



Strategy Report



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1. SAVILLS UK
2. EAST DEVON DISTRICT COUNCIL



Strategy Report relating to

Overhead Lines at:

Cranbrook Expansion Site East

Client: Savills UK (on behalf of East Devon District Council)

Date: 26 September 2017

Surveyor: Ben Tibbetts MRICS

Signed:

Instruction

This report has been commissioned by Savills and compiled using information provided in emails, a site visit carried out on 24 May and documentation obtained (including a site plan and title information). This report is confidential and intended solely for our client and cannot be relied on by any third party.

The purpose of this report is to provide comprehensive advice on the relocation of two overhead electricity lines currently affecting the subject development site and the likelihood of obtaining compensation for their presence. It assesses the indicative costs associated with diversion options and the potential timescales involved in undergrounding the overhead lines.

The lines in question are a 132kV and a 33kV. Both are currently extending over the site known as 'Cranbrook Expansion Site East, London Road, Whimble'. This report sets out the options for diverting the overhead lines underground.

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Cranbrook Expansion Site East, London Road, Whimble Strategy Report

1 Introduction

1. Over the past five years the new town of Cranbrook has expanded to a community of 3,000 people, with Phase One delivering 1,100 new homes. The East Devon Local Plan allows for further expansion of up to 8,000 homes and three separate planning applications have been lodged with East Devon District Council (EDDC) for residential development that will grow the town to around 7,500 homes. The current number of new homes now built on the scheme stands at approximately 1,500.
2. EDDC has instructed consultants to assist in preparing a masterplan for the proposed expansion of Cranbrook new town, which is part of the Exeter and East Devon new Growth Point. A Development Plan Document (DPD) for Cranbrook will provide the detailed policy to guide, inform and set the standard for development. The masterplan will form part of the DPD evidence base.
3. We have been instructed by Savills to produce this report to evaluate the opportunity of diverting/undergrounding the overhead lines within the eastern expansion area, viability of the scheme and the delivery of housing in this area. This includes the opportunities and constraints of undergrounding the overhead line south of London Road.
4. The eastern expansion area is bordered to the north by the Exeter to London Waterloo railway line, with agricultural land and areas of woodland beyond, and to the east by more agricultural land. Its southern border is defined by the London Road (the 'old' A30). A watercourse (Cranny Brook) flows from east to west through the site. There are two prominent high voltage overhead electricity tower lines on the site operating at 132,000 volts (132kV) and 33,000 volts (33kV).

1.1 Assumptions and Caveats

5. Both lines are owned and operated by Western Power Distribution (WPD). We are not aware of any plans to change or upgrade the voltages of the lines and have therefore assumed that the electricity company is intending to continue using them at their current capacities.
6. For the purpose of this report and the calculations it contains, we have assumed that outline planning permission will be granted for the eastern expansion areas referred to as parcels C and D (to the east and south-east of Cranbrook phase 1). We have relied entirely on the information we have been given and have estimated costs based on previous quotes provided by electricity companies. We have

conducted a site visit and have not found anything which will materially affect our advice in this report.

7. An illustrative masterplan is set out below in Figure 1, a copy of which is also provided in Appendix 1. The plan shows previously consented/emerging development parcels (phase 1) and the expansion areas of C and D to the east. We understand that you are assessing the viability and options of land parcels to the east. We have therefore separated out land parcels C and D from each other so that our advice is clear.

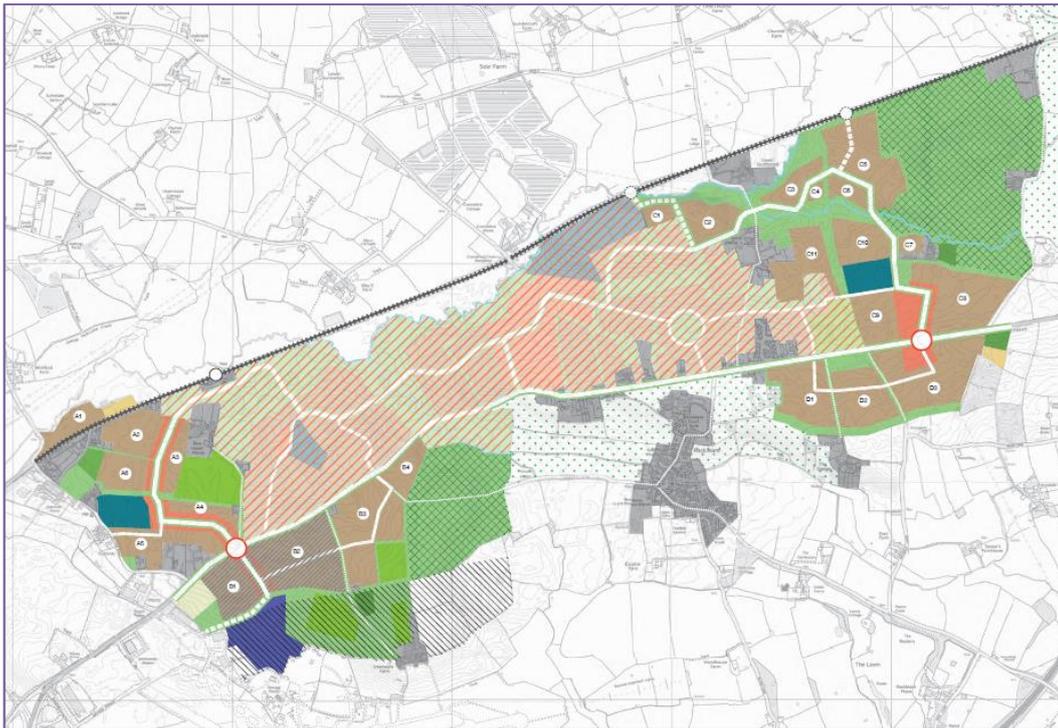


Figure 1: Illustrative Masterplan (Savills - UD0101)

2 Engineering Information

8. As previously stated, this report focuses on two overhead lines (illustrated in Figure 2 below, a copy of which is included in Appendix 2). Both are steel lattice tower lines which enter the site from the northern boundary with the railway line and extend south-east across the site. The easterly overhead tower line is operating at 33,000 volts (33kV) and extends for 1.21 km across the site. Most of this line passes over the proposed eastern Strategic Alternative Natural Green Space (SANGS). The 132,000 volts (132kV) overhead line enters from the northern boundary and crosses Southbrook Lane before changing direction and heading in a more southerly direction. This overhead line extends for 1.7 km.

9. A double circuit 33kV overhead line is usually supported on wooden 'H' pole structures. On this site the 33kV is supported on 132kV constructed steel lattice towers. It is possible that in the past these towers carried two 132kV circuits and we should be able to confirm this once we have contacted the electricity company and obtained diversion quotes for this apparatus. For the time being, as the overhead line has been constructed to 132kV specifications, it is prudent to assess the line's restrictions on this basis.

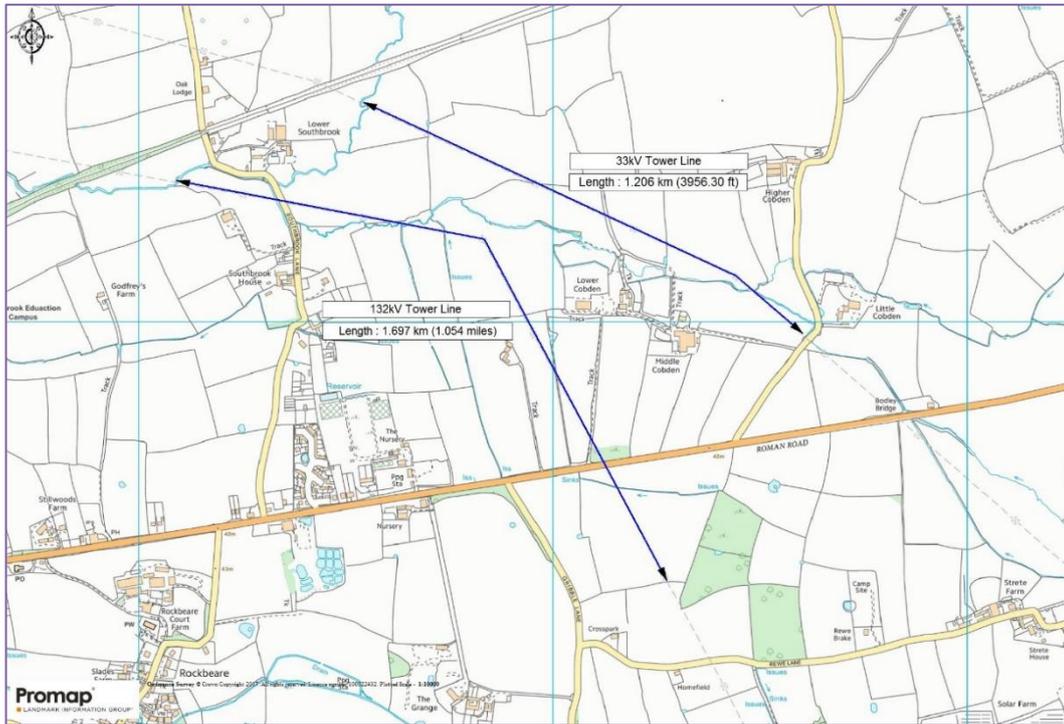


Figure 2: Illustration of Overhead Lines

10. We have not been provided with any specific engineering drawings setting out the physical constraints of the overhead lines and have only seen the schematic network plans which show the locations of the apparatus within the local area. We would recommend that copies of any engineering drawings specific to the lines are obtained so that we can make a full assessment of any restrictions imposed by them. The extract set out in Figure 3 illustrates the 132kV and 33kV overhead lines heading out from Exeter Main Bulk Supply Point (BSP).



Figure 3: WPD Network Schematic Plan

11. Overhead lines operating at their maximum temperature in high wind conditions create an elliptical curve constraint between supporting towers. At mid-span the ‘sag and swing’ of the overhead line is at its greatest restriction and often it is not practical to plan a development based on these exact engineering specifications. The electricity company therefore generally accept a linear restriction based on the greatest restriction at the mid-span point. For 132kV tower lines this is generally estimated as 15 metres either side of the centre point of the overhead line and we have used this as a basis for our calculations. Despite the 33kV overhead line having lesser restrictions, the construction of this overhead line is actually 132kV and we have therefore made a prudent assessment on this basis. The table in Figure 4 below sets out the minimum health and safety restrictions imposed by 132kV overhead lines and reduced restrictions for a 33kV line:

Type of Line	Conductors to Ground Level	Clearance from any Building
132kV	6.7 metres	3.6 metres
33kV	5.2 metres	3 metres

Figure 4: ESI Standard 43-8

3 Legal Background

3.1 Electricity Company Rights

12. Most electricity lines are installed under a wayleave granted by the original landowner in accordance with the Electricity Act 1989, which supersedes earlier legislation, and a consent granted by the Business, Energy and Industrial Strategy (BEIS), under Section 37 of the Electricity Act 1989, formerly Schedule 10b of the Electric Lighting (Clauses) Act 1899. This consent provides both ministerial permission and planning permission for an overhead line. A wayleave is a personal licence granted by a landowner and/or occupier.

3.2 Wayleave Agreements

13. We are not aware of any existing wayleave agreements relating to the overhead lines and towers present on this development site. We would be grateful if you would speak to the current landowners to obtain this information and send through any reports on title or legal information in this respect.
14. We have reviewed the electronic Land Registry information for the land parcels crossed by the overhead lines and have provided a summary of the agreements registered to the overhead lines crossing those titles in Figure 5 below:

Title Number	Description	Rights relating to overhead lines
DN213113	West side of Southbrook Lane	No rights appear on the registered title and therefore highly likely to be held on wayleave or no rights at all.
DN158849	West and east side of Southbrook Road	No rights appear on the registered title and therefore highly likely to be held on wayleave or no rights at all.
DN509624	Lower Cobden	No rights appear on the registered title and therefore highly likely to be held on wayleave or no rights at all.
DN349232	Middle Cobden Farm	No rights appear on the registered title and therefore highly likely to be held on wayleave or no rights at all.
DN561112	North side of Rewe Lane	No rights appear on the registered title and therefore highly likely to be held on wayleave or no rights at all.

Figure 5: Wayleave Agreements – Overhead Lines

15. We are not aware if any of the current land owners are receiving payments for the overhead lines from WPD. Although we have not seen any evidence of payments, for the purpose of this report we have assumed that all the landowners are receiving regular payments.
16. On the assumption that payments are being received by the landowners, any existing wayleave rights will be binding until they have been terminated.

3.3 Notices

17. Following termination of a valid wayleave, a notice can be served on the electricity company requiring it to remove the overhead line. If a notice to remove the line has been served the electricity company must either remove the line or apply for a necessary wayleave within three months. The electricity company can still lawfully retain the line until the matter is determined by the Secretary of State and any

necessary wayleave hearing is usually held in abeyance until agreement is reached between the parties. Commencing this process will usually prompt the electricity company to open up conversations about diversions or retention of part or whole of their apparatus.

3.4 Compulsory Purchase Powers

18. Under Schedule 3 of the Electricity Act 1989 an electricity company has the option to apply for a compulsory purchase order to retain the overhead line which, by definition, includes all supporting towers. However, this would be an extreme step for an electricity company to take and rarely happens.

4 **Planning Issues**

4.1 Planning

19. Planning is a critical factor in any assessment and will determine the basis on which any appraisal calculations can be made when understanding the opportunity to release valuable development land. We note that planning applications have been submitted for expansion to the west, south and east of phase 1. EDDC's DPD issues and options document identifies additional land to the south-east (Area D).
20. The applications for the other two sites can be summarised as follows:
21. '**Cranbrook Expansion Site West**' – seeking permission for up to an additional 820 residential properties, one 1-form entry primary school, a cemetery, sports and recreation facilities, green infrastructure and community uses.
22. '**Cranbrook Expansion Site South**' – seeking permission for up to an additional 1,550 residential properties, 40,000 sqm of employment, one 2-form entry primary school, a local centre, sports and recreational facilities, green infrastructure and community uses (Application Ref: 15/0046/MOUT)
23. The Design and Access Statement submitted as part of the planning application (Application Ref: 15/0046/MOUT), describes '**Cranbrook Expansion Site East**' as follows:

“The Eastern Expansion area is bounded to the north by the railway line, to the south by the existing ‘old’ A30 and to the west by the consented Cranbrook scheme (Ref 03/P1900). The Cranny Brook runs in an east west direction through the development parcel which is further dissected by two electricity pylon routes”

24. Collectively, the three applications are seeking planning permission for 4,120 dwellings. The individual proposal for the Eastern Expansion is as follows:

“Up to 1,750 residential dwellings; one 2-form entry primary school; local centre comprising up to 1,000 sqm of A1 uses plus A2, A3, A4, A5 uses and up to 1,250 sqm B1 business use; sports and recreation facilities including children’s play; green infrastructure; community uses (including non-residential institutions); assembly and leisure; landscaping; allotments; engineering (including ground modelling and drainage) works; demolition; associated infrastructure; and car parking for all uses.”

25. A copy of the Parameters Plan submitted with the planning application is set out in Figure 6 and a copy is provided in Appendix 3:

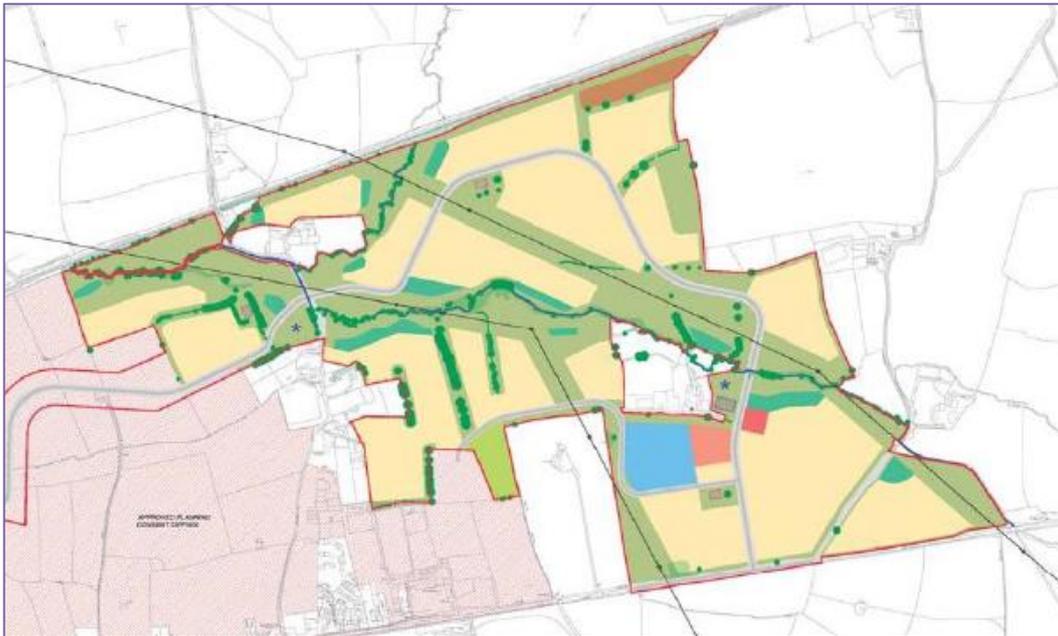


Figure 6: Parameters Plan (accompanying Hallam planning application)

26. The above plan shows a significant amount of POS for the site in the areas below the overhead lines. EDDC have confirmed that narrow arms of open space beneath overhead power lines would not meet Natural England’s (NE’s) Suitable Alternative Natural Green Space (SANGS) design criteria.
27. EDDC’s emerging DPD masterplan considers removal of the overhead power lines and creation of a SANGS to the east together with further development to the south-east of London Road (Area D). This report focuses on development land on the emerging DPD masterplan.

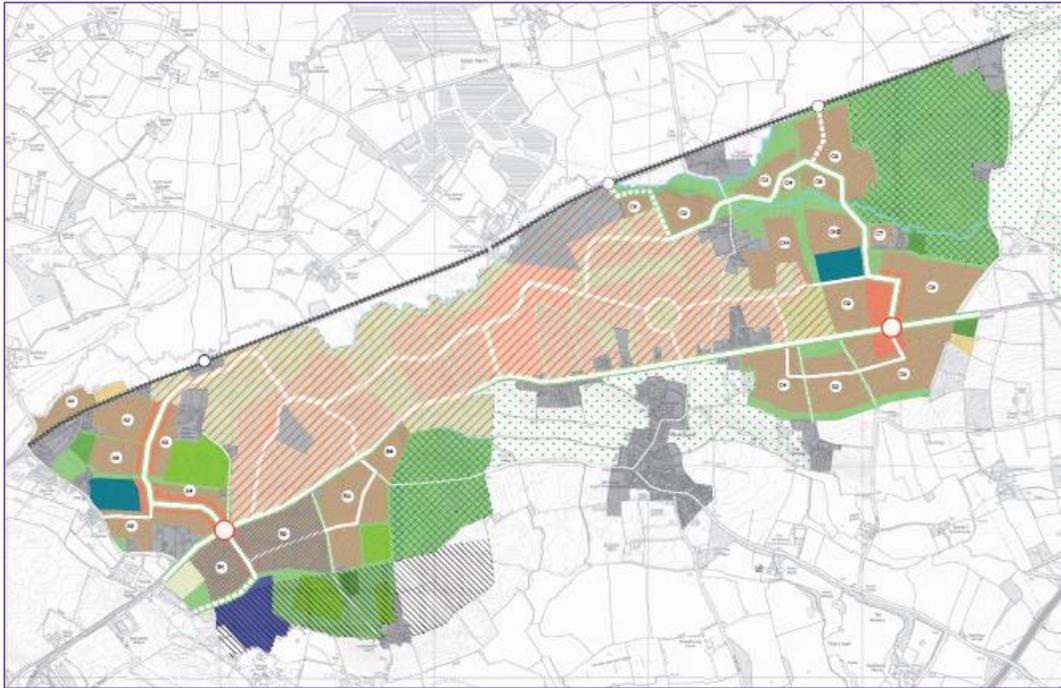


Figure 7: Savills Sustainability Appraisal / Masterplan

28. In the emerging masterplan the Eastern Expansion development land is more contained with the impact of the 33kV tower line reduced and only impacting parcels C3, C5 and C6. In the Parameters Plan in Figure 6 (Hallam Planning Application) the corridor created by the 33kV line is posing a much greater constraint on development land which could otherwise be used for development if undergrounded. Figure 7 includes the additional parcel of residential development land to the south known as Area D which, were it to be incorporated into the development, would also be severely constrained by the 132kV line.
29. We have assessed the restrictions of both overhead lines based on the extent of the development land affected in the emerging masterplan.
30. The 'With' and 'Without' scenarios presented in Figures 6 and 7 both retain a corridor in which Cranny Brook roughly follows the route of the 132kV overhead line. The 132kV line begins to impact on development from the angle tower at the centre of the site as it heads south.
31. Reasonable expectation of a future planning permission is always considered contentious. So, although we can put together an appraisal of the likelihood of receiving planning permission for residential purposes, this will be difficult to substantiate until planning permission has been granted.
32. If planning permission is granted there are likely to be a number of planning costs and conditions associated with the consented land and any S106 obligations for affordable housing or CIL contributions.

33. Using the Ordnance Survey plan in Figure 8 following (a copy of which has been provided in Appendix 4) we have set out the areas of land affected by the overhead lines. Some the measurements refer to the Hallam application land and others refer to the emerging masterplan.

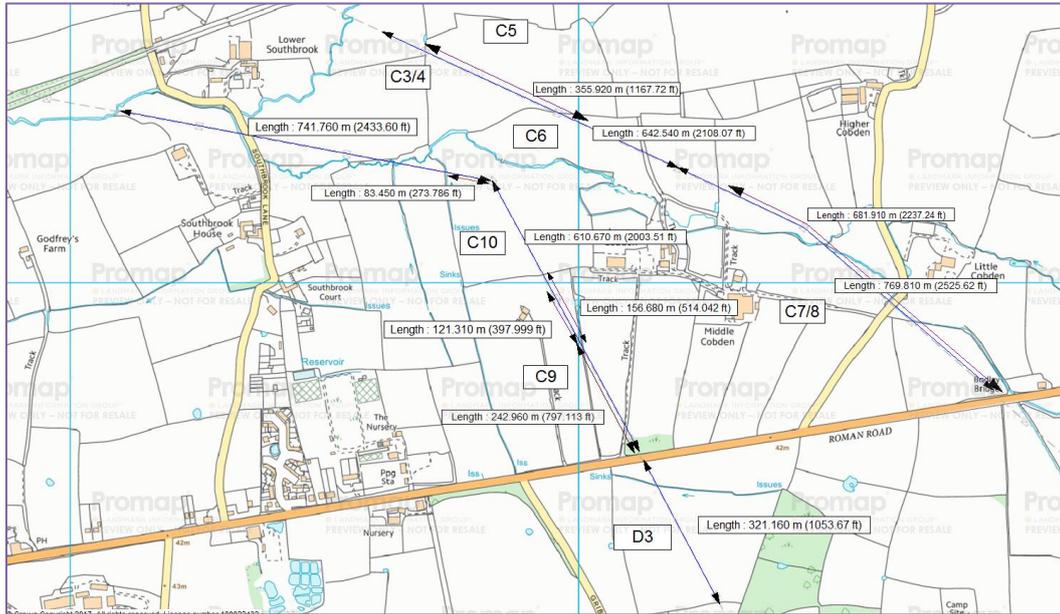


Figure 8: Development Areas Affected

34. The areas affected are only approximate and reflect the general restrictions applied to lines of this size and nature. We would recommend requesting the clearance drawings for both overhead lines so that we can be clear on the exact specifications. The areas below reflect the emerging masterplan impacted areas.

Route	Length (metres)	Restriction	Development Area (ha)
132kV - C9 & C10	694	15 metres either side	2.08
132kV - C9, C10 & D3	1,015	15 metres either side	3.04
33kV - C3 to C6	356	15 metres either side	1.07

Figure 9: Impacted Areas

35. We would also recommend that a further plan is drawn up to supplement the emerging DPD masterplan showing the overhead lines in location, so that we can more accurately determine the areas of land directly affected by the lines. We have also assumed the restrictions of the 33kV tower line will reflect the constraints imposed as if it were operating at 132kV. This is a reasonable assumption in these circumstances due to it being constructed to 132kV standard.

36. Regarding D3, in our opinion it would not be feasible for an underground diversion scheme to take place in isolation on this land parcel. The section of overhead line affecting the land is too short and it would be counterproductive to remove one support tower and replace it with two heavier terminal towers.
37. In terms of the 33kV line and areas C7 and C8, on the emerging plan these are not impacted by it. They are however impacted on the Parameters Plan submitted with the Hallam Land application. Broadly speaking, approximately 1.02 hectares (2.5 acres) of land would be released were the overhead lines to be removed on the Hallam Land plan. We have not calculated the impact on this land and this report has primarily focused on the emerging DPD masterplan.
38. Were the 132kV overhead line to be removed, approximately 3 hectares (7.4 acres) would be released for development across the site.

4.2 Overhead Lines and Underground Cables

39. Any diversion or modification to an existing overhead line requires planning permission in the form of consent under Section 37 of the Electricity Act 1989. An Environmental Assessment may also be required, as diversions and modifications to overhead lines at 132kV and above are classed as Schedule 2 projects under environmental legislation.
40. Any proposed overhead line, underground cable or tower on third party land also requires the consent of the owner and occupier. If this is not granted voluntarily the electricity company has the power to apply for a necessary wayleave or compulsory purchase order. An underground cable diversion is exempt from requiring planning consent under the Town and Country Planning (General Permitted Development) Order 1995.
41. The 'Planning Act 2008' sets out the circumstances in which consent is not required for an overhead line and has applied to the Planning Act by virtue of the Overhead Lines (Exempt Installations) Order 2010. Regulation 4 allows the replacement of an existing line providing the voltage is not increased and the height of the support does not increase by more than 10% and a distance between the new support and the centre of the existing line does not exceed 60 metres. The exemption regulations were extended in 2013 to include 132kV and other high voltage lines less than 2 km in length as these are no longer classed as nationally significant infrastructure projects. Any modification will therefore only require S37 consent.

4.3 Public Open Space

42. The allocation of public open space (POS) and its relationship to development is important in any assessment and needs to be carefully considered.

43. Locating formal or informal open space under overhead lines is often compromised due to the inferior quality of the open space this provides and the fact that many local authorities would not regard linear open space as being acceptable or adoptable for a scheme of this size and nature. As previously mentioned, EDDC have confirmed that narrow arms of open space beneath power lines would not meet NE's SANGS design criteria. There is a real risk that the land might not be adopted by the local authority and the success of the scheme may be seriously compromised. These points are evidence that land under the line would be better utilised for development.

44. The Design and Access Statement that accompanied the planning application summarises the landscape and POS elements of the site as follows:

“A green corridor extends across the site on an east – west alignment, accommodating informal areas of open space, amenity greenspace, and equipped areas of play. A sports pitch is co-located with the community sports pitches and allotments off the former A30 in the existing scheme. Existing important hedgerow features and veteran trees are retained where practical, to provide landscape features of ecological benefit.”

45. Given that significant work has gone into the previous planning applications for this site, evidence could be provided that were the overhead lines to remain in their current locations the resulting constraint would severely restrict development on this site.

46. Cranny Brook, which passes through this area of the site, is a constraint on the development and any developer will have to make allowances for its presence when planning the scheme (see 4.4 below).

4.4 Flood Risk

47. A large proportion of the eastern site lies within Flood Zone 1 (an area at low risk of flooding). There are also areas on the site on either side of Cranny Brook which fall within Flood Zones 2 and 3.

48. We understand a Flood Risk Assessment has been undertaken and the report notes that the land adjacent to the railway line has been:

“raised in order to provide provision for the station and associated infrastructure. As this land is within the modelled Flood Zone 3, an area of land was set aside for flood plain compensation”

and confirms that:

“At present, during the 1 in 100 year (1% AEP) and 1 in 1,000 year (0.1 AEP) flows exceed bank levels for Cranny brook and the Rockbeare Stream, placing the proposed development site within Flood Zone 2 and 3”.

- 49. Although most of the eastern expansion site is at a low risk of flooding, some of the land has been lost due to measures taken to prevent flooding and as previously mentioned, the Cranny Brook constitutes an additional serious constraint on the site. At least 50% of the 132kV overhead line over the land north of London Road appears to follow Cranny Brook until it reaches an angle tower. The line then continues on further south-east. Even if the 132kV line were removed, this area of land would still be undevelopable.

5 Options for Diversion

- 50. At this stage, we have not discussed any detailed diversion proposals with EDDC or enquired of WPD to the feasibility of the options set out. We have only looked at the site from a general perspective. We have based our proposals on our knowledge of previous schemes and other cost diversion quotes provided to us and our clients in the past.
- 51. We have examined a number of options and illustrated indicative terminal tower locations and approximate underground routes in Figure 10. This plan is provided in full in Appendix 5 and shows where we anticipate the proposed locations of the terminal towers to be for underground routes through the development.

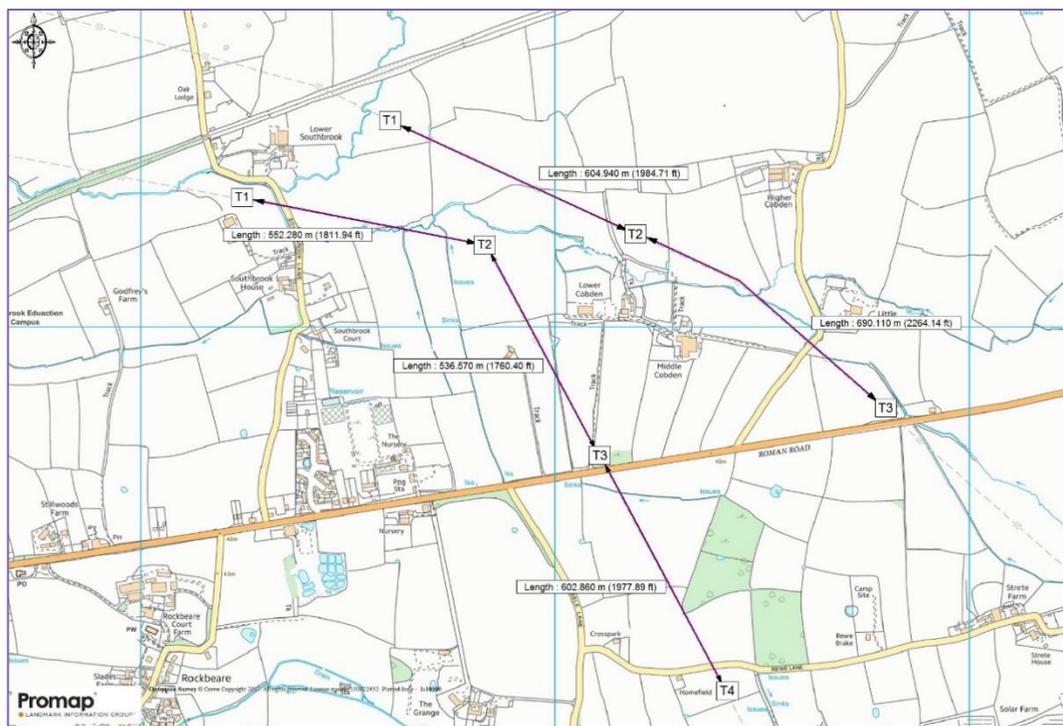


Figure 10: Tower Location Plan

52. To maintain control over timescales and opportunity we would always recommend that the developer opts for a solution with associated terminal towers within their land ownership. This will ensure that they have a deliverable solution that will sidestep any third party issues. It will also help in any negotiations with third parties.
53. It is worth noting that any proposed terminal towers replacing existing support towers are likely to be of heavier construction due to the physical characteristics needed for a terminal tower. We have provided an example image of a 132kV terminal tower in Appendix 6.
54. Any underground route will require a strip of land incorporating a trench for each circuit. The circuits could run in conjunction with other utility services within the site, subject to detailed engineering design. For double 132kV circuits we have been advised in the past that an easement strip ranging from 6 to 12 metres would be required depending on whether the underground cables were in the highway or a strip of open space land. Following consultation, it is likely that this distance will be reduced, but due to the size of the circuits the electricity company will want to keep a corridor of land free of any development or landscaping which might affect their apparatus or future maintenance on it. We have assumed that the routes will either follow a green corridor or alternatively the shortest highway route between the terminal towers. To simplify our calculations, we have assumed a direct route between the terminal towers. Any route is likely to be longer than the one we have set out and our contingency goes part of the way to cover this cost. A double circuit 33kV would only require a 4 to 6 metre easement strip. This will need to be wider though if WPD insist on reserving an underground easement which could be upgraded to 132kV.
55. Until we can establish the detailed design of the terminal towers (including engineering distances from existing towers, temporary towers, and overall construction) it will not be possible to determine the actual route and the locations of the proposed terminal towers. It will also be very difficult to evaluate the costs until a full detailed design study has been commissioned by the electricity company and they have gone out to tender with their approved contractors. Our current cost assessment is based purely on other 33kV and 132kV diversions we have been involved in. Our costs do not take into account any ground or unforeseen conditions on the site, nor do they allow for the wider context of manufacturing and cost changes in 33kV and 132kV apparatus. Furthermore, they make no allowance for any problems with third parties, although the contingency element of the costs below do make provision for some of these unforeseen complications.
56. The costs in relation to the 33kV double circuit line are particularly difficult to estimate. The line is currently constructed to 132kV specifications which is very unusual. There would be significant savings in relation to the underground cabling

and terminal wood poles. However, given the uncertainty about the specification of this line, our estimate is based on both terminal towers being constructed to 132kV specification. Any figures relating to the 33kV overhead line will change significantly depending on construction type and we request costs are sought directly from WPD with this regard. We have taken the average between a 132kV cost and a 33kV cost to arrive at the figures below.

57. We have set out our estimated costs (based on previous cost quotes we have received) in Figure 11 below:

Route	Length (metres)	Contingency (%)	Cost (£)
132kV T2 to T3	537	15%	£2,285,280
132kV T2 to T4	1140	15%	£4,719,600
33kV T1 to T2	605	15%	£1,426,288
33kV T2 to T3	690	15%	£1,626,675

Figure 11: Routes and Estimated costs

58. The figures above do not constitute a technical breakdown of the cost, nor can they be relied upon. They do however provide us with a useful indication of the levels of cost that would be expected for a scheme of this size and nature. It is important therefore that we obtain indicative costings from the electricity company for a number of diversion routes so that we can be clear.
59. Due to the time and cost implications of dealing with Network Rail, we would also strongly recommend that any new terminal tower for the 132kV overhead line is located south of the existing tower (known as T1) south of the railway line. In relation to the 33kV there is generally much more flexibility in terms of the works and any outages. Therefore, at this stage, we have assumed that a new terminal tower could be built south of the railway line. Additional technical input will be required on this, as we are unaware of the topographical or engineering constraints in this location. Please also note that any involvement or consent required from Network Rail can extend the whole process by a further year.
60. Based on the limited information we have available to us at this stage, we anticipate a contingency of 15% on top of the above figures. Depending on the circumstances electricity companies will often quote levels of contingency ranging from 10%-20% and this will be influenced by the technicality of the route, complicated tower design and third party implications. In this case the contingency reflects the uncertainty of the proposals and scheme design.

61. It is likely that the development will contain other utility crossings and other infrastructure which will be integral to the works. This in turn will have an effect on the standard cable depths and the cable routes may need to be deeper to accommodate other utility infrastructure. Any developer will need to anticipate these problems at the earliest stage.

5.1 Health and Safety Considerations

62. Extensive research has been carried out into the possible health effects of living close to overhead lines. To date no link has been established in the UK between the electromagnetic fields (EMFs) emitted by overhead lines and childhood leukaemia.

63. Studies have included the Stakeholder Advisory Group on ELF and EMF (SAGE) published in 2007. This document offered advice in relation to the perceived problems of overhead lines and suggested that caution should be used when developing near to overhead lines.

64. We have set out the current guidelines in the table below:

Voltage	Restriction on Development
275kV and 400kV lines	60 metres
132kV, 110kV and 66kV lines	30 metres
33kV, 22kV, 11kV and 6.6kV lines	provisionally no restriction
400 volts lines	no restriction

Figure 12: SAGE Guidelines

65. As these restrictions have not been endorsed by government we can only assume the physical, generally accepted restrictions, set out in Section 2 of this report are applicable. This does however illustrate the uncertainty surrounding the impact of high voltage electricity lines and the perception impact this then has on planning, developers and future occupiers. As a result, we have often found that development is built to greater stand-offs than the physical restrictions generally accepted by the electricity companies. This would then substantially increase the quantum of restricted development land if the guidelines set out in SAGE were implemented.

5.2 Planning Issues

66. Some local authorities have developed policies with regard to development close to overhead lines and along with developers have been strongly influenced by the planning guidance in SAGE, (see Section 5.1 of this report), market and consumer perception. The electricity company does not accept the guidance set out in SAGE or policies adopted by local authorities, despite the restrictions they potentially impose.

- 67. Subsequently the physical restrictions imposed by an overhead line on the land which is disjointed from the rest of the site can have an impact on planning. This is land which could potentially be developed, but has not been granted planning permission because it is not a viable part of the overall development of the site.
- 68. In view of the complicating factors above, we would strongly recommend assessing further schemes on a 'with and without' basis. This will calculate the difference between the development potential of the land with the lines in place, and its potential with the lines removed. The best way to represent this would be to produce two separate 'with' and 'without' layouts for the site.
- 69. This method takes into consideration constraints such as planning, topography, access and sustainability, which can then be evaluated in relation to the land restricted by the overhead line. This will give a more accurate assessment of the development square metre/number of units affected by the lines.

5.3 Perception Issues

- 70. Future purchasers will have a perception of the potential health impact of the overhead lines and will be discouraged by the dominating visual effect towers can have. This will have an effect on the marketing of future dwellings and the sales prices developers are likely to be able to achieve. From experience this can impact properties within 30 metres either side of the physical restrictions of the overhead line and is set out in Figure 13.

Route	Length (metres)	Restriction	Development Area (ha)
132kV - C9 & C10	694	30 metres either side	4.16
132kV - C9, C10 & D3	1,015	30 metres either side	6.09
33kV - C3 to C6	356	30 metres either side	2.14

Figure 13: Visual Impact

6 Timescales

- 71. There are a number of factors that could extend the time required to achieve a solution on diversion of the 132kV scheme. These include: (a) the position adopted by the planning authority, (b) the granting of planning consent for comprehensive development, (c) S37 consent required for any new terminal towers and alterations to the existing line, (d) underground cable procurement, (e) arranging outages for potentially two circuits, (f) timing of serving notices and (g) wayleave hearing proceedings.

72. Once new routes have been established and agreed with WPD they will have to consult with the local authority which may require an environmental impact assessment to obtain S37 consent. Consultation may also be required with the wider community and third party consents may need to be obtained while the application is being considered. Assuming consent is granted, the materials would be ordered and arrangements would be made by WPD to book outages with National Grid. It is likely to take approximately 3 years from the point at which planning permission is granted for the development until the delivery of an underground diversion for the 132kV overhead line.
73. Additional factors such as complicated terminal tower locations, delay in obtaining planning permission for the site and third party consent involvement will have a significant bearing on timescales. From experience, and particularly if any involvement is required on the part of Network Rail, this could easily extend the timeframe by up to a further 12 months.
74. We have some concerns regarding the 33kV terminal tower to the north, as a tower would be required either within the developable area, Appendix 5 (which would negate any benefit of undergrounding) or at the location of 'T1', which would necessitate involving Network Rail. It is unusual for 33kV circuits to be carried on towers, especially on towers constructed to 132kV standard. There is no particular reason why these circuits could not be supported on wood poles across the development. These uncertainties are likely to have an impact on development timescales and we would anticipate a two year delivery phase for the diversion of this line following receipt of planning permission.
75. The timing of the works will be heavily dependent on the outages needed for the works and the budget allocation necessary to undertake them. Depending on the importance of the overhead line to the electricity network, these times will fluctuate. Even if the developer were to offer financial incentives to divert the overhead line, there would still be no greater certainty regarding the timing of the works at this stage. This is also providing the opposing surveyors and the electricity company handle the claim reasonably and a wayleave hearing is avoided. It is likely that a compromise will have to be reached with the electricity company if the works are to be programmed in accordance with the timescales for development and delivery of the scheme.

7 Conclusions

76. We now provide our summary conclusions and set out the matrix table in Figure 14 the impacted land area, constraint and diversion costs.

Line Segment	Parcels	Development Land Area (ha)	Visually Impacted Land (ha)	Diversion Cost (£ Million)
132kV T2-T3	C9-C10	2.08	4.16	2.29
132kV T2-T4	C9-C10-D3	3.04	6.09	4.72
33kV T1-T2	C3-C6	1.07	2.14	1.43

Figure 14: SAGE Guidelines

77. Regarding the land parcel known as D3, in our opinion it would not be feasible for an underground diversion scheme to take place in isolation. The section of overhead line affecting it is too short and it would be counterproductive to remove one support tower and replace it with two heavier terminal towers at each end of this individual parcel. WPD would strongly resist any diversion of any overhead line under 2 spans in length and when presented with this situation will opt to compensate and retain the line in location.

7.1 Legal

78. There is an opportunity to terminate the existing wayleaves and talk to WPD in relation to the underground diversion of the overhead lines in return for agreeing new easement rights through the land. We would recommend serving termination notice on the land parcels C9 and C10 and serving termination notice on D3 when this land has been allocated or once a planning application has been submitted for this parcel.

7.2 Diversion and Costs

79. We have estimated the diversion costs relating to the 132kV line. An underground diversion route within parcels C9 and C10 extending through to D3 would cost approximately £4.7m while a route passing through C9 and C10 only would cost £2.3m. An underground route through land parcel D3 in isolation would prove counterproductive unless the underground diversion scheme could be extended further south.
80. We have estimated the cost of the 33kV overhead line diversion to be £1.4m if this was applied only to the section affecting parcels C5 and C6. This figure could be substantially reduced if it could be determined whether the terminal towers could be

of wood pole construction and if the problems associated with crossing Network Rail land could be minimised.

81. These figures are based purely on previous cost estimates given to us by WPD and other electricity companies on other projects we have been involved in. Although independent studies can be undertaken, only the electricity company can commission these works. We are therefore dependent on them for accurate costings and will need to refer to them directly on this.

7.3 Planning

82. Planning and the allocation of POS will be crucial to understanding the impact and release of land on this site. The best way to look at this will be to produce a number of scenarios on the basis that the overhead lines are retained in their current location against an underground diversion proposal. At this early stage it is clear that approximately 3 hectares (7 acres) of development land will be released along with a further 6 hectares (15 acres) of visually impacted land should the 132kV overhead line be diverted underground.

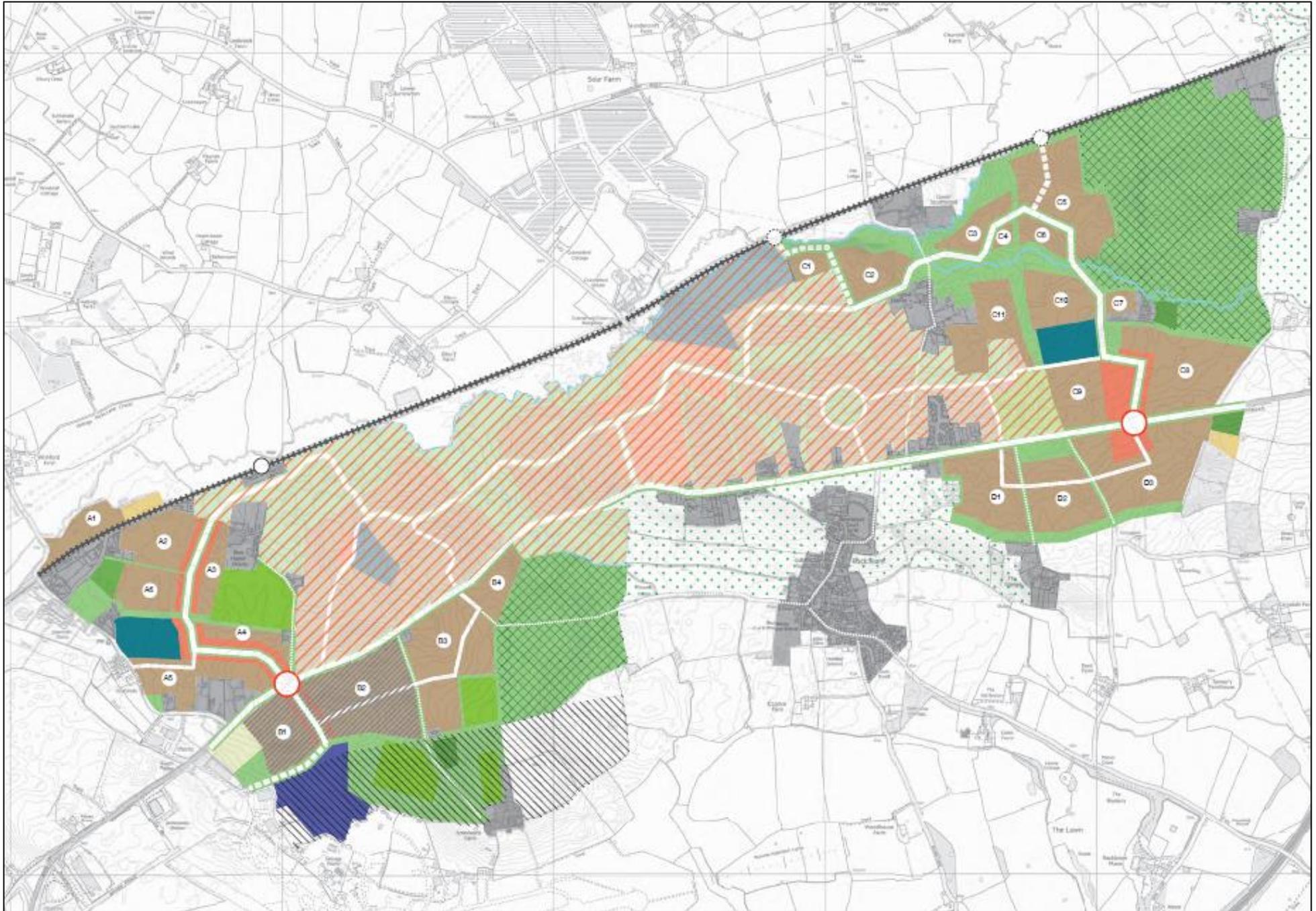
7.4 Timing

83. In relation to the 132kV, the process of serving notices, conducting negotiations, decision-making and agreement of the works with WPD, along with the actual construction work on the underground diversion of the line, is likely to take at least 3 years. The diversion of the 33kV should take approximately 2 years subject to any agreement and works with Network Rail. If there are complications arising from dealings with Network Rail, this could easily increase the timeframes by up to 1 year

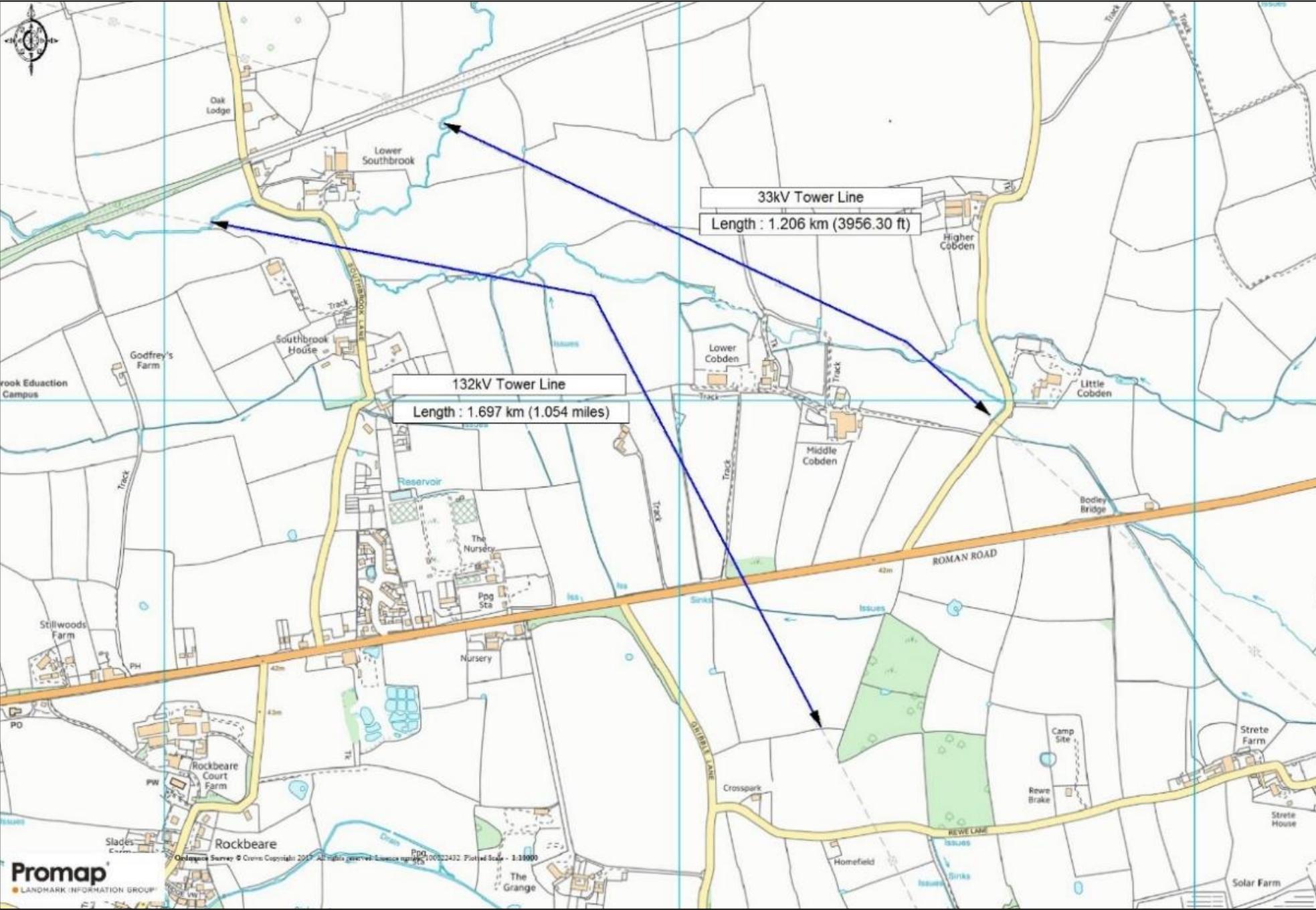
7.5 Summary

84. In our opinion, there are convincing arguments for undergrounding the 132kV overhead line over development parcels C9, C10 and D3. Diverting the 132kV overhead line could release approximately 3 hectares of development land and 6 hectares of visually impacted land. Further work will need to be undertaken with regard to the 33kV overhead tower line given the reduced development area affected by the emerging DPD masterplan. There is also uncertainty on whether the electricity company will want to reserve the right to upgrade the 33kV overhead line, as well as implications on the terminal tower over the railway at the northern boundary crossing.

Appendix 1: Illustrative Masterplan (Savills – UD0101)



Appendix 2: Line Length Plan

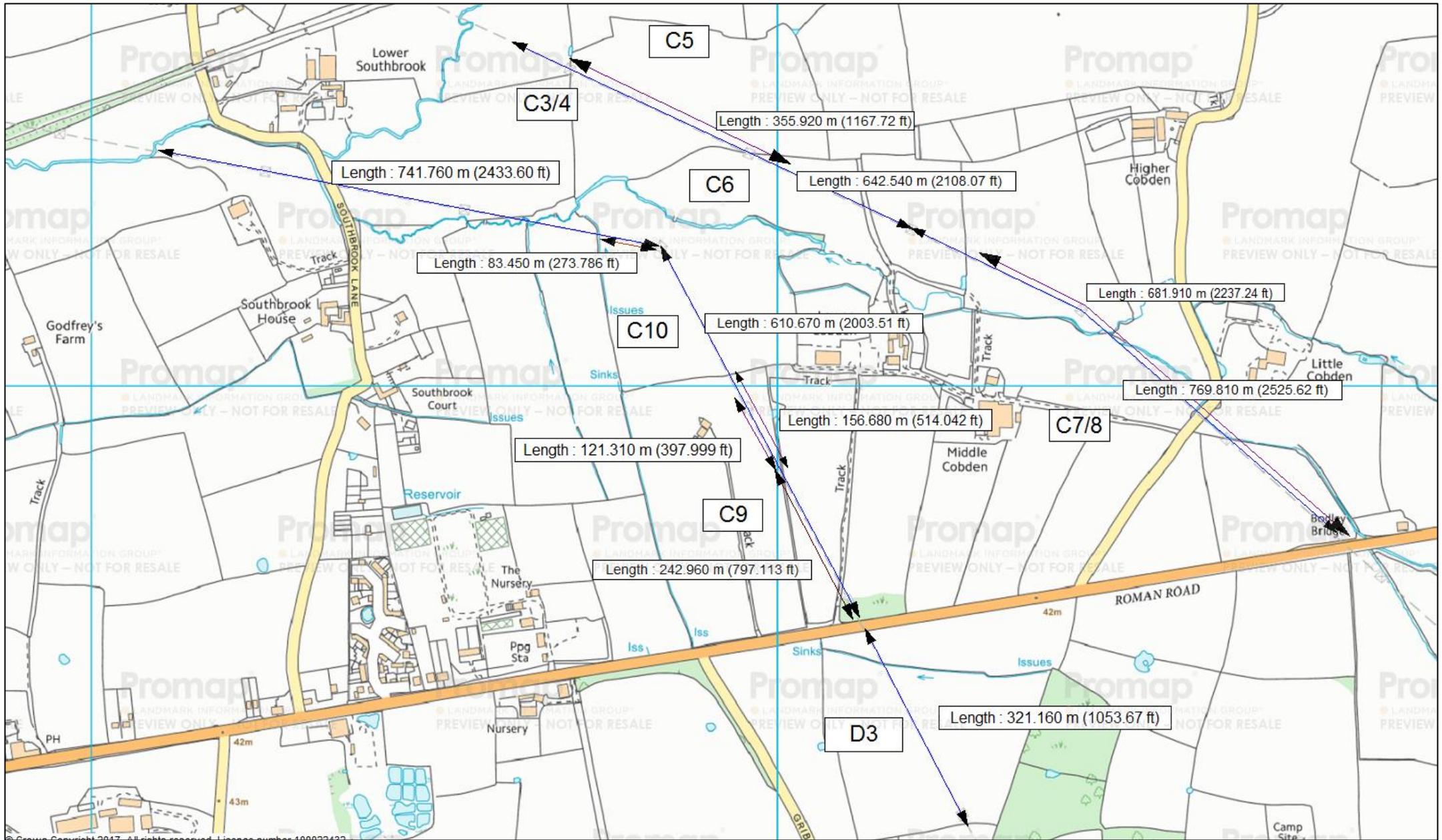


Appendix 3: Parameters Plan



- Planning Application Boundary
 - Residential
 - Primary School
 - Local Centre
 - Existing Development
 - Primary Street
 - Areas to contain drainage basins
 - Green Infrastructure
 - Sports Pitches
 - Allotments
 - LEAP
 - NEAP
 - Retained strategic landscape
 - VT Veteran tree
 - Existing watercourse
 - * Flood compensation for Primary Street
- NOTES:**
Up to 12m Building Height to Ridge

Appendix 4: Development Areas Affected Plan



Appendix 6: 132kV Terminal Tower Example



Appendix 7: Photos

London Road Middle Cobden Looking North 132kV



132kV London Road Looking South



Appendix 7: Photos

132kV Southbrook Lane Looking East



132kV Southbrook Lane Looking West



Appendix 7: Photos

33kV Little Cobden Looking East



33kV London Road Looking South East

