MATERIAL SPECIFICATION

For

LASSEN MUNICIPAL UTILITY DISTRICT

Westwood Substation

Standard Shape Structural Steel

Prepared by:

Electrical Consultants, Inc.
3521 Gabel Road
Billings, MT 59102

June 2015
WESTWOOD SUBSTATION
STANDARD SHAPE STRUCTURAL STEEL

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QA/QC Review and Sign-Off:

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<tr>
<th>Task</th>
<th>Responsible Individual</th>
<th>Date</th>
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<tr>
<td>Prepared</td>
<td>Caleb Jobes, P.E.</td>
<td>CAJ</td>
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<td>Reviewed</td>
<td>Ken Penney, P.E.</td>
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<td>Issued</td>
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SECTION 1.0
PROPOSAL DATA SHEETS
FOR
WESTWOOD SUBSTATION
STANDARD SHAPE STEEL STRUCTURES

1.1 Pricing, Delivery & Warranty

1.1.1 Standard Shape Steel Structures

a. Base Bid:

Total price to fabricate and deliver DAP jobsite, substation structural steel package(s) as described in SECTION 3 of these specifications

Five (5) Standard Shape Steel Structures $__________________ *

b. Can Supplier meet tentative delivery of 10/01/2015 based upon award of contract within three (3) days?

__________________ (yes, no)

If not, Supplier shall enter earliest guaranteed delivery date of equipment to its final destination.

__________ wks ARO*

1.1.2 Delivery Schedule:

Can Supplier meet the following tentative Delivery:

a. Steel structures and assemblies delivered to final destination within 8 weeks ARO?

__________________ (yes, no)

If not, Supplier shall enter earliest guaranteed delivery date of steel structures and assemblies to their final destination.

__________ wks ARO*

b. Anchor bolts with flat washers and hex nuts delivered to final destination within 4 weeks ARO?

__________________ (yes, no)

If not, Supplier shall enter earliest guaranteed delivery date of steel
structures and assemblies to their final destination. wks ARO*

1.1.3 Warranty period: *

1.2 Data

1.2.1. Supplier’s Name

1.2.2. Location of Fabrication Plant

1.2.3. Estimated Unit Weight of each Steel Structure including Attachments, Anchor Bolts and Erection Hardware:

<table>
<thead>
<tr>
<th>Steel Structure</th>
<th>Quantity</th>
<th>Unit Weight</th>
<th>Total Weight</th>
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<tbody>
<tr>
<td>Anchor Bolts – AB1</td>
<td></td>
<td>lbs</td>
<td>lbs total</td>
</tr>
<tr>
<td>Anchor Bolts – AB2</td>
<td></td>
<td>lbs</td>
<td>lbs total</td>
</tr>
<tr>
<td>Anchor Bolts – AB3</td>
<td></td>
<td>lbs</td>
<td>lbs total</td>
</tr>
<tr>
<td>69 kV Deadend Structure – DE1</td>
<td></td>
<td>lbs</td>
<td>lbs total</td>
</tr>
<tr>
<td>69 kV Deadend Structure – DE2</td>
<td></td>
<td>lbs</td>
<td>lbs total</td>
</tr>
<tr>
<td>69 kV 1-Ph CVT Stand – CVT1</td>
<td></td>
<td>lbs</td>
<td>lbs total</td>
</tr>
<tr>
<td>Switch Operator Platform – GG1</td>
<td></td>
<td>lbs</td>
<td>lbs total</td>
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</table>

Total Estimated Structural Steel Package Weight lbs

NOTE: *ASTERISKED VALUES AND ITEMS ARE SELLER'S GUARANTEED.

(Supplier)

By ___________________________ ___________________________

>Title) (Date)
SECTION 2.0
GENERAL SPECIFICATIONS
FOR
WESTWOOD SUBSTATION
STANDARD SHAPE STEEL STRUCTURES

2.1 Purpose of Specifications

2.1.1 Supplier shall fabricate and deliver one (1) complete substation structural steel package, for the Westwood Substation, including all required fasteners, miscellaneous assemblies and anchor bolts. Delivery date shall be on or before that specified by the Supplier in the Proposal Data Sheets. Each structure has been designed and detailed by the Engineer. Unless deemed necessary by the Supplier, no other fabrication drawings will be required.

2.1.2 Specifications are intended to outline the general requirements, materials standards and fabrication related to the furnishing of substation structures. All materials and components shall be first quality, newly manufactured, from Supplier's stock.

2.1.3 These specifications provide the Supplier with minimum standards of quality for components and materials to be used in the manufacture of equipment. All materials and components shall be first quality, newly manufactured from manufacturer’s or Supplier’s stock.

2.2 Identification of Parties

2.2.1 "Owner":

Lassen Municipal Utility District
65 S Roop Road
Susanville, CA 96130

Telephone: (530) 257-6067
FAX: (530) 257-6739
E-mail: ccortez@lmud.org

Correspondence with this Owner shall be directed to:

Attn: Mr. Cort Cortez

2.2.2 “Engineer”

Electrical Consultants, Inc.
3521 Gabel Road
Billings, MT 59102
Telephone: (406) 259-9933
Fax: (406) 259-3441
E-mail: Dan.donovan@eciblgs.com
Correspondence with Engineer shall be directed to:

Attn: Mr. Daniel E. Donovan, P.E.

2.2.3 "Supplier":

The firm, company or corporation whom the Engineer may select for the purpose of supplying standard shape structural steel as described in these specifications.

2.3 Work and Material to be Provided By Others

The following work and material will be provided by others unless specifically included in Supplier's proposal. The Engineer's bid evaluation will consider additional work or services offered by the Supplier.

2.3.1 Receiving, unloading and all required field assembly of structural steel and associated equipment.

2.3.2 Installation on concrete foundations.

2.3.3 Installation of all electrical equipment and connection of buswork and grounds.

2.4 Bid Requirements and Data

2.4.1 Data to be provided with Bid:

Supplier shall provide the following data and information to allow the Engineer to make an accurate evaluation of the Supplier's product or equipment, as follows:

b. Provide a letter of bid transmittal which clearly states any exceptions taken by the Supplier to the specifications, Proposal Data Sheets, and/or Terms and Conditions at time of bid. The Owner may not accept Supplier's "Standard Conditions of Sale" or similar standard policies for purposes of stating exceptions to the specifications.

c. Outline drawings, or illustrations showing proposed general arrangement and layout with approximate physical dimensions and weights for each steel structure.

d. Supplier's proposed warranty, including option for extended warranty, if available.

e. A list of items requiring field assembly shall be included in the Proposal Data Sheets, along with an itemized list of any special tools which Supplier proposes to furnish.

2.4.2 Proposal Data Sheets:

Proposal Data Sheets, included in Section 1.0 of the specifications, must be
completed and submitted with bids. Failure to provide the Proposal Data Sheet may result in rejection of Supplier's proposal. These Proposal Data Sheets shall be provided with other data as specified in 2.4.1 to form a complete bid package.

2.4.3 Bid Terms and Conditions:

All bids shall be firm, lump sum as specified in the Proposal Data Sheets for equipment as described in these specifications.

2.4.4 Or-Equal Clause and Substitutions:

a. Where specifications or drawings identify an item of material by manufacturer’s name and model/type “or equal”, products of equal quality and performance by other manufacturers may be substituted provided that such substitution is of equal design and quality, and that this substitution is acceptable to the Owner and Engineer.

b. Furnish descriptive information, data and drawings to demonstrate to the Engineer that material or equipment proposed is equal to that originally specified. Supplier shall be responsible for proving the equality of proposed substitutions.

c. The Owner and Engineer shall have final decision regarding the acceptability of proposed substitutions of material or equipment.

d. In determining acceptability of proposed substitutions, the Engineer will consider Owner’s familiarity with proposed equipment, material stocking and spare parts.

e. Approval of substitutions by the Owner or Engineer shall not, in any way, excuse the Supplier of responsibility for providing workmanship, material and equipment equal to that specified.

2.4.5 Interpretations:

Clarifications and interpretations shall be requested from the Engineer, but no later than one week prior to scheduled bid date. The Engineer will issue an opinion on all questions and provide any necessary written clarifications. The Engineer's interpretation shall be accepted as final.

2.5 Delivery and Shipment

2.5.1 Bids shall include delivery DAP jobsite, freight prepaid, to the location specified below:

Westwood Substation
Westwood, Lassen County, California

NOTE: Routing and delivery details to be provided with Purchaser purchase order.
Delivery date shall be on or before that specified by the Supplier in the Proposal Data Sheets. Steel structures and all required components shall be delivered by means of a single shipment or as mutually agreed to by the Owner and the Supplier. Shipping papers, crates, drawings, manuals, etc. shall bear the following job reference:

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<table>
<thead>
<tr>
<th>Lassen LMUD</th>
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</thead>
<tbody>
<tr>
<td>Westwood Substation</td>
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<tr>
<td>Standard Shape Structural Steel</td>
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The Supplier shall assume all responsibility for the safe delivery of equipment shipped DAP jobsite.

2.5.2 Engineer retains the option of performing a factory inspection of finished galvanized steel at any time prior to shipment. The Supplier shall advise the Purchaser of anticipated ship date at least two (2) weeks in advance. Factory inspection by the Engineer will be made at no cost to the Supplier.

2.5.3 Steel structures shall be shipped by motor freight as completely assembled as possible insofar as is consistent with good shipping practice. The equipment shall be carefully blocked and secured for shipment. If items must be disassembled for shipment, they shall be tagged or stenciled with proper identification. A complete packing list shall also accompany each shipment.

2.5.4 Prior to shipment the Supplier shall inform the Purchaser of the estimated time of shipment and routing. The Supplier shall advise the Purchaser of anticipated ship date, at least two (2) weeks in advance. The Supplier shall coordinate the delivery date with the construction contractor. The Supplier shall advise the Purchaser of the delivery date, at least three (3) days prior to delivery.

2.6 Drawing Format

If deemed necessary by the Supplier, additional structural steel fabrication drawings shall be ANSI D or ARCH D size. Either manual or AutoCAD™ Version 2010 or newer drawings are acceptable.

2.7 Warranty

Warranty provided by the Supplier shall be understood to cover all defects and problems related to the fabrication of structural steel for a minimum period of two (2) years from the date of commercial operation. Supplier guarantees that the structural steel is capable of satisfactory and continuous operation in accordance with Supplier's specifications and ratings. Warranty shall be transferable from the Purchaser to the Owner.

Should the Owner detect any defects in design, or any problems with the structural steel furnished under these specifications, Engineer will notify the Supplier of the details related to the defect or problem. The Supplier agrees to proceed with diligence in correction of any problems as quickly as possible. Supplier's guarantee shall cover the cost of replacement parts and repair, including "in-out" costs of loading, transportation and off-loading incurred by the Owner. Supplier shall not be liable for consequential
damages associated with such repair or replacement. Owner will have the right to operate equipment until all defects are corrected and guarantees met, without cost for depreciation, use or wear.

2.8 **Bid Evaluation**

The Owner and Engineer will evaluate bids considering, but not limited to the following items: price, delivery, Supplier’s reputation, optional services and/or features offered (such as field assembly) and other items in the evaluation of proposals.
3.1 **General**

Quotation on complete pre-designed substation structural steel package is requested for the Westwood Substation. Steel detail drawings have been prepared by the Engineer and are furnished to the Supplier as follows:

WWS-D-P016 Sheets 1 thru 6.............................. Steel Details

The following technical specification describes minimum requirements and ratings.

3.2 **Material and Manufacturing Standards**

3.2.1 **Workmanship:**

All work shall be equal to the best modern practice in the manufacture and fabrication of materials of the types covered by these specifications, notwithstanding any omissions from these specifications or drawings. The Supplier shall be responsible for the correct fitting of all parts. The Supplier shall replace, free of cost to the Owner, any defective materials discovered during erection.

Substation structures shall be shop assembled to an extent necessary to check fits, marked to facilitate assembly in the field, and disassembled as required for shipment.

3.2.2 **Materials:**

a. **Structural Steel:** ASTM A36 rolled shapes that are hot-dip galvanized with minimum coating of 2 ounces per square foot, 36,000 psi minimum yield strength, except as otherwise noted. Structural steel tubing shall be ASTM A500 or A501.

b. **Erection Bolts and Hardware:** ASTM A325 Type 1 high strength with tension-indicating washers, hardened flat washers, ASTM A563 Grade DH nuts, and square MF locknuts. Where required, beveled washers shall be malleable iron or steel. All other washers shall be steel or wrought-iron washers. All erection bolts and hardware shall be hot dipped galvanized. Supplier shall furnish five percent (5%) excess bolts, nuts and washers of each size with a minimum of one extra set per structure.

c. **Anchor Bolts:** All nuts and bolts shall be hot dipped galvanized, ASTM A153 Class C. If the design calls for grout, it shall be non-shrink, non-metallic and shall be placed from the top of the foundation to the bottom of the base plate. Unless otherwise specified, anchor bolts shall be furnished with a quantity of four (4) hex nuts and two (2) large flat washers. All anchor bolts shall be threaded a minimum of six (6) inches.
d. Arc-Welding Electrodes: All arc-welding electrodes shall be in accordance with the requirements of the American Welding Society Specifications for Iron and Steel Arc-Welding Electrodes, latest edition, and shall be suitable for the base materials, positions, and other conditions of intended use.


3.2.3 Fabrication of Structural Material:

Before being laid out or worked, structural material shall be straight and free from sharp kinks and bends. If straightening is necessary, it shall be done by methods that will not injure the metal. All portions of the work which will be exposed to view after completion shall be finished neatly. All welding shall be performed in accordance with the latest edition of the "Structural Welding Code", as formulated by the American Welding Society.

3.2.4 Galvanizing:

After the shopwork has been completed, all material shall be cleaned of rust, loose scale, dirt, oil, grease, and other foreign substances. Particular care shall be taken to clean slag from welding areas. After being cleaned, all steel shall be galvanized in accordance with ASTM A123, A143 and A153. All materials shall be galvanized after fabrication. All holes in material shall be free of excess spelter after galvanizing.

All bolts, nuts and washers shall be galvanized in accordance with ASTM: A153. Bolts shall be brushed or centrifugally spun to remove excess galvanize.

3.2.5 Holes:

Holes, other than those shown on the steel structure drawings, are not allowed, except for galvanized vents. All holes in structural steel less than 13/16 of an inch thick may be punched to full size, unless otherwise noted on the drawings. Holes shown on the drawings as drilled holes and all holes in structural steel 13/16 of an inch or more in thickness shall be drilled or subpunched and reamed. All holes shall be clean cut and without torn or ragged edges. All burrs resulting from reaming or drilling shall be removed with a tool making 1/16-inch bevel. All holes shall be cylindrical and perpendicular to the member.

All holes shall be spaced accurately in accordance with the drawings and shall be located on the gaugelines. The maximum allowable variation in hole spacing from that indicated on the drawings for all bolt holes shall be 1/16 of an inch.

Edge distances and bolt spacing: Unless otherwise shown on the drawings or noted in the specifications, edge distances and bolt spacing shall conform to the requirements of the latest "Specifications for Design, Fabrication, and Erection of Structural Steel for Buildings", of the American Institute of Steel Construction.

Reaming of improperly located holes will not be permitted. A reasonable amount of drifting will be allowed in assembling. A "reasonable amount of drifting" shall be defined as drifting without causing elongation of holes or deformation of steel members of the structure.
3.2.6 Welding:

All welding and work related thereto shall be performed in strict accordance with the latest edition of the "Structural Welding Code", AWS D1.1, all sections except Section 9, as formulated by the American Welding Society. All welding terms shall be interpreted in accordance with the American Welding Society definitions of welding terms. Welding symbols shown on the drawings comply with American Welding Society symbols. A shielded arc-welding process or a submerged arc-welding process shall be used. All welds shall be as shown on the drawings, shall be continuous unless otherwise noted and shall be made in such a manner that residual shrinkage stresses will be reduced to a minimum. Welders employed in performing the work covered by these specifications shall be qualified, in accordance with the American Welding Society Standard Qualification Procedure. All welds shall have full penetration through the material, unless otherwise shown on the drawings.

Baseplates shall be straight and square cut. Edges cut by torch shall be ground straight and smooth.

3.2.7 Marking:

All anchor bolts and stub angles shall be marked with the correct structure or member designation shown on the specification drawings. Marking shall be done by stamping numerals or letters into the metal before galvanizing or shop painting. The numerals or letters shall be ½ inch minimum height and be clearly legible after galvanizing or finishing.

3.2.8 Handling and Transportation:

All galvanized structural steel shall be transported and handled with care to avoid bending or damage to the galvanizing. Pieces bent in handling may be used only if they can be straightened without injury to the galvanizing. Material on which the galvanizing has been damaged shall be redipped unless the damage is local and can be repaired with zinc base paint. Pieces bent beyond repair shall be replaced.

When temporary storage is necessary, all steel shall be placed on timber blocking, furnished by the Supplier, to prevent the material from coming in contact with the ground or surface water.

3.2.9 Applicable Standards:

Steel structure design, fabrication and erection shall comply with applicable section of latest revisions of the following codes and standards:


d. "Specification for Structural Steel Joints Using A325 or A490 Bolts" of the American Institute of Steel Construction.

Any revisions to drawings shall be prepared in legible, organized manner, with uniform appearance, style, content and dimensional proportions.