



# Assumed Coordinate Reference System To State Plane Coordinate Reference System Process

## What are they?

These are guidelines for the field survey workflow when we start field surveys on a project on an assumed coordinate reference system and move the project to California State Plane Coordinates after the first field survey is completed.

## Why is it important?

This workflow allows us to place a small project on state plane coordinates without making an extra trip to the field to establish survey control before the main field surveys are executed.

## Definitions

An assumed coordinate reference system is one that assigns arbitrary northing, easting, and elevation values to the coordinate grid, which doesn't use a defined map projection, and which isn't based on a known horizontal or vertical datum.

## Roles and Responsibilities

The *Project Surveyor* is responsible to communicate when this workflow should be followed by the field crews and is responsible for supervising the processing of the raw field data in the office.

The *Survey Field Crew Party Chief* is responsible for following this workflow in the field when instructed by the field coordinator or project surveyor.

The *Assistant Surveyor* is responsible for assisting the project surveyor with processing the raw data from the field survey.

## Peer Review

The Field Survey Coordinator or Project Surveyor is responsible to review raw data files and ensure these guidelines are being followed by the survey field crews. The Project Surveyor is also responsible to review the network TBC project and working TBC project created as part of the post-processing of the raw field data.



## Field Notes

This workflow should produce the following field note forms:

- Control By Traverse
- GNSS Observation Logs
- Control Monument Establishment

## Workflow:

- 1) Set or recover your first two (2) control points (Point "A" and Point "B"). Good line of sight is needed between these points, as they will serve as the main azimuth pair.
- 2) Set or recover a third point (Point "C") with line-of-sight from this point to Point "A".
- 3) Set a fourth point ("Point D") with line-of-sight to Point "B" and Point "C".
- 4) Set the total station on Point "A". Shoot a backsight at Point "B". Use assumed coordinate values of 10000, 5000, and 20000 and an assumed azimuth that is 90 degrees out from the actual geodetic azimuth.  

- 5) Turn a direct and reverse angle and shoot distances to Point "C" from the total station set-up at Point "A".
- 6) Turn a direct and reverse angle and shoot distances to Point "C" from the total station set-up at Point "A" (if Point "C" is visible from Point "A"). 
- 7) Move the total station to Point "C". Shoot a backsight at Point "B" using the assumed coordinate values. 
- 8) Turn a direct and reverse angle and shoot distances to Point "D" from the total station set-up at Point "C"
- 9) Take a check shot on Point "D" and Point "A" or Point "B" if visible from the total station set-up at Point "C".



Redefined Horizons  
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RH Guidelines  
Assumed CRS to State Plane CRS  
Process

- 10) Move the back sight to Point "D" and create a new total station set-up with the instrument at Point "C".
- 11) Begin static GNSS observations on Point "A" and Point "B".
- 12) Begin total station survey from Point "C".
- 13) If time allows, take a third static GNSS operation on Point "C" or Point "D". This observation should overlap with one of the observations on Point "A" or Point "B".

Should we also add procedure  
for a closed loop traverse.