

Preliminary assessment of likely significant environmental effects

Factor	Construction stage	Operation stage
Air quality	<ul style="list-style-type: none"> No likely significant effects anticipated from construction activities. 	<ul style="list-style-type: none"> No likely significant effects anticipated.
Cultural heritage	<ul style="list-style-type: none"> Permanent adverse significant effect on Shab Hill Barn Grade II Listed Building resulting from the scheme altering the rural setting of the resource. Permanent adverse significant effect on Emma's Grove scheduled monument resulting from the scheme altering the immediate setting of the resource. Permanent adverse significant effects from the loss or partial loss of six non-designated archaeological heritage resources. Permanent adverse significant effect on the Air Balloon public house (a non-designated heritage resource) resulting from its demolition. Permanent adverse significant effects on below ground archaeology within the footprint of the scheme. 	<ul style="list-style-type: none"> Permanent adverse significant effect on Shab Hill Barn Grade II Listed Building due to increased traffic noise compared to the existing situation.

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Landscape and visual	<ul style="list-style-type: none"> • Temporary adverse significant effect on some of the Special Qualities of the Cotswolds Area of Outstanding Natural Beauty (AONB). • Temporary adverse significant effects on landscape character types (LCT) that are directly affected by the proposed development, including: LCT 2 Escarpment; LCT 7 High Wold; and LCT 8 High Wold Valleys. • Temporary adverse significant effects experienced by residents of Nettleton Bottom, Shab Hill, Stockwell, visitors to Crickley Hill Country Park, Barrow Wake, Great Witcombe Roman Villa, Leckhampton Hill and users of the Public Rights of Way (PRoW) network, including the Cotswold Way National Trail, Gloucestershire Way long distance footpath and local footpaths, bridleway and byways. Users of the main road network including the A417, A436 and B4070 will also experience temporary adverse significant visual effects. 	<ul style="list-style-type: none"> • Permanent beneficial significant effects on some of the Special Qualities of the Cotswolds AONB. • Permanent adverse significant effects on LCT that are directly affected by the proposed development, including: LCT 2 Escarpment (year 1); and LCT 7 High Wold (year 1). • Combination of likely permanent adverse effects (at year 1) and neutral effects (15 years after opening) for residents of Shab Hill and Stockwell. • Combination of likely permanent adverse effects (at year 1) and neutral effects (15 years after opening) for visitors to Barrow Wake and Great Witcombe Roman Villa. • Likely permanent adverse effects experienced by visitors to Crickley Hill Country Park at year 1 and year 15. • Combination of likely permanent adverse and neutral effects experienced by users of the PRoW network, including the Cotswold Way National Trail (adverse at year 1 and year 15), Gloucestershire Way long distance footpath (adverse at year 1 only) and local footpaths, bridleway and byways (adverse at year 1 only).

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Biodiversity	<ul style="list-style-type: none"> • Adverse significant effect on the Barrow Wake unit of the Crickley Hill and Barrow Wake Site of Special Scientific Interest (SSSI) due to loss 0.07ha of grassland and 0.03ha of woodland. • Adverse significant effect on veteran trees due to the loss of up to nine veteran trees. • Adverse significant effect on semi-natural broadleaved woodland and scattered trees through habitat loss along verges and embankments, loss and severance of beech woodland at Shab Hill. • Beneficial significant effect on semi-natural broadleaved woodland due to planting approximately 19ha of new woodland. • Adverse significant effect on important and species-rich hedgerows through habitat loss of approximately 5.5km of hedgerow. • Beneficial significant effect on species-rich hedgerow habitat due to planting approximately 7.7km of new hedgerow. • Adverse significant effect on species-rich neutral grassland due to habitat loss. • Beneficial significant effect on calcareous grasslands across the proposed scheme due to habitat creation. • Adverse significant effect on a petrifying spring with tufa formation through loss of Annex 1 habitat. • Adverse significant effect on bat assemblages due to temporary severance and fragmentation of foraging and commuting features. • Adverse significant effect on barn owl through loss and fragmentation of foraging habitat. 	<ul style="list-style-type: none"> • Adverse significant effect on barn owl through increased risk of mortality and injury through traffic collisions due to severance of habitat.

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Geology and soils	<ul style="list-style-type: none"> • Permanent adverse significant effect on Agricultural Land Classification (ALC) Grade 3a best and most versatile agricultural land. • Permanent adverse significant effect on ALC Grade 3b agricultural land. • Permanent adverse significant effect on controlled waters as a result of identified soil and groundwater hydrocarbon contamination. Further investigations and assessments would be required to identify the source, confirm the risks and design appropriate remediation measures. 	<ul style="list-style-type: none"> • No likely significant effects anticipated.
Material assets and waste	<ul style="list-style-type: none"> • No likely significant effects anticipated. 	<ul style="list-style-type: none"> • No likely significant effects anticipated.
Noise and vibration	<p>Residential:</p> <ul style="list-style-type: none"> • Temporary adverse significant noise effects from construction activities for fourteen residential properties: <p>Non-residential:</p> <ul style="list-style-type: none"> • Temporary adverse significant noise effects from construction activities at non-residential locations: • Temporary adverse significant noise effects from construction activities identified at PRoWs within approximately 500m of major excavation works in the AONB near the new alignment, in particular along a 500m section of the Gloucestershire Way long distance footpath (footpath link ACY3). 	<p>Residential:</p> <ul style="list-style-type: none"> • Direct permanent beneficial significant noise effects have been identified at 45 residential properties. • Direct permanent adverse significant noise effects have been identified at 22 residential properties. • Indirect permanent beneficial significant noise effects have been identified at 20 residential properties. <p>Non-residential:</p> <ul style="list-style-type: none"> • Permanent beneficial significant effects along the existing section of A417 highway to be detrunked and along the Cotswold Way. • Direct permanent significant adverse effects on part of the Gloucestershire Way long distance footpath between the Air Balloon roundabout and Coberley to the east. • Direct permanent significant adverse effects on footpath links running for approximately one kilometre to the east from Stockwell.

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Population and human health	<ul style="list-style-type: none"> • Permanent adverse significant effects on two businesses (Air Balloon Public House and Crickley Hill Tractors) and three residential properties on Crickley Hill (Woodside House, Pinewood and Crickley Ridge). • Temporary adverse significant effect on users of Crickley Hill Country Park. • Permanent adverse significant effect on one Agricultural Holding, Shab Hill Farm. • No adverse health outcomes. 	<ul style="list-style-type: none"> • Permanent beneficial significant effect on the Cotswold Way National Trail. • Permanent beneficial significant effect on walking, cycling and horse riding / PrOW. • Positive health outcomes identified in relationship to transport and connectivity, open space and nature, air quality and employment and economy. • Mixed health outcomes (both positive and negative) in relation to noise, therefore an overall neutral health outcome across the communities.
Road drainage and the water environment	<ul style="list-style-type: none"> • Temporary adverse significant effect on hydromorphology due to the removal of Norman's Brook during the construction phase. 	<ul style="list-style-type: none"> • No likely significant effects anticipated.
Climate	<ul style="list-style-type: none"> • No likely significant effects anticipated. 	<ul style="list-style-type: none"> • No likely significant effects anticipated.