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The Optical Image Probe as a tool for high resolution site characterisation (HRSC) in landfills - a testcase

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Older landfills are notorious for being vague black boxes. The amount, type and location of the dumped material was rarely or inaccurately recorded. This lack of information can be a problem during redevelopment projects, remining projects and risk assessments for the landfill. To decrease the analytical and spatial uncertainties in the conceptual model of the landfill during these investigations, we need accurate sampling and analysis methods but also sufficient amount of data. A High Resolution Site Characterisation (HRSC) approach is based on measurements and data density that are in the same order of heterogeneity of the site. This approach, that we apply on a daily base in soil contamination projects, was applied in collaboration with Witteveen+Bos on a former landfill site in Flanders. In this project an Optical Image Probe (OIP) combined with Electrical Conductivity (EC) measurements was used with a direct push rig. Using this probe, at a rate of 1 frame each 1.5cm, the subsoil layers were explored with a visual light camera integrated in the probe. The data were studied and compared to landfill trenches to identify the layers. It could be concluded that the probing's were a good supplement to the trench data. This because of the speed of data acquisition, the less intrusive character and reduced Health and Safety concerns for workers and surrounding.