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**NORFOLK MINERALS SITE SPECIFIC ALLOCATIONS DEVELOPMENT  
PLAN DOCUMENT (DPD) SINGLE ISSUE REVIEW OF SILICA SAND –  
INITIAL CONSULTATION DOCUMENT.**

Thank you for your consultation received 5 March 2015 for the Single Issue Review of Silica Sand – Initial Consultation Document and Sustainability Appraisal Scoping Report. We have reviewed these documents and would comment as follows:

**Initial Consultation Document**

**Questions 1, 6, 7, 8, 9, 10, 11, 13, 14, 16, 15, 17 and 18**

These questions fall outside our remit therefore we have no comments.

**Question 2**

We highlight the comments made by Natural England in response to this question as part of their consultation reply (letter dated 20 April 2015). We agree that distance criteria alone may not capture any potential adverse hydrological impacts on these designated sites, and support the use of a hydrological catchment based approach.

**Question 3**

We have no specific comment to make at this time in response to this question, but note the comment from Natural England.

**Question 4**

We support the comments made by Natural England, and agree that the enhanced evidence areas should be based on the sensitivity of the qualifying features to the effects of mineral extraction.

### **Question 5**

We support the comments made by Natural England in response to this question. Similar to Q4, potential impacts are likely to vary depending on the features of interest.

### **Question 12**

No, sites in flood zones 2 and 3 do not need to be removed from consideration on flood risk grounds; however a sequential approach should be taken to site selection.

Sand and Gravel working is considered to be a 'Water compatible' development as set out by the Planning Practice Guidance. Therefore Silica Sand works would be appropriate in all flood zones, subject to a Flood Risk Assessment being carried out which demonstrates that the proposal does not result in a unacceptable flood risk to the site itself and without increasing flood risk elsewhere. A Warning & Evacuation Plan should also be developed to ensure the safety of people on site.

We support part 12 of the Initial Consultation Document which sets out how sites in flood zones 2 and 3 would be considered in flood risk terms.

### **General Comments on Site Selection**

The Minerals Site specific Allocations Plan – Single Issue Silica Sand Review shows the proposed mineral extraction areas by Silica Sand to be situated along the Northwest Norfolk Sandringham Sands. This is a Drinking water Protected Area (DwPA) under the EU Water Framework Directive and will therefore need to be protected.

With respect to the protection of the environment from areas of extraction in environmentally sensitive locations, it is important that restoration schemes, following completion of mineral extraction works, comply with landfill directive requirements. Therefore, if the restoration plans involve importation of material for restoration, independent of whether it is considered inert or non-hazardous, requirements are that they are protective of the underlying aquifers, which may require a Landfill Directive compliant artificial geological barrier or liner depending on the waste type. The surface water management plan following restoration should not compromise capping works and should incorporate pollution prevention control measures.

Any filling operation will also need to have an appropriate level of permit. This should be considered at planning stage, and built into any restoration scheme. We therefore encourage parallel tracking in order to manage risks to groundwater and obtain a permit. The sands and gravels present along the potential mineral extraction areas overlying the sand aquifer unit are considered as secondary aquifers and are considered as part of the WFD DwPAs. These aquifers are, also, considered to be environmentally sensitive.

Our aim is to protect existing water supplies and the approach we follow is to steer the development of waste operations which may have the potential to pollute groundwater into less sensitive locations. The locations of private

domestic sources may be held by the Local District Council on the register required by the Private Water Supplies Regulations 1991.

We also encourage robust infrastructure which will seal off any pollution should it occur and avoid expensive clean up operations and deterioration of groundwater quality. Long term management and maintenance of protective measures should be provisioned and incorporated in the design to ensure protection of the water environment is not compromised. Open water restoration should also consider pollution risks in source protection zones. Please refer to our guidance 'Groundwater protection: Principles and Practice' (GP3), in particular position statement E1, relating to landfill location, which will also apply to any filling operation.

We encourage baseline conditions to be established prior to operations commencing to ensure that during the lifetime of mineral extraction and waste operations and following restoration environmental limits are not breached and groundwater quality has not been compromised. This will also aid the surrender process as it can be used as supportive information to demonstrate the protection of the water environment throughout operations.

Furthermore, we would require a Hydrogeological Risk Assessment and a Landfill Gas Risk Assessment to be submitted for proposed landfill sites <http://www.environment-agency.gov.uk/business/sectors/32445.aspx>.

In accordance with the Landfill Directive the following criteria should be met:

- **Waste acceptance**, to allow the classification of waste and their control and limits.
- **Groundwater Protection**, to prevent direct discharge of hazardous substances in the groundwater and prevent pollution of groundwater from non-hazardous substances.
- **Gas management**, to ensure adequate mitigation measures are in place for potential gas migration.
- **Quality Assurance**, to ensure all engineering elements are constructed to high quality standards.
- **Integration of pollution control measures**, to ensure contamination is appropriately managed, contained and sealed off from entering the groundwater and incorporate their long-term management and maintenance in the design.
- **Hydrogeological Risk Assessment**, to include an assessment of the depth of mineral to be extracted ( and more specifically the depth of mineral below the water table) and an assessment of the impact of de-watering on local groundwater levels and receptors (e.g. water features-rivers, springs, wetlands) and other protected rights (i.e. licensed and unlicensed groundwater and surface Water abstractions).
- **Stability**, to ensure adequate measures are in place which will not comprise engineering elements. A geotechnical study should be undertaken, where necessary, and include the submission of a Stability Risk Assessment report along with the Hydrogeological Risk Assessment.

## **Sustainability Appraisal Scoping Report**

### **Question 1**

We would like you to consider including in the 'Further sources of guidance or advice' section reference to our "Groundwater Protection: policy and practice (GP3)" documents, available here:

<http://www.environment-agency.gov.uk/research/library/publications/144346.aspx>

Particularly applicable are: Position Statement E1 as it highlights our requirements when assessing risks to controlled waters from proposed landfill sites on former mineral extraction areas; Position Statements J3 to J5 as they highlight our role in assisting with land contamination issues; and Position Statements K1 and K2 which highlights our approach to environmental impacts of mining.

### **Question 2**

No we have no additional sources of baseline data.

### **Question 3**

In part 5.2.8, the report discusses dewatering of mineral sites to work the material dry. You should note that the 'Hydrogeological risk assessment' (HRA) which is required by us and the Mineral Planning Authority is not just to protect groundwater quality. It is also primarily to protect the groundwater levels in the area around the quarry and to protect both other groundwater abstractors and also any ecosystems and surface water features that are reliant of the groundwater levels in those areas. We also require within the HRA a proposal of mitigation measures should the site's dewatering impact upon the above mentioned features.

The report also correctly identifies that importation of fill (even if inert) to restore an old quarry requires an impermeable barrier isolating the fill from the surrounding groundwater. However it should be made clear that the implementation of an impermeable barrier needs to be assessed by us to determine how the barrier blocks groundwater flow. Any blockage of groundwater flow has the potential to affect groundwater levels, reducing levels down gradient of the site and raising levels up gradient of the site. This can cause both ecological damage and derogation down gradient, and groundwater flooding up gradient.

### **Question 4**

We agree with the sustainability issues and problems identified so far. However, we would note that there is no mention of potential risks to human health from gas emissions from mineral extraction and waste management facilities. It is important for this to be considered to ensure risks from potential gas migrations are assessed and mitigated by adoption of protective measures, where necessary.

Furthermore, there is no consideration of previous land uses, a desk study and assessment of risks to the water environment from previous land uses

which may have caused pollution in proposed mineral extraction and waste management facility locations should be carried out.

To summarise, clear and concise information of what the requirements are when it comes to assessing land which is known or suspected to be contaminated will be required.

**Question 5**

We support the objectives in particular objectives SA10 and SA12.

Previous land uses should be taken into account when scoring sites and a desk study and assessment of risks to the water environment from these potential contaminating uses should be carried out to inform the scoring process.

**Question 6**

No.

We trust this advice is helpful.

Yours sincerely,



**Ms Louisa Johnson**  
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Awarded to Essex, Norfolk and Suffolk Area