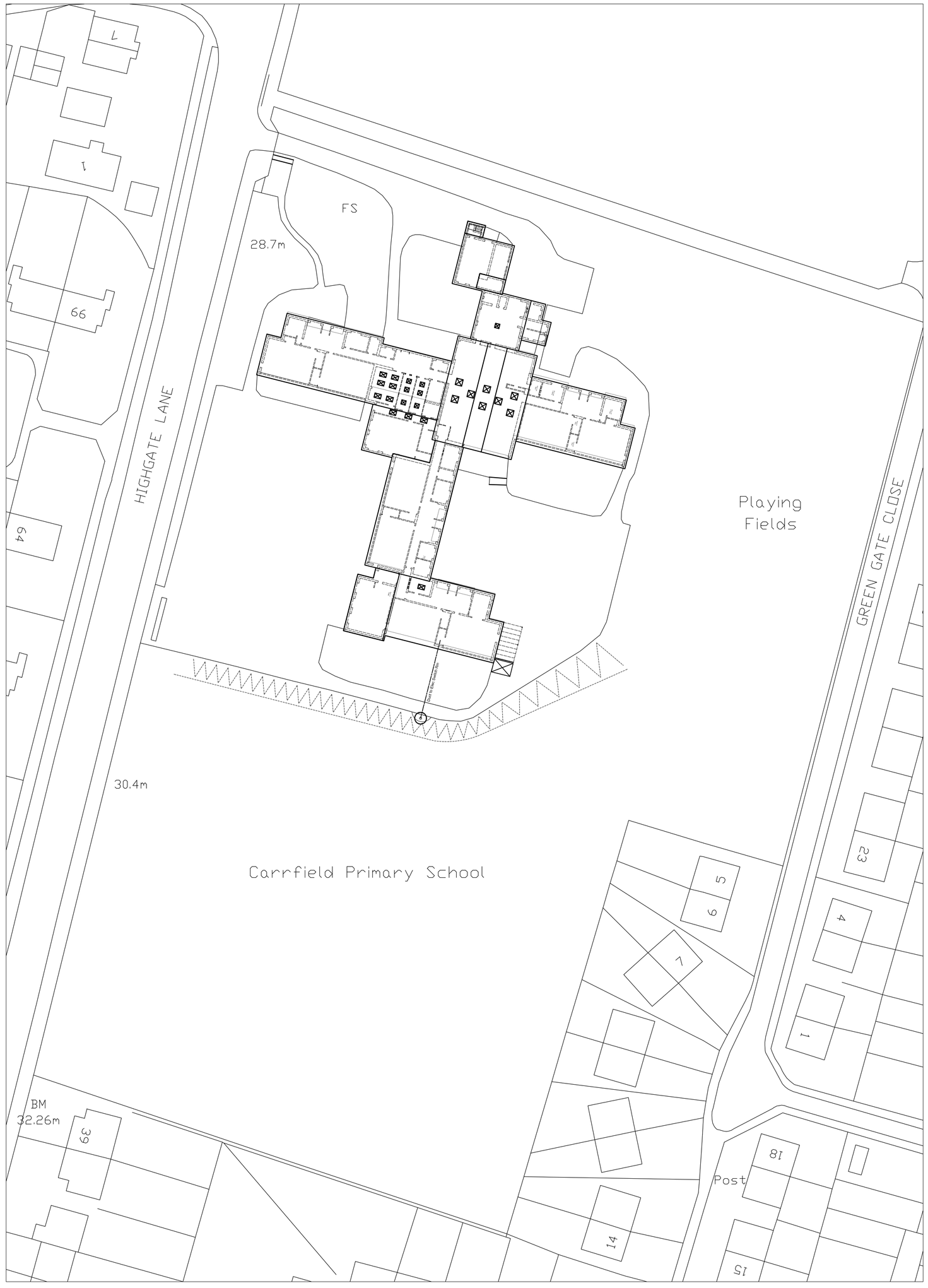
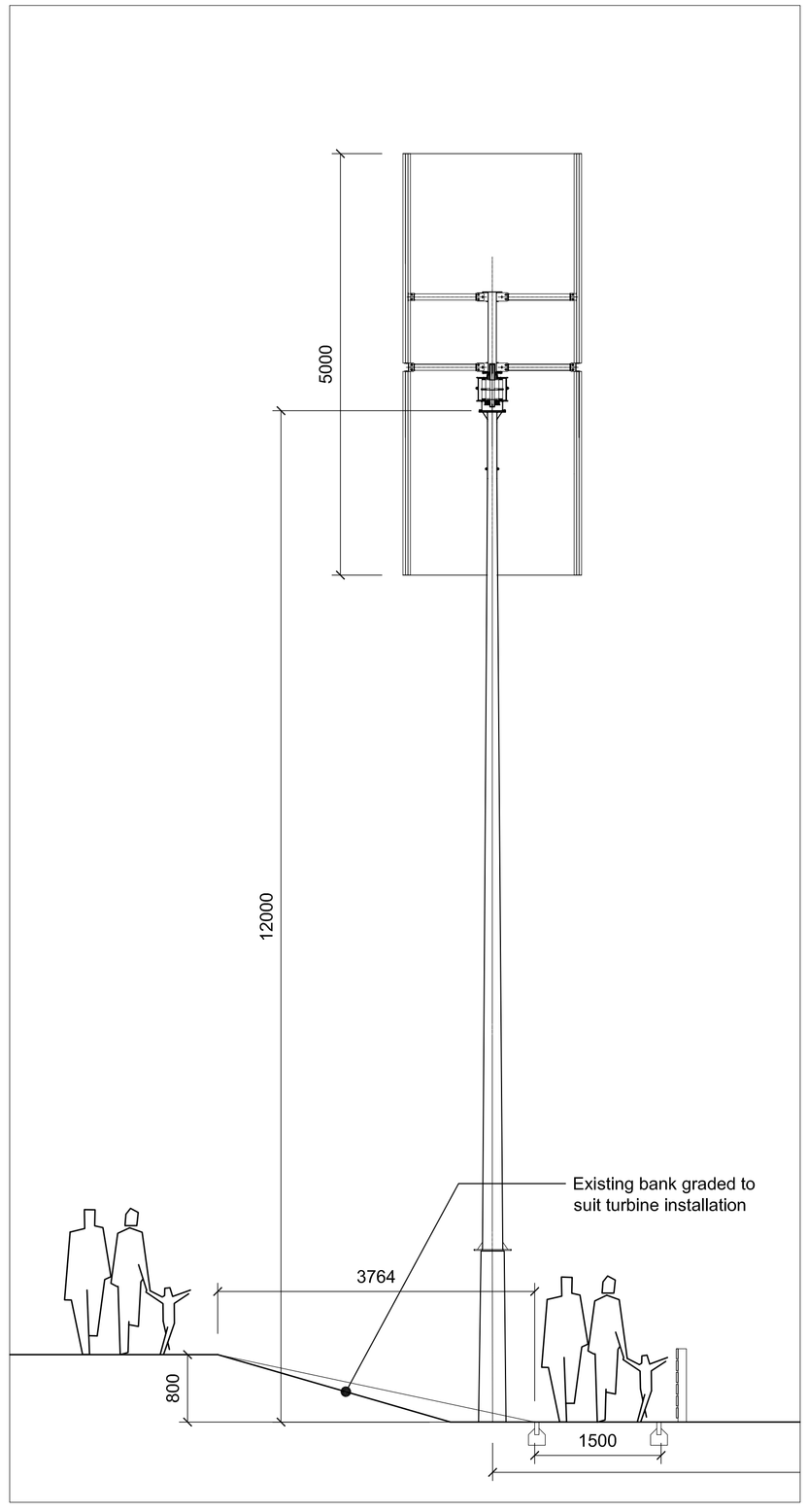


Site Plan with wind turbine location > 1:200 @ A1



Aerial image of site



Wind Turbine elevation > 1:50 @ A1

Proposed installation of 'Vertical axis wind turbine' at Dearne Carrfield Primary School.

Dearne Carrfeild Primary school has undergone a scheme of works over the last couple of years with the aim of becoming a 'Low or zero carbon school' with funding raised on this basis.
To this end the following interventions are now complete; the replacement of the old 'coal fired' boilers with new Biomass, installation of Solar Photovoltaics, Solar thermal cells, 'smart metering' and general thermal improvement of the fabric of the building.
The final intervention to reduce the school's 'carbon footprint' is to install a wind turbine to further reduce the schools required 'off-grid' power.
The proposal is to install a 'vertical axis' turbine as opposed to the more traditional style. Many of the reasons for this choice are listed below in terms of the advantages. However its reduced wind noise, the lack of impact upon local ecology and increased efficiency are the principle reasons.

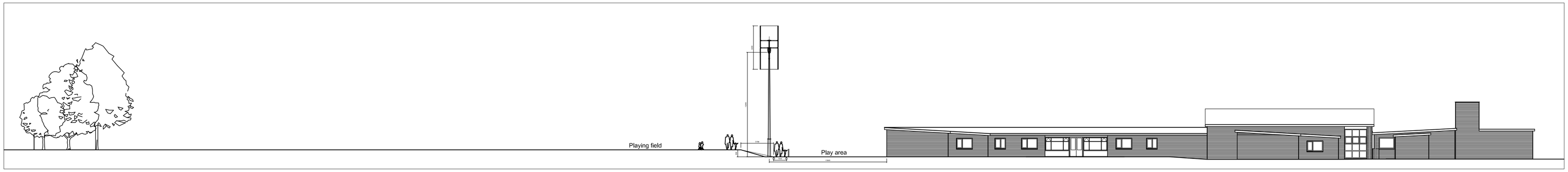
The proposal is to install a 2.5Kw generator with 5m (h), 4Kw blades on a 12m mast to the southern side of the site adjacent to the running track and football field. The turbine will be supplied by Maglev Uk, 32 Curtis Road, Norwich, NR6 6RB.

In noise tests a 2.5Kw Maglev VA turbine situated in an urban setting was found that at an average wind speed of 4.5m/s the turbine could not be heard from 3m away. (Daytime ambient noise 50-60 dB's / Night time ambient noise 35-45 dB's).

Features	Benefit	Advantages
Magnetically levitated function.	• Frictionless Environment	• Low start-up speed. • Reduced noise and natural resonance. • 90% mechanical efficiency. • No lubrication. • Reduced bearing wear • 20 year product life
	• Counteracts weight of blades	• Larger blades can be used for lower wind speed areas. • Area to move allows the magnets to act as suspension in gusts.
	• One moving part	• Reduces potential problems from having complex components. • No gearbox. • No pitch and yaw mechanisms.
Vertical axis variable blades.	• Faces 360 degrees of the wind.	• Does not lose energy by chasing the wind direction. • Continues to perform strongly in cross winds. • No pitch or yaw mechanisms required.
	• Uses Ailerons to catch wind	• Captures more energy to turn the wind turbine. • Oncoming wind is lowered in force by using an aerodynamic shape.
	• Developed with a range of different blade sizes.	• Select a blade size which suits the sites wind speed. • Larger blades turn the generator at higher RPM creating more energy at lower wind speeds.
	• Simple installation	• A low natural resonance mean the wind turbine can be roof mounted. • Smaller units can be fitted on a strengthened street lighting column. • Vertical axis wind turbines can be installed at lower heights. • Producing little turbulence, multiple units can be installed two diameters distance apart from each other.
Eco-logical Wind Turbine	• It does not present unnecessary endangerment to wildlife.	• Seen as a solid object by birds and bats which means no impact on the local ecology from bird strikes. • Animals are happy to graze around the quiet wind turbine .
	• long-lasting and practical wind turbine.	• The wind turbine uses minimal components but gains high efficiencies. • The longest warranty for a wind turbine in the UK. • No yearly servicing.



Photo montage of turbine in proposed location



Site section > 1:250 @ A1

Rev A; Location of turbine adjusted to sit a base of incline to sports field. Incline is approx 800mm at 12%.

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PROJECT
Dearne Carrfield Primary
Phase 2 Works

DRAWING
Location Plan
Wind Turbine information

Drawn		Revision
LJK		A

Scale	Date
1:150 @ A1	Sept 09

Project Code	Drawing No.
ED 2206	AL(0)01