

# STATE OF CALIFORNIA

## Energy Resources Conservation And Development Commission

<b>DOCKET</b> 08-AFC-13
DATE AUG 17 2010
RECD. AUG 18 2010

In the Matter of:  
The Application for Certification  
for the Calico Solar Power Project  
Licensing Case

Docket No. 08-AFC-13

### PREPARED DIRECT TESTIMONY OF DENNIS SKEELS BNSF RAILWAY COMPANY

August 17, 2010

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PREPARED DIRECT TESTIMONY

OF

Dennis Skeels

Manager Signals California Division – BNSF

Q.1 Please state your name and occupation?

A.1 My name is Dennis Skeels. I am the Manager Signals, California Division, for BNSF Railway Company ("BNSF"). My resume was attached to my previous testimony.

Q.2 What is the purpose of your testimony in this proceeding?

A.2 I will testify regarding transportation (glint and glare).

Q.3 Why does BNSF have concerns regarding the Calico Solar Project?

A.3 BNSF is one of two Class 1 railroads operating in California. BNSF's mainline, which is traversed by as many as 80 trains per day, carries interstate commerce from the Ports of Los Angeles and Long Beach to U.S. Midwestern, Southwestern and Eastern markets. BNSF's mainline has operated through the section of the proposed Project since the late 19<sup>th</sup> Century. Preliminarily, whether emplacing tens of thousands of SunCatchers immediately adjacent to both sides of one of only two strategic transcontinental transportation corridors for rail traffic from the west coast to all points east is a compatible use has not been addressed or analyzed. The proposed Project would surround both sides of several miles of BNSF's mainline tracks. Accordingly, BNSF has significant

concerns that the construction and operation of the Project do not adversely impact BNSF operations or otherwise impose unacceptable safety risks to BNSF personnel and operations.

The consummation of the Project would require the granting of several licenses and permits from BNSF, which Applicant Calico Solar ("Calico Solar") has requested in a piecemeal fashion over the course of the past year. To date, only preliminary access agreements have been granted. Before BNSF can grant such licenses and permits, BNSF must be assured that its significant safety and operational concerns are addressed.

Q.4 What are BNSF's safety and operational concerns in relation to transportation (glint and glare)?

A.4 BNSF's mainline, along which the Project is proposed to be built, is curved. An essential signal for rail traffic is located in the vicinity near Hector Road. Signals are critical safety features and engineers must be able to see signals in sufficient time to respond accordingly to avoid potentially life-threatening events such as a derailment. Calico Solar's Project certification application seeks authority to emplace up to 34,000 SunCatchers within a 6,215 acre tract that falls on both sides of BNSF's right of way.

While there are no drawings or diagrams that specify precisely where the SunCatchers will be emplaced, Calico Solar proposes to locate the nearest

SunCatchers as close as 223' from the BNSF right of way, on both sides of the transcontinental mainline track, for approximately five miles.

Q.5 Why does the emplacement of the SunCatchers cause operational and safety concerns for BNSF?

A.5 Because daytime glint and glare from the 34,000 SunCatcher mirrors and associated structures, in particular when the mirrors are in offset tracking position, may significantly impact BNSF engineers' ability to see the signal. The situation would be exacerbated by the site elevations which Calico Solar has proposed. Additionally, refracted light radiating back from the SunCatchers could possibly introduce a light source that may cause a signal to display an aspect more favorable than what is intended. This can result in a phantom signal. Attached hereto as Exhibits "A" and "B" are photos showing a phantom signal.

Q.6 In addition to the safety concerns, are there federal regulations that govern signals?

A.6 Yes. BNSF is required by federal regulations and the Federal Railway Administration (the "FRA") to maintain visual contact with signals. If a train's contact with a signal is lost and cannot be regained, the engineer is required to stop the train. This often requires an emergency application of the brakes, risking derailment of the train. When a train has been stopped through emergency application of the brakes, BNSF General Code of Operating Rule 6.23 requires the engineer to inspect all cars, units,

equipment and track pursuant to BNSF special instructions and rules. This can cause significant delays to rail operations with ramifications reaching from the Ports of Los Angeles and Long Beach to Chicago and beyond.

Q.7 Have you had an opportunity to review the SSA Part II relating to traffic and Safety (Glint and Glare)?

A.7 Yes, I have.

Q.8 Does it adequately address BNSF's concerns?

A.8 No, it does not. To date, there is no study that has been performed that:

- a. analyzes and measures the impact on BNSF rail operations;
- b. analyzes and measures the glint and glare that will be produced from the SunCatchers in relation to the specifics heights, elevations, and angles relating to an engineer traveling along the curved track along the BNSF Right of Way ("RoW");
- c. ascertains what, if any, measures could be implemented to adequately mitigate the impact of the SunCatchers' glint and glare to ensure the safe operation of rail services along the BNSF RoW;
- d. ascertains what evaluation, testing, coordination, and approval would be necessary to obtain FRA approval for any such mitigating measures.

Q.9 Are there signals in the vicinity of the proposed Project that would be impacted by the project?

A.9 Yes, there are. Attached hereto as Exhibit "C" is an extract from a Track Chart, Needles Subdivision, which shows the locations of the signals in the proposed Project area. Starting on the page denoted with a circled 8 at the top right corner and reflecting mile markers 710 through 715 and then the following page denoted with a circled 9 at the top right corner and reflecting mile markers 705 through 710, these are the pages that relate to the proposed Project site. Various features are pointed out, to include train speed, crossings, signals, and hot box detectors, as well as curves and grade. As you can see, train speed varies based on whether it is freight or passenger and also varies based on the grade and curves. There are currently two crossings, one near Hector and one near West Pisgah. The Hector crossing has a signal before and after the crossing. The West Pisgah crossing has several signals on either side of the crossing and is near a 2 degree 10 minute turn.

BNSF is also concerned that the SunCatchers may impact the signals and hot boxes along the mainline because the signals and hotboxes are solar-powered. Accordingly, if the SunCatchers are too close to the mainline, the shadow from the SunCatchers could shade the signals and hotboxes, thereby eliminating their energy source and causing failure or malfunction. BNSF understands that Calico Solar has agreed not to emplace any SunCatcher within 223 feet of the RoW, which would mitigate this issue.

Finally, there is always a concern regarding transmission lines interfering with signals. BNSF understands that Calico Solar has agreed not to emplace any transmission line within 300 feet of the RoW and to only cross the RoW at a right angle sufficiently distant from a signal, thereby mitigating this issue.

Q.10 Does the SSA Part II account for the signals?

A.10 No. I am not aware of any maps or drawings that show the signals and the SSA Part II does not make any reference to where the signals are located.

Q.11 Based on these stated concerns, what is BNSF's proposal in relation to the glare and glint issue?

A.11 Before BNSF can consider approving any further access to the BNSF RoW, the following Condition of Certification must be incorporated into the Project:

Prior to the first SunCatcher disc being mounted on a pedestal, a site-specific Glare/Glint study shall be performed at Calico Solar's expense to address the Glare /Glint issues raised by BNSF with respect to the potential impact of the proposed Calico Solar SunCatchers on BNSF rail operations. The recommended mitigation measures shall be reviewed by BNSF. If BNSF approves the recommended mitigation measures, they will be implemented by Calico Solar at its expense. The site specific study

shall commence immediately upon BNSF's selection of the experts to perform the study.

Q.12 The SSA Part II at C.11-36-37 makes reference to signal light modifications. Have you reviewed it?

A.12 Yes, I have.

Q.13 Are the suggested modifications feasible?

A.13 SSA Part II at C.11-36 refers to "current LED signal technology." Based on my extensive experience, I am not aware of any such current approved LED signal technology. BNSF is currently conducting testing of LED signal lights, but there presently is no standard LED signal that has been tested and approved for use by BNSF. Moreover, shielding or hooding of signals requires coordination with federal authorities before we make any changes.

Q.14 Does this complete your direct testimony?

A.14 Yes, it does.

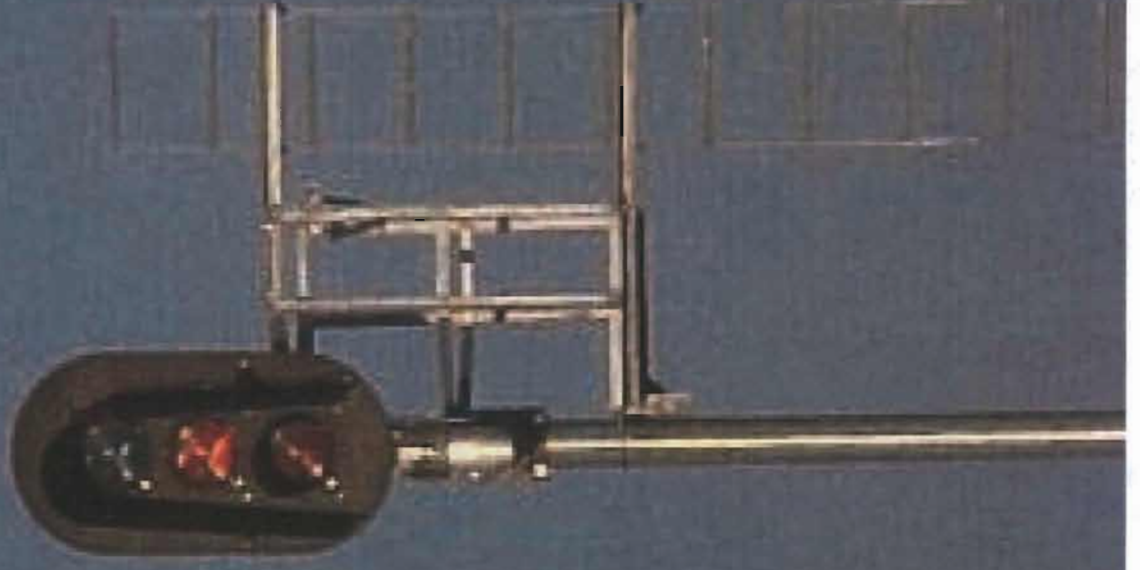
I swear under penalty of perjury that this testimony is true and correct to the best of my knowledge and belief.

Dated: August 17, 2010

*Dennis Skeels*  
Dennis Skeels



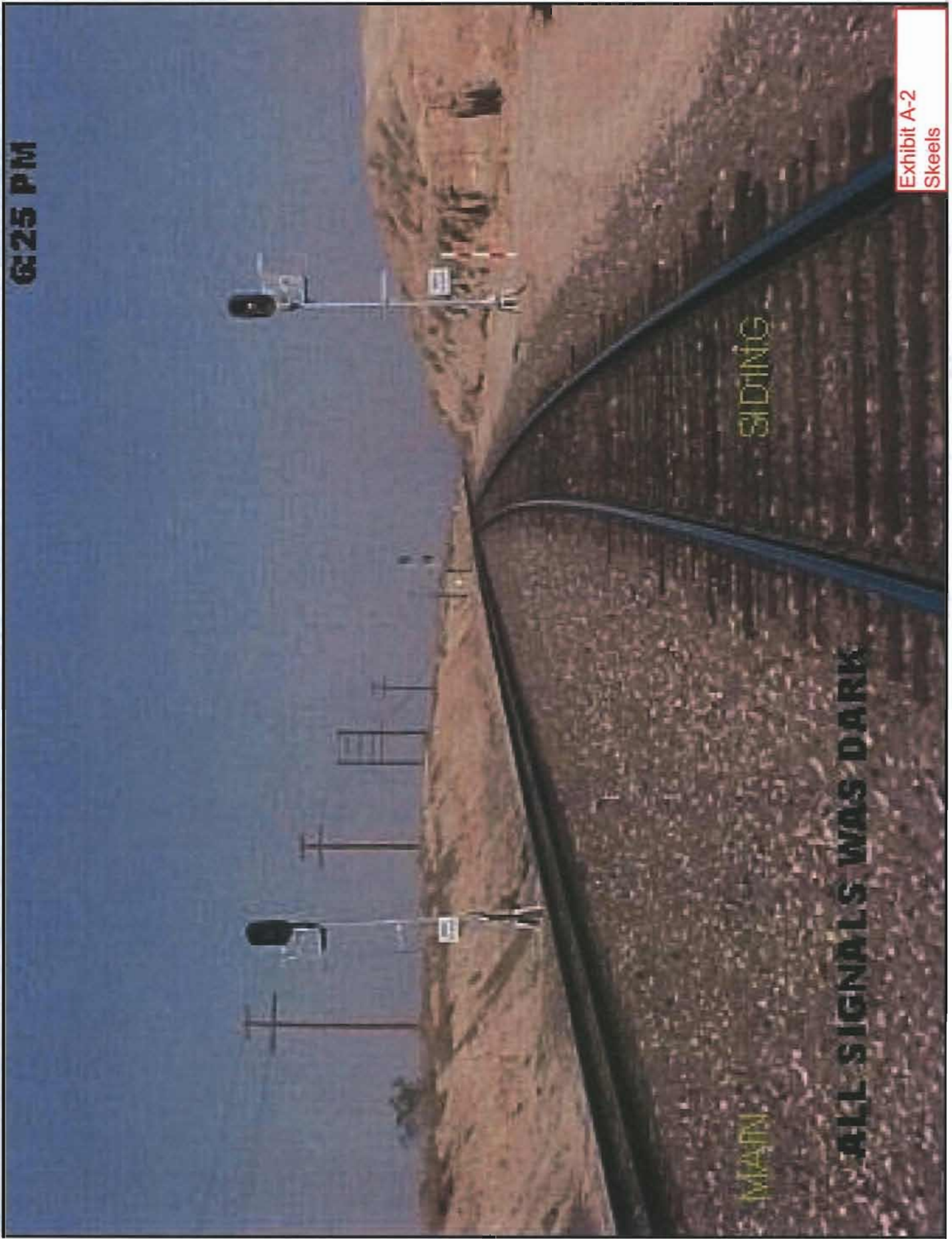
**7:47 PM**



**RED LITE OFF**

**Exhibit A-1  
Steels**

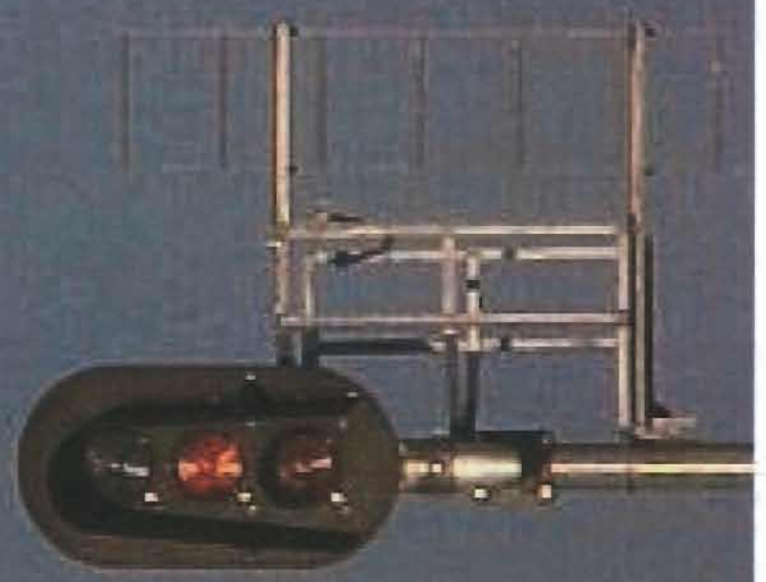
6:25 PM



ALL SIGNALS WAS DARK

Exhibit A-2  
Skeels

**RED LITE ON**



**Exhibit B-1  
Skeels**

**7:32 PM**

**ALL LITES OFF**



Exhibit B-2  
Skeels



# Track Chart

## Needles Subdivision

Needles, CA (M.P. 578.0) to Barstow, CA (M.P. 745.83)

*See each page for latest revised date*

To view on the intranet or print this Track Chart go to:  
<http://kcintvdpd0001.iss.bnr.com/maprec/maprec/home.htm>

Notes:

To order this Track Chart in Sourcenet or Millennium, use: 1363651

If you have any corrections or changes to these pages, either mail to the Manager of Maps and Records at 4515 Kansas Ave., Kansas City, KS 66106 or FAX to 913-551-4285. Mailing is preferred.

NEE000.DGN

BNSF System Maintenance and Planning

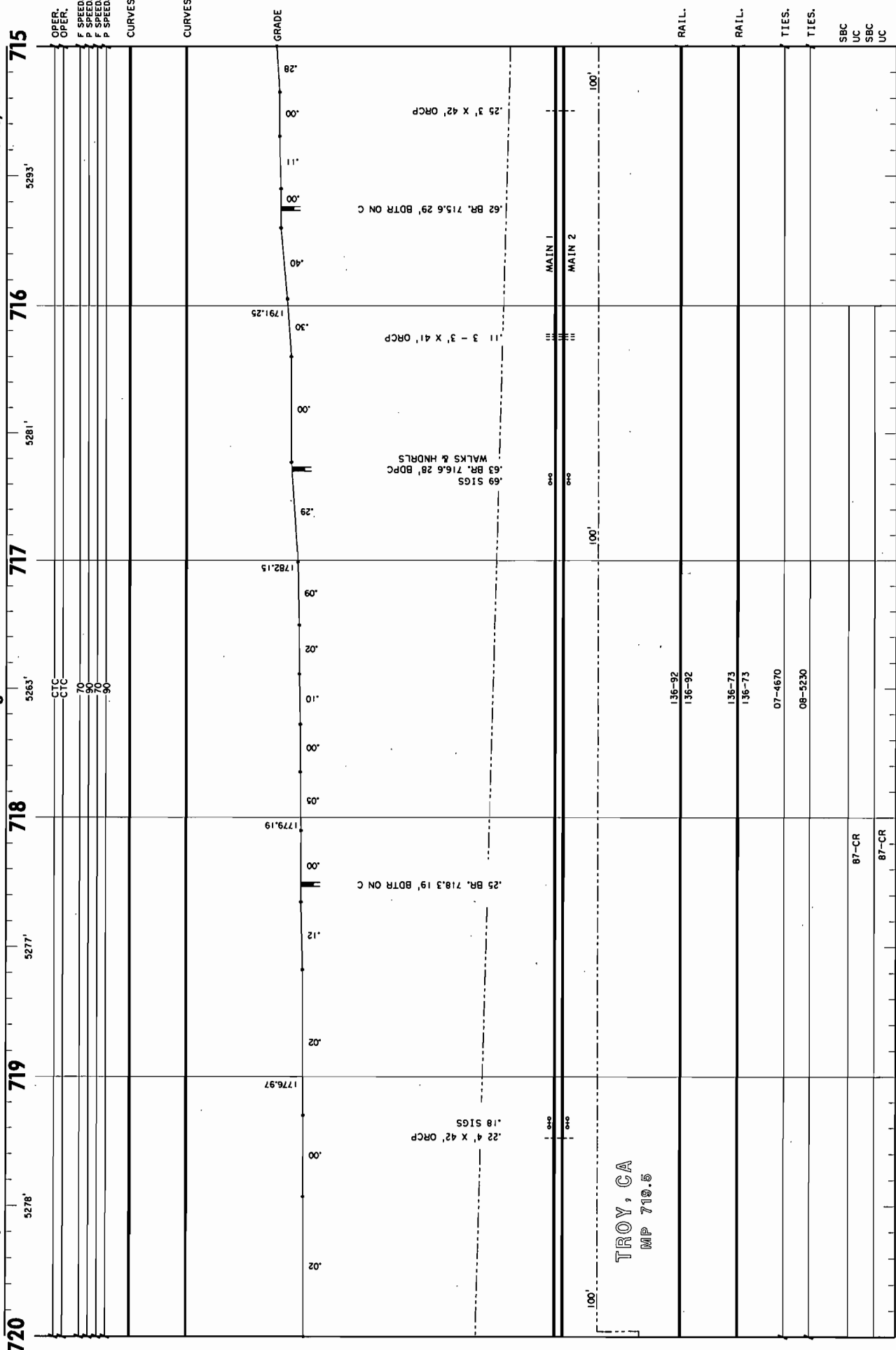


7

← Barslow, CA

Line Segment 7200

Needles, CA →



BNSF Railway Company

VS = AT CA-31

NEE007.DGN

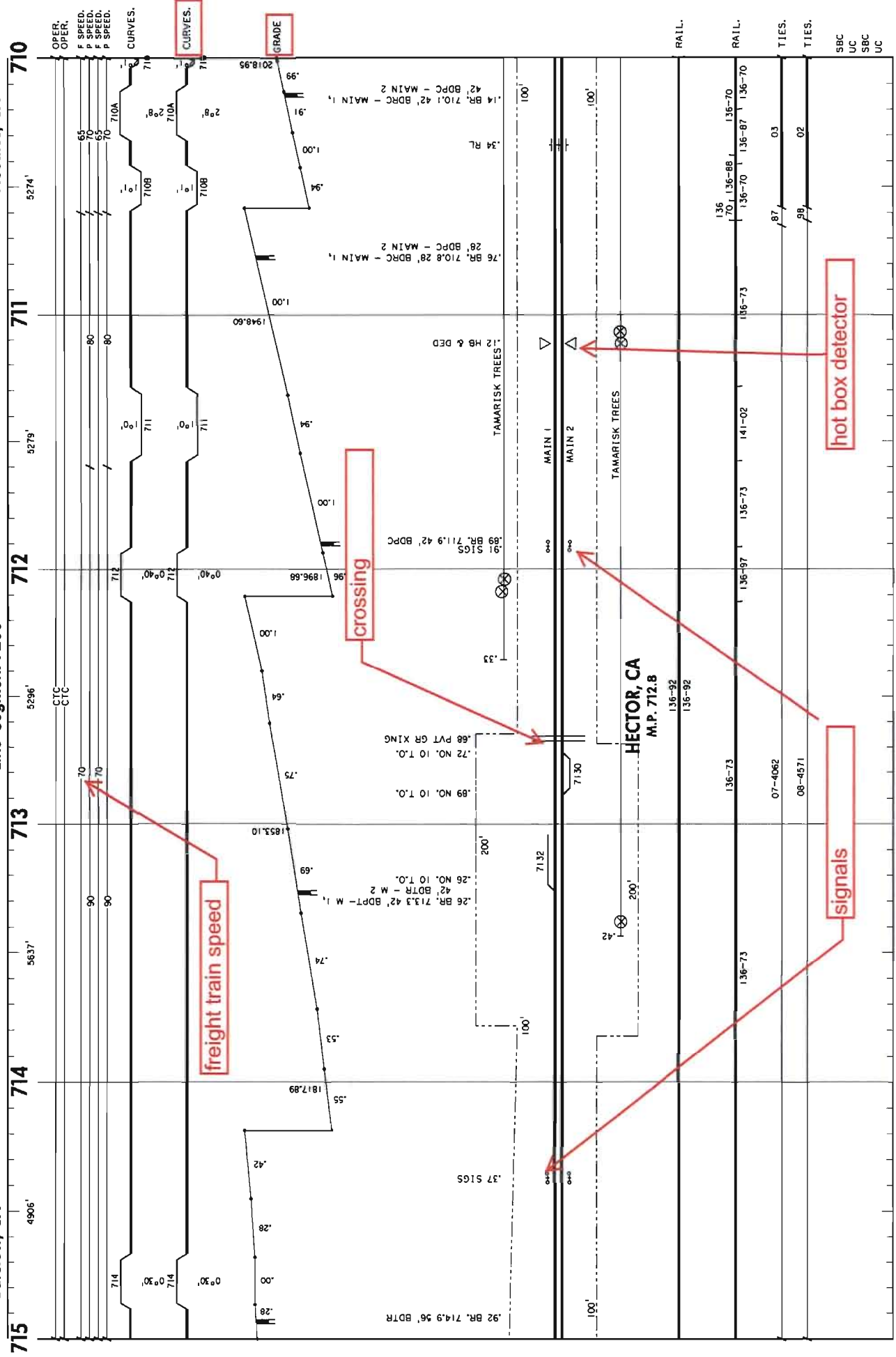
Revised: 07/13/2009

Needles Subdivision

Barstow, CA

Line Segment 7200

Needles, CA



BNSF Railway Company

VS = AT CA-31

NEE008.DGN

Revised: 07/19/2009

Needles Subdivision

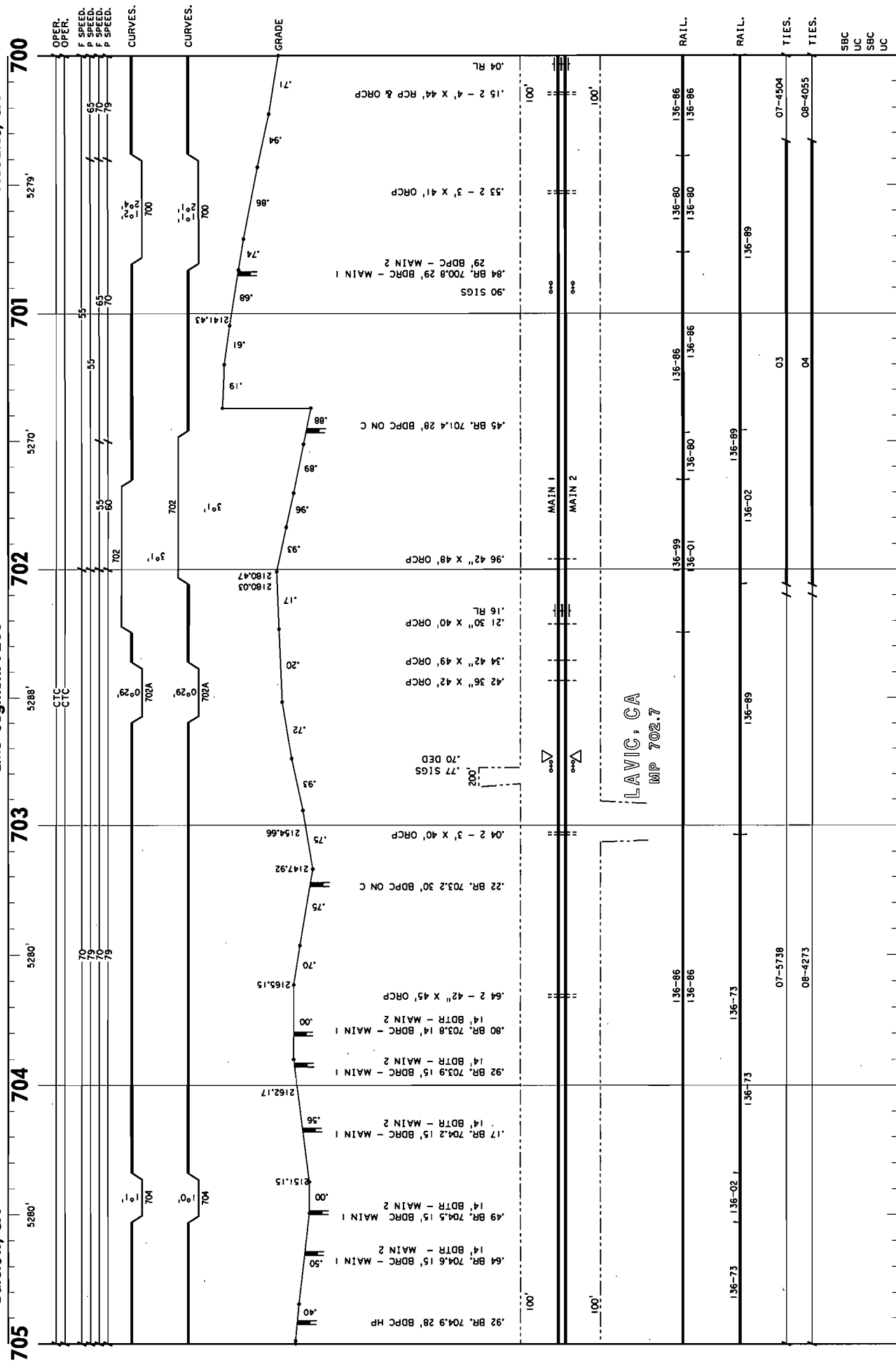




Barstow, CA

Line Segment 7200

Needles, CA



BNSF Railway Company

VS = AT CA-31

NEE010.DGN Revised: 07/13/2009

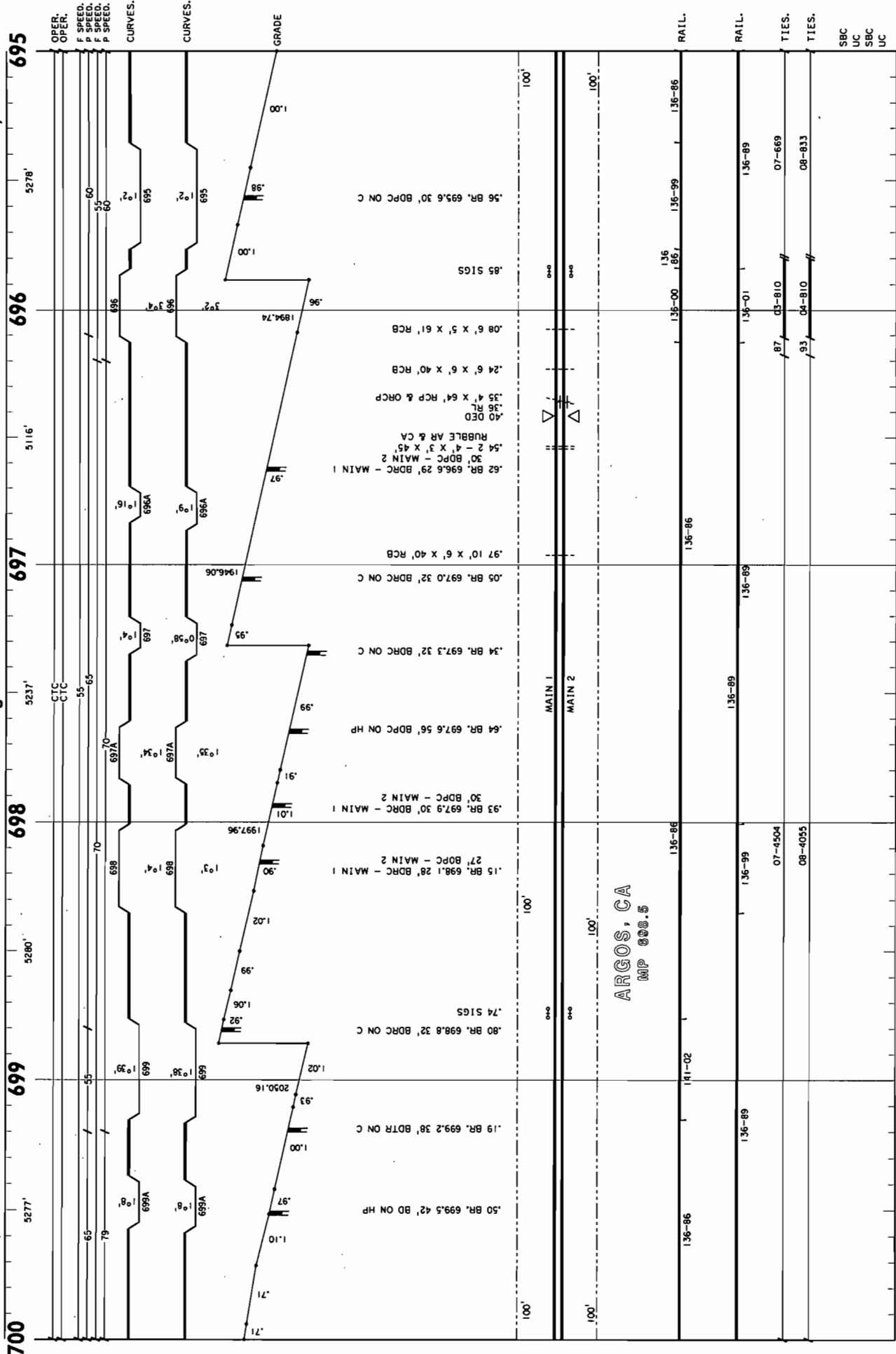
Needles Subdivision

SBC  
UC  
SBC  
SBC  
UC

← Barstow, CA

Line Segment 7200

Needles, CA →



BNSF Railway Company

VS = AT CA-31

NEE001.DGN

Revised: 07/13/2009

Needles Subdivision



BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT  
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**APPLICATION FOR CERTIFICATION**

**For the CALICO SOLAR (Formerly SES Solar One)**

**Docket No. 08-AFC-13**

**PROOF OF SERVICE**  
*(Revised 8/9/10)*

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**DECLARATION OF SERVICE**

I, Harriet Vletas, declare that on August 17, 2010, I served and filed copies of the attached Prepared Direct Testimony of Dennis Skeels, BNSF Railway Company dated August 17, 2010. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at:  
**[[www.energy.ca.gov/sitingcases/solarone](http://www.energy.ca.gov/sitingcases/solarone)].**

The documents have been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

**(Check all that Apply)**

**FOR SERVICE TO ALL OTHER PARTIES:**

- sent electronically to all email addresses on the Proof of Service list;
- by personal delivery;
- by delivering on this date, for mailing with the United States Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses **NOT** marked "email preferred."


**AND**

**FOR FILING WITH THE ENERGY COMMISSION:**

- sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (**preferred method**);
- OR**
- depositing in the mail an original and 12 paper copies, as follows:

**CALIFORNIA ENERGY COMMISSION**  
Attn: Docket No. 08-AFC-13  
1516 Ninth Street, MS-4  
Sacramento, CA 95814-5512  
[docket@energy.state.ca.us](mailto:docket@energy.state.ca.us)

I declare under penalty of perjury that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

  
HARRIET VLETAS

\*indicates change