APPENDIX-3

TOPOGRAPHIC SURVEY

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TOPOGRAPHIC SURVEY

A3.1 INTRODUCTION

The maps available in the Study Area are those having scale of 1:15,000 and 1:50,000. The 1:15,000 scale map is prepared in 1976 when the first sewerage master plan was prepared for the Santiago City. The map has been updated based on the survey results of CORAASAN, however, of course, the update works have been limited. Therefore, it is noted that no appropriate maps are available for the preliminary design work of sewers, especially design for the gravity flow sewer system. A survey has been carried out to collect data and information of topographic features of the main sewer routes. The data will be used for design of mains sewers and for the alternative study on selection of main sewers installation as described in Appendix 8.

The survey has been conducted by the selected local consultants. The followings are the Scope of Work, specified in the Technical Specification of the contract “Surveys on Line Survey and Geotechnical Investigation for the Study on the Improvement of Sewerage System and Environment in the City of Santiago”.

A3.2 SCOPE OF WORK

The work in this schedule comprises the following sub-schedules:

Sub-schedule: Line Survey
Sub-schedule: Reporting

A3.2.1 LINE SURVEY

- Longitudinal, (18 km in total length for sewer mains)
- Cross Section

All the sewer mains to be surveyed are located within the Santiago city, being buried underground. Approximate routes of the sewer mains will be indicated by the JICA Study Team on 1: 10,000 scale maps.

The Line Survey is composed of centerline survey and profile survey along the proposed pipeline alignment as directed by the JICA Study Team. The centerline survey is to measure distance at every station markers and angle at each turning point along the pipeline alignment. Width and depth of culvert and rivers along the route shall be measured.

Along the centerline at every 100 meters, the width of road or street shall be measured and features of land such as houses, buildings, sidewalks, electric poles, signboards, traffic lights, ditches etc., shall be investigated and marked with their limit. The range of such cross section is approximately 25 meters from the road edge at its both sides. The profile survey is to measure ground levels at every station markers and points directed by the JICA Study Team. The Contractor shall provide a temporary benchmark at the convenient location(s) under the direction of the JICA Study Team. The temporary benchmark shall be fixed into the ground with durable materials as approved to avoid any movement and loss.

A3.2.1 REPORTING

The Contractor shall prepare and submit the drawings with the following scales upon the
completion of field survey.

(1) **Line Survey**

- **Plan:** 1 / 1,000
- **Longitudinal Section:**
  - Horizontal: 1 / 1,000
  - Vertical: 1 / 100

(2) **Cross Section:** 1 / 100

In addition to the above drawings, the Contractor shall submit all survey data including field notes, photographs of site survey, others obtained during field surveys.

As mentioned, the drawing of plan shall present range of road or street, features of land use along the pipelines.

The drawings shall be printed out and digital files of drawings with format of AUTOCAD latest release shall be submitted. Font size of information and notes in the drawings shall be readable when the drawings are printed out in A4 or US Letter size.

**A3.3 Survey**

The results are to be used to prepare the longitudinal profile of the mains sewers, and some of the survey results are already used for the alternative studies on main sewers installation.

**A3.4 Survey Results**

Drawings and reports, prepared by the local consultant, are submitted separately from this final report. This report only includes some of the survey results as shown in the following figures as an example.