



Learning Guide 2

Unit of Competency : Prepare Cadastral Index Maps
Module-2 Title : Structuring and Constructing
CIM Using the Hand-drawn
Process

LO 1 : Know CIM specifications and standards

Program:
Cadastral Index Mapping

Report B59

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Instruction Sheet	Learning Guide 2
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Introduction

This learning guide is developed to provide you the necessary information regarding the following topics –

- CIM Specifications and Standards
- Labeling of Parcels and Physical Features

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, you will be able to –

- identify surface details and line works
- illustrate CIM symbols for surface details and line works
- apply CIM specifications and standards in developing CIM form
- assign CIM number according to scale
- indicate CIM grid intervals in accordance to standard

Learning Activities

1. Read the specific objectives of this Learning Guide.
2. Read the information written in the “Information Sheets 1- 2”.
3. Accomplish the “Assignment Sheets 1 and 2” in pages 9-11 and 14-15.
4. Check your answers with the answer key provided by your trainor/facilitator.
5. If you have 9 correct answers proceed to Operation Sheet. However, if you have less than 9 correct answers, see your trainor/facilitator for further instructions or go back to Learning Activity #2.
6. Submit your accomplished Assignment Sheets. This will form part of your training portfolio.
7. Read the “Operation Sheet” and try to understand the procedures discussed.
8. Practice the steps or procedures. Go to your trainor if you need clarification or you want answers to your questions or you need assistance in understanding a particular step or procedure.
9. Do the “LAP test” (if you are ready) and show your trainor/facilitator your output. Your trainor/facilitator will evaluate your output either satisfactory or unsatisfactory. If

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unsatisfactory, your trainer/facilitator shall advise you on additional work. But if satisfactory you can proceed to learning guide 3.

Information Sheet–1	CIM Specifications and Standards
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The CIM specifications remain constant regardless of the compilation methodology being used. The succeeding pages will provide you the standard specifications applied in preparing the CIM.

Drafting Film. When available the drafting film should be of:

- Type : Single Matt
- Thickness: 0.03 mm

Surface Detail and Line Work

- All line work on the CIM must be in waterproof ink of a type recommended by the manufacturer of the drafting material
- All detail lines, numbers, letters, symbols and decimal points must be legible and not defaced.
- Amendments must be made by a method that does not damage the surface of the drafting film.

The following table shows the standard of detail to be assigned for the CIM:

TEMS	SYMBOL	PEN NUMBER					STENCIL SIZE
		0.2	0.3	0.5	0.6	0.8	
Outer Edge of Cadastral Index Map Frame				✓			
Inner Edge of Cadastral Index Map Frame		✓					
Grid Line		✓					
Coordinates Line	1 622 000, 399 000, 14	✓					CL 80

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Boundary Line		✓					
TEMS	SYMBOL	PEN NUMBER					STENCIL SIZE
		0.2	0.3	0.5	0.6	0.8	
Preliminary Land Parcel Number		✓					CL 80
Final Land Parcel Number	1	✓					CL 80
Name of adjacent Road, River or Lake	Emerald Ave	✓					CL 80
Barangay Boundary (mm)					✓		
Municipal/ District Boundary (mm)		✓					
Province Boundary (mm)		✓					
CIM No.	11072450400					✓	CL 290
Title Block	CADASTRAL INDEX MAP					✓	CL 240
Location	REGION, PROVINCE, MUNICIPALITY & BARANGAY					✓	CL 175
Scale No.	Scale 1: 2000					✓	CL 140
Projection	MAP PROJECTION PRS 92					✓	CL 140
Legend	TITLED PROPERTY, SURVEYED AREA, ETC.			✓			CL 100

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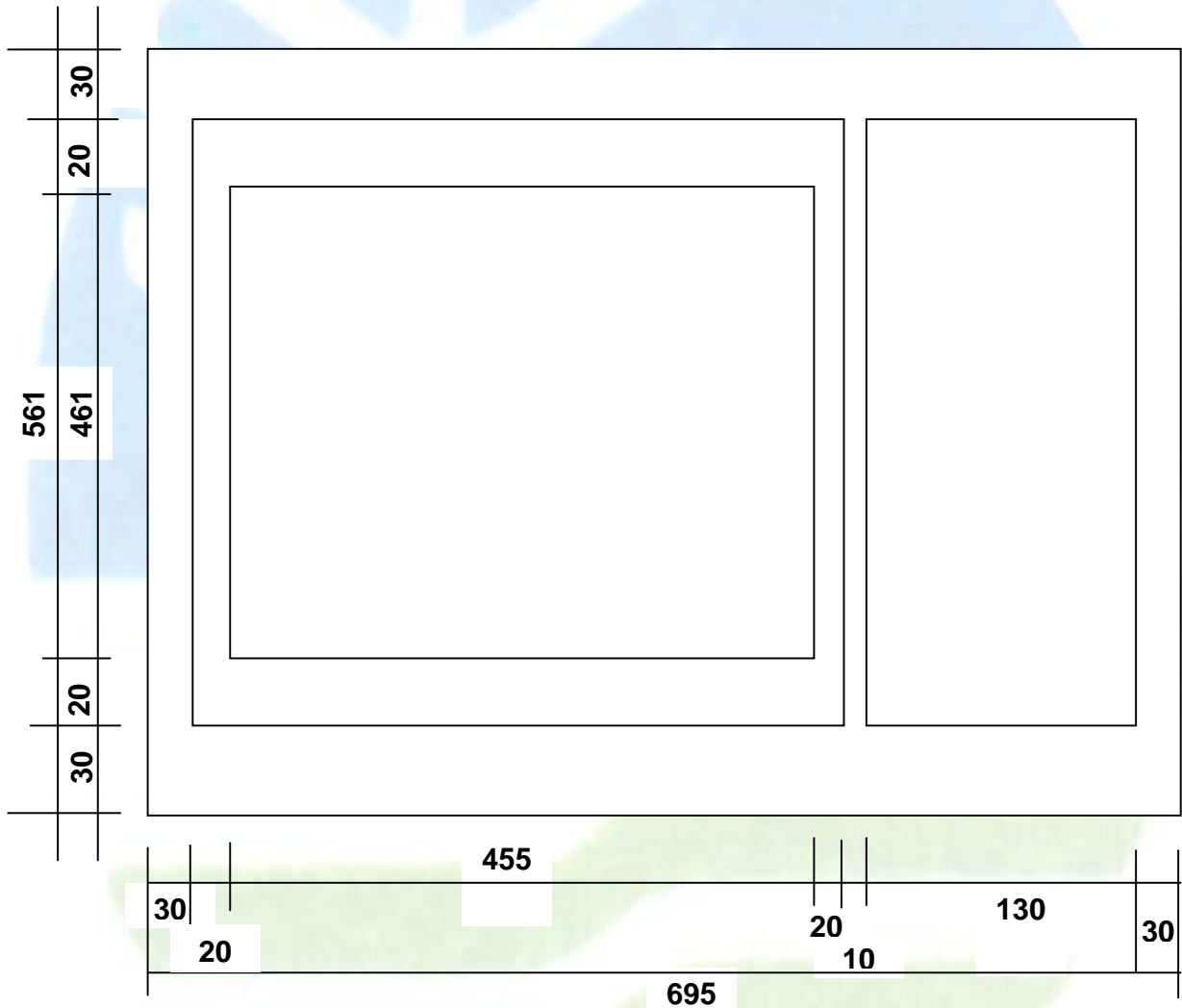
Name of adjoining Municipalities	ALANG-ALANG			✓			CL 120
Name of adjoining Barangay	PATOC			✓			CL 100
Name of adjoining Lots & Claimant	LOT NO. 1121 JENG PUNLA	✓					CL 100

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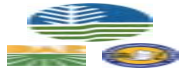


Shape and Size of CIM Sheet

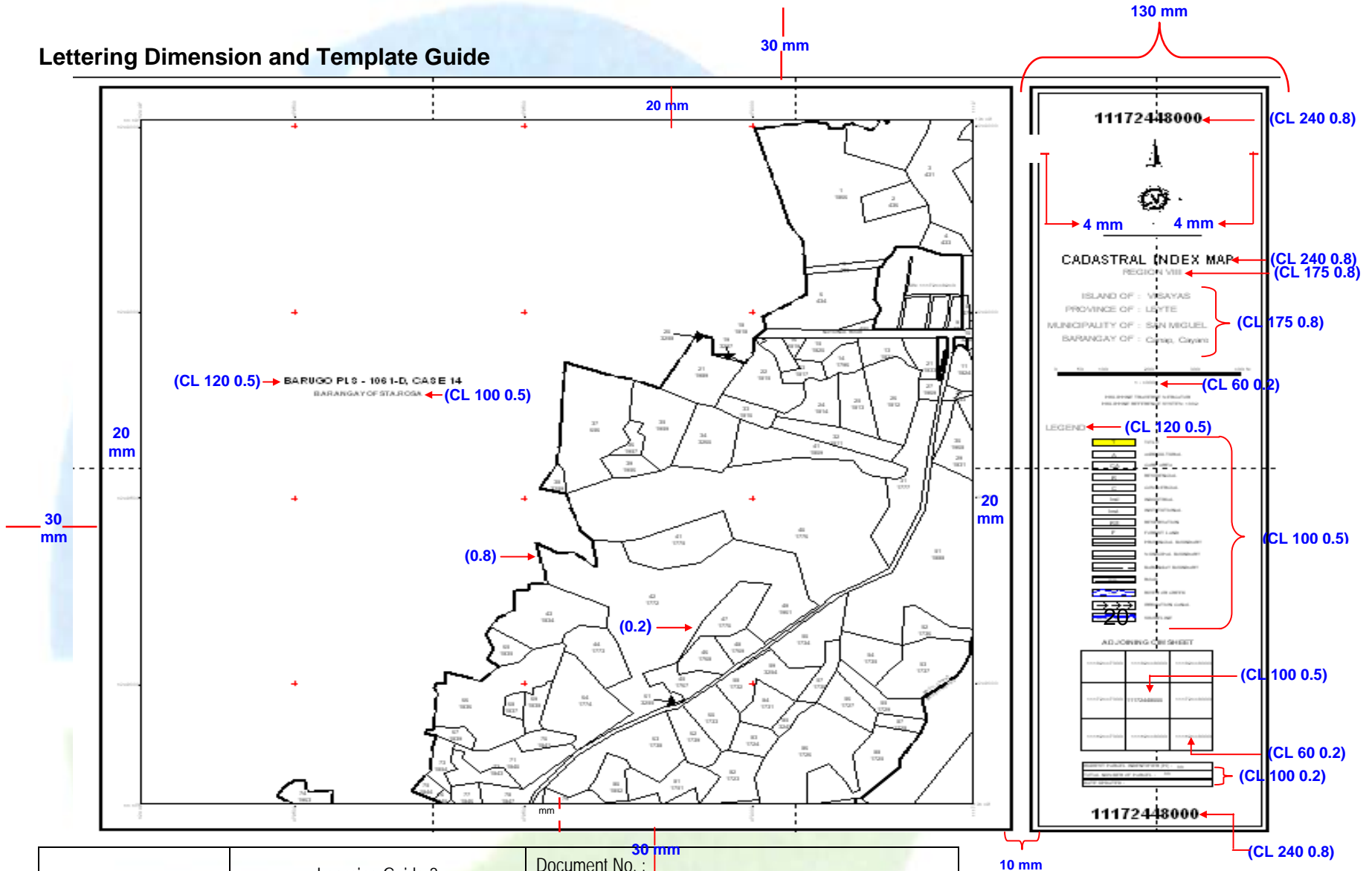
The CIM sheet should be 695 x 561 mm's and should conform to the following layout:



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Lettering Dimension and Template Guide



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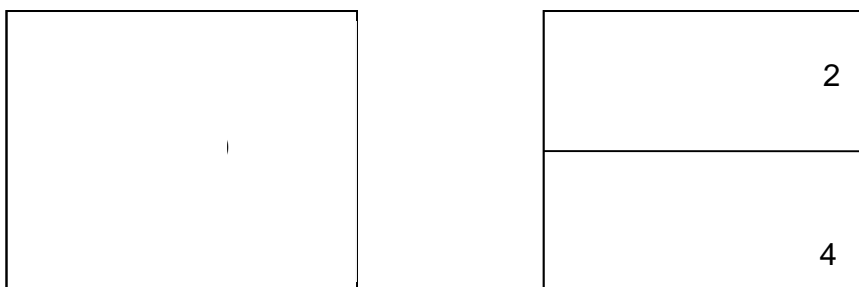
CIM Scale and Numbering

The CIM scale is dependent upon on the density of cadastral information and can be produced at:

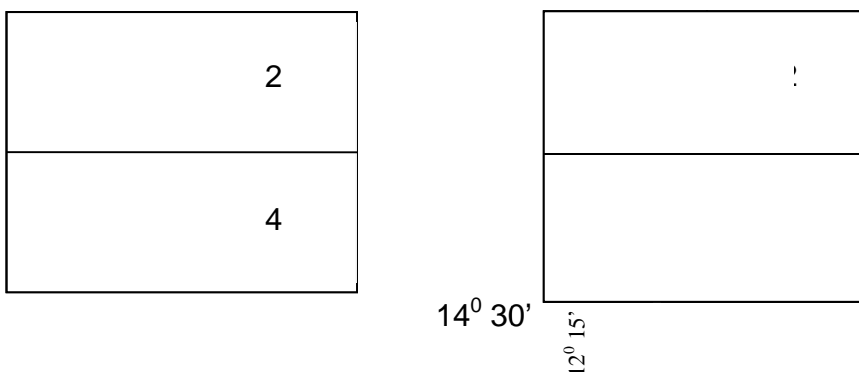
- Scale 1:4000, coverage 1 minute by 1 minute of arc.
- Scale 1: 2000, coverage 30 seconds by 30 seconds of arc.
- Scale 1: 1000 coverage 15 seconds by 15 seconds of arc.
- Scale 1: 500 coverage 7.5 seconds by 7.5 seconds of arc.

All CIM will have a unique number. The CIM is numbered according to the geographical coordinates of the bottom left corner of the 1:4000 map sheet and then broken down into 1:2000, 1:1000 and 1:500 sheet number respectively.

A standard 1:4000 map sheet can be broken down into 4 x 1:2000 map sheets.



The 1:2000 map sheets can be broken down into 4 x 1:1000 map sheets. These can be further broken down into 4 x 1:500 map sheets.



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In this example, the bottom left corner of the 1:4000 maps sheet is defined by Latitude $14^{\circ} 30'$ and Longitude of $121^{\circ} 15'$

The CIM numbering will be the degrees and minutes of the sheet corner. As the Philippines only occupies 5° longitude, the digit for 100° can be eliminated leaving 4 significant numbers respectively for the 1:4000 CIM, i.e. 14302115.

For the 1:2000 sheet an extra digit is added, e.g. Sheet 1 of 4 will become 143021151. To enable the 1:1000 map sheets to be defined, an additional digit is added i.e. 1430211514. To enable 1:500 map sheet to be defined, an additional digit is shown i.e. 140302115144.

Using the example shown above, the:

- 1:4000 sheet number would be - 14302115000
- 1:2000 sheet number would be - 14302115100
- 1:1000 sheet number would be - 14302115140
- 1:500 sheet number would be - 14302112144

CIM Grid Interval

The CIM will be divided into grid intervals according to scale as follows:

- 1:4000 CIM will have a grid interval of 500 meters, i.e. 12.5 cm at map scale
- 1:2000 CIM will have a grid interval of 200 meters i.e. 10 cm at map scale
- 1:1000 CIM will have a grid interval of 100 meters, i.e. 10 cm at map scale
- 1:500 CIM will have a grid interval of 50 meters, i.e. 10 cm at map scale

The grid starting position will be determined by PTM coordinates of the bottom left corner of the graticule. For instance, if the coordinates of the graticule are North 1622133.713 and East 399465.524, then at the various scales, the first grid in both North and East are:

- 1:4000, 366.287 m towards the top of the CIM for North and 34.476 m to the right for East
- 1:2000, 66.287 towards the top of the CIM for North and 134.476 m to the right for East
- 1:1000, 66.287 m towards the top of the CIM for North and 34.476 m to the right for East
- 1:500, 16.287 m towards the top of the CIM for North and 34.476 m to the right for East

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Only the latitude and longitude should appear on the graticule. Do not show grid coordinates.

Scaling

The following are the methods in the adjustments of scale -

- By actual plotting of parcel with the use of triangular scale and triangles or drafting machine.
- Re-scaling with the use of pantograph.
- Re-scaling with the use of photocopying machine

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Assignment Sheet – 1

Written Test

Name: _____

Date: _____

Directions: The purpose of this test is to determine if you know and understand the CIM specifications and standards. This is a Multiple Choice item test. Encircle the letter of the best answer. Request you trainor/facilitator to provide you the answer key for this test.

1. Which of the following CIM sheet size should be used in preparing the CIM?
 - A. 956 x 651 mm
 - B. 695 x 651 mm
 - C. 569 x 561 mm
 - D. 695 x 561 mm

2. What will be the grid interval of a CIM whose scale is 1:4000?
 - A. 500 meters
 - B. 200 meters
 - C. 100 meters
 - D. 50 meters

3. What is the scale if the coverage is 1 minute by 1 minute of an arc?
 - A. 1: 500
 - B. 1: 1000
 - C. 1: 2000
 - D. 1: 4000

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4. What is the scale if the coverage is 15 seconds by 15 seconds of an arc?
 - A. 1: 500
 - B. 1: 1000
 - C. 1: 2000
 - D. 1: 4000

5. What will be the grid interval of a CIM whose scale is 1:2000?
 - A. 500 meters
 - B. 200 meters
 - C. 100 meters
 - D. 50 meters

6. The CIM is number according to the geographical coordinates located at
 - A. top right corner of the CIM sheet
 - B. bottom right corner of the CIM sheet
 - C. top left corner of the CIM sheet
 - D. bottom left corner of the CIM sheet

7. What figure should appear on the CIM graticule?
 - A. Grid coordinates
 - B. Latitude and longitude
 - C. None of the above
 - D. All of the above

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8. What is the line symbol for municipal boundary?

- A. _____
- B. _____
- C. _____
- D. _____

9. What is the line symbol for barangay boundary?

- A. _____
- B. _____
- C. _____
- D. _____

10. What is the line symbol for provincial boundary?

- A. _____
- B. _____
- C. _____
- D. _____

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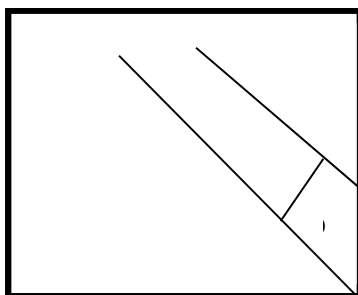


Information Sheet – 2	Assigning Unique Parcel Identifier
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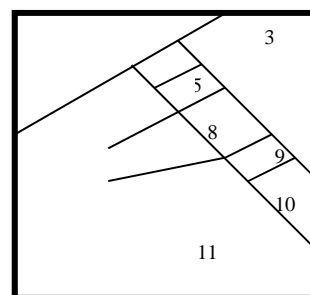
Rules for assigning Unique Parcel Identifier (UPI) within a CIM and Parcel (Lot) Numbering

- Each lot is annotated only once.
- Lots will be numbered starting from 1 consecutively from the top left of the CIM to the right and then in the reverse direction (i.e. a - z pattern) where: lots are within an existing survey plans; lots are within a new survey plan.
- If a lot falls across the edge of an adjoining CIM, the PI is placed on the CIM containing larger portion of the lot. It is numbered on one CIM sheets only.
- Parcels are numbered across the entire CIM. Do not stop at barangay or other administrative boundaries.
- During CIM updating, any lot that is altered by either subdivision or consolidation will have the originally assigned PI retired, (not deleted) and a new PI assigned following on from last PI assigned on that CIM.
- Every parcel of land with or without a title will be shown on the CIM and given a parcel identifier that is not repeated.
- PI's should only be assigned when the drafting of the CIM has been completed.

CIM Lot Numbering Convention



CIM Lot Numbering Convention



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CIM Lot Numbering Convention Across CIM Edge



Barangay or Municipal Boundary

The previous last numbers assigned for the CIM can be determined from the CIM lot index. The original PI should not be removed from the database but will remain for historical purpose for a search for previous transaction.

After allocation of unique parcel identifier or UPI to every parcel within a particular CIM sheet, the parcels are tabulated in the lot index form to show information of lot status

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Assignment Sheet – 2	Written Test
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Name: _____ Date: _____

Directions: Listed below are Multiple Choice test items. Encircle the letter of the best answer. Request you trainor/facilitator to provide you the answer key for this test.

1. In assigning parcel identifier each lot is annotated
 - A. twice
 - B. once
 - C. trice
 - D. none of the above

2. Lots are numbered starting from 1 consecutively from
 - A. top right of the CIM to the left
 - B. bottom right of the CIM to the left
 - C. top left of the CIM to the right
 - D. bottom left of the CIM to the right

3. The numbering of the parcels is in a direction of
 - A. C pattern
 - B. L pattern
 - C. Z pattern
 - D. O pattern

4. If the lot falls across the edge of the adjoining CIM, the parcel identifier is placed on the CIM containing
 - A. smaller portion
 - B. larger portion
 - C. in between
 - D. none of the above

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5. Parcels are trace on the CIM according to
 - A. barangay configuration
 - B. political configuration
 - C. across the CIM to occupy the space
 - D. none of the above

6. Parcel identifier is assign when the drafting of the CIM has
 - A. started
 - B. been completed
 - C. been partially completed
 - D. none of the above

7. Parcels are numbered
 - A. across the entire CIM
 - B. stop at Barangay boundary
 - C. stop at municipal boundary
 - D. other administrative boundary

8. Every parcel of land with or without title will
 - A. be shown on the CIM and given a UPI that is not repeated
 - B. not be shown on the CIM
 - C. be shown on the CIM but no UPI
 - D. none of the above

9. The previous last PI number assigned for the CIM can be determine from the
 - A. CIM lot Index
 - B. Cad Map
 - C. Lot description sheet
 - D. none of the above

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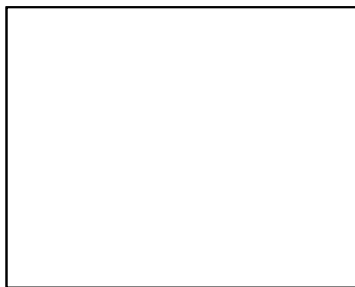
Operation Sheet	Assigning CIM Number
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Step 1 Identify the CIM sheet scale to be number. If the scale is 1:4000 covering 1 minute by 1 minute of an arc number it directly according to the geographical coordinates of the bottom left corner of the CIM.

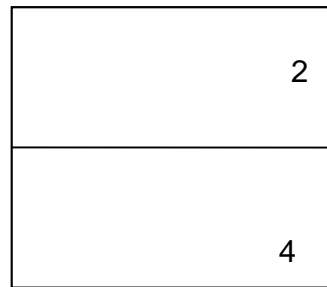
Example, the bottom left corner of the 1:4000 maps sheet is defined by Latitude $14^{\circ} 30'$ and Longitude of $121^{\circ} 15'$. The CIM No. would be 14302115.

Step 2 If the CIM is not 1:4000 scale then section the 1 minute by 1 minute quadrant into 1:2000, 1:1000 and 1:500 scale sheet and assign numerical section number per sheet.

A standard 1:4000 map sheet can be broken down into 4 x 1:2000 map sheets.



1:4000



Step 3 Attach the section number of the sectioned sheet you want to assign the CIM number to the combined Latitude and Longitude Coordinates.

Example, the bottom left corner of the 1:4000 maps sheet is defined by Latitude $14^{\circ} 30'$ and Longitude of $121^{\circ} 15'$. The CIM No. is 14302115.

If sheet section 4 is the subject for CIM numbering then the CIM number would be 14302115400.

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LAP Test	Practical Demonstration
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Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions:

Given a set of drafting materials, tools and land records and documents, you are required to perform the following tasks within 60 minutes –

1. Structure and construct CIM base layout
2. Assign appropriate CIM number, where the -
 - **Cad Map No. is Lat. 14° 30'N**
 - **Long. 121° 15' E Sec. 4-A**

Submit your outputs to your facilitator/trainer for evaluation and ask for further instructions.

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