





IBERDROLA USA TECHNICAL MANUAL

**TM2.23.00**  
Revision 01  
Date : 12-2014

Technical Manual- IUSA

# TRANSMISSION OVERHEAD CONSTRUCTION STANDARDS MANUAL

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Approve By (IUSA):	 Javier Bonilla	Date: 02/09/2015

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Revision	Date	Description	Author
00	12-2014	Issued for Iberdrola-USA Standards consolidation	Standardization Department.
01	12-31-2014	Added 2014 developed standards	Standardization Department.

## 1 DEFINITIONS

### 1.1 CONTRACTOR

The CONTRACTOR refers to the construction contractor installing the foundations.

### 1.2 ENGINEER

The ENGINEER refers to the design engineer preparing the foundation design.

### 1.3 IUSA

This is Iberdrola USA.

### 1.4 OWNER

The OWNER refers to an individual operating company owned by Iberdrola USA that will be the end user.

### 1.5 OPCOS

OPCO refers to the specific individual operating company owned by Iberdrola USA – Central Maine Power (CMP), New York State Electric and Gas (NYSEG) or Rochester Gas and Electric (RGE).

## 2 GENERAL

### 2.1 SCOPE

2.1.1 This standard provides construction Standard guidelines, and criteria compiled from the best practices from each of the three (3) operating companies (OpCos) within IUSA: Central Maine Power (CMP); New York State Electric and Gas (NYSEG); and Rochester Gas and Electric (RG&E) for construction of new Transmission Structures in the IUSA Operating areas within the State of Maine and New York.

2.1.2 The standards, criteria and guidelines shall be applied to new Transmission structures as well as existing where appropriate.

2.1.3 The standards and information presented may vary from location to location. The Engineer shall refer to the project Scope of Work for specific requirements and use best practices to the greatest extent possible to complete required work in a professional manner. The Engineer shall not deviate from the standard provided without written approval.

2.1.4 All new 115kV and above Transmission lines structures shall designed and constructed with steel/poles. Use of wood pole structures will be limited to/ upon approval by VP Engineering -IUSA.

2.1.5 All new transmission lines shall be designed and constructed with Fiber optics.

## 3 REFERENCES

AISC	Steel Construction Manual, 14 <sup>th</sup> Edition
ANSI 05.1.2008	Standard for Wood Poles – Specifications & Dimensions
ANSI C135.1	Standard for Galvanized Steel Bolts and Nuts for Overhead Line Construction
ANSI C135.2	Standard for Threaded Galvanized Ferrous Strand-eye Anchor Rods

	and Nuts for Overhead Line Construction
ANSI C135.4	Standard for Galvanized Ferrous Eye Bolts and Nuts for Overhead Line Construction
ANSI C135.5	Standard for Galvanized Ferrous Eye Nuts and Eyelets for Overhead Line Construction
ANSI C135.14	Standard Staples with Rolled or Slash Points for Overhead Line Construction
IEEE C2-2012	National Electric Safety Code (NEESC)
ASCE 10-98	Manual for the Design of Lattice Steel Transmission Structures
ASCE 48-05	Manual for the Design of Tubular Steel Transmission Structures
<b>ASTM International:</b>	
ASTM A123	Standard Specification for Zinc Coatings (Hot-Dip) on Iron and Steel Products
ASTM A153	Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A194	Standard Specification for Carbon and Alloy Steel Nuts for High Pressure and High Temperature Service
ASTM A325	Standard Specification for Structural Bolts, Heat Treated, 120/105 ksi Minimum Tensile Strength
ASTM A36	Standard Specification for Carbon Structural Steel
ASTM A394	Standard Specification for Zinc Coated Steel Transmission Tower Bolts
ASTM A500	Standard Specification for Cold Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
ASTM A847	Standard Specification for Cold Formed Welded and Seamless High-Strength Low Alloy Carbon Steel Structural Tubing with Improved Atmospheric Corrosion Resistance
ASTM A871	Standard Specification for High-Strength Low Alloy Structural Steel Plate with Atmospheric Corrosion Resistance
ASTM A563	Standard Specification for Carbon and Alloy Steel Nuts
AWS D1.1	Structural Welding Code – Steel
USDA RUS	
Bulletin 1724E-200	Design Manual for High Voltage Transmission Lines

#### 4 Construction Standards Section Numbers

- 4.1.1 The standard addresses Overhead Transmission Construction requirements as detailed in the T-sections indicated below:

### IUSA TRANSMISSION NETWORK STANDARDS MASTER LIST

TM #	TM TITLE	SECTION #	SECTION DESCRIPTION	REV #	STATUS
TM2.23.00	Transmission OH Construction Manual			00	IN PROGRESS
TM2.23.TA	GENERAL	01-001	Policy	00	ACTIVE
		01-002	Procedure for Additions, Deletions, Revisions and Distribution	00	IN REVIEW
		02-001	Alphabetical Indexes	00	IN REVIEW
		04-001	Plan & Profile Set-up	00	PLANNED
		05-001	Survey Elevation Control	00	PLANNED
		05-002	Survey Flagging Color Code	00	PLANNED
		05-003	Survey Stake Identification	00	ACTIVE
		05-007	Survey Staking: Staking Report and Conflict Sketch	00	ACTIVE
		06-001	Aerial (LIDAR) Survey	00	ACTIVE
		07-001	Survey Feature Code	00	ACTIVE
08-001	CU Creation and Format	00	PLANNED		
TM2.23.TB	ELECTRICAL DATA & DESIGN CRITERIA	01-001	Electrical Design Data	00	PLANNED
		02-001	Ground Clearances	00	ACTIVE
		03-001	Clearances, Underbuilt Distribution	00	ACTIVE
		03-002	Conductor Galloping	00	ACTIVE
		03-003	Aeolian Vibration	00	ACTIVE
		04-001	Electromagnetic Field Study of Impacts	00	IN REVIEW
TM2.23.TC	STRUCTURAL DATA & DESIGN CRITERIA	01-001	Design Criteria - Loading	00	ACTIVE
		01-002	Design Criteria - Conductor and Insulators	00	ACTIVE
TM2.23.TD	WOOD POLES, BACKFILL	CU-P	Standard CU Format and Naming Convention - POLES	00	IN REVIEW
		CU-PR	Standard CU Format and Naming Convention - PHASE RAISERS	00	IN REVIEW
		01-001	Pole Sizes and Weight Tables: Douglas Fir	00	ACTIVE
		01-002	Pole Sizes and Weight Tables: Southern Yellow Pine	00	ACTIVE
		01-003	Pole Sizes and Weight Tables: Western Red Cedar	00	ACTIVE
		02-001	Pole Setting Depths	00	ACTIVE
		03-001	Foundation Detail & Backfill: Class 1 & smaller Wood Poles	00	ACTIVE
		03-002	Foundation Detail & Backfill: H class Wood Poles and Direct Embed Steel Poles	00	ACTIVE
		03-003	Foundation Detail & Backfill: Backfill	00	ACTIVE

		Materials		
		04-001	Foundation Detail & Backfill: Single Pole Setting Depth - Severe Side Slope	00 ACTIVE
		04-002	Foundation Detail & Backfill: H-Frame Setting Depth - Severe Side Slope	00 ACTIVE
		05-001	Foundation Detail & Backfill: Pile Foundation Assembly	00 ACTIVE
		07-001	Foundation Detail & Backfill: Corrugated Metal Pipe Foundation	01 ACTIVE
TM2.23.TE	STEEL POLE DATA	L-CU	Standard CU Format and Naming Convention - Steel Lattice Structures	00 ACTIVE
		S-CU	Standard CU Format and Naming Convention - Steel Pole Structures	00 IN REVIEW
		01-001	Foundation Detail for Concrete Foundation Steel Poles	00 ACTIVE
		03-001	Steel Pole Jacking Device	00 PLANNED
		04-001	Steel Pole Raking	00 PLANNED
		06-001	Ladders for Steel Structures	00 ACTIVE
		06-002	Anti-Fall for Steel Poles	00 ACTIVE
		06-003	Anti-Fall for Steel Davit Arms	00 ACTIVE
		07-001	Anti-Climbing Device for Steel Lattice Tower	00 ACTIVE
		07-002	Location of Anti-Climbing Sign and Anti-Climbing Device on Steel Lattice Towers	00 ACTIVE
		08-001	Steel Arms for Steel Poles	00 ACTIVE
		09-001	Vangs and Boxes	00 ACTIVE
		TM2.23.TF	CONDUCTOR AND STATIC WIRE	01-001
01-002	Safety Procedures for Wire Installation and Removal			00 PLANNED
01-003	Wire Sagging Procedures Using Sight Scopes and Targets			00 PLANNED
01-004	Wire Sagging using Electronic Targeting and Calculation			00 PLANNED
01-005	Wire Sag Report			00 PLANNED
02-001	Wire: Mechanical & Electrical Characteristics - AAAC-6201			00 IN REVIEW
02-002	Wire: Mechanical & Electrical Characteristics - AAC			00 IN REVIEW
02-003	Wire: Mechanical & Electrical Characteristics - ACAR			00 IN REVIEW
02-004	Wire: Mechanical & Electrical Characteristics - ACCC			00 IN REVIEW
02-005	Wire: Mechanical & Electrical Characteristics - 3M ACCR			00 IN REVIEW
02-006	Wire: Mechanical & Electrical Characteristics - ACSR			00 IN REVIEW
02-007	Wire: Mechanical & Electrical Characteristics - ACSR/TW			00 IN REVIEW
02-008	Wire: Mechanical & Electrical Characteristics - ACSS			00 IN REVIEW

		02-009	Wire: Mechanical & Electrical Characteristics - AWLD	00	IN REVIEW
		02-010	Wire: Mechanical & Electrical Characteristics - CU	00	IN REVIEW
		02-011	Wire: Mechanical & Electrical Characteristics - CWLD	00	IN REVIEW
		02-012	Wire: Mechanical & Electrical Characteristics - CWLD/CU	00	IN REVIEW
		02-013	Wire: Mechanical & Electrical Characteristics - EHS STEEL	00	IN REVIEW
		03-001	Wire: Reel Data	00	IN REVIEW
		03-002	Wire: Reel Dimensions and Weights	00	IN REVIEW
		04-001	Wire: Standard Wire Sizes - Typical Design Tensions - Maximum Design Temperatures	00	IN REVIEW
		10-001	Conductor Ampacity Criteria	00	IN REVIEW
		10-002	Conductor Ampacity Table - AAAC	00	IN REVIEW
		10-003	Conductor Ampacity Table - AAC	00	IN REVIEW
		10-004	Conductor Ampacity Table - ACAR	00	IN REVIEW
		10-005	Conductor Ampacity Table - ACCC	00	IN REVIEW
		10-006	Conductor Ampacity Table - 3M ACCR	00	IN REVIEW
		10-007	Conductor Ampacity Table - ACSR	00	IN REVIEW
		10-008	Conductor Ampacity Table - ACSR/TW	00	IN REVIEW
		10-009	Conductor Ampacity Table - ACSS	00	IN REVIEW
		10-010	Conductor Ampacity Table - AWLD	00	IN REVIEW
		10-011	Conductor Ampacity Table - CU	00	IN REVIEW
		10-012	Conductor Ampacity Table - CWLD	00	IN REVIEW
		10-013	Conductor Ampacity Table - CWLD/CU	00	IN REVIEW
TM2.23.TG	GROUNDING	MG-02-009	Connection to Existing Grounding for Replacement of Poles/Structures	00	ACTIVE
		MG-02-020	Pole Bearing Plates for Grounding, 115kV H-Frame Structures, Copperweld Grounding	00	ACTIVE
		MG-04-020	Pole Bearing Plates for Grounding, 115kV H-Frame Structures, #2 Copper Grounding for ROW w/ Colocated Pipeline	00	ACTIVE
		01-001	Grounding Procedure	00	ACTIVE
		01-002	Additional Grounding - single pole Structure	00	ACTIVE
		01-003	Additional Grounding - two pole Structure	00	ACTIVE
		01-004	Additional Grounding with Counterpoise - single pole Structure	00	ACTIVE
		01-005	Additional Grounding with Counterpoise - two pole Structure	00	ACTIVE
		01-006	Radial type grounding - single pole Structure	00	ACTIVE
		01-007	Radial type grounding - two pole Structure	00	ACTIVE
		02-001	Ground Rod & Ground Wire: Steel Pole	00	ACTIVE

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		02-002	Ground Rod & Ground Wire: Single Wood Pole	00	IN REVIEW
		02-003	Ground Rod & Ground Wire: Single Wood Pole w/ Fiberglass Standoff Rods	00	IN REVIEW
		02-004	Ground Rod & Ground Wire: Multiple Wood Pole	00	IN REVIEW
		02-005	Pole Bearing Plate - H-Frame Suspensions	00	ACTIVE
		02-010	H-Frame Suspensions - Copperweld Wrap Grounding	00	ACTIVE
		02-011	Single Pole Suspensions - Copperweld Wrap Grounding	00	ACTIVE
		03-001	Anchor Grounding	00	IN REVIEW
		04-010	H-Frame Suspensions - #2 Copper Wrap Grounding	00	ACTIVE
		04-011	Single Pole Suspensions - #2 Copper Wrap Grounding	00	ACTIVE
		05-001	Switch Grounding Detail: One-Way Switch	00	IN REVIEW
		05-002	Switch Grounding Detail: Two-Way Switch	00	IN REVIEW
		05-003	Switch Grounding Detail: Three-Way Switch	00	IN REVIEW
		06-001	Grounding Detail: Non-Electric Fences ROW	00	ACTIVE
		09-001	Structure Ground Resistance Record for Wood Poles	00	ACTIVE
		09-002	Structure Ground Resistance Record for Steel Poles	00	ACTIVE
		09-003	Fence Grounding Report	00	ACTIVE
		CU	Standard CU Format and Naming Convention	00	ACTIVE
		01-001	Screw Anchor Installation: Single Helix	00	ACTIVE
		01-002	Screw Anchor Installation: Double Helix	00	ACTIVE
		01-003	Screw Anchor Installation: Triple Helix	00	ACTIVE
		01-004	Screw Anchor Installation: Quad Helix	00	ACTIVE
		01-005	Log Anchor Installation	00	ACTIVE
		01-006	Auger Pile Anchor Installation	00	IN REVIEW
		01-007	Cross Plate Anchor Installation	00	ACTIVE
		01-008	Driven Plate (Manta Ray) Anchor Installation	00	IN REVIEW
		01-009	Expanding Bolt Rock Anchor Installation	00	ACTIVE
		02-001	Anchor Rod Length Chart	00	PLANNED
		03-001	Maximum Allowable Slope of an Excavated Face (Excavations greater than 5' Deep)	00	PLANNED
		04-001	Anchor Pull Test Procedure	00	PLANNED
		04-002	Anchor Pull Test Report Data Sheet	00	ACTIVE
		05-001	Soil Classification Data	00	IN REVIEW
TM2.23.TH	ANCHOR INFO				
TM2.23.TI	INSULATOR INFO	CU	Standard CU Format and Naming Convention	00	IN REVIEW



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		01-001	Porcelain Disc Insulators - Insulators Per String	00	IN REVIEW
		01-001-D3	Disc Insulator, porcelain: 10", Class 52-3, 10000# test, 20000# M&E	00	IN REVIEW
		01-001-D5	Disc Insulator, porcelain: 10", Class 52-5, 15000# test, 30000# M&E	00	IN REVIEW
		01-001-D8	Disc Insulator, porcelain: 10", Class 52-8, 20000# test, 40000# M&E	00	IN REVIEW
		01-001-D11	Disc Insulator, porcelain: 11", Class 52-11, 25000# test, 50000# M&E	00	IN REVIEW
		01-002	Porcelain Disc Insulators - Electrical Characteristics & Mechanical Loading Criteria	00	IN REVIEW
		02-001	Porcelain Post Insulators - Recommended	00	PLANNED
		02-002	Porcelain Post Insulators - Electrical Characteristics & Mechanical Loading Criteria	00	PLANNED
		03-001	Polymer Suspension and Dead End Insulators	00	PLANNED
		03-002	Polymer Suspension/Dead End Insulators - Electrical Characteristics & Mechanical Loading Criteria	00	PLANNED
		04-001	Polymer Post Insulators	00	PLANNED
		04-002	Polymer Post Insulators - Electrical Characteristics & Mechanical Loading Criteria	00	PLANNED
		05-001	Fiberglass Guy Strain Insulators	00	IN REVIEW
		06-001	Insulator String Hold Down Weight Details	00	PLANNED
TM2.23.TJ	CONDUCTOR AND STATIC RELATED	01-001	Suspension Clamps	00	IN PROGRESS
		01-002	Suspension Clamps - Physical Characteristics	00	IN PROGRESS
		02-001	Post Insulator Clamps	00	IN PROGRESS
		02-002	Post Insulator Clamps - Physical Characteristics	00	IN PROGRESS
		03-001	Bolted Strain Clamps	00	PLANNED
		03-002	Bolted Strain Clamps - Physical Characteristics	00	PLANNED
		04-001	Compression Dead End Assemblies: Single Tongue	00	PLANNED
		04-002	Compression Dead End Assemblies: Double Tongue	00	PLANNED
		04-003	Compression Terminal Pads	00	PLANNED
		05-001	Preformed Armor Rods	00	ACTIVE
		06-001	Connectors: One Bolt	00	PLANNED
		06-002	Connectors: Two Bolt	00	PLANNED
		06-003	Connectors: Parallel Grove	00	PLANNED
		06-004	Connectors: Fired-On	00	PLANNED
		07-001	Splice: Full Tension	00	PLANNED

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		07-002	Splice: Loop	00	PLANNED
		07-003	Splice: Reducer	00	PLANNED
		07-004	Splice: Repair	00	PLANNED
		07-005	Transmission Line Splice Location Record	00	PLANNED
		08-CU	Damper Standard CU Format	00	ACTIVE
		08-001	Vibration Damper: Stockbridge	00	ACTIVE
		08-002	Vibration Damper: Spiral (for OPGW)	00	ACTIVE
		08-003	Vibration Damper Placement Spacing Chart	00	ACTIVE
		09-001	Guy Plates	00	ACTIVE
		09-002	Special Aerial Dead End	00	ACTIVE
		10-1-CU	Spacer Standard CU Format	00	ACTIVE
		10-001	Conductor Bundle Spacer	00	ACTIVE
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		02-001	Wood Pole Brand Identification	00	ACTIVE
		03-001	Aerial Structure Marker Procedures	00	ACTIVE
		03-002	Detail and Installation of Aerial Structure Markers	00	ACTIVE
		03-003	Aerial Marker Structure Tag MIDs and CUs	00	ACTIVE
		03-004	Aerial Marker Structure Tags	00	ACTIVE
		03-005	Aerial Marker Balls	01	ACTIVE
		04-001	Fiber Optic Cable Signage	00	ACTIVE
		04-002	Fiber Optic Pole Marker	00	IN REVIEW
		05-001	Detail and Installation of Danger Sign in Permanent Construction and Excavation Areas	00	IN REVIEW
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		08-001	Switch Structures Application	00	ACTIVE
		08-002	Switch Structures Switch Mat Below Sign	00	ACTIVE
		08-003	Switch Structures Switch Number Holders	00	ACTIVE
		08-004	Switch Structures Switch Numbers	00	ACTIVE
TM2.23.TL	RIGHT-OF-WAY / ENVIRONMENTAL	01-001	ROW Clearing: Single Pole Construction 100' Width	00	IN REVIEW
		01-002	ROW Clearing: H-Frame Construction: 115kV 125' Width	00	IN REVIEW
		01-003	ROW Clearing: H-Frame Construction: 230kV 150' Width	00	IN REVIEW
		01-004	ROW Clearing: H-Frame Construction: 345kV 175' Width	00	IN REVIEW
		01-005	ROW Clearing: Piling and Windrowing 100' Width	00	IN REVIEW
		01-006	ROW Clearing: Piling and Windrowing 125' Width	00	IN REVIEW
		01-007	ROW Clearing: Piling and Windrowing 150' Width	00	IN REVIEW

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		01-008	ROW Clearing: Piling and Windrowing 175' Width	00	IN REVIEW
		01-010	Danger Tree Criteria (ISSUE 1)	00	ACTIVE
		02-001	Access Roads: Cut and Fill	00	PLANNED
		02-002	Access Roads: Water Bar	00	PLANNED
		02-003	Access Roads: Sediment Mat	00	PLANNED
		03-001	Stream Crossing: Blasting Mats	00	PLANNED
		03-002	Stream Crossing: Corduroy Roads	00	PLANNED
		03-003	Stream Crossing: Gravel Base	00	PLANNED
		03-004	Stream Crossing: Rock Ford	00	PLANNED
		04-001	Silt Barrier Fence	00	PLANNED
		05-001	Metal Gate Detail	00	PLANNED
		05-002	Wire Gate Detail	00	PLANNED
		06-001	Right-of-Way and Environmental Best Management Practices (BMP) Log	00	ACTIVE
		07-001	Structure Installation Log	00	ACTIVE
		09-001	Right-of-Way: Standard ROW Spacing Pole Structures	00	ACTIVE
		09-002	Right-of-Way: Standard ROW Spacing Lattice Structures	00	ACTIVE
		09-003	Right-of-Way: Standard ROW Spacing Assumptions	00	ACTIVE
		CU	Standard CU Format and Naming Convention	00	IN REVIEW
		-	115kV STRUCTURES	-	
		1DATB	Single Pole Double Circuit Angle Suspension 0° to 15°	00	ACTIVE
		1DBPG	Single Pole Double Circuit Tangent on Braced Posts	01	ACTIVE
		1DDSB	Single Pole Double Circuit Dead End Suspension	01	ACTIVE
		1DTSB	Single Pole Double Circuit Tangent Suspension	00	ACTIVE
		1SBPG	Single Pole Single Circuit Tangent on Braced Posts	01	ACTIVE
		1SDSB	Single Pole Single Circuit Vertical Dead End on Arms 0° to 60°	01	ACTIVE
		1STSB	Single Pole Single Circuit Tangent Suspension	00	ACTIVE
		1VAPG	Single Pole Single Circuit Angle on Braced Posts 0° to 15°	01	ACTIVE
		1VASB	Single Pole Single Circuit Angle Suspension 15° to 40°	00	ACTIVE
		1VATB	Single Pole Single Circuit Angle Suspension 40° to 60°	00	ACTIVE
		1VDJL	Single Pole Single Circuit Vertical Dead End 0° to 60°	00	ACTIVE
		1VDOB	Single Pole Single Circuit Vertical Dead End 60° and greater	01	ACTIVE
		1VDSB	Single Pole Single Circuit Vertical Dead End on Arms 0° to 90°	01	ACTIVE
TM2.23.TM	STEEL STRUCTURES				

-	230kV STRUCTURES	-	
2DDSB	Single Pole Double Circuit Vertical Dead End on Steel Davit Arms 0° to 90°	00	ACTIVE
2DTSB	Single Pole Double Circuit Tangent and Suspension Angle 0° to 5°	00	ACTIVE
2HA0B	H-FRAME 20-45 ANGLE GUYED	00	ACTIVE
2HA3B	3 Pole Single Circuit H-Frame Angle Suspension 3° to 20°	00	ACTIVE
2HDSB	3 Pole Single Circuit H-Frame Dead End 15° to 90°	00	ACTIVE
2HDYB	3 Pole Single Circuit H-Frame Dead End 5° to 15°	00	ACTIVE
2HHTB	2 Pole Single Circuit H-Frame Tangent - Single Steel Crossarm	00	ACTIVE
2HHXB	3 Pole Single Circuit H-Frame Dead End 0° to 100° (UNGUYED)	00	ACTIVE
2HHYB	3 Pole Single Circuit H-Frame Dead End 0° to 5°	00	ACTIVE
2SDSB	Single Pole Single Circuit Dead End on Arms	00	ACTIVE
2STSB	Single Pole Single Circuit Tangent Suspension	00	ACTIVE
2VATB	Single Pole Single Circuit Vertical Angle Suspension 20° to 45°	00	ACTIVE
2VDAB	Single Pole Single Circuit Vertical Angle Suspension 0° to 20°	00	ACTIVE
2VDOB	Single Pole Single Circuit Vertical Dead End 60° and Greater	00	ACTIVE
2VDSB	Single Pole Single Circuit Vertical Dead End 0° to 90° on Arms	00	ACTIVE
2VTSB	Single Pole Single Circuit Tangent Structure Vertical Suspension 0° to 5°	00	ACTIVE
-	345kV STRUCTURES	-	
3ADSB	Single Pole Single Circuit Staggered Dead End 0° to 60°	00	ACTIVE
3AHVB	Single Pole Single Circuit Tangent V-String Insulators	00	ACTIVE
3ATSB	Single Pole Single Circuit Tangent Suspension	00	ACTIVE
3EDYB	Single Pole Double Circuit Dead End Angle 0° to 90°	00	ACTIVE
3EHVB	Single Pole Double Circuit Bundled Conductor - Vertical Tangent V String Insulators	00	ACTIVE
3ETSB	Single Pole Double Circuit Bundled Conductor - Vertical Tangent Suspension	00	ACTIVE
3IA3B	3 Pole Single Circuit H-Frame, Bundled Conductor, Running Angle 3° to 20°	00	ACTIVE
3IA5B	3 Pole Single Circuit H-Frame, Bundled Conductor, Running Angle 20° to 45°	00	ACTIVE
3IDSB	3 Pole Single Circuit H-Frame Angle Dead End 5° to 90°	00	ACTIVE
3IHTB	2 Pole Single Circuit H-Frame Tangent - Single Steel Crossarm	00	ACTIVE

		3IHVB	2 Pole Single Circuit H-Frame Tangent Vee String, Single Steel Crossarm	00	ACTIVE
		3IHXB	3 Pole Single Circuit H-Frame Angle Dead End 0° to 5°	00	ACTIVE
		3WATB	Single Pole Single Circuit Vertical Angle Suspension 20° to 45°	00	ACTIVE
		3WDAB	Single Pole Single Circuit Vertical Angle Suspension 0° to 20°	00	ACTIVE
		3WDSB	Single Pole Single Circuit Vertical Dead End 0° to 100°	00	ACTIVE
		3WHVB	Single Pole Single Circuit Vertical Tangent V-String Insulators	00	ACTIVE
		3WTSB	Single Pole Single Circuit Vertical Tangent Suspension	00	ACTIVE
TM2.23.TN	STRUCTURE STANDARDS ON WOOD POLES	CU	Standard CU Format and Naming Convention	00	ACTIVE
		-	<u>115kV STRUCTURES</u>	-	
		1BBPG	LAMINATED: Single Pole Single Circuit Tangent - Braced Post	00	ACTIVE
		1BTSB	LAMINATED: Single Pole Single Circuit Tangent Suspension	00	ACTIVE
		1HASB	3 Pole Single Circuit H-Frame Running Angle 20° to 45°	00	ACTIVE
		1HDJL	3 Pole Single Circuit H-Frame Angle Dead End Less Than 60°	00	ACTIVE
		1HDOB	3 Pole Single Circuit H-Frame Angle Dead End 60° and Greater	00	ACTIVE
		1HHTB	2 Pole Single Circuit H-Frame Tangent Suspension - Steel Crossarm Assembly	00	ACTIVE
		1HHUB	2 Pole Single Circuit H-Frame Guyed Tangent Dead End - Steel Crossarm Assembly	00	ACTIVE
		1HHXB	2 Pole Single Circuit H-Frame UnGuyed Tangent Dead End - Steel Crossarm Assembly	00	ACTIVE
		1HHYL	3 Pole Single Circuit H-Frame Tangent Dead End	00	ACTIVE
		1HSBB	3 Pole Single Circuit H-Frame Angle Suspension - Swinging Angle Bracket - to 20°	00	ACTIVE
		1HTYB	3 Pole Single Circuit H-Frame Tangent Dead End - NO STATIC	00	ACTIVE
		1HX1B	3 Pole Single Circuit H-Frame Transposition 1-2-3 to 3-1-2 or 2-3-1	00	ACTIVE
		1HX2L	3 Pole Single Circuit H-Frame Transposition	00	ACTIVE
		1HX3L	3 Pole Single Circuit H-Frame Transposition 1-2-3 to 3-2-1	00	ACTIVE
		1JASB	LAMINATED: 3 Pole Single Circuit Angle Suspension 20° to 45°	00	ACTIVE
		1JDJL	LAMINATED: 3 Pole Single Circuit H-Frame Angle Dead End Less Than 60°	00	ACTIVE
		1JDOB	LAMINATED: 3 Pole Single Circuit H-Frame Angle Dead End 60° and Greater	00	ACTIVE

1JHTB	LAMINATED: 2 Pole Single Circuit H-Frame Tangent Suspension - Steel Crossarm Assembly	00	ACTIVE
1JHUB	LAMINATED: 2 Pole Single Circuit H-Frame Guyed Tangent Dead End - Steel Crossarm Assembly	00	ACTIVE
1JHXB	LAMINATED: 2 Pole Single Circuit H-Frame UnGuyed Tangent Dead End - Steel Crossarm Assembly	00	ACTIVE
1JHYL	LAMINATED: 3 Pole Single Circuit H-Frame Tangent Dead End	00	ACTIVE
1JSBB	LAMINATED: 3 Pole Single Circuit H-Frame Angle Suspension - Swinging Angle Bracket - to 20°	00	ACTIVE
1JTYB	LAMINATED: 3 Pole Single Circuit H-Frame Tangent Dead End - NO STATIC	00	ACTIVE
1JX1B	LAMINATED: 3 Pole Single Circuit H-Frame Transposition 1-2-3 to 3-1-2 or 2-3-1	00	ACTIVE
1JX3L	LAMINATED: 3 Pole Single Circuit H-Frame Transposition 1-2-3 to 3-2-1	00	ACTIVE
1SBPG	Single Pole Single Circuit Tangent - Braced Posts	00	ACTIVE
1STSB	Single Pole Single Circuit Tangent Suspension	00	ACTIVE
1VAPG	Single Pole Single Circuit Angle on Braced Posts 0° to 10°	00	ACTIVE
1VASB	Single Pole Single Circuit Running Angle 20° to 45°	00	ACTIVE
1VDJL	Single Pole Single Circuit Vertical Dead End 25° to 60°	00	ACTIVE
1VDOB	Single Pole Single Circuit Vertical Dead End 60° and greater	00	ACTIVE
1VSBB	Single Pole Single Circuit Running Angle - Swinging Angle Bracket - 10° to 20°	00	ACTIVE
1XAPG	LAMINATED: Single Pole Single Circuit Angle on Braced Posts 0° to 10°	00	ACTIVE
1XASB	LAMINATED: Single Pole Single Circuit Angle Suspension 20° to 45°	00	ACTIVE
1XDJL	LAMINATED: Single Pole Single Circuit Vertical Dead End 25° to 60°	00	ACTIVE
1XDOB	LAMINATED: Single Pole Single Circuit Vertical Dead End 60° and greater	00	ACTIVE
1XSBB	LAMINATED: Single Pole Single Circuit Angle Suspension - Swinging Angle Bracket - 10° to 20°	00	ACTIVE
-	<b>230kV STRUCTURES</b>	-	
2HA0B	3 Pole Single Circuit H-Frame Running Angle 30° to 45° - Single Steel Crossarm	00	ACTIVE
2HA9B	3 Pole Single Circuit H-Frame Running Angle 20° to 30° - Single Steel Crossarm	00	ACTIVE
2HDJL	3 Pole Single Circuit H-Frame Angle Dead End 60° and Less	00	ACTIVE
2HDOB	3 Pole Single Circuit H-Frame Angle Dead End 60° and Greater	00	ACTIVE

2HHTB	2 Pole Single Circuit H-Frame Tangent Suspension - Steel Crossarm Assembly	00	ACTIVE
2HHYL	3 Pole Single Circuit H-Frame Tangent Dead End	00	ACTIVE
2HSBB	3 Pole Single Circuit H-Frame Angle Suspension - Swinging Angle Bracket - to 20°	00	ACTIVE
2JA0B	LAMINATED: 3 Pole Single Circuit H-Frame Running Angle 30° to 45° - Single Steel Crossarm	00	ACTIVE
2JA9B	LAMINATED: 3 Pole Single Circuit H-Frame Running Angle 20° to 30° - Single Steel Crossarm	00	ACTIVE
2JDJL	LAMINATED: 3 Pole Single Circuit H-Frame Angle Dead End 60° and Less	00	ACTIVE
2JDOB	LAMINATED: 3 Pole Single Circuit H-Frame Angle Dead End 60° and Greater	00	ACTIVE
2JHTB	LAMINATED: 2 Pole Single Circuit H-Frame Tangent Suspension - Steel Crossarm Assembly	00	ACTIVE
2JHYL	LAMINATED: 3 Pole Single Circuit H-Frame Tangent Dead End	00	ACTIVE
2JSBB	LAMINATED: 3 Pole Single Circuit H-Frame Angle Suspension - Swinging Angle Bracket - to 20°	00	ACTIVE
2VDJL	Single Pole Single Circuit H-Frame Angle Dead End 60° and Less	00	ACTIVE
2VDOB	Single Pole Single Circuit H-Frame Angle Dead End 60° and Greater	00	ACTIVE
2XDJL	LAMINATED: Single Pole Single Circuit H-Frame Angle Dead End 60° and Less	00	ACTIVE
2XDOB	LAMINATED: Single Pole Single Circuit H-Frame Angle Dead End 60° and Greater	00	ACTIVE
-	<u>345kV STRUCTURES</u>	-	
3IA0B	3 Pole Single Circuit H-Frame Angle Suspension 30° to 45° - Single Steel Crossarm	00	ACTIVE
3IA6B	3 Pole Single Circuit H-Frame Angle Suspension 0° to 3° - Single Steel Crossarm	00	ACTIVE
3IA7B	3 Pole Single Circuit H-Frame Angle Suspension 3° to 10° - Single Steel Crossarm	00	ACTIVE
3IA8B	3 Pole Single Circuit H-Frame Angle Suspension 10° to 20° - Single Steel Crossarm	00	ACTIVE
3IA9B	3 Pole Single Circuit H-Frame Angle Suspension 20° to 30° - Single Steel Crossarm	00	ACTIVE
3IHTB	2 Pole Single Circuit H-Frame Tangent Suspension - Steel Crossarm	00	ACTIVE
3IHWB	2 Pole Single Circuit H-Frame Tangent V-String Insulators - Steel Crossarm	00	ACTIVE
3KA0B	LAMINATED: 3 Pole Single Circuit H-	00	ACTIVE

	Frame Angle Suspension 30° to 45° - Single Steel Crossarm		
3KA6B	LAMINATED: 3 Pole Single Circuit H-Frame Angle Suspension 0° to 3° - Single Steel Crossarm	00	ACTIVE
3KA7B	LAMINATED: 3 Pole Single Circuit H-Frame Angle Suspension 3° to 10° - Single Steel Crossarm	00	ACTIVE
3KA8B	LAMINATED: 3 Pole Single Circuit H-Frame Angle Suspension 10° to 20° - Single Steel Crossarm	00	ACTIVE
3KA9B	LAMINATED: 3 Pole Single Circuit H-Frame Angle Suspension 20° to 30° - Single Steel Crossarm	00	ACTIVE
3KHTB	LAMINATED: 2 Pole Single Circuit H-Frame Tangent Suspension - Steel Crossarm	00	ACTIVE
3KHWB	LAMINATED: 2 Pole Single Circuit H-Frame Tangent V-String Insulators - Steel Crossarm	00	ACTIVE
-	<u>46kV STRUCTURES</u>	-	
4VAS	Single Pole Single Circuit Angle on Horizontal Post Insulators 0° to 15°	00	PLANNED
4DD5	Single Pole Double Circuit Tangent Suspension Steel Davit Arm	00	IN PROGRESS
4DDA	Single Pole Double Circuit Angle Suspension 0° to 20° - steel davit arms	00	PLANNED
4DCD	Single Pole Double Circuit Tangent Vertical Posts (4) 7' and (2) 10' Wood Crossarms	00	PLANNED
-	<u>35kV STRUCTURES</u>	-	
5HC2E	Single Pole Single Circuit Tangent Vertical Posts (1) 12' Crossarm	00	IN REVIEW
5HC3	Single Pole Single Circuit Tangent Vertical Posts (2) 12' Crossarm	00	PLANNED
5HS1A	Single Pole Single Circuit 1-Way Switch Structure Horizontal	00	ACTIVE
5HTDK	Single Pole Single Circuit Terminal Dead End Riser with Switch	00	ACTIVE
5HTRK	Single Pole Single Circuit Terminal Dead End Riser without Switch	00	ACTIVE
5SBP	Single Pole Single Circuit Tangent - Braced Posts	00	IN REVIEW
5SCDE	Single Pole Single Circuit Tangent Vertical Posts (2) 7' and (2) 10' Wood Crossarms	00	IN REVIEW
5SCSE	Single Pole Single Circuit Tangent Vertical Posts (1) 7' and (1) 10' Wood Crossarms	00	IN REVIEW
5SFD	Single Pole Single Circuit Tangent Dead End (1) 8' and (1) 10' Fiberglass Crossarms - unguyed	00	PLANNED
5SFT	Single Pole Single Circuit Tangent Vertical Posts (1) 8' and (1) 10'	00	PLANNED



	Fiberglass Crossarms		
5SFY	Single Pole Single Circuit Tangent Dead End (1) 8' and (1) 10' Fiberglass Crossarms - unguyed	00	PLANNED
5STPE	Single Pole Single Circuit Tangent Staggered Horizontal Post Insulators	00	IN REVIEW
5STSA	Single Pole Single Circuit Tangent Suspension - steel davit arms	00	ACTIVE
5STX	Single Pole Single Circuit Tangent Dead End (2) 7' and (2) 10' Wood Crossarms - unguyed	00	PLANNED
5STY	Single Pole Single Circuit Tangent Dead End (2) 7' and (2) 10' Wood Crossarms - guyed	00	PLANNED
5VAPE	Single Pole Single Circuit Angle on Horizontal Porcelain Post Insulators 0° to 15°	00	IN REVIEW
5VAPF	Single Pole Single Circuit Angle on Horizontal Post Polymer Insulators 0° to 15°	00	IN REVIEW
5VAS	Single Pole Single Circuit Running Angle 15° to 45°	00	IN REVIEW
5VBP	Single Pole Single Circuit Angle on Braced Posts 0° to 15°	00	PLANNED
5VDJH	Single Pole Single Circuit Vertical Dead End to 50° with Jumper Post	00	IN REVIEW
5VDO	Single Pole Single Circuit Vertical Dead End Over 50° without Jumper Post	00	IN REVIEW
5VHR	Single Pole Single Circuit Horizontal Terminal Dead End Riser	00	PLANNED
5VRTH	Single Pole Single Circuit Reduced Tension Dead End	00	IN REVIEW
5VS2A	Single Pole Single Circuit 2-Way Phase-over-Phase GOAB Switch Structure	00	ACTIVE
5VS3A	Single Pole Single Circuit 3-Way Phase-over-Phase GOAB Switch Structure	00	ACTIVE
5VVR	Single Pole Single Circuit Vertical Terminal Dead End Riser	00	IN REVIEW
5VWO	Single Pole Single Circuit 3-Way Vertical Dead End	00	IN REVIEW
-	<u>69kV STRUCTURES</u>	-	
6DA3A	2 Pole Double Circuit Angle Suspension 10° to 30°	00	ACTIVE
6DA5A	2 Pole Double Circuit Angle Suspension 30° to 50°	00	ACTIVE
6DASA	Single Pole Double Circuit Angle Suspension on Steel Davit Arms to 10°	00	ACTIVE
6DBPG	Single Pole Double Circuit Tangent - Braced Posts	00	ACTIVE
6DDJK	2 Pole Double Circuit Angle Dead End 30° to 60°	00	ACTIVE
6DDOA	2 Pole Double Circuit Angle Dead End 60° and Greater	00	ACTIVE

		6DTPF	Single Pole Double Circuit Tangent - Horizontal Posts	00	ACTIVE
		6DTSA	Single Pole Double Circuit Tangent Suspension on Steel Davit Arms	00	ACTIVE
		6HBAK	Single Pole Single Circuit Dead End Buck Arm Structure - 50° to 100° BN-JS	00	ACTIVE
		6HDAK	Single Pole Single Circuit Dead End on Crossarms - 20° to 50°	00	ACTIVE
		6HDJB	3 Pole Single Circuit H-Frame Dead End to 60° with Jumper Posts BN-DAS	00	PLANNED
		6HDJK	3 Pole Single Circuit H-Frame Dead End to 60° with Jumper Posts BN-DAS	00	ACTIVE
		6HDOA	3 Pole Single Circuit Dead End Angle 60° and greater without Jumper Posts BN-DBS	00	ACTIVE
		6HDOB	3 Pole Single Circuit Dead End Angle 60° and greater without Jumper Posts BN-DAS	00	PLANNED
		6HHYK	3 Pole Single Circuit Tangent Dead End BN-LDS	00	ACTIVE
		6HTDK	3 Pole Single Circuit H-Frame Dead End Riser with Switch	00	ACTIVE
		6HTRK	3 Pole Single Circuit H-Frame Dead End Riser without Switch	00	ACTIVE
		6HTYK	Single Pole Single Circuit Dead End on Crossarms - 0° to 20°	00	ACTIVE
		6SBPG	Single Pole Single Circuit Tangent - Braced Posts	00	ACTIVE
		6STPF	Single Pole Single Circuit Tangent on Horizontal Post Insulators	00	ACTIVE
		6STSA	Single Pole Single Circuit Tangent Suspension - steel davit arms	00	ACTIVE
		6VAPF	Single Pole Single Circuit Angle on Horizontal Post Insulators 0° to 15°	00	ACTIVE
		6VASA	Single Pole Single Circuit Running Angle 15° to 45°	00	ACTIVE
		6VDJK	Single Pole Single Circuit Vertical Dead End to 60° with Jumper Post	00	ACTIVE
		6VDOA	Single Pole Single Circuit Vertical Dead End 60° and Greater without Jumper Post	00	ACTIVE
		6VS2A	Single Pole Single Circuit 2-Way Phase-over-Phase GOAB Switch Structure	00	ACTIVE
		6VS3A	Single Pole Single Circuit 3-Way Phase-over-Phase GOAB Switch Structure	00	ACTIVE
TM2.23.TO	OPGW ATTACHMENT DETAILS	CU	Standard CU Format and Naming Convention	00	IN PROGRESS
		A-D1	Tangent or Angle Suspension up to 30, single clamp	00	IN PROGRESS
		W-A1	Angle Suspension - Single Clamp, Wood Pole	00	IN PROGRESS
		W-AD	Angle Dead End, Wood Pole	00	IN PROGRESS
		W-SB	Splice Box Assembly, Wood Pole	00	IN PROGRESS

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		W-TD	Tangent Dead End, Wood Pole	00	IN PROGRESS
		W-TS	Tangent Suspension on Bracket	00	IN PROGRESS
		W-UD	Uplift Dead End, Wood Pole	00	IN PROGRESS
		W-XD	Terminal Dead End, Wood Pole	00	IN PROGRESS
		X-A1	Angle Suspension - Single Clamp	00	IN PROGRESS
		X-A2-X-X	Angle Suspension - Double Clamp	00	IN PROGRESS
		X-D1	Suspension off Steel Davit Arm- Single Clamp	00	IN PROGRESS
		X-DE	Tangent, Angle or Uplift Dead End	00	IN PROGRESS
		X-SB	Splice Box Assembly	00	IN PROGRESS
		X-XD	Terminal Dead End	00	IN PROGRESS
		X-AD-G-X	Optical Ground Wire Attachment, Angle Deadend	00	IN PROGRESS
		X-TD-G-X	Optical Ground Wire Attachment, Tangent Deadend (Guyed)	00	IN PROGRESS
		X-UD-G-X	Optical Ground Wire Attachment, Uplift Detail	00	IN PROGRESS
		X-XX-G-X	Optical Ground Wire Attachment, Tangent Suspension - Large Bracket	00	IN PROGRESS
		DNO-8155	Pentacore OPGW, 0.583"	00	ACTIVE
		DNO-8228	Hexacore OPGW, 0.602"	00	ACTIVE
		DNO-8230	Hexacore OPGW, 0.913"	00	ACTIVE
TM2.23.TP	STANDARD STATIC WIRE ATTACHMENT DETAILS	CU	Standard CU Format and Naming Convention	00	IN PROGRESS
		A-DS	Tangent, Angle Suspension on Steel Davit Arm	00	IN PROGRESS
		S-DE	Tangent, Angle or Uplift Dead End on Steel Structure	00	IN PROGRESS
		W-AD	Angle Dead End on Wood Structure	00	IN PROGRESS
		W-TD	Guyed Tangent Dead End on Wood Structure	00	IN PROGRESS
		W-UD	Unguyed Uplift Dead End on Wood Structure	00	IN PROGRESS
		X-AS	Angle Suspension	00	IN PROGRESS
		X-TS	Tangent Suspension on Bracket	00	IN PROGRESS
		X-XD	Terminal Dead End	00	IN PROGRESS

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		X-AU-G	Static Wire Attachment, Angle Dead End (Unguyed)	00	IN PROGRESS		
		X-D1-G	Shield Wire Attachment, Tangent or Angle Suspension to 30°	00	IN PROGRESS		
		X-XX-G	Tangent Suspension Large Bracket for 345kV Structures	00	IN PROGRESS		
		X-3W	3-Way Dead End	00	PLANNED		
TM2.23.TQ	FRAMING DETAILS	CU	Standard CU Format and Naming Convention	00	IN PROGRESS		
		1W-X12	X-Brace: 115kV - 12' Pole Spacing - wood poles	00	IN REVIEW		
		2W-L20-A	X-Brace: 230kV - 19.5' & 20' Pole Spacing - laminated poles	00	ACTIVE		
		2W-L20-B	2 X-Brace: 230kV - 19.5' & 20' Pole Spacing - laminated poles	00	ACTIVE		
		2W-L20-C	3 X-Brace: 230kV - 19.5' & 20' Pole Spacing - laminated poles	00	ACTIVE		
		2W-L20-D	4 X-Brace: 230kV - 19.5' & 20' Pole Spacing - laminated poles	00	ACTIVE		
		2W-M20-A	X-Brace: 230kV - 19.5' & 20' Pole Spacing - 3 Pole Structure - laminated poles	00	ACTIVE		
		2W-M20-B	2 Sets of X-Brace: 230kV - 19.5' & 20' Pole Spacing - 3 Pole Structure - laminated poles	00	ACTIVE		
		2W-M20-C	3 Sets of X-Brace: 230kV - 19.5' & 20' Pole Spacing - 3 Pole Structure - laminated poles	00	ACTIVE		
		2W-M20-D	4 Sets of X-Brace: 230kV - 19.5' & 20' Pole Spacing - 3 Pole Structure - laminated poles	00	ACTIVE		
		2W-X20-A	X-Brace: 230kV - 19.5' & 20' Pole Spacing - wood poles	00	ACTIVE		
		2W-X20-B	2 X-Brace: 230kV - 19.5' & 20' Pole Spacing - wood poles	00	ACTIVE		
		2W-X20-C	3 X-Brace: 230kV - 19.5' & 20' Pole Spacing - wood poles	00	ACTIVE		
		2W-X20-D	4 X-Brace: 230kV - 19.5' & 20' Pole Spacing - wood poles	00	ACTIVE		
		2W-Y20-A	X-Brace: 230kV - 19.5' & 20' Pole Spacing - 3 Pole Structure - wood poles	00	ACTIVE		
		2W-Y20-B	2 Sets of X-Brace: 230kV - 19.5' & 20' Pole Spacing - 3 Pole Structure - wood poles	00	ACTIVE		
		2W-Y20-C	3 Sets of X-Brace: 230kV - 19.5' & 20' Pole Spacing - 3 Pole Structure - wood poles	00	ACTIVE		
		2W-Y20-D	4 Sets of X-Brace: 230kV - 19.5' & 20' Pole Spacing - 3 Pole Structure - wood poles	00	ACTIVE		
				3W-L21-A	X-Brace: 345kV - 21' Pole Spacing - laminated poles	00	ACTIVE
				3W-L21-B	2 X-Brace: 345kV - 21' Pole Spacing - laminated poles	00	ACTIVE

3W-L21-C	3 X-Brace: 345kV - 21' Pole Spacing - laminated poles	00	ACTIVE
3W-L21-D	4 X-Brace: 345kV - 21' Pole Spacing - laminated poles	00	ACTIVE
3W-L26-A	X-Brace: 345kV - 26' Pole Spacing - laminated poles	00	ACTIVE
3W-L26-B	2 X-Brace: 345kV - 26' Pole Spacing - laminated poles	00	ACTIVE
3W-L26-C	3 X-Brace: 345kV - 26' Pole Spacing - laminated poles	00	ACTIVE
3W-L26-D	4 X-Brace: 345kV - 26' Pole Spacing - laminated poles	00	ACTIVE
3W-L28-A	X-Brace: 345kV - 28' Pole Spacing - laminated poles	00	ACTIVE
3W-L28-B	2 X-Brace: 345kV - 28' Pole Spacing - laminated poles	00	ACTIVE
3W-L28-C	3 X-Brace: 345kV - 28' Pole Spacing - laminated poles	00	ACTIVE
3W-L28-D	4 X-Brace: 345kV - 28' Pole Spacing - laminated poles	00	ACTIVE
3W-M28-A	X-Brace: 345kV - 28' Pole Spacing - 3 Pole Structure - laminated poles	00	ACTIVE
3W-M28-B	2 Sets of X-Brace: 345kV - 28' Pole Spacing - 3 Pole Structure - laminated poles	00	ACTIVE
3W-M28-C	3 Sets of X-Brace: 345kV - 28' Pole Spacing - 3 Pole Structure - laminated poles	00	ACTIVE
3W-M28-D	4 Sets of X-Brace: 345kV - 28' Pole Spacing - 3 Pole Structure - laminated poles	00	ACTIVE
3W-X21-A	X-Brace: 345kV - 21' Pole Spacing - wood poles	00	ACTIVE
3W-X21-B	2 X-Brace: 345kV - 21' Pole Spacing - wood poles	00	ACTIVE
3W-X21-C	3 X-Brace: 345kV - 21' Pole Spacing - wood poles	00	ACTIVE
3W-X21-D	4 X-Brace: 345kV - 21' Pole Spacing - wood poles	00	ACTIVE
3W-X26-A	X-Brace: 345kV - 26' Pole Spacing - wood poles	00	ACTIVE
3W-X26-B	2 X-Brace: 345kV - 26' Pole Spacing - wood poles	00	ACTIVE
3W-X26-C	3 X-Brace: 345kV - 26' Pole Spacing - wood poles	00	ACTIVE
3W-X26-D	4 X-Brace: 345kV - 26' Pole Spacing - wood poles	00	ACTIVE
3W-X28-A	X-Brace: 345kV - 28' Pole Spacing - wood poles	00	ACTIVE
3W-X28-B	2 X-Brace: 345kV - 28' Pole Spacing - wood poles	00	ACTIVE
3W-X28-C	3 X-Brace: 345kV - 28' Pole Spacing - wood poles	00	ACTIVE
3W-X28-D	4 X-Brace: 345kV - 28' Pole Spacing - wood poles	00	ACTIVE

		3W-Y28-A	X-Brace: 345kV - 28' Pole Spacing - 3 Pole Structure - wood poles	00	ACTIVE
		3W-Y28-B	2 Sets of X-Brace: 345kV - 28' Pole Spacing - 3 Pole Structure - wood poles	00	ACTIVE
		3W-Y28-C	3 Sets of X-Brace: 345kV - 28' Pole Spacing - 3 Pole Structure - wood poles	00	ACTIVE
		3W-Y28-D	4 Sets of X-Brace: 345kV - 28' Pole Spacing - 3 Pole Structure - wood poles	00	ACTIVE
		5W-L10-A	X-Brace: 35kV - 10' Pole Spacing - MAINTENANCE ONLY laminated poles	00	ACTIVE
		5W-L10-B	2 X-Brace: 35kV - 10' Pole Spacing - laminated poles	00	ACTIVE
		5W-X10-A	X-Brace: 35kV - 10' Pole Spacing - MAINTENANCE ONLY wood poles	00	ACTIVE
		5W-X10-B	2 X-Brace: 35kV - 10' Pole Spacing - wood poles	00	ACTIVE
		9W-L14-A	X-Brace: 69 & 115kV - 14' Pole Spacing - laminated poles	00	ACTIVE
		9W-L14-B	2 X-Brace: 69 & 115kV - 14' Pole Spacing - laminated poles	00	ACTIVE
		9W-L14-C	3 X-Brace: 69 & 115kV - 14' Pole Spacing - laminated poles	00	ACTIVE
		9W-L14-D	4 X-Brace: 69 & 115kV - 14' Pole Spacing - laminated poles	00	ACTIVE
		9W-M14-A	X-Brace: 69 & 115kV - 14' Pole Spacing - 3 Pole Structure - laminated poles	00	ACTIVE
		9W-M14-B	2 Sets of X-Brace: 69 & 115kV - 14' Pole Spacing - 3 Pole Structure - laminated poles	00	ACTIVE
		9W-M14-C	3 Sets of X-Brace: 69 & 115kV - 14' Pole Spacing - 3 Pole Structure - laminated poles	00	ACTIVE
		9W-M14-D	4 Sets of X-Brace: 69 & 115kV - 14' Pole Spacing - 3 Pole Structure - laminated poles	00	ACTIVE
		9W-X14-A	X-Brace: 69 & 115kV - 14' Pole Spacing - wood poles	00	ACTIVE
		9W-X14-B	2 X-Brace: 69 & 115kV - 14' Pole Spacing - wood poles	00	ACTIVE
		9W-X14-C	3 X-Brace: 69 & 115kV - 14' Pole Spacing - wood poles	00	ACTIVE
		9W-X14-D	4 X-Brace: 69 & 115kV - 14' Pole Spacing - wood poles	00	ACTIVE
		9W-Y14-A	X-Brace: 69 & 115kV - 14' Pole Spacing - 3 Pole Structure - wood poles	00	ACTIVE
		9W-Y14-B	2 Sets of X-Brace: 69 & 115kV - 14' Pole Spacing - 3 Pole Structure - wood poles	00	ACTIVE
		9W-Y14-C	3 Sets of X-Brace: 69 & 115kV - 14' Pole Spacing - 3 Pole Structure - wood poles	00	ACTIVE
		9W-Y14-D	4 Sets of X-Brace: 69 & 115kV - 14' Pole Spacing - 3 Pole Structure - wood poles	00	ACTIVE
TM2.23.TR	GUYING DETAILS	CU	Standard CU Format and Naming Convention	00	ACTIVE
		01-D	Double Guy Assembly - double guy strain insulators using 20M guy wire	00	IN REVIEW

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		01-G	Single Guy Assembly - Uninsulated 20M guy wire	00	IN REVIEW
		01-S	Single Guy Assembly - single guy strain insulators using 20M guy wire	00	ACTIVE
		01-T	Single Guy Assembly - double guy strain insulators using 20M guy wire	00	ACTIVE
		01-X	Span Guy with fiberglass guy strain insulator using 20M guy wire	00	IN REVIEW
		01-Z-01	Tie Assembly with turnbuckle using 20M guy wire, Wood Poles	00	IN REVIEW
		01-Z-04	Tie Assembly with turnbuckle using 20M guy wire, Steel Structure	00	IN REVIEW
		02-D	Double Guy Assembly - double guy strain insulators using 19#8 guy wire	00	IN REVIEW
		02-G	Single Guy Assembly - Uninsulated 19#8 guy wire	00	IN REVIEW
		02-G-01	Grounded Guy Assembly - no fiberglass guy strain insulators Bonded Both Ends - Wood Structure	00	IN REVIEW
		02-G-04	Grounded Guy Assembly - no fiberglass guy strain insulators Bonded Both Ends - Steel Structure	00	IN REVIEW
		02-T	Single Guy Assembly - double guy strain insulators using 19#8 guy wire	00	ACTIVE
		02-X	Span Guy with fiberglass guy strain insulator using 19#8 guy wire	00	IN REVIEW
		02-Z-01	Tie Assembly with turnbuckle using 19#8 guy wire	00	IN REVIEW
		02-Z-04	Tie Assembly with turnbuckle on Steel Structure using 19#8 guy wire	00	IN REVIEW
		03-001	Guy Triangle Yoke Plate 24K 1/2" plate	00	ACTIVE
		03-002	Guy Triangle Yoke Plate 24K 3/4" plate	00	ACTIVE
TM2.23.TS	SPECIFIES	CU	Standard CU Format and Naming Convention	00	ACTIVE
		-	<u>Single Circuit</u>	-	
		B1A1	SC Tangent Braced Post Suspension - 3 susp clamps, 3 sets armor rods	00	IN PROGRESS
		C1P1	SC Reduced Tension Dead End w/ Jumper Post - 3 CDE, 3 post clamps	00	IN PROGRESS
		C1T1	SC Terminal Dead End - 3 CDE, 3 terminal pads	00	IN PROGRESS
		C1P1T1	SC 3 Dead End Insulator Strings, 3 Post Insulators, 3 Compression Dead End Assemblies, 3 Post Clamps, 3 Terminal Pads	00	IN PROGRESS
		C2	SC Tangent Dead End - 6 CDE	00	IN PROGRESS
		C2P1	SC Angle Dead End w/ Jumper Post - 6 CDE, 3 post clamps	00	IN PROGRESS
		C2S1	SC Angle Dead End w/ idler string - 6 CDE, 3 suspension clamps	00	IN PROGRESS
		N1P1	SC Reduced Tension Dead End w/ Jumper Post - 3 strain clamps, 3 post	00	IN PROGRESS

	clamps		
N1P1T1	SC Dead End - 3 strain clamps, 3 post clamps, 3 terminal pads	00	IN PROGRESS
N1T1	SC Terminal Dead End - 3 strain clamps, 3 terminal pads	00	IN PROGRESS
N2	SC Tangent Dead End - 6 strain clamps	00	IN PROGRESS
N2F1	35/46 SC Angle Dead End w/o Jumper Post - 6 strain clamps, 3 fired-on connectors	00	IN PROGRESS
N2F2T3	SC Connection to Switch and In Line Disconnect, 6 Strain Clamps, 6 Post Clamps, 6 Fired On Connectors, 12 Terminal Pads	00	IN PROGRESS
N2L1	69/115/230 SC Angle Dead End w/o Jumper Post - 6 strain clamps, 3 loop splices	00	IN PROGRESS
N2PI	SC 6 Dead End Insulator Strings, 3 Post Insulators, 6 Strain Clamps, 3 Post Clamps	00	IN PROGRESS
N2P1F1	35/46 SC Angle Dead End w/ Jumper Post - 6 strain clamps, 3 post clamps, 3 fired-on connectors	00	IN PROGRESS
N2P1L1	69/115/230 SC Angle Dead End w/ Jumper Post - 6 strain clamps, 3 post clamps, 3 loop splices	00	IN PROGRESS
N2P4	SC Tangent Dead End w/ 1 post - 6 strain clamps, 1 post clamp	00	IN PROGRESS
N2P4F1	SC 6 Dead End Insulator Strings, 1 Post Insulator, 6 Strain Clamps, 1 Post Clamp, 3 Fired On Connectors	00	IN PROGRESS
N2P4L1	SC 6 Dead End Insulator Strings, 1 Post Insulator, 6 Strain Clamps, 1 Post Clamp, 3 Loop Splices	00	IN PROGRESS
N2S1	SC 6 Dead End Insulator Strings, 3 Idler Strings, 6 Strain Clamps, 3 Suspension Clamps	00	IN PROGRESS
N2S1F1	SC Angle Dead End w/ idler string - 6 strain clamps, 3 suspension clamps , 3 fired-on connectors	00	IN PROGRESS
N2S1L1	SC Angle Dead End w/ idler string - 6 strain clamps, 3 suspension clamps	00	IN PROGRESS
N2T2	SC Switch Dead End - 6 strain clamps, 6 terminal pads	00	PLANNED
N9F2	35/46 SC 3-Way Dead End - 9 strain clamps, 3 fired-on connectors	00	PLANNED
N9T2	SC 3-Way Dead End - 9 strain clamps, 6 terminal pads	00	PLANNED
P1A1	SC post construction - 3 post clamps, 3 sets armor rods	00	IN PROGRESS
P2A1	SC post double arm construction - 6 post clamps, 3 sets armor rods	00	IN PROGRESS



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P5A1	SC post construction - 5 post clamps, 3 sets armor rods	00	IN PROGRESS
S1A1	SC Tangent or Angle Suspension - 3 susp clamps, 3 sets armor rods	00	IN PROGRESS
S1A1Y1	SC Angle Suspension - 3 V-strings - 3 susp clamps, 3 sets armor rods, 3 yokes	00	IN PROGRESS
S2A6Y1	SC Angle Suspension - 3 V-Strings - 6 susp clamps, 3 sets double armor rods, 3 yokes	00	IN PROGRESS
-	<u>Single Circuit - Bundled Conductor</u>	-	
B2A2Y1	SC Tangent Braced Post Suspension - bundled - 6 susp clamps, 6 sets armor rods	00	IN PROGRESS
C2D1T2	SC Terminal Dead End - bundled, double string - 6 CDE, 6 terminal pads, 3 triangle/rectangle yokes	00	IN PROGRESS
C2Y1T2	SC Terminal Dead End - bundled, single string - 6 CDE, 6 terminal pads, 3 yokes, 3 spacers	00	IN PROGRESS
C3D2R1	SC Tangent Dead End - bundled, double string - 12 CDE, 6 triangle/rectangle yokes, 6 spacers	00	IN PROGRESS
C3E2R1	SC Tangent Dead End - bundled, double string class 52-8 or 52-11- 12 CDE, 6 triangle/rectangle yokes, 6 spacers	00	IN PROGRESS
C3J1D2	SC Dead End w/Jumper Post - bundled, double string - 12 CDE, 6 triangle/rectangle yokes, 6 spacers, 3 dual post clamps	00	IN PROGRESS
C3Y2R1	SC Tangent Dead End - bundled, single string - 12 CDE, 6 yoke plates, 6 spacers	00	IN PROGRESS
N2D1T2	SC Terminal Dead End - bundled, double string - 6 strain clamps, 6 terminal pads, 3 triangle/rectangle yokes	00	IN PROGRESS
N2Y1T2	SC Terminal Dead End - bundled, single string - 6 strain clamps, 6 terminal pads, 3 yokes, 3 spacers	00	IN PROGRESS
N3D2L2	SC Dead End - bundled, 6 double strings - 12 strain clamps, 12 triangle/rectangle yokes	00	IN PROGRESS
N3D2P1	SC Dead End - bundled, 6 double strings - 12 strain clamps, 12 triangle/rectangle yokes, 3 post clamps	00	IN PROGRESS
N3J1Y2	SC Dead End w/Jumper Post - bundled, single string - 12 strain clamps, 3 dual post clamps, 6 yokes, 6 spacers	00	IN PROGRESS
N3S2D2	SC Dead End - bundled, 6 double strings - 12 strain clamps, 12 triangle/rectangle yokes	00	IN PROGRESS
N3Y2L2	SC Dead End - bundled, 6 single string - 12 strain clamps, 6 yokes, 6 spacers, 6 Loop Splices	00	IN PROGRESS
N3Y2R1	SC Tangent Dead End - bundled, single string - 12 strain clamps, 6 yoke plates, 6	00	IN PROGRESS

		spacers		
		S2A2D1	SC Running Angle Suspension - bundled, 3 Double Insulator Strings - 6 susp clamps, 6 sets armor rods, 6 Yoke Plates	00 IN PROGRESS
		S2A2V1	SC Tangent Suspension - bundled, 3 single V-strings - 6 susp clamps, 6 sets armor rods, 3 vee yokes	00 IN PROGRESS
		S2A2W1	SC Angle Suspension - bundled, 3 single V-strings - 6 susp clamps, 6 sets armor rods, 3 vee yokes	00 IN PROGRESS
		S2A2Y1	SC Tangent Suspension - bundled, single string - 6 susp clamps, 6 sets armor rods, 3 yokes	00 IN PROGRESS
		S2A2Z1	SC Angle Suspension - bundled, single string - 6 susp clamps, 6 sets armor rods, 3 yokes	00 IN PROGRESS
		S2A6Y1	SC Tangent Suspension - bundled, double string - 6 susp clamps, 6 sets double armor rods, 3 yokes	00 PLANNED
		S2Y1	SC Tangent Suspension - bundled, 3 single strings - 6 susp clamps, 6 sets armor rods, 3 yokes	00 IN PROGRESS
		S3D1Y2	SC Angle Suspension - bundled, 3 double strings - 12 susp clamps, 6 sets armor rod, 12 yokes	00 IN PROGRESS
TM2.23.TT	CROSSARM DETAILS	CU	Standard CU Format and Naming Convention	00 ACTIVE
		-	STEEL CROSSARMS	-
		1S-A-FC29	Crossarm, Steel: 115kV H-Frame Single Circuit Tangent Suspension 7" X 7" X 29'-0"	00 ACTIVE
		1S-F-FC29	Crossarm, Steel: 115kV H-Frame Single Circuit Tangent Deadend Assembly 7" X 7" x 29'-0"	00 ACTIVE
		2S-A-FC40	Crossarm, Steel: 230kV H-Frame Single Circuit Tangent Suspension 7" X 7" X 40'-0"	00 ACTIVE
		2S-B-FC46	Crossarm, Steel: 230kV H-Frame Running Angle 7" X 7" X 46'-0"	00 ACTIVE
		2S-B-FC50	Crossarm, Steel: 230kV H-Frame Running Angle 7" X 7" X 50'-0"	00 ACTIVE
		2S-F-FC40	Crossarm, Steel: 230kV H-Frame Single Circuit Tangent Deadend 7" X 7" X 40'-0"	00 ACTIVE
		3S-A-FC53	Crossarm, Steel: 345kV H-Frame Tangent Suspension 7" X 7" X 53'-0"	00 ACTIVE
		3S-A-FC70	Crossarm, Steel: 345kV H-Frame Angle Suspension 7" X 7" X 70'-0"	00 ACTIVE
		3S-B-FC61	Crossarm, Steel: 345kV H-Frame Running Angle 7" X 7" X 61'-6"	00 ACTIVE
		3S-G-FC89	Crossarm, Steel: 345kV H-Frame Tangent V-String 7" X 7" X 53'-2-1/2"	00 ACTIVE
		9S-X	Crossarm, Steel: 34/46/69/115kV Steel Davit Arm	00 ACTIVE

		-	<u>WOOD CROSSARMS</u>	-	
		1W-U-RD25	Crossarm, Wood: 115kV 5-1/2" X 7-1/2" X 25'-0"	00	IN REVIEW
		9W-A-OU10	Crossarm, Wood: 69kV 3-5/8" X 8-1/2" X 10'-0"	00	ACTIVE
		9W-X-AA07	Crossarm, Wood: 35/46kV 3-3/4" X 4-3/4" X 7'-0"	00	IN REVIEW
		9W-X-AA10	Crossarm, Wood: 35/46kV 3-3/4" X 4-3/4" X 10'-0"	00	IN REVIEW
		9W-X-AB12	Crossarm, Wood: 35/46kV 3-3/4" X 5-3/4" X 12'-0"	00	IN REVIEW
		-	<u>FIBERGLASS CROSSARMS</u>	-	
		5F-C-BB12	Crossarm, Fiberglass: Hendrix Open Wire Transition 6" X 4" X 12'-0"	00	ACTIVE
		5F-M-BB12	Crossarm, Fiberglass: Riser Equipment Mounting 6" X 4" X 12'-0"	00	ACTIVE
		9F-C-BB12	Crossarm, Fiberglass: Double Dead End 6" X 4" X 12'-0"	00	ACTIVE
		MT-9F-B-OO10	Corssarm, Fiberglass: 35/46/69kV Maintenance Single Arm 4-5/8" X 3-5/8" X 10'	00	ACTIVE
		MT-9F-C-OO10	Corssarm, Fiberglass: 35/46/69kV Maintenance Double Arm 4-5/8" X 3-5/8" X 10'	00	ACTIVE
		-	<u>LAMINATED CROSSARMS</u>	-	
		6L-B-CE29	Crossarm, Laminated: 69kV 5-3/4" X 7-3/4" X 29'	00	ACTIVE
		MT-1L-B-CE29	Crossarm, Laminated: 115kV Maintenance Single Arm 5-3/4" X 7-3/4" X 29'	00	ACTIVE
		MT-1L-C-CE29	Crossarm, Laminated: 115kV Maintenance Double Arm 5-3/4" X 7-3/4" X 29'	00	ACTIVE
		MT-9L-B-CE21	Crossarm, Laminated: 35/46/69kV 5-3/4" X 7-3/4" X 21' Maintenance Only	00	ACTIVE
		MT-9L-B-CE24	Crossarm, Laminated: 35/46/69kV 5-3/4" X 7-3/4" X 24'-6" Maintenance Only	00	ACTIVE
TM2.23.TU	SWITCHES AND ARRESTERS	SW-CU	Standard CU Format and Naming Convention - switches	00	IN REVIEW
		AR-CU	Standard CU Format and Naming Convention - Arresters	01	ACTIVE
		SW5A1V-I	38kV Horizontal Mounted Switch - Gang Operated, Vertical Break Load Interrupting 1200 AMP	01	ACTIVE
		SW5D1S-I	38kV Horizontal Mounted Switch - Gang Operated, Two Way Load Interrupting 1200 AMP	01	ACTIVE
		SW5D2S-I	38kV Horizontal Mounted Switch - Gang Operated, Two Way Load Interrupting 2000 AMP	00	IN REVIEW
		SW5E1S-I	38kV Horizontal Mounted Switch - Gang Operated, Three Way Load Interrupting 1200 AMP	01	ACTIVE
		SW5E2S-I	38kV Horizontal Mounted Switch - Gang	00	IN REVIEW

			Operated, Three Way Load Interrupting 2000 AMP		
		SW5I6	38kV In Line Disconnect Switch - Hookstick Operated, Vertical Break with Load Break Hooks 600 AMP	01	ACTIVE
		SW6D1S-I	69kV Horizontal Mounted Switch - Gang Operated, Two Way Load Interrupting 1200 AMP	00	IN REVIEW
		SW6D2S-I	69kV Horizontal Mounted Switch - Gang Operated, Two Way Load Interrupting 2000 AMP	00	IN REVIEW
		SW6E1S-I	69kV Horizontal Mounted Switch - Gang Operated, Three Way Load Interrupting 1200 AMP	01	ACTIVE
		SW6E2S-I	69kV Horizontal Mounted Switch - Gang Operated, Three Way Load Interrupting 2000 AMP	00	IN REVIEW
		SW6A1D-I	69kV Horizontal Mounted Switch - Gang Operated, Double Break Load Break 1200 AMP	00	IN REVIEW
		-	<u>35kV STRUCTURES</u>	-	
		5HC1F	Single Pole, Single Circuit, Tangent Crossarm Structure	00	ACTIVE
		5HCDF	Single Pole, Single Circuit, Tangent Double Crossarm Structure	00	ACTIVE
		5STSA	Single Pole, Single Circuit, Tangent Structure, Suspension Insulators	00	ACTIVE
		5VASA	Single Pole, Single Circuit, Angle Structure, Suspension 10° - 45°	00	ACTIVE
		5VDOA	Single Pole, Single Circuit, Deadend Structure, 60° and Greater	00	ACTIVE
		5HHSA	H-Frame, Single Circuit, Tangent Suspension Structure, Single Crossarm	00	ACTIVE
		5HA2A	3 Pole H-Frame, Single Circuit, Angle Suspension Structure 3° - 10°	00	ACTIVE
		5HASA	3 Pole H-Frame, Single Circuit, Angle Suspension Structure 10° - 40°	00	ACTIVE
		5HHYA	3 Pole H-Frame, Single Circuit, Tangent Deadend Structure	00	ACTIVE
		5HDSA	3 Pole H-Frame, Single Circuit, Angle Deadend Structure	00	ACTIVE
		-	<u>69kV STRUCTURES</u>	-	
		6STSA	Single Pole, Single Circuit, Tangent Structure, Suspension Insulators	00	ACTIVE
		6STPF	Single Pole, Single Circuit, Tangent Structure, Horizontal Post	00	ACTIVE
		6SBPG	Single Pole, Single Circuit, Tangent Structure, Braced Post	00	ACTIVE
		6VAPF	Single Pole, Single Circuit, Angle Structure, Horizontal Post 0° - 10°	00	ACTIVE
		6VASA	Single Pole, Single Circuit, Angle Structure, Suspension 10° - 45°	00	ACTIVE
		6VDJK	Single Pole, Single Circuit, Deadend Structure, 30° - 60°	00	ACTIVE
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		6VDOA	Single Pole, Single Circuit, Deadend Structure, 60° and Greater	00	ACTIVE
		6HTYK	Single Pole, Single Circuit, Deadend Structure on Crossarm 0° - 50°	00	ACTIVE
		6HBAK	Single Pole, Single Circuit, Deadend Buckarm Structure 50° - 100°	00	ACTIVE
		6HHYK	3 Pole H-Frame, Single Circuit, Tangent Deadend Structure	00	ACTIVE
		6HDJK	3 Pole H-Frame, Single Circuit, Angle Deadend Structure Up to 60°	00	ACTIVE
		6HDOA	3 Pole H-Frame, Single Circuit, Angle Deadend Structure 60° and Greater	00	ACTIVE
		-	<b>115kV STRUCTURES</b>	-	
		1HNSA	H-Frame, Single Circuit, Tangent Suspension Structure, Single Arm	00	ACTIVE
		1JNSA	H-Frame, Laminated Wood, Single Circuit, Tangent Suspension Structure, Single Arm	00	ACTIVE
		1HNSA	H-Frame, Single Circuit, Tangent Suspension Structure, Double Arm	00	ACTIVE
		1JNSA	H-Frame, Laminated Wood, Single Circuit, Tangent Suspension Structure, Double Arm	00	ACTIVE
		1HNSA	3 Pole H-Frame, Single Circuit, Angle Suspension Structure, Swinging Brackets 10° - 20°	00	ACTIVE
		1HNSA	3 Pole H-Frame, Single Circuit, Large Running Angle Suspension Structure	00	ACTIVE
		1HNSA	H-Frame, Single Circuit, Tangent Deadend Structure	00	ACTIVE
		-	<b>345kV STRUCTURES</b>	-	
		3HNSA	H-Frame, Single Circuit, Tangent Structure, Bundled Conductor	00	ACTIVE
		3KNSA	H-Frame, Laminated Wood, Single Circuit, Tangent Structure, Bundled Conductor	00	ACTIVE
		3HNSA	H-Frame, Single Circuit, Tangent Structure, Single Steel Crossarm, Bundled Conductor	00	ACTIVE
		3KNSA	H-Frame, Laminated Wood, Single Circuit, Tangent Structure, Single Steel Crossarm, Bundled Conductor	00	ACTIVE
TM2.23.TW	WIRE DATA				
TM2.23.TX	TBD (AVAILABLE SECTION)				
TM2.23.TY	CROSS REFERENCE CHARTS				
TM2.23.TZ	HENDRIX STRUCTURES	CU	Standard CU Format and Naming Convention	00	IN REVIEW
		5STSH	Single Pole Single Circuit Hendrix Tangent	00	IN REVIEW
		5SA1H	Single Pole Single Circuit Hendrix Angle	00	IN REVIEW

		5° to 45°			
		5SA2H	Single Pole Single Circuit Hendrix 45° to 60°	00	IN REVIEW
		5STYH	Single Pole Single Circuit Hendrix Tangent Deadend	00	IN REVIEW
		5SDJH	Single Pole Single Circuit Hendrix Angle Deadend 5° to 45°	00	IN REVIEW
		5SDOH	Single Pole Single Circuit Hendrix Angle Deadend 45° to 60°	00	IN REVIEW
		5SDTH	Single Pole Single Circuit Hendrix Open Wire Transition	00	IN REVIEW
TM2.30.00	<b>UNDERGROUND CONSTRUCTION STANDARDS</b>				
TM2.30.UG	GENERAL INFORMATION		UG-1	00	PLANNED
			UG-2	00	PLANNED
TM2.30.UG1	RISERS	U1-1	General Information	00	PLANNED
		U1-R1H	115kV Horizontal Riser	00	PLANNED
		U1-R1V	115kV Vertical Riser	00	PLANNED
		U1-R2H	230kV Horizontal Riser	00	PLANNED
		U1-R3H	345kV Horizontal Riser	00	PLANNED
		U1-R4H	46kV Horizontal Riser	00	PLANNED
		U1-R4V	46kV Vertical Riser	00	PLANNED
		U1-R5H	35kV Horizontal Riser	00	PLANNED
		U1-R5V	35kV Vertical Riser	00	PLANNED
		U1-R6H	69kV Horizontal Riser	00	PLANNED
		U1-R6V	69kV Vertical Riser	00	PLANNED
TM2.30.UG2	CABLES	U2-1	Cable Sizes	00	PLANNED
		U2-2	Cable Properties	00	PLANNED
		U2-3	Cable Maximum Allowable Pulling Tensions	00	PLANNED
		U2-4	Cable Identification	00	PLANNED
TM2.30.UG3	TERMINATIONS	U3-1	Hot shrink	00	PLANNED
		U3-2	Cold shrink	00	PLANNED
TM2.30.UG4	CONDUIT, TRENCHING, DUCTWORK	U4-1		00	PLANNED
		U4-2		00	PLANNED
		U4-3		00	PLANNED
		U4-4		00	PLANNED
TM2.30.UG5	MANHOLES & VAULTS	U5-1	Manhole Sizes	00	PLANNED

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		U5-2	Location of Manholes	00	PLANNED
		U5-3		00	PLANNED
		U5-4		00	PLANNED
TM2.30.UG6	GROUNDING	U6-1	Cable Grounding	00	PLANNED
		U6-2	Manhole Grounding	00	PLANNED
TM2.30.UG7	SUBWAY CONSTRUCTION	U7-1	General Subway Terminology	00	PLANNED
		U7-2	Typical Duct Location and Configurations	00	PLANNED
		U7-3		00	PLANNED
		U7-4		00	PLANNED
<b>TECHNICAL STANDARDS/SPECIFICATIONS</b>					
TM2.20.00	TRANSMISSION ROW			00	ACTIVE
TM2.22.00	LAMINATED WOOD POLE SPEC - Ben shep 7/6/2012			00	ACTIVE
TM2.22.01	STEEL POLE SPEC - Ben			00	ACTIVE
TM2.22.02	OVERHEAD TRANSMISSION LINE CONDUCTORS			00	ACTIVE
TM2.22.03	HV LATTICE STEEL STRUCTURES FOR TRANSMISSION LINES			00	ACTIVE
TM2.22.04	OHSW			00	ACTIVE
TM2.22.05	OPGW ADSS			00	ACTIVE
TM2.22.06	TRANSMISSION WOOD CROSSARM & BRACE SPEC			00	IN PROGRESS
TM2.21.01	LATTICE FOUNDATION DESIGN			00	ACTIVE
TM2.22.07	WOOD POLES			00	IN PROGRESS
TM2.22.08	INSULATOR FITTING & HARDWARE			00	IN PROGRESS
TM2.24.00	<b>MAINTENANCE ONLY</b>				

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TM2.24.M	MAINTENANCE ONLY	01-001	Wood Pole Steel Reinforcing Truss	00	PLANNED
		02-001	Evaluation Of Questionable Pole Tops	00	PLANNED
		02-002	Procedure for Repair of Split, Weathered or Decayed Pole Tops	00	PLANNED
		03-001	Evaluation of Questionable Crossarms & Braces	00	PLANNED
		04-001	Evaluation of Woodpecker Damage	00	PLANNED
		04-002	Repair of Woodpecker Damage: IPOLE-WPK/IFOAM	00	PLANNED
		04-003	Repair of Woodpecker Damage: Steel Reinforcing	00	PLANNED