

**Operations Phase Emergency  
Response Cooperation Plan between  
*MeyGen* and HM Coastguard for *the  
MeyGen Phase 1 Array***

***The EAC for the Phase 1 array is  
provided in Section 8 of this document***



<b>Author:</b> Fraser Johnson	<b>Document No:</b> Meygen Phase1A ERCOP_4.Docx	<b>Revision:</b> 4a
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26 Dublin Street  
Edinburgh  
EH3 6NN  
[www.meygen.com](http://www.meygen.com)

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## 1 NOMENCLATURE

ECA:	GOCEmergency Action Card
ERCoP:	Emergency Response and Co-ordination Plan
HMCG:	His Majesties Coast Guard
MCA:	Maritime and Coastguard Agency
MRCC	Marine Rescue co-ordination Centre
OREI:	Offshore Renewable Energy Installation
OSC:	On scene co-ordinator
SAR:	Search and Rescue
SMC:	Search and Rescuer Mission Co-ordinator
SOLAS:	Safety of life at Sea

## 2 ORGANISATIONAL INFORMATION

### 2.1 MeyGen

#### 2.1.1 Role and Responsibilities of MeyGen in an Emergency:

In the event of an emergency on an OREI or at sea involving its personnel and/or vessels, MeyGen is responsible for providing immediate rescue and first aid medical response to a level appropriate to the circumstances of the OREI and its location.

MeyGen is also responsible for immediately alerting HM Coastguard of an emergency and for liaising and cooperating with the relevant MRCC to resolve the emergency.

MeyGen is also obliged, under international maritime agreements and practices e.g. SOLAS convention, to provide assistance, where it is possible to do so, to other vessels or persons in danger at sea nearby or within the OREI field or area and/or when requested to assist by the relevant MRCC.

MeyGen may also need to provide its own vessel(s) and other assets to respond or react to other maritime emergencies e.g. pollution or a drifting vessel which presents an actual or possible threat to the safety of life or property in the OREI field.

Further information is contained in “Offshore Renewable Energy Installations: Guidance on Requirements and Operational Considerations for Search and Rescue and Emergency Response<sup>1</sup>” available on the MCA website.

#### 2.1.2 MeyGen Contact information:

Any contact information contained in the ERCoP and provided to the MCA will be used solely for the purposes of emergency response as part of the Agency’s functions, which may include sharing with SAR resources during an incident or with the relevant police force(s).

The information will be kept secure and will not be used for any other purpose without their permission. The information will be stored by the MCA until the duty holder provides updated information or the development ceases to exist, at which point the information will be deleted.

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<sup>1</sup> [Offshore Renewable Energy Installations: Requirements, Guidelines and Operational Considerations for SAR and Emergency Response \(publishing.service.gov.uk\)](https://publishing.service.gov.uk)

MeyGen - Primary Contact	O&M Manager	Fraser Johnson	07787518373	Fraser.johnson@meygen.com
MeyGen - Secondary Contact	Site Manager	Bruce Mackay	07876 233 726	Bruce.mackay@meygen.com
SAE	Chief Operating Officer	David Taaffe	07716 363 717	David.taaffe@simecatlantis.com
SAE	Director of external affairs	Sean Parsons	07739832446	sean.parsons@simecatlantis.com

Onshore Transmission Grid Operator	<b>0800 300999</b>
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### 2.1.3 ERCOP Owner

The ERCOP has been written by the MeyGen O&M Manager who is responsible for the annual review and update of this document as appropriate.

## 2.2 Liaison arrangements between MeyGen and HM Coastguard

MeyGen has an online SharePoint folder where Emergency Information relevant to the OREI is stored. In addition to general site information, information of active marine operations will also be located within this ERCOP database.

In the event of an emergency requiring support from HMCG / MRCC electronic access would be provided to this folder. A representative from MeyGen would attend Aberdeen MRCC to provide liaison.

If appropriate, the MRCC may elect to send a local Coastguard Officer to the onshore substation to act as a liaison representative.

## 2.3 Liaison arrangements between MeyGen and Highlands and Islands Police Force

The MeyGen site is located in the North Highland division of Police Scotland.

MeyGen has an online SharePoint folder where Emergency Information relevant to the OREI is stored. In addition to general site information, information of active marine operations will also be located within this ERCOP database.

In the event of an emergency requiring support from Police Scotland electronic access would be provided to this database. A representative from MeyGen may also attend Wick Police Station to pass over an electronic copy of the database and provide local liaison.

If appropriate, the Police Scotland may elect to send an Officer to the onshore substation to act as a liaison representative.

## 2.4 Notification

It is MeyGen's responsibility to notify the HMCG, the Police and HSE as appropriate to the circumstances relating to any incident.

Notification of these organisations will be made by the MeyGen representatives listed on Page 7 and be informed by the MeyGen Incident Response Plan.



### 3 SEARCH AND RESCUE INFORMATION

#### 3.1 The Maritime Rescue Coordination Centre (MRCC)

##### 3.1.1 Role and Responsibility of the MRCC:

As the UK maritime emergency service, HM Coastguard's MRCC are responsible for the coordination of all civil maritime emergency response and search and rescue operations within the UK Search and Rescue Region (UKSRR). This includes the mobilisation and tasking of adequate resources to respond to persons at risk of death or injury at sea or on the cliffs or shoreline of the UK.

The MRCC is also the first point of contact for any reports of vessels in difficulties e.g. engine failures, or pollution or maritime security incidents or concerns.

##### 3.1.2 Communicating with HM Coastguard:

HM Coastguard uses a network of remote aerials to ensure VHF coverage from the coast to nominally up to 30 nautical miles offshore. HM Coastguard maintains a radio distress watch on VHF and MF DSC. The primary means of distress alerting on VHF is by DSC channel 70 but a listening watch is also kept on VHF channel 16.

##### 3.1.3 Radio Communications

All MRCC can operate on channels 6, 10, 16, 23, 67, 70 DSC, 62, 63, 64, and on two private SAR coordination channels, 0 and 99. Channels 62, 63 and 64 are duplex and are mainly used for medical link calls and Maritime Safety Information (MSI) broadcasts but can also be used for SAR. HM Coastguard is not formally licensed to use other VHF Marine Band channels but may use them in extremis.

Medium Frequency (MF) frequencies used by HM Coastguard include 2187.5kHz (DSC), 2182kHz (MF distress, urgency and safety working frequency) and 2596kHz (HM Coastguard's primary MF working frequency although a range of other frequencies are used by individual MRCCs for SAR and general communications. If HMCG requires any development or service craft to use MF radio (where that is required or fitted), the relevant frequency will be informed to the craft at the time.

##### 3.1.4 MRCC Contact Information

The MeyGen OREI and passage between the onshore maintenance base at Nigg Energy Park and the MeyGen OREI is located in Zone 2

##### 3.1.4.1 MRCC Shetland

<b>Point of contact</b>	MRCC Shetland
<b>Address</b>	HM Coastguard The Knab Knab Road Lerwick Shetland ZE1 0AX
<b>Direct Phone number</b>	+44 (0) 344 382 0722 Secondary emergency contact: 999/112 Secondary routine contact: 01595 694810
<b>E-mail communication</b>	zone2@hmcg.gov.uk
<b>MMSI information</b>	002320001



Figure 1 – HMG Operational Zones

## 3.2 Reporting Incident Position/Location

It should be noted that the position of any incident (the OREI or other location) is a vital part of the incident response process and should be reported as part of initial incident details.

The location of the MeyGen OREI is listed in S6.2ection , with indicative waypoints between Nigg Energy Park and the MeyGen OREI included in Section 6.5.

## 3.3 SAR Facilities and their Response Capability

### 3.3.1 Note on Availability of National SAR Resources

National Search and Rescue resources (lifeboats and rescue helicopters) are available if:

- the incident exceeds the capability of the operator resources or,
- if in the opinion of the vessel master, the Offshore Construction Manager or Meygen Client or any other person, urgent and immediate assistance is required or,
- it is an event which has occurred to persons or vessels not connected with the OREI or its operations. In this event, and where safe and feasible to do so, development work and safety craft should respond and provide assistance in accordance with IMO SOLAS regulations, Chapter V.

Royal National Lifeboat Institution and other volunteer lifeboat and rescue boat services provide craft to rescue persons in danger at sea. Their role in the OREI context is limited to rescuing or assisting persons from the water or accessible areas of an OREI or providing support to vessels in the area.

All national SAR resources are tasked and coordinated by HM Coastguard and therefore any request for assistance should be made via HM Coastguard and not directly to the resource.

### 3.3.2 Surface Craft Rescue Resources Available

MeyGen do not operate any surface rescue craft.

The nearest RNLI all weather lifeboat is located at Thurso, 14.5 nm, and Longhope, 11.7 nm, Figure 2

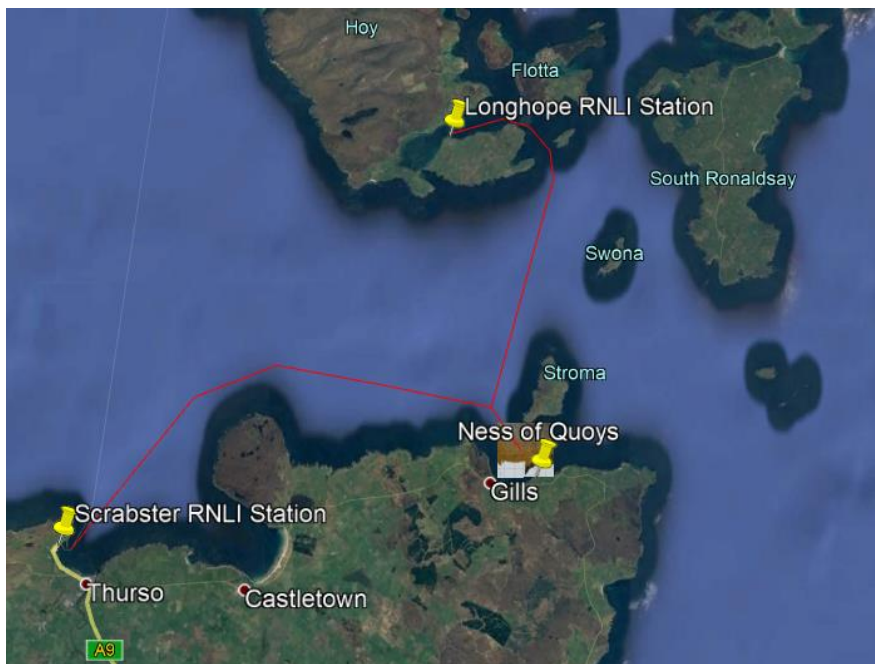


Figure 2 – Local all weather RNLI support

### 3.3.3 SAR helicopters

The nearest SAR helicopters are the AW189 from Inverness and the S92 from Sumburgh though these may not be the ones used depending on availability.

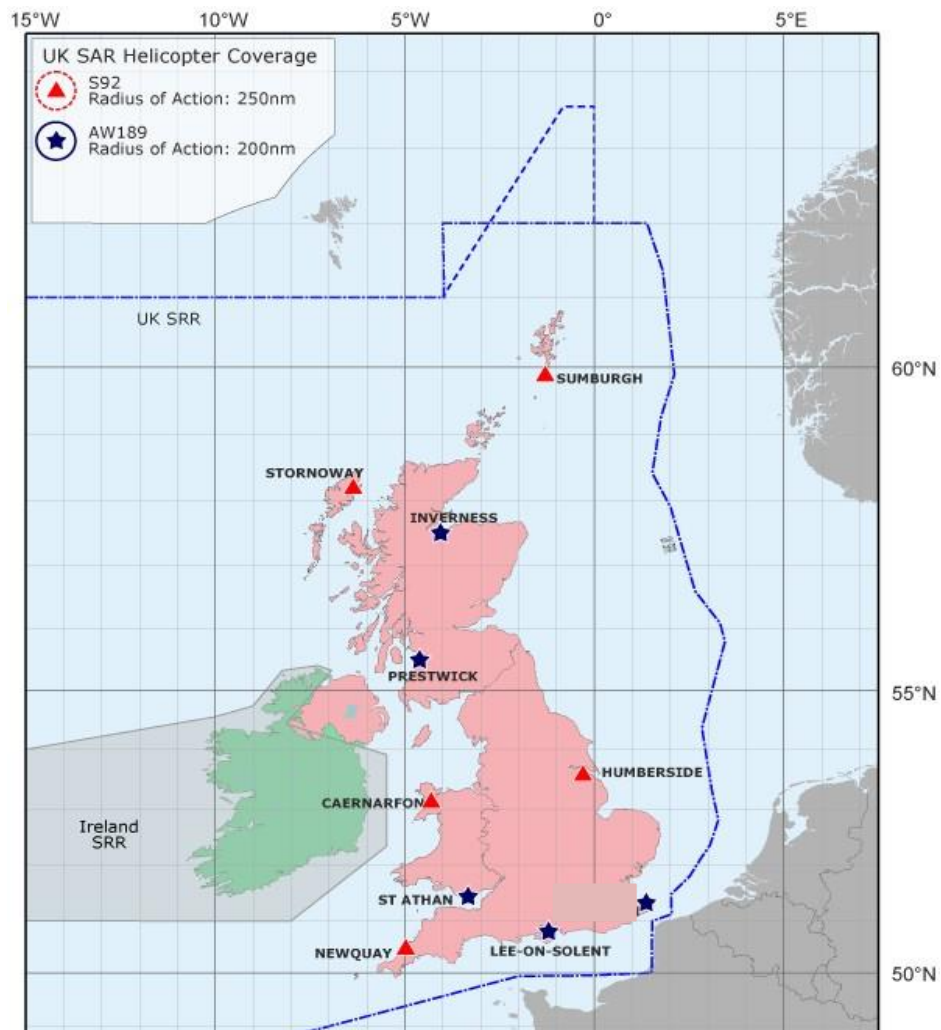


Figure 3 – UK SAR Helicopter Coverage

### 3.3.4 Airborne Rescue Resources

Provision of SAR helicopters is undertaken by Bristow Helicopters which has been awarded the contract to operate civilian SAR helicopter service for the UK on behalf of HM Coastguard.

These aircraft must not be factored into the operator’s own provisions for Emergency Response and are to be looked at as a resource of last resort.

The following information generalises the capabilities of each aircraft type:

## Sikorsky S-92

- Air Speed: 145 knots
- Operational range: in excess of 250 nautical miles radius of action
- Normal flight crew: 4
- Capacity: 21 persons as required – 3 stretchers, 10 seated persons, additional standing persons
- Endurance: over 4 hours
- De-icing equipment
- Twin hoist
- Comprehensive medical suite



## AgustaWestland AW189

- Air Speed: 145 knots
- Operational range: in excess of 200 nautical miles radius of action
- Normal flight crew: 4
- Capacity: 16 persons or as required – 2 stretchers, 6 seated persons, additional standing persons
- Endurance: over 4 hours
- De-icing equipment
- Twin hoist
- Medical suite



These aircraft operate out of ten UK SAR helicopter bases. Please see section 3.3.3 for details of the relevant developments nearest aircraft.

All SAR aeronautical resources are tasked by the Aeronautical Rescue Coordination Centre (ARCC) based on a number of factors including greatest need, weather, availability, etc. Therefore, the nearest aircraft base as detailed above, may not be the one mobilised during an emergency.

### 3.4 Medical advice / assistance

All project personnel must hold a valid medical certificate for working offshore. The Marine Contractor shall hold a register of all personnel, including guests etc working offshore. This information will be stored in the “ERCOP database”

This Register will include health information i.e. special illness, allergies use of prescription medication etc for Contractor staff and visitors accessing the Contractor managed crew vessels only. In case of an emergency this information will be volunteered to the emergency services. Of note personal health information is given to the Contractor on a voluntarily basis and the sole purpose is to allow for correct emergency medical intervention.

All vessels engaged on the project will be provided with a first aid trained personnel in accordance with STCW-95. MeyGen does not operate and Telemedicine services.

Note that medical advice by radio to telephone link call is available via HM Coastguard. Evacuation of injured or ill persons can be arranged with HM Coastguard if the operators own resources (work and/or safety boat) are considered inappropriate or speed is of the essence. If in doubt, HM Coastguard should be contacted.

### 3.5 Exercises

Table-top exercises shall be conducted every 2 years, or sooner if the MeyGen OREI is expanded or site details are altered.

These exercises will be planned and conducted in consultation with the MCA Offshore Energy Liaison Officer.

### 3.6 Unexploded Ordnance

Prior to construction or other seabed operations it is possible that unexploded ordnance or materials from uncharted wrecks could be located, exposed, disturbed or inadvertently lifted from the seabed.

In the event that a UXO is identified the following procedure shall be followed:

- Immediate evacuation of the area
- Notification of HMCG
- Notification of Police

MeyGen does not have a relationship with a commercial ordnance clearance contractor.

Subject to the specifics of the situation a military Explosive Ordnance Disposal (EOD) team may be sent, and they will take the lead in advising the contractors on response to the UXO. If necessary, telephone advice can be given directly from the EOD team either via mobile phone or by radio to telephone link-call via the MRCC.

In all cases, HM Coastguard must be informed of every ordnance discovery as international reports (OSPAR) are required to be completed.

### 3.7 Wreck or Wreck Materials

The MeyGen OREI is located in a high flow tidal environment where the seabed is scoured clean down to the bed rock.

Should uncharted wrecks, (aircraft or vessels) or materials from wrecks may be located, disturbed or inadvertently lifted from the seabed during subsea operations. All such finds **MUST** be reported by law to the UK Receiver of Wreck. This should be done by telephoning the Receiver of Wreck on:

- **020 381 72575**
- Or email [row@mca.gov.uk](mailto:row@mca.gov.uk), or contact HM Coastguard who will then inform the Receiver of Wreck Officers.

Information on reporting wreck or wreck materials can be found at:

- <https://www.gov.uk/government/groups/receiver-of-wreck>

### 3.8 Counter Pollution

MeyGen's pollution management is intended to supplement the vessel's SOPEP procedures, as detailed in the MeyGen Environmental Management Procedure.

In case of an environmental incident or accident all relevant authorities shall be informed, the MCA, the port authorities, Marine Scotland, and Scottish Natural Heritage.

All marine works shall be assessed for environmental risk as a pre-require to entering the site. The mitigating actions outcome from this assessment will be implemented as part of the works.

#### 3.8.1 Fuel /Oil Spill

In the event of a spillage following actions **MUST** be taken:

- All spillage sightings reported to the Vessel Master immediately
- Vessel Master must notify the Coastguard Operations Centre (MRCC) identifying location and initial indication of the size of the spill (based on the 3 Tier system) source of the spillage if identifiable, and other information as applicable to complete a Pollution Incident Report Form

MRCC will direct onsite support vessel to the location.

Onsite support vessel will confirm spillage assessment based on 3 Tier system and notify MRCC.

Onsite support vessel will commence clean up/containment operations as applicable.

MRCC responsible for completing the initial Pollution Incident Report Form which will be used to notify MCA, UKHO and other relevant authorities. Subsequent reports will be submitted on a daily basis until the spillage incident is cleared.

The responsibility for elevating and incident classification from Tier 1 to Tier 2 lies with the MRCC.

### 3.8.2 Three tier system:

- Small scale spill (<1,000 litres) local, in house resources deployed in the clean-up
- Medium sized spill (1,000-150,000 litres) external assistance and resources may be utilised
- Major spills (>150,000 litres) national level assistance and resources required in line with the National Contingency Plan

### 3.8.3 Chemical spill

While MeyGen does not include the use of chemicals for normal operations, this section is included for completeness. The following actions shall be taken upon a chemical spill:

- Work must be stopped immediately
- Chemical identified and COSHH sheet and inventory referred to for potential impacts
- Flow of chemical(s) will be stemmed
- Spill contained, where possible, and depending on the level of release the appropriate organisations will be called immediately
- All contaminated material removed off site as soon as possible and disposed of to licensed waste management facility

Report will be sent to MCA and Marine Scotland in all instances

## 4 SUPPORT ARRANGEMENT

### 4.1 Criminal Actions and Accidents to Persons

Any party which receives reports or information that criminal action is taking place on or within the project area, should inform the Coastguard and/or Police and then other parties as required as soon as possible.

### 4.2 Informing Next-of-Kin

Next of Kin information or contact details to access this information will be held in the ERCOP database.

MeyGen and their contractors will proactively contact NOK in the event of an incident.

In the event of an incident, contractors will be responsible for informing the Next of Kin of their respective personnel.

It is the responsibility of Police Scotland to inform Next of Kin in the event of a fatality, this task will where possible be conducted in person.

Support following the notification by Police Scotland will be offered from the contracting employer and dependent upon the nature and scale of the incident may also include Police Family Liaison Officer support.

### 4.3 HR arrangements

In the event of an incident the SAE COO, Section 2.1.2, will take the lead in liaising with the Police to provide family, contractor and hospital liaison.

### 4.4 Media relations

Except for the relevant Marine Contractor and the designated SAE Director of External Affairs, nobody is to comment or enter into discussions with the media.

If you are contacted by a journalist personnel are to direct them to the SAE Director of External Affairs for a comment, See Section 2.1.2.

It is the responsibility of the SAE Director of External Affairs to liaise with MCA and the Police in relation to a joint media response in the event of an incident. This should include the provision and circulation of press releases and where appropriate, include any pre-approved holding statement.

### 4.5 Survivors Shore Reception Arrangements

Personnel evacuated due to a medical emergency are likely to be landed at Gills Bay or John O’Groats before being transferred to hospital by ambulance or helicopter.

Personnel landed ashore after an incident at the MeyGen OREI are likely to be transferred to Nigg Energy Park.

Once disembarked the care and custody of these personnel will be co-ordinated by the SAE COO, Section 2.1.2.



## 5 ADDITIONAL INFORMATION

The information contained in this section describes the duties and functions of various participants in SAR, explains areas or information requirements of particular importance to SAR and other emergency response within OREIs, and details the support which may be provided by the police.

### 5.1 The SAR Mission Coordinator (SMC)

Each SAR operation is carried out under the direction of a SAR Mission Co-ordinator (SMC) at the MRCC. This function exists only for the duration of a specific SAR incident.

The responsibility of the SMC will vary depending on the nature and severity of the incident. The SMC is essentially in overall charge of coordinating and directing the response to an incident until it is successfully concluded, or a decision has been agreed to terminate operations.

### 5.2 The On-Scene Coordinator (OSC)

The SMC may, according to the severity of an incident, wish to appoint a wind farm work/safety boat as OSC. The information below is for the guidance of the persons in charge of such boats.

- According to IAMSAR, when two or more SAR facilities are working together on the same mission, it is sometimes advantageous if one person or vessel is assigned to co-ordinate the activities of all the participating units.
- The SMC (at the MRCC) designates the OSC, who may be in charge of a Search and Rescue Unit (SRU), ship or aircraft participating in a search, or someone at another nearby facility able to handle OSC duties.

The OSC should be the most capable person or vessel available, and the following considerations should be taken into account when selecting:

- the amount of SAR training and experience the person may have had.
- communications capabilities.
- the length of time that the facility on which the OSC is aboard can stay in the search area.

Duties which the SMC may assign to the OSC, depending on needs and qualification include any of the following:

- assume operational co-ordination of all SAR facilities on scene.
- receive and implement the search action plan from the SMC.
- modify the search action plan based on prevailing environmental conditions, SRUs / SAR Facilities availability and capability, new target information and new developments on scene, keeping the SMC advised of any changes to the plan.
- establish and maintain communications with all SRUs using the designated on-scene channels
- provide relevant information to the other SAR facilities.
- monitor the performance of other units participating in the search. Co-ordinate and divert surface units or helicopters to evaluate sightings.
- develop and implement the rescue plan (when needed).
- co-ordinate safety of flight issues for SAR a/c (where no Aircraft Co-ordinator is appointed).
- make consolidated situation reports (SITREPS) back to the SMC.

Information that the SMC needs from the OSC includes:

- On-scene weather, wind, and sea conditions when significant changes occur, and at least every four hours if the SMC has not stipulated a shorter time interval.
- SRU on scene arrival and departure information, including actual and estimated time

- pertinent new developments or sightings.
- major modifications made to the SMC's SAR action plans, either already taken or recommended.
- requests for additional assistance.
- summary of search areas.
- completed with an assessment of the search effectiveness.
- obtain results of search as each facility departs the scene.

### 5.3 Search planning

In the event that persons or craft are in danger and drifting on or in sea, and they are unable to provide locating signals, or a precise position, search and rescue units will have to be deployed to physically look for them. This requires that search area calculations are made based on the movements of the tide, local currents and wind (leeway) as they might act on the object drifting e.g. life raft, life boat, drifting vessel, person in the water, etc. Any information that the OREI has or records on tide and wind speed and direction could be helpful in the accurate calculation of search areas. Such useful information could be:

- information about tides and water currents.
- availability of any wind data from OREI resources e.g. anemometer information and how the MRCC can obtain this.
- Explanation of the procedures to be carried out by the MRCC, and any information or actions required from the operator, in the event of search planning action being required.

### 5.4 Suspension / Termination of SAR action

The SMC is responsible for deciding when to terminate attempts to rescue and/or search operations for incidents but will do so in conjunction with:

- SAR resources
- Onscene Coordinator.
- OREI Operators, personnel or contractors.
- Third parties.
- Other emergency services.
- Any other relevant party engaged in the incident.

### 5.5 Police

During offshore renewables incidents which require a SAR response, the police may have a critical role and can provide significant support and guidance to the duty holder, therefore early notification of the incident to the appropriate force by HM Coastguard and by the duty holder is essential.

In the event of a major land-based incident, the police normally provide overall coordination of the emergency services and other responding agencies. In offshore renewables incidents, however, HM Coastguard are responsible for the at sea coordination while the police will concentrate upon the coordination of the onshore response. The duty holder should always give early consideration to the preservation of an area where an incident has occurred to assist investigation into the cause.

Upon completion of the SAR response, i.e. when everyone has been accounted for or when there is no longer any reasonable expectation of finding further survivors, a formal handover of primacy should be agreed between HM Coastguard and police ensuring a clear transition from the SAR phase to the recovery and investigation.

When contacting the police, the following information should be provided to ensure a suitable initial briefing:

- What is the name/nature of the asset?

- Where is it located?
- What has actually happened? (Collision/Fire/Helicopter Incident etc) (Give as much information as possible, as the Police will use this information to make an initial assessment)
- Which duty holder has primacy for the Emergency Response and where is it being managed from? (e.g. locally, internationally, remotely)
- What is the POB (Person on Board)
- What is your name/contact number?

It is vital for the police to receive an electronic and/or hard copy of the POB list and NOK information as required. The provision of this should be considered by duty holders and the process recorded within the ERCoP.

Where possible, the relevant police force may elect to send a police Incident Liaison Officer (ILO) to the duty holder coordination centre, and/or an alternative location as required. The role of the ILO is to provide an effective interface between police and the emergency response room of companies when responding to an offshore emergency.

It is acknowledged that this might not always be possible face to face due to the remote location of an emergency response room. To that end it is imperative that duty holders consider this and offer alternative solutions. An ILO or other designated police officer will require a briefing from a duty manager whether in person or virtually.

Should a fatality occur it is imperative that police are contacted as a priority. Please be aware of considerations instructed by the Crown Office Procurator Fiscal Service in Scotland, the Crown Prosecution Service or Coroner in England and Wales and the Public Prosecution Service in Northern Ireland in relation to investigation.

The duty holder must give consideration as to how a police enquiry team will be transported to the location and all health and safety requirements.

## 5.6 Emergency services liaison

It is recognised as good practice that OREI operators and the emergency services, including the local police force, should build relationships during the planning and construction phases of any project in order to maximise joint understanding and situational awareness.

Once operational, regular visits should be undertaken to operations/control rooms/centres, in order to test and exercise agreed protocols and maintain understanding between all parties.

## 6 MEYGEN OREI SITE INFORMATION

### 6.1 Emergency Shutdown Procedures and Processes

The MeyGen OREI is not manually monitored 24/7. The O&M and Site Managers are notified automatically via mobile phones alerts to faults or issues that have caused a turbine to drop out of Production.

The shutdown options are, in order of preference:

- I. The Primary and Secondary contact have remote access to the array control system.  
*Time taken to shut down 3 to 5 minutes*
  - II. The MeyGen onshore site manager can access the array control system locally at Ness of Quoy.  
*Time taken to shut down 60 minutes*
  - III. There exists an ESTOP for each turbine and the array in the Onshore Substation which the local site manager can depress to cause a shutdown.  
*Time taken to shut down 60 minutes*
  - IV. SSE open the main grid connection Circuit Breaker.  
*Time taken to shut down <1 minute after connection with the control room*
- Note: SSE have been advised that a request from HMCG would be taken without question and the circuit breaker opened.*

### 6.2 Site layout

The turbines and export cables are located at the positions listed in Table 1. The turbines and export cables are shown in Navigational charts as per Figure 4. More detailed site drawings are included in Appendix B.

Table 1 – Turbine locations

Turbine	Longitude UTM 30 WGS84	Latitude UTM 30 WGS84	Water depth (m) LAT	TTG Height (m)	Clearance above TTG (m) LAT
TTG 1 - AHH	03° 08.46158 W	58°39.60515 N	33.1	23.5	10.9
TTG 2 - AHH	03° 08.48413 W	58°39.55663 N	34.1	23.5	11.7
TTG 3 - AHH	03° 08.24738 W	58°39.57198 N	33.1	23.5	9.9
TTG 4 - AOU	03° 08.26262 W	58°39.50192 N	34.9	23.5	13.9

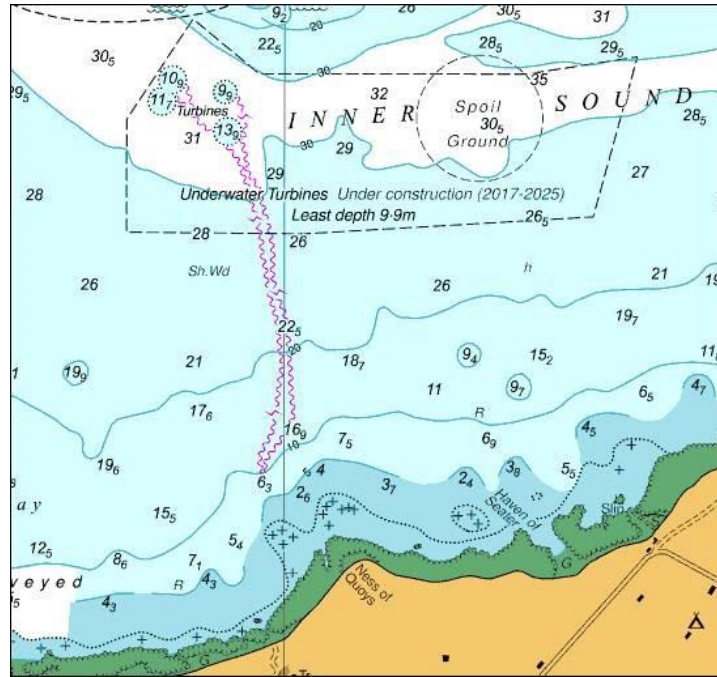


Figure 4 - Export cable and turbines shown in UKHO chart 2581

### 6.3 Site Management

The Inner Sound of the Pentland Firth is unrestricted to marine navigation, but at times is also a work site for the recovery and installation of tidal turbine generators, site survey or cable stability works. Vessels undertaking these works conform to the International Regulations for Preventing Collisions at Sea.

MeyGen manages site entry for vessels working at the MeyGen site in the issuance of a Site Entry Permit. The procedure for the issuance of this permit is detailed in *MEY-1A-70-PRO-001-F\_OffshoreSiteEntryProcedure* and the offshore site is shown in Figure 5.

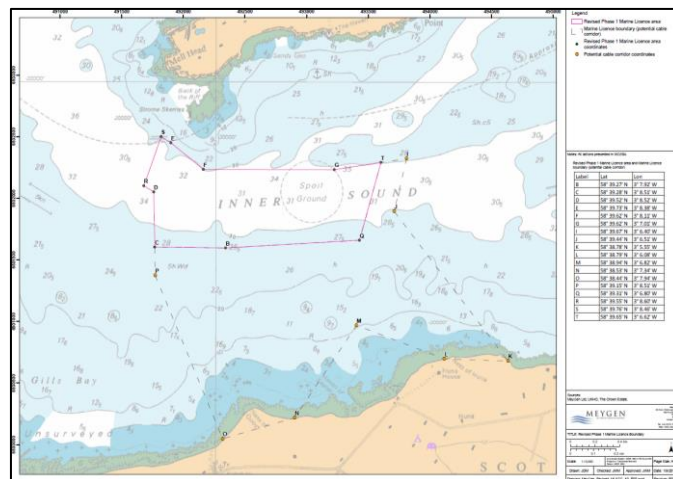


Figure 5 – MeyGen site boundary

### 6.4 MeyGen Communications plan

The notifications to be issued pre-requisite to and upon completion of marine works are shown in Figure 6.

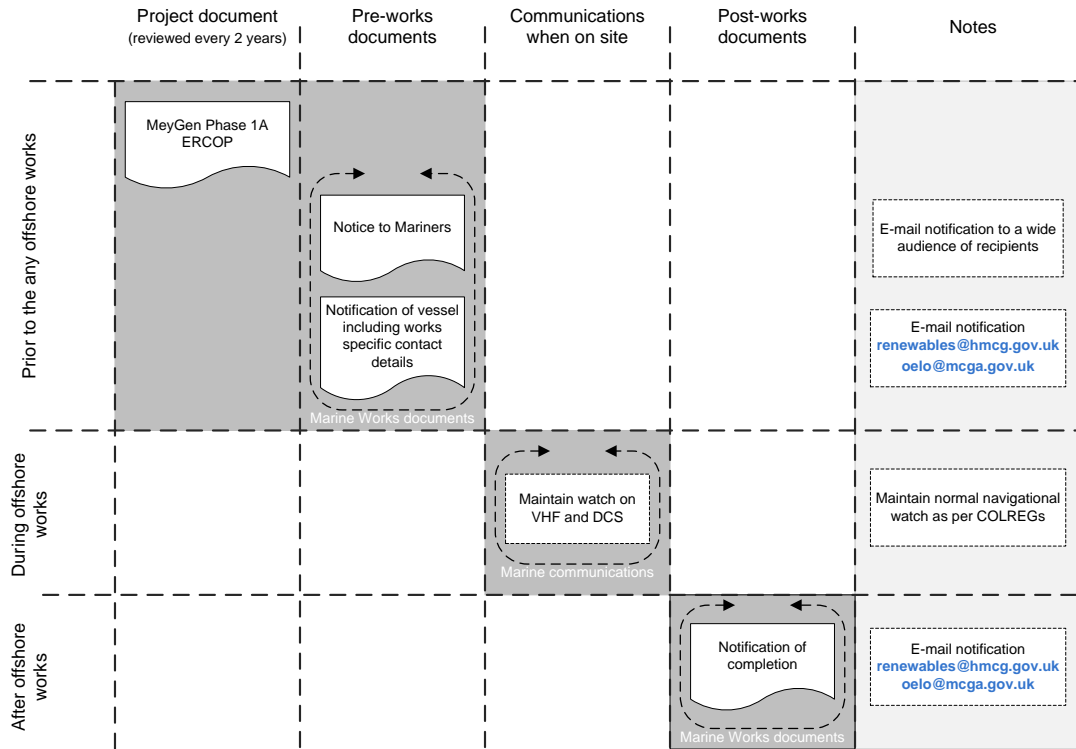


Figure 6 – MeyGen Phase 1A Communications plan

The notification is e-mailed to [renewables@hmcg.gov.uk](mailto:renewables@hmcg.gov.uk).

The notification will include the following information:

- Summary of the works to be undertaken
- Duration:
- Vessel:
  - o Name
  - o IMO number
  - o Call sign
  - o MMIS number
  - o Vessel telephone number
  - o Estimated persons on board
- Names of key individuals:
  - o MeyGen liaison officer:
    - Name
    - 24 / 7 contact details
  - o Emergency Response Centre contact details
- Marine Contractor:
  - o Liaison Officer
    - Name
    - 24 / 7 contact details
  - o Offshore works manager
    - Name
    - 24 / 7 contact details

A template of the notification is provided in Appendix C.

## 6.5 Passage Waypoints between Nigg and Inner Sound

The typical vessel route between Nigg Energy Park and the MeyGen OREI is listed in Table 2.

Due to the regulation of the transits between site and Nigg Energy Park a series of waypoints have been provided which the vessels typically use in the generation of their passage plan, these are as follows Table 2 and Figure 7.

Table 2 – Passage waypoints

Waypoint #	Location	Lat / Long
1	Cromarty Firth	57°49'0.00"N / 3°26'0.00"W
2	Beatrice Platform	58° 7'3.20"N / 3°14'45.66"W
3	Beatrice Wind Farm	58°17'29.13"N / 3° 1'9.65"W
4	Wick North	58°27'0.00"N / 2°56'0.00"W
5	MeyGen OREI	58°38'60.00"N / 3° 7'0.00"W

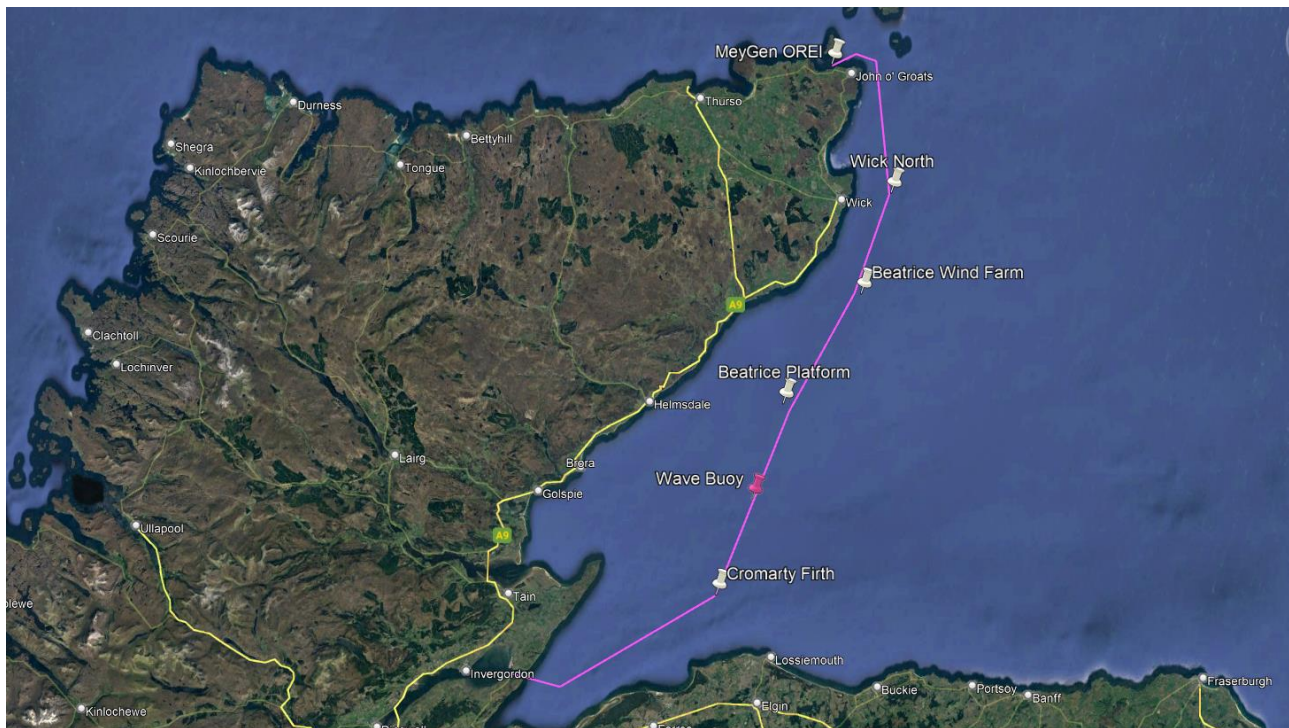


Figure 7 – MeyGen passage waypoints

## 6.6 Site Metrological data

MeyGen have a detailed 2D mathematical model that simulates tidal flows for a 10 minute average, Figure 8.

A live feed can be obtained from the operating turbines via a web page. This also provides live data from a weather station located at Ness of Quoys, 50m from the shore line, Figure 9.

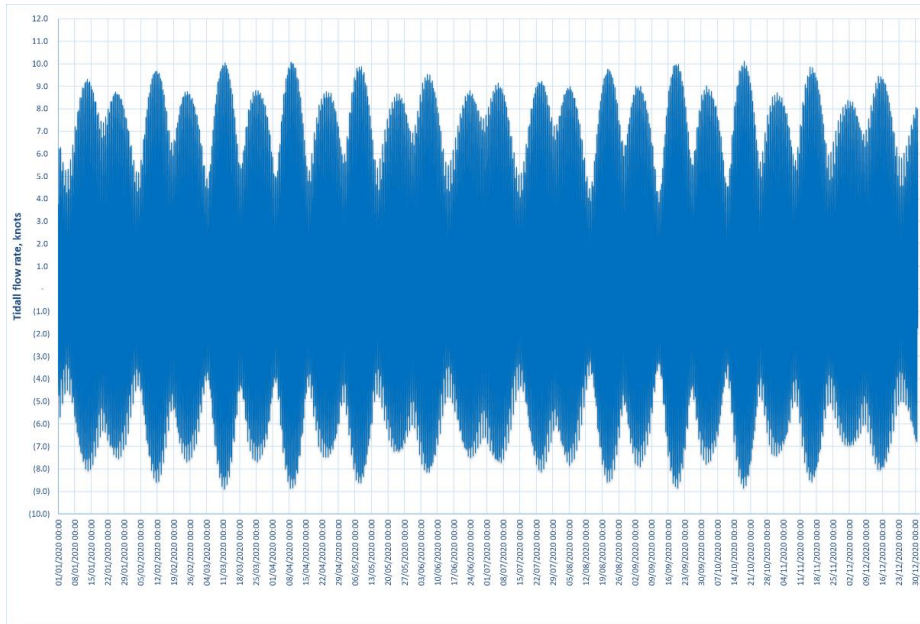
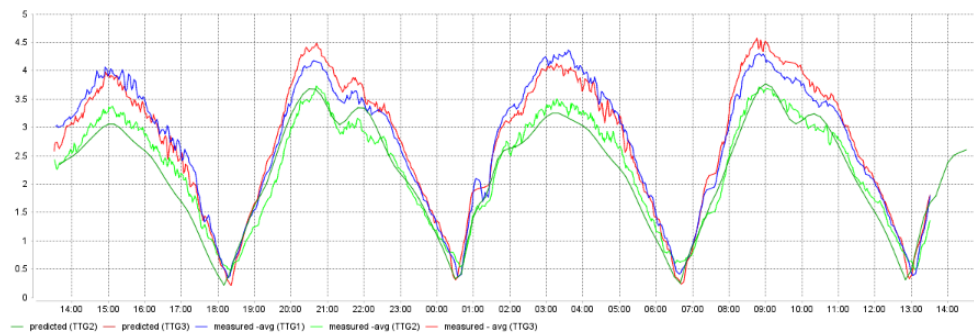
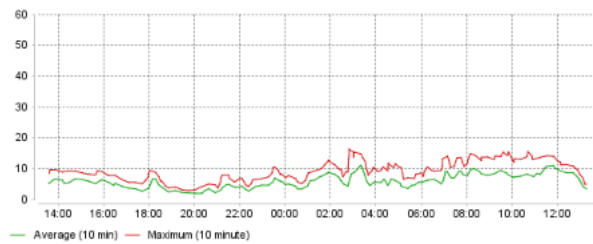


Figure 8 – Tidal prediction

**Flow Speed**



**Wind Speed [knots]**



**Wind Direction**



Figure 9 – Open access site data

**6.7 Guard Vessel**

The MeyGen OREI does not employ guard vessels.

**6.8 Rescue Boat Capabilities**

Rescue capabilities would be limited to fast rescue craft present aboard the offshore construction vessels employed for the recovery or installation of the TTG.



## 6.9 Airborne Activities

No airborne activities are planned.

## 6.10 Locating Aids Used by Personnel or Vessels Working at the Site

All vessels working on site shall have AIS.

All personnel undertaking vessel transfers on or in close proximity to the OREI shall be equipped with a 275kN life jacket and a signal beacon with an integrated DCS transmitter, specifically an Ocean Signal Rescue ME MOB1 – EPI3100 unit.

## 6.11 Electronic Surveillance and Monitoring Systems

No AIS or CCTV is monitored by MeyGen.

## 6.12 Radio Communication Aerials

Emergency radio communication would be via the vessel undertaking works at the time. This may then be transferred to mobile phones or other suitable means after initial contact has been made.

## 6.13 Diving Operations.

Dive works would be conducted as an exception to normal operations at the MeyGen OREI.

Should dive works be conducted notification of these works and the availability, location and status of a re-compression chamber a de-compression chamber would be provided as part of the MeyGen Communications Plan, Section 6.4.

Note: Due to the risks associated with diving in high flow tidal environments MeyGen would ensure a re-compression chamber be located at the MeyGen Substation located at Ness of Quoy, approximately 30 minutes from the offshore site.

## 6.14 Offshore Transmission Owner (OFTO)

No specific procedures exist between MeyGen and the OFTO. The emergency contact details are included in Section 2.1.2

## 6.15 Firefighting, Chemical hazards, Trapped Persons, etc

There are no specific procedures for fire fighting, chemical hazard or trapped persons.

The TTG are normally recovered directly to the onshore maintenance facility, but if there is an instance where technicians are to enter into the turbine nacelle to affect repair while the vessel remains at site. Specific risk assessment and method statements will be written and suitable safety precautions taken.

## 7 DEVELOPMENT SPECIFIC INFORMATION

Having completed the construction and installation of Phase 1A of the MeyGen tidal array the project moved out of the construction and into the Operating phase on the 1st April 2018. The nature of the works conducted during operations has then moved away from the installation of new assets to the preventative and reactive maintenance of existing assets.

### 7.1 Recovery and installation of tidal turbines


Tidal Turbine Generator (TTG) are recovery from and installed onto the Turbine Support Structures (TSS) by means of an Offshore Construction vessel. Typical vessels used for these works are listed in Table 3.

All vessels will be equipped with VHF, MF and HF Marine Band Radios as well as satellite communications. Medical facilities will be available onboard. Normal marine channels of communication are monitored at all times.

MeyGen do not require that dedicated medical personnel are provided.

Table 3 – Offshore construction vessels employed at the MeyGen site

Vessel name	Details	Image
Viking Neptune	<ul style="list-style-type: none"> <li>– Length: 145.6m</li> <li>– Breadth: 31m</li> <li>– Maximum draught: 13m</li> <li>– Crane capacity 400Te</li> <li>– Typical PoB: 30 to 45</li> </ul>	
Seabed Stingray	<ul style="list-style-type: none"> <li>– Length: 120.9m</li> <li>– Breadth: 23m</li> <li>– Maximum draught: 6.6m</li> <li>– Crane capacity 250Te</li> <li>– Typical PoB: 30 to 45</li> </ul>	
North Sea Giant	<ul style="list-style-type: none"> <li>– Length: 153.6m</li> <li>– Breadth: 30m</li> <li>– Maximum draught: 7.5m</li> <li>– Crane capacity 400Te</li> <li>– Typical PoB: 30 to 45</li> </ul>	
Normand Jarstien	<ul style="list-style-type: none"> <li>– Length: 117.35m</li> <li>– Breadth: 22m</li> <li>– Max draught: 7.1m</li> <li>– Crane capacity 250Te</li> <li>– Typical PoB: 30 to 45</li> </ul>	
Olympic Ares	<ul style="list-style-type: none"> <li>– Length: 115.4m</li> <li>– Breadth: 22m</li> <li>– Maximum draught: 7.3m</li> <li>– Crane capacity 250Te</li> <li>– Typical PoB: 30 to 45</li> </ul>	
Olympic Challenger	<ul style="list-style-type: none"> <li>– Length: 105.9m</li> <li>– Breadth: 21m</li> <li>– Maximum draught: 6.6m</li> <li>– Crane capacity 250Te</li> <li>– Typical PoB: 30 to 45</li> </ul>	

Siam Daya	<ul style="list-style-type: none"> <li>– Length: 120.8m</li> <li>– Breadth: 22m</li> <li>– Maximum draught: 6.6m</li> <li>– Crane capacity 250Te</li> <li>– Typical PoB: 30 to 45</li> </ul>	
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The operations undertaken to recover or install a TTG fall into one of two categories:

1. those which require cable handling to detach or connect the TTG from the Export cable by way of a dry mate, or;
2. those which do not require cable handling to detach or connect the TTG from wet mates.

All works are conducted during slack tide and are limited by the capability of the Work Class ROV aboard the vessel, typically 1.6 knots. The turbines are held onto the turbine foundation under their own weight.



Figure 10 – AHH TTG sat atop a TSS onshore, note that no ballast is on the TSS

### 7.1.1 Turbines with a dry mate

The three turbines provided by Andritz Hydro Hammerfest are equipped with a dry-mate connector and therefore require cable handling to be conducted during installation or recovery. The typical sequence of

works is listed in Table 4 and a sequence of photos are provided in Figure 11 to Figure 16. The sequence assumes a turbine installation.

Table 4 – AHH turbine installation and recovery sequence

Slack tide	Recovery	Installation
1	Remove rock bags from the export cables.	Install a turning rock bag and inspect the turbine stab on the Turbine Support Structure
2	Recover the dry-mate connector to the deck of the vessel and between slack 2 and 3 break the connector and seal the export cable with a top hat.	Land the turbine onto the Turbine Support Structure and lay the cable tail around the turning bollard and out towards the north where the dry mate is laid to the seabed.
3	Deploy the export cable top hat back on to the seabed and reel in the cable tail towards the turbine.	Recover the export cable top hat from the seabed and between slack 3 and 4 make up the dry-mate connector.
4	Land the lift frame onto the turbine and recover the turbine to deck	Lay the dry-mate to the seabed. Land rock bags onto the dry-mate and export cable as required to ensure the cable is stable on the seabed.

Due to the capabilities of the vessels operating on Differential Position, operations to recover or install an AHH TTG are only conducted in neap tides where the peak flows do not exceed 6 knots. This limits the works to about 7 days every month.



Figure 11 – Export cable recovery



Figure 12 – Landing the export cable on deck



Figure 13 – Dry-mate connected on deck



Figure 14 – Dry-mate being handled for deployment

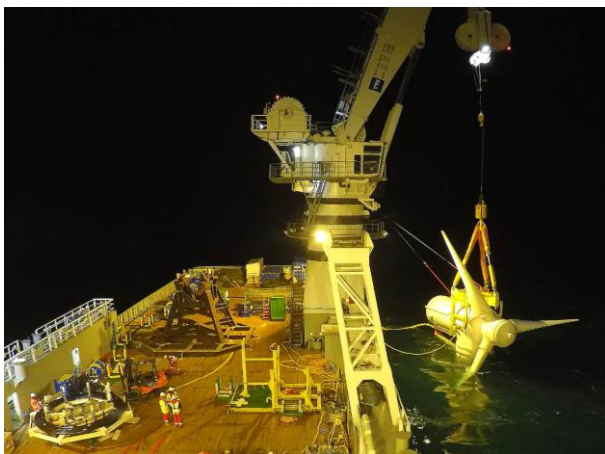


Figure 15 – AHH TTG ready for installation



Figure 16 – Turbine stab being landed onto the TSS

### 7.1.2 Turbines with wet mates

The single turbine provided by Atlantis Operations UK (AOU) is equipped with wet mate connectors that are passively disconnected or connected as the turbine is recovered or installed. Where the AHH TTG require several slack tides to complete the recovery or installation process, the AOU TTG required just 30 minutes where the flow speed is less than 1.6 knots. Figure 17 shows the AOU TTTG the AR1500 being readied for installation.



Figure 17 – AOU TTTG the AR1500

## 7.2 Operations base

MeyGen utilise Nigg Energy Park as a logistics base from which vessels will mobilise and return and where the TTG are returned for maintenance. The turbines are maintained in Shop1,



Figure 18 – Nigg Energy Park, Shop1 is highlighted in the red box

## 7.3 Other works

Other planned works include:

- Annual site visual survey
- Cable stabilisation activities

### 7.3.1 Annual site survey

The annual site survey is conducted over 2 to 5 days depending on the scope of work. The activity uses a small survey vessel, Table 5 and an observation ROV equipped with an HD video camera and survey package.

Table 5 – Survey vessels employed at the MeyGen site

Vessel name	Details	Image
MV Advance	<ul style="list-style-type: none"> <li>– Length: 15m</li> <li>– Breadth: 5.8m</li> <li>– Maximum draught:0.75m</li> <li>– Typical PoB: 4 to 6</li> </ul>	

<b>MV Athenia</b>	<ul style="list-style-type: none"> <li>– Length: 18.5m</li> <li>– Breadth: 6.1m</li> <li>– Maximum draught: 1.25m</li> <li>– Typical PoB: 4 to 6</li> </ul>	
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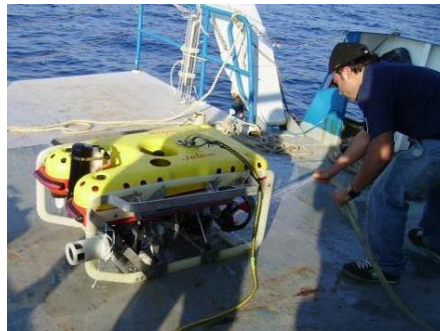


Figure 19 – Falcon ROV being prepared for deployment

All vessels will be equipped with VHF, MF and HF Marine Band Radios as well as satellite communications. Statutory medical equipment will be available onboard. Normal marine channels of communication are monitored at all times.

### 7.3.2 Infrequent cable stabilisation



The export cables are laid onto the exposed bedrock. Works associated with cable stabilisation are typically focused upon the relocation and installation of 4Te rocks bags onto and up to the cables. The need for these localised stability measures are identified through the annual site inspections.

Visual assessment of the export cables incremental identifies locations where cable stability is recommended. Once a sufficient number of locations have been identified for an offshore operation to the warranted, MeyGen will issue a contract to undertake the prescribed scope. The works will be conducted in a neap tide, but the precise neap tide may be chosen by the marine contractor within an agreed window that could be 4 to 6 months in duration.

The works would be conducted from a multi-cat type vessel being supported by an observation ROV equipped with an HD video camera and survey package. Typical vessels employed in these works are listed in Table 6.

Table 6 – Works vessels employed at the MeyGen site

Vessel name	Details	Image
Isle of Jura	<ul style="list-style-type: none"> <li>– Length: 33.2m</li> <li>– Breadth: 14.5m</li> <li>– Maximum draught: 4.9m</li> <li>– Speed:</li> <li>–</li> <li>– Typical PoB: 8 to 12</li> </ul>	

<p>Green Isle</p>	<ul style="list-style-type: none"> <li>- Length: 27.7m</li> <li>- Breadth: 12.45m</li> <li>- Maximum draught: 2.85</li> <li>- Typical PoB: 8 to 12</li> </ul>	
<p>C-Odyssey</p>	<ul style="list-style-type: none"> <li>- Length: 26m</li> <li>- Breadth: 10.5m</li> <li>- Maximum draught: 2.5m</li> <li>- Typical PoB: 8 to 12</li> </ul>	

All vessels will be equipped with VHF, MF and HF Marine Band Radios as well as satellite communications. Statutory medical equipment will be available onboard. Normal marine channels of communication are monitored at all times.

## 7.4 Operating limits

### 7.4.1 Turbine operations

The following generic operating limits are applied to operations to recover or install a TTG:

- Operations supported by a work class ROV:

The ROV will typically depart the Tether Management System at  $\leq 2$  knots and depart the works site to return to the Tether Management System as the flow  $> 1.6$  knots

- Transit limits

These are vessel dependent but are in general  $> 2.5$  m Hmax

- Wind speed

No limit is applied

- Underwater works:

- o Installation / recovery of rock bags:

- $< 40$  knots &  $< 2.5$  m Hs

- o Recovery or installation of dry-mate

- $< 40$  knots &  $< 2.5$  m Hs

- o Cable works between slack tides

- $< 40$  knots &  $< 2.5$  m Hs

- MIKE21 10-minute average predicted flow speed  $< 6.5$  knots

- o Recovery or installation of an AHH tidal turbine

- $< 30$  knots and  $< 1.5$  m Hmax

- In the case where cable works are required to recover or install a TTG, MIKE21 10-minute average predicted flow speed  $< 6.5$  knots



#### 7.4.2 Site Surveys

Survey works are limited by the deployment and recover of the ROV with regards to wind speed, <20 knots and wave height, <1m Hs.

In addition, daylight hours are required for deployment and recovery. The ROV is limited to operation in flow speeds of <1.5 knots.

#### 7.4.3 Cable stabilisation works

The works to install cable stability measures in the form of rock bags using a Multi-cat work boat are expected to have the following operating limits:

- Wind speed:
  - <25 knots
- Wave heights:
  - <1.5m Hmax

## 7.5 OREI Information

Due to the OREI being underwater it is unlikely that an emergency would require a third party have any interaction with the subsea assets. The offshore works relating to operations are limited to:

- Heavy lifts, 150 to 200Te
- Subsea cable works
- The installation of cable stability measures in the form of 4Te rock bags
- ROV observation surveys

The array has two turbine types, both having an installed capacity of 1.5MW. The handling of the TTG require bespoke lifting frames with hydraulic controls and transportation frames.

### 7.5.1 Atlantis Operations UK

The AR1500 was supplied by Atlantis Operations UK.

- Installed capacity: 1500kW
- Dry-weight: 156Te
- Wet-weight 91Te
- Rotor diameter: 18m

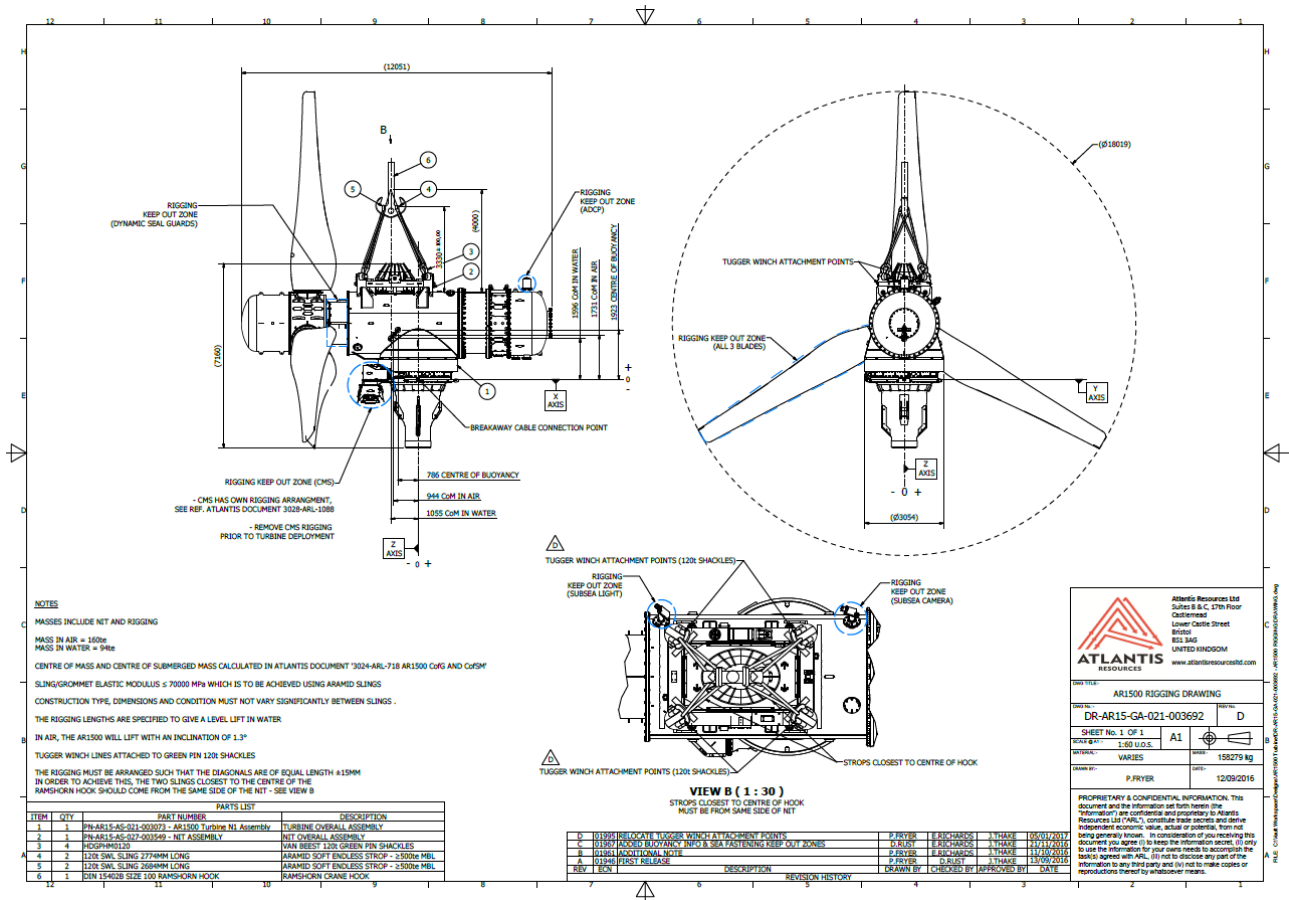


Figure 20 – AR1500 rigging drawing

### 7.5.2 Andritz Hydro Hammerfest

The H1000Mk2 was supplied by Andritz Hydro Hammerfest.

- Installed capacity: 1500KW
- Dry-weight: 207Te
- Wet-weight 89Te
- Rotor diameter: 18m

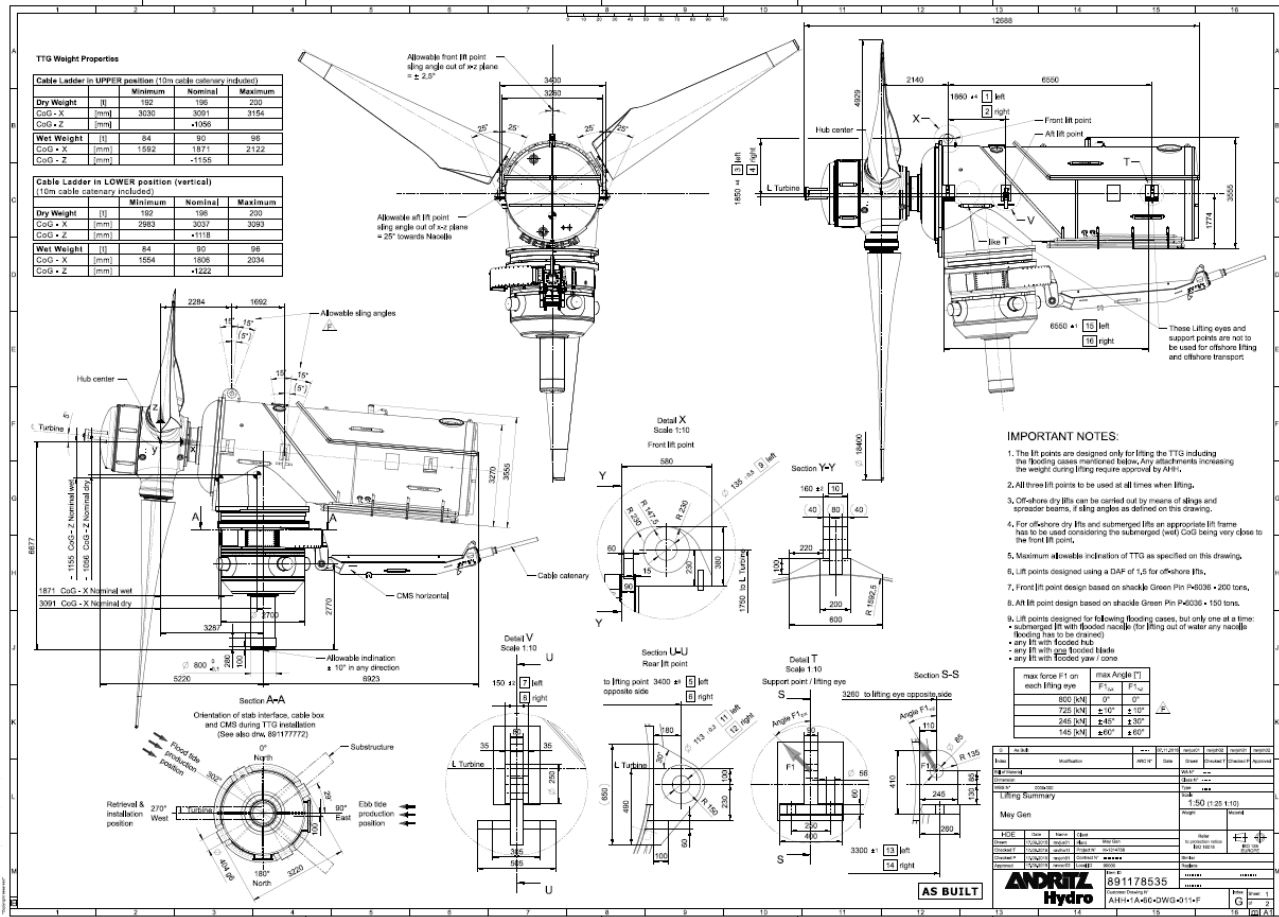


Figure 21 – AHH TTG rigging drawing

### 7.5.3 Export cables

Individual export cables are laid DIRECTLY ONTO THE EXPOSED BEDROCK from the TTG to the onshore sub substation, Figure 22. The final 550m is fed through a horizontally drilled duct which runs from the onshore site to ~13m LAT.

The cables carry 3 phase export power from the turbine to the shore, 3 phase auxiliary power from the shore to the turbine and 12 fibre optic cores for communications.

- Export power: 4.1Kv
- Auxiliary power: 1Kv

The cable properties are included in Figure 23, note that the Quadcore cable runs from ~50m within the horizontally drilled duct to the TTG.



Figure 22 – MeyGen export cable laid on exposed bedrock

Approved By JDR Engineering  
Uncontrolled When Printed

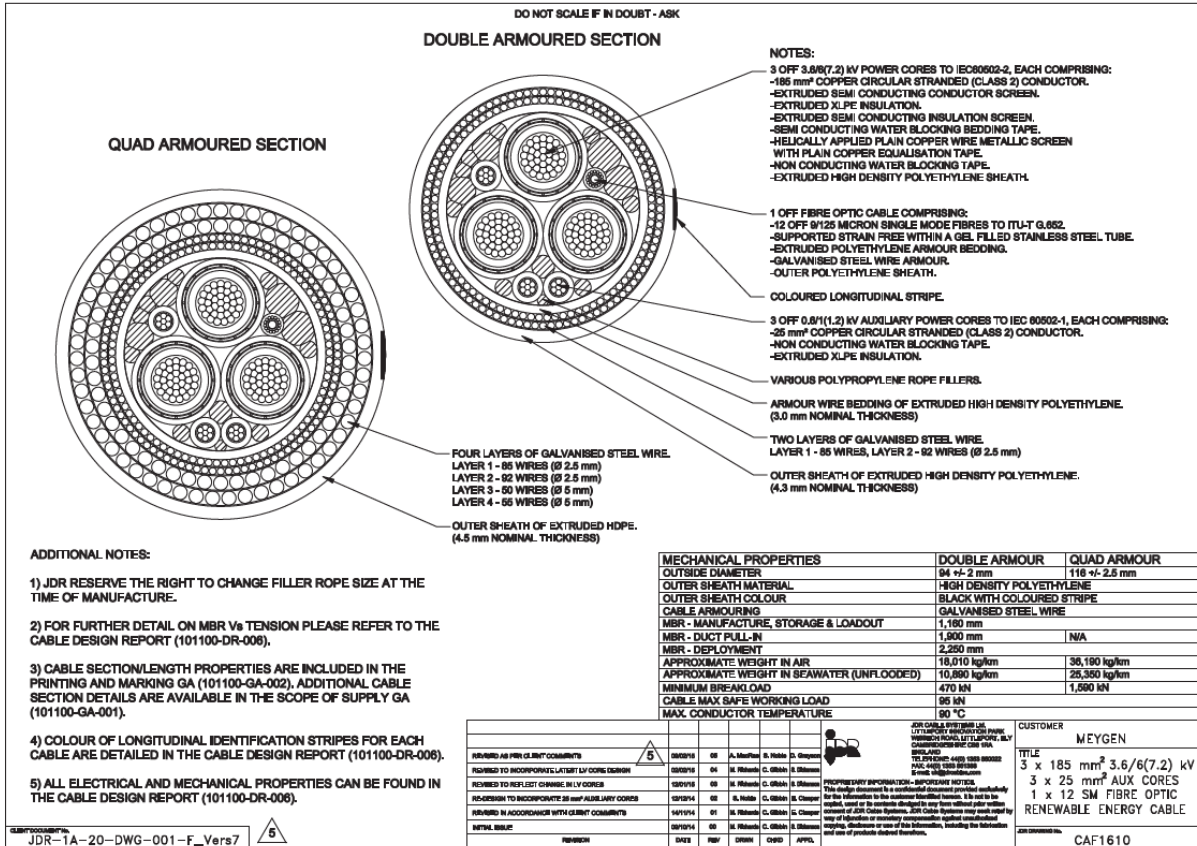


Figure 23 – Export cable  
Operation Phase Emergency  
Response Cooperation Plan

External: For distribution

## 7.5.4 Turbine Support Structure

The support structures are similar in design but due to the different weights there are some differences in the fabrication of the TSS supporting the AHH TTG and the AOU TTG.

The TSS were fabricated at Nigg Energy Park. The TSS ballast blocks were fabricated at JGC.

Both were installed using the Jack up vessel Neptune, Figure 24 to Figure 26. The ballast blocks were installed using a bespoke lifting tool which is stored at Nigg Energy Park,



Figure 24 – TSS being installed in slack tide



Figure 25 – 205Te ballast block

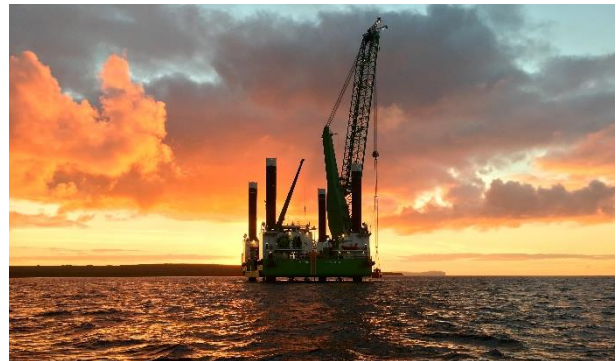


Figure 26 – Ballast block awaiting installation

### 7.5.4.1 AOU

The TSS (Turbine Support Structure) for the AR1500 TTG is shown in Figure 27 and Figure 28.

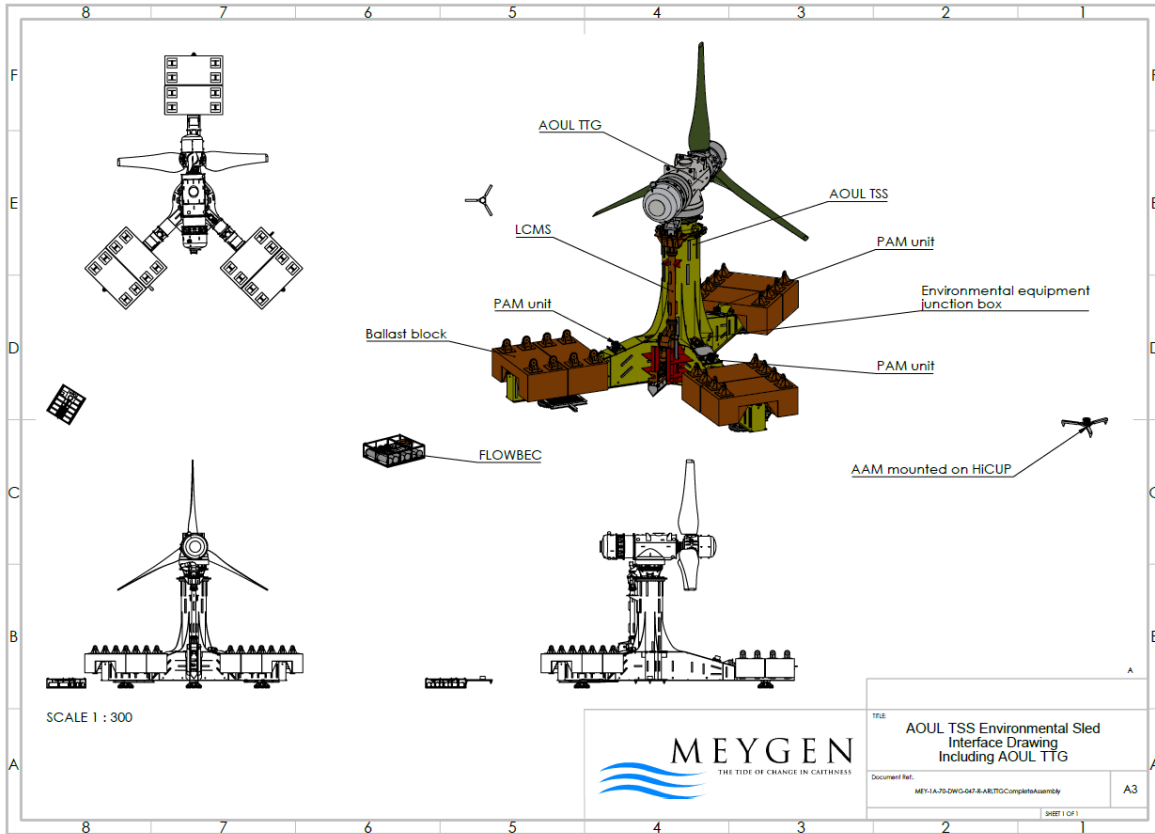


Figure 27 – AR1500 atop TSS

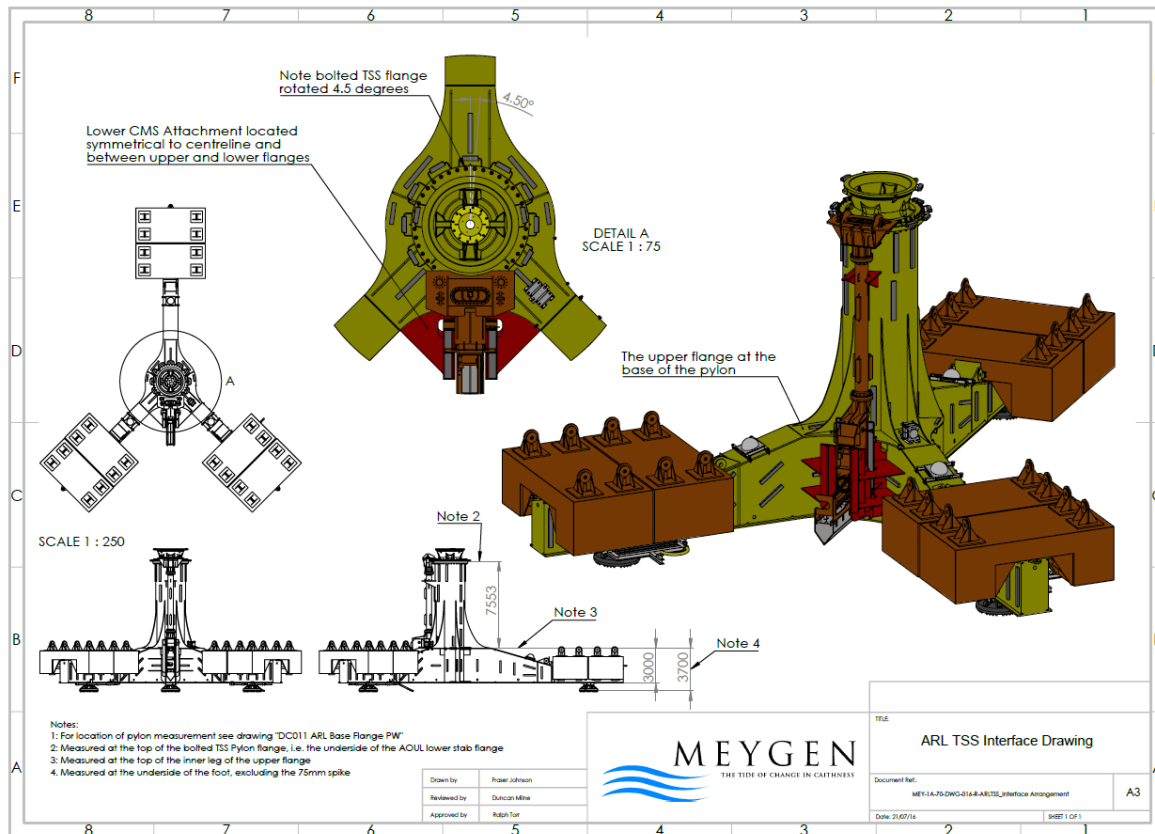


Figure 28 – AR1500 TSS general dimensions

### 7.5.4.2 AHH

The TSS (Turbine Support Structure) for the AR1500 TTG is shown in Figure 27 and Figure 28.

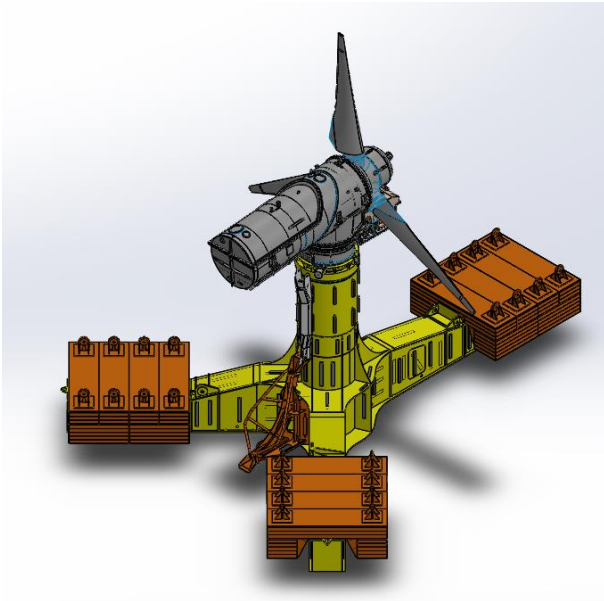


Figure 29 – AHH TSS



Figure 30 – AHH TSS

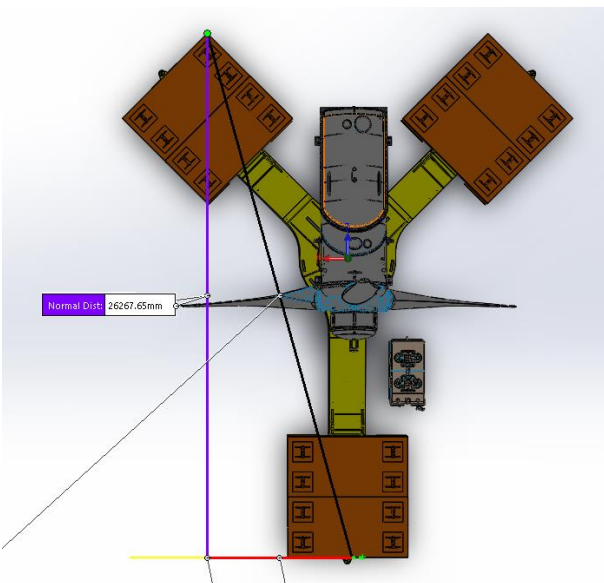


Figure 31 AHH TSS top view

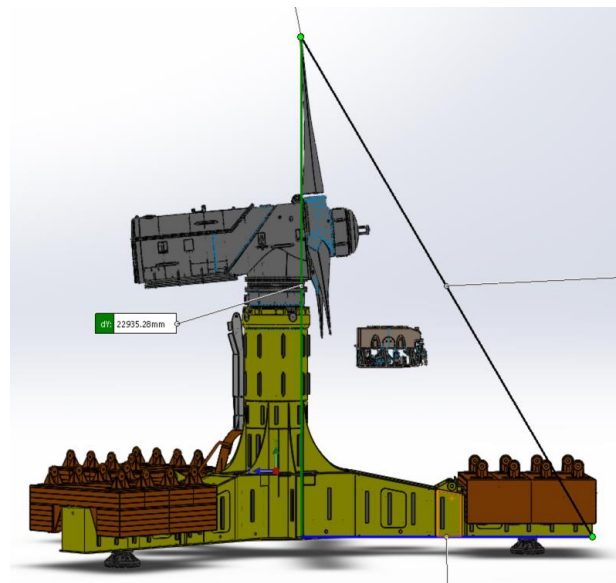


Figure 32 – AHH TSS side view

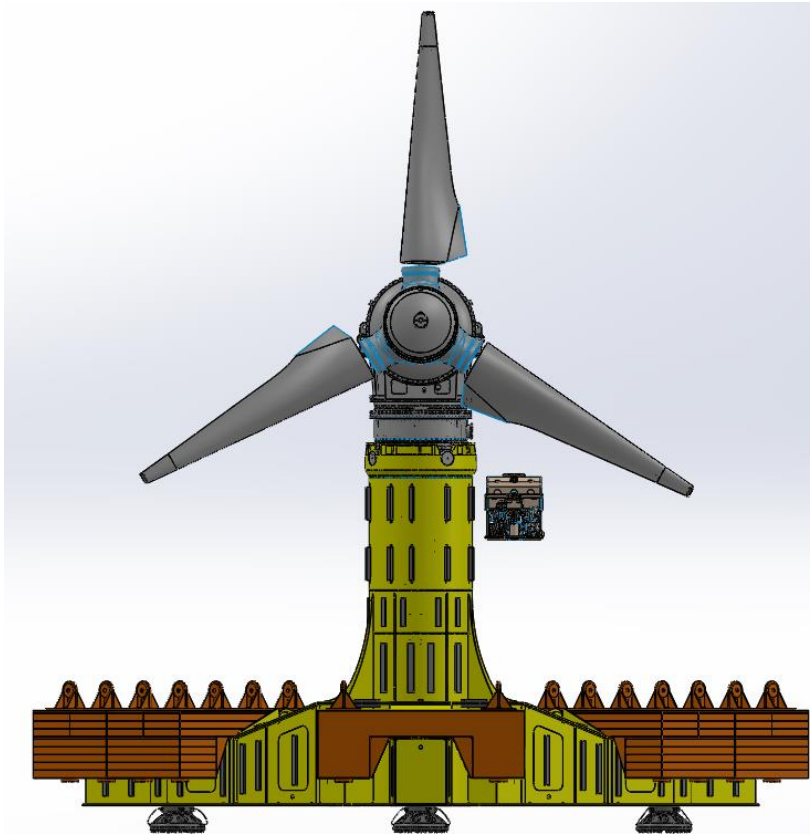


Figure 33 – AHH TSS front view with a Millennium WCROV for scale

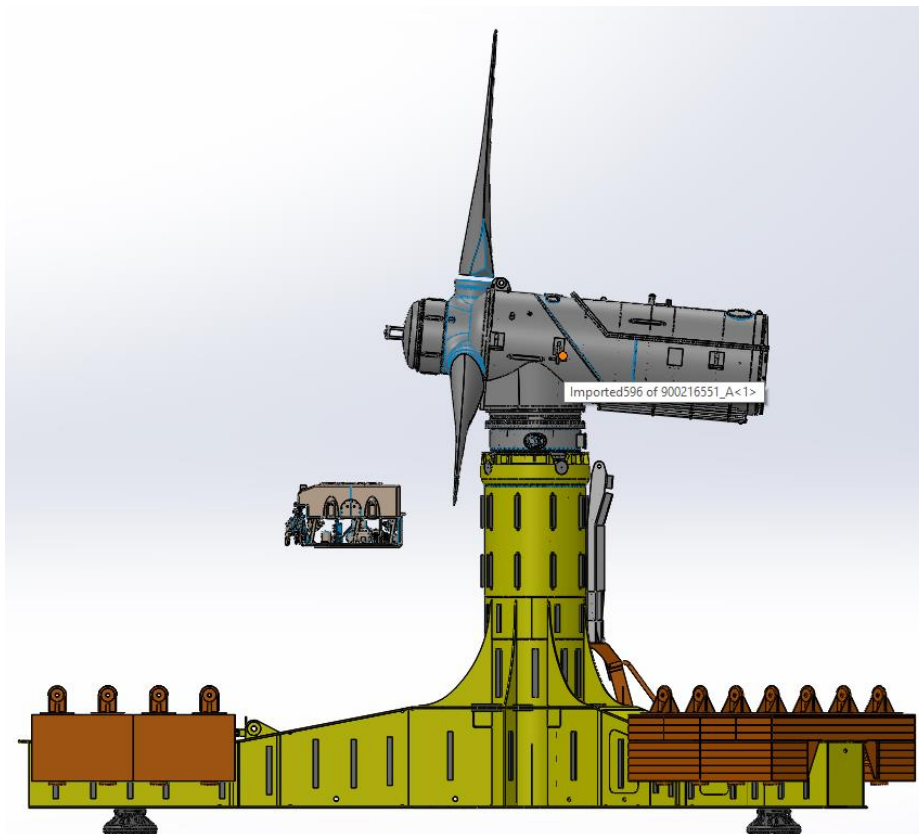


Figure 34 - AHH TSS side view with a Millennium WCROV for scale



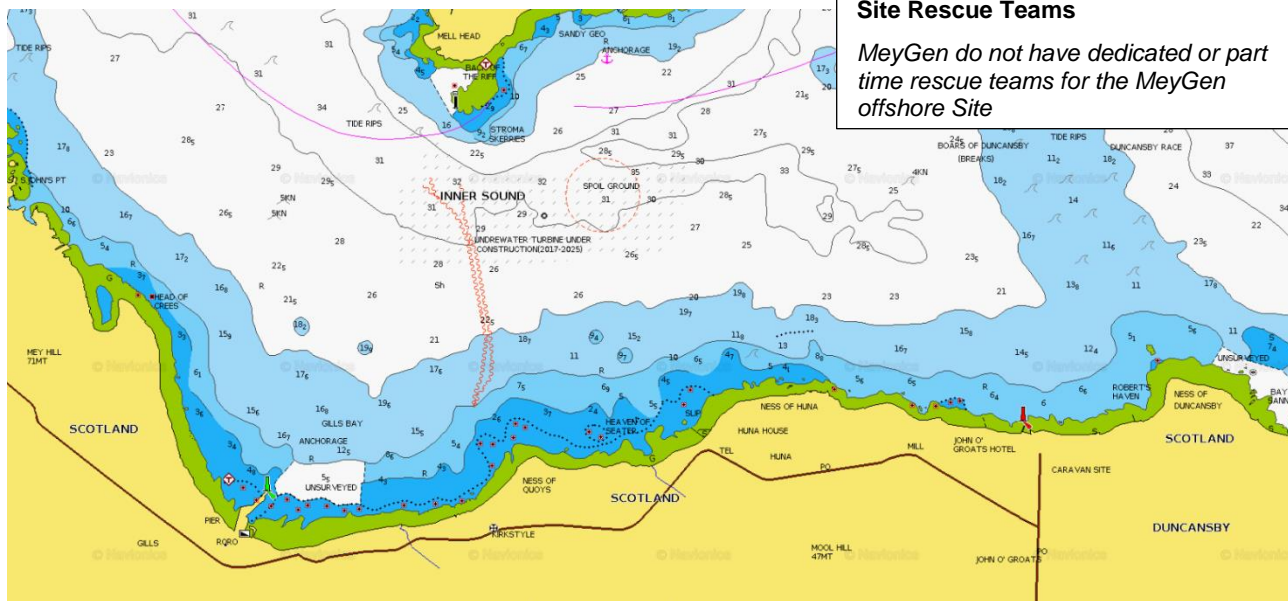
## 8 EMERGENCY ACTION CARD

### EMERGENCY ACTION CARD

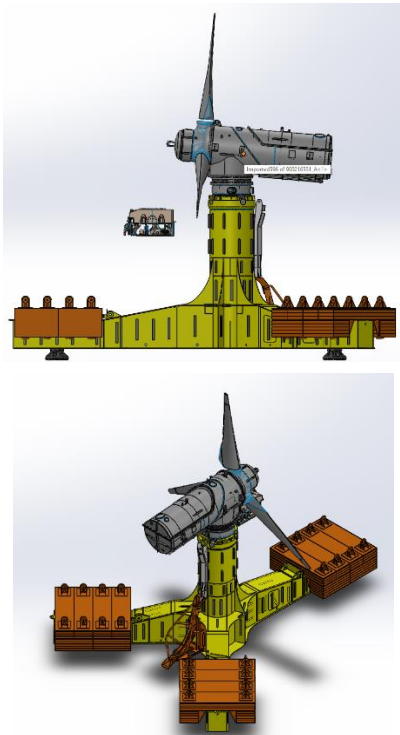
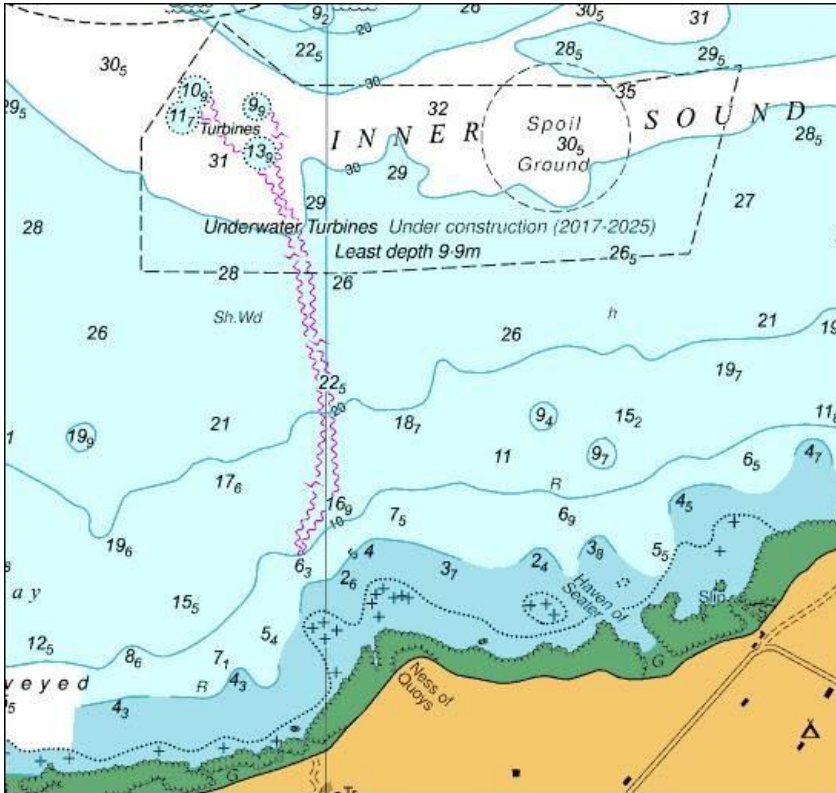
#### For MeyGen Tidal Array

Communications with the marine coordinator should be via HM Coastguard whenever possible.

<b>Emergency Contact</b> One of the following or a combination of both, must be 24/7		<b>Tidal Array Summary</b>	
<b>Duty Holder name</b> 24/7/365	<b>MeyGen</b>	<b>Phase</b>	Operation
<b>Marine Coordinator</b> (primary number)	<b>Fraser Johnson</b> Meygen O&M Manager 07787 518 373 <a href="mailto:Fraser.johnson@meygen.com">Fraser.johnson@meygen.com</a>	<b>Range &amp; Bearing from land</b>	030 degrees  FROM Gills Bay Harbour  1.64nM
<b>Secondary PoC</b> 24/7/365	<b>Bruce Mackay</b> MeyGen Site Manager – Onshore 07876 233 726 <a href="mailto:Bruce.mackay@meygen.com">Bruce.mackay@meygen.com</a>	<b>Number of TTG</b>	4
<b>Media relations</b>	<b>Sean Parsons</b> Director of External Affairs 07739832446	<b>No. of substations</b>	1 (onshore at Ness of Quoy, Canisbay)
<b>Coastguard</b>	<b>MRCC</b> +44 (0) 344 382 0722 Secondary emergency contact: 999/112	<b>Shutdown procedure</b> The turbines are controlled by an Array HMI accessed via the internet. Normal shut down would be performed by the <b>Duty Holder</b> or <b>Secondary PoC</b> in approximately 2 minutes.  Emergency shutdown can be implemented via SSE Networks control centre. Phone this number and request that the main circuit breaker be opened. <b>0800 300999</b>  Estop buttons are also located within the onshore substation, for each turbine and the array.	
<b>Police</b>	<b>Police Scotland</b> 999	<b>Site Rescue Teams</b> MeyGen do not have dedicated or part time rescue teams for the MeyGen offshore Site	



TTG Specific information (include an additional table if more than 1 WTG type)					
Turbine	Longitude UTM 30 WGS84	Latitude UTM 30 WGS84	Water depth (m) LAT	TTG Height (m)	Clearance <b>BELOW LAT</b>
<b>TTG 1 - AHH</b>	03° 08.46158 W	58°39.60515 N	33.1	23.5	10.9
<b>TTG 2 - AHH</b>	03° 08.48413 W	58°39.55663 N	34.1	23.5	11.7
<b>TTG 3 - AHH</b>	03° 08.24738 W	58°39.57198 N	33.1	23.5	9.9
<b>TTG 4 - AOU</b>	03° 08.26262 W	58°39.50192 N	34.9	23.5	13.9



Communications	
<b>VHF &amp; Aviation</b>	<b>Additional comms</b>
Activities onsite would be conducted by a vessel chartered for the purpose. Communication would be via <b>VHF Ch16</b>	Vessel specific contact details will have been e-mailed to <a href="mailto:renewables@hmcg.gov.uk">renewables@hmcg.gov.uk</a> and <a href="mailto:oelo@mcga.gov.uk">oelo@mcga.gov.uk</a> prior to the commencement of the works.

Mass Evacuation Places of Safety To indicate if mass evacuation is required where persons could be taken to, whether it be accommodation vessel, landfall or near Offshore Installation for temporary relief.		
Place Name	Range and bearing from centre of the Tidal Array	Latitude and longitude (WGS84, DM)
– <b>Evacuation from the Offshore site by small vessel would be to Gills Bay or Scrabster Harbor.</b>	– <b>210° 1.64nM</b>	<b>58° 38.37633N / 003° 9.67783W</b>
– <b>Evacuation from an Offshore Construction Vessel to a shore location would be via Scrabster or Nigg Energy Park.</b>	– <b>Scrabster harbor, 15nM west of site</b> – <b>Nigg Energy Park, 80nM South East</b>	<b>58° 36.00783N / 003° 33.62017W</b> <b>57° 41.7275N / 004° 1.89767W</b>

Any contact information contained in the EAC and provided to the Maritime and Coastguard Agency (MCA) will be used solely for the purposes of emergency response as part of the Agency's functions and by the MCAs SAR helicopter provider. The information will be kept secure and will not be used for any other purpose without their permission. The information will be stored by the MCA and the SAR helicopter provider until the company provides updated information or the development ceases to exist, at which point the information will be deleted.

**Personal SAR Locating Device Make & Model**

*All personnel undertaking vessel transfers on the MeyGen site shall be equipped with a 275kN life jacket and a signal beacon with an integrated DCS transmitter, such as Ocean Signal Rescue ME MOB1 – EPI3100 unit.*

Electronic Monitoring *(include details if feeds are provided to HM Coastguard)*

AIS	Radar	CCTV
Location of receiver (indicated by OREI ID) and range of reception	Location (indicated by OREI ID) and range of scanners	Location (indicated by OREI ID) of cameras and range of coverage


*Not relevant to the MeyGen tidal site*

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**END**

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## 9 APPENDIX A – MEYGEN SITE ENTRY PERMIT

MEY-1A-80-TEM-005-F-SITEENTRYPERMIT.DOCX			
1. Project Number:	2. Areas of Access:	3. Date of issue:	
4. Description of work:		5. Valid From:	6. Valid to:
		7. Contractor undertaking the works:	
8. Contractor Person in Charge:		9. Contractor Number & E-mail address:	
10. Vessel Name and Call sign:		11. Number of persons on board:	
12. MeyGen Point of Contact:		13. MeyGen Point of Contact Number:	
14. TTG Status (tick applicable)			
<b>TTG#1</b> Generating <input type="checkbox"/> Removed for maintenance <input type="checkbox"/> Configured for: Installation <input type="checkbox"/> Recovery <input type="checkbox"/> Other:	<b>TTG#2</b> Generating <input type="checkbox"/> Removed for maintenance <input type="checkbox"/> Configured for: Installation <input type="checkbox"/> Recovery <input type="checkbox"/> Other:	<b>TTG#3</b> Generating <input type="checkbox"/> Removed for maintenance <input type="checkbox"/> Configured for: Installation <input type="checkbox"/> Recovery <input type="checkbox"/> Other:	<b>TTG#4</b> Generating <input type="checkbox"/> Removed for maintenance <input type="checkbox"/> Configured for: Installation <input type="checkbox"/> Recovery <input type="checkbox"/> Other:
For installation and Recovery activities the turbine/s shall be / have been configured as per supplier procedures and relevant documentation has been / will be issued.			
Signed on behalf of MeyGen: _____ (Issuing Authority)			
15. TTG isolations (tick applicable)			
<b>TTG#1</b> 4.1 kV isolation <input type="checkbox"/> 1kV isolation <input type="checkbox"/> Generation Inhibit <sup>1</sup> <input type="checkbox"/> Generation Inhibit – Rotor Locked <sup>2</sup> <input type="checkbox"/> Generation Inhibit – Yaw Locked <sup>3</sup> <input type="checkbox"/> None <input type="checkbox"/>	<b>TTG#2</b> 4.1 kV isolation <input type="checkbox"/> 1kV isolation <input type="checkbox"/> Generation Inhibit <sup>1</sup> <input type="checkbox"/> Generation Inhibit – Rotor Locked <sup>2</sup> <input type="checkbox"/> Generation Inhibit – Yaw Locked <sup>3</sup> <input type="checkbox"/> None <input type="checkbox"/>	<b>TTG#3</b> 4.1 kV isolation <input type="checkbox"/> 1kV isolation <input type="checkbox"/> Generation Inhibit <sup>1</sup> <input type="checkbox"/> Generation Inhibit – Rotor Locked <sup>2</sup> <input type="checkbox"/> Generation Inhibit – Yaw Locked <sup>3</sup> <input type="checkbox"/> None <input type="checkbox"/>	<b>TTG#4</b> 4.1 kV isolation <input type="checkbox"/> 1kV isolation <input type="checkbox"/> Generation Inhibit <sup>1</sup> <input type="checkbox"/> Generation Inhibit – Rotor Locked <sup>2</sup> <input type="checkbox"/> Generation Inhibit – Yaw Locked <sup>3</sup> <input type="checkbox"/> None <input type="checkbox"/>
All relevant isolations are / will be in place and where appropriate Permits to Work have been / will be issued under Sgurrenergy Safety Rules.			
Signed on behalf of MeyGen: _____ (Issuing Authority)			
16. Approval of Site Entry Permit			
This permit is authorised to requirements of the MeyGen Health and Safety Plan. I the undersigned confirm that safe access to the site exists, and that all persons affected by this task have been informed.			
Signed on behalf of MeyGen: _____ (Issuing Authority) (E-mail PtW to address in Section 9)			
17. Acceptance of Permit to Work			
I have read and understand the procedure outlined in MEY-1A-70-PRO-001-F_OffshoreSiteEntryProcedure and have / will provide notification as required to the MeyGen Point of Contact.			
Signed: _____ (Performing Authority) (Return scan of the signed PtW to MeyGen PoC)			
18. Project Documents			
I have received the MeyGen Phase 1A Emergency and Coordination plan and the MeyGen Phase 1A Vessel Management Plan and shall adhere to any relevant requirements contained within.			
Signed: _____ (Performing Authority)			
19. Completion and closure of Permit to Work			
I certify that the works are complete, and all equipment and personnel have departed the site. The works undertaken are reported in _____ (Doc Ref)			
Signed: _____ (Performing Authority) (Return scan of the signed PtW to to MeyGen PoC)			

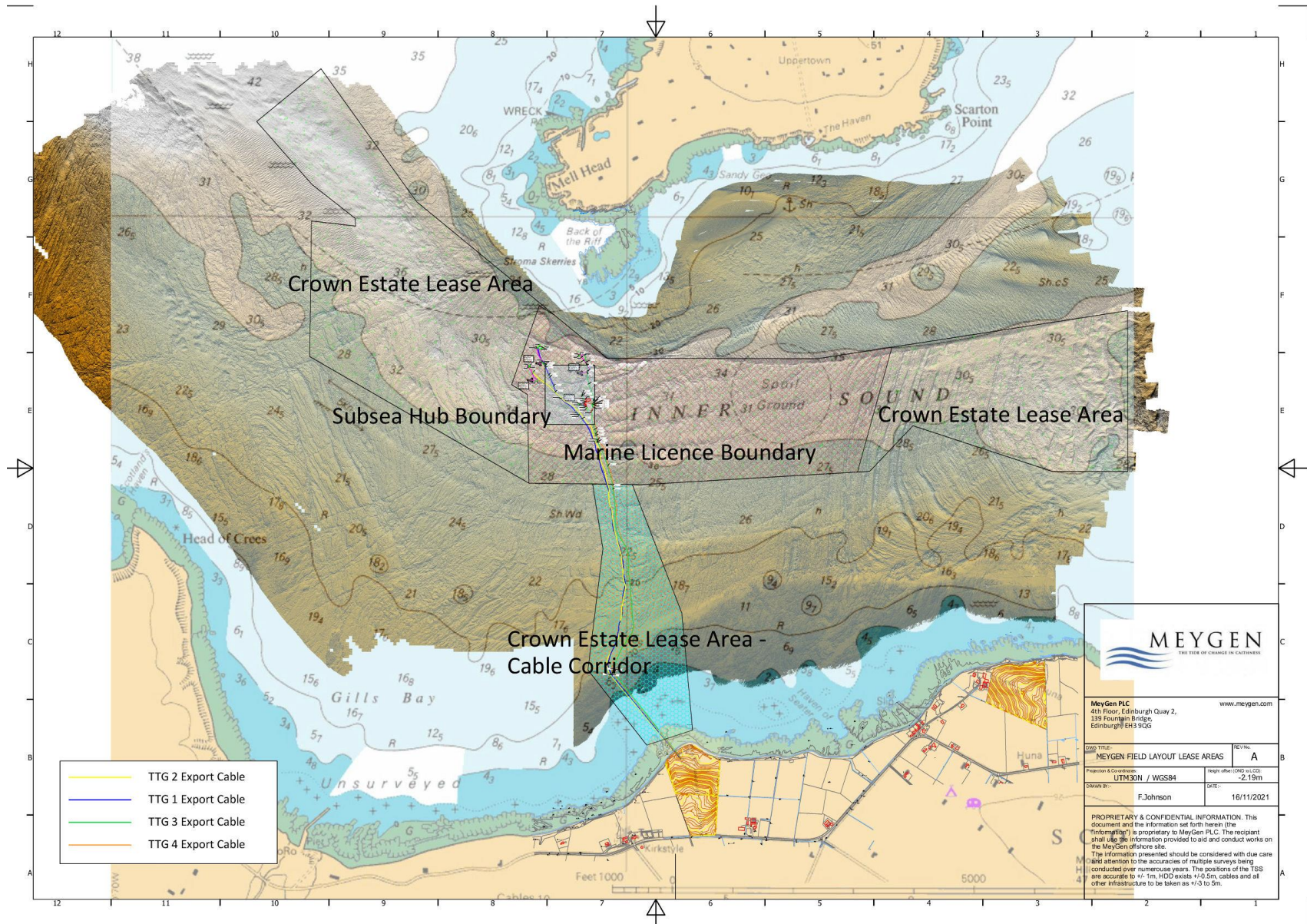
<sup>1</sup> Note: TTG rotor may still rotate and TTG may Yaw

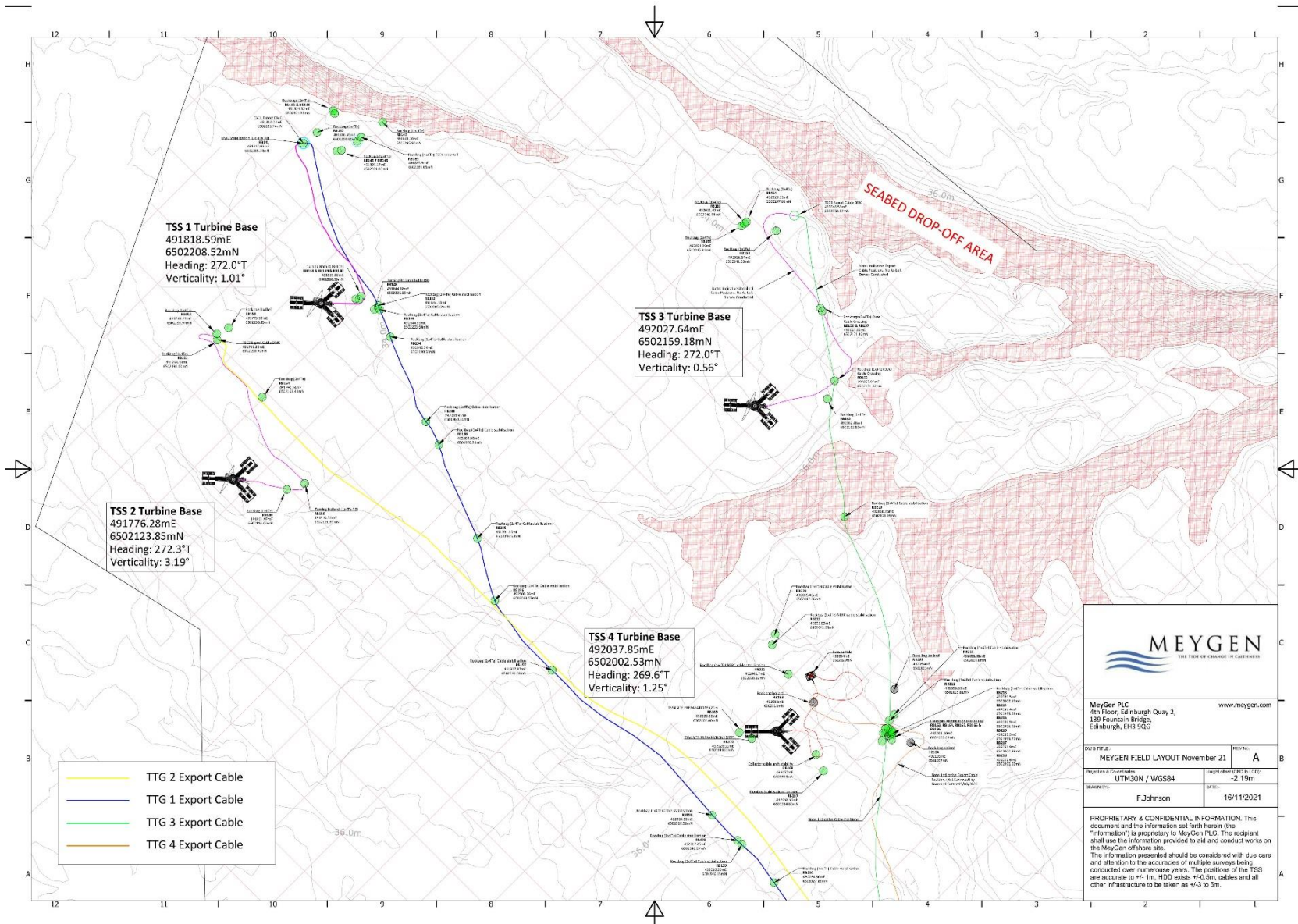
<sup>2</sup> Note: TTG rotor shall NOT rotate, but TTG may Yaw

<sup>3</sup> Note: TTG rotor shall NOT rotate AND TTG Shall NOT Yaw

## 10 APPENDIX B – SITE DRAWINGS

Note that the location of the main structures will be accurate to +/-1m and the export cables will be +/-5m.





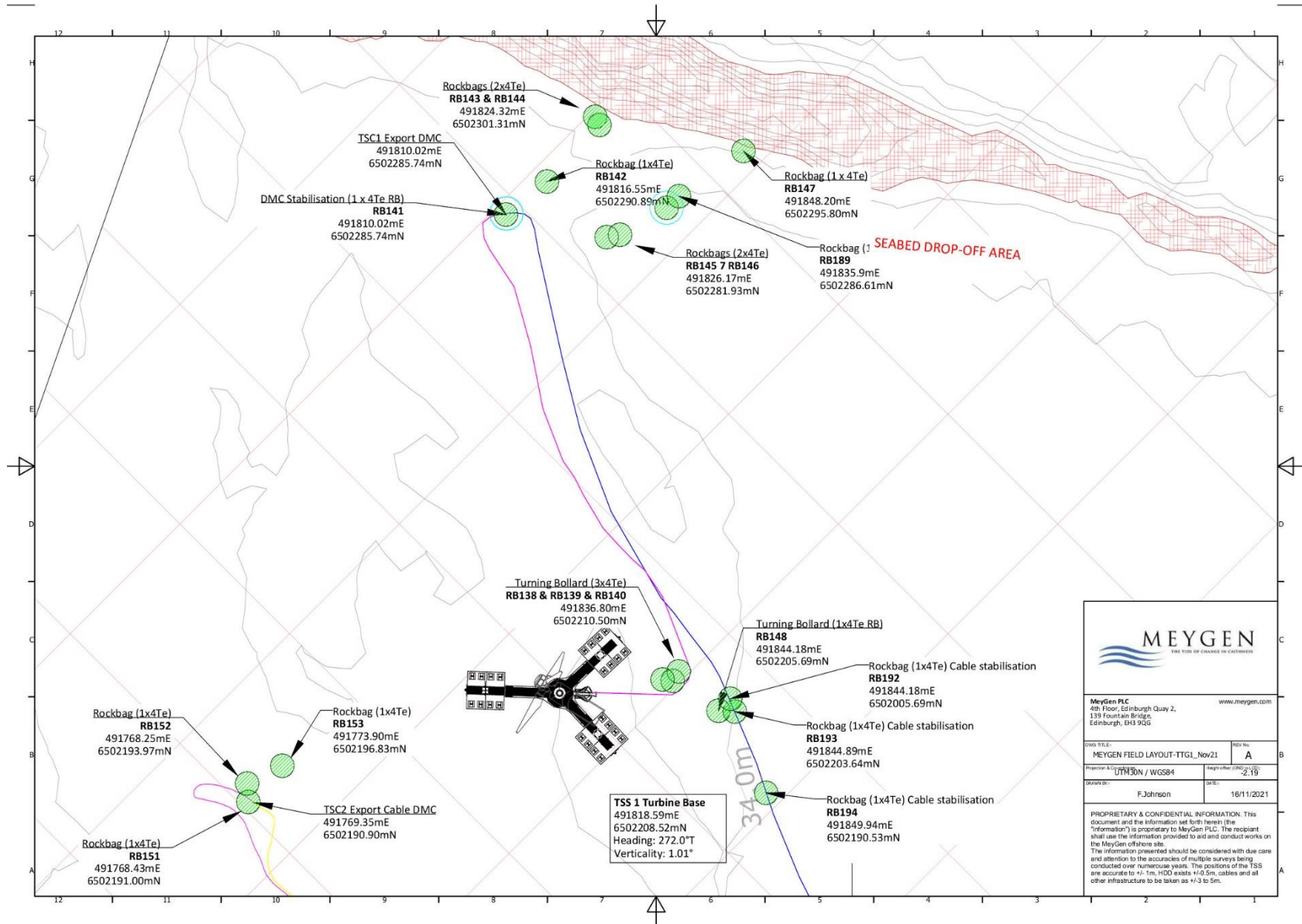
**MEYGEN**  
THE TIME OF CHANGE IN CATCHMENT

MeyGen PLC  
420 Floor, Edinburgh Quay 2,  
139 Fountain Bridge,  
Edinburgh, EH3 9QG

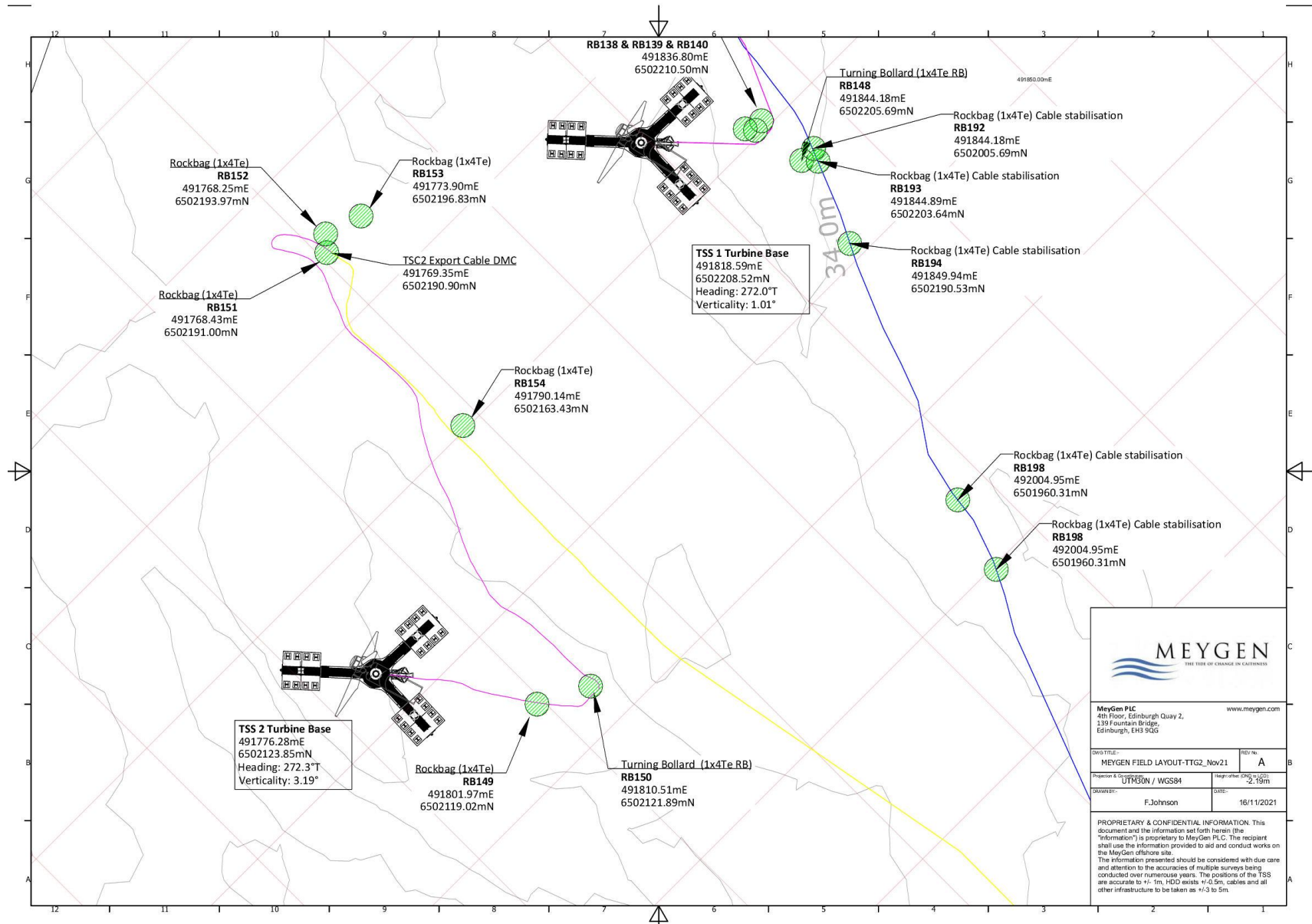
www.meygen.com

PROJECT TITLE:	MEYGEN FIELD LAYOUT November 21	REV NO:	A
Position & Coordinates:	UTM30N / WGS84	Height (Ref: EDN 100)	-2.19m
Author:	F.Johnson	DATE:	16/11/2021

PROPRIETARY & CONFIDENTIAL INFORMATION. This document and the information set forth herein (the "Information") is proprietary to MeyGen PLC. The recipient shall use the information provided to aid and conduct works on the MeyGen offshore site. The information presented should be considered with due care and attention to the accuracies of multiple surveys being conducted over numerous years. The positions of the TSS are accurate to +/- 1m, HDD axials +/-0.5m, cables and all other infrastructure to be taken as +/-3 to 5m.





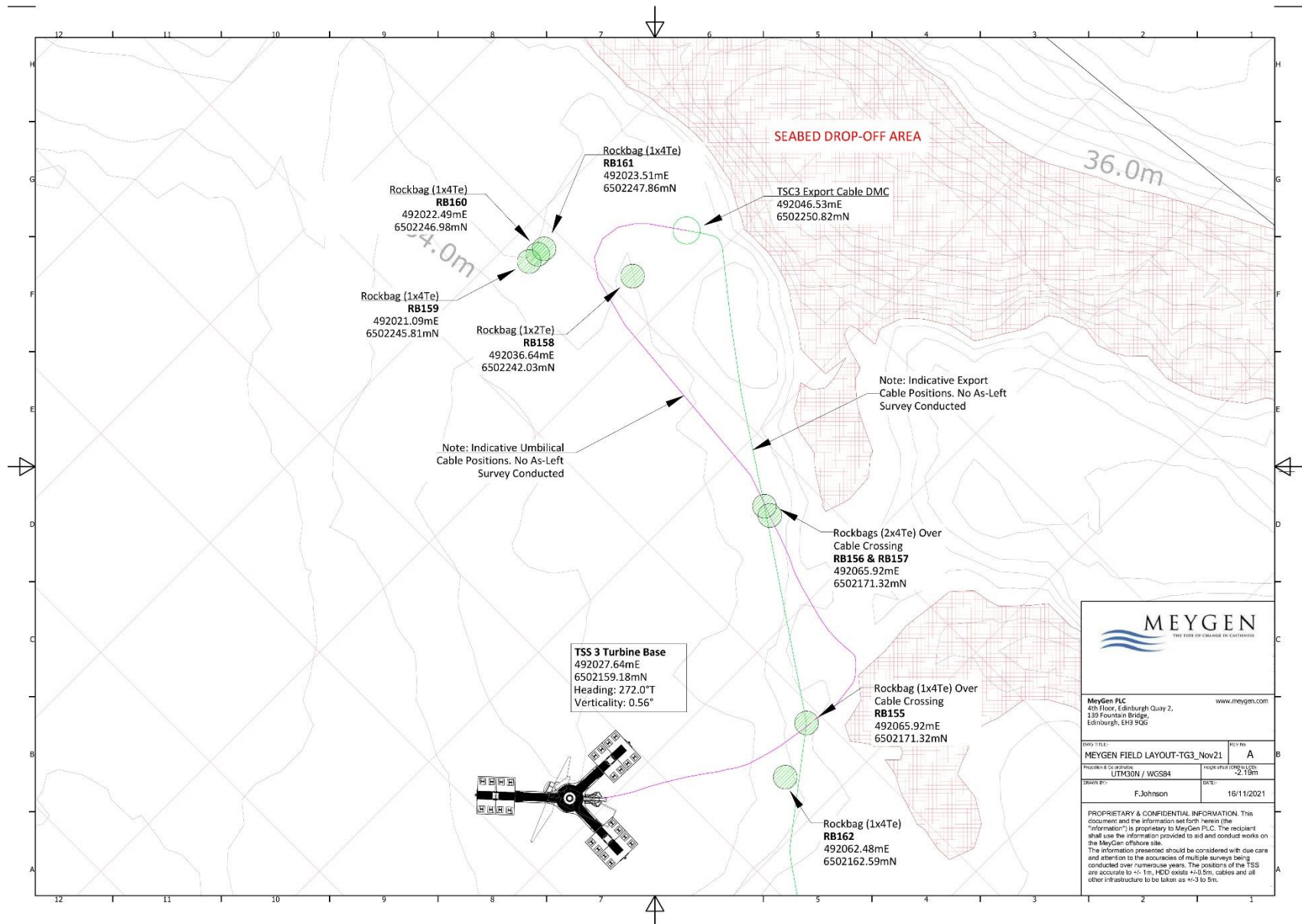


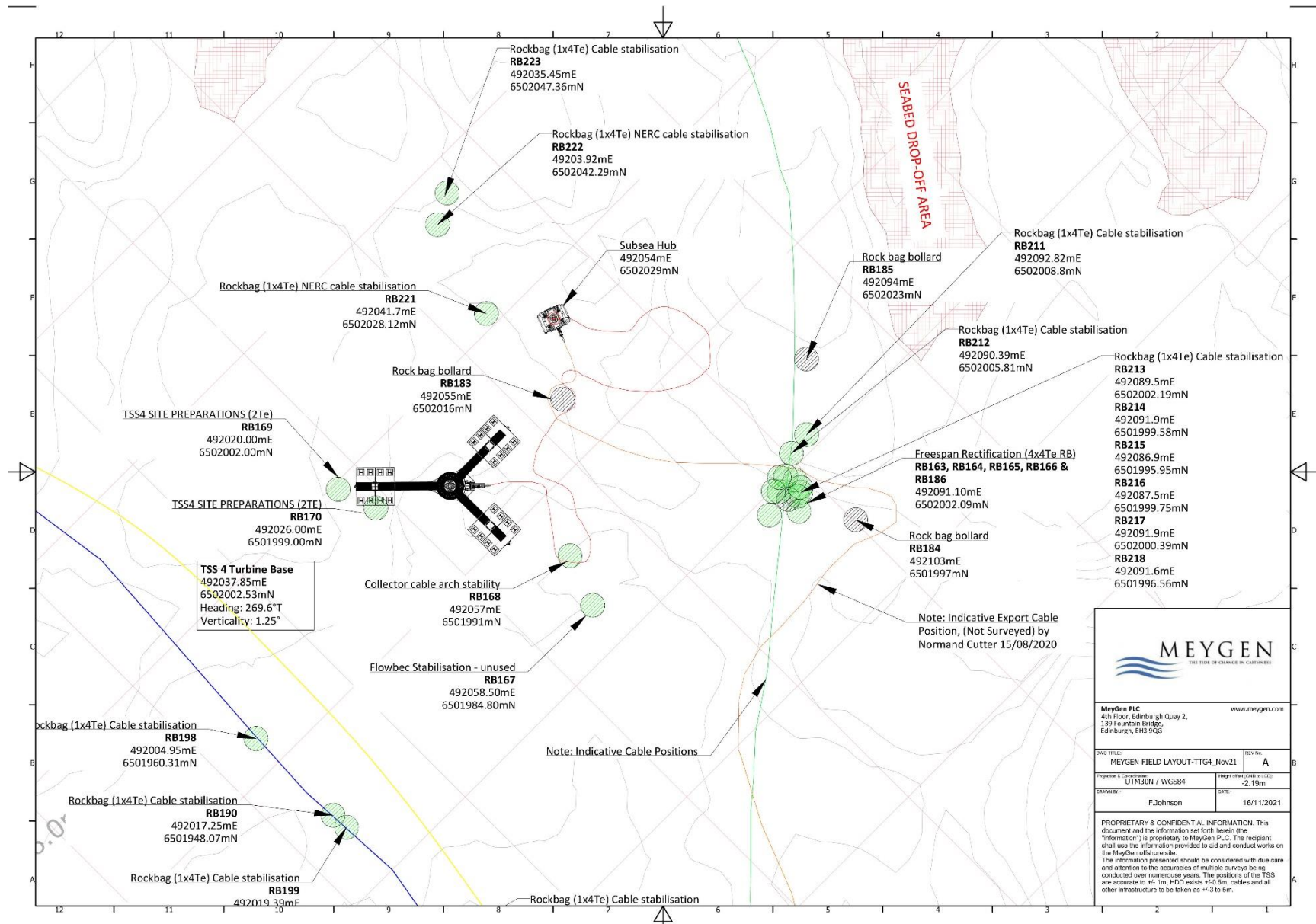
**MEYGEN**  
THE TIDE OF CHANGE IN CALIFORNIA

MeyGen PLC  
4th Floor, Edinburgh Quay 2,  
239 Fountain Bridge,  
Edinburgh, EH3 9GG  
www.meygen.com

DWG FILE:	MEYGEN FIELD LAYOUT-TTG2_Nov21	REV No:	A
Project & Client:	UTM30N / WGS84	Drawn by:	F.Johnson
DATE:	16/11/2021		

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## 11 APPENDIX C – MEYGEN VESSEL NOTIFICATION

MeyGen Ref	
Notice to Mariners Ref	
MeyGen Client Rep	
Emergency contact details	
Marine Contractor Rep	
Emergency contact details	
Summary of the works	
Start date	Estimated completion date
Vessel photo	
– Name	
– IMO number	
– Call sign	
– MMIS number	
– Vessel telephone number	
– Estimated persons on board	