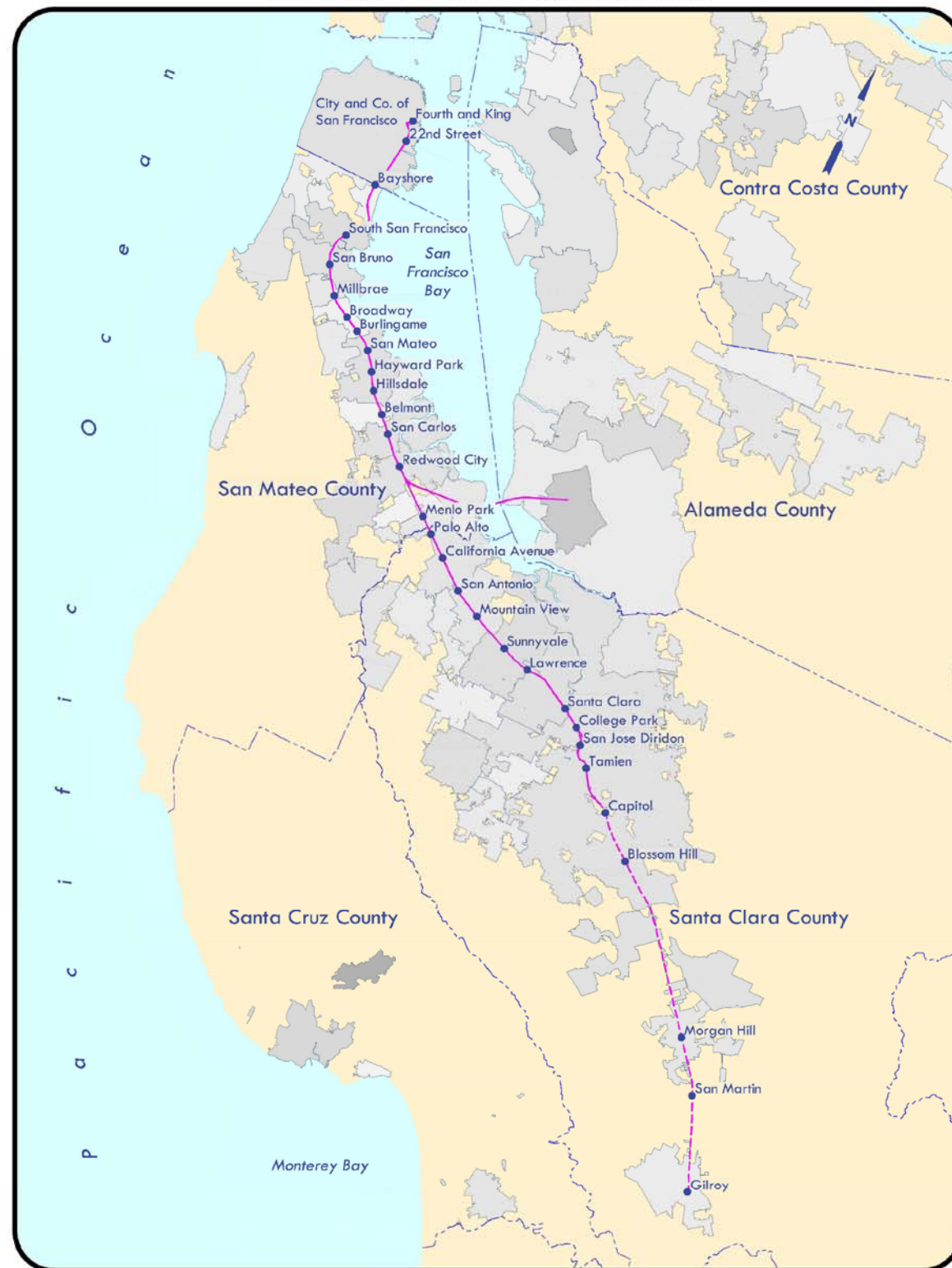


CALTRAIN CORRIDOR



ELECTRIFICATION STANDARD DRAWINGS

PENINSULA CORRIDOR JOINT POWERS BOARD

OVERHEAD CONTACT SYSTEM
BASIC DESIGN: STEEL STRUCTURES

JANUARY 1, 2024

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PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

DEPUTY DIRECTOR, ENGINEERING

1250 San Carlos Avenue
San Carlos, CA 94070

STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OVERHEAD CONTACT SYSTEM
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SHEET 1 OF 2

CADD FILE NAME:
W0002

REV: EDITION:
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STANDARD DRAWING NO.:
W0002

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STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OVERHEAD CONTACT SYSTEM
INDEX OF DRAWINGS
SHEET 2 OF 2

CADD FILE NAME: W0003	EDITION: 01012024
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OCS SYMBOLS

ABBREVIATIONS

GENERAL NOTES

	ELECTRIFIED TRACK (TRACK TO BE WIRED)
	NON-ELECTRIFIED TRACK (EXISTING OR FUTURE TRACK)
	TERMINATION WIRING / OUT OF RUNNING
	POLE WITH PULLOFF HSS OR WF
	POLE WITH ONE CANTILEVER
	POLE WITH BACK TO BACK SINGLE CANTILEVER ARMS
	POLE WITH HEADSPAN WF OR HSS
	PORTAL PW-XX OR PS-XX POLES
	POLE WITH CANTILEVER, LONG REACH CANTILEVER AND DROP TUBE
	POLE WITH DOWN GUY FOR WF OR HSS SECTIONS
	POLE WITH BALANCE WEIGHT TERMINATION FOR CW AND MW WF OR HSS SECTIONS
	POLE WITH BALANCE WEIGHT TERMINATION FOR SIMPLE CATENARY EQUIPMENT WF OR HSS SECTIONS
	POLE WITH FIXED TERMINATION FOR CW AND MW WF, RD OR HSS SECTIONS
	POLE WITH FIXED TERMINATION FOR SIMPLE CATENARY EQUIPMENT WF OR HSS SECTIONS
	POLE WITH MIDPOINT ANCHOR TERMINATION WITHOUT DOWN GUY WF OR HSS SECTIONS
	POLE WITH MULTIPLE PULL OFF WF OR HSS SECTIONS
	STATIC WIRE
	FEEDER WIRE
	STATIC WIRE FIXED TERMINATION
	FEEDER WIRE FIXED TERMINATION
	CABLE END FITTING
	IN-RUNNING OCS BETWEEN SUPPORTS
	OUT-OF-RUNNING FIXED TERMINATION WITH DOWN GUY
	OUT-OF-RUNNING AUTO-TENSIONED TERMINATION WITH BALANCE WEIGHT WITH DOWN GUY
	WIDE FLANGE POLE
	SQUARE TUBE POLE
	ROUND TUBE/TAPERED TUBULAR POLE

AC	ALTERNATING CURRENT	PO	PULL OFF
B/B	BACKBONE	PS	POINT OF SWITCH
BOTT	BOTTOM	PS-XX	SQUARE POLE PORTAL
CA	CANTILEVER	PVC	POLYVINYL CHLORIDE
CL	CENTER LINE	PW-XX	WIDE FLANGE POLE PORTAL
CCW	COUNTERCLOCKWISE	QTY	QUANTITY
CJP	COMPLETE JOINT PENETRATION	RE	REMOVE EXISTING
CLR	CLEAR	RIE	RE-INSTALL EXISTING
COMM	COMMUNICATIONS	RIF	REINFORCEMENT
CW	CONTACT WIRE	RD	ROUND TUBULAR SECTION
DC	DIRECT CURRENT	RD-XX	ROUND TUBULAR POLE TYPE
DG	DOWNGUY	RQD	REQUIRED
DGF	DOWNGUY FOUNDATION	SB	SOUTHBOUND
DIA., Ø	DIAMETER	SCH	SCHEDULE
DWG	DRAWING	SIM	SIMILAR
E	EXISTING	SS	STAINLESS STEEL
EB	EASTBOUND	STA	STATION
EHS	EXTRA HIGH STRENGTH	STL	STEEL POLE
FDN	FOUNDATION	SW	STATIC WIRE
FDR	FEEDER	SQ-XX	SQUARE TUBULAR POLE TYPE
FIN	FINISH	T/O	TURNOUT
FS	FAR SIDE	TOR	TOP OF RAIL
FT	FIXED TERMINATION, FEET	TOS	TOP OF STEEL
FTA	FIXED TERMINATION ANCHOR	TL	TRACK LEFT
FUR	FURNISH	TP	TRACTION POWER
FW	FEEDER WIRE	TR	TENSION REDUCER/TRACK RIGHT
G	GAS	TRK	TRACK
GALV	GALVANIZED	TT	TAPERED TUBULAR SECTION
H	HANGER	TT-XX	TAPERED TUBULAR POLE TYPE
HDG	HOT DIP GALVANIZED	TYP	TYPICAL
HS	HEADSPAN	UNC	UNIFIED NATIONAL COARSE
HRL	HIGH RAIL LEVEL	VAR	VARIABLE
HSS	HOLLOW STRUCTURAL SECTION	VMS	VISUAL MESSAGE SYSTEM
J	JUMPER	W	WOOD POLE
LRT	LIGHT RAIL TRANSIT	WB	WIRE BRIDGE OR WESTBOUND
LTG	LIGHTING	WC	WIRE CROSSING
LLH	LONG LEG HORIZONTAL	WF	WIDE FLANGE SECTION
LLV	LONG LEG VERTICAL	WF-XX	WIDE FLANGE POLE TYPE
LRC	LONG REACH CANTILEVER	X/O	CROSSOVER
MAX	MAXIMUM		
MC	MISCELLANEOUS CHANNELS		
MIN	MINIMUM		
ML	MAIN LINE		
MOD	MOTOR OPERATED DISCONNECT		
MW	MESSENGER WIRE		
N	NEW		
N/A	NOT AVAILABLE		
NB	NORTHBOUND		
NIC	NOT IN CONTRACT		
NOM	NOMINAL		
NS	NEAR SIDE		
NTS	NOT TO SCALE		
OC	ON CENTER		
OCS	OVERHEAD CONTACT SYSTEM		
OD	OUTSIDE DIAMETER		
OH	OVERHEAD		
OOR	OUT OF RUNNING		
OPP	OPPOSITE		
P	POLE (STEEL)		
PB	PULL BOX		
PF	POLE FOUNDATION		
PJP	PARTIAL JOINT PENETRATION		
PL	PLATE		

A. STEEL

- TAPERED TUBULAR POLES SHAFTS SHALL BE FABRICATED FROM ASTM A595, GRADE A, (FY=55 KSI) STEEL. STANDARD TAPER SHALL BE FOURTEEN HUNDREDTHS (.14) OF AN INCH PER LINEAR FOOT, MEASURED AS A CHANGE IN DIAMETER.
- WIDE FLANGE POLES SHALL BE FABRICATED FROM HIGH STRENGTH LOW ALLOY STEEL CONFORMING TO ASTM DESIGNATION A992, GRADE 50.
- RECTANGULAR AND SQUARE HSS SECTION POLES, SHALL BE FABRICATED FROM STEEL CONFORMING TO ASTM DESIGNATION A500, GRADE C MINIMUM YIELD STRESS 50 KSI.
- ROUND HSS SECTION POLES, SHALL BE FABRICATED FROM STEEL CONFORMING TO ASTM DESIGNATION A500, GRADE C, MINIMUM YIELD STRENGTH FY=46 KSI.
- STRUCTURAL STEEL FOR BASE PLATES, CHANNELS, ANGLES, MISCELLANEOUS PLATES AND BARS, SHALL BE FABRICATED FROM STEEL CONFORMING TO ASTM DESIGNATION A572, GRADE 50.
- WELDING SHALL CONFORM TO AWS, D1.1 SPECIFICATIONS USING E70XX WELDING ELECTRODES.
- ALL POLES SHALL BE HOT DIP GALVANIZED AFTER FABRICATION CONFORMING TO ASTM DESIGNATION A123. MISCELLANEOUS POLE CAPS, AND HAND HOLE COVERS, SHALL BE HOT DIP GALVANIZED CONFORMING TO ASTM A153. SELECT POLES AND COVERS MAY BE GALVANIZED AND PAINTED IN ACCORDANCE WITH THE SPECIFICATIONS AND SPECIAL PROVISIONS.
- HIGH STRENGTH BOLTS FOR STRUCTURAL STEEL CONNECTIONS SHALL BE CONFORMING TO ASTM DESIGNATION A325 OR ASTM A449. NUTS AND WASHERS SHALL CONFORMING TO ASTM A563 FOR STEEL NUTS AND ASTM F436 FOR STEEL WASHERS. ASTM A193, B7 BOLTS CAN ALSO BE USED WITH NUTS CONFORMING TO A194 GRADE 2H AND WASHERS CONFORMING TO ASTM F436.
- STRUCTURAL STEEL DETAILING FOR POLES, BASE PLATES, AND MISCELLANEOUS STEEL ASSEMBLIES, SHALL BE IN ACCORDANCE WITH THE AISC CODE OF STANDARD PRACTICE FOR BUILDINGS AND BRIDGES, LATEST EDITION.
- ALL POLES SHALL BE GROUNDED AT THE BASE WITH A 4/0 STRANDED CAMO COPPER CLAD BARE CONDUCTOR, ERITECH ANTITHEFT WIRE, BARE CONDUCTOR OR OTHER APPROVED ANTI-THEFT AS INDICATED IN THE DRAWINGS.
- BASE PLATE COVER SHALL BE A 2-PIECE, REMOVABLE TYPE WITH TAMPER PROOF STAINLESS STEEL FASTENERS AND HOT DIP GALVANIZED AFTER FABRICATION. COVER SHALL BE INSTALLED FOR ALL POLES LOCATED IN SIDEWALKS.
- ALL PAINTED POLES AND ATTACHMENTS SUCH AS BASE PLATES, CAP PLATES AND HAND HOLE COVERS SHALL BE SUPPLIED FROM THE FABRICATOR IN A FINISHED CONDITION.
- GALVANIZED POLES AND THEIR ATTACHMENTS SHALL BE PAINTED IN ACCORDANCE WITH THE SPECIAL PROVISIONS. HIGH PERFORMANCE COATING AND COLOR AT EACH LOCATION SHALL BE AS INDICATED IN THE SPECIFICATIONS.
- ROUND, TAPERED AND SQUARE POLES SHALL BE INSTALLED WITH THE HANDHOLE FACING THE ONCOMING TRAFFIC.
- THE POLE ASSEMBLY TYPE SHALL BE HARD MARKED WITH A MINIMUM HEIGHT OF 3/4 INCH AND A MINIMUM INDENTATION OF 1/16 INCH.
- ALL HOLES IN POLES AND MISCELLANEOUS STEEL ASSEMBLIES SHALL BE PRE-DRILLED IN SHOP PRIOR TO GALVANIZING.

B. CONCRETE NOTES

- CONCRETE FOR OCS FOUNDATIONS SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS IN ACCORDANCE WITH THE SPECIFICATIONS.
- REINFORCING BARS SHALL CONFORM TO ASTM A706, GRADE 60 FOR LOW-ALLOY STEEL FOR CONCRETE REINFORCEMENT.
- ANCHOR BOLTS SHALL CONFORM TO ASTM F1554, GRADE 55, NUTS SHALL BE HEAVY HEXAGONAL TO ASTM A563 DH OR 194 2H, WASHERS SHALL CONFORM TO ASTM F436.
- ANCHOR BOLTS, NUTS, WASHERS, AND ANCHOR BOLT TEMPLATES, SHALL BE HOT-DIP GALVANIZED CONFORMING TO ASTM SPECIFICATION A153.
- FOUNDATION OVERALL LENGTH SHALL BE AS INDICATED IN FOUNDATION AND POLE LAYOUT DRAWINGS.

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PENINSULA CORRIDOR JOINT POWERS BOARD

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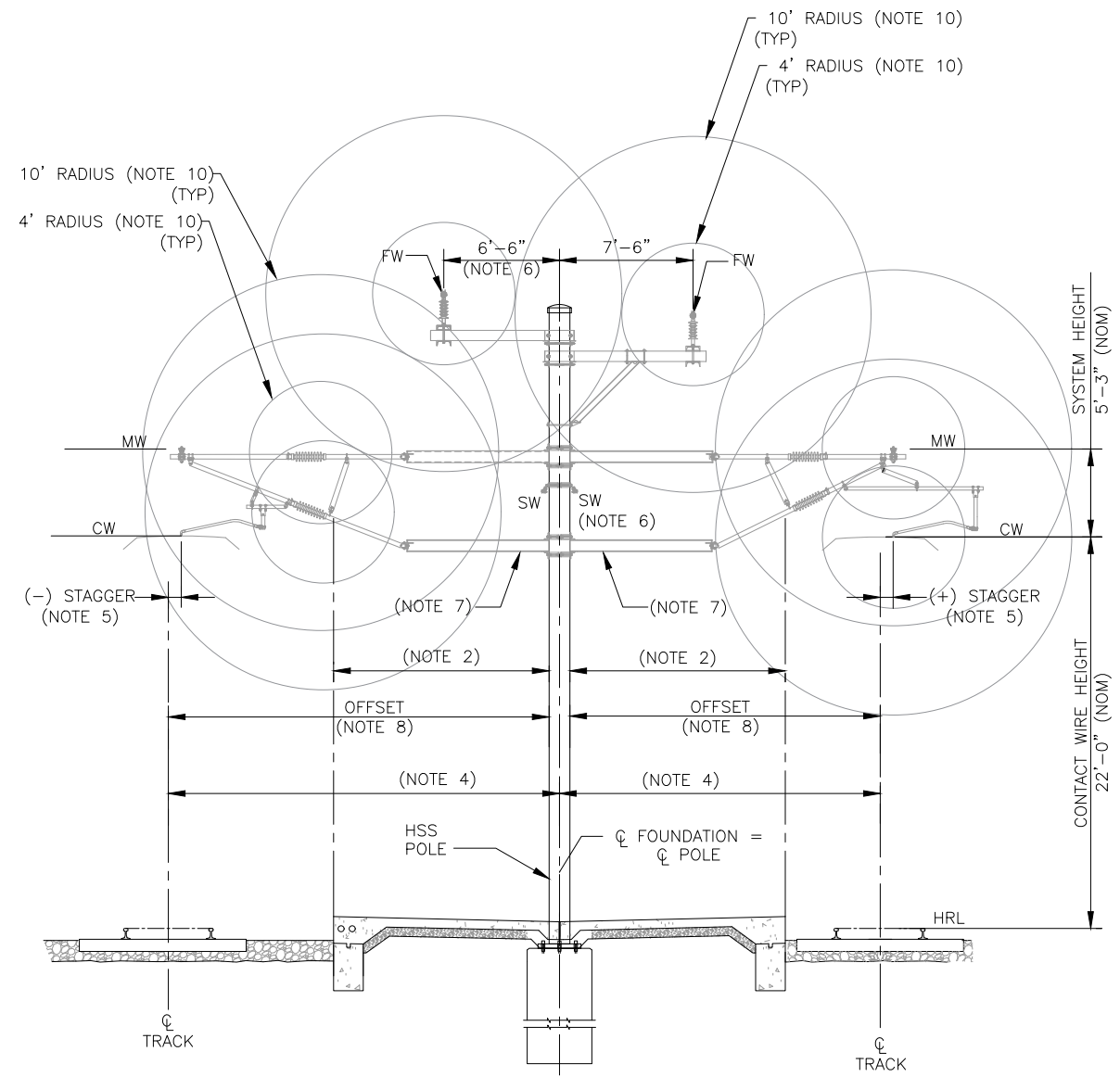


1250 San Carlos Avenue
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STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OVERHEAD CONTACT SYSTEM
BASIC DESIGN POLES
SYMBOLS, ABBREVIATIONS AND
GENERAL NOTES

CADD FILE NAME:	W0101
REV:	EDITION:
	01012024
STANDARD DRAWING NO.:	W0101



TYPICAL STATION CROSS SECTION
CENTER PLATFORM POLE

NOTES:

1. FOR OCS GENERAL NOTES SEE DRAWING W0101.
2. WHERE PRACTICABLE THE CANTILEVER INSULATORS SHALL BE INSTALLED SUCH THAT NO LIVE PART WILL ENCROACH OVER THE PLATFORM EDGE. WHERE NOT PRACTICABLE, THE ENCROACHMENT SHALL BE KEPT TO A MINIMUM, NESC CLEARANCES BEING OBSERVED.
3. MINIMUM CLEARANCES BETWEEN PLATFORM AND ALL LIVE PARTS TO BE IN ACCORDANCE WITH DESIGN CRITERIA AND ALL APPLICABLE CODES.
4. FOR CENTERLINE FOUNDATION TO CENTERLINE TRACK DIMENSION, SEE FOUNDATION AND POLE LAYOUT DRAWINGS.
5. SIGN OF STAGGER DESIGNATES WHICH SIDE OF TRACK CENTER LINE THE CONTACT WIRE IS ON RELATIVE TO OCS CANTILEVER BASE. STAGGER TO BE DETERMINED ON A SITE SPECIFIC BASIS.
6. FW AND SW LOCATIONS VARY. FOR SITE SPECIFIC REQUIREMENTS, SEE OCS LAYOUT AND MATERIAL ALLOCATION DRAWINGS.
7. MAXIMUM STANDOFF LENGTH IS 5'-0".
8. OFFSETS VARY. FOR SITE SPECIFIC REQUIREMENTS, SEE FOUNDATION AND POLE LAYOUT DRAWINGS.
9. CANTILEVERS SHOWN ARE REPRESENTATIVE. ACTUAL CANTILEVER CONFIGURATION SHALL BE PER TYPE SHOWN ON FINAL OCS MATERIAL ALLOCATION DRAWINGS.
10. MINIMUM REQUIRED WORKING CLEARANCES FROM LIVE PARTS:
 - A. FOR CLASS A LINEMAN - 4 FT
 - B. FOR ALL OTHER WORKERS - 10 FT
11. FEEDER BRACKET SIZE TO BE CALCULATED BASED ON THE ACTUAL LOCATION CONDITIONS.

REV	DATE	BY	CHK	APP	DESCRIPTION

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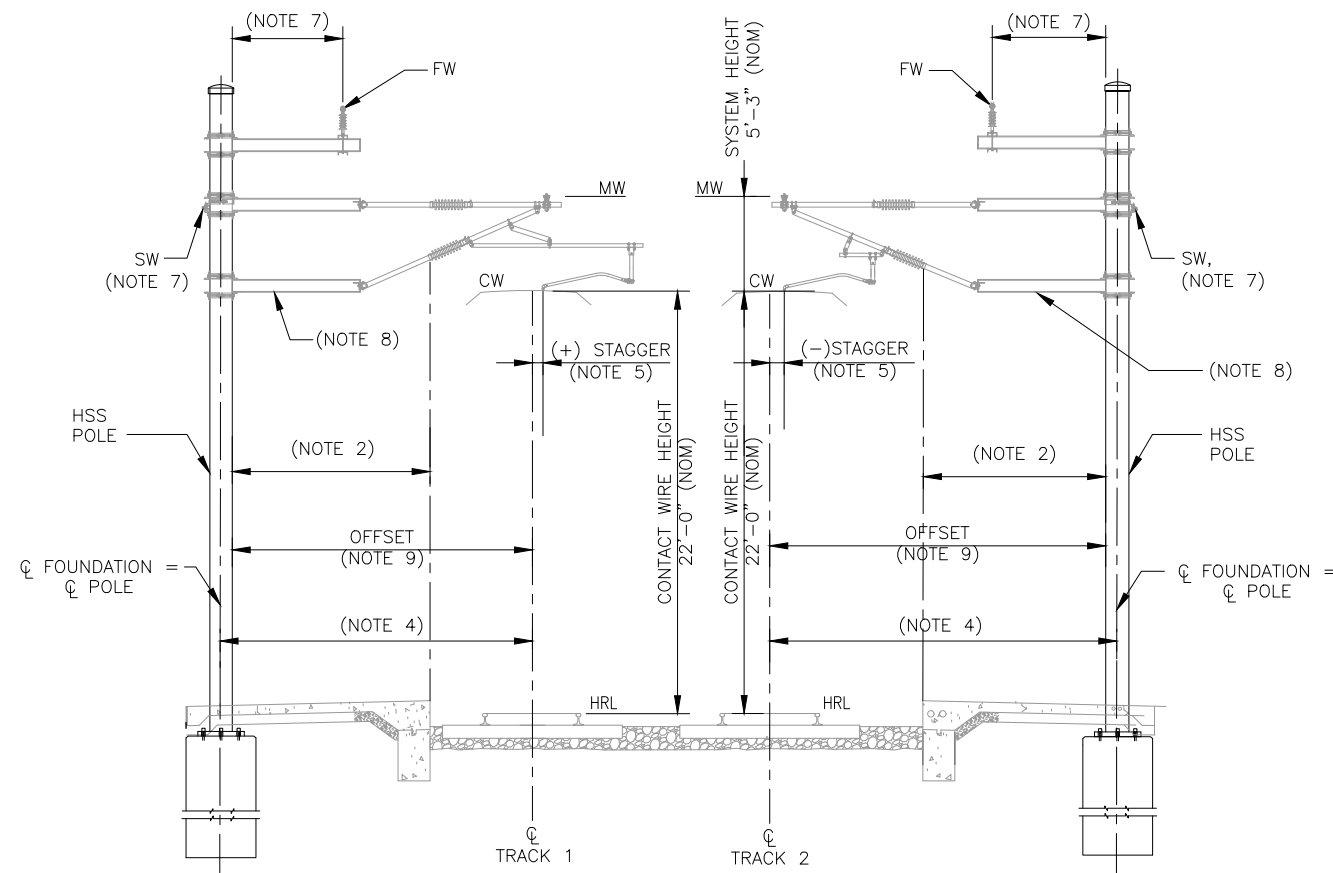
STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS GENERAL ARRANGEMENT
OCS POLE ON
PLATFORM CENTER

CADD FILE NAME: W5004	
REV:	EDITION: 01012024
STANDARD DRAWING NO.: W5004	

NOTES:

1. FOR OCS GENERAL NOTES, SEE DRAWING W0101.
2. WHERE PRACTICABLE THE CANTILEVER INSULATORS SHALL BE INSTALLED SUCH THAT NO LIVE PART WILL ENCR OACH OVER THE PLATFORM EDGE. WHERE NOT PRACTICABLE, THE ENCR OACHMENT SHALL BE KEPT TO A MINIMUM, NESC CLEARANCES BEING OBSERVED.
3. MINIMUM CLEARANCES BETWEEN PLATFORM AND ALL LIVE PARTS TO BE IN ACCORDANCE WITH DESIGN CRITERIA AND ALL APPLICABLE CODES.
4. FOR CENTERLINE FOUNDATION TO CENTERLINE TRACK DIMENSION, SEE FOUNDATION AND POLE LAYOUT DRAWINGS.
5. SIGN OF STAGGER DESIGNATES WHICH SIDE OF TRACK CENTER LINE THE CONTACT WIRE IS ON RELATIVE TO OCS CANTILEVER BASE. STAGGER TO BE DETERMINED ON A SITE SPECIFIC BASIS.
6. RAKE MAGNITUDE WILL BE PROVIDED IN A TABLE AT EACH LOCATION PRIOR TO POLE INSTALLATION.
7. FW AND SW LOCATIONS VARY. FOR SITE SPECIFIC REQUIREMENTS, SEE OCS LAYOUTS AND MATERIAL ALLOCATION DRAWINGS.
8. MAXIMUM STEEL STANDOFF LENGTH IS 5'-0".
9. OFFSETS VARY. FOR SITE SPECIFIC REQUIREMENTS, SEE FOUNDATION AND POLE LAYOUT DRAWINGS.
10. CANTILEVERS SHOWN ARE REPRESENTATIVE. ACTUAL CANTILEVER CONFIGURATION SHALL BE PER TYPE SHOWN ON FINAL OCS MATERIAL ALLOCATION DRAWINGS.



**TYPICAL STATION CROSS SECTION
SIDE POLES ON PLATFORM**


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STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS GENERAL ARRANGEMENT
OCS POLE ON
PLATFORM SIDE

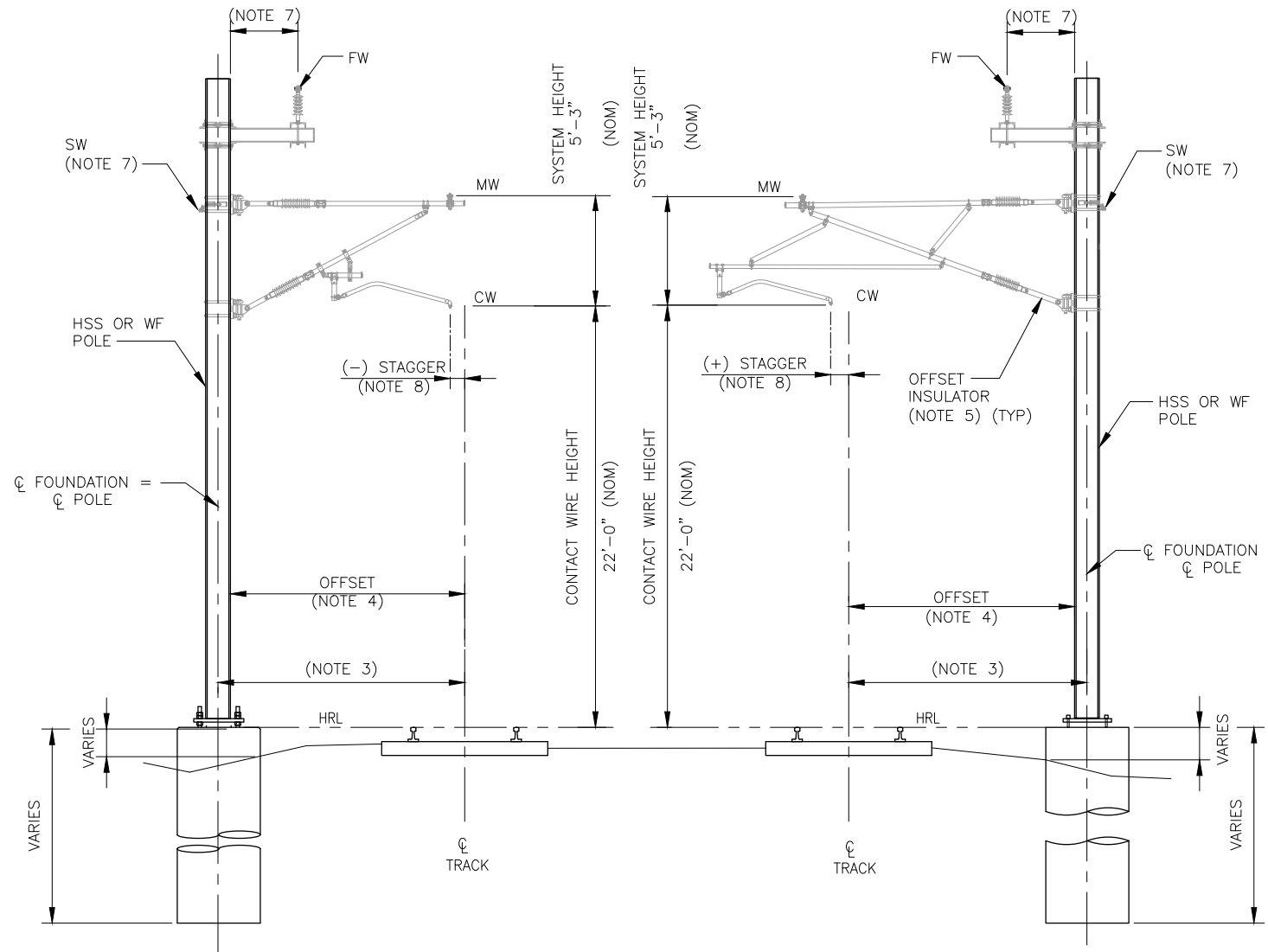
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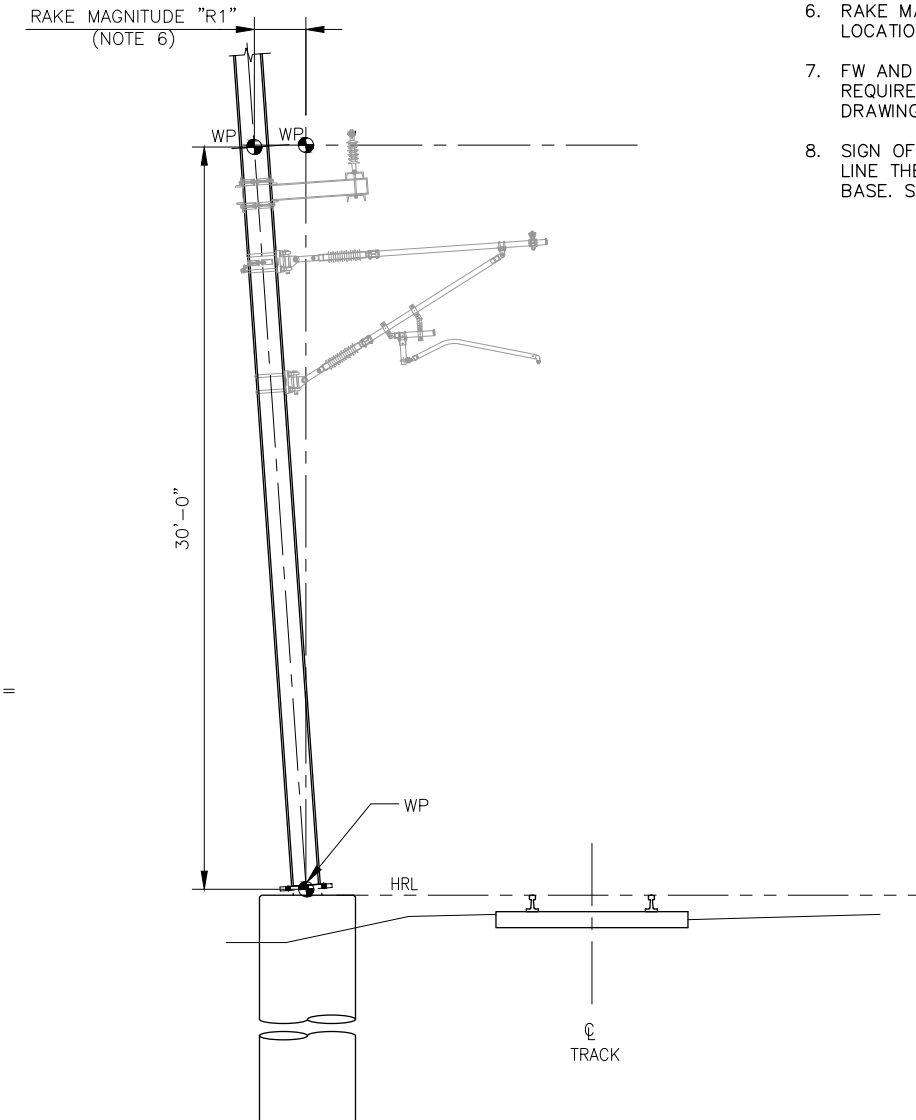
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W5005

NOTES:

1. FOR OCS GENERAL NOTES, SEE DRAWING W0101.
2. CANTILEVERS SHOWN ARE REPRESENTATIVE. ACTUAL CANTILEVER CONFIGURATION SHALL BE PER TYPE SHOWN ON FINAL OCS MATERIAL ALLOCATION DRAWINGS.
3. FOR CENTERLINE FOUNDATION TO CENTERLINE TRACK DIMENSION, SEE FOUNDATION AND POLE LAYOUT DRAWINGS.
4. OFFSETS VARY. FOR SITE SPECIFIC REQUIREMENTS, SEE FOUNDATION AND POLE LAYOUT DRAWINGS.
5. STEEL STANDOFFS MAY BY USED IN LIEU OF OFFSET INSULATOR. MAXIMUM STEEL STANDOFF LENGTH IS 5'-0".
6. RAKE MAGNITUDE WILL BE PROVIDED IN A TABLE AT EACH LOCATION PRIOR TO POLE INSTALLATION.
7. FW AND SW LOCATIONS VARY. FOR SITE SPECIFIC REQUIREMENTS, SEE OCS LAYOUT AND MATERIAL ALLOCATION DRAWINGS.
8. SIGN OF STAGGER DESIGNATES WHICH SIDE OF TRACK CENTER LINE THE CONTACT WIRE IS ON RELATIVE TO OCS CANTILEVER BASE. STAGGER TO BE DETERMINED ON A SITE SPECIFIC BASIS.



**TYPICAL CANTILEVER
OPEN ROUTE**



TYPICAL POLE RAKE DIAGRAM

REV	DATE	BY	CHK	APP	DESCRIPTION

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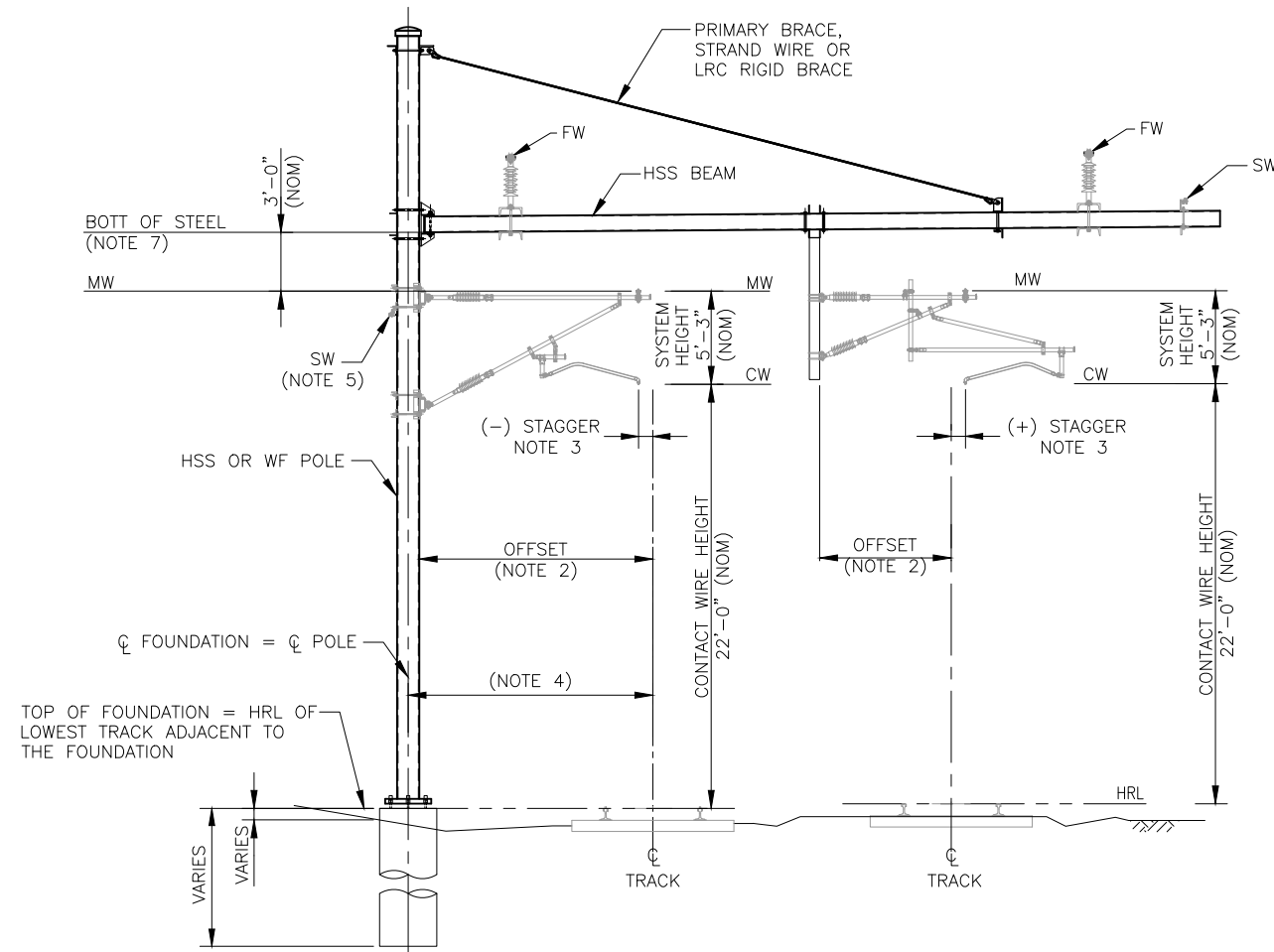
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STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS GENERAL ARRANGEMENT
ONE TRACK CANTILEVER

CADD FILE NAME: W5006	
REV:	EDITION: 01012024
STANDARD DRAWING NO.: W5006	



LONG REACH CANTILEVER STRUCTURE
 (TWO TRACKS WITH SINGLE BRACE SHOWN, OTHERS SIMILAR)

NOTES:

1. FOR OCS GENERAL NOTES, SEE DWG W0101.
2. OFFSETS VARY. FOR SITE SPECIFIC REQUIREMENTS, SEE FOUNDATION AND POLE LAYOUT DRAWINGS.
3. SIGN OF STAGGER DESIGNATES WHICH SIDE OF TRACK CENTER LINE THE CONTACT WIRE IS ON RELATIVE TO OCS CANTILEVER BASE. STAGGER TO BE DETERMINED ON A SITE SPECIFIC BASIS.
4. FOR CENTERLINE FOUNDATION TO CENTERLINE TRACK DIMENSION, SEE FOUNDATION AND POLE LAYOUT DRAWINGS.
5. FW AND SW LOCATIONS VARY. FOR SITE SPECIFIC REQUIREMENTS, SEE OCS LAYOUT AND MATERIAL ALLOCATION DRAWINGS.
6. RAKE MAGNITUDE WILL BE PROVIDED IN A TABLE AT EACH LOCATION PRIOR TO POLE INSTALLATION.
7. FOR BOTTOM OF STEEL ELEVATIONS, SEE MATERIAL ALLOCATION DRAWINGS.
8. CANTILEVERS SHOWN ARE REPRESENTATIVE. ACTUAL CANTILEVER CONFIGURATION SHALL BE PER TYPE SHOWN ON FINAL OCS MATERIAL ALLOCATION DRAWINGS.
9. TO UTILIZE A HINGED CANTILEVER BEAM PROVIDE A STATIC WIRE OR A STAY WIRE CONNECTION ON THE END OF THE BEAM IN THE DESIGN. DURING CONSTRUCTION INSTALL THIS CONNECTION TO AVOID EXCESSIVE CANTILEVER BEAM ROTATION AND POSSIBLE DAMAGE.

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DEPUTY DIRECTOR, ENGINEERING

1250 San Carlos Avenue
San Carlos, CA 94070

STANDARD DRAWINGS

ELECTRIFICATION PROJECT
 OCS GENERAL ARRANGEMENT
 LONG REACH CANTILEVER

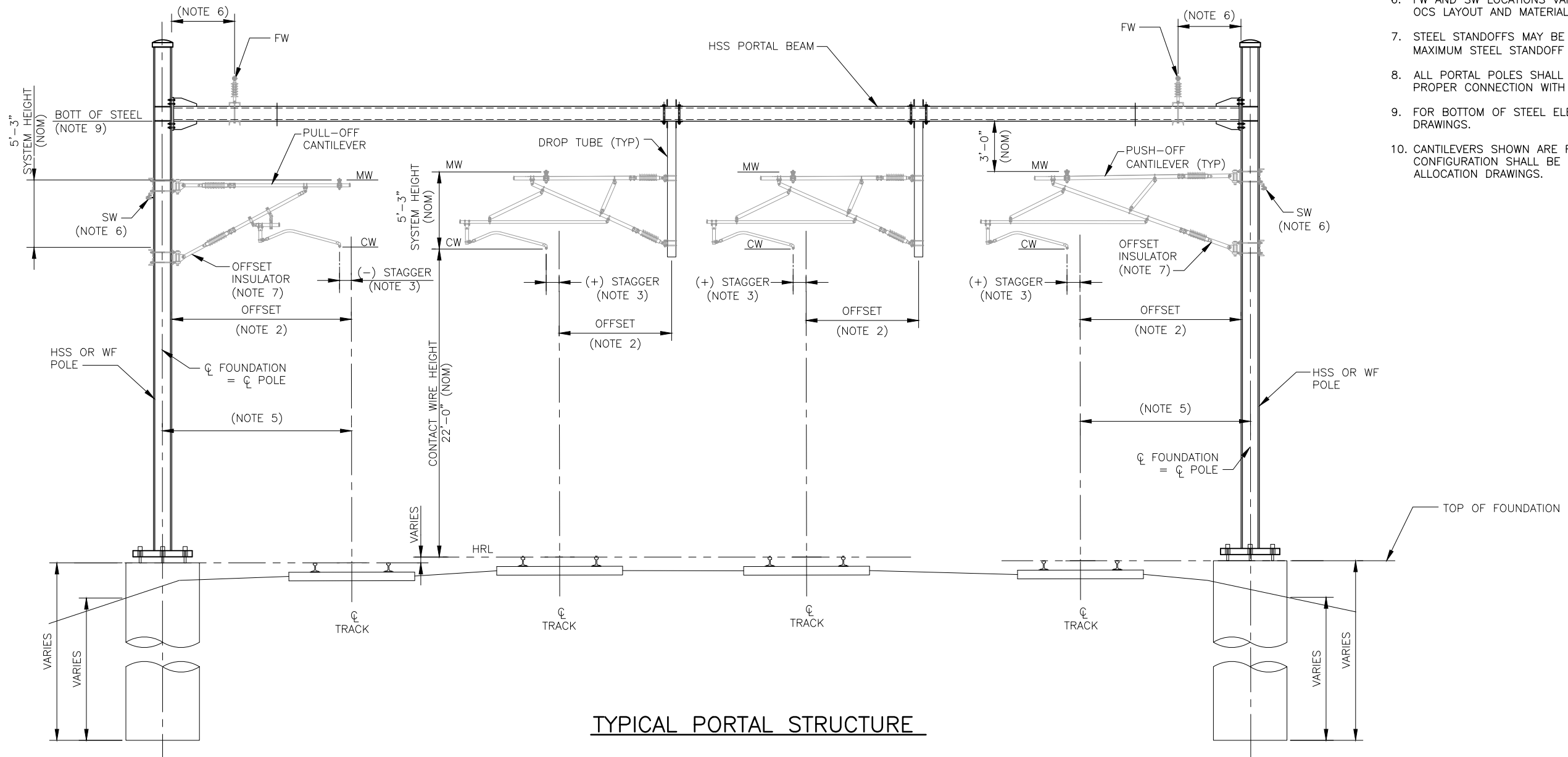
CADD FILE NAME:
W5007

REV: EDITION:
 01012024

STANDARD DRAWING NO.:
W5007

NOTES:

1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS SEE DWG W0101.
2. OFFSETS VARY. FOR SITE SPECIFIC REQUIREMENTS, SEE FOUNDATION AND POLE LAYOUT DRAWINGS.
3. SIGN OF STAGGER DESIGNATES WHICH SIDE OF TRACK CENTER LINE THE CONTACT WIRE IS ON RELATIVE TO OCS CANTILEVER BASE.
4. STAGGER TO BE DETERMINED ON A SITE SPECIFIC BASIS.
5. FOR CENTERLINE FOUNDATION TO CENTERLINE TRACK DIMENSION, SEE FOUNDATION AND POLE LAYOUT DRAWINGS.
6. FW AND SW LOCATIONS VARY. FOR SITE SPECIFIC REQUIREMENTS, SEE OCS LAYOUT AND MATERIAL ALLOCATION DRAWINGS.
7. STEEL STANDOFFS MAY BE USED IN LIEU OF OFFSET INSULATOR. MAXIMUM STEEL STANDOFF LENGTH IS 5'-0".
8. ALL PORTAL POLES SHALL BE SET PLUMB WITH NO RAKE TO ENSURE PROPER CONNECTION WITH HORIZONTAL BEAM.
9. FOR BOTTOM OF STEEL ELEVATIONS, SEE MATERIAL ALLOCATION DRAWINGS.
10. CANTILEVERS SHOWN ARE REPRESENTATIVE. ACTUAL CANTILEVER CONFIGURATION SHALL BE PER TYPE SHOWN ON FINAL OCS MATERIAL ALLOCATION DRAWINGS.



TYPICAL PORTAL STRUCTURE

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DEPUTY DIRECTOR, ENGINEERING

1250 San Carlos Avenue
San Carlos, CA 94070

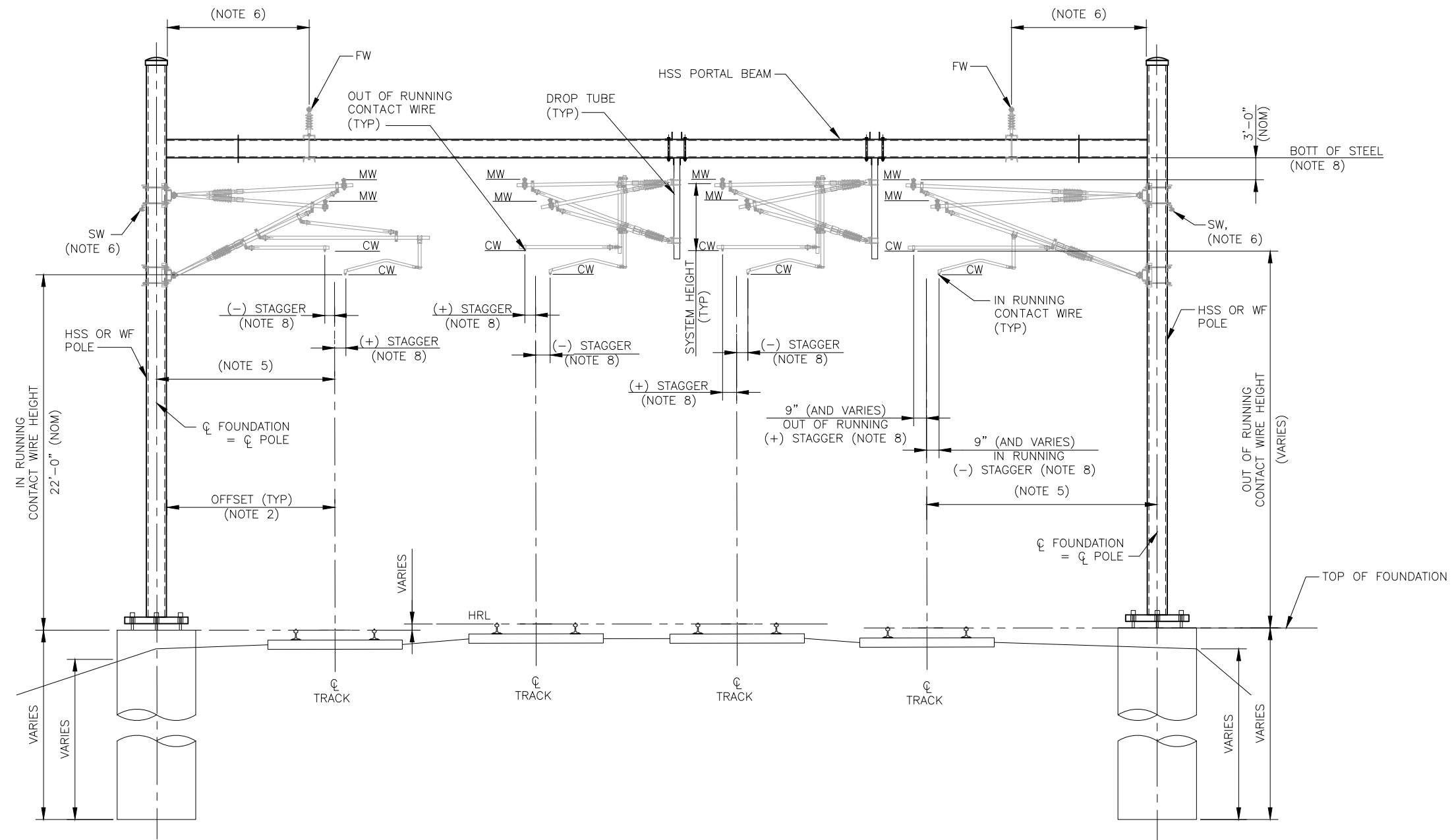
STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS GENERAL ARRANGEMENT
OCS PORTAL
TYPICAL

CADD FILE NAME: W5008	
REV:	EDITION: 01012024
STANDARD DRAWING NO.: W5008	

NOTES:

1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS SEE DRAWING W0101.
2. OFFSETS VARY. FOR SITE SPECIFIC REQUIREMENTS, SEE FOUNDATION AND POLE LAYOUT DRAWINGS.
3. STAGGER TO BE DETERMINED ON A SITE SPECIFIC BASIS.
4. ALL PORTAL POLES SHALL BE SET PLUMB WITH NO RAKE TO ENSURE PROPER CONNECTION WITH HORIZONTAL BEAM.
5. FOR CENTERLINE FOUNDATION TO CENTERLINE TRACK DIMENSION, SEE FOUNDATION AND POLE LAYOUT DRAWINGS.
6. FW AND SW LOCATIONS VARY FOR SITE SPECIFIC REQUIREMENTS, SEE OCS LAYOUT AND MATERIAL ALLOCATION DRAWINGS.
7. SIGN OF STAGGER DESIGNATES WHICH SIDE OF TRACK CENTER LINE THE CONTACT WIRE IS ON RELATIVE TO OCS CANTILEVER BASE.
8. FOR BOTTOM OF STEEL ELEVATIONS, SEE MATERIAL ALLOCATION DRAWINGS.
9. CANTILEVERS SHOWN ARE REPRESENTATIVE. ACTUAL CANTILEVER CONFIGURATION SHALL BE PER TYPE SHOWN ON FINAL OCS MATERIAL ALLOCATION DRAWINGS.




TYPICAL OVERLAP PORTAL STRUCTURE

REV	DATE	BY	CHK	APP	DESCRIPTION
1	1/1/24				01012024 - REVISION 1
					01012024 EDITION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DEPUTY DIRECTOR, ENGINEERING



1250 San Carlos Avenue
San Carlos, CA 94070

STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS GENERAL ARRANGEMENT
OCS PORTAL
OVERLAP SPAN

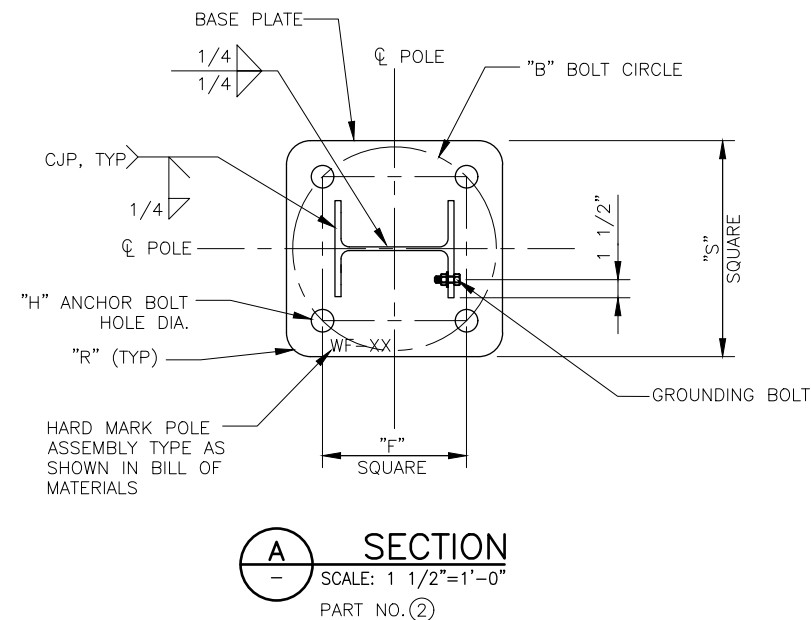
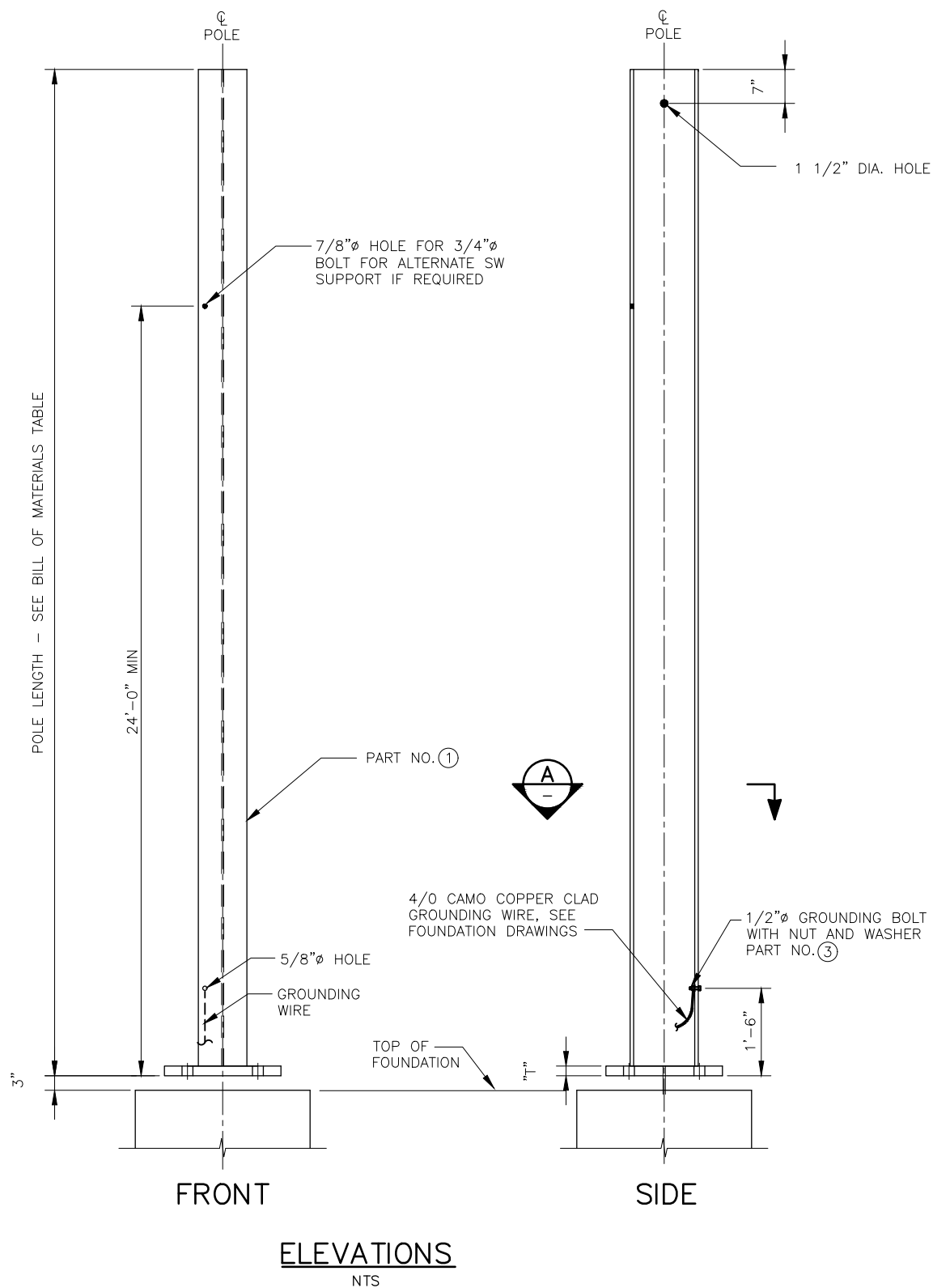
CADD FILE NAME:
W5009

REV: EDITION:
 01012024

STANDARD DRAWING NO.:
W5009

NOTES:

- FOR GENERAL NOTES, SEE DRAWING W0101.
- MODIFIED POLE LENGTHS DUE TO FIELD CONDITIONS MAY BE USED AT LOCATIONS SHOWN ON FOUNDATION AND POLE LAYOUT DRAWINGS. CONFIRM POLE LENGTHS WITH ENGINEER PRIOR TO FABRICATION.



BASE PLATE	DESCRIPTION	S	F	H	R	T	B	ANCHOR BOLT DIA
TYPE A	FOR TYPES WF-1, WF-2, WF-3 & WF-3B POLES	18	12	13/16	2	2 1/2	16.97	1 1/2

QUANTITIES						
1	1	1	1	1/2" ϕ GROUNDING BOLT	3	
1	1	1	1	BASE PLATE TYPE "A"	2	
-	-	-	1	POLE - W10 x 45 x 38'-0 LG	1	NOTE 2
-	-	1	-	POLE - W10 x 45 x 32'-0 LG	1	NOTE 2
-	1	-	-	POLE - W10 x 39 x 35'-0 LG	1	NOTE 2
1	-	-	-	POLE - W10 x 33 x 32'-0 LG	1	NOTE 2
WF-1	WF-2	WF-3	WF-3B	DESCRIPTION	PART NO	REMARKS
ASSEMBLY TYPE				BILL OF MATERIALS		

REV	DATE	BY	CHK	APP	DESCRIPTION	REV	DATE	BY	CHK	APP	DESCRIPTION
					01012024 EDITION						

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DEPUTY DIRECTOR, ENGINEERING



1250 San Carlos Avenue
San Carlos, CA 94070

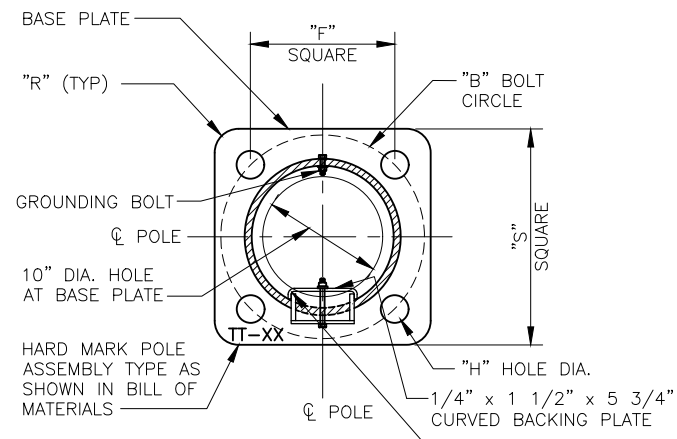
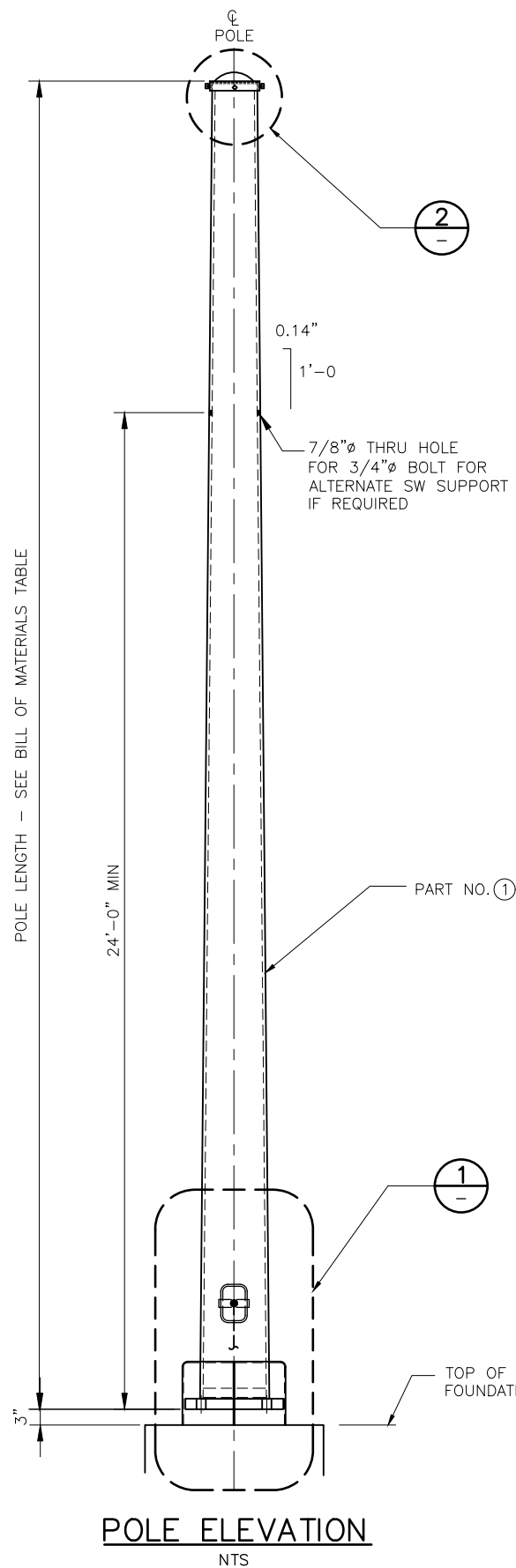
STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS POLES
DETAILS
TYPES WF-1, 2, 3 & 3B

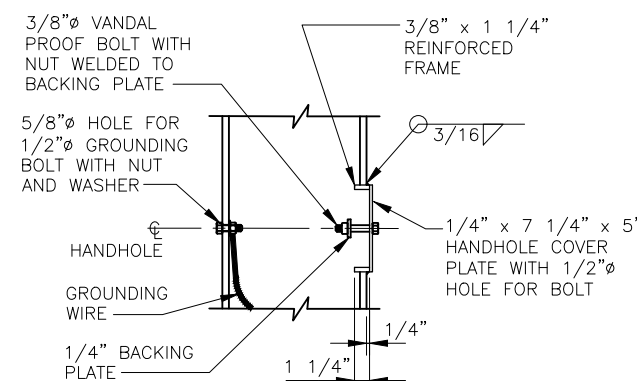
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W5101

REV: EDITION:
 01012024

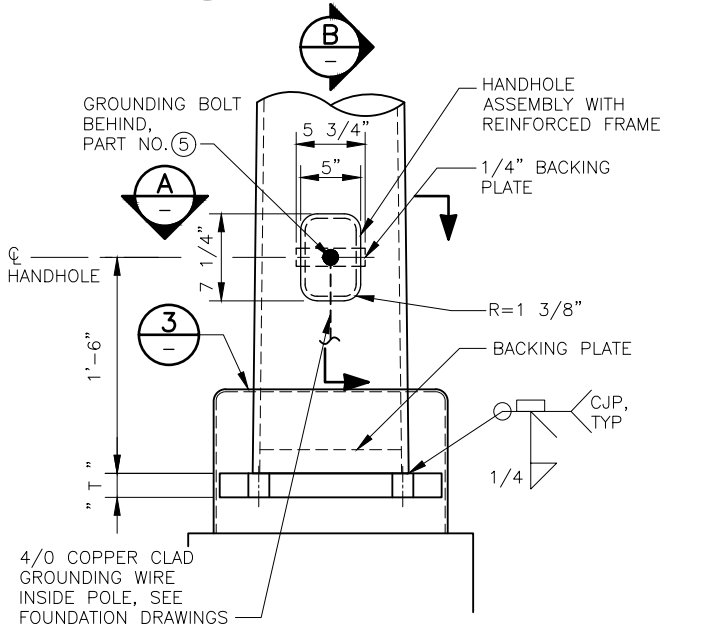
STANDARD DRAWING NO.:
W5101



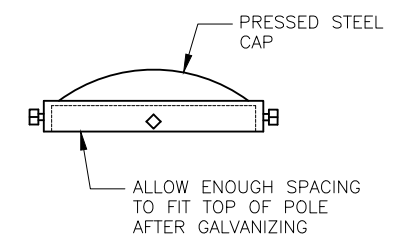
A SECTION
SCALE: 1 1/2"=1'-0"
PART NO. ③



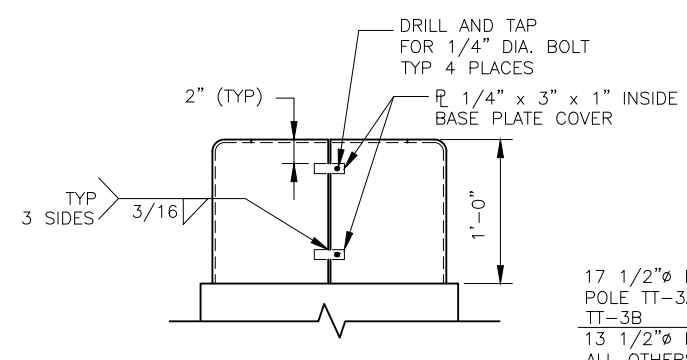
B SECTION
SCALE: 1 1/2"=1'-0"



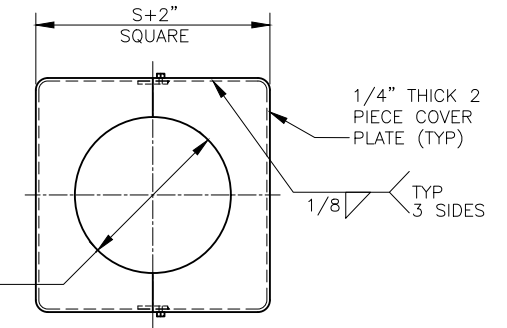
1 DETAIL
SCALE: 1 1/2"=1'-0"



2 DETAIL
NTS
PART NO. ②



ELEVATION



PLAN

3 DETAIL
SCALE: 1 1/2"=1'-0"
PART NO. ④

- NOTES:**
- FOR GENERAL NOTES SEE DRAWING W0101.
 - BASE PLATE COVER IS REQUIRED WHEN POLE IS LOCATED AT PASSENGER STATION OUTSIDE OF THE STATION PLATFORM.
 - MODIFIED POLE LENGTHS DUE TO FIELD CONDITIONS MAY BE USED AT LOCATIONS SHOWN ON FOUNDATION AND POLE LAYOUT DRAWINGS. CONFIRM POLE LENGTHS WITH ENGINEER PRIOR TO FABRICATION.
 - FOR POLES LOCATED ON THE STATION'S PLATFORM, THE ANCHOR BOLTS AND BASE PLATE SHALL BE FULLY RECESSED BELOW PLATFORM LEVEL AND THE VOID FILLED WITH GROUT, AS SHOWN ON DRAWING W5262.

TABLE 1 BASE PLATE DIMENSIONS (IN)

BASE PLATE	DESCRIPTION	S	F	H	R	T	B	ANCHOR BOLT DIA
TYPE "A"	FOR TT-1, TT-1A, TT-1B	18	12	1 13/16	2	2 1/2	16.97	1 1/2
TYPE "C"	FOR TT-4, TT-4A, TT-4B	21	15 1/2	2 1/16	2	2 1/2	21.92	1 3/4
TYPE "C1"	FOR TT-3A, TT-3B	21	15 1/2	2 3/8	2	2 1/2	21.92	2

QUANTITIES											
1	1	1	1	1	1	1	1	1	BASE PLATE COVER	4	NOTE 2
1	1	1	1	1	1	1	1	1	1/2" GROUNDING BOLT	5	
1	-	1	-	-	-	1	-	-	BASE PLATE TYPE "A"	3	
-	1	-	-	-	1	-	1	-	BASE PLATE TYPE "C"	3	
-	-	-	1	1	-	-	-	-	BASE PLATE TYPE "C1"	3	
1	1	1	1	1	1	1	1	1	PRESSED STEEL CAP, GALV.-W/ 4-1/4" DIA. SS SET SCREWS	2	
-	-	-	-	1	-	-	-	-	TAPERED TUBULAR POLE - 17" x 0 GAUGE x 38'-0" LG	1	NOTE 3
-	-	-	1	-	-	-	-	-	TAPERED TUBULAR POLE - 17" x 0 GAUGE x 35'-0" LG	1	NOTE 3
-	-	-	-	-	-	1	-	-	TAPERED TUBULAR POLE - 13" x 0 GAUGE x 38'-0" LG	1	NOTE 3
-	-	-	-	-	-	-	1	-	TAPERED TUBULAR POLE - 13" x 0 GAUGE x 38'-0" LG	1	NOTE 3
-	-	1	-	-	-	-	-	-	TAPERED TUBULAR POLE - 13" x 0 GAUGE x 35'-0" LG	1	NOTE 3
-	-	-	-	-	1	-	-	-	TAPERED TUBULAR POLE - 13" x 0 GAUGE x 35'-0" LG	1	NOTE 3
1	-	-	-	-	-	-	-	-	TAPERED TUBULAR POLE - 13" x 0 GAUGE x 32'-0" LG	1	NOTE 3
-	1	-	-	-	-	-	-	-	TAPERED TUBULAR POLE - 13" x 0 GAUGE x 32'-0" LG	1	
TT-1	TT-4	TT-1A	TT-3A	TT-3B	TT-4A	TT-1B	TT-4B		DESCRIPTION	PART NO	REMARKS

BILL OF MATERIALS

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DEPUTY DIRECTOR, ENGINEERING

STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS POLES
TAPERED TUBULAR POLE DETAILS
TYPES TT-1, TT-1A, TT-1B, TT-3A
TT-3B, TT-4, TT-4A AND TT-4B

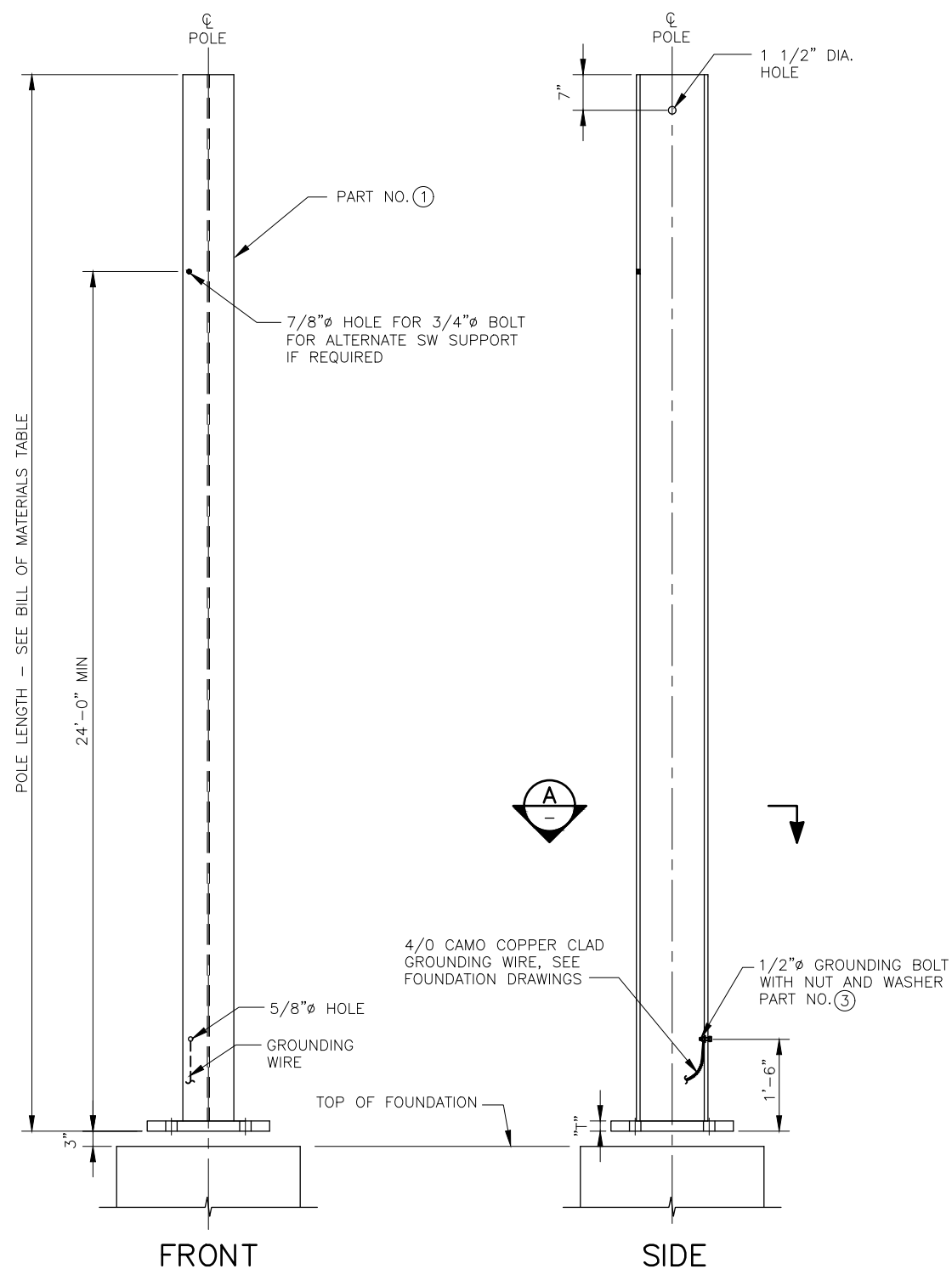
CADD FILE NAME:
W5102

REV: EDITION:
 01012024

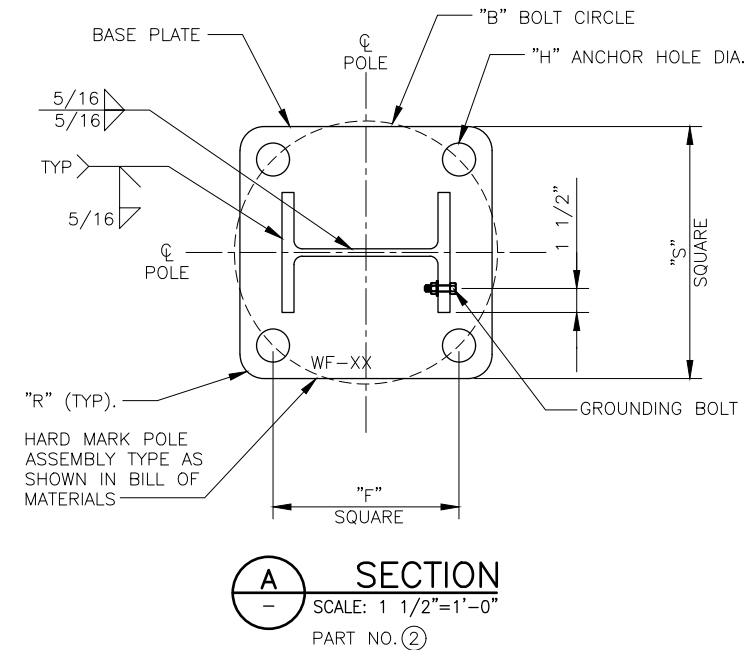
STANDARD DRAWING NO.:
W5102

NOTES:

1. FOR GENERAL NOTES, SEE DRAWING W0101.
2. MODIFIED POLE LENGTHS DUE TO FIELD CONDITIONS MAY BE USED AT LOCATIONS SHOWN ON FOUNDATION AND POLE LAYOUT DRAWINGS. CONFIRM POLE LENGTHS WITH ENGINEER PRIOR TO FABRICATION.



ELEVATIONS
NTS



BASE PLATE	DESCRIPTION	S	F	H	R	T	B	ANCHOR BOLT DIA
TYPE "C"	FOR WF-5, WF-5A WF-5B, AND WF-5C	21	15 1/2	2 1/16	2	2 1/2	21.92	1 3/4

QUANTITIES						
1	1	1	1	1/2" Ø GROUNDING BOLT	3	
1	1	1	1	BASE PLATE TYPE "C"	2	
1	-	-	-	POLE - W14 x 61 x 41'-0" LG	1 NOTE 2	
-	1	-	-	POLE - W14 x 61 x 38'-0" LG	1 NOTE 2	
-	-	1	-	POLE - W14 x 61 x 35'-0" LG	1 NOTE 2	
-	-	-	1	POLE - W14 x 61 x 32'-0" LG	1 NOTE 2	
WF-5C	WF-5B	WF-5A	WF-5	DESCRIPTION	PART NO	REMARKS
ASSEMBLY TYPE				BILL OF MATERIALS		

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DEPUTY DIRECTOR, ENGINEERING



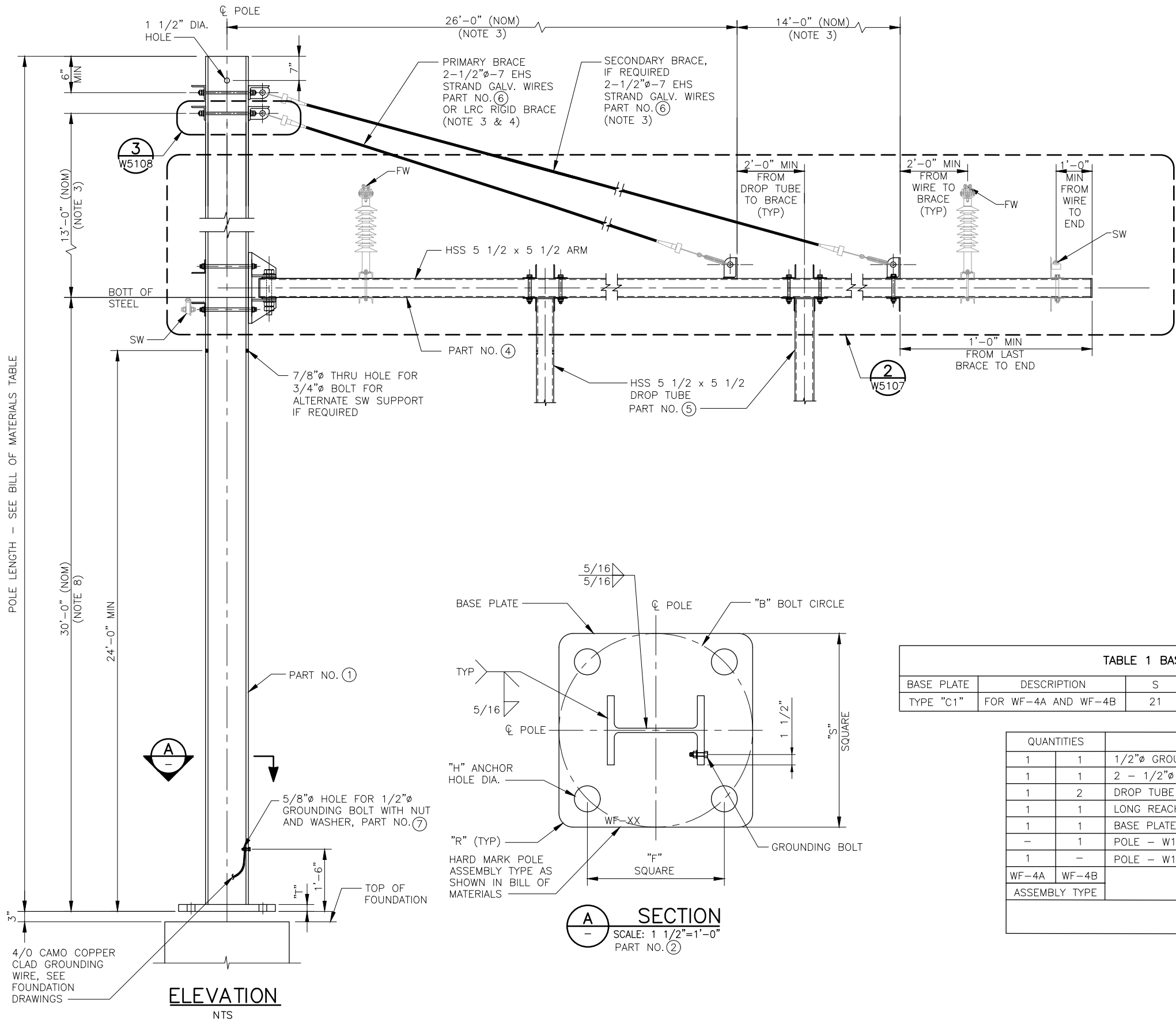
1250 San Carlos Avenue
San Carlos, CA 94070

STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS POLES
BALANCE WEIGHT ASSEMBLY GUYED
WF-5, WF-5A, WF-5B & WF-5C

CADD FILE NAME:
W5105
REV: EDITION:
 01012024
STANDARD DRAWING NO.:
W5105

REV	DATE	BY	CHK	APP	DESCRIPTION	REV	DATE	BY	CHK	APP	DESCRIPTION
					01012024 EDITION						



- NOTES:**
- FOR GENERAL NOTES SEE DRAWING W0101.
 - LONG REACH CANTILEVER LENGTH WILL BE DETERMINED IN FIELD AT EACH LOCATION PRIOR TO FABRICATION.
 - SEE MATERIAL ALLOCATION DRAWINGS FOR NUMBER, ATTACHMENT LOCATION AND TYPE OF BRACES. CONFIRM ATTACHMENT LOCATIONS WITH ENGINEER PRIOR TO FABRICATION.
 - FOR LRC RIGID BRACE REQUIREMENTS AND DETAILS, SEE DRAWING W5263.
 - FIELD MEASURE EXISTING CONDITION PRIOR TO FABRICATION. NOTIFY ENGINEER IF DIFFERENT FROM DIMENSIONS SHOWN.
 - SEE MATERIAL ALLOCATION DRAWINGS FOR NUMBER, LOCATION AND LENGTH OF DROP TUBES AND WIRE INFORMATION. ALTERNATE MINIMUM DIMENSIONS AND DROP TUBE DETAILS MAY BE USED AS APPROVED BY THE ENGINEER.
 - MODIFIED POLE LENGTHS DUE TO FIELD CONDITIONS MAY BE USED AT LOCATIONS SHOWN ON FOUNDATION AND POLE LAYOUT DRAWINGS. CONFIRM POLE LENGTHS WITH ENGINEER PRIOR TO FABRICATION.
 - BOTTOM OF STEEL VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATION DRAWINGS FOR HEIGHT.
 - TO UTILIZE A HINGED CANTILEVER BEAM PROVIDE A STATIC WIRE OR A STAY WIRE CONNECTION ON THE END OF THE BEAM IN THE DESIGN PROCESS. DURING CONSTRUCTION INSTALL THIS CONNECTION CONCURRENTLY WITH THE BEAM INSTALLATION TO AVOID EXCESSIVE CANTILEVER BEAM ROTATION AND POSSIBLE DAMAGE.

TABLE 1 BASE PLATE DIMENSIONS (IN)


BASE PLATE	DESCRIPTION	S	F	H	R	T	B	ANCHOR BOLT DIA
TYPE "C1"	FOR WF-4A AND WF-4B	21	15 1/2	2 3/8	2	2 1/2	21.92	2

QUANTITIES

1	1	1/2"Ø GROUNDING BOLT	7	
1	1	2 - 1/2"Ø - 7 EHS STRAND GALV. WIRES	6	NOTE 3
1	2	DROP TUBE - HSS 5 1/2 x 5 1/2 x 3/8 x 9'-0" LG	5	NOTE 6
1	1	LONG REACH CANTILEVER - HSS 5 1/2 x 5 1/2 x 3/8	4	NOTE 2
1	1	BASE PLATE TYPE "C1"	2	
-	1	POLE - W12 x 87 x 45'-6" LG	1	NOTE 7
1	-	POLE - W12 x 79 x 45'-6" LG	1	NOTE 7
WF-4A	WF-4B	DESCRIPTION	PART NO.	REMARKS
BILL OF MATERIALS				

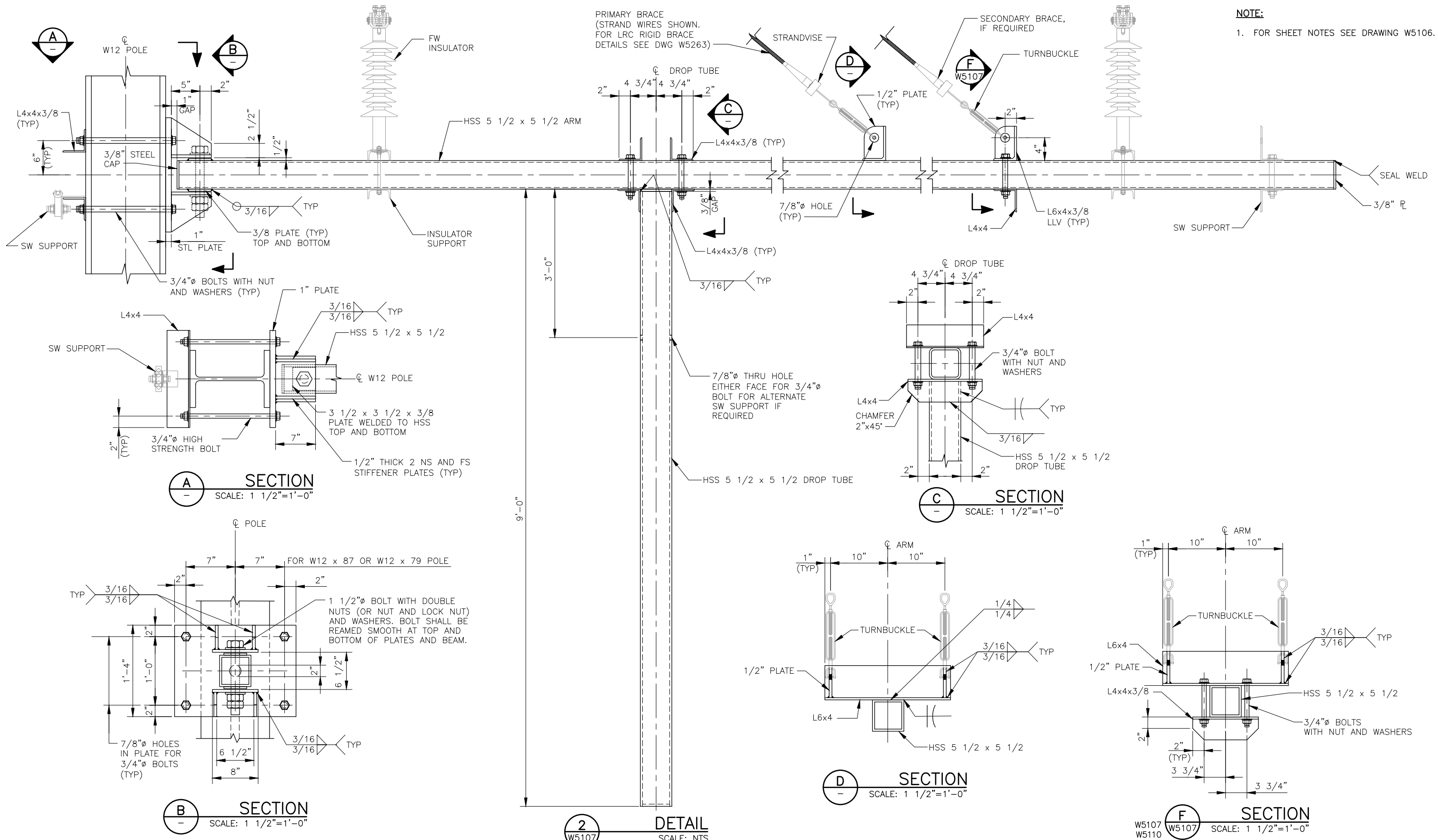
SECTION A-A
SCALE: 1 1/2"=1'-0"
PART NO. ②

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD		STANDARD DRAWINGS	
APPROVED BY: <i>Bin Zhang</i> DEPUTY DIRECTOR, ENGINEERING		ELECTRIFICATION PROJECT OCS POLES LONG REACH CANTILEVER DETAILS TYPES WF-4A & WF-4B SHEET 1 OF 3	
 1250 San Carlos Avenue San Carlos, CA 94070		CADD FILE NAME: W5106 REV: EDITION: 01012024 STANDARD DRAWING NO.: W5106	

POLE LENGTH - SEE BILL OF MATERIALS TABLE

ELEVATION
NTS



REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

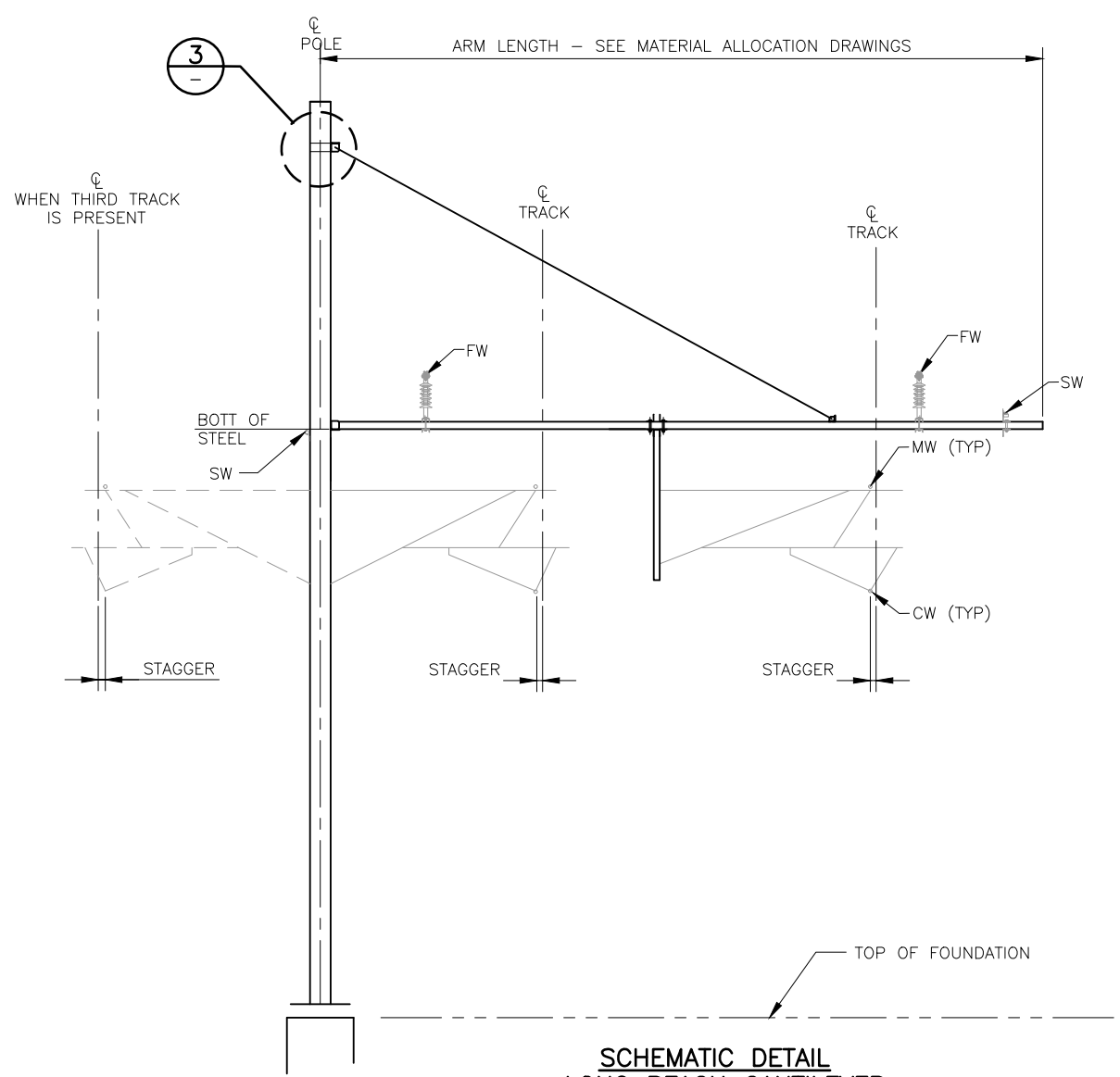
Bin Zhang

DEPUTY DIRECTOR, ENGINEERING

STANDARD DRAWINGS

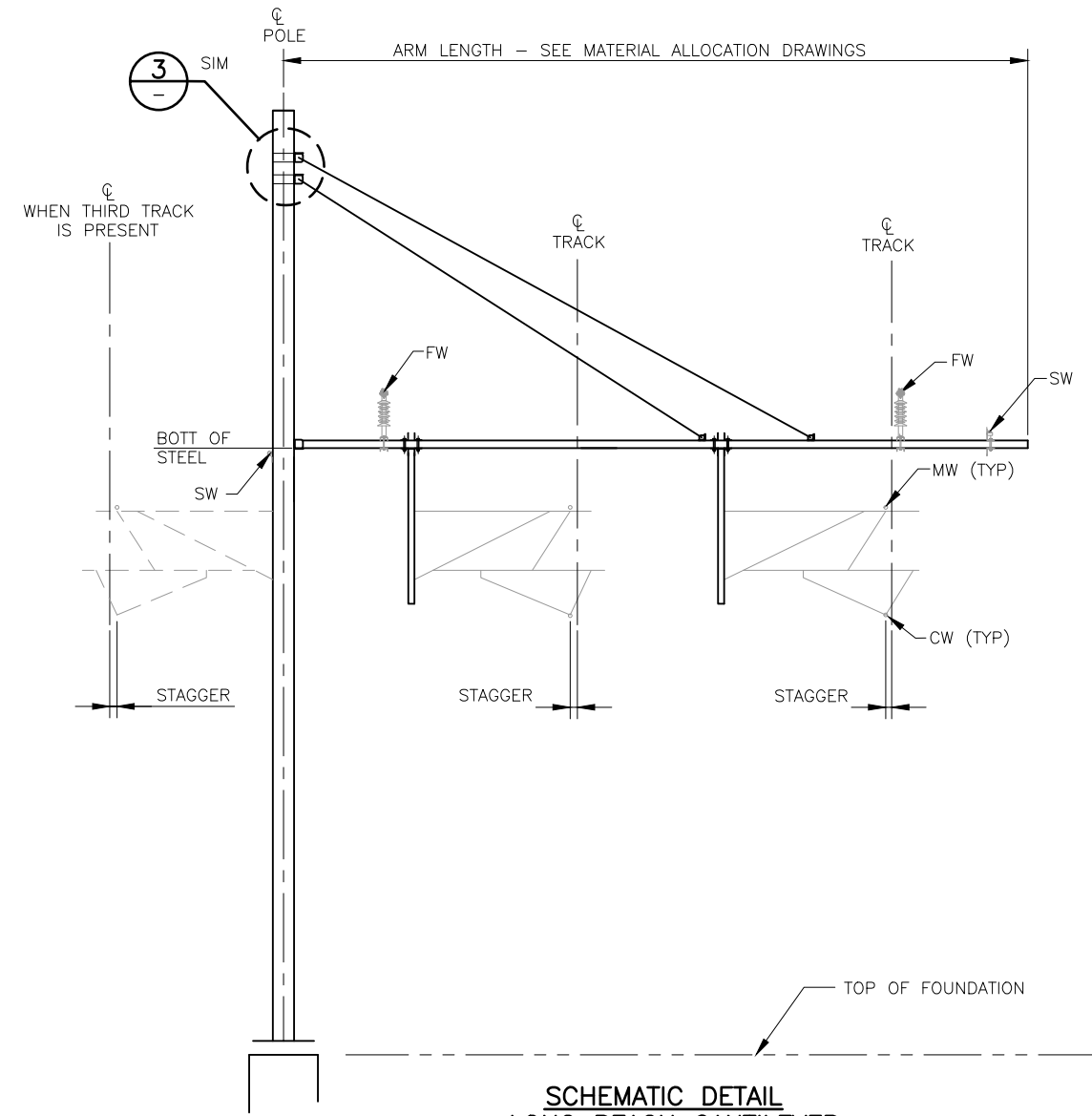
ELECTRIFICATION PROJECT
OCS POLES
LONG REACH CANTILEVER DETAILS
TYPES WF-4A & WF-4B
SHEET 2 OF 3

CADD FILE NAME: W5107	
REV:	EDITION: 01012024
STANDARD DRAWING NO.: W5107	



**SCHEMATIC DETAIL
LONG REACH CANTILEVER
TYPE WF-4A**

NTS

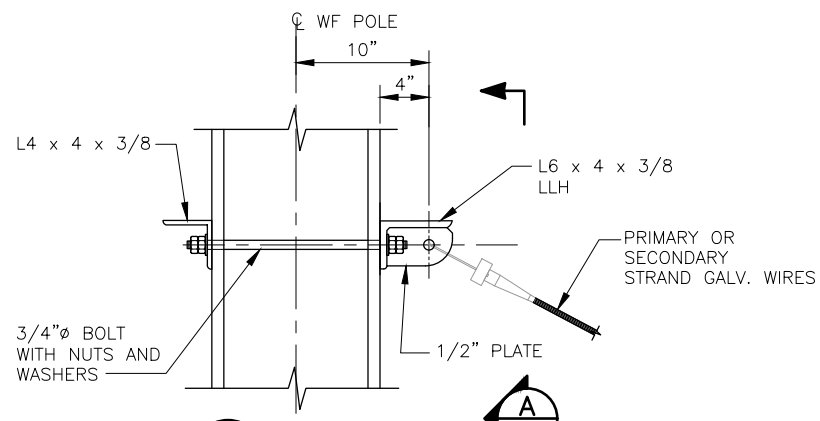


**SCHEMATIC DETAIL
LONG REACH CANTILEVER
TYPE WF-4B**

NTS

NOTES:

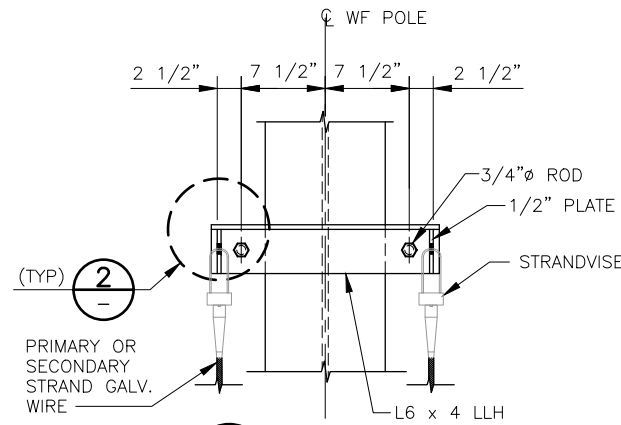
1. FOR GENERAL NOTES SEE DRAWING W0101.



3 **DETAIL**

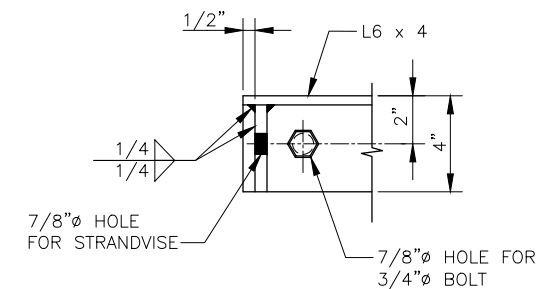
W5108 SCALE: 1 1/2"=1'-0"

W5106



A **SECTION**

SCALE: 1 1/2"=1'-0"



2 **DETAIL**

SCALE: 3"=1'-0"

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DEPUTY DIRECTOR, ENGINEERING



1250 San Carlos Avenue
San Carlos, CA 94070

STANDARD DRAWINGS

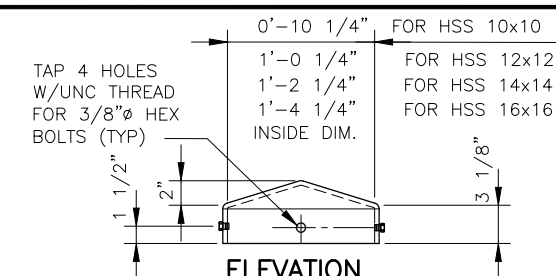
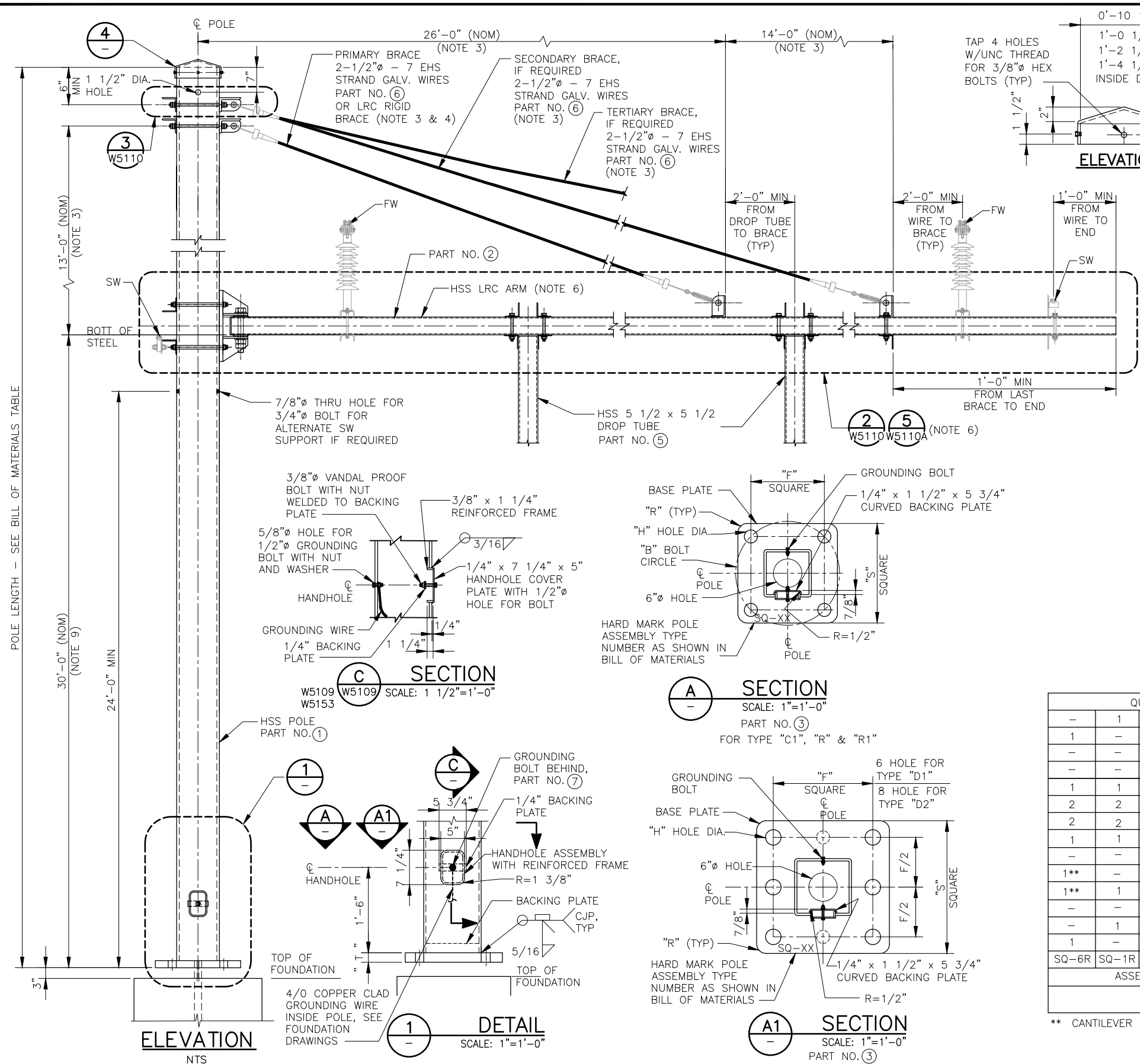
ELECTRIFICATION PROJECT
OCS POLES
LONG REACH CANTILEVER DETAILS
TYPES WF-4A & WF-4B
SHEET 3 OF 3

CADD FILE NAME:
W5108

REV: EDITION:
 01012024

STANDARD DRAWING NO.:
W5108

REV	DATE	BY	CHK	APP	DESCRIPTION
					01012024 EDITION



4 DETAIL
W5109 SCALE: 1 1/2"=1'-0"
PART NO. (4)
W5153

NOTES: (CONT'D)

7. MODIFIED POLE LENGTHS DUE TO FIELD CONDITIONS MAY BE USED AT LOCATIONS SHOWN ON FOUNDATION AND POLE LAYOUT DRAWINGS. CONFIRM POLE LENGTHS WITH ENGINEER PRIOR TO FABRICATION.
8. SEE MATERIAL ALLOCATION DRAWINGS FOR NUMBER, LOCATION AND LENGTH OF DROP TUBES AND WIRE INFORMATION. ALTERNATE MINIMUM DIMENSIONS AND DROP TUBE DETAILS MAY BE USED AS APPROVED BY THE ENGINEER.
9. BOTTOM OF STEEL VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATION DRAWINGS FOR HEIGHT.

NOTES:

1. FOR GENERAL NOTES SEE DRAWING W0101.
2. LONG REACH CANTILEVER LENGTH WILL BE DETERMINED IN FIELD AT EACH LOCATION PRIOR TO FABRICATION.
3. SEE MATERIAL ALLOCATION DRAWINGS FOR NUMBER, ATTACHMENT LOCATION AND TYPE OF BRACES. CONFIRM ATTACHMENT LOCATIONS WITH ENGINEER PRIOR TO FABRICATION.
4. FOR LRC RIGID BRACE REQUIREMENTS AND DETAILS, SEE DRAWING W5263.
5. FIELD MEASURE EXISTING CONDITION PRIOR TO FABRICATION. NOTIFY ENGINEER IF DIFFERENT FROM DIMENSIONS SHOWN.
6. LRC ARM MEMBER SIZES ARE BASED ON THE ARM LENGTH "L" AS FOLLOWS:
L < 52' USE HSS 5 1/2x5 1/2x3/8 (DETAIL 2)
52' ≤ L ≤ 64' USE HSS 10x10x3/16 (DETAIL 5)
L ≥ 64' NOTIFY ENGINEER AND WILL BE EVALUATED BASED ON SITE CONDITIONS

TABLE 1 BASE PLATE DIMENSIONS (IN)

BASE PLATE TYPE	DESCRIPTION	S	F	H	R	T	B	BOLT DIA
TYPE "C1"	BASE PLATE FOR SQ-1	21	15 1/2	2 3/8	2	2 1/2	21.92	2
TYPE "D1"	BASE PLATE FOR SQ-6	28	21	2 3/8	2	2 1/2	-	2
TYPE "D2"	BASE PLATE FOR SQ-8	28	21	2 3/8	2	2 1/2	-	2
TYPE "R"	BASE PLATE FOR SQ-1R	21	15 1/2	1 7/8	2	2 1/2	21.92	1 3/4
TYPE "R1"	BASE PLATE FOR SQ-6R	28	21	2 1/8	2	2 1/2	29.70	2

QUANTITIES

QTY	DESCRIPTION	PART NO.	REMARKS
3	BASE PLATE TYPE "R"		
3	BASE PLATE TYPE "R1"		
3	BASE PLATE TYPE "D1"		
3	BASE PLATE TYPE "D2"		
7	1/2" Ø GROUNDING BOLT		
6	2 - 1/2" Ø - 7 EHS STRAND GALV. WIRES		NOTE 3
5	DROP TUBE HSS 5 1/2 x 5 1/2 x 3/8 x 9'-0"		NOTE 8
4	REMOVABLE CAP PLATE		
3	BASE PLATE TYPE "C1"		
2	LONG REACH CANTILEVER HSS 10 x 10 x 3/16 LENGTH VARIES		NOTE 2 & 6
2	LONG REACH CANTILEVER HSS 5 1/2 x 5 1/2 x 3/8 LENGTH VARIES		NOTE 2 & 6
1	POLE - HSS 14 x 14 x 5/8 x 45'-6" LG		NOTE 7
1	POLE - HSS 12 x 12 x 1/2 x 45'-6" LG		NOTE 7
1	POLE - HSS 12 x 12 x 5/8 x 45'-6" LG		NOTE 7

BILL OF MATERIALS

** CANTILEVER SIZE TO BE SELECTED BASED ON LENGTH. SEE NOTE 6

REV	DATE	BY	CHK	APP	DESCRIPTION

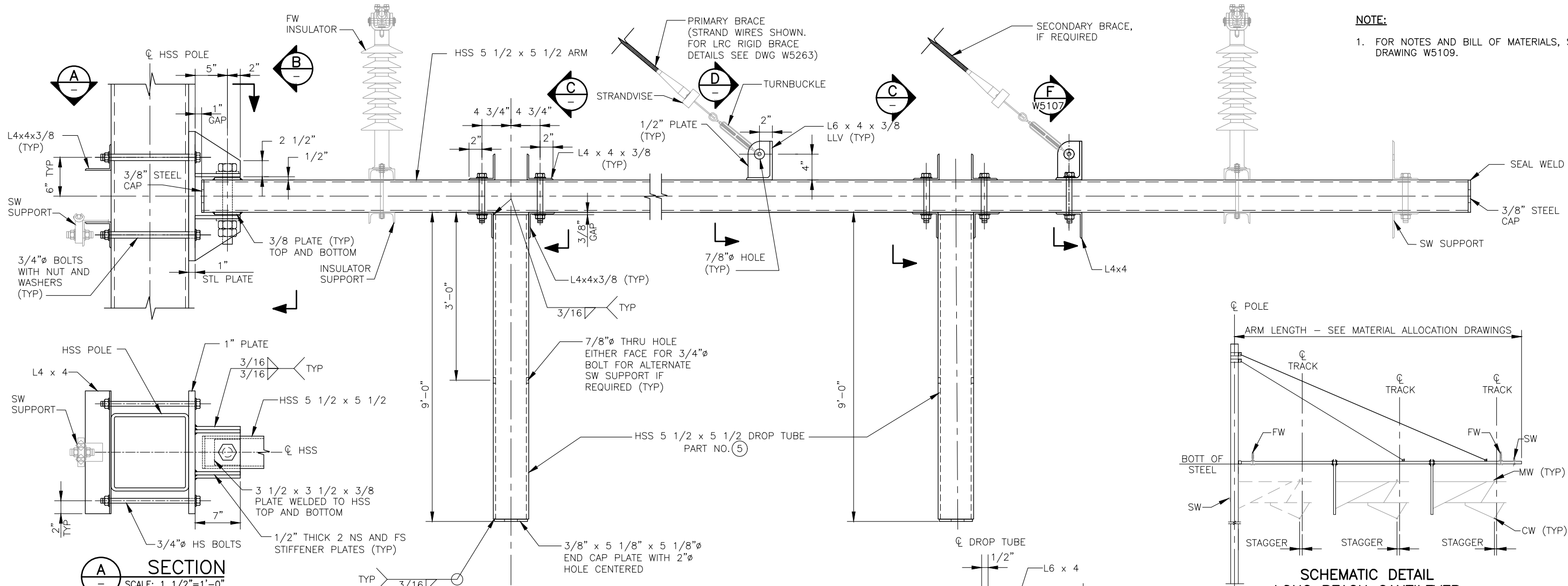
01012024 EDITION

PENINSULA CORRIDOR JOINT POWERS BOARD

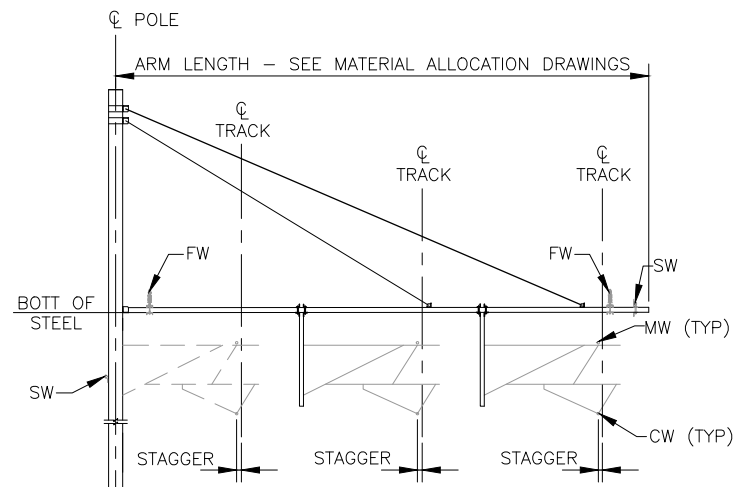
APPROVED BY:
Bin Zhang
DEPUTY DIRECTOR, ENGINEERING

STANDARD DRAWINGS
ELECTRIFICATION PROJECT
OCS POLES
LONG REACH CANTILEVER DETAILS
TYPES SQ-1, SQ-1R, SQ-6,
SQ-6R & SQ-8 (SHEET 1 OF 3)

CADD FILE NAME:
W5109
REV: EDITION:
 01012024
STANDARD DRAWING NO.:
W5109



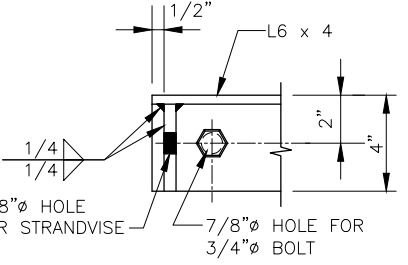
NOTE:
1. FOR NOTES AND BILL OF MATERIALS, SEE DRAWING W5109.



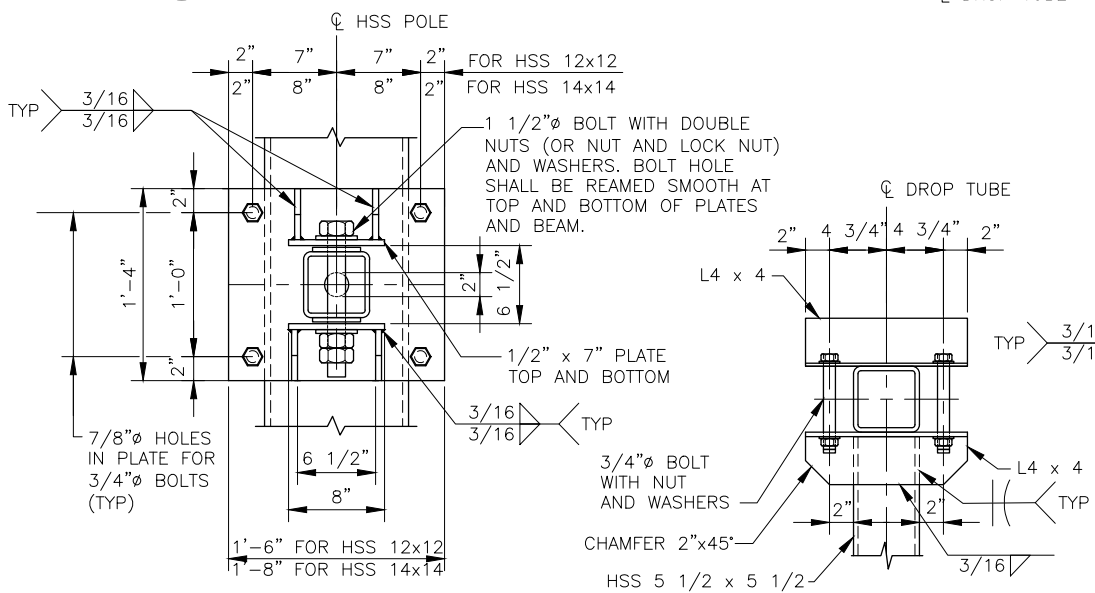
**SCHEMATIC DETAIL
LONG REACH CANTILEVER
TYPES SQ-1, SQ-1R, SQ-6,
SQ-6R & SQ-8**

A SECTION
SCALE: 1 1/2"=1'-0"

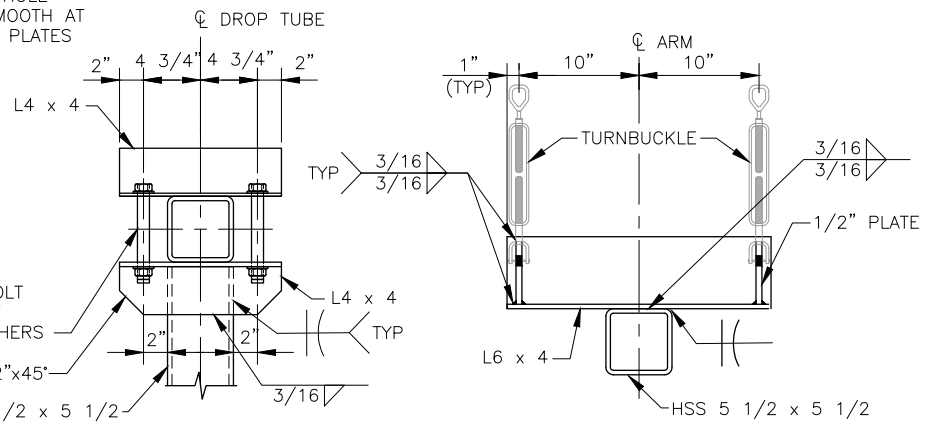
2 DETAIL
SCALE: NTS
W5109 W5110



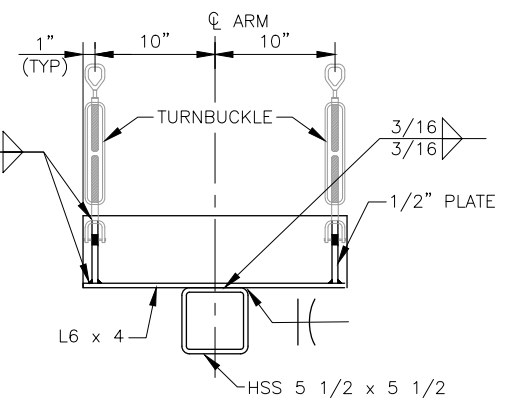
4 DETAIL
SCALE: 3"=1'-0"



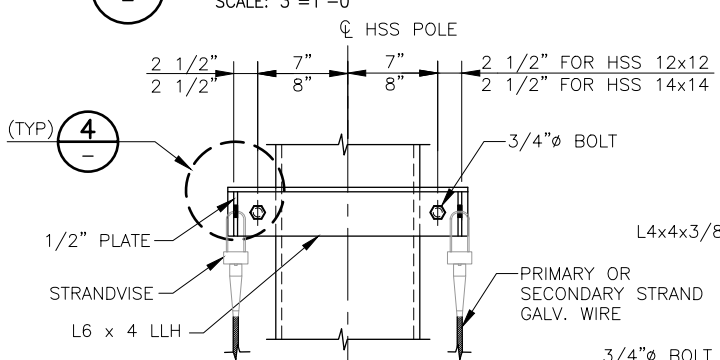
B SECTION
SCALE: 1 1/2"=1'-0"



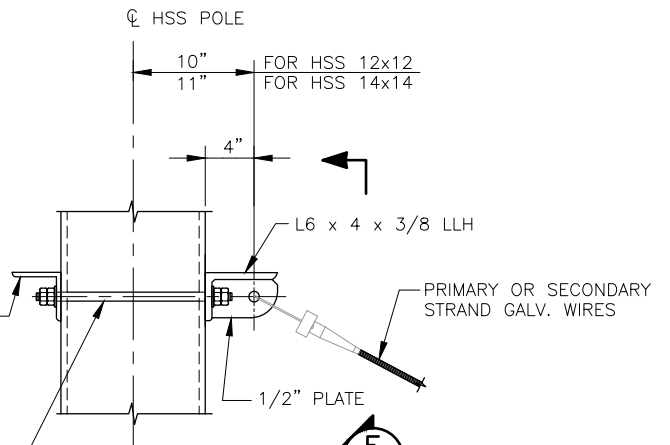
C SECTION
SCALE: 1 1/2"=1'-0"



D SECTION
SCALE: 1 1/2"=1'-0"



E SECTION
SCALE: 1 1/2"=1'-0"




3 DETAIL
SCALE: 1 1/2"=1'-0"
W5109 W5110

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DEPUTY DIRECTOR, ENGINEERING

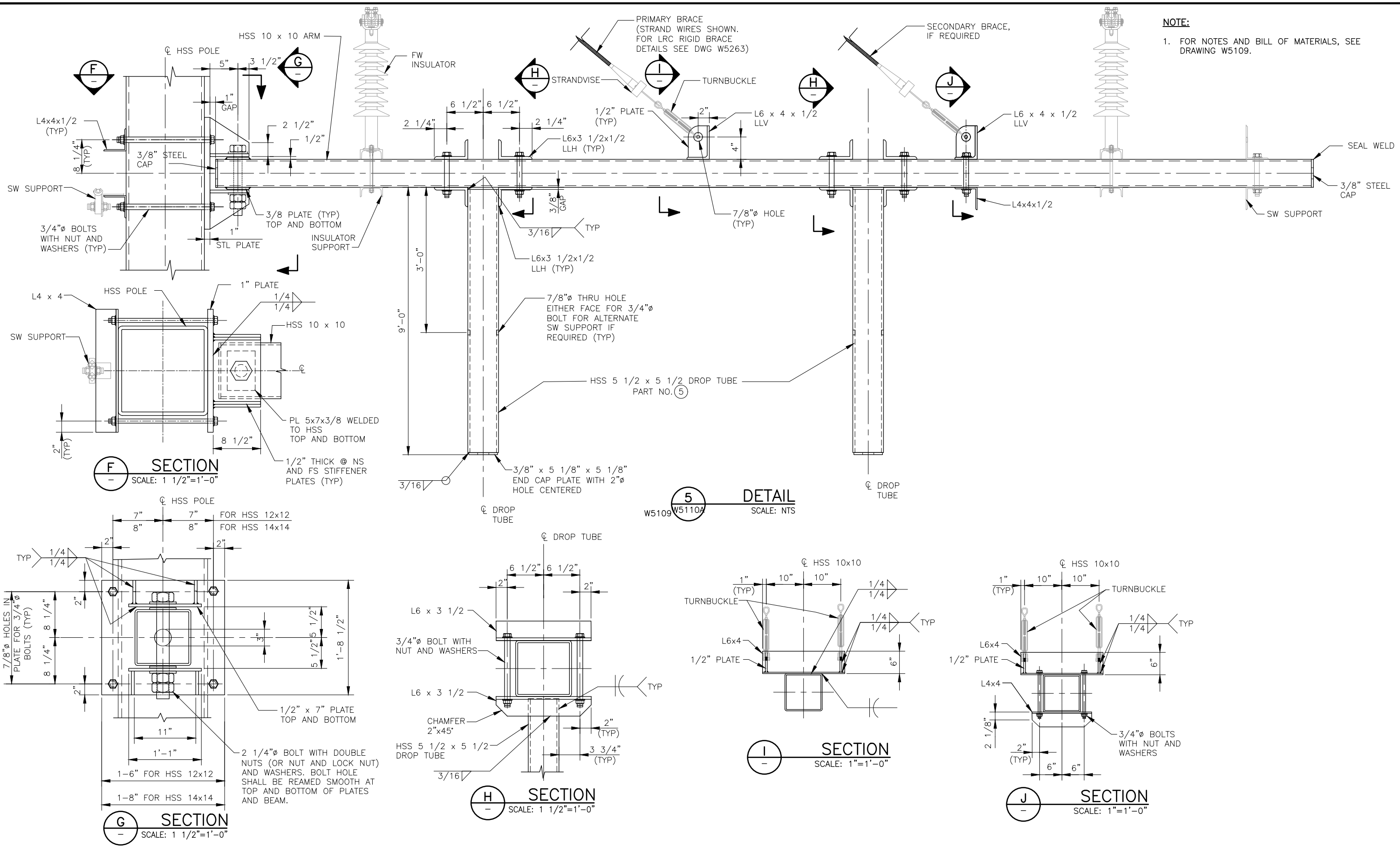


1250 San Carlos Avenue
San Carlos, CA 94070

STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS POLES
LONG REACH CANTILEVER DETAILS
TYPES SQ-1, SQ-1R, SQ-6,
SQ-6R & SQ-8 (SHEET 2 OF 3)


CADD FILE NAME: W5110	REV:	EDITION: 01012024
STANDARD DRAWING NO.:		W5110



REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

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1250 San Carlos Avenue
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STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS POLES
LONG REACH CANTILEVER DETAILS
TYPES SQ-1, SQ-1R, SQ-6,
SQ-6R & SQ-8 (SHEET 3 OF 3)

CADD FILE NAME:
W5110A

REV: EDITION:
 01012024

STANDARD DRAWING NO.:
W5110A

NOTES:

1. FOR GENERAL NOTES SEE DRAWING W0101.
2. FOR POLE TYPE SQ-9EX, HANDHOLE SHALL BE LOCATED AT 10'-0" FROM TOP OF BASE PLATE.
3. FOR BILL OF MATERIALS SEE DRAWING W5153A.

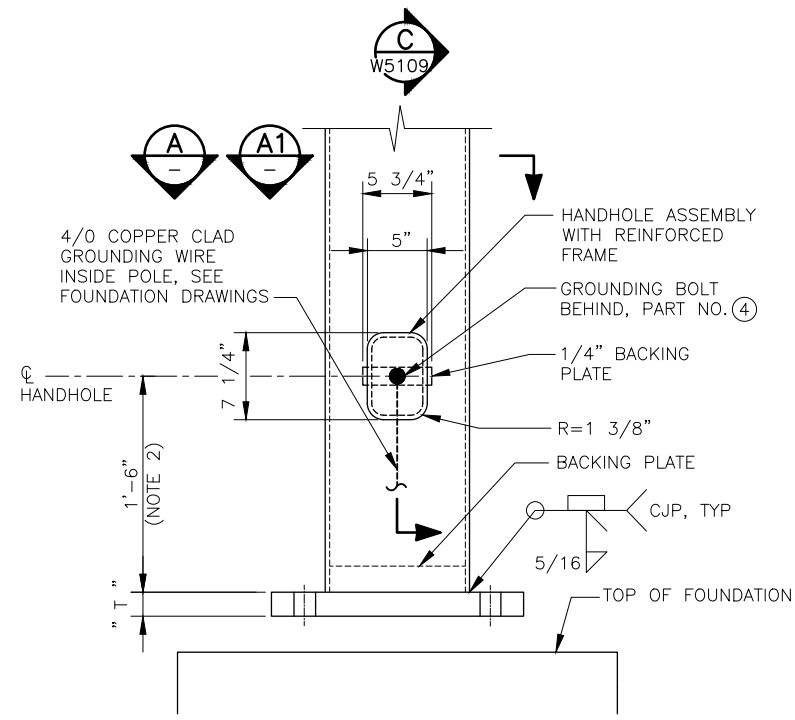
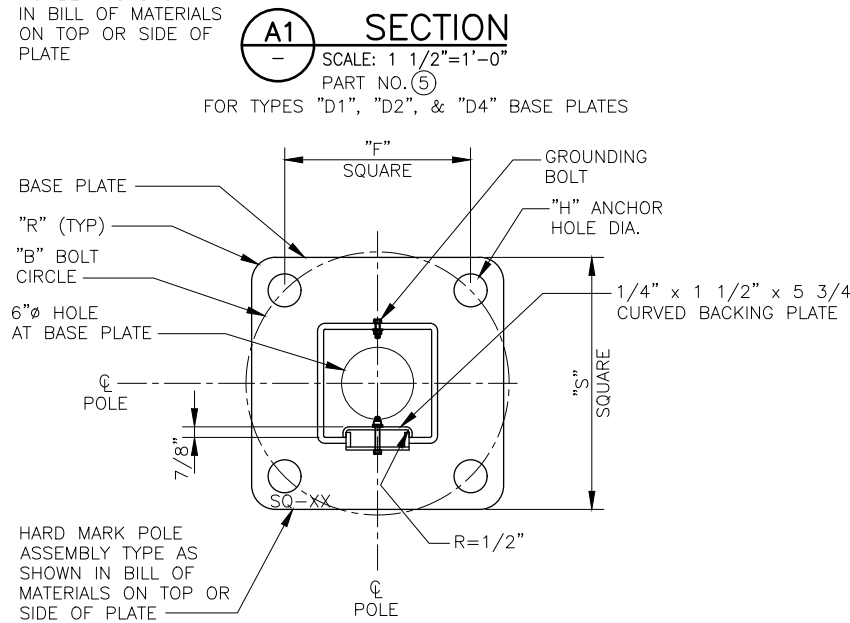
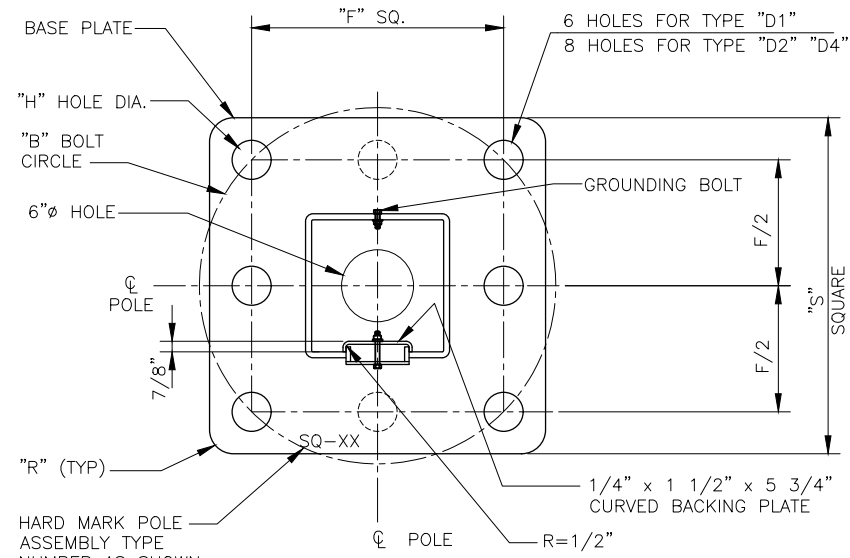
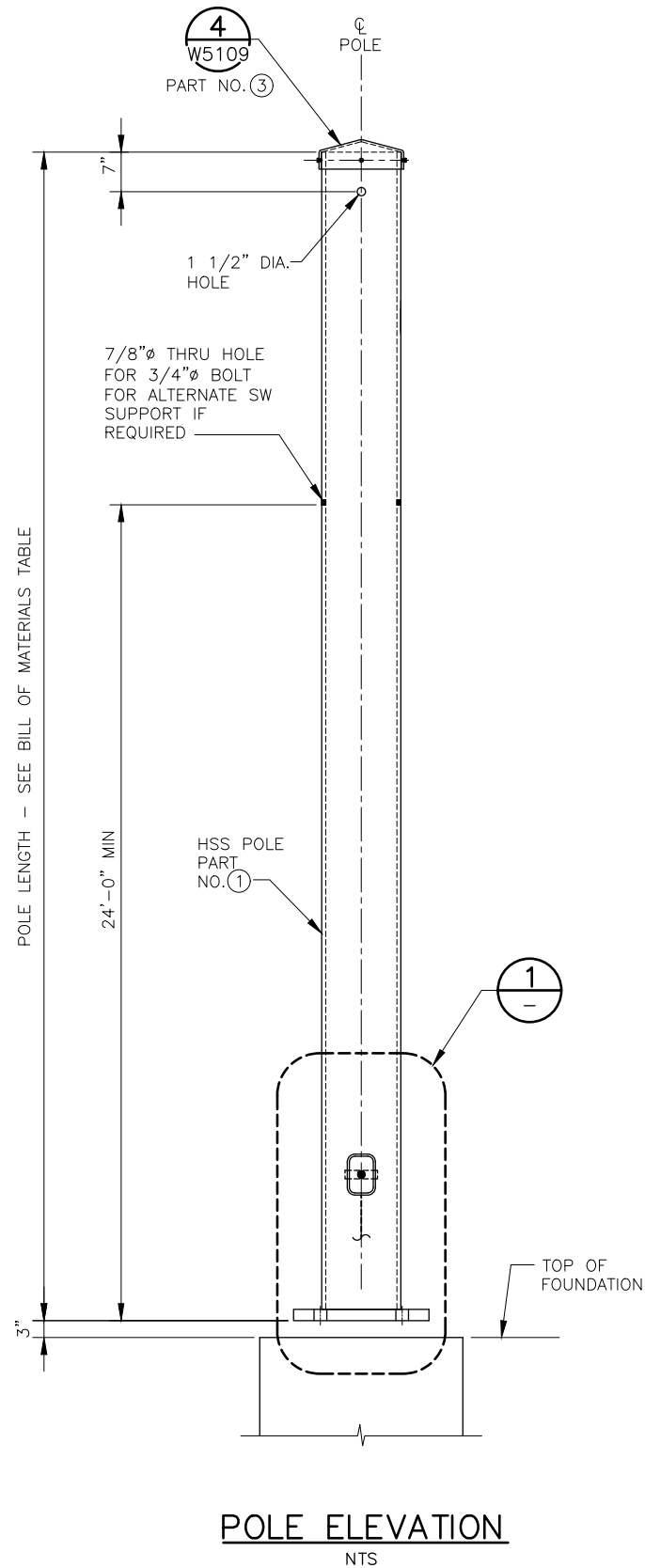


TABLE 1 BASE PLATE DIMENSIONS (IN)

BASE PLATE	DESCRIPTION	S	F	H	R	T	B	ANCHOR BOLT DIA
TYPE "C"	BASE FOR SQ-3, SQ-3A, SQ-3B, SQ-3C, SQ-3D, SQ-3E	21	15 1/2	2 1/16	2	2 1/2	21.92	1 3/4
TYPE "D1"	SQ-4, SQ-4A, SQ-4B, SQ-4D	28	21	2 3/8	2	2 1/2	29.70	2
TYPE "D2"	SQ-5, SQ-10A, SQ-10C, SQ-11, SQ-11B, SQ-11C, SQ-11D	28	21	2 3/8	2	2 1/2	29.70	2
TYPE "D3"	SQ-9A, SQ-9B, SQ-9C, SQ-9D & SQ-9E	21	15 1/2	2 3/8	2	2 1/2	21.92	2
TYPE "D4"	SQ-7	32	25	2 5/8	2	2 1/2	35.35	2 1/4

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
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DEPUTY DIRECTOR, ENGINEERING

1250 San Carlos Avenue
San Carlos, CA 94070

STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS POLES
SQUARE POLE ASSEMBLIES
TYPES SQ-3 THRU SQ-11B
SHEET 1 OF 2

CADD FILE NAME:
W5153

REV: EDITION:
 01012024

STANDARD DRAWING NO.:
W5153

NOTES:

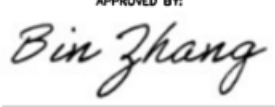
1. FOR GENERAL NOTES SEE DRAWING W0101.
2. MODIFIED POLE LENGTHS DUE TO FIELD CONDITIONS MAY BE USED AT LOCATIONS SHOWN ON FOUNDATION AND POLE LAYOUT DRAWINGS. CONFIRM POLE LENGTHS WITH ENGINEER PRIOR TO FABRICATION.


QUANTITIES															
1	1	1	1	1	1	1	1	1	1	1	1	1	1/2"Ø GROUNDING BOLT	4	
1	1	1	1	1	1	1	1	1	1	1	1	1	REMOVABLE CAP PLATE	3	
-	-	-	-	-	-	1	1	1	1	-	-	-	BASE PLATE TYPE "D1"	5	
1	1	1	1	1	1	-	-	-	-	-	-	-	BASE PLATE TYPE "C"	2	
-	-	-	-	-	-	-	-	-	-	1	-	-	POLE - HSS 12 X 12 X 5/8 X 44'-0" LG.	1	NOTE 3
-	-	-	-	-	-	-	-	-	-	1	-	-	POLE - HSS 12 X 12 X 5/8 X 38'-0" LG.	1	NOTE 3
-	-	-	-	-	-	-	-	-	-	1	-	-	POLE - HSS 12 X 12 X 5/8 X 35'-0" LG.	1	NOTE 3
-	-	-	-	-	-	1	-	-	-	-	-	-	POLE - HSS 12 X 12 X 5/8 X 32'-0" LG.	1	NOTE 3
-	-	-	-	-	-	1	-	-	-	-	-	-	POLE - HSS 10 X 10 X 1/2 X 47'-0" LG.	1	NOTE 3
-	-	-	-	-	1	-	-	-	-	-	-	-	POLE - HSS 10 X 10 X 1/2 X 44'-0" LG.	1	NOTE 3
-	-	-	1	-	-	-	-	-	-	-	-	-	POLE - HSS 10 X 10 X 1/2 X 41'-0" LG.	1	NOTE 3
-	-	1	-	-	-	-	-	-	-	-	-	-	POLE - HSS 10 X 10 X 1/2 X 38'-0" LG.	1	NOTE 3
-	1	-	-	-	-	-	-	-	-	-	-	-	POLE - HSS 10 X 10 X 1/2 X 35'-0" LG.	1	NOTE 3
1	-	-	-	-	-	-	-	-	-	-	-	-	POLE - HSS 10 X 10 X 1/2 X 32'-0" LG.	1	NOTE 3
SQ-3	SQ-3A	SQ-3B	SQ-3C	SQ-3D	SQ-3E	SQ-4	SQ-4A	SQ-4B	SQ-4D	DESCRIPTION			PART NO.	REMARKS	
ASSEMBLY TYPE															
BILL OF MATERIALS															

QUANTITIES																		
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1/2"Ø GROUNDING BOLT	4			
1	1	1	1	1	1	1	1	1	1	1	1	1	1	REMOVABLE CAP PLATE	3			
-	1	-	-	-	-	-	-	-	-	-	-	-	-	BASE PLATE TYPE "D4"	5			
-	-	1	1	1	1	1	-	-	-	-	-	-	-	BASE PLATE TYPE "D3"	2			
1	-	-	-	-	-	-	1	1	1	1	1	1	1	BASE PLATE TYPE "D2"	5			
-	1	-	-	-	-	-	-	-	-	-	-	-	-	POLE - HSS 16 X 16 X 5/8 X 45'-6" LG.	1	NOTE 3		
1	-	-	-	-	-	-	-	-	-	-	-	-	-	POLE - HSS 14 X 14 X 5/8 X 45'-6" LG.	1	NOTE 3		
-	-	-	-	-	-	-	-	-	-	-	-	1	-	POLE - HSS 14 X 14 X 5/8 X 44'-0" LG.	1	NOTE 3		
-	-	-	-	-	-	-	-	-	-	-	-	1	-	POLE - HSS 14 X 14 X 5/8 X 41'-0" LG.	1	NOTE 3		
-	-	-	-	-	-	-	-	-	-	-	1	-	-	POLE - HSS 14 X 14 X 5/8 X 38'-0" LG.	1	NOTE 3		
-	-	-	-	-	-	-	-	-	-	1	-	-	-	POLE - HSS 14 X 14 X 5/8 X 32'-0" LG.	1	NOTE 3		
-	-	-	-	-	-	-	-	-	1	-	-	-	-	POLE - HSS 12 X 12 X 5/8 X 41'-0" LG.	1	NOTE 3		
-	-	-	-	-	-	-	-	1	-	-	-	-	-	POLE - HSS 12 X 12 X 5/8 X 35'-0" LG.	1	NOTE 3		
-	-	-	-	-	-	1	-	-	-	-	-	-	-	POLE - HSS 12 X 12 X 1/2 X 47'-0" LG.	1	NOTE 3		
-	-	-	-	-	1	-	-	-	-	-	-	-	-	POLE - HSS 12 X 12 X 1/2 X 44'-0" LG.	1	NOTE 3		
-	-	-	-	1	-	-	-	-	-	-	-	-	-	POLE - HSS 12 X 12 X 1/2 X 41'-0" LG.	1	NOTE 3		
-	-	-	1	-	-	-	-	-	-	-	-	-	-	POLE - HSS 12 X 12 X 1/2 X 38'-0" LG.	1	NOTE 3		
-	-	1	-	-	-	-	-	-	-	-	-	-	-	POLE - HSS 12 X 12 X 1/2 X 35'-0" LG.	1	NOTE 3		
SQ-5	SQ-7	SQ-9A	SQ-9B	SQ-9C	SQ-9D	SQ-9E	SQ-10A	SQ-10C	SQ-11	SQ-11B	SQ-11C	SQ-11D	DESCRIPTION			PART NO.	REMARKS	
ASSEMBLY TYPE																		
BILL OF MATERIALS																		

01012024 EDITION									
REV	DATE	BY	CHK	APP	REV	DATE	BY	CHK	APP
DESCRIPTION									

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

 DEPUTY DIRECTOR, ENGINEERING



1250 San Carlos Avenue
San Carlos, CA 94070

STANDARD DRAWINGS

ELECTRIFICATION PROJECT
 OCS POLES
 SQUARE POLE ASSEMBLIES
 TYPES SQ-3 THRU SQ-11B
 SHEET 2 OF 2

CADD FILE NAME:
W5153A

REV: EDITION:
 01012024

STANDARD DRAWING NO.:
W5153A

NOTES:

1. FOR GENERAL NOTES SEE DRAWING W0101.
2. FOR POLE TYPES SHOWN ON THIS SHEET, INSTALL POLE WEB PARALLEL TO TRACK AS SHOWN IN SECTION "A".
3. MODIFIED POLE LENGTHS DUE TO FIELD CONDITIONS MAY BE USED AT LOCATIONS SHOWN ON FOUNDATION AND POLE LAYOUT DRAWINGS. CONFIRM POLE LENGTHS WITH ENGINEER PRIOR TO FABRICATION.

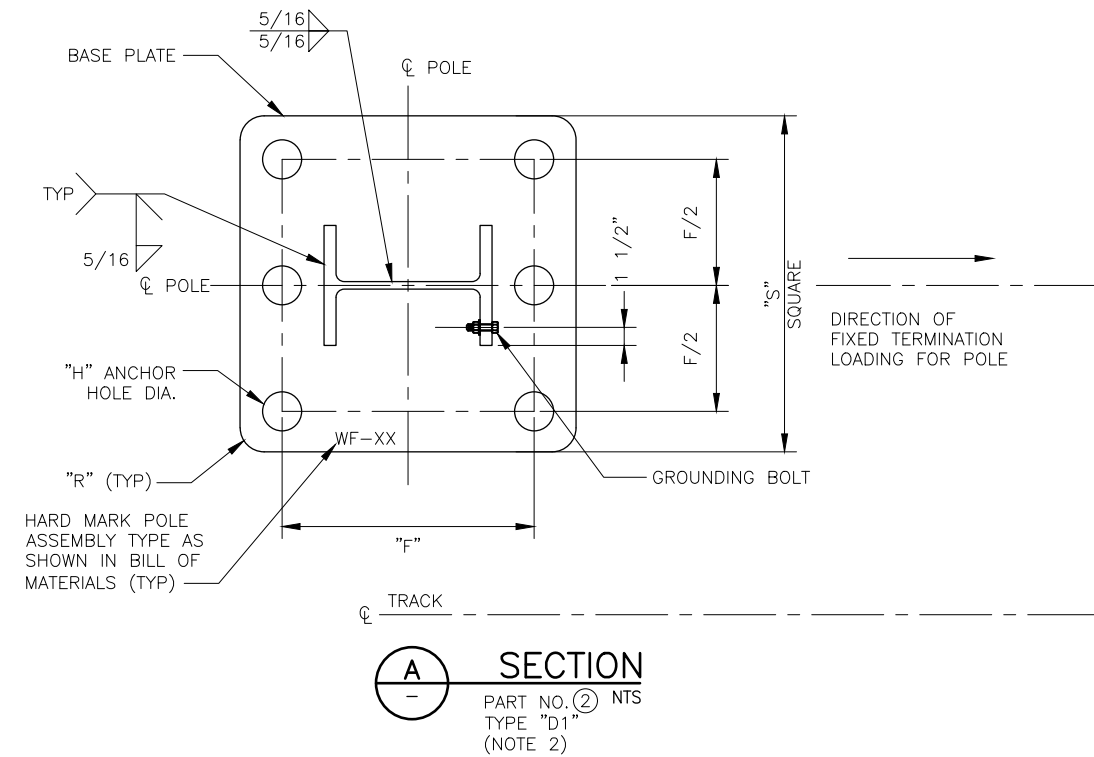
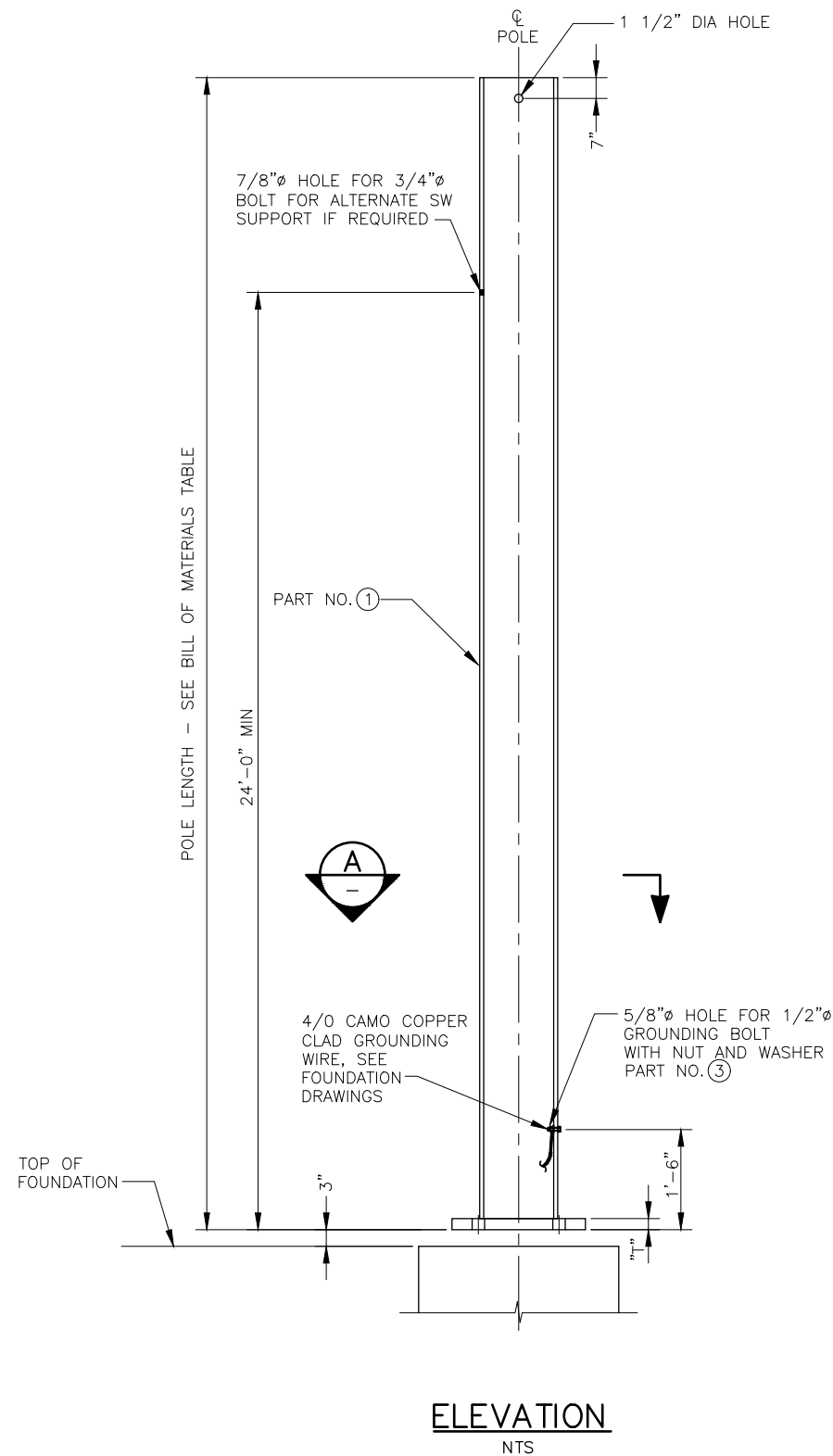


TABLE 1 BASE PLATE DIMENSIONS (IN)

BASE PLATE	DESCRIPTION	S	F	H	R	T	B	ANCHOR BOLT DIA
TYPE "D1"	BASE FOR WF-7	28	21	2 3/8	2	2 1/2	-	2
	WF-7A							

QUANTITIES				
1	1	1/2"Ø GROUNDING BOLT	3	
1	1	BASE PLATE TYPE "D1"	2	
1	-	POLE - W14 x 109 x 32'-0" LG.	1	NOTE 3
-	1	POLE - W14 x 109 x 35'-0" LG.	1	NOTE 3
WF-7	WF-7A	DESCRIPTION	PART NO	REMARKS
BILL OF MATERIALS				

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DEPUTY DIRECTOR, ENGINEERING

STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS POLES
WIDE FLANGE POLE ASSEMBLIES
TYPES WF-7 & WF-7A

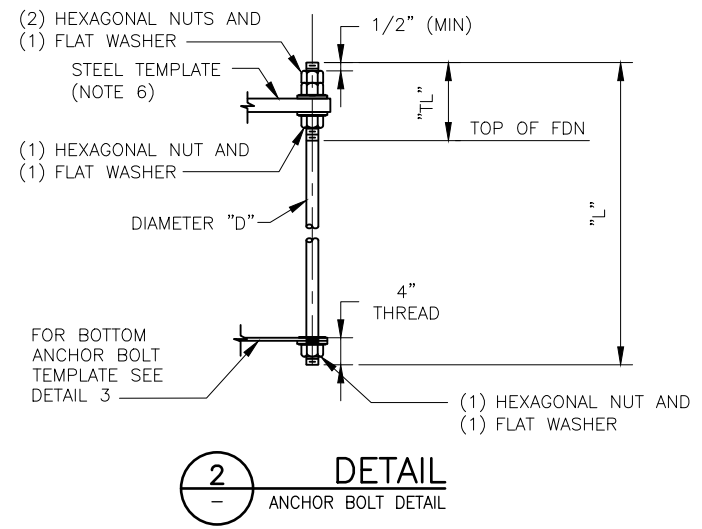
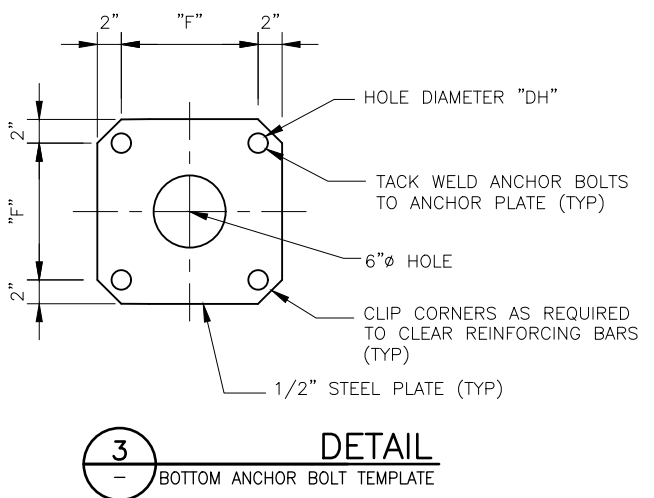
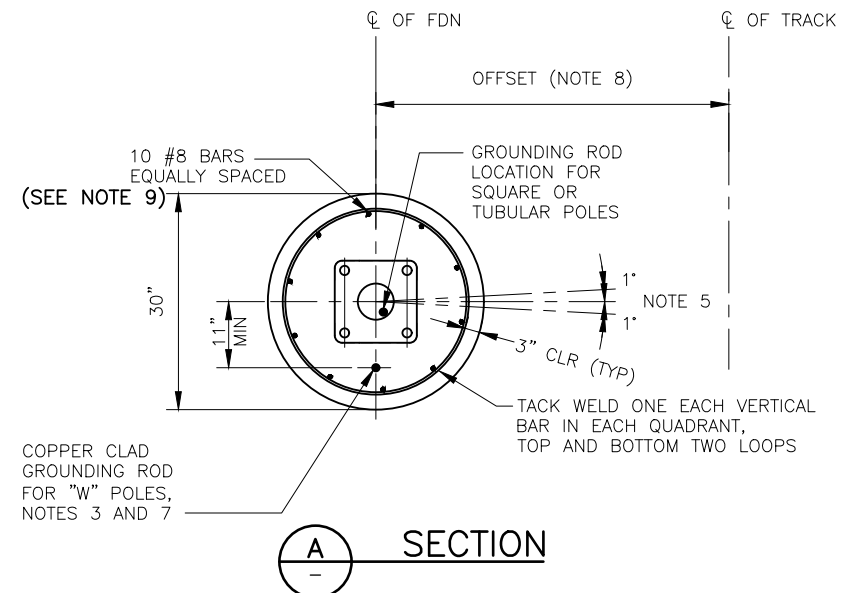
CADD FILE NAME:
W5154

REV: EDITION:
 01012024

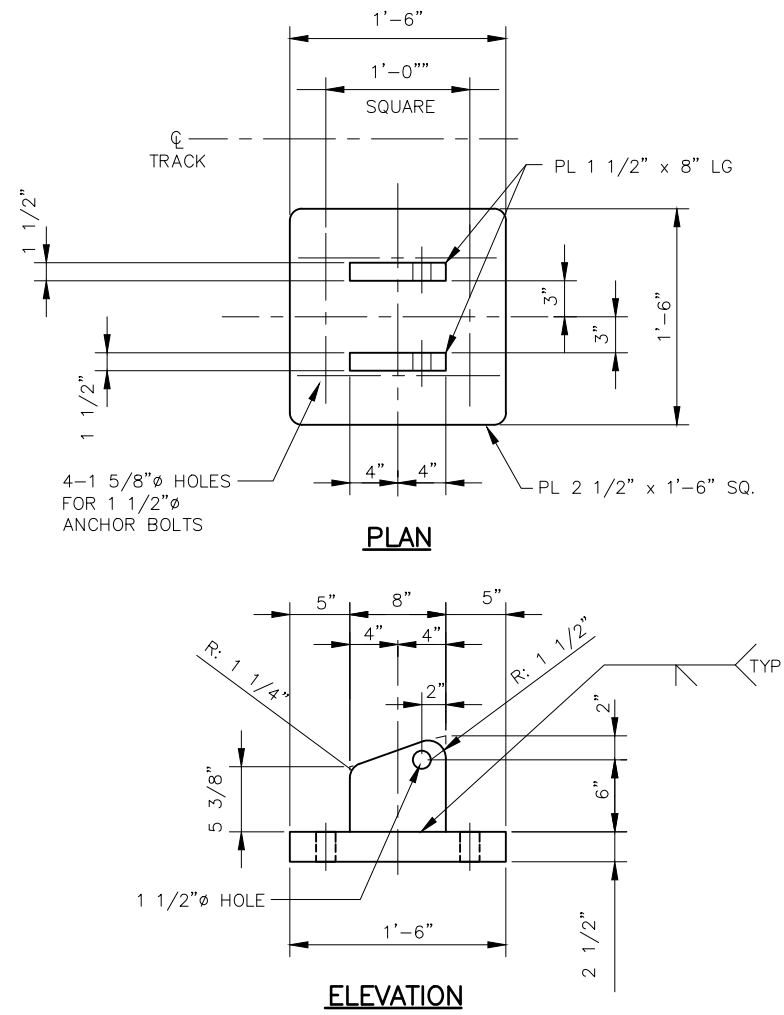
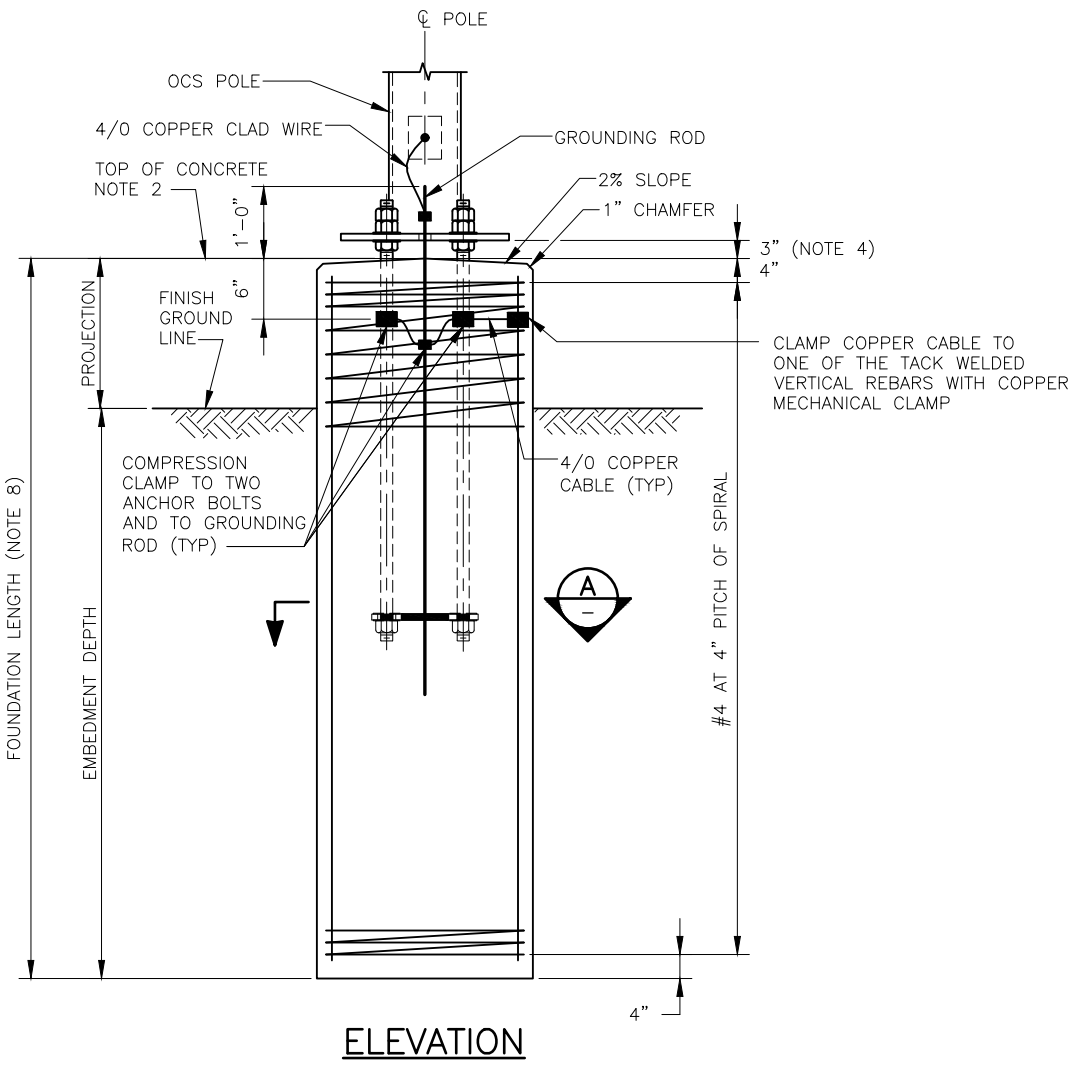
STANDARD DRAWING NO.:
W5154



1250 San Carlos Avenue
San Carlos, CA 94070



- NOTES:**
- FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS, SEE DRAWING W0101.
 - FOUNDATION FINISH LEVEL SHALL BE AT HIGH RAIL LEVEL. FOUNDATION FINISH LEVEL AT PAVED AREAS SHALL BE FLUSH WITH PLATFORM OR PAVED LEVEL.
 - MAY ADJUST LOCATION TO SUPPORT GROUND ROD ALONG REBAR CAGE.
 - A MINIMUM OF ONE-HALF INCH MUST BE KEPT BETWEEN BOTTOM OF NUT AND TOP OF FOUNDATION TO ALLOW FOR POLE RAKING.
 - ROTATIONAL TOLERANCE OF THE ANCHOR BOLT ASSEMBLY MEASURED PERPENDICULAR TO TRACK CENTER LINE SHALL BE SET WITHIN ONE DEGREE OF ITS CORRECT ORIENTATION.
 - CONTRACTOR TO PROVIDE TOP ANCHOR BOLT TEMPLATE TO ENSURE THAT ANCHOR BOLTS ARE INSTALLED WITHIN THE SPECIFIED TOLERANCES. TEMPLATE SHALL REMAIN IN PLACE FOR AT LEAST THREE DAYS AFTER CONCRETE IS POURED.
 - GROUNDING ROD SHALL BE A COPPER-BONDED HIGH CARBON STEEL CORE AND TIP WITH A MINIMUM COPPER COATING OF 10 MILS, 5/8" DIAMETER AND 8'-0" LONG.
 - FOR FOUNDATION STATIONING AND LENGTH, SEE FOUNDATION AND POLE LAYOUT DRAWINGS.
 - REBAR SIZE AND QUANTITY AND FOUNDATION EMBEDMENT TO BE CALCULATED BASED ON SOIL CONDITIONS AT SPECIFIC LOCATIONS.



ANCHOR BOLT TABLE (INCHES)						
FOUNDATION TYPE	ANCHOR BOLT LENGTH "L"	NO. OF BOLTS AND DIAMETER "D"	BOLT SPACING "F"	HOLE DIAMETER "DH"	BOLT THREAD & PROJECTION "TL" (MIN)	REMARKS
FD-30	100	4-1 1/2	12	1 5/8	9 1/2	

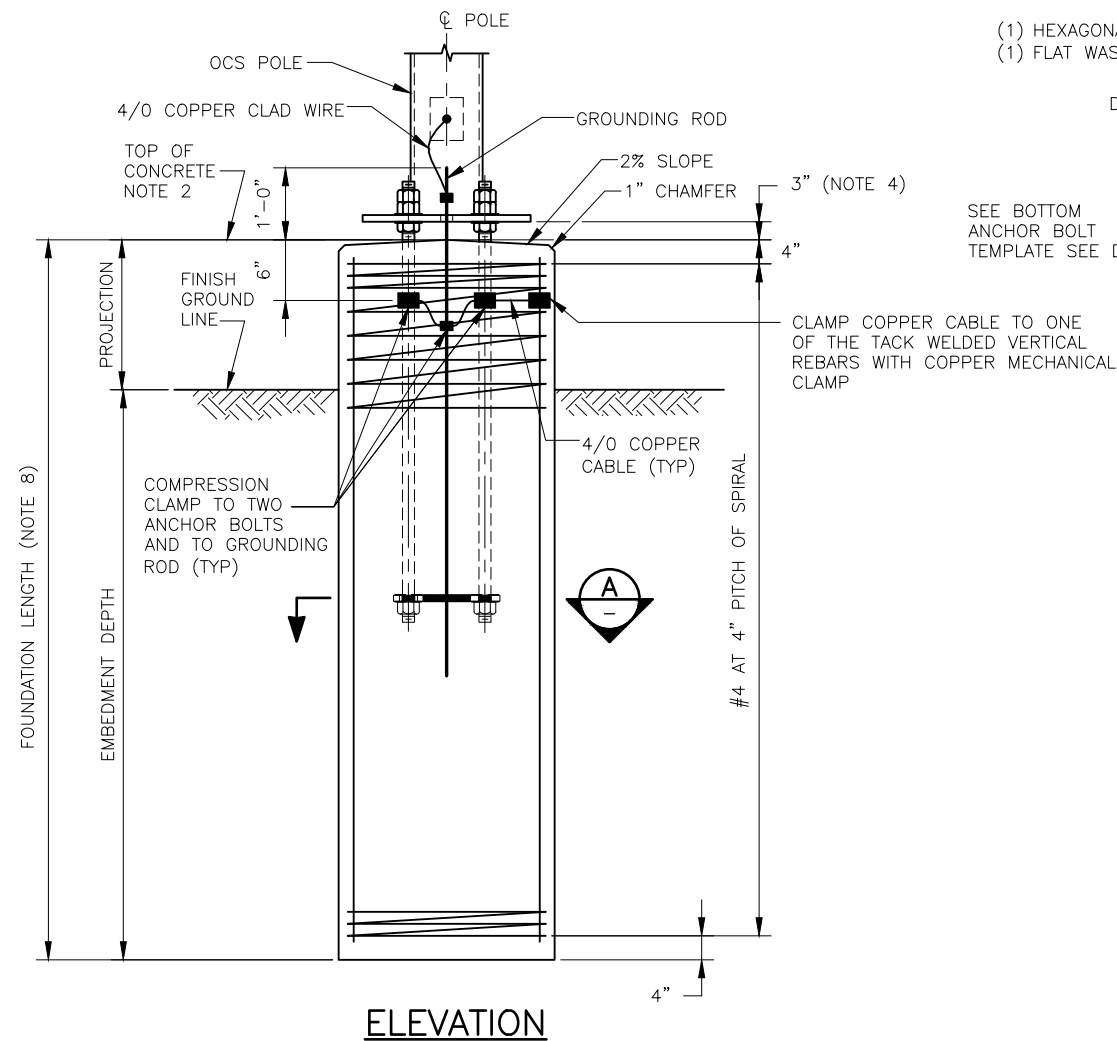
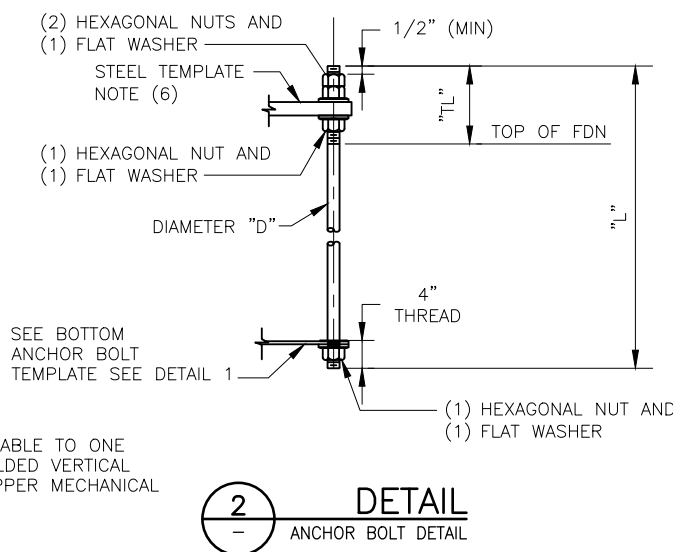
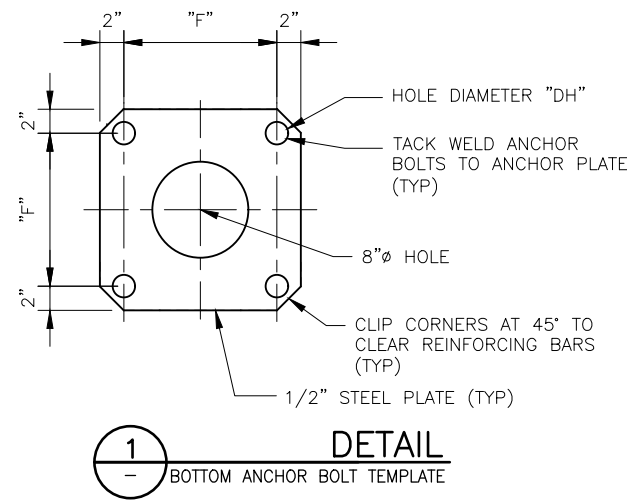
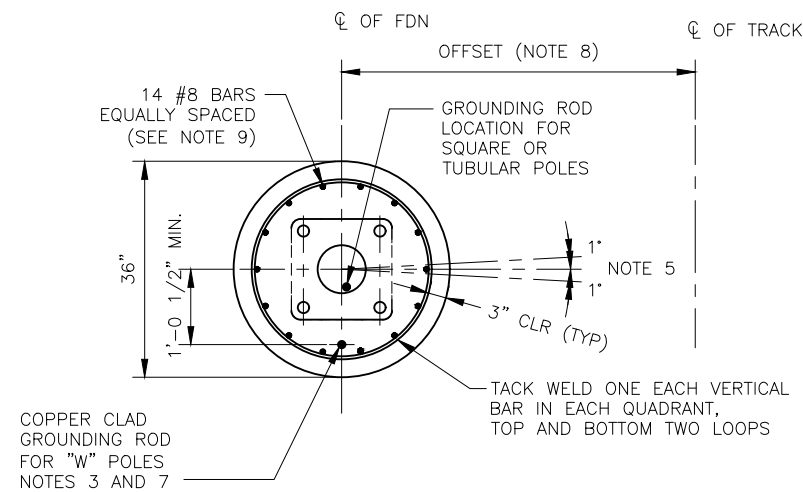
1 **DETAIL-BASE PLATE FOR DOWN GUYS AT FD-30**
NOTE 5 AND NOTE 8

REV	DATE	BY	CHK	APP	DESCRIPTION	REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD		STANDARD DRAWINGS		CADD FILE NAME: W5162	
APPROVED BY: <i>Bin Zhang</i> DEPUTY DIRECTOR, ENGINEERING				REV: EDITION: 01012024	
		ELECTRIFICATION PROJECT OCS POLES DRILLED PIER FOUNDATION 30" DIAMETER TYPE FD-30		STANDARD DRAWING NO.: W5162	
		1250 San Carlos Avenue San Carlos, CA 94070			

NOTES:

- FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS, SEE DRAWING W0101.
- FOUNDATION FINISH LEVEL SHALL BE AT HIGH RAIL LEVEL. FOUNDATION FINISH LEVEL AT PAVED AREAS SHALL BE FLUSH WITH PLATFORM OR PAVED LEVEL.
- MAY ADJUST LOCATION TO SUPPORT GROUND ROD ALONG REBAR CAGE.
- A MINIMUM OF ONE-HALF INCH MUST BE KEPT BETWEEN BOTTOM OF NUT AND TOP OF FOUNDATION TO ALLOW FOR POLE RAKING.
- ROTATIONAL TOLERANCE OF THE ANCHOR BOLT ASSEMBLY MEASURED PERPENDICULAR TO TRACK CENTER LINE SHALL BE SET WITHIN ONE DEGREE OF ITS CORRECT ORIENTATION.
- CONTRACTOR TO PROVIDE TOP ANCHOR BOLT TEMPLATE TO ENSURE THAT ANCHOR BOLTS ARE INSTALLED WITHIN THE SPECIFIED TOLERANCES. TEMPLATE SHALL REMAIN IN PLACE FOR AT LEAST THREE DAYS AFTER CONCRETE IS POURED.
- GROUNDING ROD SHALL BE A COPPER-BONDED HIGH CARBON STEEL CORE AND TIP WITH A MINIMUM COPPER COATING OF 10 MILS, 5/8" DIAMETER AND 8'-0" LONG.
- FOR FOUNDATION STATIONING AND LENGTH, SEE FOUNDATION AND POLE LAYOUT DRAWINGS.
- REBAR SIZE AND QUANTITY AND FOUNDATION EMBEDMENT TO BE CALCULATED BASED ON SOIL CONDITIONS AT SPECIFIC LOCATIONS.



ANCHOR BOLT TABLE (INCHES)						
FOUNDATION TYPE	ANCHOR BOLT LENGTH "L"	NO. OF BOLTS AND DIAMETER "D"	BOLT SPACING "F"	HOLE DIAMETER "DH"	BOLT PROJECTION & PROJECTION "TL" (MIN)	REMARKS
FD-36	100	4-1 3/4	15 1/2	1 7/8	10	
FD-36A	112	4-2	15 1/2	2 1/8	10 1/2	

REV	DATE	BY	CHK	APP	DESCRIPTION	REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DEPUTY DIRECTOR, ENGINEERING

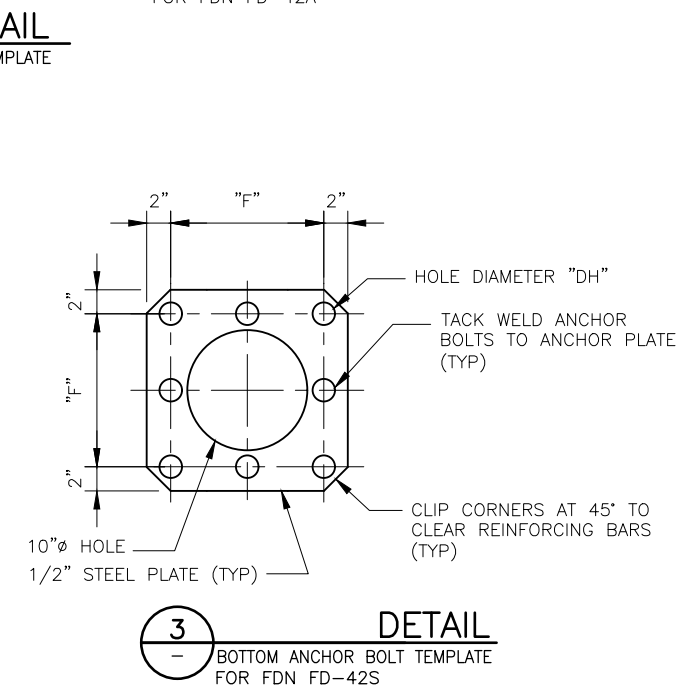
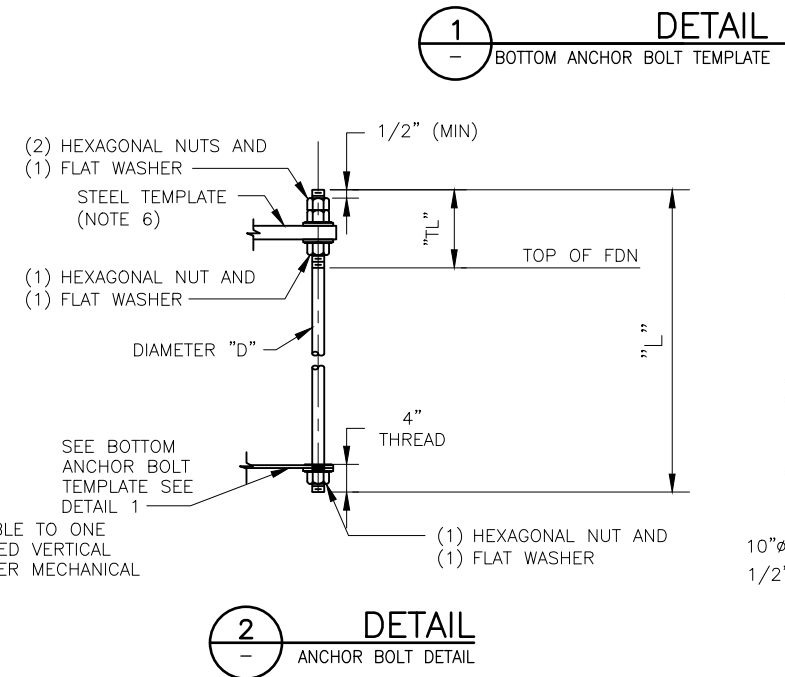
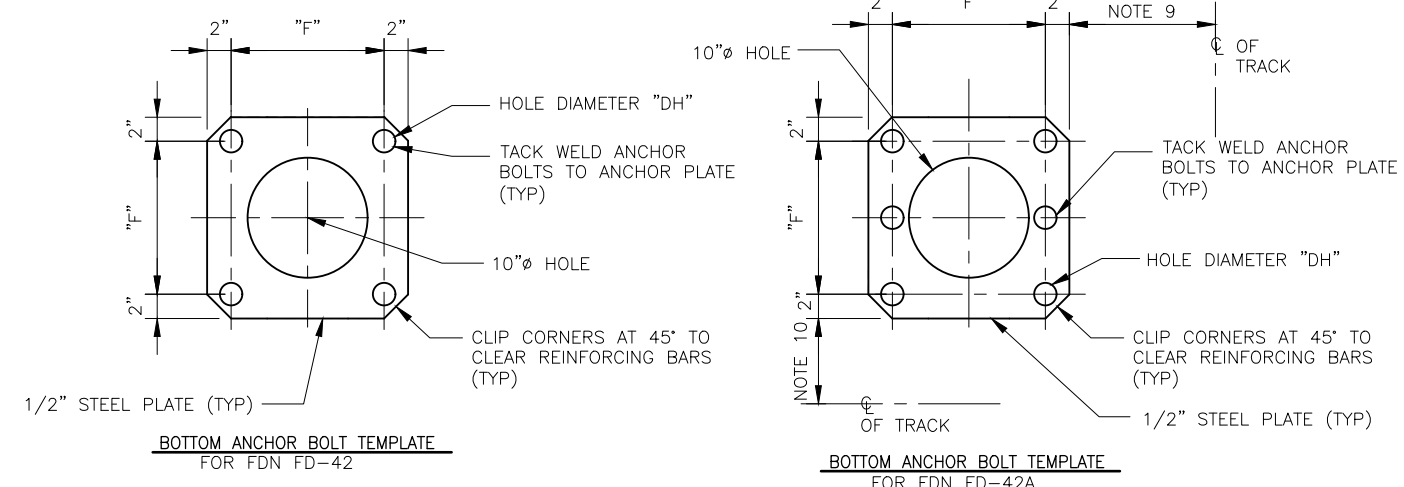
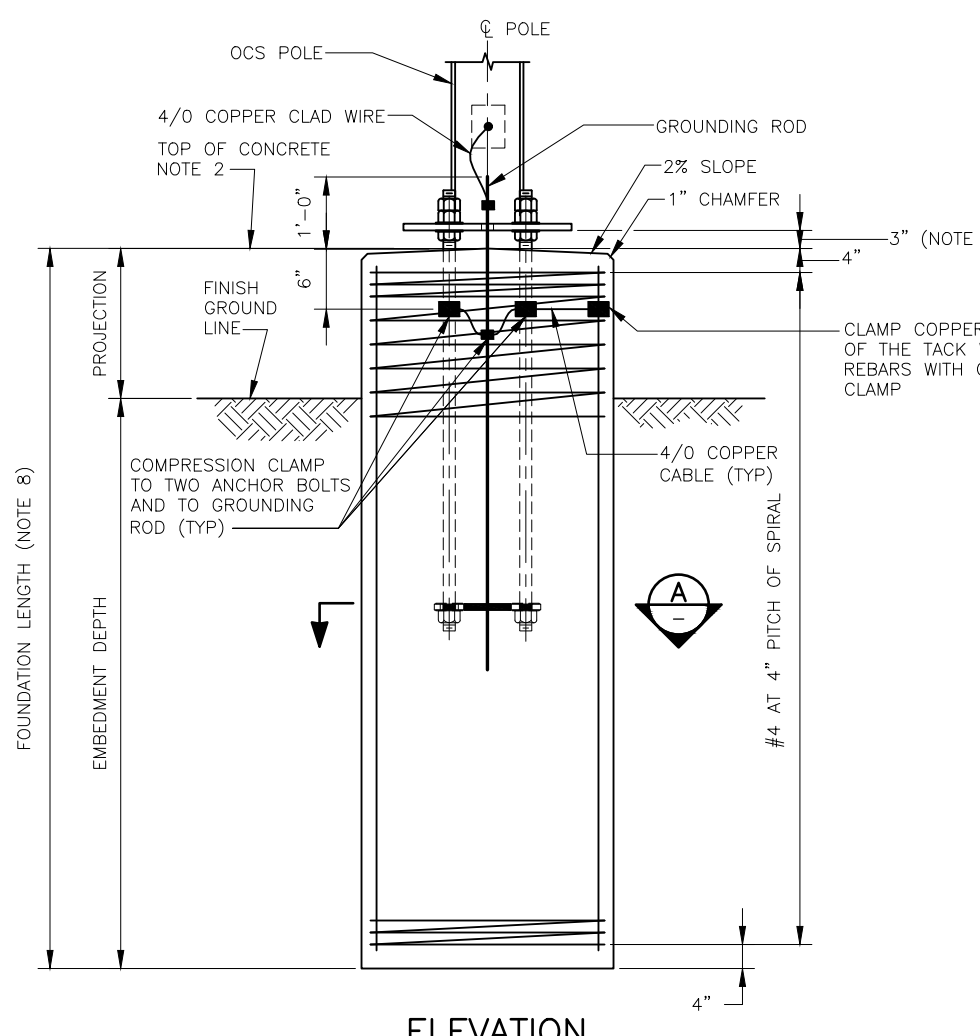
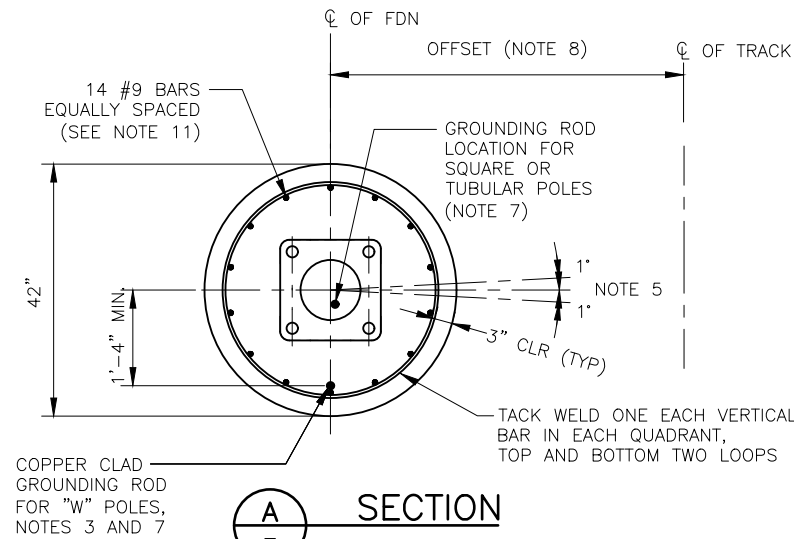


1250 San Carlos Avenue
San Carlos, CA 94070

STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS POLES
DRILLED PIER FOUNDATION
36" DIAMETER
TYPE FD-36 AND FD-36A

CADD FILE NAME: W5163
REV: EDITION: 01012024
STANDARD DRAWING NO.: **W5163**



ANCHOR BOLT TABLE (INCHES)						
FOUNDATION TYPE	ANCHOR BOLT LENGTH "L"	NO. OF BOLTS AND DIAMETER "D"	BOLT SPACING "F"	HOLE DIAMETER "DH"	BOLT THREAD & PROJECTION "TL" (MIN)	REMARKS
FD-42	112	4-2	21	2 1/8	10 1/2	
FD-42A	112	6-2	21	2 1/8	10 1/2	
FD-42S	112	8-2	21	2 1/8	10 1/2	

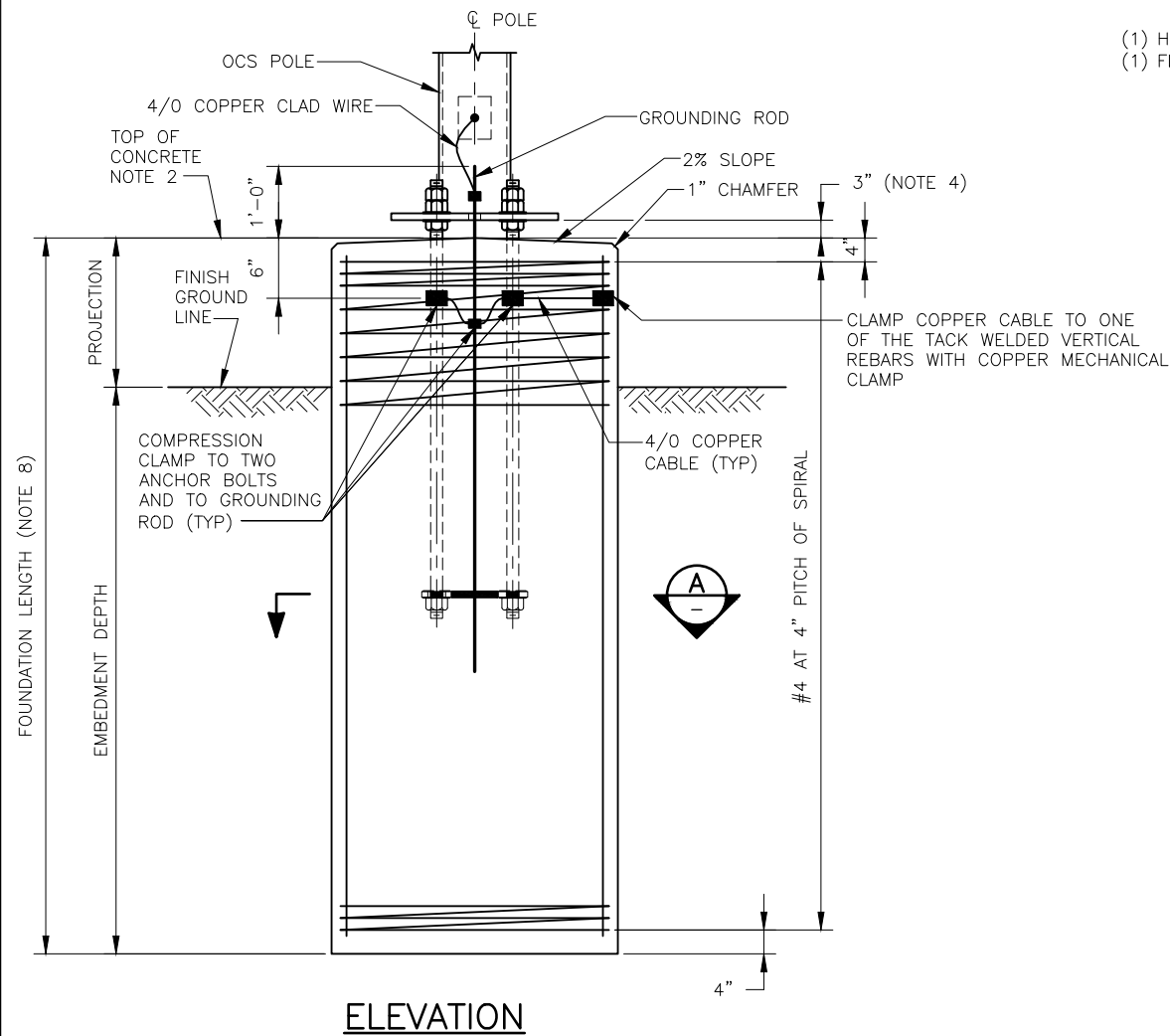
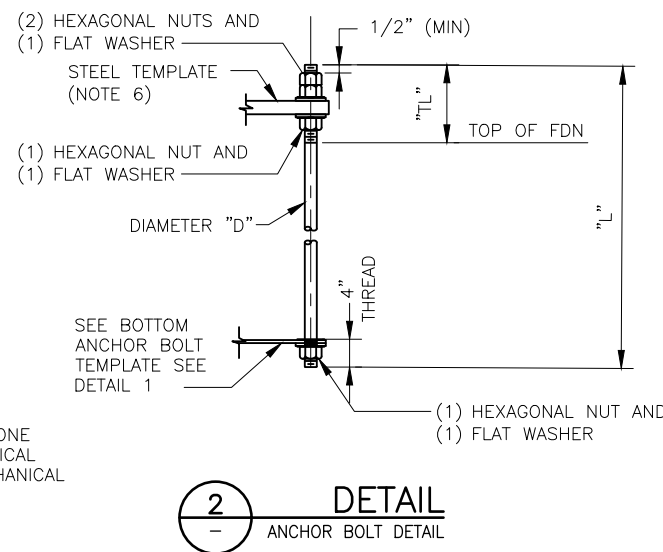
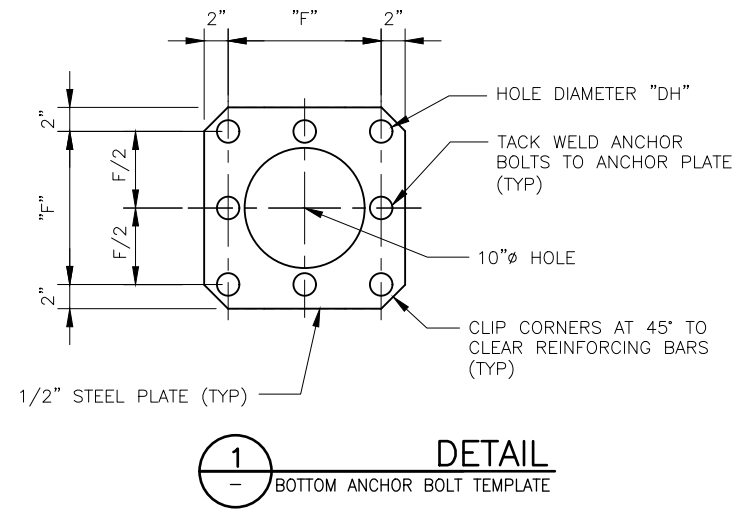
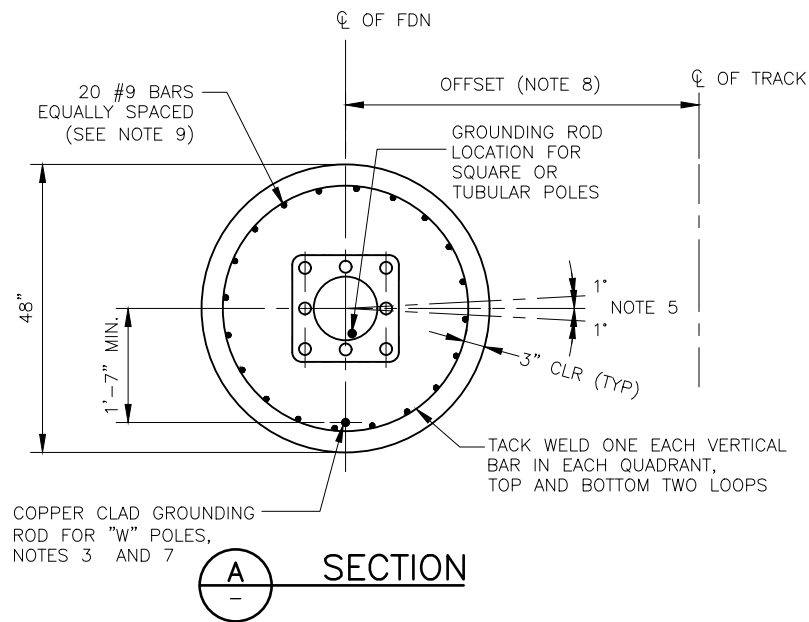
- NOTES:**
- FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS, SEE DRAWING W0101.
 - FOUNDATION FINISH LEVEL SHALL BE AT HIGH RAIL LEVEL. FOUNDATION FINISH LEVEL AT PAVED AREAS SHALL BE FLUSH WITH PAVED LEVEL.
 - MAY ADJUST LOCATION TO SUPPORT GROUND ROD ALONG REBAR CAGE.
 - A MINIMUM OF ONE-HALF INCH MUST BE KEPT BETWEEN BOTTOM OF NUT AND TOP OF FOUNDATION TO ALLOW FOR POLE RAKING.
 - ROTATIONAL TOLERANCE OF THE ANCHOR BOLT ASSEMBLY MEASURED PERPENDICULAR TO TRACK CENTER LINE SHALL BE SET WITHIN ONE DEGREE OF ITS CORRECT ORIENTATION.
 - CONTRACTOR TO PROVIDE TOP ANCHOR BOLT TEMPLATE TO ENSURE THAT ANCHOR BOLTS ARE INSTALLED WITHIN THE SPECIFIED TOLERANCES. TEMPLATE SHALL REMAIN IN PLACE FOR AT LEAST THREE DAYS AFTER CONCRETE IS POURED.
 - GROUNDING ROD SHALL BE A COPPER-BONDED HIGH CARBON STEEL CORE AND TIP WITH A MINIMUM COPPER COATING OF 10 MILS, 5/8" DIAMETER AND 8'-0" LONG.
 - FOR FOUNDATION STATIONING AND LENGTH, SEE FOUNDATION AND POLE LAYOUT DRAWINGS.
 - 3-BOLT ROWS ARE PARALLEL TO THE TRACKS FOR POLE TYPES OTHER THAN THOSE LISTED IN NOTE 10.
 - 3-BOLT ROWS ARE PERPENDICULAR TO THE TRACKS FOR POLE TYPES WF-7, WF-7A, WF-7B AND WF-7C.
 - REBAR SIZE AND QUANTITY AND FOUNDATION EMBEDMENT TO BE CALCULATED BASED ON SOIL CONDITIONS AT SPECIFIC LOCATION.

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD		STANDARD DRAWINGS	
APPROVED BY: <i>Bin Zhang</i> DEPUTY DIRECTOR, ENGINEERING		Caltrain 1250 San Carlos Avenue San Carlos, CA 94070	
ELECTRIFICATION PROJECT OCS POLES DRILLED PIER FOUNDATION 42" DIAMETER TYPES FD-42, FD-42A & FD-42S		CADD FILE NAME: W5164 REV: W5164 EDITION: 01012024 STANDARD DRAWING NO.: W5164	

NOTES:

- FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS, SEE DRAWING W0101.
- FOUNDATION FINISH LEVEL SHALL BE AT HIGH RAIL LEVEL. FOUNDATION FINISH LEVEL AT PAVED AREAS SHALL BE FLUSH WITH PLATFORM OR PAVED LEVEL.
- MAY ADJUST LOCATION TO SUPPORT GROUND ROD ALONG REBAR CAGE.
- A MINIMUM OF ONE-HALF INCH MUST BE KEPT BETWEEN BOTTOM OF NUT AND TOP OF FOUNDATION TO ALLOW FOR POLE RAKING.
- ROTATIONAL TOLERANCE OF THE ANCHOR BOLT ASSEMBLY MEASURED PERPENDICULAR TO TRACK CENTER LINE SHALL BE SET WITHIN ONE DEGREE OF ITS CORRECT ORIENTATION.
- CONTRACTOR TO PROVIDE TOP ANCHOR BOLT TEMPLATE TO ENSURE THAT ANCHOR BOLTS ARE INSTALLED WITHIN THE SPECIFIED TOLERANCES. TEMPLATE SHALL REMAIN IN PLACE FOR AT LEAST THREE DAYS AFTER CONCRETE IS POURED.
- GROUNDING ROD SHALL BE A COPPER-BONDED HIGH CARBON STEEL CORE AND TIP WITH A MINIMUM COPPER COATING OF 10 MILS, 5/8" DIAMETER AND 8'-0" LONG.
- FOR FOUNDATION STATIONING AND LENGTH, SEE FOUNDATION AND POLE LAYOUT DRAWINGS.
- REBAR SIZE AND QUANTITY AND FOUNDATION EMBEDMENT TO BE CALCULATED BASED ON SOIL CONDITIONS AT SPECIFIC LOCATIONS.



ANCHOR BOLT TABLE (INCHES)						
FOUNDATION TYPE	ANCHOR BOLT LENGTH "L"	NO. OF BOLTS AND DIAMETER "D"	BOLT SPACING "F"	HOLE DIAMETER "DH"	BOLT THREAD & PROJECTION "TL" (MIN)	REMARKS
FD-48S	112	8-2 1/4	25	2 5/8	12	

REV	DATE	BY	CHK	APP	DESCRIPTION	REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DEPUTY DIRECTOR, ENGINEERING

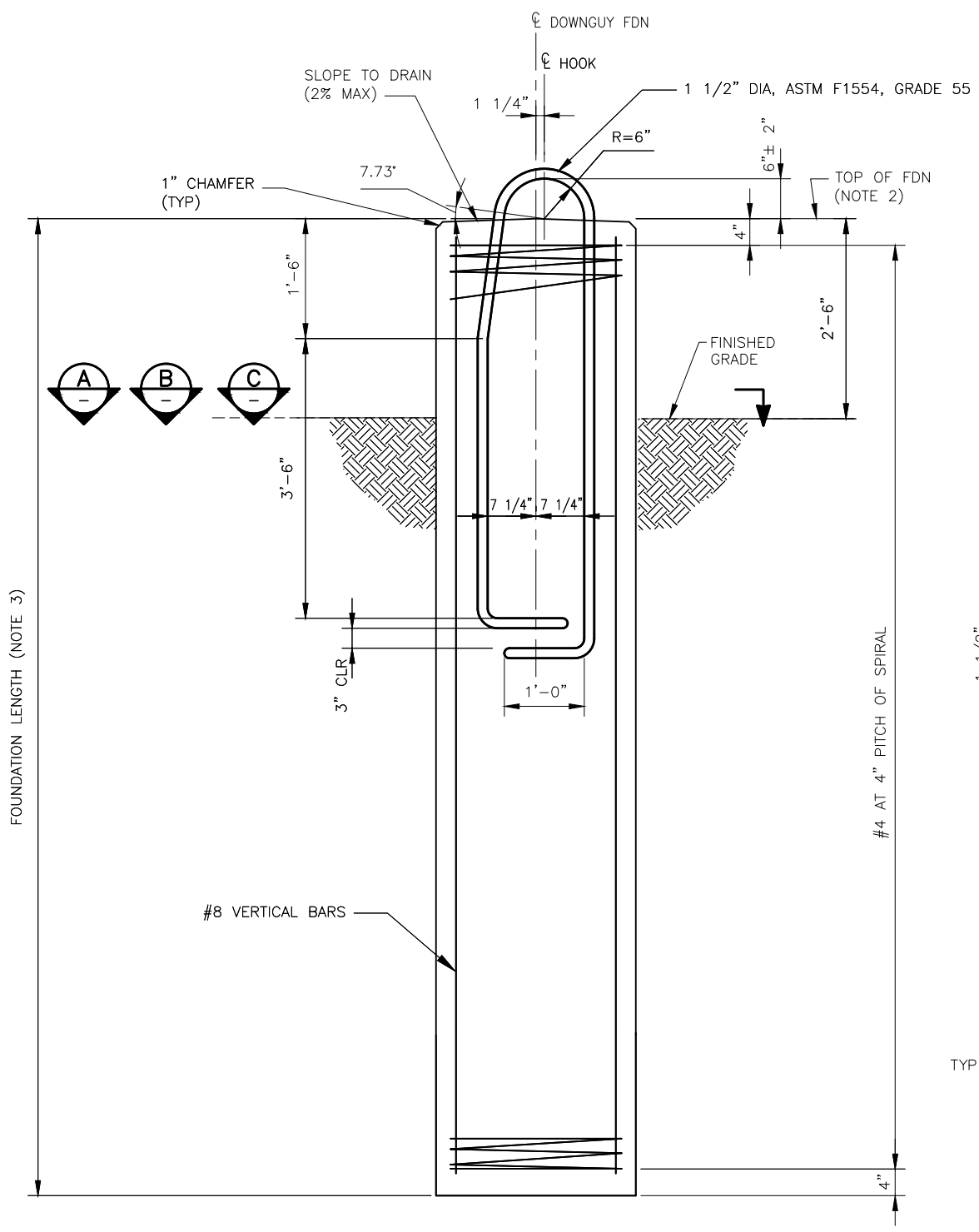
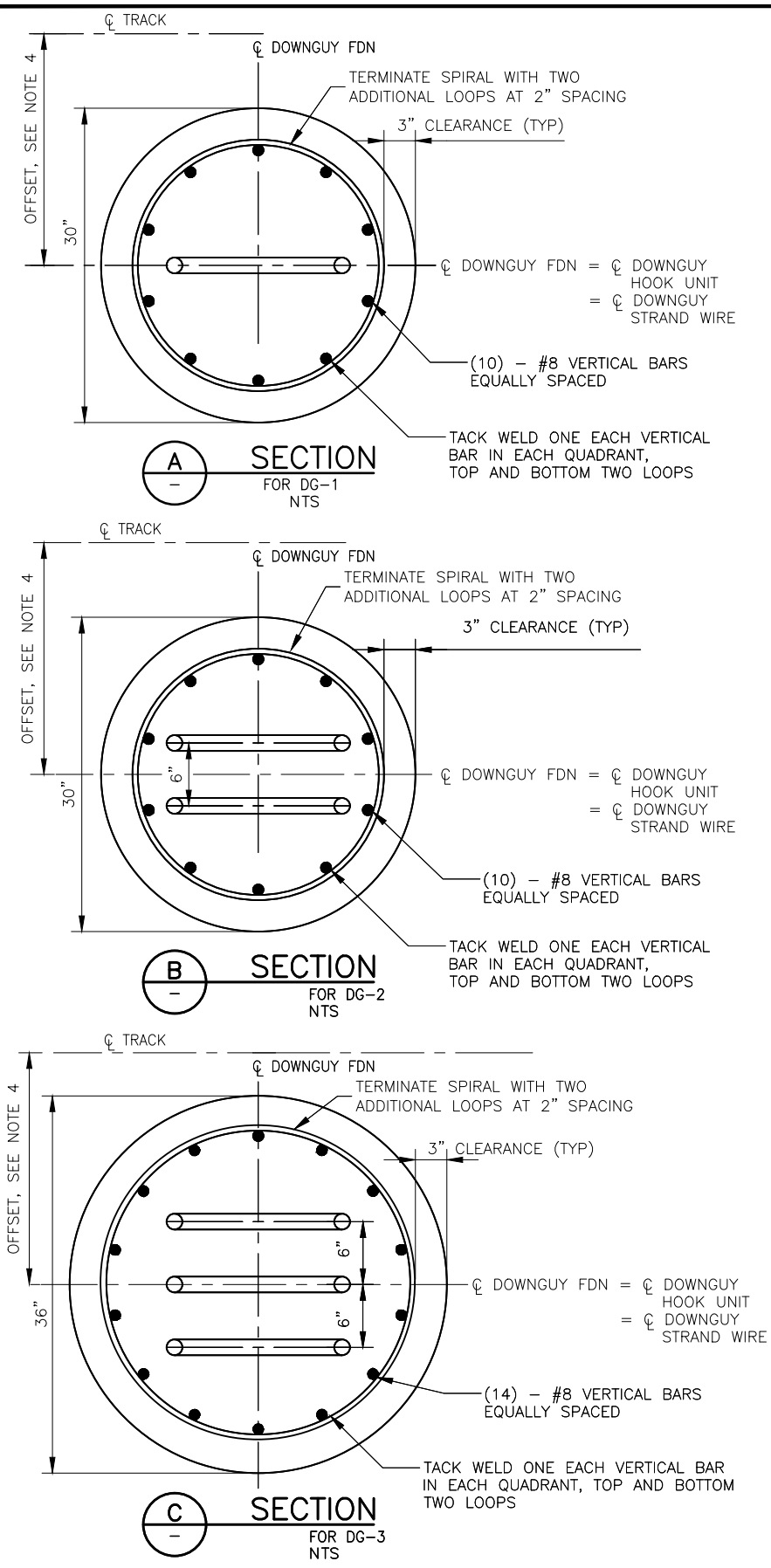


1250 San Carlos Avenue
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STANDARD DRAWINGS

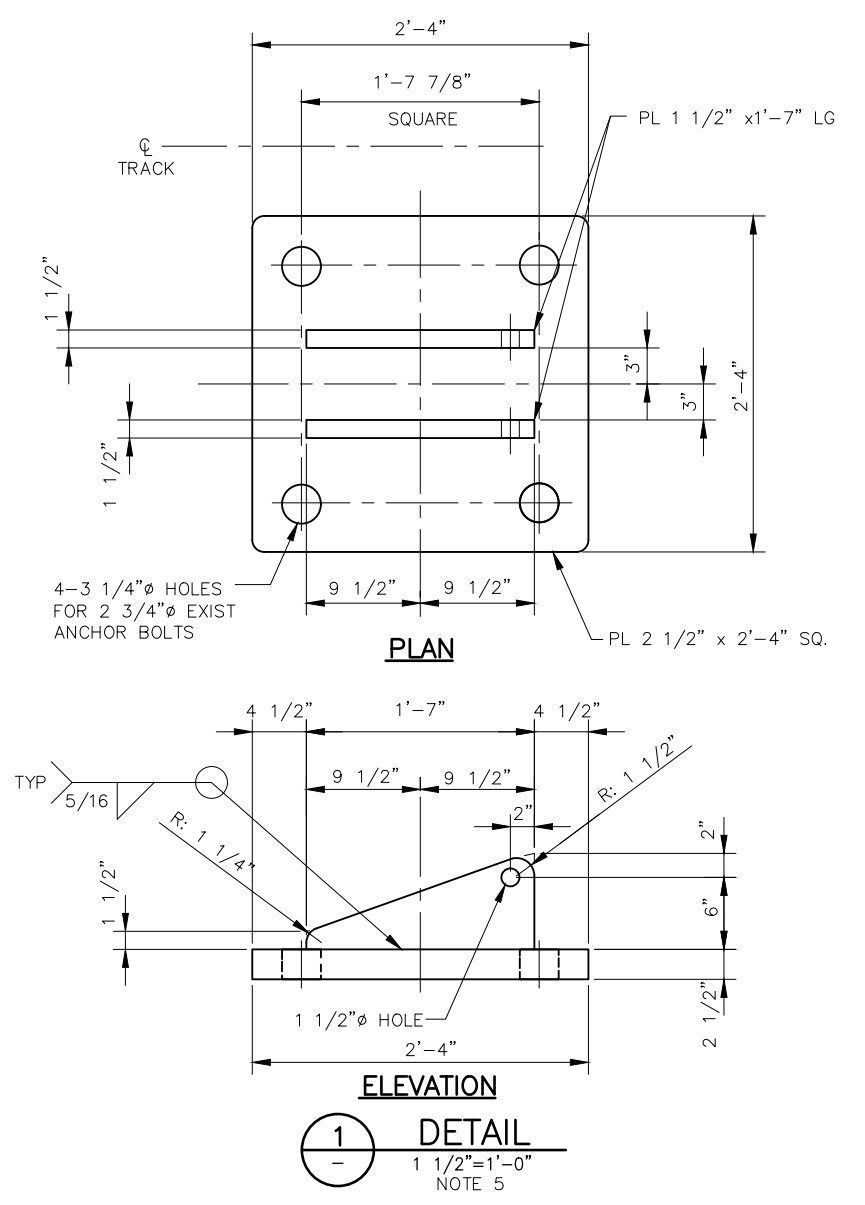
ELECTRIFICATION PROJECT
OCS POLES
DRILLED PIER FOUNDATION
48" DIAMETER
TYPE FD-48S

CADD FILE NAME: W5165
REV: 01012024 EDITION:
STANDARD DRAWING NO.: **W5165**



ELEVATION
DG-1 AND DG-2 SHOWN
DG-3 SIMILAR
 NTS

- NOTES:**
- FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS, SEE DRAWING W0101.
 - TOP OF FOUNDATION SHALL EXTEND 2'-6" ABOVE LOWEST POINT OF ADJACENT FINISHED GRADE (2" CLR MIN), UNLESS APPROVED BY ENGINEER.
 - FOR FOUNDATION STATIONING AND LENGTH, SEE FOUNDATION AND POLE LAYOUT DRAWINGS.
 - DOWNGUY FOUNDATION SHALL BE LOCATED PER THE OFFSET AS PER THE FOUNDATION AND POLE LAYOUT DRAWINGS. THE HORIZONTAL TOLERANCE OF THE DOWNGUY HOOK (DOWNGUY HOOK UNIT) SHALL BE ±2-IN RELATIVE TO THE LOCATION OF THE FOUNDATION. ALL OTHER TOLERANCES SHALL BE MET PER THE PROJECT SPECIFICATIONS. WHEN A TOLERANCE IS REALIZED IN ANY DIRECTION, A DEDUCTION SHALL BE MADE TO A SUBSEQUENT TOLERANCE IN THAT SAME DIRECTION AS THE TOLERANCES ARE NOT ADDITIVE.
 - BASE PLATE FOR DOWN GUYS AT EXISTING FOUNDATIONS SHALL BE HOT DIP GALVANIZED. FIELD MEASURE EXISTING CONDITION AND NOTIFY ENGINEER PRIOR TO FABRICATION.



1
DETAIL
 1 1/2"=1'-0"
 NOTE 5

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
 DEPUTY DIRECTOR, ENGINEERING

Caltrain
 1250 San Carlos Avenue
 San Carlos, CA 94070

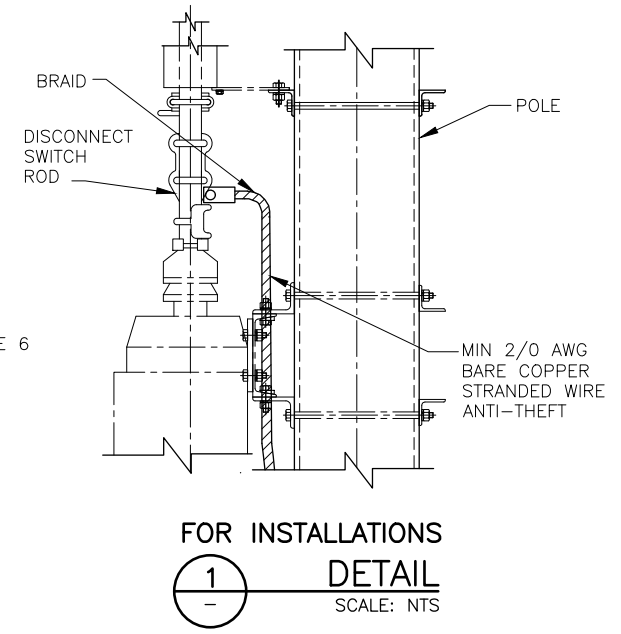
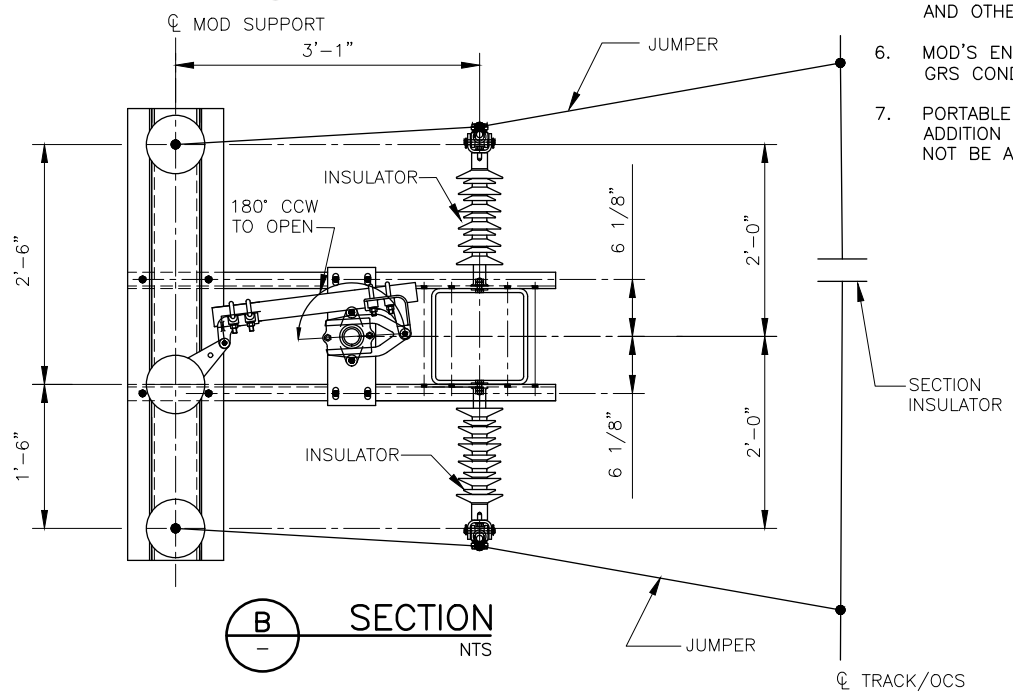
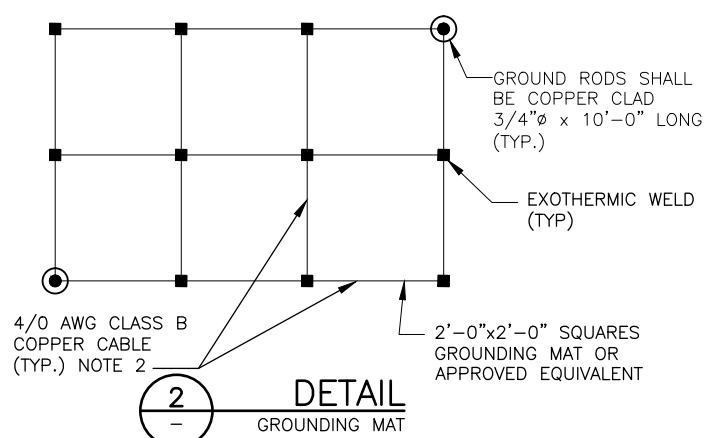
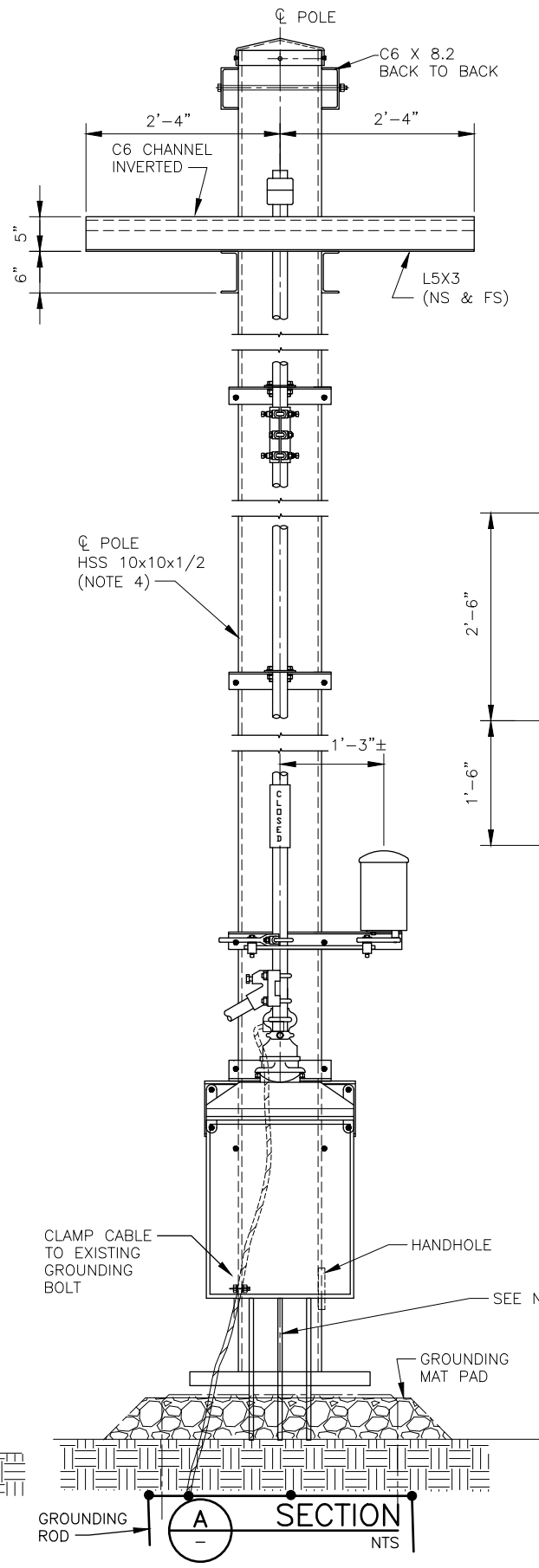
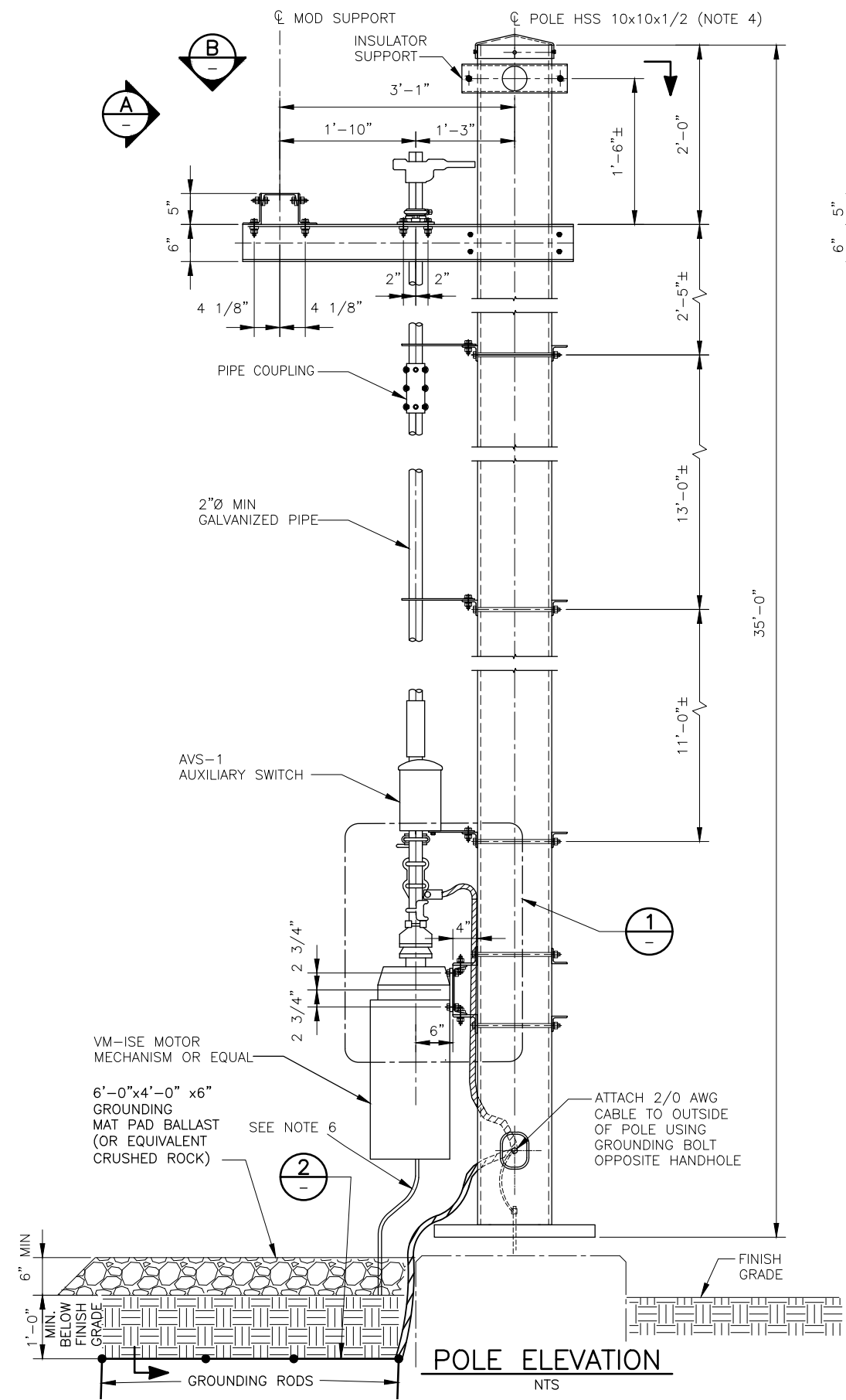
STANDARD DRAWINGS

ELECTRIFICATION PROJECT
 OCS POLES
 DRILLED PIER FOUNDATION
 DOWNGUYS
 TYPES DG-1, DG-2, DG-3 & EXISTING

CADD FILE NAME:
 W5166

REV: EDITION:
 01012024

STANDARD DRAWING NO.:
W5166




- NOTES:**
- FOR GENERAL NOTES SEE DRAWING W0101.
 - ALL DIMENSIONS AS INDICATED ARE PRELIMINARY, FABRICATOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER'S APPROVAL WITH ALL DIMENSIONS, SUPPORTS, AND OTHER APPURTENANCES AS REQUIRED FOR EQUIPMENT INSTALLATION.
 - FURNISH SWITCHES MOUNTED WITH POLYMER INSULATORS AND COMPLETELY ASSEMBLED.
 - POLE SIZE MAY VARY BASED ON LOCATION, REFER TO FOUNDATION AND POLE LAYOUT DRAWINGS.
 - THE ARRANGEMENT SHOWN ON THIS DRAWING IS TYPICAL. ADJUSTMENTS WILL BE REQUIRED ON A SITE SPECIFIC BASIS TO SUIT WIRE HEIGHTS, QUANTITY OF SWITCHES AT EACH LOCATION, OUT-OF-RUNNING WIRES, TERMINATIONS, AND OTHER CONDITIONS.
 - MOD'S ENCLOSURE STUB UP SHALL BE 3-2" DIA. GRS CONDUITS.
 - PORTABLE SWITCHING PLATFORM MAY BE PROVIDED IN ADDITION TO PERSONAL GROUND GRID IF SWITCH CAN NOT BE ACCESSED FROM THE GROUND.

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DEPUTY DIRECTOR, ENGINEERING



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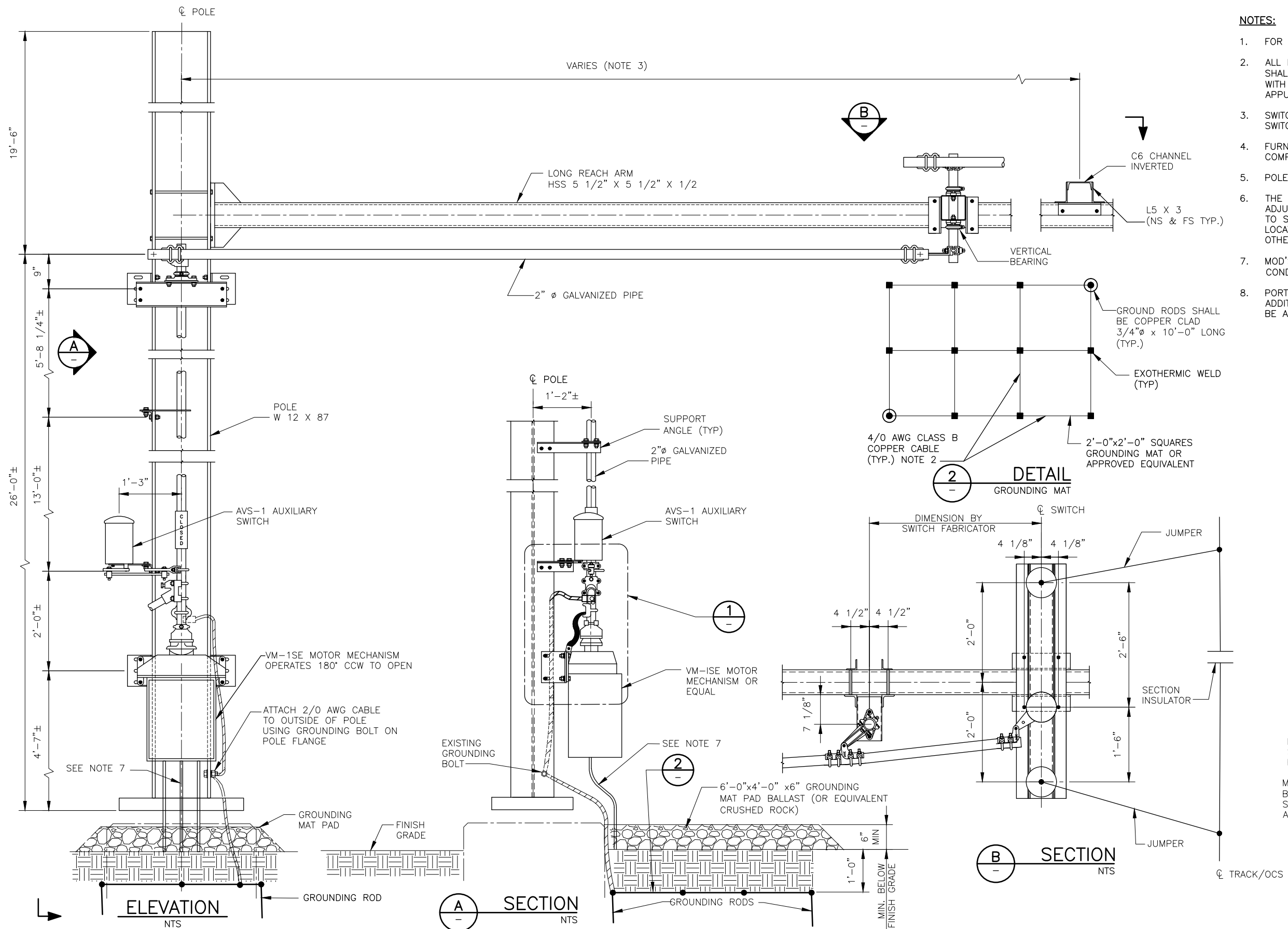
STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS POLES
MOD DISCONNECT SWITCH
ON POLE TYPE SQ
MOUNTING DETAILS

CADD FILE NAME:
W5171

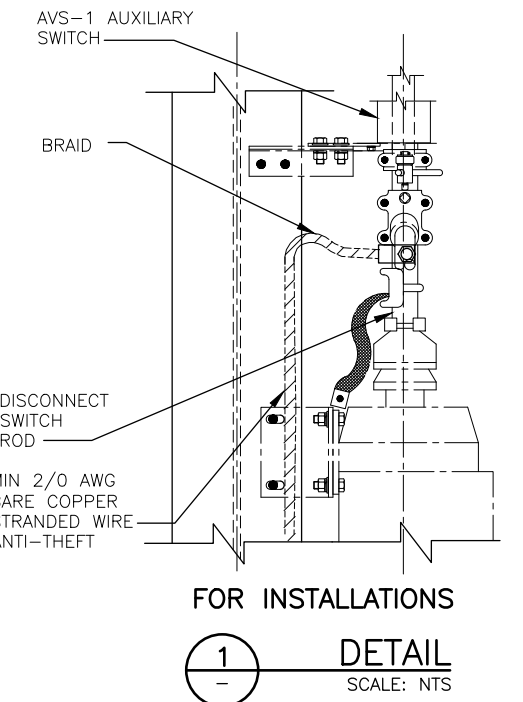
REV: EDITION:
 01012024

STANDARD DRAWING NO.:
W5171



NOTES:

1. FOR GENERAL NOTES SEE DRAWING W0101.
2. ALL DIMENSIONS AS INDICATED ARE PRELIMINARY, FABRICATOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER'S APPROVAL WITH ALL DIMENSIONS, SUPPORTS, AND OTHER APPURTENANCES AS REQUIRED FOR EQUIPMENT INSTALLATION.
3. SWITCH FABRICATOR TO PROVIDE DIMENSIONS BASED ON SWITCH FURNISHED.
4. FURNISH SWITCH MOUNTED ON POLYMER INSULATORS AND COMPLETE ASSEMBLED.
5. POLE SIZE MAY VARY BASED ON LOCATION.
6. THE ARRANGEMENT SHOWN ON THIS DRAWING IS TYPICAL. ADJUSTMENTS WILL BE REQUIRED ON A SITE SPECIFIC BASIS TO SUIT WIRE HEIGHTS, QUANTITY OF SWITCHES AT EACH LOCATION, OUT-OF-RUNNING WIRES, TERMINATIONS, AND OTHER CONDITIONS.
7. MOD'S ENCLOSURE STUB UP SHALL BE 3-2" DIA. GRS CONDUITS.
8. PORTABLE SWITCHING PLATFORM MAY BE PROVIDED IN ADDITION TO PERSONAL GROUND GRID IF SWITCH CAN NOT BE ACCESSED FROM THE GROUND.



REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DEPUTY DIRECTOR, ENGINEERING

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San Carlos, CA 94070

STANDARD DRAWINGS

ELECTRIFICATION PROJECT

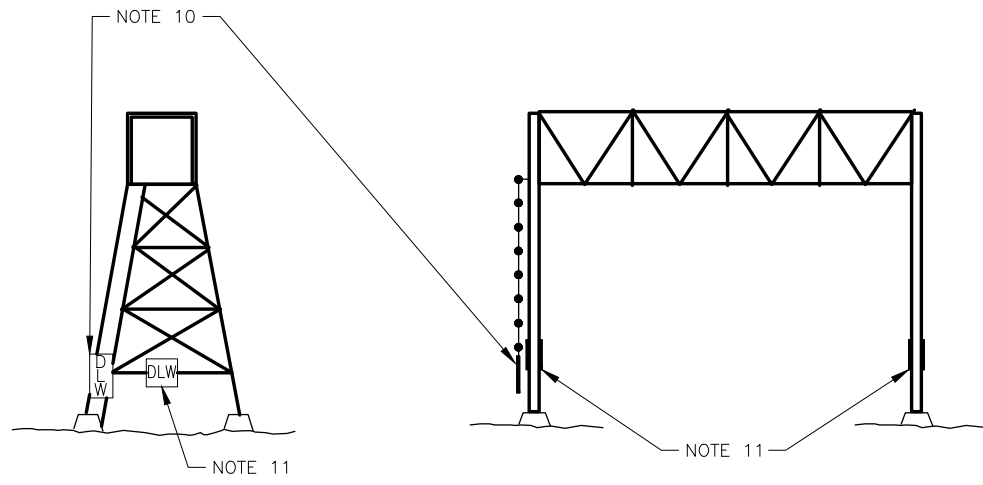
OCs POLES

MOD DISCONNECT SWITCH

ON POLE WF-4B

MOUNTING DETAILS

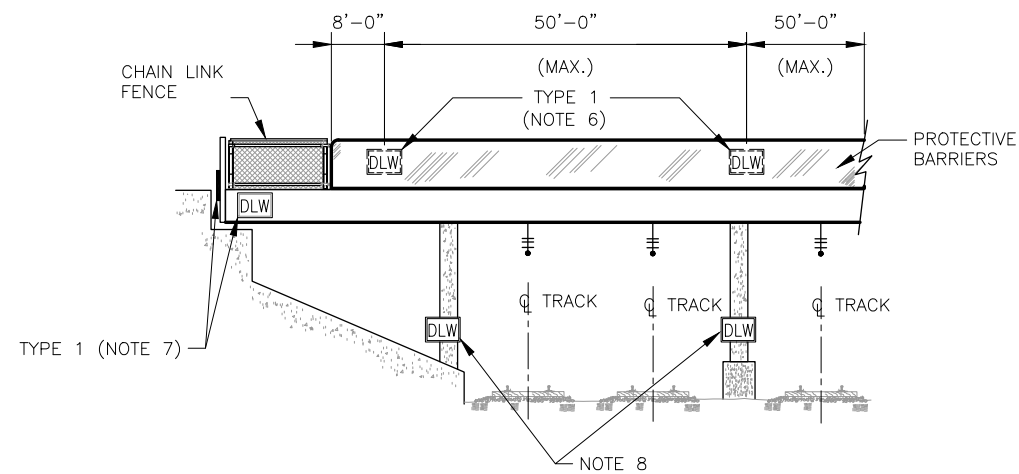
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REV:	EDITION: 01012024
STANDARD DRAWING NO.: W5172	



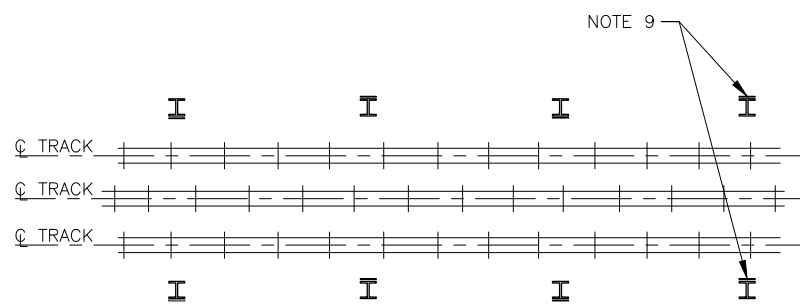
SIDE ELEVATION
N.T.S.

FRONT ELEVATION

SIGNAL BRIDGES
TYPE 3 SIGNS



OVERHEAD BRIDGES
TYPES 2 OR 3 SIGNS



CATENARY POLES
"NO TRESPASSING" SIGNS

SIGN NOTES:

1. SIGN PLATES SHALL BE 0.060"–5052 ALODINE TREATED ALUMINUM.
2. THE FACE OF THE PLATE SHALL BE COVERED WITH WHITE ENGINEER GRADE REFLECTIVE SHEETING, MEETING FEDERAL SPECIFICATION LS-300C.
3. GRAPHICS SHALL BE PHOTO SILK SCREEN USING TRANSPARENT RED AND BLACK INKS, PER REFLECTIVE SHEETING MANUFACTURER'S SPECIFICATION FOR CHEMICAL ADHESION COMPATIBILITY. COLORS SHALL BE PER SPECIFICATIONS, MANUFACTURERS SHALL SUPPLY COLOR FOR COMPARISON.
4. SIGN SHALL BE CLEAR-COATED AFTER SCREENING.
5. A NOTARIZED CERTIFICATION OF ALUMINUM AND REFLECTIVE MATERIAL GRADE SHALL BE REQUESTED FROM MANUFACTURER.
6. A MINIMUM OF THREE (3) "DANGER LIVE WIRE" TYPE 1 SIGNS, SHALL BE POSTED ON INSIDE OF PROTECTIVE BARRIER AT ENDS AND MIDDLE OF BRIDGE, SPACING OF SIGNS SHALL BE 50 FEET MAXIMUM SPACING.
7. "DANGER LIVE WIRE" SIGNS (TYPE 1) ON EACH WING OF ANTI-CLIMB SHIELD, OR END OF STRUCTURE.
8. "DANGER LIVE WIRE" TYPES 2 OR 3, SHALL BE POSTED AT EACH END OF CLIMBABLE PIERS AT OVERHEAD BRIDGES AS INDICATED.
9. EACH CATENARY POLE SHALL HAVE AT LEAST ONE "NO TRESPASSING" SIGN POSTED WITH THE SIGNS ALTERNATELY FACING TOWARD AND AWAY FROM THE TRACK AS INDICATED. WARNING HIGH VOLTAGE OVERHEAD SIGN TYPE 16 SHALL BE INSTALLED ON OCS AND LIGHT POLES AT STATIONS.
10. "DANGER LIVE WIRE" TYPE 3, SHALL BE INSTALLED ON ANTI-CLIMB DOOR ON SIGNAL BRIDGES AS INDICATED. IF NO DOOR ON LADDER, LOCATE SIGN WHERE READILY VISIBLE.
11. ALL NEW SIGNAL BRIDGES SHALL BE EQUIPPED WITH ANTI-CLIMB DOORS OVER THE ACCESS LADDERS. ALL ANTI-CLIMB DOORS SHALL HAVE, "DANGER LIVE WIRE", TYPE 3 SIGNS POSTED. ALL 7 INCH WIDE ANTI-CLIMB DOORS ARE TO BE STENCILED "DANGER LIVE WIRE-KEEP OFF". WHERE THERE IS NO ANTI-CLIMB DOOR, THE SIGN SHALL BE PLACED WHERE IT IS READILY VISIBLE TO SOMEONE USING THE LADDER. ON STRUCTURES WHERE HIGH VOLTAGE IS NOT A CONCERN, "NO TRESPASSING" SIGNS MUST BE USED. SIGNAL BRIDGES WITH LATTICE BRACING THAT ARE READILY CLIMBABLE ARE TO HAVE A "DANGER LIVE WIRE" TYPE 3 SIGN ON BOTH SIDES OF THE STRUCTURE FACING AWAY FROM AND TOWARD THE RIGHT OF WAY, PLUS ONE ON THE ACCESS LADDER FOR A MINIMUM OF FIVE (5) SIGNS PER SIGNAL BRIDGE WHERE APPLICABLE.
12. THE FENCING AROUND TRACTION POWER SUBSTATIONS SHALL HAVE ALTERNATE "DANGER HIGH VOLTAGE" SIGN TYPE 4, AND "NO TRESPASSING" SIGNS PLACED AT MAXIMUM 50 FEET INTERVALS, WITH A MINIMUM OF ONE (1) SIGN OF EACH TYPE PER SIDE. EVERY ENTRANCE MUST HAVE AT LEAST ONE (1) SIGN OF EACH TYPE POSTED. THE "DANGER-25,000 VOLT" SIGN TYPE 5, IS TO BE USED ON CIRCUIT BREAKERS AND OTHER ELECTRICAL APPARATUS WHERE HIGH VOLTAGE IS EXPOSED WHEN OPENING A COMPARTMENT DOOR. ADDITIONALLY, "DANGER-HIGH VOLTAGE" TYPE 4 SIGNS MAY, FOR THE PROTECTION OF EMPLOYEES, BE USED INSIDE SUBSTATIONS AS DEEMED APPROPRIATE BY LOCAL SUPERVISION.

REV	DATE	BY	CHK	APP	DESCRIPTION
					01012024 EDITION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DEPUTY DIRECTOR, ENGINEERING

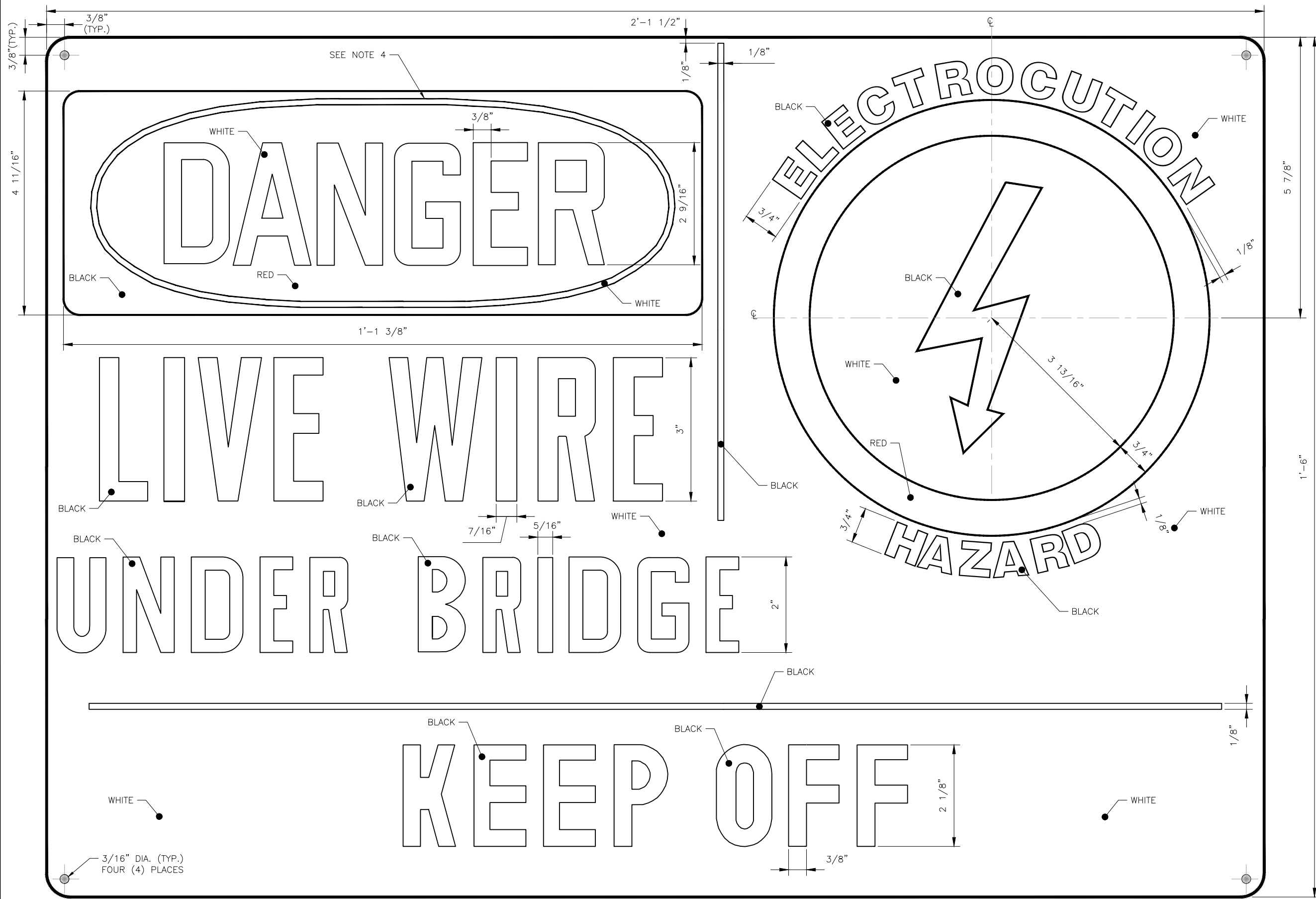


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STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OVERHEAD CONTACT SYSTEM
OCS WARNING SIGNS
GENERAL LOCATIONS

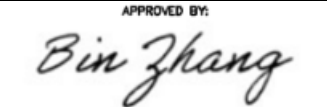
CADD FILE NAME: W5180	
REV:	EDITION: 01012024
STANDARD DRAWING NO.: W5180	




- NOTES:**
1. SEE DRAWING W5180 FOR MATERIAL AND PAINTING DETAILS.
 2. LETTERS SHALL BE ON FRONT ONLY, SIZES AND COLORS SHALL BE AS INDICATED.
 3. BACK OF SIGN SHALL BE MILL FINISH.
 4. ELLIPSE AROUND THE LETTERING "DANGER" SHALL BE APPROXIMATELY FOUR AND ONE QUARTER INCHES BY TWELVES INCHES (4 1/4" X 12") WITH ONE EIGHT INCH (1/8") BORDER.

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

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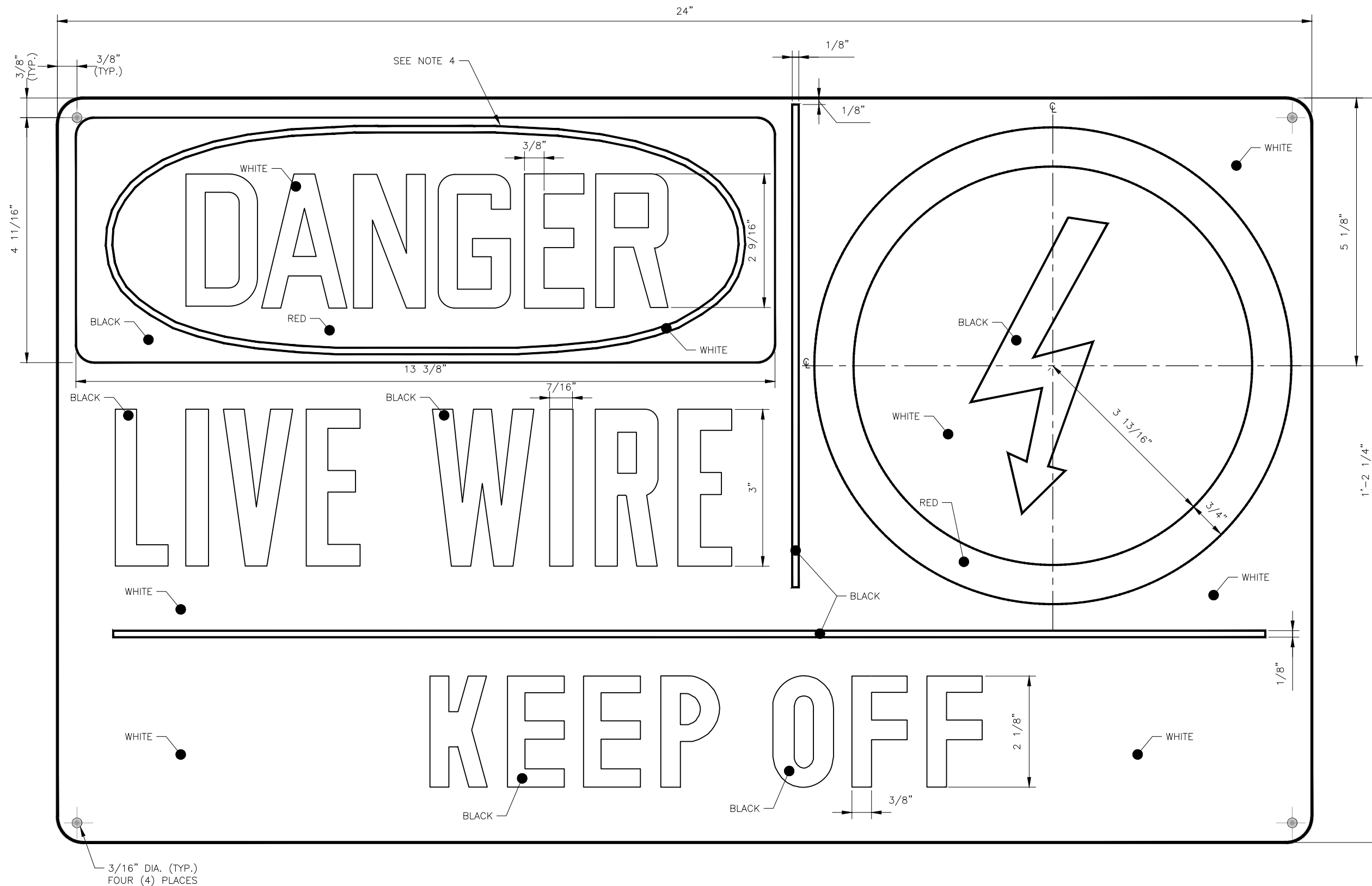
STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OVERHEAD CONTACT SYSTEM
OCS WARNING SIGNS
DANGER-LIVE WIRE - UNDER BRIDGE
TYPE 1

CADD FILE NAME:
W5181

REV: EDITION:
 01012024

STANDARD DRAWING NO.:
W5181



NOTES:

1. SEE DRAWING W5180 FOR MATERIAL AND PAINTING DETAILS.
2. LETTERS SHALL BE ON FRONT ONLY, SIZES AND COLORS SHALL BE AS INDICATED.
3. BACK OF SIGN SHALL BE MILL FINISH.
4. ELLIPSE AROUND THE LETTERING "DANGER" SHALL BE APPROXIMATELY FOUR AND ONE QUARTER INCHES BY TWELVES INCHES (4 1/4" X 12") WITH ONE EIGHT INCH (1/8") BORDER.

3/16" DIA. (TYP.)
FOUR (4) PLACES

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

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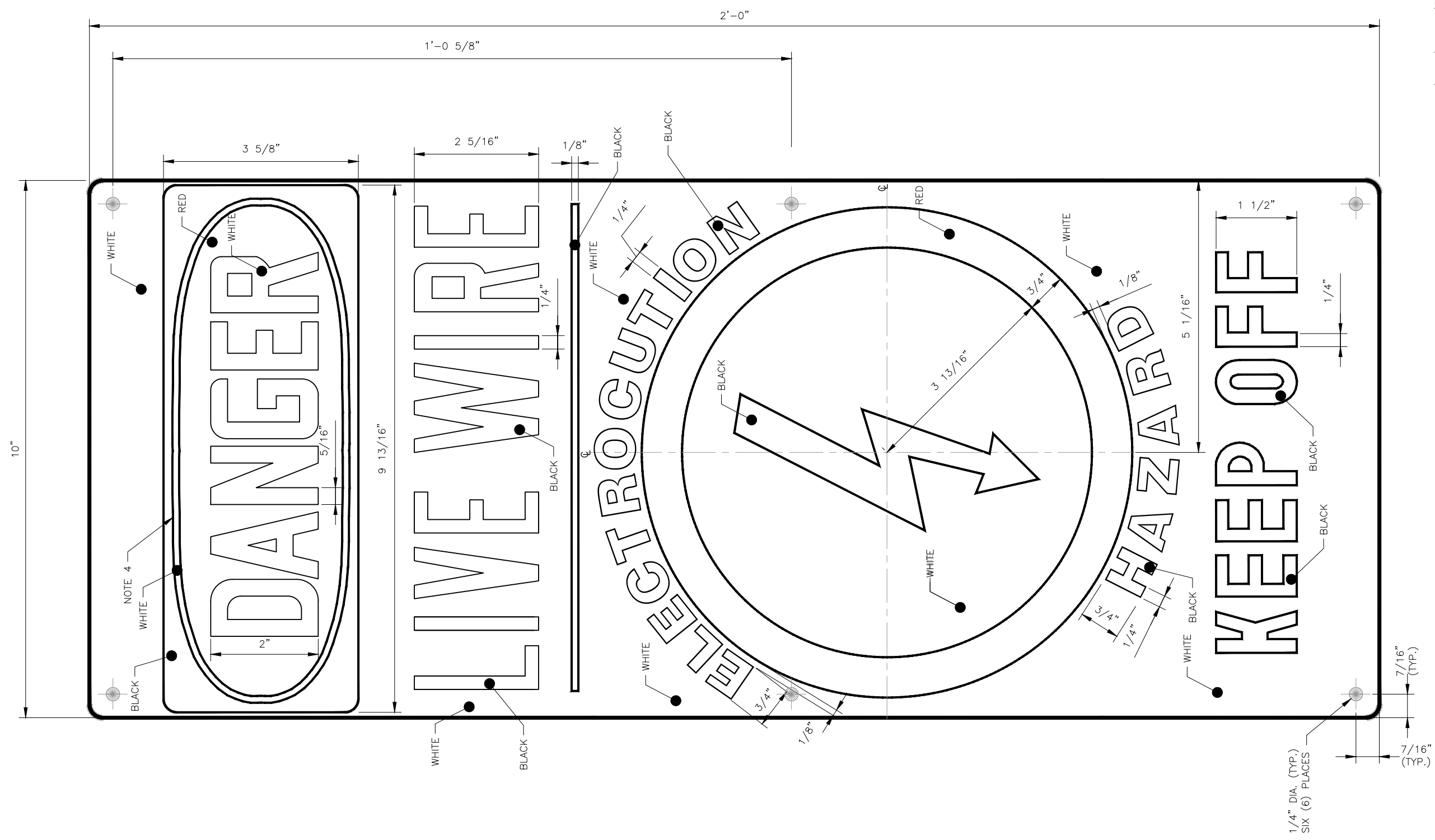
1250 San Carlos Avenue
San Carlos, CA 94070

STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OVERHEAD CONTACT SYSTEM
OCS WARNING SIGNS
DANGER-LIVE WIRE
TYPE 2

CADD FILE NAME: W5182	
REV:	EDITION: 01012024
STANDARD DRAWING NO.: W5182	

- NOTES:**
1. SEE DRAWING W5180 FOR MATERIAL AND PAINTING DETAILS.
 2. LETTERS SHALL BE ON FRONT ONLY, SIZES AND COLORS SHALL BE AS INDICATED.
 3. BACK OF SIGN SHALL BE MILL FINISH.
 4. ELLIPSE AROUND THE LETTERING "DANGER" SHALL BE APPROXIMATELY THREE AND ONE QUARTER INCHES BY NINE AND THREE EIGHTS INCHES (3 1/4" X 9 3/8") WITH ONE EIGHT INCH (1/8") BORDER.




REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

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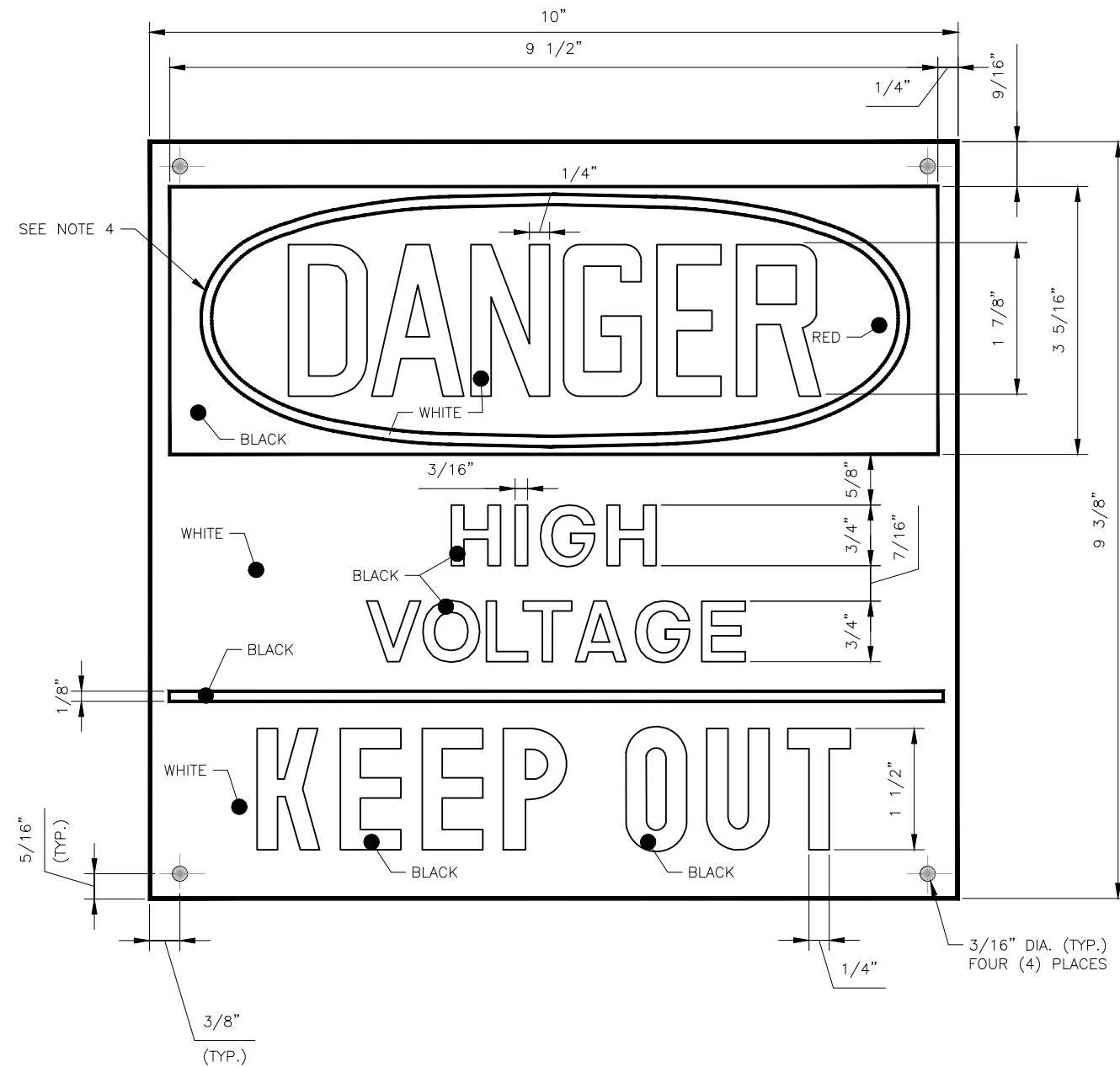
STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OVERHEAD CONTACT SYSTEM
OCS WARNING SIGNS
DANGER-LIVE WIRE
ELECTROCUTION HAZARD - TYPE 3

CADD FILE NAME: W5183	
REV:	EDITION: 01012024
STANDARD DRAWING NO.: W5183	

NOTES:

1. SEE DRAWING W5180 FOR MATERIAL AND PAINTING DETAILS.
2. LETTERS SHALL BE ON FRONT ONLY, SIZES AND COLORS SHALL BE AS INDICATED.
3. BACK OF SIGN SHALL BE MILL FINISH.
4. ELLIPSE AROUND THE LETTERING "DANGER" SHALL BE APPROXIMATELY THREE AND ONE EIGHT INCHES BY EIGHT AND THREE QUARTERS INCHES (3 1/8" X 8 3/4") WITH ONE EIGHT INCH (1/8") BORDER.



PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

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DEPUTY DIRECTOR, ENGINEERING



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STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OVERHEAD CONTACT SYSTEM
OCS WARNING SIGNS
DANGER HIGH VOLTAGE
TYPE 4

CADD FILE NAME:
W5184

REV: EDITION:
01012024

STANDARD DRAWING NO.:
W5184

REV	DATE	BY	CHK	APP	DESCRIPTION	REV	DATE	BY	CHK	APP	DESCRIPTION
					01012024 EDITION						



NOTES:

1. SEE DRAWING W5180 FOR MATERIAL AND PAINTING DETAILS.
2. LETTERS SHALL BE ON FRONT ONLY, SIZES AND COLORS SHALL BE AS INDICATED.
3. BACK OF SIGN SHALL BE MILL FINISH.
4. ELLIPSE AROUND THE LETTERING "DANGER" SHALL BE APPROXIMATELY THREE AND ONE HALF INCHES BY TWELVE INCHES (3 1/2" X 12") WITH ONE QUARTER (1/4") BORDER.

1/4" DIA. (TYP.)
EIGHT (8) PLACES

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

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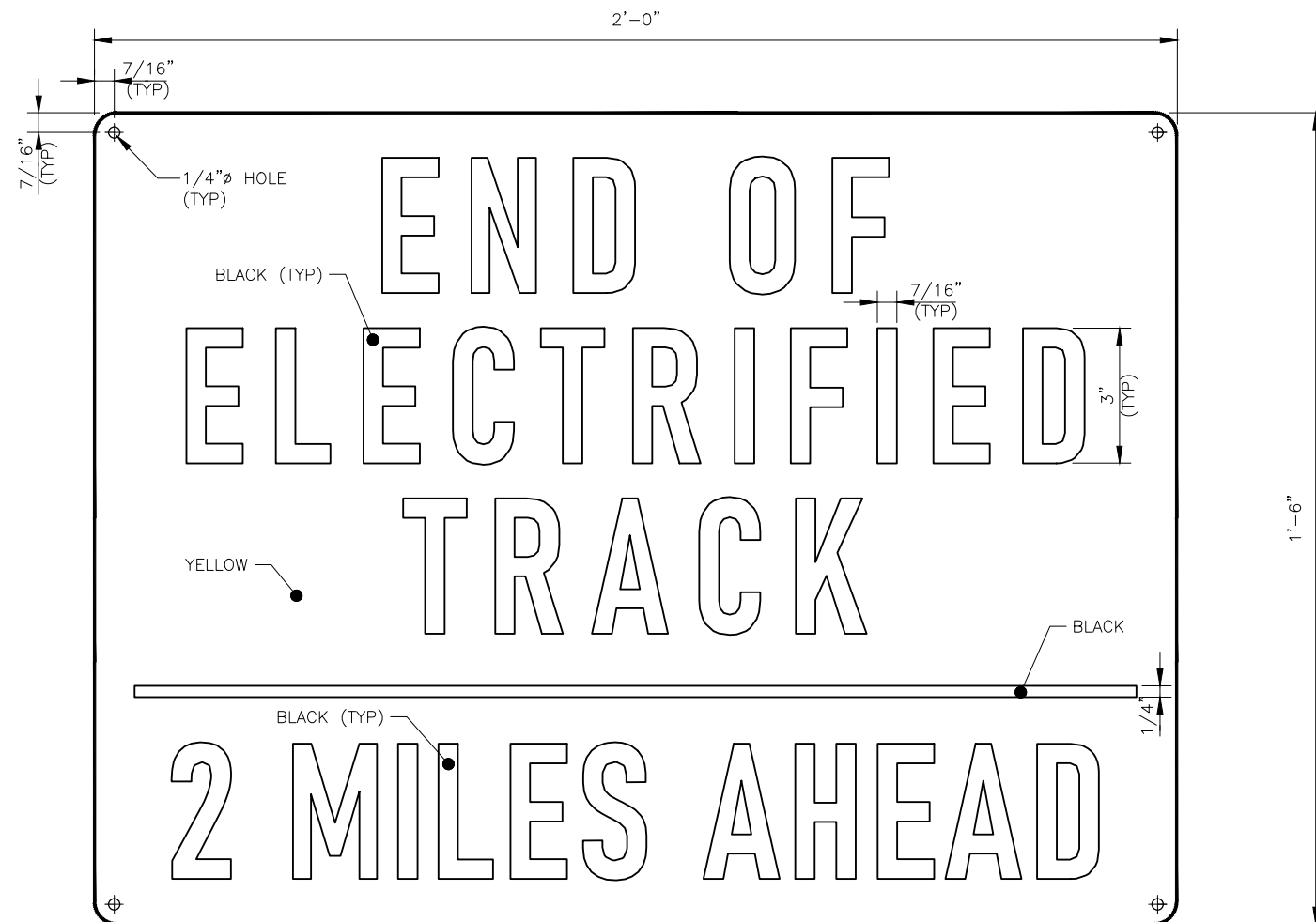
STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OVERHEAD CONTACT SYSTEM
OCS WARNING SIGNS
DANGER - 25,000 VOLTS
TYPE 5

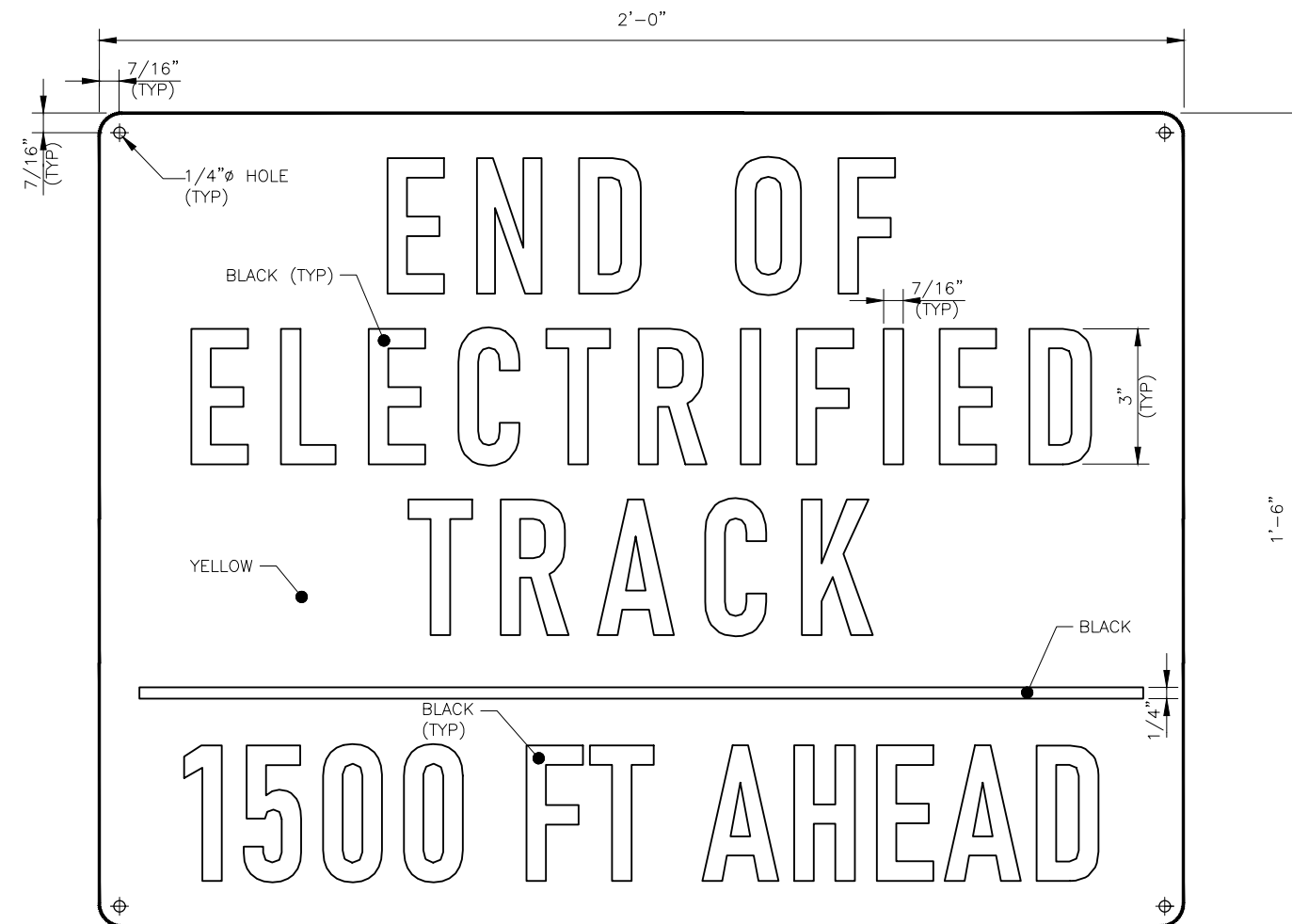
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REV:	EDITION: 01012024
STANDARD DRAWING NO.: W5185	

NOTES:

1. SEE DRAWING W5180 FOR MATERIAL AND PAINTING DETAILS.
2. LETTERS SHALL BE ON FRONT ONLY, SIZES AND COLORS SHALL BE AS INDICATED.
3. BACK OF SIGN SHALL BE MILL FINISH.
4. SIGNS SHALL BE POSTED AT LOCATIONS AS DETERMINED BY CALTRAIN. VERIFY QUANTITY AND LOCATIONS WITH CALTRAIN PRIOR TO FABRICATION AND INSTALLATION.
5. ALTERNATE DISTANCES AND COLORS MAY BE USED AS APPROVED BY THE ENGINEER.



TYPE 9
SCALE: 6"=1'-0"



TYPE 10
SCALE: 6"=1'-0"

REV	DATE	BY	CHK	APP	DESCRIPTION
					01012024 EDITION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DEPUTY DIRECTOR, ENGINEERING



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San Carlos, CA 94070

STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OVERHEAD CONTACT SYSTEM
OCS WARNING SIGNS
END OF ELECTRIFIED TRACK
TYPE 9 AND 10

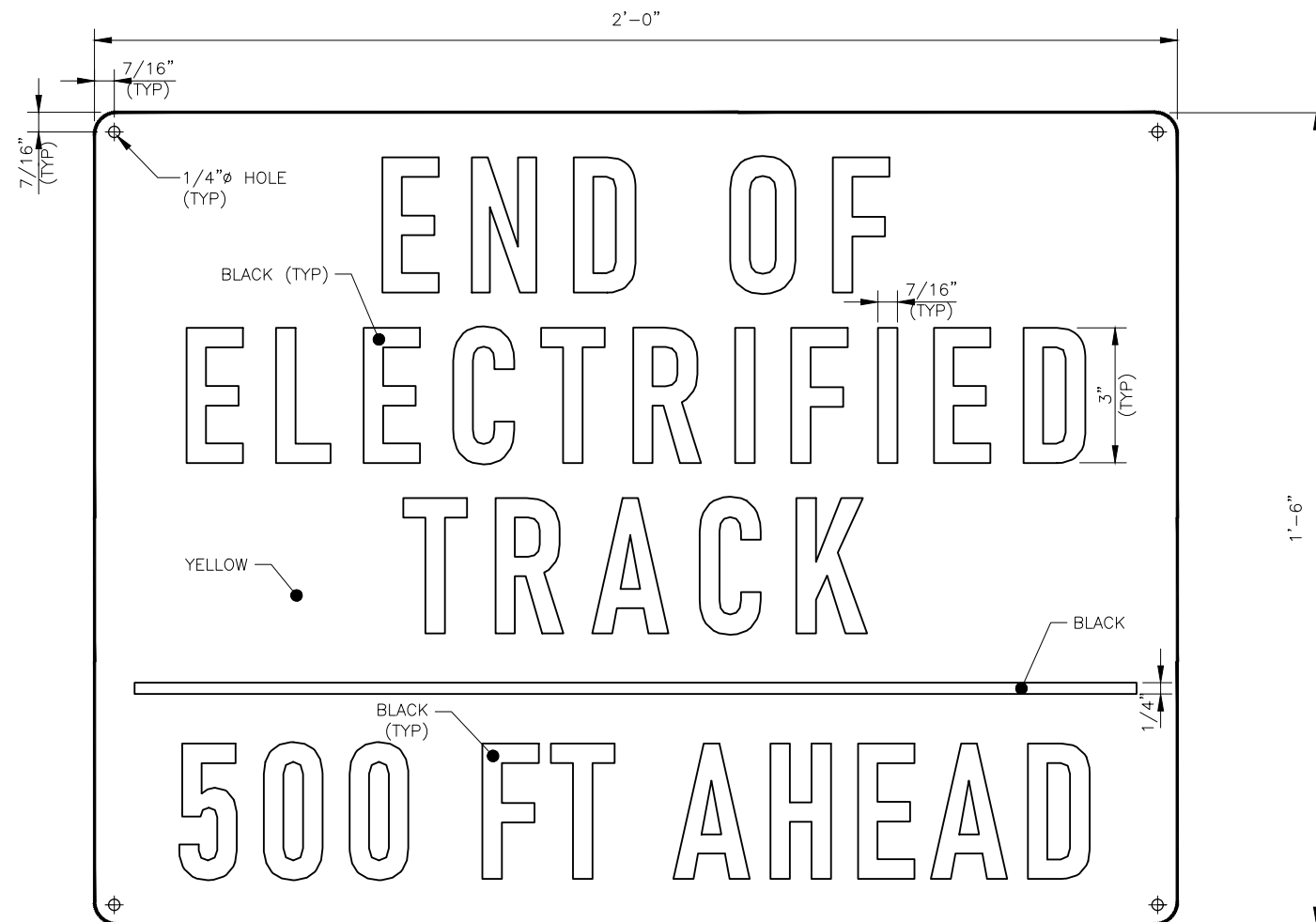
CADD FILE NAME:
W5186A

REV: EDITION:
 01012024

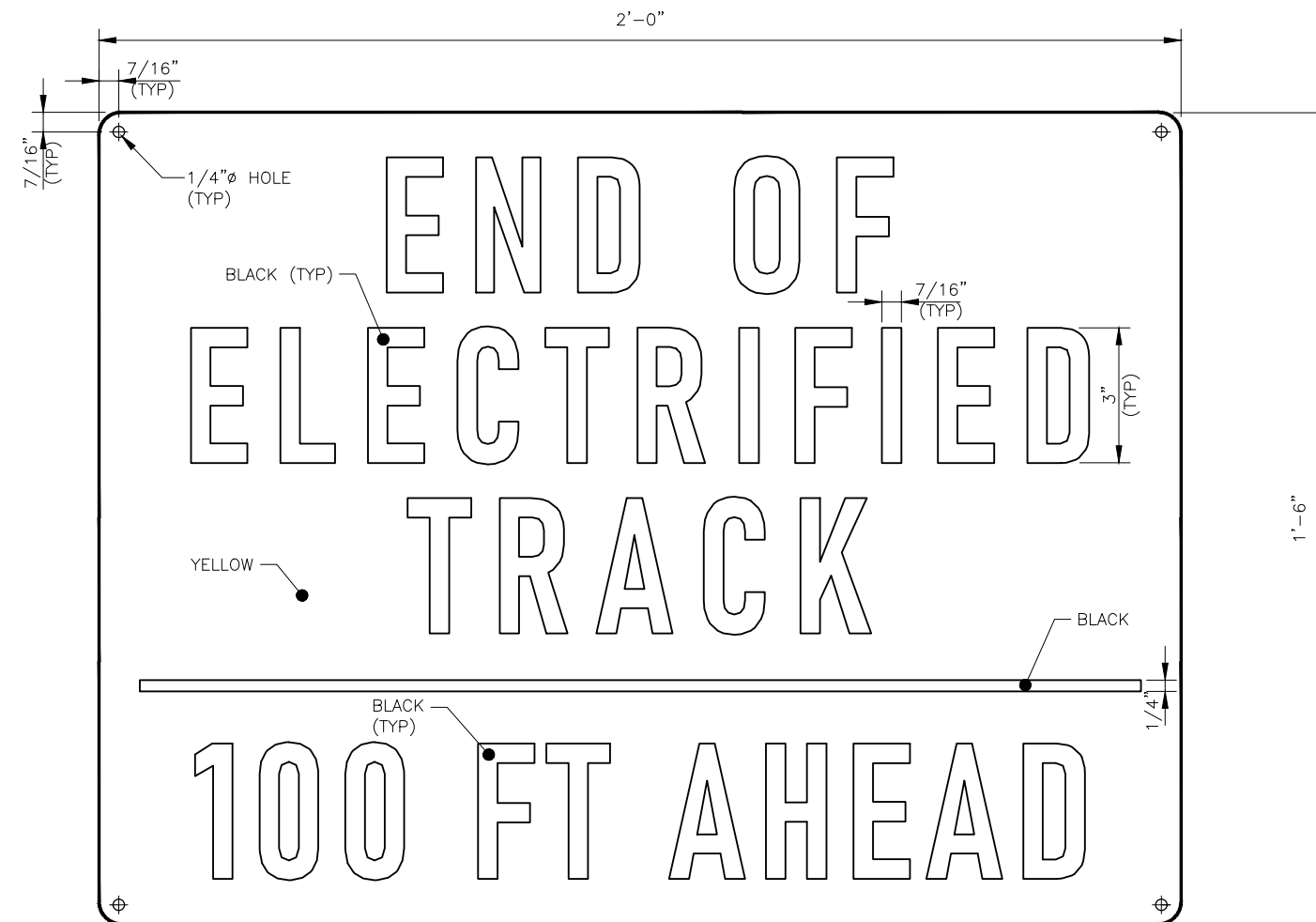
STANDARD DRAWING NO.:
W5186A

NOTES:

1. SEE DRAWING W5180 FOR MATERIAL AND PAINTING DETAILS.
2. LETTERS SHALL BE ON FRONT ONLY, SIZES AND COLORS SHALL BE AS INDICATED.
3. BACK OF SIGN SHALL BE MILL FINISH.
4. SIGNS SHALL BE POSTED AT LOCATIONS AS DETERMINED BY CALTRAIN. VERIFY QUANTITY AND LOCATIONS WITH CALTRAIN PRIOR TO FABRICATION AND INSTALLATION.
5. ALTERNATE DISTANCES AND COLORS MAY BE USED AS APPROVED BY THE ENGINEER.



TYPE 11
SCALE: 6"=1'-0"



TYPE 12
SCALE: 6"=1'-0"

REV	DATE	BY	CHK	APP	DESCRIPTION
					01012024 EDITION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DEPUTY DIRECTOR, ENGINEERING



1250 San Carlos Avenue
San Carlos, CA 94070

STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OVERHEAD CONTACT SYSTEM
OCS WARNING SIGNS
END OF ELECTRIFIED TRACK
TYPE 11 AND 12

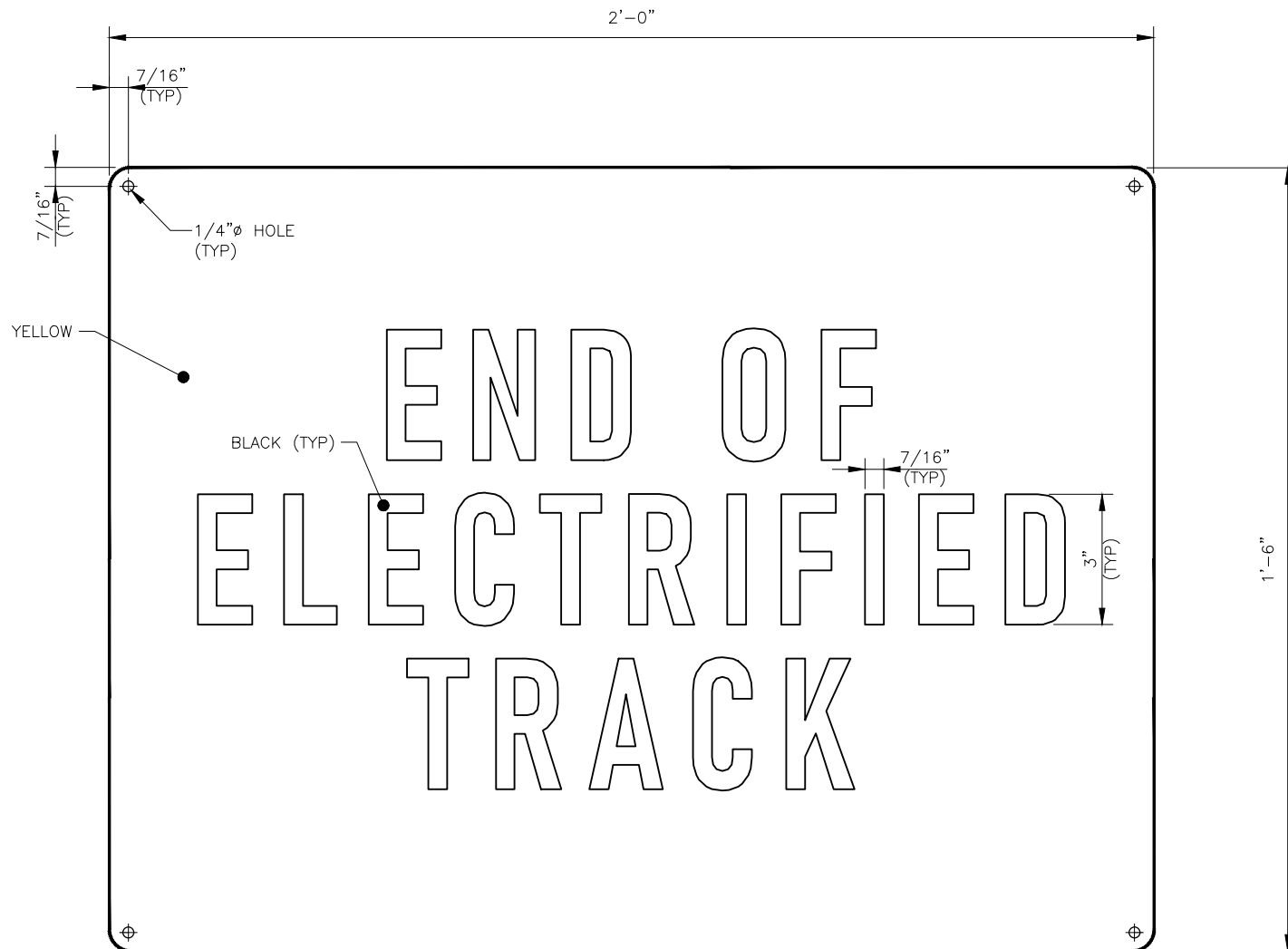
CADD FILE NAME:
W5186B

REV: EDITION:
 01012024

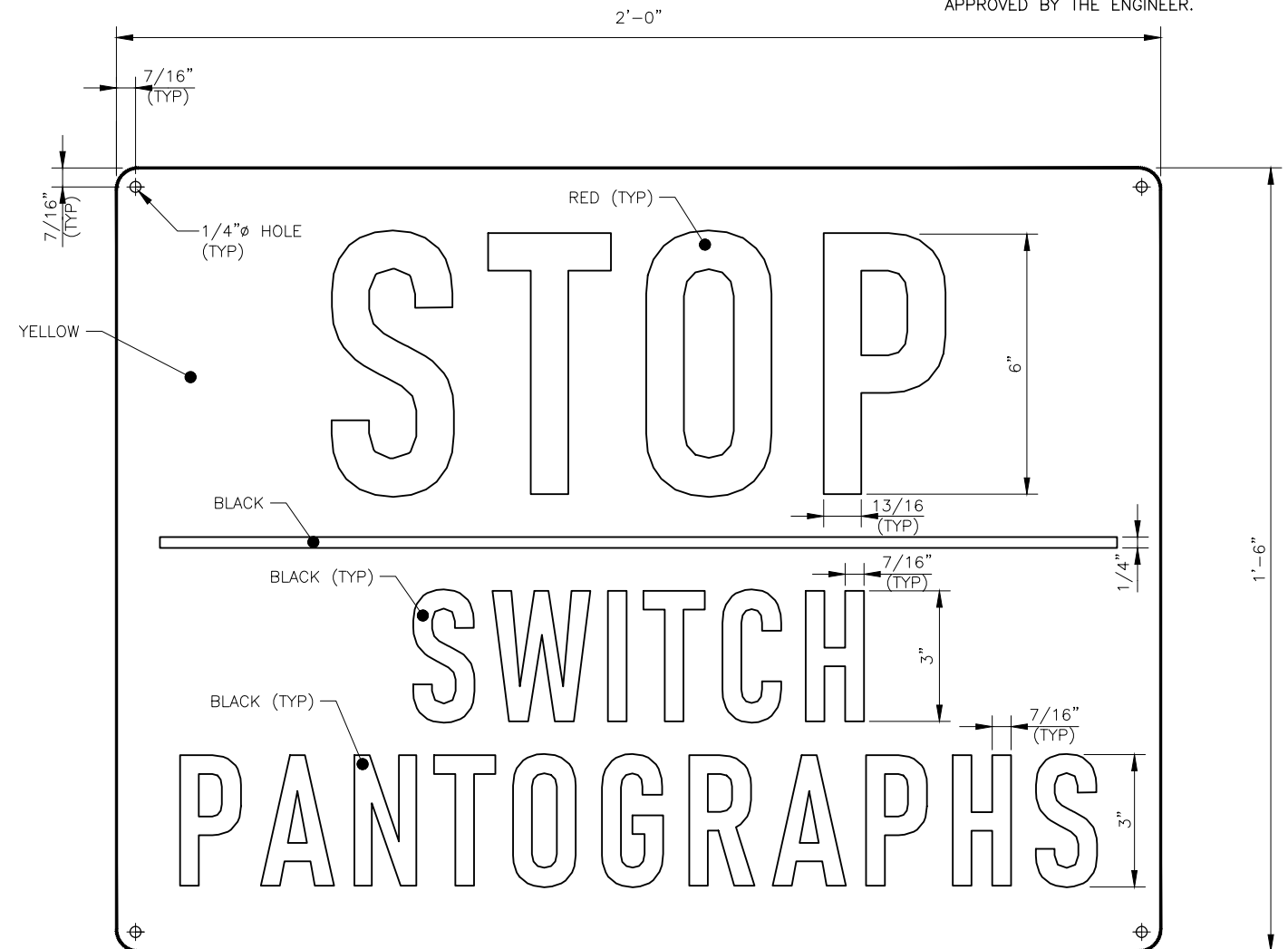
STANDARD DRAWING NO.:
W5186B

NOTES:

1. SEE DRAWING W5180 FOR MATERIAL AND PAINTING DETAILS.
2. LETTERS SHALL BE ON FRONT ONLY, SIZES AND COLORS SHALL BE AS INDICATED.
3. BACK OF SIGN SHALL BE MILL FINISH.
4. SIGNS SHALL BE POSTED AT LOCATIONS AS DETERMINED BY CALTRAIN. VERIFY QUANTITY AND LOCATIONS WITH CALTRAIN PRIOR TO FABRICATION AND INSTALLATION.
5. ALTERNATE COLORS MAY BE USED AS APPROVED BY THE ENGINEER.



TYPE 13
SCALE: 6"=1'-0"



TYPE 14
SCALE: 6"=1'-0"

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DEPUTY DIRECTOR, ENGINEERING



1250 San Carlos Avenue
San Carlos, CA 94070

STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OVERHEAD CONTACT SYSTEM
OCS WARNING SIGNS
END OF ELECTRIFIED TRACK
TYPE 13 AND 14

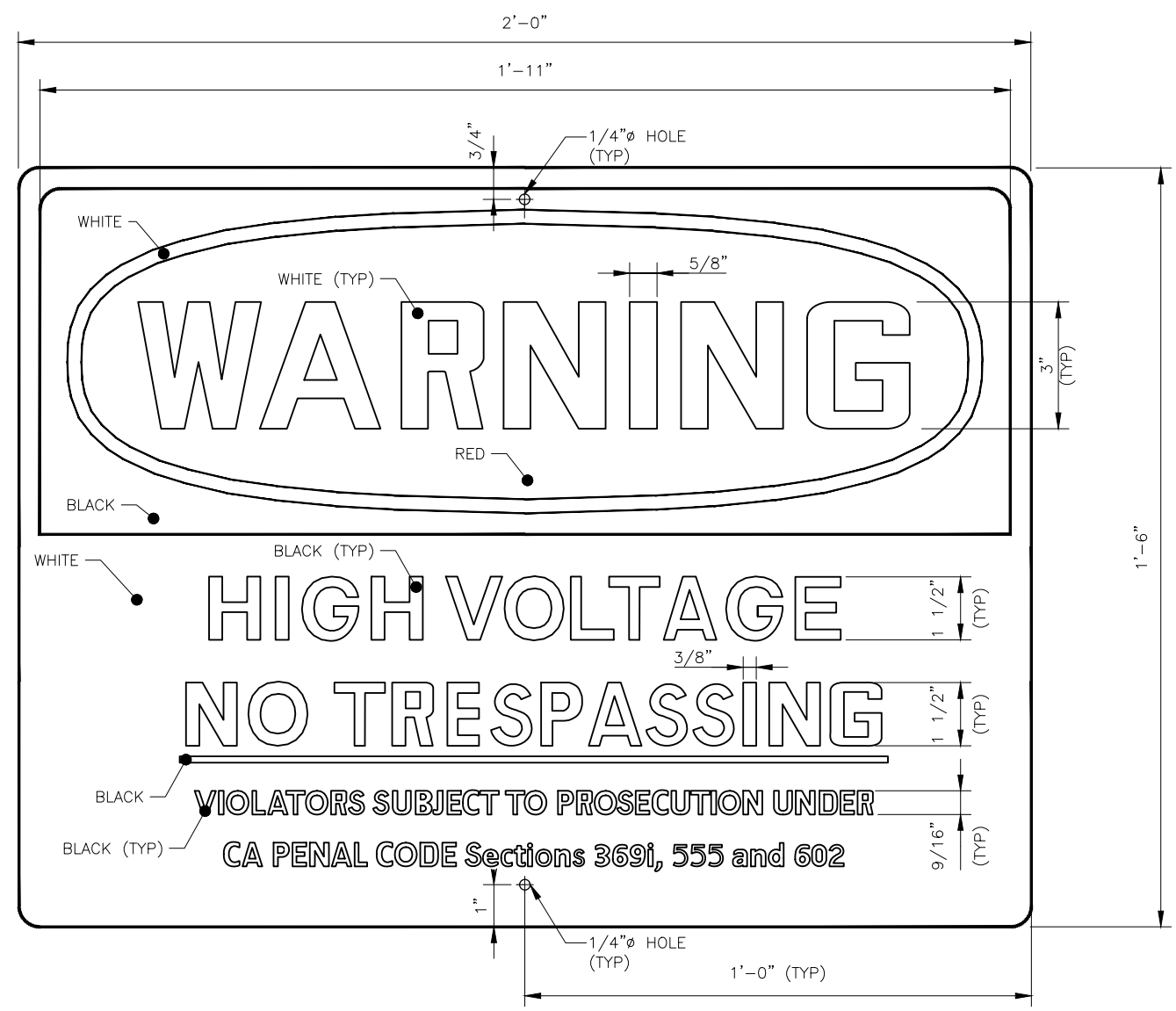
CADD FILE NAME:
W5186C

REV: EDITION:
 01012024

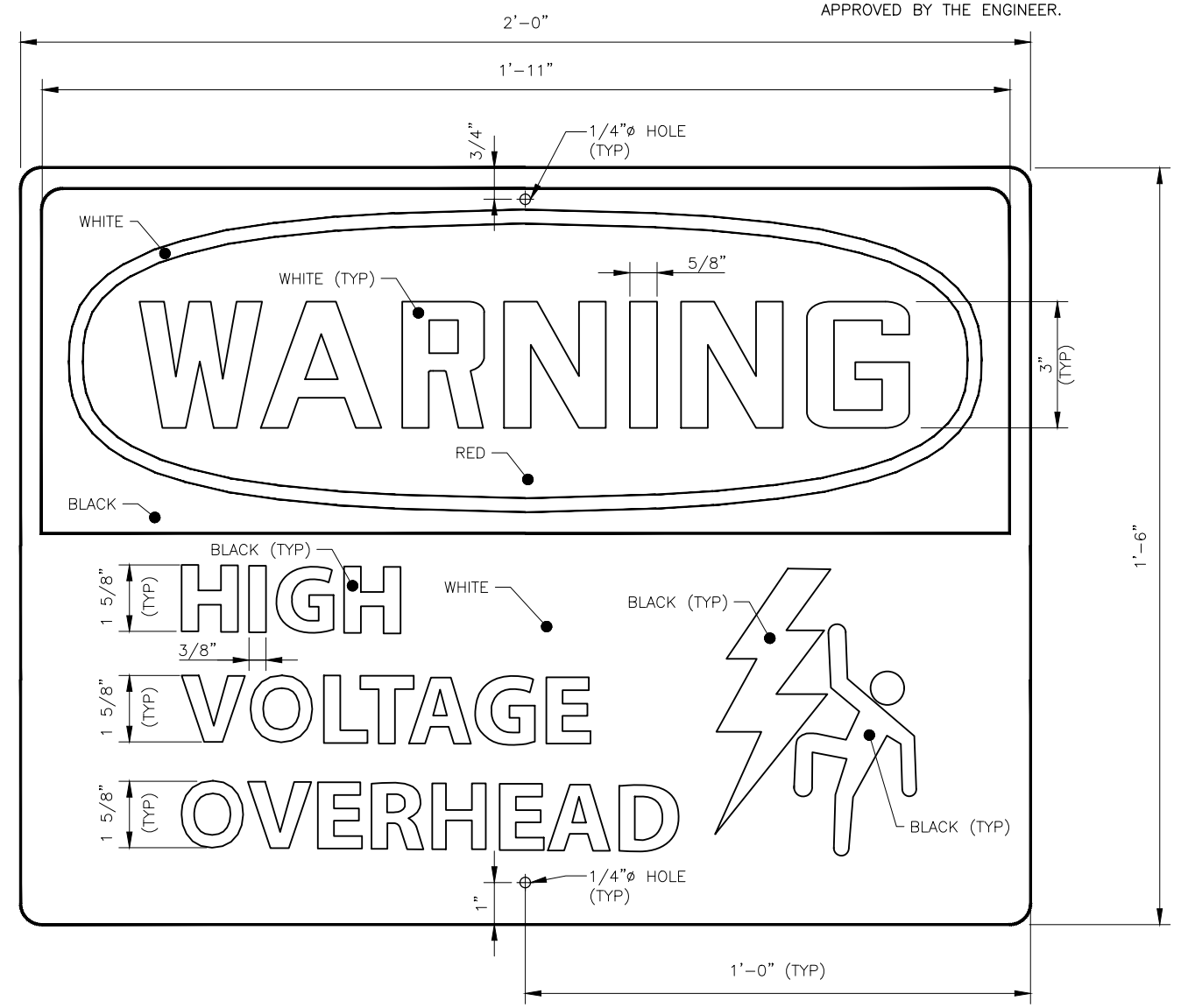
STANDARD DRAWING NO.:
W5186C

NOTES:

- 6. THE ELLIPSE AROUND THE LETTERING "WARNING" SHALL BE APPROXIMATELY 1'-9 1/4" X 7 1/4" WITH 3/8" BORDER.
- 7. INSTALL TYPE 15 SIGNS AT ACCESS GATES AND GRADE CROSSINGS.
- 8. INSTALL TYPE 16 SIGNS ON OCS POLES AND LIGHT POLES AT STATIONS.
- 1. SEE DRAWING W5180 FOR MATERIAL AND PAINTING DETAILS.
- 2. LETTERS SHALL BE ON FRONT ONLY, SIZES AND COLORS SHALL BE AS INDICATED.
- 3. BACK OF SIGN SHALL BE MILL FINISH.
- 4. SIGNS SHALL BE POSTED AT LOCATIONS AS DETERMINED BY CALTRAIN. VERIFY QUANTITY AND LOCATIONS WITH CALTRAIN PRIOR TO FABRICATION AND INSTALLATION.
- 5. ALTERNATE COLORS MAY BE USED AS APPROVED BY THE ENGINEER.



TYPE 15
SCALE: 6"=1'-0"



TYPE 16
SCALE: 6"=1'-0"

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

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San Carlos, CA 94070

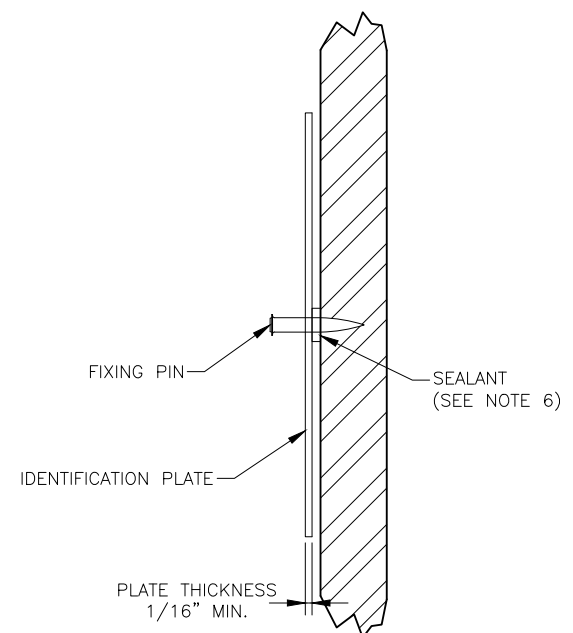
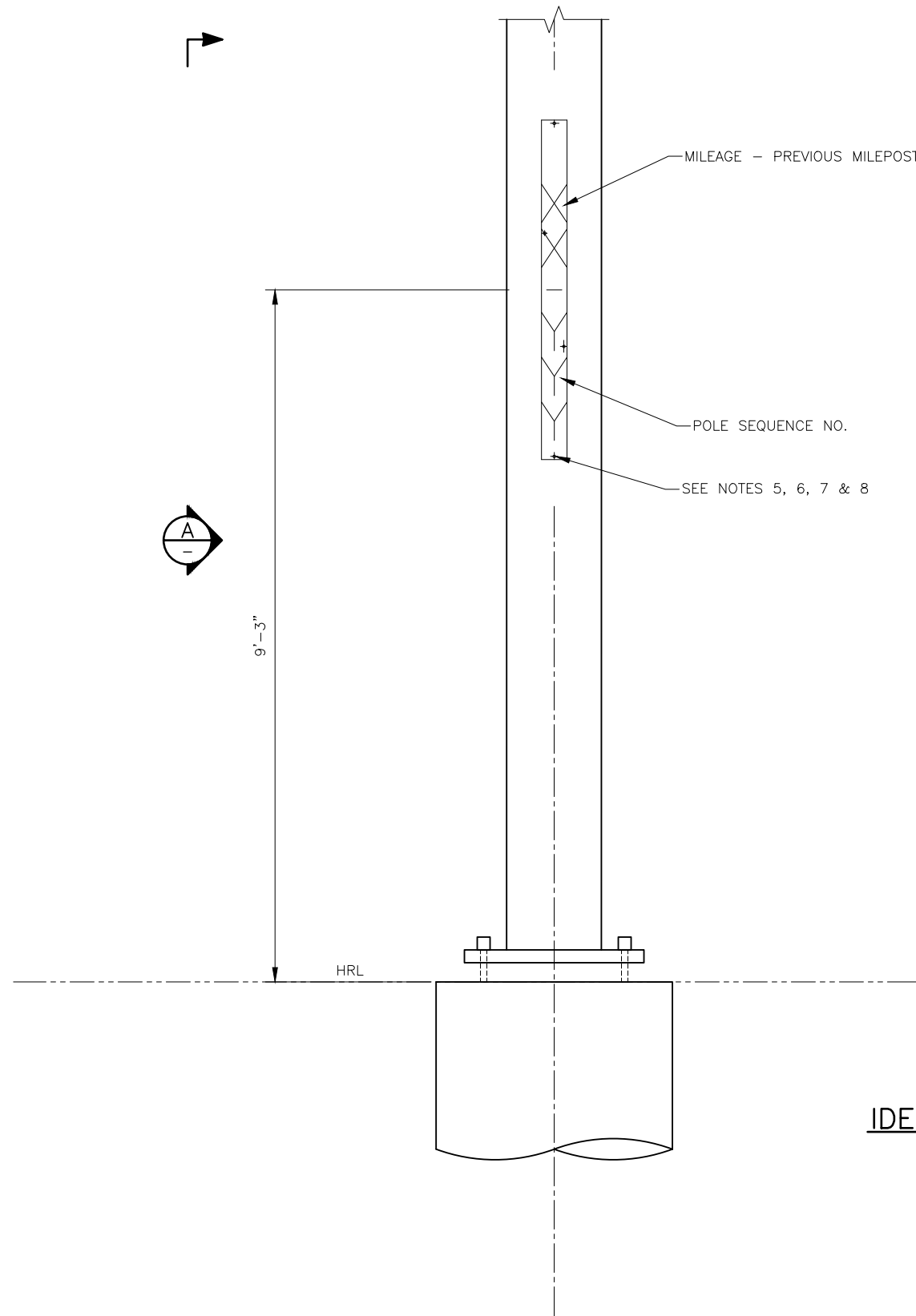
STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OVERHEAD CONTACT SYSTEM
OCS WARNING SIGNS – HIGH VOLTAGE
OVERHEAD AND NO TRESPASSING
TYPE 15 AND 16

CADD FILE NAME:
W5186C

REV: EDITION:
 01012024

STANDARD DRAWING NO.:
W5186D



A SECTION
SCALE: NTS

IDENTIFICATION NUMBER PLATE ASSEMBLY

NOTES:

1. FOR OCS GENERAL NOTES, SEE DRAWING W0101.
2. ALL DIMENSIONS ARE IN INCHES, UNLESS OTHERWISE STATED.
3. CATENARY POLE IDENTIFICATION NUMBER PLATES SHALL BE PLACED VERTICALLY ON THE AXES OF THE POLES OR PORTAL COLUMNS FACING NORMALLY ON-COMING TRAFFIC.
4. THE IDENTIFICATION NUMBER (X) SHALL BE THE MILEAGE OF THE PREVIOUS MILE POST FOLLOWED BY A SPACER AND THE POLE SEQUENCE NUMBER IN THAT MILE (Y).
5. ATTACH POLE IDENTIFICATION NUMBER PLATE TO STEEL POLE OR COLUMN USING HILTI POWER ACTUATED FIXING SYSTEM. AS FOLLOWS:
 HILTI PINS X-CR14P8
 HILTI 0.25 CALIBER SHORT, POWER LEVEL GREEN (3) (PARTIAL PENETRATION)
 HILTI POLYURETHANE SEALANT CS2130-BLACK
6. APPLY POLYURETHANE SEALANT TO THE BACK OF THE PLATE (AROUND FIXING AREAS) PRIOR TO FIXING THE PLATE ON TO STEEL POLES.
7. ANY SURFACE DAMAGE TO THE GALVANIZING AT THE BACK OF THE POLE (FOR W SECTIONS) MUST BE TREATED IMMEDIATELY WITH COLD GALVANIZING.
8. ANY DAMAGED PIN MUST BE REMOVED (OR GROUND OFF FLUSH) AND THE HOLE AREA TO BE TREATED WITH COLD GALVANIZING.

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

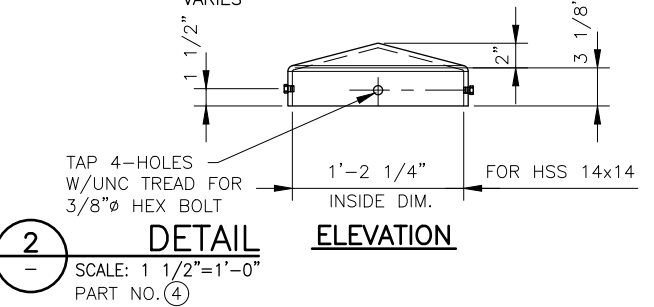
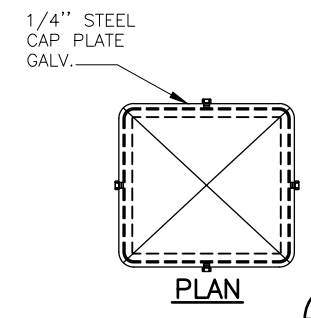
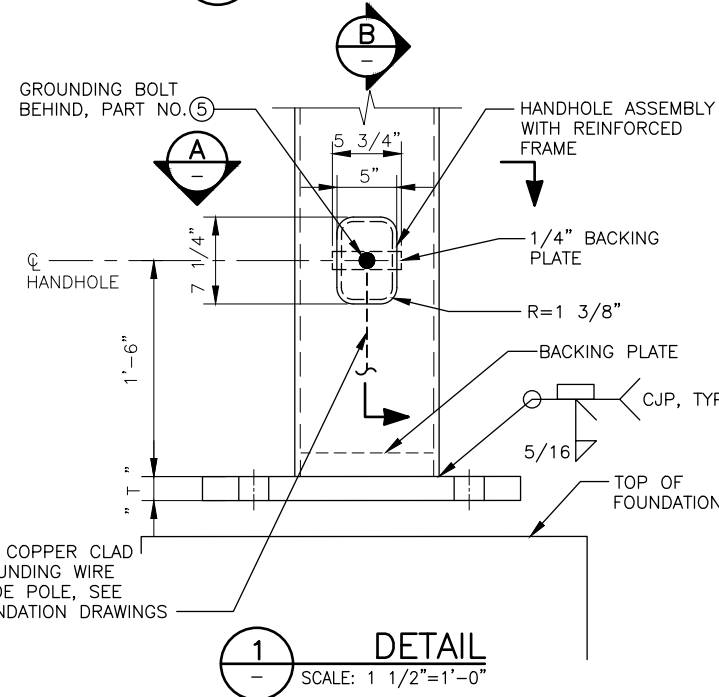
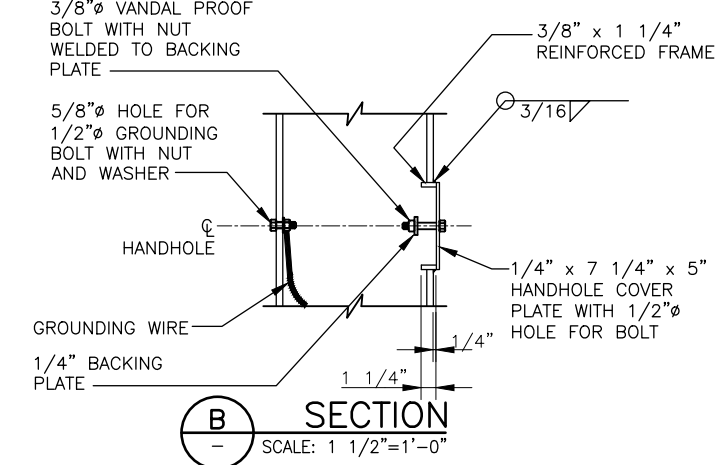
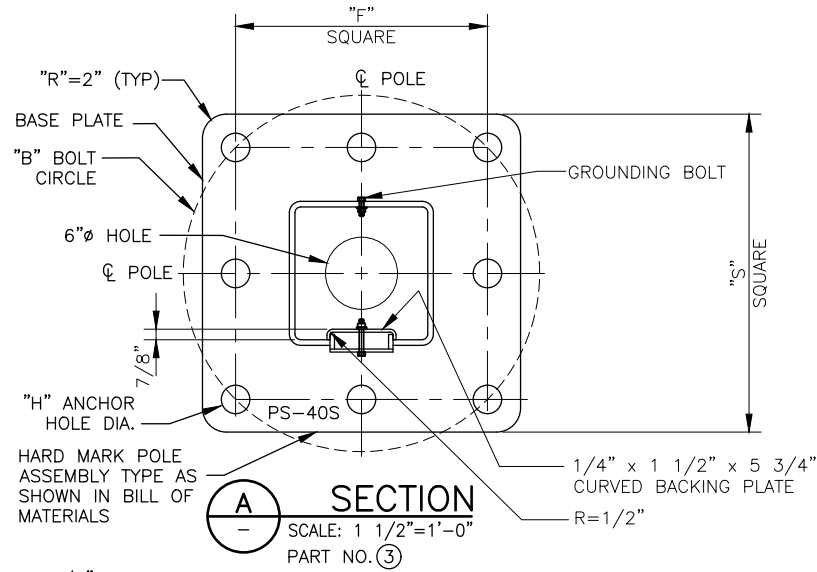
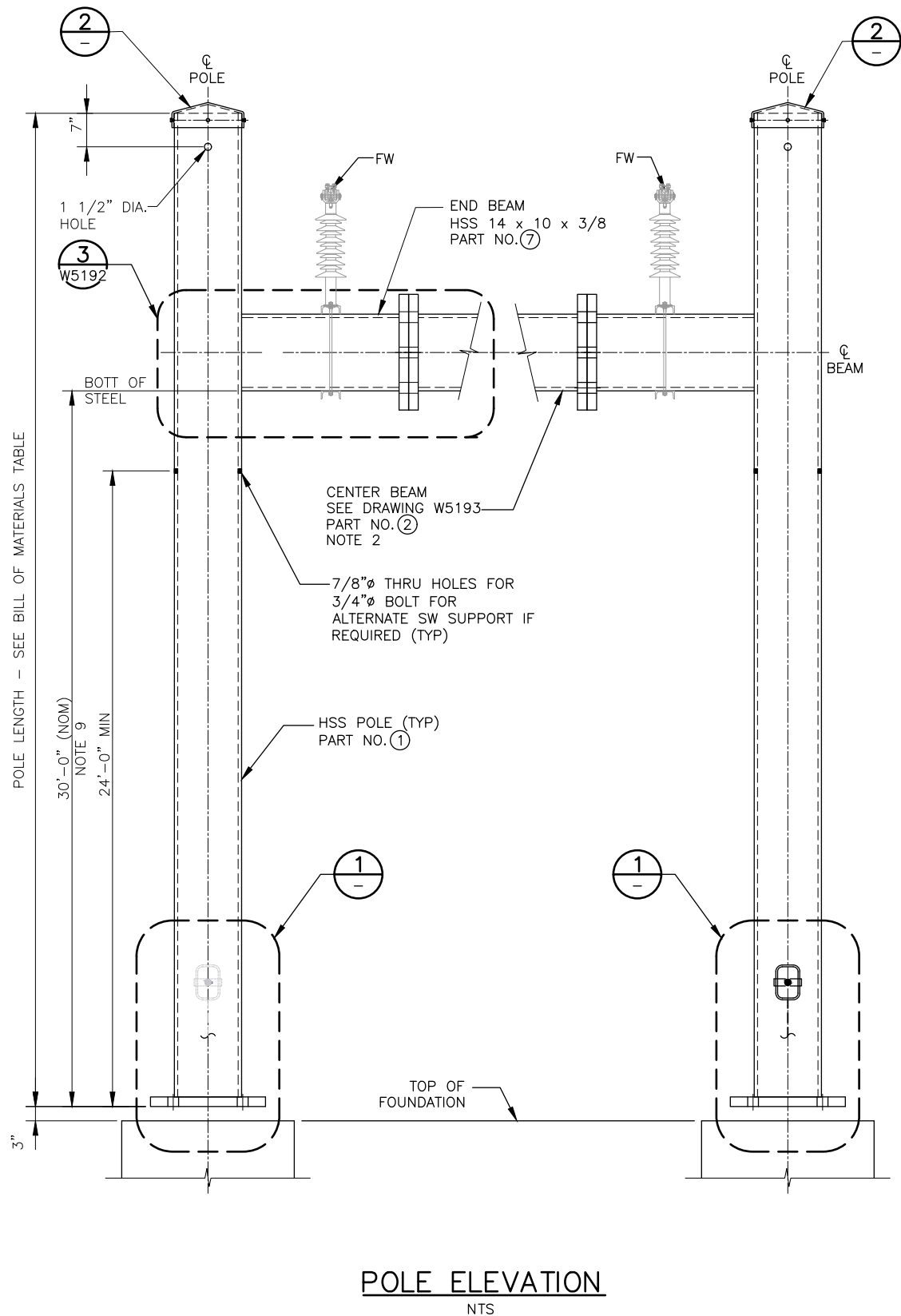
APPROVED BY:
Bin Zhang
DEPUTY DIRECTOR, ENGINEERING



STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OVERHEAD CONTACT SYSTEM
OCS ASSEMBLY
POLE IDENTIFICATION PLATE

CADD FILE NAME: W5187	
REV:	EDITION: 01012024
STANDARD DRAWING NO.: W5187	



- NOTES:**
- FOR GENERAL NOTES SEE DRAWING W0101.
 - HORIZONTAL BEAM LENGTH WILL BE DETERMINED IN FIELD AT EACH LOCATION PRIOR TO FABRICATION.
 - ALL HOLES IN MAST, BEAMS, AND MISCELLANEOUS STEEL SHALL BE PRE-DRILLED IN SHOP PRIOR TO GALVANIZING.
 - ALL POLES SHALL BE SET PLUMB WITH NO RAKE TO ENSURE PROPER CONNECTION BETWEEN POLE AND HORIZONTAL BEAM.
 - SEE MATERIAL ALLOCATION DRAWINGS FOR NUMBER, LOCATION AND LENGTH OF DROP TUBES AND WIRE INFORMATION. ALTERNATE DROP TUBE DETAILS MAY BE USED AS APPROVED BY THE ENGINEER.
 - NOTIFY ENGINEER IF ANY WIRES ARE TERMINATED ON THE PORTAL BEAM AND THE BEAM SECTION SHALL BE EVALUATED ON A CASE SPECIFIC BASIS.
 - PORTAL BEAM MEMBER SIZES ARE BASED ON THE SPAN LENGTH FROM POLE CL TO CL AS FOLLOWS:
 $L < 80'$ USE SECTION SHOWN IN BILL OF MATERIALS TABLE
 $L \geq 80'$ USE HSS 14 x 10 x 5/8 SECTION FOR CENTER BEAM AND END BEAMS
 - MODIFIED POLE LENGTHS DUE TO FIELD CONDITIONS MAY BE USED AT LOCATIONS SHOWN ON FOUNDATION AND POLE LAYOUT DRAWINGS. CONFIRM POLE LENGTHS WITH ENGINEER PRIOR TO FABRICATION.
 - BOTTOM OF STEEL VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATION DRAWINGS FOR HEIGHT.
 - SEE FOUNDATION AND POLE LAYOUT DRAWINGS FOR FOUNDATION SIZES AT EACH TRACK SIDE LOCATION WHEN VARIES

TABLE 1 BASE PLATE DIMENSIONS (IN)

BASE PLATE TYPE	DESCRIPTION	S	F	H	R	T	B	ANCHOR BOLT DIA
"D2"	BASE PLATE	28	21	2 3/8	2	2 1/2	29.70	2

QUANTITIES


ASSEMBLY TYPE	DESCRIPTION	PART NO	REMARKS
*	DROP TUBE HSS 5 1/2 x 5 1/2 x 3/8 x 10'-0"	6	NOTE 5
*	DROP TUBE HSS 5 1/2 x 5 1/2 x 3/8 x 9'-0"	6	NOTE 5
2	1/2" Ø GROUNDING BOLT	5	
2	REMOVABLE CAP PLATE	4	
2	BASE PLATE TYPE "D2"	3	
2	END BEAM - HSS 14 x 10 x 3/8" x 5'-0" LG.	7	NOTE 6, 7
1	CENTER BEAM - HSS 14 x 10 x 3/8 - LENGTH VARIES	2	NOTE 2, 6, 7
-	POLE - HSS 14 x 14 x 5/8 x 45'-6" LG.	1	NOTE 8
2	POLE - HSS 14 x 14 x 5/8 x 40'-0" LG.	1	NOTE 8

* QUANTITY VARIES DEPENDING ON FIELD CONDITIONS

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DEPUTY DIRECTOR, ENGINEERING



1250 San Carlos Avenue
San Carlos, CA 94070

STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS PORTAL TYPE PS-40S, PS-10S
SINGLE SPAN PORTAL DETAILS
FOR SPANS 90 TO 95, 45 TO 65 FT
SHEET 1 OF 3

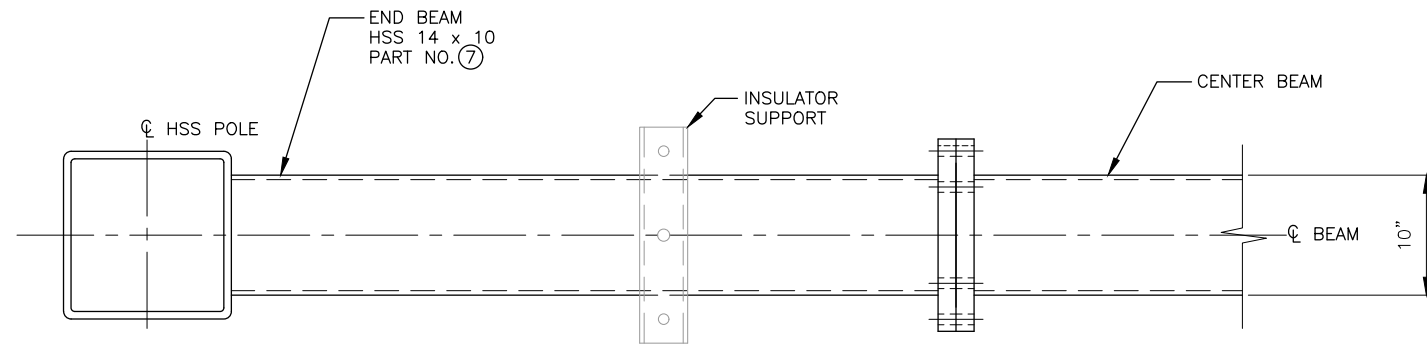
CADD FILE NAME:
W5191

REV: EDITION:
 01012024

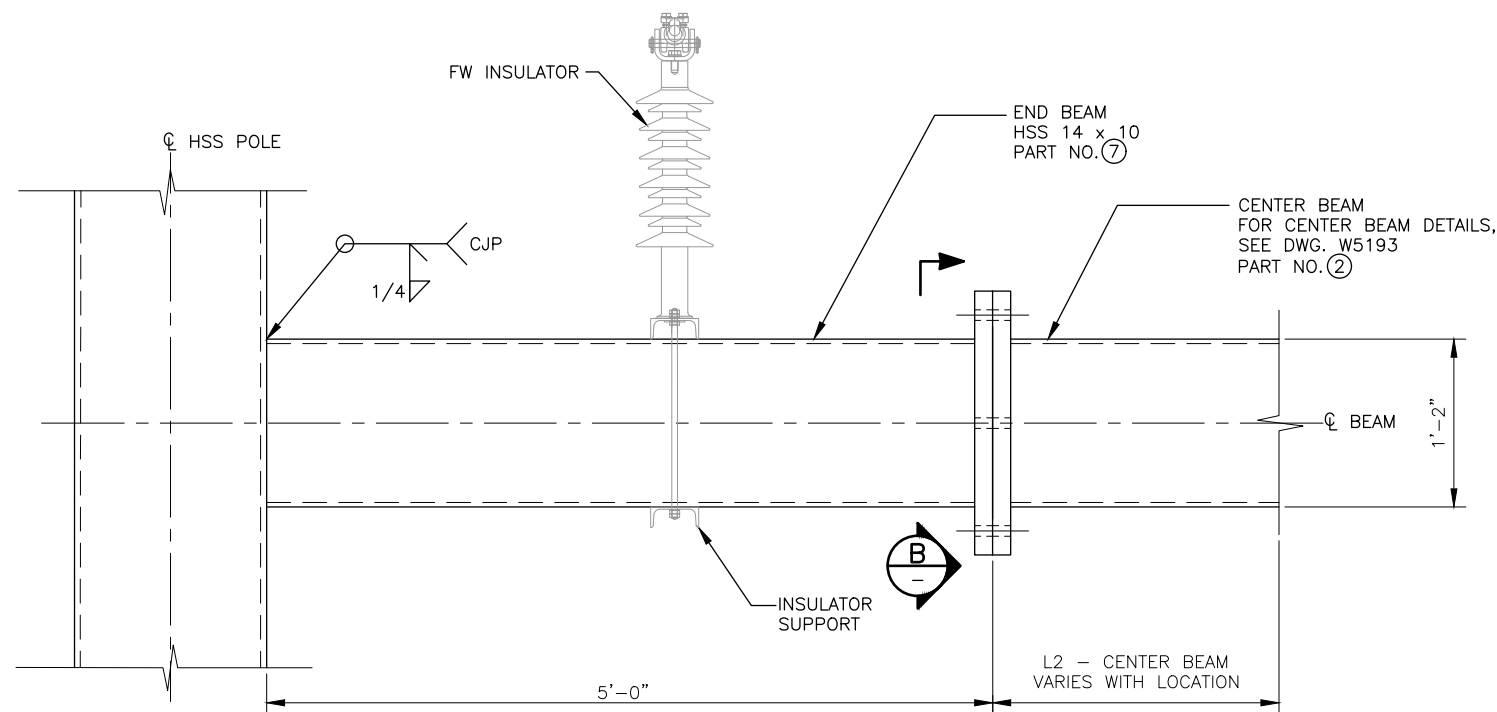
STANDARD DRAWING NO.:
W5191

NOTE:

1. FOR NOTES AND BILL OF MATERIAL, SEE DRAWING W5191.

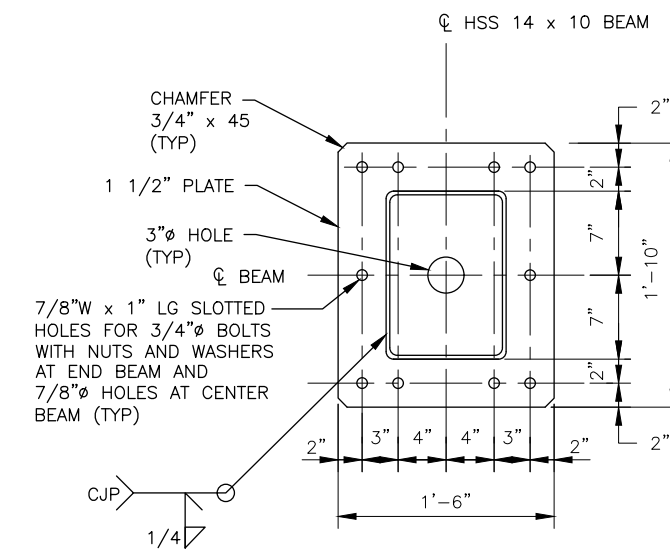


PLAN



**ELEVATION
DETAIL**

③
W5191 W5192 SCALE: 1 1/2"=1'-0"



B SECTION

W5192 W5192 SCALE: 1 1/2"=1'-0"
W5193

REV	DATE	BY	CHK	APP	DESCRIPTION	REV	DATE	BY	CHK	APP	DESCRIPTION
					01012024 EDITION						

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DEPUTY DIRECTOR, ENGINEERING



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San Carlos, CA 94070

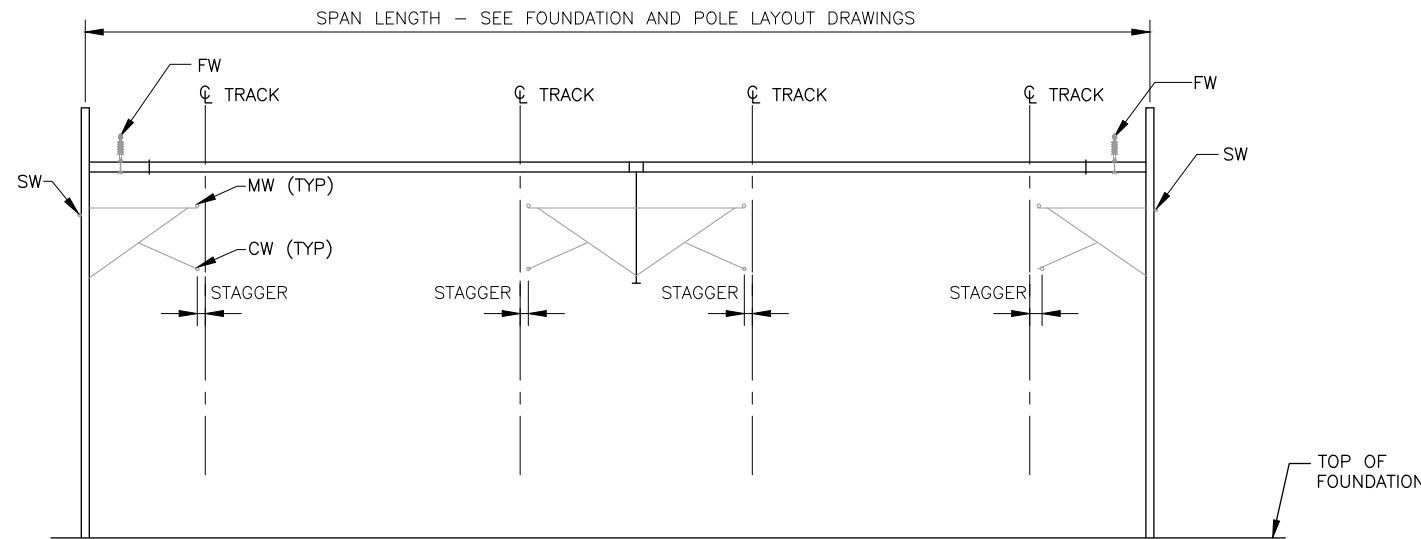
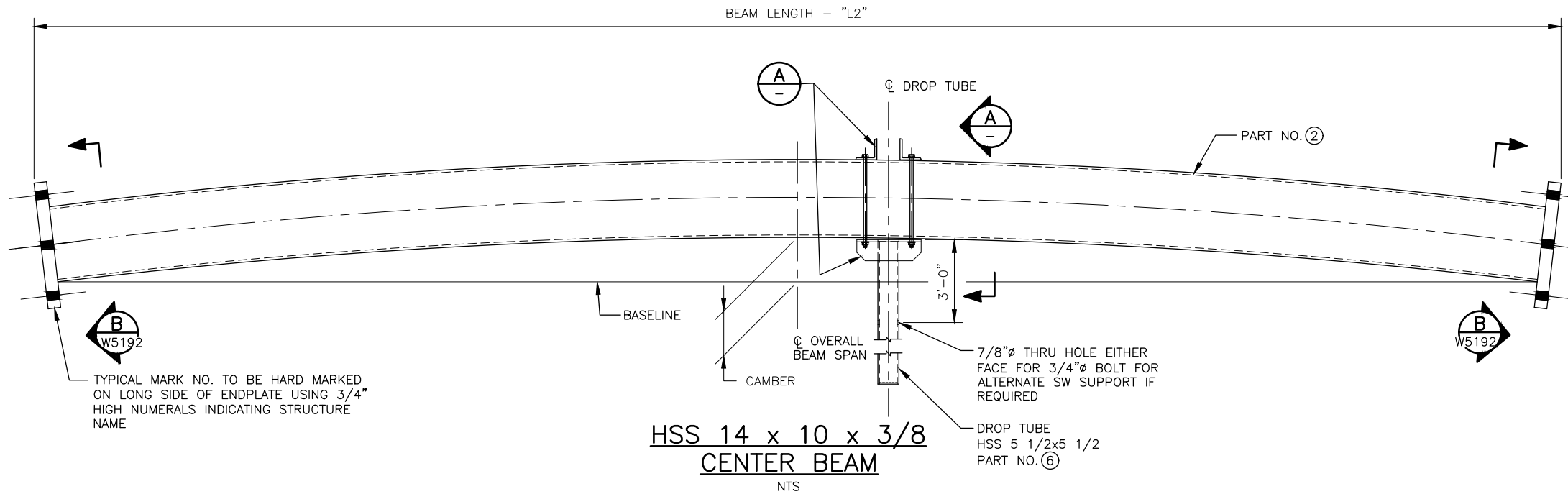
STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS PORTAL TYPE PS-40S, PS-10S
SINGLE SPAN PORTAL DETAILS
FOR SPANS 90 TO 95, 45 TO 65 FT
SHEET 2 OF 3

CADD FILE NAME: W5192	EDITION: 01012024
REV:	STANDARD DRAWING NO.: W5192

NOTE:

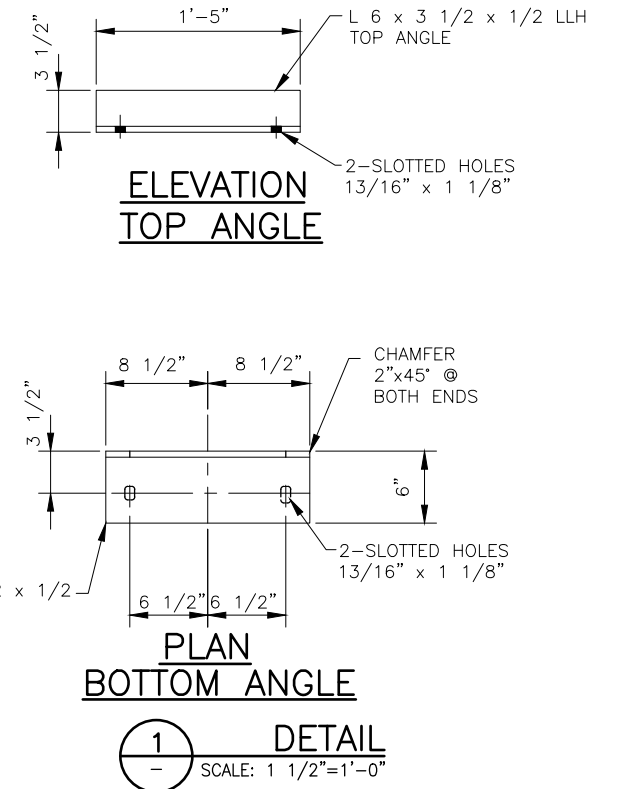
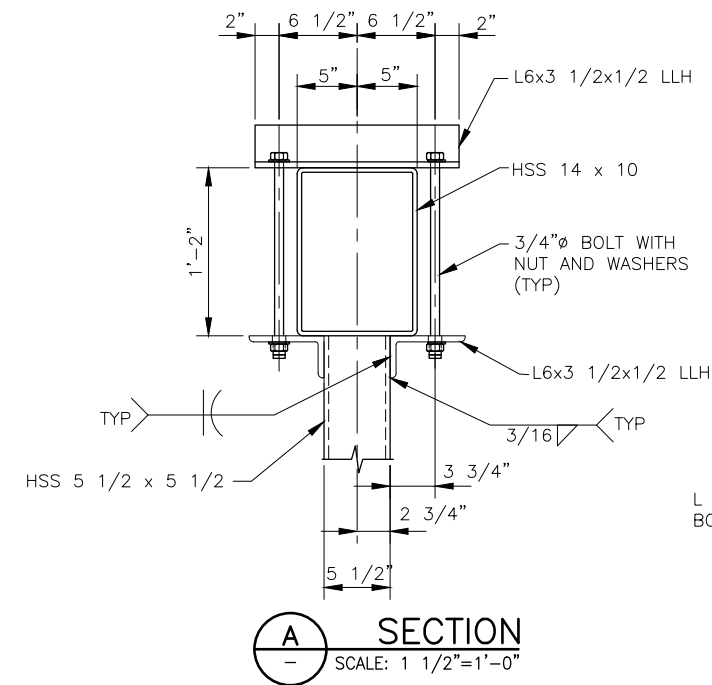
1. FOR NOTES AND BILL OF MATERIAL, SEE DRAWING W5191.



**SCHMATIC PORTAL DETAIL
FOR UP TO 4 TRACKS
PS-10S & PS-40S**

NTS

QUANTITY OF CANTILEVERS AND DROP TUBES VARIES DEPENDING ON SITE SPECIFIC CONDITIONS. REFER TO OCS MATERIAL ALLOCATION DRAWINGS.



REV	DATE	BY	CHK	APP	DESCRIPTION	REV	DATE	BY	CHK	APP	DESCRIPTION
					01012024 EDITION						

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DEPUTY DIRECTOR, ENGINEERING

1250 San Carlos Avenue
San Carlos, CA 94070

STANDARD DRAWINGS

ELECTRIFICATION PROJECT

OCS PORTAL TYPE PS-40S, PS-10S

SINGLE SPAN PORTAL DETAILS

FOR SPANS 90 TO 95, 45 TO 65 FT

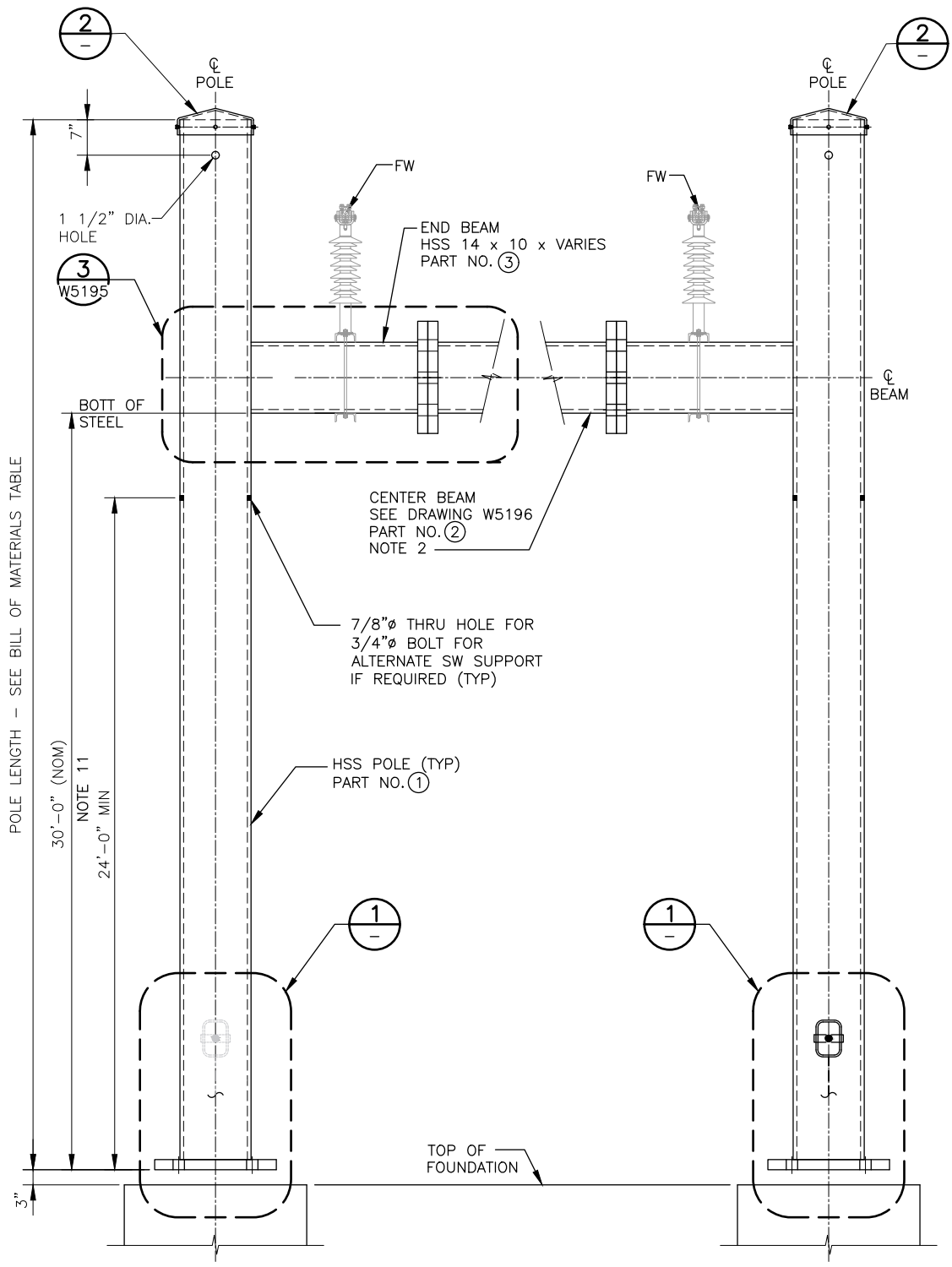
SHEET 3 OF 3

CADD FILE NAME: W5193

REV: 01012024

EDITION: 01012024

STANDARD DRAWING NO.: W5193



POLE ELEVATION
NTS

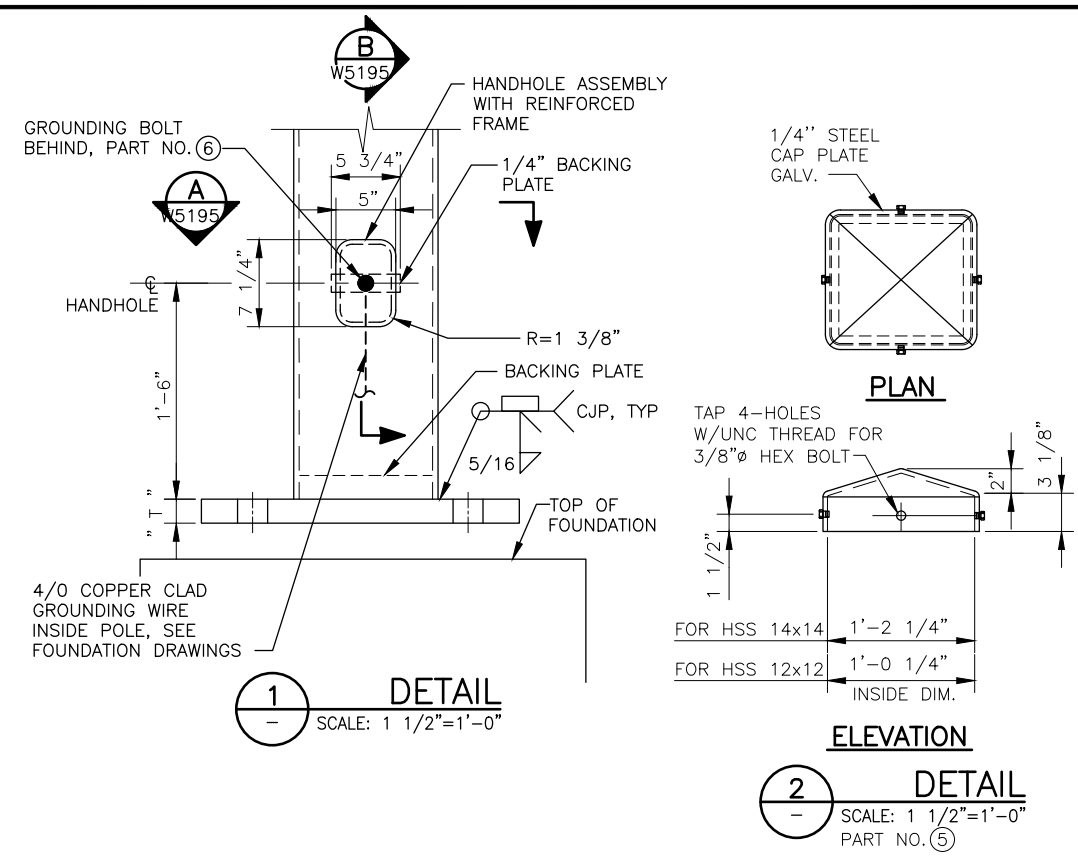


TABLE 1 BASE PLATE DIMENSIONS (IN)

BASE PLATE	DESCRIPTION	S	F	H	R	T	B	ANCHOR BOLT DIA
TYPE "D"	BASE FOR PS-3, PS-3A, PS-3B, PS-3Z	28	21	2 3/8	2	2 1/2	29.70	2
TYPE "D1"	BASE FOR PS-4, PS-4A	28	21	2 3/8	2	2 1/2	29.70	2
TYPE "C"	BASE PLATE FOR PS-3Z	21	15 1/2	2 1/16	2	2 1/2	21.92	1 3/4

QUANTITIES								
*	*	*	*	*	*	DROP TUBE HSS 5 1/2 x 5 1/2 x 3/8 x 10'-0"	7	NOTE 5
*	*	*	*	*	*	DROP TUBE HSS 5 1/2 x 5 1/2 x 3/8 x 9'-0"	7	NOTE 5
2	2	2	2	2	2	1/2"Ø GROUNDING BOLT	6	
2	2	2	2	2	2	REMOVABLE CAP PLATE	5	
-	-	-	-	2	2	BASE PLATE TYPE "D1"	4	
2	2	2	1	-	-	BASE PLATE TYPE "D"	4	
-	-	-	1	-	-	BASE PLATE TYPE "C"	4	NOTE 7
2	2	2	2	2	2	END BEAM - HSS 14 x 10 x 5/8 x 5'-0" LG.	3	NOTE 8, 9
2	2	2	2	2	2	END BEAM - HSS 14 x 10 x 3/8 x 5'-0" LG.	3	NOTE 8, 9
1	1	1	1	1	1	CENTER BEAM - HSS 14 x 10 x 5/8 - LENGTH VARIES	2	NOTE 2, 8, 9
1	1	1	1	1	1	CENTER BEAM - HSS 14 x 10 x 3/8 - LENGTH VARIES	2	NOTE 2, 8, 9
-	-	-	-	-	2	POLE - HSS 14 x 14 x 5/8 x 45'-6" LG.	1	NOTE 10
-	-	-	-	2	-	POLE - HSS 14 x 14 x 5/8 x 34'-0" LG.	1	NOTE 10
-	-	2	-	-	-	POLE - HSS 12 x 12 x 5/8 x 45'-6" LG.	1	NOTE 10
-	1	-	-	-	-	POLE - HSS 12 x 12 x 5/8 x 43'-0" LG.	1	NOTE 6, 10
2	1	-	2	-	-	POLE - HSS 12 x 12 x 5/8 x 34'-0" LG.	1	NOTE 6, 10


* QUANTITY VARIES DEPENDING ON FIELD CONDITIONS

- NOTES:**
- FOR GENERAL NOTES SEE DRAWING W0101.
 - HORIZONTAL BEAM LENGTH WILL BE DETERMINED IN FIELD AT EACH LOCATION PRIOR TO FABRICATION.
 - ALL HOLES IN MAST, BEAMS, AND MISCELLANEOUS STEEL SHALL BE PRE-DRILLED IN SHOP PRIOR TO GALVANIZING.
 - ALL POLES SHALL BE SET PLUMB WITH NO RAKE TO ENSURE PROPER CONNECTION BETWEEN POLE AND HORIZONTAL BEAM.
 - SEE MATERIAL ALLOCATION DRAWINGS FOR NUMBER, LOCATION AND LENGTH OF DROP TUBES AND WIRE INFORMATION. ALTERNATE DROP TUBE DETAILS MAY BE USED AS APPROVED BY THE ENGINEER.
 - SEE MATERIAL ALLOCATION DRAWINGS FOR REQUIRED POLE HEIGHT AT EACH TRACK SIDE LOCATION IF VARIES.
 - SEE FOUNDATION & POLE LAYOUT DRAWINGS FOR FOUNDATION SIZES AT EACH TRACK SIDE LOCATION WHEN VARIES.
 - NOTIFY ENGINEER IF ANY WIRES ARE TERMINATED ON THE PORTAL BEAM AND THE BEAM SECTION SHALL BE EVALUATED ON A CASE SPECIFIC BASIS.
 - PORTAL BEAM MEMBER SIZES ARE BASED ON THE SPAN LENGTH FROM POLE CL TO CL AS FOLLOWS:
L < 80' USE HSS 14 x 10 x 3/8 SECTION FOR CENTER BEAM AND END BEAMS
L ≥ 80' USE HSS 14 x 10 x 5/8 SECTION FOR CENTER BEAM AND END BEAMS
 - MODIFIED POLE LENGTHS DUE TO FIELD CONDITIONS MAY BE USED AT LOCATIONS SHOWN ON FOUNDATION AND POLE LAYOUT DRAWINGS. CONFIRM POLE LENGTHS WITH ENGINEER PRIOR TO FABRICATION.
 - BOTTOM OF STEEL VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATION DRAWINGS FOR HEIGHT.

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DEPUTY DIRECTOR, ENGINEERING



1250 San Carlos Avenue
San Carlos, CA 94070

STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS PORTAL TYPES PS-3 THRU PS-4A
SINGLE SPAN PORTAL DETAILS
FOR SPANS UP TO 85, 90 & 95 FT
SHEET 1 OF 3

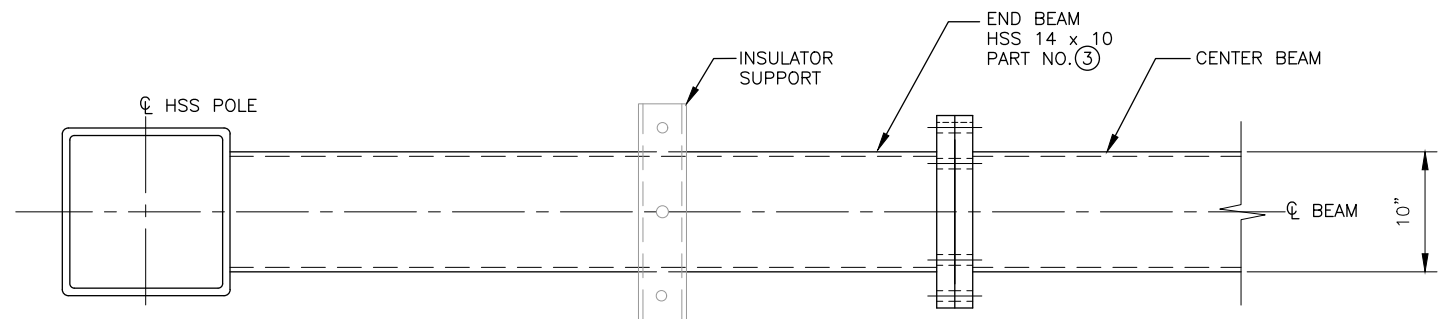
CADD FILE NAME:
W5194

REV: EDITION:
 01012024

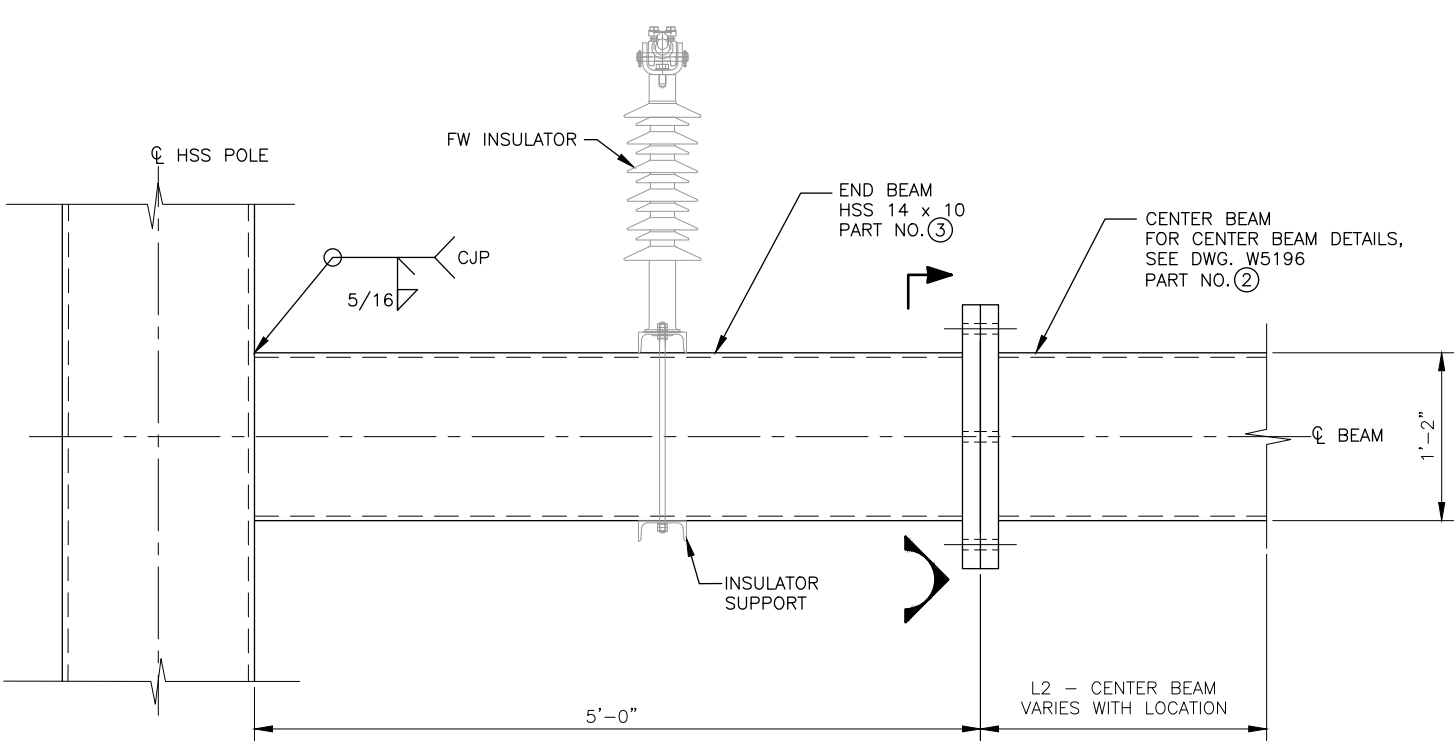
STANDARD DRAWING NO.:
W5194

NOTE:

1. FOR NOTES AND BILL OF MATERIAL, SEE DRAWING W5194.

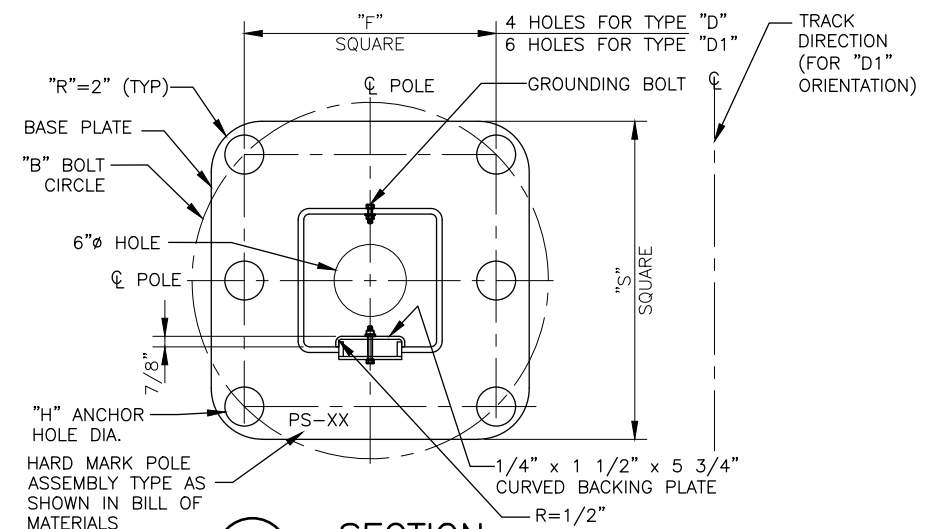


PLAN



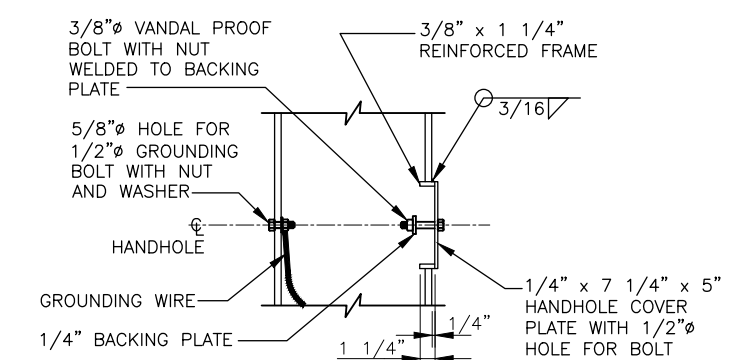
ELEVATION

3
W5194 W5195 SCALE: 1 1/2"=1'-0"



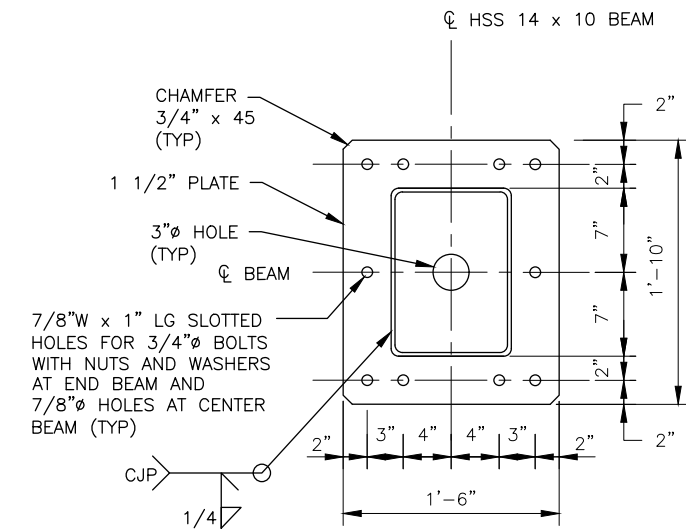
A SECTION

W5194 W5195 SCALE: 1 1/2"=1'-0"
PART NO. 4



B SECTION

W5194 W5195 SCALE: 1 1/2"=1'-0"




C SECTION

W5195 W5195 SCALE: 1 1/2"=1'-0"
W5196

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DEPUTY DIRECTOR, ENGINEERING



1250 San Carlos Avenue
San Carlos, CA 94070

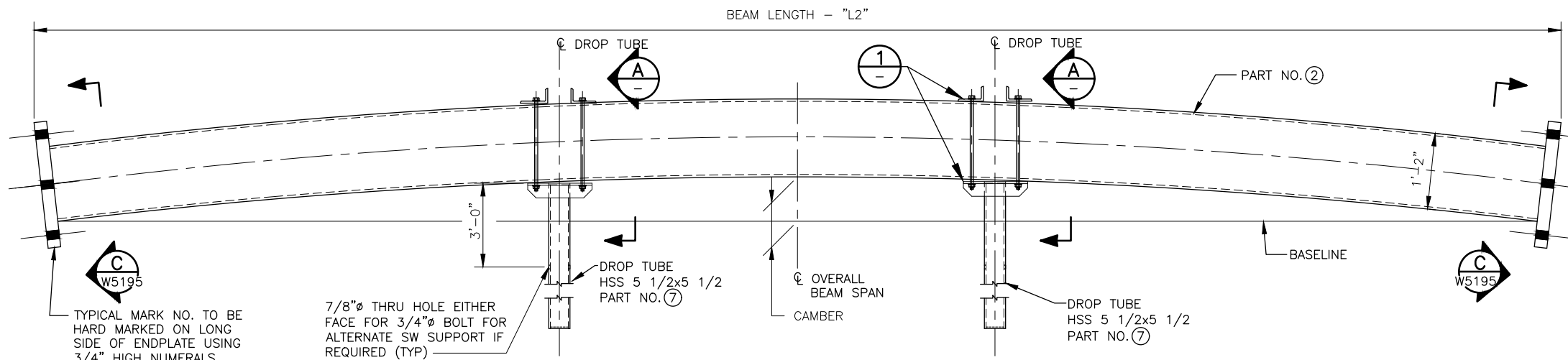
STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS PORTAL TYPES PS-3 THRU PS-4A
SINGLE SPAN PORTAL DETAILS
FOR SPANS UP TO 85, 90 & 95 FT
SHEET 2 OF 3

CADD FILE NAME: W5195	REV: EDITION: 01012024
STANDARD DRAWING NO.: W5195	

NOTES:

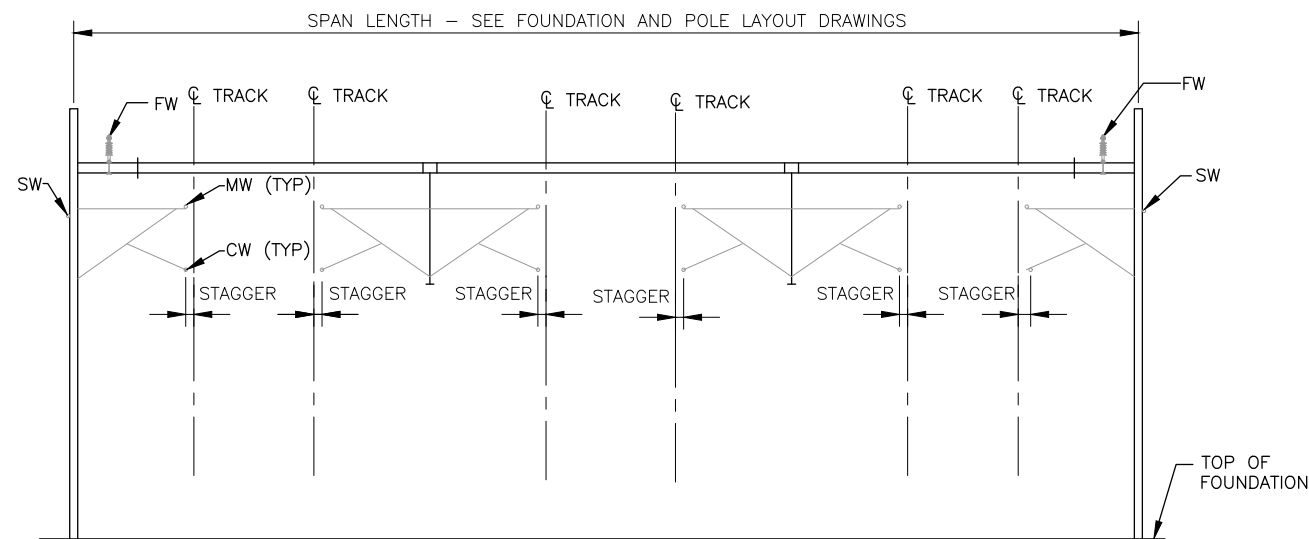
1. FOR NOTES AND BILL OF MATERIAL, SEE DRAWING W5194.



**HSS 14 x 10
CENTER BEAM**
NTS

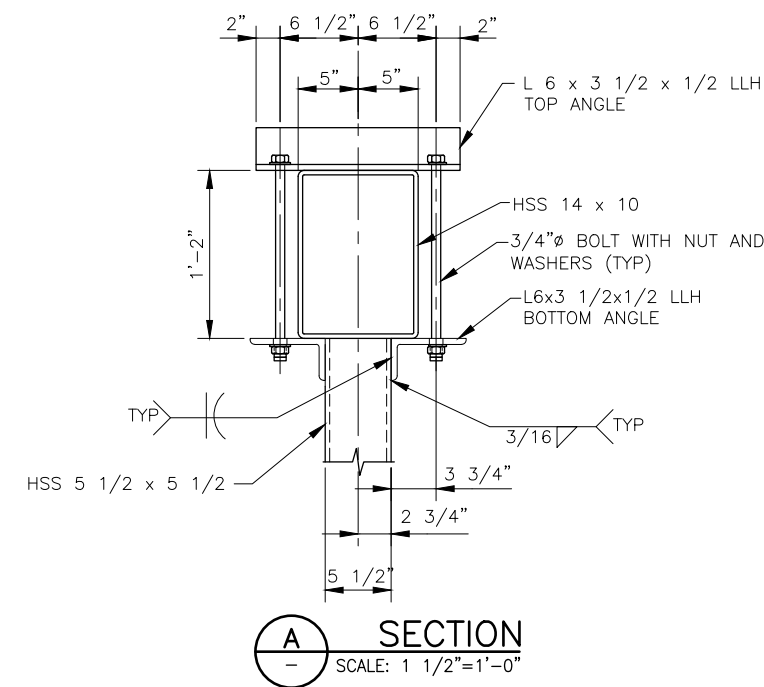
TYPICAL MARK NO. TO BE HARD MARKED ON LONG SIDE OF ENDPLATE USING 3/4" HIGH NUMERALS INDICATING STRUCTURE NAME

7/8"Ø THRU HOLE EITHER FACE FOR 3/4"Ø BOLT FOR ALTERNATE SW SUPPORT IF REQUIRED (TYP)

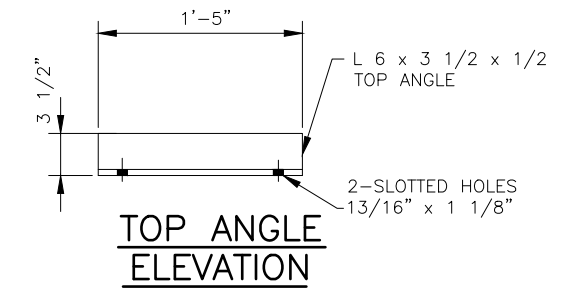


**SCHEMATIC PORTAL DETAIL
PS-3 THRU PS-4A**
NTS

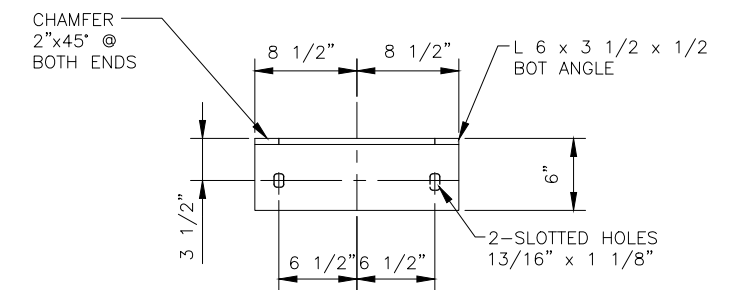
QUANTITY OF CANTILEVERS AND DROP TUBES VARIES DEPENDING ON SITE SPECIFIC CONDITIONS. REFER TO OCS MATERIAL ALLOCATION DRAWINGS.



A SECTION
SCALE: 1 1/2"=1'-0"



**TOP ANGLE
ELEVATION**



**BOT ANGLE
PLAN**

1 DETAIL
SCALE: 1 1/2"=1'-0"

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DEPUTY DIRECTOR, ENGINEERING

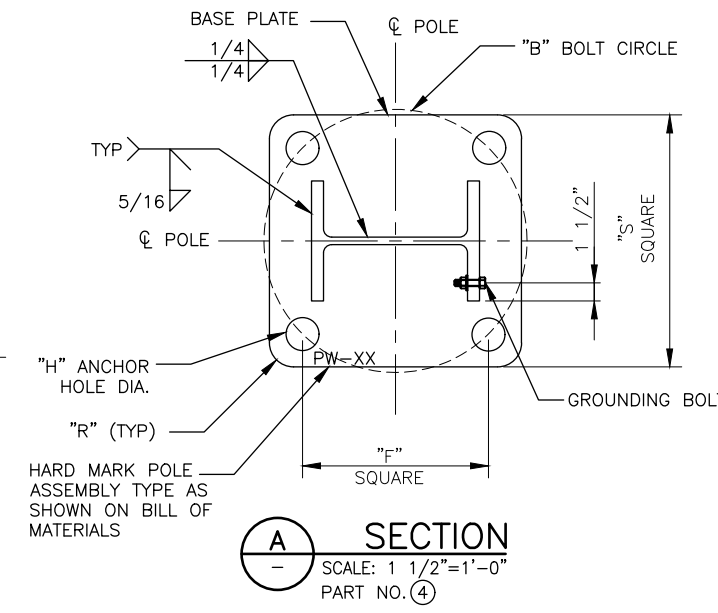
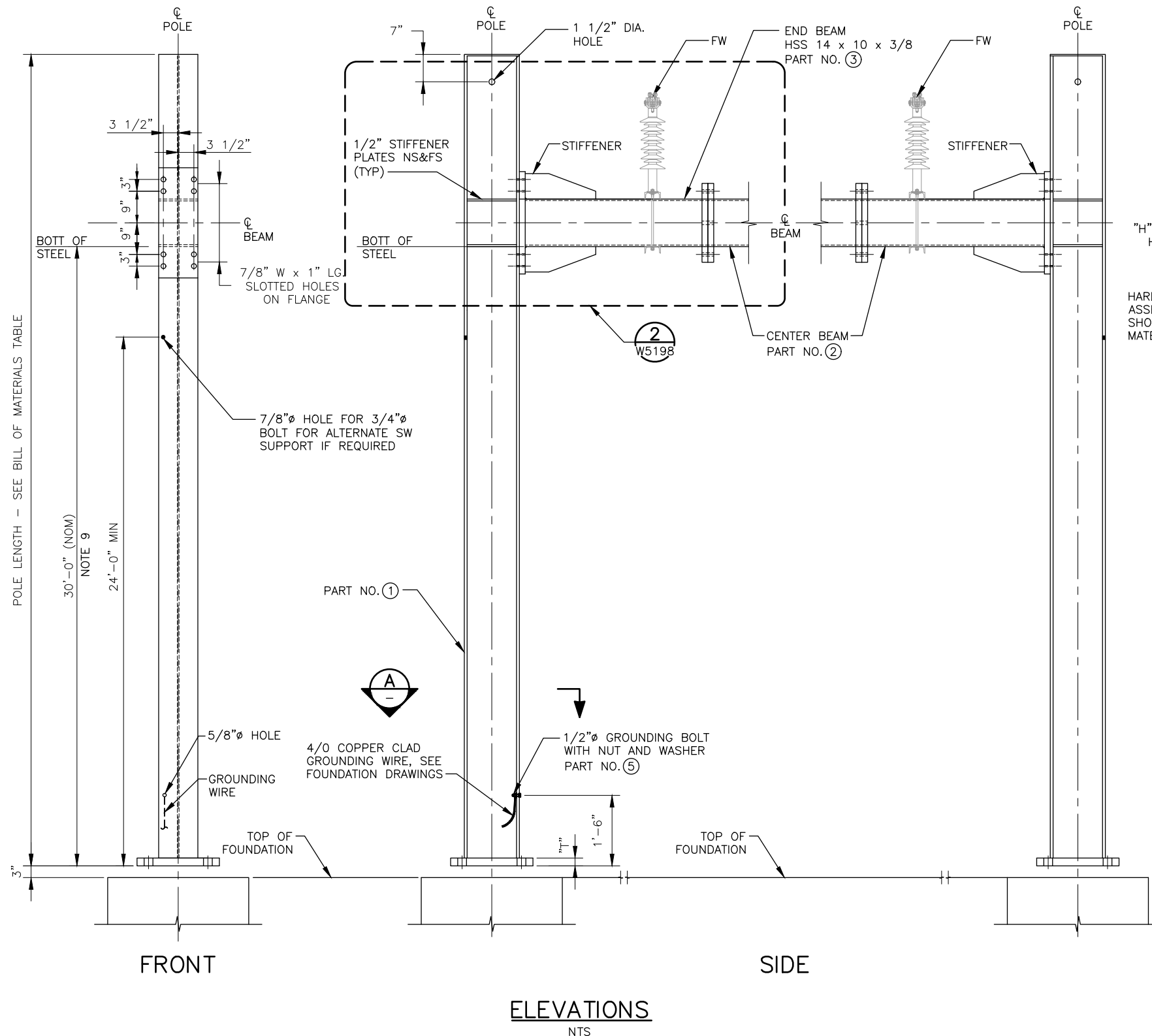


1250 San Carlos Avenue
San Carlos, CA 94070

STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS PORTAL TYPES PS-3 THRU PS-4A
SINGLE SPAN PORTAL DETAILS
FOR SPANS UP TO 85, 90 & 95 FT
SHEET 3 OF 3

CADD FILE NAME: W5196	EDITION: 01012024
REV:	
STANDARD DRAWING NO.:	W5196



- NOTES:**
- FOR GENERAL NOTES SEE DRAWING W0101.
 - HORIZONTAL BEAM LENGTH WILL BE DETERMINED IN FIELD AT EACH LOCATION PRIOR TO FABRICATION.
 - ALL HOLES ON MAST, BEAMS AND MISCELLANEOUS STEEL SHALL BE PRE-DRILLED AT SHOP PRIOR TO GALVANIZING.
 - ALL PORTAL POLES SHALL BE SET PLUMB WITH NO RAKE TO ENSURE PROPER CONNECTION WITH HORIZONTAL BEAM.
 - SEE MATERIAL ALLOCATION DRAWINGS FOR NUMBER, LOCATION AND LENGTH OF DROP TUBES AND WIRE INFORMATION. ALTERNATE DROP TUBE DETAILS MAY BE USED AS APPROVED BY THE ENGINEER.
 - NOTIFY ENGINEER IF ANY WIRES ARE TERMINATED ON THE PORTAL BEAM AND THE BEAM SECTION SHALL BE EVALUATED ON A CASE SPECIFIC BASIS.
 - PORTAL BEAM MEMBER SIZES ARE BASED ON THE SPAN LENGTH FROM POLE CL TO CL AS FOLLOWS:
 TABLE
 L < 80' USE SECTION SHOWN IN BILL OF MATERIALS
 L ≥ 80' USE HSS 14 x 10 x 5/8 SECTION FOR CENTER BEAM AND END BEAMS
 - MODIFIED POLE LENGTHS DUE TO FIELD CONDITIONS MAY BE USED AT LOCATIONS SHOWN ON FOUNDATION AND POLE LAYOUT DRAWINGS. CONFIRM POLE LENGTHS WITH ENGINEER PRIOR TO FABRICATION.
 - BOTTOM OF STEEL VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATION DRAWINGS FOR HEIGHT.
 - SEE FOUNDATION AND POLE LAYOUT DRAWINGS FOR FOUNDATION SIZES AT EACH TRACK SIDE LOCATION WHEN VARIES.

TABLE 1 BASE PLATE DIMENSIONS (IN)

BASE PLATE	DESCRIPTION	S	F	H	R	T	B	ANCHOR BOLT DIA
TYPE "C1"	BASE FOR PW-3	21	15 1/2	2 3/8	2	2 1/2	21.92	2
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-

QUANTITIES

QUANTITY	DESCRIPTION	PART NO	REMARKS
1	DROP TUBE HSS 5 1/2 x 5 1/2 x 3/8 x 10'-0"	6	NOTE 5
2	1/2" GROUNDING BOLT	5	
2	BASE PLATE TYPE "C1"	4	
2	END BEAM - HSS 14 x 10 x 3/8 x 5'-0" LG.	3	NOTE 6, 7
1	CENTER BEAM - HSS 14 x 10 x 3/8 - LENGTH VARIES	2	NOTE 2, 6, 7
2	POLE - W14 x 82 x 34'-0" LG.	1	NOTE 8
PW-3			
ASSEMBLY TYPE	DESCRIPTION	PART NO	REMARKS

BILL OF MATERIALS

REV	DATE	BY	CHK	APP	DESCRIPTION	REV	DATE	BY	CHK	APP	DESCRIPTION

01012024 EDITION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

 DEPUTY DIRECTOR, ENGINEERING

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 San Carlos, CA 94070

STANDARD DRAWINGS

ELECTRIFICATION PROJECT
 OCS PORTAL TYPE PW-3
 SINGLE SPAN PORTAL DETAILS
 FOR SPANS FROM 66 TO 85 FEET
 SHEET 1 OF 3

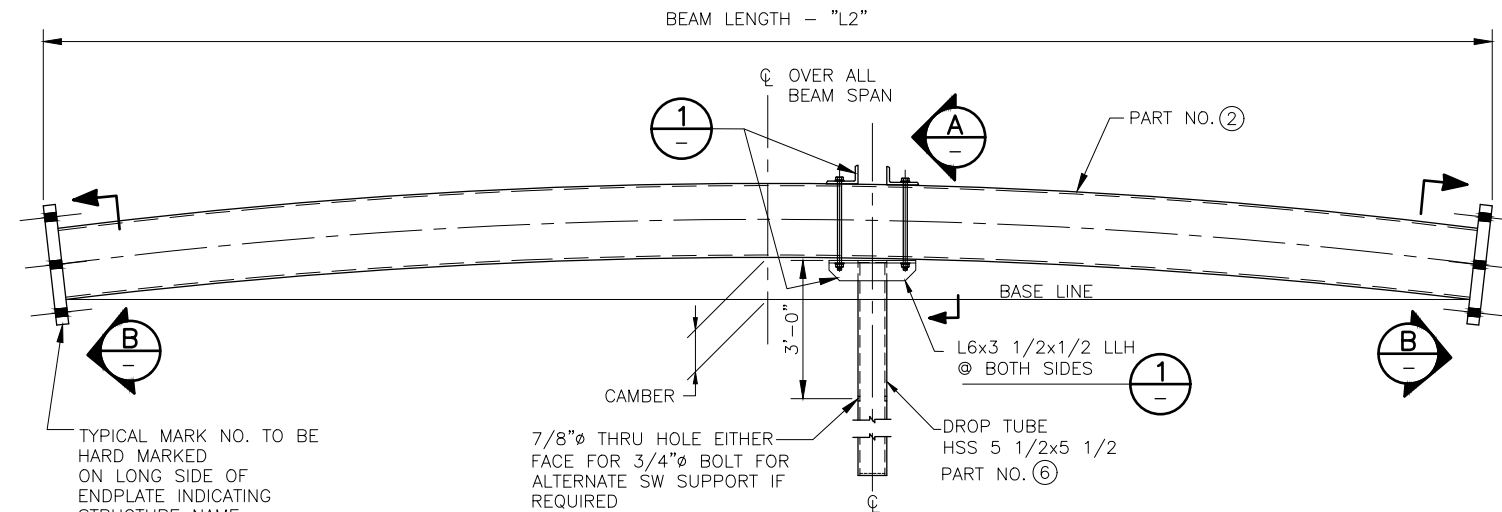
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REV: EDITION:
 01012024

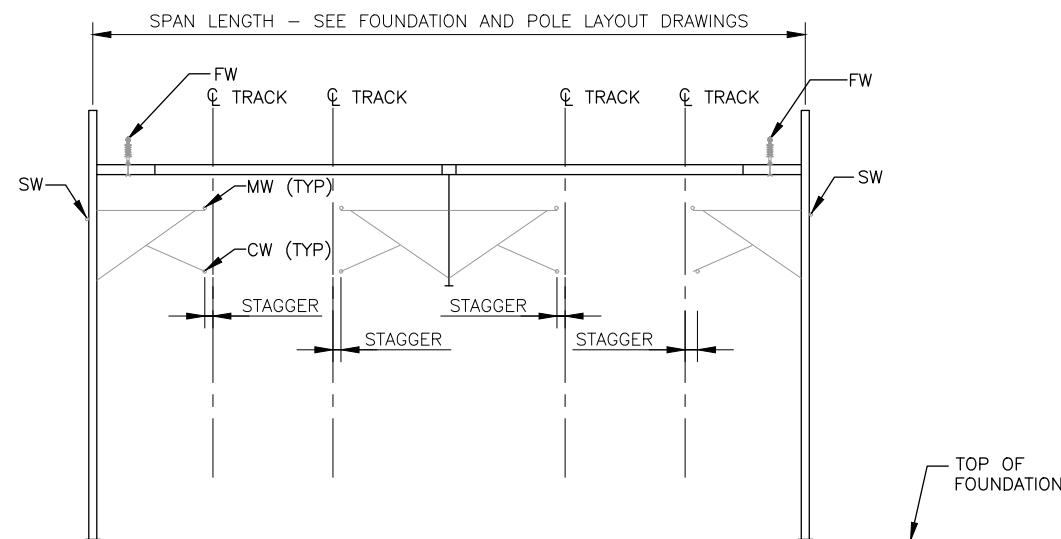
STANDARD DRAWING NO.:
W5197

NOTE:

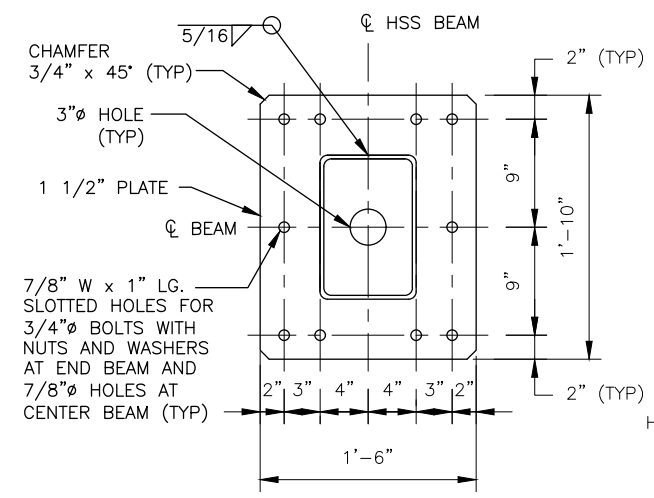
1. FOR NOTES AND BILL OF MATERIAL, SEE DRAWING W5197.



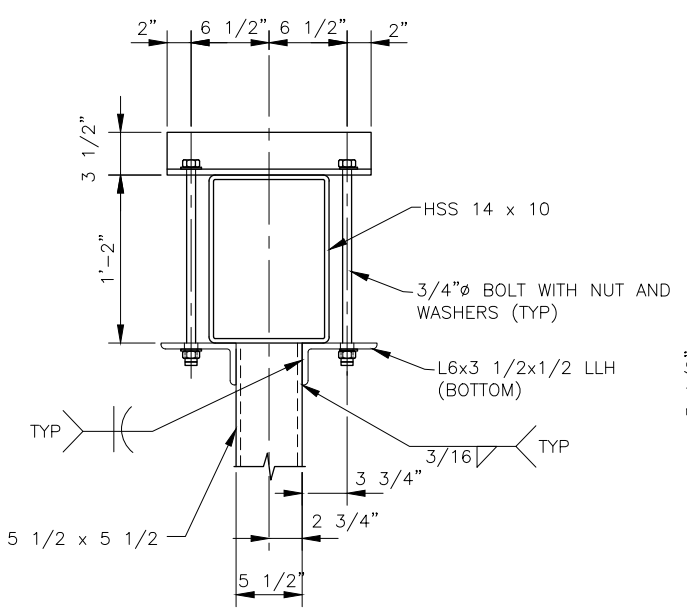
HSS 14 x 10 x 3/8
CENTER BEAM PART NO. ②
NTS



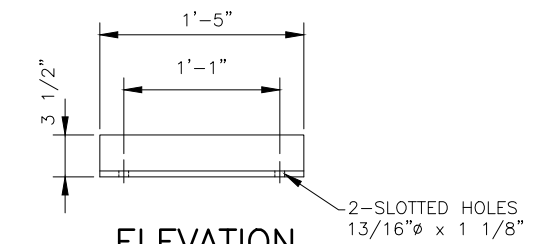
SCHMATIC DETAIL
FOUR TRACK PORTAL
PW-3
NTS



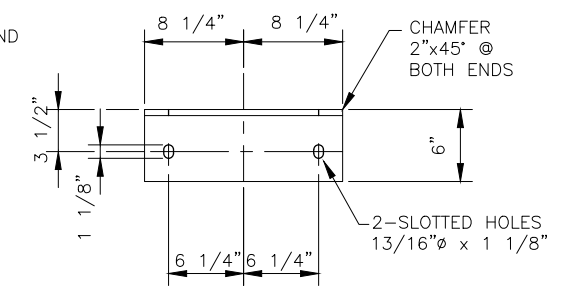
SECTION B
SCALE: 1 1/2"=1'-0"



SECTION A
SCALE: 1 1/2"=1'-0"



ELEVATION TOP ANGLE



PLAN BOTTOM ANGLE

DETAIL ①
SCALE: 1 1/2"=1'-0"

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DEPUTY DIRECTOR, ENGINEERING

Caltrain

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San Carlos, CA 94070

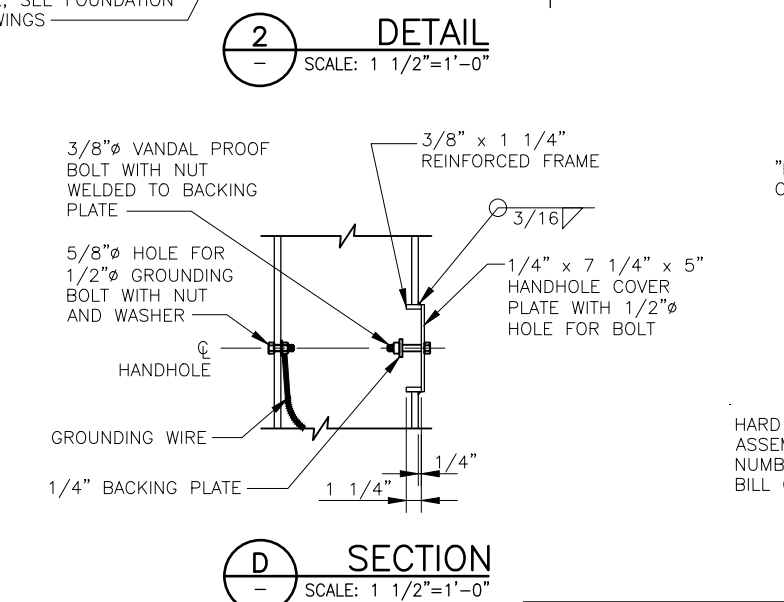
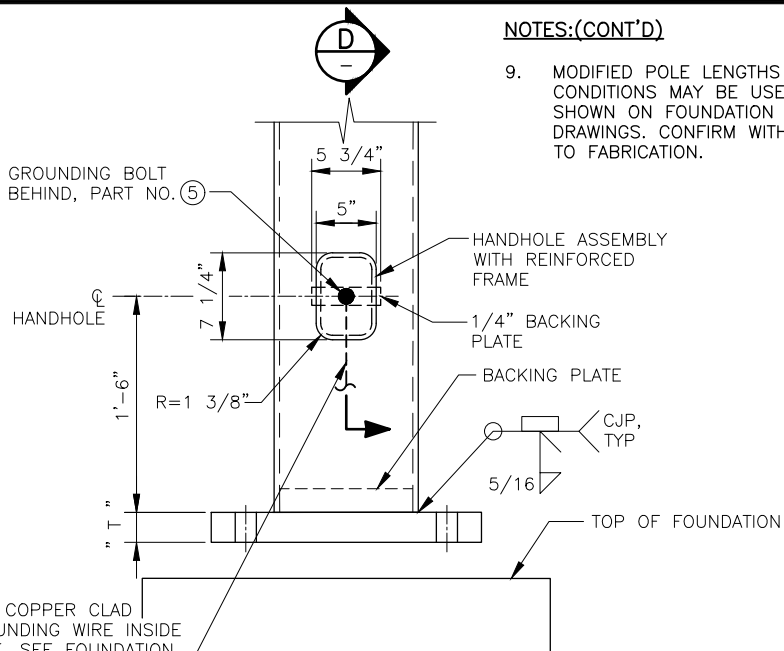
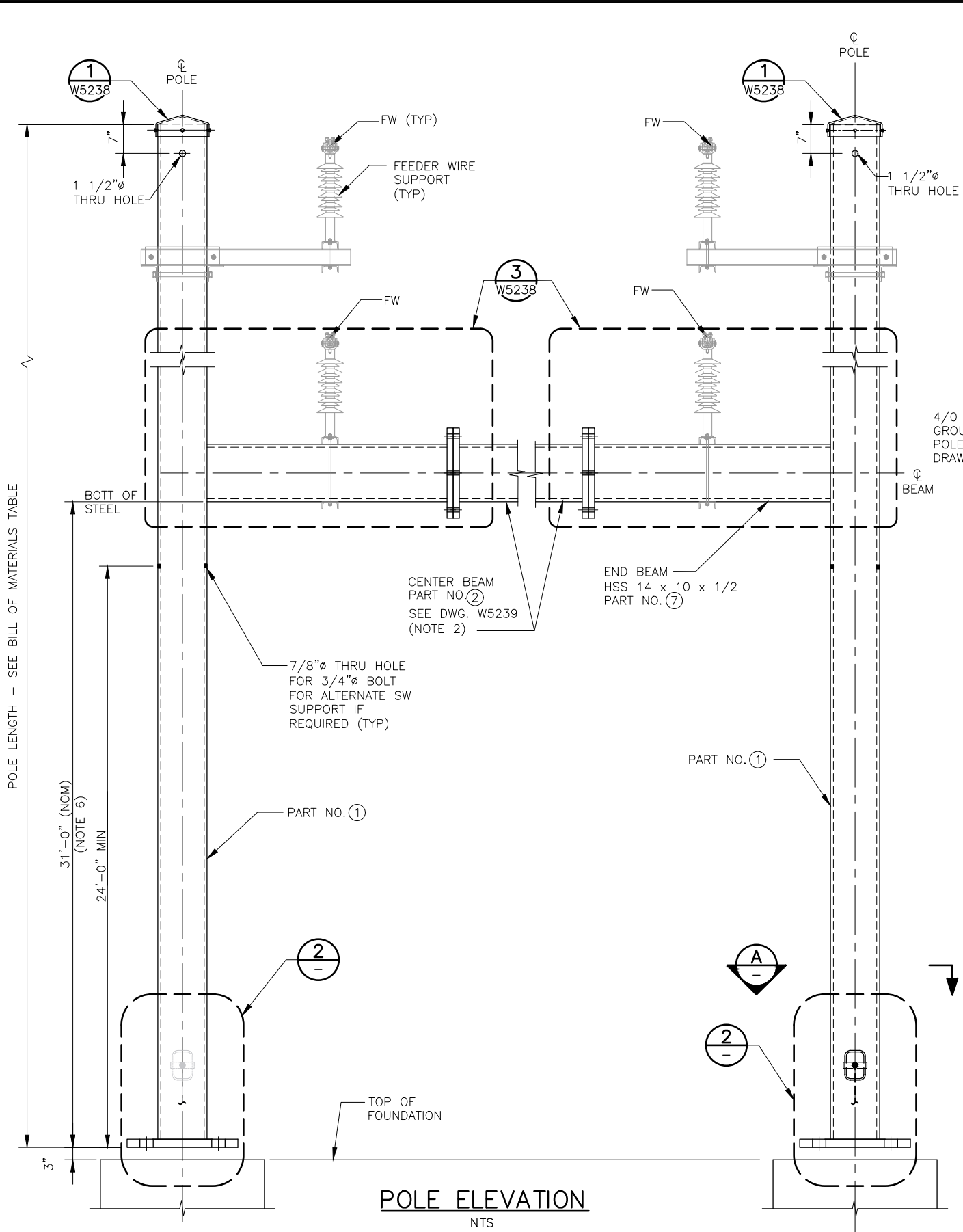
STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS PORTAL TYPE PW-3
SINGLE SPAN PORTAL DETAILS
FOR SPANS FROM 66 TO 85 FEET
SHEET 3 OF 3

CADD FILE NAME:
W5199

REV: EDITION:
 01012024

STANDARD DRAWING NO.:
W5199



- NOTES:
- FOR GENERAL NOTES SEE DRAWING W0101.
 - HORIZONTAL BEAM LENGTH AND POLE HEIGHTS WILL BE DETERMINED IN FIELD AT EACH LOCATION PRIOR TO FABRICATION.
 - ALL HOLES ON MAST, BEAMS AND MISCELLANEOUS STEEL SHALL BE PRE-DRILLED AT SHOP PRIOR TO GALVANIZING
 - ALL PORTAL POLES SHALL BE SET PLUMB WITH NO RAKE TO ENSURE PROPER CONNECTION WITH HORIZONTAL BEAM.
 - SEE MATERIAL ALLOCATION DRAWINGS FOR NUMBER, LOCATION AND LENGTH OF DROP TUBES AND WIRE INFORMATION. ALTERNATE DROP TUBE DETAILS MAY BE USED AS APPROVED BY THE ENGINEER.
 - BOTTOM OF STEEL VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATION DRAWINGS FOR HEIGHT.
 - NOTIFY ENGINEER IF ANY WIRES ARE TERMINATED ON THE PORTAL BEAM AND THE BEAM SECTION SHALL BE EVALUATED ON A CASE SPECIFIC BASIS.
 - SEE FOUNDATION AND POLE LAYOUT DRAWINGS FOR FOUNDATION SIZES AT EACH TRACK SIDE LOCATION WHEN VARIES.

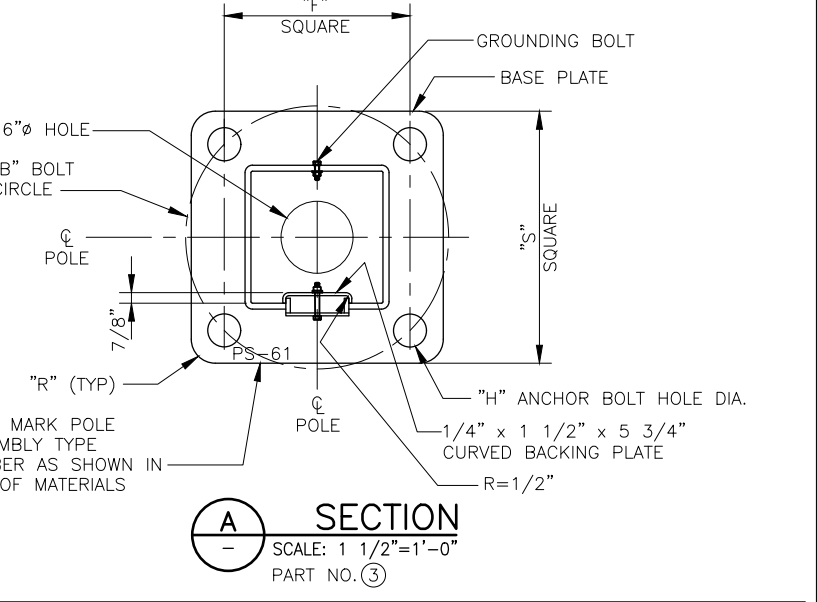


TABLE 1 BASE PLATE DIMENSIONS (IN)

BASE PLATE TYPE	DESCRIPTION	S	F	H	R	T	B	ANCHOR BOLT DIA
"C1"	PS-61	21	15 1/2	2 3/8	2	2 1/2	21.92	2

QUANTITIES

QTY	DESCRIPTION	PART NO	REMARKS
1	DROP TUBE HSS 5 1/2 x 5 1/2 x 3/8 x 10'-0"	6	NOTE 5
2	1/2" GROUNDING BOLT	5	
2	REMOVABLE CAP PLATE	4	
2	BASE PLATE TYPE "C1"	3	
2	END BEAM - HSS 14 x 10 x 1/2 x 5'-0" LG.	7	NOTE 6
1	CENTER BEAM HSS 14 x 10 x 1/2 - LENGTH VARIES	2	NOTE 2
2	POLE - HSS 12 x 12 x 5/8" x 40'-0" LG.	1	NOTE 9

ASSEMBLY TYPE: PS-61

DESCRIPTION: PS-61

PART NO: PS-61

REMARKS:

BILL OF MATERIALS

REV	DATE	BY	CHK	APP	DESCRIPTION

01012024 EDITION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
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DEPUTY DIRECTOR, ENGINEERING

STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS PORTALS
TYPE PS-61
SINGLE SPAN PORTAL
SHEET 1 OF 3

CADD FILE NAME:
W5237

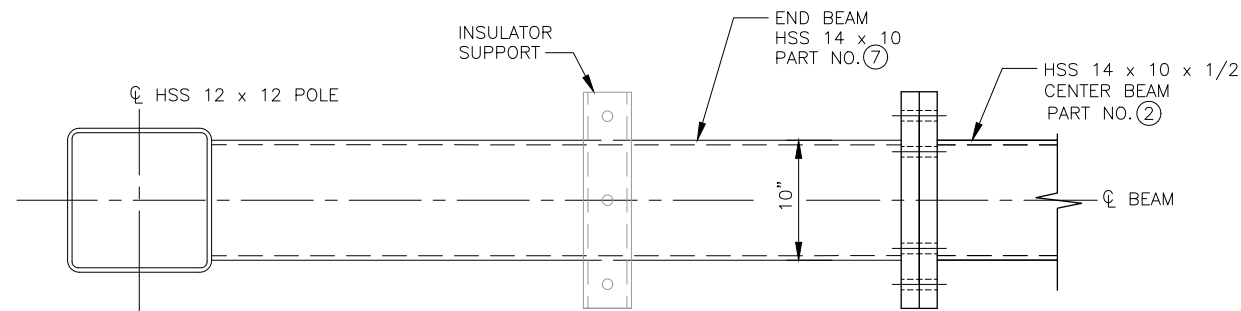
REV: EDITION:
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STANDARD DRAWING NO.:
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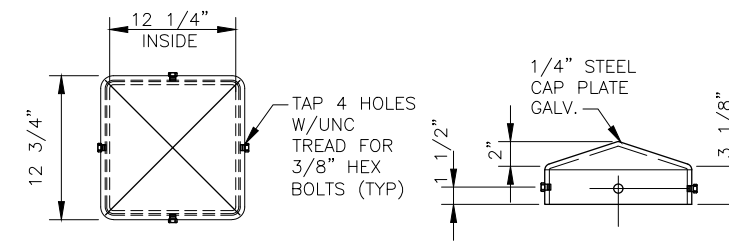


NOTES:

- FOR FOR NOTES AND BILL OF MATERIAL, SEE DRAWING W5237.



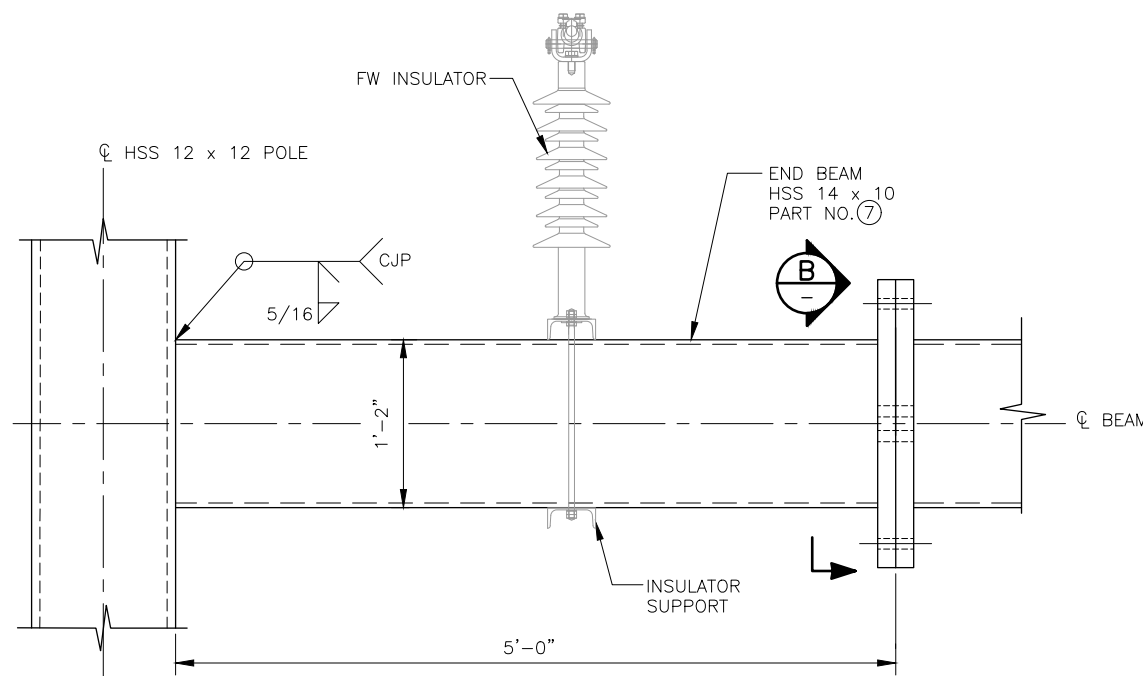
PLAN



PLAN

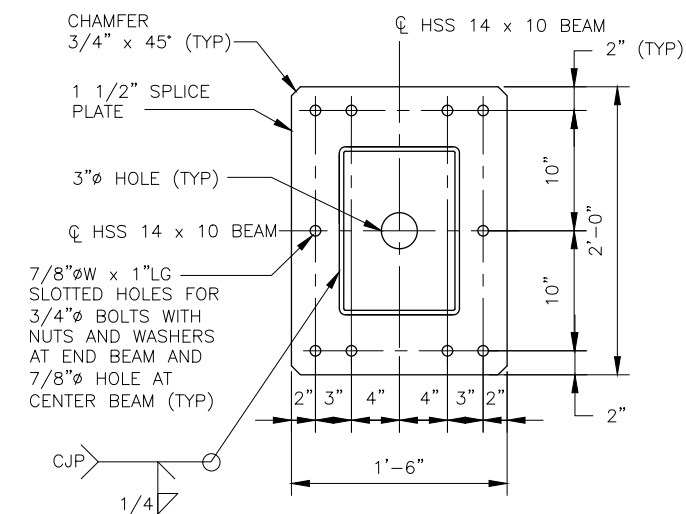
ELEVATION

1
W5237 W5238 SCALE: 1 1/2"=1'-0"
PART NO. 4



ELEVATION

3
W5237 W5238 SCALE: 1 1/2"=1'-0"



B SECTION
W5239 W5238 SCALE: 1 1/2"=1'-0"

REV	DATE	BY	CHK	APP	DESCRIPTION	REV	DATE	BY	CHK	APP	DESCRIPTION
					01012024 EDITION						

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APPROVED BY:

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STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS PORTALS
TYPE PS-61
SINGLE SPAN PORTAL
SHEET 2 OF 3

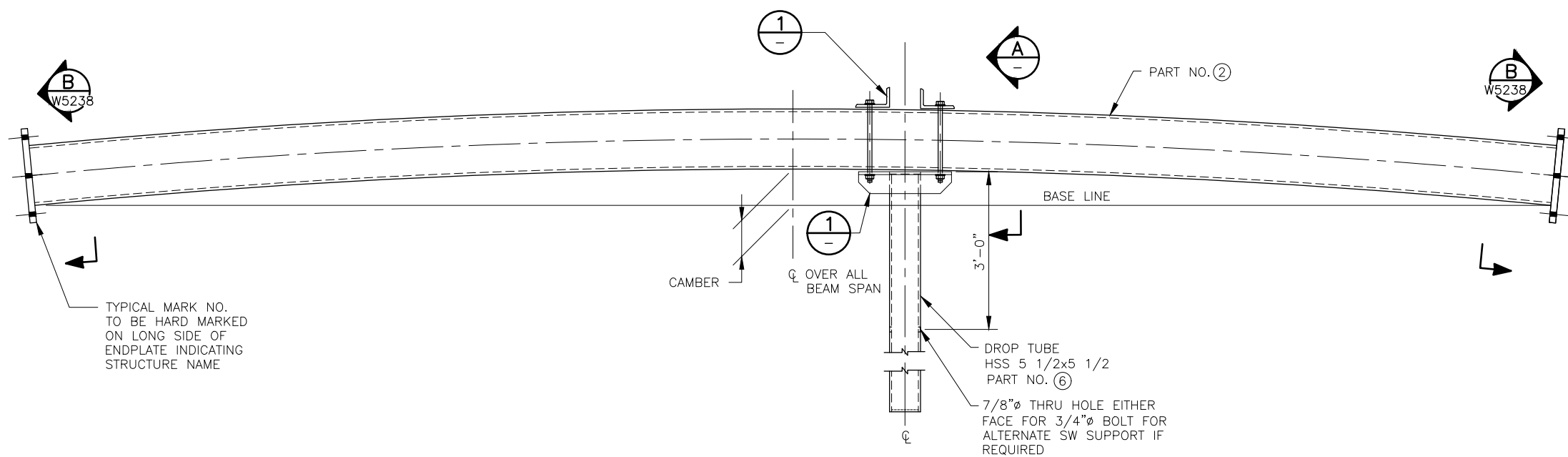
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REV: EDITION:
 01012024

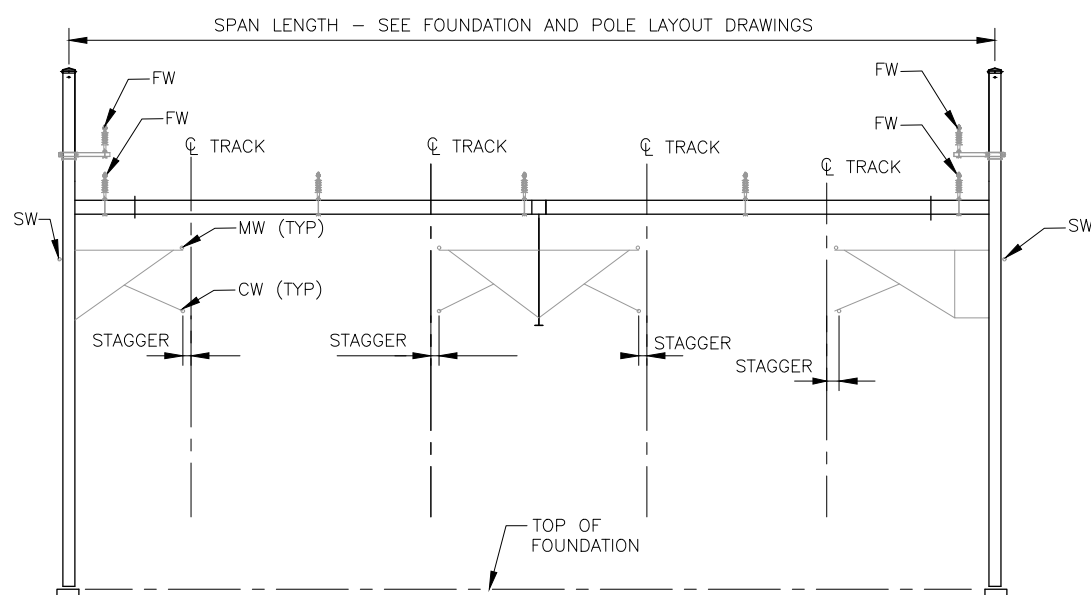
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NOTES:

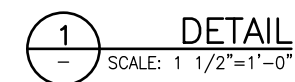
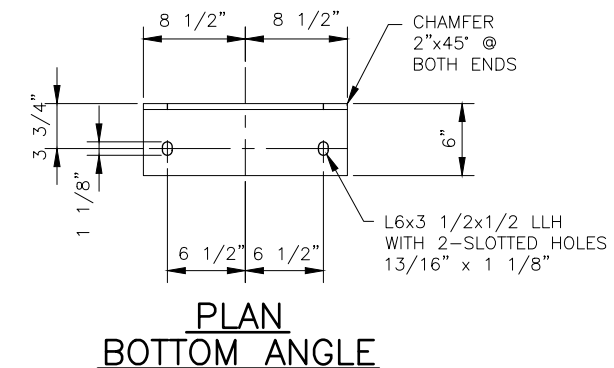
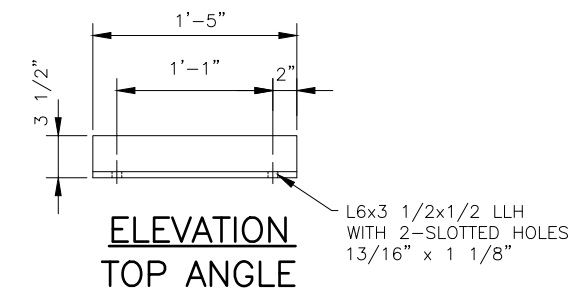
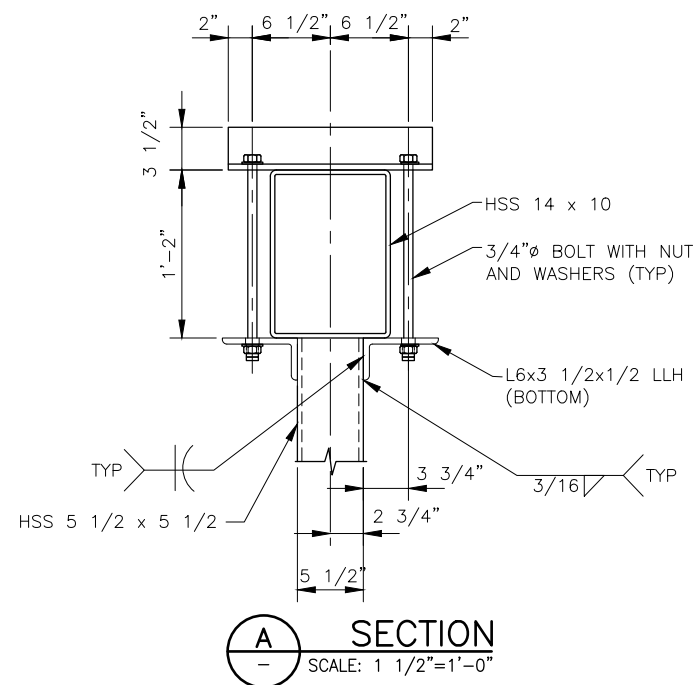
- FOR NOTES AND BILL OF MATERIAL, SEE DRAWING W5237.



HSS 14 x 10 x 1/2
CENTER BEAM
NTS



SCHMATIC DETAIL
FOUR TRACK PORTAL PS-61
NTS



REV	DATE	BY	CHK	APP	DESCRIPTION	REV	DATE	BY	CHK	APP	DESCRIPTION
					01012024 EDITION						

PENINSULA CORRIDOR JOINT POWERS BOARD

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San Carlos, CA 94070

STANDARD DRAWINGS

ELECTRIFICATION PROJECT

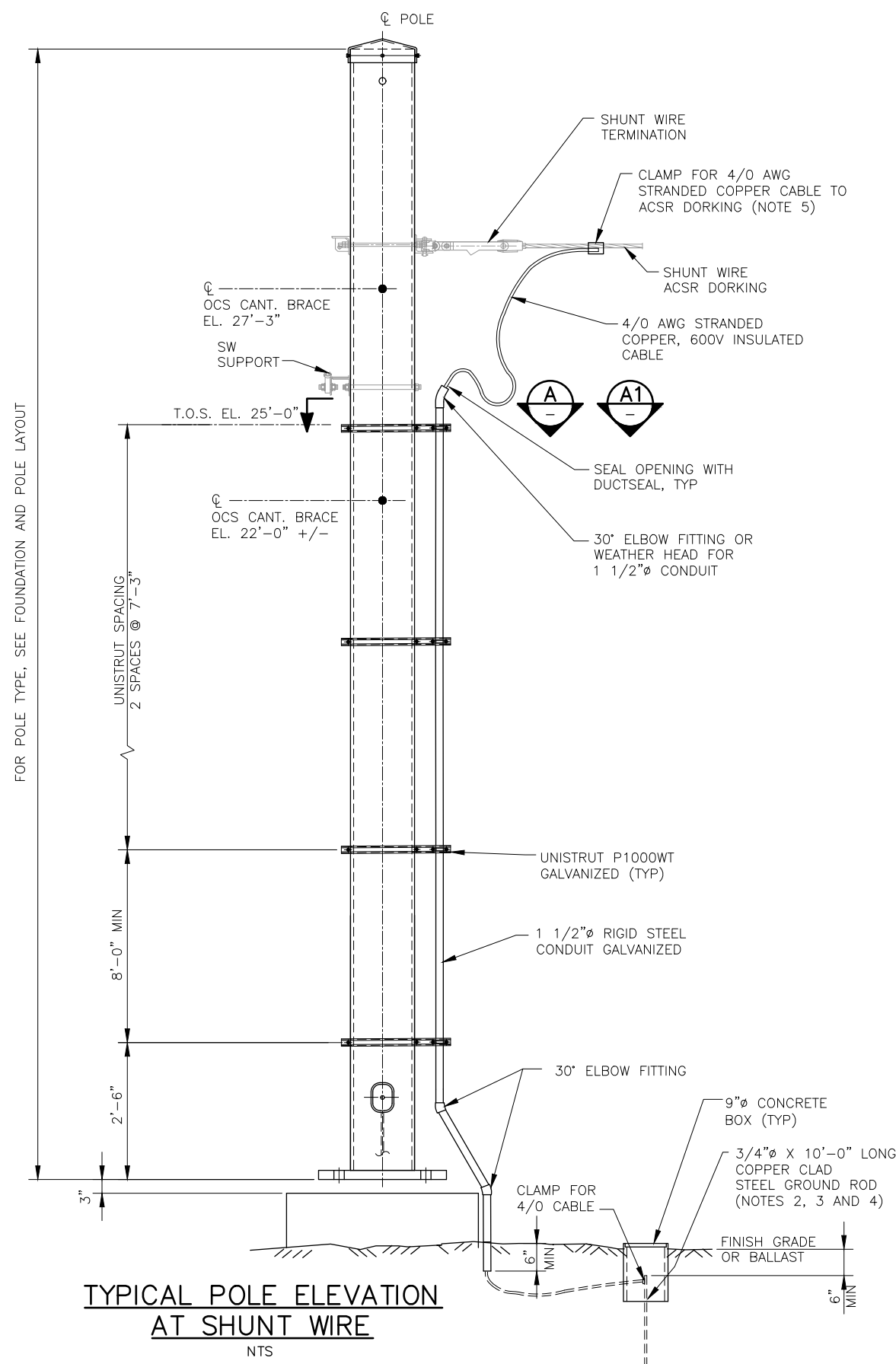
OCS PORTALS

TYPE PS-61

SINGLE SPAN PORTAL

SHEET 3 OF 3

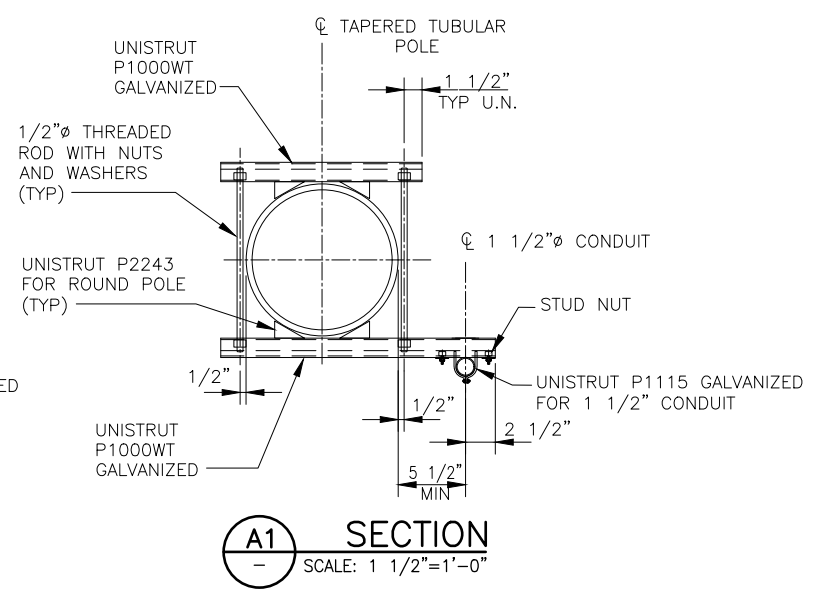
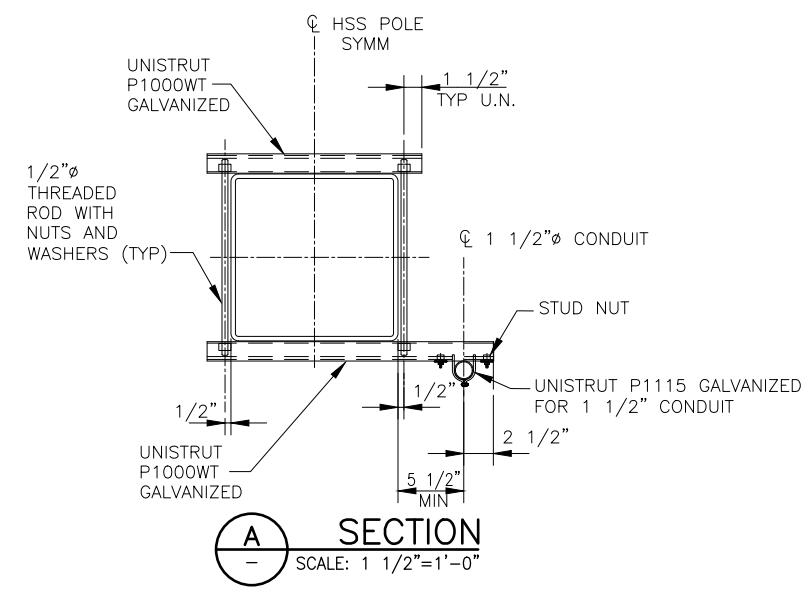
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REV:	EDITION: 01012024
STANDARD DRAWING NO.: W5239	



TYPICAL POLE ELEVATION AT SHUNT WIRE
NTS

NOTES:

1. FOR ADDITIONAL SUPPORT AND APPURTENANCE INFORMATION NOT SHOWN SEE OCS BASIC DESIGN ASSEMBLIES.
2. PROVIDE GROUND ROD AT ALL POLES WITH SHUNT WIRE TERMINATIONS.
3. TOP OF GROUND ROD SHALL BE INSTALLED A MINIMUM OF 6" BELOW FINISH GRADE OR BALLAST.
4. INSTALL GROUND ROD OUTSIDE OF TRAVELED WAY OR BALLAST.
5. APPLY NO-OXIDE GREASE (OR EQUIVALENT CONDUCTIVE AND PROTECTIVE COMPOUND BETWEEN DISSIMILAR METALS) PRIOR TO INSTALLING.



REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
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DEPUTY DIRECTOR, ENGINEERING

STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS POLES
SHUNT WIRE GROUNDING

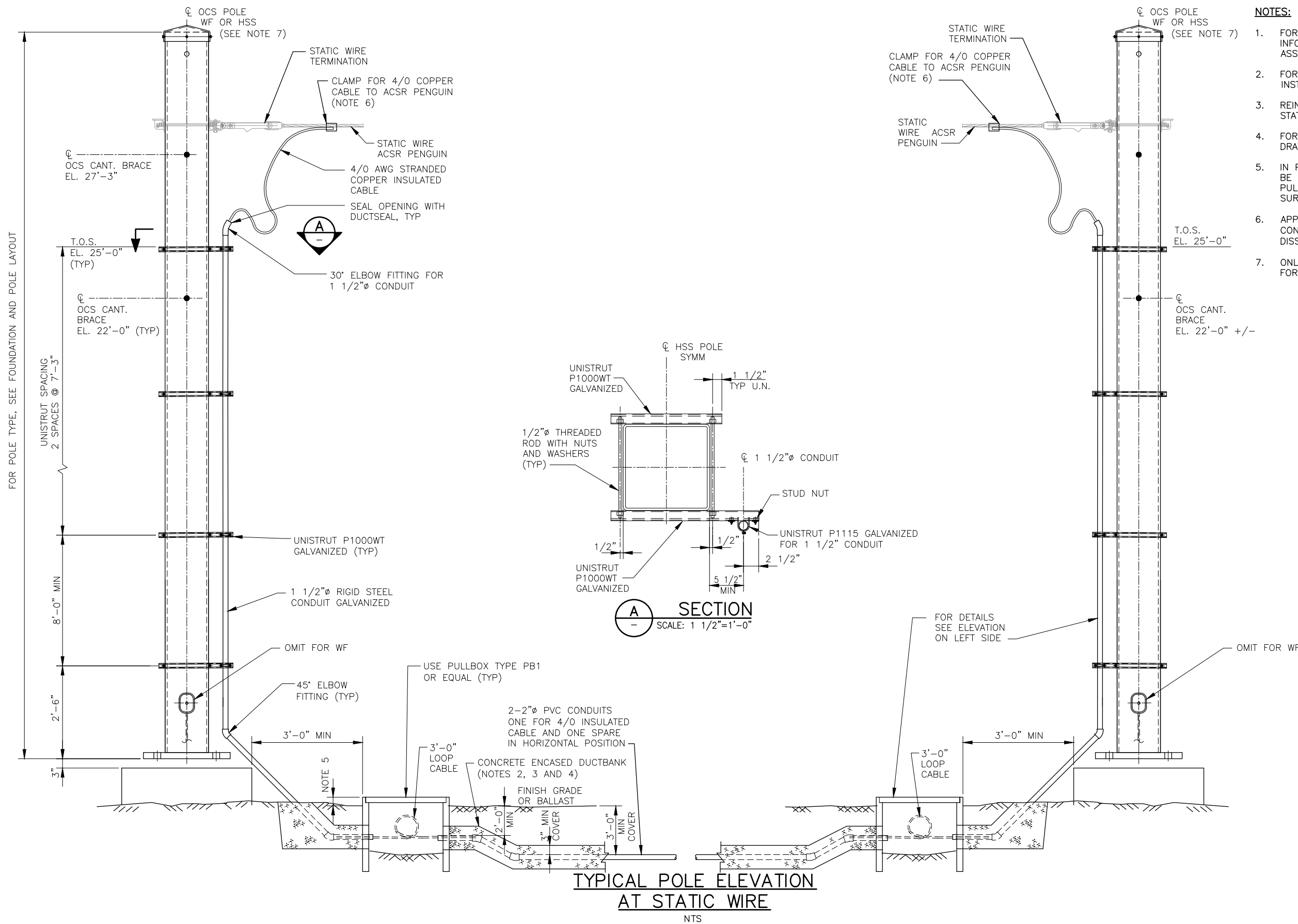
CADD FILE NAME:
W5240

REV: EDITION:
 01012024

STANDARD DRAWING NO.:
W5240



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TYPICAL POLE ELEVATION AT STATIC WIRE
NTS

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

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STANDARD DRAWINGS

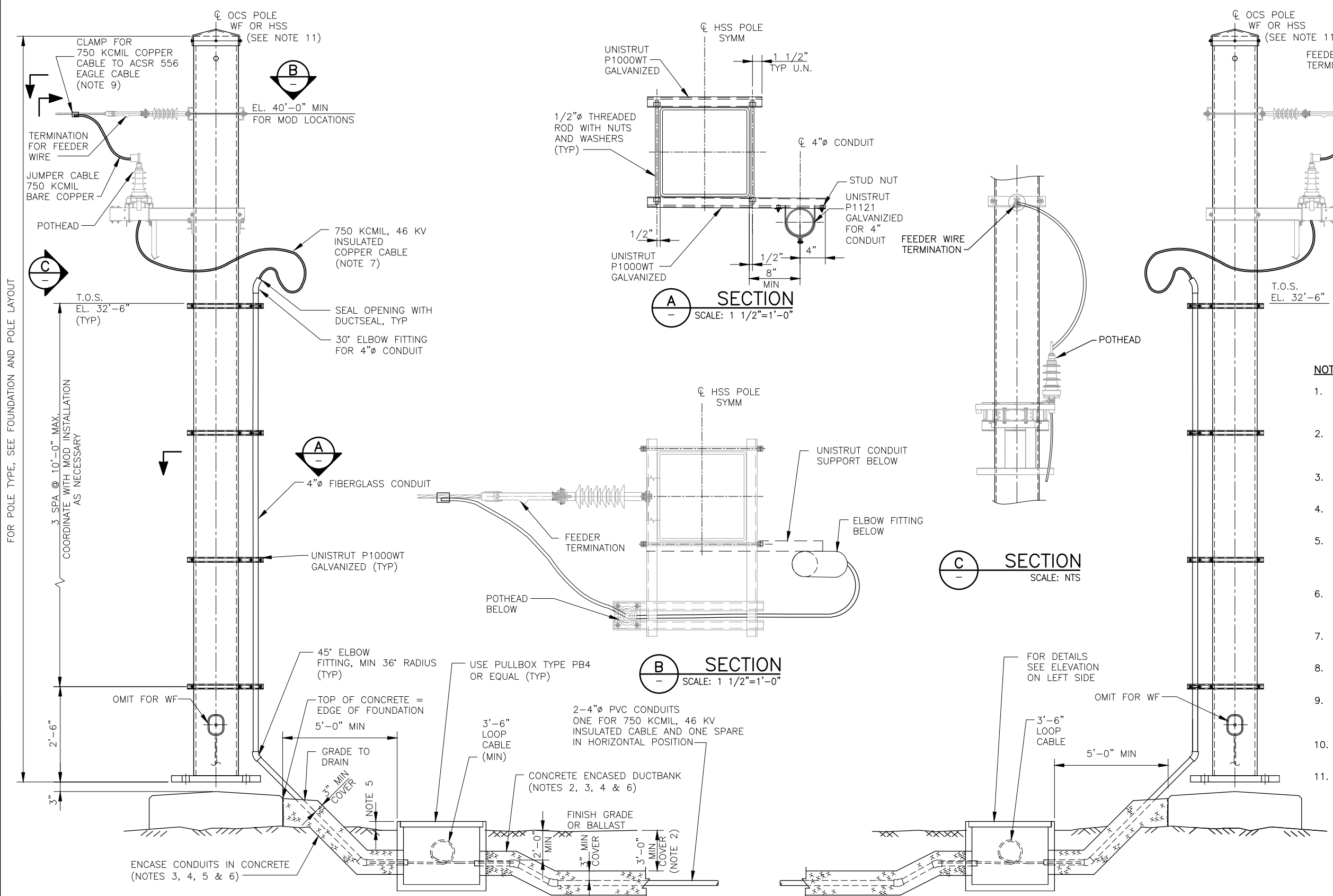
ELECTRIFICATION PROJECT
OCS POLES
ROUTING OF SINGLE STATIC WIRE
IN DUCTBANK BETWEEN POLES

CADD FILE NAME:
W5242

REV: EDITION:
 01012024

STANDARD DRAWING NO.:
W5242

01012024 EDITION



FOR POLE TYPE, SEE FOUNDATION AND POLE LAYOUT

SECTION A
SCALE: 1 1/2"=1'-0"

SECTION B
SCALE: 1 1/2"=1'-0"

SECTION C
SCALE: NTS

TYPICAL POLE ELEVATION AT FEEDER WIRE
NTS

- NOTES:**
- FOR ADDITIONAL SUPPORT AND APPURTENANCE INFORMATION NOT SHOWN SEE OCS BASIC DESIGN ASSEMBLIES PACKAGE.
 - WHERE CROSSING UNDER THE TRACK, TOP OF DUCTBANK SHALL BE 3'-6" MINIMUM BELOW TOP OF TIE.
 - FOR REINFORCED DUCTBANK DETAIL REFER TO TYPICAL DUCTBANK REINFORCEMENT FOR 25 KV CABLES DWG.
 - REINFORCED DUCTBANK AS SPECIFIED IN SPECIFICATIONS.
 - IN PAVED AREAS TOP OF PULLBOX SHALL BE FLUSH WITH PAVEMENT, IN UNPAVED AREAS, TOP OF PULLBOX SHALL BE PLACED TWO INCHES ABOVE SURROUNDING GRADE, WHERE PRACTICABLE.
 - FOR SITE SPECIFIC FEEDER DUCTBANK LAYOUT, NUMBER OF PULLBOXES AND DETAILS NOT SHOWN, SEE SYSTEMS DUCTBANK PACKAGES.
 - CABLE BENDS SHALL NOT EXCEED MAXIMUM ALLOWED BY MANUFACTURER.
 - SEE MATERIAL ALLOCATION DRAWINGS FOR SURGE ARRESTER LOCATIONS.
 - APPLY NO-OXIDE GREASE (OR EQUIVALENT CONDUCTIVE AND PROTECTIVE COMPOUND BETWEEN DISSIMILAR METALS) PRIOR TO INSTALLING.
 - 1250 KCMIL FEEDER CABLE IS AN ACCEPTABLE ALTERNATIVE TO THE 750 KCMIL FEEDER CABLE.
 - ONLY HSS POLE IS SHOWN. ARRANGEMENT IS SIMILAR FOR BOTH HSS AND WF POLES.


REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

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STANDARD DRAWINGS

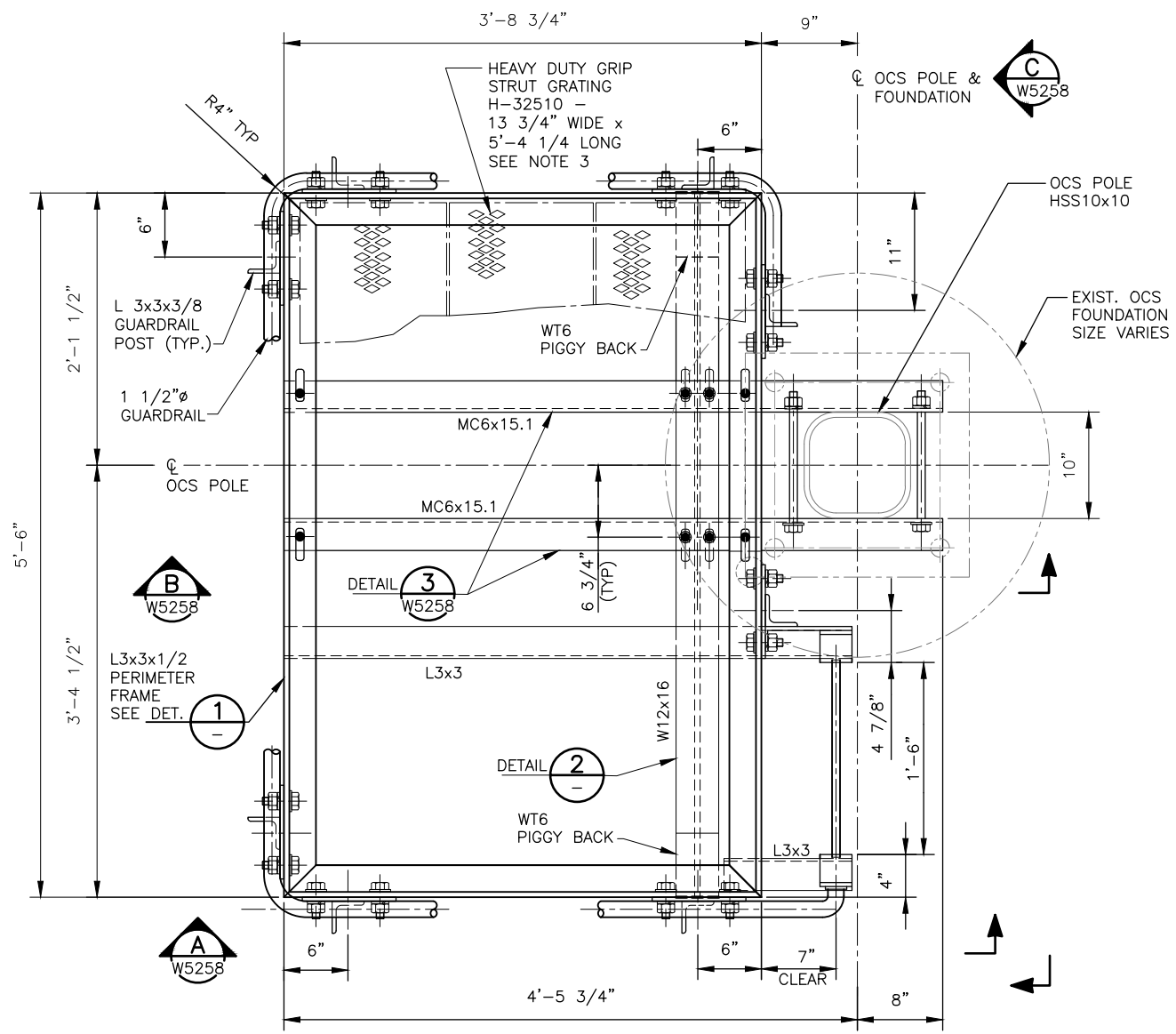
ELECTRIFICATION PROJECT
OCS POLES
ROUTING OF SINGLE FEEDER WIRE
IN DUCTBANK BETWEEN POLES

CADD FILE NAME:
W5242A

REV: EDITION:
 01012024

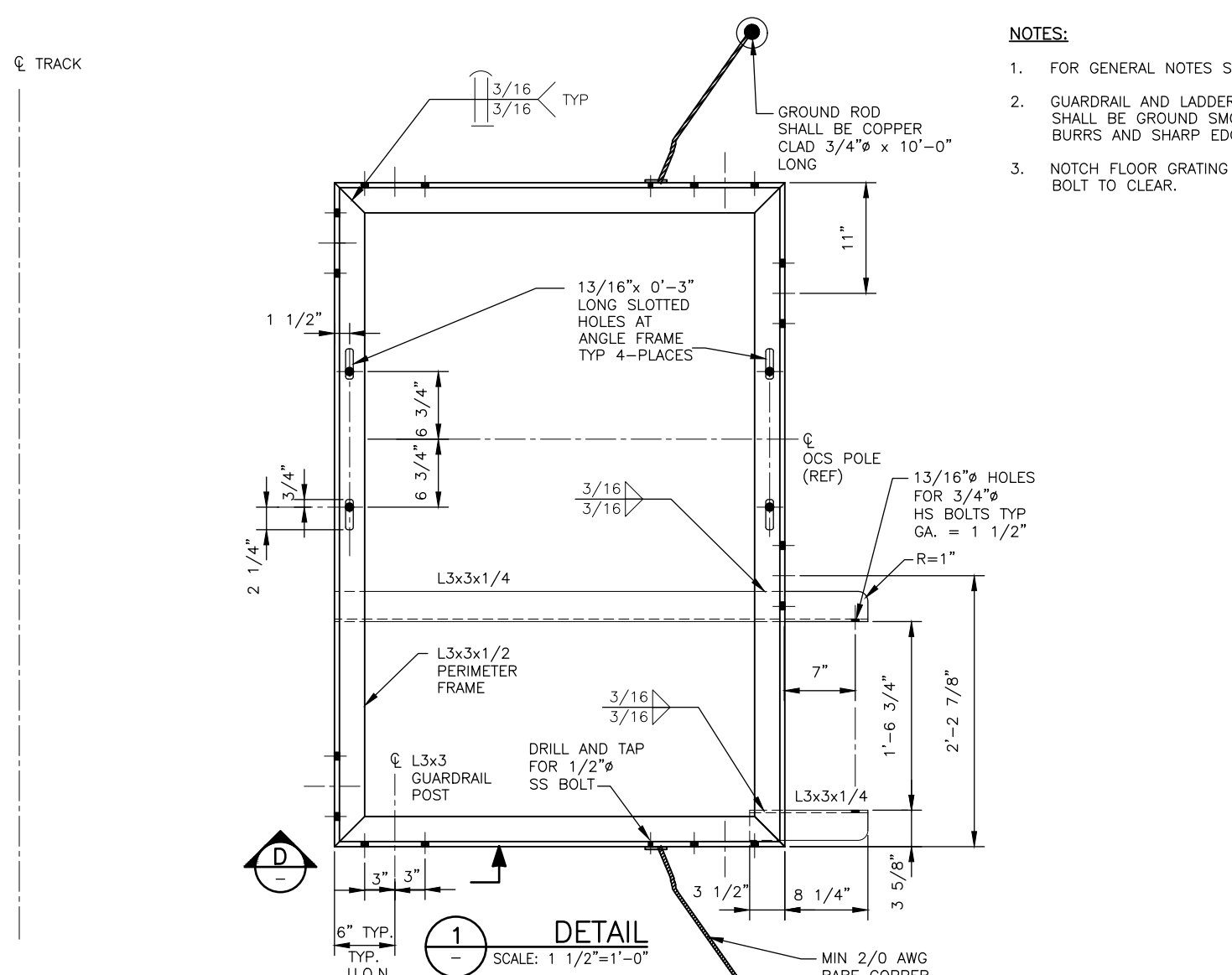
STANDARD DRAWING NO.:
W5242A

01012024 EDITION



SWITCHING PLATFORM PLAN

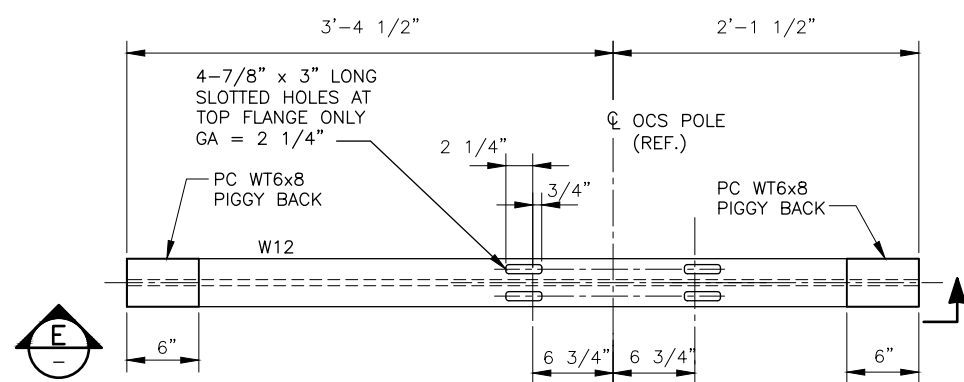
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DETAIL 1

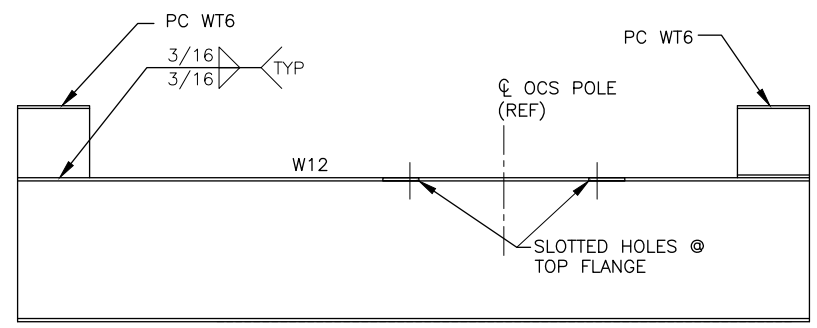
SCALE: 1 1/2"=1'-0"

- NOTES:**
- FOR GENERAL NOTES SEE DRAWING W0101.
 - GUARDRAIL AND LADDER STRINGER EDGES SHALL BE GROUND SMOOTH AND FREE OF BURRS AND SHARP EDGES.
 - NOTCH FLOOR GRATING AT UNDERSIDE FOR BOLT TO CLEAR.



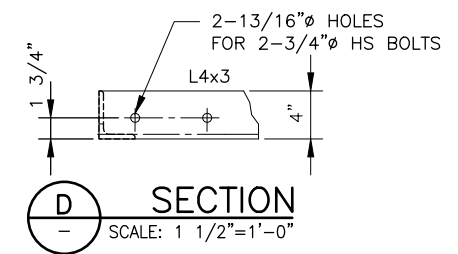
DETAIL 2

SCALE: 1 1/2"=1'-0"



E ELEVATION

SCALE: 1 1/2"=1'-0"



D SECTION

SCALE: 1 1/2"=1'-0"


REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

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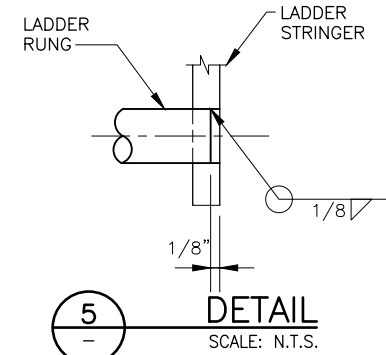
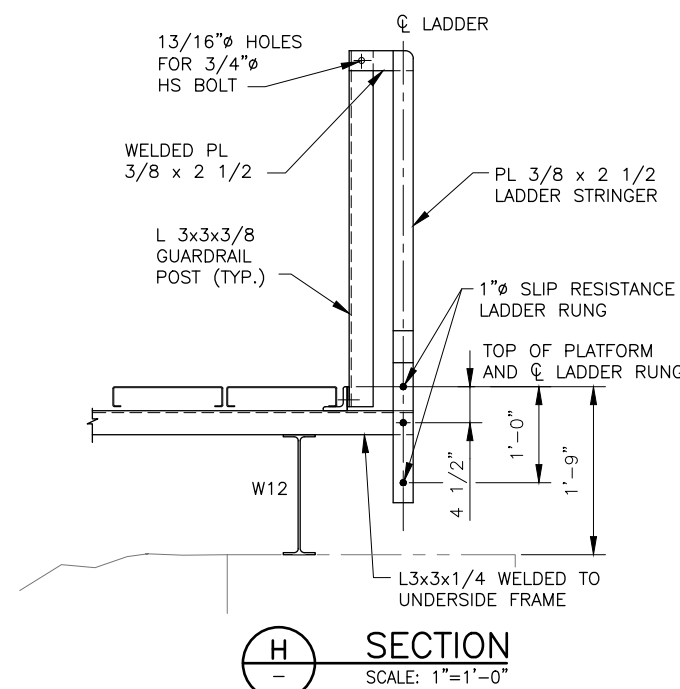
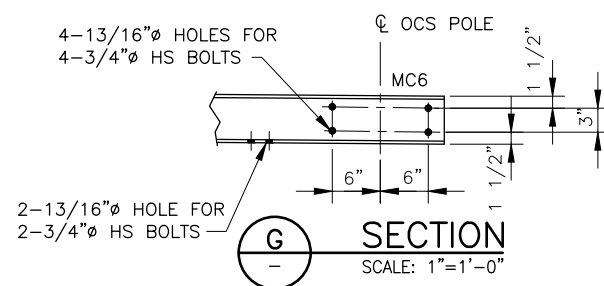
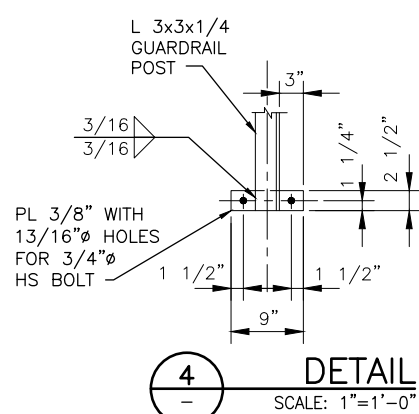
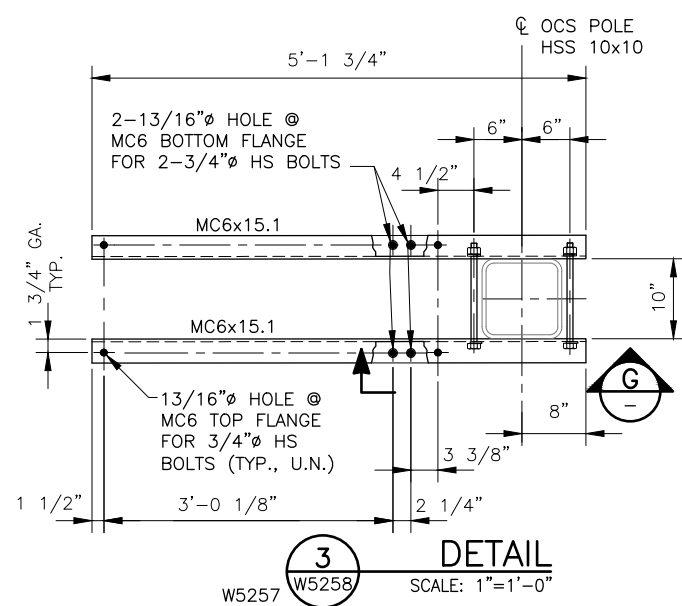
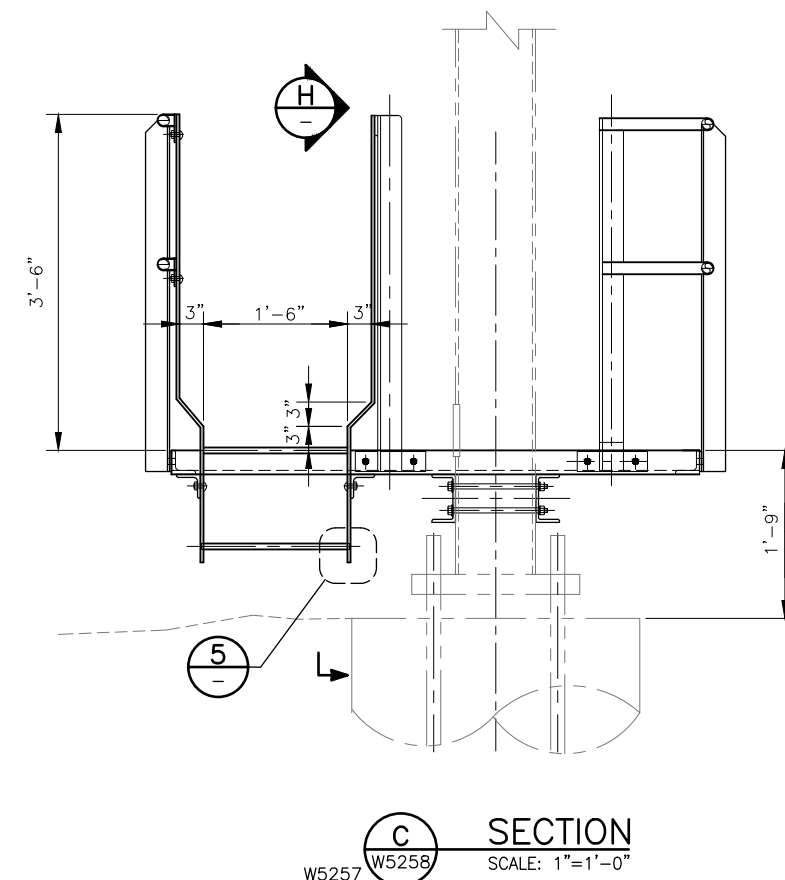
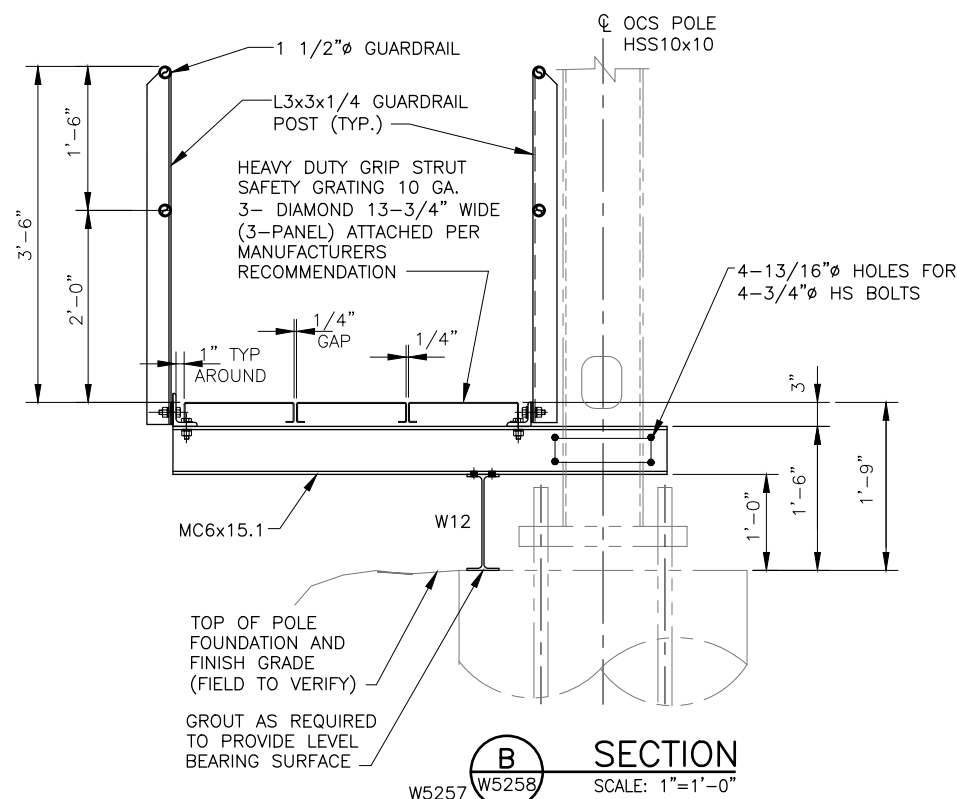
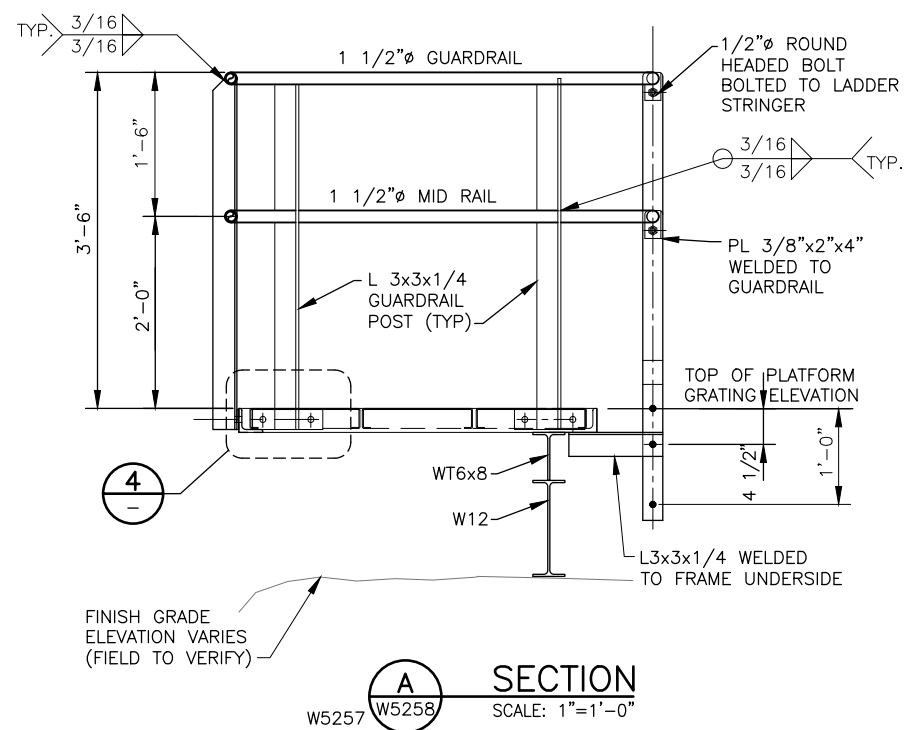
STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS POLES
MOD DISCONNECT SWITCH
PORTABLE SWITCHING PLATFORM
SHEET 1 OF 2

CADD FILE NAME: W5257	EDITION: 01012024
REV:	
STANDARD DRAWING NO.:	W5257

NOTE:

1. FOR NOTES SEE DRAWING W5257.



REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DEPUTY DIRECTOR, ENGINEERING

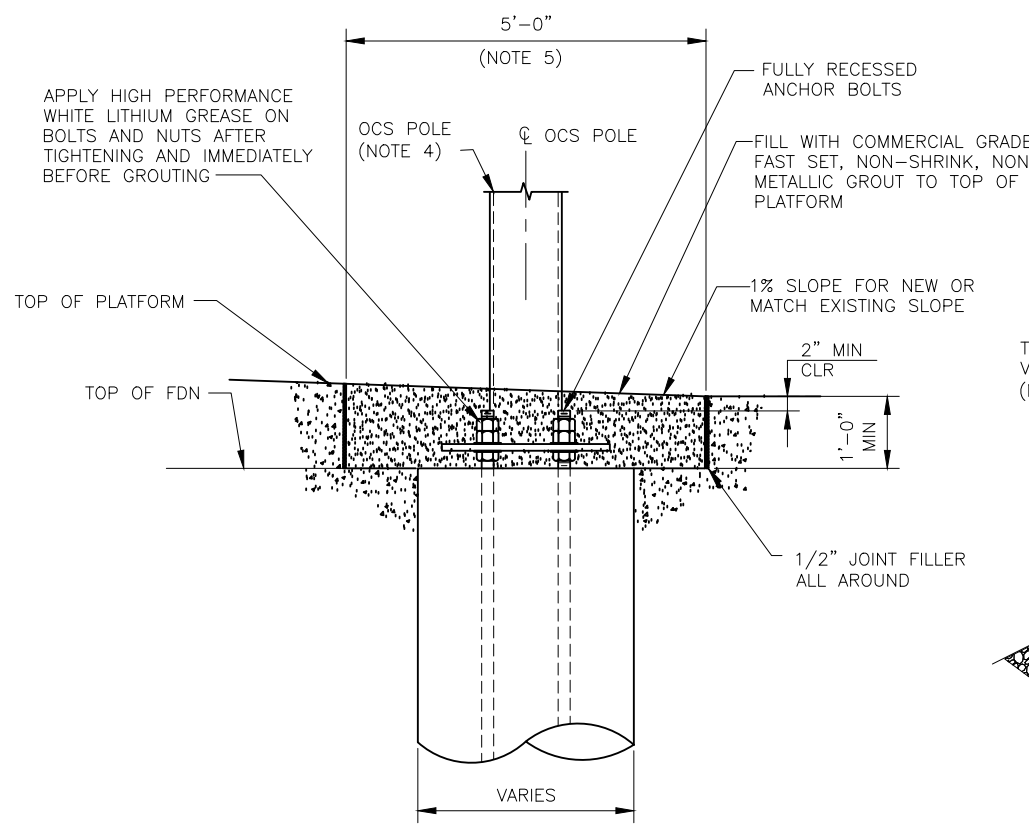


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STANDARD DRAWINGS

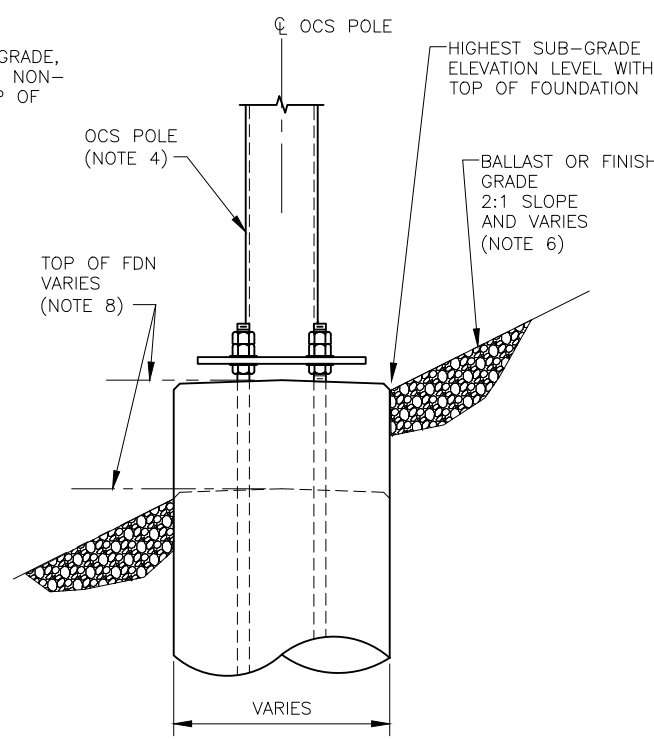
ELECTRIFICATION PROJECT
OCS POLES
MOD DISCONNECT SWITCH
PORTABLE SWITCHING PLATFORM
SHEET 2 OF 2

CADD FILE NAME: W5258	EDITION: 01012024
REV:	
STANDARD DRAWING NO.:	W5258



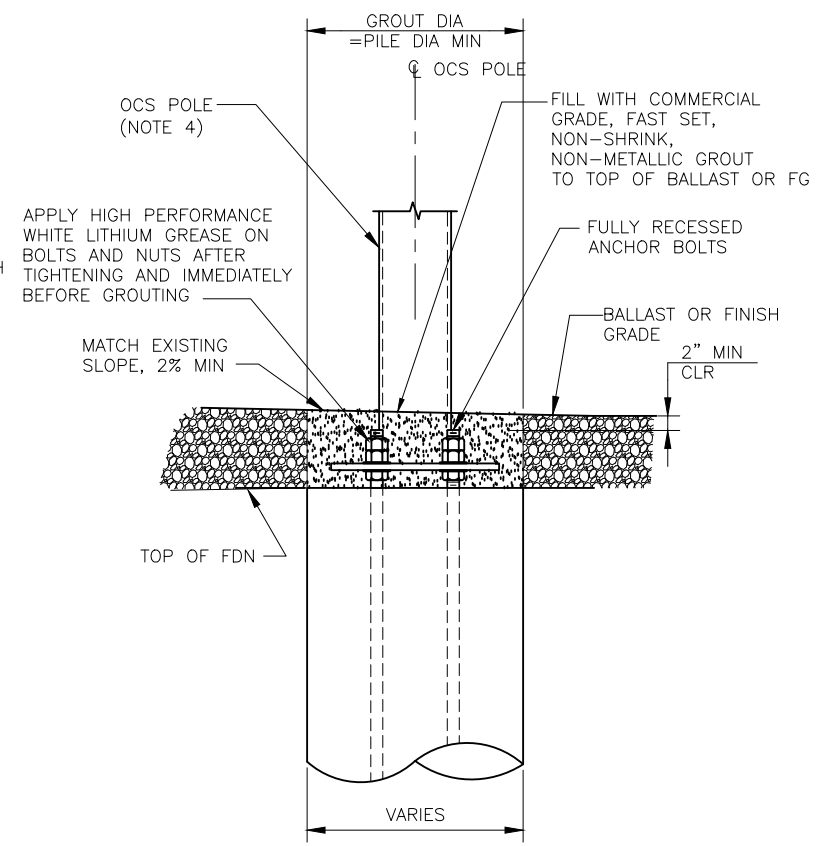
FULLY RECESSED ANCHOR BOLTS AT STATIONS

1 DETAIL
NTS
(SEE NOTE 2 & 3)



EMBEDDED FOUNDATIONS FOR REDUCED CLEARANCE LOCATIONS (NOT AT STATIONS)

2 DETAIL
NTS
(SEE NOTE 2 & 7)



RESTRICTIVE CLEARANCE FOUNDATIONS OUTSIDE OF STATIONS

3 DETAIL
NTS
(SEE NOTE 2 & 7)

NOTES:

1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS, SEE DRAWING W0101.
2. SQ POLE SHOWN, OTHERS SIMILAR. FOR DETAILS NOT SHOWN SEE POLE DETAIL DRAWINGS AND FOUNDATION DETAIL DRAWINGS.
3. DETAIL 1 SHALL BE USED FOR ALL FOUNDATIONS LOCATED IN STATION PLATFORMS IN THE PROJECT'S RIGHT-OF-WAY.
4. EMBEDDED FOUNDATION LOCATIONS MUST BE CONFIRMED BY ENGINEER TO VERIFY POLES ARE ADEQUATE FOR REVISED CONDITIONS.
5. IF ADDITIONAL PLATFORM IS REMOVED DURING CONSTRUCTION, THE SECTION WILL BE REPLACED IN KIND.
6. PROTECT GALVANIZING FROM DAMAGE DUE TO BALLAST AS NECESSARY.
7. DETAILS 2 AND 3 SHALL ONLY BE USED FOR POLES SPECIFICALLY CALLED OUT IN THE FOUNDATION AND POLE DRAWINGS. DETAILS ARE INTENDED FOR USE IN LOCATIONS OUTSIDE OF STATIONS AND WITH CLEARANCE ISSUES TO ADJACENT UTILITIES.
8. TOP OF FOUNDATION VARIES.


REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DEPUTY DIRECTOR, ENGINEERING



1250 San Carlos Avenue
San Carlos, CA 94070

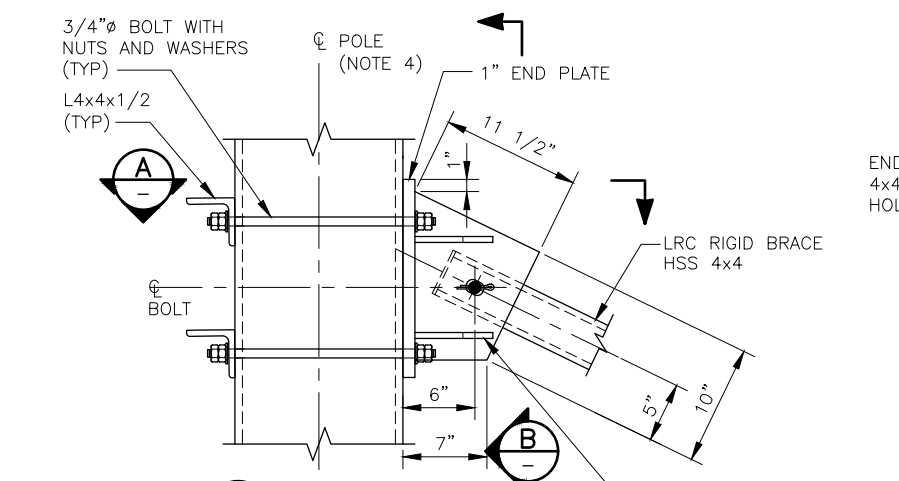
STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS POLES
DRILLED PIER FOUNDATION

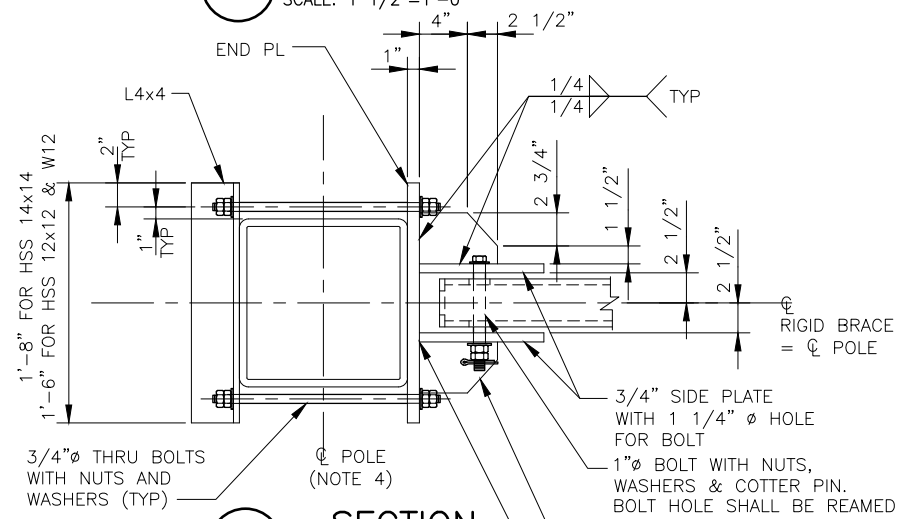
CADD FILE NAME:
W5262

REV: EDITION:
 01012024

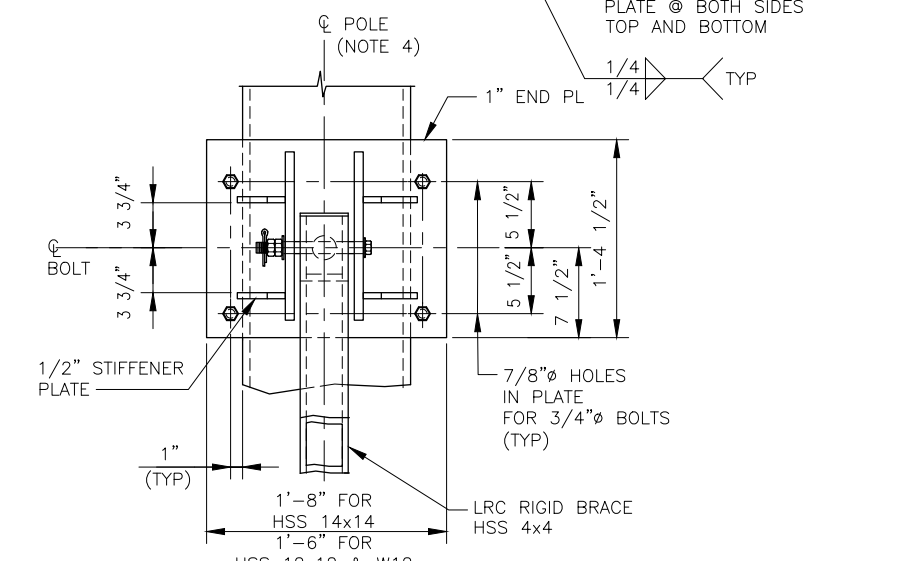
STANDARD DRAWING NO.:
W5262



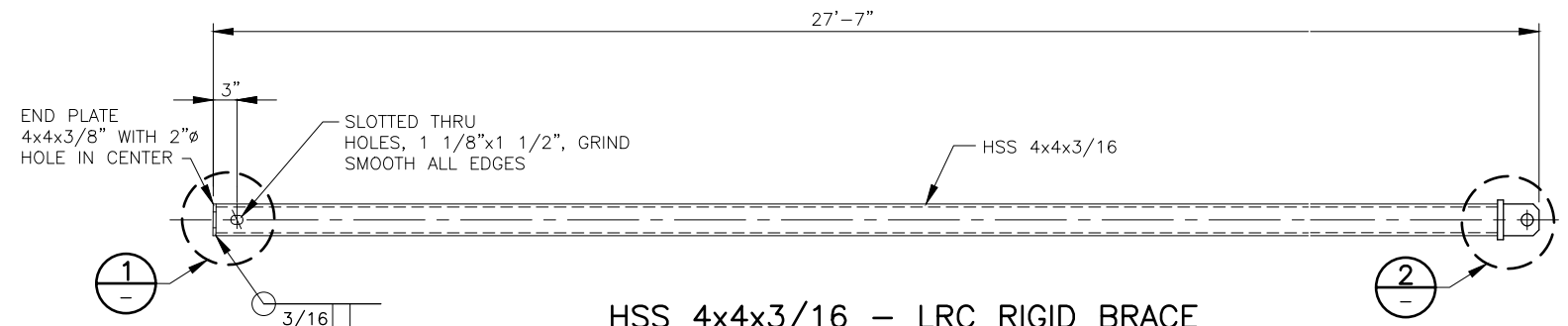
1
DETAIL
SCALE: 1 1/2"=1'-0"



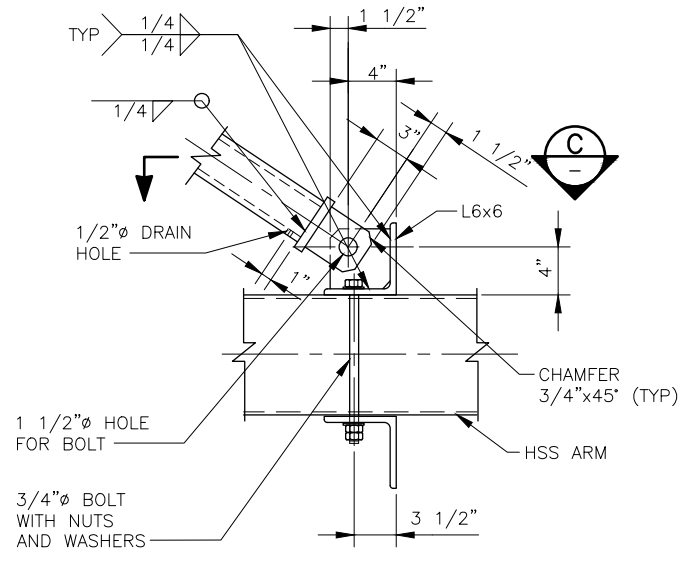
A
SECTION
SCALE: 1 1/2"=1'-0"



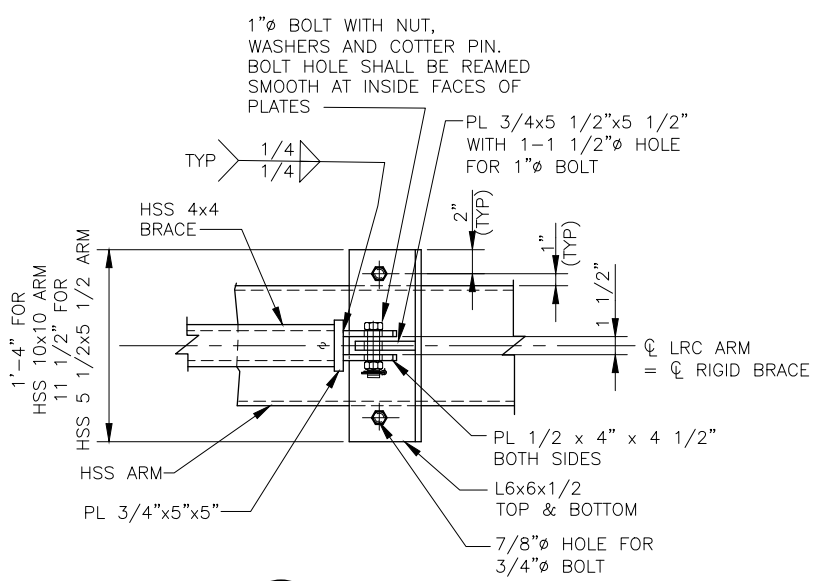
B
SECTION
SCALE: 1 1/2"=1'-0"



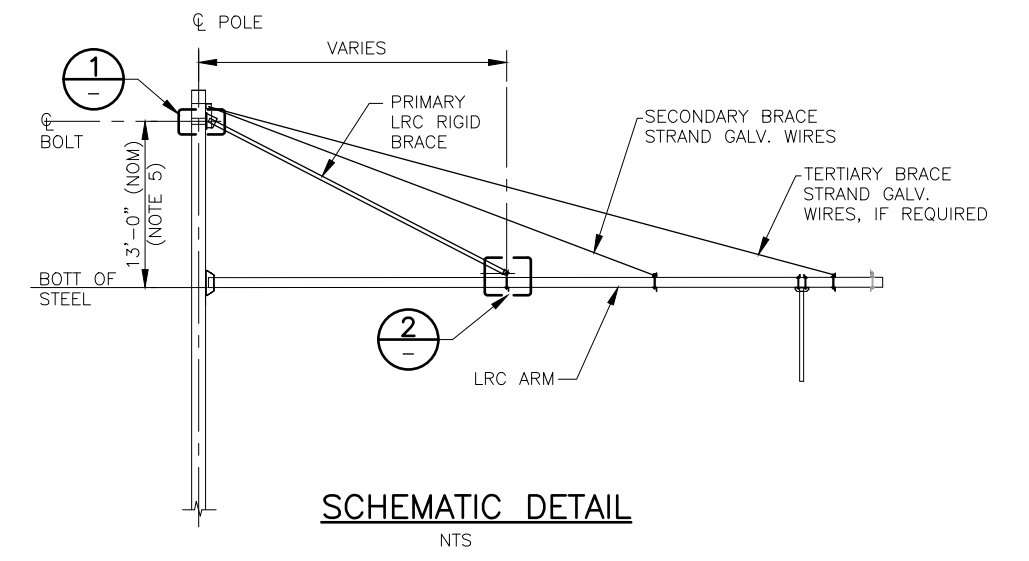
HSS 4x4x3/16 - LRC RIGID BRACE
SCALE: 1"=1'-0"



2
DETAIL
SCALE: 1 1/2"=1'-0"



C
SECTION
SCALE: 1 1/2"=1'-0"




SCHEMATIC DETAIL
NTS

- NOTES:**
- FOR GENERAL NOTES SEE DRAWING W0101.
 - LRC RIGID BRACE REQUIREMENTS ARE BASED ON LRC ARM LENGTHS AS FOLLOWS:
L < 42' NO LRC RIGID BRACE
L ≥ 42' PRIMARY LRC RIGID BRACE
 - FOR INFORMATION NOT SHOWN SEE POLE DETAIL DRAWINGS.
 - HSS POLE SHOWN, WF POLE SIMILAR.
 - CONFIRM ATTACHMENT LOCATIONS WITH ENGINEER PRIOR TO FABRICATION.

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

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Bin Zhang
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STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS POLES
LRC RIGID BRACE DETAILS

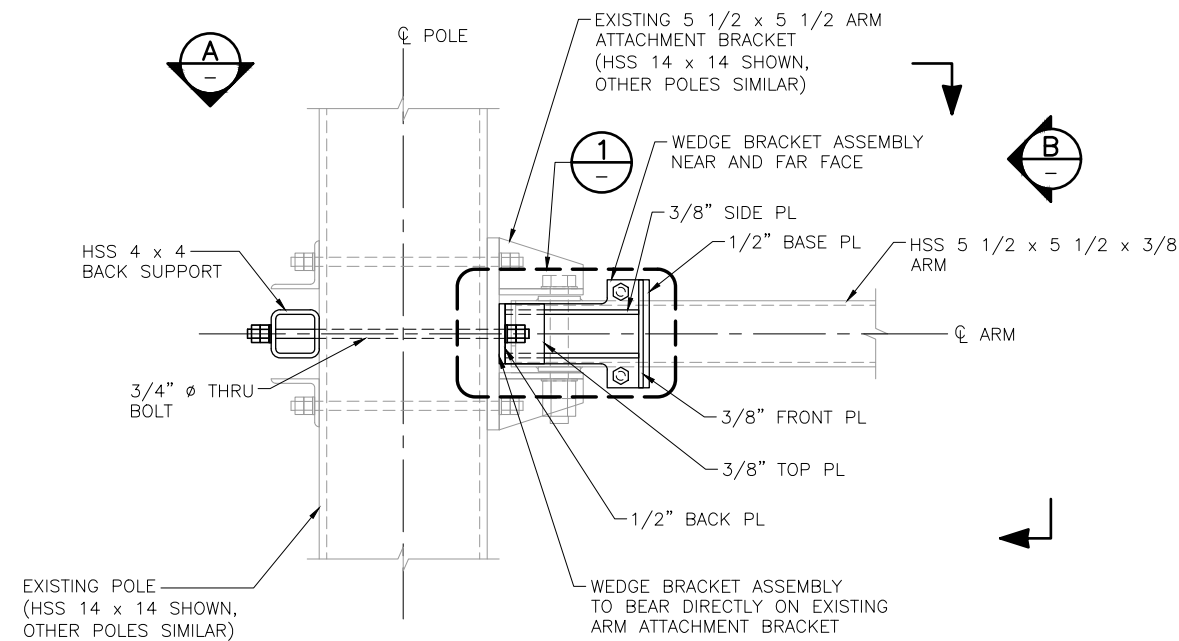
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REV: EDITION:
 01012024

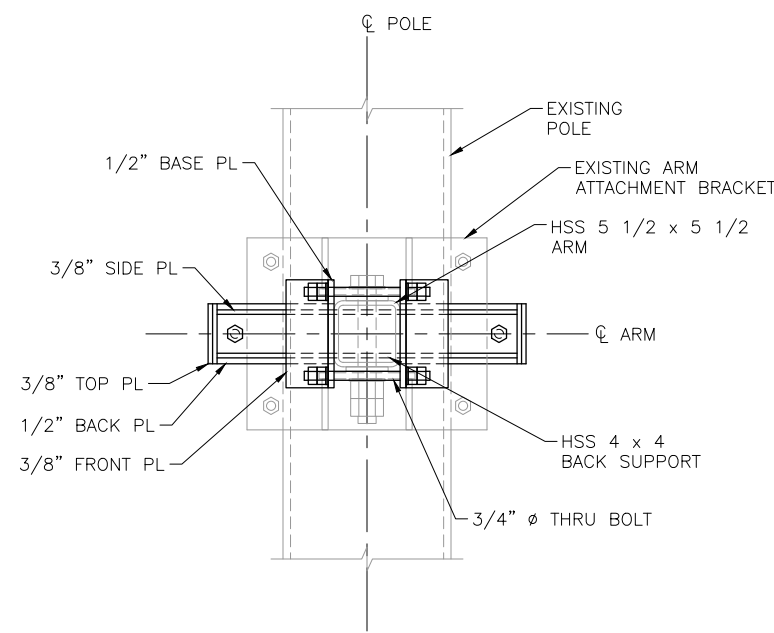
STANDARD DRAWING NO.:
W5263

NOTES:

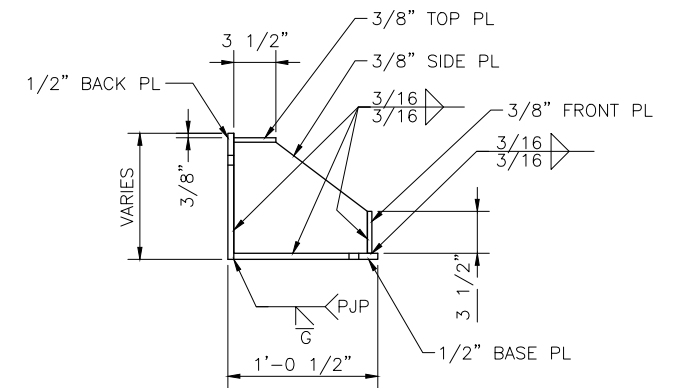
1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS SEE DRAWING W0101.
2. FOR DETAILS, NOTES AND DIMENSIONS NOT SHOWN SEE DRAWING W5110A.
3. THE WEDGE BRACKET ASSEMBLY CAN BE USED TO REDUCE LRC ARM ROTATION AT HSS POLE LOCATIONS REVIEWED AND APPROVED BY THE ENGINEER. NOTIFY ENGINEER OF ANY CONFLICTS.
4. FIELD MEASURE EXISTING CONDITION PRIOR TO FABRICATION. NOTIFY ENGINEER IF DIFFERENT FROM DIMENSIONS SHOWN.



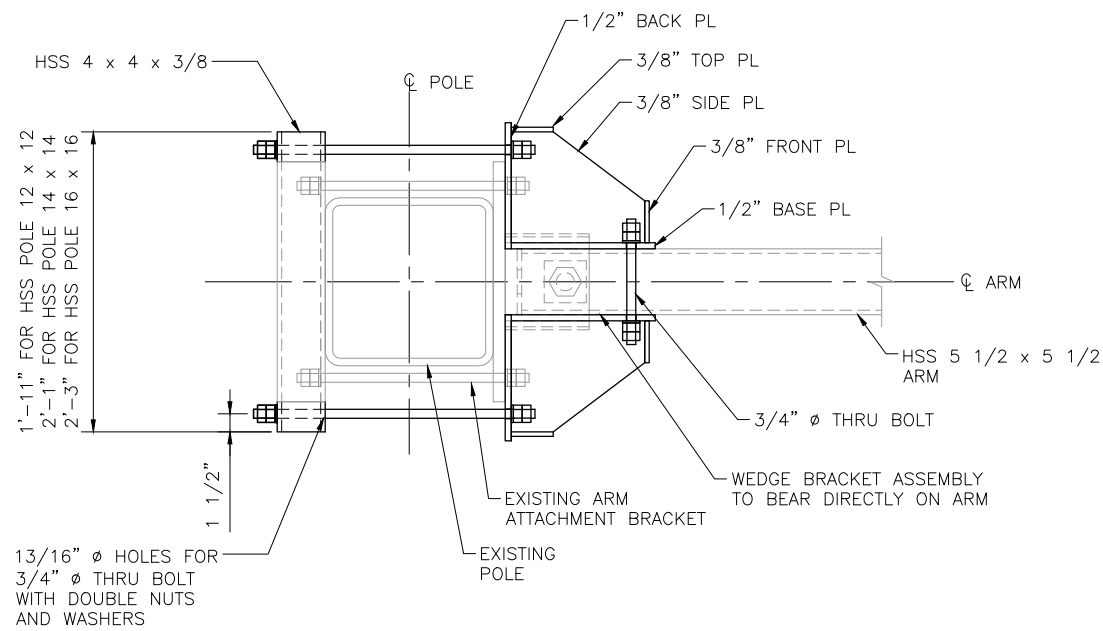
**HSS POLE WITH HSS 5 1/2 x 5 1/2 ARM
WEDGE BRACKET ELEVATION**
SCALE: 1 1/2"=1'-0"



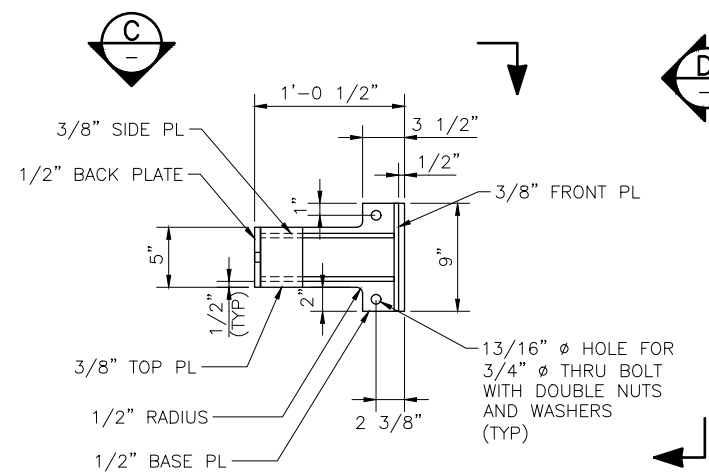
B SECTION
SCALE: 1 1/2"=1'-0"



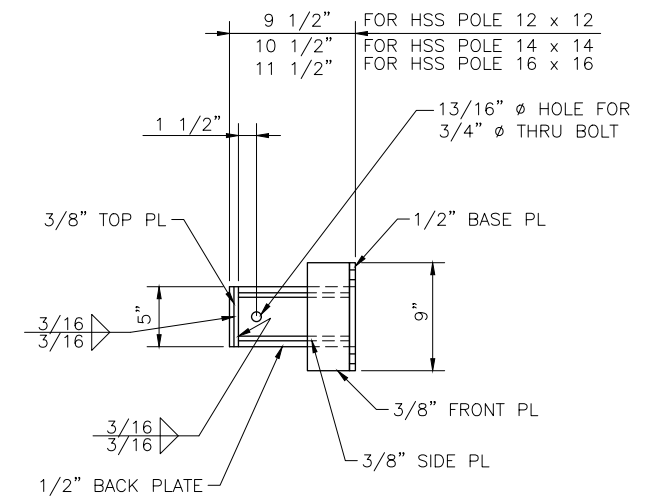
C SECTION
SCALE: 1 1/2"=1'-0"



A SECTION
SCALE: 1 1/2"=1'-0"



1 DETAIL
SCALE: 1 1/2"=1'-0"
WEDGE BRACKET ASSEMBLY



D SECTION
SCALE: 1 1/2"=1'-0"

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DEPUTY DIRECTOR, ENGINEERING



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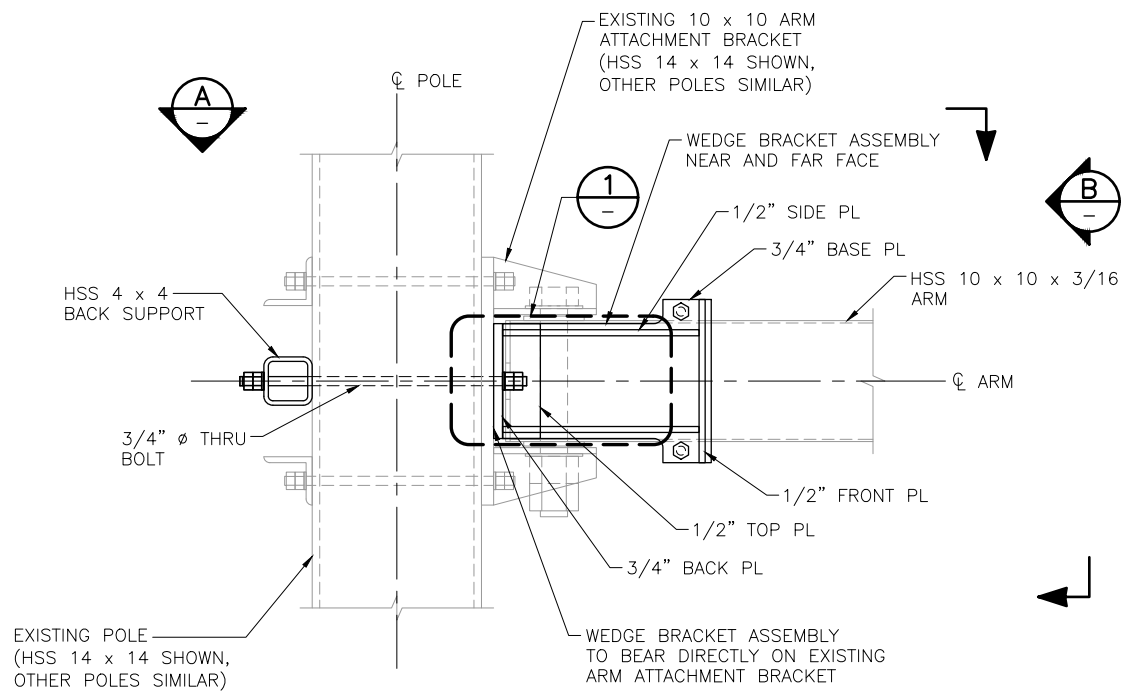
STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS POLES
HSS POLE
5 1/2 x 5 1/2 LRC ARM
SUPPORT DETAILS

CADD FILE NAME:
W5263B

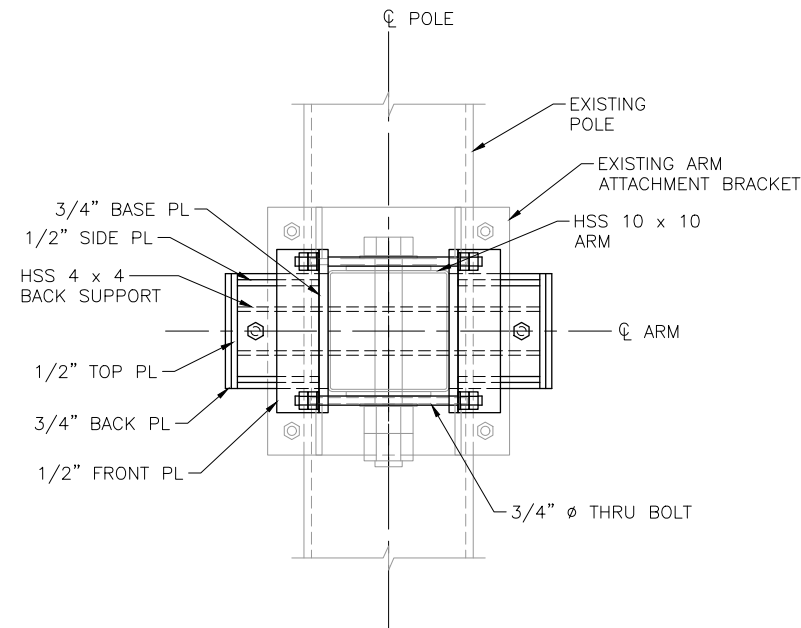
REV: EDITION:
 01012024

STANDARD DRAWING NO.:
W5263B

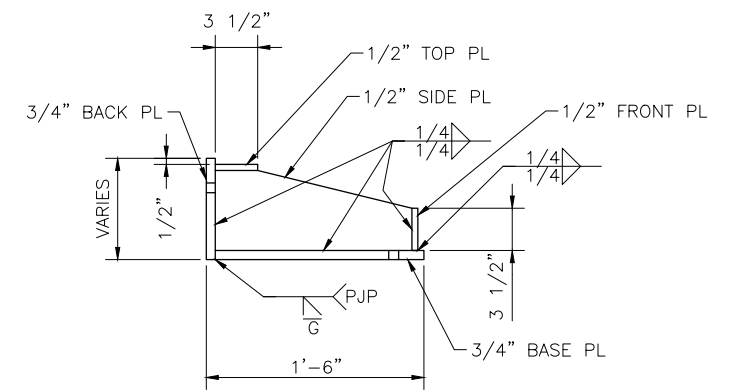


**HSS POLE WITH HSS 10 x 10 ARM
WEDGE BRACKET ELEVATION**

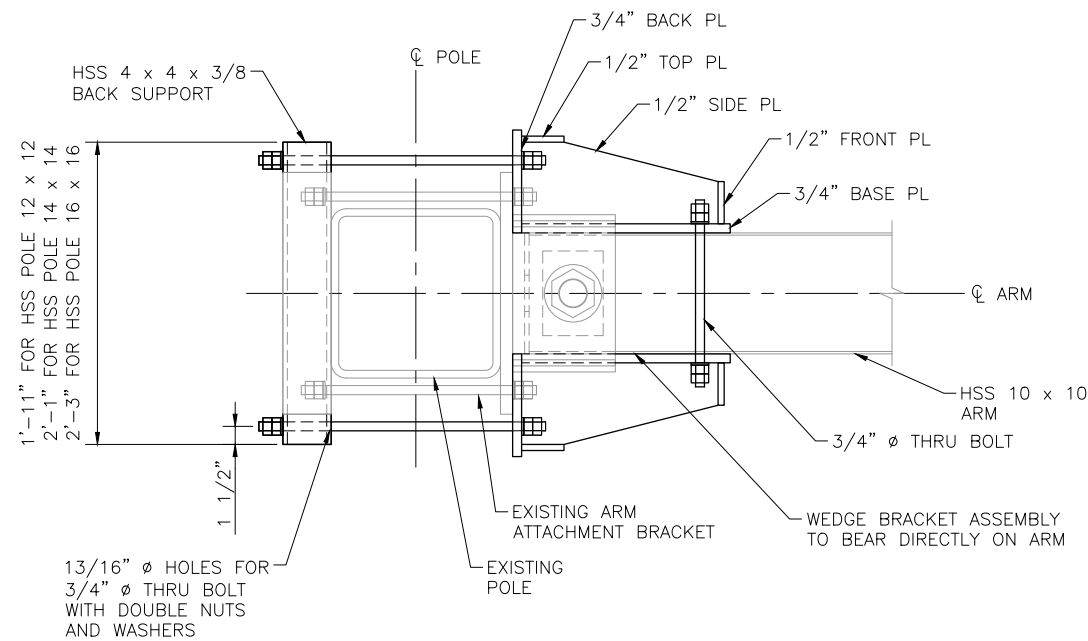
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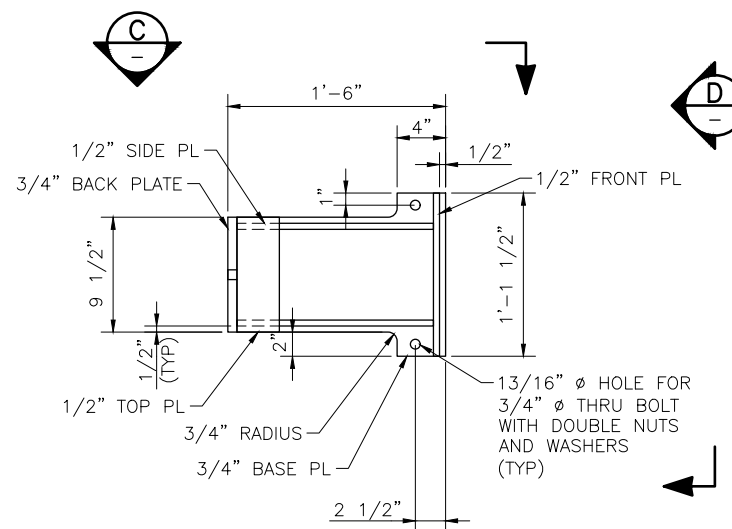
SECTION B
SCALE: 1 1/2"=1'-0"



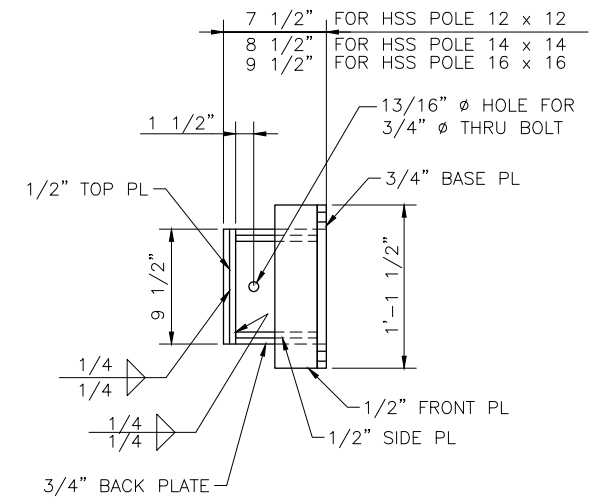
SECTION C
SCALE: 1 1/2"=1'-0"



SECTION A
SCALE: 1 1/2"=1'-0"



DETAIL 1
SCALE: 1 1/2"=1'-0"
WEDGE BRACKET ASSEMBLY



SECTION D
SCALE: 1 1/2"=1'-0"

NOTES:

- FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS SEE DRAWING W0101.
- FOR DETAILS, NOTES AND DIMENSIONS NOT SHOWN SEE DRAWING W5110A.
- THE WEDGE BRACKET ASSEMBLY CAN BE USED TO REDUCE LRC ARM ROTATION AT HSS POLE LOCATIONS REVIEWED AND APPROVED BY THE ENGINEER. NOTIFY ENGINEER OF ANY CONFLICTS.
- FIELD MEASURE EXISTING CONDITION PRIOR TO FABRICATION. NOTIFY ENGINEER IF DIFFERENT FROM DIMENSIONS SHOWN.

REV	DATE	BY	CHK	APP	DESCRIPTION	REV	DATE	BY	CHK	APP	DESCRIPTION
					01012024 EDITION						

PENINSULA CORRIDOR JOINT POWERS BOARD

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DEPUTY DIRECTOR, ENGINEERING

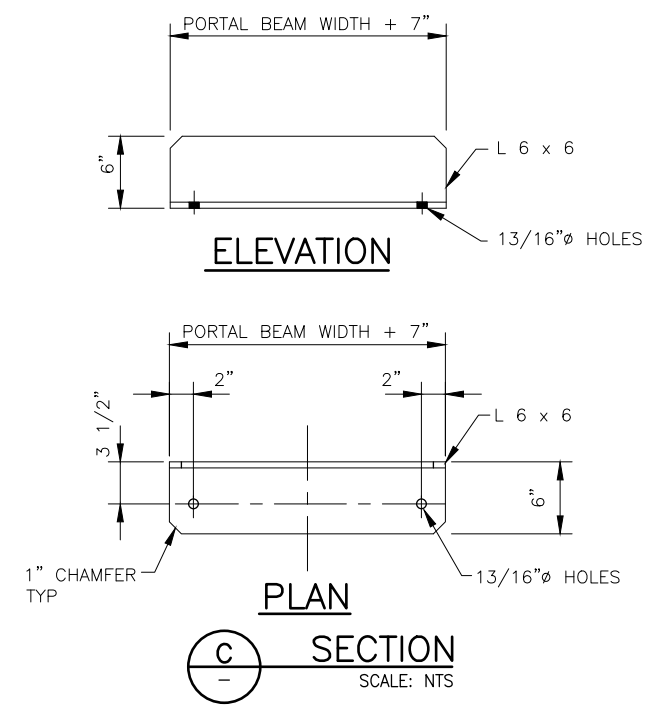
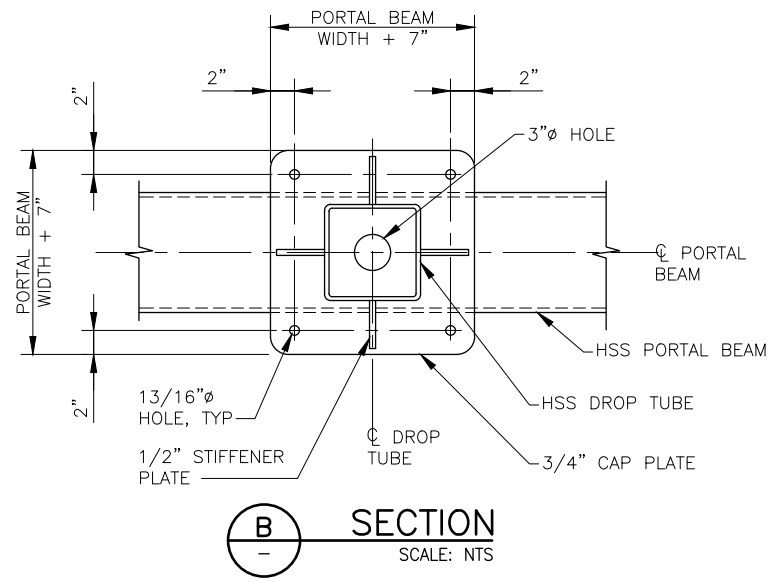
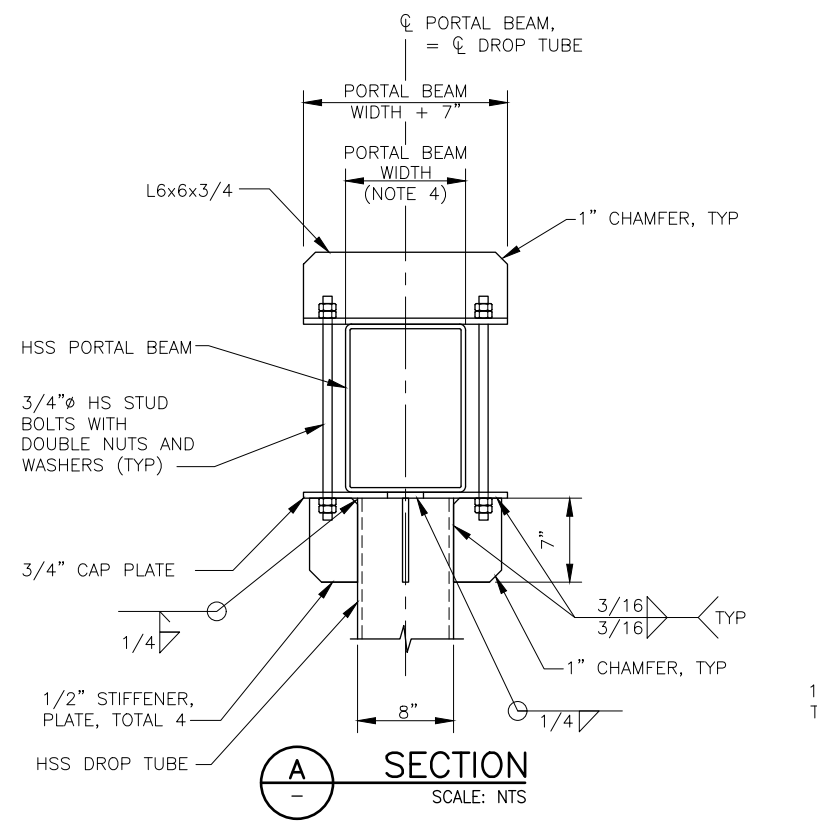
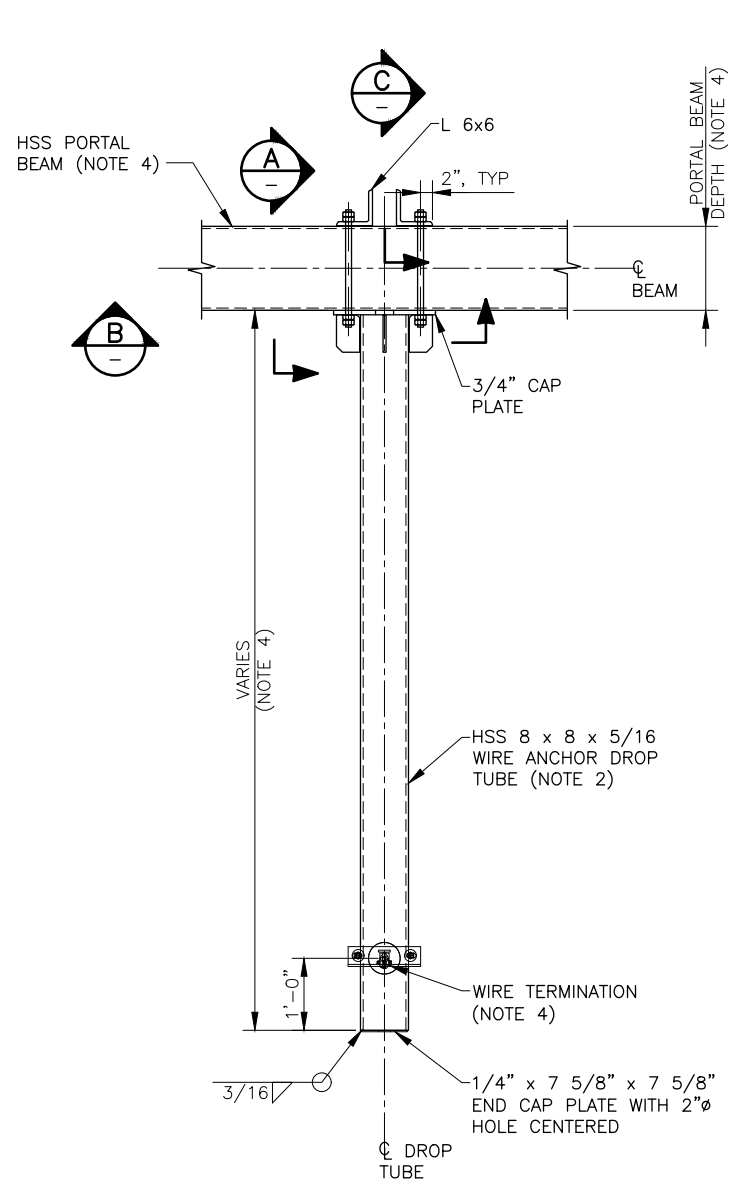


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STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS POLES
HSS POLE
10 x 10 LRC ARM
SUPPORT DETAILS

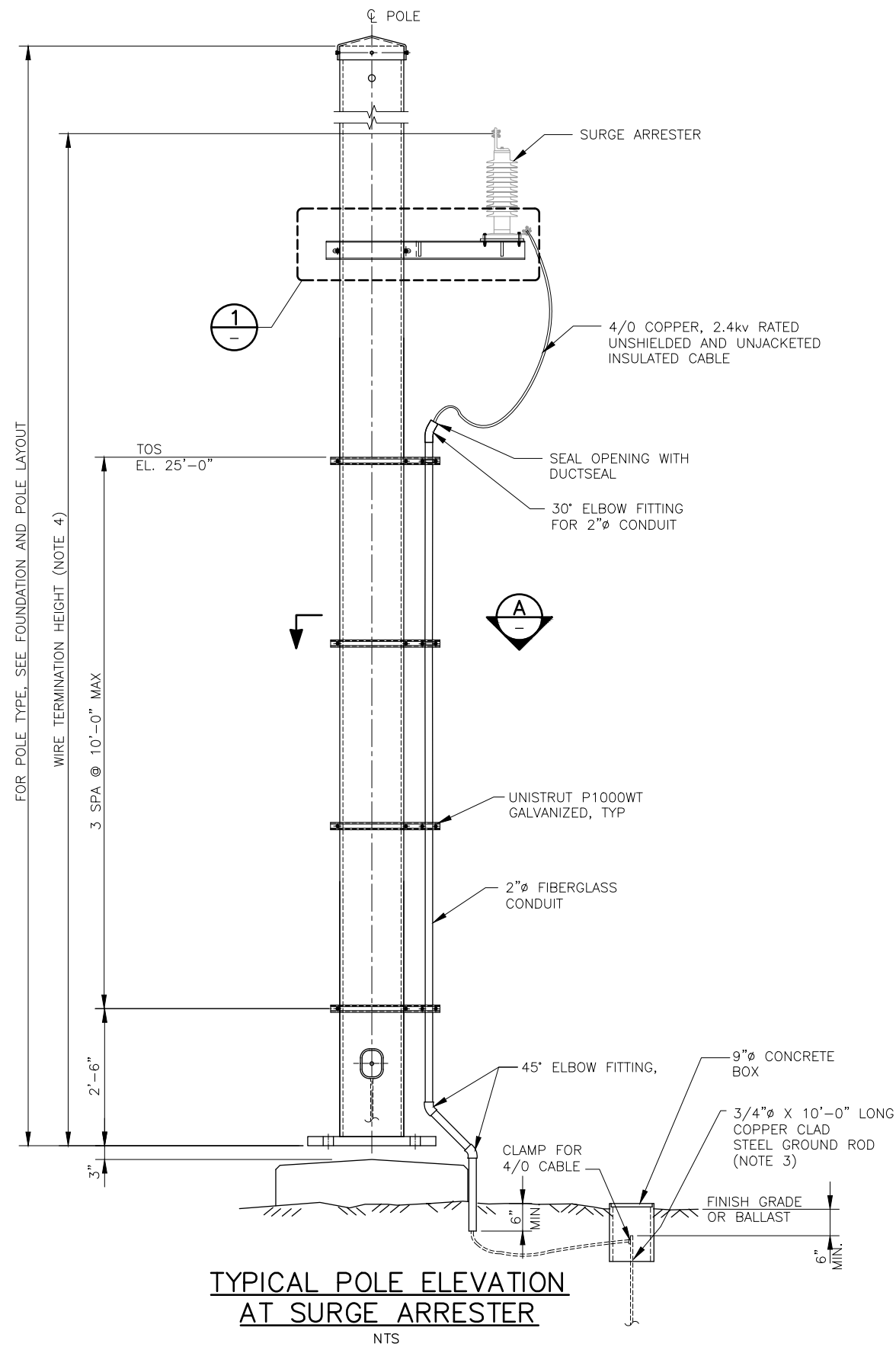
CADD FILE NAME: W5263C	REV: 01012024
STANDARD DRAWING NO.: W5263C	



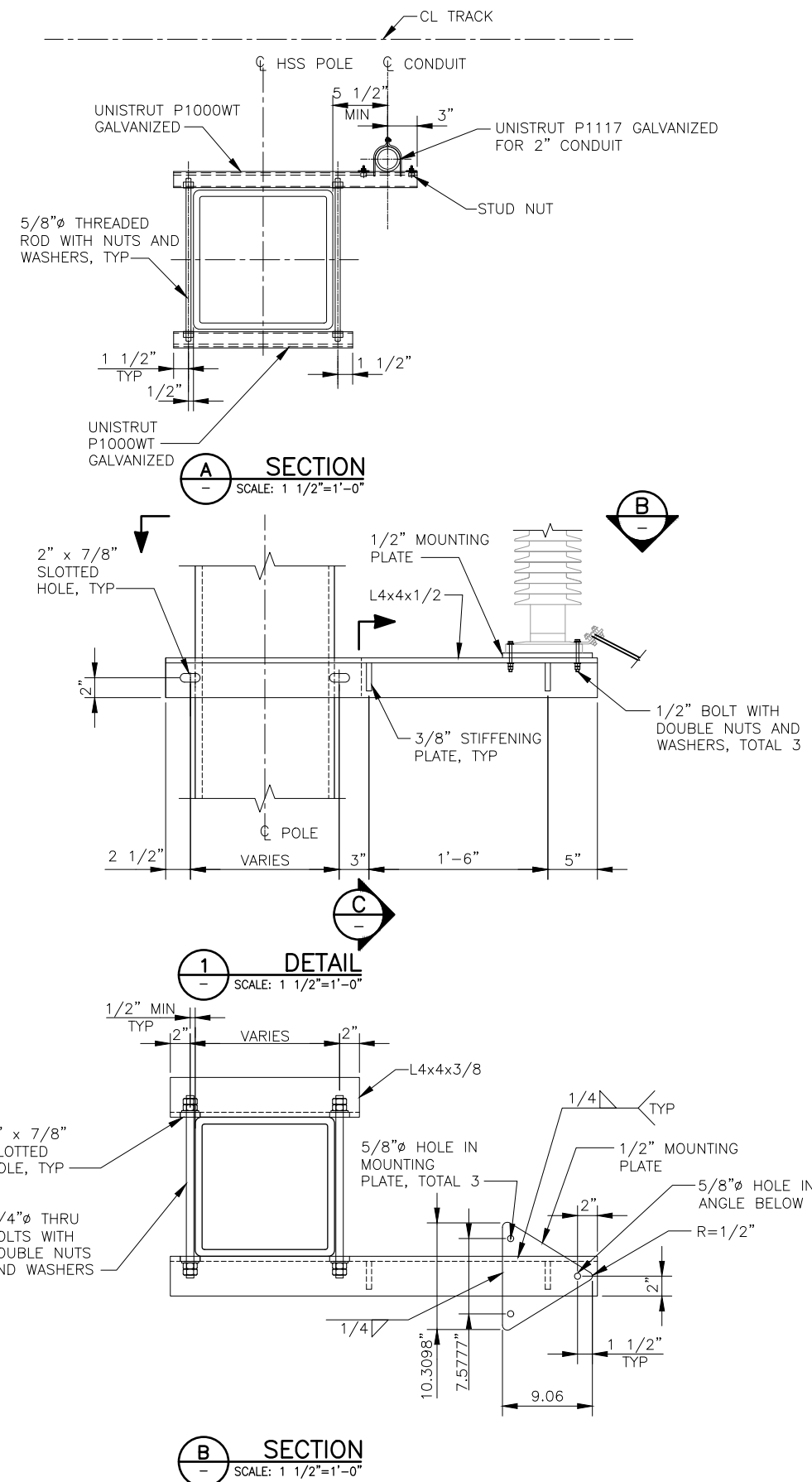
- NOTES:**
- FOR GENERAL NOTES SEE DRAWING W0101.
 - WIRE ANCHOR DROP TUBES CAN BE USED TO TERMINATE FEEDER OR STATIC WIRES BELOW PORTAL BEAMS AT LOCATIONS REVIEWED AND APPROVED BY THE ENGINEER. NOTIFY ENGINEER OF ANY SITE SPECIFIC CONFLICTS.
 - MAXIMUM DROP TUBE LOADING SHALL BE RESTRICTED AS FOLLOWS:
A) MAX MOMENT: 13.0 K-FT
B) MAX SHEAR: 2.85 K
 - THE WIRE ANCHOR DROP TUBE LENGTH VARIES AND WILL BE CALCULATED AT EACH LOCATION TO PROVIDE 1'-0" BELOW THE WIRE TERMINATION ELEVATION. FOR INFORMATION NOT SHOWN SEE PORTAL DETAIL DRAWINGS, AND BASIC DESIGN ASSEMBLY DRAWINGS.

REV	DATE	BY	CHK	APP	DESCRIPTION	REV	DATE	BY	CHK	APP	DESCRIPTION
					01012024 EDITION						

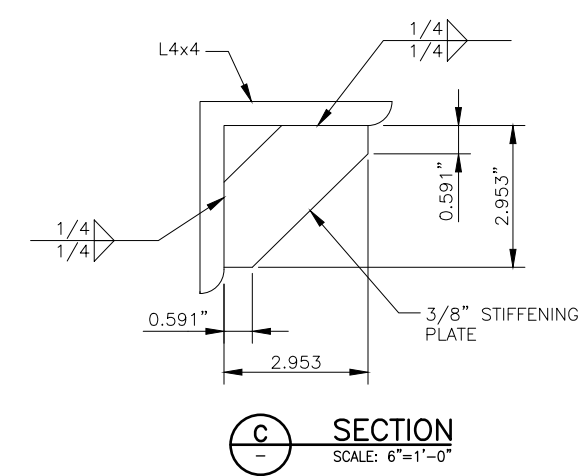
PENINSULA CORRIDOR JOINT POWERS BOARD		STANDARD DRAWINGS		CADD FILE NAME: W5278	
APPROVED BY: <i>Bin Zhang</i> DEPUTY DIRECTOR, ENGINEERING		Caltrain. 1250 San Carlos Avenue San Carlos, CA 94070		REV:	EDITION: 01012024
ELECTRIFICATION PROJECT OCS POLES WIRE ANCHOR DROP TUBE DETAILS				STANDARD DRAWING NO.: W5278	



**TYPICAL POLE ELEVATION
AT SURGE ARRESTER**
NTS




- NOTES:**
1. FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS SEE DRAWING W0101.
 2. ALL HOLES IN MAST, BEAMS AND MISCELLANEOUS STEEL SHALL BE PRE-DRILLED IN SHOP PRIOR TO GALVANIZING.
 3. PROVIDE GROUND ROD AT ALL POLES WITH A SURGE ARRESTER. INSTALL GROUND ROD OUTSIDE OF TRAVELED WAY OR BALLAST.
 4. NOTIFY ENGINEER IF SURGE ARRESTER IS LOCATED ON A POLE WITH OTHER ASSEMBLIES.
 5. CABLE BENDS SHALL NOT EXCEED MAXIMUM ALLOWED BY MANUFACTURER.



REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
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DEPUTY DIRECTOR, ENGINEERING

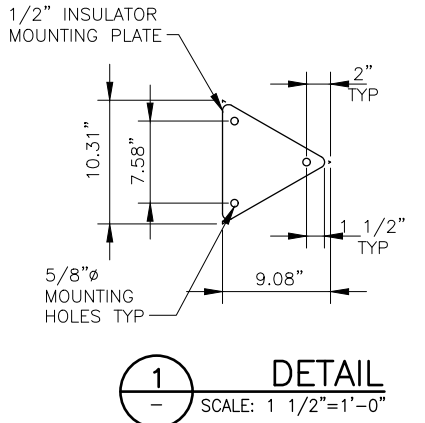
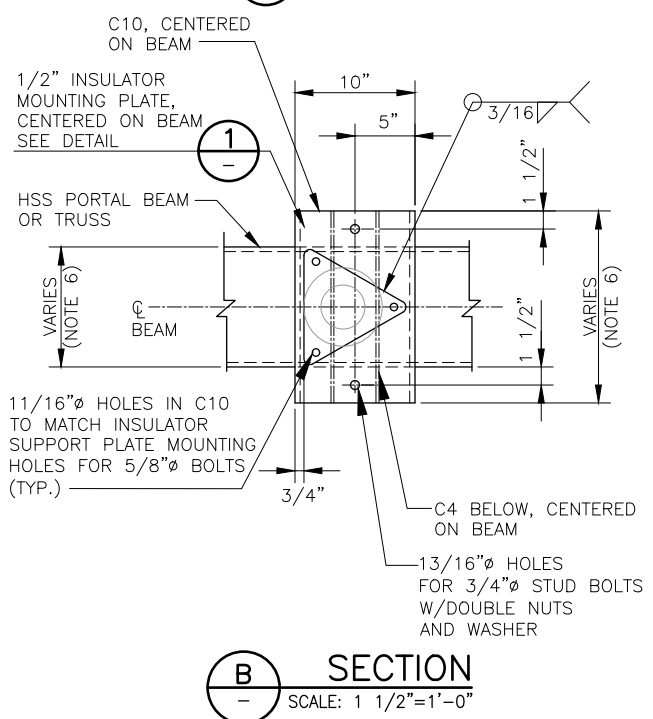
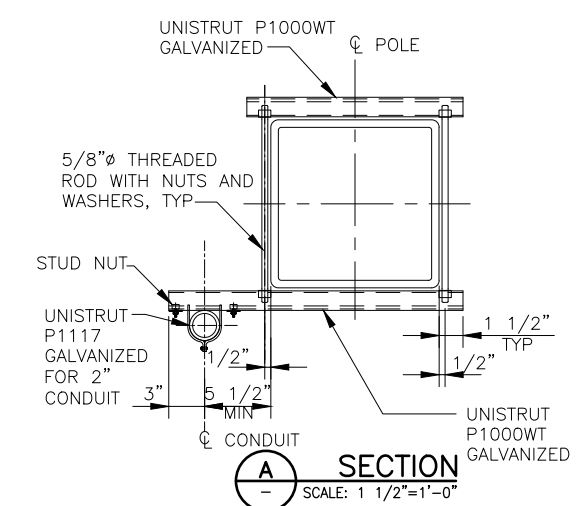
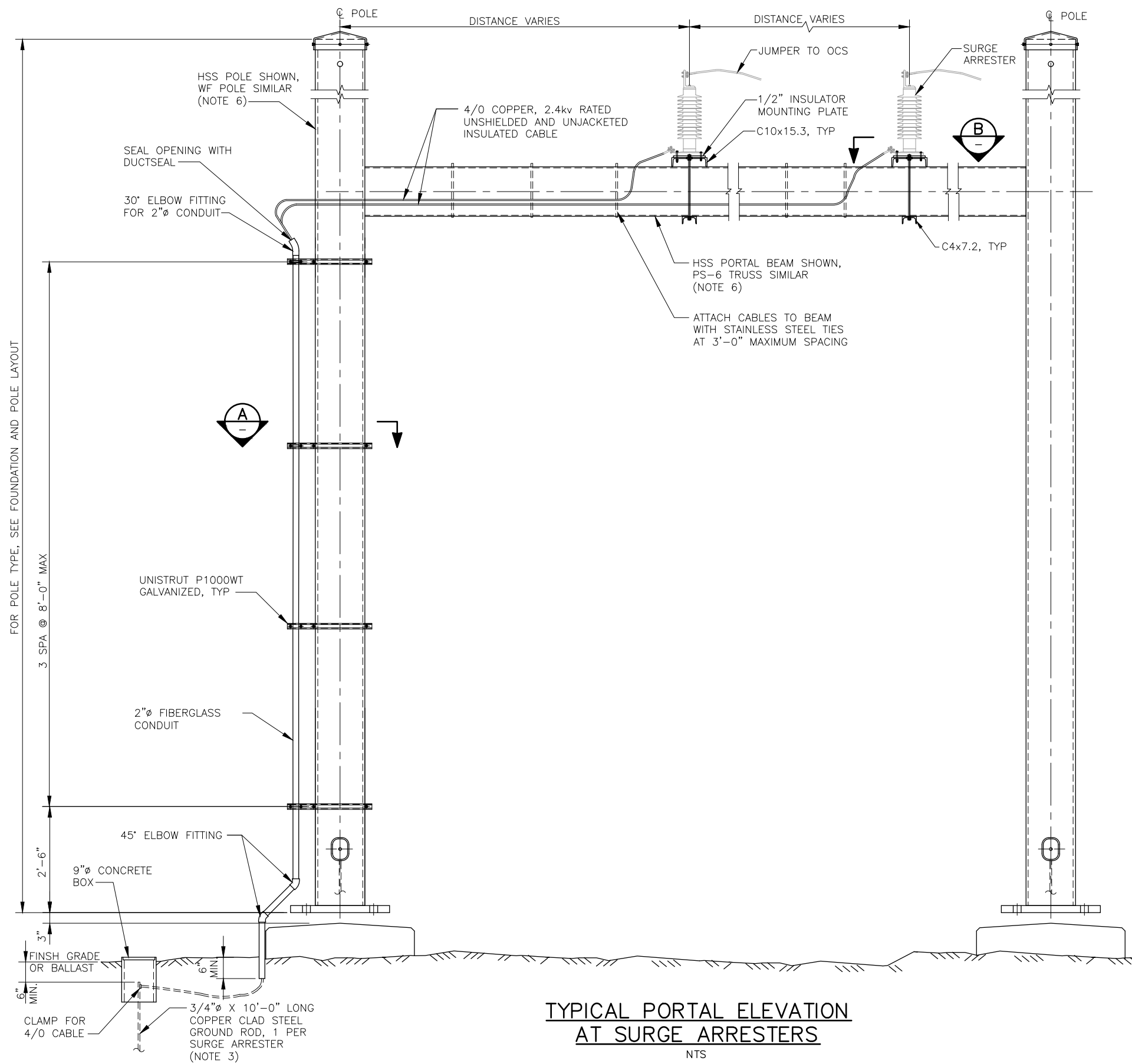


1250 San Carlos Avenue
San Carlos, CA 94070

STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS POLES
SURGE ARRESTER
MOUNTING DETAILS ON POLE

CADD FILE NAME: W5284	EDITION: 01012024
REV:	
STANDARD DRAWING NO.: W5284	




TYPICAL PORTAL ELEVATION AT SURGE ARRESTERS
NTS

- NOTES:**
1. FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS SEE DRAWING W0101.
 2. ALL HOLES IN MAST, BEAMS AND MISCELLANEOUS STEEL SHALL BE PRE-DRILLED IN SHOP PRIOR TO GALVANIZING.
 3. PROVIDE A MINIMUM OF ONE GROUND ROD PER SURGE ARRESTER AT ALL POLES WITH SURGE ARRESTERS. INSTALL GROUND ROD OUTSIDE OF TRAVELLED WAY OR BALLAST. NOTIFY ENGINEER IF MORE THAN TWO SURGE ARRESTERS ARE GROUNDING AT A SINGLE POLE.
 4. NOTIFY ENGINEER IF SURGE ARRESTERS ARE LOCATED ON A POLE WITH OTHER ASSEMBLIES.
 5. CABLE BENDS SHALL NOT EXCEED MAXIMUM ALLOWED BY MANUFACTURER.
 6. FOR INFORMATION NOT SHOWN SEE PORTAL DETAIL DRAWINGS.

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DEPUTY DIRECTOR, ENGINEERING



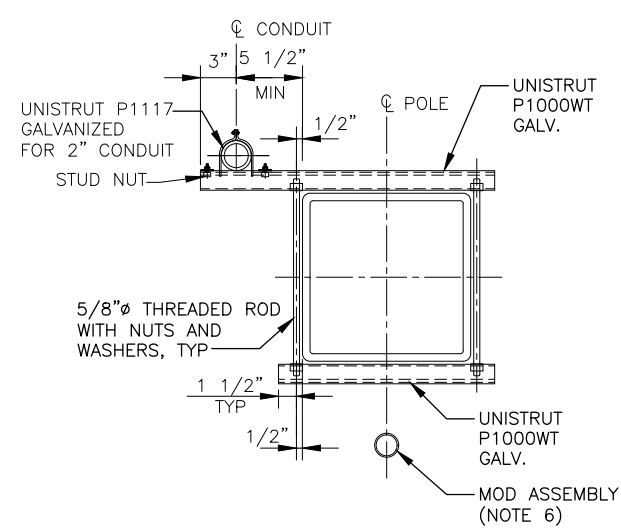
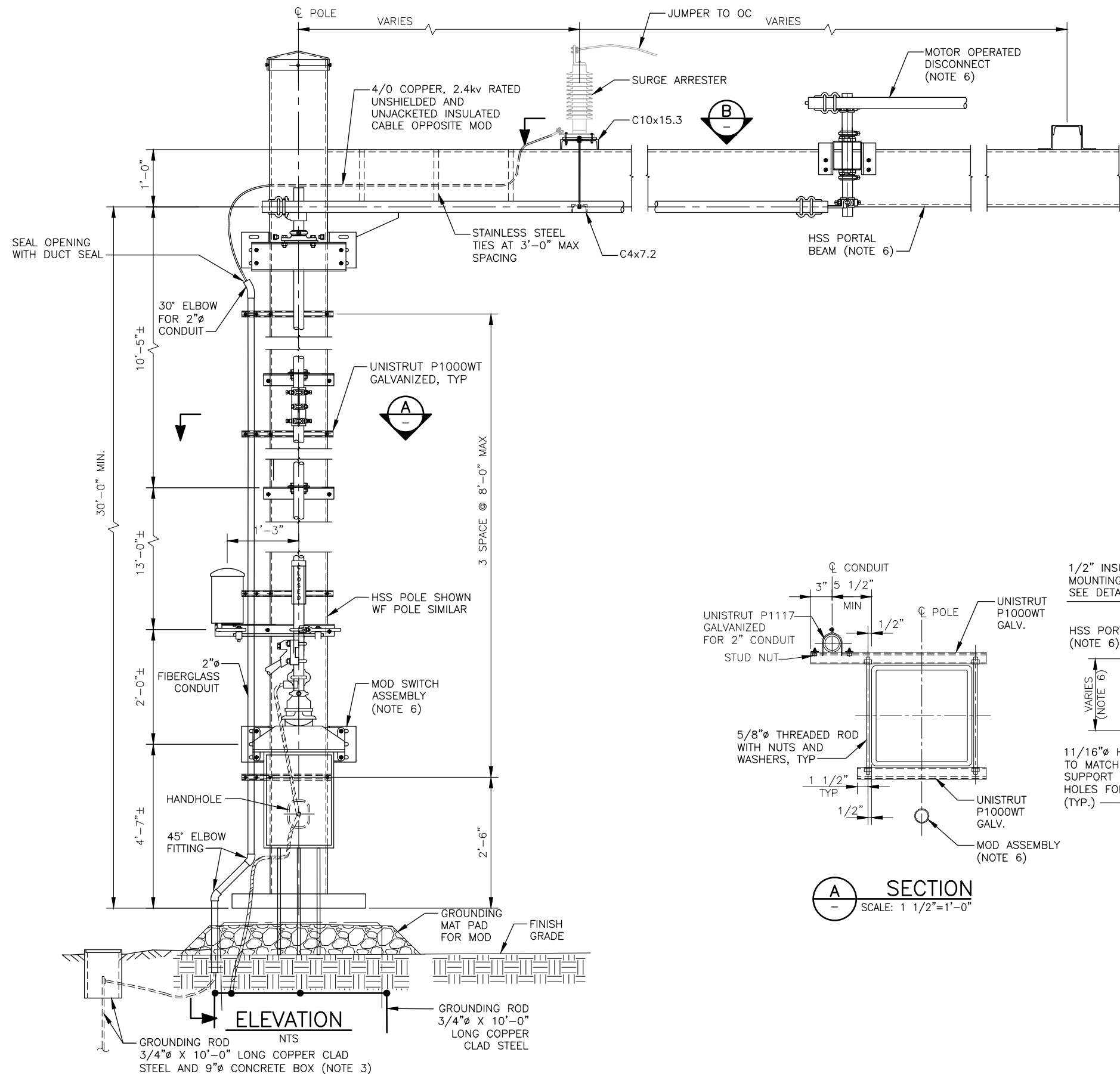
1250 San Carlos Avenue
San Carlos, CA 94070

STANDARD DRAWINGS

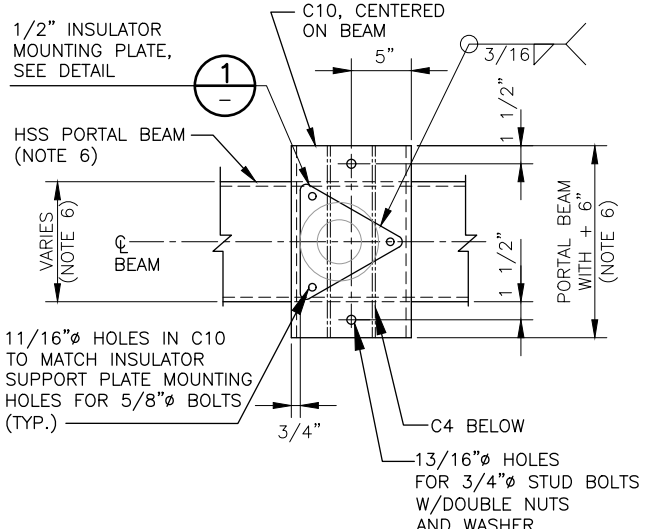
ELECTRIFICATION PROJECT
OCS PORTALS
2 SURGE ARRESTERS
MOUNTING DETAILS ON BEAM

CADD FILE NAME: W5284B	REV: 01012024
EDITION: 01012024	
STANDARD DRAWING NO.: W5284B	

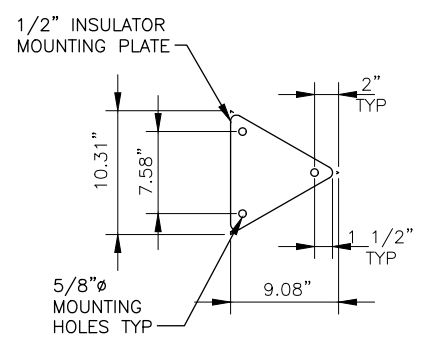
01012024 EDITION



A SECTION
SCALE: 1 1/2"=1'-0"



B SECTION
SCALE: 1 1/2"=1'-0"



1 DETAIL
SCALE: 1 1/2"=1'-0"

- NOTES:**
1. FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS SEE DRAWING W0101.
 2. ALL HOLES IN MAST, BEAMS AND MISCELLANEOUS STEEL SHALL BE PRE-DRILLED IN SHOP PRIOR TO GALVANIZING.
 3. PROVIDE ONE GROUND ROD PER SURGE ARRESTER. INSTALL GROUND ROD OUTSIDE OF TRAVELED WAY OR BALLAST.
 4. NOTIFY ENGINEER IF SURGE ARRESTER AND MOD SWITCH ARE LOCATED ON A POLE WITH OTHER ASSEMBLIES OR IF THERE ARE MULTIPLE SURGE ARRESTERS.
 5. CABLE BENDS SHALL NOT EXCEED MAXIMUM ALLOWED BY MANUFACTURER.
 6. FOR INFORMATION NOT SHOWN SEE POLE DETAIL DRAWINGS AND MOD DISCONNECT SWITCH DETAIL DRAWINGS.

ELEVATION

REV	DATE	BY	CHK	APP	DESCRIPTION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DEPUTY DIRECTOR, ENGINEERING



STANDARD DRAWINGS

ELECTRIFICATION PROJECT
OCS PORTALS
SURGE ARRESTER & MOD SWITCH
MOUNTING DETAILS ON BEAM

CADD FILE NAME: W5284E	
REV:	EDITION: 01012024
STANDARD DRAWING NO.: W5284E	