6th International Federation of Surveyors Regional Conference

San José, Costa Rica, 12 – 15 November 2007
"Coastal Areas and Land Administration – Building the Capacity"

"Surveys for Shoreline Monitoring Programme"

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SHORELINE MONITORING PROGRAMME

Normally stipulated by the Client (Implementing) Agency having responsibility over the affected coastline, as part of its requirement for the implementation of the coastal engineering works. This programme includes -

➡ Initial or Baseline Survey;

➡ Shoreline Monitoring Surveys during construction; and

➡ Shoreline Monitoring Surveys after completion of the construction works.

SHORELINE MONITORING SURVEYS

The technical requirement for a Shoreline Monitoring Surveys typically implemented included –

➡   Pre-mobilization Preparation;

➡   Planimetric and Height Control Surveys;

➡   **Topographic and Bathymetric Profiling.**
The shoreline profiles generally extend –

•   to at least 100 metres landward of the high water line or erosion scarp depending on the Site; and
•   to at least 1000 metres seaward of the low water line.
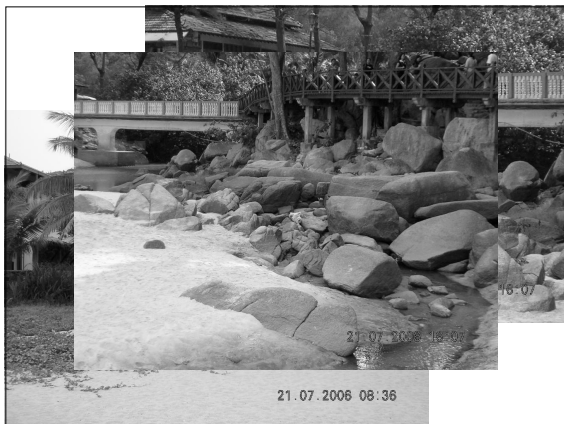

SHORELINE MONITORING SURVEYS (*contd*)
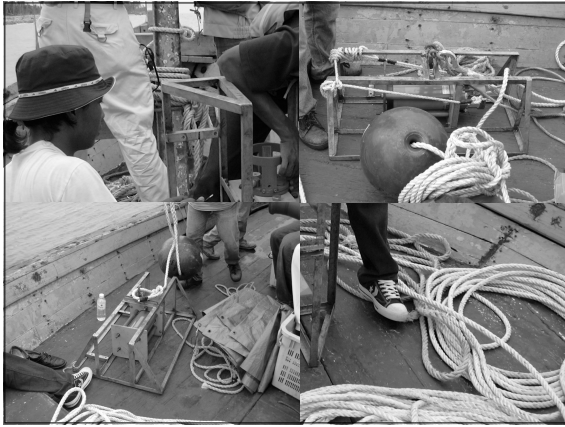
The technical requirement included –

➡   Topographic and Planimetric Site Survey;

➡   Water Level Measurement;

➡   Current (Self-recording) Measurement

➡   In-situ Measurements

•   tides,

•   current speed and direction,

•   temperature and salinity,

•   turbidity;

SHORELINE MONITORING SURVEYS (*contd*)

The technical requirement included –

➡   Sampling

•   seawater,

•   seabed;

➡   Preparation and Submission of Records, Plans and Report.
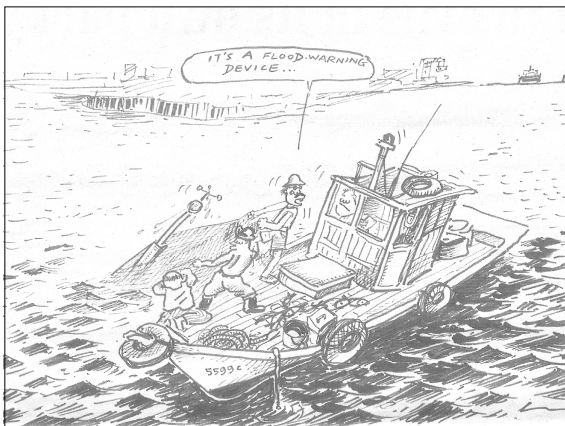

SHORELINE MONITORING SURVEYS (*contd*)

The equipment employed need not necessarily be sophisticated, rather "fit-for-purpose" and included, depending on the actual scope of work –

➡ Survey Total Stations;

➡ Automatic Levels;

➡ GPS Receivers;

➡ Single beam, single frequency echo sounders;

➡ Self Recording Water Level Recorders

➡ Real-time (short range) Differential GPS

Instrumentation (*contd*)

➡ Self Recording Current Meters;

➡ Acoustic Doppler Current Profiler;

➡ Direct-reading Current Meters;

➡ Direct-reading Temperature and Salinity Meters;

➡ Portable Turbidity Meters.

SHORELINE MONITORING SURVEYS (*contd*)

In almost all instances, local resources and knowledge are engaged through –

➡ survey vessels;
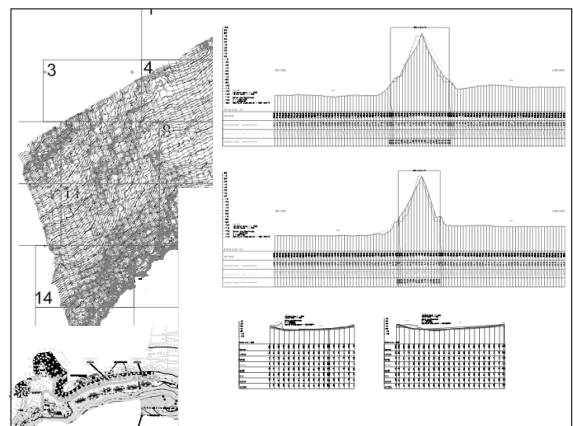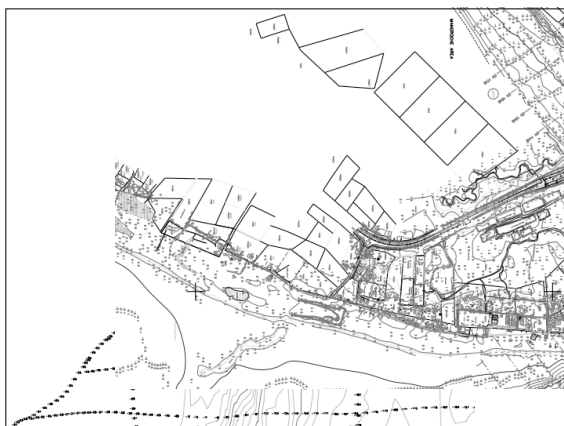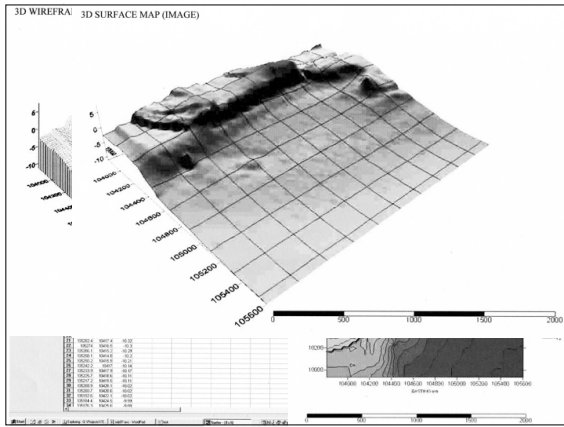
➡ casual workers and guards.

FREQUENCY OF SURVEY

The frequency of the survey is usually of the following -

a)   Initial or baseline survey before the commencement of the coastal engineering works;

b)   At three or four-monthly interval during construction; and

c)   At half-yearly interval for an additional period of two to three years after the completion of construction works.

Though the surveyor is almost normally amongst the first to be on-site, with shoreline monitoring programme, the surveyor is just about the last to leave the site.

3D WIREFRA | 3D SURFACE MAP (IMAGE)

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CONCLUDING OBSERVATIONS

✓ Surveyors to play its role and contribute towards an effective assessment of the success and sustainability of coastal development works;

✓ Continuing learning regime on the effectiveness and sustainability of the coastal engineering measures designed and implemented in an otherwise dynamic environment;

✓ It reinforces the role, essentiality and prominence of spatial dataset;

CONCLUDING OBSERVATIONS

✓ The surveyor's role is further enhanced when called upon to review the results of its survey, to compute quantities and volumes and to provide hard facts of the physical situation at site; and

✓ Planners, engineers and decision makers have access to "hard facts" (spatial dataset) to ascertain objectively whether project objectives and intent has been attained.

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Thank You