

PREPARATION OF TENDER DOCUMENTS

Being text of paper presented by Surv. L. Layi Arinola at the 2005 edition of the MCPD.

The Cambridge International Dictionary of English defines ‘Tender’ on page 1500 as “ a written or formal offer to supply goods or do a job for an agreed price.” A tender is also a “written offer to buy or sell goods or do a job.”

Tender is one of those few English words, which has so many meanings. On page 1500 quoted above, Tender means gentle, painful, soft, offer and container. For the purpose of this paper, the meaning that is relevant is that of “offer”.

The phrase “preparation of Tender Documents” has some element of ambiguity. For sake of clarity the two interpretations will be taken care of in the presentation of this paper.

1. Response to invitation to Tender Documents as presented by the consultant/contractor who is bidding formally to supply some goods or to tender for a service.
2. Preparation of Tender Documents as presented by the Client who is desirous of having some services rendered for him/her or some goods supplied to him/her.

WHAT IS A TENDER DOCUMENT?

A Tender Document is a document which aims at giving details of the

methodology and cost of providing a specialized service and/or specific/comprehensive details and cost of goods to be supplied.

WHAT DOES A TENDER DOCUMENT WANT TO ACHIEVE?

A Tender Document aims to explain unambiguously, details of services to be rendered or goods to be supplied.

ATTRIBUTES OF A TENDER DOCUMENT

A Tender Document must breakdown the project for which it was prepared, into the component parts. Thus to prepare a Tender Document, the author must have thorough understanding of the project to be implemented using the Tender Document. Added to the above, the author must know enough about the costing of each component part of the project so as to allocate enough funds for the component parts. It is good practice that a marking scheme or assessment scheme be designed such that respondents to the invitation for tender can be appropriately assessed. An inappropriately prepared document is a highway to project failure. Some Tender Documents are accompanied by bill of quantities especially for construction purposes. For the purpose of this paper, it is considered desirable that Tender Documents for sample projects be prepared.

SAMPLE PROJECT ONE

Mapping (from aerial photography)

Tender Document for sample project one must contain the following: -

- Collection of existing maps, plans, aerial photography of the project site.
- Cost of importation of aircraft, cost of flying, cost of securing counter notice and cost of airport tax for aircraft parking.
- Cost of establishment of horizontal and vertical controls, cost of identification of ground control points and cost of coordination of planimetric and height points
- Cost of photogrammetric control extension and of aerial triangulation
- Cost of machine compilation
- Cost of field compilation
- Cost of fair drawing/cartographic finishing
- Cost of submission, presentation and training

SAMPLE PROJECT TWO

Mapping (from satellite imagery)

TECHNICAL DETAILS ABOUT JIGAWA STATE

Total Land Area	About 23,900 square kilometres
Total Perimeter Distance	About 1153 kilometres
Total Number of Local government Areas	27

PROJECT TERM OF REFERENCE.

Production of small scale map of Jigawa State at 1:100,00/50,000, and large

scale maps at scale 1:5,000 for all the local Government Headquarters of Jigawa State.

METHODOLOGY FOR PRODUCTION OF STATE MAP @ 1:100,000/50,000

The major tasks to be carried out during the mapping project execution are as follows;

1. Procurement of existing Topographical maps covering Jigawa State.
2. Conversion of these maps to raster digital format by scanning.
3. Conversion of these maps to full vectorised digital map by geo-referencing and vectorisation.
4. Procurement of 10m resolution multispectral satellite image of the project site.
5. Identification of ground control points (GCP's) and coordination of same to determine the XYZ coordinates of these points using the Geodetic Global Positioning System GPS.
6. Utilization of the GCP's to geo-reference and ortho-rectify the satellite images.
7. Field Completion and collection of names of settlements, rivers, roads etc.
8. Production of satellite image maps which will form the basis of submissions to the Jigawa State Government. These image maps are best described as planimetric image maps.
9. Production of (DEM) Digital Elevation Model and contours at 10m interval from a stereo pair of satellite images.
10. Vectorisation to produce the topographical line maps at scale 1:100,000/50,000.

11. Submission will be made in digital format on compact disk and in paper format on gridded standard map sheets.
12. Training of staff of the Jigawa State Government on the utilization of the digital maps.

Conversion of Existing Maps into Digital Format

Cost of scanning (colour) estimated 10 sheets of Existing Maps
 Cost of Geo-referencing and Vectorization at To convert to full digital map
 Cost of development of map index for the project site
 For mapping at scale 1:100,000/1:50,000

PROCUREMENT OF APPROPRIATE SATTELELITE IMAGES

Type of Satellite Image to be acquired -
 Multispectral

Date of acquisition:		Current
Year 2005		
Resolution	-	10metres
Producer	-	Spot Image
Number of Scenes covering project site.	10
Swath Width of each scene	55km x 55km

Cost of Acquisition per scene
 Programming Service charge
 Cost of acquisition of 10scenes
 Cost of Identification and co-ordination to determine the XYZ coordinates

of 9 Ground control points per scene for Geo-referencing of the images.
(The GCP's- Ground Control Points will be co-ordinated using
the Geodetic GPS.

Cost for each points

Cost for 90 points (10Scenes)

Cost of field completion and place name collection

Cost of gridding and breaking of entire project area into
1:5,000 map sheets to produce satellite image maps

Cost of printing ONE set each of the estimated 15 map

Sheets to be produced at the rate of

Cost of generating DEM's and contours from the stereo-pair

Of satellite images

Cost of vectorisation to obtain digital topographical line map

METHODOLOGY FOR PRODUCTION OF LOCAL GOVERNMENT
HEADQUARTERS MAP @ 1:5,000

The major tasks to be carried out during the mapping project execution are
as follows;

13. Procurement of existing paper maps and plans at large scales.
14. Conversion of these maps to raster digital format by scanning.
15. Conversion of these maps to full vectorised digital map by geo-referencing and vectorisation.
4. Designing of map index for all the local Government Headquarters of Jigawa State.
at scale 1:5,000.
16. Procurement of 0.61 spatial resolution multispectral satellite image

of the project site.

17. Identification of ground control points (GCP's) and coordination of same to determine the XYZ coordinates of these points using the Geodetic Global Positioning System GPS.
18. Utilization of the GCP's to geo-reference and ortho-rectify the satellite images.
19. Field Completion and collection of names of settlements, rivers, roads etc.
20. Production of satellite image maps which will form the basis of submissions to the Jigawa State Government. These image maps are best described as planimetric image maps.
21. Generation of DEM (Digital Elevation Model and contours at 3m interval from a stereo pair of satellite images.
22. Vectorisation to produce the topographical line maps at scale 1:5,000.
23. Installation and Training.

Conversion of Existing Maps into Digital Format

Cost of scanning (colour) estimated 100 sheets of Existing Maps.

Cost of Geo-referencing and Vectorization at To convert to full digital map.

Cost of development of map index for the project site For mapping at scale 1:5000

PROCUREMENT OF APPROPRIATE SATTELELITE IMAGES

Type of Satellite Image to be acquired -

Multispectral

Date of acquisition:

Current

Year 2005

Resolution -

0.61m

Producer -

Quick Bird

Number of Scenes covering project site.

27

Swath Width of each scene

16km x

16km

Cost of Acquisition per scene plus

Programming Service charge

Cost of acquisition of 27 scenes

Identification and co-ordination to determine the XYZ coordinates

of 9 ground control points per scene for Geo-referencing of the images.

(The GCP's- Ground Control Points will be co-ordinated using
the Geodetic GPS.

Cost for each points

Cost for 243 points (27Scenes)

Cost of field completion and place name collection

Cost of gridding and breaking of entire project area into

1:5,000 map sheets to produce satellite image maps

Cost of printing ONE set each of the estimated 270 map

Sheets

Cost of generating DEM's and contours from the stereo-pair

Of satellite images

Cost of vectorisation to obtain digital topographical line map

PERIOD OF COMPLETION:

SCALE OF MAPPING:

We wish to emphasize that it is technically unsound to produce topographical maps at scale 1: 2000 from satellite images of 0.61m spatial resolution. Hence this proposal is for mapping at scale 1:5000.

SAMPLE PROJECT THREE

Survey requirement for estate development

Tender Document for sample project one must contain the following: -

- Demarcation survey
- Spot heights, contours and detail survey. *The above will be utilized by planners for the detailed sites development plan. The Architects will produce building plans and submit same to the relevant development control authorities for approval.*
- Preparation of setting out data for plots and parcels, for corners of buildings, centre line of roads including curves, .
- Fields-staking of centre lines of roads and right-of-way.
- Fields-staking of corners of buildings.
- Field-staking of corners of plots

- Post construction/As built survey
- Preparation of title deed plans.

Costing for the above-enumerated procedure.

Tender assessment questions for mapping from satellite imagery

1. Choice of Imagery (multispectral/panchromatic)
2. Resolution and type of Imagery adequate for the mapping scale.
 - 1 No of Scenes of Images required for mapping.
 - 2 Cost of Imagery per scene.
3. Date of Acquisition of Imagery
4. Level of Processing of Imagery

For bidders opting for aerial photograph method the following information should be supplied:

1. Proposed Scale of Photography for each of the mapping scale
2. Type of Aircraft
3. Availability of Aircraft (whether readily available or to be imported)
4. Period when flying can be carried out.

TENDER FOR WORLD BANK/UNDP/DFID PROJECTS:

These international tenders are always accompanied by voluminous documentation. Simple obedience is the key word to successful bidding for these projects. Familiarity with the method of assessment plays a vital role. Details will be discussed during presentation.