

# Annex I

## Environmental Impact Assessment

### Schedule III

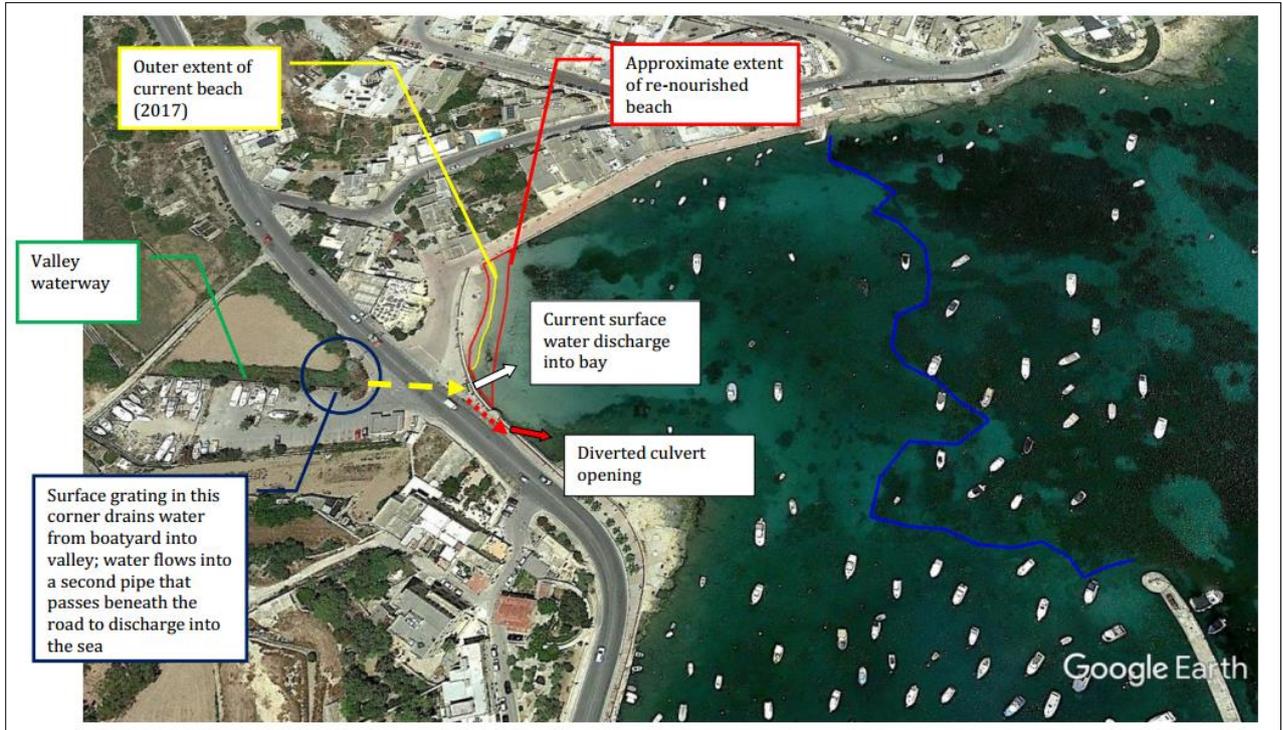
(Screening according to S.L. 549.46)

<b>ERA Reference no.:</b>	EA/00025/19
<b>PA Reference no.:</b>	PA/03049/19
<b>Project Title:</b>	A pilot experimental project to renourish the sandy beach at St. George's Bay using sand found on the seabed within the same bay.
<b>Location:</b>	St George's Bay, Triq iz-Zejtun, Triq Ghar Dalam, Birzebbuga
<b>Screening date:</b>	May 2019

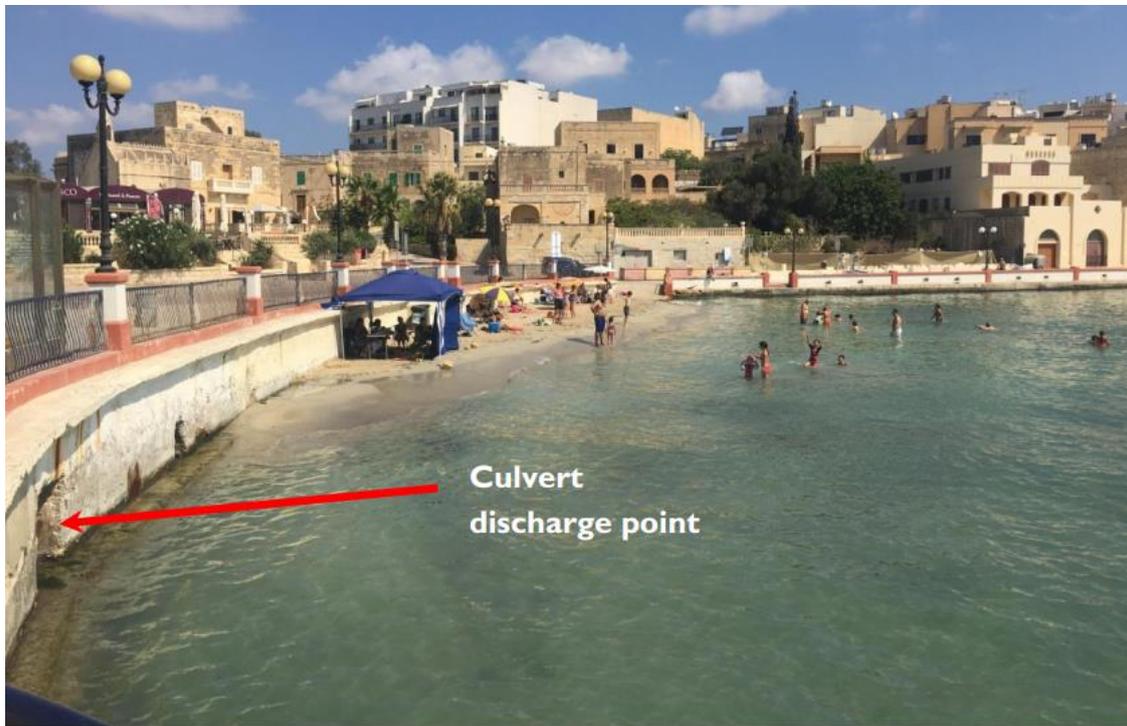
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#### 1. Outline of proposal

- 1.1 The proposal involves the nourishment of the beach at San Gorg Bay (Il-Bajja ta' San Gorg), Birzebbuga by means of a dredge-and-fill exercise, with the required sediment to be dredged from within the bay itself. It is being proposed to obtain a nourished beach with a total maximum width of 15-20 m, therefore increasing the width of the existing beach not more than 10 m (see Figure 1). However, the consultant states that the exact extent will be determined on site during the works, as the nourishment works will be very indicative of the potential equilibrium level as the beach is accreted, which is dependent on the bathymetry. As stated in the Project Description Statement (PDS), the nourished beach is not intended to be a permanent feature, and is expected to slowly erode over a period of time. Therefore, the main aim of the proposal is to obtain a temporary enlarged beach for the summer months.
- 1.2 The beach is subject to the natural dynamics of the bay, however the existing culvert has been identified as an additional source of erosion. Due to the construction of the roads/promenade and associated hard surfacing, which has covered part of the historic beach surface, the connection of the valley to the beach has been obstructed and water run-off is diverted through a culvert which discharges run-off into the bay (see Figure 2 and 3). According to the PDS, this discharge eroded the beach such that the dry beach area is currently restricted to the north-western corner of the bay. This concern is being tackled through a separate application (DN/00310/19) which has been decided already by the Planning Authority, and which will relocate the said culvert away from the sandy beach along the west side of the bay.



**Figure 1:** Proposed beach nourishment, indicating culvert and run-off drainage (Source: Project Description Statement (PDS))



**Figure 2:** Existing culvert location (Source: Project Description Statement (PDS))



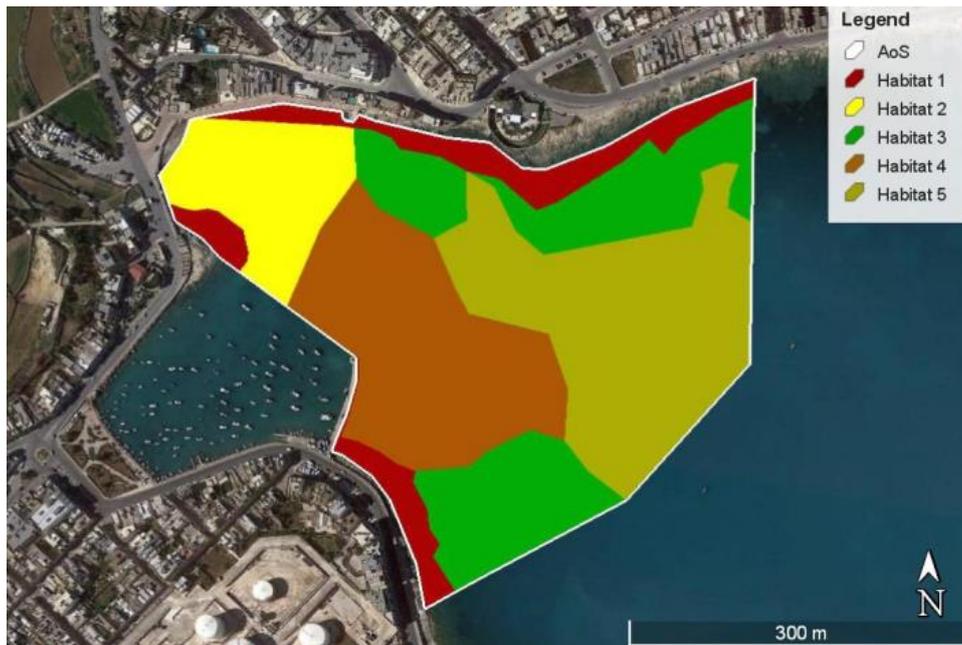
**Figure 3:** Existing beach and culvert (Source: Site visit)

## 2. Site Context

- 2.1 San Gorg bay is located within the Birżebbuġa portion of the Port of Marsaxlokk (see Figure 4). It is characterised by a small sandy beach, with an approximate width of 11m at the widest point and a length of 45m. The total surface area of the existing beach is 495m<sup>2</sup>. The water in this part of the bay is very shallow, with the bedrock underlying the present sand pocket being at a shallow level as well. The bay forms part of coastal water body MTC107. According to a marine benthic survey report, dated December 2017 and submitted as part of the PDS, five benthic habitat types have been identified, including assemblages of *Posidonia* beds, which are protected through the Flora, Fauna and Natural Habitats Regulations (S.L. 549.44) (see Figure 5). Furthermore, the benthic survey has identified the presence of *Cladocora caespitosa*, and *Pinna nobilis*, also protected through the afore-mentioned Regulations.



**Figure 3:** Site location (Source: PDS)



**Figure 4:** Benthic habitat assemblages (Habitat 1: Predominantly assemblage of algae on low energy infralittoral rock (EUNIS A3.33); Habitat 2: Predominantly assemblage of infralittoral fine sand (EUNIS A5.23) transitioning into an assemblage of superficial muddy sands in sheltered waters (EUNIS 5.28); Habitat 3: Predominantly assemblage of Posidonia beds (EUNIS A5.531); Habitat 4: Mosaic of the assemblages of Posidonia beds and of superficial muddy sands in sheltered waters (EUNIS A5.531 & A5.28); Habitat 5: Predominantly assemblage of superficial muddy sands in sheltered waters (EUNIS A5.28)) (Source: Marine Benthic Survey Report, dated December 2017 and submitted as part of the PDS).

### 3. Site history

3.1 The details of the previous development applications on site are as follows:

- PA/01305/98 - Development of coastal walkway from Triq il-Qajjenza to Ix-Xatt ta' San Gorg and development of coastal walkway at Triq il-Qajjenza. Site at Triq Il-Qajjenza & Xatt ta' San Gorg, B'Bugia. (Approved); and
- DN/00310/19 - Proposed removal of culverts leading rain water onto beach, formation of new culverts & diverting of rain water directly to sea. Site at, Il-Bajja Ta' San Gorg, Birzebbuga. (Decided)

### 4. Overall Assessment

4.1 The proposed development falls within the scope of Schedule I, Category II, Section 6.2.2.4 (Enlargement, modification or replenishment of an existing shore or beach) of the Environmental Impact Assessment Regulations (S.L. 549.46), and in this regard a Project Description Statement (PDS) was required. This was referred directly to ERA on 17<sup>th</sup> April 2019.

4.2 The following documents/information were used for this assessment:

- Preliminary project description, including a marine benthic survey report and sediment quality report, referred directly to ERA on 6<sup>th</sup> March 2019;
- Site visit, carried out on 9<sup>th</sup> April 2019; and
- Project Description Statement (PDS), as per above details.
- Further clarifications and submissions, referred directly to ERA on 2<sup>nd</sup>, 23<sup>rd</sup> and 27<sup>th</sup> May 2019.

4.3 The following are potential impacts envisaged on the surrounding environment:

#### *Physical alterations to the beach and seabed profile*

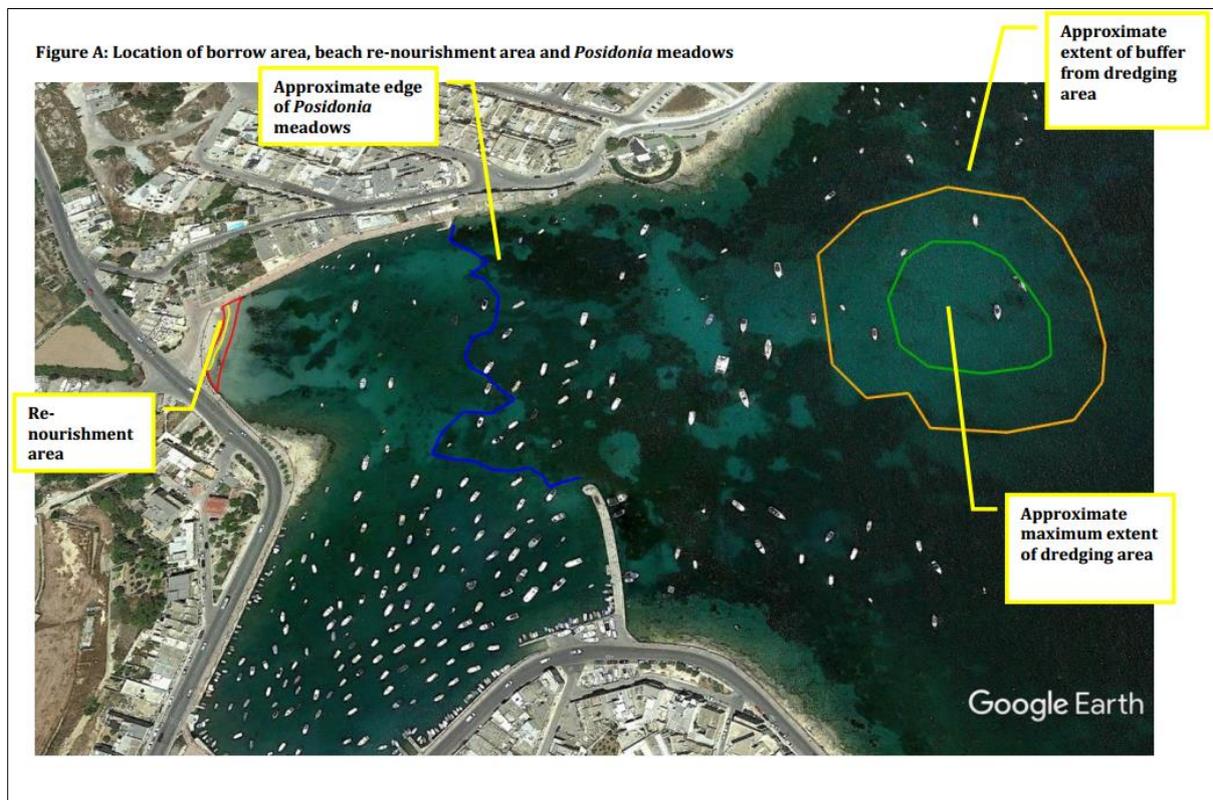
4.4 The proposed dredge-and-fill exercise for the nourishment of the beach is likely to create physical changes to the seabed within the perimeter of the borrow area and to the nearshore seabed due to extension of the dry beach and its submerged slope.

4.5 Additionally, the methodology used (grab, controlled from a barge) may lead to 'construction-phase' impacts, such as increased turbidity levels and damage to the seabed. However such impacts will be mitigated through the following:

- Limiting the interventions to stretches of seabed consisting of bare sand, and allowing a buffer zone of at least 10 m away from other habitats (e.g. *Posidonia* beds and rocky seabed); and
- Securing the barge by means of spud leg instead of anchors. This way, the location of the barge can be easily shifted to avoid over-dredging of certain locations within the borrow area, and the likelihood of environmental impacts is reduced, as long as such spud legs are not deployed outside of the defined borrow area.

*Material requirements and proposed works*

- 4.6** According to the PDS, not more than 2,200 m<sup>3</sup> of sediment would be required to nourish the beach. Following a sand pricking exercise and sediment quality analysis, it has been determined that a borrow area can be defined within the bay itself which contains enough sediment to nourish the beach with the required volume. In order to retain a secure distance from the surrounding Posidonia meadows, a buffer zone has been included (see Figure 4), as already indicated above.
- 4.7** Following granulometry analysis, submitted as part of the PDS, it was determined that the sand within the borrow area (ranging from 0.355 to 0.447 mm - sampling stations 8, 9 and 11) is coarser than that in the submerged innermost part of the bay (0.108 mm - sampling station 2) where the dredged sediment will be deposited. According to the consultant, the sediment from within the borrow area will be closer physically to the sand on the dry beach (approx. 0.198 mm – sampling station 1), nevertheless ERA notes that the deposited sediment will be of a coarser grain size than the present beach sediment.
- 4.8** A sediment quality analysis, in terms of the chemical properties of the available sediment within the borrow area, was carried out as well and submitted as part of the PDS. Such testing has identified that low values for total organic carbon (TOC), metals, arsenic and sulphates were detected, with little variation between the five sampling stations within the borrow area. This aspect will be the subject to further monitoring.



**Figure 4:** Proposed borrow area for sediment, including a buffer zone (Source: PDS)

### *Hydrodynamics in the bay*

- 4.9** According to the consultant's clarification notes, and based on hydrodynamic studies undertaken as part of an EIA for a breakwater project in the Marsaxlokk Harbour, the upper section of Marsaxlokk Bay is characterised by surface and bed currents of a similar magnitude (1-10 cm/s) and therefore wind-induced currents would generally not be able to mobilise sediment particles from the seabed. Whilst ERA considers that such information is not sufficient to predict the behaviour of the sand once the new beach is created, ERA considers that the beach is indeed in a sheltered location.
- 4.10** According to the consultant's clarification notes, no alterations to the natural dynamics of the bay are envisaged in view that the extent of the nourished beach will not go beyond the sustainable width, beyond which beach fill would be lost due to excessive wave action/water depths leading to significant losses. Furthermore, the consultant has confirmed that due to the limited volume of sediment required, the dredging will not create significant depressions in the seabed within the borrow area, and therefore the hydrodynamic properties in this area will not be affected.

### *Marine ecology*

- 4.11** The proposed dredging works are envisaged to obliterate or disturb the present bare sands habitat and its benthic communities (e.g. infauna) within the borrow area. The presence of *Posidonia* beds in the immediate surrounding of the borrow area is of concern, in view of potential direct construction-phase impacts, however such impacts are being mitigated by the inclusion of a buffer area between the *Posidonia* beds and the actual area for sand winning.
- 4.12** The deposition of the dredged sediment onto the beach and seabed is envisaged to lead to obliteration or disturbance of the present benthic infaunal communities. Such disturbance/obliteration may in its turn affect the ecosystem composition and its functioning within the bay, as such infaunal communities are an important component of the coastal food web. Such habitats tend to have a degree of resilience towards the impact of such interventions of limited scale. However, this aspect will need to be monitored further at post-project stage.
- 4.13** Furthermore, any changes to the sediment transport regime and construction-phase impacts from the proposed works (e.g. increased turbidity) may potentially affect species and habitats within the bay, with a specific reference to *Posidonia oceanica*, *Cladocora caespitosa*, and *Pinna nobilis*, which have been identified within the bay and are protected through the Flora, Fauna and Natural Habitats Protection Regulations (S.L. 549.44). Whilst, erosion may result in abrasion and smothering of the *Posidonia* meadows, the consultant has confirmed that even if the entire volume of nourished sand had to be lost completely in one day (which will not be the case) and if it had to be completely deposited on the *Posidonia* meadows (located between 150 m and over 500 m from the beach), which is again unlikely, the amount of sand that would settle on the meadows is not expected to be such as to negatively impact the meadows through burial. With respect to *Cladocora caespitosa*, the consultant has confirmed that due to their location on the seaward side of the breakwater, these are not expected to be impacted by the proposal. *Pinna nobilis* is located outside the buffer zone of the borrow area and is, according to the consultant, not expected to be impacted as long as no direct physical damage is done during the extraction

or sand and the turbidity levels are maintained as low as possible. Due to the presence of *Pinna nobilis*, the monitoring and its ancillary baseline surveys should also address the exact location and state of health of this species within the bay.

#### *Ecological potential of the water body*

**4.14** The water body MTC 107 is not classified as a 'natural water body' under the WFD, but as a 'heavily modified water body', due to significant hydromorphological alterations that the water body has undergone over the years, such that it cannot meet 'good ecological status'. Nevertheless, in terms of the EU Water Framework Directive (WFD), the water body is expected to meet 'good ecological potential', whereby such refers to the values of the Biological Quality Elements (BQEs), being macroalgae, benthic invertebrates, seagrasses, and phytoplankton, after all mitigation measures have been implemented. ERA notes that *Posidonia* beds constitute an important indicator of ecological status/quality of the water body under the EU WFD. With respect to this proposal, as stated in the consultant's clarification notes, all BQEs (macroalgae, benthic invertebrates, seagrasses, and phytoplankton) of the water body MTC 107 are not expected to deteriorate as a result of the nourishment works. Though there might be localised and temporary impacts from sand loss, the consultant has stated that such impacts are expected to be minor on a local scale and not significant on a water body level such that there is not expected to be a deterioration in the BQE: *Posidonia oceanica*, at water body level. Whilst ERA notes the expected direct impacts on the benthic invertebrates, as mentioned above, the dredging activity and relocation of sediment from the borrow area to the beach are not expected to result in deterioration in the BQE: Benthic Invertebrates at water body level.

#### *Generation of (underwater) noise*

**4.15** The proposed dredging and levelling works are envisaged to generate both air-borne by the use of machinery, however such impacts are not considered significant relative to the baseline. Concerning potential underwater noise, the present marine fauna within the bay and its surroundings is likely to be affected, especially in the light of the high velocity of underwater noise. Nevertheless, given that such generation of noise is of a temporary nature and limited to the construction works only, which will take up to maximum 14 days, such impacts are not considered significant as long as measures are put in place to keep underwater noise levels to a minimum and as long as good site practices and measures identified in the Environmental Management Construction Site Regulations (S.L. 552.09) are duly adhered to.

#### *Marine archaeology*

**4.16** Due to the envisaged dredging of sediment, potential damage to any (unknown) present historic/archaeological features on the coast and seabed within the wider area of influence of the proposal (e.g. submerged cart ruts and silo pits) may occur. In this regard, the Superintendence of Cultural Heritage (SCH) should be consulted accordingly.

## **5. ERA Conclusion (including screening outcome in terms of the Environmental Impact Assessment Regulations - S.L. 549.46)**

**5.1** The ERA Assessment did not identify any upfront objections to the proposal, however it has identified certain aspects which are of environmental concern as per above paragraph 4.4 to 4.16. Following the communication of ERA comments to the developers and consultant, and the subsequent submission of additional information and clarifications by the consultant, screening has concluded that no EIA is required, as long as the measures identified in the PDS and additional clarification notes, and the below requirements are duly adhered to and detailed and continuous monitoring is carried out both during and after the construction works.

- (i) In terms of the physical characteristics of the beach and inshore seabed area and the natural dynamics of the bay, the nourished beach is to follow the bathymetric profile of the seabed and shall not extend beyond the sustainable width, as indicated in part 5 of the Addendum to the PDS, in order to avoid significant losses of the beach fill;
- (ii) The dredging of sediment shall be restricted to the identified borrow area only, respecting the buffer zone as shown in part 5 of the Addendum to the PDS, in order to avoid direct impacts on the surrounding Posidonia meadows, protected through the Flora, Fauna and Natural Habitats Protection Regulations (S.L. 549.44);
- (iii) Due to the presence of *Pinna nobilis*, the monitoring and its ancillary baseline surveys should also address the exact location and state of health of this species within the bay; and
- (iv) Monitoring shall be carried out during both construction and post-construction phase, in order to address the evolution of the beach and seabed, the present protected species and habitats, all Biological Quality Elements (in terms of the WFD), water and sediment quality, and any other aspects which are considered relevant by the monitor and specialist consultants, as per attached conditions. Details on the beach profile (including transects) to be created are to be provided to ERA on a regular basis and throughout the works.

**5.2** Whilst the PDS highlights that depending on the extent of sand loss, the nourishment exercise may need to be repeated in subsequent years, this ERA Assessment and Recommendations deals with the currently proposed initial nourishment only. Any additional interventions would then need to be evaluated and assessed by ERA based on the then proposed interventions, further supported by the results and conclusions from the environmental monitoring, as required through this proposal.

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### **Disclaimer**

*The above assessment is without prejudice to any required changes or updates should the development proposal be eventually modified or should the information/assumptions provided turn out to be incorrect. Any deviations of the proposal from this submission would need to be re-assessed.*