# CUADRILLA RESOURCES LIMITED

# SECTION – 2

# SUPPORTING STATEMENT

# TO THE APPLICATION

**Cuadrilla Resources Limited**
**January 2010**



Cuadrilla Resources Limited
BBD House
Stowe Court
Stowe Street
Lichfield
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## 1. Introduction

Bolney Resources Limited, is a wholly owned subsidiary of Cuadrilla Resources Corporation Limited, with its Head Office at BBD House, Stowe Court, Stowe Street, Lichfield, Staffordshire, WS13 6AQ. Bolney Resources Ltd conducts all United Kingdom exploration and production operations from their Lichfield office.

Cuadrilla Resources Corporation Limited is engaged in the exploration for and production of hydrocarbons. It holds exploration and development licences granted by the Department of Energy and Climate Change (DECC) covering large areas of onshore United Kingdom. These Licences give the Company the right to search for subsurface hydrocarbons by physical means within the licence boundaries.

In accordance with best practice, it is the Company's policy to assess the environmental impact of all its major developments, to review those developments when in operation and to ensure that final site restoration is satisfactorily completed when these developments are finally abandoned.

The proposed drilling rig and equipment will be selected to ensure that the development can progress in an environmentally acceptable manner.

### 1.1 General Statement

The Licensees of Petroleum Licence PEDL 244 wish to carry out an exploratory drilling project into the Lower Stumble structure from an existing hardstanding area situated on the Balcombe Estate. The hardstanding was built to drill an exploratory well in the late 1980's and is currently used for the Estate's forestry activities (see figures 2 and 3 overleaf). It would be a relatively short duration construction project involving the initial civil works of an access track (upgrading only), a passing place and some minor works to the drilling platform followed by the drilling of an exploratory well, and possibly a short flow test of any discovered hydrocarbon bearing horizons. **To allow sufficient time to complete the operation, analyse any test results and restore the site, the operator would require the following time consents:- that the operation must start within three years of the permission and the operation must be completed including restoration within 3years from the start of site operations.** Lack of exploratory success would lead to the safe plugging of the borehole and restoration of the site. Exploration success would be followed by the safe shutting-in of the borehole and its suspension pending a further planning application and consent for further testing/appraisal and possibly a production operation. In any event the drilling rig would be removed from the site after a matter of only a few weeks.

# CUADRILLA RESOURCES LIMITED
# LOWER STUMBLE EXPLORATION
# SITE LOCATION PLAN

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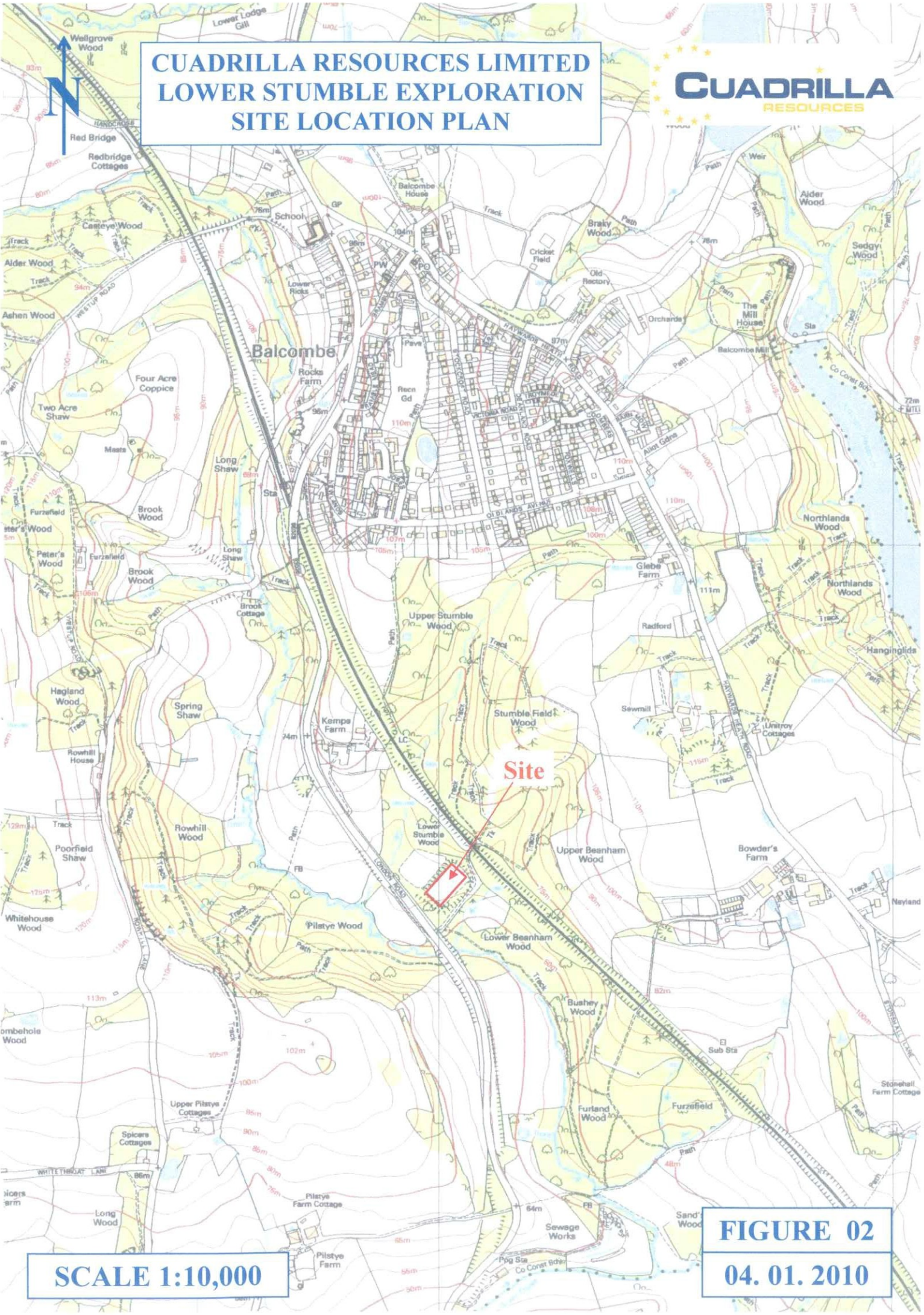


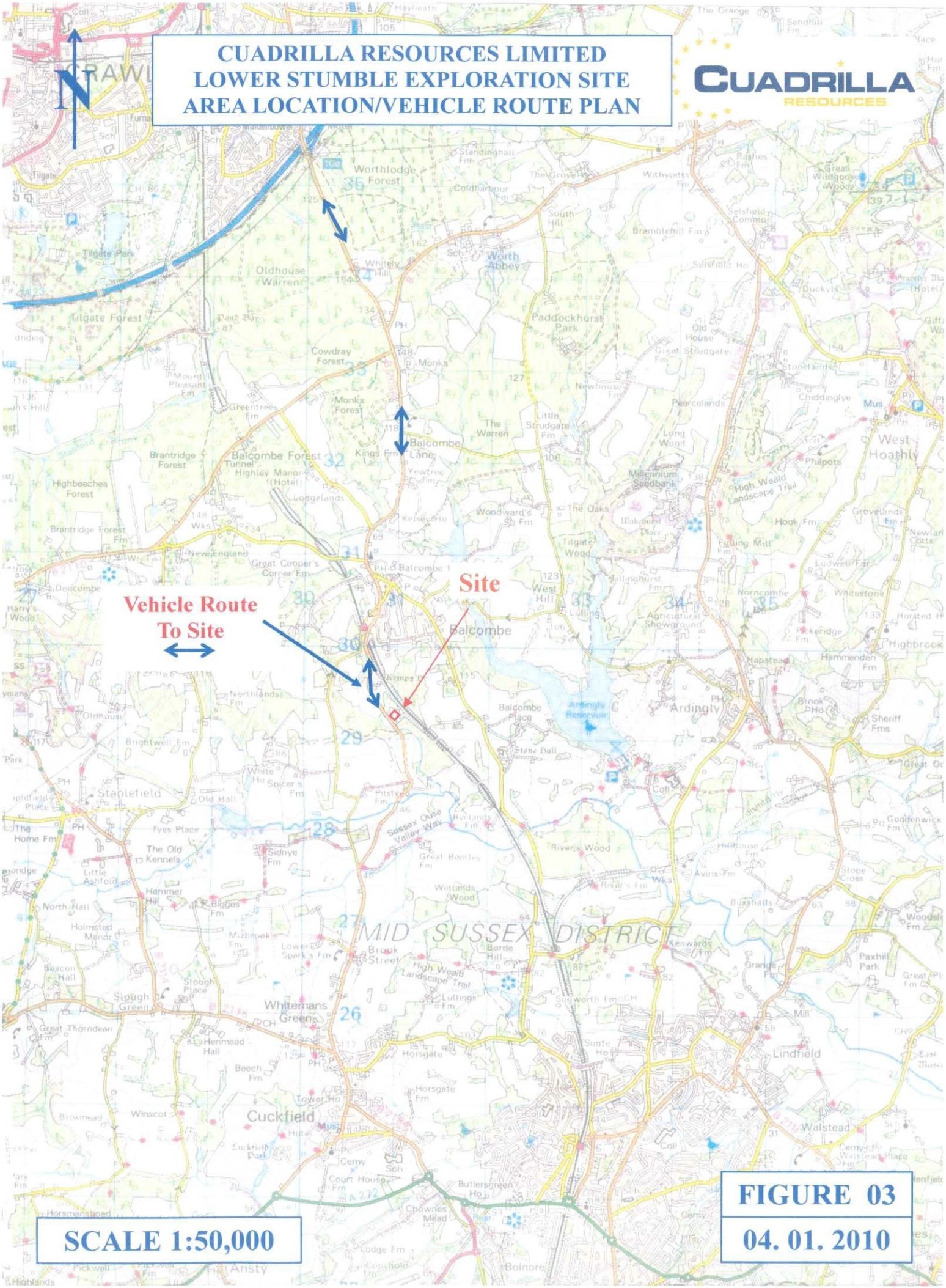

**SCALE 1:10,000**

**FIGURE 02**

**04. 01. 2010**

# CUADRILLA RESOURCES LIMITED
# LOWER STUMBLE EXPLORATION SITE
# AREA LOCATION/VEHICLE ROUTE PLAN

CUADRILLA RESOURCES




**SCALE 1:50,000**

**FIGURE 03**

**04. 01. 2010**

## 1.2 Petroleum Licensees

Cuadrilla Resources Corporation Limited are the licensees of PEDL 244 and as operators will manage all exploration, appraisal and any development.

## 1.3 The Petroleum Licence/Government Policy & Local Minerals Plan

The proposals to which this planning application relates fall within the Licence Area PEDL 244 and the terms applicable thereto. Cuadrilla's Licence Holding covers an approximate area of 154skm of West Sussex between Horsham and Haywards Heath. The Petroleum Licence, PEDL 244, allows for petroleum development and production to take place (see Appendix A on licensing system).

The stated government policy is that it is in the national interest to "ensure the recovery of all economic hydrocarbon resources" and this is a requirement for all licensees with petroleum developments.

Following a discovery and before approving any operators development plan, the Minister will have to be assured that the maximum amount of hydrocarbon is recovered within reasonable economic constraints. The Guidance Notes on Procedures for Regulating Oil and Gas Field Developments state that the Department will work with licensees to ensure the Development option agreed is that which is most likely to secure the full recovery of economic reserves. In most cases there will be no divergence between the outcome of the pursuit of commercial objectives and the objective that all reserves whose value exceeds their cost of production are made available to the market.

## 1.4 Exploration Objectives

The Company now proposes to investigate the Lower Stumble Structure by the drilling of an exploratory well and, if justified, the short-term flow testing of the well. The well would establish if hydrocarbons are present in the currently mapped structure, and if economic reserves are present in any reservoir(s) encountered. The drilling operation site will be known as Lower Stumble.

**The subject of this planning application is for the initial drilling of the Lower Stumble exploration well from the site with a short testing programme, which will be approved by the HSE and DECC.**

If the well at the Lower Stumble site is successful and if encouraged by the short term well testing and reservoir performance, the well would be suspended with the installation of cement grouted steel casing and a well head control valve assembly (see figure C02 under Appendix C). If unsuccessful the well will be plugged and abandoned in a manner approved by the HSE and DECC, and the site restored to its former usage (see restoration plan Appendix G).

Any plans to develop a hydrocarbon discovery at the Lower Stumble site would be the subject of a further planning application(s). The licensees would be pressed to develop any commercial discovery by DECC, the licensing authority whose duty it is to encourage oil and gas exploration and production activities in the UK. Such a possible future development could involve the drilling of an additional well(s).

An application to the Health and Safety Executive (Offshore Safety Division) and DECC for Consent to the Drilling and Completion of a Well will be made subject to the Planning Consent sought herein. The Project Plan would then be put into operation with the drilling of the Lower Stumble well, its short term testing, and if successful the well shut-in and suspended with a wellhead valve assembly installed at surface, and the drilling rig moved off-site.

## 1.5 GEOLOGICAL SUMMARY LOWER STUMBLE PROSPECT

The Lower Stumble prospect forms on a east-west tending anticline of Alpine origin in the centre of the Weald Basin. The location is approximately 8km The Lower Stumble prospect forms on a east-west tending anticline of Alpine south-east of Crawley and 5km north west of Hayward's Heath near the village of Balcombe.

It lies on the downthrown side of the Borde Hill Fault and dip closure is present to the east and west at Upper Jurassic level. Stratigraphic thinning of the Upper Jurassic towards the east reduces the amount of structural closure at deeper stratigraphic levels and little or no structural closure is observed below the Middle Jurassic (see geological and seismic cross sections, Figures B01 and B02 under appendix B)

The well is located at the same place as the Balcombe-1 well drilled by Conoco in 1986. The Geological column encountered in the Balcombe-1 well is shown in Figure B03 under appendix B. The original objectives were the Portland sandstone, Ashdown Sands and Kimmeridge Sandstones. A number of oil and gas shows were recorded in the well but none proved to be economic (see drilling history under appendix B).

The target formation for the Lower Stumble well is the Middle to Upper Jurassic including the Corallian Sandstone, Kimmeridge and Portland Sandstone. The Cuadrilla exploration plan is to drill vertically through the Middle to Upper Jurassic sequence, recover core from some of the intervals and drill to a total depth of 4700 feet (below surface) in the Great Oolite. If the result of the core analysis and geological investigations appear promising we may choose to drill a horizontal well section to further test the presence of hydrocarbons.

### 1.6 Benefits of the Development

In that the proposed project involves the investigation by drilling of the hydrocarbon potential of the subsurface geological succession of the Lower Stumble Structure, the main benefit would be on a national scale. Such investigation whether successful or not provides an evaluation of the nation's mineral wealth. At present or in the future such mineral wealth may be further developed in the public interest. Hydrocarbon exploration activity has always been strongly favoured by central governments of whatever political persuasion.

Locally, the benefits of such a hydrocarbon exploration project are small, although additional money is brought into the area thereby for such purposes as land leasing, onsite building works, use of local contractors, suppliers and services, and the accommodation of the personnel involved in the onsite operations.

Should such exploration be successful, then as currently structured the rates payable on petroleum production amount in various ways to a significant percent of the value of that production. In addition, the employment of a small number of local people, depending upon the size of the production operation, may result.

## 2 The Environment

### 2.1 The Location and Access

The choice of the proposed location for an exploration well site in this case has been governed by a suitable existing site and also governed by the crestal area of the Lower Stumble Structure, based on the current geological and seismic data mapping. The exploratory well to be drilled is located at National Grid Reference E531022 – N129238 (site centre), which is approximately 400m south of Kemps Farm, 700m west of Bowder's Farm, and 800m south of the outer limits of Balcombe. Therefore the nearest property to the site is Kemps Farm at approximately 400m away (see local plans Figures 2 & 3 following page 1of the supporting statement).

The site has also been chosen for a whole variety of other reasons such as level ground, good highway access off the London Road the B2036 via the M23 motorway and utilising the access/track to the existing hard-standing; distance from residential properties regarding noise and visual intrusion and most importantly the site does not affect sites of special interest, special conservation area or known archaeology.

The chosen site situation will enable the operators to drill a vertical or horizontal well using one of the smallest drilling rigs available in overall height and general size available in Europe. This will lessen any visual impact whilst the rig is on site for a short period.

The proposed site is situated within forestry land which is currently owned and managed by the owner The Balcombe Estate. The site is currently used for the Estate's forestry activities.

## 2.2 Site Access Assessment & Description

### Highway Access Point

The access is off the B2036 (London Road) utilising the existing access point to Lower Stumble Wood and the Estate's forestry hard-standing. The proposed site access and visibility splays are detailed in the Transport Assessment and Stage (1) Safety Audit under Appendix F. It is proposed that all heavy goods vehicles will access the site via Junction 10a of the M23 motorway and not from the south via Cuckfield. It is not considered necessary at this stage to improve the access due to the temporary nature of the development. The hard surfaced existing bellmouth will be swept before work starts and kept clear of debris during all site operations.

### Access Track.

The existing access track to the hard-standing will be redressed with clean stone before work starts and a passing place added inside the gated entrance see drawing CRL 001 at the rear of the application. This will ensure that no debris/mud will be deposited on the public highway and thus avoid the need for full wheel was facilities.

### Site Area.

The site is the main feature of the development which lies 800m to the south of the outer limits of Balcombe and 4km north from Cuckfield. The nearest residential development is at Kemps Farm 400m to the north. As mentioned previously the site has been chosen for a number of reasons and as hydrocarbons can only be extracted from where they lie then the visual aspect of the site was carefully considered, taking into account the remote location of this site and utilising the back drop of the surrounding woods. Although the site is adjacent to the wood as plan CRL – 001 shows the site will be completely segregated from the woods by natural buffer zones such as a tracks, the public highway and a field thus negating the need for a full tree survey. In addition, consideration has been given on the nearby community in relation to a site that meets all of the issues that need addressing when finding a site such as noise, highway access etc. Nearby properties will have little or no views of the site except during the temporary drilling operation ie when the rig mast is up.

## 2.3 Environmental Impact

The site selected does not, to the applicant's knowledge, form part of a Site of Special Scientific Interest or other Statutory Designation, nor is it a Historic Site or have any Historic Buildings at or near to it.

A EIA screening opinion was requested from West Sussex County Council and their decision confirms that based on information submitted it would not be a EIA development (see Appendix J).

The company have carried the following studies and the results of these studies can be found in the Appendices.

1 Noise Study
2 Ecological Study
3 Highway Stage 1 Safety Audit & Transport Assessment.
4 Flood Risk Assessment.

As the development falls on the edge of flood zone (1) a flood risk assessment has been carried out and the results can be found under Appendix K.

There are no hedges or trees affected by the proposal and there are no ponds vicinity of the site (see Appendix E ecology survey).

### 2.4 Public Rights of Way

There are no public rights of way such as footpaths or bridleways affected by the development.

### 2.5 Existing Utility Services

There are no utility services such as gas, water or electric affected by the development.

## 3. Site Occupation

An agreement for a licence/lease is being negotiated with the landowner for occupation of the site. Occupation would be for the duration of the exploration operations, site restoration and aftercare thereafter in the event of lack of success. In the event of a hydrocarbon discovery the occupation would be extended following discussions with the Landowner and pending further County Planning Consent. The latter would also be in accordance with a Field Development Plan to be approved by the Department of Energy and Climate Change (DECC).

Planning permission is being sought for exploratory drilling and short term testing only at this stage. Progress into full appraisal testing, further drilling or production operations would be dependent upon the nature and extent of any hydrocarbons that may be encountered.

The time periods for the exploration operations are expected to be as follows:-

After receiving planning consent for the exploratory well the minor site construction and preparation would take one or two weeks to complete.

The drilling rig would then be mobilised to the site over an approximate 2 to 3 day period. Once rigged up the 24-hour drilling would take place over an approximate 4 - 6 week period.

Following the drilling and casing of the well, and if justified, by the results of initial well test of up to 7 days which may take place with the rig in situ ie (mast lowered), this would be followed by an approved well suspension or "Plugging and Abandonment" procedure, and then, finally, a two to three day rig demobilisation period. This may be followed by a short well testing period of approximately 14 to 28 days. This would involve the removal of produced fluids if encountered from the site (see example well test programme under Appendix C). However the main aim of the operation would be to test any oil and gas zones encountered which may involve an extended test beyond the 28days subject to written planning consent.

## 4. Access Track and Site Preparation

The access track re-grading and site preparation consist of a relatively simple low noise construction operation which will involve a small number of machines (2 or 3) and operatives 2 or 3. The site construction will involve some re-grading of the existing hard-standing with clean stone and the adding of a typical concrete ringed cellar and surround. As this is an existing site and has not been previously built with an impervious membrane then all fuel related equipment will be bund either in its manufacture stage or temporarily bunded on site. Any testing facilities or tanks will be housed in a purpose built bunded area see photograph 11 and 12 under appendix I.

The existing access track will require redressing and the construction of small passing bay inside the gated entrance as seen on drawing CRL – 001.

The track and site works will take 1 - 2week period (5 or 5.5day weeks). Stone is the main delivery to site estimated at 20 - 30 x 20 tonne loads, an average of (2/3) per day (see construction loads under Appendix C).

The existing highway entrance has good visibility splays in both directions and has a good hard surfaced area between the public highway and the access track gate. It is considered due to the temporary nature of the development that the highway entrance does not require upgrading (see stage 1 safety audit and transport assessment under Appendix F).

Drawing CRL – 001 (at the rear of the application) shows the access, access track, the main site area, the results from a contour level survey and a small cross section. The nature of the proposed site means that a suitably graded surface can be achieved with relatively little construction. The plan shows a (.55)hectare exploration well site with a 55m x 95m (approx) stoned platform. The position of the drilling cellar is likely to be in the centre of the site.

The drilling cellar to accommodate the wellhead equipment, would be concreted and a conductor pipe/casing would be installed by drilling and running with the drilling rig (see casing and drilling programme under Appendix C).

The majority of the main site is fenced for the exploration operation and any missing sections will be replaced with typical site security fencing ie Heras. A new set of gates will be placed at the site entrance (padlocked). The cellar will be fenced with Heras security fencing (padlocked). If the site was developed in to a production site following planning approval then permanent security fencing and gates would replace the temporary fencing used for the exploratory stage.

Construction work for the site will be undertaken during the daylight-working period 07.30 to 18.30 hours Monday to Friday, 07.30 to 1300 Saturdays. These hours of working also meets with West Sussex County Council Guidelines for Noise Control. **No construction work would be undertaken on Sundays or Public Holidays.**

## 5 Drilling Operations

### 5.1 Drilling and Casing Programme

The drilling and casing programme for the Lower Stumble well is shown under Appendix C.

### 5.2 Drilling Rig Layout and Footprint

The type of drilling rig to be used for the drilling of the well at the Lower Stumble site will be similar to/or Rig 28 shown under Appendix C figure C03 and would have a mast of approximately 36metres. A footprint and the site layout for the exploratory drilling at Lower Stumble site is also shown see photograph No.01 under Appendix I.

### 5.3 Drilling Rig Mobilisation

The number of loads for a rig mobilisation and demobilisation depends on the actual rig used. Transport loads required for a medium sized rig are shown on charts Drill Rig Vehicle Movement Loads and Lower Stumble Vehicle Movement Charts under Appendix C and F.

In brief the drilling rig is brought to site over 4 day period and consists of 34 loads of the following types:-

27 x 40ft loads with varied tonnage
4 x lowloader loads
1 x drilling rig.

To assemble the rig the following cranes would probably be required:

| | |
|---|---|
| 45 ton crane | 1 |
| 25 ton crane | 1 |

Additional vehicle movements will be required during mobilisation and demobilisation for a varied number of ancillary services, such as:

| | |
|---|---|
| Mud logging cabin and equipment | c.1 loads |
| Wireline logging | c.2 loads |
| Materials and chemicals | c.4 loads |
| Casing and tubulars | c.6 loads |
| Operational Staff modules | c.3 loads |

Other tankers and trucks will be required as necessary, for drilling materials/consumables, water, waste removal, fuel etc.

Additional light vehicle movements will also be required for staff and rig crew changes, plus support services personnel. These movements are at their highest during the drilling at 15 – 25 visits per day and detailed more fully in the movement charts (appendix C and F).

## 5.4 Water Requirements During Drilling

Water will be required to make up the drilling fluids used while drilling the well and for any emergency contingencies.

Due to the distances involved, piping water to the site and the size of the pipe required would not be practicable for a temporary short duration drilling operation.

Estimated quantities of water are:

(a) Initial requirement - c. 20,000 gallons
(b) Daily operations - c. None or 5,000 gallons (see note):-

Note: once drilling has started the mud system is design to circulate and retain the same water and as a result drilling water is only required as a top up.

(c) Potable water - c. 1,000 gallons per week

# 6. Flow Testing and Suspension

## 6.1 Well Testing and Short Term Production Testing

A well test, using the drilling rig, would normally only take place during daylight hours and would give an indication of the existence of producible hydrocarbons or shows of gas which may need a longer period of testing. The rig, cabins and associated equipment would then be moved off site to allow for the longer period of testing to take place. Short term production testing may take place immediately after installing and cementing the production casing and over a period of some

14 – 28 days. Such testing should confirm the type of fluid contained in the reservoir, and some reservoir data. Any produced gas would be burned in a screened ground flare (see figure C05 under Appendix C) depending upon the nature, content and flow-rates encountered. Only small volumes of gas would be allowed to be produced in this initial testing operation. A more detailed description of the range of testing can be found under Appendix C.

Any other fluids recovered during testing such as water or light oils would be removed from site by road tanker and disposed of at an authorised establishment.

Tankers will be required to transport any produced oil/water to suitable a processing facility. The frequency of the road tankers will be dependent upon the production rate, but numbers anticipated are a maximum of two/three round trips per day. Clearly we would try to limit tanker movements to coincide with the hours of daylight/working day. In addition there would be one or two car/light van visits per day.

The company may require a longer test following the above mentioned short duration test. Any additional testing will be discussed with the County Planners and planning permission applied for.

### 6.2 Suspension

On suspension or completion of the well the drilling rig and associated equipment would be removed from the site and the site made secure.

If the test results were encouraging and the well suspended, a wellhead valve assembly would be installed. Such equipment is illustrated diagramatically by Figure (CO2) under Appendix C. Its actual size would be c. 1.83m – 2.44m above ground level, and it would be isolated behind a security fencing for safety purposes. The purpose of such equipment, together with other down-hole equipment, would be to leave the well in a safe "suspended" status prior to further drilling, evaluation and a possible further planning application.

## 7 Restoration or Further Development

### 7.1 Plugging, Abandonment and Restoration

**Note: The site will only need minor works to create a drilling site therefore the restoration to return it to its current use will be minimal. The sections of existing track upgraded are likely to be viewed as an improvement and could remain subject to a variation in the restoration condition.**

If it is decided to abandon the bore-hole and not to suspend the well, pending further planning and development consent, it would be plugged and abandoned in accordance with procedures agreed with the Health & Safety Executive and the Department of Energy and Climate Change (DECC).

All drilling equipment, mud and water tanks would be removed from the site. The steel casings would be cut c. 1.5 metres below ground level and a steel plate welded to the remaining casing stub.

Any remaining drilling mud and drill cuttings and wastes would be removed to an approved disposal site.

The hardcore and underlying membrane used to construct the site would be removed and the site restored as close as possible to its former condition in accordance with best agricultural practice. Any damaged land-drains would be replaced and re-connected. The sub-soil and topsoil from the storage embankments would be spread over the ground. The general reinstatement will follow the plan as described in Appendix G (unless such plan is amended in the light of new knowledge and technology.

The transport loads for the restoration will largely be a reverse of the construction except where sections of the upgraded existing track could remain subject to planning consent. The loads are detailed in site preparation/restoration transport loads under Appendix C (Drilling) and G (Restoration).

Before work starts an existing stone and underlying soil analysis will be commissioned to ensure that no contamination has occurred during the drilling operation.

### 7.3 Further Drilling and Development

**The drilling of additional wells beyond the initial permitted well or other development of the site would be subject to a new planning application.**

Following a successful exploration well, discovering commercial productivity and reserves of hydrocarbons, the Company may wish to develop the site further. This could involve the drilling of further well(s) to access further reserves in the Lower Stumble structure and the production of those reserves.

## 8. Environmental Effects of the Development

### 8.1 General and Visual Impact

The location of the site is several hundred metres from the nearest residential properties ie those associated with Kemps Farm being the closest at 400m although they are well screened by trees and the substantial difference in ground height. At this location because of the distances involved it is not expected to be seen as a visual intrusion and will not be generally seen apart from when the drilling mast is erected and in place for a number of weeks. The sight of the mast may be visible from only 2 or 3 properties.

Ecological information confirms that the site area is not a site of special interest.

Ecological information obtained from West Sussex County Council's Biodiversity information centre confirms that the site area and surrounding land is not a site of special interest.

### 8.2 Environmental Impact Assessment

Given the general environmental information included in this application; and results from the West Sussex County Council's screening opinion (see Appendix J) it is considered unnecessary to provide a further assessment at this time for the proposed exploratory well.

### 8.3 Landscaping Scheme

As the application is for an exploratory well only then landscaping is not required at this stage. However, if a discovery was made and the Company wished to exploit the discovery then additional landscaping would be considered as part of a production application.

### 8.4 Access

The access will be by way of the existing access to the stoned hard-standing and to Lower Stumble Wood where no alterations to the access point are deemed necessary for this application, although some temporary signage has been recommended by the Highway Stage 1 Safety Audit and a transport assessment under Appendix F).

### 8.5 Noise

The nearest residential property to the site are those associated with Kemps farm to the north which at 400metres away and are not expected to experience any nuisance noise as a result of an independent noise study. Noise will be monitored during the drilling process.

A background noise survey has been undertaken and the results are included as Appendix (D) with predicted noise calculations.

Three different types of noise are to be anticipated and these are as follows:

#### 8.5.1 Site Preparation

During the **one to two week** site preparation, noise will be of the levels to be expected from a typical civil construction project where earth-moving equipment is in operation (generally 2 –3 machines only). Such works will be conducted only between the hours of 07.30 to 18.30 hours, Monday to Friday, 07.30 to 1300 on Saturdays, with no operations being carried out on Sundays or Public Holidays.

#### 8.5.2 Drilling

During the **four to six weeks** of 24 hour drilling operations the noise emitted from the drilling location will be minimal at the nearest occupied residence

During the **five to six weeks** of 24 hour drilling operations the noise emitted from the drilling location will be minimal at the nearest occupied residence

### 8.5.3 Testing and Flaring

During the final part of the exploratory operation a short **14 - 28 day** period may be required for flow testing to establish if economic reserves and productivity are available. Each reservoir so tested may require flaring or venting if gas is produced. Flaring is a low noise activity and is not audible beyond the site boundary. Due to the fairly remote location of the site any noise associated with the flare would be minimal. Actual noise disturbance testing an oil or gas discovery is a fraction of that generated by the drilling operation and for shorter periods of time with flaring operations normally carried out during daylight hours. If a longer period of testing is needed beyond the 28days it would be the subject of a further planning application.

### 8.5.4 Vehicle Movements

Noise from vehicle movements will be minimal and are not expected to be a nuisance to nearby residents at this location. Night time movements during the 24hour drilling operation are rare, not planned and would only become a necessity in the case of an emergency.

## 9. Waste Disposal

Five sources of waste require disposal from the site:-

1) drilling mud is located in the mud tanks, and drill cuttings;
2) sanitary waste is collected in a sealed cess tank.
3) rain water collected in the ground protection bunds and sumps (see drawing CRL - 001);
4) general waste-paper, timber, scrap-metal is collected in skips;
5) waste fluids processed out of the petroleum stream during testing operations are collected in storage tanks.

All waste materials, including wastewater and fluids (subject to prior analysis if required), from the drilling operations will be removed by licensed operators and disposed of at authorised locations. Foul sewage will be collected in a cess tank and this will be emptied periodically with disposal to an approved location. Any contaminated surface water collected in the lined bunds during drilling but will be disposed of at an approved location.

## 10. Lighting

During drilling the rig must be illuminated at night for safety reasons and to permit safe operations. All rig lighting will be of low-level, facing inward and downward on the site. Such lighting will not be intrusive to local residents nor

be distracting to the drivers of vehicles on any nearby roads. Drilling rig lights are designed to operate safely during 24hour drilling and at the same time not to affect areas outside of the site. The main working lights are attached to the sub-structure section of the drilling rig and are all positioned facing downwards (see figure H01 under appendix H lights numbered 1 - 4). The working lights are position specific and are not intended to light the whole site. The lights are completely sealed for safety resistant to a naked flame and are spark proof. In the case of the Lower Stumble site the working lights will also be screened by the tree screen on all sides (see photograph No's. 09 & 10 under Appendix I) The mast lights have been limited in number and are low level strip lighting facing inward and downward (see figure HO1 under appendix H).

In addition to Figure HO1, appendix H includes full details of the lighting and the positions which includes a top strobe light for warning aircraft.

## 11. Drainage and Pollution Control

The proposed site is located where there is no drainage or flooding problems. However, the provision of any header drains, if required, would ensure that the natural drainage of the land would not be impeded (see appendix K).

Pollution control is afforded by the impermeable membrane bunds, preventing liquids from penetrating into the soils and groundwater beneath the site or flowing from the site onto adjoining land and ditches. In addition, spill kits, designed for all materials and substances used on site will be held on site to deal with any emergencies that could arise from the drilling and any flow testing or any possible later production operations. The company will take any additional advice from the Environment Agency and adhere to any conditions they may attach to the planning permission.

The drilling mud system is important and is specifically designed to protect drilling mud losses to natural formation fluids and to confine formation pressure so as to prevent formation fluid flow into the well bore. The drilling mud system will be monitored constantly and maintained to specifications. In addition the drilling rig is fitted with blow-out preventers to close-in the well in the unlikely event of an unexpected pressure build-up.

## 12 Odour & Dust

Odour and Dust from this type of limited development is minimal. The three phases of the development that might cause dust are:-

a. **Construction** – This operation involves only minor earth moving and the laying of surface stone. Both these short duration operations are not expected to produce any noticeable dust or related issues.

The section of access track that requires upgrading involves minimal earth moving. This along with a 15 – 20mph speed limit ensures that any dust will be minimal.

a. **Drilling** - As the drilling is all below the surface and involves water to lift drill-bit cuttings to the surface there is little chance of any dust from the drilling operation.

b. **Restoration** – Like the construction the restoration will cause limited dust due to the minimal soil and stone movement.

## 13. Ecology

The company commissioned a full ecological survey (see Appendix E). A full biodiversity search was carried out from West Sussex County Council records and scoping was carried out as part of the full ecology survey.

Before work starts the company will comply with any recommendations of the study and engage an Ecologist if required to assist with any other works.

## 14. Archaeology

The company consulted an independent Archaeologist (George **Anelay,** West Sussex Archaeology, Unit 3, Liss Business Centre, Liss, Hampshire, GU33 7AW) to ascertain if there was any need for an archaeology study at this existing built location. Due to the nature of the proposed works ie restricted to the existing site he considered that an archaeological investigation was not necessary.

## 15. Landscaping

As the application is for an exploratory well only then landscaping is not required at this stage, however, if a discovery was made and the Company wished to exploit the discovery then additional landscaping would be considered as part of a production application.

## 16 Air Quality

Due to the remote location of this development and as the application is for temporary permission at this stage an air quality study is considered not necessary. However, if successful, and the development leads to any further permissions for either long term testing or hydrocarbon production then a full air quality survey would be considered.

## 17. Open Space

Due to the remote well screened location of this development and as the application is for temporary permission at this stage an open space study is considered not necessary. However, if successful, and the development leads to any further permissions for either long term testing or hydrocarbon production then a further consideration will be given to screening and landscaping.

## 18. Relevant Planning Policies

There are a number of relevant national, regional, county and local/Borough policies documents that are material to this application. The planning policy context within which the temporary drilling proposal is to be assessed includes the Mid Sussex District Council Local Plan Adopted May 2004, the West Sussex Minerals Local Plan July 2003, the Department for Communities Local Government (DCLG) Minerals Policy Statement 1: Planning and Minerals and West Sussex Structure Plan April 2001 – 2016

A number of policies within the above mentioned documents were considered during the selection of the location and in the preparation of this application and the main policies relating to this type of development are within the West Sussex County Council Minerals Local plan July 2003 and are:-

**POLICY 26:** APPLICATIONS FOR THE EXPLORATION, APPRAISAL AND/OR COMMERCIAL DEVELOPMENT OF OIL OR GAS RESOURCES WILL BE PERMITTED WHERE IT IS DEMONSTRATED TO THE SATISFACTION OF THE MINERAL PLANNING AUTHORITY THAT THE PROPOSAL PRESENTS THE BEST OPTION IN COMPARISON WITH OTHER ALTERNATIVE SITES WITHIN THE AREA OF SEARCH AND THAT THE PROPOSAL IS ACCEPTABLE IN RELATION TO THE SURROUNDING AREA. PARTICULAR ATTENTION WILL BE GIVEN TO

(1) the impact on other countryside resources;
(2) the site access and the routing of heavy vehicles;
(3) the means of protecting nearby residents and amenities from the effects of the operations;
(4) the safeguarding of public rights of way; and
(5) the safeguarding of water supplies and the water environment.

**POLICY 27**: PERMISSION FOR HYDROCARBON EXPLORATION WILL NORMALLY BE GRANTED SUBJECT TO COMPLIANCE WITH THE ISSUES ADDRESSED IN POLICY 26 HAVING REGARD TO THE LIMITED DURATION AND AREA OF THE ACTIVITY.

**POLICY 28:** PLANNING PERMISSION FOR THE APPRAISAL AND THE DEVELOPMENT FOR COMMERCIAL PRODUCTION OF AN OIL OR GAS FIELD WILL NOT FOLLOW AUTOMATICALLY FROM SUCCESSFUL EXPLORATION. THE APPLICANT WILL BE REQUIRED TO APPRAISE THE EXTENT AND IMPACT OF THE PROPOSALS, AND TO SUBMIT AN OVERALL DEVELOPMENT PROGRAMME FOR COMMERCIAL DEVELOPMENT. REGARD WILL BE GIVEN TO OTHER LICENSEES' PROGRAMMES AND CO-OPERATION WILL BE SOUGHT FROM LICENSEES IN ORDER TO AVOID DUPLICATION OF DEVELOPMENT AS FAR AS POSSIBLE. THE MOVEMENT OF PRODUCTS BY UNDERGROUND PIPELINE OR BY RAIL WILL BE SUPPORTED.