

ACCOMPANYING
INFORMATION

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CONTENTS

1. Introduction	1
2. Supporting Information	1
3. The Applicant	1
4. Gas Quality	2
5. Regulation of Onshore Oil and Gas	2
6. The Site	3
7. Details of Proposal	4
8. Conclusions	10

Plans

Description	Scale	Reference
Borehole Location Site Plan	1/10000	PEDL217/SS87/LLANDOW/DRAWING/LOC120811
Site Plan	1/1250	PEDL217/SS87/LLANDOW/PLANNING/SITEAREA120811
Site Layout Plan	1/250	PEDL217/SS87/LLANDOW/PLANNING/SITELAYOUT120811
East – West Cross Section	1/250	PEDL217/SS87/LLANDOW/PLANNING/E-WSEC120811
North - South Cross Section	1/250	PEDL217/SS87/LLANDOW/PLANNING/N-SSEC120811
Surface Site drainage	1/250	PEDL217/SS87/LLANDOW/PLANNING/DRAINLAYOUT120811
Lighting Layout Plan	1/250	PEDL217/SS87/LLANDOW/PLANNING/LIGHTLAYOUT120811

Appendices

Description	Scale	Reference
Details of Site Office	1/50	APPENDIX I
Details of Site Cabins	1/50	APPENDIX II
Details of Temporary Fencing		APPENDIX III
Noise Assessment		APPENDIX IV

1. Introduction

The applicant seeks consent for one test borehole at Llandow Business Park. The scheme will be managed so as to facilitate *minimisation of risk*, both physical and financial, and *minimisation of disturbance*.

This application does **not** include fracking.

The application is made by Coastal Oil and Gas Limited for the purpose of drilling to take core samples of Limestone shales with a view to future possible capture and supply of shale gas (unconventional gas) as a clean energy supply and also to penetrate the Upper Devonian measures to test for the presence of conventional gas. This is estimated to be a depth of approximately 650m. This is part of a continuing program of sampling across South Wales, permissions have previously been granted in Bridgend County Borough Council and Neath Port Talbot County Borough Council. Further applications are pending in both these areas and one is due to be submitted to Rhondda Cynon Taf Council.

The application seeks permission to drill an exploratory borehole for the purpose of taking core samples for analysis on land at Llandow Business Park as indicated on the accompanying plan marked “Borehole Location Plan”. The borehole is aimed primarily at the Lower Limestone Shales below the Limestone measures.

This planning application is a revised version of a previous submission which was withdrawn due to the discovery of a dwelling house within the Llandow Business Park. Further noise assessment work has been carried out [report attached as Appendix IV] and has indicated that noise levels at the dwelling will be within guidelines. More detailed information on proposed traffic movements has also been included.

2. Supporting Information

The information contained within this supporting documentation to the formal Planning Application is given to help promote the understanding of the operations involved and thereby to assist in the planning process. The supporting documentation has been expanded to include additional information, which will only be relevant to certain individual consultees. Others, who may be interested in the development scheme, will be able to better understand the concept of the overall project by reference to this document.

This supporting documentation and site design has been prepared giving consideration to the purposes of the current legislation governing planning and environmental matters. The aim being, to ensure as far as is practicably possible, that the development will not knowingly permit the introduction into the environment of any substances or energy liable to cause hazards to human health, harm to living resources and ecological systems, loss of any amenity, or interference with the legitimate use of the environment by the general public and especially those that are neighbours to the development.

3. The Applicant

Coastal Oil and Gas Limited is based at the Bridgend Business Centre. It is principally involved in the exploration of UK onshore gas reserves. It has a 50% interest in approximately 99.7sq. km. of Petroleum Exploration and Development Licence (PEDL) 217 and is approved as an operator for this licence by the Crown. The remaining 50% is

held by Coastal’s Australian partner Eden Energy UK Limited whose registered offices is the same as that of Coastal Oil and Gas Limited at Bridgend.

4. Gas Quality

Geological modelling shows that the Llandow Business Park sits on a geological structure that could be a trap for Devonian conventional gas; the Devonian Measures are renowned for USA gas production. The borehole will be designed to test the presence of this gas.

International drilling and testing of similar gas resources has proved a resultant high quality, clean gas.

5. Regulation of Onshore Oil and Gas

“The Petroleum (Production) Act 1934, as amended by Section 18 of the Oil and Gas (Enterprise) Act 1982, provided for exploration of and production of onshore hydrocarbon resources. The Act vests ownership of petroleum underground in the Crown and empowers the Secretary of State for Energy to grant to such persons as he thinks fit, Licences to search, bore for and get petroleum.

The main objectives of the Licensing regime are to further the general Government policy of establishing the extent of the Country’s indigenous hydrocarbon resources. The regime is also intended to provide a framework within which the search for and production of oil and gas onshore can be undertaken in a safe and orderly manner, and to provide a satisfactory balance of safeguards and rights between the Government and Licensees. This regime also maintained unproved acreage on short licence and provided a satisfactory longer-term licence for production.

The framework comprises a single exclusive and unitary licence now known as a “PEDL”, Petroleum Exploration and Development Licence. Licences are still awarded for an initial period of six years although some flexibility is allowed and then, if required, for a further term of twenty years.

Planning permission will be required before the deep drilling of exploratory wells can be undertaken, and the Government will continue to require proof that the necessary planning permission has been obtained for deep drilling and production, and that all necessary consultations have been completed before authorising commencement of these activities.

The government still supports the development of coal-derived methane as part of its clean coal technology programme.

Forecast future energy shortages are putting pressure on onshore gas producers to develop suitable fields.

Excerpt from DECC Annual Energy Statement July 2010

ACTION 11: In the forthcoming Energy Security and Green Economy Bill, we will seek to ensure that access to UK oil and gas infrastructure is available to all companies. This will help the exploitation of smaller and more difficult oil and gas fields, allowing us to make the most of our natural resources.

ACTION 12: We will introduce further measures on gas security as promised in the Coalition Programme for Government. In the future, we need more gas storage capacity, more gas import capacity, and greater assurance that our market will deliver

gas when it is needed. This means that our gas market arrangements must have a sharper focus on increased flexibility and resilience.

6. The Site

6.1 Location

The site is located at Llandow Business Park. The national grid co-ordinates for the site are Eastings 295851 Northings 172167. Shown on the Borehole Location Plan – PEDL217/SS87/LLANDOW/DRAWING/LOC120811

6.2 Current Use

The land is disused apart from the unauthorised parking of lorry trailers and other vehicles. Unauthorised rubbish is also being dumped on the site. The site will be cleaned up as part of this scheme.

6.3 Ownership

The landowner is Elete Design Limited; R/O 10-12 Dunraven Place, Bridgend CF31 1JD.

6.4 Site Infrastructure

The site requires minimal moving of material apart from that required to tidy the area. There is an existing, level concrete base and no further ground preparation will be required for drilling or siting cabins/offices.

6.5 Ground Conditions

Initial investigation shows that the land is comprised of a small thickness of glacial material overlying the Porthkerry Formation (Lower Lias) of Jurassic age. A detailed survey will be conducted during the development process.

6.6 Access

The proposed access from the main highway network will be the same as the Llandow Business Park off the Llantwit Major Road, the B4270. To minimise risk the proposal for site access is to travel in very early in the morning when traffic is minimal. The drill rig is a standard lorry size or track mounted and carried on a trailer. Albeit heavy traffic, such as the rig, drill pipe and cabins, will only travel to the site once and from the site once; site entry will be from the south via the A4050, A4226 and B4265 to avoid Llysworney Village. Once on site, traffic will consist of cars and vans at the beginning and end of shift and deliveries. The rig does not require specialist escort. The vehicles create no more noise than other heavy goods vehicles. No additional highway amendments are required.

A summary of proposed traffic flows into the site is as follows: -

Singular Movements

<i>Drill rig</i>	<i>1</i>
<i>Drill Rods</i>	<i>3</i>
<i>Casing</i>	<i>4</i>
<i>Tanks and other equipment</i>	<i>3</i>
<i>Compressors</i>	<i>1</i>
<i>Generators</i>	<i>1</i>
<i>Survey equipment</i>	<i>1</i>
<i>Cabins & Portaloos</i>	<i>4</i>

Regular Movements

<i>Tankers</i>	<i>2 per week</i>
<i>Foul sewerage tanker</i>	<i>1 per week</i>
<i>Skips</i>	<i>4 per week</i>
<i>Drilling supplies</i>	<i>1 per week</i>
<i>Personnel (cars/vans)</i>	<i>2/3 per 12 hr shift</i>

6.7 Environment Agency - Development and Flood Risk

TAN15 maps from the Welsh Assembly Government indicate the site to be in Zone A: Considered to be at little or no risk of fluvial or tidal/coastal flooding. The site is not on a recognised flood plain.

6.8 Area

The enclosed area of the application site is 0.17 hectares.

7. Details of Proposal**7.1 The Construction of the Exploration Borehole**

The borehole will be constructed to comply with current legislation and applicable codes and rules. The hole will be constructed under the governance of the Health and Safety Executive Oil and Gas Division. A final Department of Environment and Climate Change permission in the form of a Well Operation Notice is required before work can commence.

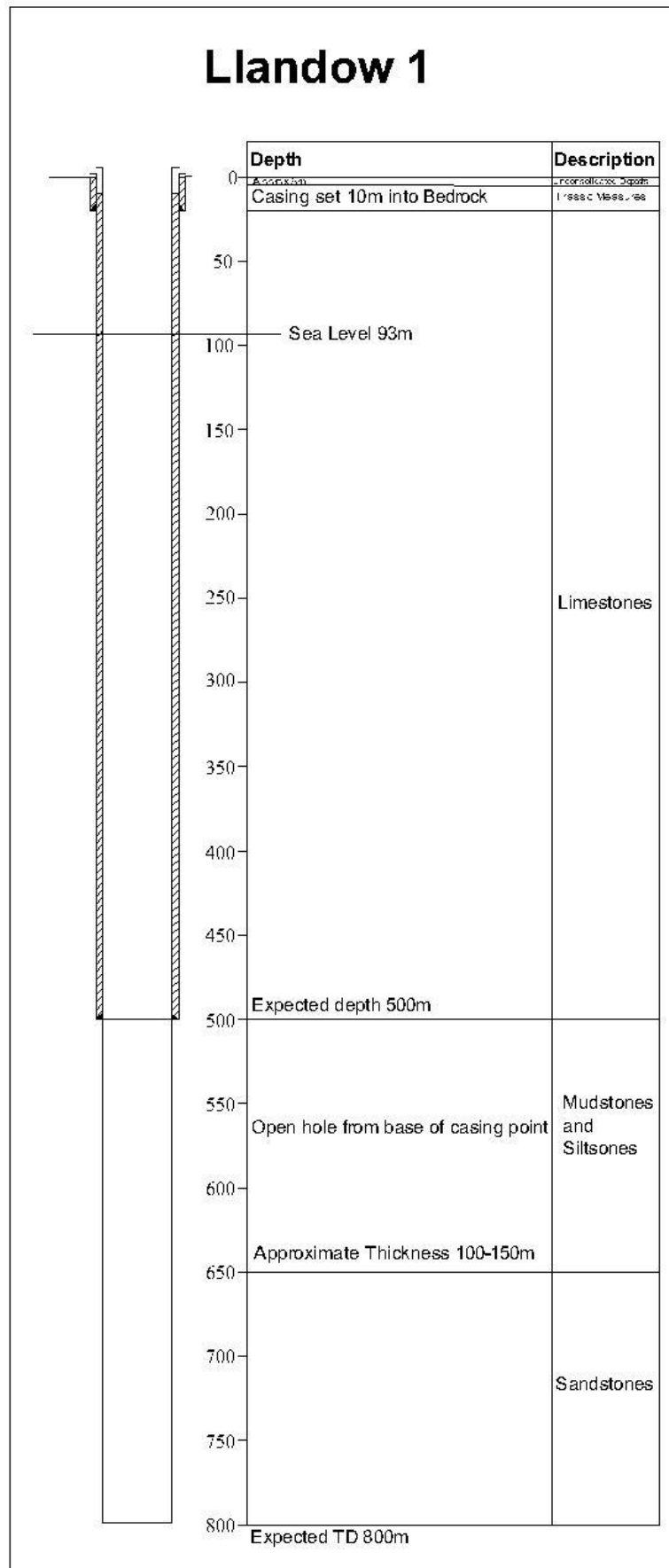


Figure 1: Approximate depths of the boreholes

The works for the boreholes will include: -

- ❖ Drilling a surface completion hole at approximately 30cm Diameter up to 25 metres well depth into rockhead.
- ❖ Cementing the surface completion in place.
- ❖ Drilling through the Carboniferous Limestone to a depth of approximately 500 metres
- ❖ Casing off the Carboniferous Limestone and cementing in place
- ❖ Pressure testing the 500 metre casing string after allowing adequate curing time.
- ❖ Drilling into the strata below the limestone utilising suitable Well Head Protection and Diversion System to a suitable vent system.
- ❖ Utilising suitable monitoring systems to test the borehole.

Well Testing Procedure: -

- ❖ Samples of the strata will be taken from the borehole and tested both in the on-site and at an external laboratory
- ❖ Running a suite of geophysical logs
- ❖ Any gas flow that may take place will be measured for quantity and quality using suitable instruments and meters.

7.2 Site Location

The location of the proposed borehole site is included in this application and indicated on the attached plan reference: -

PEDL217/SS87/LLANDOW/DRAWING/LOC120811

A site layout plan reference: -

PEDL217/SS87/LLANDOW/PLANNING/SITEAREA120811

is also attached.

7.3 Site Construction

The site is located on a level area of concrete in an industrial surrounding. The offices and cabins will be located on the concreted area. The drilling rig will also be located on the concreted area. Drip trays will be placed where required. Drilling water will be recycled. Please see detailed site layout drawing: –

PEDL217/SS87/LLANDOW/PLANNING/SITELAYOUT120811

7.4 Summary of Geology

The borehole area is situated on the Porthkerry Formation (Lower Lias) of Jurassic age. This shallow dipping strata is up to 50m thick overlying Cornelley Oolite (Viséan) Lower Carboniferous age. From the geological model constructed by Coastal Oil and Gas Limited there is a high in the Devonian Strata below Llandow.

7.5 Gas Control

If gas is encountered during drilling operations the drilling fluid will safely contain that gas. On completion of drilling and testing the well will be shut in using the well head control mechanism.

The control mechanism is housed on a well head assembly that effects well control. Entries are available for water infeed while drilling and to divert gas. A suitable BOP (Blow Out Preventor) will be utilised.

7.6 Monitoring Operations

Gas flows, purities, pressures including Hydrogen Sulphide values will be monitored during the drilling period. Drilling will be 24 hours per day. Twenty-Four hour security will be present with the site manned at all times.

7.7 Environmental Control

The control of ground water during the drilling of this well will be by the density of the drilling fluids which would prevent any major water ingress. The main aquifer has been identified in the Carboniferous Limestone and this will be completely sealed with steel casing cemented into place, this is a recognised method of sealing an aquifer by the Environment Agency. This coupled with the restoration proposals outlined below will insure that there will be no risk to aquifers and licensed abstractions during this stage.

The water / fluids used for drilling are contained in a closed loop system; the volume of fluid required will depend on the depth of the well. The drilling fluid will be held in tanks on the surface so that they can be checked for levels and leaks.

- Shaker screen – the drilling fluid is passed over a fine vibrating sieve of various sizes to allow the drill cuttings to pass into a covered skip for disposal and the drilling fluid to drop through and return to the closed loop system. This separates the solid drill cuttings from the fluid so that it can be re-circulated back down the wellbore. In oilfield industry, linear motion shale shakers are widely used.
- At the end of the drilling operation all excess drilling fluid will be tankered off site to a licensed disposal facility.

As all drilling fluids are maintained in a closed loop system this can easily be monitored for leaks. In the event of a loss of fluid to the system then the source of that loss will be investigated. If there is a leak to a tank / pipe then this will be repaired as soon as practical. The tanks will be placed so that they can be observed by the drilling crew and site staff. In the event that there is an increase in drilling fluid that may allow a spillage

from the tanks, drilling will cease until additional tanks can allow for the increase in fluid or the additional fluid is tankered off site to an appropriate facility.

The storage of all oils and fuels will be within a bunded fuel tank where the volume of the bund is 1.5 times the capacity of the tank. During fuel transfer absorbent matting will be placed below the fuel fill point to catch any drips. Drip trays lined with absorbent matting will be placed under the drilling rig at all times.

The storage of drilling muds, prior to mixing the drilling muds are in powder form in bags. These will be stored in the drilling store shown on the site layout plan.

Foul sewage will be from the site toilet; this will be a hired ‘portaloos’ type and will be emptied weekly by a licensed operator.

Control of surface water will be affected by constructing a single block wall around the site and installing a sealed inceptor tank. Waste water will be tankered off site to a licensed disposal site. See plan Reference: -

PEDL217/SS87/LLANDOW/PLANNING/SURFACEGW120811

7.8 Vibration Assessment

At the proposed drilling site in Llandow Business Park are a number of factors that will limit the effects on vibration on local residents.

- The nearest properties a dwelling house in the centre of the business park some 260m North North-East, Sheeplys Farm 513m North North-West, Two Semis on Sutton Road 588m North West, Detached House on The Grove 538m West, Springfield Nursery 750m West are all over 500m away. There are closer industrial units.
- There is up to 5m of made ground/Glacial till consisting of a gravelly clay (this will absorb surface vibrations)
- The local bedrock is Carboniferous limestone; the individual beds are generally less than 5m thick.
- The drilling method will be utilising rotary drilling methods to minimise vibration.
- If required a vibration monitoring scheme prior to and during the drilling period will be conducted in accordance with BS 6472-1:2008 and BS 5228-2:2009
- If vibration levels are deemed excessive when recorded at the residential property then the drilling will cease until additional remedial measures can be put in place.

7.8 Noise

A noise report carried out by Hunter Acoustics is submitted with the application which concludes that, *“We would not therefore assess noise from the drilling works to be an issue on this site.”*

7.9 Visual Amenity

The site is not prominent in the landscape and is shielded by industrial units and hedges. Any views of the drilling rig, which will have an approximate height of 12 metres when fully extended, will be fleeting and the structure will not be dissimilar to other temporary structures/masts that are located in such areas. The rig and equipment will only be in place for a short period of time.

7.10 Restoration

Upon completion of the drilling and testing, the borehole will be completely filled with cement. Cement will be mixed on the surface in a grout mixer then pumped to the base of the borehole via a tremmy pipe. The tremmy pipe will be lifted out of the borehole in stages and more cement will be pumped into the borehole. The volume of the borehole will be confirmed by the results of the geophysical logging. The casing that has been cemented in place in the limestones will be left in situ. The multi stage filling will ensure that the borehole is completely filled. The cement will have similar density to the surrounding rock. The filling of the borehole will seal the hole to stop the vertical migration of groundwater.

The borehole will be sealed in accordance with the guidelines presented by the Environment Agency publication ‘Decommissioning Redundant Boreholes and Wells’. (Indicated in C in the diagram below)

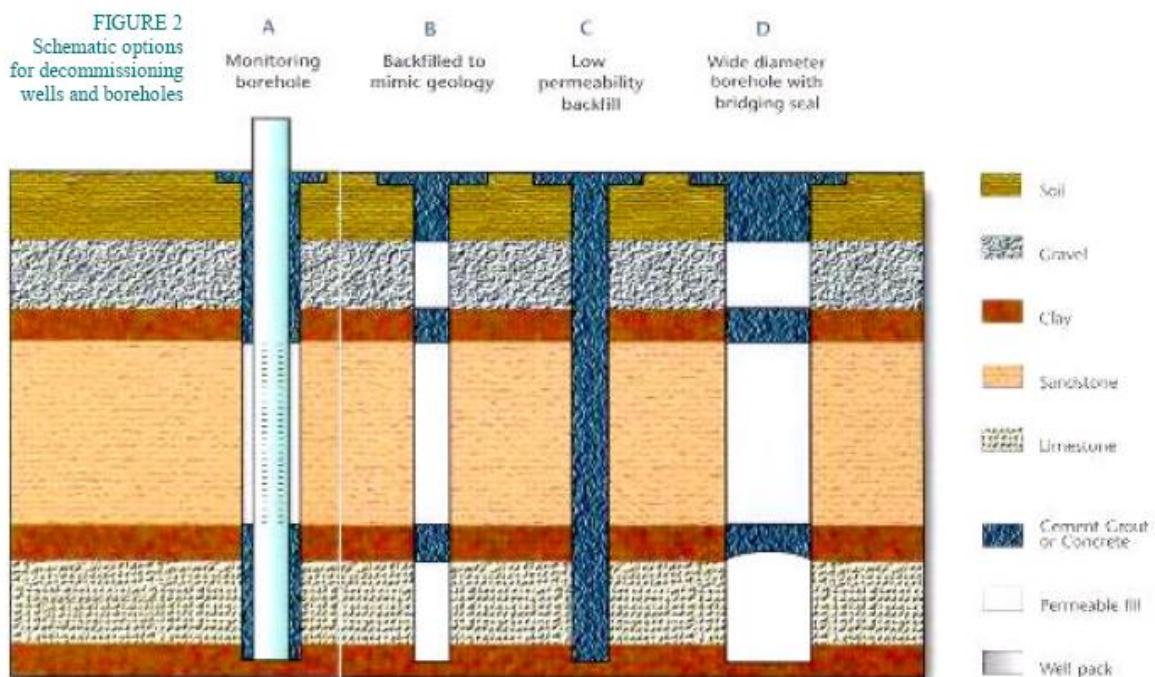


Figure 2 – C Backfilled completely with a low permeability backfill (cement)

g) Recording details on site plan

Complete and accurate records should be kept of the abandonment procedures for possible future reference.

These records should include the following;

- The reasons for abandonment (e.g. water quality problems).
- Measurement of groundwater level prior to backfilling.
- The depth and position of each layer of backfilling and sealing materials.

- *The type and quantity of backfilling and sealing materials used.*
- *Any changes made to the borehole/well during the abandonment (e.g. casing removal).*
- *Any problems encountered during the abandonment procedure.*

Abandoned borehole and well locations should be marked on site records and, if possible, on the ground. Details of any decommissioning or modifications to borehole construction should also be forwarded to the British Geological Survey.

7.11 Permissions to Drill

All permissions to drill will be in place before work commences.

Permissions required are: -

Petroleum Licence from the DECC – In place PEDL217
 Planning Permission from Vale of Glamorgan Council
 Approval for Drilling from the Health and Safety Executive
 Well Operations Notice from the DECC

7.12 Construction Period

Summary of Time Scale

	Weeks
Site Establishment	(up to) 1
Drilling	(up to) 5
Testing	(up to) 2
Borehole Restoration	(up to) 1
Site Clearance	(up to) 1

7.13 Hours of Work

Hours of work during the site establishment and site clearance period will be 10 hours per day 08.00 hrs until 18.00 hrs excluding Sunday and drilling, testing and restoration period will be 24 hour, seven days per week.

8. Conclusions

It should be noted that this application is only for exploratory drilling and testing it does not involve fracing or the commercial extraction of gas. It is considered that due to the scale, duration and nature of this proposal it would not create adverse environmental impacts, given the industrial location.

End