



Republic of the Philippines
Department of Environment and Natural Resources
Visayas Avenue, Diliman, Quezon City
Tel.Nos. (632) 929-66-26 to 29 •(632) 929-62-52
929-66-20 to 29 •929-66-33 to 35
929-70-41 to 43

MAY 29 2015

DENR ADMINISTRATIVE ORDER
No. 2015 - 10

SUBJECT: GUIDELINES ON THE DELINEATION AND DEMARCATION OF BOUNDARIES OF PROTECTED AREAS UNDER THE NATIONAL INTEGRATED PROTECTED AREAS SYSTEM (NIPAS)

Pursuant to Section 4, Article XII of the 1987 Philippine Constitution, Republic Act No. 7586 or the National Integrated Protected Areas System (NIPAS) Act of 1992, DENR Administrative Order No. 2008-26 or the Revised Implementing Rules and Regulations (IRR) of the NIPAS Act, and other pertinent laws, rules and regulations, the following guidelines and procedures on the delineation and demarcation of boundaries of protected areas are hereby prescribed for the guidance and compliance of all concerned.

Section 1. Basic Policy. It is the policy of the State to secure for the Filipino people of the present and future generations the perpetual existence of all native plants and animals through the establishment of a comprehensive system of integrated protected areas within the classification of National Parks as provided in the Philippine Constitution.

Section 2. Objective. This Order aims to provide the specific guidelines and procedures for the survey, delineation and demarcation of boundaries of all protected areas under the NIPAS.

Section 3. Scope and Coverage. This Order shall apply to all protected areas established and to be established pursuant to the NIPAS Act of 1992. Protected areas designated through Presidential Proclamation shall be delineated while areas already covered by Congressional Act shall be demarcated on the ground. Provided, however, that areas identified as initial components of the NIPAS will be excluded in the delineation activities until they had undergone all the requirements for establishment as protected areas.

Section 4. Definition of Terms. As used in this Order, the following terms shall be defined as follows:

1. **Boundary marker** – the monuments and markings such as concrete monuments, buoys, deciduous trees, big rocks/stones, PVC stakes and the likes established and painted to identify the boundaries of the protected areas as prescribed in Section 7 hereof;
2. **Delineation** – the conduct of site investigation, field reconnaissance and staking using standard signages and identifying or installing prescribed markers/monuments on the ground or setting prescribed stainless steel spherical buoys on the surface, if bodies of water, to mark the boundaries of areas declared protected through presidential proclamation and verified in the field in accordance with the criteria set forth in the establishment of protected areas under the NIPAS;
3. **Demarcation** – the establishment of the boundaries of a national park or legislated protected area by installing visible markers/monuments, buoys in case of marine areas, and known natural features/landmarks, among others, as a result of actual ground delineation;

Let's Go Green



4. Final map – map generated from the delineation and demarcation of the protected area with technical descriptions at a scale of 1:50,000;
5. NIPAS – the classification and administration of all designated protected areas to maintain ecological processes and life-support systems, to preserve genetic diversity, to ensure sustainable use of resources found therein; and to maintain their natural conditions to the greatest extent possible;
6. Preliminary map – initial map generated out of the protected area map and overlaid with other ground maps such as topographic map, land classification map and other necessary maps, to be used as reference for the boundary delineation and demarcation of protected areas;
7. Protected area – identified portion of land and/or water set aside by reason of their unique physical and biological significance, managed to enhance biological diversity and protected against destructive human exploitation; and
8. Strategic places – vantage points adjacent to local communities, traverse in riverbanks and streams, roadsides and entry points where monitoring of illegal activities can take place.

Section 5. Implementation Structure. To provide guidance and ensure effective and efficient implementation of the delineation and demarcation of protected areas, the following Committees/Groups are hereby created, the functional structure of which are shown below:

- 5.1. National Delineation and Demarcation Committee (NDDC) - The NDCC shall set the policy directions in the implementation of boundary delineation and demarcation activities of protected areas. It shall convene regularly to review and evaluate the results of the survey, delineation and demarcation of protected areas and endorse the survey results including the final map of the protected area, for approval of the Secretary.

Chairperson : Undersecretary for Field Operations

Vice-Chairperson: Director, Biodiversity Management Bureau (BMB)

Members:

Director, Policy and Planning Service
 Director, Remote Data Analysis Branch, NAMRIA
 Director, Mines and Geosciences Bureau
 Director, Forest Management Bureau
 Director, Lands Management Bureau
 Representative, DENR Legal Affairs Service Office

Secretariat : BMB Staff

- 5.2 Regional Delineation and Demarcation Committee (RDDC)–A Regional Delineation and Demarcation Committee which will be headed by the Regional Director (RD) shall be created to oversee and coordinate the activities under this guideline. The RDDC shall also organize the Regional Delineation and Demarcation Team (RDDT) through a Special Order to be issued by the RD. The RDDC shall have the following members:

Chairperson : Regional Director

Vice Chairperson : Assistant Regional Director for Technical Services (ARDTS)

- Members : One representative each from the Regional Land Evaluation Party (LEP), concerned Protected Area Management Board (PAMB), Legal Division, Licenses, Patents and Deeds Division (LPDD), Surveys and Mapping Division (SMD), and Mines and Geosciences Bureau Regional Office
- Secretariat : Conservation and Development Division (CDD) Chief and the concerned Protected Area Superintendent

5.3 Regional Delineation and Demarcation Team (RDDT) – The Regional Delineation and Demarcation Team (RDDT) shall conduct the actual survey and field delineation/demarcation. The ARDT shall be designated as the RDDT Coordinator with the following members:

a. Terrestrial Protected Areas:

- Team Leader – Land Evaluation Party (LEP) Registered Geodetic Engineer
- Three (3) Crew Members (Concerned Protected Area Superintendent, 2 Survey Aides)
- At most 10 laborers (2 brushers, 1 transit carrier, 2 manufacturers, 4 haulers, 1 planter)

a. Marine Protected Areas:

- Team Leader - Registered Geodetic Engineer
- Crew Members (2 Marine Biologists or technical personnel of appropriate training and qualifications),
- Survey Aides (at most 5)
- Representative from the Philippine Coast Guard

Section 6. Delineation and Demarcation of Protected Areas. Upon establishment of the Protected Area through presidential proclamation pursuant to the NIPAS Act of 1992, its boundaries shall be delineated using standard signages. Upon legislation or establishment through congressional act, its boundaries shall be located or relocated and demarcated on the ground with concrete monuments or other prominent physical landmarks or features. An index of station numbers shall be engraved on the monuments or markers to serve as reference. Appropriate markers shall be used where the boundary of the protected area is on water.

6.1 *Preparatory Phase.* Prior to the conduct of the actual ground survey, the following shall be compiled to generate the preliminary map which will be used as reference for the boundary delineation and demarcation:

- a. Cadastral Map;
- b. DMA Topographic maps (1:50,000);
- c. Land Classification maps (to be provided by NAMRIA);
- d. Protected Area map; and
- e. Other related maps as may be necessary.

6.2 *Implementation Phase.* The actual ground surveys, delineation and demarcation of boundaries shall be consistent with the protected area delimitation provisions under DENR Administrative Order No. 2007-29 also known as the “Revised Regulations on Land Surveys” and Memorandum Circular No. 2010-13 or the Manual on Land

Survey Procedures. All surveys shall be executed using precise survey instruments such as, Global Positioning System (GPS), among others.

The lines and corners of the protected area as indicated in the Proclamation and/or Republic Act shall be the primary basis for the validation of boundaries and the subsequent delineation and demarcation. Observations and information gathered during the field activities shall be recorded and shall form part of the final report.

All settlements/communities within the protected area should be duly noted and their exact location, marked on the ground and on the map. The settlements/communities noted in the boundary delineation and demarcation process should not in any manner lead to the reclassification of that portion of protected area.

The participation of local communities especially those that will be affected by such activity will be encouraged during the conduct of the actual boundary delineation and demarcation. For effective delineation and demarcation of the protected area, the following activities shall be undertaken by the RDDT:

- a. Locate or relocate on the ground the corners of the protected area using the preliminary map and Congressional Act and/or Presidential Proclamation as references;
- b. Corners shall be marked with monuments and appropriate markers in accordance with the prescribed design and specification provided for in Annex A;
- c. In between corners, signages/markers must be installed in strategic places and/or every 250 m, if necessary;
- d. For terrestrial protected areas, three (3) strips (quincunx) of suitable and fruit/flowering endemic tree species shall be planted along the boundary lines in between concrete monuments with spacing of 4 m x 4 m (see Annex B for illustration);
- e. The final map of the protected area with technical descriptions at a scale of 1:50,000 shall be prepared and certified by the RDDT and submitted to the RDDC through CDD and the PASu for further review and endorsement to the NDCC. The approved protected area map shall be plotted in the Cadastral Map by the concerned Regional Office; and
- f. The RD, as chairman of the RDDC, shall ensure the correctness and authenticity of the maps. He/she shall sign and endorse the same to the Secretary through the NDCC for final approval.

Section 7. Boundary Markers. Permanent markers such as monuments, buoys and alternative markers shall be installed using the standard design and specification as provided herein.

7.1 Description of monument and establishment procedures for protected areas established through enactment of a Law:

7.1.1 Terrestrial Protected Areas

- a. For concrete monuments, it shall have a minimum dimension of 20.00 cm x 20.00 cm x 90.00 cm. The materials to be used shall be Class A (1:2:4) concrete, longitudinally reinforced with single 10.00 mm diameter standard deformed steel bar, properly embedded on the center.

The boundary markers should bear the letters “NP” which means “National Park” and the corner numbers engraved at the center on top of the monuments. The letter should be 10.00 cm high in Arial font and the “corner number” in 5.00 cm diameter (Corner No. 1). The said monuments should be installed vertically and as accurately as possible where the corner points of the protected area are located on the ground. The monument shall be implanted 45.00 cm deep on the ground.

Signages/markers installed in strategic places and/or in every 250 m along the boundary shall have the markings as provided for in DAO No. 2009-09 dated August 20, 2009, and should be stated in English and in the local dialect as shown in Annex C.

- b. Should there be corners located in spots where the use of concrete monuments are not applicable, permanent features on the ground such as boulders or rock surfaces, with an exposed surface of at least one (1) meter, can serve as alternative markers. They shall be marked with the corner number and the letters “NP” the font size of which is 10.00 cm arial font. These shall be painted red with at least three (3) coatings. A 15 cm x 15 cm square box shall also be painted with the same paint and coatings to enclose the markings and the corner number at its center. The geographic coordinates of each corner should be recorded.
- c. Large deciduous trees with at least one (1) meter in diameter at breast height (DBH) can also be used as an alternative marker.

7.1.2 Marine Protected Areas

If the corner points are located on the sea or in any water body, the use of red factory made stainless spherical buoys with 30.48 cm minimum diameter can be used, provided, that the letters “NP” (5.00 cm high, Arial font) and the corner number (1cm) are engraved on a metal plate resistant to seawater and firmly attached at the top. The said buoys with sinker should be properly chained and anchored. However, damage to under water resources such as corals, sea grasses, and the likes should be avoided. A solar powered blinker maybe attached to the buoy. The geographic coordinates of each corner marked by buoys should be recorded. Illustration of boundary markers for marine protected areas is hereto attached as Annex D.

- 7.2 A protected area established through Presidential Proclamation pursuant to the NIPAS Act of 1992, shall be delineated and the corners shall be marked using standard signages, temporary markers or PVC pipes, the specification of which is shown in Annex E.

7.2.1 Methods of Fabrication and Installation:

- a. A 2 inches diameter, 3.33 feet in height orange pvc pipe shall be used as stake mounted on the center of a 12 in. x 4 in.
- b. The portion of the pipe embedded in the concrete footing shall be provided with 2-8 mm, 6 in. long installed perpendicular with each other serve as an anchor.
- c. The PVC pipe shall be filled with concrete.

- d. An arrow pointing to the direction of the next corner shall be inscribed on the top of the PVC pipe.
- e. The pre-fabricated stake shall be erected 1.33 feet below the natural ground level.

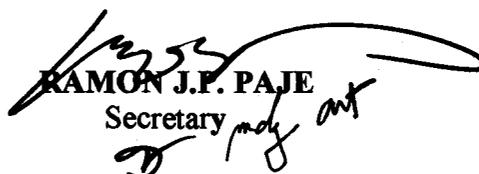
All corners and important natural and man-made features shall be noted and recorded.

Section 8. Appropriations. Funds for the delineation and demarcation of protected areas shall be included in the regular budgetary allocation of the DENR. Additional funds may be sourced from other funding institutions.

Section 9. Conflict Resolutions. Parties shall exert their best effort to resolve boundary disputes through amicable settlements. Should disputes remain unresolved, the parties shall resort to conciliation or mediation.

Section 10. Repealing Clause. This Order amends and/or supersedes all existing DENR guidelines, instructions, rules or regulations contrary hereto.

Section 11. Effectivity. This Order shall take effect fifteen (15) days after its publication in newspaper of general circulation and a copy thereof submitted to the Office of National Administrative Register (ONAR).


RAMON J.F. PAJE
Secretary



SENRO39848

Recommending Approval:



THERESA MUNDITA S. LIM
Director, Biodiversity Management Bureau

Publication: Malaya

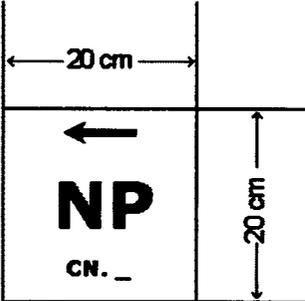
June 03, 2015

Acknowledgement: ONAR, UP Law Center

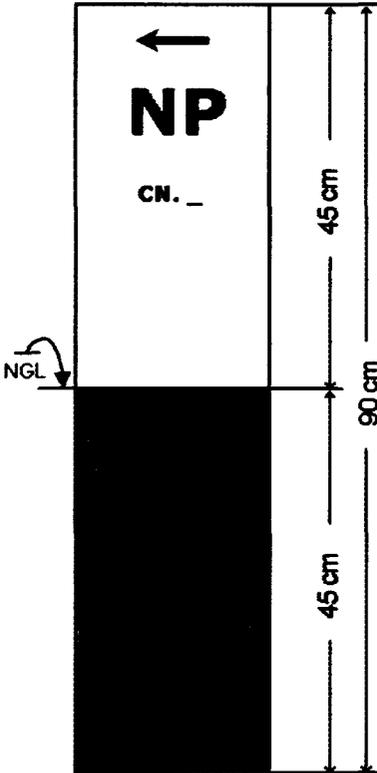
June 05, 2015

**PROPOSED BOUNDARY MARKERS FOR
TERRESTRIAL PROTECTED AREAS**

Monument



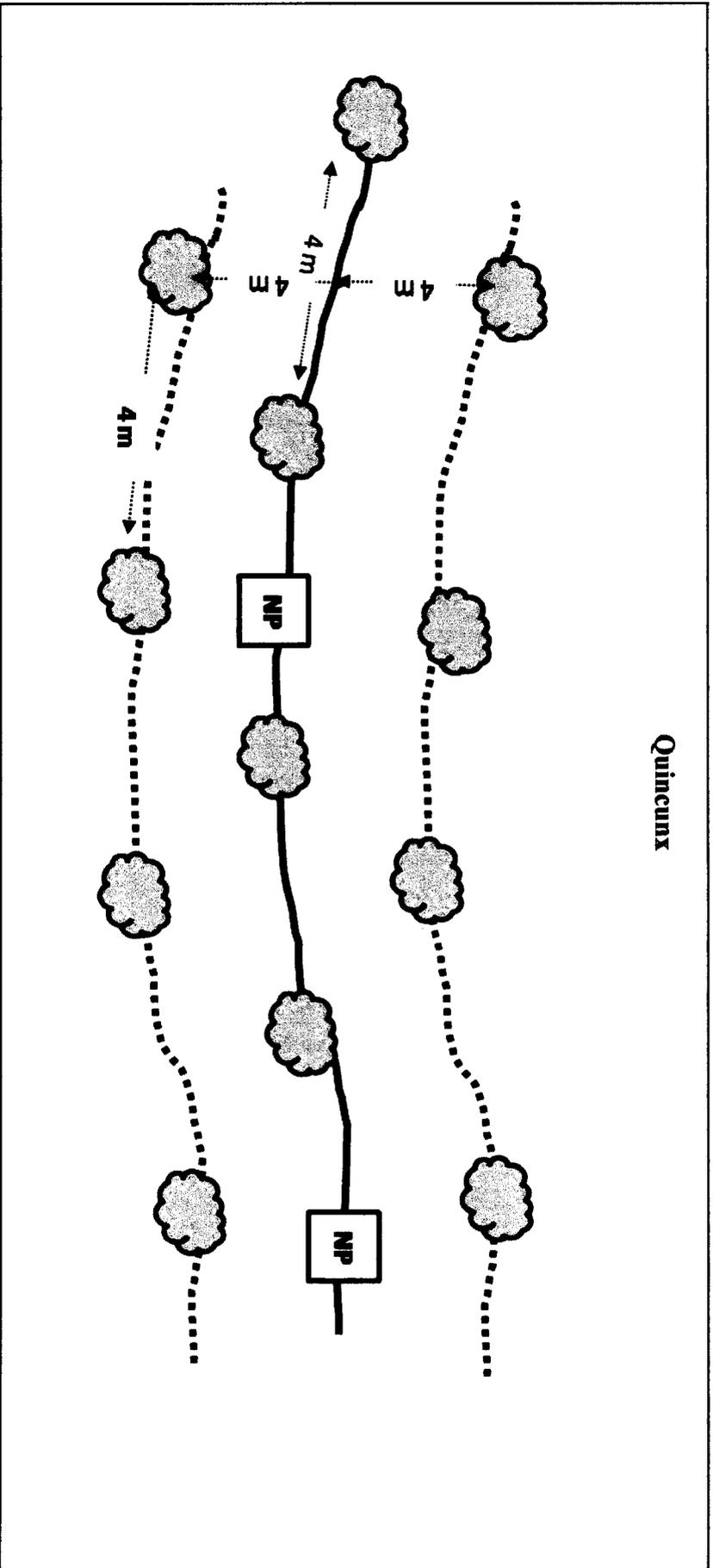
TOP VIEW



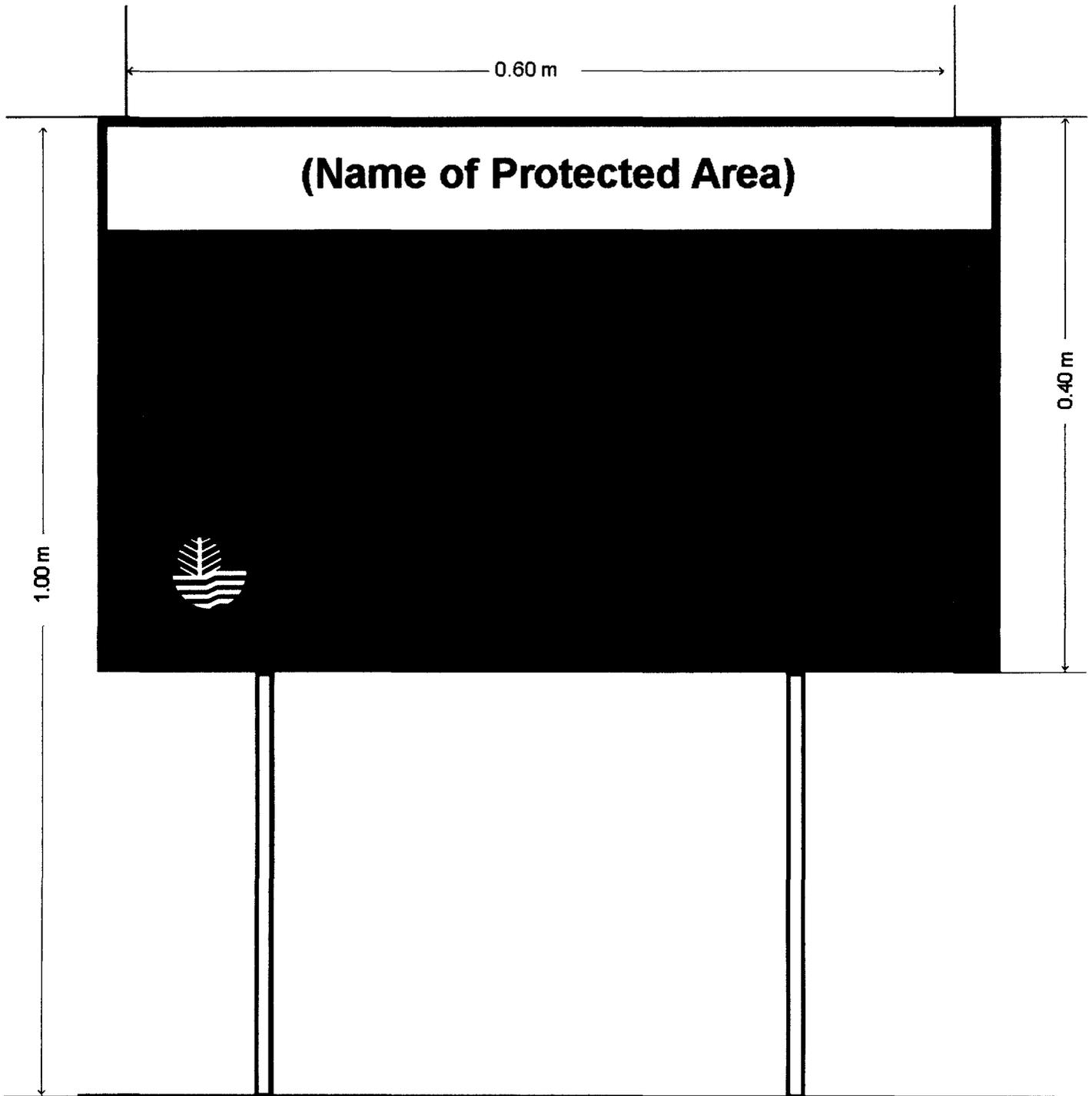
20cm x 20cm x 90cm

FRONT VIEW

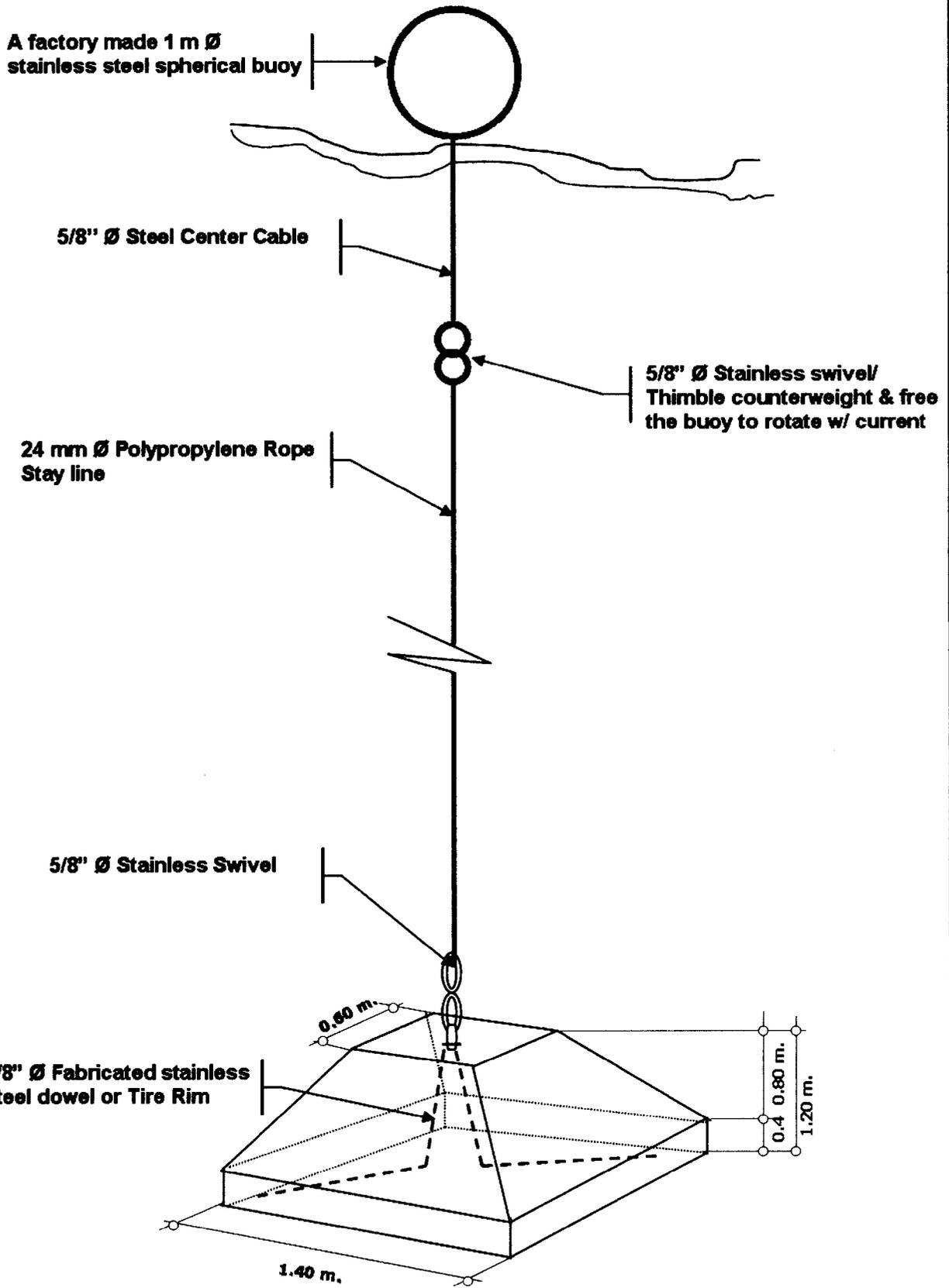
Quincunx



**INTERMEDIATE SIGNAGES/MARKERS
FOR TERRESTRIAL PROTECTED AREAS**



PROPOSED BOUNDARY MARKERS FOR MARINE PROTECTED AREAS WITH 4 TONS CONCRETE SINKER

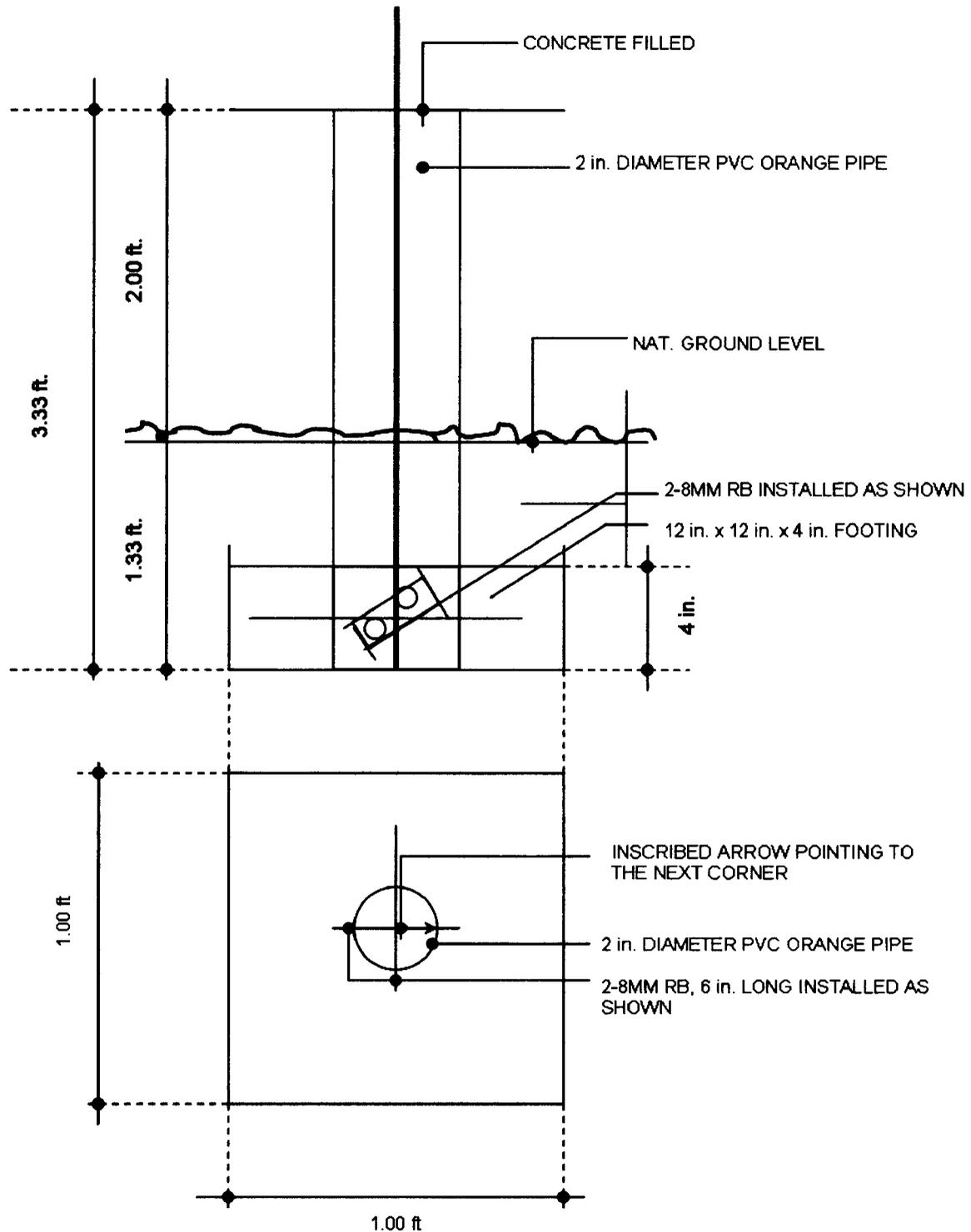


ISOMETRIC VIEW OF ANCHORAGE

Scale

1:100m

SPECIFICATIONS OF THE CORNER STAKE



Methods of Fabrication and Installation:

1. A 2 inches diameter, 3.33 feet in height orange pvc pipe shall be used as stake mounted on the center of a 12 in. x 4 in. thick concrete block footing.
2. The portion of the pipe embedded in the concrete footing shall be provided with 2-8 mm, 6 in. long installed perpendicular with each other serve as anchor.
3. The pvc pipe shall be filled with concrete.
4. An arrow pointing to the direction of the next corner shall be inscribed on the top of the pvc pipe.
5. The pre-fabricated stake shall be erected 1.33 feet below the natural ground level.

COST ESTIMATES FOR BOUNDARY DELINEATION/DEMARCATIION

TERRESTRIAL PROTECTED AREA

I. DEMARCATIION

Sub-Activity	Unit Costs (Php)	Total Cost /km
PA Boundary Demarcation		
A. Survey		4,340.00
1 Instrument man (GE or Forester)	800 (allowance)/day	800.00
3 Survey Aide (concerned PASu, 1 front sight, 1 backsight)	800 (allowance)/day	2,400.00
3 Laborers (2 brushers, 1 transit carrier)	380/day	1,140.00
B. Monumenting		4,280.00
7 laborers (2 manufacturers, 4 haulers, 1 planter)	380/day	2,660.00
monument	420/monument	420.00
Singnages	400/signage x 3	1200.00
Total		<u>8,620.00</u>
C. PMS (15%)-base map preparation, report preparation, etc)		1,293.00
GRAND TOTAL		9913.00

II. DELINEATION

Sub-Activity	Unit Costs (Php)	Total Cost /km
A. Survey		4,380.00
1 Instrument man (GE or Forester)	800 (allowance)/day	800.00
2 Survey Aide	800 (allowance)/day	1,600.00
5 Laborers	380/day	1,900.00
B. Staking	300/stake x 4	1,200.00
Total		<u>5,500.00</u>
C. PMS (15%)		825.00
GRAND TOTAL		6,325.00

MARINE PROTECTED AREA

**DETAILED ESTIMATE OF ONE (1) SET BOUNDARY MARKER BUOY
WITH 4 TONS CONCRETE SINKER**

Component	No.	Unit of Price Measure	Unit Price Rate/Day	Amount	Total
A. Fabrication of Concrete Sinker (Sub-Total)					23,550.80
A.1 Materials for Concrete Sinker					16,822.00
1. 16mm Reinforcement bars	11	pcs.	437.00	4,807.00	
2. Portland/Fortune cement	12	bags	250.00	3,000.00	
3. Mixed gravel & sand	3	cu.m.	500.00	1,500.00	
4. # 16 G.I. Tie wire	5	kls.	85.00	425.00	
5. 10 pcs. 2"x 2"x12" Lumber	40	bd.ft.	45.00	1,800.00	
6. Marine Plywood # 1/2"	3	pcs.	840.00	2,520.00	
7. 4" Common nail	3	kls.	85.00	255.00	
8. 3" Common nail	3	kls.	85.00	255.00	
9. 2" Common nail	2	kls.	85.00	170.00	
10. 1" Common nail	1	kl.	90.00	90.00	
11. Stainless Steel # 5/8" (dowel)	10	ft	200.00	2,000.00	
A.2 Construction/fabrication Cost			(40% of the Material Cost)		6,728.80
B. Estimate of stay line rope, cables and its accessories (Sub-Total)					67,500.00
1. Polypropylenerope 24 mmØ x 660 m	2	rolls	29,850.00	59,700.00	
2. Steel center Cable # 3/8" Ø	75	feet	50.00	3,750.00	
3. Stainless Swivel # 5/8"Ø	2	pieces	1,500.00	3,000.00	
4. Thimbles # 5/8" Ø	2	pieces	150.00	300.00	
5. Cable Clips # 5/8" Ø	5	pieces	150.00	750.00	
C. Estimate of factory made buoy (Sub-Total)					64,800.00
C.1 Materials for Marker Buoy					60,800.00
1. Factory Made 1 m Ø stainless steel spherical buoy	1	piece	55000.00	55,000.00	
2. Stainless Steel Rod # 3/4"Ø	5	pieces	1000.00	5,000.00	
3. Stainless steel sheet #1/8" x 12" x 10"	4	pieces	200.00	800.00	
C.2 Labor Cost in connecting accessories					4,000.00
D. Installation Cost (Sub-Total)					20,000.00
TOTAL COST					175,850.80
10% CONTINGENCY COST					17,585.08
TOTAL COST PER MARKER SET					193,435.88