



Planning Statement (incl. Design & Access Statement)

**For a single wind turbine on Land at Burngulrow,
St Mewan, Cornwall, PL26 7TE**

December 2023

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1 Introduction

1.1 Application Details

- 1 This Planning Statement (PS) including the Design and Access Statement (DAS) accompanies a planning application by CleanEarth (The Applicant) to Cornwall Council for full planning permission to develop a single wind turbine, up to 135m tip height, on Imerys Land, Land at Burngullow, St Mewan, Cornwall, PL26 7TE.
- 2 The proposed development would have an export capacity of 4.1MW and will provide a reliable source of clean energy which will be supplied to domestic and commercial consumers via the District Network Operator (DNO) grid network. Planning is sought for a temporary period of 35 years from the date of first exportation of electricity from the site. following the temporary 35 year period, the wind turbine and associated equipment will be removed from site but the biodiversity enhancement measures will remain, providing long term benefits to the local landscape character of the area.
- 3 CE looks to develop sites that have a reduced environmental impact by considering proximity and visual amenity to ‘sensitive receptors’ (residential dwellings), noise, ecological constraints, existing infrastructure including wind turbines, and locally designated areas and features; whilst providing a clean supply of electricity to the grid, helping to transition the UK to a renewable energy future, meet renewable generation targets and reduce the carbon footprint and the national energy mix.
- 4 The proposed Burngullow turbine will comprise of:

‘A single wind turbine, along with associated works, equipment and necessary infrastructure’.
- 5 This proposal responds to Cornwall’s commitment to transition to a carbon neutral county by 2030, by moving towards the use of more renewable energy resources¹.
- 6 This PS details: the development specifics including the proposed development; the environmental benefits of the scheme; the impact on the key environmental issues associated with a wind turbine development of this scale; and the planning policy framework from which the application should be determined. The fundamental objective of this proposal is to generate renewable energy to supply the grid, helping to meet Government

¹ Climate Change Plan: Creating the conditions for change through direct action and a new form of place-based leadership for Cornwall to become Carbon Neutral 15th July 2019. Accessed via: <https://www.cornwall.gov.uk/media/y5mctbyu/climate-change-action-plan.pdf>. (Accessed 31st January 2022).

targets and reduce the UK’s dependence on fossil fuels. It also helps to secure Cornwall’s long term energy future and makes a significant contribution to Cornwall’s net zero target.

- 7 This proposal responds to international, European, National and Regional policy by contributing to a reduction in carbon emissions and subsequent attainment of renewable energy targets.
- 8 This PS, and accompanying technical appendices, report the work undertaken in support of the proposed development. The contributors to each section are identified in Table 1. It is important to note that all the supporting surveys, documents and assessments have been specifically completed for this proposal by a consultant team who know this industry and the location very well.

Table 1: Contributors to this Planning Statement

Section and Topic	Contributor(s)
Chapter 1 - Introduction	CleanEarth
Chapter 2 - The Proposal	CleanEarth
Chapter 3 - Outlined Construction Process	
Chapter 4 - EIA Screening	Cornwall Council
Chapter 5 - Evaluation of the Burngullow Proposal	CleanEarth
Chapter 6 - Energy & Planning Policy	CleanEarth
Chapter 7 - Landscape & Visual Impact	Amalgam Landscape
Chapter 8 - Ecology	Western Ecology
Chapter 9 - Archaeological & Historic Environment	South West Archaeology
Chapter 10 - Noise	TNEI
Chapter 11 - Hydrology	Engineering and Development Solutions (EDS)
Chapter 12 - Aviation & Telecoms	MoD, JRC & Atkins
Chapter 13 - Shadow Flicker	CleanEarth
Chapter 14 - Transport	CleanEarth & Titus Newsome
Chapter 15 - Public Consultation and Statement of Community Involvement	CleanEarth
Chapter 16 - Aviation	Cyrrus
Chapter 17 - Contamination	Contamination Reports South West

- 9 This PS has been submitted to Cornwall Council as the Local Planning Authority (LPA).

- 10 Comments on the application should be forwarded to Cornwall Council during its consideration and determination of the planning application.

1.2 Site Details

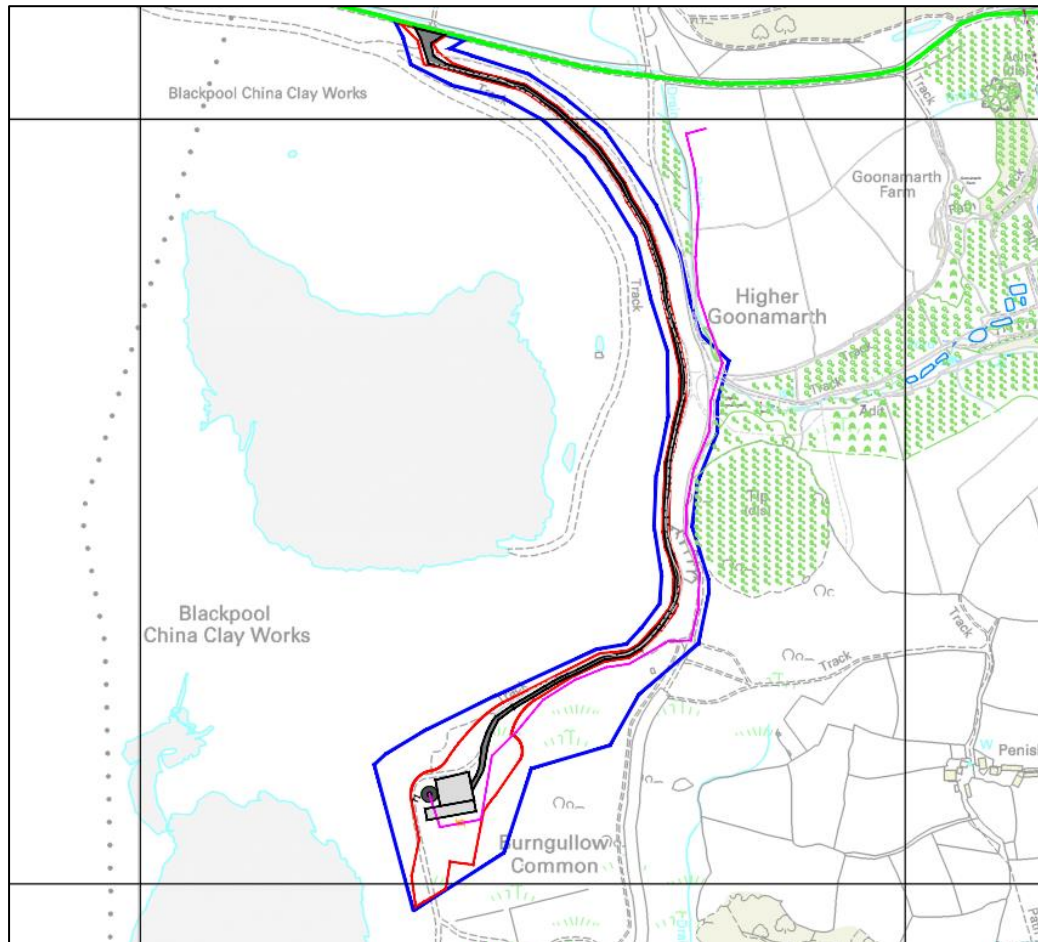


Figure 1: Burngullow proposal site details

- 11 The proposed site is located on Burngullow Common, St Mewan and is located to the south of the public road with Imerys Blackpool China Clay Works to the west, centred on National Grid Reference X: 198378, Y: 054117 at an elevation of approximately 205m AOD (Above Ordnance Datum).
- 12 The site sits just east of Blackpool Quarry, approximately 3.2km west from the town of St Austell. It has been sited and designed to be a single addition to the landscape that will be seen with the existing Blackpool turbine located approximately 520m to the south of the proposed site. This single addition would be seen in conjunction with the Higher Goonamarth, Greensplat, and Blackpool turbines along with the approved Longstones and East Karlake turbines. The proposed turbine has been situated within a landscape which already has strong human and industrial influences; much of the immediate area is

dominated by the china clay industry and will be seen in the context of the existing wind turbines and surrounding industrial mining landscape and as such will result in minimal additional visual or landscape impact.

- 13 The proposed turbine location has been sited and designed to be a single addition to the existing turbine landscape. It will be seen in context with the existing and consented turbines (as seen in Figure 2);
- Higher Goonamarth Turbine - located approximately 945m northeast of the proposed site;
 - Blackpool Turbine - located approximately 520m southwest of the proposed site;
 - Greensplat Turbine - located 1.75km northwest of the proposed site;
 - Gunheath Turbine - located approximately 3.50km northeast of the site;
 - Consented Longstones Turbine - situated approximately 1.20km north of the proposed site;
 - Consented Wheal Martyn Turbine - situated approximately 2.70km northeast of the proposed site; and,
 - Consented East Karslake Turbine - situated approximately 1.30km north of the proposed site.

Planning Statement – Burngullow Wind Turbine

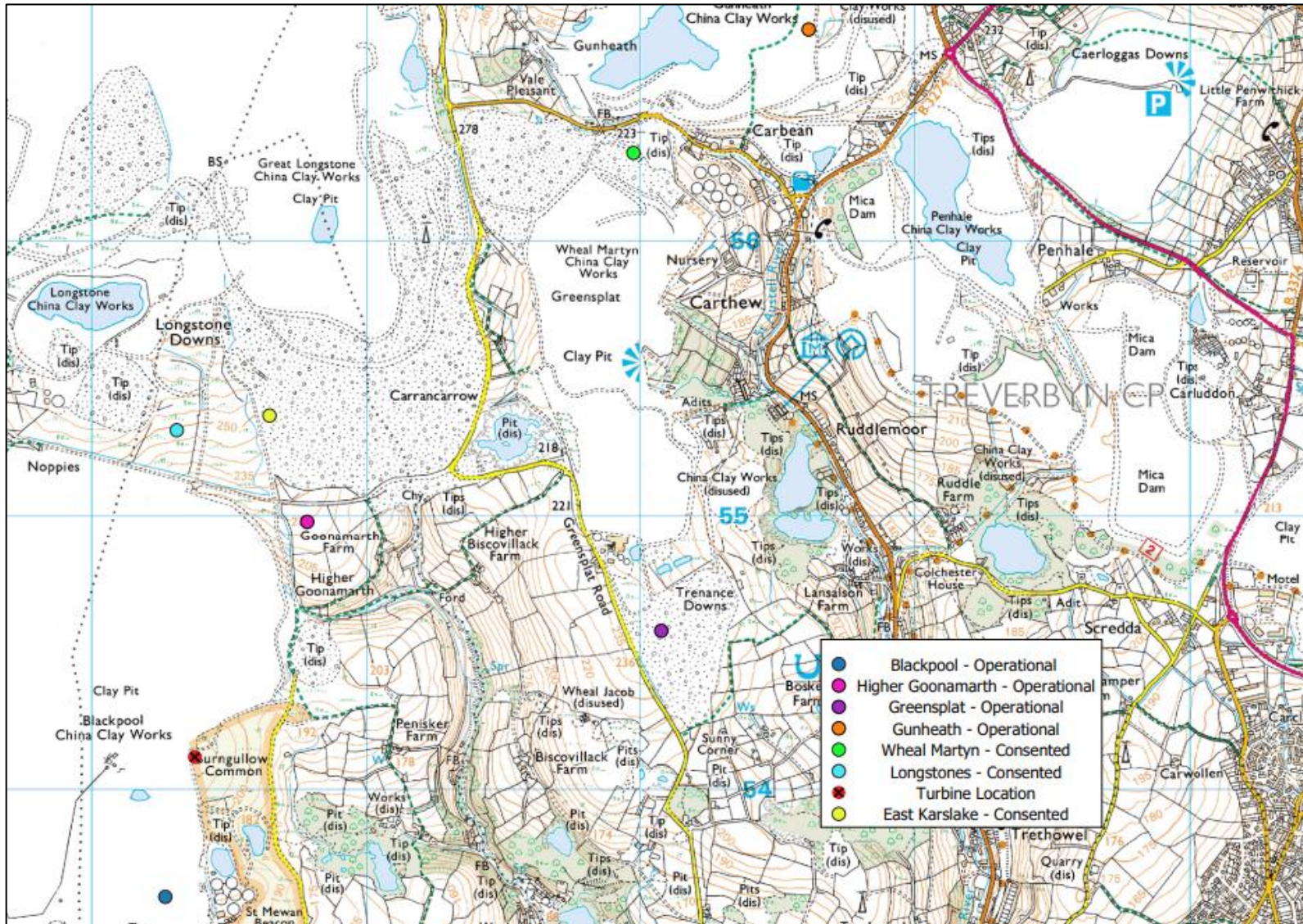


Figure 3: Burngullow location in relation to the consented and operational schemes in the area

- 14 Although there are areas of fragmented lowland heath, scrub and broadleaved woodland within the landscape, the proposed site can be seen to have a low biodiversity value due to the heavy industrial use of the area which has left extensive spoil heaps and settling ponds². The sites prevailing character is that of industry heavily influenced by China Clay Works and tips, with very good to substantial ability to accommodate change without detriment to its landscape character. The proposed development will be perceived against a backdrop of the mining landscape which dominates the landscape to the west, south and north. In close proximity, the proposal will be viewed as a prominent vertical element, in combination and adjacent to similar scale operational and consented wind turbines. As a result, the site is extremely well suited for wind energy development.
- 15 CE recognises the residential properties within the surrounding area and have considered these areas within the technical assessments which support this proposal. The consideration resulted in siting the proposed development in the northern part of St Mewan parish. The proposed site is far removed from the densely populated areas of Trewoon, Polgooth and Sticker with the closest residential property located 800m southeast.
- 16 For additional detail regarding the site layout and location please refer to the plans in **Appendix B**.

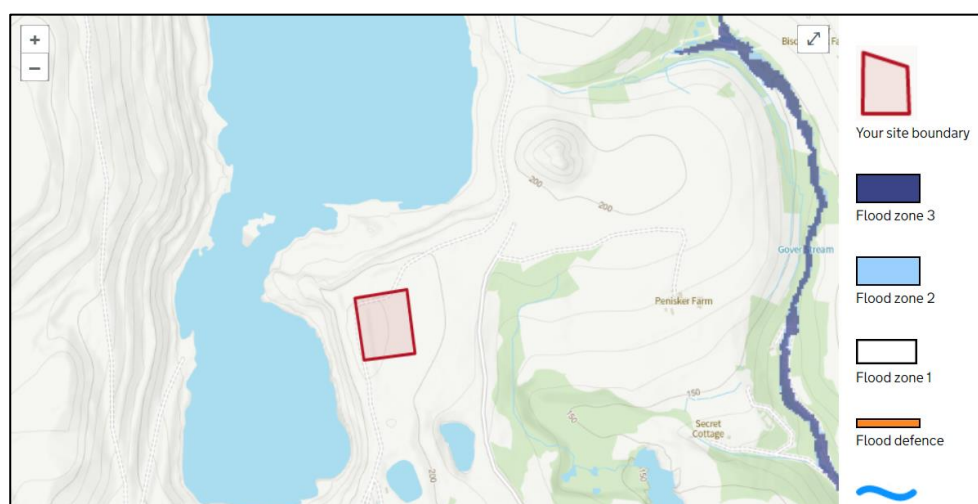


Figure 4: Flood Risk Map of the Proposed Development Site

Figure 5: Burngullow location in relation to the consented and operational schemes in the area
Figure 6: Flood Risk Map of the Proposed Development Site

² Cornwall Renewable Energy Planning Advice March 2016. Accessed via: [file:///Y:/Quality%20Management%20System%20\(QMS\)/ISO%209001%202015%20QMS/Level%203%20Control%20Documents/Planning/Council%20Guidance%20Folder/England/Cornwall/renewable-energy-planning-advice-march-2016-annex1-appendix-1.pdf](file:///Y:/Quality%20Management%20System%20(QMS)/ISO%209001%202015%20QMS/Level%203%20Control%20Documents/Planning/Council%20Guidance%20Folder/England/Cornwall/renewable-energy-planning-advice-march-2016-annex1-appendix-1.pdf) (Accessed 11th February 2022)

- 17 It has been concluded that there will be no significant flood risk on site as the proposed location falls outside of any flood risk zones (as seen in Figure 3). The flood risk on site is therefore not considered to be significant. However, as the proposal exceeds 1ha, a full Flood Risk Assessment (FRA) is provided in **Appendix H**.
- 18 There is a Public Right of Way (PROW) path number (419/27/1) to the east of the proposed turbine location which will remain open and free from obstruction.
- 19 The site is not located within, or adjacent to, any nationally designated landscapes such as National Parks or Areas of Outstanding Natural Beauty (AONB), which attract the highest levels of protection in national policy. The Site also avoids locally designated landscapes such as Areas of Great Landscape Value (AGLV). The AGLV designation is identified by Cornwall Council as being areas of higher landscape quality than other landscapes and consequently they have been afforded policy protection with particular regard to siting, design and landscaping of development in such areas.

Site Details Summary:

Wind energy development is a key part of the response to the Climate Emergency and on the basis that sites need to be found, this location is ideal:

- The site is not covered by a national or local landscape or environmental designations.
- The surrounding landscape is one dominated and characterised by human intervention - utilities, mining, and commercial development.
- There are very few near neighbours.
- The site is not located in an area identified as being susceptible to river, sea, or surface water flooding.

2 The Proposed Development

2.1 The Proposal

- 20 CE proposes to install a single wind turbine with a maximum blade tip height of up to 135m. The proposed turbine will feature a 3 bladed rotor design (for elevation drawings see **Appendix C**) with associated infrastructure including a crane pad, access track, and electrical housing. Supplementary elements include a permanent switchgear housing unit (approx. 4m x 6m x 3m), underground cabling, an access track, and a crane hard standing area (approx. 45m x 65m), with temporary laydown areas (approx. 45m x 15m).
- 21 The proposed single wind turbine will generate electricity from a renewable source. The proposed site has a viable wind speed - resulting in an estimated annual yield of over 12.5GWh. This is enough electricity generation to power over 2500 Cornish homes, based on the 2021 average electricity consumption figures³.
- 22 Further ground and site investigations that occur after the planning consideration period may require that a small variance be made in the final location of the proposed wind turbine and the access track, which is common for wind turbine proposals. Therefore, a 20m micro siting allowance is requested for the turbine and associated infrastructure.
- 23 The proposal also seeks to create new areas of lowland heathland, scrub, and grassland, resulting in a Biodiversity Net Gain (BNG). This will not only compensate for any habitat lost as a result of the proposed development but will also enhance the local surrounding area.

2.2 Site Background

- 24 The area surrounding the proposed turbine has been extensively utilized for the mining of china clay, with spoil heaps and quarries creating a prominent feature of the surrounding landscape. The site is adjacent to Blackpool china clay Pit to the west.
- 25 Due to the significant presence of the mining industry, the sparsely populated nature of the area and surrounding cumulative turbine schemes - the proposal is expected to result in minimal additional visual, landscape and noise impacts.
- 26 The china clay area has previously been utilized to develop wind turbines. Current developments include Blackpool Quarry (Planning ref: PA15/01218, 1 x 77m turbine) located

³ Subnational Electricity Consumption Data. Accessed via: <https://www.data.gov.uk/dataset/480984d5-13d7-48b1-93c8-2a0871ef5543/sub-national-electricity-consumption-data> (Accessed 6th June 2023)

520m southwest; Higher Goonamarth (Planning ref: PA14/12102, 1 x 77m turbine) located 945m northeast; Gunheath (Planning ref: PA14/12172, 1 x 77m turbine) located 3.50km northeast and Greensplat (Planning ref: PA14/07230, 1 x 61m turbine) located 1.7km northeast. Furthermore, the consented Longstones turbine (Planning ref: PA20/09318, 1 x 135m) is located 1.2km northwest of the proposed site; Wheal Martyn (Planning ref: PA21/07216 1 x 135m) located 2.75km northeast and the consented East Karslake Turbine (Planning ref: PA21/12493 1 x 135m) located 1.30km north.

- 27 The proposed site has been selected for wind turbine development due to the high availability of wind resource and the alignment with Cornwall Council turbine siting guidance.
- 28 Where possible and economic to do so, CE will endeavour to use local installers, contractors, and manufacturers in a bid to support the local supply chain and further reduce carbon emissions associated with the construction of the renewable energy project. CE have established relationships with suppliers in Cornwall and the UK and will consider UK manufactured equipment where possible.
- 29 The operational lifespan of the proposed turbine is 35 years, after which the turbine will be decommissioned. This site will then be reinstated to its former state or to a condition agreed with Cornwall Council. There may also be an option to extend planning permission for the turbine beyond this 35-year period; however this is subject to a further planning application which will be considered by Cornwall Council.

Socio-economic and community investment

- 30 Over its lifecycle the proposed development is expected to require a total investment of approximately £5 million. This will comprise of construction contracts, land costs, tenders, maintenance, and decommissioning, as well as the investment to date which includes on-site surveying and production of this application.
- 31 Construction and operation work on the development will generate ancillary benefits for the local economy through the purchasing of accommodation (where required) and food and drink by the work force.
- 32 The proposal is expected to generate £1.5 million in business rates over the lifetime of the proposal.

- 33 An annual community benefit fund of £12.5k per annum will be available for local groups and projects administered by the local parish council.

Socio-Environmental benefits

- 34 In addition to the socio-economic benefits; the proposed development will generate the following socio-environmental benefits:
- 35 Contribute to the attainment of the Governments and Cornwall’s renewable energy targets. The proposed development, with an estimated installed capacity of 4.1MW would make a valuable contribution to both national and local targets.
- 36 The proposed wind turbine is predicted to generate an estimated annual yield of over 12.5GWh. This is enough electricity generation to power over 2500 Cornish homes. The development would also have a carbon saving of over 2600 tonnes per annum.
- 37 It will contribute to the diversity and security of the UKs energy supply by generating electricity from a sustainable, indigenous resource using a technology that is recognised as amongst the lowest cost form for generating electricity.
- 38 The proposed development would result in ecological management through measures which will achieve a significant biodiversity net gain across the site.

The proposed development summary:

- The development proposal provides significant benefits and gains across the triple bottom line of Sustainable Development - economic, social and environmental:
- £5m investment in the local economy;
- £1.5 of business rates generated;
- £12.5k per annum community benefit payment;
- saving of over 2600 tonnes of carbon per annum;
- renewable energy generation for around 2500 homes; and,
- over 12% biodiversity net gain.

3 Outlined Construction Process

- 39 The total development area will be approximately 3.09 hectares. The development will be carried out over a period of six-nine months with the main construction phase lasting approximately four weeks. Details of the construction period may be subject to modifications at a later stage during the development, however, this phase will commonly involve the following stages:
- Ground investigation survey;
 - Setting out and groundwork preparation;
 - Laying steel reinforced concrete base to prepare for turbine foundation anchor;
 - Foundation concrete pour and curing;
 - Arrival of two telescopic cranes;
 - Turbine component delivery on heavy goods vehicles including tower foundation, four tower sections, three blades, nacelle, hub, and generator;
 - On-site assembly of the turbine into the foundation;
 - Installation of earthing and electrical connection, and commissioning;
 - Reinstatement of work;
 - Demobilisation from site.
- 40 It is expected that the construction phase will follow the order above, however as previously suggested this may be subject to minor changes. Many of the tasks will be carried out simultaneously to reduce the time required on site.
- 41 The erection of the proposed turbine will typically last about 5-7 days. Within this period, three cranes will be taken to and from site with the turbine components being delivered via heavy goods vehicles (HGVs); the turbine will then be assembled. The proposed route follows existing public highways to the site boundary, with a constructed track from the site boundary to the turbine location. The base of the operational turbine will occupy an area of approximately 20m in diameter.
- 42 A temporary crane hardstanding area approximately 2,925m² (45m x 65m) will be required for the tower, nacelle, hub, generator, and blade installation. The proposed development areas are illustrated in PR3766-IFP-BP-E-001 (Block Plans), and PR3766-IFP-LP-F (Location Plan) within **Appendix B**. When the proposed turbine is fully installed and commissioned, the ground above the crane hardstanding area can be reinstated. Furthermore, a preliminary

site entrance has been designed, this is also attached in **Appendix B** as part of the Block Plan and Location Plan.

- 43 The abnormal loads will arrive at site via the A30 westbound. The route will take the first exit at Victoria Interchange and go straight on the roundabout to join the B3274. The route will continue on this road for approximately 2.2km where it will then turn left and continue on the B3274. The route continues south through Roche, crossing straight over two roundabouts heading south, and eventually exiting Roche village. It then bears right at the signpost for Nanpean/Whitemoor, then immediately bears to the left signposted for Greensplat. From here, the route will continue on the unclassified road past the Imerys quarry entrances and then bears right and continues for 0.94km. The route will continue beyond the proposed site entrance and make a left turn into the Applicant's consented Longstones turbine site entrance (PA20/09318) before manouvering back into the proposed site entrance where the route continues along the track to the turbine location.
- 44 Once planning has been granted and an access programme devised, Cornwall's Council's Roads Department will be advised on the number, dates and times of the transport proposed. Care will be taken when programming the route to avoid peak traffic flow periods during the mornings and evenings. Temporary traffic management will be required during transportation on existing highways.
- 45 Once installed, the wind turbine would require infrequent visits for the purpose of equipment maintenance or cleaning of the site. Such works typically require around 20-30 visits per year. The largest vehicles that are likely to be used during the operational phase are expected to be no larger than a 7.5t van or 4x4 vehicles. The facility will be unmanned, being remotely operated and monitored.

Outline Construction Process Summary:

- Construction is expected to take 6-9 months
- Temporary infrastructure will be removed following the erection of the turbine
- The project has a 35 year lifespan after which the wind turbine would be decommissioned and the land can revert to other uses if required.

Outline Construction Summary:

- Initial construction is estimated to take 6-9months with the turbine erection taking place over a week (assuming good weather).
- The construction phase will follow an agreed construction management plan to ensure impacts from the construction period are avoided or minimized
- The project has a 35 year lifespan after which the turbine and its associated infrastrucute will be decommissioned and the land reinstated to a condition agreed with the LPA.

4 EIA Screening and Scoping

- 46 Wind turbines are industrial installations for the production of electricity and therefore fall under category 3a of schedule 2 of the Town and County Planning (Environmental Impact Assessment) Regulations 2017.
- 47 Schedule 2 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 requires developments that may have a significant impact on the environment to be screened by the Local Planning Authority prior to application, in order to assess the need for an Environmental Impact Assessment.
- 48 A formal screening opinion request was submitted to Cornwall Council on 13th September 2021. The screening opinion dated 1st October 2021 (Planning ref: PA21/09244), deemed that the proposal would not be likely to have significant effects on the environment and an Environmental Impact Assessment and Environmental Statement is therefore not required.
- 49 In line with this decision, a formal scoping opinion was not sought.
- 50 The screening response can be found in **Appendix A**.

EIA Screening Summary:

- The site has been screened by Cornwall Council and judged **not** be of such significance than an Environmental Impact Assessment was required.

5 Evaluation of the Burngullow Proposal

5.1 Reasoning for The Proposal

- 51 The proposal is in response to Cornwall Council’s declaration of a ‘climate emergency’ made on 22nd January 2019, through the collective support of 117 councillors⁴. Following this, the preparation of the Climate Action Plan in 2019 and now adopted Climate Emergency Development Plan Document (DPD), the council have enforced the idea of a positive movement towards a more positive decision-making process in determining renewable energy proposals.
- 52 During the meeting, members stated that “*more solar farms and wind turbines should be built in Cornwall to embed the culture of supporting climate change measures*”⁵. This acknowledges the commitments made by the council to transition into a carbon neutral county by 2030.
- 53 The environmental benefits and contribution towards carbon reduction targets are greatly enhanced by this proposed development. The benefits must be considered in association with existing policy, which should be interpreted in presumption of favour towards this proposal, as stated within the National Planning Policy Framework (NPPF) seen in the latest version updated in 2021⁶.

5.2 Requirement for the Proposal

- 54 Since the declaration of a climate emergency in January 2019 by Cornwall Council, CE has been led to believe that only five wind turbines have been approved within the county which includes the projects Longstones (ref: PA20/09318); Ventonteague (ref: PA19/10116, Cornwall Council); Wheal Martyn (ref: PA21/07216); East Karlake (ref: PA21/12493) and the repowering of a turbine near Camelford (ref: PA20/07108). This showcases the need to significantly increase the rate of introduction of renewable energy in Cornwall to support the carbon neutrality target to be reached by 2030.

⁴ Cornwall Council, Minutes of Meeting 22nd January 2019. Accessed via: <https://democracy.cornwall.gov.uk/documents/g8343/Printed%20minutes%2022nd-Jan-2019%2010.30%20Cornwall%20Council.pdf?T=1> (Accessed 2nd February 2022).

⁵ Cornwall Council, Minutes of Meeting 22nd January 2019. Accessed via: <https://democracy.cornwall.gov.uk/documents/g8343/Printed%20minutes%2022nd-Jan-2019%2010.30%20Cornwall%20Council.pdf?T=1> (Accessed 2nd February 2022).

⁶ National Planning Policy Framework. Accessed via: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf (Accessed 2nd February 2022).

- 55 The urgent and pragmatic approach needed to tackle climate change cannot be associated with slow progression and movement as reminded to councillors “*Cornwall was the sweet spot of the UK for renewable energy having the best resource in Western Europe*”. Decision makers of all levels must recognise the need to push boundaries and support renewable energy projects through the interpretation of existing policies.
- 56 The proposal allows for the investment into the local economy and infrastructure through the securing of a grid connection direct to the national network. This aligns with the guidance in Chapter 3, paragraphs 18-22 of the National Planning Policy Framework (NPPF). Grid constraints in Cornwall limit the options available for renewable energy proposals with respect to both location and capacity; however, this proposal is associated with a secured grid connection which will allow for a significant contribution to carbon reduction targets locally and nationally.
- 57 All generation will be exported directly to the local network and will power the equivalent of over 2500 Cornish homes annually as per the latest annual average consumption figures for Cornwall⁷.

5.3 Suitability of The Proposed Location

- 58 The proposal ‘*for a single wind turbine, up to 135m in height, with associated access track and infrastructure*’ is aligned in scale and location with the Cornwall Renewable Energy Planning Advice 2016⁸; it is stated that turbines up to 150m in height would be deemed to be suitably located within the proposed landscape character area of CA17 (St Austell or Hensbarrow China Clay Area)⁹.
- 59 The proposal has been sited to be on a ground elevation that maximises the wind resource available which is in line with policy 14 of the Cornwall Local Plan, Strategic Policies 2010-2030. This recognises the necessity to increase the use of renewable generation by supporting proposals that “*maximise the use of available resource by developing installations with the greatest energy output practicable*”¹⁰.

⁷ Subnational Electricity Consumption Data. Accessed via: <https://www.data.gov.uk/dataset/480984d5-13d7-48b1-93c8-2a0871ef5543/sub-national-electricity-consumption-data> (Accessed 6th June 2023)

⁸ Cornwall Renewable Energy Planning Advice, March 2016. Accessed via: [Renewable energy planning advice \(cornwall.gov.uk\)](https://www.cornwall.gov.uk/renewable-energy-planning-advice) (Accessed 3rd February 2022)

⁹ Cornwall Renewable Energy Planning Advice, March 2016, Appendix 1: Landscape Sensitivity and Matrices for each Landscape Character Area. Accessed via: [renewable-energy-planning-advice-march-2016-annex1-appendix-1.pdf](https://www.cornwall.gov.uk/renewable-energy-planning-advice-march-2016-annex1-appendix-1.pdf) (Accessed 3rd February 2022)

¹⁰ Cornwall Local Plan, Strategic Polices 2010-2030. Accessed via: <https://www.cornwall.gov.uk/media/ozhj5k0z/adopted-local-plan-strategic-policies-2016.pdf> (Accessed 3rd February 2022).

- 60 The proposed location and surrounding area, as a result of high elevation, extremely low population density, high wind speeds and the remote post-industrial nature of the area, is arguably one of the most suitable areas for wind turbine development in Cornwall. The recently approved Longstones turbine is expected to be the most productive turbine in the Southwest¹¹, as a result of the strategic site characteristics listed above. The nearby operational turbine at Greensplat (PA14/07230) is amongst one of the most efficient of its type in the UK.
- 61 In line with Policy G1 - Green Infrastructure Design and Maintenance in Cornwall Council's Climate Emergency Development Plan Document (CEDPD)¹², the proposed development has also been planned around the protection and enhancement of nature. The Green Infrastructure Statement for the proposal is provided in **Appendix O**.

¹¹ South West's Most Productive Wind Turbine Gets the Go-Ahead. Accessed via: [South West's most productive wind turbine gets the go-ahead - CleanEarth Energy](#) (Accessed 3rd February 2022)

¹²Climate Emergency Development Plan Document Accessed via: <https://www.cornwall.gov.uk/media/uxgjk4jn/climate-emergency-dpd.pdf> (Accessed 25th November 2023)

6 Energy & Planning Policy Appraisal

6.1 Introduction

- 62 The national and local policies context detailed in the National Planning Policy Framework (NPPF), the Cornwall Local Plan, and other applicable policy documents which relate to this planning application for a wind turbine at land at Burngullow, St Mewan, are described below. Other specific legislation and planning authority’s policies pertinent to the environmental studies required by Cornwall Council to accompany and inform this supporting statement are provided in chapters 7 to 17 which include Landscape Visual Impact Assessment; Ecology; Heritage Visual Impact Assessment; Noise, Hydrology; Electromagnetic Interference; Shadow Flicker; Transport; Public Consultation; Aviation and Contamination.
- 63 Since the publication of the United Nations Framework Convention of Climate Change 1992, it has been the policy of successive governments since to stimulate the exploitation and development of renewable energy sources wherever they have prospects of being economically attractive and environmentally acceptable. Whilst this policy has its foundations in environmental imperatives, concerns over the following have endorsed the policy: carbon dioxide emissions and climate change, the security and diversity of the national energy supply and the need for development.
- 64 At a European level, the Directive 2009/28/EC of the European Parliament and of the Council on the Promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC (formerly the EU 2009 Renewables Directive), placed an obligation for the UK to generate 15% of its total energy requirements (i.e., not just electricity) from renewable energy by 2020.
- 65 In the UK, the Climate Change Act 2008 (2050 Target Amendment), Order 2019 was passed, which, commits the UK to ‘net zero’ or 100% reduction in emissions by 2050. The original act, passed in 2008, committed the UK to an 80% reduction of greenhouse gas emissions by 2050, compared to 1990 levels.
- 66 Following the Prime Minister’s speech on 19 April 2021, the UK Government announced new targets to be enshrined into law: to cut emissions by 78% by 2035 compared to 1990 levels. This set the world’s most ambitious climate change target into law and, in line with the recommendation from the independent Climate Change Committee, the sixth Carbon Budget will limit the volume of greenhouse gases emitted over a 5-year period from 2033 to 2037.

The UK was the first country to enter legally binding long-term carbon budgets into legislation, first introduced through the 2008 Climate Change Act. Subsequently, 5 carbon budgets have been put into law to eliminate the UK’s contribution to climate change by 2050 and target net zero emissions.

- 67 The Government committed to reduce emissions in the 2015 global climate agreement struck at the United Nations Conference on Climate Change in Paris, ratifying the agreement in November 2016. This set out a clear long-term goal of net zero emissions by the end of the century, where progress against this goal will be independently assessed in 2018 and every five years thereafter. This long-term goal sends a strong signal to investors, businesses, and policy-makers about the shift to a low carbon economy. To date, 196 countries¹³ have adopted the agreement, only emphasising the global movement towards climate action.
- 68 On the 4th November 2021 the UK signed the Statement on International Public Support for the Clean Energy Transition at the United Nations Climate Change Conference UK 2021 (COP26) which committed to prioritising support fully towards the clean energy transition.
- 69 The National Infrastructure Commission (“NIC”), official advisor to the Government on infrastructure, has recommended that in order to meet the 2050 target the energy generation mix is up to around 90% renewables.
- 70 The Government updated its British Energy Security Strategy in April 2022. Within the strategy, it stated that the government will ‘improve national network infrastructure and, in England, support a number of new projects with a strong local backing’¹⁴.
- 71 Following this, the planning policy appraisal thus sets out the current legislation and guidance that is relevant to the proposed single wind turbine at the Burngullow china clay area. The policy documents include:
- The National Planning Policy Framework (NPPF) 2023;
 - Planning Practice Guidance (PPG) on Renewable and Low Carbon Energy;
 - Cornwall Local Plan Strategic Policies 2010-2030;
 - Cornwall Renewable Energy Planning Advice March 2016;

¹³United Nations Climate Change - The Paris Agreement, Accessed via: <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement> (Accessed 3rd February 2022)

¹⁴ British Energy Security Strategy, Accessed via: <https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy> (Accessed 6th April 2023)

- Annexe 1: An assessment of the landscape sensitivity to onshore wind energy and large-scale photovoltaic development in Cornwall;
- Annexe 2: Cumulative Impact Assessment Guidance for Cornwall - Wind Turbines;
- Cornwall Council Climate Emergency Action Plan 15th July 2019;
- Cornwall Council Climate Emergency Development Plan March 2023;
- Renewable Energy in the context of the application

6.2 Decision Taking

- 72 The starting point for the decision maker is s38(6) of the Planning and Compulsory Purchase Act 2004 which requires that applications are determined in accordance with the development plan unless material considerations indicate otherwise. This duty is also provided for in the National Planning Policy Framework (NPPF) at paragraphs 2 and 47.
- 73 In practice this requires the decision maker to first determine whether the proposal is in accordance with the development plan, which in this case is the St Mewan Neighbourhood Development Plan (NDP), Cornwall Local Plan Strategic Policies 2010-2030 (CLP), Climate Emergency DPD (CEDPD).
- 74 The NPPF does not have the status of a development plan document however it is a material consideration and relevant with respect to the last part of s38(6).
- 75 Cornwall Council have also produced several Supplementary Planning Documents and other guidance notes. Of particular relevance in this regard is the Renewable Energy SPD (RESPD). Whilst the RESPD does not attract full weight in the decision-making process, it nonetheless provides a useful guide to the interpretation of policy.
- 76 The Government's Planning Practice Guidance also provides further advice and guidance on renewable energy.

6.3 The National Planning Policy Framework (NPPF) 2023

- 77 In September 2023, an updated NPPF was issued which replaces the July 2021 edition, the Government published the revised National Planning Policy Framework (NPPF) to set out their planning policies for England and how they are intended to be applied. The revised NPPF supersedes previous editions and provides a framework within which locally prepared plans for housing and other developments can be produced. Planning Law requires that

applications for planning permission be determined in accordance with the development plan unless material considerations indicate otherwise.

- 78 The NPPF makes it clear that the purpose of the planning system is to contribute to the achievement of sustainable development and at a very high-level; paragraph 7 specifies that the objective of sustainable development can be summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs.
- 79 Paragraph 10 of the NPPF states that “at the heart of the Framework is a presumption in favour of sustainable development”¹⁵.

“For decision-taking this means:

- Approving development proposals that accord with an up-to-date development plan without delay; or
 - Where there are no development plan policies, or the policies which are most important for determining the application are out-of-date, granting permission unless:
 - a) The application of policies in this Framework that protects areas or assets of particular importance provides a clear reason for refusing the development proposed; or
 - b) Any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole”¹⁶
- 80 Paragraph 152 states that the planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. In doing so, it should help to reduce greenhouse gas emissions, minimise vulnerability, improve resilience and support renewable and low carbon energy and associated infrastructure.
- 81 Paragraph 155 requires plans to help increase the use and supply of renewable and low carbon energy by providing a positive strategy for energy from these sources that maximise the potential for sustainable development, and their future re-powering and life extension, while ensuring that adverse impacts are addressed appropriately, and identify opportunities

¹⁵ National Planning Policy Framework, Accessed via: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1182995/NPPF_Sept_23.pdf (Accessed 11th September 2023)

¹⁶ National Planning Policy Framework, Accessed via: <https://www.gov.uk/guidance/national-planning-policy-framework/2-achieving-sustainable-development> (Accessed 4th February 2022)

for development to draw its energy supply from decentralised, renewable or low carbon energy supplies.

- 82 Paragraph 158 notes that when determining planning applications for renewable and low carbon developments LPAs should:
- Not require applicants to demonstrate the overall need for renewable or low carbon energy and recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions; and
 - Approve the application if its impacts are (or can be made) acceptable. Once suitable areas for renewable and low carbon energy have been identified in plans, local planning authorities should expect subsequent applications for commercial scale projects outside these areas to demonstrate that the proposed location meets the criteria used in identifying suitable areas.
 - In the case of applications for the repowering and life-extension of existing renewable sites, give significant weight to the benefits of utilising an established site, and approve the proposal if its impacts are or can be made acceptable.

6.4 Planning Practice Guidance on Renewable and Low Carbon Energy

- 83 The Department for Communities and Local Government (DCLG) published Planning practice guidance for renewable and low carbon energy in June 2015, which is discussed in the next section. It provides advice on the planning issues associated with the development of the renewable energy. Local Planning authorities are advised to take into account the following planning considerations when determining a wind turbine application:
- Noise (using ETSU-R-97)
 - Air traffic and safety
 - Interference with Electromagnetic Transmissions
 - Ecology
 - Heritage
 - Shadow Flicker
 - Energy output of the turbine
 - Cumulative Landscape and Visual Impact
 - Decommissioning and reinstatement, and
 - If the proposal addresses the concerns of local community

- 84 These planning considerations have been fully addressed throughout the investigative process for this proposal, which is supported by the detailed assessments further discussed in the respective technical chapters in this Planning Statement.

6.5 Cornwall Local Plan Strategic Policies 2010-2030

- 85 The Cornwall Local Plan Strategic Policies document was adopted in November 2016 and provides a guide to the planning approach and policies adopted for Cornwall between 2010-2030. Details of the proposal and the alignment with the strategic policies are detailed below:

- 86 Policy 1: Presumption in favour of sustainable development. This emphasises the requirement of decision-makers to comply with the NPPF approach, and states that when making a decision the Local Planning Authority should “take a positive approach that reflects the presumption in favour of sustainable development”. The local council should commit to “work with applicants and the local community wherever possible, and to secure development that improves the economic, social and environmental conditions in the area”¹⁷.

- 87 Policy 2: Spatial Strategy. This outlines the spatial strategy that encourages a sustainable approach to future development, which should accommodate the growth of economic, social, and environmental benefits for Cornwall. The policy emphasises that planning proposals should aim to increase community resilience to current and future issues, including climate change, by delivering a range of renewable energy and low carbon technologies. Furthermore, proposals will be welcomed by the council that improve conditions for investment in Cornwall, by supporting sectors including renewable energies.

- 88 Policy 3: Role and function of places. This sets a hierarchy in relation to the role and function of places and the associated considerations given to development. It is stated that “development will be supported where it is in accordance with the other policies of this plan and can demonstrate that it conserves and enhances the landscape character”¹⁸. Policy 3c is also appropriate as it states that:

‘Proposals will be welcome that improve conditions for business and investment in Cornwall, in particular by...

¹⁷ Cornwall Local Plan, Strategic Policies 2010-2030. Accessed via: <https://www.cornwall.gov.uk/media/ozhj5k0z/adopted-local-plan-strategic-policies-2016.pdf> (Accessed 4th February 2022)

¹⁸ Cornwall Local Plan, Strategic Policies 2010-2030. Accessed via: <https://www.cornwall.gov.uk/media/ozhj5k0z/adopted-local-plan-strategic-policies-2016.pdf> (Accessed 4th February 2022)

c.supporting the expansion of existing businesses and the indigenous businesses of agriculture, fishing and mining;'

Policy 14: Renewable and Low Carbon Energy. Specifically relates to renewable and low carbon energy and policy 15 relates to the safeguarding of renewable energy. However, policies RE1 and RE2 in the recently adopted Climate Change DPD have replaced these policies.

- 89 The proposal is located in LCA CA17 - which has been deemed suitable to accommodate Band D turbine developments - up to 150m to tip. The proposal will generate over 12.5GWh annually, contributing to a significant amount to Cornwall Council's overarching aim of becoming a carbon neutral county by 2030; and is highlighted as a suitable area within the emerging DPD. This proposal is estimated to save nearly 100,000 tonnes of carbon during its operational lifetime of 35 years. Furthermore, the proposal is fully aligned with the aims set in Policy 2 of the Cornwall Local Plan Strategic Policies 2010-2030, Spatial Strategy, and therefore it should be deemed acceptable that this proposal is positively welcomed by the local planning authority.
- 90 Policy 21: Best Use of Land and Existing Buildings. This encourages a sustainable development and considerate approach to the use of land, with preference given to proposals that focus on previously developed land that is not of historic value. The proposed site is within the China Clay Mining area, characterised by spoil heaps and existing turbine development.
- 91 Policy 23: Natural Environment. This relates to the natural environment and the need for proposals to sustain local distinctiveness and character by ensuring the development is an appropriate scale, whilst respecting the landscape area of both designated and undesignated sites.
- 92 The proposal scale is in accordance with the Renewable Energy Guidance (2016) Appendix 1; Landscape Sensitivity Strategy, which recognises and sets a strategy that the proposed landscape area can accommodate Band D turbines up to 150m in height.
- 93 Whilst the proposal is located near the Hensbarrow County Wildlife Site, it is identified that due to the lack of any infrastructure being near or adjacent to the site, it is extremely unlikely that the proposed development would adversely impact the species and habitats for which this site has been selected. Full consideration of ecological aspects associated with a biodiversity mitigation plan are detailed in Chapter 8.

- 94 Policy 24: Historic Environment. This sets out a requirement to protect and conserve the historic environment, encouraging development proposals to consider and protect the character of the landscape, the appearance of conservation areas and sites of historic significance. The proposal is not situated within a heritage site; detailed consideration of heritage impact is shown in Chapter 9.
- 95 Policy 26: Flood Risk Management and Coastal Change. This relates to the adopted local flood and coastal management strategies and the need for proposals to be suitably placed to minimise flood risk. The hydrological considerations addressed through this proposal are detailed in Chapter 11 and show no significant effects.
- 96 Policy 27: Transport and accessibility. This sets a standard for all development proposals to provide a safe and suitable access to the site, with an emphasis on minimising the adverse impact on the local road network. To comply with this policy, an access route assessment was completed to ensure the suitability of the route, prior to the preparation of the CTMP document detailed in Chapter 14.
- 97 Policy 28: Infrastructure. This relates to the requirement of developer contributions, which should aim to enhance local infrastructure affected by the development. Following correspondence with St Mewan Parish regarding community contribution, it was requested that an increased financial benefit would be provided with this proposal; CE will provide the parish with a community benefit, which it has done for previous applications, that will be consistent with the scale of the proposal and reflects Policy 28 requirements.
- 98 These policies, of which have set the groundwork for the recently adopted Cornwall Development Plan Document, are embedded within the consideration of this proposal. dominance of the China Clay Workings.

6.6 Cornwall Renewable Energy Planning Advice 2016

- 99 The Cornwall Renewable Energy Planning Advice Supplementary Planning Document (SPD) is an important renewable policy document for Cornwall which supports the policies highlighted within the Cornwall Strategic Plan 2010-2030. The SPD, which provides guidance relating to the siting and scale of onshore wind, is a material consideration during the decision-making process for renewable energy proposals throughout Cornwall.
- 100 Whilst the SPD provides general advice on onshore wind developments, the associated Appendix 1; *Landscape Sensitivity and Strategy Matrices for each Landscape Character*

Area, provides specific guidance on the Landscape Character Area (LCA) that the proposal is situated in. A landscape strategy plan and siting guidance is provided for the proposed landscape area CA17: St Austell or Hensbarrow China Clay Area; the proposal is aligned with the guidance below.

Landscape Sensitivity and Scale Guidance

- 101 The proposed landscape area (CA17) is deemed to have ‘moderate’ sensitivity to wind energy development. It is recognised that the landscape does not have greater sensitivity to one turbine over another, provided the turbine cluster does not exceed 25 developments. The Landscape Strategy is for the LCA to consist of occasional wind energy developments within the central part of the landscape character area, comprising of turbines up to, and including, Band D scale (up to 150m in height) when suitably placed and in accordance with the following LCA siting guidance; the proposal is aligned in scale and location to this guidance.

Siting Guidance

- 102 Turbines should be located in the mining landscapes in the centre of the LCA (away from the outward presenting edge of the clay area) and in the areas of more regular field patterns. The proposed location is within the central of the LCA and is located next to the Blackpool China Clay Works, therefore complies with this guidance and associated Policy 23 of the Cornwall Local Plan (see **Appendix D** for location maps of the proposed location within the LCA). The guidance states that turbines should be located away from the natural granite outcrops of St Dennis and Roche. The guidance encourages proposals to avoid locating the largest scale wind energy development in areas of very small, ancient fields and to ensure that wind energy development does not dominate the huge pale spoil heaps, extensive turquoise lagoons and settling tanks. The proposal is in line with this criterion, as detailed in Chapter 2: The Proposed Development.

Skylines

- 103 Proposals must consider how turbines fit with existing skyline features when siting and designing wind development; turbines may be better sited on top of flat tips instead of close to distinctive conical forms, and away from the outward presenting edge of the Clay Area. To ensure wind energy development does not dominate or prevent the understanding and appreciation of historic landmarks on the skyline, St Stephens Beacon, St Dennis Church, and the 15th Century Chapel on top of Roche Rock should be considered.

Scenic Quality

- 104 There are no areas within this LCA that are designated for scenic value; the landscape assessment highlights the changing landscape consisting of industrial sites and the dominance of the China Clay Workings.

6.7 Cornwall Climate Change Action Plan 2019

- 105 The Climate Change Action Plan, published on the 15th July 2019, was prepared in response to Cornwall Council’s decision to declare a climate change emergency on 22nd January 2019. The report highlights the scale of the climate crisis and the actions required to transition into a carbon neutral county by 2030, which is guided by the UN’s Sustainable Development Goals. Cornwall Council commit to:

- “Plan, invest and implement a transition to environmentally and socially sustainable jobs, sectors and economies, building on Cornwall’s strengths and potential
- Create opportunities to develop resource efficient and sustainable economic approaches, which help address inequality and poverty; and
- Design and deliver low carbon investment and infrastructure, and make all possible efforts to create decent, fair and high value work, in a way which does not negatively affect the current workforce and overall economy”¹⁹.

- 106 The plan emphasises the necessity to revive the UK’s onshore wind industry in order to maximise the benefits of Cornwall’s natural resources. The recent preparation of the Development Plan Document aims to supersede this guidance and further encourage renewable energy development through new policies and guidance.

6.8 Cornwall Council Climate Emergency Development Plan Document (CEDPD)

- 107 The Climate Emergency Development Plan Document (DPD), adopted February 2023, sets out the context and purpose of the DPD with aspects it aims to cover including ‘renewable energy generation’. As the DPD has now been adopted it will be used in conjunction with the Cornwall Local Plan: Strategic Policies for decision making on all development proposals throughout Cornwall.

The CEDPD is aligned with the existing policies to support the Cornwall Strategic Plan, whilst providing new policies to encourage further progress towards meeting Cornwall’s carbon

¹⁹ Climate Change Plan, 15th July 2019. Accessed via: <https://www.cornwall.gov.uk/media/y5mctbyu/climate-change-action-plan.pdf> (Accessed 4th February 2022)

neutral goal by 2030. Policy 14 and 15 of the Strategic Plan, which directly relates to and supports the implementation and necessity of renewable energy generation in Cornwall, have been brought forward in the CEDPD to ensure a positive approach is applied to decision-making on suitable renewable development proposals.

- 108 Currently, the NPPF states that wind turbine proposals should be located within an area specified suitable for wind development, therefore the CEDPD aims to identify and provide information on the most suitable areas for wind development in Cornwall via maps. This aspect of the CEDPD is a positive step towards increasing renewable energy production in Cornwall and encouraging a more positive decision-making approach to suitably placed proposals.
- 109 Policies RE1 - Renewable and Low Carbon Energy, and RE2 - Safeguarding strategic renewable energy sites, of the DPD set out the principles with regards to renewable energy to ensure that this significant resource is maximised, whilst ensuring that any adverse impacts are addressed satisfactorily. They replace policies 14 and 15 of the Cornwall Local Plan: Strategic Policies.
- 110 Policy RE1 - Renewable and Low Carbon Energy sets out the following:
1. Proposals for renewable and low carbon energy-generating and distribution networks, will be supported in the context of sustainable development and climate change, where:
 - a) They contribute to meeting Cornwall’s target of 100% renewable electricity supply by 2030
 - b) they balance the wider environmental, social and economic benefits of renewable electricity, heat and/or fuel production and distribution;
 - c) It will not result in significant adverse impacts on the local environment that cannot be satisfactorily mitigated, including cumulative landscape and visual impacts, the special qualities of all nationally important landscapes, and the significance of heritage assets including their settings, including the outstanding universal value of Cornwall and West Devon Mining Landscape World Heritage Site and the character of wider historic townscapes, landscapes and seascapes; and
 - d) In and within the setting of Areas of Outstanding Natural Beauty and undeveloped coast, developments will only be permitted in exceptional circumstances and should generally be very small scale giving due regard to the natural beauty of these areas; and

- e) Where the current use of the land is agricultural, the use allows for the continuation of the site for some form of agricultural activity proportionate to the scale of the proposal and provides for 12.18% biodiversity net gain.

2. Wind energy development proposals will be permitted where they:

- a) Are located in a ‘broad suitable area’ identified on the Policies Map or in an area identified in a made Neighbourhood Plan or Neighbourhood Development Order or are for the repowering of an existing wind turbine/farm; and
- b) Demonstrate that the planning impacts identified by the affected local community have been made acceptable by the proposal; and
- c) Avoid or adequately mitigate shadow, flicker, noise and adverse impact on air traffic operations, radar and air navigational installations; and
- d) Do not have an overshadowing or overbearing effect on nearby habitations;
- e) Demonstrate that proposals would be outside of the 1km buffer zone for Special Areas of Conservation and Special Protection Area sites shown on the policies map and can be delivered without resulting in adverse effects on the integrity of European Sites and ensure that potential implications of wind farm development on the migratory flightpaths and core foraging zones and other functionally linked land for SPA birds of the Marazion Marsh SPA, Tamar Estuaries Complex SPA and the Falmouth Bay to St Austell Bay SPA are fully considered.

111 Development scale and siting principles of policies RE1 and RE2 above have developed from Cornwall’s Renewable Energy Planning Advice 2016 document below, this proposal aligns with RE1 and RE2 principles regarding both scale and siting.

112 Other relevant CEDPD policies to the proposal include Policy G1 - Green Infrastructure Design and Maintenance, Policy G2 - Biodiversity Net Gain and Policy G3 - Canopy; all of which have been addressed through relevant statements and reports provided in **Appendix E** and **Appendix O**.

6.9 St Mewan Neighbourhood Development Plan 2016-2030

113 The requirement to review local plans at least every 5 years does not apply to neighbourhood plans. However, individual policies in a neighbourhood plan may become out of date, for example if they conflict with policies in a plan that is adopted after the neighbourhood plan becomes part of the development plan. In these cases, the more recent policy takes precedence. This paragraph of the PPG is relevant because the St Mewan Neighbourhood

Development Plan, which largely refers to protecting the natural rural environment, pre-dates the more recently adopted Climate Change DPD that has more permissive policies on renewable energy installations.

6.10 Planning Policy Summary

114 At local, national, and international levels there are targets to tackle climate change, reduce carbon and deliver environmental benefits. Renewable energy schemes, such as this one, are central to achieving these goals.

- Cornwall Council declared a Climate Emergency in 2019 and sought powers and resources from Westminster to help the County become Carbon Neutral by 2030.
- Whilst Cornwall Council acknowledge that the 2030 target will be difficult to achieve, their Action Plan to become Carbon Neutral within the next 7 years does require unlocking the County's wind potential.
- The UK's National Infrastructure Commission stated that removing additional planning barriers to onshore wind development in England is the right thing to do and recognises the major role that wind energy can play in boosting domestic production.
- An increase in wind can provide greater security of the country's own energy supply. Since the war in Ukraine, the British Energy Security Strategy (2022) acknowledges that onshore wind is one of the cheapest forms of renewable power.
- The NPPF requires the planning system to support the transition to a low carbon future and support renewable and low carbon energy and associated infrastructure.
- The proposal is fully supported by the new Climate Emergency DPD Renewable and Low Carbon Energy policies (RE1 and RE2).

6.11 Renewable Energy in the Context of Application

115 CE expects that the wind turbine will make the following contributions to national energy and environmental policies:

- The proposed wind turbine at Burngullow will save over 2600 tonnes of carbon each year, compared to the equivalent fossil fuel production (depending on the UK energy mix at any one time).

- The turbine is expected to generate over 12.5GWh of renewable energy a year, enough to power 2500 homes, based on the 2021 average consumption figures.²⁰
- The proposed Burngullow turbine will make a contribution to the legally binding government targets for renewable electricity generation and emission reductions.
- The proposal will contribute to Cornwall Council’s aim of transitioning to a carbon neutral county by 2030 and re-enforcing the actions set to follow the Climate Crisis declaration on 22nd January 2019.

116 An estimate of the energy payback for modern wind turbine development is 6-12 months²¹ depending upon the site wind speed and turbine model. Over a 35-year lifetime, the wind turbine would therefore generate at least 56 times the energy that was used in its manufacture installation.

- Initial construction is estimated to take 6-9months with the turbine erection taking place over a week (assuming good weather).
- The construction phase will follow an agreed construction management plan to ensure impacts from the construction period are avoided or minimized
- The project has a 35 year lifespan after which the turbine and its associated infrastrucute will be decommissioned and the land reinstated to a condition agreed with the LPA.

²⁰ Subnational Electricity Consumption Data. Accessed via: <https://www.data.gov.uk/dataset/480984d5-13d7-48b1-93c8-2a0871ef5543/sub-national-electricity-consumption-data> (Accessed 6th June 2023).

²¹ Life cycle costs and carbon emissions of wind power: executive summary, 2015. Accessed via: https://www.pure.ed.ac.uk/ws/portalfiles/portal/19730353/Executive_Summary_Life_Cycle_Costs_and_Carbon_Emissions_of_Wind_Power.pdf (Accessed 4th February 2022)

7 Landscape and Visual Impact

7.1 Introduction

- 117 Amalgam Landscape, a Registered Practice of the Landscape Institute, completed a Landscape and Visual Impact Assessment (LVIA) on behalf of CE. The chapter below summarises this assessment. See **Appendix D** for the full report.
- 118 The purpose of the LVIA is to identify and outline the existing landscape character and visual amenity receptors within the study area. Therefore, the potential for landscape and visual impacts of the proposed development has been fully assessed.
- 119 The LVIA also considers the cumulative effects of the proposed development when perceived with other wind energy schemes that are operational, under construction, consented and in planning.
- 120 The study area of focus is a 10km radius measured from the location of the proposed development. An additional study area of a 30km radius, measured from the location of the proposed development is used to assess the wider extent of potential visibility.

Site Details

- 121 The site is located within the Landscape Character Area (LCA)17. The area has been identified as having a ‘moderate’ overall landscape sensitivity for wind energy development. The landscape strategy for wind energy development is *‘for a landscape with occasional wind energy development within the central part of the LCA - comprising small, medium, or large clusters of turbines, comprising turbines up to and including Band D (turbine size and cluster size should relate to landscape scale which varies within the LCA)’*. As well as stating *‘whilst each wind energy development influences the perception of the landscape at close proximity, they do not have a defining influence in the overall experience of the landscape’*.
- 122 Therefore, the proposed development conforms to the requirements of the LCA for the below reasons:
- A Band D turbine as identified by Cornwall Council (between 100-150m in height to blade tip);
 - Situated within the central part of the landscape character area away from and not influencing the more sensitive landscapes of Roche and St Dennis; and

- A single wind turbine, within a large-scale landscape, influenced by surrounding industrial development.

7.2 Methodology

123 The LVIA assesses the likely significant landscape and visual effects of the proposed development during construction, operation, and decommissioning. The LVIA has been undertaken in compliance with the guidance and requirements of the Cornwall Council. Information was collected through a combination of desk studies, site surveys and consultation.

124 Details of the local and national guidance key to this assessment are provided in Chapter 6 of this planning statement and **Appendix D**.

Desktop Study

125 An initial desktop study was undertaken to review existing maps and written data, relevant to the study area. This also included a review of the relevant development policies and designations, previously published landscape character assessments and local authority planning information.

Site Survey

126 A site survey, which included a photographic survey, was conducted in April 2022 by an experienced and chartered landscape architect. The survey was undertaken from publicly accessible areas; views from private properties were estimated from the closest publicly accessible locations and checked using aerial photography.

Consultation

127 A non-EIA screening response was received on the 1st October 2021, with full details of this document found in Chapter 4 of this planning statement and included in **Appendix A**.

128 Following the collection of baseline data and the production of Zones of Theoretical Visibility (ZTVs), potential viewpoints to inform the LVIA were selected and issued to the Senior Development Officer at Cornwall Council on the 18th March 2022.

129 In summary, the viewpoints were:

- From the most ‘exposed’ viewpoints (based on the ZTVs);

- Broadley surrounding the proposed development, from all directions of view;
- From a variety of sensitivity of receptors, focussing on the most ‘sensitive’; and
- From a variety of distances away from the proposed development.

Landscape Character and Visual Amenity Receptor Sensitivity Methodology

130 The landscape character areas are assessed for their sensitivity based on a review of the elements, designations, and previously published descriptions. The sensitivity of the visual amenity is dependent on the location, context, and importance of the viewer. The sensitivity of both landscape character and visual amenity receptors are evaluated according to a five-point scale which ranges from low to high sensitivity and is detailed in Table 1 of **Appendix D**.

Magnitude of Impact Methodology

131 The scale of magnitude of impact is determined through the assessment of the duration, extent of changes to the landscape and visual resource as a result of the proposed development.

132 The duration of impact is determined by the time period over which the proposed development occurs. Most impacts, which would be a result of the proposed development, would be over the 35-year operational period. However, short term impacts may identified during the construction or decommissioning phase.

133 The magnitude of impact on both landscape character and visual amenity receptors are evaluated according to a seven-point scale. The scale ranges from no change to high and is further detailed in Table 2 of **Appendix D**.

Level of Effect Methodology

134 The level of effect on the landscape character and visual amenity receptors are determined by assessing the sensitivity of the receptor and the magnitude of impact as a result of the construction, operation and decommissioning of the proposed development.

135 The correlation between the sensitivity of the landscape character and visual amenity receptor, and the magnitude of impact to determine the level of effect is summarised in Table 3 of **Appendix D**. Further details on the evaluation methods for assessing the level of effect on landscape character is located within Table 4 and 5 of **Appendix D**.

Cumulative Assessment Methodology

- 136 The cumulative assessment considers the additional impacts and effects on landscape relevant designations, landscape character and visual amenity receptors and their views in relation to other operational, consented and in planning turbine schemes.
- 137 Operational wind turbine schemes with a blade tip height of over 15m have been identified and considered within the 10km study area. There are 31 operational turbine schemes and 3 consented turbines within this study area. Further detail and information regarding these schemes are provided within Tables 6 and 7 of **Appendix D**.
- 138 There are two types of impact in relation to visual amenity receptors which includes:
- Combined impacts which occur when the receptor is able to perceive two or more developments from one viewpoint, in combination or in succession; and
 - Sequential impacts which occur when the receptor has to move to another viewpoint to see different developments, travelling along regularly used routes such as major roads or popular recognised public rights of way.
- 139 To aid in the cumulative assessment, additional photomontages have been created, from selected viewpoints (**Viewpoints 2, 6-15**, Figures 13D and 17D-26D, **Appendix D**), showing the proposed development in combination with the nearby consented Longstones, East Karlake and Wheal Martyn wind turbines.

Proposed Development Surroundings

- 140 The proposed site is located on the slopes of a rough grassland and heathland covered field, which slopes upwards from the minor road to the east and is crossed by tracks associated with the adjacent works. The ponds and industrial landscape associated with the Blackpool China Clay works occurs immediately to the west and north. The proposed site is within a landscape heavily influenced by the surrounding China Clay works and consists of tips, workings and pits. A permissive quarry road also runs broadly from east to west to the north of the site and is heavily used by lorries associated with surrounding works.

Landscape Relevant Designations

- 141 The site of the proposed development is not recognised for its importance or value through any landscape relevant designations. However, there are landscape designations within the

study area that have been identified; details of these and the National Character Types can be observed within Figures 4 and 5 of **Appendix D**.

Zones of Theoretical Visibility (ZTVs)

- 142 Zones of Theoretical Visibility (ZTVs) have been generated and calculated to a hub height of 77m and blade tip of 135m covering the 30km radius study area (**Appendix D**, Figures 8 and 9) and the 10km radius study area (**Appendix D**, Figures 10 and 11).
- 143 The ZTVs do not take into account the screening effects from local features such as subtle variations in landform, vegetation cover or development; therefore, the ZTVs represent the ‘worst-case’ scenario.
- 144 Within the 30km radius study area, the wider extent of potential visibility is broadly spread throughout the study area, with only selected high points with the potential to perceive the proposed development and barely, if any, potential indirect influence on the Cornwall AONB. In the 10km study area, the undulating landform ensures that the potential visibility of the proposed wind turbine will be relatively limited.

7.3 Results

Local Landscape Character

- 145 Eight landscape character areas (LCAs) have been identified within the study area and are illustrated within Figure 6 of **Appendix D**. Further details of 5 of these LCAs are included below:
- **St Austell or Hensbarrow China Clay Area (LCA17)** - the proposed site is located within this LCA and extends in a broad band across the centre of the study area. Due to the presence of the prominent and distinctive skyline of huge pale spoil heaps and the presence of historic skyline features, this increases the levels of sensitivity to wind energy development. As a result, this LCA is of **medium** (moderate) sensitivity.
 - **Mid Cornwall Moors (LCA20)** - to the north of the proposed site. It extends to the northern fringes of the study area. This LCA is largely intact and well-managed but diluted by pylons and the dominance of transport corridors and large-scale industry. As a result, it has a **medium** (moderate) sensitivity.
 - **St Austell Bay and Luxulyan Valley (LCA39)** - to the east of the proposed site, extending to the eastern fringes of the study area. The character of this LCA has been significantly altered over time and its current condition is mixed. There is a

scattering of single, small to medium turbines present. The western area is highly developed with urban and suburban development, holiday facilities and recreational / amenity areas making a major impact as opposed to the eastern side of the bay where the development has not been allowed to deposit natural beauty. As a result, it has a **medium** (moderate) sensitivity.

- **Gerrans, Veryan and Mevagissey Bays (LCA40)** - to the south of the proposed site, extending to the southern fringes of the study area. The agricultural pattern of mixed farming is largely intact and in reasonable condition, although is being affected by the intensification of agriculture in some places. The views of the spread of St Austell and china clay area, which do not share common characteristics, erode the tranquillity of this area. As a result, it has a medium (moderate) sensitivity, increasing to **medium-high** (moderate-high) sensitivity within the AONB.
- **Newlyn Downs (LCA14)** - extends to the western and north-western fringes of the study area. This LCA consists of generally well-managed uncluttered wide rolling farmland divided by Cornish hedges. There are pastures on the landscape from renewable energy developments including wind farms and solar schemes. As a result, it is of **medium-low** (low-moderate) sensitivity.

Visual Amenity Receptors and their Views

- 146 An overview of the visual amenity and their views within the study area is summarised below. Further details can be found within section 3.42 of **Appendix D**. Fifteen viewpoints, with full photomontages provided within **Appendix D** have been selected to help illustrate the potential impacts and effects of the proposed development. The viewpoints represent the most ‘exposed’ publicly accessible views of the proposed development, from the most ‘sensitive’ receptors, broadly surrounding the proposed wind turbine from all directions of view.

Settlements

- 147 There are a number of high sensitivity towns, villages and hamlets scattered throughout the study area, generally situated along the major road corridors or associated with the quarry workings. However, views of the turbine are limited and is only from the fringes of St Austell, as illustrated in **Viewpoint 9 (Appendix D, Figure 20A-D)**, that more inland expansive views are possible. The magnitude of impact will be **no change**, and the level of effect **neutral**.
- 148 The closest settlement to the proposed site is Trewoon located to the south. Many of the wider views of the proposed turbine are restricted by the enclosure along the major road as

well as surrounding development, mineral workings and mature vegetation. Wider views northwards are largely restricted by a combination of undulating landform and mature vegetation. However, from selected open locations within and on the fringes of Trewoon, as illustrated in **Viewpoint 5 (Appendix D, Figure 16A)** and **Viewpoint 6 (Appendix D, Figure 17A)**, from gaps or above in the surrounding built enclosure, glimpses of operational wind turbines are possible. The magnitude of impact will be **no change**, and the level of effect **neutral**.

- 149 The contained Gainsborough Holiday Village also occurs to the west. As this is set amidst and undulating landscape, wider views are restricted by the intervening reclaimed spoil heap. The magnitude of impact will be **no change**, and the level of effect **neutral**.
- 150 The settlements of Foxhole and Nanpean occur to the west and northwest with Stenalees to the northeast. Set on the lower slopes, amidst the undulating landscape and heavily influenced by surrounding industry and mineral workings, wider views from the settlement fringes are often restricted. It is only from selected open locations on the fringes of the settlements that more expansive views across the undulating landscape, punctuated by spoil heaps, mineral workings and scattered operational wind turbines are possible. The magnitude of impact will be **no change**, and the level of effect **neutral**.
- 151 Other settlements within the study area, including St Stephens to the west and St Dennis to the northwest, are focused around a church and often situated on elevated ground at the core of the settlement. Wider views are possible from the settlements across the surrounding farmland, including towards the conical and distinctive distant tips, punctuated by scattered operational wind energy schemes. The magnitude of impact will be **no change**, and the level of effect **neutral**.
- 152 Roche is also situated to the north and views from the settlement fringes are dominated by the surrounding tips, including the numerous lines of pylons that cross the landscape. The magnitude of impact will be **no change**, and the level of effect **neutral**.

Scattered Residential Properties

- 153 For the majority of the high sensitivity scattered residential properties in the study area, they will have restricted views into the surrounding landscape from a combination of vegetation enclosing many properties, screening provided from adjacent development, subtle variations in landform and by the numerous lines of mature vegetation including hedgerows, linear tree belts, mature trees, small copses and woodlands, in the wider landscape. The magnitude of impact will be **no change**, and the level of effect **neutral**.

- 154 There are a number of scattered and small clusters of residential properties within close proximity to the site. There is a farm which occurs on lower ground approximately 725m to the east is nestled within sloping farmland. Views may be possible across the adjacent sloping farmland, including towards the more distant mineral workings, scattered with operational turbines. At worst the magnitude of impact will be **medium-low** and level of **effect minor**.
- 155 The properties located, approximately 1.2km northeast and east appear to be relatively well-enclosed by a mixture of surrounding mature vegetation, buildings and sloping landform, although views over the surrounding mineral workings, scattered with occasional wind turbines could be possible. At worst the magnitude of impact will be **medium-low** and level of effect **minor**.
- 156 To the northwest of the proposed site, there is a small cluster of residential properties. Oblique views over the adjacent sloping fields and quarry workings are possible from the fringes of the properties although many views are restricted by garden vegetation and subtle variations in landform. The level of impact will be **negligible**, and effect will be **minor-negligible**.
- 157 There is a property situated along Greensplat road, approximately 1.6km to the northeast. It is situated on elevated ground, adjacent and to the west of the minor road. Views are possible across the adjacent sloping farmland as illustrated in **Viewpoint 7 (Appendix D, Figure 18A)**. At worst the magnitude of impact will be **medium**, and level of effect will be **moderate**.

National Trails, Recreational Routes and National Cycle Routes (NCR)

- 158 The high sensitivity South West Coast National Trail crosses the study area from the east to the south approximately 5.9km to the southeast of the site at its closest point. Views from the trail are focused across the coast and coastal fringes with views inland largely restricted by undulating and well-vegetated agricultural landscape. The magnitude of impact will be **no change** and the level of effect will be **neutral**.
- 159 The medium-high sensitivity Saints Way recreational route crosses the study area from the northeast to the east, approximately 7.5km to the east of the proposed site. Variable views are possible from the route. The magnitude of impact will be **no change** and the level of effect will be **neutral**.

- 160 Numerous medium-high sensitivity NCRs cross the study area generally passing from northwest, to the northeast and southeast. The closest NCR2, The Clay Trail, passes approximately 2.6km to the east of the proposed site, connecting the Wheal Martyn Museum and Country Park. Views from the NCRs are largely restricted by the immediate enclosure of vegetation as well as wider screening by development and undulating landform. The magnitude of impact will be **no change** and the level of effect will be **neutral**.

Places of Interest (including Country Parks)

- 161 The high sensitivity Eden Project is located approximately 6km to the east of the proposed site, with the Lost Gardens of Heligan approximately 7.5km to the south and Black Head National Trust land located approximately 8.1km southeast. The magnitude of impact will be **no change** and the level of effect will be **neutral**.
- 162 The Wheal Martyn and County Park is also located 2.3km northeast; **Viewpoint 8 (Appendix D, Figure 19A)** is taken in association with the lookout point from Wheal Martyn Museum. The magnitude of the impact will be **low**, and the level of effect will be **minor**.

Local Public Rights of Way, Bridleways and Cycleways

- 163 There are few medium sensitivity scattered public rights of way, bridleways and cycleways present within the study area. Within close proximity to the site, a public right of way connects the permissive quarry road which extends to the east towards Greensplat road and south towards a residential property as illustrated in **Viewpoint 1 (Appendix D, Figure 12A)** and **Viewpoint 3 (Appendix D, Figure 14A)**. Views are possible from the public right of way across the adjacent industrial and farming landscape. At worst the magnitude of impact will be **high**, and the level of effect will be **moderate**.
- 164 The public right of way on the fringes of the Area of Outstanding Natural Beauty (AONB), as illustrated in **Viewpoint 13 (Appendix D, Figure 24A)**, views of the proposed development may only occur from selected open and elevated locations. The magnitude of impact will be **negligible**, and the level of effect will be **neutral**.

Open Access Areas

- 165 Within the study area there are scattered open access areas which are of **medium** and **medium-high** sensitivity. These areas are also located within Areas of Great Landscape Value (AGLVs).

- 166 **Viewpoint 10 (Appendix D, Figure 21A)** illustrates that expansive views are possible from the open access area adjacent to Hensabrow Beacon across the landscape of rough grassland, dominated by large tips and quarry workings. The magnitude of impact will be **no change** and the level of effect will be **neutral**.
- 167 **Viewpoint 11 (Appendix D, Figure 22A)** illustrates that expansive views are possible from the Caerloggas Downs over the nearby settlements, mineral workings, and farmland. The magnitude of impact will be **medium-low**, and level of effect will be **moderate-minor**.
- 168 Further afield, the medium-high sensitivity open access area on Castle-an-Dinas to the north, as illustrated in **Viewpoint 14 (Appendix D, Figure 25A)** and from the medium-high sensitivity open access area within the AGLV adjacent to Helman Tor as illustrated in **Viewpoint 15 (Figure 26A)**, expansive views are possible across the surrounding undulating farmland and wooded landscape. Although distantly perceived, wind energy schemes, however, do not dominate or largely influence the expansive views. The magnitude of impact will be **no change** and the level of effect will be **neutral**.

Major Roads

- 169 Numerous low sensitivity major roads pass through the study area, with the closest, A3058, crossing the study area from west to east, passing through St Austell to the southeast, approximately 1.2km to the south of the proposed development. Largely enclosed by development and mature vegetation, it is only from a few selected open locations in close proximity, as illustrated in **Viewpoint 5 (Appendix D, Figures 16A-16C)**, from the fringes of Trewoon that the proposed development will be perceived. The magnitude of the impact will be **low** and the level of effect will be **negligible**.
- 170 Glimpsed views of the proposed development will also be possible as the A3058 emerges from the enclosure of St Austell, as illustrated in **Viewpoint 9 (Appendix D, Figures 20A-20C)**.
- 171 The A391 also crosses the study area from the north-east, where it connects with the A30 at a junction, to the southeast passing through St Austell, approximately 3.7km to the east of the proposed development. This is largely enclosed by development and mature vegetation and will only be seen from selected open locations that the more expansive views across the wider industrial and farming landscape. Only the blade tips of the proposed development will have the potential to be perceived, with **negligible** impacts and **negligible** effects.

- 172 Further afield, from the vast majority of the lengths of the major roads, the proposed development will not be perceived. The magnitude of impact will be **no change** and the level of effect will be **neutral**.

Minor Roads

- 173 Numerous medium-low sensitivity minor roads cross the study area and are largely enclosed by mature linear trees, hedgerows and hedgebanks which will restrict the majority of wider views, including towards the proposed development. It will only be from selected high points, or from gaps in the enclosure, that views into the surrounding farmland and industrial influenced landscape towards the proposed development will be possible. **Viewpoints 2, 4, 7 and 12 (Appendix D, Figures 13A-13C, 15A-15C, 18A-18C & 23A-23C)** highlight visual focus in relation to these areas; further details can be found in **Appendix D**. The magnitude of impact from **Viewpoint 2** will be **medium-high** and **moderate-minor** effects. From **Viewpoints 4 and 7**, the magnitude of impact will be **medium** and level of effect **minor**, and from **Viewpoint 12** the magnitude of impact will be **low** and the effect **negligible-adverse**.

Railway Lines

- 174 A number of low sensitivity railway lines cross the study area, passing through St Austell to the southeast. Views of the proposed development is generally restricted by a combination of adjacent development, undulating landform, and mature vegetation. Glimpses of the proposed development may be seen however will be viewed as an additional single vertical element within a landscape already influenced by wind turbine development. The magnitude of the impact will be **no change** and the effect **neutral**.

Design and Mitigation Measures

- 175 Mitigation measures have been incorporated into the relative phases of the proposed development during the design process, planning for construction, operation, and decommissioning.

Design

- 176 A balance of constraints has been considered when determining the specification of the turbine and siting of the proposal. The model size has been selected to ensure substantial electrical generation; larger models were discounted due to airport constraints.

- 177 The proposed turbine is also the same size as the consented Longstones and East Karlake turbines within close proximity to the proposed site, therefore would be largely perceived as a small cluster with the operational Goonamarth Farm development.

Mitigation

- 178 The proposed wind turbine is sited within an industrial working landscape already influenced by other turbine developments and would appear as an additional single element within the landscape.
- 179 The position of the proposed turbine has been considered away from highly sensitive receptors, such as residential properties and large settlements with the final location having minimal effects on any landscape elements.
- 180 In addition, habitat improvements are also being proposed, with further detail provided within Chapter 8 of this planning statement.
- 181 The generic siting guidance relevant to St Austell or Hensbarrow China Clay Area landscape character area (LCA17) has been considered throughout the design process and includes:
- *Locating turbines in the mining landscape in the centre of the LCA;*
 - *Siting turbines away from the natural granite outcrops of Roche and St Dennis;*
 - *Ensuring turbine developments do not dominate or prevent the appreciation of historic landmarks;*
 - *Avoiding the largest scale wind energy development in areas of small, ancient fields;*
 - *Considering how turbines fit with existing skyline features when siting and designing the proposal; and*
 - *Ensuring wind energy developments do not dominate huge pale spoil heaps, extensive turquoise lagoons and settling tanks.*

Construction

- 182 Measures relevant to the LVIA during the construction period include the minimisation of vegetation loss, location of the compound area alongside the turbine development area and that all temporary disturbed or excavated areas will be reinstated following the completion of construction activities.

Operation

- 183 Limited mitigation can be proposed due to the nature of turbine developments. However, it is noted that the operational effects will be temporary, given the 35-year operational period, after which the area and landscape can be returned to their existing state, or a condition agreed with the Local Planning Authority.

Decommissioning

- 184 Mitigation measures, relevant to the LVIA during the decommissioning period will be similar to the construction period.

Construction and Decommissioning Impacts and Effects

- 185 The construction and decommissioning activities are detailed within **Appendix D**. Any effects on landscape character and visual amenity receptors during the construction and decommissioning phases will be temporary in duration. Other short-term impacts and effects will be associated with crane movements, only present on site for a few days. Therefore, the short-term, reversible, and temporary nature of the construction and decommissioning activities on both landscape character and visual amenity receptors and their views will ensure that the overall effects will be minor.

Operational Impacts and Effects on Landscape Character

Landscape Relevant Designations

- 186 The proposed development will not directly affect any landscape relevant designations. There will be the potential for indirect impacts and effects on the setting of selected landscape relevant designations. However, all magnitude of impact is expected to be **no change** and level of effect considered **neutral**. Further details are provided in **Appendix D**.

7.4 Cumulative Impacts and Effects

- 187 The influence of the proposed wind turbine will be considered ‘in addition’ to consented wind energy schemes in the study area, where wind turbines are highly likely to exist in the future.
- 188 Set within an expansive industrial influenced landscape, already influenced by wind energy schemes, the addition of the proposed wind turbine, in combination with the consented

(and operational) wind turbines, will not dramatically change the wider characteristics of the landscape character areas or create a landscape dominated by wind turbines. The introduction of another vertical element, in combination with the consented wind turbines, however, will slightly increase the perception of wind energy on the landscape.

Combined Views

- 189 The addition of the proposed development, when viewed in combination with the consented same sized wind turbines, will not dominate the view. This is illustrated in **Viewpoints 2, 6-15 (Appendix D, Figures 13D and 17D-26D)**.

Sequential Views

- 190 Sequential views of wind energy developments within the study area will be possible from the transport corridors, including the adjacent minor roads and public rights of way. The proposed turbine and consented wind turbines will add vertical elements to the view, largely perceived as a small cluster in combination with the operational Higher Goonamarth Turbine. However, the addition of this single moving element, even in combination with the nearby consented wind turbines will not create ‘wind farm’ dominated journeys.

7.5 Conclusions

- 191 The landscape around the proposed development is dominated by the surrounding existing and remnants of the China Clay works, interspersed with rolling well-vegetated farmland. Visual amenity receptors consist of scattered residential properties, farms, towns and villages connected by a network of transport corridors including major and minor roads and public rights of way. Selected views are only possible from limited scattered receptors, generally only where gaps in vegetation cover or when elevated open land allows occasional expansive views.
- 192 Exposed views of the proposed development from visual amenity receptors will be limited and will only be generally from those very few receptors in close proximity, from selected high points or where there is limited vegetation cover or ‘gaps’ in the enclosing vegetation and development further afield. The proposed turbine will not be overbearing or dominate the view but perceived in combination with other operational and consented wind energy schemes. Most of the receptors, such as residential properties and public rights of way, will not experience views of the proposed development, only those that are subject to gaps in vegetation or when the elevated open land allows occasional expansive views.

- 193 The proposed development will add a single built vertical moving element to the landscape. However, the turbine has been sited to avoid direct impacts on designated landscapes. The proposed turbine is located within a landscape heavily influenced by China Clay works and tips, with an ability to accommodate change without detriment to its landscape character.
- 194 The turbine is positioned within a landscape that has the capacity to accept wind energy development, as defined by Cornwall Council within their landscape sensitivity assessment. Whilst being perceived in close proximity to existing and consented wind turbine schemes, this will result in the proposal being integrated into the wider landscape.
- 195 Overall, the proposed development will have limited impacts on landscape relevant designations, landscape character and visual amenity receptors and their views. These have all been assessed in full detail within the Landscape and Visual Impact Assessment provided in **Appendix D**.

8 Ecology

8.1 Introduction

196 To support this planning statement, a number of ecological assessments have been completed by Western Ecology on behalf of CE, including:

- Preliminary Ecological Appraisal (PEA)
- Bat Assessment
- Ornithological Assessment
- Reptile Assessment
- Biodiversity Net Gain Report

197 To satisfy the updates made to Cornwall Council’s Validation Guide in 2023, an Ecological Impact Assessment (EclA) report was also produced in December 2023 by Western Ecology. This report presents the combined ecological information relating to valued ecological receptors obtained during the PEA, Bat, Ornithology and Reptiles surveys and desk-study, assesses the significance of the effects of the proposed development on these features, and sets out proposed mitigation measures.

198 The full reports can be found in **Appendix E**.

8.2 Habitat Assessment

8.2.1 Introduction

199 Western Ecology was appointed by CE to prepare a Preliminary Ecological Appraisal (PEA) of a parcel of land southeast of Blackpool Pit, adjacent to Burngullow Common near Trewoon in Cornwall. A single wind turbine, up to 135m in height, with associated infrastructure and access track is proposed.

200 This section provides an account of the methods adopted during data collection, a description of ecological features, and an interpretation of their ecological importance. The following recommendations are made with regards to:

- Habitats and ecological features; and
- Protected species potentially supported by the habitat.

- 201 The site lies at the eastern edge of Blackpool pit, a disused china clay quarry, located approximately 1.2km northwest of the village of Trewoon and approximately 3.6km to the northwest of St Austell.
- 202 The site is located in an area associated with china clay extraction, with the non-operational quarry extending immediately to the north and west. An expanse of semi-natural habitat lies immediately to the south and east.

8.2.2 Methodology

Desktop Survey

- 203 The desktop survey collated existing biological records from within 1km of the site and identified any nature conservation sites that may be affected by the proposed development. This comprises an important part of the assessment process, providing information on ecological issues that may not be apparent during the site survey.
- 204 Consultees for the data search included:
- The Environmental Records Centre for Cornwall & The Isle of Scilly provided biological records for protected / notable species and non-statutory sites within 1km of the site, and bats and notable birds within 5km; and
 - Natural England - GIS dataset of SSSI Impact Risk Zones, statutory nature conservation sites, Priority Habitats, and locations of granted EPSL's.
- 205 The location of nature conservation sites was examined to determine their ecological and landscape relationships with the proposed site. An assessment was then made of how the sites may be affected by the proposal, taking into account these relationships, and the species and/or habitat types for which the nature conservation site was chosen.
- 206 Site of Special Scientific Interest (SSSI) Impact Risk Zones are areas where the proposed planned change to the environment could either create significant damage to a SSSI or might require additional planning and consultation in order to avoid impacting such sites. The assessments are made according to the particular sensitivities of the features for which the SSSI is notified and specifies the types of development that have the potential for adverse impacts.

Field Survey

- 207 The PEA survey was completed on 26th June 2023 between 12:15 and 13:30 with an air temperature of 20°C, a moderate westerly breeze, dry conditions and with 60-80% cloud cover. An additional walk over was undertaken on 23rd August 2023 between 18:00 and 20:00 during suitable weather conditions.
- 208 Habitats were classified using the Phase 1 Habitat Survey methodology developed by the Joint Nature Conservation Committee (JNCC, 2010) and modified by the Institute of Environmental Assessment (IEA, 1995). The main plant species were recorded, and broad habitat types mapped according to the UK Habitats Classification definitions (UK Habitat Classification Working Group, 2018). Habitats encountered are described within the Results section, with a map included within the report. Plant species were identified according to Stace (1997).
- 209 For further details of the methodology used, see **Appendix E**.

Habitats of Nature Conservation Importance

- 210 No habitats of European Community Importance as defined within The Conservation of Habitats and Species Regulations 2017 were present within this site. Protected habitats of this type are not a consideration for this project.
- 211 The heathland habitat contained within the proposed site qualifies as a Habitat of Principal Importance (JNCC & DEFRA, 2012) and as a Local Biodiversity Action Plan Priority (Cornwall Biodiversity Initiative, 2011). The loss of any extent would be a material consideration in the determination of any planning application.
- 212 Current plans indicate the temporary loss of approximately 0.23ha of habitat, of which approximately 0.13ha will be permanently lost to the development footprint. Mitigation is therefore recommended.

Species of Nature Conservation Importance

- 213 1,150 species of fungi, plant or animal are listed as being of principal importance, in the Secretary of State's opinion, for the purposes of conserving biodiversity. Under Section 41 (England) of the NERC Act (2006) there is a need for these species to be taken into consideration by a public body when performing any of its functions with a view to

conserving biodiversity. These species are the subject of National and Local Biodiversity Plans.

- 214 Seasonal bat surveys were completed at the proposed site in 2021/2022. These are detailed and discussed further in section 8.3 and **Appendix E**.
- 215 Badgers may occasionally forage and commute through the southern section of the site. The proposal will not impact a badger sett and the proposed site is likely to remain viable to badgers during the operation. However, construction activities have the potential to harm individual animals and precautionary mitigation is recommended on this basis.
- 216 The 2021 record search provided records of species at risk from wind turbines from within 5km of the Site. Several priority species have also been previously recorded in the local area, including cuckoo, linnet and meadow pipit. Scrub and heathland habitats within and adjacent to the site are likely to support breeding birds, which may include these species. Breeding bird, nightjar, vantage point surveys and collision risk analysis have been undertaken at the proposed site. These are detailed and discussed in section 8.4 and **Appendix E**.
- 217 There is some potential for hedgehogs to be occasionally active within heathland and scrub habitats within the southern section of the site. Construction activities have potential to harm individual animals, however mitigation already recommended for badgers will serve to avoid this - no specific mitigation is required.
- 218 There are records for common species within 1km of the Site. The site footprint is relatively small; however scrub, grassland and heathland areas may provide foraging and sheltering opportunities. The Site also features connectivity to Burngullow Common, an extensive area of suitable habitat. Common species such as common lizard, slow-worm and grass snake may be active within suitable habitat within the Site. Reptile surveys were completed at this site in the 2022 survey season. These are discussed further in section 8.5 and **Appendix E**.

Invasive Non-Native Species

- 219 Invasive non-native plant species are listed on Schedule 9 of the Wildlife and Countryside Act (1981) and it is an offence to spread or to cause the spread of these species in the wild. Rhododendron is widespread across the site, growing within the scrub, grassland, and heathland habitats. If these plants are disturbed, there is potential to cause their spread. Mitigation is therefore recommended.

Non-Statutory Nature Conservation Sites

- 220 The site is located within Burngullow Common County Wildlife Site (CWS) which is designated for notable habitats such as Lowland Heathland. The proposed development will result in the permanent loss of 0.13ha of this habitat. Therefore, mitigation is required.

Statutory Nature Conservation Sites

- 221 Natural England has assessed the potential for various development types to impact nearby statutory nature conservation sites when they created SSSI Impact Risk Zones. The proposed development type is not of a type that Natural England Judges to be a risk to statutory nature conservation sites. No mitigation is required and there is no requirement to consult Natural England on the potential impact on these sites.
- 222 Where the information in the PEA is insufficient to allow a full description of the nature conservation features of the site along with a robust assessment of the potential effects on these features, further survey work has been recommended, which includes:
- Bat monitoring, including:
 - Static Monitors
 - Walked Transects
 - Bird Surveys
 - Breeding Birds
 - Nightjar
 - Summer Vantage Points
 - Reptile Surveys

8.2.4. Conclusion

- 223 The site is located on a CWS designated for its lowland heath habitat. As the proposed development will result in the permanent loss of 0.13ha and a temporary loss 0.23ha of heathland habitat, mitigation measures will be applied to ensure minimal loss of heathland including restoration of habitat. For full details of the proposed mitigation and restoration, please see **Appendix E**.
- 224 The site is not within an area identified as a SSSI Impact Risk Zone for this type of development.

- 225 No habitats of European Community Importance as defined within The Conservation of Habitats and Species Regulations 2017 were present within this site.
- 226 As there is the potential for individual badgers and hedgehogs to be on site, they may become trapped within the construction site during the construction phase; therefore, mitigation measures will be needed to prevent this. For full details please see **Appendix E**.
- 227 The site provides potential for both foraging and hibernating reptiles, therefore further surveys have been completed and described in section 8.5 and further detailed in **Appendix E**.
- 228 Rhododendron is frequent within the scrub, grassland, and heathland habitats. If these plants are disturbed then there is the potential for them to spread, therefore mitigation measures are recommended.

8.3 Bat Assessment

8.3.1 Introduction

- 229 Western Ecology was commissioned to complete seasonal bat surveys of land southeast of Blackpool Pit, adjacent to Burngullow Common near Trewoon in Cornwall.
- 230 The aim of the survey was to characterise the assemblage of bats using the site to allow an assessment of the potential impacts of the proposed development. Where there is potential that the proposed development will have a significant effect on a valued ecological feature, recommendations for mitigation are made.

8.3.2 Methodology

Habitat Assessment

- 231 An initial walk over survey was completed on the site in summer 2021. Habitats were noted and assessed for their potential value to foraging and commuting bats.

Bat Activity Transects

- 232 Three 2-hour bat activity transects were completed in the Summer and Autumn 2021, and Spring 2022 by a suitably experienced ecologist walking a pre-planned route through the proposed site with attention being paid to bat activity along boundary features. The survey began 15 minutes before sunset. At locations along the route the surveyor paused to record

bat activity in that area making a note of any bat species encountered, number of passes, and any other pertinent information.

- 233 Bat activity was monitored using a BatBox Duet and an Echo Meter Touch 2 connected to an Apple device running the Echometer touch app. With GPS logging enabled - survey conditions are detailed in Table 2.

Table 2: Bat activity transect details

Date	Surveyor	Start Time	Finish Time	Sunset Time	Weather Conditions
04/08/2021	James Gilroy BSc (Hons), MSc	20:50	22:59	20:59	16° C start temperature. Dry, light NW breeze and 70% cloud cover.
27/09/2021	James Gilroy BSc (Hons), MSc	18:55	21:07	19:07	13° C start temperature. Dry, Calm and 10% cloud cover.
05/05/2022	James Gilroy BSc (Hons), MSc	19:45	22:04	20:04	12° C start temperature. Dry, F2-3 W and 60% cloud cover.

Remote Monitoring

- 234 Wildlife Acoustics remote bat monitors were deployed into site for 10 days each in summer and Autumn 2021, and Spring 2022 (see Table 3). Mini Bat full spectrum units were placed at the proposed turbine location, and on linear features in the landscape. Two locations were used for the linear feature as the initial site (LF1) was found to have been managed, but since the Cat-scan had been completed an alternative route could not be chosen at short notice. After this period, it was relocated to LF2.

Table 3: Remote Monitoring Times

Season	Start Date	Finish Date
Summer 2021	4 th August 2021	14 th August 2021
Autumn 2021	27 th September 2021	6 th October 2021
Spring 2022	5 th May 2022	14 th May 2022

- 235 Both units were approximately 1.5m above the ground. After deployment, sonograms were downloaded and analysed using Anlook software (ver.4.2n) and Kaleidoscope Pro (ver. 5.4.7) to ascertain which species were using the site.

Desktop Survey

- 236 The desktop survey collated existing biological records for the site and adjacent areas and identified any nature conservation sites that may be affected by the proposals. This comprises an important part of the assessment process, providing information on ecological issues that may not be apparent during the site survey.
- 237 Consultees for the data search included:
- The Environmental Records Centre for Cornwall & The Isle of Scilly provided biological records for bats within 5km of the site; and
 - Natural England - GIS datasets of bat Statutory Nature Conservation Sites.

8.3.3 Results

Habitat Assessment

- 238 The site comprises a variety of habitats characteristic of china clay extraction sites in the local area; containing a mixture of lowland heathland, mixed and Gorse dominated scrub, acid and neutral grassland communities and bare ground.
- 239 The site features a varied topography, with Gorse dominated scrub and occasional poor-quality heathland. An existing haul road runs through the site and consists of bare ground with mainly acidic and neutral grassland featuring across the associated embanked verges. A flat area supporting lowland heathland is located within the southeast of the site and forms part of a larger, continuous expanse of this habitat.
- 240 There is no potential roosting habitat associated with the site.
- 241 Post-mining areas associated with the site are likely to provide sub-optimal habitat due to lack of supported invertebrate prey, however scrub and heathland along the southern margin is likely to provide some foraging and community opportunities. The site also features connectivity to unlit semi-natural habitats to the south and east such as scrub and woodland. There is potential for a variety of bat species (including light-averse species) to be active within and around the site.

Bat Activity Transects

- 242 Bat survey transects were completed to determine how each species of bat present uses the site. The results of the transects were as follows:

Summer 2021

- 243 Weather conditions were suitable for bat activity during this survey. During the transect, 31 Common Pipistrelle passes were recorded associated with bats flying close to the margins of the pit to the west, and generally dispersed along the transect route. A single Barbastelle pass was recorded to the west of the proposed turbine location. No other bats were encountered during the transect surveys.

Autumn 2021

- 244 During the transect 7 Common Pipistrelle passes were recorded in the south of the site. A single Myotis pass was recorded in the south of the site. No other bats were encountered during the transect surveys.

Spring 2022

- 245 During the transect a single Common Pipistrelle pass was recorded in the south of the site.

Remote Monitoring

- 246 All remote detectors functioned correctly for the 10-day periods of monitoring and night-time temperature during the monitoring period were typical for the seasons in which they were recorded.
- 247 During the Summer 2021 monitoring at the nearest linear feature recorded a total of 1 Myotis, 16 Noctule, 82 Common Pipistrelle, 1 Soprano, 3 Brown Long eared and 1 Lesser Horseshoe bat species calls passing the site.
- 248 During the Summer 2021, monitoring at the proposed turbine location recorded a total of 1 Barbastelle, 5 Myotis, 6 Noctule, 47 Common Pipistrelle, 1 Soprano Pipistrelle and 2 Brown Long-eared bat species calls passing the site.
- 249 During the Autumn 2021, monitoring at the nearest linear feature recorded a total of 12 Myotis, 1 Noctule, 94 Common Pipistrelle, 1 Soprano and 1 Brown Long eared bat species calls passing the site.
- 250 During the Autumn 2021, monitoring at the proposed turbine location recorded a total of 13 Common Pipistrelle, 1 Brown Long eared and 1 Lesser Horseshoe bat species calls passing the site.

251 During the Spring 2022, monitoring at the nearest linear feature recorded a total number of 2 Barbastelle, 22 Myotis, 94 Noctule, 6 Nathusius Pipistrelle, 275 Common Pipistrelle, 1 Soprano Pipistrelle, 2 Greater Horseshoe and 3 Lesser Horseshow bat species calls passing the site.

252 During the Spring 2022, monitoring at the proposed turbine location recorded a total number of 2 Barbastelle, 2 Noctule, 1 Nathusius Pipistrelle, 181 Common Pipistrelle. 10 Brown Long eared and 1 Lesser Horseshoe bat species calls passing the site.

Desktop Survey

253 There are no statutory nature conservation sites for bats within 5km of the proposed turbine location.

254 The biological records search returned 363 records for bat species within 5km of the site which are detailed in Table 4 below.

Table 4: Records of bat species within 5km of the proposed site

Common Name	UK Legislation	Conservation Status	No. of records
Unidentified bat (Chiroptera spp.)	WACA-Sch5 ²		1
Brandt's bat	WACA-Sch5	Local priority ³	2
Brown Long-eared Bat	WACA-Sch5; NERC S41 ⁴	Priority ³ ; local priority	41
Common Pipistrelle	WACA-Sch5	Local priority	24
Daubenton's Bat	WACA-Sch5	Local priority	1
Greater Horseshoe Bat	WACA-Sch5; HabReg-Sch2 ⁶ ; NERC S41	Priority; local priority	5
Lesser Horseshoe	WACA-Sch5; HabReg-Sch2; NERC S41	Priority; local priority	22
Leisler's Bat	WACA-Sch5; HabReh-Sch2	Priority	1
Nathusius's Pipistrelle	WACA-Sch5; HabReh-Sch2	Priority	1
Natterer's Bat	WACA-Sch2	Local priority	4
Noctule bat	WACA-Sch5; NERC S41	Priority, local priority	11
Pipistrelle spp.	WACA-Sch5	Local priority	214
Serotine	WACA-Sch5	Priority; local priority	2
Soprano Pipistrelle	WACA-Sch5; NERC s41	Priority; local priority	30
Western Barbastelle	WACA-Sch5, HabReg-Sch2; NERC S41	Priority; local priority	3
Whiskered Bat	WACA-Sch5; NERC S41	Local priority	1

Summary of the Survey Results

255 Common Pipistrelle were the most commonly recorded bat during all surveys, although activity levels are below what would be expected in lowland areas of similar habitat

structure and diversity with remote monitoring suggesting approximately half as much activity at the proposed turbine site when compared to nearby linear features.

- 256 This unequal patrician of activity levels between the two remote monitoring sites is more pronounced for Noctule, where the number of calls drops from 111 at the nearby linear feature to 9 at the proposed turbine site.
- 257 Other records of note are Nathusius Pipistrelle, with the majority of the activity associated with nearby linear features. It is also noted that Brown Long-eared calls were greater at the turbine site than at nearby linear features; this is likely to relate to prey density in heathland habitat.
- 258 Other species, Myotis, Soprano Pipistrelle, Barbastelle, Greater Horseshoe and Lesser Horseshoe were rarely recorded.

Survey Constraints

- 259 Surveys were completed at optimal times for assessing bat activity and the remote detectors functioned correctly for the survey period. Weather conditions were suitable for bat activity.
- 260 Two locations were used for the linear features as the initial site, LF1, was found to have been managed, but since the Cat-scan had been completed an alternative could not be chosen at short notice. After summer 2021, it was relocated to LF2. This is not considered a constraint as it provides additional information of general bat activity in the area.
- 261 Long-eared calls have been assumed to the Brown, as opposed to the Grey, Long-eared. Both have similar feeding ecologies, and both are considered to be low risk from turbines at individual and population scale. This not a constraint to this assessment.

Potential Impacts of the Development

- 262 There are no bat roosts associated with the site or its immediate boundaries. The potential adverse effects would be limited to commuting and foraging bats which may be impacted by the operational phase of the proposed wind turbine.
- 263 Using the survey data, we can meet the survey aim and provide an assessment of the risk of there being concentrations of bats at the site and an indication of the likely use of the site

which will allow an assessment of the risk of a single wind turbine at this site to individual bats and to bat populations.

- 264 An assessment has been made of the potential to adversely impact the species recorded here based on the ecology and use of this site by each species, and the characteristics of the proposed turbine.
- 265 Species not recorded during this survey are unlikely to be active in this area.

Conclusion

- 266 Where there is potential that the proposed development will have a significant effect on bats, recommendations for mitigation are made based on the mitigation hierarchy suggested in Paragraph 118 of the National Planning Policy Framework (see **Appendix E** for further details).
- 267 The proposed turbine is within a site of very low value for bats, as illustrated by the results of the walked transects and remote monitoring. Therefore, the survey concludes that no significant effects are predicted, and no mitigation is required.

8.4 Ornithological Surveys

8.4.1 Introduction

- 268 Western Ecology were commissioned to complete breeding bird, Nightjar, and summer bird vantage point surveys (VP) in relation to the proposed development.

- 269 The objectives of the study were to:

- Assess the proximity to statutory/non-statutory sites from the proposed site and determine the implications;
- Habitat assessment and breeding bird transects to determine the value of the site and its importance for protected and breeding bird species; and,
- Analysis of the potential collision risk as a result of the proposed development.

8.4.2 Methodology

Desktop Study

- 270 A desktop survey was commissioned in February 2022 from the Environmental Records Centre for Cornwall & the Isles of Scilly (ERCCIS) - records were provided of non-statutory nature conservation sites and bird species within 5km.

271 GIS datasets available from Natural England were assessed to determine the number and nature of statutory nature conservation sites within 5km.

Habitat Assessment

272 Habitats within the footprint of the proposed development and at its immediate margins have been assessed for their potential to support breeding, roosting and foraging birds.

Vantage Point Surveys

273 A series of Vantage Point Surveys (VPs) were completed between July and August 2021, and then between March to June in 2022 to capture bird movements during the accepted breeding season (March to August inclusive). The survey methodology followed the methods given by Scottish Natural Heritage (SNH, 2000), in their guidance ‘Recommended bird survey methods to inform impact assessment of onshore wind farms’.

274 The surveys were completed by Martin Rule, an experienced ornithologist, and James Gilroy, an ecologist with experience of wind turbine developments. Surveys were scheduled to capture a variety of times and weather conditions. Surveys lasted for 3 hours each (Table 5).

Table 5: Vantage point survey details for Burngullow Turbine

Survey no.	Date	Time Started	Time finished	Weather
July VP1	19/07/2021	08:40	11:40	Sunny, dry and scattered cloud. 22C, CC=40%, WF=2-3
July VP2	30/07/2021	10:00	13:00	Overcast, occasional showers improving, breezy. 12-15C, CC=70%, WF=3-4
August VP1	19/08/2021	15:40	18:40	Dry, scattered cloud, warm. 18C, CC=60%, WF=1-2, increasing to 3 by end.
August VP2	26/08/2022	09:25	12:25	Dry, warm & hazy. 18C, CC=40%, WF=1-2.
March VP1	23/03/2022	10:20	13:20	Dry, sunny, mild. 13-15C, CC=20% increasing to 70%, WF=1-2
March VP2	30/03/2022	09:45	12:45	Light mist at start - cleared by 1000. 8C, CC=100-80%, WF=2-3
April VP1	22/04/2022	06:40	09:40	Dry, sunny, mild. 8C, CC=10%, WF=1-2.

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April VP2	29/04/2022	13:20	16:20	Dry, overcast, calm. 14C, CC=90%, WF=1-2
May VP1	25/05/2022	06:30	09:00 (survey abandoned 30mins early due to rain)	Light rain turning heavier by 0800. 9C decreasing to 7C, CC=100%, WF=1-2
May VP2	10/06/2022 (survey postponed)	18:00	21:30 (additional 30mins added on)	Dry, warm, calm. 18C, CC=50%, WF=1-2
June VP1	21/06/22	06:30	09:30	Dry, patchy cloud, mild. 11-15C, CC=40%, WF=2-3
June VP2	30/06/2022	18:35	21:35	Dry, partial cloud, light wind. 16C, CC=30%, WF=1-2

275 This level of survey effort provided a total of 36 hours of VPs during the summer bird monitoring period (March to August).

276 The area of the VPs included the proposed turbine location and open land to all sides within 500m.

277 The target bird species for the VPs were based on those species which are identified by Natural England Technical Information Note 069 (TIN 069) - Assessing the effects of onshore wind farms on birds. All raptor, wildfowl, wader and gull species were also included, with particular attention paid to species within these groups for which there are records within 5km of the site, as provided by the ERCCIS record search (Table 6).

Table 6: List of bird target species for summer vantage point surveys, Land at Burngullow

Common name	Natural England TIN 069	Local records
Arctic tern	Y	
Barnacle Goose		
Bean goose	Y	
Bewick's swan	Y	
Bittern	Y	
Black Grouse	Y	
Black-headed Gull		Y
Buzzard		Y
Chough	Y	Y
Common Crane	Y	
Common Tern	Y	
Common Gull		Y
Common Scoter		Y
Curlew		Y
Curlew Sandpiper		Y
Dark-bellied Brent Goose	Y	Y
Dunlin	Y	Y
Dotterel		
Eider		Y
Gadwall		Y
Goldeneye		Y
Golden Eagle	Y	

Golden Plover	Y	Y
Goshawk		Y
Green Sandpiper		Y
Grey Heron	Y	Y
Greater black-backed Gull		Y
Herring Gull		Y
Hen Harrier	Y	Y
Honey Buzzard	Y	Y
Hobby		Y
Kestrel		Y
Lapwing	Y	Y
Lesser Black-backed Gull		Y
Little Egret	Y	Y
Little Tern	Y	
Marsh Harrier	Y	Y
Merlin	Y	Y
Montagu's Harrier	Y	
Nightjar	Y	Y
Osprey	Y	Y
Peregrine Falcon	Y	Y
Pink-footed Goose	Y	Y
Pochard		Y
Red kite	Y	Y
Roseate Tern	Y	
Sandwich Tern	Y	Y
Scaup		Y
Shelduck		Y
Short-eared Owl		Y
Sparrowhawk		Y
Snipe		Y
Stone curlew	Y	
Teal		Y
Tufted Duck		
Velvet Scoter		Y
White-fronted Goose	Y	
Whooper Swan	Y	Y
Woodcock		Y

278 For each flight of a Target species, flight duration within the survey area and category of flight height for each 30 second period (1 = below blade sweep, 2 = lower blade sweep, 3 = upper blade sweep, 4 = above blade sweep and 5 = 100m+) were recorded in a tabulated sheet, with the flight line annotated on a suitable map or diagram.

Calculation of Collision Risk

279 SNH (2000) have produced guidance on the calculation of collision risk using a two-stage methodology which was followed during the analysis of collision risk - See **Appendix E** for further details on this methodology.

280 For this single turbine, all bird calculations will be based on transiting birds, as they would not be likely to use the small footprint area of the turbine as territory.

281 Once the number of likely transits is known, the risk of collision is expressed as a percentage based on the dimensions of the bird, turbine, wind speed and direction of flight (upwind or downwind). Allowances are made for known avoidance behaviour to give an estimate of the number of birds that may collide with a given windfarm/turbine.

Breeding Bird Transects

282 Breeding bird surveys were completed by Martin Rule in April, May and June 2022 using a methodology based upon a combination of Common Bird Census methodology, devised by the British Trust for Ornithology (BTO), and the National Breeding Bird Survey (BBS) techniques, jointly devised by the BTO, Royal Society for the Protection of Birds (RSPB) and the Joint Nature Conservation Committee.

283 This involved a suitably experienced surveyor slowly walking a predetermined transect and recording all birds seen or heard onto pre-printed maps using BTO codes and symbols to describe species present and associated activity.

Table 7: Breeding bird surveys, Burngullow Turbine

Date	Time Started	Time finished	Weather
22/04/2022	05:30	06:30	Dry, clear, mild. 8° C, CC=10%, WF=2-3
25/05/2022	05:15	06:15	Light rain, cool, calm. 9° C, CC=100%, WF=1-2
04/06/2021	05:00	06:00	Dry, calm, partial cloud. 10° C, CC=50%, WF=2-3

284 The conservation status of each species recorded was determined based on the following criteria:

- The Red List for Birds
- The Wildlife and Countryside Act 1981 (as amended)
- Local Biodiversity Action Plan Priority Species

Nightjar Surveys

285 A walked transect was conducted across the site and immediate surroundings (Map 1 - **Appendix E**). This transect route gave optimal coverage of the Site, allowing any potential Nightjar to be clearly seen displaying or heard churring.

286 Following standard RSPB guidelines, surveys were carried out by Martin Rule in the period mid-May to late June, between 30 minutes before sunset to 1.5 hours after sunset and in suitable weather conditions.

Table 8: Nightjar survey dates and weather conditions

Date	Time	Weather
10.06.22	21:30-22:30 (sunset 21:29)	Cool, dry, still. 13C, CC=10%, WF=0-1
30.06.22	21:45-22:45 (sunset 21.33)	Dry, sunny, calm. 12C, CC=10%, WF=0
05.07.22	21:40-22:45 (sunset 21:32)	Dry, calm, overcast. 14C, CC=80%, WF=1-2

Survey Constraints

- 287 Government Guidelines on survey effort for summer bird surveys are given as 36 hours per season, with the summer (breeding) survey period being March to August (2 surveys per month). The May VP1 survey had to be abandoned 30 minutes early due to rain, however this was added on to the next survey, so the full 36 hours of survey effort was met. The May VP2 survey had to be postponed, due to weather conditions, into early June. This is not considered a constraint to the survey as full survey effort was still met, and within the wider breeding season (March to August).
- 288 All areas of the site were readily accessible. Nightjar and breeding bird surveys were carried out at suitable times and during favourable weather conditions.
- 289 There are no significant constraints to the results of this survey.

Study Area

- 290 The study area of the biological records search is within a 5km radius of the site for bird species. The study area for the summer Vantage Point surveys was the area within 500m of the proposed wind turbine and visible, adjacent areas, hereafter referred to as the “Survey area” within the legend of Map 1, **Appendix E**. The survey area for the breeding bird and nightjar transects relate to the areas where vegetation clearance will be required in association with the footprint of the turbine and infrastructure.

8.4.3 Results

Desktop Survey

- 291 The biological record search returned 14490 records for bird species within 5km of the Site. Notable species likely to be regularly active within the local area are recorded in Table 9 below.

Table 9: Records for Target Bird Species within 5km - ERCCIS Record Search

Common Name	UK Legislation	Conservation Status	No. of Records
Barn Owl	WACA-Sch1-p12	Local priority ³	71
Black Redstart	WACA-Sch1-p1	Priority ⁴	25
Black-headed Gull		Priority	42
Black-necked Grebe	WACA-Sch1-p1	Priority, local priority	1
Black-throated diver	WACA-Sch1-p1	Priority, local priority	26
Brambling	WACA-Sch1-p1	Not listed	14
Bullfinch		Priority	287
Cirl Bunting	WACA-Sch1-p1, NERC S415	Priority, local priority	1
Common Crossbill	WACA-Sch1-p1	Local priority	1
Common Gull		Priority	8
Common Redpoll		Priority	1
Common Sandpiper		Priority; local priority	4
Common Scoter	WACA-Sch1-p1, NERC S41	Priority, local priority	12
Corn Bunting	NERC S41	Priority; local priority	2
Cuckoo	NERC S41	Priority; local priority	81
Curlew	NERC S41	Priority, local priority	2
Dark-bellied Brent Goose	NERC S41	Priority, NE TIN0696	1
Dartford Warbler	WACA-Sch1-p1	Priority, local priority	12
Dunlin		Priority, local priority, NE TIN069	2
Dunnock/Hedge Accentor	NERC S41	Priority; local priority	580
Eider		Priority; local priority	4
Fieldfare	WACA-Sch1-p1	Priority; local priority	30
Firecrest	WACA-Sch1-p1	Not listed	89
Gadwall		Priority; local priority	1
Glaucous Gull		Priority	1
Goldeneye	WACA-Sch1-p1	Priority	3
Goshawk	WACA-Sch1-p1	Priority, local priority	1
Grasshopper Warbler	NERC S41	Priority	16
Greater Black-backed Gull		Priority	9
Great Crested Grebe		Priority	7
Great Northern Diver	WACA-Sch1-p1	Priority, local priority	40
Greenfinch		Priority	444
Green Sandpiper	WACA-Sch1-p1	Priority, local priority	6
Grey Heron	-	NE TIN069	44
Grey Wagtail		Priority	126
Grey Partridge	NERC S41	Priority, local priority	3
Hawfinch	NERC S41	Priority	3
Hen Harrier	WACA-Sch1-p1, NERC S41	Priority, local priority, NE TIN069	4
Herring Gull	NERC S41	Priority	409
Hobby	WACA-Sch1-p1	Local priority, NE TIN069	7
Honey-buzzard	WACA-Sch1-p1	Priority	1

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Hoopoe	WACA-Sch1-p1	Not listed	4
House Sparrow	NERC S41	Priority	544
Kestrel		Priority	60
Lapwing	NERC S41	Priority, local priority, NE TIN069	6
Lesser Black-backed Gull		Priority	19
Linnet	NERC S41	Priority	61
Little Egret	-	Local priority, NE TIN069	9
Long-eared Owl		Local priority	3
Long-tailed Duck	WACA-Sch1-p1	Priority	2
Mallard		Priority	59
Marsh Harrier	WACA-Sch1-p1	Priority, NE TIN069	1
Marsh Tit	NERC S41	Priority	66
Meadow Pipit	-	Priority	187
Merlin	WACA-Sch1-p1	Priority, NE TIN069	5
Mistle Thrush		Priority	39
Nightjar	NERC S41	Priority, local priority, NE TIN069	23
Osprey	WACA-Sch1-p1	Priority, NE TIN069	2
Oystercatcher		Priority	1
Peregrine	WACA-Sch1-p1	Local priority, NE TIN069	39
Pied Flycatcher		Priority	4
Pochard		Priority; local priority	7
Red Kite	WACA-Sch1-p1	Priority, local priority, NE TIN069	25
Red-backed Shrike	WACA-Sch1-p1	Priority	1
Red-throated Diver	WACA-Sch1-p1	Local priority	5
Redwing	WACA-Sch1-p1	Priority	53
Reed Bunting	NERC S41	Priority	40
Ring Ouzel	NERC S41	Priority	13
Ringed Plover		Priority	1
Sand Martin		Local priority	168
Sandwich Tern	-	Priority, local priority, NE TIN069	2
Scaup	WACA-Sch1-p1, NERC S41	Priority	2
Shelduck		Priority; local priority	1
Short-eared Owl		Priority	5
Skylark	NERC S41	Priority	86
Slavonian Grebe	WACA-Sch1-p1	Priority, local priority	11
Snipe		Priority; local priority	10
Song Thrush	NERC S41	Priority	264
Spotted Flycatcher	NERC S41	Priority	9
Starling		Priority	291
Stock Dove		Priority	11
Swift		Priority	129
Teal		Priority; local priority	18
Tree Pipit	NERC S41	Priority	16
Tufted Duck		Local priority	20
Tree Sparrow	NERC S41	Priority	1

Turtle Dove	NERC S41	Priority	1
Velvet Scoter	WACA-Sch1-p1	Priority	2
Water Pipit		Priority; local priority	1
Whimbrel	WACA-Sch1-p1	Priority, local priority	4
Whinchat		Priority; local priority	4
Whooper Swan	WACA-Sch1-p1	Priority, NE TIN069	1
Willow Tit	NERC S41	Priority, local priority	3
Willow Warbler		Priority	123
Wood Warbler	NERC S41	Priority, local priority	1
Woodcock		Priority	12
Wood Lark	WACA-Sch1-p1, NERC S41	Priority, local priority	1
Wood Pigeon		Priority	488
Wren		Priority	456
Wryneck	WACA-Sch1-p1	Priority	4
Yellowhammer	NERC S41	Priority	48
Yellow-legged Gull		Priority	1
Yellow Wagtail	NERC S41	Priority	5

292 There are no non-statutory sites within 1km designated for their bird interest.

293 Goss Moor National Nature Reserve (NNR) is located approximately 4.9km to the north of the Site (at the closest point). It represents a diverse mosaic of habitats including heaths, fens, grasslands and woodland, which support a large variety of both breeding and overwintering birds, including two target species; Bittern and Hen Harrier. Goss Moor is also designated as a Special Area of Conservation (SAC) and as a Site of Special Scientific Interest (SSSI).

294 Natural England assessed the likelihood of wind farms to adversely impact SSSI interest features, including birds, from a varied range of developments when they created their SSSI impact risk zones. The site is not within a SSSI impact risk zone for wind farms.

Habitat Assessment

295 The site of proposed turbine largely concerns an expanse of heathland which forms part of the wider Burngullow Common, located at the south-eastern periphery of the former Blackpool pit china clay workings. The predominant habitat within the Site is lowland heathland, while a bund supporting gorse scrub, and grassland communities is located at the western edge of the Site. A narrow margin of mixed scrub also runs along the edge of the haul road in the north of the Site. These habitats are frequent in the local area, although Burngullow common represents a large expanse of relatively undisturbed heathland which is less widespread.

- 296 The heathland habitat contained within the Site provides potential breeding habitat for a variety of notable bird species such as Nightjar, Grasshopper Warbler, Meadow Pipit and Skylark for which there are records within the local area.
- 297 The steep topography of the surrounding area associated is likely to significantly reduce the suitability of the Site to be used as breeding grounds for many wader and waterfowl species (such as Lapwing and Golden Plover). In the context of the local environment, the disused mining areas that support heath and scrub habitats are unlikely to serve as important resources for large numbers of waders and wildfowl due to the relatively limited extent and fragmented nature of these areas.
- 298 Widespread raptor species are likely to be attracted to the semi-natural habitats in the local area, as they will support prey items such as small passerines and mammals. Large waterbodies, such as Blackpool pit are likely to provide loafing and foraging grounds for gull species and occasional waterfowl. However, due to the mining legacy, these waterbodies are unlikely to provide significant foraging resources.

Bird VP Surveys

- 299 Summer Vantage Point Surveys were completed from a location approximately 500m to the northeast of the proposed turbine location and which overlooks the survey area. This allowed robust coverage of birds transiting through the airspace of the proposed turbine from all directions.
- 300 The surveys comprised of 36 hours of summer bird VPs in the period July to August 2021 and March to June 2022. The Target Species included Buzzard, Kestrel, Sparrowhawk, Herring Gull, Great Black-Backed Gull, Lesser Black-Backed Gull and Mallard - the flight paths of which can be seen in **Appendix E**.

Collision Risk Calculation

- 301 Collision risk for directional and non-directional flights have been calculated based on parameters of the proposed turbine as well as bird biometric data and potential hours of activity during the season for which the surveys were undertaken - see the below table for the biometric data for the target species.

Table 10: Biometric Data for Target Species

Target Species	Assumed bird speed m/s ⁸	Bird length (m)	Wingspan (m)
Buzzard	15	0.54	1.20
Kestrel	15	0.34	0.76
Sparrowhawk	15	0.33	0.62
Great Black- backed Gull	13	0.71	1.58
Lesser Black- backed Gull	13	0.58	1.42
Herring Gull	12	0.6	1.44
Mallard	17	0.58	0.9

302 Calculations have been based on using a three-dimensional model (K-1). Assumptions on whether a bird is likely to flap or glide (F0 or 1) through the risk window has been assessed using professional judgement based on observations during the surveys - full details of the calculation of collision risk can be found in **Appendix E**.

Table 11: Collision risk calculations for gull species

Species	Bird occupancy within rotor swept volume (Vr) per season (March- August) (secs)	Number of bird transits through rotors per season (March- August)	Average collision risk ⁹ (%)	Estimated number of collisions per season without avoidance behaviour ¹⁰	Estimated number of collisions per summer season with 99.5% avoidance for large gulls (Cook et al, 2014)
Herring Gull	84.95	208.01	7.1	12.56	0.06
Great Black-backed Gull	6.38	16.56	7.3	1.03	0.005
Lesser Black-backed Gull	6.98	18.61	6.8	1.08	0.005

Table 12: Collision risk calculations for raptors

Species	Bird occupancy within rotor swept volume (Vr) per season (March- August) (secs)	Number of bird transits through rotors per season (March- August)	Average collision risk (%)	Estimated number of collisions per summer season without avoidance behavior	Estimated number of collisions per summer season with 98% avoidance (SNH, 2018) unless otherwise stated
Buzzard	23.67	73.35	6.4	3.99	0.08
Kestrel	8.95	28.94	5.7	1.40	0.03
Sparrowhawk	0.63	2.06	5.6	0.10	0.002

Table 13: Collision risk calculations for waterfowl

Species	Number of birds flying within risk window per season (March - August)	Number of birds passing through rotors per season (March - August)	Average collision risk (%)	Estimated number of collisions per summer season without avoidance behaviour	Estimated number of collisions per summer season with 98% avoidance (SNH, 2018) unless otherwise stated
Mallard	74.98	11.53	6.3	0.62	0.01

Cumulative impact including Lower Longstones, East Karlake & Wheal Martyn Turbines

303 The cumulative impact upon certain groups of target bird species from the proposed turbine, and the recently approved turbines at Wheal Martyn, East Karlake and Lower Longstones located within the local area to this site has been calculated.

304 This calculation has been obtained by summing the estimated number of collisions (including avoidance rates) for each individual turbine. Historic data from summer vantage point surveys (carried out by Western Ecology) was used for other turbines. Cumulative impact is detailed in Table 14 below and is expressed as a total number of collisions per summer season.

Table 14: Cumulative impact of collision risk for target species from the approved East Karlake, Wheal Martyn and Longstones Turbines

Species	Estimated number of collisions (including avoidance rates) per summer season (Lower Longstones turbine)	Estimated number of collisions (including avoidance rates) per summer season (Wheal Martyn turbine)	Estimated number of collisions (including avoidance rates) per summer season (East Karlake turbine)	Estimated number of collisions (including avoidance rates) per summer season (East Karlake turbine)	Cumulative impact (total number of collisions (including avoidance rates) per summer season (March to August))
Herring Gull	0.8	0.76	0.35	0.06	1.97
Greater Black-backed Gull	0.04	Insufficient data	0.02	0.005	0.065
Lesser Black-backed Gull	0.03	0.04	0.03	0.005	0.105
Buzzard	0.12	0.32	0.28	0.08	0.8
Kestrel	0.4	0.12	0.3	0.03	0.85
Peregrine	<0.005	Insufficient data	Not recorded in area	Not recorded in area	N/A
Sparrowhawk	<0.005	Insufficient data	Not recorded in area	0.002	N/A
Mallard	Not recorded in area	Not recorded in area	0.03	0.001	0.031

Breeding birds transect survey

- 305 A total of 8 species of birds were recorded during the 3 breeding bird transects in April, May and June 2022. Of the 8 species recorded, 6 species are declining and included in the RSPB BoCC Red or Amber lists, whilst 3 are also species of principal importance. The remainder were common and widespread passerines. A full list is given in **Appendix E**.
- 306 Of the 6 species recorded that are of conservation concern, 2 are probably breeding, while the other 4 species exhibited behaviour suggesting that they were possibly breeding within and around the Site. The records for probable breeders (Bullfinch and Willow Warbler) are suggestive of territories in the area.

Table 15: Species of principal importance and BoCC Amber and Red List species

Species	BoCC status	Species of principal importance?	Maximum number per survey/frequency during the three transects	Breeding status
Cuckoo	Red	Yes	2/2	Probable breeder
Grasshopper Warbler	Red	Yes	2/1	Possible breeder
Linnet	Red	Yes	1/3	Probable breeder
Meadow Pipit	Amber	No	2/3	Probable breeder
Willow Warbler	Amber	No	2/1	Possible breeder
Wren	Amber	No	1/3	Probable breeder

Nightjar Survey

- 307 No Nightjars were observed or heard churring from the Site or the surrounding habitats during the completed survey effort.
- 308 As such, it is reasonable to conclude that Nightjar are absent from the area and are not breeding within the site or the immediate surroundings.

8.4.4 Potential Impacts

Direct Habitat Loss

- 309 The site of the proposed turbine concerns areas of lowland heathland, mixed scrub & gorse scrub habitat and patchy grassland communities, all of which have been shown to support probable breeding by low numbers of Red and Amber listed bird species such as Willow Warbler, Meadow Pipit, Linnet, Grasshopper Warbler and Cuckoo.
- 310 During the three survey visits, most bird activity was associated with the woody scrub and gorse scrub along the access track verge at the northern and western margins, as well as

across the open heathland associated with Burngullow Common. Given the suitability of the habitat for these species, it is likely there are active territories within these areas of the Site.

- 311 The proposed development will result in the permanent loss of the approximately 0.13ha of lowland heathland habitat and a smaller extent of scrub habitat (both Gorse scrub and mixed scrub). The loss of these habitats will therefore result in the loss of extent of nesting habitat for these species recorded within the Site. Although many of the species recorded are species of conservation concern, they occur frequently in the local area (recorded during previous surveys for other turbines) while nesting habitat is also readily available across the wider clay workings, and so this is only considered to pose a minor negative impact on breeding bird species. Furthermore, an area of new scrub and heathland are proposed near the site to compensate for any loss.
- 312 Indirect habitat loss through displacement and disturbance is not considered likely to impact the species breeding within the Site. Displacement distances for birds such as Meadow Pipits (Hötker et al. 2005; RSPB, 2009) have been shown to be between 41-100m from wind turbines, while other studies (Devereux et al. 2008; Percival, 2005) suggest wind turbines to cause little disturbance to passerines. Areas of retained habitat across the wider Burngullow Common are therefore likely to remain viable for the species that are present.
- 313 Any birds active within this area will already be subject to a certain amount of disturbance with the ongoing mining operation to the south (lighting, noise, vibration), whilst available nesting habitat is plentiful across the wider clay working areas. As such, the loss of a limited extent of breeding habitat to the development is not considered likely to adversely affect the conservation status of these breeding bird species, or impact local populations.
- 314 No mitigation for habitat loss is recommended.

Disturbance

- 315 Habitats that are present within the immediate vicinity of the development footprint provide breeding habitat for a variety of passerines, including Red and Amber species. Construction activities (such as vehicle movements, machinery operation, human presence, and noise) have the potential to cause disturbance to breeding birds. Any impact would be minor and temporary (for the period of construction) and no mitigation is recommended.

316 There are already 2 existing wind turbines within 2km of the Site and birds that are active in this area will be normalised to movements and elevated structures within the local landscape. A study of wind farms in Scotland and North England (Pearce-Higgins et al, 2012), found there was little evidence for consistent post-construction population declines in any species, suggesting that wind farm construction can have greater impacts upon birds than wind farm operation.

317 No mitigation for disturbance is recommended.

Barrier Effect

318 The proposed turbine is unlikely to disrupt any regular flight paths used by birds that are active in the area. Regular flight routes observed during the vantage point surveys were largely associated with commuting to and from the waterbody at Blackpool pit, particularly for the gull species recorded. Gull species have also been observed (during previous VP surveys) using avoidance tactics when flying in the vicinity of other existing turbines despite this feature being located within a broad commuting corridor, suggesting that the siting of a turbine is very unlikely to act as a barrier to gull species in the local area. Buzzards exhibited similar flight patterns to gulls, showing a preference for open ground and were often soaring on thermals produced from rising air over the slopes and body of Blackpool Pit. It is likely that Buzzards use the habitats within the survey area for hunting, which were largely accessed from the north, south and west of the proposed turbine. It is therefore unlikely that the proposed turbine will prevent Buzzards from accessing hunting grounds in the area.

319 Kestrel flights were largely observed to be hunting over semi-natural habitats within the survey area. Kestrel flights were occasionally observed close to the existing turbine near St Mewan Beacon turbine and appeared to be undeterred by its presence. The proposed turbine is very unlikely to create a barrier effect to Kestrels within the area, as it will not block access to hunting grounds which are widely available in the surrounding landscape.

320 No mitigation against barrier effect is recommended.

Collision Risk

321 When considered in isolation from other turbines, for all species the modelled collision risk is less than 1 individual per summer season (March to August). The highest modelled mortality rates were for Herring Gull (0.06 collisions per summer or 1 collision per 16.67

summers), Buzzard (0.08 collisions per summer or 1 collision per 12.5 summers) and Kestrel (0.03 collisions per summer or 1 collision per 33.33 summers). This turbine would have a negligible effect on local bird populations.

322 Taking into account the potential for cumulative impact arising from this proposed turbine, and the approved Lower Longstone, Wheal Martyn & East Karlake turbines, the collision rates for Herring Gull remains the highest, at 1.97 birds per summer.

323 For other species, the cumulative impact of both turbines is less than 1 collision per summer, and this is highly unlikely to impact local populations.

324 The modelled collision risk for the target species encountered during the VPs visits indicates that the cumulative impact on local bird populations from the operation of the proposed wind turbine at this site would not affect local populations.

8.4.5 Recommendation for Mitigation

Construction phase

325 To avoid an offence, site preparation activities such as habitat removal, vegetation clearance, soil stripping should be completed during the period September to March, outside of the accepted bird nesting season.

326 During the construction phase, vehicle movements, noise, vibration and the presence of construction staff have the potential to displace birds from adjacent habitats. However, any impact would be minor and temporary (for the period of construction) and no mitigation is recommended.

327 No other construction effects are predicted.

Operational Phase

328 The operation of the proposed single wind turbine is unlikely to have an adverse effect on breeding and no mitigation is recommended.

329 No recommendations are made in relation to the operational phase within this report.

8.4.6 Conclusion

- 330 A desktop survey, habitat assessment, breeding bird transects, and collision risk analysis was completed by Western Ecology to determine the potential impact of the proposed development on protected and breeding bird species.
- 331 The desktop survey found that there are no statutory sites within 1km designated for their bird interest and the proposed development is not within a SSSI impact risk zone for wind farms designated by Natural England.
- 332 The habitat assessment found the heathland habitat contained within the Site provides potential breeding habitat for a variety of notable bird species. Construction and operation of a single wind turbine and associated infrastructure has the potential to devalue a limited extent of breeding habitat. The steep topography of the surrounding area is likely to reduce the suitability of the site to be used as breeding grounds for many wader and waterfowl species. Widespread raptor species are likely to be attracted to the semi-natural habitats in the local area, as they will support prey items such as small passerines and mammals. Large waterbodies, such as Blackpool pit are likely to provide loafing and foraging grounds for gull species and occasional waterfowl. However, due to the mining legacy, these waterbodies are unlikely to provide significant foraging resources.
- 333 The modelled collision risk for the target species encountered during the VP visits strongly suggests that the impact on local bird populations from the operation of a single wind turbine is negligible. No mitigation against collision risk is recommended.
- 334 Mitigation for the construction phase is recommended; no other mitigation is deemed necessary for the proposed development.

8.5 Reptile Surveys

8.5.1 Introduction

- 335 Western Ecology has been commissioned to complete reptile surveys on the proposed development site.
- 336 The aim of this survey was to ascertain whether the four common reptile species, Grass Snake, Adder, Slow Worm and Common Lizard are present within the site.

- 337 Where appropriate, the survey will provide the information required to determine the appropriate level of mitigation required to ensure compliance with wildlife legislation and relevant planning policy.

8.5.2 Methodology

Habitat Assessment

- 338 An initial walk over assessment was completed for the site on the 22nd February 2022. Habitats within the site were assessed as providing opportunities for foraging, resting, and hibernating.

Refugia Survey

- 339 A total of 38 artificial reptile refugia comprising 50cm x 50cm squares of bitumen roofing felt were placed across the site and surrounding areas on 1st April 2022. The total surveyed area was approximately 1ha of suitable habitat.
- 340 After an approximately 2 week settling period, these refugia were inspected on seven separate occasions for concealed reptiles, either in the morning or late afternoon/early evening, whilst adjacent areas were searched for basking or feeding reptiles. If reptiles were found, their age class was estimated, and adults were sexed.
- 341 This methodology is in accordance with Gent and Gibson (2003) and Froglife (1999).

Survey Constraints

- 342 All areas of the site were readily accessible.
- 343 Weather conditions during the survey were suitable for reptile activity and there are no significant constraints to the results or conclusion of this report. It is likely that these results reflect the population status of reptiles at this site.

8.5.3 Results

Habitat Assessment

- 344 Scrub, grassland, and heathland habitats contained within the site, particularly in the southern/western sections are likely to provide foraging, resting and hibernating opportunities. The site also features connectivity to an extensive area of suitable habitat associated with the wider Burngullow Common. Post-mining areas to the north of the site are generally unsuitable.

345 The mosaic of habitats, with varying vegetation density and heights, provide good potential for foraging and resting common reptiles, in particular Slow Worm and Common Lizard, to be present within the site.

Refugia Survey

346 Details of the Severn reptile refugia surveys are included in Table 16 below and show in Map 1 of Appendix E.

347 During the seven surveys, Slow Worm, Common Lizard and likely Adder were recorded.

Table 16: Records for each survey visit

Survey no.	Date	Time	Weather	Results	Comments
1	15/04/2022	10:30	10°C, 60% cloud, dry, scattered cloud, wind = 2-3w	No reptiles	
2	22/04/2022	09:30	11°C, 30% cloud, sunny, dry & mild, wind = 1-2ne	1x Common Lizard (female)	Recorded in main heathland area
3	29/04/2022	10:00	12°C, 40% cloud, warm, hazy & still, wind = 0	1 x Common lizard	Dead individual. Sex undetermined.
4	05/05/2022	20:00	12°C, 60% cloud, mild, dry and breezy, wind = 2-3w	No reptiles	
5	23/05/2022	08:15	12°C, 80% cloud, mild, overcast, dry, wind = 1-2w	No reptiles. Piece of shedded snakeskin found under matt	Likely Adder
6	09/06/2022	08:15	14°C, 70% cloud, dry, sunny spells, calm, wind = 0	4 x Slow Worm (2x male & 2x female)	1 slow worm (f) located in main heathland area, remaining 3 (2m& 1f, on bunded area)
7	04/07/2022	09:30	14°C, 80% cloud, mild, dry, overcast, wind = 2-3sw	1 x Common Lizard (juv) 2 x Slow Worm (female)	Common lizard in main heathland area, Slow Worm in bunded area.

8.5.4 Evaluation of the site for reptiles

Slow Worm

348 Slow Worm were recorded during 2 of the 7 visits, with distribution mainly associated with the gorse scrub mosaic across the vegetated bund at the western boundary. This is likely a breeding population given the presence of both males and females.

Common Lizard

349 Individual Common Lizard were recorded on 3 of 7 visits, although one of these occurrences was a dead individual. Distribution was associated with open heathland areas. Presence of a juvenile indicates that there is breeding at this site.

Adder

350 A piece of shed snakeskin was recorded under a matt in open heathland during 1 visit out of the 7. As it was recorded in suitable habitat and during a suitable time of year, it is assumed to be Adder.

Grass Snake

351 Grass Snakes are typically found in damp habitats, where they prey on fish and amphibians, although they can sometimes be found in dry grassland.

352 Habitats within the site have limited potential for Grass Snake and none were recorded during the survey.

Reptile Community

353 The reptile community at this site has been assessed against criteria produced by Froglife, the UK herpetofauna conservation organisation, to determine its importance (Froglife, 1999).

354 To allow the assessment, the highest count for adults of each species recorded on a single survey day, and within the prescribed density of 5-10 refugia per hectare, is taken to score the population of each species found at the site.

Table 17: Key Reptile Sites Survey Assessment

Species	Low population Score 1	Good populationScore 2	Exceptional populationScore 3
Adder	<5	5-10	>10
Grass Snake	<5	5-10	>10
Common Lizard	<5	5-20	>20
Slow Worm	<5	5-20	>20

355 To qualify as a Key Reptile Site, this site meet at least one of the criteria listed below as given by Froglife (1999):

- The site supports three or more reptile species;

- The supports two snake species;
- The site supports an exceptional population of one species of reptile (as seen in Table 17); or,
- The site supports an assemblage of species scoring at least 4 in terms of the population number - this requires a specified minimum survey effort for scoring.

356 Three species were recorded at the site therefore qualifies as a Key Reptile Site.

8.5.5 Assessment of Impact

357 Low numbers of Slow Worm (maximum count 4) were recorded within a mosaic of gorse scrub and grassland across a vegetated bund at the western boundary. Individual Common Lizard (1), Slow Worm (1) and Adder (1) were recorded within open heathland in the centre of the Site.

358 Reptile population densities have been shown to be very low at this Site with a max count of 4 per 1ha (surveyed area), or 1 per 0.25ha. Assuming this density applies to the wider Burngullow Common area (based on continuous nature of habitat), the loss of 0.25ha of habitat to the development would lead to the reduction in carrying capacity by approximately 1 individual Slow Worm, and likely to be lower for other species. Given the extent of optimal habitat that will remain undisturbed across the wider Burngullow Common expanse (approx. 8ha), the loss of 0.2ha to the proposed development is considered unlikely to impact the viability of the reptile populations at this site and within the wider Burngullow Common area.

359 An area of 0.1ha of heathland will be restored upon completion of the development therefore the permanent loss of 0.13ha of habitat to the development is not considered likely to impact the functionality of the Burngullow Common as a Key Reptile Site during the operation of the turbine - no mitigation for habitat loss is recommended.

8.5.6 Recommendations

Construction Phase

360 Site clearance has the potential to kill or injure individual animals. This is likely to be an offence under wildlife legislation. Based on current proposals, there is opportunity to retain these animals at this site. This is preferable to translocation as it reduces stress, prevents the spread of disease, and supports natural population dynamics.

- 361 If site clearance should occur between March to October (active reptile season) then areas to be affected should be de-vegetated prior to any site activities under the supervision of a suitably qualified ecologist - further details can be found in **Appendix E**.
- 362 If the site clearance should occur between November to early March, then site vegetation clearance should be avoided due to the reptile hibernation period. Should this not be practicable, hibernacula will need to be created and the site carefully cleared under the direct guidance of an ecologist.

Operational Phase

- 363 Management of the restored heathland habitat within the development site is required to meet moderate conditions and this will benefit reptiles present here and help to ensure the site continues to support reptile populations of Slow Worm, Common Lizard and Adder.
- 364 On-going management will aim to enhance the current habitat with the addition of two reptile hibernacula being built prior to the start of site clearance - for further details, see **Appendix E**.

8.5.7 Conclusion

- 365 Reptile surveys were carried out across the proposed site to determine which species of reptile are present. Across the seven site visits, 3 different species of reptile were recorded therefore making the proposed site a Key Reptile Site.
- 366 However, the permanent loss of habitat is not considered likely to impact the functionality of Burngullow Common as a Key Reptile Site during the operation of the turbine, based on low densities recorded and the amount of available retained habitat with connectivity to the site. No mitigation for habitat loss is recommended.
- 367 Construction activities associated with the proposed development may have the potential to impact local populations of reptile, therefore mitigation for the construction phase is recommended.

8.6 Biodiversity Net Gain

- 368 Western Ecology has been commissioned to complete a Biodiversity Net Gain (BNG) calculation for an area of land south-east of Blackpool pit, adjacent to Burngullow Common near Trewoon in Cornwall.

369 The full BNG report is provided in **Appendix E** and accompanies the BNG calculation using Defra Metric 4.0 (as of 30/08/2023).

8.6.1 Methodology

370 A walkover of the proposed development site was completed on 26th June 2023 between 12:15 and 15:30 with an air temperature of 20°C, a moderate westerly breeze, dry conditions and with 60-80% cloud cover. An additional walk over was undertaken on 23rd August 2023 between 18:00 and 20:00 during suitable weather conditions.

371 A walk over of proposed off-site mitigation areas was undertaken on 26th June 2023 between 14:00 and 15:30 with an air temperature of 20°C, a moderate westerly breeze and 60% cloud cover.

372 The existing habitats were classified using the Phase 1 Habitat Survey methodology developed by the Joint Nature Conservation Committee (JNCC, 2010) and modified by the Institute of Environmental Assessment (IEA, 1995). The main plant species were recorded and broad habitat types mapped according to both the Phase 1 Habitat Survey methodology, and the UK Habitats Classification definitions (UK Habitat Classification Working Group, 2018). Plant species were identified according to Stace (1997).

373 Habitats were characterised as described above and mapped using a combination of OS background mapping and aerial imagery. Habitat condition has been determined using the Habitat condition assessment sheets. Professional judgement was used to make condition assessments of habitats, when applicable.

374 For further details of the methods, on-site baseline habitats and off-site baseline habitats and the details of condition assessment for each habitat parcel please see **Appendix E**.

8.6.2 Summary

A total net gain of 12.18% habitat units have been achieved through a combination of on-site and off-site habitat creation.

Heathland Creation and Management

- A total of 0.1ha of Lowland heathland will be restored within the site, post construction.

- An area of 1.3ha of Lowland heathland will be created off-site approximately 1.5km to the northeast of the Site (and still within Imery’s ownership).

Restoration - on site

375 The reinstatement of heathland habitat within the development site will involve careful stripping of original heathland topsoil and appropriate subsequent storage. Once construction has been completed the original topsoil will be laid onto the receptor area. Hydroseeding using a heathland/acid grassland mix will also be used to aid establishment.

376 As heathland is widespread across spoil slopes in the immediate area, successful reinstatement is likely.

Creation - offsite

377 Heathland creation will involve a topsoil strip of grassland area (to remove nutrients), deep cultivation to incorporate soils into underlying sands and so provide suitable receptor substrate, and hydroseeding with a species mix representative of the heathland habitats present in the immediate areas.

Management (30-year objective)

378 Target habitat condition for this habitat is ‘moderate’ and will be achieved by fulfilling the various criteria as described in section 5 of **Appendix E**.

Scrub Creation and Management

- 1.1ha of mixed scrub will be created off-site approximately 1km to the north-east of the Site (and still within Imery’s ownership).

Creation

379 Scrub creation will involve a topsoil strip of grassland area (to remove nutrients), and planting of shrubs of local provenance. A suggested planting mix would be: Hazel (30%), Hawthorn (20%), Blackthorn (10%), Elder (10%), native Oak (20%) and Holly (10%). This area will require fencing off to prevent damage or disturbance from public access.

Management

380 Target habitat condition for this habitat is ‘good’ and will be achieved by fulfilling all five of the criteria described in section 5 of **Appendix E**.

Grassland Creation and Management

- A total of 0.05ha of other lowland acid grassland will be created on areas within the development site that will experience disturbance from construction activities.

Creation/Restoration

381 This habitat will be created by hydroseeding disturbed areas along the haul road verge, using a species-rich acid grassland seed mixture. Topsoil may need to be removed from areas prior to hydroseeding to reduce the nutrients levels within the receptor substrate in order aid establishment. This habitat is naturally occurring in the immediate area and will serve to compliment the function of adjacent heathland habitats.

Management (30 year objective)

382 Target habitat condition for this habitat is ‘Poor’. As long as this habitat establishes, the target condition will have been met and there will be no other management requirement. On-going monitoring will determine if this habitat has successfully established.

Linear Habitats

383 The site baseline does not feature any linear habitats such as hedgerows. Therefore, the gain achieved in habitat units alone is considered to be sufficient to meet the biodiversity net gain requirements, as well as providing a functional improvement to the habitats within this area, post-development.

8.6.3 Conclusion

384 The mitigation and enhancement recommended within this report is of a sufficient scale to ensure that the proposed development provides the required net gain for biodiversity by providing 12.18% BNG through a combination of on-site and off-site habitat creation. This proposal thereby aligns with the National Planning Policy Framework and Cornwall Council’s Policy G2 - Biodiversity Net Gain, of Cornwall Councils Climate Emergency DPD (CEDPD), adopted on the 21st of February 2023. The BNG report for this proposal can be found in **Appendix E**.

385 The proposed development has also been prepared in accordance with Policy G3 - Canopy, of Cornwall Councils CEDPD. As introduced on the 15th of June 2023 to increase tree canopy cover cross Cornwall, the aim of the policy is to create benefits associated with climate resilience, biodiversity, ecosystem services, and human health. The Tree Canopy Statement for this proposal can also be found in **Appendix E**.

9 Archaeological and Historic Environment

9.1 Introduction

- 386 A Heritage Impact Assessment has been carried out by South West Archaeology Ltd. to assess the potential direct and indirect impacts of the proposed development on surrounding heritage assets and archaeology. The report identifies the potential impingement of the proposed development on the archaeological and cultural heritage assets and the resulting direct or indirect impacts due to the construction of the proposed wind turbine.
- 387 The assessment first identified the cultural heritage value of the surrounding assets whilst also determining the impact of the proposal on these areas. The archaeological value of the proposed turbine location is also evaluated. Where necessary, the assessment will identify the need for further works that may be required to clarify and mitigate these impacts.
- 388 The assessment addresses designated heritage assets within 5km of the proposed turbine. It also determines the archaeological and cultural heritage significance of the land on which the development is proposed.
- 389 The scope of the study included a desktop assessment and a walkover survey, which took place on the 18th March 2022, to assess the impact of the proposed turbine on the various heritage assets in the study area. For the full assessment please see **Appendix F**.

9.2 Methodology

- 390 This assessment was undertaken in accordance with best practice and complies with the policy and guidance within the National Planning Policy Framework. The following data sources were utilised to inform the methodology and assist in the assessment:
- Conservation Principles: policies and guidance for the sustainable management of the historic environment (English Heritage, 2008)²²;
 - The Setting of Heritage Assets (Historic England, 2017)²³;
 - Seeing History in the View (English Heritage, 2011)²⁴;
 - Managing Change in the Historic Environment: Setting (Historic Scotland, 2016)²⁵;

²² Conservation Principles: policies and guidance for the sustainable management of the historic environment. English Heritage 2008

²³ The Setting of Heritage Assets. Historic England 2017

²⁴ Seeing History in the View. English Heritage 2011

²⁵ Managing Change in the Historic Environment: Setting. Historic Scotland 2016

- And reference to Visual Assessment of Wind Farms: Best Practice (University of Newcastle, 2002)²⁶; and
- Guidelines for Landscape and Visual Impact Assessment 3rd Edition (Landscape Institute, 2013)²⁷.

391 The two-fold assessment of impact on the setting of heritage assets encompassed a desk-based assessment and a walkover survey, which determined the location of the proposed development in relation to the surrounding assets.

392 Prior to undertaking site visits, Zone of Theoretical Visibility (ZTV) mapping was used within a search radius of 5-10km with an emphasis on practicality and proportionality to identify the designated assets and where appreciable effect may be experienced. Most assets within 5km of the proposed site have been considered and almost all assets within 2.5km have been assessed with the rest scoped out for the purposes of this assessment.

393 The magnitude of the direct physical impact upon assets caused by the development has been rated using the classifications and criteria outlined in Table 18 below.

Table 18: Criteria for classifying magnitude of direct physical impact

Scale of Impact	
<i>Neutral</i>	No impact on the heritage asset.
<i>Negligible</i>	Where the developments may be visible or audible but would not affect the heritage asset or its setting, due to the nature of the asset, distance, topography, or local blocking.
<i>Negative/minor</i>	Where the development would have an effect on the heritage asset or its setting, but that effect is restricted to the nature of the asset, distance, or screening from other buildings or vegetation.
<i>Negative/moderate</i>	Where the development would have a pronounced impact of the heritage asset or its setting, due to the sensitivity of the asset and/or proximity. The effect may be ameliorated by screening or mitigation.
<i>Negative/substantial</i>	Where the development would have a severe and unavoidable effect on the heritage asset or its setting, due to the particular sensitivity of the asset and/or close physical proximity. Screening or mitigation could not ameliorate the effect of the development in these instances.
<i>Total Loss</i>	The heritage asset is destroyed.

²⁶ Visual Assessment of Wind Farms: Best Practice. University of Newcastle 2002

²⁷ Guidelines for Landscape and Visual Impact Assessment, 3rd edition. London. Landscape Institute 2013

394 The predicted level of effect upon each asset is determined by considering its importance in conjunction with the magnitude of impact predicted on it. The method of deriving the level of effect is shown in Table 6 of **Appendix F**.

395 The predicted significance of the indirect impact upon the setting of designated heritage assets and assets of national importance is determined by considering their relative contribution of setting to the value of the asset i.e., by determining the magnitude of the effect and the sensitivity of the heritage asset to that effect. Assessment of individual assets is informed by knowledge of the asset itself; of the asset type, if applicable, and by site visits to establish the current setting of the assets. This allows for the use of professional judgement and each asset is assessed on an individual basis.

396 The magnitude of the impact upon assets caused by the proposed development has been rated using the classifications and criteria outline in Table 19 below.

Table 19: Criteria for classifying magnitude of impact

Magnitude of Impact (Change)		Typical Description
Major	Adverse	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements.
	Beneficial	Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality.
Moderate	Adverse	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features of elements.
	Beneficial	Benefits to, or addition of, key characteristics, features of elements, improvement of attribute quality.
Minor	Adverse	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features of elements.
	Beneficial	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring.
Negligible	Adverse	Very minor loss or detrimental alteration to one or more characteristics, features or elements.
	Beneficial	Very minor benefit to or positive addition of one or more characteristics, features of elements.
No Change		No loss or alteration of characteristics, features of elements; no observable impact in either direction.

397 The method of deriving the significance of effect is shown in Table 20 below.

Table 20: Level of the effects of setting on the cultural value of monuments

		Magnitude of Impact (degree of change)				
		No Change	Negligible	Minor	Moderate	Major

Environmental Value (Sensitivity)	Very High	Neutral	Slight	Moderate or Large	Large or Very Large	Very Large
	High	Neutral	Slight	Moderate or Slight	Moderate or Large	Large or Very Large
	Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or Large
	Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or Moderate
	Negligible	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight

398 The incorporation of all the above criterion in the assessment helps in the systematic determination of the effect of the proposed development and associated infrastructure on the historic environment; it suitably complements and supports the narrative and subjective approach advocated by Historic England as seen table 21 below.

Table 21: Importance of Setting to Intrinsic Significance

Importance of Setting to the Significance of the Asset	
Paramount	Examples: Round barrow, follies, eye-catchers, stone circles
Integral	Examples: Hillfort, country houses
Important	Examples: Prominent church towers, war memorials
Incidental	Examples: Thatched cottages
Irrelevant	Examples: Milestones

9.3 Results

399 The proposed turbine’s predicted impacts on the setting of heritage assets are summarised in Table 22 below.

Table 22: Summary of visual impacts by the proposed development

Asset	Type	Distance	Value	Magnitude of Impact	Assessment	Overall Assessment
Category #2 Assets						
Crow at Higher Biscovillack	GII	1.2km	Medium	Negligible	Neutral/Slight	Negligible
[Burngullow] Manor House	GII	1.8km	Medium	Negligible	Neutral/Slight	Negligible
Nanzeath Farmhouse	GII	1.8km	Medium	Negligible	Neutral/Slight	Negligible
Carthew Farmhouse +6 others	GII	2.6km	Medium	Negligible	Neutral/Slight	Negligible
Tregascoe Farmhouse +2 others	GII	3.0km	Medium	Negligible	Neutral/Slight	Negligible
Bosinver Farmhouse	GII	3.15km	Medium	Negligible	Neutral/Slight	Negligible
Carbean Farmhouse	GII	3.3km	Medium	Negligible	Neutral/Slight	Negligible
Treveor	GII	3.5km	High	Negligible	Slight	Negligible
Treloweth Farmhouse	GII	3.5km	Medium	Negligible	Neutral/Slight	Negligible
Retanning Farmhouse	GII	3.7km	Medium	Negligible	Neutral/Slight	Negligible
Bodinnick Farmhouse +3 others	GII	3.9km	Medium	Negligible	Neutral/Slight	Negligible
Hembal Manor	GII	1.8km	Medium	Negligible	Neutral/Slight	Negligible
House, Newgate (Holly Cottage)	GII	1.2km	Medium	Negligible	Neutral/Slight	Negligible
The Old Rectory etc. St Mewan	GII	2.7km	High	Negligible	Slight	Negligible
St Austell Conservation Area	CA	2.8-4km	Medium	Negligible	Neutral/Slight	Negligible
Cottage West of Gunheath	GII	3.3km	Medium	Negligible	Neutral/Slight	Negligible

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Hewas Inn	GII	3.8km	Medium	No Change	Neutral	Neutral
Queens Head Inn	GII	3.95km	Medium	Negligible	Neutral/Slight	Negligible
Church Room at St Stephen	GII	4km	Medium	Negligible	Neutral/Slight	Negligible
Trudgeons	GII	4km	Medium	Negligible	Neutral/Slight	Negligible
Bible Christian Chapel, Nanpean	GII	1.7km	Medium	Negligible	Neutral/Slight	Negligible
Trelowth Methodist Chapel	GII	3.3km	Medium	Negligible	Neutral/Slight	Negligible
Sticker Methodist Church	GII	4km	Medium	Negligible	Neutral/Slight	Negligible
Church of St Mewan	GII*	2.7km	High	Minor Change	Moderate/Slight	Minor Adverse
Holy Trinity Church, St Austell	GI	3.5km	High	Negligible	Slight	Negligible
Church of St Stephen	GI	3.95km	High	Negligible	Moderate/Slight	Negligible
Trethosa School	GII	4.1km	Medium	No Change	Neutral	Neutral
Nanpean Cemetery War Mem.	GII	2.7km	Medium	No Change	Neutral	Neutral
Gover Railway Viaduct	GII	1.8km	Medium	Negligible	Neutral/Slight	Negligible
Goonvean Engine houses	GII*	3.5km	High	No Change	Neutral	Neutral
Chapel Mill	GII	3.6km	High	No Change	Neutral	Neutral
Chimney at SW9600250975	GII	3.9km	Medium	Negligible	Neutral/Slight	Negligible
Engine House at Polgooth Mine	GII	4km	Medium	Negligible	Neutral/Slight	Negligible
Mining Complex and Chimney at South Polgooth Mine	GII SAM	4.2km	High	Negligible	Slight	Negligible
Longstone	SAM	2km	High	No Change	Neutral	Neutral
Platform Cairn, Hensbarrow Fm	SAM	3.4km	High	Negligible	Slight	Negligible
Cairn and Beacon at Hensbarrow	SAM	3.6km	High	Negligible	Slight	Negligible
Hillfort at St Stephen's Beacon	SAM	2.3km	High	Negligible	Slight	Negligible
Round 310m Carloggas Farm	SAM	2.4km	High	Negligible	Slight	Negligible
Sticker Camp	SAM	3.7km	High	Negligible	Slight	Negligible
Category #3 Assets						
Carthew Mill, Mill Cottage, No.2	GII	2.2km	Medium	No Change	Neutral	Neutral
Carthew Cottage; Wash House	GII	2.0km	Medium	No Change	Neutral	Neutral
Milestone at Wheal Martyn	GII	2.2km	Medium	No Change	Neutral	Neutral
Milestone at SX200566	GII	3.1km	Medium	Negligible	Neutral/Slight	Negligible
St Stephen Churchtown Cemetery War Memorial	GII	4.2km	Medium	Negligible	Neutral/Slight	Negligible
Church of St Peter, Stenalees	GII	3.8km	Medium	No Change	Neutral	Neutral
Methodist Church at St Stephen	GII	4.3km	Medium	No Change	Neutral	Neutral
Landscape						
Historic Landscape						Minor Adverse
China Clay District						Minor Adverse
Aggregate Impact						Negligible
Cumulative Impact						Minor Adverse

9.4. Conclusions

400 The setting assessment indicates that the indirect impact on a small number of designated heritage assets would be **minor adverse**, with a **minor adverse** impact on the historic landscape, **negligible** aggregate impact, and a **minor adverse** cumulative impact on the basis there are several other operational turbines in close proximity to the proposed site. On this basis, the report concludes that the proposed development can be assessed as

negligible overall; in NPPF terms, this is a development of less than substantial harm, towards the lower end of that spectrum.

- 401 Due to the proposed turbine being located on the edge of a block of ancient, enclosed moorland, with the embankments, haul roads, and vertiginous cliffs of Blackpool Pit to the north and west, the archaeological potential of the site is assessed as moderate. The impacts on the buried archaeological resource would be permanent and irreversible but could be mitigated through an appropriate programme of archaeological monitoring.
- 402 National planning policies on the historic environment are detailed in NPPF whilst local policy is provided by the Cornwall Local Plan Strategic Policies, outlined in the full report available in **Appendix F**.
- 403 In conclusion the assessment finds that the proposed turbine would not directly impact any heritage assets, nor compromise the current setting of other designated heritage assets considered.

10 Noise

10.1 Introduction

404 TNEI Services Ltd were contracted by the applicant to undertake a noise assessment for the proposed wind turbine at Burngullow. The full assessment report can be found in **Appendix G**.

405 Predictions of wind turbine noise have been made, based upon sound power level data for the Vestas V117 4.3NW Mode PO2. This turbine model is consistent with the three consented wind turbines at Longstones, East Karslake and Wheal Martyn which have been considered as part of cumulative predictions. Four other nearby EWT DW54 (500 kW) wind turbines (which are already operational) are also considered in the cumulative predictions.

406 The turbine noise prediction model used is considered to provide a realistic impact assessment and considers current good practice, inclusive of the institute of Acoustics document ‘A Good Practice Guide to the Application of ETSU-R-97 for the Rating and Assessment of Wind Turbines’²⁸ issued in May 2013.

407 The predictions were undertaken at fourteen Noise Assessment Locations (NALs) which are residential properties in the immediate and wider areas and for which Total ETSU-R-97 Noise Limits (cumulative limits) were already set in the planning applications of Longstones (PA20/09318), East Karslake (PA21/12493) and Wheal Martyn (PA21/07216).

408 As part of previous applications in the area a background noise assessment has been carried out, the Noise Monitoring Locations (NMLs) are referred to below in Error! Reference source not found. along with the locations of the fourteen NALs.

Table 23: Noise Assessment Locations and corresponding Noise Monitoring Location

NALs	X (Easting)	Y (Northing)	Distance to Burngullow WT (m)	Representative NML
NAL1- Newgate	197946	53255	971	B
NAL2- Prideaux	198384	53077	1048	B
NAL3- 23 Carne Hill	198762	53393	827	B

²⁸ <https://www.ioa.org.uk/sites/default/files/IOA%20GPG%20SGN%20No%205%20Final%20July%202014.pdf> (accessed 06/11/2023)

NAL4- Secret Cottage (2 properties)	199152	53871	825	B
NAL5- Treglyn Gardens	199550	53677	1198	B
NAL6- Area 51 campsite	200157	54074	1781	B
NAL7- Biscovillack Farm	199576	54088	1204	B
NAL8- Penisker Farm	199087	54161	718	B
NAL9- Higher Biscovillack Farm	199385	54756	1198	B
NAL10- Greystone Cottage	199819	54849	1617	D
NAL11- Longstone Cottage	197688	55420	1475	A
NAL12- Longstone House	197633	55346	1438	A
NAL13- Carthew Farm Cottage	200287	55931	2634	C
NAL14- Adit (property north of Carthew)	200287	56332	2925	C

409 In the context of cumulative renewable generation in the area, the fixed minimum criteria for the daytime period were reviewed and a fixed minimum of 40db was found to be applicable for the cumulative assessment. The choice of the daytime fixed minimum limit within the range of 35-40db depends on three factors which are discussed in ETSU-R-97, a detailed review of these criteria along with noise predictions and relevant graphics can be found in the appendices of **Appendix G**.

410 The total ESTU-R-97 Noise Limits are summarised in **Table 2.2** and **Table 2.3** in **Appendix G**.

10.2 Noise Assessment Results

411 **Figures A1.2a to A1.2n** show the cumulative noise predictions at each NAL and on each figure a breakdown of the individual wind turbine predictions is also provided. **Table 3.1** shows the predicted sound levels cumulatively and for individual wind turbines, **Tables 3.2** and **3.3** show the compliance of these predictions with both the daytime and night-time Total ETSU-R-97 Limits. All tables can be found in **Appendix G**.

- 412 The assessment results show that predicted cumulative wind turbine noise levels are below the Total ETSU-R-97 Noise Limits at all the Noise Assessment Locations. Therefore no noise mitigation measures are required.

10.3 Conclusion

- 413 Predictions of wind turbine noise have been made, based upon sound power level data for the Vestas V117 4.3MW Mode PO2 for the proposed Burngullow Wind Turbine. As part of cumulative predictions to account for other wind turbines in the area, the same wind turbine model was also assumed for the nearby consented Longstones, East Karlake and Wheal Martyn wind turbines. Four other nearby EWT DW500 kW wind turbines (which are already operational) are also considered in the predictions.
- 414 The assessment results show that predicted cumulative wind turbine noise levels are below the Total ETSU-R-97 Noise Limits at all the Noise Assessment Locations. Therefore no noise mitigation measures are required. This indicates that the Vestas V117 4.3MW would be a suitable wind turbine model, in regard to noise, for the Burngullow Wind Turbine.

11 Hydrology, Hydrogeology and Geology

11.1 Introduction and Scope

- 415 This chapter has been undertaken by Engineering and Energy Solutions (EDS), and assesses the potential hydrogeological, hydrological, and geological impacts of the proposed wind turbine at Burngullow, St Mewan.
- 416 The assessment considers the current environmental setting (baseline) for the related environmental topics. Desktop surveys have been carried out to inspect and identify the relevant hydrogeological and hydrological features.
- 417 The proposed development site is positioned on Burngullow Common to the immediate east of the Blackpool china clay extraction pit.
- 418 The study area encompasses the whole of the development site and a wider area essentially related to the surface water catchments connected to the site. This chapter does not include the potential geological, hydrogeological, and hydrological effects of the transport access route or any grid connection.
- 419 Within this chapter the planning application boundary, within which all the infrastructure is to be located, is referred to as the ‘development area’ and the full extent of the study area is referred to as the ‘site’.
- 420 Further detail on the current project description is provided in Chapter 2 of this Planning Statement.

11.2 Methodology

- 421 The assessment has been undertaken primarily using a qualitative assessment based on professional judgement and statutory and general guidance, but also a quantitative assessment using site specific data in terms of hydrology. It incorporates:
- A review of the relevant legislation, guidelines and policy;
 - A desk study to identify any existing information;
 - Definition of the likely effects of the project on the hydrological and hydrogeological environment;
 - Flood risk; and,
 - Recommended Sustainable Drainage System (SuDS).

11.2.1 Assessment Criteria

- 422 The Environment Agency (EA) indicative flood mapping shows that the development site is located entirely within Flood Zone 1, an area which is at little or no risk for tidal or fluvial flooding and is therefore suitable for all types of development. The proposal is for an area over 1 hectare and therefore constitutes the need to provide a Flood Risk Assessment with this application in accordance with the National Planning Policy Framework (NPPF) on Planning and Flood Risk.
- 423 The study has investigated alternative mechanisms for flooding at the site and has concluded that the site is not at risk of flooding and will not cause an increase in flood risk elsewhere once the proposed sustainable drainage system is operational.
- 424 A search has been undertaken with respect to borehole information available on the British Geological Society (BGS) database to determine groundwater depths within the vicinity of the site, which can be seen visually in Figure 7 of **Appendix H**. As shown in the figure, the nearest borehole is located in the small, flooded clay pit to the southeast of the site. However, information on the BGS indicates that this is an observation note only and not a borehole. The note states that the feature is a dis-used water supply resource at about 500 ft elevation (152m AOD (Above Ordnance Datum)) from which the water was piped under gravity to a reservoir near Trenance on the 400 ft (120m) contour.

11.2.2 Legislation, Guidelines and Policy

- 425 There is a range of environmental legislation and SuDS design guidance that any development must adhere to throughout the development life cycle. Key legislative drivers relating to the water environment which have been considered within this assessment are listed below:
- The CIRA SuDS Manual (C753)
 - Building Regulations Part H
 - The Wallingford Procedure
 - National Planning Policy Framework 2019
 - Drainage Guidance for Cornwall
- 426 The assessment was based on a desk study. The desk study involved collating and assessing the relevant information from a number of sources as listed in Table 24.

Table 24: Summary of the information source for the desk based study

Topic	Source of Data and Information
Climate Rainfall	Meteorological Office Website (Accessed March 2022): https://www.metoffice.gov.uk/services/data
Topography Elevation, Relief	Ordnance Survey Mapping Google Maps Aerial Images
Geology Bedrock	British Geological Society (BGS) Mapping
Groundwater Hydrology, Aquifer Properties, Source Protection Zones and Groundwater Levels	Strategic Flood Risk Assessment (SFRA)
Surface Water Flood Mapping	Environment Agency
Designated Areas	Multi-Agency Geographic Information for the Countryside (MAGIC) website: https://magic.defra.gov.uk/

11.3 Site Background and Existing Environment

11.3.1 Topography

427 The site sits on moderately sloping ground which falls from west to east towards Penisker Road, and thence onto a tributary watercourse of the Gover Stream which runs on an approximate north to south alignment some 80m further east of the road. The proposed turbine will be positioned on a locally raised mound of land set at an elevation of about 216m AOD whilst the wider hardstanding and lay down area around the turbine is set at an elevation of 211m AOD. The fall from the site towards Penisker Road is an approximate gradient of 1 in 14. To the west, beyond the china clay access track, the surface topography is affected by the Blackpool Pit china clay workings where the ground profile drops steeply to the base of the pit to a level of about 165m AOD.

11.3.2 Land Cover and Land Use

428 The site currently comprises of an area of unused land set within the general china clay extraction operational area, close to the east face of the Blackpool Pit.

429 The nearest property to the proposed site is approximately 0.84km southeast with the nearest operational turbine, Blackpool, located approximately 0.52km south.

11.3.3 Meteorological Summary

430 The Met Office average rainfall map of the UK indicates that site is within an area of 1000mm to 1250mm rainfall per year, likely verging of the lower end as the site is within the eastern area of this designation - see Table 25. This is moderate rainfall for the UK.

Table 25: Meteorological Data

Meteorological Office Station Name	Annual Average Rainfall (mm) (1991-2020 average)	Distance and Direction from Site (km)
St Austell	1299.03	3.88km southeast

11.3.4 Hydrology

431 The local hydrology around the site is influenced largely by the existing water course which runs on a route 350m to the east of the proposed turbine location. The watercourse is the natural receptor for surface water run off generated on the site.

432 The watercourse runs in an approximate north to south direction and discharges into a small lake located some 750m southeast of the site formed from a flooded china clay pit. The lake has an outlet on its east side which flows into a continuation of the tributary and ultimately drains into the Gover Stream at Gover Road, some 350m further east of the lake.

433 The Gover Stream is a tributary of the St Austell River; it has a confluence with the St Austell River within the town of St Austell. It then flows in a southerly direction towards the coast and outfalls to the sea at Pentewan. The general arrangement of the local hydrology is further described in Figure 4 in **Appendix H**.

434 It is therefore evident that runoff from the site will ultimately drain into the Gover Stream by means of the tributary to the east of the site and thence into the St Austell River.

11.3.5 Hydrogeology

435 Information published by the British Geological Society (BGS) indicates that the proposed site is underlain by the St Austell Intrusion of micro-granite bedrock, an igneous rock (see Figure 6 in **Appendix H** for further details). The BGS Geology of Britain mapping describes the bedrock as ‘Igneous Bedrock formed approximately 252 to 359 million years ago in the Permian and Carboniferous Periods. The local environment was previously dominated by intrusions of silica-rich-magna’. There are no superficial deposits shown overlying the site.

436 The area is designated as a ‘Secondary A’ Aquifer type, which is the general designation for most of Cornwall. This is described as permeable strata capable of supporting water supplies at a local rather than strategic level and in some cases forming an important source of base flow to rivers.

437 With respect to groundwater vulnerability, the area is classified as ‘High’. This is a measure of the vulnerability of groundwater to a pollutant discharged at ground level based upon hydrological, geological, hydrogeological and soil properties within the area.

11.4 Summary of Flood Risks

438 The study has investigated alternative mechanisms for flooding at the site including groundwater flooding, fluvial and tidal flooding, overland flow, flooding from sewers, reservoirs and canals, and other artificial sources. The study concluded that the site is not at risk of flooding and will not cause an increase in flood risk elsewhere once the proposed sustainable drainage system is operational.

11.5 Proposed Sustainable Drainage System (SuDS)

439 The report suggests that a preferable drainage solution would be to drain all surface water runoff from the development using infiltration, in line with best practice guidance to deal with runoff as close to the source as possible. Due to the site location in the china clay mining area, it is unlikely that infiltration would work efficiently. Therefore, an attenuation-based drainage system is proposed for the development. The system will be designed to be within the 100-year standard and will take into account a 40% allowance for climate change; the proposed drainage infrastructure will be designed to be in accordance with the guidelines outlined in the NPPF, PPG, and Drainage Guidance for Cornwall.

440 To appropriately mitigate the surface water runoff that may be caused following the development, the Flood Risk Assessment (FRA) includes:

- Drainage Design
- Exceedance Events
- Maintenance
- Residual Risk Mitigation
- Construction Stage Drainage

- 441 One of the main concerns that the report highlights is that silt discoloured water run off may occur during the construction phase of the proposed development. In order to minimise the risk of this, it is proposed that the attenuation drainage system be constructed at the front end of the development works; this way, the runoff from the subsequent construction of the hardstanding and turbine foundation may be intercepted by the SuDS system and provided with a filtration and settlement within the conveyance swales and the attenuation basin.
- 442 Also, to reduce silt runoff along the access track it is recommended that a line of silt fencing also be installed downslope of the works area during the construction phase; moveable straw bales should also be provided at the lower end of the access track to allow interception and filtration of any runoff that may bypass the SuDS system along the rest of the access track.
- 443 Further detail on mitigation recommendations can be found in **Appendix H**.

11.6 Conclusion

- 444 The study has investigated mechanisms of flooding and the potential for Sustainable Drainage Systems (SuDS) to be installed as part of the development of wind turbine and associated infrastructure on land at Burngullow, St Mewan, Cornwall.
- 445 The study investigated alternative mechanisms for flooding at the site and has concluded that the site is not at risk of flooding and will not cause any increase in flood risk elsewhere once the proposed sustainable drainage system is operational.
- 446 To ensure that silt discoloured water does not run off the site during the construction stage, it is proposed that the attenuation basin and swale collection system be constructed at the front end of the works. In this way, any runoff from the subsequent construction of the hardstanding and turbine foundation may be intercepted by the SuDS system and provided with filtration and settlement within the conveyance swales and the attenuation basin.
- 447 A line of silt fencing should also be installed downslope of the works area during the construction phase with moveable straw bales being provided at the lower end of the access track to allow interception and filtration of any runoff bypassing the SuDS system along the access.
- 448 A conceptual attenuation-based drainage system has been proposed and outlined for the site. The attenuation system has been designed to be the 100-year standard with a 40% allowance for climate change.

The proposed drainage infrastructure has been designed in accordance with guidance outlined in the NPPF, PPG, and Drainage Guidance for Cornwall and therefore the development is entirely appropriate on this site from a flood risk perspective.

12 Electro Magnetic Interference (EMI) and Aviation

12.1 Introduction

449 The Planning Policy Statement 22 (PPS22) Companion Guide (2004) describes the two ways wind turbine developments interfere with electromagnetic transmissions:

- The blocking or deflecting of the line of site of transmissions (as with any large structure) or
- The dispersal of signals

450 The PPS22 also states *“it is the responsibility of the developers to address any potential impacts, taking account of Civil Aviation Authority, Ministry of Defence and Department for Transport for guidance in relation to radar and aviation, before planning applications are submitted. Local Planning Authorities should satisfy themselves that such issues have been addressed before considering planning applications”*²⁹.

451 Following the advice and guidance within the PPS22, telecommunications and aviation organisations listed in Table 1 have been consulted.

12.2 Consultation Responses

452 The following telecommunications and aviation organisations listed in Table 26 below were consulted as part of the turbine application.

Table 26: Responses from telecommunications and aviation organisations that have been consulted

Consultee	Date of Consultation Initiated	Date of Consultation Received	Consultation Response
Atkins Global	13/09/2021	13/09/2021	No Objection
Joint Radio Company (JRC)	21/02/2022	1/03/2022	No Objection
Ministry of Defence (MOD)	13/09/2021	28/02/2022	Comments Made

²⁹ Office of the Deputy Prime Minister, Planning Policy Statement 22. Accessed via: https://www.inbalance-energy.co.uk/further_reading_books/planning_permission/planning_policy_statement_22_renewable_energy.pdf (Accessed 22nd February 2022)

12.3 Summary

- 453 Due to the consultation responses received, CE is confident that the proposed turbine is unlikely to adversely impact telecommunication links. The turbine can be fitted with MOD accredited visible or infrared aviation safety lighting, should this be deemed necessary, to mitigate any low-flying concerns. Any concerns raised by the MOD will be addressed following consultation.
- 454 Details of the correspondence to date can be found in **Appendix I**.

13 Shadow Flicker

13.1 Introduction

455 CE has undertaken a shadow flicker analysis on the single turbine on land at Burgullow, St Mewan; for the full report see **Appendix J**.

456 Under certain combinations of geographical position and time of day, the sun may pass behind the rotor of a wind turbine and cast intermittent shadow over neighbouring properties, an effect known as ‘shadow flicker’. It can occur inside buildings where the flicker appears through a narrow window or opening.

457 Guidance on the potential impact of shadow flicker recommends considering effects up to a distance of ten times the rotor diameter of the proposed turbine. The candidate model has a blade diameter of 115m, therefore a distance of 1,150m has been considered.

13.2 Assessment

458 There are thirty-six properties that fall within the test area of 1,150m, the locations of which are shown in Table 27.

Table 27: Locations of the properties for shadow flicker monitoring

House	Easting	Northing
1	197746	53245
2	197709	53228
3	197736	53224
4	197925	53251
5	197925	53228
6	197913	53177
7	197940	53185
8	198913	53172
9	198917	53176
10	198916	53123
11	198924	53140
12	198923	53182
13	198942	53149
14	198957	53141
15	198893	53232
16	198917	53247
17	198836	53255
18	198806	53278
19	198798	53288
20	198783	53314
21	198766	53352
22	198806	53360
23	198840	53356
24	198872	53361

25	198877	53379
26	198738	53386
27	198903	53112
28	199210	53829
29	199175	53836
30	198935	53134
31	198947	53136
32	197942	53237
33	198894	53384
34	199079	54122
35	199256	53930
36	198391	53068

459 The theoretical duration of shadow flicker is calculated as nil at thirty-two of the properties. Four of the thirty-six properties will theoretically experience shadow flicker annually, with a maximum of 45.7 hours, which is in excess of the 30 hours per year threshold. The results of the modelling are summarised in Table 28.

Table 28: Summary of the shadow flicker times on each window for the proposed turbine

House	Window	Easting	Northing	Degrees	Days per year	Max hours per day	Mean hours per day	Total hours
1	1	197746	53245	36	0	0	0	0
2	1	197709	53228	37	0	0	0	0
3	1	197736	53224	36	0	0	0	0
4	1	197925	53251	28	0	0	0	0
5	1	197925	53228	27	0	0	0	0
6	1	197913	53177	26	0	0	0	0
7	1	197940	53185	25	0	0	0	0
8	1	198913	53172	330	0	0	0	0
9	1	198917	53176	330	0	0	0	0
10	1	198916	53123	332	0	0	0	0
11	1	198924	53140	331	0	0	0	0
12	1	198923	53182	330	0	0	0	0
13	1	198942	53149	330	0	0	0	0
14	1	198957	53141	329	0	0	0	0
15	1	198893	53232	330	0	0	0	0
16	1	198917	53247	328	0	0	0	0
17	1	198836	53255	332	0	0	0	0
18	1	198806	53278	333	0	0	0	0
19	1	198798	53288	333	0	0	0	0
20	1	198783	53314	333	0	0	0	0
21	1	198766	53352	333	0	0	0	0
22	1	198806	53360	331	0	0	0	0
23	1	198840	53356	329	0	0	0	0
24	1	198872	53361	327	0	0	0	0
25	1	198877	53379	326	0	0	0	0
26	1	198738	53386	334	0	0	0	0

27	1	198903	53112	332	0	0	0	0
28	1	199210	53829	289	98	0.56	0.42	41.1
29	1	199175	53836	289	96	0.59	0.48	45.7
30	1	198935	53134	330	0	0	0	0
31	1	198947	53136	330	0	0	0	0
32	1	197942	53237	26	0	0	0	0
33	1	198894	53384	325	0	0	0	0
34	1	199079	54122	270	54	0.66	0.51	27.7
35	1	199256	53930	282	53	0.54	0.42	22.1
36	1	198391	53068	359	0	0	0	0

460 The analysis showcases the theoretical maximum shadow flicker and is based on a worst-case scenario, which assumes sunny weather conditions all year round and does not account for the common UK winter weather conditions (cloud cover, wind speed and direction).

461 The model assumes that each property consists of a window that will face the turbine location; however, in reality this will not be the case and therefore the shadow flicker may not be seen from all properties. Additionally, the model does not account for any vegetation screening between the turbine and the properties - which could reduce the impact of any shadow flicker that may occur.

13.3 Proposed Mitigation

462 Minimising any potential effects of shadow flicker on neighbouring properties has been considered in the positioning of the turbine by maximising the distance of the development site from the properties.

463 It is considered that there would be no significant shadow flicker effects from the proposed turbine; however, monitoring and mitigation measures could be put in place if shadow flicker effects were to arise.

464 Mitigation measures include, but are not limited to, the planting of additional trees and shrubs at affected properties to generate screening.

465 Furthermore, a shadow flicker mitigation programme will be installed into the turbine (on commissioning) to ensure that impacts could be eliminated in the presence of conditions that would cause shadow flicker. The programme will ensure that the turbine could be curtailed (switched off) during periods where the conditions optimum for shadow flicker exist. This programme can be initiated at any time during the operational life of the proposed wind turbine.

466 Research into the effects of shadow flicker has shown that with this turbine model the flicker effect does not occur at frequencies which may cause human health problems³⁰.

13.4 Conclusions

467 Shadow flicker modelling of the houses within 1,150m of the proposed wind turbine has shown that under optimum weather conditions four of the thirty-six properties may experience shadow flicker annually. In reality, climatic conditions, and the presence of screening in the form of vegetation, would greatly reduce the occurrence of shadow flicker at these properties.

468 A shadow flicker mitigation programme will be installed into the turbine (on commissioning) to ensure that all impacts could be eliminated in the presence of conditions that would cause shadow flicker; this would include the feature of being able to switch off the turbine should such conditions arise. The programme can be initiated at any time during the operational life of the proposed wind turbine.

³⁰ Epilepsy Society: Wind Turbines and photosensitive epilepsy. Accessed via: <https://epilepsysociety.org.uk/about-epilepsy/epileptic-seizures/seizure-triggers/photosensitive-epilepsy/wind-turbines-and#:~:text=Photosensitive%20epilepsy%20affects%20up%20to,effect%20of%20'shadow%20flicker'> (Accessed 11th February 2022).

14 Transport

14.1 Introduction

469 CE have completed a Construction Transport Management Plan (CTMP), which outlines the process and associated impacts of the construction of the proposed turbine. The only significant impact results from the movement of Heavy Goods Vehicles (HGVs) during the transport phase of the wind turbine. As such, the impact associated with the transport and construction of this single wind turbine is modest in scale and duration.

470 Although the assessment identifies the route to be used, every Local Council, Highway and Police authority will be consulted regarding the proposed route prior to delivery of the wind turbine.

471 The full report can be found in **Appendix K**.

14.2 Summary of the proposed route

472 The turbine components and ancillary construction plant will be transported by road using the strategic and local highway network. Whilst the exact details of the route along the strategic network have not yet been finalised, the route into Cornwall will be via the A30. The indicative transport route is shown in Figure 2 of the CTMP in **Appendix K**.

473 The wind turbine will likely be delivered from the A30 westbound; the route will take the first exit at Victoria interchange and go straight over at the roundabout to join the B3274. The route will then continue along this road for approximately 2.2km where it will then turn left and continue along the B3274.

474 The route will then continue through Roche and cross straight over the two roundabouts heading south, and eventually exiting Roche Village. It then bears right at the signpost for Nanpean/Whitemoor, then immediately bears left signposted for Greensplat. From here, the route will continue along on the unclassified road past the Imerys quarry entrances and then bears right and continues for 0.94km. The route will continue beyond the proposed site entrance and make a left turn into the Applicant's consented Longstones turbine site entrance (PA20/09318) before manouvering back into the proposed site entrance where the route continues along the track to the turbine location.

- 475 Swept path analysis has been conducted for a number of points of interest on the abnormal load transport route by Pell Pell Frischmann. Sections of the main highways may require the use of the full width of the carriageway for long loads and hence such loads would require a police escort. Multiple street furnishings along the route will need to be removed, in conjunction with suspended parking in the village of Roche, and heavy goods traffic management in the proximity of the Imerys quarries near the site - see **Appendix A** of the CTMP (**Appendix K**) for more details. Further details are provided in the CTMP Report and Imerys Wind Farm Route Survey Report both provided in **Appendix K**.
- 476 For the installation of the proposed turbine, there will be an approximate total number of 30 HGV movements for the main components and a small number of normal construction vehicle movements.

14.3 Conclusion

- 477 The potential impact of the HGV traffic associated with the wind turbine construction on the local road network, due to the scale and duration, is expected to be minimal. All removal of traffic furniture will be temporary and fully reinstated following the installation.
- 478 For the installation of this turbine, there will be a total number of 30 HGV movements for the main components and a small number of normal construction vehicle movements.
- 479 It is recognised that the delivery of these building blocks will require careful thought and planning. Additionally, each HGV movement will be planned and notified to every Local Council, Highway and Police authority according to the requirements of Abnormal Indivisible Loads - Road Vehicles (Authorisation of Special Tyres) (General) Order 2003.

15 Public Consultation

15.1 Introduction

480 CE feels that it is important to meet members of the community before submitting an application, so that they are informed about the proposal and have had an opportunity to ask questions or seek further clarity about any aspect of the proposal. This also ensures that the proposal is aligned with local guidance on the consultation process detailed in ‘Validation Guide: A Guide to Submitting Planning Applications, 2019’.

481 A public consultation was held on Wednesday the 10th of August 2022 at Trewoon Village Hall, Hembal Road, Trewoon, St Austell PL25 5SA. The aims of the public consultation were:

- To provide members of the community with information about the proposed turbine;
- To measure support and opposition to this proposed turbine; and,
- To hear the local community’s suggestion on how the proposal could be improved.

482 The full consultation report can be found in **Appendix L**.

15.2 Consultation Process

483 The primary means of consultation were in the form of an open public consultation event which was held on the 10th of August 2022 between 5pm and 8pm at Trewoon Village Hall, Hembal Road, Trewoon, St Austell, PL25 5SA. Public notices for the event were placed in the St Austell Voice Newspaper for two consecutive weeks on the 27th of July 2022 and 3rd of August 2022.

484 To ensure local residents were aware of the public consultation event, invitations were delivered two weeks prior to the event to all properties within 1km of the proposed site.

485 A formal invitation and a follow-up email invitation was sent to the St Mewan Parish Council to inform the planning committee and parish members of the upcoming planning application and public consultation event. Email invitations were also sent to St Stephen-in-Brannell Parish and Treverbyn Parish.

486 As a final means of advertisement, a project web page was launched on CE’s live projects website, displaying relevant information for the public consultation event. All associated reports were uploaded to the website to aid accessibility.

487 The aim of the public consultation was for CE to communicate the proposed development to members of the local community and provide them with an opportunity to discuss views,

opinions, and concerns. Members of the public were also encouraged to register their attendance and complete a questionnaire on exit.

488 The exhibition itself included display panels as well as documents that were laid out on tables which provided detailed information on the proposal as follows:

- Proposed turbine location plan;
- Proposed site layout plan;
- Proposal details;
- Photomontages of the proposed turbine;
- Zone of theoretical visibility maps for the proposal;
- Draft technical documents to be submitted with the planning application, including assessments for landscape, heritage, ecology, shadow flicker and noise; and,
- The key criteria to satisfy the planning process

15.3 Community Involvement

489 The proposal has been prepared in alignment with St Mewan Parish Council who were involved from the initial stages of the discussions. A line of communication was maintained between the parish and CE to encourage discussions, comments, and questions from the parish members.

490 Formal feedback from the parish on the acceptability of the proposal will be expected during the planning process.

15.4 Conclusion

491 Every effort was made to notify members of the community about the public consultation event. CE invited all local residents within 1km of the site to the event and arranged for advertisements in the St Austell Voice newspaper for two consecutive weeks prior to the event - only one member of the public attended the consultation event.

492 The attendee was encouraged to complete a questionnaire during the event which was sent back to CE following the event. The questionnaire was also available online for 3 weeks after the public consultation event. CE received four online questionnaire responses.

493 A proactive approach was used to ensure that all interested parties had the appropriate platforms in which they could raise their concerns, whilst also ensuring all questions and queries were answered at the event. Any questions and queries that arose at the public

consultation event were duly addressed. Queries that were raised from the online questionnaires were also addressed.

- 494 Furthermore, the project webpage and project specific email address will remain live throughout the planning process through which residents can continue to ask questions should they arise.

16 Aviation

16.1 Introduction

495 The Civil Aviation Authority ‘Policy and Guidelines on Wind Turbines’ states that developers are required to undertake their own pre-planning assessment of potential civil aviation related issues³¹.

496 The UK Government’s planning advice relating to onshore wind turbines (2013) states that “*wind turbines may have an adverse affect on air traffic movement and safety. Firstly, they may represent a risk of collision with low flying aircraft, and secondly, they may interfere with the proper operation of radar by limiting the capacity to handle air traffic, and aircraft instrument landing systems*”³², therefore, full consideration should be applied during the planning process.

497 As part of the pre-planning process, there was extensive correspondence between Newquay Cornwall Airport (CAN) Air Traffic Control Team and CE.

16.2 Summary

498 Newquay Cornwall Airport is the only airport that could potentially be impacted by the proposal. The Airport is licensed by the UK Civil Aviation Authority (CAA) and holds an aerodrome licence certified by the European Aviation Safety Agency (EASA). The physical safeguarding of licenced aerodromes is defined in the CAA publication CAP 168 - The Licensing of Aerodromes. Obstacle Limitation Surfaces (OLS) are defined in accordance with the runway physical characteristics.

499 Due to there being a potential for an obstacle to impact an airports operations and the safety of flying aircraft Straten CSL and Cyrrus, on behalf of CE, conducted all assessments and the Aeronautical Study in line with the UK Civil Aviation Authority (CAA) regulations, the European Aviation Safety Agency (EASA), and the International Civil Aviation Organisation (ICAO) to address all potential issues and to categorically determine that the turbine proposal at the site would have no adverse safety impact on the operation or functioning of aviation interests in the area and Newquay Cornwall Airport. For further details, see **Appendix M**.

³¹ Civil Aviation Authority, CAA Policy and Guidelines on Wind Turbines. Accessed via: <https://publicapps.caa.co.uk/docs/33/CAP764%20Issue6%20FINAL%20Feb.pdf> (Accessed 18th February 2022)

³² Department for Communities and Local Government, Planning practice guidance for renewable and low carbon energy, July 2013. Accessed via: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/225689/Planning_Practice_Guidance_for_Renewable_and_Low_Carbon_Energy.pdf (Accessed 18th February 2022)

500 The assessment considerations included:

- Aeronautical Study
- Penetration of the obstacle limitation surfaces
- Impact on Instrument Flight Procedures (IFP)
- Aircraft flying under Instrument Flight Rules (IFR)
- Commercial Air Transport (CAT)
- Visual Flight Rules (VFR) aircraft
- Navigational Aids - Impact on the Instrument Landing System (ILS)
- Interference with NATS infrastructure
- UK Met Office weather radar
- Radio Telecommunications

501 A full Instrument Flight Procedure Safeguarding Assessment has been conducted by Cyrrus, an approved procedure design organisation accepted by the UK CAA and Irish Aviation Authority, and further reviewed by Straten CSL. The assessment has concluded that the turbine proposal at the site would have no adverse safety impacts on the operation or functioning of aviation interests in the area and on Newquay Cornwall Airport.

Other infrastructure

502 There are no impacts to navigational aids, radio stations for air-ground-air communications, to any NATS infrastructure or to any UK Met Office weather radar.

UK MOD

503 The proposed turbine will be 32.5km from the nearest air defence radar at ASACS Portreath. The site lies within an area defined by the UK MOD as low priority for military low flying. No objection from the MOD is expected. They are likely to request MOD accredited visible or infrared aviation safety lighting.

16.3 Conclusion

504 Following extensive consultations with Newquay Cornwall Airport, and undertaking multiple aviation assessments, it was concluded that the proposal will have no adverse safety impacts on the operation or functioning of aviation interests in the area or on Newquay Cornwall Airport.

17 Contamination

17.1 Introduction

505 Contamination Reports South West were commissioned to undertake a Phase 1 Contaminated Land Assessment of the proposed site at Burngullow Common, St Austell PL26 7TE. This report describes the work carried out and presents the data obtained. The full report can be found in **Appendix N**.

506 The report has been prepared in general accordance with:

- The National Planning Policy Framework (NPPF)
- R&D Publication 66: 2008. Guidance for the Safe Development of Housing on Land Affected by Contamination
- BS 10175: 2011. Investigation of Potentially Contaminated Sites - Code of Practice
- BS5930: 1999. Code of Practice for Site Investigations
- Department of the Environment (1995) DoE Industry Profiles
- CLR11: Model Procedures for the Management of Land Contamination

507 The object of the Phase 1 Contaminated Land Assessment is to provide information on the likely ground and groundwater conditions at the site, to provide data to enable an initial assessment of the site in relation to the known development proposals.

17.2 Methodology

508 A walkover survey of the site and immediate area was undertaken in March 2022. The site comprises part of a spoil heap from the surrounding china clay works; a soil exposure located on the side of the heap showed the soils to consist of granite fragments in a sand and clay matrix.

509 The information has been obtained from the following:

- Desk Study - This comprised a search of available historical and current records, and maps to identify potential on-site and off-site sources, pathways and receptors of contamination;
- Site Walkover - A site walkover survey was undertaken to confirm the information gathered for the desktop study and to reveal any features which may suggest possible sources of contamination; and,

- Risk Assessment - A preliminary risk assessment has been carried out using the information from the desktop study and site walkover to identify possible pollutant linkages and enable the development of a site conceptual model.

17.3 Summary

- 510 The site appears to have comprised undeveloped land within part of the Blackpool China Clay Works. Despite being located within the clay works, the site itself has remained outside any of the processing areas. The china clay pits to the west and south have expanded significantly over time and ceased being worked in 2007 with the pits themselves subsequently flooding. Adjacent areas consist of inert mine spoil or undeveloped moorland.
- 511 The site is considered to be low risk with regards to contamination and landfill gas and no remedial measures are considered to be necessary in this regard.
- 512 The site lies in a high radon area and guidance from the HSE states that radon surveys should be conducted in any workplace where its location and characteristics suggest that elevated levels may be found and significant exposures to employees and/or other persons are possible. However, maintenance workers would only access internal areas periodically and for short durations. Consequently, it is considered the risk to be minimal.

18 Conclusion

- 513 This Planning Statement details a proposal that is in response to Cornwall Council’s declaration of a ‘climate emergency’ made on the 22nd January 2019, through the collective support of 117 Cornwall Councillors. Following this, the preparation of the Climate Action Plan and DPD have enforced the idea of positive movement towards a more positive decision-making process in determining renewable energy proposals.
- 514 The proposal for a *‘single wind turbine, up to 135m in height, with associated access track and infrastructure’* is aligned in scale and location with the Cornwall Renewable Energy Planning Advice 2016³³, which states that turbines up to 150m in height would be deemed suitably located within the proposed landscape area (CA17).
- 515 The proposal allows for the investment into the local economy and infrastructure through the securing of a grid connection direct to the national framework. Furthermore, the estimated annual yield of over 12.5GWh resulting from this proposal will contribute significantly to the local and national carbon reduction targets by saving 2681 tonnes of carbon annually.
- 516 Both the economic and environmental benefits of this proposal are aligned with the policies of the Cornwall Local Plan Strategic Policies 2010-2030 and reflect the core intent of the National Planning Policy Framework which is to secure *‘economic, environmental and social progress for this and future generations’*.
- 517 Consideration of all likely impacts that could result from the proposed development, summarised in the associated reports, include:
- Is in line with national guidance and is supported by national, regional, and local policy on renewable energy and sustainable development;
 - Will not give rise to significant additional landscape and visual impact, due to its siting within the industrial china clay area and amongst consented and existing turbine schemes;
 - Will not adversely impact any habitats or species of conservation importance;
 - Will have no adverse impacts on heritage assets and their settings;
 - Will meet the noise criteria given in ETSU-R-97;

³³ Cornwall Renewable Energy Planning Advice, March 2016. Accessed via: [Renewable energy planning advice \(cornwall.gov.uk\)](https://www.cornwall.gov.uk) (Accessed 9th August 2022)

- Will not adversely impact hydrology, with the application of the appropriate mitigation measures;
- Will not adversely impact telecommunication links or any airports or aviation assets in the region;
- Will meet accepted shadow flicker limits on the residents of the properties located nearest to the proposed wind turbine;
- Will not have a significant impact on transportation networks; and,
- Received support in principle from the local Parish, subject to reviewing the planning application.

518 The report findings re-affirm the suitability of the proposal and its location, aligning with the National policy by confirming all impacts *'are either acceptable or can be made acceptable'*; in this case through considered mitigation and design.

519 In determining this proposal, the local authority should give weight to the local and national policy framework which highlights the need for decision makers to *'take a positive approach that reflects the presumption in favour of sustainable development'*. Furthermore, it should be recognised that the overall benefits of the proposal outweigh the associated impacts and restrictive legislation.

List of Appendices

Appendix A

EIA Screening Opinion

Appendix B

PR3766-IFP-ENTP-D – Entrance Plan

PR3766-IFP-LP-F – Location Plan

PR3766-IFP-BP-E-001 – Block Plan

Appendix C

Turbine Specifications

Appendix D

LVIA Report

LVIA Figures

Appendix E

Ecological Impact Assessment

Preliminary Ecological Appraisal

Bat Report

Biodiversity Net Gain Report

Ornithology Report

Reptile Report

Tree Canopy Statement

Appendix F

HIA Report

Appendix G

Noise Assessment

Appendix H

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Appendix I

EMI Responses

Appendix J

Shadow Flicker Assessment

Planning Statement – Burngullow Wind Turbine

Appendix K

Construction Transport Management Plan

Imerys Wind Farm Route Report

Appendix L

Pre-Application Consultation Report

Appendix M

Aviation Assessment

Appendix N

Contamination Assessment

Appendix O

Green Infrastructure Statement



Prepared by Stacey Hobbs (MScRes) and Amber Trenberth (PIEMA)

on behalf of CleanEarth

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