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Annex 1

Objective

The objective of the Topographic survey is to prepare topographic maps for the preparation of Land use plan of Kaaf Atoll Guraidhoo.

Specific Responsibilities

The surveyors must survey and map the following:

- a. The limits of the island (i.e. the High water line)
 - if reclamation has been carried out, the survey should identify the old island boundary (old High water line) and new island boundary (new High water line)
 - erosion line any area prone to erosion
- b. Limits of vegetation line (Heylhi fah)
- c. Limits of forest (va'a), including coconut groves, isolated trees of significance etc
- d. Limits of island waters, including inland lakes, ponds, mangrove, and swampy ground etc
- e. Limits of agricultural land within the island and if divided into individual areas should identify boundaries of each area
- f. Limits of open space, including parks, sports grounds, reclaimed areas, cemeteries etc
- g. The boundaries of all the plots, with specific use should be identified:
 - any residential plots (block level demarcation is sufficient)
 - any public buildings (e.g. schools, island office, mosques etc)
 - any utilities and municipal land uses (e.g. powerhouses, cemeteries, water plants etc)
 - any commercial and industrial buildings
- h. Roads, harbours, jetties, and all coastal defenses such as seawalls, etc
- i. All other permanent structures
- j. The lagoon and inner reef line

Existing maps are very likely to be non-geo-referenced and the existing map may not have PSM installed. The surveyor should ensure the island has PSM's established as per the control survey guide line of MLSA.

All features of the maps whether existing or new must be referenced to the PSM.

Equipment

The survey should be carried out using calibrated and well maintained equipment only. The validity of the calibration certificate of the equipment should last until the end of survey period.

Accuracy of Topographic Survey

The relative accuracy of natural features shall not exceed $\pm 0.5m$

The relative accuracy of man-made structures shall not exceed $\pm 0.030m$.

Outputs

3.3 Digital Data

The Surveyor shall supply surveyed maps in AutoCAD DWG format (version 2014 or later), also all the Maps should be combined to one .pdf file. The digital raw files from the survey also should be submitted for the review. Final processed data in .csv file format (Point ID, Easting, Northing, and Description).

The results of any analyses, tests and audits carried out shall be supplied as part of the survey report.

All the Maps shall include

- Grid Information (grid intervals at 50m)
- Survey date and time and shorelines surveyed date
- Administrative information (as in www.onemap.mv): Atoll, island code, island name
- Name of the chief surveyor, surveyor registration number.
- All the Maps should be in A3 or larger paper size.
- Control Network Map shall include bearing and distance to each control station.
- An Index Map (This map should fit in one A3 paper)
- Survey Maps in 1:1000 scale with Grid lines and if tiled with joint lines.
- CAD Layer naming as per CAD standards provided by MLSA.