Geotechnical Investigation and Analysis for Stage 2

Contents

LIST OF FIGURE

LIST OF TABLE

Appendix:

GEOTECHNICAL INVESTIGATION AND ANALYSIS FOR STAGE 2

1. Objective

The objective of the investigation is to provide information and data from which the most effective design for elevated structures, bridges and culverts, earthwork and other design work can be determined for railway electrification and double-double tracking of the Java Main Line Project.

Machine boring survey, standard penetration test, Dutch cone penetration test, lateral load test, thin walled tube sampling, etc. were carried out. Full results are contained in the "Soil Investigation Report" with the pertinent data given in this report. A summary of the fieldwork and sampling conducted during the survey are shown in Table 1-1 and the numbers of laboratory tests carried out are shown in Table 1-2.

Co-ordinates of the field survey points are shown in Table 1-3 while a location map of the field survey and geological longitudinal profile are shown in Figure 2-1 and 2-2 at the end of this chapter. Boring log for each bore hole and log of Dutch Cone penetration tests are shown in the Appendix.

Table 1-1 Summary of Geotechnical Investigation Field Work

Item	Unit	Quantities	
Field Works			
(1) Machine Boring Survey			
1) Machine Boring regardless of type of soil	m	2,080.77	(435.90)
2) Dutch Cone penetration Test	nos.	29	-
3) Lateral Load Test	tests.	33	-
4) Standard Penetration Test.	tests	1,839	(402)
5) Undisturbed Sampling	samples	174	(29)
6) Other Sampling.	samples	236	(52)
(2) Material Sources			
1) Borrow Sources Test Pits	nos.	16	-
2) Aggregate Sources Test Pits	nos.	10	-

Table 1-2 Summary of Laboratory Tests

Item	Unit	Quantities	
LABORATORY TESTS			
(1) Laboratory Testing for Soil Investigation			
1) Natural Water Content	tests	410	(81)
2) Specific Gravity.	tests	410	(81)
3) Grain Size Analysis.	tests	410	(81)
4) Hydrometer Test	tests	410	(81)
5) Atterberg limit.	tests	313	(66)
6) Unit Weight.	tests	172	(29)
7) Unconfined Compression Test	tests	151	(29)
8) UU Triaxial Compression Test.	tests	114	(20)
9) Cu Triaxial Compression Test	tests	30	(9))
10) Consolidation Test	tests	121	(27)
(2) Laboratory Testing for Borrow Sources			
1) Natural Water Content	tests	32	-
2) Specific Gravity.	tests	32	-
3) Grain Size Analysis.	tests	32	-
4) Hydrometer Test	tests	32	-
5) Atterberg limit.	tests	32	-
6) Unconfined Compression Test	tests	16	-
7) UU Triaxial Compression Test	tests	16	-
8) Compaction Test	tests	16	-
9) California Bearing Ratio Test	tests	16	-
(3) Laboratory Testing for Aggregate Sources			
1) Apparent Specific Gravity and Absorption.	tests	10	-
2) Grain Size Analysis.	tests	10	-
3) Soundness	tests	10	-
4) LA. Abrasion.	tests	5	-

Note. 1: Details of field investigation data and laboratory testing sheets are given in the "Geotechnical Investigation Report" for Railway prepared by P.T. Wira Nusantarabimi

2: Quantity of Stage 1 is shown in ( ) numbers.

2 Stratigraphy

2.1 General

2.1.1 Geographical Background

The project area is located in the eastern plain of Jakarta and traverses across different types of land topography, comprising flood plain and small scale hilly terrain. The alluvium plain and flood area of the rivers are generally flat with an altitude around 9.2 meters to 10.5 meters above the mean sea level. The majority of the plain area is used for rice cultivation.

The project route passes the Ciliwung River flood plain, Bekasi river and Cikarang river flood plain.

2.1.2 Geology

The geological strata along the Railway between Manggarai to Bekasi comprises mainly of the Quaternary deposit that consist of alluvial fan and diluvium formation as shown in Table 2.1

Table 2.1 Geological Formations Along Railway

Geological Time		Formation	Description
System	Epoch		
Quaternary	Holocene	Alluvium	- Very Soft to Soft Cohesive Soil - Medium to Stiff Cohesive Soil - Loose & Medium Sandy Soil
	Pleistocene	Diluvium	- Mudstone (hard cohesive soil) - Sandstone (compact sandy soil) - Tuff (Tuffaceous cohesive soil)