home safe and well

CASE STUDY
Costain | Remote Acoustic Monitoring – 18-04-23

Introduction

Noise is a highly subjective topic. What may be deemed acceptable be to one person can cause another mental health issues or sleep depravation. The continous hum of road traffic may no longer affect the resident that has become used to it, but the occasional ADT beeping or road sweeper vibration might (even if it is quieter than normal noise levels) jar them into action. To combat this all residents that could be impacted from noise along the A30 scheme were identified in the baseline environmental statement (ES). Over 200 locations were given a pre-construction noise level in decibels (dB), a construction level, and an opperational level. Unfortunately this level changes depending on the time of day as does the amount of time that needs to be measured in order to determine if a construction limit has been breached. If the resident disagrees all of the above becomes redundant and Cornwall Council has to intervene.

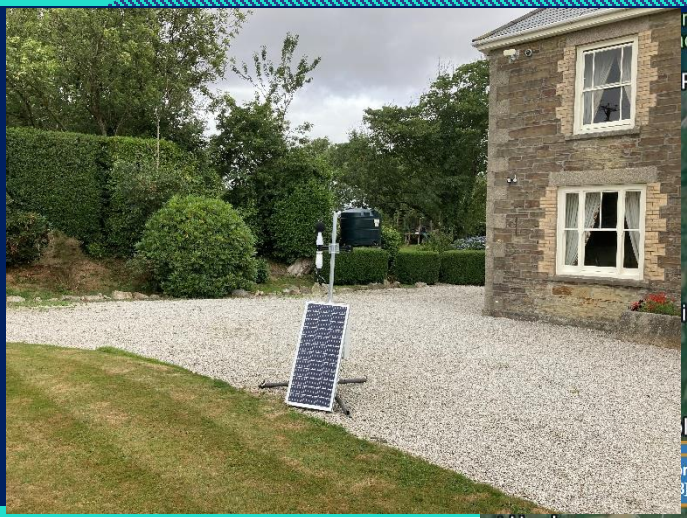
Therefore, proving that noise is being created and that it is reaching unacceptable levels can be a bit of a dark art. Residents identified as higher risk to nuisance could be identified and mitigations can be put in place and still this is not enough. Individuals have their own agendas, their own perceptions and unless you can disprove them with raw data, they are valid and justified. Of course the reverse is also true and as part of the considerate construciton scheme it is of critical importance we find out quickly what negative impacts the scheme could be having on the local community.

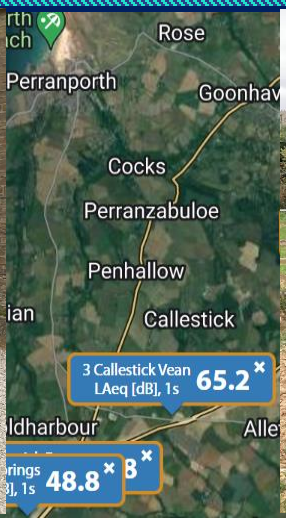
Techical Overview

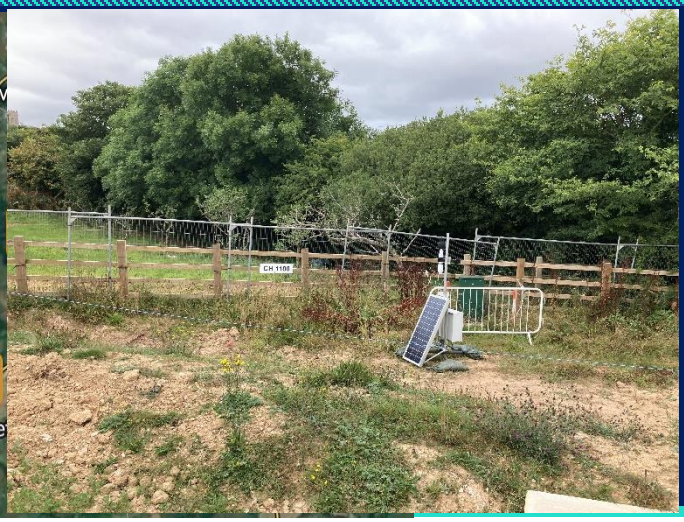
Five SVANTEK 307 (auto calibrating) Acoustic solar powered noise monitors were deployed across the scheme. These were set up on tripods built by the Costain Digital team and installed by the Worle office engineers. The strategic locations were determined through the more “sensitive” receptors who are impacted by noise created, especially during night works on the A30 and approved by Cornwall Council. The data from these monitors can be reviewed in real time and 1-minute data can be recorded sending alerts to the SHE team whenever as breach is recorded.

Challenges

- Challenge 1. Identifiying the key locations to place the monitors so they have the most impact. i.e where is the complaint likely to come from. Which activities are going to be noisiest.
- Challenge 2. Ensuring the monitors remain powered during the long Cornish Winters. No electricity on site.
- Challenge 3. Guaranteeing the accuracy and reliability of the data for Costain and the local residents.







Action Taken

Without these acoustic monitors the project had some difficulties proving that we were not creating noise pollution. The best case scenario would be hand held or temporary monitoring which required a specialist or trained individual to take noise monitoring readings. The results from which depended on the individual taking the reading and how long they decided to do it for. Without consistant data potential incidents were frequently missed and the relationsships between residents and contractor became strained. Ultimately at a certain point this would not have been acceptable with Cornwall Council.

Therefore the installation of five acoustic monitors, (which can be integrated with weather and dust monitoring) was able to demonstrate, infaticably, that we were not (or were) responsible for any noise. This has worked dramatically in our favour as many complaints can be attributed to road traffic, weather or other activities. It also gives us an early warning if works are getting too noisy before the receptors determine it for themselves. In this way we can establish better mitigation strategies to reduce nuisance across site. Better yet – because these monitors were purchased by Costain central (rather than the A30 specifically) the monitors can be taken on to the next project as necessary rather than being lost in transition or returned to the supplier/subconsultant as everything is done in house.

Results

The results are quite simple. Since their installation the A30 have a continuous stream of noise data from each of these monitors. When a challenge is made or a complaint received, we can look at the corresponding monitor, download the data and determine if there was a construction related exceedance made during this time. This has proven highly useful at certain locations where we have minute by minute data of the noise produced and, in some instances, even a recording to prove that we did not breach limits. This has been invaluable with our relationship with Cornwall Councils Environmental Health Officer and ideally should be incorporated on all projects going forwards.

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