



Regent Park Energy Limited

Planning / Design and Access Statement for an Application to

Retain the Existing Electricity Generation Building, Cooling Radiators, Gas Meter Cabinet, Brick-Built Switchroom / Sub-Station, Ancillary Equipment and Landscaping, and Amend the Boundary Fencing, Make Slight Changes to the Site Layout Previously Approved Under Planning Permission (Application No. 2017/1315) and Increase the Height of the Exhaust Stacks on the Electricity Generation Building at the Hickleton Energy Park and Change the Use of the Whole Site to a Back-up Electricity Generation Facility Fuelled by Natural Gas

**at the
Hickleton Energy Park
Off Barrowfield Road
Thurnscoe
Rotherham
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APPENDICES

- Appendix A Air Quality Assessment by ADM Ltd dated 23 October 2018, reference P1816

DRAWINGS REFERRED TO IN THE APPLICATION

Drawing No.

12-2401-101	Location Plan
12-2401-102	Existing Site Plan
12-2401-103 Revision A	Proposed Site Plan
12-2401-104 Revision A	Proposed Site Elevations

1. PLANNING HISTORY OF THE SITE, DETAILS OF THIS APPLICATION AND OWNERSHIP

1.1 Planning History of the Site

1.1.1 The Hickleton Energy Park is currently operating under the following planning permissions

Ref. No. B/99/0998/DE dated 19th October 1999;
Ref. No. B/00/0010/DE dated 22nd February 2000;
Ref. No. B/00/0761/DE dated 24th October 2000; and,
Ref. No. B/04/0903/DE dated 13th July 2004

A further planning permission, reference 2005/1635, was granted for the erection of bio-fuel plant for electrical generation, but that application was never implemented, so it has now lapsed.

On 10th August 2012, planning permission (reference 2012/0576) was granted for the variation of condition 3 of application B/00/0761/DE to allow the supplementary use of mains gas.

1.1.2 On 4th January 2018, further planning permission (reference 2017/1315) was granted for the retention of the natural gas meter cabinet, the installation of a containerised back-up power generator, cooling radiator, associated pipework and transformer outside of the existing generation building and a 5m high acoustic screen.

1.2 Details of this Application

1.2.1 The coal mine methane, available for extraction at the Hickleton Energy Park, has depleted to such an extent that the Applicant wishes to convert all of the generators within the generation building to run solely on natural gas and increase the consented run hours on the site. The externally sited back-up power generator, which is covered by planning permission 2017/1315, dated 04 January 2018, was always planned to be fuelled by natural gas.

1.2.2 It is also proposed to make a small number of changes to the layout of the equipment, acoustic wall and perimeter fencing to the site. These changes can be summarised as follows:

- Remove the 2.0m high perimeter fence on the northern and eastern boundaries and replace it with a 4.0m high fence;
- Removing the northern pair of gates and replacing them with a 4.0m high fence;
- Amend the position and length of the acoustic wall and install a small length of close boarded timber fence;
- Relocate the new cooling radiators to next to the acoustic wall, move the externally sited generator container slightly to the south and reposition the transformer; and,
- Increase the heights of the exhaust stacks on the generator building to 9m above ground level.

1.2.3 An e-mail was sent to Mr Chris Shields, Technical Officer (Pollution Control) of Barnsley Metropolitan Borough Council on the 17th September 2018 regarding a proposed increase to the running hours above the 1000 hours per annum specified in Condition 3 of planning permission 2017/1315 and to change the use of the whole site to a back-up power generation facility, fuelled by natural gas.

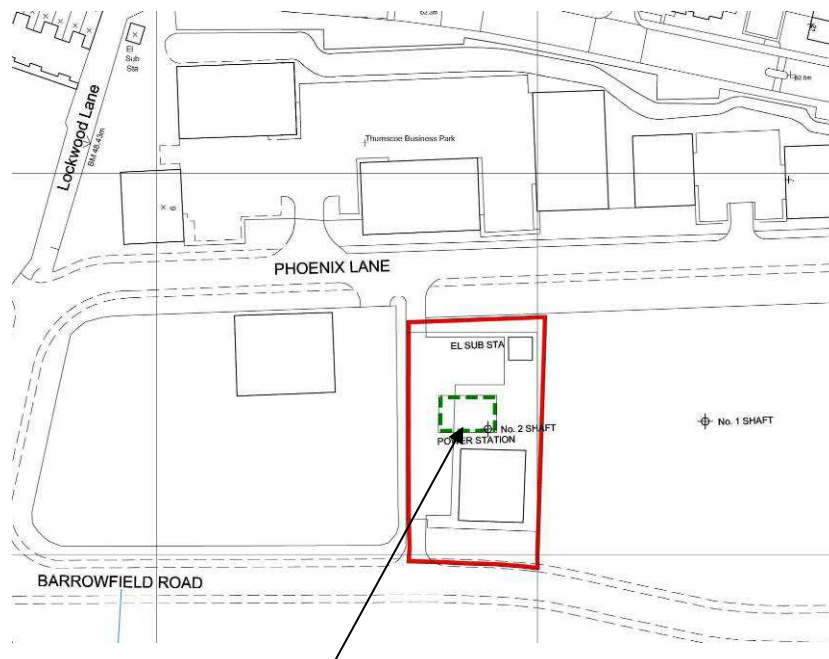
1.2.4 Mr Shields replied on the 4th October 2018. His reply stated that a new air quality assessment would be required to assess the impact of the changes of both operational hours and fuel on local air quality.

Mr Shields' reply also mentioned a currently undetermined application for extension to an existing industrial unit near the site. The industrial unit was built in 2017. It was mentioned that there is potential for this development to impact on the dispersion of emissions from the Energy Park, so, it was recommended that the construction of both the unit itself and the proposed extension were taken into account in the air quality assessment, in order to account for any impact on dispersion of emissions from the Energy Park.

1.2.5 The Applicant has engaged Mr David Harvey of ADM Ltd to prepare a further Air Quality Assessment taking into consideration the pre-application comments by Mr Shields. That revised assessment forms part of this application and is referred to in more detail in Section 3.3 of this statement.

1.3 Ownership

1.3.1 The majority of the application area is owned by Regent Park Energy Limited.



1.3.2 However, a small square of land (showed edged dashed green on the Location Plan) is leased from The Coal Authority.

2. DESIGN OF THE PROPOSED FACILITY

2.1 Amount

- 2.1.1 The application area is some 0.243 Ha (0.60 acres).
- 2.1.2 The maximum projected output of electricity which would be exported from the site, at any one time, is to be about 7.4 MW (Mega Watts).

2.2 Access, Highways and Transport

- 2.2.1 Access and egress to and from the site is via the entrance off Barrowfield Road.
- 2.2.2 The site is not manned on a regular basis. The plant and equipment is operated and controlled remotely from the Applicant's Logistics Centre at their Head Office in Northampton. The Logistics Centre is manned 24 hours a day, 365 days a year.
- 2.2.3 Therefore, vehicle movements during the operational phase are expected to continue to be minimal, 2 – 6 per week, i.e. a visit by one or two maintenance personnel by car or light van, 1 to 3 times a week.

When major plant service or repairs are being undertaken, the number of people on site may exceed the above figures for short periods. One or two HGV vehicles and a crane may also be required, on site, at that time.

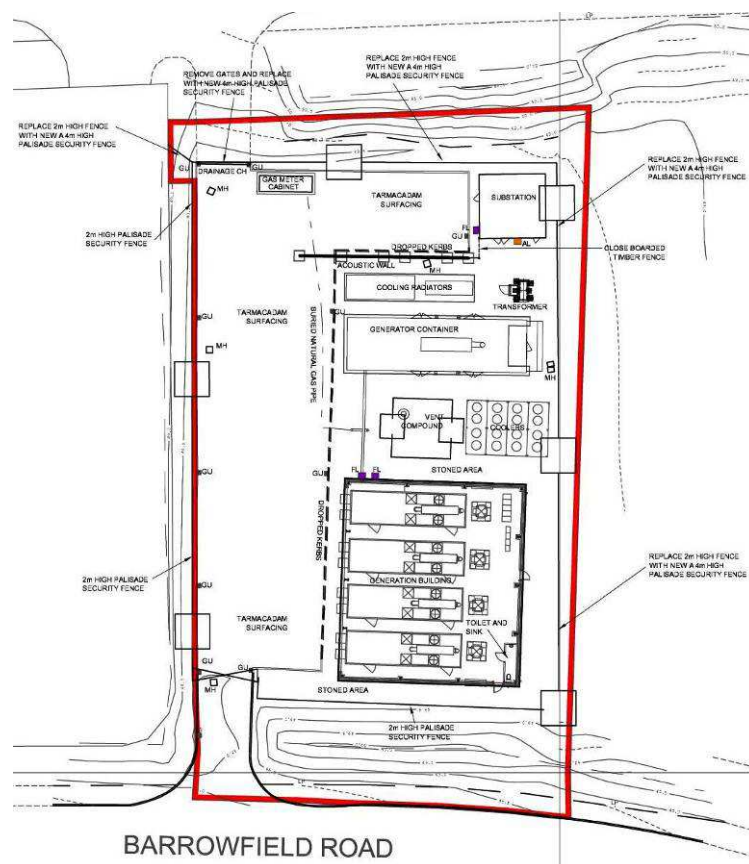
- 2.2.4 There is sufficient manoeuvring room inside the site compound to allow the maintenance engineers vans to enter and leave the site in a forward gear.
- 2.2.5 Welfare facilities including a toilet and sink facilities are provided within the Generation Building.

2.3 The Generating Facility

2.3.1 The proposal is for power to be generated at the site using natural gas as a fuel. The natural gas would continue to be imported to the site from the local supply network.

2.3.2 The proposed embedded back-up electricity generation facility principally consists of:

- 4 No. generating engines situated within the Generation Building and 1 No. externally sited generating engine within an acoustically controlled container;
- transformer, cooling radiators, fencing and other ancillary plant and equipment.



2.3.3 The facility has been designed so that it can respond automatically and rapidly to provide back-up electricity on instructions from the National Grid.

2.4 Fencing, Landscaping and Lighting

- 2.4.1 The compound is secured by a 2.0m high palisade security fence and two pairs of gates, one at the north of the site, and one at the south.

It is proposed to replace the 2.0m high fence along the northern and eastern boundaries of the site with a 4.0m high fence, for security reasons. It is also proposed to replace the northern most pair of gates with 4.0m fencing.

- 2.4.2 The existing landscaping, on bunds to the north and south of the site, will not be affected by these proposals.

- 2.4.3 The existing floodlighting consists of fixed hooded lamps secured to the generation building and the substation. An amenity light is located to the side of the personnel door on the substation.

The exiting lighting is shown on both the existing and proposed site layout drawings and will not be affected by these proposals.

2.5 Anticipated Hours of Operation

- 2.5.1 Based upon the Air Quality Assessment, dated 4 December 2017, condition 3 of the current planning permission restricts the operational hours to no more than 1000 hours per year.

- 2.5.2 The Applicant wishes to be able to operate the site for approximately 2000 hours per year. Therefore, the air quality expert has been asked to model the airborne emissions from the site on that basis.

- 2.5.3 When they are not producing power, the generator engines will be maintained 'warm' using electric heaters and/or batteries and so will be 'ready to go' when needed. However, this process will not generate any significant noise emissions.

3. **ENVIRONMENTAL MATTERS**

3.1 Town & Country Planning Environmental Impact Assessment Regulations 2017

- 3.1.1 The application area is some 0.243 Ha (0.60 acres).

- 3.1.2 The application type is not listed within Schedule 1 of the EIA Regulations but is identified within Schedule 2 of the Regulations under the definition set out in 3(a) of Column 1 - Industrial installations for the production of electricity, steam and hot water (unless included in Schedule 1).

- 3.1.3 However, the generation facility does not exceed the indicative threshold of 0.5 Ha in Column 2. Therefore, there is no requirement for an Environmental Impact Assessment (or Environmental Statement) to be provided for this development.

3.2 Noise

- 3.2.1 For the previous application, in 2017, the then applicant appointed Acoustic Associates, Peterborough to carry out a background noise survey and model the predicted noise emissions from the proposed back-up power generation facility.
- 3.2.2 The proposed changes do not involve any material change in the generation equipment or site layout which would affect the conclusions of that noise assessment. Noise emissions from the site are currently controlled by Condition 5 of the existing planning permission. Therefore, no further noise assessment has been submitted with this application.

3.3 Airborne Emissions

- 3.3.1 The spark ignition internal combustion gas engines, on the site, each drive an alternator, which generate electricity using natural gas as the fuel.

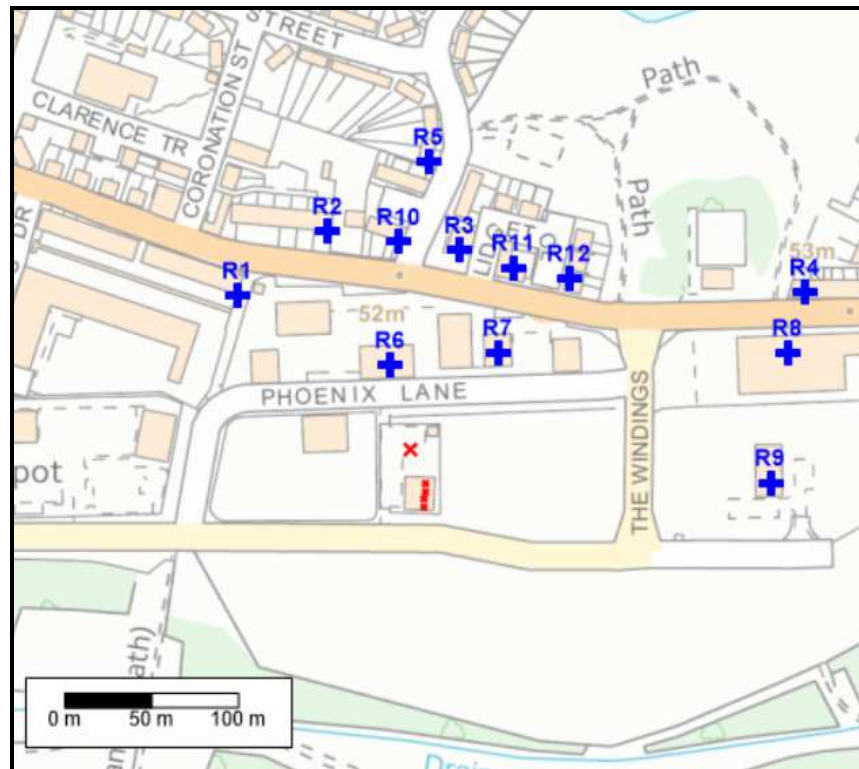
Emissions from such gas engines will be virtually colourless and primarily includes oxides of nitrogen (NO_x), carbon monoxide (CO) and volatile organic compounds (VOC).

The airborne emissions from locally embedded power generation facilities are significantly less than those from comparable fossil fuel generating stations.

Flue gases are discharged via chimneys located adjacent to the Generation Building and via a flue stack on the externally sited containerised engine.

- 3.3.2 The Medium Combustion Plant Directive (MCPD) was transposed into UK law on 29th January 2018. MCPD provides regulation and emission controls for combustion plants in the 1-50 MWth range, it will apply to new plants from December 2018 and for existing plants from 2024 or 2029 depending on their size. The proposed generator will comply with the requirements of the MCPD and will meet the emission limits.
- 3.3.3 An Air Quality Assessment, which can be found in Appendix A of this statement, has been undertaken for the proposals by ADM Ltd of Old Chambers, 93-94 West Street, Farnham, Surrey GU9 7EB, dated 23 October 2018, reference P1816.
- 3.3.4 As recommended in the pre-application comments from Mr Shields, Section 4.4.3 of the assessment confirms that the modelling includes downwash from the proposed extension to the nearby building, which is being considered by the Local Planning Authority, under planning application reference 2018/0966.

3.3.5 The report considered the effects of emissions at the specific receptor points, shown by a blue cross on the image below.



3.3.6 The following figures are presented to illustrate the distribution of concentrations of the nitrogen dioxide (NO_2). Predictions are presented for 2014 meteorological data as this is the year that gives rise to the highest predicted concentration.

- **Figure 5.1;**Annual Average, Existing Facility
- **Figure 5.2;**Annual Average, Proposed Generator + Existing Facility with 3.6 m Stack Extensions
- **Figure 5.3;**99.8th percentile of hourly averages, Existing Facility
- **Figure 5.4;**99.8th percentile of hourly averages, Proposed Generator + Existing Facility with 3.6 m Stack Extensions

Figure 5.1
ADMS 5.2 Predicted Annual Average Ground Level Concentration of the Nitrogen Dioxide (NO_2); 2014 Meteorological Data ($\mu\text{g m}^{-3}$); Assuming 70% Oxidation, Existing Facility

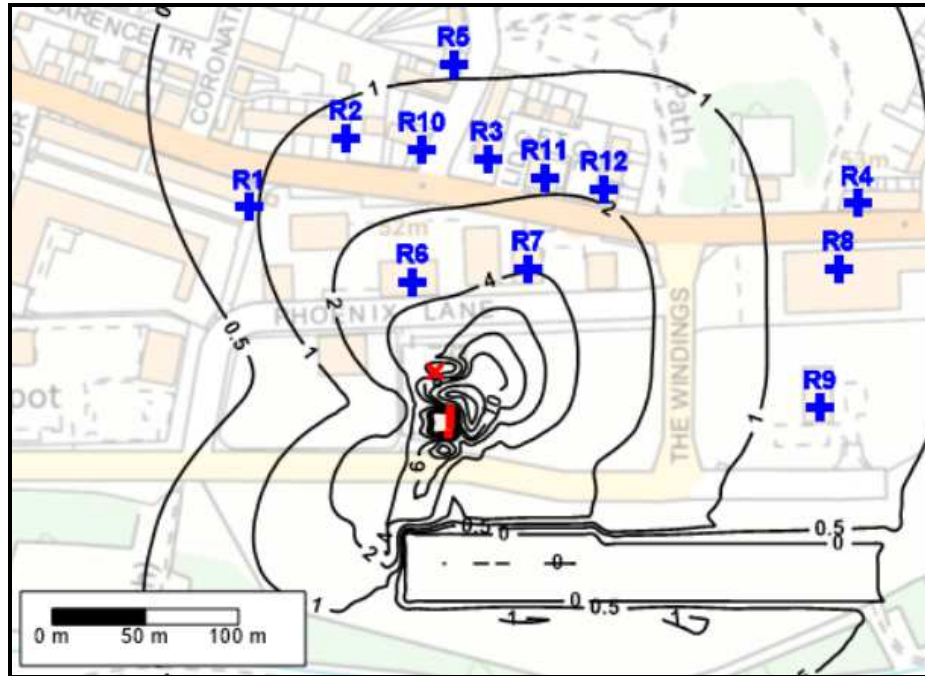


Figure 5.2
ADMS 5.2 Predicted Annual Average Ground Level Concentration of the Nitrogen Dioxide (NO_2); 2014 Meteorological Data ($\mu\text{g m}^{-3}$); Assuming 70% Oxidation, Existing Facility (3.6 m Extensions) + Proposed Generator

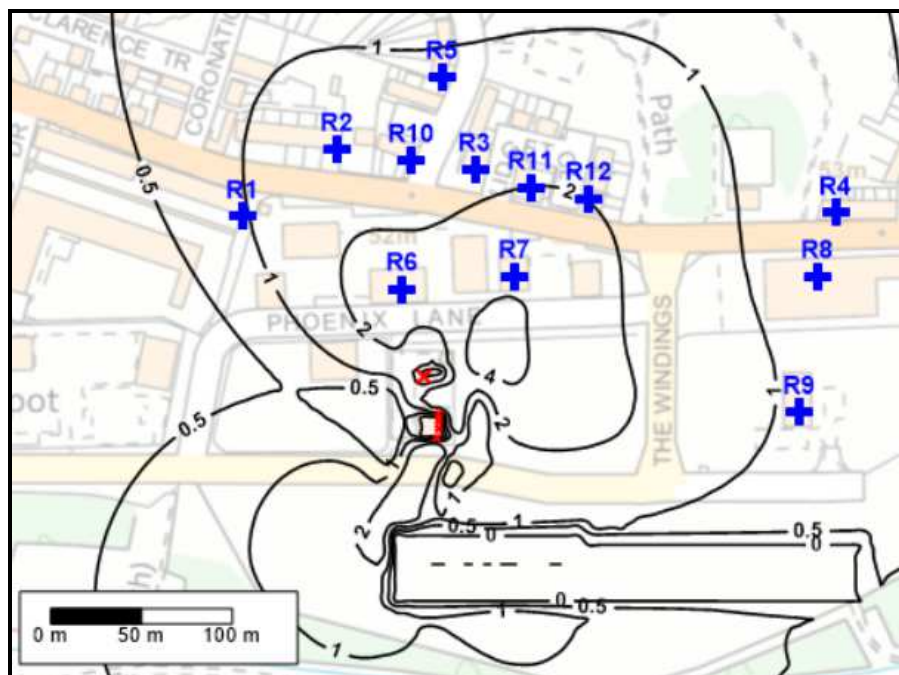


Figure 5.3
 ADMS 5.2 Predicted 99.8th Percentile of Hourly Average Concentration of the Nitrogen Dioxide (NO_2); 2014 Meteorological Data ($\mu\text{g m}^{-3}$); Assuming 70% Oxidation, Existing Facility

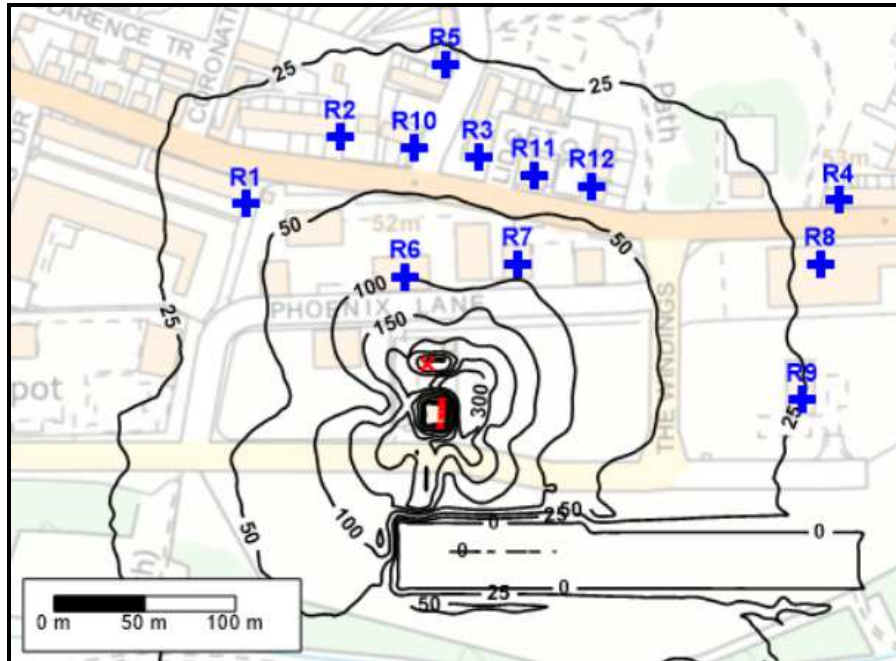
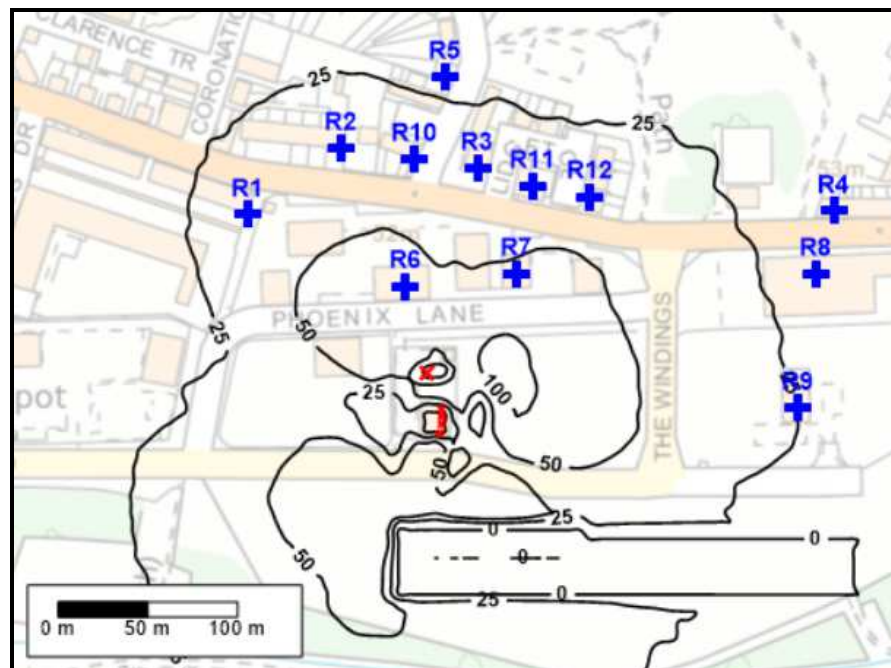


Figure 5.4
 ADMS 5.2 Predicted 99.8th Percentile of Hourly Average Concentration of the Nitrogen Dioxide (NO_2); 2014 Meteorological Data ($\mu\text{g m}^{-3}$); Assuming 70% Oxidation, Existing Facility with 3.6 m Stack Extensions



3.3.7 The following paragraphs have been taken from the Summary and Conclusions section of the report:

The proposal is for a single new 2.4 MW unit fuelled by natural gas. This additional unit will operate alongside the four existing Deutz engines which will be converted to natural gas, they are currently fuelled by mine gas. The units will operate when required by the national grid and for no more than 2,000 hours per year.

The exhausts from the four existing generators only extend 0.2 m to 0.3 m above the roof and therefore the emissions to atmosphere from these generators are subject to poor dispersion resulting in elevated ground level pollutant concentrations. As part of the proposal for the additional generator the heights of the four existing generator exhausts will be increased by 3.6 m to 9.0 m leading to a substantial improvement in dispersion and corresponding reduction in pollutant ground level concentrations. This report presents the impacts of the existing four Deutz engines on air quality and the incremental increase due to the proposed generator together with the increase in the stack heights of the Deutz engines.

The following are the principal conclusions that can be drawn from this assessment, which has been undertaken using the emissions data provided and the assumptions specified:

- *The increase in the stack height of the existing four generators by 3.6 m is predicted to lead to a substantial improvement in dispersion and corresponding reduction in pollutant ground level concentrations.*
- *The proposed generator, together with the increase in stack height of the existing generators, is predicted to rise to an impact of negligible significance at the specific receptors.*

It is considered that the overall impact on air quality of emissions to atmosphere from the proposed generator, the 3.6 m increase in stack height for the existing generators and increase in operating hours is beneficial to air quality although this is an insignificant effect.

3.4 Vibration

3.4.1 The generating engines employ state of the art counterbalanced cranks and incorporate anti-vibration mountings and springs to prevent low frequency vibration being transmitted into the ground. As with noise, the technology to minimise vibration is well proven throughout the UK.

3.4.2 Regent Park will strive to ensure that the plant continues to operate without causing any vibration nuisance at neighbouring properties.

3.5 Prevention of Pollution of the Groundwater, Water Courses or of the Ground

- 3.5.1 A foul sewer connection is already provided at the site for the toilet and sink located within the Generation Building.
- 3.5.2 A small amount of engine coolant will be kept at the site, but this will be stored in drums with an approved, covered, bunded container designed to retain 110% of the maximum volume of stored materials.
- 3.5.3 Therefore, we contend that, provided the site continues to be operated in a proper manner, the proposed development will not result in the pollution of groundwater or of the ground, itself.

4. SUMMARY

- 4.1 The Hickleton Energy Park was originally designed to provide local scale embedded electrical power generation, fuelled by coal mine methane. The amount of coal mine methane, available within the former mine, has depleted to such an extent that it can no longer sustain the production of electricity at the site.
- 4.2 However the infrastructure required for the production of decentralized stand-by electricity is present at the Hickleton Energy Park. The proposal is therefore to convert the four existing generators, located within the generation building, to use natural gas as a fuel, instead of coal mine methane and to use the whole of the site to provide a local scale, secure and reliable source of energy. Thus using the existing infrastructure on the site, in the move to diversify the UK's energy base and achieve its legally binding climate change objectives.
- 4.3 The externally sited back-up power generator, which is covered by planning permission 2017/1315, dated 04 January 2018, was always planned to be fuelled by natural gas.
- 4.4 As part of this application, it is also proposed to make a small number of changes to the layout of the equipment, acoustic wall and perimeter fencing to the site.
- 4.5 The Applicant is seeking permission to increase the hours the facility can be operated from the 1000 hours per year, specified in Condition 3 of the current planning permission, to 2000 hours per year. The air quality expert has modelled the airborne emissions from the site on that basis and has concluded that the proposed increase in operational hours will not adversely affect the local air quality of residents and business users provided the heights of the exhaust stacks, on the generator building, are raised to 9 metres above ground level.
- 4.6 So overall, it is contented that the proposed changes will not result in any unacceptable impacts and allow the existing locally embedded stand-by power generation facility to continue to provide sustainable, low carbon energy, while protecting the local amenity, in accordance with National and Local Planning Policies.