RWE

Vanguard West, East & Boreas Offshore Wind Farms

Project Archaeology Exhibition
20th & 21st March 2026 | Gressenhall

Information Pack

Vanguard West, East & Boreas Offshore Wind Farms
Project Archaeology

In the Beginning

Headland Archaeology were contracted by RWE to undertake the archaeological surveys and investigations required in advance of the onshore project work required for the Vanguard West, East & Boreas Offshore Wind farms.

In the UK, archaeological work associated with development is secured through the planning and consenting process and agreed with the County Archaeologist and local authorities.

Large-scale developments like the Vanguard West, East & Boreas Offshore Wind farms have the potential to uncover multiple archaeological sites that can enhance our understanding of how people lived and used the land here in the past.

Field Walking
Discovering a Roman Coin

Looking Beneath the Surface

Geophysical surveys are usually undertaken at an early stage of archaeological assessment, to help archaeologists to detect below ground archaeology without digging. One of the most widely used geophysical survey methods is a magnetometer survey – which can detect magnetic signals of buried features. This method is suitable for use over large areas and can identify targets for further intrusive investigation.

Over 750 hectares of geophysical surveys were undertaken within the onshore cable corridor route, identifying industrial, burial and settlement sites, and wide landscapes of agricultural field systems, enclosures and trackways. To test the results of the geophysical surveys, and confirm which areas required further investigations, 555 trial trenches were excavated along the length of the onshore cable route in 2020/21.

Historic building recording and earthwork surveys were also undertaken on WWII airfield hangars and a coastal pillbox, an estate enclosure wall, surviving county & parish boundary banks and ditches, and ancient trackways.

Metal-detecting and fieldwalking surveys were also completed in some areas within the corridor – recovering artefacts such as coins from the Roman to medieval periods, a fragment of a Bronze Age dagger, Saxon dress accessories, lead shot, prehistoric pottery and worked flint.

A Corridor Across the Landscape

The area of archaeological surveys and investigations for the onshore project work encompasses a 60km long cable corridor running from landfall at Happisburgh on the east coast of Norfolk, to the location of the new sub-station at Necton in the west.

This 45-metre-wide route acts like a cross-section of the landscape, revealing archaeological sites stretching back thousands of years and adding significantly to what we know about life in the past in Norfolk.

Amazing Archaeology

In total, 46 open-area excavations were undertaken along the route, between 2021 and 2024. These revealed some incredible archaeological sites including Bronze Age burial monuments, a Roman temple, multiple medieval settlements and two post-medieval roof tile kilns.

Early prehistoric activity was discovered at Arch Ex 32 in the form of a Neolithic pit – containing pottery and stone tools which give us a glimpse of the earliest human activity identified on the onshore project area. Later prehistoric activity was in the form of two burial monuments (at Arch Ex 20 and 29) of Bronze Age date.

The Roman period was represented by the discovery of a previously unknown Roman Villa Estate at Arch Ex 28, near Necton. This spectacular site included a winged villa building, ancillary buildings, a bathhouse and part of a Roman road. Occupation of the estate dating to between the first and fourth centuries AD.

Medieval activity was identified on thirty of the open-area excavation sites. This included industrial activities such as charcoal burning, tawing and lime production, agricultural activities such as field enclosures, corn-driers and trackways, and settlements. The deserted medieval village of Whimpwell was explored at Happisburgh, and the remains of ten medieval structures, including two cruck farmed barns, were investigated across the onshore project area.

What's Happening Now?

Headland Archaeology are currently working on the post-excavation programme for the project. Archaeologists and specialists are analysing artefacts and environmental samples, undertaking radiocarbon dating and writing up the fieldwork evidence to produce a series of publications.

This post-excavation programme will undertake a combined analytical approach with another large archaeological project recently undertaken in Norfolk – the Hornsea Project 3. This combination approach will allow for a wider perspective and broader understanding of the landscape across the county from two recent large-scale archaeological projects.

Magnotometer
Geophysics Survey

Villa Site
Team in full dig

Early Prehistoric Discoveries

Sense of scale
Archaeological team in the barrow ditch

Norfolk's missing Neolithic?

One of the earliest traces of human activity found on Vanguard West, East & Boreas archaeological project is from an Early Neolithic pit. 'Neolithic' refers to the period around 4000-2500 BC and generally signifies a point in human history where we slowly transition from nomadic hunting and gathering to settlement and farming.

Pits like this make up most of the evidence we have for Neolithic activity in Norfolk. It may have been dug as a place for storage or used for waste disposal and, given the nature of the objects found, it would be fair to assume it was to discard rubbish. The finds included over 1.2kg of broken Early Neolithic pottery, including rims from 7 different pots, the style of which is quite rare in this part of Norfolk. This pit also produced some interesting flint objects, known as 'lithics'.

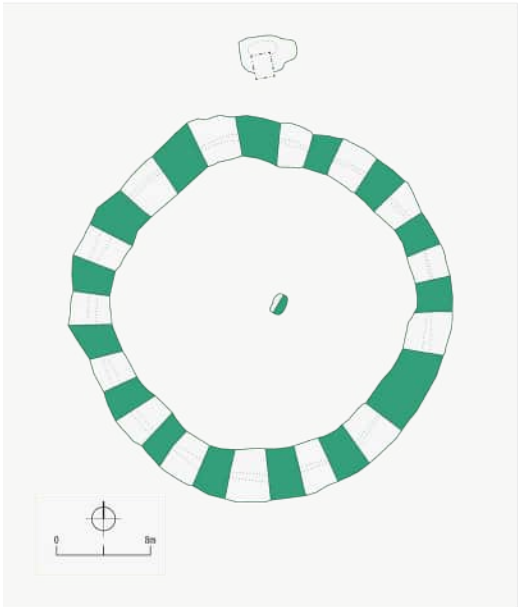
These included blade-like flakes, blades, a core and even some flint tools that appeared to be much older than the pit itself, suggesting they had been re-used over a long period of time. Large-scale developments like the Vanguard West, East & Boreas Offshore Wind farms have the potential to uncover multiple archaeological sites that can enhance our understanding of how people lived and used the land here in the past.

Pit Section

Brilliant Barrows

Further traces of prehistoric lives came from the Late Neolithic to Early Bronze Age period, around 2500-1600BC. We know this because of the evidence visible in the ground. At site Arch Ex20, archaeologists encountered a large ring-shaped ditch, 32m in diameter, which would have originally had a large central earthen mound rising above the landscape, created from the soil dug out of the surrounding ditch - a feature called a round barrow. Due to ploughing and general use of the land over time, the earthen mound no longer exists, but the remains of the cut-out ditch are still visible.

Cremated burials within pots would have been placed into or beneath the earthen mound, acting as a visual reminder in the landscape of the dead. Although numerous broken Bronze Age funerary urns were recovered during the dig, and a pit found at the centre of the barrow containing two amber beads, there was no evidence for human remains. Perhaps these beads are all that remains of grave goods (objects of significance placed into the grave alongside the deceased) with the burial lost to ploughing over time, what do you think?



Plan of Barrow Ditch
Unexcavated Excatvated

What People Left Behind

With no other method of disposal, broken pots and tools would have gone into a hole in the ground. While it may seem an odd solution to us, this is great news for archaeologists, as the rubbish left behind is often all the evidence we have to learn about the lives of people in the past. It is likely the tools and pottery found in this pit had reached the end of their useful life and so were disposed of, hence why all the pot was broken and the lithics had various levels of wear and burning. What do you think your rubbish bins would say about your daily life?

Fascinating Finds

We know how old this round barrow is largely because of the artefacts that were recovered during the excavation. These included some interesting lithics, such as a leaf-shaped arrowhead once used for hunting, scrapers used for food processing and even a re-worked polished axe head, all useful stone tools in the Late Neolithic to Early Bronze Age periods when metal was rare. Quantities of Beaker pottery, which predated the round barrow, were recovered suggesting that the site was occupied or visited prior to the barrow's construction.

There was also evidence that the barrow was visited in the Iron Age, hundreds of years after it was originally dug. This could indicate that this continued to be a special location, perhaps a place of remembrance, for the people that used to inhabit this landscape.

Prehistory Finds
Bronze age pottery

The Roman Villa Estate
Discovery

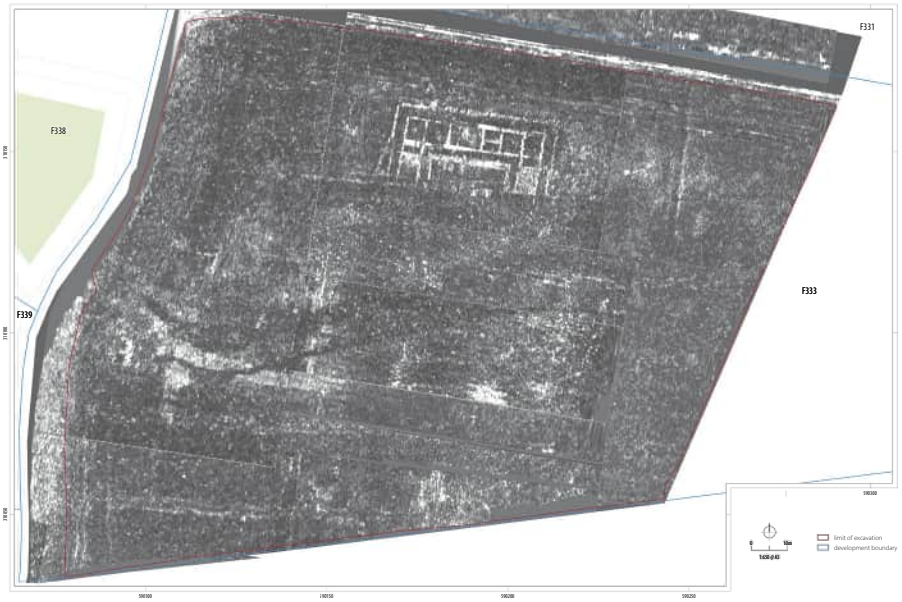
Hidden Beneath the Field

Before undertaking any kind of intrusive excavation, research is done to find out whether there is likely to be any archaeology that may be affected by the development.

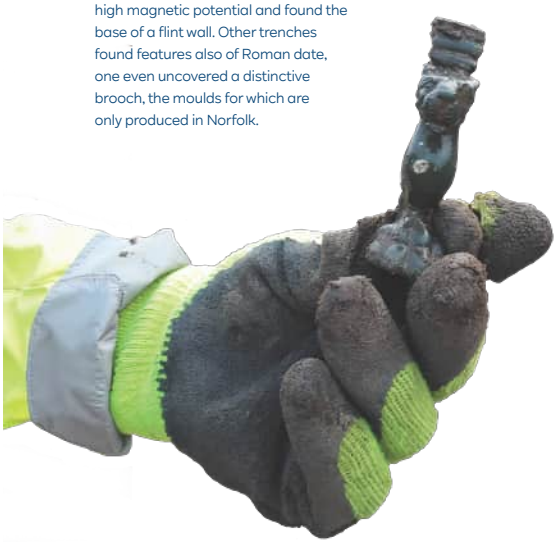
This is called a Desk Based Assessment (DBA), where historic maps, previous archaeological records, aerial photographs and research are reviewed for clues about what might still be hiding in the landscape. The DBA for this field did not reveal any previously recorded archaeology, so what followed was a complete surprise.

During the early stages of the Vanguard West, East & Boreas archaeological surveys and investigations a geophysical magnetometry survey was carried out to see if this would give any more insight into any potential archaeology present in the field. Magnetometry works by detecting the magnetic susceptibility of the ground and what lies beneath it. This allows us to see a map of the archaeology, as the archaeological features have disturbed the ground more recently than the undisturbed soil, so their magnetic properties are higher.

The survey was blank except in one area where a higher magnetic disturbance was seen, assumed to be the demolition rubble of buildings from a nearby farmhouse. It was only after trial trenching started in 2021 that it became obvious this was not old rubble – it was Roman roof tiles. Trial trenching is where small areas are dug to assess what archaeology lies beneath the ground in specific places. Trench 183 ran through the centre of the area with high magnetic potential and found the base of a flint wall. Other trenches found features also of Roman date, one even uncovered a distinctive brooch, the moulds for which are only produced in Norfolk.



GPR Map
Ground Penetrating Radar



Lion Vessel Foot

Detecting the Romans

A metal detecting and fieldwalking survey followed these discoveries in 2021, which confirmed this was a high-status Roman site. Fieldwalking is a systematic walk-over of site, collecting artefacts and noting their location, while metal detecting can find metal objects lying just beneath the ground.

The trial trenching showed that the archaeology was not that far underground, and since this field had been heavily ploughed it was determined that fieldwalking and metal detecting was a crucial step in understanding this site, as most of the artefacts would have been churned up through the farming activity and lie close to, if not on, the surface. These surveys identified 233 finds, including a bronze dagger, Roman coins, brooches and pottery.

The star find was this lead bronze object in the shape of a lion's paw and head – it could have been one of three feet supporting a larger object, perhaps a fixture from a couch or even a household shrine, what do you think it was used for?

Norfolk Brooch

Eureka, we found it!

These discoveries led to a Ground Penetrating Radar (GPR) survey in 2022. Ground Penetrating Radar surveys work by emitting electromagnetic pulses into the ground which then reflect off buried features and are detected by a receiver, this creates a map of what lies beneath.

The result of the GPR survey was astonishing. A full, multi-phase Villa Estate came to life in black and white. Here, in the plan of the GPR results you can see an outline of the villa itself at the north of the field in white, and in the southwest a possible track and further stone building also visible in white.

The Roman Villa Estate
Excavation

Changing Through Time

The site was stripped of topsoil and subsoil and hand excavation revealed multiple phases of Roman occupation on the site.

The initial Roman phase (Phase 1) showed a large rectangular enclosure containing three buildings: a large 'aisled' building with wooden posts and flint walls, potentially the principle building prior to construction of the villa, and two 'beam slot' buildings either side of the enclosure entrance. An aisled building is a common type of Roman house; a large rectangular structure with wooden posts supporting the roof, and a surrounding exterior wall, creating a main central space with 'aisle' spaces outside of the posts. A beam-slot building would have had pieces of timber placed into holes in the ground that would have supported a larger structure above. No wood has survived of this structure, so only the characteristic holes remain.

The second Roman phase (Phase 2) of occupation is where most of the Roman activity took place. The Phase 1 enclosure was enlarged, adding the villa building, a bathhouse and a road. Additionally, two more aisled buildings were constructed. A second enclosed area was also detected to the south of the main enclosure, but this excavation only caught the very edge of it. This southern enclosure had further aisled buildings and is thought to be the working area for the estate.

While spectacular, the main villa building is not the only structure of note – the bathhouse is also unusual. It was a rectangular 'Caldarium' or hot room, with a single heated room almost like a dry sauna, shown in the photo with its distinctive herringbone-style stone walls. Evidence shows the bathhouse was deliberately demolished in one go, suggesting it may have been a short-term luxury for the villa occupants, perhaps to impress an important visitor to the farm, or maybe it was just too expensive to maintain long-term.

Expanding the Villa

The villa itself only survives in the form of shallow stone walls, all heavily disturbed by ploughing. These stone walls would have been foundations for the timber framed villa building. Excavation revealed three main phases of construction, each one more hastily done than the last.

The initial phase (A) was a small villa, called a 'cottage type', atop a platform of earth made to elevate it and containing 3 main rooms. This building was enlarged into a 'winged corridor' type villa (B) which as the name suggests, added corridors on either side and onto the front, extending the length by 3m in either direction, with the front corridor likely to be an open veranda.

The final phase (C), involved the construction of a rear corridor, wrapping around three sides of the building, a 'developed winged corridor' which added a further 3m of length, bringing the final villa building length to around 36 metres.

Bath House
1. At the start
2. Midway
3. What we found

Preserving the Past

As can be seen in the drone shot, test pits were placed throughout the villa building to establish the depths of walls and relationships between them. Test pits are a kind of sample excavation. Sample excavation works by only digging in selected, systematic places to characterise the site and determine the level of preservation. By not fully excavating the feature, it may be preserved as much as possible. Archaeology is, after all, a destructive process - once something has been dug, it is gone forever.

As part of this preservation, scale drawings, photography and photogrammetry were carried out. Photogrammetry involves taking hundreds of photos very close together from many different angles, then blending them together to create a 3D model of the feature, which can be seen here in the model of the bathhouse. Digital survey with a GPS was also undertaken, meaning a detailed map and exact co-ordinates of every aspect of the villa was recorded, helping to preserve the feature and provide a starting point for future research.

Due to the existing level of preservation of this site, it was decided that the villa building and the bathhouse were to be preserved in-situ (in their original position). This means a backfilling preservation strategy had to take place – involving multiple layers of special textiles, sand and sandbags covering the structural remains, then ultimately covering it all back up with soil and fencing them off.

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The Roman Villa Estate
Environmental Evidence and Artefacts

Villa Wall Plaster

Oysters and Barley and Sheep, Oh My!

While there is still a lot of work to do on the environmental assemblages retrieved, initial analysis suggests that this was not just the site of an important house; this was a working farm with livestock and crops. We know this because of information from the hundreds of environmental samples taken.

These samples are buckets of soil removed from different places on site and processed to uncover burnt remains of seeds, grains, fragments of bone, shells and animal teeth. This information helps to illustrate the lifestyle and diet of the occupants of the Villa Estate.

Environmental evidence shows that oak was used both as fuel and a building material, while the samples taken from the corn drying kiln suggests they were processing cereal grains such as wheat, oats and barley. Some cereal crops were arriving at this part of the Villa Estate partially processed, giving insights into how different areas of the estate may have been used for certain tasks.

Animal bone recovered suggests cattle, sheep/goats and horses may have been part of the working farm, and that the diet of the occupants likely included cattle, pigs, sheep/goats and deer. Interestingly, there is also evidence for consumption of seafood such as oysters, mussels and cockles, which may have been bought at a local market importing goods from the coast. Bones belonging to dogs and cats suggest that guard dogs and mousers were part of the estate management.

Brooch

Handle

Samian Pottery

Iron Age Pot

Norfolk Nessie, Captivating Coinage and Pleasing Pottery

The finds from the Villa Estate tell an interesting story. Both the pottery and coinage recovered show that the site may have been occupied from the Iron Age (500BC-43AD), right through to the middle of the Romano-British period around AD250.

The presence of both Iron Age and Roman coinage as well as pottery helps us to understand this site may have been one of continual occupation, not just a Roman settlement. Do you think the Romans took over an existing settlement? Or did they just think this field looked like a good place to settle?

Pottery found here suggests the villa was most active during the early-mid Romano-British period (AD43-200), with a gradual decline in activity after that. Both locally made pots and more ornate imported tableware was found, including the distinctively red Samian ware from Western Europe. This, along with some intricate metal artefacts, painted plasterwork, glassware and window glass, indicate that the Villa was likely a place of some wealth and status. Personal jewellery items such as brooches, hair pins and an engraved ring were found which gives us an idea how people would have dressed. One stand out object is an ornate Bronze vessel handle nicknamed 'Norfolk Nessie', unique to this site.

Iceni Coin

Ring

Roman Coin

Brooch

What's next?

Many wonderful discoveries about the Necton Villa Estate have been made already, but still so many questions remain. These include:

- What was the pre-Roman phase of activity like? Were Iron Age people living or working here before the Romans settled?
- When was each element of the Villa Estate in use? Why was the bathhouse seemingly deliberately demolished? Was the road part of a network of Roman roads in West Norfolk?
- Hopefully with further analysis of the excavation findings, a fuller picture of the construction of the Villa Estate, its occupation and decline may be better understood.
- There have not been many modern excavations of Roman villas in this region, so the Villa Estate at Necton allows us an exciting glimpse into Roman Norfolk using modern archaeological techniques. The careful analysis of the findings from the site will allow further insight into life in Roman Norfolk.

Medieval

Living in medieval Norfolk

The medieval activity identified on the Vanguard West, East & Boreas archaeological project spans from the late-Saxon period (from around AD850), through the Norman conquest in AD1066 and right up to the late medieval period in the 15th century.

The late Saxon activity was fairly sparse, with only a few fragments of pottery suggesting the early origins of some of the medieval settlements excavated, with 13th to 15th century activity most prominent. Many of the identified medieval settlement sites would have been located along routeways, with the houses fronting the road and their backyards located behind.

Thorough analysis of artefacts such as coins, pottery, iron and copper alloy objects suggests occupation varied throughout the period, but there was a peak of activity between the 12th and 14th centuries, potentially indicative of population growth across Norfolk at this time.

By the late 14th century there was a clear decline in population across Norfolk, probably due to several factors. The Black Death was at its peak in 1349 in the county, settlement and agricultural land were lost to erosion along the coastline and, perhaps most significant of all, substantial changes to farming and agriculture were underway. Landlords became more interested in profitable pursuits like sheep, so evicted those who previously farmed their land for much less profit. Enclosure also led to the decline of smaller farming settlements – as common land was stripped away and rents became higher, forcing people out of their villages and into larger settlements.

Deserted Medieval Villages

Where we once would have found small hamlets spread across the countryside, many of these become unsustainable with fewer people, and those left behind moved into larger settlements. This leaves what archaeologists term 'deserted medieval villages' of which often little trace survives today. Two of the medieval settlements found on the Vanguard West, East & Boreas archaeological project – Whimpwell and Stinton - appear to be the remains of deserted medieval villages.

The settlement at Whimpwell is recorded in the Domesday Book of 1086 as a relatively small settlement comprising 9 households, suggesting it was new at the time of the survey. Settlement here peaked in the 15th century when the hamlet likely merged with the larger adjacent village of Happisburgh, perhaps to ensure the population had adequate access to churches. Stinton (now Salle Parish) was also recorded in the Domesday Book, a larger and well-established settlement of 63 households at the time of the survey. Not assimilated into a larger settlement like Whimpwell, it seems Stinton may have ceased to exist prior to the building of a manor house and grounds in the mid-18th century. The Domesday Book was a tax survey done in 1086 ordered by William the Conqueror.

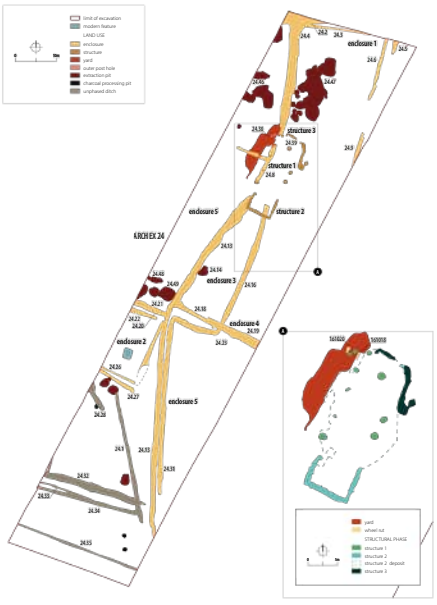
Spotlight on Site 24

A site with exceptional evidence for medieval occupation was ArchEx24. Prior to excavation, a geophysical survey had identified areas with high potential for archaeology. Trial trenching was subsequently undertaken to characterise these areas, which confirmed the presence of field systems and enclosures. Excavation followed, which found domestic and agricultural activity throughout the early to later Medieval period, consisting of multiple phases of field boundaries, as well as pits for the extraction of natural clay. Waste pits for the disposal of rubbish were also found across the site, with one such pit containing very distinctive broken fragments of pottery - take a look at this Grimston Ware face pot!

Two pits identified were used for charcoal processing. The soil surrounding them was red, as if burnt by the heat within the pit, and the environmental evidence suggests the charcoal was produced from local oak as well as other trees. The charcoal found in this pit was perfectly preserved, meaning it never got removed from the pit for use. Perhaps it had to be abandoned, or maybe just forgotten about!

The land changed use in the later medieval period when a domestic house was built. Medieval buildings encompassed a range of functions throughout their lifetimes, and the three distinct structures built over time at the same location at Arch Ex 24 showcase the progression of building methods over time. The first building constructed was Structure 1. Much of the structure had been removed by the later buildings but the surviving evidence on the ground showed it would have been a post-built rectangular building with a hearth in the centre.

Structure 2 was constructed at the same location once Structure 1 had been demolished. It survived as a foundation wall called a 'sill wall' made of chalk and clay. This wall would have supported the timber cruck framed building above. The building was 21m long and 7m wide. A cobbled yard, still showing the ruts made by wheeled carts, survived to the side of the building. The final phase, Structure 3, was a roughly built U-shaped wall likely made with salvaged material from Structure 2. It may have functioned as an animal pen.



What's next?

The post-excavation analysis of the vast quantities of artefacts and environmental evidence recovered from the medieval sites identified on the Vanguard West, East & Boreas archaeological project is ongoing. This analysis aims to contribute to our understanding of the medieval period in Norfolk by further understanding the different types of settlements, industries, agricultural methods and routeways identified during the project.

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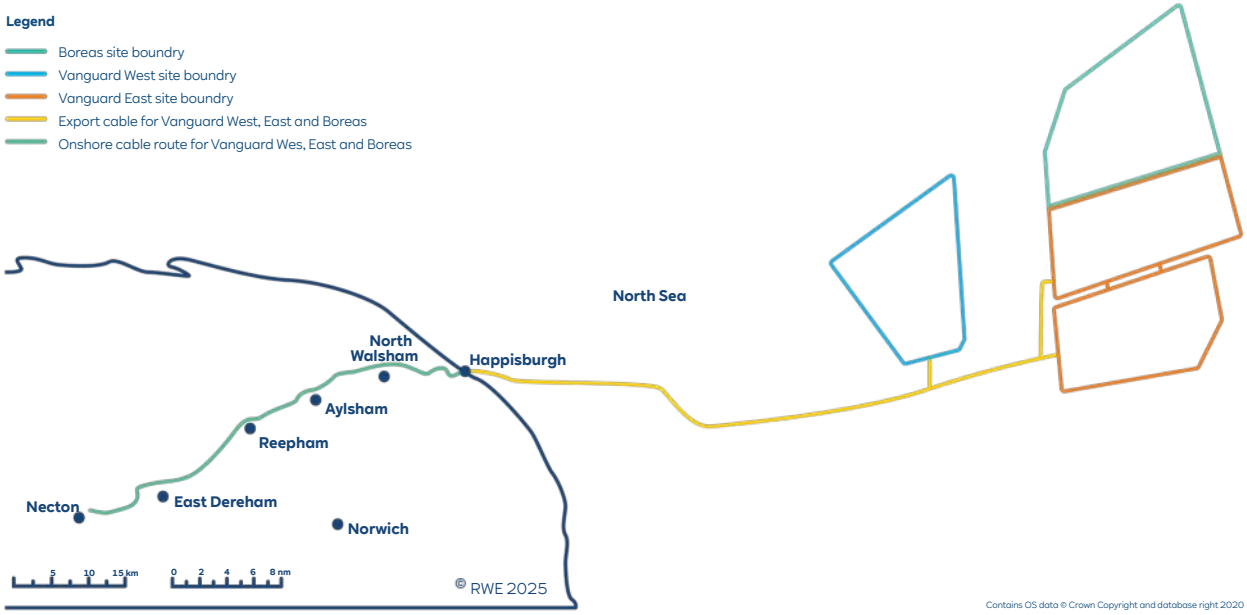
Vanguard West, East & Boreas Offshore Wind Farms
Project Map



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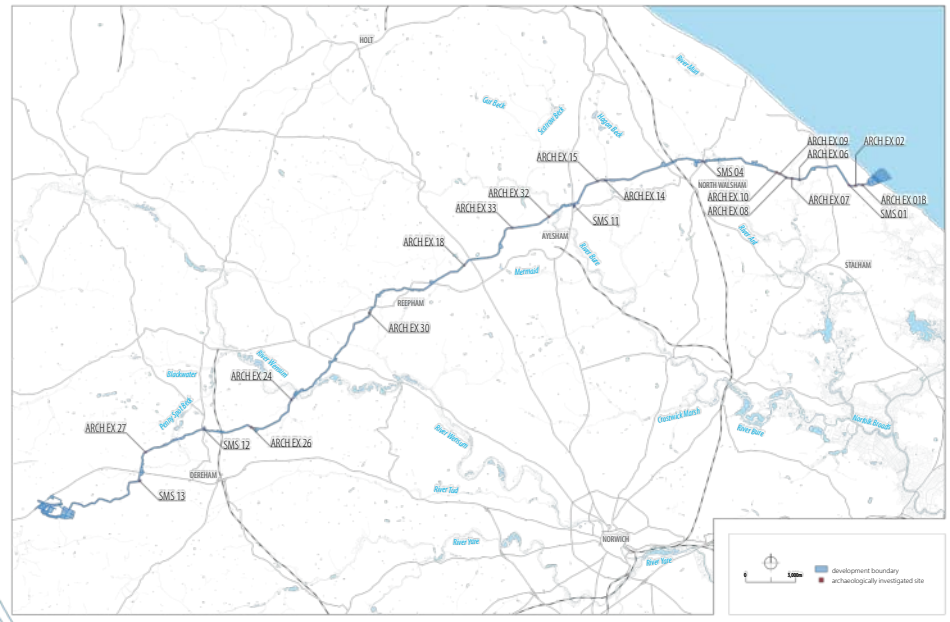
Vanguard West, East & Boreas Offshore Wind Farms
Project Archaeology Map

Archaeological investigations took place at many locations along the onshore cable corridor. Selected sites are shown here to illustrate the scale and distribution of the work.



Vanguard West, East & Boreas
Offshore Wind Farms

Vanguard West, East & Boreas are three consented offshore wind farms being developed off the coast of Norfolk with a combined capacity of 4.2GW. Once operational, these projects are expected to produce enough renewable electricity to power the equivalent of more than 4 million UK households.

About Our Projects

Development Consent Orders (DCO) for the projects were awarded by the UK Government in December 2021 (Boreas) and February 2022 (Vanguard West and East) following detailed environmental assessment and consultation.

With a combined total of 276 wind turbines across Vanguard West, East & Boreas, these projects will deliver electricity via cables which come ashore at Happisburgh and connect to the National Grid at Necton.

The nearest turbine is expected to be sited around 47km from the coastline.

Construction of the onshore underground cable route began in 2023 and has progressed well, with works now approaching completion. Landfall works and offshore pre-construction activities are expected to begin in 2026.

Careers & Apprenticeships

RWE offers a wide range of careers helping to deliver the energy transition, with opportunities for apprentices, graduates and experienced professionals across engineering, environmental, technical and business roles.

Find out more on the RWE website.

Community Fund

The Norfolk Offshore Wind Farms Community Fund has been established to support communities across the region.

Delivered in partnership with Norfolk Community Foundation, the fund provides grants to local groups and organisations for projects that help communities thrive and grow sustainably. Funding priorities include themes such as nature and green spaces, transport and community wellbeing, and decisions on grants are guided by local people to ensure the fund reflects the needs and priorities of the communities closest to the projects.

To find out more, visit the Community Fund pages on the Norfolk Community Foundation website.

Stay Connected

Stay connected with the project team, find out more about the projects or our programme of events and register for regular e-news updates.

Visit the Vanguard West, East & Boreas website for information about the projects, an interactive map and a full list of events. **www.nowzone.co.uk**

Get project updates straight into your mailbox by signing up for our e-newsletters.

Are you a potential supplier? Find out more about our Supplier Transparency Engagement Programme (STEP):

Do you need to report something to us urgently? Use our freephone telephone number: **0800 019 3517**

Send an email to our project team and we'll reply as quickly as we can. **norfolk@rwe.com**

Powering the future,
exploring the past

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THE ROMAN VILLA

Step back in time and discover life in Roman Norfolk

Discover the Aurelii family and visit their home in Roman Villa: A Day in the Life, a new interactive app that brings real archaeology to life through stories, artefacts and augmented reality.

Meet the people, learn about their lives, uncover their treasures and experience history in a whole new way.

Ask our team for more info
norfolk@rwe.com

Download your own Roman Villa:
A Day in the Life app for mobile devices from the appropriate store: