



A41 Pioneer Road Roundabout, Graven Hill, Bicester

Noise & Vibration Assessment

On behalf of



July 2020

Waterman Infrastructure & Environment Ltd

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This document has been prepared and checked in accordance with
Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015 and BS EN ISO 45001:2018)

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Comments



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Appendices

- A. A41 Pioneer Road Roundabout Design

1. Introduction

1.1 Purpose

This Noise Assessment Report has been produced to support a planning application for junction improvements at the Pioneer Road junction on the A41 at Graven Hill, Bicester.

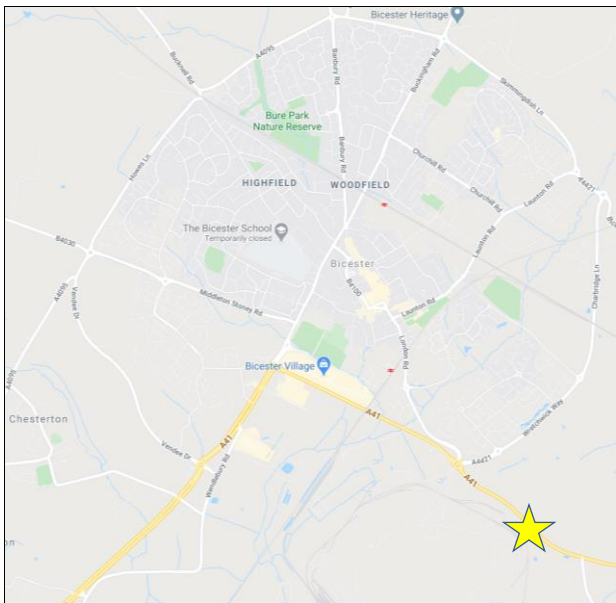
The purpose of the report is to provide Cherwell District Council (CDC) with the necessary level of detail to demonstrate that although the roundabout proposals during construction may result in some minor disturbance to those nearby this would be generally be localised and temporary in nature. Post construction, the impacts of the new roundabout on local receptors would be considered negligible.

1.2 Scheme Background

The Site is approximately 1 hectare (ha) in area and centred on Ordnance Survey Grid Reference SP 5966 2075. The Site currently comprises a T-junction between the A41 and Pioneer Road, with associated soft landscape.

The location of the proposed roundabout is shown in **Figure 1** in map form (indicated by the yellow star) and a more detailed satellite image illustrating the approximate localised extent of the scheme for reference in **Figure 2**. The assessment area covers approximately a 150m radius from the centre of the scheme.

Figure 1: Location of Scheme



Source: <https://www.google.co.uk/maps/@51.8962514,-1.1603666,14.17z>

Figure 2: Study Area



Source: <https://www.google.co.uk/maps/@51.8823951,-1.1350964,409m/data=!3m1!1e3>

The south western half of the Site falls within a wider area of land known as Land Transfer Area 2 (LTA2) of the Graven Hill Village Development which has outline planning permission for mixed use redevelopment of a former Ministry of Defence Site (ref. 11/01494/OUT). Furthermore, the north-eastern half of the Site falls within an area of land known as Wretchwick Green, which is awaiting a decision on an outline planning application for mixed used development (ref. 16/01268/OUT).



The proposals comprise a 4-arm roundabout at the Pioneer Road junction on the A41 at Graven Hill, Bicester. The roundabout would connect the Graven Hill development (currently under construction), via the proposed Employment Access Road (EAR), to the wider highway network. The proposals would also allow for future access to a proposed development (Wretchwick Green) on land to the north of the A41. The roundabout is primarily aimed to help improve access for all users between the two development sites. A drawing showing the roundabout proposals is included in **Appendix A**.

2. Planning Status

2.1 Graven Hill

In August 2014 planning permission was granted (Application No: 11/01494/OUT) for a development south east of Bicester at Graven Hill. The application proposals are as follows:

“Redevelopment of former MOD sites including demolition of existing buildings, development of 1900 homes; local centre to include a 2 form entry primary school (class D1), a community hall of 660sqm, five local shops or facilities to include A1, A2, A3, A5 and D1 uses totalling up to 1358sqm, up to 1000sqm gross A1 uses, a pub/restaurant/hotel (class A4/A3/C1) up to 1000sqm and parking areas; employment floorspace comprising up to B1(a) 2160sqm, B1(b) 2400sqm, B1(c) and B2 20520sqm and B8 uses up to 66960sqm; creation of public open space and associated highway improvement works, sustainable urban drainage systems, biodiversity improvements, public transport improvements and services infrastructure. Erection of a 70400sqm fulfilment centre on 'C' site and associated on site access improvement works, hardstanding, parking and circulation areas.”

A plan illustrating the proposed site layout is provided in Error! Reference source not found..

Figure 3: Graven Hill Site Layout



Source: <https://planningregister.cherwell.gov.uk/Planning/Display/19/00937/OUT> - 1982-A-L-010-U

The S106 agreement for Graven Hill requires improvements to the A41 Pioneer Road junction. A copy of the “Transport Payment No. 4” quotation in respect to the S106 agreement and the A41 is provided below.

“Transport Payment No.4” The sum of £1,960,000 (One Million Nine Hundred And Sixty Thousand Pounds) Index Linked towards improvement/provision of the second access to the Site, including provision of a new roundabout instead of the existing priority junction serving Pioneer Road and the A41 pedestrian and cycle facilities where appropriate and such other mitigation works as appropriate;

Source: Planning obligation by deed of agreement under Section 106 of the Town and Country Planning Act 1990 Relating to land at Graven Hill, Bicester, Oxfordshire. Trowers & Hamlins LLP 8th August 2014

This LVIA has been produced to support a planning application for the delivery of the improvement scheme in lieu of the S106 payment.

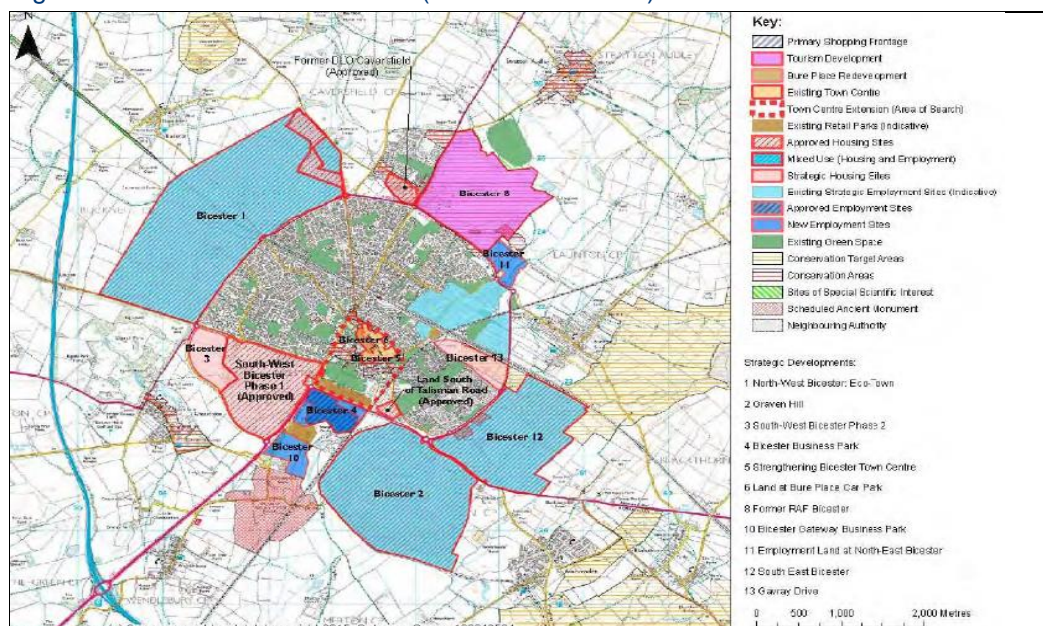
2.2 Wretchwick Green

In June 2016 an Outline Planning Application (Application No: 16/01268/OUT currently under consideration) was jointly submitted by Redrow Homes Ltd and Wates Developments Ltd for a development south east of Bicester at Wretchwick Green. The application proposals are as follows:

“Outline application with all matters reserved apart from access for residential development including up to 1,500 dwellings, up to 7ha of employment land for B1 and/ or B8 uses, a local centre with retail and community use to include A1 and/ or A2 and/ or A3 and/ or A4 and/ or A5 and/ or D1 and/ or D2 and/ or B1, up to a 3 Form Entry Primary School, drainage works including engineering operations to re-profile the land and primary access points from the A41 and A4421, pedestrian and cycle access, circulation routes, related highway works; car parking; public open space and green infrastructure and sustainable drainage systems.”

The Wretchwick Green Application Site forms a major part of the Bicester 12 (South East Bicester) allocation in the adopted Cherwell District Local Plan 2011-2031 Part 1. The location of the Bicester 12 Allocation, in relation to the remaining allocated sites in Bicester including Graven Hill (identified as site ‘Bicester 2’) is shown in Error! Reference source not found..

Figure 4: Location of Bicester 12 (Wretchwick Green)

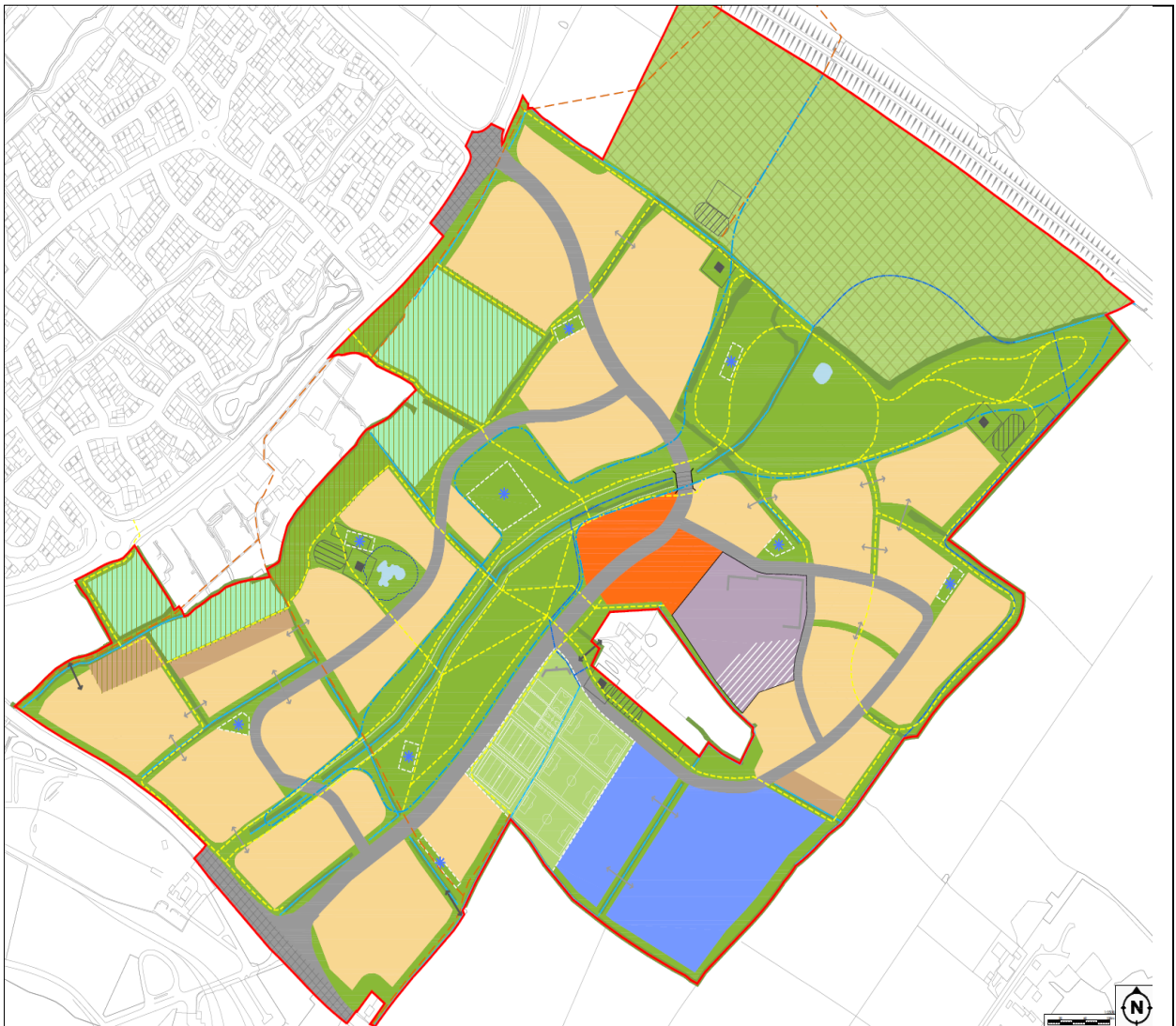


Source: Extract from Cherwell District Council's Key Policies Map

The proposals include two new vehicular accesses onto the adjacent A4421 and one access onto the A41. The vehicular access onto the A41 takes the form of a new roundabout approximately 700m east of the existing A41/A4421 roundabout (Rodney House Roundabout). The vehicular access would be constructed broadly adjacent the existing A41 Pioneer Road junction and would be circa 60 metres in diameter. The roundabout would include four arms; the eastern and western arms of the A41, the northern arm would form the access into the Wretchwick Green development and the southern arm would connect with Pioneer Road which travels south into the Graven Hill site.

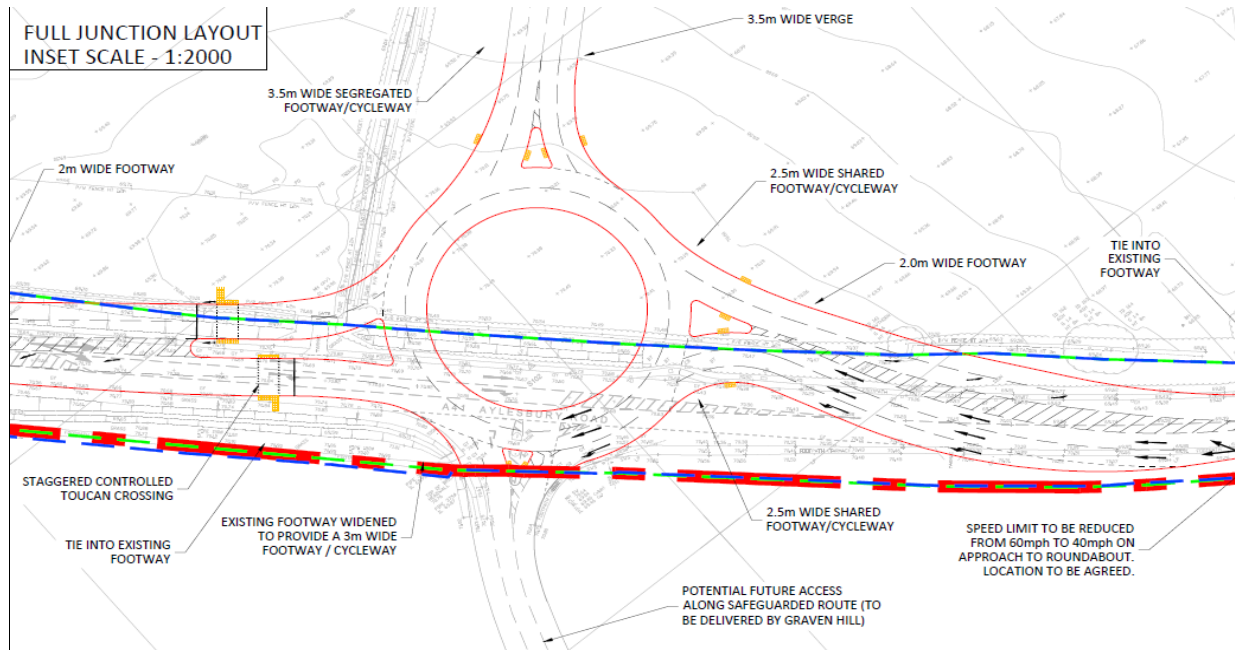
A plan indicating the Wretchwick Green scheme proposals is shown in Error! Reference source not found. with the applicants proposed roundabout arrangement included in **Figure 6**.

Figure 5: Land Use Masterplan



Source: i-Transport Ref: VACE/JW/dc/ITM7245-017C R

Figure 6: Proposed Site Access / New 4 arm Roundabout



Source: i-Transport Ref: VACE/JW/dc/ITM7245-017C R

The phasing of the Wretchwick Green development does not accord with the programming requirements for the Graven Hill site and the delivery requirements of the proposed A41 Pioneer Road improvements. An alternative design has therefore been prepared by Waterman, at the request of, and on behalf of, Graven Hill Village Development Company.

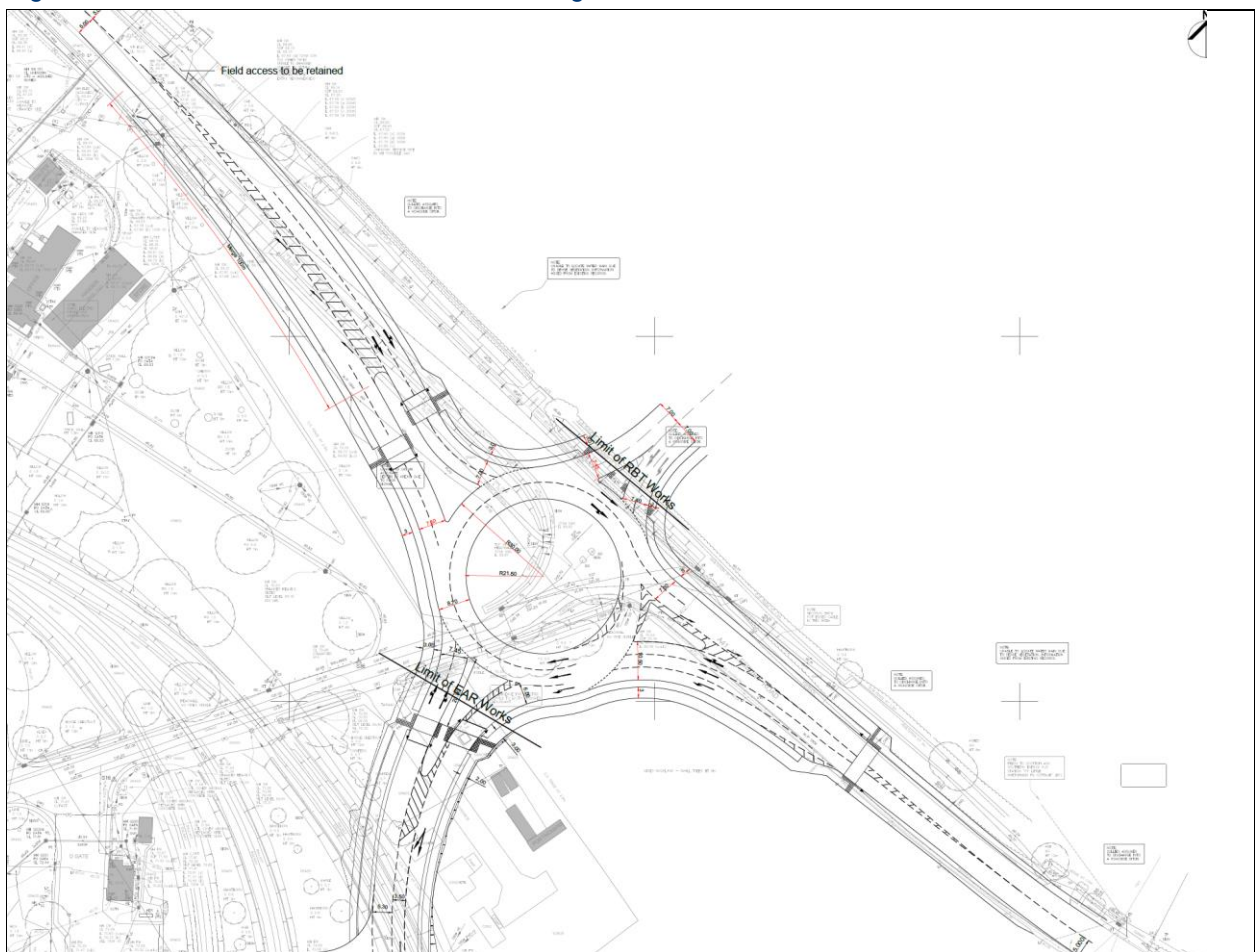
3. Proposed Scheme

3.1 Roundabout

The proposals comprise a 4-arm roundabout at the Pioneer Road junction on the A41 at Graven Hill, Bicester. The roundabout would connect the Graven Hill development, via the proposed EAR to the wider highway network (namely the A41). The proposals would also allow for future access to a proposed development at Wretchwick Green on land to the north of the A41. The proposals include a 3m wide shared use footway/cycleway along with traffic signal-controlled crossings on all arms of the junction.

A drawing showing the proposed roundabout arrangement is included in **Appendix A** (Drawing WIE11386-A41-03-001-A01-General Arrangement). An extract of the drawing is included as **Figure 7**.

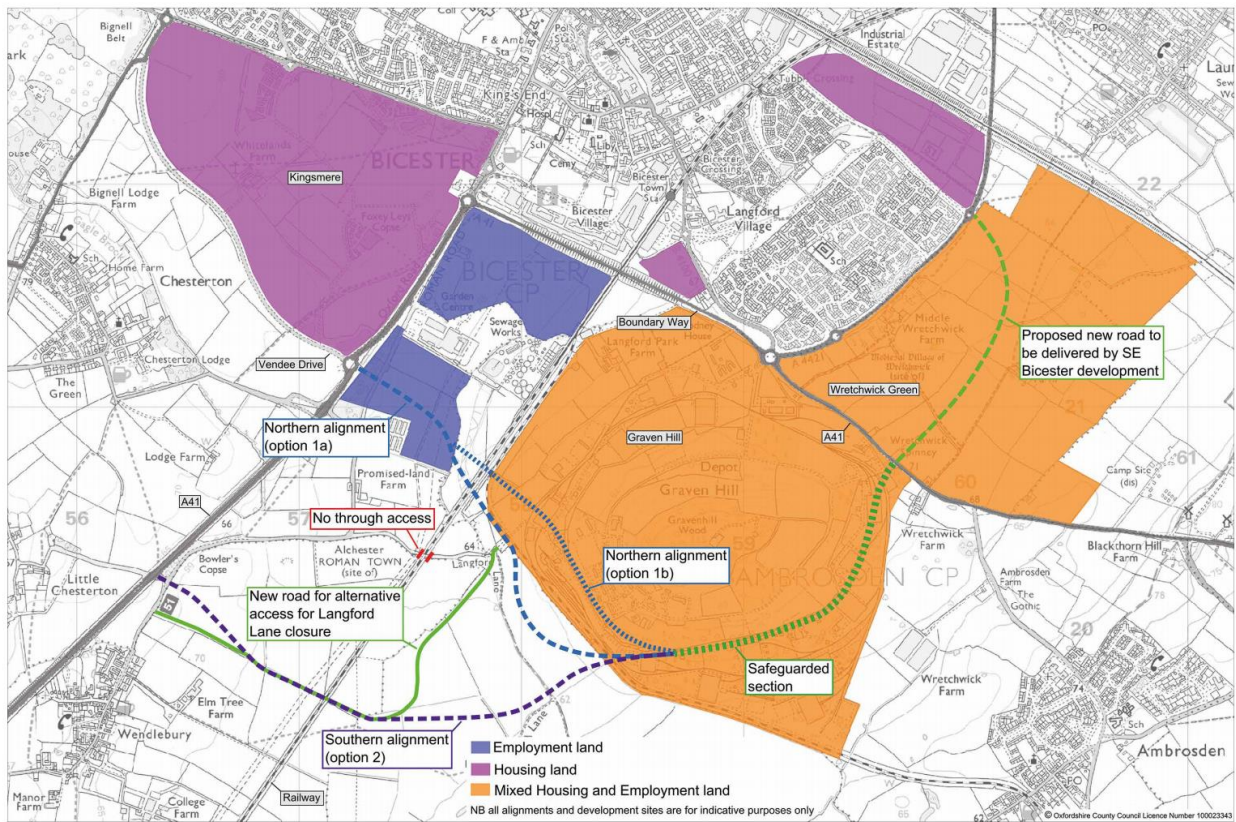
Figure 7: A41 Pioneer Road Roundabout Design



The proposed roundabout would be located within either the adopted highway (maintained at the public's expense) or land controlled by the Graven Hill Village Development Company. The design is not dependent upon any third-party land and can be delivered prior to the Wretchwick Green development.

The EAR (formally known as Pioneer Road) would also provide vehicular access to the wider employment land at Graven Hill and is also safeguarded as part of the wider South East Perimeter Road (SEPR) for Bicester. Consultation on the SEPR was undertaken in 2015 and a number of routes were identified, however the section through Graven Hill is safeguarded, along with the section through Wretchwick Green, See **Figure 8** showing the proposed route(s) of the SEPR.

Figure 8: Safeguarded & Route Options for the South East Perimeter Road



Source:

file:///C:/Users/NMNJH/Downloads/Options_for_a_South_East_Perimeter_Road_for_Bicester_Low_resolution_version.pdf

3.2 Programme for Delivery

In consultation with Graven Hill Village Development Company, OCC and Cherwell District Council (CDC) the roundabout is expected to be completed and operational during quarter 3 of 2021. The opening of the roundabout would coincide with the construction and delivery of the EAR into the Graven Hill site.

4. Environmental Noise Assessment Criteria

4.1 Assessment

The Environmental Statement (ES) of 2018 for the Wretchwick Green planning application assessed the impact that the development would have during the construction and operational phases. The impact of the Development during these phases was assessed using the definitions outlined in **Tables 1, 2 and 3**. The significance level could be either positive or negative.

Table 1: ES 2018 Matrix for Determining the Significance of Effects

		Sensitivity of Receptor/Receiving Environment to Change/Effect			
		High	Medium	Low	Negligible
Magnitude of change/effect	High	Major	Moderate to Major	Minor to Moderate	Negligible
	Medium	Moderate to Major	Moderate	Minor	Negligible
	Low	Minor to Moderate	Minor	Negligible to Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

Table 2: ES 2018 Definition of geographic extent of each impact

Geographic Level	Definition
International	An impact of international importance would be one that affects an interest of international concern.
National	An impact of national importance would be one that affects the national interest identified by Government policies such as effects on a National Park, AONB, SSSI, or a Grade I or II* Listed Building.
Regional	An impact which will have a direct consequence for the South East Region.
District	An impact which will have a direct consequence for Cherwell District.
Local	A direct impact on the Study Area.

Table 3: ES 2018 Definition of the Duration Criteria of Each Impact

Duration	Definition
Short Term	The proposed development will have an impact duration of the first year of the construction phase.
Medium Term	The proposed development will have an impact lasting the duration of the construction phase.
Long Term	The proposed development will have an impact after construction is complete.

Various local receptors were identified within the local area and a summary of the noise/vibration effects of the proposals is provided in **Table 4** below.

Table 4: Existing and Future Receptors and Potential Sources of Noise and Vibration Affecting Them

Receptor	Existing / Future	Sensitivity	Potentially affected by:
Residential development to the north of the A4421 carriageway	Existing	High	Construction noise and vibration; noise from increased traffic on existing road network
Middle Wretchwick Farm	Existing	High	Construction noise and vibration; noise from increased traffic on existing road network
Little Wretchwick Farm	Existing	High	Construction noise and vibration; noise from increased traffic on existing road network; noise from sports pitches, local centre, employment site and school; noise from traffic using on-site roads
Wretchwick Farm/Cottages	Existing	High	Construction noise and vibration; noise from increased traffic on existing road network
Wretchwick Lodge	Existing	High	Construction noise and vibration; noise from increased traffic on existing road network
Residential development to north east of railway	Existing	High	Construction noise and vibration; noise from increased traffic on existing road network
Wretchwick Deserted Medieval Village	Existing	Medium	Construction noise and vibration; noise from increased traffic on existing road network
Water mains and sewers adjacent to the site	Existing	High	Vibration during construction phase
New houses (generally)	Future	High	Construction noise and vibration (if occupied while construction continues elsewhere on site)
New houses near on-site roads	Future	High	As for "new houses (generally)", plus noise from traffic using on-site roads
New houses adjacent to school ^{1,2}	Future	High	As for "new houses (generally)", plus noise from traffic using on-site roads; Noise from activities and plant associated with school
New houses adjacent to local centre ¹	Future	High	As for "new houses (generally)", plus noise from traffic using on-site roads; Noise from activities and plant associated with local centre
New houses adjacent to sports pitches	Future	High	As for "new houses (generally)", plus noise from traffic using on-site roads; Noise from users of sports pitches
New houses adjacent to employment area ²	Future	High	As for "new houses (generally)", plus noise from traffic using on-site roads; Noise from activities and plant associated with employment area
School	Future	Medium	Noise from traffic using on-site roads; Construction noise and vibration (if occupied while construction continues elsewhere on site); Noise from activities and plant associated with local centre
On-site nature conservation area and buffer around the SAM	Future	Medium	Construction noise and vibration (if brought into use while construction continues on site); Noise from traffic using on-site roads

As can be seen from the receptors considered, in respect to the Wretchwick Green development site, these focused primarily on new housing and on-site infrastructure within the development itself, as well as development in the vicinity of the A4421. There were considered to be no onerous impacts in respect to noise and vibration associated with the Wretchwick Green development or the A41 roundabout. A summary of the effects is included in **Table 5** (construction phase) and **Table 6** (operations phase).

Table 5: Summary of Effects - Construction Phase

Receptor	Construction Noise	Construction Traffic Noise	Construction Vibration
Residential development to the north of the A4421 carriageway	Direct, temporary, short-term, negligible	Direct, temporary, short-term, minor	Direct, temporary, short-term, minor
Middle Wretchwick Farm	Direct, temporary, short-term, negligible	Direct, temporary, short-term, minor	Direct, temporary, short-term, minor
Little Wretchwick Farm	Direct, temporary, short-term, negligible	Direct, temporary, short-term, minor	Direct, temporary, short-term, minor
Wretchwick Farm/Cottages	Direct, temporary, short-term, major adverse	Direct, temporary, short-term, minor	Direct, temporary, short-term, minor
Wretchwick Lodge	Direct, temporary, short-term, major adverse	Direct, temporary, short-term, minor	Direct, temporary, short-term, minor
Residential development to north east of railway	Direct, temporary, short-term, negligible	Direct, temporary, short-term, minor	Direct, temporary, short-term, minor
Wretchwick Deserted Medieval Village	Direct, temporary, short-term, negligible	Direct, temporary, short-term, minor	Direct, temporary, short-term, minor
Water mains and sewers adjacent to the site	n/a	n/a	Direct, temporary, short-term, minor
New houses*	Direct, temporary, short-term, negligible	Direct, temporary, short-term, minor	Direct, temporary, short-term, minor
(with construction works within 35m)	Direct, temporary, short-term, major adverse	Direct, temporary, short-term, minor	Direct, temporary, short-term, minor
School*	Direct, temporary, short-term, negligible	Direct, temporary, short-term, minor	Direct, temporary, short-term, minor
(with construction works within 35m)	Direct, temporary, short-term, major adverse	Direct, temporary, short-term, minor	Direct, temporary, short-term, minor
On-site nature conservation area and buffer around the SAM*	Direct, temporary, short-term, negligible	Direct, temporary, short-term, minor	Direct, temporary, short-term, minor
(with construction works within 35m)	Direct, temporary, short-term, major adverse	Direct, temporary, short-term, minor	Direct, temporary, short-term, minor

Notes:

*Once occupied / operational

Table 6: Summary of Effects - Operations Phase (Without Mitigation)

Receptor	Road traffic noise	Deliveries etc at Employment site	Plant Noise (at school, local centre, employment area)	Use of local centre
Residential development to the north of the A4421 carriageway	Direct, permanent, long-term, minor beneficial	Direct, permanent, long-term, negligible	Direct, permanent, long-term, negligible	Direct, permanent, long-term, negligible
Middle Wretchwick Farm	Direct, permanent, long-term, minor beneficial	Direct, permanent, long-term, negligible	Direct, permanent, long-term, negligible	Direct, permanent, long-term, negligible
Little Wretchwick Farm (Day)	Direct, permanent, long-term,	Direct, permanent, long-term, medium adverse	Direct, permanent, long-term, major adverse	Direct, permanent, long-term, negligible
Little Wretchwick Farm (Night)	moderate adverse	Direct, permanent, long-term, major adverse		
Wretchwick Farm/Cottages (Day)	Direct, permanent, long-term, minor beneficial	Direct, permanent, long-term, medium adverse	Direct, permanent, long-term, negligible	Direct, permanent, long-term, negligible
Wretchwick Farm/Cottages (Night)		Direct, permanent, long-term, major adverse		
Wretchwick Lodge	Direct, permanent, long-term, minor beneficial	Direct, permanent, long-term, negligible	Direct, permanent, long-term, negligible	Direct, permanent, long-term, negligible
Residential development to north east of railway	Direct, permanent, long-term, minor beneficial	Direct, permanent, long-term, negligible	Direct, permanent, long-term, negligible	Direct, permanent, long-term, negligible
Wretchwick Deserted Medieval Village	Direct, permanent, long-term, minor beneficial	Direct, permanent, long-term, negligible	Direct, permanent, long-term, negligible	Direct, permanent, long-term, negligible
New houses (generally)	Direct, permanent, long-term, negligible	Direct, permanent, long-term, negligible	Direct, permanent, long-term, negligible	Direct, permanent, long-term, negligible
New houses near on-site roads	Direct, permanent, long-term, moderate adverse	Direct, permanent, long-term, negligible	Direct, permanent, long-term, negligible	Direct, permanent, long-term, negligible

New houses adjacent to school ^{1,2}	Direct, permanent, long-term, negligible	Direct, permanent, long-term, negligible	Direct, permanent, long-term, major adverse	Direct, permanent, long-term, negligible
New houses adjacent to local centre ¹	Direct, permanent, long-term, negligible	Direct, permanent, long-term, negligible	Direct, permanent, long-term, major adverse	Direct, permanent, long-term, major adverse
New houses adjacent to employment area (generally)	Direct, permanent, long-term, negligible	Direct, permanent, long-term, negligible	Direct, permanent, long-term, major adverse	Direct, permanent, long-term, negligible
New houses within 45m of employment area (Day)		Direct, permanent, long-term, medium adverse		
New houses within 45m of employment area (Night)		Direct, permanent, long-term, major adverse		
School	Direct, permanent, long-term, negligible	Direct, permanent, long-term, medium adverse	Direct, permanent, long-term, negligible	Direct, permanent, long-term, negligible

Overall there would be some disturbances caused to those nearby during the construction, however in respect to the A41 roundabout this would be generally be localised and temporary in nature. Post construction, the impacts of the new roundabout on local receptors, in respect to noise and vibration, would be considered negligible.

4.2 Differences in Current Proposals from the Wretchwick Green Proposals

It is considered that the proposed roundabout junction proposals would not result in a materially different noise and vibration assessment than that identified within the Wretchwick Green ES 2018.

5. Summary

This Noise Assessment Report has been produced to support a planning application for major junction improvements at the Pioneer Road junction on the A41 at Graven Hill, Bicester.

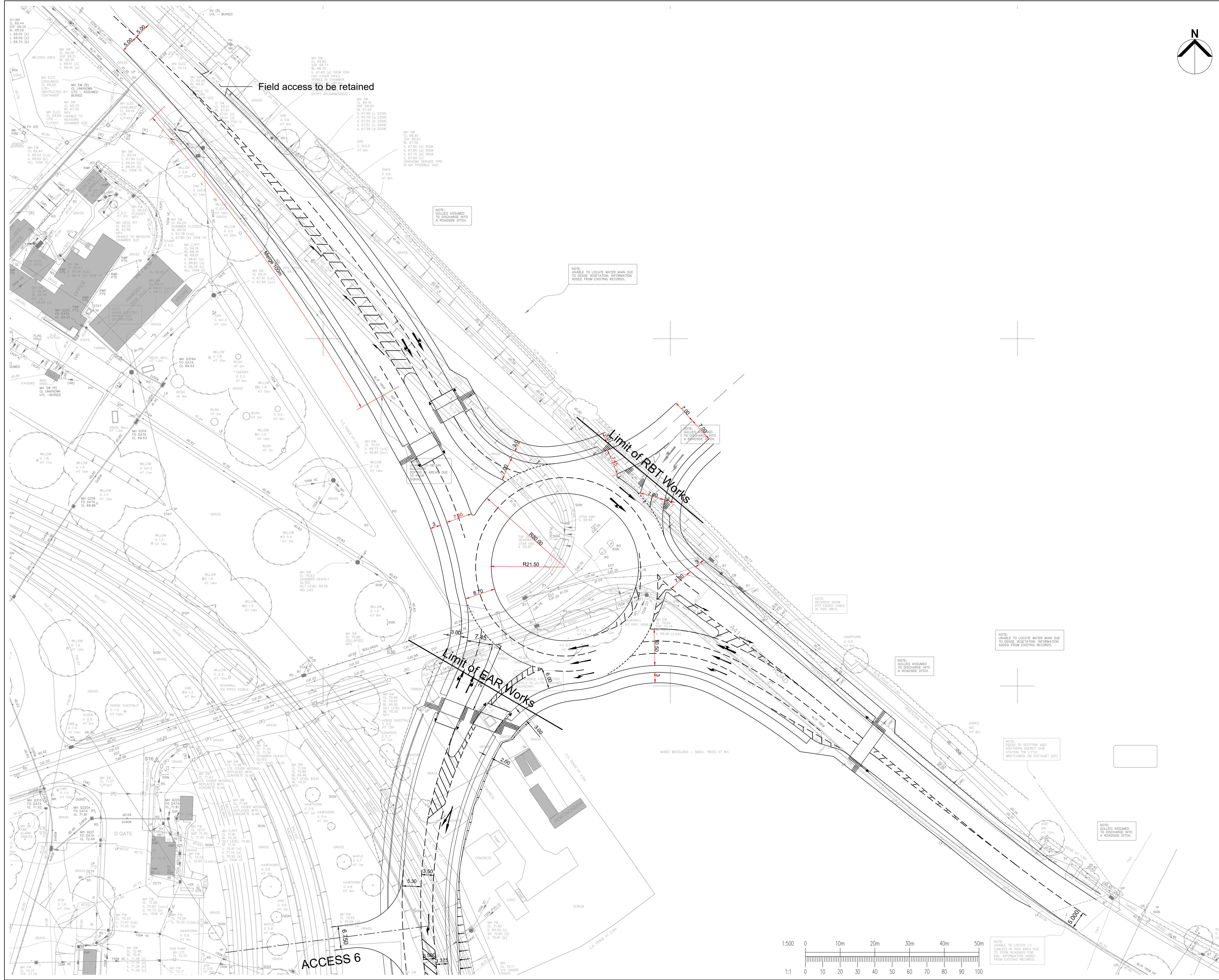
The proposals comprise a 4-arm roundabout at the Pioneer Road junction on the A41 at Graven Hill, Bicester. The roundabout would connect the Graven Hill development, via the proposed EAR to the wider highway network (namely the A41). The proposals would also allow for future access to a proposed development at Wretchwick Green on land to the north of the A41. The proposals include a 3m wide shared use footway/cycleway along with controlled and uncontrolled crossings on approach to the roundabout.

It is clear that in both the construction and operational periods the implications of the changes to the proposed roundabout (when compared to the approved Wretchwick Green scheme) would not materially affect the specific mitigation required to off-set the impacts of noise and vibration as has been detailed.



Appendices

A. A41 Pioneer Road Roundabout Design



This drawing should not be scaled. Dimensions to be verified on site. Any discrepancies should be referred to the Engineer prior to work being put in hand.

This drawing is the property of Waterman Infrastructure & Environment Limited, and the drawing is issued on the condition that it is not copied, reproduced, related or disclosed to any unauthorised person, either wholly or in part without the consent in writing of Waterman Infrastructure & Environment Limited. Pickfords Wharf, Clink Street, London SE1 9DG. 1 020 7928 7888 1 020 7902 0992

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FOR INFORMATION

Rev	Date	Description	By
A01	15.06.20	ISSUED	AN

Amendments

Project
GRAVEN HILL

Title
A41 PIONEER ROAD ROUNDABOUT
GENERAL ARRANGEMENT

Client



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PRELIMINARY

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UK and Ireland Office Locations

