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Subject: Geotechnical Engineering.

BE (Civil), Sec (B), 6th Semester

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Submission date: 4-July-2020

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Assignment & Quize.

ASSIGNMENT

Assy - 1

Geotechnical Report on Reconstruction of Road.

Abstract:

This is the geotech report of Recons-truction of Road, and the objective of these are to describe the process and Stage of work.

The Report also indicates Standard of Skills, workshop and Reporting to be applied.

Introduction:

This document has been prepared to assist in the planning, conducting and reporting of Geotechnical investigation of Reconstruction Road.

Objective & Scope:

The Objective for these guidelines are to

- > describe the process of work
- > indicate Standard of Skills & Reporting.

The following things needs to be considered to assess ~~the~~ The number, location and depth of test.

- ① Expected Sub-Surface Conditions
- ② Requirement to minimize Contractor ~~and~~ and risk of Changes during the Construction Program, due to variation in Sub-Surface Condition.

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STAGES OF INVESTIGATION :

① field Reconnaissance Survey: It is necessary for F.R.S to be conducted as the 1st stage of geotech-investigation.

- Information on the following should be obtained,
 - Legal and physical aspect of access to site.
 - Availability of any service or supplies of water, electricity and earthwork plant.
 - Buried or overhead service.
 - Photograph of surface condition.
 - Traffic control requirement.

2). Desk Top Study:

Should contain following;

- ①. Design Drawing of Previous Structure.
- ②. Previous investigation Report, bore holes, Penetrometer result etc.
- ③. Geological map, Survey data & records.
- ④. Hydrological data.
- ⑤. Ariel photograph.
- ⑥. local knowledge and resources.

3). Site investigation:

A Comprehensive report on Characteristic, Nature and variability of material should be carried out

→ The investigation should include Sampling of Soil, Logging of existing Cut slope and excavation, field and laboratory testing.

4) Embankment of foundation :

The Embankment investigation Consider the following issues.

- The range of materials in embankment foundation and where appropriate the Pavement Subgrade.
- Settlement Potential
- Stability
- Hydrology, moisture ^{regime} & drainage requirement
- Special Construction requirement.

5) Cutting in Soil :

The Cutting investigation should contain the following issues.

- The Range of material in cutting and pavement Subgrade.
- Slope Stability & Sub-grade Strength.
- Suitability of cut material for base course and sub-base.

(6) Soft/Wet Areas:

Where soft/wet soil are found, particularly in the vicinity of low embankment, or in shallow cutting, additional investigation, sampling and testing should be carried out.

→ The location and characteristic of any soft/wet area or spring should be recorded and reported.

→ The treatment required to enable construction on these kind of roads across or through these areas should also be recommended.

(7) Embankment material:

The suitability of material within the cutting should be assessed for embankment or pavement construction. It should be made as to the use of selected fill material within one meter of pavement subgrade level.

Road Re Construction & Widening:-

- The investigation should include;
- Bankelman Beam or Falling Weigh Deflectometer (FWD) testing for assessing the structural adequacy of existing Pavement.
 - Sampling and testing of existing ~~Pavement~~ Pavement material.
 - in-situ test on ~~the~~ the Subgrade using Perth Sand Penetrometer or Dynamic Cone Penerometer.
 - Subgrade Sampling for Moisture Content determination.

- ## Ground water:
- Ground water must be investigated to determine,
- Level of w.T.
 - Occurrence of a perched water table condition and its level.
 - The presence of Sub-Artesian Conditions.

Geotechnical Report: The Report should provide sufficient information to allow tenders to prepare bids and to manage the principles risk on any subsequent contractual claims. The alignment, together with the location and result of all investigations, sampling and testing should be detailed in the Report.

The Report should identify the extent, nature and variability of all soil types and shall draw particular attention to the following matters.

Quiz

Q: Write a note on Software, which are used in geotechnical Engineering.

Ans: Following are the Softwares, that are used in geotechnical Engineering.

→ 3D Deep:

This Software is fully integrated with a design Software Package for automatic model generation. It is a virtual reality Software for deep excavation.

→ ACCICALC: The program analyses the behavior of the rock slope under seismic condition. It evaluates the displacement of a rock block subject to dynamic forces, on the basis of a given accelerogram. The use of a calculation method based on a given accelerogram.

→ ADONIS:

ADONIS is a free finite element software for Geo-Engineer. The goal of the ADONIS dev development is to improve the modeling and computational simulation in geotechnical Engineering.

Allpile: Allpile is a windows-based analysis program, that handles virtually all types of Piles, including steel pipes, H-piles, pre-cast concrete piles, Auger cast piles and many more.

ALP: The easy way to analyze Soil Structure interaction of a laterally-loaded Pile, when it comes to laterally-loaded Pile, design software.

ALP makes the things simple. This laterally loaded pile analysis software model.

ROCK PLANE:

Rock plane is a software tool for the evaluation of localised instability movement of rocky elements affected by seismic pressure and/or by presence of water within inter surface fracture.

Axiltg:

Program Axiltg, Axial-load-transfer consist of a main routine and two subroutines. the main routine feeds in the input data, calculate the effective overburden stress, and determines whether load is axial-down-directed, pull out, or if, uplift/down dragging.