



19 January 2016

Agenda Item:

REPORT OF CORPORATE DIRECTOR – PLACE

BASSETLAW DISTRICT REF. NO.: 1/15/01034/CDM

**PROPOSAL: INSTALLATION OF GROUNDWATER MONITORING BOREHOLES IN
FOUR SEPARATE LOCATIONS AND SITING OF MOBILE STAFF
WELFARE FACILITIES**

LOCATION: LAND OFF SPRINGS ROAD, MISSON

APPLICANT: ISLAND GAS LIMITED

Purpose of Report

1. To consider a planning application for the installation of groundwater monitoring boreholes in four separate locations and the siting of mobile staff welfare facilities on land off Springs Road Misson. The key issues relate to contamination, noise, ecology and heritage. The recommendation is to grant planning permission subject to the conditions set out in Appendix 1.
2. No exploratory drilling or hydraulic fracturing is proposed as part of this planning application.

The Site and Surroundings

3. The proposed exploratory well site is located in the north of Nottinghamshire, within the district of Bassetlaw and the parish of Misson. The site is approximately 3.2km north-east of the centre of the village of Misson (see Plan 1).
4. The site is accessed off Springs Road, which to the north joins the B1396 (Bank End Road/Sanderson's Bank) and to the south enters Misson. The wider area is of a rural characteristic, comprising open agricultural fields and a generally flat topography. The application site itself is located within the boundary of the existing L Jackson and Co site, a company which specialises in the sale of ex-military vehicles and equipment.
5. Historically the L Jackson site was a Surface Air Guided Weapon (SAGW) facility used as the Mk 1 Bloodhound Missile Launch site. The facility had two fire units, each containing 16 missile pads. The missile pads associated with the former fire units remain; comprising concrete and hard standing, and surrounded by grass.

6. The planning application boundary comprises four distinct units, three of which are located around the northern fire unit missile pads (to the north, east and west sides) and the fourth which is located at the northern access point to the L Jackson and Co site.
7. In the immediate surroundings there is a linear row of large industrial buildings running in a north to south orientation, which separate the missile pads from Springs Road to the west. To the south there is a further fire unit which is used for storage associated with the L Jackson and Co operations. To the east there is a row of trees, beyond which is a field and then the Misson Training Area Site of Special Scientific Interest (SSSI). To the north of the site is a tree and scrub boundary, beyond which is open agricultural land.
8. The site is within Flood Zone 3 which means it has a greater than 1% annual probability of flooding.
9. The nearest residential property to the application sites is Misson Springs Cottage (although it is noted that this property is within the control of the applicant) which is approximately 30m south of the westernmost application area. The nearest properties which are not in the control of the applicant are Levels Farm and adjacent properties located on Springs Road, approximately 130m to the north of the westernmost application area and 155m from the nearest proposed borehole (see Plan 2).
10. The Misson Training Area (also known as Misson Carr) SSSI is approximately 160m to the east of the easternmost application area and is designated on account of its fenland supporting a diverse range of semi-natural habitats including open water, tall-herb-fen, unimproved neutral and acidic grassland, dry oak woodland and nationally restricted wet woodland. This SSSI is also designated as a Local Wildlife Site (LWS). Approximately 1.7km south-east of the site is the Misson Line Bank SSSI, and 1.9km to the south-east is the River Idle Washlands SSSI (see Plan 2). These two sites are separated by the River Idle, which itself is designated as a LWS between the two SSSIs. There are also a number of drainage ditches within the surrounding area which are LWSs.
11. The nearest listed building is Newland Farm House (Grade II listed) approximately 610m to the north.
12. Robin Hood (Doncaster Sheffield) Airport is approximately 3.7km to the west of the site (see Plan 1).

Proposed Development

Background

13. The Infrastructure Act 2015 received royal assent and came into effect on 12 February 2015. Within the Act there are a number of safeguards put in place in relation to onshore hydraulic fracturing. One of the safeguards is that the level of methane in groundwater has, or will have, been monitored in the period of 12 months before the associated hydraulic fracturing begins.
14. The Act goes on to confirm that before a hydraulic fracturing consent is given by the Secretary of State, they must be satisfied that an Environmental Permit has been given by the relevant environmental regulator which contains a condition

that requires compliance with a waste management plan which provides for monitoring of the level of methane in groundwater in the period of 12 months before the associated hydraulic fracturing begins.

15. The proposed groundwater monitoring boreholes are not exclusively proposed for, but would assist in, meeting the above identified requirement of the Infrastructure Act.

Proposed Development

16. The planning application is for drilling and installing up to four sets of groundwater monitoring boreholes on land off Springs Road, Misson. Each of the sets would comprise up to three boreholes;
 - a) a deep borehole to target the bedrock Nottingham Castle Sandstone Formation (up to 40m in depth);
 - b) a shallower borehole to target the superficial sand and gravel horizon (up to 10m in depth) and;
 - c) a very shallow borehole in the event of an additional distinct water body being encountered which may be isolated from the superficial water body by marl or clay (up to 3m in depth).
17. The deep groundwater monitoring borehole would be drilled using a rotary water well drilling rig (capable of drilling a 9" or 228mm diameter hole). The equipment is likely to be truck mounted and an indicative fully extended rig height of 5.5m has been proposed by the applicant. The drilling would use air, air-foam or water as a drilling fluid and water would be supplied from a bowser filled from the mains supply at the adjacent commercial premises.
18. As the boreholes are drilled, solid casing, screen, filter pack and grouting would be installed to ensure that the borehole does not link the surface to the aquifers or link different water bodies, and to ensure that the monitoring equipment only monitors the target strata (see Plan 3).
19. At ground level there would be steel casing forming the head-works for the monitoring boreholes. This would comprise a raised structure above ground level to prevent the ingress of surface water and polluting substances during heavy rainfall or flood incidents. The steel casing would measure approximately 1m in height above ground levels, with a further 0.5m set into a concrete plinth. The steel casing would house inner uPVC borehole casing and would be painted to protect the steel and aid identification (see Plan 3).
20. Upon the installation of the boreholes, testing would take place to ensure that it is responsive to changes in groundwater levels in the aquifer and that water quality samples are representative. The testing would include:
 - a) Circulating potable water to remove all drill cuttings;
 - b) Airlift pump; and
 - c) Pumping using a submersible pump.

21. The boreholes would be tested to measure the hydraulic properties of the aquifer. This would comprise variable head permeability tests for the shallow boreholes and short pumping tests of up to 8 hours duration for the deep boreholes.
22. Cuttings from the drilling operation would be collected in a skip for disposal. Water pumped from the borehole would also be collected for disposal. Disposal would take place off site at suitably licensed facilities.
23. The drilling and installation of each set of boreholes would take up to two weeks, with the total time for all four boreholes taking a maximum of eight weeks. The drilling would take place during normal day time working hours (07:00 – 19:00) and not at weekends or on public or bank holidays.
24. There would be welfare accommodation on site for the duration of drilling. The applicant has provided details of two welfare accommodation units. The Groundhog welfare unit measures 3.6m by 2m and 2.4m in height. The Eden welfare unit measures 7.3m by 2.7m and 2.6m in height. Both units are coloured yellow (see Plan 4).
25. Access to the site would be off Springs Road. There would be a total of two vehicle movements associated with the drill rig (one to the site and one from the site) as it would remain on site for the duration of the works. There would also be occasional HGV movements associated with the delivery of materials and removal of cuttings and water, and occasional car and van movements associated with staff.
26. Monitoring at the boreholes is proposed for a minimum of 12 months. When no longer required the boreholes would be restored. This would involve the removal of the head works and upper 0.5m of casing with the boreholes being backfilled. This would take one or two days with the use of hand held equipment. The surrounding areas affected by the works would be reinstated to their original conditions.

Consultations

27. **Bassetlaw District Council** – *No objection.*
28. **Bassetlaw Environmental Health Department** – *Activities restricted to the suggested operating hours or 08:00 to 18:00 Monday to Friday and 08:00 to 13:00 Saturday, with no working on a Sunday.*
29. **Misson Parish Council** – *Objection.*
30. *Misson Parish Council (MPC) is concerned that the applicant has not considered the heritage value of the Rocket Site and prehistoric cropmark features. It is noted that heritage assets are irreplaceable and any harm or loss should require clear and convincing justification. MPC do not think this application has any such justification, and this view is reiterated in relation to the additional information. MPC is also concerned about the impact that the contamination assessment trial pits may have had on archaeology.*
31. *MPC consider the depth and location of the boreholes are inadequate to provide confidence and comprehensive data. This view is reiterated in relation to the*

additional information submitted by the applicant. It is also recommended that the water monitoring is undertaken by an independent company.

32. *MPC believe that this application makes no sense as a stand-alone application and if it is considered in advance of an application for shale gas exploration it amounts to pre-determination of the future application. This view is reiterated in relation to the additional information and it is suggested that planning permission is refused or deferred for consideration at the same time as the exploratory borehole application.*
33. *The issue of surface water contamination and run-off is inadequately covered.*
34. *Concern is raised in relation to phosphorus and that further disturbance of the ground could present unacceptable risks to workers on the site, employees and visitors of the Jackson's site and the nearby SSSI.*
35. *MPC has concern that the applicant has not considered the risk of injury or death to resident reptile populations which occur in close proximity to a number of the borehole locations.*
36. **Blaxton Parish Council** – *Objection to the application on the grounds submitted by Misson Parish Council.*
37. **Doncaster Metropolitan Borough Council** – *It is requested that appropriate noise, dust and traffic mitigation measures are considered to ensure no adverse impact on Doncaster's residents and local highway network.*
38. *There are not considered to be any significant impacts on Doncaster from the proposal at this point in time. However, the Council takes the opportunity to relate concerns by Hatfield Town Council about the proximity of the (Scottish Power) gas storage field at Lindholme (on Hatfield Moor) located to the north of the application site. Whilst there is some distance between the two, the proximity and potential impacts of this proposal should be given consideration by the applicant to address the Town Council's concerns.*
39. **NCC (Planning Policy)** – *There are no specific policies covering groundwater monitoring boreholes in the adopted Nottinghamshire Minerals Local Plan (MLP). Chapter 3 of the MLP and Chapter 5 of the emerging new Nottinghamshire Minerals Local Plan set out the full range of environmental policy considerations the NCC Planning Policy Team would desire to be covered. Provided the environmental points have been adequately addressed there are no planning policy objections.*
40. **Health and Safety Executive** – *The Health and Safety Executive (HSE) will regulate the construction of the monitoring boreholes in the same way as other work activity. The duty holder will be responsible for assessing the health and safety risks associated with the work and managing those risks in the appropriate way. As these boreholes are not drilled for oil and gas exploration or extraction, specific regulations will not apply and so the HSE will not be notified of the operation unless the borehole is greater than 30m in depth and is within 1km of a mine. The requirements of the Health and Safety at Work Act will apply to the activity.*
41. *As this activity does not fall under the hazardous installations regime it would not be appropriate for the HSE to respond further. HSE will respond to a*

consultation on an application to drill a borehole intended for the exploration or extraction of oil or gas.

42. **Environment Agency (EA)** – *No objection. The site lies on superficial River Terrace Deposits (a Secondary A aquifer) underlain by Mercia Mudstone bedrock. The Nottingham Castle Sandstone Formation (a Principal Aquifer) underlies the Mercia Mudstone. The site is also located on the boundary of a Source Protection Zone 3 for potable water supply and is therefore of high environmental sensitivity.*
43. *The EA recommends that the Local Authority Environmental Health Officer is consulted with regard to risks posed to human health. It is also noted that the site was formerly a surface to air missile facility and formed part of a RAF training and bombing area. Any investigation should be undertaken in accordance with EA guidance on land contamination.*
44. *The EA note a minor hotspot of poly-aromatic hydrocarbons has been detected in one of the trial pits. Baseline groundwater monitoring should be used to confirm the conclusion that this is unlikely to present a risk to controlled waters.*
45. *There is no objection in principle to the construction of the groundwater monitoring boreholes, which should be designed in accordance with EA guidance. Consideration will have to be given on whether the boreholes truly reflect up-gradient and down-gradient conditions after a period of groundwater monitoring has taken place.*
46. *Considering future operations would involve the construction of an exploratory well site with an exploratory borehole that would be drilled through the entire thickness of the Nottingham Castle Sandstone Principle Aquifer it would be prudent to monitor deeper sandstone before operations begin. Deeper groundwater monitoring would ensure that unacceptable impacts are identified early on before an impact is identified at a receptor such as a potable water supply. In the absence of any site specific data for groundwater quality in the sandstone at depth the EA would adopt a conservative approach and assume that groundwater is clean and uncontaminated. Should there be any deterioration in groundwater quality in the sandstone at depth the developer may be liable for clean-up.*
47. *Any information on groundwater quality and levels is generally useful to the EA and it is therefore requested that this information is shared. The EA therefore recommend that a groundwater monitoring scheme is submitted to them so that they can advise on the monitoring parameters and frequency of monitoring.*
48. **NCC (Reclamation)** – *The site is potentially contaminated due to its former use as an RAF base, however investigations have not identified any unexploded bombs or ordnance (UXB/UXO). The site investigation has identified exceedance of the Generic Assessment Criteria (GAC) employed for a number of contaminants within made ground deposits, the most significant of which was asbestos in one of the trial pits. The asbestos containing materials were encountered in a discrete location within the made ground. Further exploration of the BH5 area for asbestos containing material would serve no useful purpose for the installation of the exploratory groundwater monitoring boreholes. However, this does not preclude the need for such exploration for other development.*

49. *The contaminants detected above the GAC represent a threat to underlying groundwater and it is suggested that the made ground, which is relative shallow and easily identified, is excavated from the immediate vicinity of the boreholes. Whilst it is accepted that the wells will be constructed to minimise cross contamination between varying strata, the removal of potential source contamination means there is no potential threat that would need to be mitigated. However, provided boreholes are located outside of the made ground the requirement for excavation would be negated.*
50. *Notwithstanding the above, noting the less than controlled nature of waste in the past, the presence of discreet pockets of made ground cannot be discounted. As such, a condition is suggested that in the event that unexpected made ground is experienced then localised excavation should take place.*
51. **NCC (Noise Engineer)** – *At the nearest sensitive receptors the noise level is below the threshold for which a significant effect is deemed to occur in line with the British Standard 5228 (Code of practice for noise and vibration control on construction and open sites). The noise level would also be below the threshold for temporary operations set out in the technical guidance for mineral workings in the NPPF. There is no objection subject to conditions relating to operating hours and noise emissions.*
52. **Natural England** – *Natural England are satisfied that there is not likely to be an adverse effect on the Misson Training Area SSSI as a result of the proposal being carried out in strict accordance with the details of the application as submitted. The assessment has given consideration to noise; emissions and air quality; contamination of surface and groundwater; and hydrological (water level) changes.*
53. *The proposal to install groundwater monitoring boreholes is for the purpose of understanding the groundwater resources and groundwater quality of the Principal Aquifer. Groundwater monitoring boreholes already exist within the Misson Training Area SSSI to monitor groundwater systems. The works to install the boreholes are temporary in nature and include mitigation measures to minimise impacts on the natural environment.*
54. *Misson Training Area SSSI is notified for breeding birds and therefore Natural England have requested drilling works are scheduled outside of the breeding bird season in order to prevent disturbance to breeding birds from noise. Due to the distance of the application site from Misson Line Bank and River Idle Washlands SSSIs these sites are not considered to be at risk from noise.*
55. *Natural England does not consider that during either the construction or operation of the groundwater monitoring boreholes there will be significant emissions of dust, other pollutants or emissions from traffic, therefore we consider the potential effects from air pollution can be screened out.*
56. *All cuttings and waste water from the drilling activity will be collected and disposed off-site, therefore we consider there is no risk of pollution to the surrounding water environment from surface water discharge.*
57. *We are satisfied that the environmental design and management measures are sufficient to prevent contamination of groundwater. Natural England have requested a Construction Environment Management Plan is prepared and*

implemented during the works to ensure 'good practice' measures are adopted during construction to ensure there is no adverse effects on the SSSIs.

58. *The groundwater monitoring boreholes are for the purpose of measuring water levels and therefore Natural England does not consider that the temporary installation will lead to a significant change in either surface or groundwater levels. The monitoring results will provide useful baseline evidence of groundwater systems in the area and this could be of particular interest to Natural England in helping to understand the way Misson Training Area SSSI is fed from groundwater. Both Misson Line Bank and River Idle Washlands SSSIs are fed by fluvial flood waters from the River Idle.*
59. **NCC (Ecology)** – *The site itself is not covered by any nature conservation sites. There are a number of designated sites within the vicinity including the Hatfield Moor Special Area of Conservation (SAC); the Thorne and Hatfield Moors Special Protection Area (SPA); and the Misson Training Area, Misson Line Bank and the River Idle Washlands SSSIs. There are also a number of Local Wildlife Sites (LWS) within 1km of the site.*
60. *The application is supported by a range of ecological survey work, contained within an Ecological Impact Assessment that appears to have been carried out in relation to another related application (for exploratory drilling). The surveys completed are up-to-date and have followed standard methodologies.*
61. *The Phase 1 survey indicates that those parts of the site to be affected by the monitoring borehole drilling are dominated by semi-improved grassland. It is not considered to qualify as Section 41 habitat 'lowland meadows' or as Local Biodiversity Action Plan (LBAP) habitat 'Lowland Neutral Grassland'.*
62. *All species of birds recorded within the application site and its immediate surroundings are widespread and can be expected to occur widely within the area around the application site. It appears that no nesting habitat would be lost to the proposals. A standard condition should be used to control vegetation clearance during the bird nesting season.*
63. *NCC Ecology is satisfied that possible impacts on Great Crested Newts have been given sufficient consideration, and that impacts as a result of the proposals are unlikely, provided that appropriate mitigation is in place. To this end, a condition should be used to require compliance with the Great Crested Newt Precautionary Working Method Statement.*
64. *NCC Ecology is satisfied that the potential impacts of noise and vibration on reptiles has now been given due consideration and that any impacts are unlikely. To avoid potential direct impacts, the Great Crested Newt precautionary working method statement referred to above would be sufficient to avoid the accidental killing of reptiles.*
65. *Information has been provided about the potential for trees and buildings close to the application site to be used by roosting bats. It is concluded that only Misson Springs Cottage has the potential to support roosting bats (assessed as having high potential). Whilst the actual usage of this building by bats has not been established, consideration is given to the potential for disturbance to arise, should a roost be present. It is stated that "it is highly unlikely that works of such limited duration, that would be restricted to the specified working hours and that*

would not be undertaken continuously throughout this period, would result in disturbance that would compromise the suitability of Misson Springs Cottage to roosting bats or have any adverse impact on favourable nature conservation status”.

66. Nevertheless, it is stated that the applicant would be willing to consider precautionary mitigation in the form of timing restrictions on the undertaking of works at the borehole adjacent to Misson Springs Cottage to avoid the season when bats may be more sensitive to disturbance. NCC Ecology is satisfied that this control would be sufficient to mitigate against any potential impacts on bats using the Misson Springs Cottage. It is noted that given the distance from this proposed borehole and Misson Training Area SSSI, the control of works in relation to nesting birds could be extended until the start of April.
67. Reference is made to the air quality assessment that has been carried out in relation to the planning application for exploratory boreholes at the same site, which concluded that the development would be unlikely to have an effect on the conservation status of the Misson Training Area SSSI. Whilst NCC Ecology has raised some queries in relation to that assessment, it would appear unlikely that the proposal under consideration here would generate any significant air quality impacts given their nature and duration. It is, nevertheless, recommended that Natural England’s views on the matter are sought.
68. No light assessment has been submitted, however, it has been noted that lighting will be ‘minimal’, fixed to plant/machinery, with use restricted to times when operations/maintenance is taking place within the hours of darkness, and directed inwards/downwards to limit light spill. Operational hours are noted to be 07:00 to 19:00 and, as such, operation during hours of darkness would be limited. On that basis, it is accepted that impacts from artificial lighting would be minimal.
69. The above comments do not consider potential sub-surface impacts arising from the proposed development. Specialist advice should be sought from appropriate sources. Due to the presence of the SSSI the advice of Natural England must be sought.
70. **Nottinghamshire Wildlife Trust** – Clarification is requested on whether it is feasible for all the boreholes to be drilled, constructed and grouted within the proposed 8 week period that has been indicated and whether this has been done elsewhere. Clarification of the noise levels and length of time associated with backfilling each borehole is also requested.
71. The proposed development lies within 2km of Misson Training Area SSSI, Misson Line Bank SSSI, Idle Washlands SSSI and at least 6 wetland LWS. All of these sites are designated for a range of valuable biodiversity that is wholly or partially dependant on particular conditions of water quality, levels and volumes. Therefore the submission of a hydrological and hydrogeological impact assessment is requested.
72. There is not a sufficiently detailed description of the proposed works which demonstrates that the local hydrology and hydrogeology would not be affected by drilling and sampling. The aim of the boreholes is to find out more about the local groundwater flows, and thus presumably to see whether they are as predicted from modelling, so it may be the case that there would be no effects if

only small volumes of water would be removed by the pumping of 12 boreholes. But given that provision has been made to take pumped water off site in tankers it can only be assumed that potentially significant volumes of water may be involved, which could have an impact at sub-surface levels. This is one of critically important water sources for the ditches in the SSSI and the potential effects have not been described and demonstrated by the applicant.

73. *The FRA identifies that the site drains through the network of Internal Drainage Board (IDB) ditches towards Misson Training Ground SSSI. Yet there appears to be no assessment of the potential impacts of changed or polluted water flows on the SSSI which might result from the proposed operation. The Contamination Report state that trial pit results show contamination of the soils with a range of chemicals and metals. Despite these exceeding Stage 2 GAC for controlled waters there is no explanation of why the potential mobilisation risk of these chemicals into water that may drain or move into the SSSI at their the surface or sub-surface has not been assessed.*
74. *The trial pit results show very high groundwater levels, perched or otherwise, with ingress occurring which prevented the completion of several trial pits. Yet there is no assessment of what this means in terms of sub-surface water connections to the SSSI. Nor is any assessment of any surface or sub-surface effects on water quality or quantity indeed the wider network of LWS ditches, including those that link to SSSI. The pits identified the presence of saturated running sands, which may be connected to those underlying the SSSI, but this has not been examined.*
75. *It may be that the design and construction of boreholes would preclude mobilisation of those chemicals into the surface and sub-surface waters, and the drilling process may not affect local water levels, but no information has been provided to demonstrate this, or to show that these potential effects have been considered, either for the construction or operational phases. It is therefore not possible to ascertain that there would be no impacts on the SSSI and LWS.*
76. *NWT, NE and the EA are part way through a lengthy and substantive programme to raise water levels within Misson Training Area SSSI involving significant investment in water control infrastructure. There is no information to reassure NWT that this programme would not be affected by the proposed development.*
77. *Breeding bird surveys have been undertaken of the proposed site, but not the wider area, where birds might be affected by noise. The survey found a range of species including red list Birds of Conservation Concern. No assessment has been undertaken of the impacts of the noise of drilling on these species. The boreholes nearest to the SSSI would result in birds in the plantation experiencing noise levels substantially in excess of 80dBA which would have a profound effect on breeding success in the breeding season.*
78. *The applicant has identified that noise at the nearest property, which is 155m from the nearest borehole, would be 64dB(A). Given that the SSSI is 125m from the nearest proposed borehole is it assumed that noise levels would be higher than this. It is widely agreed that levels of 50dB(A) or above can be detrimental to breeding bird success (lower for some sensitive species). The current ambient is 47-50dB(A) on the site, which may be lower at the SSSI due to its distance from the road. In the absence of any assurance that there would be*

undertaken outside the breeding bird season, it must be assumed that there would be an impact of this substantively increased noise level on breeding birds both in the SSSI and on land adjacent to the proposed development.

79. *In the absence of information on the hydrological effects of drilling it is not possible to determine the likely effect on these proposed development on water voles using the LWS ditch network in the area.*
80. *Comments relating to the impact of noise on birds also applies to bats, both those potentially roosting in Misson Springs Cottage and the edge of the SSSI and those foraging along the plantation. It is agreed that the effects of vibration are likely to be too localised to have a detrimental effect. The applicant has indicated that they could restrict operations to outside of the bat breeding season, this should also be applied to birds and should be conditioned and rigorously enforced if the application were to be permitted.*
81. *Given the further information regarding reptiles NWT is satisfied that harm can be avoided if the method statement is rigorously followed and any animals found are moved to a suitable, safe habitat. However, a receptor area still needs to be identified.*
82. *With regard to Great Crested Newt (GCN) there is still no assessment of whether the GCN within the ditches of the SSSI would be affected by the pumping and any consequent changes to water levels on which they rely for successful breeding.*
83. *It is agreed that there would not be significant air quality impacts as a result of this application.*
84. **Historic England** – *There is an important historic landscape relationship between the Cold War RAF V bomber base at Finningley and the Bloodhound Missile defence site at Misson. It is recommended that any damage to the significance of the remains of the Bloodhound launch site is avoided by due care taken in carrying out any works.*
85. **NCC (Archaeology)** – *The proposed development would not have permanent structures which would detract from the above ground remains of the Bloodhound site, while the creation of boreholes will impact minimally on buried archaeological remains. As such there are no concerns regarding the development.*
86. *Notwithstanding the above, the potential need for contaminated areas to be removed before boreholes can be sunk has been noted. It is possible that buried archaeological remains will be affected and the removal of contamination may expose, disturb and destroy archaeological features. It is therefore recommended that areas of excavation be subject to archaeological supervision and control through the imposition of an appropriate condition.*
87. **NCC (Built Heritage)** – *Considering the existing use of the site and the temporary nature of the boreholes, the impacts of the application on the setting of the Listed Building are neutral.*
88. *The Heritage Impact Assessment fulfils the criteria set out in the NPPF at Paragraph 128. The NCC Built Heritage Team agrees with the assessment that*

the application will have minimal impact on the significance of the site as a non-designated heritage asset.

89. **Anglian Water Services Limited** – *The principle of groundwater monitoring is supported. The proposed drilling operations would penetrate the Sherwood Sandstone aquifer but are not considered to pose a risk to groundwater assets operated by Anglian Water. There is no objection to the proposed development.*
90. **NCC (Flood Risk Management Team)** – *The flood risk to and from the site is considered to be low and the completed works would not appear to increase the flood risk to third parties. In this respect the proposals are acceptable.*
91. **Yorkshire Water Services Limited** – *The site is outside Yorkshire Water's operational area. However, it is on the edge of the groundwater Source Protection Zone (SPZ) for Yorkshire Water's Finningley (3.7km to the north west) and Austerfield (4.3km to the south west) water production boreholes. The SPZ is an approximate zone and water from the Misson site may reach these two boreholes. The water produced from these sources is generally of good quality and receives little treatment before entering supply. Therefore to protect these sources a good understanding of the geology and hydrogeological pathways underlying the area is required.*
92. *The construction of monitoring boreholes prior to well site or well construction is clearly necessary. It is though, unclear why the suggested monitoring boreholes into the Sherwood Sandstone Group (SSG) aquifer are so shallow. The SSG is approximately 200m thick in this area and Yorkshire Water boreholes are between 144m and 175m deep. Inflows appear to be distributed over the length of the borehole. In order to provide data for the productive part of the aquifer it is recommended that the deep observation boreholes extend to a minimum of 150m below ground level. It is also suggested that the EA is consulted with regard to this point.*
93. *Otherwise, the proposed drilling methods and targeting of superficial layers is acceptable with regard to the protection of groundwater.*
94. **NCC (Countryside Access)** – *The proposal will not affect any public rights of way. No objection.*
95. **NCC (Landscape)** – *No objection.*
96. **CPRE Nottinghamshire** – *It is believed that the application is a precursor to an application which would involve appraisal work. CPRE is not opposed to fracking in principle but believe that it should not harm the tranquillity of the countryside; pollute natural resources; or undermine the UK's climate change commitments. The boreholes will only be necessary if Island Gas is given permission to carry out exploratory drilling and fracking. It is considered that to proceed with this application would be pre-determining any subsequent planning application.*
97. *It is noted that there is contamination at the site and there may be further investigation and mitigation prior to any drilling. It is suggested that further investigation of the contamination takes place before any planning application is approved. Concern is also raised regarding the impact that this contamination could have on human health.*

98. *Concern is raised regarding the proximity of the proposed development to the Misson Training Area SSSI.*
99. *CPRE request that the application is refused planning permission. However, if permission is granted CPRE request that all monitoring and testing is carried out by an independent body.*
100. **NCC (Highways)** – *The number of vehicle movements is unlikely to have any material implications on the local highway network. However, it is recommended that the routing of lorries avoids Misson.*
101. **Peel Airports (Finningley) Limited** – *No objection.*
102. **Defence Infrastructure Organisation (DIO)** – *No objection.*
103. **Western Power Distribution** – *No objection.*
104. Responses have not been received from **National Grid (Gas), Police Force Architectural Liaison Officer, NCC (Road Safety), The Ramblers Association, Severn Trent Water Limited** and **Department of Energy & Climate Change**. Any responses received will be reported orally.

Publicity

105. The application has been publicised by means of site notices, press notice and neighbour notification letters sent to the nearest occupiers in accordance with the County Council's adopted Statement of Community Involvement Review.
106. The County Council has received a total of 317 representations, with 314 objecting to the proposed development and 3 in support. Appendix 2 includes data on the objections received, setting out how many people have provided comments on each issue and the local, regional and national split of those that have responded.
107. The representations in support of the application do so for the following reasons:
 - a) There is a need to exploit all resources for energy needs;
 - b) Provision of a home grown energy source; and
 - c) The proposed drilling will be suitable managed and monitored.
108. The reasons for objecting to the proposed development identified in the letters of representation are summarised below:
 - a) Pre-determination – if this application is approved fracking will take place. These boreholes will only be necessary if permission is granted for exploratory drilling and fracking therefore determination of this application would amount to pre-determination of a future fracking application. Attention

is drawn to Lancashire which considered monitoring boreholes at the same time as their fracking applications. This application has been submitted now to speed up the process.

b) Contamination – many of the consultation responses object on the basis of a wide range of potential contamination impacts:

1. Pollution to the natural water supplies, including the aquifer and groundwater through leakages from or around the borehole. In addition, boreholes and their seals fail over time and the site is already contaminated;
2. Pollution of Misson Training Area SSSI, as some drains in the area drain west to east;
3. Contamination of fertile farming land in the wider area;
4. There are no arrangements to monitor surface water. The waste water will be disposed of off-site, however, there is insufficient advice as to how any waste water will be restricted from flowing onto adjacent land, watercourses, drains and beyond;
5. The boreholes could be used for storing waste, including nuclear waste;
6. Waste from the drilling will include Naturally Occurring Radioactive Material (NORM);
7. Health risks from phosphorus concentrations which exceed Stage 2 Generic Assessment Criteria (GAC) for Human Health. The report considers the phosphorus levels to be naturally occurring – just because something is naturally occurring does not mean that it cannot cause harm;
8. The potential for contamination is higher than the impression given in the reports and there are 'hot spots' of contamination;
9. Risk of spillage of contaminated water when transporting;
10. As the site is already contaminated, it makes establishing a baseline for groundwater quality at the site meaningless;
11. Applicant has not shown how they will monitor for Radon gas beneath properties;
12. Inconsistency between supporting documentation, which claims "no possibility of contamination" and site assessment which gives "very low" or "low" risks of contamination or in one case "low to moderate risks to groundwater" with "medium severity";
13. Planning application forms (question 14) states that there is no known contamination at the site. However, other reports indicated that there is. This puts into question the validity of other information given on the application forms;

14. Policy M3.8 of the Nottinghamshire Minerals Local Plan says permission will only be granted where there are no risks of polluting ground or surface waters.

- c) Location, number and depth of boreholes is inadequate – some horizontal drills can be more than 2km in length therefore the proposed positions of the boreholes are inadequate for effective monitoring. What input has the British Geological Survey had in determining the location and depth of the boreholes?
- d) Unexploded bombs/ordnance – site was a decoy runway to draw bombing away from Finningley airport. Site has only been checked for munitions down to a relatively shallow depth and narrow focus. Munitions could be experienced whilst drilling. Ground borne vibrations could trigger timers on unexploded bombs in other areas.
- e) Noise impact:
 - 1. General noise levels will be unacceptable from the works and traffic associated with the proposed development;
 - 2. Misson Springs Cottage has been excluded from the noise assessment due to it being under the ownership of the applicant. This is not acceptable;
 - 3. A 07:00 drilling start time is too early and should be changed to 08:00.
- f) Ecological impact:
 - 1. General damage to Misson Training Area SSSI from water pollution, noise, traffic and disturbance;
 - 2. Impact on birds, newts, bats and moths;
 - 3. Consideration should be given to habitats including ancient and veteran trees outside woods. The applicant should map these and make appropriate plans to avoid and protect them.
- g) Heritage and archaeology:
 - 1. Site is a heritage asset due to its former role as a Bloodhound Rocket site. The application would damage this asset;
 - 2. The trial pit testing prior to the application may have already damaged the heritage asset and archaeology;
 - 3. The applicant has failed to consider extensive cropmark features which suggest prehistoric activity.
- h) Highways impact:
 - 1. The route is not acceptable with a narrow bridge and a level crossing where there has been a previous collision. Springs Road is sometimes closed for maintenance and if the road is closed vehicles would have to pass through Misson;

2. Narrow roads are unsuitable for HGVs and there would be a risk of injury to other road users.
- i) Landscape and visual impact – the proposed development would be unsightly and would amount to an industrialisation of the countryside and the overuse of the site for commercial purposes.
 - j) There would be a general amenity impact which would include light pollution, air pollution and odour. There would also be damage and disturbance from vibrations. In addition, air pollution, noise pollution and the potential for water contamination will not meet the objectives laid out in the Nottinghamshire's Sustainable Communities Strategy 2010-2020.
 - k) Overuse of water resources which are in limited supply.
 - l) Previous Dart/IGas unacceptable performance.
 - m) Profits would go to a fossil fuel industry at expense of communities.
 - n) Industry is not regulated and government does not have resources to monitor the safety of processes.
 - o) No long term economic benefits.
 - p) Loss of property value.
 - q) Adverse impact on tourism.
 - r) Planning application boundary – each site should be registered as a separate entity and the applications should have been made separately.
 - s) Planning process – last minute submission of additional information is seen as reducing time for members of the public to submit considered responses. It was very difficult for MPC to respond, although they were given an extension, unlike the public. The community liaison group set up by IGas was not told of the additional information.
 - t) Application does not make clear what would happen to the monitoring boreholes if permission to frack is not granted and/or their useful lifespan is concluded.
 - u) Cumulative impact from other sites in the wider area, including: Tunnel Tech, a proposed solar farm and sand and gravel quarrying at Newington.
 - v) More time is needed for community to discuss the ramifications and make educated decisions.
 - w) Permitting any activity of an oil and gas company indicates an intention on the Council's part to ignore commitments under the Climate Change Act 2008 (to dramatically reduce dependence on fossil fuel and develop renewable options).
 - x) Suggested conditions – many of the responses, whilst against the proposed development, suggest that if it does proceed certain criteria should be met and conditions should be attached to any planning permission, including:

1. The application should be put before planning committee;
 2. Testing should be carried out by a separate impartial body;
 3. Testing is carried out every three months for a minimum of twelve months prior to exploratory drilling;
 4. Test results are made public;
 5. Decontamination of the site prior to boreholes being drilled;
 6. Putting into a bond suitable financial resources that will pay for decontamination of the aquifer if actions do result in pollution.
- y) Opposition to fracking – there have been a large number of representations that are opposed to fracking and within this there are a number of common themes:
1. Application should be deferred until the main exploratory drilling application goes to committee;
 2. Adverse impact on human health;
 3. Adverse impact on animal health;
 4. Fracking is not a clean/renewable energy;
 5. Seismic impacts;
 6. Contamination from fracking chemicals;
 7. All fracking wells eventually fail;
 8. Radioactive waste water which cannot be adequately dealt with;
 9. Use of large quantities of water;
 10. High numbers of vehicles causing traffic impacts;
 11. Noise impact;
 12. Air pollution;
 13. Odour;
 14. Organic farmers would lose organic status;
 15. The UK is too densely populated, unlike other countries where fracking has taken place;
 16. Adverse impact on property prices and insurance premiums;
 17. Climate change;
 18. Adverse impact on tourism;
 19. Adverse landscape and visual impacts;

20. The area has been previously mined for coal;
 21. Short term specialist nature of fracking does nothing for local employment;
 22. Further infrastructure to move and treat high volumes of polluted water will be needed;
 23. Other countries have banned fracking;
 24. Nottinghamshire electorate should be given a fair and just referendum on whether they want fracking;
 25. Testing should be carried out for all chemicals that would be used in exploratory drilling/fracking as well as the substances that may be released from shale rock and all new chemical compounds that may be created when these chemicals and substances combine under heat and pressure.
109. John Mann MP has objected to the proposed development identifying the site as too close to the village of Misson and nearby dwellings, with residents having their lives unacceptably impacted by the increase in traffic. Trucks and people working on the site would transform a peaceful village into an industrial site. The MP notes that he has been contacted by a large number of constituents who feel that planning applications associated with fracking will be detrimental to their lives and their village way of life, and it is his view that fracking locations need to be more remote than the proposed development location which is wholly unsuitable. Attention is drawn to the 'principle issues' of noise associated with the operations and traffic outlined in planning guidance for fracking, and that the proposed development contravenes these principle issues.
110. Councillor Liz Yates has highlighted that comments from the Parish Council and residents should be taken into consideration.
111. The issues raised are considered in the Observations Section of this report.

Observations

Introduction

112. A planning application has been submitted for the installation of groundwater monitoring boreholes in four separate locations and the siting of mobile staff welfare facilities on land off Springs Road, Misson.
113. The purpose of the planning application is to allow information to be gathered on the existing nature and depths of water bearing strata; water levels and piezometric pressure (a measure of liquid pressure); and the baseline range of water quality variation within the water bodies.
114. The applicant states that the monitoring of the boreholes would take place for a minimum of 12 months and they may be required for a longer period. This would depend on the outcome of the proposed wellsite and two exploratory boreholes, also at the Springs Road site, which is subject of a separate application for planning permission (Ref: 1/15/01034/CDM).

115. The proposed exploratory borehole application is being considered separately to this application and will be brought before Members for determination in the future. The application for the exploratory boreholes does not provide support or justification for the groundwater monitoring borehole proposal, which is assessed on its own merits.

Planning Policy Assessment

National Planning Policy Framework (NPPF)

116. At the heart of the NPPF is a presumption in favour of sustainable development. For decision taking this means approving development proposals that accord with the development plan without delay; and where the development plan is absent, silent or relevant policies are out-of-date, granting planning permission unless any adverse impact of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole or specific policies in the Framework indicate development should be restricted.
117. There is no specific guidance within the NPPF in relation to proposals for groundwater monitoring boreholes.
118. The application site is not at an existing minerals site and the proposal is not, in itself, seeking minerals extraction. Nevertheless, the purpose of the application is to enable baseline monitoring data to be established ahead of potential future minerals (hydrocarbon) development. In this respect, there is merit in considering the content of Chapter 13 (Facilitating the sustainable use of minerals) of the NPPF in as far as the Chapter relates to the prevention of unacceptable adverse impacts.
119. There are a number of principles for determining planning applications within Chapter 13 (Paragraph 144). These include the prevention of unacceptable adverse impacts on the natural and historic environment, human health or aviation safety; taking into account cumulative impacts; and controlling, mitigating or removing any unavoidable noise, dust and particle emissions. Whilst Chapter 13 relates to minerals development these principles are also drawn out in other areas of the NPPF and are considered relevant in the determination of the planning application. However, the extent to which the development is in line with these aspects is assessed in detail in the relevant sections of the report (e.g. noise and ecology etc.).
120. Paragraph 144 of the NPPF gives great weight to the benefits of mineral extraction, including to the economy. However, this proposal is not in itself for mineral extraction. Therefore it is to be assessed on its own merits, not relying on policy support for future development which would be the subject of a separate planning application. Therefore, the great weight attributed to the benefits of mineral extraction is not applicable in this case.

Nottinghamshire Minerals Local Plan – MLP (adopted December 2005)

121. Policy M5.1 of the MLP relates to mineral exploration subject to satisfactory environmental, amenity and reclamation safeguards. Whilst it is acknowledged that the proposed development is associated with mineral exploration, strictly this application is a stand-alone application and does not benefit from the support of this policy.

122. The MLP does not contain any policies that directly relate to the principle of drilling groundwater monitoring boreholes associated with mineral/hydrocarbon development. In this respect the MLP is judged to be silent. Therefore, in line with the NPPF the proposed development should be granted planning permission unless any adverse impact of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in the NPPF.

Bassetlaw Core Strategy – BCS (adopted December 2011)

123. Policy DM3 of the BCS relates to general development in the countryside and applies to any area outside of a Development Boundary. The policy supports the replacement of buildings; re-use of previously developed land; and agricultural/forestry buildings and domestic equine facilities.
124. With regard to the re-use of previously developed land in rural areas, proposals will be supported other than where the site has naturally regenerated to the extent that it is of biodiversity value, provided that the proposal meets one of a series of criteria, including:
- i) The redevelopment of the site is for the existing permitted use; or
 - ii) The redevelopment of the site is for a use requiring a rural location; or
 - iii) It would result in the restoration or regeneration of the site in line with the Bassetlaw District Council's Green Infrastructure aims; and
 - iv) The development should not create significant or exacerbate existing environmental or highway safety problems.
125. The land on which the development is proposed is currently part of a wider business premises storing and selling ex-military and MOD vehicles and equipment. The land on which the development is proposed is semi-improved grassland and has not regenerated to such an extent that it is of biodiversity value. The purpose of the proposed development is to monitor groundwater in this specific location. As such, the very purposes of the application requires a rural location. The proposed development would not create or exacerbate any existing environmental or highway safety problems. Therefore, the proposal fully meets the requirements of Policy DM3.

Nottinghamshire Minerals Local Plan Preferred Approach (published October 2013)

126. At the point of writing the preferred approach is the most recently published element of the new Minerals Local Plan. However, a draft submission document was endorsed by the Environment and Sustainability Committee on the 4th January 2016. The draft submission will now be taken to Full Council on the 14th January 2016 to ask for approval for consultation purposes. If the draft submission is successful an update on the proposed developments accordance with relevant policies contained in the draft submission will be reported orally.
127. Policy MP12 of the new Nottinghamshire Minerals Local Plan (MLP) Preferred Approach relates to hydrocarbon minerals and provides policy in relation to exploration, appraisal, extraction and restoration. Whilst the proposal is associated with hydrocarbon development no element of this policy applies to

this application for groundwater monitoring. Strictly this application is a stand-alone application and does not benefit from the support of this emerging policy as a material consideration.

128. The MLP Preferred Approach does not contain any policies that directly relate to the principle of drilling groundwater monitoring boreholes associated with hydrocarbon development. Nevertheless, Chapter 5 does contain environmental policies which will form material considerations, however, these will be drawn out in the forthcoming relevant sections of this report.

Misson Neighbourhood Plan

129. Misson received approval of the Neighbourhood Area Designation for the Misson Neighbourhood Plan on 20th March 2015. No comments or objections were received to carry out the plan, and the plan can now commence. The proposed development lies within the Neighbourhood Plan Area Designation. At this stage there is no plan, or any emerging documents that form a material consideration.

Planning Practice Guidance - PPG

130. The PPG identifies a pressing need to establish, through exploratory drilling, whether or not there are sufficient recoverable quantities of unconventional hydrocarbons, such as shale gas, to facilitate economically viable full scale production (Paragraph: 091 Reference ID: 27-091-20140306).
131. The PPG identifies that preliminary data which the operator might obtain to consider the most appropriate location for exploratory drilling include information on aquifers and groundwater resources. Nevertheless, the PPG states that it is a matter for individual operators to determine how much preliminary data is necessary before undertaking exploratory drilling. Given that the proposed development is not for exploratory drilling, and in light of the above, there is no explicit support for groundwater monitoring boreholes.

Government Consultation on Permitted Development Rights for Groundwater Monitoring

132. On 5th March 2015 the Government issued a consultation seeking views on proposals to amend permitted development rights for mineral exploration to enable the drilling of boreholes for groundwater monitoring for petroleum exploration to be carried out without the need to apply for planning permission.
133. In August 2015 the Department for Communities and Local Government (DCLG) published their response to the consultation. The consultation identified that there is significant merit in enabling groundwater monitoring to be carried out as permitted development. The monitoring would enable information on the groundwater environment to be provided early and would contribute towards informing the consideration of proposals for the exploratory phase of petroleum exploration (including the drilling of petroleum wells), which would be subject to the full planning application process.
134. DCLG then sought views on further amendments to permitted development rights for petroleum exploration for the drilling of boreholes for seismic investigation and monitoring and for the location and appraisal of shallow mine workings. The Government's response to the consultation was published on 17th

December 2015 and confirms that amendments are to enable the drilling of boreholes for monitoring and investigative purposes in respect of petroleum exploration to be carried out as permitted development for the purposes of groundwater monitoring (for a period of 24 months); seismic investigation and monitoring; and location and appraisal of mine workings.

135. The detailed wording of the amendments to the Town and Country Planning (General Permitted Development) (England) Order 2015 will be set out in a statutory instrument to be laid before Parliament in 2016.
136. Within the December consultation response the Government highlighted that the early collection and assessment of environmental monitoring information should enable a more informed consideration of the impacts, risks and mitigation measures that may be necessary in respect of any future planning applications by communities, statutory consultees and mineral planning authorities.
137. In light of the above, it is clear that the Government's intention is that development such as is the subject of this report will become permitted development in the future. However, at this stage of reporting it is not and planning permission is still required; and therefore the full planning application process is entirely appropriate. Nevertheless, the Government identifies that in making groundwater monitoring associated with petroleum exploration permitted development it would enable it to take place much earlier in the planning process, providing early reassurance that the environmental impacts are being properly considered in the case of potential petroleum exploration proposals. This is considered to be a material consideration to which some weight can be attached.

Policy Considerations

138. The Development Plan does not contain any specific policies in relation to groundwater monitoring boreholes and is therefore considered to be 'silent' on the principle of the activity. In line with the NPPF, where the development plan is silent planning permission should be granted unless any adverse impact of doing so would significantly and demonstrably outweigh the benefits.
139. The Government has clearly identified the benefit of groundwater monitoring through their intention to make such proposals permitted development. Whether any adverse impacts outweigh this is explored through the following sections of the report.
140. There is also broad support for the proposal in Policy DM3 of the BCS which supports the re-use of previously developed land in rural areas. The proposal meets the relevant criteria in that the site has not naturally regenerated to the extent that it is of biodiversity value; it requires a rural location; and from the detailed assessment below would not create significant or exacerbate existing environmental or highway safety problems.
141. In light of the above the policy position is one of support in principle, providing that the proposed development does not have any adverse impacts which outweigh the benefits.

Ecology

Designations

142. There are three Sites of Special Scientific Interest (SSSI) within 2km of the application site. The nearest is the Misson Training Area SSSI, also known as Misson Training Area, located approximately 160m to the east. This is a redundant military bombing range which forms one of the largest remaining tracts of fenland in north Nottinghamshire and Lincolnshire. The semi-natural habitats include standing open water, tall herb-fen, unimproved neutral and acidic grassland, dry oak woodland and nationally restricted wet woodland. The site is also recognised for its assemblage of moths and breeding birds. The site is managed as a nature reserve by Nottinghamshire Wildlife Trust (NWT) with access by permit only.
143. In addition, the application site lies within the Impact Risk Zone of two other SSSIs. Firstly, Misson Line Bank SSSI which is located approximately 1.7km to the south-east and is a fenland system containing the best remaining examples of eutrophic open water, marsh and base-poor fen communities in Nottinghamshire. Secondly, the River Idle Washlands SSSI are approximately 1.9km to the south-east which are a floodplain of the River Idle containing wet grassland plant communities attracting large numbers of wintering and passage waterfowl.
144. Approximately 6km to the north of the site are the Thorne and Hatfield Moor Special Protection Area (SPA) and the Hatfield Moor Special Area of Conservation (SAC).
145. Within 2km of the application site there are 12 Local Wildlife Sites (LWS), a number of which are drains with botanical interest. These are non-statutory designated ecological sites, although it is noted that in some cases they overlie or abut SSSIs mentioned above.
146. A number of concerns have been raised by members of the public in regard to the potential impact of the proposed development on Misson Training Area SSSI, particularly in relation to water pollution (both surface and groundwater); noise impact and general disturbance.
147. NWT has highlighted the findings of the Phase 1 and 2 Environment Site Assessment (ESA) which records the presence of contamination following trial pitting at the site. In relation to this, concern is raised that no information has been provided to demonstrate that there would not be any mobilisation of chemicals into surface or subsurface waters.
148. NWT also draws attention to the existing programme to raise water levels within the Misson Training Area SSSI that is being undertaken by them, the Environment Agency and Natural England and has involved significant investment in water control infrastructure. Concern is raised that no assessment of possible hydrological changes has been assessed as part of this application and significant quantities of water may be pumped out and removed. There is also concern that the applicant does not know the required depth or number of boreholes.
149. NWT note that the submitted noise report calculates a noise level of 64dB(A) at the nearest relevant property which is approximately 155 metres away from the nearest borehole. However, in comparison they state the nearest part of the

Misson Training Area SSSI is 125 metre from the closest borehole location. NWT highlight that noise levels above 50dB(A) can be detrimental to bird breeding success and therefore raise concern.

150. NCC Ecology are satisfied that there would be no direct impacts on any of the SSSIs. With regard to indirect impacts NCC Ecology consider it likely that areas of the SSSI would experience levels in excess of 55dB and this could have a detrimental impact on breeding birds. As such, in the absence of additional noise impact assessment or mitigation measures, it is recommended that a condition is used to restrict drilling during the breeding season.
151. NCC Ecology does not comment on changes to groundwater quality or hydrological regimes, but state that advice from Natural England must be sought. NCC Ecology are satisfied that the development would not generate significant air quality impacts given its nature and duration. Nevertheless, NCC Ecology recommend that Natural England's views are sought.
152. In responding to planning applications Natural England focus their comments on statutory designated sites and state that they would expect the local planning authority to assess and consider the other possible impacts arising from the proposal, particularly in relation to local sites; local landscape character; and local or national biodiversity priority habitats and species. In addition, they do not assess applications for impact on protected species.
153. Natural England has considered the proposed development in relation to the Misson Training Area SSSI and is satisfied that with conditions the proposed development would not have an unacceptable impact. They have considered impacts arising from the proposal in relation to noise; emissions and air quality; contamination of surface and groundwater; and hydrological (water level) changes. They raise no objections, but do seek conditions to schedule works outside of the bird breeding season and that an environmental management method statement is prepared and issued to workers undertaking the drilling of the boreholes. The method statement should outline good practice measures and procedures that are to be adopted by workers to ensure the safe storage and removal of drill cuttings and waste water.
154. It is recognised that some small levels of water pumping may be required to test the hydraulic properties of the aquifer, but this would not be for a long duration (8 hours duration for the deep boreholes). The EA has indicated that the water resource availability status for the Hatfield and Blyth Groundwater Management Units is that there is no water availability for new abstraction and the EA would be unable to license any new abstraction greater than 20 cubic metres per day. Any pump test that requires greater than 20 cubic metres per day would require a Section 32 (3) Water Resources Act 1991 Groundwater Investigation Consent from the EA.
155. Natural England also highlight that groundwater monitoring boreholes already exist within the Misson Training Area SSSI to monitor groundwater systems, and the monitoring results from the proposed boreholes could be of particular interest to Natural England in helping to understand the way the SSSI is fed from groundwater.
156. Natural England have considered impacts to Misson Line Bank and the River Idle Washlands SSSIs and raise no concerns.

157. Policy M3.19 of the MLP prevents development that would have any adverse impact on a SSSI unless the reasons for the development outweigh the value of the SSSI (taking into account mitigation/compensation measures). Where adverse impact on a SSSI would result from a development Policy DM9 of the BCS requires alternative schemes designs to have been considered, mitigation measures put in place and compensation to be a last resort which must be of equal or greater value than that to be lost. The NPPF sets out a clear position that development which would have an adverse impact on a SSSI should not normally be permitted. Where an impact on a SSSI's special interest features is likely, an exception should only be made where the benefits of the development clearly outweigh the impact that it is likely to have on the features of the SSSI and any broader impacts on the national network of SSSI.
158. In taking the consultation responses into account it is recognised that there is concern regarding the protection of Misson Training Area SSSI arising from members of the public. In addition, NWT questions whether there is sufficient information to fully assess the impact. Nevertheless, Natural England is the statutory body providing advice in relation to nationally designated ecological sites and are satisfied that there will not be an unacceptable impact, subject to the conditions recommended in relation to the breeding bird season. Where there are differing views between ecological bodies the Minerals Planning Authority is entitled to take the recommendation of the statutory body. As such, it is considered that the groundwater monitoring boreholes and associated activities would not result in an unacceptable impact on the Misson Training Area SSSI, Misson Line Bank SSSI and the River Idle Washlands SSSI and is entirely in accordance with policies M3.19 of the MLP and DM9 of the BCS and the NPPF.

Habitats

159. The applicant has undertaken a Phase 1 Habitat Survey of the site and the areas that would be affected are dominated by semi-improved grassland, described as species-poor neutral grassland. NCC Ecology are of the view that the grassland is not species rich and appears unlikely to qualify as either Section 41 Habitat 'Lowland Meadows', or as Local Biodiversity Action Plan (LBAP) Habitat 'Lowland Neutral Grassland'. NWT agrees that the habitats to be affected within the application boundary do not include Section 41 Priority Habitat (Section 41 of the Natural Environment and Rural Communities Act 2006 requires the Secretary of State to publish a list of habitats and species that are of principle importance to the conservation of biodiversity in England).
160. In light of the above, with regard to direct impacts, the proposed development is in accordance with Policy M3.17 of the MLP and DM9 of the BCS which seek to prevent adverse impacts on the integrity or continuity of habitats or features identified as priorities in the UK and/or Nottinghamshire Local Biodiversity Action Plan.
161. Biodiversity led restoration of the site is not considered necessary given the existing use of the site; limited extent of the application areas; the low value nature of the existing habitat; and the temporary nature of the proposals.

Birds

162. The applicant has undertaken a three-day breeding bird survey of the application site. There were six species of conservation concern (Cuckoo, Dunnock, Song Thrush, Whitethroat, Willow Warbler and Yellowhammer) but these were considered to occur in low numbers and are not sufficiently rare that the recorded populations would be considered to be of district or higher nature conservation value. The applicant has stated that this is a reflection of the habitat of the application site, which is dominated by hardstanding and poor semi-improved grassland, with habitats of higher value occurring in the wider landscape.
163. The applicant is of the view that there would be no loss of nesting bird habitat as no bird territories were recorded in association with the proposed development footprint and the habitat of hardstanding and grass is unsuitable.
164. NWT raise concern about noise impact on breeding birds within the surrounding area (as well as the Misson Training Area SSSI reference above). They note that noise levels may be in excess of 80dB(A) and this could have a profound effect on breeding success. Concern about noise levels and duration of restoration have also been raised.
165. NCC Ecology is of the view that all species of birds recorded within the application site and immediate area are widespread and can be expected to occur widely within the area. It also appears that no nesting habitat would be lost to the proposals, although there is no explicit confirmation of this in the application. Nevertheless, a condition relating to the control of vegetation clearance during the bird breeding season is appropriate to ensure protection. No direct impacts on breeding bird habitat are raised by NWT.
166. As discussed above concern has been raised in relation to the indirect impact of noise on breeding birds in the Misson Training Area SSSI. This concern has been raised in relation to breeding birds outside of the SSSI by NCC Ecology and NWT. A condition restricting drilling to outside of the breeding bird season would prevent any unacceptable noise impacts.
167. Restoration of the boreholes would involve removal of the head works and upper 0.5m of casing with the boreholes being backfilled. This would involve hand held power tools and take one or two days. A condition can be used to ensure restoration takes place outside of the bird breeding season. No significant noise impacts would result from the restoration.
168. Members of the public have raised concerns in relation to the impact on birds. However, with no direct impact on breeding bird habitat and works being controlled to take place outside the breeding bird season it is considered that there would not be any unacceptable impacts. Therefore, works would take place between September and the beginning of March, although due to the distance from the SSSI and the intervening buildings, NCC Ecology and Natural England are satisfied that drilling at the borehole adjacent to Misson Springs Cottage could take place up to the start of April.

Amphibians

169. The potential impact of the proposed development on newts has been raised by members of the public.

170. The applicant has assessed the impact on Great Crested Newts (GCN) and come to the conclusion that there would not be an unacceptable impact. NCC Ecology has reviewed the submitted information and is satisfied that the impacts on GCN has been given sufficient consideration and that impacts as a result of the proposed development are unlikely, provided appropriate mitigation is in place. In this respect a condition is suggested to require compliance with the submitted Great Crested Newt Precautionary Method Statement.
171. NWT raise concerns regarding the absence of a hydrology report and state that this is a concern as it is not possible to determine the likely effects on amphibians using the extensive LWS ditch network in the area. Noting the view of NWT it is important to recognise that groundwater monitoring boreholes are purely passive measuring facilities and would not result in any material changes (rise or lower) to groundwater levels. As such, there would be no hydrological impacts as a result of the proposal on the LWS ditch network.

Reptiles

172. The site has been surveyed for reptiles with grass snake and common lizard recorded. The applicant states that there would be no loss of reptile hibernation habitat as there is none within the borehole footprints. In addition, it is stated that reptiles are not making substantive use of grassland areas although the proposed development may have a minor impact on foraging habitat at one of the borehole monitoring locations during drilling.
173. Whilst it is recognised that there is a risk to reptiles it is apparent that it can be appropriately mitigated through suitable working practices. As such, it is suggested that appropriate working practices, which would also be put in place for protecting GCN, would be sufficient to avoid the accidental killing of reptiles. NWT is satisfied that harm can be avoided if the method statement is rigorously followed and any animals found are moved to a suitable, safe habitat. In addition, NCC Ecology is satisfied that impacts of noise and vibration on reptiles have been given due consideration and indirect impacts are unlikely.
174. Given that accidental killing of reptiles is unlikely the advanced identification of a receptor area is not considered necessary. In addition, it is noted that the works would be conducted under the supervision of an ecologist.

Bats

175. The potential impact of the proposed development on bats has been raised by members of the public.
176. The submitted Ecological Impact Assessment states that no trees or buildings with bat roost potential were found within the Zone of Influence of the proposed development and concluded that there would be no potential for bat roosts to be impacted.
177. The potential for noise impacts on bats has been raised by NWT and recommend that operations are restricted to outside of the bat breeding season in the event that planning permission is granted. NCC Ecology has considered the potential for disturbance to bats from noise and vibration. It is noted that only Misson Springs Cottage has the potential to be used by roosting bats. NCC Ecology is satisfied that a condition to limit the works to avoid the season when bats might be more sensitive to disturbance (i.e. when breeding and rearing

young) would be sufficient to protect bats from disturbance. This aligns with the period for restricting works during the bird breeding season.

178. NWT also draw attention to a lighting assessment that demonstrates no impact on roosting bats, but which has not been submitted as part of this application. However, it is noted that the operational hours are proposed to be restricted to 07:00 – 19:00 and as a result there would only be limited operations in the hours of darkness during winter months. As a result NCC Ecology is of the view that impacts from operational lighting would be minimal. It is recommended that a condition ensures operational working is restricted to those hours proposed.

Water Vole

179. The applicant has not undertaken any assessment of the proposed development on water vole. However, NWT is of the view that in the absence of a hydrology report it is not possible to determine the likely effects on water vole using the extensive Local Wildlife Site ditch network in the area.
180. As stated above groundwater monitoring boreholes are purely passive measuring facilities and would not serve to materially change (rise or lower) groundwater levels. As such, there would be no hydrological impacts as a result of the proposal on the LWS ditch network.

Policy

181. The prevention of harm to protected species and their habitat is controlled under the Habitats and Species Regulations (2010) and the Wildlife and Countryside Act 1981 (as amended). As such, the NPPF and extant and emerging MLP do not contain policies on protected species. Nevertheless, Policy DM9 of the BCS expects planning applications to demonstrate that they would not adversely affect protected species.
182. In light of the above assessments it has been demonstrated that the proposed development would not have an unacceptable impact on protected species in accordance with Policy DM9, the Habitats and Species Regulations and the Wildlife and Countryside Act.

Contamination and Unexploded Ordnance (UXO)

183. The applicant has undertaken Phase 1 and Phase 2 Environmental Site Assessments (ESA) to consider the geological conditions of the site; hydrology and hydrogeology; contaminated land; and any associated environmental risks. The ESA includes a desk based assessment of the site and fieldwork comprising soil sampling, trial pits and unexploded ordnance (UXO) survey.
184. Ten trial pits were dug across the site including within made ground and in the grassland outside of the missile pads. Asbestos was identified in one of the made ground locations. In addition, the assessment included collection and analysis of fifteen soil samples across the site. Phosphorus was reported to exceed the Stage 2 GAC (Generic Assessment Criteria) for human health, assuming a commercial/industrial land use.
185. Many of the soil samples demonstrated exceedence of stage 2 CW (controlled waters) GAC for Polycyclic Aromatic Hydrocarbons (PAH), Total Petroleum Hydrocarbon (TPH) and metals. The applicant reports that many of the

exceedences were minor, with the exception of one of the made ground trial pits where the number of PAH and metals exceeded the Stage 2 CW GAC significantly.

186. The applicant has assessed the risks associated with the proposed groundwater monitoring boreholes and in relation to asbestos the risk to human health (including construction workers) from on-site sources of contamination is considered to be 'moderate/low' as limited subsurface works are proposed.
187. The risk to controlled water has been taken into account and it is noted that there is a risk of adverse impacts on the secondary A Aquifer from leaching of contaminants from the unsaturated zone, particularly from made ground in the vicinity of one specific trial pit (TP-E5). The applicant notes that the nature of the superficial deposits encountered at the site (relatively low permeability clays with sand bands of limited lateral persistence) mean the likelihood of the pathway being present is low, however, the sensitivity of the aquifer is taken into account and this results in a 'moderate/low' risk rating. The applicant reports that the risk to controlled water via other potential pathways is considered to be 'low' to 'very low' and any risk of creation of a potential pathway between shallow made ground and the deeper sandstone during operations would be mitigated by environmental design measures.
188. The recommendations of the ESA include the further investigation for the presence of asbestos where excavations are proposed in the made ground. In addition, the monitoring borehole locations should be cleared for the presence of UXO both prior to and during the borehole construction works by a specialist using an electromagnetic scanner.
189. A significant number of the objections received from members of the public relate to contamination at the site. Concerns highlight the risk of contamination of water sources including the aquifer and the potential for this to adversely impact drinking water. There is also concern about contamination migrating to the nearby SSSI and damaging fertile farming land. With regard to human health concern is raised in relation to phosphorus exceeding Stage 2 GAC and that this should not be dismissed as naturally occurring. There is also concern that contamination at the site is higher than the impression given in the report and that there are 'hot spots'.
190. The sensitivity of the underlying superficial deposits as a Secondary A Aquifer is recognised, as is the existing contamination at the site. In this regard the concerns raised by members of the public in relation to contamination are noted and some have suggested its removal prior to commencement. Nevertheless, it is important to recognise that the levels of contamination across the site are not equal and the assessment demonstrates that the areas of primary concern relate to the made ground within the missile pad area. It is for this reason that the recommendations in the ESA for further asbestos investigation relate to the made ground only and the recommendations for excavation prior to drilling made by NCC Reclamation also relate to the made ground. The location for the proposed boreholes is outside of the made ground areas. Nevertheless, a condition is recommended by NCC Reclamation which would require the removal of made ground in the event that any is encountered, prior to the drilling of the borehole. Bassetlaw District Council's Environmental Health Officer has no comments in relation to contamination.

191. Concern has been raised by members of the public that the ESA dismisses the levels of phosphorus as naturally occurring. Indeed, the NCC Reclamation Team highlight that it could be derived from the application of fertilizers and the past military use should not be underestimated, although it is acknowledged that sandstone, limestone and mudstone are common phosphate bearing rock types. Nevertheless, NCC Reclamation has considered the level of phosphorus, irrespective of their source, and has no objection to the proposed development.
192. The Environment Agency has considered the planning application and acknowledges the contamination including one trial pit within the made ground which is referred to as a minor hotspot of PAH. The EA has no objection to the construction of the groundwater monitoring boreholes but states that they should be designed in accordance with their report 'Guidance on the Design and Installation of Groundwater Quality Monitoring Points'. They also highlight that any information on groundwater quality and levels is useful to the EA and the submission of a groundwater monitoring scheme to the EA is suggested. It is noted that an 'informative' would be an appropriate approach should planning permission be granted.
193. In addition, the utilities companies responsible for supplying drinking water do not raise objections, with Anglian Water supporting the principle of groundwater monitoring and noting that the operations would penetrate the Sherwood Sandstone but that they would not pose a risk to their groundwater assets. In addition, whilst the site is outside Yorkshire Water's operational areas, it is on the edge of their Groundwater Source Protection Zone (SPZ) for Finningley and Austerfield water production boreholes. Yorkshire Water is of the view that the construction of monitoring boreholes prior to future well site or well construction is necessary and that the proposed drilling methods and targeting of the superficial layers is acceptable with regard to the protection of groundwater. Severn Trent water has raised no objection.
194. Public comments have highlighted some inconsistencies within the planning application documentation. Firstly the planning application forms (Question 14) state that there is no known contamination at the site. However, other reports indicate that there is. The inconsistency is acknowledged and is unfortunate, however, it is considered to be a mistake rather than a deliberate attempt to mislead given the considerable contamination assessment submitted with the application. Nevertheless, the application has been assessed on the basis that there is contamination at the site.
195. It has also been highlighted that there is an inconsistency between supporting documentation, which claims "no possibility of contamination" and site assessment which gives "very low" or "low" risks of contamination or in one case "low to moderate risks to groundwater" with "medium severity". It is important to understand that in regards to contamination there are a number of receptors that have been assessed and there is differentiation to be made between severity, probability and risk. Table 1 sets this out:

Table 1 - Risk Evaluation of Potential Pollutant Linkages

Source	Pathway	Receptor	Risk Evaluation		
			Severity	Probability	Risk
Human Health					
Asbestos in made	Inhalation of fibres	Future on-site workers, including	Medium	Low	Moderate/ Low

ground		construction workers and off-site workers on neighbouring sites			
Controlled Waters					
Made Ground (PAH, TPH, metals)	Leaching of contaminants from soil into the unsaturated zone into the superficial aquifer	Superficial Secondary A Aquifer	Medium	Low Likelihood	Moderate/ Low
	Vertical migration of impacted groundwater within the superficial aquifer into the bedrock	Bedrock Secondary B Aquifer (Mercia Mudstone)	Minor	Low Likelihood	Very Low
		Bedrock Principal Aquifer (Nottingham Castle Sandstone)	Medium	Unlikely	Low
	Surface run off	Field drains	Minor	Likely	Low
	Lateral migration of impacted groundwater into surface water	Pond and River Idle	Mild	Unlikely	Very Low

196. Whilst it is noted that supporting documentation (Attachment 4 – Contaminated Land Review) states that the “The borehole designs ensure that the geological horizons to be monitored are hydraulically isolated from one another, with there being no possibility for any shallow contamination in the Made Ground (if found to be present), to migrate down into and Superficial Deposits / Mercia Mudstone and deeper Sherwood Sandstone aquifer”. When read as a whole, this statement does not conflict with the findings of the ESA which identify that “any risk of creation of a potential pathway between shallow Made Ground and the deeper sand/sandstone during operations would be mitigated by the environmental management and design measures.
197. Concern has been raised by members of the public about surface water contamination, the lack of monitoring in relation to this and insufficient information regarding how any waste water would be restricted from flowing into adjacent land courses, drains and beyond. The applicant has identified that the cuttings from the drilling of the boreholes would be collected in a skip for disposal at a suitably licensed facility off-site and the water pumped from the borehole during preparation and testing would also be collected for disposal at a suitably licensed off-site facility. As identified in the ecology section above, Natural England has considered this matter and recommends that a CMP identifying suitable measures for off-site disposal of waste water and material is secured by condition.
198. A number of consultation responses highlight the pre-existing contaminated state of the site and are of the view that this makes establishing a baseline for groundwater quality at the site meaningless. The establishment of a baseline shows the existing condition of water quality, contaminated or otherwise. Pre-existing contamination does not reduce the importance of establishing a picture of existing conditions. In any event, the contamination highlighted already relates to surface level to relatively shallow depths and does not mean that groundwater is contaminated.

199. With regard to the development plan, Policy M3.8 of the MLP looks to ensure that there would be no risk of polluting ground or surface waters taking into account engineering measures and/or operational management systems which can adequately mitigate such risks. In addition, Policy DM2 of the emerging MLP Preferred Approach supports proposals where it can be demonstrated that there are no risks of polluting ground or surface waters.
200. The NPPF states that decisions should ensure that new development is appropriate for its location. The effects (including cumulative effects) of pollution on health, the natural environment or general amenity, and the potential sensitivity of the area or proposed development to adverse effects from pollution, should be taken into account. However, ultimately where a site is affected by contamination issues, responsibility for securing a safe development rests with the developer and/or landowner.
201. The NPPF highlights that decisions should ensure that a site is suitable for its new use taking account of ground conditions, pollution from previous uses and any proposals for mitigation. In addition, any site investigation information presented should be adequate and prepared by a competent person.
202. Concerns have been raised by residents in relation to a wide range of contamination issues and reference has been made to the proposed development conflicting with Policy M3.8 as there would be risk of polluting ground or surface waters. Nevertheless there have been no concerns raised by any of the relevant technical consultees in relation to the suitability of the site for the development proposed or the ability for it to be undertaken in a safe manner and this is in consultation with the NCC Reclamation Team, Bassetlaw District Council EHO, the Environment Agency, Anglian Water and Yorkshire Water. In addition, Policy M3.8 allows for engineering and/or operational management systems to adequately mitigate risk. In light of this, the MPA is satisfied that the proposed development is a suitable land use and that there would not be an unacceptable risk to groundwater, surface water and human health (from contamination or UXO) and the proposed development is in accordance with Policy M3.8 of the MLP and emerging policy DM2 of the MLP Preferred Approach Document.
203. In coming to this position, it is on the basis that appropriate procedure would be followed, such as the Environment Agency's Guidance on the Design and Installation of Groundwater Quality Monitoring Points. However, the NPPF makes it clear that local planning authorities should focus on whether the proposed development itself is an acceptable use of the land, and the impact of the use, rather than the control of processes or emissions themselves where these are subject to approval under pollution control regimes. Local planning authorities should assume that these regimes will operate effectively.
204. Consultation responses have highlighted that the site is contaminated and that there is the potential for borehole seals to fail over time. As highlighted above, the made ground associated with the missile pads is where the higher levels of contamination is located and the proposed boreholes would be constructed outside of the made ground areas. In any case the adequacy of the construction of the boreholes is guided by the Environment Agency and their Design and Installation of Groundwater Quality Monitoring Points document and a report detailing the as built construction would have to be submitted to the EA upon

completion of the boreholes. In line with the NPPF the MPA should assume that such a regime will operate effectively.

205. Concern has been raised that there is a risk of spillage of contaminated water when transporting. The transportation of waste is tightly regulated and all businesses that collect and transport waste are required to have a waste carrier license. This is regulated by the Environment Agency and in line with the NPPF the MPA should assume that such a regime will operate effectively.
206. Consultation responses have raised concern that the applicant has not demonstrated how they would monitor for radon gas. The development itself is not considered to be at risk of radon gas as it is not designed for human occupation (such as a houses or offices). If radon gas monitoring is necessary for any future development, such as an exploratory borehole, it would be a requirement of the associated environmental permit for that future development and controlled by the Environment Agency.
207. Concern has been raised in relation to waste from the drilling including Naturally Occurring Radioactive Material (NORM). The flow-back fluid that returns to the surface following hydraulic fracturing, as well as the sediments and scales in gas or water process vessels may contain sufficient NORM that they would be classified as radioactive waste. However, simply drilling a well does not involve hydraulic fracturing, flow-back fluid or the production of natural gas and therefore no permit is need for disposal of these drill cuttings under radioactive substance controls. No Environmental Permit is required for the monitoring boreholes although the construction of the boreholes is guided by the Environment Agency guidance.
208. Claims have been made that the boreholes could be used for storing waste, including nuclear waste. The application is solely for groundwater monitoring and does not seek permission for any form of waste storage, therefore, no further consideration is given to this.
209. Attention has been drawn to the fact that the area was historically used as a bombing/training area and there is concern that unexploded ordnance (UXO) could remain at the site. Furthermore, there is criticism that the UXO survey checked to a relatively shallow depth and was of a narrow focus. It is important to recognise that the survey did not reveal any UXO, however, as a precautionary measure before and during the drilling of groundwater monitoring boreholes the area will be surveyed for UXO and it is recommended that this is attached as a condition should planning permission be granted.
210. A claim that ground borne vibrations associated with the drilling could trigger timers on unexploded bombs outside of the immediately surveyed areas has been raised. This has not been assessed in the UXO survey. Whilst vibration has not been assessed in the UXO survey it has been considered in relation to the potential impact on bats, which identified that because the boreholes will be drilled using a rotary bore there is limited potential to generate vibration and it would not be expected to extend beyond the footprint of the temporary works. Given that the borehole locations would be surveyed for the presence of UXO both before and during construction, it is considered unlikely that ground borne vibration could trigger timers on unexploded bombs outside of the immediately surveyed areas.

211. The Health and Safety Executive has commented that these boreholes are not being drilled for oil or gas exploration and, as such, HSE specific regulations would only apply if the boreholes are greater than 30m in depth and within 1km of a mine, in which case the HSE would have to be notified. It is recommended that an informative is attached should planning permission be granted as the deepest borehole could be up to 40m in depth.
212. It has been suggested that suitable financial resources should be put in place that will pay for decontamination of the aquifer if actions do result in pollution. Following extensive consultation, the MPA is of the view that the proposed development would not result in contamination of the aquifer.

Flood Risk

213. The proposed development site is located within an area defined as Flood Zone 3, which means that there is a risk to the site of a 1 in 100 year flood event (1% annual exceedance probability – AEP). As such, the planning application is supported by a Flood Risk Assessment (FRA). The FRA considers the risk of flooding from the River Idle, the Internal Drainage Board system, tidal, artificial waterbodies, groundwater, sewers and pluvial sources.
214. With regard to the River Idle as the site is afforded protection up to and including the 0.5% AEP flood event, the risk of flooding from the River Idle is a residual risk from overtopping and/or failure of the defences. It is assessed that it is unlikely that a breach in the River Idle flood defences would result in flooding at the application site and the residual risk is therefore considered to be low.
215. The risk of flooding from surrounding drainage ditches is assessed as low due to the 30 year standard of protection and due to the location of the site there is no risk of flooding from tidal sources. In addition, due to the absence of sewers the risk of flooding from this source is assessed as low.
216. There are artificial water bodies in the vicinity of the site, however, given the location and size of these they are unlikely to pose a flood risk to the site.
217. The submitted FRA is of the view that the risk of groundwater flooding is low having considered the records in the Bassetlaw District Council Strategic Flood Risk Assessment; the Nottinghamshire County Council Preliminary Flood Risk Assessment; the significance attached to groundwater flooding in the River Trent Catchment Flood Management Plan and the nature of the superficial deposits at the site.
218. The Environment Agency's updated flood map for surface water shows the site as being at very low risk of flooding from surface water and the proposed boreholes would be located in grassed and naturally vegetated areas. As such, the FRA states that the site is at a low risk of pluvial flooding.
219. The FRA has briefly considered the potential for the proposed development to result in flooding elsewhere. Taking into account the fact that the boreholes would have a very small footprint and that the equipment and accommodation used during the installation is mobile and would be used for a short period of time the risk of increased flooding has been assessed as low. In addition, consideration has been given to the risk of increased flooding due to climate change effects and this has been assessed as unlikely.

220. The FRA concludes that the site is at low risk of flooding from all sources, that the increased risk of flooding elsewhere is low and there is no specific need for mitigation.
221. The Environment Agency has not commented on the application from a flood risk perspective. The NCC Flood Risk Management Team has reviewed the proposed development and associated FRA and conclude that the flood risk to and from the site is low and the completed work would not appear to increase flood risk to third parties. In respect of flood risk the proposals are considered acceptable.
222. Policy M3.9 of the MLP and Policy DM2 of the New Minerals Local Plan Preferred Approach take similar positions on flooding looking to ensure that development would not result in an unacceptable impact on flood flows and storage capacity, the integrity or function of the flood defences, local land drainage system and local communities. The proposals meet the aims of these policies.
223. Policy DM12 of the BCS highlights the need for a site specific FRA for all development in flood risk areas. In addition, the policy looks to guide development to appropriate zones and ensure that there is not sequentially superior locations. This reflects the position in the NPPF which states that development can only be considered appropriate in flood risk zones if it is informed by a site-specific flood risk assessment following a sequential test and if required the exception test.
224. It is important to highlight that when applying the sequential test a pragmatic approach to the availability of alternatives should be taken and it may be impractical to suggest that there are more suitable alternatives elsewhere. In this instance, the purpose of the proposed development is to monitor groundwater at this location, so any alternative sites would not serve the purpose of the proposed development. As minerals associated development the proposal is considered to be 'less vulnerable' in terms of flood risk vulnerability classification. The exception test is not required for less vulnerable development in Flood Zone 3a. In addition, there are no elements of the proposed development that are considered more vulnerable than other elements and the level of flood risk across the application sites does not change. As such, within the site there is no opportunity for the most vulnerable development to be located in areas of lowest flood risk.
225. In light of the above, the proposed development is in accordance with Policy DM12 of the BCS and the NPPF.

Heritage

226. A cultural heritage impact assessment has been submitted as part of the planning application. This considers the impact of the proposal on designated and non-designated heritage assets and archaeology. These topics are discussed in turn.

Built Heritage

227. There is one scheduled monument, a medieval moat and fishpond, within 5km of the application site. Within the same search area there are 25 listed buildings, the closest of which is Newlands Farm (Grade II) located approximately 500m to

the north of the site. Taking into account the distance of these assets and the nature of the proposed development the applicant considers that there would be no adverse impact on the setting or historic character of these assets. The NCC Built Heritage Officer is also of the view that the impacts of the application on the setting of the nearest listed building would be neutral.

228. The planning application site is not covered by any statutory designations, however, it is considered to be a non-designated heritage asset due to its value as a cold war defence site. The site was a former Surface Air Guided Weapon site constructed in 1959/60. Maintenance and engineering buildings and Launch Control Posts have been demolished. However, the missile hardstanding for the Mark I Bloodhound missiles survive and consist of two fire units each containing 16 pads. The applicant has assessed this asset as having medium significance as a non-designated heritage asset in understanding an important part of Britain's military past.
229. In addition, located at the northern entrance to the existing L Jackson site is an air-raid shelter; the only remaining building from the World War II bombing range. The applicant has considered the potential for accidental damage due to construction traffic to be minimal due to it being set back 5-10m from the access road and is protected by metal security fencing.
230. Comments received from the public highlight the value of the site due to its former role as a Bloodhound Missile site and raise concerns that the proposed development would cause damage.
231. The location of the proposed boreholes is outside of the fire unit missile pads and would not, therefore, cause direct harm. The applicant has considered vibration damage to the missile pads and due to the use of a rotary bore the level of ground borne vibration would not cause superficial damage.
232. The applicant has highlighted the above ground physical nature of the proposed development, which would include a raised steel casing to prevent the ingress of surface water, polluting substances during heavy rainfall or flood incidents. The casing would measure approximately 1m in height above ground levels, with a further 0.5m set into a concrete plinth. Furthermore, the above ground structures would not be permanent. Overall the applicant has assessed the potential impact to RAF Misson as a whole to be minimal. The NCC Built Heritage Officer agrees with the assessment.

Archaeology

233. The applicant has acknowledged within their cultural heritage statement that there is cropmark evidence to the west of the application site which is indicative of early agricultural use of the area, and the cropmarks may extend beyond within the site and below the missile pads. This is also acknowledged by the NCC Archaeologist.
234. Concerns in relation to archaeology have been raised in responses from the public, stating that the applicant has failed to consider extensive cropmark features which suggest prehistoric activity and stating that the works (e.g. trial pits) associated with the contamination assessment may have already damaged the heritage asset and archaeology.

235. With regard to the cropmark features, the applicant has considered this and is of the view that the alterations and construction work associated with the missile base indicated that the level of archaeological deposits to survive is low. This is because the missile base did not just involve the laying down of concrete bases, but also required excavation of channels to run electrical connections along, drains and substantial depths of concrete. The NCC Archaeologist is of the view that the creation of the boreholes themselves would impact minimally in the event that any buried archaeology is encountered and has no significant concerns about the proposed development.
236. Notwithstanding the above, the NCC Archaeologist notes the comments made by the NCC Reclamation Team in relation to the need for contamination to be extracted prior to the boreholes being drilled and considers this to have the potential for impacting archaeological remains. As such, the NCC Archaeologist recommends that any areas to be excavated are subject to archaeological supervision and control, using a suitable condition. Notwithstanding this, it is noted that the recommendation for the extraction of contaminated land is limited to made ground and the proposed boreholes are located within grassed areas. Therefore, it is proposed to word such a condition requiring archaeological supervision and recording in the event that excavation is required as a result of the discovery of unexpected made ground.

Policy

237. In line with the requirements set out in paragraphs 128 and 129 of the NPPF the applicant has described the significance of the heritage assets and the level of detail is considered proportionate to understand the assets' importance and the potential impact of the proposal on their significance. Nottinghamshire's Historic Environment Record (HER) has been consulted. The NCC Built Heritage Officer in responding has considered the significance of the heritage assets to be affected, having taken account of the information submitted.
238. As set out in paragraph 131 of the NPPF it is noted that sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation is promoted. As the proposal is for groundwater monitoring boreholes there is little it can do in the way of putting the heritage assets to viable use consistent with their conservation. However, it is considered that the impact of the proposal on RAF Misson as a whole is minimal, the significance of this heritage asset would be sustained, and the proposed development would not alter the current contribution that the heritage asset makes to the area in terms of sustainability and economic vitality. Given the limited nature of the proposed development it would have no positive or negative contribution to local character and distinctiveness. In this regard the Minerals Planning Authority has taken account of the requirements for consideration set out in paragraph 131 of the NPPF.
239. The NPPF requires consideration to be given to the effect of an application on the significance of a non-designated heritage asset and a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset. In this case the significance of the asset is medium and the harm is minimal and should not be a reason to prevent development.

240. With regard to archaeology the applicant has given sufficient consideration to archaeology within their desk based assessment, in line with paragraph 128 of the NPPF.
241. Policy M3.24 of the MLP looks to protect nationally important archaeological remains and their setting, whether scheduled or not. Planning permission will only be granted for development which would impact upon archaeological remains of less than national importance where it can be demonstrated that the importance of the development outweighs the regional or local significance of the remains. Given that the proposed boreholes themselves would impact minimally in the event that any buried archaeological is present, the proposed development is in accordance with the policy.
242. Policy DM8 of the BCS states that there will be a presumption against development that would be detrimental to the significance of a heritage asset. Attention is also drawn to the setting of heritage assets and proposals that fail to preserve or enhance the setting of a heritage asset will not be supported. The proposal would have no direct impact on the missile pads and any impact on potential archaeology would be minimal. Consideration is had to the impact of the above ground structures associated with the boreholes on the setting of the missile pads and there would be no significant impact taking into account the scale, design, materials, siting and views. Furthermore, the structures would be temporary. As such, the proposal is in accordance with Policy DM8.
243. Policy DM6 of the new MLP Preferred Approach Document provides support where the importance of the development outweighs the significance of any regionally or locally important designated or non-designated heritage assets that would be directly or indirectly affected by the development. Taking into account the level of significance attached to the missile pads as a heritage asset; the temporary impact; the insignificant nature of the visible element of development; and the importance of enabling groundwater monitoring identified in the (DCLG) published consultation response, the proposed development is assessed as outweighing the significance of the missile pads as a non-designated heritage asset.

Noise

244. The proposed development involves the drilling of up to 12 boreholes, across four separate locations (up to three in each location) on land off Springs Road near Misson. The drilling would be undertaken using a truck mounted drill rig, likely to be a Dando Watertec 9000 or equivalent.
245. The drilling of the boreholes would take up to eight weeks in total, with drilling taking two weeks in each of the four locations. Works would be confined to the daytime period between 07:00 to 19:00 and no works would take place on weekends or public holidays.
246. The nearest residential property is Misson Springs Cottage which is approximately 30m south of the nearest proposed borehole, adjacent to the access off Springs Road. This property is unoccupied and is within the control of the applicant. As such, the applicant has not considered this property as a sensitive receptor. The next nearest residential property is located off Springs Road adjacent to Levels Farm, approximately 155m to the north of nearest borehole located adjacent to the access road. However, it is noted that the

planning application boundary extends slightly closer to the property, with the distance being approximately 130m.

247. The daytime energy average noise level ($L_{Aeq, 12h}$) generated by the drilling work falls within the range of 47 to 50 dB(A). The applicant has identified that the highest measured noise level from the proposed rig would be 91 dB(A) at a distance of 7m. The applicant has extrapolated this to the nearest occupied receptor 155m to the north (taking no account of air absorption, ground absorption, or the potential for screening) and this results in the worst case predicted noise level being 64 dB(A).
248. Once constructed there would be no perceptible noise associated with the monitoring boreholes.
249. The NCC Noise Engineer has considered the submitted information and noted that the applicant has assessed the noise generated by the drilling in line with British Standard 5228-1 (Code of Practice for noise and vibration control on construction and open sites). In this regard, the noise level for which a significant effect is deemed to have occurred is 65dB. The proposed development has been assessed as generating a level of 64dB(A) and is therefore below the threshold of 65dB. Reference is also made to the NPPF technical guidance which makes allowance for temporary mineral operations (for a maximum of 8 weeks in a calendar year) of up to 70dB. The NCC Noise Engineer is satisfied that the short duration and temporary nature of the works allows the proposed development to comply with this guidance subject to conditions relating to hours of drilling works and noise emissions from the rig not exceeding 91dB(A) at a distance of 7m. The Bassetlaw Environmental Health Officer (EHO) has raised no concerns relating to noise but suggests that the hours of working are those suggested, or 08:00 to 18:00 Monday to Friday and 08:00 to 13:00 Saturdays with no working on Sundays or Bank Holidays.
250. A series of noise related concerns have been raised in public representations including the general noise generated by the works and traffic; the proposed working hours being unacceptable, with a later start of 08:00 being suggested. Whilst these concerns are noted, the noise levels are considered acceptable, and the proposed working hours are in line with normal working hours set out in Planning Practice Guidance.
251. Public representations have also raised concern about Misson Springs Cottage being excluded from the assessment. It is acknowledged that drilling would take place approximately 30m from this property for a period of two weeks and, whilst no modelling of noise at this property has been undertaken, it is considered likely that noise levels would exceed the 65dB(A) threshold and potentially also the 70dB(A) threshold.
252. However, the fundamental reason for these noise thresholds is to protect public amenity. It is human sensitivity that is of concern, rather than noise levels affecting the property itself. Therefore, it is a material consideration of considerable significance that the property is currently unoccupied and is unlikely to be occupied for the duration of the proposed development, given the control that the applicant has over it. A condition could be used to ensure that there would be no occupation of Misson Springs Cottage for the duration of the drilling of the nearest borehole and this would ensure that it is not a noise sensitive property.

253. It is noted that the closest properties are approximately 155m from the indicative borehole location adjacent to Misson Springs Cottage. However, the nearest point of the red-line boundary is closer at 130m. It is therefore recommended that a condition is attached to ensure that no borehole is drilled within 155m of any sensitive receptor.
254. Paragraph 144 of the NPPF states that when determining planning applications planning authorities should ensure that any unavoidable noise is controlled, mitigated or removed at source, and appropriate noise limits for extraction in proximity to noise sensitive properties are established. The PPG (Reference ID: 27-022-20140306) identifies that certain types of operations may give rise to particularly noisy short term activities and allows increased temporary daytime noise limits of up to 70dB(A) for periods of up to eight weeks within a year. The proposed drilling of the boreholes is such a short term activity and the appropriate noise limit is therefore 70dB(A).
255. In light of the above, the proposed development would be within acceptable noise limits for temporary operations and is in accordance with Policy M3.5 of the MLP and DM1 of the new MLP Preferred Approach Document which both look to ensure that minerals development do not result in unacceptable noise levels.

Air Quality

256. There have been some concerns raised in representations made by the public that the proposed development would result in general amenity impacts including air pollution.
257. Taking account of background air quality Bassetlaw District has no Air Quality Management Areas (AQMA). An exceedance of statutory air quality objectives has been identified in the most recent 2013 progress report although this was in Worksop.
258. A generator would be required to drill the boreholes and this would result in some emissions being released. However, the level of emissions is not considered to be significant and would be comparable to other activities in the wider area such as the operation of farm equipment or dewatering pumps at sand and gravel quarries. Furthermore, the activities would be limited to eight weeks. It is of note that the Bassetlaw EHO has raised no concerns in relation to air quality or emissions.
259. There is the potential for dust to be generated as drilling takes place and from vehicle movements. Mitigation measures can be used to suitably address dust generated by drilling, such as water misting, and it is recommended that a condition is attached to control dust. Given the low number of vehicle movements it is considered that dust associated with this would be negligible.
260. The applicant has also considered the potential impact of emissions on the Misson Training Area SSSI and is of the view that there would be no significant impact. No concerns in this regard have been raised by Natural England. The applicant's position is agreed with.
261. Concern has been raised in consultation responses regarding odour. The drilling of groundwater monitoring boreholes is not expected to generate any perceptible odour at sensitive receptors.

262. Taking account of the relatively low level of emissions and dust, short duration of the operations, the potential mitigation measures and the sensitivity of the area it is considered that there would be no significant cumulative air quality or dust impact associated with the proposal.
263. Policy M3.7 of the MLP states that planning permission will only be granted for minerals development where dust generation would not lead to an unacceptable impact. In addition, Policy DM1 of the new MLP Preferred Approach Document states that proposals will be supported where it can be demonstrated that any potential adverse impacts upon amenity associated with air emissions or dust are avoided and/or mitigated to an acceptable level. The proposed development is in accordance with these policies.
264. In accordance with Paragraph 120 of the NPPF the effects (including cumulative effects) of air quality and dust on health, the natural environment and general amenity, and the potential sensitivity of the area and the proposed development to adverse effects from air quality and dust, have been taken into account.

Landscape and Visual Impact

265. The visual elements of the proposed development would be the aboveground protective steel casing around the boreholes, the drilling rig and the welfare accommodation.
266. The drill rig would be the largest element of the proposed development and is likely to have a 5.5 metre working mast height.
267. The applicant has provided details of two welfare accommodation units. The Groundhog welfare unit measures 3.6m by 2m and 2.4m in height. The Eden welfare unit measures 7.3m by 2.7m and 2.6m in height. Both units are coloured yellow.
268. The protective steel casing would surround the uPVC borehole casing and would measure approximately 1m in height above ground level, with a further 0.5m set into a concrete plinth and would have an approximate 14" diameter. The casing would be painted to protect the steel and aid with identification.
269. Some of the objections to the proposed development have been based on the landscape and visual impact that the proposals would have, stating that the proposed development would be unsightly and would amount to an industrialisation of the countryside and the overuse of the site for commercial purposes. There have also been concerns raised in relation to light pollution from the proposal.
270. Three of the four sets of boreholes are located within the rear (east) of the L Jackson site. Activities in this location benefit from screening from Springs Road by a series of large industrial buildings approximately 9 metres in height. These borehole locations are screened to the north and west by planting and tree belts and to the south is land used for vehicle and equipment storage associated with the L Jackson site. It is highly unlikely that any element (borehole casing, drill rig or welfare unit) of the proposed development associated with these three boreholes would be visible from outside of the L Jackson site. If any views were possible it would be passing views through trees for a temporary six week period, set in the context of industrial buildings and vehicle/plant storage and not

from publicly accessible locations. As such, the visual and landscape impacts of these elements of the proposal are considered to be negligible.

271. There is a proposed borehole location adjacent to Springs Road. At this location the drill rig and welfare accommodation would be visible by those using the highway. The drill rig and welfare unit are not in keeping with the wider countryside character, although, they would be viewed in the context of the large industrial buildings. In this regard, there would be a minor visual and landscape impact. This impact would be temporary, lasting no more than two weeks. The borehole casing once constructed would have no perceptible visual or landscape character impacts on the wider area from this location, and would be removed when no longer required.
272. The NCC Landscape Team raise no objection to the proposed development.
273. The NPPF promotes good design and at paragraph 64 states that permission should be refused for development of poor design that fails to take the opportunities available for improving the character and quality of an area and the way it functions. Given the utilitarian nature of the boreholes and the equipment used to construct them, there is little room for high quality design. However, neither do the proposals amount to poor quality design, they are simply functional. Therefore, there is no conflict from a design perspective.
274. Paragraph 125 of the NPPF also encourages good design and requires decisions to limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation. The proposed hours of working are 07:00 to 19:00, therefore, there would be little need for artificial light other than in winter months. The use of artificial light in this location, for a temporary period, and no later than 19:00, would not cause significant amenity impacts.
275. Policy M3.3 of the MLP states planning permission will only be granted where any visual intrusion will be kept to an acceptable level. In addition, Policy DM1 of the new MLP Preferred Approach Document states that proposals for mineral development will be supported where it can be demonstrated that any potential adverse impacts on amenity associated with visual intrusion and lighting are avoided or mitigated to an acceptable degree. The proposed development is in accordance with these policies.

Traffic

276. The site would be accessed from the established highway access off Springs Road, adjacent to Misson Springs Cottage.
277. The drill rig would remain at the site overnight during the course of the drilling. As such, there would be two vehicular movements associated with the rig; one at the start of the operations and a second eight weeks later when works are complete. The applicant also highlights that there would be occasional HGV movements associated with the removal of drill cuttings and water. Whilst it is dependent on the exact depth of the boreholes it is expected that approximately four large skips containing waste would be removed from site for disposal. There would also be occasional staff movements by car or van.
278. Traffic impacts associated with the proposal has been highlighted in a number of consultation responses from the public. Specific concerns relate to the

surrounding roads being unsuitable for HGVs with a risk of injury to other road users; a narrow bridge and level crossing where there has historically been a collision; and that Springs Road has been closed for maintenance in the past, which would result in vehicles having to pass through Misson.

279. Whilst public concerns relating to HGVs are noted, the route northward on Springs Road and then heading west to Blaxton Roundabout on Bank End Road is a two lane carriageway capable of accommodating HGVs. Indeed, large military vehicles and equipment are transported to and from the L Jackson site. There is a 'pinch point' where Springs Road becomes single carriageway for a short period as it crosses a drainage ditch, however, the road is straight and views of oncoming traffic are clear. The level crossing is also noted, but does not prevent HGV from passing along Springs Road. The NCC Highways Team have been consulted on the planning application and are of the view that the proposed development is unlikely to have any material implications on the local highway network. However, it is recommended the routing of lorries avoids Misson.
280. Concerns have been raised relating to the route that HGVs would take, highlighting Misson village as an unsuitable route but also drawing attention to previous closures of Springs Road which would leave no other option. In addition, the NCC Highways Team has recommended that lorry routing avoids Misson. Doncaster Metropolitan Borough Council does not consider there to be any significant adverse impacts on Doncaster from these proposals.
281. It is noted that work to the Springs Road bridge adjacent to the level crossing is proposed by Network Rail and will result in the temporary closure of Springs Road. Network Rail have indicated that the works are proposed to take place between April and July, although these dates are not confirmed and a road closure application has yet to be made.
282. Whilst the exact dates of the proposed work are unknown, it is unlikely to overlap with the proposed works noting that there would be no drilling during the bird breeding season, which also covers this period. However, if the bridge works were to overlap with the proposed groundwater monitoring borehole construction period there would be no route available to HGVs other than through Misson. To prevent HGVs passing through Misson it is recommended that a condition is attached that prevents HGV movements to and from the site when Springs Road is closed.
283. In addition, it is recommended that a condition is used to ensure route instructions are issued to all drivers to avoid the village of Misson and that HGVs shall only turn left to enter, and right to exit, the site. Consideration has been given to the use of a Section 106 legal agreement to secure appropriate vehicle routing, but such an approach is disproportionate taking into account the low numbers of HGVs generated by the proposed development and the short duration.
284. The proposed development involves borehole drilling rather than extensive extraction of mineral or soil stripping; the likelihood of mud or deleterious material being transferred to the public highway is low. In addition, the proposals are no more likely to result in damage to the highway than other commercial or agricultural activities in the wider area. The proposed development is therefore in accordance with Policy M3.12 of the MLP and emerging policy DM9 of the

new MLP Preferred Approach Document which seeks to prevent highway damage and mud from contaminating the highway.

285. The surrounding highway network is capable of accommodating the level of vehicles generated by the proposal. As such, the proposed development is in accordance with Policy M3.13 of the MLP and DM9 of the new MLP Preferred Approach Document which both relate to vehicular movements.
286. It is noted that Paragraph 32 of the NPPF provides further advice in relation to transport stating that development should only be prevented or refused on transport ground where the residual cumulative impacts of development are severe. As such, there are no reasons to prevent or refuse the proposed development on transport grounds.
287. It is recommended that conditions are used to ensure that HGVs associated with the proposed work do not pass through the village of Misson. The use of such conditions is in accordance with Policy M3.14 of the MLP and would help to ensure that the proposed development does not cause an unacceptable impact on local amenity in line with Policy M3.13 of the MLP and DM9 of the new MLP Preferred Approach.

Location and Depth of the Boreholes

288. The applicant has set out the reason for the location and depths of the boreholes. The proposal includes four sets of boreholes:
 - a) Four deep boreholes to target the bedrock Nottingham Castle Sandstone Formation;
 - b) Four shallower boreholes to target a superficial sand and gravel horizon or isolated shallow bedrock sandstone/weathered sandstone horizon;
 - c) Four very shallow boreholes (up to 3m deep), which would only be drilled in the event that an additional distinct water body is encountered which may be isolated from the superficial water body by marl or clay.
289. The applicant states that the depth of the boreholes are specifically targeted to gather information on the existing location, nature and depths of water bearing strata; gather information on water levels and piezometric pressures that exist within the water bodies; and gather information on the baseline range of water quality variation within these water bodies.
290. The proposed depths to be drilled are indicative estimates based upon the known depths and nature of geological conditions at the site from other boreholes in the area, geological mapping and the known structural dip of the Triassic strata that forms the bedrock of the underlying Misson site. As such, the exact depth of the holes and horizons to be monitored would be established during the investigative work although plans indicate the deepest borehole would be between 20-40 metres in depth. The anticipated geology and the three proposed boreholes are detailed in Plan 3.
291. Whilst Plan 3 details the geology to a depth of 40m which mainly comprises the Triassic sandstone aquifer, the applicant notes that the base of the Triassic sandstone aquifer that underlies the site has been proven to be over 300m deep. However, it is stated that the boreholes are designed to monitor shallow

groundwater. The applicant indicates that shallow groundwater would be monitored rather than that at a greater depth because that part of the aquifer is the zone of active groundwater circulation and also most vulnerable to contamination. Monitoring at this depth is said to allow characterisation of shallow groundwater and detection of potential impacts on groundwater quality associated with possible future development at the site. It is reported that deeper groundwater in the Permian and Carboniferous strata which underlie the Triassic Sandstone aquifer can be both saline and non-potable and isolated from the near-surface environment and does not therefore require monitoring. A greater depth of geology underlying the site is detailed on Plan 5.

292. The position of the boreholes is to provide triangulation of groundwater flow and direction and to monitor the down gradient side of the compound. However, the precise direction of groundwater flow under the site through the different water bodies cannot be known until the boreholes have been drilled, surveyed and groundwater levels measured.
293. Notwithstanding the above justification, a number of representations from individuals and organisations have questioned the adequacy of the location and depths of the proposed groundwater monitoring boreholes.
294. The Environment Agency explicitly states they have no objection in principle to the groundwater monitoring boreholes, but do note that the Cadeby Formation Dolostone (Principal Aquifer – referred to on Plan 5 as Lower Magnesian Limestone) is expected to be separated from the Nottingham Castle Sandstone by the Upper or Middle Permian Marl and, as such, any future operations such as the construction of an exploratory well site should not have an unacceptable effect on groundwater including that in deep formations. Therefore, consideration should also be given to obtaining baseline groundwater quality data for the Cadeby Formation Dolostone. Whilst the applicant provided further justification for the proposed location and depth of the boreholes the Environment Agency maintained their view that it would be prudent to monitor deeper sandstone and deeper groundwater monitoring to ensure that any unacceptable impacts are identified before an impact is identified at a receptor such as a potable water supply. It is also highlighted that deeper groundwater monitoring may be a requirement if future activities at the site require permits from the Environment Agency.
295. Yorkshire Water note that the proposed development is outside of their operational area, although it is on the edge of the Source Protection Zones (SPZ) for two of their water production boreholes. In this respect they have questioned the depth of the proposed boreholes, noting that the Sherwood Sandstone Group is approximately 200m thick and the Yorkshire Water boreholes are between 144 and 175m deep. It is highlighted that inflows are distributed over the length of the boreholes and it is suggested that to provide data for the productive part of the aquifer the deep monitoring boreholes extend to a minimum of 150m below ground level.
296. Yorkshire Water have considered the additional information provided by the applicant regarding the depth and location of the proposed boreholes. Nevertheless, they reiterate that geophysical logging from their existing boreholes shows inflows from 160 to 40 metres below ground level (bgl), and it is suggested that at least one of the monitoring boreholes extends 100m bgl. It is indicated that the risk to the aquifer is from both surface activity and failure of

well case integrity and without data from the bulk of the actively flowing interval of the aquifer it would be difficult to establish the nature and scale of a leak into the aquifer, if this were to occur. It is recommended that a borehole that samples the whole of the groundwater flow zone should be a condition of the planning permission in the interests of protection of the public water supply.

297. Misson Parish Council has commissioned Emeritus Professor David Smythe (formerly of Glasgow University) to look at the adequacy of the proposed boreholes to provide confidence and comprehensive data on the protection from contamination of the minor and principal aquifers. Professor Smyth has recommended three deep boreholes (approximately 1500 metre in depth each) penetrating to the Millstone Grit Formation. It is recommended that one of the deep boreholes is 1-1.5km west of the drill site, where it is anticipated the horizontally deviated fracked well in the Bowland Shale would be. It is recommended that the second and third boreholes are to the north-east and south-east of the site and approximately 1km (radially) away from the main drill pad site.
298. The applicant has sought to justify the positioning and depths of the proposed boreholes. As detailed above numerous parties have questioned the adequacy of the monitoring boreholes proposed and their ability to provide a comprehensive baseline. Notwithstanding this, it is important to note that the Environment Agency and Yorkshire Water do not object to the groundwater monitoring that is proposed, but suggest that this monitoring is undertaken and monitoring at deeper levels.
299. The questioning of whether the boreholes would provide a full baseline picture by various organisations has not gone unnoticed. However, it is fundamental to highlight that applications should be assessed on their own merits alone and not on that which may be subject to an application in the future. In addition, it is vital to draw a distinction between the roles that different regulatory bodies play.
300. The NPPF makes it clear that local planning authorities should focus on whether the development itself is an acceptable use of the land, and the impact of the use, rather than the control of processes or emissions themselves where these are subject to approval under pollution control regimes (paragraph 122).
301. It may be the case that additional/deeper monitoring boreholes would be needed should exploratory shale gas drilling takes place at Springs Road, Misson and it is understood that the applicant is in discussion with the Environment Agency regarding this. However, that is not what is being assessed in this application and, ultimately, Nottinghamshire County Council is not responsible for assessing whether the number/depth of boreholes is acceptable for their intended purpose, that is the role of the Environment Agency. If the Environment Agency do decide that additional and/or deeper boreholes are necessary, that does not make the ones that are under consideration now, unacceptable. The responsibility of the MPA is to consider whether the boreholes that are proposed are an acceptable use of the land and any associated impacts of that use.
302. In summary, the groundwater monitoring boreholes proposed are acceptable. Whilst there may be a need for additional and/or deeper monitoring boreholes, this is not a reason for those proposed thus far to be refused.

Restoration

303. The monitoring of the boreholes would take place for at least 12 months, but may be required for a longer period, depending on the outcome of development subject to a separate planning application (i.e. the application for exploratory shale gas drilling at Springs Road, Misson).
304. The applicant states that when the boreholes are no longer required the headworks and uppermost 0.5m of casing would be removed from each borehole and the boreholes themselves would be backfilled, in accordance with Environment Agency guidelines. In addition, the surrounding areas would be reinstated to their original condition.
305. Concern has been raised in public representations that the application does not make it clear what would happen to the monitoring boreholes if future associated development does not take place (i.e. exploratory drilling and hydraulic fracturing). However, the applicant's restoration proposals do make this clear that the site would be restored to its original condition and details are set out in Paragraph 22 of this report.
306. Notwithstanding the above, while the boreholes are temporary in nature, what is not clear is the length of time that they would be needed for and when any restoration would take place. This is of note, as Paragraph 144 of the NPPF states that authorities should provide for restoration and aftercare at the earliest opportunity. The difficulty is giving a time period when the earliest opportunity for restoration would be, given that it would depend on the progress of other development.
307. Note has been taken of DCLG's August 2015 consultation document for amendments to permitted development rights for drilling boreholes for groundwater monitoring for petroleum exploration. Within this document it is proposed such boreholes are allowed for a period of 24 months under permitted development rights. Given that explicit planning permission is being sought for these boreholes it is considered reasonable to go beyond a 24 month period. A temporary period of 5 years is considered appropriate taking into account the negligible impacts once installed and the benefits that any monitoring data would have for Natural England in helping to understand the way the SSSI is fed from groundwater. This time period would also be sufficient to provide monitoring prior to, during and post any future exploratory works which may be permitted, however, this is not considered a justification for a condition limiting the proposed duration.
308. This approach is considered in line with the NPPF which requires local planning authorities to provide for restoration and aftercare at the earliest opportunity to be carried out to high environmental standards, through the application of appropriate conditions, where necessary. A condition would be used to ensure restoration after this period to the site's original condition. No restoration or aftercare scheme is considered necessary given the small area, the fact that restoration would be to existing conditions as set out in the application and the low biodiversity value of the site.
309. Policy DM11 requires the after-use of the site to have regard to the wider context of the site, in terms of the character of the surrounding landscape and historic environment and existing land uses in the area. In restoring the site back

to its original condition the restoration would appropriately respect the wider context of the site.

Other Material Considerations

310. Concern has been raised in some consultation responses about the overuse of water. It is acknowledged that some water may be used in the drilling process. However, water is likely to only be needed for shallow drilling (i.e. above the Sherwood Sandstone which is anticipated to be saturated) which would require a wheeled bowser with a 1,000 litre capacity supplied with mains water. This is not considered to be of a significant quantity and would not put unacceptable pressure on water resources.
311. Some of the objectors have reasoned that there will be no long term economic benefits to the proposed development. The absence of economic benefits is not a material consideration that weighs against the proposed development.
312. An adverse impact on tourism has been raised in a number of objections. Impacts on tourism can be a material consideration in the determination of planning applications. In this case, the groundwater monitoring boreholes themselves are unlikely to have any perceptible impact on tourism. However, it is acknowledged that the perception of future associated development may have some, albeit unquantified, impact on tourism. The weight attached to this is negligible.
313. An objection has been raised on a technical matter, noting that each of the proposed borehole sites form individual planning application boundary parcels. It is stated that each site should be registered as a separate entity and the applications should have been made separately. However, Planning Practice Guidance (Ref ID: 22-017-20141017) states if a proposal is for carrying out alteration or works to the same type of existing structure in many locations across a wide area, the local planning authority may accept plans where the area is enclosed by a blue (or, if not owned by the applicant, other coloured) line, and each small works site within that line is ringed or marked out in red. This would be the case for applications for non-domestic scale solar or wind farms.
314. Robin Hood Airport has raised no objection. This is on the basis of a drill rig with a height of 5.5m. However, it is recognised that the exact drill rig to be used has yet to be finalised. As such, it is recommended that a condition is attached limiting the height of the drill rig to no more than 10m, as any cranes or other tall equipment above this height within 6km of the airport must receive prior permission and a Crane Authorisation Permit from the airport.
315. The issue of cumulative impact has been raised in relation to other sites in the wider area, including Tunnel Tech, a mushroom substrate company; sand and gravel quarrying; and a proposed solar farm. This has been considered and no unacceptable cumulative impacts are deemed to result from the proposed development.
316. Objection has been raised that the proposal would serve to ignore commitments under Climate Change Act 2008 to dramatically reduce dependence on fossil fuel and develop renewable options. In addition, it has been raised that the proposal would not meet the objectives laid out in the Nottinghamshire's

Sustainable Communities Strategy 2010-2020 which are a greener Nottinghamshire; a place where Nottinghamshire's children achieve their full potential; a safer Nottinghamshire; health and well-being for all; a more prosperous Nottinghamshire; and making Nottinghamshire's communities stronger. The development of groundwater monitoring boreholes is not the extraction of fossil fuels, would not prevent the development of renewable options and does not conflict with the objectives laid out in the Nottinghamshire's Sustainable Communities Strategy 2010-2020.

317. The request that the planning application should be put before the planning committee has been met with the application meeting the criteria for being determined by Planning and Licensing Committee.
318. It has been requested that testing is carried out by a separate impartial body and that it is done every three months for a minimum of 12 months prior to exploratory drilling. The applicant has made it clear that the monitoring would take place for a minimum of 12 months. However, the body undertaking the monitoring, the regularity of the monitoring and whether this is 12 months prior to exploratory drilling or other activities is the responsibility of the Environment Agency.
319. It is requested that test results are made public. The results of the monitoring are not part of the regulatory function that the planning authority exercises and the decision on whether such data is publicly available is not for Nottinghamshire County Council to make.
320. Concern has been raised by Hatfield Town Council, via Doncaster MBC, about potential impact on the gas storage field at Lindholme. The Control of Major Accident Hazard Regulations are the primary means by which the Health and Safety Executive monitor the ongoing safety of this development. The HSE have been consulted on the proposed development and do not raise any concerns.
321. The proposal will not result in loss of, or damage to, any aged or veteran trees within the application site. There would be no perceptible indirect adverse impacts to aged or veteran trees outside of the application site.

Other Issues

322. Many of the public representations to this application have objected for reasons linked to fracking. Fracking forms no part of this application and the proposals have been assessed on their own merits.
323. Another topic that was included in many consultation responses was that of predetermination, with it being suggested that these boreholes will only be necessary if permission is granted for exploratory drilling and fracking and therefore determination of this application would amount to pre-determination of a future fracking application. This is not the case and the application that has been submitted for shale gas exploration at Spring Road, and any future application that may be submitted to the MPA for hydraulic fracturing, will be fully assessed on the contents of those applications. Approval of this application will not prejudice the MPA's ability to determine future applications.
324. Attention has been drawn, in consultation responses, to Lancashire County Council which considered monitoring boreholes at the same time as their

fracking applications. Note is taken of the many references to Lancashire County Council considering monitoring applications at the same time as their main application for hydraulic fracturing. However, note should also be had to North Yorkshire County Council which considered, and approved, a stand-alone application for groundwater monitoring boreholes in September 2015. The difference in methods by Lancashire and North Yorkshire County Councils were shaped by the way that the respective developers chose to approach the monitoring applications.

325. It has been suggested that this application has been submitted now to speed up the process. The application may have been submitted separately to speed up the point at which monitoring can take place, but this is not an unreasonable approach to take, particularly in the knowledge that Government is changing permitted development rights so as to allow groundwater monitoring to take place at an early stage.
326. Some objectors have raised concern about the performance of IGas and other oil and gas operators (including Dart Energy which have been purchased by IGas), claiming that they have not always complied with planning regulations or permissions. However, this application has been assessed on the basis of the proposed development and a company's previous performance is not a basis for making planning decisions.
327. Some objections have been made on the basis that profits would go to a fossil fuel industry at expense of communities. Where any profits go is not a consideration in the determination of a planning application. In addition, the activity that these boreholes would enable (i.e. groundwater monitoring) is not a profit generating activity.
328. Concern has been raised that the industry is not regulated and that government does not have the resources to monitor the safety of processes. In contrast, one letter of support is of the view that the proposed drilling would be suitably managed and monitored. This planning application demonstrates that the installation of these groundwater monitoring borehole is being regulated. In addition, the Environment Agency has provided guidance on the construction of such boreholes and would be involved in reviewing the results of the monitoring.
329. Objections have been raised in relation to the loss of property value in the surrounding area. This is not a material consideration in the determination of planning applications.
330. There has been criticism of the planning process with claims that information has been submitted last minute, members of the public have not been given sufficient time to respond and the community liaison group set up by IGas has not been informed of the submission of additional information.
331. In answering these comments, additional information has been submitted to the MPA twice (18th September and 19th November 2015), both in response to requests made by the County Council. In each case the County Council has re-consulted the relevant organisations and re-opened the application for public comment for a minimum of two weeks, meeting its statutory obligations. The MPA has also gone beyond normal procedural requirements, releasing press statements, updating the NCC shale gas and fracking latest news website and posting social media notifications. The MPA make no comment on whether IGas

notified the CLG of additional information or not, but notes that there is no statutory requirement to do so and it has no bearing on the determination of the application.

332. It has been suggested that more time is needed for the community to discuss the ramifications and make educated decisions on this application. The application was received on the 16th July 2015 and the time scale for determination has been extended, with the agreement of the applicant, to 22 January 2016. There have been three rounds of public consultation. The MPA is of the view that sufficient time has been allowed for the community to consider and make representations on this application.

333. Some representations have been received supporting the proposal as there is a need to exploit all resources for energy needs and secure provision of a home grown energy source. This proposal is for monitoring boreholes and would achieve neither of these reasons for support.

Conclusions

334. Planning permission is sought for the installation of groundwater monitoring boreholes in four separate locations and the siting of mobile staff welfare facilities on land off Springs Road Misson.

335. The Development Plan does not contain any specific policies in relation to groundwater monitoring boreholes and is therefore considered to be 'silent'. In line with the NPPF, where the development plan is silent planning permission should be granted unless any adverse impact of doing so would significantly and demonstrably outweigh the benefits. The Government has clearly identified the benefit of groundwater monitoring through their intention to make such proposals permitted development.

336. There is also broad support for the proposal in Policy DM3 of the Bassetlaw Core Strategy (BCS) which supports the re-use of previously developed land in rural areas. The proposal meets the relevant criteria in that the site has not naturally regenerated to the extent that it is of biodiversity value; it requires a rural location; and would not create significant or exacerbate existing environmental or highway safety problems.

337. The site is close to the Misson Training Area SSSI. The development would have no adverse impact on the SSSI and is in accordance with Policy M3.19 (Sites of Special Scientific Interest) of the Nottinghamshire Minerals Local Plan (MLP). There would be no direct or indirect adverse impacts on integrity or continuity of habitats or features identified as priorities in the UK and/or Nottinghamshire Local Biodiversity Action Plan. The development is therefore in accordance with Policies M3.17 (Biodiversity) of the MLP and DM9 (Green Infrastructure; Biodiversity & Geodiversity; Landscape; Open Space and Sports Facilities) of the BCS. In addition, the development would not have unacceptable impacts on protected species.

338. The proposed development would not result in an unacceptable risk to groundwater, surface water and human health (from contamination or UXO) and the development is in accordance with Policy M3.8 (Water Environment) of the MLP and emerging policy DM2 (Water Resources and Flood Risk) of the MLP Preferred Approach Document.

339. The proposed development site is located within an area defined as Flood Zone 3, which means that there is a risk to the site of a 1 in 100 year flood event. The proposal meets the aims of Policy M3.9 (Flooding) of the MLP and Policy DM2 of the New Minerals Local Plan Preferred Approach which look to ensure that development would not result in an unacceptable impact on flood flows and storage capacity, the integrity or function of the flood defences, local land drainage system and local communities.
340. Policy DM12 (Flood Risk, Sewerage and Drainage) of the BCS highlights the need for a site specific FRA for all development in flood risk areas. In addition, the policy looks to guide development to appropriate zones and ensure that there is not sequentially superior locations. This reflects the position in the NPPF which states that development can only be considered appropriate in flood risk zones if it is informed by a site-specific flood risk assessment following a sequential test and if required the exception test. A site specific flood risk assessment has been undertaken and the sequential and exception tests have been considered in the assessment of the application. The development is in accordance with Policy DM12 of the BCS and the NPPF.
341. The development would not have an unacceptable impact on heritage or archaeology and is therefore in accordance with Policies M3.24 (Archaeology) and M3.25 (Listed Buildings, Conservation Area, Historic Battlefields, and Historic Parks and Gardens) of the MLP; DM8 (the Historic Environment) of the BCS; and DM6 (Historic Environment) of the new MLP Preferred Approach Document.
342. In light of the above, the proposed development would be within acceptable noise limits for temporary operations and is in accordance with Policy M3.5 (Noise) of the MLP and DM1 (Protecting Local Amenity) of the new MLP Preferred Approach Document which both look to ensure that minerals development do not result in unacceptable noise levels.
343. Policy M3.7 (Dust) of the MLP states that planning permission will only be granted for minerals development where dust generation would not lead to an unacceptable impact. In addition, Policy DM1 of the new MLP Preferred Approach Document states that proposals will be supported where it can be demonstrated that any potential adverse impacts upon amenity associated with air emissions or dust are avoided and/or mitigated to an acceptable level. The proposed development is in accordance with these policies.
344. Visual impacts associated with the development would be within acceptable levels. As such, the development is in accordance with Policies M3.3 (Visual Intrusion) of the MLP; and Policy DM1 of the new MLP Preferred Approach Document.
345. The surrounding highway network is capable of accommodating the level of vehicles generated by the proposal. As such, the development is in accordance with Policy M3.13 (Vehicular Movements) of the MLP and DM9 (Highway Safety and Vehicular Movements/Routeing) of the new MLP Preferred Approach Document which both relate to vehicular movements.
346. A number of organisations have questioned whether the proposed boreholes would provide a comprehensive baseline picture of the local water environment. It may be the case that additional/deeper monitoring boreholes would be

needed should exploratory shale gas drilling takes place at Springs Road, Misson. However, that is not what is being assessed in this application and, ultimately, Nottinghamshire County Council is not responsible for assessing whether the number/depth of boreholes is acceptable for their intended purpose, that is the role of the Environment Agency. This approach is in accordance with the NPPF which states that local planning authorities should focus on whether the development itself is an acceptable use of the land, and the impact of the use, rather than the control of processes or emissions themselves where these are subject to approval under pollution control regimes.

347. When no longer needed the proposed development would be restored. It is recommended that a condition is used to secure the submission of restoration proposals and this would be in accordance with the NPPF.
348. In line with the above, the proposed development is in accordance with the relevant parts of the development plan. In line with the NPPF there are no adverse impacts that would significantly and demonstrably outweigh the benefits of the proposal. There are no material considerations which indicate that the development should be made other than in line with the development plan. Therefore, it is recommended that planning permission is granted subject to the conditions section out in Appendix 1.

Other Options Considered

349. The report relates to the determination of a planning application. The County Council is under a duty to consider the planning application as submitted. Accordingly no other options have been considered.

Statutory and Policy Implications

350. This report has been compiled after consideration of implications in respect of finance, the public sector equality duty, human resources, crime and disorder, human rights, the safeguarding of children, sustainability and the environment, and those using the service and where such implications are material they are described below. Appropriate consultation has been undertaken and advice sought on these issues as required.

Crime and Disorder Implications

351. The development would be located on an established, operational site which benefits from perimeter security fencing.

Implications for Sustainability and the Environment

352. The proposed development would allow groundwater monitoring to be undertaken so that a baseline of existing water conditions can be established. The development would take eight weeks to construct and once operational would have negligible impacts. The boreholes would be restored when no longer needed. The issues have been considered in the observations section of the report above.

Financial, Service Users, Equalities, Human Resources and Safeguarding of Children Implications

353. No implications.

Human Rights Implications

354. Relevant issues arising out of consideration of the Human Rights Act have been assessed. Rights under Article 8 (Right to Respect for Private and Family Life), Article 1 of the First Protocol (Protection of Property) and Article 6.1 (Right to a Fair Trial) are those to be considered and may be affected due to noise. The proposals have the potential to introduce impacts such as noise upon nearby residents to the north of the site. However, this potential impact needs to be considered in the context of its short duration and balanced against the wider benefits the proposal would provide in allowing baseline water quality monitoring to be undertaken. Members need to consider whether the benefits outweigh the potential impacts and reference should be made to the Observations section above in this consideration.

Statement of Positive and Proactive Engagement

355. In determining this application the Minerals Planning Authority has worked positively and proactively with the applicant by entering into pre-application discussion; assessing the proposals against relevant Development Plan policies; all material considerations; consultation responses and all valid representations received. The applicant has been given advanced sight of the planning conditions. This approach has been in accordance with the requirement set out in the National Planning Policy Framework.

RECOMMENDATIONS

356. It is RECOMMENDED that planning permission be granted subject to the conditions set out in Appendix 1. Members need to consider the issues, including the Human Rights Act issues, set out in the report and resolve accordingly.

TIM GREGORY

Corporate Director – Place

Constitutional Comments

Planning and Licensing Committee is the appropriate body to consider the content of this report.

[SLB 14/12/2015]

Comments of the Service Director - Finance

There are no specific financial implications arising directly from this report.

[SES 06/01/2016]

Background Papers Available for Inspection

The application file available for public inspection by virtue of the Local Government (Access to Information) Act 1985.

Electoral Division(s) and Member(s) Affected

Misterton – Councillor Liz Yates

Report Author/Case Officer

Oliver Meek

0115 9932583

For any enquiries about this report, please contact the report author.

W001488
F/3321