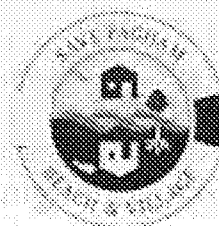


PAGHAM FLOOD DEFENCE CIC

COMMUNITY INTEREST COMPANY

Acting for the Community and the Pagham Flood Defence Trust



Planning Application for managed breach of spit at Pagham Harbour

Discharge of Conditions v.2.

Arun District Council ref: P/87/15/PL

Chichester District Council: 15/03053/FULEIA

Marine Management Organisation Licence: MLA/2017/00330

Approval of details reserved by condition imposed under ref P/97/15/PL relating to Condition Nos –

- 4 - Archaeological investigation,
- 5 - Tern Island compensation measure,
- 6 - Adaptive management plan,
- 7 - Proposed mitigation measures to protect Little Tern habitat,
- 8 - Management plan for Little Tern compensation measure,
- 9 - CMP
- 14 - Tide gauge.

Section 1 looks at the timing of the work.

1. Timing of engineering work.

Although not a planning condition, this section is included to avoid any misunderstanding.

1.1. Planning requirements

1.1.1 Planning condition 1: Standard time condition.

The development hereby permitted shall be begun before the expiration of 3 years from the date of this permission [27/06/2017].

1.1.2. Planning condition 12: Timed development restriction #2.

No work is to take place within the site between the 15th March and the end of August or until the last Little Tern has fledged whichever is the later.

1.1.3. Planning condition 11: Timed development restriction #1.

Unless otherwise agreed in writing with the Local Planning Authority in consultation with Natural England, all works are to be completed before the main overwintering season which commences on the 1st of November each year and ends on the 31st March each year. Any works that are allowed to continue after the 1st of November or between the end of February and the end of March shall be in accordance with Natural England's advice regarding severe/freezing weather working restrictions. If there has been a continuous period of 7 days of severe or freezing weather as recorded by the nearest meteorological station to the site then all work shall be suspended for 14 days unless the Local Planning Authority in consultation with Natural England/the RSPB decide that temperatures have increased (or that evidence is supplied that demonstrates to the satisfaction of the Local Planning Authority that there is a low risk to waterbirds during the period of severe/freezing weather) to the extent that the suspension can be lifted.

1.1.4. Planning Informative 9: Severe weather

In respect of condition 11 above, a continuous period of 7 days of severe or freezing weather is defined as When the nearest Meteorological station records minimum daily air temperatures of 0 degrees C or less for 7 consecutive days, allowing short periods of thaw. Short periods of thaw shall be one or two days where the minimum daily air temperature is above 0 degrees C. The short periods of thaw will have no effect on the counting process of severely cold consecutive days, but periods of thaw of three or more days have the effect of resetting the severe weather day number to 0. Further details of the severe/freezing weather suspension set out within Condition 11 can be found at: <https://basc.org.uk/shooting/severe-weather-and-waterfowl-shooting/> and the JNCC page: <http://jncc.defra.gov.uk/page-2894>.

1.1.5. MMO condition 5.2.11 Excluded dates

The licensed activities must not take place between 15 March and 31 August (inclusive) in any given year.

1.1.6. MMO condition 5.2.12 Other dates

The licensed activities may only place during the overwintering bird season between 1 November and 31 March (inclusive) if they are in accordance with Natural England's guidance regarding severe/freezing weather working restrictions. This is detailed as follows: When the nearest Meteorological station records minimum daily air temperatures of 0 degrees C or less for 7 consecutive days, allowing short periods of thaw. Short periods of thaw shall be one or two days where the minimum daily air temperature is above 0 degrees C. The short periods of thaw will have no effect on the counting process of severely cold consecutive days, but periods of thaw of three or more days have the effect of resetting the severe The works must be suspended for 14 days unless written approval is provided by the MMO in consultation with Natural England. The MMO must be satisfied that temperatures have increased or that there is sufficient evidence (which may be provided by the licence holder) demonstrating a low risk to waterbirds during the period of severe/freezing weather.

1.2. Discharge of Timing of engineering work

The applicant believes that the best solution for the long-term management for Pagham Beach and Harbour is through the agreed Beach Action Plan, at present being produced by the Pagham Coastal Issues Advisory Group. This application to discharge the conditions and the building of Tern Island is to enable us to prepare for the worst. The continuous evolution of the spit makes it almost impossible to predict what will happen in the next 18 months, let alone what will happen after that. This year, the movement of the outflow from the harbour to the North East, is not unlike the movement recorded in 2013 before the homes were threatened in 2014/15.

1.2.1. The work will be done in two sections:

- a. 2020 After the overwintering birds have left, and before the Little Terns start breeding: Removal of enough material from the spit to form the Tern Island, and the completion of the island.
- b. After the Little Tern breeding season remove material to complete cut and infill the longshore channel, to completion of the project.

NOTE: This second section will only be done if:

- a. The houses in West Front Road are threatened, as in the granting of IROPI. And
- b. There is no viable alternative in the Pagham Beach Action Plan produced by the Pagham Coastal Issues Group.

1.2.2. Reasons for this timing of the Tern Island:

- a. The planning conditions do not exclude work before the breeding season of any year. In fact, to the contrary we were told during the discussions in preparation for the planning approval that there would be a 'short window' at this time.
- b. Tim Callaway until recently working with the RSPB, who has much experience working with Little Terns, recommends that the best time to build the 'Tern Island' is just before the breeding season when the shingle is fresh.
- c. Our IROPI encourages us to build the compensation before the work that will displace the birds.
- d. Planning permission requires us to start work before 27th June 2020.
- e. This will enable the stakeholders to continue to monitor the entrance to the harbour to ensure the work is only done if it is strictly necessary.

1.2.3. No work will take place while the Little Terns are breeding. All work done at other times will be continuously monitored and fully approved by the RSPB and Natural England.

1.2.4. The severe weather restrictions will be noted, and fully complied with.

4. Archaeological investigation

4.1. Planning requirements

4.1.1 Planning condition 4: Archaeological investigation.

No development shall take place until the developer has secured the implementation of a programme of archaeological investigation and mitigation (to include terrestrial archaeological, geo-archaeological, and marine field archaeological work), undertaken in accordance with a Written Scheme of Investigation, which is to be submitted to and approved in writing by the Local Planning Authority as advised by Historic England and the Chichester District Council Archaeology Officer.

4.1.2. MMO condition 5.2.4. Archaeological survey

No development shall take place until the developer has secured the implementation of a programme of archaeological investigation and mitigation (to include terrestrial archaeological, geo-archaeological, and marine field archaeological work), undertaken in accordance with a Written Scheme of Investigation, which is to be submitted to and approved in writing by the Local Planning Authority as advised by Historic England and the Chichester District Council Archaeology Officer.

4.2. Discharge of Archaeological Investigation

4.2.1. Development Archaeological Services Ltd in West Wittering have prepared a written scheme of investigation. It is attached below, and has been approved by James Kenny [Chichester District Council's [LPA] archaeology officer and advisor to both the CDC and ADC planning authorities. The scheme will be implemented in full before the work goes ahead. This WRI will be effective whether or not the Island is cut from the mainland.

4.3 Development Archaeological Services Ltd WSI

The WSI is attached below.

DEVELOPMENT ARCHAEOLOGY SERVICES Ltd

December 2019 [Approved Version [06:12:2019] : J. Kenny CDC ADC Archaeology Officer]

WRITTEN SCHEME OF INVESTIGATION FOR A PROGRAM OF ARCHAEOLOGICAL MONITORING [WATCHING BRIEF PHASE] ASSOCIATED WITH:

SELECTED WORKS ASSOCIATED WITH MANAGED BREACH OF SPIT AT PAGHAM HARBOUR

APPLICATIONS:

Arun District Council ref: P/87/15/PL

Chichester District Council ref: 15/03053/FULEIA

Prepared for Pagham Flood Defence Community Interest Company.

- Figure 1: Site location [AP] site centres at approximately SZ87522 095833.
- Figure 2a: Shingle receptor area A and supply area B [variable dependant on distribution of shingle resource]
- Figure 2b: Location of main channel cut.
- Figure 3: Block Plan showing proposed channel cut and removed fill deposition area
- Figures 4 & 5: 1944 AP's showing location of harbour infrastructure.
- Plates 1 & 2: Views of 'proposed New Bird Island' study site / recording area.

1.0 Introduction & Project Background:

Summary of main requirements comprising: the consultation of selected cartographic and documentary sources including Plans / Figures submitted with the application, subsequently undertake monitoring of all phases of works associated with movement / translocation of shingle [flint beach gravels and sands] from a donor area to a receptor area to form a new shingle spit / island, 'New Bird Island'.

Undertake detailed recording [photographic / photogrammetry] recording of existing WWII concrete track way [harbour infrastructure] to be covered during formation of compensation area [New Bird Island].

In addition, at all stages undertake, as required the monitoring of construction works [predominantly transport of bulk shingle deposits] and where required undertake recording of archaeological features and deposits, if it is considered, after review of engineering operating procedures, that there is a potential for surface / near surface archaeological deposits to be impacted on.

Undertake monitoring and recording of engineering / excavation works associated with cutting of channel [as detail shown at Figure 3].

All works associated with monitoring and recording to be guided by Sussex Archaeological Standards [as adopted/updated 2019].

1.1 It is understood an application has been made and permission granted for engineering works [predominantly soft engineering] to form a tidal breach and construct a compensation area [new island formation] as part of the overall scheme.

It is understood, forming of new channel cut to separate 'Bird Island' is not required.

Main excavation works will be associated with the cutting of a new proposed breach and distribution of arisings from the new channel cut.

This WSI therefore covers both mitigation [monitoring and recording of existing WWII engineering works] associated with formation of the new proposed Bird Island [compensation area] and transport of shingle / ballast from donor to receptor area and the requirement to monitor record engineering works associated with the main new channel cutting / formation.

The site location is shown at Figure 1 and site / detail shown at Figures 2a and 2b. The proposed main channel cut detail is shown at Figure 3.

As a result of review of archaeological potential of the site a Condition [Condition 4 as detailed below] was placed on the permission:

1.2 7.1.1 Planning condition 4: Archaeological investigation.
No development shall take place until the developer has secured the implementation of a programme of archaeological investigation and mitigation (to include terrestrial archaeological, geo-archaeological, and marine field archaeological work), undertaken in accordance with a Written Scheme of Investigation, which is to be submitted to and approved in writing by the Local Planning Authority as advised by Historic England and the Chichester District Council Archaeology Officer.

7.1.2. MMO condition 5.2.4. Archaeological survey
No development shall take place until the developer has secured the implementation of a programme of archaeological investigation and mitigation (to include terrestrial archaeological, geo-archaeological, and marine field archaeological work), undertaken in accordance with a Written Scheme of Investigation, which is to be submitted to and approved in writing by the Local Planning Authority as advised by Historic England and the Chichester District Council Archaeology Officer.

1.3 Following a site walkover on [with James Kenny [Chichester District Council's [LPA] archaeology officer and advisor to both the CDC and ADC planning authorities & the applicant's agent] on Friday October 18th, it was considered that the archaeological mitigation should take the form of a watching brief on selected works and production of a report on the findings. In addition, it was considered that mitigation should also include recording [photographic and photogrammetry

recording) of dilapidated WWII harbor installation at the location of the 'new Bird Island, as these structures require recording prior to their being covered. [Refer to Figure 1 for sub-site location and to Plates 1 and 2 and Figures 4 and 5]. The detail of both monitoring and reporting to be detailed in a Written Scheme of Investigation [WSI] to be submitted and approved in advance of works associated with the development.

- 1.4 It was confirmed during the site walkover that channel cutting works to isolate 'Bird Island' would now [as of October 2019] not be required. As no intrusive excavations, associated with channel cutting, were to be undertaken the potential for impact on archaeological / paleo geographic sequences was considered to be low to possibly nil. Works to be undertaken to form the new Bird Island would have low / nil potential to impact on significant below ground sequences.

- 1.5 However, at the location of the proposed 'New Bird Island' [for location see Figure 1 and for detail see Plates 1 and 2, a WWII concrete installation [jetty / harbour forming] was observed. [See Plates 1 and 2 and see also Figures 3 and 4]. As this area would be a net receptor of material [drift shingle deposits c. 1900m³] these significant features would be covered. It was therefore considered [J. Kenny pers. com] that provision should be made for these features to be recorded prior to them being covered. Recording to be undertaken using both 'standard' photographic recording and photographic recording techniques to allow detailed recording 'by record'.

- 1.6 The main 'intrusive' excavation works will involve the cutting / formation of a new 'breach'. [for detail see 1.6.3 and Figure 2b and Figure 3]. Channel excavation impact will be through predominantly motile shingle and sand deposits. British Geological Survey mapping [BGS 1996] indicates the geology of the site to comprise of an underlying bedrock geology of Eocene Bracklesham Group. Deposits are subdivided into the Earnley Sand formation, the Wittering Formation and the Selsey Sand formation. Tertiary deposits are overlain by shingle [predominantly flint] and nearshore sands and gravel terraces considered to have been laid down during the last interglacial [Marine Isotope Stage [MIS] 5e.

- 1.7 This document constitutes a WSI and is submitted to James Kenny [Chichester District Archaeologist and advisor to ADC and CDC] It is presented to detail / present a program of mitigation / recording / investigation that may be required at the site in association with proposed works as required at November 2019.

1.8.1 Summary of engineering works:

- 1.8.2 Formation of a compensation area [Tern Island] The New Tern Island centered at approximately SZ 87522 095623. [See Figure 1] Island to consist of 1900m³ of shingle taken from the existing [

mobile] spit and proposed channel cut [See Figure 3]. Shingle will be placed and profiled [as detailed in Figures 3, 7, & 5 of the application and reproduced in part at Figure 3 of this WSI.

- 1.8.3 **Proposed channel cutting:** The proposed breach will be excavated at the location as shown at Figure 3. The channel cut will have a basal width of c. 40m excavated to a depth of c. -1.80m OD [approximately equivalent to Mean Low Water Level] Side slopes will be formed to an approximate 1:4 gradient with a maximum height of approximately +3.00m OD [giving a maximum width of cut banking of c. 80m]. The channel length will be approximately 200m north west to south east.

2.0 Objectives of the Archaeological Monitoring and recording.

- 2.1 **Formation of a compensation area [Tern Island]** The New Tern Island centered at approximately SZ 87522 095623. To undertake detailed recording of existing WWII structure / engineering harbor works prior to them being covered as a receptor area for shingle / arisings from donor area. To provide a comprehensive record of the extent / form and condition of the WWII installation.

- 2.2 **Proposed channel cutting:** Confirm presence absence of impact on any significant archaeological features and or palaeoecologically significant sediment sequences and where possible [subject to health and safety constraints] record presence absence and characteristics of key archaeological deposits and sediment sequences

- 2.3 In addition, confirm presence / absence of any archaeological contexts impacted upon and where possible [subject to health and safety constraints] observe, record and sample any archaeological contexts

3.0 Methodology / General.

- 3.1 Prior to commencement of the on-site works [all phases], Development Archaeology Services Limited [DAS] shall inform the LPA of the proposed team undertaking such works, and will provide [if required] CVs of senior staff and specialists involved with the project.

- 3.1.1 Prior to commencement of the archaeological works on the site, DAS shall have:

- 3.1.2 Obtained a provisional accession number from designated recipient museum [Chichester District Museum, The Novium Museum Tower Street Chichester]

- 3.1.3 Obtained information derived from the Statutory Undertakers on services [gas, electricity, water, sewerage and telecommunications] on the site, and ascertained the alignments of public rights of way. [This element to be undertaken with direct review / consultation with main engineering contractor].

- The applicant / main contractor will give the monitoring archaeologist/s [DAS Ltd] a minimum 10 working days' notice before the start of any site works. This notice period is essential to ensure preliminary works are monitored accurately and key pre-start meetings are attended

- 3.1.5 Shall have issued a copy of the approved 'WSI to the Field Officer responsible for carrying out the work on site [to be kept on site at all times].

- It is possible, though in this case unlikely, that human remains will be revealed during the archaeological investigations. At evaluation stage human remains will be retained *in situ* wherever possible. CDC's ADC's 's external archaeological advisor will be informed immediately as to the presence of any human remains found on site. Any such remains revealed during the archaeological investigations will be covered and protected *in situ*, and reported to the relevant Coroner's Office, the local Environmental Health Department, and the police will be informed. Where their removal is agreed by the appropriate authorities, the appropriate license will be obtained prior to the removal of the remains. A separate, case specific, method statement will be submitted and approved by the relevant planning authority's appointed archaeological advisor if excavation lifting / removal is required.

- 3.1.7 Any finds believed to fall potentially within the statutory definition of Treasure, as defined by the Treasure Act [1996] and further defined by the Treasure [Designation] Order 2002, shall be reported to the relevant Coroner's Office, the developer/site owner and the relevant planning authority's appointed archaeological advisor. In addition, the Portable Antiquities Scheme Finds Office (c.o. Sussex Archaeological Society) will be notified. Reporting on the find/s shall outline the date and circumstances of discovery, the identity of the finder and the precise location of the find

- 3.1.8 James Kenny [CDC archaeology Officer and advisor to ADC] will be invited to attend for the purpose of monitoring the progress, standards, and results of the site. A minimum of 10 working days' notice will be given by DAS prior to the archaeological investigation / monitoring commencing.

- Methodology Photogrammetry Recording.** Existing dilapidated WWII structures located at: The New Tern Island centered at approximately SZ 87522 095623. For site area detail refer to **Figure 1 and Plates 1 and 2.**

- Recording to be undertaken in advance of main contractors' mobilisation. Recording will take place
- 3.2.1 during optimal tidal range to ensure maximum extent of existing structures are recorded.

- The technique is photogrammetry which utilises a large set of overlapping photos of the area or
- 3.2.2 object to be modelled which are then processed in the software to produce a 3D interactive model, or ortho-rectified image(s).

Relevant equipment: Canon 650D SLR with remote control viewing and shutter control etc

Up to 5m extending pole Image manipulation will utilise Agisoft Metashape Pro software.

It is anticipated 2 DAS field archaeologists will undertake this phase of recording

- Methodology: Monitoring of shingle transport to form 'New Bird Island':** Close liaison between
- 3.3 the main contractor [Mackley / Ovenden] and monitoring archaeologist/s will ensure monitoring is in place at all key stages of works. The archaeological recording and monitoring will be undertaken initially to confirm main contractors working practices and to assess the potential of those practices to impact on any potential significant archaeological horizons / features.

- 3.3.1 **NOTE:** It is anticipated that engineering works associated with shingle transport will have low to nil potential to impact on key / sensitive archaeological horizons. This low / nil potential will be recorded confirmed after an initial phase of observation / monitoring this element of works.

- 3.3.2 Monitoring / attendance may be reduced should results indicate low / nil potential for impact on key sequences is probable. Where archaeological features, structures and/or deposits are identified, the archaeological / manual investigation and recording of such archaeological features will be undertaken [subject to site safety constraints]. Should the monitoring archaeologist/s consider that there is a requirement for additional purposive investigation they will inform James Kenny (CDC archaeologist) of this requirement a separate WSI will be produced to cover those works.

- 3.3.3 All monitoring will be undertaken in accordance with and be guided by Sussex Archaeological guidelines [Revised / updated vers. 2019].

- 3.3.4 It is anticipated that recording shall be undertaken by a single DAS field officer.

- 3.4 **Methodology: Monitoring / recording during Channel cutting:**

- 3.4.1 It is anticipated that monitoring shall be undertaken by one DAS field officer. Access to site will be with the compliance of main contractor only. The monitoring archaeologist will comply with the main contractor's health and safety procedures.
- 3.4.2 All monitoring will be undertaken in accordance with and be guided by Sussex Archaeological guidelines [Revised / updated vers. 2019].
- 3.4.3 Walkover of the proposed channel cut location suggest that impact will be confined to recent storm beach / shingle / sand deposits. However, it is considered there is a potential [slight] for proposed works to impact on archaeological / palaeo- geographically significant sequences.
- 3.4.4 Where exposed [and safe access is possible] all archaeological features, structures and deposits and paleogeographic sequences exposed will be cleaned, planned and recorded [in a manner compatible with that most widely used elsewhere in the County and specifically in accordance with Sussex Archaeological guidelines [2019].
- 3.4.5 All archaeological / palaeo-geographic sequences / archaeological contexts revealed through excavation will be planned in relation to the engineering section / face [mapped relative to site / development area] and will be planned onto a copy of an Ordnance Survey base map of not smaller than 1:1250 scale. All significant deposits will be formally planned at a scale of 1:20 with sections recorded at a scale of 1:10 [this will include all features half-sectioned]. All archaeological contexts will be surveyed using a temporary benchmark derived from an Ordnance Survey benchmark.
- 3.4.6 Individual descriptions of all archaeological and paleogeographic strata and features excavated or exposed will be entered onto prepared pro-forma recording [context] sheets. Sample recording sheets, finds recording sheets, sample registers and a photographic register will also be used.
- 3.4.7 Where possible key paleogeographic palaeo- environmental sequences will be samples using appropriate techniques as determined on site by the monitoring archaeologist / geoarchaeologist. Where possible [and only where safe / agreed safe access can be gained] the monitoring archaeologist / geoarchaeologist will liaise with the main contractor to gain access to observe / record and sample key sequences / deposits.
- 3.4.8 A photographic record will be made [minimum 8mpg resolution] to illustrate in both detail and general context the principle features and finds discovered. Working shots to illustrate the nature of the archaeological investigation, all phases / elements will also be included.
- 3.4.9 DAS will also comply with the Construction [Design and Management] safety protocols as implemented by the main contractor. [Mackley Overden].

4.00 Fieldwork [all phases] reporting

- 4.1 At the end of works a comprehensive summary report will be submitted with a full cohesive report produced for all phases. The photogrammetric recording may, dependent on the recipient museums archiving preference, be submitted separately.

- 4.2 A full report on the fieldwork shall be completed by DAS Ltd within 3 months of completion of all fieldwork on the site, unless agreed in writing with the Local Planning Authority and their archaeological officer or advisor.

- 4.3 The report will be considered as an essential piece of documentation within the evaluation exercise. The main aim / purpose of the report will be to communicate to the Local Planning Authority via their appointed archaeological advisor, the archaeological significance of the site.

- 4.4 A digital copy of this report [PDF/A] shall be submitted to the Local Planning Authority, the local planning authority's archaeological adviser, and the relevant Historical Environment record. A hard copy of the final report must be included with the project archive.

- 4.5 The Developer and Archaeological contractor should assume that reports lodged with the respective Historic Environment records will become available for public inspection; and that information from the report may be authorised to be used by the Local Authority, with due acknowledgement to the Developer and Archaeological Contractor [DAS Ltd]

The report must include, except where otherwise stated in the *Brief*.

- 4.6
- Planning history, in brief, including nature of proposed development, relevant Local Planning Authority, applicant, and planning application reference number [where applicable]
 - Function of the report
 - Location of site by OS map reference [5 figures easting, 5 figures northing]
 - A location plan of the site, with boundary clearly marked, on an OS base map of not less than 1:2500 scale [smaller scale for large sites only], showing Grid North, and tied in to the OS Grid.
 - Plans of trenches / excavated areas showing archaeological contexts recorded therein, at a scale suitable for distinguishing clearly the outlines of recorded contexts
 - Those parts of archaeological contexts which have been excavated
 - For deeper / stratified sites, drawn sections of each trench elevation, with OD levels
 - Levels above / below OD at top and bottom of trenches / excavated areas, at each end / corner of the trench / excavated area
 - Site geology
 - Archaeological and historical background

- Reproduced extracts of relevant historical maps, with site boundary superimposed and clearly shown [where photocopies cannot be taken, good quality traced extracts should be made]
- Dates of fieldwork – beginning and end
- Fieldwork methodology, archaeological and Palaeoenvironmental sampling strategies
- Site Code
- Staff Structure – Project Manager, Site Supervisor[s]
- Name of developer, person or body commissioning the archaeological contractor
- An abstract of the background and findings of the report of about 100-200 words
- Principal author and [at the head of each specialist report] names of contributors to the report
- Stratigraphic report, by excavated area and context
- Finds reports by recognised specialist
- Identification of finds requiring active conservation
- Present location of finds, intended repository of the finds, museum accession number
- Palaeo-environmental report – results of palaeo-environmental processing and assessment by recognised specialist
- A list of contexts excavated, arranged numerically, with brief description, nature of artefactual / ecofactual contents, and provisional / final dating
- A list of palaeo-environmental samples taken
- Discussion and Conclusions
- References
- Historic Environment Record summary form

4.7 The copies of the report submitted to the Local Planning Authority must be in PDF A format and on a CD accompanied by a selection of illustrative images which shall be submitted to the HER within six months of completion of trial investigation works on site. These documents are intended both for record purposes and for dissemination of information to the Local Planning Authorities and to the public [e.g. through presentations and talks].

5.0 Timetable of Work.

5.1 It is understood, due to ecological site constraints, that no engineering / construction works will take place between end of March [2020] and end of August [2020].

It is anticipated that photogrammetric / photographic recording of the existing WWII structures will be undertaken in advance [c. min two-week notification] of start of works to construct / form the New Bird Island.

5.2 Archeological monitoring / recording will be coordinated with each phase of engineering works with the applicant [Pagham Flood Defense Community Interest Company] giving the archaeological

contractor [DAS Ltd] a minimum of 15 working days' notice prior to the start of any engineering construction phase.

- 5.3 Any post-monitoring / recording work will be undertaken immediately after the fieldwork component, a short report [outlining main results and any additional recommendations] will be submitted to J. Kenny. A final report will be produced within three months of completion of field work

6.0 Site Archive.

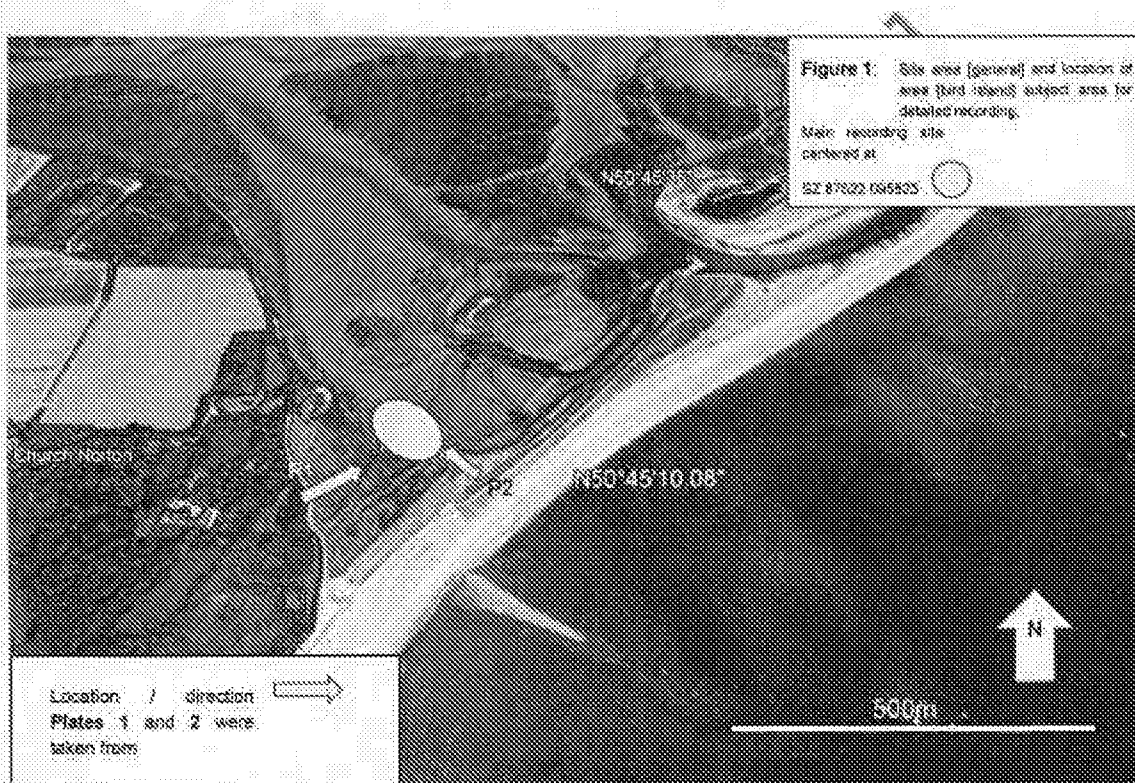
- 6.1 An archive of all records and finds is to be prepared consistent with the principle of 'Management of Archaeological Projects' [MAP] [English Heritage, 1991], particularly Appendix 3. However, the detail of the archive is to be fuller than that implied in MAP Appendix 4.2.1. The archive is to be sufficiently detailed to allow comprehension and further interpretation of the site should the project not proceed to detailed analysis and final report production. It must be adequate to perform the function of a final archive for lodgment in the County SMR or museum.
- 6.2 The minimum acceptable standard for the archival report is defined in the 'Management of Archaeological Projects' 5.4 and Appendix 3. It will include all materials recovered [or the comprehensive record of such materials] and all written, drawn and photographic records relating directly to the investigations undertaken. It will be quantified, ordered, indexed and internally consistent. It will also contain a site matrix, a site summary and brief written observations on the artefactual and environmental data.
- 6.3 Work on the site archive will be completed within six months of the fieldwork and this will be available for the inspection by CDC's archaeologist [J. Kenny / Advisor to ADC] prior to deposition at the designated recipient museum.
- 6.5 Finds will be appropriately conserved and stored [in accordance with UK Inst. Conservators Guidelines / RESCUE publication First Aid for Finds [1987]]; with all 'small finds' boxed together, separate from bulk samples.
- 6.7 Prior to deposition of the site archive, Copyright [for the written, drawn and photographic record], will be retained by DAS. At deposition of the archive at Chichester Museum, written permission will be given for the reproduction of specific material for educational or academic purposes, with due acknowledgement to the Copyright holder [DAS].

List of Figures and Plates

- **Figure 1:** Site location [AP] site centres at approximately SZ87522 095623
- **Figure 2a:** Shingle receptor area A and supply area B [variable dependant on distribution of shingle resource]
- **Figure 2b:** Location of main channel cut.
- **Figure 3:** Block Plan showing proposed channel cut and removed fill deposition area
- **Figures 4 & 5:** 1944 AP's showing location of 'harbour infrastructure.
- **Plates 1 & 2:** Views of 'proposed New Bird Island' study site / recording area.

Approved 106:12:2019

area District Council ref: 1907/1997
 Gloucestershire District Council ref: 15/000000/12/2004



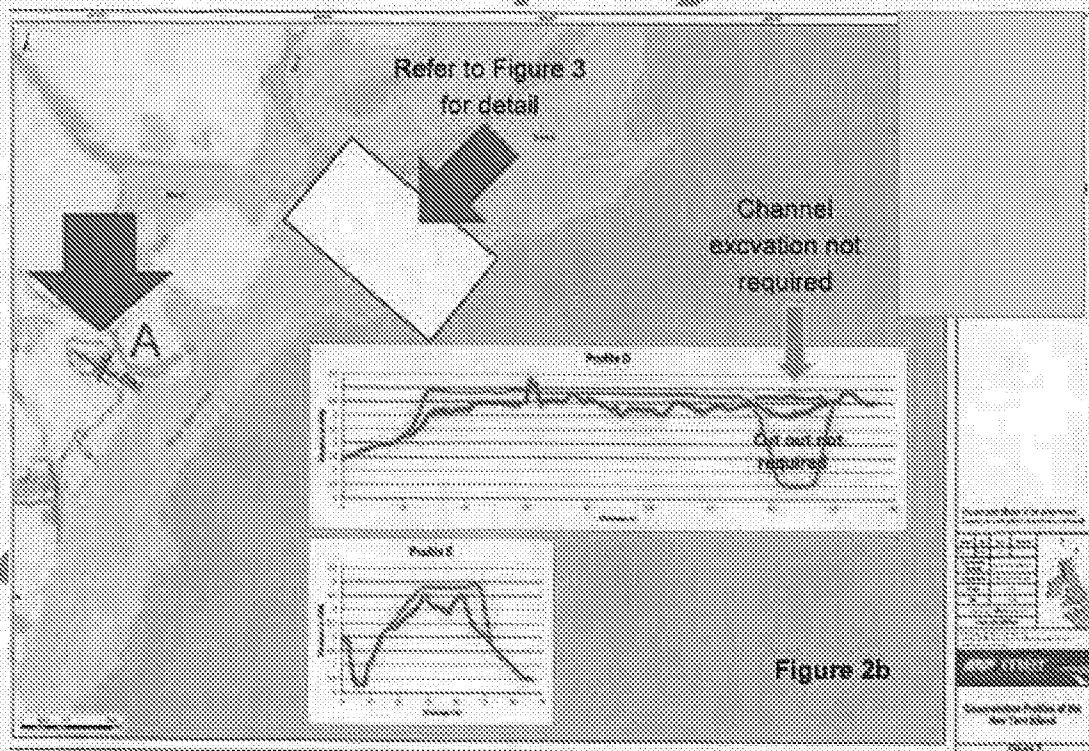
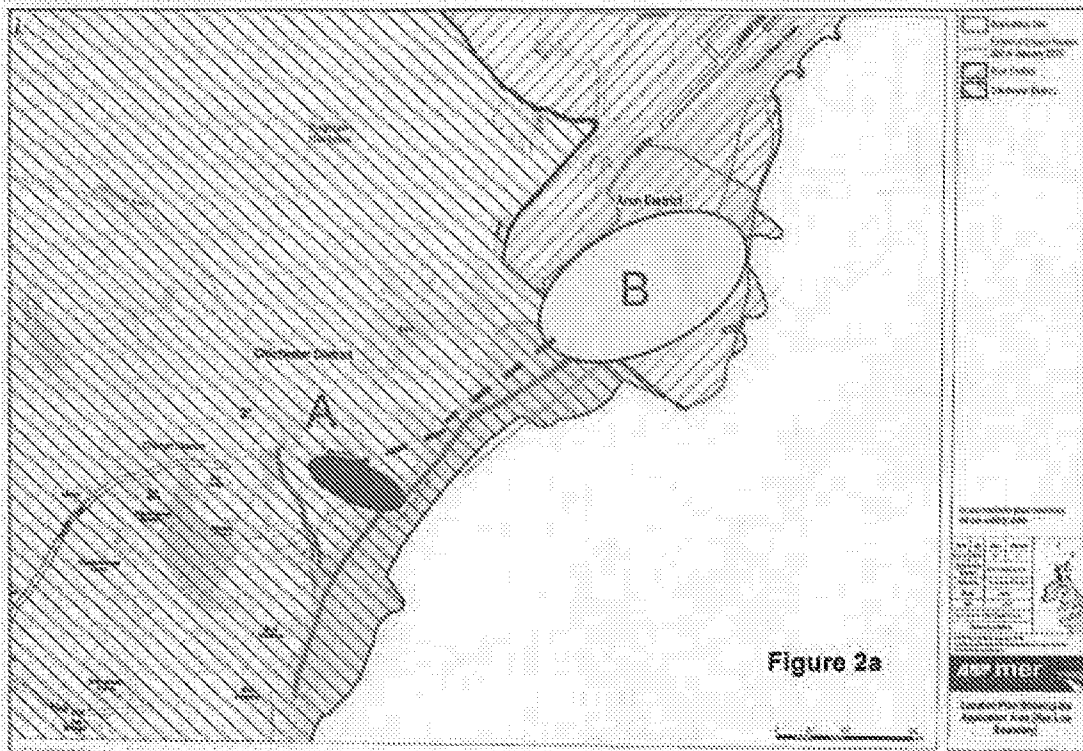


Figure 2a: Shingle receptor Area A and supply Area B [variable dependant on distribution of shingle resource]

Figure 2b: Location of channel cut. Refer to Figure 3 for area detail.



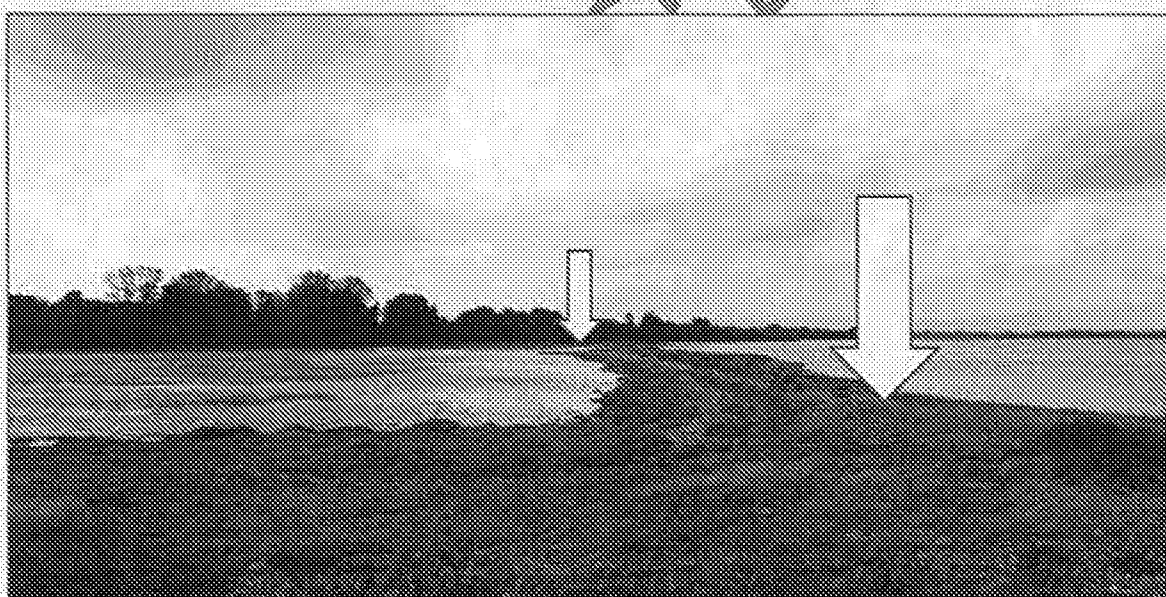
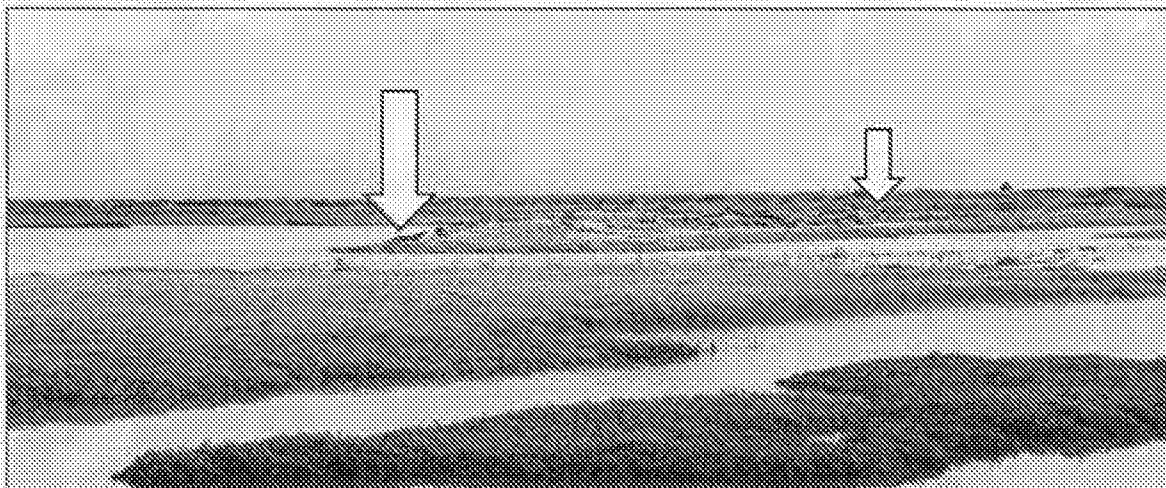


Plate 1: North east terminus of 'Bird Island' Viewed from western boundary of inlet.

Plate 2: View of Bird Island from the south east looking north east.

For location / direction plates were taken from see Figure 1.





Figure 5: Aerial photo of RAF Selsey in 1944.
The cruciform runway configuration can just be discerned in the top right hand section of the image (Crown Copyright)

USAAF aerial photo of RAF Selsey taken February 10th 1944 during the build up to D-Day (© United States Military via M. Foley collection)

US 7PH GP LOG 172 6-2-44 F 24" ←

5. Compensation measures

5.1. Planning requirements

5.1.1. PLANNING CONDITION 5. Details of Tern Island Condition

Within 6 months of planning permission being granted, the developer shall submit for approval by the Local Planning Authority, in consultation with Natural England, final plans and details concerning the design and construction of the proposed Tern Island compensation measure. The final design shall ensure that the island is cut off from surrounding land and hydro-dynamically connected to the tidal waters either side of it with a view to isolating the island and reducing the risk of future predation by foxes and shall remove any loose debris or artificial features from around the island. The Tern Island shall then be implemented in accordance with the approved details and completed prior to the breeding season following the breaching of the Spit in order to ensure that it is available for use by Little Terns before the overwintering season.

5.1.2. PLANNING CONDITION 8. Compensation Measures Management Plan Condition - Tern Island

Within 6 months of planning permission being granted, the developer shall submit for approval by the Local Planning Authority, in consultation with Natural England, a management plan for the proposed Little Tern Island compensation measure. The Management Plan shall include the following

1. Tape lures and bird decoys to encourage colonisation by Little Terns;
2. The placement (and continuous replacement) of seasonal reactive predator-exclusion fencing around nests;
3. Regular visits by wardens;
4. The monitoring of nesting activities and breeding success with results then fed back to the overseeing stakeholder group in order that they can review the effectiveness of the management measures;
5. The regular raking of the surface of the island to keep it from being colonised by ground level vegetation.
6. The approved management plan will be implemented in accordance with the approved details and the approved management measures retained thereafter unless written notification is received from the Local Planning Authority that this is no longer required

5.1.3 PLANNING CONDITION 7. Mitigation Measures Management Plan Condition - remaining spit

Within 6 months of planning permission being granted, the developer shall submit for approval by the Local Planning Authority, in consultation with Natural England, details of the proposed mitigation measures (and management thereof) to be employed on the sections of the remaining Spit in order to protect the existing Little Tern habitat. These shall include:

1. Summertime reactive fencing around the nesting areas on the spit;
2. Signage to keep people off the Spit;
3. Wardening to enforce these restrictions.
4. Seasonal visitor exclusion of the connected section between Pagham Beach and the infill area;
5. The installation of seasonal signage to explain to residents and visitors (and especially dog walkers) why this access exclusion fencing is in place and explain the need to be alert to the situation during the summer breeding season (1st April until mid-to late August - the timing in August depending on confirmation from the RSPB that all chicks have fledged);
6. These mitigation measures shall be implemented prior to works commencing on the spit and shall be permanently retained thereafter unless written notification is received from the Local Planning Authority that this is no longer required

5.2. The design of the breeding ground for Little Terns.

The RSPB who manage the bird sanctuary in the harbour have had considerable success with the provision of a breeding habitat suitable for Little Terns. These prefer to build their nests on fresh shingle. The RSPB have already built such islands and are keen to expand their work. The details below follow the RSPB report "Pagham Harbour little tern nesting islands and shingle spits as compensatory nesting habitat", 28/10/2019, by Tim Callaway, Hants and IOW manager RSPB. This report is part of this application and gives the ecological reason for the details RSPB would like for the design and maintenance of the compensation provision. Details of the CMP are given later in this report. Tim's report also contains the response of Natural England, which Tim Callaway asked for before submitting the report.

5.2.1. The island will consist of 1900 to 2000m² of shingle taken from the cut through the spit. Where necessary the concrete slabs will be levelled or underpinned with shingle to protect them, and avoid them becoming dens for foxes and other predators. The shingle will be placed and levelled producing a spit of approximately 0.34 hectare. It will be 15m-25m wide, and 160m long. It will be flat topped, with a ridge along the leeward (SW) side. The edges would have a 1 in 3 slope on the side. The flat top would be at 3.75m OND (about 1m above mean high tide). The ridge would be 0.25m higher. Where possible finer shingle will be placed on the surface. Approximately 410m of fencing as specified by RSPB will be fixed round the perimeter of the new spit. See Figs 6,7 &8 and the accompanying text in Tim's report. The fencing will have a removable section near the mainland, to facilitate maintenance in the winter.

5.2.2. We have been asked by the RSPB to consider omitting the cut that would separate the island from the mainland. We are happy for the Planning authorities to decide on which they prefer, but we note the following:

- a. Keeping the cut in the bar:
 1. Will keep the public, including dog walkers further from the nesting ground.
 2. Chicks occasionally go beyond the fencing and become more vulnerable to predators.
 3. It will save costs as the shingle from cutting the bar can be used to build the island, and we can use the cheaper anti-predator fencing as in the planning application.
- b. Not cutting the bar (our preferred option):
 1. Will save disturbing the remains of the war-time roadway laid on the bar and other possible archaeological material.
 2. It will make little difference to uncontrolled dogs, as they, like foxes and rats, are good swimmers.
 3. The RSPB have found that the strip of water does not deter the predators, but good fencing does.
 4. Will increase the size of the compensation 'island' by about 0.04 hectare (12%).
 5. Where Little Terns like to nest by the water's edge it will make little difference, as they would have two sides, each 10m long, instead of one end, 20m long.
 6. The RSPB are looking for improvement/temporary modification of the fence that will keep the young chicks getting outside the perimeter.
 7. The shingle cut would tend to infill over time.
 8. Access for observation and maintenance would be easier.
 9. The RSPB maintain a summer exclusion zone on the mainland near the island.

5.2.3. Details of the construction method are shown in the Construction Management Plan. The plans below show details of the island. See the construction plan for full details of the access routes.

5.3 The maintenance of the 'Tern Island'.

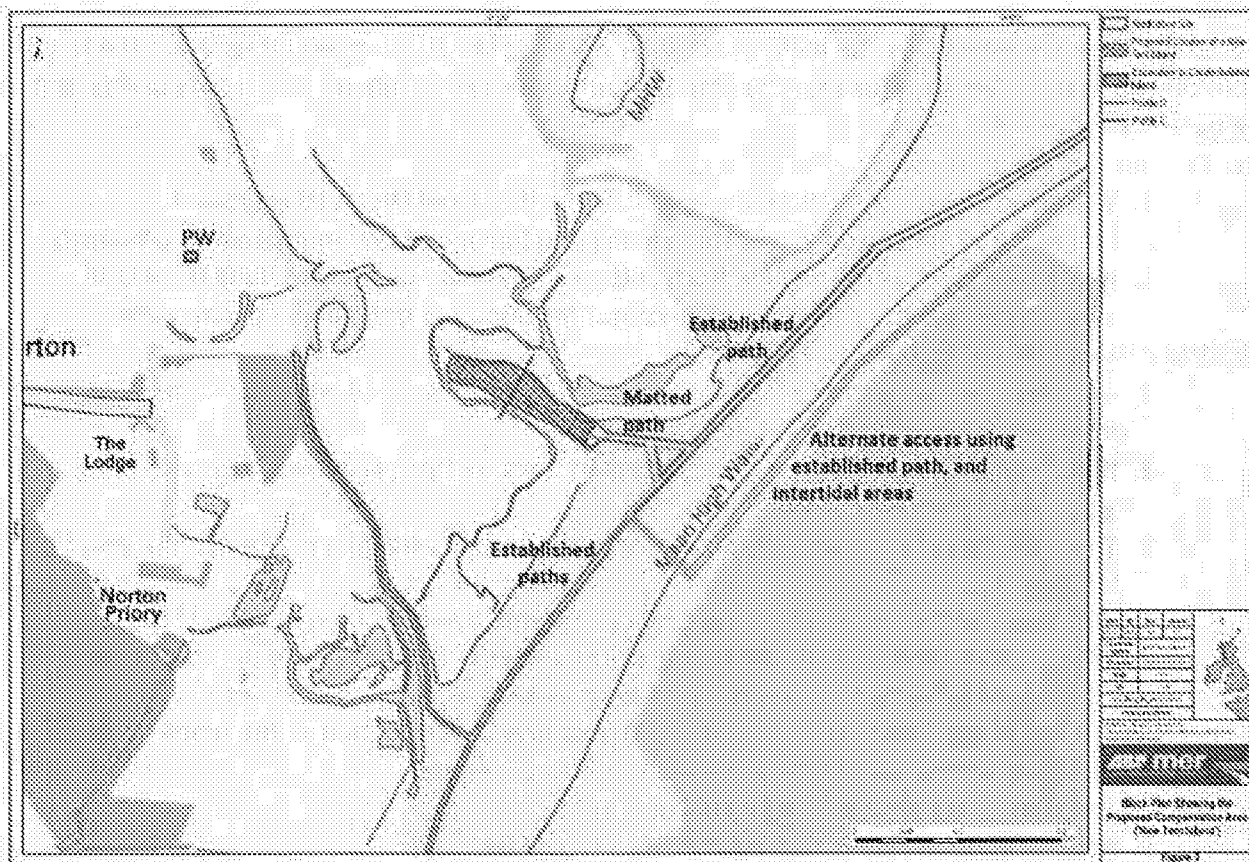
- 5.3.1. Volunteers, with the RSPB, will maintain the Little Tern Island. Their work will include:
- a. The repair and replacement of the anti-predator fencing.
 - b. The placement of lures and bird decoys to encourage colonisation by little terns.
 - c. To rake the shingle, and remove unwanted ground level vegetation.
 - d. To make regular visits to warden and record the nesting activity, to report to the Stakeholder Group.

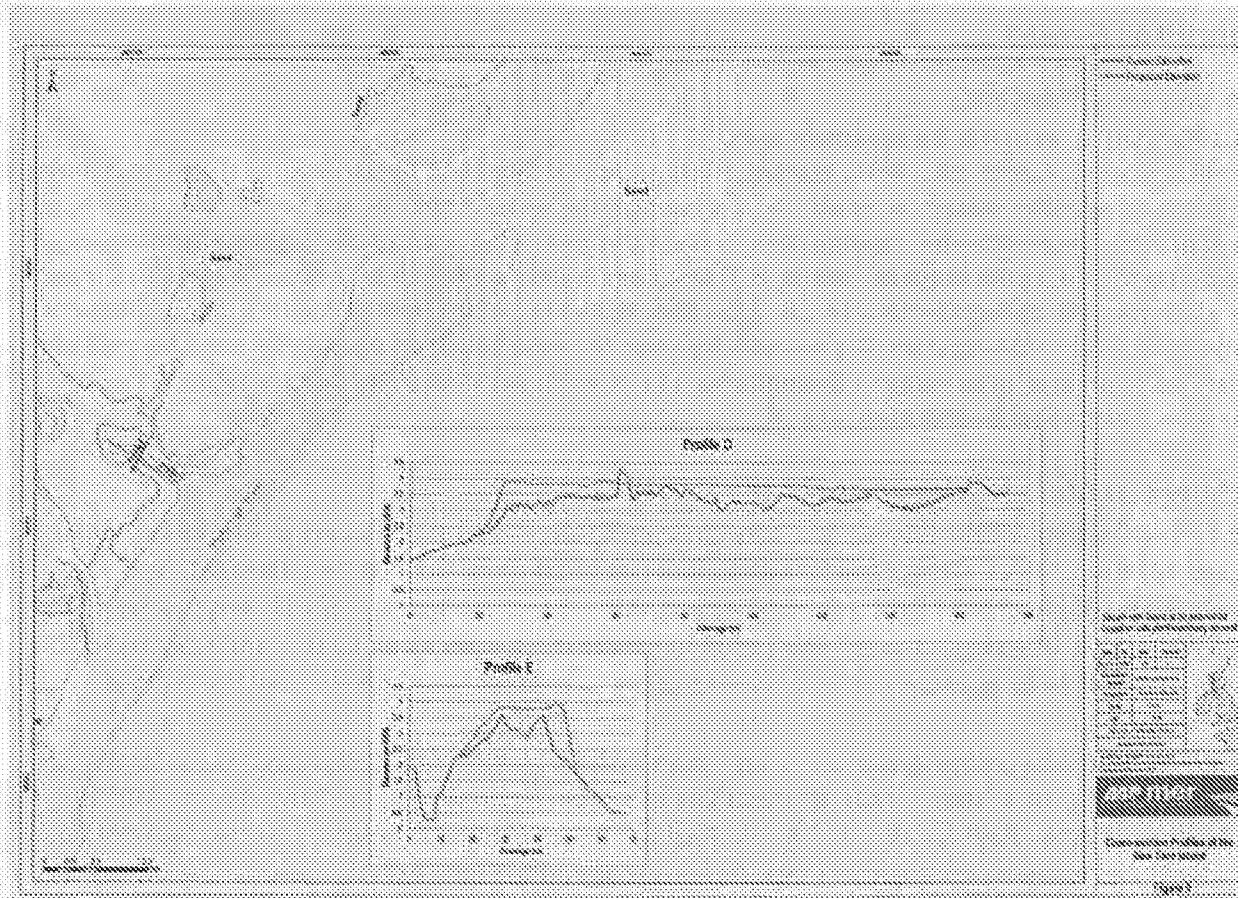
5.4 The maintenance of possible breeding areas on the remaining spit.

5.3.1. Because of the rapid natural changes to the spit over the past year, it has not been possible for the RSPB to make use of this area for their breeding programme.

5.3.2. If the main cut in the spit goes ahead, we will work with the RSPB, on any suitable fresh shingle areas that appear during a breeding seasons following the cut of the spit:

- a. By installing reactive fencing, and signs showing the need to keep away from the breeding birds.
See Tim Callaway's report for details.
- b. By Wardening and advising visitors of the nesting and needs of the little terns.





6. Stakeholder Group

6.1. Planning requirements

6.1.1 Planning condition 6: Management plan.

Within 6 months of permission being granted, the developer shall submit for approval by the Local Planning Authority, an adaptive management plan setting out how the harbour opening will be monitored and how the approved compensation/mitigation measures will be reviewed in order to assess their effectiveness. The plan is to refer to the proposed adaptive 'Traffic Light System' approach set out in the May 2016 report. The plan must include membership details of the Stakeholder Group that will be created, the frequency of Stakeholder Group meetings; and the methods by which the stakeholder group will communicate with each other. No changes shall be made to the approved adaptive management plan other than with the written approval of the Local Planning Authority.

6.2. Discharge of Stakeholder group

6.2.1. The Pagham Coastal Issues Advisory Group (PCIAG) have agreed to act as the 'Stakeholder Group' for this project. This group has met since the granting of the Planning Consent. It is convened by the Pagham Flood Defence Community Interest Company and will continue to meet approximately three times a year. The group monitors the harbour and beach, and is working on a Beach Action Plan to develop a longer-term strategy to protect the residents and the natural environment.

6.2.2. The PCIAG has representatives from: Arun District Council, Chichester District Council, Environment Agency, Marine Management Organisation, Natural England, Royal Society for the Protection of Birds, Pagham Parish Council, Pagham Beach Holdings, Bourne Leisure, Pagham Beach Residents Association and Pagham Flood Defence Community Interest Company.

6.2.3. The group uses many different methods to record the rapidly changing beach. This includes Aerial photography, Satellite pictures, Lidar recordings and tidal heights in the harbour. We have also been greatly helped by members of the local community using a phone app to record the outline of shingle banks and beach. We can then superimpose this onto local maps to give a clearer picture of what is happening to the area.

6.2.3. The PCIAG includes members of the RSPB who have played an active part in keeping us up to date with the needs of the breeding and other programmes they are involved in.

6.2.4. Future agendas: When acting as the Stakeholder Group the PCIAG will:

- a. Meet at least twice a year, or when NE or RSPB agree there is a need to meet.
- b. Continue mapping the harbour entrance, and recording the tidal heights within the harbour, noting the possibility of rapid changes, and recommending if the project becomes invalid or needs to be changed because of natural changes. Any changes must be approved in writing by the local planning authority.
- c. They will monitor the possible closure of the harbour entrance due to work on the spit.
- d. To receive reports from our volunteers and the RSPB on the effectiveness of the design and maintenance of the compensation measures. This will include the possible use of new areas of shingle that may benefit from measures to encourage Little Terns to breed. Any new work will require the written approval of the planning authority.
- e. If the main cut goes ahead, they will report the above to the planning authority, and MMO at least once a year or when a change is required to the planned work.
- f. They will continue to work on the Pagham Beach Action Plan to supersede this planning application.

6.3 Monitoring the closing of the harbour

The Stakeholder Group will monitor the possible closure of the Harbour entrance due to work on the Spit. The level of the water in the harbour at low tide, has risen slightly over the years, and the Stakeholder Group will need to decide what is natural, and what is caused by the engineering works. The monitoring will continue for the five years as specified in the planning application.

6.3.1. The monitoring will in the first place use the tidal gauge in the harbour. The normal level in the harbour at low tide is at 0.00m ODN or slightly below. When the spit was naturally breaking in 2017/2018 the level in the harbour at low tide rose to 0.5 to 0.7m above ODN. This was within the range of changes to be expected and naturally returned over a few months. Should the harbour remain at this level, or rise above it, this would trigger the amber on the traffic light system. This indicates the level needs to be watched more closely to ensure the harbour does not close. The Stakeholder Group will need to consider any cause, and if it is likely to result in closure. The applicant has reserved £50,000 for any remedial work required to either dredge, or rebuild as necessary. Such remedial work will need the approval of the planning authority and Natural England, and can only be done once.

9. Construction Plan

9.1. Planning requirements

9.1.1 Planning condition 9: Construction Management Plan

Within 6 months of planning permission being granted, the developer shall submit for approval by the Local Planning Authority, in consultation with Natural England, a Construction Management Plan concerning the construction activities involved with both the breaching of the spit and the creation of the new Little Tern Island. The Plan shall provide details on the following matters:

The timing of construction works;

The anticipated timescales and likely start dates of the different parts of the project (noting in particular the need to complete the Tern Island prior to the breeding season following the breaching of the Spit);

Methods of access and routing of vehicles and people during construction - including the use and management of Rectory Lane and the use of designated paths/tracks or if necessary, within the active intertidal zone to ensure minimum impact on shingle ridges where little terns nest;

Security hoarding or other suitable barriers to exclude the public from the development site;

The anticipated number, frequency and types of vehicles used during construction;

The protection of the surface geomorphology of shingle ridges and recurves;

Cold weather working restrictions;

A 5-10m buffer zone around the Little Lagoon with all plant to remain at least 15m from the edge of the lagoon. The parking of vehicles by site operatives and visitors;

The loading and unloading of plant, materials and waste;

The storage of plant and materials used in construction of the development;

The provision of wheel washing facilities and other works required to mitigate the impact of construction upon the public highway (including the provision of temporary Traffic Regulation Orders);

Safety provision in respect of working on the Spit particularly during storm conditions;

The details of public engagement both prior to and during construction works (to include information boards and appropriate signage near the site to explain the project and provide contact details for queries/emergencies), and The arrangement of an on-site meeting to confirm the construction methodology prior to works commencing.

There shall be no vehicle access from the Church Norton side of the spit and all works shall be from the eastern side of the spit accessed from the Pagham frontage except with the express agreement of Natural England for the purposes of emergency access, safety or where the site changes to such an extent as safe access is not possible from the Pagham side.

No development shall then commence until written approval has been received to this plan and the plan shall thereafter be implemented and adhered to throughout the entire construction period.

9.1.2. MMO condition 5.2.1. Method statement.

The licence holder must submit a method statement to the MMO at least 4 weeks prior to the proposed commencement of the licensed activities. The licensed activities must not commence until written approval is provided by the MMO.

9.2. Other requirements

9.2.1. The Contractor and others working on this project must note and strictly observe the following planning conditions and informatives:

a. Planning condition 3: Bathing Water Condition

The development must be carried out in full accordance with the approved Water Framework Directive as dated February 2017 (or more recent versions) and which forms part of the submitted Environmental Statement (Volume 2, Appendix H).

b. Planning informative 2: Best practice.

All works should be undertaken following current best practice and with minimum impact on water quality. The applicant/developer should adhere to the Environment Agency's Pollution Prevention Guidance (PPG) 5 for works in or near watercourses. In the event of a pollution incident, all works should cease immediately and the Environment Agency should be contacted via the incident hotline 0800 807060.

c. Planning Informative 3: Destroying birds' nests.

The applicant should note that under Part 1 of the Wildlife and Countryside Act 1981, with only a few exceptions, it is an offence for any person to intentionally take, damage or destroy the nest of any wild birds while the nest is in use or being built. Birds nest between March and September.

d. Planning informative 4: Protected species.

Should any protected species or evidence of any protected species be found prior to or during the development, all works must stop immediately and an ecological consultant or Chichester District

Council's ecologist contacted for further advice before works can proceed. All contractors working on site should be made aware of this advice and provided with the contact details of a relevant ecological consultant.

e. Planning Informative 9: Severe weather

In respect of condition 11 above, a continuous period of 7 days of severe or freezing weather is defined as When the nearest Meteorological station records minimum daily air temperatures of 0 degrees C or less for 7 consecutive days, allowing short periods of thaw. Short periods of thaw shall be one or two days where the minimum daily air temperature is above 0 degrees C. The short periods of thaw will have no effect on the counting process of severely cold consecutive days, but periods of thaw of three or more days have the effect of resetting the severe weather day number to 0. Further details of the severe/freezing weather suspension set out within Condition 11 can be found at: <https://basc.org.uk/shooting/severe-weather-and-waterfowl-shooting/> and the JNCC page: <http://jncc.defra.gov.uk/page-2894>.

9.2.2. The Contractor and others working on this project must note and strictly observe the following MMO conditions

a. MMO condition Binding other parties.

Where provisions under section 71(5) of the 2009 Act apply, all conditions attached to this licence apply to any person who for the time being owns, occupies or enjoys any use of the licensed activities for which this licence has been granted.

b. MMO condition 5.2.7. Little Lagoon.

Plant must remain at least 15m away from the Little Lagoon at all times.

c. MMO condition 5.2.8. Fuel storage.

Bunding and/or storage facilities must be installed to contain and prevent the release of fuel, oils, and chemicals associated with plant, refuelling and construction equipment, into the marine environment. Secondary containment must be used with a capacity of no less than 110% of the container's storage capacity.

d. MMO condition 5.2.9. Fuel Spillage.

Any oil, fuel or chemical spill within the marine environment must be reported to the MMO Marine Pollution Response Team within 12 hours. Within office hours: [REDACTED]. Outside office hours: [REDACTED]. At all times if other numbers are unavailable: [REDACTED].

e. MMO condition 5.2.10. Soft Start.

Soft-start procedures must be used to ensure incremental increase in pile power over a set time period until full operational power is achieved. The soft-start duration must be a period of not less than 20 minutes. Should piling cease for a period greater than 10 minutes, then the soft start procedure must be repeated.

f. MMO condition 5.2.17. Clearance of site.

All equipment, temporary structures, waste and/or debris associated with the licensed activities must be removed within 5 working days upon completion of licensed activities.

9.3. Discharge of Construction Management Plan.

These details only refer to the construction of the Tern Island, a separate plan will be submitted should the main cut be made.

9.3.1. The proposed breach This will not be done at this time. Material for the Compensatory Tern Island will be taken from the south western edge of the area designated for the cut through the spit.

9.3.2. The main access route to the site will be from West Front Road, between nos. 11 and 13. Vehicles will travel along the inter-tidal areas, and pass onto the spit at a suitably shallow area at low tide. They will continue along the inter-tidal areas to the area where the spit is to be cut. Shingle will be loaded by a tracked 360° excavator, and transported using 30T articulated dump trucks, from the cut along the inter-tidal area, then up an established ramp and across a matted vegetated area to an established path. The route from the established path to the Tern Island will also need to be matted. Where vehicles need to pass each other, they must not use vegetated areas. Details of this path have been discussed with Natural England and will be clearly explained to the contractor. An alternative route is to continue along the inter-tidal area past the Tern Island, travelling up and along the established path by

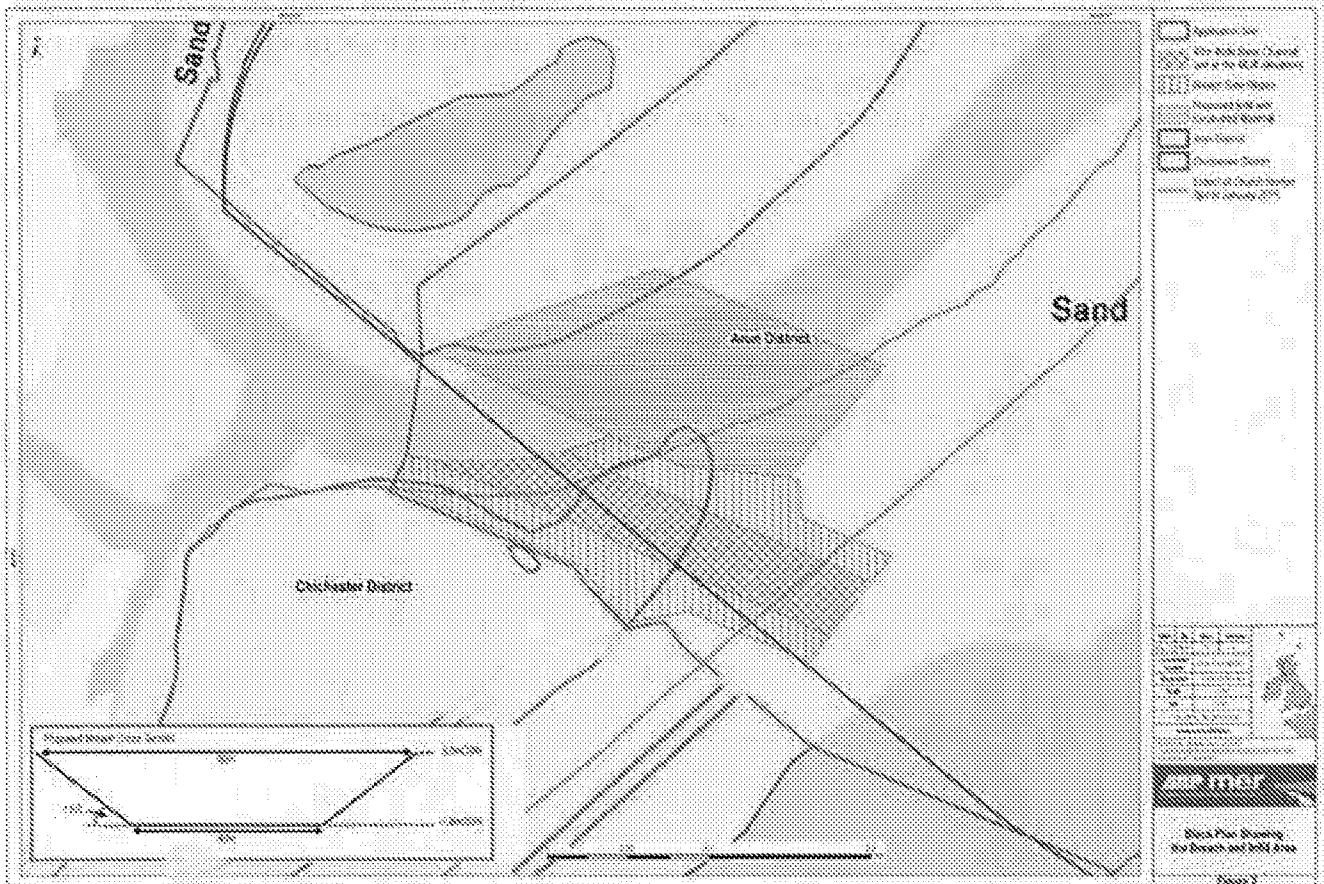
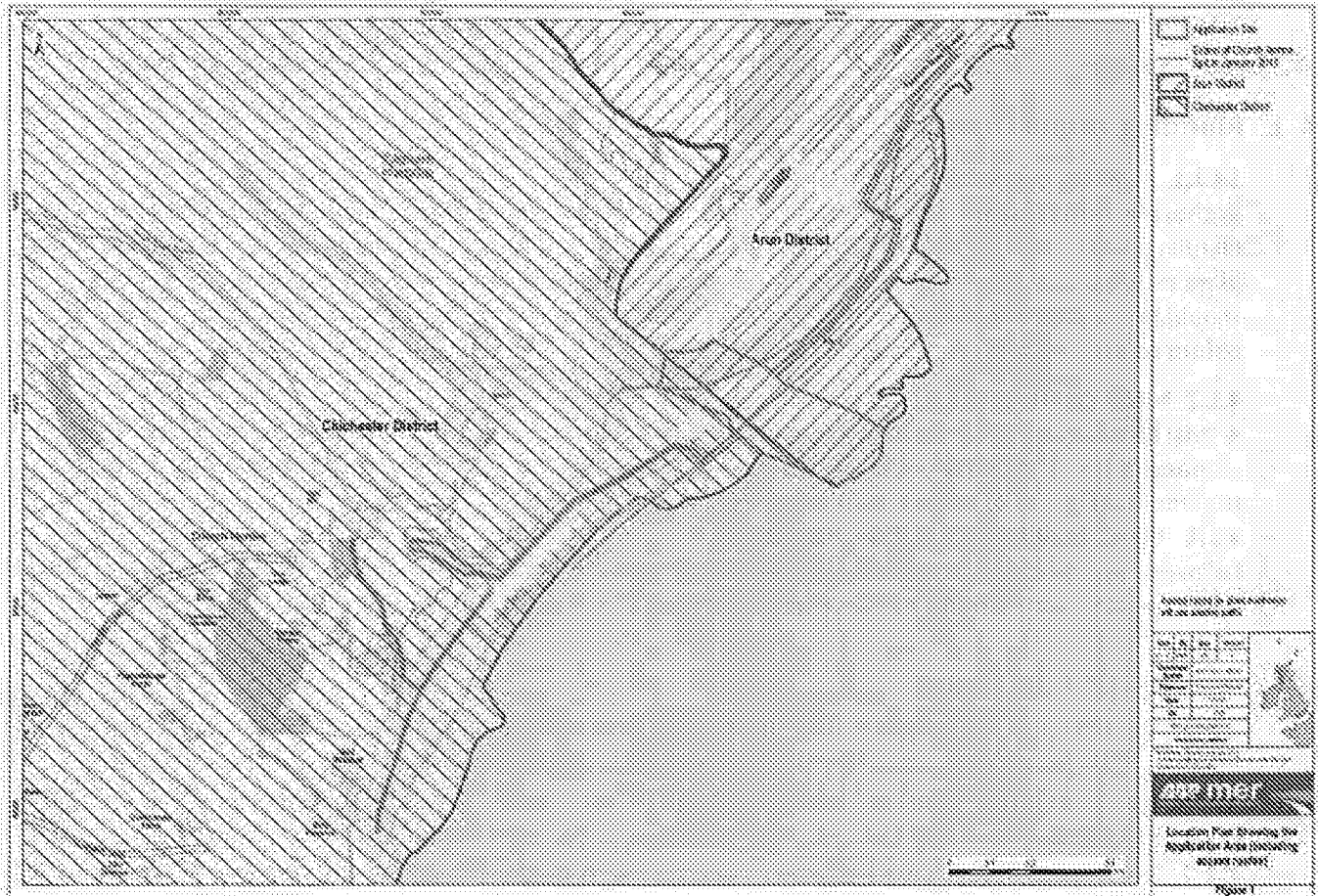
the wire fencing and back to the Island along the established route. Refuelling will be done with a smaller vehicle from Church Norton Car Park using the established paths. An alternative to using Church Norton Car Park would be for trucks to return to Pagham Beach to refuel. They will use a bio-degradable fuel. The vehicles will be parked over-night on the Tern Island, or on the high part of the spit cut area. The vehicles will only return to West Front Road at the end, or if there is a severe weather warning. Daily pedestrian access will be from Church Norton or via East Beach, Selsey. These access points may also be used in an emergency with Natural England's approval. Fig1. Location Plan and Fig 2. Block Plan below, show details of the access routes. The preferred route is shown in red, the alternate route in orange. The matting near the Tern Island may be left for the fencing contractor and then removed. The public will be warned by signs, and excluded from the area during the construction.

9.3.3. Fencing of Tern Island will be completed by a specialist contractor following the completion of the shingle move. They will use the established path from the Church Norton Car Park to the site using 6T vehicles with matting from the established path to the Island (possibly left by the previous contractor). See figs 6,7,8, and accompanying text of Tim's report.

9.3.4. Any remaining structures will be removed on completion of the work, the site demobilised and the area left in an acceptable condition.

9.3.9. The estimated construction time is 2 weeks. One week to build the Tern Island, and a further week for the construction of the fencing. All work will be completed after the over-wintering birds have left, and before the Little Terns start nesting. No work will be permitted after the 14th April. The actual programme will need to take into account when the operation is to take place to allow for potential weather risk and downtime, as well as any logistical issues with accessing the spit initially and working round the tides. Details of the construction will be discussed with Natural England.

Discharge of planning condition 9 – Construction Plan 30/01/2020



Pagham Flood Defence Community Interest Company. Company number 10709825.

Registered Office: Pagham Yacht Club, 1 West Front Rd, Pagham, PO21 4SY. Directors: Robin Henderson, Geoff Barter.

14. Tidal Gauge

14.1. Planning requirements

14.1.1. Planning condition 14: Tide Gauge.

Within 6 months of planning permission being granted, the developer shall submit for approval by the Local Planning Authority, a scheme detailing the deployment of a tide gauge within the harbour for the purposes of monitoring tidal heights and tidal behaviour in the middle of the harbour. The approved tide gauge should be continuously deployed before during and after the construction period from, at least, 1 month before to 1 month after construction.

4.1.2. MMO condition 5.2.5. Tidal monitor

A Tidal Monitoring Plan detailing the deployment of a tide gauge within the harbour for the purposes of monitoring the tidal behaviour must be submitted to and approved by the MMO at least 1 month prior to the commencement of any licensed activities.

4.1.3. MMO condition 5.2.6. Tidal monitoring

Following approval, the Licence Holder must implement the Tidal Monitoring Plan as approved at least 1 month prior to works until 1 month after completion of works.

14.2 Discharge of Tidal Gauge.

4.2.1. We shall use the gauge in Pagham Harbour installed and maintained by the Environment Agency. This gauge continuously monitors and records the tidal height and compares it with a similar gauge at Littlehampton. Samples of the recordings are given below. The blue line being the level at Littlehampton, and the red being the level in Pagham Harbour

4.2.2. The normal level in the harbour at low tide is at 0.00m ODN or slightly below. When the spit was naturally breaking in 2017/2018 the level in the harbour at low tide rose to 0.5 to 0.7m above ODN. This is the point (amber on the traffic light system) that the level needs to be watched more closely to ensure the harbour does not close. Details of how this is used to monitor the closing of the harbour is in the Stakeholder section.

4.2.3. The PCIAG will continue to monitor the tidal levels at our regular meetings.

