1990 CALIFORNIA PROFESSIONAL LAND SURVEYOR EXAMINATION

Candidate ID Number_____

SECTION A - 157 POINTS OF 295 TOTAL POINTS

FOUR HOURS ALLOWED TO COMPLETE THIS SECTION

Examination Overview

The 1990 California Professional Land Surveyor examination is given in two four-hour periods on the same day. Section A is the first section of this two-part examination; Section B will be given in the afternoon. Section A consists of the following:

1.5287 minutes / pt.

Test Problem No.	Subject Matter	Point Value		Pages	
A1	Public Lands	27 Points	*41*	*39*	
A2	Description and Boundary	26 Points	*40*	*11*	FOR
A3	Subdivision/Legal	40 Points	*61*	*11*	OFFICE USE
A4	Photogrammetry	28 Points	*43*	—	ONLY
A5	Research	16 Points	*24*	*10*	
A6	Basis of Bearings	20 Points	*31*	*12*	

The scope of this exam relates to the principles and practice of land surveying in the various areas of practice. You will be graded on the answers specifically required and also on your method of obtaining these answers as demonstrated in your solution.

There are no trick questions; rather the questions have been designed to realistically reflect the actual conditions and practice of Land Surveying. The assignment of points to each question is not based on the time required to complete an answer. Instead, points have been assigned on the basis of the relative importance of each question to basic land surveying competence.

TURN THIS PAGE OVER FOR SPECIFIC EXAMINATION INSTRUCTIONS

Department of Consumer Affairs
State Board of Registration for Professional Engineers and Land Surveyors
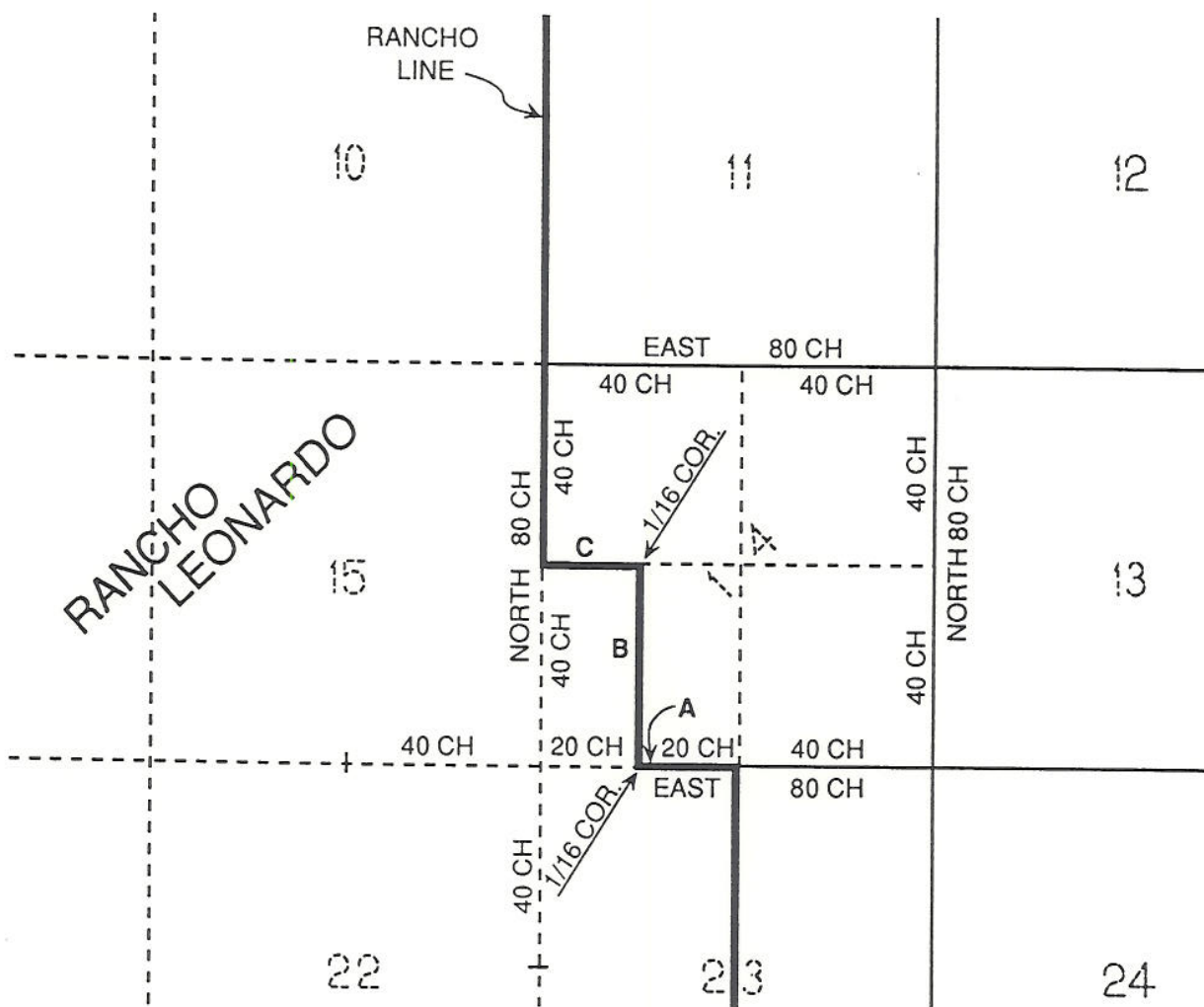
PROBLEM STATEMENT

Rancho Leonardo is shown in part on the plat dated 1860 below. The Rancho follows sectional lines.

PROBLEM REQUIREMENT

Using the coordinates indicated on the survey plat on the facing page, calculate the bearings and distances of the Rancho lines denoted as A, B, and C, in Section 14. Show your answers directly on the survey plat. On the grid paper provided, identify your methods and show all your work.
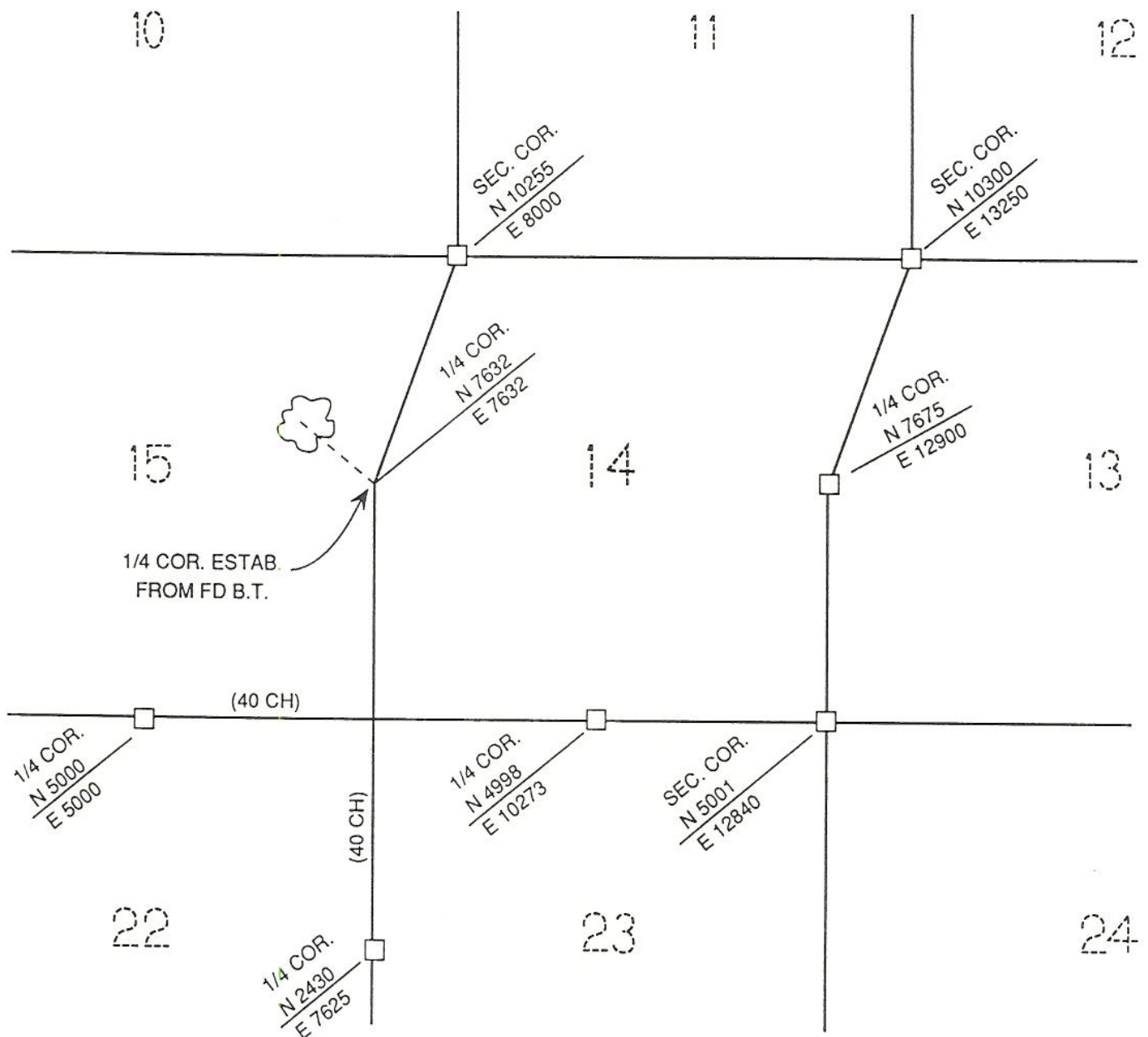
27 Points

PORTION OF 1860 PLAT

LEGEND
CH = CHAINS
BASIS OF BEARINGS BASED ON SOLAR OBSERVATION

10

11

12

SEC. COR.
N 10255
E 8000

SEC. COR.
N 10300
E 13250

1/4 COR.
N 7632
E 7632

1/4 COR.
N 7675
E 12900

15

14

13

1/4 COR. ESTAB.
FROM FD B.T.

(40 CH)

1/4 COR.
N 5000
E 5000

(40 CH)

1/4 COR.
N 4998
E 10273

SEC. COR.
N 5001
E 12840

22

23

24

1/4 COR.
N 2430
E 7625

SURVEY PLAT

LEGEND
☐ = FOUND ORIGINAL GOVERNMENT SURVEY STAKES
⬡ = FOUND ORIGINAL GOVERNEMNT B.T.
( ) = G.L.O. DISTANCE

PROBLEM STATEMENT

The diagram on the facing page represents your survey of Block 2 of the First Addition to the City of Ocean View, California. This subdivision was originally monumented only at the block corners with iron pipes that were all found in good condition. The subdivision map contains a note on it indicating that all lots are 200' x 200' and that the streets run North and East.

The original purchaser of Lot 1 conveyed portions of the lot as follows:

> 1921, conveyed the following (preamble omitted):
>
>> Beginning at the Southeast corner of First Street and "A" Avenue; thence, East along the North line of Lot 1, 65.00 feet; thence, South, at right angles, 200.00 feet; thence, West, at right angles, to "A" Avenue; thence North along "A" Avenue to the point of beginning.
>
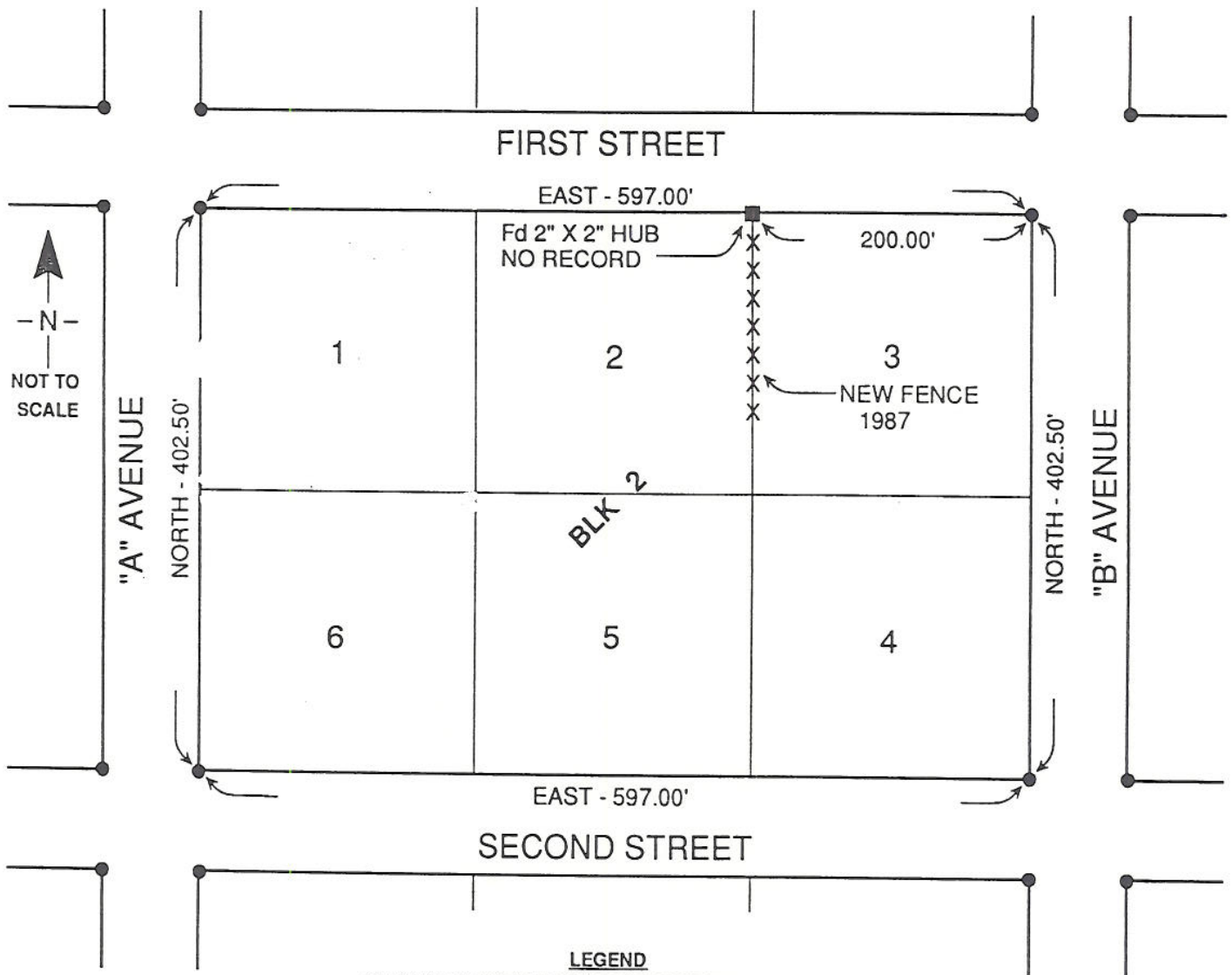> 1937, conveyed the following to the owner of Lot 2 (preamble omitted):
>
>> The East 5.00 feet of Lot 1.
>
> 1988, conveyed the following to your client (preamble and recording references omitted):
>
>> Lot 1, excepting those portions conveyed in 1921 and 1937.

PROBLEM REQUIREMENTS

1. Sketch a plat of Lot 1 and all given conveyances on the grid paper provided; show all dimensions. **13 Points**

2. Identify any deed inconsistencies and state your recommendations for resolution. **13 Points**

FIRST STREET

EAST - 597.00'

Fd 2" X 2" HUB
NO RECORD

200.00'

–N–

NOT TO
SCALE

"A" AVENUE

NORTH - 402.50'

1

2

3

NEW FENCE
1987

BLK 2

6

5

4

NORTH - 402.50'

"B" AVENUE

EAST - 597.00'

SECOND STREET

LEGEND
● FOUND "ORIGINAL" BLOCK CORNERS
NOTE: DISTANCES ARE BASED ON FIELD MEASUREMENTS

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PROBLEM STATEMENT

In June 1969, Meyers conveyed to your client the West one-half of Lot 5 of Rainbow Acres. In December 1970, Meyers sold a portion of the remainder of Lot 5 to Landis with the following legal description:

> "The Southerly 100.00 feet of that portion of Lot 5 of Rainbow Acres, in the County of Rainbow, in the State of California, as per map recorded April 16, 1954 in Book 3 of Maps, Page 3, in the Office of the County Recorder of said county described as follows:
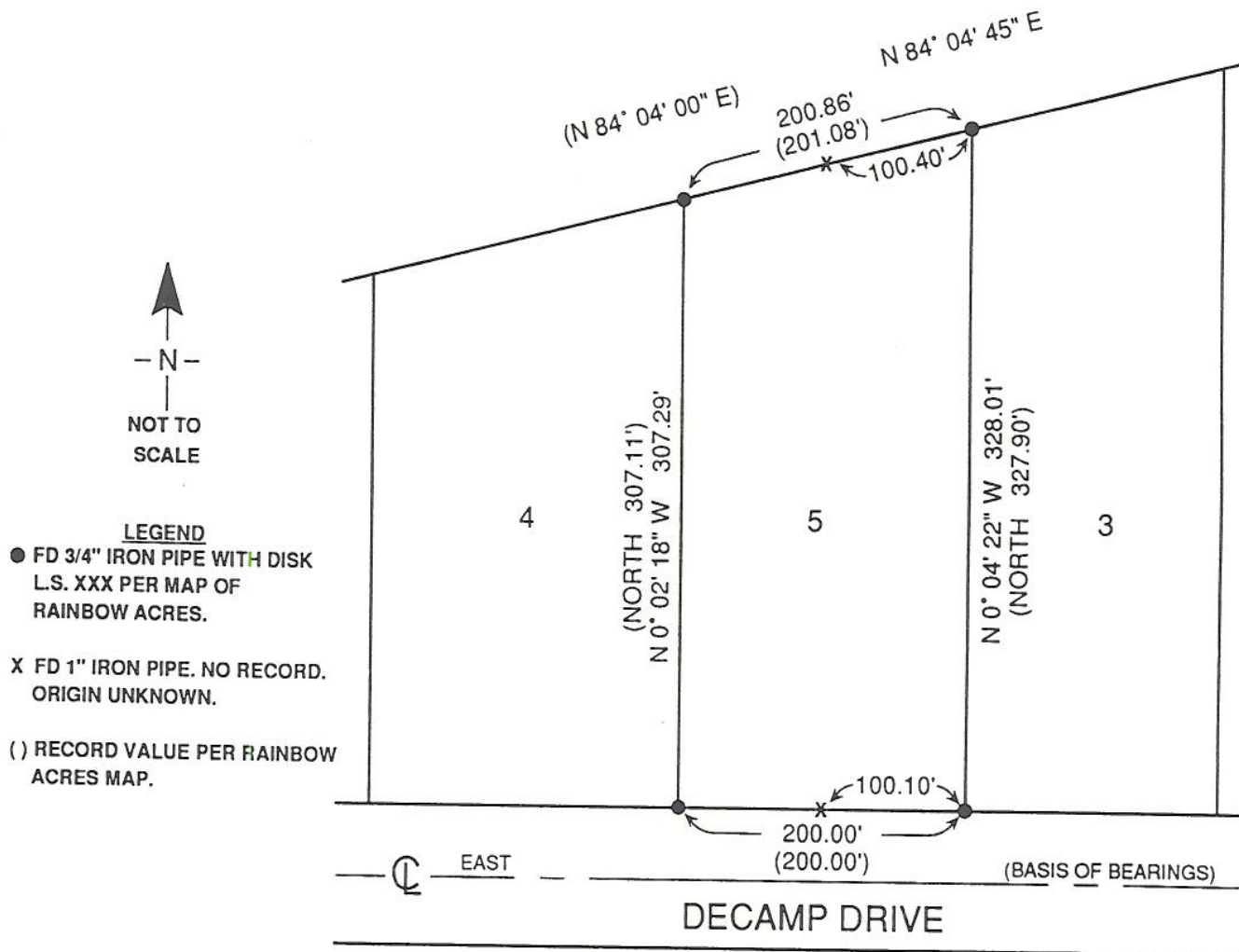>
>> Beginning at the Southeast corner of Lot 5; thence West along the Southerly line thereof 100.00 feet to a one-inch iron pipe; thence North parallel with the Easterly line of said Lot 317.60 feet to a one-inch iron pipe on the Northerly line of said lot; thence North 84° 04' 00" East along said Northerly line 100.54 feet to the Northeast corner thereof; thence South, 327.90 feet to the point of beginning."

You have been asked to survey and monument your client's parcel of land. The record values of Lot 5, as well as the results of your boundary survey, are shown in the plat on the facing page.

PROBLEM REQUIREMENTS

1. Describe how you would determine the boundaries of your client's property. (Calculations are not required.)
   15 Points

2. Describe the effect of the Landis deed on your client's property.
   7 Points

3. Prepare a legal description for the remainder of Meyers' property. (Do not use a metes and bounds description.)
   15 Points

4. Is the filing of a Corner Record sufficient documentation of your survey? Explain your answer and cite references.
   3 Points

RAINBOW ACRES RECORDED IN BOOK 3, PAGE 3
OF MAPS IN THE COUNTY OF RAINBOW

N 84° 04' 45" E

(N 84° 04' 00" E)   200.86'
(201.08')

100.40'

4   5   3

(NORTH 307.11')
N 0° 02' 18" W 307.29'

N 0° 04' 22" W 328.01'
(NORTH 327.90')

- N -
NOT TO
SCALE

LEGEND
● FD 3/4" IRON PIPE WITH DISK
L.S. XXX PER MAP OF
RAINBOW ACRES.

X FD 1" IRON PIPE. NO RECORD.
ORIGIN UNKNOWN.

( ) RECORD VALUE PER RAINBOW
ACRES MAP.

100.10'
200.00'
(200.00')

℄ EAST   (BASIS OF BEARINGS)

DECAMP DRIVE

PROBLEM STATEMENT

Your firm has been retained by the U.S. Forest Service to provide photo mylars of the entire area shown as Exhibit A. Road A will be strip mapped along its entire length and to a width of 200 feet of each side of its centerline. The mapping is to be prepared on the plan and profile sheet shown as Exhibit B.

Use the limits and descriptions shown below to accomplish the scope of work.

Strip Mapping

1. Focal length 6"
2. 1" = 50' with 1' contour interval
3. Film format 9" x 9"
4. Flight altitude 1500' above ground level

Photo Mylars

1. Focal length 8 1/4"
2. Scaled photo distance between panels A and B = 5 inches
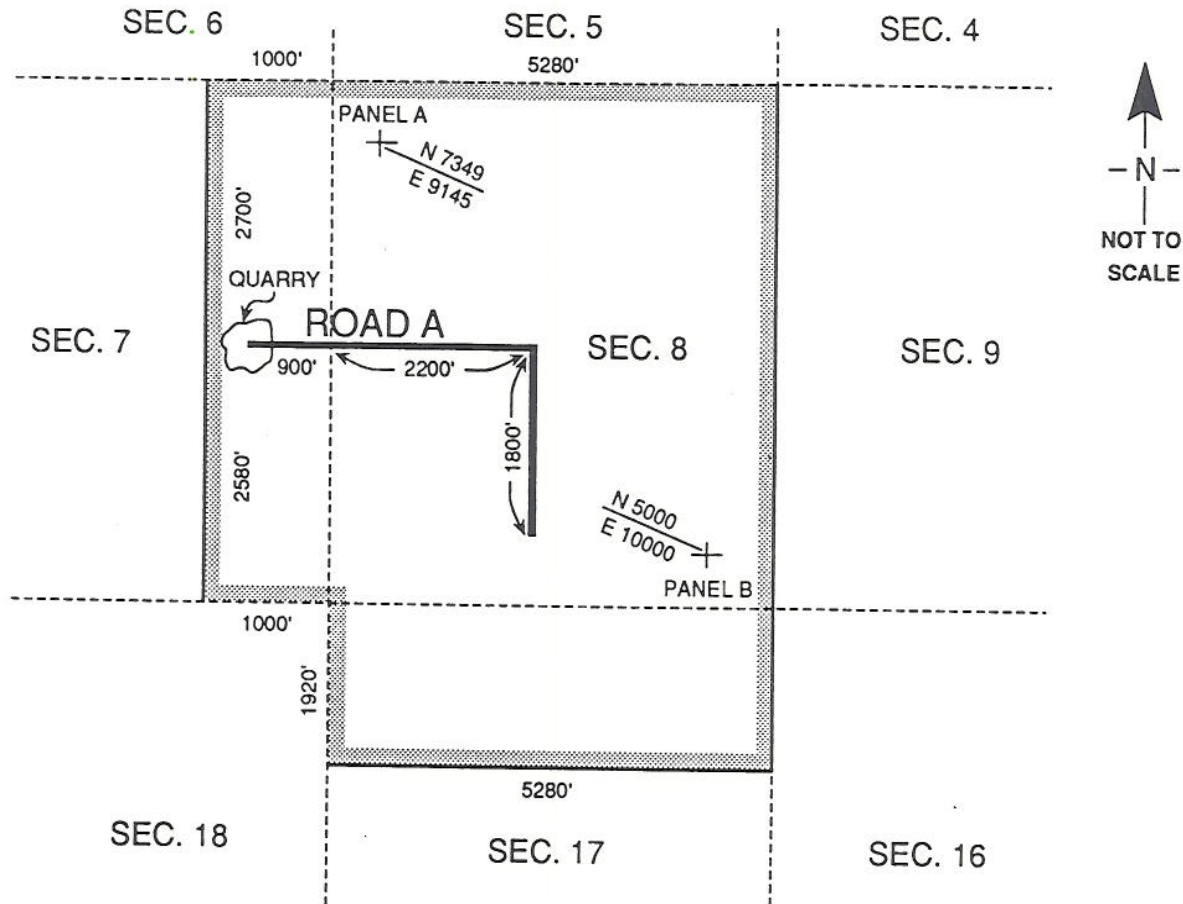3. Film format 9" x 9"

On all photography, 60% forward overlap and 30% sidelap will be required. All mapping shall conform to National Mapping Accuracy Standards.

PROBLEM REQUIREMENTS
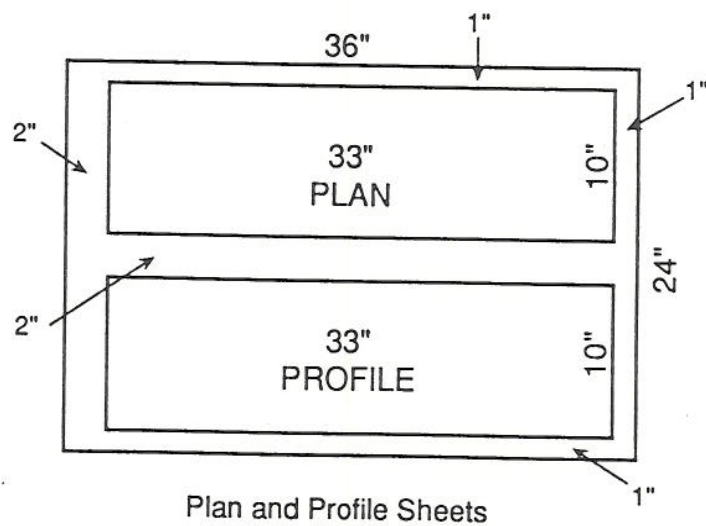
1. Determine the following and show your work.

   a. Flying height (ASL) for photo mylars (in feet)   8 Points

   b. Negative scale for mapping photography (in feet)   2 Points

   c. Minimum number of flight lines for mapping   4 Points

   d. Minimum number of photographs required for: 4 Points

       1. Photo mylars
       2. Topographic mapping

   e. Minimum number of plan and profile sheets required for mapping   2 Points

   f. The C-factor for the strip mapping   2 Points

   g. Neat model size of ground coverage of photo mylars (in feet)   2 Points

2. What portion(s) of the work require(s) the signature and seal of a Professional Land Surveyor?   2 Points

3. Describe the minimum accuracy standards for the contours expected for this mapping.   2 Points

EXHIBIT A

ELEVATIONS OF PROJECT AREA:
HIGHEST = 3250'
LOWEST = 1850'

EXHIBIT B

Plan and Profile Sheets

PROBLEM A5
16 Points
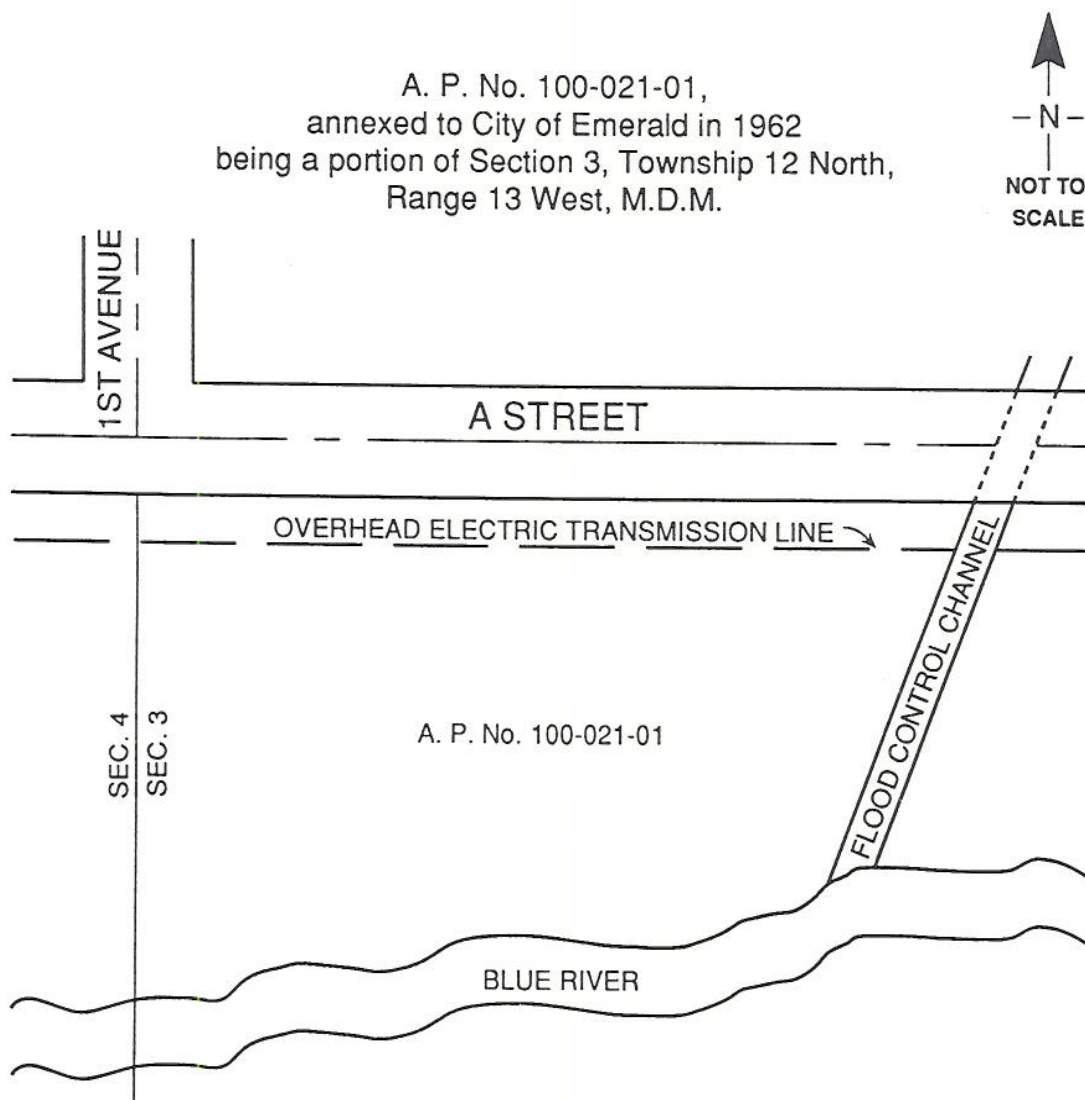
Sheet 1 of 1

PROBLEM STATEMENT

A boundary survey is proposed for the parcel shown in the diagram below. You are to provide the research data for this survey.

PROBLEM REQUIREMENT

1. List eight possible sources of data and, for each source, specify one type of information you would expect to receive.

Example: Railroad Company – Railroad right-of-way records.

16 Points
(2 points each)

A. P. No. 100-021-01,
annexed to City of Emerald in 1962
being a portion of Section 3, Township 12 North,
Range 13 West, M.D.M.

↑
– N –
NOT TO
SCALE

1ST AVENUE

A STREET

OVERHEAD ELECTRIC TRANSMISSION LINE

FLOOD CONTROL CHANNEL

SEC. 4 | SEC. 3

A. P. No. 100-021-01

BLUE RIVER

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PROBLEM A6
20 Points

PROBLEM STATEMENT

W. White owns a parcel of land that requires a survey. Your research and field reconnaissance data are indicated below and on the diagram on the facing page.

Research Data – Essential portions of relevant deeds

April 27, 1937 -- W. White acquired property as described by the following deed description:

> Beginning at an axle in the Westerly line of G. Green's property, thence S 85° 15' W, 490.00 feet to a two-inch iron pipe; thence N 12° 15' W to the Southerly line of B. Brown's property; thence along said Southerly line to the Westerly line of G. Green's property; thence Southeasterly along said Westerly line to the point of beginning.

> No basis of bearings was stated.

April 19, 1921 -- G. Green acquired property described in a deed, based on a solar observation, that states in part:

> ...to an axle; thence N 7° 15' W to the South line of B. Brown's property, thence along...

July 7, 1891 – B. Brown acquired the following property described in part:

> Beginning at a stone mound near the East line of Blue Creek; thence N 88° 15' E, 3,200 feet, thence...

> The basis of bearings was stated as magnetic.

PROBLEM REQUIREMENT

1. From the information given, explain how you would establish boundary lines A, B, C, and D.

20 Points

BLUE CREEK

B. BROWN

– N –

NOT TO
SCALE

Fd STONE
MOUND

D

W. WHITE

G. GREEN

C-

B

NOTE:
NO ADDITIONAL
EVIDENCE WAS
FOUND IN THE
FIELD.

Fd 2" IP

Fd 1½" AXLE

A