



Soil and Water Testing

Allowance for metal corrosion is an essential part of the structural design of new culverts to AS/NZS2041.1 'Buried corrugated metal structures' standard. It is equally important to understand the potential for corrosion in the assessment of the residual life of the existing culverts. The rate of wall corrosion depends on the environmental conditions on site. This, in general, includes the chemical composition of both the soils the culvert wall is in contact with and water flowing through. This document details the sampling and testing methodology for the soil and water at culvert sites suggested by CSP®.

The soil and water samples on site can be collected by the Client or culvert Designer while the testing is normally done at the laboratory. Unless otherwise decided by the culvert Designer, CSP® suggest that the following number of samples be collected and tested for a typical culvert site:

1. One water sample (new and existing culverts)
2. Two samples on native soils (new and existing culverts)
3. Two samples of culvert backfill (existing culverts)

Water sample collection

Sample of water is to be collected at normal flow from mid-stream of the creek and stored in a plastic jerry can. The minimum volume of the water sample is 5 litres. The sample should be clearly labelled i.e. WATER SAMPLE DAWSON CREEK CULVERT. One water sample per site is normally sufficient.



Native soil samples collection

CSP[®] normally suggest two native soil samples per culvert site. The samples should be collected on the opposite sides of the creek, one just upstream and one downstream from the culvert location, 2-3m away from the high water mark. Samples should be taken from the minimum depth of 0.5m and below any topsoil which may be present on site. Store samples in lidded plastic pails or boxes clearly labelled i.e. SOIL SAMPLE 1 DAWSON CREEK CULVERT. Each soil sample to weigh at least 5 kilograms.



Backfill samples collection

CSP[®] recommend that backfill samples at least 5 kilograms each be collected from two locations adjacent to the culvert wall. These samples to be stored and labelled similar to the native soil samples.



Testing

Unless otherwise decided by the culvert Designer CSP[®] suggest the Opus Laboratory in Wellington be engaged to carry out the water and soil sample testing. The test order form with contact details below can be used for that purpose.