

Wicklow Port Water Quality Monitoring Proposal 2026

Wicklow County Council (WCC) has submitted two plume dispersion models in support of its application for a Maritime Usage Licence; one for the harbour area and one for the proposed offshore disposal area. To validate these modelling assessments the following programme is proposed. It is noted that the modelling undertaken is for the highest production rates anticipated and it is likely that smaller equipment or varying methodologies will be engaged that results in far less potential turbidity levels.

NTU and mg/l Correlation

In advance of the commencement of water quality monitoring, WCC will sample the sediment present in the harbour and analyse the resuspended sediment in a laboratory for both TSS and NTU values. With linear regression, a relationship will be established between these values. It shall be ensured that this laboratory analysis is conducted over the full range of expected turbidity levels, with weighting towards commonly anticipated levels (more correlations will be undertaken at lower dilutions than higher). This correlation will be used for both the harbour and disposal site correlation and conversion of NTU to TSS (mg/l).

Proposed Monitoring – Harbour Area

The modelling undertaken for the dredging within the harbour shows that the entrance experiences the highest levels of predicted suspended sediment, which then disperses from this location. Therefore, it is proposed to establish a water quality monitoring station at the entrance, either fixed to the entrance wall, or deployed via a monitoring buoy. This station would be deployed one month in advance of dredging activities, whether by a trailing suction hopper dredger, mechanical dredger or a water injection dredger to acquire baseline data. The station would transmit live data to an online portal and facilitate alarm levels to be set.

The predicted modelled levels are above baseline conditions. Therefore, it is required that baseline levels of turbidity are considered in any potential alarm levels and that the monitoring station is installed in advance of dredging commencing to determine the normal ranges present. Once information is available from this background monitoring, WCC will determine the average turbidity level plus two standard deviations to identify the level at which 95% of readings fall within. This level will be calculated before dredging commences. The values outlined in Table 3-2 in the Water Injection Dispersion Modelling Assessment will be added to the established baseline turbidity value at the monitoring station to ascertain a suitable alarm level. Should this alarm level not be exceeded, by the influence of dredging alone, then validation of the modelled levels will have been achieved from the dredging within the harbour area.

The attached chart *Harbour Monitoring Location* outlines the anticipated location of the monitoring station onsite.

Proposed Monitoring– Offshore Area

The proposed disposal site is 2km off the Wicklow Coast. This area is in dynamic open water and not suitable for the efficient deployment of monitoring buoys/stations. To ensure validation of the model’s predicted levels it is proposed to undertake regular turbidity readings from a variety of locations surrounding the disposal site. This methodology is similar to that which has been utilised at Rosslare offshore disposal site.

Water quality monitoring locations within the modelled zone of impact of the dumping activities have been selected. The attached chart *Offshore Monitoring Locations* outlines the anticipated position of the monitored locations. These locations are 250m to the north and south of the disposal area, as this is the prevailing predicted path of dispersion, and 100m east and west, where negligible impact is predicted.

Water quality monitoring will be carried out using a turbidity sensor deployed from or attached to a vessel and be carried out prior to, during and immediately following each loading/dumping campaign. Monitoring will be carried out prior to loading/dumping activities no more than one week before the commencement of the disposal activities to establish the background values for turbidity and, by correlation, TSS. During the loading/dredging campaigns, daily turbidity monitoring will be carried out at the monitoring locations. Turbidity monitoring will also be carried out within one week following the completion of the loading/dredging activities. The values obtained will highlight if any values exceeding predicted levels above baseline are present, thus validating the model.

Proposed Monitoring Coordinates

The charts included outlines the position of all monitoring locations. However, for clarity their coordinates are as follows:

Monitoring Location	ITM Coordinates	
	Easting	Northing
Harbour 1	731968	694313
Disposal Site North	734280	703563
Disposal Site East	734685	702948
Disposal Site South	734254	702326
Disposal Site West	733889	702917

Other Monitoring

In addition to the water quality monitoring, it is also proposed to ensure no unforeseen deposition, from unforeseen plume dispersion, occurs in a local sensitive area. The closest sensitive receptor is a mussel seed bed approximately 1.5km to the west. Therefore, it is proposed to undertake a



bathymetric survey before, during and after any disposal activity. This survey will acquire seabed data from the eastern edge of this area and, after examination of the three surveys, ascertain if any non-natural variability has occurred.