

# Non-Technical Summary

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## **Background**

This Environmental Statement (ES) details the findings of an Environmental Impact Assessment (EIA) carried out for a proposal by Northumbrian Water Limited (NWL) to construct and operate a new secondary sewage treatment facility, and associated infrastructure at Craster and Dunstan, Northumberland.

This ES forms part of the planning application for the proposals that is being submitted to Northumberland County Council (NCC), the Local Planning Authority (LPA) for the scheme.

## **Need For the Development authorisation**

NWL currently discharges treated sewage to the North Sea from a number of population centres along the North Northumberland coast, including Craster. They are currently undertaking a programme of improvements within Northumberland to various sewage discharges which is driven by the need to improve water quality and to comply with both National and European legislation, in particular the Urban Waste Water Treatment Directive (UWWTD) 91/271/EEC. The discharges at Craster do not currently meet the standards set out in legislation and the level of treatment currently applied to discharges at Craster therefore needs to be improved. This means that a 'do nothing' approach is not an option in this case. NWL therefore propose to comply with these standards by transferring sewage to Dunstan STW, where secondary treatment will be provided, before returning the treated flows to Craster for discharge to the sea.

The existing installations within Craster consist of two sites; Craster North and Craster South, which macerate the raw sewage before discharging to the North Sea. These two sites deal with all of the flows generating from Craster village. Dunstan STW currently serves Dunstan village only and provides secondary treatment. However the STW is under performing and it has been identified that improvement works would have to be carried out even if it continued to serve only Dunstan itself.

## **The Proposed Development**

NWL propose to transfer flows from the two existing headworks, Craster North and Craster South, to a site inland, Dunstan STW. The transfer works would include a pumping station at each outfall headworks and connecting pipelines between the pumping stations and Dunstan STW. The proposed pumping stations at Craster North and South outfall locations will be constructed below ground but will require above ground control equipment, which would be housed in kiosks of glass reinforced plastic construction, approximately 1.5m high. Neither pumping station site will be enclosed by a wall or fence, and Craster North proposals include low level planting. Any further screening will be employed as agreed with the planning authority at both sites. The two pumping stations will run independently and will transfer flows via separate pipelines to Dunstan STW.

The new sewage treatment works at Dunstan will replace the existing STW. In order to accommodate and treat the additional flows from Craster, the existing STW will be demolished and additional land purchased for the replacement works. It is proposed to install a new package plant STW consisting of:

- Two self contained biological treatment units. These will measure approximately 12m x 4m in area and will be largely below ground with covers protruding approximately one and a half metres above ground level;
- A control building, of pitched roof and stone construction and plan area of approximately 12m x 4m.;

- A below ground final effluent pumping station to deliver the treated flows to Craster;
- A combined sewer overflow to spill storm flows from Dunstan to Craster Beck.

An additional area of land will be required adjacent to the existing works to accommodate these works.

The route of the rising main from Craster North will be along Dunstanburgh Road, and along the carriageway or verge of the main road to Dunstan. The route of the rising main from Craster South will be along the private drive of Rosemarkle, across improved grassland and agricultural fields that run along side the NWT Nature Reserve, in a shared trench with the transfer main from Craster North and the return effluent main for a section before running within fields to the west of the main road. The rising main discharges into the existing sewerage system west of Dunstan STW.

The treated effluent will be pumped from Dunstan to Craster North Macerator Station for coastal discharge to the North Sea. The effluent rising main will be in the same trench as the main from Craster North.

### **Alternatives Considered**

Options were first examined in detail in a site selection exercise undertaken by NWL in October 2002. The option to provide new package STWs, to provide secondary treatment, at Craster North and Craster South was chosen as being the most appropriate. Following this selection exercise, planning approval was obtained in September 2003 for the provision of secondary treatment at Craster South. An application to provide secondary treatment at Craster North as part of that scheme was discussed but not submitted by NWL.

A further planning application relating to Craster South was submitted in October 2003 to remove a condition in the planning permission relating to the bird breeding season. During the course of this application, some concerns on the whole proposal were expressed by residents of the village. This led to a Public Meeting in Craster Village Hall in October 2004 and at that meeting NWL gave an assurance that they would re-examine the proposals. This was done during 2005 and two new options presented at a public exhibition held in September 2005 at Craster. These two options comprised:

- Secondary treatment within Craster at Craster North and Craster South (planning permission obtained already for the Craster South scheme);
- A new secondary treatment works at Dunstan, with pumping stations at Craster North and South and associated rising mains.

Public response favoured the second option, therefore NWL concentrated their efforts into seeking to provide a solution that transfers all foul flow from Craster to another location. On this basis, a further site selection report, produced in March 2006 examined three options for transferring foul flow from Craster to other existing STWs nearby. The three STWs considered were Dunstan, Embleton and Boulmer. The report also considered alternative routes for the pipelines within and around Craster village.

The option at Dunstan was chosen as the most appropriate and it was therefore decided to proceed with this option. NWL's resolution to pursue this option comes with the full realisation that any works undertaken will be under strict scrutiny from the LPA and other interested third parties due to the Northumberland Coast Area of Outstanding Natural Beauty (AONB) and Heritage Coast designations.

### **Designing for the Locality**

The buildings, kiosks and layouts have been developed and designed following a number of principles to ensure satisfactory integration of the works in the AONB. The control building will

be constructed from stone with pitched roofs so they integrate with other properties nearby. The kiosks are green glass reinforced plastic as per the existing kiosks.

### **Consultation**

From the outset of the project, an open and proactive approach to consultation was initiated to ensure that potential issues of concern were taken into consideration in the development of the scheme. As set out above this consultation process led to a complete re-design of the proposals to take into account the comments of the local community. Two information days were also held in Craster Village Hall prior to submission of the planning application, to inform residents of proposals and to seek comments.

As well as the local community, a number of authorities, groups and organisations have been consulted to ensure the proposals have taken into account all potential issues and concerns.

### **ENVIRONMENTAL IMPACT ASSESSMENT**

The following paragraphs summarise specific aspects of the proposed scheme.

#### **Planning Policy**

The planning policy context against which the EIA has been carried out is provided in Section 4 of this assessment. National, regional and local planning policy is described and each environmental topic area has been considered in these policies. An appraisal of policy is also contained within the "Supporting Statement" which has been submitted with, and forms part of, the planning application for the scheme.

#### **Landscape and Visual Assessment**

Assessment of the impact of the proposed development on the landscape, both in terms of the effects that the development would have on the landscape character of the local area, and the likely visual intrusion on properties and visitors has been undertaken.

The most disruptive indirect landscape effects would be generated and sustained during the construction period to the most sensitive and closest receptors which in this case would be the residential properties near Dunstan STW and on Dunstanburgh Road and South Acres in Craster. These effects would be experienced during the 18 month, and intermittent construction period. The negative landscape effects will decrease after the construction period and the reinstated works associated with the STW have been completed.

#### **Ground Conditions**

The ground conditions have been identified for the construction of the proposed facilities, in particular with regard to the underlying bed rock of Whin Sill. The potential effects on the surrounding environment during construction of the pumping stations, pipelines and Dunstan STW have also been considered and methods of excavation within the rock and likely extent of the rock explained.

A geotechnical desk study has been undertaken reviewing historical land use, geology, mineral extraction and potential contamination. A Mining Report was obtained from the Coal Authority for an area that includes the proposed site. The site was found not to be within the zone of influence from any past, present or planned future, underground or opencast coal mining.

A directional drilling trial was also carried out in December 2004 along Dunstanburgh Road to assess the possibility of installing the rising mains through the bedrock using non-evasive techniques. A geophysical survey was also carried out in January 2005 to profile rock head and to determine the location of services between Craster and Dunstan. Excavation work associated with the proposed pipeline transfer routes is described and considered in the context of survey findings.

## **Archaeology**

An archaeological assessment of the proposals, comprising a desk based study and a site visit was undertaken by Tyne and Wear Museums. The assessment found that there is a strong possibility that archaeological features dating to the Mesolithic, Neolithic, Iron Age, Medieval and Post Medieval could be encountered by this development.

Notwithstanding, the extension to Dunstan STW and the pipeline routes do not impact upon known archaeological or cultural heritage features. The development will have no direct or indirect impact on the setting of Craster Defended Settlement, the Scheduled Ancient Monument adjacent to the pipeline linking the proposed Craster South Macerator to the Dunstan STW.

However, given that the potential for archaeological features to survive on the site may require further archaeological work pre-determination of the planning application or as a planning condition, it is recommended that a test pit measuring 2m by 2m should be located in both of the Craster macerator sites. This would entail an evaluation trench measuring 10m by 2m, located in the extension to the Dunstan STW site, aligned north-east to south-west in order to locate any earthworks/features parallel to those located on the adjacent bank side.

It is also proposed to undertake an archaeological watching brief, undertaken along the line of the pipelines from Craster to Dunstan. Where the pipeline is adjacent to known archaeological sites, recorded by the Sites and Monument Record, the method of topsoil strip (using mechanical excavators with toothless buckets) followed by archaeological recording will take place.

## **Ecological Sensitivity**

Field surveys and a desk study have been carried out to provide information on terrestrial flora, fauna and wildlife. Marine ecological interest has also been assessed. Consultation was also undertaken with the Northumberland Wildlife Trust (NWT) and English Nature (EN). An extended Phase 1 Habitat Survey was carried out on the 20<sup>th</sup> of February 2006 in order to record existing biodiversity in and around the proposed sites for development.

The predicted impacts to the Arnold Memorial NWT Reserve are considered to be negligible and establishing a suitable buffer zone from the reserve will ensure no negative effects are experienced.

The proposed pipeline routes pass mainly through improved and amenity grassland along with arable land which have negligible ecological importance. Spoil and turf will be replaced following laying of the pipe and the regeneration of the improved and semi-improved grassland will be aided by the oversowing with appropriate seed mix. A small section of amenity grassland will also be permanently lost to make way for the southern and northern pumping stations. This is of negligible ecological value and thus no mitigation has been proposed for its loss.

Whilst there is also found to be no impacts on existing wildlife from the proposals, pre-development checks for otters and voles are recommended.

## **Traffic and Transport**

The anticipated traffic and transportation impacts and effects associated with the scheme have been assessed. The main impacts of traffic generation will occur during the construction period, which will require relatively intense construction activity. At Dunstan STW, it is anticipated that the appointed contractor will base his main site compound within temporary land required within the site.

At the Craster North Pumping Station site, whilst some short term disruption to traffic flow may occur during delivery and off loading of materials, access to Dunstanburgh Road will be maintained during construction. At the Craster South Pumping Station site, during the

construction of the tie-in arrangement between the public highway and the pumping station site, temporary carriageway narrowing will be required to develop at the site. Notwithstanding, no road or lane closures will be required in order to construct the pumping station sites.

Matters are to be discussed and agreed with the Highways Department of Northumberland County Council in order to agree traffic management proposals required to complete the works, and a series of measures to mitigate the impacts of construction traffic are incorporated into the proposals. These include directing HGVs onto preferred routes, undertaking the busiest period of construction outside the holiday season, temporary lane closures during new main laying and avoidance of any main laying during the tourist season.

Therefore additional traffic on surrounding roads will be generated during the construction of the new Dunstan STW and associated pumping station sites and pipelines. However, these increases are short term for the duration of the construction contract. The types, sizes and weights of vehicles used are no different to those previously experienced by Craster residents, although their frequency will be increased.

The operational impact of the proposed STW and associated pipelines and pumping stations does not generate significant traffic volumes and therefore the impact is considered insignificant.

### **Noise**

Potential noise effects associated with both the construction period and the operational life of the proposals have been assessed and sensitive receptors identified. Baseline noise monitoring was undertaken at locations representative of noise levels at the closest façade of three identified sensitive receptors (properties) to the proposed development sites during July 2006.

Assessment of noise during construction included consideration of all anticipated plant required for groundworks, the construction of well chambers, and general construction operations. Calculations were made based on the worst case scenario of all plant operational simultaneously at the closest part of the site to the sensitive receptors. (In reality, this would not occur as plant would operate at different positions around the site).

Assessment of noise during operation included noise surveys carried out at Boulmer STW and Beadnell Harbour Pumping Station where similar plant is installed.

During construction, high noise will be short term and generally vary over the construction phase. Mitigation measures are incorporated into the scheme, designed to reduce effects and minimise noisy activities. During operation, using the BS4142 methodology, complaints are unlikely regarding the pumping stations but likely during the STW. However internal noise levels are well below design criteria from BS8233. In terms of traffic noise, there is very little traffic generation as a result of operational activity and changes in traffic noise are unlikely to be perceptible.

In summary, construction noise effects are not considered significant, primarily due to their temporary nature. Once development is operational, impacts are considered not significant.

### **Odour**

It is recognised that the general public and planning authority require odour effects from sewage works to be assessed carefully, and the design of the works to incorporate such features as are necessary to eliminate any justifiable public complaints. NWL have therefore undertaken the following work as part of the assessment:

- A baseline odour survey, to measure total odour and hydrogen sulphide (H<sub>2</sub>S) from the main odour sources, at the existing Craster and Dunstan STW sites during the summer months of 2006;

- Odour sampling at similar NWL operational sites at Boulmer STW and Beadnell Harbour Pumping Station (Berwick), to predict and evaluate potential effects from odour at the proposed sites.;

The odour survey identified critical receptors that may be affected by the STW. Receptors included residential properties in proximity to the proposed sites. At Craster North and Craster South existing headworks, there is no history of odour complaints. The human detection/ recognition threshold values for H<sub>2</sub>S were found to be of minor significance at both sites. The comparative assessment at Beadnell Harbour Pumping Station showed there to be a minimal release of odours, confirmed by ambient H<sub>2</sub>S readings below recognition thresholds (June 2006) and low olfactometry readings within the chamber (June 2006).

At the existing Dunstan STW, odours were detected at both the works and adjacent to Craster Beck, where desludging and occasional CSO spills occur. There is a known history of intermittent odour complaints from Dunstan, likely linked to the above activities. The proposed RBCs and associated manholes/ screened CSO and outlet PS will assist to significantly reduced odours.

The comparative assessment at Boulmer STW found there to be a minimal release of odours from operational plant, confirmed by ambient H<sub>2</sub>S readings around covered RBCs below recognition thresholds (June 2006), and acceptable olfactometry readings between covered RBCs (June 2006). Also no public odour complaints have been registered since commissioning the works in December 2004.

The refurbished STW is therefore considered to present a low risk of causing an odour nuisance as, significantly, the separation distance to the critical receptors is greater than 90m, well above the 15m distance identified for the 5<sup>th</sup> ou<sub>E</sub> m<sup>-3</sup> as the 98<sup>th</sup> percentile of hourly average contour at the similar but larger Boulmer STW.

### **Air Quality and Dust**

The works are located in an area that currently experiences low baseline concentrations of gaseous pollutants. The assessment has shown that the overall sensitivity of the surrounding area is low as there is little activity within the local area that will generate large volumes of airborne dust.

The proposed on-site construction based activities, in particular site preparation, do have the potential to impact on sensitive locations that are downwind of the proposals. In order to negate against these effects, several mitigation measures are proposed for each activity which generated either a direct or fugitive source of airborne particulate matter, thereby reducing the overall risk of dust nuisance from the proposed

### **Socio Economic and Tourism**

Although some employment opportunities may arise from the construction of the scheme, the main effect will be to improve the tourism potential of the area due to improvements to bathing waters from improved discharges. The construction of the new STW may result in temporary disturbances for the residents of Craster and for tourists. However, NWL will employ methods of construction which seek to avoid interference and disruption to the old part of Craster village, in particular in laying the transfer mains.