AIS ENVIRONMENT

Appropriate Assessment for the demolition of an existing building, excavation of site and construction of old people's home (Class 2A), Buskett

As per ERA requirements for EA/00035/18 (PA/02467/16)

Report

Appropriate Assessment

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1 EXECUTIVE NON-TECHNICAL SUMMARY

An Appropriate Assessment (AA) report is hereby being presented in relation to EA/00035/18 (PA/02467/16) located at Buskett Forest Aparthotel, Triq ta' Sabbat, Dingli. This application is entitled "*To demolish existing building, excavation of site and construction of old people's home (Class 2A).*"

The scope of the AA is to determine whether the Scheme or any part thereof will have a significant impact on the integrity of various protected sites and any relevant ecosystems, habitats and species covered by the provisions of the FLORA, FAUNA AND NATURAL HABITATS REGULATIONS (SL 549.44).

Most of the envisaged ecological impacts will take place on land during the excavation and construction processes. The scheme site is surrounded by one Natura 2000 site which was studied in further detail:

L-Inħawi tal-Buskett u tal-Girgenti (MT 0000018) designated as a Special Area of Conservation (SAC) and a Special Protection Area (SPA), in accordance with the FLORA, FAUNA AND NATURAL HABITATS PROTECTION REGULATIONS, 2016 (S.L. 549.44);

The Terms of Reference (ToRs) for this AA were issued by the Environment and Resources Authority (ERA) in January 2026 (refer to Appendix I). In accordance to these ToRs, the screening process of the scheme determined that an AA is required as per Article 19(1) of SL 549.44, given that the scheme may cause significant impacts on the abovementioned Natura 2000 site. Furthermore, the report assesses the terrestrial and avifauna impacts within the site and immediate surroundings.

2 PROJECT DESCRIPTION

The project is proposing to replace an approved development permit for a tourist development approved by MEPA in 2010 (PA/5998/05). The Applicant intends to construct a residential home for the elderly to alleviate the high demand for such facilities in an increasingly aging population. The proposed development seeks to construct a Class 2A elderly care home to accommodate 54 resident rooms with a total of 100 beds, parking spaces, gardens, a reservoir, a pool, a multipurpose hall, breakout and dining areas, doctor's offices, ancillary facilities, therapeutic facilities, and consultation rooms (henceforth referred to as the "Scheme"). Once operational, the elderly home would offer respite accommodation, nursing and care services for its elderly residents, as well as support to their families.

The total footprint of the developed area within the scheme site is 1,541.26 m^2, while the total footprint of the site is approximately 8,500 m^2. The existing and neglected building covers a footprint that is larger than the proposed elderly care home. It should also be noted that a significant portion of the agricultural land within the site boundary will remain undeveloped.

The lowest basement level (Level -2) consists of the parking lot and mortuary, and also includes a 524 m^2 reservoir with a capacity of at least 1,300 m^3. Level -1 would host the general facilities and dining area, as well as 6 rooms for 8 dementia residents. This level would include a large multipurpose hall as well as a large pool and garden area.

The ground floor (Level 0) would consist of an entrance hall, 16 residential rooms (for 28 residents) and an additional 4 dementia rooms (12 dementia residents), accommodating a total of 40 residents. Level 1 would host 18 residential rooms for 33 residents. Level 2 would have 10 rooms for 19 residents. Level 3 is largely composed of the roof garden, as well as a service area that is not accessible to residents.

The below table provides details on the facilities at each level of the home.

TABLE 1: FACILITIES PROVIDED BY THE PROPOSED SCHEME AND THEIR FOOTPRINT IN M^2

FLOOR/AREA	FACILITY	AREA (M^2 UNLESS SPECIFIED)
Level -2	Reservoir	524 (1,300m^3)
	40 parking spaces	~11.52 each
	Van parking space	21.17
	Deposit	38.87
	Ramp	88.15
	Morgue	72.80
	Passenger lifts	-
	Stairwells	-
	Gross area Level -2	2,211.0

FLOOR/AREA	FACILITY	AREA (M^2 UNLESS SPECIFIED)
Level -1	Pool & garden area	303.77
	Outdoor veranda	184.54
	Gym	24.02
	Gym	24.02
	Male changing room	21.09
	Female changing room	21.09
	Office, manager office & board room	25.91
	Equipment room	17.06
	Pharmacy	20.80
	Beauty salon	20.80
	Staff canteen	15.30
	Staff toilets	-
	Male toilets	-
	Female toilets	-
	Cafeteria	31.43
	Kitchen, un/packing area, warming area, cold room and food storage	39.60
	Storage	5.59
	Staff changing area	15.53
	Multipurpose hall (92 seats + 22 wheelchair spaces)	321.18
	Internal yard	67.45
	Dirty linen storage	12.68
	Clean linen storage	14.04
	Electrical room	24.32
	Plant room	40.80
	Security	11.00
	Un/loading area	64.41
	Refuse area	14.57
	Buffet server	21.80
	Dining area	123.38
	Outdoor veranda	109.00
	Garden	698.86
	Dementia room 1	15.80
	Dementia room 2	14.29
	Dementia room 3	30.04
	Dementia room 4	13.64
	Dementia Rooms 5 & 6	12.13 each
	Passenger lifts	-
	Stairwells	-
	Ramp	-
	Gross area Level -1	1,798.16

FLOOR/AREA	FACILITY	AREA (M^2 UNLESS SPECIFIED)
Level 0	Outdoor breakout area	113.07
	Outdoor breakout area	92.80
	Room 1, 3, 5, 7, 8, 10	16.02 each
	Room 2, 4, 6, 9, 11	14.06 each
	Room 12	31.58
	Room 13	31.71
	Room 14	30.04
	Room 15	13.58
	Room 16	12.07
	Filing room	17.39
	Filing room	10.56
	Nursing stations	-
	Meter room	7
	Reception counter	-
	Security	-
	Staff toilet	-
	Lobby area	51.57
	Breakout veranda	99.11
	Common area	30.15
	Sluice room	17.39
	Treatment room	20.75
	Dementia room 1	30.04
	Dementia room 2, 4	19.85 each
	Dementia room 3	29.85
	Dementia dining & breakout area	26.64
	Passenger lifts	-
	Stairwells	-
	Ramp	-
	Gross Area Level 0	1,541.26
Level 1	Outdoor breakout area	43.03
	Outdoor breakout area	28.65
	Room 1	12.88
	Room 2, 4, 6, 7, 9	16.02 each
	Room 3, 5, 8, 10	14.06 each
	Filing room	10.56
	Nursing stations	-
	Storage	-
	Passenger lifts	-
	Stairwells	-
	Hygiene store	-
	Staff toilets	-
	Resident's toiler	-

FLOOR/AREA	FACILITY	AREA (M^2 UNLESS SPECIFIED)
	Common area	-
	Store	-
	Waiting area	-
	Doctor's office	19.33
	Breakout area	59.50
	Breakout veranda	79.52
	Room 11, 13, 14	29.85 each
	Treatment room	20.75
	Sluice room	18.90
	Filing room	17.39
	Room 12	12.87
	Room 15	34.03
	Room 16	30.04
	Room 17	15.80
	Room 18	14.29
	Gross Area Level 1	1,340.61
Level 2	Outdoor breakout area	150.95
	Outdoor breakout area	213.72
	Filing room	10.56
	Nursing station	-
	Room 1, 2, 4	16.02 each
	Room 3, 5	14.06 each
	Breakout area	51.82
	Room 6	29.85
	Treatment room	20.75
	Sluice room	18.90
	Room 7	34.03
	Room 8	30.04
	Room 9	15.80
	Room 10	14.29
	Male resident toilets	-
	Female resident toilets	-
	Visitor's toilers	-
	Staff toilet	-
	Stairwell	-
	Lift	-
	Gross Area Level 2	907.93
Roof	Accessible roof garden (south wing)	331.29
	Lifts	-
	Stairwell	-
	Service area (not accessible to residents)	-
	Gross Area Roof	55.18

The proposed development will be built in one phase involving demolition and excavation, construction, and finishes. Finishes will overlap with construction works as these will be carried out in tandem. All works will be completed within 24 months. Works on site are planned to commence within 6 months from the issue of the development permit. It is estimated that 1,880 heavy goods vehicle (HGV) trips will be required over the construction period.

The elderly care facility will be operated by a third party and 40 staff members will be employed during the operational phase. The employees, residents, and visitors will be able to make use of the 40 car parking spaces and 1 van parking space provided at Level -2, which is deemed sufficient for the needs of visitors and employees.

The existing road network is sufficient to accommodate the proposed development once operational, with no anticipated adverse impacts, as traffic associated with the project can be readily navigated to and from the site and onto the arterial road network.

FIGURE 1: SCHEME SITE LOCATED IN BUSKETT L/O DINGLI (SOURCE: GOOGLE EARTH, [2025])

3 METHODOLOGY

The Appropriate Assessment followed the Terms of Reference (ToRs) issued by the ERA in January 2026, enclosed in this report within the Appendix. On the basis of the ToRs, AIS Environment prepared the methodology to be undertaken to assess the potential impacts on the nearby Natura 2000 sites.

3.1 AREA OF STUDY

3.1.1 Terrestrial

The site is located in a Category 2 rural settlement at Ta' Sabbat in Buskett, limits of Dingli. It lies in the South Western periphery of Rabat local council boundary. The surrounding area predominantly consists of agricultural land and some residential buildings (Figure 3). To the East of the proposed Scheme is the Buskett Woodland, which is a designated Natura 2000 site, L-Inħawi tal-Buskett u tal-Girgenti (MT 0000018) designated as a Special Area of Conservation (SAC) and a Special Protection Area (SPA).

The area mapped in Figure 2 shows how closely the Scheme Site lies to the periphery of the Natura 2000 site. In fact, the Scheme is located less than 50m away from MT0000018. A 100m buffer zone (AoI) around the site was set up to observe the ecological features in the area. The sites of concern were assessed through a literature review of existing biological data, supported by a dedicated broad-brush terrestrial field survey.

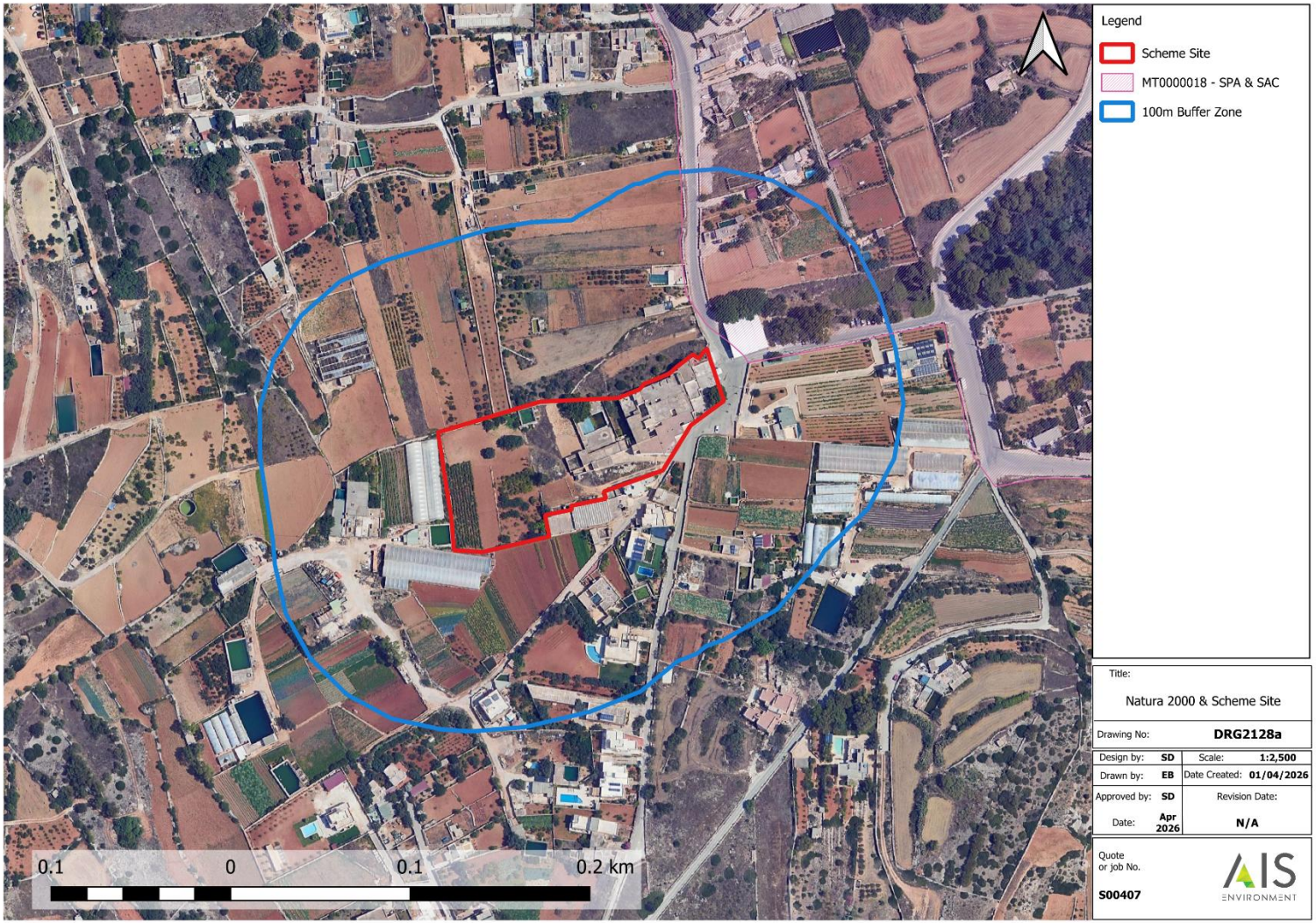

Figure 2: The Scheme Site and a 100m buffer zone

3.1.2 Avifauna

The study at hand considers populations of wild birds, in particular populations of protected species and of species of conservation concern as relevant sensitive receptors.

Avian receptors can be highly mobile, many of them carrying out annual movements on a large geographic scale. Therefore, the avian study considers the occurrence of sensitive receptors according to the relevant seasons, i.e. breeding, migration and stopping over, as well as wintering.

The Area of Influence for the avifauna EIA and AA assessment of the proposed development consists of the footprint area of the proposed resort development and a buffer zone around this area.

The site of the development is in the immediate vicinity of Buskett Woodland to the east, protected as both an SPA and SAC within the Natura 2000 network (SAC/SPA MT0000018). The area surrounding the site consists predominantly of agricultural land and rural dwellings.

The Areas of Influence (AoI) for the avifauna AA of the proposed development, henceforth referred to as AoI-1 and AoI-2, consist of the actual footprint area of the proposed development and 0.2 km and 3.0 km buffer zones around this area, respectively (see below, Figure 3) within which receptors can be expected to respond to certain activities related to the development and operation of the proposed resort.

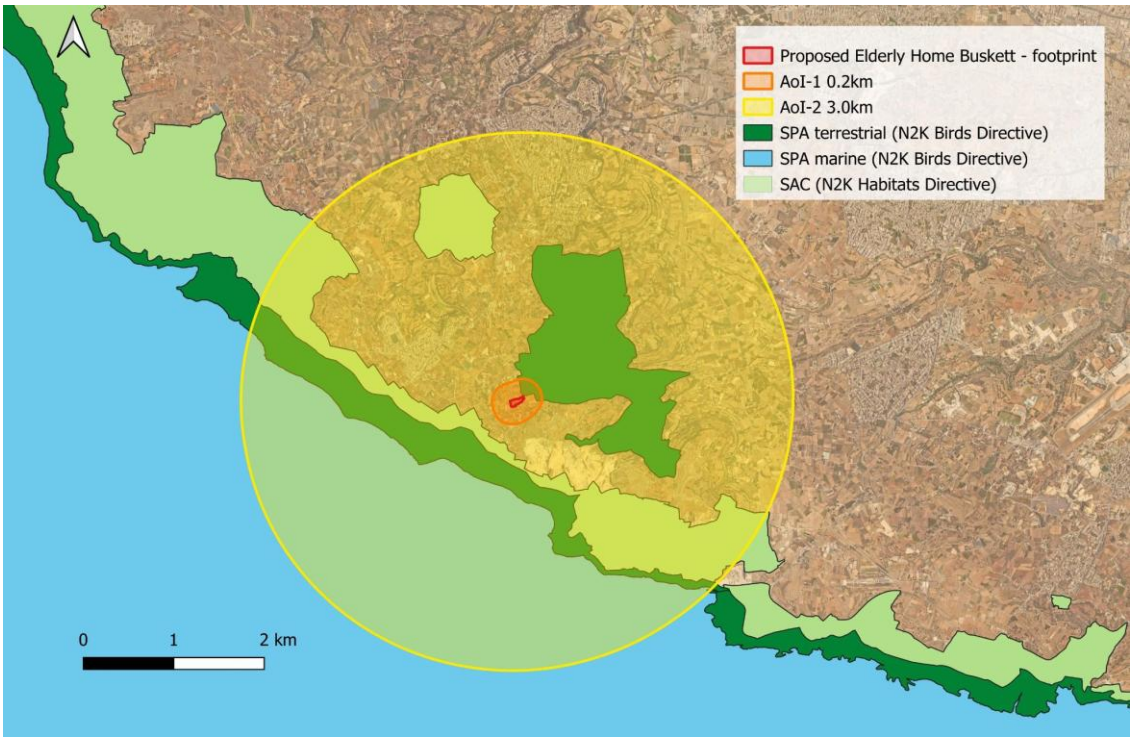

FIGURE 3: THE FOOTPRINT OF THE SCHEME (SHADED RED), THE 0.2 KM BUFFER AROUND IT (AOI-1, SHADED ORANGE), AND THE 3.0 KM BUFFER (AOI-2, SHADED YELLOW), VIS-À-VIS PROTECTED SITES (SPECIAL PROTECTED AREAS AND SPECIAL AREAS OF CONSERVATION) UNDER THE NATURA 2000 NETWORK.

3.2 LITERATURE REVIEW

3.2.1 Terrestrial and Marine study

A thorough literature review of readily available data and previous studies in the AOI. This included a review of the following sources:

- S.L. 549.44 (repealing the Flora, Fauna and Natural Habitats Protection Regulations, 2006 [LN 311 of 2006])
- Natura 2000 Management Plan for L-Inħawi tal-Buskett u tal-Girgenti
- Natura 2000 Standard Data Form for MT0000018

3.2.2 Avifauna study

The assessment of potential impacts of the proposed development on avifauna receptors in the identified AoI is performed mainly through a literature review.

The main references considered are:

- Malta Breeding Bird Atlas 2008 (BirdLife Malta 2009)
- Malta Breeding Bird Atlas 2018 (Epsilon 2019)
- Malta Breeding Bird Atlas 2024 (Ecoserv, in press)
- The Breeding Birds of Malta (Sultana et al. 2011)
- Sammut & Bonavia (2004)
- European Breeding Bird Atlas 2: Distribution, Abundance and Change (Keller, Herrando, Vorisek, et al. 2020)
- Malta Marine IBA Inventory Report (BirdLife Malta 2015)
- MSFD second assessment report (ERA 2020)
- BirdLife International (2020) IUCN Red List for birds (http://www.birdlife.org)
- Bird species of Annex I of the Birds Directive (Last updated: 14/09/2020)
- Draft Guidelines for the Reduction of Light Pollution in the Maltese Islands (Environment and Resources Authority 2020)
- ERA's published Terms of Reference for the AA regarding PA/02467/16
- Project Description Statement for the development of an Elderly Care Home
- in Buskett l/o Dingli, Malta as per ERA requirements for PA/02467/16; AIS Ref. no: CON/S00364
- ERA's Standard Data Forms (SDFs) for the relevant terrestrial and marine Natura 2000 sites located in or overlapping with the AoI, accessed on 01/07/2025 from: https://era.org.mt/topic/natura-2000-datasheets-maps/
- ERA's Management Plans for relevant terrestrial Natura 2000 sites and Conservation Objectives and Measures for Malta's Marine Natura 2000 sites

3.3 IMPACT ASSESSMENT

The methodology outlined below was performed to determine the impact assessment of the project on the AoIs which include a number of surrounding Natura 2000 sites. When an impact could not be determined with certainty, the worst-case scenario was taken. The impact assessment will be conducted in line with EC guidance documents.[1]

[1] European Communities (2001). Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats

The impacts section of the Appropriate Assessment covered the following aspects:

a) a description of the impact of the project on conservation objectives for the area and protected species and habitats it harbours, and on other indicators, including impacts on key species, extent of fragmentation, etc.

b) a description of proposed measures to eliminate, mitigate or compensate anticipated adverse effects on protected species and habitats. The following aspects related to the proposed mitigation measures will be considered and assessed:

   i. A reasonably detailed identification of the measures to be introduced for all relevant phases of the project;
   ii. An explanation of how the measures will eliminate and/or mitigate adverse effects;
   iii. Evidence of how the mitigation measures will be tangibly implemented and by whom;
   iv. Evidence of the degree of confidence in their likely success;
   v. A timescale, relative to the project, when they will be implemented;
   vi. Explanation of how any mitigation failure will be addressed; and
   vii. Proposals for decommissioning as appropriate.

c) a description of any anticipated residual adverse effects arising from the proposed development on protected species and habitats.

d) a proposal of a feasible ecological monitoring programme, for the pre-, during and post-construction phases, to include details such as the frequency of the proposed monitoring scheme.

e) a comprehensive evaluation of all possible project alternatives/scenarios (including the zero option) and their impacts on protected species and habitats. Potential alternative schemes might include alternative technologies, alternative layouts, and relocation or downsizing of the project.

For each of the identified impacts, the following information is provided in a table format:

- Impact type and specific intervention leading to impact
- Project phase (construction/operation/decommissioning)
- Sensitivity & resilience toward impact (high/medium/low)
- Impact pathway (direct/indirect/cumulative)
- Impact type (beneficial/adverse)
- Impact severity (high/medium/low)
- Extent (in relation to site coverage and surroundings and associated features)

Directive 92/43/EEC. https://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura_2000_assess_en.pdf.

- Duration (temporary/permanent and short-/medium-/long-term)
- Effect of the impact (reversible/irreversible)
- Probability of impact occurring (inevitable/likely/unlikely/remote/uncertain)
- Impact significance (significant/not significant)
- Scope of mitigation
- Residual impacts (significant/not significant)

4 SITE DESCRIPTION

4.1 TERRESTRIAL CONDITIONS

4.1.1 Protected Areas and Species

S.L. 549.44 (repealing the Flora, Fauna and Natural Habitats Protection Regulations, 2006 [LN 311 of 2006])

This legislation establishes a National Ecological Network of special areas of conservation having National or International Importance. The Legal Notice transposes the obligations of the HABITATS DIRECTIVE which call for the establishment of a European Network of Special Areas of Conservation (Natura 2000) composed of sites having the natural habitat types and species listed in Annexes I and II to the Directive (listed under Schedule I and II of the same Legal Notice). Schedule III lists animal and plant species of community importance whose conservation requires the designation of Special Areas of Conservation, whilst Schedule IV lists the criteria for selecting sites eligible for identification as Sites of National Importance and of International Importance and Designation as Special Areas of Conservation. Schedule V lists animal and plant species of community interest in need of strict protection, whilst Schedule VI lists animal and plant species of national interest in need of strict protection.

Schedule VII lists animal and plant species of community interest whose taking in the wild and exploitation may be subject to management measures, whilst Schedule VIII lists animal and plant species of national interest whose taking in the wild and exploitation may be subject to management measures. Schedule IX includes provisions for identification and monitoring, whilst Schedule X lists endemic species not covered by Regulation 26 of the same Legal Notice.

There are no Special Areas of Conservation overlapping the scheme site area. The closest protected area under the Natura 2000 framework, happen to be MT0000018 as previously outlined. The area covered by this site is considered as the main Area of Interest (AOI) for the Appropriate Assessment.

4.1.1.1 MT0000018 – L-Inħawi tal-Buskett u tal-Girgenti (SAC/SPA)

L-Inħawi tal-Buskett u tal-Girgenti (MT0000018) Special Protected Area (SPA) and Special Area of Conservation (SAC) covers a footprint of 244.71ha and comprises of 25 EU protected species and 8 EU protected habitats. These include 8 Annex I habitats, 6 Annex I species under the HABITATS DIRECTIVE, as well as 32 bird species listed in Article 4 of the BIRDS DIRECTIVE. The site also comprises of various rare species of great conservation importance including snakes, bats, mycoflora and insects.

The site consists of three valley systems, Wied l-Isqof, Wied il-Luq and Wied il-Girgenti, each having a permanent watercourse running through them and supporting a high concentration of riparian woodlands. It also supports a wide diversity of species including rare and endemic ones. According to the management plan, 61% of the SAC (149ha) consists of agricultural land, irrigated from groundwater or channelled watercourses.

The habitats of importance in this SAC, which are listed in Annex I of the Habitats Directive include (see Figure 4):

- Mediterranean temporary ponds (Habitat 3170);
  - Only encountered at Misrah tal-Mielah (Inadequate)
  - Located about 2km away from the Scheme site
- Arborescent matorral with Bay Laurel (Habitat 5320);
  - Encountered in the inner and central parts of il-Buskett and occupies a total of 4.8Ha (Favourable)
  - Located about 1km away from the Scheme site
- Garrigue dominated by Mediterranean shrubby species such as Wild Thyme (Habitat 5330);
  - Occupies around 4.6Ha of the SAC (Inadequate) and is mostly confined to Wied l-Isqof and Misrah il-Mielah
  - Located about 2km away from the Scheme site
- Poplar and Willow Galleries (Habitat 92A0);
  - Occupies around 2.9Ha of the SAC (Bad/Deteriorating) and is considered one of the most vulnerable and rarest habitats in the Maltese islands as its existence depends on the supply of permanent or semi-permanent freshwater.
  - Found in three fragmented communities at Wied l-Isqof, Wied il-Luq and Wied il-Girgenti.
  - Located about 1km away from the Scheme site
- Olive and Carob forests (Habitat 9320);
  - Occupies around 3.7Ha of the SAC (Inadequate/Increasing) and found in each of the SAC's valley systems.
  - Located about 1km away from the Scheme site
- Oak forests (Habitat 9340); and
  - Occupies just 0.6Ha of the SAC and is one of the rarest in Malta (Bad/Stable). It is confined to just one area in Buskett.
  - Located about 500m away from the Scheme site

- Mediterranean pine forests (Habitat 9540)
    - Occupies around 16.7Ha of the SAC, all of which are located within Buskett (Favourable).
    - Located about 200m away from the Scheme site.

The most important Management Objective of the site is to ensure that each of the habitats identified above are conserved and improved. Various operational objectives are defined in the site's Management Plan to strengthen the ecological dynamics of the SAC, including but not limited to:

- Restoring watercourses and riparian zones
- Removing invasive alien species
- Monitoring the size, structure and function of various Annex I habitats
- Controlling access to prevent trampling and over-use
- Planting of seedlings and saplings
- Restoring rubble walls and control soil erosion
- Reducing fire risks and fire hazards
- Maintaining foraging grounds for important bat and avifauna species
- Installation of warning/information and educational signs
- Enforcing site regulations and increased monitoring presence
- Promoting eco-tourism

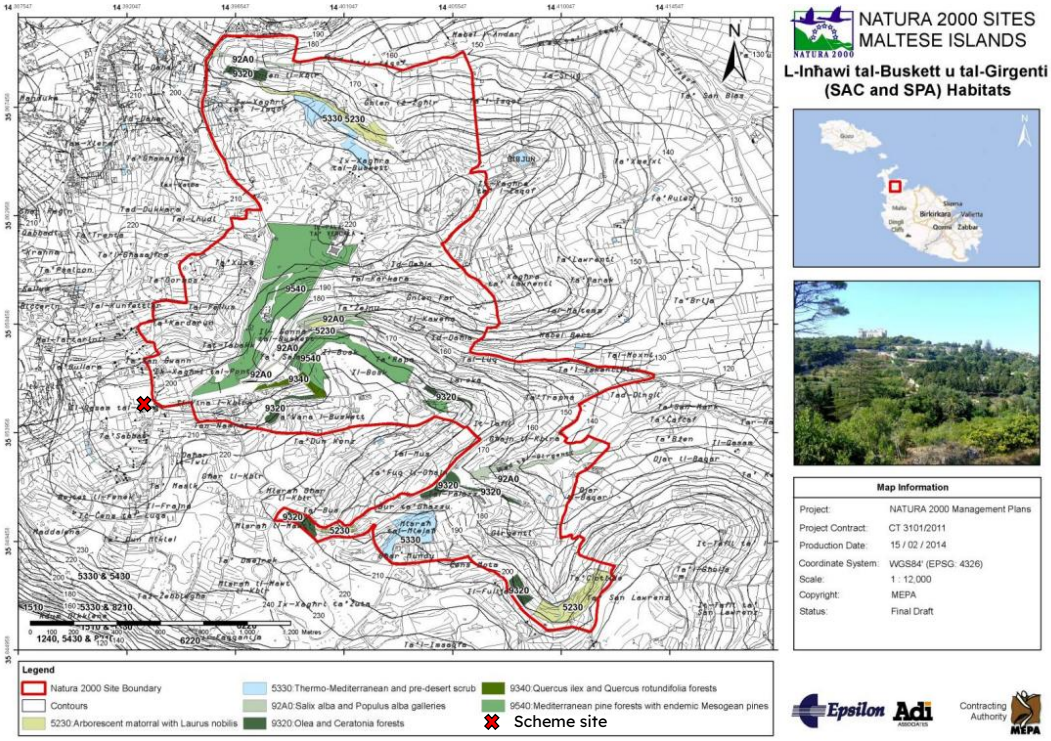

FIGURE 4: ANNEX I HABITATS PRESENT IN MT0000018 (SOURCE: NATURA 2000 MANAGEMENT PLAN[2])

[2] https://era.org.mt/wp-content/uploads/2019/05/L-Inhawi_tal-Buskett_u_tal-Girgenti_ManagementPlan.pdf

Even though the site lies in close proximity to the periphery of MT0000018, the area abutting the Scheme does not comprise any Annex I habitats. In fact, the land use map of the Natura 2000 site classifies this area as an agricultural zone, as indicated in Figure 5.

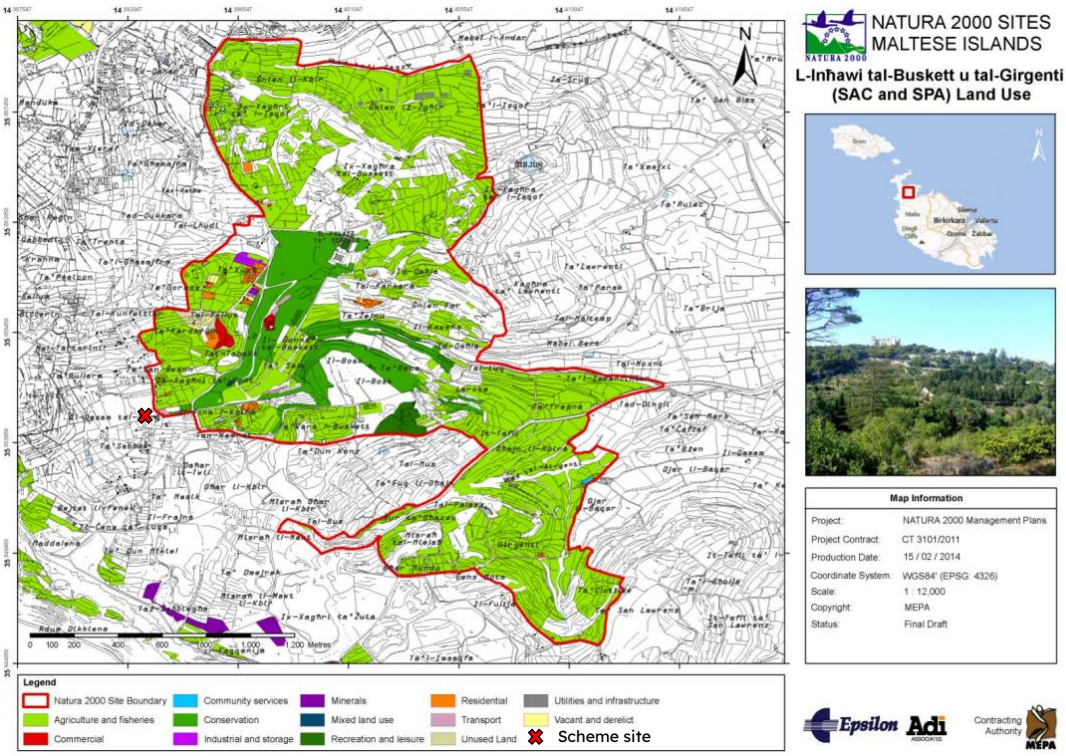

FIGURE 5: LAND USE MAP AS PRESENTED IN THE NATURA 2000 MANAGEMENT PLAN FOR MT0000018[2]

4.1.2 Site Survey

Since the Scheme site is not classified as a protected Natura 2000 site, there was no need to survey its ecological features.

On the nearby disturbed land, several colonies of ruderal vegetation are often present, such as Boar Thistle (*Galactites tomentosa*), Smooth Sow-Thistle (*Sonchus oleraceus*), Animated Oat (*Avena sterilis*), Crown Daisy (*Chrysanthemum coronarium*), Castor Oil Tree (*Ricinus communis*), Hare's-tail Barley (*Hordeum leporinum*), Common Awn-Grass (*Stipa capensis*), Fennel (*Foeniculum vulgare*), Perennial Wall Rocket (*Diplotaxis tenuifolia*), Pellitory-of-the-wall (*Parietaria judaica*), Spiny Asparagus (*Asparagus aphyllus*), Wild Carrot (*Daucus carota*), Shrub Tobacco (*Nicotiana glauca*), Cape Sorrel (*Oxalis pes-caprae*), Rice Grass (*Piptatherum miliaceum*), Wild Artichoke (*Cynara cardunculus*), Squirting Cucumber (*Ecballium elaterium*). The removal of some of these ruderal or opportunistic species may occur due to the proposed development. However, these species typically have short life cycles, reproduce quickly, and are among the first to colonise disturbed or vacant land, often displacing local, indigenous plants.

Several trees which are currently present within the Scheme footprint may require some interventions to accommodate the proposed development:

- 1 Fig tree (*Ficus carica)* – to be shifted
- 1 Pine tree (*Pinus* spp.) – to be shifted (protected by SL. 549.123, First Schedule Part A Table 2)
- 12 Lemon trees (*Citrus)* – to be shifted
- 4 Century Plants (*Agave* spp.*)*
- 1 African Tamarisk (*Tamarix africana)* (protected by SL. 549.123, First Schedule Part A Table 2)
- 1 Aleppo Pine tree (*Pinus halepensis)* (protected by SL. 549.123, First Schedule Part A Table 2)
- 1 Judas tree *(Cercis siliquastrum)* (protected by SL. 549.123 First, Schedule Part A Table 2)

A total of 14 trees would need to be shifted from the Scheme site footprint to accommodate the proposed development. One of these species, *Pinus* spp. is protected by the Trees and Woodlands Protection Regulations (S.L. 549.123), as indicated above. While efforts will be made to preserve any existing rubble walls on-site, these will be carefully dismantled and reused elsewhere if necessary.

An extensive landscaping scheme has been planned for the development footprint. This is composed of the trees listed in Table 2. Some of these trees, such as *Quercus ilex* and *Populus alba* are synonymous with the area and are compatible with the overall conservation objectives of the nearby MT0000018 site.

Table 2: Landscaping plan for the proposed development

Tree/shrub Species	Level -1	Level 0	Level 1	Level 2	Roof	Total
Quercus ilex (Holm Oak)	18	2	/	/	/	20
Populus alba (White Poplar)	12	/	/	/	/	12
Olea europaea (Olive Tree)	10	4	/	/	/	14
Nerium oleander (Oleander)	15	/	/	/	/	15
Rosmarinus officinalis (Rosemary) or *Lavandula angustifolia* (Lavender)	19	36	/	/	31	86
Jasminum (Jasmine)	/	18	14	4	/	36
Euphorbia melitensis (Maltese Spurge)	/	80	/	/	/	80
					Total	263

4.2 AVIFAUNA CONDITIONS

To date, more than 400 bird species have been recorded in the Maltese Islands, including within its Fisheries Management Zone (FMZ, 25 NM). Slightly more than half of them occur in the Maltese Islands regularly[3].

Around 50 bird species have been recorded breeding on the Maltese Islands, of which 27 are regular breeders from wild populations[4]. Three species, all pelagic seabirds, hold significant breeding populations in the Maltese islands from an EU, European and global perspective. These three species are listed under Annex I of the EU Birds Directive[5].

The Maltese Islands fall along the Central Mediterranean flyway for migratory birds within the European-African flyway system, utilised twice a year by more than 2 billion birds[6]. These include large diurnally migrating soaring birds, such as birds of prey, nocturnally migrating passerines and waders, sea- and waterbird species, some of which are of international conservation concern.

The baseline study informs which important bird species have been recorded or can be expected to occur in the AoIs, including in the relevant protected areas (Natura 2000 sites, see 3.3), and thus be sensitive receptors for the proposed development. Information regarding species' conservation status, breeding status in the AoI, abundance and trends are taken from the latest Maltese Breeding Bird Atlas, BirdLife International's Data Zone[7] and from the second edition of the European Breeding Bird Atlas[8]. All information regarding species listed in Annex I of the EU Birds Directive were obtained from the Environment, Nature and Biodiversity site of the European Commission[9].

4.2.1 Protected Areas overlapping with the AoI

The proposed development itself is not situated inside a protected site. However, AoI-1 overlaps with SAC/SPA MT0000018 *L-Inħawi tal-Buskett u tal-Girgenti*. AoI-2 further

[3] *Bonavia et al. (2005): Systematic list 1996-1999, Il-Merill 31, 1-34.*

[4] *Ecoserv Ltd (2025). Malta Breeding Bird Atlas 2024. Malta: Wild Birds Regulation Unit, Ministry for Gozo and Planning.*

[5] Maltese Environment and Resources Authority - ERA (2020): Update of Articles 8, 9 and 10 of the Marine Strategy Framework Directive (2008/56/EC) in Malta's Marine Waters. Second Assessment Report, pp.321-344.

[6] Hahn, S., Bauer, S. and Liechti, F. (2009), The natural link between Europe and Africa – 2.1 billion birds on migration. Oikos, 118: 624-626. https://doi.org/10.1111/j.1600-0706.2008.17309.x

[7] *BirdLife International (2020) IUCN Red List for birds. Downloaded from http://www.birdlife.org on 02/07/2025.*

[8] *Keller, Herrando, Vorisek, et al. (2020): European Breeding Bird Atlas 2: Distribution, Abundance and Change*

[9] *https://ec.europa.eu/environment/nature/conservation/wildbirds/threatened/index_en.htm*

overlaps with three terrestrial Natura 2000 sites (SCI, SAC), and one marine Special Protected Areas under the Natura 2000 network:

- SAC/SPA MT0000018 L-Inħawi tal-Buskett u tal-Girgenti
  This Natura 2000 site is a large valley system in the south-west of Malta which supports several habitat types and has a rich biodiversity, including a number of biotopes and species listed in the respective Annexes of the EU Birds and Habitats Directive, resulting in its designation as both SAC and SPA. Buskett itself is one of the few wooded areas of the Maltese Islands and is declared an Important Bird Area by BirdLife International due to its international importance as a roost and stopover site for migratory birds of prey. Buskett is also a Bird Sanctuary under national legislation, prohibiting hunting and trapping within it. This protected area lies in its entirety within AoI-2. While the proposed development lies outside the SAC/SPA, its boundary is only around 20 m from the strict footprint of the proposed development and incorporates all access roads to the site.[10]

- SAC MT0000025 L-Għar tal-Iburdan u l-Inħawi tal-Madwar Malta
  This SAC is an extensive natural cave which lies in its entirety within AoI-2, with human-made extensions, protected for significant local populations of the Annex II bat species *Rhinolophus hipposideros*, as well as *Myotis punicus*. The boundary of the site includes a significant area of agricultural land which serves as a foraging area for both species. It is not described as an area of specific importance for bird species.[11]

- SAC MT0000024 - Rdumijiet ta' Malta: Ir-Ramla taċ-Ċirkewwa sa Il-Ponta ta' Benġħisa
  This SAC constitutes the largest terrestrial Natura 2000 protected site in Malta, covering 23 km² of coastal cliffs along the western and southern coast. The SAC protects several habitat types and native species, including local breeding species of international conservation concern such as *Calandrella brachydactyla, Calonectris diomedea*, and *Puffinus yelkouan*. AoI-2 overlaps with around 5 km of the length of this SAC and has its closest border within 0.5 km to the southwest of the proposed development site.[12]

- SPA MT0000032 - Rdumijiet ta' Malta: L-Inħawi taċ-Ċumnija sax-Xaqqa
  This SPA partially overlaps with the SAC MT0000024 - Rdumijiet ta' Malta: Ir-Ramla tac-Cirkewwa sa Il-Ponta ta' Benġħisa, primarily designated for breeding colonies of *Calonectris diomedea*, and *Puffinus yelkouan*. In 2025, the SPA was extended along Malta's northwestern coast to cover the 1.14 km² extend between Ras il-Pellegrin and iċ-Ċumnija. It is estimated that around

[10] *https://era.org.mt/wp-content/uploads/2020/06/20190923_MT0000018-Buskett-Girgenti-SAC_SPA.pdf*
[11] *https://era.org.mt/wp-content/uploads/2019/05/20180601_MT0000025-Ghar-Iburdan-Madwar-SAC.pdf*
[12] *https://era.org.mt/wp-content/uploads/2019/05/20180601_MT0000024-Rdum-Malta-SAC.pdf*

14% of the national population of *P. yelkouan* breed within this SPA, amounting to around 1% of the known global breeding population. AoI-2 overlaps with around 5 km of the length of this SAC and has its closest border within 0.7 km to the southwest of the proposed development site.[13]

- SPA MT0000111 Il-Baħar tal-Lbiċ
  The marine SPA Il-Baħar tal-Lbiċ (MT0000111) has its closest border approximately 1 km southwest of the proposed development. The SPA would not be within direct line of sight from the site of the proposed development. The SPA designation is triggered by the Maltese populations of *Calonectris diomedea* (6000 individuals), *Hydrobates pelagicus* (15000 to 20000 individuals) and *Puffinus yelkouan* (840 to 1350 individuals), all reaching numbers of international significance. The area is used by these three species as an important foraging ground, during commutes and for social interactions and resting. All three species are listed in binding international legal instruments. No specific Management plan exists for this Natura 2000 site, however conservation objectives and measures have been published and approved: https://era.org.mt/wp-content/uploads/2023/02/MPAs-Conservation-Objectives-and-Measures_final_Feb2023.pdf.

4.2.2 Investigation of the ecology of site and surroundings - Avifauna

4.2.2.1 Breeding bird species in the AoI

According to the latest Maltese Breeding Bird Atlas (Ecoserv Ltd., 2025) 20 bird species have been reported breeding within the 1 km x 1 km squares which overlap with the wider AoI, 14 of which have been recorded breeding in squares within 1 km of the footprint of the proposed development (Table 1). Of these, *C. diomedea*, *P. yelkouan*, and *C. brachydactyla* are listed under Annex I of the EU BIRDS DIRECTIVE, with *C. diomedea* experiencing a locally declining population trend. While *E. calandra* is not currently of European conservation concern, it has experienced steep local population declines. *Columba livia f. domestica*, is of feral origin and is considered an ecological pest.

F. tinnunculus and *E. calandra* are believed to reach threshold numbers of significance within the AoI relative to the national breeding population numbers.

Curruca melanocephala, Muscicapa striata, Monticola solitarius, Passer hispaniolensis, and *Passer montanus* are known to breed in urban environments and are able to associate with built structures and/or appropriate landscaping, to varying extents.

[13] *https://era.org.mt/wp-content/uploads/2019/05/20180601_MT0000032-Pellegrin-Xaqqa-SPA.pdf*
https://era.org.mt/wp-content/uploads/2021/03/Rdumijiet-ta-Malta-SPA-Designation-Report-1.pdf

Moreover, Buskett woodland is the site of FKNK's Barn Owl *Tyto alba* captive breeding and release programme in an attempt to reintroduce *T. alba* as a breeding bird in Malta[14].

TABLE 3: LIST OF BREEDING BIRD SPECIES IN THE AOI AND THEIR STATUS

SPECIES	BREEDING STATUS WITHIN AOI	ABUNDANCE STATUS IN MALTA	TREND IN MALTA	POPULATION TREND IN EUROPE	ANNEX I (EU BIRDS DIRECTIVE)	WITHIN 1KM OF FOOTPRINT
Feral Pigeon *Columba livia* f. *domestica*	Confirmed	Frequent	Increasing	Stable	No	Yes
Streptopelia decaocto	Probable	Common	Increasing	Increasing	No	No
Common Moorhen *Gallinula chloropus*	Confirmed	Scarce	Increasing	Stable	No	No
European Storm-petrel *Hydrobates pelagicus*	Possible	Common	Increasing	Unknown	Yes	No
Scopoli's Shearwater *Calonectris diomedea*	Confirmed	Common	Decreasing	Decreasing	Yes	Yes
Yelkouan Shearwater *Puffinus yelkouan*	Confirmed	Common	Increasing	Decreasing	Yes	Yes
Yellow-legged Gull *Larus michahellis*	Confirmed	Frequent	Increasing	Increasing	No	Yes
Common Kestrel *Falco tinnunculus*	Possible	Rare	Increasing	Decreasing	No	Yes
Peregrine Falcon *Falco peregrinus*	Confirmed	Rare	Fluctuating	Increasing	No	No
Greater Short-toed Lark *Calandrella brachydactyla*	Confirmed	Common	Increasing	Unknown	Yes	Yes
Zitting Cisticola *Cisticola juncidis*	Confirmed	Abundant	Increasing	Increasing	No	Yes
Barn Swallow *Hirundo rustica*	Confirmed	Scarce	Increasing	Decreasing	No	No

[14] https://www.huntinginmalta.org.mt/barn-owl-reintroduction-project

Cetti's Warbler *Cettia cetti*	Probable	Common	Stable	Stable	No	Yes
Sardinian Warbler *Curruca melanocephala*	Confirmed	Abundant	Increasing	Increasing	No	Yes
Spectacled Warbler *Curruca conspicillata*	Possible	Common	Increasing	Stable	No	No
Spotted Flycatcher *Muscicapa striata*	Confirmed	Scarce	Increasing	Decreasing	No	Yes
Blue Rock-thrush *Monticola solitarius*	Confirmed	Common	Increasing	Unknown	No	Yes
Spanish Sparrow *Passer hispaniolensis*	Confirmed	Abundant	Uncertain	Decreasing	No	Yes
Eurasian Tree Sparrow *Passer montanus*	Confirmed	Common	Increasing	Decreasing	No	Yes
Corn Bunting *Emberiza caladra*	Possible	Rare	Decreasing	Decreasing	No	Yes

4.2.2.2 Non-breeding bird species in the AoI

Buskett woodland is known to concentrate large numbers of migratory birds, and acts as a roosting site of local and regional significance for diurnally migrating soaring birds and birds of prey during autumn passage (SAC/SPA MT0000018). More than 200 bird species are expected to regularly make use of the AoI for passage, stop-over, and/or wintering. Twenty-two species occurring regularly within the AoI on passage are listed in Annex 1 of the Birds Directive (Table 2). Seven of these are experiencing a negative population trend, with *N. percnopterus*, *C. macrourus*, *F. vespertinus* and *F. cherrug* being of particular conservation concern. Occurrences of *N. percnopterus, P. haliaetus, F. cherrug* in the AoI are of regional significance due to regional population declines of Mediterranean conservation units, with conservation actions taking place elsewhere in Europe being directed at individuals that migrate over the Maltese Islands. Populations of the majority of the species listed in Table 4 occur in locally significant numbers in the AoI.

August to October are the most sensitive periods for most diurnal passage avian receptor species in the AoI during autumn, while April and May are also sensitive periods in spring, especially for *C. nigra*, *Circus* species, and *F. vespertinus*. The AoI is also an important site for nocturnally migrating receptor species which occur in large numbers. While overall it is unlikely that any nocturnally migrating, passerine species

occur in the AoI in significant numbers relative to their global population, they are nevertheless sensitive to light pollution and associated pressures.

TABLE 4: MIGRATORY BIRDS LISTED IN ANNEX I EU BIRDS DIRECTIVE WHICH OCCUR REGULARLY IN THE AOI.

SPECIES NAME	IUCN CLASSIFICATION	EUROPEAN POPULATION TREND
European Nightjar *Caprimulgus europaeus*	Least Concern	Unknown
Black Stork *Ciconia nigra*	Least Concern	Unknown
White Stork *Ciconia ciconia*	Least Concern	Increasing
Black-crowned Night-heron *Nycticorax nycticorax*	Least Concern	Unknown
Eurasian Thick-knee *Burhinus oedicnemus*	Least Concern	Decreasing
Osprey *Pandion haliaetus*	Least Concern	Increasing
Honey Buzzard *Pernis apivorus*	Least Concern	Stable
Egyptian Vulture *Neophron percnopterus*	Endangered	Decreasing
Short-toed Snake Eagle *Circaetus gallicus*	Least Concern	Stable
Lesser Spotted Eagle *Clanga pomarina*	Least Concern	Stable
Booted Eagle *Hieraaetus pennatus*	Least Concern	Stable
Western Marsh-harrier *Circus aeruginosus*	Least Concern	Stable
Pallid Harrier *Circus macrourus*	Near Threatened	Decreasing
Montagu's Harrier *Circus pygargus*	Least Concern	Decreasing
Black Kite *Milvus migrans*	Least Concern	Stable
European Roller *Coracias garrulus*	Least Concern	Decreasing
Lesser Kestrel *Falco naumanni*	Least Concern	Stable
Red-footed Falcon *Falco vespertinus*	Vulnerable	Decreasing
Eleanora's Falcon *Falco eleonorae*	Least Concern	Increasing
Merlin *Falco columbarius*	Least Concern	Stable
Peregrine Falcon *Falco peregrinus*	Least Concern	Increasing
Saker Falcon *Falco cherrug*	Endangered	Decreasing

5 Impact Assessment

5.1 Construction Phase

5.1.1 Impacts on terrestrial environment

Given that the Scheme footprint is adjacent to a designated terrestrial Natura 2000 site, there is a possibility of potential direct impacts during the construction phase, primarily due to the close proximity of works to a protected area. Such impacts may include localised disturbance arising from noise and vibration, dust generation, accidental material deposition, trampling and temporary disruption of habitats along the site boundary.

Take up of land

The Scheme is confined entirely within an established development footprint that is not situated within the boundary of a Natura 2000 site. Accordingly, the proposed works would not entail any direct land take from areas designated under the Natura 2000 network. All construction activities would be spatially contained within the existing site limits, which are already subject to anthropogenic disturbance and do not form part of any protected habitats of conservation interest.

Given this clear physical separation, pathways for direct impacts, such as habitat loss, fragmentation, or degradation of designated features are effectively absent. Furthermore, the containment of works within a pre-developed footprint substantially limits the potential for unintended extension of works beyond the site boundary and into the adjacent protected areas.

In this regard, the absence of direct interaction with Natura 2000 land, combined with the controlled and confined nature of the proposed works, provides a robust basis to conclude that no significant adverse effects are anticipated in relation to land take or indirect encroachment on designated ecological features.

Air and waterborne dust

Excavation and construction activities have the potential to generate indirect environmental effects, most notably through the production and dispersal of fine particulate matter. In the absence of appropriate controls, such particulates may extend beyond the site boundary via wind action or surface runoff. Airborne dust can settle on adjacent vegetation, impairing leaf function by obstructing stomatal activity and reducing photosynthetic efficiency. While such effects may influence plant health and, in some cases, alter local vegetation structure depending on species sensitivity, they are typically short-term and reversible where exposure is limited in duration.

The nearest terrestrial Natura 2000 is located approximately 50 m away from the Scheme; however, the prevailing north-westerly wind regime indicates that dominant wind flow is oriented away from the protected area. This significantly reduces the

likelihood of sustained or concentrated dust deposition within the designated site. Additionally, the nearest Annex I habitat is located about 200m away. Therefore, any wind-borne particulates that end up in the Natura 2000 site are expected to be limited in extent and unlikely to result in measurable ecological effects. The impact is thus classified as not significant.

A secondary pathway of impact relates to the deposition of particulates on exposed surfaces and their subsequent mobilisation via rainfall runoff. This may lead to the transport of fine sediments into adjacent areas, including the Wied il-Luq watercourse at il-Buskett woodland, even though it is located more than 1km away from the Scheme site. Elevated sediment loads can locally alter substrate characteristics, with potential implications for low-lying vegetation and early successional species by inhibiting germination or favouring more disturbance-tolerant taxa. Such potentially significant adverse effects would be highly dependent on the scale and duration of sediment input and are generally localised in nature.

These potential impacts are well understood and can be effectively managed through the implementation of standard construction-phase mitigation measures. The use of perimeter hoarding, regular damping down of exposed surfaces and stockpiles, containment of surface-run off from the site and wheel-washing facilities to prevent the tracking of fine material are established practices that substantially reduce both airborne and waterborne particulate dispersion.

While the generation and movement of particulate matter represents a plausible impact pathway, the combination of prevailing environmental conditions and the application of mitigation measures ensures that any effects will be minor, temporary, and spatially restricted, with no significant implications for the integrity of nearby Natura 2000 sites.

Noise and vibration impacts

Construction activities, particularly during excavation and groundworks, will result in a temporary increase in ambient noise and vibration levels within the immediate vicinity of the Scheme. Elevated noise can act as a disturbance stimulus to fauna, potentially eliciting short-term behavioural responses such as avoidance or displacement, especially during periods that would otherwise be characterised by low background noise.

Mobile faunal species, including bats and other terrestrial vertebrates associated with the nearby Natura 2000 site, may utilise the wider landscape beyond the designated boundary for foraging and commuting. As such, there is potential for these species to be exposed to construction-related disturbance within and around the Scheme footprint. However, such species are typically adapted to a degree of environmental variability and are capable of temporarily relocating to alternative foraging areas within their range.

Importantly, the anticipated noise impacts are inherently temporary, intermittent, and restricted to the construction phase. Works are not expected to occur during

night-time hours, thereby avoiding disturbance during periods of peak activity for nocturnal species such as bats. Furthermore, the Scheme is situated within an already modified environment where baseline noise levels are influenced by existing anthropogenic activity, reducing the relative magnitude of change introduced by construction.

Given the availability of suitable alternative areas within the wider Natura 2000 site and surrounding landscape, any displacement effects are expected to be localised and reversible, with no long-term implications for population viability or ecological function. On this basis, and considering the short-term nature of the works, noise and vibration impacts are assessed as minor adverse and not significant in terms of the integrity of the Natura 2000 site.

General conclusion

As outlined in the preceding sections of this assessment, the land immediately adjoining the Scheme footprint, despite falling within the wider Natura 2000 designation, is not characterised by Annex I habitat types. It also does not support habitats of high conservation sensitivity. Instead, this interface area is classified as agricultural land of comparatively low ecological value, typically subject to ongoing anthropogenic disturbance and routine management.

The nearest Annex I habitat is located at an approximate distance of 200 m from the Scheme footprint and comprises Habitat 9540. This habitat type is recognised as one of the most widespread and structurally stable ecological communities within the Natura 2000 site, exhibiting a relatively high degree of resilience to indirect and low-intensity disturbances. The spatial separation between the works and this habitat, combined with its inherent ecological robustness, further reduces the likelihood of any significant indirect effects arising from construction activities.

In light of this, any construction-related impacts are expected to be spatially restricted, temporary in nature, and of low magnitude, primarily affecting already modified land. The absence of Annex I habitats in the immediate vicinity, together with the distance and resilience of the nearest habitat, supports the conclusion that the integrity of the Natura 2000 site will not be adversely affected. Accordingly, while minor and short-term effects at the site boundary cannot be entirely ruled out, these are not considered to be of significant ecological concern, particularly where standard good-practice mitigation measures are implemented.

5.1.2 Impacts on avifauna

Temporary reduction of habitat in the AoI

The construction of the Scheme site will be a source of noise, vibration, dust and direct disturbance during the construction phase. These factors are expected to negatively affect the avian assemblages in AoI-1, while some aspects of disturbance will reach into AoI-2.

The habitats disturbed during the construction phase could potentially result in the reduction of breeding success of up to 14 bird species within the AoI (listed in Table 3) due to habitat loss, degradation, or disturbance. The roads leading to the construction site will experience higher traffic volume of heavy machinery, creating light and noise pollution, dust, vibration and direct disturbance. Material from demolition, excavation and construction will need to be stored at least temporarily on site, increasing the area of disturbance. Material from demolition of the derelict building and from excavation will have to be transported and stored elsewhere, potentially creating additional disturbance and habitat destruction elsewhere, possibly even outside the AoI.

Breeding territories and nest sites of the Greater Short-toed Lark, Zitting Cisticola, Sardinian Warbler, Blue Rock-thrush, Spanish Sparrow, and Tree Sparrow will be disturbed or lost during the construction phase as it is inevitable that works are carried out during their breeding seasons (February – August). The disturbance can potentially lead to the complete temporary displacement, and consecutive reduction in breeding success up to loss of nest sites leading to reproductive failure of the breeding pairs of all species in the footprint of the proposed development and its direct vicinity. Additionally, foraging areas of the above listed breeding species are expected to be reduced temporarily during the construction phase and additional broods in the surroundings of the proposed development may fail if works are carried out during the breeding season (February – August).

Breeding populations of Feral Pigeon are also expected to be disturbed. This may lead to their breeding failure, or their displacement to other sites, which could have negative consequences on native wild breeding birds.

Temporary habitat loss and disturbance is expected to result in the reduction of foraging, resting and roosting areas for many other bird species that are breeding, wintering, or stopping over in the AoI. As the construction phase is expected to span more than one year, works will impact various migratory bird species which currently make use of SAC/SPA MT0000018 of Buskett Woodland and the surrounding habitats to rest and forage during migration stopover in both spring and autumn, and while wintering in the Maltese Islands. In particular, noise pollution from demolition, excavation, and construction works carried out during autumn may displace roosting birds of prey, particularly in the months of September and October after 4pm. The displacement of species of conservation concern from roosting areas in Buskett may result in them being more easily targeted by poachers outside the protected area. This can have a significant impact on species with unfavourable conservation trends and small regional population sizes, many of which have substantial European funds directed to their conservation.

Overall, the direct impacts during the construction phase of the development will act temporarily and mainly on a localised scale in the AoI and, but also along the access roads. The works can be expected to impact local breeders of common species, as well as individuals of non-breeding species stopping over in the AoI significantly, some of which are of conservation concern, at least short-term.

Light pollution during night-time construction (AoI)

Artificial light at night (ALAN) is well documented to negatively affect birds in various stages of their annual cycle due to direct disturbance, negative impacts to their circadian rhythm, and impacts on prey species.

Adults from all three procellariiform species nesting on the Maltese Islands actively avoid approaching breeding areas under high levels of illumination and may desert colonies as a result of exposure to ALAN. That seabirds are negatively affected even by temporary light pollution in front of their colonies has been recently proven for Yelkouan Shearwaters in Malta[15]. Furthermore, ALAN causes the stranding and grounding of seabird fledglings on their first flight out of the colony. Unless grounded individuals are found and released, they are likely to die[16]. In general, light pollution from ALAN is additive and light trespass that creates skyglow adds to light pollution in areas in the AoI (and potentially even beyond) that are otherwise dark. Furthermore, birds attracted to ALAN may be injured or killed by collisions with manmade structures.

While the site of the proposed development is not situated within the immediate line of sight of any seabird nest sites, breeding colonies of Scopoli's and Yelkouan Shearwaters are known to occur within 1km of AoI-1. Excessive skyglow from inappropriate and excessive lighting and night could negatively impact the breeding success of these two species, the breeding season of which span most of the year (February - October). Moreover, seabird fledglings are known to strand at light polluted sites across the Maltese Islands[17]. The most sensitive periods for fledging seabirds are during their respective fledging periods: June/July for Yelkouan Shearwaters and September/October for Scopoli's Shearwaters. Mediterranean Storm-petrels have an asynchronous breeding season, with fledglings expected between June and October. With appropriate mitigation, the temporary negative impact of ALAN during construction will not likely impact significant numbers of breeding seabird species.

ALAN is known to have negative consequences on nocturnally migrating birds. Bright lights are known to attract, disorient, trap and ground birds in active migration during the night[18]. The lit-up construction site during night-time construction is highly likely to have the above-mentioned impacts on nocturnally migrating birds passing within the AoI during both spring and autumn. This is especially problematic for

[15] *Austad, M., Oppel, S., Crymble, J., Greetham, H., Sahin, D., Lago, P. & Metzger, B. (2023). The effects of temporally distinct light pollution from ships on nocturnal colony attendance in a threatened seabird. J Ornithol 164, 527–536. https://doi.org/10.1007/s10336-023-02045-z*

[16] *Rodríguez, A., Holmes, N. D., Ryan, P. G., Wilson, K. J., Faulquier, L., Murillo, Y., Raine, A. F., Penniman, J. F., Neves, V., Rodríguez, B., Negro, J. J., Chiaradia, A., Dann, P., Anderson, T., Metzger, B., Shirai, M., Deppe, L., Wheeler, J., Hodum, P., … Corre, M. Le. (2017). Seabird mortality induced by land-based artificial lights. Conservation Biology, 31(5), 986–1001. https://doi.org/10.1111/cobi.12900*

[17] *Crymble et al. (2020): Identifying light-induced grounding hotspots for Maltese seabirds. Il-Merill 34, 23-43.*

[18] *Evans Ogden, L. J. (2002). Summary report on the bird friendly building program: Effect of light reduction on collision of migratory birds. In Fatal Light Awareness Program (Vol. 1).*

species which may be making use of protected sites and woodland habitats within the AoI. However, due to the temporary nature it is unlikely that the ALAN from the construction site will impact threshold numbers of significance of birds of any species during their nocturnal migration, especially if mitigation measures are implemented.

Pollution during the construction phase (including demolition)

The demolition of the derelict Buskett Forest guesthouse is expected to create substantial amounts of dust. Likewise, the construction of the proposed development will produce large amounts of waste material from the excavation, packaging material (plastic sheets, styrofoam, etc.), the netting of the scaffolding etc. This waste material has the potential to spill as harmful dust, micro- and macroplastics into the natural environment, including protected Natura 2000 sites in the AoI and potentially beyond, including the marine environment.

Such unintended spills can have significant detrimental effects on sensitive receptors, including avifauna, if left unmitigated. Once released into the environment, plastic fragments persist, with their physical breakdown into smaller fragments actually facilitating their take-up by living creatures. They are also known to absorb toxins and harmful chemicals such as persistent organic pollutants (POPs), increasing further their potential negative impact on sensitive receptors when ingested and when accumulating along the food chain. Bioaccumulation and biomagnification are particularly problematic phenomena for long-lived organisms on top of foodwebs.

5.2 Operational Phase

5.2.1 Impacts on terrestrial environment

Since the site is currently abandoned, the introduction of new operational activities associated with the retirement home may generate some ecological impact in the area:

a) increasing vehicular traffic and associated noise & air pollution impacts
b) increased exterior lighting in currently dark areas
c) increased risk of contamination of surface water runoff
d) beneficial impact through the removal of invasive alien species and the introduction of native and compatible landscaping species

The operational phase of the proposed retirement home, located approximately 50 m from a designated Natura 2000 site, is not expected to give rise to significant adverse ecological effects, particularly when considered in the context of the site's baseline condition and the nature of the proposed land use.

The development is confined to a previously dilapidated and disturbed footprint of low intrinsic ecological value. As such, the Scheme does not result in the loss or fragmentation of any habitats that contribute to the qualifying features of the nearby Natura 2000 site. Furthermore, the separation distance, albeit relatively

limited, provides a degree of buffering, ensuring that direct interactions with designated habitats are avoided.

Traffic impacts

The operational impact from a retirement home constitutes a low-intensity residential use, characterised by relatively low traffic generation, minimal noise output, and predictable patterns of activity. This reduces the potential impact from dust resuspension, break wear and tail-pipe exhaust emissions. Consequently, the effects of increased vehicular activity in the area on mobile fauna, including species that may utilise areas adjacent to the Natura 2000 site, are expected to be negligible. Such species are typically capable of adapting to low levels of anthropogenic activity or utilising alternative areas within the wider landscape.

Exterior lighting

Artificial lighting represents a potential pathway for indirect ecological effects. The proposed development will introduce lighting in an area that is currently in darkness and likely frequented by nocturnal species. Species such as bats are misconstrued to be attracted to lit areas, as these attract their prey species and present easier targets for predation.

Nevertheless, given the modest scale of the development and the likelihood of standard lighting design measures (e.g. directional, low-spill luminaires), light intrusion into the Natura 2000 site is expected to be minimal and insufficient to alter established behavioural patterns. Consequently, the impact is considered as not significant.

Surface run-off

With respect to hydrological pathways, the operational phase is unlikely to introduce significant pollutant loads or sediment transport. On the contrary, redevelopment of a degraded site incorporates formalised drainage systems, which serve to regulate runoff and improve water quality relative to baseline conditions. As such, any potential effects on adjacent habitats or watercourses are expected to be not significant.

Landscaping

In addition, the introduction of soft landscaping and managed green spaces within the Scheme may provide minor ecological enhancement at the local scale, albeit not of direct relevance to the qualifying interests of the Natura 2000 site. These areas may serve to improve the ecological connectivity between the protected SAC/SPA site and the neighbouring semi-rural and agricultural areas. The removal of invasive alien species also serves to enhance the ecological dynamics of the Natura 2000 site and prevent further propagation within its confinements.

General conclusion

When taking into account the separation distance, the low ecological value of the development footprint, and the non-intensive nature of the operational use, there are no plausible pathways through which the Scheme would adversely affect the integrity of the Natura 2000 site. Any residual effects are expected to be negligible, localised, and not significant in ecological terms.

5.2.2 Impacts on avifauna

Permanent loss of habitat

Overall, the proposed development will potentially result in the permanent loss of habitat for up to 14 breeding bird species within the footprint of the proposed development and increased human disturbance around the site compared to the present situation. Of these, the Sardinian Warbler, Spotted Flycatcher, Blue Rock-thrush, Spanish Sparrow and Eurasian Tree Sparrow are not particularly sensitive to human disturbance. The Sardinian Warbler readily nests in shrubs and trees in gardens, parks and alike, the Spotted Flycatcher in mature trees in vegetated areas as well as artificial structures, while the other three make use of human-made structures as nest sites (i.e. build nests in ventilator shafts or other crevices in stonework). The Feral Pigeon, considered an ecological pest, would also readily nest on the built structure in the absence of effective deterrents which can be species-specific, thus allowing other wild breeding birds to colonise.

The two shearwater species and Yellow-legged Gull breed in the nearby cliff habitats and are unlikely to be impacted directly. While Common Kestrels in the Maltese Islands also generally breed in the cliffs, both breeding adults and fledged young may use the site footprint for foraging. Therefore, while the extent of permanent habitat loss is expected to be low if undisturbed potential nesting and foraging sites are integrated in the development in the form of landscaping and nesting spaces, some impacts may still be expected on species that require natural habitats for breeding and foraging, such as Greater Short-toed Lark, Zitting Cisticola, Cetti's Warbler, and Corn Bunting.

Bird species which are stopping over during migration or wintering in the area will experience habitat degradation within the footprint of the proposed development and its close vicinity in the AoI due to increased human disturbance. While a large proportion of the proposed footprint is currently built up, the low level of human disturbance due to the site's current derelict status means that both artificial land cover and the adjacent natural environment are hospitable for passage or wintering species, some of which are sensitive receptors of conservation concern. Nevertheless, as with breeding birds above, the extent of disturbance of the intended project use is expected to be low.

Light and noise pollution

Artificial light at night (ALAN) is well documented to negatively affect birds in various stages of their annual cycle due to direct disturbance, negative impacts to their circadian rhythm, and impacts on prey species.

Adults from all three procellariiform species nesting on the Maltese Islands actively avoid approaching breeding areas under high levels of illumination and may desert colonies as a result of exposure to ALAN. That seabirds are negatively affected even by temporary light pollution in front of their colonies has been recently proven for Yelkouan Shearwaters in Malta. Furthermore, ALAN causes the stranding and grounding of seabird fledglings on their first flight out of the colony. Unless grounded individuals are found and released, they are likely to die. In general, light pollution from ALAN is additive and light trespass that creates skyglow adds to light pollution in areas in the AoI (and potentially even beyond) that are otherwise dark. Furthermore, birds attracted to ALAN may be injured or killed by collisions with manmade structures.

While the site of the proposed development is not situated within the immediate line of sight of any seabird nest sites, breeding colonies of Scopoli's and Yelkouan Shearwaters are known to occur within 1km of AoI-1. Excessive skyglow from inappropriate and excessive lighting and night could negatively impact the breeding success of these two species, the breeding season of which span most of the year (February - October). Moreover, seabird fledglings are known to strand at light polluted sites across the Maltese Islands. The most sensitive periods for fledging seabirds are during their respective fledging periods: June/July for Yelkouan Shearwaters and September/October for Scopoli's Shearwaters. Mediterranean Storm-petrels have an asynchronous breeding season, with fledglings expected between June and October. With appropriate design and mitigation, negative impacts from the lighting regime of the development during operation on breeding seabird species could be insignificant.

ALAN is known to have negative consequences on nocturnally migrating birds. Bright lights are known to attract, disorient, trap and ground birds in active migration during the night. Excessive ALAN from the proposed elderly home during operation is likely to have the above-mentioned impacts on nocturnally migrating birds passing within the AoI during both spring and autumn. This is especially problematic for species which may be making use of protected sites and woodland habitats within the AoI. With appropriate design and mitigation, it is unlikely that the ALAN from the proposed development will impact threshold numbers of significance of birds of any species during their nocturnal migration.

Frequent emergency ambulance trips to the site, including at night, could potentially cause disturbance through light and noise pollution should ambulances drive through the AoI, Buskett Woodland in particular, with sirens.

The proposed use as an elderly home is one of relatively minimal human disturbance, with low footfall and no excessive noise or light pollution expected. However, the impact on the surrounding environment may increase if the site were to change use in the future, particularly if it becomes residential or commercial.

Bird-window collisions

The collision of birds with windows is one of the most common direct causes of human-related bird deaths worldwide. Studies show that window strikes are more common in association with large glass surfaces on buildings located in less developed areas, such as in proximity to forested or vegetated patches. This is due to the illusion of reflected natural environments in glass.

The proposed development incorporates large areas of glass which are considered to pose a high risk for bird collisions. This is particularly concerning given the development's proximity to important bird habitats, with high densities of breeding, wintering, and passage birds regularly making use of the area, including species of conservation concern. Bird-window collisions may also pose a risk to the Barn Owl reintroduction programme.

Cumulative effects of overdevelopment and climate change

Malta is currently by far the most densely populated and built-up country in Europe, putting severe direct stress on the country's natural habitats and resources, as well as on its infrastructure, such as landfills, waste management, and wastewater treatment plants, resulting in failures of mitigation measures against spills into the natural environment. These pressures act on open, undisturbed terrestrial areas, groundwater supply, but also unpolluted and undisturbed marine habitats. Malta is also characterized by an ongoing construction boom, including large-scale and high-rising development projects, still using widely unsustainable designs, materials and building practices, cumulatively contributing to the negative impacts of habitat loss and climate change.

The effects of climate change, such as sea level rise, increasing average ambient temperatures and marine heat waves, increasing drought stress, etc. are further exacerbating the pressures on the environment, with indirect, permanent, and adverse long-term negative effects on local avian biodiversity. Increased storm frequencies and amplitudes caused by climate change are threatening avian biodiversity on land and at sea. Furthermore, sea level rise paired with an increase in severe storms is expected to increase the erosion and destruction of Maltese coastlines and coastal habitats. It can also lead to potential destruction of coastal developments and flooding of underground car parks next to the sea. This in turn will further increase the risks of debris and problematic material ending up in the marine environment, where it will be detrimental to sensitive avian receptors. Apart from the direct contributions that increasing urbanisation has on climate change impacts, these developments also work counter to adaptation and mitigation measures necessary.

While the proposed development is on the site of an existing construction, its reconstruction would remove the possibility that this parcel of land is freed up and renaturalised, committing it to forming part of the urban fabric of the island with energy and water demands, as well as increased human activities.

5.3 Decommissioning Phase

It is presumed that the decommissioning phase will result in impacts similar to those inflicted during the construction phase as a result of disturbance, noise and light pollution.

5.4 Summary of Impacts

The following table summarises the impacts on ecological aspects expected to affect the integrity of the nearby protected sites and species. The impacts were identified for each project development phase.

Impact Type and Source			Impact Receptor		Effect and Scale							Probability of impact occurring (inevitable/ likely/ unlikely/ remote/ uncertain)	Overall impact significance	Proposed mitigation measures	Residual impact significance	Other requirements
Impact type	Specific intervention leading to impact	Project phase	Receptor type	Sensitivity & resilience towards impact	Direct/ indirect/ cumulative	Beneficial/ adverse	Severity	Physical/ geographic extent of impact	Short/ medium/ long term	Temporary/ permanent	Reversible/ irreversible					
Take up of protected areas	Excavation, backfilling, building construction	Construction	Natura 2000 site boundary and its elements	High	Direct	Adverse	High	Local	Short-term	Temporary	Irreversible	Remote	Not significant	No take up of protected areas is envisaged. Works shall be confined to the site boundary.	Not significant	N/A
Air borne dust generation and dispersion from the construction site	Excavation, backfilling, building construction	Construction	Protected Terrestrial Flora and Fauna in adjacent Natura 2000 site	Moderate	Direct	Adverse	Moderate	Local	Short-term	Temporary	Reversible	Unlikely	Not significant	Dust suppression techniques, regular clearing of affected areas, construction monitoring	Not significant	N/A
Contaminated rainwater runoff from the site	Excavation, backfilling, building construction	Construction	Protected Terrestrial flora & fauna in adjacent Annex I habitats	Moderate	Direct	Adverse	Moderate	Catchment area	Short-term	Temporary	Reversible	Unlikely	Not significant	Runoff-containment measures, wheel washing facilities available at site entrance/ exits	Not significant	N/A
Increased Vibration & Noise generation	Excavation, backfilling, building construction	Construction	Protected habitats and species within the adjacent Natura 2000 site	High	Direct	Adverse	Moderate	Local and near vicinity	Short-term	Temporary	Reversible	Likely	Not significant	Works limited to daylight hours. Use of lighting for safety reasons limited to downward facing, shielded and low-frequency lights. Equipment well maintained to avoid excessive noise. Reduce duration to the extent possible	Not significant	N/A

Impact Type and Source			Impact Receptor		Effect and Scale							Probability of impact occurring (inevitable/ likely/ unlikely/ remote/ uncertain)	Overall impact significance	Proposed mitigation measures	Residual impact significance	Other requirements
Impact type	Specific intervention leading to impact	Project phase	Receptor type	Sensitivity & resilience towards impact	Direct/ indirect/ cumulative	Beneficial/ adverse	Severity	Physical/ geographic extent of impact	Short/ medium/ long term	Temporary/ permanent	Reversible/ irreversible					
Disturbance to terrestrial avian breeding species, including loss of nesting/foraging habitat	Demolition, construction, and transportation of materials in a wider area	Construction, Decommissioning	Terrestrial avian breeding species	High & Low	Direct	Adverse	Low	Local in footprint and AoI	Short-term	Temporary	Reversible	Inevitable	Significant	Avoid reproductive season for demolition, install physical barriers to reduce extent of disturbance, keep duration of works short and footprint low.	Non-significant	The severity and significance of the impact may increase if the use of the site were to change to residential/commercial.
Disturbance to migratory species on stopover in SAC/SPA MT0000018	Demolition, construction, activities creating noise pollution	Construction, Decommissioning	Diurnal migratory species of conservation concern	High & Low	Direct	Adverse	Medium	Local in footprint and AoI	Short-term	Temporary	Reversible	Inevitable	Significant	Avoid autumn passage season (September and October), keep duration of works short and footprint and noise pollution low.	Non-significant	The severity and significance of the impact may increase if the use of the site were to change to residential/commercial.
Slight increase in air pollution & noise generation	Operation of the facility	Operations	Species and habitats in the adjacent terrestrial Natura 2000 site	High	Direct	Adverse	Moderate	Local and near vicinity	Long-term	Permanent	Irreversible	Likely	Not significant	Minimising noise activities from the site operations particularly during visiting hours. Ensure equipment is well-maintained.	Not significant	N/A
Surface run-off	Operation of the facility	Operations	Species and habitats in the adjacent terrestrial Natura 2000 site	High	Indirect	Adverse	Moderate	Local and near vicinity	Short-term	Temporary	Irreversible	Unlikely	Not significant	Containment of surface run-off from the site to reservoirs. Maintenance of sewage pipes when required. Bunding of chemicals and oils used at the facility.	Not significant	N/A

Impact Type and Source			Impact Receptor		Effect and Scale							Probability of impact occurring (inevitable/ likely/ unlikely/ remote/ uncertain)	Overall impact significance	Proposed mitigation measures	Residual impact significance	Other requirements
Impact type	Specific intervention leading to impact	Project phase	Receptor type	Sensitivity & resilience towards impact	Direct/ indirect/ cumulative	Beneficial/ adverse	Severity	Physical/ geographic extent of impact	Short/ medium/ long term	Temporary/ permanent	Reversible/ irreversible					
Exterior lighting	Operation of the facility	Operations	Species and habitats in the adjacent terrestrial Natura 2000 site	High	Direct	Adverse	Moderate	Local and near vicinity	Long-term	Permanent	Irreversible	Likely	Not significant	Shielded and downward pointing light fixtures equipped with low frequency LED bulbs (warm-white). Exterior areas should not be over illuminated or activated only be motion sensors.	Not significant	N/A
Landscaping & removal of alien species	Operation of the facility	Operations	Species and habitats in the adjacent terrestrial Natura 2000 site	Medium	Direct	Beneficial	Moderate	Localised	Long-term	Permanent	Reversible	Likely	Not significant	Ensure that all invasive alien species have been removed successfully from the site footprint. Maintain and upkeep the proposed landscaping scheme.	Not significant	N/A
Permanent loss of nesting/foraging habitat to terrestrial avian breeding species	Operation of proposed development	Operation	Terrestrial avian breeding species	High & Low	Direct	Adverse	Low	Local in footprint and AoI	Long-term	Permanent	Reversible	Inevitable	Significant	Introduce appropriate landscaping and architectural features that provide nesting/foraging/roosting habitat, keep disturbance low.	Non-significant	The severity and significance of the impact may increase if the use of the site were to change to residential/commercial.

Impact Type and Source			Impact Receptor		Effect and Scale							Probability of impact occurring (inevitable/ likely/ unlikely/ remote/ uncertain)	Overall impact significance	Proposed mitigation measures	Residual impact significance	Other requirements
Impact type	Specific intervention leading to impact	Project phase	Receptor type	Sensitivity & resilience towards impact	Direct/ indirect/ cumulative	Beneficial/ adverse	Severity	Physical/ geographic extent of impact	Short/ medium/ long term	Temporary/ permanent	Reversible/ irreversible					
Loss of roosting and foraging habitat for avian assemblages	Direct human disturbance, noise and light pollution, habitat degradation	Construction, operation, decommissioning	All avian species making use of the AoI, including wintering and passage populations of conservation concern	High & Moderate	Direct	Adverse	Moderate to High	Local in footprint and AoI	Long-term	Permanent	Reversible	Inevitable	Significant	Install containment barriers during construction/decommissioning, reduce nighttime activities, avoid activities that produce excessive noise and light pollution, follow guidelines on avoidance of light pollution	Non-significant	The severity and significance of the impact may increase if the use of the site were to change to residential/commercial.
Grounding of seabird fledglings and their associated induced mortality caused by ALAN	ALAN	Construction, operation, decommissioning	Breeding procellariiform seabirds	High & Low	Direct	Adverse	Low	Broad	Long-term	Permanent	Reversible	Moderate	Significant	Limit night-time activities and avoid sensitive periods when ALAN required, reduce light pollution in accordance with published guidelines	Non-significant	The severity and significance of the impact may increase if the use of the site were to change to residential/commercial.
ALAN negatively impacting nocturnally migrating birds	ALAN	Construction, operation, decommissioning	Nocturnally migrating birds	Moderate & Moderate	Direct	Adverse	Low	Broad	Long-term	Permanent	Reversible	High	Significant	Limit night-time activities and avoid sensitive periods when ALAN required, reduce light pollution in accordance with published guidelines	Non-significant	The severity and significance of the impact may increase if the use of the site were to change to residential/commercial.

Impact Type and Source			Impact Receptor		Effect and Scale							Probability of impact occurring (inevitable/ likely/ unlikely/ remote/ uncertain)	Overall impact significance	Proposed mitigation measures	Residual impact significance	Other requirements
Impact type	Specific intervention leading to impact	Project phase	Receptor type	Sensitivity & resilience towards impact	Direct/ indirect/ cumulative	Beneficial/ adverse	Severity	Physical/ geographic extent of impact	Short/ medium/ long term	Temporary/ permanent	Reversible/ irreversible					
Bird-window collisions resulting in mortality	Large glass surfaces on the proposed building	Operation	Avian species	Moderate & Moderate	Direct	Adverse	Medium	Local in footprint and AoI	Long-term	Permanent	Reversible	Inevitable	Significant	Reduce glass surface area, introduce regular patterns to the outside surface of glass.	Non-significant	N/A
Cumulative effects impacting biodiversity, including habitat degradation and climate change	Commitment of land area to urban development	Operation	Biotic and abiotic environment	Moderate & Low	Indirect/ Cumulative	Adverse	Moderate	Very broad	Long-term	Permanent	Reversible with difficulty	Inevitable	Significant	Take holistic approach to planning, reduce footprint, floor area and induced vehicular demand, shift to climate neutral or positive design, construction and operation, implement adequate landscaping	Non-significant	Consider alternative solutions for area, increase unsealed surface area in the Maltese Islands. The severity and significance of the impact may increase if the use of the site were to change to residential/commercial.

6 Mitigation Measures

6.1 Construction Phase

6.1.1 Mitigation for terrestrial environment

The Legal Notice 340 of 2022 - Construction Management Site Regulations, 2022 should be enforced to mitigate construction related impacts and to ensure that environmental degradation is kept as low as possible. These regulations provide details on the containment and transportation measures for loose construction material on site and in transit, and other measures to prevent carrying out and/or depositing particulate matter.

Several measures are suggested to prevent the spread of any impacts into the surrounding ecologically significant areas and to minimise impacts of spillover and indirect effects on protected species inhabiting the nearby protected areas which may frequent the site and its surroundings.

Mitigation measures related to protected flora and fauna species present either directly within the scheme site or known to inhabit the surrounding areas are highlighted in the following text:

- Site hording shall be set up around the perimeter of the site to mitigate against dispersion of particulate matter
- Wastewater generated during the construction phase should be directed towards spill trays and/or other collection methods as deemed necessary by the authorities, ensuring all contaminated waters are collected to minimise risks of surface run-off from the site.
- Bunding is required for tanks and silos for fuels or liquid chemicals used on site
- Trucks delivering materials to the site should be required to make use of a designated wheel washing area to prevent the spread of dust and mud outside of the site.
- Works should not be carried out during the night-time due to the recorded presence of nocturnal species in the area
- If night-time lighting is required, downward facing luminaires should be installed within the facility to reduce light pollution.
- Although rodent control is encouraged when setting up a construction site, care must be taken not to negatively influence any resident fauna in the immediate surroundings
- The building structure should include a sub-structure waterproofing system to prevent leaching of contaminants to groundwater and/or surrounding natural areas.

6.1.2 Mitigation for avifauna

To mitigate the impact of the proposed development on local breeding birds during the construction phase, it is recommended that the demolition takes place outside

the breeding seasons of the relevant terrestrial avian receptors (February - August). This would ensure that no active nests will be destroyed within the footprint of the proposed development. However, more critically, demolition and construction activities that cause the highest disturbance should avoid the autumn passage period (September, October) to reduce the probability of displacing diurnally migrating species of conservation concern seeking to roost in Buskett Woodland (SAC/SPA MT0000018).

To reduce the impacts of noise, vibration, dust and direct disturbance, it is highly recommended that physical barriers are erected around the footprint of the proposed development to mitigate its impact on sensitive avian receptors in the AoI. Such a physical barrier is expected to also prevent some of the ALAN spilling into the AoI (although this would not mitigate against sky glow) and can potentially keep debris and building material from being blown into the environment. All material from demolition, excavation and construction would need to be processed, transported, stored and disposed of or recycled according to the highest standards in order to mitigate any potential negative impact of such material on the avian receptors. The construction period is to be kept as short as possible in order to reduce the disturbance of the avian community in the AoI during construction.

Any required lighting during the construction phase would need to follow the Guidelines for the Reduction of Light Pollution in the Maltese Islands (2020) published by ERA/PA, in order to further mitigate potential impacts of ALAN on sensitive avian receptors in the AoI. The extent of lighting should be minimal, not be directed towards the sea (although the sea is not within direct line of sight), upwards towards the sky, or onto adjacent peripheral habitat. Lighting should avoid the use of bright “cold” white lights in favour of warm light (< 3000 K).

In order to reduce the extent of lighting necessary and the negative impact of ALAN on sensitive avian receptors, it is strongly recommended that night time construction is avoided. This is especially important if the construction phase coincides with the fledging periods of procellariiform seabirds nesting in the Maltese islands and spring and autumn passage of migratory birds, which together span most of the year. In the event that bright lights at night must be used, it is recommended to avoid the most sensitive periods for seabirds, which would experience the most significant impact from such disturbance. In addition, staff and management should be appropriately informed on procedures for the rescue of grounded birds.

6.2 Operational Phase

6.2.1 Mitigation for terrestrial environment

The following are mitigation measures proposed to safeguard the terrestrial environment during the operational phase:

- If exterior lighting is required, shielded and downward pointing light fixtures equipped with low frequency LED bulbs (warm-white) should be installed.

- Exterior areas should not be over illuminated or activated only be motion sensors.
- All rainwater generated during the operational phase is to be directed to a reservoir and used for landscaping purposes.
- Wastewater generated from operations should be directed to sewer and maintained in good order.
- Any fuels and/or chemicals used at the facility should be stored in bunded areas on adequately sized spill trays.
- Minimising noise activities from the site operations particularly during visiting hours. Operator is to ensure that all onsite equipment is well-maintained.
- All invasive alien species present on site shall be removed. The trees and vegetation planted in the landscaping areas should be maintained in a good state of health.

6.2.2 Mitigation for avifauna

To mitigate the permanent loss of habitat for up to five terrestrial breeding bird species within the footprint of the proposed development, it is highly recommended to implement landscaping measures (i.e. appropriate flora, ideally indigenous species) and architectural features that provide suitable nest sites (potentially also nest boxes if ventilator shafts are sealed), foraging areas and roosting habitat for all species. Such landscaping measures can also mitigate the impact on sensitive receptors that are not breeding in the area, but stopping over during migration or wintering.

Any lighting of the proposed development would need to strictly follow the GUIDELINES FOR THE REDUCTION OF LIGHT POLLUTION IN THE MALTESE ISLANDS (2020) published by ERA/PA, in order to mitigate potential impacts of ALAN on sensitive avian receptors in the AoI, which includes relevant Natura 2000 sites within line of sight of the proposed development. In addition, staff and management should be appropriately informed on procedures for the rescue of grounded birds.

To mitigate against increased mortality of avian receptor species due to bird-window collision, it is recommended to reduce contiguous glass surface area where it is unnecessary. Any remaining large panes of glass would need to have regular markings on the outer side of the glass to dissuade birds from flying into them. Fixed markings, such as dots or stripes, need to be no more than 5 cm apart, while hanging treatments can be 8 - 10 cm apart due to the additional effect of movement and reflection[19].

To reduce the disturbance from increased human activity in the direct AoI, care must be taken to avoid activities creating noise and light pollution and minimise disturbance associated with vehicular traffic by incentivising alternatives to commuting by private vehicles, including the consideration of organised transport

[19] *Colbaugh, J. (2023). A Meta-Analysis of Bird-Window Collision Solutions (Master's thesis, Auburn University).*
https://www.stopbirdcollisions.org/solutions-glass/

(e.g. minivan) for staff. This is not a significant concern for the proposed site use, but may become significant should the site use change. It is also important that the site excludes domestic animals, such as cats and dogs, from roaming freely in order to avoid their predatory impact on avian receptor species, such as breeding birds and migratory birds resting within the AoI on stopover.

To mitigate the impact of the proposed development on the ambient temperature and to reduce the urban heat island effect, it is highly recommended to reduce the overall volume of the project, reduce sealed surface areas exposed to the sun, properly insulate the building and reduce the number of air-conditioning units, and seek alternative building materials that have a lower climate impact. Effective landscaping with green open areas, green roofs and green walls as well as large evergreen trees are proposed as potentially suitable measures.

7 Residual Impacts and Monitoring Programme

7.1 Residual impacts

7.1.1 Terrestrial residual impacts

Residual impacts are those impacts which are bound to remain after implementing the proposed mitigation measures. Despite the comprehensive adoption of the recommended mitigation measures, a number of unavoidable not significant residual impacts are expected to arise:

- Night-time light in a previously dark semi-rural area, which may be frequented by protected species
- Anthropogenic noise and atmospheric emissions from vehicular trips to the site and/or on-site activities
- Resprouting of invasive alien species on site
- Accidental spillages of waste and/or wastewater from onsite operations

7.1.2 Avifauna residual impacts

Non-significant residual impacts are expected with respect to the local terrestrial breeding bird population in the AoI during the construction phase. While these widely temporary impacts are expected to be significant within the footprint of the proposed development and its direct vicinity, it will likely not have significant residual impacts on the overall breeding populations of avian receptors in the AoI, as long as the relevant mitigation measures as outlined above are carefully implemented.

The scale and significance of the permanent residual impact from noise and all other forms of human disturbance, including light pollution, on avian receptors in the AoI during the operational phase will widely depend on how strictly the relevant mitigation measures will be implemented. Various sensitive species of conservation concern are attracted to the adjacent protected areas, and their displacement from the area and increased vulnerability to poaching may contribute to population impacts at a regional (i.e. Mediterranean) level.

Likewise, whether there will be a residual impact of ALAN on seabird fledglings and nocturnally migrating birds, and whether any residual impact will be significant depends on the strict implementation of mitigation measures.

The severity and significance of the impacts listed, as well as the effectiveness of mitigation measures, may increase substantially if the use of the site were to change from an elderly home to privately owned residences, touristic establishments, including holiday rentals, and other commercial activities, all of which increase disturbance and pollution while also decreasing the level of control on mitigation measures.

Residual cumulative impacts from non-sustainable development in the Maltese islands will potentially remain significant on avian receptors in the long term. Such impacts also include those caused by climate change and the urban heat island

effect due to the commitment of land to urban development as opposed to increasing unsealed land area that may contribute to climate resilience and food and water security. As long as developments are not climate neutral and do not make use of truly sustainable designs and materials and procedures, residual cumulative impacts on avian receptors are expected to remain significant. In this case, compensatory measures would need to be considered.

7.2 Monitoring Programme

7.2.1 Terrestrial monitoring programme

Should the Scheme obtain development approval, a monitoring programme should be set up and implemented during the construction phases of development. A construction management plan would need to be prepared by the chosen contractor in order to ascertain that the best practicable environmental options available are followed through.

During the construction phase, periodic monitoring is being recommended to ensure that mitigation measures are in place and working as they should. This would ensure that no unwarranted impacts on the surrounding protected areas arise due to deviations from proposed working practices. Such deviations could have additional impacts over and above those originally predicted. All monitoring data should be presented to the relevant authorities at pre-agreed frequencies.

7.2.2 Avifauna monitoring programme

The avifauna species referenced in this report are regularly monitored by BirdLife Malta in terms of their population dynamics. Should any disturbance be recorded in the nearby populations that are linked to the site operations, these will be communicated to the applicant who may be required to implement further mitigation measures.

8 Alternative Solutions

The following table assesses the ecological impact of different hypothetical alternatives which could be adopted during the implementation of the project.

Table 5: Alternative scenario assessment for the scheme

Alternative type	Possible Alternative Solutions	Describe the relative effects on the conservation of the site/habitat type/species
Zero option	Retaining the existing vacant building	Under the zero option, the site would remain in its current condition, consisting of a vacant building within a semi-rural area. This scenario would avoid construction and operational impacts, including temporary disturbance (e.g. noise, dust, human activity) and longer-term effects associated with increased site use. Terrestrial breeding bird species would be expected to continue breeding in and around the site. Indeed, some of these species are experiencing increasing population trends locally. Paired with an ecology that permits breeding within urban landscapes, these species could be expected to increasingly colonise the site. Passage and wintering species which make use of the AoI, including important protected areas, would be expected to persist in doing so relatively undisturbed. However, the site is currently characterised by poor management and the presence of invasive alien species. In the absence of intervention, these conditions would persist, limiting opportunities for ecological improvement and potentially maintaining a degraded edge environment in proximity to the nearby Natura 2000 SPA and SAC.

ALTERNATIVE TYPE	POSSIBLE ALTERNATIVE SOLUTIONS	DESCRIBE THE RELATIVE EFFECTS ON THE CONSERVATION OF THE SITE/HABITAT TYPE/SPECIES
		With time, the derelict site would continue to deteriorate and debris would pollute the adjacent areas, with negative impacts on nearby floral and faunal assemblages. While the zero option would avoid short-term disturbance, retaining the status quo would likely give rise to some negative impacts in the long term due to continued site degradation and lack of active habitat management. The proposed Scheme involves a slightly reduced footprint, provides an opportunity for site rehabilitation, including the removal of invasive species, embellishment with protected species and improved land management.
Downsizing	Reducing the footprint of the proposed building, housing a smaller old people's home	A downsized development scenario would involve a reduction in the scale and/or footprint of the proposed building, resulting in a smaller area of land take and potentially lower intensity of use. Such a scenario would be expected to lead to some improvements in impact significance during both the construction and operational phases. In particular, a smaller development footprint would reduce the extent of ground disturbance and construction-related emissions (e.g. dust, noise), while a lower intensity of use may decrease operational pressures such as human activity, lighting, and traffic. These reductions would translate into a beneficial effect relative to the proposed Scheme, through a proportional decrease in potential disturbance pathways affecting the nearby Natura 2000 site.

ALTERNATIVE TYPE	POSSIBLE ALTERNATIVE SOLUTIONS	DESCRIBE THE RELATIVE EFFECTS ON THE CONSERVATION OF THE SITE/HABITAT TYPE/SPECIES
		However, it is noted that the current proposal already incorporates a slightly reduced footprint compared to the existing building and includes measures for site rehabilitation, including the management of invasive alien species. As such, while further downsizing would incrementally reduce impacts, it would not materially alter the overall conclusion of the assessment, provided that appropriate mitigation measures are implemented.
Alternative Site	Site selection exercise reports have already been presented by the applicant to identify alternative sites in Malta	A review of potential alternative sites was undertaken within both the urban area and selected locations outside the development zone. Sites identified within development zones represent the largest available parcels in the catchment area considered. The primary constraint relates to their site footprint, as none of the identified sites were of sufficient size to accommodate a modern elderly home in line with applicable standards, including the provision of required bed capacity, ancillary facilities, and open space. In addition, architectural and cultural heritage constraints associated with these sites would further limit or preclude development. Field surveys did not identify any additional suitable sites within the study area. The assessment also considered broader feasibility aspects. However, the rejection of the sites is not driven by financial viability, but by physical and planning constraints, which render these sites incapable of accommodating the proposed use. Additional site options outside the development zone, including the Scheme site in Buskett were also reviewed. The selected site is located within a Category 2 Rural Settlement and is not a greenfield site, as it is already developed and benefits from permits for a comparable, or larger, tourism-related development. The proposal therefore aligns with the strategic objectives of the SPED, insofar as it makes use of an already committed site rather than introducing development in undeveloped

ALTERNATIVE TYPE	POSSIBLE ALTERNATIVE SOLUTIONS	DESCRIBE THE RELATIVE EFFECTS ON THE CONSERVATION OF THE SITE/HABITAT TYPE/SPECIES
		countryside. The Scheme site was identified as the most suitable option through a comparative assessment, including a SWOT analysis, which confirmed its relative advantages in terms of site characteristics, policy context, and development potential. Since no viable alternative sites were identified that could accommodate the proposed development, one can conclude that the selected site represents the most suitable and feasible option.

9 Concluding remarks

The construction and operational phases of the proposed Scheme have been evaluated with respect to their potential ecological effects on the nearby Natura 2000 site, L-Inħawi tal-Buskett u tal-Girgenti (MT0000018), designated as both a Special Area of Conservation (SAC) and a Special Protection Area (SPA).

Potential impacts are primarily associated with indirect pathways, including increased light and noise emissions during operation, as well as the generation of particulate matter and noise arising from construction activities and vehicular movements to and from the site.

Construction-related disturbance may have the potential to affect species linked to the Natura 2000 site. However, given that the nearest Annex I habitat is located at a distance exceeding 200 m from the development site, such impacts are considered unlikely to be significant. Furthermore, emissions associated with particulate matter and operational activities are expected to be effectively controlled through the implementation of standard mitigation measures and are not anticipated to extend to, or adversely affect, the designated site.

The assessment also highlights how the proposed development is expected to displace breeding territories of up to five terrestrial bird species, with low significance to local populations. However, disturbance, noise and light pollution from the proposed development are expected to potentially have a significant impact on breeding procellariiform seabirds and roosting and passing migratory birds in adjacent protected areas if no adequate mitigation measures are implemented. Moreover, large, contiguous glass surface areas are expected to pose a significant threat to birds due to the high risk of window collisions if unmitigated. These risks are especially relevant for species of conservation concern, several of which are expected in the area of influence.

Subject to the application of appropriate mitigation, the magnitude and spatial extent of potential impacts on the SAC and SPA, as well as on the qualifying species populations, are assessed as not significant in the context of Article 6(3) of the EU Habitats Directive. The integrity of the Natura 2000 site will be preserved, with no measurable adverse effects on the structure, function, or conservation status of the relevant habitats and species. Accordingly, the site-specific conservation objectives are expected to remain unaffected.

Appendix 1

Terms of Reference

Terms of Reference for the Preparation of an

Appropriate Assessment

for

EA 00035/18 (PA/02467/16)

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To demolish existing building, excavation of site and construction of old people's home (class 2a).

Buskett Forest Aparthotel, Triq ta' Sabbat, Ta' Sabbat, Dingli, Malta.

January 2026

Note 1: This document is intended to set out minimum specifications that need to be satisfied in order to determine whether the proposed intervention or any part thereof will have a significant impact on the integrity of any relevant protected sites, ecosystems, habitats and species covered by the provisions of the Flora, Fauna and Natural Habitats Regulations (S.L. 549.44).

Note 2: The applicant is to propose consultants for ERA's attention prior to the commencement of the Appropriate Assessment (AA) studies.

Note 3: It is the consultants' responsibility to adopt and justify the appropriate methodologies and areas of influence. Furthermore, in the interest of optimising the assessment process, the proposed methodology is to be discussed with ERA prior to actual commencement of the studies,

Note 4: Unless otherwise specified in these Terms of Reference (TORs) and in the absence of any site-specific conservation objectives drawn up by ERA, the assessment shall be guided by the following environmental objectives:

- Where the conservation status is favourable, this is retained and not reduced; and
- Where the conservation status is not favourable, this is improved.

Note 5: The requirement for further AA studies needs to address the issues outlined in the screening carried out by ERA, as well as any other AA-relevant impacts identified by the consultants. Should further surveys be deemed necessary by the consultants, ERA is to be informed of such need PRIOR to the commencement of such surveys.

Note 6: Wherever available, already-existing information should be made use of without any unnecessary duplication of work. Any uncertainties and gaps in information should be acknowledged.

Note 7: The consultants should refer to the appropriate EU guidance documents and should clearly quote such sources accordingly.

Note 8: ERA reserves the right to question (or disagree with) the methodologies and area of influence, to request revisions thereof, and to request additional information or studies at any stage prior to, during and following completion of the AA.

Note 9: These TORs are primarily intended to guide the AA investigations rather than as a basis for tendering or other non-ERA processes. In this regard any use for such purposes is at the sole risk of the applicant, as requirements may vary following technical negotiations, updating of legislation or standards, changes to the proposed project, or other circumstances.

The proposal requires the submission of an Appropriate Assessment (AA) as per Regulation 19(1) of the Flora, Fauna and Natural Habitats Protection Regulations (S.L. 549.44), given that the project may potentially cause significant impacts on the integrity of protected site MT0000018: L-Inhawi tal-Buskett u tal-Girgenti, which is a Special Area of Conservation (SAC) and a Special Protection Area (SPA), as declared through the provisions of S.L. 549.44.

Note: It should be noted that the AA shall not be restricted to the above-mentioned protected site only, which has been identified through screening to determine whether the proposal requires the submission of an AA. It is the consultants' responsibility to adopt and justify the appropriate area of influence, based on the available information, which takes into consideration any relevant protected site, ecosystems, habitats and species covered by the provisions of the Flora, Fauna and Natural Habitats Regulations (S.L. 549.44).

The Appropriate Assessment report should follow the following format:

1. **Executive Non-Technical Summary**

   A description of the salient points of the AA study including surveys, impacts and their significance, proposed mitigations measures, and any residual impacts.

2. **Project Description**

   A description of the proposed project, with particular emphasis on those elements that are likely to give rise to potentially significant effects on the integrity of the protected site, or on its habitats, species, and ecosystems. The description shall also address any foreseeable consequential requirements or implications of the proposal (e.g., need for new or altered infrastructure).

3. **Site Description**

   A general description of the site environment within the area of influence, with particular emphasis on the salient features of the site and its species, habitats, and ecosystems. Any other aspects of the physical environment and its processes that may in any way interact with development or its impacts shall also be described.

   The description shall also address any other constraints relevant to the site, including statutory legal protection, any relevant management plan framework.

4. **Impact Assessment vis-à-vis the integrity of the site and its species, habitats, and ecosystems.**

   An evaluation of the way in which the integrity of the site and its species, habitats and ecosystems are likely to be affected by the project.

   Impact assessment should clearly indicate all foreseeable direct and indirect impacts, and their expected timeframes (short/long-term, etc.). Any impact interactions (e.g., accumulation, synergy, interaction with natural forces) shall also be identified and assessed. The significance of all AA-relevant impacts must also be discussed.

   Impact assessment shall also take into account practical implications (e.g., conflicts with site protection or management plan implementation, any foreseeable constraints on future management plan formulation, etc.)

5. **Mitigation Measures**

   Where possible, measures should be identified to eliminate and/or mitigate adverse effects on the integrity of the site as well as on the relevant habitats and species.

   In this regard, the AA should include:

   - A reasonably detailed identification of the measures to be introduced for all relevant phases of the project;
   - An explanation of how the measures will eliminate and/or mitigate adverse effects;
   - Evidence of how the mitigation measures will be tangibly implemented and by whom;
   - Evidence of the degree of confidence in their likely success;
   - A timescale, relative to the project, when they will be implemented;
   - An explanation of any proposed monitoring scheme and how any mitigation failure will be addressed; and
   - Proposals for decommissioning as may be appropriate.

6. Residual Impacts

The report should include a prediction of residual impacts and implications of the proposal on the site and its species habitats and ecosystems, following the implementation of the mitigation measures. The report shall also evaluate the significance of such residual impacts and implications. Residual impacts are to be evaluated individually as well as holistically. The latter should indicate whether the proposal will or will not adversely affect the integrity of the site(s) concerned.

7. Alternative solutions

A list of alternatives to the proposal is to be submitted. Examples of alternatives may include, but not necessarily limited to, alternative technologies, alternative layouts, and relocation or downsizing of the project. The zero-option (do-nothing scenario) should also be considered. Each alternative is to be thoroughly assessed by comparing it with the original proposal and clearly indicating the relative effects on the site's listed habitats and species.