# Planning Officer's Report - LDCA January 2020

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| **APPLICATION** | **2019/85 – Proposed Installation of Three Wind Turbines and Energy Storage System at Deadwood Plain** |
| **PERMISSION SOUGHT** | Full Permission |
| **REGISTERED** | 05 September 2019 |
| **APPLICANT** | PASH Global |
| **PARCEL** | DW0179 |
| **SIZE** | 37.72 hectares **(**90.73 acres, 367,171.28$m^2$) |
| **ACTUAL SITE SIZE** | 4.45 hectares (11.0 Acres, 44,420 $m^2$). |
| **LOCALITY** | Deadwood Plain |
| **LAND OWNER** | Crown Land |
| **ZONE** | None |
| **CONSERVATION AREA** | Nature Conservation Area (Deadwood) |
| **CURRENT USE** | Grazing |
| **PUBLICITY** | The application was advertised as follows:<br>▪ Independent Newspaper - 27 September 2019<br>▪ Sentinel Newspaper - 03 October 2019<br>▪ A site notice displayed in accordance with Regulations. |
| **EXPIRY** | 15 November 2019 |
| **REPRESENTATIONS** | One received from Mr A Pearce |
| **DECISION ROUTE** | ~~Delegated~~ / **LDCA** / **EXCO** |
| **SITE VISIT** | Preliminary site visit prior to the Application being made and formal site visit on submission of the Application |

## A. CONSULTATION FEEDBACK

a) Water Division — No Objection
b) Sewage Division — No Objection

| | | |
|---|---|---|
| c) | Energy Division | No Objection |
| d) | St Helena Fire & Rescue | No Objection |
| e) | St Helena Roads Section | No Objection |
| f) | Heritage | Objection - Comments |
| g) | Environmental Management | No Response |
| h) | Public Health | No Response |
| i) | Agriculture & Natural Resources | No Objection |
| j) | Property Division (Crown Est) | No Response |
| k) | St Helena Police Services | Not Consulted |
| l) | Aerodrome Safe Guarding | Response Awaited |
| m) | Enterprise St Helena (ESH) | No Objection |
| n) | National Trust | Objection - Comments |

## B. DEVELOPMENT DETAILS SUMMARY

The proposed development application is for the installation of three wind turbines and energy storage system to generate electricity to meet the future energy needs of the Island. The driver for this project is to reduce St Helena's dependence on diesel fuel for its electricity needs and becoming 100% renewable and hence to achieve significant reductions in the cost of electricity generated. This development should provide social benefits by permitting reductions to be made to electricity prices for diesel fuel. In addition, there are significant environmental benefits arising from this strategy, in terms of reduced greenhouse gas and other emissions, both from the diesel generators and from transporting diesel fuel to the island.

The reduction in diesel generator usage will also reduce lubrication oil consumption and increase servicing intervals. Utilising renewable energy in this way also presents an opportunity to move forward towards self-sufficiency in energy generation, free of the vagaries of the international fossil fuel market. It is also an opportunity for visionary thinking. St Helena could become one of the world's first carbon-neutral economies.

## C. REFERRAL TO GOVERNOR-IN-COUNCIL

**This Application to be referred to Governor-in-Council (in accordance with Directive dated 17 April 2014):**

**1 –** The development of a site (or a group of two or more sites in the same vicinity) which exceed (or exceed in aggregate) five acres in area.

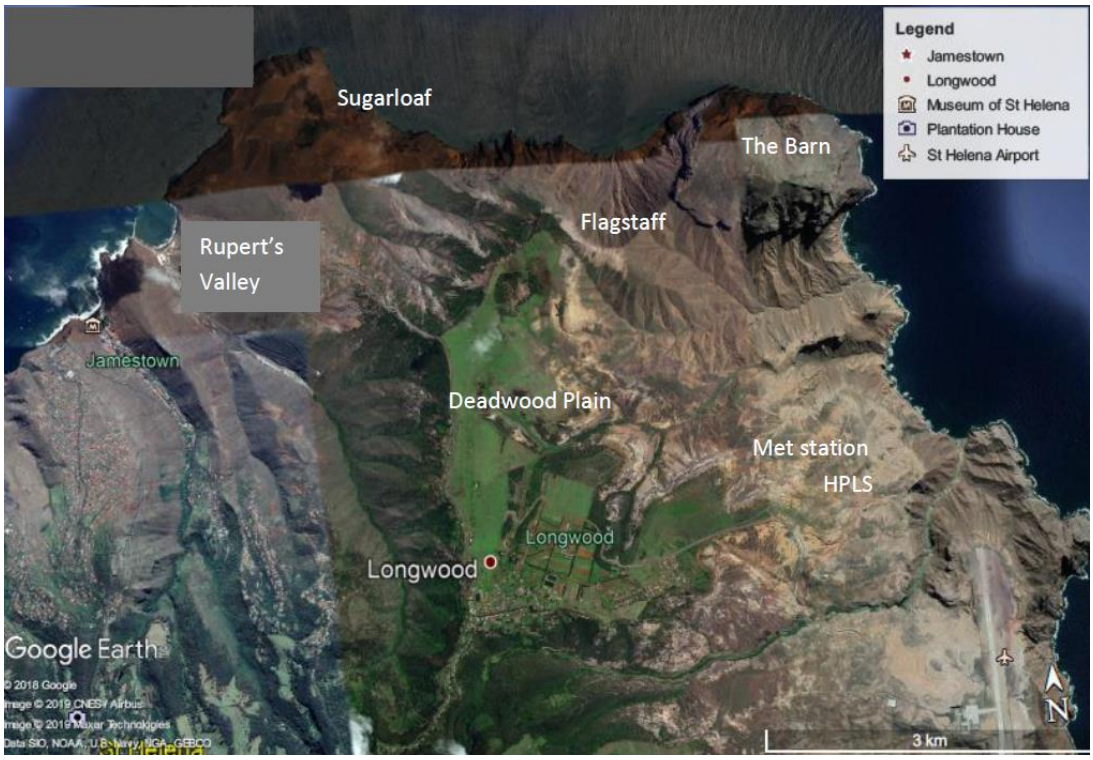
**6** - The development of public facilities (water, electricity, telephone or roads where the scale of development is such that it has significant strategic or socio-economic implications.

The Governor-in-Council further directs by way of clarification, that paragraph 6 and 7 are intended to include (without prejudice to their generality) all of the following current or proposed capital programme projects name those known as:
**E1** – Reducing Reliance on Diesel;, through the installation of photovoltaic systems and energy saving equipment.

## D. PLANNING OFFICER'S APPRAISAL

The application is seeking full development permission for the installation of three wind turbines of 77m height and energy storage system and associated infrastructure (overhead and underground HV cables) to generate electricity on Deadwood Plain area. There are currently 12 smaller wind turbines installed and related service buildings on Deadwood Plain that have been operational for number of years and are located in paddocks 4, 5/7, 6 and Sheep Pound Gut in two roughly parallel lines. The first six WES turbines were installed in two batches of three in 1999 and 2009 respectively, while the second six turbines were constructed in 2013.

**Drawing 1: Location Plan**

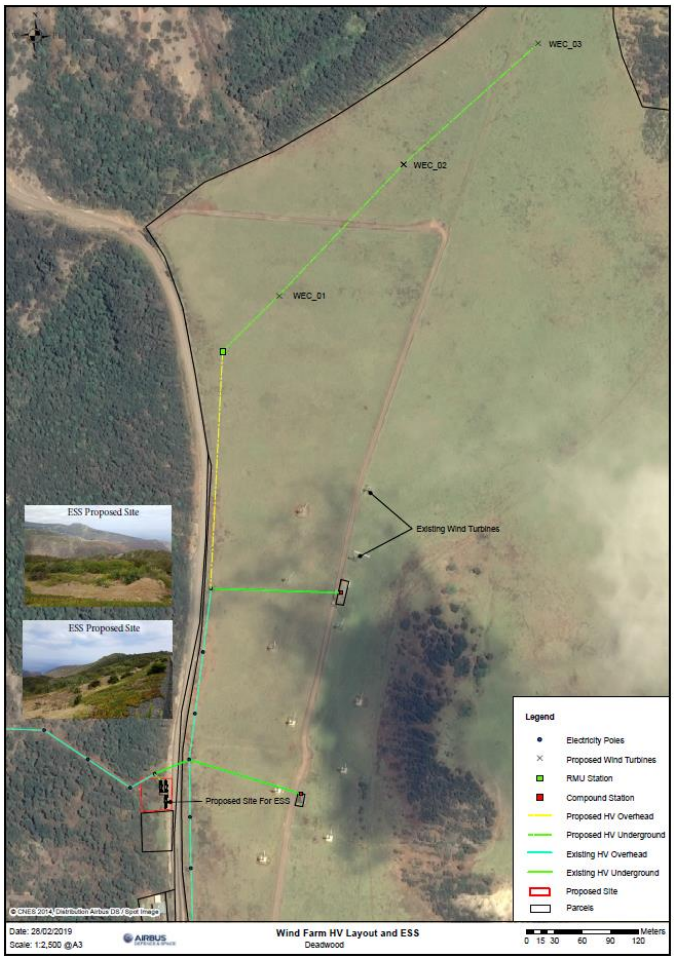


**LOCAL**

The application development area for the three wind turbines lies to the east of the Haul Road, upper northern part, just north of the existing wind turbines and the energy storage system to the west of the Haul Road, north of the property and in line with the third wind turbine. The exact position of the three installations is to the west of the gravel access track that runs through Deadwood Plain and placed evenly with the most northern being almost to the this track. The area is used for grazing of cattle and sheep on a rotational basis throughout the year in 15 paddocks. The whole area is fenced and water pipelines provide water to cattle drinking troughs.

The development site provides a relatively flat topography and with it favourable upstream wind conditions and its accessibility for construction and maintenance. However, it is also one of the most visually prominent locations on the island; it is a valuable habitat to the endemic Wirebird; it is both a protected area and of historical significance; and it is also one of the largest pastoral grazing areas on the island. The Deadwood Plain area is also very important for tourism as it is starting point for three of the most attractive "Postbox" walks.

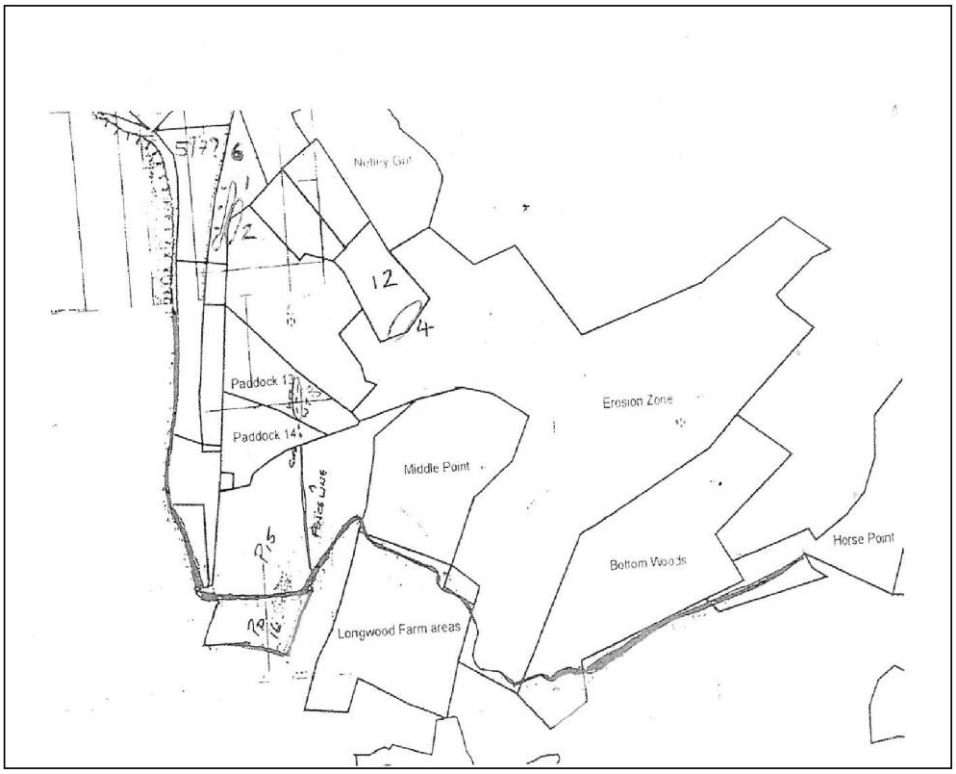
**Drawing 2: Site Plan**



**DESCRIPTION OF THE DEVELOPMENT**

**Wind Turbines:** The proposed development will be located at the upper end of Deadwood Plain in paddocks 5/7, 8 and 9, as indicated in Drawing 3. They will form a straight line, 195m apart.

**Drawing 3: Deadwood Plain Land Plots and Paddocks**




The three wind turbines installation that will stand maximum 77m in height on the plain, each with three rotary blades. The structure is a steel tower of 53.95m height, which with the hub or nacelle, gives a total height of 55.0m above ground level. Each of the three blades are 20.8m long, giving almost 34m ground clearance and a maximum height of 77m. The steel towers of the wind turbines will be in tones of green on the lower section and light grey for the upper two sections (Drawing 4) and the nacelle and fibreglass epoxy resin coated wooden blades will be painted with a low gloss grey paint. The towers have also been designed so that all the controls and the transformers are housed within the tower structure rather having an external transformer per tower or one larger transformer for all three towers. This will reduce the overall footprint of the project.

By contrast, the existing WES turbines are 18m high and the length of each of the two blades is 8m. There is also some existing infrastructure (underground and overground HV cables) that has been installed in the area over the period with the 12 wind turbines that have provided in the area.

**Drawing 4: Proposed Wind Turbine**

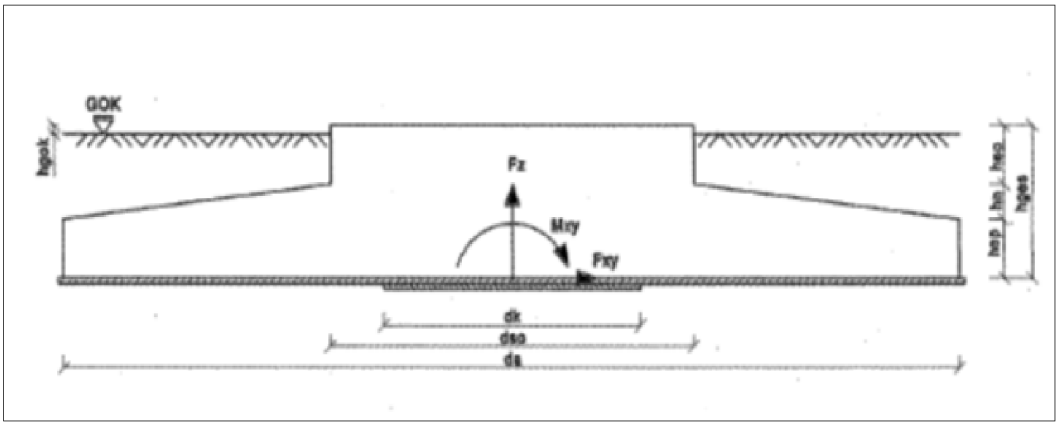

The ENERCON E-44 wind turbines design accords to European Union standards and incorporate the latest wind energy technology. The E-44 drive system comprises very few rotating components. The rotor hub and the rotor of the annular generator are directly interconnected to form one solid unit. There are no gears or other fast rotating parts and therefore the energy loss between generator and rotor as well as noise emissions are considerably reduced.

The three rotor blades is equipped with a pitch unit that consists of an electrical drive, a control system, and a dedicated emergency power supply. It limit the rotor speed and the amount of power extracted from the wind. This maximises the output of the E-44 to accurately limit nominal power, even at short notice. This pitches the rotor blades into the feathered position, the rotor is stopped without any strain on the drive train caused by the application of a mechanical brake. This is especially important during very high winds and gusty conditions. The lifespan of the turbines is 30 - 50 years.

The power produced by the annular generator is fed into the distribution grid via the ENERCON grid feed system and the Energy Storage System (ESS) batteries.

The construction will require a circular concrete base of a diameter of 13.90m for each wind turbine. However much of this base will be covered over with soil and grassed and only top of this concrete base of 5.0m diameter will protrude slightly out of the ground on which the wind turbine will be mounted. The construction of the concrete base and the assembly of the turbine will be the major ground disruption with the transportation of the heavy goods and equipment to the site and the use heavy machinery and cranes for the construction of the development.

**Drawing 5: Section through of the Concrete base for the Plinth**




It is intended that whilst the three concrete bases will be constructed, only two wind turbines (WES_01 and WES_02) will be installed in the first instance. The third wind turbine (WES_03) will only be installed when there is sufficient demand for energy. In the future when the third wind turbine is to be installed similar Environmental Management Plan will be adhered to. The Environment Management Plan is a live document that will be applicable during life of the development and will be applicable for future repair and maintenance.

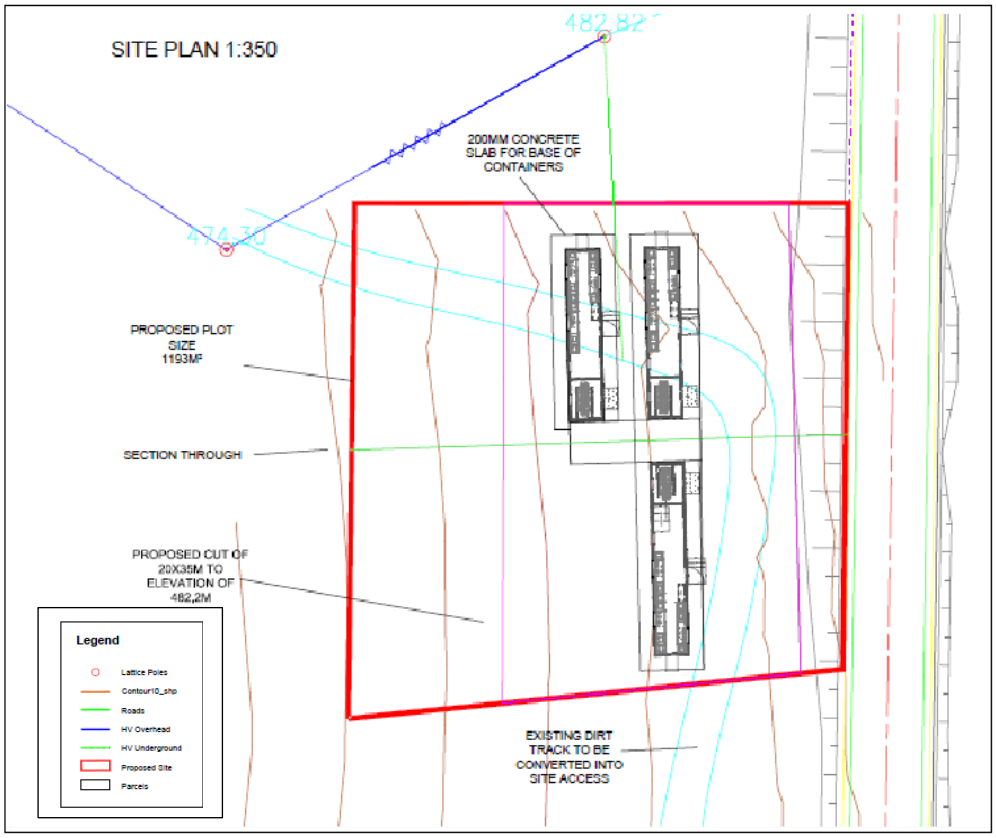
**Energy Storage System:**

The construction of the energy storage system will be to the west of the Haul Road on Land Parcel Reference DW0072 and some 50m north of the last house along Deadwood Road (Drawing 2: Site Plan). The site will comprise a new plot of 1,193 sqm and part of an existing proclaimed plot (DW072) which is undeveloped.

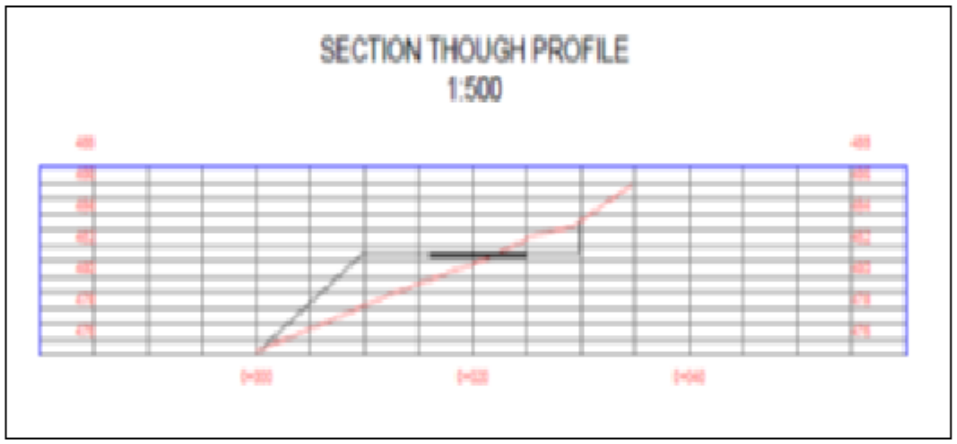
**Drawing 6: Location of the Energy Storage System**

This will require a small amount of cut and fill to create a small platform for a 200mm thick concrete slab. The batteries will be housed in three linked, 40 foot custom-built containers, each equipped with its own air conditioning system. The air conditioners will be housed on the back (east-facing) wall of each container and are needed to keep the temperature within each container within safe operating limits. Access to this site will be from the old Deadwood road, along an existing rough track. As the ground level at this point is below the road level, they will sit below the road level.

**Drawing 7: Siting of the Energy Storage System**



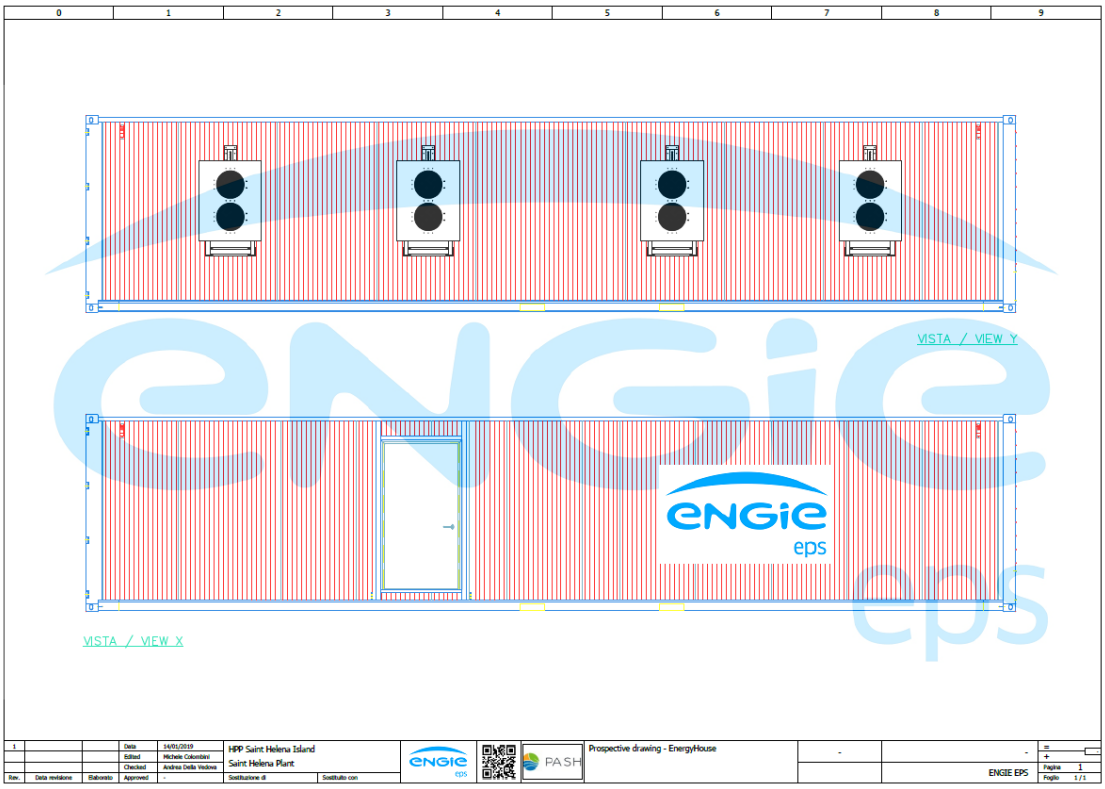

**Drawing 8: Section Through of the Energy Storage System Site**

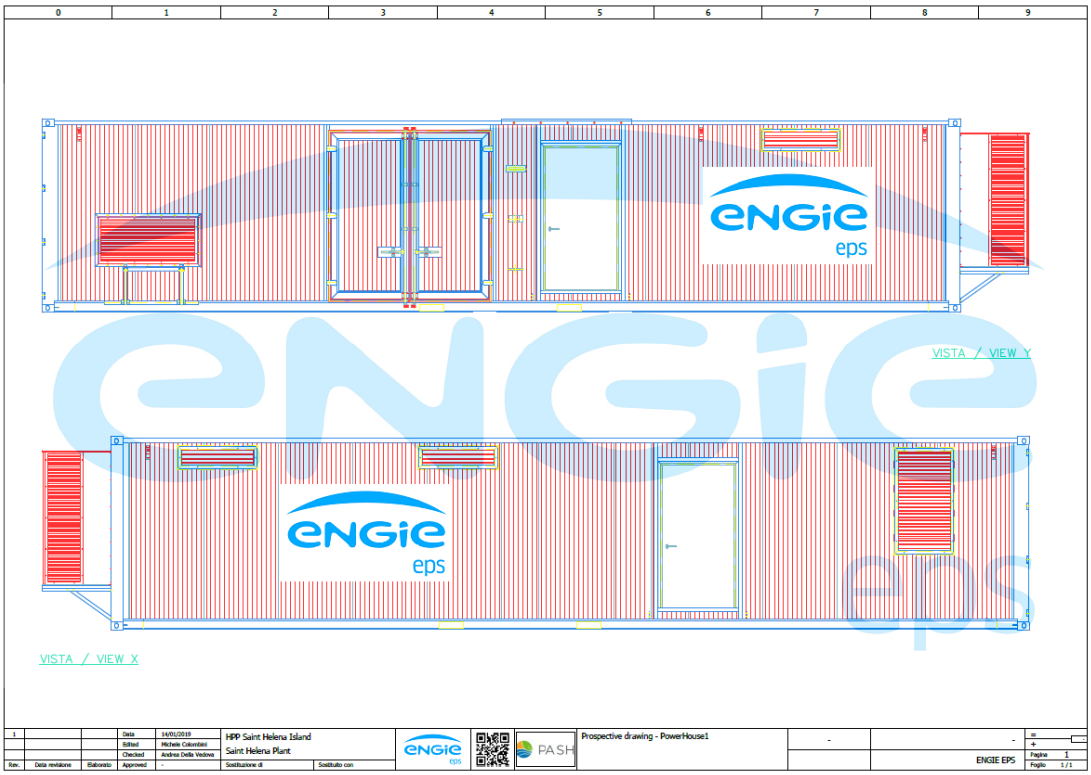


**Drawing 9: Site of the Energy Storage System to the Local Topography**


The power generated by the wind turbines will be fed into the existing grid system via an energy storage system (ESS) comprising lithium-ion batteries. The batteries will be able to store between 1-3 MW of electricity, allowing this to be trickled into the grid as and when needed. The life-span of the batteries is designed to be about 10 years.

**Drawing 10 and 11: Elevation Details of the Energy Storage System**






**Drawing 12: The Visual Impact of the Energy Storage System**


**Cabling Underground and Overground:**

The proposed development will require both underground and overground cabling to link the wind turbines, Energy Storage System to the existing grid system. This will require number of trenches to be constructed across the area. There will be a total 300sqm of land to be disturbed across the area for cabling works from the wind turbines to the ESS. So all cabling across the pasture area will be underground. However, there will be an 85m extension of the pole-mounted 11 kV overhead powerline from WEC 1

(the most southern wind turbine) to the ESS and a very short link-in to the existing overhead line from the ESS (Drawing 2). This will require the erection of 5 standard poles into the ground along the fence line, clearance of any shrubby or woody vegetation under the powerline and within 2m of the centreline, stringing of the cables and installation of connectors, capacitors etc.

**IMPACT OF THE PROPOSED DEVELOPMENT**

The major impact of the proposed development, particularly the wind turbines, is during construction as the installation of the structure requires considerable ground work and the use of heavy machinery in an area that is environmentally very sensitive and would cause immense disruption and disturbance to the ecology of the area. The other major issue of concern for this project is the transportation of the machinery, equipment and instruments to the site. As an assessment of the proposed development, these issues also need to be analysed as transportation of such heavy loads can be very disruptive on the road system and the terrain that is challenging at the best of times.

The application has provided fully detailed assessment of the whole development process with the application and this has also been assessed for the Environmental Impact Assessment (EIA) that has been submitted. The most significant negative impacts prior to mitigation being applied is during construction and these are:

- Disruption to grazing activities on Deadwood Plain;
- Road closures in Rupert's Valley and at the Deadwood intersection during transportation of the extra-large turbine and crane components;
- Increased traffic volumes; and
- Diversion of the Post Box walks during construction.

The post construction impact of the wind turbines and energy storage system is still considerable and these include:

- Visual impacts;
- Closure of the airport access road between the BFI and Deadwood intersections; and
- Impact on Wirebird populations due to general disturbance.

However such major development also provide potential benefits to the area and for a remote Island the benefit arising from such development can be significant and this is particularly during the construction and includes:

- Boost to the local economy through local procurement;
- Employment, training and skill development of St Helenians;
- Possible exposure of cultural heritage finds will provide an opportunity to increase our knowledge of the history of Deadwood Plain.

Much of this adverse impact and benefits arising from the proposed development has been assessed for the EIA that has been submitted with the development application. The officer assessment of the EIA and the proposed mitigations that will be put in place to safeguard against and to minimise the adverse impact and to maximise the potential benefits is set out in the latter sections of this report.

**PLANNING BACKGROUND**

There are twelve existing Wind Energy Solutions (WES) wind turbines on Deadwood Plain as indicated in Drawings 4 and 5, below. These are located in paddocks 4, 5/7, 6 and Sheep Pound Gut in two roughly parallel lines. The first six WES turbines were installed in two batches of three in 1999 and 2009 respectively, while the second six turbines were constructed in 2013.

Prior to the construction of the first three wind turbines in 1999, several locations on the Island were considered as potential sites for the wind farm, including: Deadwood Plain, Woody Ridge and Blue Point, however, the latter site was quickly dropped on account of the terrain. Anemometers were erected at the Deadwood and Woody Ridge sites in 1978 and weekly average wind speed data were collected up until 1987.

**Drawing 14: Existing Wind Turbines at Deadwood Plain Landscape**

At the time of this installation, the selection of the WES turbines was based on a number of technical and logistical constraints, such as: the capacity of the RMS *St Helena* to transport the components; accessibility to the site via the Island's narrow and steep roads; the need for large cranes; the remote location; and the time involved in getting

to the Island via ship (for bringing in spares, maintenance engineers, etc.). The selected WES turbine towers are 18 m high, with two 8m long blades (Drawing 14).

**Drawing 15: Existing Wind Turbines Location on Deadwood Plain**


The data indicated that the Deadwood site was windier than Woody Ridge and furthermore, Deadwood was more favourable in terms of the topography (flatter), had no wind flow obstructions and was closer to the 11 kV distribution grid. Thus various studies concluded that Deadwood Plain was the most suitable for a wind farm in terms of topography, wind climate, ease of site access and access to the electricity grid.

During the planning for the second phase of three turbines in the early 2000s, four locations on Deadwood Plain were considered: site 1 in paddock 5/7, site 2 in paddock 6, site 3 in paddock 13 and site 4 at the lower end of paddock 12.

One of the main objections to site 1 was that paddock 5/7 was integral to the Wirebird trial pasture restoration project being conducted by the Saint Helena National Trust. During this site selection process, the major factors taken into account were: wind data, high voltage connection, environmental factors (i.e. natural environment, access, residents and visual impact), and costs. While sites 1 and 2 would be highly visible to residents, all four of the sites considered were within Wirebird territories and sites 3 and 4 were less accessible, with a less favourable wind climate. Ultimately, three turbines were located in paddock 5/7 (site 1) and three in paddock 6 (site 2).

Before the installation of the second six wind turbines, there was further investigation that considered other potential sites such as Frenches Gut and Horse Point to determine the wind regime. Although Frenches Gut showed good wind potential, many other financial, technical and logistical aspects ruled this site out from further consideration. The Horse Point site was considered to be too close to the airport and was thus not considered any further.

**BENEFITS OF DEADWOOD PLAIN**

Deadwood Plain is characterised by a wide, open and exposed landscape. It is an extremely visible area which can be seen from large parts of the island. This area is fairly unusual in St Helena as it comprises one of the few elevated, plateau areas, lying between 490 and 550 m above sea level. The exposed and wind swept nature of this area is its defining character with the few remnant trees being heavily wind pruned. The relatively flat Plain slopes gently to the east from which a series of guts and eroded landforms extend steeply down towards the sea. However, from the upper part of the site, the land rises steeply northwards towards Flagstaff (700 m) which creates a strong focus and backdrop to views.

**Proposed Location of the Wind Turbines**

The three new wind turbines will be located at the upper (northern) end of Deadwood Plain, with wind energy converter (WEC) 1 at the north-west corner of paddock 5/7, WEC 2 in paddock 8 and WEC 3 in paddock 9 (Drawing 3). All the factors that made the Deadwood site attractive for a wind farm in the first instance - its relatively flat topography, its favourable upstream wind conditions and its accessibility for construction and maintenance, still pertain. However, it is also one of the most visually prominent locations on the island; it is valuable habitat to the endemic Wirebird; it is both a protected area and of historical significance; and it is also one of the largest pastoral grazing areas on the island. However, these land use issues are not unique to Deadwood Plain and many of these impacts can be mitigated. Therefore the key issues to be considered in the assessment of the proposed development application and the location of the wind turbines on this site from an environmental point of view were:

- Site access – will a new haulage/access route be required?
- Location in, or visual impact on environmentally sensitive areas;
- Is the site on or close to known wirebird/other habitat? Consider the cumulative impact of encroachment;
- Location and impact of supporting infrastructure – e.g. cabling, substations etc.;
- Conflict with other proposed land-uses e.g. pastoral/arable farming/housing etc.

**ENVIRONMENTAL IMPACT ASSESSMENT**

The development application was accompanied by Environment Impact Assessment (EIA) for the proposed development. Whilst there are number of issues with the EIA, particularly with regards to the lack of more up to date data in respect of the wirebird, however some of this may be due to the level of detail and data availability, specifically for the area around Deadwood Plain and adjoining areas.

The EIA provides a detailed baseline on the environmental conditions and the impact of the proposed development on the area in respect of the components. Those components affected by the development include: climate, soil, topography, landscape and visual amenity, water resources, land uses, vegetation, avifauna (wirebirds), invertebrates, cultural heritage, population growth, economic growth, demand for energy supply, zero carbon emission through the use of renewable energy and moving away from fossil fuel (diesel generated power) and settlements.

The assessment relates to the impact on the area during construction, including the transport of the heavy machinery, equipment and instruments from Rupert's Bay, where they will arrive by sea, to Deadwood Plain and the operational use post construction. The method of assessment is risk-based and assessed for following criteria:

- Nature or type of impact (beneficial/positive, adverse/negative, direct, indirect or secondary effect and cumulative effects)
- Magnitude of the impact (large, medium or small)
- Extent of the impact (whole or large part of the Island, limited to Deadwood and Longwood areas or on site only)
- Duration of the impact (persist long-term/permanent, continuous during construction or operational phases, non-continuous during construction but frequent throughout construction or operation, intermittent or occasional during construction or operation)

The impact significance is calculated by adding the scores of the criterion and the score is then defined as set out in Table 1. The score determines the significance rating to estimate the probability or likelihood of the occurrence of the impact.

**Table 1: Calculation of Significance**

| Score (magnitude + extent + duration) | Description and colour coding for adverse/negative impacts | Description and colour coding for positive/beneficial effects |
|---|---|---|
| ±9-10 | Very high significance | Very high significance |
| ±7-8 | High significance | High significance |
| ±5-6 | Moderate significance | Moderate significance |
| ±3-4 | Minor significance | Minor significance |
| >3 | Low or negligible significance | Low or negligible significance |

The probability or likelihood (definite, probable/most likely, possible/about 50% or unlikely) of occurrence of a potential impact determines the overall environmental risk or benefit. Table 2 sets out the determination of the

environmental risks. The high and medium risk impacts need to be managed the environmental management plan provides the recommendations mitigation to reduce or manage the identified risks.

**Table 2: Determination of Environmental Risks**

| | SIGNIFICANCE | | | | |
|---|---|---|---|---|---|
| **PROBABILITY** | **Very high** | **High** | **Moderate** | **Minor** | **Low** |
| **Definite** | High | High | Medium | Low | Low |
| **Probable** | High | High | Medium | Low | Low |
| **Possible** | Medium | Medium | Medium | Very low | Very low |
| **Unlikely** | Medium | Medium | Low | Very low | Very low |

The summary of the assessment is set in the table below. This shows that with a level of mitigation, the impact can be reduced. It is not possible, in majority of the cases to overcome adverse impact, but mitigation should be able reduce the adverse impact to an acceptable level.

**Table 3: Environmental Assessment (General Environmental Factors)**

| | Before mitigation | | | | | | | After mitigation | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Construction Impacts** | **Mag** | **Ext** | **Dur** | **Score** | **Significance rating** | **Probability** | **Environmental risk** | **Mag** | **Ext** | **Dur** | **Score** | **Significance rating** | **Probability** | **Environmental risk** |
| **WATER RESOURCES** | | | | | | | | | | | | | | |
| Impact of water supplies | 2 | 3 | 3 | 8 | High adverse | Definite | High | 1 | 3 | 2 | 6 | Moderate adverse | Possible | Medium |
| Impact on water quality | 1 | 1 | 0 | 2 | Negligible adverse | Unlikely | Very low | 0 | 0 | 0 | 0 | None | None | None |
| **VISUAL IMPACT** | | | | | | | | | | | | | | |
| Impacts during construction | 1 | 2 | 3 | 6 | Moderate adverse | Definite | Medium | 1 | 2 | 3 | 6 | Moderate adverse | Definite | Medium |
| **IMPACT ON GRAZING** | | | | | | | | | | | | | | |
| Disruption of grazing rotation | 3 | 1 | 3 | 7 | High adverse | Definite | High | 1 | 1 | 3 | 5 | Moderate adverse | Possible | Medium |
| **IMPACT ON TRAFFIC** | | | | | | | | | | | | | | |
| Road closures in Rupert's | 3 | 3 | 2 | 8 | High adverse | Definite | High | 2 | 3 | 1 | 6 | Moderate adverse | Definite | Medium |
| Closure of airport access road | 1 | 2 | 2 | 5 | Moderate adverse | Definite | Medium | 1 | 2 | 2 | 5 | Moderate adverse | Definite | Medium |
| Closure of Deadwood Junction at Foxy's | 3 | 2 | 2 | 7 | High adverse | Definite | High | 2 | 2 | 1 | 5 | Moderate adverse | Definite | Medium |
| Closure of access track on Deadwood Plain | 2 | 2 | 2 | 6 | Moderate adverse | Probable | Medium | 1 | 1 | 2 | 4 | Minor adverse | Probable | Low |
| Increased traffic volumes | 1 | 3 | 3 | 7 | High adverse | Possible | Medium | 1 | 2 | 2 | 5 | Moderate adverse | Possible | Medium |

The table above shows that there are number of areas where there is high adverse impact particularly in respect of the transport of the machinery and equipment to the site. However through mitigation much of this adverse impact can be reduced to a moderate level and thus reducing the level of environmental risk to medium.

The total area of ground disturbance will be about 0.4ha whilst the area of disturbance during construction could cover as much as 10ha (noise, dust, traffic, use of equipment, etc.). The typical size of a Wirebird territory is up to 100sqm

and therefore theoretically up to 100 pairs could be affected. However, the total Wirebird population on Deadwood Plain during the 2019 census was 41, giving a density of about one pair per 10ha. The mitigating factor is that the Wirebird has been shown to be quite resilient to disturbance and the EIA states that numbers on and around the airport construction site did not decline as predicted and Wirebirds were frequently observed in the construction areas. The Proposed mitigation (confidence in effectiveness: medium) includes:

- Adopt the SHNT Wirebird Management Programme for the Deadwood area for the duration of wind turbine construction phase of project;
- Create permanent access tracks and prohibit any off-road driving;
- Rehabilitate access tracks on completion of construction, except as agreed with the Deadwood Syndicate and ANRD;
- Identify a legacy project with close liaison between PASH and SHNT, that addresses historic and current challenges, threats and opportunities for successful Wirebird management on Deadwood Plain;
- Avoid construction during the breeding season (October to February) if at all possible;
- Impose speed restrictions on the access road across Deadwood plain;
- Present toolbox talks to all drivers of vehicles to raise awareness of Wirebirds and the need to avoid them.

The assessment shows that the impact on the wirebird is moderate on the total population and is considered to minor on the wirebird breeding and it is minor and with mitigation in place the impact remains the same

**Table 4: Environmental Assessment (Wirebirds)**

| | Before mitigation | | | | | | | After mitigation | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IMPACT ON WIREBIRDS** | | | | | | | | | | | | | | |
| Impact on total population | 1 | 2 | 3 | 6 | Moderate adverse | Probable | Medium | 1 | 1 | 3 | 5 | Moderate adverse | Possible | Medium |
| Impact on breeding | 1 | 1 | 2 | 4 | Minor adverse | Possible | Very low | 1 | 1 | 2 | 4 | Minor adverse | Possible | Very low |

The Deadwood Plain has been used over the years for a number of purposes including a prisoner of war camp, a camp for the regiment guarding Napoleon and for a radio relay station. As a result, there is a strong likelihood that artefacts may be located during excavation works. This has two potential impacts: one is the disturbance and damage of *in situ* historical material, which could have a minor adverse impact on the cultural heritage value of the site, while on the other hand, unearthing such finds and having them documented adds to the body of knowledge of the subject, which can be viewed as a highly positive impact. The

areas of excavation are, however so small and the location of the WECs is far from the assumed area of historical activity that the chances of finding any valuable material are low.

Two of the most popular walks Post Box Walks start from the area of the development and would be most affected by the presence of construction, but if alternate routes are provided for the start of these walks, the impact could be reduced to moderate significance.

The Mitigation Proposed mitigation includes:

- Post Box walks are not to be interrupted during the construction stage;
- If this is not possible, alternative temporary diversion routes are to be evaluated, discussed with SHNT and the Syndicate and implemented if necessary by the contractor.

Impacts on health and safety relates to occupational activities and those which might affect the general public and these generally include: noise, dust and fumes, muscle strain, electrocution, falling from heights, blunt force trauma, etc. In an unregulated, unprofessional work site, these could prevail and result in a moderately adverse effect through multiple accidents and injuries, however, with sufficient controls in place, the provision of personal protective equipment (PPE) and other measures and these impacts can be reduced to very low risks.

The health and safety risks for the public include loud, persistent noise, presence of respirable dust, vehicle fumes and traffic accidents. If access to the site is not adequately controlled, electrocution could also present a risk to the public. With mitigation, these risks can be reduced to very low.

**Table 5: Environmental Assessment (Cultural Heritage, Recreation, Health)**

| | Before mitigation | | | | | | | After mitigation | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IMPACT ON CULTURAL HERITAGE** | | | | | | | | | | | | | | |
| Disturbance of in situ artefacts | 1 | 1 | 1 | 3 | Minor adverse | Possible | Very low | 1 | 1 | 1 | 3 | Minor adverse | Possible | Very low |
| Increased knowledge | 2 | 3 | 4 | 9 | Very high positive | Possible | No risk | 2 | 3 | 4 | 9 | Very high positive | Possible | No risk |
| **IMPACT ON ACCESS TO POST BOX WALKS** | | | | | | | | | | | | | | |
| Route diversions during construction | 2 | 2 | 3 | 7 | High adverse | Definite | High | 1 | 2 | 2 | 5 | Moderate adverse | Possible | Medium |
| **HEALTH AND SAFETY** | | | | | | | | | | | | | | |
| Occupational health and safety | 2 | 1 | 3 | 6 | Moderate adverse | Probable | Medium | 1 | 1 | 1 | 3 | Minor adverse | Possible | Very low |
| Public health and safety | 1 | 1 | 2 | 4 | Minor adverse | Possible | Very low | 1 | 1 | 1 | 3 | Minor adverse | Unlikely | Very low |

The local economy will benefit from development of the project during construction providing specialist training and employment. There will also be benefits from the increased expenditure from specialist workers that will arrive on the Island. Whist some of the specialist equipment and materials will be exported much of the construction material will be sourced locally and two local contractors have been appointed to undertake civil and electrical works which will provide employment for some 66 managers and staff for the 6 month construction period. This will have a high positive impact.

**Table 6: Environmental Assessment (Economy)**

| | Before mitigation | | | | | | | After mitigation | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IMPACT ON ECONOMY** | | | | | | | | | | | | | | |
| Local economy/support services | 3 | 3 | 4 | 10 | Very high positive | Probable | No risk | 3 | 3 | 4 | 10 | Very high positive | Definite | No Risk |
| Local employment | 2 | 3 | 3 | 8 | High positive | Definite | No risk | 2 | 3 | 3 | 8 | High positive | Definite | No risk |

The provision of sufficient wind energy to meet demand reduces the GHG emissions, removes the need for a subsidy and will prevent energy costs rising due to external macro-economics. The importation of diesel to generate power on the Island causes three major problems: high cost of power for consumers, greenhouse gas (GHG) emissions from transportation and use of the diesel in the power station, and the dependence on UK subsidies - none of which are desirable.

The sophisticated proposed development of the WECs wind turbines will also help to stabilise the grid and reduce the number of power outages. The provision of stable, renewable power will contribute to the attractiveness of the Island for future investors. All of his will benefit the economy in a high positive way.

**Table 6: Environmental Assessment (Cheaper and Cleaner Electricity**

| | Before mitigation | | | | | | | After mitigation | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Construction Impacts | Mag | Ext | Dur | Score | Significance rating | Probability | Environ-mental risk | Mag | Ext | Dur | Score | Significance rating | Probability | Environ-mental risk |
| **CLEANER, CHEAPER ELECTRICITY** | | | | | | | | | | | | | | |
| Benefits for customers | 1 | 3 | 3 | 7 | High positive | Possible | No risk | 3 | 3 | 4 | 10 | Very high positive | Probable | No risk |
| Investment benefits | 1 | 3 | 3 | 7 | High positive | Possible | No risk | 2 | 3 | 3 | 8 | High positive | Probable | No risk |

The conclusion to be drawn from the EIA is that whilst there is considerable adverse impact on the natural environment locally, particular during construction and installation of the wind turbine, the Energy storage system and the cable

ducting with the civil engineering process on Deadwood Plain, however through mitigation measures in place these can be reduced to a level that can be considered to be acceptable. This has been highlighted in the various tables for number of more sensitive receptors. Similarly there are some positive benefits from the development both to the general environment with low carbon emission with renewable energy to manage climate change and to the local economy that will be more long term benefits to the local people. Also to note that some the adverse impact on the environment is reversible through post construction mitigation and better management of the environmental.

**Chief Environment Officer:** At the time of drafting this report the view of the Chief Environment Officer (CEO) was still not received. An addendum to this report will set out the views of the CEO and will be placed on the Government webpages these will also reported verbally at the meeting.

**POLICY CONSIDERATION**

The proposed development application is assessed against the Principle and Strategy of the Land Development Control Plan and in respect of the policies that apply and these include the following:

**Principle 4**: Encourage and facilitate sustainable use of water resources and renewable energy
**Strategy 2.4**: A presumption in favour of development for sustainable power generation, including wind and solar and marine power, together with protection of areas identified as important sites for those resources

**Intermediate Zone Policy**: IZ1
**Energy Policies**: E1, E2 and E3
**Natural Heritage Policy**: NH1(b)

**REPRESENTATION**

Representation in respect of this application has been received Saint Helena National Trust (SHNT) and Mr Pearce. The issues raised by these representation can be summarised as follows:

- the EIA does not provide adequate consideration or representation of all environmental impacts of the proposed development, particularly as the site is a NCA and of importance to Wirebird and there are no references to the EPO or (NCA) in the body of the EIA text,
- concern that the reference is to the incorrect (prior) LDCP,
- the EIA downplays the effect of the development on Wirebird habitat, nesting

and by extension population and the area is designated an Important for Wirebird and St Helena Plover or Wirebird (*Charadrius sanctae helenae*), is only found on St Helena and is the island's only surviving endemic land bird: its conservation is therefore of international significance.

- the Wirebird was assessed as Critically Endangered, when the population had declined to just over 200 adult birds by 2005, by targeted predator control and habitat management has resulted in a steady increase in the population, and in 2016 the species was downgraded from Critically Endangered to Vulnerable on the IUCN Red List of Threatened Species,
- the data used in the EIA is selective and potentially misleading with detrimental effect on the species' conservation, the data of Wirebird numbers on Deadwood in 2019 (which are uncharacteristically low when taking a multi-annular view) but makes no reference to other years, which are all higher (on average approximately 20% of the total adult count is on Deadwood Plain, with the highest at almost 37% in 2017),
- the timing of the development works: the current timeframe appears to be scheduled over peak Wirebird nesting season, although statements throughout the text differ slightly, the birds resilient to noise and disturbance, but nesting is 4 weeks and so questions the evidence for sustained resilience without additional safeguards,
- the absence of mention of the effect of a lack of grazing (owing to areas excluded during construction) which may leave more areas unsuitable, without additional management,
- reference to checks on invasive plant encroachment in reinstatement areas, this does not specify whose responsibility this is in the Environmental Management Plan.
- siting of the footings (and temporary storage of the parts) on bare ground would also lose Wirebird nesting areas,
- the lack of assessment of the cumulative impacts of wider Bottom Woods construction (including houses and/or prison), first 2 turbines, a third turbine within 5 years, and the decommissioning of small turbines.
- that adequate checks are carried out, crucially, BEFORE construction, and regularly throughout area, to ensure no Wirebird disturbance, currently not recognised in the Environmental Management Plan (Section 7) and a monitoring plan for Wirebirds should be developed and implemented before contractors are on site to avoid disturbance during their arrival.
- that provision be made before construction activities by managing an area away from the construction site, in currently unsuitable habitat, to provide additional nesting area,
- the Postbox walks have significant amenity and tourist value and that

alternative routes are made explicit and assessed for potential impacts on agriculture and Wirebird habitat and population with input from SNCG and Tourism,

- the three new ones proposed being three times taller than the existing and sited away, on the ridge below Flagstaff, the EIA. says their prominence will seriously affect the landscape and that nothing can be done about it and at night their height dictates that each will be topped by two red flashing lights and this will dominate the landscape of Flagstaff from across the island day and night, and
- the EIA does not include an assessment of alternative options such as an extension to the existing group of smaller wind turbines and there is only a very limited assessment of the effects on the landscape and no assessment of the value or importance of the landscape it will affect;

**OFFICER RESPONSE**

The concerns expressed by the representations are relevant in the consideration of the development proposal and most of the points raised in the representation have been assessed in the section of the report under the Environmental Impact Assessment. There is some inconsistency in EIA and number of areas could have benefited with further explanation and analysis. The important thing to consider is the analysis on the number of receptors of which the impact on the wirebird is considered to be the most important due its importance to the Island. The Environmental Management Plan will provide an opportunity to ensure the wirebirds are effectively managed during the construction of the development and that there is monitoring in place post construction. There is balance to be drawn as in that amount of land that will be lost the development is minimal and through post development care much of the disturbed can rejuvenated.

With other developments in close vicinity, there is also a cumulative impact on the environment and again on the wirebird population on the Island. With the level of mitigation that will be in place during the construction period the adverse impact is reduced what would be considered to be an acceptable level. In view of the assessment that been provided it is considered that adverse impact on the environment is acceptable when also assessed against wider economic, social and environmental benefits and in particular carbon emission and wider climate change agenda and need to promote renewable energy to tackle climate change

**OFFICER ASSESSMENT**

The development proposal as set out in this application accords with the overall principles and strategic aims and the policy objectives in the Land Development Control Plan (LDCP). The development of renewable energy (solar or wind) on the

Island is therefore considered to be a positive move to meet with the global objectives of climate change and reduce carbon emission. Therefore the development of renewable energy is in compliance with the various LDCP policies against which the development has been assessed. Fundamentally, the Principle 4 is important in that the LDCP encourages and facilitates sustainable use of renewable energy and there is presumption in favour of development for sustainable power generation, including wind and solar and marine power, together with protection of areas identified as important sites for those resources.

The proposed development in this very environmentally sensitive area, particularly with the wirebird conservation, will have during the construction process considerable adverse impact with the extent of ground work that will be required to be undertaken to construct a 17m diameter base for the installation of the wind turbines, ducting work and the construction of the six 40feet containers for the Energy Storage System. With the mitigation proposed and the Environmental Management Plan (EMP) in place, the level of adverse impact can be considerably reduced together with the considerable level economic and social benefits that are likely to arise, there is need to strike balance between the negative impact and the positive benefits. Furthermore, there is also a need to assess positive impact on the environment with the likelihood of meeting number of environmental targets related to carbon emission and climate change.