

# Volume 3 User Guide

Volume 3 of the Draft EIR/EIS provides a series of engineering drawings. Volume 3 presents preliminary design information showing alignment, primary features, anticipated right-of-way requirements and temporary construction details in support of the proposed high-speed rail project. It provides a useful tool for stakeholders who want to understand the potential property, visual, and circulation impacts of the alignment options developed and analyzed in the Bakersfield to Palmdale Project Section.



Following the publication of the Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) in March 2020, refinements were completed and incorporated into the project plans. Refer to Volume 2, Appendix 3.1-B of the EIR/EIS for details of the changes.

## Organization of Volume 3

Volume 3 consists of four design alternatives and two design options that were developed after additional input from stakeholders. The design alternatives and design options are:

- Alternatives Preliminary Engineering for Project Definition (PEPD)
- César Chávez National Monument (CCNM) Design Option
- Refined CCNM Design Option

The Alternatives PEPD portion is separated by engineering discipline and each discipline has an index, key maps, and plans and profiles. The CCNM Design Option and Refined CCNM Design Option have all engineering disciplines grouped under the same index. The engineering disciplines are:

### General Sheets

This section provides the Index of Drawings and a glossary of abbreviations.

### Alignment

Design information about the high-speed rail track alignment including typical sections and plans and profiles. **Note: alignment plans provide an overview of the design and are a good place to start viewing plans.**

### Roadway

Sections, plans, and profiles showing where streets and roads are closed, added, redirected, extended, or where grade separations are applied at the rail alignment.

### Grading, Drainage and Retaining Walls

Engineering plans showing design information for moving earth, drain pipes and box culverts, and retaining walls.

### Track Structures

Plan and section drawings of underpasses, overpasses and viaducts for the high-speed rail tracks.

### Construction Sequencing

Engineering plans for detours, temporary structures, temporary roadways, and roadway closures at specific locations where these temporary measures are necessary during construction.

### Traction Power

Design drawings showing the locations, typical layouts, and site plans for electrical power supply facilities that are used to power the high-speed rail locomotives.

### Automatic Train Control / Communication Systems

This section is called automatic train control for the design options and Communication Systems for the 2017 PEPD. Design information showing the locations of communication equipment used during the operation of locomotives on the track.

### Tunnel

Drawings showing the design and elevations of the tunnels proposed for all Alternatives, CCNM and Refined CCNM.

### Utilities

Drawings showing existing and proposed utilities near the project site. These plans also identify utilities that need to be relocated for the construction of the tracks and roadways.

### Maintenance Facilities

Drawings showing the locations of planned maintenance facilities where track maintenance would be staged.

### Coordination Drawings

Drawings showing how the Bakersfield to Palmdale project section will interface with the Fresno to Bakersfield Locally Generated Alternative (LGA) and the Palmdale to Burbank project Section.

### Preferred Alternative

This section consists only of drawings that apply to the Preferred Alternative identified in the EIR/EIS. It includes all of the engineering disciplines listed above.

## How to Find a Location in Volume 3

Readers may seek information about impacts that the project option may have on specific areas or communities. Each part of Volume 3 identifies locations where different types of work will be completed. For a more complete understanding of the project, the reader should repeat the process shown below for each engineering discipline.

### The Key Map

The Key Map for each engineering discipline and design option is like a table of contents: a master map of engineering drawings that serves as a “key” for readers to find the detailed map they seek.

The Key Map also contains a Vicinity Map showing the project location as well as surrounding roads and populated areas.

There are Key Maps for all parts of Volume 3.

#### 1 Identify the Location of the Project

Use the Vicinity Map to identify where the project is located compared to surrounding areas.

#### 2 Check the Key Map

The Key Map illustrates the drawings numbers for all of the maps.

*The Refined CCNM Option is used for this example. The Alignment section Key Map shows the track alignment.*

#### 3 Look for Cities, Highways, and Landmarks

Look at the city and town names, highways, or landmarks to find the part of the map where you want to take a closer look.

*For example, you may want to look in more detail about how the design option alignment travels next to SR-58 west of Tehachapi.*

#### 4 Find the Drawing Number

The narrow rectangles represent engineering drawing boundaries. Each boundary has an associated drawing number that will direct you to a sheet that shows the detailed drawing.

*The highlighted area shows the high-speed rail alignment next to SR-58. The Drawing Number associated with that location is TT-D1412.*

#### 5 Go to the Engineering Drawing

Use the drawing number to locate engineering drawing. Use the Index of Drawings to find the specific drawing, drawing number, and sheet number. Alternatively, find the correct page by looking through the plan sheets immediately after the Key Map in that section. The drawing number is located near the bottom right of the drawing.

*In this example, Alignment drawing TT-D1412 shows more detail about how the tracks are elevated over the highway. This could lead the user to look at other sections for more information.*

### The Index of Drawings

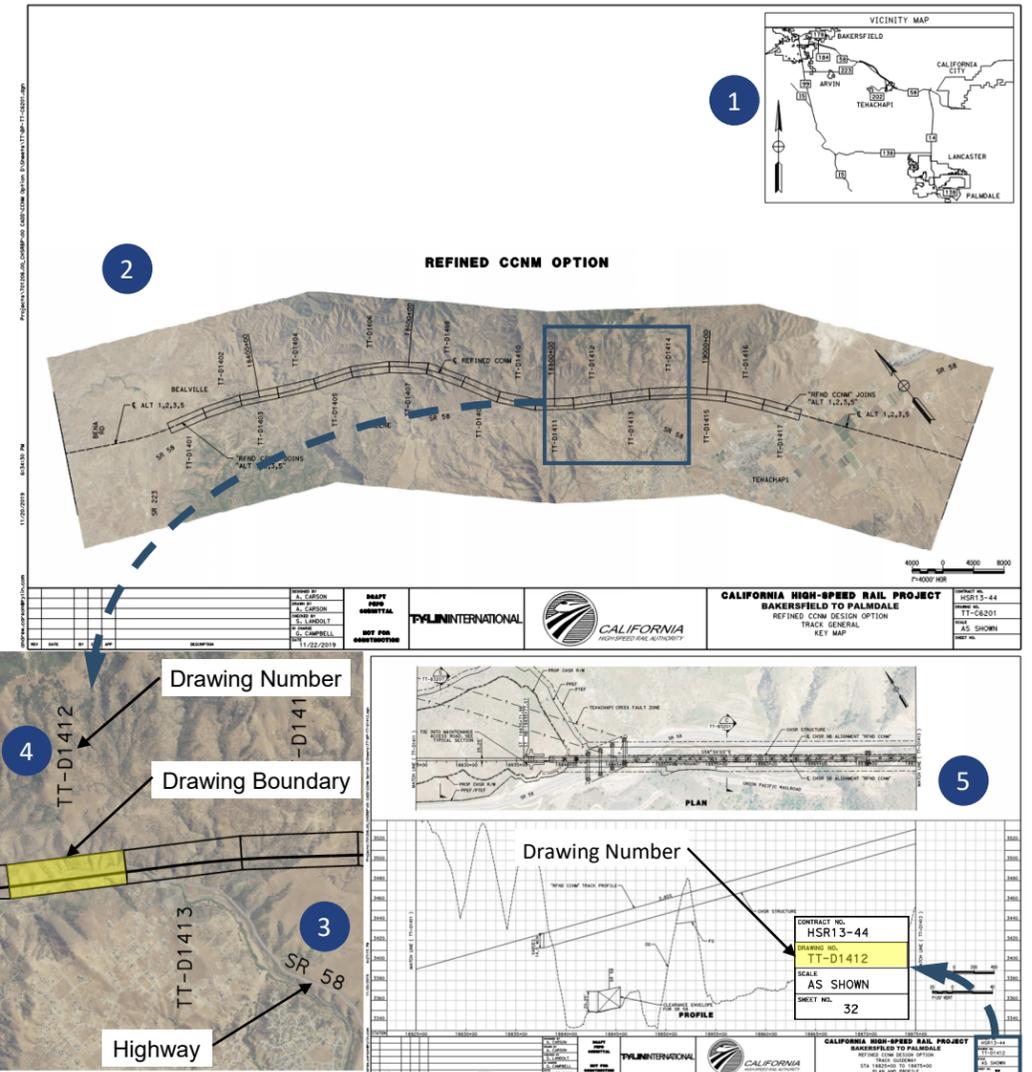
Each of the parts of Volume 3 has an Index of Drawings that is located in the General Sheets part near the front of each document. For the PEPD Design Alternatives, there is a separate index of drawings for each engineering discipline. The CCNM Design Option and Refined CCNM Design Option each have one index for all engineering disciplines. The Index lists the pages (called “drawings”) in numerical order, with a column showing a description of the drawing. After finding a location on a Key Map, one may consult the Index of Drawings for the location of the drawing.

Each drawing has a **drawing number** and a **sheet number**.

Drawing numbers on the Key Maps identify which maps illustrate specific geographic locations, and the sheet numbers identify the page where the drawing can be found.

The **drawing description** refers to the type of information presented on the sheet, as well as specific station limits, as appropriate.

SHEET No.	DRAWING No.	DRAWING DESCRIPTION
8	TT-B0201	REFINED CCNM DESIGN OPTION - TRACK GENERAL - SYMBOLS, LEGEND, AND GENERAL NOTES
9	TT-B0202	REFINED CCNM DESIGN OPTION - TRACK GENERAL - HORIZONTAL ALIGNMENT DATA TABLE
10	TT-B3201	REFINED CCNM DESIGN OPTION - TRACK GENERAL - TYPICAL SECTIONS - SHEET 1 OF 10

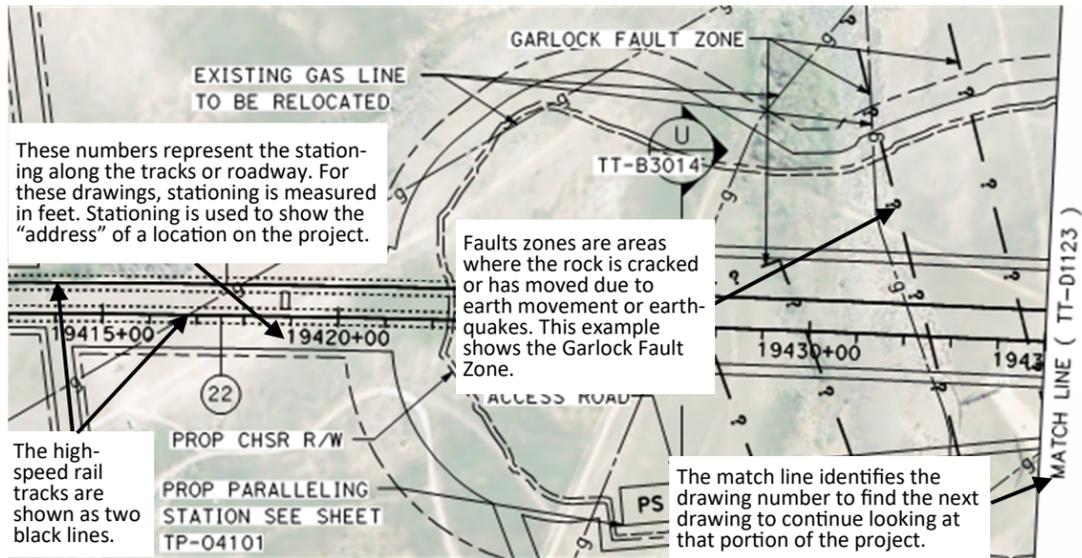


Example 1: Refined CCNM Option - Portions of Drawings TT-C6201 and TT-D1412

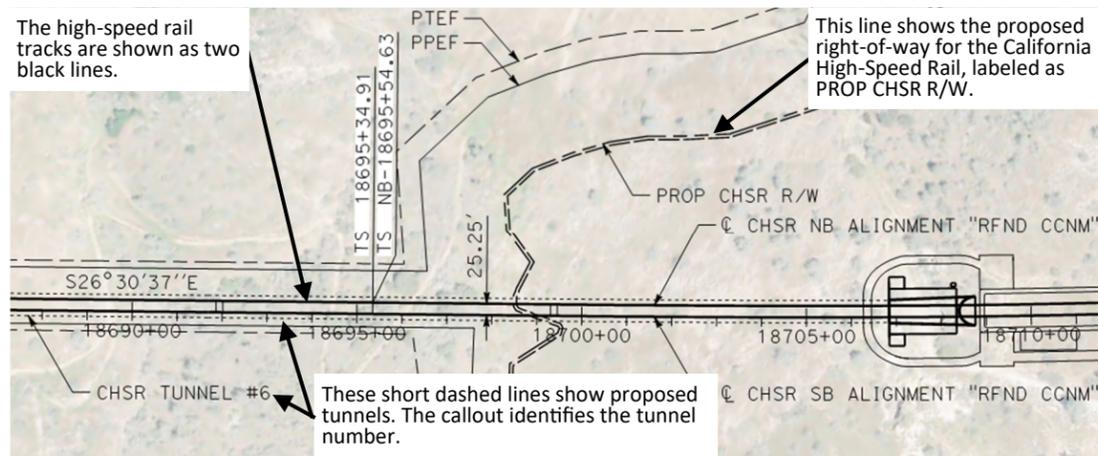
# Understanding the Information in Volume 3

## Plans

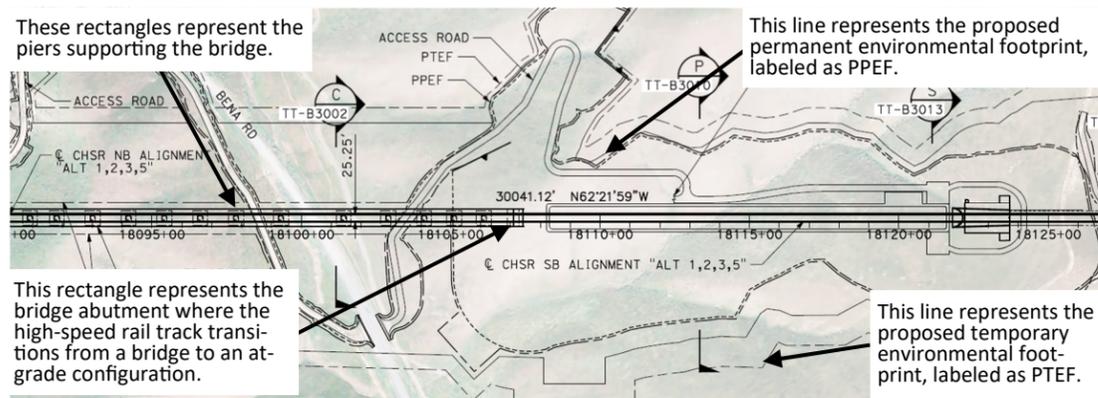
Plans show portions of the project as seen from above. The plans in Volume 3 are detailed drawings of the project corridor that show the location of proposed high-speed rail infrastructure, as well as the extent of existing and proposed rights-of-way, existing road alignments and proposed realignments, utility lines, and other features considered by designers. Enlarged sections from several plans are annotated below to help readers understand the different features that are labeled on these drawings.



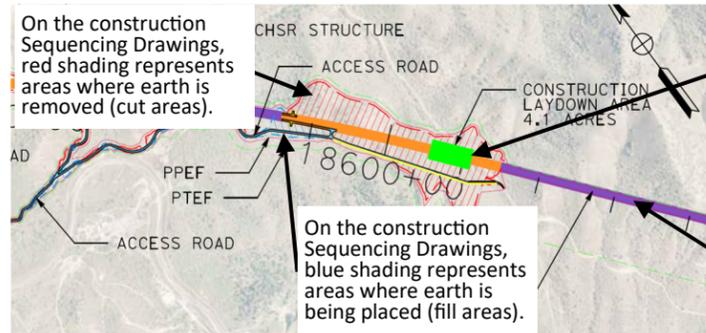
Example 2: 2017 PEPD Alternative 3 - Track Guideway - Portion of Drawing Number TT-D1122



Example 3: Refined CCNM Option - Alignment Drawing - Portion of Drawing Number TT-D1409



Example 4: 2017 PEPD Alternative 1,2,3,5 - Track Guideway - Portion of Drawing Number TT-D1022



Example 5: CCNM Design Option - Construction Sequencing - Portion of Drawing Number CV-11101

## Scales

Various drawings show the width or expanse of the rail alignment, the heights of bridges and viaducts, and the right-of-way of the alignment in relation to adjacent homes, businesses, farmland, and other properties.

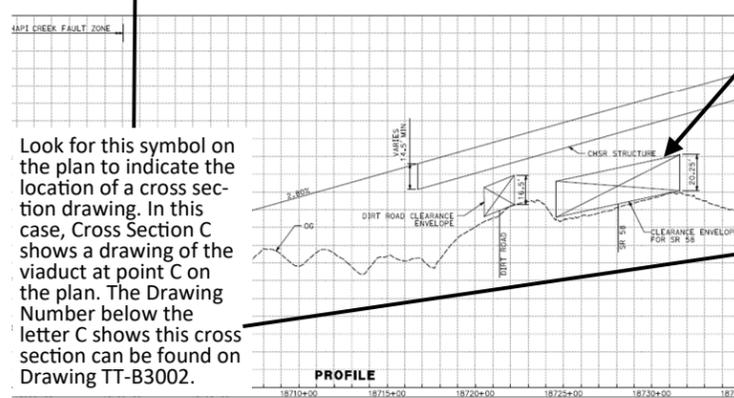
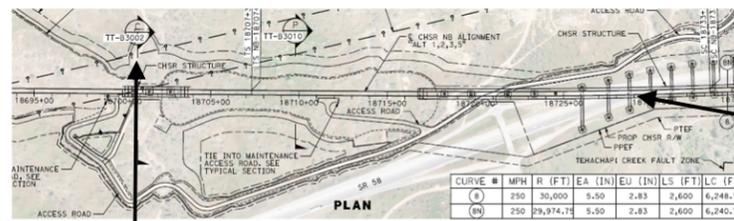
The drawings are scaled, meaning the measurements in these drawings are in proportion to the actual locations they represent. For example, one inch of a drawing might represent 10 feet of real alignment. Most drawings show their scale or have real-world measurements depicted on the drawing.

Some drawings have different horizontal and vertical scales. The abbreviations HOR for horizontal and VERT for vertical differentiate the scales. The horizontal scale measures distances in the North, South, East, and West directions. The vertical scale measures distances up and down as if you are looking at them from the side, as in a profile view.

Some drawings have scales that read SCALE APPLICABLE FOR FULL SIZE ONLY. When drawings are printed on paper that is smaller than full size (22 inch by 34 inch), the nominal scale (1"=100' in the example) may not be accurate. Use a ruler to measure the lines on the graphic scale and use those lengths to find distances or heights.

## Cross Sections and Vertical Profiles

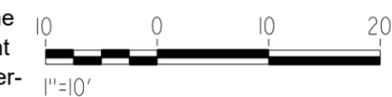
In addition to the plan view of the rail corridor, various drawings show the width or expanse of the rail alignment, the heights of bridges and viaducts, and the right-of-way of the alignment in relation to adjacent homes, businesses, farmland, and other properties.



Example 6: 2017 PEPD - Track Guideway - Portion of Drawing Number TT-D1034

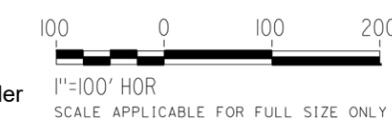
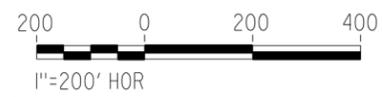
Proposed construction staging areas and laydown areas are identified on the plans. The laydown area is used to assemble equipment and materials for the project.

The colors along the track represent the suggested phase of construction. According to the legend, the purple line means this portion would be constructed in phase 2. The blue portion would be constructed first, purple second and orange last.



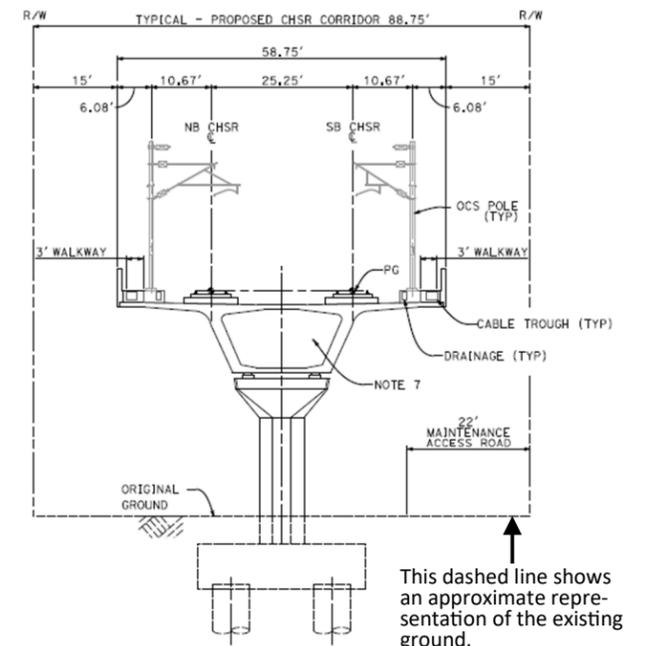
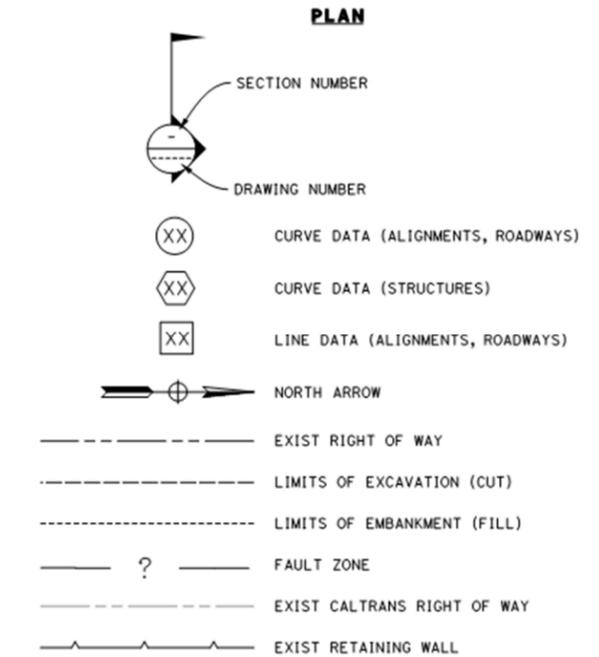
## SECTION A-2

SCALE: 1 1/2" = 1' - 0"



## Legend

The legend defines the meanings of graphics and lines that are shown in the plans and profiles. Legends are provided for each engineering discipline of Volume 3.



- SECTION C**
- 1. TRACKFORM SHOWN IS INDICATIVE
  - 2. SUPERELEVATION IS NOT SHOWN. THE AMOUNT OF APPLIED SUPERELEVATION IS SHOWN IN THE CURVE TABLES
- The stations show the locations where this section is applicable.

Example 7: 2017 PEPD - Typical Sections - Portion of Drawing Number TT-B3002