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Bramford to Twinstead Reinforcement

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**Document 8.9.5: Temporary and Permanent Access Technical Note –
Suffolk County Council**

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Executive Summary

National Grid Electricity Transmission plc (the Applicant) is promoting an application for development consent to reinforce the transmission network between Bramford Substation in Suffolk, and Twinstead Tee in Essex. The Bramford to Twinstead Reinforcement ('the project') would be achieved by the construction and operation of a new electricity transmission line over a distance of approximately 29km (18 miles), the majority of which would follow the general alignment of the existing overhead line network.

In order to construct and operate the infrastructure, 126 accesses are required, of which 121 are temporary (although a right of access would be retained at temporary accesses in other locations in case maintenance is required). The locations of the accesses are largely dictated by the location of existing infrastructure (i.e. the 132kV line to be removed) and the proposed infrastructure (i.e. the proposed 400kV line, CSEs and GSP). The reinforcement project is located in a relatively rural area characterised by narrow lanes and with existing accesses with poor visibility. There are therefore limited options. The Applicant's proposals are guided by principles that aim to develop accesses that operate efficiently and are safe but also limit the impact of the project. Therefore, it is the Applicant's view that developing large bellmouths and undertaking major road improvements for temporary accesses would be disproportionate and would adversely affect the character of the rural road network. Access proposals should be considered in this context.

Following the construction period, traffic using permanent accesses and rights of access would be very limited. Traffic generated during the construction period would be spread out over a long linear project, with traffic at many access points being limited to the periods when a particular part of the line is being constructed. Over half of the accesses being used are existing field accesses that would be used for a short period of time, in some cases with minor improvements, and then reinstated.

Temporary access routes have been incorporated into the project to remove construction traffic from the local road network and enable vehicles to travel along the route of the new and existing lines, reducing the amount of traffic at many of the proposed access points once the temporary access routes are constructed. The project will therefore not generate the amount of traffic or permanent levels of traffic associate with other types of major infrastructure projects.

All access points and the Order Limits are shown in the Access Rights of Way and Public Rights of Navigation Plans [APP-012]. To develop these accesses, advice was sought from a contractor experienced in the delivery of transmission projects, on the vehicle numbers and location of access points for construction. Each access was then visited by the project team and the Order Limits were informed by a generic bellmouth design and developed from analysis of speed limits, survey information and the intention to limit land take and avoid excessive vegetation clearance. The Applicant considers that the level of design information provided in the application is proportionate to the effects of those aspects of the works and similar to that provided in other transmission DCO applications (see Yorkshire Green and Richborough Connection as examples).

The detailed design of the project and the accesses is anticipated to be completed over the next 6-18 months and is not required for the DCO application. Requirement 11 of the draft DCO [REP6-003] requires the Applicant to submit written details of the design, layout and reinstatement of accesses to the relevant highway authority for approval prior to construction or alteration of

accesses. Requirement 11 also requires completion of Road Safety Audits. Requirement 11 provides reassurance to LHAs that detailed designs would be developed, audits carried out to confirm safety and that LHAs would ultimately have the power to approve those designs (or not if they are not deemed to be satisfactory). The Applicant is confident that designs can be developed to discharge Requirement 11 within the powers provided by the draft DCO [REP6-003].

The Local Highway Authorities (LHAs) for the project are Suffolk County Council (SCC) and Essex County Council (ECC). The LHAs have queried the level of design information provided with the DCO application and requested additional information to provide reassurance that accesses can be developed that are deliverable and would not result in excessive vegetation removal.

The Applicant's position is that it is not necessary, proportionate or possible during the timescales to draw up detailed designs for all accesses during the Examination. However, it has been agreed that a selection of accesses of particular concern could be examined in more detail, to provide reassurance to the LHAs that solutions could be found even at the most problematic locations. This approach was agreed with the LHAs, although the LHAs have still expressed a preference for detailed designs at all accesses to be developed earlier in the programme.

Following agreement on the overall approach, the Applicant reviewed all accesses and identified those that may be most problematic due to the Order Limits being tight at that location, the location of the access on the highway (e.g. on a bend), traffic numbers or overall concerns. This was then combined with lists provided by SCC, particularly in Table F4 of Annex F of the SCC Local Impact Report [REP1-044] to develop a list of priority accesses for further investigation in Suffolk. Access AB-AP5 has been looked at in particular detail, given that it was considered potentially one of the most problematic accesses and had been the focus of discussions at Issue Specific Hearing 3. The list of accesses for further investigation was then discussed with SCC in the meeting on 5 December 2023 and issued for comment in the post-meeting minutes issued on 7 December 2023. Information on priority accesses in Essex will be provided at Deadline 8 given that this list was provided to the Applicant more recently.

This Technical Note provides the results of analysis of the nine priority accesses reviewed in Suffolk. Solutions have been described to deliver access at all the priority locations, demonstrating that detailed designs required under Requirement 11 of the draft DCO [REP6-003] can be developed for approval with the LHAs.

The Applicant is confident that the draft DCO includes sufficient rights and powers to deliver and operate all accesses safely and efficiently. The designs reflect the nature of the proposed accesses and current and proposed usage, as many of these are existing access points to private residential and commercial property including agricultural access.

There are a large number of tools at the Applicant's disposal to deliver appropriate accesses and different solutions would be sought at different accesses; these include:

- Improving the physical design of the access and/ or creating a new access with improved bellmouths and visibility;
- Speed restrictions to temporarily reduce the speed of vehicles along the road;
- Traffic management including road closures and temporary traffic signals;
- Temporary traffic regulation orders, a number of which have been listed in the draft DCO, and additional orders which could be sought if required;
- Management of construction vehicles (type, number, arrival times);

- Additional vegetation removal on highways or private land;
- Banksman operation, whereby a works employee assists the driver of a works vehicle entering or leaving the site; and
- Use of alternative accesses and/or of a temporary access route along the Order limits where the above measures cannot result in a suitable access at the point depicted in the plans.

The analysis in this Technical Note shows that a combination of these measures can resolve issues at the accesses examined. The Applicant is therefore content that the provisions within the draft DCO [REP6-003] would allow all temporary and permanent accesses to be constructed and operated safely.

1. Introduction

1.1 Introduction to Access Requirements

- 1.1.1 National Grid Electricity Transmission plc (the Applicant) is promoting an application for development consent to reinforce the transmission network between Bramford Substation in Suffolk, and Twinstead Tee in Essex. The Bramford to Twinstead Reinforcement ('the project') would be achieved by the construction and operation of a new electricity transmission line over a distance of approximately 29km (18 miles), the majority of which would follow the general alignment of the existing overhead line network.
- 1.1.2 Development of the project requires 126 access points to remove existing overhead lines, install new underground cables and overhead lines and develop ancillary infrastructure including four cable sealing end compounds (CSE) and a new grid supply point (GSP) substation and also to deliver associated environmental mitigation. Five of the accesses (the ones to the CSE compounds and the GSP substation) are permanent, of which three are in Suffolk and two are in Essex.
- 1.1.3 The locations of the accesses are largely dictated by the location of existing infrastructure (i.e. the 132kV line to be removed) and the proposed infrastructure (i.e. the proposed 400kV line, CSEs and GSP). The reinforcement project is located in a relatively rural area characterised by narrow lanes and with existing accesses with poor visibility. There are therefore limited options. The Applicant's proposals are guided by principles that aim to develop accesses that operate efficiently and are safe but also limit the impact of the project. Therefore it is the Applicant's view that developing large bellmouths and undertaking major road improvements for temporary accesses would be disproportionate and would adversely affect the character of the rural road network. Access proposals should be considered in this context.
- 1.1.4 Following the construction period, traffic using permanent accesses and rights of access would be very limited. Traffic generated during the construction period would be spread out over a long linear project, with traffic at many access points being limited to the periods when a particular part of the line is being constructed. Over half of the accesses being used are existing field accesses that would be used for a short period of time, in some cases with minor improvements, and then reinstated. Temporary access routes have been incorporated into the project to remove construction traffic from the local road network and enable vehicles to travel along the route of the new and existing lines, reducing the amount of traffic at many of the proposed access points once the temporary access routes are constructed. The project would therefore not generate the amount of traffic or permanent levels of traffic associate with other types of major infrastructure projects.

1.2 Design Information Provided in the DCO Application

- 1.2.1 All temporary and permanent Access Points and the Order Limits are shown in the Access Rights of Way and Public Rights of Navigation Plans **[APP-012]**. Within this document, reference is made to the 30 sheets comprising those plans for ease of identification of the locations. 'Sheet x of 30' indicates the relevant sheet of those plans where the specific access is shown.

- 1.2.2 To develop these accesses, advice was sought from a contractor experienced in the delivery of transmission projects on the vehicle numbers and location of access points for construction. Each access was then visited by the project team and the Order Limits shown in the Access Rights of Way and Public Rights of Navigation Plans developed from analysis of speed limits, survey information and the intention to limit land take to that which is absolutely necessary (to ensure compulsory acquisition tests can be met) and avoid excessive vegetation clearance. The Order limits were informed by a generic bellmouth design shown in Design and Layout Plans: Temporary Bellmouth for Access [REP3-005]. The Applicant considers that the level of design information provided in the application is proportionate to the effects of those aspects of the works and similar to that provided in other transmission DCO applications (see Yorkshire Green and Richborough Connection as examples).
- 1.2.3 The detailed design of the project and the accesses is anticipated to be completed over the next 6-18 months and is not required for the DCO application. Requirement 11 of the draft DCO [REP6-003] requires the Applicant to submit written details of the design, layout and reinstatement of accesses to the local highway authority (LHA) for approval prior to construction or alteration of accesses. Therefore, these detailed designs would be discussed and approved by the LHA. Requirement 11 also requires completion of Road Safety Audits. Requirement 11 provides reassurance to LHAs that detailed designs would be developed, audits carried out to confirm safety and that LHAs would ultimately have the power to approve those designs (or not if they are not deemed to be acceptable). The Applicant is confident that designs can be developed to discharge Requirement 11 within the powers provided by the draft DCO [REP6-003].

1.3 Purpose of this Technical Note

- 1.3.1 The LHAs for the project are Suffolk County Council (SCC) and Essex County Council (ECC). The LHAs have queried the level of design information provided with the DCO application and requested additional information to provide reassurance that accesses can be developed that are deliverable and would not result in excessive vegetation removal. The Applicant's position is that it is not necessary, proportionate or possible during the timescales to draw up detailed designs for all accesses during the Examination but agreed that a selection of accesses of particular concern could be examined in more detail to provide reassurance to the LHAs that solutions could be found even at the most problematic locations. This approach was agreed with the LHAs, although the LHAs have still expressed a preference for detailed designs at all accesses to be developed earlier in the programme.
- 1.3.2 Following agreement on the overall approach, the Applicant reviewed all accesses and identified those that may be most problematic due to the Order limits being tight at that location, the location of the access on the highway (e.g. on a bend), traffic numbers or overall concerns. This was then combined with lists provided by SCC, particularly in Table F4 of Annex F of the SCC Local Impact Report [REP1-044] to develop a list of priority accesses for further investigation in Suffolk. Access AB-AP5 has been looked at in particular detail given that it was considered potentially one of the most problematic accesses and had been the focus of discussions at Issue Specific Hearing 3. The list of accesses for further investigation was then discussed with SCC in the meeting on 5 December 2023 and issued for comment in the post-meeting minutes issued on 7 December 2023. Information on priority accesses in Essex will be provided at Deadline 8 given that this list was provided more recently.

- 1.3.3 This Technical Note provides the results of analysis of the nine priority accesses reviewed in Suffolk. Solutions have been described to deliver access at all the priority locations, demonstrating that detailed designs required under Requirement 11 can be developed for approval with the LHAs.
- 1.3.4 The Applicant is confident that the draft DCO and the Order Limits defined in it include sufficient rights and powers to deliver all accesses safely and operate efficiently. The designs reflect the nature of the proposed accesses and current and proposed usage, as many of these are existing access points to private residential, commercial property including agricultural access. What constitutes a 'safe' access is not simple; as in some cases accesses in more problematic locations (e.g. with poor visibility) can be safer in reality because vehicle speeds are lower. Similarly, in some cases it is not proportional to clear large amounts of vegetation to achieve large visibility splays for a short-term use of an access. Discussions would therefore be required to agree the best approach at each access to discharge Requirement 11.
- 1.3.5 There are a large number of tools at the Applicant's disposal to deliver appropriate accesses and different solutions would be sought at different accesses; these include:
- Improving the physical design of the access and/ or creating a new access with improved bellmouths and visibility;
 - Speed restrictions to temporarily reduce the speed of vehicles along the road;
 - Traffic management including road closures and temporary traffic signals;
 - Temporary traffic regulation orders, a number of which have been listed in the draft DCO, and additional orders which could be sought if required;
 - Management of construction vehicles (type, number, arrival times);
 - Additional vegetation removal on highways or private land;
 - Banksman operation, whereby a works employee assists the driver of a works vehicle entering or leaving the site; and
 - Use of alternative accesses and/or of a temporary access route along the order limits where the above measures cannot result in a suitable access at the point depicted in the plans.
- 1.3.6 The analysis in this Technical Note shows that a combination of these measures can resolve issues at the accesses examined.
- 1.3.7 The nine temporary accesses explored in more detail in this Technical Note are:
- AB-AP5: Church Hill, north of Burstall;
 - AB-DAP6: Duke Street, Hintlesham;
 - AB-AP9: Pond Hall Road, west of Clay Hill;
 - AB-AP17: Pond Hall Road, south of Pond Hall Farm;
 - AB-EAP1: A1071 College Farm;
 - D-AP1: Overbury Hall Road, Layham;
 - D-DAP1: Rands Road, Layham;
 - F-AP10: The Street, Assington (field access); and

- F-DAP4: The Street, Assington (Assington Mill access road).

1.3.8 At the time of writing this Technical Note, none of the permanent access points meet the threshold of most concern. SCC has raised queries on access D-DAP2 below and concerns will be investigated in a later iteration of this Technical Note provided at Deadline 8. The three permanent access points within Suffolk comprise:

- D-DAP2 – Access to Dedham Vale East CSE compound;
- F-AP4 – Access to Dedham Vale West CSE compound; and
- G-AP3 – Access to Stour Valley East CSE compound.

1.3.9 Information that has informed the assessments in this Technical Note includes the Transport Assessment Construction Vehicle Profile Data [**REP4-006**] and the Transport Assessment Traffic Survey Data (**document 8.9.2**). The designs and the associated management proposals presented in this Technical Note would be developed further during detailed design stage and would be subject to approval including Road Safety Audit in accordance with Requirement 11 (3) of the draft DCO [**REP6-003**]. SCC has visited a number of the access points and has planned a site visit to certain additional locations. The access information provided in this Technical Note has been discussed with SCC and ECC in the highways meetings and the information presented here has been informed by those discussions.

2. Assessment of Access Points

2.1 AB-AP5 Church Hill, north of Burstall

- 2.1.1 AB-AP5 (Church Hill, north of Burstall) is shown on sheet 2 of 30 on the Access Rights of Way and Public Rights of Navigation Plans [APP-012] and in Appendix A of this Technical Note. It provides temporary access to proposed pylon RB4, although a permanent right of access is sought in case access is required for maintenance purposes in the future. This access proposes to use the existing farm track north of Rose Cottage, Church Hill.
- 2.1.2 Should development of the detailed design of AB-AP5 suggest that use of access AB-AP5 is not acceptable, due to either safety considerations or a requirement for excessive vegetation removal, an alternative access (AB-AP4) can be used. AB-AP4 is located north of the proposed 400kV overhead line route but would require the construction of a new access point and temporary access track across the field. This would bisect the field, affecting a larger area of agricultural land and require additional materials for construction. The additional materials would also involve additional vehicle trips and additional cost. Therefore, if AB-AP5 can be designed to the satisfaction of the LHA, it would be the preferred access.
- 2.1.3 AB-AP5 is located north of a bend in the road, which is considered likely to reduce vehicle speeds at the access point and means that visibility to the south of the access point is limited primarily by the curvature in the road rather than by vegetation. The Applicant has drawn a visibility splay based on nearby traffic survey data, indicating that 70kph is the expected upper limit of the 85th percentile design speed, yielding a y-value, or distance along the major route of 90m (one step below the desirable minimum stopping sight distance). The Applicant has also considered the National Highways Design Manual for Roads and Bridges (DMRB) CD 123 – Geometric design of at-grade priority and signal-controlled junctions cl. 3.8, and proposes a x-distance of 2m which is appropriate for direct accesses. The x-distance is the distance away from the carriageway edge where the viewpoint of a driver of an emerging vehicle is positioned.
- 2.1.4 The Applicant has carried out a topographic survey in this location, which has determined that Church Hill widens in the vicinity of the existing private access. However, by maintaining the existing carriageway width of approximately 4.8m south and north of the junction by way of an edge-marking solution, the driver's eye position can be brought further down the access track towards Church Hill itself. This will essentially formalise the existing situation, where the carriageway extends towards the access track but the delineation point between Church Hill and the access track is the extension line of the edge of carriageway either side of the access, as shown in the screenshot below.



- 2.1.5 The visibility splay shown in Appendix A requires the coppicing and pruning of vegetation within the functional highway to achieve the dimensions set out above, but the topographic survey has shown that the visibility splay does not interact with any surveyed tree trunks. Speed surveys are being carried out in January 2024 to confirm that the 70kph 85th percentile assumption is appropriate. Assuming that the speed surveys confirm assumptions to date, the visibility splays shown in Appendix A are considered appropriate. If the speed surveys show greater speeds than expected, the visibility splay shown would be revisited to determine whether a greater splay would be required or an alternative mechanism introduced to deliver an appropriate access.
- 2.1.6 The Applicant has also commissioned a detailed arboricultural survey of the trees to confirm the impact on the trees of the proposed pruning and improvements to the access. The Applicant considers it likely that the arboricultural survey will corroborate assumptions made to date, but given the discussion with the landowner on the trees, the survey is being completed to provide certainty. Information on the speed survey, arboricultural survey and any revisions to the sketch in Appendix A (if required) will be submitted into Examination at Deadline 8.

2.2 AB-DAP6 Duke Street

- 2.2.1 AB-DAP6 (Duke Street, Hintlesham) is shown on sheet 7 of 30 on the Access Rights of Way and Public Rights of Navigation Plans [APP-012] and in Appendix A of this Technical Note. This provides access to pylons PCB 13, PCB 14 and PCB 15 for their removal. Access would be provided via the existing private access off Duke Street.
- 2.2.2 The Applicant has drawn a visibility splay based on nearby traffic survey data, indicating that 60kph is the expected upper limit of the 85th percentile design speed, yielding a y-value, or distance along the major route of 70m (one step below the desirable minimum stopping sight distance). The Applicant has also considered DMRB CD 123 – Geometric design of at-grade priority and signal-controlled junctions cl. 3.8 (proposes a x-distance of 2m which is appropriate for direct accesses).
- 2.2.3 The generated visibility splay requires that no fixed objects which present an obstruction to visibility shall obstruct the footway within the vicinity of the existing junction. To the north, there is a developed residential hedge which may require trimming to maintain the existing footway width and residential grass between the footway and houses south of

the access must remain short. The Applicant does not see either of these as an impediment to the safe provision of access at this location.

- 2.2.4 The Applicant and SCC have discussed that the access is single width and at the detailed design stage information would be provided on how the Applicant would manage vehicles arriving and leaving to avoid them waiting in the residential area causing nuisance and/or a safety hazard due to obstruction. This information would be provided in the detailed proposals submitted to the LHA for approval to discharge Requirement 11.

2.3 AB-AP9 Pond Hall Road, West of Clay Hill

- 2.3.1 AB-AP9 (Pond Hall Road, West of Clay Hill) is shown on sheet 8 of 30 on the Access Rights of Way and Public Rights of Navigation Plans [APP-012] and in Appendix A of this Technical Note. This provides access to the proposed pylon RB13. Access would be provided via a new temporary junction along Pond Hall Road, adjacent to Bungalow Farm and footpath W-318 (Hintlesham) 046/0.

- 2.3.2 The Applicant has drawn a visibility splay based on nearby traffic survey data, indicating that 70kph is the expected upper limit of the 85th percentile design speed, yielding a y-value, or distance along the major route of 90m (one step below the desirable minimum stopping sight distance). The Applicant has also considered DMRB CD 123 – Geometric design of at-grade priority and signal-controlled junctions cl. 3.8 and proposes an x-distance of 2m which is appropriate for direct accesses.

- 2.3.3 The generated visibility splay requires that no fixed objects which present an obstruction to visibility shall, essentially, obstruct extant highway verge to the west of the access.

- 2.3.4 SCC had raised concerns regarding the existing utility pole and traffic signs. From the Applicant's perspective, these are not an impediment to the visibility splays shown, and the Applicant does not consider either of these as an impediment to the safe provision of access at this location. During thematic traffic and transport meetings it was noted that the access is adjacent to the existing access and a telegraph pole between the two might constrain turning vehicles. Swept path information would be included in detailed design to show that there is sufficient space to manoeuvre vehicles in the package to discharge Requirement 11.

2.4 AB-AP17 Pond Hall Road, south of Pond Hall Farm

- 2.4.1 AB-AP17 (Pond Hall Road, south of Pond Hall Farm) is shown on sheet 9 of 30 on the Access Rights of Way and Public Rights of Navigation Plans [APP-012] and in Appendix A of this Technical Note. This provides access to a number of pylons between the watercourse running north-east south-west, and the Hadleigh Railway Walk. Access would be provided via the site entrance to Pond Hall Farm.

- 2.4.2 The Applicant has drawn a visibility splay based on nearby traffic survey data, indicating that 50kph is the expected upper limit of the 85th percentile design speed, yielding a y-value, or distance along the major route of 70m (the desirable minimum stopping sight distance). The Applicant has also considered DMRB CD 123 – Geometric design of at-grade priority and signal-controlled junctions cl. 3.8 and proposes a x-distance of 2m which is appropriate for direct accesses.

- 2.4.3 The generated visibility splay requires that no fixed objects which present an obstruction to visibility shall, essentially, obstruct the functional highway verge within the vicinity of the existing junction. To the east there is dense foliage overhanging the highway verge

which originates from the farm itself and to the west there is hedge which has grown to the carriageway edge. Both areas would require pruning to achieve the required sightlines. The Applicant does not see either of these as an impediment to the safe provision of access at this location. The Applicant is content to provide speed enforcement measures at this location to ensure that the 85th percentile speed matches the visibility splay provided in Appendix A.

- 2.4.4 To achieve the proposed visibility splays it may be necessary to remove vegetation outside the Order Limits. Article 48 of the draft DCO [REP6-003] provides the power to the Applicant to remove or manage vegetation ‘*under or within or overhanging or near any part of the authorised development*’ subject to certain provisions. Within the highway, this provision can only be exercised with the consent of the LHA. Therefore, the Applicant has the power to manage this vegetation should it be agreed with the LHA that this is the best approach. An alternative solution would be to use traffic management measures to reduce speed and therefore reduce the required visibility splays. These options would both be considered, potentially alongside others, and a preferred solution agreed with the LHA in the discharge of Requirement 11. However, the work completed to date shows that there are options available to develop a safe access in this location, it is only the detail of which option would be pursued that is not finalised at present.
- 2.4.5 To provide further reassurance to the Examining Authority and the LHA, it should be noted that plans showing all vegetation removal must be submitted and approved by the relevant planning authority under Requirement 8 of the draft DCO [REP6-003] so any vegetation removal would also be reviewed and approved through that process.

2.5 AB-EAP1 A1071 College Farm (sheet 3 of 30)

- 2.5.1 AB-EAP1 (A1071 College Farm) is shown on sheet 3 of 30 on the Access Rights of Way and Public Rights of Navigation Plans [APP-012] and in Appendix A of this Technical Note. This provides access to an environmental area west of the A1071. Access will be provided via the Hintlesham Barns Access.
- 2.5.2 The Applicant has drawn a visibility splay based on nearby traffic survey data, indicating that 70kph is the expected upper limit of the 85th percentile design speed, yielding a y-value, or distance along the major route of 90m (one step below the desirable minimum stopping sight distance). The Applicant has also considered DMRB CD 123 – Geometric design of at-grade priority and signal-controlled junctions cl. 3.8 and proposes a x-distance of 2m which is appropriate for direct accesses.
- 2.5.3 The generated visibility splay requires that no fixed objects which present an obstruction to visibility shall, essentially, obstruct the functional highway verge within the vicinity of the existing junction. To the north there are hedges which have grown to the carriageway edge which would require pruning to achieve the required sightlines. The Applicant does not see this as an impediment to the safe provision of access at this location.
- 2.5.4 Any vegetation removal would be part of the submitted package of approvals for LHA approval before the project progressed to construction in accordance with Article 48 of the draft DCO [REP6-003]. In addition, Requirement 8 of the draft DCO requires the approval of all vegetation to be agreed by the relevant planning authority prior to construction work commencing.

In initial discussion with SCC, the LHA noted the proposals and did not raise any additional issues for this location.

2.6 D-AP1 Overbury Hall Road, Layham

- 2.6.1 D-AP1 (Overbury Hall Road, Layham) is shown on sheet 11 of 30 on the Access Rights of Way and Public Rights of Navigation Plans [APP-012] and in Appendix A of this Technical Note. This provides access to a number of pylons between Overbury Hall Road and Rands Road. Access would be provided via an existing field access west of Overbury Hall Road As shown on the Construction Routes contained within Appendix A of the Construction Traffic Management Plan [REP6-025], access via D-AP1 would solely be from the south.
- 2.6.2 The Applicant has drawn a visibility splay based on nearby traffic survey data, indicating that 50kph is the expected upper limit of the 85th percentile design speed, yielding a y-value, or distance along the major route of 50m (one step below the desirable minimum stopping sight distance). The Applicant has also considered *Design Manual for Roads and Bridges (DMRB) CD 123 – Geometric design of at-grade priority and signal-controlled junctions* cl. 3.8 and proposes a x-distance of 2m which is appropriate for direct accesses.
- 2.6.3 The generated visibility splay requires that no fixed objects which present an obstruction to visibility shall, essentially, obstruct the functional highway verge within the vicinity of the existing junction. To the north there are hedges which have grown to the carriageway edge which would require pruning to achieve the required sightlines. The Applicant does not see this as an impediment to the safe provision of access at this location.
- 2.6.4 Any vegetation removal would be part of the submitted package of approvals for LHA approval before the scheme progressed to construction in accordance with Article 48 of the draft DCO [REP6-003]. In addition, Requirement 8 of the draft DCO requires the approval of all vegetation to be agreed by the relevant planning authority prior to construction work commencing.
- 2.6.5 In initial discussions with SCC, it was noted that:
- Overbury Hall Rd is in effect a single-track road, so any activity is likely to require a temporary closure. Temporary closures might be necessary to prevent a works vehicle or other large vehicle reversing long distances should they meet on the route; and
 - This access is on the west side of Overbury Hall Rd and paired with access C-AP5 on the east side with likely travel across Overbury Hall Rd and on to the crossing of Layham Road to the east via access points C-AP4 and C-AP3. From that crossing the temporary access route continues to the east crossing a watercourse at temporary bridge W-C-1 and ending at access point C-AP2 on B1070.
- 2.6.6 The access (D-AP1) is not a difficult one to achieve, given the large paved area of bellmouth in place at that location. However, the nature of Overbury Hall Road itself and the visibility from the east side of was of greater concern for SCC, meaning that the pair of accesses on Overbury Hall Road should be considered together. As a temporary access route crossing of Overbury Hall Road without any vehicles entering or exiting the local road, SCC consider that this is likely to be acceptable, on the assumption that the crossing would be managed and not rely solely on direct visibility for the drivers of works vehicles crossing the road. Traffic management would reflect forward visibility for traffic management layouts.
- 2.6.7 As for other accesses discussed, a solution has been discussed that would mean this access is deliverable and further detail would be provided with information to discharge Requirement 11.

2.7 D-DAP1 Rands Road, Layham

- 2.7.1 D-DAP1 (Rands Road Layham) is shown on sheet 11 of 30 on the Access Rights of Way and Public Rights of Navigation Plans [APP-012] and in Appendix A of this Technical Note. This provides access to pylon PCB 38 for its removal. Access would be provided using the existing private access off Rands Road. Although Rands Road itself is shown on the Construction Routes contained within Appendix A of the Construction Traffic Management Plan [REP6-025], access via D-DAP1 would solely be from the east due to the tight geometry.
- 2.7.2 The Applicant has drawn a visibility splay based on nearby traffic survey data, indicating that 50kph is the expected upper limit of the 85th percentile design speed, yielding a y-value, or distance along the major route of 50m (one step below the desirable minimum stopping sight distance). The Applicant has also considered *Design Manual for Roads and Bridges (DMRB) CD 123 – Geometric design of at-grade priority and signal-controlled junctions* cl. 3.8 and proposes a x-distance of 2m which is appropriate for direct accesses.
- 2.7.3 The generated visibility splay requires that no fixed objects which present an obstruction to visibility shall, essentially, obstruct the functional highway verge within the vicinity of the existing junction. There are hedges on both sides of the access which have grown to the carriageway edge which would require pruning to achieve the required sightlines. The Applicant does not see this as an impediment to the safe provision of access at this location given the powers provided in Article 48 of the draft DCO [REP6-003].
- 2.7.4 Any vegetation removal would be part of the submitted package of approvals for LHA approval before the project progressed to construction in accordance with Article 48 of the draft DCO [REP6-003]. In addition, Requirement 8 of the draft DCO requires the approval of all vegetation to be agreed by the relevant planning authority prior to construction work commencing.
- 2.7.5 In initial discussion with SCC, it was noted that:
- Rands Road is in effect a single-track road, so any activity is likely to require a temporary closure. Closures might be necessary to prevent a works vehicle or other large vehicle reversing long distances should they meet on the route;
 - A mature tree seems likely to require removal to achieve the access bellmouth; and
 - A private means of access to the east provides a location where a works vehicle may turn if necessary, with a banksman.
- 2.7.6 The combination of these aspects means that this access, which is only required for removal of the 132kV line, could have excessive impact on vegetation. Therefore, given the single track width and small scale nature of the work (primarily unloading plant/materials and loading removed apparatus), it may be appropriate to use a short-duration closure to create a more modest area of vegetation removal on a road-field boundary as an access to the adjacent farmland. This would be explored during the detailed design stage, but discussions confirmed that solutions were available. These noted that traffic management measures are likely to provide a more proportionate approach for this lightly-used access, to avoid excessive vegetation removal to provide the full visibility splay.

2.8 F-AP10 The Street, Assington

2.8.1 F-AP10 (The Street, Assington) is shown on sheet 16 of 30 on the Access Rights of Way and Public Rights of Navigation Plans [APP-012] and in Appendix A of this Technical Note. This provides access to proposed pylons RB41 and RB42 either side of the Assington Mill access road. Access would be provided via enlargement of this existing access road on the junction of The Street and Barracks Road, Assington.

2.8.2 The Applicant has drawn a visibility splay based on nearby traffic survey data, indicating that 50kph is the expected upper limit of the 85th percentile design speed, yielding a y-value, or distance along the major route of 70m (the desirable minimum stopping sight distance). The Applicant has also considered DMRB CD 123 – Geometric design of at-grade priority and signal-controlled junctions cl. 3.8 and proposes a x-distance of 2m which is appropriate for direct accesses.

2.8.3 The generated visibility splay requires that no fixed objects which present an obstruction to visibility shall, essentially, obstruct the functional highway verge within the vicinity of the existing junction. To the east of the existing access, there is an established hedge which overhangs the highway boundary, and which may obscure visibility unless vehicles drive to the give way line of Barracks Road to enter The Street. The Applicant intends to commission detailed topographical surveys to establish the exact position of these features at the detailed design stage.

2.8.4 Beyond this hedge, there is further vegetation along Barracks Road which has grown to the carriageway edge and would require pruning to achieve the required sightlines. The Applicant does not see this minor pruning as an impediment to the safe provision of access at this location given the powers available in Article 48 of the draft DCO [REP6-003]. In addition, Requirement 8 of the dDCO requires the approval of all vegetation to be agreed by the relevant planning authority prior to construction work commencing.

2.8.5 In initial discussion with SCC, it was noted that:

- The side road of Barracks Road is approaching a give way line so design speed might reasonably be much lower than that assumed based on nearest free-flow survey locations; and
- Signs and salt bin locations are likely to be back of highway, which might mean highway boundary is not where it might have been assumed to be. Salt bins may be parish owned and not in public highway.

The combination of these aspects means that a lesser visibility splay on the east side may be appropriate, meaning that an appropriate visibility splay can be achieved with no activity outside the highway boundary and/or Order Limits. In addition, a banksman could stand in a position outside the field access where they can see along all three arms of the junction and direct a works driver when it is safe to exit. This type of managed access provides an additional level of provision should it be needed. The banksman would not direct any vehicles except works vehicles. Both options offer potential solutions to delivery of the access in this location.

2.9 F-DAP4 The Street, Assington

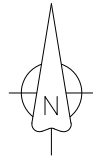
2.9.1 F-AP4 (The Street, Assington) is shown on sheet 16 of 30 on the Access Rights of Way and Public Rights of Navigation Plans [APP-012] and in Appendix A of this Technical Note. This provides access to existing pylon PCB67, east of the Assington Mill access

road, for its removal. Access would be provided via the existing access road on the junction of The Street and Barracks Road, Assington.

- 2.9.2 The Applicant has drawn a visibility splay based on nearby traffic survey data, indicating that 50kph is the expected upper limit of the 85th percentile design speed, yielding a y-value, or distance along the major route of 70m (the desirable minimum stopping sight distance). The Applicant has also considered Design Manual for Roads and Bridges (DMRB) CD 123 – Geometric design of at-grade priority and signal-controlled junctions cl. 3.8 and proposes a x-distance of 2m which is appropriate for direct accesses.
- 2.9.3 The generated visibility splay requires that no fixed objects which present an obstruction to visibility shall, essentially, obstruct the functional highway verge within the vicinity of the existing junction. To the east of the existing access, there is an established hedge which overhangs the highway boundary, and which may obscure visibility unless vehicles drive to the give way line of Barracks Road to enter The Street. The Applicant intends to commission detailed topographical surveys to establish the exact position of these features at the detailed design stage.
- 2.9.4 Beyond this hedge there is further vegetation along Barracks Road, which grown to the carriageway edge which would require pruning to achieve the required sightlines. The Applicant does not see this minor pruning as an impediment to the safe provision of access at this location given the powers available in Article 48 of the draft DCO [**REP-003**]. In addition, Requirement 8 of the draft DCO requires the approval of all vegetation to be agreed by the relevant planning authority prior to construction work commencing.
- 2.9.5 In initial discussion with SCC, it was noted that, similar to the adjacent field access described for F-AP10 above:
- The access road boundary with public highway (formed from a bullnose dropped kerb across the access) is a little further forward than the OS data suggests;
 - The side road of Barracks Road (the road to the right for drivers leaving the access) is approaching a give way line so design speed might reasonably be much lower than that assumed; and
 - Signs and salt bin locations are likely to be positioned to be at the back of highway, which might mean highway boundary is not where it might have been assumed to be.
- 2.9.6 The combination of these aspects means that a lesser visibility splay on the east side may be appropriate, meaning that no activity outside the highway boundary.
- 2.9.7 The major road of this junction is subject to a 20mph limit and has a bend in the area of the junction with Barracks Road but is busy and with speeds that members of the team discussing the access considered likely to be above the posted limit. It would be possible for a banksman to stand in a position outside the access road and direct a works driver when it is safe to exit. This type of managed access provides an additional level of provision should it be needed. The Applicant is therefore of the view that solutions are available for the delivery of this access.

Appendix A

Sketches of Accesses Referenced in Technical Note



AB-AP5
 85th percentile speed = 29.6 mph,
 recorded at 2x 24-hour ATC (LCC44)
 approx 450m east of AP
 Design speed = 70 kph
 X-value = 2.0m
 Y-value = 90m (one step below DM)

NOTES

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9. THE PROPOSALS ARE INDICATIVE AND SUBJECT TO ALTERATION FOLLOWING COMPLETION OF THE TOPOGRAPHICAL SURVEY

KEY

- PROPOSED ORDER LIMITS
- PROPOSED VISIBILITY SPLAY
- PROPOSED VEGETATION REMOVAL
- REQUIRED EDGE OF CARRIAGEWAY

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0	OCT 2023	First Issue				

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Project: **Bramford to Twinstead Reinforcement
Access Point Visibility Splays**

Drawing title: **AB-AP5
Proposed Visibility Splay
Concept Design
Sheet 1 of 1**

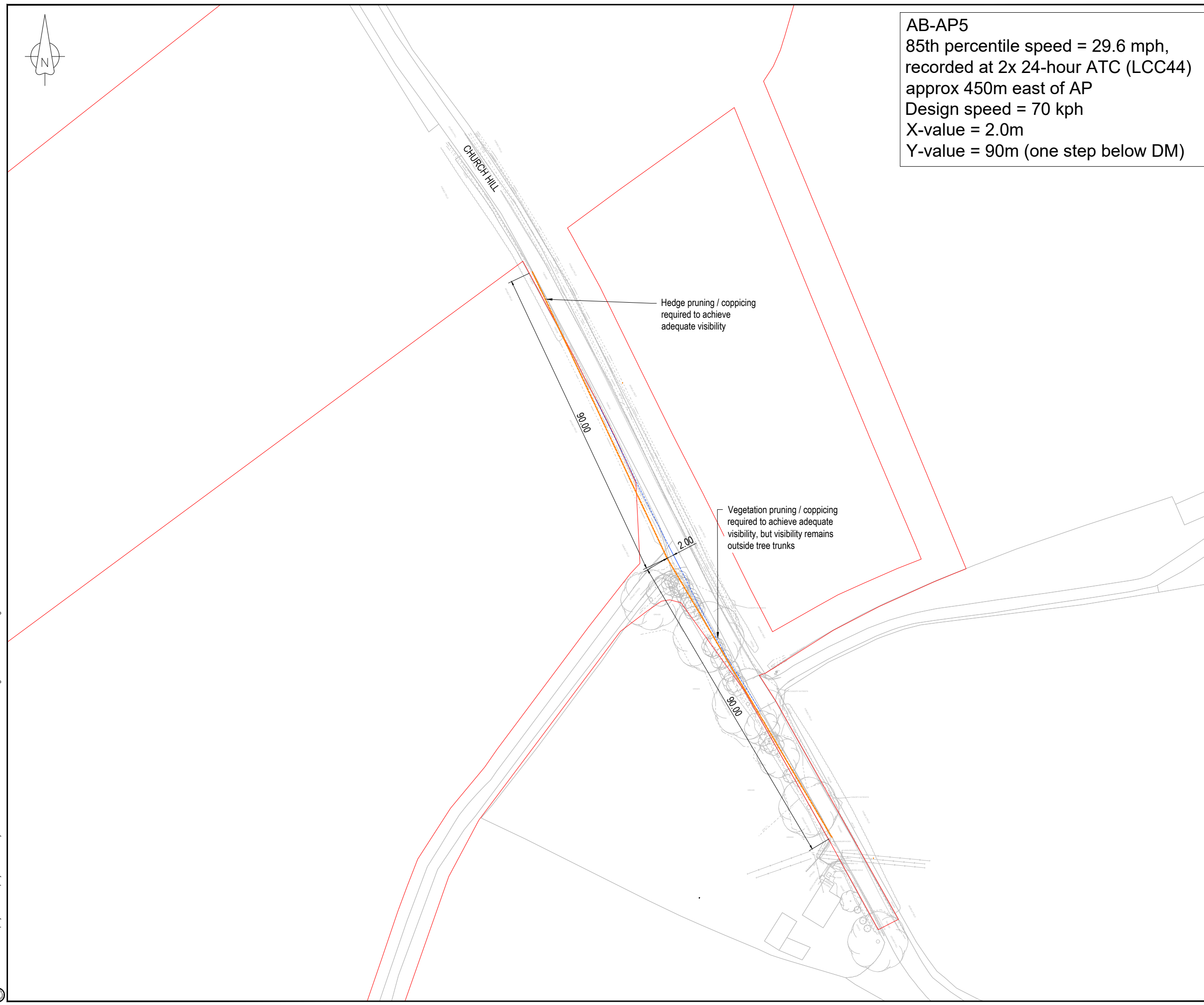
Drawing status: **DRAFT** Suitability

Scale: **1:1000 @ A3** **DO NOT SCALE**

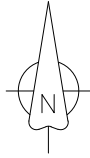
Jacobs No. **B2441B04** Rev **P0**

Client No. Drawing number **B2441B04-JAC-TE-B2T-APVS-ABAP5-001**

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AB-DAP6
 85th percentile = 33.6 mph
 Design speed = 60 kph
 X-value = 2.0m
 Y-value = 70m (one step below SSD)

Ensure vegetation is maintained to prevent encroaching onto footway

Ensure vegetation is maintained to prevent encroaching onto footway

DUKE STREET

2.00

70.0

70.0

NOTES

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KEY

- PROPOSED ORDER LIMITS
- - - PROPOSED VISIBILITY SPLAY
- PROPOSED VEGETATION REMOVAL

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Proposed Visibility Splay
Concept Design
Sheet 1 of 1**

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AB-AP9
 85th percentile speed = 40.6 mph,
 recorded at 24-hour ATC west of Clay
 Hill junction
 Design speed = 70 kph
 X-value = 2.0m
 Y-value = 90m (one step below DM)

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9. THE PROPOSALS ARE INDICATIVE AND SUBJECT TO ALTERATION FOLLOWING COMPLETION OF THE TOPOGRAPHICAL SURVEY

KEY

- PROPOSED ORDER LIMITS
- PROPOSED VISIBILITY SPLAY
- PROPOSED VEGETATION REMOVAL

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Project
 Bramford to Twinstead Reinforcement
 Access Point Visibility Splays

Drawing title
**AB-AP9, West of Clay Hill
 Proposed Visibility Splay
 Concept Design
 Sheet 1 of 1**

Drawing status
Suitability
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Line of sight from driver's position to intersection with nearside kerb crosses the carriageway due to curving alignment; driver's view of the full width of the carriageway up to intersection shall be clear of 'fixed' obstructions (i.e. not including vehicles on the road)

Vegetation pruning /
 coppicing required to achieve
 adequate visibility

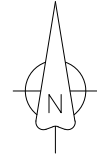
POND HALL ROAD

90.00

2.00

90.00

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AB-AP17
 85th percentile speed = 42.5 mph,
 recorded at 24-hour ATC shortly south
 east from the entrance to Pond Hall
 industrial estate
 Design speed = 50 kph
 X-value = 2.0m
 Y-value = 70m (Desirable Minimum)

- NOTES**
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 9. THE PROPOSALS ARE INDICATIVE AND SUBJECT TO ALTERATION FOLLOWING COMPLETION OF THE TOPOGRAPHICAL SURVEY

- KEY**
- PROPOSED ORDER LIMITS
 - PROPOSED VISIBILITY SPLAY
 - PROPOSED VEGETATION REMOVAL

Line of sight from driver's position to intersection with nearside kerb crosses the carriageway due to curving alignment; driver's view of the full width of the carriageway up to intersection shall be clear of 'fixed' obstructions (i.e. not including vehicles on the road)

Vegetation pruning / coppicing required to achieve adequate visibility

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Drawing title: **AB-AP17, Pond Hall Farm
 Proposed Visibility Splay
 Concept Design
 Sheet 1 of 1**

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AB-EAP1
 85th percentile speed = 38 mph,
 recorded at 2x 24-hour ATCs east of
 the junction with Priory Road
 Design speed = 70kph
 X-value = 2.0m
 Y-value = 90 (one step below DM)

- NOTES**
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- KEY**
- PROPOSED ORDER LIMITS
 - PROPOSED VISIBILITY SPLAY
 - PROPOSED VEGETATION REMOVAL

COLLEGE FARM

Line of sight from driver's position to intersection with nearside kerb crosses the carriageway due to curving alignment; driver's view of the full width of the carriageway up to intersection shall be clear of 'fixed' obstructions (i.e. not including vehicles on the road)

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Project
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 Access Point Visibility Splays

Drawing title
**AB-EAP1: College Farm, A1071
 Proposed Visibility Splay
 Concept Design
 Sheet 1 of 1**

Drawing status
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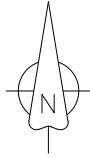
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D-AP1
 85th percentile speed = 20.4 mph,
 recorded at 24-hour ATC north of AP
 Design speed = 50 kph
 X-value = 2.0m
 Y-value = 50m (one step below SSD)

NOTES

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KEY

- PROPOSED ORDER LIMITS
- PROPOSED VISIBILITY SPLAY
- PROPOSED VEGETATION REMOVAL

Vegetation pruning / coppicing required to achieve adequate visibility

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Project	Bramford to Twinstead Reinforcement Access Point Visibility Splays
Drawing title	D-AP1: Layham Proposed Visibility Splay Concept Design Sheet 1 of 1
Drawing status	DRAFT
Scale	1:1000 @ A3 DO NOT SCALE
Jacobs No.	B2441B04
Client No.	
Drawing number	B2441B04-JAC-TE-B2T-APVS-DAP1-001

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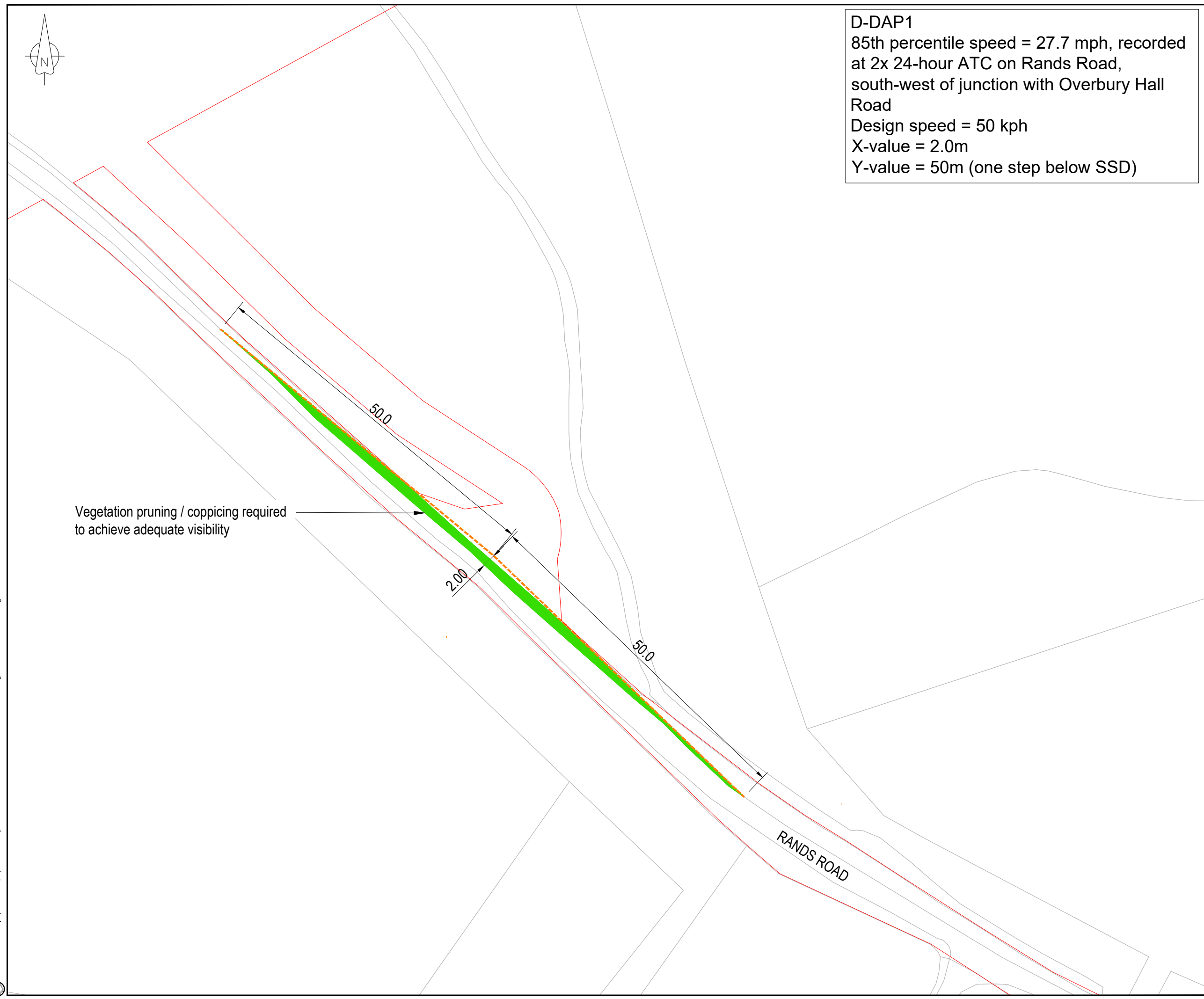


D-DAP1
 85th percentile speed = 27.7 mph, recorded
 at 2x 24-hour ATC on Rands Road,
 south-west of junction with Overbury Hall
 Road
 Design speed = 50 kph
 X-value = 2.0m
 Y-value = 50m (one step below SSD)

- NOTES**
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 2. LAYOUTS TO BE AGREED WITH RELEVANT LAND OWNERS / STAKEHOLDER
 3. DO NOT SCALE FROM THIS DRAWING.
 4. ALL DIMENSIONS IN METRES UNLESS OTHERWISE NOTED
 5. THE ACCURACY OF THIS PLAN IS LIMITED TO THE ACCURACY OF THE ORDNANCE SURVEY MAP. IF ANY CONFLICTING INFORMATION IS REPORTED ON SITE, THIS SHOULD BE REPORTED TO A REPRESENTATIVE OF THE OVERSEEING ORGANISATION.
 6. EXISTING INFRASTRUCTURE SUCH AS DRAINAGE, STREET LIGHTING, TRAFFIC SIGNS AND SIGNAL DUCTS ARE SUBJECT TO ALTERATION AS REQUIRED.
 7. ALL ROAD MARKINGS AND SIGNS ARE AS PER THE TRAFFIC SIGNS REGULATIONS AND GENERAL DIRECTIONS 2016 (TSRGD) AND TRAFFIC SIGNS MANUAL.
 8. THE FEASIBILITY OF THIS DESIGN SOLUTION IS SUBJECT TO FURTHER WORK TO BE CONDUCTED DURING THE NEXT DESIGN STAGE.
 9. THE PROPOSALS ARE INDICATIVE AND SUBJECT TO ALTERATION FOLLOWING COMPLETION OF THE TOPOGRAPHICAL SURVEY

- KEY**
- PROPOSED ORDER LIMITS
 - PROPOSED VISIBILITY SPLAY
 - PROPOSED VEGETATION REMOVAL

Vegetation pruning / coppicing required to achieve adequate visibility



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Rev	Rev. Date	Purpose of revision	Orig	Check'd	Rev'd	Apprv'd
0	OCT 2023	First Issue				

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 Tel: +44(0)20 3980 2000
 www.jacobs.com

Client: **nationalgrid**

Project: **Bramford to Twinstead Reinforcement
 Access Point Visibility Splays**

Drawing title: **D-DAP1: Rands Road, Layham
 Proposed Visibility Splay
 Concept Design
 Sheet 1 of 1**

Drawing status: **DRAFT** Suitability: **P0**

Scale: 1:1000 @ A3 DO NOT SCALE

Jacobs No. B2441B04 Rev P0

Client No. **B2441B04-JAC-TE-B2T-APVS-DDAP1-001**

I:\GLON\7501_europe_jacobs.com\projects\UNIF\Projects\B2416601 - Bramford to Twinstead EIA TA Drawings\Accesses\2023-12-20.dwg - 20/12/2023 17:36:10 - D-DAP1 - CHAFFALK

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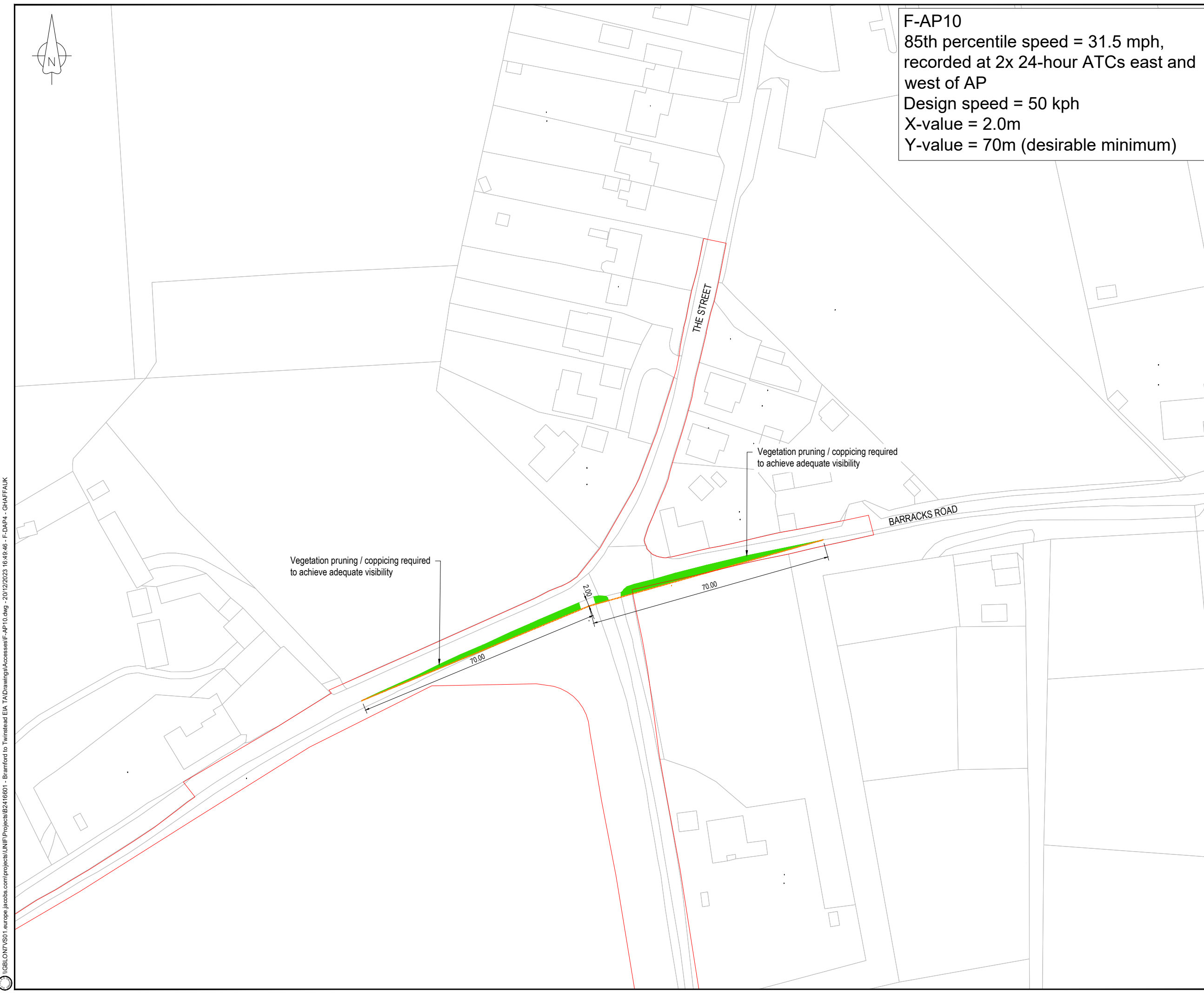


F-AP10
 85th percentile speed = 31.5 mph,
 recorded at 2x 24-hour ATCs east and
 west of AP
 Design speed = 50 kph
 X-value = 2.0m
 Y-value = 70m (desirable minimum)

- NOTES**
1. DRAWING TO BE PRINTED IN COLOUR.
 2. LAYOUTS TO BE AGREED WITH RELEVANT LAND OWNERS / STAKEHOLDER
 3. DO NOT SCALE FROM THIS DRAWING.
 4. ALL DIMENSIONS IN METRES UNLESS OTHERWISE NOTED
 5. THE ACCURACY OF THIS PLAN IS LIMITED TO THE ACCURACY OF THE ORDANCE SURVEY MAP. IF ANY CONFLICTING INFORMATION IS REPORTED ON SITE, THIS SHOULD BE REPORTED TO A REPRESENTATIVE OF THE OVERSEEING ORGANISATION.
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- KEY**
- PROPOSED ORDER LIMITS
 - PROPOSED VISIBILITY SPLAY
 - PROPOSED VEGETATION REMOVAL

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0	OCT 2023	First Issue				

Jacobs
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Client: **nationalgrid**

Project: **Bramford to Twinstead Reinforcement
 Access Point Visibility Splays**

Drawing title: **F-AP10: The Street, Assington
 Proposed Visibility Splay
 Concept Design
 Sheet 1 of 1**

Drawing status: **DRAFT** Suitability: **P0**

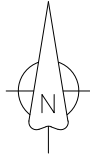
Scale: **1:1000 @ A3** DO NOT SCALE

Jacobs No. **B2441B04** Rev **P0**

Client No. **B2441B04**

Drawing number: **B2441B04-JAC-TE-B2T-APVS-FAP10-001**

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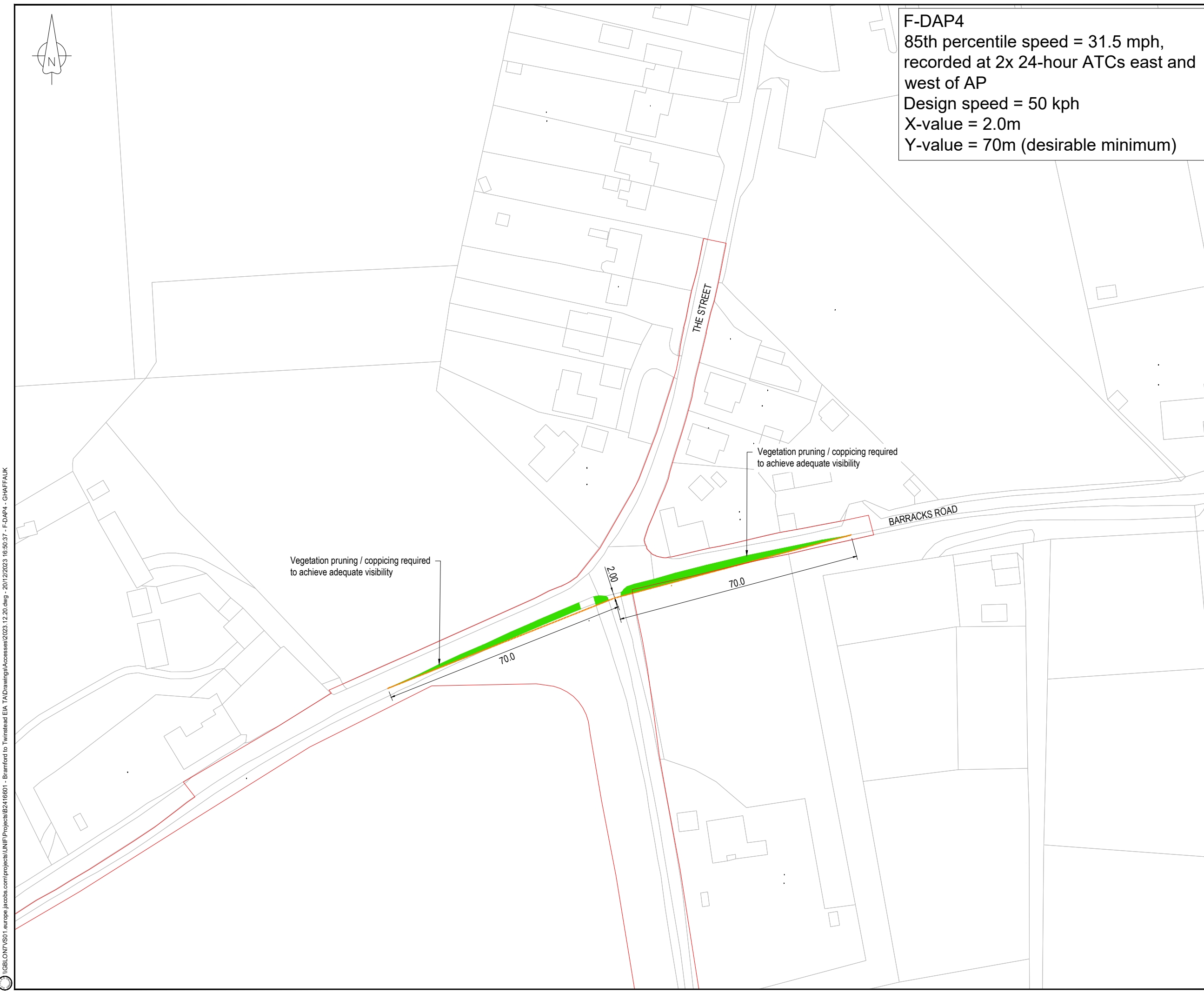


F-DAP4
 85th percentile speed = 31.5 mph,
 recorded at 2x 24-hour ATCs east and
 west of AP
 Design speed = 50 kph
 X-value = 2.0m
 Y-value = 70m (desirable minimum)

- NOTES**
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- KEY**
- PROPOSED ORDER LIMITS
 - PROPOSED VISIBILITY SPLAY
 - PROPOSED VEGETATION REMOVAL

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Client: **nationalgrid**

Project: **Bramford to Twinstead Reinforcement
 Access Point Visibility Splays**

Drawing title: **F-DAP4: The Street, Assington
 Proposed Visibility Splay
 Concept Design
 Sheet 1 of 1**

Drawing status: **DRAFT** Suitability: **P0**

Scale: 1:1000 @ A3 DO NOT SCALE

Jacobs No. B2441B04 Rev P0

Client No. **B2441B04-JAC-TE-B2T-APVS-FDAP4-001**

Drawing number: **B2441B04-JAC-TE-B2T-APVS-FDAP4-001**

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