



**SWCA**  
ENVIRONMENTAL CONSULTANTS

10245 West Little York, Suite 600  
Houston, Texas 77040  
(281) 617-3217 phone  
(281) 617-3227 fax  
www.swca.com

**GARDEN SUBSTATION  
VICINITY MAP  
JEFFERSON COUNTY, TEXAS**

FIGURE 1

Project Boundary

|                                                        |                    |
|--------------------------------------------------------|--------------------|
| Background:                                            | ESRI Street Map    |
| Scale:                                                 | 1:50,000           |
| Created By:                                            | JS                 |
| Approved By:                                           | GF                 |
| SWCA Project No.:                                      | 41872              |
| Date Produced:                                         | September 14, 2017 |
| NAD 1983 StatePlane Texas South Central FIPS 4204 Feet |                    |
|                                                        |                    |

SEP 25 2017



Path: B:\Projects\41827 - Garden and Legend Substation\MAPS\REPORT MAPS\IP Maps\03 - Garden Site Layout Map.mxd

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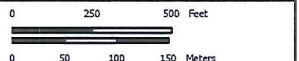
**GARDEN SUBSTATION  
SITE LAYOUT MAP  
JEFFERSON COUNTY, TEXAS**

FIGURE 3

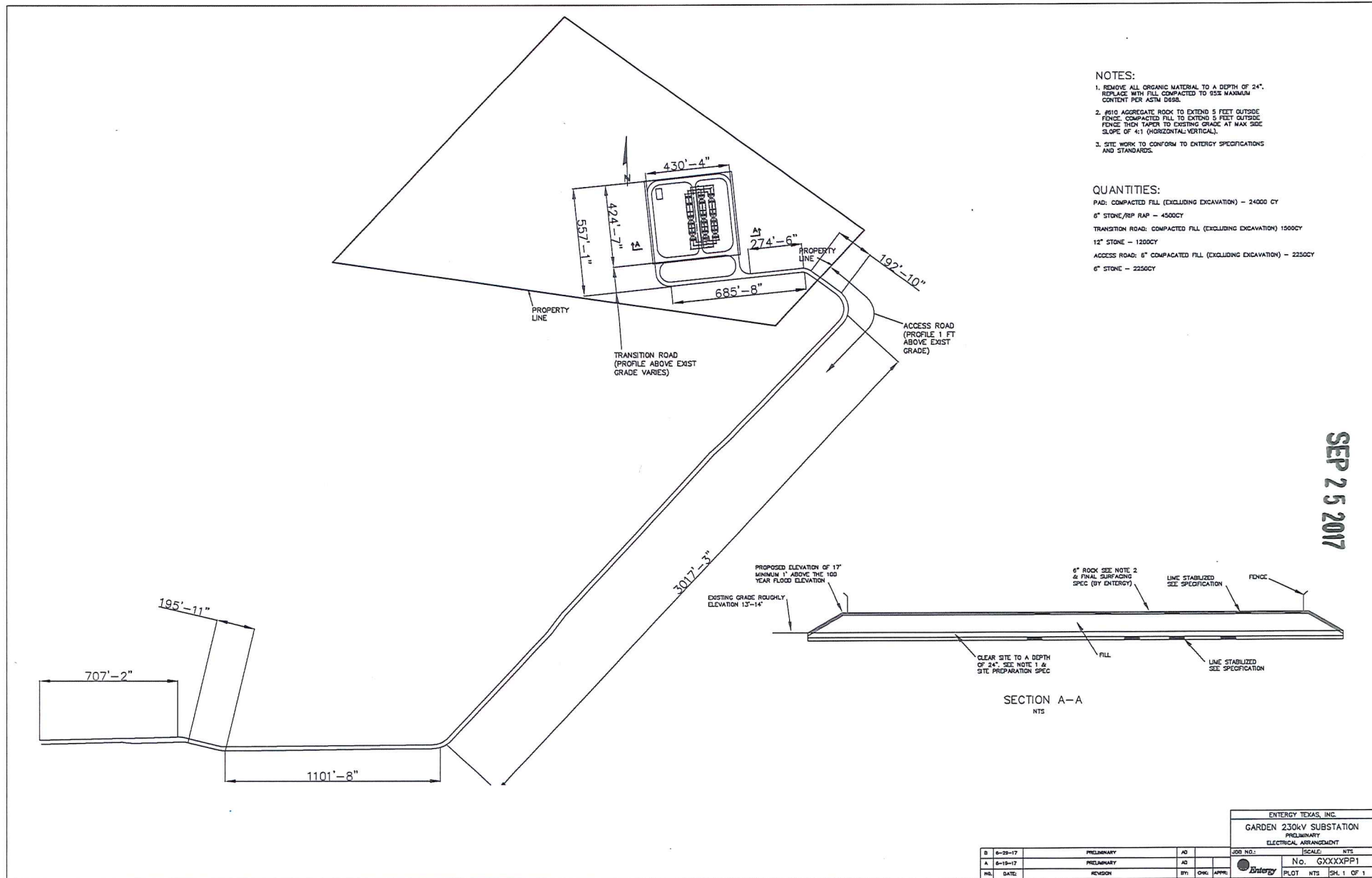
- Project Boundary
- Site Layout
- Data Points
- Ephemeral Waterbody
- Emergent Wetland
- Scrub-Shrub Wetland



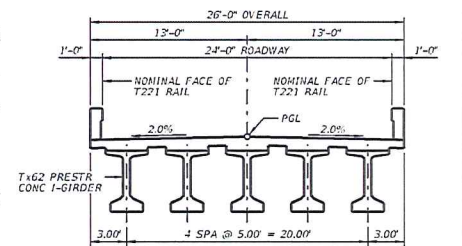
|                   |                            |
|-------------------|----------------------------|
| Background:       | ESRI Aerial Imagery (2015) |
| Scale:            | 1:7,000                    |
| Created By:       | JS                         |
| Approved By:      | CF                         |
| SWCA Project No.: | 41827                      |
| Date Produced:    | September 14, 2017         |



SEP 25 2017



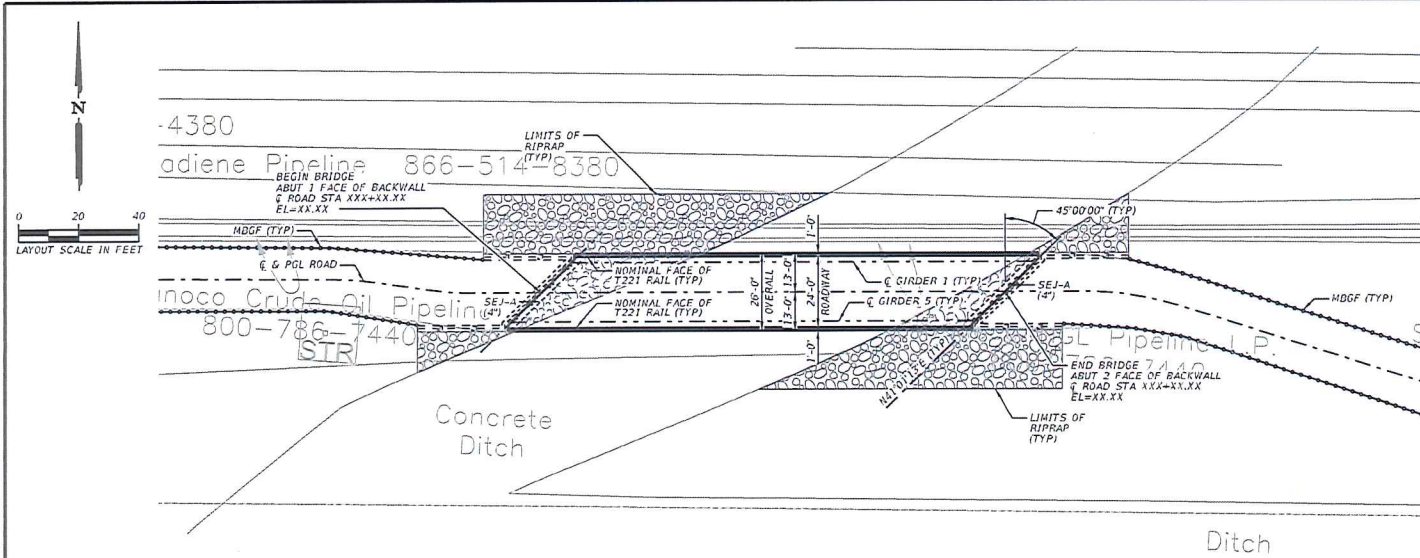
- GENERAL NOTES:
- DESIGNED IN ACCORDANCE WITH AASHTO LRFD BRIDGE SPECIFICATIONS, 6TH EDITION WITH ALL INTERIM SPECIFICATIONS.
  - CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL STRUCTURES AND UTILITIES PRIOR TO ORDERING MATERIALS AND NOTIFY ENGINEERS IN WRITING OF ANY CONFLICTS OR DISCREPANCIES.
  - AS-BUILT INFORMATION, INCLUDING UNDERGROUND UTILITIES, PROVIDED BY CLIENT. VERIFY ALL LOCATIONS BEFORE START OF CONSTRUCTION.
  - PILE DEPTHS ARE PRELIMINARY BASED ON HEARDY BORINGS. ENGINEER TO VERIFY AT TIME OF GEOTECHNICAL STUDY AT BRIDGE LOCATION.
  - DESIGN LOADS DO NOT INCLUDE FUTURE 2" DECK OVERLAY.
  - IF EXTERIOR BATTERED PILE CONFLICTS WITH WINGWALL PILE, ONE PILE IN GROUP MAY BE VERTICAL.



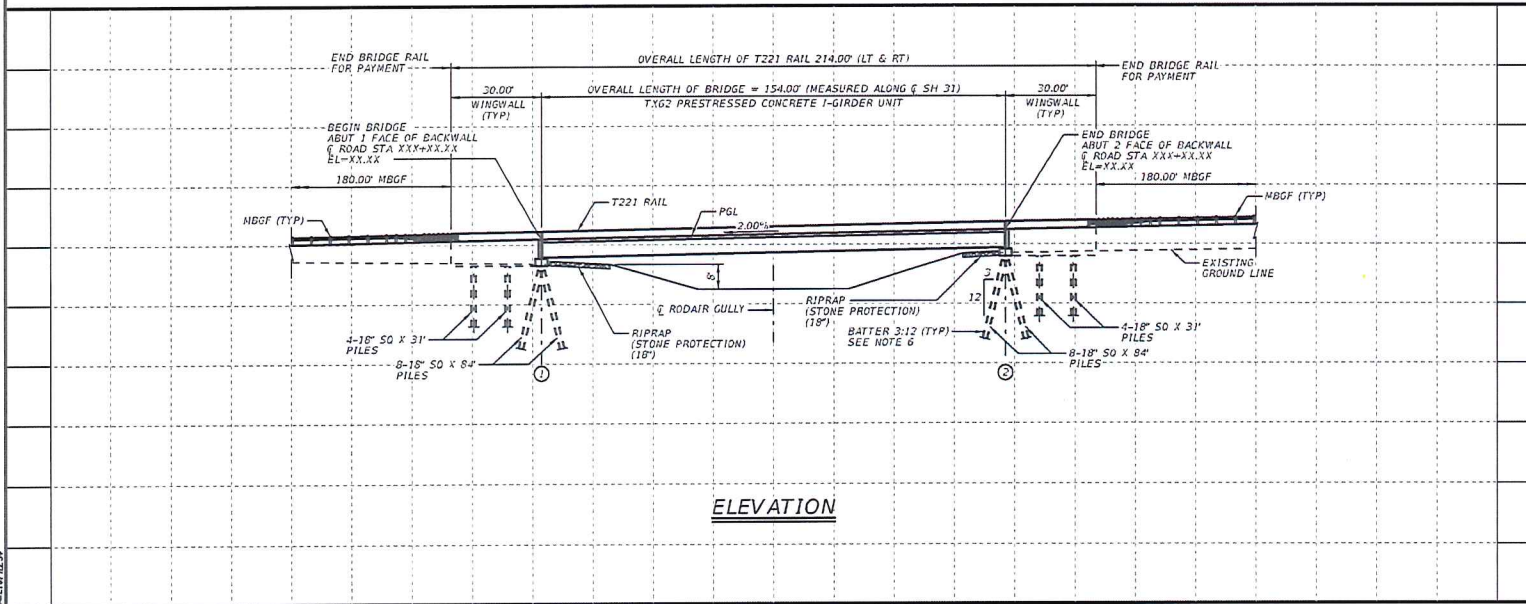
TYPICAL TRANSVERSE SECTION

HL93 LOADING AND CLIENT PROVIDED PERMIT VEHICLE

PLAN



ELEVATION



PRELIMINARY  
FOR INTERIM REVIEW ONLY. NOT FOR  
PERMITTING, BIDDING, OR CONSTRUCTION.  
Prepared by or under the  
Direct Supervision of  
SEAN P. CLARK, P.E. 122134  
-DATE-

| NO. | DATE | REVISION | APPROVED |
|-----|------|----------|----------|
|     |      |          |          |
|     |      |          |          |
|     |      |          |          |

|                                    |     |                                                                                  |             |
|------------------------------------|-----|----------------------------------------------------------------------------------|-------------|
|                                    |     | 19950 N. DALLAS PKWY.<br>SUITE 700<br>DALLAS, TX 75248<br>ENGINEERING FIRM F-845 |             |
| BRIDGE LAYOUT<br>OVER RODAIR GULLY |     |                                                                                  |             |
| SCALE = 1"=40'                     |     |                                                                                  |             |
| DESIGN                             | SPC | FEDERAL AID PROJECT NO.                                                          | HIGHWAY NO. |
| DRAWN                              | CLS | STATE                                                                            | DISTRICT    |
| CHECK                              |     | COUNTY                                                                           | SHEET NO.   |
| CHECK                              |     | CONTROL                                                                          | SECTION     |
|                                    |     |                                                                                  | JOB         |

SEP 25 2017

SEP 25 2017

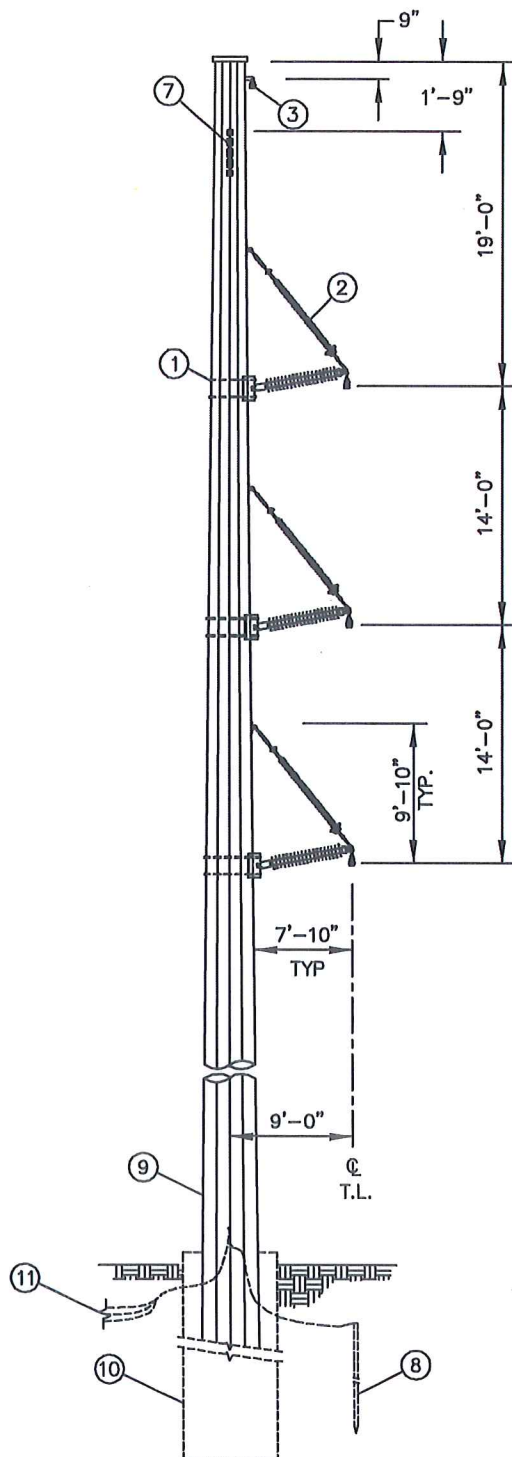
6°-20°, SELF SUPPORTING VERTICAL, SINGLE CIRCUIT,  
BRACED POST 2-1/2", STEEL 230kV

## ASSEMBLY LIST

| ITEM | QTY. | ASSEMBLY/DRAWING |
|------|------|------------------|
| 1    | 3    | BLT-P-S          |
| 2    | 3    | BP2-230-XX       |
| 3    | 1    | OHG-SUS-XX       |
| 4    |      |                  |
| 5    |      |                  |
| 6    |      |                  |

## REFERENCE DRAWINGS

|    |   |                    |
|----|---|--------------------|
| 7  | 1 | SGN-S              |
| 8  | - | GND-S-XX           |
| 9  | - | POLE INDEX         |
| 10 | 1 | FOOTING            |
| 11 | - | ANODE-XX (IF REQ.) |



## NOTES:

- 1) All dimensions are to Centerline of attachment.
- 2) See Pole Fabricator's drawings for attachment details.
- 3) See Staking Sheet and CU Drawings for line angles, pole, footing, grounding, and sign requirements.
- 4) Refer to Assembly drawings for part details.

SC-V-BP2-S 230

ENTERGY STANDARD DWG.

DESIGN APPROVAL

STANDARDS APPROVAL

SIGNED / DATE

SIGNED / DATE

BRACED POST STEEL 230kV  
6°-20° SINGLE CIRCUIT

APPROVED BY:

DATE: 2-9-96

CHECKED BY:

SCALE: NONE

DRAWN BY: ECSI

ESI NO. TDS402A1



No.

PLOT 1=130

SH. 1 OF 1

|     |         |                           |       |       |
|-----|---------|---------------------------|-------|-------|
| 1   | 4-23-03 | GENERAL DRAWING REVISIONS | ITRON |       |
| NO. | DATE:   | REVISION                  | BY:   | APPR: |

SEP 25 2017

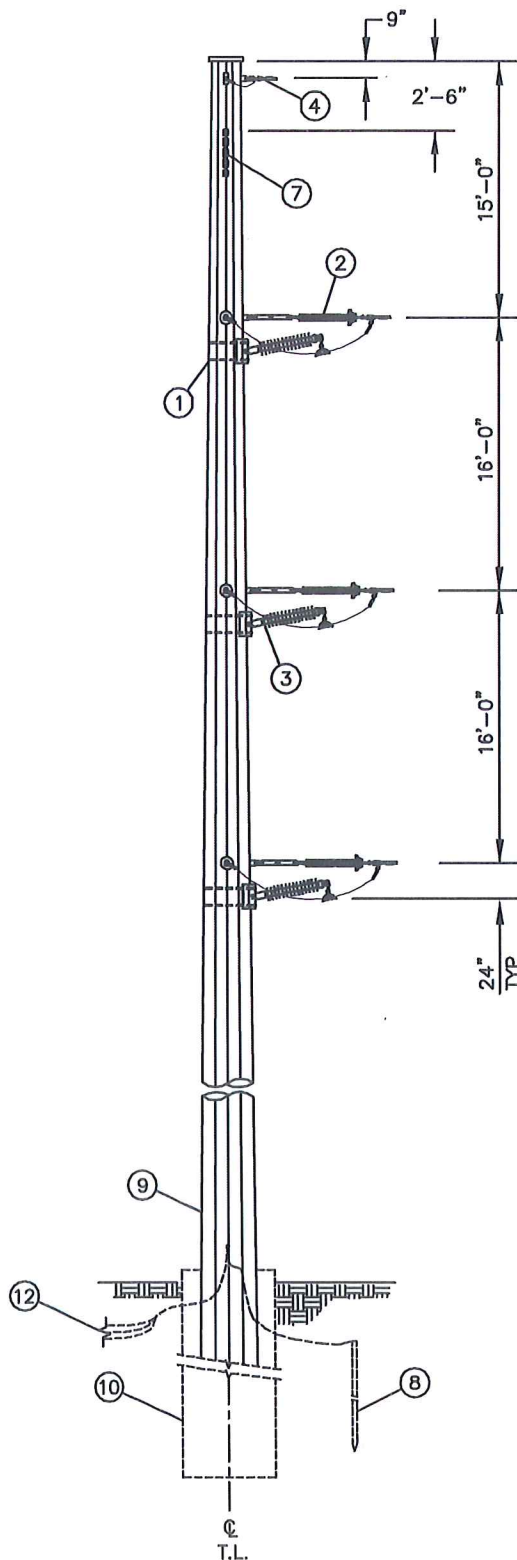
5°-70°, SELF SUPPORTING, DE, JUMPER, VERTICAL,  
SINGLE CIRCUIT, DE POLYMER, STEEL 230kV

## ASSEMBLY LIST

| ITEM | QTY. | ASSEMBLY/DRAWING |
|------|------|------------------|
| 1    | 3    | BLT-P-S          |
| 2    | 6    | DEP/TRB-230-XX   |
| 3    | 3    | JLP-230-XX       |
| 4    | 2    | OHG-DE-XX        |

## REFERENCE DRAWINGS

|    |   |                      |
|----|---|----------------------|
| 7  | 1 | SGN-S                |
| 8  | - | GND-S-XX             |
| 9  | - | POLE INDEX           |
| 10 | 1 | FOOTING              |
| 11 | - | PVO, SHT 1, VW PV-19 |
| 12 | - | ANODE-XX (IF REQ.)   |



## NOTES:

- 1) All dimensions are to Centerline of top attachment or BLT-XX.
- 2) See Pole Fabricator's drawings for attachment details.
- 3) See Staking Sheet and CU Drawings for line angles, pole, footing, grounding, and sign requirements.
- 4) Refer to Assembly drawings for part details.
- 5) Conductor attachment vangs shall be placed within 5 degrees of Ahead and Back locations.
- 6) This structure shall not be used for single insulator bundled conductor applications unless the combined phase tension is less than 19.4 klps. For two insulator attachment bundled conductor applications, use the appropriate bundled framing.

SDJ-V-DEP-S 230

ENTERGY STANDARD DWG.

DESIGN APPROVAL

STANDARDS APPROVAL

SIGNED / DATE

SIGNED / DATE

DEADEND STEEL 230kV  
5°-70° SINGLE CIRCUIT

APPROVED BY:

DATE: 10-18-96

CHECKED BY:

SCALE: NONE

DRAWN BY: LINESOFT

ESI NO. TDS417A3



No.

No.

PLOT 1=130

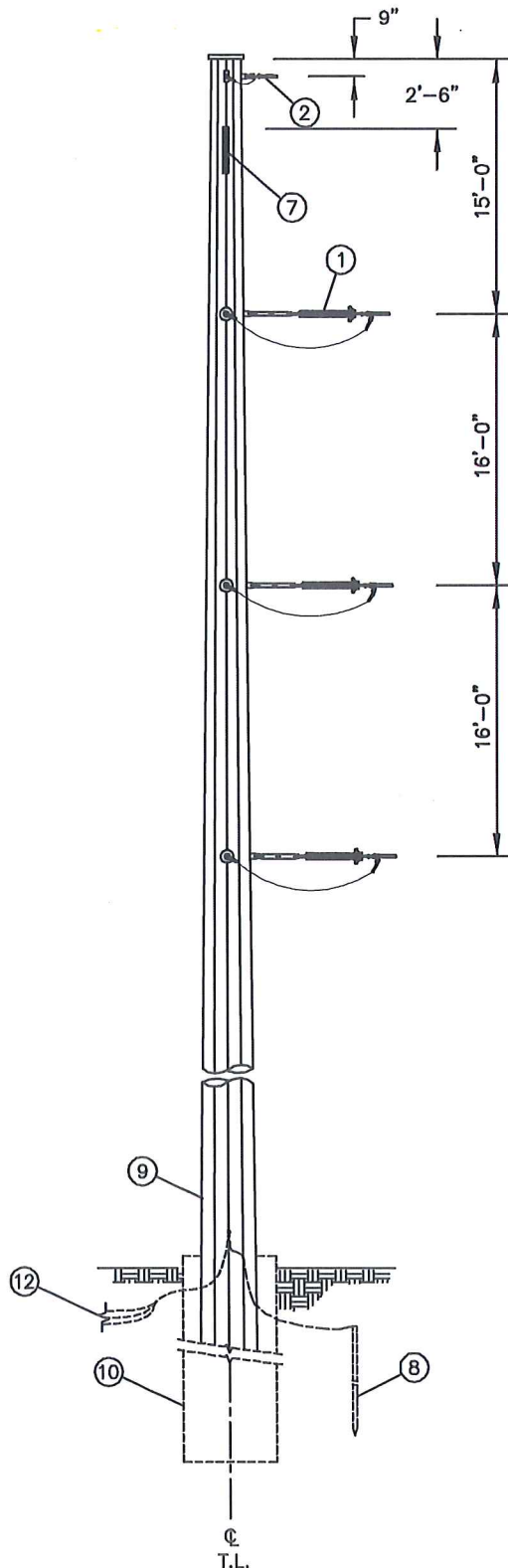
SH. 1 OF 1

|     |         |                                               |           |
|-----|---------|-----------------------------------------------|-----------|
| 3   | 8-18-04 | REVISED DIMENSION FOR SIGN                    | ITRON     |
| 2   | 4-3-03  | REV., DIM., GND., NOTE 1, ADD ITEM 12, NOTE 6 | ITRON     |
| 1   | 9-14-01 | CHANGED ANGLE RANGE                           | LSFT      |
| NO. | DATE:   | REVISION                                      | BY: APPR: |

70°-120°, SELF SUPPORTING, DE, VERTICAL,  
SINGLE CIRCUIT, DE POLMER, STEEL 230kV

## ASSEMBLY LIST

| ITEM               | QTY. | ASSEMBLY/DRAWING     |
|--------------------|------|----------------------|
| 1                  | 6    | DEP/TRB-230-XX       |
| 2                  | 2    | OHG-DE-XX            |
| REFERENCE DRAWINGS |      |                      |
| 7                  | 1    | SGN-S                |
| 8                  | -    | GND-S-XX             |
| 9                  | -    | POLE INDEX           |
| 10                 | 1    | FOOTING              |
| 11                 | -    | PVO, SHT 2, VW PV-15 |
| 12                 | -    | ANODE-XX (IF REQ.)   |



## NOTES:

- 1) All dimensions are to Centerline of top attachment.
- 2) See Pole Fabricator's drawings for attachment details.
- 3) See Staking Sheet and CU Drawings for line angles, pole, footing, grounding, and sign requirements.
- 4) Refer to Assembly drawings for part details.
- 5) Conductor attachment vangs shall be placed within 5 degrees of Ahead and Back locations.
- 6) This framing shall not be used for single insulator bundled conductor applications unless the combined phase tension is less than 19.4 kips. For two insulator attachment bundled conductor applications, use the appropriate bundled framing.

SD-V-DEP-S 230

ENTERGY STANDARD DWG.

DESIGN APPROVAL

STANDARDS APPROVAL

SIGNED / DATE

SIGNED / DATE

DEADEND STEEL 230kV  
70°-120° SINGLE CIRCUIT

APPROVED BY:

DATE: 10-18-96

CHECKED BY:

SCALE: NONE

DRAWN BY:

ESI NO. TDS419A2

|     |         |                                               |       |       |
|-----|---------|-----------------------------------------------|-------|-------|
| 2   | 8-18-04 | REVISED DIMENSION FOR SIGN                    | ITRON |       |
| 1   | 4-28-03 | REV., DIM., GND., NOTE 1, ADD ITEM 12, NOTE 6 | ITRON |       |
| NO. | DATE:   | REVISION                                      | BY:   | APPR: |

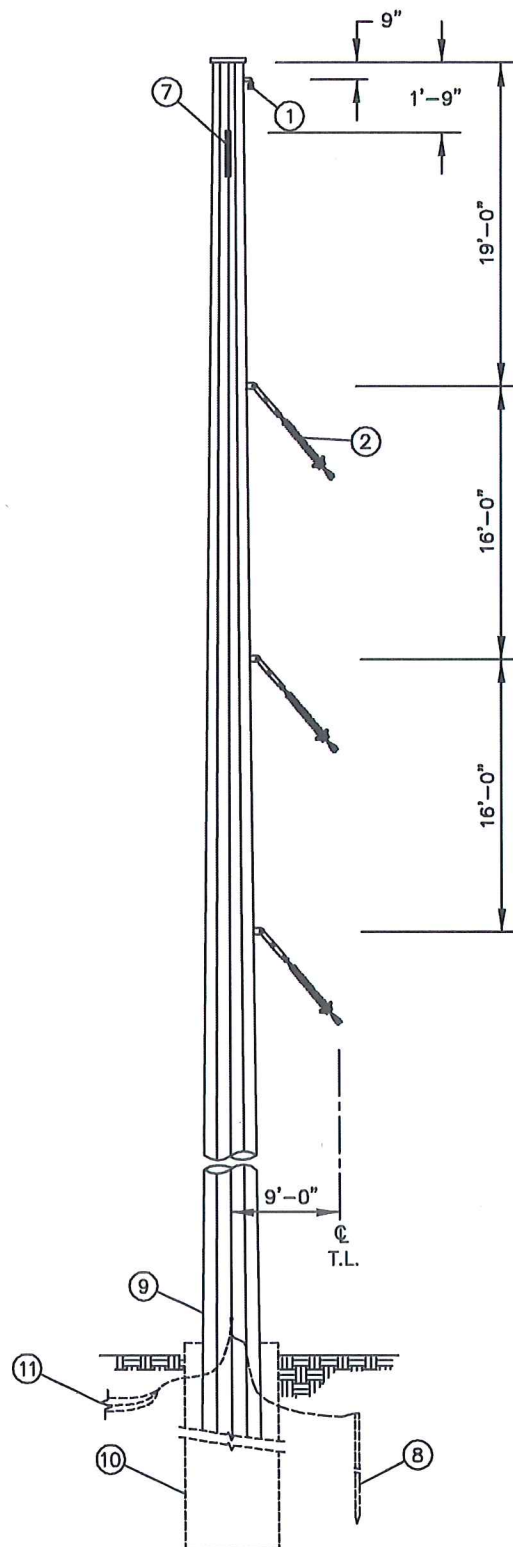


No.

PLOT 1=130

SH. 1 OF 1

15°-30°, SELF SUPPORTING SUSPENSION, VERTICAL,  
SINGLE CIRCUIT, SUSPENSION HEAVY POLYMER w/LINK, STEEL 230kV



## ASSEMBLY LIST

| ITEM | QTY. | ASSEMBLY/DRAWING |
|------|------|------------------|
| 1    | 1    | OHG-SUS-XX       |
| 2    | 3    | SHR-LINK-230-XX  |
| 3    |      |                  |
| 4    |      |                  |
| 5    |      |                  |
| 6    |      |                  |

## REFERENCE DRAWINGS

|    |   |                    |
|----|---|--------------------|
| 7  | 1 | SGN-S              |
| 8  | - | GND-S-XX           |
| 9  | - | POLE INDEX         |
| 10 | 1 | FOOTING            |
| 11 | - | ANODE-XX (IF REQ.) |

## NOTES:

- 1) All dimensions are to Centerline of attachment.
- 2) See Pole Fabricator's drawings for attachment details.
- 3) See Staking Sheet and CU Drawings for line angles, pole, footing, grounding, and sign requirements.
- 4) Refer to Assembly drawings for part details.
- 5) For Insulator Swing Angle see Swing Angle Chart.

SF-V-SHR-S 230

ENTERGY STANDARD DWG.

DESIGN APPROVAL

STANDARDS APPROVAL

SIGNED

/ DATE

SIGNED

/ DATE

SUSP ANGLE STEEL 230kV  
15°-30° SINGLE CIRCUIT

APPROVED BY:

DATE: 2-9-96

CHECKED BY:

SCALE: NONE

DRAWN BY: ECSI

ESI NO. TDS423A1

|     |         |                                         |       |       |
|-----|---------|-----------------------------------------|-------|-------|
| 1   | 4-28-03 | ADDED DIMS, GROUNDING AND ANODE OPTIONS | ITRON |       |
| NO. | DATE:   | REVISION                                | BY:   | APPR: |



No.

PLOT 1=130

SH. 1 OF 1

