



BALLINAFAD STREAM ENVIRONMENTAL MONITORING

Background monitoring of the Ballinafad Stream water quality, and an assessment of the dilution of the proposed discharge.

Client: Sligo County Council

SUMMARY:

Value: €15 million

Services Provided:

Water Quality Monitoring Programme,

Water Dilution Study, Project Management

Status: Complete

Nicholas O'Dwyer Ltd. were appointed by Sligo County Council as Client's Representative for the Tubbercurry, Grange and Strandhill DBO Bundle. The scheme also included for the construction of a new wastewater treatment plant for the village of Ballinafad, with an outfall to the Ballinafad Stream, a tributary of Lough Arrow.

Under this appointment, Nicholas O'Dwyer Ltd. were required to determine the relevant effluent quality standard for the proposed WwTP, in order to ensure that the effluent quality complied with all applicable statutory environmental regulations.

As no background data existed for the Ballinafad Stream, a monitoring programme was put in place. Representative samples of the Ballinafad Stream were taken upstream of the proposed wastewater treatment plant outfall at regular intervals over a three-month period. The samples were analysed for a range of physicochemical parameters and inspected for macroinvertebrates as indicators of water quality.

A statistical analysis was carried out on the results of the monitoring. The median of the results of the chemical analyses were taken as the background levels in the Ballinafad Stream, and then compared to the applicable standards. Based on the ecological sampling carried out, the Ballinafad Stream was considered to have a good quality water, with a Q-4 rating.

In addition, Nicholas O'Dwyer Ltd. were required to determine the impact of the proposed WwTP discharge on water quality in the Ballinafad Stream and Lough Arrow, with particular reference to a public water supply's emergency abstraction on Lough Arrow.

Dispersion calculations for the flow discharging from the Ballinafad Stream into Lough Arrow were undertaken. In order to guide the calculations, field measurements using a continuous dye release were used to determine typical dispersion patterns in Lough Arrow. The measurements were used to estimate the lateral dispersion coefficient on the day of the dye survey.

Through both studies, Nicholas O'Dwyer Ltd. determine the relevant effluent quality standard for the proposed WwTP, as well as necessity to incorporate disinfection into the plant design.

