

**Exercise 7-1**

This is an individual exercise to practice storing a horizontal alignment. It is to be done outside of a GEOPAK project.

1. Open the MicroStation file **t:\br-proj\Exercise\_7-1\Route\_50.dgn**.

2. Use **Coordinate Geometry**, **Graphical COGO**, or **Horizontal Alignment Generator** to create the alignments as shown on the following pages.

Do not worry about the graphics (stationing, curve data, etc.) being plotted. These items will be discussed in later chapters.

3. Upon completion of storing the alignments in coordinate geometry, close **coordinate geometry**, **graphical cogo**, and **Horizontal Alignment Generator**.

Route50

Beginning Point:      X = 1698102.3440      Y = 999551.4260

Ending Point:          X = 1702419.9216      Y = 1000116.5660

Intersect the PI point using the direction back and direction ahead of curve.

Direction Back of Curve = S 82° 41' 55" E

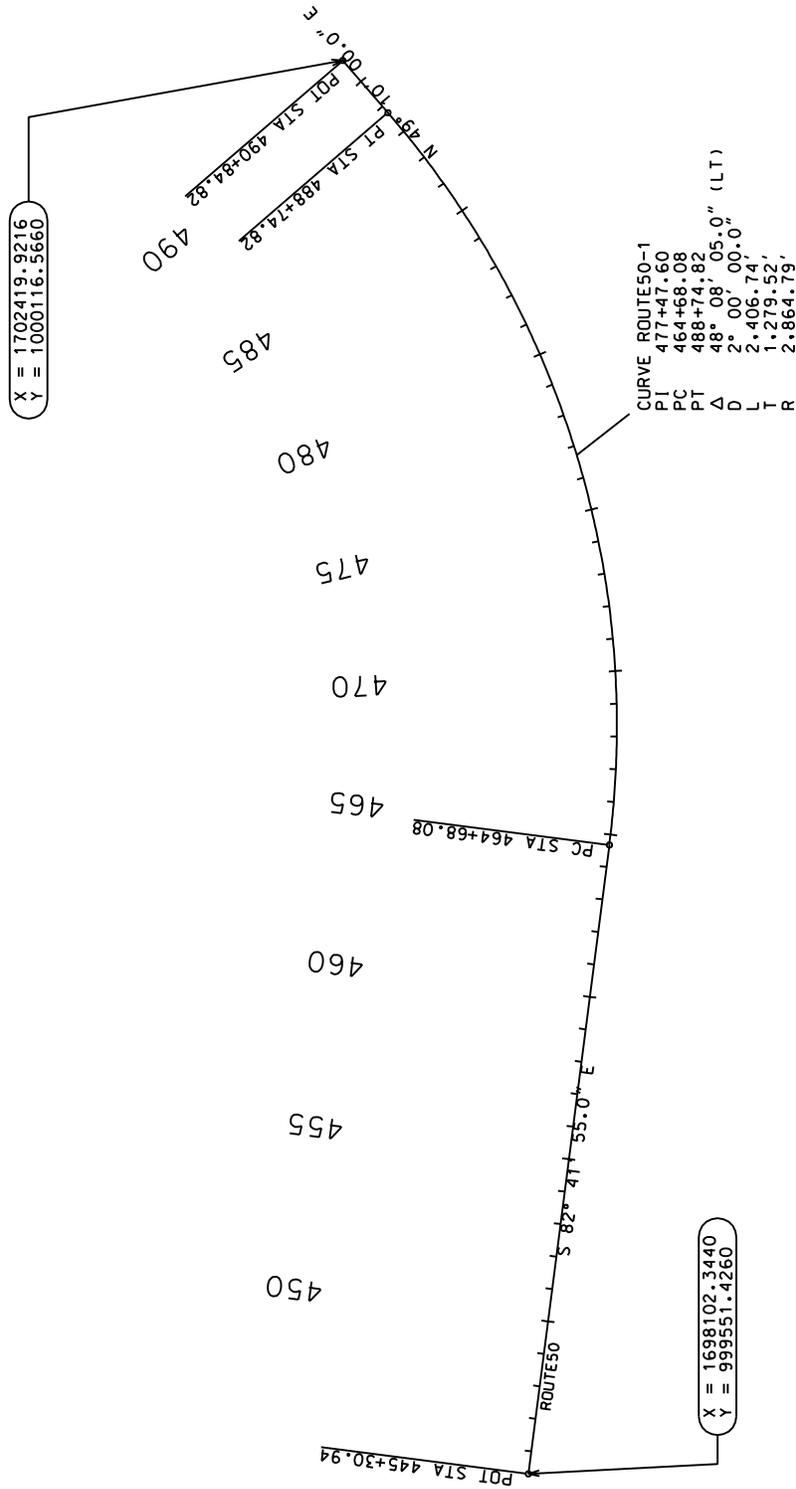
Degree of Curve = 2° 00' 00"

Direction Ahead of Curve = N 49° 10' 00" E

Station the chain beginning at 445+30.94

Name the alignment **Route50**.

Route 50



## Big Horn

Beginning Point: X = 1700104.5480  
Y = 1000188.1340

Ending Point: X = 1700092.3040  
Y = 998143.9168

PI of the first curve is exactly 248.8954' from the beginning point on a bearing of  
S 1° 04' 27.8" W

Direction Back of first curve = S 1° 04' 27.8" W

Degree of Curve for first curve = 5° 00' 00"

Direction Ahead of first curve = S 6° 32' 27.3" E

The direction back of second curve matches the direction ahead of the first curve,  
which is S 6° 32' 27.3" E

Degree of Curve for second curve = 5° 00' 00"

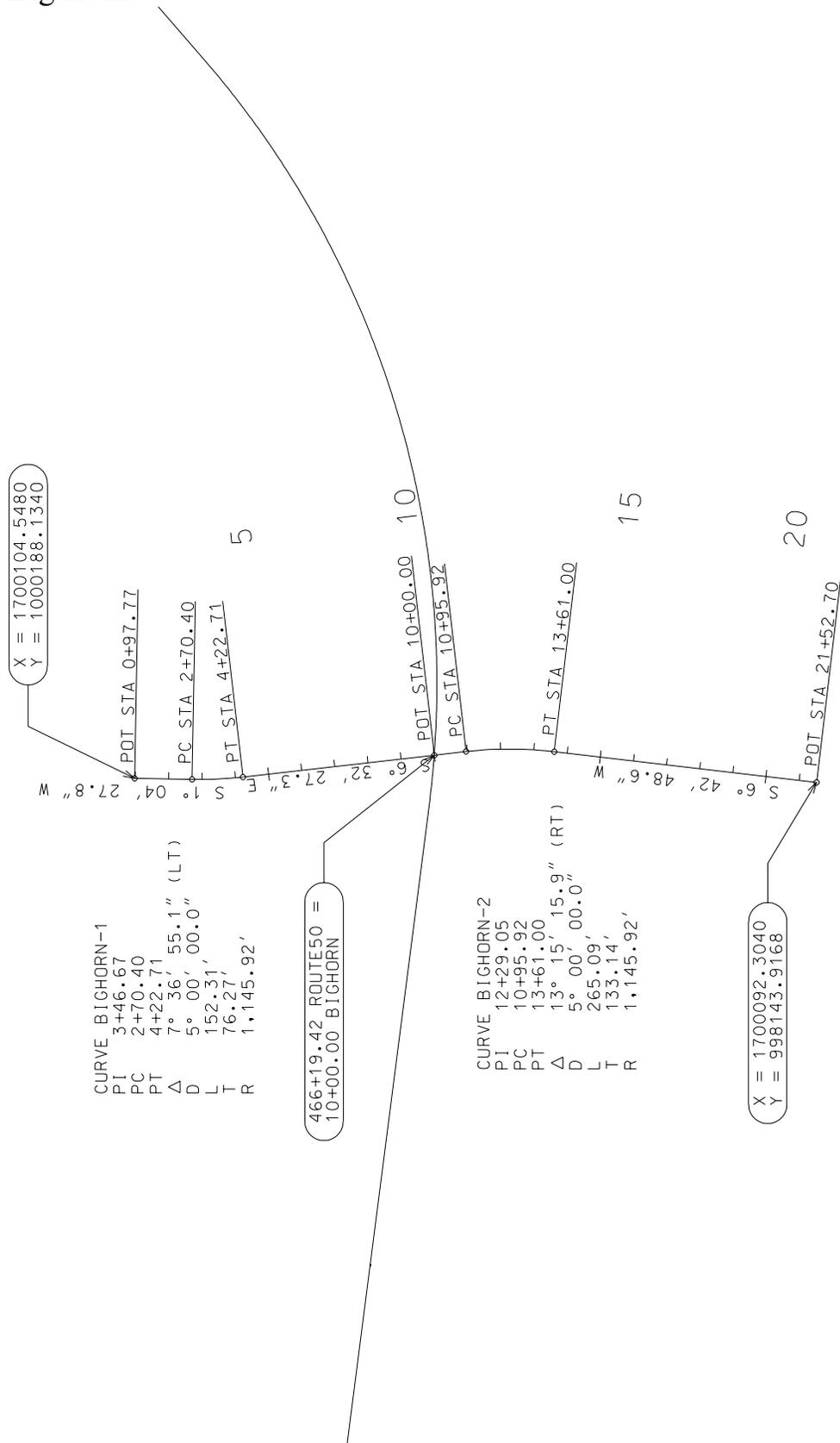
Direction Ahead of second curve = S 6° 42' 48.6" W

Intersect the alignment chain Route50 with a line segment between the PT of the first  
curve, and the PC of the second curve. **Note:** The Route 50 station value shown is  
approximate.

Store the alignment as BigHorn (be sure to include the Route50 intersection point)

Station the alignment with station 10+00 at the intersection point with the Route50 chain.

Big Horn



## Ramp 1

Beginning Point is at station 452+56.52; offset 66' LT of Route 50

The PC of the curve is the Beginning Point

Direction Back of the curve is S 82° 41' 55" E

Degree of Curvature = 4° 00' 00"

Direction Ahead of the curve is N 83° 27' 28.56" E

Alignment ends at Big Horn, at **about** Station 6+55.32

Station the alignment beginning at 0+00

Name the alignment Ramp1

## Ramp 3

Beginning Point is at station 479+48.31; offset 66' LT of Route 50

Ending Point is at end of Ramp1; however, use different point numbers for the ending point of each ramp. **Hint:** Element > Point> Equate.

PC of the first curve is the alignment beginning point.

Direction Back for the first curve is S 67° 41' 47.7" W

Degree of Curvature for first curve = 6° 00' 00"

Direction Ahead for the first curve is N 69° 50' 21.3" W

Point Back of the second curve is the PI of the first curve

PI of second curve is at the intersection of a line through the PI of the first curve with a bearing of N 69° 50' 21.3" W and a line through ending point of Ramp1 with a bearing of N 83° 27' 28.56" E. **Hint:** Do not use the same point number as the ending point for both ramps.

Degree of Curvature for the second curve = 8° 45' 00"

Point Ahead of the second curve is the alignment end point

Station the alignment beginning at station 0+00

Name the alignment Ramp3

Ramp 1 & 3

