climate Projections (UKCP18) data, IEMA and UKGBC guidance and the most recent Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (AR6) as well as the ongoing development of the third National Adaptation Programme (NAP3) by Defra have formed the basis of an assessment of future climate risk to infrastructure as relevant to the West End site Options.

Preliminary Climate Risk Assessment

- 9.149 The UK Climate Projections (UKCP) is a set of climate analysis tools and data forming part of the Met Office Hadley Centre Climate Programme that can be used to show how the UK climate may change and aid decision makers in assessing their exposure and vulnerability to future risk.
- 9.150 Given that it is not possible to exactly predict future global GHG emissions, the UKCP18 climate projections make assumptions about the economic, social and physical changes to our environment that will influence climate change and factor in uncertainty.
- 9.151 Representative Concentration Pathways (RCPs) are the established method for capturing those assumptions with a set of global emissions scenarios and are adopted by most climate change reporting and guidance documents. RCPs specify concentrations of greenhouse gases that will ultimately result in a change in global temperature as outlined in the following table.

Table 9.6 – Relative Concentration Pathways

RCP	Change in temperature by 2081-2100 (°C)
RCP 2.6	1.6 (0.9-2.3)
RCP 4.5	2.4 (1.7-3.2)
RCP 6.0	2.8 (2.0-3.7)
RCP 8.5	4.3 (3.2-5.4)

Source: Hydrock (2022)

9.152 Using UKCP18 data, potential future conditions have been established over the assumed construction period (2030-2049) and during occupation, well within the design life of the development (2080-2099) in the RCP 4.5 emissions and central probability (i.e. 50%) scenario.

9.153 Changes to summer and winter temperatures and precipitation levels within the South West are significant when compared to other regions, showing that after 2080, the new town could face an increase in summer mean temperatures of 3.5°C, that the change in winter precipitation is predicted to increase by 16% and that summer mean precipitation is predicted to reduce by 29%. In addition, the frequency of extreme weather events is likely to increase across the UK.

9.154 Based upon this, key climate drivers and physical risks for more detailed consideration of potential infrastructure implications across the Options are:

- **Drought:** reduced water availability, ground movement/subsidence, soil erosion and reduced ground permeability
- **Heatwaves:** extreme or prolonged high temperatures, wildfires
- **Extreme precipitation:** ground saturation/increased surface water runoff, soil erosion
- **Storm events:** high winds, soil erosion

9.155 Further desktop analysis across the range of topics above has been undertaken to understand exposure and vulnerability and potential additional impacts to infrastructure beyond those caused by (though in some cases linked to) higher temperatures and changes in rainfall at the three Options.

Drought

9.156 Desktop analysis of water availability, ground movement and subsidence, and ground permeability has informed this aspect of assessment in relation to risks to infrastructure from drought.

Water Availability

- 9.157 SWW Drought Plan was updated in September 2022 and confirms that all three Options sit within the Colliford Water Resource Zone (WRZ). Within the supply area, surface water abstraction dominates, with 90% of total abstraction being from rivers and reservoirs with a 50:50 split (accounting for some variation depending on the weather experienced). Groundwater abstraction accounts for the other 10% and these groundwater sources are more likely to be constrained by licence than water availability.
- 9.158 SWW operate a conjunctive use system with links between and within WRZs, which enables transfer of water from less stressed to more stressed areas and optimisation and use of existing resources prior to the need for drought management actions.
- 9.159 SWW also have a detailed Climate Adaptation Plan in place, published in December 2021 which highlights the following measures in response to risks to public supply as a result of drought and low river levels:
- 50% leakage reduction plan
 - New resource development
 - Smart metering
 - Smarter operation
 - Helping customers to use less water
- 9.160 As detailed within the Utilities report with respect to potable water supply, SWW's strategic team have been made aware of the proposals and have expressed their keenness to engage with EDDC on infrastructure upgrades. It is recommended that these discussions consider opportunities to action some of the above measures in tandem with the new town development.
- 9.161 Options 1 and 3 may have increased opportunity for new ground water abstraction resource development. All Options may contribute to leakage reduction where the inclusion of new water supply infrastructure could also give rise to leakage detection and planning for repair activities

Ground movement/subsidence

- 9.162 Certain soil types are more susceptible to ground movement and subsidence , including clay, silt, sand and gravel soils.
- 9.163 Clay and silt are 'cohesive' soils, which means that their volume will vary depending on their moisture content – they'll swell when wet and shrink when dry. As many as 75% of UK ground subsidence cases are caused by soil shrinkage and as the UK climate warms, these soils will be more at risk of shrinkage.
- 9.164 Sand and gravel are non-cohesive soils, which means that they don't vary in size depending on moisture content but can be washed away by water flow putting them at higher risk during periods of heavy rain or flooding, or if they are located near a body of water.

- 9.165 The UK Soil Observatory (UKSO) mapping from the British Geological Society has provided the underlying conditions of the sites Options as a strong indicator of future vulnerability. The same mapping is also utilised as an indicator of the permeability and saturation of the ground in relation to risk from extreme precipitation.
- 9.166 Option 3 contains the largest mix of soil types, both sand and loamy clay based which may present additional challenges or require a variety of design approaches in terms of mitigating the effects of future climate change against subsidence that could impact subterranean and surface infrastructure.

Heatwaves

- 9.167 Desktop analysis of the risks to infrastructure from heatwaves has been undertaken through a qualitative consideration of extreme or prolonged periods of high temperatures and wildfires. No further assessment has been undertaken in relation to the site Options at this stage in relation to heatwaves.

Extreme or prolonged high temperatures

- 9.168 Infrastructure operators are on the frontline of efforts to ensure we are resilient to extreme weather including extremes of temperature. The majority of Distribution Network Operators (DNOs) have well progressed adaptation plans in place or in preparation.
- 9.169 The WPD Climate Resilience Strategy has included an initiative to ensure that new overhead lines are designed to a higher temperature rating by specifying taller poles to allow for more conductor sag whilst maintaining clearance requirements.
- 9.170 An information request was submitted to WPD to obtain additional data on heat impacts to the WPD network to ensure detailed power network risks are identified and reviewed following site selection. This request has not yet been fulfilled.
- 9.171 Consideration should be given to on-site energy infrastructure such as batteries and energy compounds which may operate independently of the DNO. No further assessment has been undertaken in relation to the site Options at this stage.

Wildfires

- 9.172 In July 2022, the Devon and Somerset Fire and Rescue Services attended 322 fires in the open against a five-year average for July of 272. The risk of fires in the open is affected by the weather and the type of vegetation but are of note due to the potential severity of the impact to energy and transport infrastructure where they cannot be controlled.

Extreme precipitation

- 9.173 Desktop analysis of surface water and water soil erosion has informed this aspect of assessment in relation to risks to infrastructure from extreme precipitation.

Surface Water

- 9.174 In the Climate Resilience Strategy published by Western Power Distribution (WPD) in June 2021, it is noted that predicted surface water and flood risk impacts are an important consideration when planning new installations or safeguarding existing key equipment. The flood protection currently provided is designed to be resilient to the end of this century based upon current Environmental forecasting models.
- 9.175 When social flood risk index information is overlaid upon EA recorded flood outlines there is an indication that Option 3 presents the greatest risk of increased future surface water impacts as a result of development where no mitigation is in place as a result of drainage infrastructure design.

Soil Erosion (water)

- 9.176 Mapping information (UKSO) has confirmed the water erosion risk to bare soil across all the Options.
- 9.177 Option 1 appears least favourable here, given the presence of significant areas of moderate and high risk. Option 3 is the least constrained from a soil erosion perspective.

Storm Events

- 9.178 Desktop analysis of the risks to infrastructure from storm events has been undertaken through a qualitative consideration of high winds, lightning and wind soil erosion. No further assessment has been undertaken in relation to the site Options at this stage in relation to storms.

High winds

- 9.179 In the UK, most wind-driven rain is associated with winter storms and the intensity and frequency of these will increase which will in turn lead to an increased risk of wind driven rain.
- 9.180 Projections for wind-speed are less clearly defined within UKCP18 but an increase in wind-driven rain should be considered as this also increases the risk of water penetration of vertical structures.
- 9.181 An information request was submitted to WPD to obtain additional data on storm impacts to the WPD network to ensure detailed power network risks are identified and reviewed following site selection. This request has not yet been fulfilled.

Soil Erosion (wind)

- 9.182 The UKSO mapping includes information on wind erosion risk to bare soil.
- 9.183 Whilst the future conditions at the new town are unlikely to be bare soil, this information is useful to determine the vulnerability of each site to this risk and potential impact upon the design and cost of key site infrastructure.
- 9.184 Options 1 and 3 are similarly affected by areas prone to soil wind erosion. Option 2 is the least constrained from a wind soil erosion perspective.

Key Findings – climate resilience

- 9.185 Each site has been assessed qualitatively for its ability to respond to a variety of risks to infrastructure as a result of future climate change, based upon existing conditions and how these may be impacted by a changing climate.
- 9.186 Further detail is provided within the Technical Report provided at Appendix F alongside considerations for further work, following site selection, in alignment with the masterplanning process to ensure that the new town is climate resilient.

Table 9.7 – Assessment Criteria and Scoring

Criteria	Scoring
Net Zero Carbon Infrastructure	<p>Climate Resilience:</p> <p>Low exposure/vulnerability or high opportunity – 5</p> <p>Low-medium exposure/vulnerability or medium-high opportunity - 4</p> <p>Medium exposure/vulnerability or medium opportunity – 3</p> <p>Medium-high exposure/vulnerability or low-medium opportunity - 2</p> <p>High exposure/vulnerability or low opportunity – 1</p>

Source: Hydrock (2022)

- 9.187 To quantify the assessment in relation to the site selection process, the table below shows the assessment of each site Option against key considerations at site level, utilising the performance scale outlined above where a score of 5 represents low exposure/vulnerability or high opportunity.
- 9.188 In terms of future climate risk for infrastructure, Option 2 has been assessed as the best performing Option on the basis that it provides the highest overall level of resilience through lower exposure and/or vulnerability.
- 9.189 All Options would be likely to require further consideration of soil geology which factors into a significant number of risks.

9.190 Any Option which brings forward ground mount solar PV arrays at scale should consider any additional risk or additional drainage design mitigation to ensure future resilience against surface water runoff from the panels.

9.191 Any potential interaction of surface water drainage, power distribution and access and movement strategies for the selected site must be a key consideration during the masterplanning activities to ensure that the site is not locked in to an approach that could trigger cascading failures to infrastructure networks over the long term.

Table 9.8 - Climate Resilience Performance Summary

Future Climate Risk	Key Considerations for Infrastructure	Option 1	Option 2	Option 3
Drought	water availability	4	3	4
	ground movement/ subsidence	3	4	2
	soil erosion (water)	2	3	5
	ground permeability	3	4	2
Heatwaves	extreme or prolonged high temperatures	not assessed	not assessed	not assessed
	wildfires	not assessed	not assessed	not assessed
Extreme precipitation	surface water	2	3	2
	Ground saturation	3	4	2
Storm events	high winds	not assessed	not assessed	not assessed
	Soil erosion (wind)	2	3	2
TOTAL		19	24	19
AVERAGE		2.7	3.4	2.7

Source: Hydrock (2022) Note – the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

Key: As a number of assessments inform this technical category the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

10. Deliverability

Introduction

- 10.1 This section provides an overview of the factors that could impact on deliverability as identified in the technical assessments. These are not scored, else it would duplicate the scored assessments prepared for each of the technical assessments as identified in the previous sections of this report.
- 10.2 The scored assessment here focuses on deliverability in terms of land ownership and existing land use only.
- 10.3 A high level summary of the deliverability factors from each technical assessment that need to be considered and appropriately mitigated in the masterplanning of the Preferred Option are provided below.

Landscape

- 10.4 The Landscape Sensitivity Assessment found that all of the Options contain a number of sensitivities, such as the character of rural lanes, the presence of large trees and hedges, and the character of existing historic settlements on the peripheries. Most of the Options are visible from surrounding high land, including parts of the East Devon AONB.
- 10.5 The landscape sensitivities are very variable across each of the Options. There are a number of general sensitivities which occur within all the options, such as the character of rural lanes, the presence of large trees and important hedgerows, and the character of historic settlements around their peripheries. There are also some particular sensitivities unique to each Option.
- 10.6 Unique sensitivities for Option 1 are the quality and integrity of the historic rural landscape and associated Holbrook river corridors which flow east-west through the middle of the defined area. Option 2 includes land at its eastern end which has the highest elevation within the study area which is widely visible in the surrounding landscape. It also overlaps with Option 1 to include sensitive land within the Holbrook area. For Option 3 particularly high sensitivity occurs in the south (along the Ebford slopes and the ridge followed by Woodbury Road) which has intervisibility with land to the south and the East Devon AONB, and in the east (towards Woodbury Salterton) where the land is relatively steep and elevated with intact medieval field patterns. The setting of Clyst St George, in the south-west of the Option, is also sensitive.

Ecological Impact/Biodiversity

- 10.7 The Options have relatively few absolute ecological constraints, and such constraints can typically be accommodated within a sensitively-designed green and blue infrastructure framework.

- 10.8 The landscapes to the west and east of all Options have particular local, regional, national and international significance for wildlife, including mobile species with particular seasonal sensitivities which would need to be mitigated.
- 10.9 Option 3, closest to the Exe Estuary (400m to the south) is more vulnerable than the other two Options and would require significant ecological management zones to be provided within its boundary. Opportunities for biodiversity gains would be presented and delivered by Option 1 and Option 3 for the Clyst Regional Valley Park, lands identified within network enhancement or expansion zones, SANGS and flood zone land.
- 10.10 Opportunities to strengthen and/or diversify the ecological network should be sought within the Preferred Option area, making use of existing habitats and features and seeking opportunity to expand habitat or create new habitat to contribute towards biodiversity gains.

Other Environmental Constraints

- 10.11 All Options have land within Flood Zones 1-3 but as the majority is within Zone 1 this is a low to medium flood risk. Any land at risk from flooding will need to be incorporated into well designed and implemented drainage and water mitigation strategies and the land used for space for SANGS and biodiversity gains during masterplanning of the Preferred Option.
- 10.12 In terms of minerals all Options were identified as outside of coal mining areas and Options 1 and 3 have no nitrate and phosphate areas identified. Option 2 is the most constrained as it contains zones for water source protection, nitrate vulnerability and an area of medium priority for phosphates. Impacting both Options 1 & 2 there is a mineral safeguarding zone at the Hill Barton industrial estate and an established strategic waste facilities at both Hill Barton Business Park and Greendale Barton. These factors will need to be assessed and mitigated during masterplanning of the Preferred Option.
- 10.13 With regard to the historic environment there are Grade II listed buildings (three maximum) in the Options. The land budget does exclude these alongside other historic buildings and registered parks/gardens. It is though recognised that the potential impact upon the setting of those places will need to be addressed as part of the masterplanning of the Preferred Option.

Sustainable Accessibility

- 10.14 All of the Options are located in predominantly rural locations with internal pedestrian connectivity presently relatively undeveloped. The new community will require a network of convenient, direct, permeable, safe and easy to navigate pedestrian routes that are able to accommodate the needs of all users.

- 10.15 The proposed Clyst Valley Trail offers a north/south link adjacent to Exeter's eastern boundary and within the vicinity of Options 1 and 3. The topography of Option 2 poses a challenge to a potential pedestrian route of this nature.
- 10.16 The Local Highway Network in the vicinity of the Options has limited dedicated cycling infrastructure, but the rural nature of many of the local lanes results in relatively low traffic volumes, meaning that they can be suitable for cyclists. Each Option would benefit from the inclusion of an on-site mobility hub to facilitate these emerging modes of travel. Option 3 is the most sustainable for cycling.
- 10.17 All three Options are expected to need improvement to local bus services. Analysis has demonstrated that given the size of the development, a c.10-minute frequency service for the development is likely to be commercially viable. This, coupled with the upgrading of existing bus stop facilities, would provide a significant enhancement on the existing services within the area of all three Options, for both existing local communities and future residents of the new settlement.
- 10.18 In all Options sustainable transport links to employment areas will need to be upgraded to be sufficiently attractive to ensure they are used from the outset of the development, and so the proximity of the locations has been taken as the key comparative difference between the Options.

Highways

- 10.19 Option 1 has the least significant highways impact and it appears that the development of 2,500 new homes up to the end of the Plan period could be accommodated without significant highways interventions. Whilst there would be increases in traffic in some areas, the modelling carried out suggests that these would not lead to significant increases in delays. Minor highways mitigation works may be needed and could be reviewed and addressed as part of the normal planning process, with no strategic interventions required. Option 1 would be most preferred in terms of highways impact, followed by Option 3, with Option 2 being least preferred.
- 10.20 The modelling work undertaken shows that Options 2 and 3 would have traffic impacts at the Clyst St Mary Roundabout, with Option 2 also impacting on surrounding local roads. In terms of their highways impacts, Option 1 would be the preferred development scenario, followed by Option 2 and then Option 3. Option 1 appears to require no mitigation measures (other than those that would be addressed as part of the normal planning approval process) Whilst Options 2 and 3 would require improvements at the Clyst St Mary Roundabout, with Option 2 also requiring improvements around Woodbury Salterton and at the A376 / Topsham Lane junction.
- 10.21 Based on an initial desktop review, it appears that, despite their larger delay impacts, it would be possible to mitigate the impacts of both Option 2 and 3 if these were to be taken forward. This would be through either localised capacity improvements or demand reduction schemes.

Utilities

- 10.22 Option 1 has relatively minimal impacts from existing major infrastructure, whilst also providing an opportunity to connect to WPD's 132kV overhead for a new Bulk Supply Point to service the site with power. Option 2 whilst a good opportunity for power connection similar to Option 1 includes the presence of the National High Pressure gas main, which will restrict development and layout. Option 3 has an extensive amount of existing infrastructure to consider for either diversions to free up developable space, or layout impacts with clearance zones, and also does not present as good an opportunity for electrical connection to the 132kV network.
- 10.23 All three Options are constrained for foul drainage capacities due to the rural locations not being served with extensive existing infrastructure with a connection being required for all Options.

Net Zero

- 10.24 Specifically at primary substation level there is some export capacity remaining at Clyst Honiston and Pinhoe both in closest proximity to Option 1 and also at Topsham in relation to Option 3.
- 10.25 Options 1 and 3 demonstrate potential locations for open loop ground source technology which could be utilised as part of a technology mix for a low carbon heat network. Option 1 includes areas at the north and west of the location which are underlain by a moderately productive aquifer (12L/s) which is also captured by the western boundary of Option 3. Option 2 is underlain by rocks with no or very low levels of groundwater which would limit ground source heat pump technology potential to closed loop systems.
- 10.26 Due to the EfW plant location at Hill Barton each of the Options would be suitable for connection to the heat network interconnector/ extension. Option 1 transits the proposed route of the interconnector and is therefore preferred in relation to this technology.
- 10.27 For solar, all three Options fall within the areas previously assessed EDDC Low Carbon Study as suitable for solar energy. Option 1 has reduced overall coverage of suitability for solar and this may also be affected by proximity to Exeter Airport as further assessment with regard to glint and glare is likely to be required for significant solar arrays. All Options will require also further consideration of landscape and visual impact. Option 2 is in closest proximity to an area identified by the EDDC Low Carbon Study as suitable for wind energy.
- 10.28 With respect to 'behind the meter' applications, all Options have the potential to use battery storage in 'island mode' and as part of a microgrid solution for the development. Further detail on development mix and phasing is needed to undertake a more detailed assessment.

Climate Resilience

- 10.29 All Options would be likely to require further consideration of soil geology which factors into a significant number of risks.
- 10.30 Any Option which brings forward ground mount solar PV arrays at scale should consider any additional risk or additional drainage design mitigation to ensure future resilience against surface water runoff from the panels.
- 10.31 Any potential interaction of surface water drainage, power distribution and access and movement strategies for the selected site must be a key consideration during the masterplanning activities to ensure that the site is not locked in to an approach that could trigger cascading failures to infrastructure networks over the long term.

Land Ownership

Option 1

- 10.32 A large proportion of land in this location is being promoted by a single entity. The majority of the land owners are known and it would appear that there are few constraints in assembling sufficient quantum of land. However there may be conflicts between the dominant land promoters who ultimately need to work together to bring the majority of this option forward. The control of land was one of the key learning points from the ten year review of Cranbrook.
- 10.33 The land is located within an aerodrome safeguarding zone and the northern part of the site is within the 57db noise contours from the airport/A30 which would need to be factored into masterplanning.

Option 2

- 10.34 The land is in multiple ownerships with some landowners known and two areas being promoted by different entities. Significant land assembly would still be required to enable this Option to come forward and gain the required level of control. This therefore presents a deliverability risk. Parts of the land take incorporate designated employment areas and they will need to be sensitively integrated into the settlement.
- 10.35 The land is located within an aerodrome safeguarding zone which would need to be factored into masterplanning.

Options 3

- 10.36 The majority of the land owners are unknown and significant land assembly would be required to package an appropriate quantum of land together. Significant land assembly would still be required to enable this Option to come forward and gain the required level of control, which is therefore a deliverability risk. As a high percentage of land owners are unknown this increases the risk of having land owners who may be resistant to large scale development.
- 10.37 The land is located within an aerodrome safeguarding zone which would need to be factored into masterplanning.

Existing Land Use

- 10.38 As referenced earlier in this report a number of refinements were made before confirming the broad location of the three Option sites. These ensure that the existing settlements in the area would not be subject to convergence with the potential new community. Where the Options do abut existing settlements, the intention at the masterplanning stage of the project will be to ensure that adequate separation, through a substantially sized landscape buffer, is provided to respect the character of the existing settlements.
- 10.39 The three site locations have been developed to provide as far as possible nucleated, compact settlements. This form of development is conducive to the application of active travel measures.
- 10.40 The boundaries for the three site locations have been defined using landscape features, including existing watercourses, field boundaries and hedgerows, to create rational settlement edges.
- 10.41 In addition a number of other areas have been excluded from the circa 521 ha land take for all options including flood zone land as far as possible but it is recognised that this land could be used for BNG, nature recovery and integrated water management if required and land and property within the historic environment.
- 10.42 Land has also been removed for economic and social reasons i.e. existing established business/ leisure operators where it would be prohibitive to relocate and bad neighbours uses, these include:
- Land west of Crealy (all Options).
 - Crealy Adventure Park (close to Option 1).
 - Hill Barton Business Park and Greendale Business Parks (close to Options 1&2).
 - Large group of buildings to the south east of the junction between the A3052 and Oil Mill Lane including a commercial scale anaerobic digester plant with associated noise and smells which may make siting homes close by difficult for environmental reasons (close to Options 2&3).
 - Exeter Athletic Rugby Club - recently developed at substantial cost (close to Options 2&3).

- Exeter City FC training pitches (close to Option 3).

10.43 It is acknowledged that there are a number of bad neighbour uses in all of the Options, specifically including the waste transfer facility at Hillbarton which is in Options 1 and 2. It is understood that the landfill element is coming to an end with an energy from waste (EFW) plant to be built in this location in due course. This EFW plant could provide waste heat to our existing and future district heating networks. If this and other bad neighbour uses were retained they will need a suitably sized buffer between themselves and the residential development and this will be dealt with through the master planning.

10.44 For the avoidance of doubt some of these land areas are shown in the indicative plans as being within the site area of the Option but do not form part of the circa 521 hectares required. At this level of detail it is not possible to show this separation but this will form part of the masterplanning undertaken for the Preferred Option in 2023.

Summary

10.45 The scoring assessment referenced earlier is replicated below.

Table 10.1 – Assessment Criteria and Scoring

Criteria	Scoring
Deliverability to include land ownership, presence of businesses/other land uses that need to be relocated and proximity of development to bad neighbours i.e. noise/traffic etc	<p>Impact:</p> <p>Limited i.e., simple land ownership, all land put forward in call for sites, majority of landowners known, few businesses to relocate – 5</p> <p>Limited to Medium - mixed land ownership, majority of landowners known, all land put forward in call for sites, few businesses to relocate – 4</p> <p>Medium i.e., mixed land ownership, majority of land put forward in call for sites, but some land assembly needed, some landowners known, some businesses to relocate – 3</p> <p>Medium to Extensive - complicated land ownership, few landowners known, some land put forward in call for sites, but land assembly needed, lots of businesses to relocate – 2</p> <p>Extensive i.e., complicated land ownership, significant land assembly required, lots of businesses to relocate and no landowners known – 1</p>

Source: CBRE (2022)

10.46 The outcome of the scored assessment for deliverability focuses on land ownership and existing land use only. This avoids potential duplication as the deliverability of each technical aspect has been included within that assessment. The scoring is provided in the table below.

Table 10.2: Deliverability of the Land – scored assessment

Assessment Category	Option 1	Option 2	Option 3
Land Ownership	4	3	2
Existing Land Use	5	3	3
Total	9	6	5
AVERAGE	4.5	3	2.5

Source: CBRE (2022) Note – the average score per Option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

Key: As a number of assessments inform this technical category the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

10.47 Given that a large proportion of the land in this location is being promoted by a single entity and that the majority of the land owners are known and it would appear that there are less constraints in assembling sufficient quantum of land. Having control of the land was one of the key learning points from the ten year review of Cranbrook.

11. Engagement

Introduction

11.1 This section provides a summary of the purpose and outcomes of the two engagement workshops led by Tibbalds and held with EDDC Councillors to inform this Options Appraisal.

Workshop 1 – 21st July 2022

11.2 The aim of the preliminary workshop was to introduce the consultant team and to gather information and opinions from the EDDC Officers and Councillors on the issues likely to be faced in the next 30-years. It considered how our day-to day lives are changing to address those issues, and sought to understand the local impact and what it means for East Devon.

11.3 The session was well attended, with approximately 19 participants. However, it was raised that the session had clashed with a committee meeting and therefore a number of interested Councillors were unable to attend. As such, the presentation and the workshop content was shared following the workshop, and a strategy for organising the future sessions was agreed.

11.4 The workshop was hosted virtually over Microsoft Teams and utilised online digital tools including Teams breakout rooms and Miro Boards to ensure the session was not only interactive but gave all those participating the opportunity to provide record their input and engage.

11.5 The agenda provided:

- An introduction to the consultant team's brief;
- An introduction to the consultant team and associated roles;
- A breakdown of the process, including a high-level timeline.

11.6 The following focus topics were introduced and discussed.

Focus Topic 1: How do we want / need to live over the next 30+ years?

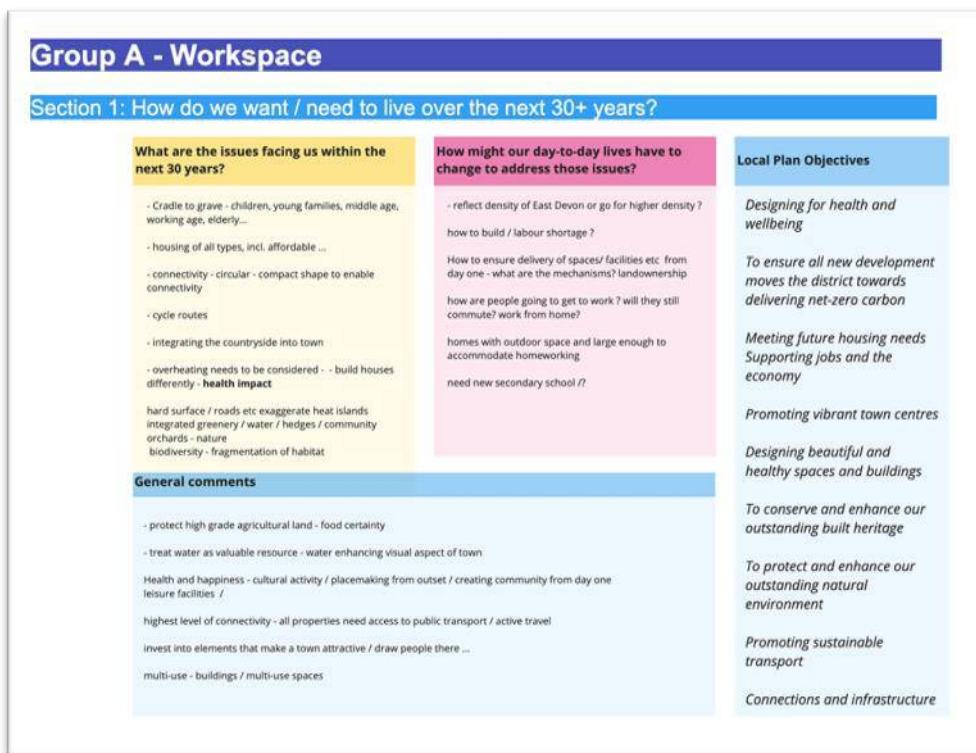
11.7 The first section of the workshop introduced a set of design principles for new settlements which had been informed by a number of studies and reports such as 'Place value and the Ladder of Place Quality.' The team presented the principles and the evidence, as well as introducing a selection of relevant, forward-thinking projects and their approach.

11.8 With all this in mind, attendees were asked to discuss (via smaller breakout groups) their priorities under the following questions:

- What are the issues facing us over the next 30+ years?;
- How might our day-to-day lives change to address these issues;
- Delivering on Local Plan Vision.

11.9 The groups used Miro Boards to note down the discussions and organise thoughts under headings. Below is an extract from one of the group’s discussion

Figure 11.1: Output from a Discussion Group – how do we want/ need to live over the next 30 years



Source: Tibbalds (2022)

11.10 The subsequent themes were derived from the first breakout session:

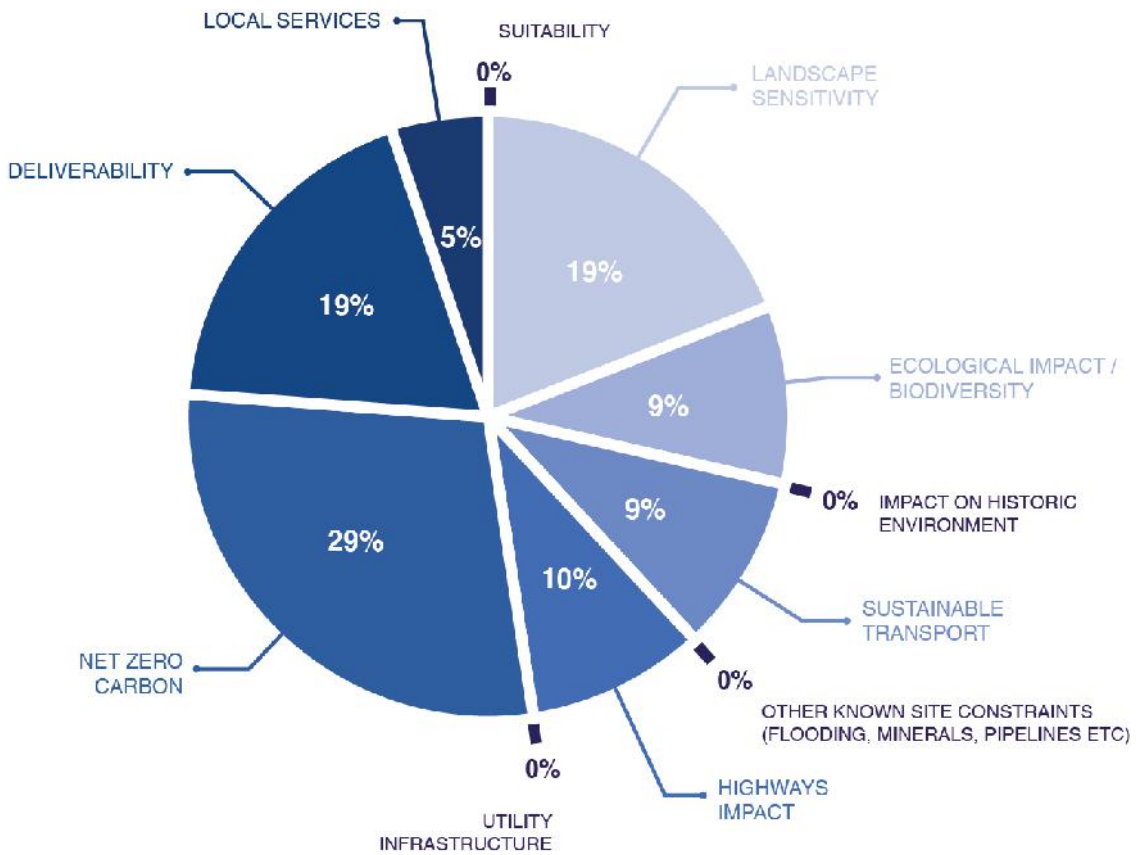
- Future proofing;
- Addressing climate change and extreme weather;
- Range of house typologies;
- Connectivity and movement;
- Compact developments;
- Integrated with nature and landscape (biodiversity);
- Providing facilities, flexible workspace and suitable services;

- Movement and connectivity;
- Infrastructure: drainage / habitat mitigation/ pressure of existing landscapes; and
- Diversify the provision of homes and densities.

Priorities

11.14 The comments were organised during the workshop under a set of key design principles, referred to as ‘Thematic Criteria’ so that attendees could rank their priorities for the potential new community. This poll was followed by a second vote, this time on ‘Technical Criteria’ as identified by the consultant team in collaboration with the EDDC. The results of the polls for both Thematic and Technical criteria are shown below:

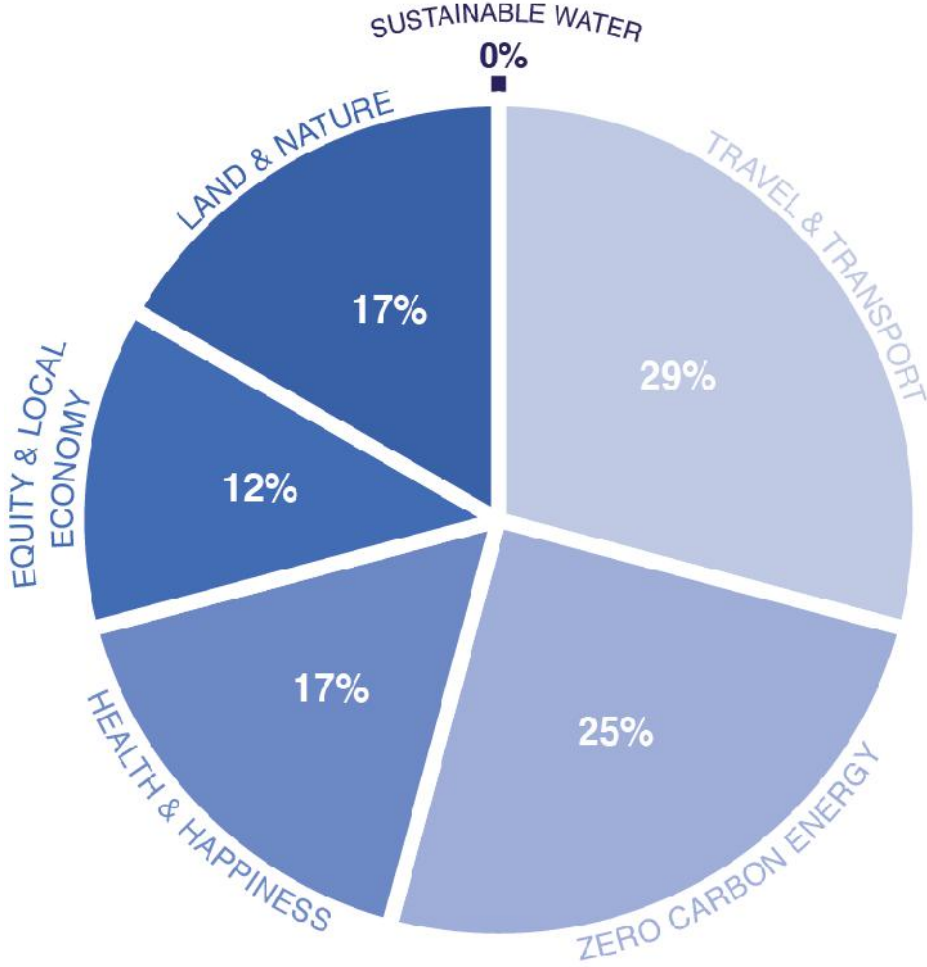
Figure 11.3: Thematic Outcomes



Source: Tibbalds (2022)

11.14 These have all been considered within the technical assessments that have informed this Options Appraisal as identified in the previous sections of this report.

Figure 11.4: Thematic Criteria Results



Source: Tibbalds (2022)

11.15 The feedback from the thematic criteria was used to feed into the draft vision and a set of draft principles, that were presented and discussed at Workshop 2. This allowed the vision to be developed with a level of understanding of the Members priorities for the settlement, and allowed the conversation to develop to begin to establish a set of measurable principles against which proposals at the masterplanning stage can be assessed.

11.16 Following the final polls, the team presented the next steps and the timing/purpose of the future workshops. The attendees were then asked for any final comments or questions.

Workshop 2 – 10th October 2022

- 11.17 The aim of the second workshop was to introduce the members to the:
- Draft Vision;
 - The three area Options for the potential new community; and
 - To discuss what might be the most important design principles to underpin and support the vision, to take through to the masterplanning stage.
- 11.18 The workshop was attended by 16 people, including EDDC Councillors, the consultant team and EDDC Officers. It was hosted virtually over Zoom and utilised online digital tools such as breakout rooms and Miro boards to ensure the session was interactive and encouraged participants to fully engage with the conversation. An introduction to the project (including ambitions and indicative timeframes) and the consultant team gave a brief recap of the purpose of Workshop 1 and feedback received. The following focus topics were introduced and discussed.

Focus Topic 1 – The Draft Vision, Options and Name

- 11.19 An earlier iteration of the Draft Vision set out in Section 4 of this report was presented, with precedent images to demonstrate the ambitions for the potential new community.
- 11.20 The process of identifying areas of search was explained and the location of the three site Options were introduced with emphasis given to the fact that the preferred Option will be influenced by the outcome of the technical assessments undertaken as part of the Options Appraisal. Attendees were invited to discuss the following questions in smaller breakout groups:
- Do you think the draft vision conveys your priorities for this second new settlement?
 - Do you have any ideas for a suitable name?
 - What do you consider the main opportunities, challenges and priorities for the three site Options?
- 11.21 The groups used Miro boards to record the discussion points, and organise thoughts. The following key comments and themes to be considered were derived from the first breakout session:

Draft Vision

- Future transport modes, including car pools, e-scooters and bikes and promoting other forms of powered movement;
- Keeping it local: using locally sourced labour, materials and housebuilders who are thought of as more likely to deliver on local priorities;

- Provide walking and cycling routes, implemented from the outset;
- Importance of the relationship between the economy (provision of employment, facilities, services) and the growth of the community;
- Agreement with the general principles of the vision;
- Get the culture right from the outset;
- More emphasis on a self-sustaining community.

Three site Options:

- Concerns were raised about the highways impact of Options 2 and 3.
- Option 1 was considered to have more merit in this regard due to the opportunity it provides to connect the A30 and A3052.

Settlement name suggestions

- Greenwood
- Clyst St Joseph
- Name to be related to Grindle Brook

11.22 An extract of one of the Breakout Room notes, recorded on an online whiteboard, is shown below:

Figure 11.5: Sample of Comments at the Draft Vision

Group B - Workspace


Breakout Room 1

Draft Vision - Comments

- Relationship between community and economy is important. People reside and work within the same community
- Importance on Cycleways and walking routes
- Active facilities need to be included e.g., gyms, swimming pools.
- Town to be integrated with the forest/landscape
- Better access and availability to public transport
- Design of homes/employment buildings - Passivhaus standard? Example of Norwich City Council with Passivhaus Social Housing
- District Heating System
- Proportion of Social Housing and densities (higher density around town center?)
- Tram to link the site, train network, and economic centers. Run on Tyres?

Potential settlement names

- Greenwood
- Clyst St Joseph
- Grindlebrook



Source: Tibbalds (2022)

Focus Topic 2: What are the top 3 design principles to carry through to the masterplanning stage?

- 11.23 This topic was introduced to the group, explaining that the purpose of the design principles is to underpin and support the vision and help to guide the masterplanning of the preferred Option. Ensuring that these principles are realised through the design process.
- 11.24 The group was split into two breakout rooms for discussion, with the potential themes set out below presented as a starting point for conversation. These principles were developed from the vision and the thematic criteria feedback from Workshop 1 and are as referenced in Section 4.
- Climate resilience, future proofing and net zero carbon;
 - Greening, landscape and biodiversity net gain contributions;
 - Community ownership of land and stewardship of assets;
 - Townscape, design and placemaking, including public realm and open space;
 - Relationship to existing settlements;

- Phasing and delivery of land uses through a flexible masterplan framework to enable the vision to be fulfilled;
- A truly sustainable, self-sufficient settlement incorporating homes, local employment, shops, community amenities, public realm and open space;
- Sustainable access, transport, utilities, infrastructure and movement;
- Connected and integrated transport infrastructure that alleviates pressure on the existing highway network.

11.25 The following themes were derived from the second breakout session:

- 20 minute neighbourhoods and providing a series of communities (not centralising everything)
- Green streets, spaces and biodiversity
- Climate resilience
- Incorporating designated pedestrianised areas/low traffic neighbourhoods within the town
- Circular economy principles & reuse of resources
- Promoting sustainable access/transport
- Creating an identity for the town
- Adaptable communities
- District Heating

11.26 Group A considered all design principles to be equally as important as one another. Group B summarised their top 3 priorities as:

1. Climate resilience;
2. Green space; and
3. Sustainable access/transport.

Amendments to the Draft Vision

11.27 Following the second workshop the Vision was amended to incorporate the following points as a direct response to feedback received:

- Ensuring that the culture of the place is established at the outset;
- To put more emphasis on the development of a self-sustaining community;

- Rewording of some points into plain English e.g. 'Contemporary interpretation of the local context' was amended to 'innovative design that will draw inspiration from the local context.'
- The use of local materials and labour has been included in the concluding paragraph of the vision.

11.28 The changes made are summarised below:

The Vision for this second new settlement in East Devon is to create a self-sufficient, healthy and dynamic community with distinctive character. It will deliver up to 8,000 high-quality homes with a range of tenures, places of work and a diverse mix of uses that are easily accessible via sustainable and active travel such that these become the dominant transport modes.

*This new town will be more than just a settlement, it will be an ambitious and highly desirable place that supports the growth of a self-governing and self-sustaining community **that establishes its culture at the outset in order** to develop and thrive into the future.*

*The structure of the settlement will promote innovative design **that will draw inspiration from** the local context, including the unique surrounding historic environment, to create a rich character. Streets and spaces will be designed to encourage social interaction and will be embedded in a well-connected and integrated active travel network with comprehensive links to nearby employment, **surrounding** countryside and the city of Exeter.*

It will be underpinned at its core by sustainability, wellbeing, and healthy living, creating an exemplar zero-carbon town both in terms of self-sufficiency and design and by doing so it will provide a legacy to the benefit of future generations.

This sustainable community will be sensitively and seamlessly integrated with the outstanding East Devon natural environment and contribute to the delivery of the Clyst Valley Regional Park whilst protecting nearby internationally recognised habitats.

It will provide a rich network of substantial open space and diverse landscaping, including areas of enhanced ecology and biodiversity, as well as opportunities for play, recreation and opportunities for food growing.

*This vibrant and adaptable new settlement will preserve East Devon's legacy as an outstanding place to live. **The use of local materials and labour will be promoted to deliver on local priorities, creating** somewhere residents can be proud of and where people of all ages and lifestyles will prosper.*

- 11.29 In addition to the amendments made to the draft Vision, the comments received will also feed into the design principles to be taken forwards during the masterplanning process for the preferred Option in 2023. The comments on Member's priorities form an invaluable basis from which to begin the design process, to ensure the Vision will be delivered and that local ambitions will be met.

12. Assessment of the Options

Introduction

- 12.1 This section provides the cumulative outcome of the scored assessment of the three site Options against the agreed criteria outlined in Table 12.1 below and identifies from this the Preferred Option. The assessment criteria drew upon those used by EDDC for the wider Local Plan site selection process and adapted these to the requirements of assessing a new settlement.
- 12.2 Based on these assessment criteria the following scoring has been developed alongside EDDC to assess the three Option sites against a basket of criteria. The highest scores represent lower potential adverse impact/ higher benefit

Table 12.1 – Assessment Criteria and Scoring

Criteria	Scoring
Landscape sensitivity	Sensitivity: High – 1 Medium/High - 2 Medium – 3 Low/Medium - 4 Low – 5
Ecological impact/Biodiversity	Impact: High – 1 Medium/High - 2 Medium – 3 Low/Medium - 4 Low – 5
Environmental constraints (flooding, minerals, historic environment)	Constraint’s level: High – 1 Medium/High - 2 Medium – 3 Low/Medium - 4 Low – 5
Sustainable Accessibility	Sustainability: High – 5 Medium/High - 4 Medium – 3 Low/Medium - 2 Low - 1
Highways Impact	Impact: High – 1 Medium/High - 2 Medium – 3 Low/Medium - 4 Low – 5

Utilities Infrastructure	<p>Capacity: High – 5 Medium/High - 4 Medium – 3 Low/Medium - 2 Low - 1</p>
Net Zero Carbon Infrastructure	<p>Contribution to Net Zero: Low exposure/vulnerability or high opportunity – 5 Low-medium exposure/vulnerability or medium-high opportunity - 4 Medium exposure/vulnerability or medium opportunity – 3 Medium-high exposure/vulnerability or low-medium opportunity - 2 High exposure/vulnerability or low opportunity – 1</p>
Net Zero Carbon Infrastructure	<p>Climate Resilience: Low exposure/vulnerability or high opportunity – 5 Low-medium exposure/vulnerability or medium-high opportunity - 4 Medium exposure/vulnerability or medium opportunity – 3 Medium-high exposure/vulnerability or low-medium opportunity - 2 High exposure/vulnerability or low opportunity – 1</p>
Deliverability (land)	<p>Impact: Limited i.e., simple land ownership, all land put forward in call for sites, majority of landowners known, few businesses to relocate – 5 Limited to Medium - mixed land ownership, majority of landowners known, all land put forward in call for sites, few businesses to relocate – 4 Medium i.e., mixed land ownership, majority of land put forward in call for sites, but some land assembly needed, some landowners known, some businesses to relocate – 3 Medium to Extensive - complicated land ownership, few landowners known, some land put forward in call for sites, but land assembly needed, lots of businesses to relocate – 2 Extensive i.e., complicated land ownership, significant land assembly required, lots of businesses to relocate and no landowners known – 1</p>

Source: CBRE (2022)

12.3 The score per Option has been used to identify the Preferred Option.

Outcome of Technical Assessments

12.4 We summarise below the outcome of the technical assessments and the scoring to assist in identifying a Preferred Option.

Landscape Sensitivity

12.5 The technical assessment at Section 5 concluded that of the three Options identified, overall Option 3 is slightly less sensitive than Options 1 and 2 in landscape terms, but landscape sensitivity varies within each Option, and all the options - including Option 3 - contain areas of higher sensitivity, where development would be likely to cause significant landscape and visual impact.

12.6 The land with the lowest levels of sensitivity is found in the southern part of Option 1 (overlapped by the western part of Option 2) and the northern part of Option 3.

12.7 The landscape sensitivity risk per Option site is assessed and summarised below.

Table 12.2- Landscape Sensitivity Options Appraisal Scoring

Option	Score	Sensitivity
1	2	High - Medium
2	2	High - Medium
3	3	Medium

Source: FFA (2022)

Ecological Impact/Biodiversity

12.8 The technical assessment at Section 6 concluded that in terms of ecological risk, Option 2 performs best while Option 3 would be least preferred. However, the Option sites themselves have relatively few absolute ecological constraints, and such constraints can typically be accommodated within a sensitively-designed green and blue infrastructure framework.

12.9 The landscapes to the west and east of all the Option areas have particular local, regional, national and international significance for wildlife, including mobile species with particular seasonal sensitivities.

12.10 Option 3, closest to the Exe Estuary (400m to the south), and with relatively greater proportion of an ecological network enhancement zone, is more vulnerable than the other two Options to the need to provide significant ecological management zones within its boundary.

12.11 Opportunities to strengthen and/or diversify the ecological network should be sought within the Preferred Option area, making use of existing habitats and features and seeking opportunity to expand habitat or create new habitat to contribute towards biodiversity gains. Opportunities for biodiversity gains would also be presented by the land allocated within Option 1 for the Clyst Regional Valley Park, lands identified within network enhancement or expansion zones, SANGS and flood zone land.

12.12 The ecological impact/biodiversity risk per Option site is assessed and summarised below.

Table 12.3– Ecological Impact/Biodiversity Options Appraisal Scoring

Assessment Category	Option 1	Option 2	Option 3
Statutory Wildlife Sites of International & National Significance	5	4	3
Strategy 47 Applies (Recreational Pressure)	3	3	2
SSSI Impact Risk Zones	5	4	3
Statutory Wildlife Sites of Regional / Local Significance	5	5	5
Local Wildlife Sites	3	3	5
Potential for Impact on Wildlife Sites Network (in absence of mitigation)	2	3	3
National or Devon Priority Habitats	2	3	2
Overall Risk to Ecological Network	3	4	2
Diversity of protected or notable species records in locality	3	3	2
TOTAL	31	32	27
AVERAGE	3.4	3.6	3

Source: TEP (2022) Note – the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

Key: As a number of assessments inform this technical category the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

Flood Risk

12.13 The potential flood risk per Option site is assessed and summarised below.

Table 12.4 – Flood Risk Options Appraisal Scoring

Option	Score
1	4
2	4
3	4

Source: CBRE (2022)

12.13 For Option 1 running through the centre of the site are some areas around the water courses which are within Flood Zones 2 and 3a with surface water flooding a possibility but a low to medium risk.

- 12.14 With regard to Option 2 there are areas at risk within Zone 2 running through the centre of the site. Areas to the south fall with Zone 3a which is a medium risk. As with Option 1 these are located around the water courses and will be prone to surface water flooding a possibility but this is a low to medium risk.
- 12.15 In Option 3 and running through the centre of the site some areas around the water courses are in Flood Zones 2 and 3a with surface water flooding a possibility but a low to medium risk.
- 12.16 All Options have land within Flood Zones 1-3 but as the majority is within Zone 1 this is a low to medium flood risk. Land at risk of flooding will be incorporated into well designed and implemented drainage and water mitigation strategies and the land used for space for SANGS and biodiversity gains during masterplanning of the Preferred Option.

Minerals

Table 12.5 – Minerals Presence Options Appraisal Scoring

Option	Score
1	3
2	1
3	5

Source: CBRE (2022)

- 12.17 All Options were identified as outside of coal mining areas and Options 1 and 3 have no nitrate and phosphate areas identified.
- 12.18 Option 2 is the most constrained as it contains zones for water source protection, nitrate vulnerability and an area of medium priority for phosphates.
- 12.19 It has also been noted that there is a mineral safeguarding zone at the Hill Barton industrial estate which related to an existing asphalt plant (Devon Mineral Plan – Policy M2). There is also established strategic waste facilities at both Hill Barton Business park and Greendale Barton (Devon Waste Plan – Policy W10 and W6) – this affects both Options 1 and 2.

Historic Environment

12.20 The potential impact on the historic environment assessed and summarised below.

Table 12.6 – Historic Environment Options Appraisal Scoring

Option	Score
1	3
2	3
3	3

Source: CBRE (2022)

12.21 This assessment identifies that in each Option there remains at least one and a maximum of three Grade II listed buildings and as a result these are all scored equally as a medium risk but would be subject to appropriate mitigation. As we indicated in Section 3 the land budget excludes land that is part of the historic environment. That said even though historic buildings and registered parks/gardens are outside the site areas of the Options the potential impact upon the setting of those places will be addressed as part of the masterplanning of the Preferred Option.

12.22 A number of variations have been considered for each Option and the chosen boundaries have been refined to ensure that the historic environment would not be subject to convergence with the potential new community. Where the Options do abut the historic environment, the intention at the masterplanning stage of the project will be to ensure that adequate separation, through a substantially sized landscape buffer, is provided to respect the character of the existing settlements. The masterplanning will allow for any potential impact on the historic environment to be sufficiently screened given the extensive public open space land budget.

12.23 The three site locations have been developed to provide as far as possible nucleated, compact settlements. This form of development is conducive to the application of active travel measures.

12.24 The boundaries for the three site locations have been defined using landscape features, including existing watercourses, field boundaries and hedgerows, to create rational settlement edges.

Sustainable Accessibility

12.25 The potential impact on sustainable access assessed and summarised below.

Table 12.7 – Sustainable Accessibility Options Appraisal Scoring

Assessment Category	Option 1	Option 2	Option 3
Walking	3	1	4
Cycling	3	2	4
Public Transport	4	2	5
Employment	5	2	4
TOTAL	15	7	17
AVERAGE	3.8	1.8	4.3

Source: Hydrock (2022) Note – the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

Key: As a number of assessments inform this technical category the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

12.26 Options 1 and 3 perform strongly across all categories, with Option 3 performing marginally better. Option 2 would require the greatest level of intervention, and provides the lowest opportunity to promote sustainable transport.

12.27 We have summarised above the key findings for the assessment of each Options including proximity to employment as well as existing and future potential to accommodate walking, cycling, and public transport. The assessment also summarises a high level consideration of future-proofing for new and emerging modes of transport, which will need to be integrated within the design of whichever Option site is ultimately preferred by EDDC.

Highways

12.28 The potential impact on the highway network is assessed and summarised below.

Table 12.8: Highways Delay Impact and Mitigation Summary

Assessment Category	Option 1		Option 2		Option 3	
	Impact	Deliverability	Impact	Deliverability	Impact	Deliverability
M5 J29	5	5	5	5	5	5
M5 J30	5	5	4	5	4	5
M5 J31	5	5	5	5	5	5
A30	5	5	5	5	5	5
A3052	4	5	4	5	4	5
A38 & A380	5	5	5	5	5	5
Clyst St Mary junction	3	4	1	4	1	4
East of Exeter Network Impacts	5	5	1	2	5	5
TOTAL	37	39	30	36	34	39
IMPACT & DELIVERABILITY AVERAGE	38		33		36.5	
AVERAGE	4.8		4.1		4.6	

Source: Hydrock (2022) Note – the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

Key: As a number of assessments inform this technical category the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

12.29 Option 1 shows relatively small changes in traffic on the M5, A30 and A380, resulting in generally small increases in delay. However M5 J29 sees some increases in delay in the AM and PM models, mostly on the east side of the M5. Clyst St. Mary Roundabout also shows some impacts from the development site, with 33 seconds of extra delay on the westbound approach in the AM model and 35 seconds of extra delay on the eastbound approach in the PM model, plus additional turning delay at the roundabout itself.

12.30 Option 1 has the least significant highways impact and it appears that the development of 2,500 new homes up to the end of the Local Plan period could be accommodated without significant highways interventions. Whilst there would be increases in traffic in some areas, the modelling carried out suggests that these would not lead to significant increases in delays. Minor highways mitigation works may be needed and could be reviewed and addressed as part of the normal planning process, with no strategic interventions required.

Option 1 would be most preferred in terms of highways impact, followed by Option 3, with Option 2 being least preferred.

- 12.31 Next steps would be to carry out more detailed modelling at the Clyst St Mary Roundabout and the A376 / Topsham Lane junction based on the flows predicted by updated SATURN modelling, which will include other local plan development. This would allow mitigation schemes to be developed in greater detail to gain an understanding of likely costs and risks. It is also recommended that preliminary discussions are held with the owners of Westpoint Arena to determine the potential to use the site for a park and ride, as this could have wider benefits.
- 12.32 The modelling work undertaken shows that Options 2 and 3 would have traffic impacts at the Clyst St Mary Roundabout, with Option 2 also impacting on surrounding local roads.
- 12.33 In terms of their highways impacts, Option 1 would be the preferred development scenario, followed by Option 2 and then Option 3. Option 1 appears to require no mitigation measures (other than those that would be addressed as part of the normal planning approval process). Whilst Options 2 and 3 would require improvements at the Clyst St Mary Roundabout, with Option 2 also requiring improvements around Woodbury Salterton and at the A376 / Topsham Lane junction.
- 12.34 Based on an initial desktop review, it appears that, despite their larger delay impacts, it would be possible to mitigate the impacts of both Option 2 and 3 if these were to be taken forward. This would be through either localised capacity improvements or demand reduction schemes.
- 12.35 As a result, it is concluded that at this stage there are no fundamental highways constraints that would prevent any of the development Options coming forward based on the results of the DCC model run by WSP, which has tested the effect of 2,500 new homes up to the end of the new Plan period (2040). However, additional modelling will need to be carried out to further test the network at the next stage, including additional local plan growth.

Utilities

12.36 The potential impact on the utility network is assessed and summarised below.

Table 12.9: Utilities – scored assessment

Assessment Category	Option 1	Option 2	Option 3
Utility capacities and opportunities for connection	4 Good opportunity	4 Good opportunity	2 Limited opportunity
Foul Drainage capacities and opportunities for connection	2 Limited opportunity	2 Limited opportunity	2 Limited opportunity
Existing Infrastructure Impact	3 Medium impact	1 Significant impact	3 Medium impact
TOTAL	9	7	7
AVERAGE	3	2.3	2.3

Source: Hydrock (2022) Note – the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

Key: As a number of assessments inform this technical category the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

- 12.37 Option 1 is the highest scoring site from a Utilities perspective due to the relatively minimal impacts from existing major infrastructure, whilst also providing an opportunity to connect to WPD’s 132kV overhead for a new Bulk Supply Point to service the site with power.
- 12.38 Option 2 whilst a good opportunity for power connection similar to Option 1, is lower scoring due to the presence of the National High Pressure gas main, which will restrict development and layout.
- 12.39 Option 3 has an extensive amount of existing infrastructure to consider for either diversions to free up developable space, or layout impacts with clearance zones, and also does not present as good an opportunity for electrical connection to the 132kV network.
- 12.40 All three Options are constrained for foul drainage capacities due to the rural locations not being served with extensive existing infrastructure, with none of the 3 Options presenting any better opportunity than the other, the strategy for providing a connection being the same in all cases.

Net Zero Carbon

12.41 The potential beneficial impact of net zero carbon technologies is assessed and summarised below.

Table 12.10: Contribution to Net Zero - scored assessment

Assessment Category	Option 1	Option 2	Option 3
Network Capacity (Generation)	2	2	2
Low or Zero Carbon Energy Technologies	5	2	4
Energy Storage	3	3	3
TOTAL	10	7	9
AVERAGE	3.3	2.3	3

Source: Hydrock (2022) Note – the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

Key: As a number of assessments inform this technical category the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

12.42 Options 1 and 3 both perform strongly in relation to low and zero carbon energy technologies, with Option 1 performing marginally better given the increased potential for a mix of technologies to be employed.

12.43 More detailed summaries for different low and zero carbon energy technologies are provided in the Technical Report at Appendix F, alongside recommendations for further work, much of which will follow site selection in alignment with the masterplanning process.

Climate Resilience

12.44 The potential impact of future climate risk is assessed and summarised below.

Table 12.11: Climate Resilience - scored assessment

Future Climate Risk	Key Considerations for Infrastructure	Option 1	Option 2	Option 3
Drought	water availability	4	3	4
	ground movement/ subsidence	3	4	2
	soil erosion (water)	2	3	5
	ground permeability	3	4	2
Heatwaves	extreme or prolonged high temperatures	not assessed	not assessed	not assessed
	wildfires	not assessed	not assessed	not assessed
Extreme precipitation	surface water	2	3	2
	Ground saturation	3	4	2
Storm events	high winds	not assessed	not assessed	not assessed
	Soil erosion (wind)	2	3	2
TOTAL		19	24	19
AVERAGE		2.7	3.4	2.7

Source: Hydrock (2022) Note – the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

Key: As a number of assessments inform this technical category the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

- 12.45 In terms of future climate risk for infrastructure, Option 2 has been assessed as the best performing Option on the basis that it provides the highest overall level of resilience through lower exposure and/or vulnerability.
- 12.46 All Options would be likely to require further consideration of soil geology which factors into a significant number of risks.
- 12.47 Any Option which brings forward ground mount solar PV arrays at scale should consider any additional risk or additional drainage design mitigation to ensure future resilience against surface water runoff from the panels.
- 12.48 Any potential interaction of surface water drainage, power distribution and access and movement strategies for the selected site must be a key consideration during the masterplanning activities to ensure that the site is not locked in to an approach that could trigger cascading failures to infrastructure networks over the long term.

Deliverability

12.49 The potential deliverability impact is assessed and summarised below.

Table 12.12: Deliverability – scored assessment

Assessment Category	Option 1	Option 2	Option 3
Land Ownership	4	3	2
Existing Land Use	5	3	3
Total	9	6	5
AVERAGE	4.5	3	2.5

Source: CBRE (2022) Note – the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

Key: As a number of assessments inform this technical category the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

12.50 Given that the majority of the land in Option 1 is being promoted by two large entities and that the majority of the land owners are known, this is therefore considered to be the most deliverable Option in this respect.

Preferred Option

12.51 The score per Option has been used to identify the Preferred Option/s as indicated on the table below.

Table 12.13– Options Appraisal Technical Assessment – Scoring Summary

Assessment Category	Option 1	Option 2	Option 3
Landscape Sensitivity	2	2	3
Ecological Impact/Biodiversity*	3.4	3.6	3
Flood Risk	4	4	4
Minerals	3	1	5
Historic Environment	3	3	3
Sustainable Accessibility*	3.8	1.8	4.3
Highways*	4.8	4.1	4.6
Utilities*	3	2.3	2.3
Net Zero Carbon*	3.3	2.3	3
Climate Resilience*	2.7	3.4	2.7
Deliverability*	4.5	3	2.5
TOTAL	37.5	30.5	37.4

Source: CBRE (2022) Note: a higher score represents lower potential adverse impact/ higher benefit of each Option. Key: *Where a number of assessments inform a technical category the average score per option is rounded to one decimal point and feeds through to the cumulative assessment in Section 12.

12.52 In light of the marginal difference between Options 1 and 3 we recommend that both Options are consulted upon by EDDC as potential Preferred Options.

12.53 In terms of ranking Option 1 is marginally the Preferred, with Option 3 the second ranked Option and Option 2 the least preferred and as such it is recommend that Option 2 is not taken forward.

12.54 We summarise the outcome of the reasons underpinning the recommendation to consult upon Options 1 and 3 in the table below:

Table 12.14: Options Appraisal Technical Assessment – Ranking

Assessment Category	Option 1	Option 3
Landscape Sensitivity	This represents: a high-medium overall landscape sensitivity to proposed development. Unique sensitivities are the quality and integrity of the historic rural landscape and associated river corridors which flow east-west through the middle of the defined	This represents a medium overall landscape sensitivity to proposed development. Higher landscape sensitivity occurs in the south and east of this Option, and is associated with elevated and steeper land; a smaller-scale historic landscape; land intervisible with the East Devon AONB, and the

	<p>area; the elevated land in the east, and the slopes forming the setting to the Clyst Valley in the west. These areas are particularly sensitive and it would be very difficult to mitigate for this through masterplanning.</p>	<p>setting of Clyst St George. Lower sensitivity land is found in the north of the Option. Levels of landscape and visual effects could be mitigated by focussing development in the northern part of the Option.</p>
Ecological Impact/Biodiversity	<p>A medium impact on existing ecology and biodiversity. However the location and integration of future green and blue infrastructure for the new settlement will be able to accommodate existing and future ecological processes and biodiversity.</p>	<p>A higher potential impact on existing ecology and biodiversity, due to the proximity of the southern part of the Option to designated sites in the Exe Estuary. However the location and integration of future green and blue infrastructure for the new settlement will be able to accommodate existing and future ecological processes and biodiversity.</p>
Flood Risk	<p>A low to medium flood risk that can be reduced by well designed and implemented drainage and water mitigation strategies.</p>	<p>A low to medium flood risk that can be reduced by well designed and implemented drainage and water mitigation strategies.</p>
Minerals	<p>A medium minerals risk but the area is outside coal mining areas with no nitrate and phosphate areas identified. Other mineral constraints can be addressed by informed masterplanning.</p>	<p>A low minerals risk.</p>
Historic Environment	<p>A medium risk on the historic environment, though again this can be mitigated by thoughtful masterplanning. Ensuring the new settlement doesn't abut existing places and densely planted landscape buffers are introduced to protect the environment around historic buildings and assets.</p>	<p>A medium risk on the historic environment, though again this can be mitigated by thoughtful masterplanning. Ensuring the new settlement doesn't abut existing places and densely planted landscape buffers are introduced to protect the environment around historic buildings and assets.</p>
Sustainable Accessibility	<p>A medium risk in terms of sustainable accessibility but with thoughtful integration into the new community of walking, cycling and public transport infrastructure routes these risks can be mitigated. It benefits from potential for sustainable access to existing and future employment sites.</p>	<p>A low risk in terms of sustainable accessibility but with thoughtful integration into the new community of walking, cycling and public transport infrastructure routes these risks can be mitigated. It benefits from potential for sustainable access to existing and future employment sites.</p>
Highways	<p>A low adverse impact and high benefit in terms of proximity to existing highway infrastructure and it</p>	<p>A medium adverse impact and medium benefit in terms of proximity to existing highway infrastructure requiring</p>

	<p>appears that the development of 2,500 new homes up to the end of the Plan period could be accommodated without significant highways interventions. It shows relatively small changes in traffic on the M5, A30 and A380, resulting in generally small increases in delay. Minor highways mitigation works may be needed and could be reviewed and addressed as part of the normal planning process, with no strategic interventions required.</p>	<p>improvements at the Clyst St Mary Roundabout. Based on an initial desktop reviews, it appears that, despite their larger delay impacts, it would be possible to mitigate the impacts this Option were to be taken forward. This would be through either localised capacity improvements or demand reduction schemes.</p>
Utilities	<p>A low-medium adverse impact to diverting existing utilities due to overhead HV networks and high benefit in terms of access to existing utilities with the potential to access existing power, water and telecom connections with proximity to the site</p>	<p>A medium adverse impact and medium benefit in terms of access to existing utilities.</p>
Net Zero Carbon	<p>A low adverse impact and high benefit in terms of net zero carbon.</p>	<p>A medium adverse impact and medium benefit in terms of net zero carbon</p>
Climate Resilience	<p>A medium level of resilience and medium exposure and/or vulnerability.</p>	<p>A medium level of resilience and medium exposure and/or vulnerability.</p>
Deliverability	<p>A low adverse impact and high benefit due to the majority of landownerships being known and owned by a limited number of parties. The control of land was one of the key learning points from the ten year review of Cranbrook. It is assumed that any existing land uses that are not relocated will be suitably screened and this will be addressed in the masterplanning.</p>	<p>A high adverse impact and low benefit due to many of the landownerships being unknown with significant land assembly required to package a sufficient quantum of land together. Significant land assembly would still be required to enable this to come forward and gain the required level of control, which is a risk. It is assumed that any existing land uses that are not relocated will be suitably screened and this will be addressed in the masterplanning. There are no known barriers to delivery presented by existing land uses in the area.</p>

Source: CBRE (2022)

13. Conclusions and Next Steps

- 13.1 This final section of the report outlines the key conclusions from the technical assessments that underpin this Options Appraisal Report and identifies key next steps.

Conclusions

Landscape

- 13.2 The Landscape Sensitivity Assessment (see Appendix A) found that the three options contain a number of general sensitivities such as the character of rural lanes, the presence of large trees and important hedges, and the character of historic settlements on the peripheries which occur within all the Options. There are also a number of constraints to development including floodplains, main roads and existing land uses. However, some of these also form potential opportunities.
- 13.2 In addition to these general sensitivities, the Assessment found that each Option has unique areas of sensitivity for which it would be difficult to mitigate. The Assessment also found that landscape sensitivity levels vary within each of the options. Land with the lowest sensitivity was found to occur in the southern part of Option 1 (overlapped by the western part of Option 2) and the northern part of Option 3.
- 13.3 On landscape sensitivity, of the three Options, Option 3 is preferred, having an overall medium sensitivity compared to Options 1 and 2 both of which are considered to have a high-medium sensitivity overall.

Ecology / Biodiversity

- 13.4 The desktop Ecological Report (see Appendix C) identified that there are no overriding ecological constraints for any of the Options arising from statutory wildlife designations of international or national significance but that all options contain non-statutory wildlife sites. With regard to habitats all three Options comprise a similar landscape of predominantly agricultural fields (cereal and arable grasslands) with a comprehensive field boundary network.
- 13.5 In terms of ecological risk, Option 2 performs best while Option 3 would be least preferred. However, the Option sites themselves have relatively few absolute ecological constraints, and such constraints can typically be accommodated within a sensitively-designed green and blue infrastructure framework.
- 13.6 Opportunities to strengthen and/or diversify the ecological network should be sought within the Preferred Option. Making use of existing habitats and features and seeking opportunity to expand habitat or create new habitat to contribute towards biodiversity gains. Opportunities for biodiversity net gain would also be presented by the land allocated within Option 1 for the Clyst Regional Valley Park, lands identified within network enhancement or expansion zones, SANGS and flood zone land.

Flood Risk

- 13.7 All Options have land within Flood Zones 1-3 but as the majority is within Zone 1 this is a low to medium flood risk. Land at flood risk will be incorporated into well designed and implemented drainage and water mitigation strategies and the land used for space for SANGS and biodiversity gains during masterplanning of the Preferred Option.

Minerals

- 13.8 All Options were identified as outside of coal mining areas and Options 1 and 3 have no nitrate and phosphate areas identified. Option 2 is the most constrained as it contains zones for water source protection, nitrate vulnerability and an area of medium priority for phosphates.

Historic Environment

- 13.9 All land, historic buildings and registered parks and gardens are excluded from the land budget required for the development and will be preserved. These will be subject to appropriate mitigation and will be protected as part of the masterplanning of the Preferred Option.
- 13.10 Where the Options do about the historic environment, the intention at the masterplanning stage of the project will be to ensure that adequate separation, through a substantially sized landscape buffer, is provided to respect the character of the existing settlements. The masterplanning will allow for any potential impact on the historic environment to be sufficiently screened given the extensive public open space land budget.

Sustainable Accessibility

- 13.11 Options 1 and 3 both perform strongly across all categories, with Option 3 performing marginally better. Option 2 would require the greatest level of intervention, and provides the lowest opportunity to promote sustainable transport.
- Walking
- 13.12 All of the Options are located in predominantly rural locations with internal pedestrian connectivity presently relatively undeveloped. The new community will require a network of convenient, direct, permeable, safe and easy to navigate pedestrian routes that are able to accommodate the needs of all users.
- 13.13 The development should include areas of low- or no-traffic, following the principles of shared-space, or play streets, and green/tree-lined streets promoted in guidance and required by policy.
- 13.14 The proposed Clyst Valley Trail offers a north/south link adjacent to Exeter's eastern boundary and within the vicinity of Options 1 and 3. The topography of Option 2 poses a challenge to a potential pedestrian route of this nature.

Cycling

- 13.15 The Local Highway Network in the vicinity of the Options has limited dedicated cycling infrastructure, but the rural nature of many of the local lanes results in relatively low traffic volumes, meaning that they can be suitable for cyclists. Each Option would benefit from the inclusion of an on-site mobility hub to facilitate these emerging modes of travel. Option 3 is the most sustainable for cycling.

Public Transport

- 13.20 All three Options are expected to need improvement to local bus services. Analysis has demonstrated that given the size of the development, a c.10-minute frequency service for the development is likely to be commercially viable. This, coupled with the upgrading of existing bus stop facilities, would provide a significant enhancement on the existing services within the area of all three Options, for both existing local communities and future residents of the new settlement.
- 13.21 In relation to rail, Options 1 and 3 benefit from their proximity to Exeter and the series of stations located along the Avocet Line. Option 3 is the most sustainable for public transport.

Employment Accessibility

- 13.22 In all Options sustainable transport links to employment areas will need to be upgraded to be sufficiently attractive to ensure they are used from the outset of the development, and so the proximity of the locations has been taken as the key comparative difference between the Options.
- 13.23 Options 1 and 3 benefit from their proximity to Exeter due to the volume of employment opportunities located within the city. The employment centres located in proximity to Option 2 are limited to the Hill Barton and Greendale Business Parks. Option 3 is also located in close proximity to a range of facilities in addition to Exeter (Winslade Park, Topsham Town Centre etc.). Option 1 benefits from the largest amount of employment opportunity which in addition to Exeter include Exeter Airport and the associated Airport Business Park as well as the SkyPark, Science Park and Exeter Business Park/Met Office facility and as such is the Preferred Option for accessibility to employment.

Highways

- 13.24 Option 1 has the least significant highways impact and it appears that the development of 2,500 new homes up to the end of the Plan period could be accommodated without significant highways interventions. Whilst there would be increases in traffic in some areas, the modelling carried out suggests that these would not lead to significant increases in delays. Minor highways mitigation works may be needed and could be reviewed and addressed as part of the normal planning process, with no strategic interventions required. Option 1 would be the most preferred in terms of highways impact, followed by Option 3, with Option 2 least preferred.
- 13.25 It should be noted that the WSP modelling accounts for development traffic up to the end of the new Plan period only. Additional testing would be required in order to determine the potential impact and mitigation

requirements for a potential 8,000 new homes. In addition, this is based on only modelling the 2,500 dwellings and not the other allocations in the East Devon Local plan or additional development in Exeter, Teignbridge and Mid Devon. This will take place at the next stage and may change these outputs.

Utilities

- 13.26 Option 1 is the highest scoring site from a Utilities perspective due to the relatively minimal impacts from existing major infrastructure, whilst also providing an opportunity to connect to WPD's 132kV overhead for a new Bulk Supply Point to service the site with power.
- 13.27 Option 2 whilst a good opportunity for power connection similar to Option 1, is lower scoring due to the presence of the National High Pressure gas main, which will restrict development and layout. Option 3 has an extensive amount of existing infrastructure to consider for either diversions to free up developable space, or layout impacts with clearance zones, and also does not present as good an opportunity for electrical connection to the 132kV network.
- 13.28 All three Options are constrained for foul drainage capacities due to the rural locations not being served with extensive existing infrastructure.

Net Zero Carbon

- 13.29 Options 1 and 3 both perform strongly in relation to low and zero carbon energy technologies, with Option 1 performing marginally better. Option 2 would require the greatest level of intervention, and in our assessment provides the lowest opportunity to contribute to net zero.
- 13.30 Specifically at primary substation level there is some export capacity remaining at Clyst Honiston and Pinhoe both in closest proximity to Option 1 and also at Topsham in relation to Option 3.
- 13.31 Creating the right low or zero carbon technology mix for the new town will be essential. An emphasis is placed upon technology options that can aid the decarbonisation of heat as well as options for onsite power generation.
- 13.32 Options 1 and 3 demonstrate potential locations for open loop ground source technology which could be utilised as part of a technology mix for a low carbon heat network. Option 1 includes areas at the north and west of the location which are underlain by a moderately productive aquifer (12L/s) which is also captured by the western boundary of Option 3. Option 2 is underlain by rocks with no or very low levels of groundwater which would limit ground source heat pump technology potential to closed loop systems.
- 13.33 Due to the EfW plant location at Hill Barton each of the Options would be suitable for connection to the heat network interconnector/ extension. Option 1 transits the proposed route of the interconnector and is therefore preferred in relation to this technology.

13.34 For solar, all three Options fall within the areas previously assessed EDDC Low Carbon Study as suitable for solar energy. Option 1 has reduced overall coverage of suitability for solar and this may also be affected by proximity to Exeter Airport as further assessment with regard to glint and glare is likely to be required for significant solar arrays. All Options will require also further consideration of landscape and visual impact. Option 2 is in closest proximity to an area identified by the EDDC Low Carbon Study as suitable for wind energy.

13.35 With respect to 'behind the meter' applications, all Options have the potential to use battery storage in 'island mode' and as part of a microgrid solution for the development. Further detail on development mix and phasing is needed to undertake a more detailed assessment.

Carbon Resilience

13.36 In terms of future climate risk for infrastructure, Option 2 has been assessed as the best performing Option on the basis that it provides the highest overall level of resilience through lower exposure and/or vulnerability.

13.37 All Options would be likely to require further consideration of soil geology which factors into a significant number of risks.

13.38 Any Option which brings forward ground mount solar PV arrays at scale should consider any additional risk or additional drainage design mitigation to ensure future resilience against surface water runoff from the panels.

13.39 Any potential interaction of surface water drainage, power distribution and access and movement strategies for the selected site must be a key consideration during the masterplanning activities to ensure that the site is not locked in to an approach that could trigger cascading failures to infrastructure networks over the long term.

13.40 As further detail or a preferred site option emerges, key questions should be asked by EDDC to ensure that the climate resilient vision is maintained:

- Is the proposed infrastructure/utilities designed to withstand the projected future climate expected in the development's lifetime?
- Is the proposed infrastructure/utilities exacerbating any current identified risk within the region?
- Will the proposed infrastructure/utilities increase other risks (e.g. increase the risk of flooding due to changes in the landscape, or increased non-permeable surfaces etc.)
- Are synergies between both mitigation and adaptation objectives being considered with sufficient weight given to climate adaptation alongside the net zero target?

Deliverability

13.40 In relation to land use, given that the majority of the land in Option 1 is being promoted by two large entities and that the majority of the land owners are known, this is considered to be the most deliverable Option in this respect.

Next Steps

- 13.41 This Options Appraisal Report will form part of the evidence base that will be consulted upon by EDDC as part of their Draft Local Plan consultation during November and December 2022.
- 13.42 Following the consultation it is the intention during 2023 to develop a masterplan and produce a business case for the establishment of a delivery vehicle for the Preferred Option. This will be supported by technical evidence which will build upon the findings and recommendations from the work to date.