

UNIVERSITI TEKNOLOGI MARA

**Mapping of Spatial Distribution of Leachate Migration
from Electromagnetic waves**

NURUL SUZIANI BINTI CHE ROPA

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AUTHOR'S DECLARATION

I declare that the work in this thesis/dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

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Name of Student : Nurul Suziani Binti Che Ropa
Student I.D. No. : 2016525001
Programme : Bachelor of Surveying Science and
Geomatics (Honours) – AP220
Faculty : Architecture, Planning & Surveying
Thesis/Dissertation Title : Mapping of Spatial Distribution of Leachate
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:
Signature of Student :

Date : January 2020

ABSTRACT

A landfill can be defined as a layers of solid waste which compacted and covered for final disposal. It is lined at the bottom to prevent groundwater pollution. However, there are no explanation in detail and lacking information about leachate migration from electromagnetic waves by mapping of spatial distribution. The aim of this study is to evaluate the effectiveness of ground penetrating radar (GPR) as assessment tool for dielectric constant parameter on soil characteristics. To achieve the aim, the objectives of this study are to: 1) to calculate value of the dielectric constant parameter due present of leachate by using radar wave 2) to generate spatial distribution due presence of leachate on various soil characteristic. In this study, several data is used such as parameter, ReflexW software, ArcGIS, time, and dielectric constant parameter are used. The covered area of this research was conducted behind the polymer laboratory in the UITM Arau, Perlis, Malaysia. The data of soil characteristic by presence of leachate were used in this study to analyse the comparison the migration of leachate in different soil characteristics. In detail, relationship correlation and regression of the soil characteristic with dielectric constant are fulfilled. In addition analysis, spatial distribution mapping has been performed due presence of leachate on soil characteristic by using IDW method. The contribution of this is to show the information due presence of leachate between soil characteristics regarding detection using GPR technology can be provided.

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