




# Proposed Mineral Extraction Sites

## Legend




### Areas of Search and proposed sites

-  Areas of Search
-  Proposed area not to be extracted
-  mineral sites proposed for Local Plan review




### Safeguarded existing Mineral and Waste sites

-  Safeguarded Existing Mineral Extraction Sites
-  Safeguarded Existing Mineral Infrastructure
-  Safeguarded Existing Waste Management sites
-  Safeguarded Existing Key Wastewater Treatment Works
-  Consultation area for safeguarded mineral extraction sites-existing
-  Consultation area for safeguarded mineral infrastructure-existing
-  Consultation area for safeguarded waste management sites-existing
-  Consultation area for safeguarded key WWTW-existing

### Road Network

-  Trunk Roads
-  A Roads
-  Designated Lorry Routes in Norfolk

### Landscape designations

-  North Norfolk Heritage Coast
-  Core\_River\_Valleys
-  Area of Outstanding Natural Beauty (AONB)
-  Broads Authority Executive Area

### Environmental designations

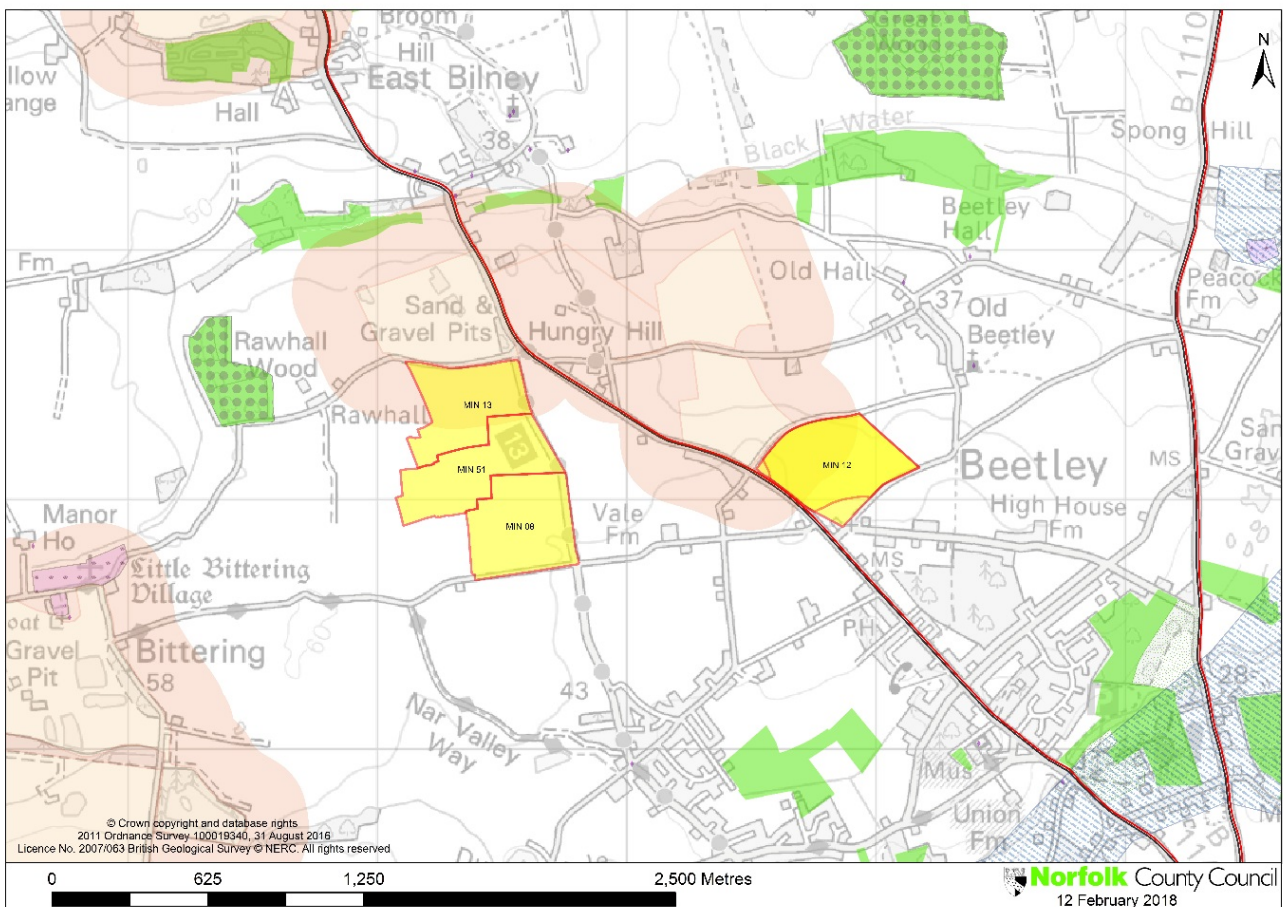
-  Local Nature Reserves
-  National Nature Reserves
-  Special Protection Area (SPA)
-  Special Area of Conservation (SAC)
-  Site of Special Scientific Interest (SSSI)
-  Ramsar sites
-  County Wildlife Sites
-  Mitigation zone for Stone Curlews
-  Protection zone for Stone Curlews
-  Ancient Woodland
-  Regionally Important Geological Sites (RIGS)

### Heritage designations

-  Registered Historic Parks and Gardens
-  Scheduled Monuments
-  Listed Buildings
-  Conservation Areas
-  Unregistered Historic Parks and Gardens

## Breckland Sites

### Map of proposed sites in Beetley (MIN 08, MIN 12, MIN 13, MIN 51)



### MIN 12 - land north of Chapel Lane, Beetley

#### Site Characteristics

- The 16.38 hectare site is within the parish of Beetley
- The estimated sand and gravel resource at the site is 1,175,000 tonnes
- The proposer of the site has given a potential start date of 2025 and estimated the extraction rate to be 80,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within 15 years, therefore approximately 960,000 tonnes could be extracted within the plan period.
- The site is proposed by Middleton Aggregates Ltd as an extension to an existing site.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 3.
- The site is 3.7km from Dereham and 12km from Fakenham, which are the nearest towns.
- A reduced extraction area has been proposed of 14.9 hectares, which creates standoff areas to the south west of the site nearest to the buildings on Chapel Lane, and to the north west of the site nearest the dwellings on Church Lane.

**Amenity:** The nearest residential property is 11m from the site boundary. There are 21 sensitive receptors within 250m of the site boundary. The settlement of Beetley is 260m away and Old Beetley is 380m away. However, land at the north-west and south-west corners is not proposed to be extracted. Therefore the nearest residential property is 96m from the extraction area and there are 18 sensitive receptors within 250m of the proposed extraction area. Even without mitigation,

adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site would access the existing plant site on the land to the north of Rawhall Lane via an extension to the existing conveyor. From the plant site the existing site access would be used onto Rawhall Lane east to the junction with the B1146 Fakenham Road, which is a designated lorry route. The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period. The estimated number of HGV movements is 30 (in and out) per day. The proposed highway access is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with boundary loss. The site is within a wider historic landscape character of Twentieth Century agriculture with enclosure and boundary loss, agriculture with 18<sup>th</sup> to 19<sup>th</sup> Century enclosure, and enclosed wetland meadows. The wider historic landscape character also includes 18<sup>th</sup> to 20<sup>th</sup> Century woodland plantation, mineral extraction and leisure/recreation.

The nearest Listed building is 460m away and is the Grade I Church of St Mary Magdalen. There are 14 Listed Buildings within 2km of the site. The only Scheduled Monument within 2km of the site is 1.57km away and is the 'Moated site 280m south east of Spong Bridge'. There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** There are no Historic Environment records within the site boundary, however this may just be due to a lack of investigations. The site is in a wider landscape with a significant number of finds and features from multiple periods, and the site is immediately north of the remains of a Roman road. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site comprises open arable land with few landscape features apart from boundary hedgerow. The site lies close to the boundaries of the landscape character areas described as 'Beeston Plateau Farmland' and 'River Nar Tributary Farmland' in the Breckland Landscape Character Assessment. It lies within a wider area of open arable landscape punctuated with hedgerow oaks and small areas of woodland. Immediately to the north of the site is an existing permitted mineral extraction site, which formed part of the adopted allocation site MIN 10, of which MIN 12 was part.

The site is generally well screened from views from surrounding roads and property, although views of the site would be seen from Field Lane, a road used as a public path which bounds the site to the north. In addition, the southern part of the site is slightly elevated and may be visible in a long view from public paths crossing land to the north of the Whitewater valley. The site would be relatively easy to screen from the views from Field Lane, although attention would need to be given to screening views from the north. A low level restoration scheme with appropriate margins, gradients and land use could be acceptable in this plateau arable landscape, and this is what has been proposed.

There are no Public Rights of Way within or adjacent to the site.

**Ecology:** The site is 3.47km from the River Wensum SAC and is outside the Impact Risk Zone for the River Wensum SSSI. Due to this distance, no impacts on this SAC are expected.

Beetley and Hoe Meadows SSSI is 1.16km from the site boundary. The SSSI citation states that the valley site represents one of the finest remaining areas of wet unimproved grassland in Norfolk which is species-rich and includes several locally uncommon plants. The proposed extraction site would be worked dry (above the water table) and is located up-gradient of the SSSI. Therefore the SSSI would not be adversely affected.

Dillington Carr, Gressenhall SSSI is 1.44km from the site boundary. The SSSI citation states that the site is an extensive area of carr woodland and open water occupying the valley floor and sides of a small tributary of the River Wensum. The site also includes extensive stands of the nationally rare lowland bird cherry-alder woodland. Irrigation reservoirs have been created within the carr which support an outstanding assemblage of freshwater breeding birds, including several uncommon species. The proposed extraction site would be worked dry (above the water table) and is located up-gradient of the SSSI. Therefore the SSSI would not be adversely affected.

The nearest County Wildlife Site is CWS 1027 'Gressenhall Green Marshes' which is 730m from the site boundary. The CWS is a mosaic of predominantly unmanaged broad-leaved semi-natural woodland, scrub, hedgerows, ditches and marshy grassland. Due to the distance from the CWS there would be no impacts from dust deposition. The proposed extraction site would be worked dry (above the water table) and therefore the County Wildlife Site would not be adversely affected.

The nearest ancient woodland site is Great Wood which is a Plantation on Ancient Woodland Site (PAWS) and Ancient Semi-Natural Woodland (ASNW); it is 1.28km from the site boundary. Due to the distance from the ancient woodland there would be no impacts from dust deposition. The proposed extraction site would be worked dry (above the water table) and therefore the ancient woodland would not be adversely affected.

**Geodiversity:** The site consists of the Briton's Lane sand and gravel member, overlying chalk formations. The Briton's Lane sands and gravels are known to contain priority features such as palaeosols and erratics in other locations, and therefore they may occur on this site. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. No areas of the site are at risk of flooding from surface water. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). The site is within groundwater Source Protection Zone 3. The site would be worked dry (above the water table) and therefore no effect on water resources is expected.

**Water Framework Directive:** The site is approximately 1km from the Blackwater and 1.2km from Wendling Beck, which are the nearest Water Framework Directive waterbodies. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards the Blackwater or Wendling Beck. MIN 12 and the existing processing plant, which the sand and gravel could be transported to by conveyor, are both located north of Wendling Beck and south of the Blackwater. Therefore the sand and gravel to be processed would not be transported across either of these watercourses. Due to the distance of the site from the Blackwater and Wendling Beck, it is not expected that there would be a pathway for silt ingress into these waterbodies from any future sand and gravel extraction within site MIN 12.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is not within an aerodrome safeguarding zone.

**Restoration:** The site is proposed to be restored at a lower level and returned to arable agriculture. Restoration would include wide field margins, new hedgerows and some woodland.

**Initial conclusion:** The site is considered to be suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:

- Noise and dust assessment and a programme of mitigation measures to deal appropriately with any amenity impacts;
- The existing processing plant (at East Bilney Quarry), accessed via an extension to the current conveyor, must be used;
- A detailed landscaping and screening scheme must be developed, so that the impacts on residents of Chapel Road and Fakenham Road/Church Lane specifically, users of Field Lane, and the landscape generally, are acceptable and the settings of nearby listed buildings are protected;
- A progressive restoration scheme to a lower level (with no importation of materials) back to agriculture, to provide wide field margins, new hedgerows and additional woodland to provide landscape and biodiversity gains;
- There must be a 'watching brief' during the extraction phase in case features of potential geodiversity interest are discovered, and ensure appropriate scientific study is permitted during the operational stage; and
- Opportunities during working for any geodiversity assets to be studied, and if compatible with the landscape and ecology objectives an open face to be included within any restoration scheme for future scientific study;
- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required;
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures; and
- The site will need to be phased with other sites in the area so that only one site is worked for extraction at a time.

**Question 40: Proposed Site MIN 12 'Land north of Chapel Lane, Beetley' -  
Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## MIN 51 & MIN 13 - land west of Bilney Road, Beetley

### Site Characteristics

- The 27.14 hectare site is within the parish of Beetley
- The estimated sand and gravel resource at the site is 1,120,000 tonnes
- The proposer of the site has given a potential start date of 2020 and estimated the extraction rate to be 70,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within sixteen years, which would be within the plan period.
- The site is proposed by Longwater Gravel Co Ltd as a new site.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 3
- The site is 4.5km from Dereham and 11km from Fakenham, which are the nearest towns

**Amenity:** The nearest residential property is 171m from the site boundary. There are three sensitive receptors within 250m of the site boundary. The settlement of East Bilney is 470m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** Access would be from the north-eastern corner of the site onto Rawhall Lane just before it joins the C225 Bilney Road and then join the B1146 Fakenham Road, which is a designated lorry route. The site is not within an AQMA. The estimated number of HGV movements is 10 out per day. The proposed highway access using Rawhall Lane considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with boundary loss and agriculture with 18<sup>th</sup> to 19<sup>th</sup> Century enclosure. The site is within a wider historic landscape character of Twentieth Century agriculture with enclosure, boundary loss and boundary loss with a relict element, agriculture with 18<sup>th</sup> to 19<sup>th</sup> Century enclosure and enclosed wetland meadow. The wider historic landscape character also includes informal parkland, mineral extraction and woodland (ancient woodland and 18<sup>th</sup> to 20<sup>th</sup> century plantation woodland).

The nearest Listed Building is 680m away and is the Grade II Almshouses. There are 16 Listed Buildings within 2km of the site. The only Scheduled Monument within 2km is the 'Deserted Medieval Village' which is 1.11km away. Brisley Conservation Area is 1.74km from the site. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** Historic Environment records of cropmarks, including a ring ditch, exist within the site boundary, however the site has not been subject to a programme of investigation. The site is in a wider landscape with a significant number of finds and features from multiple periods, and the site is north of the remains of a Roman road and south of a number of features from multiple periods. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site comprises open arable land with few landscape features apart from mature hedgerow oaks. The site is within the landscape character area described as 'Beeston Plateau Farmland' in the Breckland Landscape Character Assessment. It lies within a wider area of open arable landscape punctuated with hedgerow oaks and small areas of woodland. An active

quarry lies to the north of Rawhall Lane, but does not really detract from the rural appearance of this site.

Views of the site can be seen from Bilney Lane to the east and with a longer view from Stoney Lane to the south and Rawhall Lane to the north. The site is fairly flat and would be relatively easy to screen from the views from surrounding roads. Isolated properties along Rawhall Lane to the north-west do not have a view into this site. The site comprises open agricultural land, set down to a grass ley with good boundary hedges and hedgerow trees. The site contains some good internal landscape features; the internal hedgerow oaks and the block of woodland and rough grass lie within the centre of the site are notable features in this open landscape and should be protected by a suitable working scheme. A low level restoration scheme with appropriate margins and landuse could be acceptable in landscape terms.

There are no Public Rights of Way within or adjacent to the site.

**Ecology:** The site is 4.54km from the River Wensum SAC and is outside the Impact Risk Zone for the River Wensum SSSI. Due to this distance, no impacts on this SAC are expected.

Beetley and Hoe Meadows SSSI is 2.34km from the site boundary. The SSSI citation states that the valley site represents one of the finest remaining areas of wet unimproved grassland in Norfolk which is species-rich and includes several locally uncommon plants. The proposed extraction site would be worked dry (above the water table) and is located up-gradient of the SSSI. Therefore the SSSI would not be adversely affected.

Dillington Carr, Gressenhall SSSI is 2.17km from the site boundary. The SSSI citation states that the site is an extensive area of carr woodland and open water occupying the valley floor and sides of a small tributary of the River Wensum. The site also includes extensive stands of the nationally rare lowland bird cherry-alder woodland. Irrigation reservoirs have been created within the carr which support an outstanding assemblage of freshwater breeding birds, including several uncommon species. The proposed extraction site would be worked dry (above the water table) and is located up-gradient of the SSSI. Therefore the SSSI would not be adversely affected.

Horse Wood Mileham SSSI is 2.84km from the site boundary. The SSSI citation states that it is an ancient woodland with a structure of coppice-with-standards. The ground flora is exceptionally diverse and includes a number of rare and uncommon species in great abundance. The proposed extraction site would be worked dry (above the water table). Therefore the SSSI would not be adversely affected.

County Wildlife Site 2137 'Beck Farm Meadows' is 520m from the site boundary. The CWS is a series of damp, cattle-grazed meadows on the south bank of the Black Water. County Wildlife Site 2068 'Rawhall Wood' is 540m from the site boundary. The CWS is an ancient broad-leaved semi-natural woodland supporting a species-rich ground flora, with a network of wide rides. Due to the distance from the CWS there would be no impacts from dust deposition. The proposed extraction site would be worked dry (above the water table) and therefore the County Wildlife Site would not be adversely affected.

The nearest ancient woodland site is Rawhall Wood which is a Plantation on Ancient Woodland Site (PAWS) and Ancient Semi-Natural Woodland (ASNW); it is 0.57km from the site boundary. Due to the distance from the ancient woodland site there would be no impacts from dust deposition. The proposed extraction site would be worked dry (above the water table) and therefore the ancient woodland would not be adversely affected.

**Geodiversity:** The site consists of the Briton's Lane sand and gravel member, Lowestoft formation – diamicton, overlying chalk formations. The Briton's Lane sands and gravels are known to contain priority features such as palaeosols and erratics in other locations, and therefore they may occur on this site. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. The site has a medium probability of surface water flooding with a few locations of surface water pooling in 1 in 30 and 1 in 100 year rainfall events. In a 1 in 1000 year rainfall event there is a surface water flow path across the south-western corner of the site. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site. The site would be worked dry (above the water table) and therefore no effect on water resources is expected.

**Water Framework Directive:** The site is approximately 600 metres from the Blackwater and 2km from Wendling Beck, which are the nearest Water Framework Directive waterbodies. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards the Blackwater or Wendling Beck. If mineral is extracted from this site it is expected to be processed on site. Therefore the sand and gravel to be processed would not be transported across either of these watercourses. Due to the distance of the site from the Blackwater and Wendling Beck, it is not expected that there would be a pathway for silt ingress into these waterbodies from any future sand and gravel extraction within this site.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There is a National Grid high pressure gas pipeline located along the eastern boundary of the site.

**Safeguarding aerodromes:** The site is not within an aerodrome safeguarding zone.

**Restoration:** The site is proposed to be restored at a lower level and returned to arable agricultural. Due to the expected depth of extraction, it is recognised that restoration to arable is likely to require the use of imported inert material to provide a suitable profile. Lagoons to be retained as ponds with planting to create wet woodland habitat. Hedgerow interspersed with oaks is to be planted along the northern boundary alongside Rawhall Lane.

**Initial conclusion:** The site is considered to be suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:

- Appropriate financial contributions to B1146 Fakenham Road/Rawhall Road junction improvements must be made, if required;
- A high-quality working and restoration scheme must be developed, including the thickening of boundary hedges, and safeguarding the two small areas of woodland on the site and using them as a focal point for restoration; and
- Noise and dust assessments and a programme of mitigation measures to deal appropriately with any amenity impacts;
- A progressive restoration scheme to provide wide field margins, new hedgerows and additional woodland to provide landscape and biodiversity gains;
- Restoration of the extraction void to use the importation of inert materials only;
- Opportunities during working for any geodiversity assets to be studied, and if compatible with the landscape and ecology objectives an open face to be included within any restoration scheme for future scientific study;
- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required; and
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures.



**Question 41: Proposed Site MIN 51 & MIN 13 ‘land west of Bilney Road, Beetley’ – Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## **MIN 08 - land north of Stoney Lane, Beetley**

### **Site Characteristics**

- The 15.3 hectare site is within the parish of Beetley
- The estimated sand and gravel resource at the site is 731,000 tonnes
- The proposer of the site has given a potential start date of 2020 and estimated the extraction rate to be 70,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within eleven years, which would be within the plan period.
- The site is proposed by the landowner.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 3.
- The site is 4.2km from Dereham and 11.5km from Fakenham, which are the nearest towns

**Amenity:** The nearest residential property is 417m from the site boundary. The settlement of Gressenhall is 530m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. Therefore, no adverse amenity impacts are expected from the proposed mineral extraction.

**Highway access:** The site access is proposed along either Bilney Road (C225) to the north or Stoney Lane (unclassified) to the east, to junctions with the B1146 Fakenham Road, which is a designated lorry route. The site is not within an AQMA. The estimated number of HGV movements is 30 to 40 per day. The proposed highway access using Rawhall Lane is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with boundary loss. The site is within a wider historic landscape character of Twentieth Century agriculture with enclosure, boundary loss and boundary loss with a relict element, agriculture with 18<sup>th</sup> to 19<sup>th</sup> Century enclosure and enclosed wetland meadow. The wider historic landscape character also includes mineral extraction and woodland (ancient woodland and 18<sup>th</sup> to 20<sup>th</sup> century plantation woodland).

The nearest Listed Building is 830m away and is the Grade II Methodist Chapel and adjoining two dwellings. There are 15 Listed Buildings within 2km of the site. The only Scheduled Monument within 2km of the site is 1.37km away and is the ‘Deserted Medieval village’. There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** Historic Environment records of cropmarks and isolated finds, including a ring ditch exist within the site boundary, however the site has not been subject to a programme of investigation. The site is in a wider landscape with a significant number of finds and features from multiple periods, and the site is north of the remains of a Roman road and a possible road linking to this runs through part of the site. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site comprises open arable land. The site is within the landscape character area described as 'Beeston Plateau Farmland' in the Breckland Landscape Character Assessment. There are few landscape features within the site, but a line of mature hedgerow oaks lie along its northern boundary. It lies within a wider area of open arable landscape punctuated with hedgerow oaks and small areas of woodland. Views of the site can be seen from Bilney Lane to the east and Stoney Lane to the south. The site is remote from property and is fairly flat and would be relatively easy to screen from the views from the surrounding roads. A low level restoration scheme with appropriate margins and land use could be acceptable in landscape terms.

There are no Public Rights of Way within or adjacent to the site.

**Ecology:** The site is 4.64km from the River Wensum SAC and is outside the Impact Risk Zone for the River Wensum SSSI. Due to this distance, no impacts on this SAC are expected.

Beetley and Hoe Meadows SSSI is 2.12km from the site boundary. The SSSI citation states that the valley site represents one of the finest remaining areas of wet unimproved grassland in Norfolk which is species-rich and includes several locally uncommon plants. The proposed extraction site would be worked dry (above the water table) and is located up-gradient of the SSSI. Therefore the SSSI would not be adversely affected.

Dillington Carr, Gressenhall SSSI is 1.88km from the site boundary. The SSSI citation states that the site is an extensive area of carr woodland and open water occupying the valley floor and sides of a small tributary of the River Wensum. The site also includes extensive stands of the nationally rare lowland bird cherry-alder woodland. Irrigation reservoirs have been created within the carr which support an outstanding assemblage of freshwater breeding birds, including several uncommon species. The proposed extraction site would be worked dry (above the water table) and is located up-gradient of the SSSI. Therefore the SSSI would not be adversely affected.

The nearest County Wildlife Site is CWS 2068 'Rawhall Wood' which is 850m from the site boundary. The CWS is an ancient broad-leaved semi-natural woodland supporting a species-rich ground flora, with a network of wide rides. Due to the distance from the CWS there would be no impacts from dust deposition. The proposed extraction site would be worked dry (above the water table) and therefore the County Wildlife Site would not be adversely affected.

The nearest ancient woodland site is Rawhall Wood, which is a Plantation on Ancient Woodland Site (PAWS) and Ancient Semi-Natural Woodland (ASNW); it is 0.85km from the site boundary. Due to the distance from the ancient woodland site there would be no impacts from dust deposition. The proposed extraction site would be worked dry (above the water table) and therefore the ancient woodland would not be adversely affected.

**Geodiversity:** The site consists of the Briton's Lane sand and gravel member, Lowestoft formation – diamicton. The Briton's Lane sands and gravels are known to contain priority features such as palaeosols and erratics in other locations, and therefore they may occur on this site. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. The site has a medium probability of surface water flooding with an area of surface water pooling in a 1 in 30 year rainfall event. In a 1 in 100 year rainfall event a flow path develops between the area of ponding and the south-eastern corner of the site. In a 1 in 1000 year rainfall event the surface water flow path further develops to run north west to south east across the site. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is partially located over a Secondary A aquifer and a secondary (undifferentiated) aquifer (superficial deposits) and a principal aquifer (bedrock). The site is partly

within groundwater Source Protection Zone 3. The rest of the site is not within a groundwater SPZ. The site would be worked dry (above the water table) and therefore no effect on water resources is expected.

**Water Framework Directive:** The site is approximately 1km from the Blackwater and 1.7km from Wendling Beck, which are the nearest Water Framework Directive waterbodies. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards the Blackwater or Wendling Beck. MIN 08 could potentially use an adjacent processing plant to be located within the site proposed site MIN 51 / MIN 13 to the north, which the sand and gravel could be transported to by conveyor. Both site MIN 08 and the proposed adjacent processing plant are some distance north of Wendling Beck and south of the Blackwater. Therefore the sand and gravel to be processed would not be transported across either of these watercourses. Due to the distance of the site from the Blackwater and Wendling Beck, it is not expected that there would be a pathway for silt ingress into these waterbodies from any future sand and gravel extraction within site MIN 08.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There is a National Grid high pressure gas pipeline located along the eastern boundary of the site.

**Safeguarding aerodromes:** The site is not within an aerodrome safeguarding zone.

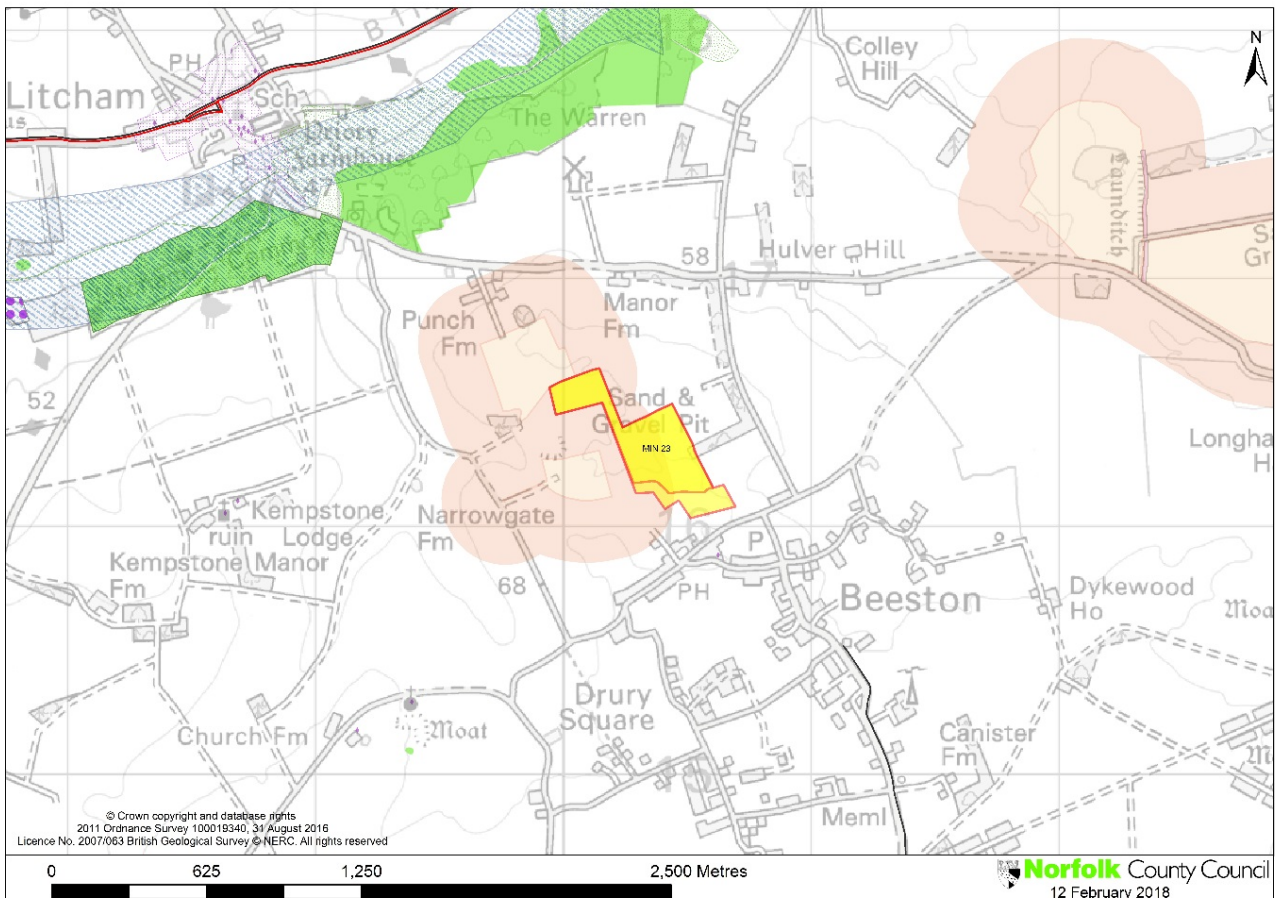
**Restoration:** The majority of the site is proposed to be restored to agriculture. A proportion of the site will be restored to woodland and associated grassland habitat.

**Initial conclusion:** The site is considered to be unsuitable for allocation because:

- There is not a mineral operator promoting the proposed site and therefore the site is less deliverable than other sites that have been proposed for extraction.
- Whilst the proposer of the site has given a potential start date of 2020, the site would need to be phased with the other proposed site along Bilney Road in order to mitigate potential cumulative impacts. The site proposed in the two fields to the north (MIN 51 / MIN 13) is estimated to be operational from 2020 to 2036. Therefore site MIN 08 is unlikely to be operational during the plan period.

**Question 42: Proposed Site MIN 08 'land north of Stoney Lane, Beetley' – Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## MIN 23 - land north of Back Lane, Beeston



### Site Characteristics

- The 15 hectare site is within the parish of Beeston with Bittering
- The estimated sand and gravel resource at the site is 500,000 tonnes
- The proposer of the site has given a potential start date of 'as soon as possible' and estimated the extraction rate to be 25,000 to 50,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within 10 to 20 years. Therefore the full mineral resource could be extracted within the plan period at the higher rate of extraction.
- The site is proposed by Norfolk Gravel (trading as Carter Concrete Ltd) as a new site.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 3
- The site is 7.4km from Dereham and 10.2km from Swaffham, which are the nearest towns.

A reduced extraction area has been proposed on 11.91 hectares. The proposals is for a limit of the extraction approximately 100 metres north of the southern boundary to provide a buffer between the extraction area and the village of Beeston.

**Amenity:** The nearest residential property is 132m from the site boundary. There are 39 sensitive receptor within 250m of the site boundary. However, the most southern part of the site is not proposed to be extracted. Therefore the nearest residential property is 198m from the extraction area and there are 9 sensitive receptors within 250m of the proposed extraction area. The settlement of Beeston is 132m away from the site boundary. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning

application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** An off-road haul route is proposed east of the site to join Mileham Road (C221). Vehicles would then travel north up Mileham Road, then turn right onto Dereham Road (C222) which becomes Litcham Road (C222). Then turn right to travel south along the C229 Reed Lane, which is a designated lorry route, then continue travelling south on the C229 Honeyplot Lane, which becomes Longham Road and then Station Road, and are all designated lorry routes. At the end of Station Road vehicles would turn right to travel west along the C470 Swaffham Road, to join the A47. The site is not within an AQMA. The estimated number of HGV movements is 10 to 15 per day. The Highway Authority have stated that HGV access onto the Mileham Road would not be acceptable.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with enclosure. The site is within a wider historic landscape character of Twentieth Century agriculture with enclosure and boundary loss, agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure and enclosed wetland meadow. The wider historic landscape character also includes mineral extraction, leisure/recreation and 18<sup>th</sup> to 20<sup>th</sup> century plantation woodland.

The nearest Listed Building is the Grade II 'Moat House/Old Rectory' which is 170m away. There are 20 Listed Buildings within 2km of the site. 15 of these are within the Litcham Conservation Area which is 1.24km from the site. There are two Scheduled Monuments within 2km of the site. They are 'Devil's Dyke' 1.96km from the site and 'Disc Barrow on Litcham Common' 1.11km from the site. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** Historic Environment records of isolated multi period finds exist close to the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods, including settlements, and a number of moated sites. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site is sloping arable land with a fall towards the village of Beeston to the south. The site lies on the junction of two landscape character areas described as 'Beeston Plateau Farmland' and 'River Nar Tributary Farmland' in the Breckland Landscape Character Assessment. It lies within a wider open arable landscape with long views across open countryside. The site comes close to the edge of Beeston village and would be visible from Back Lane and Mill Drift. A number of houses lie along Back Lane as does the recreation ground. Whilst a number of mineral workings have been operated adjoining this site, there are concerns about the impact of working mineral on this land. Workings would be visually intrusive to the community of Beeston, and due to the sloping nature of the site, hard to screen. They would also affect the quiet enjoyment of the surrounding countryside.

There are no Public Rights of Way within or adjacent to the site.

**Ecology:** The site is more than 5km from any SPA, SAC or Ramsar site. Therefore, there would be no likely significant effects on these sites.

River Nar SSSI is 1.10km from the site boundary. The SSSI citation states that the River combines the characteristics of a southern chalk stream and an East Anglian fen river. Together with the adjacent terrestrial habitats, the Nar is an outstanding river system of its type. The proposed extraction site would be worked dry (above the water table) and is also located up-gradient of the River Nar. Therefore the SSSI would not be adversely affected.

Horse Wood Mileham SSSI is 2.63km from the site boundary. The SSSI citation states that it is an ancient woodland with a structure of coppice-with-standards. The ground flora is exceptionally diverse and includes a number of rare and uncommon species in great abundance. The proposed extraction site would be worked dry (above the water table) and is located in a different hydrological catchment to the SSSI. Therefore the SSSI would not be adversely affected.

Honeypot Wood, Wendling SSSI is 2.87km from the site boundary. The SSSI citation states that it is a good example of an ancient, coppiced, ash-maple wood. The wood has a vigorous shrub layer and a rich ground vegetation. The proposed extraction site would be worked dry (above the water table) and is located in a different hydrological catchment to the SSSI. Therefore the SSSI would not be adversely affected.

The nearest County Wildlife Site is CWS 964 'Warren Woods' which is 750m from the site boundary. The CWS is a broad-leaved semi-natural woodland. Due to the distance from the CWS there would be no impacts from dust deposition. The proposed extraction site would be worked dry (above the water table) and therefore the County Wildlife Site would not be adversely affected.

The nearest ancient woodland site is Old Covert wood which is a Plantation on Ancient Woodland Site (PAWS); it is 2.14km from the site boundary. Due to the distance from the ancient woodland site there would be no impacts from dust deposition. The proposed extraction site would be worked dry (above the water table) and therefore the ancient woodland would not be adversely affected.

**Geodiversity:** The site consists of the Lowestoft formation – diamicton, overlying chalk formations. The site is unlikely to contain geodiversity priority features. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. The site has a low risk of surface water flooding, with one location of surface water pooling in a 1 in 100 year rainfall event at the southern corner of the site. There is a surface water flow path crossing the southern corner of the site in a 1 in 1000 year rainfall event. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a secondary (undifferentiated) aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site. The proposed extraction site would be worked dry (above the water table) and therefore no effect on water resources is expected.

**Water Framework Directive:** The site is approximately 500 metres from the River Nar (Nar to confluence with Blackborough Drain), which is the nearest Water Framework Directive waterbody. The groundwater level in this area is many metres below ground level and therefore overland flows are not expected from the site towards the River Nar. If mineral is extracted from site MIN 23, it is expected to be processed on site, therefore the sand and gravel to be processed would not be transported across the river. Due to the distance of the site from the River Nar, it is not expected that there would be a pathway for silt ingress into this waterbody from any future sand and gravel extraction within site MIN 23.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is not within an aerodrome safeguarding zone.

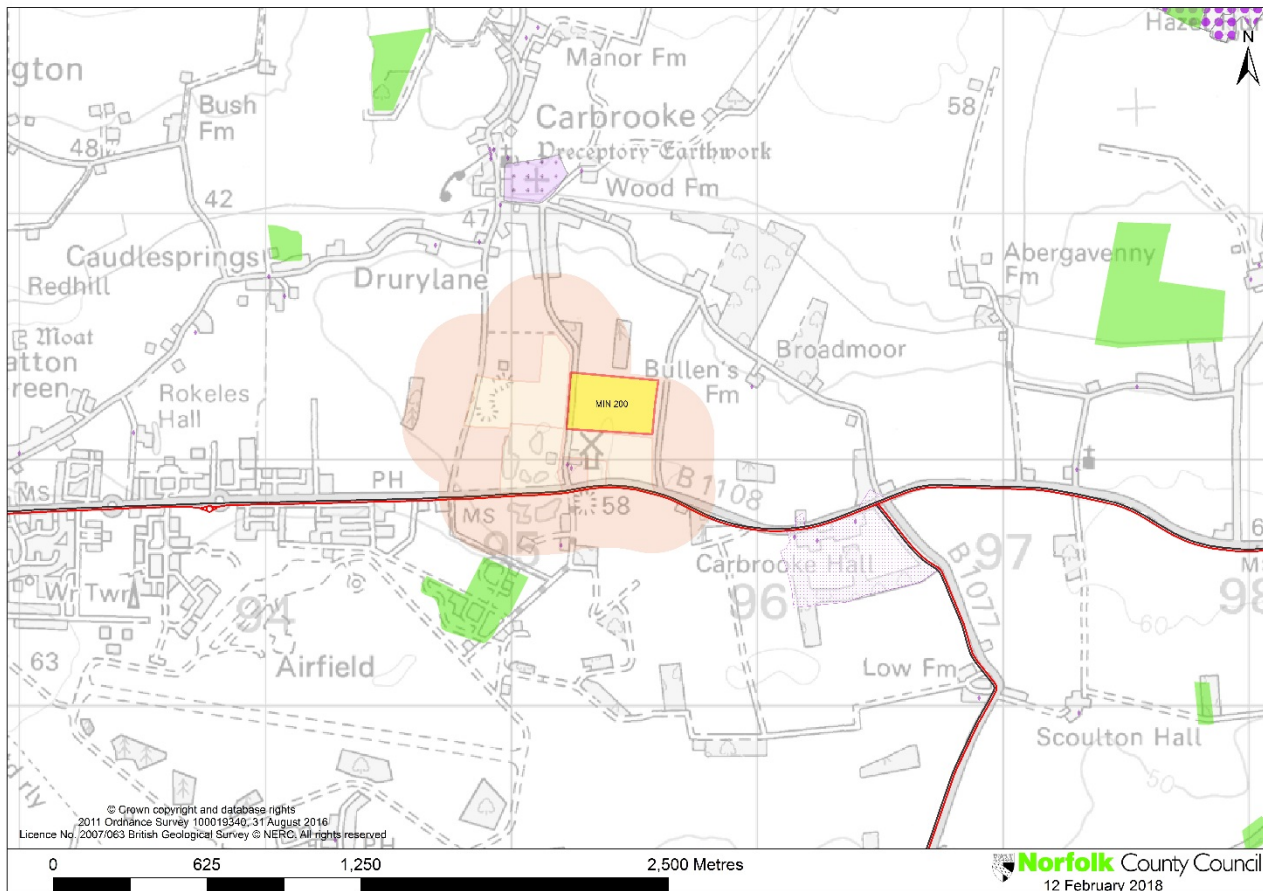
**Restoration:** No details on proposed restoration of the site have been provided. The preferred site restoration scheme would be to agriculture at a lower level with wide field margins, hedgerow reinforcement and tree planting.

**Initial conclusion:** The site is considered to be unsuitable for allocation because:

- Mineral extraction at this site would have unacceptable landscape impacts, particularly in relation to views from Beeston. The sloping nature of the site would make screening difficult and bunds or screening risk being intrusive in their own right.

**Question 43: Proposed Site MIN 23 'land north of Back Lane, Beeston' -  
Do you agree or disagree with the initial conclusion? Do you have any comments to  
make about the assessment of this site?**

## MIN 200 - land west of Cuckoo Lane, Carbrooke



### Site Characteristics

- The 7.94 hectare site is within the parish of Carbrooke
- The estimated sand and gravel resource at the site is 300,000 tonnes
- The proposer of the site has given a potential start date of 2025 and estimated the extraction rate to be 25,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within twelve years, which would be within the plan period.
- The site is proposed by 4 Leaf Enterprises as an extension to an existing site.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 3
- The site is 0.8km from Watton and 10.1km from both Attleborough and Dereham, which are the nearest towns

**Amenity:** The nearest residential property is 144m from the site boundary, this is the only sensitive receptor within 250m of the site. The settlement of Carbrooke is 321m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site would use the existing quarry access onto Mill Lane and then south onto the B1108 Norwich Road, which is a designated lorry route. The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period. The estimated number of HGV movements is 10 (in and out) per day. The proposed highway access is considered to be suitable by the Highway Authority.



**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with boundary loss. The site is within a wider historic landscape character of Twentieth Century agriculture with enclosure and boundary loss, agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure and enclosed wetland meadow. The wider historic landscape character also includes disused post-medieval military, agriculture with pre-18<sup>th</sup> century coaxial enclosure and 18<sup>th</sup> to 20<sup>th</sup> century plantation woodland.

The nearest Listed Buildings are the Grade II Mill House and 'Windmill' which are 150m away. There are 27 Listed Buildings within 2km of the site. Carbrooke Conservation Area is 670m from the site, within which many of the Listed Buildings are contained. The only Scheduled Monument within 2km of the site is the 'Site of Commandry of St John of Jerusalem' which is 700m away. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** There are no Historic Environment records within the site boundary, however this may just be due to a lack of investigations. The site is in a wider landscape with a significant number of finds and features from multiple periods, especially to the north around the settlement of Carbrooke. A scatter of finds was found following investigations on the existing site. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site is within the landscape character area described as 'Wayland Plateau Farmland' in the Breckland Landscape Character Assessment. The site is a flat arable field bordered to the west by Mill Lane, to the east by Cuckoo Lane, with an existing permitted mineral extraction site to the south, and on the opposite of Mill Lane. To the north, there are arable fields with isolated woodland blocks up to the settlement of Carbrooke. There would be views from Mill Lane and Cuckoo Lane through gaps in the hedgerows; a screening scheme would need to address this issue together with longer views from the direction of Carbrooke.

There are no Public Rights of Way within or adjacent to the site.

**Ecology:** The site is 4.47m from Thompson Water, Carr and Common SSSI which is part of the Norfolk Valley Fens SAC and is outside the Impact Risk Zone for the SSSI. Due to this distance, no impacts on this SAC or SSSI are expected.

Scoulton Mere SSSI is 2.72km from the site boundary. The SSSI citation states that the swamp, fen and bog communities that occur on island in the mere and around the shore support a diverse flora including several rare and uncommon plants. Whilst the site is within the Impact Risk Zone for the SSSI, provided that no dewatering is proposed as part of the working scheme, no impacts on this SSSI are expected.

Wayland Wood, Watton SSSI is 2.78km from the site boundary. The SSSI citation states that the large wood contains entirely semi-natural stands and is still managed under a traditional coppicing system. The diverse flora is typical of ancient woodland and includes one national rarity. Whilst the site is within the Impact Risk Zone for the SSSI, provided that no dewatering is proposed as part of the working scheme, no impacts on this SSSI are expected.

The nearest County Wildlife Site is CWS 2091 'Watton Airfield (Army training area)' which is 610m from the site boundary. The CWS is an area of dense scrub with patches of unimproved basic grassland; crossed with tracks. Due to this distance, no impacts on this CWS are expected.

The nearest ancient woodland sites are: Shepherds Fell, a Plantation on Ancient Woodland Site (PAWS) which is 2.34 km from the site boundary, Hazel Hurn, a PAWS and Ancient Semi-Natural

Woodland (ASNW) which is 2.47 km from the site boundary. Due to this distance, no impacts on these sites are expected.

**Geodiversity:** The site consists of the Lowestoft formation – diamicton, overlying chalk formations. The site is unlikely to contain geodiversity priority features. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. The site has a low risk of surface water flooding with two locations of surface water pooling in a 1 in 30 year rainfall event and a third location in a 1 in 1000 year rainfall event. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a Secondary aquifer (undifferentiated) (superficial deposits) and a principal aquifer (bedrock). The site is within groundwater Source Protection Zone 2. A planning application for mineral extraction at this site would need to include a Hydrogeological Risk Assessment to identify any potential impacts to groundwater and appropriate mitigation measures.

**Water Framework Directive:** The site is approximately 700 metres from Watton Brook, which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards Watton Brook. MIN 200 and the existing adjacent processing plant, which the sand and gravel would be transported to by internal haul route, are both some distance south of Watton Brook. Therefore the sand and gravel to be processed would not be transported across this watercourse. Due to the distance of the site from Watton Brook, it is not expected that there would be a pathway for silt ingress into this waterbody from any future sand and gravel extraction within site MIN 200.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is not within an aerodrome safeguarding zone.

**Restoration:** The site is proposed to be restored to nature conservation with open grassland.

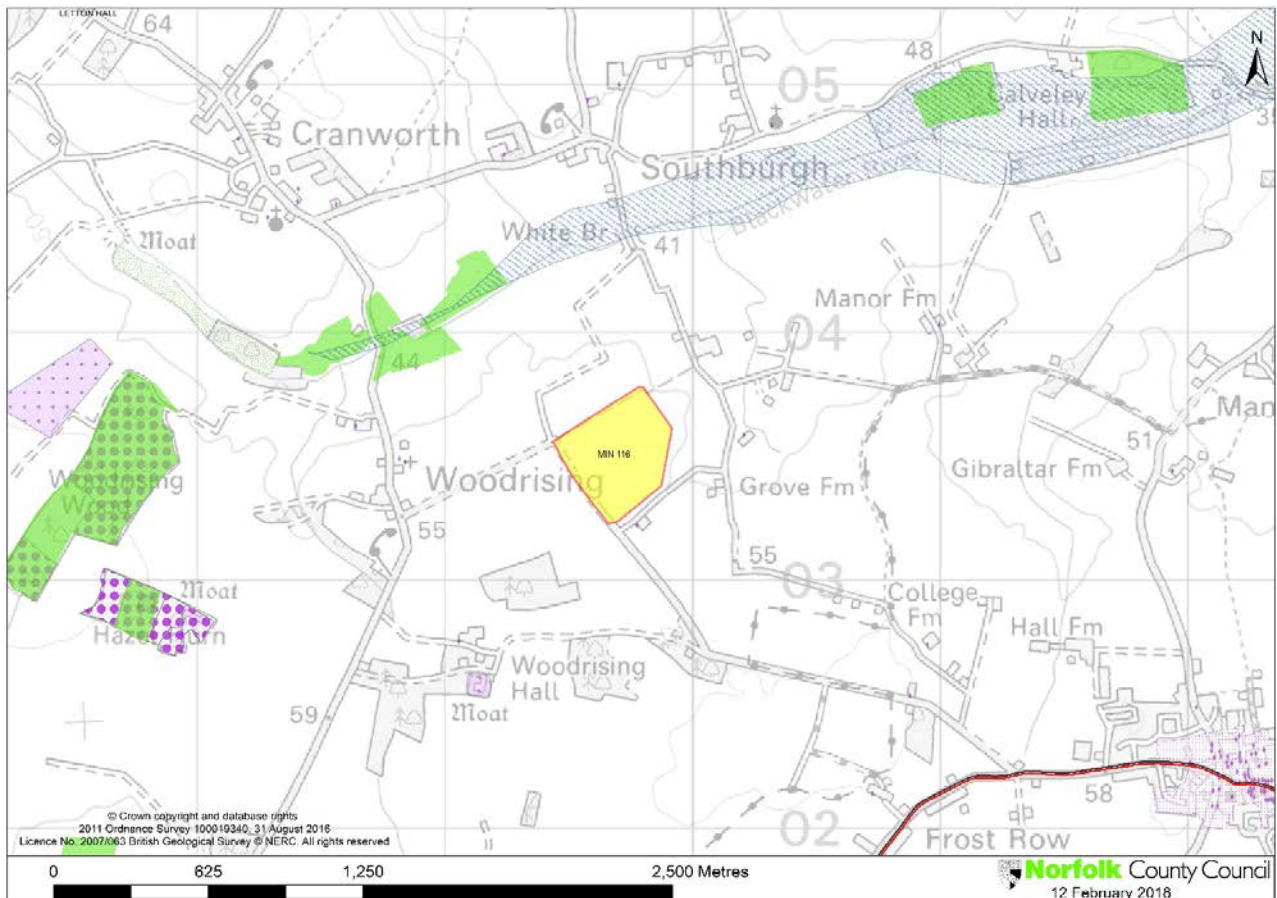
**Initial conclusion:** The site is considered to be suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:

- Noise and dust assessments and a programme of mitigation measures to deal appropriately with any amenity impacts;
- A progressive restoration scheme to a nature conservation afteruse to provide landscape and biodiversity gains;
- Opportunities during working for any geodiversity assets to be studied, and if compatible with the landscape and ecology objectives an open face to be included within any restoration scheme for future scientific study;
- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required;
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures;
- A detailed landscaping and screening scheme must be developed, so that views from Mill Lane, Cuckoo Lane and from the direction of Carbrooke, and the landscape generally, are acceptable and the settings of nearby listed buildings are protected;
- The existing processing plant and highway access from that site to be used; an application will need to assess potential impacts on the highway network of any crossing of Mill Lane for unprocessed material to the existing plant site;
- The site will need to be phased with other sites in the area so that only one site is worked for extraction at a time; and

- A Hydrogeological Risk Assessment to identify any potential impacts to groundwater, and in particular Scoulton Mere, and appropriate mitigation included in any scheme of working, to also include assessment and mitigation/compensation for any private abstraction points affected if dewatering is proposed as part of the detailed working scheme.

**Question 44: Proposed Site MIN 200 'land west of Cuckoo Lane, Carbrooke' -  
Do you agree or disagree with the initial conclusion? Do you have any comments to  
make about the assessment of this site?**

## MIN 116 - land at Woodrising Road, Cranworth



### Site Characteristics

- The 15.75 hectare site is within the parish of Cranworth
- The estimated sand and gravel resource at the site is 950,000 tonnes
- The proposer of the site has estimated the extraction rate to be 47,500 tonnes per annum but has not given a potential start date for extraction. Based on this information the full mineral resource at the site could be extracted within 20 years, therefore approximately 855,000 tonnes could be extracted within the plan period if the site started operating in 2019.
- The site is proposed by the landowner as a new site.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 3
- The site is 5.8km from Watton, 7.2km from Dereham and 8.8km from Attleborough, which are the nearest towns.

**Amenity:** The nearest residential property is 61m from the site boundary. There are six sensitive receptors within 250m of the site boundary. The settlement of Woodrising is 627m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site would use the C159 Wood Rising Road east to the B1108 Watton Road, which is a designated lorry route. The site is not within an AQMA. The estimated number of HGV movements is 18 per day. The site proposer has recognised that highway works, which would involve widening, passing places and appropriate signage would be required. The Highway

Authority has raised concerns regarding the proposed highway access because the local road network is sub-standard and narrow. Woodrising Road would require widening and a right turn lane would be required at its junction with the B1108 to be made acceptable.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with boundary loss, with a relict element. The site is within a wider historic landscape character of 20<sup>th</sup> century agriculture with boundary loss and 20<sup>th</sup> century enclosure, agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure and enclosed wetland meadow. The wider historic landscape character also includes informal parkland, agriculture with pre-18<sup>th</sup> century irregular enclosure and 18<sup>th</sup> to 20<sup>th</sup> century plantation woodland.

The nearest Listed Building is the Grade II 'Hurdle-maker's Cottage' which is 60m away. There are 23 Listed Buildings within 2km of the site. The nearest Scheduled Monument is 'Woodrising Hall moated site' which is 780m away. There are four Scheduled Monuments within 2km of the site. There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** There are no Historic Environment records within the site boundary, however this may just be due to a lack of investigations. The site is in a wider landscape with a significant number of finds and features from multiple periods, and is close to northern boundary of the former parkland surrounding Wood Rising Hall. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site is a large arable field. It has a 'domed plateau' and slopes downward to the north, east and south. There are several mature field Oaks within the field. The site is within the landscape character area described as 'Wayland Plateau Farmland' in the Breckland Landscape Character Assessment. The site is in an area of attractive gently rolling arable countryside. There is a woodland belt along the Blackwater valley to the north and several sizeable blocks of woodland to the west, south and south-west.

There is a Public Right of Way adjacent to the northern boundary of the site (Cranworth BR6) and country roads along the western and close to the southern boundaries of the site. There is a good hedge along the western side of this road, helping to screen views from the west. Another country road runs parallel to the eastern boundary and has views over part of the site. There are dwellings with views over the site from this road, as well as two on the road to the south. The proposed development would be visually detrimental from these viewpoints. There are likely to be some distant, partially screened views from some dwellings to the north, from parts of Cranworth to the north-west and from a few of the houses in Woodrising to the west. Southburgh Church to the north-east also has a long-range view over the site.

Hurdlemaker's Cottage is close to the southern boundary of the site. The occupiers are likely to suffer some visual intrusion were the site to be developed as a mineral working, especially in winter when the screening effect of their boundary planting would be less effective. Development would also have an adverse visual impact on the occupiers of Grove Farm, which is close to the western corner of the site. The dwellings along River Lane to the east of the site are further back and have views which would be partially screened by hedge trees but they would still experience visual intrusion. The visual intrusion on others further away would be of a lesser magnitude.

Advanced tree planting is proposed to the south and east of the proposed site and a bund is proposed around the edge of the site. The proposed bunding along the western boundary would have an impact on the view across the lower-lying land from the road and the proposed bunding along the eastern boundary would have an impact on the views from the dwellings nearby.

**Ecology:** The site is more than 5km from any SPA, SAC or Ramsar site. Therefore, there would be no likely significant effects on these sites.

Potter's Carr, Cranworth SSSI is 1.16km from the site boundary. The SSSI citation states that the site forms an excellent example of the carr woodland-wet grassland habitat complex characteristic of local river valleys and is unusual in supporting a nationally scarce woodland stand-type with a rich ground flora typical of ancient woodland. The proposed extraction site would be worked dry (above the water table). Therefore there would be no adverse impacts to the SSSI.

Scoulton Mere SSSI is 1.84km from the site boundary. The SSSI citation states that the swamp, fen and bog communities that occur on island in the mere and around the shore support a diverse flora including several rare and uncommon plants. The proposed extraction site would be worked dry (above the water table). Therefore there would be no adverse impacts to the SSSI.

The nearest County Wildlife Site is CWS 2063 'Wood Rising Water Meadows' which is 520m from the site boundary. The CWS is within a narrow river valley and consists of grassland, crossed by a network of ditches, which are mostly managed as pasture. The proposed extraction site would be worked dry (above the water table). Therefore there would be no adverse impacts to the CWS.

The nearest ancient woodland site is a Plantation on Ancient Woodland Site (PAWS) (unnamed) within Cranworth parish; it is 1.52km from the site boundary. Due to the distance from the ancient woodland site there would be no impacts from dust deposition. The proposed extraction site would be worked dry (above the water table) and therefore the ancient woodland would not be adversely affected.

**Geodiversity:** The site consists of the Lowestoft formation – diamicton, Alluvium – clay, silt, sand and gravel, overlying chalk formations. The site is unlikely to contain geodiversity priority features. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. The site has a low risk of flooding from surface water, with areas of surface water pooling in a 1 in 1000 year rainfall event. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a Secondary aquifer (undifferentiated) and partially over a Secondary A aquifer (superficial deposits). The site is also located over a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site. The site would be worked dry (above the water table) and therefore no effect on water resources is expected.

**Water Framework Directive:** The site is approximately 600 metres from the River Blackwater, which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards the River Blackwater. If mineral is extracted from MIN 116, it is expected to be processed on-site. Therefore the sand and gravel to be processed would not be transported across this watercourse. Due to the distance of the site from the River Blackwater, it is not expected that there would be a pathway for silt ingress into this waterbody from any future sand and gravel extraction within site MIN 116.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is not within an aerodrome safeguarding zone.

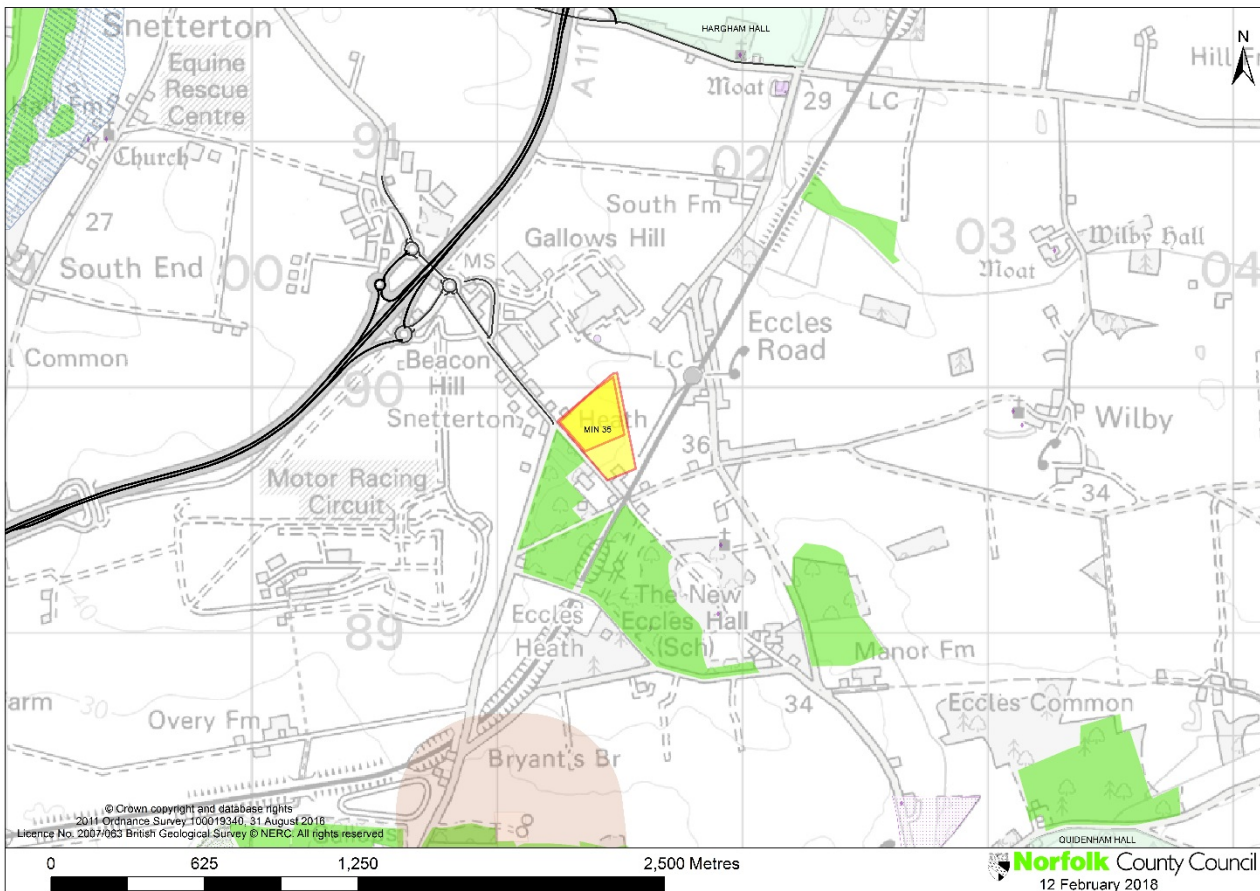
**Restoration:** The site is proposed to be restored to arable agriculture and woodland.

**Initial conclusion:** The site is considered to be unsuitable for allocation because:

- Visual and amenity impact on the nearby dwellings would be unacceptable;
- Local landscape impacts would be unacceptable;
- The Highway Authority has raised concerns regarding the proposed highway access because the local road network is sub-standard and narrow. Woodrising Road would require widening and a right turn lane would be required at its junction with the B1108 to be made acceptable.
- There is not a mineral operator promoting the proposed site and therefore the site is less deliverable than other sites that have been proposed for extraction.

**Question 45: Proposed Site MIN 116 'land at Woodrising Road, Cranworth' -  
Do you agree or disagree with the initial conclusion? Do you have any comments to  
make about the assessment of this site?**

## MIN 35 - land at Heath Road, Quidenham



### Site Characteristics

- The 7.5 hectare site is within the parish of Quidenham
- The estimated sand and gravel resource at the site is 500,000 tonnes
- The proposer of the site has given a potential start date of 2020 and estimated the extraction rate to be 80,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within seven years, which would be within the plan period.
- The site is proposed by Frimstone Ltd as a new site.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 4.
- The site is 4.6km from Attleborough and 12.9km from Watton which are the nearest towns.

A reduced extraction area has been proposed of 4.38 hectares; the proposal is for a buffer area which moves the limit of extraction approximately 150 metres from the southern boundary and buffer areas on the east and west of the site.

**Amenity:** The nearest residential property is 24m from the site boundary. There are 31 sensitive receptors within 250m of the site boundary. However, the southern part of the site is not proposed to be extracted. Therefore the nearest residential property is 42m from the extraction area and there are 28 sensitive receptors within 250m of the proposed extraction area. The settlement of Eccles is 269m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.



**Highway access:** The site would access Harling Road (C827), which is a designated lorry route, and travel north to the junction with the A11. An improved access from the site to Harling Road at the junction with Heath Road is proposed. The site is not within an AQMA. The estimated number of HGV movements is 32 per day. The proposed highway access is considered to be suitable by the Highway Authority, subject to appropriate road improvements.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with enclosure. The site is within a wider historic landscape character of 20<sup>th</sup> century agriculture with boundary loss, boundary loss with a relict element and 20<sup>th</sup> century enclosure; agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure. The wider historic landscape character also includes 20<sup>th</sup> century pastoral farming, modern built-up areas of linear settlements and small farm clusters, industry, mineral extraction, leisure/recreation (including the Snetterton Circuit) and woodland (carr woodland and 18<sup>th</sup> to 20<sup>th</sup> century woodland plantation).

The nearest Listed Building is the Grade II\* Church of St Mary which is 470m away. There are 13 Listed Buildings within 2km of the site. Five of these are within the Quidenham Conservation Area which is 1.69km away. The nearest Scheduled Monument is 'Gallows Hill Tumulus' which is 150m away. There are two Scheduled monuments within 2km of the site. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** The site is located within an area of interest, and there are Historic Environment records of isolated multi-period finds and features including a bronze age barrow, within the site boundary, and a possible Roman road adjacent to the boundary. The site is in a wider landscape with a very significant number of finds and features from multiple periods. To the southeast there are a significant number of features and finds from multiple periods including those potentially linked to a medieval settlement and the site of the Bishop's Palace, as well as a number of WWII features related to Snetterton Airfield. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site is a field of rough meadow grass. The site is within the landscape character area described as 'Snetterton Heath Plateau farmland' in the Breckland Landscape Character Assessment.

The site is bounded to the north by a large bund that screens a restored landfill and mineral extraction void. To the west is an area of deciduous woodland on the other side of Heath Road that runs along the western site boundary. Arable countryside is to the south and west. The existing landscape detractors mean that this could not be considered a tranquil, unspoilt area of countryside.

There are several bungalows to the immediate south of the site. Although none of them face the site directly, the site would be noticeable from the garden of at least one. However, the proposal sets the limit of extraction approximately 150 metres from the southern boundary of the site, so as to allow the site to be screened in a way which would not be significantly detrimental to the views from the immediate south.

Further south and to the south-east, there are cottages beside the road on the far side of the railway track. Without appropriate screening, the site would be visible from the upper floors of at least some of these properties. Although the existing bunding already screens out long-range views for them, any new bunding needs to be set back from the southern boundary so as not to have an adverse effect on their views over the field and the woodland to the west. The proposed limit of extraction means that there would be less difference between the views of the existing bunding and those of new bunding from the south and south-east of the site.

A timber yard within the woodland to the west faces the site, although the trees partially screen the views, and the part of the site opposite would not be worked. Users of Heath Lane, which ends for motorised traffic at the bungalows to the south, have medium-to-long-range views across the site.

An application for mineral extractions at this site would require a very carefully designed landscape scheme that addresses the visual impacts that may, unless controlled, potentially affect local residents. Substantial buffer zones would be required comprising advance planting of woodland copses and planting belts (to be retained on site restoration) with screen bunds in place surrounding the immediate area proposed for mineral extraction. The temporary bunds would need to be of adequate height to screen the upper story views from housing and the grading and the profiles, appearance and management of vegetation on temporary bunds would require careful treatment. It is important that these screening features are not visually intrusive as residents would have views of these across the existing agricultural field to the east and south west of the site and also from along the adjacent road.

There are no Public Rights of Way within or adjacent to the site.

**Ecology:** Swangey Fen SSSI is 2.63km from the site boundary and is part of the Norfolk Valley Fens SAC. The site is within the Impact Risk Zone for this SSSI. The SSSI citation states that the site contains an area of species-rich, spring-fed fen. Wet woodland and grassland surround the fen, increasing the interest of the site and helping to maintain a high water-table. The River Thet passes through the SSSI. The proposed extraction site would be worked dry (above the water table) and is located up-gradient of Swangey Fen SSSI. Therefore there would be no adverse effects on the integrity of the SAC.

Kenninghall and Banham Fens with Quidenham Mere SSSI is 2.70km from the site boundary. The SSSI citation states that the site occupies a section of the valley of the River Whittle. It consists of area of tall fen, species-rich fen and calcareous grassland and a deep natural mere. Additional interest is provided by areas of wet woodland and by an area of drier unmanaged fen. The proposed extraction site would be worked dry (above the water table) and is located in a different hydrological catchment to the SSSI. Therefore there would be no adverse impacts to the SSSI.

East Harling Common SSSI is 2.13km from the site boundary. The SSSI citation states that the SSSI is of great importance for its system of periglacial ground ice depressions (pingos) retaining a relict community of aquatic beetles. This includes many species that are nationally scarce or rare. Floristically rich fen, a declining habitat, has developed in and round many of the depressions, and surrounding chalk grassland supports a diversity of plants, several of which are uncommon locally. The proposed extraction site would be worked dry (above the water table) and is located in a different hydrological catchment to the SSSI. Therefore there would be no adverse impacts to the SSSI.

County Wildlife Site CWS 620 'Eccles Wood (north)' is adjacent to the site boundary; it is a recent (probably post-war) woodland dominated by oak and silver birch. CWS 621 'Eccles Wood (middle)' and CWS 622 'Eccles Wood (south)' are both 120m from the site boundary. CWS 621 is a recent woodland of oak and birch with some old hazel coppice. CWS 622 is a mainly broad-leaved semi-natural woodland with some areas of scrub and tall herb fen. The proposed extraction site would be worked dry. A potential impact could be dust deposition from extraction, if uncontrolled. Therefore a dust assessment and identification of appropriate mitigation measures will be required as part of the planning application process, to ensure that the CWSs are not adversely affected.

There are no ancient woodland sites within 3km of the site.

**Geodiversity:** The site consists of the Croxton Sand and gravel member, overlying chalk formations. There is the potential for vertebrate fossils because the site is close to a prolific find spot. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. No areas of the site are at risk of flooding from surface water. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site. The proposed extraction site would be worked dry (above the water table) and therefore no effect on water resources is expected.

**Water Framework Directive:** The site is approximately 1km from the Buckenham Stream, which is the nearest Water Framework Directive waterbody. The groundwater level in this area is many metres below ground level and therefore overland flows are not expected from the site towards the Buckenham Stream. If mineral is extracted from MIN 35, it is expected to be processed on site. Therefore the sand and gravel to be processed would not be transported across the stream. Due to the distance of the site from the Buckenham Stream, it is not expected that there would be a pathway for silt ingress into this waterbody from any future sand and gravel extraction within site MIN 35.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is an underground electricity cable in the north-west corner of the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is not within an aerodrome safeguarding zone.

**Restoration:** The site is proposed to be restored to a low-level for arable agriculture with conservation grassland and woodland planting on the southern boundary. Improving public access within the site should be incorporated into the restoration and aftercare scheme given the nearby location of housing.

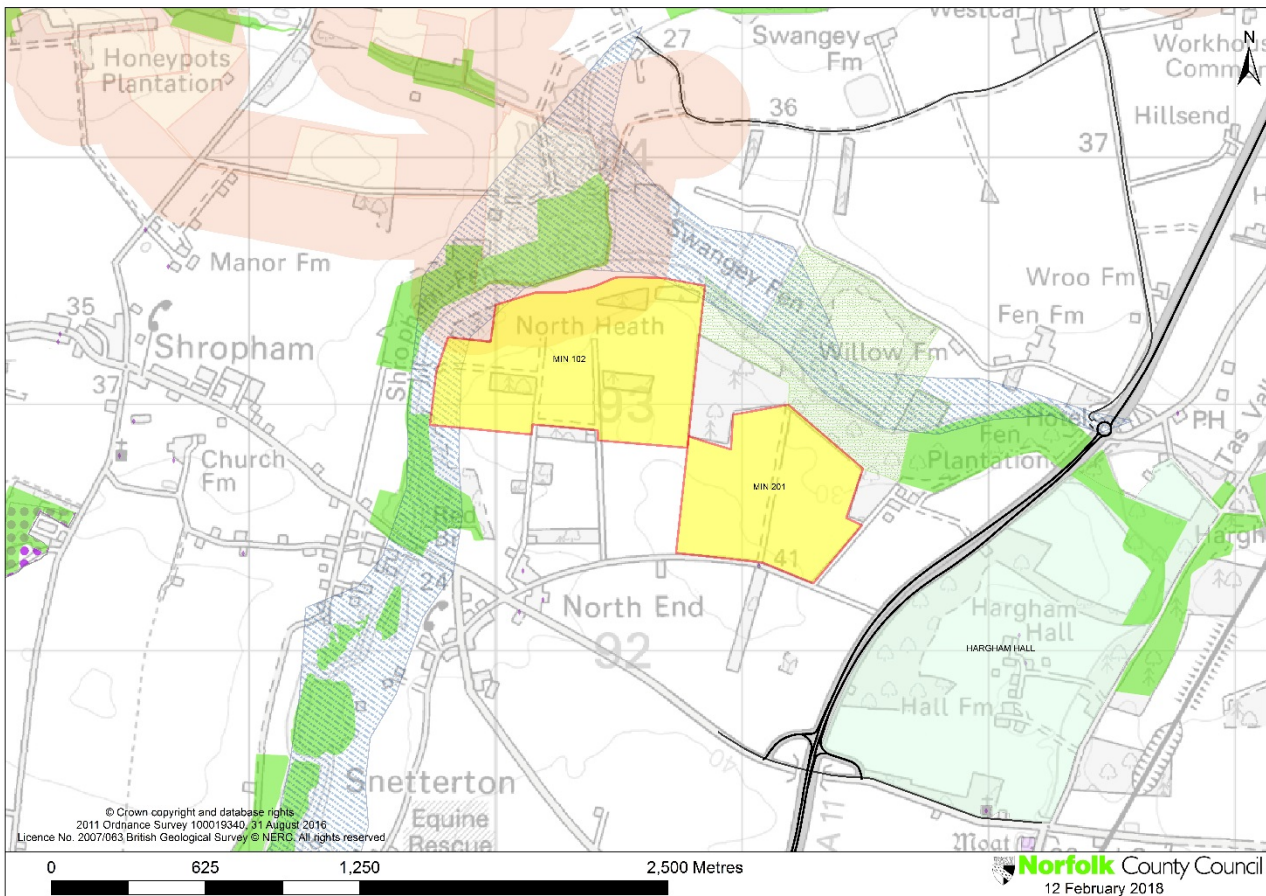
**Initial conclusion:** The site is considered to be suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:

- A Landscape and Visual Impact Assessment which identifies any potential impacts of visual intrusion to local residents and in the wider landscape, and suggests appropriate mitigation measures to be incorporated into a screening scheme, which may include buffers, screening and bunding;
- There must be a 'watching brief' during the extraction phase in case features of potential geodiversity interest are discovered, and ensure appropriate scientific study is permitted during the operational stage;
- Highway access improvements (which may include contributions) to provide a safe access to the road network, to the satisfaction of the Highway Authority;
- Noise and dust assessments and a programme of mitigation measures to deal appropriately with any amenity impacts;
- A progressive restoration scheme to agriculture, including areas of nature conservation and woodland to provide landscape and biodiversity gains;
- Opportunities during working for any geodiversity assets to be studied, and if compatible with the landscape and ecology objectives an open face to be included within any restoration scheme for future scientific study;
- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required; and
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures.

**Question 46: Proposed Site MIN 35 'land at Heath Road, Quidenham' -**

**Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## Map of proposed sites at Snetterton (MIN 102 and MIN 201)



### MIN 102 - land at North Farm, south of the River Thet, Snetterton

#### Site Characteristics

- The 58.21 hectare site is within the parish of Snetterton
- The estimated sand and gravel resource at the site is 980,000 tonnes
- The proposer of the site has estimated the extraction rate to be 35,000 tonnes per annum, but has not given a potential start date for extraction. Based on this information the full mineral resource at the site could be extracted within 28 years. Therefore, 630,000 tonnes could be extracted within the plan period if the site started operating in 2019.
- The site is proposed by the landowner as a new site.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 4.
- The site is 3km from Attleborough and 9.3km from Watton, which are the nearest towns.

**Amenity:** The nearest residential property is 500m from the site boundary. The settlement of Shropham is 690m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. Therefore, no adverse amenity impacts are expected from the proposed mineral extraction.

**Highway access:** The site would require an access road to be formed to the south to form a new access onto the C138 Hargham Road. Quarry traffic would then travel east to the junction with the A11. The position of the access onto Hargham Road has not been provided. The site is not within an AQMA. An estimate of the number of HGV movements per day has not been provided. The proposed highway access using Hargham Road is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is heath, woodland and Twentieth Century agriculture with enclosure and boundary loss with a relict element. The site is within a wider historic landscape character of 20th century agriculture with enclosure, boundary loss and boundary loss with a relict element, 20<sup>th</sup> century pastoral farming, enclosed managed wetland meadow, drained parliamentary fen enclosure and woodland (ancient woodland and 18<sup>th</sup> to 20<sup>th</sup> century plantation woodland). The wider historic landscape character also includes agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure, modern built-up areas of small farm clusters, a reservoir, industry, leisure/recreation and mineral extraction.

The nearest Listed Building is the Grade II North Farmhouse which is 550m away. There are 19 Listed Buildings within 2km of the site. The only Scheduled Monument within 2km of the site is the 'Wayside Cross at the north end of Whitecross Drift' which is 550m away. There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** Historic Environment records of cropmarks and isolated multi period finds, including a round barrow exist within the site boundary, however the site has not been subject to a programme of investigation. The site is in a wider landscape with a very significant number of finds and features from multiple periods, with a number of Bronze age finds and features to the north of the site. To the south there are the remains of a medieval moated enclosure and windmill. To the southeast there are a significant number of features and finds from multiple periods including those potentially linked to a medieval settlement and the site of the Bishop's Palace, as well as a number of WWII features related to Snetterton Airfield. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** Parts of the site are within a Core River Valley; the most significant area is the western flank of the site which is just over 3.5 hectares of the site area. The site is not located within the AONB or any other designated landscape feature. The site is within the landscape character areas described as 'River Thet River Valley' and 'Harling Heathlands (The Brecks)' in the Breckland Landscape Character Assessment.

The site is gently rolling in character, rising up from the north and west to a plateau at the east of the site. The surrounding landscape is predominantly rolling arable farmland. The Thet Valley to the north and west is well wooded. There are also blocks of woodland, most significantly Barnes Wood Plantation to the east of the site. The village of Shropham is to the west and the hamlet of North End is to the south-west. A country road runs on an east-west axis to the south of the site. The Dogs Trust animal rescue centre is located so the south east of the site. To the south of the site is North Farm, there is a facility for training horses. The fields close to the farm are dedicated to horse husbandry, and have a parkland feel. Views from the west, north and east would be largely screened by woodland. The main impact would be on the residents at North Farm and the buildings close-by. However, the combination of landform and woodland would help to minimise the visual impact of mineral extraction on this site.

It is likely that mineral extraction within the areas covered by the Core River Valley designation would be unacceptable due to landscape impacts. Any working scheme should avoid removal of the woodland areas within the site for the same reason. Extraction on the sloping valley of the River Thet is likely to have wider landscape impacts which would be difficult to effectively mitigate through screening.

There are no Public Rights of Way within or adjacent to the site.

**Ecology:** Swangey Fen SSSI is adjacent to the site boundary and is part of the Norfolk Valley Fens SAC. The SSSI citation states that the site contains an area of species-rich, spring-fed fen. Wet

woodland and grassland surround the fen, increasing the interest of the site and helping to maintain a high water-table. The River Thet passes through the SSSI. 56% of Swangey Fen SSSI is currently in an 'unfavourable recovering' condition and 44% is in favourable condition. Mineral extraction in the area adjacent to Swangey Fen SSSI would not be acceptable. The site would need to be worked dry, with a depth of unsaturated material above the water table required as a vertical buffer. The potential exists for adverse impacts from mineral extraction at MIN 102, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application. Any planning application would need to demonstrate that there would be no adverse effects on the integrity of the SAC.

County Wildlife Site CWS 804 'North of Red Bridge' is adjacent to the site boundary; it consists of a mixture of dry and wet woodland, with mature alder carr, with areas of ungrazed grassland and open fen. The potential exists for impacts from mineral extraction at MIN 102, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application.

County Wildlife Site CWS 639 'Fen Plantation' is 150m from the site boundary; it is an area of woodland consisting of alder carr (wet woodland) to the west, grading into drier broad-leaved woodland and then mixed woodland to the east. The potential exists for impacts from mineral extraction at MIN 102, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application.

County Wildlife Site CWS 645 'Old Gravel Works' is 40m from the site boundary; it contains two eutrophic lakes which held a population of Canada Geese when last surveyed. The potential exists for impacts from mineral extraction at MIN 102, if uncontrolled. An assessment of potential hydrogeological impacts, together with appropriate mitigation would be required as part of any planning application.

County Wildlife Site CWS 809 'Shropham Fen' is 100m from the site boundary; it consists of an area of marshy and diverse alder carr with peripheral areas of drier woodland and of species-poor marshy neutral grassland or fen. The potential exists for impacts from mineral extraction at MIN 102, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application.

The nearest ancient woodland sites is an Ancient Semi-Natural Woodland (ASNW) (unnamed) within Shropham parish; it is 1.48km from the site boundary. Due to the distance from the ancient woodland there would be no impacts from dust deposition. An assessment of potential hydrogeological impacts, together with appropriate mitigation would be required as part of any planning application.

**Geodiversity:** The site consists of the Croxton sand and gravel member, Lowestoft formation – diamicton, overlying chalk formations. There is the potential for vertebrate fossils because the site is close to a prolific find spot. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during the operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The majority (97%) of the site is in Flood Zone 1 (lowest risk) for flooding from rivers. A small part of the northern boundary of the site with the River Thet is in Flood Zone 2 (medium risk) and Flood Zone 3 (high risk) for flooding from rivers. The site has a low risk of surface water flooding with a few locations of surface water pooling in a 1 in 30 and 1 in 100 year rainfall event. In a 1 in 1000 year event a surface water flow path develops between the north of the site and the River Thet. Sand and gravel extraction is considered to be a 'water compatible' land use which is

suitable in all flood zones. The site is not in an Internal Drainage Board area; the site boundary with the River Thet is the boundary of the East Harling Internal Drainage Board.

**Hydrogeology:** The site is located partially over a Secondary A aquifer and partially over a Secondary (undifferentiated) aquifer (superficial deposits). The site is also located over a principal aquifer (bedrock). The western part of the site is within groundwater Source Protection Zones 2 and 3. The rest of the site is not within a groundwater SPZ. A planning application for mineral extraction at this site would need to include a Hydrogeological Risk Assessment to identify any potential impacts to groundwater and appropriate mitigation measures.

**Water Framework Directive:** The site is adjacent to the River Thet and Buckenham Stream, which are the nearest Water Framework Directive waterbodies. The groundwater level within mineral workings in this area is several metres below ground level. Therefore, it is not expected that overland flows would take place from the site towards the watercourses. As screening bunds form part of mineral extraction sites if any flow did occur, these bunds would form a barrier that would prevent any flow moving down slope until infiltration took place. MIN 102 is adjacent to the River Thet and Buckenham Stream and the potential for silt ingress to these waterbodies exists, during the extraction phase, although screening bunds would form a physical barrier. Therefore given the likely physical barriers related to mineral operations the potential for silt ingress to nearby watercourses is negligible.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is not within an aerodrome safeguarding zone.

**Restoration:** No restoration proposals for the site have been submitted. A restoration scheme likely to be found acceptable would be agriculture with wide field margins, and enhanced woodland planting to provide biodiversity and ecological gains. Due to the expected depth of extraction, it is recognised that restoration to arable is likely to require the use of imported inert material to provide a suitable profile.

**Initial conclusion:** The site is considered to be unsuitable for allocation because:

- Even though the site was allocated in the Minerals Site Specific Allocations DPD in 2013, there is not a mineral operator promoting the proposed site and therefore the site is less deliverable than other sites that have been proposed for extraction.
- Due to the proximity of the site to Swangey Fen SSSI (part of the Norfolk Valley Fens SAC), whilst it may be technically possible to design a site where there would not be any adverse effects on the SSSI or SAC, this is a significant constraint to the development of the site and therefore the site is considered to be less deliverable than other sites that have been proposed for extraction.

**Question 47: Proposed Site MIN 102 'land at North Farm, Snetterton' -**

**Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## MIN 201 - land at Swangey Farm, north of North Road, Snetterton

### Site Characteristics

- The 38.19 hectare site is within the parishes of Snetterton and Quidenham
- The estimated sand and gravel resource at the site is 590,000 tonnes
- The proposer of the site has given a potential start date of 'as soon as possible' and estimated the extraction rate to be 200,000 to 250,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within 2 to 3 years, which would be within the plan period.
- The site is proposed by Breedon Southern Ltd as a new site.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the northern part of the site as Grade 4 and the southern part of the site as Grade 3.
- The site is 2.6km from Attleborough and 10.2km from Watton, which are the nearest towns.

**Amenity:** The nearest residential property is 119m from the site boundary. There are three sensitive receptors within 250m of the site boundary. The settlement of North End is 831m from the site. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** It is proposed to construct a new access road from the site across the landowner's property to the south to form a new access onto the C138 Hargham Road, which is a designated lorry route close to its junction with the A11. Quarry traffic would then travel east to the junction with the A11. The position of the access onto Hargham Road has not yet been selected by the site proposer. The site is not within an AQMA. The estimated number of HGV movements is 70 per day. A proposed highway access using Hargham Road is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with boundary loss with a relict element and agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure. The site is within a wider historic landscape character of 20<sup>th</sup> century agriculture with enclosure, boundary loss and boundary loss with a relict element, drained parliamentary fen enclosure and 18<sup>th</sup> to 20<sup>th</sup> century plantation woodland. The wider historic landscape character also includes agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure, modern built-up areas of small farm clusters, heath, informal parkland and mineral extraction.

The nearest Listed Building and Scheduled Monument is the 'Wayside Cross at the north end of Whitecross Drift' which is 20m from the site boundary. There are 15 Listed Buildings within 2km of the site. There are 3 Scheduled Monuments within 2km of the site. There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** Historic Environment records of isolated multi-period finds and features exist within the site boundary, including a barrow, these were found during a programme of fieldwalking in the 1990's. The site is in a wider landscape with a very significant number of finds and features from multiple periods, with a number of Bronze age finds and features to the northwest of the site. To the south there are a number of finds from the fieldwalking programme. To the southeast there are a significant number of features and finds from multiple periods including those potentially linked to a medieval settlement and the site of the Bishop's Palace, as well as a number of WWII features related to Snetterton Airfield. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the



planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site is currently an agricultural field. The site is within the landscape character area described as 'Harling Heaths (The Brecks)' in the Breckland Landscape Character Assessment.

The site slopes downwards to the north-east towards Swangey Fen, with the south-western corner being on a relatively flat plateau. The surrounding landscape is predominantly rolling arable farmland. The Thet Valley to the north is well wooded. The southern boundary of the site is bordered by North Road which comes from the hamlet of North End to the west of the site and becomes a private track at the eastern extent of the site. There are a small number of properties in North End and along North Road, including North Farm. The northern boundary of the site is adjacent to Barnes Oak Plantation, and an area of wet woodland within Swangey Fen. There is a small area of woodland within the northern part of the site, and this should be retained. Swangey Farm is located just over 100 metres from the north-eastern corner of the site. The A11 is approximately 290 metres east of the site. The Dogs Trust animal rescue centre is approximately 50 metres south of the south-western corner of the site on the opposite side of North Road.

There are no Public Rights of Way within or adjacent to the site.

**Ecology:** Swangey Fen SSSI is adjacent to the northern site boundary and is part of the Norfolk Valley Fens SAC. The SSSI citation states that the site contains an area of species-rich, spring-fed fen. Wet woodland and grassland surround the fen, increasing the interest of the site and helping to maintain a high water-table. The River Thet passes through the SSSI. 56% of Swangey Fen SSSI is currently in an 'unfavourable recovering' condition and 44% is in favourable condition. Mineral extraction in the area adjacent to Swangey Fen SSSI would not be acceptable. The site would need to be worked dry, with a depth of unsaturated material above the water table required as a vertical buffer. The potential exists for impacts from mineral extraction at MIN 201, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application. Any planning application would need to demonstrate that there would be no adverse effects on the integrity of the SAC.

Old Buckenham Fen SSSI is 2.95km from the site boundary and the site is within the Impact Risk Zone for the SSSI. The SSSI citation states that the central part of this valley fen site consists of a species-rich managed reedbed surrounding a small, natural mere. Around the margins of the fen basin are areas of species-rich scrub, drier fen and cattle-grazed meadows. The meadows are divided by a network of dykes and are used by wading birds. The potential exists for impacts from mineral extraction at MIN 201, if uncontrolled. An assessment of potential hydrogeological impacts, together with appropriate mitigation would be required as part of any planning application.

The nearest County Wildlife Site is CWS 639 'Fen Plantation', which is 150m from the site boundary. The CWS is an area of woodland consisting of alder carr (wet woodland) to the west, grading into drier broad-leaved woodland and then mixed woodland to the east. The potential exists for impacts from mineral extraction at MIN 201, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application.

The nearest ancient woodland site is an Ancient Semi-Natural Woodland (ASNW) (unnamed) within Shropham parish, which is 2.45 km from the site boundary. The potential exists for impacts from mineral extraction at MIN 201, if uncontrolled. An assessment of potential hydrogeological impacts, together with appropriate mitigation would be required as part of any planning application.

**Geodiversity:** The site consists of the Croxton sand and gravel member, overlying chalk formations. There is the potential for vertebrate fossils because the site is close to a prolific find spot. Potential impacts to geodiversity would need to be assessed and appropriate mitigation

identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. The site has a low risk of surface water flooding, with one location of surface water pooling in a 1 in 30 year rainfall event. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no Groundwater Source Protection Zones within the proposed site.

**Water Framework Directive:** The site is approximately 100 metres from the Buckenham Stream which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards the Buckenham Stream. If mineral extraction from site MIN 201 it is expected to be processed on site. Therefore the sand and gravel to be processed would not be transported across this waterbody. MIN 201 is close to the Buckenham Stream. Therefore, mineral extraction would need to be set back from the stream and not take place on the northern part of the site. Screening bunds would also provide a physical barrier during the extraction phase. It is considered that with these measures there would not be a pathway for silt ingress into this waterbody from any future sand and gravel extraction within site MIN 201.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is not within an aerodrome safeguarding zone.

**Restoration:** The site is proposed to be restored to agriculture with some areas of nature conservation.

**Initial conclusion:** The site is considered to be unsuitable for allocation because:

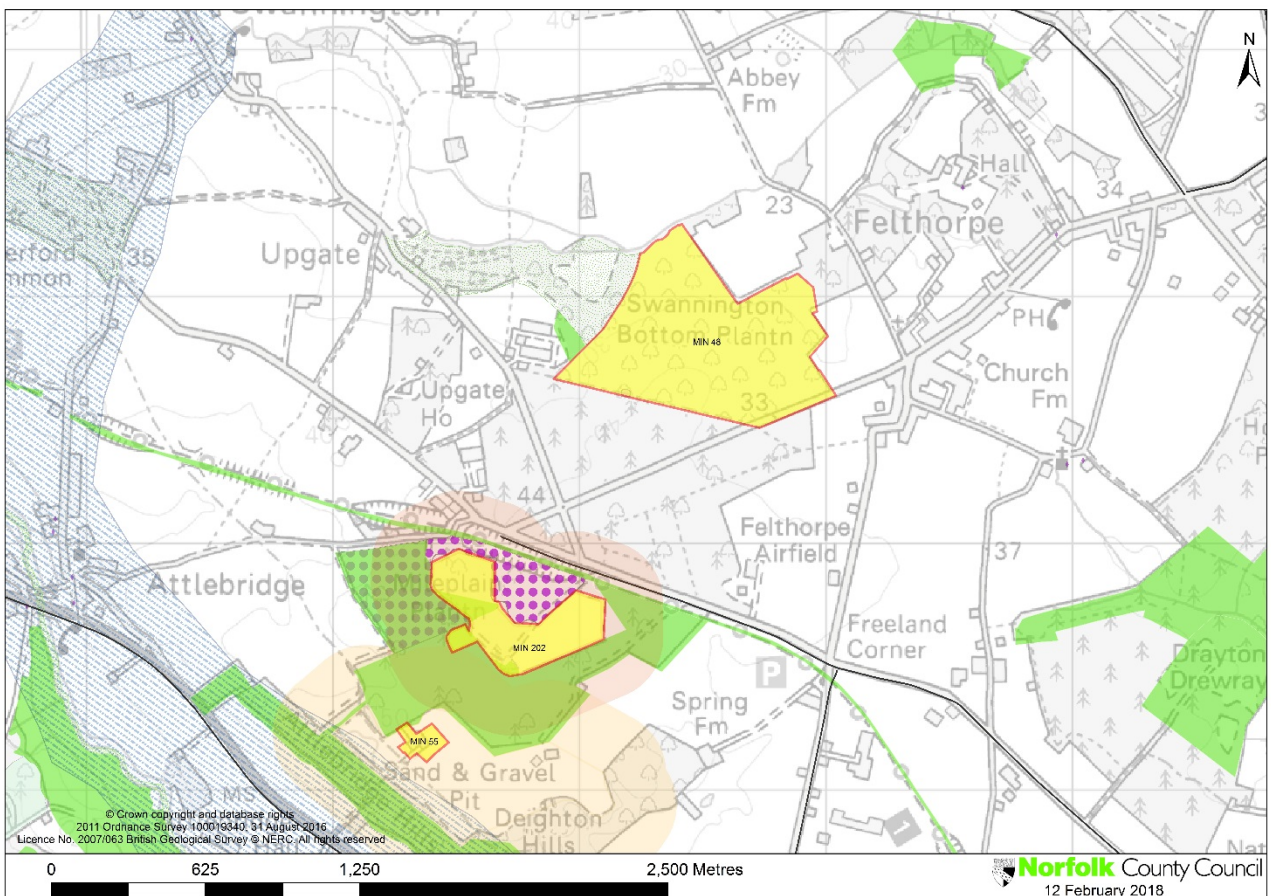
- There is a scheduled monument 20 metres from the southern boundary of the site on the opposite side of North Road; it is considered that the site would be within the setting of this monument and that mineral extraction and the probable location of the processing plant site would harm the setting of the monument and its significance, and cause unacceptable impacts to the historic environment.
- The proposed plant site location is on a barrow site within the south-eastern part of the site; it is considered this would harm the integrity and the setting of the barrow and cause unacceptable impacts to the historic environment.
- Due to the proximity of the site to Swangey Fen SSSI (part of the Norfolk Valley Fens SAC), whilst it may be technically possible to design a site where there would not be any adverse effects on the SSSI or SAC, this is a significant constraint to the development of the site and therefore the site is considered to be less deliverable than other sites that have been proposed for extraction.

**Question 48: Proposed Site MIN 201 'land at Swangey Farm, Snetterton' -**

**Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## Broadland sites

### Map of proposed sites in Attlebridge and Felthorpe (MIN 55, MIN 202, MIN 48)



### MIN 55 - land at Keepers Cottage, Attlebridge

#### Site Characteristics

- The 1.93 hectare site is within the parish of Attlebridge
- The estimated sand and gravel resource at the site is 527,000 tonnes. However, this is based on a very deep extraction which, due to the small area of the site, is not considered to be practicable. At a more reasonable extraction depth, the site would have an estimated mineral resource of less than 200,000 tonnes.
- The proposer of the site has not given a potential start date or an estimated extraction rate for this site. However, due to the size of the site, it is considered that the mineral resource at the site could be extracted within the plan period.
- The site is proposed by the landowner as a new site.
- The site is currently a residential dwelling and its curtilage. The Agricultural Land Classification scheme classifies the land as being partly Grade 3 and partly non-agricultural.
- The site is 1.8 km from the Norwich urban area, but it is outside the Norwich Policy Area.

**Amenity:** The nearest residential property is within the site boundary, this is the only sensitive receptor within 250m of the site boundary. The settlement of Attlebridge is 1.3km away. The existing property would be removed as part of any mineral extraction on the site. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. Therefore, no adverse amenity impacts are expected from the proposed mineral extraction.

**Highway access:** The site could potentially use the existing off-highway haul route to access the C261 Reepham Road (a designated lorry route) at the existing access. The site is not within an AQMA. An estimate of the number of HGV movements per day has not been provided. The proposed highway access is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is not classified. The site is within a wider historic landscape character of 20<sup>th</sup> century agriculture with boundary loss and enclosure, 20<sup>th</sup> century pastoral farming and agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure. The wider historic landscape character also includes enclosed wetland meadow, industry, mineral extraction and 18<sup>th</sup> to 20<sup>th</sup> century plantation woodland.

The nearest Listed Building is the Grade II 'Barn 50m NW of Low Farmhouse' which is 1.1km away. There are 11 Listed Buildings within 2km of the site. The only Scheduled Monument within 2km of the site is the 'Round barrow north of Sandy Lane' which is 1.54km away. There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site. Therefore, no adverse impacts on the historic environment are expected from the proposed mineral extraction.

**Archaeology:** There are no Historic Environment records within the site boundary and the site is currently occupied by buildings, however the lack of HE records may just be due to a lack of investigations. A number of nearby areas have been investigated previously and no archaeological evidence identified. There have been isolated multi-period finds and the location of a deserted medieval settlement, in the wider landscape. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site comprises a domestic dwelling and its immediate curtilage. The site is within the landscape character area described as 'Horsford Woodland Heath Mosaic' in the Broadland Landscape Character Assessment. Locally it is within a wider area of coniferous woodland plantations on former heathland, interspersed with areas of arable farmland. The site lies within an area of former mineral workings which have now been restored by landfill. The site is well screened from public view points and is surrounded by shrubs and a few large trees. Apart from the property itself, the site is remote from property. Provided access could be on the existing off-highway haul route to the Reepham Road, the impact of working this site would be relatively low on the wider countryside.

There are no Public Rights of Way within or adjacent to the site. There is a PRoW close to the southern boundary of the site (Attlebridge RB3 and RB4). Only a narrow glimpse of the site can be seen from these paths.

**Ecology:** The River Wensum SAC is 0.67km from the site boundary and the site is within the Impact Risk Zone for the River Wensum SSSI. The SSSI citation states that the River Wensum is an example of an enriched calcareous lowland river. With over 100 species of plants, a rich invertebrate fauna and a relatively natural corridor, it is probably the best whole river of its type in nature conservation terms. The site is in an elevated position in relation to the River Wensum and any working would therefore be above the water table. Therefore although the site is relatively close to the River Wensum SAC it is considered that mineral extraction would result in no adverse effects on the integrity of the SAC.

Alderford Common SSSI is 2.16km from the site boundary. The SSSI citation states that the site supports a wide range of habitats developed in response to variations in soils and topography. The habitats include species-rich chalk grassland, scrub, woodland, bracken heath, marshy grassland and ponds. There is also a bat roost and an outstanding assemblage of breeding birds. The proposed extraction site would be worked dry (above the water table) and is located in a different hydrological catchment to the SSSI. Therefore the SSSI would not be adversely affected.

Swannington Ugate Common SSSI is 1.69km from the site boundary. The SSSI citation states that the variations in soils and wetness and a variable topography on the site have provided conditions for the development of an exceptionally wide range of semi-natural vegetation including dry acidic heathland, wet heathland with acidic flushes, fen, birch and alder woodland, scrub, bracken, rough grassland and ponds. The proposed extraction site would be worked dry (above the water table) and is located in a different hydrological catchment to the SSSI. Therefore the SSSI would not be adversely affected.

County Wildlife Site CWS 1344 'Triumph and Foxburrow Plantations' is adjacent to the site boundary; it is a mixed broad-leaved woodland with rides. CWS 1343 'Attlebridge Hills' is 140m from the site boundary; it is a broad-leaved semi-natural woodland. The proposed extraction site would be worked dry (above the water table) and therefore the hydrology of the CWS would not be affected. The potential for dust impacts on the adjacent CWS would need to be assessed as part of any future planning application and mitigation measures proposed if necessary.

The nearest ancient woodland site is Mileplain Plantation which is a Plantation on Ancient Woodland Site (PAWS); it is 0.28km from the site boundary. Due to the distance from the ancient woodland site there would be no impacts from dust deposition. The proposed extraction site would be worked dry (above the water table) and therefore the ancient woodland would not be adversely affected.

**Geodiversity:** The site consists of the Sheringham Cliffs formation – sand and gravel, overlying chalk formations. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during the operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. The site has a medium probability of surface water flooding, with areas of surface water pooling on the site in a 1 in 30 year rainfall event and a 1 in 100 year rainfall event. In a 1 in 1000 year rainfall event there are larger areas of surface water pooling and a surface water flow path within the site which cover approximately 25% of the site area. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site. The proposed extraction site would be worked dry (above the water table) and therefore no effect on water resources is expected

**Water Framework Directive:** The site is approximately 700 metres from the River Wensum (Wensum US Norwich) which is the nearest Water Framework Directive waterbody. The groundwater level in this area is many metres below ground level and therefore overland flows are not expected from the site towards the River Wensum. MIN 55 and the existing nearby processing plant, which the sand and gravel could be transported to by internal haul route, are both some distance north of the River Wensum. Therefore the sand and gravel to be processed would not be transported across this waterbody. Due to the distance of the site from the River Wensum, it is not expected that there would be a pathway for silt ingress into this waterbody from any future sand and gravel extraction within site MIN 55.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is within the zone where Norwich Airport must be consulted on developments with the potential to increase the number of birds and the 'bird strike' risk to aircraft. Therefore a Bird Hazard Assessment would be required at the planning application stage.

**Restoration:** No details on proposed restoration of the site have been provided. The preferred restoration would be to heathland. However, the estimated mineral resource at the site (of 527,000 tonnes) is based on a deep extraction which would require materials to be brought on site to enable restoration. Even with the importation of materials, it would be very difficult to restore the proposed mineral working to a suitable landform. A more reasonable extraction depth would reduce the available mineral resource but would make the restoration of the site to a suitable landform easier.

**Initial conclusion:** The site is considered to be unsuitable for allocation because:

- The estimated mineral resource at the site (527,000 tonnes) is based on a very deep extraction which, due to the small area of the site, is not considered to be practicable and would be very difficult to restore to a suitable landform. At a more reasonable extraction depth, the site would have an estimated mineral resource of less than 200,000 tonnes, which is unlikely to be considered viable for a new site.
- There is not a mineral operator promoting the proposed site and therefore the site is less deliverable than other sites that have been proposed for extraction.
- The site is surrounded on most sides by a restored landfill sites and it is considered that this would make the engineering of a mineral extraction site problematic due to the small size of the proposed site.

**Question 49: Proposed Site MIN 55 'land at Keeper's Cottage, Attlebridge' - Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## MIN 202 - land south of Reepham Road, Attlebridge

### Site Characteristics

- The 17.36 hectare site is within the parish of Attlebridge
- The estimated sand and gravel resource at the site is 2,200,000 tonnes. However, this is based on a very deep extraction which, due to the shape and area of the site, may not be practicable to restore to a suitable landform. At a more reasonable extraction depth, the site would have an estimated mineral resource of around 1,000,000 tonnes. 545,000 tonnes of this is already included in the landbank of permitted reserves, although planning permission has now expired for this site as extraction was required to be completed and restored by 08/12/2013 and this has not happened. The site has been partially extracted, but no operations have taken place since 2009.
- The proposer of the site has given a potential start date of 2018 and estimated the extraction rate to be 140,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within 16 years which would be within the plan period.
- The site is proposed by Cemex UK Materials Ltd as a depth extension to a previously permitted and partially extracted site.
- The site is a partially extracted mineral site, and woodland plantation. The Agricultural Land Classification scheme classifies the land as being non-agricultural.
- The site is 1.7km from the Norwich urban area, but it is outside the Norwich Policy Area.

**Amenity:** The nearest residential property is 126m from the site boundary. There are five sensitive receptors within 250m of the site boundary. The settlement of Update is 1km away and Attlebridge is 1.3km away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** This site would use the existing haul route to access the C261 Reepham Road (a designated lorry route) at the existing access. The site is not within an AQMA. The estimated number of HGV movements is 76 (in and out). The proposed highway access is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is Twentieth century agriculture with enclosure. The site is within a wider historic landscape character of 20<sup>th</sup> century agriculture with enclosure, boundary loss and boundary loss with a relict element. The wider historic landscape character also includes agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure, a common, mineral extraction, 18<sup>th</sup> to 20<sup>th</sup> century plantation woodland, and a civilian airfield.

The nearest Listed Buildings are the Grade II\* Church of St Andrew and Grade II Church Farmhouse, which are 1.45km away. There are 9 Listed Buildings within 2km of the site. The only Scheduled Monument within 2km of the site is 'Round Barrow North of Sandy Lane' which is 810m away. There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** There are no Historic Environment records within the site boundary, however the lack of HE records may just be due to a lack of investigations. A number of nearby areas have been investigated previously and no archaeological evidence identified. There have been isolated multi-period finds and the location of a deserted medieval settlement, in the wider landscape. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology

assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site is a partially extracted mineral site and a woodland plantation. The site is within the landscape character area described as 'Horsford Woodland Heath Mosaic' in the Broadland Landscape Character Assessment. The site is screened from views in all directions by woodland, the woodland surrounding the northwest segment of the site is a Plantation on Ancient Woodland (PAWs). Marriott's Way is located immediately north of the woodland, and is crossed by the access road. The potential for impacts on this amenity trail would need to be considered as part of any future application. The estimated mineral resource of 2.2 million tonnes is based upon a deep extraction. It is likely to be difficult to suitably restore a very deep extraction on this site. Therefore the exact depth of a suitable extraction will need to be determined at the planning application stage.

There are no Public Rights of Way within or adjacent to the site.

**Ecology:** The site is 1.15km from the River Wensum SAC and is within the Impact Risk Zone for the River Wensum SSSI. The SSSI citation states that the River Wensum is an example of an enriched calcareous lowland river. With over 100 species of plants, a rich invertebrate fauna and a relatively natural corridor, it is probably the best whole river of its type in nature conservation terms. The site is in an elevated position in relation to the River Wensum and any working would be above the water table. Therefore it is considered that mineral extraction would result in no adverse effects on the integrity of the SAC.

Swannington Update Common SSSI is 0.96km from the site boundary. The SSSI citation states that the variations in soils and wetness and a variable topography on the site have provided conditions for the development of an exceptionally wide range of semi-natural vegetation including dry acidic heathland, wet heathland with acidic flushes, fen, birch and alder woodland, scrub, bracken, rough grassland and ponds. The proposed extraction site would be worked dry (above the water table) and is located up-gradient of the SSSI. Therefore the SSSI would not be adversely affected.

Alderford Common SSSI is 1.73km from the site boundary. The SSSI citation states that the site supports a wide range of habitats developed in response to variations in soils and topography. The habitats include species-rich chalk grassland, scrub, woodland, bracken heath, marshy grassland and ponds. There is also a bat roost and an outstanding assemblage of breeding birds. The proposed extraction site would be worked dry (above the water table) and is located up-gradient of the SSSI. Therefore the SSSI would not be adversely affected.

County Wildlife Site CWS 1344 'Triumph and Foxburrow Plantations' is partially within the site; it is a mixed broad-leaved woodland with rides. CWS 2176 'Marriott's Way' is 50m from the site boundary; it follows a disused railway line with an unvegetated central track. Trees and scrub are the dominant vegetation of the track edges, forming an almost continuous corridor as far as Reepham. The site would be worked dry (above the water table) and therefore no adverse effects on the hydrology of the CWSs are expected. A potential impact could be dust deposition from extraction, if uncontrolled. Therefore a dust assessment and identification of appropriate mitigation measures will be required as part of the planning application process, to ensure that the CWSs are not adversely affected.

The nearest ancient woodland site is Mileplain Plantation, which is a Plantation on Ancient Woodland Site (PAWS) and is adjacent to the site boundary. The site would be worked dry (above the water table) and therefore no adverse effects on the hydrology of the PAWS are expected. A potential impact could be dust deposition from extraction, if uncontrolled. Therefore a dust assessment and identification of appropriate mitigation measures will be required as part of the planning application process, to ensure that the PAWs is not adversely affected.

**Geodiversity:** The site consists of the Sheringham Cliffs formation - sand and gravel, overlying Wroxham Crag. There is significant potential for vertebrate fossils within the Wroxham Crag.



Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. The site has a low probability of surface water flooding, with small areas of surface water pooling in a 1 in 1000 year rainfall event. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site. The site would be worked dry (above the water table) and therefore no effect on water resources is expected.

**Water Framework Directive:** The site is approximately 1.2km from Swannington Beck and 1.1km from the River Wensum (Wensum US Norwich) which are the nearest Water Framework Directive waterbodies. The groundwater level in this area is many metres below ground level and therefore overland flows are not expected from the site towards Swannington Beck or the River Wensum. If mineral is extracted from MIN 202 it is expected to be processed on site, therefore the sand and gravel to be processed would not be transported across these watercourses. Due to the distance of the site from Swannington Beck and the River Wensum, it is not expected that there would be a pathway for silt ingress into these waterbodies from any future sand and gravel extraction within site MIN 202.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is within the zone where Norwich Airport must be consulted on developments with the potential to increase the number of birds and the 'bird strike' risk to aircraft. Therefore a Bird Hazard Assessment would be required at the planning application stage.

**Restoration:** The site is proposed to be restored to a combination of acid grassland, woodland planting and shallow wetland/pond. However, a heathland restoration would be suitable for this location. The depth of working will need to take into account how a suitable landform and habitat can be created on restoration. However, the estimated mineral resource at the site (of 2,200,000 tonnes) is based on a deep extraction. Even with the importation of materials, it would be very difficult to restore the proposed mineral working to a suitable landform. A more reasonable extraction depth would reduce the available mineral resource but would make the restoration of the site to a suitable landform easier.

**Initial conclusion:** The site is considered to be suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:

- Noise and dust assessments and a programme of mitigation measures to deal appropriately with any amenity impacts and the risks of dust deposition to habitats;
- A progressive restoration scheme to a nature conservation afteruse to provide landscape and biodiversity gains;
- The depth of working to be above the water table and to enable restoration to a suitable landform and habitat for this location;
- Opportunities during working for any geodiversity assets to be studied, and if compatible with the landscape and ecology objectives an open face to be included within any restoration scheme for future scientific study;
- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required;
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field

surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures; and

- Use of the existing access to the highway, subject to assessment of the potential impact of traffic crossing Marriott's Way and appropriate mitigation measures.

**Question 50: Proposed Site MIN 202 'land south of Reepham Road, Attlebridge' - Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## MIN 48 - land at Swannington Bottom Plantation, Felthorpe

### Site Characteristics

- The 51.62 hectare site is within the parish of Felthorpe
- The estimated sand and gravel resource at the site is 1,900,000 tonnes
- The proposer of the site has not given a potential start date or an estimated extraction rate for this site. Therefore, it cannot be ascertained what contribution this site would make to maintaining a steady and adequate supply of mineral during the Plan period to 2036.
- The site is proposed by the landowner as a new site.
- The site is currently a plantation woodland.
- The Agricultural Land Classification scheme classifies the land as being non-agricultural land
- The site is 2.3km from the Norwich urban area, but it is outside the Norwich Policy Area.

**Amenity:** The nearest residential property is 198m from the site boundary. There are seven sensitive receptors within 250m of the site boundary. The settlement of Felthorpe is 198m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The proposed access route would use an existing plantation track, then turn left onto Swannington Uppgate Road (C463) and right onto the Felthorpe Road (C245), and left onto the Reepham Road (C260) (a designated lorry route). An estimate of the number of HGV movements per day has not been provided. The Highway Authority has concerns about the local highway network which is sub-standard and narrow. A highway routing agreement would be required to prevent HGV quarry traffic from travelling through Felthorpe or Swannington Uppgate. A contribution would be required from any developer of this site for any highway improvements required by the Highway Authority to ensure suitable highway access and safety.

**Historic environment:** The historic landscape character of the site is 18<sup>th</sup> to 20<sup>th</sup> Century woodland plantation. The site is within a wider historic landscape character of 20<sup>th</sup> century agriculture with boundary loss and boundary loss with a relict element, and 20<sup>th</sup> century pastoral farmland. The wider historic landscape character also includes agriculture with 18<sup>th</sup> to 20<sup>th</sup> century piecemeal enclosure, a common, a civilian airfield, enclosed wetland meadow, and 18<sup>th</sup> to 20<sup>th</sup> century plantation woodland.

The nearest Listed Building is the Grade II Felthorpe Hall which is 760m away. There are 7 Listed Buildings within 2km of the site. There is a Scheduled Monument within the site, which is the 'Round barrow north of Sandy Lane'. It is the only Scheduled Monument within 2km of the site. There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** The site is located within an area of interest, and there are Historic Environment records of a feature comprising a bronze age barrow, within the site boundary. This barrow is a Scheduled Monument. The site is in a wider landscape with a significant number of finds and features from multiple periods. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site is a coniferous plantation with a broadleaf edge and some regenerating broadleaf understorey. The site is within the landscape character area described as 'Horsford

Woodland Heath Mosaic' in the Broadland Landscape Character Assessment. It is within a wider area of coniferous woodland plantations on former heathland interspersed with areas of arable farmland.

The eastern edge of the site is visible from Felthorpe Road and the southern edge from the public right of way (PROW) Felthorpe RB7. In addition, intermittent views of the northern edge of the plantation can be seen from Mill Lane. The site is remote from settlement, the nearest properties being approximately 300m to the north on Mill Lane. In landscape terms, a well-designed working which retained a woodland screen would have a relatively low impact in landscape terms. Subject to margins, gradients and land use, it should be possible to achieve an acceptable low level restoration on this site, potentially heathland. A heathland restoration would return the site to the land use prior to the planting of the coniferous woodland.

There is a Public Right of Way along the southern boundary of the site (Felthorpe RB7).

**Ecology:** The site is 2.22km from the River Wensum SAC and is within the Impact Risk Zone for the River Wensum SSSI. The SSSI citation states that the River Wensum is an example of an enriched calcareous lowland river. With over 100 species of plants, a rich invertebrate fauna and a relatively natural corridor, it is probably the best whole river of its type in nature conservation terms. The site is in an elevated position in relation to the River Wensum and any working is likely to be above the water table. Therefore it is considered that mineral extraction would result in no adverse effects on the integrity of the SAC, provided that dewatering is not required.

The site is 3.46km from Buxton Heath SSSI which is part of the Norfolk Valley Fens SAC. It is outside the Impact Risk Zone for this SSSI.

Swannington Uppgate Common SSSI is adjacent to the site boundary. The SSSI citation states that the variations in soils and wetness and a variable topography on the site have provided conditions for the development of an exceptionally wide range of semi-natural vegetation including dry acidic heathland, wet heathland with acidic flushes, fen, birch and alder woodland, scrub, bracken, rough grassland and ponds. The potential exists for impacts from mineral extraction at MIN 48, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application.

Alderford Common SSSI is 1.82km from the site boundary. The SSSI citation states that the site supports a wide range of habitats developed in response to variations in soils and topography. The habitats include species-rich chalk grassland, scrub, woodland, bracken heath, marshy grassland and ponds. There is also a bat roost and an outstanding assemblage of breeding birds. Whilst the site is within the Impact Risk Zone for this SSSI, provided that no dewatering is proposed as part of the working scheme, no impacts on this SSSI are expected.

County Wildlife Site CWS 1348 'Land adjoining Swannington Bottom Plantation' is adjacent to the site boundary; it is a silver birch and young oak dominated woodland. The potential exists for impacts from mineral extraction at MIN 48, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application.

The nearest ancient woodland site is Mileplain Plantation which is a Plantation on Ancient Woodland Site (PAWS) and is 0.75km from the site boundary. Due to this distance, provided that no dewatering is proposed as part of the working scheme, no impacts on this PAWS are expected.

**Geodiversity:** The site consists of Head deposits - clay, silt and gravel, which are priority features due to their method of formation; Sheringham Cliffs formation-sand and gravel, and Britons Lane sand and gravel member, overlying chalk formations in the west and Wroxham Crag in the east. There is significant potential for vertebrate fossils within the Wroxham Crag. The Britons Lane sands and gravels are known to contain priority features such as palaeosols and erratics in other locations, and therefore they may occur on this site. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be

useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The rest of the site is not in an Internal Drainage Board area. The site is in Flood Zone 1 (lowest risk) for flooding from rivers. The site has a low probability of surface water flooding, with one location of surface water pooling in a 1 in 1000 year rainfall event. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The northern boundary of the site, adjacent to the watercourse, is within the Norfolk Rivers Internal Drainage Board area.

**Hydrogeology:** The site is located over both Secondary A and B aquifers (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.

**Water Framework Directive:** The site is adjacent to Swannington Beck and 2.2km from the River Wensum (Wensum US Norwich) which are the nearest Water Framework Directive waterbodies. The groundwater level in this area is many metres below ground level and therefore overland flows are not expected from the site towards the River Wensum. MIN 48 is adjacent to Swannington Beck and the potential for silt ingress to this waterbody exists, during the extraction phase if uncontrolled, although screening bunds would form a physical barrier. Setting the working area of the site back from Swannington Beck would reduce this risk. Therefore, given a standoff distance to the Swannington Beck and the likely physical barriers related to mineral operations the potential for silt ingress to nearby Swannington Beck is negligible. Appropriate assessment and mitigation measures would form part of any future planning application to control any fugitive emissions of dust from the site to acceptable levels. If mineral is extracted from MIN 48 it is expected to be processed on site, therefore the sand and gravel to be processed would not be transported across these watercourses.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is within the zone for Felthorpe Airfield where Felthorpe Flying Group should be consulted on all development. The site is within the zone where Norwich Airport must be consulted on developments with the potential to increase the number of birds and the 'bird strike' risk to aircraft. Therefore a Bird Hazard Assessment would be required at the planning application stage.

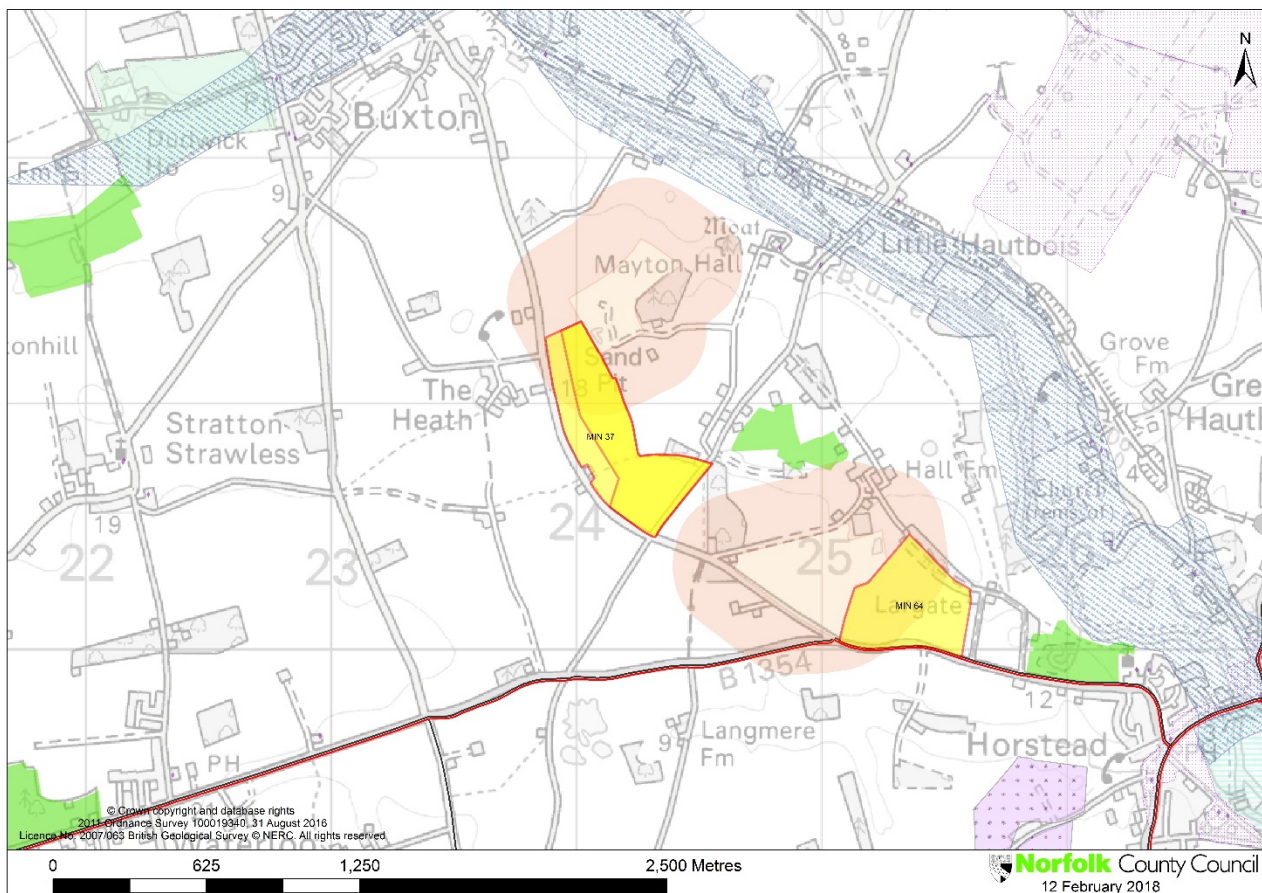
**Restoration:** The site is proposed to be restored to a heathland habitat. This could provide a southern extension of the Swannington Upgate Common and result in biodiversity and ecological gains.

**Initial conclusion:** The site is considered to be unsuitable for allocation because:

- Even though the site was allocated in the Minerals Site Specific Allocations DPD in 2013, there is still not a mineral operator promoting the proposed site and therefore the site is less deliverable than other sites that have been proposed for extraction.

**Question 51: Proposed Site MIN 48 'land at Swannington Bottom Plantation, Felthorpe' - Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## Map of proposed sites MIN 37 (Frettenham and Buxton) and MIN 64 (Horstead)



### MIN 37 - land at Mayton Wood, Coltishall Road, Buxton

#### Site Characteristics

- The 23.5 hectare site is within the parishes of Frettenham and Buxton with Lammas.
- The estimated sand and gravel resource at the site is 1,450,000 tonnes.
- The proposer of the site has given a potential start date of 2018 and estimated the extraction rate to be 85,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted in just over seventeen years, which would be within the plan period.
- The site is proposed by Frimstone Ltd as an extension to an existing site.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 3.
- The site is 6.2km from Aylsham and 8.9km from North Walsham, which are the nearest towns. The site is 7.2km from the Norwich urban area and it is outside the Norwich Policy Area.

A reduced extraction area has been proposed of 17.36 hectares. This would provide a standoff area for the dwellings along the Coltishall Road.

**Amenity:** The nearest residential property is 15m from the site boundary. There are 18 sensitive receptors within 250m of the site boundary. The settlement of Buxton is 1.1km away. However, the proposed extraction area is set back from Coltishall Road and the nearest residential property is 96m from the extraction area. There are 12 sensitive receptors within 250m of the proposed extraction area. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be

within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site would use the existing access route, east from the site on the C494 Coltishall Road and then onto the B1354 which is designated as a main distributor route in the route hierarchy. The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period. The estimated number of HGV movements is 40 per day. The proposed highway access using Coltishall Road is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is agriculture with 18<sup>th</sup> to 19<sup>th</sup> Century piecemeal enclosure. The site is within a wider historic landscape character of 20<sup>th</sup> century agriculture with enclosure, boundary loss, and boundary loss with a relict element. The wider historic landscape character also includes agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure, enclosed wetland meadow, mineral extraction, leisure/recreation, and 18<sup>th</sup> to 20<sup>th</sup> century plantation woodland.

The nearest Listed Building is the Grade II Mayton Hall which is 870m away. There are 35 Listed Buildings within 2km of the site. There are 2 Scheduled Monuments within 2km of the site. Great Hautbois old Church is 1.63km away and the 'Roman camp and Settlement site West of Horstead' is 1.71km away. RAF Coltishall Conservation Area is 1.67km from the site. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** There are no Historic Environment records within the site boundary, however this may just be due to a lack of investigations. The site is in a wider landscape with a significant number of finds and features from multiple periods, including Bronze Age features and a post-medieval fairground and market. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site comprises gently undulating arable land. The site is within the landscape character area described as 'Bure River Valley' in the Broadland Landscape Character Assessment. The site lies within a wider arable plateau above the River Bure. There is a restored landfill site to the east and an active mineral working to the north east.

The site lies approximately 0.75km from the edge of Buxton village to the north, but is immediately opposite five isolated properties which lie along Buxton Road. The site would be difficult to screen from upstairs views from these properties, without a suitable standoff area incorporating advanced planting. Screening should take the form of tree belts with hedgerows closest to the boundaries of the site. This screening has the potential to provide a long term landscape gain by mitigating the differences in landform between the domed landfill and the mineral allocation. Any screening should make use of native species wherever possible; as an overuse of conifers in the landscape would be intrusive in its own right.

There is a Public Right of Way crossing the site (Frettenham FP2).

**Ecology:** The site is 4.23km from Crostwick Marsh SSSI, which is part of the Broads SAC, Broadland SPA and Ramsar site. It is outside the Impact Risk Zone for this SSSI, therefore no impacts on this site are expected.

There are no SSSIs within 4km of the site boundary and the site is not within the Impact Risk Zone for any SSSI. Therefore no impacts on SSSIs are expected.

The nearest County Wildlife Site is CWS 1411 'Disused Gravel Pit' which is 90m from the site boundary. The CWS includes areas of broadleaved semi-natural woodland, acid grassland, scrub and sparsely vegetated bare mineral soils. The potential exists for impacts from mineral extraction at MIN 37, if uncontrolled. An assessment of potential impacts, including from dust deposition, together with appropriate mitigation would be required as part of any planning application.

The nearest ancient woodland site is Clamp Wood which is a Plantation on Ancient Woodland Site (PAWS) and Ancient Semi-Natural Woodland (ASNW); it is 2.25km from the site boundary. Due to the distance from the ancient woodland site there would be no impacts from dust deposition. Due to the distance from the ancient woodland there would be no impacts from dust deposition. The proposed extraction site would be worked dry (above the water table) and therefore the ancient woodland would not be adversely affected.

**Geodiversity:** The site consists of the Happisburgh glacial formation-sand and gravel, overlying Wroxham Crag-sand and gravel. There is significant potential for vertebrate fossils within the Wroxham Crag. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during the operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. The site has a low risk of surface water flooding, with a two locations of surface water pooling in a 1 in 30 rainfall event. In a 1 in 1000 year rainfall event there is a surface water flow path across the widest part of the site west-east. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is partially located over a Secondary B aquifer (superficial deposits) and a principal aquifer (bedrock). The southern part of the site is within groundwater Source Protection Zone 3. The northern part of the site is not within a groundwater SPZ. The proposed extraction site would be worked dry (above the water table) and therefore no effect on water resources is expected.

**Water Framework Directive:** The site is approximately 1km from the River Bure which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards the River Bure. MIN 37 and the existing adjacent processing plant, which the sand and gravel would be transported to by internal haul route, are both a considerable distance west of the River Bure. Therefore the sand and gravel to be processed would not be transported across this waterbody. Due to the distance of the site from the River Bure, it is not expected that there would be a pathway for silt ingress into this waterbody from any future sand and gravel extraction within site MIN 37.

**Utilities infrastructure:** There are no Anglian Water sewerage assets within the site. There is a water main within the site and Anglian Water would require the standard protected easement widths for the water main and for any requests for alteration or removal to be conducted in accordance with the Water Industry Act 1991. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is within the zone where Norwich Airport must be consulted on developments with the potential to increase the number of birds and the 'bird strike' risk to aircraft. Therefore a Bird Hazard Assessment would be required at the planning application stage.

**Restoration:** The restoration proposal is for a low level restoration with some inert fill to provide an acceptable landform. The site would be restored to a mix of agricultural land, grassland, and some woodland. The proposer of the site has indicated that there may be the possibility of some enhanced public access to the site, as part of the restoration.

**Initial conclusion:** The site is considered to be suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:



- A screening scheme which will include mitigation of views, by a combination of advance planting and bunds, from the five properties along the Buxton Road, the PROW and surrounding roads and protection of the setting of nearby listed buildings;
- Noise and dust assessments and a programme of mitigation measures to deal appropriately with any amenity impacts;
- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required;
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures;
- A scheme of working, including progressive restoration to a lower level with final restoration to add ecological interest and to mitigate landscape impacts, preferably by retention of the planting and creation of acid grassland/heathland;
- Restoration of the extraction void to use the importation of inert materials only;
- There must be a limit to the depth of extraction to ensure that the working is above the maximum level of the groundwater to protect the integrity of the Broadland Ramsar and The Broads SAC;
- Opportunities during working for any geodiversity assets to be studied and if compatible with the landscape and ecology objectives, an open face to be included within a restoration scheme for future scientific study; and
- Access to be along the existing route, and contributions to any highway improvements which would be required by the Highway Authority to ensure highway safety.

**Question 52: Proposed Site MIN 37 'land at Mayton Wood, Coltishall Road, Buxton' - Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## MIN 64 - land at Grange Farm, Buxton Road, Horstead

### Site Characteristics

- The 16.76 hectare site is within the parish of Horstead with Stanninghall
- The estimated sand and gravel resource at the site is 650,000 tonnes
- The proposer of the site has given a potential start date of 2020 and estimated the extraction rate to be 50,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within 13 years, which would be within the plan period.
- The site is proposed by Longwater Gravel Co Ltd as an extension to an existing site.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 3
- The site is 7.9km from Aylsham and 9.3km from North Walsham, which are the nearest towns. The site is 6.9km from the Norwich urban area and it is outside the Norwich Policy Area.

**Amenity:** The nearest residential property is 61m from the site boundary. There are four sensitive receptors within 250m of the site boundary. The settlement of Horstead is 453m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site would use the existing access route from the adjacent site onto the B1354 which is designated as a main distributor route in the route hierarchy, and then onto the A140. The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period. The estimated number of HGV movements is 6 per day. The current working is limited by condition within its planning permission to a maximum extraction volume of 50,000 tonnes per annum and this would continue. A highway routing agreement would be required. The proposed highway access is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with enclosure. The site is within a wider historic landscape character of 20<sup>th</sup> century agriculture with enclosure and boundary loss, agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure, and drained enclosed rectilinear grazing marsh (17<sup>th</sup> to 20<sup>th</sup> century enclosure). The wider historic landscape character also includes enclosed wetland meadow, mineral extraction, informal parkland, leisure/recreation, and 18<sup>th</sup> to 20<sup>th</sup> century plantation woodland.

The nearest Listed Buildings is the Grade II\* Church of St Theobald (which is also a Scheduled Monument) and is 580m away. There are 46 Listed Buildings within 2km of the site. 22 of these are within Coltishall and Horstead Conservation Area which is 850m from the site. RAF Coltishall Conservation Area is 1.29km from the site. The nearest Scheduled Monument is the 'Roman camp and settlement site west of Horstead' which is 460m away. There are 3 Scheduled Monuments within 2km of the site. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** The site is located within an area of interest, and there are Historic Environment records of isolated multi period finds and features including a probable bronze age barrow, within the site boundary. The site is close to the boundary of the historic parkland associated with Horstead Hall and is in a wider landscape with a significant number of finds and features from multiple periods. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The

archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site is a large flat arable field. The site is within the landscape character area described as 'Bure River Valley' in the Broadland Landscape Character Assessment. The site adjoins a permitted area of mineral working and lies within a wider area of arable farmland.

Whilst it should be possible to design a scheme of working to reduce the landscape impact of working this land, the removal of field boundary hedgerows and trees would have a high landscape impact and should be avoided. It would be important that any planting reinforces and enhances the existing hedgerows. A tree belt should be planted at the eastern end to mitigate any landscape and amenity impacts to Larget Farm and the users of the PROW. Any agricultural land within a restoration scheme should incorporate wide field margins and the retention of the screen planting to provide long term landscape and biodiversity benefits. These long term benefits may help to mitigate the future working.

There are no Public Rights of Way within the site. There is a PROW (Horstead with Stanninghall BR3) close to the eastern boundary of the site.

**Ecology:** The site is 3.39km from Crostwick Marsh SSSI, which is part of The Broads SAC, Broadland SPA and Ramsar site. It is outside the Impact Risk Zone for this SSSI, therefore no impacts on this site are expected.

There are no SSSIs within 3km of the site boundary and the site is not within the Impact Risk Zone for any SSSI. Therefore no impacts on SSSIs are expected.

County Wildlife Site CWS 1409 'Land adj. All Saint's Church' is 270m from the site boundary; it is a semi-improved neutral-acidic grassland with a diversity of forb species (herbaceous flowering plants) with a central oak and sycamore woodland. The proposed extraction site would be worked dry (above the water table), therefore, due to this distance, no impacts on this CWS are expected.

CWS 1411 'Disused Gravel Pit' is 400m from the site boundary; it includes areas of broadleaved semi-natural woodland, acid grassland, scrub and sparsely vegetated bare mineral soils. The proposed extraction site would be worked dry (above the water table), therefore due to this distance, no impacts on this CWS are expected.

The nearest ancient woodland site is Clamp Wood which is an Ancient Semi-Natural Woodland (ASNW) and Plantation on Ancient Woodland Site (PAWS); it is 1.6km from the site boundary. Due to the distance from the ancient woodland there would be no impacts from dust deposition. The proposed extraction site would be worked dry (above the water table) and therefore the ancient woodland would not be adversely affected.

**Geodiversity:** The site consists of Head deposits - clay, silt and gravel, which are priority features due to their method of formation; Happisburgh glacial formation - sand and gravel, overlying Wroxham Crag - sand and gravel. There is significant potential for vertebrate fossils within the Wroxham Crag. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during the operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. The site has a low risk of surface water flooding, with one location of surface water pooling in a 1 in 30 year rainfall event which extends in both the 1 in 1000 and 1 in 1000 year rainfall event. There are and two additional locations of surface water pooling in a 1 in 1000 year rainfall event. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is partially located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). The site is within groundwater Source Protection Zone 3. A planning

application for mineral extraction at this site would need to include a Hydrogeological Risk Assessment to identify any potential impacts to groundwater and appropriate mitigation measures.

**Water Framework Directive:** The site is approximately 200 metres from the River Bure which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards the River Bure. MIN 64 and the existing adjacent processing plant, which the sand and gravel would be transported to by internal haul route, are both some distance west of the River Bure. Therefore the sand and gravel to be processed would not be transported across this waterbody. Due to the distance of the site from the River Bure, it is not expected that there would be a pathway for silt ingress into this waterbody from any future sand and gravel extraction within site MIN 64.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is within the zone where Norwich Airport must be consulted on developments with the potential to increase the number of birds and the 'bird strike' risk to aircraft. Therefore a Bird Hazard Assessment would be required at the planning application stage.

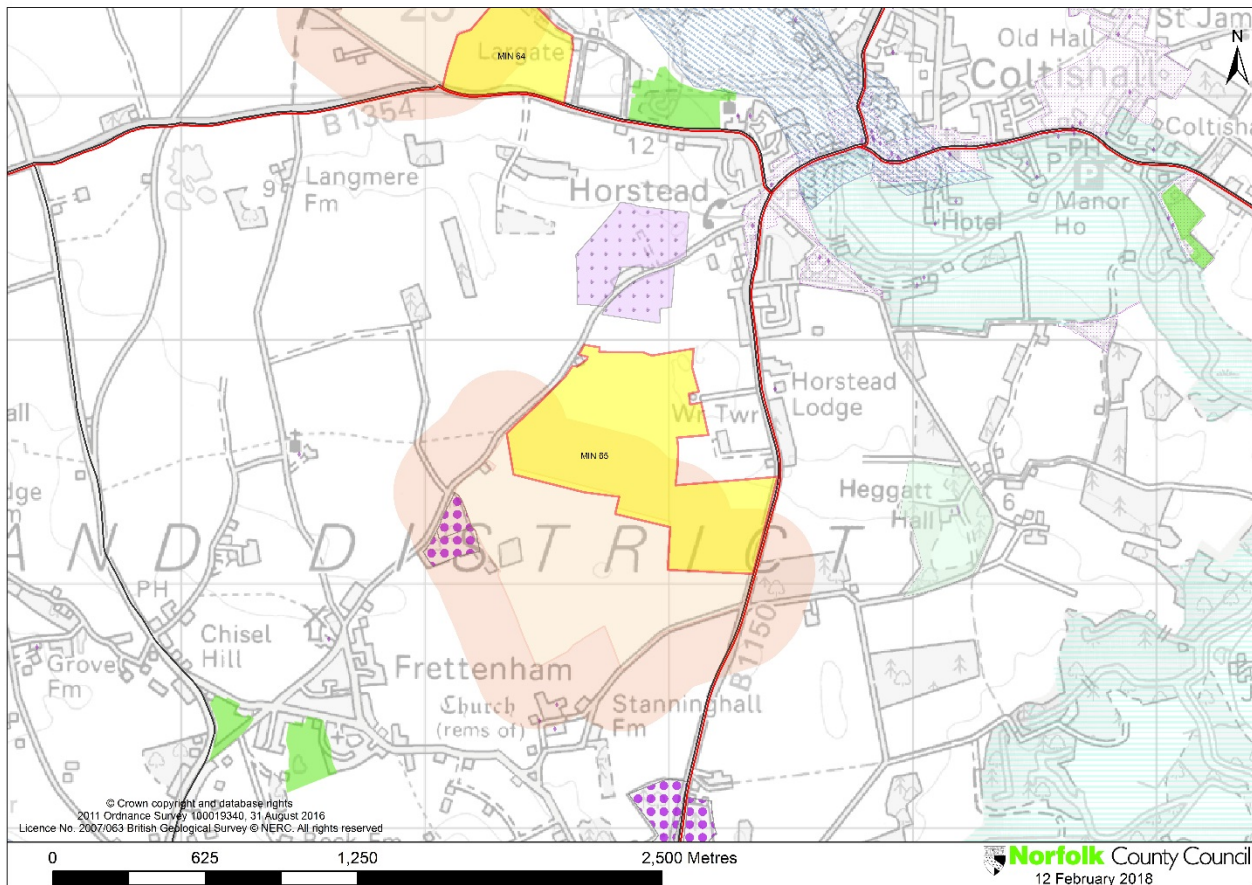
**Restoration:** A restoration scheme which incorporates agricultural land with wide field margins, hedgerow formation, tree planting; including retention of screen planting; is likely to provide appropriate landscape and biodiversity gains.

**Initial conclusion:** The site is considered to be suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:

- A limit on the total annual extraction volume to a maximum of 50,000 tonnes per annum;
- A screening scheme which will include mitigation of views from nearby properties, and surrounding roads;
- Noise and dust assessments and a programme of mitigation measures to deal appropriately with any amenity impacts;
- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required;
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures;
- A maximum depth of working to ensure the working is above the water table. The findings of a hydrogeological risk assessment would be required to establish the maximum depth of working;
- Opportunities during working for any geodiversity assets to be studied, and if compatible with the landscape and ecology objectives, an open face to be included within any restoration scheme for future scientific study;
- A restoration scheme to arable with wide margins which incorporates the retention of screen planting to provide landscape and biodiversity gains; and
- Contributions to highway improvements which would be required by the Highway Authority to ensure highway safety, and a routing agreement to ensure the continued use of the existing access route.

**Question 53: Proposed Site MIN 64 'land at Grange Farm, Buxton Road, Horstead' - Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## MIN 65 - land north of Stanninghall Quarry



### Site Characteristics

- The 53.12 hectare site is within the parish of Horstead with Stanninghall
- The estimated sand and gravel resource at the site is 4,500,000 tonnes
- The proposer of the site has given a potential start date of 2019 and estimated the extraction rate to be 200,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within 23 years, therefore approximately 3,600,000 tonnes could be extracted within the plan period.
- The site is proposed by Tarmac Aggregates Ltd as an extension to an existing site.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being a mixture of grades 2, 3a and 3b.
- The site is 9.1km from Aylsham, which are the nearest town. The site is 5.5km from the Norwich urban area and it is outside the Norwich Policy Area.

**Amenity:** The nearest residential property is 13m from the site boundary. There are 13 sensitive receptors within 250m of the site boundary. The settlement of Horstead is 239m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site would use the existing processing plant and site access. The site access is via Quarry Road onto the B1150 Norwich Road, which is a designated lorry route. The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period. The estimated number

of HGV movements is 75 per day. The proposed highway access is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with enclosure and agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure. The site is within a wider historic landscape character of 20<sup>th</sup> century agriculture with enclosure and boundary loss, agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure and estate fields. The wider historic landscape character also includes drained enclosed rectilinear grazing marsh (17<sup>th</sup> to 20<sup>th</sup> century enclosure), enclosed wetland meadow, informal parkland, and woodland (ancient woodland and 18<sup>th</sup> to 20<sup>th</sup> century plantation woodland).

The nearest Listed Building is Grade II Horstead Lodge which is 310m away. There are 50 Listed Buildings within 2km of the site, 24 of these are within Coltishall and Horstead Conservation Area which is 380m from the site. The nearest Scheduled Monument is the 'Roman camp and settlement site west of Horstead, which is 140m away. There are 2 Scheduled Monuments within 2km of the site. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** There are Historic Environment records of multi-period features in the northern part of the site including a probable WW2 military site possibly a training site, within the site boundary. There is a WW2 Royal Observers Corp post on the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods, including Roman features including a camp and probable trackway, and a possible settlement. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site comprises open arable plateau farmland divided by hedgerows with some boundary trees. The site is within the landscape character area described as 'Marsham and Hainford Wooded Estatelands' in the Broadland Landscape Character Assessment. The site lies within a wider area of arable farmland. The land to the south is an operational mineral working. Glimpses of the land can be seen from Frettenham Road to the west through gaps in boundary hedges. Views could also be seen from two properties which lie to the west and east respectively. The site is fairly level and it should be possible to design a scheme of working, incorporating screening, which would have an acceptable impact on the wider landscape. The proposal for the site indicates that screening and standoff areas would form part of the working scheme.

There are no Public Rights of Way within the site. There is a PRow (Frettenham BR4) close to the western site boundary at one point.

**Ecology:** The site is 1.4km from Crostwick Marsh SSSI, which is part of The Broads SAC, Broadland SPA and Ramsar site. The SSSI citation states that the site forms an excellent example of unimproved valley meadow and supports a series of intergrading plant communities ranging from damp neutral grassland through species-rich fen grassland to tall fen in the valley bottom. A number of uncommon plants are present and there is additional ornithological interest. The proposed extraction site is in a different hydrological catchment to Crostwick Marsh SSSI and therefore would not adversely affect the hydrology of the designated sites. Due to the distance from the proposed extraction site to the SSSI, dust emissions could be satisfactorily controlled by planning conditions to ensure that the designated sites are not affected by dust deposition. Due to the distance of the proposed extraction site to the SSSI, noise limits, operational hours, vehicle movements and on-site lighting could be suitably controlled through planning conditions to ensure noise and lighting would not disturb the birds on the designated sites. Therefore no adverse effects are expected on the SSSI, SPA, SAC or Ramsar site.

The nearest County Wildlife Site is CWS 1409 'Land adj. All Saint's Church' which is 900m from the site boundary. It is a semi-improved neutral-acidic grassland with a diversity of forb species (herbaceous flowering plants) with a central oak and sycamore woodland. Due to distance, no impacts on County Wildlife Sites are expected.

The nearest ancient woodland sites are: Clamp Wood, which is an Ancient Semi-Natural Woodland (ASNW) and Plantation on Ancient Woodland Site (PAWS) and is 0.27km from the site, and Stanninghall Wood which is a PAWS and is 0.89km from the site boundary. Due to the distance from the ancient woodland there would be no impacts from dust deposition. The proposed extraction site would be worked dry (above the water table) and therefore the ancient woodland would not be adversely affected.

**Geodiversity:** This site consists of the Britons Lane sand and gravel member, Happisburgh glacial formation - sand and gravel, overlying Wroxham Crag formation - sand and gravel on the west of the site, Wroxham Crag Formation at the surface in the east of the site. There is significant potential for vertebrate fossils within the Wroxham Crag. The Britons Lane sands and gravels are known to contain priority features such as palaeosols and erratics in other locations, and therefore they may occur on this site. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. The site has a low probability of surface water flooding, with a few locations of surface water pooling in a 1 in 1000 year rainfall event. Sand and gravel extraction is considered to be a 'water compatible' land use that is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is partially located over a Secondary B aquifer and a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). The majority of the site is within groundwater Source Protection Zone 3. The most northern part of the site is within groundwater SPZ2. A southern part of the site is not within a groundwater SPZ. A planning application for mineral extraction at this site would need to include a Hydrogeological Risk Assessment to identify any potential impacts to groundwater and appropriate mitigation measures.

**Water Framework Directive:** The site is approximately 700 metres from the River Bure which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards the River Bure. The site proposal indicates that the working would not require dewatering, the current permitted site to the south has been worked 'dry'. MIN 65 and the existing adjacent processing plant, which the sand and gravel would be transported to by internal haul route, are both some distance west of the River Bure. Therefore the sand and gravel to be processed would not be transported across this waterbody. Due to the distance of the site from the River Bure, it is not expected that there would be a pathway for silt ingress into this waterbody from any future sand and gravel extraction within site MIN 65.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure with the site. There are electricity distribution lines running approximately north to south through the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is within the zone where Norwich Airport must be consulted on developments with the potential to increase the number of birds and the 'bird strike' risk to aircraft. Therefore a Bird Hazard Assessment would be required at the planning application stage.

**Restoration:** The site is proposed to be restored to a combination of arable agriculture, wildlife enhanced grassland and woodland.

**Initial conclusion:** The site is considered to be suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:

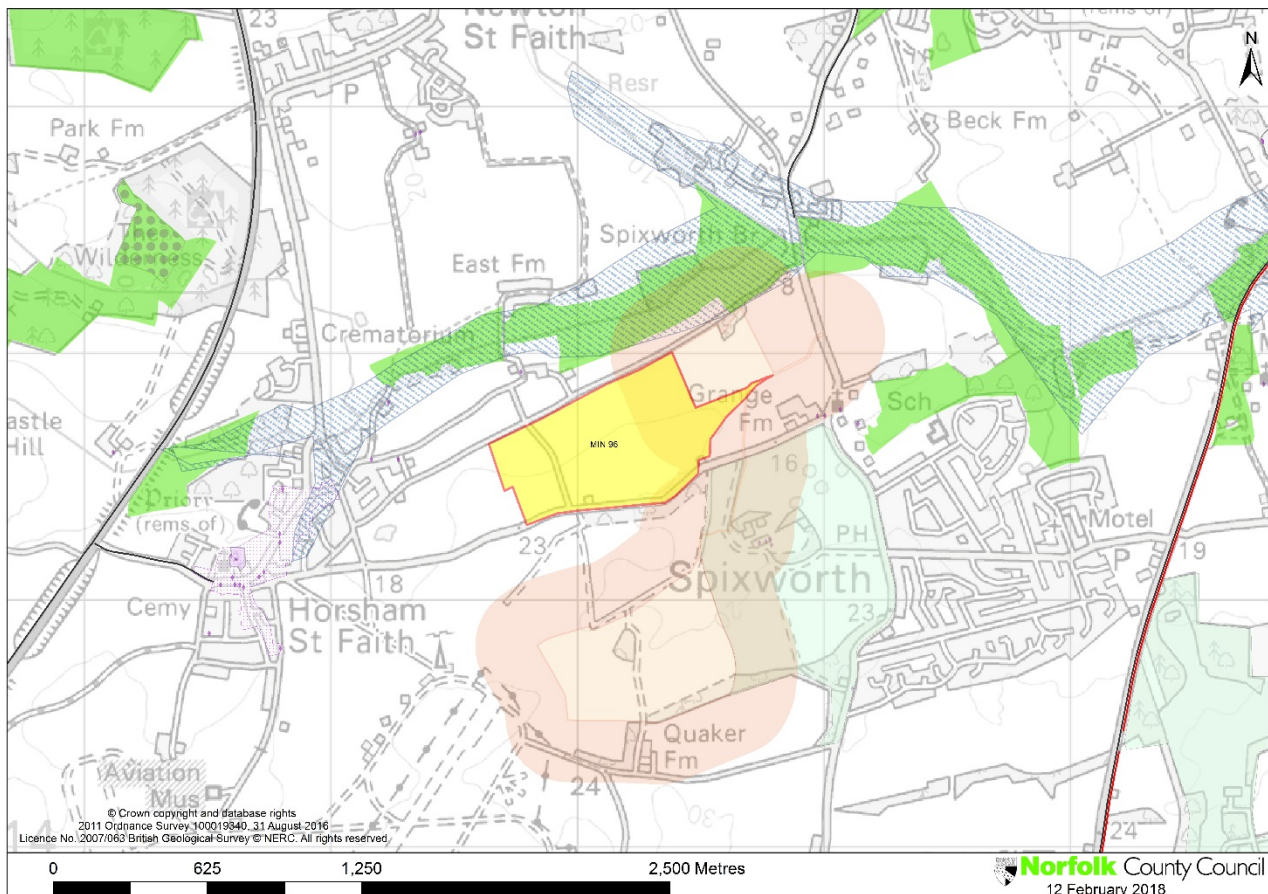
- Noise and dust assessments and a programme of mitigation measures to deal appropriately with any amenity impacts;
- A landscape and visual impact assessment to identify potential impacts and suggest appropriate screening and standoff areas to appropriately mitigate any identified impacts, which will be included in any working scheme;
- A progressive restoration scheme to an agricultural afteruse, with grassland and woodland to provide landscape and biodiversity gains;
- Opportunities during working for any geodiversity assets to be studied, and if compatible with the landscape and ecology objectives an open face to be included within any restoration scheme for future scientific study;
- A Hydrogeological Risk Assessment to identify any potential impacts to groundwater and appropriate mitigation, to be included in any scheme of working;
- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required;
- The existing processing plant and highway access to be used;
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures;
- The site will need to be phased with other sites in the area so that only one site is worked for extraction at a time; and

**Question 54: Proposed Site MIN 65 'land north of Stanninghall Quarry' -**

**Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**



## MIN 96 - land at Grange Farm (between Spixworth Road and Coltishall Lane), Spixworth



### Site Characteristics

- The 39.03 hectare site is within the parishes of Spixworth, and Horsham St Faith and Newton St Faith
- The estimated sand and gravel resource at the site is 1,600,000 tonnes
- The proposer of the site has given a potential start date of 2020 and estimated the extraction rate to be 150,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within eleven years, which would be within the plan period.
- The site is proposed by Tarmac Aggregates Ltd as an extension to an existing site.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 3
- The site is 2km from the Norwich urban area and is within the Norwich Policy Area

**Amenity:** The nearest residential property is 21m from the site boundary. There are five sensitive receptors within 250m of the site boundary. The settlement of Horsham St Faith is 352m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site would use the existing site access route which travels north along the C246 Buxton Road (a designated lorry route), then west along the B1354 Old Church Road, to join the A140 Cromer Road. The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer

period. The estimated number of HGV movements is 30 in and 30 out per day. The proposed highway access is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with boundary loss and agriculture with 18<sup>th</sup> to 19<sup>th</sup> Century piecemeal enclosure. The site is within a wider historic landscape character of 20<sup>th</sup> century agriculture with boundary loss and enclosure, and agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure. The wider historic landscape character also includes Norwich Airport, industry, enclosed wetland meadow, informal parkland and 18<sup>th</sup> to 20<sup>th</sup> century plantation woodland.

The nearest Listed Buildings are Grade II Meadow Farmhouse (210m away), Grade II Barn at Grange Farm (240m away), Grade II Grange Farmhouse (260m away) and Grade I Church of St Peter (300m away). There are 29 Listed Buildings within 2km of the site. 11 of these are within Horsham St Faiths Conservation Area, which is 650m from the site. The only Scheduled Monument within 2km of the site is 'St Faith Priory, which is 1.08km away. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** The site is located within an area of interest, and there are Historic Environment records of multi period finds, within the site boundary, and a possible medieval trackway crossing the site. The site is close to the boundary of the historic parkland associated with Spixworth Hall, and is in a wider landscape with a very significant number of finds and features from multiple periods. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site comprises arable land on gently undulating land above the valley of Crostwick Beck. It is divided by hedgerows with small field size in the east with many hedgerow trees. Field size increases to the west with fewer hedgerow trees. The western part of the site is bisected by Marketfield Lane a road used as a public path. The site is within the landscape character area described as 'Spixworth Wooded Estatelands' in the Broadland Landscape Character Assessment.

The site forms part of a wider area of gently undulating arable land with the pasture lands of the valley of the Crostwick Beck to the north and the former parkland at Spixworth to the south. The NDR runs approximately 500m to the southeast. The site is adjacent to an existing aggregate processing plant. The site lies approximately 0.5km from the edge of Spixworth and 0.6km from the edge of Horsham St Faiths. Working the eastern part of the site may also affect the setting of Spixworth church and the complex of properties around Grange Farm. Two semi-detached cottages also lie close to the southern boundary of the site, and a standoff area and screening would be required in order to mitigate potential amenity impacts. The site is a large area, however, and it is accepted that it may be possible to work parts of the site, with suitable screening without an unacceptable impact on either the wider landscape or views from property.

There are no Public Rights of Way within or adjacent to the site.

**Ecology:** The site is 2.22km from Crostwick Marsh SSSI, which is part of The Broads SAC, Broadland SPA and Ramsar site. The SSSI citation states that the site forms an excellent example of unimproved valley meadow and supports a series of intergrading plant communities ranging from damp neutral grassland through species-rich fen grassland to tall fen in the valley bottom. A number of uncommon plants are present and there is additional ornithological interest. The proposed extraction site is located up-gradient of the SSSI and therefore would not adversely affect the hydrology of the SSSI. Extraction is expected to take place at the same rate as the existing mineral working so there would not be an increase in traffic movements. Due to the distance from the SSSI

dust emissions could be satisfactorily controlled by planning conditions to ensure that the SSSI is not affected by dust deposition. Due to the distance of the site from the SSSI, noise limits, operational hours, vehicle movements and on-site lighting could be suitably controlled through planning conditions to ensure noise and lighting would not disturb the birds on the SSSI. Therefore no adverse effects are expected on the SSSI, SAC, SPA or Ramsar site.

County Wildlife Site CWS 2205 'Spixworth Bridge Meadows' is 90m from the site boundary. It is a large area of mixed grassland, some very species rich, and there are many wet, damp and dry ditches. The CWS is in a valley with Spixworth Beck running through. The site is expected to be worked dry (above the water table), therefore adverse impacts to hydrology are not expected. A potential impact could be dust deposition from extraction, if uncontrolled. Therefore a dust assessment and identification of appropriate mitigation measures will be required as part of the planning application process, to ensure that the CWS is not adversely affected.

CWS 1396 'Spixworth Meadows' is 480m from the site boundary. The CWS contains three shallow valleys leading to a tributary of the River Bure. The majority is damp, species-poor, semi-improved grassland with areas divided by wet mesotrophic ditches which have a more diverse flora. The meadows are grazed. The site is expected to be worked dry (above the water table), therefore adverse impacts to hydrology are not expected. Due to this distance, no other impacts on this CWS are expected.

The nearest ancient woodland site is The Wilderness, which is a Plantation on Ancient Woodland Site (PAWS) and is 1.47km from the site boundary. Due to this distance, no impacts on this PAWS are expected.

**Geodiversity:** The site consists of the Sheringham Cliffs formation - sand and gravel, and Happisburgh glacial formation - sand and gravel. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. The site has a low probability of surface water flooding, with two very small locations of surface water pooling in a 1 in 1000 year rainfall event. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is not located over any superficial deposit aquifers. The site is located over a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.

**Water Framework Directive:** The site is approximately 200 metres from the Spixworth Beck which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards the Spixworth Beck. MIN 96 and the existing adjacent processing plant, which the sand and gravel would be transported to by internal haul route, are both some distance south of the Spixworth Beck. Therefore the sand and gravel to be processed would not be transported across this waterbody. Due to the distance of the site from the Spixworth Beck, it is not expected that there would be a pathway for silt ingress into this waterbody from any future sand and gravel extraction within site MIN 96.

**Utilities infrastructure:** There are five Anglian Water foul sewers within the site and a pumping station adjacent to the site boundary. There are no water assets within the site. Anglian Water would require the standard protected easement widths for the sewers and for any requests for alteration or removal to be conducted in accordance with the Water Industry Act 1991. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is within the zone where Norwich Airport must be consulted on all development, including developments with the potential to increase the number of birds and the 'bird strike' risk to aircraft. Therefore a Bird Hazard Assessment would be required at the planning application stage.

**Restoration:** The site proposal does not contain any details regarding restoration. A low level restoration to agriculture with wide field margins, hedgerow formation and some woodland planting would provide biodiversity and landscape gains. The restoration scheme should seek to retain screen planting. It is recognised that in order to achieve a suitable landform, the importation of some inert material is likely to be required.

**Initial conclusion:** The site is considered to be suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:

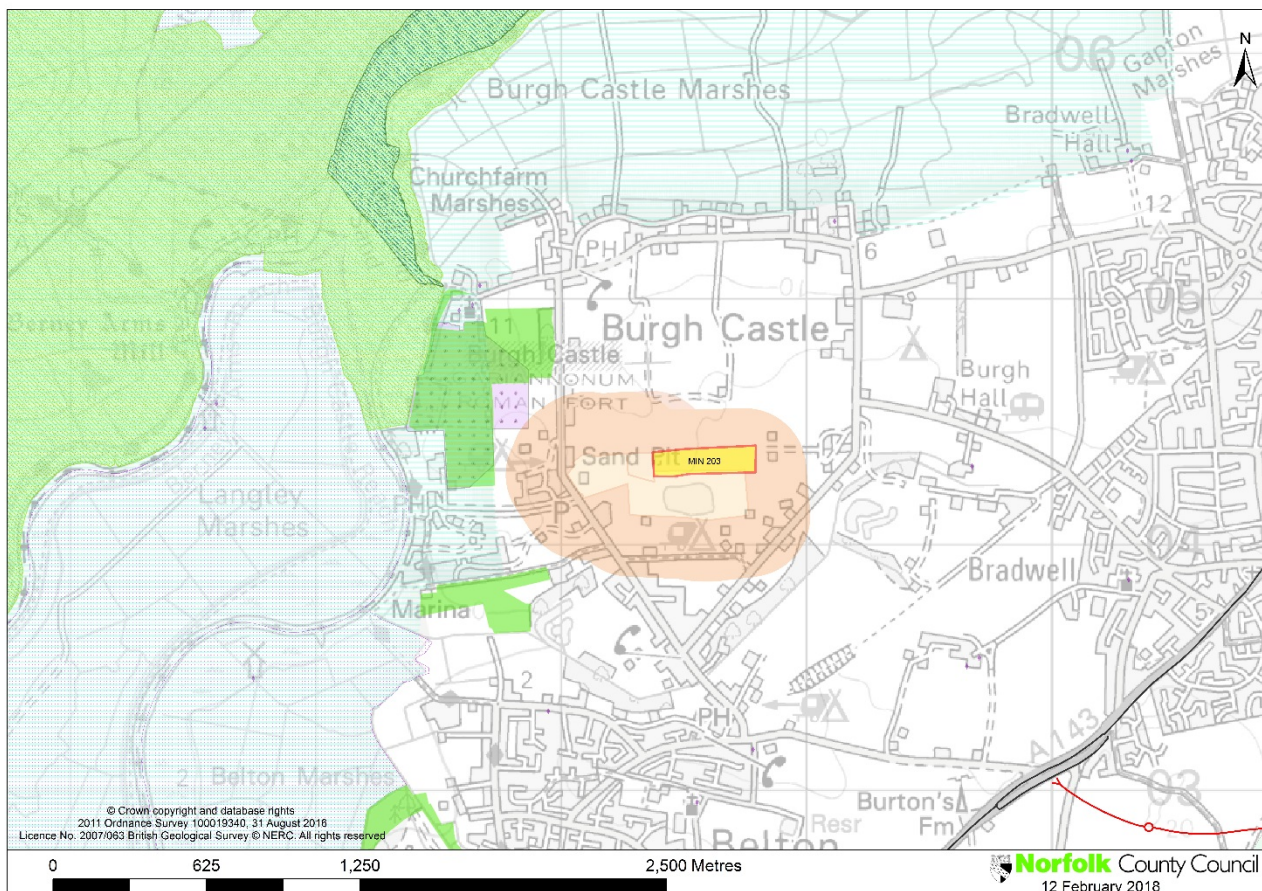
- A screening scheme which will include mitigation of views from the nearby properties, Marketfield Lane, and surrounding roads, and provide protection of the setting of nearby listed buildings;
- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required;
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures;
- Noise and dust assessments and a programme of mitigation measures to deal appropriately with any amenity impacts;
- A scheme of phased working and progressive restoration including the direction of working (to assist in the mitigation of amenity impacts) and landscaping;
- A progressive restoration scheme to agriculture with wide field margins, hedgerow formation and some woodland planting to provide landscape and biodiversity gains;
- Restoration of the extraction void to use the importation of inert materials only;
- Opportunities during working for any geodiversity assets to be studied, and if compatible with the landscape and ecology objectives, an open face to be included within any restoration scheme for future scientific study;
- A sufficient stand-off distance around the rising foul sewer that crosses the site or diversion of the sewer at the developer's cost and to the satisfaction of Anglian Water;
- The site would be worked as an extension to the existing permitted working, with extraction commencing on this site after the completion of extraction on the existing site; and
- A Transport Assessment or Statement would be required to assess the impacts of HGV traffic along the access route, and appropriate mitigation for any potential impacts to the highway.

**Question 55: Proposed Site MIN 96 'land at Grange Farm, Spixworth' -**

**Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## Great Yarmouth sites

### MIN 203 - land north of Welcome Pit, Burgh Castle



#### Site Characteristics

- The 4.38 hectare site is within the parish of Burgh Castle
- The estimated sand and gravel resource at the site is 280,000 tonnes
- The proposer of the site has given a potential start date of 2021 and estimated the extraction rate to be 20,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within fourteen years which would be within the plan period.
- The site is proposed by Folkes Plant and Aggregates Ltd as an extension to an existing site.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 3
- The site is 3.3km from Great Yarmouth and 3.9km from Gorleston-on-Sea which are the nearest urban areas.

**Amenity:** The nearest residential property is 146m from the site boundary. There are five sensitive receptors within 250m of the site boundary. A caravan holiday park is adjacent to the site boundary. The nearest settlements are Burgh Castle, which is about 870 metres to the north and Belton, about 950 metres to the south. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250 metres from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site would use the existing site access route onto the C603 Butt Lane, continue south on the C603 Stepshort and east onto C620 Belton New Road to the junction with the

A143 Beccles Road, which is a designated lorry route. The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period. The estimated number of HGV movements is 12 per day with 20 MGV/LGV movements per day. The Highway Authority has raised concerns regarding the proposed highway access because the local road network is sub-standard and narrow.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with enclosure. The site is within a wider historic landscape character of Twentieth Century agriculture with boundary loss and enclosure, agriculture with 18<sup>th</sup> to 19<sup>th</sup> Century enclosure, and 19<sup>th</sup> to 20<sup>th</sup> century drained coastal reclamation and enclosure. The wider historic landscape character also includes a historic earthwork, historic religious institution, mineral extraction, modern leisure and recreation (holiday caravan parks), modern built-up areas of small farm clusters, industry, a horticultural nursery, a stud farm and woodland (including alder carr woodland and 18<sup>th</sup> to 20<sup>th</sup> Century plantation).

The nearest Listed Building is Grade II Old Hall Farmhouse which is 880m away. There are 19 Listed Buildings within 2km of the site. The nearest Scheduled Monument is 'Burgh Castle Roman fort, vicus, pre-conquest monastery, Norman motte and Bailey castle' which is 650m away. There are 2 Scheduled Monuments within 2km of the site. Halvergate Marshes Conservation Area is 1.13km from the site and Haddiscoe Conservation Area is 1.01km from the site. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** The Historic Environment Record contains records of isolated multi-period finds within the site; however the majority of the site is identified as an area with no archaeological finds or features. The site has been subject to an archaeological investigation by trial trenches and only very limited archaeological finds or features were found. However, there is the potential that unknown archaeology exists on the site and it would be prudent to adopt a watching brief for archaeological finds within these areas.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The boundary of the Broads Authority Executive Area is approximately 780 metres to the west and 930 metres to the north. The site is within the landscape character area described as 'Hobland Settled Farmland' in the Great Yarmouth Borough Landscape Character Assessment.

Rectangular in shape, the site runs parallel to the northern boundary of the existing quarry and adjoins a Holiday Park to the east. The site is currently bounded by a bund to the northern edge, hedgerow and trees to the eastern boundary between the site and the holiday park and the existing quarry operations to the south and west, separated from the south by additional bunding. There are no notable landscape features within the site, although some additional new planting has been implemented along the western boundary.

The wider landscape is arable to the north with approximately rectangular field divisions, delineated by gappy native hedgerows and access tracks. Burgh Castle itself lies in two areas of urbanisation, one area clustered to the south around the junctions of Butt Lane and Mill Road, and one to the north, more linear in scope along High Road. Beyond this, the landscape is predominantly shaped by the River Yare and the Broads to the north and west and by the urban areas of Bradwell to the east and Belton to the south.

Long distance views of the site are very limited and at best some glimpsed views may be possible from High Road to the north of Mill Road to the east. These views, however, would be at such a distance as to not be discernible. Therefore, the proposed extension to the existing mineral working is unlikely to have any discernible impact on the surrounding landscape.

There are no Public Rights of Way within or adjacent to the site.

**Ecology:** The site is 1km from Breydon Water SSSI, which is part of the Breydon Water SPA and Ramsar site. The SSSI citation states that Breydon Water is an inland tidal estuary and extensive areas of mud are exposed at low tide forming intertidal flats. Large numbers of wildfowl and waders are attracted to an abundant food supply when on passage and during the winter months. Several wintering wildfowl reach nationally important population levels. There is also considerable botanical interest with small areas of saltmarsh, reedbeds and brackish water communities in the surrounding borrow dykes. The invertebrate fauna is rich and includes one scarce species of snail. The site is within the 5km Impact Risk Zone for Breydon Water SSSI, SPA and SAC. The proposed extraction site is located in a different hydrological catchment to Breydon Water and therefore would not adversely affect the hydrology of the designated sites. Due to the distance of the proposed extraction site to the SSSI, noise limits, operational hours, vehicle movements and on-site lighting could be suitably controlled through planning conditions to ensure noise and lighting would not disturb the birds on the designated sites. Therefore no adverse effects are expected on the SSSI, SPA or Ramsar site.

The site is 3.63km from The Broads SAC, Broadland SPA and Ramsar site. The proposed extraction site is located outside the 3km Impact Risk Zone for mineral development, therefore no likely significant effects are expected on the SAC, SPA or Ramsar site.

Halvergate Marshes SSSI is 1.72km from the site boundary. The SSSI citation states that Halvergate Marshes forms a large expanse of traditionally managed grazing/grass marshes with their intersecting system of drainage ditches. A well-developed band of woodland of woodland occurs along the upland marsh margin and small areas of unimproved pasture, wet fen meadow, reedbed and alder carr add to the diversity of the habitat. The ditches are of outstanding importance for nature conservation and show a transition from fresh to brackish conditions. The ditches support an outstanding assemblage of plants and a rich invertebrate fauna. Halvergate Marshes support internationally important numbers of wintering Bewick's swan and nationally important populations of breeding and wintering birds. Halvergate Marshes forms part of the Broads SAC, SPA and Ramsar site. It also forms part of Breydon Water SPA and Ramsar site. The proposed extraction site is located in a different hydrological catchment to Halvergate Marshes SSSI. Due to the distance of the proposed extraction site to the SSSI, noise limits, operational hours, vehicle movements and on-site lighting could be suitably controlled through planning conditions to ensure noise and lighting would not disturb the birds on the SSSI. Therefore there would be no adverse impacts to the SSSI.

The nearest County Wildlife Site is CWS 2184 'Bremar Pony Stud' which is 570m from the site boundary. The CWS is an area of species-rich marshy and neutral grassland close to the River Waveney. The site is grazed. Due to this distance, no impacts on this CWS are expected.

There are no ancient woodland sites within 3km of the site.

**Geodiversity:** The site consists of the Happisburgh Glacigenic formation, Lowestoft Formation diamicton, overlying Crag Group-sand and gravel. There is significant potential for vertebrate fossils within the Crag Group. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. The site has a low risk of flooding from surface water with one area of surface water pooling in a 1 in 100 year rainfall event. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.

**Water Framework Directive:** The site is within the catchment of Fritton Lake, a Water Framework Directive waterbody, but the site is approximately 3.2km from Fritton Lake. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards Fritton Lake. MIN 203 and the existing adjacent processing plant, which the mineral would be transported to by internal haul route, are both located a considerable distance from Fritton Lake. Therefore, the sand and gravel to be processed would not be transported close to Fritton Lake. Due to the distance of the site from Fritton Lake it is not expected that there would be a pathway for silt ingress into Fritton Lake from any future sand and gravel extraction within site MIN 203.

**Utilities infrastructure:** There are no sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is not within an aerodrome safeguarding zone.

**Restoration:** The site is proposed to be restored to open water fringed with reedbeds and gently sloping margins sown with species-rich grassland.

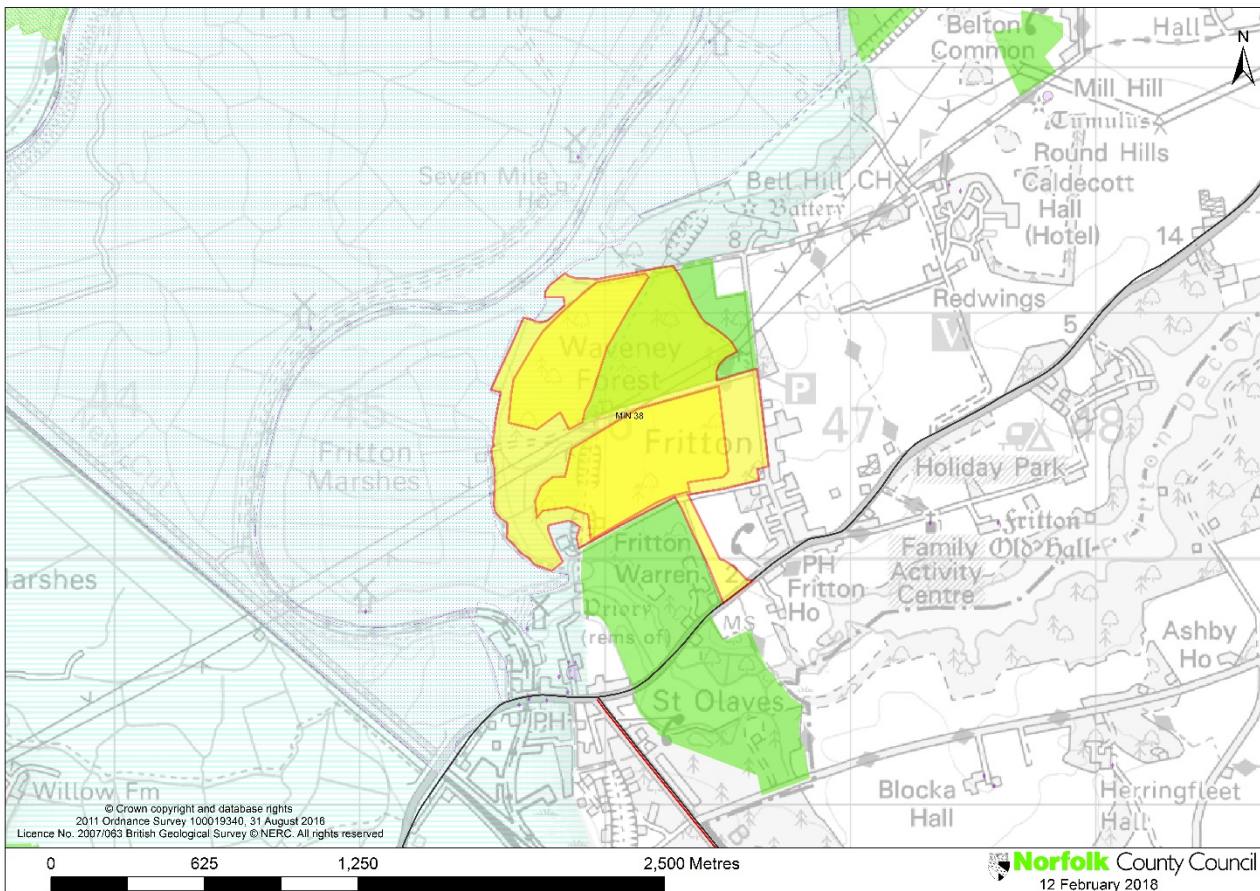
**Initial conclusion:** The site is considered to be unsuitable for allocation because:

- The highway access is considered unsuitable by the Highway Authority and due to the properties either side of the road there would be little opportunity for suitable highway improvements. There are more acceptable alternative sites for sand and gravel extraction proposed in the Plan.

**Question 56: Proposed Site MIN 203 'land north of Welcome Pit, Burgh Castle' - Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**



## MIN 38 - land at Waveney Forest, Fritton



### Site Characteristics

- The 96.35 hectare site is within the parish of Fritton and St Olaves
- The estimated sand and gravel resource at the site is 1,870,000 tonnes
- The proposer of the site has given a potential start date of 2020 and estimated the extraction rate to be between 85,000 to 120,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within 16 to 22 years, therefore at least 1,360,000 tonnes could be extracted within the plan period.
- The site is proposed by Brett Group as a new site.
- The site is currently a plantation woodland.
- The Agricultural Land Classification scheme classifies the land as being mainly non-agricultural land with the west of the site Grade 3.
- The site is 6.5km from Gorleston-on-Sea and 6.9km from Great Yarmouth, which are the nearest towns.

A reduced extraction area has been proposed of 43.11 hectares. The proposal is that there are two separate extraction areas; one on the southern part of the site and another in the north eastern part of the site. The proposal allows for a buffer between the extraction area and the properties on New Road. The extraction areas also avoid the locally listed heritage assets, and the remains of the railway line.

**Amenity:** The nearest residential property is 26m from the site boundary. There are 77 sensitive receptor within 250m of the site boundary. The settlement of Fritton is 26m away and St Olaves is 368m away. However, the land adjacent to New Road is not proposed to be extracted. Therefore the nearest residential property is 120m from the extraction area and there are 31 sensitive receptors within 250m of the proposed extraction area. Even without mitigation, adverse dust

impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site would use a new haul route access south of the site onto the A143 Beccles Road, which is a designated lorry route, (junction to be approximately opposite the access to PROW Fritton and St Olaves BR5). The site is not within an AQMA. The estimated number of HGV movements is an average of 30 per day up to a maximum of 50 per day. The proposed highway access is considered to be suitable by the Highway Authority, subject to a right hand turn lane on the A143.

**Historic environment:** The historic landscape character of the site is 18<sup>th</sup> to 20<sup>th</sup> Century plantation woodland. The site is within a wider historic landscape character of 20<sup>th</sup> century agriculture with enclosure, boundary loss and boundary loss with a relict element; pastoral farming, and agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure. The wider historic landscape character also includes modern built up areas of linear settlements, small farm clusters, nucleated clusters and urban development; and drained reclaimed enclosed land (rectilinear enclosure from 19<sup>th</sup> to 20<sup>th</sup> century). The wider historic landscape character also includes drained enclosed rectilinear grazing marsh (17<sup>th</sup> to 20<sup>th</sup> century enclosure), a historic earthwork, leisure/recreation, informal parkland, sea defences, saltings, a reservoir and woodland (18<sup>th</sup> to 19<sup>th</sup> century plantation woodland, carr woodland and regenerated alder carr woodland).

The nearest Listed Building is the Grade II\* Drainage Pump which is 260m away. There are 20 Listed Buildings within 2km of the site. There are two locally listed heritage assets within the site, the remains of a WW2 firing range and a concrete railway bridge, although these are not within the proposed extraction areas. The nearest Scheduled Monument is St Olave's Priory, which is 390m away. There are 2 Scheduled Monuments within 2km of the site. Halvergate Marshes Conservation Area is adjacent to the site boundary and Haddiscoe Conservation Area is 330m from the site. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** This site could reveal nationally important remains for early and middle Pleistocene early human settlements in NW Europe, perhaps linking to finds at Norton Subcourse and Pakefield (in Suffolk). There are Historic Environment records of features in the site most of which are linked to a WW2 military site possibly a training site, within the site boundary. The proposer of the site has indicated two extraction areas within the wider site area; neither the local listed features (remains of a WW2 firing range, and a former railway bridge) are within these extraction areas. A number of undesignated heritage assets have been provisionally identified which may be linked to the WW2 training area. The site is currently a commercial forestry plantation within which felling operations take place, which involve the use of heavy vehicles and earth moving operations. These operations may have degraded the undesignated heritage assets, although good practice for tree felling operations states that archaeological features should be protected. Therefore an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. However, the Norfolk Historic Environment Service have stated that they consider that no appropriate mitigation or modification of the site would be able to prevent harm to the undesignated heritage assets which as a whole make up the significance of the WW2 training area, of which few examples remain.

**Landscape:** The site is not located within the AONB, or a Core River Valley. 43 hectares of the site area within the Broads Authority Executive Area, including one of the extraction areas, and part of the other. The site is within the landscape character area described as 'Waveney Rural Wooded Valley' in the Great Yarmouth Borough Landscape Character Assessment. The Broads Authority Landscape Sensitivity Study classifies the part of the site within the Broads Authority Executive Area as outside the 'Broads' character area. The proposal is that a screen of trees would be

retained between the extraction areas and the 'Broads' character area to the west and north of the site and protect long distance views.

The majority of the site comprises woodland, split between a larger area of conifer plantation, with remnant areas of heath, on the higher land and broadleaf woodland on the valley floor. An area of marshland/reedbed along the river edge is excluded from the proposed site. Expansive views of the afforested margins of the site can be seen across the marshes from the railway, the A149 and from the public rights of way along the Rivers Waveney and Yare and the New Cut. In addition views of the edge of the conifer plantation can be seen from the edge of Fritton and New Road.

The proposed haul route accesses the site from the south from the A143. Although there are highway verges with hedges and mature trees along the highway corridor, the bunding and screening of the haul route would need to be designed carefully to ensure that the impact on the setting of the Waveney Forest is acceptable and the tarmac surfacing of the road (necessary for dust suppression) would add an urbanising element to the landscape. However with the removal of the road and removal of the screen bunds on restoration the impacts are considered acceptable in landscape terms.

The higher areas of the site within the coniferous plantations, generally the land to the south and east, would also be screened by the retention of a screen of significant blocks of coniferous woodland with additional woodland planting.

A landscape and visual impact assessment of the proposed development from the wider Broads landscape would be required at the planning application stage. The landscape mitigation, restoration proposals and design approach would need to be informed by this assessment and by the relevant Landscape Character Assessments.

There is a Public Right of Way adjacent to part of the western boundary of the site (Old Parish of Herringfleet FP1). There is a PRoW adjacent to the northern boundary and the north eastern boundary of the site (Fritton and St Olaves BR4 and Fritton and St Olaves FP4a).

**Ecology:** The site is 2.17km from Breydon Water SPA and Ramsar site. Breydon Water is an inland tidal estuary and it has extensive areas of mud-flats that are exposed at low tide and these form the only tidal flats on the east coast of Norfolk. There are also extensive areas of floodplain grassland adjacent to the intertidal areas. Breydon Water is internationally important for wintering waterbirds, some of which feed in the Broadland SPA that adjoins this site at Halvergate Marshes. The proposed extraction site is within the 5km Impact Risk Zone for these designated sites. The proposed extraction site is located in a different hydrological catchment to Breydon Water and therefore would not adversely affect the hydrology of the designated sites. Due to the distance of the proposed extraction site to Breydon Water, noise limits, operational hours, vehicle movements and on-site lighting could be suitably controlled through planning conditions to ensure that there would not be disturbance of the birds on the designated sites. Therefore no adverse effects are expected on the SPA or Ramsar site.

The site is 2.69km from The Broads SAC, Broadland SPA and Ramsar site and the proposed extraction site is within the 3km Impact Risk Zone for these designated sites. The SPA, SAC and Ramsar are a low lying wetland complex which includes the river valley systems of the Bure, Yare and Waveney and their major tributaries. The distinctive open landscape comprises a complex and interlinked mosaic of wetland habitats including open water, reedbeds, carr woodland, grazing marsh and fen meadow, forming one of the finest marshland complexes in the UK. The differing types of management of the vegetation for reed, sedge and marsh hay, coupled with variations in hydrology and substrate, support an extremely diverse range of plant communities. The area is of international importance for a variety of wintering and breeding raptors and waterbirds associated with extensive lowland marshes.

The proposed extraction site is located in a different hydrological catchment to the designated sites and therefore would not adversely affect their hydrology. Due to the distance from the proposed extraction site to the SSSI, dust emissions, noise limits, operational hours, vehicle movements and on-site lighting could be suitably controlled through planning conditions to ensure that there would

not be disturbance of the birds on the designated sites or adverse effects from dust deposition. Therefore no adverse effects are expected on the SPA, SAC or Ramsar site.

Halvergate Marshes SSSIs is 2.22km from the site boundary. The SSSI citation states that Halvergate Marshes forms a large expanse of traditionally managed grazing/grass marshes with their intersecting system of drainage ditches. A well-developed band of woodland of woodland occurs along the upland marsh margin and small areas of unimproved pasture, wet fen meadow, reedbed and alder carr add to the diversity of the habitat. The ditches are of outstanding importance for nature conservation and show a transition from fresh to brackish conditions. The ditches support an outstanding assemblage of plants and a rich invertebrate fauna. Halvergate Marshes support internationally important numbers of wintering Bewick's swan and nationally important populations of breeding and wintering birds. The proposed extraction site is located in a different hydrological catchment to Halvergate Marshes SSSI. Due to the distance of the proposed extraction site to the SSSI, noise limits, operational hours, vehicle movements and on-site lighting could be suitably controlled through planning conditions to ensure noise and lighting would not disturb the birds on the SSSI. Therefore there would be no adverse impacts to the SSSI.

County Wildlife Site CWS 1427 'Waveney Forest' is partially within the site; it presumably once formed a larger continuous stretch of heathland, but dry ericaceous heath is now limited principally to unwooded paths, along the course of a dismantled railway and under the route of overhead pylons. The CWS is excluded from the proposed extraction areas, but is adjacent to them. The potential exists for impacts from mineral extraction at MIN 38, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application.

CWS 1426 'Fritton Warren South' is adjacent to the site boundary; it comprises an area of low-lying grazing marsh with fen vegetation and carr (Scale Marshes) which grades to scrub and secondary woodland with some mixed and coniferous plantation on the sandier soils. The potential exists for impacts from mineral extraction at MIN 38, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application.

There are no ancient woodland sites within 3km of the site.

**Geodiversity:** The site consists of the Happisburgh Glacigenic formation, Corton Woods sand and gravel member, overlying Crag Group - sand and gravel. There is significant potential for vertebrate fossils within the Crag Group. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. Preservation of a section of former cliff-line of Holocene age on the site would be desirable and a 'watching brief' during the extraction phase when features of potential geodiversity interest are uncovered would be vital.

**Flood Risk:** The majority (96%) of the site is in Flood Zone 1 (lowest risk) for flooding from rivers. The western boundary of the site is within Flood Zone 2 (medium risk) and Flood Zone 3 (high risk) for flooding from rivers, however this part of the site is not within the proposed mineral extraction area. The site has a low risk of surface water flooding with three locations of surface water pooling in a 1 in 30 year rainfall event. There are additional areas of surface water pooling at a 1 in 100 and a 1 in 1000 year rainfall event. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The western boundary of the site is just within the Waveney, Lower Yare and Lothingland Internal Drainage Board area. The rest of the site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.

**Water Framework Directive:** The site is within the catchment of Fritton Lake, a Water Framework Directive waterbody, and is located approximately 400 metres from Fritton Lake. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards Fritton Lake. If mineral is extracted from site MIN 38 it is expected

to be processed on site. Therefore the sand and gravel to be processed would not be transported across Fritton Lake. Due to the distance of the site from Fritton Lake it is not expected that there would be a pathway for silt ingress into Fritton Lake from any future sand and gravel extraction within site MIN 38.

**Utilities infrastructure:** There are no sewerage assets or water assets within the site. Electricity distribution pylons cross the site east/west but the proposed extraction areas are located either side of the route of the pylons. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is not within an aerodrome safeguarding zone.

**Restoration:** The restoration scheme proposed by the mineral operator would be a mixture of commercial forestry, acid grassland, area of broadleaf woodland, and wetland habitats with wet grassland margins. The haul route would be removed as part of the proposal. Restoring the worked areas to a mix of wet (deciduous) woodland and heath land with some reed ponds which would be a more 'natural' and appropriate Broads landscape than the current block planting of coniferous plantations, would be preferred.

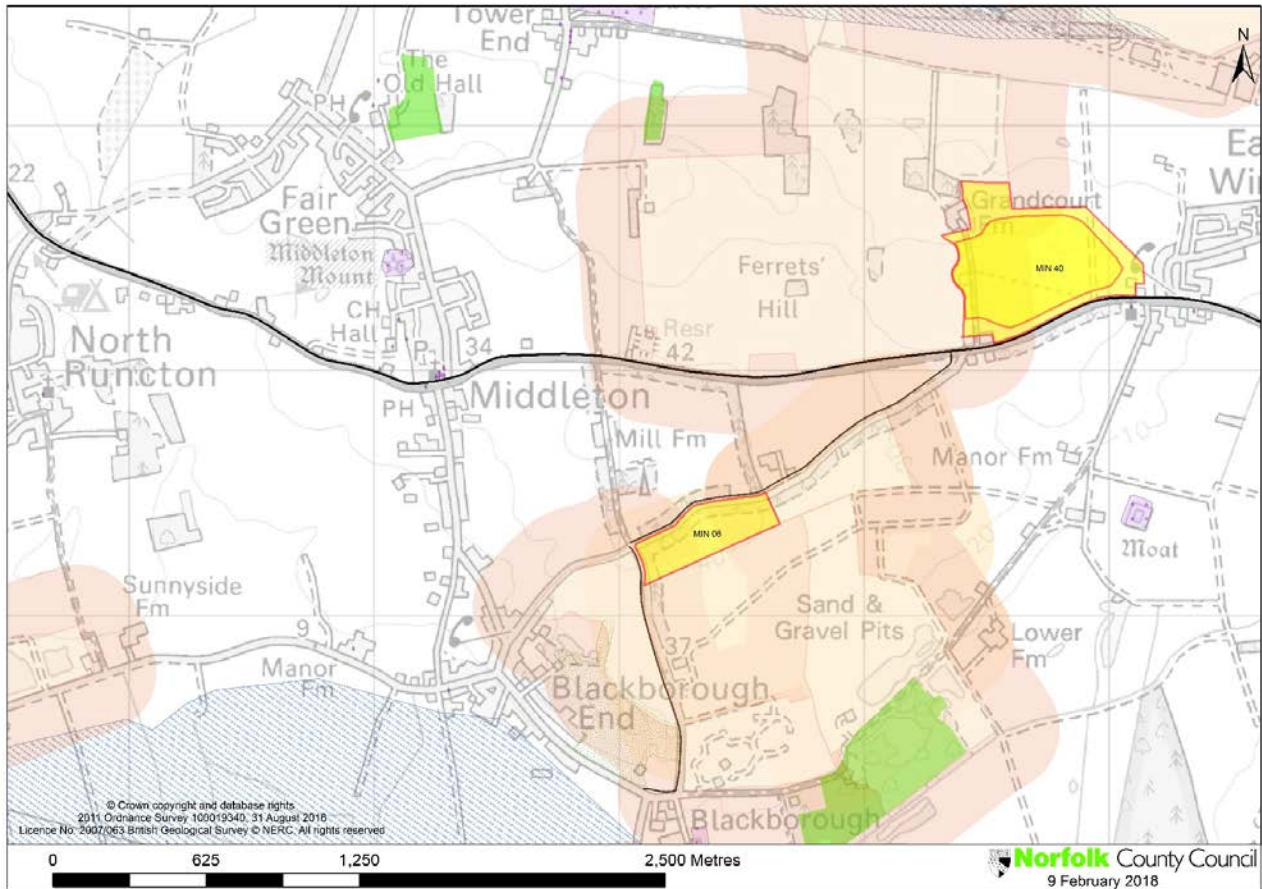
**Initial conclusion:** The site is considered to be unsuitable for allocation because:

- The harm to the significance of Waveney Forest as an example of a WW2 training area could not be appropriately mitigated, as the significance relates to the area as a whole.

**Question 57: Proposed Site MIN 38 'land at Waveney Forest, Fritton' -  
Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## King's Lynn and West Norfolk sites

### MIN 6 - land off East Winch Road, Mill Drove, Middleton



#### Site Characteristics

- The 10.25 hectare site is within the parish of Middleton
- The estimated carstone resource at the site is 1,416,000 tonnes
- The proposer of the site has given a potential start date of 2025 and estimated the extraction rate to be 80,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within eighteen years, therefore, approximately 960,000 tonnes of carstone could be extracted within the plan period.
- The site is proposed by Middleton Aggregates Ltd as an extension to an existing site.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 4.
- The site is 4.8km from King's Lynn, which is the nearest town.

Carstone is the only hard rock which occurs in Norfolk and the deposits are limited to a narrow band which runs north-south just to the east of King's Lynn. The quality of the deposit varies with the highest quality being used as a building stone in the vernacular architecture of the northwest part of Norfolk. However, the majority of the carstone deposit, including this site, is unsuitable for use as a building stone and is used in construction for engineering fill.

**Amenity:** The only sensitive receptor within 250m of the site boundary is 155m away. The settlement of Blackborough End is 481m away. Even without mitigation, adverse dust impacts from carstone sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for

mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site would use the existing internal haul route to the existing quarry entrance on the East Winch Road (C57A) and then travel east to access the A47 Lynn Road at the existing junction, which are both designated lorry routes. The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period. The estimated number of HGV movements is 30 (in and out) per day. Limited traffic may travel along the East Winch Road and Mill Drove as this is where workshop and storage facilities are located. The proposed highway access is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with enclosure. The site is within a wider historic landscape character of Twentieth century agriculture with enclosure and boundary loss, and agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure. The wider historic landscape character also includes Pre-18<sup>th</sup> century drained fen enclosure, mineral extraction and 18<sup>th</sup> to 20<sup>th</sup> century woodland plantation.

The nearest Listed Building is Grade II 'Mitre Farm Cottage and attached Oak Cottage', which are 910m away. There are 20 Listed Buildings within 2km of the site. The nearest Scheduled Monument is the Remains of Blackborough End Priory, which is 1.01km away. There are four Scheduled Monuments within 2km of the site. There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site. No adverse effects on the historic environment are expected from the proposed mineral extraction.

**Archaeology:** The site is located within an area of interest, and there are Historic Environment records of isolated multi period finds, within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site is within the landscape character area described as 'Gayton and East Winch Farmland with woodland and wetland' in the King's Lynn and West Norfolk Landscape Character Assessment.

The site is located on plateau land above the River Nar and is a fairly flat agricultural field with a tree belt along its northern edge and some hedgerow trees along its southern edge, and any workings would be screened from public view. The site is bounded by mineral workings to the east and a landfill site to the south. Further mineral workings lie across Mill Drove to the west and farmland lies north of East Winch Road.

There is a Public Right of Way adjacent to the western boundary of the site (Middleton RB4).

**Ecology:** The site is more than 5km from any SPA, SAC or Ramsar site. Therefore, there would be no likely significant effects on these sites.

East Winch Common SSSI is 2.23km from the site boundary. The SSSI citation states that it is an area of predominantly wet acid heathland on shallow peat. Many wet hollows are present containing diverse fen and mire communities. One rare plant species occurs and also several uncommon species. The site is surrounded by young woodland. Due to the distance from proposed mineral extraction site, no adverse impacts are expected to the SSSI.

River Nar SSSI is 1.57km from the site boundary. The SSSI citation states that the River combines the characteristics of a southern chalk stream and an East Anglian fen river. Together with the adjacent terrestrial habitats, the Nar is an outstanding river system of its type. Due to the distance from proposed mineral extraction site, no adverse impacts are expected to the SSSI.

The nearest County Wildlife Site is CWS 434 'Disused Pit' which is 860m from the site. It is an area of open water, scrub, wet and dry woodland and acid grassland located on the site of former gravel workings. Much of the site is occupied by steep-sided, flooded gravel pits, with frequent trees and scrub around the edge of the lakes. Due to the distance from proposed mineral extraction site, no adverse impacts are expected to the CWS.

There are no ancient woodland sites within 3km of the site.

**Geodiversity:** The site consists of Lowestoft Formation - diamicton, overlying Carstone formation-sandstone and Gault Formation mudstone. The site is unlikely to contain geodiversity priority features. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) of flooding from rivers. The site has a low risk of surface water flooding with three locations of surface water pooling in a 1 in 30 and 1 in 100 year rainfall event. Carstone extraction is considered to be a 'less vulnerable' land use which is suitable in all flood zones, except zone 3b (the functional flood plain). The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is partially located over a principal aquifer (bedrock) and partially over a Secondary (undifferentiated) aquifer (superficial deposits). However, there are no groundwater Source Protection Zones within the proposed site. There are high groundwater levels present and it is considered likely that dewatering will be necessary for any mineral extraction. A planning application for mineral extraction at this site would need to include a Hydrogeological Risk Assessment to identify any potential impacts to groundwater and appropriate mitigation measures.

**Water Framework Directive:** The site is approximately 1.1km from the County Drain which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards the County Drain. MIN 06 and the existing adjacent processing plant, which the carstone would be transported to by internal haul route, are both located north of the County Drain. Therefore the carstone to be processed would not be transported across this waterbody. Due to the distance of the site from the County Drain, it is not expected that there would be a pathway for silt ingress into this waterbody from any future carstone extraction within site MIN 06.

**Utilities infrastructure:** There are no Anglian Water sewerage assets within the site. A public water main runs along part of the site boundary. Anglian Water would require the standard protected easement widths for the water main and for any requests for alteration or removal to be conducted in accordance with the Water Industry Act 1991. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is within the zone for RAF Marham where the Defence Infrastructure Organisation must be consulted on developments with the potential to increase the number of birds and the 'bird strike' risk to aircraft. Therefore a Bird Hazard Assessment would be required at the planning application stage.

**Restoration:** The site is proposed to be restored to a heathland habitat.

**Initial conclusion:** The site is considered to be suitable for allocation as a site for carstone extraction subject to any planning application addressing the requirements below:

- Phasing of the site with other carstone quarries nearby, so that extraction only commences on this site once extraction is completed on other workings;
- A programme of mitigation measures to deal with any amenity impacts;
- A scheme of working, which mitigates landscape impacts, to include progressive restoration to a lower level with some inert fill, with final restoration to heathland or arable with wide field margins to provide biodiversity gains;
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field

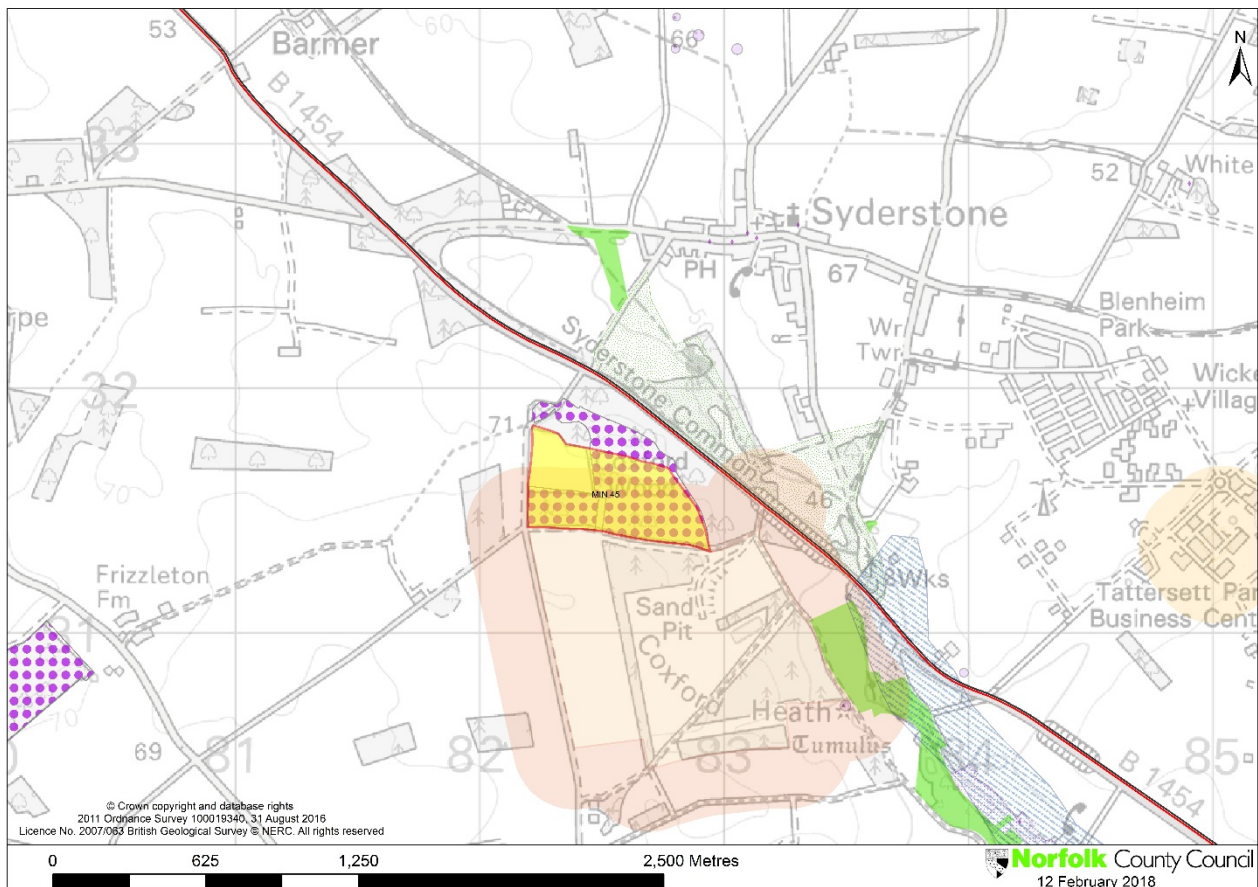


surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures;

- A sufficient stand-off distance around the water main which runs along part of the site boundary or diversion of the water main at the developer's cost and to the satisfaction of Anglian Water;
- Highway access to be via an internal haul route to the adjacent existing quarry entrance on the East Winch Road, and traffic routing via East Winch Road to the A47;
- Contributions to any highway improvements which would be required by the Highway Authority to ensure highway safety;
- A Transport Assessment or Statement to identify any capacity/safety issues at the East Winch Road/A47 junction and contributions towards any junction improvements required as a result; and
- A Hydrogeological Risk Assessment to identify any potential impacts to groundwater and appropriate mitigation, to include mitigation/compensation for any private abstraction points affected by dewatering in relation to this development.

**Question 58: Proposed Site MIN 6 'land off East Winch Road, Mill Drove, Middleton' - Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## MIN 45 - land north of Coxford Abbey Quarry (south of Fakenham Road), East Rudham



### Site Characteristics

- The 22.7 hectare site is within the parish of East Rudham
- The estimated sand and gravel resource at the site is 700,000 tonnes
- The proposer of the site has given a potential start date of 2023 and estimated the extraction rate to be 100,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within seven years which would be within the plan period.
- The site is proposed by Longwater Gravel Co Ltd as an extension to an existing site.
- Approximately 17.4 hectares of site is currently a Plantation on Ancient Woodland Site (PAWS), with the remainder an agricultural field. The Agricultural Land Classification scheme classifies the land as being partly Grade 3 and partly non-agricultural.
- The site is 8.4km from Fakenham which is the nearest town.

**Amenity:** The nearest residential property is 273m from the site boundary. The settlement of Syderstone is 848m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. Therefore, no adverse amenity impacts are expected from the proposed mineral extraction.

**Highway access:** The site would use the existing site access route on to the B1454 (Fakenham Road), which is a designated lorry route, and then onto the A148. The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period. The estimated number of HGV movements is 14 per day. The proposed highway access is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is heathland and ancient woodland. The site is within a wider historic landscape character of Twentieth century agriculture

with enclosure and boundary loss with a relict element, and agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure. The wider historic landscape character also includes common, heath, mineral extraction and 18<sup>th</sup> to 20<sup>th</sup> century woodland plantation.

The nearest Listed Building is Grade II Thurnby House, which is 940m away. There are 6 Listed Buildings within 2km of the site. The nearest Scheduled Monument is the 'Saucer Barrow at Coxford Heath' which is 820m away. There are 3 Scheduled Monuments within 2km of the site boundary. Tattersett Conservation Area is 1.34km from the site. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** There are no Historic Environment records within the site boundary, however the lack of HE records may just be due to a lack of investigations. There have been isolated multi-period finds in the wider landscape, a probable Roman trackway running parallel to the boundary, and a WW2 bombing decoy site immediately south of the site. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site consists of an arable field in the north-west, whilst the rest of the site is primarily coniferous woodland. The site falls within two landscape character areas; 'Bagthorpe Rolling Open Farmland' and 'Bircham Plateau Farmland' in the King's Lynn and West Norfolk Landscape Character Assessment. The western boundary of the site is adjacent to Bagthorpe Road. The northern and eastern boundaries are set back from the B1454 and are screened by a treebelt. There is an active mineral working to the south. The site is remote from settlement.

There is a Public Right of Way adjacent to the southern boundary of the site (East Rudham RB11). There is a PRoW adjacent to part of the site boundary with the Fakenham Road (Syderstone RB9).

**Ecology:** The site is 3.14km from the River Wensum SAC and is outside the Impact Risk Zone for the River Wensum SSSI. Therefore there would be no likely significant effects on the integrity of the SSSI or SAC from the proposed mineral extraction site.

Syderstone Common SSSI is 0.15km from the site boundary. The SSSI citation states that the site consists of a series of heath and grassland communities occupying a shallow valley. These communities grade from dry heath and acid grassland to marshy acid grassland. In the lowest areas there are a series of seasonally wet pools. Syderstone Common supports a breeding colonies of five species of amphibian including nationally rare natterjack toads. The potential exists for impacts from mineral extraction at MIN 45, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application.

The nearest County Wildlife Site is CWS 589 'Coxford Meadows' which is 500m from the site. The CWS consists of a mosaic of many different habitat types and crossed by the River Tat. It includes several artificial lakes surrounded by scrub, several dry heathland areas, areas of damp neutral grassland, scrub, oak and birch woodland. Due to the distance from the CWS there would be no impacts from dust deposition. The proposed extraction site would be worked dry (above the water table) and therefore the County Wildlife Site would not be adversely affected.

The site is on an ancient woodland site, Coxford Wood, which is a Plantation on Ancient Woodland Site (PAWS). The National Planning Policy Framework states that 'planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss'. National guidance states that PAWS sites should be afforded the same protection as standing ancient

woodland. This site is the only remaining part of the previous allocation MIN 45 which is unworked; however, sand and gravel resources are only of local or regional significance. Therefore, it is not considered that a proposal for extraction on this site would meet the benefit/loss test in national policy.

**Geodiversity:** The site consists of the Britons Lane Sand and Gravel member, overlying chalk formations. The Britons Lane sands and gravels are known to contain priority features such as palaeosols and erratics in other locations, and therefore they may occur on this site. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) of flooding from rivers. The site has a low probability of surface water flooding, with a minor surface water flow path along the southern boundary of the site in a 1 in 1000 year rainfall event. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a principal aquifer (bedrock) and a secondary A aquifer (superficial deposits). A small part of the site is within groundwater Source Protection Zone 2. The site would be worked dry (above the water table) and therefore no effect on water resources is expected.

**Water Framework Directive:** The site is approximately 2.5km from the River Tat which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards the River Tat. MIN 45 and the existing adjacent processing plant, which the sand and gravel would be transported to by internal haul route, are both located a considerable distance north of the River Tat. Therefore the sand and gravel to be processed would not be transported across the River Tat. Due to the distance of the site from the River Tat, it is not expected that there would be a pathway for silt ingress into this waterbody from any future sand and gravel extraction within site MIN 45.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is not within an aerodrome safeguarding zone.

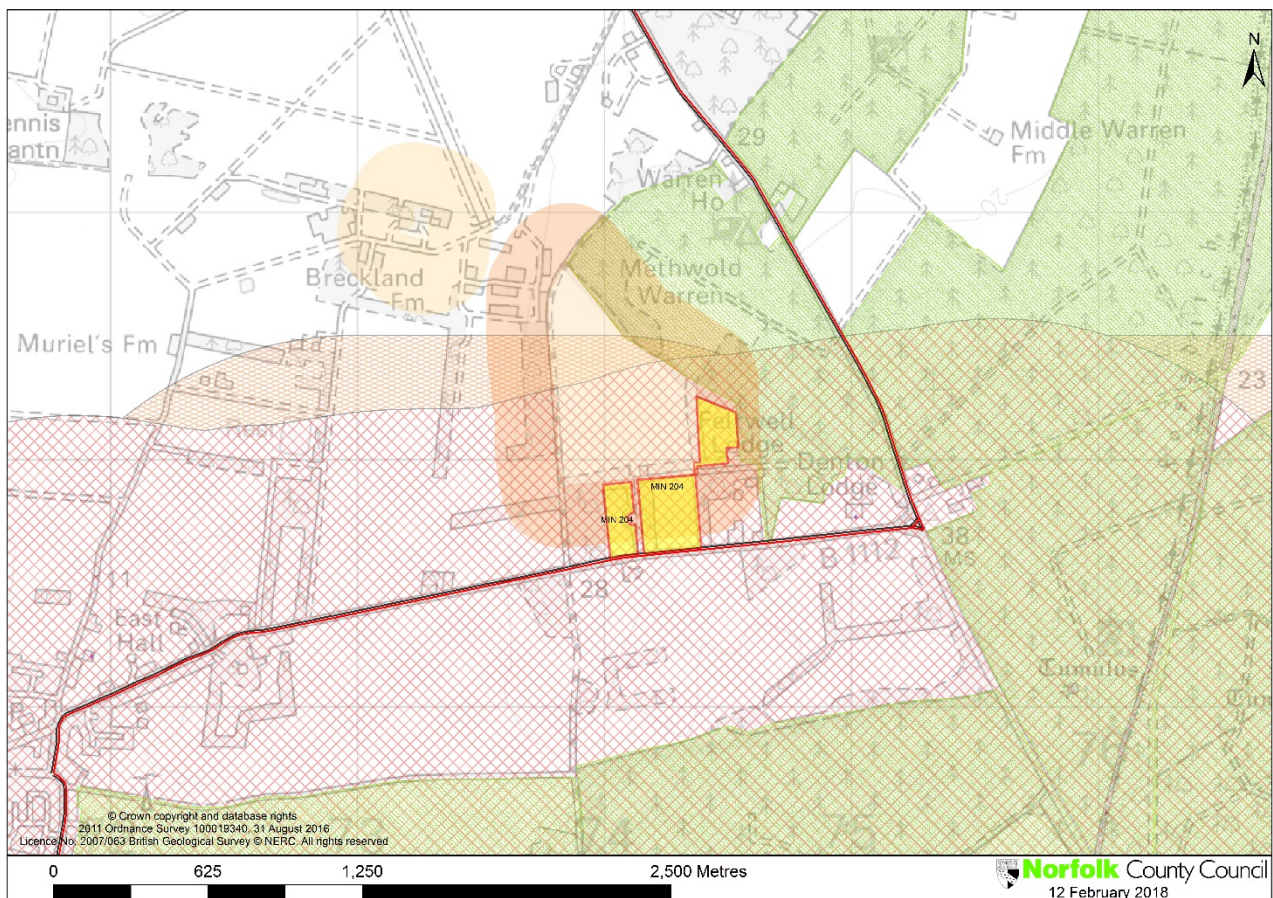
**Restoration:** The site proposal indicates that soils would be stored and reapplied following extraction, and the restoration concept is for 'Trees with parkland'. It has not been proved at this stage that soil storage and reapplication would have no detrimental effects to the quality of the PAWS, or that this would aid the proposal in meeting the benefit/loss test.

**Initial conclusion:** The site is considered to be unsuitable for allocation because:

- It is considered unlikely that a proposal largely on an ancient woodland site, for the extraction of sand and gravel, would meet the benefit/loss test set out in the NPPF.
- It has not been proved that soil translocation would have no detrimental effects to the quality of the PAWS, or that this would aid the proposal in meeting the benefit/loss test. Natural England in 2012 stated that "ancient woodland as a system cannot be moved", and the Joint Nature Conservation Committee states that the uncertainty of habitat translocation means that it should be viewed only as a measure of last resort in partial compensation for damaging developments.

**Question 59: Proposed Site MIN 45 'land north of Coxford Abbey Quarry, East Rudham' - Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## MIN 204 - land north of Lodge Road, Feltwell



### Site Characteristics

- The 13.86 hectare site is within the parish of Feltwell
- The estimated sand and gravel resource at the site is 580,000 tonnes for all three parcels of land. It is estimated that the two southern parcels of land contain approximately 430,000 tonnes.
- The proposer of the site has given a potential start date of 2023 and estimated the extraction rate to be 50,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within twelve years, which would be within the plan period.
- The site is proposed by LP Pallet Quarry (Feltwell) Ltd as an extension to an existing site.
- The site is made up of three separate parcels of land which are currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being mainly non-agricultural land, with a small area of Grade 4 agricultural land.
- The site is 13.8km from Thetford, which is the nearest town.

**Amenity:** The nearest residential property is 21m from the site boundary. There are six sensitive receptors within 250m of the site boundary. The settlement of Feltwell is 1.3km away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** A new access would be formed onto the B1112 (Lodge Road), which is a designated lorry route (approx. 150 m west of the Sawmill access). The site is not within an AQMA. The estimated number of HGV movements is 20 per day. The proposed highway access is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is agriculture with 18<sup>th</sup> to 19<sup>th</sup> Century piecemeal enclosure. The site is within a wider historic landscape character of Twentieth Century agriculture with enclosure and boundary loss, agriculture with 18<sup>th</sup> to 19<sup>th</sup> Century piecemeal enclosure, 18<sup>th</sup> to 20<sup>th</sup> century woodland plantation, and mineral extraction.

There is one Listed Building within 2km of the boundary; Grade II Denton Lodge which is 640m away. The nearest Scheduled Monument is the Bowl Barrow in Lynnroad Covert, which is 1.59km away. There are 2 Scheduled Monuments within 2km of the site boundary. There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** The site is located within a Historic Environment feature for Methwold Rabbit Warren. There are no HE records indicating finds but this may be as a result of lack of investigations. The site is in a wider landscape with a significant number of finds and features from the multiple periods but especially the Neolithic and Bronze Ages. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site is within the landscape character area described as 'Northwold Settled Farmland with Plantations' in the King's Lynn and West Norfolk Landscape Character Assessment. The site consists of three separate parcels of land which are surrounded by mainly coniferous woodland except for the southern boundaries of the two parcels along Lodge Road, which are bordered by hedgerows. Therefore all parcels of land are screened from views from the north, east and west, by existing trees. However, there are views into the site from Lodge Road and therefore additional screen planting and bunding will be required to ensure that site is also sufficiently screened from the south.

There are no Public Rights of Way within or adjacent to the site.

**Ecology:** Breckland Forest SSSI, part of the Breckland SPA, is adjacent to the site boundary. The SSSI citation states that the clear fell areas and young plantations within Breckland Forest SSSI provide suitable breeding habitat for woodlark and nightjar which occur in internationally important numbers. The forest also supports an important assemblage of protected plant species, internationally rare and nationally scarce plant species. The forest also supports an exceptionally rich invertebrate fauna. All three parcels of land are within the Protection Zone for Stone Curlews, an internationally protected ground nesting bird.

The potential exists for impacts from mineral extraction at MIN 204, if uncontrolled. An assessment of potential impacts, including from dust deposition, noise and disturbance to protected species, together with appropriate mitigation, would be required at the planning application stage. As a result of the precautionary principle in relation to the Habitats Regulations, if effects are to the SPA are judged as uncertain then development should not take place. The Habitat Regulations Assessment (HRA) Task 1 has found that the two southern parcels are likely to be able to be extracted without giving rise to unacceptable impacts if appropriate mitigation is put in place; this conclusion is based on the experience of mineral working to the north which is closer to the SPA. The most north-easterly parcel of land has a boundary adjacent to the SPA, and is closer than any previous working; the conclusion of the HRA is that impacts are uncertain. Therefore, the north-western parcel of land is not considered suitable for allocation.

Weeting Heath SSSI, part of the Breckland SAC, is 2.03km from the site boundary. The SSSI citation states that the site is a classic example of open, rabbit-grazed, Breckland grass-heath. Most of the site is covered by calcareous grassland and lichen-dominated heath, and a number of rare plants characteristic of Breckland are present. A small arable weed reserve is included within

the site and many of the rare Breckland annuals have been introduced to it. The site is of considerable ornithological importance supporting a high breeding density and variety of heathland birds, including the Stone Curlew. Whilst the site is within the Impact Risk Zone for the SSSI, due to the distance no impacts on this SSSI are expected.

Breckland Farmland SSSI is 0.90km from the site boundary. The SSSI citation states that the predominantly arable site has an internationally important population of Stone Curlew. All three parcels of land are within the Protection Zone for Stone Curlews. The potential exists for impacts from mineral extraction at MIN 204, if uncontrolled. An assessment of potential impacts, together with appropriate mitigation would be required as part of any planning application.

There are no County Wildlife Sites within 1km of the site.

There are no ancient woodland sites within 3km of the site.

**Geodiversity:** The site consists of the Croxton sand and gravel member, Ingham sand and gravel formation in NW of site, overlying Chalk Formations. There is a significant potential that glacial and peri-glacial geodiversity priority features may exist within the Croxton sands and gravels. The Ingham sands and gravels may also contain geodiversity priority features due to the method of formation. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered. The geological information supplied by the proposer of the site is sparse and poorly spaced, has not followed the guidance published by Norfolk County Council; these issues would need to be rectified prior to the publication of the next stage of the plan making process. However, given that the site is an extension of a mineral working, an assumption has been made for this stage that the data is correct.

**Flood Zone:** The site is in Flood Zone 1 (lowest risk) of flooding from rivers. The site has a low risk of surface water flooding with two locations of surface water pooling in a 1 in 30 year rainfall event and a five locations of surface water pooling in a 1 in 100 year rainfall event. In the 1:1000 year rainfall event approximately 40% of the western field is covered by surface water pooling. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a principal aquifer (bedrock) and partially located over a secondary A aquifer (superficial deposits). Part of the site is within groundwater Source Protection Zone 2. The rest of the site is not within a groundwater SPZ. A planning application for mineral extraction at this site would need to include a Hydrogeological Risk Assessment to identify any potential impacts to groundwater and appropriate mitigation measures.

**Water Framework Directive:** The site is approximately 3.9km from the Cut-off Channel; the River Wissey and Cut-off Channel are the nearest Water Framework Directive waterbodies. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards the River Wissey and Cut-off Channel. MIN 204 and the existing adjacent processing plant, which the sand and gravel would be transported to by internal haul route, are both located a considerable distance north of the River Wissey and Cut-off Channel. Therefore the sand and gravel to be processed would not be transported across these waterbodies. Due to the distance of the site from the River Wissey and Cut-off Channel, it is not expected that there would be a pathway for silt ingress into these waterbodies from any future sand and gravel extraction within site MIN 204.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is within the zone for RAF Lakenheath where the Defence Infrastructure Organisation must be consulted on developments with the potential to increase the

number of birds and the 'bird strike' risk to aircraft. Therefore a Bird Hazard Assessment would be required at the planning application stage.

**Restoration:** The site is proposed to be restored to grass heathland with some areas of bare ground and short vegetation in each to create habitat for stone curlew, nightjar and woodlark.

**Initial conclusion:** If better quality geological information is supplied which proves the estimated mineral resource, the two southern parcels of land are considered to be suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:

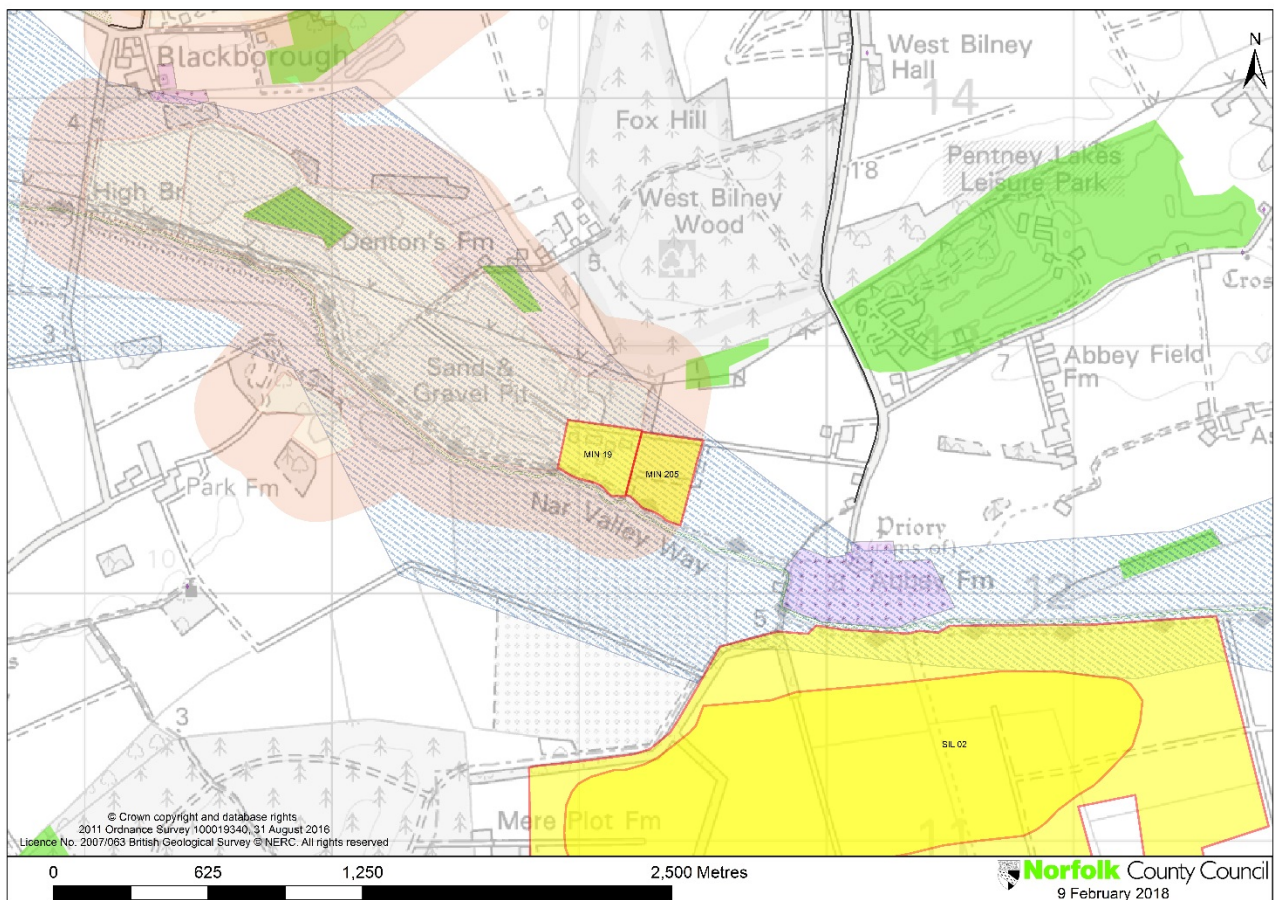
- Noise and dust assessments and a programme of mitigation measures to deal appropriately with any amenity impacts, particularly for the property known as Feltwell Lodge Gatehouse;
- A detailed landscaping and screening scheme must be developed, so that the impacts on Feltwell Lodge Gatehouse, and the landscape generally, are acceptable;
- A progressive restoration scheme to a nature conservation afteruse to provide landscape and biodiversity gains;
- Opportunities during working for any geodiversity assets to be studied, and if compatible with the landscape and ecology objectives an open face to be included within any restoration scheme for future scientific study;
- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required;
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures;
- The existing processing plant site and the existing access route to the highway should be used; and
- The site will need to be phased with other sites in the area so that only one site is worked for extraction at a time.

**Question 60: Proposed Site MIN 204 'land north of Lodge Road, Feltwell' -**

**Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**



## MIN 19 & MIN 205 - land north of the River Nar, Pentney



### Site Characteristics

- The 14.95 hectare site is within the parish of Pentney
- The estimated sand and gravel resource at the site is 850,000 tonnes
- The proposer of the site has given a potential start date of 2025 and estimated the extraction rate to be 80,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within eleven years, which would be within the plan period.
- The site is proposed by Middleton Aggregates Ltd as an extension to an existing site.
- MIN 19 currently contains an asphalt plant and related storage, MIN 205 is in agricultural use and the Agricultural Land Classification scheme classifies the land as being mainly Grade 3, with a small area of non-agricultural land.
- The site is 7.9km from King's Lynn, 11km from Downham Market and 12.1km from Swaffham which are the nearest towns.

**Amenity:** The nearest residential property is 654m from the site. The settlement of Blackborough End is 2.7km away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. Therefore, no adverse amenity impacts are expected from the proposed mineral extraction.

**Highway access:** The site would use the existing access route along Common Road (which is a designated HGV access route in the route hierarchy) up to its junction with the A47. The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period. The estimated number of HGV movements is 30 (in and out) per day. The proposed highway access is considered to be suitable by the Highway Authority, subject to highway improvements along Common Road.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with enclosure, and mineral extraction. The site is within a wider historic landscape character of Twentieth century agriculture with enclosure and boundary loss, agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure, and drained Parliamentary fen enclosure. The wider historic landscape character also includes leisure/recreation, a water reservoir, mineral extraction, and woodland (carr woodland and 18<sup>th</sup> to 20<sup>th</sup> century plantation woodland).

The nearest Listed Building is the Grade I 'Remains of Augustinian Priory' which is 690m away. There are 4 Listed Buildings within 2km of the site. The nearest Scheduled Monument is the Remains of Pentney Priory at Abbey Farm which is 460m away. There are 2 Scheduled Monuments within 2km of the site. There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** There are no Historic Environment records within the site boundary, however the lack of HE records may just be due to a lack of investigations. The site is in a wider landscape with a significant number of finds and features from multiple periods, especially to the east in the direction of the remains of Pentney Abbey. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is located within a Core River Valley. The site is not located within the AONB or any other designated landscape feature. MIN 19 currently contains an asphalt plant and related storage, MIN 205 is grazing marsh. The site is within the landscape character area described as 'The Fens – Open Inland Marshes – Saddlebow and Wormegay' in the King's Lynn and West Norfolk Landscape Character Assessment.

The site is within the River Nar floodplain and is bounded by farmland to the east and an extensive area of sand and gravel extraction to the west. Woodland lies to the north of the site and the River Nar is immediately south. The site is not easily accessible from public viewpoints apart from the public footpath which runs alongside the River Nar.

For mineral extractions to be acceptable within a Core River Valley proposals need to demonstrate that they will result in landscape enhancement on restoration. When MIN 19 was allocated in 2013, the resulting removal of the existing asphalt plant was considered to be a landscape gain resulting from the mineral extraction. However, the asphalt plant is now subject to a time limited planning permission for it to cease operations by March 2018 and its subsequent removal; an undetermined application has been made to extend operations to October 2020. Therefore, regardless of the decision on the planning application, the asphalt plant will be removed from the site early in the Plan Period. Therefore, the removal of the plant would not now be a landscape gain which could be associated with the proposed mineral extraction on MIN 19.

MIN 205 is currently grazing marsh. A Heritage assessment submitted by the proposer of the site suggests that restoration to water would result in a landscape gain, as it would return it to a condition similar to that prior to the fen being drained. However, it is considered that previous mineral workings in the area have already resulted in areas of water/reedbeds nearby and given that the River Nar is embanked as a result of the drainage of the area, additional open water closer to the Scheduled Monuments at Pentney Priory would not result in enhancement of the landscape to justify mineral extraction.

There is a PROW (Pentney FP20) adjacent to the southern boundary of the site.

**Ecology:** The site is more than 5km from any SPA, SAC or Ramsar site. Therefore, there would be no likely significant effects on these sites.

River Nar SSSI is adjacent to the site boundary. The SSSI citation states that the River combines the characteristics of a southern chalk stream and an East Anglian fen river. Together with the adjacent terrestrial habitats, the Nar is an outstanding river system of its type. The section of the river near MIN 19 & MIN 205 is embanked. The potential exists for impacts from mineral extraction at this site, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application.

East Winch Common SSSI is 2.85km from the site boundary. The SSSI citation states that it is an area of predominantly wet acid heathland on shallow peat. Many wet hollows are present containing diverse fen and mire communities. One rare plant species occurs and also several uncommon species. The site is surrounded by young woodland. The site is within the Impact Risk Zone for this SSSI, however, due to this distance, no impacts on the SSSI are expected.

The nearest County Wildlife Sites are: CWS 429 'South West Bilney Warren', an area of coppice woodland with a grassy ground flora which is 190m from the site, and CWS 431 'Valetta Meadow' which is an area of damp to well-drained neutral grassland which is 520m from the site. The potential exists for impacts from mineral extraction at this site, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application.

There are no ancient woodland sites within 3km of the site.

**Geodiversity:** The site consists of peat, overlying Leziate Member-sand. The site is unlikely to contain geodiversity priority features. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application.

**Flood Risk:** The majority of the site (96%) is in Flood Zone 2 (medium risk), and 4% of the site is within Flood Zone 3 (high risk) for flooding from rivers in the Borough Council SFRA. The site has a low probability of surface water flooding, with a few small locations of surface water pooling in a 1 in 100 year rainfall event. In a 1 in 1000 year rainfall event there are additional small areas of surface water pooling. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is within the East of Ouse, Polver and Nar Internal Drainage Board area.

**Hydrogeology:** The site is not located over any superficial deposit aquifers. The site is located over a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.

**Water Framework Directive:** The site is adjacent to the River Nar and approximately 0.2km from the County Drain, which are the nearest Water Framework Directive waterbodies. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards the River Nar and County Drain. MIN 19 & MIN 205 and the existing adjacent processing plant, which the sand and gravel would be transported to by internal haul route, are both located north of the River Nar and County Drain. Therefore the sand and gravel to be processed would not be transported across these waterbodies. Due to the distance of the site from the River Nar and County Drain, it is not expected that there would be a pathway for silt ingress into these waterbodies from any future sand and gravel extraction within site MIN 19 & MIN 205.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is within the zone for RAF Marham where the Defence Infrastructure Organisation must be consulted on developments with the potential to increase the number of birds and the 'bird strike' risk to aircraft. Therefore a Bird Hazard Assessment would be required at the planning application stage.

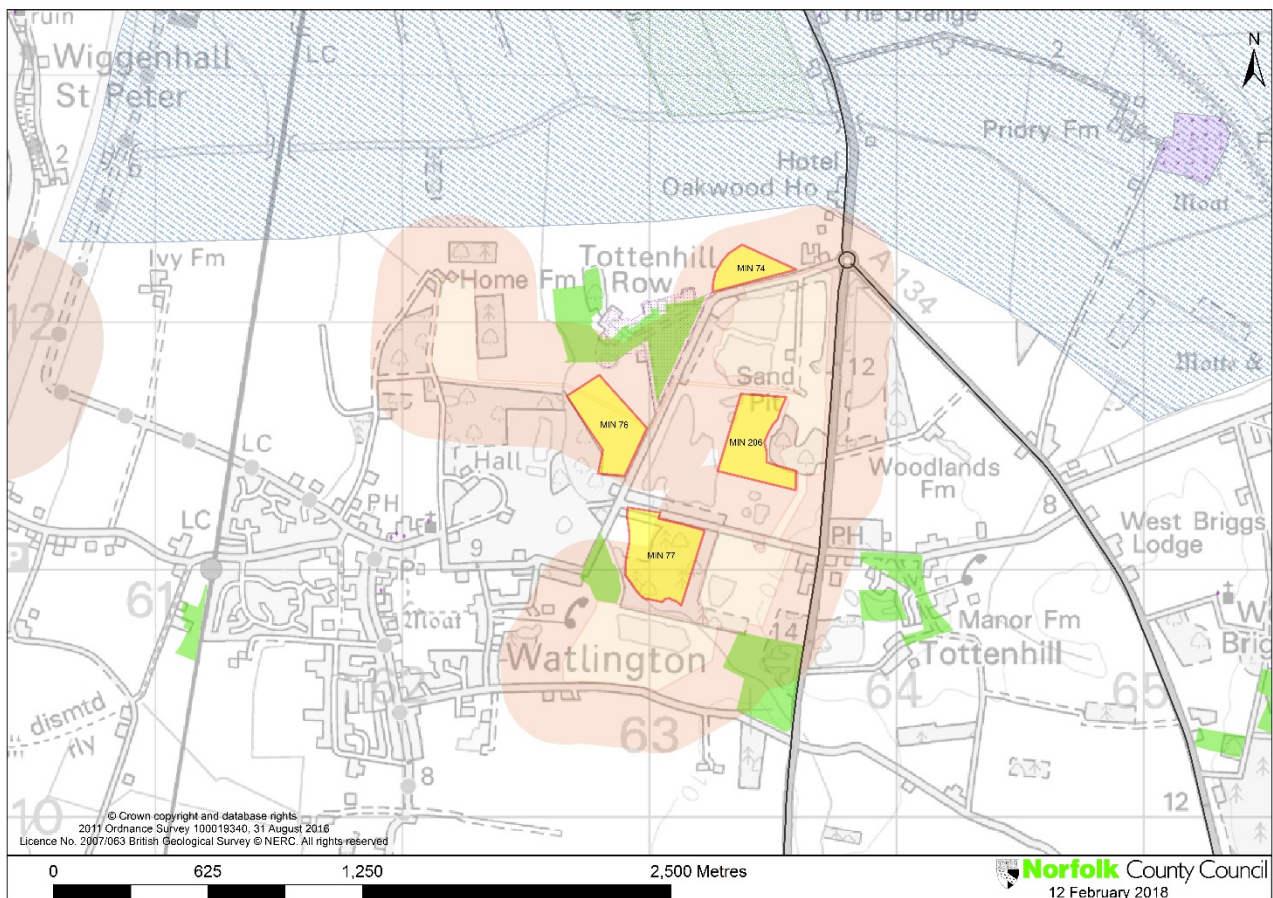
**Restoration:** The scheme proposed by the mineral operator is for restoration to reedbeds with open water, either as one body of water or several smaller pools.

**Initial conclusion:** The site is considered to be unsuitable for allocation because:

- The site is within a Core River Valley and the restoration would not result in enhancement to the landscape sufficient to justify mineral extraction, as the asphalt plant would be removed when the time limited planning permission expires.
- The open nature of the landscape would mean that harm would be likely to the setting and significance of the Scheduled Monument (Pentney Priory Gatehouse), and that having special regard to its protection and enhancement it is considered that mineral extraction on this site would not be acceptable.

**Question 61: Proposed Site MIN 19 & MIN 205 'land north of the River Nar, Pentney' - Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## Map of proposed sites at Tottenhill (MIN 74, MIN 76, MIN 77, MIN 206)



### MIN 74 - land at Turf Field, Watlington Road

#### Site Characteristics

- The 3.21 hectare site is within the parish of Tottenhill
- The estimated sand and gravel resource at the site is 160,000 tonnes
- The proposer of the site has given a potential start date of 2024 and estimated the extraction rate to be 100,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within two years, which would be within the plan period.
- The site is proposed by Frimstone Ltd as an extension to an existing site. The Tottenhill sites would be worked sequentially to mitigate any cumulative impacts.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 3
- The site is 5.8km from King's Lynn and 8.1km from Downham Market which are the nearest towns.

**Amenity:** The nearest residential property is 77m from the site boundary. There are four sensitive receptors within 250m of the site boundary. Tottenhill Row is 77m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site would use the existing quarry access along Watlington Road (C51) for about 150 metres before reaching the roundabout for the A10/A134), which is a designated lorry route. The site is not within an AQMA. As a proposed extension to an existing site, the number of

vehicle movements is expected to remain the same but continue for a longer period. The estimated number of HGV movements is 40 per day. The proposed highway access is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with boundary loss. The site is within a wider historic landscape character of Twentieth Century agriculture with enclosure and boundary loss, agriculture with 18<sup>th</sup> to 19<sup>th</sup> Century enclosure, Pre-18<sup>th</sup> century drained fen enclosure and a common. The wider historic landscape character also includes informal parkland, 18<sup>th</sup> to 20<sup>th</sup> Century woodland, a water reservoir and mineral extraction.

The nearest Listed Building is Grade II 'The Grange' which is 980m away. There are 9 Listed Buildings within 2km of the site. The only Scheduled Monument within 2km of the site is the 'Moated site of Wormegay Priory' which is 1.51km away. Tottenhill Row Conservation Area is adjacent to the site. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** The site is located within an area of interest, and there are Historic Environment records of isolated multi-period finds, within the site boundary. The site is set in a wider landscape with a very significant number of finds and features from multiple periods associated with Fen edge settlement. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site is an arable field. The site is within the landscape character area described as 'Stow Bardolph settled farmland with plantations' in the King's Lynn and West Norfolk Landscape Character Assessment. The site is in an elevated position on the fen edge, sloping towards Setchey to the north. There are a number of properties along the north end of Lynn Road and the A10 which may have views of the land from their upstairs windows. Open views of the site would be seen from the Nar Valley Way to the south and the sloping nature of the site would make these views hard to screen. It is considered that it would be difficult to screen any working from this direction and that any screening or bunding would be intrusive in its own right. The site is adjacent to the eastern extent of the Tottenhill Row Conservation Area, which includes a number of residential properties, and it is again considered that it would be difficult to screen any working from this direction and that any screening or bunding would be intrusive in its own right.

There are no Public Rights of Way within or adjacent to the site.

**Ecology:** The site is more than 5km from any SPA, SAC or Ramsar site. Therefore, there would be no likely significant effects on these sites.

Setchey SSSI is 0.54km from the site boundary. The SSSI citation details the geological importance of the site for scientific study. The proposed extraction site is within the hydrological catchment for Setchey SSSI but it does not drain towards the SSSI. Therefore there would be no adverse impacts to the SSSI.

River Nar SSSI is 1.10km from the site boundary. The SSSI citation states that the River combines the characteristics of a southern chalk stream and an East Anglian fen river. Together with the adjacent terrestrial habitats, the Nar is an outstanding river system of its type. The proposed extraction site is in a different hydrological catchment to the River Nar SSSI and therefore there would be no adverse impacts to the SSSI.

The nearest County Wildlife Site is CWS 387 'Tottenhill Row Common' which is 30m away. The CWS contains different habitat types, the majority of the site is neutral semi-improved grassland, but contains two large ponds and to the southeast is extensive continuous bracken. The potential

exists for impacts from mineral extraction at MIN 74, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application.

There are no ancient woodland sites within 3km of the site.

**Geodiversity:** This site consists of the Tottenhill gravel member-gravel, overlying Kimmeridge Clay formation-mudstone. There is a significant potential that geodiversity priority features may exist within the Tottenhill gravels due to the method of formation. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) of flooding from rivers. No areas of the site are at risk of flooding from surface water. The site is within the East of Ouse, Polver and Nar Internal Drainage Board area.

**Hydrogeology:** The site is located over a Secondary A aquifer (superficial deposit). The site is not located over any bedrock aquifers. There are no groundwater Source Protection Zones within the proposed site.

**Water Framework Directive:** The site is approximately 700 metres from Hobb's Drain, which flows into the Polver Drain, which in turn flows into the Relief Channel, which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards Hobb's Drain. MIN 74 and the existing processing plant, which the sand and gravel would be transported to by conveyor, are both located on the same side of Hobb's Drain and Polver Drain. Therefore the sand and gravel to be processed would not be transported across the drains. Due to the distance of the site from the drains it is not expected that there would be a pathway for silt ingress into the Relief Channel from any future sand and gravel extraction within site MIN 74.

**Utilities infrastructure:** There are no Anglian Water Sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is within the zone for RAF Marham where the Defence Infrastructure Organisation must be consulted on developments with the potential to increase the number of birds and the 'bird strike' risk to aircraft. Therefore a Bird Hazard Assessment would be required at the planning application stage.

**Restoration:** The site is proposed to be restored to an agricultural afteruse at original ground levels.

**Initial conclusion:** The site is considered to be unsuitable for allocation because:

- Any mineral working on this site would have unacceptable impacts on the landscape. It is not considered that screening/bunding would be able to appropriately mitigate such impacts, and would be intrusive in its own right.
- Any mineral working on this site would have unacceptable impacts on the historic environment, due to its location adjacent to the Tottenhill Row Conservation Area. It is not considered that screening/bunding would be able to appropriately mitigate such impacts, and would be intrusive in its own right.

**Question 62: Proposed Site MIN 74 'land at Turf Field, Watlington Road' - Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## MIN 76 - land at West Field, Watlington Road

### Site Characteristics

- The 6.67 hectare site is within the parish of Tottenhill
- The estimated sand and gravel resource at the site is 285,000 tonnes
- The proposer of the site has given a potential start date of 2019 and estimated the extraction rate to be 100,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within three years, which would be within the plan period.
- The site is proposed by Frimstone Ltd as an extension to an existing site. The Tottenhill sites would be worked sequentially to mitigate any cumulative impacts.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 3
- The site is 6.3km from King's Lynn and 7.3km from Downham Market which are the nearest towns.

**Amenity:** The nearest residential property is 82m from the site boundary. There are 11 sensitive receptors within 250m of the site boundary. Tottenhill Row is 153m away and Watlington is 456m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site would use an existing conveyor under the Watlington Road to the existing plant site and then use the existing plant access, along Watlington Road (C51) for about 150 metres before reaching the roundabout for the A10/A134), which is a designated lorry route. The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period. The estimated number of HGV movements is 42 per day. The proposed highway access is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with enclosure. The site is within a wider historic landscape character of Twentieth Century agriculture with enclosure and boundary loss, agriculture with 18<sup>th</sup> to 19<sup>th</sup> Century enclosure, unimproved rough pasture, enclosed wetland meadow and a common. The wider historic landscape character also includes allotments, informal parkland, 18<sup>th</sup> to 20<sup>th</sup> Century woodland plantation, a water reservoir and mineral extraction.

The nearest Listed Building is the Grade I Church of St Peter and St Paul which is 710m away. There are 8 Listed Buildings within 2km of the site. There are no Scheduled Monuments within 2km of the site. Tottenhill Row Conservation Area is 40m from the site. The site is largely screened from the conservation area by existing trees. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** The site is located within an area of interest, however, the results of a recent field evaluation have shown that there are no finds or features of archaeological importance within the site. The Norfolk Historic Environment Service has stated that in light of the field evaluation no further archaeological work is required on this site.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site comprises an arable field bounded by woodland to the west and a belt of trees and shrubs along Watlington Road to the east. The site is within the landscape character area described as 'Stow Bardolph settled farmland with plantations' in the King's Lynn and West Norfolk Landscape Character Assessment. There are views into the site from: a cottage opposite the north east boundary of the site, the field entrance to the south east corner of West Field off



Watlington Road, and a short section of Watlington Road around the existing conveyor culvert crossing. Mostly obscured, intermittent views can be seen from the hedge lined road between Tottenhill Row Common and the eastern boundary of West Field. The hamlet of Tottenhill Row lies approximately 150 metres to the north of the site, although views of the site from the houses are largely screened by trees. Common land surrounds the hamlet and quiet enjoyment of this area of the countryside could be affected by noise from working the site, if uncontrolled. To the south of the site, separated by a woodland belt, is a dwelling known as 'The Kennels'.

The site currently contains a mineral conveyor used to transport material from the active extraction site to the northwest to the plant site. It is considered that this conveyor would be used if extraction took place on MIN 76. To north of the site is a spring fed pond, known as 'Spring Pit' which could potentially be a historic mineral working. Previous mineral workings and the existing active processing plant are located to the east of the Watlington Road.

Views into the site would need to be screened by bunding and/or advanced planting to mitigate any adverse landscape impacts.

There are no Public Rights of Way within or adjacent to the site.

**Ecology:** The site is more than 5km from any SPA, SAC or Ramsar site. Therefore, there would be no likely significant effects on these sites.

Setchey SSSI is 1.08km from the site boundary. The SSSI citation details the geological importance of the site for scientific study. The proposed extraction site is within the hydrological catchment for Setchey SSSI but it does not drain towards the SSSI. Therefore there would be no adverse impacts to the SSSI.

River Nar SSSI is 1.68km from the site boundary. The SSSI citation states that the River combines the characteristics of a southern chalk stream and an East Anglian fen river. Together with the adjacent terrestrial habitats, the Nar is an outstanding river system of its type. The proposed extraction site is in a different hydrological catchment to the River Nar SSSI and therefore there would be no adverse impacts to the SSSI.

The nearest County Wildlife Site is CWS 378 'Runs Wood Meadow', an area of semi-improved neutral grassland which is wet in places and is 240m from the site. The potential exists for impacts from mineral extraction at MIN 76, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation measures would be required as part of any planning application.

There are no ancient woodland sites within 3km of the site.

**Geodiversity:** The site consists of the Tottenhill gravel member-gravel; overlying Kimmeridge Clay formation-mudstone. There is a significant potential that geodiversity priority features may exist within the Tottenhill gravels due to the method of formation. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) of flooding from rivers. No areas of the site are at risk of flooding from surface water. The site is partially within the East of Ouse, Polver & Nar Internal Drainage Board area.

**Hydrogeology:** The site is located over a Secondary A aquifer (superficial deposit). The site is not located over any bedrock aquifers. There are no groundwater Source Protection Zones within the proposed site.

**Water Framework Directive:** The site is approximately 50 metres from Hobb's Drain, which flows into the Polver Drain, which in turn flows into the Relief Channel which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards Hobb's Drain. MIN 76

and the existing processing plant, which the sand and gravel would be transported to by conveyor, are both located on the same side of Hobb's Drain and Polver Drain. Therefore the sand and gravel to be processed would not be transported across the drains. Due to the distance of the site from the drains, with woodland in between, it is not expected that there would be a pathway for silt ingress into the Relief Channel from any future sand and gravel extraction within site MIN 76.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is within the zone for RAF Marham where the Defence Infrastructure Organisation must be consulted on developments with the potential to increase the number of birds and the 'bird strike' risk to aircraft. Therefore a Bird Hazard Assessment would be required at the planning application stage.

**Restoration:** The site is proposed to be restored to a mixture of agriculture, reedbeds, a pond and native woodland edge habitats.

**Initial conclusion:** The site is considered to be suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:

- A screening scheme which will include mitigation of views from properties, the Conservation Area and surrounding roads;
- A programme of mitigation measures to deal appropriately with any amenity impacts;
- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required;
- A scheme of phased working and restoration including the direction of working (to assist in the mitigation of amenity impacts), landscaping and enhancement of biodiversity;
- A conservation led restoration to provide landscape and biodiversity gains;
- Opportunities during working for any geodiversity assets to be studied, and if compatible with the landscape and ecology objectives, an open face to be included within any restoration scheme for future scientific study;
- Phasing of the site will need to be taken into account, along with the existing permitted extraction, to ensure that only one extraction site is active at any one time; and
- A Hydrogeological Risk Assessment which identifies any potential impacts on groundwater and appropriate mitigation to address any impacts identified.

**Question 63: Proposed Site MIN 76 'land at West Field, Watlington Road' -  
Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## MIN 77 - land at Runs Wood, south of Whin Common Road, Tottenhill

### Site Characteristics

- The 8.83 hectare site is within the parish of Tottenhill
- The estimated sand and gravel resource at the site is 630,000 tonnes
- The proposer of the site has given a potential start date of 2026 and estimated the extraction rate to be 100,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within seven years, which would be within the plan period.
- The site is proposed by Frimstone Ltd as an extension to an existing site.
- The majority of the site is currently an area of woodland, and the Agricultural Land Classification scheme classifies the land as being Grade 3
- The site is 6.8km from King's Lynn and 6.9km from Downham Market which are the nearest towns.

**Amenity:** There is only one sensitive receptor within 250m of the site boundary, which is located 79m away. The settlement of Watlington is 368m away and Tottenhill is 414m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site would access the existing plant site via conveyor. The site would use the existing quarry access along Watlington Road (C51) for about 150 metres before reaching the roundabout for the A10/A134), which is a designated lorry route. The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period. The estimated number of HGV movements is 40 per day. The proposed highway access is considered to be suitable by the Highway Authority.

The Tottenhill sites would be worked sequentially to mitigate any cumulative impacts.

**Historic environment:** The historic landscape character of the site is Eighteenth to Twentieth Century plantation woodland. The site is within a wider historic landscape character of Twentieth Century agriculture with enclosure and boundary loss, agriculture with 18<sup>th</sup> to 19<sup>th</sup> Century piecemeal enclosure, unimproved rough pasture, enclosed wetland meadow and a common. The wider historic landscape character also includes allotments, informal parkland, 18<sup>th</sup> to 20<sup>th</sup> Century woodland plantation, a water reservoir and mineral extraction.

The nearest Listed Building is Grade I Church of St Peter and St Paul, which is 810m away. There are 8 Listed Buildings within 2km of the site. There are no Scheduled Monuments within 2km of the site. Tottenhill Row Conservation Area is 410m from the site. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** The site is located within an area of interest, and there are Historic Environment records that features exist within the site boundary. There are no HE records indicating finds but this may be as a result of lack of investigations. The site is set in a wider landscape with a very significant number of finds and features from multiple periods associated with Fen edge settlement, including Iron Age/ Roman settlement immediately to the south. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site is a mixed woodland that is predominately broadleaf species. The site is within the landscape character area described as 'Stow Bardolph settled farmland with

plantations' in the King's Lynn and West Norfolk Landscape Character Assessment. The woodland site is visible from Whin Common Road to the north. There is a restored mineral working to the west and an active extraction site to the south. The nearest dwellings are approximately 300m away. A large hollow has been identified within Runs Wood, which may be indicative of a historic mineral working which is now wooded. Runs Wood constitutes a significant area of woodland within the local landscape which also has a significant biodiversity value.

There are no Public Rights of Way within or adjacent to the site.

**Ecology:** The site is more than 5km from any SPA, SAC or Ramsar site. Therefore, there would be no likely significant effects on these sites.

Setchey SSSI is 1.59km from the site boundary. The SSSI citation details the geological importance of the site for scientific study. The proposed extraction site is within the hydrological catchment for Setchey SSSI but it does not drain towards the SSSI. Therefore there would be no adverse impacts to the SSSI.

River Nar SSSI is 2.21km from the site boundary. The SSSI citation states that the River combines the characteristics of a southern chalk stream and an East Anglian fen river. Together with the adjacent terrestrial habitats, the Nar is an outstanding river system of its type. The proposed extraction site is in a different hydrological catchment to the River Nar SSSI and therefore there would be no adverse impacts to the SSSI.

The nearest County Wildlife Sites are: CWS 378 'Runs Wood Meadow' an area of semi-improved neutral grassland which is wet in places, which is 260m away. CWS 381 'Thieves' Bridge Meadow' is 280m away and consists of a mixture of habitats situated on both sides of a flowing drain. The majority of the CWS is neutral grassland, with a large pond surrounded by woodland in the northeast. CWS 387 'Tottenham Row Common' is 450m away and contains different habitat types; the majority of the site is neutral semi-improved grassland, but contains two large ponds and to the southeast is extensive continuous bracken. The potential exists for impacts from mineral extraction at MIN 77, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application.

There are no ancient woodland sites within 3km of the site.

**Geodiversity:** This site consists of the Tottenham gravel member - gravel; overlying Kimmeridge Clay formation - mudstone. There is a significant potential that geodiversity priority features may exist within the Tottenham gravels due to the method of formation. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) of flooding from rivers. The site has a low risk of surface water flooding. There is a surface water flow path along the southern boundary of the site in a 1 in 30 year rainfall event which increases in size in a 1 in 100 and 1 in 1000 year rainfall event. This is likely to be a proxy for fluvial flooding from the adjacent ordinary water course. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is within the East of Ouse, Polver and Nar Internal Drainage Board area.

**Hydrogeology:** The site is located over a Secondary A aquifer (superficial deposit). The site is not located over any bedrock aquifers. There are no groundwater Source Protection Zones within the proposed site.

**Water Framework Directive:** The site is adjacent to Hobb's Drain, which flows into the Polver Drain, which in turn flows into the Relief Channel which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards Hobb's Drain. MIN 77 and the existing processing plant, which the sand and gravel would be transported to by conveyor, are both located

on the same side of Hobb's Drain and Polver Drain. Therefore the sand and gravel to be processed would not be transported across the drains. MIN 77 is adjacent to Hobb's drain and therefore the potential for silt ingress to this waterbody exists during the extraction phase, although screening bunds would form a physical barrier. Therefore, due to the distance of the site from the Relief Channel and the proposed physical barrier during extraction, it is not expected that there would be a pathway for silt ingress into the Relief Channel from any future sand and gravel extraction within site MIN 77.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is within the zone for RAF Marham where the Defence Infrastructure Organisation must be consulted on developments with the potential to increase the number of birds and the 'bird strike' risk to aircraft. Therefore a Bird Hazard Assessment would be required at the planning application stage.

**Restoration:** The site is proposed to be restored to nature conservation after use comprising a mixture of ponds, wet woodland, wet grassland etc. The proposed restoration scheme would not be able to replace the existing established woodland and would not mitigate for the loss of the existing woodland.

**Initial conclusion:** The site is considered to be unsuitable for allocation because:

- Mineral extraction on this site would cause unacceptable landscape and ecological impacts due to the loss of a significant area of mature mixed deciduous woodland

**Question 64: Proposed Site MIN 77 'land at Runs Wood, Tottenhill' -**

**Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## MIN 206 - land at Oak Field, west of Lynn Road, Tottenhill

### Site Characteristics

- The 6.77 hectare site is within the parish of Tottenhill
- The estimated sand and gravel resource at the site is 245,000 tonnes
- The proposer of the site has given a potential start date of 2021 and estimated the extraction rate to be 100,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within three years, which would be within the plan period.
- The site is proposed by Frimstone Ltd as an extension to an existing site. The Tottenhill sites would be worked sequentially to mitigate any cumulative impacts.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 3
- The site is 6.4km from King's Lynn and 7.4km from Downham Market which are the nearest towns.

**Amenity:** The only residential dwelling within 250m of the site boundary is 243m away. The settlement of Tottenhill is 243m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site is adjacent to the existing plant site which would be accessed via conveyor. From the plant site the site would use the existing plant access, along Watlington Road (C51) for about 150 metres before reaching the roundabout for the A10/A134), which is a designated lorry route. The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period. The estimated number of HGV movements is 40 per day. The proposed highway access is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with enclosure. The site is within a wider historic landscape character of Twentieth Century agriculture with enclosure and boundary loss, agriculture with 18<sup>th</sup> to 19<sup>th</sup> Century piecemeal enclosure, unimproved rough pasture, and a common. The wider historic landscape character also includes informal parkland, 18<sup>th</sup> to 19<sup>th</sup> Century woodland plantation, a water reservoir and mineral extraction.

The nearest Listed Building is the Grade I Church of St Peter and St Paul which is 1.19km away. There are 8 Listed Buildings within 2km of the site. The only Scheduled Monument within 2km of the site is the 'Moated site of Wormegay Priory' which is 1.75km away. Tottenhill Row Conservation Area is 290m from the site. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** The site is located within an area of interest, and there are Historic Environment records that features exist within the site boundary. There are no HE records indicating finds but this may be as a result of lack of investigations. The site is set in a wider landscape with a very significant number of finds and features from multiple periods associated with Fen edge settlement, including Iron Age/ Roman settlement to the south. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site is within the landscape character area described as 'Stow Bardolph

settled farmland with plantations' in the King's Lynn and West Norfolk Landscape Character Assessment. The site is an agricultural field immediately to the south of the existing active mineral processing plant. It is bounded to the east and west by woodland belts, with a flooded former mineral working also to the west. The Lynn Road is approximately 125m to the east. A mineral conveyor which goes between an active extraction area to the south and the processing plant runs close to part of the eastern boundary. The site is well screened from public viewpoints.

There are no Public Rights of Way within or adjacent to the site.

**Ecology:** The site is more than 5km from any SPA, SAC or Ramsar site. Therefore, there would be no likely significant effects on these sites.

Setchey SSSI is 1.14km from the site boundary. The SSSI citation details the geological importance of the site for scientific study. The proposed extraction site is within the hydrological catchment for Setchey SSSI but it does not drain towards the SSSI. Therefore there would be no adverse impacts to the SSSI.

River Nar SSSI is 1.7km from the site boundary. The SSSI citation states that the River combines the characteristics of a southern chalk stream and an East Anglian fen river. Together with the adjacent terrestrial habitats, the Nar is an outstanding river system of its type. The proposed extraction site is in a different hydrological catchment to the River Nar SSSI and therefore there would be no adverse impacts to the SSSI.

The nearest County Wildlife Sites are: CWS 387 'Tottenhill Row Common' which is 290m from the site; it contains different habitat types, the majority of the site is neutral semi-improved grassland, but contains two large ponds and to the southeast is extensive continuous bracken. CWS 385 'Tottenhill Village Green' is 360m from the site; it is an area of moderately species-rich neutral grassland containing three small ponds which are seasonally dry. CWS 384 'West of Tottenhill' is 480m away; it largely comprises ponds resulting from gravel extraction, surrounded by broadleaved woodland. The potential exists for hydrogeological impacts from mineral extraction at MIN 206, if uncontrolled. An assessment of potential impacts on hydrogeology, together with appropriate mitigation would be required as part of any planning application.

There are no ancient woodland sites within 3km of the site.

**Geodiversity:** The site consists of the Tottenhill gravel member-gravel, overlying Kimmeridge Clay formation-mudstone. There is a significant potential that geodiversity priority features may exist within the Tottenhill gravels due to the method of formation. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) of flooding from rivers. No areas of the site are at risk of flooding from surface water. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a Secondary A aquifer (superficial deposit). The site is not located over any bedrock aquifers. There are no groundwater Source Protection Zones within the proposed site.

**Water Framework Directive:** The site is approximately 400 metres from Hobb's Drain, which flows into the Polver Drain, which in turn flows into the Relief Channel which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards Hobb's Drain. MIN 206 and the existing processing plant, which the sand and gravel would be transported to by conveyor, are both located on the same side of Hobb's Drain and Polver Drain. Therefore the sand and gravel to be processed would not be transported across the drains. Due to the distance of the site from the drains it is not expected that there would be a pathway for silt ingress into the Relief Channel from any future sand and gravel extraction within site MIN 206.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is within the zone for RAF Marham where the Defence Infrastructure Organisation must be consulted on developments with the potential to increase the number of birds and the 'bird strike' risk to aircraft. Therefore a Bird Hazard Assessment would be required at the planning application stage.

**Restoration:** The site is proposed to be restored to an agricultural afteruse at original ground levels. Due to the expected depth of extraction, it is recognised that restoration to arable is likely to require the use of imported inert material to provide a suitable profile.

**Initial conclusion:** The site is considered suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:

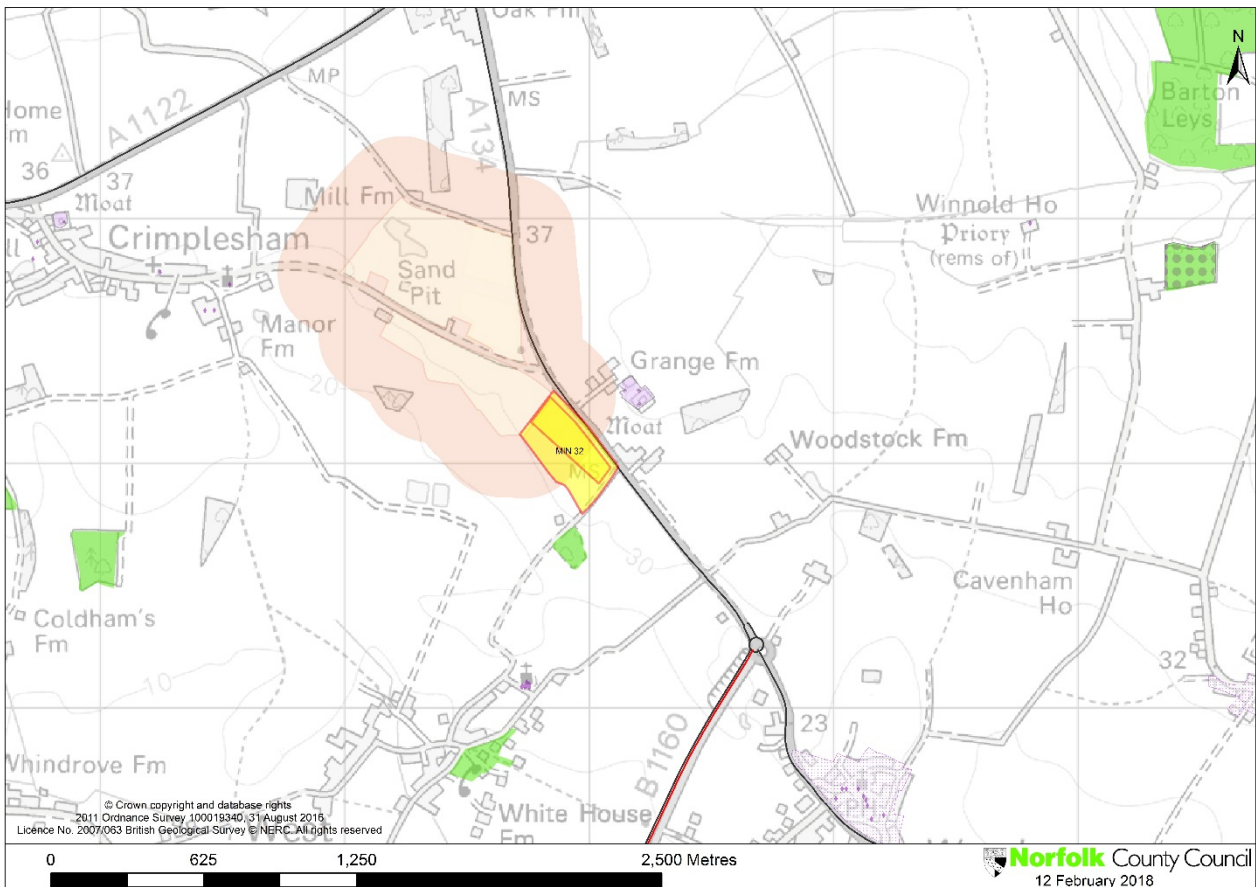
- Noise and dust assessments and a programme of mitigation measures to deal appropriately with any amenity impacts;
- A progressive restoration scheme to an agricultural afteruse, with wide field margins and hedgerow planting to provide landscape and biodiversity gains;
- Opportunities during working for any geodiversity assets to be studied, and if compatible with the landscape and ecology objectives an open face to be included within any restoration scheme for future scientific study;
- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required;
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures;
- The site will need to use the existing processing plant site, and highway access;
- The site will need to be phased with other sites in the area so that only one site is worked for extraction at a time; and
- An assessment to identify any potential areas where enhanced screening would be required to mitigate visual intrusion; where enhanced planting is required, this should be retained in any restoration scheme wherever possible.

**Question 65: Proposed Site MIN 206 'land at Oak Field, Tottenhill' -**

**Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**



## MIN 32 – land west of Lime Kiln Road, West Dereham



### Site Characteristics

- The 9.71 hectare site is within the parish of West Dereham
- The estimated sand and gravel resource at the site is 600,000 tonnes
- The proposer of the site has given a potential start date of 2028 and estimated the extraction rate to be 85,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted in just over seven years, which would be within the plan period.
- The site is proposed by Frimstone Ltd as an extension to an existing site.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 3
- The site is 4.4km from Downham Market, 15.2km from King's Lynn and 15.6km from Swaffham, which are the nearest towns.

A reduced extraction area has been proposed of 4.31 hectares, which only includes the site area within approximately 100 metres from the A134.

**Amenity:** The nearest residential property is 30m from the site boundary. There are 6 sensitive receptors within 250m of the site boundary. However, the southern part of the site is not proposed to be extracted. Therefore the nearest residential property is 60m from the extraction area and there are 6 sensitive receptors within 250m of the proposed extraction area. The settlement of West Dereham is 750m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site would use the existing quarry access onto the C543 Main Road, Crimplesham and then join the A134 Lynn Road), which is a designated lorry route, at the existing junction. The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period. The estimated number of HGV movements is 32 per day. The proposed highway access is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with boundary loss. The site is within a wider historic landscape character of Twentieth century agriculture with boundary loss and enclosure, agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure, mineral extraction and 18<sup>th</sup> to 20<sup>th</sup> century woodland plantation.

The nearest Listed Building is the Grade I Church of St Andrew which is 720m away. There are 26 Listed Buildings within 2km of the site (11 of these are headstones at the Church of St Andrew). A further 8 Listed Buildings are in Wereham Conservation Area which is 1.36km from the site. There is one Scheduled Monument within 2km of the site, the 'remains of monastic grange with moated site at Grange Farm', which is 180m away. Stradsett Hall, a Registered Historic Park and Garden is 1.99km from the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** The site is located within an area of interest, and there are Historic Environment records that features exist within the site boundary, and that finds have been found within the site boundary. However, there has not been any programme of investigations. The site is immediately adjacent to the remains of a significant Saxon building, and is in a wider landscape with a significant number of finds and features from multiple periods. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site comprises open arable land. The site is within the landscape character area described as 'Wereham settled farmland with plantations' in the King's Lynn and West Norfolk Landscape Character Assessment. The site is adjacent to the A134 to the northeast of the active permitted mineral extraction site at Crimplesham. The site is located on the 'fen edge' and slopes relatively steeply towards the south west, and due to the open nature of the surrounding landscape is visible from West Dereham, and a significant number of other viewpoints including the A134, Brick Kiln Lane, and Bath Road. Screening the site from the viewpoints would itself be intrusive.

There are no Public Rights of Way within or adjacent to the site.

**Ecology:** The site is more than 5km from any SPA, SAC or Ramsar site. Therefore, there would be no likely significant effects on these sites.

There are no SSSIs within 3km of the site boundary and the site is not within the Impact Risk Zone for any SSSIs.

The nearest County Wildlife Site is CWS 327 'Lime Pit' which is 60m away and is a discussed lime pit which has naturally recolonised. The CWS is dominated by dense scrub with patches of relatively species-rich neutral grassland. The potential exists for impacts from mineral extraction at MIN 32, if uncontrolled. An assessment of potential impacts, including from dust deposition, together with appropriate mitigation would be required as part of any planning application.

The nearest ancient woodland site is Kippers Wood which is a Plantation on Ancient Woodland Site (PAWS); it is 2.38km from the site boundary. Due to this distance, no impacts on this PAWS are expected.

**Geodiversity:** Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) of flooding from rivers. The site has a low probability of surface water flooding, with a surface water flow path just encroaching the south of the site in a 1 in 1000 year rainfall event. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is partially located over a Secondary aquifer (undifferentiated) (superficial deposits) and over a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.

**Water Framework Directive:** The site is approximately 700 metres from a stream within the catchment of the River Wissey and 3.2km from the Cut-off Channel, which are the nearest Water Framework Directive waterbodies. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards the River Wissey and cut-off Channel. MIN 32 and the existing adjacent processing plant, which the sand and gravel would be transported to by internal haul route, are both located on the same side of the River Wissey and Cut-off Channel. Therefore the sand and gravel to be processed would not be transported across these waterbodies. Due to the distance of the site from the River Wissey and Cut-off Channel, it is not expected that there would be a pathway for silt ingress into these waterbodies from any future sand and gravel extraction within site MIN 32.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is within the zone for RAF Marham where the Defence Infrastructure Organisation must be consulted on developments with the potential to increase the number of birds and the 'bird strike' risk to aircraft. Therefore a Bird Hazard Assessment would be required at the planning application stage.

**Restoration:** The site is proposed to be restored to agriculture with additional native woodland planting (0.7ha) and species-rich hedgerow.

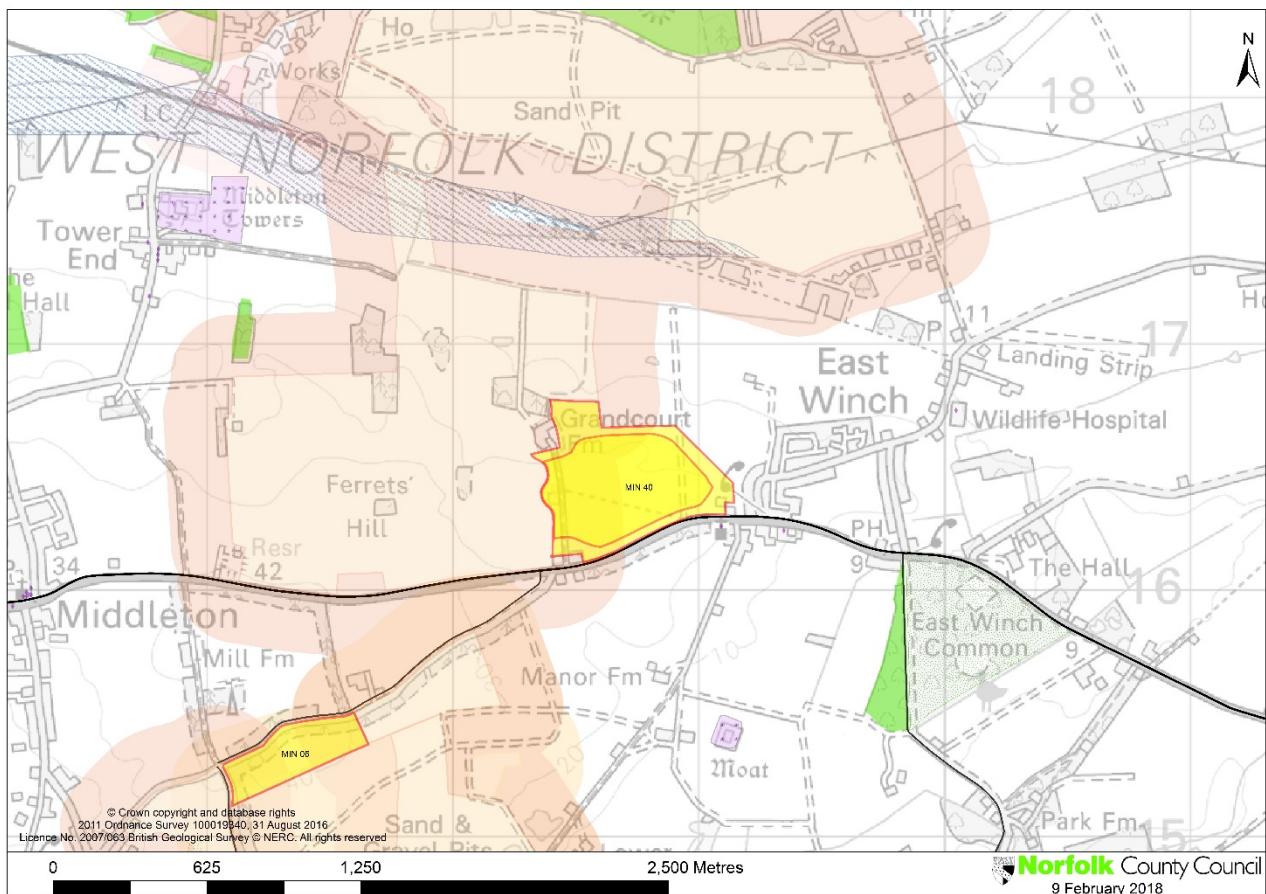
**Initial conclusion:** The site is considered to be unsuitable for allocation because:

- Any mineral working on this site would have unacceptable impacts on the landscape. It is not considered that screening/bunding would be able to appropriately mitigate such impacts, and would be intrusive in its own right.

**Question 66: Proposed Site MIN 32 'land west of Lime Kiln Road, West Dereham' - Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

# SILICA SAND

## MIN 40 - land east of Grandcourt Farm, East Winch



### Site Characteristics

- The 32.77 hectare site is within the parish of East Winch
- The estimated silica sand resource at the site is 3 million tonnes
- The proposer of the site has given a potential start date of 2018 and estimated the extraction rate to be 750,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within four years which would be within the plan period.
- The site is proposed by Sibelco UK as an extension to an existing site.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 4.
- The site is approximately 1.8km from the Leziate processing plant. The mineral would be transported by an internal haul route to the processing plant.

A reduced extraction area has been proposed of 22.11 hectares. This proposal includes standoff areas between the extraction and the properties along the A47 and Gayton Road.

**Amenity:** There is a residential property within the site, the next nearest residential property is 23m from the site boundary. There are 83 sensitive receptors within 250m of the site boundary. The settlement of East Winch is 23m away. However, part of the site nearest to East Winch is not proposed to be extracted. Therefore the nearest residential property is 110m from the extraction area and there are 49 sensitive receptors within 250m of the proposed extraction area. Even without mitigation, adverse dust impacts from sand extraction sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to

include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** It is proposed to access the site via the established internal haul route through the existing adjacent extraction area. Mineral would be taken from the site to the processing plant at Leziate using the internal haul route. The majority of processed mineral leaves the processing plant through the onsite railhead. The road transport of mineral would leave the processing plant via the existing access onto Station Road. The site is not within an AQMA. The proposed highway access is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with boundary loss. The site is within a wider historic landscape character of Twentieth century agriculture with enclosure and boundary loss, agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure and a common. The wider historic landscape character also includes mineral extraction, informal parkland and 18<sup>th</sup> to 20<sup>th</sup> century woodland plantation.

The nearest Listed Building is the Grade II\* Church of All Saints, which is 50m away. The Grade II Hall Farmhouse (formally Church Farmhouse) is 250m away. There are 10 Listed Buildings within 2km of the site. The nearest Scheduled Monument is the 'Moated site of Crancourt Manor' which is 790m away. There are 2 Scheduled Monuments within 2km of the site. There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** The site is located within an area of interest, and there are Historic Environment records of isolated multi period finds and features including a WW2 searchlight battery and a former roadway, within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods, including an adjacent site, with an Iron Age settlement which has produced regionally significant finds assemblages. Significant archaeological investigations have been carried out as part of the extraction of the adjacent active site. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site comprises open arable gently undulating landscape. The site is within the landscape character area described as 'Gayton and East Winch Farmland with Woodland and Wetland' in the King's Lynn and West Norfolk Landscape Character Assessment. The eastern boundary of the site is adjacent to part of the village of East Winch, and the A47 (a strategic trunk road) runs along the southern boundary of the site. An active permitted silica sand extraction site is adjacent to the western boundary, and an internal haul route travels north to the processing plant site at Station Road, Leziate.

There are filtered views over the site from the A47 and from the Public Right of Way along the western boundary. There are more open views of the site from the PRow (East Winch FP2) which crosses the site and from the properties on the eastern edge of East Winch. There are also two isolated properties to the south-west corner of the site, adjacent to the A47 which would have views of the site. Based on the existing adjacent mineral working, it is considered that views of the site from the A47 could be sufficiently screened by bunding. The extraction area of the site will need to be set back from the properties in East Winch village and from properties in the south-west corner. A suitable screening scheme will also be required to mitigate the views of the site from these properties.

There is a Public Right of Way along the western boundary of the site (East Winch BR1). There is also a PRow running across the site (East Winch FP2).

**Ecology:** East Walton and Adcock's Common SSSI, which is part of the Norfolk Valley Fens SAC, is 3.79km from the site boundary. The SSSI citation states that the commons are notable for a complex set of basin-shaped depressions separated by chalky ridges which were formed under periglacial conditions. Active springs are also a feature. This varied topography has resulted in a mosaic of habitats ranging from fen or occasionally open water in the depressions to chalk grassland or scrub on the intervening ridges. The topography is of considerable geomorphological interest. The site is also of great botanical interest containing some of the finest unimproved grassland remaining in Norfolk. The two commons have a very rich invertebrate fauna and the wide range of habitats is attractive to many breeding birds. The potential exists for impacts from mineral extraction at MIN 40, if uncontrolled. An assessment of potential hydrogeological impacts from dewatering, together with appropriate mitigation would be required as part of any planning application.

East Winch Common SSSI is 0.74km from the site boundary. The SSSI citation states that it is an area of predominantly wet acid heathland on shallow peat. Many wet hollows are present containing diverse fen and mire communities. One rare plant species occurs and also several uncommon species. The site is surrounded by young woodland. The potential exists for impacts from mineral extraction at MIN 40, if uncontrolled. An assessment of potential hydrogeological impacts from dewatering, together with appropriate mitigation would be required as part of any planning application.

River Nar SSSI is 2.89km from the site boundary. The SSSI citation states that the River combines the characteristics of a southern chalk stream and an East Anglian fen river. Together with the adjacent terrestrial habitats, the Nar is an outstanding river system of its type. Whilst the site is within the Impact Risk Zone for the SSSI, the site is not within the hydrological catchment for the River Nar and due to the distance there would be no adverse impacts to the SSSI.

The nearest County Wildlife Site is CWS 410 'East Winch Common' which is 740m away and is an area of broad-leaved woodland with a number of ponds across the site. The potential exists for impacts from mineral extraction at MIN 40, if uncontrolled. An assessment of potential hydrogeological impacts from dewatering, together with appropriate mitigation, would be required as part of any planning application.

There are no ancient woodland sites within 3km of the site.

**Geodiversity:** The site consists of Leziate member – sand and Carstone Formation – sandstone. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) of flooding from rivers. The site has a low probability of flooding from surface water, with one small location of surface water pooling in a 1 in 1000 year rainfall event. Silica sand extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a principal aquifer (bedrock) and partially over a Secondary (undifferentiated) aquifer (superficial deposits). However, there are no groundwater Source Protection Zones within the proposed site.

**Water Framework Directive:** The site is approximately 675 metres from the Mintlyn Stream/ Middleton Stop Drain, which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards Mintlyn Stream. MIN 40 and the existing processing plant to the north, which the sand would be transported to via an internal haul route, are located on either side of the Mintlyn Stream. The sand to be processed would be transported along an existing internal haul route which currently serves the existing extraction area adjacent to site MIN 40. The potential exists for silt ingress to the Mintlyn Stream from material transported by HGV on the haul route, unless conditions are required. Due to the continued use of the existing haul route, it is not

considered that physical impacts on the Mintlyn Stream would occur, provided that the conditions regarding dust in relation to the haul route are replicated in any future planning permission for MIN 40. Due to the distance of the site from the Mintlyn Stream it is not expected that there would be a pathway for silt ingress into Mintlyn Stream from any future silica sand extraction within site MIN 40.

**Utilities infrastructure:** There are no Anglian Water sewerage assets within the site. There are two water mains on the boundaries of the proposed extraction area. Anglian Water would require the standard protected easement widths for the water main and for any requests for alteration or removal to be conducted in accordance with the Water Industry Act 1991. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is within the zone for RAF Marham where the Defence Infrastructure Organisation must be consulted on developments with the potential to increase the number of birds and the 'bird strike' risk to aircraft. Therefore a Bird Hazard Assessment would be required at the planning application stage.

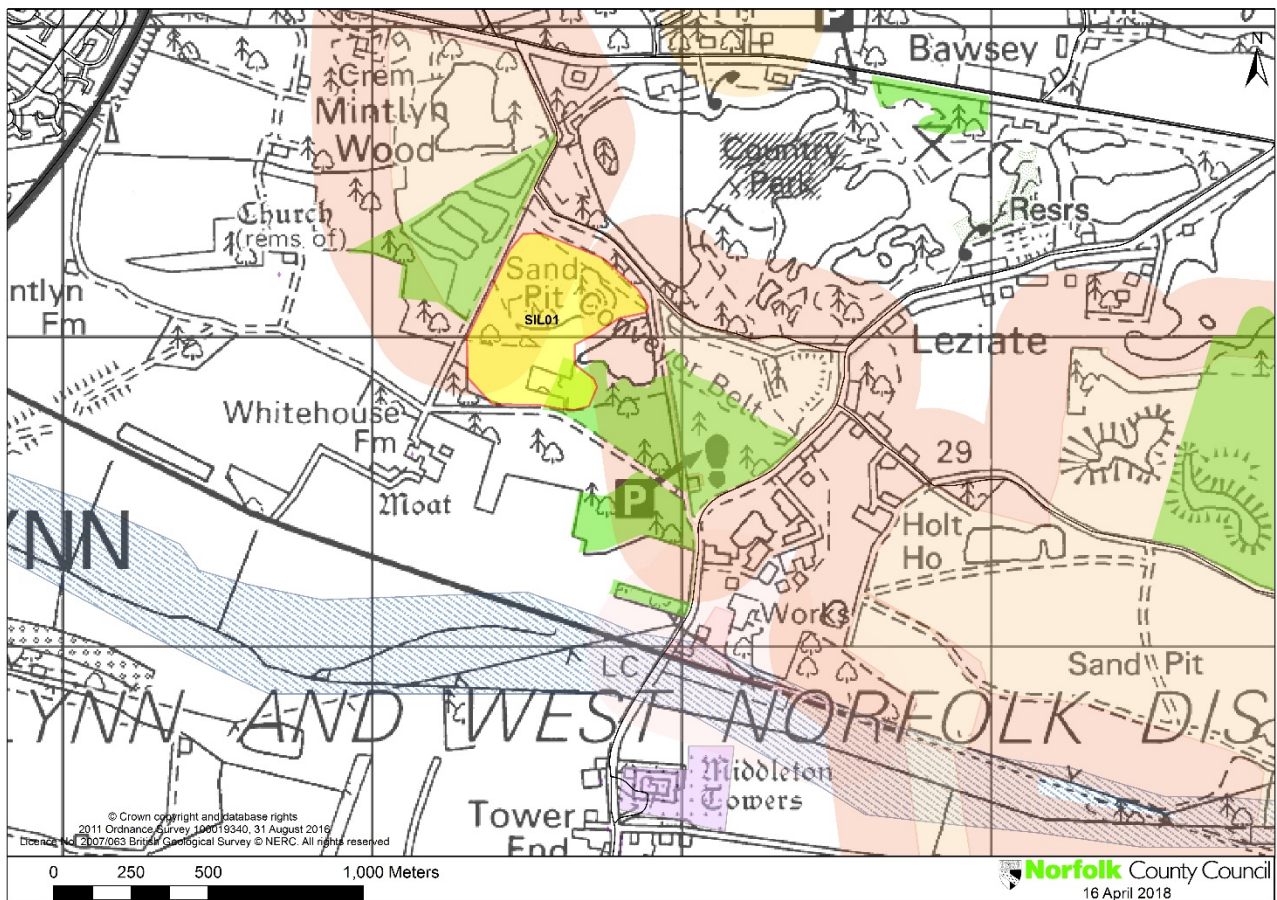
**Restoration:** The proposal submitted indicates that restoration would be a nature conservation led approach, with wetland (including a lake area), woodland/scrub, and agriculture with hedgerow reinforcement.

**Initial conclusion:** The site is considered suitable for allocation for silica sand extraction, subject to any planning application addressing the requirements below:

- A screening scheme which will include mitigation of views from the properties along Gayton Road, the PROW and surrounding roads, and protecting of the setting of listed buildings, including All Saints' Church, East Winch;
- A programme of mitigation measures to deal appropriately with any amenity impacts which might potentially include noise, dust and air quality;
- Opportunities during working for any geodiversity assets to be studied, and if compatible with the landscape and ecology objectives, an open face to be retained as part of the restoration scheme;
- A scheme of phased working, including the direction of working (to assist in the mitigation of amenity impacts);
- A restoration scheme incorporating heathland or a heathland/arable mix with blocks of woodland which provides biodiversity gains and does not result in permanent dewatering of a perched water table in the carstone aquifer if one is identified in a hydrogeological risk assessment;
- A suitable scheme for the temporary diversion and reinstatement of the PRoW;
- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required;
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures;
- A Hydrogeological Risk Assessment to identify any potential impacts on groundwater and appropriate mitigation to address any of these impacts, including the potential for a perched water table to occur in the carstone aquifer; and
- The use of conveyor and/or internal haul routes to the current processing plant site.

**Question 67: Proposed Site MIN 40 'land east of Grandcourt Farm, East Winch' - Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## SIL01 - land at Mintlyn South, Bawsey



### Site Characteristics

- The 21 hectare site is within the parish of Bawsey
- The estimated silica sand resource at the site is 1,200,000 tonnes
- The site is part of a former mineral working which was partially extracted.
- The site is located in an area which has a history of mineral working and is adjacent to restored and permitted workings.
- The Agricultural Land Classification scheme classifies the land as being in 'Non-Agricultural' use.
- The site is approximately 700 metres from the Leziate processing plant and the proposer of the site has indicated that it is intended that mineral will be transferred by conveyor to the processing plant.

**Amenity:** The nearest residential property is approximately 280 metres from the site boundary. Even without mitigation, adverse dust impacts from sand extraction sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Historic Environment:** The historic landscape character of the site is mineral extraction. The site is within a wider historic landscape character of 20<sup>th</sup> century agriculture with enclosure and boundary loss, 18<sup>th</sup> and 19<sup>th</sup> century agriculture with piecemeal enclosure, mineral extraction, leisure/recreation, informal parkland, water reservoir, and 18<sup>th</sup> to 20<sup>th</sup> century plantation woodland.



The site is set within a landscape which has evidence of former settlements. The nearest Listed Building is the Ruins of Church of St Michael (Grade II\*) which is just under 650 metres to the west of site SIL01. The majority of the site is screened from the ruins of the Church of St Michael by established woodland. Any future planning application would need to consider whether additional screening would be required for the southern part of the site to ensure that the setting of the church is not affected. There are 13 Listed Buildings within 2km of the site. The site is just under 1.4km from the nearest Scheduled Monument, Remains of St James' Church and surrounding Saxon and Medieval Settlement. There are three Scheduled Monuments within 2km of the site. There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site. Any future planning application for site SIL01 would need to include a Heritage Statement assessing the setting of heritage assets, addressing the potential for impacts and suggesting potential mitigation measures such as bunding and screen planting.

**Archaeology:** SIL01 contains a series of cropmarks related to undated ditches and banks, together with a possible Bronze Age barrow. A detailed assessment of the significance of archaeological deposits will be required by field evaluation at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.

**Landscape:** The site is set within a landscape which has been modified over time by the extraction of mineral, particularly silica sand and carstone. Extraction in the 19<sup>th</sup> and 20<sup>th</sup> century has resulted in a number of lakes and previously worked areas and the restored workings are important for biodiversity and recreation in the area.

The site is on a flat topped ridge between the valleys of the Gaywood River and the Mintlyn Stream (Middleton Stop Drain). The Gaywood River valley is just to the north of the site and the valley of the Middleton Stop Drain is to the south. The southern boundary of the site starts to gently fall away to the Middleton Stop Drain.

The site is within a landscape characterised as 'Farmland with woodland and wetland'. This creates a landscape with different scales of enclosure created by the interaction between woodland blocks, agricultural fields and wetlands. Viewpoints of the site are generally limited by hedgerows and woodland over large parts of the area. It is considered that bunding and screen planting could provide successful mitigation if well designed. Any future planning application for site SIL01 will need to ensure that any proposed extraction is appropriately screened through the use of a Landscape and Visual Impact Assessment and appropriate mitigation.

There are no Public Rights of Way within the site. There is a PROW (Bawsey RB8) close to the northern boundary of the site and PROW Bawsey RB9 is to the east of the site.

**Ecology:** SIL01 is located 2.8km from Roydon Common SSSI (which forms part of Roydon Common and Dersingham Bog SAC and is also designated as Roydon Common Ramsar. SIL01 is 2.6km from Leziate, Sugar and Derby Fens SSSI. However, the majority of SIL01 is outside the hydrological catchment for both of these SSSIs and is down gradient of these sites. In addition, Bawsey Lakes are located between SIL01 and these SSSIs. Therefore, no adverse impacts are expected on these SSSIs and no likely significant effects are expected on the qualifying features of the SAC or Ramsar site.

There is a County Wildlife Site partly within site SIL01 (CWS 416 '70 & 100 Plantations'), therefore part of CWS 416 would be directly affected by mineral extraction. There is also a CWS adjacent to this site (CWS 418 'Haverlesse Manor Plantation') on an area which has been subject to previous mineral working. Due to the proximity of these County Wildlife Sites to site SIL01, there is the potential for adverse impacts to be caused by mineral extraction which will need to be assessed as part of a planning application and mitigation measures proposed.

The nearest ancient woodland site is Reffley Wood, which is a Plantation on Ancient Woodland Site (PAWS); it is 2.14km from the site boundary. Due to the distance from the ancient woodland there would be no impacts from dust deposition. There are no likely hydrological impacts on Reffley Wood because land within SIL01 does not drain towards the ancient woodland. Therefore, no adverse impacts to the ancient woodland site are expected from the proposed mineral extraction.

**Geodiversity:** There is the potential for this site to contain examples of geodiversity priority features. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future planning application. There would be a preference for restoration to provide opportunities for further geological research of suitable exposures.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. 4% of SIL01 is at low risk of flooding from surface water and less than 1% is at medium risk of flooding from surface water. Silica sand extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** Site SIL01 is within the hydrological catchments of the Gaywood River and Middleton Stop Drain. The proposed site is located over a principal aquifer and partially over a secondary B aquifer; but it mainly overlays an unproductive secondary aquifer. There are no Groundwater Source Protection Zones within the proposed site. If extraction below the watertable and/or dewatering is proposed a hydrogeological risk assessment will be necessary to identify potential risks and appropriate mitigation.

**Water Framework Directive:** Site SIL01 is approximately 910 metres from the Mintlyn Stream which is a Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore, overland flows are not expected from the site towards the stream. SIL01 and the existing processing plant at Leziate, which the silica sand would be transported to by conveyor, are both located north of Mintlyn Stream so the silica sand would not be transported across the Mintlyn Stream. Therefore it is not expected that there would be a pathway for silt ingress into the Mintlyn Stream from future silica sand extraction within site SIL01.

**Utilities Infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding Aerodromes:** The site is within the zone for RAF Marham where the Defence Infrastructure Organisation must be consulted on developments with the potential to increase the number of birds and the 'bird strike' risk to aircraft. Therefore a Bird Hazard Assessment would be required at the planning application stage.

This site is considered suitable for allocation for silica sand extraction. Development will be subject to compliance with the relevant Minerals and Waste Local Plan Policies and Policy SIL 01.

#### **Specific Site Allocation Policy SIL01:**

The site is allocated as a specific site for silica sand extraction. Development will be subject to compliance with the Minerals and Waste Local Plan policies, national legislation, policy and guidance, and will require any planning application to address, as appropriate, the requirements below:

- A programme of mitigation measures (e.g. standoff areas, screening and/or bunding) to deal appropriately with any potential amenity impacts, including noise and dust, to comply with the requirements of policy MW2;
- A Landscape and Visual Impact assessment to identify potential landscape impacts. The LVIA will include Scheduled Monuments, Listed Buildings, archaeological assets and non-designated assets as affected and their settings, together with suitable mitigation measures to address the impacts and conserve the significance of those assets. The completed assessment will comply with the requirements of policy MW2;
- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation if required. As a result of the historically complex and significant environment in which the mineral resource is present, applicants should consider the potential for early engagement with Historic England, the Norfolk Historic Environment Service and Conservation Officers in the preparation of the Heritage Statement. The completed statement will comply with the requirements of policy MW2;

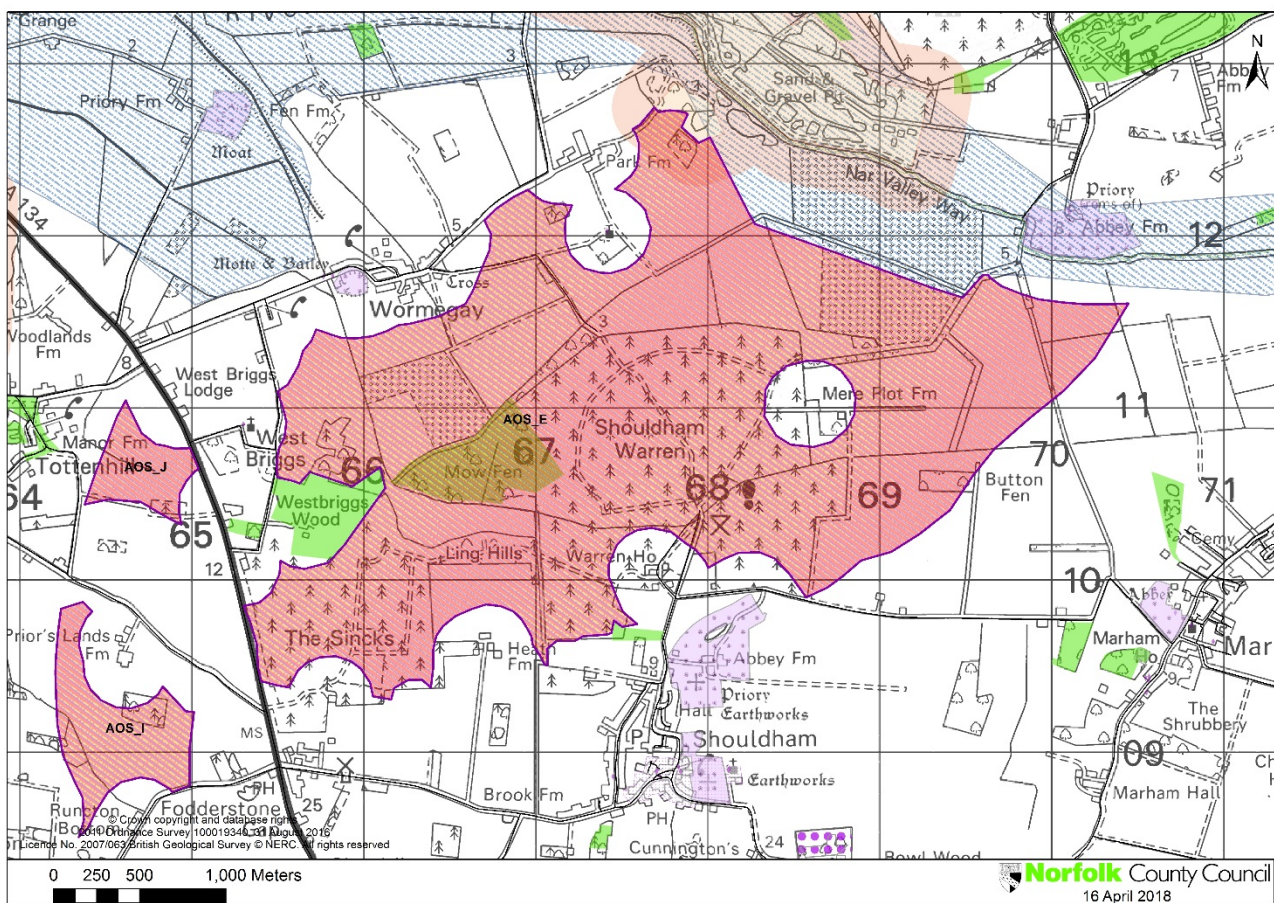
- An appropriate archaeological assessment must be prepared; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be compliant with Policy MW2 and will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures;
- A Hydrogeological Risk Assessment, based on proportionate evidence,
  - to identify potential impacts to groundwater quality, quantity and levels;
  - to propose appropriate mitigation to protect any abstraction points, ecosystems and surface water features that are reliant on groundwater, in particular SSSIs, SACs and SPAs.

The assessment will need to consider the precautionary principle as it relates to European designations. The assessment should include a programme of mitigation measures to address identified potential impacts, and comply with the requirements of policy MW2;

- An assessment to consider the potential for impacts on environmental designations, and suggest suitable mitigation, to comply with policy MW2;
- An assessment to consider the potential for impacts on the Mintlyn Stream and Gaywood River, including from silt ingress and modification, and appropriate mitigation to prevent unacceptable adverse impacts.
- A Transport Assessment or Statement which considers the potential for transport impacts and identifies appropriate mitigation measures, including highway improvements where appropriate, to address these impacts. There will be a preference for a transport route which minimises amenity impacts through the use of off-highway haul routes from the B1145 to the processing plant. The assessment or statement will comply with policy MW3;
- A comprehensive working and restoration plan which is compliant with Policy MP7, in particular considering the opportunities, on restoration, for ecological enhancement, the improvement of public access and geological exposures for future study;
- An air quality assessment of the potential for any emissions, including dust, together with suitable mitigation measures to address these potential impacts on humans, flora and fauna. The Air Quality Assessment will need to be compliant with Policy MW2;
- Information demonstrating how proposals comply with Policy MP6.

**Question 68: Proposed Site SIL 01 'land at Mintlyn South, Bawsey' - Do you agree or disagree with the conclusion to allocate this site? Do you have any comments to make about the assessment of this site or the proposed policy wording?**

## Area of Search: AOS E Land to the north of Shouldham



### Area of Search Characteristics

- The area of search covers 815 hectares within the parishes of Wormegay, Shouldham, Marham and Shouldham Thorpe.
- The area of search is adjacent to areas of previous and current mineral workings and close to a sand and gravel allocation.
- The area of search is an area of agricultural use with commercial plantation and other woodland.
- The Agricultural Land Classification splits the area between non-agricultural use, Grade 3 and Grade 4 agricultural land.
- The nearest residential property is approximately 250 metres from the AOS boundary. The settlements of Shouldham and Wormegay are 250 metres from the boundary of the AoS. A planning application for mineral extraction within AoS E would need to include mitigation measures to deal appropriately with any amenity impacts.
- The area of search is approximately 15 kilometres from the Leziat processing plant and it is considered likely that any extraction site would transfer mineral to the processing plant by road.

**E.1** The area of search is located on the A134 which is a principal route and designated HGV route in the route hierarchy. Access via West Briggs Lodge is unsuitable. Preferred access would be via the A134. Existing access roads to the A134 should be used subject improvement and junction improvements. The Highway Authority considers that the area of search is suitable subject to network improvements.

**E.2** The route from the area of search to the Leziat processing plant would be expected to be north along A134 and A10 and A149, before turning east onto the B1145. From the B1145 the preferred access to the Leziat processing plant would be an off-road route turning right off the B1145 before

Bawsey and utilising the existing track and/or conveyor route through the existing mineral workings at Mintlyn to access Station Road and the processing plant south of Brow of the Hill. A right turn lane at the junction with the B1145 would probably be required to provide a suitable junction. Utilising an off-road haul route would avoid lorries accessing the processing plant via Brow of the Hill, Fair Green or Middleton and therefore mitigate amenity impacts.

**E.3** AoS E is within a historic environment which contains numerous high value heritage assets from multiple time periods starting in early prehistory. There are four Scheduled Monuments located less than 400 metres from the area of search. They are the Remains of Pentney Priory at Abbey Farm (267 metres), the Motte and Bailey Castle in Wormegay village (250 metres), Shouldham Priory (250 metres), and Village Cross 330 metres south of Cross Hill Farm (250 metres). In addition there are five Listed Buildings located less than 300 metres from the area of search. They are the Church of St Michael (Grade II\*), the Church of St Botolph (Grade I), Castle Meadow (Grade II), Castle Road Bridge (Grade II) and Village Cross (Grade II). Any future planning application within the AoS would need to include a Heritage Statement assessing the setting of heritage assets, addressing the potential for impacts and suggesting potential mitigation measures such as bunding and screen planting, recognising that there may be locations where these may be intrusive in themselves.

**E.4** AOS E is adjacent to a large area of fen edge, parts of which were studied as part of the Fenland Survey. The Fenland Survey recorded evidence of prehistoric and later land use and occupation across the fen close to the AoS, including a probable Iron Age settlement and some significant palaeoenvironmental deposits. The northern edge of the AoS contains the southern fringe of the early medieval settlement at Wormegay, a Bronze Age barrow, the site of a former windmill, several finds of metalworking remains and several isolated instances of human skeletal remains. The place-name Shouldham Warren suggests that earthworks along the north edge could be remnants of a medieval warren, although no definitive research has been carried out; and there is the potential for the area to contain further earthworks. Shouldham Warren was used as a military training area in the Second World War, and there are surviving earthworks relating to this period.

**E.5** Given the constrained nature of this AoS with regards to the historic environment, any proposal for extraction here should pay particular attention to the setting of the designated heritage assets. The Norfolk Historic Environment Service recommend that proposals for extraction avoid areas of palaeoenvironmental potential, the former barrow and the areas of former settlement. The Norfolk Historic Environment Service would not support proposals that result in the destruction of historic earthworks. Therefore, a detailed assessment of the significance of archaeological deposits will be required by field evaluation at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this area of search. In addition, the relevant assessments in support of any planning application will need to have regard to the historic landscape character of the wider area, with specific regard to the medieval landscape, to an extent agreed with Norfolk County Council/Historic Environment Service.

**E.6** The AoS falls under two different landscape character areas, with the north-east classified as 'fen, open inland marshes' and the south-west as a landscape of 'Settled Farmland with Plantations'. This is a transitional landscape between the Fens to the west and the Brecks to the east. Generally, the AoS slopes gently away to the west but at a rate where many parts of the area would be perceived as flat. In the AoS viewpoints are limited by field boundaries and woodland over large parts of the area, however in some northern and eastern parts drainage dykes form a more significant landscape component as boundary features.

**E.7** There are a number of viewpoints in the AoS from roads and Public Rights of Way. Within the AoS Shouldham Warren is a significant woodland plantation managed by the Forestry Commission as a commercial forestry operation and the landowner allows the Forestry Commission to permit access throughout Shouldham Warren. Additionally, the Warren is crossed by a number of PROWs and has some picnic areas within it. Any future planning application within the area of search will need to ensure that any proposed extraction is appropriately screened through the use of a Landscape and Visual Impact Assessment and appropriate mitigation.

**E.8** There is one County Wildlife Site within the area of search, CWS 425 'Mow Fen'. CWS 424 'Westbrigg's Wood', and CWS 373 'Adjacent Adams Plantation' are adjacent to the AoS boundary. AOS E is a large area of search; therefore the effect on any of these County Wildlife Sites from mineral extraction would depend on the location of mineral extraction within the area of search. The potential for adverse impacts to be caused to County Wildlife Sites by mineral extraction will need to be assessed as part of a planning application and mitigation measures proposed if necessary.

**E.9** AOS E is located just less than 2.5km from Setchey SSSI. Whilst the southern part of the AoS is within the hydrological catchment (Polver Drain) of Setchey SSSI, due to the land being artificially drained to multiple outlets, the AoS does not drain towards Setchey SSSI. The land in the AoS that is within the catchment of Mow Fen IDB Drains does not drain to Setchey SSSI. Therefore there are no likely adverse impacts on Setchey SSSI from mineral extraction within AOS E.

**E.10** AOS E is located 250 metres from the River Nar SSSI. However, due to the land within AOS E being artificially drained to multiple outlets (within the catchments of the Polver Drain and Mow Fen IDB Drains), none of the land in the AoS drains to the River Nar. Therefore there are no likely adverse impacts on the River Nar SSSI from mineral extraction within AOS E.

**E.11** AOS E is within the hydrological catchment (Polver Drain) for Bowl Wood Ancient Woodland and there is the potential for hydrological impacts if mineral extraction operations cause changes in the water table. If extraction below the watertable and/or dewatering is proposed a Hydrogeological Risk Assessment will be necessary to identify potential risks and appropriate mitigation.

**E.12** 52% of the area of search is in Flood Zones 2 and 3 (medium and high risk) for flooding from rivers. Silica sand extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. Silica sand extraction would be a temporary non-residential use, which exposes relatively few people to risk as only a small number of employees are required. Residual risk can be addressed through the use of a site evacuation plan. 7% of AOS E is at low risk of flooding from surface water and 2% is at medium or high risk of flooding from surface water.

**E.13** AOS E is within the hydrological catchments for the Mill Fen IDB Drains, Mow Fen IDB Drains and Polver Drain. The AoS is located over a principal aquifer and partially over secondary B and secondary undifferentiated aquifers; however there are no Groundwater Source Protection Zones within the area of search. If extraction below the watertable and/or dewatering is proposed a Hydrogeological Risk Assessment will be necessary to identify potential risks and appropriate mitigation.

**E.14** The northern part of the AoS (within the catchment of Mill Fen IDB Drains) drains to the River Nar. The River Nar is a Water Framework Directive waterbody which runs to the north of the AoS. A future planning application within the AoS will need to assess the potential for impacts on the River Nar, including from silt ingress and modification, and propose appropriate mitigation to prevent unacceptable adverse impacts.

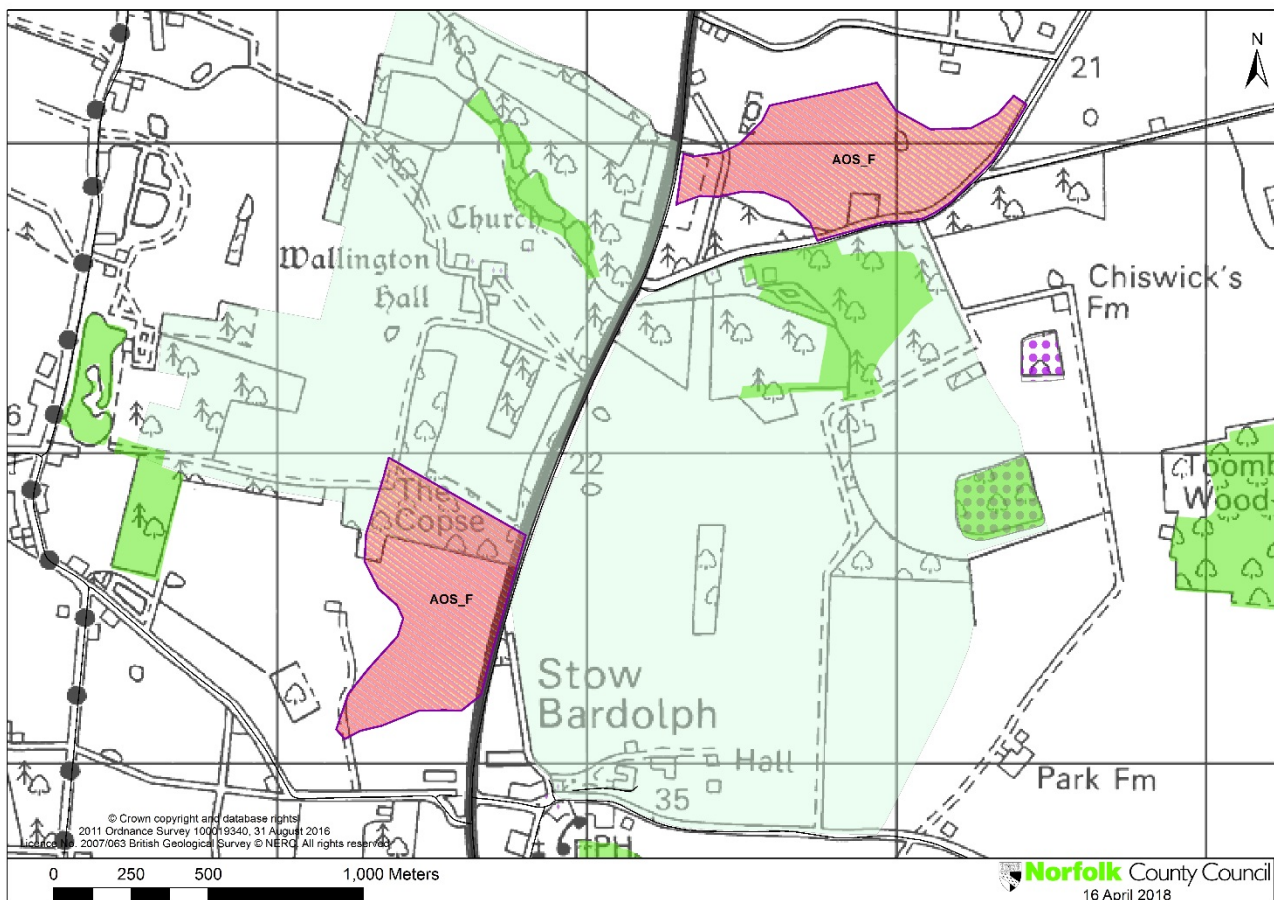
**E.15** The AoS contains geodiversity priority features in the form of paleo-environmental deposits, and Setchey SSSI, north of the site, is designated for its geological features related to successive periods of marine inundation and retreat. There is the potential for a mineral extraction site within this area to contain other examples of geodiversity priority features. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future planning application. There would be a preference for restoration to provide opportunities for further geological research of suitable exposures.

**E.16** There are public water mains within the boundary of AOS E. Anglian Water would require the standard protected easement widths for the water mains and for any requests for alteration or removal to be conducted in accordance with the Water Industry Act 1991.

**E.17** AOS E is considered suitable to allocate as an Area of Search for silica sand extraction. Development will be subject to compliance with the relevant Minerals and Waste Local Plan Policies and the Areas of Search Policy.

**Question 69: Area of Search AOS E 'land to the north of Shouldham' - Do you agree or disagree with the conclusion to allocate this area of search? Do you have any comments to make about the assessment of this area of search?**

## Area of Search: AOS F Land to the north of Stow Bardolph



### Area of Search Characteristics

- The AoS consists of two parcels of land covering approximately 31 and 30 hectares respectively within the parishes of Runcton Holme and Stow Bardolph.
- The AoS is a mixture of forestry and agricultural uses with the agricultural land in grades 3 and 4.
- The nearest residential property is approximately 250 metres from the AOS boundary. The settlement of Stow Bardolph is 250 metres from the AOS boundary and South Runcton is less than 400 metres from the AOS boundary. A planning application for mineral extraction within AoS F would need to include mitigation measures to deal appropriately with any amenity impacts.
- The area of search is in Flood Zone 1 (lowest risk) for flooding from rivers. 4% of AOS F is at low risk of flooding from surface water and less than 1% is at medium or high risk of flooding from surface water.
- The area of search is approximately 17 kilometres from the Leziat processing plant and it is considered likely that any extraction site would transfer mineral to the processing plant by road.

**F.1** The area of search is located on the A10 which is a principal route and designated HGV route in NCC route hierarchy. The Highway Authority considers that access to parts of AOS F from the Runcton Road is suitable, subject to improvements to the junction onto the A10. The route from AOS F to the Leziat processing plant would be expected to be north along the A10 and A149, before turning east onto the B1145. From the B1145 the preferred access to the Leziat processing plant would be an off-road route turning right off the B1145 before Bawsey and utilising the existing track and/or conveyor route through the existing mineral workings at Mintlyn to access Station Road and the processing plant south of Brow of the Hill. A right turn lane at the junction with the B1145 would probably be required to provide a suitable junction. Utilising an off-road haul route would



avoid lorries accessing the processing plant via Brow of the Hill, Fair Green or Middleton and therefore mitigate amenity impacts.

**F.2** The historic environment in which the AoS is located has features and land use patterns which are related to the formation of parkland and estates related to high status buildings in particular the wider setting of Stow Hall (now demolished) and Wallington Hall, a Listed Building (Grade I). Both parts of AOS F are separated from Wallington Hall by areas of woodland. The northern part of AOS F is separated from the setting of Stow Hall by woodland and the southern part of AOS F is separated from the grounds of Stow Hall by the A10. The AoS is 385 metres from the nearest Listed Building, The Cottage (Grade II). Any future planning application within the AoS would need to include a Heritage Statement assessing the setting of heritage assets, addressing the potential for impacts and suggesting potential mitigation measures such as bunding and screen planting.

**F.3** Area AOS F is largely unstudied in terms of archaeology. Therefore, a detailed assessment of the significance of archaeological deposits will be required by field evaluation at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this area of search.

**F.4** This is a transitional landscape between the Fens to the west and the Brecks to the east. Generally, the AoS slopes gently away to the west but at a rate where many parts of the area would be perceived as flat. Any future planning application within the area of search will need to ensure that any proposed extraction is appropriately screened through the use of a Landscape and Visual Impact Assessment and appropriate mitigation.

**F.5** There is a County Wildlife Site adjacent to the area of search (CWS 365 'Broad Meadow Plantation'). CWS 361 'north-east of Wallington Hall' is 280 metres from the AoS, and consists of a series of four mesotrophic lakes which could be adversely affected if mineral extraction operations cause changes in the water table. If mineral extraction in the AoS were to go below the watertable and/or dewatering is proposed a hydrogeological risk assessment will be necessary to identify potential risks and appropriate mitigation.

**F.6** There are three ancient woodlands (Chiswick's Wood and two unnamed ancient woodlands) located between 500 to 1,000 metres from AOS F. AOS F is within the hydrological catchment (War Bank Drain) for these ancient woodlands, however, the land within the AoS drains away from the ancient woodland sites and therefore adverse hydrological impacts are not likely. Due to the distance of the AoS from the ancient woodland sites other adverse impacts are also unlikely.

**F.7** AOS F is within the hydrological catchments for the Mill Fen IDB Drains, Mow Fen IDB Drains and Polver Drain. The AoS is located over a principal aquifer and partially over a secondary undifferentiated aquifer; however there are no Groundwater Source Protection Zones within the area of search. If extraction below the watertable and/or dewatering is proposed a hydrogeological risk assessment will be necessary to identify potential risks and appropriate mitigation.

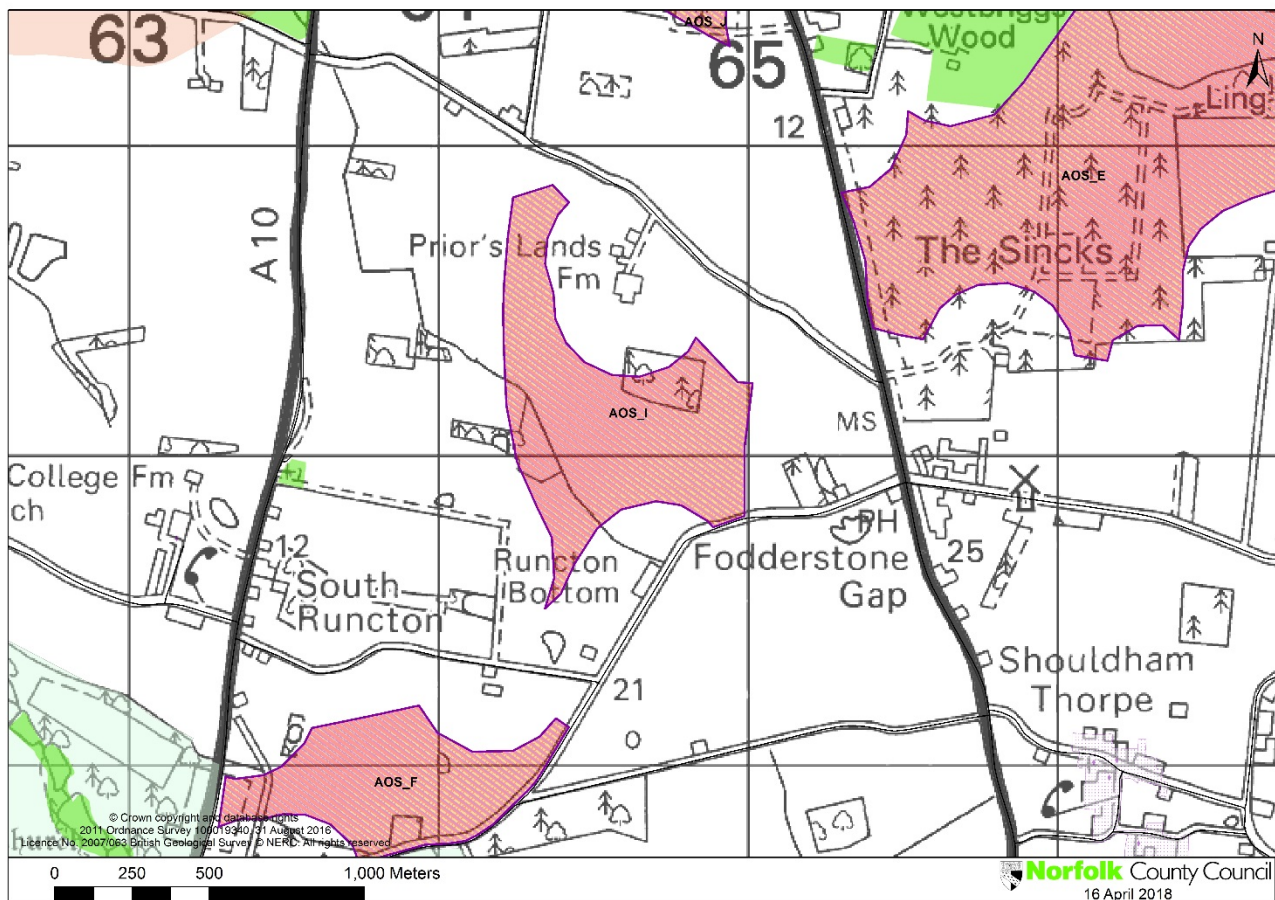
**F.8** There is the potential for a mineral extraction site within this area to contain other examples of geodiversity priority features under more recent deposits. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future planning application. There would be a preference for restoration to provide opportunities for further geological research of suitable exposures.

**F.9** There is a public water main within the boundary of AOS F. Anglian Water would require the standard protected easement widths for the water main and for any requests for alteration or removal to be conducted in accordance with the Water Industry Act 1991.

**F.10** AOS F is considered suitable to allocate as an Area of Search for silica sand extraction. Development will be subject to compliance with the relevant Minerals and Waste Local Plan Policies and the Areas of Search Policy.

**Question 70: Area of Search AOS F 'land to the north of Stow Bardolph' - Do you agree or disagree with the conclusion to allocate this area of search? Do you have any comments to make about the assessment of this area of search?**

## Area of Search: AOS I Land to the east of South Runcton



### Area of Search Characteristics

- The area of search covers just over 47 hectares within the parishes of Runcton Holme, Shouldham Thorpe, and Tottenhill.
- The area of search is in an agricultural landscape between the A10 and A134.
- The area of search is a mixture of small blocks of woodland and agricultural uses and the area is classified as Grade 3 agricultural land.
- The nearest residential property is approximately 250 metres from the AOS boundary and a planning application for mineral extraction within AoS I would need to include mitigation measures to deal appropriately with any amenity impacts.
- AOS I is in Flood Zone 1 (lowest risk) for flooding from rivers. 8% of AOS I is at low risk of flooding from surface water, 4% is at medium risk and 3% is at high risk of flooding from surface water.
- The area of search is approximately 16 kilometres from the Leziat processing plant and it is considered likely that any extraction site would transfer mineral to the processing plant by road.

**I.1** Access to the area of search is suitable subject to improvements to the junction onto the A10 from Runcton Road, and if a route using the A134 was proposed this may also require junction improvements. If Watlington Road was proposed, junction improvements may be necessary to allow access to the A10 or A134. The Highway Authority considers that the area of search is suitable to subject to network improvements.

**I.2** The route from AOS I to the Leziat processing plant would be expected to be north along the A10 and A149, before turning east onto the B1145. From the B1145 the preferred access to the Leziat processing plant would be an off-road route turning right off the B1145 before Bawsey and

utilising the existing track and/or conveyor route through the existing mineral workings at Mintlyn to access Station Road and the processing plant south of Brow of the Hill. A right turn lane at the junction with the B1145 would probably be required to provide a suitable junction. Utilising an off-road haul route would avoid lorries accessing the processing plant via Brow of the Hill, Fair Green or Middleton and therefore mitigate amenity impacts.

**I.3** Historic England have no immediate concerns regarding this area of search if the site proposed is well contained, although the setting of the Church of St Andrew (Grade II\*) and Church of St Mary the Virgin (Grade II\*) and a number of Grade II Listed Buildings and should be taken into consideration at an early stage. Any future planning application within the AoS would need to include a Heritage Statement assessing the setting of heritage assets, addressing the potential for impacts and proposing mitigation measures such as bunding and screen planting.

**I.4** Area AOS I is almost entirely unstudied in terms of archaeology. Therefore, a detailed assessment of the significance of archaeological deposits will be required by field evaluation at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this area of search.

**I.5** The AoS is characterised as a landscape of 'Settled Farmland with Plantations'. This is a transitional landscape between the Fens to the west and the Brecks to the east. Generally, the AoS slopes gently away to the west but at a rate where many parts of the area would be perceived as flat. Viewpoints are limited by field boundaries and woodland over large parts of the landscape area. However, hedgerows are intermittent in the area surrounding the AoS opening up views across open fields often to tree lined horizons. There are a number of viewpoints in the AoS from roads and Public Rights of Way, and any future planning application in the area of search will need to ensure that any proposed extraction is appropriately screened through the use of a Landscape and Visual Impact Assessment and appropriate mitigation.

**I.6** AOS I is within the hydrological catchments for the Polver Drain. The AoS is located over a principal aquifer and partially over secondary A and B aquifers. However, there are no Groundwater Source Protection Zones within the area of search. If extraction below the watertable and/or dewatering is proposed a hydrogeological risk assessment will be necessary to identify potential risks and appropriate mitigation.

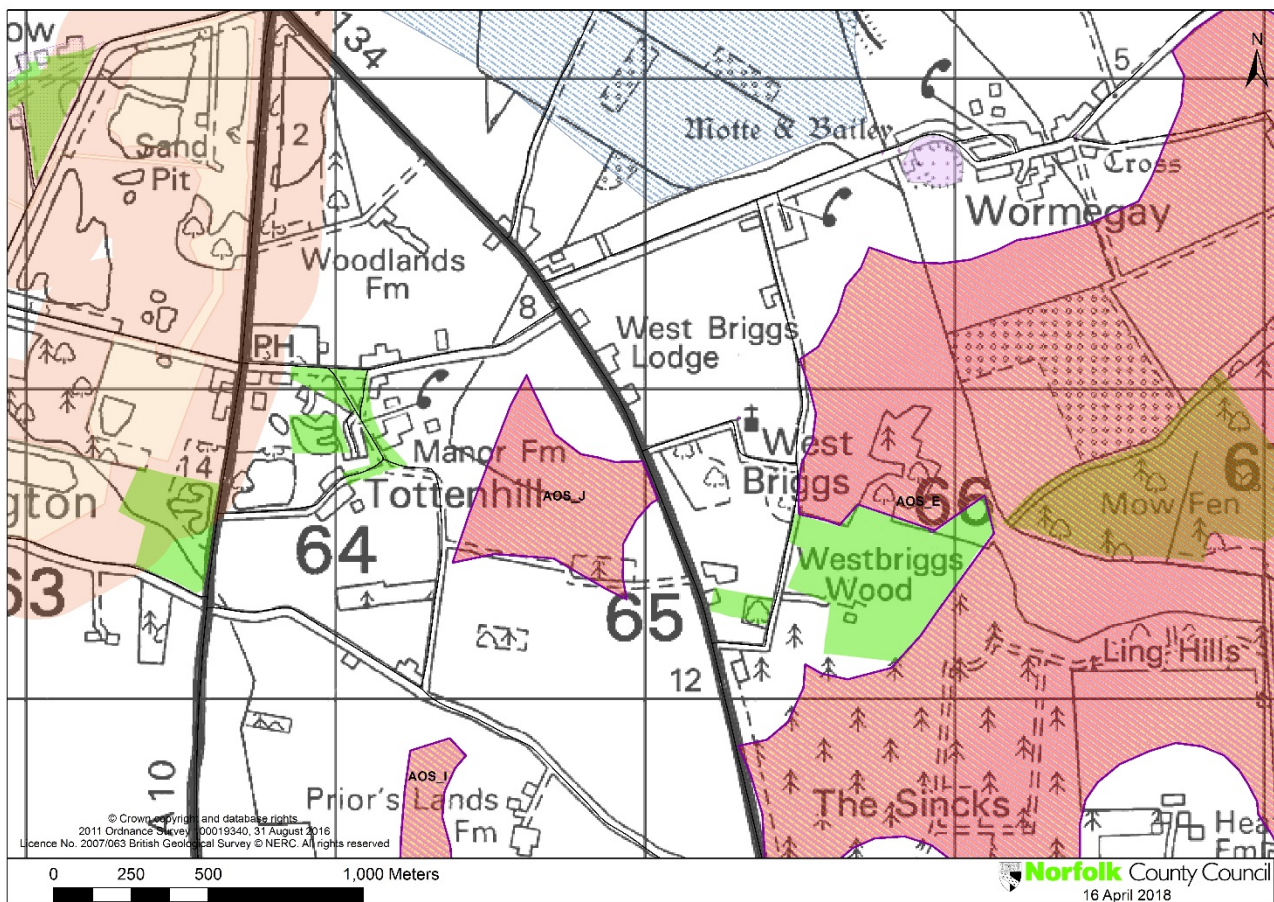
**I.7** There is the potential for a mineral extraction site within this area to contain examples of geodiversity priority features. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future planning application. There would be a preference for restoration to provide opportunities for further geological research of suitable exposures.

**I.8** The nearest County Wildlife Site to the AoS is over 600m away (CWS 366 'St Andrews Churchyard'). Due to the distance of the CWS from the area of search, no adverse impacts are expected from mineral extraction within the AoS.

**I.9** AOS I is considered suitable to allocate as an Area of Search for silica sand extraction. Development will be subject to compliance with the relevant Minerals and Waste Local Plan Policies and the Areas of Search Policy.

**Question 71: Area of Search AOS I 'land to the east of South Runcton' - Do you agree or disagree with the conclusion to allocate this area of search? Do you have any comments to make about the assessment of this area of search?**

## Area of Search: AOS J Land to the east of Tottenhill



### Area of Search Characteristics

- The area of search covers just less than 23 hectares within the parishes of Tottenhill and Wormegay.
- The area of search is in an agricultural landscape between the A10 and A134.
- The area of search is a mixture of small blocks of woodland and agricultural uses and the area is classified as Grade 4 agricultural land.
- The nearest residential property is approximately 250 metres from the AOS boundary and the settlement of Tottenhill is less than 300 metres from the boundary of the AOS. A planning application for mineral extraction within AoS J would need to include mitigation measures to deal appropriately with any amenity impacts.
- AOS J is in Flood Zone 1 (lowest risk) for flooding from rivers. 9% of AOS J is at low risk of flooding from surface water, 4% is at medium risk and 1% is at high risk of flooding from surface water.
- The area of search is approximately 15 kilometres from the Leziate processing plant and it is considered likely that any extraction site would transfer mineral to the processing plant by road.

**J.1** Access from AOS J could be via the southern track onto the A134 which is a principal route in the NCC route hierarchy, subject to junction improvements. A dedicated access could also be created to the A134, or the A10 to the west with junction improvements to the existing network. The area of search is acceptable to the Highway Authority subject to highway improvements.

**J.2** The route from AOS J to the Leziate processing plant would be expected to be north along the A10 and A149, before turning east onto the B1145. From the B1145 the preferred access to the Leziate processing plant would be an off-road route turning right off the B1145 before Bawsey and

utilising the existing track and/or conveyor route through the existing mineral workings at Mintlyn to access Station Road and the processing plant south of Brow of the Hill. A right turn lane at the junction with the B1145 would probably be required to provide a suitable junction. Utilising an off-road haul route would avoid lorries accessing the processing plant via Brow of the Hill, Fair Green or Middleton and therefore mitigate amenity impacts.

**J.3** There is a Listed Building, the Church of St Botolph at West Briggs (Grade I), within 325 metres of the area of search. The AoS is approximately 1.2km from the motte and bailey castle in Wormegay village and 1.6km to Wormegay Priory Scheduled Monuments. Any future planning application within the AoS would need to include a Heritage Statement assessing the setting of heritage assets, addressing the potential for impacts and proposing mitigation measures such as bunding and screen planting.

**J.4** AOS J contains a number of cropmark sites, including a series of late prehistoric to Romano-British enclosures, and medieval banks (including a parish boundary bank). The cropmarks are accompanied by finds of Bronze Age, medieval and post medieval date. Therefore, a detailed assessment of the significance of archaeological deposits will be required by field evaluation at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this area of search.

**J.5** The AoS is characterised as a landscape of 'Settled Farmland with Plantations'. This is a transitional landscape between the Fens to the west and the Brecks to the east. Generally, the AoS slopes gently away to the west but at a rate where many parts of the area would be perceived as flat. However, it is considered that there are areas within the AoS where bunding and screen planting could provide successful mitigation if well designed. Viewpoints are limited by field boundaries and woodland over large parts of the landscape area. However, hedgerows are intermittent in the area surrounding the AoS opening up views across open fields often to tree lined horizons. There are a number of viewpoints in the AoS from roads and Public Rights of Way, and any future planning application in the area of search will need to ensure that any proposed extraction is appropriately screened through the use of a Landscape and Visual Impact Assessment and appropriate mitigation.

**J.6** AOS J is within the hydrological catchments for the Polver Drain. The AoS is located over a principal aquifer and partially over secondary A and B aquifers. However, there are no Groundwater Source Protection Zones within the area of search. If extraction below the watertable and/or dewatering is proposed a hydrogeological risk assessment will be necessary to identify potential risks and appropriate mitigation.

**J.7** There is the potential for a mineral extraction site within this AoS to contain examples of geodiversity priority features. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future planning application. There would be a preference for restoration to provide opportunities for further geological research of suitable exposures.

**J.8** There are two County Wildlife Sites within 300 metres of the area of search: CWS 385 'Tottenham Village Green' (250 metres) and CWS 424 'Westbrigg's Wood' (271 metres). If mineral extraction in the AoS were to go below the water table or involve dewatering, then there could be impacts on the ponds in CWS 385. In that instance, a hydrogeological risk assessment would be necessary to identify potential risks and appropriate mitigation.

**J.9** AOS J is considered suitable to allocate as a Area of Search for silica sand extraction. Development will be subject to compliance with the relevant Minerals and Waste Local Plan Policies and the Areas of Search Policy.

**Question 72: Area of Search AOS J 'land to the east of Tottenham' - Do you agree or disagree with the conclusion to allocate this area of search? Do you have any comments to make about the assessment of this area of search?**

The following policy applies to all of the allocated areas of search for silica sand extraction.

### **Policy MP13: Areas of Search for silica sand extraction**

AOS E, AOS F, AOS I and AOS J are allocated as areas of search for silica sand extraction. It is considered that a planning application for silica sand mineral extraction could be submitted for part/s of the area of search. Development will be subject to compliance with the Minerals and Waste Local Plan policies, national legislation, policy and guidance, and will require any planning application within the Area of Search to address, as appropriate, the requirements below:

- To address the shortfall in silica sand supply to meet the requirements of the existing processing plant (as set out in the NPPF);
- A programme of mitigation measures (e.g. standoff areas, screening and/or bunding) to deal appropriately with any potential amenity impacts, including noise and dust, to comply with the requirements of policy MW2;
- A Landscape and Visual Impact assessment to identify potential landscape impacts. The LVIA will include Core River Valleys, Scheduled Monuments, non-designated heritage assets of archaeological interest, Listed Buildings and Conservation Areas and their settings where appropriate, together with suitable mitigation measures to address the impacts and manage change in ways that will best sustain heritage values. The completed assessment will comply with the requirements of policy MW2;
- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation to sustain heritage values if required. As a result of the historically complex and significant environment in which the mineral resource is present, applicants should consider the potential for early engagement with Historic England, the Norfolk Historic Environment Service and Conservation Officers in the preparation of the Heritage Statement. The completed statement will comply with the requirements of policy MW2;
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be compliant with Policy MW2 and will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures;
- A Hydrogeological Risk Assessment; based on proportionate evidence,
  - to identify potential impacts to groundwater quality, quantity and levels; and
  - to propose appropriate mitigation to protect any abstraction points, ecosystems and surface water features that are reliant on groundwater, in particular SSSIs, SACs and SPAs.

The assessment will need to consider the precautionary principle as it relates to European designations. The assessment should include a programme of mitigation measures to address identified potential impacts, and comply with the requirements of Policy MW2;

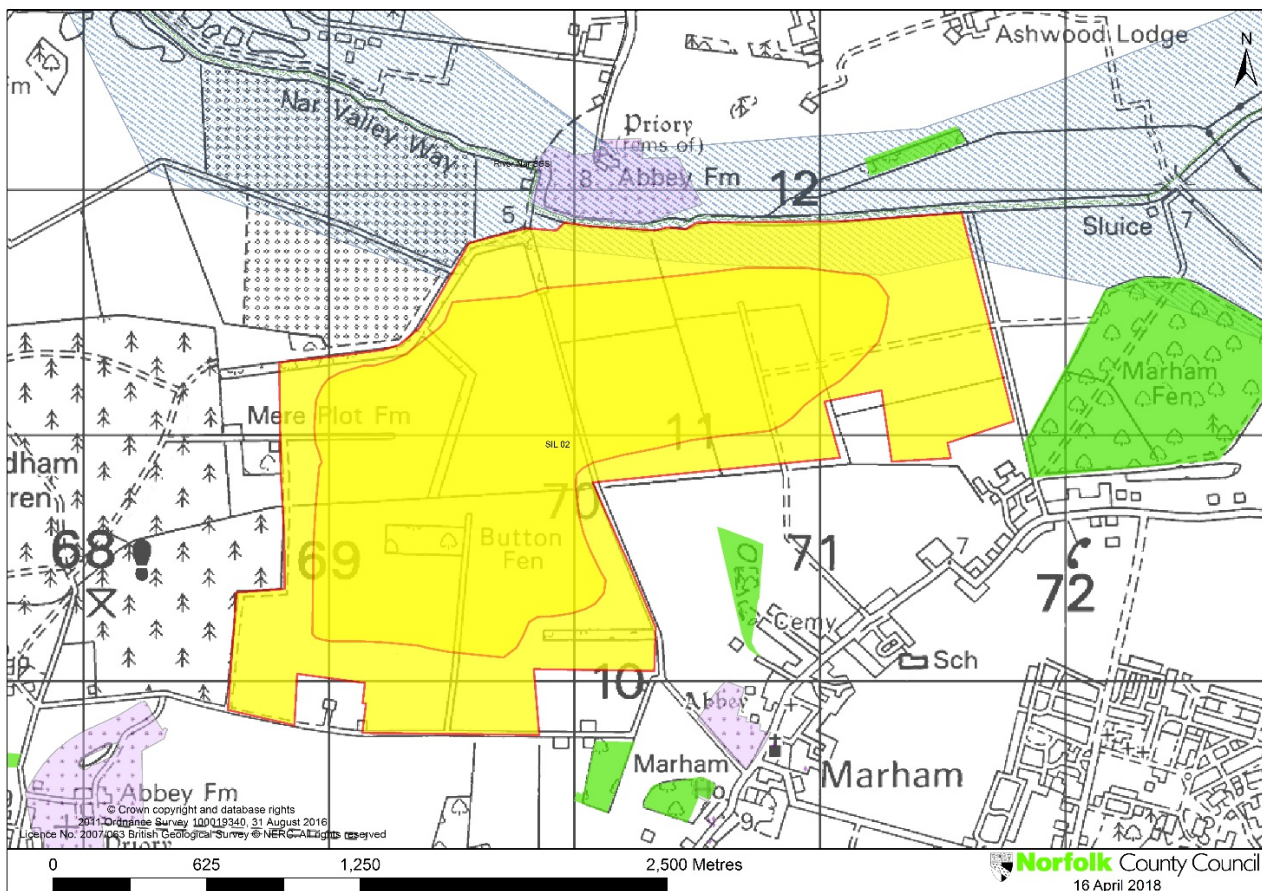
- An assessment to consider the potential for impacts on environmental designations, and suggest suitable mitigation, to comply with Policy MW2;
- A protected species assessment will be required and if protected species are found on the proposed extraction site then appropriate mitigation will be required.
- An assessment of the potential for impacts on Water Framework Directive waterbodies, including from silt ingress and modification, and appropriate mitigation to prevent unacceptable adverse impacts.
- If the application area contains Grade 3 agricultural land then a detailed agricultural land survey will be required to identify subgrades. Land identified as being within the Best and Most Versatile classification (grades 1, 2, 3a) will require a working scheme which incorporates a soil management and handling strategy which is compliant with Policy MW6;
- A Transport Assessment or Statement which considers the potential for transport impacts and identifies appropriate mitigation measures, including highway improvements where appropriate, to address these impacts. There will be a preference for a transport route

which minimises amenity impacts through the use of off-highway haul routes from the B1145 to the processing plant. A right-turn lane at the junction with the B1145 would probably be required to provide a suitable junction. The assessment or statement will comply with Policy MW3;

- A comprehensive working and restoration plan which is compliant with Policy MP7, in particular considering the opportunities, on restoration, for ecological enhancement, the improvement of public access and geological exposures for future study;
- An air quality assessment of the potential for any emissions, including dust, together with suitable mitigation measures to address these potential impacts on humans, flora and fauna. The Air Quality Assessment will need to be compliant with Policy MW2;
- Within the allocated areas of search, the development of mineral extraction sites should follow a sequential approach to flood risk;
- Information demonstrating how proposals comply with Policy MP6.

**Question 73: Policy MP13: 'Areas of Search for silica sand extraction' - Do you agree or disagree with the proposed policy? Do you have any comments or suggestions for alternative policy wording?**

## SIL 02 - land at Shouldham and Marham (silica sand)



### Site Characteristics

- The site is considered to be a potential 'Preferred Area' rather than a specific site allocation, from which smaller specific sites could come forward.
- The 390.36 hectare site is within the parishes of Marham and Shouldham
- The estimated silica sand resource in the site is 16,000,000 tonnes
- The proposer of the site has given a potential start date of 2027 and estimated the extraction rate to be 800,000 to 900,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within 20 years. Therefore, 9,000,000 tonnes could be extracted within the plan period.
- The site is proposed by Sibelco UK Ltd
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being grade 3, with a very small area being grade 4.
- The site is approximately 6km from the processing plant at Leziat and the proposer has suggested that mineral may be transported by pipeline.

A reduced development area has been proposed of 215.31 hectares, within which extraction is proposed to take place. The reduction is to allow buffers and screening within the site.

**Amenity:** The nearest residential property is 81m from the site boundary. There are 10 sensitive receptors within 250m of the site boundary. The settlement of Marham is 430m away. However, the land nearest to Marham is not proposed to be extracted and there is a suggested buffer area around the rest of the site boundary. Therefore the nearest residential property is 280m from the extraction area and there are no sensitive receptors within 250m of the proposed extraction area. Even without mitigation, adverse dust impacts from sand extraction sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of



a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The proposer of the site has suggested that mineral could be transported to the processing plant at Leziate by pipeline, although the proposed route of the pipeline has not been provided. Therefore, proposed highway access to the site has not been provided. If mineral was transported by HGV to the processing plant at Leziate then the crossing of the River Nar would have to be appropriately engineered to mitigate potential silt ingress into the watercourse. It is unlikely that existing highways between the site and the processing plant could be suitably improved, and the construction of an off-highway haul route would probably be necessary, although it is uncertain whether appropriate mitigation measures could be put in place to address potential landscape impacts close to the River Nar and the Scheduled Monument at Pentney Priory. The site is not within an AQMA.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with boundary loss and enclosure, and drained Parliamentary fen enclosure. The site is within a wider historic landscape character of Twentieth century agriculture with enclosure and boundary loss with a relict element, agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure, drained parliamentary fen enclosure, unimproved freshwater fen, and a historic earthwork. The wider historic landscape character also includes a military airfield (RAF Marham), mineral extraction, leisure/recreation, and 18<sup>th</sup> to 20<sup>th</sup> century woodland plantation.

The nearest Listed Building is the Grade I Remains of Augustinian Priory which is 310m away. There are 22 Listed Buildings within 2km of the area boundary. Eight of these are within the Shouldham Conservation Area which is 1.14km away. The nearest Scheduled Monument is the Remains of Pentney Priory at Abbey Farm which is 30m away. There are 6 Scheduled Monuments within 2km of the site boundary. There are no Registered Historic Parks and Gardens within 2km of the site boundary. A planning application for mineral extraction at this area would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** The site is located within an area of interest, and there are significant Historic Environment records of prehistoric to Late Neolithic finds; with isolated finds from later periods, within the site boundary, and a possible Iron Age settlement. The site is in a wider landscape with a significant number of finds and features from the multiple periods. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB. The northern part of the site is within a Core River Valley designation, although the proposed extraction area is outside it. Any permanent change within the Core River Valley would need to demonstrate an enhancement to the landscape. The site is an area of flat grazing marsh along the southern bank of the River Nar. The site is within the landscape character area described as 'The Fens – Open Inland Marshes – Saddlebow and Wormegay' in the King's Lynn and West Norfolk Landscape Character Assessment.

The northern boundary of the site borders the River Nar. The western boundary of the site borders the wooded area of Shouldham Warren. The northwestern boundary is adjacent to a drain and on the opposite bank is an area of woodland plantation. At the southeastern end of the site is the village of Marham a short distance from the boundary; south of the village is RAF Marham.

Due to the open nature of the landscape, there would be views of the site from some properties in Marham, however due to the buffer areas and the potential they offer for bunding, it should be possible for an appropriate screening scheme to be developed. There are isolated properties along the southern boundary, which would also have views of the site if screening is not put in place. If bunding is proposed this will need to take into account flood risk so as to not impede the flow of

water in a flood event. On the opposite side of the River Nar is the Scheduled Monument (Pentney Priory Gatehouse); due to the open nature of the landscape there is the potential for harm to the significance and setting of this monument from some parts of the site. Therefore, special regard would need to be had to the design, and assessment of any change within this area. Care will need to be taken in the design of any screen bunding, to ensure that it is not intrusive in its own right.

There is a Public Right of Way adjacent to the northern boundary of the site (Marham FP8 and Wormegay RB7). There is also a PRoW running through the site (north to south) (Marham FP9).

**Ecology:** Breckland Forest SSSI, which is part of the Breckland SPA, is 4.74km from the site boundary. The SSSI citation states that the clear fell areas and young plantations within Breckland Forest SSSI provide suitable breeding habitat for woodlark and nightjar which occur in internationally important numbers. The forest also supports an important assemblage of protected plant species, internationally rare and nationally scarce plant species. The forest also supports an exceptionally rich invertebrate fauna. Whilst the site is within the Impact Risk Zone for the SSSI, due to the distance of the proposed site from the SSSI no impacts on the SSSI are expected.

East Walton and Adcock's Common SSSI, which is part of the Norfolk Valley Fens SAC is 4.28km from the site boundary. The SSSI citation states that the commons are notable for a complex set of basin-shaped depressions separated by chalky ridges which were formed under periglacial conditions. Active springs are also a feature. This varied topography has resulted in a mosaic of habitats ranging from fen or occasionally open water in the depressions to chalk grassland or scrub on the intervening ridges. The topography is of considerable geomorphological interest. The site is also of great botanical interest containing some of the finest unimproved grassland remaining in Norfolk. The two commons have a very rich invertebrate fauna and the wide range of habitats is attractive to many breeding birds. Whilst the site is within the Impact Risk Zone for the SSSI, due to the distance, provided that no dewatering is proposed as part of the working scheme, no impacts are expected on this SSSI.

River Nar SSSI is adjacent to the site boundary. The SSSI citation states that the River combines the characteristics of a southern chalk stream and an East Anglian fen river. Together with the adjacent terrestrial habitats, the Nar is an outstanding river system of its type. The potential exists for impacts from mineral extraction within SIL 02, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application.

The nearest County Wildlife Sites are: CWS 528 'North of Marham' is 230m from the site boundary and is a mixed CWS with scrub, fen and grassland. CWS 488 'Osierbed Plantation' is 230m from the site boundary and is a semi-natural woodland with coppice. CWS 545 'The Carr' is 180m from the site boundary and is a thin strip of woodland dominated by ash. The potential exists for impacts from mineral extraction within SIL 02, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application.

CWS 530 'Marham Fen' is 80m from the site boundary. Marham Fen CWS consists of lowland basic grassland, mixed fen, scrub and coppice woodland lying over chalky ground which contains depressions called 'pingos' created by glacial activity during the last ice-age. The potential exists for impacts from mineral extraction within SIL 02, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application.

The nearest ancient woodland site is Bowl Wood, which is a Plantation on Ancient Woodland Site (PAWS) and Ancient Semi-Natural Woodland (ASNW); it is 1.26km from the site boundary. Due to this distance, provided that no dewatering is proposed as part of the working scheme, no impacts on this ancient woodland site are expected.

**Geodiversity:** The site consists of Peat, river terrace deposits-sand and gravel, which are geodiversity priority features, overlying Leziate member-sand, and Carstone Formation-sandstone. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as

part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The majority (52%) of the area is within Flood Zone 3 (high risk) and 42% of the area is within Flood Zone 2 (medium risk) for flooding from rivers, within the borough council's SFRA. The area has a low risk of surface water flooding with a few locations of surface water pooling, mainly in the south of the site, in a 1 in 30 year rainfall event. There are additional locations of surface water pooling in a 1 in 100 year rainfall event. The number of locations of surface water pooling increase significantly in a 1 in 1000 year rainfall event and there are a number of surface water flow paths in the southern part of the proposed area. Silica sand extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is within the East of Ouse, Polver and Nar IDB area.

**Hydrogeology:** The site is located over a principal aquifer (bedrock) and partially over a Secondary A aquifer (superficial deposits). The eastern part of the site is within groundwater Source Protection Zone 1. The rest of the site is not within a groundwater SPZ. A planning application for mineral extraction at this site would need to include a Hydrogeological Risk Assessment to identify any potential impacts to groundwater and appropriate mitigation measures. The proposer of the site has indicated that potentially extraction could be via wet suction dredging; this may mean that dewatering is unnecessary.

**Water Framework Directive:** The Nar to the confluence with the Blackborough Drain is adjacent to part of the northern boundary of the site and is a Water Framework Directive waterbody. The site proposers have submitted a smaller extraction area which provides a standoff area between the proposed extraction and the River Nar. Therefore, no potential exists that the working of silica sand within the proposed extraction area within SIL 02 could lead to the realignment of the Nar.

The Fourteen Foot Drain is a Water Framework Directive waterbody and it bisects the proposed extraction area. The drain flows eastwards eventually flowing into the Polver Drain (3.5km away) which in turn flows into the Relief Channel. Any future planning application for mineral extraction at the site would be required to carry out an assessment of the potential for impacts on Water Framework Directive waterbodies, including from silt ingress and modification, and appropriate mitigation to prevent unacceptable adverse impacts.

The groundwater level within mineral workings in this area is several metres below ground level. As screening bunds form part of mineral extraction sites, if any flow did occur these bunds would form a barrier that would prevent any flow moving down slope until infiltration took place. The proposed standoff area between the extraction area and the embankment would also provide an opportunity for any flows to infiltrate.

The River Nar is embanked at this point and only if the embankment was in some way breached, would a flow reach the river, and such a risk is considered to be negligible. The River Nar is in part fed by base flow; however as it is proposed to work the extraction area wet, this is unlikely to affect base flow rates into the river.

SIL02 and the existing processing plant at Leziate, which the silica sand would be transported to, are both located several kilometres apart. It is proposed to transport the mineral by pipeline. It is not known at this stage whether the pipeline would pass over the River Nar by bridge or whether a sub-surface pipeline would be used. Methods such as trenchless crossing could be utilised if a subsurface crossing was preferred which would not disturb the river base. If a pipeline bridge was preferred seamless pipeline could be utilised for the crossing which should ensure the potential for leakage and therefore silt ingress is negligible.

Any future planning application would be required to carry out a dust assessment in accordance with the National Planning Policy Framework. Therefore, it is not expected that there would be a pathway for silt ingress into the River Nar from any future silica sand extraction within SIL 02.

**Utilities infrastructure:** There is a water main along the site boundary and a water main within the

site. There is an Anglian Water sewerage pumping station adjacent to the site boundary. Anglian Water would require the standard protected easement widths for the water main and for any requests for alteration or removal to be conducted in accordance with the Water Industry Act 1991. There are no electricity transmission lines within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is within the zone for RAF Marham where the Defence Infrastructure Organisation must be consulted on developments with the potential to increase the number of birds and the 'bird strike' risk to aircraft. Therefore a Bird Hazard Assessment would be required at the planning application stage.

**Restoration:** No restoration scheme has been proposed by the mineral operator at this stage. Restoration of the site which proposes area of open water may be problematic due to the proximity of the operational airbase, if these encourage waterfowl.

**Initial conclusion:** It is considered suitable to identify SIL 02 as a 'Preferred Area', where a smaller specific site for silica sand extraction could come forward in the future. This would be subject to a suitable planning application addressing the following requirements:

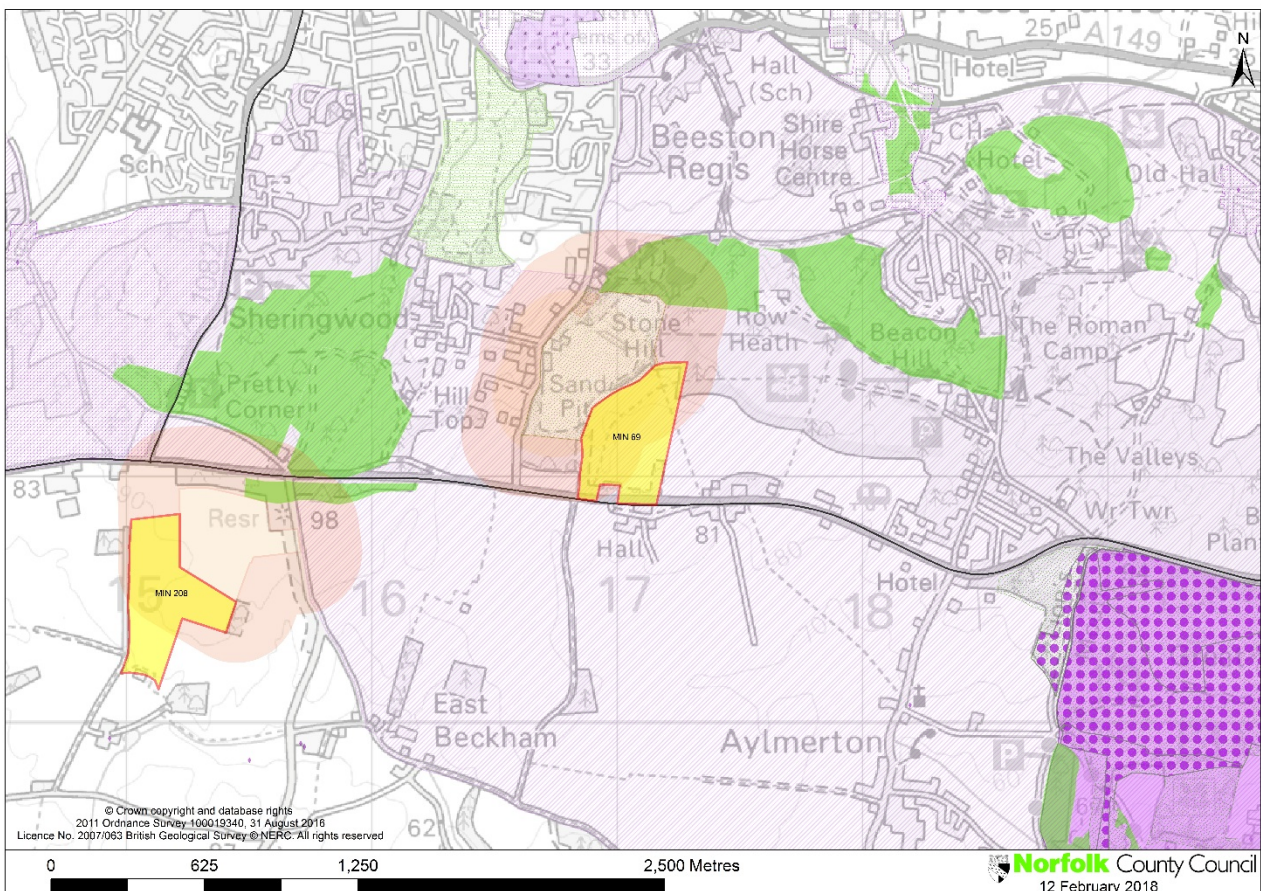
- A Landscape and Visual Impact Assessment, which identifies potential impacts, and suggests appropriate mitigation measures to be included in the working scheme. Special regard will need to be had to heritage assets, the views from properties, views for users of the PRow network, and longer distance views in the wider landscape especially in the Nar Valley;
- A working scheme to include the site to be worked by wet suction dredging, and transport of the mineral to the processing plant to be by pipeline, subject to the findings of an assessment which shows that this can be carried out without unacceptable impacts;
- A detailed landscaping and screening scheme must be developed, so that the impacts on views from properties and PRows and in the wider landscape, are acceptable;
- A progressive restoration scheme to provide landscape and biodiversity gains which does not increase the risk of birdstrike;
- A Hydrogeological Risk Assessment to identify any potential impacts to groundwater and appropriate mitigation measures;
- An assessment of the potential for impacts on Water Framework Directive waterbodies, including from silt ingress and modification, and appropriate mitigation to prevent unacceptable adverse impacts;
- A suitable scheme for the diversion of the PRow if mineral extraction is proposed in the location of a PRow;
- A Heritage Statement to identify potential impacts to Heritage Assets and their setting and significance, and to identify appropriate mitigation measures (which may conclude that certain parts of the site are unsuitable for mineral extraction);
- Noise and dust assessments and a programme of mitigation measures to deal appropriately with any amenity impacts; and
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures.

**Question 74: Proposed Site SIL 02 'land at Shouldham and Marham' -**

**Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## North Norfolk sites

### MIN 69 - land north of Holt Road, Aylmerton



### Site Characteristics

- The 16.86 hectare site is within the parish of Aylmerton
- The estimated sand and gravel resource at the site is 2,200,000 tonnes
- The proposer of the site has given a potential start date of 2019 and estimated the extraction rate to be 50,000 to 100,000 tonnes per annum. Based on this information approximately 1,800,000 tonnes could be extracted within the plan period.
- The site is proposed by Norfolk Gravels trading as Carter Concrete Ltd as an extension to an existing site.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being a mixture of non-agricultural and grade 3.
- The site is 3.5km from Cromer and 7.9km from Holt, which are the nearest towns.

**Amenity:** The nearest residential property is 93m from the site boundary. There are eight sensitive receptors within 250m of the site boundary. The settlement of Beeston Regis is 624m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site would use the existing site access along the C786 Briton's Lane to the A148 Holt Road, which is a designated lorry route. The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but

continue for a longer period. The estimated number of HGV movements is 30 to 40 per day. The Highway Authority has concerns that Briton's Lane is substandard and narrow and that the junction onto the A148 is also substandard. Therefore road improvements to Briton's Lane would be required, including right hand turn lane at the junction between Briton's Lane and the A148, to the satisfaction of the Highway Authority.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with enclosure. The site is within a wider historic landscape character of Twentieth century agriculture with enclosure and boundary loss, agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure, common and heath. The wider historic landscape character also includes modern built-up areas of houses and small farm clusters, informal parkland, leisure/recreation, mineral extraction and woodland (carr woodland and 18<sup>th</sup> to 20<sup>th</sup> century plantation woodland).

The nearest Listed Building is Grade II Abbey Farmhouse, which is 1.37km away. There are 9 Listed Buildings within 2km of the site. The only Scheduled Monument within 2km of the site is Beeston Regis Priory, which is 1.18km away. There are four Conservation Areas within 2km of the site, they are Sheringham (1.85km away), West Runton (1.02km away), Beeston Regis (1.17km away) and Upper Sheringham (1.69km away). Felbrigg Hall, a Registered Historic Park is 1.76km from the site. No adverse effects on the historic environment are expected from the proposed mineral extraction.

**Archaeology:** There are no Historic Environment records within the site boundary, however the lack of HE records may just be due to a lack of investigations. The site is in a wider landscape with a number of finds and features, most as a result of medieval iron working activity, and WW2 defences immediately to the north. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is located within the Norfolk Coast AONB. The site is a gently sloping arable field on the south side of the Cromer Ridge, and is adjacent to an active permitted sand and gravel extraction site. The site is within the landscape character area described as 'Wooded with parkland – Holt to Cromer'. The site is bounded by woodland except for a relatively small section of the eastern boundary. The site contains a small depression which may be the remains of a small scale historic mineral working. The southern boundary of the site is bounded by the A148, although views are screened by woodland.

The site would form an extension to the existing quarry site, which has been operational since the 1940s and has an Interim Development Order (IDO) planning permission (which does not expire until 2042), with few conditions and limited control over restoration (notwithstanding an ongoing Renewal of Minerals Permission application to update the conditions). In addition the current site contains a concrete production plant with a permanent planning permission.

The whole of the site lies within the Norfolk Coast AONB and the NPPF states that local planning authorities should "as far as practicable, provide for the maintenance of landbanks of non-energy minerals from outside Areas of Outstanding Natural Beauty" however, the current site is well screened from public views and the extension site would be similarly screened, so the local landscape impacts are not considered to be significant.

A very high quality restoration proposal for both the existing site, and MIN 69, could offer the possibility of developing a large new area of heathland with greatly improved public access. Taking into account the following factors, it is considered that there are exceptional circumstances for allowing this mineral development within the AONB:

- The presence of the existing site with its permanent concrete plant an associated employment
- The limited local landscape and amenity harm

- The opportunity to facilitate a much improved working and restoration scheme for the existing site and a high quality biodiversity led restoration for site MIN 69.

There is a Public Right of Way adjacent to the western boundary of the site (Beeston Regis BR10). There is a PRoW running through the site (north to south) (Aylmerton FP2). There is a PRoW within the site (Aylmerton FP1). There is a PRoW crossing the NE corner of the site (Aylmerton FP3).

**Ecology:** The site is 0.65km from Sheringham and Beeston Regis Commons SSSI which is part of the Norfolk Valley Fens SAC. The SSSI citation states that the site is an area of acidic heathland containing area of species-rich calcareous spring fen on sloping ground. 'Mixed mire' vegetation has developed in seepage zones. These spring fen areas contain many wetland plants that are now locally uncommon. Dry heathland surrounds the fens and supports several species of breeding birds and reptiles. The proposed extraction site would be worked dry (above the water table) and therefore the hydrology of the SSSI would not be adversely affected. Due to the distance of the proposed extraction site from the SSSI, the SSSI would not be adversely affected by dust deposition.

Briton's Lane Gravel Pit SSSI is adjacent to the site boundary. The SSSI citation details the geological interest in the site and states that this pit provides excellent exposures in the Pleistocene Briton's Lane Gravels of the Cromer Ridge. The SSSI is part of the existing mineral extraction site. The SSSI would not be adversely affected by the proposed mineral extraction site.

Felbrigg Woods SSSI is 1.43km from the site boundary. The SSSI citation states that the Great Wood is one of only two known sites for acid Beech stands in Norfolk. The ancient trees within the woodland and old deer park carry an interesting and diverse lichen flora. The site is also of considerable entomological and ornithological interest. The wood supports a wide range of breeding birds. The proposed extraction site would be worked dry (above the water table) and therefore the SSSI would not be adversely affected.

Beeston Cliffs SSSI is 1.81km from the site boundary. The SSSI citation details the geological interest in the site and states that this is the type site for the Beestonian Stage of the Pleistocene and therefore is nationally important. A nationally rare plant, Purple Broomrape, is present in unimproved calcareous grassland on the cliff-top. The SSSI would not be adversely affected by the proposed mineral extraction site.

Weybourne Cliffs SSSI is 2.86km from the site boundary. The SSSI citation details the geological interest in the site with outstanding Pleistocene sections of national importance and marine and vertebrate fossils. Additional biological interest is provided by colonies of sand martins in the cliff-face and of fulmars on the cliff ledges. The SSSI would not be adversely affected by the proposed mineral extraction site.

The nearest County Wildlife Site is CWS 1147 'Roman Camp and Beeston Regis Heath' which is 230m from the site boundary. The CWS consists of a variety of habitats including broad-leaved coppice with standards woodland, dry dwarf shrub heath and unimproved acidic grassland. Due to the distance from the CWS there would be no impacts from dust deposition. The proposed extraction site would be worked dry (above the water table) and therefore the County Wildlife Site would not be adversely affected.

The nearest ancient woodland site is Great Wood, a Plantation on Ancient Woodland Site (PAWS) and Ancient Semi-Natural Woodland (ASNW) which is 1.71km from the site boundary. Due to the distance from the ancient woodland there would be no impacts from dust deposition. The proposed extraction site would be worked dry (above the water table) and therefore the ancient woodland would not be adversely affected.

**Geodiversity:** The site consists of the Briton's Lane sand and gravel member, overlying Wroxham Crag Formation-sand and gravel. The Briton's Lane sands and gravels are known to contain priority features such as palaeosols and erratics in the adjacent existing quarry, and therefore they may occur on this site. The existing quarry is also the type-site for the Briton's Lane Formation. Briton's Lane Gravel Pit SSSI is designated for its glacial and glacio-fluvial sediments (part of Cromer Ridge)

and could be impacted adversely by insensitive extraction. However, MIN 69 would be a very valuable site for geological study and if a section of the Cromer Ridge could be retained it could lead to the extension of the geological SSSI. Given the site's importance, a 'watching brief' during the extraction phase would be essential. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. The site has a low risk of surface water flooding, with one location of surface water pooling in a 1 in 30 year rainfall event, and two locations of surface water pooling in a 1 in 100 year rainfall event. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). Part of the site is within groundwater Source Protection Zone 2. The rest of the site is not within a groundwater SPZ. The site would be worked dry (above the water table) and therefore no effect on water resources is expected.

**Water Framework Directive:** The site is approximately 1km from unnamed streams within the catchment of Scarrow Beck, which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards Scarrow Beck. MIN 69 and the existing adjacent processing plant, which the sand and gravel would be transported to by internal haul route, are both a considerable distance north of Scarrow Beck. Therefore the sand and gravel to be processed would not be transported across Scarrow Beck. Due to the distance of the site from the Scarrow Beck it is not expected that there would be a pathway for silt ingress into Scarrow Beck from any future sand and gravel extraction within site MIN 69.

**Utilities infrastructure:** There are no Anglian Water sewerage assets within the site. There is water main along the site boundary. Anglian Water would require the standard protected easement widths for the water main and for any requests for alteration or removal to be conducted in accordance with the Water Industry Act 1991. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is not within an aerodrome safeguarding zone.

**Restoration:** The site would be a steeply sided valley restored to dry acid heathland with some woodland / scrub natural regeneration on the upper slopes with re-established public rights of way.

**Initial conclusion:** The site is considered to be suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:

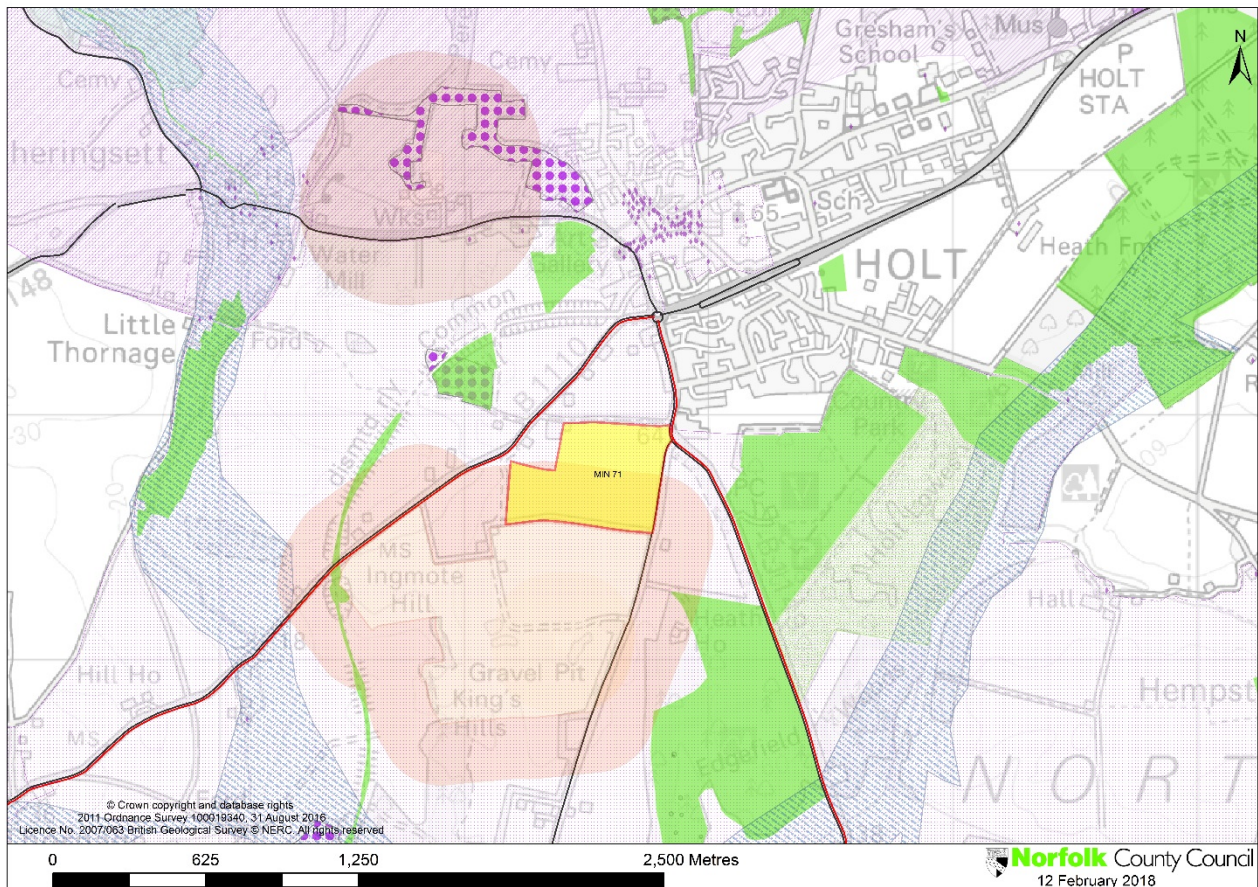
- The development of a very high quality working and restoration scheme for MIN 69 and the existing site is needed, showing clearly how the two sites could be worked and progressively restored together to minimise landscape and amenity harm during the operational stages and to maximise the benefits on restoration. In particular, excessively steep 'walls' on the quarry boundary (a feature of the existing site) should be avoided, with gentler gradients necessary (but see bullet point 4 below). The other nine requirements below must all be considered in the context of the overarching requirements of the first bullet point;
- The restoration must be heathland-led (with some woodland), with a range of different habitats and micro-habitats being included (e.g. a variety of slope angles and aspects), to maximise the potential for plants, invertebrates, reptiles, birds and mammals. No importation of waste materials to assist with restoration will be permitted;
- Improved public access is a key consideration. During the operation stage, footpaths should only be diverted when necessary (e.g. for public safety reasons), and both during the operational stage and on restoration the footpaths should be of appropriate gradients to facilitate relatively easy access. Interpretation boards showing details of the glacial and periglacial geology of the site (the reason for the designation of the Briton's Lane Gravel Pit SSSI), heathland ecology and the AONB should be placed at suitable points in the site;



- A section of the Cromer Ridge should be retained, if at all practicable, for geological study. The condition of the current geological SSSI (Briton's Lane Gravel Pit) should also be maintained or, where possible, improved. The arrangements at the current site – where academic and student study of the site's geology (by arrangement) is welcomed and facilitated by Carter Concrete – should continue, with the Norfolk Geodiversity Partnership being contacted in the event of interesting finds being made by the site operators;
- The site must be worked 'dry' (i.e. above the water table), there should be no discharges into ground water, and site drainage should be via a settlement lagoon. Effective dust management will also need to be proposed (and be secured by a planning condition). It must therefore be demonstrated that water use and the drainage regime and dust production would not have an adverse effect on the integrity of the Norfolk Valley Fens SAC;
- Some advanced planting (or allowing current trees and hedges to thicken up) along the southern and eastern boundaries of land in the applicant's ownership (some of which would be outside the area of MIN 69) will be necessary;
- A buffer zone to the north-east of MIN 69 (as shown indicatively on the Policies Map) must be left to protect the setting and ecology of the woodland owned by the National Trust;
- The current highways access along Briton's Lane to the A148 must continue to be used, with improvements to Briton's Lane and the A148 junction being upgraded with a right-turn lane to the satisfaction of the Highway Authority; and
- A formal aftercare agreement (through a section 106 legal agreement) for at least 25 years after extraction has ceased must be agreed. These arrangements will need to include regular clearance of scrub vegetation (to maintain heathland habitat) and footpath maintenance.

**Question 75: Proposed Site MIN 69 'land north of Holt Road, Aylmerton' -  
Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## MIN 71 - land west of Norwich Road, Holt



### Site Characteristics

- The 22.63 hectare site is within the parish of Holt
- The estimated sand and gravel resource at the site is 1,100,000 tonnes
- The proposer of the site has given a potential start date of 2030 (after extraction has ceased at the adjacent operational site) and estimated the extraction rate to be 50,000 to 100,000 tonnes per annum. Based on this information approximately 600,000 tonnes could be extracted within the plan period.
- The site is proposed by Norfolk Gravels trading as Carter Concrete Ltd as a new site.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 3
- The site is 0.1km from Holt which is the nearest town.

**Amenity:** The nearest residential property is 11m from the site boundary. There are 82 sensitive receptors within 250m of the site boundary. Most of these properties are in the settlement of Holt, which is 26m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site could use the existing adjacent site access onto the C267 Hunworth Road and then travel north to join the B1149 Holt Road), which are both designated lorry routes, at the existing junction. However, as the site is proposed to be operated by a different company to that operating the adjacent site, a separate access may need to be formed. It is considered that a

suitable highway access could be formed. The site is not within an AQMA. The estimated number of HGV movements are 20 to 30 per day.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with boundary loss. The site is within a wider historic landscape character of Twentieth century agriculture with enclosure and boundary loss, agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure, common, heath, historic religious institution, modern built-up areas of houses, small farm clusters and industry. The wider historic landscape character also includes leisure/recreation, mineral extraction, a water reservoir and woodland (ancient woodland and 18<sup>th</sup> to 20<sup>th</sup> century plantation woodland).

The nearest Listed Building is Bacon's House, which is 610m away. There are 142 Listed Buildings within 2km of the site. Over 100 of these are within the Holt Conservation Area, which is 460m from the site. The site is within the Glaven Valley Conservation Area. Letheringsett Conservation Area is 1.18km from the site. Hunworth Conservation Area is 1.93km from the site. The only Scheduled Monument within 2km of the site is the 'Habitation site on Edgefield Heath' which is 900m away. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** There are no Historic Environment records within the site boundary, however the lack of HE records may just be due to a lack of investigations. The site is in a wider landscape with a number of finds and features, including a WW1 and WW2 military training site on Holt Lowes to the east. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not within the AONB or a Core River Valley. The site is within the Glaven Valley Conservation Area. The site is a single large arable field which was formed by the historic removal of hedgerows. The site is within the landscape character area described as 'Wooded with parkland – Holt to Cromer'. The surrounding landscape features smaller fields bounded by hedgerows. There is an active permitted mineral working to the south of the site. To the north are the outskirts of the town of Holt, across the B1149.

The hedgerows around the boundary of the site are sparse in some places, allowing views into the site. Advance planting and hedgerow reinforcement would be required to improve screening potential. There are clear views of the northern part of the site from the Hunworth Road and the land to the west is visible in an open view from Thornage. There are a group of residential properties adjacent to the north-west boundary of the site and the site would require screening, in the form of hedge and woodland planting, and a standoff area from these properties for the site to be acceptable. Appropriately graded screen bunds would be required on site boundaries during the period of site operations. Appropriate boundary treatments in the form of hedge and woodland planting would improve screening of the site from the cluster of houses to the north, from the adjacent Public Right of Way to the north, from the Holt Road and on the approach from Thornage.

There is a Public Right of Way adjacent to the northern boundary of the site (Holt RB22).

**Ecology:** The site is 0.62 km from Holt Lowes SSSI, which is part of the Norfolk Valley Fens SAC. The SSSI citation states that this is an area of dry sandy heathland that grades into flushes slopes along the valley of the River Glaven. There is an excellent example of a mixed valley-mire in a small tributary valley that bisects the heath. The mixed mire communities are diverse and reflect the variations in alkalinity and nutrient availability in the drainage waters. Several uncommon plants and invertebrates are present. Holt Lowes SSSI is a groundwater-dependent wetland. The potential exists for impacts from mineral extraction at MIN 71, if uncontrolled. An assessment of potential hydrogeological impacts, together with appropriate mitigation would be required as part of

any planning application. Site MIN 71 can only be worked if it would not affect groundwater flows, that is, it must be worked dry (above the water table). In the absence of detailed hydrological information on the top (of three) layers of sand could be worked safely (approximately 1.1 million tonnes of mineral). Site drainage should also be via a settlement lagoon to avoid adverse effects from surface water runoff. Any planning application would need to demonstrate that there would be no adverse effects on the integrity of the SAC.

The nearest County Wildlife Sites are:

CWS 2006 'Spout Common' is 460m from the site boundary and comprises grassland and scrub with some areas of more mature woodland around the edges. Springs from the valley sides feed a small stream with flows into the River Glaven. The potential exists for impacts from mineral extraction at MIN 71, if uncontrolled. An assessment of potential hydrogeological impacts, together with appropriate mitigation would be required as part of any planning application.

CWS 2121 'Common Hills Plantation' is 220m from the site boundary and is a woodland with planted beech, sycamore and oak, while a smaller portion of the wood is largely semi-natural. The potential exists for impacts from mineral extraction at MIN 71, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application.

CWS 1093 'Disused railway' is 500m from the site boundary and is a species rich unimproved, neutral/acid grassland along a stretch of disused railway line which crosses the River Glaven. Due to this distance, no impacts on this CWS are expected.

CWS 1098 'Edgefield Heath' is 250m from the site boundary and is a coniferous plantation and secondary woodland with remnants of heath and valley mire. There are also two blocks of mixed broadleaved woodland. The potential exists for impacts from mineral extraction at MIN 71, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application.

The nearest ancient woodland sites are Common Hill Wood, which is a Plantation on Ancient Woodland Site (PAWS) and is 0.22km from the sites boundary, and Pereers Wood, a PAWS which is 0.88km from the site boundary. The potential exists for impacts from mineral extraction at MIN 71, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application.

**Geodiversity:** The site consists of the Briton's Lane sand and gravel member, overlying Chalk formations. The Briton's Lane sands and gravels are known to contain priority features such as palaeosols and erratics in other locations, and therefore they may occur on this site. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. The site has a low risk of surface water flooding, with two small locations of surface water pooling in a 1 in 100 year rainfall event which expand in a 1 in 1000 year rainfall event. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). The majority of the site is within groundwater Source Protection Zone 3. A planning application for mineral extraction at this site would need to include a Hydrogeological Risk Assessment to identify any potential impacts to groundwater and appropriate mitigation measures.

**Water Framework Directive:** The site is 1.2km from the River Glaven and 0.6km from a tributary of the River Glaven, which is the nearest Water Framework Directive waterbody. The groundwater

level in this area is several metres below ground level and therefore overland flows are not expected from the site towards the River Glaven. MIN 71 and the existing adjacent processing plant, which the sand and gravel would be likely to be transported to by internal haul route, are both a considerable distance north east of the River Glaven. Therefore the sand and gravel to be processed would not be transported across the River Glaven. Due to the distance of the site from the River Glaven it is not expected that there would be a pathway for silt ingress into the River Glaven from any future sand and gravel extraction within site MIN 71.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site boundary. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is not within an aerodrome safeguarding zone.

**Restoration:** No details on proposed restoration of the site have been provided, but it is assumed that the site will mainly be restored to agriculture. The preferred restoration for the site would include deciduous woodland and acid grassland.

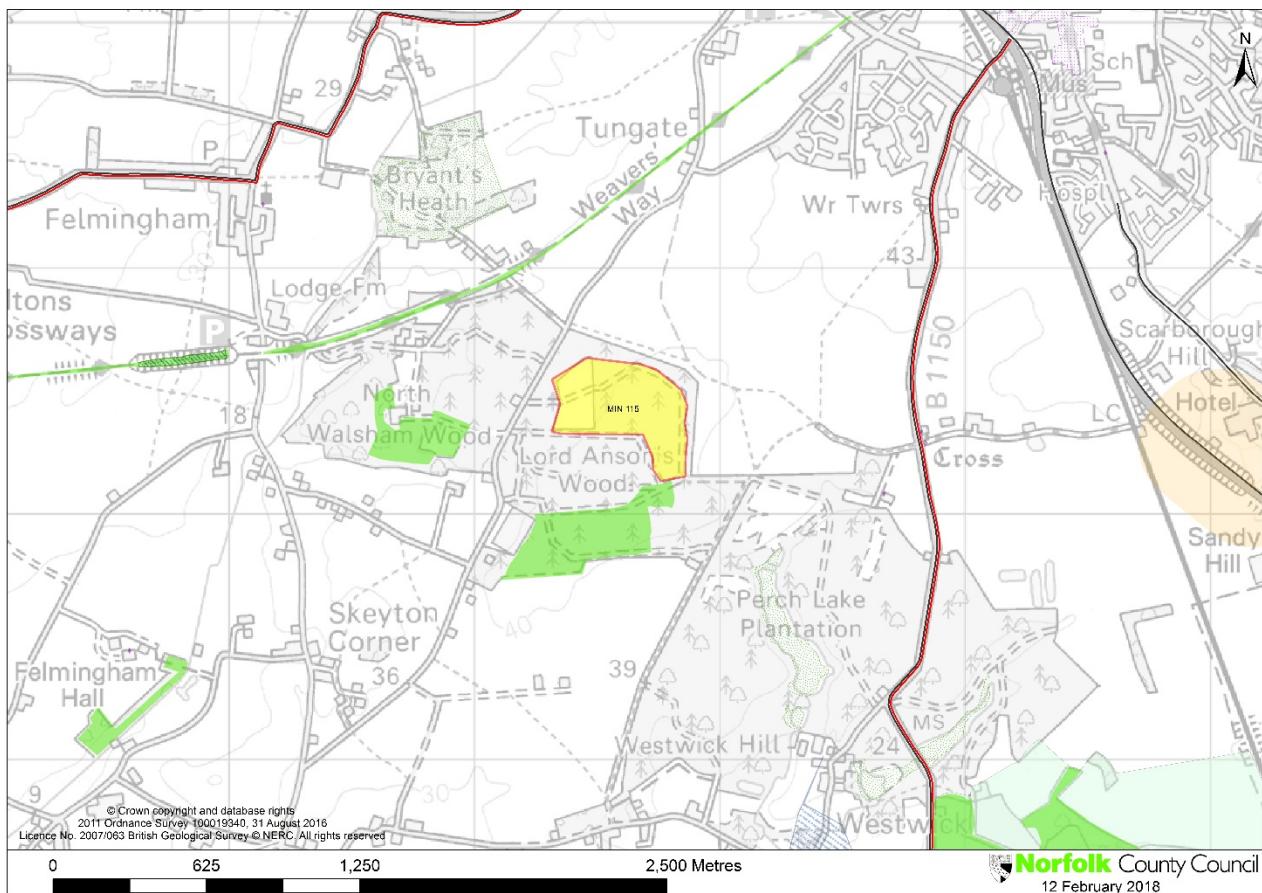
**Initial conclusion:** The site is considered suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:

- Due to the site's proximity to Holt Lows SSSI (part of the Norfolk Valley Fens SAC), only 'dry' working (above the water table) will be permitted. A Hydrogeological Risk Assessment will be necessary, which will show how deep the site can be worked, with any mitigation measures necessary to enable that extraction to take place. The presumption is that only the top layer of mineral (1.1 million tonnes) is suitable for extraction;
- Dust suppression measures will be necessary to ensure that dust deposition does not affect the integrity of Norfolk Valley Fens SAC, and surface water runoff must also be appropriately managed to avoid adverse effects on the SAC;
- Suitable standoff/buffer zones at the north east and north-west corners of the site and along the western boundary of the site, will be needed to protect residential amenity and longer views to Thornage. A wider buffer zone in the north of the site may also be necessary to minimise impacts on Holt itself;
- The site should be subject to appropriate low-level restoration (with no importation of material) to agriculture, incorporating some additional areas of habitat (e.g. woodland and maybe grassland) and the restoration of field boundaries within the site, as hedgerows;
- A Landscape and Visual Impact assessment to identify potential landscape impacts, with particular reference to the Glaven Valley Conservation Area and Holt Conservation Area, together with suitable mitigation measures to address the impacts;
- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required;
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures;
- An appropriate financial contribution to improvements to the B1149 / Holt Road junction will need to be made; and
- Some open faces retained for geological study during the operational stages, and ideally after restoration, and a 'watching brief' during the extraction phase in case features of potential geological interest are discovered.

**Question 76: Proposed Site MIN 71 'land west of Norwich Road, Holt' -**

**Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## MIIN 115 - land at Lord Anson's Wood, near North Walsham



### Site Characteristics

- The 16.88 hectare site is within the parish of North Walsham
- The estimated sand and gravel resource at the site is 1,100,000 tonnes
- The proposer of the site has estimated the extraction rate to be 60,000 tonnes per annum but has not given a potential start date for extraction. Based on this information the full mineral resource at the site could be extracted within 19 years. If mineral extraction started in 2019, then 1,080,000 tonnes could be extracted within the plan period.
- The site is proposed by R G Carter Ltd as a new site.
- The site is currently a plantation woodland.
- The Agricultural Land Classification scheme classifies the land as being non-agricultural.
- The site is 1.1km from North Walsham and 5.9km from Aylsham, which are the nearest towns.

**Amenity:** The nearest residential property is 352m from the site boundary. The settlement of North Walsham is 926m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. Therefore, no adverse amenity impacts are expected from the proposed mineral extraction.

**Highway access:** The proposed site access would be to the B1150 Norwich Road to the east, which is a designated lorry route. The haul route would follow an existing track along the northern edge of the woodland before reaching the B1150. The Highway Authority considers that a suitable highway access could be formed to the B1150. Appropriate visibility splays at the junction with the B1150 would be required and a right-turn lane may be needed. The site is not within an AQMA. The proposer of the site estimates that 6 to 8 HGV movements per day would be required.

**Historic environment:** The historic landscape character of the site is 18<sup>th</sup> to 20<sup>th</sup> Century plantation woodland. The site is within a wider historic landscape character of 18<sup>th</sup> to 20<sup>th</sup> century plantation woodland, 20<sup>th</sup> century agriculture with enclosure and boundary loss (with and without a relict element), agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure and heath. The wider historic landscape character also includes enclosed wetland meadow, a water reservoir, duck decoy pond, horticulture nursery and modern built up areas of small farm clusters.

The nearest Listed Building is the Grade II Thatched cottage which is 810m away. There are 11 Listed Buildings within 2km of the site. The nearest Scheduled Monument is 'Cross 300m NW of Tollbar Cottages', which is 850m from the site. There are three Scheduled Monuments within 2km of the site. North Walsham Conservation Area is 1.97km from the site. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** The site contains a HE record for a WW2 aircraft crash site (B24 Liberator); no other HE records are noted however this may just be due to lack of investigations. The site is in a wider landscape with a number of finds and features with medieval iron working activity, and a battlefield site immediately to the east. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site is within the landscape character area described as 'Wooded with parkland – Wickmere and Swanton Abbott'. The site is an area of largely coniferous woodland, although there is some scrubby regrowth. Surrounding the site is an area of predominately broadleaved woodland, and the site is within a wider Parkland setting.

The surrounding landscape setting along the access road is characterised by mature hedgerows field boundary mature oak trees and woodland edge of mixed coniferous and deciduous species. It is imperative that these existing landscape features are retained and enhanced. There are no views into the site, however, the proposed haul road crosses the northern edge of the woodland, connecting to the B1150. The haul road also crosses three public footpaths, and passes close to a cottage (Heath Cottage) near to the B1150. Some advance planting of field boundary trees and hedges would be required to break up the visual impacts during operations of the proposed haul route.

Retention of woodland buffer zones is proposed along northern and eastern boundaries with substantial areas of woodland surrounding the site on southern and western boundaries. The retention of woodland buffer zones would form a key requirement for this site to be satisfactory in landscape terms and visual impact terms.

There are no Public Rights of Way within or adjacent to the site. There is a PROW close to the northern boundary of the site (north Walsham FP9).

**Ecology:** The site is more than 5km from any SPA, SAC or Ramsar site. Therefore, there would be no likely significant effects on these sites.

Bryant's Heath, Felmingham SSSI is 0.7km from the site boundary. The SSSI citation states that the SSSI is an area of dry acidic heathland. The site encompasses a mix of dry heath, wet heath and fen communities. Rich plant communities have developed in the flushed areas and include several plants that are now uncommon in East Anglia. The proposed extraction site would be worked dry (above the water table) and therefore the SSSI would not be adversely affected.

Westwick Lakes SSSI is 0.45km from the site boundary. The SSSI citation states that Westwick Lakes form a compact group of five secluded man-made lakes. The Perch Lake group is of a type rarely found in East Anglia and closely resembles nutrient-poor lakes found in the upland areas.

The acidic waters support an unusual aquatic flora and plankton fauna. The other lakes are more typical with abundant water weeds. Large flocks of wildfowl overwinter in the lakes. The proposed extraction site would be worked dry (above the water table) and is located up-gradient of the SSSI. Therefore the SSSI would not be adversely affected.

The nearest County Wildlife Sites are: CWS 1170 'Lord Anson's Wood' is adjacent to the site boundary and is an area of mature semi-natural woodland and of conifer plantation with broadleaved woodland regeneration. A potential impact could be dust deposition from extraction, if uncontrolled. Therefore a dust assessment and identification of appropriate mitigation measures will be required as part of the planning application process, to ensure that the CWS are not adversely affected.

CWS 1171 'North Walsham Wood' is 330m from the site boundary and is a mainly mature oak dominated semi-natural, broadleaved woodland with an understory of silver birch; there are also two areas of Scot's pine plantation. CWS 1172 'Weaver's Way' is 450m from the site boundary and is a stretch of dismantled railway comprising a mixture of recent semi-natural broadleaved woodland and species poor semi-improved neutral, well-drained grassland with scrub. The proposed mineral extraction site would be worked dry (above the water table) and therefore these County Wildlife Sites would not be adversely affected.

There are no ancient woodland sites within 3km of the site.

**Geodiversity:** This site consists of the Briton's Lane sand and gravel member, overlying Wroxham Crag Formation-sand and gravel. The Briton's Lane sands and gravels are known to contain priority features such as palaeosols and erratics in other locations, and therefore they may occur on this site. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. The site has a low probability of surface water flooding with one very small location of surface water pooling in a 1 in 1000 year rainfall event. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site. The site would be worked dry (above the water table) and therefore no effect on water resources is expected.

**Water Framework Directive:** The site is over 1km from watercourses within the catchment of the Tributary of the Bure and the King's Beck, which are the nearest Water Framework Directive waterbodies. The groundwater level in this area is many metres below ground level and therefore overland flows are not expected from the site towards the Tributary of the Bure or the King's Beck. If mineral is extracted from MIN 115 it is expected to be processed on site. Therefore the sand and gravel to be processed would not be transported across the Tributary of the Bure and the King's Beck. Due to the distance of the site from the Tributary of the Bure and the King's Beck it is not expected that there would be a pathway for silt ingress into the Tributary of the Bure or the King's Beck from any future sand and gravel extraction within site MIN 115.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is not within an aerodrome safeguarding zone.

**Restoration:** No details on proposed restoration of the site have been provided. The preferred restoration for the site would be a mix of deciduous woodland and heathland.

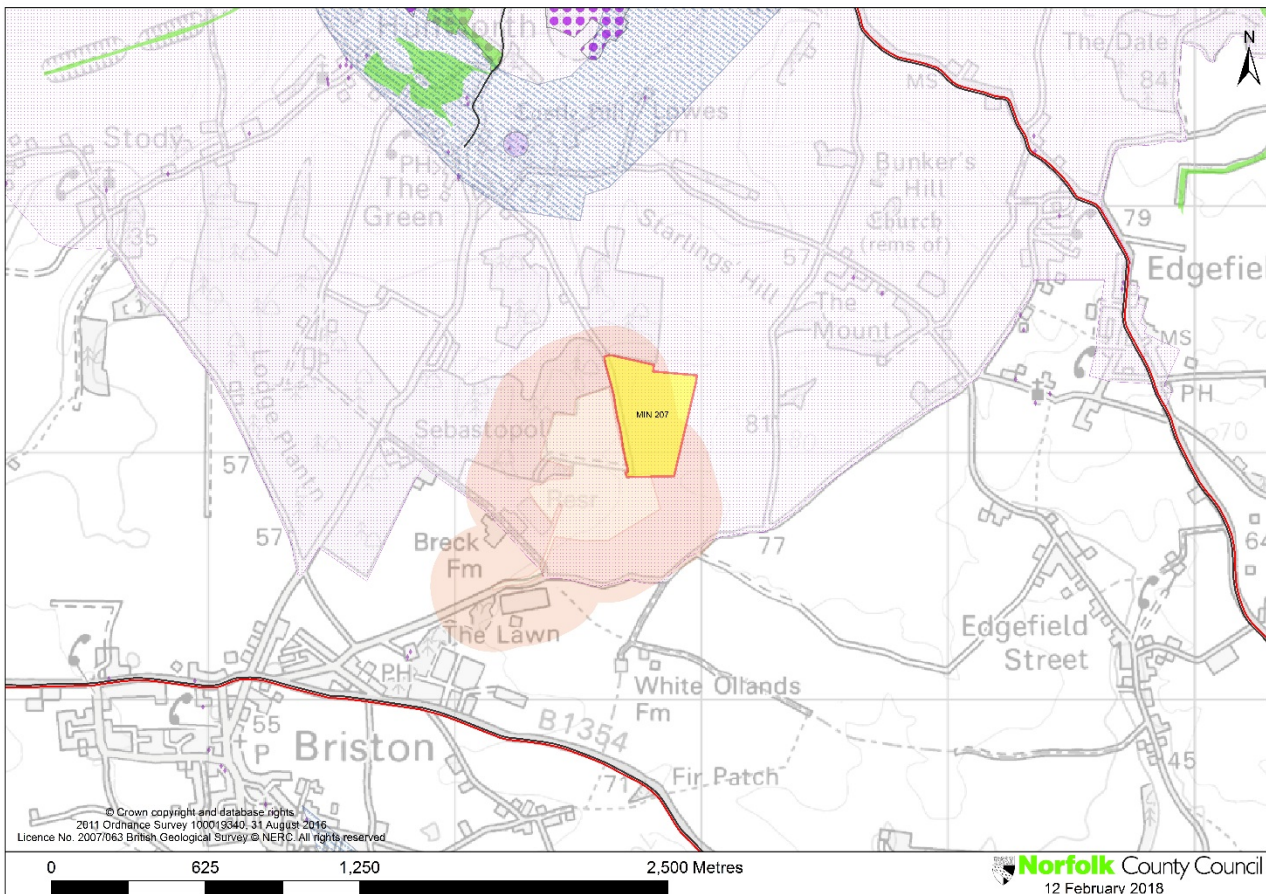


**Initial conclusion:** The site is considered to be suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:

- Development of a satisfactorily screened haul road to the B1150 to the east. The impact of the haul road on Heath Cottage will need to be assessed, with screening/bunding as appropriate to mitigate any amenity impacts;
- A junction to the B1150 with appropriate visibility splays will be necessary. Depending on the results of a Transport Assessment or Statement, a right-turn lane may be needed;
- A full ecological survey will be necessary, in particular for bats and badgers. Depending on the results of the survey, mitigation measures may be necessary to ensure that there would be no adverse impacts on protected species;
- An appropriately wide screen of trees to be left around the site to minimise amenity impacts on users of the footpath passing close to the north-west corner of Lord Anson's Wood;
- The site would need to be worked 'dry' (above the water table) to ensure there would be no adverse impacts on Westwick Lakes SSSI;
- Restoration to a mix of deciduous woodland and heathland;
- An archaeological assessment would need to assess any potential impacts on the wartime military crash site and the Peasants' Revolt battle site, with further field work and trial trenching as required; and
- Some open faces retained for geological study during the operational stages, and ideally after restoration, and a 'watching brief' during the extraction phase in case features of potential geological interest are discovered.

**Question 77: Proposed Site MIN 115 'land at Lord Anson's Wood, near North Walsham' - Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## MIN 207 - land at Pinkney Field, Briston



### Site Characteristics

- The 12.5 hectare site is within the parish of Edgefield
- The estimated sand and gravel resource at the site is 725,000 tonnes
- The proposer of the site has given a potential start date of 2019 or 2020 and estimated the extraction rate to be 75,000 to 100,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within 8 to 10 years which would be within the plan period.
- The site is proposed by Frimstone Ltd as an extension to an existing site.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 3
- The site is 3.7km from Holt which is the nearest town.

**Amenity:** The nearest residential property is 280m from the site boundary. The settlement of Hunworth is 692m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site would use the existing site off-highway haul route which crosses Edgefield Road C468 and joins the B1354 Norwich Road, which is a designated lorry route, at an existing access shortly after West End and Horseshoe Lane. The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period. The estimated number of HGV movements is 30 to 40 per day. The proposed highway access is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with boundary loss. The site is within a wider historic landscape character of Twentieth century agriculture with enclosure and boundary loss (with and without a relict element), agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure, and pre-18<sup>th</sup> century enclosure. The wider historic landscape character also includes leisure/recreation, water meadow, modern built-up areas of small farm clusters and houses, and 19<sup>th</sup> to 20<sup>th</sup> century plantation woodland.

The nearest Listed Building is the Grade II\* 'Remains of the church of St Peter and St Paul' which is 750m away. There are 36 Listed Buildings within 2km of the site. 13 of these are within the Hunworth Conservation Area, which is 0.73km from the site. The site is within the Glaven Valley Conservation Area. The site is 1.59km from Edgefield Conservation Area. There are 2 Scheduled Monuments within 2km of the site. The nearest Scheduled Monument is 'Castle Hill medieval ringwork, Hunworth', which is 0.88km away. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** There are no Historic Environment records within the site boundary, however the lack of HE records may just be due to a lack of investigations. The site immediately to the west has been investigated and no finds or features were identified. There are isolated multi-period finds in the wider landscape. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB or a Core River Valley but is within the Glaven Valley Conservation Area. The site falls within two landscape character areas; the western part is within 'Wooded with parkland – Holt to Cromer' and the eastern part is within 'Tributary Farmland – Hempstead, Bodham, Aylmerton and Wickmere'.

The western boundary of the site is adjacent to the existing mineral extraction site, which is being restored to agricultural reservoirs. Woodland borders part of the northern boundary and screens the site from Hunworth. The eastern and southern boundaries border agricultural fields; however the rolling nature of the landscape, together with isolated woodland copses and hedgerows aid with screening from the Hunworth Road and the Edgefield Road, such that there are few very limited views of the site. The nearest property with the potential to have a view of the site would be the Mill house off the Hunworth Road, this is approximately 350m east of the site boundary. However, it is considered that due to intervening woodland, hedgerows, and the topography, these are likely to be a very limited long distance view from an upper floor.

There are no Public Rights of Way within or adjacent to the site.

**Ecology:** The site is 2.57km from Holt Lowes SSSI which is part of the Norfolk Valley Fens SAC. The SSSI citation states that this is an area of dry sandy heathland that grades into flushes slopes along the valley of the River Glaven. There is an excellent example of a mixed valley-mire in a small tributary valley that bisects the heath. The mixed mire communities are diverse and reflect the variations in alkalinity and nutrient availability in the drainage waters. Several uncommon plants and invertebrates are present. The proposed extraction site would be worked dry (above the water table) and is located up-gradient of the SSSI. Therefore the SSSI and SAC would not be adversely affected.

There are no County Wildlife Site within 1km of the site boundary.

The nearest ancient woodland site is Lowes Farm Wood, a Plantation on Ancient Woodland Site (PAWS), which is 1.27km from the site boundary. Due to the distance from the ancient woodland site there would be no impacts from dust deposition. The proposed extraction site would be worked dry (above the water table) and therefore the ancient woodland would not be adversely affected.

**Geodiversity:** The site consists of the Briton's Lane sand and gravel member, Lowestoft Formation - diamicton, overlying Chalk Formations. The Briton's Lane sands and gravels are known to contain priority features such as palaeosols and erratics in other locations, and therefore they may occur on this site. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. No areas of the site are at risk of surface water flooding. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is partially located over a Secondary A aquifer and partially over a Secondary (undifferentiated) aquifer (superficial deposits). The site is also located over a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site. The site would be worked dry (above the water table) and therefore no effect on water resources is expected.

**Water Framework Directive:** The site is approximately 600 metres from the River Glaven, which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards the River Glaven. MIN 207 and the existing adjacent processing plant, which the sand and gravel would be transported to by internal haul route, are both a considerable distance south of the River Glaven. Therefore the sand and gravel to be processed would not be transported across the River Glaven. Due to the distance of the site from the River Glaven it is not expected that there would be a pathway for silt ingress into the River Glaven from any future sand and gravel extraction within site MIN 207.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is not within an aerodrome safeguarding zone.

**Restoration:** Two alternative restoration options have been proposed: either the site would become an agricultural reservoir, or it would be restored to farmland / woodland.

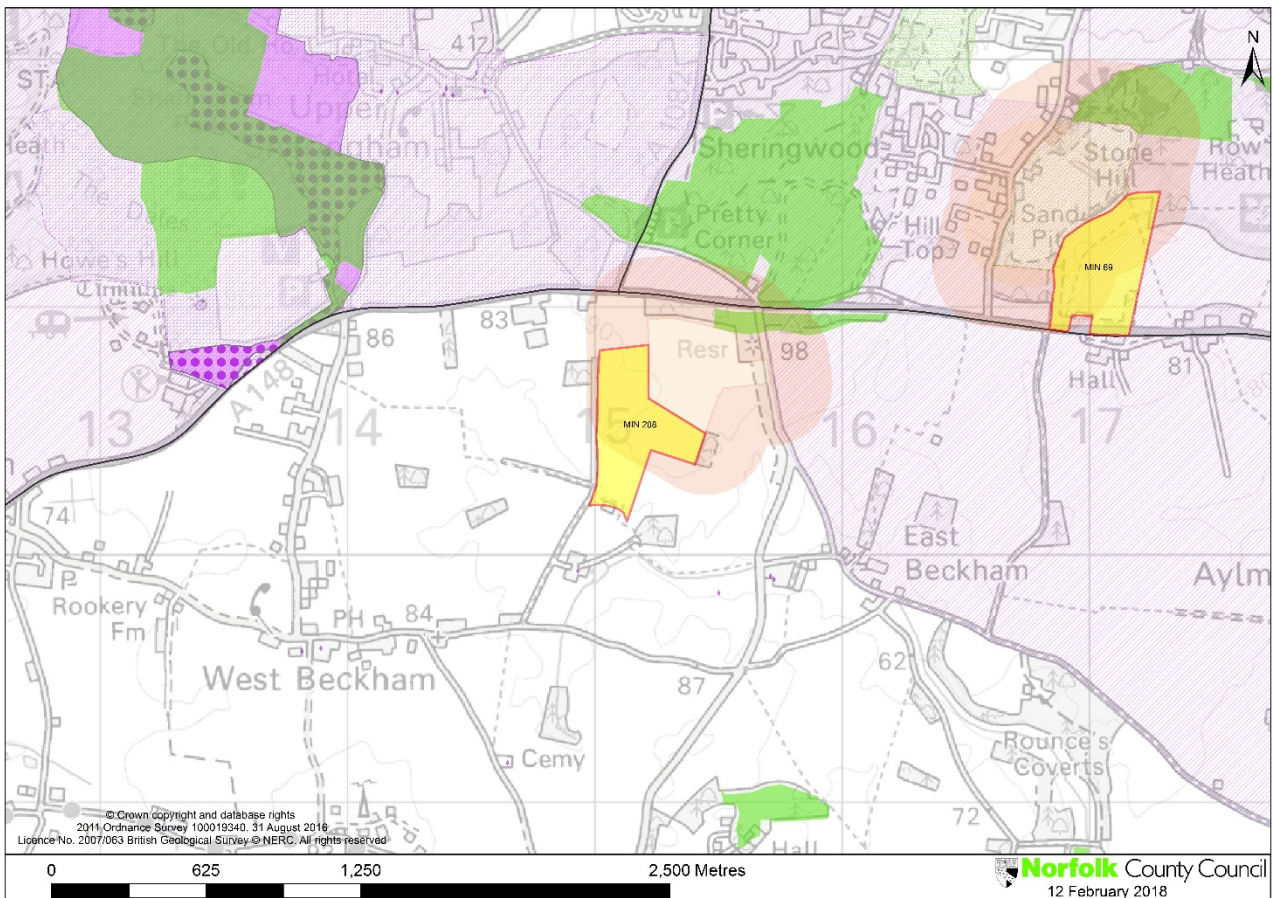
**Initial conclusion:** The site is considered to be suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:

- Noise and dust assessments and a programme of mitigation measures to deal appropriately with any amenity impacts;
- A progressive restoration scheme to a nature conservation afteruse to provide landscape and biodiversity gains;
- Access to use the existing site off-highway haul route to the B1354 Norwich Road;
- Opportunities during working for any geodiversity assets to be studied, and if compatible with the landscape and ecology objectives an open face to be included within any restoration scheme for future scientific study;
- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required; and
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures.

**Question 78: Proposed Site MIN 207 'land at Pinkney Field, Briston' -**

**Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## MIN 208 - land south of Holt Road, East Beckham



### Site Characteristics

- The 16.56 hectare site is within the parish of East Beckham
- The estimated sand and gravel resource at the site is 1,320,000 tonnes
- The proposer of the site has given a potential start date of 2031 and estimated the extraction rate to be 100,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within fourteen years, therefore approximately 600,000 tonnes could be extracted within the plan period.
- The site is proposed by Gresham Gravel Ltd as an extension to an existing site.
- The site is currently in agricultural use and part of the site includes a solar farm. The Agricultural Land Classification scheme classifies the land as being 3a and 3b.
- The site is 5.5km from Cromer and 5.9km from Holt, which are the nearest towns.

**Amenity:** The nearest residential property is 197m from the site boundary. There are two sensitive receptors within 250m of the site boundary. The settlement of East Beckham is 560m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site would use the existing site access onto the A148 Holt Road, which is a designated lorry route. The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period. The estimated number of HGV movements is 40 two-way movements per day. The proposed highway access is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with boundary loss and agriculture with 18<sup>th</sup> to 19<sup>th</sup> Century piecemeal enclosure. The site is within a wider historic landscape character of Twentieth Century agriculture with enclosure and boundary loss and agriculture with 18<sup>th</sup> to 19<sup>th</sup> Century piecemeal enclosure. The wider historic landscape character also includes heath, a water reservoir, carr woodland and 18<sup>th</sup> to 20<sup>th</sup> Century plantation woodland.

The nearest Listed Building is Grade II Hall Farmhouse which is 270m away. There are 14 Listed buildings within 2km of the site, 9 of these are within the Upper Sheringham Conservation Area which is 250m from the site. The only Scheduled Monument within 2km of the site is the 'Oval barrow and bowl barrow known as Howe's Hill' which is 1.6km away. Sheringham Hall, a Registered Historic Park is 1.02km from the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** There are Historic Environment records of prehistoric flint finds and a medieval hollow way within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. It is approximately 210 metres from the boundary of the Norfolk Coast AONB. The site is currently an agricultural field, and part of the field contains a solar farm. The site is within the landscape character area described as 'Tributary Farmland - Hempstead, Bodham, Aylmerton and Wickmere'.

The site is a south-western extension to an active permitted sand and gravel working which is just south of the A148. MIN 208 is a southerly sloping site adjacent to a solar farm to the west. The village of West Beckham is approximately 670 metres southwest of the site boundary. The site is well screened from public roads, although a long view can be seen from the A149 to the north and from Sheringham Road and The Street, West Beckham to the west. Views can be seen from the Public Right of Way on the southern boundary of the site. The site is generally well screened and views from property would be confined to East Beckham Hall and possibly from the upstairs of Mill House. Therefore suitable screening of the site would be required to mitigate any landscape impacts.

There is a Public Right of Way adjacent to the southern boundary of the site (East Beckham FP2).

**Ecology:** The site is 1.45km from Sheringham and Beeston Regis Commons SSSI, which is part of the Norfolk Valley Fens SAC. The SSSI citation states that the site is an area of acidic heathland containing area of species-rich calcareous spring fen on sloping ground. 'Mixed mire' vegetation has developed in seepage zones. These spring fen areas contain many wetland plants that are now locally uncommon. Dry heathland surrounds the fens and supports several species of breeding birds and reptiles. The proposed extraction site would be worked dry (above the water table) and is located in a different hydrological catchment to the SSSI and SAC. Therefore there would be no adverse impacts on the SSSI and SAC.

Weybourne Cliffs SSSI is 2.64km from the site. The SSSI citation details the geological interest in the site with outstanding Pleistocene sections of national importance and marine and vertebrate fossils. Additional biological interest is provided by colonies of sand martins in the cliff-face and of fulmars on the cliff ledges. The SSSI would not be adversely effected by the proposed mineral extraction site.

The nearest County Wildlife Sites are: CWS 1146 'Pretty Corner and the Plains' is 400m from the site boundary and is a complex mosaic of semi-natural broadleaved woodland habitats with small

areas of neutral, unimproved grassland and patches of dry heath. CWS 2077 'Sheringham Old Wood' is 480m from the site boundary and is mainly coniferous and mixed plantations with small remnant fragments of broadleaved semi-natural woodland, heathland and acidic grassland. CWS 1145 'Gibbet and Marlpit Plantations' is 270m from the site boundary and is an area of acid, oak dominated woodland. Due to the distance from the County Wildlife Sites there would be no impacts from dust deposition. The proposed extraction site would be worked dry and therefore the CWSs would not be adversely affected.

The nearest ancient woodland site is a Plantation on Ancient Woodland Site (PAWS) and Ancient Semi-Natural Woodland (ASNW) (unnamed) in Upper Sheringham, which is 1.05km from the site boundary. Due to the distance from the ancient woodland there would be no impact from dust deposition. The proposed extraction site would be worked dry and therefore the ancient woodland would not be adversely affected.

**Geodiversity:** The site consists of Head deposits-clay, silt, sand & gravel which are priority features due to their method of formation, Briton's Lane sand and gravel member, overlying Wroxham Crag Formation-sand and gravel. The Briton's Lane sands and gravels are known to contain priority features such as palaeosols and erratics in other locations, and therefore they may occur on this site. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. The site has a low risk of surface water flooding, with two small areas of surface water pooling in a 1 in 1000 year rainfall event. Sand and gravel is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is partially located over a Secondary A aquifer and partially over a Secondary (undifferentiated) aquifer (superficial deposits). The site is also located over a principal aquifer (bedrock). The site is within groundwater Source Protection Zone 2. The site would be worked dry (above the water table) and therefore no effect on water resources is expected.

**Water Framework Directive:** The site is approximately 100 metres from an unnamed stream within the catchment of Scarrow Beck, which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards the Beck. MIN 208 and the existing adjacent processing plant, which the sand and gravel would be transported to by internal haul route, are both a considerable distance north of the Scarrow Beck. Therefore the sand and gravel to be processed would not be transported across Scarrow Beck. Due to the distance of the site from Scarrow Beck it is not expected that there would be a pathway for silt ingress into the Scarrow Beck from any future sand and gravel extraction within site MIN 208.

**Utilities infrastructure:** There are no Anglian Water sewerage assets within the site. There are five water mains within the site and Anglian Water would require the standard protected easement widths for the water main and for any requests for alteration or removal to be conducted in accordance with the Water Industry Act 1991. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is not within an aerodrome safeguarding zone.

**Restoration:** The site is proposed to be restored to a mosaic of native woodland, scrub, acid grasslands and exposed faces

**Initial conclusion:** The site is considered to be suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:

- Noise and dust assessments and a programme of mitigation measures to deal appropriately with any amenity impacts;

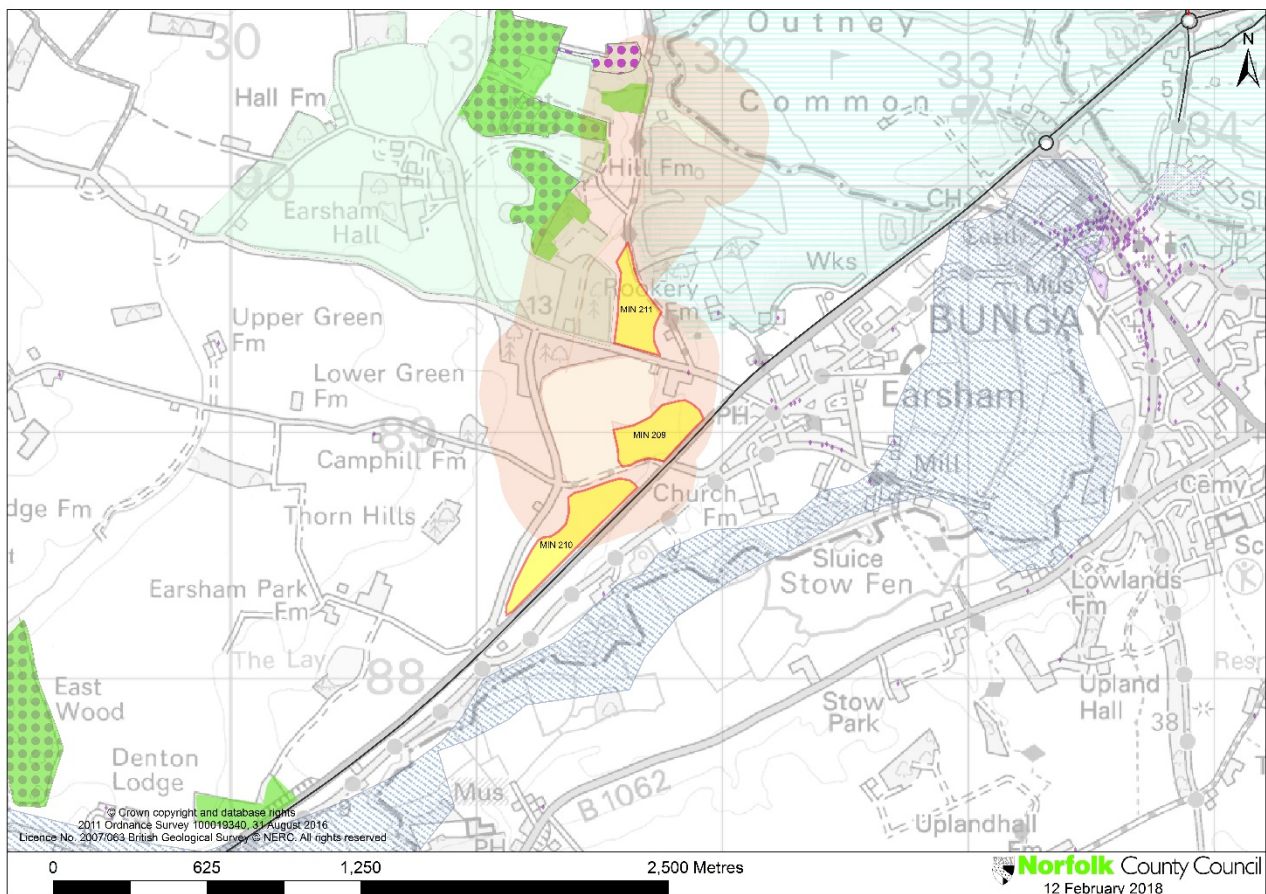
- A progressive restoration scheme to a nature conservation afteruse to provide landscape and biodiversity gains;
- Opportunities during working for any geodiversity assets to studied, and if compatible with the landscape and ecology objectives an open face to be included within any restoration scheme for future scientific study;
- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required;
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures;
- The site will need to be phased with other sites in the area so that only one site is worked for extraction at a time;
- The site will need to be worked without dewatering, unless a Hydrogeological Risk Assessment identifies either no unacceptable hydrogeological impacts or appropriate mitigation is identified to ensure no acceptable impact to hydrogeology;
- A sufficient stand-off distance around the water mains that cross the site or diversion of the water mains at the developers costs and to the satisfaction of Anglian Water;
- The existing processing plant site and highway access will be used; and
- A Landscape and Visual Impact Assessment will be carried out to identify any potential landscape or visual intrusion impacts and appropriate mitigation measures to address these which will form part of the working scheme.

**Question 79: Proposed Site MIN 208 'land south of Holt Road, East Beckham' - Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**



## South Norfolk sites

### Map of proposed sites at Earsham (MIN 209, MIN 210, MIN 211)



### MIN 209 - land adjacent to the A143, Earsham (Extension area 1)

#### Site Characteristics

- The 5.58 hectare site is within the parish of Earsham
- The estimated sand and gravel resource at the site is 435,000 tonnes
- The proposer of the site has given a potential start date of 2018 and estimated the extraction rate to be 85,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within six years, which would be within the plan period.
- The site is proposed by Earsham Gravels Ltd as an extension to an existing site. The Earsham sites would be worked sequentially to mitigate any cumulative impacts.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 3
- The site is 8.2km from Harleston, which is the nearest town in Norfolk and 1.5km from Bungay, a market town in Suffolk.

**Amenity:** The nearest residential property is 118m from the site boundary. There are 58 sensitive receptors within 250m of the site boundary. Most of these are in the settlement of Earsham, which is 118m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site is proposed to access the plant site via a conveyor. From the plant site the proposed HGV route is east along Hall Road (C365) to the junction with the A143, which is a designated lorry route, for onward transportation. Widening of Hall Road is proposed. The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period. The estimated number of HGV movements is 46 (in and out) per day. The proposed highway access is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with enclosure. The site is within a wider historic landscape character of Twentieth Century agriculture with boundary loss and enclosure, agriculture with 18<sup>th</sup> to 19<sup>th</sup> Century enclosure, pre-18<sup>th</sup> century irregular enclosure and enclosed drained grazing marsh. The wider historic landscape character also includes mineral extraction, a water reservoir, informal parkland and woodland (including 18<sup>th</sup> to 20<sup>th</sup> century plantation woodland, carr woodland and ancient woodland).

The nearest Listed Building is Grade II 38 and 39 Hall Road which is 110m away. There are 183 Listed Buildings within 2km of the site. 152 of these are within the Bungay Conservation Area, which is 1.46km from the site. The nearest Scheduled Monument is Bungay Castle which is 1.66km away. There are 3 Scheduled Monuments within 2km of the site. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** A Historic Environment record of features related to historic roadways occurs within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods, including Roman features including a camp and probable trackway, and a possible settlement. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site is within the landscape character area described as 'Waveney Rural River Valley' in the South Norfolk Landscape Character Assessment.

The site is an arable field to the south of residential properties, currently bounded by a low post and rail fence and intermittent trees to the south east along the A143. The northern boundary is open to Hall Road and enclosed with vegetation and trees along the boundary of residential properties. The remainder of the northern boundary and south western boundary are open to further arable fields. The wider landscape is predominantly open fields to the north, south and west, with hedged field boundaries to the south and larger blocks of woodland to the north, increasing with proximity to the Broads. To the east are the residential areas of the village of Earsham. A number of properties back onto the road overlooking the site.

The impact of the proposed mineral working on the wider landscape would predominantly be the decreased long distance views and increased roadside vegetation due to the proposed bunding and advanced planting to screen the mineral working from view.

The plant site used by the existing mineral working is located within the Broads Authority Executive Area. Part of the proposal for the three extension areas at Earsham is for the plant site to be moved into a restored area of the existing quarry site. However, it would be preferable for the plant site to be moved into one of the extension areas. This would lead to a landscape improvement due to the removal and restoration of the current plant site within the Broads Authority Executive Area.

There are no Public Rights of Way within or adjacent to the site.

**Ecology:** The site is more than 5km from any SPA, SAC or Ramsar site. Therefore, there would be no likely significant effects on these sites.

Abbey Wood, Flixton SSSI is 2.58km from the site boundary. The SSSI citation states that it is an ancient woodland consisting of coppice with standards with some 19<sup>th</sup> and 20<sup>th</sup> century planting of broadleaves and a few conifers. The woods have a varied flora including ancient woodland plants and one scarce species. The proposed extraction site is in a different hydrological catchment to the SSSI and therefore the SSSI would not be adversely affected.

The nearest County Wildlife Site is CWS 125 'Holy Grove' which is 750m from the site boundary and is an ancient woodland site. No adverse impacts to the CWS are expected from the proposed mineral extraction.

The nearest ancient woodland site is Holy Grove, an Ancient Semi-Natural Woodland (ASNW) which is 0.82km from the site boundary. No adverse impacts to the ancient woodland site are expected from the proposed mineral extraction.

**Geodiversity:** The site consists of Lowestoft Formation-river terrace deposits (sand and gravel); which are geodiversity priority features; overlying the Crag group. There is significant potential for vertebrate fossils within the Crag Group. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. The site has a low probability of surface water flooding with one location of surface water pooling in a 1 in 30 year, 1 in 100 year and 1 in 1000 year rainfall event. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.

**Water Framework Directive:** The site is approximately 400 metres from the River Waveney, which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards the River Waveney. MIN 209 and the processing plant, which the sand and gravel would be transported to conveyor, are both a sufficient distance north of the River Waveney. Therefore the sand and gravel to be processed would not be transported across the River Waveney. Due to the distance of the site from the River Waveney it is not expected that there would be a pathway for silt ingress into the River Waveney from any future sand and gravel extraction within site MIN 209.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. Electricity distribution lines cross the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is not within an aerodrome safeguarding zone.

**Restoration:** The site is proposed to be restored to wet grassland with landscaping, ponds/ scrape and geological exposure, all to a nature conservation afteruse.

**Initial conclusion:** The site is considered suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:

- Noise and dust assessments and a programme of mitigation measures to deal appropriately with any amenity impacts;
- A progressive restoration scheme to a wet grassland nature conservation afteruse to provide landscape and biodiversity gains;
- Opportunities during working for any geodiversity assets to be studied, and if compatible with the landscape and ecology objectives an open face to be included within any restoration scheme for future scientific study;

- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required;
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures;
- The site will need to be phased with other sites in the area so that only one site is worked for extraction at a time;
- The processing plant will be relocated out of the Broads Authority Executive Area into part of one of the extension areas. The new location for the processing plant will have regard to mitigation of potential impacts on the Broads Authority Executive Area;
- Unprocessed material from the extraction areas will be moved to the processing plant site by conveyor;
- A highway access from the processing plant site, acceptable to the Highway Authority will be formed; and
- A screening scheme which will include successful mitigation for views from the properties surrounding the site, as well as long range views, including from the Waveney Valley and the Broads Authority Executive Area.

**Question 80: Proposed Site MIN 209 'land adjacent to the A143, Earsham (extension area 1)' - Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## MIN 210 - land adjacent to the A143, Earsham (Extension Area 2)

### Site Characteristics

- The 7.65 hectare site is within the parish of Earsham
- The estimated sand and gravel resource at the site is 750,000 tonnes
- The proposer of the site has given a potential start date of 2023 and estimated the extraction rate to be 85,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within nine years, which would be within the plan period.
- The site is proposed by Earsham Gravels Ltd as an extension to an existing site. The Earsham sites would be worked sequentially to mitigate any cumulative impacts.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 3
- The site is 7.4km from Harleston, which is the nearest town in Norfolk and less than 2km from Bungay, a market town in Suffolk.

**Amenity:** The nearest residential property is 102m from the site boundary. There are four sensitive receptors within 250m of the site boundary. The settlement of Earsham is 392m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site is proposed to access the plant site via a conveyor. From the plant site the proposed HGV route is east along Hall Road (C365) to the junction with the A143, which is a designated lorry route, for onward transportation. Widening of Hall Road is proposed. The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period. The estimated number of HGV movements is 46 (in and out) per day. The proposed highway access is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with boundary loss. The site is within a wider historic landscape character of Twentieth Century agriculture with boundary loss and enclosure, agriculture with 18<sup>th</sup> to 19<sup>th</sup> Century enclosure, pre-18<sup>th</sup> century irregular enclosure and enclosed drained grazing marsh. The wider historic landscape character also includes mineral extraction, a water reservoir, informal parkland and woodland (including 18<sup>th</sup> to 20<sup>th</sup> century plantation woodland, carr woodland and ancient woodland).

The nearest Listed Building is the Grade II River Farmhouse which is 220m away. There are 44 Listed Buildings within 2km of the site. 7 of them are within Bungay Conservation Area which is 1.84km from the site. The nearest Scheduled Monument is the Moated site of Flixton Priory which is 1.84km away. There are 2 Scheduled Monuments within 2km of the site. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** There are no Historic Environment records within the site boundary, however the lack of HE records may just be due to a lack of investigations. The site is in a wider landscape with a significant number of finds and features from multiple periods, including a WW1 airfield site, and a WW2 roadside bomb store. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site is within the landscape character area described as 'Waveney Rural River Valley' in the South Norfolk Landscape Character Assessment.

The site is a long narrow field bounded by a road on each side. The field is currently used in part for pig farming and the rest is arable. Along the A143 the site is raised slightly from the road level to the south and the boundary demarked by a post and wire fence. Further north along the A143 intermittent trees become more frequent and form a dense roadside boundary. The wider landscape is predominantly open fields to the north, south and west, with hedged field boundaries to the south and larger blocks of woodland to the north increasing with proximity to the Broads. To the east of a slightly more densely wooded areas where the River Waveney runs closer to the site.

The impact of the proposed mineral working on the wider landscape would predominantly be the decreased long distance views and increased roadside vegetation due to the proposed bunding and advanced planting to screen the mineral working from view. The views of the mineral working from Park Farm Cottages will predominantly be screened by bunding.

The plant site used by the existing mineral working is located within the Broads Authority Executive Area. Part of the proposal for the three extension areas at Earsham is for the plant site to be moved into a restored area of the existing quarry site. However, it would preferable for the plant site to be moved into one of the extension areas. This would lead to a landscape improvement due to the removal and restoration of the current plant site within the Broads Authority Executive Area.

There are no Public Rights of Way within or adjacent to the site.

**Ecology:** The site is more than 5km from any SPA, SAC or Ramsar site. Therefore, there would be no likely significant effects on these sites.

Abbey Wood, Flixton SSSI is 1.96km from the site boundary. The SSSI citation states that it is an ancient woodland consisting of coppice with standards with some 19<sup>th</sup> and 20<sup>th</sup> century planting of broadleaves and a few conifers. The woods have a varied flora including ancient woodland plants and one scarce species. The proposed extraction site is in a different hydrological catchment to the SSSI and therefore the SSSI would not be adversely affected.

The nearest County Wildlife Site is CWS 125 'Holy Grove' which is 930m from the site boundary and is an ancient woodland site. No adverse impacts to the CWS are expected from the proposed mineral extraction.

The nearest ancient woodland site is Holy Grove, an Ancient Semi-Natural Woodland (ASNW) which is 0.96km from the site boundary. No adverse impacts to the ancient woodland site are expected from the proposed mineral extraction.

**Geodiversity:** The site consists of Lowestoft Formation-river terrace deposits (sand and gravel); which are geodiversity priority features; overlying the Crag group. There is significant potential for vertebrate fossils within the Crag Group. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. No areas of the site are at risk of surface water flooding. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.

**Water Framework Directive:** The site is approximately 200 metres from the River Waveney, which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several

metres below ground level and therefore overland flows are not expected from the site towards the River Waveney. MIN 210 and the processing plant, which the sand and gravel would be transported to by conveyor, are both a sufficient distance north of the River Waveney. Therefore the sand and gravel to be processed would not be transported across the River Waveney. Due to the distance of the site from the River Waveney it is not expected that there would be a pathway for silt ingress into the River Waveney from any future sand and gravel extraction within site MIN 210.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. Electricity distribution lines cross the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is not within an aerodrome safeguarding zone.

**Restoration:** The site is proposed to be restored to wet grassland with landscaping, ponds/ scrape and geological exposure, all to a nature conservation afteruse.

**Initial conclusion:** The site is considered suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:

- Noise and dust assessments and a programme of mitigation measures to deal appropriately with any amenity impacts;
- A progressive restoration scheme to a wet grassland nature conservation afteruse to provide landscape and biodiversity gains;
- Opportunities during working for any geodiversity assets to be studied, and if compatible with the landscape and ecology objectives an open face to be included within any restoration scheme for future scientific study;
- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required;
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures;
- The site will need to be phased with other sites in the area so that only one site is worked for extraction at a time;
- The processing plant will be relocated out of the Broads Authority Executive Area into part of one of the extension areas. The new location for the processing plant will have regard to mitigation of potential impacts on the Broads Authority Executive Area;
- Unprocessed material from the extraction areas will be moved to the processing plant site by conveyor;
- A highway access from the processing plant site, acceptable to the Highway Authority will be formed; and
- A screening scheme which will include successful mitigation for views from the properties surrounding the site, as well as long range views, including from the Waveney Valley and the Broads Authority Executive Area.

**Question 81: Proposed Site MIN 210 'land adjacent to the A143, Earsham (extension area 2)' - Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## MIN 211 - land west of Bath Hills Road, Earsham (Extension area 3)

### Site Characteristics

- The 4.77 hectare site is within the parish of Earsham
- The estimated sand and gravel resource at the site is 485,000 tonnes
- The proposer of the site has given a potential start date of 2032 and estimated the extraction rate to be 85,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within six years, therefore approximately 425,000 tonnes could be extracted within the plan period.
- The site is proposed by Earsham Gravels Ltd as an extension to an existing site. The Earsham sites would be worked sequentially to mitigate any cumulative impacts.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 3
- The site is 8.5km from Harleston, which is the nearest town in Norfolk and 1.5km from Bungay, a market town in Suffolk.

**Amenity:** The nearest residential property is 43m from the site boundary. There are 7 sensitive receptors within 250m of the site boundary. The settlement of Earsham is 392m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site is proposed to access the plant site via a conveyor. From the plant site the proposed HGV route is east along Hall Road (C365) to the junction with the A143, which is a designated lorry route, for onward transportation. Widening of Hall Road is proposed. The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period. The estimated number of HGV movements is 46 (in and out) per day. The proposed highway access is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with boundary loss. The site is within a wider historic landscape character of Twentieth Century agriculture with boundary loss and enclosure, 18<sup>th</sup> to 19<sup>th</sup> Century enclosure, pre-18<sup>th</sup> century irregular enclosure and enclosed drained grazing marsh. The wider historic landscape character also includes mineral extraction, a water reservoir, informal parkland and woodland (including 18<sup>th</sup> to 20<sup>th</sup> century plantation woodland, carr woodland and ancient woodland).

The nearest Listed Buildings are Grade II Rookery Farmhouse which is 230m away and Grade II 38 & 39 Hall Road, which is 130m away. There are 158 Listed Buildings within 2km of the site, 129 of these are within Bungay Conservation Area which is 1.44km from the site. The nearest Scheduled Monument is Bungay Castle which is 1.70km away. There are 3 Scheduled Monuments within 2km of the site. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** A Historic Environment record of the remains of a ring ditch is shown within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods, including a Bronze Age cemetery and a WW2 bomb store adjacent to the site. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.



**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site is adjacent to the boundary of the Broads Authority Executive Area. The site is within the landscape character area described as 'Waveney Rural River Valley' in the South Norfolk Landscape Character Assessment.

The site is irregular in shape with dense woodland bounding the western boundary, low lying vegetation to the southern boundary and open roadside to the east. To the north the land slopes down, resulting in the northern section of the site not being visible from Hall Road. The wider landscape reflects the close proximity of the Broads and consists of wooded areas to the north and west. Restoration of the mineral workings to the north east reflect this landscape, and beyond lies the River Waveney and a golf course.

The impact of the proposed mineral working on the wider landscape would predominantly be the decreased long distance views and increased roadside vegetation due to bunding and advanced planting to screen the mineral working from view. The views of the mineral working from nearby properties will predominantly be screened by bunding. A planning application for mineral extraction at this site must also assess potential impacts on views to and from the Broads Authority Executive Area, within a Landscape and Visual Impact Assessment, and propose appropriate mitigation measures.

The plant site used by the existing mineral working is located within the Broads Authority Executive Area. Part of the proposal for the three extension areas at Earsham is for the plant site to be moved into a restored area of the existing quarry site. However, it would be preferable for the plant site to be moved into one of the extension areas. This would lead to a landscape improvement due to the removal and restoration of the current plant site within the Broads Authority Executive Area.

There are no Public Rights of Way within or adjacent to the site.

**Ecology:** The site is more than 5km from any SPA, SAC or Ramsar site. Therefore, there would be no likely significant effects on these sites.

Sexton Wood SSSI is 2.36km from the site boundary. The SSSI citation states that it is one of the largest woods in south-east Norfolk and is almost entirely of ancient origins consisting largely of coppice with standards. The site is not within the Impact Risk Zone for Sexton Wood or any other SSSI and therefore there would be no adverse effects on any SSSIs from the proposed mineral extraction.

The nearest County Wildlife Sites are: CWS 125 'Holy Grove' is 200m from the site boundary and is an ancient woodland site. CWS 134 'Great Wood & America Wood' is 330m from the site boundary and are ancient woodland sites. CWS 2102 'Rich's Hill' is 530m from the site boundary and is a species rich, unimproved meadow with extensive scrub. No adverse impacts to the CWSs are expected from the proposed mineral extraction.

The nearest ancient woodland sites are: Holy Grove, an Ancient Semi-Natural Woodland (ASNW) which is 0.33km from the site boundary; Great Wood, an ASNW and Plantation on Ancient Woodland Site (PAWS) which is 0.44km from the site boundary and America Wood, an ASNW which is 0.73km from the site boundary. No adverse impacts to the ancient woodland sites are expected from the proposed mineral extraction.

**Geodiversity:** The site consists of Lowestoft Formation-river terrace deposits (sand and gravel); which are geodiversity priority features; overlying the Crag group. There is significant potential for vertebrate fossils within the Crag Group. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. No areas of the site are at risk of surface water flooding. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). There are no groundwater Source Protection Zones within the proposed site.

**Water Framework Directive:** The site is approximately 500 metres from the River Waveney, which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards the River Waveney. MIN 211 and the processing plant, which the sand and gravel would be transported to by conveyor, are both a located considerable distance north of the River Waveney. Therefore the sand and gravel to be processed would not be transported across the River Waveney. Due to the distance of the site from the River Waveney it is not expected that there would be a pathway for silt ingress into the River Waveney from any future sand and gravel extraction within site MIN 211.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. Electricity distribution lines cross the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is not within an aerodrome safeguarding zone.

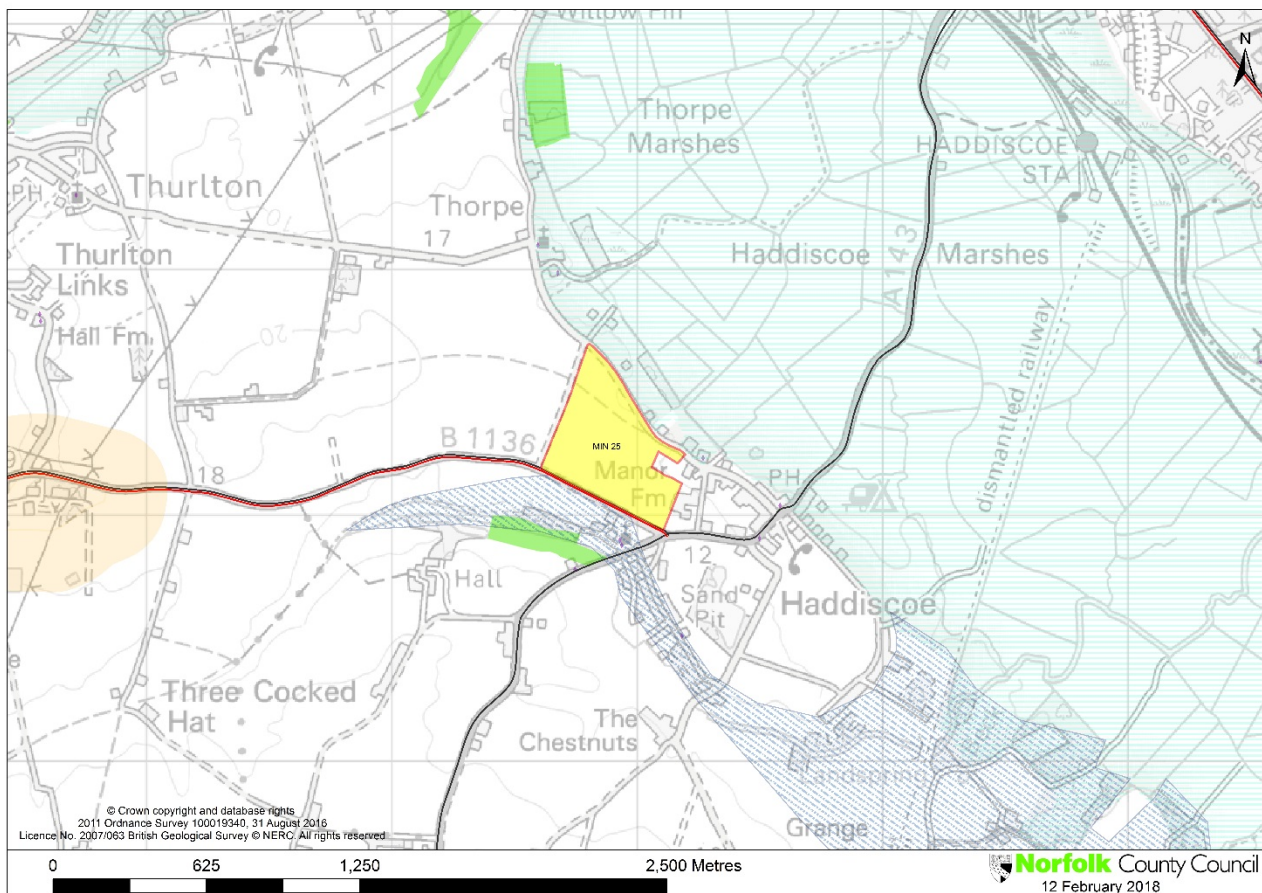
**Restoration:** The site is proposed to be restored to wet grassland with landscaping, ponds/ scrape and geological exposure, all to a nature conservation afteruse.

**Initial conclusion:** The site is considered suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:

- Noise and dust assessments and a programme of mitigation measures to deal appropriately with any amenity impacts;
- A progressive restoration scheme to a wet grassland nature conservation afteruse to provide landscape and biodiversity gains;
- Opportunities during working for any geodiversity assets to be studied, and if compatible with the landscape and ecology objectives an open face to be included within any restoration scheme for future scientific study;
- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required;
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures;
- The site will need to be phased with other sites in the area so that only one site is worked for extraction at a time;
- The processing plant will be relocated out of the Broads Authority Executive Area into part of one of the extension areas. The new location for the processing plant will have regard to mitigation of potential impacts on the Broads Authority Executive Area;
- Unprocessed material from the extraction areas will be moved to the processing plant site by conveyor;
- A highway access from the processing plant site, acceptable to the Highway Authority will be formed; and
- A screening scheme which will include successful mitigation for views from the properties surrounding the site, including long range views including from the Waveney Valley and the Broads Authority Executive Area.

**Question 82: Proposed Site MIN 211 'land west of Bath Hills Road, Earsham (extension area 3)' - Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## MIN 25 - land at Manor Farm (between Loddon Road and Thorpe Road), Haddiscoe



### Site Characteristics

- The 21.95 hectare site is within the parish of Haddiscoe
- The estimated sand and gravel resource at the site is 1,300,000 tonnes
- The proposer of the site has given a potential start date of 2022 or earlier and estimated the extraction rate to be 150,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within 9 years which would be within the plan period.
- The site is proposed by Cemex UK Materials Ltd as a new site.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being grade 3.
- The site is 11km from Great Yarmouth and 10.5km from Gorleston-on-Sea, which are the nearest towns.

**Amenity:** The nearest residential property is 19m from the site boundary. There are 53 sensitive receptors within 250m of the site boundary. Most of these are within the settlement of Haddiscoe, which is 55m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site would access Crab Apple Lane and then turn east onto the B1136 Loddon Road to the junction with the A143 Beccles Road, which are both designated lorry routes. The site is not within an AQMA. The estimated number of HGV movements is 80 (in and out) per day. The proposed highway access is considered to be suitable by the Highway Authority, subject to appropriate road improvements along Crab Apple Lane.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with boundary loss and agriculture with 18<sup>th</sup> to 19<sup>th</sup> Century piecemeal enclosure. The site is within a wider historic landscape character of 20<sup>th</sup> century agriculture with enclosure, boundary loss and boundary loss with a relict element; agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure and modern built-up areas of small farm clusters and residential development. The wider historic landscape character also includes enclosed drained rectilinear grazing marsh (17<sup>th</sup> to 20<sup>th</sup> century enclosure), enclosed wetland meadow, mineral extraction, and woodland (carr woodland, regenerated alder carr woodland and 18<sup>th</sup> to 20<sup>th</sup> century plantation woodland).

There are three Listed Building within 250m of the site; they are Grade II White House Farm (70m away), Grade I Church of St Mary (110m away), Grade II Monument to William Salter set in the churchyard wall (130m away). There are 13 Listed Buildings within 2km of the site. There are mature screen planting forming hedgerows on all sides of the site, except a section of the eastern boundary closest to Manor Farm; which is the landowner's property. The site is separated from the Church of St Mary by the B1136, Loddon Road, and the screen planting along the road. Views of the church from the road would not be affected by the mineral extraction. The site is enclosed by mature screen planting and users of the road would not have views of the mineral extraction when viewing the church. Due to the screen planting around the site it is considered that mineral extraction within this site would not adversely affect the setting of the Church, the monument in the churchyard wall or White House Farm.

There are no Scheduled Monuments, Conservation Areas or Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** There are Historic Environment records of multi-period finds and features within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site is adjacent to a Core River Valley and is adjacent to the boundary of the Broads Authority Executive Area. The site comprises an agricultural field which slopes gently to the northeast, towards the Haddiscoe Marshes. The site is within the landscape character area described as 'Thurlton Tributary Farmland with Parkland' in the South Norfolk Landscape Character Assessment.

There are mature screen planting forming hedgerows on all sides of the site, except a section of the eastern boundary closest to Manor Farm; which is the landowner's property. There is also a small disused mineral working adjacent to part of the eastern boundary. The site is separated from the Grade I Listed Church by the B1136, Loddon Road, and the screen planting along the road. There are a number of properties along the northern boundary which borders Thorpe Road, however the mature screen planting will limit views of the site from these properties.

This site, together with a processing plant site and extraction area to the south of the B1136 were the subject of an appeal against the refusal of planning permission, the appeal (APP/X2600/A/13/2197841) was dismissed in 2014. Impact on the setting of the Grade I Listed Church was only one of the reasons for refusal dismissed. Significant factors were the location of the plant site to the south of the B1136 (the same side as the church), the open nature of the existing landscape on that side of the road, views along the road towards the church, and the expected length of extraction (21 years).

The current proposal submitted to the Minerals and Waste Local Plan Review, does not include any land to the south of the B1136. Therefore, views of the church from the road would not be affected

by the mineral extraction. The site is enclosed by mature screen planting and users of the road would not have views of the mineral extraction when viewing the church. The appeal Inspector noted that the harm from the working to the south of the B1136 was increased by the longevity of the extraction and the fact that the plant site would be on that side of the road for the whole 21 years of the mineral working. The evidence to the appeal, noted in paragraph 26 of the appeal decision, states the land parcel “to the north, is well screened from Loddon Road and comprises low grade agricultural land, and attracts no landscape objection”. In the current proposal, all mineral extraction and associated activity would only take place north of the B1136 and the estimated length of extraction is 9 years. Therefore, it is considered that the site is suitable in landscape terms.

This is a Public Right of Way running across the site (from Thorpe Road to Crab Apple Lane) (Haddiscoe BR5).

**Ecology:** The site is 3.84km from The Broads SAC and Broadland SPA and Ramsar site and is outside the 3km Impact Risk Zone for Halvergate Marshes SSSI and Standley and Alder Carrs, Aldeby SSSI, which form part of these internationally designated sites. Therefore there would not be any adverse effects on these designated sites.

The site is 4.36 km from Breydon Water SPA and Ramsar site. Breydon Water is an inland tidal estuary and it has extensive areas of mud-flats that are exposed at low tide and these form the only tidal flats on the east coast of Norfolk. There are also extensive areas of floodplain grassland adjacent to the intertidal areas. Breydon Water is internationally important for wintering waterbirds, some of which feed in the Broadland SPA that adjoins this site at Halvergate Marshes. The proposed extraction site is within the 5km Impact Risk Zone for these designated sites, but outside the 3km Impact Risk Zone for Breydon Water SSSI. The proposed extraction site is located in a different hydrological catchment to Breydon Water and therefore would not adversely affect the hydrology of the designated sites. Due to the distance of the proposed extraction site to Breydon Water, noise limits, operational hours, vehicle movements and on-site lighting could be suitably controlled through planning conditions to ensure noise and lighting would not disturb the birds on the designated sites. Therefore no adverse effects are expected on the SPA or Ramsar site.

There are no SSSIs within 3km of the site boundary and the site is not within the Impact Risk Zone for any SSSIs. Therefore no adverse effects are expected on SSSIs, SPAs, SACs or Ramsar sites.

The nearest County Wildlife Site is CWS 2221 ‘Devil’s End Meadow’ which is 170m from the site boundary and is comprised of grassland with wet ditches, a small area of wet woodland and an area of dry woodland, lying along the Landspring Beck. The potential exists for impacts from mineral extraction at MIN 25, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application.

The nearest ancient woodland site is Long Row Wood, an Ancient Semi-Natural Woodland (ASNW) which is 1.55km from the site boundary. Due to the distance from the ancient woodland there would be no impacts from dust deposition. The potential exists for hydrogeological impacts from mineral extraction at MIN 25, if uncontrolled. An assessment of potential hydrogeological impacts, together with appropriate mitigation would be required as part of any planning application.

**Geodiversity:** The site consists of the Haddiscoe formation - sand and gravel, Corton formation-sand (undifferentiated), Lowestoft Formation - diamicton; overlying the Crag group. There is significant potential for vertebrate fossils within the Crag Group. It is likely that geological exposures at this site would be of academic interest. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a ‘watching brief’ during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. The site has a low risk of surface water flooding with two areas of surface water pooling in a 1 in 30 and 1 in 100 year rainfall event. There are additional areas of surface water pooling in a 1 in 1000 year rainfall event.

Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.

**Water Framework Directive:** The site is approximately 700 metres from Landspring Beck, which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards Landspring Beck. If mineral is extracted from site MIN 25, it is expected to be processed on site. Therefore the sand and gravel to be processed would not be transported across the Landspring Beck. Due to the distance of the site from Landspring Beck it is not expected that there would be a pathway for silt ingress into the Beck from any future sand and gravel extraction within site MIN 25.

**Utilities infrastructure:** There are no Anglian Water sewerage assets within the site. There are two water mains within the site and Anglian Water would require the standard protected easement widths for the water mains and for any requests for alteration or removal to be conducted in accordance with the Water Industry Act 1991. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is not within an aerodrome safeguarding zone.

**Restoration:** The site is proposed to be restored to a combination of acid grassland, woodland planting and shallow wetland/pond.

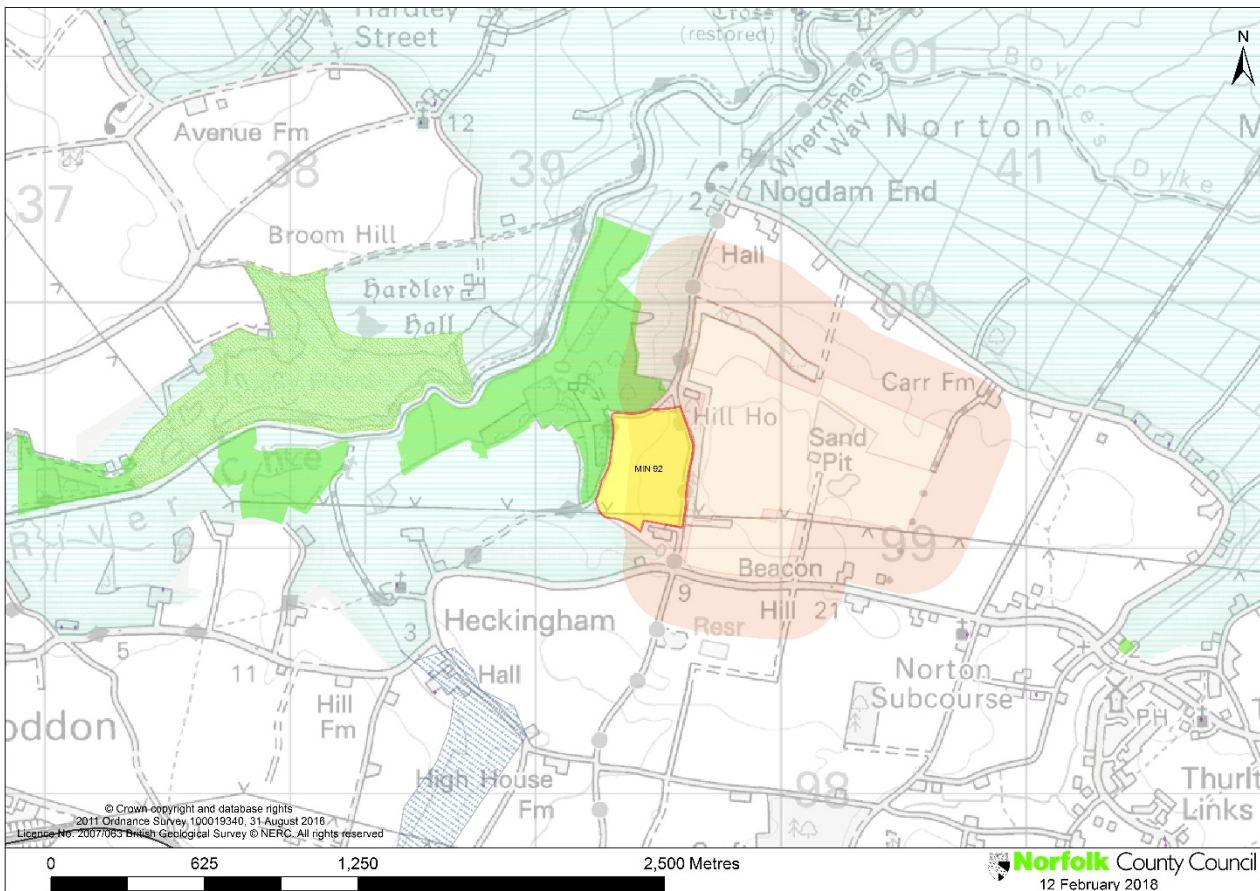
**Initial conclusion:** The site is considered to be suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:

- Noise and dust assessments and a programme of mitigation measures to deal appropriately with any amenity impacts;
- A progressive restoration scheme to a nature conservation afteruse to provide landscape and biodiversity gains;
- Opportunities during working for any geodiversity assets to be studied, and if compatible with the landscape and ecology objectives an open face to be included within any restoration scheme for future scientific study;
- A working scheme that considers phasing and the location of the processing plant site, to ensure that no unacceptable impacts to amenity, or the setting and significance of heritage assets occurs;
- A suitable scheme for the temporary diversion and reinstatement of the PROW;
- A sufficient stand-off distance around the water mains that cross the site or diversion of the water mains at the developers costs and to the satisfaction of Anglian Water;
- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required;
- A detailed landscaping and screening scheme must be developed, so that any impacts on nearby properties, and the landscape generally, are acceptable;
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures; and
- A highway access that is considered suitable by the Highway Authority.

**Question 83: Proposed Site MIN 25 'land at Manor Farm, Haddiscoe' -**

**Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## MIN 92 – land east of Ferry Lane, Heckingham



### Site Characteristics

- The 15.18 hectare site is within the parish of Heckingham
- The estimated sand and gravel resource at the site is 570,000 tonnes
- The proposer of the site has given a potential start date of 2026 at the earliest, but potentially not until 2035, depending on the rate of extraction at the currently operational adjacent site. The proposer of the site has estimated the extraction rate to be 100,000 to 200,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within 3 to 6 years, but it is uncertain whether this would take place within the plan period.
- The site is proposed by Cemex UK Materials Ltd as an extension to an existing site.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 3. The proposer of the site has submitted an agricultural land classification report which concludes that the site is grade 3b.
- The site is 13.6km from Gorleston and Great Yarmouth, which are the nearest towns.

**Amenity:** The nearest residential property is 40m from the site boundary. There are six sensitive receptors within 250m of the site boundary. The settlement of Nogdam End is 821m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site would access the existing plant site across Ferry Road. From the existing plant site the existing site access is via an off-highway haul route to the B1136 Yarmouth

Road and then onto the A143, which are both designated lorry routes. The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period. The estimated number of HGV movements is 46 per day. The proposed highway access is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is agriculture with 18<sup>th</sup> to 19<sup>th</sup> Century piecemeal enclosure. The site is within a wider historic landscape character of 20<sup>th</sup> century agriculture with enclosure, boundary loss and boundary loss with a relict element; and agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure. The wider historic landscape character also includes enclosed drained rectilinear grazing marsh (17<sup>th</sup> to 20<sup>th</sup> century enclosure), enclosed wetland meadow, mineral extraction, sea defences and woodland (carr woodland, regenerated alder carr woodland and 18<sup>th</sup> to 20<sup>th</sup> century woodland plantation).

The nearest Listed Building is Grade II\* Hardley Hall which is 770m away. There are 11 Listed Buildings within 2km of the site. The only Scheduled Monument within 2km of the site is 'Hardley Cross, immediately south-west of the rivers Yare and Chet' 1.69km away. There are no Conservation Areas within 2km of the site. Raveningham Hall, a Registered Historic Park and Garden is 1.78km from the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation to sustain heritage values if required.

**Archaeology:** Historic Environment records exist of a possible medieval settlement and multi-period finds within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods, including Saxon, Roman and medieval settlement locations close to the site. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site is adjacent to the boundary of the Broads Authority Executive Area on three sides. The site is within the landscape character area described as 'Thurlton Tributary Farmland with Parkland' in the South Norfolk Landscape Character Assessment.

The site comprises an arable field which slopes down to the west and is divided by a line of hedgerow oaks. There is a hedge along the eastern boundary and trees and hedges lie along the remaining boundaries. The site forms part of an attractive gently rolling arable landscape on the edge of the Broads. There are overhead high voltage power lines along the southern boundary of the site and the existing mineral extraction operation is to the east. There are intermittent views into the site through gaps in the hedges along the adjoining eastern road and views from the road to the west. The oaks within the site are a notable landscape feature as are the veteran oaks along the western boundary. One farm lies to the south but does not have views of the area, two properties lie to the north which may have views from upstairs windows. Generally the site is remote from village settlement. Screening the site from the more open views from the road to the west would be difficult due to the sloping nature of the site. This road forms part of the Wherryman's Way long distance path and is also the boundary to the Broads Authority Executive Area. The site lies to the west of the active permitted sand and gravel extraction area. The mature oaks in the site and proximity to the Broads Authority Executive Area would make it difficult to work this site without unacceptable landscape impacts.

There are no Public Rights of Way within or adjacent to the site.

**Ecology:** The site is 4.45km from Breydon Water SPA and Ramsar site. The site would be worked dry (above the water table) therefore there would be no adverse effects on the hydrology of Breydon Water. Due to the distance of the proposed site from Breydon Water there would not be adverse effects from dust deposition, noise or lighting. Therefore no adverse effects are expected to Breydon Water SPA and Ramsar site from the proposed mineral extraction.



The site is 0.58km from Hardley Flood SSSI, which is part of The Broads SAC, Broadland SPA and Ramsar site. The SSSI citation states that Hardley Flood SSSI is an area of shallow lagoons and reedbeds; soft muds are exposed at low tide and these attract a range of wading birds in spring and autumn whilst the undisturbed reedbeds support nesting wildfowl and other fenland birds, including nationally important breeding populations of Shoveler, Pochard and Gadwall. The site would be worked dry (above the water table) therefore there would be no adverse effects on the hydrology of the SSSI. Due to the distance of the proposed site from the SSSI, no adverse effects are expected from dust deposition, noise or lighting. Therefore no adverse effects are expected to the SSSI, SAC, SPA or Ramsar site from the proposed mineral extraction.

The nearest County Wildlife Site is CWS 2194 'Old Hall Carr and Marshes' which is adjacent to the site boundary. The CWS is an area of mixed broadleaved woodland and coniferous plantation, marshy grassland and swamp in the Chet valley. The site would be worked dry (above the water table) therefore there would be no adverse effects on the hydrology of the CWS. A potential impact could be dust deposition from extraction, if uncontrolled. Therefore a dust assessment and identification of appropriate mitigation measures will be required as part of the planning application process, to ensure that the CWS is not adversely affected.

There are no ancient woodland sites within 3km of the site.

**Geodiversity:** The site consists of the Lowestoft Formation - sand and gravel, Corton Formation (undifferentiated), Crag Group and Bytham Formation - sand and gravel (which is a priority feature due to its method of formation) all overlying Crag Group. There is the potential for large vertebrate fossils and other paleo-environmental evidence in deposits laid down by a tributary (River Bytham) of the proto-Thames. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. The site has a low risk of surface water flooding, with two minor surface water flow paths developing within the site in a 1 in 1000 year rainfall event. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not within an Internal Drainage Board area. Part of the south-western boundary of the site is adjacent to the Waveney, Lower Yare and Lothingland Internal Drainage Board area.

**Hydrogeology:** The site is located partially over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.

**Water Framework Directive:** The site is approximately 300 metres from the River Chet, which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards River Chet. MIN 92 and the existing adjacent processing plant, which the sand and gravel would be transported to, are both located a considerable distance east of the River Chet. Therefore the sand and gravel to be processed would not be transported across the River Chet. Due to the distance of the site from the River Chet it is not expected that there would be a pathway for silt ingress into the River Chet from any future sand and gravel extraction within site MIN 92.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. Electricity distribution pylons cross the south of the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is not within an aerodrome safeguarding zone.

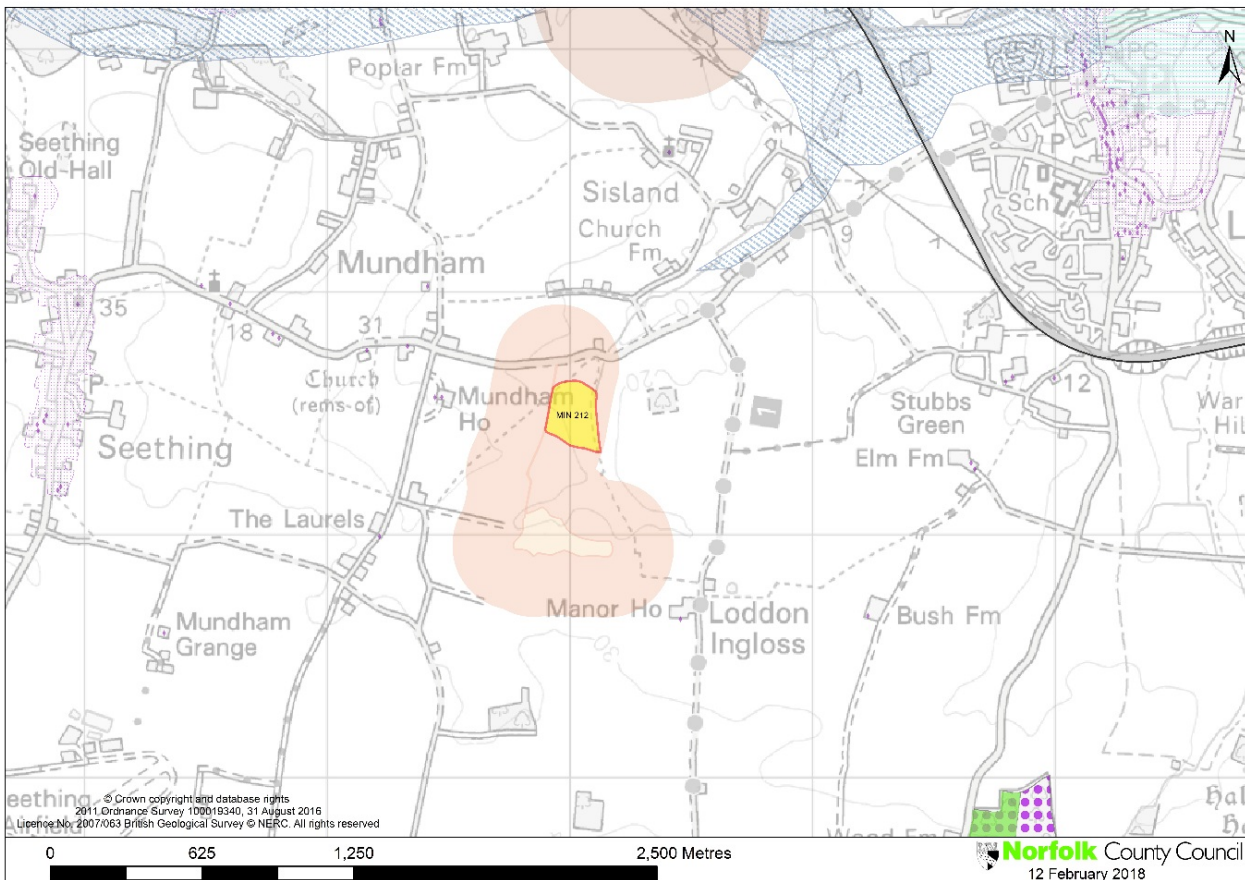
**Restoration:** The site is proposed to be restored to a mosaic of nature conservation and agricultural land uses.

**Initial conclusion:** The site is considered to be unsuitable for allocation because:

- The site is adjacent to the boundary of the Broads Authority Executive Area on three sides. Screening the site from the more open views from the road to the west and from the Broads Authority Executive Area to the south-west in particular, would be difficult due to the sloping nature of the site, therefore working this site would lead to unacceptable landscape impacts.
- It is considered that the retention of the line of mature oaks in the centre of the site would make an acceptable working scheme unlikely, and a working scheme that resulted in the removal of the oaks would have an unacceptable landscape impact, especially given the proximity of the Broads Authority Executive Area.

**Question 84: Proposed Site MIN 92 'land east of Ferry Lane, Heckingham' -  
Do you agree or disagree with the initial conclusion? Do you have any comments to  
make about the assessment of this site?**

## MIN 212 - land south of Mundham Road, Mundham



### Site Characteristics

- The 4.95 hectare site is within the parish of Mundham
- The estimated sand and gravel resource at the site is 325,000 tonnes
- The proposer of the site has given a potential start date of 2018 and estimated the extraction rate to be 30,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within eleven years, which would be within the plan period.
- The site is proposed by Earsham Gravels Ltd as a new site that would use an existing processing plant located at Caister St Edmund.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 3
- The processing site is 1km from the Norwich urban area and within the Norwich Policy Area.

**Amenity:** The nearest residential property is 147m from the site boundary. There are 2 sensitive receptors within 250m of the site boundary. The settlement of Mundham is 482m away. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site would use the existing haul route to access the C203 Mundham Road and turn right only to travel approximately 1.8km before joining the A146 Loddon bypass at the existing junction, which is a designated lorry route. Additional passing place improvements are proposed at two places on Mundham Road. The current processing plant sites is located at Caistor St Edmund quarry and is proposed to be continue to be used for mineral extracted from site MIN

212. This involves routing via the A146 towards Norwich, the A147 towards the Martineau Lane roundabout, The Street and then through White Horse Lane and Trowse and then onto Caistor St Edmund Quarry off Stoke Road. The site is not within an AQMA. The estimated HGV movements are a maximum of 14 per day. The proposed highway access is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with boundary loss. The site is within a wider historic landscape character of 20<sup>th</sup> century agriculture with enclosure and boundary loss, agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure, enclosed wetland meadow and pre-18<sup>th</sup> century rectilinear coaxial agricultural fields.

The nearest Listed Buildings are the Grade II Mundham House and the stables at Mundham House, which are 470m and 440m away. There are 24 Listed Buildings within 2km of the site. There are no Scheduled Monuments within 2km of the site. Seething Conservation Area is 1.88km from the site. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** A Historic Environment record of the remains of an undated road is shown within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods, including a Saxon cemetery and a Roman settlement adjacent to the site. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site is within the landscape character area described as 'Chet Tributary Farmland' in the South Norfolk Landscape Character Assessment. The site comprises an irregularly shaped area of land within an arable field, with the eastern boundary being formed by a drain and associated hedgerow. The western boundary is formed by the access track to the existing quarry site. The northern and southern site boundaries are unmarked. The site slopes down from east to west. The wider landscape consists of arable fields with some hedged field boundaries and intermittent trees.

There are two properties on Mundham Road that are located to the north of the proposed site which currently have views across the proposed site. A screen bund is proposed across the northern boundary of the site to screen views of the mineral working from those properties and from the adjacent Public Right of Way. A screen bund is also proposed along the eastern boundary of the site. A bund already exists along the access track to the west, but the height of this bund may need to be increased to sufficiently screen views of the site from the west. The impact of the proposed mineral working on the wider landscape would predominantly be the decreased long distance views due to bunding to screen the mineral working from view. The views of the mineral working from nearby properties will predominantly be screened by bunding. On restoration, the bunding to the north and east would be removed and the current open views across the site from the north would be reinstated. Increased scrub woodland planting is proposed along the eastern and western boundaries of the site as part of the restoration scheme.

There is a Public Right of Way adjacent to eastern boundary of the site (Mundham FP6) and PROW Mundham FP7 runs through the north-west corner of the site. PROW Mundham FP7 is therefore proposed to be diverted around the north-west corner of the site.

**Ecology:** The site is 3.67km from Hardley Flood SSSI, which is part of the Broads SAC, Broadland SPA and Ramsar site and is outside the Impact Risk Zone for this SSSI.

There are no SSSIs within 3km of the site boundary and the site is not within the Impact Risk Zone for any SSSIs.

There are no County Wildlife Sites within 1km of the site boundary.

The nearest ancient woodland site is Hales Hall Wood, an Ancient Semi-Natural Woodland (ASNW) and Plantation on Ancient Woodland Site (PAWS), which is 2.16km from the site boundary. Due to the distance from the site, no adverse impacts to the ancient woodland site are expected from the proposed mineral extraction.

**Geodiversity:** The site consists of the Corton formation - sand (undifferentiated), Head deposits - clay, silt, sand & gravel which are priority features due to their method of formation, Lowestoft Formation - diamicton; overlying the Crag group. There is significant potential for vertebrate fossils within the Crag Group. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The majority (84%) of the site is in Flood Zone 1 (lowest risk) for flooding from rivers. However, the eastern part of the site is within both Flood Zone 2 (medium risk) and Flood Zone 3 (high risk) for flooding from rivers. The site has a high probability of surface water flooding with a surface water flow path running through the eastern part of the site (north-south) in a 1 in 30 year rainfall event. The area of the site included within this flow path increases in 1 in 100 and 1 in 1000 year rainfall events to affect up to 10% of the site. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. If the site includes Flood Zone 3b (the functional flood plain) then the site should be designed and constructed to remain operational and safe for users in times of flood, result in no net loss of flood plain storage, not impede water flows and not increase flood risk elsewhere. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located partially over a Secondary A aquifer and a Secondary (undifferentiated) aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.

**Water Framework Directive:** The site is approximately 1.5km from the River Chet, which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards the River Chet. If mineral is extracted from MIN 212, it would be transported to the existing processing plant at Caister St Edmund by covered HGV along the A146. The existing drainage system installed along the A146, along with transporting the mineral by covered HGV would prevent dust deposition into the River Chet from this source. Due to the distance of the site from the River Chet it is not expected that there would be a pathway for silt ingress into the River Chet from any future sand and gravel extraction within site MIN 212.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. There is no electricity transmission infrastructure within the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is not within an aerodrome safeguarding zone.

**Restoration:** The site is proposed to be restored to a nature conservation afteruse with species rich acid grassland with scrub woodland and a water body fringed with reeds.

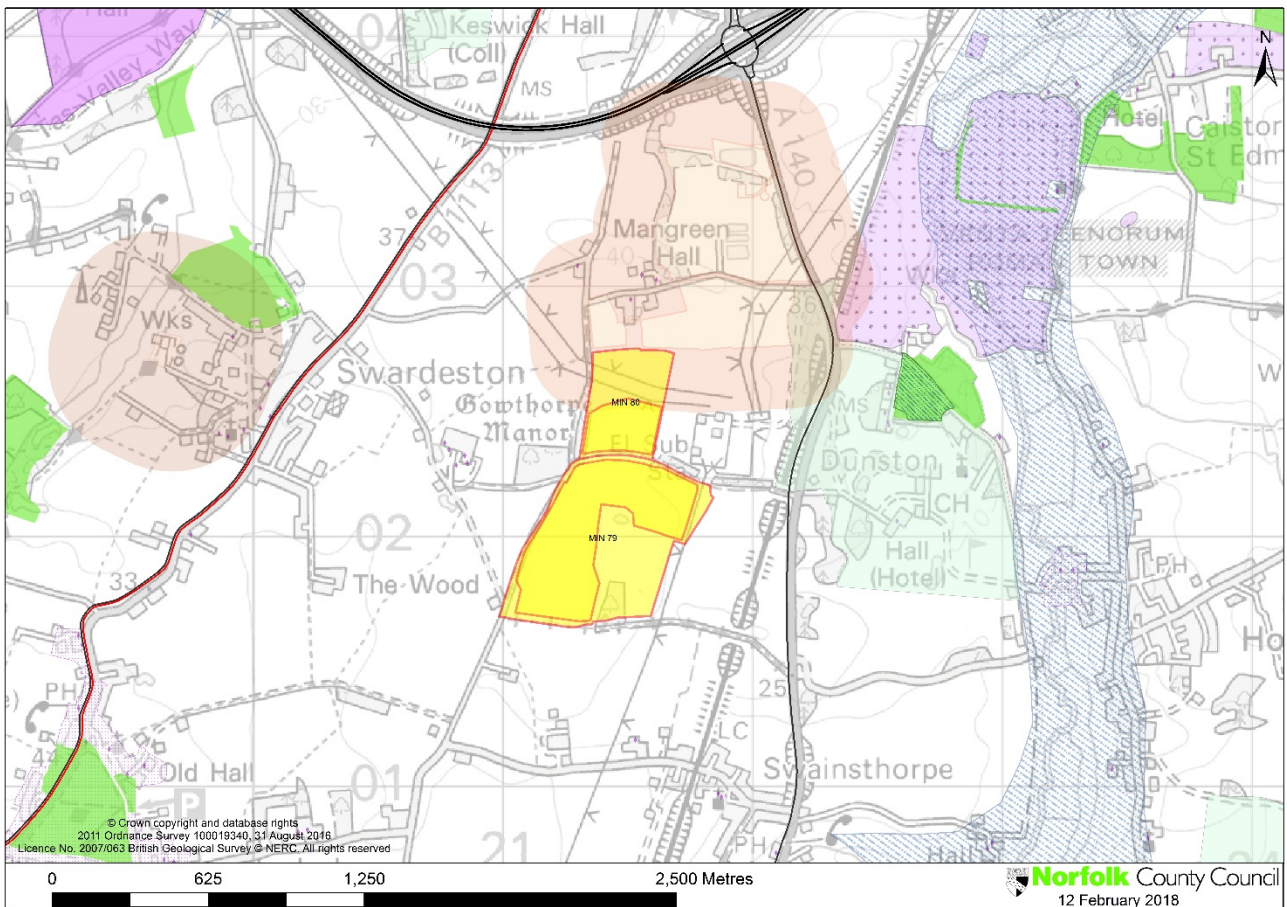
**Initial conclusion:** The site is considered to be suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:

- Noise and dust assessments and a programme of mitigation measures to deal appropriately with any amenity impacts;
- A progressive restoration scheme to a nature conservation afteruse to provide landscape and biodiversity gains;
- Opportunities during working for any geodiversity assets to be studied, and if compatible with the landscape and ecology objectives an open face to be included within any restoration scheme for future scientific study;

- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required;
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures;
- The site will need to be phased with other sites in the area so that only one site is worked for extraction at a time;
- The existing access route for the permitted extraction site should be used;
- As with the existing extraction site, no onsite processing of mineral should take place;
- If the site includes Flood Zone 3b (the functional flood plain) then the site should be designed and constructed to remain operational and safe for users in times of flood, result in no net loss of flood plain storage, not impede water flows and not increase flood risk elsewhere.
- A landscape and visual Impact assessment which will identify any potential impacts to the wider landscape and suggest appropriate mitigation measures;
- A suitable scheme for the diversion of the PRow; and
- A screening scheme which will include successful mitigation for views of the site from surrounding properties and viewpoints, including long range views.

**Question 85: Proposed Site MIN 212 'land south of Mundham Road, Mundham' - Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## Map of proposed sites MIN 79 and MIN 80



### MIN 79 - land north of Hickling Lane, Swardeston

#### Site Characteristics

- The 38.56 hectare site is within the parishes of Swainsthorpe, Swardeston and Stoke Holy Cross
- The estimated sand and gravel resource at the site is 1,970,000 tonnes
- The proposer of the site has given a potential start date of 2022 (after extraction at the operational Mangreen Quarry site ceases) and estimated the extraction rate to be 200,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within 10 years, which would be within the plan period. If this site is phased after proposed site MIN 80, with operations starting in 2026, the full mineral resource at the site could still be extracted within the plan period.
- The site is proposed by Tarmac Aggregates Ltd as an extension to an existing site. Sites MIN 79 and Min 80 are expected to be worked in a phased manner to mitigate any cumulative impacts.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 3
- The site is 2.9km from the Norwich urban area and is within the Norwich Policy Area. The site is also 8.4km from Wymondham, the nearest town.

A reduced extraction area has been proposed of 23.24 hectares as the south-eastern field is not proposed to be extracted.

**Amenity:** The nearest residential property is 36m from the site boundary. There are 3 sensitive receptors within 250m of the site boundary. The settlement of Swainsthorpe is 544m away.

However, the south-eastern field is not proposed to be extracted. Therefore the nearest residential property to the extraction area is 83m away and there are 2 sensitive receptors within 250m of the proposed extraction area. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site is expected to access the existing plant site via conveyor. From the plant site the existing access onto the A140 (a short distance from the A47 southern bypass) would be used, which are both designated lorry routes. The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period. The estimated HGV movements are 40 in and 40 out per day. The proposed highway access is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with boundary loss, agriculture with 18<sup>th</sup> to 19<sup>th</sup> Century piecemeal enclosure, and 18<sup>th</sup> to 20<sup>th</sup> Century plantation woodland. The site is within a wider historic landscape character of 20<sup>th</sup> century agriculture with enclosure, boundary loss, and boundary loss with a relict element; and agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure. The wider historic landscape character also includes modern built-up areas of linear settlements and nucleated clusters and a large house/hall, a common, a green, industry, horticulture, leisure/recreation (including a golf course), and 18<sup>th</sup> to 20<sup>th</sup> century woodland plantation.

The nearest Listed Building is Grade II\* Gowthorpe Manor House, which is 390m away. There are 57 Listed Buildings within 2km of the site. 13 of these are within a Conservation Area. The nearest Scheduled Monument is 'Venta Icenorum: Roman town and associated prehistoric and medieval remains', which is 780m away. There are 3 Scheduled Monuments within 2km of the site. Stoke Holy Cross Conservation Area is 1.36km away. Mulbarton Conservation Area is 1.46km away. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** There are Historic Environment records of multi-period finds and features within the site boundary, including a potential location for the Humbleyard Moot site, and Roman pits. The site is in a wider landscape with a very significant number of finds and features from multiple periods, including Roman features including a settlement and road, and a deserted medieval settlement. Therefore, there is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site is within the landscape character area described as 'Tas Tributary Farmland' in the South Norfolk Landscape Character Assessment.

The site comprises four arable fields, which slope gently down west to east, there is a tree belt containing a series of ponds on a north-south axis through the centre of the site which terminates in a small copse (Sprow's pit) on the southern boundary of the site. An indicative working scheme has indicated a standoff area to provide the protection to this copse that would be required during extraction.

Trees and shrubs have been planted along the southern boundary which helps to screen the site from users of the Public Right of Way (PRoW) which runs along this boundary and properties to the south. There is a shrub belt to the north which helps to screen the site especially from long range views; a partial line of hedging along the western boundary provides some screening for users of



the PRoW along this side. Gowthorpe Manor and Barn are well screened from the site by intervening woodland. The nearest property (Hall Green Cottages); is in the southwest corner of the site. Significant planting and screening will be required plus possibly a limit of extraction to the southwest to mitigate impacts; this has been shown as part of the indicative working scheme. A reinforcement of the existing boundary planting is also shown as part of the indicative scheme, plus a restoration scheme that incorporated an increase in the size of the Sprow's pit copse would be acceptable.

There is a Public Right of Way adjacent to the northern boundary of the site (Swardeston BR12), a PRoW adjacent to the western boundary of the site (Swardeston BR9) and a PRoW adjacent to the southern boundary of the site (Swainsthorpe BOAT6).

**Ecology:** The site is more than 5km from any SPA, SAC or Ramsar site. Therefore, there would be no likely significant effects on these sites.

Shotesham Common SSSI is 2.4km from the site boundary. The SSSI citation states that it is an area of unimproved grassland within a valley site ranging from permanently wet marshy grassland on the valley bottom, through wet neutral grassland, to drier grassland on the slopes. A stream runs through the SSSI. A diverse well-developed flora is present with several uncommon species. The proposed extraction site is located in a different hydrological catchment to the SSSI, therefore there would be no adverse impacts to the SSSI.

The nearest County Wildlife Site is CWS 268 'Dunston Common' which is 780m from the site boundary and is a mosaic of woodland and grassland. No adverse impacts to the CWS are expected from the proposed mineral extraction.

There are no ancient woodland sites within 3km of the site.

**Geodiversity:** The site consists of Lowestoft Formation - diamicton, Corton Formation and Lowestoft Formation - sand and gravel (undifferentiated), overlying chalk formations. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. The site has a medium probability of surface water flooding with a few locations of surface water pooling and a small surface water flow path in a 1 in 100 year rainfall event. The surface water flow path in the north of the site increases in size in a 1 in 1000 year rainfall event. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a Secondary (undifferentiated) aquifer (superficial deposits) and a principal aquifer (bedrock). The site is within groundwater Source Protection Zone 2. A planning application for mineral extraction at this site would need to include a Hydrogeological Risk Assessment to identify any potential impacts to groundwater and appropriate mitigation measures.

**Water Framework Directive:** The site is approximately 1.2km from the River Tas, which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several metres below ground level and therefore overland flows are not expected from the site towards the River Tas. MIN 79 and the existing adjacent processing plant, which the sand and gravel would be transported to by internal haul route, are both a considerable distance west of the River Tas. Therefore the sand and gravel to be processed would not be transported across the River Tas. Due to the distance of the site from the River Tas it is not expected that there would be a pathway for silt ingress into the River Tas from any future sand and gravel extraction within site MIN 79.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. Electricity transmission pylons run along the eastern boundary of the site. There are no high pressure gas pipelines within the site.

**Safeguarding aerodromes:** The site is within the zone where Norwich Airport must be consulted on developments with the potential to increase the number of birds and the 'bird strike' risk to aircraft. Therefore a Bird Hazard Assessment would be required at the planning application stage.

**Restoration:** The site is proposed to be restored mainly to agriculture. Preferred restoration would include wide field margins and enhanced deciduous woodland belts. Due to the expected depth of extraction, it is recognised that restoration to arable is likely to require the use of imported inert material to provide a suitable profile.

**Initial conclusion:** The site is considered suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:

- A screening scheme to include mitigation of views from the surrounding properties, the PROW, surrounding roads, and protection of the setting of the listed buildings;
- A Hydrogeological Risk Assessment to identify potential impacts to groundwater and appropriate mitigation measures to address any identified impacts;
- Noise and dust assessments and a programme of mitigation measures to deal appropriately with any amenity impacts;
- A scheme of phased working including the direction of working (to assist in the mitigation of amenity impacts) and landscaping;
- A progressive restoration scheme which incorporates arable with wide field margins and enhanced deciduous woodland belts to provide landscape and biodiversity gains;
- Restoration of the extraction void to use the importation of inert materials only;
- Opportunities during working for any geodiversity assets to be studied, and if compatible with the landscape and ecology objectives an open face to be included within any restoration scheme for future scientific study;
- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required;
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures;
- The site will need to be phased with other sites in the area so that only one site is worked for extraction at a time; and
- That the material extracted would be removed by conveyor for processing at the existing processing plant at Mangreen Quarry.

**Question 86: Proposed Site MIN 79 'land north of Hickling Lane, Swardeston' - Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## MIN 80 - land south of Mangreen Hall Farm, Swardeston

### Site Characteristics

- The 12.98 hectare site is within the parish of Swardeston
- The estimated sand and gravel resource at the site is 750,000 tonnes
- The proposer of the site has given a potential start date of 2022 (after extraction at the operational Mangreen Quarry site ceases) and estimated the extraction rate to be 150,000 to 200,000 tonnes per annum. Based on this information the full mineral resource at the site could be extracted within 4 to 5 years, which would be within the plan period.
- The site is proposed by Tarmac Aggregates Ltd as an extension to an existing site. Sites MIN 79 and MIN 80 are expected to be worked in a phased manner to mitigate any cumulative impacts.
- The site is currently in agricultural use and the Agricultural Land Classification scheme classifies the land as being Grade 3
- The site is 2.5km from the Norwich urban area and is within the Norwich Policy Area. The site is also 8.6km from Wymondham.

A reduced extraction area has been proposed of 5.48 hectares, to exclude the northern part of the site, under the electricity pylons.

**Amenity:** The nearest residential property is 214m from the site boundary. There is 1 sensitive receptor within 250m of the site boundary. The settlement of Swardeston is 1.1km away. However, the northern part of the site, under the electricity pylons, is not proposed to be extracted. Therefore the nearest residential property is 418m from the extraction area and there are no sensitive receptors within 250m of the proposed extraction area. Even without mitigation, adverse dust impacts from sand and gravel sites are uncommon beyond 250m from the nearest dust generating activities. The greatest impacts will be within 100 metres of a source, if uncontrolled. A planning application for mineral extraction at this site would need to include noise and dust assessments and mitigation measures to deal appropriately with any amenity impacts.

**Highway access:** The site is expected to access the existing plant site via conveyor. From the plant site the existing access onto the A140 (a short distance from the A47 southern bypass) would be used, which are both designated lorry routes. The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period. The estimated HGV movements are 40 in and 40 out per day. The proposed highway access is considered to be suitable by the Highway Authority.

**Historic environment:** The historic landscape character of the site is Twentieth Century agriculture with enclosure. The site is within a wider historic landscape character of 20th century agriculture with enclosure and boundary loss, agriculture with 18<sup>th</sup> to 19<sup>th</sup> century piecemeal enclosure, common and green. The wider historic landscape character also includes modern built-up areas of linear settlements, a large house/hall, horticulture, industry, leisure/recreation (including a golf course), and 18<sup>th</sup> to 20<sup>th</sup> century woodland plantation.

The nearest Listed Building is the Grade II Barn at Hall Farm which is 200m away. There are 46 Listed Buildings within 2km of the site. The nearest Scheduled Monument is 'Venta Icenorum: Roman town and associated prehistoric and medieval remains' which is 720m away. There are 5 Scheduled Monuments within 2km of the site. Stoke Holy Cross Conservation Area is 1.67km away. There are no Registered Historic Parks and Gardens within 2km of the site. A planning application for mineral extraction at this site would need to include a Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required.

**Archaeology:** There are Historic Environment records of multi-period finds within the site boundary. The site is in a wider landscape with a very significant number of finds and features from multiple periods, including Roman features including a settlement and road, and a deserted medieval settlement. Therefore, there is the potential that unknown archaeology exists on the site

and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site. The archaeology assessment may initially be desk-based but may need to be followed up with field surveys and trial-trenching.

**Landscape:** The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site is a predominantly flat arable field with a native shrub belt on its boundaries. The site is within the landscape character area described as 'Tas Tributary Farmland' in the South Norfolk Landscape Character Assessment.

The site is in an area of gently rolling countryside. A line of pylons cross the site from east to west originating from the Norwich electricity transformer station to the east of the site. The only public view point of the site would be from parts of the bridleway that runs along the western boundary. There is a possibility that there are views from the upper floors of some buildings at Mangreen Hall and Farm, although there is some screening in the form of tree belts between these and the indicative scheme shows that this would be reinforced. The listed barn at Mangreen Hall Farm is surrounded on three sides by modern agricultural buildings included to the south in the direction of the site; it is considered that any additional impacts are likely to be insignificant in comparison, as only the southern half of the site would be worked. The listed Mangreen Hall has screening to the south by trees and additional planting on the northern boundary of the site should mitigate any remaining visual impact. The site is acceptable in landscape terms if appropriate screening is provided to the west and north, as proposed.

There is a Public Right of Way adjacent to the southern boundary of the site (Swardeston BR9) and a PRow adjacent to the western boundary of the site (Swardeston BR12).

**Ecology:** The site is more than 5km from any SPA, SAC or Ramsar site. Therefore, there would be no likely significant effects on these sites.

Shotesham Common SSSI is 2.8km from the site boundary. The SSSI citation states that it is an area of unimproved grassland within a valley site ranging from permanently wet marshy grassland on the valley bottom, through wet neutral grassland, to drier grassland on the slopes. A stream runs through the SSSI. A diverse well-developed flora is present with several uncommon species. The proposed extraction site is located in a different hydrological catchment to the SSSI, therefore there would be no adverse impacts to the SSSI.

The nearest County Wildlife Site is CWS 268 'Dunston Common' which is 910m from the site boundary and is a mosaic of woodland and grassland. No adverse impacts to the CWS are expected from the proposed mineral extraction.

There are no ancient woodland sites within 3km of the site.

**Geodiversity:** The site consists of the Lowestoft Formation-diamicton, overlying chalk formations. Potential impacts to geodiversity would need to be assessed and appropriate mitigation identified as part of any future application. It would be useful to retain some open faces for scientific study during operational stages, and ideally after restoration, and have a 'watching brief' during the extraction phase in case features of potential geodiversity interest are uncovered.

**Flood Risk:** The site is in Flood Zone 1 (lowest risk) for flooding from rivers. The site has a low risk of surface water flooding with one area of surface water pooling in a 1 in 30 year and 1 in 100 year rainfall event. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. The site is not in an Internal Drainage Board area.

**Hydrogeology:** The site is located over a Secondary (undifferentiated) aquifer (superficial deposits) and a principal aquifer (bedrock). The site is within groundwater Source Protection Zone 2. A planning application for mineral extraction at this site would need to include a Hydrogeological Risk Assessment to identify any potential impacts to groundwater and appropriate mitigation measures.

**Water Framework Directive:** The site is approximately 1km from the River Tas, which is the nearest Water Framework Directive waterbody. The groundwater level in this area is several

metres below ground level and therefore overland flows are not expected from the site towards the River Tas. MIN 80 and the existing adjacent processing plant, which the sand and gravel would be transported to by internal haul route, are both a considerable distance west of the River Tas. Therefore the sand and gravel to be processed would not be transported across the River Tas. Due to the distance of the site from the River Tas it is not expected that there would be a pathway for silt ingress into the River Tas from any future sand and gravel extraction within site MIN 80.

**Utilities infrastructure:** There are no Anglian Water sewerage assets or water assets within the site. Electricity transmission pylons cross the site. A high pressure gas pipeline crosses the site.

**Safeguarding aerodromes:** The site is within the zone where Norwich Airport must be consulted on developments with the potential to increase the number of birds and the 'bird strike' risk to aircraft. Therefore a Bird Hazard Assessment would be required at the planning application stage.

**Restoration:** The site is proposed to be restored mainly to agriculture. Preferred restoration would include wide field margins and enhanced deciduous woodland belts. Due to the expected depth of extraction, it is recognised that restoration to arable is likely to require the use of imported inert material to provide a suitable profile.

**Initial conclusion:** The site is considered suitable for allocation for sand and gravel extraction, subject to any planning application addressing the requirements below:

- A screening scheme to include mitigation of views from the surrounding of properties, the PROW, surrounding roads, and protection of the setting of the listed buildings;
- A Hydrogeological Risk Assessment to identify potential impacts to groundwater and appropriate mitigation measures to address any identified impacts;
- Noise and dust assessments and a programme of mitigation measures to deal appropriately with any amenity impacts;
- A scheme of phased working including the direction of working (to assist in the mitigation of amenity impacts), and landscaping;
- A progressive restoration scheme which incorporates arable with wide field margins and enhanced deciduous woodland belts to provide landscape and biodiversity gains;
- Restoration of the extraction void to use the importation of inert materials only;
- Opportunities during working for any geodiversity assets to be studied, and if compatible with the landscape and ecology objectives an open face to be included within any restoration scheme for future scientific study;
- A Heritage Statement to identify heritage assets and their settings, assess the potential for impacts and identify appropriate mitigation measures if required;
- An appropriate archaeological assessment must be prepared in consultation with Norfolk County Council; this may initially be desk-based but may need to be followed up with field surveys and trial-trenching. The archaeological assessment will be used by Norfolk County Council/Historic Environment Service to agree appropriate mitigation measures;
- The site will need to be phased with other sites in the area so that only one site is worked for extraction at a time; and
- That the material extracted would be removed by conveyor for processing at the existing processing plant at Mangreen Quarry.

**Question 87: Proposed Site MIN 80 'land south of Mangreen Hall Farm, Swardeston' - Do you agree or disagree with the initial conclusion? Do you have any comments to make about the assessment of this site?**

## Glossary

**Air Quality Management Areas (AQMAs):** Areas designated by local authorities because they are not likely to achieve national air quality objectives by the relevant deadlines.

**Aftercare:** The treatment of land for a period (usually five years) following restoration to bring the land to the required standard so that it is fit for its agreed after-use.

**Afteruse:** the use (usually for agriculture, forestry or amenity) that land is put to once restored following mineral working, or temporary waste management operations such as landfill.

**Aggregates:** Materials such as sand and gravel and crushed rock, used in the construction industry for purposes such as concrete, mortar or roadstone.

**Agricultural waste:** Waste that is specifically generated by agricultural activities. It includes manure and other wastes from farms, poultry houses and slaughter houses; harvest waste, and pesticides.

**Amenity:** a positive element or elements that contribute to the overall character or enjoyment of an area.

**Anaerobic Digestion:** Anaerobic digestion is the biological treatment of biodegradable organic waste in the absence of oxygen, utilising microbial activity to break down the waste in a controlled environment. Anaerobic digestion results in the generation of:

- Biogas, which is rich in methane and can be used to generate heat and/or electricity;
- Fibre, (or digestate) which is nutrient rich and can potentially be used as a soil conditioner; and
- Liquor, which can potentially be used as a liquid fertiliser.

**Ancient Woodland:** An area of woodland which has had a continuous history of tree cover since at least 1600.

**Apportionment:** The quantity of land-won aggregates to be planned for in Norfolk, taking into account the Local Aggregate Assessment, the advice of the East of England Aggregate Working Party and published National and Sub-National Guidelines on future provision of aggregates. Further information on planning for a steady and adequate supply of aggregates is contained in paragraph 145 of the National Planning Policy Framework and 'Guidance on the Managed Aggregate Supply System' (DCLG 2012).

**Appropriate Assessment:** *Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora* requires an Appropriate Assessment to be undertaken to assess the impacts of a land-use plan against the conservation objectives of a European Site and to ascertain whether it would adversely affect the integrity of that site.

**Area of Outstanding Natural Beauty (AONB):** Area of Outstanding Natural Beauty designated under the National Parks and Access to the Countryside Act 1949 for the purposes of preserving and enhancing their natural beauty.

**Area of Search:** areas where knowledge of mineral resources may be less certain but within which planning permission may be granted, particularly if there is a potential shortfall in supply. If it is not possible to designate Specific Sites, or Preferred Areas, the alternative way to plan for the steady and adequate supply of minerals is to designate Areas of Search.

**Biodegradable waste:** any waste that is capable of undergoing natural decomposition, such as food and garden waste, paper and cardboard.

**Biodiversity:** The variety of all life on earth (mammals, birds, fish, invertebrates, plants etc).

**Borrow pit:** A temporary mineral working to supply material for a specific construction project.

**Brownfield land** Also known as "previously-developed land". Land which is or was occupied by a permanent structure, including the curtilage of the developed land (although it should not be assumed that the whole of the curtilage should be developed) and any associated fixed surface infrastructure. This excludes: land that is or has been occupied by agricultural or forestry buildings; land that has been developed for minerals extraction or waste disposal by landfill purposes where

provision for restoration has been made through development control procedures; land in built-up areas such as private residential gardens, parks, recreation grounds and allotments; and land that was previously-developed but where the remains of the permanent structure or fixed surface structure have blended into the landscape in the process of time.

**Buffer:** Buffers are areas of land within the allocation which would remain unworked for mineral extraction to mitigate potential impacts (for example, on amenity, landscape or ecology). Where a buffer is included in a site allocations policy or map it is 'indicative' and is intended only to illustrate where assessment at this stage has indicated that there may be impacts which, in principle, are likely to require buffers to mitigate them. The exact distances and coverage of any buffer, if required, would be determined following assessment of the detail of potential impacts as part of any future planning application.

**Carstone:** Carstone is a ferruginous brown sandstone quarried in West Norfolk. It is used primarily for construction fill. When the iron content is high it can meet higher specifications. Traditionally in West Norfolk it was used as a building material.

**Climate change:** Changes in climate resulting from an increase in greenhouse gases in the atmosphere (e.g. emissions from transport and industry), global changes to land surface, such as from deforestation, and an increase in atmospheric concentrations of aerosols.

**Composting:** A process where organic wastes (such as garden and kitchen waste) are broken down aerobically (in the presence of air) to create a product that can be applied to land to improve soil structure and enrich the nutrient content of the soil.

**Conservation Area:** An area designated by the Local Planning Authority under the Planning (Listed Buildings and Conservation Areas) Act 1990 as possessing special architectural or historical interest.

**Conventional hydrocarbons:** Hydrocarbon extraction covers both conventional and unconventional hydrocarbons. Conventional hydrocarbons are oil and gas where the reservoir is sandstone or limestone. Also see unconventional hydrocarbons.

**Construction, Demolition and Excavation waste (CD&E):** CD&E waste can be in the form of certain types of: Construction wastes (e.g. surplus supplies of materials specifically required for a single project as well as waste originating from site preparation), Demolition wastes (e.g. used material resulting from demolition activities); or Excavation wastes (e.g. usually consisting of soils and stones which cannot be used beneficially, such as from tunnelling operations, the soil component may not be inert).

**Commercial and industrial waste (C&I):** Waste from shops, industrial and business premises.

**County Wildlife Site:** A site of local importance for wildlife. Outside SSSIs, County Wildlife Sites are the best sites for wildlife in Norfolk. Sites are designated using stringent criteria, by a committee composed of the Norfolk Wildlife Trust, Norfolk County Council, Natural England, the Norfolk Biological Records Centre, and the Norfolk Biodiversity Partnership.

**Cumulative Impact:** The combined impacts of a number of developments on the environment, amenity, health, traffic etc.

**Development Management:** The process through which the Council determines whether a proposal for development should be granted planning permission, taking into account the development plan and any other material considerations.

**Development Plan:** Statutory documents described in the Planning and Compulsory Purchase Act 2004 (as amended) that set out the planning policies and proposals for the development and use of land. Decisions on planning applications must conform to the Development Plan, unless material considerations indicate otherwise.

**Development Plan Documents:** A term brought in by the Planning and Compulsory Purchase Act 2004. They set out spatial planning policies and proposals for an area. Development Plan Documents are also referred to as Local Plans.

**Development Framework:** Collective term for the Development Plan Documents, the Local Development Scheme, the Statement of Community Involvement, Annual Monitoring Report, and any supplementary planning documents.

**Disposal:** Waste disposal operations include: deposit into or onto land (e.g. landfill), incineration, permanent storage, treatment operations where the final compound or mixture will be disposed of.

**Ecological network:** Areas of semi-natural habitat that are linked by corridors or “stepping stones”, and thus enable wildlife to move through the wider landscape.

**Energy from Waste (EfW):** Utilising the embodied energy of waste materials to generate electricity and heat through direct combustion or indirect combustion of biogas.

**Energy recovery:** The generation of heat and power from the thermal treatment of waste, the production of fuels from other forms of treatment and the combustion of landfill gas and gas from anaerobic digestion to create electricity.

**Examination:** The Local Plan will be subject to an independent examination by an independent planning inspector. The recommendations in the Inspectors report will inform the final adopted version, but are no longer legally-binding.

**Gasification:** A process whereby carbon based wastes are heated in the presence of air or steam to produce fuel-rich gases.

**Geodiversity:** The variety of rocks, minerals, fossils, soils and landforms, together with the natural processes which shape the landscape.

**Geomorphology:** The study of landforms and the formative processes that shape the physical landscape.

**Green Infrastructure:** A network of multi-functional green space, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits for local communities.

**Greenhouse gas:** Gases such as carbon dioxide and methane which, when their atmospheric concentrations exceed certain levels, can contribute to climate changes by forming a barrier in the earth's atmosphere that traps the sun's heat.

**Gross Value Added (GVA):** the value generated by any business or organisation that produces goods or services. The calculation for GVA is: value of goods and services produced, minus the costs of production in terms of raw materials and other direct costs. It does not take into account the effects of taxation or subsidies. This can be measured across a geographical area, industry or sector, and can be used as a measure of productivity and growth.

**Groundwater Source Protection Zones:** The Environment Agency divides groundwater source catchments into four zones. These are based on the number of days taken by any pollutant to flow to the borehole. Source Protection Zone 1 is defined as a zone within which any contamination would reach the borehole within 50 days. This applies to groundwater at and below the water table. This zone also has a minimum 50 metre protection radius around the borehole. These zones are designed to provide control over activities taking place near boreholes which could result in contamination reaching the public water supply.

**Groundwater:** Water within soil, sediments or rocks below the ground surface. Water contained within underground strata is referred to as an aquifer.

**Habitats Regulations Assessment (Appropriate Assessment):** *Directive 92/43/EEC (the Habitats Directive)* on the Conservation of Natural Habitats and of Wild Fauna and Flora requires an Appropriate Assessment to be undertaken to assess the impacts of a land-use plan against the conservation objectives of a European Site and to ascertain whether it would adversely affect the integrity of that site.

**Hazardous waste:** As defined by The List of Wastes Regulations 2005, eg asbestos, acids, oils, petroleum products, paint, mercury, solvents, un-depolluted end-of-life vehicles. It is waste that poses potential threats to public health or the environment (when improperly treated, stored,



transported or disposed). This can be due to the quantity, concentration or characteristics of the waste. This type of waste includes elements of healthcare waste.

**Heritage asset:** Include World Heritage Sites, Scheduled Monuments, Listed Buildings, Protected Wreck Sites, Registered Parks and Gardens, Registered Battlefields or Conservation Areas designated under the relevant legislation. Heritage assets can also be undesignated.

**Historic Environment:** All aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped and planted or managed flora

**Historic Parks and Gardens:** Sites included in the *Register of Parks and Gardens of special historic interest in England*, compiled by Historic England via the Historic Buildings and Ancient Monuments Act 1953. The main purpose of this register is to help ensure that the features and qualities which make the landscapes registered to be of national importance are safeguarded during ongoing management or if any change is being considered which could affect them.

**Hoggin:** An aggregate material consisting of an unprocessed mix of sand, gravel and clay, suitable for general fill purposes.

**Household waste** Household waste includes all mixed waste that is collected from households; all materials taken to local bring banks or collected at the doorstep or kerbside for recycling and composting; all waste (apart from rubble) that is taken to the County Council operated Recycling Centres; litter and street sweepings.

**Household waste recycling centres:** Provided by Waste Disposal Authorities as places where the public can deliver their household waste for recycling or disposal. These sites usually incorporate skips, collection areas for waste refrigeration and metal appliances, and recycling banks. Some sites have containers for materials such as waste batteries, paint, oil and wood. These facilities do not generally accept trade waste.

**Incineration plant:** Any stationary or mobile technical unit and equipment dedicated to the thermal treatment of wastes with or without recovery of the combustion heat generated. This includes the incineration by oxidation of waste as well as other thermal treatment processes such as pyrolysis, gasification or plasma processes in so far as the substances resulting from the treatment are subsequently incinerated.

**Inert waste:** Waste that does not undergo any significant physical, chemical or biological, transformations; does not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm to human health; and, in particular, does not endanger the quality of any surface water or groundwater.

**Inert waste recycling:** Includes the recycling of secondary aggregates at centralised processing facilities or where the material arises. Material is delivered by skip or bulk vehicle for crushing, screening and grading for re-use. Unusable residues may be used in landfill engineering. Hardstanding is required for stockpiles of material, and for locating crushing, screening and grading machinery. Some elements of the operation and storage may be enclosed, but it is mostly undertaken in the open air.

**In-Vessel Composting:** The aerobic decomposition of shredded and mixed organic waste within an enclosed container, where the control systems for material degradation are fully automated. Moisture, temperature and odour can be regulated, and a stable compost can be produced much more quickly than outdoor windrow composting.

**Initial Consultation:** A stage of the Local Plan preparation process where community engagement is sought from individuals and organisations to inform the identification of key issues and the potential options for addressing them.

**Landbank:** A stock of mineral reserves with planning permission for their extraction.

**Landfill:** The term landfill relates to waste disposal mainly below ground level whereas landraise, also generically referred to as landfill, refers to waste disposal mainly above pre-existing ground levels. Modern landfill practice requires a significant degree of engineering in order to contain the waste, control emissions and minimise potential environmental effects. The primary by-products of landfilling, where biodegradable materials are disposed of, are landfill gas and leachate (a liquor resulting from water passing through the waste mass) and much landfill engineering is geared towards dealing with these substances. As such, landfill sites require containment lining systems and abstraction systems for both landfill gas and leachate.

**Landfill gas:** A by-product from the decomposition of biodegradable wastes. The gas is a mixture of up to 65% methane and 35% carbon dioxide plus trace gases and vapours.

**Landscape character:** A distinct and consistent pattern of elements in the landscape that makes one landscape different to another.

**Leachate:** A liquor resulting from water passing through the waste mass and therefore containing contaminants.

**Listed building:** A building or other structure officially designated as being of special architectural, historical or cultural significance using provisions under the Planning (Listed Buildings and Conservation Areas) Act 1990. A listed building may not be demolished, extended or altered without special permission being granted by the Local Planning Authority. The Local Planning Authority must also consider if development nearby could cause adverse impacts to the listed building, and whether mitigation could address these impacts.

**Local Authority Collected Waste (LACW):** Waste collected from households and some business premises by local authorities, including waste from household waste recycling centres, public parks and public bins.

**Local Development Scheme:** Describes the Local Development Documents which the authority intends to prepare and the timetable for their preparation.

**Local Plan:** The plan for the future development of the local area, drawn up by the local planning authority in consultation with the community. In law this is described as the development plan documents adopted under the Planning and Compulsory Purchase Act 2004 (as amended). Current core strategies or other planning policies, which under the regulations would be considered to be development plan documents, form part of the Local Plan. The term includes old policies which have been saved under the 2004 Act.

**Local Planning Authority:** An organisation with statutory planning powers, ie the relevant County, District, Borough or Unitary Council.

**Local Transport Plan:** A document produced by Local Highway Authorities that describes its transport policies and its broad implementation programme.

**Materials Recovery Facility:** A specialised building for separating, processing and storing recyclable materials from waste collected either separately or mixed.

**Mechanical Biological Treatment (MBT):** A form of waste processing facility that combines a sorting facility (the 'mechanical' element) with a form of biological treatment such as composting or anaerobic digestion.

**Methane:** A colourless, odourless, flammable gas, formed during the decomposition of biodegradable waste.

**Mineral Consultation Area:** An area identified in order to ensure consultation between the relevant LPA and the Mineral Planning Authority before certain non-mineral planning applications made within the area are determined.

**Mineral Safeguarding Area:** An area defined by the Mineral Planning Authority to identify a mineral resource which would be subject to safeguarding to prevent unnecessary sterilisation by non-mineral developments; used in conjunction with Mineral Consultation Area.

**Mineral Planning Authority:** An organisation with statutory planning powers relating to minerals development, in most areas the County or Unitary Council.

**Mitigation:** Measures used to reduce, avoid or remedy any adverse impacts caused by development.

**Mixed waste processing:** Operations, primarily of a mechanical and/or biological nature, to process unsorted 'black bag' waste; residual household waste following doorstep separation of recyclables/green waste; or residual waste following centralised separation of recyclables / organics. The nature of mixed waste processing operations is dictated by the needs of downstream waste management practices. For example, in the case of a system which includes thermal treatment, refuse derived fuel (RDF) can be produced from mixed waste. Alternatively organic fractions can be separated for biological treatment. Various physical separation and waste reduction techniques can be used, sometimes in combination. Such processes include: trommel screen (typically a tilted rotating drum used to screen waste according to size and density), shredders, RDF plant and pelletisers; hand picking stations.; biological stabilisation; ball mills; other mechanical reduction techniques (crushing, pulverising etc.) The term 'mechanical biological treatment' (MBT) describes a hybrid process combining mechanical and biological techniques to sort and separate mixed household waste. Mixed waste processing can also be undertaken within an integrated facility which may also include composting and thermal treatment.

**Monitoring Report:** Records progress in implementing the Local Development Scheme and the performance of policies against targets in the Local Plan. Indicates what action an authority needs to take if it is not on track or policies need to be revised/ replaced.

**Municipal Waste:** Waste arising from households as well as other waste (such as commercial and industrial waste) which because of its nature or composition is similar to waste from households.

**National Planning Policy Framework (NPPF):** This document sets out the Government's planning policies for England and was published on 27 March 2012. The NPPF must be taken into account in the preparation of Local and neighbourhood Plans, and is a material consideration in planning decisions. It states that in order to be considered sound a Local Plan should be consistent with national planning policy.

**National Planning Practice Guidance (PPG):** A web-based resource published by the Department for Communities and Local Government (DCLG) on 6 March 2014 and updated as needed. It is available at: <https://www.gov.uk/government/collections/planning-practice-guidance>

**Non-hazardous waste:** All non-hazardous waste as defined by The List of Wastes Regulations 2005. Included are for example municipal (household), commercial and industrial wastes.

**Permitted reserves:** Saleable minerals in the ground with planning permission for extraction. Usually expressed in million tonnes.

**Petroleum Exploration and Development Licence** Issued by Government (Department of Business, Energy and Industrial Strategy), this licence gives the right to search for, and hydrocarbons, but does not give any exemption from other legal/regulatory requirements such as: any need to gain access rights from landowners, health and safety regulations, or planning permission from relevant local authorities.

**Planning Conditions:** Conditions attached to a planning permission for the purpose of regulating and controlling the development.

**Preferred Areas:** If it is not possible to designate Specific Sites, the next way to plan for a steady and adequate supply of minerals is to designate preferred areas, which are areas of known resources where planning permission might reasonably be anticipated. Such areas may also include essential operations associated with mineral extraction.

**Preferred options:** A stage of the Local Plan preparation process where the authority's preferred options for addressing key issues are published for a six week consultation period. This stage was deleted in the revision to PPS12, published in 2008.

**Primary aggregates:** Naturally occurring sand, gravel and crushed rock used for construction purposes.

**Principal Aquifers:** These are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer.

**Processing of Recyclables:** Processing of recyclables will include all those operations that are designed to accept source-separated recycle for processing and bulking-up prior to transport to downstream specialist re-processors. The recycle is likely to originate from kerbside collection of materials that have been separated by individual householders and businesses, and also material from centralised recycling facilities (bottle banks, CA sites etc).

**Pyrolysis:** During pyrolysis organic waste is heated in the absence of air to produce a mixture of gaseous and liquid fuels and a solid inert residue (mainly carbon). Pyrolysis generally requires a consistent waste stream to produce a usable fuel product.

**Radioactive waste:** Radioactive wastes contain radioactive elements. Radioactive waste is categorised into nuclear and non-nuclear wastes. Nuclear wastes are from the nuclear power industry, while 'non-nuclear' wastes are generally from medical facilities and educational establishments. The majority of radioactive waste is 'low level waste' meaning that it has low levels of radioactivity.

**Ramsar Site:** A Site of Special Scientific Interest of international importance as waterfowl habitat designated under the Ramsar International Convention on Wetlands (1971).

**Recovery:** Includes recycling and composting operations as well as anaerobic digestion, thermal treatment operations which produce energy from waste (including fuel, heat and power) and some backfilling operations.

**Recycled aggregates:** Aggregates produced from recycled construction waste such as crushed concrete, planings from road surfacing etc.

**Recycling:** The process by which materials are collected and used as 'raw' materials for new products.

**Refuse Derived Fuel (RDF):** consists of residual waste that complies with the specifications in a written contract between the producer of the RDF and a permitted end-user for the thermal treatment of the waste in an energy from waste facility or a facility undertaking co-incineration such as cement and lime kilns. The written contract must include the end-user's technical specifications relating as a minimum to the calorific value, the moisture content, the form and quantity of the RDF.

**Renewable energy:** Renewable energy is energy derived from resources that are regenerative (e.g. biomass) or for all practical purposes cannot be depleted (e.g. solar or wind power).

**Residual waste:** The elements of the waste streams that remain following recovery, recycling or composting operations.

**Restoration:** Operations designed to return an area to an acceptable environmental state, whether for the resumption of the former land use or for a new use following mineral working or waste disposal. Involves the reinstatement of land by contouring, the spreading of soils or soil making materials etc.

**Route hierarchy:** Norfolk County Council's route hierarchy categorises roads by use, or desired use, influencing signage, improvement programmes, and maintenance priorities. At the top of the hierarchy are the:

- Principal Roads (generally A roads); followed by
- Distributor Roads (generally B roads); followed by
- Local Access
- HGV (heavy goods vehicle) access

- Tourist accesses (generally class C roads)
- Other roads (normally unclassified or C roads)

**Safeguarding:** Protecting existing, permitted and allocated sites that have potential for relevant development (waste and minerals) from other incompatible development.

**Scheduled Monuments:** Nationally important monuments and archaeological areas protected under the Ancient Monuments and Archaeological Areas Act

**Screening:** Screening may take a number of forms, which may include bunds, or planting, or a combination of these and may in some circumstances incorporate a standoff to ensure that the screening is not itself intrusive. Where screening is included in a site allocations policy or map it is 'indicative' and is intended only to illustrate where assessment at this stage has indicated that there may be impacts (for example on amenity or landscape) which, in principle, could require some form of screening to mitigate them. The form of screening which would be appropriate, if required, along with the distances and coverage of any screening would be determined following assessment of the detail of potential impacts, as part of any future planning application

**Secondary aggregates:** aggregates obtained as a by-product of other quarrying and mining operations, or aggregates obtained as a by-product of other industrial processes, such as coal fired power station ash, incinerator ash and spent foundry sand.

**Secondary Aquifers:** These include a wide range of rock layers or drift deposits with an equally wide range of water permeability and storage. Secondary aquifers are subdivided into two types:

**Secondary A** - permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers;

**Secondary B** - predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.

**Secondary Undifferentiated** - has been assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.

**Setting of a heritage asset:** The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral.

**Specific Sites (for mineral extraction):** where viable resources are known to exist, landowners are supportive of minerals development and the proposal is likely to be acceptable in planning terms. Such sites may also include essential operations associated with mineral extraction. This is the preferred way to plan for the steady and adequate supply of minerals as it provides the necessary certainty on when and where development may take place.

**Sites of Special Scientific Interest (SSSIs):** Sites notified and protected under the Wildlife and Countryside Act 1981 on account of their flora, fauna, geological or physiographical features.

**Spatial planning:** Concerned with the physical aspects of places, but not restricted to land use decisions controlled through the planning process. Includes physical aspects about how a place functions and develops.

**Special Area of Conservation:** An SSSI of international importance designated under the EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora.

**Special Protection Area:** An SSSI of international importance designated under the EC Directive on the Conservation of Wild Birds.

**Statement of Community Involvement:** A document that sets out a Local Planning Authority's intended consultation strategy for different elements of the planning process. This is a requirement brought in by the Planning and Compulsory Purchase Act 2004.

**Strategic Environmental Assessment:** A procedure (set out in the Environmental Assessment of Plans and Programmes Regulations 2004) which requires the formal environmental assessment of certain plans and programmes which are likely to have significant effects on the environment.

**Submission:** A stage of the Local Plan preparation process where the document is 'submitted' to the Secretary of State for independent examination by a planning inspector.

**Surface water** All lakes, rivers, streams, springs, ponds, impounding reservoirs, wetlands, marshes, water sources, drainage systems on the Earth's surface.

**Sustainability Appraisal:** An evaluation process for assessing the environmental, social, economic and other sustainability effects of plans and programmes. This is a statutory requirement.

**Sustainable development:** Development which meets the needs of the present without compromising the ability of future generations to meet their own needs.

**Thermal treatment:** Can include incineration, gasification and pyrolysis. Techniques used include various moving grate systems and fluidised bed processes.

**Transfer:** The deposition and separation or bulking up of waste before it is removed for recovery or disposal.

**Transport assessment:** This is a process which considers total travel demand; patterns of public transport in the area; how development impacts upon them; and if required how infrastructure or services could be improved to address the impacts (of a development).

**Transport statement:** Where transport issues are such that a full Transport Assessment is not required, a Transport Statement may be acceptable

**Treatment:** Involves the physical, chemical or biological processing of waste to reduce their volume, for segregation to reduce the harmfulness of the waste.

**Unconventional hydrocarbons** Hydrocarbon extraction covers both conventional and unconventional hydrocarbons. Unconventional hydrocarbons refers to oil and gas which comes from sources such as shale or coal seams which act as the reservoirs. Also see conventional hydrocarbons.

**Waste arisings:** The amount of waste generated in any given locality over a given period of time.

**Waste Collection Authority:** A local authority with a statutory responsibility to provide a waste collection service to each household in its area, and on request, to local businesses; in Norfolk the relevant district, borough or city council is the WCA.

**Waste Disposal Authority:** A local authority that is legally responsible for the safe disposal of municipal waste collected by the WCAs and the provision of Household Waste and Recycling Sites; in Norfolk the County Council is the WDA.

**Waste management:** The means of dealing with waste, including waste disposal, transfer, processing, recovery/recycling operations, incineration and other technologies.

**Waste Planning Authority:** An organisation with statutory planning powers relating to waste management development, in most areas the County or Unitary Council.

**Waste transfer:** Waste transfer is the process by which waste is taken from waste producers for treatment, recycling and/or disposal. Then, to minimise the cost of transport and to reduce environmental impacts, transfer stations are used to sort waste and to transfer it to larger vehicles for onward transport. The waste is usually sorted into wastes that can be recycled (such as metal, wood, soil and rubble) and the remaining waste that will be landfilled.

**Wastewater (sewage):** Comprises liquid and solid waste discharged by domestic residences, commercial properties, industry and agricultural activities, which is then carried to Water Recycling Centre via a network of foul sewers.

**Windrow Composting:** The aerobic decomposition of shredded and mixed organic waste using open linear heaps known as 'windrows', which are approximately three metres high and four to six metres across. The process involves mechanical turning of the waste until the desired temperature and residence times are achieved to enable effective degradation. This results in a bulk-reduced, stabilised residue known as compost. Windrow composting can take place outdoors or within a large building and the process takes around three months.