



ADMINISTRATIVE ORDER )  
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SUBJECT : Survey Standard Instrumentation and Procedures in the Verification and Approval of Maps in the Department of Environment and Natural Resources.

Pursuant to DENR Administrative Order No. 1 dated January 13, 1988, and in line with the continuing program of organizational development improvement, and in order to further enhance the capability, efficiency and the effectiveness of the Department's survey verification and monitoring functions and in meeting the ever increasing demands for varied land maps in the implementation of the Comprehensive Agrarian Reform Program and other related technical services of numerous land based undertakings of both the government and the private sectors, the following survey standards, equipments and procedures are hereby adopted for the guidance and compliance of all concerned.

**A. Cadastral Land Surveys**

Cadastral Survey shall cover the survey of extensive areas of lands for more accurate delineation of timberland and classified A & D lands within a municipality, the political boundary delineation, and the individual survey of lots for registration proceedings, agricultural development, or for any other purposes deemed necessary.

The method, conduct and terms of survey shall be governed by the Lands Administrative Order No. 4 dated 3 July 1980, more commonly referred to as the Manual for Land Surveys in the Philippines, and the Most Recent Version of Instruction to Bidders being adopted by the Department, except for provisions superseded by the introduction of new policy guidelines and procedures introduced by this Administrative Order or subsequent issuance that may later be signed.

**B. Survey of Integrated Social Forestry (ISF) Areas:**

- 1) The perimeter survey of the ISF shall be surveyed with procedures, precision and standards prescribed for the kind of survey and using calibrated and registered surveying instruments that could give the required precision.
- 2) In case of the on-going Cadastral Projects, the perimeter survey of ISF areas shall be surveyed concurrently with the lot boundary surveys in A & D areas and projected in Cadastral or Social Forestry Maps.
- 3) The perimeter survey of the ISF areas upon issuance of the survey authority by the RED shall be conducted based on the sketches prepared by the Land Evaluation and Survey Team with the guidance of the Forestry Officer assigned by the RED to the project.
- 4) The survey shall be tied to any reference point of known position established by a circuit or loop traverse of tertiary precision. If EDM is used, it shall be periodically tested over a line of known length to verify the instrument constant and check for frequency drift.

- 5) The corners of the prominent turns of the boundaries shall be defined by concrete monuments 15 x 15 x 50 cm. marked on top "ISF" and the monument number below it, set 40 cm. in the ground. The rest to be "X" marks on immovable or fixed hard rocks or boulders with exposed surfaces of more than one meter in diameter, trees belonging to the first group or indigenous or living edible fruit trees.
- 6) The parcellary mapping of the individual ISF awards within the ISF areas shall be undertaken by the Administration using instrument of lesser precision or lower standards such as tachimetry or stadia methods.
- 7) Preparation of Social Forestry Maps
  - 7.1. In the case of perimeter survey and parcellary survey of the ISF areas in previously cadastrally and not yet cadastrally surveyed municipalities, the survey shall be plotted on the isolated survey plan form and the survey symbol shall be "SF-Region Code Number xxxxx". The plan and the survey record shall be verified and certified correct only by the Chief, Regional Surveys Division after its verification to prevent its use in titling.
  - 7.2. In the case of an on-going cadastral, an overlay of the cadastral map segregating the forest land shall be prepared. This overlay shall be prepared similar to the cadastral map in all aspects but shall be called SFM instead of CM. The perimeter survey of the ISF parcels shall be plotted on the SFM and numbered consecutively from ISF-Parcel 1, ISF-Parcel 2, etc.

**C. Mineral Land Surveys:**

- 1) Mineral surveys are surveys for quarry applications, sand and gravel concessions, mining claims, coal and petroleum, and other mineral lands, executed for quarry license/permit, location, patent, lease, concession or production sharing agreement and other mining agreement. These surveys shall now be executed consistent with the standards and precision prescribed for isolated land surveys per Manual for Lands Surveys of the Philippines.
- 2) The mineral survey shall be executed like any isolated survey tied to acceptable reference point of known position, using registered and calibrated instruments such as transit and tapes or Theodolite and EDM.
- 3) The survey shall be plotted on the isolated survey plan form and given the appropriate survey symbol.
- 4) The previously approved property surface surveys and other occupancies shall be plotted in dashes on the mineral land survey plan.
- 5) The mineral land survey returns shall be submitted to the Regional Surveys Division thru the Mines and Geo-Sciences Sector for verification and approval. The plan shall bear the words "Not for Registration in Court".

**D. Land Classification Surveys:**

- 1) Classified forests shall be delimited by a survey of tertiary precision using at least Forestry Transits and prescribed tapes. Photo maps or enlarged rectified aerial photographs may be used as guide in the delimitation of the forest lands before the actual ground survey.
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- 2) As far as it is practicable, the boundary shall be marked with parallelepiped concrete markers 15 x 15 x 50 cm. set 40 cm. below surface of the ground leaving a projection of 10 cm. above ground with "FZ" and marker number engraved on top, whenever concrete monument iron spikes, is not practicable, the corner shall be "x" marks etched on big immovable boulders with exposed surface of at least one meter in diameter defined by natural features, such as creeks, streams, etc., the centerline of which is located by intersection method or by stadia method.
- 3) The delimitation survey shall be plotted in a Land Classification Map (LC Map).
- 4) The surveys of Land Classification shall be under the responsibility of NAMRIA.
- 5) The land use/capability survey shall be the responsibility of the Forest Management Sector.

E. New methodologies and instrumentation such as photogrammetric method and satellite surveying which will be accepted as alternate or a supplemental survey methodologies in the conduct of the above surveys may be approved by the Lands Management Bureau.

**F. Geodetic Control Survey**

The establishment of first, second and third order geodetic network control points shall be the responsibility of the NAMRIA.

**G. The Field Network Survey Parties.**

- 1) The Field Network Survey Parties shall densify the existing geodetic control points from the 25 or 10 kilometer density establishment by NAMRIA to service the Cadastral Survey Program.
- 2) The FNSP shall correct previously established Bureau of Lands Location Monuments (BLLMs), Barangay or Barrio Boundary Monuments (BBMs), Provincial Boundary Monuments (PBMs), Municipal Boundary Monuments (MBMs) and other reference points of cadastral surveys to the Global Positioning System (GPS) for transformation into one system to be used in the Cadastral Mapping.
- 3) To be effective and efficient, the FNSP shall be under the direct administrative control of the RED thru the RTD for Lands with the Surveys Division providing the technical guidance and assistance.

**H. Standard Maps**

- 1) To avoid confusion as to which agency to approach for particular map requirements and to isolate sole responsibilities on the production, update, maintenance and issuance of maps or portion of information thereof, only the listed agencies shall be made responsible for the maps acknowledged to be under their jurisdiction.

All other information coming from other agencies outside their acknowledged jurisdiction shall be deemed unofficial.

The symbology used, layout and other information indicated on the map shall be determined by the agency responsible for its preparation. The symbols however for those features which are common on all maps like roads, railroads, bridges, etc. shall be the same as those appearing in the topographic maps.

The proposed map assignments per agency and the scales and sizes at which the maps are to be produced are as listed:

| <u>Agency</u>       | <u>: Maps/Plans</u>                | <u>: Maps Size:</u> | <u>Scale</u> | <u>: Remarks</u>  |
|---------------------|------------------------------------|---------------------|--------------|---|
| a. Lands Service    | : Cadastral Maps:                  | 54x54 cm.:          | 1:4000       | : Presently being adopted                               |
|                     |                                    |                     | : 1:2000     | : Sectoral map being adopted                            |
|                     |                                    |                     | : 1:1000     | : - do -  |
|                     |                                    |                     | : 1:500      | : - do -  |
|                     |                                    |                     | : 1:250      | : - do -  |
|                     | : Barangay Municipal Boundary      | : 54x54 cm.:        | 1:4000       | : being adopted and its derivatives                     |
|                     | Index Maps (BBIM, MBIM)            |                     |              |   |
|                     | : Isolated Survey Plan             | : 42x54 cm.:        | 1:100        | : Verification and its derivatives and approval         |
| b. Mines Service    | : Geologic Map                     | : 75x55 cm.:        | 1:50000      | : Presently being adopted                               |
|                     | : Mineral Land Survey Map          | : 54x54 cm.:        | 1:250000:    | - do -  |
|                     | : Phil. Mineral Rights Master Maps | : 60x75 cm.:        | 1:250000:    | - do -  |
| c. Forestry Service | : Integrated Social Forestry Maps  | : 54x54 cm.:        | 1:4000       | : - do - except standard size                           |
|                     | : Forest License Maps              | : 54x54 cm.:        | 1:1000       | : - do - and its derivatives                            |
| d. NAMRIA           | : Land Classification Maps         |                     | : Variable   | : Presently being adopted (previously on scale 1:20000) |

The above-mentioned maps shall be identified by sheet number explained in annex A.

In the production of maps, the traverse mercator projection shall be used. The UTM shall be used for all topographic maps on scales 1:10000 and smaller. A pair of PTM (PPCS) lines shall be shown on topographic maps to aid local surveyors and other users familiar with the use of the Philippine Plane Coordinate System. For maps on scales larger than 1:10000, this system (PPCS) shall remain to be used.

  
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 Secretary