

Surrey County Council: Environmental Impact Assessment (EIA) Screening Opinion Report

Prepared under Regulation 6 of the Town & Country Planning (Environmental Impact Assessment) Regulations 2017

Site: Brockham Well-site, Felton's Farm, Old School Lane, Brockham RH3 7AU

Proposal: (1) Retention of the BRX-4 wellhead for a period of up to three years
(2) Drilling of a sidetrack well (BRX-4Z) from an existing wellhead (BRX-4)
(3) Production evaluation of the sidetrack well (BRX-4Z)

Date received: 25 October 2017

Deadline: 14 November 2017

Proponent/Agent: Angus Energy PLC

Local Council: Mole Valley District Council

A Recommendation & Reasons

A-1 Recommendation on the need for Environmental Impact Assessment (EIA)

1. This Screening Opinion report relates to development at the permitted temporary oil well-site (MO06/1294) located on land at Felton's Farm, situated off Old School Lane in Brockham in Surrey. The development to which the request for a screening opinion relates includes:
 - The retention of the BRX-4 wellhead for a period of up to three years;
 - The drilling of a sidetrack well (BRX-4Z) from the existing BRX-4 wellhead, to assess the longer term production prospects of the Portland Sandstone, and to collect data from the deeper Kimmeridge horizons;
 - Production evaluation of the BRX-4Z sidetrack well, to determine whether the flow and volume of oil would support commercial production.
2. The development to which the request for a screening opinion relates has been evaluated by the County Planning Authority in line with the Town & Country Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations), and the advice set out in the national Planning Practice Guidance (nPPG) on EIA. It is recommended that the development to which the request for a screening opinion relates does not constitute 'EIA development'.

A-2 Summary of reasons for not requiring EIA

3. The primary reasons for recommending that the development to which the request for a screening opinion relates does not require EIA are:
 - 3.1 The surface well-site within which the BRX-4 wellhead is situated extends to some 0.56 hectares, which lies within an area of some 1.2 hectares of land that is under the control of the site operator (Angus Energy). The surface well-site exceeds the screening thresholds specified in Schedule 2 of the EIA Regulations for deep drilling operations (paragraph 2(d) – threshold is 1.0 hectare), and for surface installations involved in the extraction of hydrocarbons (paragraph 2(e) – threshold is 0.5 hectares), but is smaller than the indicative threshold for EIA, of 5 hectares, cited in the relevant nPPG (paragraph 058, Reference ID: 4-058-20150326). The area of land occupied by the well-site was not increased as a consequence of the drilling of a side-track (BRX-4Z) from well BRX-4 in December 2016 and January 2017, nor as a consequence of the retention of the BRX-4 wellhead beyond the date (31 December 2008) on which it should have been removed under condition 4 of Planning Permission MO07/0161.
 - 3.2 The development would involve an evaluation of the productive potential of the BRX-4Z well, but would not involve commercial hydrocarbon production. Past production of oil from the well-site, which peaked at 5,495.05 tonnes of oil per year in 2005, has been consistently lower than the thresholds specified in Schedule 1 (500 tonnes per day) of the EIA Regulations, or in the nPPG for Schedule 2 development (100,000 tonnes per year).
 - 3.3 The area of land in which the development is situated, is not located within, or in close proximity to, any of the categories of ‘sensitive areas’ listed under Regulation 2 of the EIA Regulations.

A-3 Discussion of reasons

A-3.1 Consideration of the categories, criteria & thresholds listed in Schedule 1 & Schedule 2 of the EIA Regulations

A-3.1(a) Schedule 1 Evaluation

4. Paragraph 14 of Schedule 1 of the EIA Regulations is concerned with the production of hydrocarbons for commercial purposes. The scale at which a hydrocarbon production facility would be deemed to be Schedule 1 development would be where extraction of petroleum exceeds 500 tonnes per day, or extraction of gas exceeds 500,000 cubic metres per day.

5. Hydrocarbon production from the Brockham well-site in 2014 (the last year for which a full year's data is available from the Oil & Gas Authority) was 1,524 cubic metres of oil per year (or 1,478.28 tonnes per year, based on the Energy Institute's published (2011) conversion factor of 800 to 900 kg per cubic metre of crude oil at 15°C). The highest level of reported production achieved at the well-site between 1998 and 2015 was 5,495.05 tonnes of oil per year (5,665 cubic metres) in 2005.
6. Past production from the well-site has consistently been substantially lower than the level above which a facility would be classed as a Schedule 1 development under the EIA Regulations. The proposal to undertake production evaluation of the BRX-4Z sidetrack well would not involve the extraction of hydrocarbons (oil) at a commercial rate, but would seek to establish the rate and volume of flows from the well to ascertain whether such future production might be commercially viable.

A-3.1(b) Schedule 2 Evaluation

7. The development to which this screening opinion relates constitutes a change (paragraph 13(b)) associated with a permitted development (MO06/1294) that falls within paragraphs 2(d) (deep drillings) and 2(e) (surface industrial installations for the extraction of coal, petroleum, natural gas and ores, as well as bituminous shale)
8. The screening criteria given in Schedule 2 of the EIA Regulations for development of the types listed under Paragraphs 2(d), 2(e) and 13 (b) are listed below.

Paragraph 2(d)	(i) In relation to any type of drilling, the area of the works exceeds 1 hectare; or (ii) in relation to geothermal drilling & drilling for the storage of nuclear waste material, the drilling is within 100 metres of any controlled waters
Paragraph 2(e)	The area of the development exceeds 0.5 hectare.
Paragraph 13(b)	Either— (i) The development as changed or extended may have significant adverse effects on the environment; or (ii) in relation to development of a description mentioned in column 1 of this table, the thresholds & criteria in the corresponding part of column 2 of this table applied to the change or extension are met or exceeded.
9. The permitted well-site within which the BRX-4 wellhead is situated covers an area of land that extends to some 0.56 hectares (the operational area of the permitted well-site), situated within a wider site of some 1.2 hectares (covered by Planning Permission MO06/1294).
10. The physical extent of the permitted surface well-site was not altered by the drilling of the BRX-4Z side-track well, nor by the retention of the BRX-4 wellhead, and would not be altered by the carrying out of production evaluation operations in respect of the BRX-4Z sidetrack.

A-3.2 Consideration of the criteria & thresholds given in the national Planning Practice Guidance on EIA

11. The Annex (paragraph 058, Reference ID: 4-058-20140306) to the national Planning Practice Guidance on EIA advises that the following key indicative criteria and thresholds should be taken into account when considering whether EIA is required in respect of developments of the types listed in Schedule 2, paragraph 2(d):

“Indicative Criteria & Thresholds: Drilling operations involving development of a surface site of more than 5 hectares. [Exploratory deep drilling on its own is unlikely to require EIA]”

“Key Issues to Consider: Regard should be had to the likely wider impacts on surrounding hydrology & ecology.”

12. The permitted well-site, within which the BRX-4 well head and the BRX-4Z sidetrack well are situated, occupies some 0.56 hectares of land within a wider area of land (some 1.2 hectares) that is under the site operator’s control. The physical extent of the permitted surface well-site was not altered by the drilling of the BRX-4Z side-track well, nor by the retention of the BRX-4 wellhead, and would not be altered by the carrying out of production evaluation operations in respect of the BRX-4Z sidetrack.

13. The Annex (paragraph 058, Reference ID: 4-058-20140306) to the national Planning Practice Guidance on EIA advises that the following key indicative criteria and thresholds should be taken into account when considering whether EIA is required in respect of developments of the types listed in Schedule 2, paragraph 2(e):

“Indicative Criteria & Thresholds: Development of a site of 10 hectares or more or where production is expected to be more than 100,000 tonnes of petroleum per year.”

“Key Issues to Consider: Scale of development, emissions to air, discharges to water, the risk of accident & the arrangements for transporting the fuel.”

14. The permitted well-site, within which the BRX-4 wellhead is located, and within which the drilling of the BRX-4Z sidetrack well was undertaken, occupies some 0.56 hectares of land situated within a wider area of land, measuring some 1.2 hectares that is under the site operator’s control.

15. Hydrocarbon production from the well-site in 2014 (the last year for which a full year’s data is available from the Oil & Gas Authority) was 1,524 cubic metres per year (or 1,478.28 tonnes per year, based on the Energy Institute’s published (2011) conversion factor of 800 to 900 kg per cubic metre of crude oil at 15°C). The highest level of reported production achieved at the well-site between 1998 and 2015 was 5,495.05 tonnes per year (5,665 cubic metres) in 2005. Past production from the well-site has been consistently substantially

lower than the level above which the nPPG recommends EIA is more likely to be required. The proposal to undertake production evaluation of the BRX-4Z sidetrack well would not involve the extraction of hydrocarbons (oil) at a commercial rate, but would seek to establish the rate and volume of flows from the well to ascertain whether such future production might be commercially viable.

A-3.3 Consideration of the criteria listed in Schedule 3 of the EIA Regulations

A-3.3(a) Characteristics of the development

16. The BRX-4 well was installed under a temporary time-limited planning permission (MO07/0161), granted in June 2007. Condition 4 of that permission (MO07/0161) required that the BRX-4 wellhead, and all associated buildings, plant, machinery (both fixed and otherwise) and connected engineering works, be removed from the site, and the site be restored to the condition permitted under planning permission MO06/1294, by no later than 31 December 2008.

17. In December 2016 / January 2017, work-over operations were carried out at the well-site and, contrary to written advice given by the County Planning Authority, a sidetrack well (BRX-4Z) was drilled from an existing exploratory borehole (BRX-4) situated within the established well-site.

18. The permitted well-site has been present on the site since the late 1980's (permission granted in 1987), and has been used for the commercial production of oil (see Table A-1) since 2002 (permission granted in 2001). The current installation, with reference to the production of oil from the Brockham 1 (BRX-1) well, has temporary planning permission (MO06/1294) for a period of 30 years, which ends in 2036.

Table A-1: Reported annual oil production for the Brockham Well-site – 2002 to 2015

Unit	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Cubic metres	1283	1713	4795	5665	4193	2879	4512	2889	2118	2382	255	1291	1524	1042
Tonnes	1245	1662	4651	5495	4067	2793	4377	2802	2054	2311	247	1252	1478	1011

Notes

- 1 Monthly and annual production is reported to, and published by the Oil & Gas Authority (and previously the Department for Energy & Climate Change). The production figures reported for the Brockham well-site published by DECC in February 2016 were reported in cubic metres, and were accessed at https://itportal.decc.gov.uk/pprs/full_production.htm
- 2 Full production data was not available for 2002, 2006, 2013 and 2015.
- 3 Conversion of the production figures from cubic metres to tonnes used the Energy Institute's published (2011) Petroleum Average Conversion Factors. The figure for crude oil was used, between 800 kg per m³ and 970 kg per m³, and the higher end of the possible range was applied.

A-3.3(b) Location of the development

19. The existing permitted Brockham well-site (NGR 518834 148654) is located to the south west of the village of Brockham and the east of the town of Dorking in the district of Mole Valley in Surrey. Permission for the development of the well-site as an oil and gas exploration facility was originally granted in 1987, for a temporary period, subsequently extended by further planning permissions. In 2007 planning permission MO06/1294 was granted for the continued production of oil from a single wellhead (Brockham 1) for a period of 30 years.
20. The well site is situated in a rural setting, with agricultural land to the north, south, east and west, and is accessed from the east, via a track that links to Old School Lane. A green waste composting operation is situated immediately to the north of the access track at its junction with Old School Lane, and a complex of agricultural, equestrian and residential buildings and land uses are situated to the south of the access track. The site is not subject to any national, or higher level designations in respect of landscape, nature conservation and biodiversity or the historic environment. The site is not subject to significant risk of flooding from fluvial or other sources, and is not underlain by any major groundwater bodies.

A-3.3(c) Characteristics of the potential impacts

21. There are three separate components to the development to which the request for a screening opinion relates.
 - 21.1 The BRX-4 wellhead that it to be retained is already present at the permitted well-site, and its retention for a further period of three years would not give rise to any further effects.
 - 21.2 The drilling of the BRX-4Z sidetrack well was carried out during December 2016 and January 2017, and involved the drilling of a sidetrack well from the existing BRX-4 wellhead. The new sidetrack well (BRX-4Z) extends to a depth of some 600 metres lower than the existing BRX-4 well. The drilling operations would have required the temporary installation of a drilling rig within the existing well-site, with associated noise, traffic and waste generation.
 - 21.3 The proposal to evaluate the productive potential of the BRX-4Z sidetrack well would not be expected to give rise to any significant impacts in terms of noise, traffic or waste generation. Any gas encountered would be used by the existing on-site generator. Fluids arising from the production evaluation would be stored in existing bunded areas within the well-site, with any oil transported off-site by road tanker, and any produced waters re-injected via the BRX3 well (as is the case for the existing productive well).

A-4 Content of sections B to E of this screening opinion report

22. The following sections of this Screening Opinion report provide a record of the information on which the County Planning Authority's opinion is based.

- Part B: Provides a brief account of the development to which the request for a screening opinion relates, based on the information provided by the proponent.
- Part C: Provides a brief account of the key environmental sensitivities that are relevant to the site that would be affected by the development, and to the surrounding area, based on information held or compiled by the County Planning Authority.
- Part D: Provides a record of the County Planning Authority's detailed consideration of the site and development to which the request for a screening opinion relates against key requirements of the EIA Regulations and the guidance set out in the nPPG on EIA.
- Part E: Provides a record of the County Planning Authority's detailed consideration of the site and development to which the request for a screening opinion relates against the criteria listed in Schedule 3 of the EIA Regulations.

B Description of the Proposed Development

B-1 Brief site history & background

23. Planning permission (ref. MO86/1112) was granted in May 1987 for the development of an exploratory oil well-site and access road on land at Felton's Farm, off Old School Lane, to the south west of the village of Brockham in Surrey.
24. Planning permission (ref. MO92/0969) was granted in January 1995 for the retention of the existing well site, and for further appraisal including the drilling of up to 5 additional wells and the installation of production and road tanker facilities. Condition 2 of that permission limited the life of the permission to a maximum of 15 years from the start of drilling. That planning permission was subject to a legal agreement dated 9 January 1995 ensuring improvements were made to the local highway in respect of lay-bys and passing places.
25. Planning permission (ref. MO00/1706) was granted in December 2000, for the retention of the existing well site for a period of 12 months, and the temporary installation of equipment for the undertaking of production testing operations for a period of up to 3 months. The planning permission refers to only to the Brockham 1 well.
26. Planning permission (ref. MO01/1288) was granted in December 2001, permitting the retention of the existing well-site and access road, and the installation of production equipment, for a 5 year period. Two wells (Brockham 1 and Brockham 2) were identified under planning permission MO01/1288.
27. On 10 May 2007 planning permission (ref. MO06/1294) was granted for the variation of Condition 4 of consent reference MO01/1288, to extend the period for production of oil from the site for a further 30 years (until 2036). That permission covers the Brockham 1 (BRX-1) well, as Brockham 2 (BRX-2) had been had been abandoned subsequent to its drilling in 1998, due to disappointing results. An EIA screening opinion had been adopted in respect of the proposed continued production of oil from the well-site in July 2006, which concluded that EIA was not required due to the small-scale nature of the operation.
28. In June 2007 planning permission was granted under reference MO07/0161 for the installation and operation of a drilling rig for a work-over programme of the existing well (BRX-1, subsequently referred to as BRX-3) and the drilling of a new well (BRX-4). That consent was for a temporary period, expiring on 31 December 2008. To date (November 2017), the BRX-4 wellhead remains in place.
29. In September 2008, planning permission was granted (MO08/0894) for the construction of an area of concrete hardstanding, measuring some 1,841 square metres, at the existing oil well-site.

30. In December 2016 / January 2017, the operator carried out work-over operations at the well-site and, contrary to written advice given by the County Planning Authority, drilled a sidetrack well (BRX-4Z) from an existing exploratory borehole (BRX-4) situated within the established well-site.
31. In September 2017, retrospective planning permission (MO/2017/0916) was granted for the installation of on-site facilities comprising hard-standing, site office, site toilet facilities, site security office and mess facility; storage containers; lighting units incorporating CCTV equipment; 2.4 metres high palisade fence and gates; electrical control buildings; portable site generator with 2 no. enclosed fuel tanks, and parking area for car/van until 31 December 2036 with restoration to agriculture.

B-2 Development to which the current request for a screening opinion relates

32. The screening opinion request report (pp.4-7) provides the following description of the development, and its anticipated effects.

The Proposed Development

The proposed application can be split into three principal areas, namely:

- The retention of the BRX4 well;
- The sidetracking of BRX4 to produce BRX4Z, &;
- The production evaluation of BRX4Z.

Consent will be sought to retain the well & carry out the above activities for a temporary period of up to three years. The drilling of BRX4 was consented by permission MO07/161 & does not therefore form part of the proposed application. The sidetracking of the well and production evaluation for which permission will be sought are outlined below.

Sidetracking

Owing to technical difficulties BRX4 was no longer capable of sustained production from the Portland Sandstone (the original target horizon) & accordingly the BRX4Z sidetrack was progressed in order to assess the longer-term production prospects of the Portland & to allow data collection from the deeper Kimmeridge horizons.

The rig & associated equipment was mobilised to the site & drilling undertaken in January 2017. Wherever possible works were undertaken on a 12 hour basis however, for both operational & health & safety reasons, periods of continuous, 24 hour working were required.

All plant & equipment required during the sidetracking operations was transported to the site by HGV, with the existing site infrastructure (offices, welfare facilities etc.) being utilised as required to support the operations. Wherever necessary noise generating plant was housed within appropriate acoustic containers & care was taken to ensure that lighting associated with the operations was directed within the site.

All operations were undertaken with the full agreement of the Health & Safety Executive (HSE) which, pursuant to the Boreholes Sites & Operations Regulations, was notified in advance of works commencing. In addition to this independent well examination arrangements were in place during the drilling operations & all wastes generated were handled in accordance with a Waste Management Plan & Environmental Risk Assessment, both of which were approved by the Environment Agency (EA).

Production Evaluation

In order to assess BRX4Z it will be subject to an extended period of production evaluation in order to confirm whether the volume & flow of oil is economically viable to support commercial production. In order to allow sufficient time to complete this process, permission will be sought for a 3 year period. Wherever possible these works will utilise the existing site infrastructure.

Should any gas be encountered this will be utilised in the on-site generator & in local process heating. The electricity generated will be used to power the site, with any excess being exported to the local network. No flaring will take place however an emergency overpressure stack will be installed to provide a suitable method by which to deal with any gas during an emergency shut-down.

Working Hours

Except for the flowing of hydrocarbons, the use of gas in on-site processes, essential site monitoring or maintenance, no operations will be undertaken, & no light (except that essential for security of health and safety purposes) will be illuminated, except for between 0730 – 1800 hours Mondays to Fridays & 0800 – 1300 hours on Saturdays. No operations will be undertaken on Sundays, National Holidays or Bank Holidays.

Transport

Produced fluids will be temporarily stored within the existing bunded tanks to the north of the wellhead, with any oil recovered being transported off site by road tanker & produced waters reinjected via BRX3. Whilst it is impossible to predict transport movements prior to the production evaluation taking place, it is anticipated that HGV movements associated with these operations will not be significant.

In line with previously agreed routeing, all HGVs accessing the site will do so from the south thereby avoiding the need to traverse Brockham. The agreed routeing involves vehicles leaving the site turning right (south) along Old School Lane, Bushbury Lane, Roothill Lane, Red Lane, Mill Road to access the A24.

Landscape & Visual Impact

The site is not covered by any landscape designations & lies in excess of 500m from the nearest residential property. Owing to a combination of the topography, the presence of existing hedgerows, trees & screening bunds, the site does not represent a prominent feature within in the landscape.

No additional lighting is proposed during the production evaluation over & above that permitted by MO2017/0916. Accordingly it is considered that the development will not give rise to any adverse visual impacts.

Ecology

All development will take place within the confines of the existing compound &, as such, there will be negligible impact upon any ecological receptors. The site is relatively remote from SSSIs & SNCIs & all operations will be regulated by the EA to ensure that any environmental risks are minimised.

Noise

The site is relatively remote from noise sensitive receptors & Angus Energy is not aware of any substantiated noise complaints in relation to either the sidetracking operations or any other on-going works at the site.

The greatest potential for noise generation arose during the sidetracking operations however all reasonably available mitigation measures were employed in order to reduce noise levels associated with these operations. The proposed production evaluation will largely utilise existing site infrastructure which has been proven to operate within the previously approved noise limits.

Archaeology & Cultural Heritage

The development does not involve the physical extension of the site, which is remote from listed buildings. It will not therefore impact upon any archaeological resource, listed building or its setting.

Drainage & Flood Risk

The site does not lie within an area of high flood risk & existing drainage infrastructure is in place. The development will not materially alter the drainage characteristics of the site & therefore no additional drainage infrastructure is proposed & the development does not pose any increase in flood risk to the site or any third party properties.

Dust & Air Quality

The development does not have the potential to generate significant quantities of fugitive dust, with the principal potential source arising from vehicle movements. In order to mitigate this an appropriate speed limit is in force & all operations are undertaken with due regard to the need to minimise any fugitive dust emissions.

As the development does not involve flaring or the release of any significant volumes of gas to the atmosphere, & as vehicle movements will remain relatively low, it is considered to have negligible potential to impact upon local air quality.

33. The County Planning Authority understands that the primary target for the sidetrack from well BRX-4 is the Kimmeridge Limestone reservoir, which according to information published by the site operator in a press statement dated 26 June 2017 is "...naturally fractured...", and could be "...produced via conventional methods (i.e. no fracking)."

C Key Environmental Sensitivities of the Site & Surrounding Area

C-1 Established Land Use

34. The Brockham well-site (NGR 518834 148654) is located to the south west of the village of Brockham and the east of the town of Dorking in the district of Mole Valley in Surrey. Permission for the development of the well-site as an oil and gas exploration facility was originally granted in 1987, for a temporary period, subsequently extended by further planning permissions. In 2007 planning permission MO06/1294 was granted for the continued production of oil from the Brockham 1 well for a period of 30 years.

C-2 Nature Conservation & Biodiversity

35. The permitted well-site is located some 2.15 kilometres to the south of the Mole Gap to Reigate Escarpment Site of Special Scientific Interest (SSSI), the majority of which is also covered by a Special Area of Conservation (SAC). The Inholms Clay Pit Local Nature Reserve (LNR) is some 1.73 kilometres to the south west.

36. There are four Sites of Nature Conservation Importance (SNCIs) located within 2.5 kilometres of the permitted well-site (see Table C-1). The closest area of Ancient Woodland is located some 0.20 kilometres to the north west of the permitted well-site.

Table C-1: Sites of Nature Conservation Importance within 1.0 km of the site

Site of Nature Conservation Importance	Distance from site
Glory Wood SNCI	1.41 km west
Holmwood Park SNCI	1.73 km south west
Old Cemetery Dorking SNCI	1.77 km north west
Cotmandene SNCI	1.83 km north west

C-3 Landscape

37. The permitted well-site is located some 0.94 kilometres to the south and east of the closest boundary of the Surrey Hills Area of Outstanding Natural Beauty (AONB), and some 0.94 kilometres to the south and east of the closest boundary of the Surrey Area of Great Landscape Value (AGLV).

38. The permitted well-site is located within National Character Area 121 (Low Weald). The site is partially located within, and bounded to the north, and west by the 'WF1 – Dorking to Hookwood Low Weald Farmland' landscape character area, as defined in the 2015 Landscape Character Assessment for Surrey.

C-4 Heritage

39. The closest Scheduled Monument to the permitted well-site is ‘Betchworth Castle’ (Historic England List ID 1017996), located some 1.33 kilometres to the north. There are no World Heritage Sites located within 10 kilometres of the site (the Royal Botanic Gardens, Kew (Historic England List ID 1000102) is 27.4 kilometres to the north). There are six Grade II Listed Buildings located within 0.5 kilometres of the permitted well-site (see Table C-2).

Table C-2: Listed Buildings within 0.5 km of the site

Grade II Listed Building	Distance from site
‘Felton’s Farm Cottage’ (Historic England List ID 1229427)	0.59 km east
‘Dolly Farmhouse & Yew Tree Cottage’ (Historic England List ID 1228833)	0.84 km north east
‘Old School House’ (Historic England List ID 1229399)	0.93 km north east
‘Brook House’ (Historic England List ID 1228832)	0.94 km north east
‘Park Farmhouse’ (Historic England List ID 1299450)	0.97 km north west
‘Dairy at Park Farm’ (Historic England List ID 1279087)	0.99 km north west

40. The closest Registered Park & Garden to the permitted well-site is the Grade II* ‘The Deepdene (including Chart Park)’ (Historic England List ID 1000143), located some 0.88 kilometres to the west. The ‘Brockham’ Conservation Area is located some 0.73 kilometres to the north east of the site. The closest Area of High Archaeological Potential (AHAP) is located some 1.31 kilometres to the north west of the site.

C-5 Water resources & flood risk

41. The permitted well-site is located within an area of land classified as Zone 1 (<0.1% annual event probability) for fluvial flood risk, although the access track from Old School Lane cuts through an area of Zone 2 (0.1% to 1.0% AEP) and Zone 3 (>1.0% AEP) fluvial flood risk at its eastern end. The majority of the site is classed as being subject to ‘very low’ (<0.1% AEP) risk for surface water flooding, with a smaller proportion of the site subject to a combination of ‘low’ (0.1% to 1.0% AEP), ‘medium’ (1.0% to 3.3% AEP), and ‘high’ (>3.3% AEP) surface water flood risk.
42. The permitted well-site is not underlain by any groundwater Source Protection Zone (SPZ) designations, or by any groundwater bodies classified under the Water Framework Directive.
43. The permitted well-site is located within the catchment of the ‘Tanners Brook (Holmwood to River Mole confluence at Brockham)’ (Environment Agency Waterbody ID GB 106039017570), an un-modified waterbody that was classified as exhibiting ‘moderate’ ecological status and ‘good’ chemical quality during the 2016 Water Framework Directive reporting cycle.

C-6 Air quality & traffic

44. The permitted well-site is located within the district of Mole Valley, for which no Air Quality Management Areas (AQMAs) have been designated.
45. The permitted well-site is accessed from the east from Old School Lane (D304), linking to Brockham Lane (C54) to the east), which links to the A25 (Reigate Road) to the north. Background traffic levels from permanent Department for Transport count points on the surrounding road network are given in Table C-3.

Table C-3: Background Annual Average Daily Traffic Flows

Count Point ID	Description	HGVs (2016)	All vehicles (2016)
78161	A25 (between A24 & B2038 Pixham Lane)	534	21,607
78192	A25 (between B2038 Pixham Lane, Dorking & Flanchford Road, Reigate)	481	19,466

D Consideration against key requirements of the EIA Regulations & the guidance set out in the national Planning Practice Guidance on EIA

D-1 Consideration against Schedule 1 of the EIA Regulations

46. Paragraph 14 of Schedule 1 of the EIA Regulations relates to the: Extraction of petroleum and natural gas for commercial purposes where the amount extracted exceeds 500 tonnes per day in the case of petroleum, and 500,000 cubic metres per day in the case of gas.
47. The highest level of reported production achieved at the permitted well-site between 1998 and 2015 was 5,495.05 tonnes per year (5,665 cubic metres) in 2005, which gives an average of approximately 15 tonnes per day. The permitted well-site therefore does not fall within the definition of development given in paragraph 14 of Schedule 1 of the EIA Regulations. The proposals for evaluation of the productive potential of the BRX-4Z sidetrack well would not be expected to give rise to substantial volumes of oil.

D-2 Consideration against Schedule 2 of the EIA Regulations

48. The development to which this screening opinion request relates constitutes a change (paragraph 13(b)) associated with a permitted development (MO06/1294) that falls within paragraphs 2(d) (deep drillings) and 2(e) (surface industrial installations for the extraction of coal, petroleum, natural gas and ores, as well as bituminous shale)
49. The screening criteria given in Schedule 2 of the EIA Regulations for development of the types listed under Paragraphs 2(d), 2(e) and 13 (b) are listed below.
- | | |
|-----------------|---|
| Paragraph 2(d) | (i) In relation to any type of drilling, the area of the works exceeds 1 hectare; or
(ii) in relation to geothermal drilling & drilling for the storage of nuclear waste material, the drilling is within 100 metres of any controlled waters |
| Paragraph 2(e) | The area of the development exceeds 0.5 hectare. |
| Paragraph 13(b) | Either— (i) The development as changed or extended may have significant adverse effects on the environment; or
(ii) in relation to development of a description mentioned in column 1 of this table, the thresholds & criteria in the corresponding part of column 2 of this table applied to the change or extension are met or exceeded. |
50. The permitted well-site, within which the BRX-4 wellhead is located, and within which the drilling of the BRX-4Z sidetrack well was undertaken, occupies some 0.56 hectares of land situated within a wider area of land, measuring some 1.2 hectares that is under the site operator's control.

51. Hydrocarbon production from the well-site in 2014 (the last year for which a full year's data is available from the Oil & Gas Authority) was 1,524 cubic metres per year (or 1,478.28 tonnes per year, based on the Energy Institute's published (2011) conversion factor of 800 to 900 kg per cubic metre of crude oil at 15°C). The highest level of reported production achieved at the well-site between 1998 and 2015 was 5,495.05 tonnes per year (5,665 cubic metres) in 2005. Past production from the well-site has been consistently substantially lower than the level above which the nPPG recommends EIA is more likely to be required. The proposal to undertake production evaluation of the BRX-4Z sidetrack well would not involve the extraction of hydrocarbons (oil) at a commercial rate, but would seek to establish the rate and volume of flows from the well to ascertain whether such future production might be commercially viable.

D-3 Consideration against the guidance in the national Planning Practice Guidance on EIA

52. The Annex (paragraph 058, Reference ID: 4-058-20140306) to the nPPG on EIA advises that the following key indicative criteria and thresholds should be taken into account when considering whether EIA is required in respect of developments of the types listed in Schedule 2, paragraph 2(d):

"Indicative Criteria & Thresholds: Drilling operations involving development of a surface site of more than 5 hectares. [Exploratory deep drilling on its own is unlikely to require EIA]"

"Key Issues to Consider: Regard should be had to the likely wider impacts on surrounding hydrology & ecology."

53. The permitted well-site, within which the BRX-4 well head and the BRX-4Z sidetrack well are situated, occupies some 0.56 hectares of land within a wider area of land (some 1.2 hectares) that is under the site operator's control. The physical extent of the permitted surface well-site was not altered by the drilling of the BRX-4Z side-track well, nor by the retention of the BRX-4 wellhead, and would not be altered by the carrying out of production evaluation operations in respect of the BRX-4Z sidetrack.

54. The Annex (paragraph 058, Reference ID: 4-058-20140306) to the nPPG on EIA advises that the following key indicative criteria and thresholds should be taken into account when considering whether EIA is required in respect of developments of the types listed in Schedule 2, paragraph 2(e):

"Indicative Criteria & Thresholds: Development of a site of 10 hectares or more or where production is expected to be more than 100,000 tonnes of petroleum per year."

"Key Issues to Consider: Scale of development, emissions to air, discharges to water, the risk of accident & the arrangements for transporting the fuel."

55. The permitted well-site, within which the BRX-4 wellhead is located, and within which the drilling of the BRX-4Z sidetrack well was undertaken, occupies some 0.56 hectares of land situated within a wider area of land, measuring some 1.2 hectares that is under the site operator's control.
56. Hydrocarbon production from the well-site in 2014 (the last year for which a full year's data is available from the Oil & Gas Authority) was 1,524 cubic metres per year (or 1,478.28 tonnes per year, based on the Energy Institute's published (2011) conversion factor of 800 to 900 kg per cubic metre of crude oil at 15°C). The highest level of reported production achieved at the well-site between 1998 and 2015 was 5,495.05 tonnes per year (5,665 cubic metres) in 2005. Past production from the well-site has been consistently substantially lower than the level above which the nPPG recommends EIA is more likely to be required. The proposal to undertake production evaluation of the BRX-4Z sidetrack well would not involve the extraction of hydrocarbons (oil) at a commercial rate, but would seek to establish the rate and volume of flows from the well to ascertain whether such future production might be commercially viable.

D-4 Relationship of the site to the categories of 'sensitive areas' listed under Regulation 2 of the EIA Regulations

57. Regulation 2 of the EIA Regulations identifies seven different categories of 'sensitive areas' that need to be considered when determining whether a proposed form of development warrants EIA. Those categories include:
- 57.1 Sites of Special Scientific Interest (SSSIs), as notified under section 28(l) of the Wildlife & Countryside Act 1981 (as amended) – the closest SSSI to the permitted well-site is the Mole Gap to Reigate Escarpment SSSI, which lies some 2.15 kilometres to the north.
- 57.2 National Parks, as defined by the National Parks & Access to the Countryside Act 1949 – the closest National Park to the permitted well-site is the South Downs National Park, which lies some 27.1 kilometres to the south west.
- 57.3 The Broads, as defined by the Norfolk & Suffolk Broads Act 1988 – the permitted well-site is located in the county of Surrey, and is therefore situated more than 50 kilometres from the Broads.
- 57.4 World Heritage Sites, as listed under Article 11(2) of the 1972 UNESCO Convention for the Protection of the World Cultural & Natural Heritage – the closest World Heritage Site to the permitted well-site is the 'Royal Botanic Gardens, Kew' (Historic England List ID 1000102), located some 27.4 kilometres to the north.

- 57.5 Scheduled Monuments, as defined by the Ancient Monuments & Archaeological Areas Act 1979 – the closest Scheduled Monument to the permitted well-site is ‘Betchworth Castle’ (Historic England List ID 1017996), located some 1.33 kilometres to the north.
- 57.6 Areas of Outstanding Natural Beauty (AONBs), as designated under section 82(l) of the Countryside & Rights of Way Act 2000 – the closest AONB to the permitted well-site is the Surrey Hills AONB, located some 0.94 kilometres to the north and west.
- 57.7 European Sites, as defined by regulation 8 of the Conservation of Habitats & Species Regulations 2010, which includes designated Special Protection Areas (SPAs), proposed SPAs, designated SACs, and candidate SACs – the closest such site to the permitted well-site is the Mole Gap to Reigate Escarpment SAC, which lies some 2.15 kilometres to the north.

E Consideration against Schedule 3 of the EIA Regulations

E-1 Characteristics of development

E-1.1 Would the size & design of the whole development be in keeping with the context in which it would be located? [Schedule 3, paragraph 1(a)]

58. The development to which this request for a screening opinion relates involved the drilling of a sidetrack well (BRX-4Z) from an existing well (BRX-4), and would involve the retention of the BRX-4 wellhead and sidetrack (BRX-4Z) for a temporary period of three years, and evaluation of the productive potential of the BRX-4Z sidetrack well. All that development would be, or has been, undertaken at a permitted oil production well-site that is located in an area of predominantly agricultural land situated to the south west of the village of Brockham in Surrey. The well-site has temporary planning permission (MO06/1294) for the production of oil from a single well (Brockham 1), which permission would expire in 2036. A well-site has been present on the application site since permission was first granted for hydrocarbon exploratory work in 1987. Condition 16 of planning permission MO06/1294 requires that the site be returned to a condition suitable for agricultural use.

E-1.2 Would the development cumulate with other existing &/or approved development? [Schedule 3, paragraph 1(b)]

59. The permitted well-site is situated amongst agricultural land, and is accessed by a track that links it to Old School Lane in Brockham to the east. At the junction of the access track and Old School Lane are a number of properties and businesses. To the north of that junction is an area of land known as the Wood Yard at Feltons Farm that is used for the storage of timber, logs and associated arboricultural materials, which has a certificate of lawful existing use (ref. MO08/1059). To the south of that junction is a complex of agricultural buildings, with the residential properties of Felton's Cottage and Felton's Farmhouse beyond. A complex of equestrian facilities is located at Felton's Cottage.

E-1.3 Would the development involve the use of natural resources, in particular land, soil, water & biodiversity? [Schedule 3, paragraph 1(c)]

60. The well-site has temporary planning permission (MO06/1294) for the production of oil from a single well (Brockham 1), which permission would expire in 2036. Hydrocarbon production from the well-site in 2014 (the last year for which a full years data is available from the Oil & Gas Authority) was 1,524 cubic metres per year (or 1,478.28 tonnes per year, based on the Energy Institute's published (2011) conversion factor of 800 to 900 kg per cubic metre of crude oil at 15°C). The highest level of reported production achieved at well-site between 1998 and 2015 was 5,495.05 tonnes per year (5,665 cubic metres) in 2005. None of the development to which the request for a screening opinion relates would alter

the permitted productive capacity of the existing well-site, as further planning permission would be required for any additional production.

E-1.4 Would the development give rise to waste? [Schedule 3, paragraph 1(d)]

61. The drilling of the sidetrack well, BRX-4Z was undertaken in December 2016/ January 2017. Given the period of time that has elapsed since those works were undertaken, it is likely that any wastes that arose from the drilling of the BRX-4Z side-track to the existing BRX-4 well, will have been removed from the permitted well-site. The proposed production evaluation operations would give rise to fluids, including oil and waste water, with the later being re-injected into the ground via the BRX3 wellhead, in line with the approved operational procedure for the site as regulated through the Environmental Permit regime.

E-1.5 Would the development have the capacity to give rise to pollution or nuisances? [Schedule 3, paragraph 1(e)]

62. The drilling of the BRX-4Z side-track was undertaken in December 2016/ January 2017, and any pollution or nuisances that arose from the drilling, will have ceased or dissipated following the cessation of drilling operations. The drilling operations in respect of BRX-4Z would have been carried out within the context of the existing permitted well-site, which itself is subject to controls for pollution and nuisance under conditions attached to planning permission MO06/1294. In addition the site operates under the control of two Environmental Permits, BL9763IN (Installations) issued in March 2013, and EB3604MZ/A001 (Waste Operations) issued in October 2016.

63. The proposed production evaluation operations would give rise to fluids, including oil and waste water, with the later being re-injected into the ground via the BRX3 wellhead, in line with the approved operational procedure for the site as regulated through the Environmental Permit regime.

E-1.6 Would the development present risks of major accidents &/or disasters (including those caused by climate change)? [Schedule 3, paragraph 1(f)]

64. The onshore oil and gas industry is subject to a number of regulatory regimes, which in the normal course of events require that permissions or consents be obtained before any operations can commence. Obtaining planning permission is only one requirement. Prior to the commencement of drilling and production operations the site operator should obtain approvals from the:

- Health & Safety Executive (HSE) (regulates the safety aspects of all phases of extraction including design and construction of a well casing);

- Oil & Gas Authority (OGA) (issues Petroleum Licences, gives consent to drill and responsibility for assessing risk of, and monitoring, seismic activity, and consent for flaring or venting); and
- Environment Agency (issuing of Environmental Permits to protect water resources, disposal of mining waste, emissions to air and suitable treatment and managing of any naturally occurring radioactive materials).

The risks of major accidents associated with the operation of the well-site should be addressed primarily through the HSE and Environment Agency approvals processes.

E-1.7 Would the development present risks to human health (for example due to water contamination or air pollution)? [Schedule 3, paragraph 1(g)]

65. The BRX-4Z sidetrack well was drilled in December 2016/ January 2017, and any risks to human health that may have arisen from the drilling operations will have ceased or dissipated following their cessation. The permitted well-site is not underlain by any groundwater resources that are subject to monitoring under the Water Framework Directive, or by any groundwater Source Protection Zones, and is not situated within, or in close proximity to any AQMAs.

E-2 Environmental sensitivity of the location of the development

E-2.1 Would the development be compatible with existing & approved land use at the intended site & in adjacent areas? [Schedule 3, paragraph 2(a)]

66. The development to which this request for a screening opinion relates involved the drilling of a sidetrack well (BRX-4Z) from an existing well (BRX-4), and would involve the retention of the BRX-4 wellhead and sidetrack (BRX-4Z) for a temporary period of three years, and evaluation of the productive potential of the BRX-4Z sidetrack well. All that development would be, or has been, undertaken at a permitted oil production well-site that is located in an area of predominantly agricultural land situated to the south west of the village of Brockham in Surrey. The well-site has temporary planning permission (MO06/1294) for the production of oil from a single well (Brockham 1), which permission would expire in 2036. A well-site has been present on the application site since permission was first granted for hydrocarbon exploratory work in 1987. Condition 16 of planning permission MO06/1294 requires that the site be returned to a condition suitable for agricultural use.

E-2.2 Would the development have implications for the relative abundance, availability, quality & regenerative capacity of the area's natural resources (including soil, land, water & biodiversity)? [Schedule 3, paragraph 2(b)]

67. The permitted well-site (MO06/1294) is involved in the production of oil, for export and sale. Oil is a fossil fuel, and essentially a non-renewable resource which once depleted cannot be regenerated. Oil production from the well-site in 2014 (the last year for which a full year's data is available from the Oil & Gas Authority) was 1,524 cubic metres per year

(or 1,478.28 tonnes per year, based on the Energy Institute's published (2011) conversion factor of 800 to 900 kg per cubic metre of crude oil at 15°C). The highest level of reported production achieved at well-site between 1998 and 2015 was 5,495.05 tonnes per year (5,665 cubic metres) in 2005. The drilling and production evaluation of the BRX-4Z side-track, and the retention of the BRX-4 wellhead for a period of three years, does not alter the permitted productive capacity of the well-site, as further planning permission would be required prior to the start of production from BRX-4 or BRX-4Z.

E-2.3 Would the development have implications for the absorption capacity of the natural environment, with respect to wetlands, riparian areas & river mouths? [Schedule 3, paragraph 2(c)(i)]

68. The permitted well-site (MO06/1294) within which the BRX-4 wellhead would be retained, and within which the BRX-4Z sidetrack has been drilled and would be tested, is not located in close proximity to any areas of wetland habitat, or to any rivers or estuaries. The integrity of such habitats would not have been affected by the presence or production testing of the BRX-4Z sidetrack well, or by the retention of the BRX-4 well.

E-2.4 Would the development have implications for the absorption capacity of the natural environment, with respect to coastal zones & the marine environment? [Schedule 3, paragraph 2(c)(i)]

69. Surrey is not a coastal county, and therefore no direct or indirect impacts on coastal zones or the marine environment would be expected to have arisen as a consequence of the development to which the request for a screening opinion relates.

E-2.5 Would the development have implications for the absorption capacity of the natural environment, with respect to forest areas? [Schedule 3, paragraph 2(c)(iii)]

70. The permitted well-site (MO06/1294), within which the BRX-4 wellhead would be retained, and within which the BRX-4Z sidetrack has been drilled and would be tested, is not located in close proximity to any areas of woodland habitat. The closest such area is some 200 metres to the north east, known as 'Field Plantation' and includes an area of ancient semi-natural woodland, but is separated from the permitted well-site by an area of agricultural land. Given the distance between the permitted well-site and the closest area of woodland, and taking account of the scale and type of works that would have been involved in the drilling of the BRX-4Z side-track and its production testing, it is concluded that the integrity of the woodland would not be affected by the development.

E-2.6 Would the development have implications for the absorption capacity of the natural environment, with respect to nature reserves & parks? [Schedule 3, paragraph 2(c)(iv)]

71. The permitted well-site (MO06/1294) within which the BRX-4 wellhead would be retained, and within which the BRX-4Z sidetrack has been drilled and would be tested, is not located in close proximity to any statutory or non-statutory nature reserves or parks. The integrity of such natural assets would not have been affected by the presence or production testing of the BRX-4Z sidetrack well, or by the retention of the BRX-4 well.

E-2.7 Would the development have implications for the absorption capacity of the natural environment, with respect to European sites & other areas classified or protected under national legislation? [Schedule 3, paragraph 2(c)(v)]

72. The permitted well-site (MO06/1294) within which the BRX-4 wellhead would be retained, and within which the BRX-4Z sidetrack has been drilled and would be tested, is located some 2.15 kilometres to the south of the Mole Gap to Reigate Escarpment SAC and SSSI, and some 1.73 kilometres to the north east of the Inholms Claypit LNR. Given the geographical distance between the permitted well-site and the SAC and SSSI, and the LNR it is unlikely that the integrity of the features of interest of those three designations would have been, or would be, impacted by the presence or production testing of the BRX-4Z sidetrack well, or by the retention of the BRX-4 well.

E-2.8 Would the development have implications for the absorption capacity of the natural environment, with respect to areas where relevant EU environmental quality standards are already exceeded? [Schedule 3, paragraph 2(c)(vi)]

73. The permitted well-site (MO06/1294), is located within the drainage catchment of the 'Tanners Brook (Holmwood to River Mole confluence at Brockham)' (Environment Agency Waterbody ID GB 106039017570), which was classed as exhibiting 'moderate' ecological status and 'good' chemical quality during the 2016 reporting cycle for the Water Framework Directive. Conditions 10 and 11 of planning permission MO06/1294 require that the site be operated and managed in a way that minimises the risks of surface water contamination. Any permission that may be granted in respect of the development to which the request for a screening opinion relates would be expected to place comparable controls on development to those associated with the extant planning permissions for the well-site.

E-2.9 Would the development have implications for the absorption capacity of the natural environment, with respect to densely populated areas? [Schedule 3, paragraph 2(c)(vii)]

74. The permitted well-site (MO06/1294) within which the BRX-4 wellhead would be retained, and within which the BRX-4Z sidetrack has been drilled and would be tested, is situated in a relatively remote, rural location, within an area of land that is predominantly used for agricultural purposes, and is removed from any densely populated areas. There are a small number of residential properties situated to the south east of the permitted well-site.
75. Any nuisances or disturbances that arose from the drilling of the BRX-4Z side-track to the existing BRX-4 well, will have ceased or dissipated following the cessation of drilling operations. The drilling operations, and retention of the BRX-4 wellhead, would have been carried out within the context of the existing permitted well-site, which itself is subject to controls for nuisance and disturbance under conditions attached to planning permission MO06/1294.

E-2.10 Would the development have implications for the absorption capacity of the natural environment, with respect to landscapes & sites of historic, cultural or archaeological significance? [Schedule 3, paragraph 2(c)(viii)]

76. The permitted well-site (MO06/1294) within which the BRX-4 wellhead would be retained, and within which the BRX-4Z sidetrack has been drilled and would be tested, is located outside the boundaries of the Surrey Hills AONB and the Surrey AGLV, both of which commence some 0.94 kilometres to the north west. The permitted well-site has been present as a feature in the local landscape since the late 1980's, and is surrounded by agricultural land on all sides. Given the distance that separates the permitted well-site from the Surrey Hills AONB and the AGLV, it is concluded that the integrity of the national and local level landscape designations would not have been, and would not be affected by the development to which the current request for a screening opinion relates.
77. The permitted well-site (MO06/1294) within which the BRX-4 wellhead would be retained, and within which the BRX-4Z sidetrack has been drilled and would be tested, is located 1.33 kilometres to the south of the closest Scheduled Monument, 'Betchworth Castle' (Historic England List ID 1017996), and some 0.59 kilometres to the north east of the closest Grade II Listed Building, 'Felton's Farm Cottage' (Historic England List ID 1229427). The permitted well-site has been present as a feature in the local landscape since the late 1980's, and is surrounded by agricultural land on all sides, with several tree belts and hedges situated between it and the Listed Building. Given the distance that separates the permitted well-site from the closest Listed Building and Scheduled Monument it is concluded that the integrity of those heritage designations would not have been, and would not be affected by the development to which the current request for a screening opinion relates.