MHH CONTRACTING

BARNBURGH RAILWAY CUTTING, DONCASTER

AIR QUALITY ASSESSMENT

February 2018

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Isopleth Ltd.
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1.0 INTRODUCTION

A new development scheme, consisting of the infilling of a railway cutting, has been proposed is proposed on land West Of Barnburgh Lane, Barnburgh, Doncaster.

The site is located with the administrative area of Doncaster Metropolitan Borough Council (DMBC)., however is immediately adjacent to Barnsley District Council, the border of which is immediately to the west.

1.1 Site Location

It is intended that the disused railway cutting will be with inert granular material, restoring contours to their pre-industrial levels and underfilling a steel bridge. The location of the railway cutting can be seen in drawing AQ1 (Appendix A), and figure 1-1 below, produced for MHH by Urban Wilderness in support of the application.

Figure 1-1
Site Location



There are existing residences at the mid-point of the cutting, running perpendicular to the scheme, at Green Lane. Construction vehicles will access and egress the site from Barburgh Lane as it passes to the south of Goldthorpe.

1.2 Proposed Development

The proposal involves:

> *Permission to infill the disused railway cutting with inert granular material, restoring contours to their pre-industrial levels and underfilling a steel bridge (as per their obligation to Highways England), including a landscape strategy to create a linear woodland along the former railway cutting, restore biodiversity and create a public right of way along its length with new connections to existing local amenities, the former Barnburgh colliery site and expanding residential areas east of Goldthorpe*

The HGV routing is shown on drawing AQ1 (Appendix A). The plan indicates the potential area of fill being 20,750m^2.

1.3 Scope and Limitations

The scope of this air quality assessment is limited to the prediction of impacts related to the scheme on local sensitive receptors and existing air quality constraints. This assessment is based on supplied design information and traffic generation rates.

1.4 Aims and Objectives

The objectives of the assessment are as follows:

- To identify potential sources of air pollution from the proposed development;
- To estimate impacts on sensitive receptors; and
- To assess the significance of these impacts.

2.0 ASSESSMENT METHODOLOGY

2.1 Requirement

Doncaster MBC have responded to the pre-application consultation with the following in relation to air quality:

> *The enquiry does not provide enough details to identify whether an Air Quality Assessment is required. However, the Pollution Officer has advised that due to the presence of a nearby Air Quality Management Area (Hickleton) and the potential for significant HDV movements to the development, any application should include screening for air quality impacts, and if appropriate an AQA and/or mitigation.*

As such, the primary focus of this assessment is the potential for HGV movements associated with the scheme to impact on the Hickleton AQMA.

2.2 Approach

This air quality screening assessment has been completed in accordance with:

- IAQM / EPUK (2017) Guidance on land-use planning and development control: Planning for air quality; and
- IAQM (2014) Assessment of dust from demolition and construction 2014.

The pollutants of most concern in relation to traffic exhaust emissions are oxides of nitrogen and particulate matter and this is discussed in more detail in section 3.2.2.

2.3 Significance Criteria

In the case of significance criteria for the assessment of traffic emissions, the example criteria described within guidance issued by Environmental Protection UK (EPUK)[1] has been used as presented in Table 2-1. This terminology should be used where a quantitative assessment is undertaken (i.e. the vehicle trips exceed the screening threshold).

Table 2-1
Impact Descriptors for Individual Receptors

Long term average Concentration at receptor in assessment year	% Change in concentration relative to Air Quality Assessment Level (AQAL)			
	1	2-5	6-10	>10
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76-94% of AQAL	Negligible	Slight	Moderate	Moderate
95-102% of AQAL	Slight	Moderate	Moderate	Substantial
103-109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

Source: IAQM (2017)

[1] IAQM (and Environmental Protection UK), *Land-Use Planning & Development Control: Planning For Air Quality* 2017 (v1.2)

Whether the effect is 'significant' or 'not significant' may then be determined by the assessor based on the location and number of receptors impacted, for example and is regarded as a matter of judgement based on the available evidence:

> *'Impacts on air quality, whether adverse or beneficial, will have an effect on human health that can be judged as 'significant' or 'not significant'. This is the primary requirement of the EIA regulations, but is also relevant to other air quality assessments.'*
>
> *'It is important to distinguish between the meaning of 'impact' and 'effect' in this context. An impact is the change in the concentration of an air pollutant, as experienced by a receptor.'*
>
> *'This may have an effect on the health of a human receptor, depending on the severity of the impact and other factors that may need to be taken into account. Judging the severity of an impact is generally easier than judging the significance of an effect.'*
>
> *'A judgement of the significance should be made by a competent professional who is suitably qualified. The reasons for reaching the conclusions should be transparent and set out logically. Whilst the starting point for the assessment of significance is the degree of impact, as defined by Table 6.3, this should be seen as one of the factors for consideration, not least because the outcome of this assessment procedure applies to a receptor and not the overall impact.'*
>
> - IAQM (2017) Land-Use Planning & Development Control: Planning For Air Quality (v1.2). Chapter 7 'Assessing Significance'

3.0 REGULATORY STANDARDS AND GUIDANCE

3.1 European Legislation

European air quality legislation is consolidated under *Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe*, which came into force on 11th June 2008. This Directive consolidates previous legislation which was designed to deal with specific pollutants in a consistent manner and provides new air quality objectives for fine particulates.

The implications of the UK decision to exit the European Union on the potential adoption of legislation such as Directive 2008/50/EC is unclear at the time of writing.

3.2 UK Legislation

UK legislation relative to the air quality environment is described below.

3.2.1 Air Quality Standards

Current EU Air Quality limit values defined within the Directive have been transposed into UK legislation in the Air Quality Standards Regulations 2010, Statutory Instrument 2010 No. 1001. These standards have been carried forward into the Air Quality Strategy as detailed below.

3.2.2 Air Quality Strategy

The Air Quality Strategy (UKAQS) 2007 for England, Scotland, Wales and Northern Ireland[2] sets out the Government's policies aimed at delivering cleaner air in the UK. It sets out a comprehensive strategic framework within which air quality policy will be taken forward in the short to medium term, and the roles that Government, industry, the Environment Agency, local government, business, individuals and transport have in protecting and improving air quality.

The UKAQS actually includes more exacting objectives for some pollutants than required by EC legislation. This assessment refers only to UK air quality standards, as compliance with these standards will ensure that the less demanding European Air Quality limit values are also being met.

The Air Quality Strategy defines 'standards' and 'objectives' in paragraph 17:

> *'For the purposes of the strategy:*
>
> *standards are the concentrations of pollutants in the atmosphere which can broadly be taken to achieve a certain level of environmental quality. The standards are based on assessment of the effects of each pollutant on human health including the effects on sensitive subgroups or on ecosystems;*

[2] The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, DEFRA. July 2007

objectives are policy targets often expressed as a maximum ambient concentration not to be exceeded, either without exception or with a permitted number of exceedences, within a specified timescale.'

Only impacts of Oxides of Nitrogen (NO_x and NO_2) and particulate matter (PM_{10}) are of relevance to this study. The air quality Standards and Objectives considered within this air quality assessment are presented within Table 3-1.

Table 3-1
Air Quality Limit Values

Pollutant	Standard	Measured as	Equivalent percentile
Nitrogen dioxide (NO_2)	40µg/m^3	Annual mean	-
	200µg/m^3	1 hour mean	99.79th percentile of 1-hour-means (equivalent to 18 1-hour exceedences)
Particulate matter with an aerodynamic diameter of less than 10µm (PM_{10}) (gravimetric)	40µg/m^3	Annual mean	-
	50µg/m^3	24 hour mean	90.41th percentile of 24-hour-means (equivalent to 35 24-hour exceedences)

In accordance with DEFRA's technical guidance on Local Air Quality Management (LAQM.TG(16)), the air quality objectives should be assessed at locations where members of the public are likely to be regularly present and are likely to be exposed for a period of time appropriate to the averaging period of the objective.

A summary of relevant exposure for the objectives presented in Table 3-1 are shown below in Table 3-2.

Table 3-2
Relevant Public Exposure

Objective Averaging Period	Relevant Locations	Objectives should apply at:	Objectives should not apply at:
Annual mean	Where individuals are exposed for a cumulative period of 6 months in a year;	Building facades of residential properties, schools, hospitals etc	Facades of offices Hotels Gardens of residences Kerbside sites
24-hour mean	Where individuals may be exposed for eight hours or more in a day	As above together with **hotels** and gardens of residential properties	Kerbside sites where public exposure if expected to be short term
1-hour mean	Where individuals might reasonably expected to spend one hour or longer	As above together with kerbside sites of regular access, car parks, bus stations etc	Kerbside sites where public would not be expected to have regular access

3.2.3 Local Authority Air Quality Review and Assessment

Local Authorities (LAs), including Doncaster MBC, have formal powers to control air quality through a combination of Local Air Quality Management (LAQM) and by use of their wider planning policies.

Under Section 82 of the Environment Act 1995 (Part IV), LAs are required to periodically review and assess air quality within their area of jurisdiction under the system of LAQM. This review and assessment of air quality involves assessing present and likely future air quality against the AQOs. If it is predicted that levels at the façade of buildings, in the instance of annual mean concentrations, where members of the public are regularly present (normally residential properties) are likely to be exceeded, the LA is required to declare an Air Quality Management Area (AQMA). For each AQMA the LA is required to produce an Air Quality Action Plan (AQAP), the objective of which is to reduce pollutant concentrations in pursuit of the AQOs.

The results of Doncaster MBC Review and Assessment of air quality are summarised in Section 4.2.

3.3 The National Planning Policy Framework

The National Planning Policy Framework (NPPF) was formally adopted on 27th March 2012 and describes the policy context in relation to pollutants, including atmospheric pollution:

> *'The Government's objective is that planning should help to deliver a healthy natural environment for the benefit of everyone and safe places which promote wellbeing.*
>
> *To achieve this objective, the planning system should aim to conserve and enhance the natural and local environment by:*
>
> *[...] preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of land, air, water or noise pollution or land instability.'*

Where pollution is defined as:

> *'Any consideration of the quality of land, air, water, soils, which might lead to an adverse impact on human health, the natural environment or general amenity. Pollution can arise from a range of emissions, including smoke, fumes, gases, dust, steam and odour.'*

The NPPF specifically requires consideration of pollution on health and the natural environment as part of the planning decision process:

> *'To prevent unacceptable risks from pollution and land instability, planning policies and decisions should ensure that new development is appropriate for its location. The effects (including cumulative effects) of pollution on health the natural environment or general amenity, and the potential sensitivity of the area or proposed development to adverse effects from pollution, should be taken into account.'*

3.4 Doncaster MBC Planning Policy

The starting point for consideration of any proposal in this Green Belt location would be assessment against local 'saved' policy ENV 3, which is specific to development in the Green Belt, development that is except in very special circumstances as outlined in policy ENV3.

The Core Strategy DPD was formally adopted following approval at Full Council on 18 May 2012. Three Policies are indirectly relevant to the proposed scheme:

- Policy CS14 (Design and Sustainable Construction);
- Policy CS16: Valuing our Natural Environment); and
- Policy CS18: Air, Water and Agricultural Land.

A full review of DMBC planning policies relevant to the development is included within the planning application documents issued in support of the scheme.

4.0 ASSESSMENT: AIR QUALITY

4.1 Baseline Air Quality

Baseline levels of air pollutants are significant when considering the suitability for a new site for residential development. Where levels exceed statutory limits, it may not be appropriate to introduce new residential occupiers without mitigation.

Annual average baseline levels of air pollutants are significant when considering the suitability for a new site for residential development. Annual average limits do not apply at hotels or commercial properties, as shown in Table 3-2 above.

4.1.1 Air Quality Management Areas

The draft 2017 Air Quality Annual Status Report (ASR), June 2017 states that Doncaster currently has 7 AQMAs, the most recent declared in 2014. All areas were declared due to annual average NO_2 concentrations being above the national Air Quality Objective. The principal source of this pollutant is vehicle emissions.

One of these AQMA is of relevance to the proposed development site, as it covers the road through Hickleton. AQMA7 was declared February 1st 2014, as with the other AQMAs due to the levels of NO_2 over the Annual Mean. This level would indicate that there could also be concerns with the hourly mean. The AQMA is shown on drawing AQ1.

4.1.2 DMBC Air Quality Monitoring

The DMBC 2017 Air Quality ASR confirms that the Council undertook automatic (continuous) monitoring at 5 sites during 2016. The Council undertook non-automatic (passive) monitoring of NO_2 at 57 sites during 2015. These include:

- DT44. Hickleton – Sue Ryder Care Home. Kerbside. 448221, 405303;
- DT45. Hickleton – Doncaster Road. Roadside. 447966, 405303;
- DT46. Hickleton – Barnsley Road. Roadside. 448149, 405296;
- DT47. Hickleton – Opp. Fir Tree Close. Kerbside. 448054, 405319; and
- DT48. Hickleton – John O'Gaunts. Kerbside. 448218, 405320.

The DT locations are shown on drawing AQ1. The results for the 5 tubes above have been:

Table 4-1
DMBC NO_2 Tube Results (µg/m³)

Tube	2014	2015	2016
DT44	79	66	78 (59)
DT45	25	18	23
DT46	43	32	41
DT47	95	87	106 (100.1)
DT48	94	80	93 (87.9)

Where average NO_2 concentrations are less than 60µg/m^3 it can be assumed that there is no realistic probability that the hourly average NO_2 objective will be exceeded. It can be seen that there are several tubes within Hicketon which are above this concentration.

4.1.3 Barnsley Council Air Quality Monitoring

The Barnsley MBC 2017 Air Quality Annual Status Report (ASR), June 2017 confirms that the Council undertook automatic (continuous) monitoring of NO_2 at 3 sites during 2016 and passive (diffusion tube) monitoring of NO_2 at 49 sites.

None of these sites is of direct relevance to the proposed development site.

4.1.4 DEFRA Background Values

The background NO_2 and PM_{10} concentrations for the current year (2018), predicted by DEFRA for the scheme location are as follows:

Table 4-1
DEFRA Background Concentration (µg/m^3)

Pollutant	OS GR 448500, 403500	OS GR 447500, 403500
NO_x	14.8	14.7
NO_2	10.9	10.9
PM_{10}	13.3	13.2
$PM_{2.5}$	8.5	8.3

The DEFRA background concentration is therefore 'well below' (at less than 75% of) the limits for these pollutants when localised road emissions are removed from the overall concentration.

4.2 Receptors

As can be seen in AQ1 (Appendix A), the closest receptors are those on:

- Green Lane; and
- Westfield Lane.

There are no sites of ecological interest within 500m of the site. The location of the closest sites of ecological interest can be seen on the MAGIC Map included as Appendix B.

Doncaster MBC has requested clarity in relation to the potential for HGV movements towards the Hickleton AQMA. The location of this AQMA and the routing scheme are shown in Drawing AQ1 (Appendix A).

4.3 Traffic Generation

DfT data for the closest major roads indicates that in 2016 the total flows were as follows for the two closest DfT count points:

- DFT Count point id: 73009. Road name: A635 (Barnsley Road / Doncaster Road). 2016 AADT (all vehicles): 14621, HGV: 1606; and
- DFT Count point id: 37454. Road name: A635 (Barnsley Road / Doncaster Road). 2016 AADT (all vehicles): 18445, HGV: 1344.

There is no DfT traffic flow data for the Barnburgh Road. The surrounding road network can be seen in Figure AQ1.

Data provided by Optima Highways & Transportation, the appointed traffic consultant for the development scheme, indicates that the proposed traffic generation is as follows. The location of the link points referenced in the table below can be seen in Drawing AQ1.

Table 4-2
AADT Trip Generation

Location	Car/Van AADT	HGV AADT	Total
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	4	14-20*	18-24*
7	0	0	0
8	0	0	0

[*Subject to build period which is weather dependant]

In particular it can be seen that there will be no increase in traffic towards Hickleton (links 1-5) as a result of the proposed infilling scheme.

The total AADT trips from the proposed development will therefore be 10 cars and fewer than 25 HGV and none of these will be towards the AQMA.

4.4 Development Impacts: Screening Assessment

Chapter 6 of IAQM / EPUK *Guidance on land-use planning and development control: Planning for air quality 2017* describes how an air quality assessment should be undertaken, and provides screening thresholds for assessment.

Criteria to Proceed to Stage 2

A. If any of the following apply:

- 10 or more residential units or a site area of more than 0.5ha
- more than 1,000 m^2 of floor space for all other uses or a site area greater than 1ha

B. Coupled with any of the following:

- the development has more than 10 parking spaces
- the development will have a centralised energy facility or other centralised combustion process

As the Council has requested an air quality assessment, there is a requirement to proceed to a 'stage 2' screening assessment on this basis although none of the Stage 1 screening criteria are directly relevant for this scheme.

The relevant Stage 2 assessment criteria are as follows:

The development will:	Indicative Criteria to Proceed to an Air Quality Assessment [a]
1. Cause a significant change in Light Duty Vehicle (LDV) traffic flows on local roads with relevant receptors. (LDV = cars and small vans <3.5t gross vehicle weight)	A change of LDV flows of: - more than 100 AADT within or adjacent to an AQMA - more than 500 AADT elsewhere
2. Cause a significant change in Heavy Duty Vehicle (HDV) flows on local roads with relevant receptors. (HDV = goods vehicles + buses >3.5t gross vehicle weight)	A change of HDV flows of - more than 25 AADT within or adjacent to an AQMA - more than 100 AADT elsewhere

The development site is not located within an AQMA. Furthermore, the routing scheme indicates that the Hickleton AQMA will not be affected by the scheme. The total number of AADT HGV flows is less than 100. There is no requirement in this case to proceed to a more detailed assessment.

The EPUK Guidance states:

> *'If none of the criteria are met, then there should be no requirement to carry out an air quality assessment for the impact of the development on the local area, and the impacts can be considered as having an insignificant effect.'*

On the basis of this screening assessment therefore, the impacts of the proposed development are considered as having an insignificant effect in relation to potential emissions of traffic pollutants.

4.5 Assessment: On-site Power Generation.

There is no centralised (gas fuelled) CHP or heating scheme proposed as part of the development.

4.6 Assessment: Construction Dust

Construction phase effects have been assessed in line with the latest IAQM Guidance, which divides construction activities into the following four categories:

- demolition;
- earthworks;
- construction; and
- trackout.

The assessment of the Site's risk category is primarily based on the following factors:

- the scale and nature of the works;
- the proximity of receptors; and
- professional judgement.

The precise behaviour of the dust, its residence time in the atmosphere, and the distance it may travel before being deposited will depend upon a number of factors. These include wind direction and strength, local topography and the presence of intervening structures (buildings, etc.) that may intercept dust before it reaches sensitive locations. Furthermore, dust would be naturally suppressed by rainfall.

Met Office data for the climate period 1981-2010 for the closest location to the site (at Doncaster Sheffield Airport) indicates that, on average, rainfall over 1mm falls for 109 days (30%) of the year. On these days, construction dust would be naturally supressed.

4.6.1 Receptors

Drawing AQ1 (Appendix A) shows the location of the nearest receptors:

- Green Lane; and
- Westfield Lane.

There are no sites of ecological interest within 500m of the site. The location of the closest sites of ecological interest can be seen on the MAGIC Map included as Appendix B.

It can be seen that there are 1-10 residential receptors ('high sensitivity receptors') located within 20m of the site boundary at its closest point to Green Lane. The sensitivity of the area to dust soiling effects is '**medium**' when working in this area closest to the houses.

4.6.2 Demolition

The proposed scheme does not involve any demolition.

The overall risk of dust impacts from demolition is therefore classed as **'negligible**'.

4.6.3 Earthworks

Earthworks will primarily involve excavating material, haulage, tipping and stockpiling. This may also involve levelling of the Site and landscaping. This infill scheme is essentially one large earthworks project, with a total site area >10,000 m2 and a potentially dusty soil type.

The potential dust emission magnitude is therefore considered to be **'large'** in relation to earthworks.

As described above, the sensitivity of the area with respect to dust soiling effects on people and property would be regarded as '**medium**'.

The overall risk of dust impacts from earthworks is therefore classed as **'medium**'.

4.6.4 Construction

The proposed scheme does not involve any construction.

The overall risk of dust impacts from construction is therefore classed as **'negligible**'.

4.6.5 Trackout

Factors influencing the degree of trackout and associated magnitude of effect include vehicle size, vehicle speed, vehicle numbers, geology and duration.

The traffic generation data indicates that the number of vehicles in operation at the site will mean that it is unlikely that >20 HDV will leave the site on any one day. The unpaved road length will be <100m. The potential dust emission magnitude is therefore considered to be **'medium'** in relation to trackout.

The sensitivity of the area with respect to dust soiling effects on people and property would be regarded as '**medium**'. However, the HGV routing takes the vehicles away from the properties on Green Lane, and by the time they reach the properties on Barnburgh Road they are some distance from the site (over 200m).

The overall risk of dust impacts as a result of trackout is therefore classed as **'Low'.**

4.6.6 Construction Dust: Health Impacts

Assuming that the DEFRA background data is accurate and that levels at the development site are predicted to be <24µg/m^3 PM_{10} as an annual average, the sensitivity of the area with respect to human health impacts would be regarded as **'Low'**.

4.6.7 Summary of Dust Risk Effects

A summary of the potential dust risk effects prior to mitigation are presented below:

Table 4-2
Construction Dust Risk Effects

Source/ Receptor	Ecological Receptors	Industrial / Commercial Users	Residential
Distance from Site	**>250m**	**<200m**	**<20m**
Demolition	---	---	---
Earthworks	Negligible Risk	Negligible Risk	Medium Risk
Construction	---	---	---
Trackout	Negligible Risk	Negligible Risk	Low Risk

5.0 MITIGATION

5.1 Construction Phase

Particle generation from construction activities can be substantially reduced through carefully selected mitigation techniques and effective management. The most effective technique is to control at source.

Pre-project planning, implementation and on-site management issues are an essential requirement for effective dust control. This includes, for example environmental risk assessments, method statements, training and satisfying planning requirements. Before the start of a project, it is also important to identify which construction activities are likely to generate dust and to draw up action plans to minimise emissions to the atmosphere. Dust emissions from construction sites will mainly be the sum of a large number of small activities. Therefore, attention to detail is a critical feature of effective management of the total site emissions.

Prior to infill activities commencing on site, the appointed contractor should consult with DMBC to enquire whether a Construction Environmental Management Plan (CEMP), will need to be prepared. This will ensure that the construction phase will cause minimal disruption to the surrounding area and neighbours.

The construction dust mitigation measures adopted during this phase of development must be relevant for:

- a ‘low risk’ site in relation to trackout; and
- a ‘medium risk’ site in relation to earthworks.

Such measures are detailed in Section 8 of the IAQM Construction Dust Guidance, for example. Once such agreed measures are in place, the overall risk will be negligible.

5.2 Operational Phase

No operational mitigation measures are required as vehicle pollution impacts are predicted to be negligible.

6.0 CONCLUSIONS

An air quality screening assessment has been completed to assess the significance of any potential constraints associated with a railway cutting infill scheme.

The construction dust impact will be acceptable once mitigation measures are applied in line with best practice. These mitigation measures must be agreed with the DMBC and these would typically be subject to a planning condition (such as for a Construction Environmental Management Plan, or similar) prior to commencement of demolition and construction. Risks will negligible for all activities once appropriate mitigation is in place.

The proposed redevelopment will not result in any significant increase in traffic movements when screened using IAQM tools.

On this basis, it is considered that the predicted air quality / dust impacts are within acceptable limits for purposes of determining this planning application.

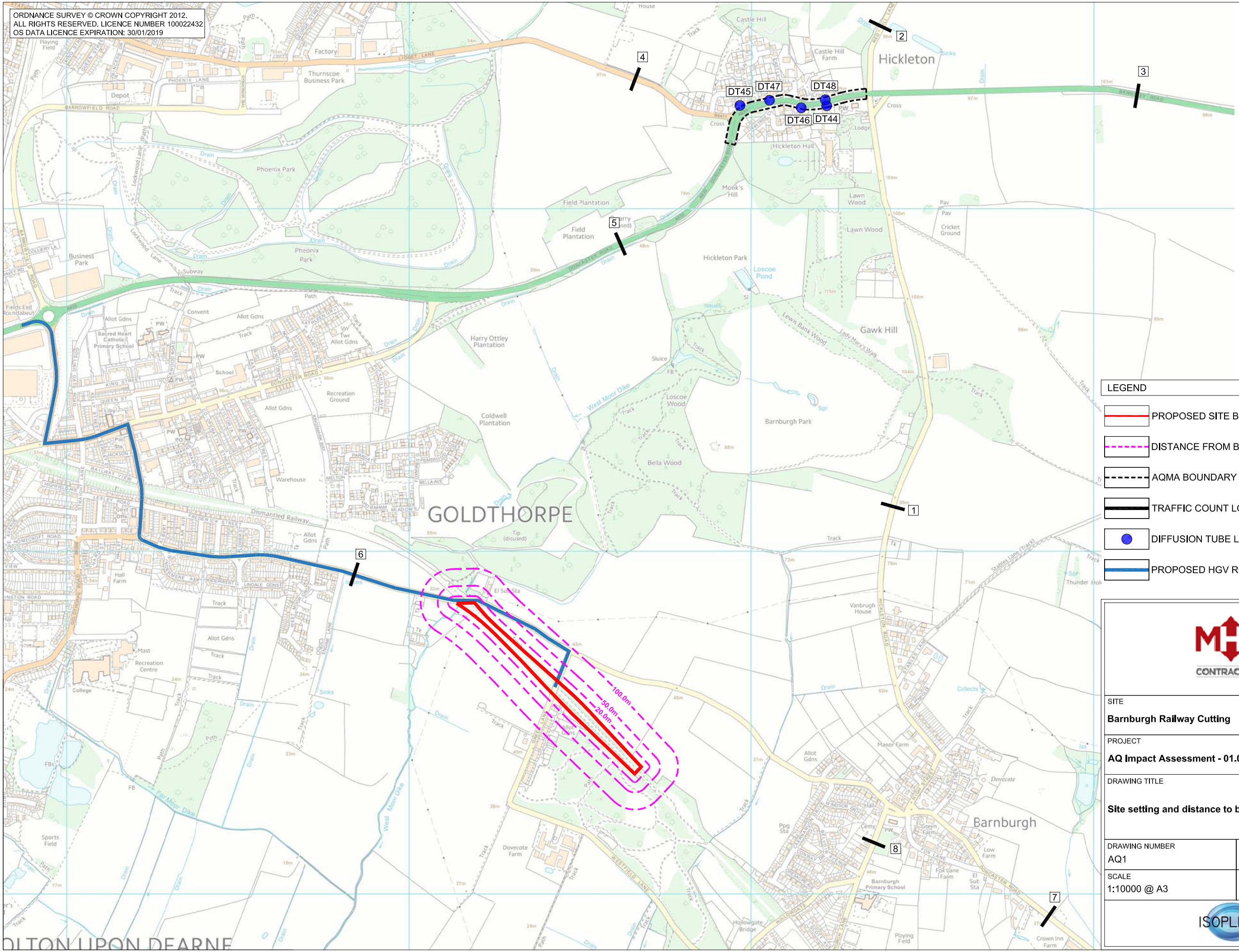
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APPENDIX A: SITE SETTING

ORDNANCE SURVEY © CROWN COPYRIGHT 2012.
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OS DATA LICENCE EXPIRATION: 30/01/2019



LEGEND

- PROPOSED SITE BOUNDARY
- DISTANCE FROM BOUNDARY
- AQMA BOUNDARY
- TRAFFIC COUNT LOCATION
- DIFFUSION TUBE LOCATION
- PROPOSED HGV ROUTE

MHH CONTRACTING

SITE
Barnburgh Railway Cutting

PROJECT
AQ Impact Assessment - 01.0096.001

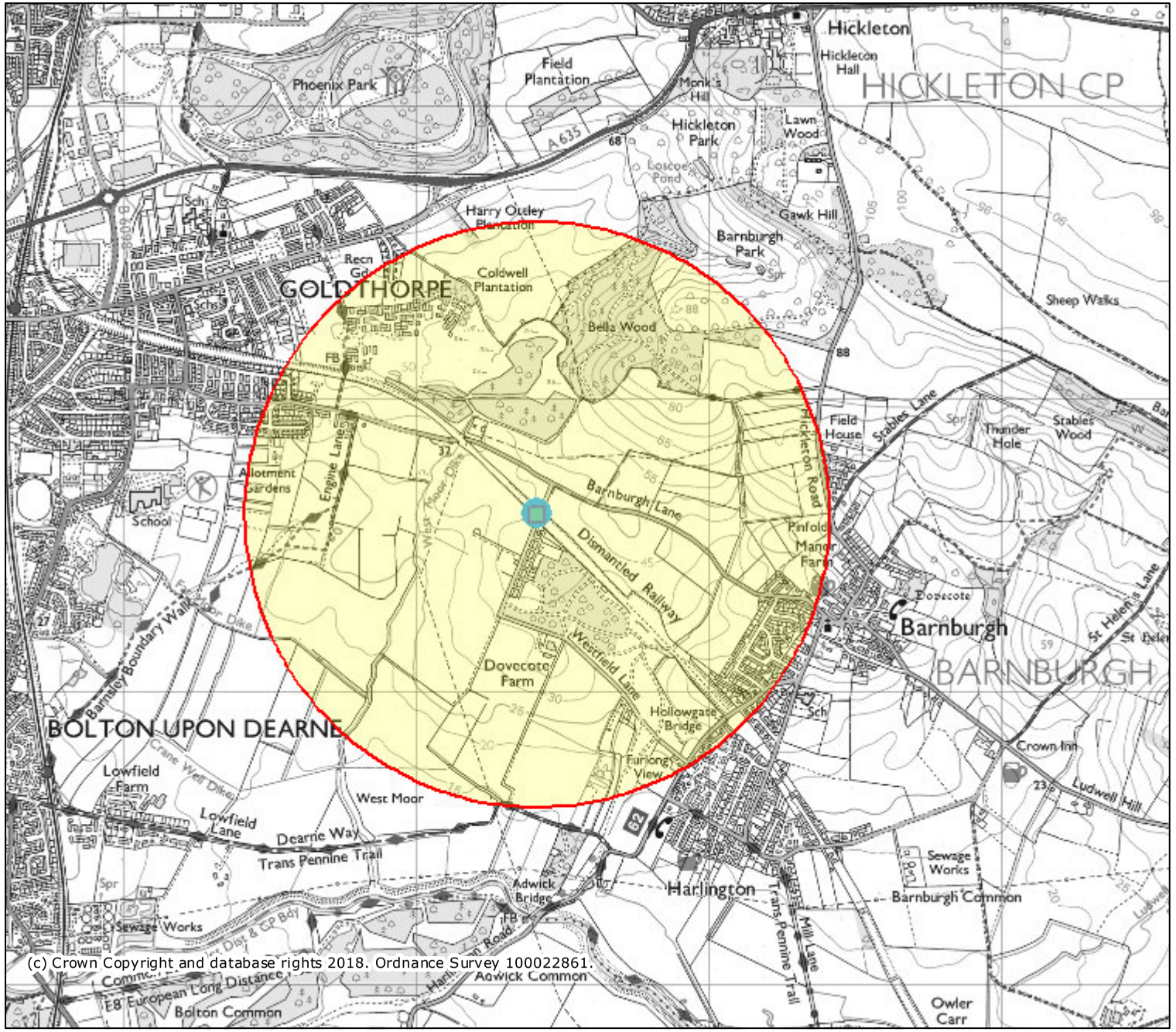
DRAWING TITLE
Site setting and distance to boundary

DRAWING NUMBER	REVISION
AQ1	0
SCALE	DATE
1:10000 @ A3	08.02.2018

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APPENDIX B: MAGIC MAP

Magic Map



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Legend

- Local Nature Reserves (England)
- National Nature Reserves (England)
- Ramsar Sites (England)
- Proposed Ramsar Sites (England)

Sites of Special Scientific Interest Units (England)

- Favourable Condition
- Unfavourable Recovering
- Unfavourable no change
- Unfavourable Declining
- Part Destroyed
- Destroyed
- Not Assessed
- Sites of Special Scientific Interest (England)
- Special Areas of Conservation (England)
- Possible Special Areas of Conservation (England)
- Special Protection Areas (England)
- Possible Special Protection Areas (England)
- Biosphere Reserves (England)

Projection = OSGB36
xmin = 442500
ymin = 401100
xmax = 452600
ymax = 406100

0 0.35 0.7
km

Map produced by MAGIC on 8 February, 2018.

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