

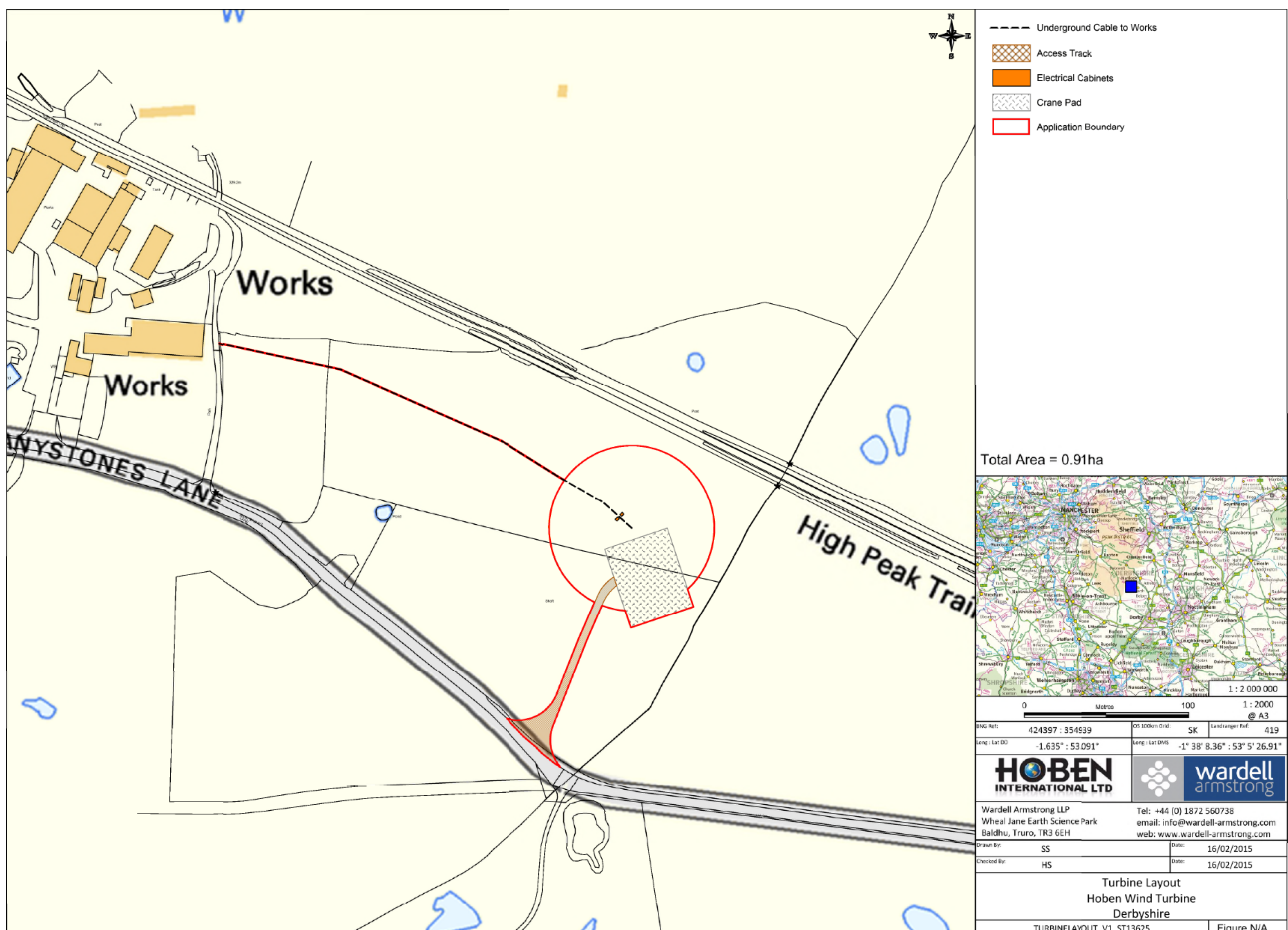
The Project



Hoben International Ltd proposes to develop a single 500kW wind turbine at their Manystones Lane site near Brassington. The turbine will be located approximately 350m to the south east of the works as shown below. It will be a maximum of 87m to blade tip with a maximum rotor diameter of 54m. Once planning permission is acquired, the project is expected to take 3-4 months to construct and would have an operational life of 25 years.

Initial feasibility studies undertaken over a year ago which took into account a series of technical, physical and environmental constraints, identified that there was enough space on Hoben's site at Manystones Lane to locate a single turbine of this size. Since then a number of surveys and studies have been undertaken to ascertain the potential environmental impacts and confirm the turbine's financial viability.

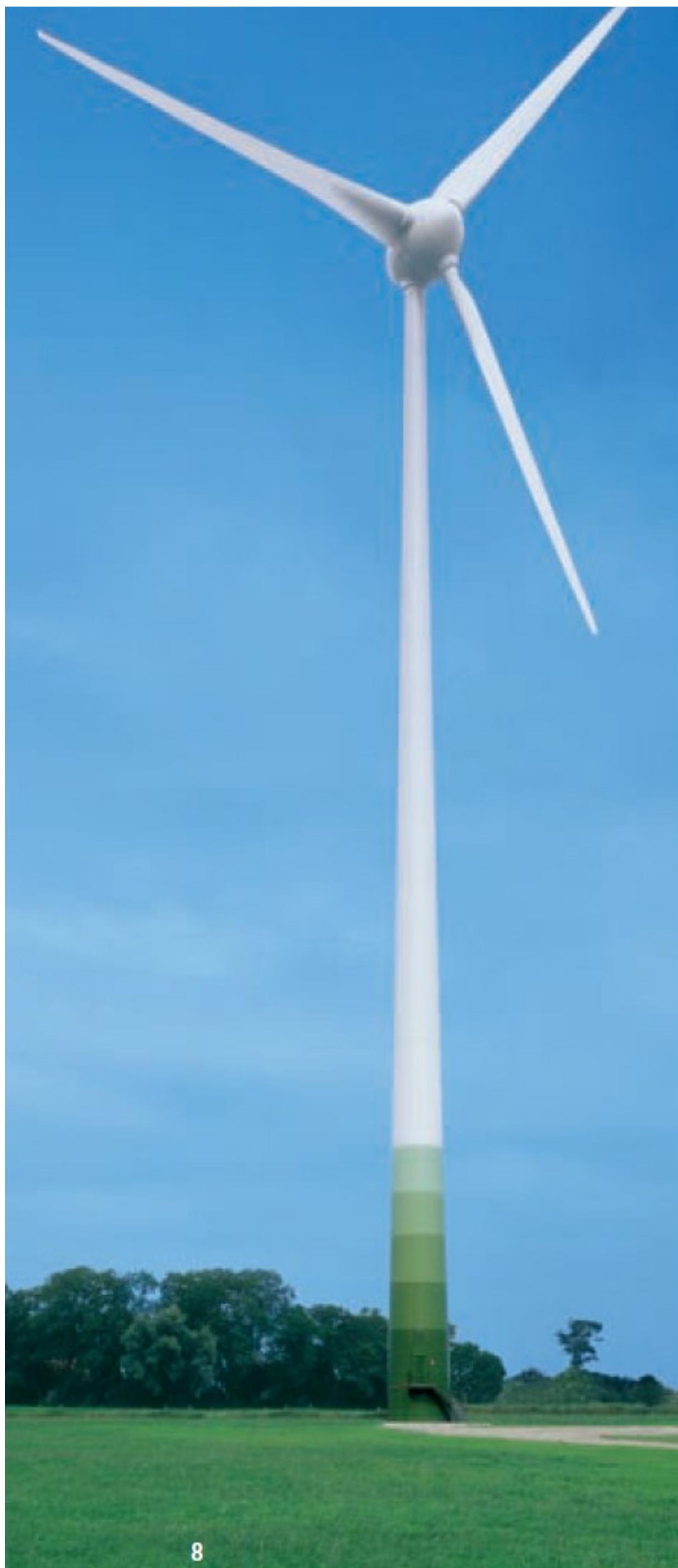
The output from the turbine is expected to supply over half of Hoben's electrical demand at a significantly lower price than that supplied by the grid. Electricity costs currently form over 10% of the cost of Hoben's products. Implementing a 500kW turbine will allow Hoben to remain competitive in a global market, safeguard jobs at the works and help reduce its CO₂ emissions. In line with government guidelines, a sum of £2,500 per annum (£5,000/MW) would be payable to a local community fund.



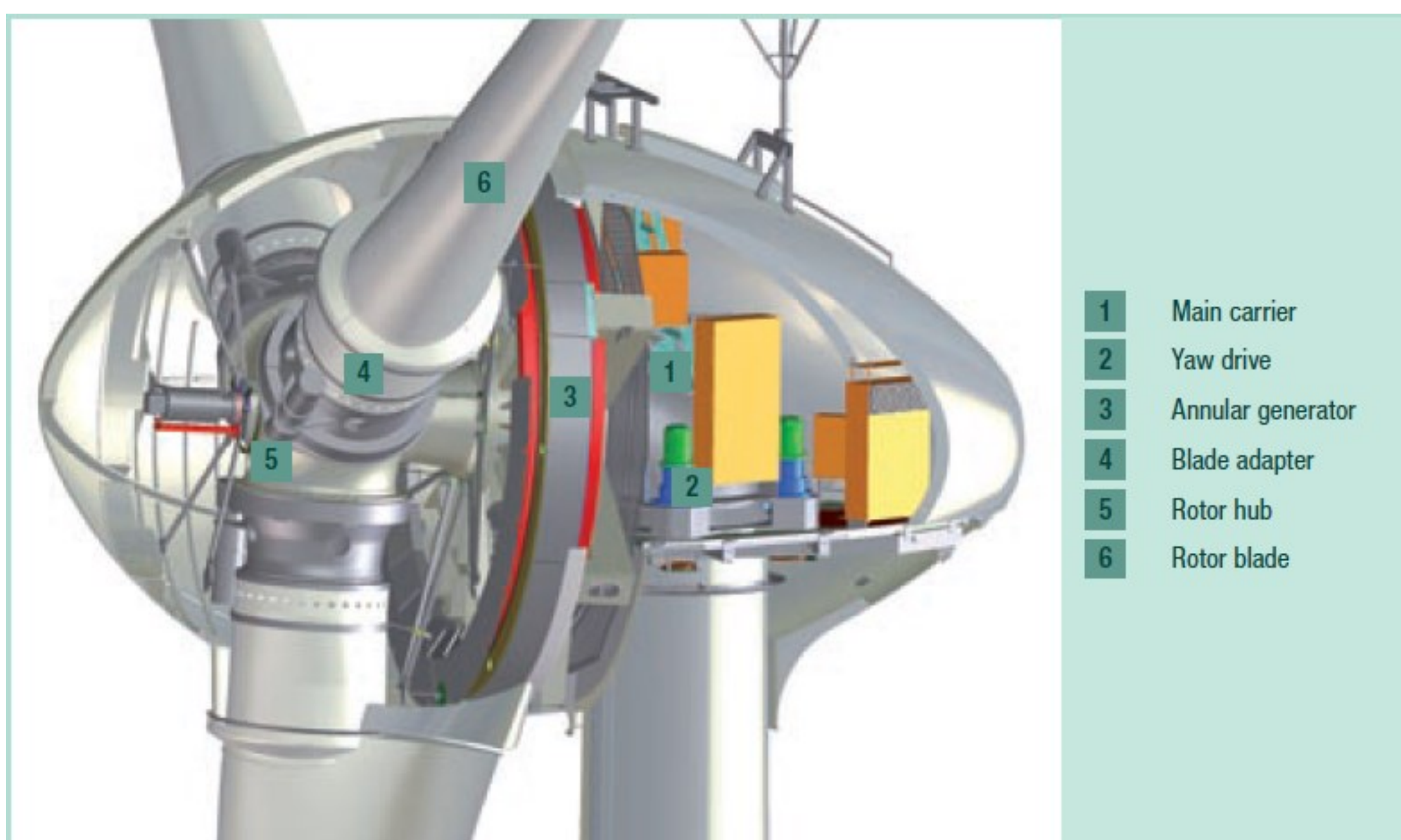
Candidate Turbines

Two 500kW wind turbines are currently being considered for the site, an Enercon E53 and an EWT DW54, see below. The Enercon E53 has a 53m rotor on a 60m tower and the EWT DW54 has a 54m rotor on a 50m tower. Both have direct drive generators, ie no gearboxes. This makes them quieter and more efficient than conventional turbines. Both are IEC Class II machines which are ideally suited to the moderate wind conditions at Brassington.

Enercon E53



EWT DW54



As part of the development process, an Environmental Impact Assessment (EIA) is being undertaken to identify the effects of the development, any potential impacts it may have and how they could be mitigated to acceptable levels. The areas investigated include:

- **Ecology**

A Preliminary Ecological Assessment was undertaken in early 2014. This has been followed up by a full suite of bird, bat, badger, greater crested newt and other surveys, which have influenced the design of the project, in particular the turbine location.

- **Noise**

A detailed noise assessment has been undertaken both for the project itself and for existing and planned nearby wind developments (shown below). Details of the estimated noise levels are shown on an adjacent board.

- **Landscape and Visual Impact**

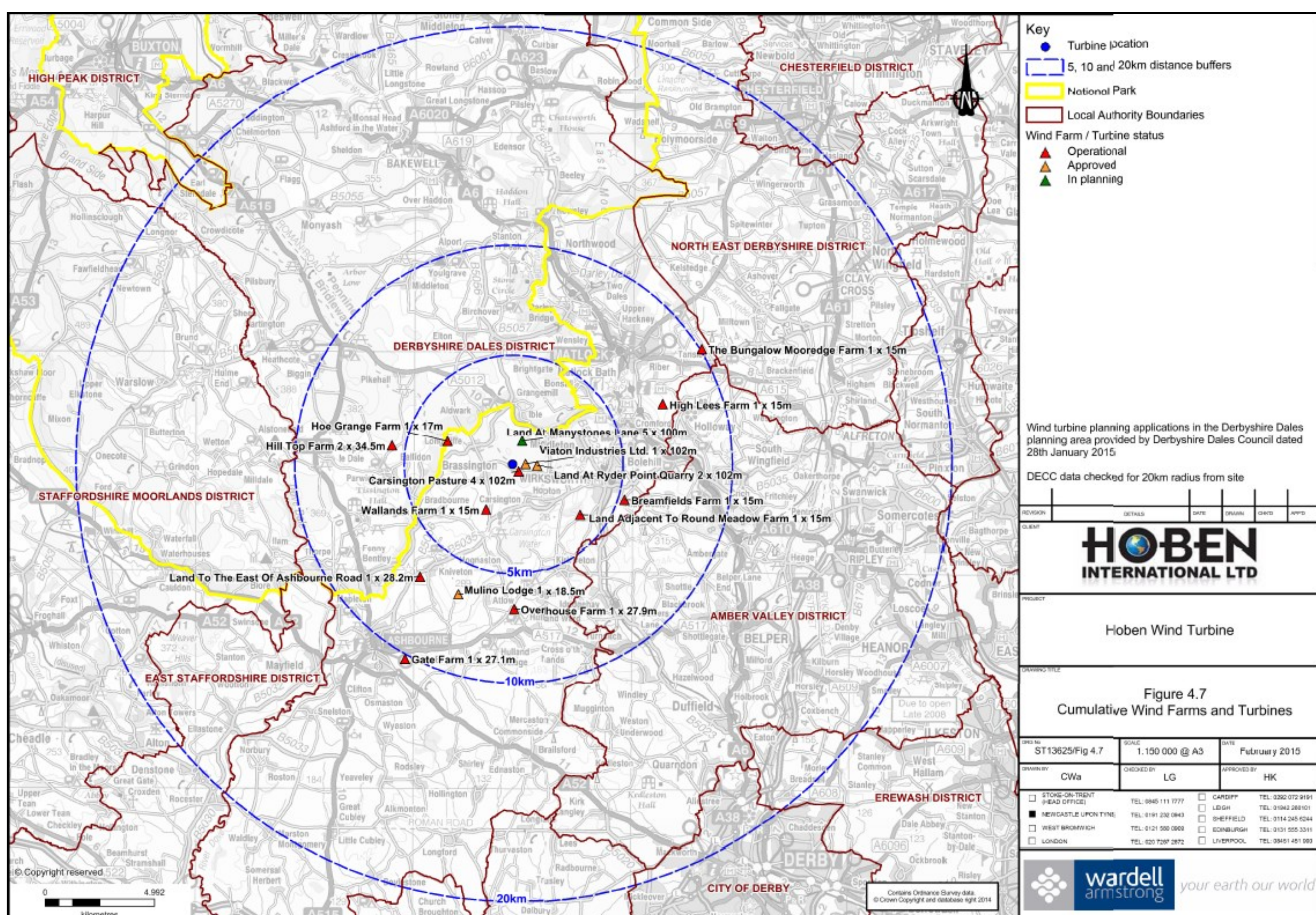
A landscape and visual impact assessment has been recently been undertaken. The area of assessment has been defined by a Zone of Theoretical Visibility which is shown on an adjacent board along with some photomontages from the study.

- **Archaeology and Heritage**

An archaeological and heritage impact assessment is currently being undertaken.

- **Aviation and Telecommunications**

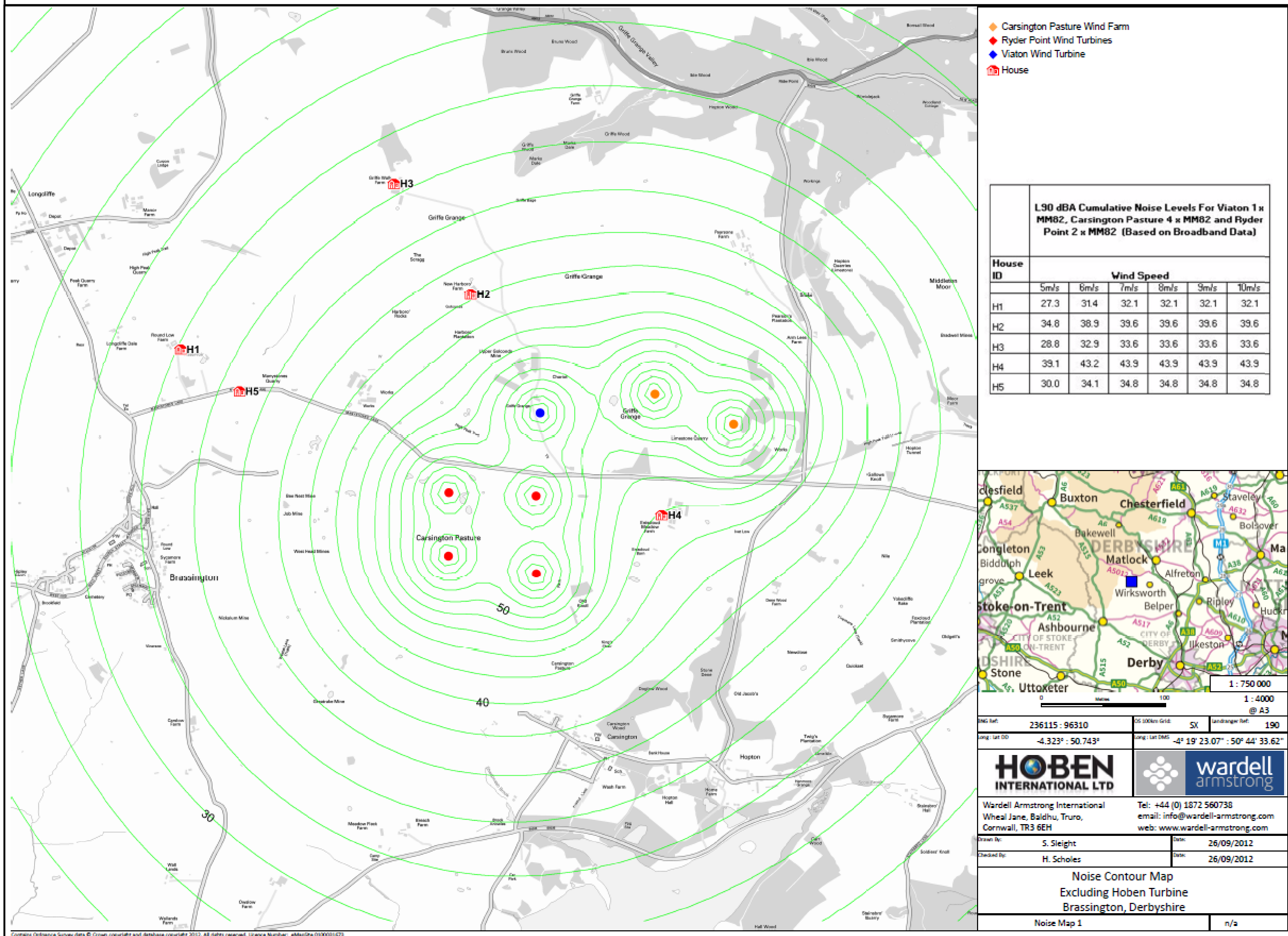
Consultations have been undertaken with stakeholders and although some potential impacts were identified, they have now been mitigated by design changes.



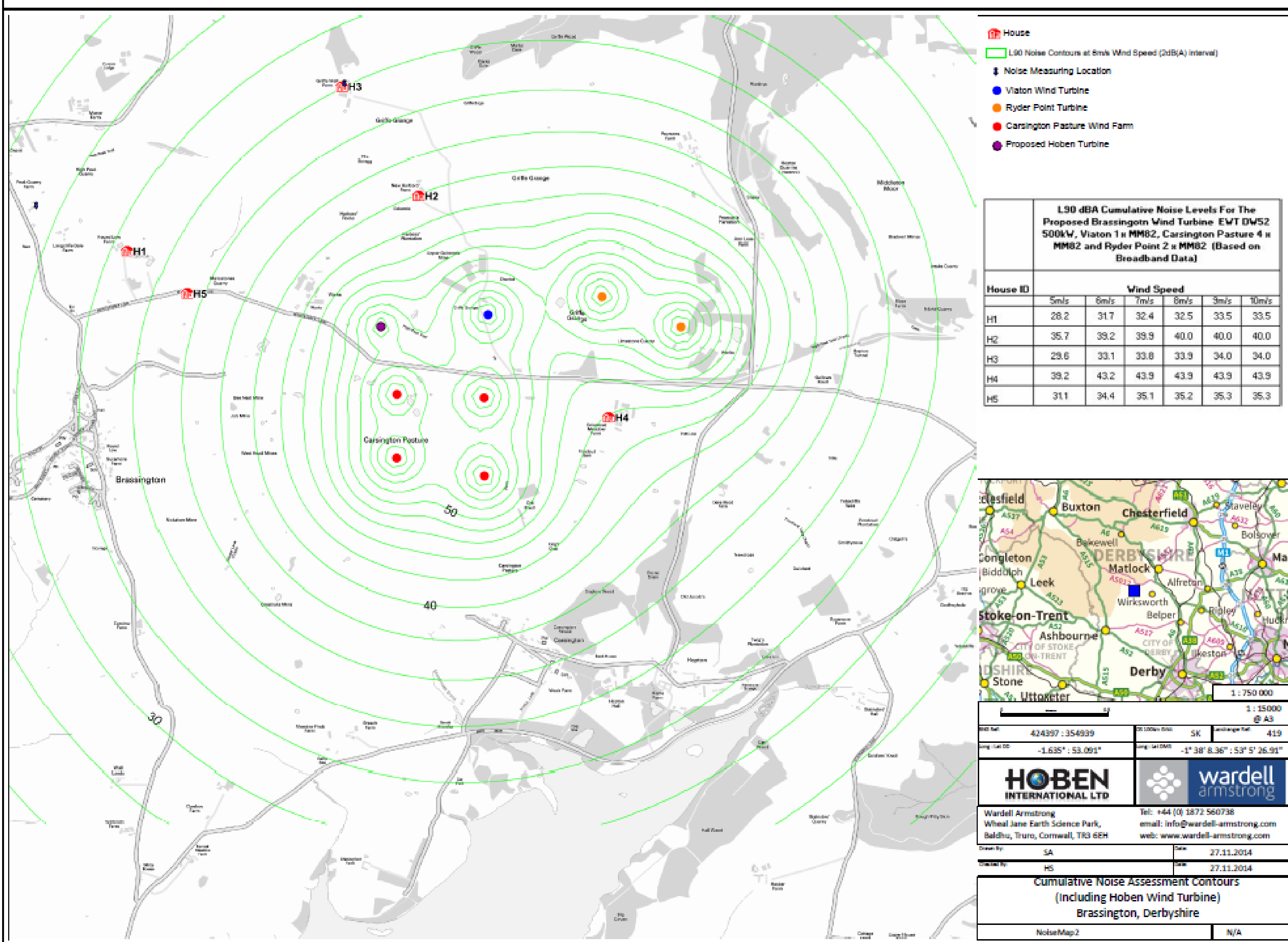
Noise Assessment



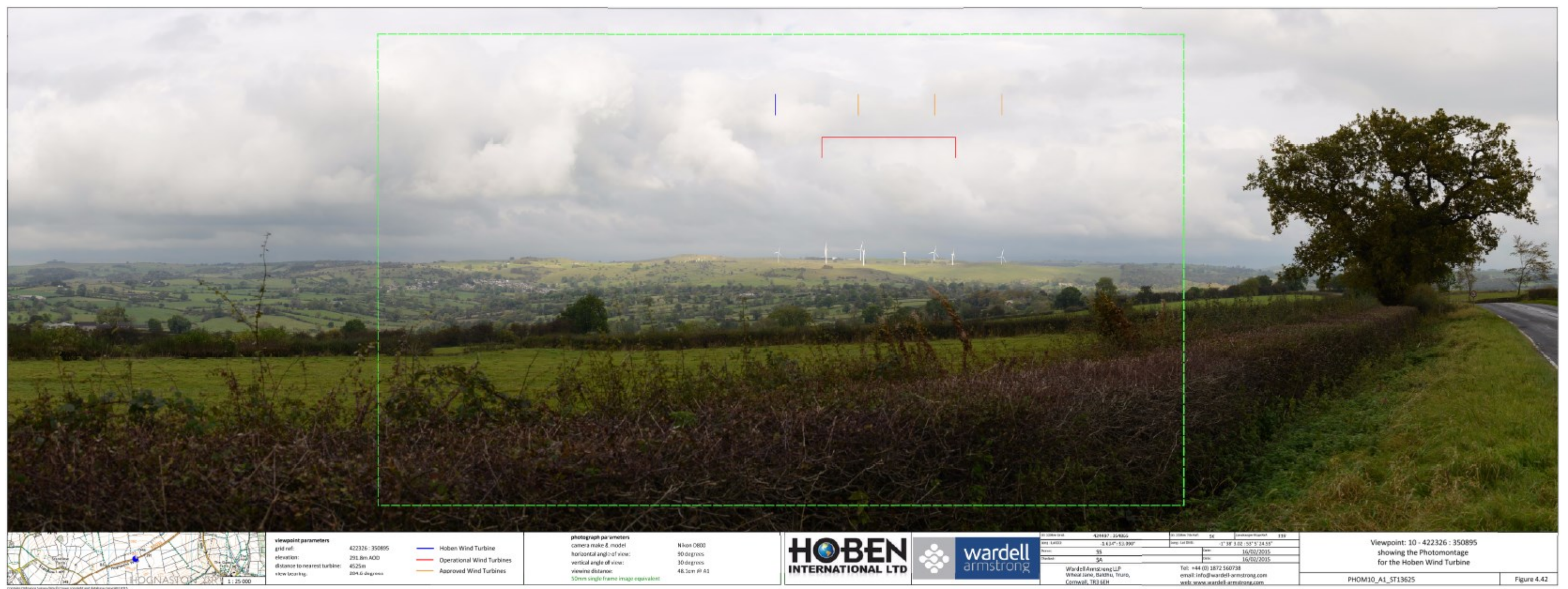
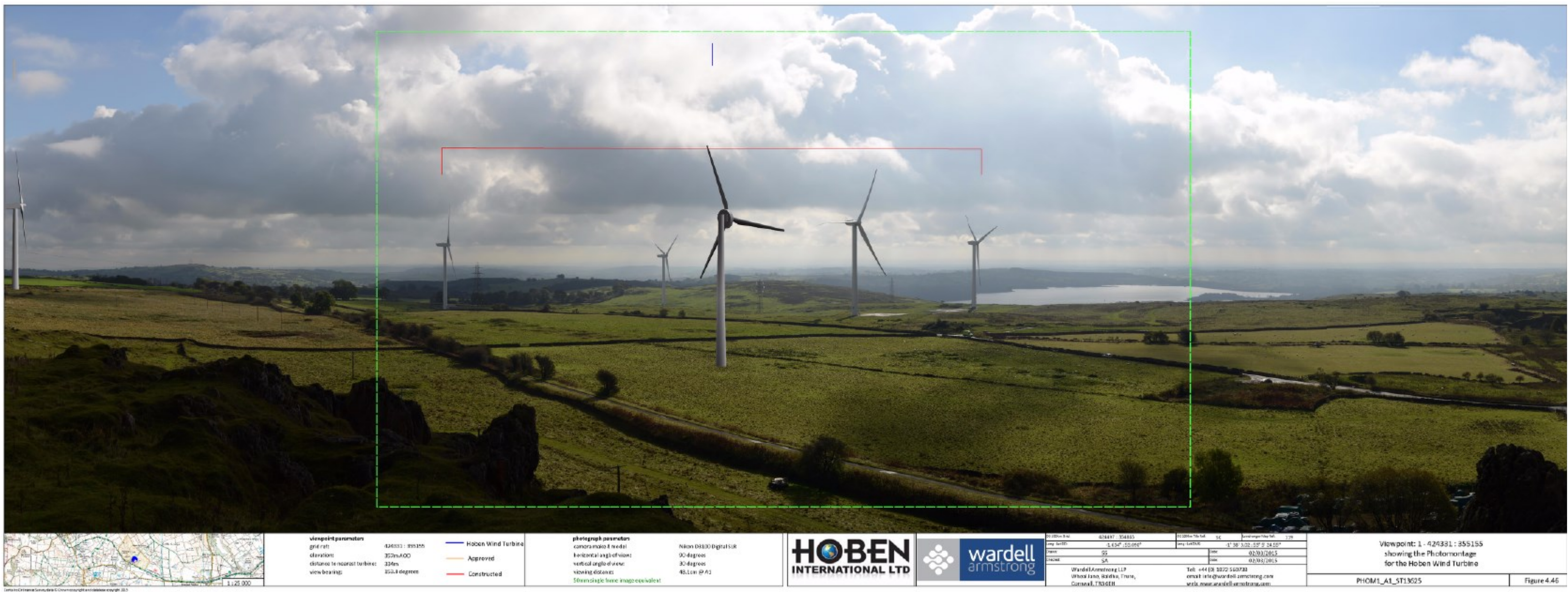
Estimated Noise Levels from Existing and Permitted Wind Turbines



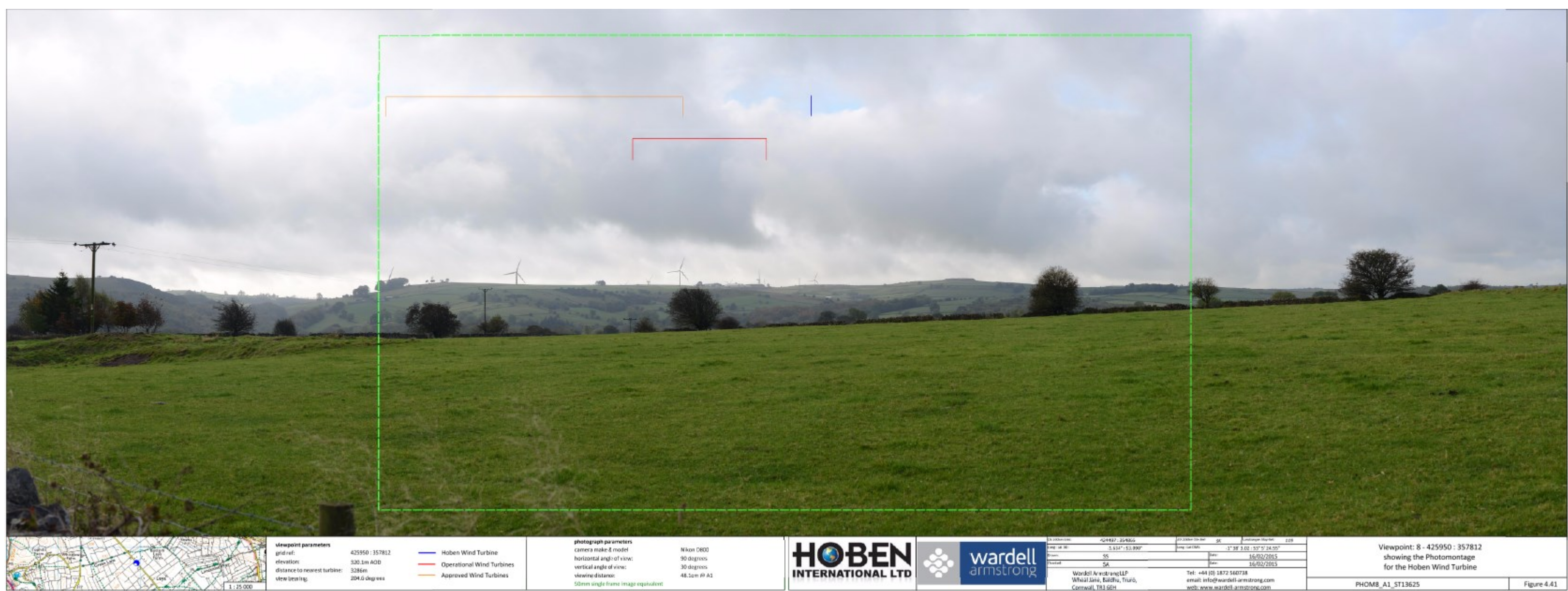
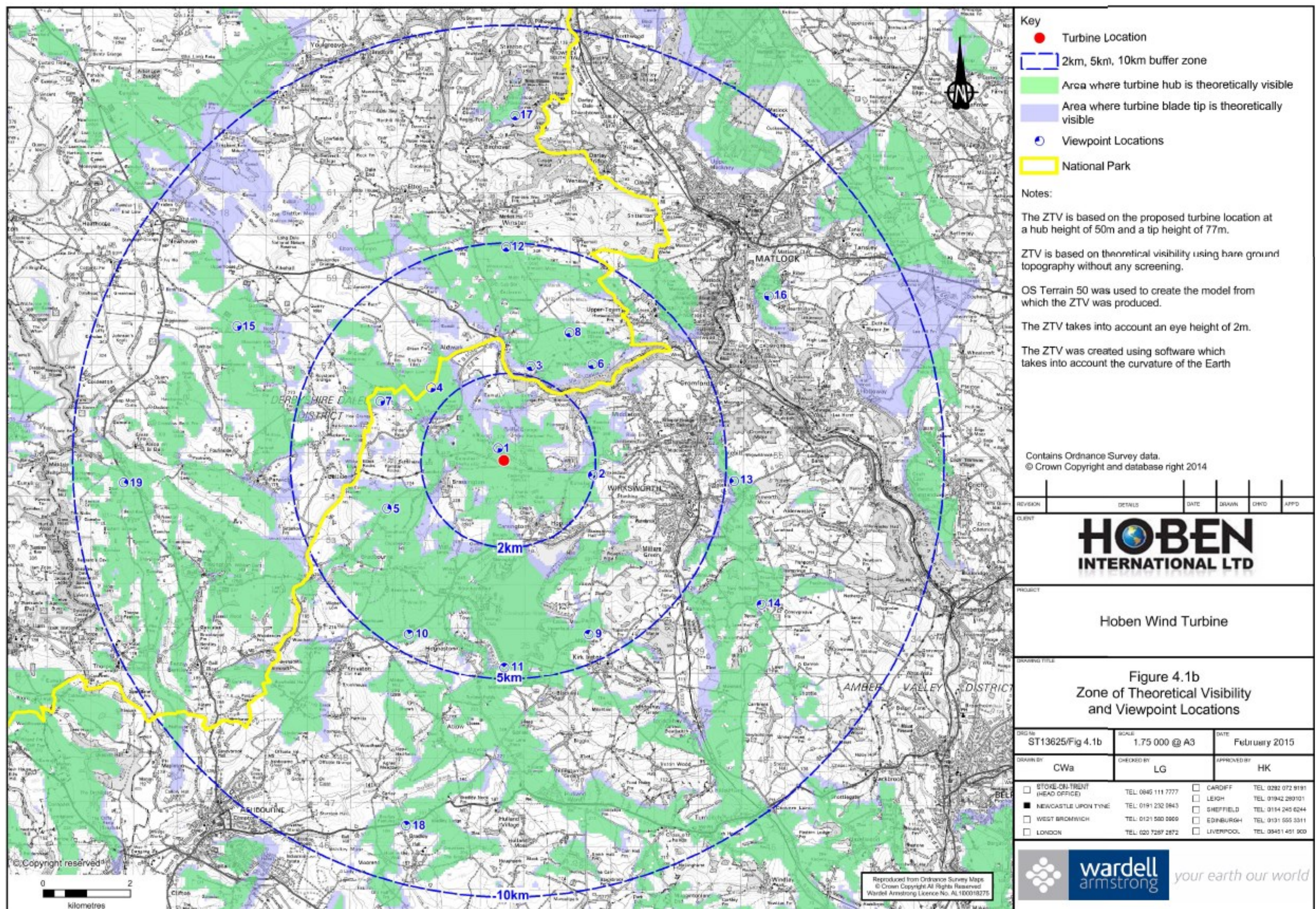
Estimated Noise Levels with the Hoben Turbine



Landscape and Visual Assessment



Landscape and Visual Assessment



Why do we need renewable energy and wind energy?

- Climate change is happening and it will be a lot cheaper to do something about it now rather than leaving it for our children to deal with
- Fossil fuels are getting more expensive to extract, leading to price rises in the foreseeable future
- Wind energy is local energy and therefore a secure source of supply
- Renewable energy reduces our dependence on imported fuels

How popular is wind energy?

- The use of wind energy enjoys consistently high popularity ratings of around 70%
- 34% of voters in local elections said they would be more likely to back a candidate who publicly supports building wind farms, only 24% would be less likely to do so
- There is no evidence to suggest that wind farms detract tourists
- The cost of supporting wind energy is much lower than most people think, just 35p a week per household

Should the UK invest in other renewable energy technologies and energy efficiency technologies instead of wind power?

- Wind energy's role in combating climate change is not a matter of either-or; the UK needs a mix of renewable energy technologies and energy efficiency measures as quickly as possible if it is to effectively tackle climate change
- Significant amounts of investment and subsidies have been allocated for wave and tidal energy development and these technologies, along with solar and biomass energy will have an important role in the UK's future energy mix

What is shadow flicker?

- When the sun is shining on a wind turbine the rotating wind turbine blades create a shadow which can cause a flickering effect when it falls across a narrow window into a building
- To prevent this potential problem, the turbines can be programmed to shut down as needed

Wind energy is inefficient and intermittent

- Modern wind turbines convert up to 50% of the energy in the wind into electricity
- Conventional coal fired powerplants are typically only 35% efficient
- Wind turbines generate electricity between 70% and 85% of the time
- A modern wind turbine will pay back the energy used in its manufacture within eight months and produce carbon free electricity for the remainder of it's lifetime

Wind turbines are a hazard to wildlife

- Environmental studies are required as part of the planning process to ensure wind turbines are properly sited and there are no significant impacts to the local ecology
- UK wind farms have not been associated with any major adverse effects on birds
- By far the biggest threat to UK bird populations is climate change (RSPB), which is mitigated by renewables such as wind

Wind turbines affect house prices

- A study by the Royal Institution of Chartered Surveyors suggests that wind farms have no lasting impact on UK house prices
- It shows that local house prices recover from any initial influence once a wind farm has been operating for two years

Wind turbines are a health hazard

- Wind turbines of the size proposed at Hoben rotate significantly slower than the 2.5 to 3 Hz frequency range generally thought to induce photosensitive epilepsy
- Wind turbines do not burn anything to generate electricity and therefore produce no harmful emissions
- The risk of fire at wind farms is very low, both fire damage to wind turbine generators and fire caused by the generators themselves