

# Humber Carbon Capture Pipeline

## Preliminary Environmental Information Report – Volume 4 – Appendices (Part 3)

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# Appendix 12.1 – Landscape Character Assessment

Table 12-1-1 – Summary of National Character Areas (NCAs).

NCA (and their extents)	Relevant Project Section	Key Characteristics
NCA 39 Humberhead Levels	Section 1 – Drax area to the River Trent	<p>Open, large-scale low-lying farmed landscape, with an extensive network of ditches and dykes.</p> <p>There are several navigable waterways crossing the area, including the Selby, Calder navigation and Stainforth / Keadby Canals.</p> <p>Views to distant horizons are often long and unbroken, with big expansive skies, and vertical elements like water towers, power stations and wind turbines are very prominent.</p>
NCA 40 Holderness	Section 3- the East Riding of Yorkshire	<p>A broad gently undulating plain centred on the valley of the River Hull and drained by network of canals, ditches and canalised tributaries.</p> <p>Long views with arable farmland sloping upwards bounded by the dip slope of the Yorkshire Wolds to the north and west.</p> <p>Low rapidly eroding coastline of soft clay cliffs.</p> <p>Sparse tree and woodland cover leading to a generally open landscape with long views, enclosed by the Wolds to the north and west.</p> <p>High-quality agricultural land used predominantly for large-scale arable cultivation and some livestock farming.</p> <p>Large field patterns bounded by drainage ditches on the River Hull flood plain, and hedgerows on higher ground.</p> <p>Highly fragmented remnants of semi-natural vegetation.</p> <p>Gently undulating land towards the coastal strip, characterised by arable farmland, wind-pruned trees, holiday homes, caravan parks and some historical sites.</p> <p>Network of minor winding roads and lanes, linking dispersed villages. Village churches provide prominent landmarks.</p> <p>Traditional farmsteads, houses and other buildings characterised by red brick and pantiles. Occasional buildings on coast constructed of Holderness cobbles. Churches and other buildings often built using limestone.</p>
NCA 41 Humber Estuary	<p>Section 1 – Drax area to the River Trent</p> <p>Section 2 – North Lincolnshire</p> <p>Section 3 – the East Riding of Yorkshire</p>	<p>Expansive, flat, low-lying estuarine landscape dominated by the open water of the Humber, with an ever-changing character due to the weather and tides.</p> <p>Underlying bedrock of Cretaceous Chalk exposed cliffs where the estuary cuts through the Yorkshire and Lincolnshire Wolds.</p> <p>Predominantly reclaimed, formerly inter-tidal landscape with high-quality soils giving rise to productive arable farming, within large rectilinear fields with boundaries formed by dykes, drains and embankments, and with very little tree cover.</p> <p>Large, dispersed farmsteads and small villages on higher land are set within quiet rural landscapes.</p> <p>Internationally important estuarine, intertidal and coastal habitats.</p> <p>Unique peninsula of Spurn Point, with its mudflats and sand dunes constantly responding to dynamic coastal processes, provides birdwatching within wild and remote landscape.</p> <p>Big skies and open views.</p> <p>Quiet rural areas and estuary contrasts distinctly with urban and industrial influences around Hull and major ports.</p>

NCA (and their extents)	Relevant Project Section	Key Characteristics
<p>NCA 42 Lincolnshire Coast and Marshes</p>	<p>Section 2 – North Lincolnshire</p>	<p>Flat coastal plain to east, with dramatic skylines across great distances, rising gradually in the west to more undulating land at foot of adjacent Lincolnshire Wolds.</p> <p>Slowly permeable, seasonally waterlogged fine and fertile loamy soils.</p> <p>Important coastal habitats managed for nature conservation.</p> <p>Clear distinction between higher ground of Middle Marsh where settlement is nucleated, and dispersed settlement relating to drainage in the Outmarsh.</p> <p>Inland predominantly open, medium-scale agricultural landscape with mixed arable farmland in Middle Marsh to west. The Outmarsh and smaller farm units with traditional pastures and occasional vegetable crops.</p> <p>Traditional grazing marshes are a nationally threatened habitat with distinctive landscape and cultural history.</p> <p>Woodland and hedge cover is sparse but increases westward. Significant ancient woodland on the Middle Marsh.</p> <p>Complex series of rivers and small streams drain eastwards towards sea. Some natural watercourses and manmade drainage ditches.</p> <p>Many deserted medieval villages surviving under grass. Reclaimed marshland and salt marshes contain traces of ridge and furrow.</p> <p>Dispersed settlement pattern.</p> <p>Rural areas have mix of dispersed and nucleated settlement. Strongly characterised by use of brick and pantile. Stone used for churches and high status buildings.</p> <p>Industrial areas located in parts of coastal strip.</p> <p>Some discordant development in certain areas such as holiday bungalows and caravan parks. Wind turbines present and distinctive on skyline.</p> <p>Developed seaside resorts attract tourists to coast. The undeveloped wild coast with inspiring long views, high levels of tranquillity and nature reserves means this area important for access and green tourism.</p>
<p>NCA 43 Lincolnshire Wolds</p>	<p>Section 02-Northern Lincolnshire</p>	<p>Rolling chalk hills and predominantly agricultural landscape, with pronounced scarp edge to north and west affording panoramic views across surrounding land.</p> <p>Diverse geology of chalk, sandy limestone, ironstone and clay give rise to combination of elevated plateau and deep sided dales.</p> <p>Predominantly arable with some pasture fields with rectilinear forms and clipped hedgerows.</p> <p>Woodland limited in north, but occasional shelterbelts, hedgerow trees and scattered beech clumps.</p> <p>Isolated chalk and neutral grasslands typically on steepest uncultivated slopes.</p> <p>Broad grass verges and Chalk springs.</p> <p>Historically and archaeologically rich landscape of small parklands and modest country houses.</p> <p>Sparse settlement pattern.</p> <p>Wartime airfields.</p>

NCA (and their extents)	Relevant Project Section	Key Characteristics
<p>NCA 44 Central Lincolnshire Vale</p>	<p>Section 2 – North Lincolnshire</p>	<p>Predominantly broad, low-lying, very gently undulating arable vale. Wolds scarp provides often prominent boundary to the east. Seasonally waterlogged loamy clay soils, grading to deeper calcareous loams towards the Wolds and contrasting with deep acidic sandy soils on Fen Edge Gravels and wind-blown Coversands. A landscape crossed by many streams flowing from the Wolds towards heavily modified courses of main rivers: the straight course of the canalised River Ancholme and similarly modified River Witham. Woodland cover is variable. Land use mainly arable farmland with pasture on the heavier clays. Regular pattern of medium to large-sized arable fields with hawthorn-dominant hedgerows and few hedgerow trees. On the Coversands and Fen Edge Gravels field boundary trees are a feature, and on flat land of the Ancholme Valley where rectilinear fields tend to be divided by ditches and dykes. Very limited semi- natural habitats. A landscape rich in medieval sites with remnant ridge and furrow, deserted medieval villages and a cluster of monastic sites. Traditional buildings predominantly brick and pantile. Deeply rural, tranquil landscape with sparsely distributed small, nucleated settlements and isolated farmsteads linked by sparse network of minor roads and tracks A variety of recreational routes.</p>
<p>NCA 45 Northern Lincolnshire Edge with Coversands</p>	<p>Section 2 – North Lincolnshire</p>	<p>Elevated arable landscape with distinct limestone cliff running north-south, the scarp slope provides extensive long views west. Underlying limestone supporting small areas of calcareous grassland. Fen watercourses on the plateau between rivers Trent and Ancholme. Large-scale landscape of arable cultivation, extensive rectilinear fields, few boundaries of clipped hedges or rubble limestone. Semi-natural habitats of acid and calcareous grassland and broadleaved woodland are small and fragmented, often associated with disused quarries. Limited woodland cover, patches of broadleaved and conifers, shelterbelts Vernacular architecture and walling, especially in villages, of local warm-coloured limestone with dark brown pantiles</p>

Table 12-1-2 – Summary of Local Landscape Character Areas (LLCAs), Local Landscape Character Types (LLCTs) and Seascape Character Areas (SCAs)

Regional LLCA / LLCTs (and their extents)	Relevant Project Section	Key Characteristics
<p>Selby Landscape Character Assessment (2019), Selby District Council Regional LCT 23: Levels Farmland LLCA 10: East Selby Farmland</p>	<p>Section 1 – Drax area to the River Trent</p>	<p>Very flat, arable farmland, with a strong presence of tree lines along field boundaries obscuring the skyline. Relatively regular field pattern comprising medium scale fields defined primarily by mature hedgerows with frequent mature hedgerow trees which provide a strong sense of enclosure. Numerous farmsteads and small villages dispersed evenly across the landscape. Strong rural character, with limited built development visible due to intervening vegetation across the landscape.</p>

Regional LLCA / LLCTs (and their extents)	Relevant Project Section	Key Characteristics
<p>Selby Landscape Character Assessment (2019), Selby District Council</p> <p>Regional LCT 23: Levels Farmland</p> <p>LLCA 15: Camblesforth Farmland</p>	<p>Section 1 – Drax area to the River Trent</p> <p>Section 2-North Lincolnshire</p>	<p>Flat arable farmland with a high concentration of small areas of broadleaved woodland and shelterbelts, creating a sense of enclosure.</p> <p>Medium-large scale rectilinear field pattern, frequently lined by hedgerow trees.</p> <p>Sparse settlement with very few isolated properties and farm steads.</p> <p>Strong human influence from the industrial Drax Power Station, highly visible from throughout the landscape.</p>
<p>Selby Landscape Character Assessment (2019), Selby District Council</p> <p>Regional LCT 24: River Floodplain</p> <p>LLCA 5: Ouse Valley</p>	<p>Section 1 – Drax area to the River Trent</p> <p>Section 2-North Lincolnshire</p>	<p>This elongated character area follows the course of the River Ouse, including its floodplains.</p> <p>Very flat, low-lying floodplains of the River Ouse used predominantly as arable farmland.</p> <p>Medium to large scale patchwork of heavily drained fields, commonly defined by ditches or grassed ‘beetle banks.</p> <p>Strong influence of human elements including the prominent Drax Power Station, Rusholme Wind Farm, pylons running through the landscape, and river levees.</p> <p>Distinct lack of woodland and tree cover creates a sense of vast openness.</p>
<p>Selby Landscape Character Assessment (2019), Selby District Council</p> <p>Regional LCT 24: River Floodplain</p> <p>LLCA 6: Derwent Valley</p>	<p>Section 1 – Drax area to the River Trent</p>	<p>Very flat, low-lying western floodplain of the meandering River Derwent.</p> <p>Narrow floodplain with local variations in width, with wetlands and meadows of high nature conservation value.</p> <p>Low grassy flood embankments with areas of traditionally managed meadows for pasture or to produce hay.</p> <p>Limited road access, with main routes crossing the river rather than following it.</p> <p>Rectilinear field patterns, defined by occasional hedgerow trees and the River Derwent.</p> <p>Recreational boating and wildlife watching attract people to this tranquil area.</p>
<p>Selby Landscape Character Assessment (2019), Selby District Council</p> <p>Regional LCT 24: River Floodplain</p> <p>LLCA 7: Aire Valley</p>	<p>Section 1 – Drax area to the River Trent</p> <p>Section 2-North Lincolnshire</p>	<p>Flat, low-lying floodplains to the north and south of the meandering River Aire, which widens further downstream.</p> <p>High riverbanks are frequently densely vegetated with shrubs, natural grassland and occasional trees, partially isolating the river from view.</p> <p>Patchwork of fields use primarily for arable farming, defined commonly by ditches, dikes and hedgerows with occasional hedgerow trees.</p> <p>Areas of wetlands, marshy grasslands and fen are located within the floodplain, which offer high nature conservation value.</p> <p>Power stations and pylons form distinctive human elements visible from within this landscape.</p> <p>Numerous bridges cross the River Aire, including the A1 in the west.</p>
<p>East Riding of Yorkshire Landscape Character Assessment (2018), East Riding Council</p> <p>LCT 4: River Corridors</p>	<p>Section 1 – Drax area to the River Trent</p>	<p>This narrow corridor LLCA, located on the western edge of the East Riding of Yorkshire, is distinctive from the surrounding arable farmland and provides a diverse haven amongst the intensively farmed land through which it flows. The LCA includes grass fields and meadows either side of the River Derwent until it reaches south of Brighton where the corridor narrows as the arable fields extend up to the riverbank in most places.</p>

Regional LLCA / LLCTs (and their extents)	Relevant Project Section	Key Characteristics
LLCA 4A: Derwent Valley, Barmby on the Marsh to Pocklington Canal Reach		
East Riding of Yorkshire Landscape Character Assessment (2018), East Riding Council LCT 4: River Corridors LLCA 4B: River Ouse Corridor, Barmby on the Marsh to M62 Bridge	Section 1 – Drax area to the River Trent	The River Ouse between Barmby on the Marsh and Howdendyke is a broadening river that passes through intensively farmed low lying land, much of which is drained by pumps. Riverbanks are present on both sides of the river. Arable production extends up to these banks. The bank side vegetation is sporadic.
East Riding of Yorkshire Landscape Character Assessment (2018), East Riding Council LCT 4: River Corridors LLCA 4C: River Ouse Corridor, Howdon Dyke to River Trent Reach	Section 1 – Drax area to the River Trent	There are numerous drainage ditches and ponds with several ecological benefits, including the Yorkshire Wildlife Trust Reserve at Saltmarshe Delph. Villages have developed in a linear pattern and are protected from flooding by the river banks.
East Riding of Yorkshire Landscape Character Assessment (2018), East Riding Council  LCT 4: River Corridors  LLCA 4D: River Aire Corridor, Gowdall and Snaith to the Ouse Reach	Section 1 – Drax area to the River Trent Section 2-North Lincolnshire	There are a number of watercourses and waterbodies within this LLCA with ecological benefits. Within the settlement areas there is a strong vernacular of red brick properties. The rivers unify the area and provide variety from the surrounding arable landscape. Strong lines formed by man-made riverbanks defend surrounding farmland from floods.
East Riding of Yorkshire Landscape Character Assessment (2018), East Riding Council  Regional LCT 5: Open Farmland  LLCA 5A: Howden to Bubwith Farmland	Section 1 – Drax area to the River Trent	Semi-structured open farmland north of the River Ouse corridor. Characterised by large scale open fields that are intensively farmed for arable crop production, with occasional examples of equestrian land use. Field boundaries are traditionally hedgerows.
East Riding of Yorkshire Landscape Character Assessment (2018), East Riding Council  Regional LCT 8: M62 Corridor Farmland  LLCA 8C: M62 Corridor Hook to Pollington	Section 1 – Drax area to the River Trent Section 2-North Lincolnshire	This LLCA encompasses the farmland of the M62 corridor as far as the M62 river crossing over the Ouse north of Goole. The LLCA is intensively farmed and lies adjacent to large areas of industrial development on the western edge of Goole in the M62 corridor The Aire and Calder Navigation and Dutch Riverbanks are grazed in contrast to the cereal crops grown in adjacent fields. Farmland comprises large to medium sized irregular shaped fields in the west, becoming rectilinear to the east. There are very few trees and woods in this area with most of the tree cover comprising planting associated with the motorway and its junctions. Turbines, Pylons, cranes and grain silos also contribute to the skyline.

Regional LLCA / LLCTs (and their extents)	Relevant Project Section	Key Characteristics
		The farmland landscape is fragmented by industrial development and large scale transport infrastructure including the A614 and A1041.
<p>East Riding of Yorkshire Landscape Character Assessment (2018), East Riding Council</p> <p>Regional LCT 9: Drained Open Farmland</p> <p>LLCA 9B: Goole Fields</p>	Section 2-North Lincolnshire	<p>The majority of the area is Grade 1 arable farmland.</p> <p>Long linear fields radiate southwards from the rear of villages extending across the flat landscape of Goole Fields.</p> <p>Settlement comprises of isolated farmsteads and residential which are often accessed by long private tracks or roads.</p>
<p>East Riding of Yorkshire Landscape Character Assessment (2018), East Riding Council</p> <p>Regional LCT 9: Drained Open Farmland</p> <p>LLCA 9C: Twin Rivers Farmland</p>	Section 2-North Lincolnshire	This LLCA comprises of agricultural land with arable fields, distinguished from Goole Fields due its differing field pattern. Fields tend to be linear extending south from the rear of villages; however they are wider and more sinuous in shape than those in Goole Fields becoming more irregular further east.
<p>East Riding of Yorkshire Landscape Character Assessment (2018), East Riding Council</p> <p>Regional LCT 17: Farmed Urban Fringe</p> <p>LLCA 17A: Hedon, Preston and Bilton Farmland</p>	Section 03 East Riding of Yorkshire	<p>Relatively low-lying, well-drained landscape consists predominantly of medium to large arable and grassland fields.</p> <p>The area's distinctly sparse woodland cover creates an open landscape offering extensive views - westward to Hull's skyline, landmark churches at Hedon and Preston, and industrial features like cooling towers and wind turbines at Salt End to the south.</p>
<p>East Riding of Yorkshire Landscape Character Assessment (2018), East Riding Council</p> <p>Regional LCT 19: Open Farmland</p> <p>LLCA 19C: Burstwick to Withernsea Farmland.</p>	Section 03 East Riding of Yorkshire	<p>Hedon is the largest settlement within the LLCA.</p> <p>Typical land use consists of open agricultural land, mainly intensively managed arable, with large fields and limited woodland.</p> <p>Settlements are well scattered, numerous and relatively large in size.</p> <p>The field pattern comprises large rectilinear fields bordered by hedgerows and tracks. Medieval field systems of Hedon are important and contrast with the larger field systems to the east.</p> <p>Sparse settlements are concentrated along the river corridor resulting in a simple, remote and large-scale landscape.</p>
<p>East Riding of Yorkshire Landscape Character Assessment (2018), East Riding Council</p> <p>Regional LCT 19: Farmland</p> <p>LCA 19E: Burstwick to Withernsea Farmland</p>	Section 03 East Riding of Yorkshire	<p>Typical of this LCT, the land use consists of open agricultural land, mainly intensively managed arable, with large fields and limited woodland.</p> <p>Settlements are well scattered, numerous and larger in size.</p> <p>Farmsteads are common and field patterns comprise large rectilinear fields bordered by hedgerows and tracks.</p> <p>The dismantled Hull to Withernsea railway line is a linear feature across the area.</p>

Regional LLCA / LLCTs (and their extents)	Relevant Project Section	Key Characteristics
<p>East Riding of Yorkshire Landscape Character Assessment (2018), East Riding Council</p> <p>Regional LCT 20: Coastal Farmland.</p> <p>LLCA 20A: Withernsea to Spurn Coast</p>	<p>Section 03 East Riding of Yorkshire</p>	<p>This LLCA includes the village of Easington and natural gas terminals. The structures associated with the gas terminals are large and impact considerably on the remote character of the coastline. The wind farm at Out Newton north of Easington is also a highly visible development in the coastal landscape from this area.</p> <p>Land use is predominantly arable farmland but includes infrastructure associated with the Natural Gas Terminal north of Easington.</p> <p>Settlements within this small LLCA are limited to isolated farmsteads and the villages of Easington and Holmpton. Easington and Holmpton both have Conservation Areas designated for their architectural and historic character. Field pattern around the two villages is irregular and small scale.</p> <p>Tree cover is also concentrated around the two villages in an area that is largely devoid of trees due to its exposed nature.</p> <p>Beyond the villages fields tend to be large and rectilinear in shape.</p>
<p>East Riding of Yorkshire Landscape Character Assessment (2018), East Riding Council</p> <p>LCT 21: Low Lying Drained Farmland</p> <p>LLCA 21B: Sunk Island</p>	<p>Section 03 East Riding of Yorkshire</p>	<p>Agricultural landscape which consists of large, rectilinear arable fields bordered by tracks and drainage ditches. Ecologically, the area serves as an important habitat for various bird species including pink-footed goose, wigeon, lapwing, and golden plover. The presence of canals, brackish pools, marshes, and damp grassland supports rare plant species. At Welwick, a managed realignment site has transformed former arable farmland into inter-tidal saltmarsh and mudflat.</p>
<p>East Riding of Yorkshire Landscape Character Assessment (2018), East Riding Council</p> <p>Regional LCT 21: Low Lying Drain Farmland.</p> <p>LLCA 21C: South Patrington, Ottringham and Keyingham</p>	<p>Section 03 East Riding of Yorkshire</p>	<p>Slightly elevated open farmland lies north of Sunk Island. The landscape features a complex drainage pattern with smaller, irregularly shaped fields. Several small woodlands and clusters of trees surround the farmsteads and hamlets throughout the area.</p>
<p>East Riding of Yorkshire Landscape Character Assessment (2018), East Riding Council</p> <p>LCT 21: Low Lying Drain Farmland.</p> <p>LLCA 21D: Paull Farmland</p>	<p>Section 02-North Lincolnshire</p> <p>Section 03- East Riding of Yorkshire</p>	<p>The Conservation Area of Paull is the site of a landing that dates back to Viking times. The area is designated a scheduled monument. Paull Holme Tower was a 15th Century manor house located on high ground (14m AOD) approximately 1 mile east of Paull. Paull Church is also an important landmark just east of Paull. Hedon church (in the neighbouring LCT) is also visible from this LCA.</p> <p>Land use is predominantly arable and fields are medium in size, relatively irregular in shape and bound by a combination of ditches and fragmented hedges. Paul is the only settlement with a few scattered farmsteads.</p> <p>The industrial development on the east edge of Hull including Salt End Industry is clearly visible and is a detractor on the edge of this pleasant landscape.</p>

Regional LLCA / LLCTs (and their extents)	Relevant Project Section	Key Characteristics
<p>North Lincolnshire Landscape Character Assessment and Guidelines (1999) (updated in 2021)</p> <p>Regional LCA: Trent Levels</p> <p>LLCT 7: Flat Open Remote Farmland</p>	<p>Section 1 – Drax area to the River Trent</p> <p>Section 2 – North Lincolnshire</p>	<p>An open area of mostly large arable fields, offering expansive views across a low-lying, level landscape with tree and hedge cover almost completely absent over much of the landscape.</p> <p>The landscape has a distinct feeling of remoteness.</p> <p>The landscape has been subject to early and recent enclosure, but has suffered of hedgerow removal, mainly due to the intensification of agricultural practice with the result that fields lack boundary definition.</p> <p>Characteristic well- maintained drainage ditches follow the line of roads and form intricate networks throughout the fields, but do not have a strong visual presence.</p>
<p>North Lincolnshire Landscape Character Assessment and Guidelines (1999) (updated in 2021)</p> <p>Regional LCA: Trent Levels</p> <p>LLCT 5: Flat Drained Farmland</p>	<p>Section 1 – Drax area to the River Trent</p> <p>Section 2 – North Lincolnshire</p>	<p>Expansive, open and level, low-lying farmland. Raised levees flank the River Trent.</p>
<p>North Lincolnshire Landscape Character Assessment and Guidelines (1999) (updated in 2021)</p> <p>LCA: Trent Levels</p> <p>LLCT 6: Flat Drained Treed Farmland</p>	<p>Section 2 – North Lincolnshire</p>	<p>Flat, open farmland shaped by enclosure, with distant views contained by landform and tree cover.</p> <p>Long, straight roads in the south are open, with little roadside vegetation; woodland to the west creates a sense of enclosure.</p> <p>Rising land of the Isle of Axholme gives distant enclosure in the south; the area overlaps with the Isle of Axholme Historic Landscape.</p> <p>Large, regular fields with few hedges but frequent boundary trees, copses, and some early enclosed/turbary land.</p> <p>Small deciduous woodland blocks across the area; Hatfield Moor (outside the boundary) strongly influence views to the west.</p>
<p>North Lincolnshire Landscape Character Assessment and Guidelines (1999) (updated in 2021)</p> <p>LCA: Trent Levels</p> <p>LLCT 10: Open Island Farmland</p>	<p>Section 2 – North Lincolnshire</p>	<p>Gently undulating arable fields with ridges and hillocks form an elevated “island” within the flat landscape.</p> <p>Traces of medieval strip farming remain, though much has been lost to intensification and fencing.</p> <p>Linear strips of planting (deciduous and evergreen, including inappropriate species like Leylandii) mark the railway and field boundaries.</p> <p>Landmark structures such as church towers, windmill towers, and water towers punctuate the skyline.</p> <p>High-voltage pylons and transmission lines cross the southeast, influencing elevated views eastward.</p> <p>Dense PROW network in the larger area; smaller area has few paths, but both are crossed by the Peatlands Way.</p> <p>Expansive views from higher ground over surrounding low-lying land.</p>
<p>North Lincolnshire Landscape Character Assessment and Guidelines (1999) (updated in 2021)</p> <p>LCA: Trent Levels</p> <p>LLCT 9: Industrial Landscape</p>	<p>Section 2 – North Lincolnshire</p>	<p>Riverside industrial areas are visually prominent; residential areas are noticeable only within the LCT.</p> <p>The landscape is hard and enclosed, with varying structure heights and few softening features; views are often confined by buildings and flood embankments.</p> <p>Flood embankments provide views over the river and surrounding landscape, reducing the sense of confinement.</p> <p>Concrete, steel, and wire mesh fencing enhance the industrial feel; planting has had limited success in softening this.</p>

Regional LLCA / LLCTs (and their extents)	Relevant Project Section	Key Characteristics
<p>North Lincolnshire Landscape Character Assessment and Guidelines (1999) (updated in 2021)</p> <p>Regional LCA Lincolnshire Edge</p> <p>LLCT 22: Wooded Scarp Slope:</p>	<p>Section 2 – North Lincolnshire</p>	<p>Sinuuous scarp slope overlain by coversands and designated as an Area of High Landscape Value.</p> <p>West facing slopes are extensively wooded with small areas of arable farmland, pasture, scrub and rough grasses.</p> <p>Complex landscape includes arable farmland, scarp slopes, urbanisation and dereliction in the Scunthorpe area, and the coversands area of heath, blown sand habitats and conifer woods.</p> <p>Farmland characterised by open, rectilinear fields and few boundaries. Where enclosure is still present, a mixture of discontinuous hedgerows, shelter belts and trees.</p>
<p>North Lincolnshire Landscape Character Assessment and Guidelines (1999) (updated in 2021)</p> <p>Regional LCA: Vale of Ancholme</p> <p>LLCT 25: Flat Valley Bottom Farmland</p>	<p>Section 2 – North Lincolnshire</p>	<p>Flat broad valley floor of artificially drained carrs, rising gently to the east.</p> <p>A network of remote, straight minor lanes, the majority running in an east-west direction, emphasise the linear pattern and most are ‘access only’ emphasising the sense of remoteness and isolation in the valley.</p> <p>Woodland cover is limited and mostly in small to medium deciduous blocks as shelterbelts.</p> <p>Some semi-natural vegetation remnant along the canalised River Ancholme and along the roadside as individual mature trees.</p> <p>Large rectilinear fields relate to the pattern of the well- maintained drainage dikes, forming strong linear patterns.</p> <p>These often mark field boundaries and emphasise the uniformity of the landscape.</p>
<p>North Lincolnshire Landscape Character Assessment and Guidelines (1999) (updated in 2021)</p> <p>Regional LCA: Lincolnshire Edge</p> <p>LLCT 14: Elevated Open Farmland</p>	<p>Section 2 – North Lincolnshire</p>	<p>Exposed, open landscape with gently undulating terrain dipping to the east. Extensive views to the east emphasised by open character of farmland.</p> <p>Arable farmland with large scale, open fields.</p> <p>Farmland characterised by open, rectilinear fields and few boundaries. Where enclosure is still present, a mixture of discontinuous hedgerows, shelter belts and trees.</p>
<p>North Lincolnshire Landscape Character Assessment and Guidelines (1999) (updated in 2021)</p> <p>Regional LCA: Lincolnshire Edge</p> <p>LLCT 15: Elevated Wooded Farmland</p>	<p>Section 2 – North Lincolnshire</p>	<p>Rolling upland landscape with large fields, mostly contained by landform, woodland blocks, and hedgerows.</p> <p>Elevated areas provide long-range views over surrounding lowlands.</p> <p>High-grade farmland has caused some hedgerow loss due to larger fields.</p> <p>Settlements are rural with traditional materials—local brick, limestone, pantile and slate roofs.</p> <p>Other man-made influences: high-voltage transmission lines south of Alkborough, and M180 and A18 south of Broughton.</p>
<p>North Lincolnshire Landscape Character Assessment and Guidelines (1999) (updated in 2021)</p> <p>Regional LCA: Lincolnshire Drift</p> <p>LLCT 35: Wooded Farmland</p>	<p>Section 2 – North Lincolnshire</p>	<p>Gently undulating wooded landscape, elevated around Kirmington where abutting the Wolds.</p> <p>Pockets of arable farmland and pasture with sheep grazing.</p> <p>Peaceful, attractive unified setting with internal diversity and localised enclosure. Strong rural character with lakes, ditches and streams and few detracting elements.</p> <p>Landscape is degraded in many places with urban influences, transmission lines and views of industry detracting from the rural scene.</p>
<p>North Lincolnshire Landscape Character Assessment and Guidelines (1999) (updated in 2021)</p> <p>Regional LCA: Lincolnshire Wolds</p>	<p>Section 2 – North Lincolnshire</p>	<p>Elevated, open rolling farmland of high-grade arable land, with gentle dry valleys.</p> <p>Large fields with few boundaries; some defined by clipped hedgerows.</p> <p>Occasional deciduous woodland blocks, but few hedgerow trees.</p> <p>Settlements are mainly isolated farmsteads with tree shelterbelts, many historic and still intact.</p>

Regional LLCA / LLCTs (and their extents)	Relevant Project Section	Key Characteristics
LLCT 30: Open Rolling High Farmland		Modern industrial “shed” developments appear in exposed areas.
North Lincolnshire Landscape Character Assessment and Guidelines (1999) (updated in 2021) Regional LCA: Lincolnshire Drift  LLCT 34: Open Undulating Farmland	Section 2 – North Lincolnshire	Gently undulating terrain dipping towards the Humber. Large, intensive arable fields bounded by robust clipped hawthorn hedges although some degraded and with gaps. Landscape is open and sometimes exposed due to the scarcity of woodland blocks. Trees are commonly grouped with farm buildings or nearby as shelterbelts, or occasionally present in hedgerow. Simple, peaceful landscape is interrupted by pylons that are often a dominant element, transport corridors and industry viewed in the distance.
North Lincolnshire Landscape Character Assessment and Guidelines (1999) (updated in 2021) Regional LCA: Lincolnshire Drift LLCT 33: Flat Open Farmland	Section 2 – North Lincolnshire	Flat, open farmland with few settlements, mainly at Barrow Haven and Goxhill. Traditional farm buildings, often large barns made with modern materials. Low-lying arable fields with few woodland areas. Trees mostly around farms or in hedgerows, sometimes providing visual containment. Landscape shaped by large rectangular fields, straight roads, and defined hedgerows. Hedgerows vary from well-kept to patchy, with ditches marking some boundaries. Public footpaths connect across farmland to the River Humber. Some visual intrusions, including the railway between Goxhill and New Holland.
West Lindsey Landscape Character Assessment (1999), West Lindsey District Council  Regional LLCA D: The Wolds LCA 14: Wolds’ Estates	Section 2 – North Lincolnshire	Arable landscape with a regular pattern of medium sized fields. Extensive belt of mixed deciduous and coniferous woodland gives some sense of enclosure and a backdrop to views. Parkland landscape with distinctive individual mature trees and groups of trees near Brockelsby. Widespread influence of Brocklesby Estate.
West Lindsey Landscape Character Assessment (1999), West Lindsey District Council  Regional LCA C: Lincolnshire Clay Vale LLCA 9: Lincolnshire Clay Vale	Section 2 – North Lincolnshire	Mix of arable and pasture; large scale field pattern with well maintained hedgerow boundaries and very few hedgerow trees. Land becomes flatter to the north, with open dykes and ditches draining into the River Ancholme. Remnants of carr vegetation towards the north. Straight roads with characteristics near right-angled corners Dispersed, sparse settlements including small villages and individual farms Long views towards the Wolds scarp to the east and occasional long views to Lincoln Cathedral.
Humber Waters Seascape Character Area (Seascape Character Area Assessment,	Section 2 – North Lincolnshire Section 03- East Riding of Yorkshire	The second largest coastal plain estuary in the UK bounded by intertidal mud and sand flats and saltmarsh. Waters host UK's largest port complex and waters are heavily trafficked with up to 40,000 ship movements per year. Views are significantly animated by shipping traffic.

Regional LLCA / LLCTs (and their extents)	Relevant Project Section	Key Characteristics
Marine Management Organisation, July 2012 and Seascape Characterisation around the English Coast, Natural England October 2012)		<p>Extensive and complex mix of industrial, commercial, agricultural, residential and tourism estuary land uses which dominate views.</p> <p>Renowned for transportation and fishing heritage.</p> <p>Spanned inland by the Humber Bridge, the fifth largest single-span suspension bridge in the world.</p>

## Appendix 12.2 – Viewpoint Photographs

RVP 01(Drax 03): Trans Pennine Trail / PRow (35.35/6/1)



Trans Pennine Trail /  
PRow (35.35/6/1)

Drax Power Station

Indicative AGI location

River Ouse

RVP 02 (Rawcliffe Bridge 01): Moor Road



Indicative AGI location



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RVP 03 (Rawcliffe Bridge 02): Moor Road / Hinchcliffe Farms



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Latitude & Longitude: 53°39'57.65", 0°55'46.76"  
 Direction of view: North  
 AOD: 4m  
 Distance from site: 1.14km  
 Paper size: 841 x 297 mm (half A1)  
 Correct printed image size: 820 x 250 mm

Camera: Canon EOS 5d Mark II  
 Lens: 50mm Fixed Focal Length  
 Camera height: 1.5 m (above AOD, approx)  
 Photography Date: 18/03/2025  
 Photography Time: 15:06pm

**Humber Carbon Capture Pipeline  
 Rawcliffe Bridge**

10607856 - Photosheets

RVP 04(Eastoff 01): Quay Lane



Indicative AGI location

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RVP 05(Eastoff 02): Quay Lane



Indicative AGI location

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RVP 06(Keadby 01): PRoW (10)



Indicative AGI location

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RVP 07(Keadby 02): PRow (9) / Keadby Wind Farm



**RVP 08(Keadby 03): PRoW (11) / Ealand poultry Farm**



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	Latitude & Longitude:	53°36'6.60", 0°47'20.23"	Camera:	Canon EOS 5d Mark II
	Direction of view:	East	Lens:	50mm Fixed Focal Length
	AOD:	2m	Camera height:	1.5 m (above AOD, approx)
	Distance from site:	1.65km	Photography Date:	17/03/2025
	Paper size:	841 x 297 mm (half A1)	Photography Time:	18:27pm
	Correct printed image size:	820 x 250 mm		



**Humber Carbon Capture Pipeline**  
**Keadby**  
**RVP 08(Keadby 03): PRoW (11) / Ealand poultry Farm**  
 10607856 - Photosheets

**RVP 09 (Winterton 01): Edge of Winteringham village**



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RVP 10(Winterton 02): Cliff Road / PRoW 312



RVP 11 (Winterton 03): Edge of West Halton village / PRoW 21



Indicative AGI location

EAST COAST CLUSTER  
Northern Endurance Partnership Humber Carbon Capture Pipeline

Latitude & Longitude: 53°40'31.90", 0°37'39.37"  
Direction of view: East  
AOD: 13m  
Distance from site: 1.47km  
Paper size: 841 x 297 mm (half A1)  
Correct printed image size: 820 x 250 mm

Camera: Canon EOS 5d Mark II  
Lens: 50mm Fixed Focal Length  
Camera height: 1.5 m (above AOD, approx)  
Photography Date: 18/03/2025  
Photography Time: 10:36am



**Humber Carbon Capture Pipeline**  
**Winterton**

RVP 12 (Barrow 01): Burnham Road / PRoW 330



Indicative AGI location

Burnham Road

RVP 13 (Barrow 02): Caistor Road



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**EAST COAST CLUSTER**  
Northern Endurance Partnership | Humber Carbon Capture Pipeline

**ARCADIS**

Latitude & Longitude:	53°40'17.88", 0°25'21.52"	Camera:	Canon EOS 5d Mark II
Direction of view:	South-East	Lens:	50mm Fixed Focal Length
AOD:	38m	Camera height:	1.5 m (above AOD, approx)
Distance from site:	2km	Photography Date:	18/03/2025
Paper size:	841 x 297 mm (half A1)	Photography Time:	12:10pm
Correct printed image size:	820 x 250 mm		

**Humber Carbon Capture Pipeline  
Barrow**

RVP 14 (Barrow 03): Caistor Road / B1206



Indicative AGI location

B1206

Latitude & Longitude: 53°39'50.19", 0°24'3.26"  
 Direction of view: South  
 AOD: 27m  
 Distance from site: 0.62km  
 Paper size: 841 x 297 mm (half A1)  
 Correct printed image size: 820 x 250 mm

Camera: Canon EOS 5d Mark II  
 Lens: 50mm Fixed Focal Length  
 Camera height: 1.5 m (above AOD, approx)  
 Photography Date: 18/03/2025  
 Photography Time: 12:24pm

Humber Carbon Capture Pipeline  
Barrow



RVP 15 (Barrow Compound 01): A15 / Viking Way / PRow 34



Proposed Compound Location



EAST COAST CLUSTER  
Northern Endurance Partnership  
Humber Carbon Capture Pipeline

Latitude & Longitude: 53°38'18.24",0°26'36.60"  
Direction of view: North-East  
AOD: 64m  
Distance from site: 3.31km  
Paper size: 841 x 297 mm (half A1)  
Correct printed image size: 820 x 250 mm

Camera: Canon EOS 5d Mark II  
Lens: 50mm Fixed Focal Length  
Camera height: 1.5 m (above AOD, approx)  
Photography Date: 18/03/2025  
Photography Time: 12:49pm



Humber Carbon Capture Pipeline  
Barrow compound

RVP 16 (Croxtan 01): PRow 109 / Ladypits Plantation



Indicative AGI location



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Latitude & Longitude: 53°36'3.33", 0°20'16.67"  
Direction of view: South-West  
AOD: 30m  
Distance from site: 1.57km  
Paper size: 841 x 297 mm (half A1)  
Correct printed image size: 820 x 250 mm

Camera: Canon EOS 5d Mark II  
Lens: 50mm Fixed Focal Length  
Camera height: 1.5 m (above AOD, approx)  
Photography Date: 18/03/2025  
Photography Time: 13:35pm

Humber Carbon Capture Pipeline  
Croxtan

10607856 - Photosheets

RVP 17(Croxton 02): PRow 109

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Latitude & Longitude: 53°36'6.52", 0°20'20.96"  
Direction of view: South-West  
AOD: 30m  
Distance from site: 1.54km  
Paper size: 841 x 297 mm (half A1)  
Correct printed image size: 820 x 250 mm

Camera: Canon EOS 5d Mark II  
Lens: 50mm Fixed Focal Length  
Camera height: 1.5 m (above AOD, approx)  
Photography Date: 18/03/2025  
Photography Time: 13:41pm

Humber Carbon Capture Pipeline  
Croxtan



Indicative AGI location

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RVP 19(East Halton 02): College Road / PRow 76



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Latitude & Longitude: 53°39'31.14", 0°18'26.35"  
 Direction of view: North-West  
 AOD: 4m  
 Distance from site: 0.27km  
 Paper size: 841 x 297 mm (half A1)  
 Correct printed image size: 820 x 250 mm

Camera: Canon EOS 5d Mark II  
 Lens: 50mm Fixed Focal Length  
 Camera height: 1.5 m (above AOD, approx)  
 Photography Date: 18/03/2025  
 Photography Time: 14:59pm

Humber Carbon Capture Pipeline  
East Halton

RVP 20(East Halton 03): PRow 760

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Latitude & Longitude: 53°40'2.98", 0°19'0.19"  
Direction of view: South-East  
AOD: 7m  
Distance from site: 0.75km  
Paper size: 841 x 297 mm (half A1)  
Correct printed image size: 820 x 250 mm

Camera: Canon EOS 5d Mark II  
Lens: 50mm Fixed Focal Length  
Camera height: 1.5 m (above AOD, approx)  
Photography Date: 18/03/2025  
Photography Time: 15:35pm

Humber Carbon Capture Pipeline  
East Halton

RVP 21(Killingholme 01): Church Lane



Indicative AGI location

Killingholme Power Station

Church Lane

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RVP 22(Killingholme 02): Chase Hill Road



Indicative AGI location

EAST COAST CLUSTER  
 Northern Endurance Partnership | Humber Carbon Capture Pipeline  
 ARCADIS  
 Latitude & Longitude: 53°38'58.97", 0°15'53.87"  
 Direction of view: South West  
 AOD: 12m  
 Distance from site: 0.93km  
 Paper size: 841 x 297 mm (half A1)  
 Correct printed image size: 820 x 250 mm  
 Camera: Canon EOS 5d Mark II  
 Lens: 50mm Fixed Focal Length  
 Camera height: 1.5 m (above AOD, approx)  
 Photography Date: 18/03/2025  
 Photography Time: 17:10pm

Humber Carbon Capture Pipeline  
Killingholme

RVP 23 (Immingham 01): PRoW 177 / PRoW 1 / PRoW 51



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Latitude & Longitude:	53°37'22.70", 0°15'2.38"	Camera:	Canon EOS 5d Mark II
Direction of view:	South-East	Lens:	50mm Fixed Focal Length
AOD:	4m	Camera height:	1.5 m (above AOD, approx)
Distance from site:	0.24km	Photography Date:	18/03/2025
Paper size:	841 x 297 mm (half A1)	Photography Time:	16:15pm
Correct printed image size:	820 x 250 mm		

**Humber Carbon Capture Pipeline  
Immingham**



RVP 23 (Immingham 02): PRoW 1 / Killingholme Road



Killingholme Power Station

Indicative AGI location

PRoW 1

Glebe Farm

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Latitude & Longitude: 53°37'5.65", 0°15'28.05"  
Direction of view: North-East  
AOD: 12m  
Distance from site: 0.84km  
Paper size: 841 x 297 mm (half A1)  
Correct printed image size: 820 x 250 mm

Camera: Canon EOS 5d Mark II  
Lens: 50mm Fixed Focal Length  
Camera height: 1.5 m (above AOD, approx)  
Photography Date: 18/03/2025  
Photography Time: 16:27pm

Humber Carbon Capture Pipeline  
Immingham

10607856 - Photosheets

RVP 25 (Saltend 01): Public footpath (PAULF05) / River Humber



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**RVP 26 (Saltend 02): Public footpath (PAULF05) / Hedon Haven**



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**RVP 27 (Saltend 03): Hedon Road**

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Indicative location of Construction Compound

Battery Cottage

Business Park / Warehouse (Integra)

Hedon Road

Indicative AGI location

Salt End Jetties

EAST COAST CLUSTER  
 Northern Endurance Partnership | Humber Carbon Capture Pipeline  
**ARCADIS**  
 Latitude & Longitude: 53°44'7.23", 0°13'15.39"  
 Direction of view: South-West  
 AOD: 1m  
 Distance from site: 1.32km  
 Paper size: 841 x 297 mm (half A1)  
 Correct printed image size: 820 x 250 mm  
 Camera: Canon EOS 5d Mark II  
 Lens: 50mm Fixed Focal Length  
 Camera height: 1.5 m (above AOD, approx)  
 Photography Date: 19/03/2025  
 Photography Time: 18:31pm

**Humber Carbon Capture Pipeline  
Saltend**

10607856 - Photosheets

RVP 28 (Thorngumbald 01): Public footpath (PAULF03) / Newlands Lane



Indicative AGI location

Newlands Lane

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RVP 29 (Thorngumbald 02): Public footpath (PAULF06) / England Coast Path



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RVP 30 (Thorngumbald 03): Public footpath (PAULF06) / England Coast Path



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**RVP 31 (Patrington 01): Public bridleway (WELWB02)**



Indicative AGI location

**RVP 32 (Patrington 02): Public footpath (PATRF07)**



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RVP 33 (Patrington 03): Beacon Hill / Public footpath (WELWF01)



Public footpath (WELWF01)

Indicative AGI location

Little Plowland

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Latitude & Longitude:	53°40'46.19", 0° 2'7.21"	Camera:	Canon EOS 5d Mark II
Direction of view:	North-West	Lens:	50mm Fixed Focal Length
AOD:	25m	Camera height:	1.5 m (above AOD, approx)
Distance from site:	1.09km	Photography Date:	19/03/2025
Paper size:	841 x 297 mm (half A1)	Photography Time:	14:59pm
Correct printed image size:	820 x 250 mm		

Humber Carbon Capture Pipeline  
Patrington



RVP 34 (Easington 01): Holmpton Road / public footpath (EASIF02)



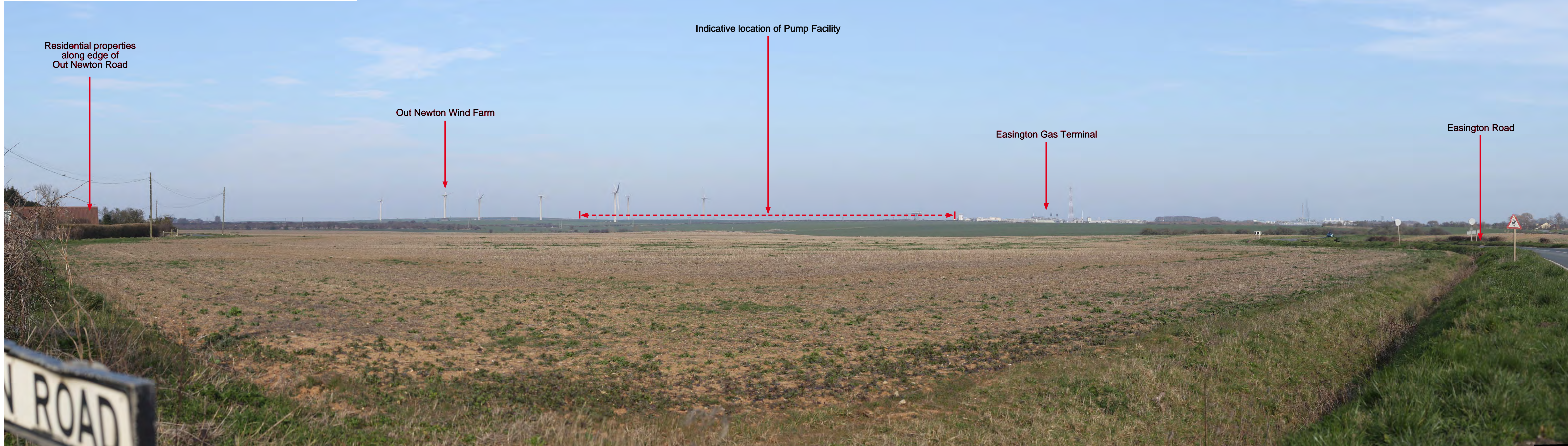
Latitude & Longitude: 53°40'26.73", 0° 5'33.92"  
Direction of view: South-East  
AOD: 20m  
Distance from site: 1km  
Paper size: 841 x 297 mm (half A1)  
Correct printed image size: 820 x 250 mm

Camera: Canon EOS 5d Mark II  
Lens: 50mm Fixed Focal Length  
Camera height: 1.5 m (above AOD, approx)  
Photography Date: 19/03/2025  
Photography Time: 15:47pm



Humber Carbon Capture Pipeline  
Easington

**RVP 35 (Easington 02): Easington Road / Out Newton Road**



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EAST COAST CLUSTER  
 Northern Endurance Partnership  
 Humber Carbon Capture Pipeline  
 Latitude & Longitude: 53°39'12.05", 0° 4'41.73"  
 Direction of view: North-East  
 AOD: 6m  
 Distance from site: 2km  
 Paper size: 841 x 297 mm (half A1)  
 Correct printed image size: 820 x 250 mm

Camera: Canon EOS 5d Mark II  
 Lens: 50mm Fixed Focal Length  
 Camera height: 1.5 m (above AOD, approx)  
 Photography Date: 19/03/2025  
 Photography Time: 16:03pm

**Humber Carbon Capture Pipeline  
Easington**



# Appendix 13.1 – Baseline Noise Survey

## Introduction

This document provides a summary of the baseline noise survey that has been undertaken to establish the prevailing acoustic environment at noise sensitive receptors situated in the vicinity of the proposed Pump Facility associated with the Humber Carbon Capture Pipeline (HCCP) (the Project). The results of the noise survey will be used to inform the noise impact assessment for the Pump Facility.

A glossary of acoustic terminology relevant to the information presented below is appended to this document.

## Survey Methodology

### Monitoring Locations

The baseline noise survey comprised unattended noise monitoring at five locations, which accounted for the surrounding noise sensitive receptors in the vicinity of the proposed Pump Facility site. The noise survey was undertaken between 9 June 2022 and 17 June 2022.

The measurement locations are summarised in Table A13-1-1 and are presented in below. Photographs of the measurement positions are provided in Survey Results.

*Table A13-1-1 – Baseline measurement locations*

Reference	Approx. NGR Location	Description
P1	538124E, 421490N	Spring Farm Bungalow to the north-west of the Pump Facility
P2	537970E, 420970N	Southfield Farm to the west of the Pump Facility
P3	538277E, 419448N	Sunnybank to the south of the Pump Facility
P4	539311E, 419479N	Two Hoots to the south of the Pump Facility
P5	539598E, 420901N	Coastal path to the east of the Pump Facility

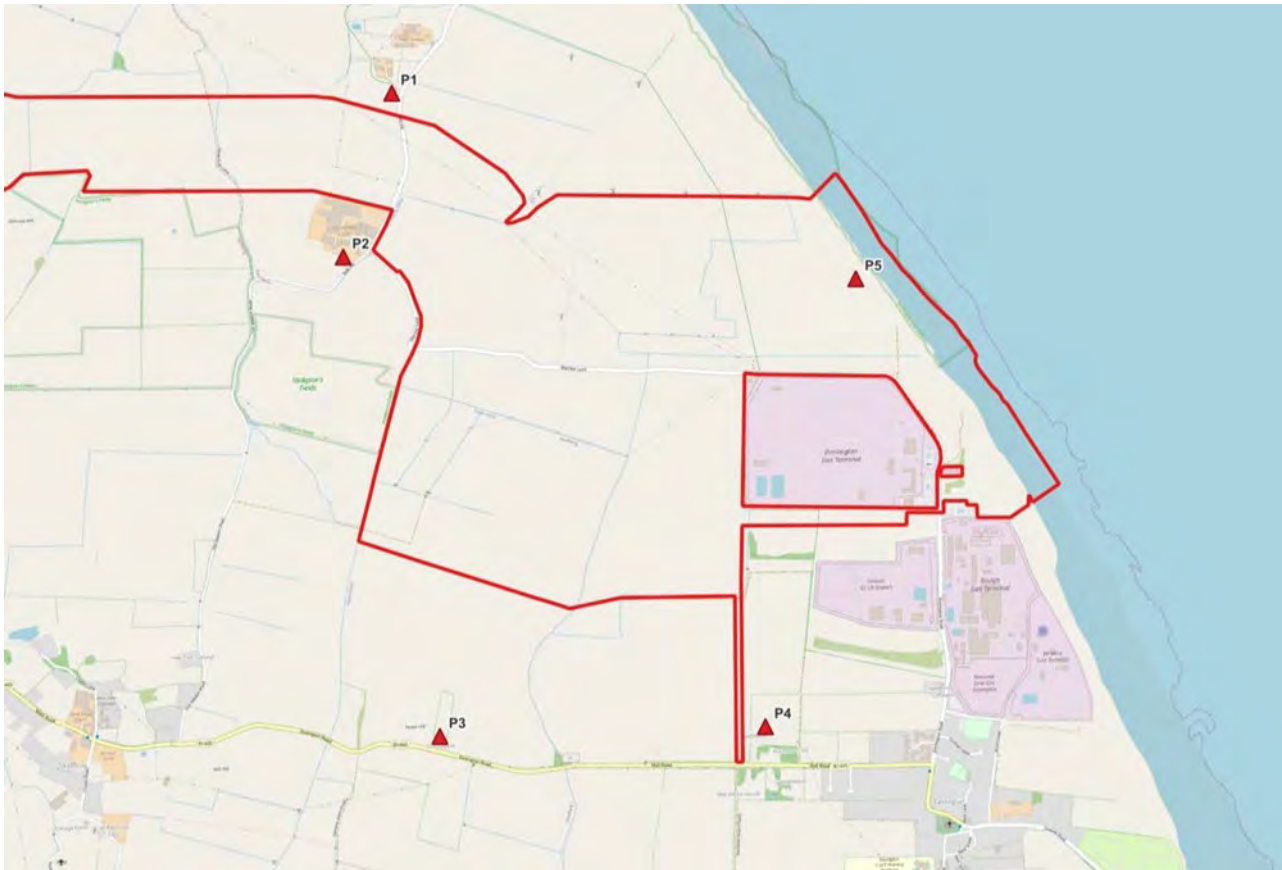


Figure A13-1-1 – Noise measurement location plan

## Noise Measurement Equipment

The noise measurements were undertaken using the following equipment:

Table A13-1-2 – Survey equipment

Equipment	Manufacturer	Model	Serial No.	Calibration Date
Sound level meter	Rion	NL-52	0976247	28/06/2021
	Rion	NL-52	00464742	04/11/2021
	Rion	NL-52	01265456	29/09/2021
	Rion	NL-52	01265455	29/09/2021
	01dB	Fusion	14177	19/10/2021
Calibrator	Rion	NC-74	34625642	28/04/2022

The sound level meters used conform to the Class 1 requirements of BS EN 61672-1:2013 'Electroacoustics. Sound level meter, Specifications'. The calibrator used conforms to the Class 1 requirements of BS EN IEC 60942:2018 'Electroacoustics, Sound calibrators'.

The equipment used had a calibration history that is traceable to a certified calibration institution. The calibration of the sound level meters was checked before and after the measurements, with no significant calibration drift noted i.e. within a +/- 0.5 dB tolerance.

## Weather Conditions

Weather information has been obtained for the duration of the baseline survey via a local weather station (IKINGS200). The weather data for the survey period is summarised below. The conditions are considered suitable for the purpose of environmental noise measurements. Detailed hourly weather information can be provided upon request.

Table A13-1-3 – Weather conditions

Date	Temperature range (°C)	Average wind speed (m/s)	Prevailing wind direction	Accumulated precipitation (mm)
09.06.2022	11 - 21	1.3	SW	0.0
10.06.2022	13 - 22	1.6	SW	0.0
11.06.2022	13 – 22	1.9	SW	0.25*
12.06.2022	12 – 19	1.6	WSW	0.0
13.06.2022	9 – 20	0.9	NW	0.0
14.06.2022	12 – 18	0.5	NE	0.0
15.06.2022	11 – 20	0.6	SE	0.0
16.06.2022	11 – 20	0.8	ENE	0.0
17.06.2022	17 - 31	1.0	SSW	0.0

\* Constitutes a very low level rainfall intensity, therefore not significant

## Survey Results

### Noise Measurements – Position P1: Spring Farm Bungalow

A summary of the measured noise levels at Position P1 are presented below.

Table A13-1-4 - Measured noise levels at Position P1

Date	Period	dB L <sub>Aeq,T</sub>	dB L <sub>A90,T</sub>	dB L <sub>Amax</sub> (Range)
09/06/2022 (Thursday)	Day	53.5	39.2	43.1 - 93.9
	Night	41.3	37.4	40.9 - 65.4
10/06/2022 (Friday)	Day	46.1	39.7	48.5 - 73.9
	Night	42.0	37.9	40.1 - 68.5
11/06/2022 (Saturday)	Day	48.8	42.3	46.4 - 72.0
	Night	39.7	35.4	38.3 - 69.2
12/06/2022 (Sunday)	Day	59.6	42.2	46.2 - 92.2
	Night	40.5	35.9	38.2 - 70.4
13/06/2022 (Monday)	Day	55.4	35.8	42.6 - 88.2
	Night	40.5	30.6	30.7 - 72.1
14/06/2022 (Tuesday)	Day	49.2	34.4	40.2 - 88.1
	Night	41.0	33.0	31.0 - 72.6
15/06/2022 (Wednesday)	Day	55.7	36.5	35.9 - 89.3
	Night	40.0	32.5	33.6 - 73.6
16/06/2022 (Thursday)	Day	53.9	35.9	44.0 - 86.2
	Night	41.1	36.0	38.4 - 71.2
17/06/2022	Day	45.5	38.6	56.4 - 78.9
<b>Notes</b>				
[1]	Note 1 • Daytime period: 07:00 – 23:00 hrs, night-time: 23:00 – 07:00 hrs			
[2]	Note 2 • Daytime measurements taken on the 09/06/2022 and 17/06/2022 were not taken throughout full 16hr daytime period.			
[3]	Note 3 • L <sub>Aeq,T</sub> values are the logarithmic average of L <sub>Aeq,15min</sub> samples, and the L <sub>A90,T</sub> values are the arithmetic average of L <sub>A90,15min</sub> samples.			

During the daytime installation and collection of the noise monitoring equipment at Position P1, the acoustic environment was dominated by natural sounds including wind-blown foliage and bird song, in addition to intermittent traffic on Out Newton Road. Noise from the distant wind turbines was perceptible when the more dominant natural sounds reduced.

Upon collection of the sound level meter, the resident advised the surveyor that the grass was cut in the large field to the rear of the property on Wednesday 15/06/2022 and Thursday 16/06/2022.

The source of the individual high noise events that occurred during the daytime on several days is not apparent, however, given the high  $L_{AFmax}$  noise levels, it is expected that these were attributable to activities taking place in the garden.



*Figure A13-1-2 – Noise monitoring installations at Position P1 – view facing east*



*Figure A13-1-3 – Noise monitoring installations at Position P1 – view facing south (sound level meter circled)*

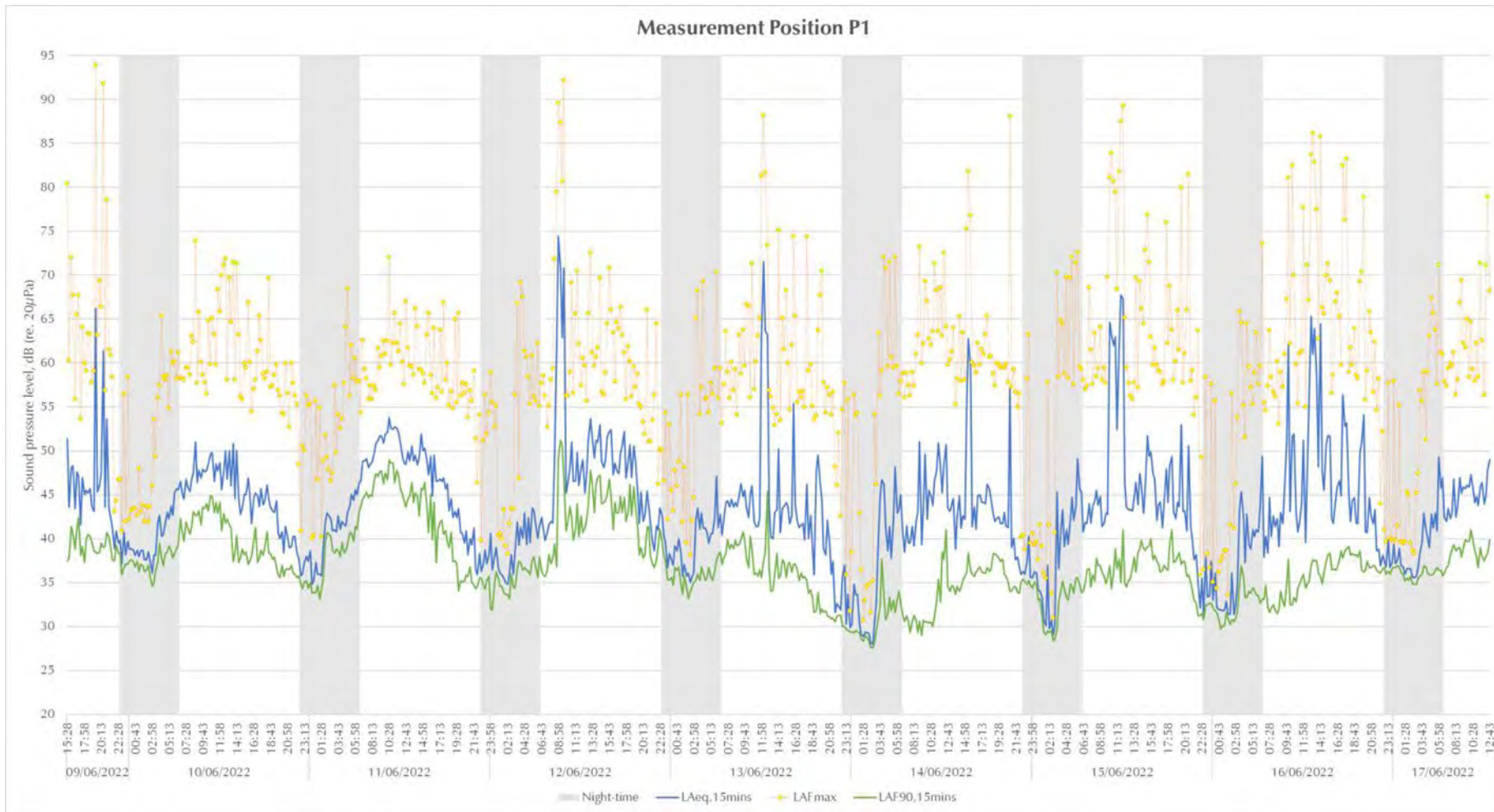


Figure A13-1-4 – Measured noise levels at Position P1

## Representative Background Sound Levels – Position P1

The statistical analysis that has been used to determine a representative background sound level during the daytime and night-time periods are presented in Figure 3-4 and Figure 3-5 respectively. These levels will be used to inform the operational phase assessment for the Pump Facility undertaken in accordance with BS 4142:2014+A1:2019: 'Methods for rating and assessing industrial and commercial sound'.

For this distribution of data, a daytime  $L_{A90,1hr}$  of 35 dB and a night-time  $L_{A90,15min}$  of 33 dB are considered to be representative of the prevailing background sound level at Position P1.

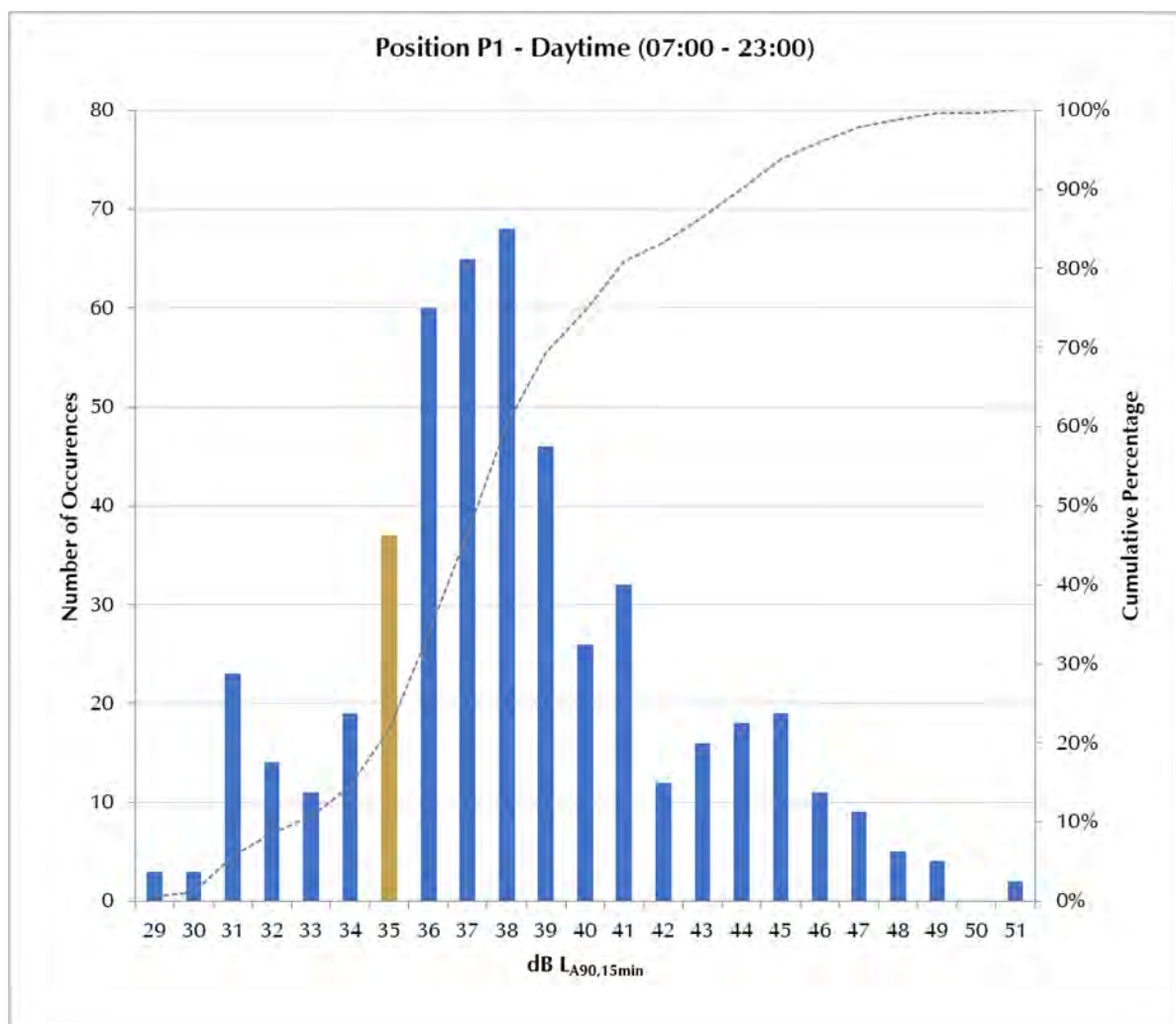


Figure A13-1-5 –Statistical analysis of measured background sound levels at Position P1 – Daytime

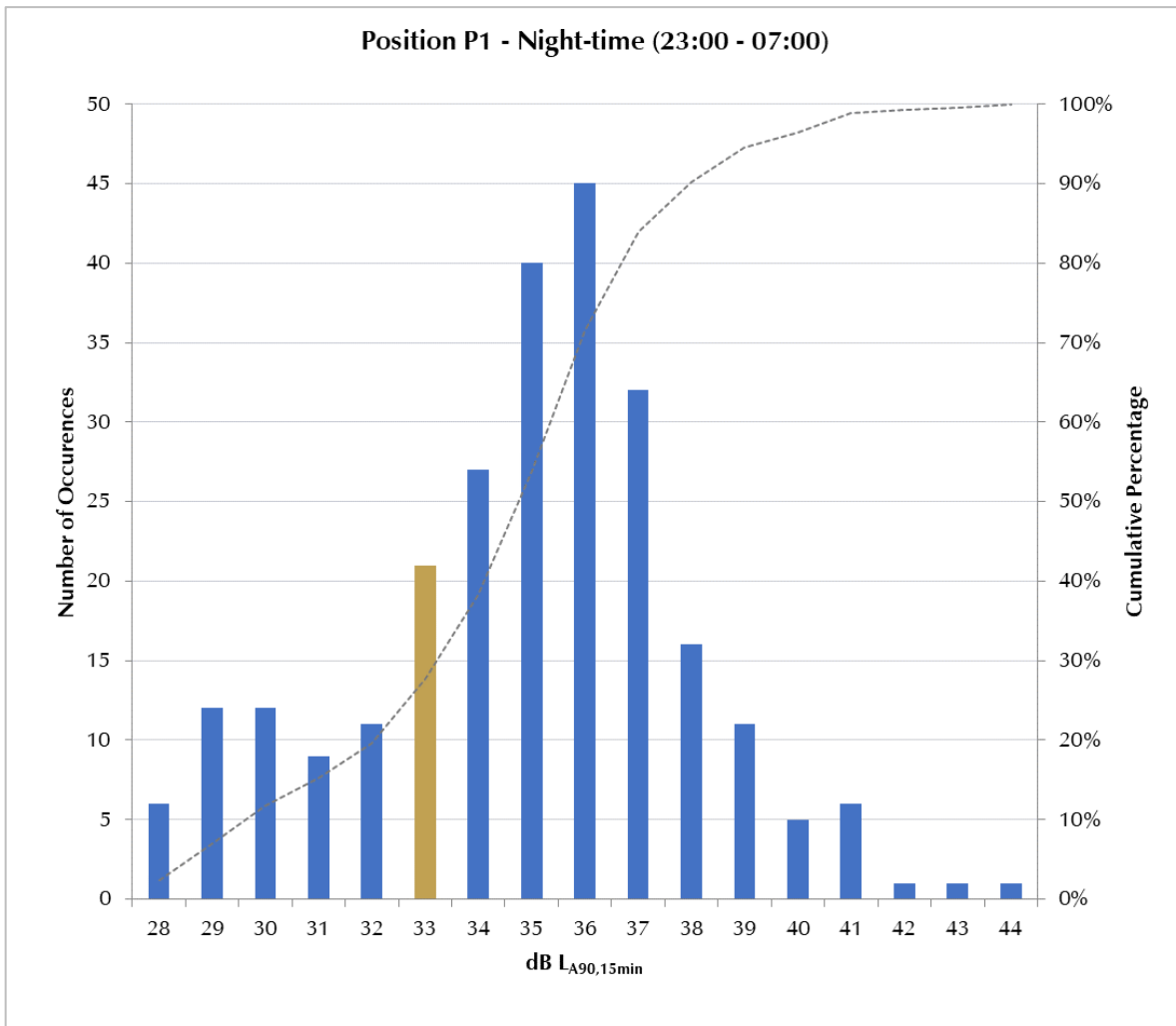


Figure A13-1-6 – Statistical analysis of measured background sound levels at Position P1 – Night-time

## Noise Measurements – Position P2: Southfield Farm

A summary of the measured noise levels at Position P2 are presented below.

Table A13-1-5 – Measured noise levels at Position P2

Date	Period	dB LAeq,T	dB LA90,T	dB LAmx (Range)
09/06/2022 (Thursday)	Day	46.4	40.7	46.9 – 88.3
	Night	43.2	39.1	43.1 – 76.1
10/06/2022 (Friday)	Day	45.7	40.4	42.2 – 77.6
	Night	43.4	38.7	40.9 – 78.9
11/06/2022 (Saturday)	Day	48.1	43.0	44.4 – 76.3
	Night	42.4	38.1	44.3 – 77.1

Date	Period	dB LAeq,T	dB LA90,T	dB LAmax (Range)
12/06/2022 (Sunday)	Day	47.1	42.4	48.4 – 77.0
	Night	44.9	39.2	45.2 – 80.5
13/06/2022 (Monday)	Day	44.6	36.9	43.3 – 76.9
	Night	43.4	33.9	37.6 – 75.6
14/06/2022 (Tuesday)	Day	44.8	36.0	38.9 – 82.3
	Night	43.1	34.4	34.4 – 76.7
15/06/2022 (Wednesday)	Day	50.9	41.0	49.8 – 79.9
	Night	43.4	34.3	48.8 – 76.0
16/06/2022 (Thursday)	Day	59.6	37.5	51.2 – 90.1
	Night	44.0	36.6	46.5 – 78.4
17/06/2022	Day	50.7	40.4	55.0 – 80.3
<b>Notes</b>				
[1]	Note 1 Daytime period: 07:00 – 23:00 hrs, night-time: 23:00 – 07:00 hrs			
[2]	Note 2 Daytime measurements taken on the 09/06/2022 and 17/06/2022 were not taken throughout full 16hr daytime period.			
[3]	Note 3 L <sub>Aeq,T</sub> values are the logarithmic average of L <sub>Aeq,15min</sub> samples, and the L <sub>A90,T</sub> values are the arithmetic average of L <sub>A90,15min</sub> samples.			

During the daytime installation and collection of the noise monitoring equipment at Position P2, the acoustic environment was dominated by natural sounds including wind-blown foliage and bird song, in addition to intermittent traffic on Out Newton Road. Wind turbine noise was perceptible when the more dominant natural sounds reduced.

It is expected that the elevated ambient noise levels measured on Wednesday 15/06/2022 and Thursday 16/06/2022 was attributable to grass cutting activities in nearby fields, as advised by the occupant of Spring Farm Bungalow (Position P1).



*Figure A13-1-7 – Noise monitoring installations at Position P2 – view facing north-west*



*Figure A13-1-8 – Noise monitoring installations at Position P2 – view facing south-east*

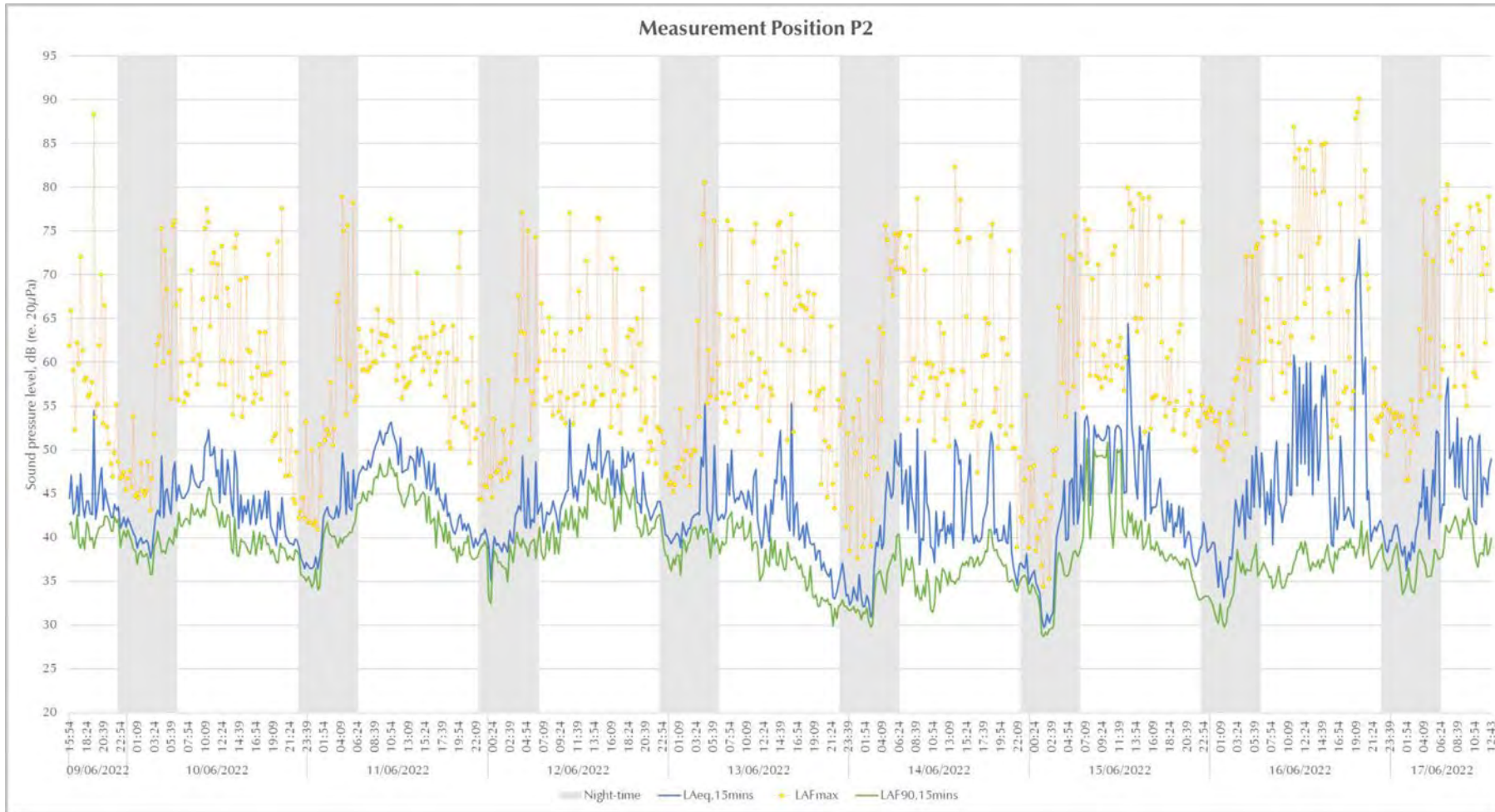


Figure A13-1-9 – Measured noise levels at Position P2

## Representative Background Sound Levels – Position P2

The statistical analysis that has been used to determine a representative background sound level during the daytime and night-time periods is presented in Figure A13-110 and Figure A13-12 respectively. These levels will be used to inform the operational phase assessment for the Pump Facility undertaken in accordance with BS 4142:2014+A1:2019: ‘Methods for rating and assessing industrial and commercial sound’.

For this distribution of data, a daytime  $L_{A90,1hr}$  of 37 dB and a night-time  $L_{A90,15min}$  of 34 dB are considered to be representative of the prevailing background sound level at Position P2.

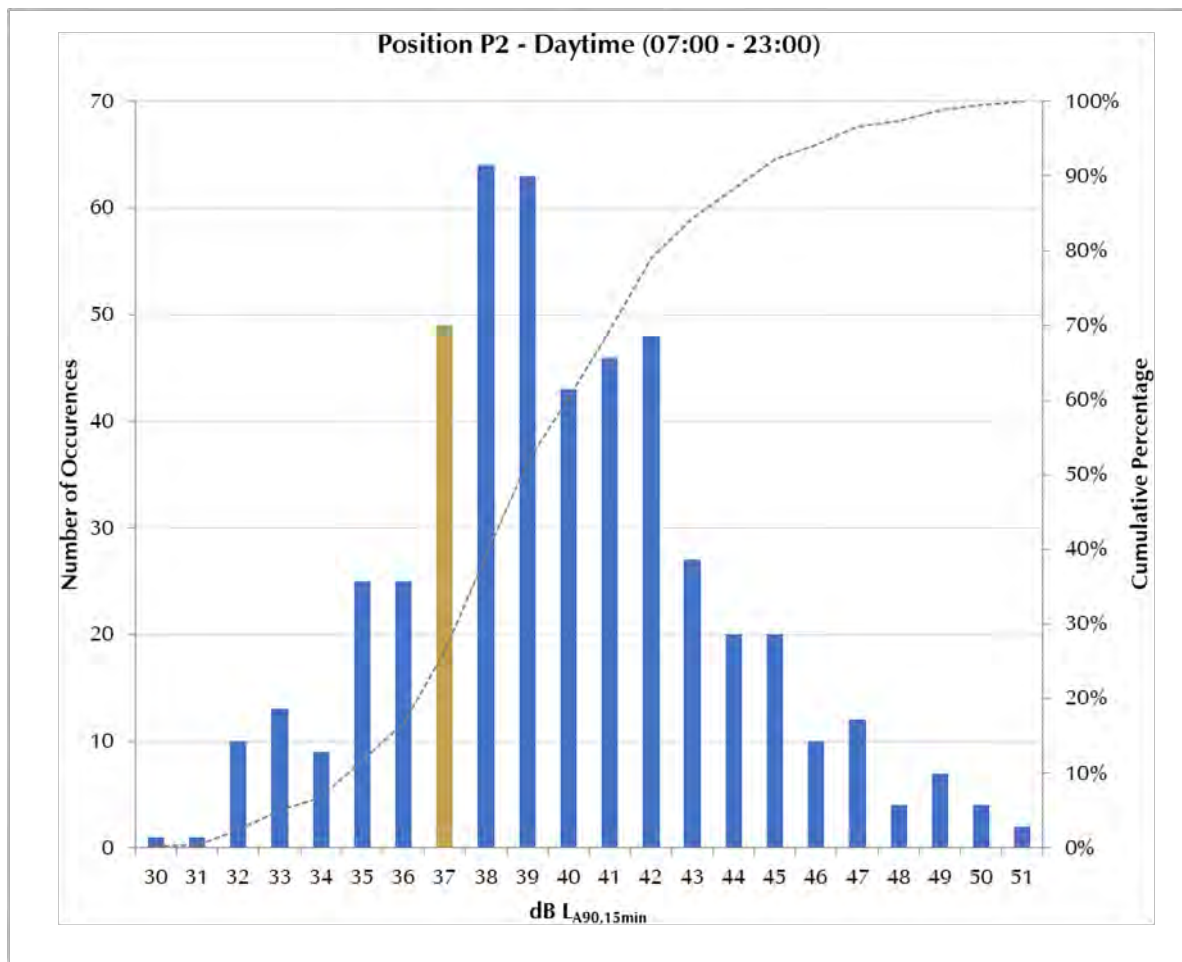


Figure A13-1-10 – Statistical analysis of measured background sound levels at Position P2 – Daytime

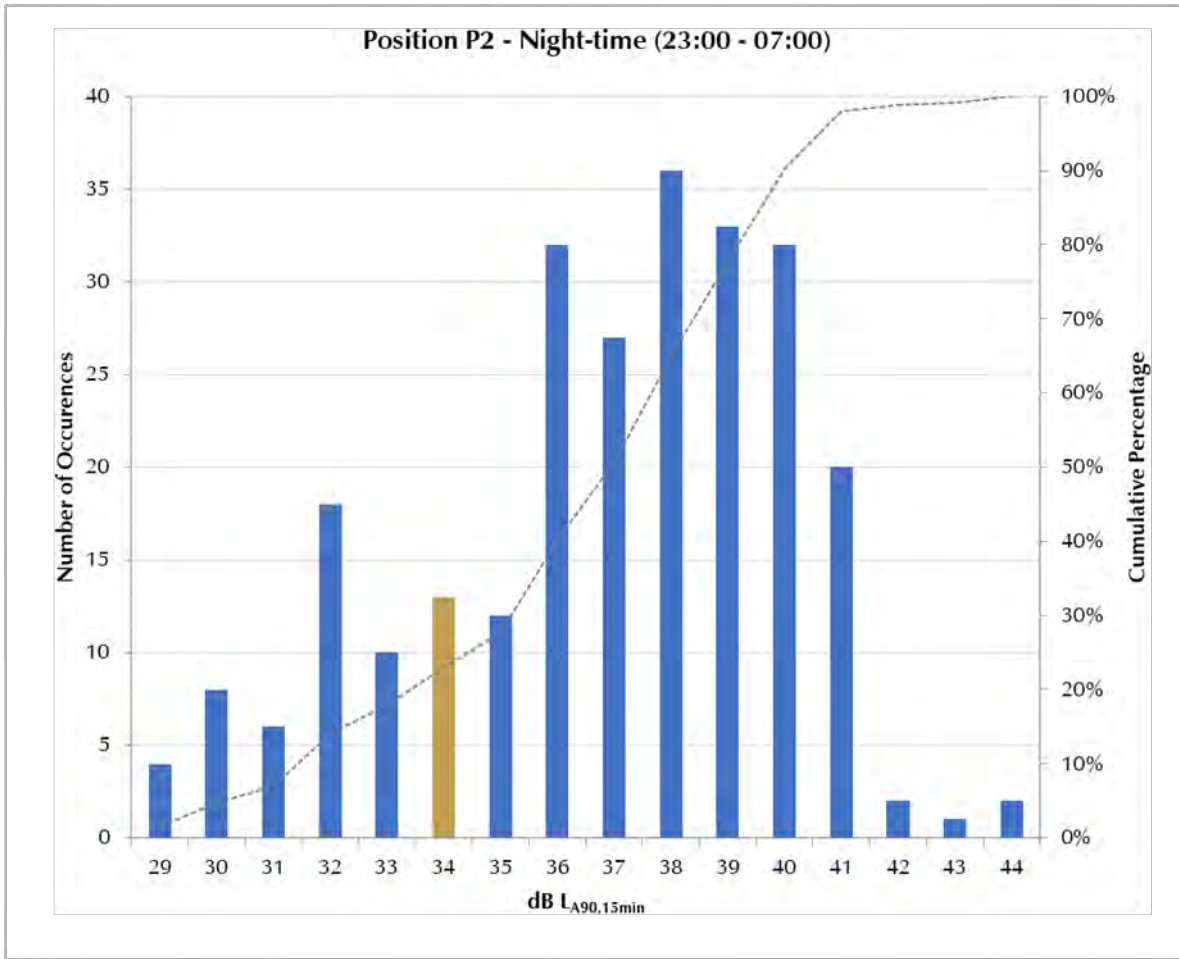


Figure A13-1-11 – Statistical analysis of measured background sound levels at Position P2 – Night-time

## Noise Measurements – Position P3: Sunnybank

A summary of the measured noise levels at Position P3 are presented below.

Table A13-1-6 – Measured noise levels at Position P3

Date	Period	dB LAeq,T	dB LA90,T	dB LAmax (Range)
09/06/2022 (Thursday)	Day	47.3	35.2	54.6 - 78.6
	Night	48.8	34.0	41.5 - 73.1
10/06/2022 (Friday)	Day	47.4	37.1	54.6 - 72.3
	Night	49.3	36.3	43.4 - 74.0
11/06/2022 (Saturday)	Day	50.0	40.0	51.3 - 70.5
	Night	50.2	32.8	42.5 - 79.5
12/06/2022	Day	49.1	37.7	53.0 - 75.9

Date	Period	dB LAeq,T	dB LA90,T	dB LAmax (Range)
(Sunday)	Night	50.2	31.0	33.4 - 75.1
13/06/2022	Day	47.2	32.1	54.2 - 78.8
(Monday)	Night	50.0	28.0	32.2 - 77.7
14/06/2022	Day	46.0	31.8	52.2 - 74.2
(Tuesday)	Night	49.3	29.3	31.9 - 70.8
15/06/2022	Day	48.5	32.8	53.3 - 73.9
(Wednesday)	Night	50.1	31.6	35.7 - 72.2
16/06/2022	Day	56.9	34.5	49.1 - 89.2
(Thursday)	Night	49.3	29.4	31.2 - 72.7
17/06/2022	Day	48.5	35.3	58.2 - 74.1

### **Notes**

[1]	Note 1	Daytime period: 07:00 – 23:00 hrs, night-time: 23:00 – 07:00 hrs	
[2]	Note 2	Daytime measurements taken on the 09/06/2022 and 17/06/2022 were not taken throughout full 16hr daytime period.	
[3]	Note 3	L <sub>Aeq,T</sub> values are the logarithmic average of L <sub>Aeq,15min</sub> samples, and the L <sub>A90,T</sub> values are the arithmetic average of L <sub>A90,15min</sub> samples.	

During the daytime installation and collection of the noise monitoring equipment at Position P3, the acoustic environment was dominated by natural sounds including wind-blown foliage and bird song, in addition to intermittent traffic on Easington Road (B1445). The source of the individual high noise events that occurred during the afternoon period on 16/06/2022 is not apparent, however, given the measured LAFmax noise levels, it is expected that these were attributable to activities taking place relatively close to the measurement equipment, rather than a distant source.



Figure A13-1-12 – Noise monitoring installations at Position P3 – view facing north



Figure A13-1-13 – Noise monitoring installations at Position P3 – view facing north-west (meter circled)

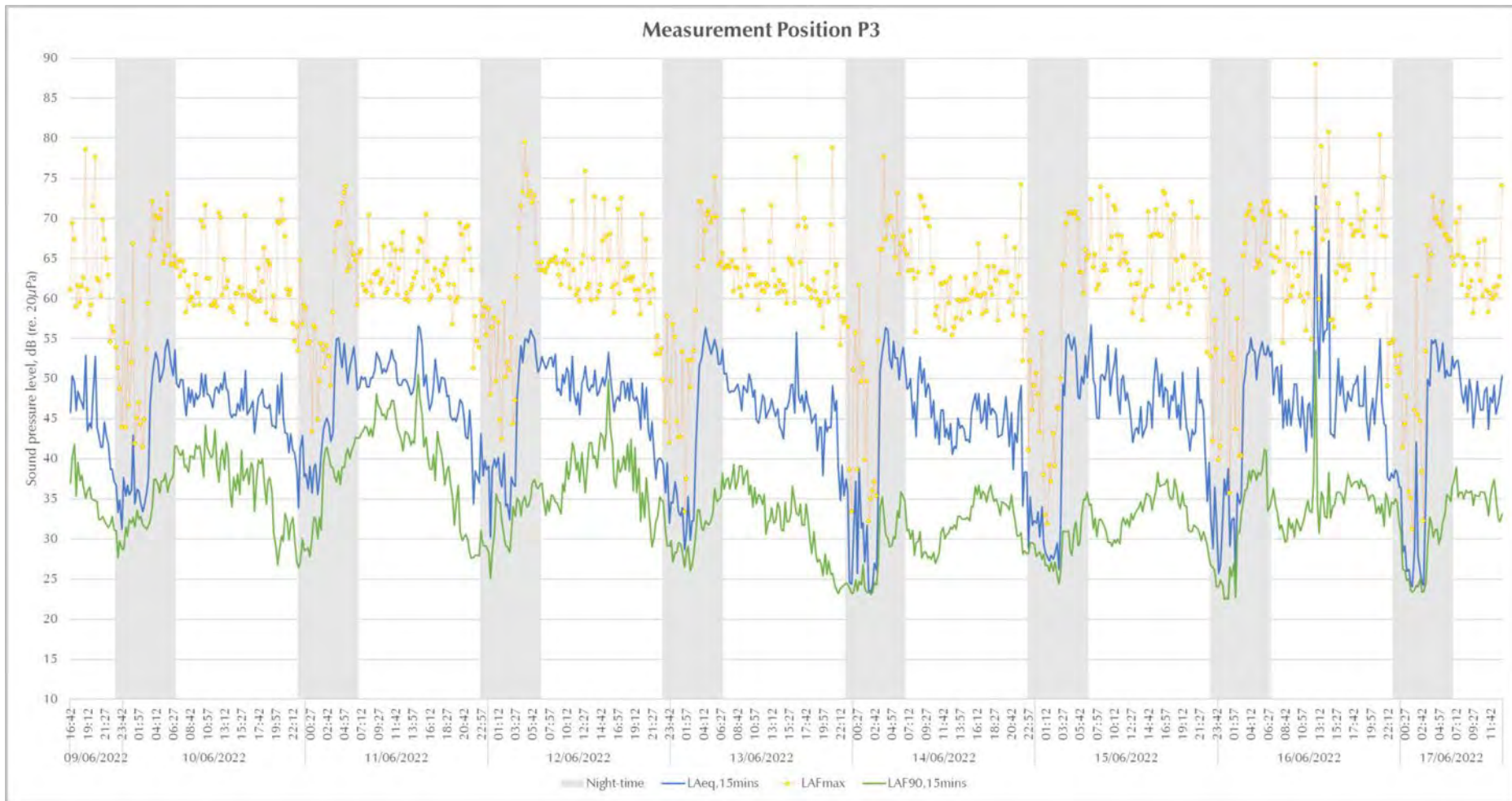


Figure A13-1-14 – Measured noise levels at Position P3

## Representative Background Sound Levels – Position P3

The statistical analysis that has been used to determine a representative background sound level during the daytime and night-time periods is presented in Figure 3-14 and Figure 3-15 respectively. These levels will be used to inform the operational phase assessment for the Pump Facility undertaken in accordance with BS 4142:2014+A1:2019: 'Methods for rating and assessing industrial and commercial sound'.

For this distribution of data, a daytime LA90,1hr of 31 dB and a night-time LA90,15min of 29 dB are considered to be representative of the prevailing background sound level at Position P3.

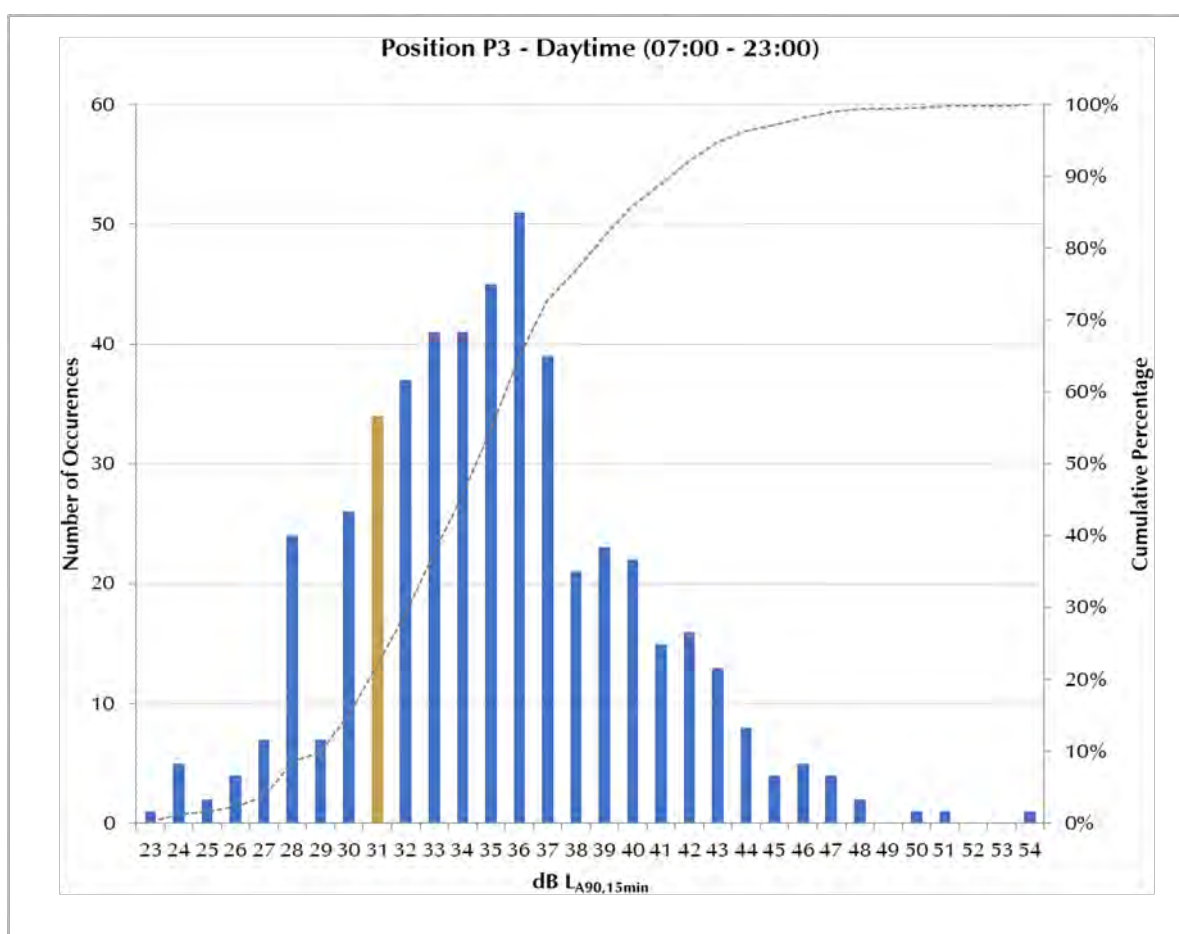


Figure A13-1-15 – Statistical analysis of measured background sound levels at Position P3 – Daytime

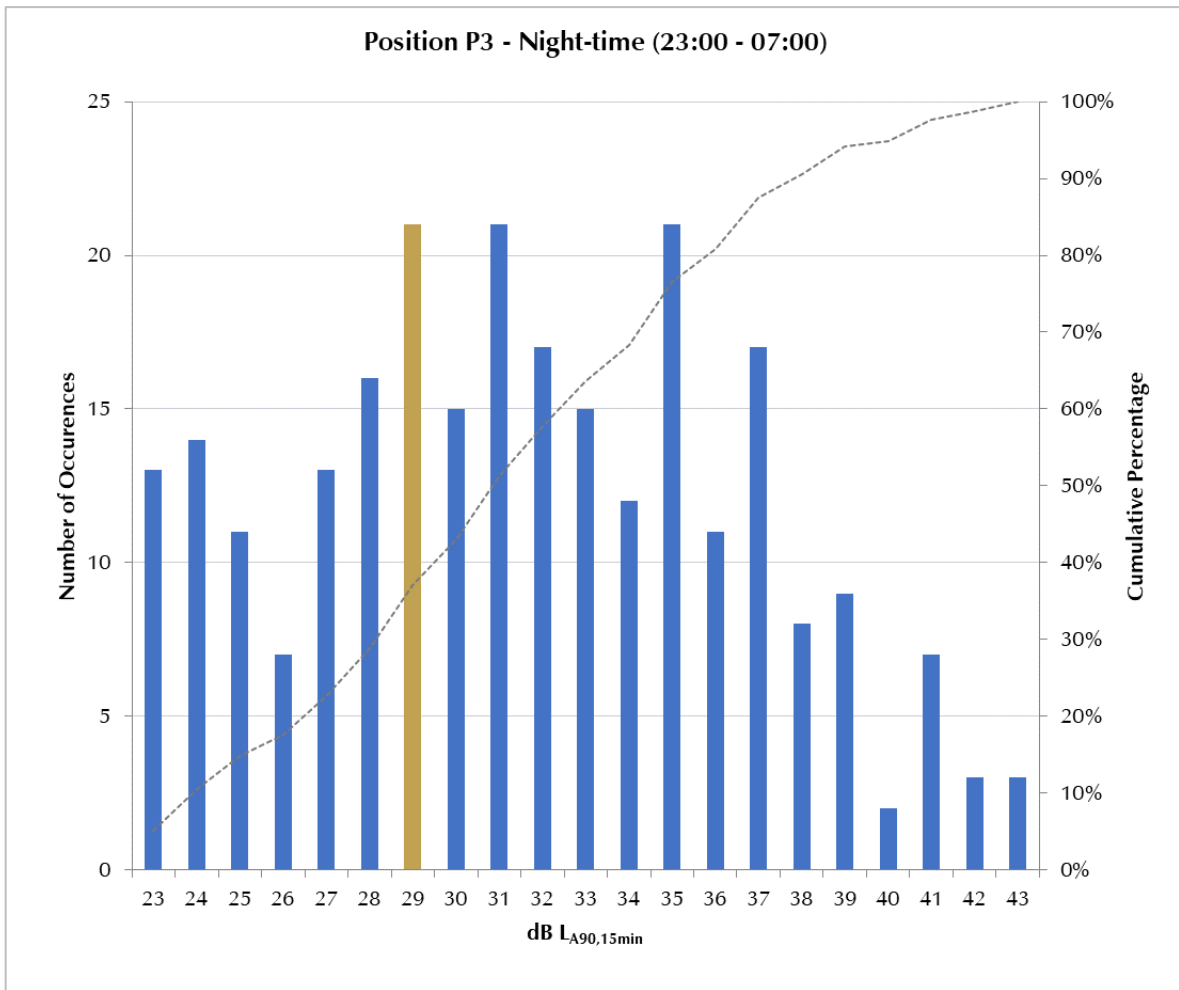


Figure A13-1-16 – Statistical analysis of measured background sound levels at Position P3 – Night-time

## Noise Measurements – Position P4: Two Hoots

A summary of the measured noise levels at Position P4 are presented below.

Table A13-1-7 – Measured noise levels at Position P4

Date	Period	dB LAeq,T	dB LA90,T	dB LAmax (Range)
09/06/2022 (Thursday)	Day	54.5	38.0	43.5 - 70.0
	Night	39.9	36.3	39.4 - 85.3
10/06/2022 (Friday)	Day	46.3	40.1	46.9 - 65.8
	Night	40.0	39.0	44.9 - 76.0
11/06/2022	Day	49.0	42.9	48.7 - 72.0

Date	Period	dB LAeq,T	dB LA90,T	dB LAmax (Range)
(Saturday)	Night	38.8	36.9	40.2 - 63.8
12/06/2022	Day	59.6	42.2	51.0 - 76.7
(Sunday)	Night	40.0	36.9	39.4 - 65.1
13/06/2022	Day	55.4	37.1	41.4 - 69.8
(Monday)	Night	38.2	37.0	35.5 - 70.0
14/06/2022	Day	49.3	38.1	43.0 - 67.1
(Tuesday)	Night	38.3	37.5	39.5 - 67.3
15/06/2022	Day	55.7	39.7	43.7 - 73.8
(Wednesday)	Night	37.8	39.8	41.6 - 68.6
16/06/2022	Day	54.0	39.4	38.7 - 69.3
(Thursday)	Night	38.9	31.7	31.6 - 70.2
17/06/2022	Day	45.2	36.6	48.7 - 64.3

### **Notes**

[1]	Note 1	Daytime period: 07:00 – 23:00 hrs, night-time: 23:00 – 07:00 hrs	
[2]	Note 2	Daytime measurements taken on the 09/06/2022 and 17/06/2022 were not taken throughout full 16hr daytime period.	
[3]	Note 3	LAeq,T values are the logarithmic average of LAeq,15min samples, and the LA90,T values are the arithmetic average of LA90,15min samples.	

During the daytime installation and collection of the noise monitoring equipment at Position P4, the acoustic environment was dominated by natural sounds including wind-blown foliage and bird song, in addition to intermittent traffic on Hull Road (B1445).



*Figure A13-1-17 – Noise monitoring installations at Position P4 – view facing north*



*Figure A13-1-18 – Noise monitoring installations at Position P4 – view facing south*

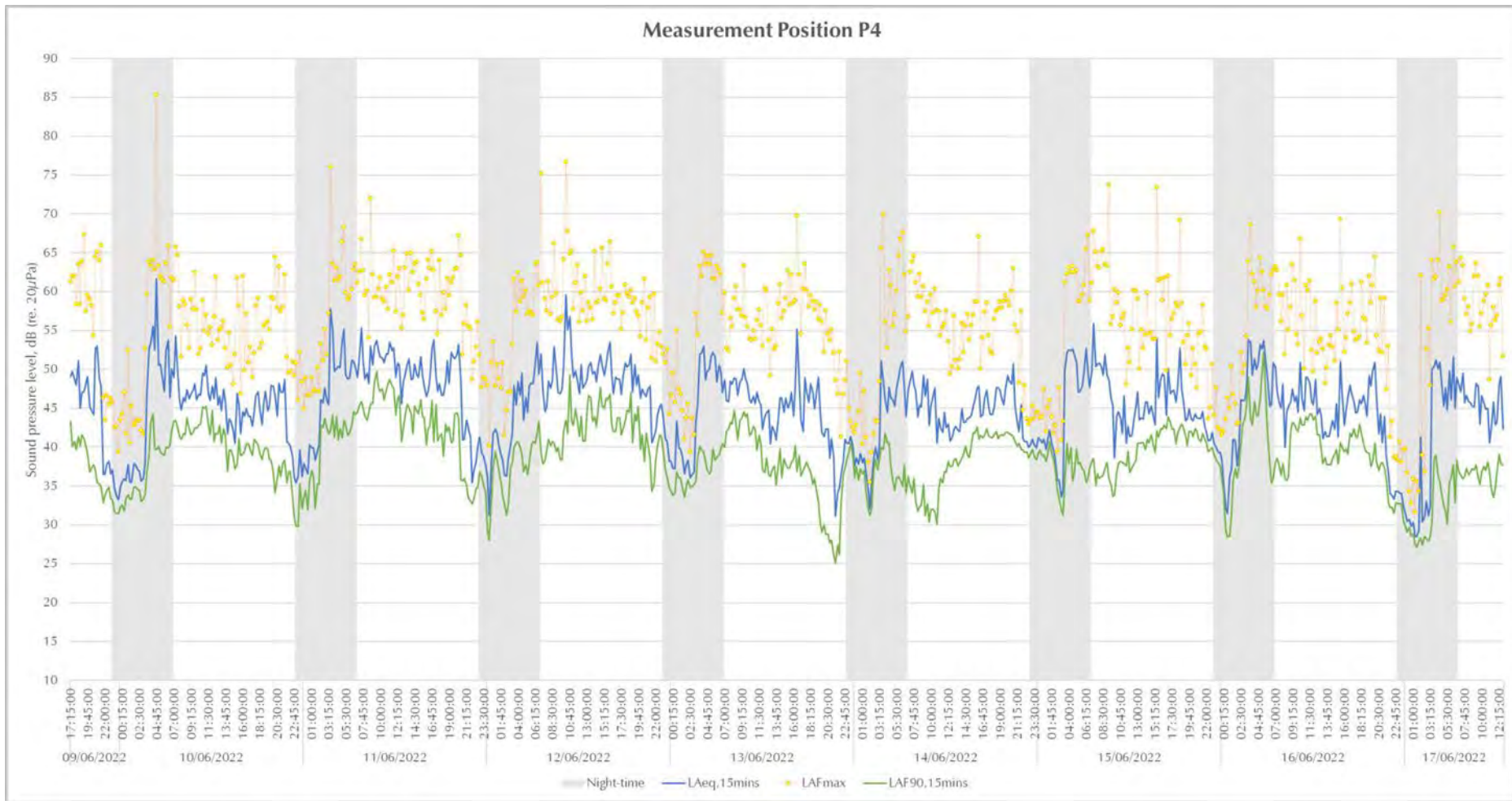


Figure A13-1-19 – Measured noise levels at Position P4

## Representative Background Sound Levels – Position P4

The statistical analysis that has been used to determine a representative background sound level during the daytime and night-time periods is presented in Figure A13-20 and Figure A13-1-21 respectively. These levels will be used to inform the operational phase assessment for the Pump Facility undertaken in accordance with BS 4142:2014+A1:2019: 'Methods for rating and assessing industrial and commercial sound'.

For this distribution of data, a daytime  $L_{A90,1hr}$  of 37 dB and a night-time  $L_{A90,15min}$  of 33 dB are considered to be representative of the prevailing background sound level at Position P4.

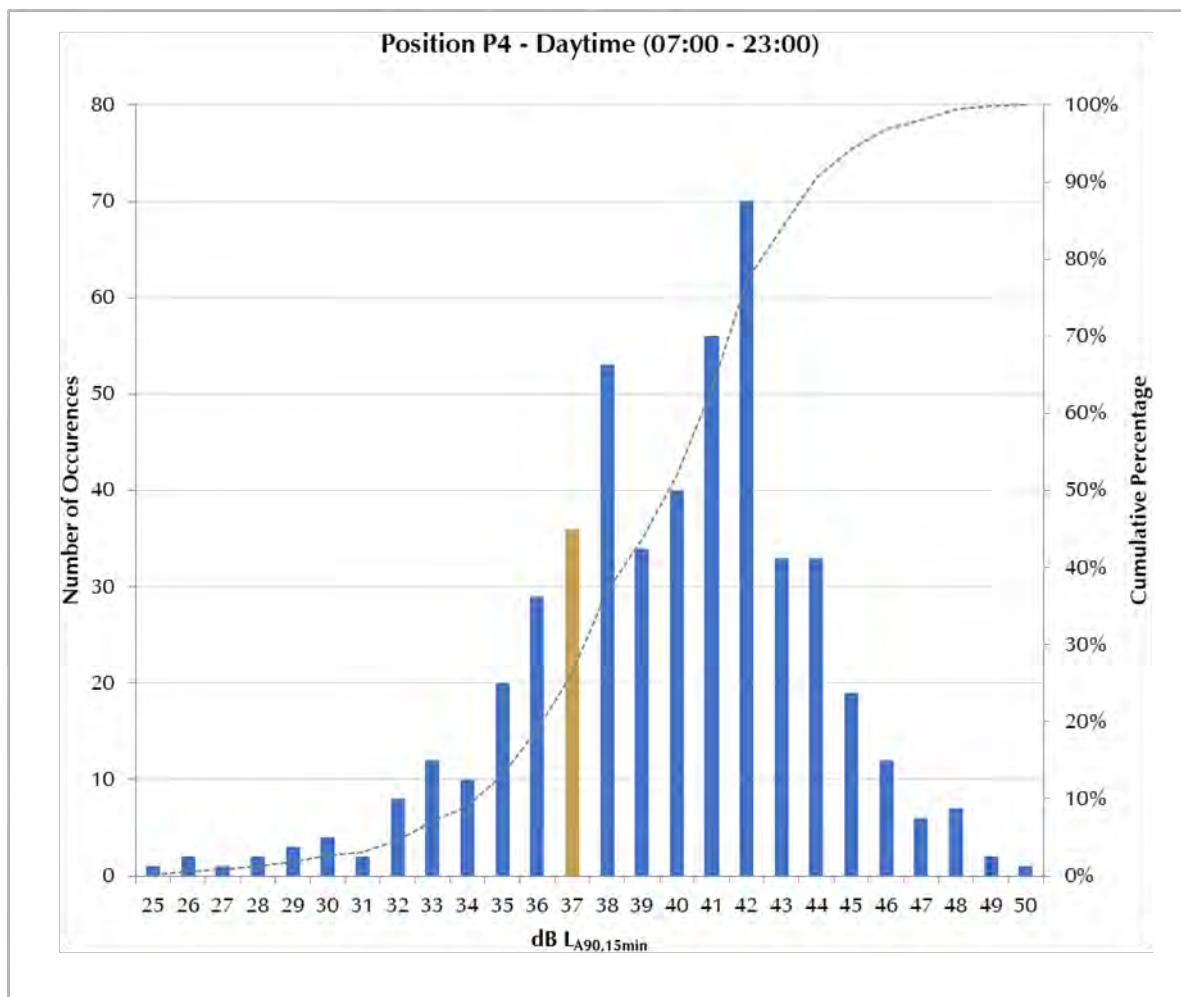


Figure A13-1-20 – Statistical analysis of measured background sound levels at Position P4 – Daytime

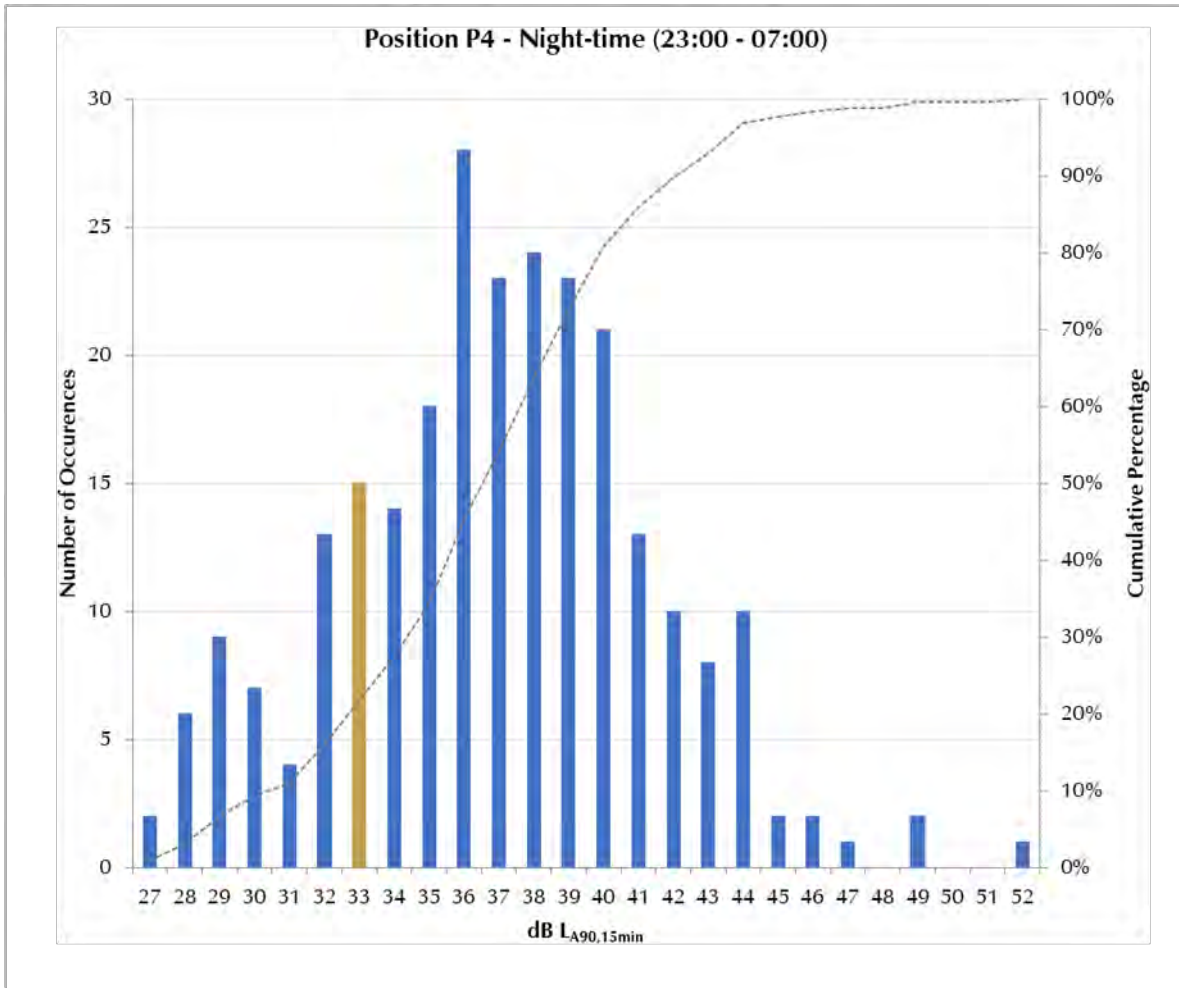


Figure A13-21 – Statistical analysis of measured background sound levels at Position P4 – Night-time

## Noise Measurements – Position P5: Coastal path

A summary of the measured noise levels at Position P5 are presented below.

Table A13-1-8 – Measured noise levels at Position P5

Date	Period	dB LAeq,T	dB LA90,T	dB LAmax (Range)
09/06/2022 (Thursday)	Day	54.7	51.9	60.5 - 81.2
	Night	54.9	50.9	59.2 - 74.6
10/06/2022 (Friday)	Day	54.3	50.1	55.8 - 74.4
	Night	53.5	49.1	57.7 - 71.7
11/06/2022 (Saturday)	Day	55.7	49.7	53.9 - 78.4
	Night	50.0	48.1	54.5 - 66.0

Date	Period	dB LAeq,T	dB LA90,T	dB LAmax (Range)
12/06/2022 (Sunday)	Day	57.2	48.6	60.1 - 80.4
	Night	50.8	48.4	55.8 - 67.3
13/06/2022 (Monday)	Day	52.9	49.9	52.4 - 75.1
	Night	51.0	48.4	51.4 - 59.9
14/06/2022 (Tuesday)	Day	50.9	48.3	51.7 - 78.1
	Night	51.3	49.2	49.9 - 73.7
15/06/2022 (Wednesday)	Day	50.8	48.8	51.1 - 70.2
	Night	51.1	49.3	52.4 - 62.7
16/06/2022 (Thursday)	Day	49.6	46.7	49.7 - 73.4
	Night	50.3	48.7	53.2 - 62.7
17/06/2022	Day	50.8	48.1	56.0 - 76.5
<b>Notes</b>				
[1]	Note 1 • Daytime period: 07:00 – 23:00 hrs, night-time: 23:00 – 07:00 hrs			
[2]	Note 2 • Daytime measurements taken on the 09/06/2022 and 17/06/2022 were not taken throughout full 16hr daytime period.			
[3]	Note 3 • LAeq,T values are the logarithmic average of LAeq,15min samples, and the LA90,T values are the arithmetic average of LA90,15min samples.			

During the daytime installation and collection of the noise monitoring equipment at Position P5, the acoustic environment was dominated by natural sounds, primarily comprising breaking waves, in addition to intermittent traffic on Warmer Lane/Dimlington Road.



Figure A13-1-22 – Noise monitoring installations at Position P5 – view facing south



Figure A13-1-23 – Noise monitoring installations at Position P5 – view facing north

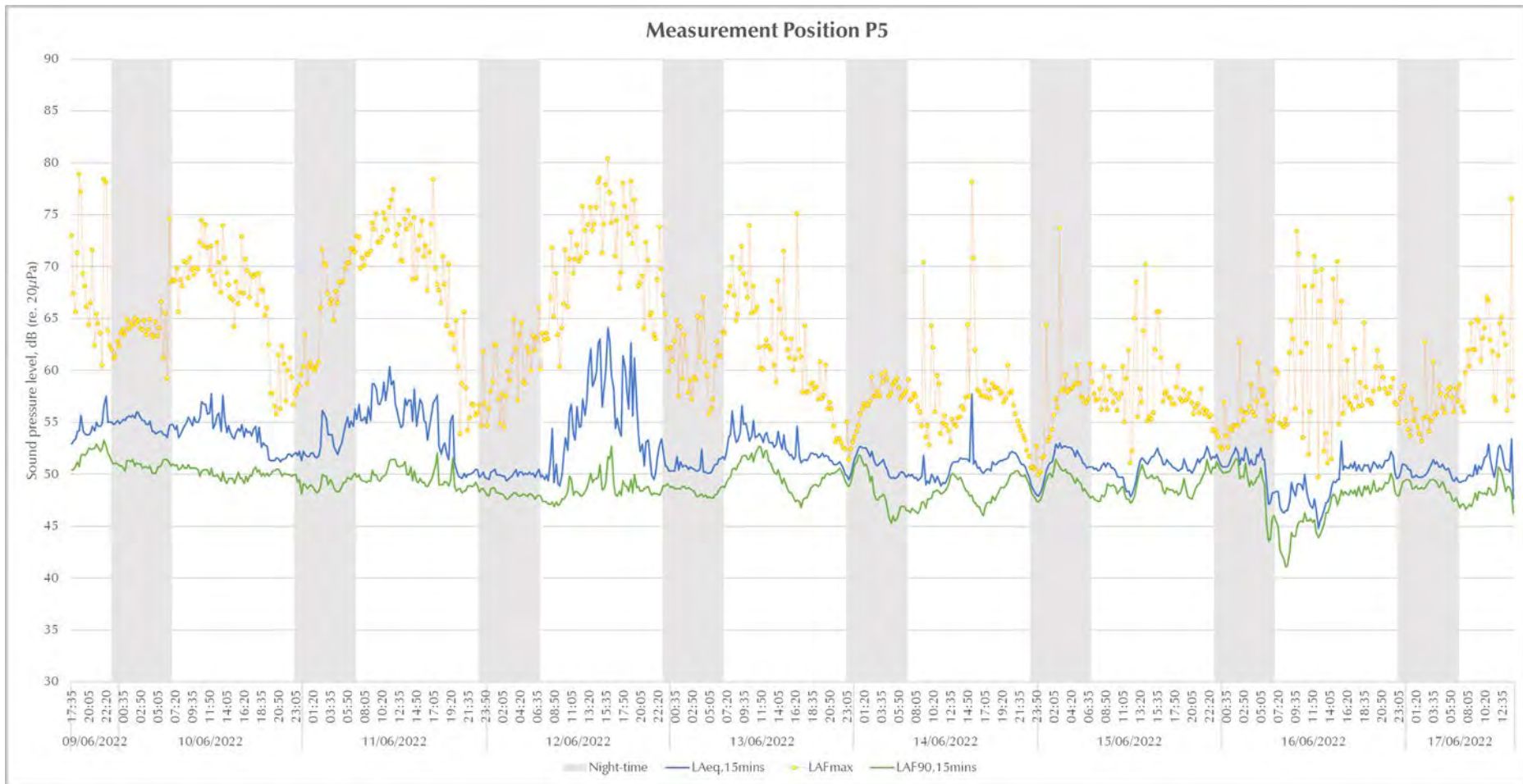


Figure A13-1-24 – Measured noise levels at Position P5

## Representative Background Sound Levels – Position P5

The statistical analysis that has been used to determine a representative background sound level during the daytime and night-time periods is presented in Figure A13-1-25 and Figure A13-2-26 respectively. These levels will be used to inform the operational phase assessment for the Pump Facility undertaken in accordance with BS 4142:2014+A1:2019: 'Methods for rating and assessing industrial and commercial sound'.

For this distribution of data, a daytime  $L_{A90,1hr}$  of 48 dB and a night-time  $L_{A90,15min}$  of 48 dB are considered to be representative of the prevailing background sound level at Position P5.

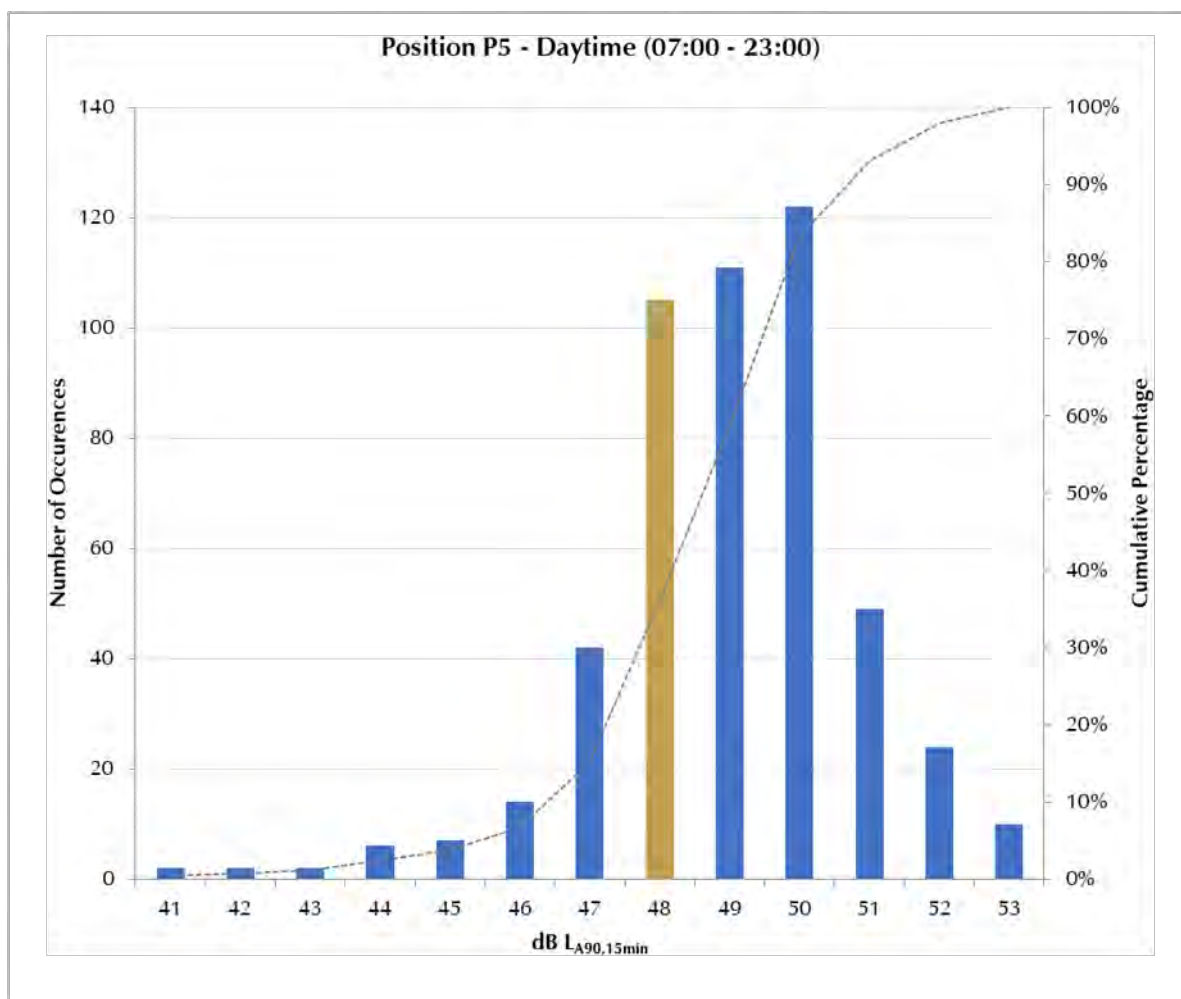


Figure A13-1-25 – Statistical analysis of measured background sound levels at Position P5 – Daytime

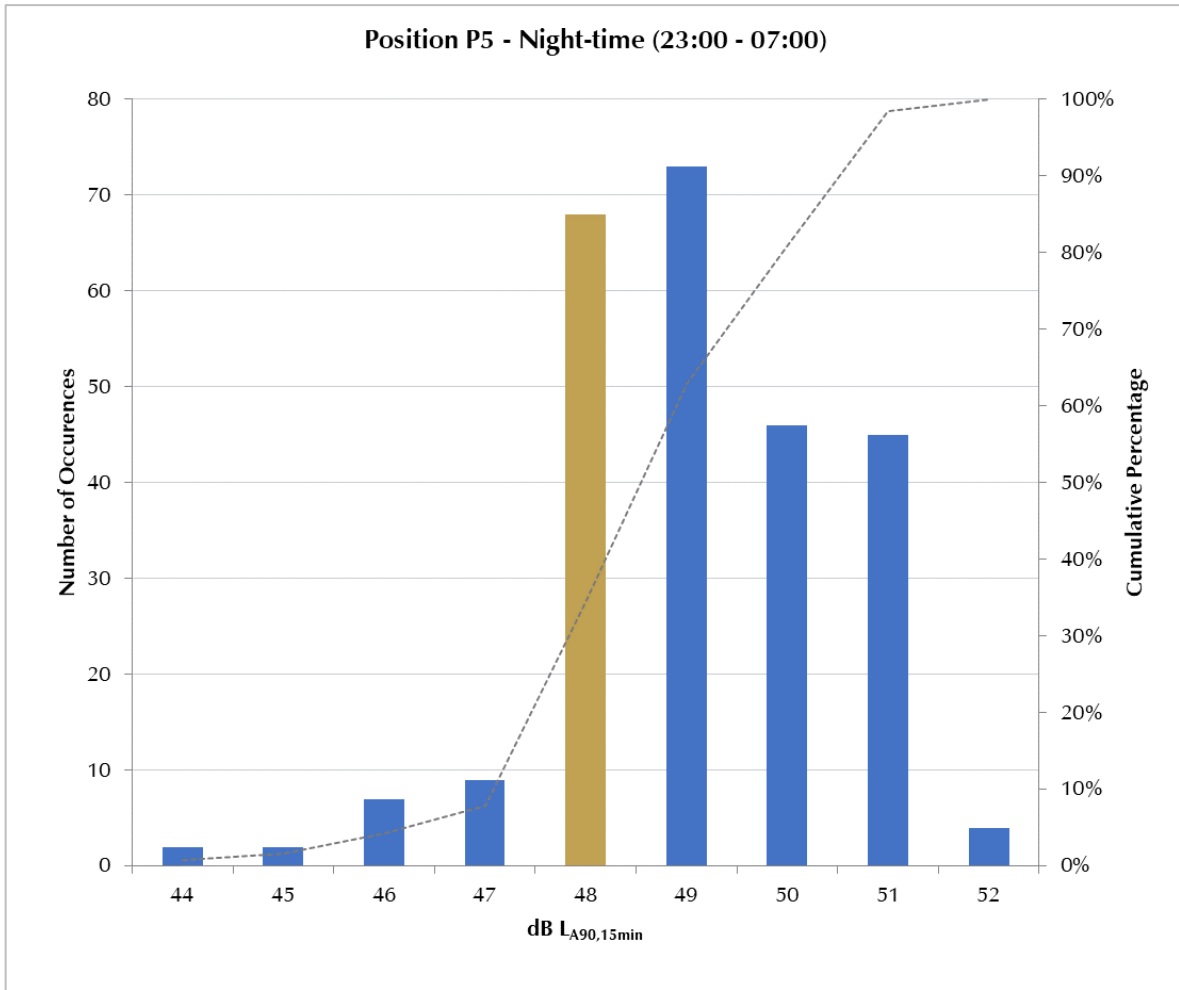


Figure A13-1-26 – Statistical analysis of measured background sound levels at Position P5 – Night-time

## Annex A – Glossary of Acoustic Terms

### **$L_{Aeq}$ :**

The notional steady sound level (in dB) which over a stated period of time, would have the same A-weighted acoustic energy as the A-weighted fluctuating noise measurement over that period. Values are sometimes written using the alternative expression dB(A)  $L_{eq}$ .

### **$L_{Amax}$ :**

The maximum A-weighted sound pressure level recorded over the period stated.  $L_{Amax}$  is sometimes used in assessing environmental noise when occasional loud noises occur, which may have little effect on the  $L_{Aeq}$  noise level. Unless described otherwise,  $L_{Amax}$  is measured using the “fast” sound level meter response.

### **$L_{A10}$ & $L_{A90}$ :**

If non-steady noise is to be described, it is necessary to know both its level and degree of fluctuation. The  $L_{An}$  indices are used for this purpose. The term refers to the A-weighted level (in dB) exceeded for n% of the time specified.  $L_{A10}$  is the level exceeded for 10% of the time and as such gives an indication of the upper limit of fluctuating noise. Similarly,  $L_{A90}$  gives an indication of the lower levels of fluctuating noise. It is often used to define the background noise.

$L_{A10}$  is commonly used to describe traffic noise. Values of dB  $L_{An}$  are sometimes written using the alternative expression dB(A)  $L_n$ .

## Appendix 13.2 – Construction Phase Significance Criteria

### Construction Noise

BS 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites. Noise' (BS 5228-1) gives recommendations for basic methods of noise control relating to construction work. It also provides guidance concerning methods of predicting and measuring construction noise and assessing its impact on those exposed to it.

Table E.1 of BS 5228-1 provides a methodology for determining significant noise levels due to construction activities. For the appropriate period (daytime, evening / weekends or night-time), the pre-construction ambient noise level is determined, rounded to the nearest 5 dB and then allocated into a threshold category (A to C).

The predicted construction noise levels are assessed against the corresponding noise threshold level. If the construction noise level exceeds the appropriate category value, then a potential significant impact may be considered to occur. Table E.1 of BS 5228-1 is reproduced below.

*Table A13-2-1-1 – Threshold of potential significant construction impacts at dwellings*

Assessment category and threshold value period	Threshold value, in decibels (dB) ( $L_{Aeq,T}$ )		
	Category A <sup>A)</sup>	Category B <sup>B)</sup>	Category C <sup>C)</sup>
Night-time (23.00-07.00)	45	50	55
Evenings (19.00-23.00) and weekends	55	60	65
Daytime (07.00-19.00) and Saturdays (07.00-13.00)	65	70	75

*NOTE 1 - A potential significant effect is indicated if the  $L_{Aeq,T}$  noise level arising from the site exceeds the threshold level for the category appropriate to the ambient noise level.*

*NOTE 2 - If the ambient noise level exceeds the Category C threshold values given in the table (i.e. the ambient noise level is higher than the above values), then a potential significant effect is indicated if the total  $L_{Aeq,T}$  noise level for the period increases by more than 3 dB due to site noise.*

*NOTE 3 - Applied to residential receptors only.*

<sup>A)</sup> Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values.

<sup>B)</sup> Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as Category A values.

c) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than Category A values.

If the contractor has applied best practicable means to the provision of mitigation, i.e. all reasonable measures have been taken to reduce the noise levels, but levels are still such that widespread community disturbance or interference with activities or sleep is likely to occur, there are further provisions that can be made if the construction activities are likely to continue for a significant period of time either continuously or sporadically. These are noted to be noise insulation and temporary or permanent re-housing. BS 5228-1 provides an example of thresholds used to determine eligibility for these measures within Annex E.4, which are summarised below.

Table A13-2-2-2 – Noise thresholds for noise insulation/temporary re-housing

Time	Relevant time period	Averaging time, T	Noise insulation trigger level dB L <sub>Aeq,T</sub> <sup>A)</sup>	Temporary re-housing trigger level dB L <sub>Aeq,T</sub> <sup>A)</sup>
Monday to Fridays	07.00 – 08.00	1 hour	70	80
	08.00 – 18.00	10 hours	75	85
	18.00 – 19.00	1 hour	70	80
	19.00 – 22.00	3 hours	65	75
	22.00 – 07.00	1 hour	55	65
Saturday	07.00 – 08.00	1 hour	70	80
	08.00 – 13.00	5 hours	75	85
	13.00 – 14.00	1 hour	70	80
	14.00 – 22.00	3 hours	65	75
	22.00 – 07.00	1 hour	55	65
Sundays & Public Holidays	07.00 – 21.00	1 hour	65	75
	21.00 – 07.00	1 hour	55	65

A) All noise levels are predicted or measured at a point 1 m in front of the most exposed of any windows and doors in any façade of any eligible dwelling.

**Qualifying eligibility criteria**

Noise levels are predicted or measured by the contractor to exceed the relevant trigger level defined above at that property for at least 10 days out of any period of 15 consecutive days, or at least 40 days in any six-month period.

**Construction Vibration**

BS 5228-2:2009+A1:2014 ‘Code of practice for noise and vibration control on construction and open sites – Vibration’ (BS 5228-2) provides guidance on vibration levels that can be

used to assess the likely impacts of construction activities. Annex E of the standard gives empirical formulae for the prediction of the resultant peak particle velocity (PPV) vibration levels for various types of work.

Annex B of the standard gives guidance on the significance of vibration effects in terms of human response to vibration (Table A13-2-3 refers) and structural response to vibration (Table A13-2-4 refers).

*Table A13-2-3-3 – Guidance on effects of vibration levels perceptible to humans*

Vibration level (PPV)	Effect
0.14 mm/s	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration
0.3 mm/s	Vibration might be just perceptible in residential environments
1.0 mm/s	It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents
10 mm/s	Vibration is likely to be intolerable for any more than a very brief exposure to this level

*Table A13-2-4-4 – Transient vibration guide values for cosmetic damage in structures*

Type of building	Peak component particle velocity in frequency range of predominant pulse	
	4 Hz to 15 Hz	15 Hz and above
Reinforced or framed structures	50 mm/s at 4 Hz and above	50 mm/s at 4 Hz and above
Industrial and heavy commercial buildings		
Unreinforced or light framed structures	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above
Residential or light commercial buildings		

BS 5228-2 states that the guide values in Table 4 predominantly relates to transient vibration which does not give rise to resonant responses in structures, and to low-rise buildings. Where the dynamic loading caused by continuous vibration is such that it gives rise to dynamic magnification due to resonance, especially at the lower frequencies where

lower guide values apply, then the guide values in Table 4 might need to be reduced by up to 50%.

## Appendix 13.3 – Construction Phase Plant List

Site preparation							
Plant	Plant Ref	L <sub>p</sub> (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L <sub>p</sub> (at 10 m) dB(A)
Tracked excavator	C2.16	75	1	80	0	-1	74
Dozer	C2.10	80	1	50	0	-3	77
Dozer	C2.11	79	1	70	0	-2	77
Rolling (rolling fill)	C2.37	79	2	30	0	-2	77
Tracked drilling rig with hydraulic drifter	C3.15	82	1	30	0	-5	77
Trenching machine (drainage)	D.3.10 6	77	2	50	0	0	77
Mini tracked excavator (fencing machine proxy)	C3.20	68	1	80	0	-1	67
Handheld cordless nail gun (fencing)	C4.95	73	1	50	0	-3	70
Total							85

Access works							
Plant	Plant Ref	L <sub>p</sub> (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L <sub>p</sub> (at 10 m) dB(A)
Tracked excavator	C2.14	79	2	80	0	2	81
Tracked excavator	C2.16	75	2	80	0	2	77

Access works							
Plant	Plant Ref	L <sub>p</sub> (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L <sub>p</sub> (at 10 m) dB(A)
Dozer	C2.10	80	1	50	0	-3	77
Dozer	C2.11	79	1	50	0	-3	76
Tracked mobile crane	C3.29	70	2	30	0	-2	68
Telescopic handler	C4.54	79	2	50	0	0	79
Conveyor drive unit	C10.20	77	1	80	0	-1	76
Trenching machine (drainage)	D.3.106	77	2	50	0	0	77
Mini tracked excavator (fencing machine proxy)	C3.20	68	2	80	0	2	70
Handheld cordless nail gun (fencing)	C4.95	73	2	50	0	0	73
<b>Total</b>							<b>87</b>

Trenching							
Plant	Plant Ref	L <sub>p</sub> (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L <sub>p</sub> (at 10 m) dB(A)
Trenching machine	D.3.106	77	1	80	0	-1	76

Trenching							
Plant	Plant Ref	L <sub>p</sub> (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L <sub>p</sub> (at 10 m) dB(A)
Tracked excavator	C4.63	77	4	80	0	5	82
Dozer	C2.11	79	1	80	0	-1	78
Diesel generator	C4.85	66	2	100	0	3	69
Dump truck (tipping fill)	C2.30	79	2	30	0	-2	77
<b>Total</b>							<b>85</b>

Pipeline fabrication							
Plant	Plant Ref	L <sub>p</sub> (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L <sub>p</sub> (at 10 m) dB(A)
Mobile telescopic crane	C4.45	82	4	30	0	1	83
Tracked excavator	C2.14	79	2	50	0	0	79
Tipper lorry	C8.20	79	3	30	0	0	79
Tractor (towing trailer)	C4.75	79	3	20	0	-2	77
Welding tractor (paywelder)	-	81	2	50	0	0	81
<b>Total</b>							<b>87</b>

Pipeline installation							
Plant	Plant Ref	L <sub>p</sub> (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L <sub>p</sub> (at 10 m) dB(A)
Mobile telescopic crane	C4.45	82	4	50	0	3	85
Tracked excavator	C2.14	79	1	50	0	-3	76
Dump truck (tipping fill)	C2.30	79	1	30	0	-5	74
<b>Total</b>							<b>86</b>

Trench backfilling							
Plant	Plant Ref	L <sub>p</sub> (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L <sub>p</sub> (at 10 m) dB(A)
Tracked excavator	C2.14	79	3	80	0	4	83
Dozer	C2.10	80	2	50	0	0	80
Rolling (rolling fill)	C2.37	79	1	30	0	-5	74
Dump truck (tipping fill)	C2.30	79	2	30	0	-2	77
<b>Total</b>							<b>86</b>

Reinstatement							
Plant	Plant Ref	L <sub>p</sub> (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L <sub>p</sub> (at 10 m) dB(A)
Tracked excavator	C2.14	79	2	80	0	2	81
Dozer	C2.10	80	1	50	0	-3	77
Dozer	C2.11	79	1	50	0	-3	76
Tracked mobile crane	C3.29	70	1	30	0	-5	65
Rolling (rolling fill)	C2.37	79	2	30	0	-2	77
Telescopic handler	C4.54	79	2	50	0	0	79
Conveyor drive unit	C10.20	77	1	80	0	-1	76
Trenching machine (drainage)	D.3.10 6	77	2	80	0	2	79
Compressor	D.6.43	77	2	50	0	0	77
<b>Total</b>							<b>87</b>

Trenchless techniques – HDD, civils works							
Plant	Plant Ref	L <sub>p</sub> (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L <sub>p</sub> (at 10 m) dB(A)
Tracked excavator	C2.16	75	1	75	0	-1	74
Tracked excavator	C2.24	73	1	75	0	-1	72
Articulated dump truck	C4.1	81	1	50	0	-3	78

Trenchless techniques – HDD, civils works							
Plant	Plant Ref	L <sub>p</sub> (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L <sub>p</sub> (at 10 m) dB(A)
Dumper	C4.7	78	1	50	0	-3	75
Lorry with lifting boom	C4.53	77	1	30	0	-5	72
<b>Total</b>							<b>82</b>

Trenchless techniques – HDD, drilling works							
Plant	Plant Ref	L <sub>p</sub> (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L <sub>p</sub> (at 10 m) dB(A)
HDD Power unit & drill	-	83	1	100	0	0	83
Bentonite pump	-	76	1	100	0	0	76
Bentonite mixer	-	70	1	100	0	0	70
Diesel generator	C4.86	65	2	100	0	3	68
Lighting tower	-	60	6	100	0	8	68
<b>Total</b>							<b>84</b>

Trenchless techniques - Mirco tunnelling/auger bore/tunnelling, civils works							
Plant	Plant Ref	L <sub>p</sub> (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L <sub>p</sub> (at 10 m) dB(A)
Tracked excavator	C2.16	75	1	75	0	-1	74
Tracked excavator	C2.24	73	1	75	0	-1	72
Articulated dump truck	C4.1	81	1	50	0	-3	78
Dumper	C4.7	78	1	50	0	-3	75
Vibratory piling rig	C3.8	88	1	50	0	-3	85
Wheeled mobile crane	C4.43	70	1	30	0	-5	65
Total							87

Trenchless techniques - Mirco tunnelling/auger bore/tunnelling works							
Plant	Plant Ref	L <sub>p</sub> (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L <sub>p</sub> (at 10 m) dB(A)
Crawler mounted rig	C3.22	80	1	100	-5	-5	75
Wheeled mobile crane	C4.43	70	1	50	0	-3	67
Diesel generator	C4.86	65	2	100	0	3	68


Trenchless techniques - Mirco tunnelling/auger bore/tunnelling works							
Plant	Plant Ref	L <sub>p</sub> (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L <sub>p</sub> (at 10 m) dB(A)
Lighting tower	-	60	6	100	0	8	68
<b>Total</b>							<b>77</b>

Compound construction							
Plant	Plant Ref	L <sub>p</sub> (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L <sub>p</sub> (at 10 m) dB(A)
Tracked excavator	C2.14	79	4	50	0	3	82
Dozer	C2.10	80	1	30	0	-5	75
Dozer	C2.11	79	1	30	0	-5	74
Tracked mobile crane	C3.29	70	1	30	0	-5	65
Mini tracked excavator (fencing machine proxy)	C3.20	68	2	80	0	2	70
Handheld cordless nail gun (fencing)	C4.95	73	2	50	0	0	73
Tracked drilling rig	C3.15	82	1	30	0	-5	77
Trenching machine (drainage)	D.3.10 6	77	4	50	0	3	80
Dump truck (tipping fill)	C2.30	79	1	30	0	-5	74
<b>Total</b>							<b>86</b>

AGI Construction							
Plant	Plant Ref	L <sub>p</sub> (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L <sub>p</sub> (at 10 m) dB(A)
Tracked excavator	C2.14	79	3	50	0	2	81
Tracked excavator	C2.16	75	3	50	0	2	77
Dozer	C2.10	80	2	50	0	0	80
Dozer	C2.11	79	2	50	0	0	79
Tracked mobile crane	C4.52	75	2	30	0	-2	73
Tracked drilling rig	C3.15	82	1	30	0	-5	77
<b>Total</b>							<b>86</b>

Compound reinstatement							
Plant	Plant Ref	L <sub>p</sub> (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L <sub>p</sub> (at 10 m) dB(A)
Tracked excavator	C2.14	79	4	50	0	3	82
Dozer	C2.10	80	1	30	0	-5	75
Dozer	C2.11	79	1	30	0	-5	74
Tracked mobile crane	C4.52	75	1	30	0	-5	70

Compound reinstatement							
Plant	Plant Ref	L <sub>p</sub> (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L <sub>p</sub> (at 10 m) dB(A)
Tracked drilling rig	C3.15	82	2	30	0	-2	80
Trenching machine (drainage)	D.3.10 6	77	4	50	0	3	80
<b>Total</b>							<b>86</b>

EAST AST CLUSTER

