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# SKELLIG MICHAEL ECOLOGICAL CLERK OF WORKS REPORT

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Sweep of Rockfall Area  
Prepared on behalf of the Office of Public Works  
by  
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## 1. Introduction

Envirico have been engaged by the Office of Public Works (OPW) to provide an Ecological Clerk of Works (ECoW) to supervise temporary works on Skellig Michael, an island off the south west coast of Ireland. The temporary works involved the clearance of debris and removal of loose materials from sections of slopes adjacent to where a recent rockfall occurred, as well as an area north of the lower lighthouse which had a recent rockfall outside of an area frequented by tourists, but which posed an elevated risk to OPW personnel working on the island. The principal role of the ECoW is to minimise and eliminate where possible any interference with the breeding bird populations that are currently on the island.

### 1.1 Location

Skellig Michael (Great Skellig or Sceilg Mhichíl) is located approximately 14kms off the south west coast of County Kerry (51.771459, -10.539846) and forms part of the Skelligs Special Protection Area (SPA, site code 004007). The SPA comprises Great Skellig and Little Skellig islands. The geology of the islands is of Old Red Sandstone, with a little slate and veins of white quartzite. Both islands are steep rocky sea stacks, Great Skellig rising to 218 m and Little Skellig to 134 m. (NPWS Site Synopsis).

### 1.2 Ecology of Skellig Michael

“Great Skellig supports a sparse maritime flora on shallow soils. Common plant species include Thrift (*Armeria maritima*), Sea Campion (*Silene maritima*) and Rock Sea-spurrey (*Spergularia rupicola*), with patches of Red Fescue (*Festuca rubra*), Dock (*Rumex* sp.) and Sea Mayweed (*Matricaria maritima*) occurring frequently. Its lichen flora is notable for the number of rarities that occur, including several species not recorded elsewhere in Ireland”.

“The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Fulmar, Manx Shearwater, Storm Petrel, Gannet, Kittiwake, Guillemot and Puffin. It is also of special conservation interest for holding an assemblage of over 20,000”The Skelligs comprise one of the most important seabird colonies in the country for populations and species diversity. Great Skellig has an internationally important population of Storm Petrel (9,994 pairs in 2002), with birds nesting both in the stonework associated with the monastic settlement and in natural crevices amongst the scree and rock. Great Skellig also has one of the largest Puffin colonies in the country, with 6,000 pairs estimated in 2002. Other seabird species which occur on the islands in nationally important numbers are as follows: Fulmar (830 pairs), Manx Shearwater (902 pairs), Kittiwake (1,035 pairs) and Guillemot (1,652 pairs) – all data from 2002. Razorbill (283 pairs - five year mean between 1998 and 2002) occur but below the threshold of national importance. Great Skellig is

a traditional site for Chough, though the relatively small size of the island supports only one nesting pair. Peregrine has also nested in some years”.

“Owing to the high importance of the islands for birds, each has been designated a Statutory Nature Reserve. This site is one of the top five seabird sites in the country and is of international importance on account of both the assemblage of over 10,000 pairs of breeding seabirds and the individual populations of Storm Petrel and Gannet. The site also holds nationally important populations of a further five species of breeding seabird. Also of note is the regular presence of three species, Storm Petrel, Chough and Peregrine, which are listed on Annex I of the E.U. Birds Directive”. (NPWS Site Synopsis).

### 1.3 Background to the Project

Owing to a recent rockfall which occurred on Monday, 13th June 2022 adjacent to Cross Cove on the island, an inspection was carried out on Friday, 17th June 2022 by Creagh House Environmental Ltd in the company of Fergus McCormick, Senior Architect, OPW, and Jack O’Leary, Director, Malachy Walsh & Partners Consulting Engineers to examine the site of the recent rockfall.

While rockfalls are a feature of the island and may occur at any time, the recent rockfall highlighted the potential of larger loose materials especially rock becoming dislodged and falling onto areas where OPW personnel and tourists may be present below.

The OPW have a well-established protocol for optimising safety on the Island when the workmen return to the Island in May. Typically, this involves specialist personal sweeping the high ground over the landing and access road at all locations to remove any threatening rocks. These rocks are either removed to a safer location or are broken up and brought down in a controlled manner.

It is obviously a matter of significant concern that this rock fall occurred during the working season and especially so on the access route from the pier. While this is not the first time to have such an event, the repeating nature of the issue must not be ignored. Additional precautionary actions are therefore essential to further improve safety on the Island.

Following a Geological Reconnaissance Report (O’Sullivan 2022) “with regard to the potential for rockfall in the narrow and very specific area between the pier at Blindman’s Cove and the rock canopy at Cross Cove, the reconnaissance inspection allowed for the identification of most, moderate and least rockfall potential zones (see Figure 1), viz:

- Most Potential: Joint plane exposed zone with associated scree slopes.
- Moderate Potential: Narrow Road zone adjacent to the landing at Blindman’s Cove with cleavage rock faces above.

- Least Potential: Nineteenth century rock blasted zone between Zones A and B”.

Following on from this report the areas highlighted in Figure 1 were swept, (the inspection and removal of debris over an area), along with an area where a rockfall had previously occurred north of the lower lighthouse but limited to a vertical slope of compacted soil type.

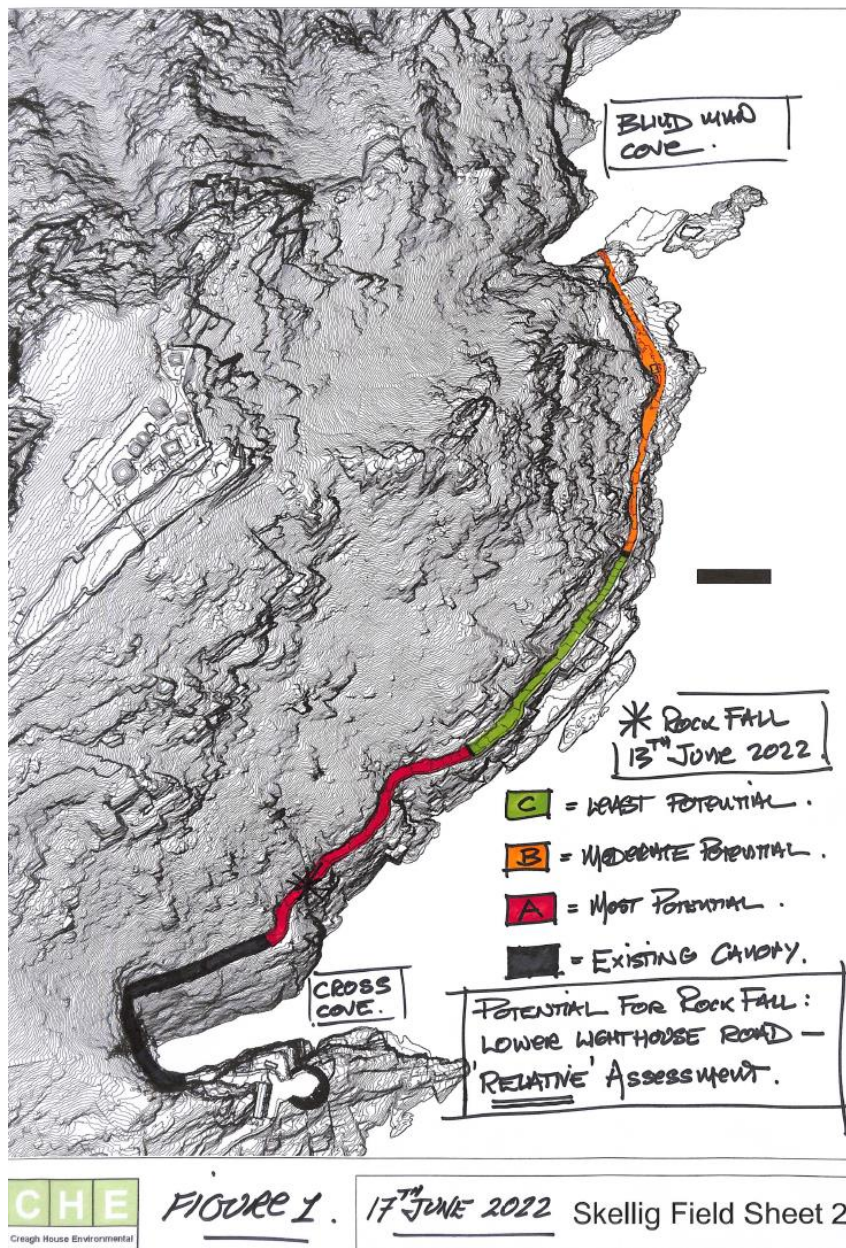


Figure 1 Potential for Rockfall: Lower Lighthouse Road – “Relative” Assessment (O’Sullivan, M. 2022)

## 2. Ecological Clerk of Work Site Supervision

Following on from the Geological Reconnaissance Report (O'Sullivan 2022), temporary works were carried out involving the clearance of debris along pathways and removal of loose materials from sections of slopes above and adjacent to the recent rockfall, as well as an area north of the lower lighthouse which posed an elevated threat to OPW personnel working on the island.

The works involved three qualified rope access personnel including Brendan O'Connor, the OPW Rope Access Specialist, tying in rope anchors to large rocks above the works areas and descending slowly on ropes working approximately 10-15m apart.

All works installation and implementation (the sweep) were supervised by Envirico ECoW, Mr Thomas Sheehan, from a vantage point using Bushnell 8 x 42 binoculars and communicating via ICOM 2 Way Radios systems between the ECoW and climbers. Thomas was in daily contact with Envirico Senior Project Manager, Mr. Maurice O'Connor and Envirico Senior Ecologist, Mr. Brian Power, throughout the works process. A series of mitigation measures were designed and implemented during the sweep. See Table 1 below.

## 2.1 Mitigation Measures

Table 1 Potential risks and mitigation measures of works on breeding birds

RISKS		MITIGATION MEASURES	
<b>Direct human interference with burrow nesting species.</b>	Puffin, Storm Petrel and Manx Shearwater nest in suitable ground across the island and within the core works area. Rope access through these areas during the breeding season may lead to collapse of chambers from footfall passing through. Storm Petrel also nest in very small chambers under rocks which, if moving material, may lead to the exposure of a nest leaving it susceptible to predation.	Rope access workers to be given a full tool box talk on potential nest sites with particular emphasis on care being required in areas of soft soil where burrows are present and that extreme caution be applied when moving any rock as even a small gap may be enough for a storm petrel to nest under.	ECoW - observations from a suitable vantage point. Binoculars and using two way radios to communicate with rope workers at all times.
<b>Potential impacts from rock fall.</b>	Debris set in motion due to the works will also have the potential to undermine both burrow nesting species and species nesting in the open such as Fulmars, Gulls etc. as well as risk of direct contact with adult birds. If material goes over ledges this may impact cliff nesting species also.	Any rock or stone to be moved as a health and safety measure is not to be sent tumbling town the ledge, they will be moved to a secure location in a controlled manner	Sweeps are limited to areas of recent rock fall and previous incident area north of lower lighthouse to be limited to the vertical section
<b>Interference with feeding/incubating routine.</b>	Excessive time spent in these areas may also have impacts on adult birds returning with food, given the majority of Puffins being monitored have hatched this may have potential to impact the species. For Species such as Fulmar this may lead to temporary leave from nests placing eggs at risk of predation.	Minimum times required to be spend in areas being swept. Minimise noise and interference with the areas	Monitor exodus of birds from the area and whether they return, if adult birds carrying food are disrupted from returning

### 3. Daily Work Record

Monday 20th June 2022

**11.10:** Departure from Portmagee was slightly delayed due to loading of materials for works on the island and arrival was at approximately 12pm on Monday 26th June, 2022. After disembarkation all personnel helped with the unloading of materials onto the pier.

Once all material was safely unloaded, a safety briefing/Toolbox talk was undertaken by Nigel Roche OPW Safety Officer and Pat O'Shea OPW foreman, this was then followed by installation at the accommodation huts. Emphasis on the wearing PPE particularly hard hat and hi-vis vests were to be worn at all times on the island due to works, risk of rock fall and work at heights.

At approx. 13.30 at the heliport area with a view of the first area to be swept, a safety presentation was given by Brendan O'Connor (OPW Scaffolder and Rope Access Specialist) to the two new rope specialists (ARCH Safety) and the ECoW at the Heliport area of Cross Cove. This detailed the unique risks of working at heights on the island and included references to the islands' UNESCO designated World Heritage Site as well as the ecology with the risks of interference of particularly burrow nesting birds that may not be obvious.

This was followed by the ECoW Toolbox talk reinforcing the ecological importance of the site and referencing the risks and mitigations measures as outlined in Table 1 of this document. Particular emphasis was placed on site designations and the conservation objectives of the qualifying interests of the site. All personnel were invited to ask questions on any aspects of the toolbox talk that they required clarification on. There followed a brief discussion on the works and the implementation of mitigation measures to protect the breeding seabird colonies.

At approximately 14.00 a review of the first area (Sweep 01) above Cross Cove to the landing area to the north east was carried out by climbers and installation of ropes and anchors began. The area was monitored by ECoW from the Heliport using binoculars with a direct line of sight of approximately 100-130m. ECoW requested that first section which appears heavily populated with bird species and has existing pathway protection in place not be swept at this time. i.e. during the breeding season.

Communication between ECoW, Climbers and OPW Foreman Pat O'Shea via walkie-talkie system (ICOM model IC M73EURO).

**17.00:** Sweep 01 from end of existing canopy to beginning of handrail chain at landing area was completed without incident.



OPW Foreman Pat O'Shea and OPW Rope Access Specialist Brendan O'Connor communicated by radio regarding overhead works, sweepers did not access their individual ropes until all clear was given by OPW foreman and Rope Safety lead Brendan O'Connor, until all workers were clear of the area.

Area was observed by ECoW through binoculars from vantage point at heliport and in constant communication with climbers via walkie-talkies (2 radio units with sweepers).

Two small stones "bounced" from the pathway and fell over the cliff face without impacting the bird colonies on the cliff face. ECoW informed the sweepers regarding the fall and adjustments were made to prevent stone falling directly onto pathway. Where necessary, loose stone was "slid" from lower rocks onto the path that could not be placed in a safe location further up the slope edge.

Some smaller stone was removed and dropped to the pathway without interfering with the ground surface during descent, i.e. it dropped onto lower rocks and then onto pathway below.

#### **17.30 -18.00** Meal break

**18.30:** Returned to Sweep 01 to assess a larger rock that is in place but at risk of falling. A new rope line was installed directly above the rock, and it was carefully lowered approximately 10m to a safe area where it was rested on a flat surface away from edge.

A telephone conference with Maurice O'Connor and Brian Power took place to discuss upcoming work areas and current work practices. Both are in agreement that current protocols are being adhered to and in line with Table 1 which was prepared prior to works.

**19.30:** End of works day one.

#### Tuesday 21st June 2022

**08.00:** Review of Area 1 Cross Cove and rain delay for sweepers due to slippery conditions on rock surfaces overhead. While reviewing area ECoW noted intermittent rockfall onto existing path protection at Cross Cove from bird activity overhead and possibly recent rainfall. Bird colonies in the area do not react as any falling material generally falls away from the cliff face.

**09.40:** Spoke to Nigel Roche OPW Safety Officer by phone and he has confirmed that works will only proceed where there is currently no pathway protected from Cross Cove to landing area to the north east. Works will not be carried out above existing pathway protection as requested by ECoW. It was also agreed that sweep at Area 2 Seal Cove directly north/north east of Lower Lighthouse and at bend in the pathway will concentrate on vertical faces where recent rock fall has occurred. (This had been discussed with Maurice O'Connor and Brian Power).

**16.10 to 19.00** sweep was completed in all areas outlined in Figure 1 to the beginning of the chain rail at landing pier. Brendan O'Connor has significant local knowledge and ecological respect of all ledges, cliff faces, and slopes, and continues to relate to the other sweepers regarding paying attention to nesting birds. New sweepers working well and are probably "over cautious".

Wednesday 22nd June 2022

**08.00** materials were recuperated above first sweep area. At 11.30 depart for climb above Area 2 with ECoW for review of upper area.

**12.00:** Installation of ropes observed by ECoW from overhead and then ECoW returned to lower lighthouse road to observe sweep through binoculars. At approx. 12.30 two sweepers (Brendan and Sean) descending at vertical and near vertical areas as agreed prior to drop, greener area to NW and rocky outcrops to the east are avoided due to nesting birds, third rope person on safety (Arthur). (See photo 5) Vertical slopes is principally compact soil and rock. Principally Puffin, herring gull and some Black Backed Gulls in the area but at verges and appear more curious than disturbed. Works did not approach greener areas or rock ledges to the east. The total sweep time was approximately 35 mins. Some loose rock was removed with little or no major disturbance and a small rock did strike pathway below, but noise was drowned out by bird calls and sea.

Thursday 23rd June 2022

Due to deterioration of weather forecast and completion of rock sweeps, ECoW preparing to leave island today. ECoW informed OPW foreman Pat O'Shea that during minimal works that are underway for the preparation of a canopy extension that where any potential interference to wildlife is possible to inform ECoW ASAP. ECoW reviewed areas of minimal works prior to depart and there are no nesting birds adjacent as it is along pathway. The area had been reviewed by a marine archaeologist the previous day during the presence of the ECoW. ECoW departed the island early afternoon.

## 4. Conclusion

The sweep was carried out under the supervision of Thomas Sheehan, Envirico Senior ECoW. Daily consultation was maintained with Envirico Senior Project Manager, Maurice O'Connor and Envirico Senior Ecologist, Brian Power, throughout the works process.

The sweep began on Monday 20<sup>th</sup> June at 14.00 and was completed by Wednesday 22<sup>nd</sup> June 17:00. All mitigation measures were complied with and no impacts on breeding bird colonies were observed during the sweep.

## Appendix 1 Drawings

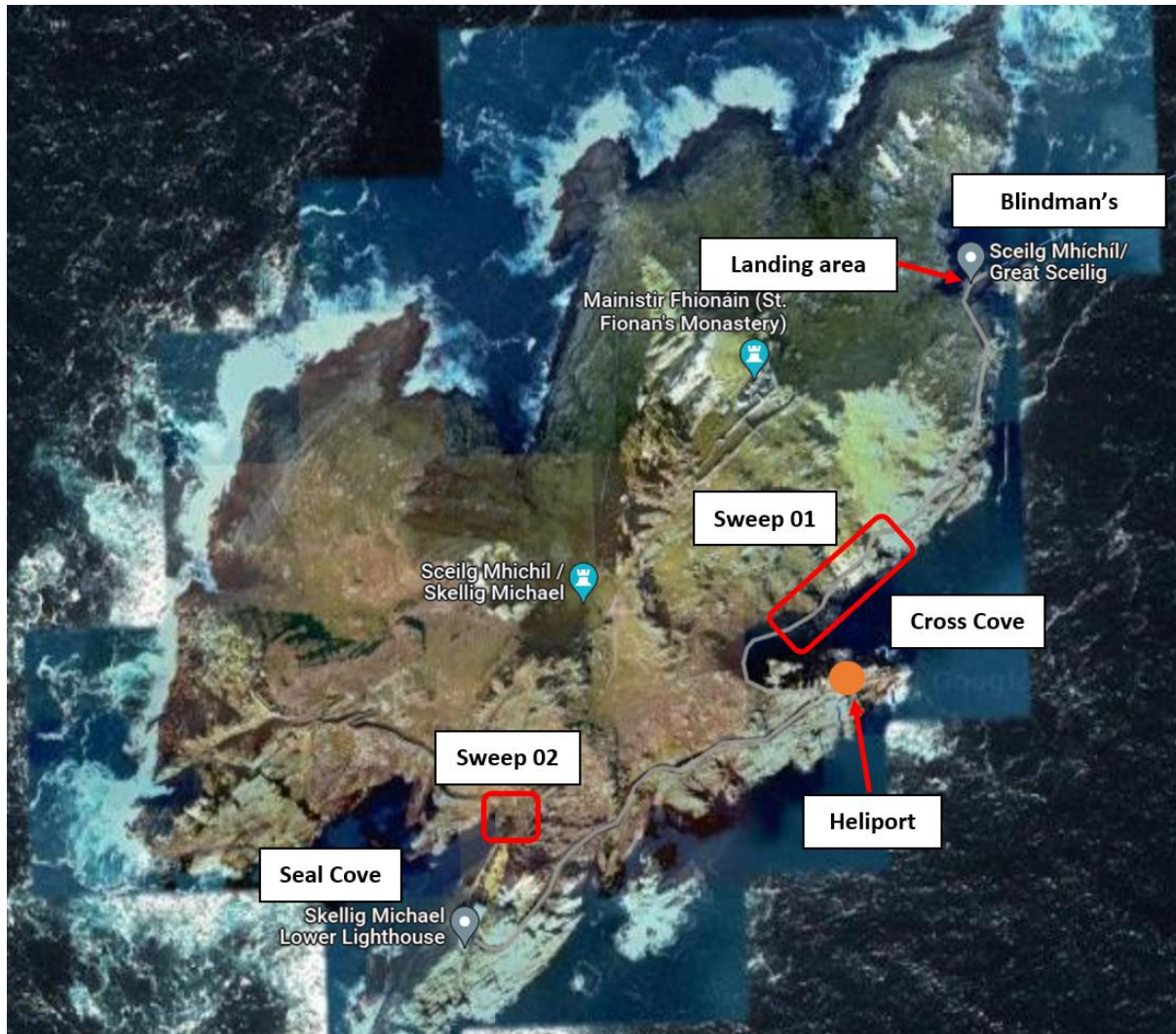


Image 1 Over head (Google maps) of principal areas of Skellig Michael referred to in document.

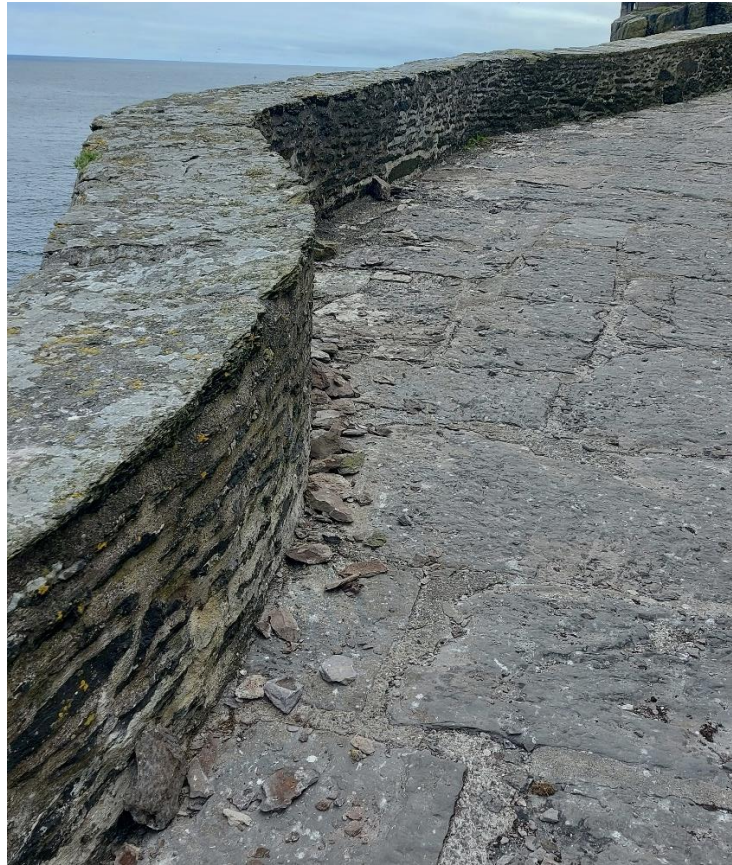
## Appendix 2 Photographs



*Image 2 Personnel preparing for sweeping being monitored by ECoW*



*Image 3 Sweeping above Cross Cove as viewed from Heliport (climbers and rope highlighted by red arrows)*



*Image 4 Debris on pathway below area 01 some from rockfall and some from sweep*



*Image 5 Review and preparation above area 2 sweep with lower lighthouse in the lower left of photo*



*Image 6 Two sweepers (highlighted by red arrow) at area 2 north of lower lighthouse, third sweeper circled on safety top of photo*



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