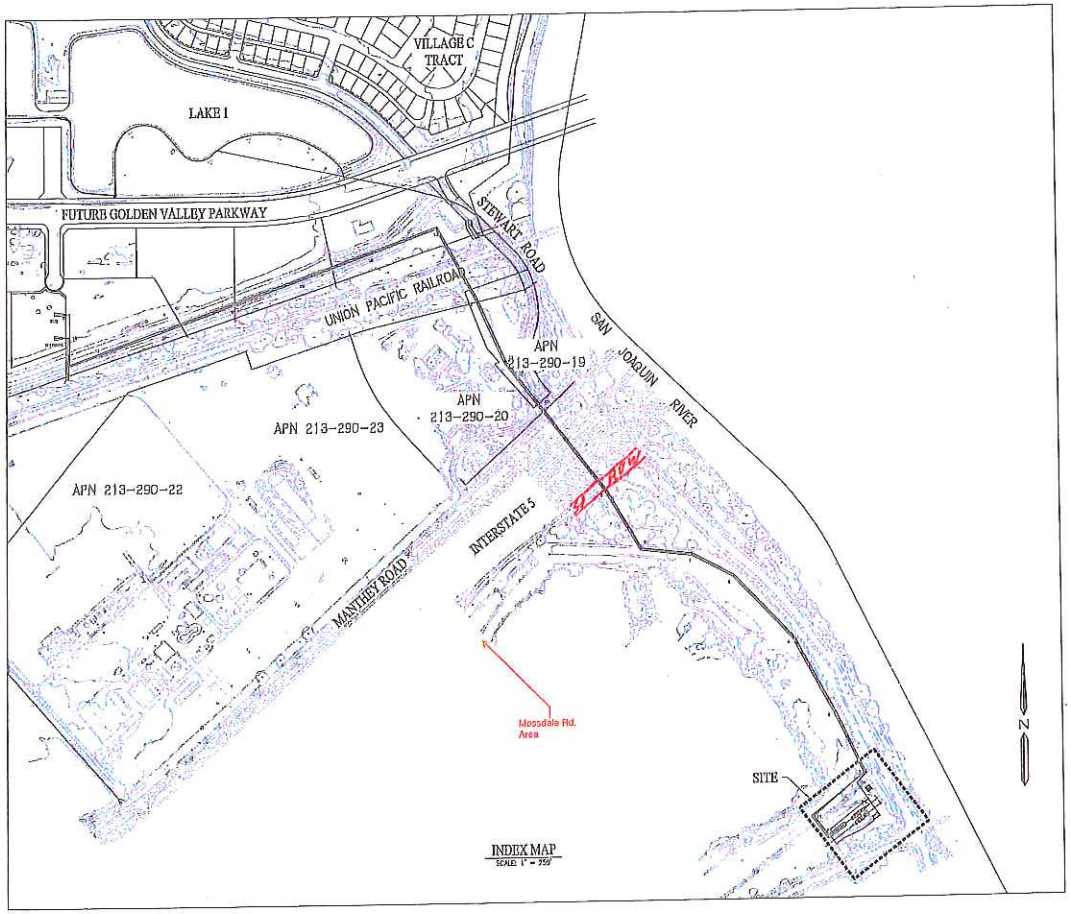
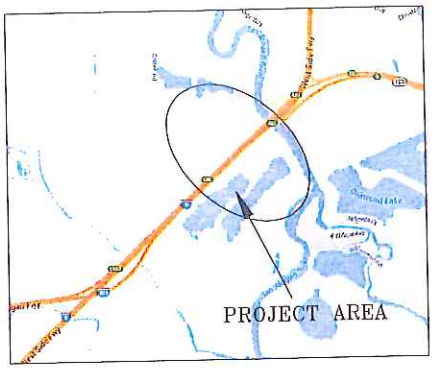
LATHROP IRRIGATION DISTRICT (LID)
115-kV TRANSMISSION LINE
CITY OF LATHROP, SAN JOAQUIN COUNTY, CALIFORNIA



INDEX MAP
SCALE: 1" = 2500'



SHEET INDEX	
SHEET NO.	TITLE
1	COVER SHEET
2	PLAN AND PROFILE
3	STRUCTURES
4	TEMPORARY STRUCTURES
5	INSULATORS AND HARDWARE

ELECTRICAL ENGINEER
PLANS PREPARED UNDER THE DIRECTION OF:

REGISTERED PROFESSIONAL ENGINEER
DOUGLAS D. PROCTOR
No. E 12371
Exp. 3/31/17
ELECTRICAL
STATE OF CALIFORNIA

NO.	DATE	DRAWN	TECH	DESIGN	APV'D	REVISION
1	7/24/15	DOP		DOP		CONSTRUCTION BIDS
0	3/20/15	DOP		DOP		IN CROSSING PERMIT

NETWORK No. _____ PROJECT No. _____

Proctor Engineering, Inc.
8861 Alford Way
Fair Oaks, CA 95628
(916) 967-8861

LATHROP IRRIGATION DISTRICT
LATHROP, CALIFORNIA

RIVER ISLANDS TRANSMISSION LINE
VICINITY MAP

DRAWN BY: DOP	SUBMITTED BY:
DESIGNED BY: DOP	APPROVED BY:
SCALE: NOT TO SCALE	DWG. No. 1

0

DWG: F:\PROJECTS\River Islands\Construction Drawings\Final Revised\river islands title cover sheet.dwg
DATE: Jul 28, 2015 2:43pm
USER: dwg
XREFs: 07-0808

GENERAL NOTES

OWNER: Lathrop Irrigation District
73 w. Stewart Road
Lathrop, CA 95330
(209) 879-7900

DEVELOPER: River Islands at Lathrop
73 w. Stewart Road
Lathrop, CA 95330
(209) 879-7900

References

The CONTRACTOR shall conduct their work as required in accordance with referenced publications listed below:

ANSI C2, National Electrical Safety Code.

Institute of Electrical and Electronic Engineers (IEEE): Standard 524, Guide to Installation of Overhead Transmission Line Conductors.

ACI 336.1, Standard Specification for the Construction of End Bearing Drilled Piers.

CONSTRUCTION NOTES

Submittals

Submit catalog information for conductors, insulators, and hardware.

Proposed drilled shaft rig name, model number, maximum continuous torque rating (ft_lb), earth and rock auger attachments. Submit a written description of the technique proposed for use.

Drawings or catalog cuts of bolted and/or compression fittings.

Drawings or catalog cuts of stringing blocks indicating sheave dimension.

Description of tensioner indicating bull wheel dimensions.

Construction Submittals.

The Contractor shall submit to the District, 30 days prior to the beginning of conductor installation operations, drawings indicating the location of the guard structures with reference to roads, highways, wire crossings, and railroad facilities and other objects on the right_of_way.

The Contractor shall submit to the District, 30 days prior to commencement of conductor installation operations, a conductor stringing procedure which shall indicate:

Location of pulling machine and tension machine.

Reels to be used.

Locations of additional alignment to set up pulling machine or tension machine locations.

Locations of additional alignment to set up sagging operations.

Description of equipment.

Description of procedures proposed for stringing and sagging.

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LID STANDARD NOTES

Alignment Access and Permits

All permits, bonds, etc., required for construction, other than those on the District's alignment easement, Caltrans I5 crossing, and the UPRR crossing are the responsibility of and shall be acquired by the Contractor at his expense.

Access to the alignment, other than at public road crossings or as provided by the District as indicated, shall be the responsibility of the Contractor.

The District shall be informed of all off alignment agreements. Copies of all off alignment agreements shall be provided to the District.

Upon completion of construction, a written release shall be obtained by the Contractor from each property for which an agreement was made. The release shall name, in addition to the Contractor, the District and District's agents as being relieved of any further claims or responsibility.

Contractor's operations shall be limited only to public roads, access to authorized portions of the alignment, and to such areas where special access permission has been obtained.

Existing roads and driveways adjacent to the alignment shall not be used without prior permission of District, property District, or business.

The District's alignment is limited to the area required to contain the transmission line after construction. Use of other areas for construction will be the responsibility of the Contractor.

Where additional alignment is necessary for structure assembly, stringing and sagging, Contractor shall make all necessary agreements with the landowner and business. Agreement shall be written and copies shall be furnished to the District. All costs incurred in this transaction shall be borne by the Contractor.

No unnecessary vehicular travel will be allowed during construction.

Construction personnel shall not park personal vehicles on the alignment.

INSTALLATION NOTES

Transmission line installation shall conform to the requirements of Cal. P.U.C. G.O. 95. The installation shall be based on maximum 108-mph winds. Contractor shall provide a set of erection drawings on the jobsite for the use of the District's Representative.

Drilled Shaft Excavations

All precautions necessary to prevent blowouts and disturbance of the sides or bottom of the excavation shall be taken. If required, water shall be maintained in the shaft at all times at a height sufficient to produce a positive head in the shaft.

Contractor shall dispose of all materials removed from the excavation as approved by the District.

Conductor Installation

The Contractor shall take care in handling the conductor, ADSS, and reels. The Contractor shall be held responsible for any and all damages to the conductor, and/or reels. If reels are damaged, they shall be repaired prior to use. When lifting reels, a spreader bar shall be used to prevent lifting cables from touching the reel flanges. Reels in storage shall be securely blocked up off the ground.

Particular care shall be taken at all times to prevent the conductors from being kinked, twisted, abraded, or damaged in any manner. Should any damage occur, it shall be reported to the District immediately. Where it may be impossible to prevent the conductors from coming in contact with the ground surface or other obstruction, suitable shielding boards approved by the District shall be placed under the conductor to protect it from damage.

Contractor shall not interfere with the continued use of facilities along the alignment without prior approval. Contractor shall coordinate all construction work with District to plan for necessary interruptions to the safe use of facilities and facilities subject to access by District's personnel.

Guard Structures

The Contractor shall furnish and erect all necessary guard structures prior to the installation of any lead or pulling lines or conductor.

Guard structures shall be installed over power, signal or telephone lines, over highways, roads, railroads, navigable rivers, major irrigation ditches, and other objects on the alignment.

In general, a guard structure shall consist of two or more vertical poles with connecting horizontal wooden framing members to support conductors clear of property except when crossing interstate highways, in which case a basket_type guard structure shall be installed. Basket type guard structures may be used and shall be installed as directed by the District and Caltrans.

Horizontal framing shall be secured to the vertical poles so as to support the conductors during stringing operations with an ample margin of safety.

Height of vertical poles and elevation of horizontal framing shall maintain a minimum clearance of 10 feet between conductors and wires being crossed. Clearances of 26 feet above roads and 33 feet over railroad tracks shall be maintained.

Stringing

Conductors shall be installed by "tension stringing" unless an alternate method is proposed by the Contractor and approved by the District.

Stringing shall be done only when the District is present.

All six phases may be pulled in together.

The ADSS shall be strung, but not necessarily clipped, after conductor stringing.

The conductor and shall be continuously inspected as it leaves the reels. If any damage or deformity is found, stringing shall be stopped. Minor damage shall be repaired immediately. Minor nicks or abrasions may be cleaned and smoothed with suitable emery cloth when approved by the District.

Pulling and catch_off grips shall not damage the conductors or ADSS and must be approved by the District prior to use.

Stringing Equipment. Elastomer_lined tension stringing equipment shall be used. The equipment shall be designed to maintain preset tensions at all times. The equipment shall not transfer any heat generated to the conductor.

Sheaves shall comply with the requirements in IEEE 524. Sheaves shall be lined with an approved (conductive) elastomer liner.

Travelers for ADSS shall be lined with either conductive or nonconductive elastomer liners and shall have a diameter 30 times the diameter of the ADSS cable. Travelers used to install the ADSS shall be approved by the District.

Pulling grips shall have ball bearing swivels.

Splices, Dead Ends, Repair Sleeves, and Installation

Splices shall not be made in spans crossing paved highways, railroads, communication lines, or power lines of voltage greater than 15 kV.

Splices shall not be made in double dead_ended spans.

No	DATE	DRAWN	TECH	DESIGN	APVD	REVISION
2	7/27/15	TCP		DMP		RE-ISSUE CONSTRUCTION BIDS
1	7/22/15	TCP		DMP		CONSTRUCTION BIDS
0	3/20/15	TCP		DMP		I5 CROSSING PERMIT

NETWORK No. _____ PROJECT No. _____

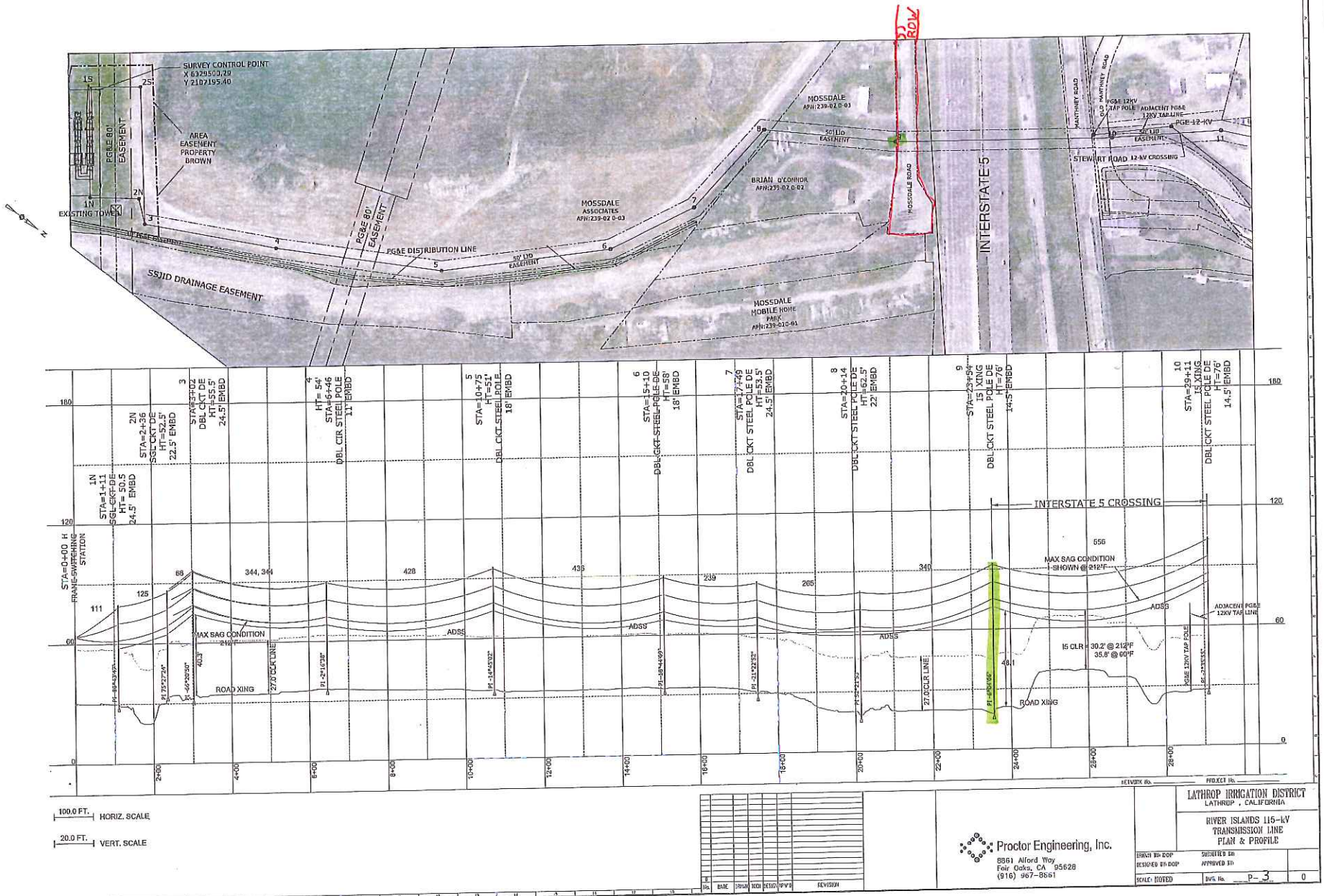
Proctor Engineering, Inc.
8861 Alford Way
Fair Oaks, CA 95628
(916) 967-8861

LATHROP IRRIGATION DISTRICT
LATHROP , CALIFORNIA

RIVER ISLANDS TRANSMISSION LINE
GENERAL NOTES

DRAWN BY: DOP | SUBMITTED BY:
DESIGNED BY: DOP | APPROVED BY:
SCALE: NONE | DWG No. GP | 1

DWG: P:\PROJECTS\River Islands\Construction Drawings\Final\RIVER ISLANDS GENERAL COMMENTS_2.dwg
LAST SAVED: 7/27/2015 8:58am by TCP



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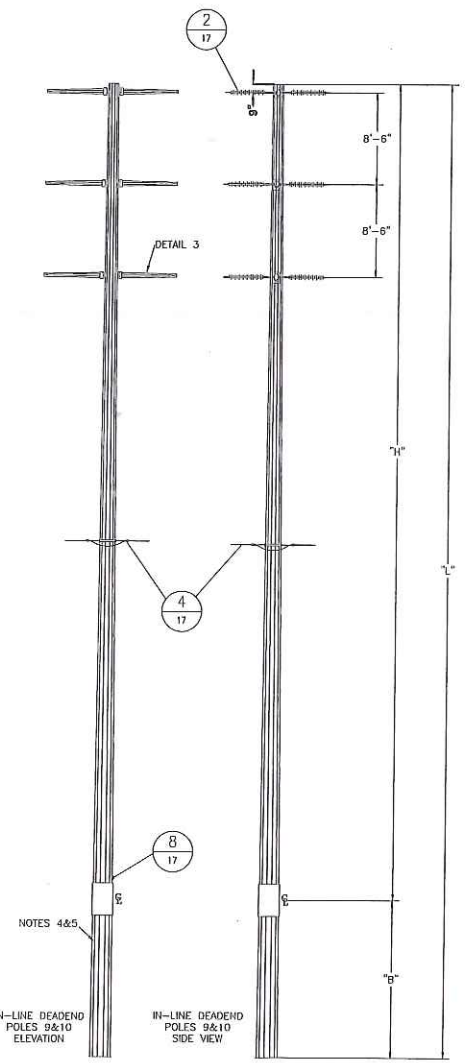
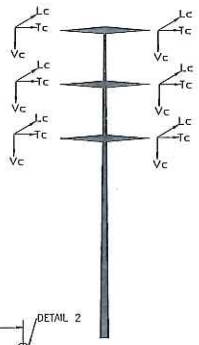
8861 Alford Way
Fair Oaks, CA 95628
(916) 967-8861

LATHROP IRRIGATION DISTRICT
LATHROP, CALIFORNIA

RIVER ISLANDS 115-kV TRANSMISSION LINE PLAN & PROFILE

DRAWN BY: DDP
DESIGNED BY: DDP
SUBMITTED BY:
APPROVED BY:
SCALE: NOTED
DWG No. P-3
0



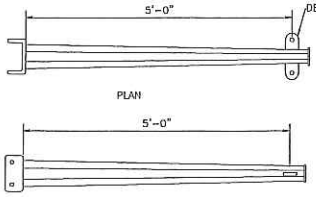


TUBULAR STEEL POLE LOADING - SMALL ANGLE DEADEND						
LOAD CASE	Description	O/F	Wind on Pole	Vc	Tc	Lc
GO95 Light*	ALL INTACT	1.5	8 psf	1.0	-1.5	0.0
Broken Cond**	AT BROKEN CONDUCTOR POINT	1.1	0	0.3	0.4	11.0
Const.***	ALL INTACT	2.0	0	0.6	-0.7	-0.1
Normal	ALL INTACT for DEFLECTION	1.0	0	0.6	-0.7	-0.1

* CPUC GO95 RULE 44.1 GRADE A CONSTRUCTION

** POLES ARE TO BE ANALYZED FOR BROKEN CONDUCTOR LOADS AT A SINGLE LOCATION. LOADS INDICATED ARE TO BE APPLIED TO THE THE TOP CONDUCTOR POSITION ONLY DURING DESIGN ANALYSIS. ALL OTHER BRACT LOADS ARE TO BE APPLIED SIMULTANEOUSLY.

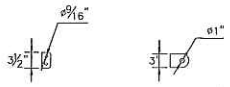
*** CONSTRUCTION LOAD BASED ON 3 TO 1 HORIZONTAL TO VERTICAL



GENERAL NOTES

1. LIFTING VANGS ARE TO BE LOCATED AT THE CENTER OF GRAVITY ON EACH SECTION OF THE POLE ASSEMBLY
2. CROSS SECTIONAL DEPICTIONS ARE FOR ILLUSTRATION PURPOSES ONLY AND ARE NOT INTENDED TO SPECIFY THE NUMBER OF FLATS
3. STEEL FOR POLES, INSULATOR PLATES, DAVIT ARM THROUGH VANGS SHALL HAVE MINIMUM AVERAGE LONGITUDINAL CHARPY "V"-NOTCH VALUES OF 15 FT-LBS AT -20° F AS DETERMINED FROM THREE TESTS MADE ON SAMPLES TAKEN FROM THE THICKEST PLATE TO BE USED FROM ANY HEAT. NONE OF THESE TESTS SHALL BE LESS THAN 10 FT-LBS. CERTIFIED MILL TEST REPORTS SHALL BE FURNISHED
4. POLES ARE TO BE DIRECTLY EMBEDDED AND EMBEDDED SECTIONS SHALL BE EQUIPPED WITH GROUND LUG SLEEVES CENTERED AT THE GROUND LINE AND SHALL BE 3'-0" (MIN.)
5. EMBEDDED SECTION INCLUDING GROUND SLEEVE SHALL BE COATED WITH 16 MIL (MINIMUM DRY FILM THICKNESS), TWO COMPONENT HYDROCARBON EXTENDED POLYURETHANE COATING THAT IS RESISTANT TO ULTRAVIOLET LIGHT AND SHALL EXTEND FROM THE BUTT TO THE TOP OF THE GROUND SLEEVE
6. MAXIMUM DIAMETER OF EMBEDDED SECTION SHALL BE 48 INCHES. EMBEDDED SECTION MAY NOT BE TAPERED TO MEET MAXIMUM DIAMETER.
7. POLE TAPER SHALL VARY BETWEEN 0.250 AND 0.350 IN. PER FT
8. POLES SHALL BE WEATHERING STEEL.

POLE DIMENSIONS			
POLE	LENGTH (DIM "L")	HEIGHT (DIM "H")	EMBED (DIM "B")
9	90.0	75.5	14.5
10	90.0	75.5	14.5



GROUND LUG
DETAIL 1

DEADEND VANG
DETAIL 2 (TYP. 14 PLACES)

No.	DATE	DRAWN	TECH	DESIGN	REVISION
0	3/17/15	DOP		DOP	CONSTRUCTION PLANS

NETWORK No. _____ PROJECT No. _____

Proctor Engineering, Inc.
8861 Alford Way
Fair Oaks, CA 95628
(916) 967-8861

LATHROP IRRIGATION DISTRICT
LATHROP , CALIFORNIA

RIVER ISLANDS TRANSMISSION LINE
TUBULAR STEEL STRUCTURES
9 & 10

DRAWN BY DOP	SUBMITTED BY	
DESIGNED BY DOP	APPROVED BY	
SCALE: AS NOTED	DWG No. 11	0

DWG C:\Users\Dave\Documents\Projects\River Islands\Construction Drawings\RVI_TSP 9 and 10.dwg MODEL Dwg
LAYOUT Mar 23, 2015 - 12:52pm dlepre Xrefs: None Plot Scale: 1=1in

TCP#953

9-07-2015

Contractor:
Summit Line Construction

Andrew Hubbard
435-657-0721
andrew@summitlineconstruction.com

Prepared by:
Road Safety Inc.

4335 Pacific St. Ste.A
Rocklin, Ca. 95677

916 543-4600 Office
916 914-2213 Fax

ROAD SAFETY INC.

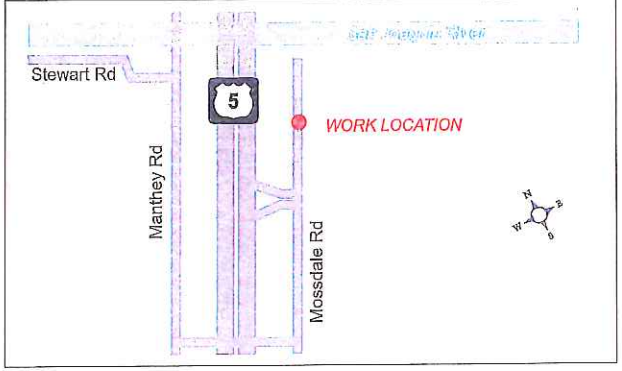
'FULL SERVICE TRAFFIC CONTROL COMPANY'

▪24 HOUR SERVICE 7 DAYS A WEEK ▪ EMERGENCY CONTACT # 916-716-5486

Job# Lathrop Irrigation District

Mossdale Road
Lathrop ,Ca.

LOCATION MAP



GENERAL NOTES

1. NOTHING ALLOWED IN TRANSITION AREA, AND OR BUFFER AREA AT ANY TIME.

2. LANE CLOSED SIGNS ARE PERMITTED IN BUFFER AREAS.

3. ALL SIGNS WILL BE DISPLAYED WHEN TRAFFIC CONTROL IS BEING CONDUCTED ONLY.

4. LOCATION OF SIGNS ON THIS PLAN ARE GUIDELINES ONLY. ON SITE PLACEMENT AND LOCATION WILL HAVE TO FACTOR IN GRADE OF ROAD, ALIGNMENT AND LOCATION OF INTERSECTION.

5. SPACING OF SIGNAGE WILL BE IN ACCORDANCE WITH D.O.T. WHEN APPLICABLE. THE 85% PERCENTILE WILL BE USED IF NEEDED TO MORE ACCURATELY REFLECT MOTORIST SPEED IN ACCORDANCE WITH MUTCD.

6. ALL CONES, CHANNELIZING DEVICES, AND SIGNS MUST BE RETRO REFLECTIVE DURING NIGHT WORK HOURS.

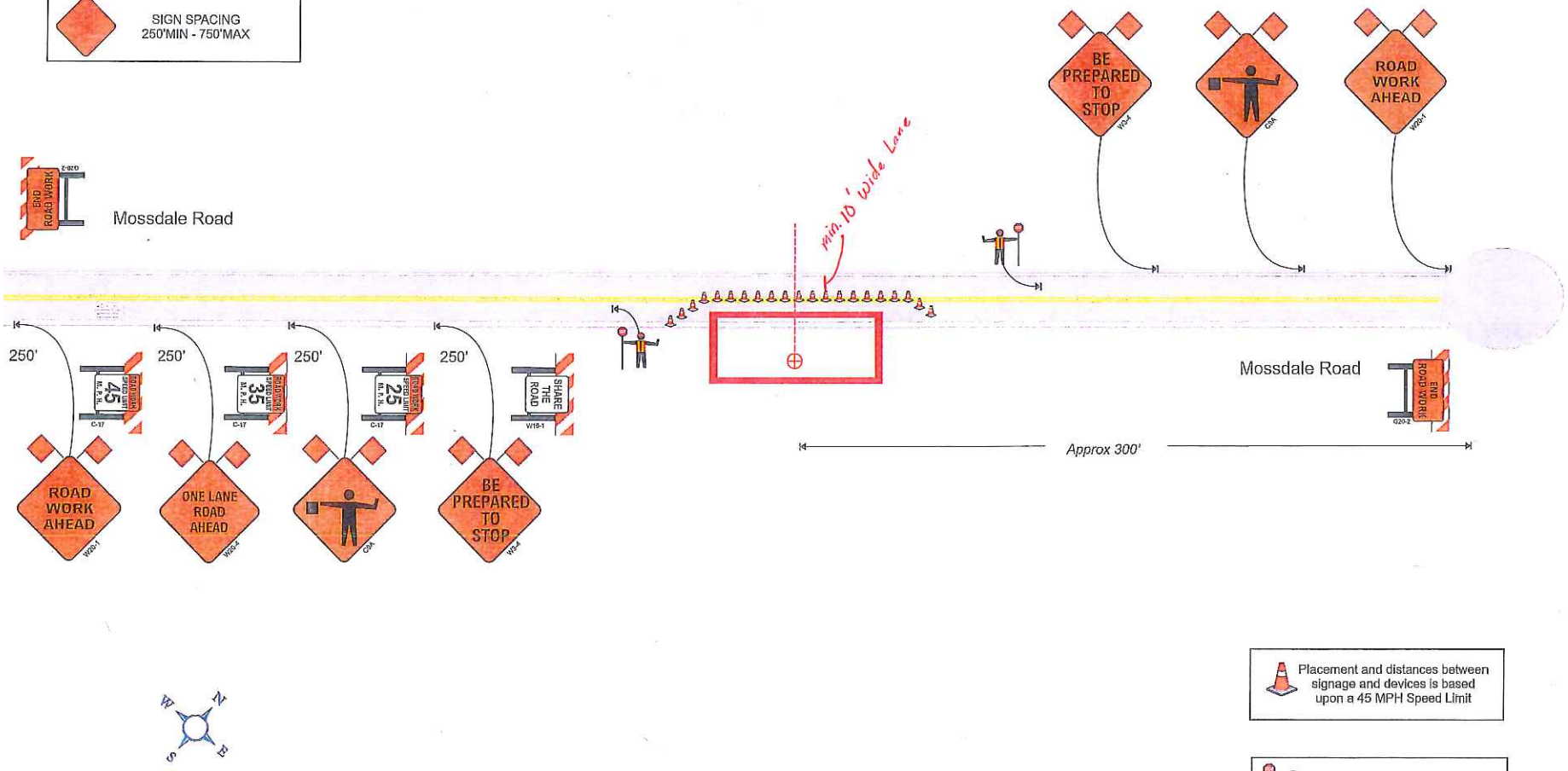
7. SIGNS, BARRICADES, WORKING LIGHTS, ARROWBOARDS, CHANGEABLE MESSAGE SIGNS AND CONES MUST MEET THE REQUIREMENTS OF AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION.

8. WORK ZONE WILL BE MONITORED BY TRAFFIC PERSONNEL AT ALL TIMES. THIS WILL INSURE SAFE PASSAGE FOR PEDESTRIANS, BICYCLISTS, EMERGENCY VEHICLES AND THE DISABLED.

Speed	Minium Merging Taper Length Lane width in feet			Minium Number of Devices Lane width in feet			Max. Device Spacing		Buffer Space
MPH	10	11	12	10	11	12	Along Taper	Along Tangent	FT
25	105	115	125	6	6	6	25	50	155
30	150	165	180	6	7	7	30	60	200
35	205	225	245	7	8	8	35	70	250
40	270	295	320	8	9	9	40	80	305
45	450	495	540	11	12	13	45	90	360
50	500	550	600	11	12	13	50	100	425
55	550	605	660	11	12	13	55	110	495
60	600	660	720	11	12	13	60	120	570
65	650	715	780	11	12	13	65	130	645
70	700	770	840	11	12	13	70	140	730

Posted speed limit on roadway is 50mph
Prevailing speed may actually be higher.
Use maximum sign spacing if necessary

SIGN SPACING
250'MIN - 750'MAX



Placement and distances between signage and devices is based upon a 45 MPH Speed Limit

Traffic Safety Personnel will hold traffic briefly in the event of a line drop or sag