ADAS UK Ltd

Proposed Standby Electricity Generation Facility
Land to the South-East of Tutbury, Staffordshire

Transport Note

August 2016
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Client Commission

Client: ADAS UK Ltd
Commissioned By: Alison Leeder
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LTP PROJECT TEAM

As part of our commitment to quality the following team of transport professionals was assembled specifically for the delivery of this project. Relevant qualifications are shown and CVs are available upon request to demonstrate our experience and credentials.

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<th>Team Member</th>
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PHOTOS

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1.0 INTRODUCTION

1.1 Background

1.1.1 Local Transport Projects Ltd (LTP) has been commissioned by ADAS UK Ltd to produce a Transport Note (TN) in support of a planning application for a standby electricity generation facility at a site to the east of the A511 (Burton Road), to the south-east of the village of Tutbury in Staffordshire.

1.1.2 The development will principally comprise of 25 individual electricity generating units and associated infrastructure (transformers etc) set within a compound. These units are to be powered by liquid fuel, in this particular case, the fuel used would be diesel. The plant can generate up to 10 megawatts (MW) of electricity per hour to help secure supply to the electricity distribution network during limited periods of peak demand.

1.1.3 A plan of the proposed site layout is attached as Appendix 1. Full technical details of the proposed development have been submitted separately by ADAS UK Ltd. Some general observations, to provide context to the TN, are however provided.

1.2 Scope

1.2.1 The scope of this TN is based on the Government’s latest national planning policy, ‘National Planning Policy Framework’ (DCLG, 2012), and the accompanying ‘Planning Practice Guidance’ (DCLG, 2014). Scoping discussions have been held between LTP and Jake Derry (Project Engineer) of Staffordshire County Council (SCC) to determine the extent of the assessments required within the TN. The agreed scope is summarised below:

- **Introduction & Description of Proposals:**
  - Description of the development site, including location and existing access arrangements;
  - Description of the proposed development including site layout and proposed access arrangements.

- **Site Assessment:** Site assessments to determine existing traffic conditions, such as posted speed limits, road restrictions, highway geometry and any other relevant features of the local area;

- **Road Casualty Appraisal:** Examination of road collision records (5 year study period) and assessment of the road safety impact of the proposed development on the local highway network;

- **Traffic Impact:**
  - Calculation of the projected trip generation for the proposed development;
  - Assessment of the likely traffic impact of the proposed development on the operation of the local highway network.

- **Highway Access Appraisal:** The suitability of the proposed access from the public highway to the site is assessed (including swept path analysis of the HCVs expected to visit the site);
• **Traffic Management Measures:** In light of the expected traffic generation the appropriate traffic management procedures that could be implemented at the site during construction are outlined; and

• **Conclusions:** Conclusions summarising the outcomes of the TN, including a commentary on the suitability of the proposals in terms of traffic impact and road safety.

1.2.2 This report has been prepared in accordance with the agreed scope and reference has been made to the following documents where appropriate:

- Staffordshire Local Transport Plan 2 (LTP2) (SCC, 2011);
- Planning Practice Guidance (DCLG, 2014);
- National Planning Policy Framework (DCLG, 2012);
- Guidance on Transport Assessment (DfT, 2007a); and
2.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 Site Location & Existing Use

2.1.1 The proposed electricity generating facility is to be installed on agricultural land in a rural setting located to the southeast of the village of Tutbury, Staffordshire. The proposed development will be sited within the confines of existing fields and lying between the A511 (Burton Road) to the west and Rolleston Lane to the east. The location of the site relative to the main settlements of the local area and the local highway network is shown within Figure 1:

Figure 1: Site Location

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2.1.2 The site consists of fields which are currently used as arable land for commercial farming. This facility (i.e. the compound) would replace the existing agricultural use of the development site itself, although the agricultural operations would continue in the adjacent fields as existing.

2.1.3 The Local Planning Authority for the proposed development is East Staffordshire Borough Council and the Local Highway Authority is Staffordshire County Council.

2.2 Development Proposals

2.2.1 The development proposals comprise the provision of a standby electricity generation facility at the site. This will be formed by a number of separate diesel fuel powered containerised generators and associated infrastructure (including fuel storage tanks, transformers, an access road and boundary treatments).
2.2.2 The development will provide, only when required by the National Grid, electricity generation capacity, known as Short Term Operating Reserve (STOR). The ‘STOR’ facility will provide electricity generation at short notice to the electricity network at times when generation from other sources fail to generate as expected or when there is a particular spike in demand.

2.2.3 STOR is a contracted balancing service, whereby the service provider (in this instance, New Farm Energy Limited) is required to make the facility available to generate power at defined times during specified periods. It should therefore be emphasised that unlike alternative energy generation schemes (i.e. Anaerobic Digestion, Straw-Burning etc), the facility will not be operational for the majority of the time.

2.2.4 The proposed development will provide a generation capacity of 10MW for the local distribution network and would be in operation for a maximum of 200 hours per year. The diesel generators can be started remotely when required to do so by the National Grid. The site would therefore operate on a remote controlled, unmanned basis (albeit with frequent maintenance checks).

2.3 Proposed Highway Access Arrangements

2.3.1 Vehicular access to/from the site is to be from the eastern side of the A511 (Burton Road), utilising the existing farm access. This access has served the agricultural use of the land at the site for a number of years.

2.3.2 At present, vehicle activity to and from the field is in accordance with general agricultural activity for an active and modern farm, including deliveries to and collections from the site using often large agricultural machinery such as combined harvesters, telehandlers and tractor/trailer combinations. It is understood that during the harvest season in particular a number of Heavy Commercial Vehicle (HCV) trips take place on a daily basis.

Photo 1: Access from the A511 (Burton Road)
2.3.3 An internal access track is proposed between the site access and the electricity generation facility. The access track will comprise compressed stone hardstanding. A turning head will be provided to enable all construction vehicles to enter and exit the site in forward gear.

2.3.4 In order to ensure that vehicles are able to fully leave the public highway upon arrival, the internal gates are to continue to be set-back a significant distance from the A511 (Burton Road).

2.3.5 Further assessment of the proposed highway access arrangements is provided in Section 6.
3.0 LOCAL HIGHWAY NETWORK

3.1 A511 (Burton Road)

3.1.1 As identified, the development will be accessed from the eastern side of the A511 (Burton Road), which is a two-way single carriageway that in the local area provides a direct route between Burton upon Trent to the south, and the village of Tutbury to the north. The A511 (Burton Road) is subject to a derestricted speed limit (60mph) within the vicinity of the site, is street lit and flanked by footways on both sides.

Photo 2: A511 (Burton Road)

3.1.2 The A511 (Burton Road) is already used by HCVs in the vicinity of the site, as it provides access to a number of farms and industrial buildings, including the large Nestlé production unit to the north located between Tutbury and Hatton.

3.1.3 Throughout the route between the A50 to the north and Burton upon Trent to the south, the road width measures well in excess of 5.5m, which is sufficient to accommodate the passing of two HCVs, based on national highway design guidance (see Figure 2):

Figure 2: Suggested Carriageway Width Capacity

Source: Manual for Streets (DfT, 2007b)
3.1.4 Directly opposite the proposed site access on the A511 (Burton Road), there is a recently constructed access which has been provided to facilitate a residential development of approximately 250 dwellings. This takes the form of a priority controlled junction that is provided with a ghost island right turn lane on A511 (Burton Road).

3.2 **Wider Highway Network**

3.2.1 At this stage it has not been confirmed where the origin of the materials/equipment for the construction of the proposed development will be, nor for its long term operation. However, the proposed development site is well located in relation to the classified highway network and the strategic road network. The A511 provides a north-south route between the site and the A50 to the north. It is expected that this route would be predominantly used by vehicles accessing and departing the site to settlements from the north. This provides direct access to the Strategic Road Network (SRN), in the form of the A50.

3.2.2 An alternative route to the SRN highway network (A38) is provided to the south of the site via Burton upon Trent.

3.2.3 It is expected that the classified roads (major roads intended to provide large-scale transport links within or between areas) are adequate to accommodate the limited number of additional traffic movements that the development is projected to generate during the construction and operational phases and in light of this, no specific routeing requirements are considered necessary.
4.0 PERSONAL INJURY COLLISION ANALYSIS

4.1.1 An analysis of the operational safety of the highway network within the immediate vicinity of the site has been carried out through a review of Personal Injury Collision (PIC) data within the area local to the site in order to establish the existing collision history.

4.1.2 Personal Injury Collision (PIC) data for the highway network local to the proposed development site for the most recent available five year study period (01/01/2011 to 31/12/2015) was obtained from the DfT for analysis (DfT, 2016).

4.1.3 The study area, encompassing the proposed site access junction, is shown in Figure 3:

Figure 3: PIC Study Area


4.1.4 A single PIC occurred within the area surrounding the proposed development site within the 5 year study period. The collision was of a slight severity and was recorded in November 2012. The recorded collision occurred on the A511/Burton Road roundabout to the north of the site access junction. A plan showing the location of the collision is included as Appendix 2.

4.1.5 Due to there only being a single collision, it was not possible to pick out any prominent statistical trends. It is therefore considered that there are no existing road safety issues pertinent to the development of the site and that the proposals should not have a detrimental road safety impact on the local transport network.
5.0 VEHICLE TRIP GENERATION

5.1 Introduction

5.1.1 This section outlines the number of vehicle trips that the proposed development is expected to generate.

5.1.2 The number of vehicle trips expected to be generated by the proposed development has been ‘built up’ from a first principles approach through input from the Client, due to the atypical nature of the proposed facility.

5.1.3 The traffic generation of the proposed facility is likely to consist of three main elements:

- Construction phase traffic;
- Operational traffic – Staff; and
- Operational traffic – Material Delivery.

5.1.4 The use of a first principles approach accords with previous Department for Transport (DfT) guidance which recommended that “unless there is a clear valid comparable situation, the assessment trips should be constructed from first principles based on a detailed analysis of the daily operation of the proposed development” (DfT, 2007a).

5.1.5 It is worth noting that electricity produced by the facility at the site will be fed to the electricity grid and as such no vehicular movements would be associated with the exportation process. It is understood that proximity to existing grid infrastructure is a key consideration in the site selection process.

5.2 Operational Vehicle Trip Generation (Staff)

5.2.1 The site would operate, generally, on an unmanned basis. It is understood that a small number of irregular visitor trips will occur at the site. These are expected to be negligible in terms of peak hour traffic. Examples of these include engineers etc.

5.3 Operational Vehicle Trip Generation (Material Delivery - Diesel)

5.3.1 In order for the electricity generation facility to operate, liquid fuel has to be transported onto the site. The fuel will be transported to the site by standard road tankers (articulated HCVs) and stored in dedicated fuel storage tanks onsite. It is expected that the catchment for the diesel supply will be as local as possible to keep costs down.

5.3.2 When the generators are not running they do not require a fuel source and as such the requirement for the fuel source, diesel, is closely aligned to the operational periods. The generating hours are expected to be clustered between the winter months of (times of peak demand for the National Grid). These periods, do not clash with the traditional peak harvest period of late July to early September that is expected on the surrounding agricultural land.
5.3.3 It is expected that an average monthly total of 2-3 loads of diesel would be transported to site. This is based on the projection that the proposed development will require approximately 519,500 litres of diesel per annum for a maximum operational period of 200 hours per year, which would be delivered in tankers capable of transporting 18,000 litres each.

5.3.4 It is difficult to accurately model the day by day or hour-by-hour profile of vehicle movements associated with the transportation of diesel. However, when considered in the context of the existing agricultural operation, it is considered that the proposed increase in vehicular traffic will be imperceptible.

5.4 Traffic Impact

5.4.1 ‘National Planning Policy Framework’ (NPPF) (DCLG, 2012) and its accompanying ‘Planning Practice Guidance’ (PPG) (DCLG, 2014) require that transport assessment is undertaken for “developments that generate significant amounts of movement”, although this is not defined.

5.4.2 It is considered that the projected trip generation does not represent a significant amount of movement. The development should therefore only have a negligible impact on the operation of the local highway network. Therefore, as the impact of the proposals is not expected to be severe, the proposals are considered to be in accordance with the NPPF, which states that “development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe” (DCLG, 2012).
6.0 HIGHWAY ACCESS APPRAISAL

6.1 Road Casualty History

6.1.1 At present the proposed site of the facility (and surrounding land), consist of predominantly arable land. This land is currently served by a single vehicular access junction onto the A511 (Burton Road) to the west, which is proposed to be shared by the proposed development. In order to service and maintain the land and distribute the crops, a significant number of deliveries to and from the land are currently made.

6.1.2 It is noted that this is an established access and therefore expected to have been used by farm vehicles on a regular basis. It is understood to have generated trips over an extended period.

6.1.3 Based on the lack of collision record as identified in Section 4, it is reasonable to conclude that there appear to be no existing significant road safety issues associated with existing/previous traffic movements to/from the site.

6.2 Proposed Routing

6.2.1 It is proposed, given the proximity to the nearby central pedestrian refuge within the A511 (Burton Road) to the south of the access, that left turn exit manoeuvres for larger vehicles (i.e. road tankers) will be prohibited. Given the proximity of the roundabout, just 250m to the north of the access, this is unlikely to be a significant inconvenience to drivers.

6.2.2 All relevant parties involved in making deliveries to the site will be instructed on these restrictions before departing. This arrangement is to be strictly enforced and all subcontractors and suppliers are to be monitored to ensure that they use the defined route. As entry movements to the site will be unrestricted (left turn or right turn), the prohibition of right-turns from the site can be advised by signing within the site.

6.3 Swept Path Analysis

6.3.1 The proposed development will not introduce a vehicle size that doesn’t already use the route (and access) on a regular basis (given the current agricultural operations). However, swept path analysis has been undertaken in order to confirm if improvements are required to accommodate the likely manoeuvres of the larger HCVs.

6.3.2 For the purpose of swept path analysis, it is assumed that deliveries would mainly be made to the site by articulated Heavy Commercial Vehicles (HCVs), i.e. fuel tankers, as per the vehicle profile shown in Figure 4. In practice, smaller vehicles may be utilised.
6.3.3 As identified above, all larger delivery and construction traffic will depart towards the north (performing a U-turn at the roundabout if necessary). Swept path analysis has therefore been carried out for the right turn out exit manoeuvre only in addition to the two possible entry manoeuvres.

6.3.1 The swept path analysis indicates that the wheel tracks of the assessed articulated vehicle will remain within the existing carriageway throughout the necessary manoeuvres and therefore not overrun the adjacent verge. No improvements are therefore considered to be necessary at this location. It is therefore considered that the existing access junction with the A511 (Burton Road) is suitable to serve the proposed development site.
7.0 CONSTRUCTION TRAFFIC MANAGEMENT PLAN

7.1 Introduction

7.1.1 The delivery and construction/installation period of the proposed electricity generation facility is anticipated to take place over a number of continuous phases. During this period there would be trips associated with the arrival and departure of construction staff as well as the delivery of parts and construction materials.

7.2 Projected Schedule

7.2.1 Figure 5 summarises the envisaged key phases of the construction period:

**Figure 5: Indicative Construction Programme**

- **Site Preparation**
  - Ecological protection (tree/hedge protection etc)
  - Site set up and setting out
  - Site security (fencing etc)
  - Enabling works for access and internal tracks and grid connection works
  - Plant and machinery delivery
  - Establishment of a temporary site compound

- **Construction & Installation**
  - Generation facility construction -> delivery of generator containers, transformers etc

- **Grid Connection, Commissioning and Testing**
  - Removal of site services and temporary site compound
  - Grid connection and testing

7.3 Vehicle Types

7.3.1 Deliveries of parts/main components are expected to mainly be made to the site compound by articulated HCVs. The typical vehicle used for delivery of these loads will carry standard containers (length 12.2m x width 2.4m). The installation of the generating equipment would be enabled by crane and other specialist equipment.

7.3.2 Deliveries of materials for the access track/access improvements will mainly be made by 26 tonne gross weight 6 wheel aggregate tipper vehicles.
7.4 **Staff Vehicles**

7.4.1 It is expected that the maximum number of construction staff on site will vary subject to the construction schedule. Staff trips will be made by cars, minibuses or vans/small light commercial vehicles. Staff vehicle movements would typically occur at the start and end of the working day and generally not coincide with the movement of large vehicles. The majority of staff vehicle movements would occur outside normal peak periods.

7.4.2 Car sharing amongst staff is to be promoted at the site and will be a realistic travel mode for those staff who are employed by the same service company/sub-contractor (for example, civils contractor, electrical engineer).

7.4.3 Vehicle parking for site workers during all stages of construction will be accommodated on site within the temporary compound area. No vehicles will park on the adjoining road network at any stage.

7.5 **Proposed Mitigation Measures**

7.5.1 There are a number of traffic management measures that can be implemented to reduce the impact of the proposed construction further:

- **Temporary Signing Strategy** - Implement a temporary signing strategy to ensure that all large delivery vehicles use only designated routes.

- **Vehicle Arrival / Departure Scheduling** - In order to prevent congestion, all deliveries associated with the project will be pre-arranged with site management.

- **Timing Restrictions and Enforcement** - In the interests of road safety and to reduce possible nuisance, construction delivery traffic will be subject to a timing restriction outside of which delivery vehicles will not be able to gain access into the site, or depart from the site.

- **Highway Cleaning Regime** - Wheel cleaning facilities will be provided on-site. Throughout all stages of the development the site operator will have a contracted road sweeper supplier who will be instructed should it be required.

7.5.2 The Construction Traffic Management Plan should be reviewed throughout the life of the project.
8.0 CONCLUSIONS

8.1.1 Local Transport Projects Ltd has been commissioned to produce a Transport Note in support of a planning application for a standby electricity generation facility at a site to the south-east of the village of Tutbury in Staffordshire. The proposed facility is to be installed within the confines of existing fields and lying between the A511 (Burton Road) to the west and Rolleston Lane to the east.

8.1.2 Vehicular access to/from the site is to be from the eastern side of the A511 (Burton Road), utilising the existing farm access, which has been established and utilised by HCVs for a number of years.

8.1.3 Full technical details of the proposed development are provided elsewhere within the planning submission, however, the following general observations regarding the operation of the facility provide context to the projected vehicle trip generation:

- The development will provide electricity generation capacity only when required by the National Grid, therefore the majority of the time, the facility will not be operational;
- The facility will provide a generation capacity of 10MW for the local distribution network, however the scheme would operate for a maximum of 200 hours per annum;
- In order for the electricity generation facility to operate, liquid fuel has to be brought onto the site; and
- The site would operate on a remote controlled, unmanned basis.

8.1.4 The fuel will be transported to the site by standard road tankers (articulated HCVs) and stored in dedicated fuel storage tanks onsite. It is expected that an average monthly total of 2-3 loads of diesel would be transported to site.

8.1.5 A road casualty study showed that a single PIC occurred within the study area around the proposed development site during the 5-year study period. Analysis of the study collision has not revealed any pertinent existing collision issues associated with the expected movements generated by the proposed development, therefore it is considered that there are no existing road safety issues pertinent to the development of the site.

8.1.6 It is considered that the projected trip generation does not represent a significant amount of movement. The development should therefore only have a negligible, if not imperceptible impact, on the operation of the local highway network. Therefore, as the impact of the proposals is not expected to be severe, the proposals are considered to be in accordance with the NPPF, which states that “development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe” (DCLG, 2012).

8.1.7 It is concluded from the assessments of this TS that the proposed development would not be expected to have a detrimental impact in road safety, traffic and highway terms.
9.0 REFERENCES


Staffordshire County Council (SCC), 2011. Staffordshire Local Transport Plan 2 (LTP2).
Appendix 1 – Proposed Site Layout
Appendix 2 – Personal Injury Collision Plot
Appendix 3 – Swept Path Analysis