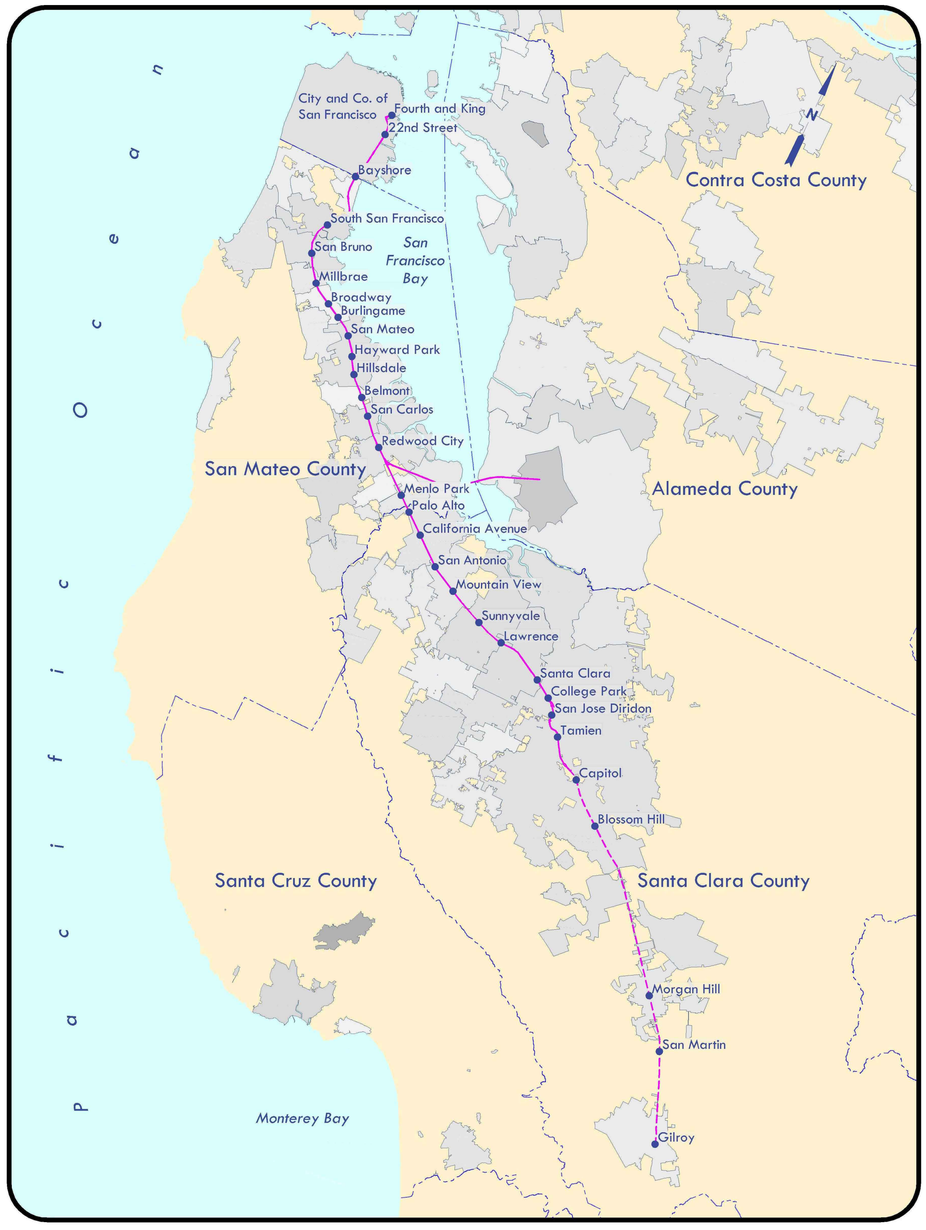
CALTRAIN CORRIDOR



ELECTRIFICATION STANDARD DRAWINGS

PENINSULA CORRIDOR JOINT POWERS BOARD

OVERHEAD CONTACT SYSTEM
BASIC DESIGN: POLES AND STRUCTURES

JANUARY 01, 2026

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ENGINEERING STANDARD DRAWINGS

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ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM

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OVERHEAD CONTACT SYSTEM

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CADD FILE NAME: SD–W0005

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OCS SYMBOLS

ELECTRIFIED TRACK (TRACK TO BE WIRED)

NON–ELECTRIFIED TRACK (EXISTING OR FUTURE TRACK)

OOR — 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

BWA — POLE WITH BALANCE WEIGHT TERMINATION FOR CW AND MW WF OR HSS SECTIONS

BWA — POLE WITH BALANCE WEIGHT TERMINATION FOR SIMPLE CATENARY EQUIPMENT WF OR HSS SECTIONS

FTA — POLE WITH FIXED TERMINATION FOR CW AND MW WF OR HSS SECTIONS

FTA — POLE WITH FIXED TERMINATION FOR SIMPLE CATENARY EQUIPMENT WF OR HSS SECTIONS

MPA, TWA, TWA — POLE WITH MIDPOINT ANCHOR TERMINATION WITHOUT DOWN GUY WF OR HSS SECTIONS

POLE WITH MULTIPLE PULL OFF WF OR HSS SECTIONS

S — STATIC WIRE

F — FEEDER WIRE

STATIC WIRE FIXED TERMINATION

FEEDER WIRE FIXED TERMINATION

CABLE END FITTING

IN–RUNNING OCS BETWEEN SUPPORTS

FTA — OUT–OF–RUNNING FIXED TERMINATION WITH DOWN GUY

BWA — OUT–OF–RUNNING AUTO–TENSIONED TERMINATION WITH BALANCE WEIGHT WITH DOWN GUY

H — WIDE FLANGE POLE

SQUARE TUBE POLE

TAPERED TUBULAR POLE

ABBREVIATIONS

AC	ALTERNATING CURRENT
B/B	BACKBONE
BOTT	BOTTOM
CA	CANTILEVER
CJP	COMPLETE JOINT PENETRATION
℄	CENTER LINE
CLR	CLEAR
COMM	COMMUNICATIONS
CW	CONTACT WIRE
DC	DIRECT CURRENT
DG	DOWNGUY
DGF	DOWNGUY FOUNDATION
DIA., ø	DIAMETER
DWG	DRAWING
E	EXISTING
EB	EASTBOUND
EHS	EXTRA HIGH STRENGTH
FDN	FOUNDATION
FDR	FEEDER
FG	FINISH GRADE
FIN	FINISH
FS	FAR SIDE
FT	FIXED TERMINATION, FEET
FTA	FIXED TERMINATION ANCHOR
FUR	FURNISH
FW	FEEDER WIRE
G	GAS
GALV	GALVANIZED
H	HANGER
HDG	HOT DIP GALVANIZED
HS	HEADSPAN
HRL	HIGH RAIL LEVEL
HSS	HOLLOW STRUCTURAL SECTION
HT	HEIGHT
J	JUMPER
LRT	LIGHT RAIL TRANSIT
LTG	LIGHTING
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LRC	LONG REACH CANTILEVER
MAX	MAXIMUM
MIN	MINIMUM
ML	MAIN LINE
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
PL	PLATE
PO	PULL–OFF
PS	POINT OF SWITCH
PS–XX	SQUARE POLE PORTAL
PVC	POLYVINYL CHLORIDE
PW–XX	WIDE FLANGE POLE PORTAL
QTY	QUANTITY
RE	REMOVE EXISTING
RIE	RE–INSTALL EXISTING
RIF	REINFORCEMENT
RQD	REQUIRED
RTRC	REINFORCED THERMOSETTING RESIN CONDUIT
SB	SOUTHBOUND
SCH	SCHEDULE
SIM	SIMILAR
SS	STAINLESS STEEL
STA	STATION
STL	STEEL POLE
SW	STATIC WIRE
SQ–XX	SQUARE TUBULAR POLE TYPE
T/O	TURNOUT
TOR	TOP OF RAIL
TOS	TOP OF STEEL
TL	TRACK LEFT
TP	TRACTION POWER
TR	TENSION REDUCER/TRACK RIGHT
TRK	TRACK
TT	TAPERED TUBULAR SECTION
TT–XX	TAPERED TUBULAR POLE TYPE
TYP	TYPICAL
UNC	UNIFIED NATIONAL COARSE
UON	UNLESS OTHERWISE NOTED
VAR	VARIES
VMS	VISUAL MESSAGE SYSTEM
	WOOD POLE
WB	WIRE BRIDGE OR WESTBOUND
WC	WIRE CROSSING
WF	WIDE FLANGE SECTION
WF–XX	WIDE FLANGE POLE TYPE
WP	WORK POINT
X/O	CROSSOVER

GENERAL NOTES

A. STEEL

1. 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.
2. WIDE FLANGE POLES SHALL BE FABRICATED FROM HIGH STRENGTH LOW ALLOY STEEL CONFORMING TO ASTM DESIGNATION A992, GRADE 50.
3. RECTANGULAR AND SQUARE HSS SECTION POLES, SHALL BE FABRICATED FROM STEEL CONFORMING TO ASTM DESIGNATION A500, GRADE C MINIMUM YIELD STRESS 50 KSI.
4. ROUND HSS SECTION POLES SHALL BE FABRICATED FROM STEEL CONFORMING TO ASTM DESIGNATION A500, GRADE C, MINIMUM YIELD STRENGTH FY=46KSI.
5. STRUCTURAL STEEL FOR BASE PLATES, CHANNELS, ANGLES, MISCELLANEOUS PLATES AND BARS, SHALL BE FABRICATED FROM STEEL CONFORMING TO ASTM DESIGNATION A572, GRADE 50.
6. WELDING SHALL CONFORM TO AWS, D1.1 SPECIFICATIONS USING E70XX WELDING ELECTRODES.
7. 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.
8. 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.
9. 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.
10. ALL POLES SHALL BE GROUNDED AT THE BASE WITH A 4/0 APPROVED ANTI–THEFT GROUNDING WIRE AS INDICATED IN THE DRAWINGS.
11. 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.
12. 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.
13. 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.
14. ROUND, TAPERED AND SQUARE POLES SHALL BE INSTALLED WITH THE HANDHOLE FACING THE ONCOMING TRAFFIC.
15. THE POLE ASSEMBLY TYPE SHALL BE HARD MARKED WITH A MINIMUM HEIGHT OF 3/4 INCH AND A MINIMUM INDENTATION OF 1/16 INCH.
16. ALL HOLES IN POLES AND MISCELLANEOUS STEEL ASSEMBLIES SHALL BE PRE–DRILLED IN SHOP PRIOR TO GALVANIZING.
17. THE LOCATIONS AND SUPPORTS ON WHICH THE FEEDER WIRES ARE SHOWN ARE NOMINAL ONLY. FOR SITUATIONS WHERE SUPPORT WILL BE PROVIDED BY EXTENSION BRACKETS, THE MATERIAL ALLOCATION AND DESIGN ASSEMBLIES DRAWINGS ARE TO BE REFERENCED.

B. CONCRETE NOTES

1. CONCRETE FOR OCS FOUNDATIONS SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS IN ACCORDANCE WITH THE SPECIFICATIONS.
2. REINFORCING BARS SHALL CONFORM TO ASTM A706, GRADE 60 SPECIFICATION FOR LOW–ALLOY STEEL FOR CONCRETE REINFORCEMENT.
3. 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.
4. ANCHOR BOLTS, NUTS, WASHERS, AND ANCHOR BOLT TEMPLATES, SHALL BE HOT–DIP GALVANIZED CONFORMING TO ASTM SPECIFICATION A153.
5. FOUNDATION OVERALL LENGTH SHALL BE AS INDICATED IN FOUNDATION AND POLE LAYOUT DRAWINGS.

C. SIGNAGE

1. SIGNAGE SHALL NOT BE PLACED OR HUNG ON CATENARY, STATIC OR FEEDER WIRES THROUGHOUT THE CORRIDOR. SIGNAGE HUNG OVER THE TRACKS ON STRUCTURES SHALL HAVE APPROPRIATE SECURING HARDWARE MEANT FOR THE APPLICATION.

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PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM

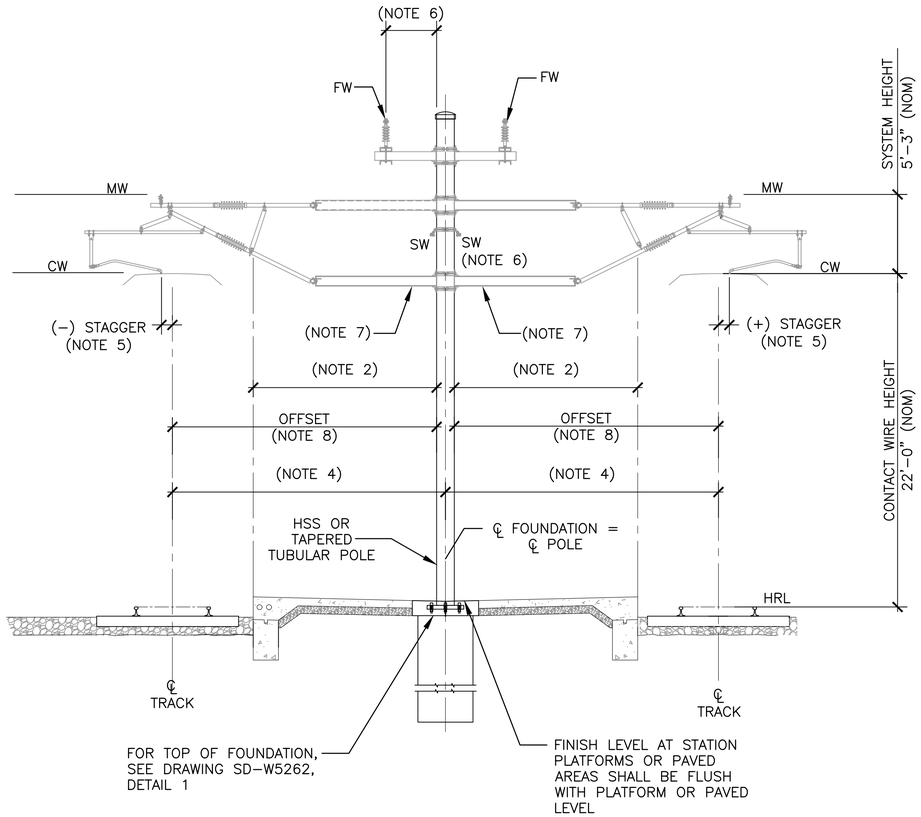
BASIC DESIGN POLES
SYMBOLS, ABBREVIATIONS AND
GENERAL NOTES

CADD FILE NAME: SD–W0101

REV: | EDITION: SECOND

SCALE:

STANDARD DRAWING NO.: SD–W0101



TYPICAL STATION CROSS SECTION
CENTER PLATFORM POLE

NOTES:

1. FOR OCS GENERAL NOTES SEE DRAWING SD–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 RIGHT OR LEFT OF THE TRACK CENTERLINE LOOKING UPSTATION. 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. BACK TO BACK CANTILEVER POLE AT CENTER STATION PLATFORM SHALL NOT BE USED IN FUTURE UNLESS APPROVED BY CALTRAIN.

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OVERHEAD CONTACT SYSTEM
GENERAL ARRANGEMENT

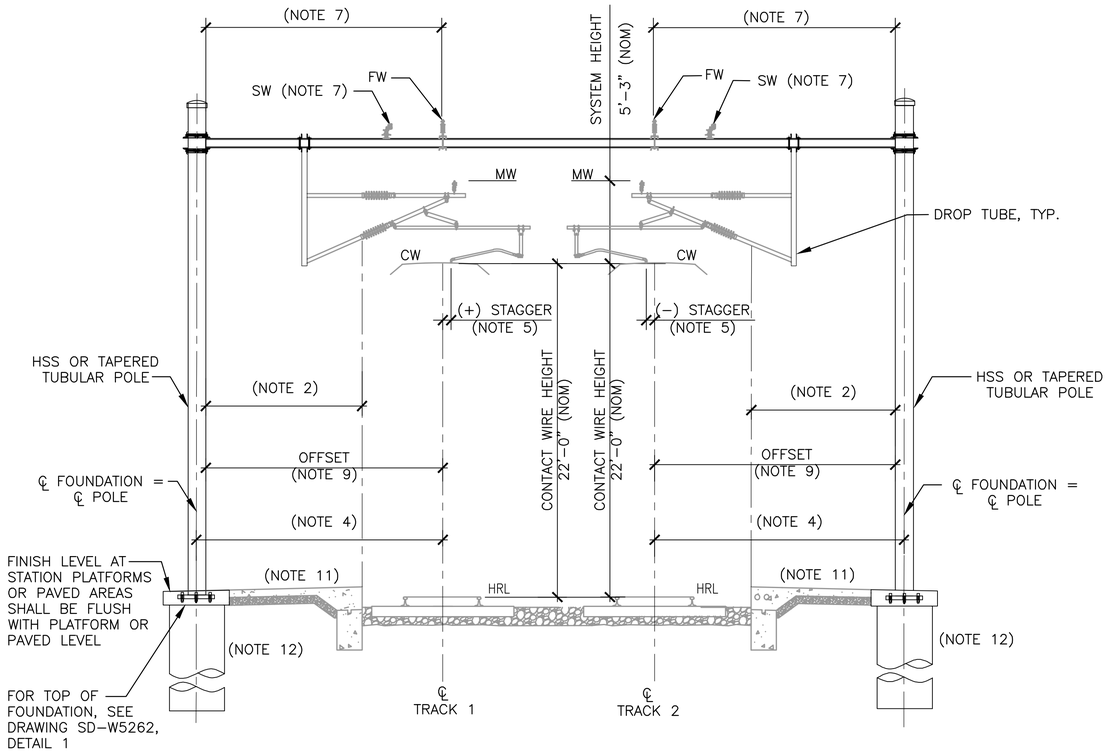
OCS POLE
CENTER PLATFORM

CADD FILE NAME: SD–W5004

REV: | EDITION: SECOND

SCALE: NTS

STANDARD DRAWING NO.: SD–W5004



TYPICAL STATION CROSS SECTION
SIDE POLES ON PLATFORM

NOTES:

1. FOR OCS GENERAL NOTES, SEE DRAWING SD-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 RIGHT OR LEFT OF THE TRACK CENTERLINE LOOKING UPSTATION. 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. MAINTAIN ENERGIZED CONDUCTORS OVER TRACKS THROUGH THE STATION PLATFORMS.
8. RESERVED
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.
11. MINIMUM ELECTRICAL CLEARANCE FROM ANY ENERGIZED PART SHALL BE AS PER DRAWING SD-W6001 AND EN 50122. ANY ENERGIZED BARE WIRES OR COMPONENTS SHALL NOT BE INSTALLED ON THE PLATFORM.
12. OCS STRUCTURES SHALL BE LOCATED OUTSIDE OF THE STATION PLATFORM, WHERE POSSIBLE.

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PENINSULA CORRIDOR JOINT POWERS BOARD

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Caltrain

ENGINEERING STANDARD DRAWINGS

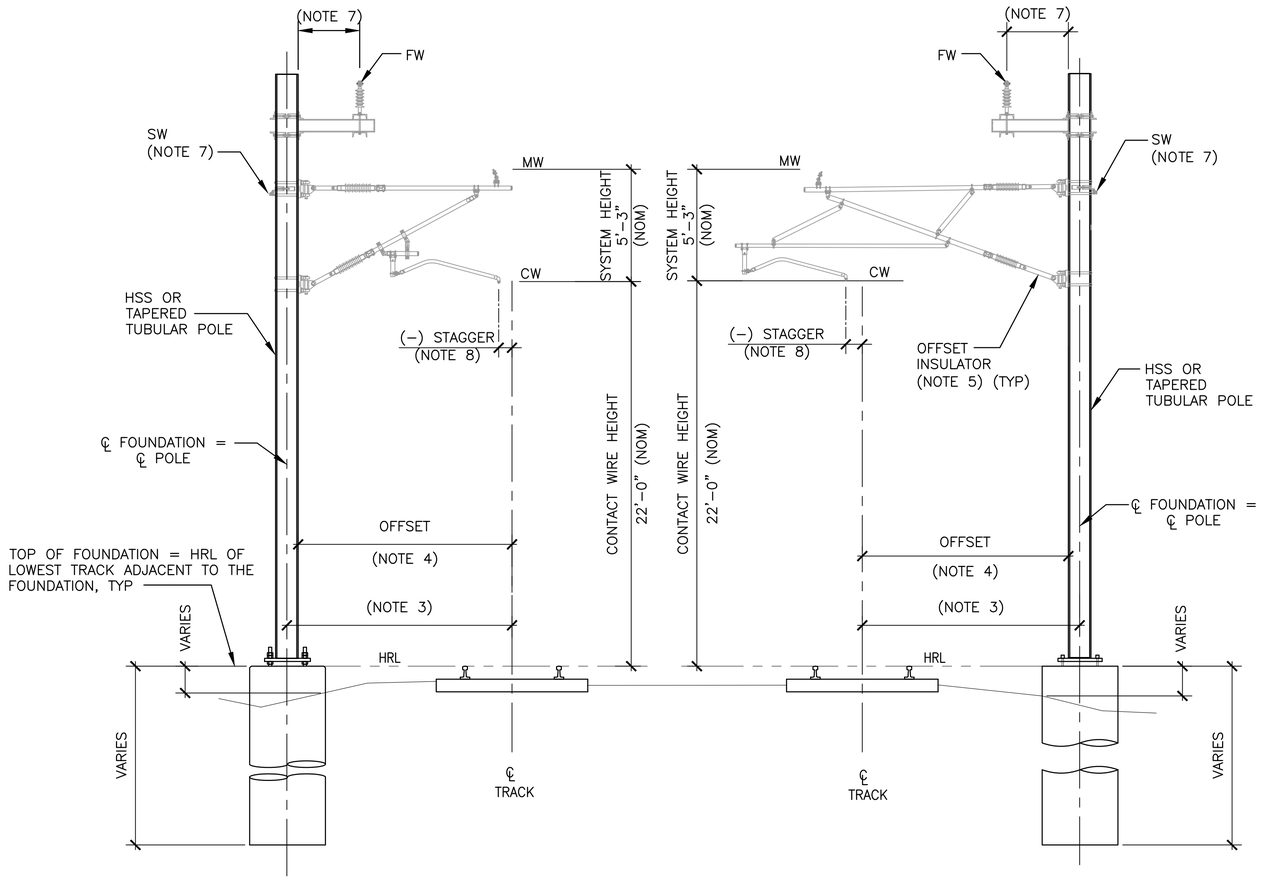
OVERHEAD CONTACT SYSTEM
GENERAL ARRANGEMENT

OCS POLE
SIDE PLATFORM

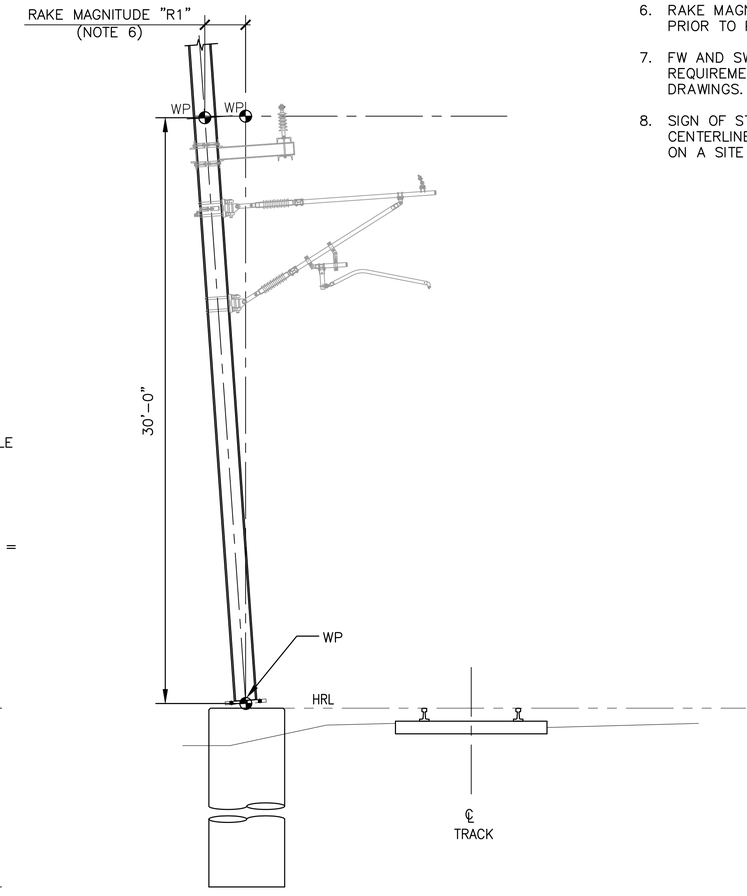
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REV:
EDITION: SECOND
SCALE: NTS
STANDARD DRAWING NO.: SD-W5005

NOTES:

1. FOR OCS GENERAL NOTES, SEE DRAWING SD–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 DETERMINED 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 RIGHT OR LEFT OF THE TRACK CENTERLINE LOOKING UPSTATION. STAGGER TO BE DETERMINED ON A SITE SPECIFIC BASIS.



TYPICAL CANTILEVER
OPEN ROUTE



TYPICAL POLE RAKE DIAGRAM

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OVERHEAD CONTACT SYSTEM
GENERAL ARRANGEMENT

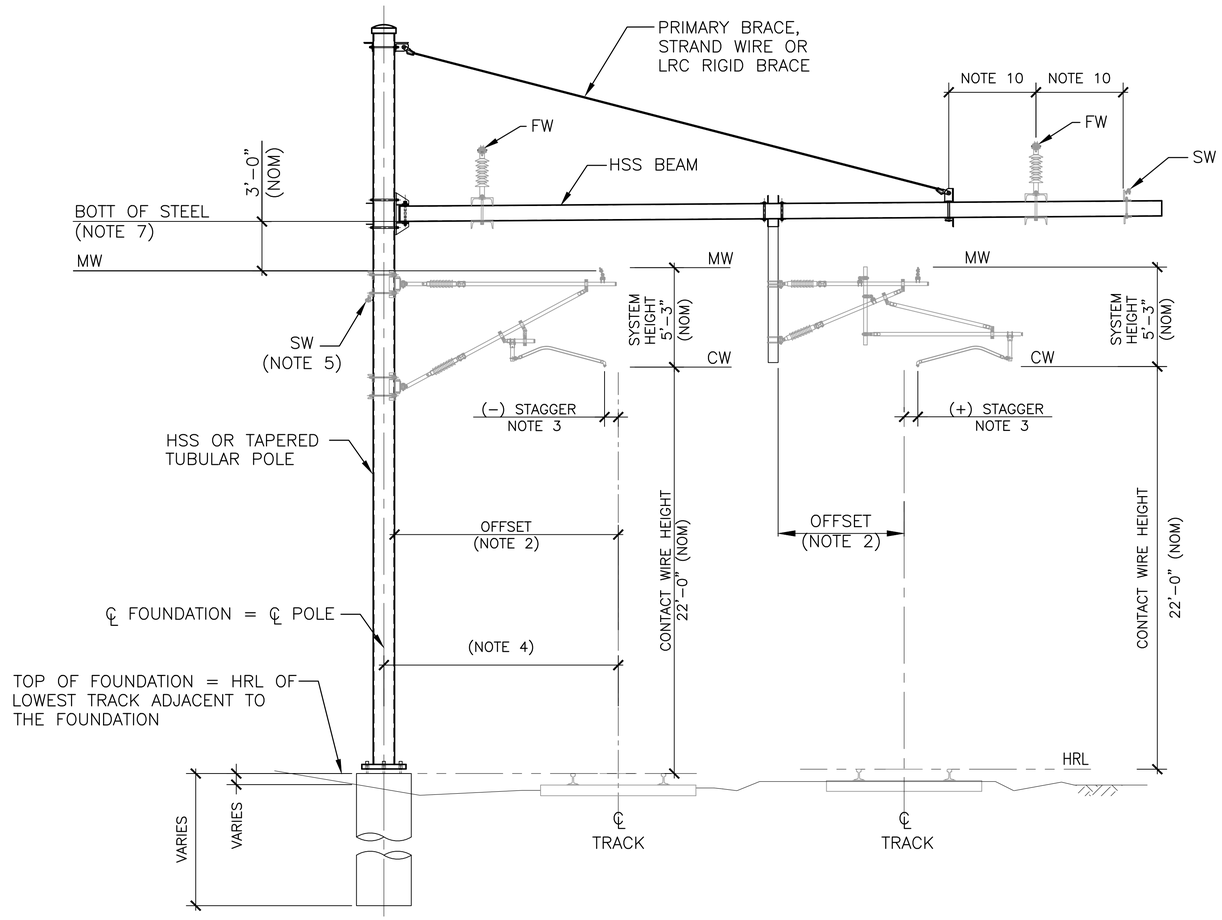
OCS POLE
TYPICAL

CADD FILE NAME: SD–W5006

REV: | EDITION: SECOND

SCALE: NTS

STANDARD DRAWING NO.: SD–W5006



LONG REACH CANTILEVER STRUCTURE

(TWO TRACKS WITH SINGLE BRACE SHOWN, OTHERS SIMILAR)

NOTES:

1. FOR OCS GENERAL NOTES, SEE DWG SD–W0101.
2. OFFSETS VARY. FOR SITE SPECIFIC REQUIREMENTS, SEE FOUNDATION AND POLE LAYOUT DRAWINGS.
3. SIGN OF STAGGER DESIGNATES RIGHT OR LEFT OF THE TRACK CENTERLINE LOOKING UPSTATION. 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 DETERMINED 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.
10. REFER TO OCS BASIC DESIGN STANDARD DRAWING SD–W6006 FOR ALL ELECTRICAL CLEARANCE REQUIREMENTS.

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PENINSULA CORRIDOR JOINT POWERS BOARD

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ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
GENERAL ARRANGEMENT

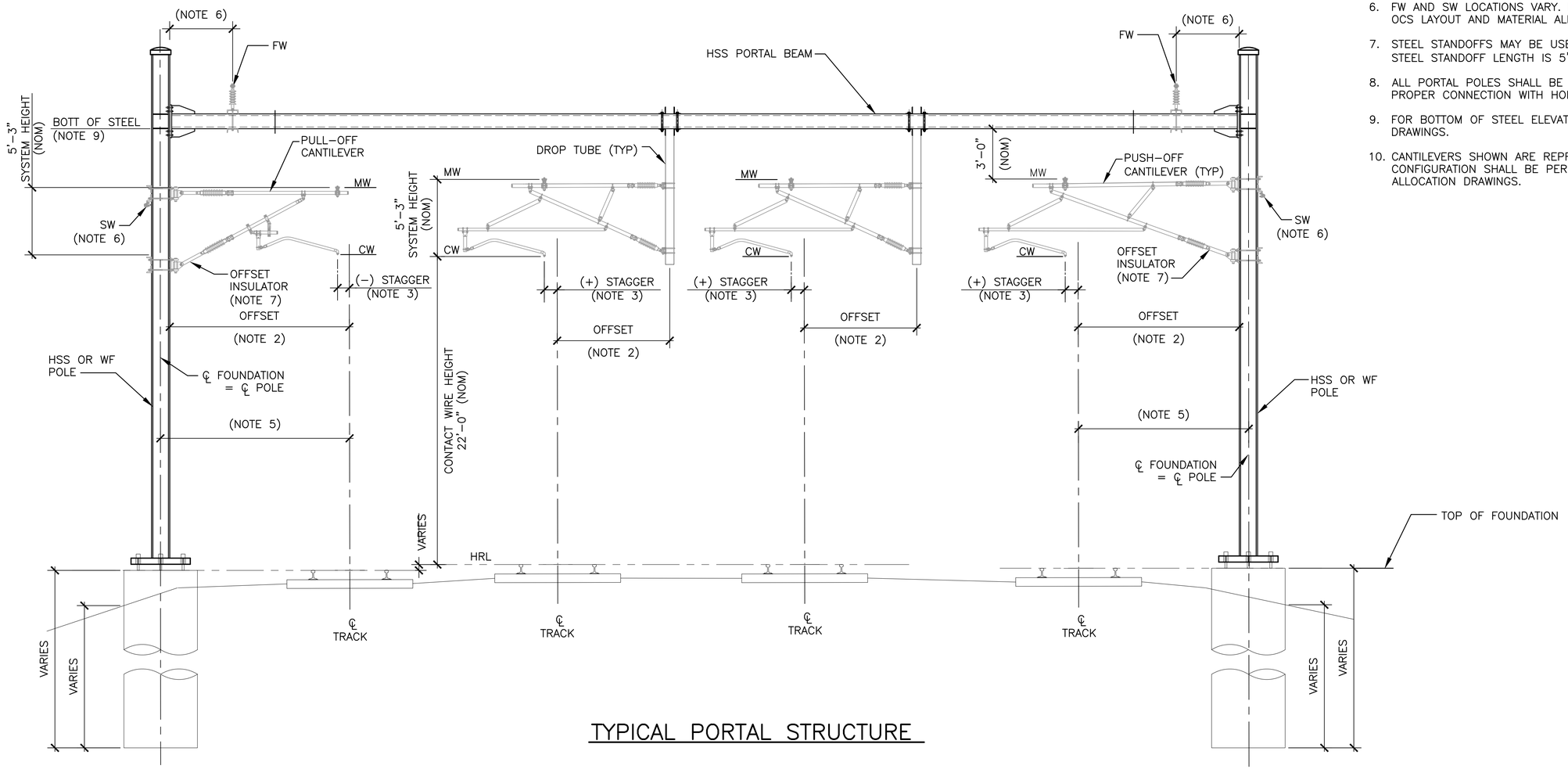
OCS POLE
LONG REACH CANTILEVER

CADD FILE NAME: SD–W5007

REV: | EDITION: SECOND

SCALE: NTS

STANDARD DRAWING NO.: SD–W5007



TYPICAL PORTAL STRUCTURE

NOTES:

1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS SEE DWG SD-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.

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PENINSULA CORRIDOR JOINT POWERS BOARD

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OVERHEAD CONTACT SYSTEM
GENERAL ARRANGEMENT

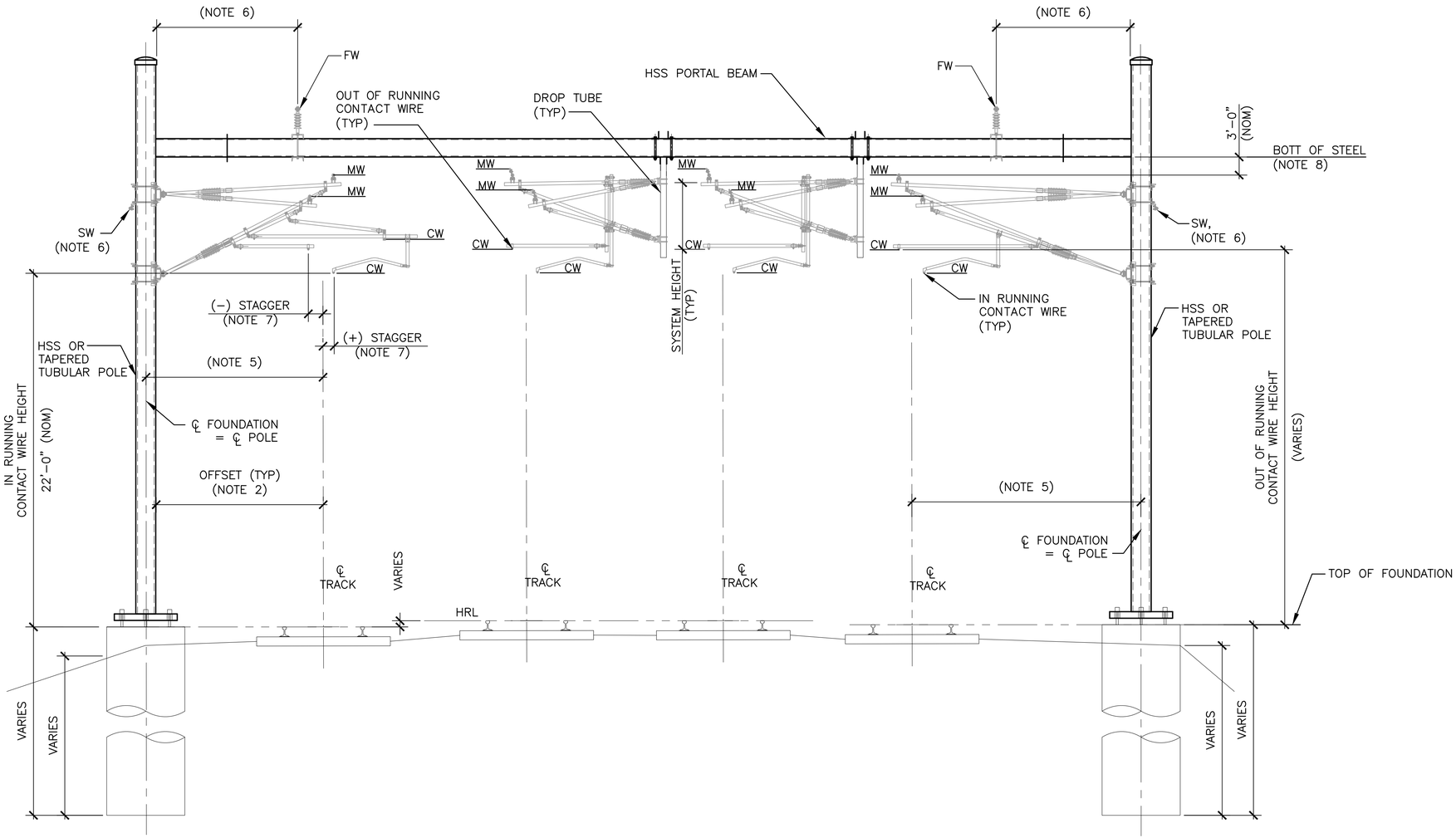
OCS PORTAL
TYPICAL

CADD FILE NAME: SD-W5008

REV: | EDITION: SECOND

SCALE: NTS

STANDARD DRAWING NO.: SD-W5008



TYPICAL OVERLAP PORTAL STRUCTURE

NOTES:

1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS SEE DRAWING SD–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 RIGHT OR LEFT OF THE TRACK CENTERLINE LOOKING UPSTATION.
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.

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REV	DATE	BY	CHK	APP

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OVERHEAD CONTACT SYSTEM
GENERAL ARRANGEMENT

OCS PORTAL
OVERLAP SPAN

CADD FILE NAME: SD–W5009

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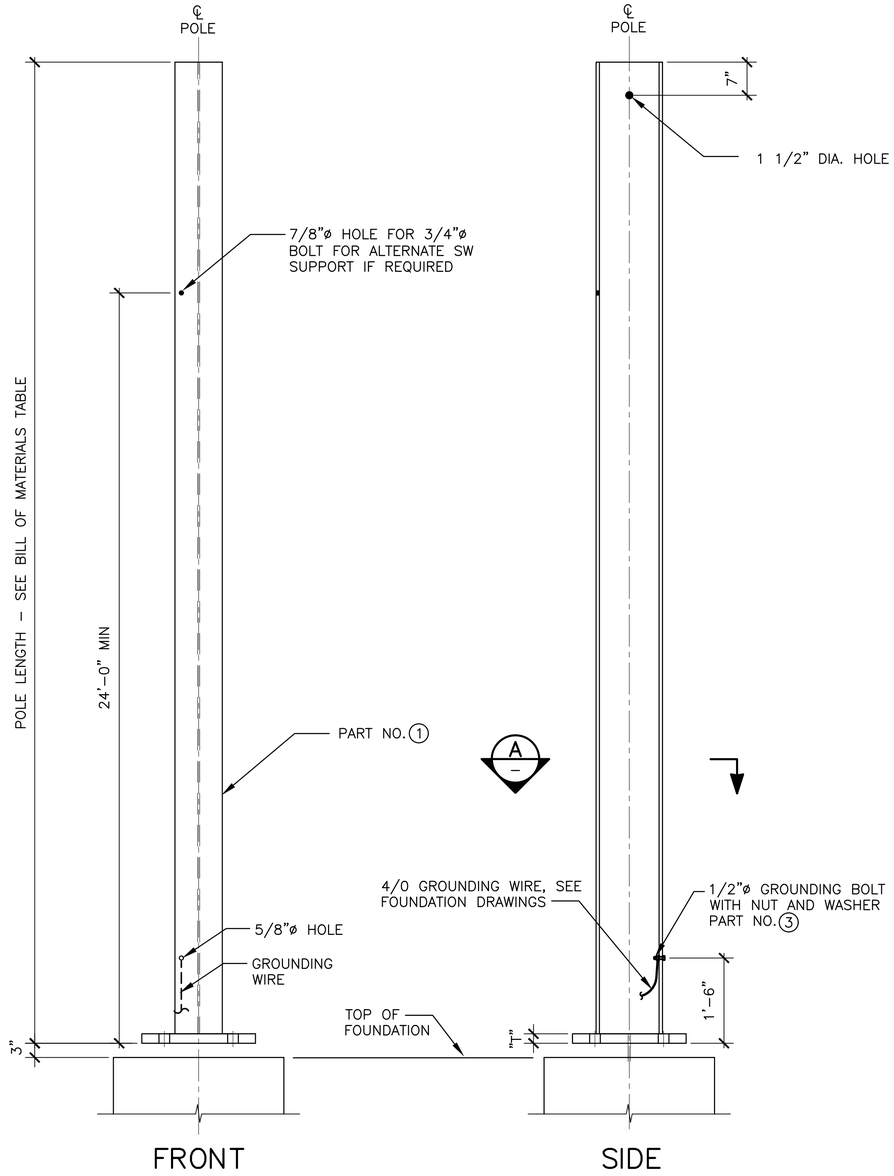
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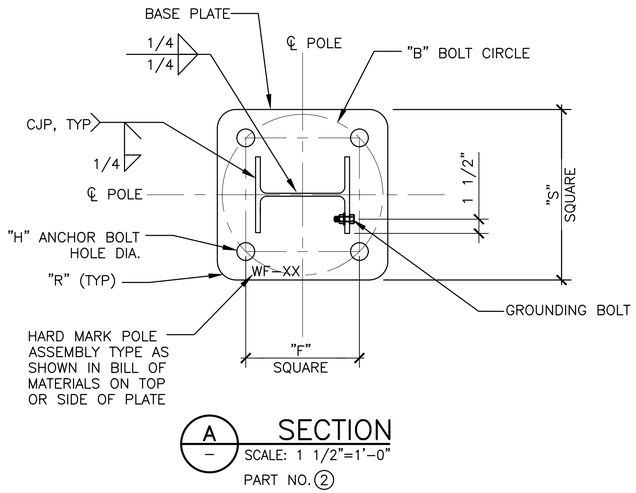
STANDARD DRAWING NO.: SD–W5009

NOTES:

1. FOR GENERAL NOTES, SEE DRAWING SD–WO101.
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



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

TABLE 1 BASE PLATE DIMENSIONS (IN)

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	1 13/16	2	2 1/2	16.97	1 1/2

QUANTITIES				DESCRIPTION	PART NO	REMARKS
1	1	1	1	1/2"ø 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			
ASSEMBLY TYPE						

BILL OF MATERIALS

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REV	DATE	BY	CHK	APP

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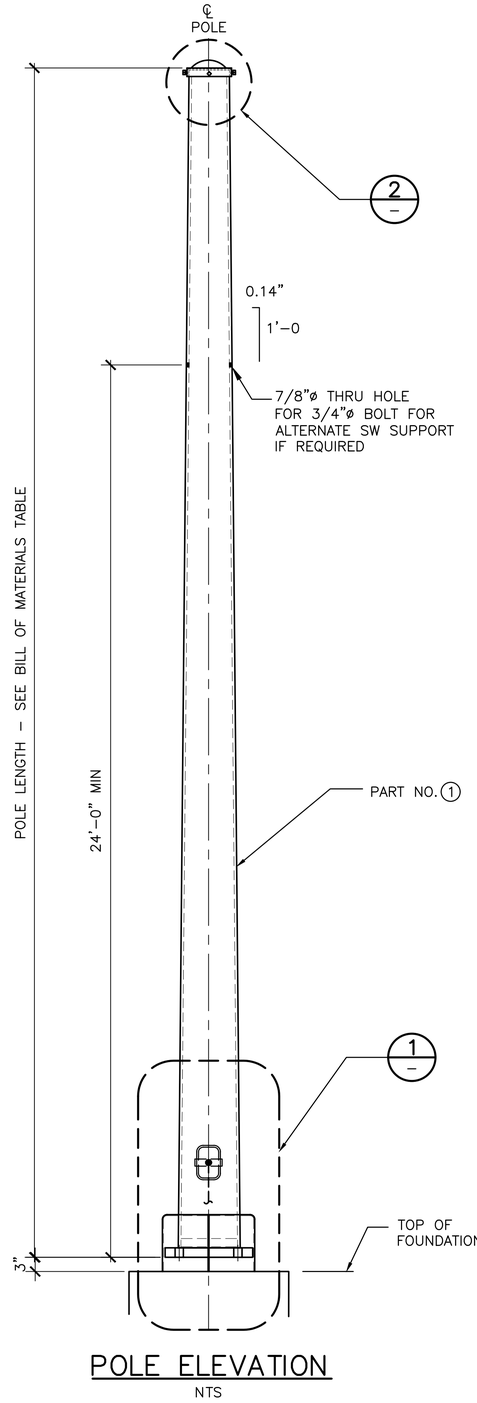
Caltrain

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES

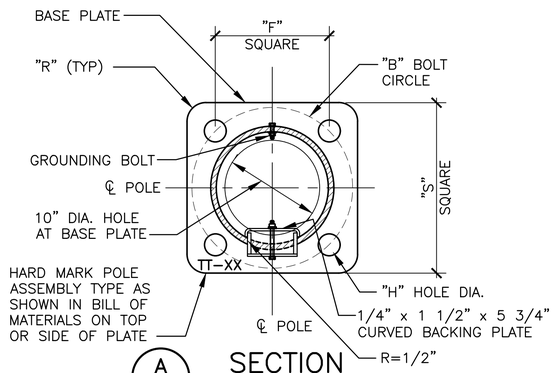
DETAILS
TYPES WF–1, 2, 3 & 3B

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STANDARD DRAWING NO.: SD–W5101



POLE ELEVATION

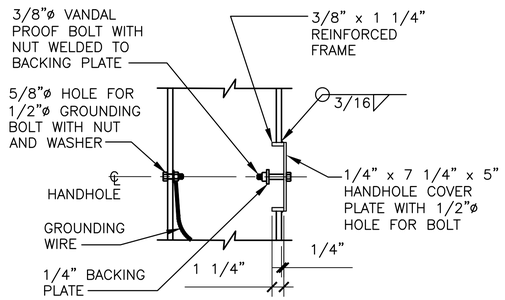
NTS



A — SECTION

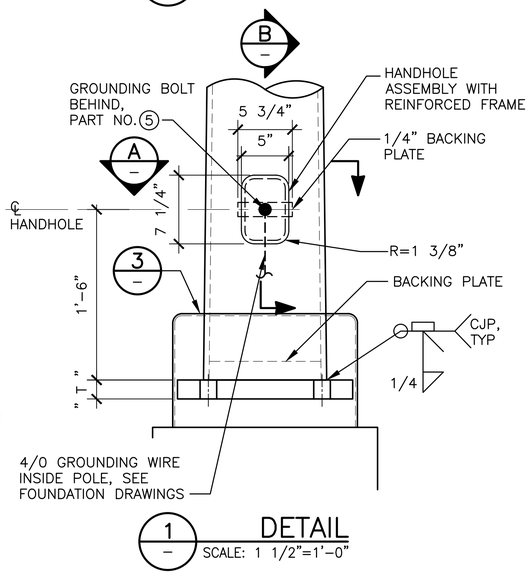
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PART NO. 3



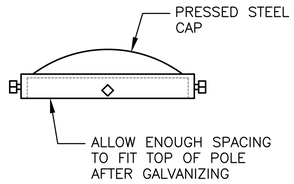
B — SECTION

SCALE: 1 1/2"=1'–0"



1 — DETAIL

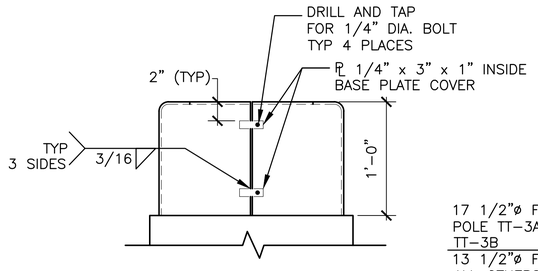
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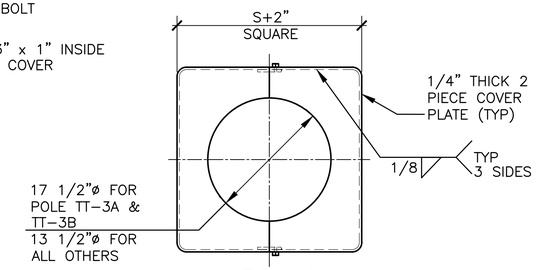
2 — DETAIL

NTS

PART NO. 2



ELEVATION



PLAN

3 — DETAIL

SCALE: 1 1/2"=1'–0"

PART NO. 4

NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. BASE PLATE COVER IS REQUIRED WHEN POLE IS LOCATED AT PASSENGER STATION.
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.
4. FOR POLES LOCATED ON STATION PLATFORMS, THE ANCHOR BOLTS AND BASE PLATE SHALL BE FULLY RECESSED BELOW PLATFORM LEVEL AND THE VOID FILLED WITH GROUT, AS SHOWN ON DRAWING SD–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								DESCRIPTION	PART NO	REMARKS
1	1	1	1	1	1	1	1	BASE PLATE COVER	4	NOTE 2
1	1	1	1	1	1	1	1	1/2"ø 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	PRESSED STEEL CAP, GALV.–W/ 4–1/4" DIA. SS SET SCREWS	2	
–	–	–	–	1	–	–	–	TAPERED TUBULAR POLE – 17"ø x 0 GAUGE x 38'–0" LG	1	NOTE 3
–	–	–	1	–	–	–	–	TAPERED TUBULAR POLE – 17"ø x 0 GAUGE x 35'–0" LG	1	NOTE 3
–	–	–	–	–	–	1	–	TAPERED TUBULAR POLE – 13"ø x 0 GAUGE x 38'–0" LG	1	NOTE 3
–	–	–	–	–	–	–	1	TAPERED TUBULAR POLE – 13"ø x 0 GAUGE x 38'–0" LG	1	NOTE 3
–	–	1	–	–	–	–	–	TAPERED TUBULAR POLE – 13"ø x 0 GAUGE x 35'–0" LG	1	NOTE 3
–	–	–	–	–	1	–	–	TAPERED TUBULAR POLE – 13"ø x 0 GAUGE x 35'–0" LG	1	NOTE 3
1	–	–	–	–	–	–	–	TAPERED TUBULAR POLE – 13"ø x 0 GAUGE x 32'–0" LG	1	NOTE 3
–	1	–	–	–	–	–	–	TAPERED TUBULAR POLE – 13"ø x 0 GAUGE x 32'–0" LG	1	
TT–1	TT–4	TT–1A	TT–3A	TT–3B	TT–4A	TT–1B	TT–4B	ASSEMBLY TYPE		

BILL OF MATERIALS

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

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ENGINEERING STANDARD DRAWINGS

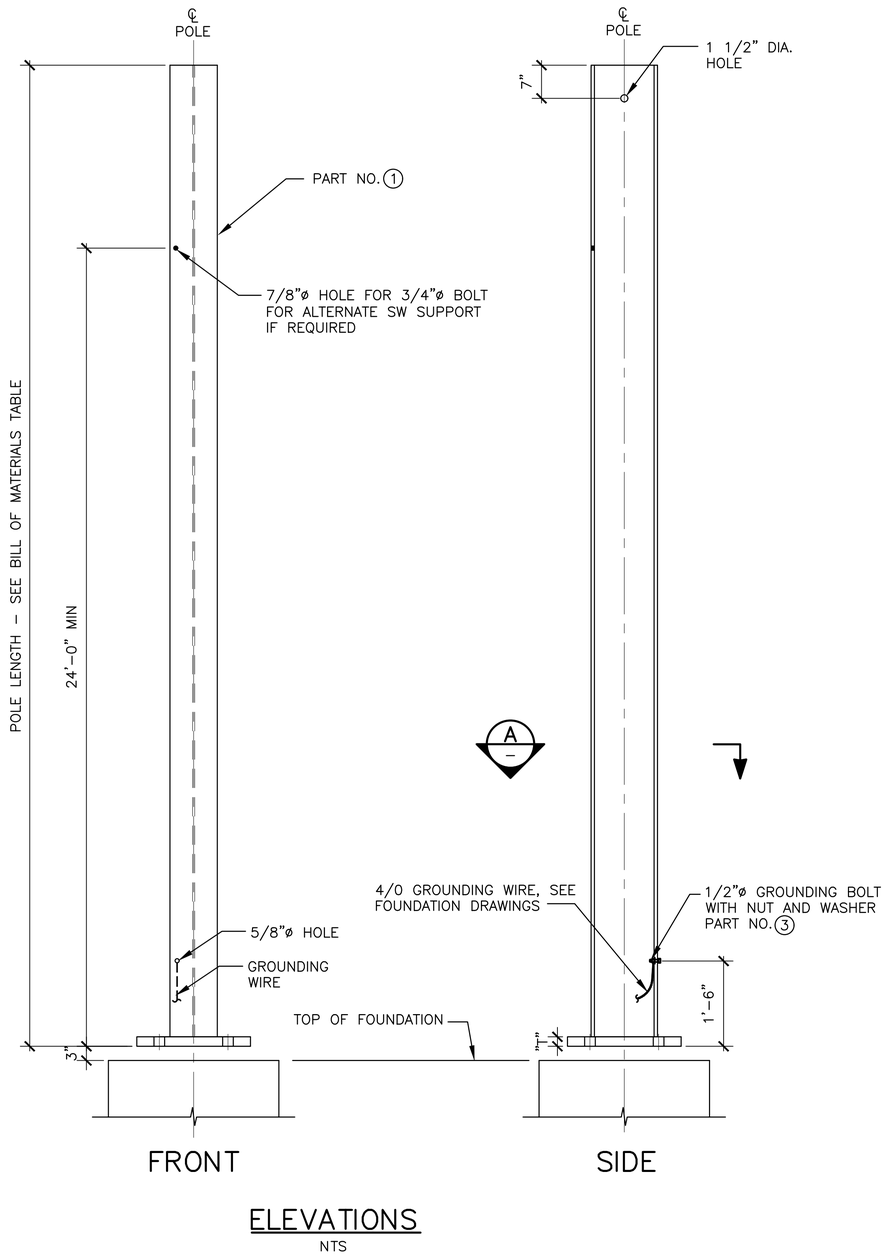
OVERHEAD CONTACT SYSTEM
OCS POLES
TAPERED TUBULAR POLE DETAILS
TYPES TT–1, TT–1A, TT–1B, TT–3A
TT–3B, TT–4, TT–4A AND TT–4B

CADD FILE NAME: SD–W5102

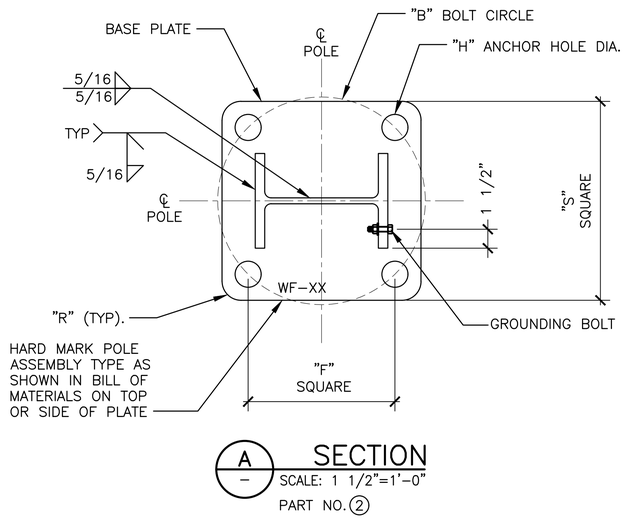
REV: | EDITION: SECOND

SCALE: AS SHOWN

STANDARD DRAWING NO.: SD–W5102



ELEVATIONS
NTS



A – SECTION
SCALE: 1 1/2"=1'–0"
PART NO. (2)

NOTES:

1. FOR GENERAL NOTES, SEE DRAWING SD–W0101.
2. SEE THE BRIDGE ATTACHMENT DRAWINGS FOR POLE LENGTH AND SUPPORT DETAILS.
3. FIELD MEASURE EXISTING CONDITION PRIOR TO FABRICATION. NOTIFY ENGINEER IF DIFFERENT FROM DIMENSIONS SHOWN.
4. 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 "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
TYPE "E"	FOR WF–5X, WF–5AX WF–5BX, WF–5CX	28 & VARIES	19 13/16 & VARIES	3 1/4	2	2 1/2	28.0 & VARIES	2 3/4

QUANTITIES											
1	–	–	–	–	–	–	–	–	POLE – W14 x 61	1	NOTE 2
1	1	1	1	1	1	1	1	1	1/2"ø GROUNDING BOLT	3	
–	–	–	–	–	1	1	1	1	BASE PLATE TYPE "C"	2	
–	1	1	1	1	–	–	–	–	BASE PLATE TYPE "E"	2	NOTE 3
–	–	–	1	–	1	–	–	–	POLE – W14 x 61 x 41'–0" LG	1	NOTE 4
–	–	1	–	–	–	1	–	–	POLE – W14 x 61 x 38'–0" LG	1	NOTE 4
–	1	–	–	–	–	–	1	–	POLE – W14 x 61 x 35'–0" LG	1	NOTE 4
–	–	–	–	1	–	–	–	1	POLE – W14 x 61 x 32'–0" LG	1	NOTE 4
WF–5T	WF–5AX	WF–5BX	WF–5CX	WF–5X	WF–5C	WF–5B	WF–5A	WF–5	DESCRIPTION	PART NO	REMARKS
ASSEMBLY TYPE											
BILL OF MATERIALS											

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

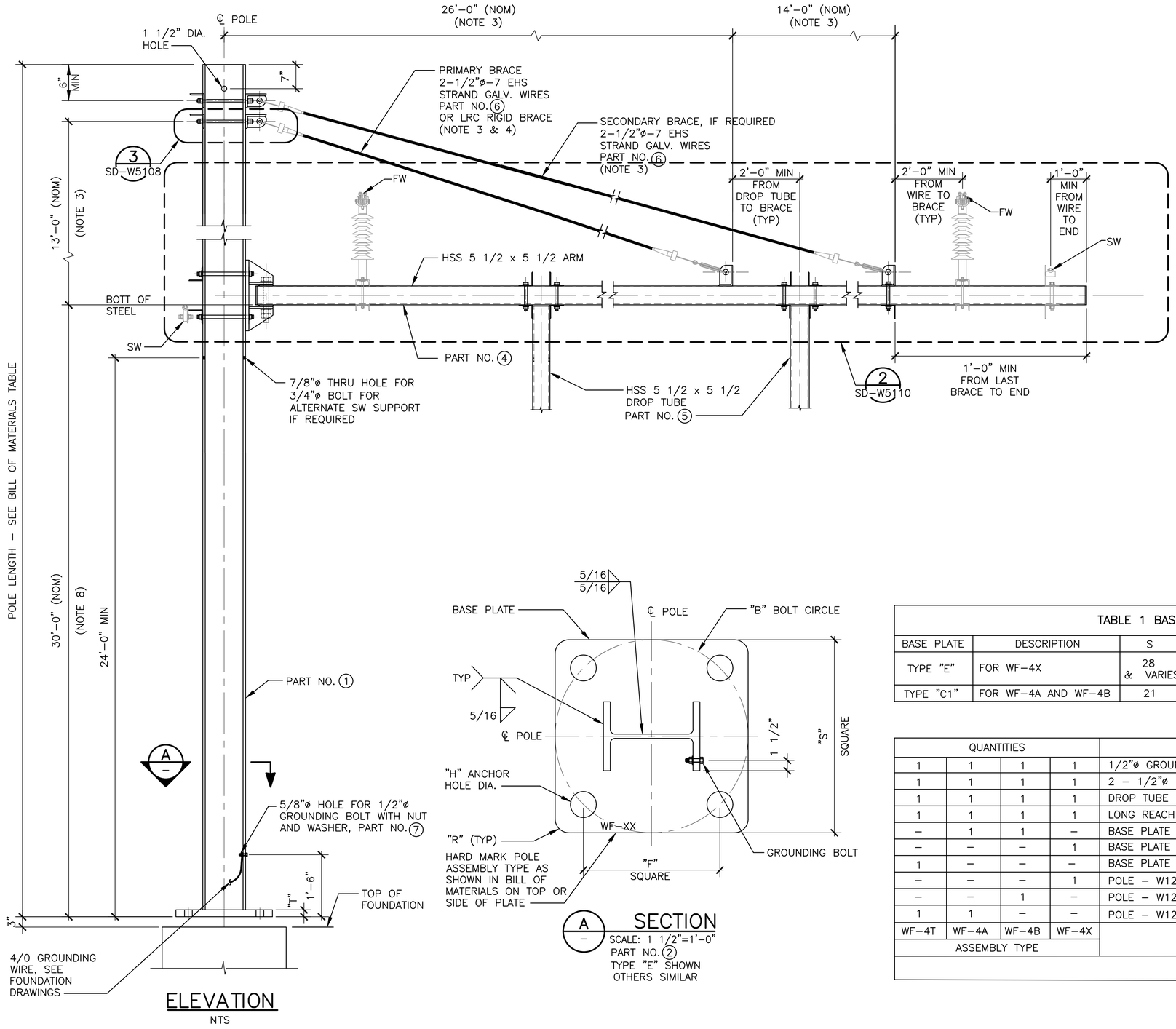
PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
BALANCE WEIGHT ASSEMBLY GUYED
WF–5, WF–5A, WF–5B, WF–5C,
WF–5X, –5AX, –5BX, –5CX & WF–5T

CADD FILE NAME: SD–W5105
REV: EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5105



ELEVATION
NTS

SECTION
SCALE: 1 1/2"=1'–0"
PART NO. 2
TYPE "E" SHOWN
OTHERS SIMILAR

NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. LONG REACH CANTILEVER LENGTH WILL BE DETERMINED BY 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 SD–W5263.
5. FIELD MEASURE EXISTING CONDITION PRIOR TO FABRICATION. NOTIFY ENGINEER IF DIFFERENT FROM DIMENSIONS SHOWN.
6. 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.
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. BOTTOM OF STEEL VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATION DRAWINGS FOR HEIGHT.
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 PROCESS. DURING CONSTRUCTION INSTALL THIS CONNECTION CONCURRENTLY WITH THE BEAM INSTALLATION TO AVOID EXCESSIVE CANTILEVER BREAM ROTATION AND POSSIBLE DAMAGE.

TABLE 1 BASE PLATE DIMENSIONS (IN)

BASE PLATE	DESCRIPTION	S	F	H	R	T	B	ANCHOR BOLT DIA
TYPE "E"	FOR WF–4X	28 & VARIES	19 13/16 & VARIES	3 1/4	2	2 1/2	28 & VARIES	2 3/4
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	1	1/2"ø GROUNDING BOLT	7	
1	1	1	1	2 – 1/2"ø – 7 EHS STRAND GALV. WIRES	6	NOTE 3
1	1	1	1	DROP TUBE – HSS 5 1/2 x 5 1/2 x 3/8 x 9'–0" LG	5	NOTE 6
1	1	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	BASE PLATE TYPE "E"	2	NOTE 5
1	–	–	–	BASE PLATE TYPE "B1"	2	
–	–	–	1	POLE – W12 x 79 x 45'–6" LG	1	NOTE 7
–	–	1	–	POLE – W12 x 87 x 45'–6" LG	1	NOTE 7
1	1	–	–	POLE – W12 x 79 x 45'–6" LG	1	NOTE 7
WF–4T	WF–4A	WF–4B	WF–4X	DESCRIPTION	PART NO.	REMARKS
ASSEMBLY TYPE						

BILL OF MATERIALS

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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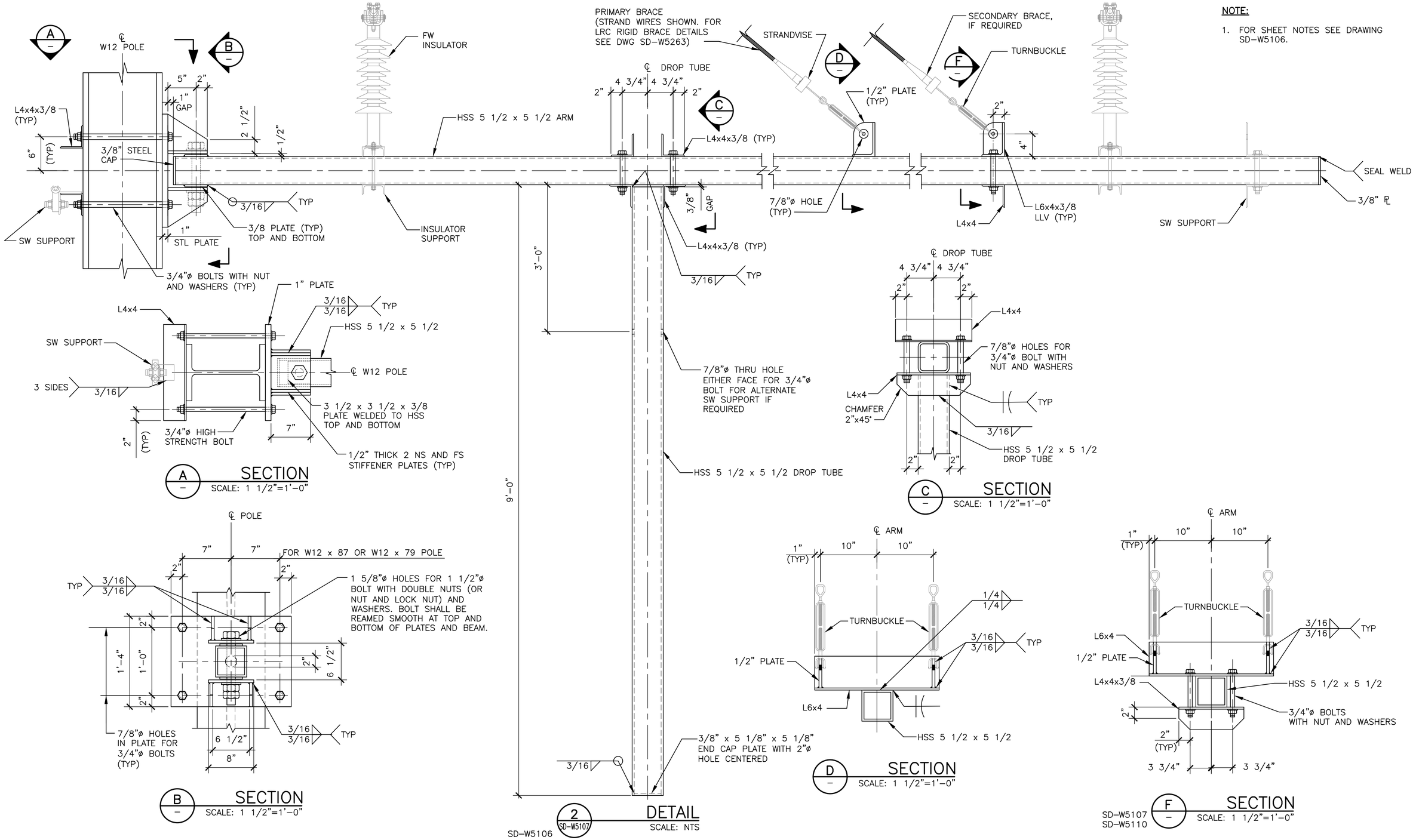
Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
LONG REACH CANTILEVER DETAILS
TYPES WF–4A, WF–4B, WF–4X, WF–4T
SHEET 1 OF 3

CADD FILE NAME: SD–W5106
REV:
EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5106



REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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ENGINEERING STANDARD DRAWINGS

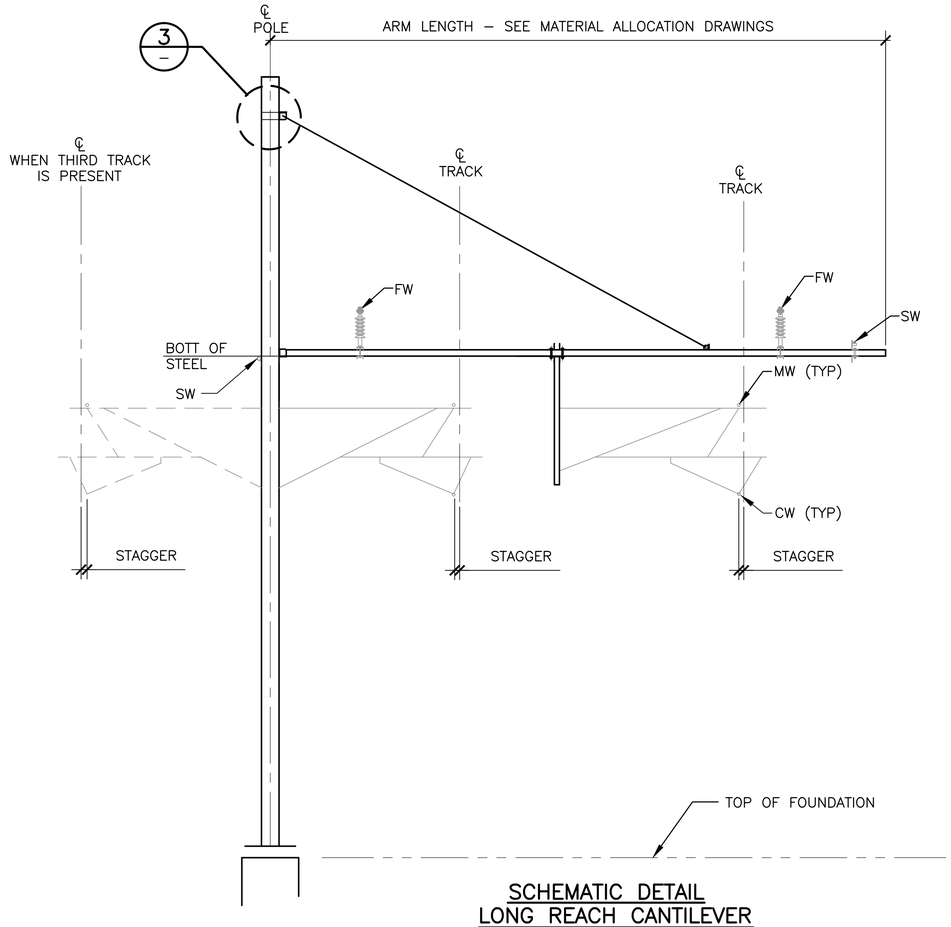
OVERHEAD CONTACT SYSTEM
OCS POLES
LONG REACH CANTILEVER DETAILS
TYPES WF-4A, WF-4B, WF-4X, WF-4T
SHEET 2 OF 3

CADD FILE NAME: SD-W5107

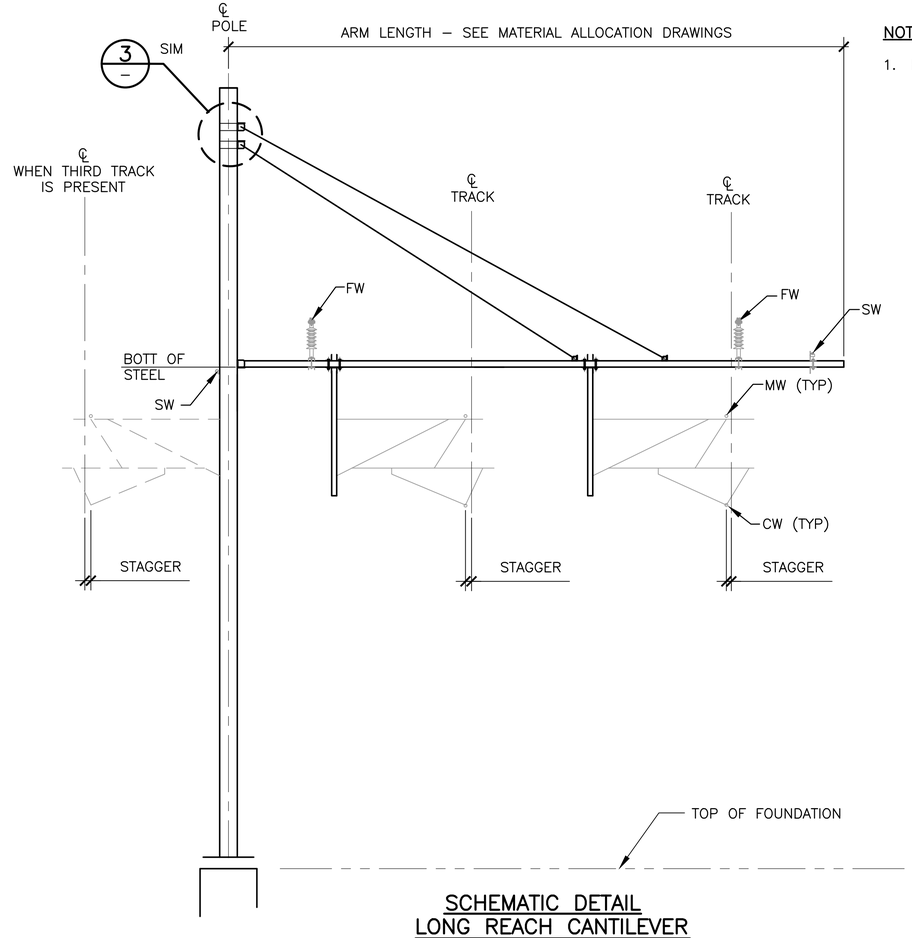
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SCALE: AS SHOWN

STANDARD DRAWING NO.: SD-W5107



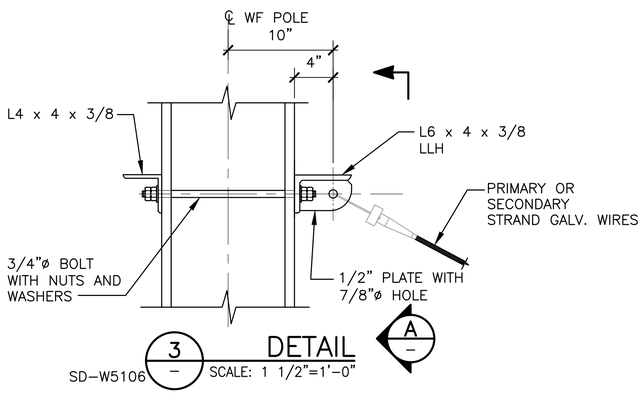
SCHEMATIC DETAIL
LONG REACH CANTILEVER
TYPE WF–4A, WF–4T & WF–4X
NTS

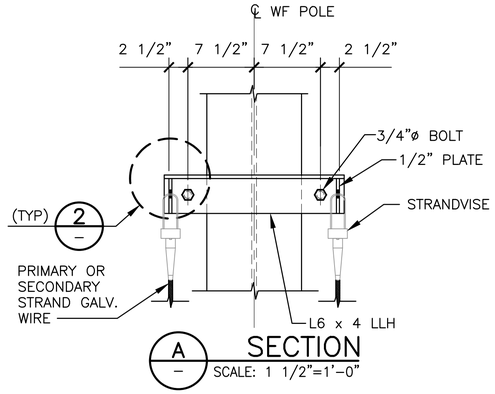


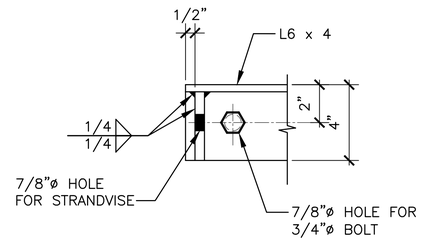
SCHEMATIC DETAIL
LONG REACH CANTILEVER
TYPE WF–4B
NTS

NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.







REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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DIRECTOR, ENGINEERING

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ENGINEERING STANDARD DRAWINGS

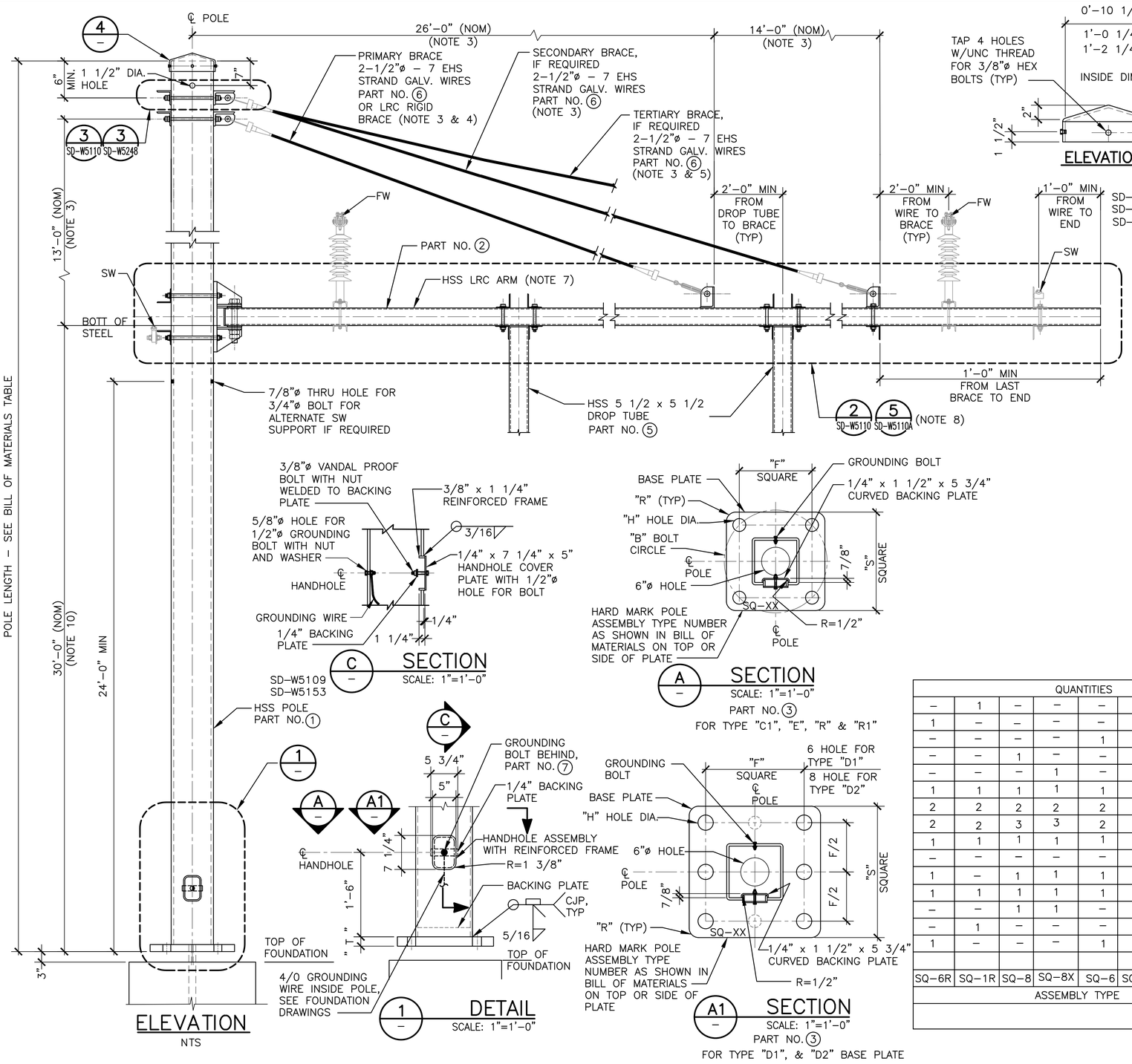
OVERHEAD CONTACT SYSTEM
OCS POLES
LONG REACH CANTILEVER DETAILS
TYPES WF–4A, WF–4B, WF–4X, WF–4T
SHEET 3 OF 3

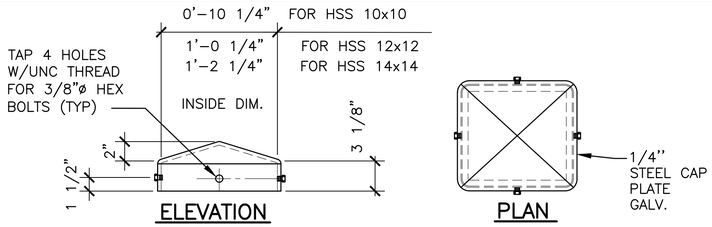
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REV: | EDITION: SECOND

SCALE: AS SHOWN

STANDARD DRAWING NO.: SD–W5108





4 — DETAIL
SCALE: 1 1/2"=1'–0"
PART NO. ④

SD–W5114
SD–W5139
SD–W5153

NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. LONG REACH CANTILEVER LENGTH WILL BE DETERMINED BY 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 SD–W5263.
5. IF TERTIARY BRACE IS REQUIRED SEE DRAWING SD–W5246 FOR ATTACHMENTS AND DETAILS NOT SHOWN.
6. FIELD MEASURE EXISTING CONDITION PRIOR TO FABRICATION. NOTIFY ENGINEER IF DIFFERENT FROM DIMENSIONS SHOWN.
7. 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

NOTES: (CONT'D)

8. 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.
9. 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.
10. BOTTOM OF STEEL VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATION DRAWINGS FOR HEIGHT.

TABLE 1 BASE PLATE DIMENSIONS (IN)

BASE PLATE	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 "E"	BASE PLATE FOR SQ–1X, SQ–6X & SQ–8X	28 & VARIES	19 13/16 & VARIES	3 1/4	2	2 1/2	28 & VARIES	2 3/4
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								DESCRIPTION	PART NO.	REMARKS
–	1	–	–	–	–	–	–	BASE PLATE TYPE "R"	3	
1	–	–	–	–	–	–	–	BASE PLATE TYPE "R1"	3	
–	–	–	–	1	–	–	–	BASE PLATE TYPE "D1"	3	
–	–	1	–	–	–	–	–	BASE PLATE TYPE "D2"	3	
–	–	–	1	–	1	–	1	BASE PLATE TYPE "E"	3	NOTE 6
1	1	1	1	1	1	1	1	1/2"ø GROUNDING BOLT	7	
2	2	2	2	2	2	2	2	2 – 1/2"ø – 7 EHS STRAND GALV. WIRES	6	NOTE 3
2	2	3	3	2	2	2	2	DROP TUBE HSS 5 1/2 x 5 1/2 x 3/8 x 9'–0"	5	NOTE 9
1	1	1	1	1	1	1	1	REMOVABLE CAP PLATE	4	
–	–	–	–	–	–	1	–	BASE PLATE TYPE "C1"	3	
1	–	1	1	1	1	–	–	LONG REACH CANTILEVER HSS 10 x 10 x 3/16 LENGTH VARIES	2	NOTE 2 & 7
1	1	1	1	1	1	1	1	LONG REACH CANTILEVER HSS 5 1/2 x 5 1/2 x 3/8 LENGTH VARIES	2	NOTE 2 & 7
–	–	1	1	–	–	–	–	POLE – HSS 14 x 14 x 5/8 x 45'–6" LG	1	NOTE 8
–	1	–	–	–	–	1	1	POLE – HSS 12 x 12 x 1/2 x 45'–6" LG	1	NOTE 8
1	–	–	–	1	1	–	–	POLE – HSS 12 x 12 x 5/8 x 45'–6" LG	1	NOTE 8
SQ–6R	SQ–1R	SQ–8	SQ–8X	SQ–6	SQ–6X	SQ–1	SQ–1X			
ASSEMBLY TYPE										

BILL OF MATERIALS

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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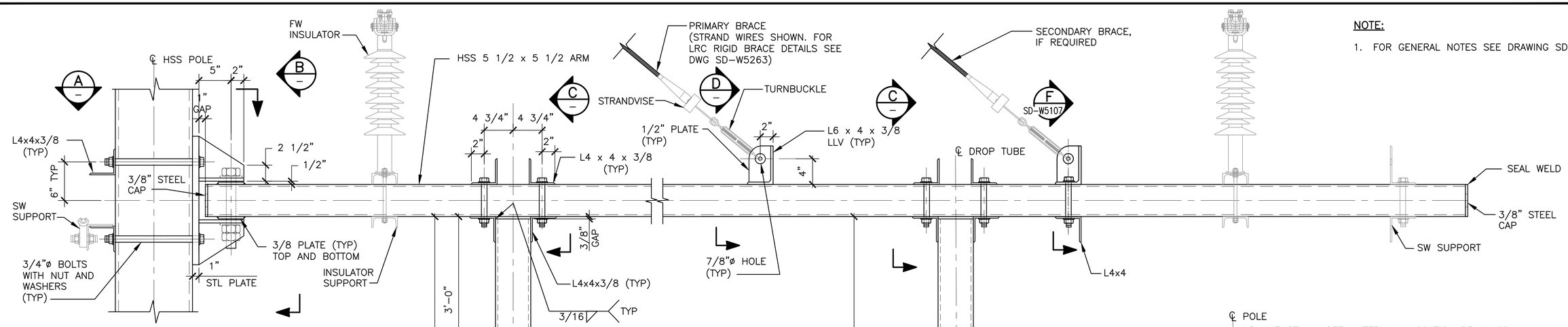
ENGINEERING STANDARD DRAWINGS

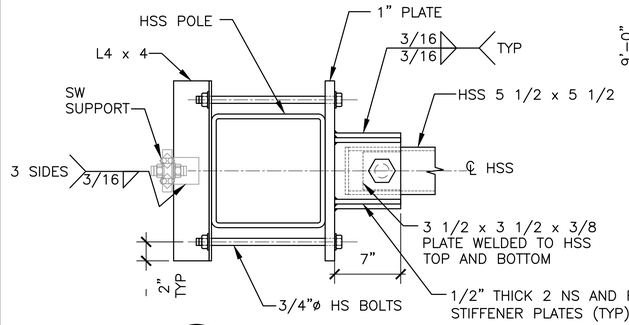
OVERHEAD CONTACT SYSTEM
OCS POLES
LONG REACH CANTILEVER DETAILS
TYPES SQ–1, SQ–1R, SQ–1X, SQ–6, SQ–6X, SQ–6R, SQ–8 & SQ–8X (SHEET 1 OF 3)

CADD FILE NAME: SD–W5109
REV: EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5109

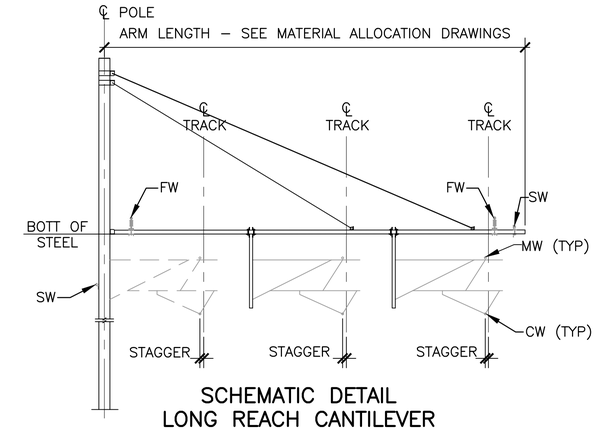
NOTE:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.



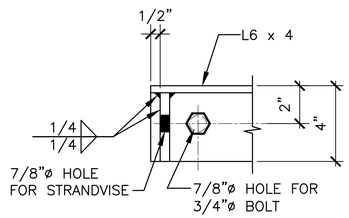


A — SECTION
SCALE: 1 1/2"=1'–0"

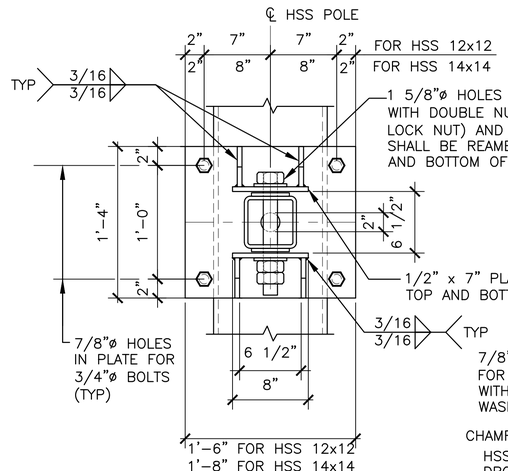


SCHEMATIC DETAIL
LONG REACH CANTILEVER
TYPES SQ–1, SQ–1R, SQ–1X, SQ–6, SQ–6R, SQ–6X, SQ–8 & SQ–8X
SCALE: NTS

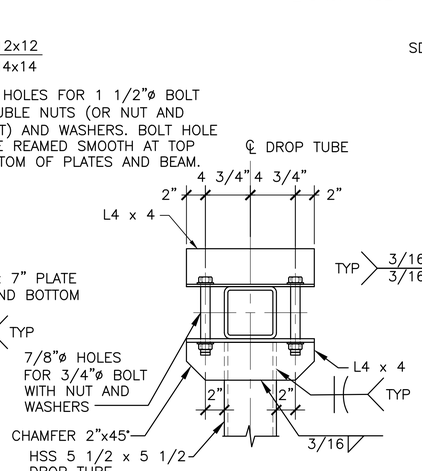
2 — DETAIL
SD–W5109
SCALE: NTS



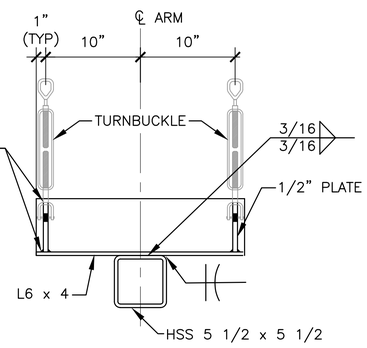
4 — DETAIL
SCALE: 3"=1'–0"



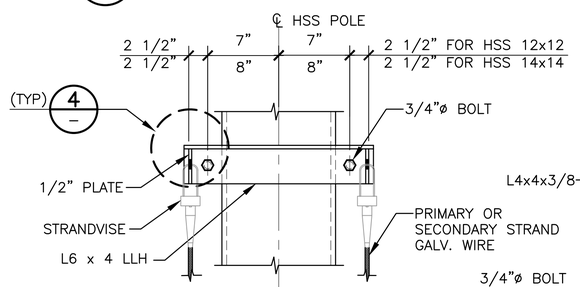
B — SECTION
SCALE: 1 1/2"=1'–0"



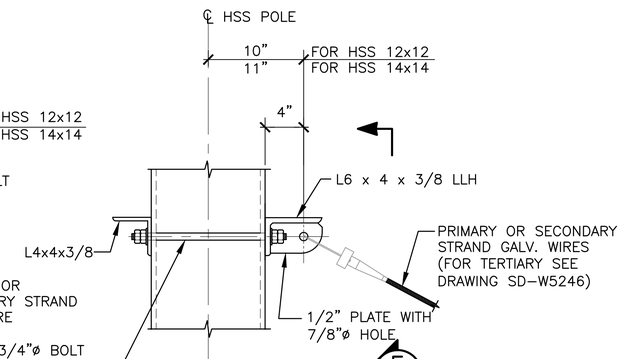
C — SECTION
SCALE: 1 1/2"=1'–0"



D — SECTION
SCALE: 1 1/2"=1'–0"



E — SECTION
SCALE: 1 1/2"=1'–0"



3 — DETAIL — E
SCALE: 1 1/2"=1'–0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

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Caltrain

ENGINEERING STANDARD DRAWINGS

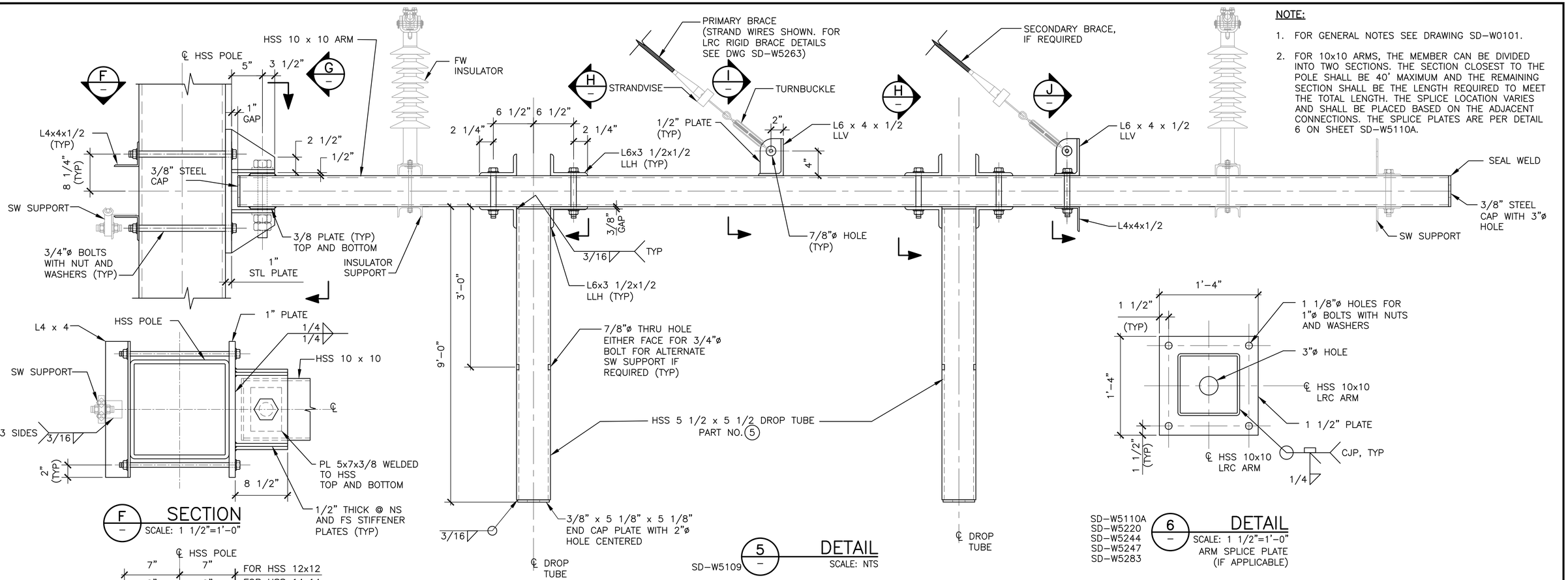
OVERHEAD CONTACT SYSTEM
OCS POLES
LONG REACH CANTILEVER DETAILS
TYPES SQ–1, SQ–1R, SQ–1X, SQ–6, SQ–6X, SQ–6R, SQ–8 & SQ–8X (SHEET 2 OF 3)

CADD FILE NAME: SD–W5110

REV: | EDITION: SECOND

SCALE: AS SHOWN

STANDARD DRAWING NO.: SD–W5110



F — SECTION
SCALE: 1 1/2"=1'-0"

5 — DETAIL
SD-W5109
SCALE: NTS

SD-W5110A
SD-W5220
SD-W5244
SD-W5247
SD-W5283
6 — DETAIL
SCALE: 1 1/2"=1'-0"
ARM SPLICE PLATE (IF APPLICABLE)

G — SECTION
SCALE: 1 1/2"=1'-0"

H — SECTION
SCALE: 1 1/2"=1'-0"

I — SECTION
SCALE: 1"=1'-0"

J — SECTION
SCALE: 1"=1'-0"

NOTE:

1. FOR GENERAL NOTES SEE DRAWING SD-W0101.
2. FOR 10x10 ARMS, THE MEMBER CAN BE DIVIDED INTO TWO SECTIONS. THE SECTION CLOSEST TO THE POLE SHALL BE 40' MAXIMUM AND THE REMAINING SECTION SHALL BE THE LENGTH REQUIRED TO MEET THE TOTAL LENGTH. THE SPLICE LOCATION VARIES AND SHALL BE PLACED BASED ON THE ADJACENT CONNECTIONS. THE SPLICE PLATES ARE PER DETAIL 6 ON SHEET SD-W5110A.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

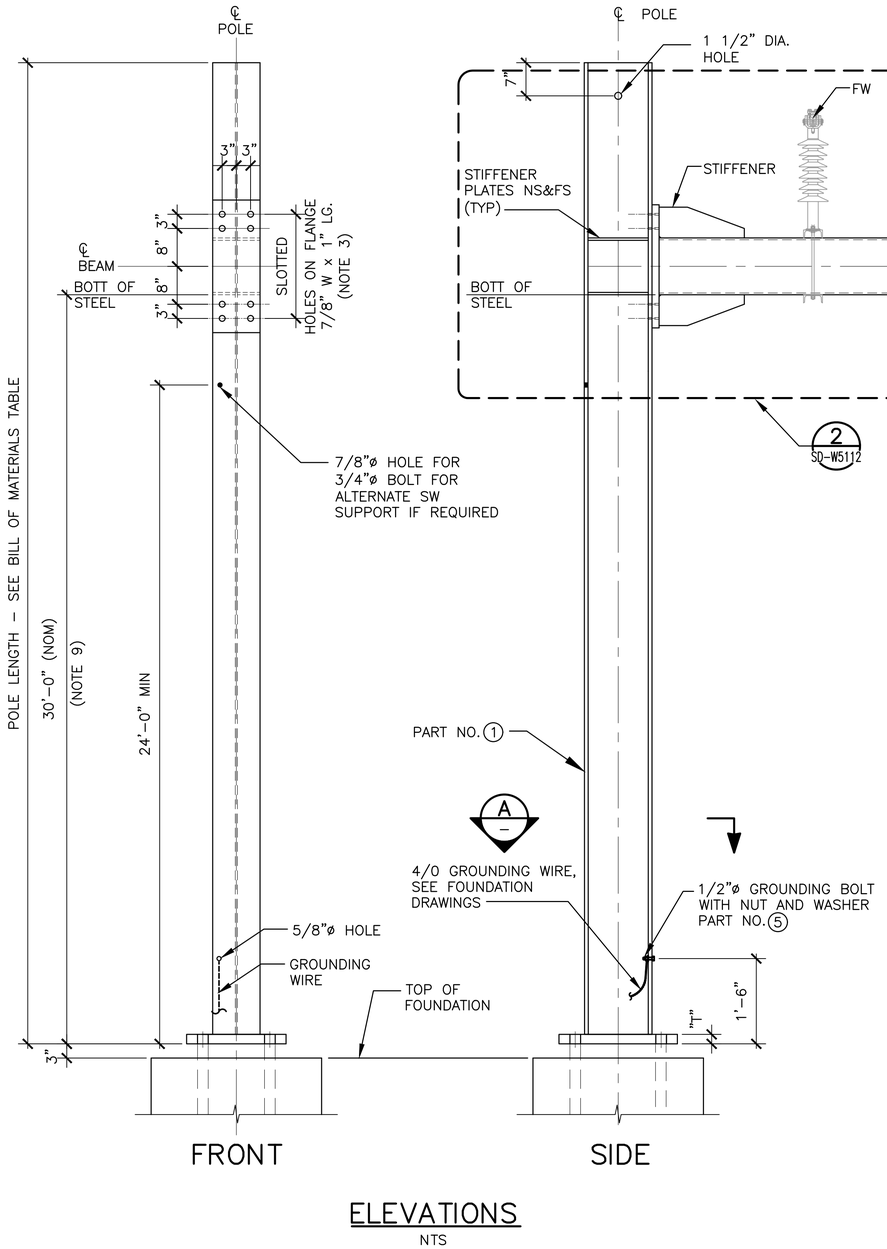
DIRECTOR, ENGINEERING

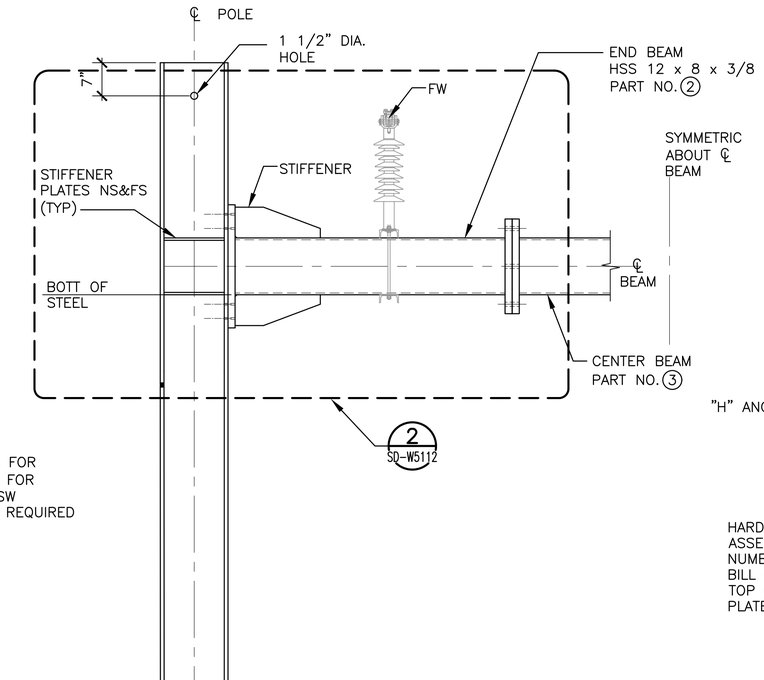
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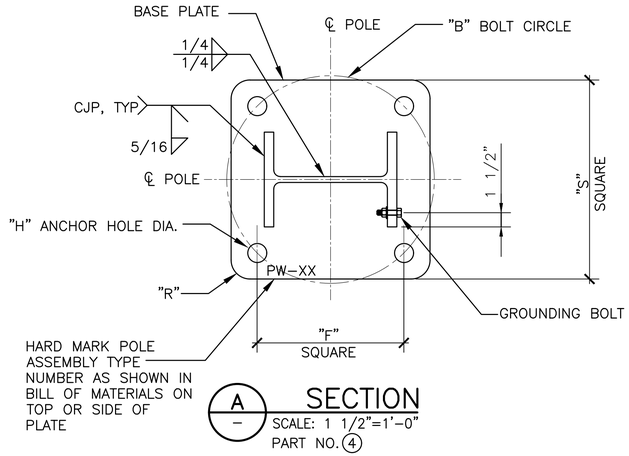
ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
LONG REACH CANTILEVER DETAILS
TYPES SQ-1, SQ-1R, SQ-1X, SQ-6, SQ-6X, SQ-6R, SQ-8 & SQ-8X (SHEET 3 OF 3)

CADD FILE NAME:	SD-W5110A
REV: / EDITION:	SECOND
SCALE:	AS SHOWN
STANDARD DRAWING NO.:	SD-W5110A







NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. HORIZONTAL BEAM LENGTH WILL BE DETERMINED BY FIELD AT EACH LOCATION PRIOR TO FABRICATION.
3. ALL HOLES ON MAST, BEAMS AND MISCELLANEOUS STEEL SHALL BE PRE–DRILLED AT SHOP PRIOR TO GALVANIZING
4. ALL PORTAL POLES SHALL BE SET PLUMB WITH NO RAKE TO ENSURE PROPER CONNECTION WITH HORIZONTAL BEAM.
5. FIELD MEASURE EXISTING CONDITION PRIOR TO FABRICATION. NOTIFY ENGINEER IF DIFFERENT FROM DIMENSIONS SHOWN.
6. NOTIFY ENGINEER IF ANY WIRES ARE TERMINATED ON THE PORTAL BEAM AND THE BEAM SECTION SHALL BE EVALUATED ON A CASE SPECIFIC BASIS.
7. SEE MATERIAL ALLOCATION DRAWINGS FOR REQUIRED POLE HEIGHTS AT EACH TRACK SIDE LOCATION IF VARIES.
8. 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.
9. BOTTOM OF STEEL VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATION DRAWINGS FOR HEIGHT.

ELEVATIONS
NTS

TABLE 1 BASE PLATE DIMENSIONS (IN)

BASE PLATE	DESCRIPTION	S	F	H	R	T	B	ANCHOR BOLT DIA
TYPE "C"	TYPES PW–1, PW–2 AND PW–2A	21	15 1/2	2 1/16	2	2 1/2	21.92	1 3/4
TYPE "E"	TYPE PW–2AX	28 & VARIES	19 13/16 & VARIES	3 1/4	2	2 1/2	28 & VARIES	2 3/4

QUANTITIES							
	1	1	1	1	DROP TUBE HSS 5 1/2 x 5 1/2 x 3/8 x 10'–0"	6	
	1	1	1	1	DROP TUBE HSS 5 1/2 x 5 1/2 x 3/8 x 9'–0"	6	
	2	2	2	2	1/2"ø GROUNDING BOLT	5	
	–	2	2	2	BASE PLATE TYPE "C"	4	
	2	–	–	–	BASE PLATE TYPE "E"	4	NOTE 5
	1	1	1	1	CENTER BEAM – HSS 12 x 8 x 3/8 – LENGTH VARIES	3	NOTE 2, 6
	2	2	2	2	END BEAM – HSS 12 x 8 x 3/8 x 5'–0" LG.	2	NOTE 6
	–	–	–	2	POLE – W14 x 74 x 43'–0" LG.	1	
	1	1	–	–	POLE – W14 X 74 X 43'–0" LG.	1	NOTE 7, 8
	1	1	2	–	POLE – W14 x 74 x 34'–0" LG.	1	NOTE 7 8
	PW–2AX	PW–2A	PW–1	PW–2	DESCRIPTION	PART NO	REMARKS
ASSEMBLY TYPE							

BILL OF MATERIALS

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

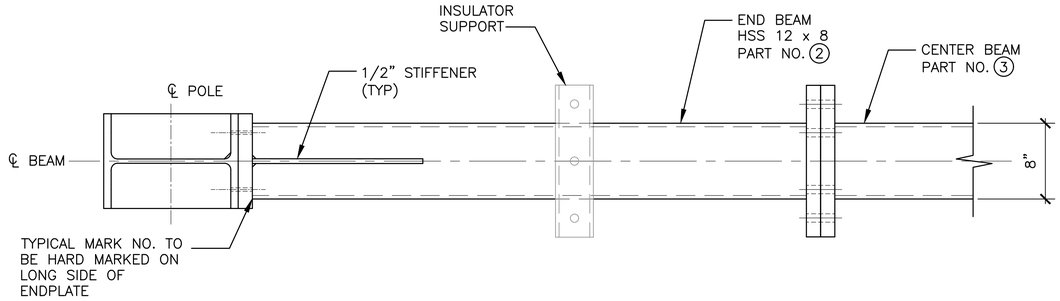
ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTAL TYPES PW–1 THRU PW–2
SINGLE SPAN PORTAL DETAILS
FOR SPANS FROM 45 TO 65 FEET
SHEET 1 OF 3

CADD FILE NAME: SD–W5111
REV: | EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5111

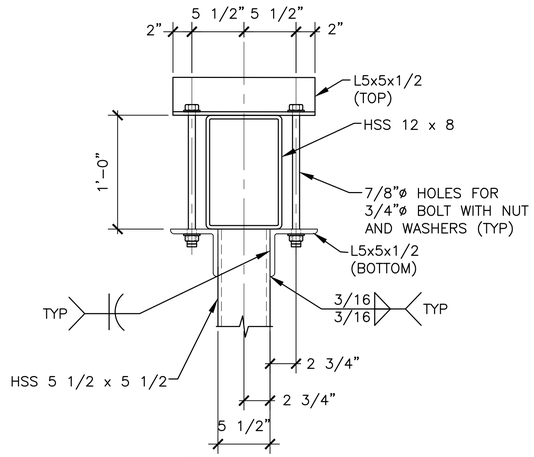
NOTE:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. FOR CENTER BEAMS WITH "L2" LENGTH OVER 40', THE BEAM SHOULD BE DIVIDED INTO THREE SECTIONS. THE CENTER SECTION SHOULD BE 40' AND THE TWO REMAINING SECTIONS SHOULD BE EQUAL AND THE LENGTH REQUIRED TO MEET THE TOTAL LENGTH. THE THREE SECTIONS SHALL BE ASSEMBLED FOR CAMBERING. CONNECTIONS SHOULD BE THE SAME AS BETWEEN THE CENTER AND END BEAMS.



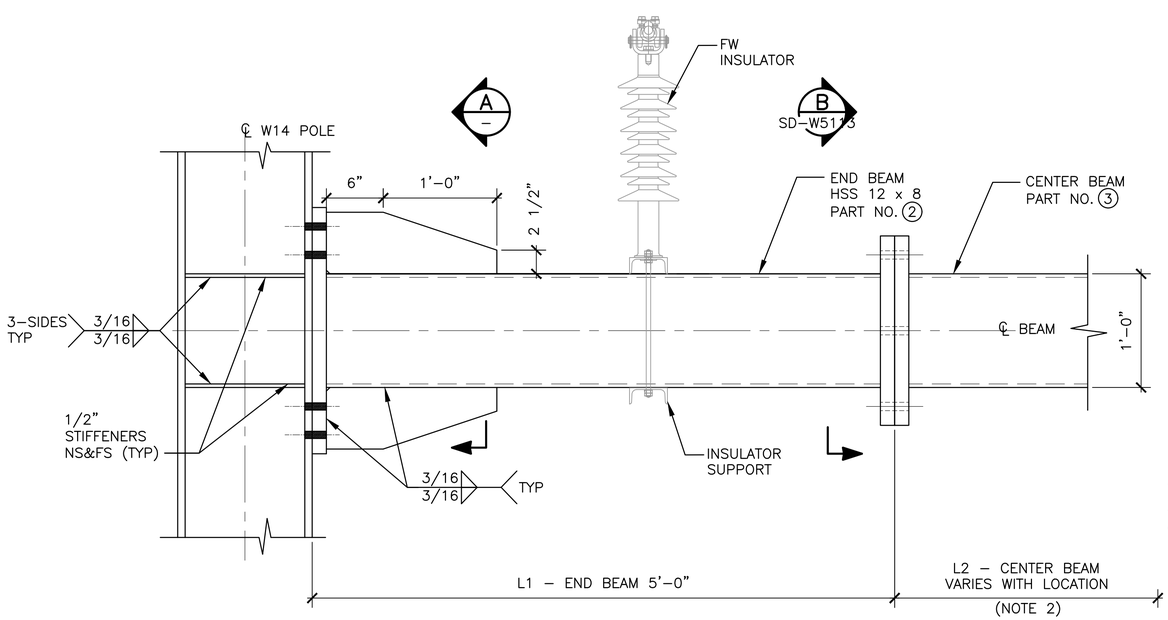
PLAN

SCALE: 1 1/2"=1'–0"



C – SD–W5113 — SECTION

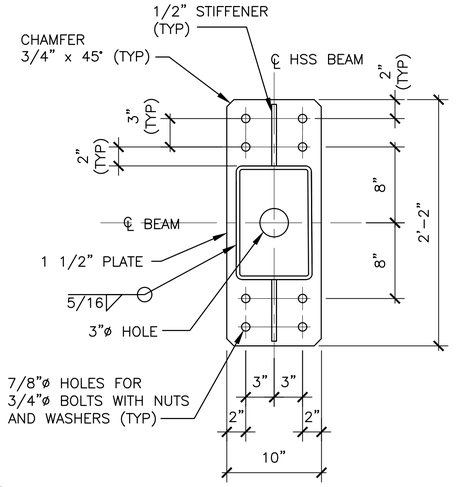
SCALE: 1 1/2"=1'–0"



ELEVATION

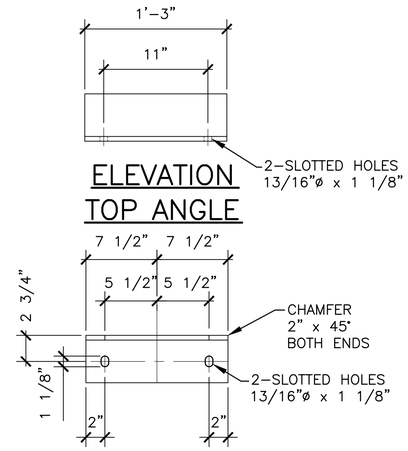
2 – SD–W5111 — DETAIL

SCALE: 1 1/2"=1'–0"



A – SECTION

SCALE: 1 1/2"=1'–0"



1 – SD–W5113 — DETAIL

SCALE: 1 1/2"=1'–0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTAL TYPES PW–1 THRU PW–2
SINGLE SPAN PORTAL DETAILS
FOR SPANS FROM 45 TO 65 FEET
SHEET 2 OF 3

CADD FILE NAME: SD–W5112

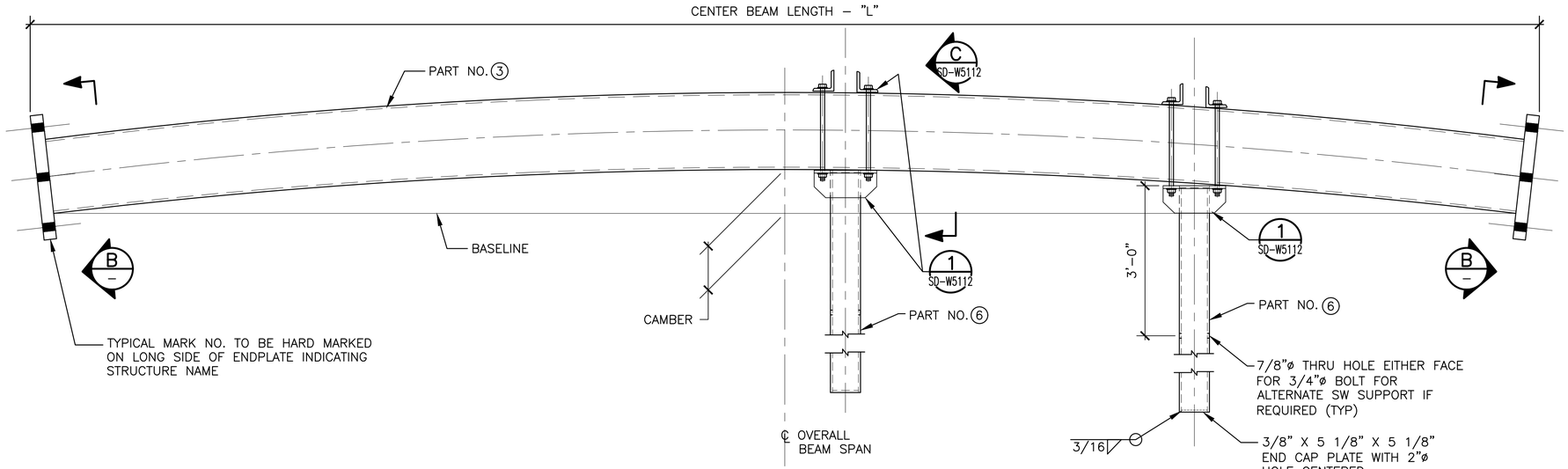
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SCALE: AS SHOWN

STANDARD DRAWING NO.: SD–W5112

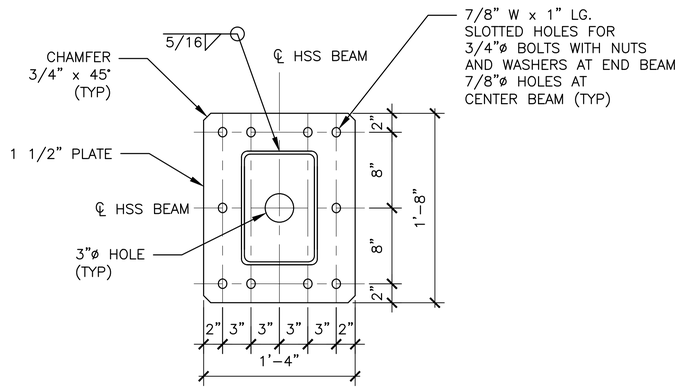
NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.



HSS 12 x 8 x 3/8 CENTER BEAM

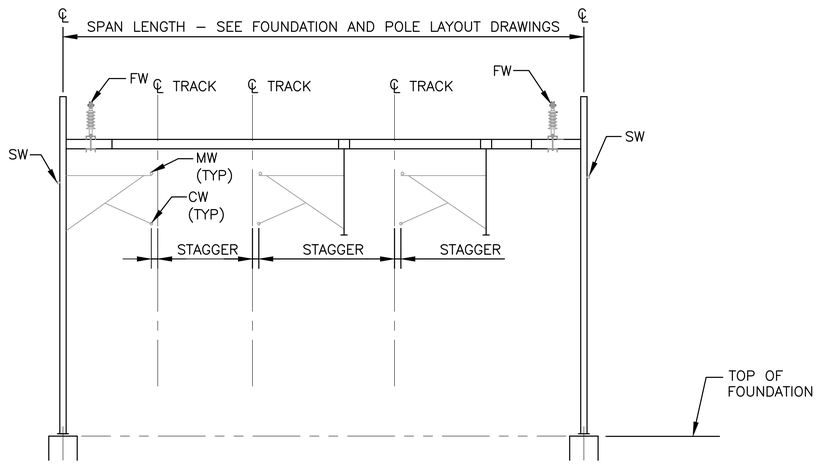
NTS



B – SECTION

SD–W5112
SD–W5113

SCALE: 1 1/2"=1'–0"



SCHEMATIC DETAIL THREE TRACK PORTAL

NTS

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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DIRECTOR, ENGINEERING

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ENGINEERING STANDARD DRAWINGS

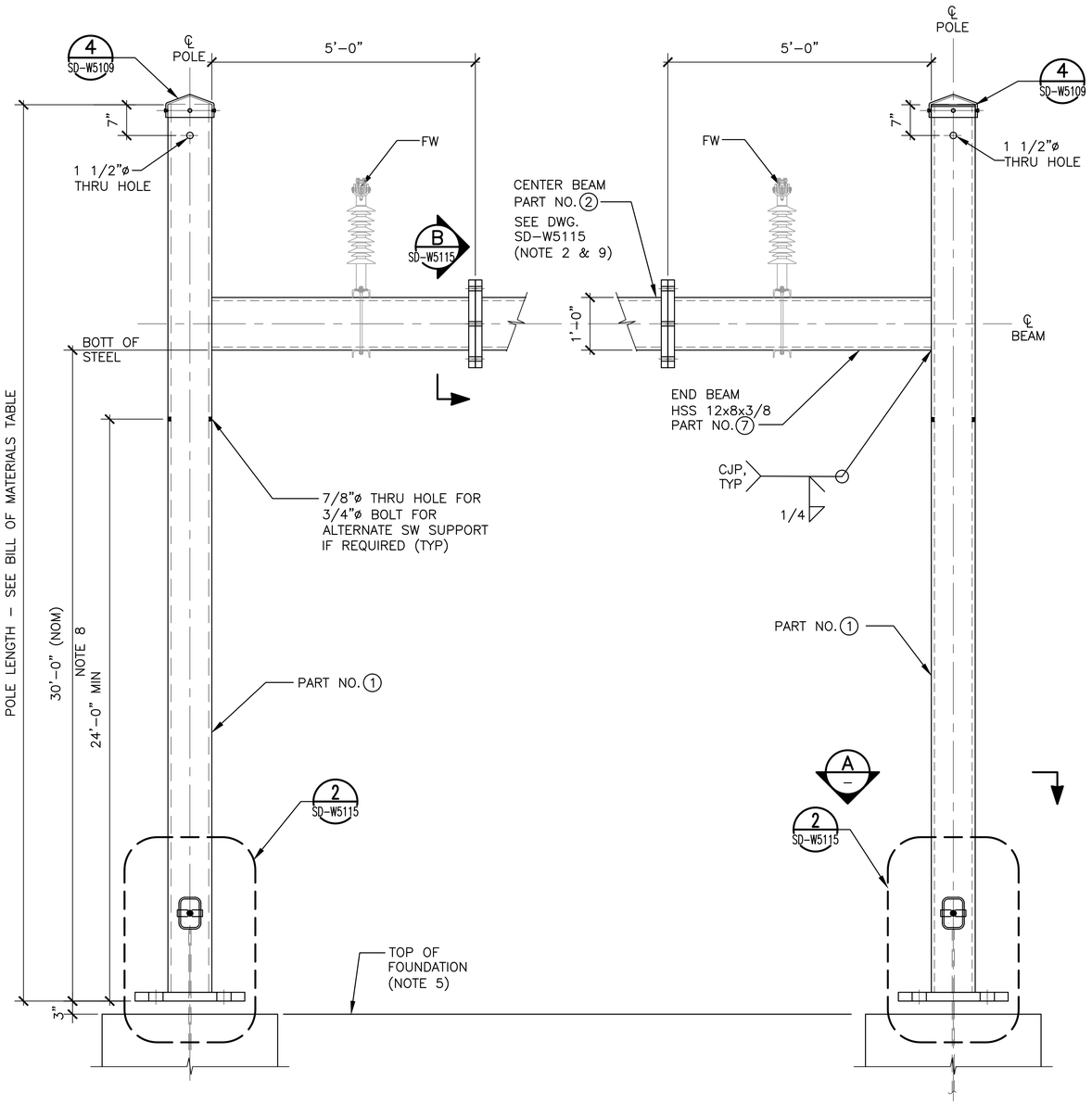
OVERHEAD CONTACT SYSTEM
OCS PORTAL TYPES PW–1 THRU PW–2
SINGLE SPAN PORTAL DETAILS
FOR SPANS FROM 45 TO 65 FEET
SHEET 3 OF 3

CADD FILE NAME: SD–W5113

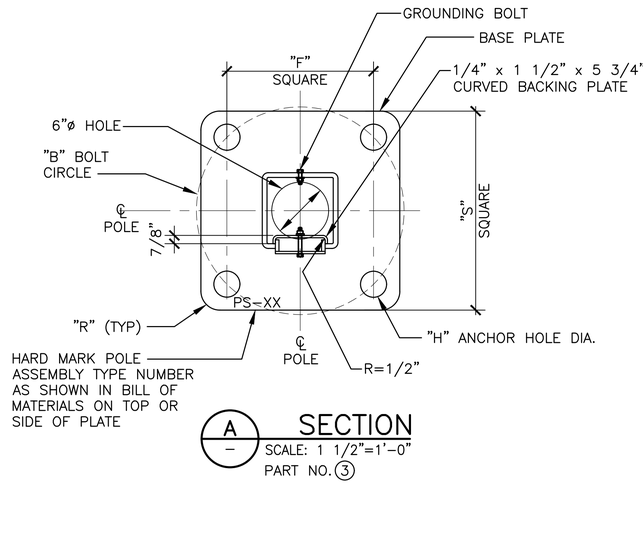
REV: | EDITION: SECOND

SCALE: AS SHOWN

STANDARD DRAWING NO.: SD–W5113



POLE ELEVATION
NTS



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

NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD-W0101.
2. HORIZONTAL BEAM LENGTH WILL BE DETERMINED BY FIELD AT EACH LOCATION PRIOR TO FABRICATION.
3. ALL PORTAL MASTS, BEAMS AND MISCELLANEOUS STEEL SHALL BE PRE-DRILLED IN SHOP PRIOR TO GALVANIZING.
4. ALL PORTAL POLES SHALL BE SET PLUMB WITH NO RAKE TO ENSURE PROPER CONNECTION WITH HORIZONTAL BEAM.
5. 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.
6. NOTIFY ENGINEER IF ANY WIRES ARE TERMINATED ON THE PORTAL BEAM AND THE BEAM SECTION SHALL BE EVALUATED ON A CASE SPECIFIC BASIS.
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. BOTTOM OF STEEL VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATION DRAWINGS FOR HEIGHT.
9. FOR CENTER BEAMS WITH A LENGTH OVER 40', THE BEAM SHOULD BE DIVIDED INTO THREE SECTIONS. THE CENTER SECTION SHOULD BE 40' AND THE TWO REMAINING SECTIONS SHOULD BE EQUAL AND THE LENGTH REQUIRED TO MEET THE TOTAL LENGTH. THE THREE SECTIONS SHALL BE ASSEMBLED FOR CAMBERING. CONNECTIONS SHOULD BE THE SAME AS BETWEEN THE CENTER AND END BEAMS.

TABLE 1 BASE PLATE DIMENSIONS (IN)

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

QUANTITIES					
	1	1	DROP TUBE HSS 5 1/5 x 5 1/2 x 3/8 x 10'-0"	6	NOTE 5
	1	1	DROP TUBE HSS 5 1/5 x 5 1/2 x 3/8 x 9'-0"	6	NOTE 5
	2	2	1/2"ø GROUNDING BOLT	5	
	2	2	REMOVABLE CAP PLATE	4	
	2	2	BASE PLATE TYPE "C1"	3	
	2	2	END BEAM – HSS 12 x 8 x 3/8 x 5'-0" LG.	7	NOTE 6
	1	1	CENTER BEAM HSS 12 x 8 x 3/8 – LENGTH VARIES	2	NOTE 2, 6
	–	2	POLE – HSS 10 x 10 x 1/2 x 35'-0" LG.	1	NOTE 7
	2	–	POLE – HSS 10 x 10 x 1/2 x 34'-0" LG.	1	NOTE 7
PS-1	PS-2	DESCRIPTION		PART NO	REMARKS
ASSEMBLY TYPE					

BILL OF MATERIALS

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

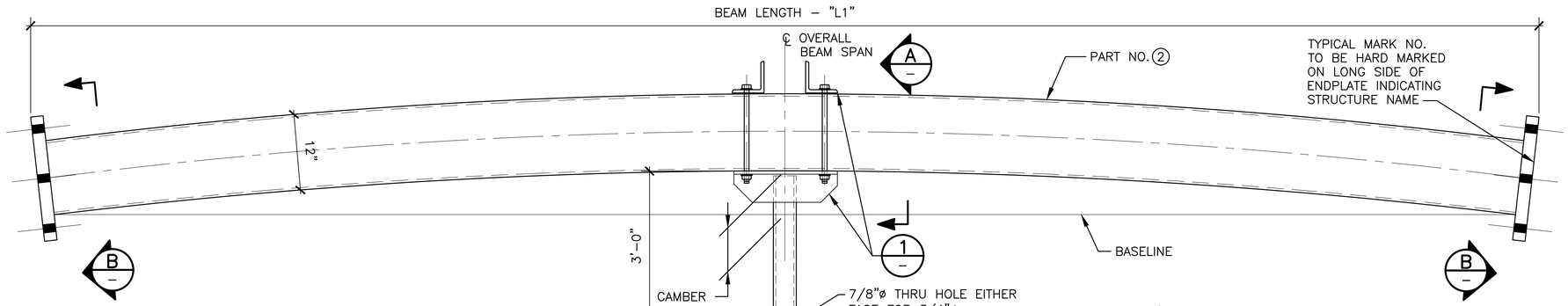
ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTAL TYPE PS-1 AND PS-2
SINGLE SPAN PORTAL DETAILS
FOR SPANS FROM 45 TO 65 FEET
SHEET 1 OF 2

CADD FILE NAME: SD-W5114
REV: | EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD-W5114

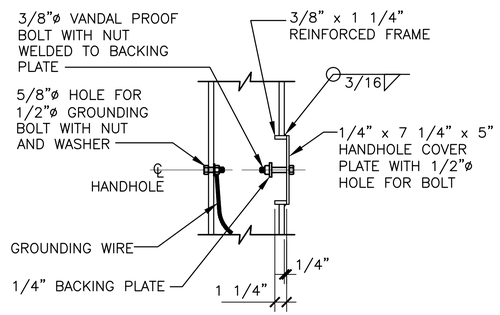
NOTE:

1. FOR GENERAL NOTES SEE DRAWING SD-W0101.

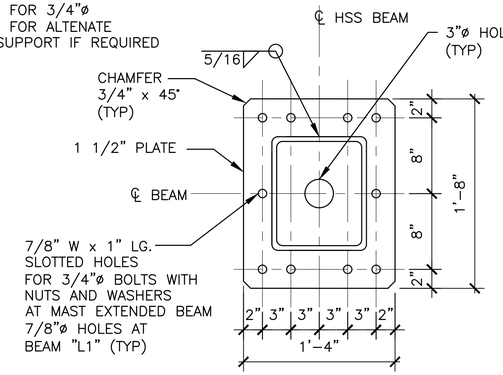


HSS 12 x 8 x 3/8 CENTER BEAM

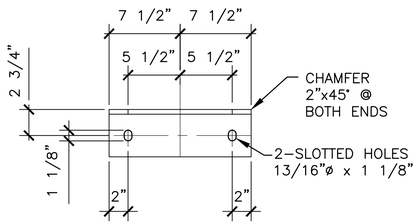
NTS



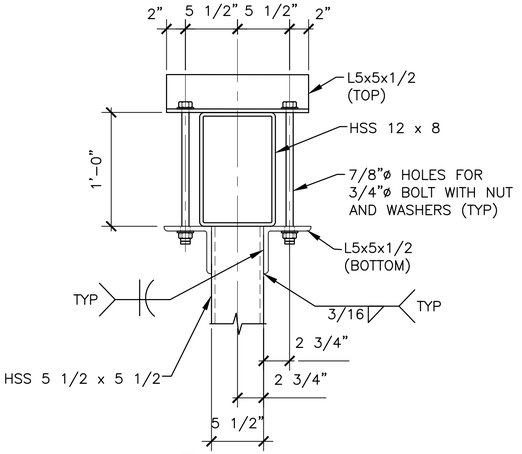
D – SECTION
SCALE: 1 1/2"=1'-0"



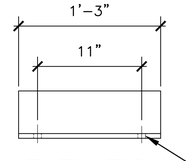
B – SECTION
SCALE: 1 1/2"=1'-0"
SD-W5114
SD-W5115



PLAN
BOTTOM ANGLE

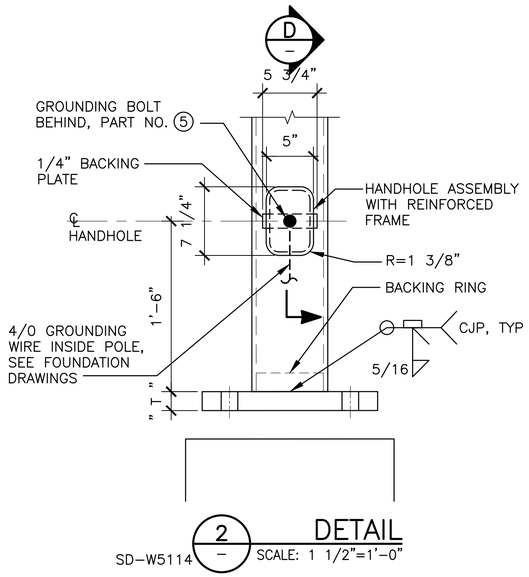


A – SECTION
SCALE: 1 1/2"=1'-0"

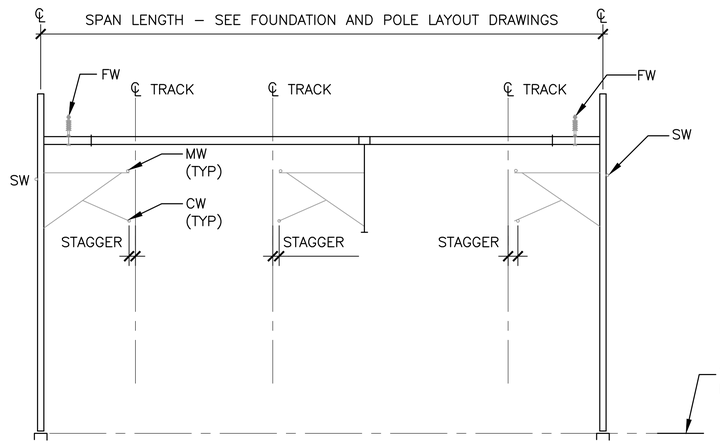


ELEVATION
TOP ANGLE

1 – DETAIL
SCALE: 1 1/2"=1'-0"

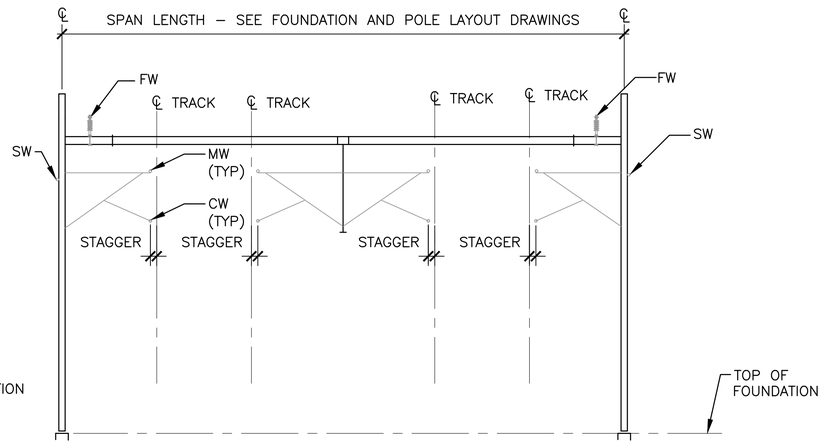


2 – DETAIL
SD-W5114
SCALE: 1 1/2"=1'-0"



SCHEMATIC DETAIL THREE TRACK PORTAL PS-1

NTS



SCHEMATIC DETAIL FOUR TRACK PORTAL PS-2

NTS

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

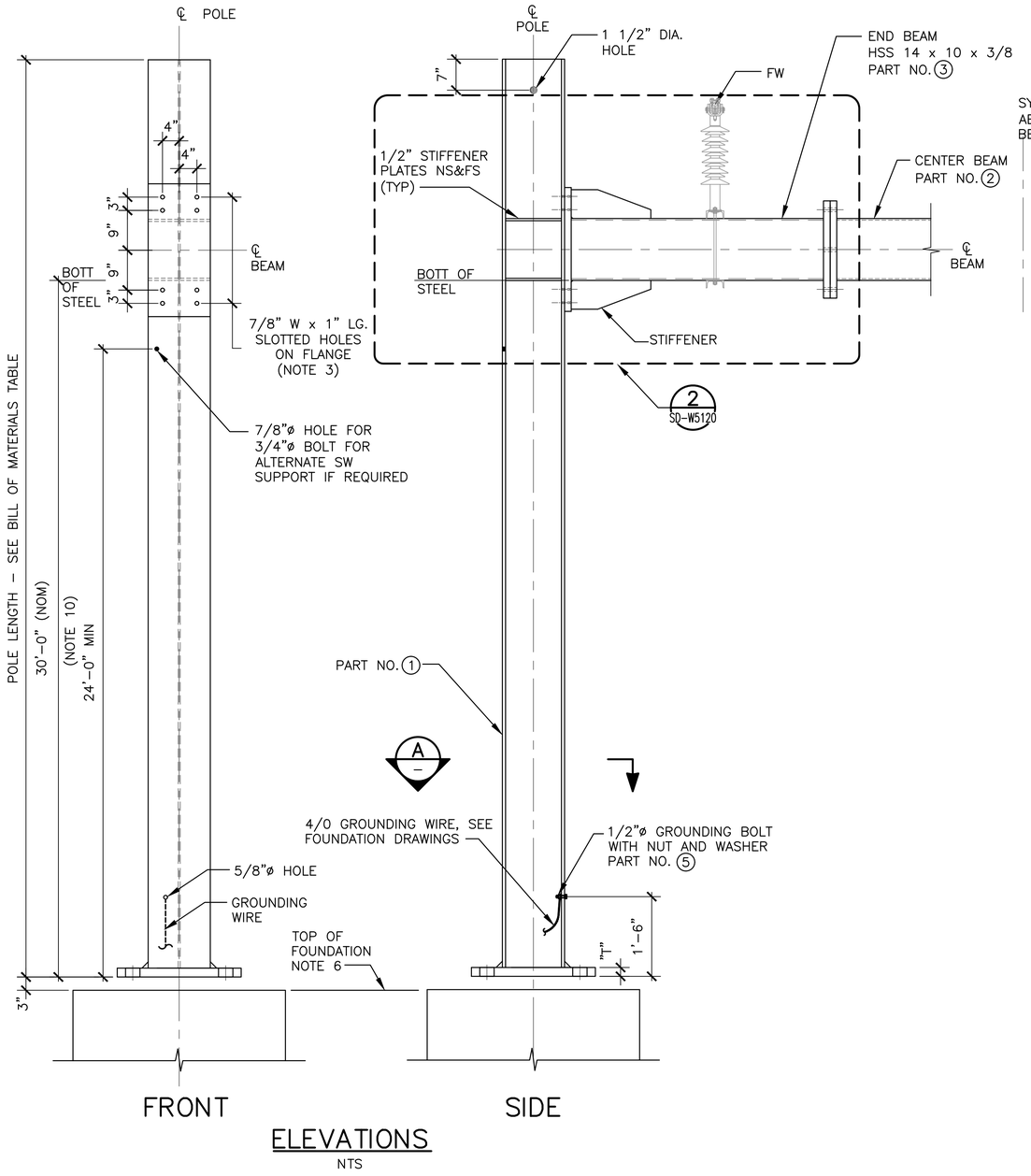
OVERHEAD CONTACT SYSTEM
OCS PORTAL TYPE PS-1 AND PS-2
SINGLE SPAN PORTAL DETAILS
FOR SPANS FROM 45 TO 65 FEET
SHEET 2 OF 2

CADD FILE NAME: SD-W5115

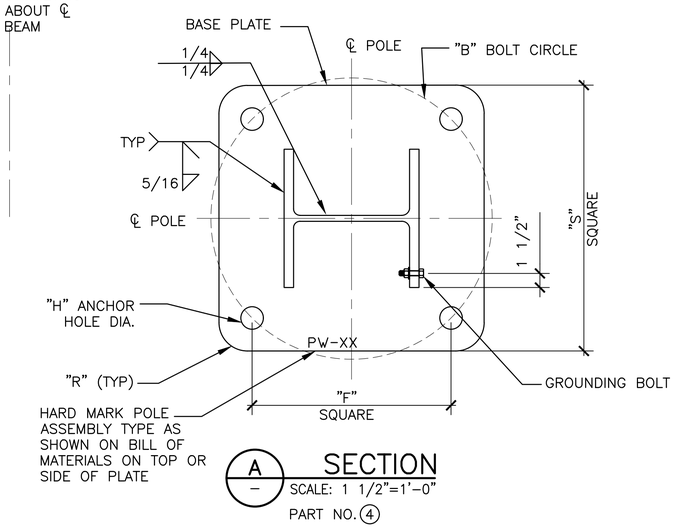
REV: | EDITION: SECOND

SCALE: AS SHOWN

STANDARD DRAWING NO.: SD-W5115



ELEVATIONS
NTS



A — SECTION
SCALE: 1 1/2"=1'-0"
PART NO. 4

NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD-W0101.
2. HORIZONTAL BEAM LENGTH WILL BE DETERMINED BY FIELD AT EACH LOCATION PRIOR TO FABRICATION.
3. ALL HOLES ON MAST, BEAMS AND MISCELLANEOUS STEEL SHALL BE PRE-DRILLED AT SHOP PRIOR TO GALVANIZING.
4. ALL PORTAL POLES SHALL BE SET PLUMB WITH NO RAKE TO ENSURE PROPER CONNECTION WITH HORIZONTAL BEAM.
5. INSTALL 40'-0" LONG POLES ON MT-2 TRACK SIDE.
6. 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.
7. NOTIFY ENGINEER IF ANY WIRES ARE TERMINATED ON THE PORTAL BEAM AND THE BEAM SECTION SHALL BE EVALUATED ON A CASE SPECIFIC BASIS.
8. 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 ≥ 80' USE HSS 14 x 10 x 5/8 SECTION FOR CENTER BEAM AND END BEAMS
9. 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.
10. BOTTOM OF STEEL VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATION DRAWINGS FOR HEIGHT.

TABLE 1 BASE PLATE DIMENSIONS (IN)

BASE PLATE	DESCRIPTION	S	F	H	R	T	B	ANCHOR BOLT DIA
TYPE "D"	BASE FOR PW-4 AND PW-4A	28	21	2 3/8	2	2 1/2	29.70	2

QUANTITIES		BILL OF MATERIALS		
1	1	DROP TUBE HSS 5 1/2 x 5 1/2 x 3/8 x 10'-0"	6	NOTE 6
2	2	DROP TUBE HSS 5 1/2 x 5 1/2 x 3/8 x 9'-0"	6	NOTE 6
2	2	1/2"ø GROUNDING BOLT	5	
2	2	BASE PLATE TYPE "D"	4	
2	2	END BEAM - HSS 14 x 10 x 3/8 x 5'-0" LG.	3	NOTE 7, 8
1	1	CENTER BEAM - HSS 14 x 10 x 3/8 - LENGTH VARIES	2	NOTE 2, 7, 8
1	-	POLE - W14 X 74 X 40'-0" LG.	1	NOTE 5, 9
1	2	POLE - W14 x 109 x 34'-0" LG.	1	NOTE 5, 9
PW-4A	PW-4	DESCRIPTION	PART NO	REMARKS
ASSEMBLY TYPE				

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

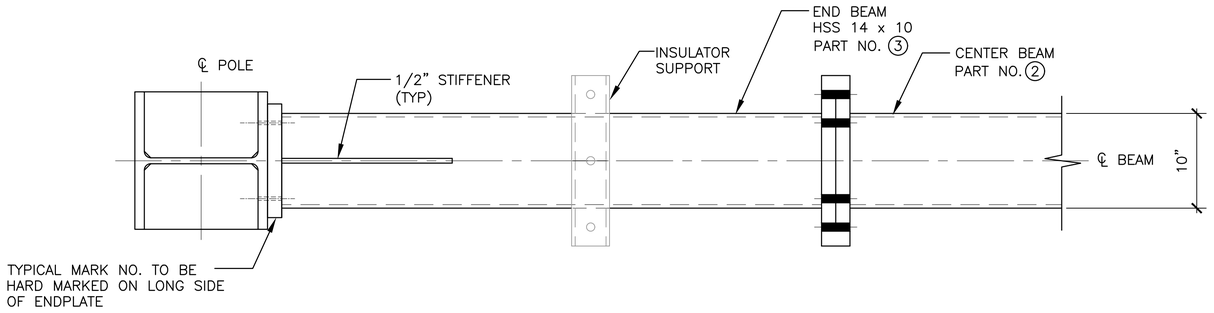
ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTAL TYPE PW-4 AND PW-4A
SINGLE SPAN PORTAL DETAILS
FOR SPANS FROM 86 TO 95 FEET
SHEET 1 OF 3

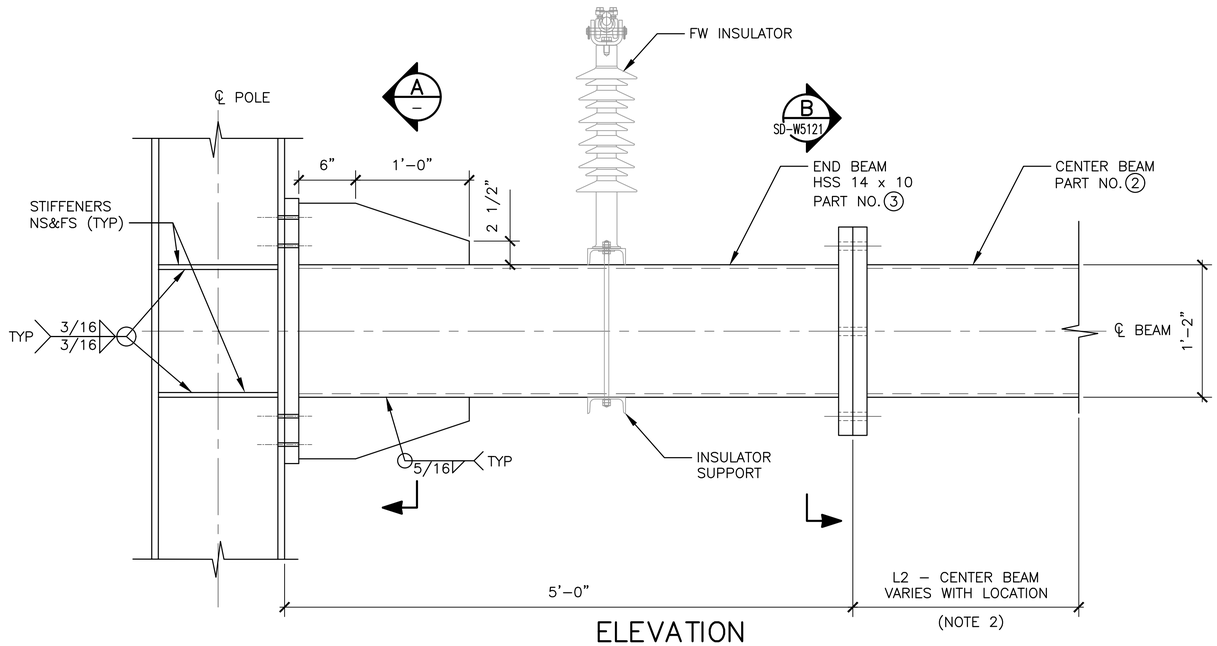
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REV: EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD-W5119

NOTE:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. FOR CENTER BEAMS WITH A "L2" LENGTH OVER 40', THE BEAM SHOULD BE DIVIDED INTO THREE SECTIONS. THE CENTER SECTION SHOULD BE 40' AND THE TWO REMAINING SECTIONS SHOULD BE EQUAL AND THE LENGTH REQUIRED TO MEET THE TOTAL LENGTH. THE THREE SECTIONS SHALL BE ASSEMBLED FOR CAMBERING. CONNECTIONS SHOULD BE THE SAME AS BETWEEN THE CENTER AND END BEAMS.

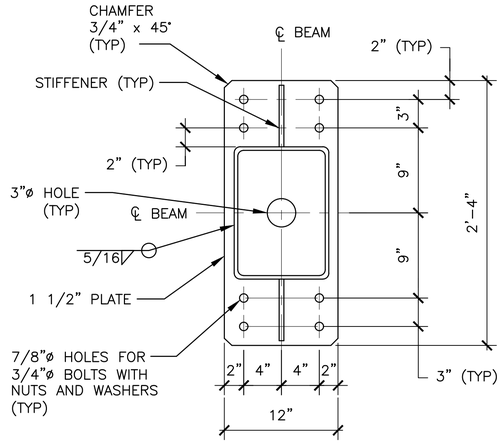


PLAN



ELEVATION

2 / – DETAIL
SD–W5119 SCALE: 1 1/2"=1'–0"



A / – SECTION
SCALE: 1 1/2"=1'–0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

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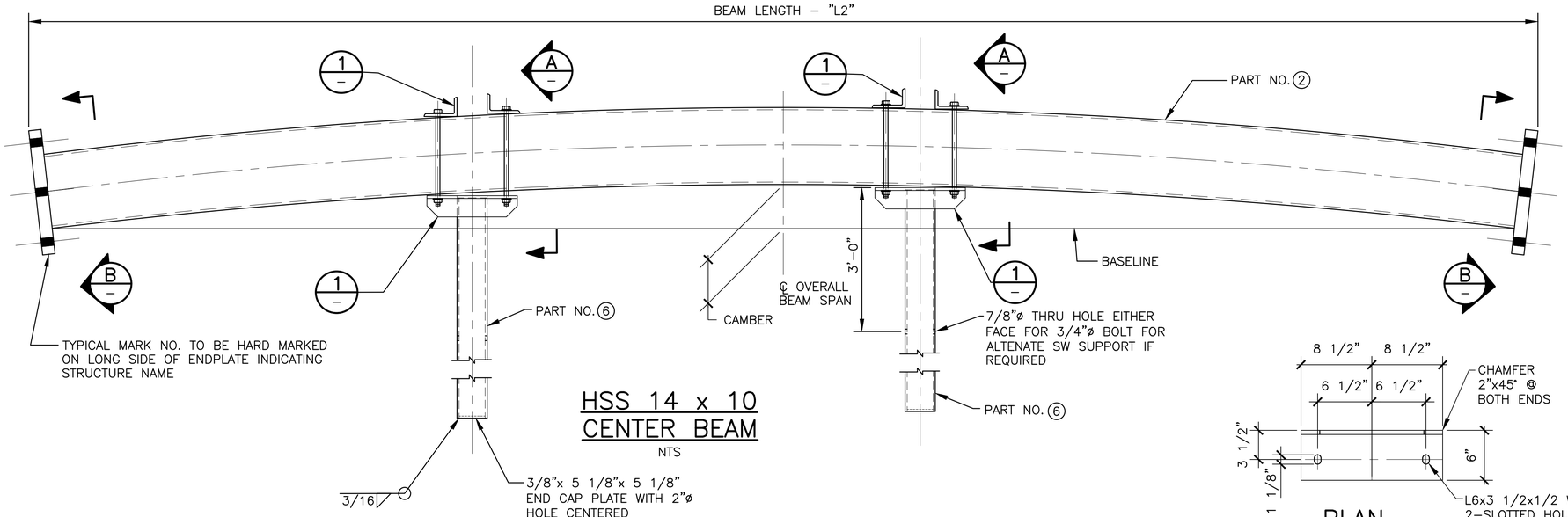
ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTAL TYPE PW–4 AND PW–4A
SINGLE SPAN PORTAL DETAILS
FOR SPANS FROM 86 TO 95 FEET
SHEET 2 OF 3

CADD FILE NAME: SD–W5120
REV:
EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5120

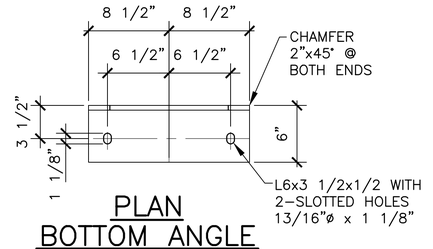
NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.

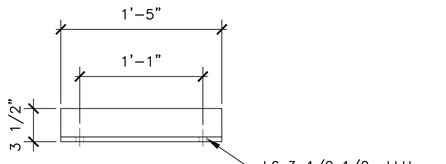


HSS 14 x 10 CENTER BEAM

NTS



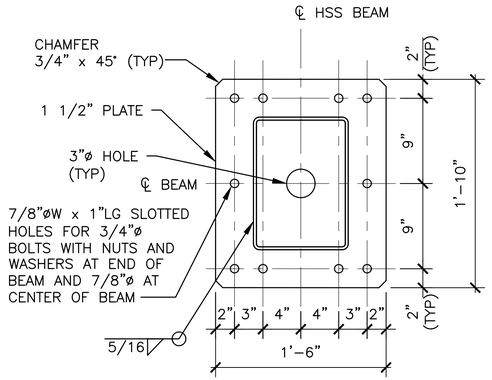
PLAN BOTTOM ANGLE



ELEVATION TOP ANGLE

1 — DETAIL

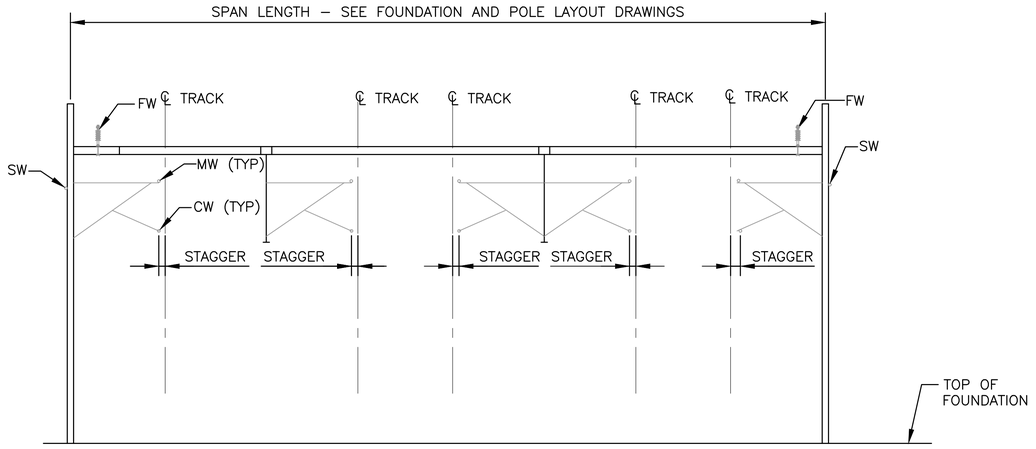
SCALE: 1 1/2"=1'–0"



B — SECTION

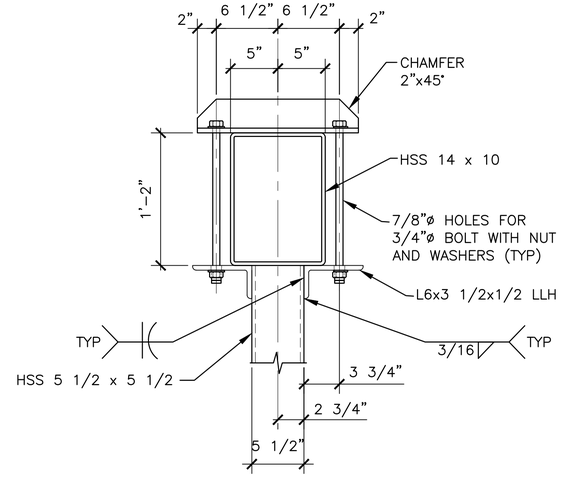
SCALE: 1 1/2"=1'–0"

SD–W5120
SD–W5121



SCHEMATIC PORTAL DETAIL FOR UP TO FIVE TRACKS PW–4

NTS



A — SECTION

SCALE: 1 1/2"=1'–0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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ENGINEERING STANDARD DRAWINGS

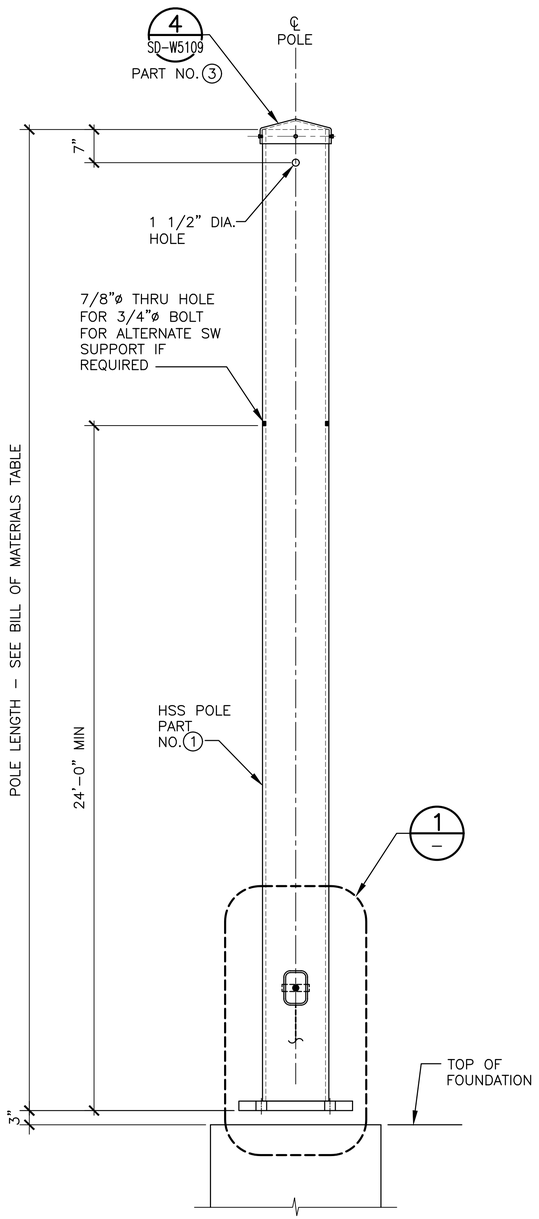
OVERHEAD CONTACT SYSTEM
OCS PORTAL TYPE PW–4 AND PW–4A
SINGLE SPAN PORTAL DETAILS
FOR SPANS FROM 86 TO 95 FEET
SHEET 3 OF 3

CADD FILE NAME: SD–W5121

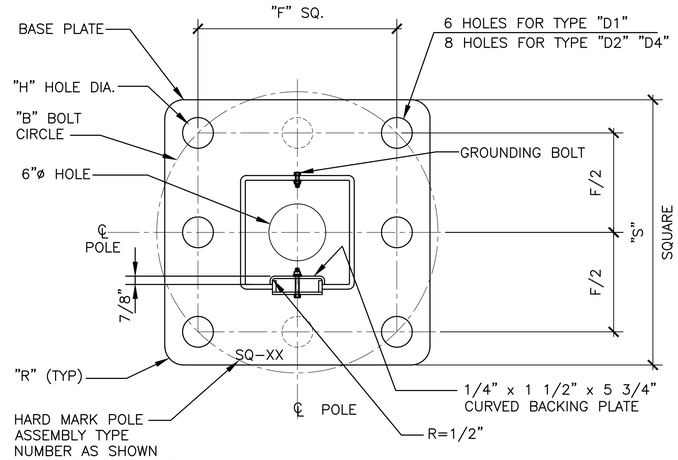
REV: | EDITION: SECOND

SCALE: AS SHOWN

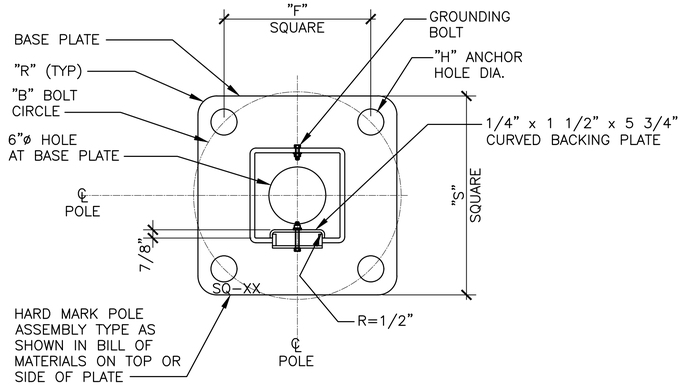
STANDARD DRAWING NO.: SD–W5121



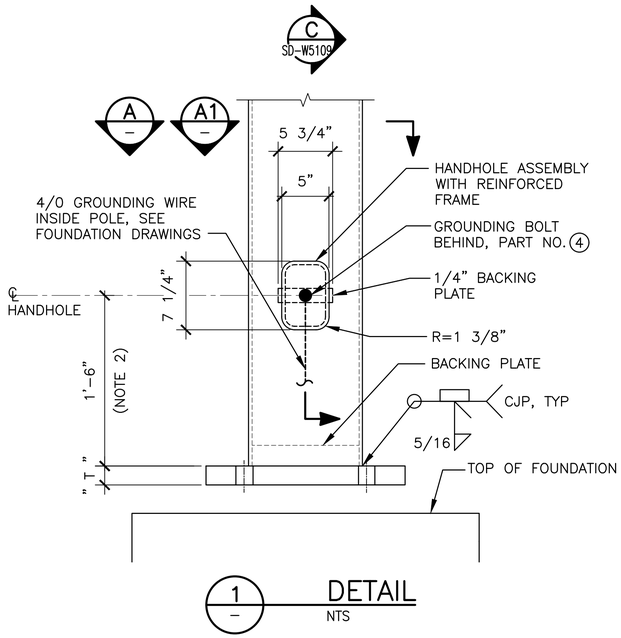
POLE ELEVATION
NTS



A1 – SECTION
SCALE: 1 1/2"=1'-0"
PART NO. 5
FOR TYPES "D1", "D2", & "D4" BASE PLATES



A – SECTION
SCALE: 1 1/2"=1'-0"
PART NO. 2 FOR TYPES "C", "E" & "D3" BASE PLATES



1 – DETAIL
NTS

NOTES:

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

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 "E"	SQ-3X, SQ-3AX, SQ-3BX, SQ-4X, SQ-9AX, SQ-9BX, SQ-9EX, SQ-10BX, SQ-10CX, SQ-11BX	28 & VARIES	19 13/16 & VARIES	3 1/4	2	2 1/2	28.02 & VARIES	2 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-11A, 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
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

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ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
SQUARE POLE ASSEMBLIES
TYPES SQ-3 THRU SQ-11B
SHEET 1 OF 2

CADD FILE NAME: SD-W5153
REV: EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD-W5153

QUANTITIES																	
1	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	1	REMOVABLE CAP PLATE	3	
–	–	–	–	–	–	1	1	1	–	–	–	–	–	1	BASE PLATE TYPE "E"	2	NOTE 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 LENGTH VARIES	1	NOTE 2
–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	POLE – HSS 12 X 12 X 5/8 X 44'–0" LG.	1	NOTE 4
–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	POLE – HSS 12 X 12 X 5/8 X 38'–0" LG.	1	NOTE 4
–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	POLE – HSS 12 X 12 X 5/8 X 35'–0" LG.	1	NOTE 4
–	–	–	–	–	–	–	–	–	1	–	–	–	–	1	POLE – HSS 12 X 12 X 5/8 X 32'–0" LG.	1	NOTE 4
–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	POLE – HSS 10 X 10 X 1/2 X 47'–0" LG.	1	NOTE 4
–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	POLE – HSS 10 X 10 X 1/2 X 44'–0" LG.	1	NOTE 4
–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	POLE – HSS 10 X 10 X 1/2 X 41'–0" LG.	1	NOTE 4
–	–	1	–	–	–	–	–	1	–	–	–	–	–	–	POLE – HSS 10 X 10 X 1/2 X 38'–0" LG.	1	NOTE 4
–	1	–	–	–	–	–	1	–	–	–	–	–	–	–	POLE – HSS 10 X 10 X 1/2 X 35'–0" LG.	1	NOTE 4
1	–	–	–	–	–	1	–	–	–	–	–	–	–	–	POLE – HSS 10 X 10 X 1/2 X 32'–0" LG.	1	NOTE 4
SQ–3	SQ–3A	SQ–3B	SQ–3C	SQ–3D	SQ–3E	SQ–3X	SQ–3AX	SQ–3BX	SQ–4	SQ–4A	SQ–4B	SQ–4D	SQ–4T	SQ–4X	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	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	1	1	1	1	1	1	1	REMOVABLE CAP PLATE	3	
–	–	–	–	–	–	–	1	1	1	–	–	1	1	–	–	–	–	–	1	BASE PLATE TYPE "E"	2	NOTE 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 4	
1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	POLE – HSS 14 X 14 X 5/8 X 45'–6" LG.	1	NOTE 4	
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	POLE – HSS 14 X 14 X 5/8 X 44'–0" LG.	1	NOTE 4	
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	POLE – HSS 14 X 14 X 5/8 X 41'–0" LG.	1	NOTE 4	
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1	POLE – HSS 14 X 14 X 5/8 X 38'–0" LG.	1	NOTE 4	
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	POLE – HSS 14 X 14 X 5/8 X 35'–0" LG.	1	NOTE 4	
–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	POLE – HSS 14 X 14 X 5/8 X 32'–0" LG.	1	NOTE 4	
–	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	–	–	–	–	POLE – HSS 12 X 12 X 5/8 X 41'–0" LG.	1	NOTE 4	
–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	POLE – HSS 12 X 12 X 5/8 X 38'–0" LG.	1	NOTE 4	
–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	POLE – HSS 12 X 12 X 5/8 X 35'–0" LG.	1	NOTE 4	
–	–	–	–	–	–	1	–	–	1	–	–	–	–	–	–	–	–	–	–	POLE – HSS 12 X 12 X 1/2 X 47'–0" LG.	1	NOTE 4	
–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	POLE – HSS 12 X 12 X 1/2 X 44'–0" LG.	1	NOTE 4	
–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	POLE – HSS 12 X 12 X 1/2 X 41'–0" LG.	1	NOTE 4	
–	–	–	1	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	POLE – HSS 12 X 12 X 1/2 X 38'–0" LG.	1	NOTE 4	
–	–	1	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	POLE – HSS 12 X 12 X 1/2 X 35'–0" LG.	1	NOTE 4	
SQ–5	SQ–7	SQ–9A	SQ–9B	SQ–9C	SQ–9D	SQ–9E	SQ–9AX	SQ–9BX	SQ–9EX	SQ–10A	SQ–10C	SQ–10BX	SQ–10CX	SQ–11	SQ–11A	SQ–11B	SQ–11C	SQ–11D	SQ–11BX	DESCRIPTION	PART NO.	REMARKS	
ASSEMBLY TYPE																							

BILL OF MATERIALS

NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. SEE BRIDGE ATTACHMENT DRAWINGS FOR POLE LENGTH AND SUPPORT DETAILS.
3. FIELD MEASURE EXISTING CONDITION PRIOR TO FABRICATION. NOTIFY ENGINEER IF DIFFERENT FROM DIMENSIONS SHOWN.
4. 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.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

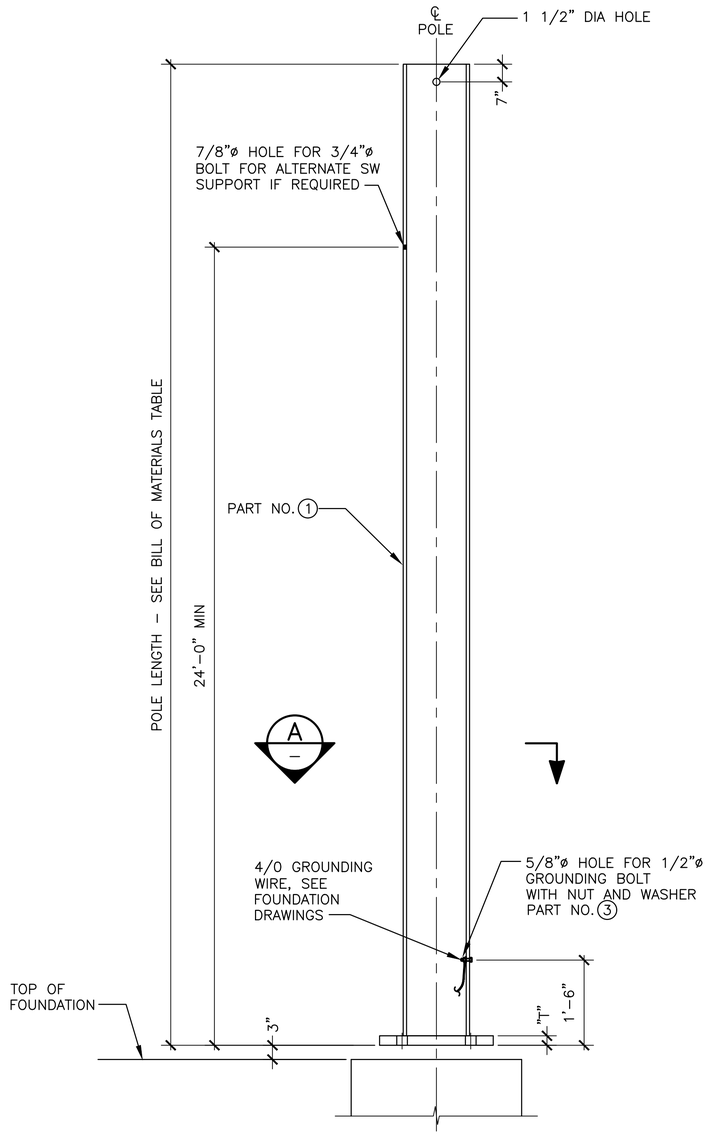
OVERHEAD CONTACT SYSTEM
OCS POLES
SQUARE POLE ASSEMBLIES
TYPES SQ–3 THRU SQ–11B
SHEET 2 OF 2

CADD FILE NAME: SD–W5153A

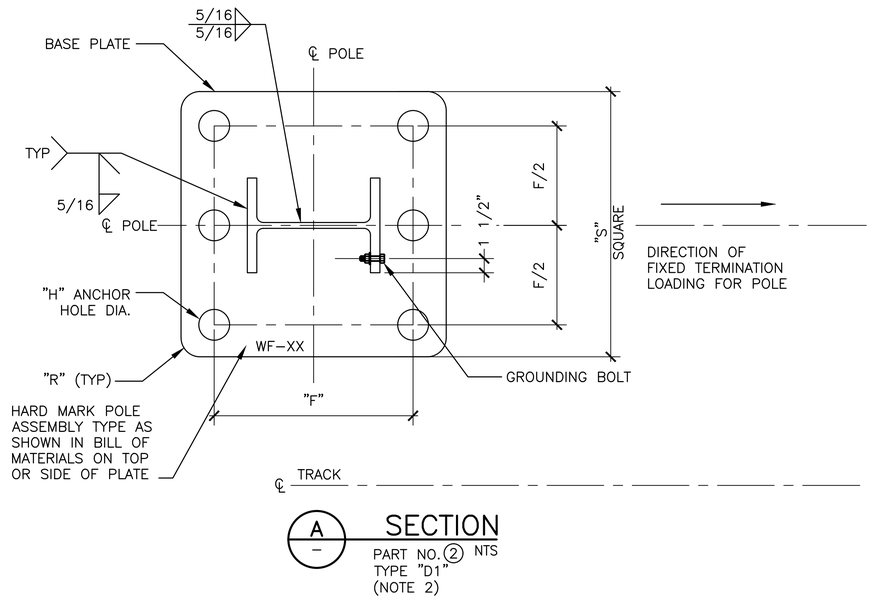
REV: | EDITION: SECOND

SCALE: AS SHOWN

STANDARD DRAWING NO.: SD–W5153A



ELEVATION
NTS



A – SECTION
PART NO. (2) NTS
TYPE "D1"
(NOTE 2)

NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–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 WF–7A, WF–7B, AND WF–7C	28	21	2 3/8	2	2 1/2	–	2

BILL OF MATERIALS

QUANTITIES				DESCRIPTION	PART NO	REMARKS
WF–7C	WF–7	WF–7A	WF–7B			
ASSEMBLY TYPE						
1	1	1	1	1/2"ø GROUNDING BOLT	3	
1	1	1	1	BASE PLATE TYPE "D1"	2	
1	–	–	–	POLE – W14 x 109 x 41'–0" LG.	1	NOTE 3
–	–	–	1	POLE – W14 x 109 x 38'–0" LG.	1	NOTE 3
–	–	1	–	POLE – W14 x 109 x 35'–0" LG.	1	NOTE 3
–	–	–	–	POLE – W14 x 109 x 45'–6" LG.	1	NOTE 3

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
WIDE FLANGE POLE ASSEMBLIES
TYPES WF–7, WF–7A
WF–7B, AND WF–7C

CADD FILE NAME: SD–W5154
REV: EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5154

OCS POLE SCHEDULE							OCS FOUNDATION SCHEDULE (NOTE 1)				
POLE TYPE	POLE SIZE	POLE HEIGHT (FT)	DRAWING NUMBER	DESCRIPTION	HORIZONTAL BEAM SIZE	TERMINATION TYPE	FOUNDATION TYPE	NO. OF BOLTS AND DIAMETER (IN)	BOLT LENGTH (FT)	BOLT SPACING (IN)	BASE PLATE SIZE (IN)
WF-1	W10 x 33	32.0	SD-W5101	WIDE FLANGE SINGLE CANTILEVER POLE	–	–	FD-30	4-1 1/2	8.33	12	2 1/2 x 18 x 18
WF-2	W10 x 39	35.0	SD-W5101	WIDE FLANGE SINGLE CANTILEVER POLE	–	–	FD-30	4-1 1/2	8.33	12	2 1/2 x 18 x 18
WF-3	W10 x 45	32.0	SD-W5101	WIDE FLANGE POLE	–	OCS	FD-30	4-1 1/2	8.33	12	2 1/2 x 18 x 18
WF-3B	W10 x 45	38.0	SD-W5101	WIDE FLANGE POLE	–	OCS	FD-30	4-1 1/2	8.33	12	2 1/2 x 18 x 18
WF-4A	W12 x 79	45.5	SD-W5106	WIDE FLANGE LONG REACH CANTILEVER POLE	HSS 5 1/2 x 5 1/2 x 3/8	OCS	FD-36A	4-2	9.33	15 1/2	2 1/2 x 21 x 21
WF-4B	W12 x 87	45.5	SD-W5106	WIDE FLANGE LONG REACH CANTILEVER POLE	HSS 5 1/2 x 5 1/2 x 3/8	OCS	FD-36A	4-2	9.33	15 1/2	2 1/2 x 21 x 21
WF-4T	W12 x 79	45.5	SD-W5106	WIDE FLANGE LONG REACH CANTILEVER POLE WITH ALTERNATE FOUNDATION	HSS 5 1/2 x 5 1/2 x 3/8	OCS	NOTE 5	NOTE 5	NOTE 5	NOTE 5	NOTE 5
WF-4X	W12 x 79	45.5	SD-W5106	WIDE FLANGE LONG REACH CANTILEVER POLE WITH EXISTING FOUNDATION	HSS 5 1/2 x 5 1/2 x 3/8	OCS	EXISTING	4-2 3/4 (E)	4.17 (E) & VARIES	19 13/16 & VARIES	2 1/2 x 28 x 28 & VARIES
WF-5	W14 x 61	32.0	SD-W5105	WIDE FLANGE POLE	–	OCS	FD-36	4-1 3/4	8.33	15 1/2	2 1/2 x 21 x 21
WF-5A	W14 x 61	35.0	SD-W5105	WIDE FLANGE POLE	–	OCS	FD-36	4-1 3/4	8.33	15 1/2	2 1/2 x 21 x 21
WF-5B	W14 x 61	38.0	SD-W5105	WIDE FLANGE POLE	–	OCS	FD-36	4-1 3/4	8.33	15 1/2	2 1/2 x 21 x 21
WF-5C	W14 x 61	41.0	SD-W5105	WIDE FLANGE POLE	–	OCS	FD-36	4-1 3/4	8.33	15 1/2	2 1/2 x 21 x 21
WF-5T	W14 x 61	NOTE 5	SD-W5105	WIDE FLANGE POLE WITH ALTERNATE FOUNDATION	–	OCS	NOTE 5	NOTE 5	NOTE 5	NOTE 5	NOTE 5
WF-5X	W14 x 61	32.0	SD-W5105	WIDE FLANGE POLE WITH EXISTING FOUNDATION	–	OCS	EXISTING	4-2 3/4 (E)	4.17 (E) & VARIES	19 13/16 & VARIES	2 1/2 x 28 x 28 & VARIES
WF-5AX	W14 x 61	35.0	SD-W5105	WIDE FLANGE POLE WITH EXISTING FOUNDATION	–	OCS	EXISTING	4-2 3/4 (E)	4.17 (E) & VARIES	19 13/16 & VARIES	2 1/2 x 28 x 28 & VARIES
WF-5BX	W14 x 61	38.0	SD-W5105	WIDE FLANGE POLE WITH EXISTING FOUNDATION	–	OCS	EXISTING	4-2 3/4 (E)	4.17 (E) & VARIES	19 13/16 & VARIES	2 1/2 x 28 x 28 & VARIES
WF-5CX	W14 x 61	41.0	SD-W5105	WIDE FLANGE POLE WITH EXISTING FOUNDATION	–	OCS	EXISTING	4-2 3/4 (E)	4.17 (E) & VARIES	19 13/16 & VARIES	2 1/2 x 28 x 28 & VARIES
WF-7	W14 x 109	32.0	SD-W5154	WIDE FLANGE POLE ROTATED WITH THE WEB PARALLEL TO TRACK	–	OCS	FD-42A	6-2	9.33	21	2 1/2 x 28 x 28
WF-7A	W14 x 109	35.0	SD-W5154	WIDE FLANGE POLE ROTATED WITH THE WEB PARALLEL TO TRACK	–	OCS	FD-42A	6-2	9.33	21	2 1/2 x 28 x 28
WF-7B	W14 x 109	38.0	SD-W5154	WIDE FLANGE POLE ROTATED WITH THE WEB PARALLEL TO TRACK	–	OCS	FD-42A	6-2	9.33	21	2 1/2 x 28 x 28
WF-7C	W14 x 109	41.0	SD-W5154	WIDE FLANGE POLE ROTATED WITH THE WEB PARALLEL TO TRACK	–	OCS	FD-42A	6-2	9.33	21	2 1/2 x 28 x 28

NOTES:

1. FOR BASE PLATE AND BOLT INFORMATION, SEE DETAILED DRAWINGS FOR SPECIFIC POLE LISTED ABOVE
2. FOUNDATION SIZES ARE THE NUMERICAL DESIGNATION UNDER THE FOUNDATION TYPE (I.E. FD-30 HAS A 30" DIAMETER FOUNDATION)
3. FOR TERMINATION TYPES, ASSUME GUYED UNLESS SHOWN WITHOUT DOWN GUY ON FOUNDATION AND POLE LAYOUT SHEETS.
4. FOR SPAN AND RADIUS DESIGN PARAMETERS, SEE OCS FOUNDATION AND POLE LAYOUT SHEETS.
5. SEE BRIDGE ATTACHMENT DRAWINGS.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES

POLE SIZE SCHEDULE
SHEET 1 OF 5

CADD FILE NAME: SD-W5159

REV: | EDITION: SECOND

SCALE:

STANDARD DRAWING NO.: SD-W5159

OCS POLE SCHEDULE							OCS FOUNDATION SCHEDULE (NOTE 1)				
POLE TYPE	POLE SIZE	POLE HEIGHT (FT)	DRAWING NUMBER	DESCRIPTION	HORIZONTAL BEAM SIZE	TERMINATION TYPE	FOUNDATION TYPE	NO. OF BOLTS AND DIAMETER (IN)	BOLT LENGTH (FT)	BOLT SPACING (IN)	BASE PLATE SIZE (IN)
PW-1	W14 x 74	34.0	SD-W5111	WIDE FLANGE SINGLE-SPAN PORTAL – 45' TO 65' SPANS	HSS 12 x 8 x 3/8	OCS	FD-36	4-1 3/4	8.33	15 1/2	2 1/2 x 21 x 21
PW-2	W14 x 74	35.0	SD-W5111	WIDE FLANGE SINGLE-SPAN PORTAL – 45' TO 65' SPANS	HSS 12 x 8 x 3/8	OCS	FD-36	4-1 3/4	8.33	15 1/2	2 1/2 x 21 x 21
PW-2A	W14 x 74	34.0/43.0	SD-W5111	WIDE FLANGE SINGLE-SPAN PORTAL – 45' TO 65' SPANS WITH DIFFERENT POLE HEIGHTS	HSS 12 x 8 x 3/8	OCS	FD-36	4-1 3/4	8.33	15 1/2	2 1/2 x 21 x 21
PW-2AX	W14 x 74	34.0/43.0	SD-W5111	WIDE FLANGE SINGLE-SPAN PORTAL – 45' TO 65' SPANS WITH EXISTING FOUNDATIONS AND DIFFERENT POLE HEIGHTS	HSS 12 x 8 x 3/8	OCS	EXISTING	4-2 3/4 (E)	4.17 (E) & VARIES	19 13/16 & VARIES	2 1/2 x 28 x 28 & VARIES
PW-3	W14 x 82	34.0	SD-W5197	WIDE FLANGE SINGLE-SPAN PORTAL – 66' TO 85' SPANS	HSS 14 x 10 x 3/8 OR HSS 14 x 10 x 5/8	OCS	FD-36A	4-2	9.33	15 1/2	2 1/2 x 21 x 21
PW-4	W14 x 109	34.0	SD-W5119	WIDE FLANGE SINGLE-SPAN PORTAL – 86' TO 95' SPANS	HSS 14 x 10 x 3/8 OR HSS 14 x 10 x 5/8	OCS	FD-42	4-2	9.33	21	2 1/2 x 28 x 28
PW-4A	W14 x 109	34.0/40.0	SD-W5119	WIDE FLANGE SINGLE-SPAN PORTAL – 86' TO 95' SPANS WITH DIFFERENT POLE HEIGHTS	HSS 14 x 10 x 3/8 OR HSS 14 x 10 x 5/8	OCS	FD-42	4-2	9.33	21	2 1/2 x 28 x 28
PS-1	HSS 10 x 10 x 1/2	34.0	SD-W5114	SQUARE TUBE SINGLE-SPAN PORTAL – 45' TO 65' SPANS	HSS 12 x 8 x 3/8	OCS	FD-36A	4-2	9.33	15 1/2	2 1/2 x 21 x 21
PS-2	HSS 10 x 10 x 1/2	35.0	SD-W5114	SQUARE TUBE SINGLE-SPAN PORTAL – 45' TO 65' SPANS	HSS 12 x 8 x 3/8	OCS	FD-36A	4-2	9.33	15 1/2	2 1/2 x 21 x 21
PS-3	HSS 12 x 12 x 5/8	34.0	SD-W5194	SQUARE TUBE SINGLE-SPAN PORTAL – 66' TO 85' SPANS	HSS 14 x 10 x 3/8 OR HSS 14 x 10 x 5/8	OCS	FD-42	4-2	9.33	21	2 1/2 x 28 x 28
PS-3A	HSS 12 x 12 x 5/8	34.0/43.0	SD-W5194	SQUARE TUBE SINGLE-SPAN PORTAL – 66' TO 85' SPANS WITH DIFFERENT POLE HEIGHTS	HSS 14 x 10 x 3/8 OR HSS 14 x 10 x 5/8	OCS	FD-42	4-2	9.33	21	2 1/2 x 28 x 28
PS-3B	HSS 12 x 12 x 5/8	45.5	SD-W5194	SQUARE TUBE SINGLE-SPAN PORTAL – 66' TO 85' SPANS	HSS 14 x 10 x 3/8 OR HSS 14 x 10 x 5/8	OCS	FD-42	4-2	9.33	21	2 1/2 x 28 x 28
PS-3Z	HSS 12 x 12 x 5/8	34.0	SD-W5194	SQUARE TUBE SINGLE-SPAN PORTAL – 50' TO 55' SPANS WITH ALTERNATE FOUNDATION	HSS 14 x 10 x 3/8	OCS	FD-36 & FD-42	4-1 3/4 & 4-2	8.33 & 9.33	15 1/2 & 21	2 1/2 x 21 x 21 & 2 1/2 x 28 x 28
PS-4	HSS 14 x 14 x 5/8	34.0	SD-W5194	SQUARE TUBE SINGLE-SPAN PORTAL – 86' TO 90' SPANS	HSS 14 x 10 x 3/8 OR HSS 14 x 10 x 5/8	OCS	FD-42A	6-2	9.33	21	2 1/2 x 28 x 28
PS-4A	HSS 14 x 14 x 5/8	45.5	SD-W5194	SQUARE TUBE SINGLE-SPAN PORTAL – 86' TO 95' SPANS	HSS 14 x 10 x 5/8	OCS	FD-42A	6-2	9.33	21	2 1/2 x 28 x 28
PS-5	HSS 14 x 14 x 5/8	36.0	SD-W5194	SQUARE TUBE SINGLE-SPAN PORTAL UP TO 95' SPAN	HSS 14 x 10 x 1/2	OCS	FD-42A	6-2	9.33	21	2 1/2 x 28 x 28
PS-5C	HSS 14 x 14 x 5/8	40.0	SD-W5259	SQUARE TUBE SINGLE-SPAN PORTAL WITH CROSS SPAN WIRE UP TO 110' SPAN	HSS 14 x 14 x 5/8	OCS	FD-42S	8-2	9.33	21	2 1/2 x 28 x 28
PS-6A	HSS 16 x 16 x 5/8	35.0	SD-W5285	SQUARE TUBE SINGLE-SPAN PORTAL – SPANS UP TO 110'	BUILT-UP TRUSS	OCS	FD-48S	8-2 1/4	9.33	25	2 1/2 x 32 x 32
PS-6B	HSS 16 x 16 x 5/8	38.0	SD-W5285	SQUARE TUBE SINGLE-SPAN PORTAL – SPANS UP TO 110'	BUILT-UP TRUSS	OCS	FD-48S	8-2 1/4	9.33	25	2 1/2 x 32 x 32
PS-6C	HSS 16 x 16 x 5/8	41.0	SD-W5285	SQUARE TUBE SINGLE-SPAN PORTAL – SPANS UP TO 110'	BUILT-UP TRUSS	OCS	FD-48S	8-2 1/4	9.33	25	2 1/2 x 32 x 32
PS-6X	HSS 14 x 14 x 5/8 BUILT-UP	40.0	SD-W5285	SQUARE TUBE SINGLE-SPAN PORTAL – SPANS UP TO 105' WITH EXISTING FOUNDATIONS	BUILT-UP TRUSS	OCS	FD-42	4-2	9.33	21	2 1/2 x 28 x 28
PS-9S	HSS 12 x 12 x 5/8	45.5	SD-W5200	SQUARE TUBE SINGLE-SPAN PORTAL – 45' TO 65' SPANS	HSS 12 x 8 x 3/8	OCS/SHUNT	FD-42A	6-2	9.33	21	2 1/2 x 28 x 28
PS-10S	HSS 14 x 14 x 5/8	40.0	SD-W5191	SQUARE TUBE SINGLE-SPAN PORTAL – 45' TO 65' SPANS	HSS 14 x 10 X 3/8	OCS/SHUNT	FD-42S	8-2	9.33	21	2 1/2 x 28 x 28
PS-30	HSS 12 x 12 x 1/2	32.33	SD-W5209	SQUARE TUBE THREE-SPAN PORTAL	HSS 14 x 10 x 3/8	OCS	FD-36A	4-2	9.33	15 1/2	2 1/2 x 21 x 21
PS-31	HSS 12 x 12 x 5/8	32.33	SD-W5212	SQUARE TUBE SINGLE-SPAN PORTAL AT TERMINAL PLATFORMS	HSS 14 x 10 x 3/8	OCS	FD-42	4-2	9.33	21	2 1/2 x 28 x 28
PS-32	HSS 12 x 12 x 5/8	32.33	SD-W5215	SQUARE TUBE SINGLE-SPAN PORTAL AT TERMINAL PLATFORMS	HSS 14 x 10 x 3/8	OCS	FD-42	4-2	9.33	21	2 1/2 x 28 x 28
PS-40S	HSS 14 x 14 x 5/8	45.5	SD-W5191	SQUARE TUBE SINGLE-SPAN PORTAL – 90' TO 95' SPANS	HSS 14 x 10 x 3/8 OR HSS 14 x 10 x 5/8	OCS/SHUNT	FD-42S	8-2	9.33	21	2 1/2 x 28 x 28
PS-50	HSS 16 x 16 x 5/8	34.0/40.0 34.0/34.0	SD-W5267	SQUARE TUBE FRAME NEAR W. SANTA CLARA ST.	HSS 16 x 16 x 5/8	OCS	FD-48S	8-2 1/4	9.33	25	2 1/2 x 32 x 32
PS-60S	HSS 14 x 14 x 5/8	45.5	SD-W5234	SQUARE TUBE SINGLE-SPAN PORTAL – SPANS UP TO 85' WITH ADDITIONAL FW SUPPORTS	HSS 14 x 10 x 1/2	OCS/SHUNT	FD-42A	6-2	9.33	21	2 1/2 x 28 x 28

NOTES:

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2. FOUNDATION SIZES ARE THE NUMERICAL DESIGNATION UNDER THE FOUNDATION TYPE (I.E. FD-30 HAS A 30" DIAMETER FOUNDATION)
3. FOR TERMINATION TYPES, ASSUME GUYED UNLESS SHOWN WITHOUT DOWN GUY ON FOUNDATION AND POLE LAYOUT SHEETS.
4. FOR SPAN AND RADIUS DESIGN PARAMETERS, SEE OCS FOUNDATION AND POLE LAYOUT SHEETS.
5. POLE HEIGHTS WILL BE DETERMINED BY FIELD MEASUREMENT PRIOR TO FABRICATION.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES

POLE SIZE SCHEDULE
SHEET 2 OF 5

CADD FILE NAME: SD-W5160

REV: | EDITION: SECOND

SCALE:

STANDARD DRAWING NO.: SD-W5160

OCS POLE SCHEDULE							OCS FOUNDATION SCHEDULE (NOTE 1)				
POLE TYPE	POLE SIZE	POLE HEIGHT (FT)	DRAWING NUMBER	DESCRIPTION	HORIZONTAL BEAM SIZE	TERMINATION TYPE	FOUNDATION TYPE	NO. OF BOLTS AND DIAMETER (IN)	BOLT LENGTH (FT)	BOLT SPACING (IN)	BASE PLATE SIZE (IN)
PS–61	HSS 12 x 12 x 5/8	40.0	SD–W5237	SQUARE TUBE SINGLE–SPAN PORTAL – SPANS UP TO 80' WITH ADDITIONAL FW SUPPORTS	HSS 14 x 10 x 1/2	OCS	FD–36A	4–2	9.33	15 1/2	2 1/2 x 21 x 21
PS–80	HSS 16 x 16 x 5/8	40.0	SD–W5279	SQUARE TUBE SINGLE–SPAN PORTAL NEAR FAIR OAKS BLVD	HSS 14 x 10 x 5/8	OCS	FD–48S	8–2 1/4	9.33	25	2 1/2 x 32 x 32
PS–90	HSS 12 x 12 x 1/2	34.0/45.5	SD–W5300	SQUARE TUBE SINGLE–SPAN PORTAL WITH BACK TO BACK LONG REACH CANTILEVER	HSS 14 x 10 x 5/8 & HSS 5 1/2 x 5 1/2 x 3/8	OCS	FD–36A	4–2	9.33	15 1/2	2 1/2 x 21 x 21
PS–PAIS	HSS 12 x 12 x 5/8	29.0	SD–W5304	SQUARE TUBE SINGLE–SPAN PORTAL FOR PAIS SUPPORT	HSS 14 x 10 x 1/2	–	FD–36A	4–2	9.33	15 1/2	2 1/2 x 21 x 21
PS–T1	HSS 10 x 10 x 1/2	21.0	SD–W5275	SQUARE TUBE SINGLE–SPAN PORTAL FOR TAMIEN STATION CANOPY	HSS 10 x 10 x 3/8	OCS	EXISTING	6–2	BY FABRICATOR	15 1/2	2 – 2 1/2 x 21 x 21
DP–01	DOUBLE HSS 12 x 12 x 1/2	30.33	SD–W5205	SQUARE TUBE DOUBLE POLE SIX–SPAN TERMINAL STRUCTURE	2xHSS 10 x 6 x 1/2	OCS	FD–DP	10–2	2.92	VARIES	2 1/2 x 60 x 30

NOTES:

1. FOR BASE PLATE AND BOLT INFORMATION, SEE DETAILED DRAWINGS FOR SPECIFIC POLE LISTED ABOVE
2. FOUNDATION SIZES ARE THE NUMERICAL DESIGNATION UNDER THE FOUNDATION TYPE (I.E. FD–30 HAS A 30" DIAMETER FOUNDATION)
3. FOR TERMINATION TYPES, ASSUME GUYED UNLESS SHOWN WITHOUT DOWN GUY ON FOUNDATION AND POLE LAYOUT SHEETS.
4. FOR SPAN AND RADIUS DESIGN PARAMETERS, SEE OCS FOUNDATION AND POLE LAYOUT SHEETS.
5. POLE HEIGHTS WILL BE DETERMINED BY FIELD MEASUREMENT PRIOR TO FABRICATION.

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

PENINSULA CORRIDOR JOINT POWERS BOARD

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Bin Zhang

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ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES

POLE SIZE SCHEDULE
SHEET 3 OF 5

CADD FILE NAME: SD–W5160A

REV: | EDITION: SECOND

SCALE:

STANDARD DRAWING NO.: SD–W5160A

OCS POLE SCHEDULE							OCS FOUNDATION SCHEDULE (NOTE 1)				
POLE TYPE	POLE SIZE	POLE HEIGHT (FT)	DRAWING NUMBER	DESCRIPTION	HORIZONTAL BEAM SIZE	TERMINATION TYPE	FOUNDATION TYPE	NO. OF BOLTS AND DIAMETER (IN)	BOLT LENGTH (FT)	BOLT SPACING (IN)	BASE PLATE SIZE (IN)
SQ-1	HSS 12 x 12 x 1/2	45.5	SD-W5109	SQUARE TUBE LONG REACH CANTILEVER POLE	HSS 5 1/2 x 5 1/2 x 3/8	OCS	FD-36A	4-2	9.33	15 1/2	2 1/2 x 21 x 21
SQ-1R	HSS 12 x 12 x 1/2	45.5	SD-W5109	SQUARE TUBE LONG REACH CANTILEVER POLE WITH GROUTED BASE PLATE	HSS 5 1/2 x 5 1/2 x 3/8	OCS	FD-36	4-1 3/4	8.33	15 1/2	2 1/2 x 21 x 21
SQ-1X	HSS 12 x 12 x 1/2	45.5	SD-W5109	SQUARE TUBE LONG REACH CANTILEVER POLE WITH EXISTING FOUNDATION	HSS 5 1/2 x 5 1/2 x 3/8	OCS	EXISTING	4-2 3/4 (E)	4.17 (E) & VARIES	19 13/16 & VARIES	2 1/2 x 28 x 28 & VARIES
SQ-2	HSS 14 x 14 x 5/8	45.5	SD-W5219	SQUARE TUBE POLE WITH BACK TO BACK LONG REACH CANTILEVERS	HSS 5 1/2 x 5 1/2 x 3/8 OR HSS 10 x 10 x 3/16	OCS/SHUNT	FD-42S	8-2	9.33	21	2 1/2 x 28 x 28
SQ-2X	HSS 14 x 14 x 5/8	45.5	SD-W5219	SQUARE TUBE POLE WITH BACK TO BACK LONG REACH CANTILEVER WITH EXISTING FOUNDATION	HSS 5 1/2 x 5 1/2 x 3/8 OR HSS 10 X 10 X 3/16	OCS/SHUNT	EXISTING	4-2 3/4 (E)	4.17 (E) & VARIES	19 13/16 & VARIES	2 1/2 x 28 x 28 & VARIES
SQ-3	HSS 10 x 10 x 1/2	32.0	SD-W5153	SQUARE TUBE POLE	–	OCS	FD-36	4-1 3/4	8.33	15 1/2	2 1/2 x 21 x 21
SQ-3A	HSS 10 x 10 x 1/2	35.0	SD-W5153	SQUARE TUBE POLE	–	OCS	FD-36	4-1 3/4	8.33	15 1/2	2 1/2 x 21 x 21
SQ-3B	HSS 10 x 10 x 1/2	38.0	SD-W5153	SQUARE TUBE POLE	–	OCS	FD-36	4-1 3/4	8.33	15 1/2	2 1/2 x 21 x 21
SQ-3C	HSS 10 x 10 x 1/2	41.0	SD-W5153	SQUARE TUBE POLE	–	OCS	FD-36	4-1 3/4	8.33	15 1/2	2 1/2 x 21 x 21
SQ-3D	HSS 10 x 10 x 1/2	44.0	SD-W5153	SQUARE TUBE POLE	–	OCS	FD-36	4-1 3/4	8.33	15 1/2	2 1/2 x 21 x 21
SQ-3E	HSS 10 x 10 x 1/2	47.0	SD-W5153	SQUARE TUBE POLE	–	OCS	FD-36	4-1 3/4	8.33	15 1/2	2 1/2 x 21 x 21
SQ-3X	HSS 10 x 10 x 1/2	32.0	SD-W5153	SQUARE TUBE POLE WITH EXISTING FOUNDATION	–	OCS	EXISTING	4-2 3/4 (E)	4.17 (E) & VARIES	19 13/16 & VARIES	2 1/2 x 28 x 28 & VARIES
SQ-3AX	HSS 10 x 10 x 1/2	35.0	SD-W5153	SQUARE TUBE POLE WITH EXISTING FOUNDATION	–	OCS	EXISTING	4-2 3/4 (E)	4.17 (E) & VARIES	19 13/16 & VARIES	2 1/2 x 28 x 28 & VARIES
SQ-3BX	HSS 10 x 10 x 1/2	38.0	SD-W5153	SQUARE TUBE POLE WITH EXISTING FOUNDATION	–	OCS	EXISTING	4-2 3/4 (E)	4.17 (E) & VARIES	19 13/16 & VARIES	2 1/2 x 28 x 28 & VARIES
SQ-4	HSS 12 x 12 x 5/8	32.0	SD-W5153	SQUARE TUBE POLE	–	OCS/SHUNT	FD-42A	6-2	9.33	21	2 1/2 x 28 x 28
SQ-4A	HSS 12 x 12 x 5/8	35.0	SD-W5153	SQUARE TUBE POLE	–	OCS/SHUNT	FD-42A	6-2	9.33	21	2 1/2 x 28 x 28
SQ-4B	HSS 12 x 12 x 5/8	38.0	SD-W5153	SQUARE TUBE POLE	–	OCS/SHUNT	FD-42A	6-2	9.33	21	2 1/2 x 28 x 28
SQ-4D	HSS 12 x 12 x 5/8	44.0	SD-W5153	SQUARE TUBE POLE	–	OCS/SHUNT	FD-42A	6-2	9.33	21	2 1/2 x 28 x 28
SQ-4T	HSS 12 x 12 x 5/8	NOTE 5	SD-W5153	SQUARE TUBE POLE WITH ALTERNATE FOUNDATION	–	OCS/SHUNT	NOTE 5	NOTE 5	NOTE 5	NOTE 5	NOTE 5
SQ-4X	HSS 12 x 12 x 5/8	32.0	SD-W5153	SQUARE TUBE POLE WITH EXISTING FOUNDATION	–	OCS/SHUNT	EXISTING	4-2 3/4 (E)	4.17 (E) & VARIES	19 13/16 & VARIES	2 1/2 x 28 x 28 & VARIES
SQ-5	HSS 14 x 14 x 5/8	45.5	SD-W5153	SQUARE TUBE POLE FOR HEADSPANS	–	OCS/SHUNT	FD-42S	8-2	9.33	21	2 1/2 x 28 x 28
SQ-6	HSS 12 x 12 x 5/8	45.5	SD-W5109	SQUARE TUBE LONG REACH CANTILEVER POLE	HSS 5 1/2 x 5 1/2 x 3/8 OR HSS 10 x 10 x 3/16	OCS/SHUNT	FD-42A	6-2	9.33	21	2 1/2 x 28 x 28
SQ-6R	HSS 12 x 12 x 5/8	45.5	SD-W5109	SQUARE TUBE LONG REACH CANTILEVER POLE WITH GROUTED BASE PLATE	HSS 5 1/2 x 5 1/2 x 3/8 OR HSS 10 x 10 x 3/16	OCS/SHUNT	FD-42	4-2	9.33	21	2 1/2 x 28 x 28
SQ-6X	HSS 12 x 12 x 5/8	45.5	SD-W5109	SQUARE TUBE LONG REACH CANTILEVER POLE WITH EXISTING FOUNDATION	HSS 5 1/2 x 5 1/2 x 3/8 OR HSS 10 x 10 x 3/16	OCS/SHUNT	EXISTING	4-2 3/4 (E)	4.17 (E) & VARIES	19 13/16 & VARIES	2 1/2 x 28 x 28 & VARIES
SQ-7	HSS 16 x 16 x 5/8	45.5	SD-W5153	SQUARE TUBE FOR HEADSPANS	–	OCS/SHUNT	FD-48S	8-2 1/4	9.33	25	2 1/2 x 32 x 32
SQ-8	HSS 14 x 14 x 5/8	45.5	SD-W5109	SQUARE TUBE LONG REACH CANTILEVER POLE	HSS 5 1/2 x 5 1/2 x 3/8 OR HSS 10 x 10 x 3/16	OCS/SHUNT	FD-42S	8-2	9.33	21	2 1/2 x 28 x 28
SQ-8X	HSS 14 x 14 x 5/8	45.5	SD-W5109	SQUARE TUBE LONG REACH CANTILEVER POLE	HSS 5 1/2 x 5 1/2 x 3/8 OR HSS 10 x 10 x 3/16	OCS/SHUNT	EXISTING	4-2 3/4 (E)	4.17 (E) & VARIES	19 13/16 & VARIES	2 1/2 x 28 x 28 & VARIES

NOTES:

1. FOR BASE PLATE AND BOLT INFORMATION, SEE DETAILED DRAWINGS FOR SPECIFIC POLE LISTED ABOVE
2. FOUNDATION SIZES ARE THE NUMERICAL DESIGNATION UNDER THE FOUNDATION TYPE (I.E. FD-30 HAS A 30" DIAMETER FOUNDATION)
3. FOR TERMINATION TYPES, ASSUME GUYED UNLESS SHOWN WITHOUT DOWN GUY ON FOUNDATION AND POLE LAYOUT SHEETS.
4. FOR SPAN AND RADIUS DESIGN PARAMETERS, SEE OCS FOUNDATION AND POLE LAYOUT SHEETS.
5. SEE BRIDGE ATTACHMENT DRAWINGS.

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PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES

POLE SIZE SCHEDULE
SHEET 4 OF 5

CADD FILE NAME: SD-W5161

REV: | EDITION: SECOND

SCALE:

STANDARD DRAWING NO.: SD-W5161

OCS POLE SCHEDULE							OCS FOUNDATION SCHEDULE (NOTE 1)				
POLE TYPE	POLE SIZE	POLE HEIGHT (FT)	DRAWING NUMBER	DESCRIPTION	HORIZONTAL BEAM SIZE	TERMINATION TYPE	FOUNDATION TYPE	NO. OF BOLTS AND DIAMETER (IN)	BOLT LENGTH (FT)	BOLT SPACING (IN)	BASE PLATE SIZE (IN)
SQ-9A	HSS 12 x 12 x 1/2	35.0	SD-W5153	SQUARE TUBE POLE	–	OCS/SHUNT	FD-36A	4-2	9.33	15 1/2	2 1/2 x 21 x 21
SQ-9B	HSS 12 x 12 x 1/2	38.0	SD-W5153	SQUARE TUBE POLE	–	OCS/SHUNT	FD-36A	4-2	9.33	15 1/2	2 1/2 x 21 x 21
SQ-9C	HSS 12 x 12 x 1/2	41.0	SD-W5153	SQUARE TUBE POLE	–	OCS/SHUNT	FD-36A	4-2	9.33	15 1/2	2 1/2 x 21 x 21
SQ-9D	HSS 12 x 12 x 1/2	44.0	SD-W5153	SQUARE TUBE POLE	–	OCS/SHUNT	FD-36A	4-2	9.33	15 1/2	2 1/2 x 21 x 21
SQ-9E	HSS 12 x 12 x 1/2	47.0	SD-W5153	SQUARE TUBE POLE	–	OCS/SHUNT	FD-36A	4-2	9.33	15 1/2	2 1/2 x 21 x 21
SQ-9AX	HSS 12 x 12 x 1/2	35.0	SD-W5153	SQUARE TUBE POLE WITH EXISTING FOUNDATION	–	OCS/SHUNT	EXISTING	4-2 3/4 (E)	4.17 (E) & VARIES	19 13/16 & VARIES	2 1/2 x 28 x 28 & VARIES
SQ-9BX	HSS 12 x 12 x 1/2	38.0	SD-W5153	SQUARE TUBE POLE WITH EXISTING FOUNDATION	–	OCS/SHUNT	EXISTING	4-2 3/4 (E)	4.17 (E) & VARIES	19 13/16 & VARIES	2 1/2 x 28 x 28 & VARIES
SQ-9EX	HSS 12 x 12 x 1/2	47.0	SD-W5153	SQUARE TUBE POLE WITH EXISTING FOUNDATION	–	OCS/SHUNT	EXISTING	4-2 3/4 (E)	4.17 (E) & VARIES	19 13/16 & VARIES	2 1/2 x 28 x 28 & VARIES
SQ-10A	HSS 12 x 12 x 5/8	35.0	SD-W5153	SQUARE TUBE POLE	–	OCS/SHUNT	FD-42S	8-2	9.33	21	2 1/2 x 28 x 28
SQ-10C	HSS 12 x 12 x 5/8	41.0	SD-W5153	SQUARE TUBE POLE	–	OCS/SHUNT	FD-42S	8-2	9.33	21	2 1/2 x 28 x 28
SQ-10BX	HSS 12 x 12 x 5/8	38.0	SD-W5153	SQUARE TUBE POLE WITH EXISTING FOUNDATION	–	OCS/SHUNT	EXISTING	4-2 3/4 (E)	4.17 (E) & VARIES	19 13/16 & VARIES	2 1/2 x 28 x 28 & VARIES
SQ-10CX	HSS 12 x 12 x 5/8	41.0	SD-W5153	SQUARE TUBE POLE WITH EXISTING FOUNDATION	–	OCS/SHUNT	EXISTING	4-2 3/4 (E)	4.17 (E) & VARIES	19 13/16 & VARIES	2 1/2 x 28 x 28 & VARIES
SQ-11	HSS 14 x 14 x 5/8	32.0	SD-W5153	SQUARE TUBE POLE	–	OCS/SHUNT	FD-42S	8-2	9.33	21	2 1/2 x 28 x 28
SQ-11A	HSS 14 x 14 x 5/8	35.0	SD-W5153	SQUARE TUBE POLE	–	OCS/SHUNT	FD-42S	8-2	9.33	21	2 1/2 x 28 x 28
SQ-11B	HSS 14 x 14 x 5/8	38.0	SD-W5153	SQUARE TUBE POLE	–	OCS/SHUNT	FD-42S	8-2	9.33	21	2 1/2 x 28 x 28
SQ-11C	HSS 14 x 14 x 5/8	41.0	SD-W5153	SQUARE TUBE POLE	–	OCS/SHUNT	FD-42S	8-2	9.33	21	2 1/2 x 28 x 28
SQ-11D	HSS 14 x 14 x 5/8	44.0	SD-W5153	SQUARE TUBE POLE	–	OCS/SHUNT	FD-42S	8-2	9.33	21	2 1/2 x 28 x 28
SQ-11BX	HSS 14 x 14 x 5/8	38.0	SD-W5153	SQUARE TUBE POLE WITH EXISTING FOUNDATION	–	OCS/SHUNT	EXISTING	4-2 3/4 (E)	4.17 (E) & VARIES	19 13/16 & VARIES	2 1/2 x 28 x 28 & VARIES
SQ-12	HSS 14 x 14 x 5/8	45.5	SD-W5243	SQUARE TUBE LONG REACH POLE WITH ARM SKEWED TO THE TRACKS	HSS 10 x 10 x 3/16	OCS	FD-42S	8-2	9.33	21	2 1/2 x 28 x 28
SQ-13	HSS 14 x 14 x 5/8	32.0	SD-W5282	SQUARE TUBE POLE WITH ANCHOR ARM	HSS 10 x 10 x 1/2	OCS	FD-42S	8-2	9.33	21	2 1/2 x 28 x 28
SQ-15	HSS 16 x 16 x 5/8	45.5	SD-W5246	SQUARE TUBE ULTRA LONG REACH CANTILEVER POLE	HSS 10 x 10 x 3/16	OCS	FD-48S	8-2 1/4	9.33	25	2 1/2 x 32 x 32
TT-1	13 ø x 0 GA	32.0	SD-W5102	TAPERED TUBULAR POLE	–	–	FD-30	4-1 1/2	8.33	12	2 1/2 x 18 x 18
TT-1A	13 ø x 0 GA	35.0	SD-W5102	TAPERED TUBULAR POLE	–	–	FD-30	4-1 1/2	8.33	12	2 1/2 x 18 x 18
TT-1B	13 ø x 0 GA	38.0	SD-W5102	TAPERED TUBULAR POLE	–	–	FD-30	4-1 1/2	8.33	12	2 1/2 x 18 x 18
TT-3A	17 ø x 0 GA	35.0	SD-W5102	TAPERED TUBULAR POLE	–	OCS/SHUNT	FD-36A	4-2	9.33	15 1/2	2 1/2 x 21 x 21
TT-3B	17 ø x 0 GA	38.0	SD-W5102	TAPERED TUBULAR POLE	–	OCS/SHUNT	FD-36A	4-2	9.33	15 1/2	2 1/2 x 21 x 21
TT-4	13 ø x 0 GA	32.0	SD-W5102	TAPERED TUBULAR POLE	–	OCS	FD-36	4-1 3/4	8.33	15 1/2	2 1/2 x 21 x 21
TT-4A	13 ø x 0 GA	35.0	SD-W5102	TAPERED TUBULAR POLE	–	OCS	FD-36	4-1 3/4	8.33	15 1/2	2 1/2 x 21 x 21
TT-4B	13 ø x 0 GA	38.0	SD-W5102	TAPERED TUBULAR POLE	–	OCS	FD-36	4-1 3/4	8.33	15 1/2	2 1/2 x 21 x 21

NOTES:

1. FOR BASE PLATE AND BOLT INFORMATION, SEE DETAILED DRAWINGS FOR SPECIFIC POLE LISTED ABOVE
2. FOUNDATION SIZES ARE THE NUMERICAL DESIGNATION UNDER THE FOUNDATION TYPE (I.E. FD-30 HAS A 30" DIAMETER FOUNDATION)
3. FOR TERMINATION TYPES, ASSUME GUYED UNLESS SHOWN WITHOUT DOWN GUY ON FOUNDATION AND POLE LAYOUT SHEETS.
4. FOR SPAN AND RADIUS DESIGN PARAMETERS, SEE OCS FOUNDATION AND POLE LAYOUT SHEETS.

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PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES

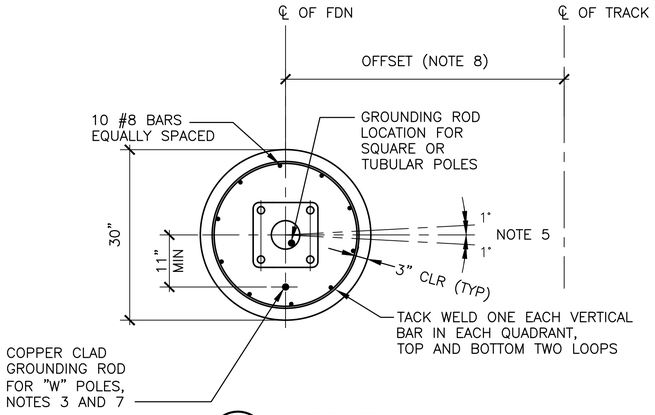
POLE SIZE SCHEDULE
SHEET 5 OF 5

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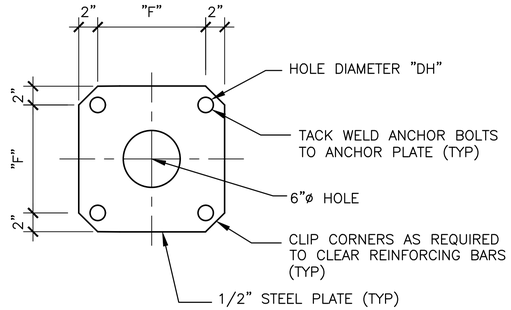
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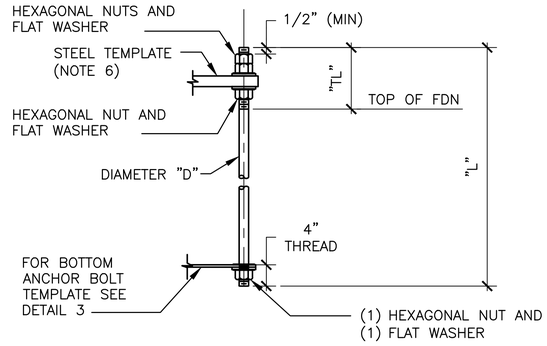
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A — SECTION



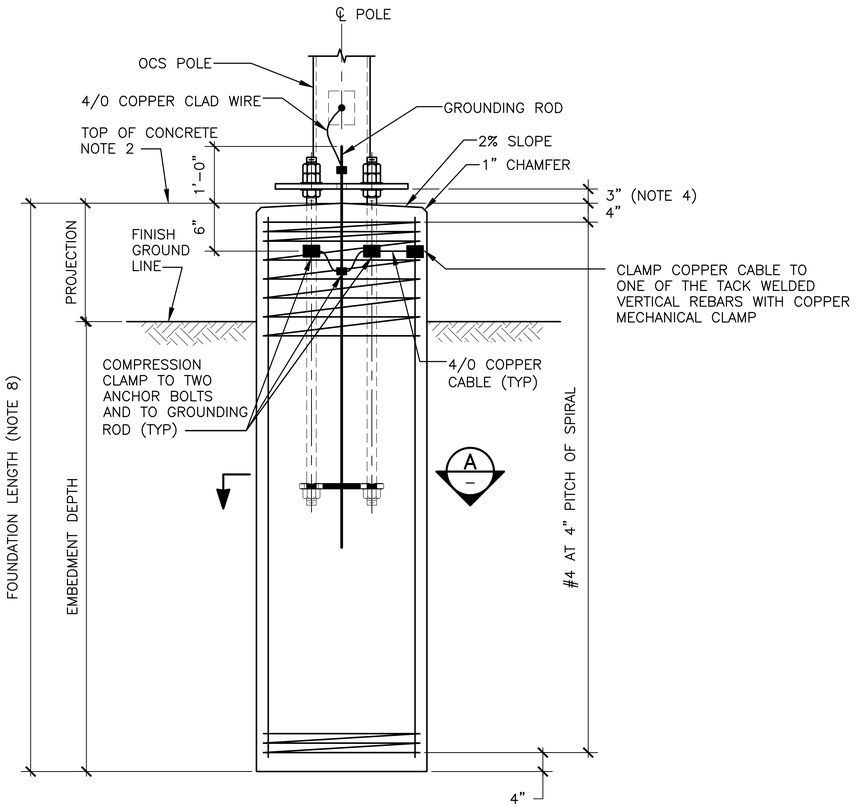
3 — DETAIL
BOTTOM ANCHOR BOLT TEMPLATE



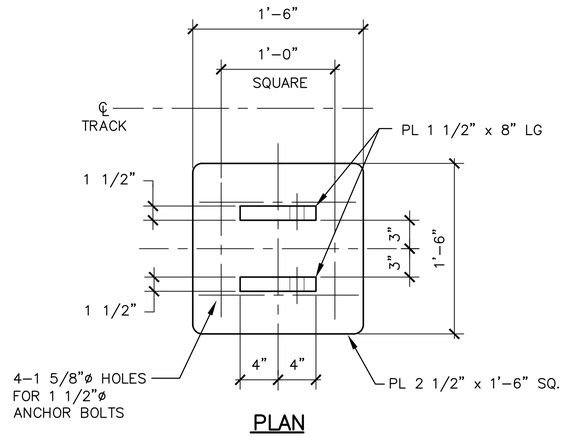
2 — DETAIL
ANCHOR BOLT DETAIL

NOTES:

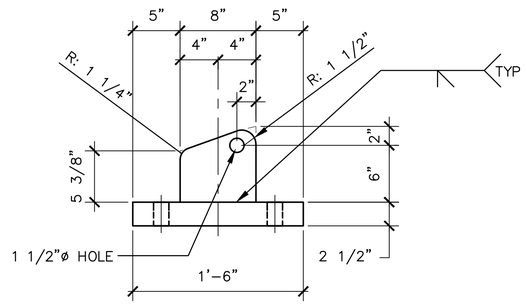
1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS, SEE DRAWING SD–W0101.
2. FOUNDATION FINISH LEVEL SHALL BE AT HIGH RAIL LEVEL. FOUNDATION FINISH LEVEL AT PAVED AREAS SHALL BE FLUSH WITH PLATFORM OR PAVED LEVEL.
3. MAY ADJUST LOCATION TO SUPPORT GROUND ROD ALONG REBAR CAGE.
4. A MINIMUM OF ONE–HALF INCH MUST BE KEPT BETWEEN BOTTOM OF NUT AND TOP OF FOUNDATION TO ALLOW FOR POLE RAKING.
5. ROTATIONAL TOLERANCE OF THE ANCHOR BOLT ASSEMBLY MEASURED PERPENDICULAR TO TRACK CENTER LINE SHALL BE SET WITHIN ONE DEGREE OF ITS CORRECT ORIENTATION.
6. 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.
7. 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.
8. FOR FOUNDATION STATIONING AND LENGTH, SEE FOUNDATION AND POLE LAYOUT DRAWINGS.
9. REBAR SIZE AND QUANTITY AND FOUNDATION EMBEDMENT TO BE CALCULATED BASED ON SOIL CONDITIONS AT SPECIFIC LOCATIONS.



ELEVATION



PLAN



ELEVATION

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

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REV	DATE	BY	CHK	APP

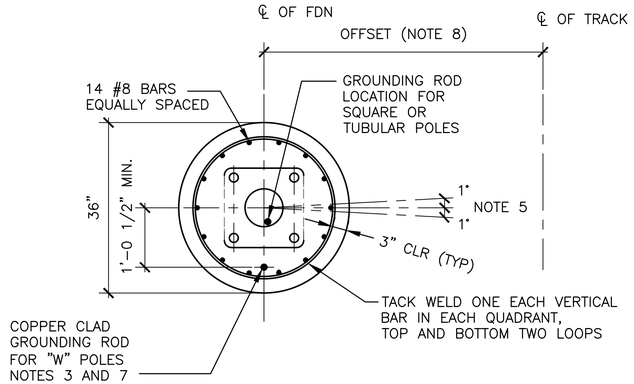
PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

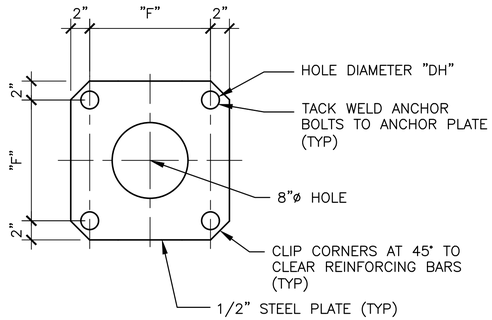
ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
DRILLED PIER FOUNDATION
30" DIAMETER
TYPE FD–30

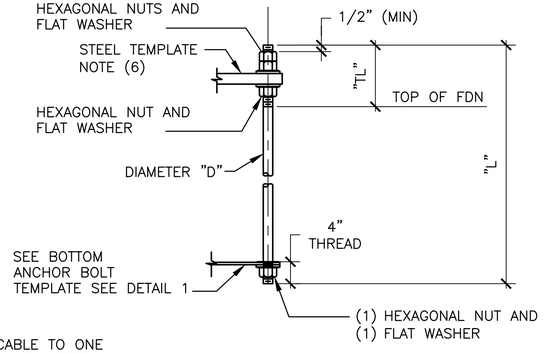
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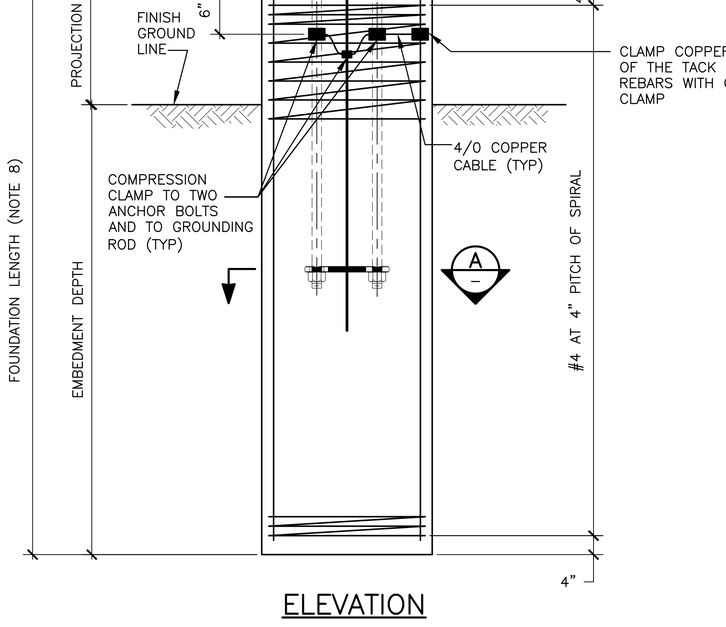
A — SECTION



1 — DETAIL
BOTTOM ANCHOR BOLT TEMPLATE



2 — DETAIL
ANCHOR BOLT DETAIL



ELEVATION

NOTES:

1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS, SEE DRAWING SD–W0101.
2. SEE GENERAL ARRANGEMENT DRAWINGS FOR TOP OF FOUNDATION INFORMATION.
3. MAY ADJUST LOCATION TO SUPPORT GROUND ROD ALONG REBAR CAGE.
4. A MINIMUM OF ONE–HALF INCH MUST BE KEPT BETWEEN BOTTOM OF NUT AND TOP OF FOUNDATION TO ALLOW FOR POLE RAKING.
5. ROTATIONAL TOLERANCE OF THE ANCHOR BOLT ASSEMBLY MEASURED PERPENDICULAR TO TRACK CENTER LINE SHALL BE SET WITHIN ONE DEGREE OF ITS CORRECT ORIENTATION.
6. 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.
7. 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.
8. FOR FOUNDATION STATIONING AND LENGTH. SEE FOUNDATION AND POLE LAYOUT DRAWINGS.

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–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	

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	010126				SECOND EDITION

PENINSULA CORRIDOR JOINT POWERS BOARD

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ENGINEERING STANDARD DRAWINGS

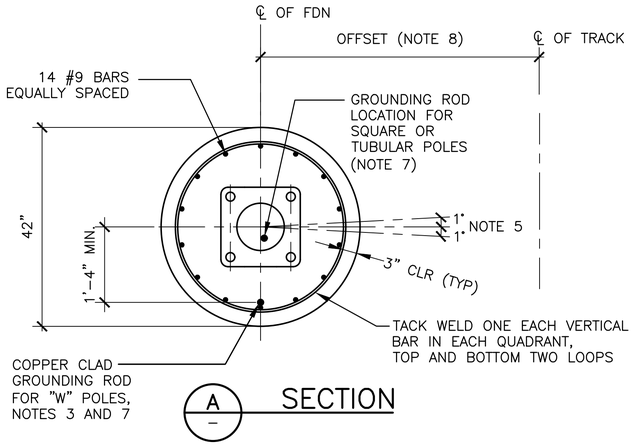
OVERHEAD CONTACT SYSTEM
OCS POLES
DRILLED PIER FOUNDATION
36" DIAMETER
TYPE FD–36 AND FD–36A

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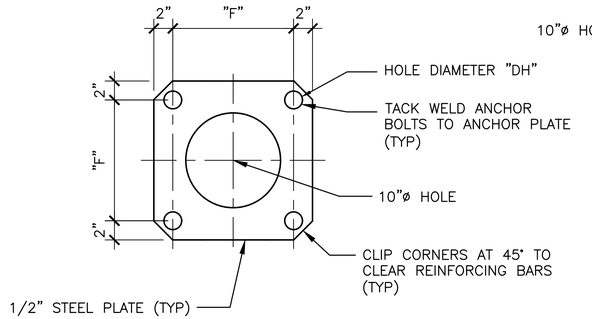
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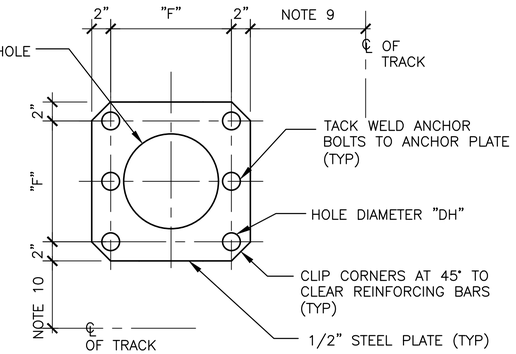
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A — SECTION

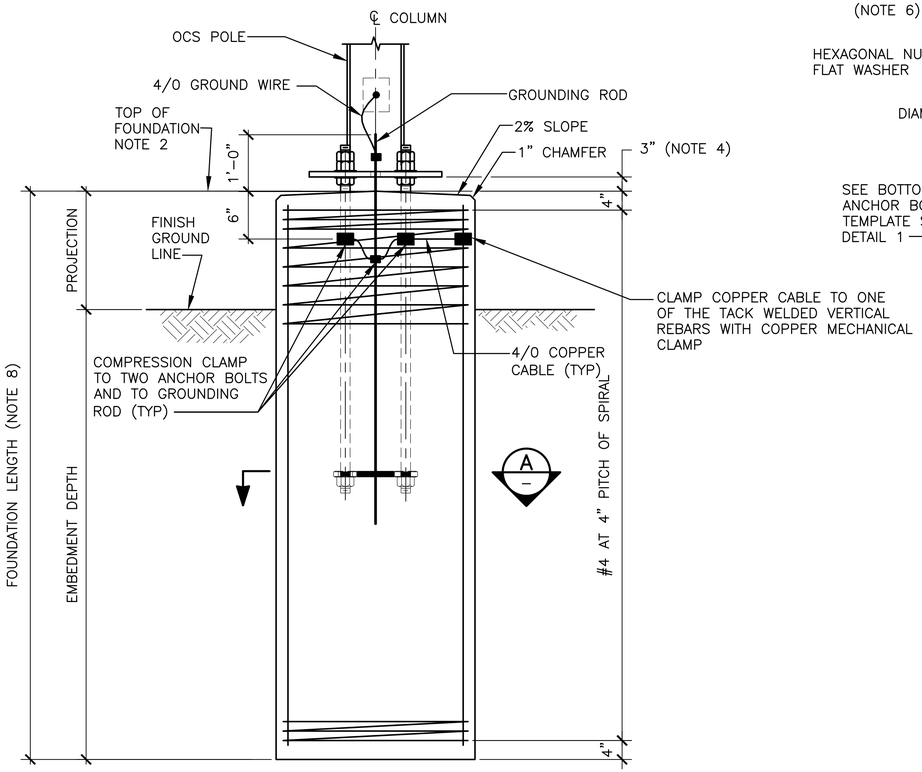


BOTTOM ANCHOR BOLT TEMPLATE FOR FDN FD-42

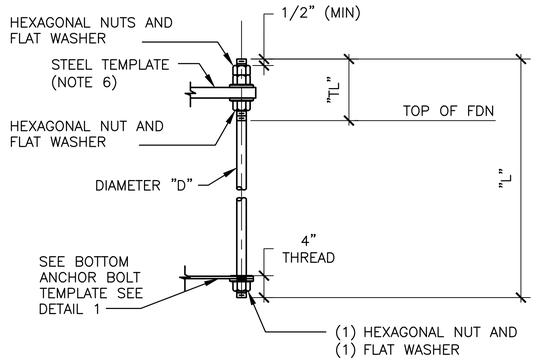


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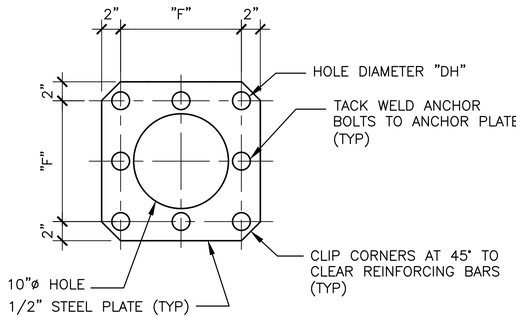
1 — DETAIL
BOTTOM ANCHOR BOLT TEMPLATE



ELEVATION



2 — DETAIL
ANCHOR BOLT DETAIL



3 — DETAIL
BOTTOM ANCHOR BOLT TEMPLATE FOR FDN FD-42S

NOTES:

1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS, SEE DRAWING SD-W0101.
2. SEE GENERAL ARRANGEMENT DRAWINGS FOR TOP OF FOUNDATION INFORMATION.
3. MAY ADJUST LOCATION TO SUPPORT GROUND ROD ALONG REBAR CAGE.
4. A MINIMUM OF ONE-HALF INCH MUST BE KEPT BETWEEN BOTTOM OF NUT AND TOP OF FOUNDATION TO ALLOW FOR POLE RAKING.
5. ROTATIONAL TOLERANCE OF THE ANCHOR BOLT ASSEMBLY MEASURED PERPENDICULAR TO TRACK CENTER LINE SHALL BE SET WITHIN ONE DEGREE OF ITS CORRECT ORIENTATION.
6. 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.
7. 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.
8. FOR FOUNDATION STATIONING AND LENGTH, SEE FOUNDATION AND POLE LAYOUT DRAWINGS.
9. 3-BOLT ROWS ARE PARALLEL TO THE TRACKS FOR POLE TYPES OTHER THAN THOSE LISTED IN NOTE 10.
10. 3-BOLT ROWS ARE PERPENDICULAR TO THE TRACKS FOR POLE TYPES WF-7, WF-7A, WF-7B AND WF-7C.

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	

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	010126				SECOND EDITION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

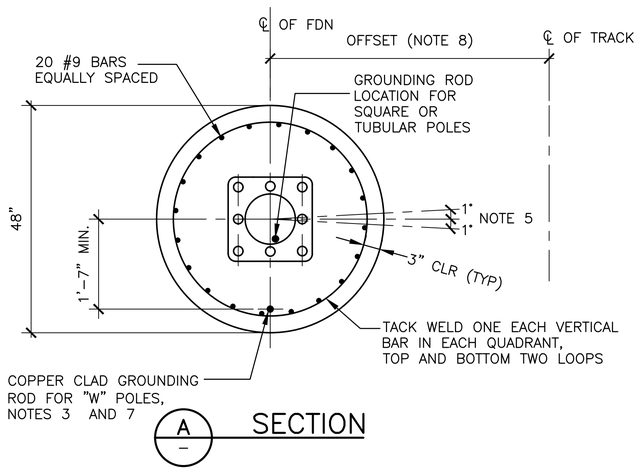
Bin Zhang

DIRECTOR, ENGINEERING

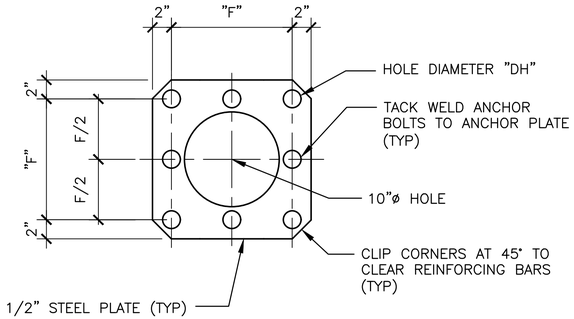
ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
DRILLED PIER FOUNDATION
42" DIAMETER
TYPES FD-42, FD-42A & FD-42S

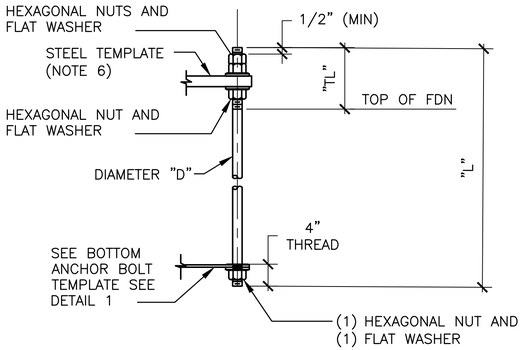
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REV:
EDITION: SECOND
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STANDARD DRAWING NO.: SD-W5164



A — SECTION



1 — DETAIL
BOTTOM ANCHOR BOLT TEMPLATE



2 — DETAIL
ANCHOR BOLT DETAIL

ELEVATION

NOTES:

1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS, SEE DRAWING SD-W0101.
2. SEE GENERAL ARRANGEMENT DRAWINGS FOR TOP OF FOUNDATION INFORMATION.
3. MAY ADJUST LOCATION TO SUPPORT GROUND ROD ALONG REBAR CAGE.
4. A MINIMUM OF ONE-HALF INCH MUST BE KEPT BETWEEN BOTTOM OF NUT AND TOP OF FOUNDATION TO ALLOW FOR POLE RAKING.
5. ROTATIONAL TOLERANCE OF THE ANCHOR BOLT ASSEMBLY MEASURED PERPENDICULAR TO TRACK CENTER LINE SHALL BE SET WITHIN ONE DEGREE OF ITS CORRECT ORIENTATION.
6. 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.
7. 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.
8. FOR FOUNDATION STATIONING AND LENGTH. SEE FOUNDATION AND POLE LAYOUT DRAWINGS.

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
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

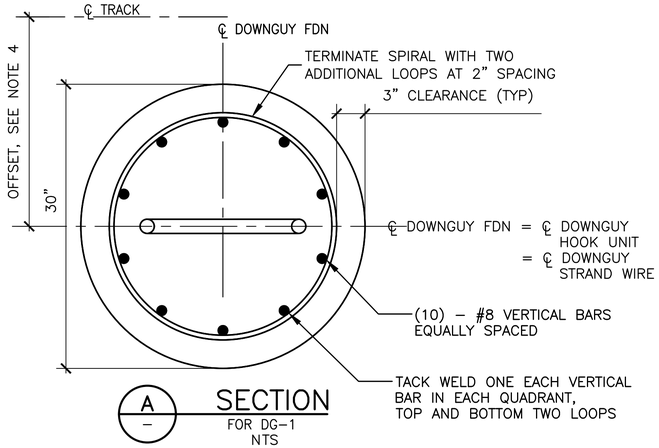
APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

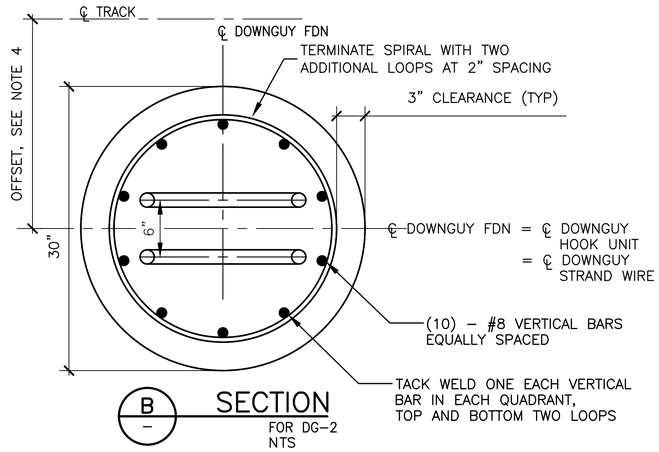
Caltrain

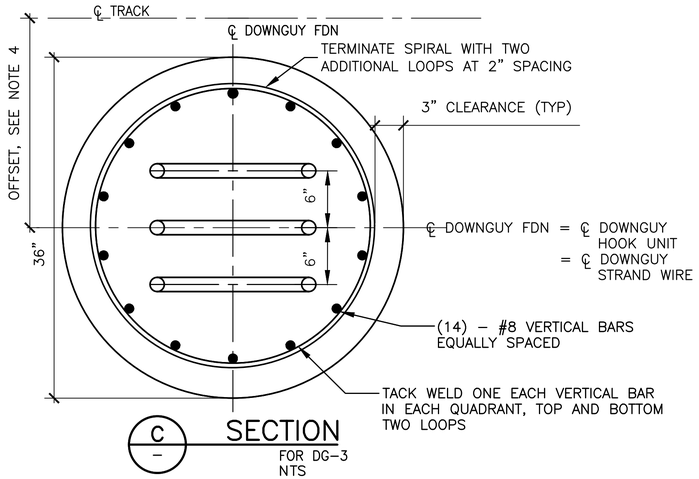
ENGINEERING STANDARD DRAWINGS

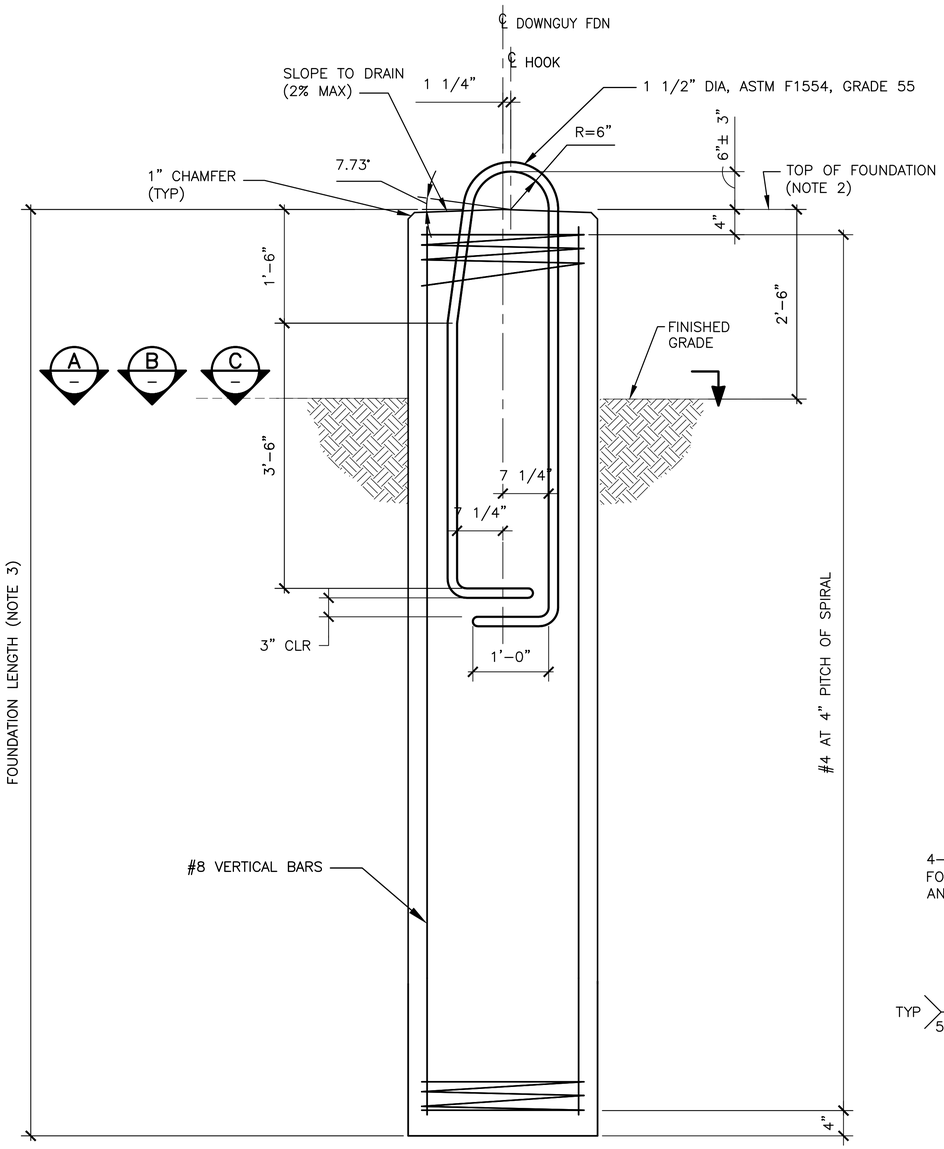
OVERHEAD CONTACT SYSTEM
OCS POLES
DRILLED PIER FOUNDATION
48" DIAMETER
TYPE FD-48S

CADD FILE NAME: SD-W5165
REV: EDITION: SECOND
SCALE: NTS
STANDARD DRAWING NO.: SD-W5165





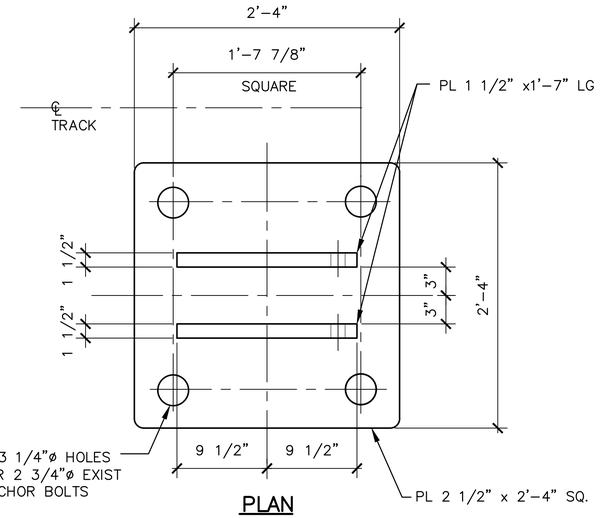




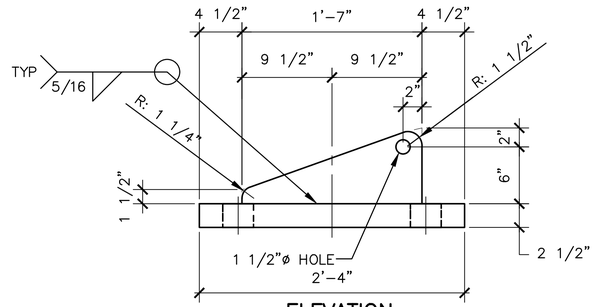
ELEVATION
DG–1 AND DG–2 SHOWN
DG–3 SIMILAR
NTS

NOTES:

1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS, SEE DRAWING SD–W0101.
2. TOP OF FOUNDATION SHALL EXTEND 2'–6" ABOVE LOWEST POINT OF ADJACENT FINISHED GRADE (2" CLR MIN), UNLESS APPROVED BY ENGINEER.
3. FOR FOUNDATION STATIONING AND LENGTH, SEE FOUNDATION AND POLE LAYOUT DRAWINGS.
4. 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.
5. BASE PLATE FOR DOWN GUYS AT EXISTING FOUNDATIONS SHALL BE HOT DIP GALVANIZED. FIELD MEASURE EXISTING CONDITION AND NOTIFY ENGINEER PRIOR TO FABRICATION.



PLAN



ELEVATION

1 DETAIL
1 1/2"=1'–0"
NOTE 5

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REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

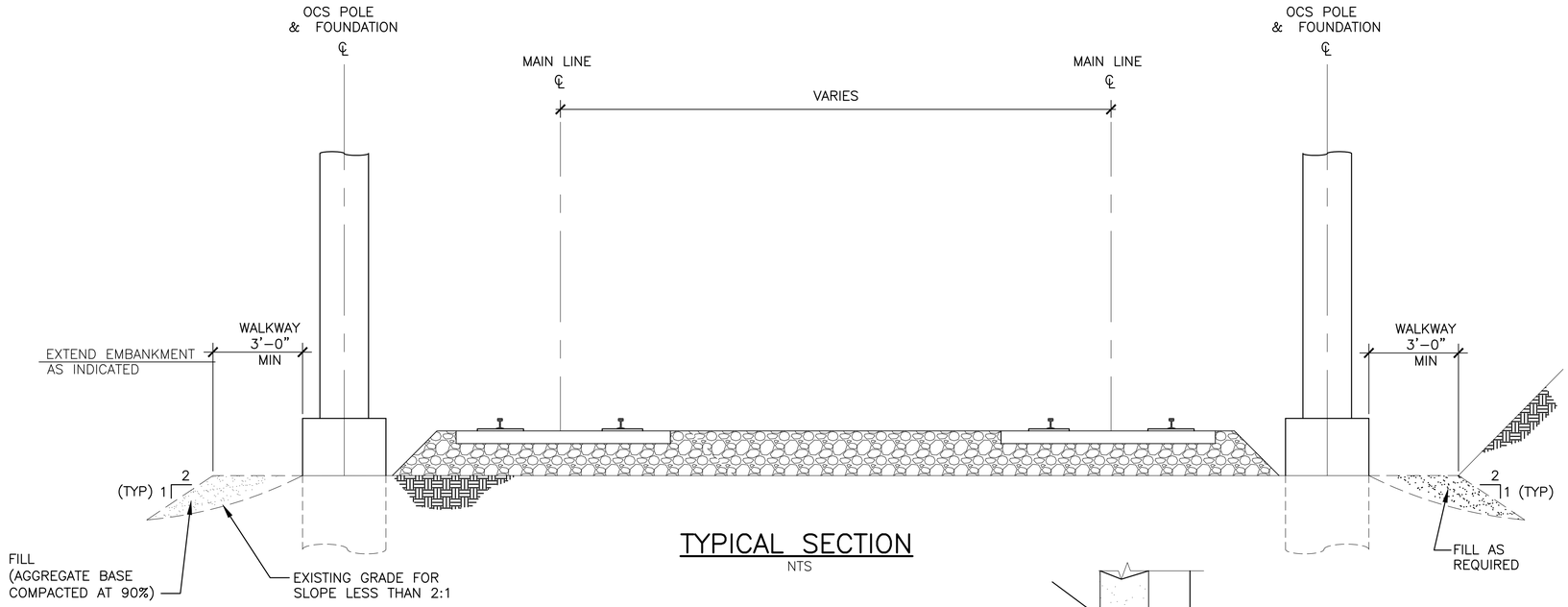
APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

Caltrain

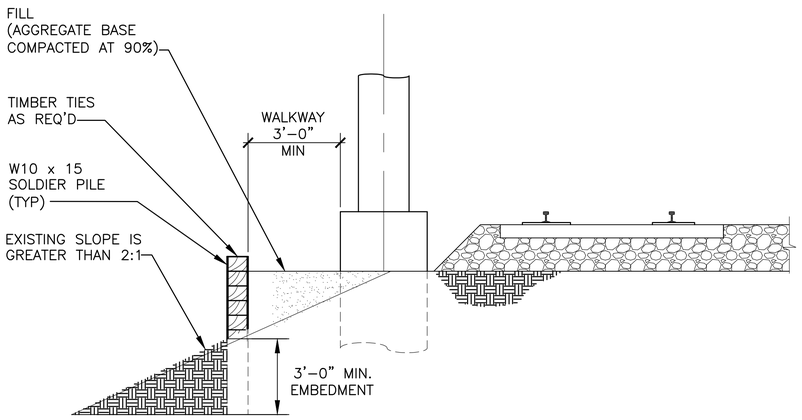
ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
DRILLED PIER FOUNDATION
DOWNGUYS
TYPES DG–1, DG–2, DG–3 & EXISTING

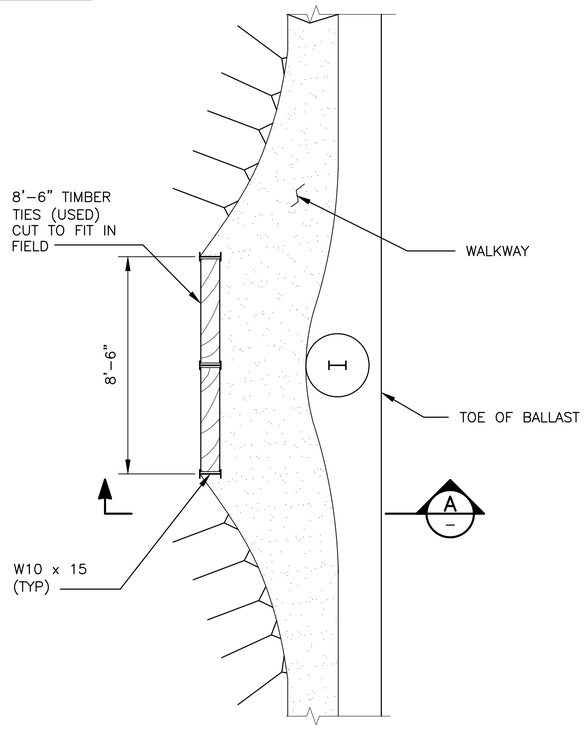
CADD FILE NAME: SD–W5166
REV:
EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5166



TYPICAL SECTION
NTS



A/– ALTERNATE SECTION
NTS



PLAN
NTS

NOTE:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. WALKWAYS SHOWN ON THIS DRAWING ARE INTENDED FOR EXCLUSIVE ACCESS BY CALTRAIN PERSONNEL OR QUALIFIED CONTRACTORS AND NOT SUBJECT TO PUBLIC PEDESTRIAN ACCESS REQUIREMENTS.
3. FOR WALKWAYS NOT AT OCS LOCATIONS, SEE DRAWING SD–2151.

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	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES

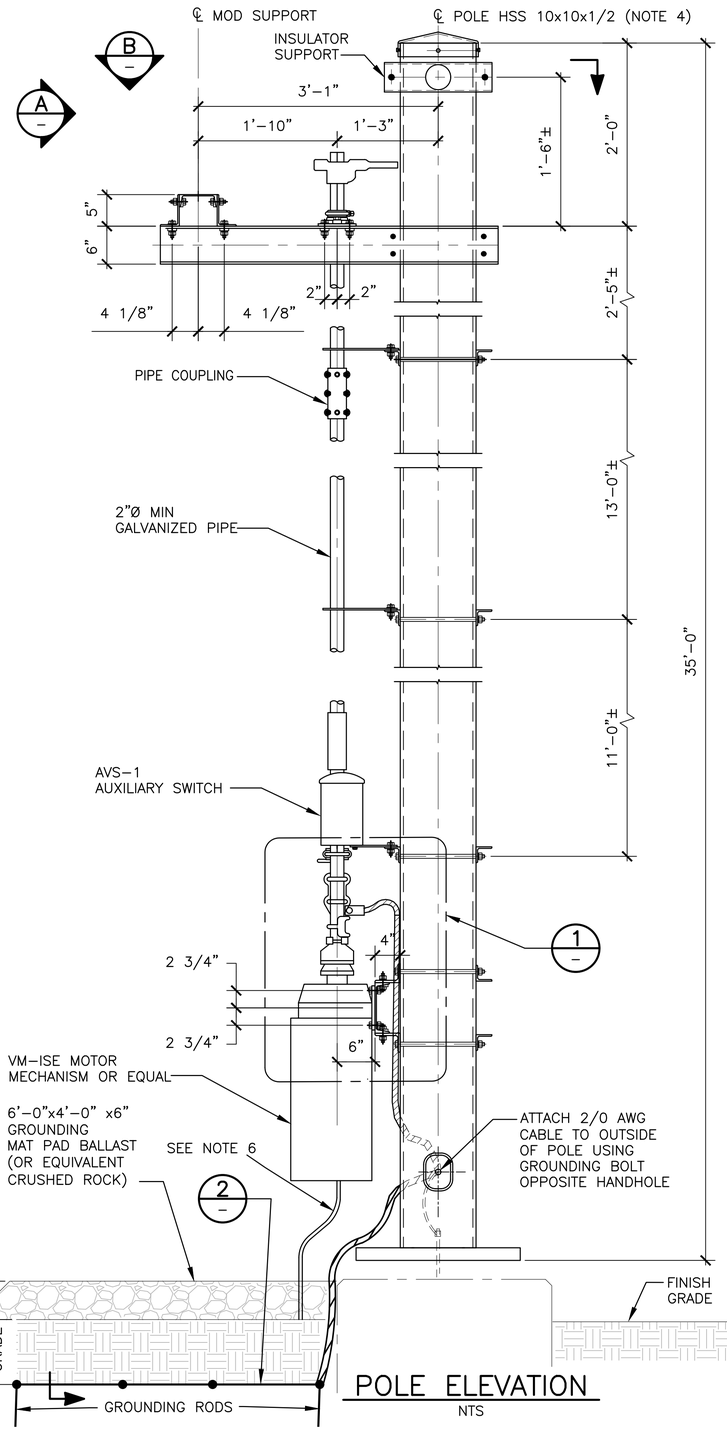
WALKWAYS ALONG MAIN LINE TRACKS
AT OCS LOCATIONS

CADD FILE NAME: SD–W5170

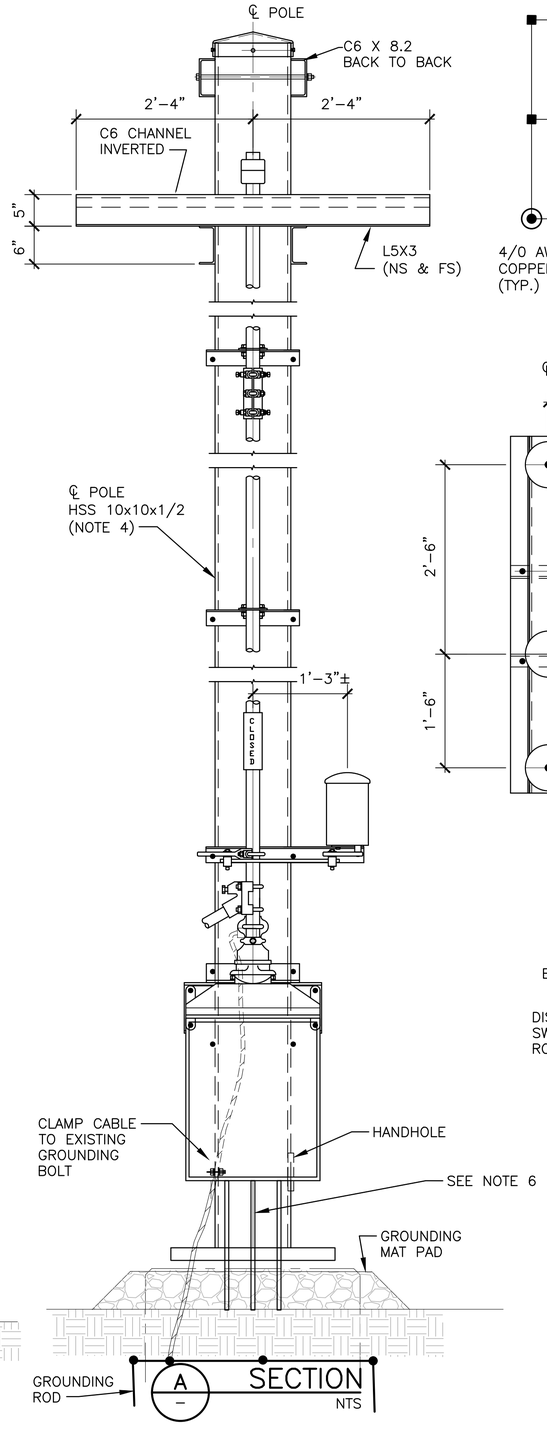
REV: | EDITION: SECOND

SCALE: NTS

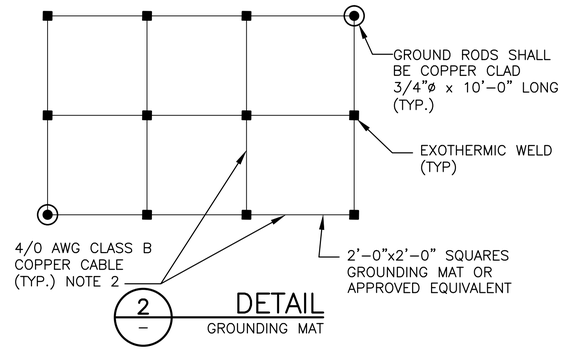
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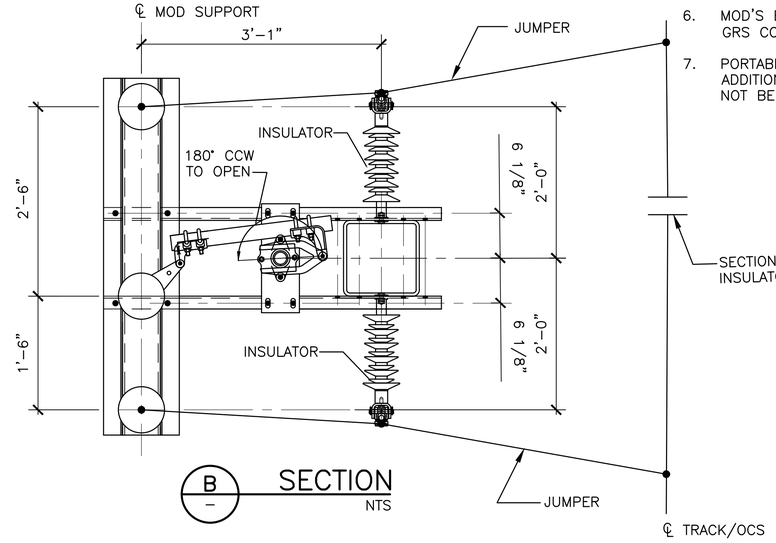
POLE ELEVATION
NTS



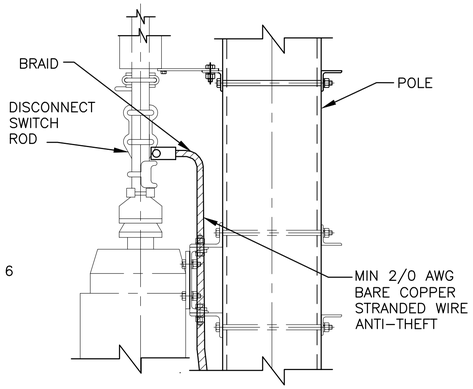
A SECTION
NTS



2 DETAIL
GROUNDING MAT



B SECTION
NTS



FOR INSTALLATIONS

1 DETAIL
SCALE: NTS

NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–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. FURNISH SWITCHES MOUNTED WITH POLYMER INSULATORS AND COMPLETELY ASSEMBLED.
4. POLE SIZE MAY VARY BASED ON LOCATION, REFER TO FOUNDATION AND POLE LAYOUT DRAWINGS.
5. 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.
6. MOD'S ENCLOSURE STUB UP SHALL BE 3–2" DIA. GRS CONDUITS.
7. 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
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

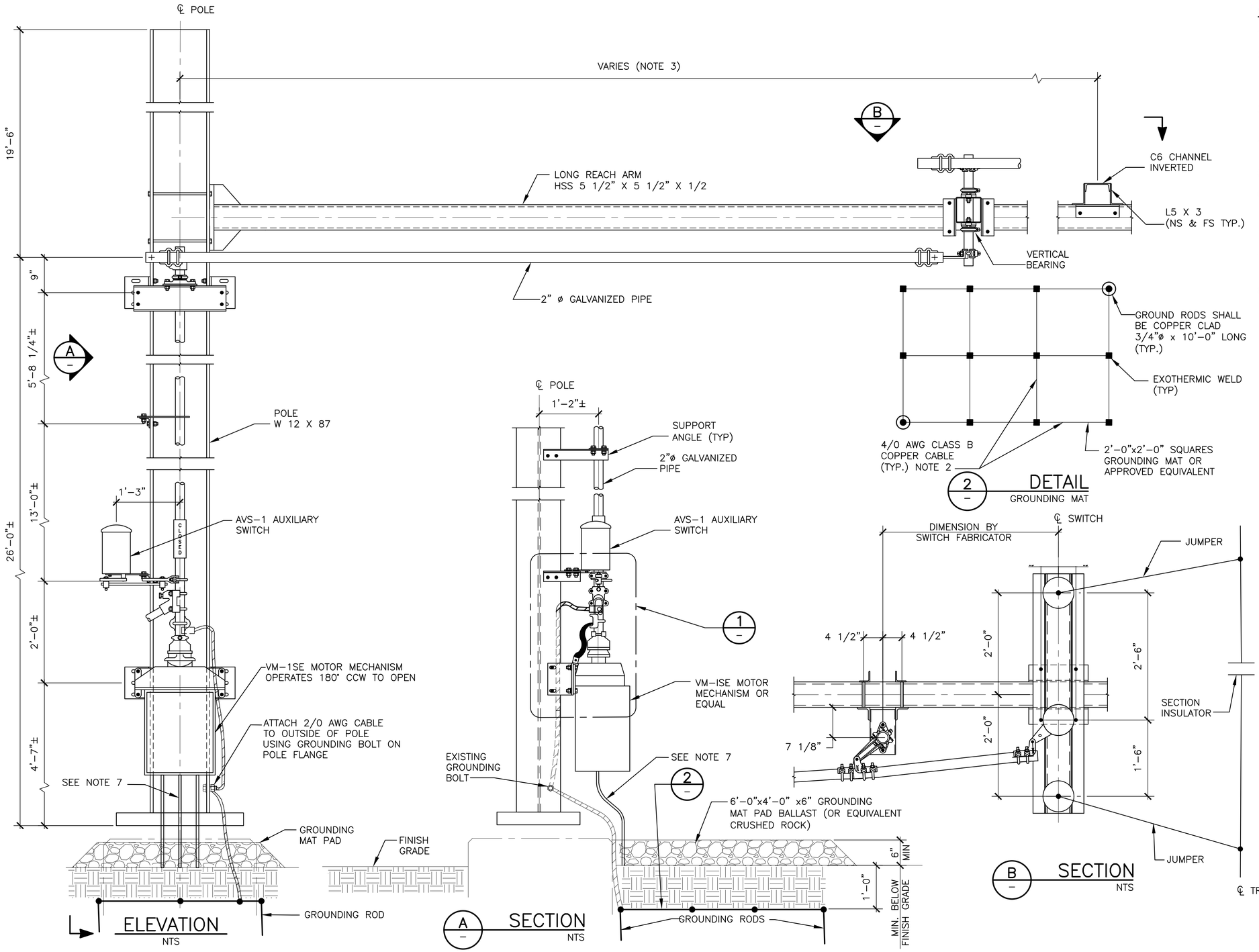
APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
MOD DISCONNECT SWITCH
ON POLE TYPE SQ–3A
MOUNTING DETAILS

CADD FILE NAME:	SD–W5171
REV:	EDITION: SECOND
SCALE:	NTS
STANDARD DRAWING NO.:	SD–W5171



NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD-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
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

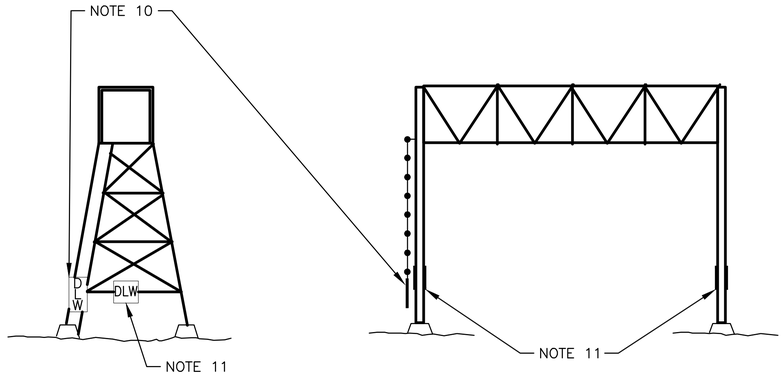
Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
MOD DISCONNECT SWITCH
ON POLE WF-4B
MOUNTING DETAILS

CADD FILE NAME:	SD-W5172
REV:	EDITION: SECOND
SCALE:	NTS
STANDARD DRAWING NO.:	SD-W5172

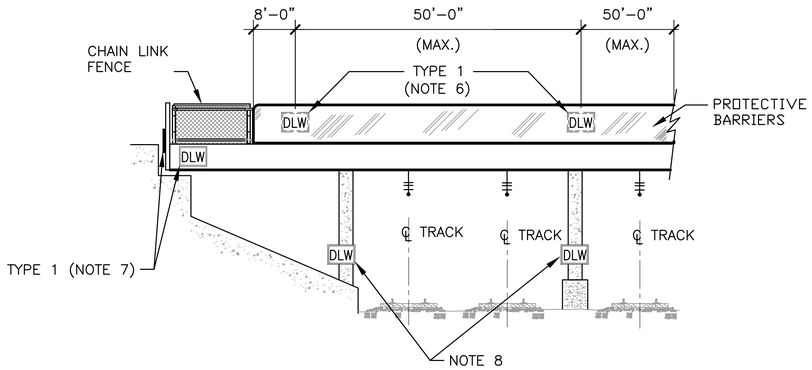


SIDE ELEVATION

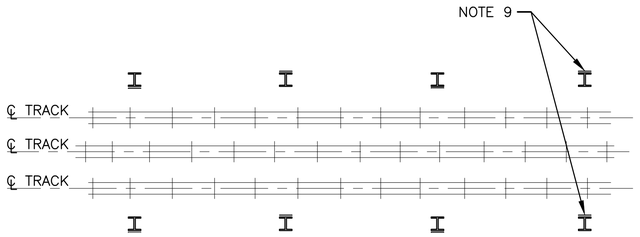
FRONT ELEVATION

N.T.S.

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 2 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. NOTE, AS DIRECTED BY JPB, SEGMENT 1 AND 2 DO NOT REQUIRE THESE SIGNS AND ALTERNATIE SIGNS CONSISTENT WITH CPUC SED–2 REQUIREMENTS SHALL BE USED.
10. "DANGER LIVE WIRE" TYPE 3 SIGN OR PAINT, 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.

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	010126				SECOND EDITION

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PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM

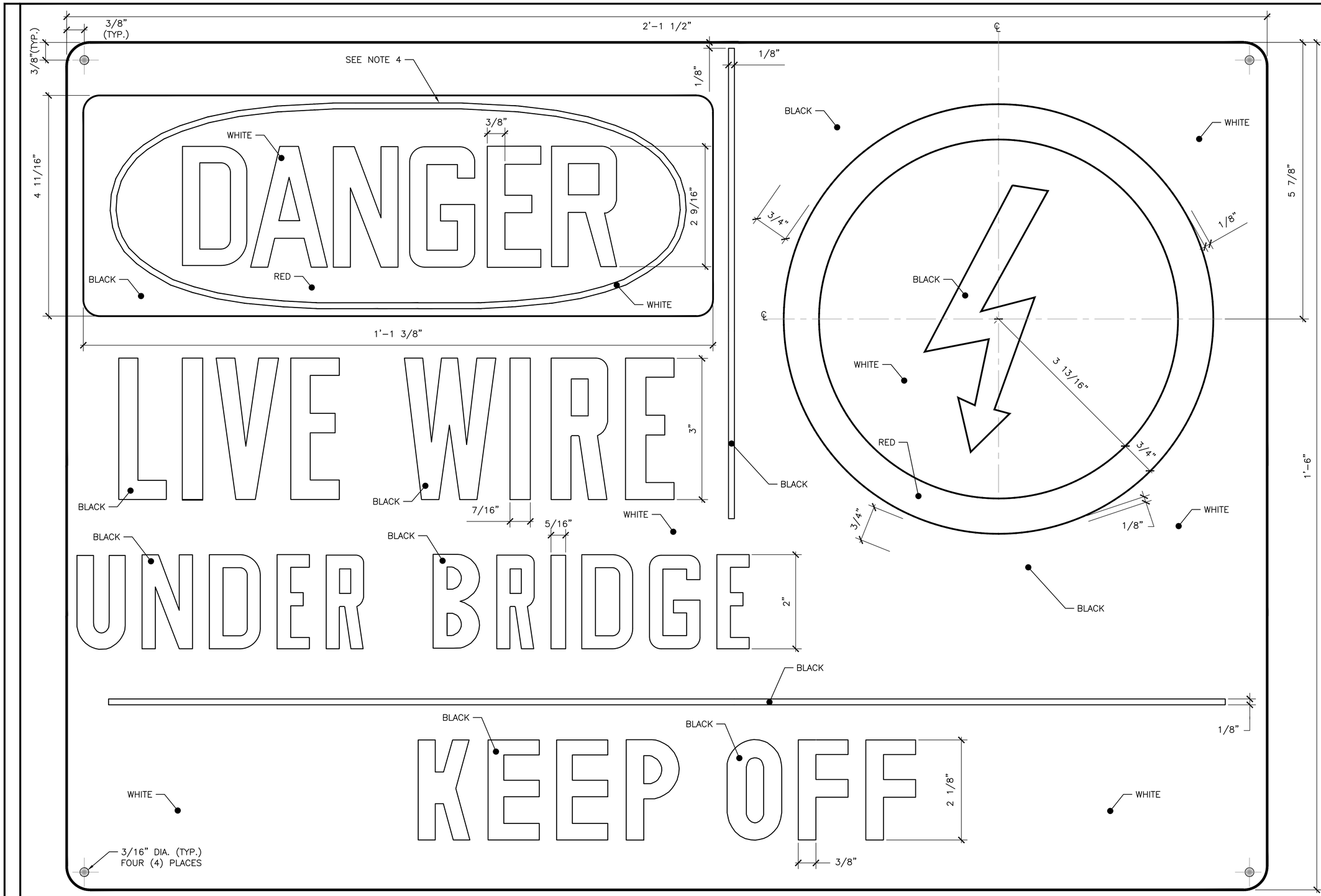
OCS WARNING SIGNS GENERAL LOCATIONS

CADD FILE NAME: SD–W5180

REV: | EDITION: SECOND

SCALE: NTS

STANDARD DRAWING NO.: SD–W5180



NOTES:

1. SEE DRAWING SD-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.

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	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

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ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM

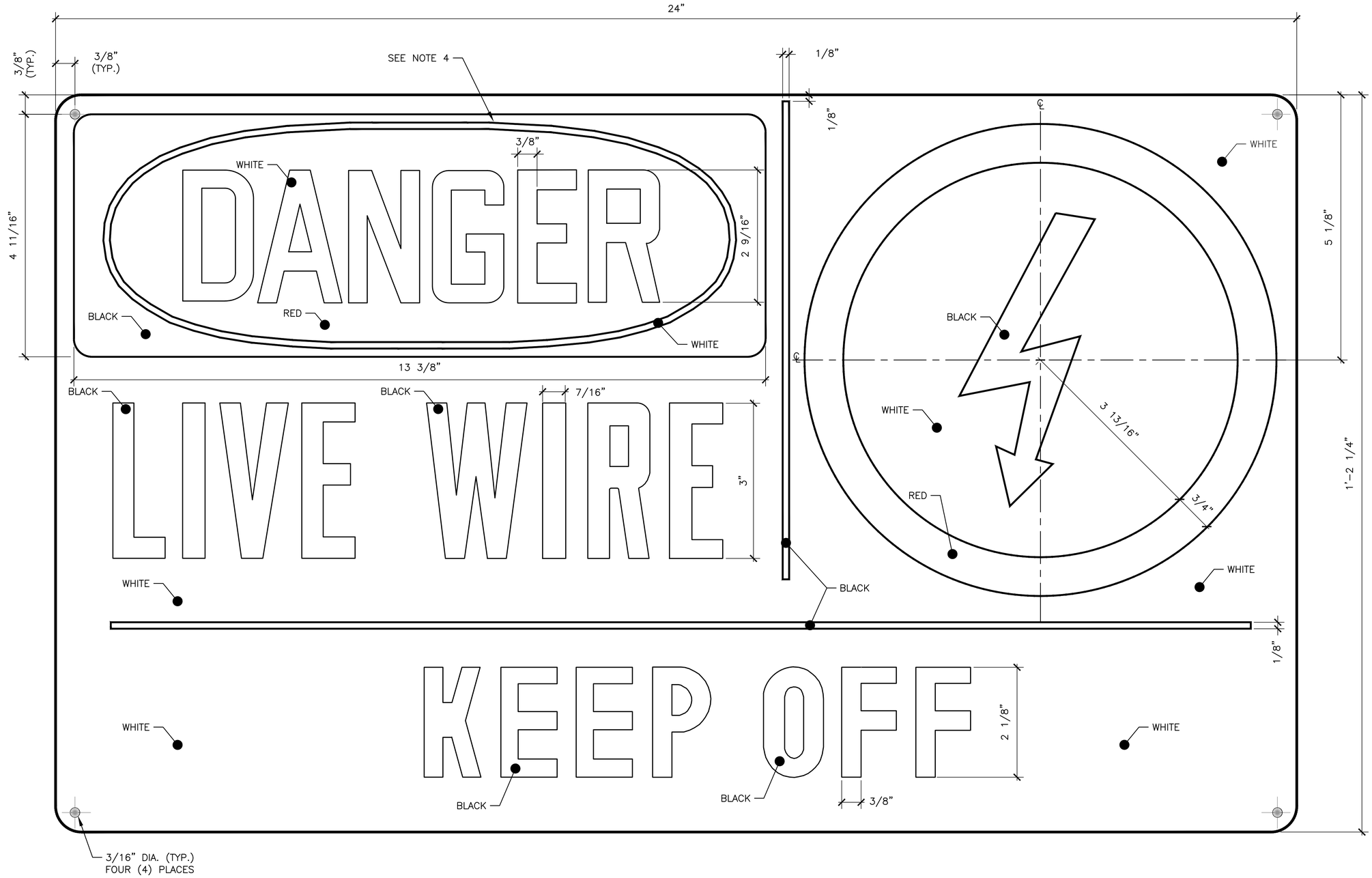
OCS WARNING SIGNS
DANGER-LIVE WIRE - UNDER BRIDGE
TYPE 1

CADD FILE NAME: SD-W5181

REV: | EDITION: SECOND

SCALE: NTS

STANDARD DRAWING NO.: SD-W5181



NOTES:

1. SEE DRAWING SD-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
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM

OCS WARNING SIGNS
DANGER-LIVE WIRE
TYPE 2

CADD FILE NAME: SD-W5182

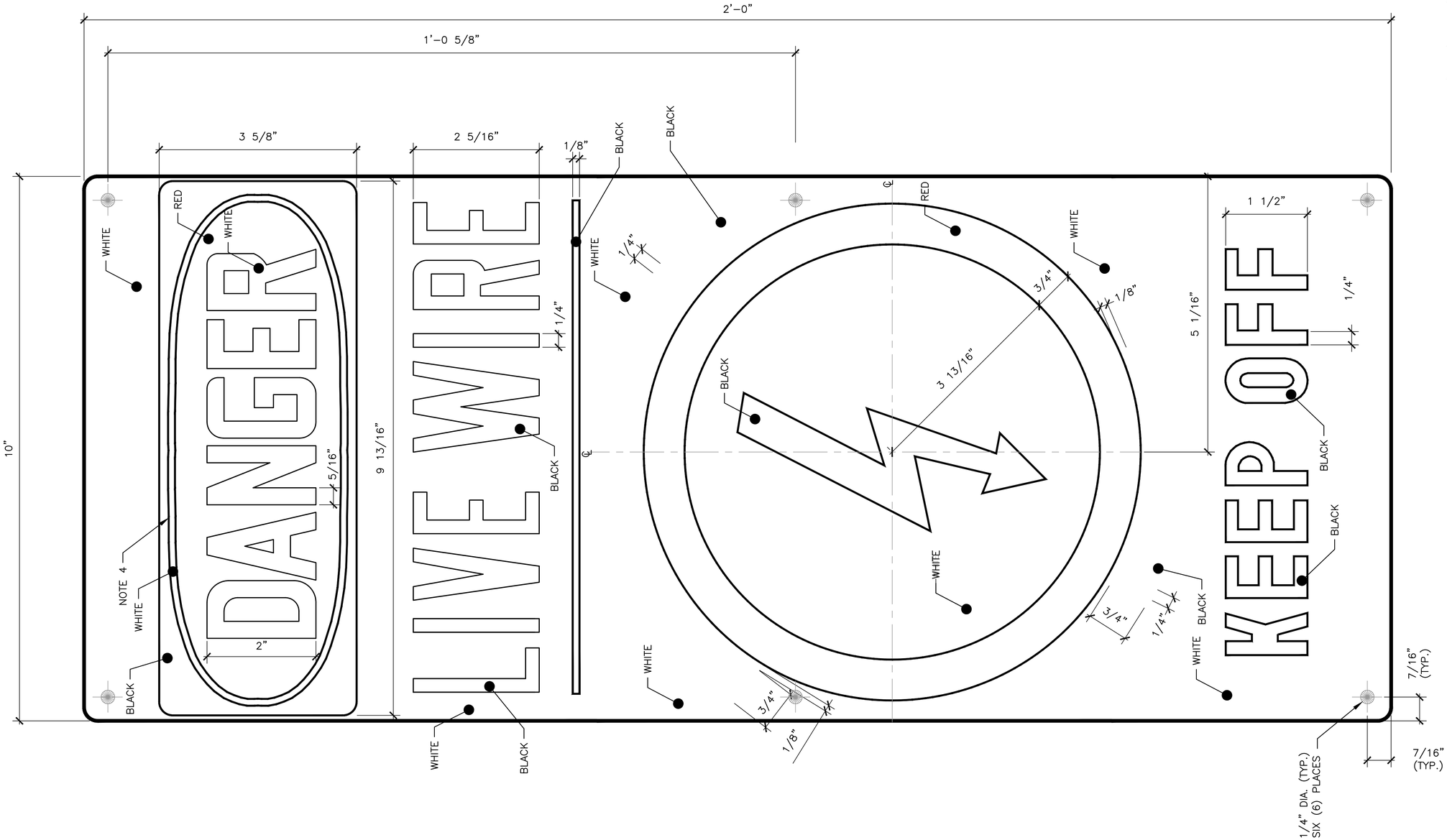
REV: | EDITION: SECOND

SCALE: NTS

STANDARD DRAWING NO.: SD-W5182

NOTES:

1. SEE DRAWING SD–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
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM

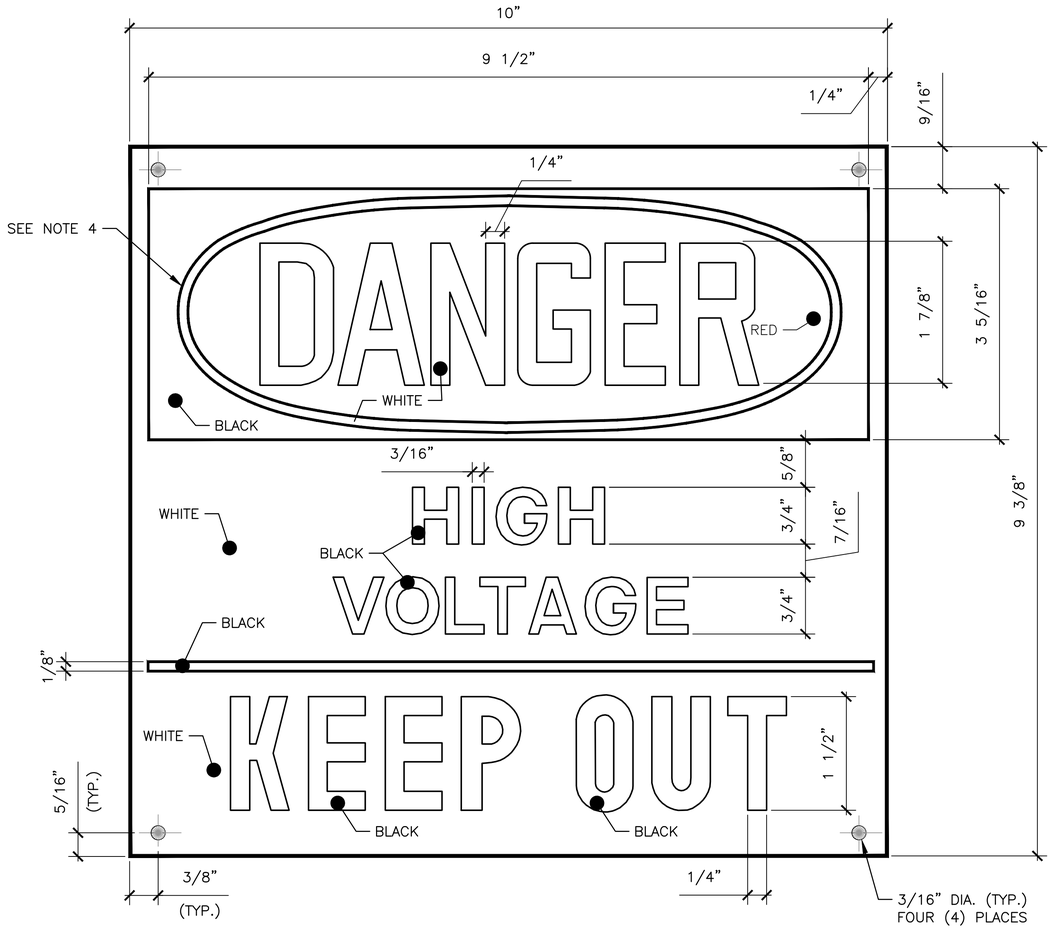
OCS WARNING SIGNS
DANGER–LIVE WIRE
ELECTROCUTION HAZARD – TYPE 3

CADD FILE NAME: SD–W5183

REV: | EDITION: SECOND

SCALE: NTS

STANDARD DRAWING NO.: SD–W5183



NOTES:

1. SEE DRAWING SD–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.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM

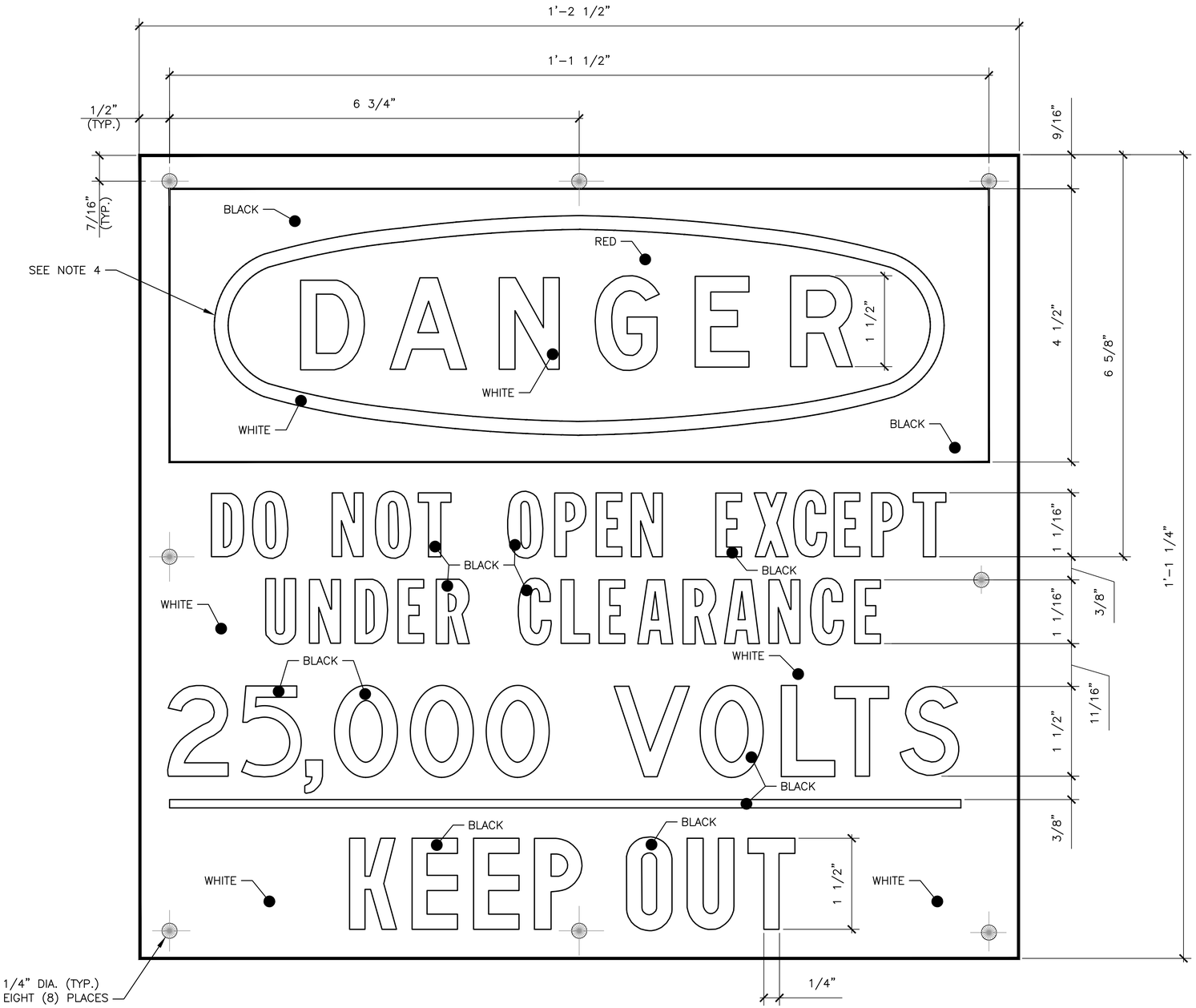
OCS WARNING SIGNS
DANGER HIGH VOLTAGE
TYPE 4

CADD FILE NAME: SD–W5184

REV: | EDITION: SECOND

SCALE: NTS

STANDARD DRAWING NO.: SD–W5184



NOTES:

1. SEE DRAWING SD-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.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM

OCS WARNING SIGNS
DANGER – 25,000 VOLTS
TYPE 5

CADD FILE NAME: SD-W5185

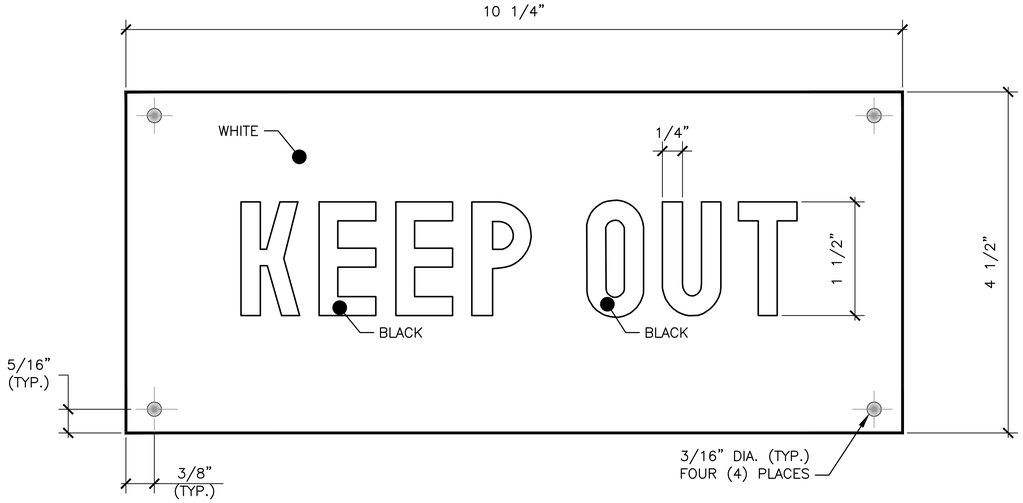
REV: | EDITION: SECOND

SCALE: NTS

STANDARD DRAWING NO.: SD-W5185

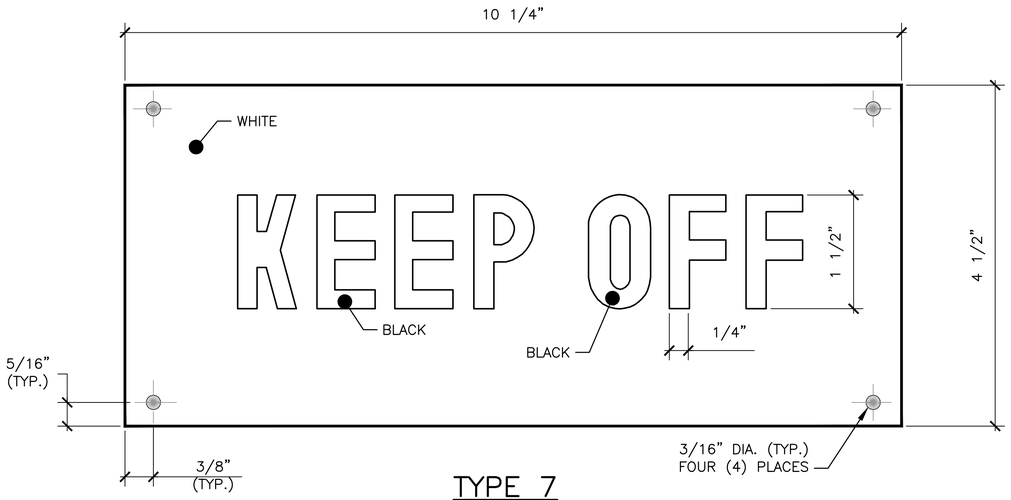
NOTES:

1. SEE SIGN NOTES DRAWING SD–W5180 FOR MATERIAL AND PAINTING DETAILS.
2. LETTERS SHALL BE ON FRONT ONLY, SIZES AND COLOR SHALL BE AS INDICATED.
3. BACK OF SIGN SHALL BE MILL FINISH.



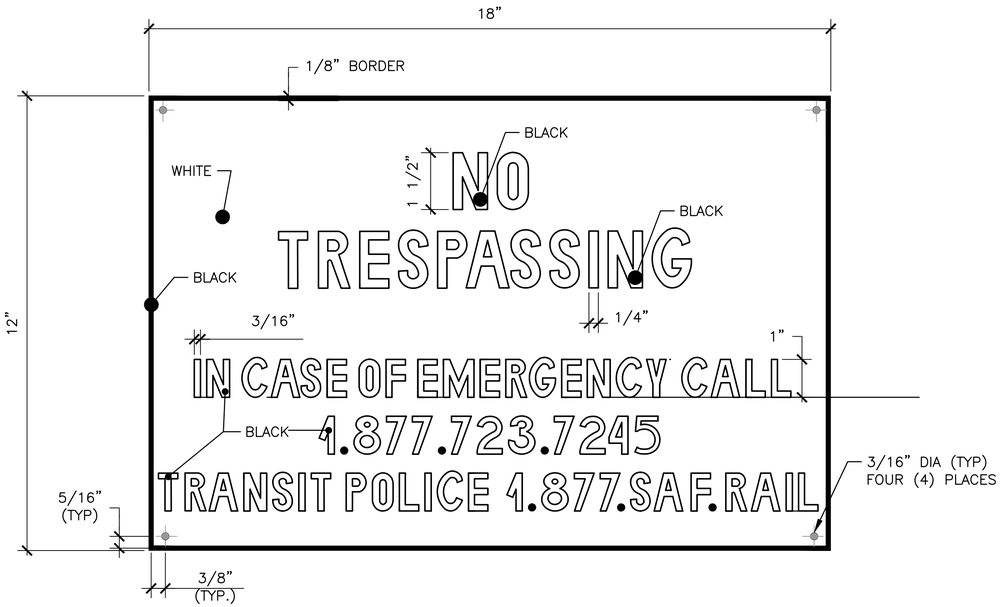
TYPE 6

SCALE: 1"=1"



TYPE 7

SCALE: 1"=1"



TYPE 8

SCALE: 6"=1'–0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

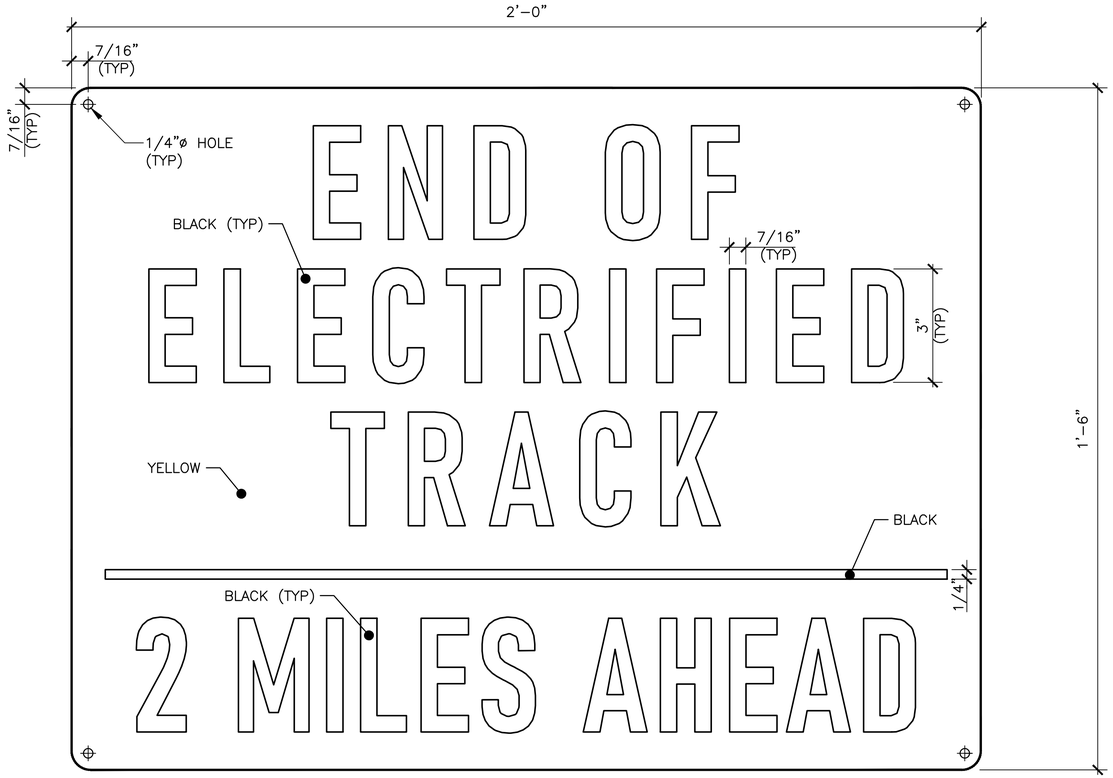
OVERHEAD CONTACT SYSTEM

OCS WARNING SIGNS
CENTERED KEEP OUT AND KEEP OFF
TYPE 6, TYPE 7, AND TYPE 8

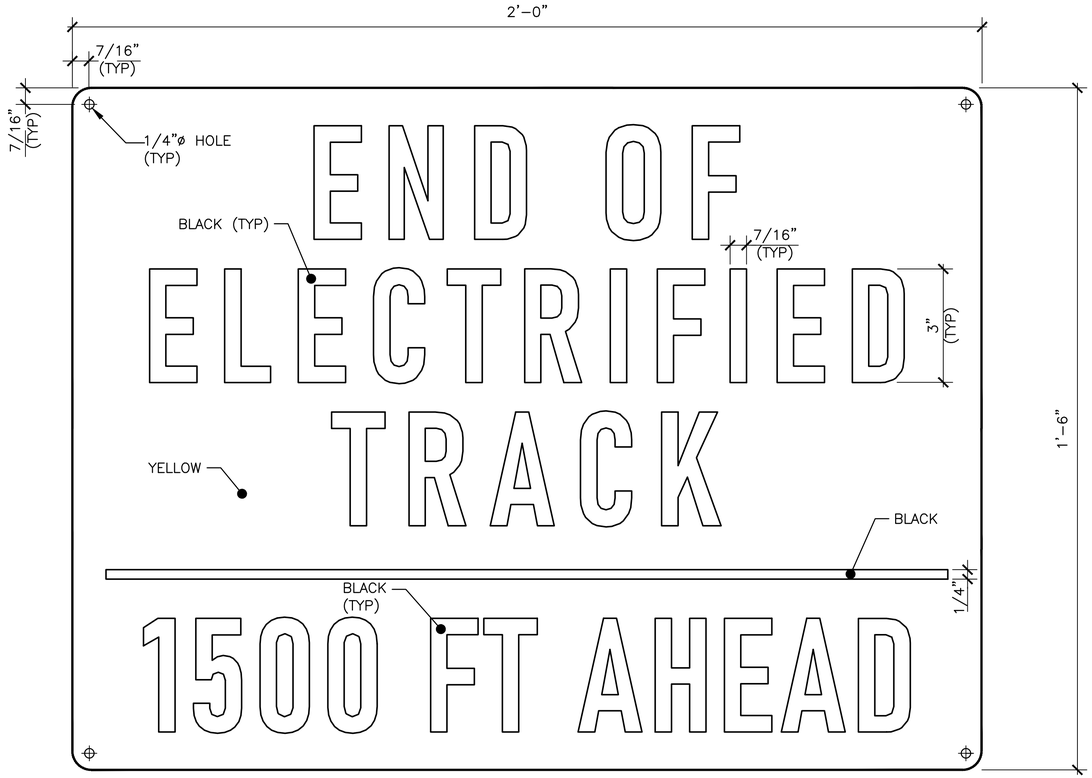
CADD FILE NAME:	SD–W5186
REV:	EDITION: SECOND
SCALE:	AS SHOWN
STANDARD DRAWING NO.:	SD–W5186

NOTES:

1. SEE DRAWING SD–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
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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ENGINEERING STANDARD DRAWINGS

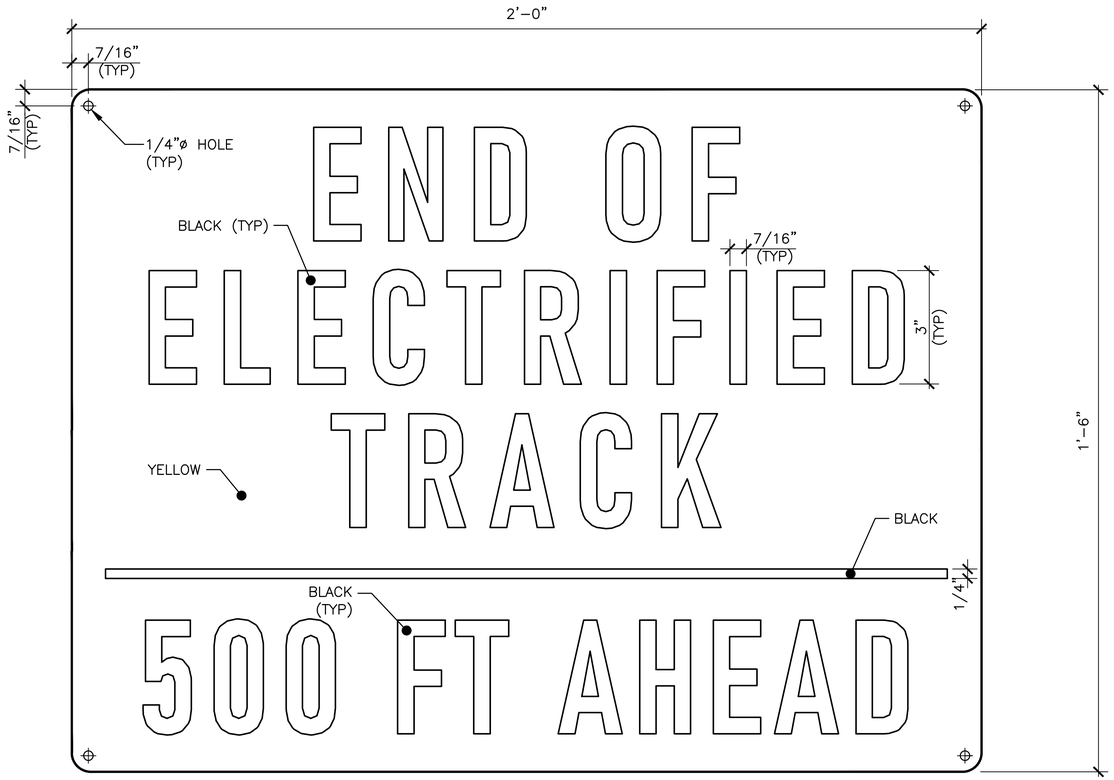
OVERHEAD CONTACT SYSTEM

OCS WARNING SIGNS
END OF ELECTRIFIED TRACK
TYPE 9 AND 10

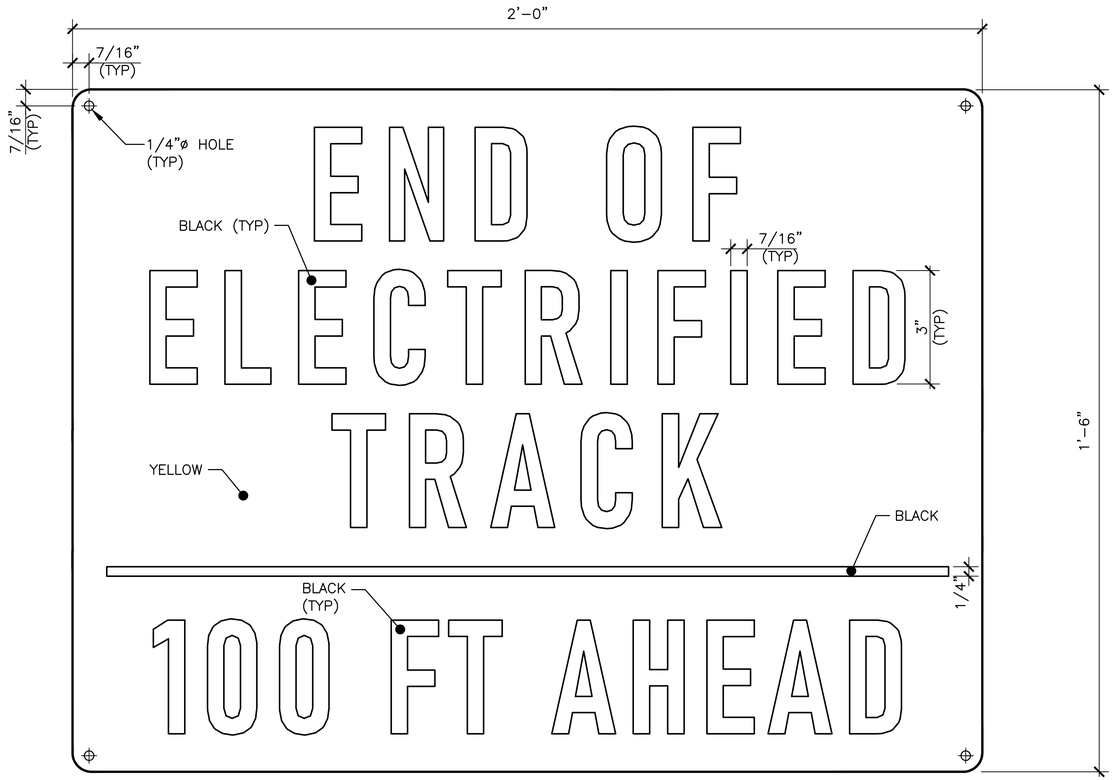
CADD FILE NAME:	SD–W5186A
REV:	EDITION: SECOND
SCALE:	NTS
STANDARD DRAWING NO.:	SD–W5186A

NOTES:

1. SEE DRAWING SD–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
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
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DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

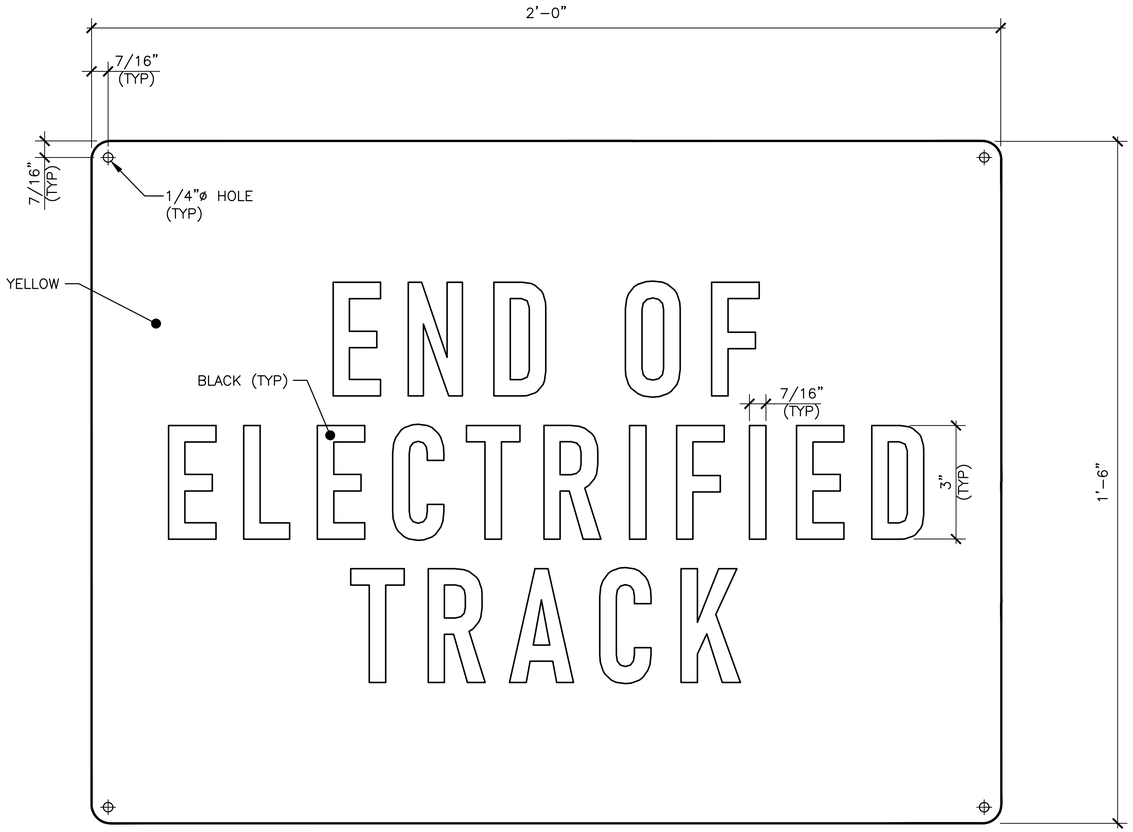
OVERHEAD CONTACT SYSTEM

OCS WARNING SIGNS
END OF ELECTRIFIED TRACK
TYPE 11 AND 12

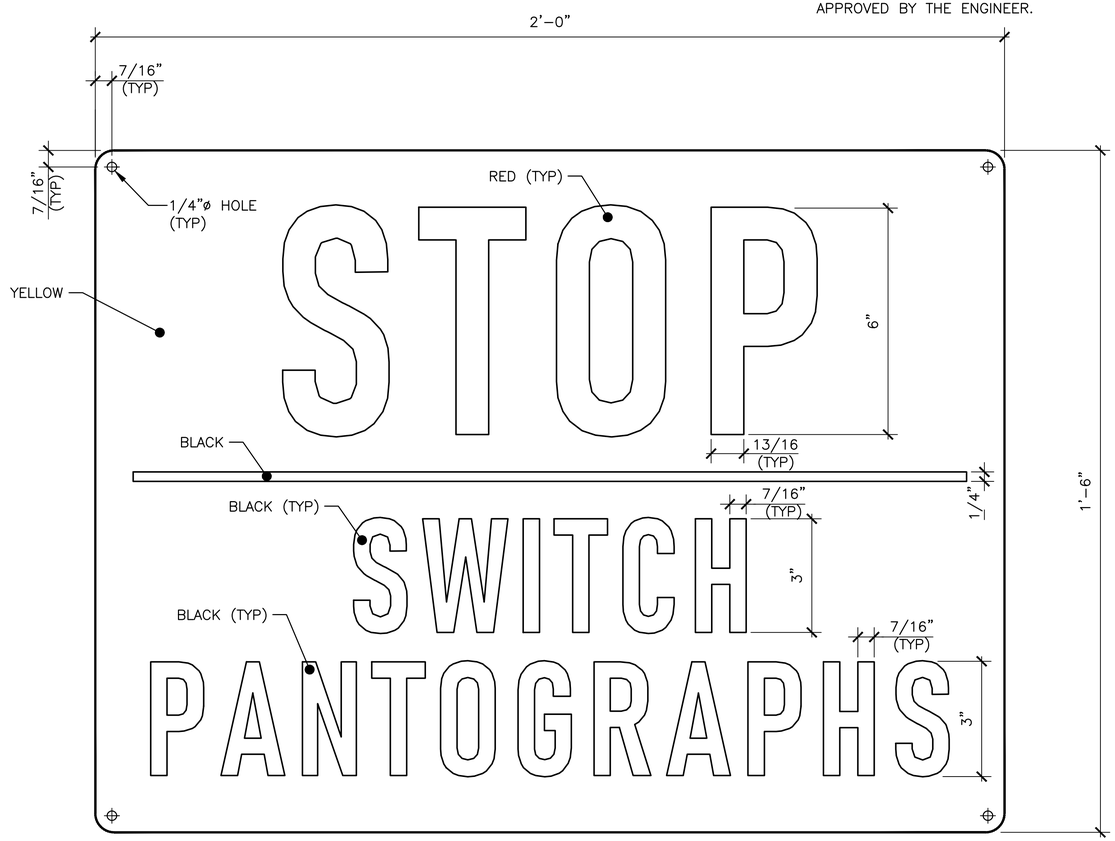
CADD FILE NAME: SD–W5186B
REV:
EDITION: SECOND
SCALE: NTS
STANDARD DRAWING NO.: SD–W5186B

NOTES:

1. SEE DRAWING SD–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
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

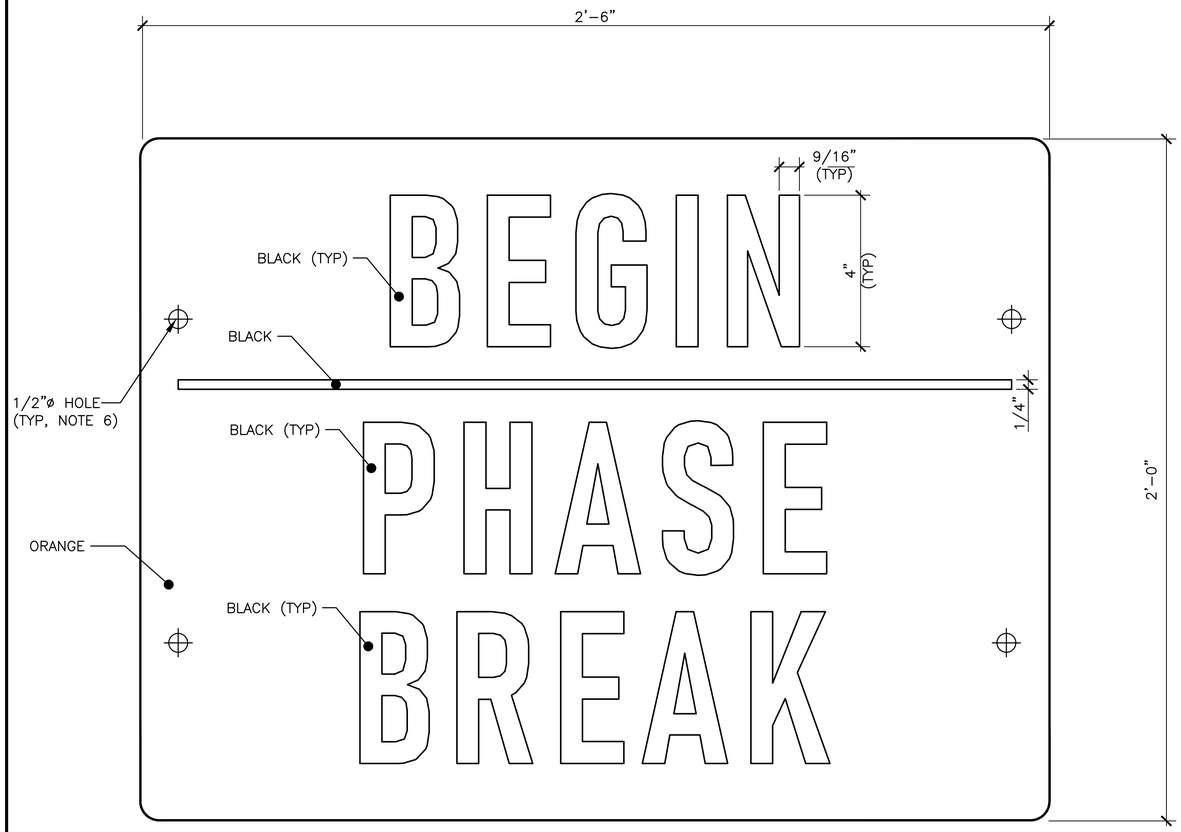
OVERHEAD CONTACT SYSTEM

OCS WARNING SIGNS
END OF ELECTRIFIED TRACK
TYPE 13 AND 14

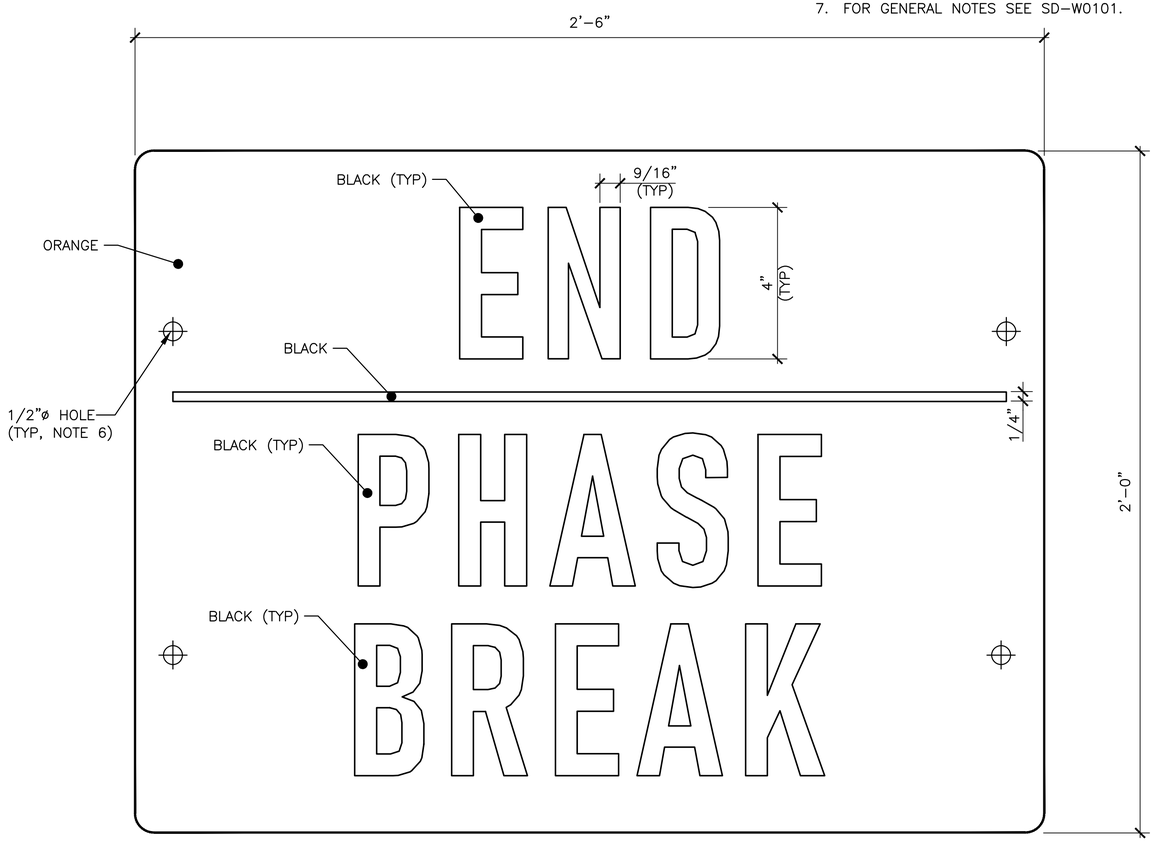
CADD FILE NAME: SD–W5186C
REV: | EDITION: SECOND
SCALE: NTS
STANDARD DRAWING NO.: SD–W5186C

NOTES:

1. SEE DRAWING SD–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 JPB. VERIFY QUANTITY AND LOCATIONS WITH JPB PRIOR TO FABRICATION AND INSTALLATION.
5. ALTERNATE COLORS MAY BE USED AS APPROVED BY THE ENGINEER.
6. FIELD DRILL HOLES AT TOP AND BOTTOM UNISTRUT SUPPORT LOCATIONS WITH 3/8" CHANNEL LOCKS AND 3/8" STAINLESS STEEL BOLTS.
7. FOR GENERAL NOTES SEE SD–W0101.



TYPE 15
SCALE: NTS



TYPE 16
SCALE: NTS

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

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DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM

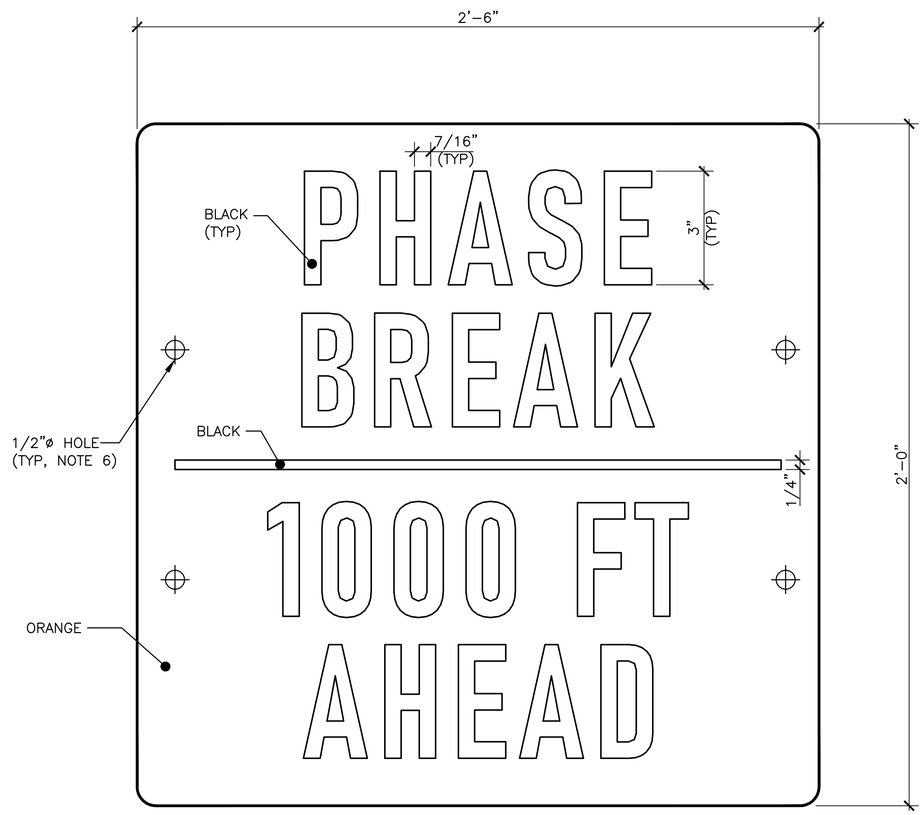
OCS WARNING SIGNS
PHASE BREAK
TYPE 15 AND 16

CADD FILE NAME: SD–W5186D

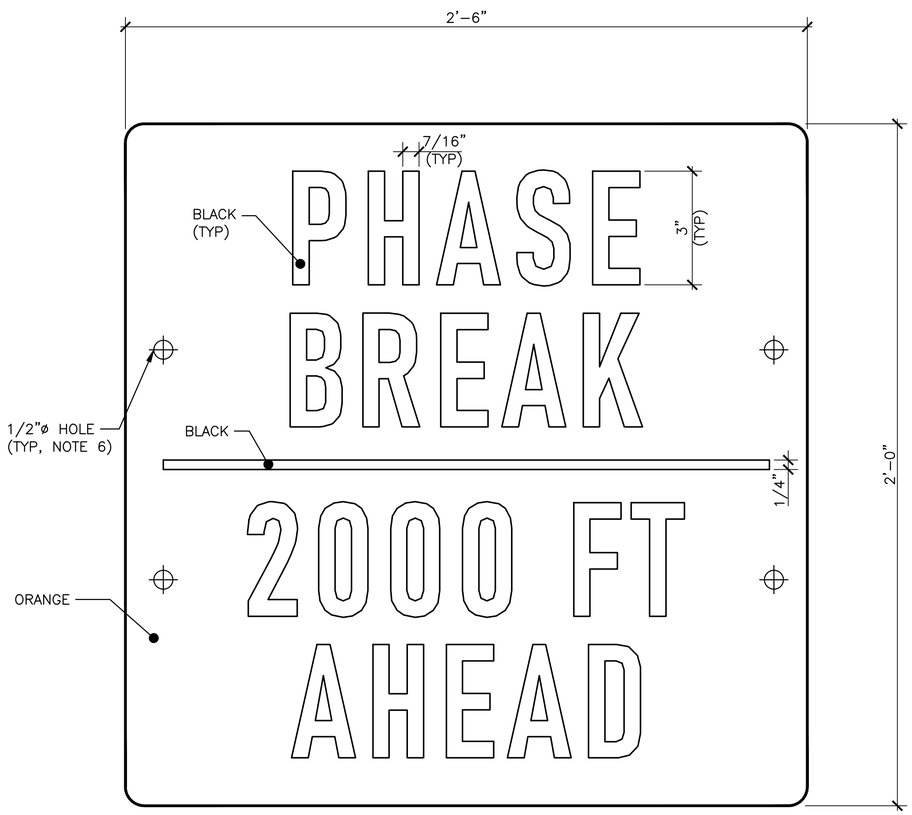
REV: | EDITION: SECOND

SCALE: NTS

STANDARD DRAWING NO.: SD–W5186D



TYPE 17
SCALE: NTS



TYPE 18
SCALE: NTS

NOTES:

1. SEE DRAWING SD–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 JPB. VERIFY QUANTITY AND LOCATIONS WITH JPB PRIOR TO FABRICATION AND INSTALLATION.
5. ALTERNATE DISTANCES AND COLORS MAY BE USED AS APPROVED BY THE ENGINEER.
6. FIELD DRILL HOLES AT TOP AND BOTTOM UNISTRUT SUPPORT LOCATIONS WITH 3/8" CHANNEL LOCKS AND 3/8" STAINLESS STEEL BOLTS.
7. FOR GENERAL NOTES SEE SD–W0101.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM

OCS WARNING SIGNS
PHASE BREAK
TYPE 17 AND 18

CADD FILE NAME: SD–W5186E

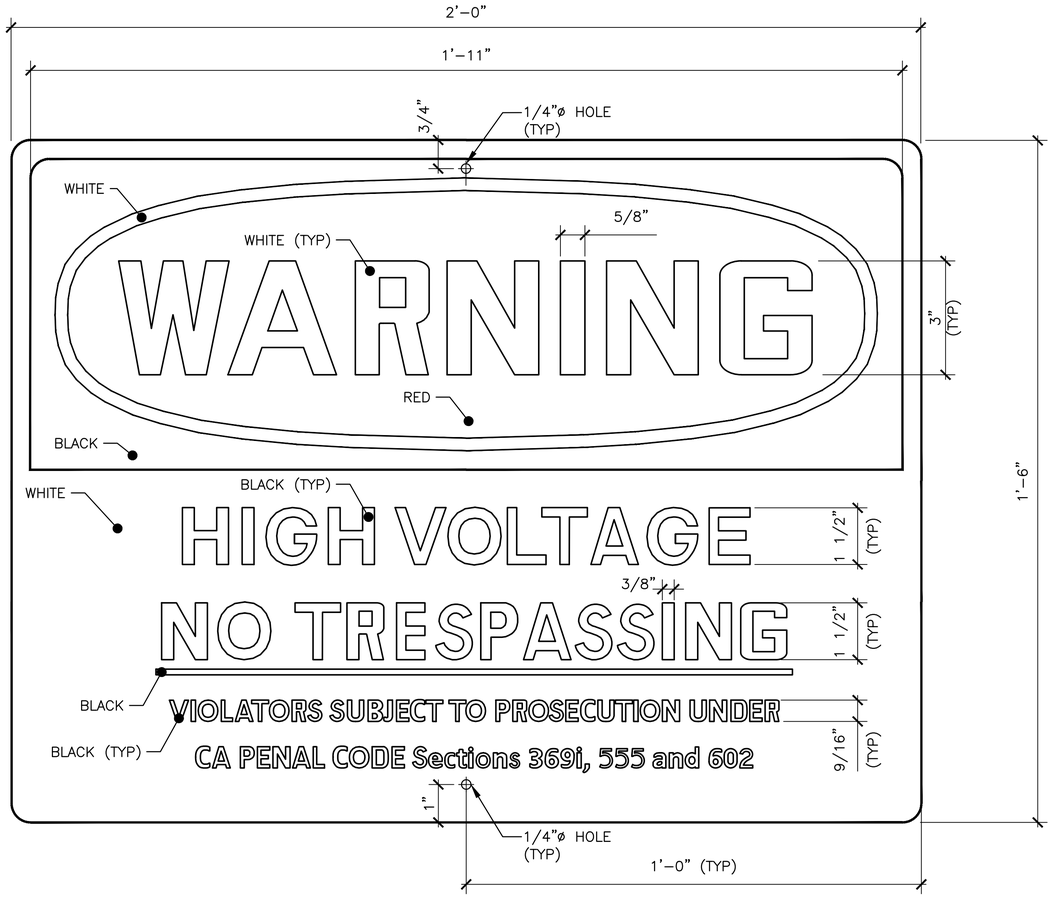
REV: | EDITION: SECOND

SCALE: NTS

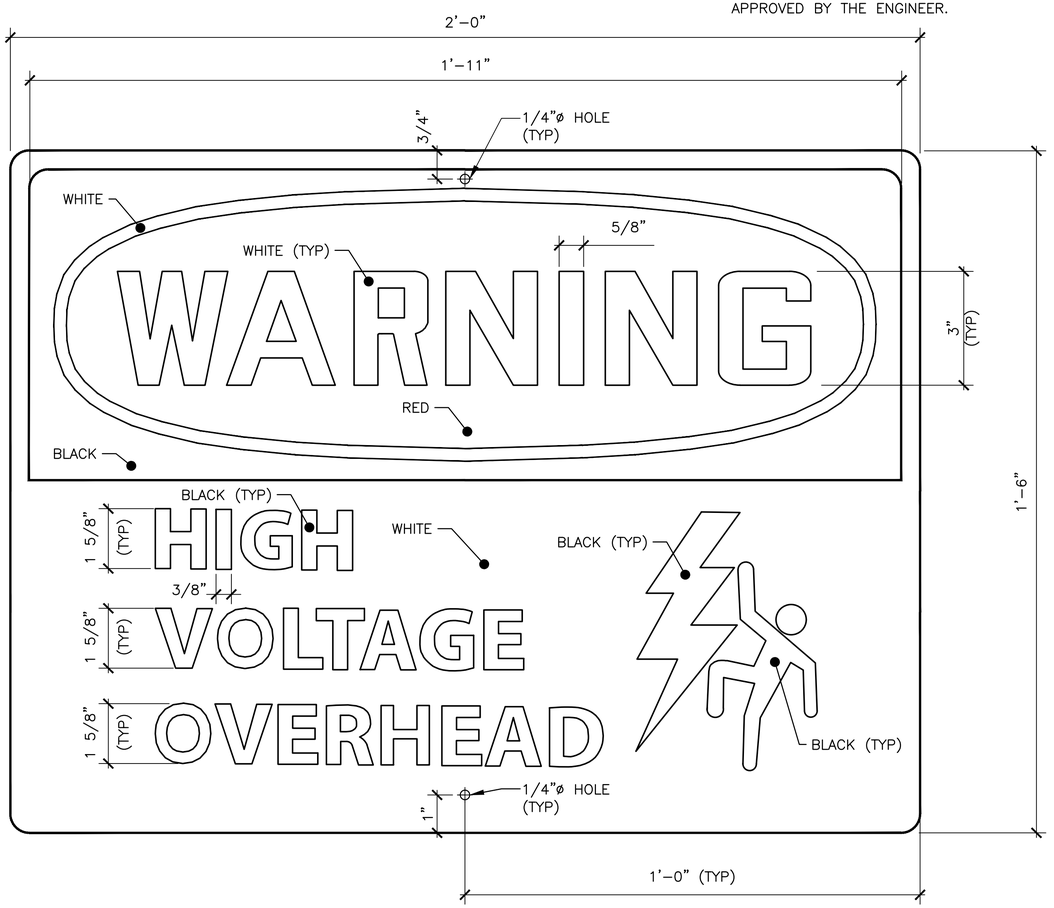
STANDARD DRAWING NO.: SD–W5186E

NOTES:

1. SEE DRAWING SD–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.
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.



TYPE 19
SCALE: 6"=1'–0"



TYPE 20
SCALE: 6"=1'–0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM

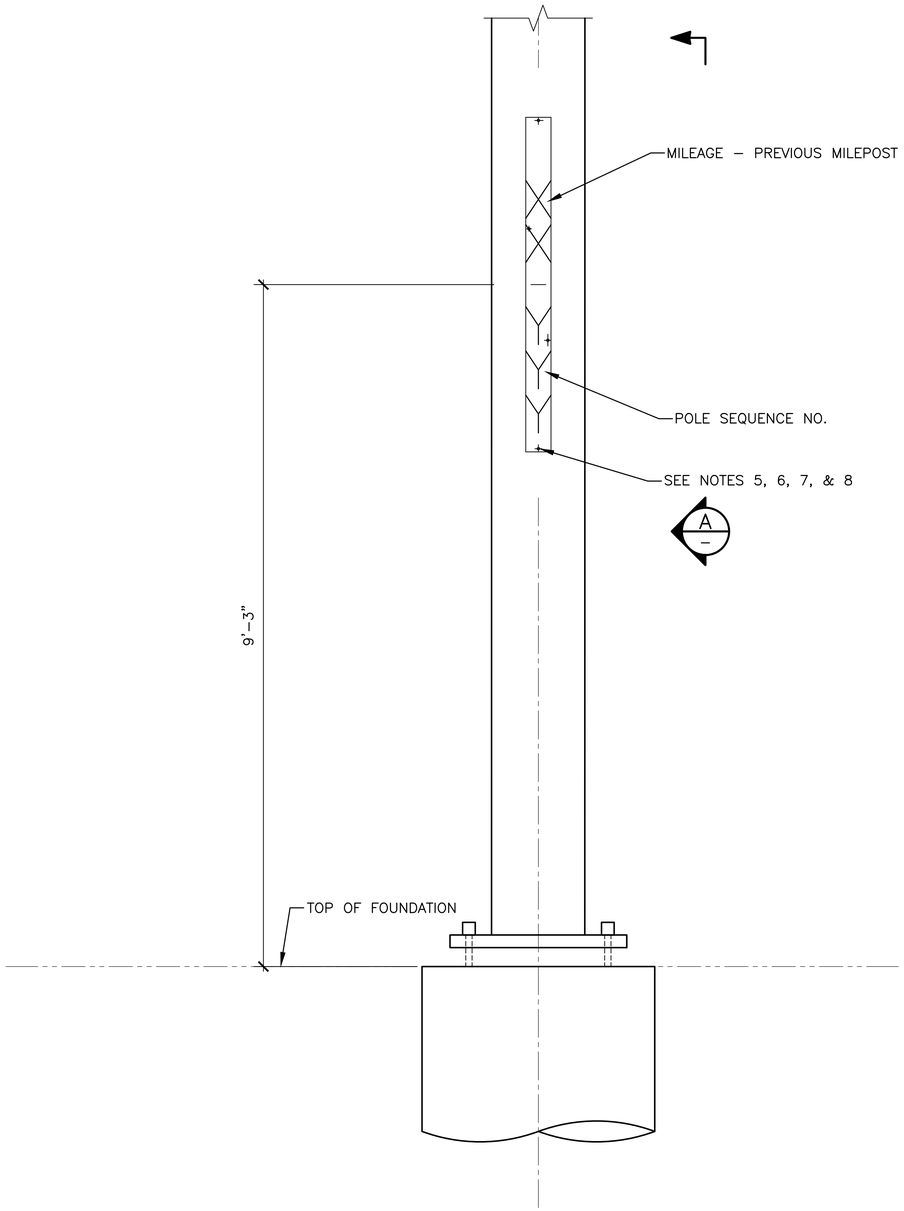
OCS WARNING SIGNS – HIGH VOLTAGE OVERHEAD AND NO TRESPASSING TYPE 19 AND 20

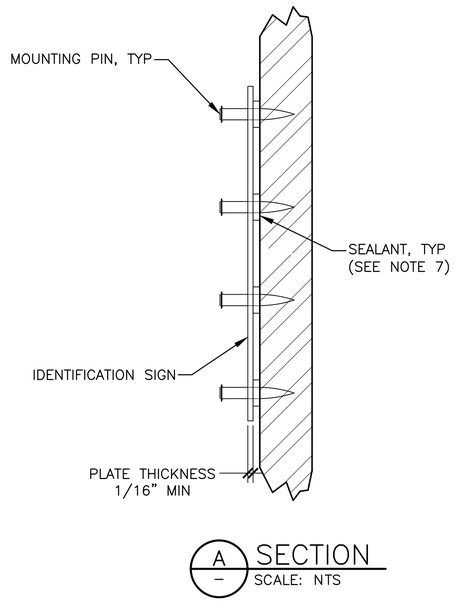
CADD FILE NAME: SD–W5186F

REV: | EDITION: SECOND

SCALE: AS SHOWN

STANDARD DRAWING NO.: SD–W5186F





A – SECTION
SCALE: NTS

NOTES:

1. FOR OCS GENERAL NOTES, SEE DRAWING SD–W0101.
2. ALL DIMENSIONS ARE IN INCHES, UNLESS OTHERWISE STATED.
3. POLE IDENTIFICATION SIGNS 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 SIGN TO STEEL POLE 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.

POLE IDENTIFICATION SIGN ASSEMBLY

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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OVERHEAD CONTACT SYSTEM

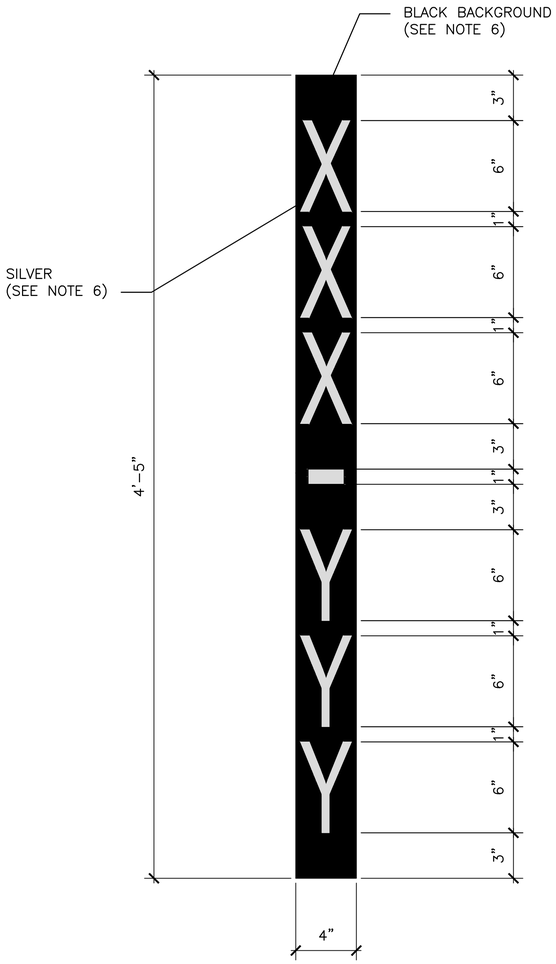
OCS SIGNS
POLE IDENTIFICATION SIGN ASSEMBLY

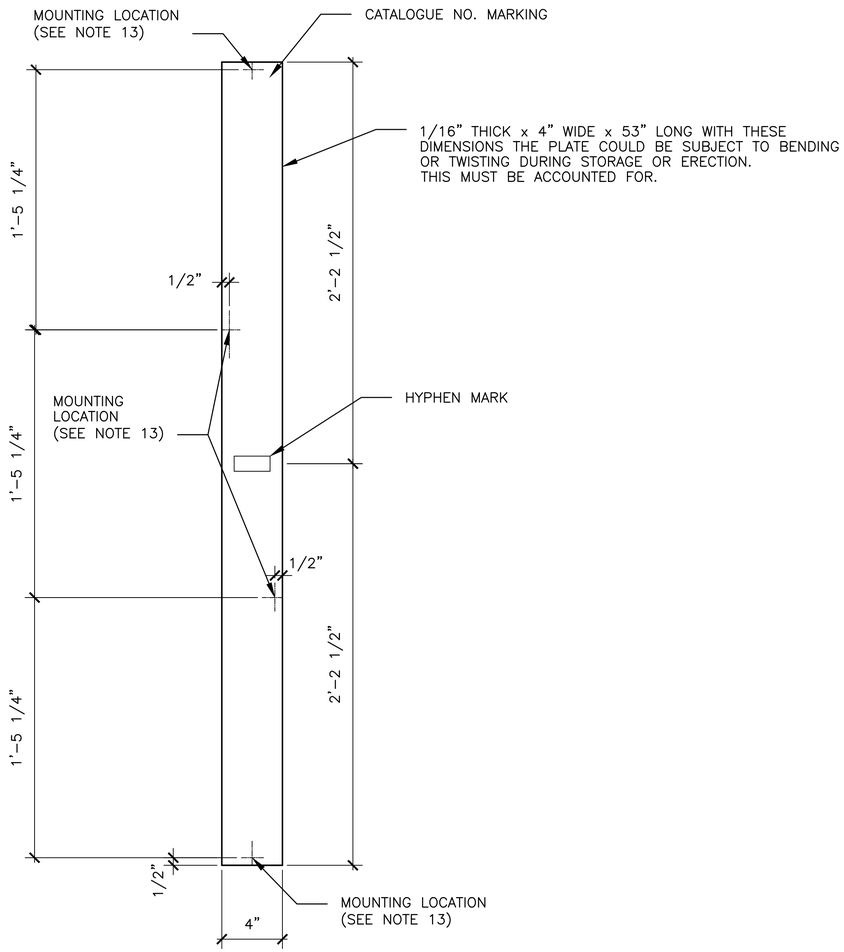
CADD FILE NAME: SD–W5187

REV: | EDITION: SECOND

SCALE: NTS

STANDARD DRAWING NO.: SD–W5187





COMPONENT – BLACK BACKING PLATE

NOTES:

1. FOR OCS GENERAL NOTES SEE DRAWING SD–W0101.
2. ALL DIMENSIONS ARE IN INCHES, UNLESS OTHERWISE STATED.
3. MANUFACTURER REFERENCE NO:
   ALMETEK: AAB–713 OR SIMILAR.
4. ALUMINUM FIGURE PLATES SHALL BE 0.063" – 3105 PRE–PAINTED WHITE.
5. THE FACE OF THE PLATE SHALL BE COVERED WITH WHITE 3M REFLECTIVE HIGH INTENSITY GRADE SHEETING SERIES 3870.
6. FIGURES SHALL BE SILVER NUMERAL ON A BLACK NON–REFLECTIVE BACKGROUND USING BLACK (OPAQUE) SERIES 705. THE NUMBERS SHALL BE 3" WIDE AND 6" LONG. POSITIONED AT THE CENTER OF THE PLATE.
7. A NOTARIZED CERTIFICATION OF ALUMINUM REFLECTIVE SHEETING AND 3M PROTECTIVE OVERLAY SHALL BE REQUESTED FROM THE MANUFACTURER.
8. BACK OF SIGN PLATE IS PROTECTED WITH WHITE PAINT.
9. THE EDGE OF THE BLACK BACKGROUND SHALL BE 3" FROM THE TOP AND BOTTOM FIGURES.
10. THE IDENTIFICATION NO. SHALL BE THE MILEAGE OF THE PREVIOUS MILE POST (X) FOLLOWED BY A SPACER AND THE POLE SEQUENCE NO. IN THAT MILE (Y).
11. THE LIFE EXPECTANCY IS 30 YEARS AFTER INSTALLATION.
12. THE PLATES WILL BE SUPPLIED WITH A PROTECTIVE REMOVABLE LAYER, TO BE REMOVED PRIOR TO INSTALLATION.
13. THE PLATE SHALL BE ATTACHED TO THE STEEL GALVANIZED AND PAINTED POLES USING POWER ACTUATED FIXING SYSTEM WITH STAINLESS STEEL PINS.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM

OCS SIGNS
POLE IDENTIFICATION SIGN DETAILS

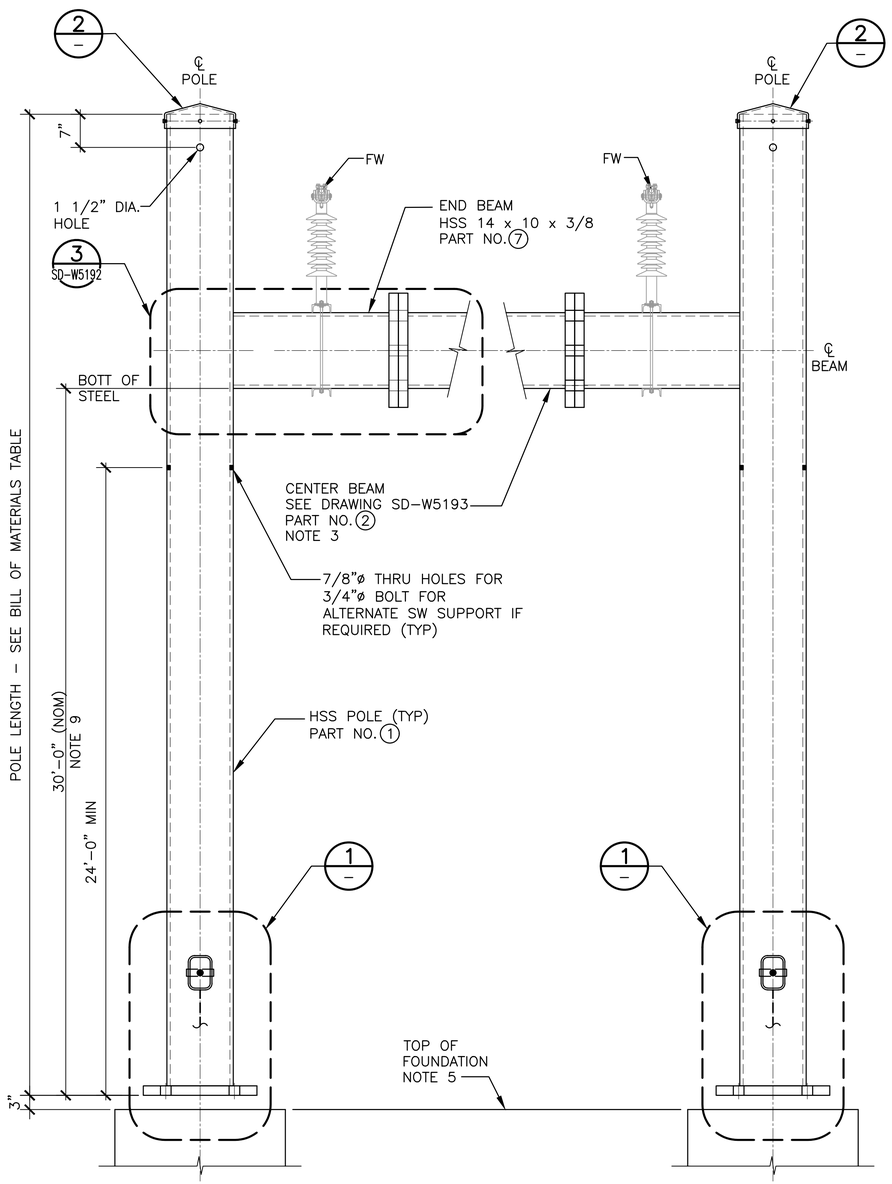
CADD FILE NAME: SD–W5188

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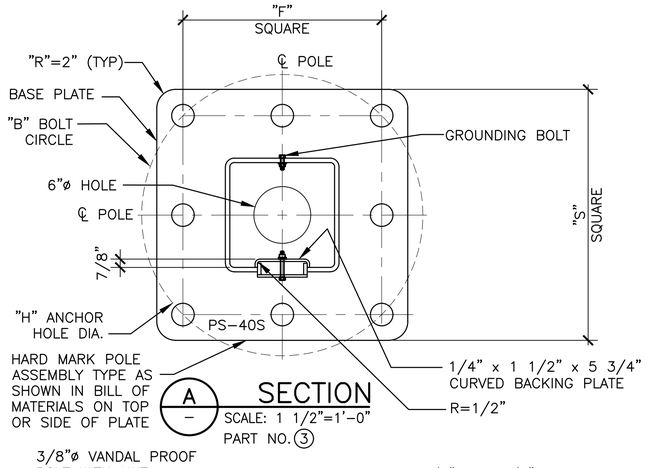
EDITION: SECOND

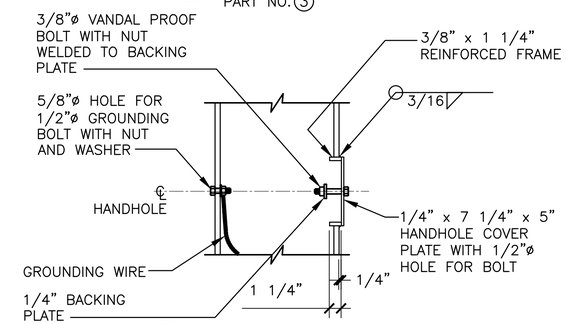
SCALE: NTS

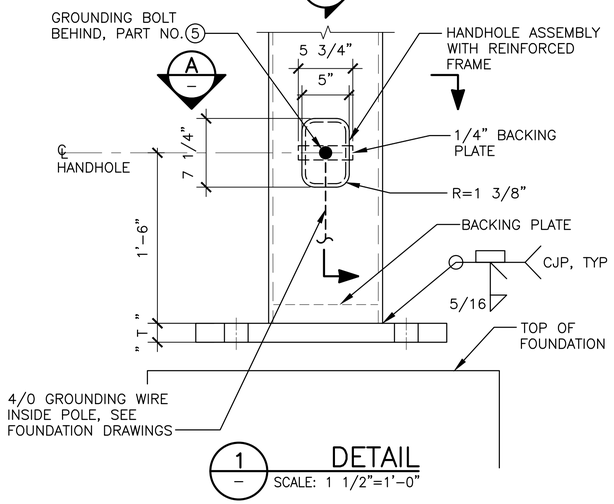
STANDARD DRAWING NO.: SD–W5188

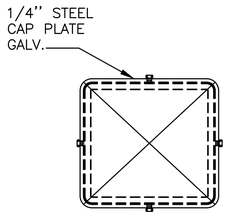


POLE ELEVATION
NTS

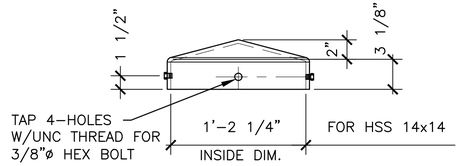








PLAN



ELEVATION

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

NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD-W0101.
2. HORIZONTAL BEAM LENGTH WILL BE DETERMINED BY FIELD AT EACH LOCATION PRIOR TO FABRICATION.
3. ALL HOLES IN MAST, BEAMS, AND MISCELLANEOUS STEEL SHALL BE PRE-DRILLED IN SHOP PRIOR TO GALVANIZING.
4. ALL POLES SHALL BE SET PLUMB WITH NO RAKE TO ENSURE PROPER CONNECTION BETWEEN POLE AND HORIZONTAL BEAM.
5. 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.
6. NOTIFY ENGINEER IF ANY WIRES ARE TERMINATED ON THE PORTAL BEAM AND THE BEAM SECTION SHALL BE EVALUATED ON A CASE SPECIFIC BASIS.
7. 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 ≥ 80' USE HSS 14 x 10 x 5/8 SECTION FOR CENTER BEAM AND END BEAMS
8. 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.
9. BOTTOM OF STEEL VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATION DRAWINGS FOR HEIGHT.

TABLE 1 BASE PLATE DIMENSIONS (IN)

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

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

BILL OF MATERIALS

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

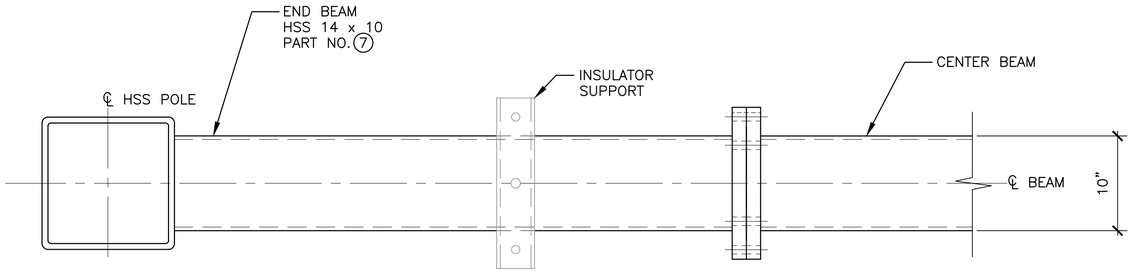
APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

Caltrain

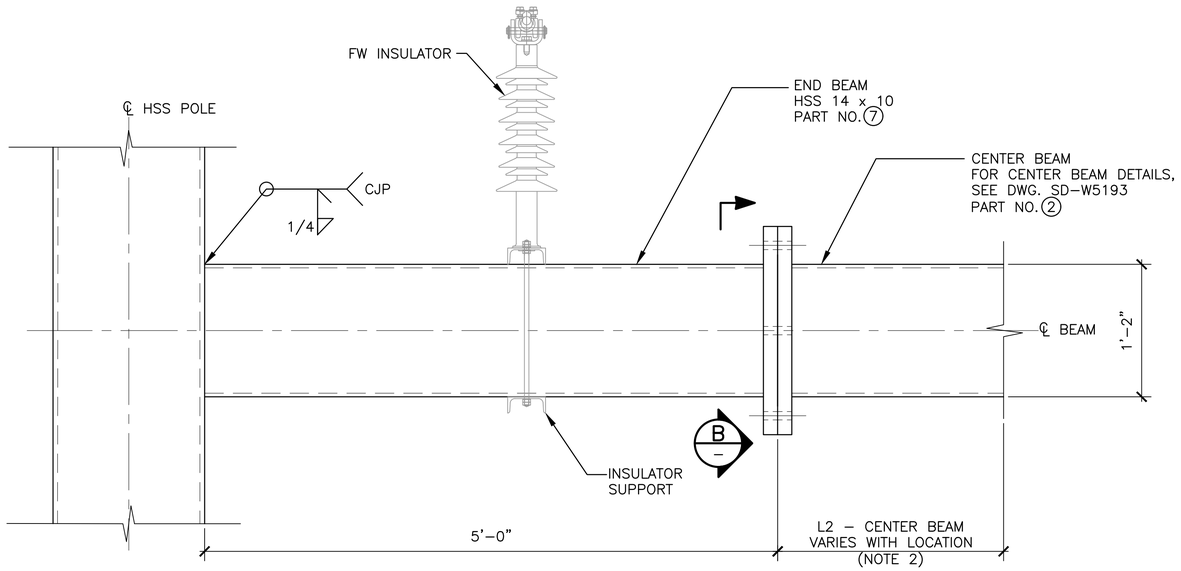
ENGINEERING STANDARD DRAWINGS

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

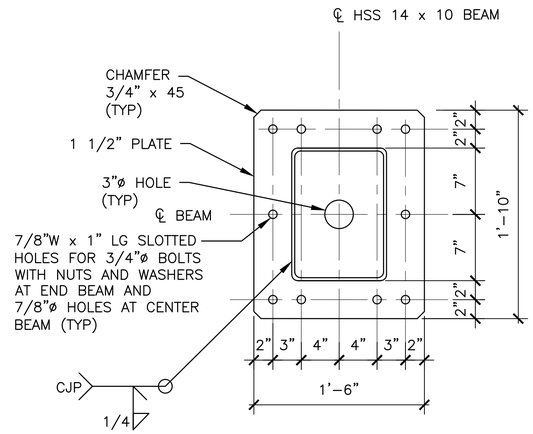
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STANDARD DRAWING NO.: SD-W5191



PLAN



ELEVATION DETAIL 3 — SCALE: 1 1/2"=1'-0"
SD-W5191



SECTION B — SCALE: 1 1/2"=1'-0"
SD-W5192
SD-W5193

NOTE:

1. FOR GENERAL NOTES SEE DRAWING SD-W0101.
2. FOR CENTER BEAMS WITH A "L2" LENGTH OVER 40', THE BEAM SHOULD BE DIVIDED INTO THREE SECTIONS. THE CENTER SECTION SHOULD BE 40' AND THE TWO REMAINING SECTIONS SHOULD BE EQUAL AND THE LENGTH REQUIRED TO MEET THE TOTAL LENGTH. THE THREE SECTIONS SHALL BE ASSEMBLED FOR CAMBERING. CONNECTIONS SHOULD BE THE SAME AS BETWEEN THE CENTER AND END BEAMS.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

Caltrain

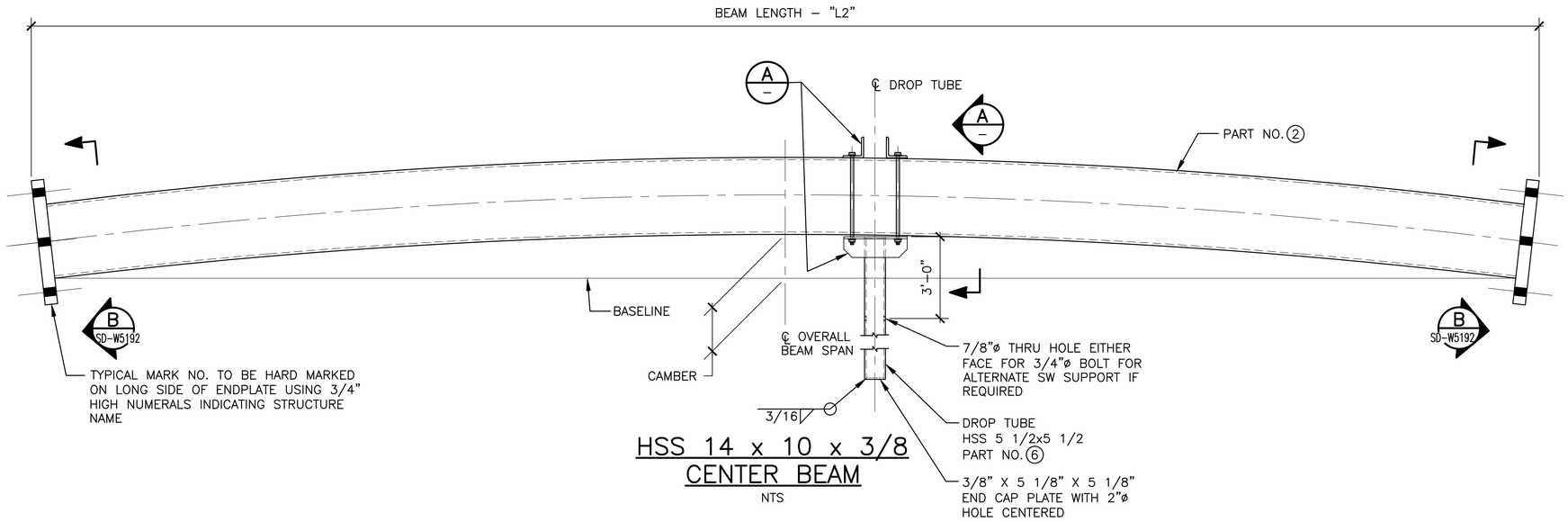
ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
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: SD-W5192
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EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD-W5192

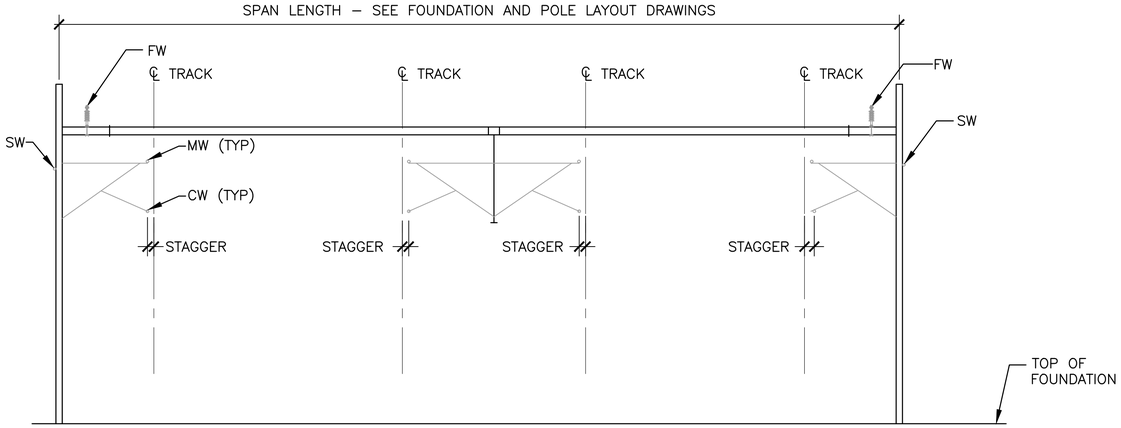
NOTE:

1. FOR GENERAL NOTES SEE DRAWING SD-W0101.



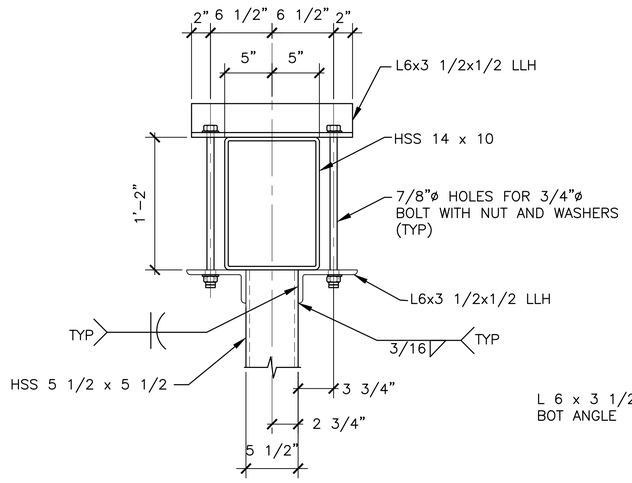
HSS 14 x 10 x 3/8 CENTER BEAM

NTS



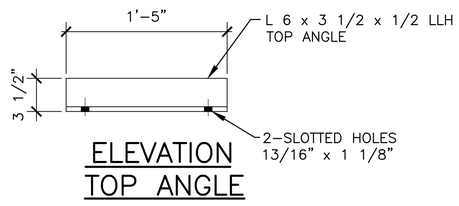
SCHEMATIC PORTAL DETAIL FOR UP TO 4 TRACKS PS-10S & PS-40S

NTS

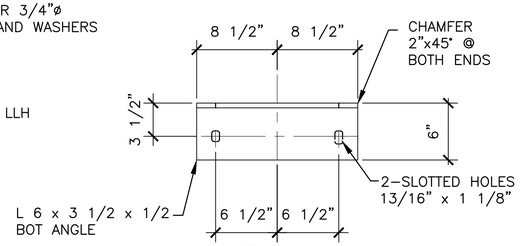


A – SECTION

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



ELEVATION TOP ANGLE



PLAN BOTTOM ANGLE

1 – DETAIL

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

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

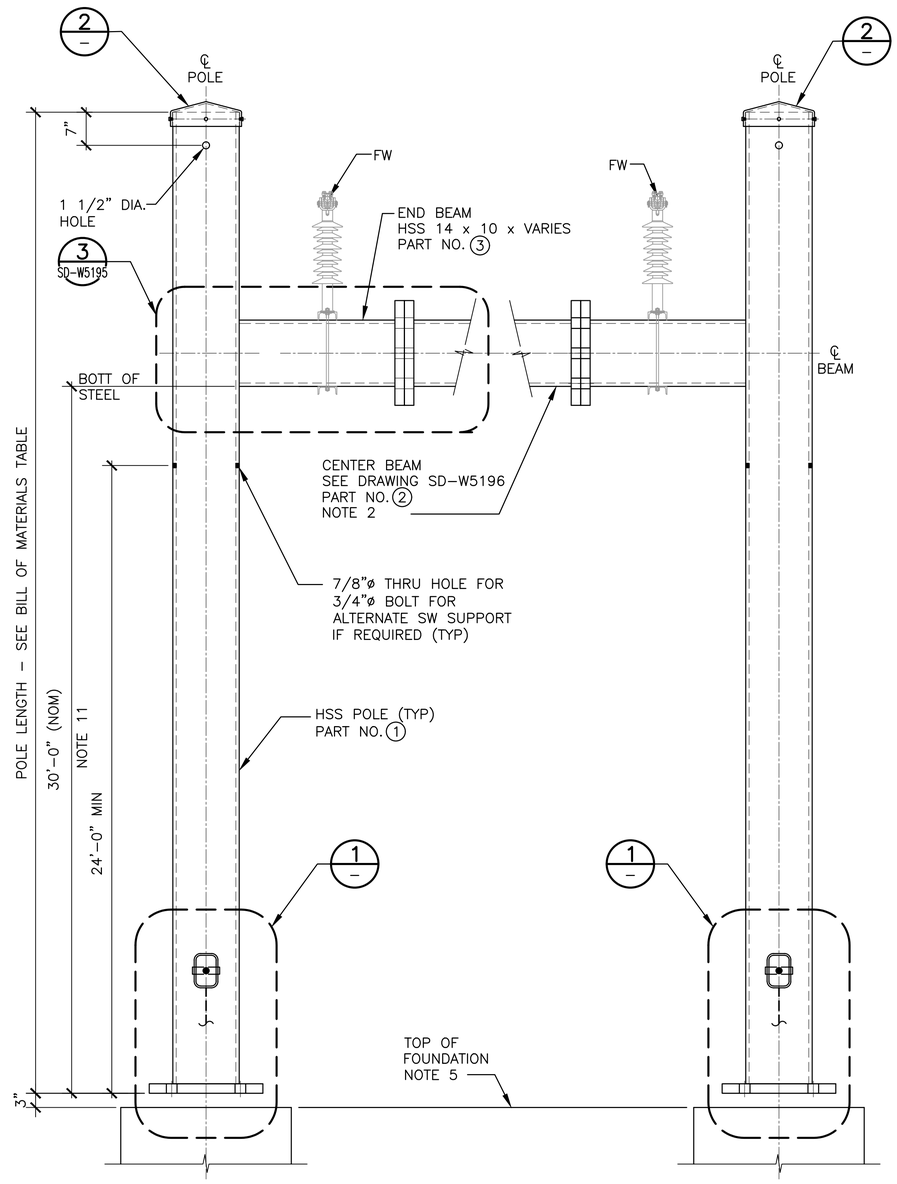
DIRECTOR, ENGINEERING

Caltrain

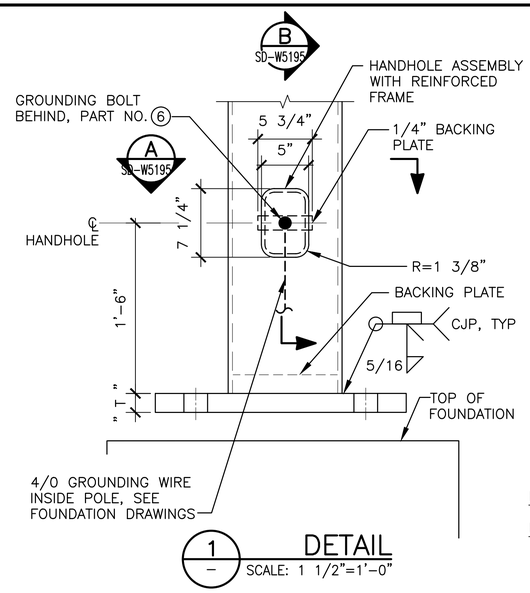
ENGINEERING STANDARD DRAWINGS

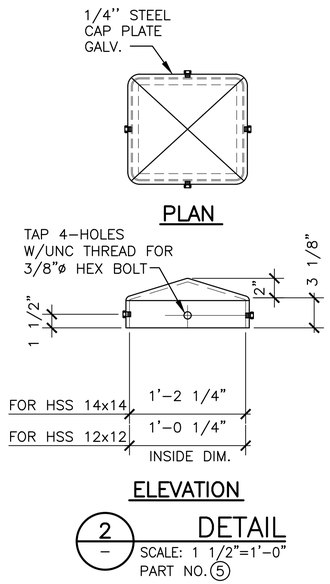
OVERHEAD CONTACT SYSTEM
OCS PORTAL TYPE PS-40S, PS-10S
SINGLE SPAN PORTAL DETAILS
FOR SPANS 90 TO 95, 45 TO 65 FT
SHEET 3 OF 3

CADD FILE NAME:	SD-W5193
REV:	EDITION: SECOND
SCALE:	AS SHOWN
STANDARD DRAWING NO.:	SD-W5193



POLE ELEVATION
NTS





NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD-W0101.
2. HORIZONTAL BEAM LENGTH WILL BE DETERMINED IN FIELD AT EACH LOCATION PRIOR TO FABRICATION.
3. ALL HOLES IN MAST, BEAMS, AND MISCELLANEOUS STEEL SHALL BE PRE-DRILLED IN SHOP PRIOR TO GALVANIZING.
4. ALL POLES SHALL BE SET PLUMB WITH NO RAKE TO ENSURE PROPER CONNECTION BETWEEN POLE AND HORIZONTAL BEAM.
5. 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.
6. SEE MATERIAL ALLOCATION DRAWINGS FOR REQUIRED POLE HEIGHT AT EACH TRACK SIDE LOCATION IF VARIES.
7. SEE FOUNDATION & POLE LAYOUT DRAWINGS FOR FOUNDATION SIZES AT EACH TRACK SIDE LOCATION WHEN VARIES.
8. NOTIFY ENGINEER IF ANY WIRES ARE TERMINATED ON THE PORTAL BEAM AND THE BEAM SECTION SHALL BE EVALUATED ON A CASE SPECIFIC BASIS.
9. 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
10. 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.
11. BOTTOM OF STEEL VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATION DRAWINGS FOR HEIGHT.

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, PS-5	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									
1	1	1	–	1	–	1	DROP TUBE HSS 5 1/2 x 5 1/2 x 3/8 x 10'-0"	7	NOTE 5
2	2	2	1	2	3	3	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	2	1/2"ø GROUNDING BOLT	6	
2	2	2	2	2	2	2	REMOVABLE CAP PLATE	5	
–	–	–	–	2	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	END BEAM – HSS 14 x 10 x 1/2 x 5'-0" LG.	3	NOTE 8, 9
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	CENTER BEAM – HSS 14 x 10 x 1/2 – LENGTH VARIES	2	NOTE 2, 8
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 36'-0" 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
PS-3	PS-3A	PS-3B	PS-3Z	PS-4	PS-4A	PS-5	DESCRIPTION	PART NO	REMARKS
ASSEMBLY TYPE									

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

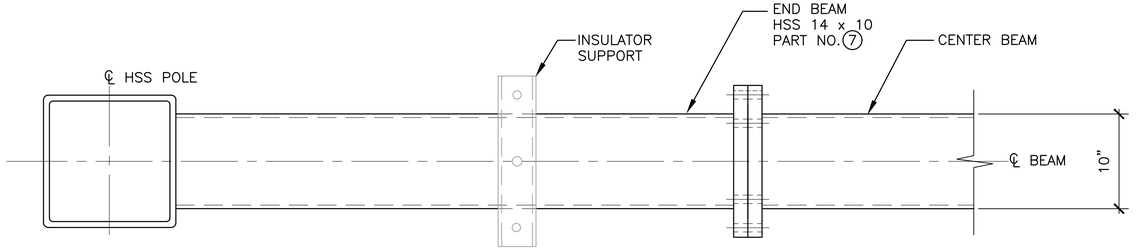
Bin Zhang

DIRECTOR, ENGINEERING

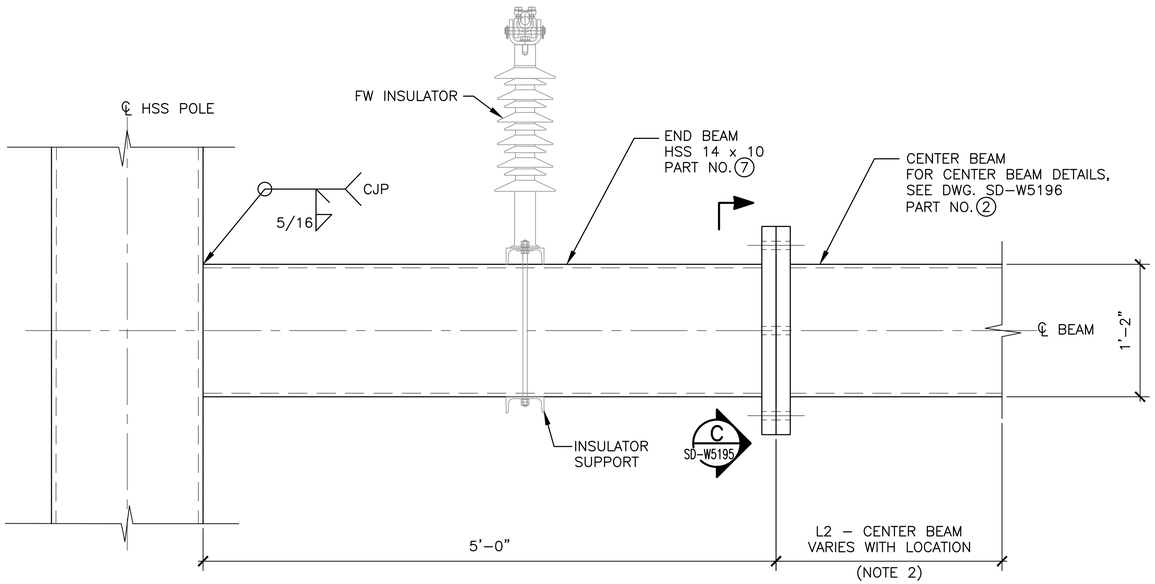
ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTAL TYPES PS-3 THRU PS-5
SINGLE SPAN PORTAL DETAILS
FOR SPANS UP TO 85, 90 & 95 FT
SHEET 1 OF 3

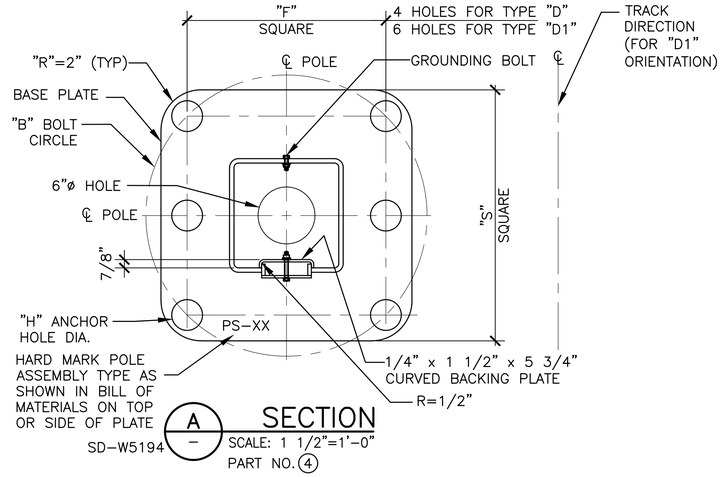
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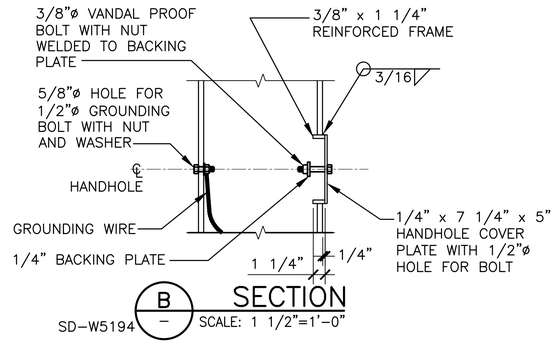
PLAN



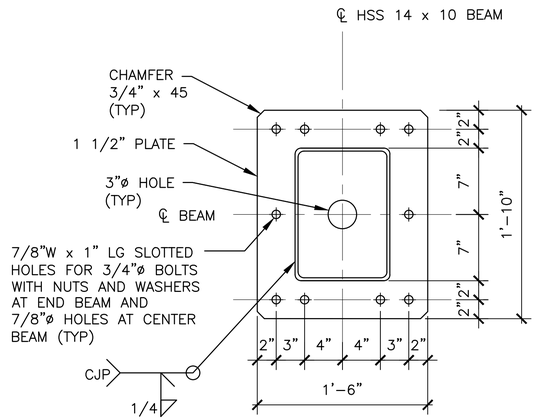
ELEVATION DETAIL
3 – SD-W5194
SCALE: 1 1/2"=1'-0"



A – SECTION
SCALE: 1 1/2"=1'-0"
PART NO.④



B – SECTION
SD-W5194
SCALE: 1 1/2"=1'-0"



C – SECTION
SD-W5195
SD-W5196
SCALE: 1 1/2"=1'-0"

NOTE:

1. FOR GENERAL NOTES SEE DRAWING SD-W0101.
2. FOR CENTER BEAMS WITH A "L2" LENGTH OVER 40', THE BEAM SHOULD BE DIVIDED INTO THREE SECTIONS. THE CENTER SECTION SHOULD BE 40' AND THE TWO REMAINING SECTIONS SHOULD BE EQUAL AND THE LENGTH REQUIRED TO MEET THE TOTAL LENGTH. THE THREE SECTIONS SHALL BE ASSEMBLED FOR CAMBERING. CONNECTIONS SHOULD BE THE SAME AS BETWEEN THE CENTER AND END BEAMS.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

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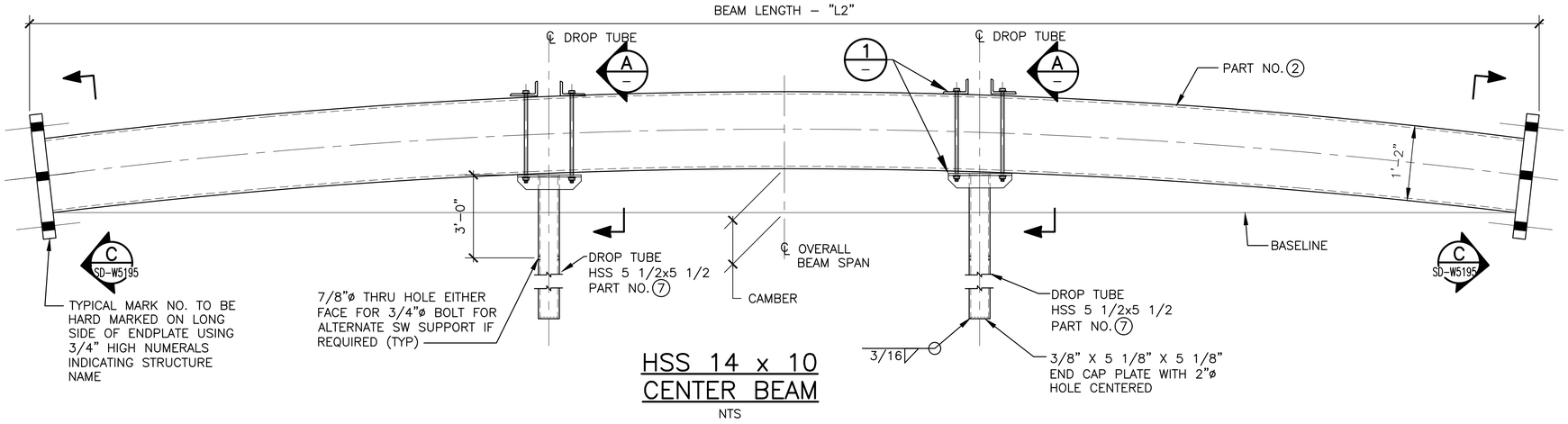
ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTAL TYPES PS-3 THRU PS-5
SINGLE SPAN PORTAL DETAILS
FOR SPANS UP TO 85, 90 & 95 FT
SHEET 2 OF 3

CADD FILE NAME: SD-W5195
REV: | EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD-W5195

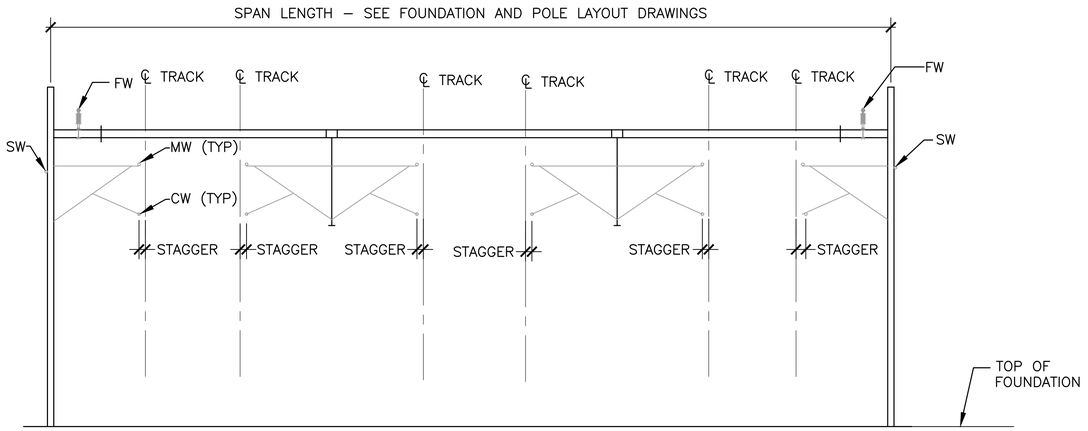
NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.



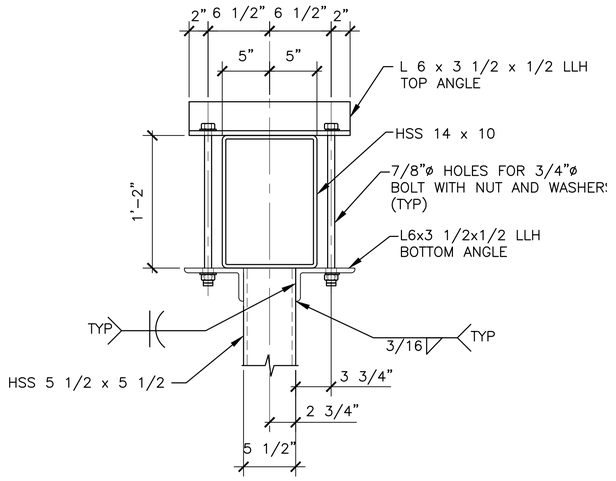
HSS 14 x 10 CENTER BEAM

NTS



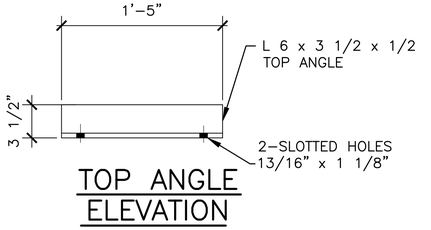
SCHEMATIC PORTAL DETAIL PS–3 THRU PS–5

NTS

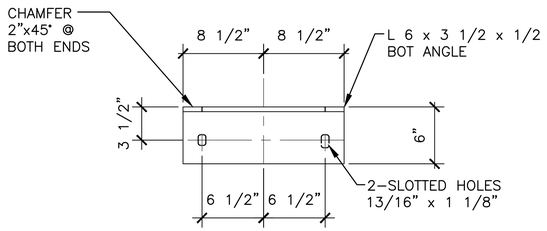


A – SECTION

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
	010126				SECOND EDITION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

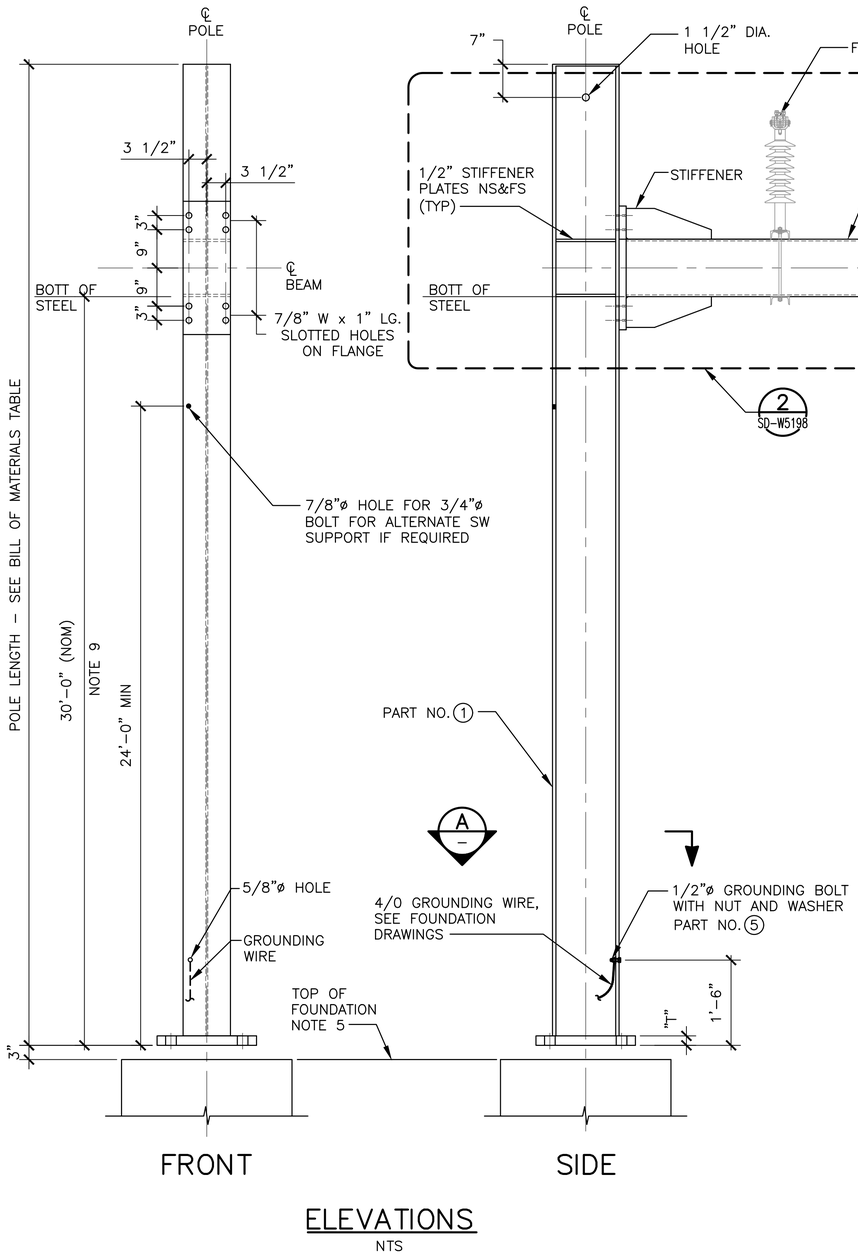
OVERHEAD CONTACT SYSTEM
OCS PORTAL TYPES PS–3 THRU PS–5
SINGLE SPAN PORTAL DETAILS
FOR SPANS UP TO 85, 90 & 95 FT
SHEET 3 OF 3

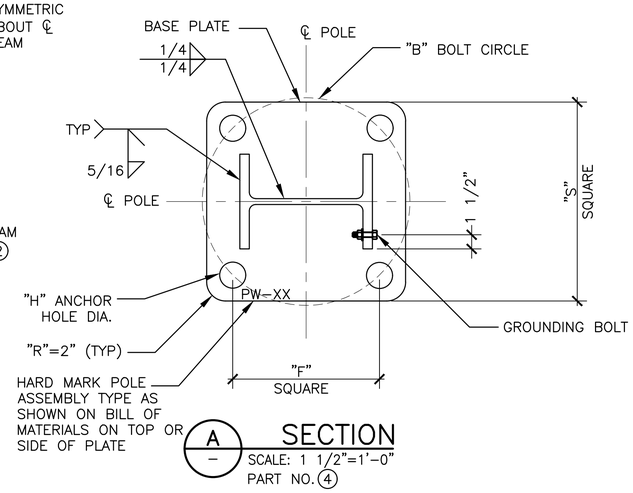
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REV: | EDITION: SECOND

SCALE: AS SHOWN

STANDARD DRAWING NO.: SD–W5196





A – SECTION
SCALE: 1 1/2"=1'–0"
PART NO. (4)

ELEVATIONS
NTS

NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. HORIZONTAL BEAM LENGTH WILL BE DETERMINED IN FIELD AT EACH LOCATION PRIOR TO FABRICATION.
3. ALL HOLES ON MAST, BEAMS AND MISCELLANEOUS STEEL SHALL BE PRE–DRILLED AT SHOP PRIOR TO GALVANIZING.
4. ALL PORTAL POLES SHALL BE SET PLUMB WITH NO RAKE TO ENSURE PROPER CONNECTION WITH HORIZONTAL BEAM.
5. 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.
6. NOTIFY ENGINEER IF ANY WIRES ARE TERMINATED ON THE PORTAL BEAM AND THE BEAM SECTION SHALL BE EVALUATED ON A CASE SPECIFIC BASIS.
7. 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 ≥ 80' USE HSS 14 x 10 x 5/8 SECTION FOR CENTER BEAM AND END BEAMS
8. 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.
9. BOTTOM OF STEEL VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATION DRAWINGS FOR HEIGHT.

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				
	1	DROP TUBE HSS 5 1/2 x 5 1/2 x 3/8 x 10'–0"	6	NOTE 5
	2	1/2"ø 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	DESCRIPTION	PART NO	REMARKS
ASSEMBLY TYPE				

BILL OF MATERIALS

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

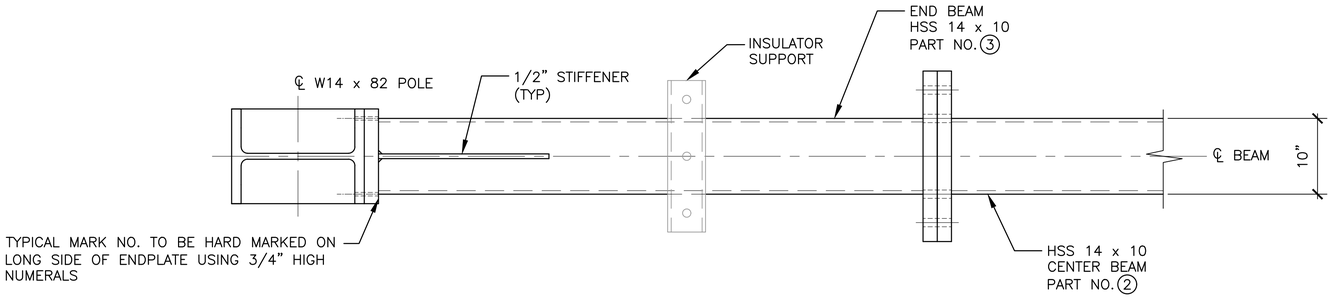
DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTAL TYPE PW–3
SINGLE SPAN PORTAL DETAILS
FOR SPANS FROM 66 TO 85 FEET
SHEET 1 OF 3

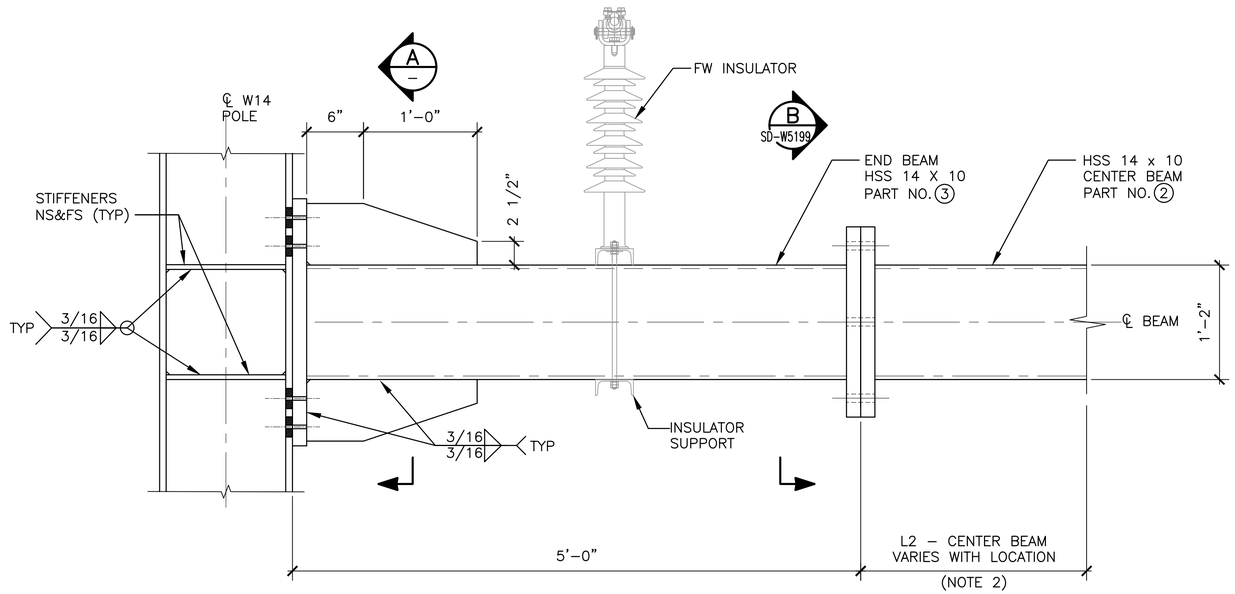
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EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5197



PLAN

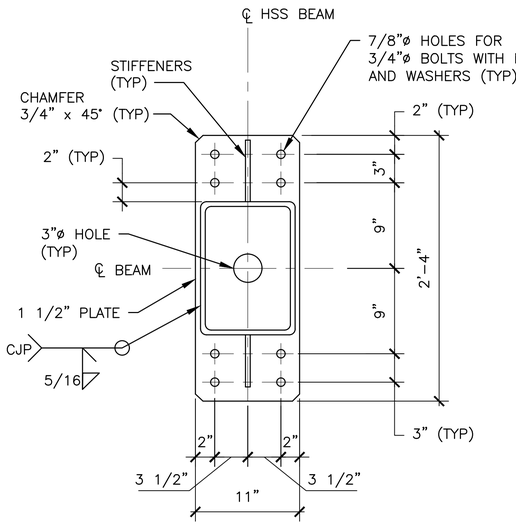
NOTE:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. FOR CENTER BEAMS WITH A "L2" LENGTH OVER 40', THE BEAM SHOULD BE DIVIDED INTO THREE SECTIONS. THE CENTER SECTION SHOULD BE 40' AND THE TWO REMAINING SECTIONS SHOULD BE EQUAL AND THE LENGTH REQUIRED TO MEET THE TOTAL LENGTH. THE THREE SECTIONS SHALL BE ASSEMBLED FOR CAMBERING. CONNECTIONS SHOULD BE THE SAME AS BETWEEN THE CENTER AND END BEAMS.



ELEVATION DETAIL

2 / – SD–W5197 SCALE: 1 1/2"=1'–0"



A / – SECTION SCALE: 1 1/2"=1'–0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTAL TYPE PW–3
SINGLE SPAN PORTAL DETAILS
FOR SPANS FROM 66 TO 85 FEET
SHEET 2 OF 3

CADD FILE NAME: SD–W5198

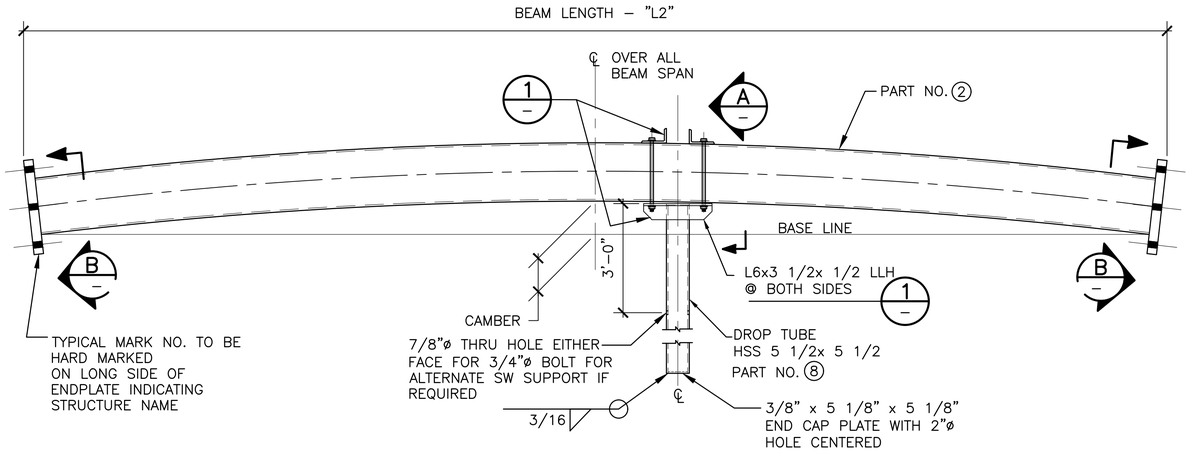
REV: EDITION: SECOND

SCALE: AS SHOWN

STANDARD DRAWING NO.: SD–W5198

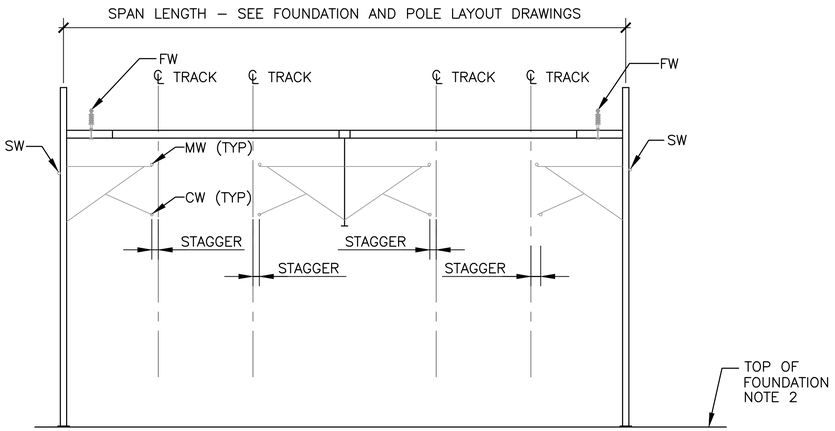
NOTE:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.



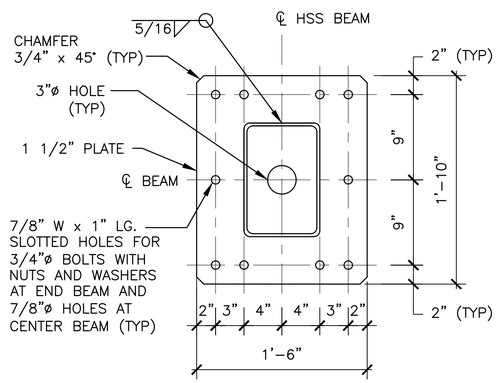
HSS 14 x 10 x 3/8 CENTER BEAM PART NO. ②

NTS



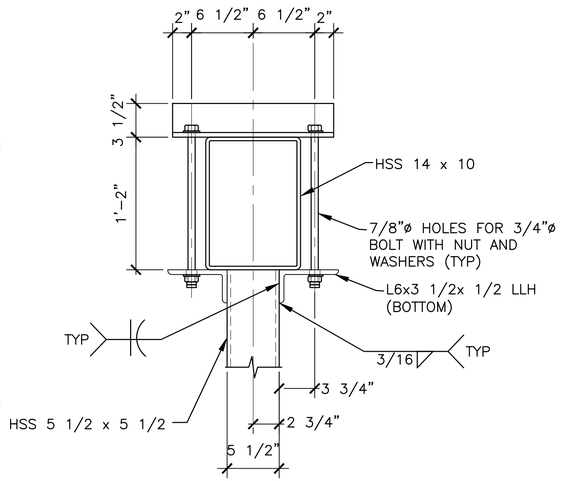
SCHEMATIC DETAIL FOUR TRACK PORTAL PW–3

NTS



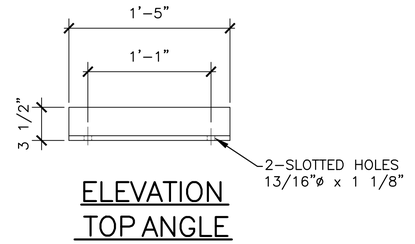
B – SD–W5198, SD–W5199 — SECTION

SCALE: 1 1/2"=1'–0"

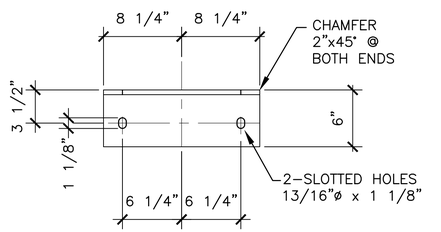


A – SECTION

SCALE: 1 1/2"=1'–0"



ELEVATION TOP ANGLE



PLAN BOTTOM ANGLE

1 – DETAIL

SCALE: 1 1/2"=1'–0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

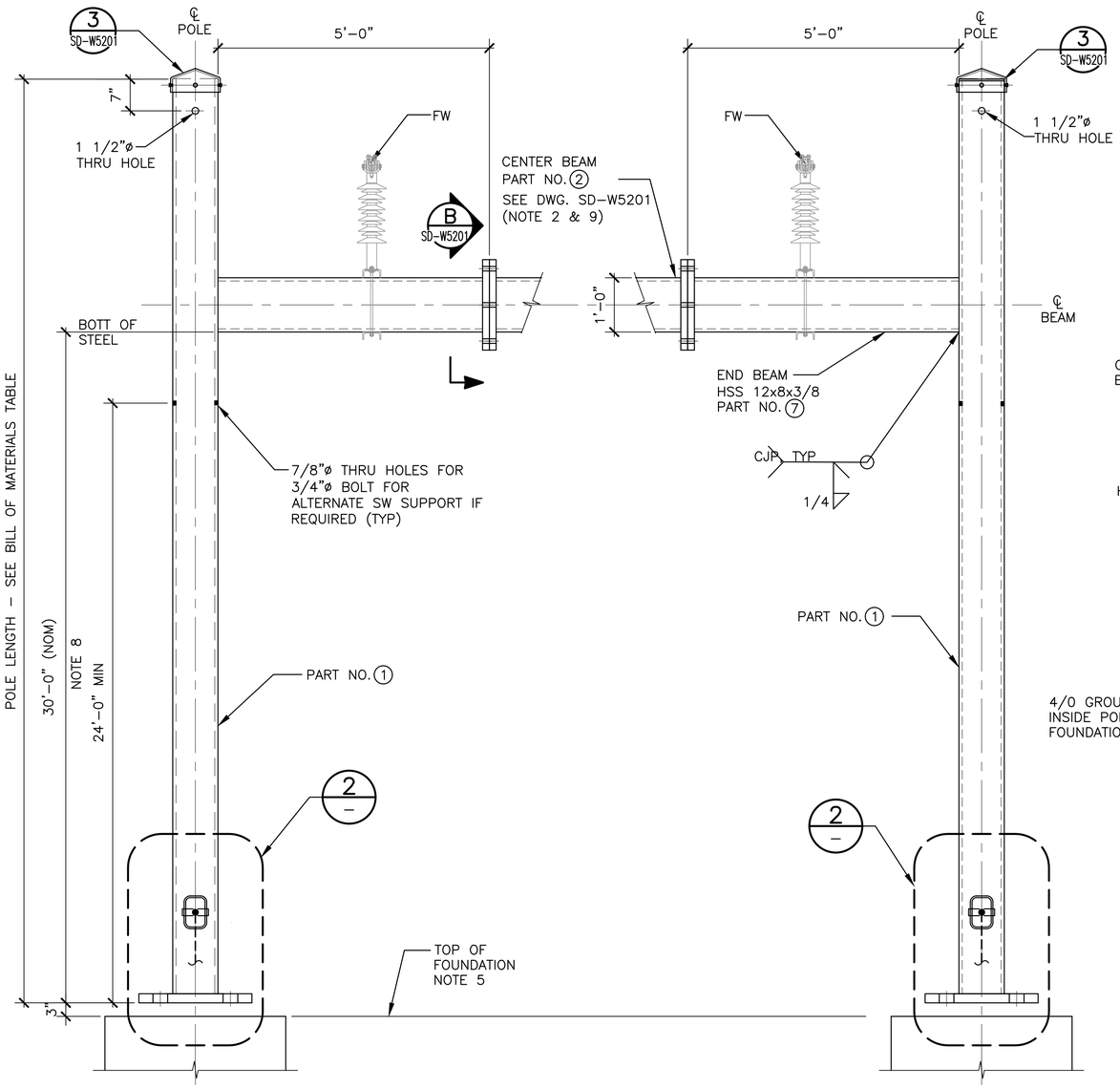
OVERHEAD CONTACT SYSTEM
OCS PORTAL TYPE PW–3
SINGLE SPAN PORTAL DETAILS
FOR SPANS FROM 66 TO 85 FEET
SHEET 3 OF 3

CADD FILE NAME: SD–W5199

REV: | EDITION: SECOND

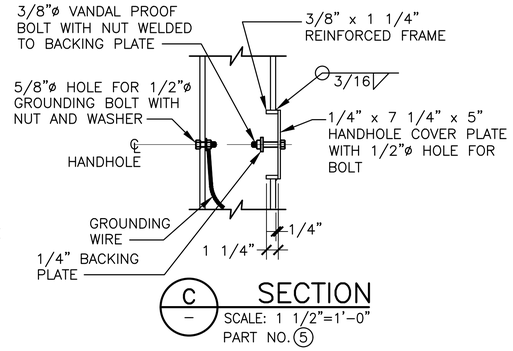
SCALE: AS SHOWN

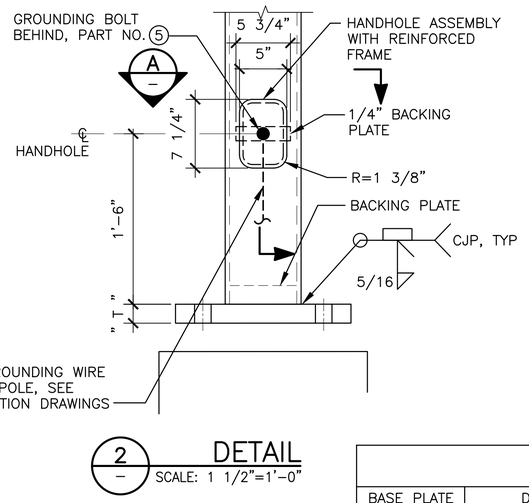
STANDARD DRAWING NO.: SD–W5199

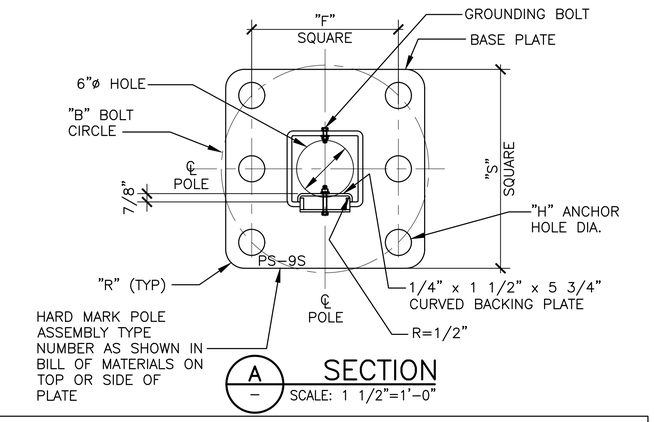


POLE ELEVATION

NTS







NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. HORIZONTAL BEAM LENGTH WILL BE DETERMINED IN FIELD AT EACH LOCATION PRIOR TO FABRICATION.
3. ALL PORTAL MASTS, BEAMS AND MISCELLANEOUS STEEL SHALL BE PRE–DRILLED IN SHOP PRIOR TO GALVANIZING.
4. ALL PORTAL POLES SHALL BE SET PLUMB WITH NO RAKE TO ENSURE PROPER CONNECTION WITH HORIZONTAL BEAM.
5. 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.
6. NOTIFY ENGINEER IF ANY WIRES ARE TERMINATED ON THE PORTAL BEAM AND THE BEAM SECTION SHALL BE EVALUATED ON A CASE SPECIFIC BASIS.
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. BOTTOM OF STEEL VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATION DRAWINGS FOR HEIGHT.
9. FOR CENTER BEAMS WITH A LENGTH OVER 40', THE BEAM SHOULD BE DIVIDED INTO THREE SECTIONS. THE CENTER SECTION SHOULD BE 40' AND THE TWO REMAINING SECTIONS SHOULD BE EQUAL AND THE LENGTH REQUIRED TO MEET THE TOTAL LENGTH. THE THREE SECTIONS SHALL BE ASSEMBLED FOR CAMBERING. CONNECTIONS SHOULD BE THE SAME AS BETWEEN THE CENTER AND END BEAMS.

TABLE 1 BASE PLATE DIMENSIONS (IN)

BASE PLATE TYPE	DESCRIPTION	S	F	H	R	T	B	ANCHOR BOLT DIA
"D1"	FOR TYPE PS–9S	28	21	2 3/8	2	2 1/2	29.7	2

BILL OF MATERIALS

QUANTITIES			DESCRIPTION	PART NO	REMARKS
		1	DROP TUBE HSS 5 1/5 x 5 1/2 x 3/8 x 10'–0"	6	NOTE 5
		1	DROP TUBE HSS 5 1/5 x 5 1/2 x 3/8 x 9'–0"	6	NOTE 5
		2	1/2"ø GROUNDING BOLT	5	
		2	REMOVABLE CAP	4	
		2	BASE PLATE TYPE "D1"	3	
		2	END BEAM – HSS 12 x 8 x 3/8 x 5'–0" LG.	7	NOTE 6
		1	CENTER BEAM HSS 12 x 8 x 3/8 – LENGTH VARIES	2	NOTE 2, 6
		2	POLE – HSS 12 x 12 x 5/8 x 45'–6" LG.	1	NOTE 7
		PS–9S			
ASSEMBLY TYPE					

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTAL TYPE PS–9S
SINGLE SPAN PORTAL DETAILS
FOR SPANS FROM 45 TO 65 FEET
SHEET 1 OF 2

CADD FILE NAME: SD–W5200

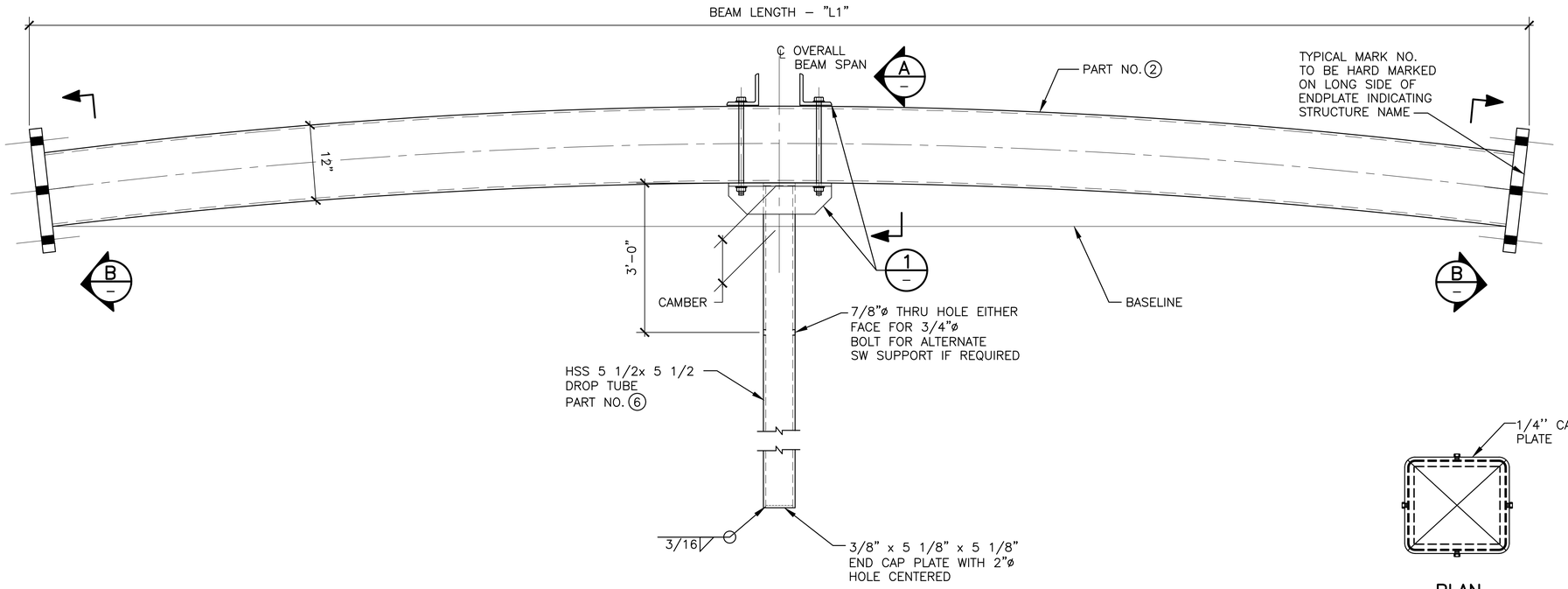
REV: | EDITION: SECOND

SCALE: AS SHOWN

STANDARD DRAWING NO.: SD–W5200

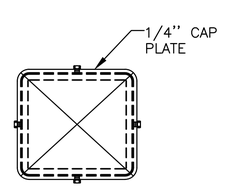
NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.

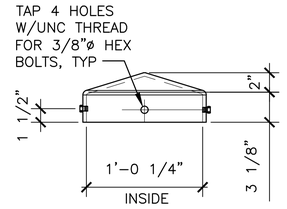


HSS 12 x 8 x 3/8 CENTER BEAM

NTS

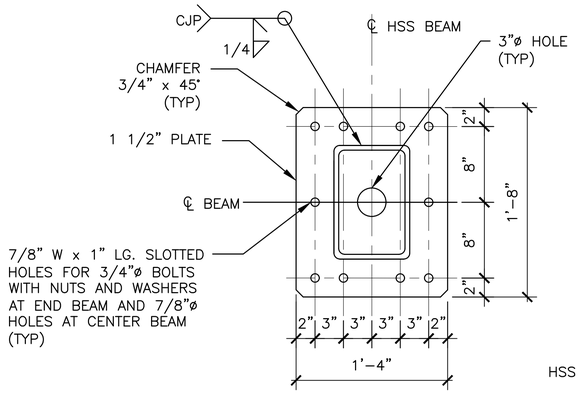


PLAN

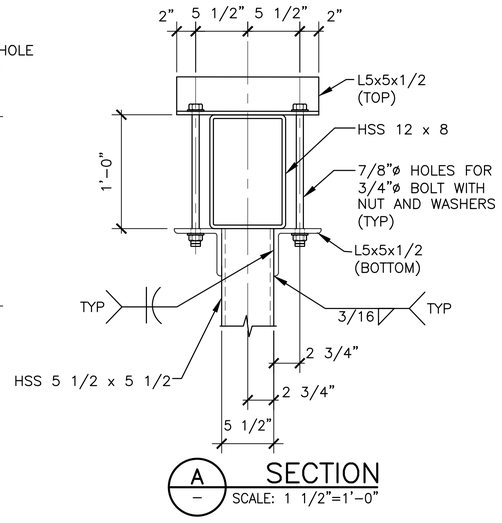


ELEVATION

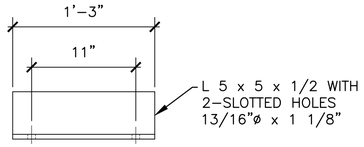
3 – SD–W5200 — DETAIL
SCALE: 1 1/2"=1'–0"
PART NO. ④



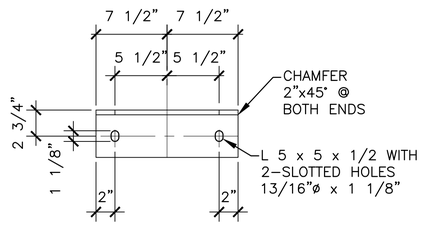
B – SD–W5200, SD–W5201 — SECTION
SCALE: 1 1/2"=1'–0"



A – SECTION
SCALE: 1 1/2"=1'–0"

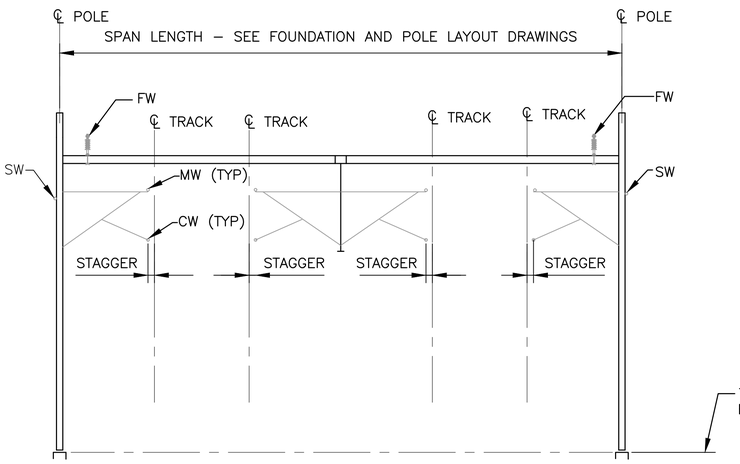


ELEVATION TOP ANGLE



PLAN BOTTOM ANGLE

1 – DETAIL
SCALE: 1 1/2"=1'–0"



SCHEMATIC DETAIL FOUR TRACK PORTAL PS–9S

NTS

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTAL TYPE PS–9S
SINGLE SPAN PORTAL DETAILS
FOR SPANS FROM 45 TO 65 FEET
SHEET 2 OF 2

CADD FILE NAME: SD–W5201

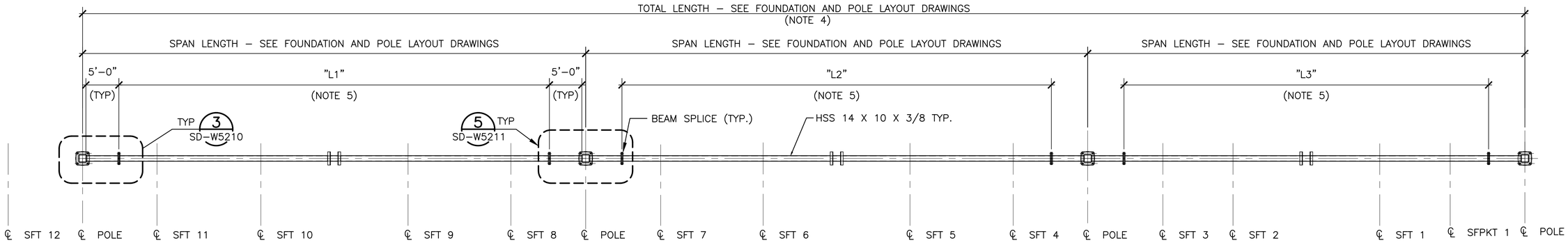
REV: | EDITION: SECOND

SCALE: AS SHOWN

STANDARD DRAWING NO.: SD–W5201

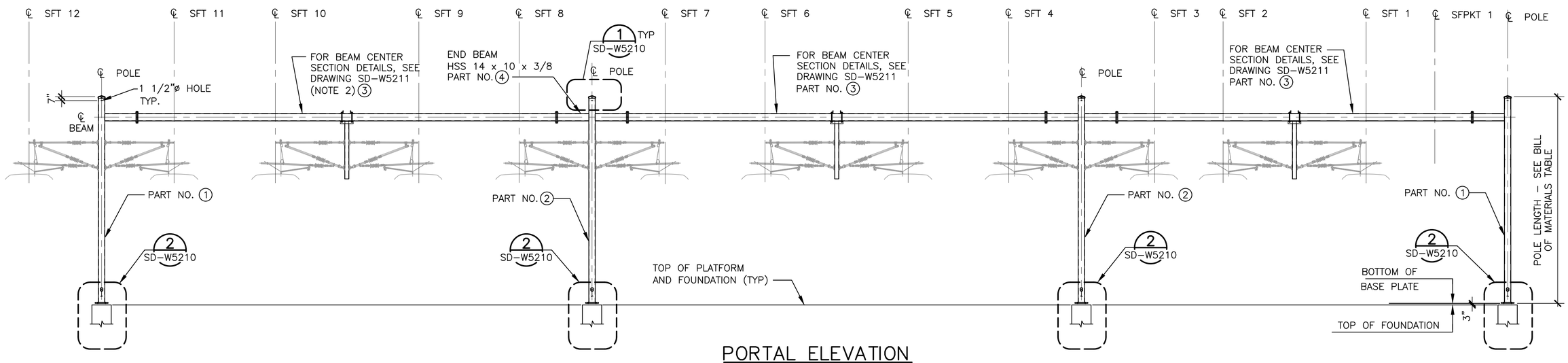
NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. ALL HOLES IN MAST, BEAMS, AND MISCELLANEOUS STEEL SHALL BE PRE–DRILLED IN SHOP PRIOR TO GALVANIZING.
3. POLE SHALL BE SET PLUMB WITH NO RAKE TO ENSURE PROPER CONNECTION BETWEEN POLE AND HORIZONTAL BEAM.
4. HORIZONTAL BEAM LENGTH GIVEN MUST BE FIELD VERIFIED PRIOR TO FABRICATION.
5. FOR CENTER BEAMS WITH A LENGTH OVER 40', THE BEAM SHOULD BE DIVIDED INTO THREE SECTIONS. THE CENTER SECTION SHOULD BE 40' AND THE TWO REMAINING SECTIONS SHOULD BE EQUAL AND THE LENGTH REQUIRED TO MEET THE TOTAL LENGTH. THE THREE SECTIONS SHALL BE ASSEMBLED FOR CAMBERING. CONNECTIONS SHOULD BE THE SAME AS BETWEEN THE CENTER AND END BEAMS.



PORTAL PLAN

SCALE: 1/8"=1'–0"



PORTAL ELEVATION

SCALE: 1/8"=1'–0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

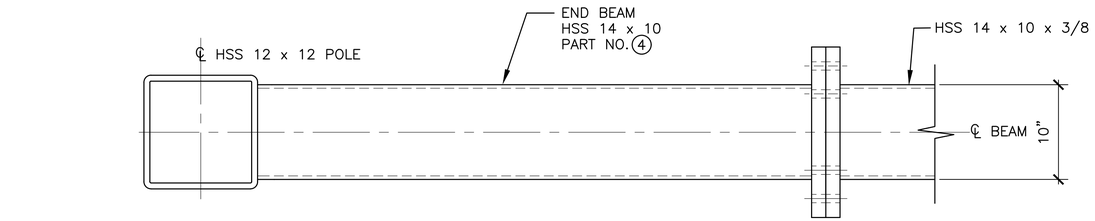
OVERHEAD CONTACT SYSTEM
OCS PORTALS
DETAILS FOR TYPE PS–30
THREE–SPAN PORTAL
SHEET 1 OF 3

CADD FILE NAME: SD–W5209

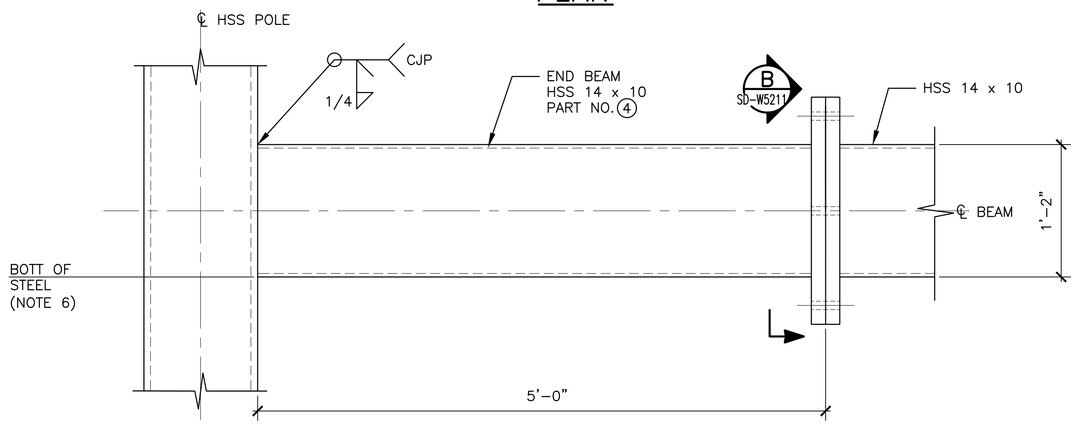
REV: | EDITION: SECOND

SCALE: AS SHOWN

STANDARD DRAWING NO.: SD–W5209

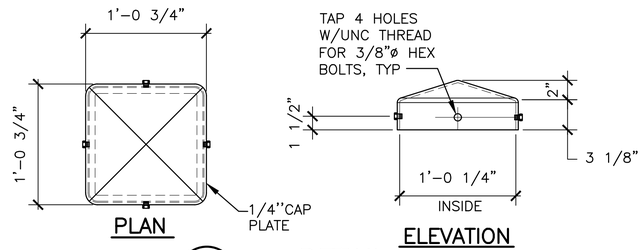


PLAN



ELEVATION

3 — SD-W5209 — DETAIL
SCALE: 1 1/2"=1'-0"

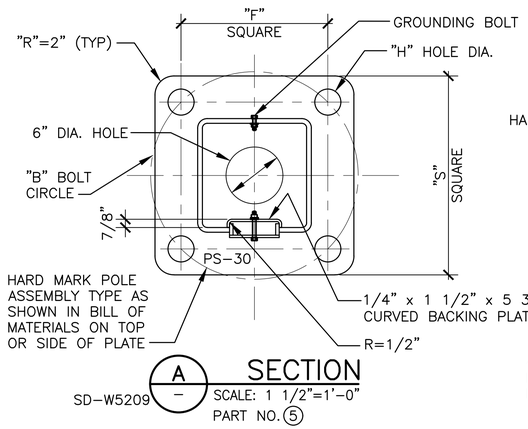


PLAN ELEVATION

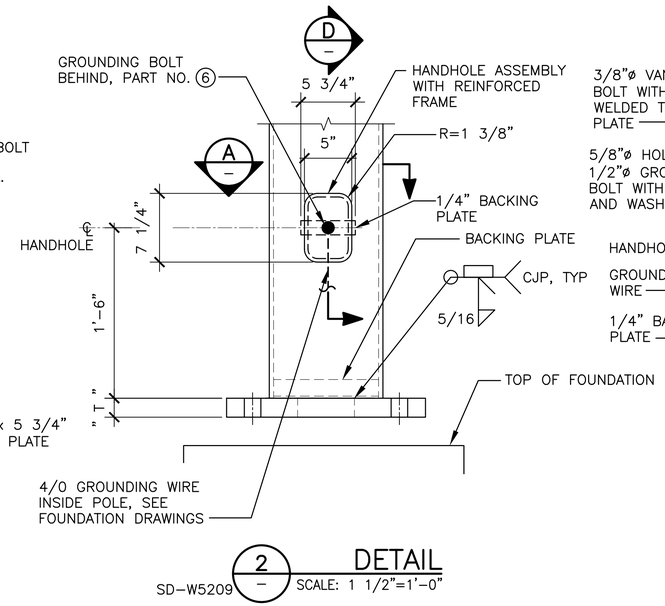
1 — SD-W5209 — DETAIL
REMOVABLE CAP PART NO. 7
SCALE: 1 1/2"=1'-0"

NOTES:

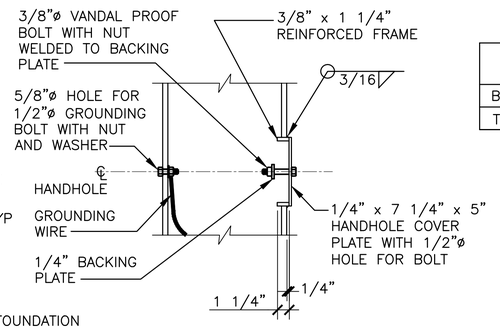
1. FOR GENERAL NOTES SEE DRAWING SD-W0101.
2. HORIZONTAL BEAM LENGTH TO BE FIELD VERIFIED PRIOR TO FABRICATION.
3. SEE MATERIAL ALLOCATION DRAWINGS FOR NUMBER, LOCATION AND LENGTH OF DROP TUBES AND WIRE INFORMATION. ALTERNATE DROP TUBE DETAILS MAY BE USED AS APPROVED BY THE ENGINEER.
4. NOTIFY ENGINEER IF ANY WIRES ARE TERMINATED ON THE PORTAL BEAM AND THE BEAM SECTION SHALL BE EVALUATED ON A CASE SPECIFIC BASIS.
5. 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.
6. BOTTOM OF STEEL VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATION DRAWINGS FOR HEIGHT.



A — SD-W5209 — SECTION
SCALE: 1 1/2"=1'-0"
PART NO. 5



2 — SD-W5209 — DETAIL
SCALE: 1 1/2"=1'-0"



D — SD-W5209 — SECTION
SCALE: 1 1/2"=1'-0"
PART NO. 6

TABLE 1 BASE PLATE DIMENSIONS (IN)								
BASE PLATE	DESCRIPTION	S	F	H	R	T	B	ANCHOR BOLT DIA
TYPE "C1"	BASE FOR PS-30 POLE	21	15 1/2	2 3/8	2	2 1/2	21.92	2

QUANTITIES			
3	DROP TUBE HSS 5 1/2 X 5 1/2 X 3/8 X 9'-0"	8	NOTE 3
4	COVER CAP PLATE	7	
4	1/2"ø GROUNDING BOLT	6	
4	BASE PLATE TYPE "C1"	5	
6	END BEAM – HSS 14 x 10 x 3/8 x 5'-0" LG.	4	NOTE 4
3	CENTER BEAM – HSS 14 x 10 x 3/8 – LENGTH VARIES	3	NOTE 2, 4
2	CENTER POLE – HSS 12 x 12 x 1/2 x 32'-4" LG.	2	NOTE 5
2	SIDE POLE – HSS 12 x 12 x 1/2 x 32'-4" LG.	1	NOTE 5
PS-30 ASSEMBLY TYPE	DESCRIPTION	PART NO	REMARKS
BILL OF MATERIALS			

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

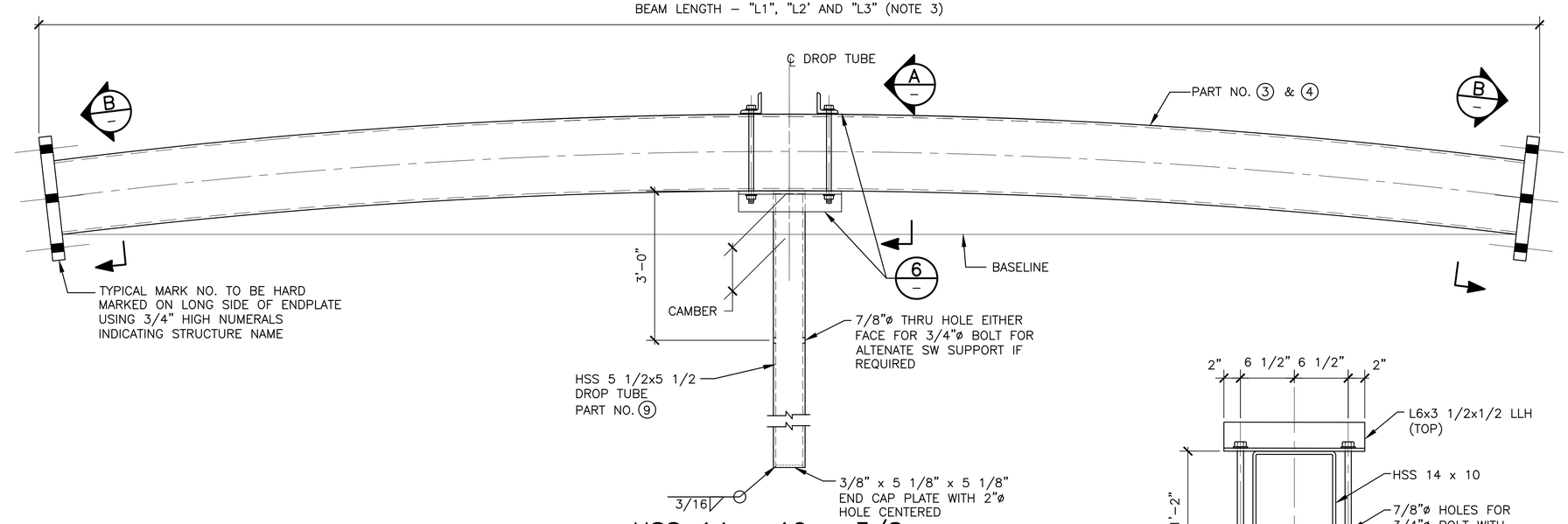
DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

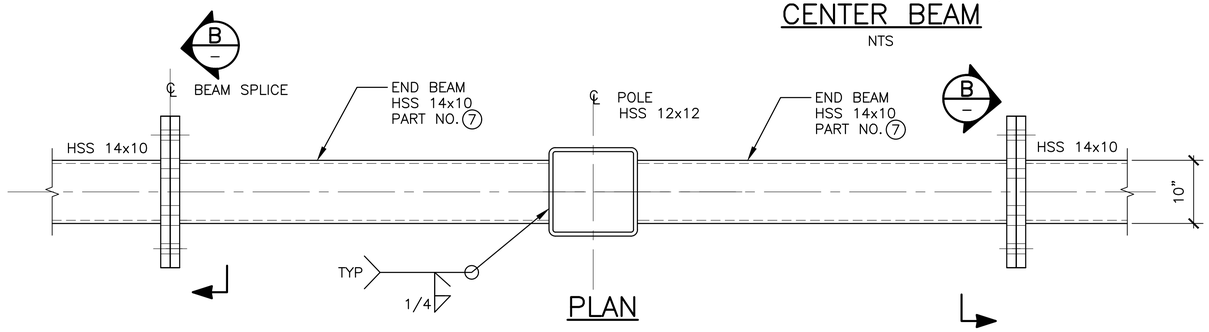
OVERHEAD CONTACT SYSTEM
OCS PORTALS
DETAILS FOR TYPE PS-30
THREE-SPAN PORTAL
SHEET 2 OF 3

CADD FILE NAME: SD-W5210
REV: | EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD-W5210

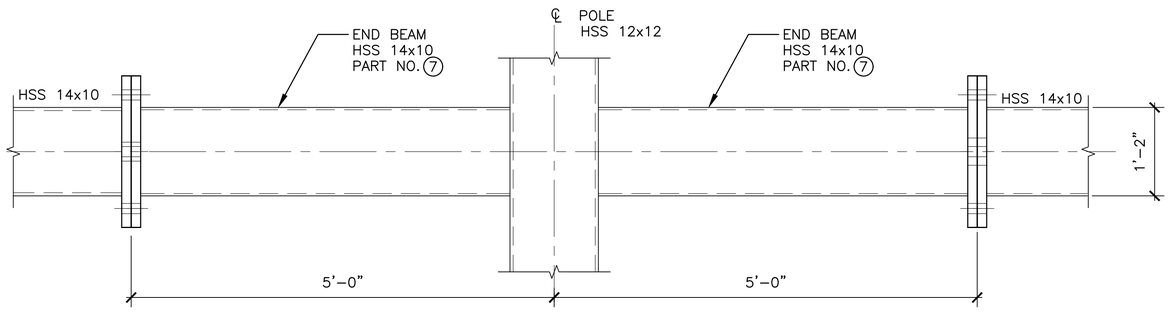


HSS 14 x 10 x 3/8 CENTER BEAM

NTS



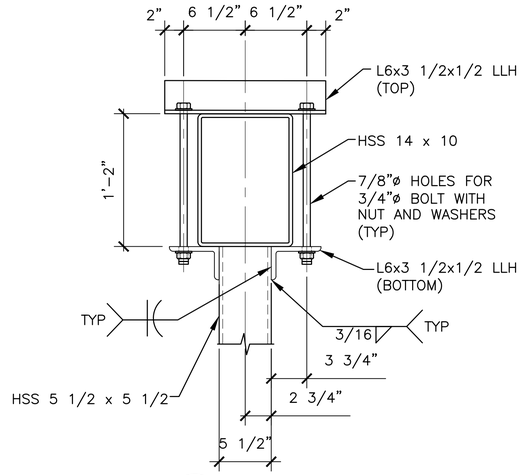
PLAN



ELEVATION

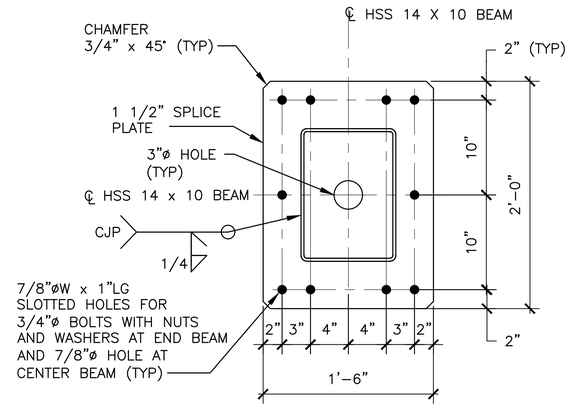
5 — SD–W5209 — DETAIL

SCALE: 1"=1'–0"



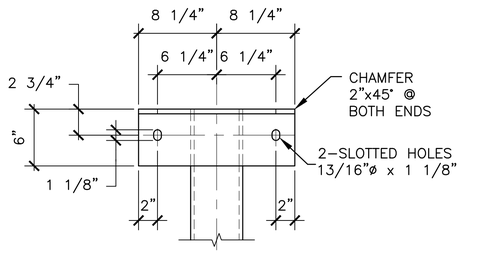
A — SECTION

SCALE: 1 1/2"=1'–0"



B — SECTION

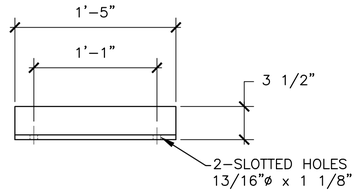
SD–W5210 — SCALE: 1 1/2"=1'–0"



PLAN
BOTTOM ANGLE

6 — DETAIL

SCALE: 1 1/2"=1'–0"



ELEVATION
TOP ANGLE

NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. CAMBER IS LIMITED TO DEFLECTION PRODUCE BY BEAM WEIGHT AND SPAN INDICATED.
3. FOR BEAM LENGTH, SEE BILL OF MATERIIALS TABLE IN DRAWING SD–W5210.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

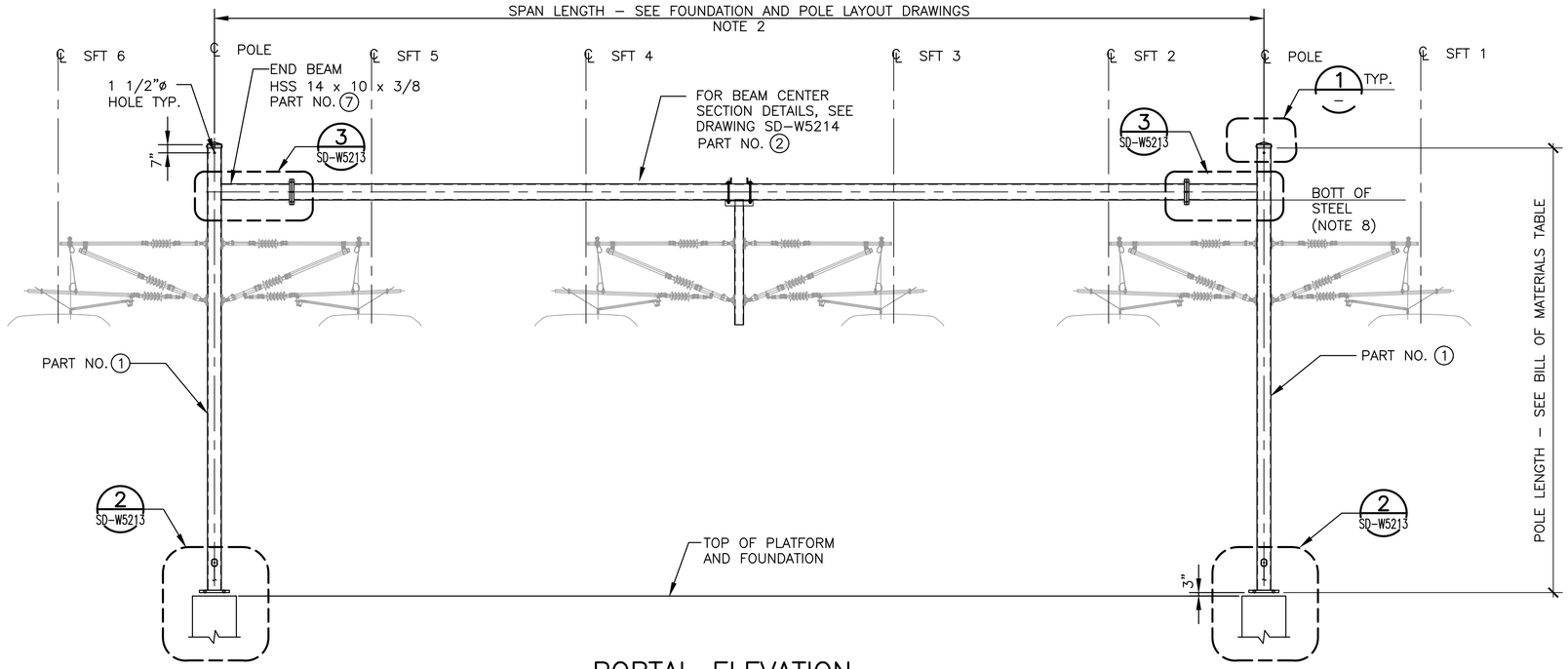
OVERHEAD CONTACT SYSTEM
OCS PORTALS
DETAILS FOR TYPE PS–30
THREE–SPAN PORTAL
SHEET 3 OF 3

CADD FILE NAME: SD–W5211

REV: | EDITION: SECOND

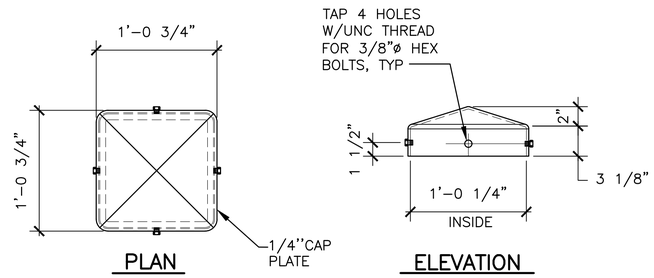
SCALE: AS SHOWN

STANDARD DRAWING NO.: SD–W5211



PORTAL ELEVATION

SCALE: 3/16"=1'–0"



1/– DETAIL

REMOVABLE CAP PART NO. 4

SCALE: 1 1/2"=1'–0"

NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. HORIZONTAL BEAM LENGTH MUST BE FIELD VERIFIED AT EACH LOCATION PRIOR TO FABRICATION.
3. ALL HOLES IN MAST, BEAMS, AND MISCELLANEOUS STEEL SHALL BE PRE–DRILLED IN SHOP PRIOR TO GALVANIZING.
4. ALL POLES SHALL BE SET PLUMB WITH NO RAKE TO ENSURE PROPER CONNECTION BETWEEN POLE AND HORIZONTAL BEAM.
5. 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.
6. NOTIFY ENGINEER IF ANY WIRES ARE TERMINATED ON THE PORTAL BEAM AND THE BEAM SECTION SHALL BE EVALUATED ON A CASE SPECIFIC BASIS.
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. BOTTOM OF STEEL VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATON DRAWINGS FOR HEIGHT.

TABLE 1 BASE PLATE DIMENSIONS (IN)

BASE PLATE	DESCRIPTION	S	F	H	R	T	B	ANCHOR BOLT DIA
TYPE "D"	BASE FOR PS–31	28	21	2 3/8	2	2 1/2	29.70	2

QUANTITIES

		1	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 COVER CAP	4	
		2	BASE PLATE TYPE "D"	3	
		2	END BEAM – HSS 14 x 10 x 3/8 x 5'–0" LG.	7	NOTE 6
		1	CENTER BEAM – HSS 14 x 10 x 3/8 – LENGTH VARIES	2	NOTE 2, 6
		2	POLE – HSS 12 x 12 x 5/8 x 32'–4" LG.	1	NOTE 7
PS–31 ASSEMBLY TYPE			DESCRIPTION	PART NO	REMARKS

BILL OF MATERIALS

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

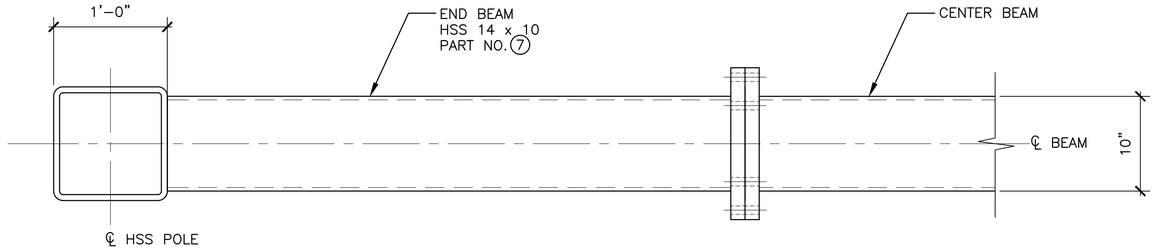
OVERHEAD CONTACT SYSTEM
OCS PORTALS
SINGLE SPAN PORTAL DETAILS
FOR TYPE PS–31
SHEET 1 OF 3

CADD FILE NAME: SD–W5212

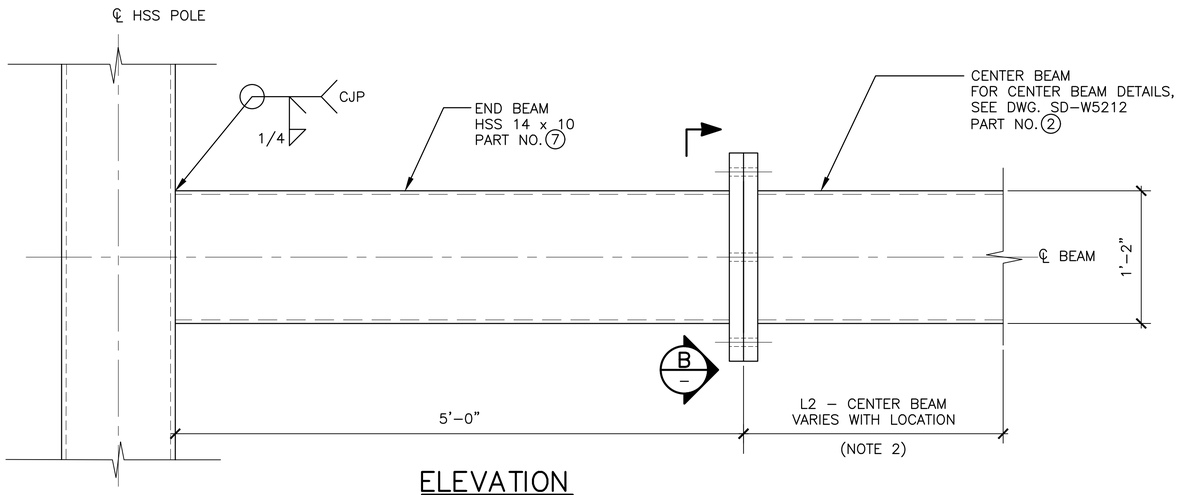
REV: | EDITION: SECOND

SCALE: AS SHOWN

STANDARD DRAWING NO.: SD–W5212



PLAN

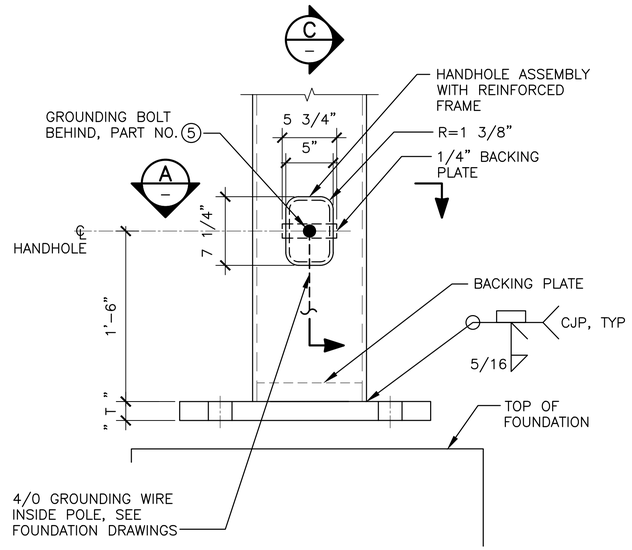


ELEVATION

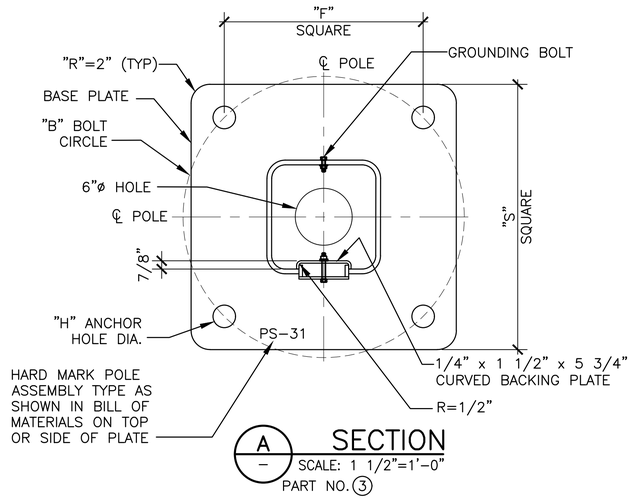
3 — DETAIL
SD-W5212 — SCALE: 1 1/2"=1'-0"

NOTE:

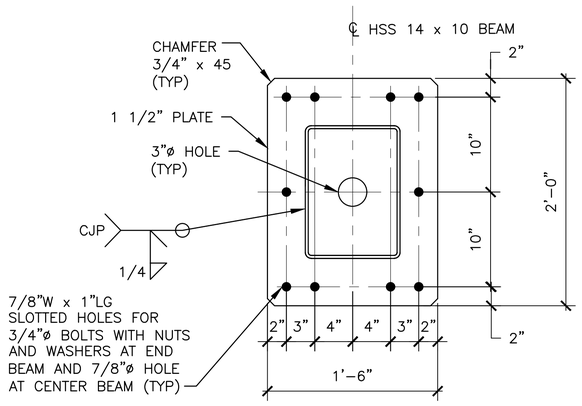
1. FOR GENERAL NOTES SEE DRAWING SD-W0101.
2. FOR CENTER BEAMS WITH A "L2" LENGTH OVER 40', THE BEAM SHOULD BE DIVIDED INTO THREE SECTIONS. THE CENTER SECTION SHOULD BE 40' AND THE TWO REMAINING SECTIONS SHOULD BE EQUAL AND THE LENGTH REQUIRED TO MEET THE TOTAL LENGTH. THE THREE SECTIONS SHALL BE ASSEMBLED FOR CAMBERING. CONNECTIONS SHOULD BE THE SAME AS BETWEEN THE CENTER AND END BEAMS.



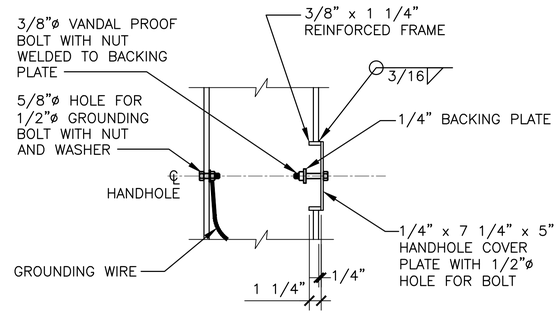
2 — DETAIL
SD-W5212 — SCALE: 1 1/2"=1'-0"



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



B — SECTION
SD-W5214 — SCALE: 1 1/2"=1'-0"



C — SECTION
SCALE: 1 1/2"=1'-0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

Caltrain

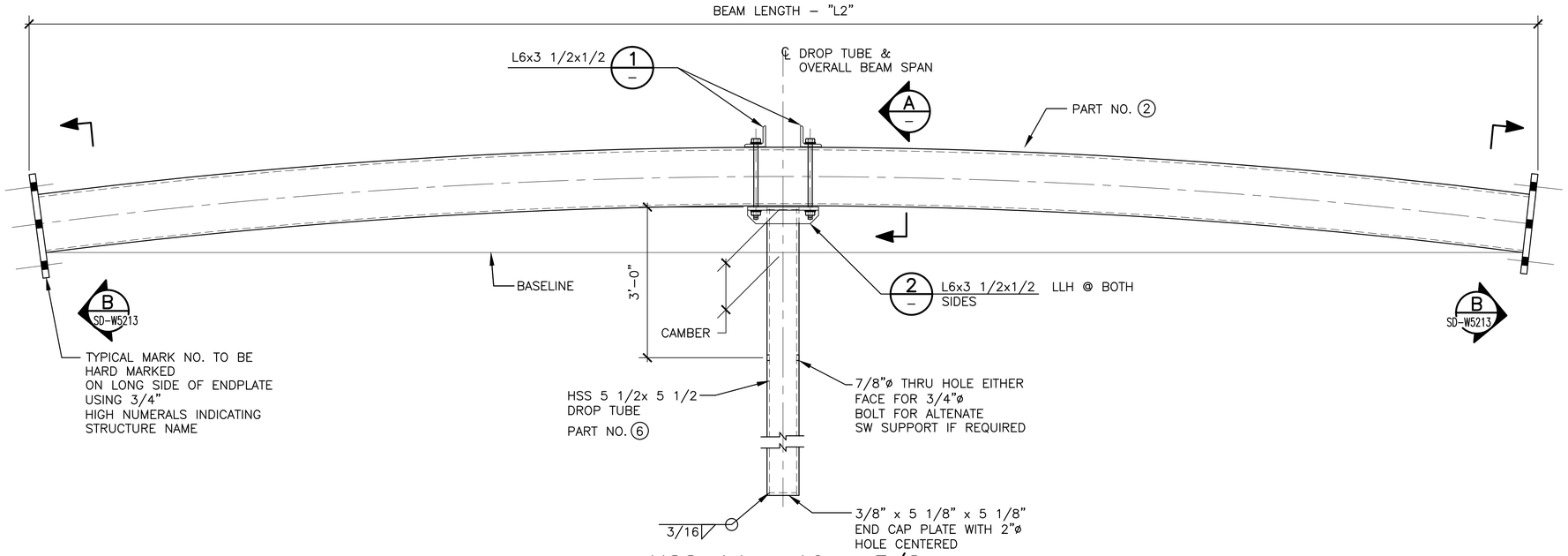
ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTALS
SINGLE SPAN PORTAL DETAILS
FOR TYPE PS-31
SHEET 2 OF 3

CADD FILE NAME: SD-W5213
REV: | EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD-W5213

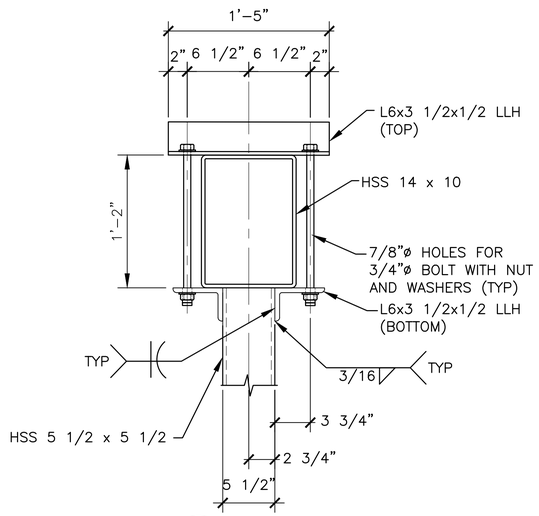
NOTE:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.

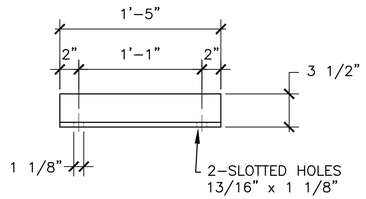


HSS 14 x 10 x 3/8
CENTER BEAM

NTS

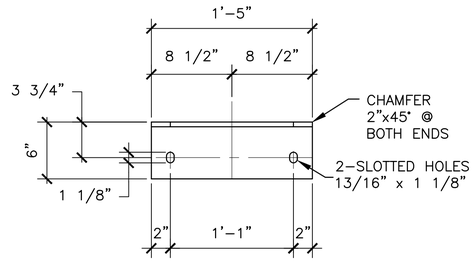


A – SECTION
SCALE: 1 1/2"=1'–0"



ELEVATION
TOP ANGLE

1 – DETAIL
SCALE: 1 1/2"=1'–0"



PLAN
BOTTOM ANGLE

2 – DETAIL
SCALE: 1 1/2"=1'–0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

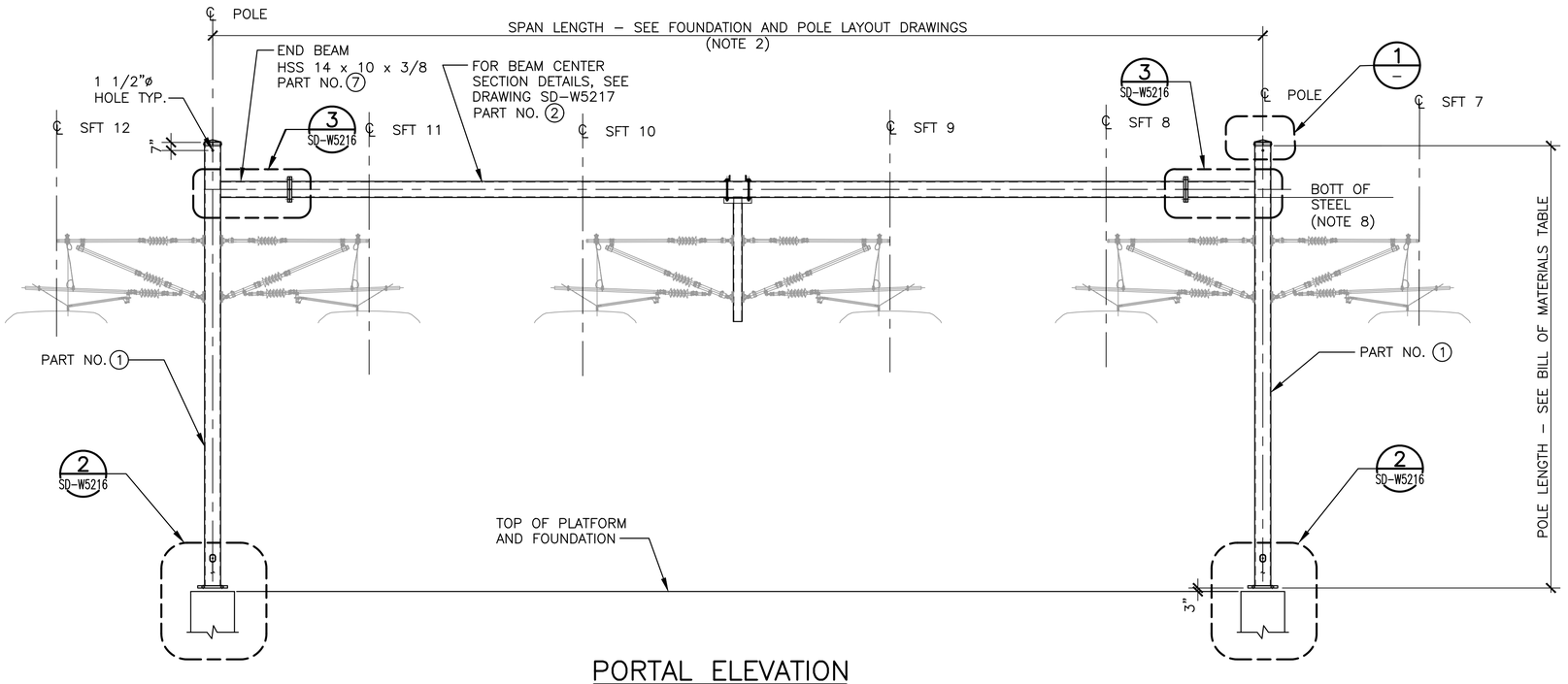
OVERHEAD CONTACT SYSTEM
OCS PORTALS
SINGLE SPAN PORTAL DETAILS
FOR TYPE PS–31
SHEET 3 OF 3

CADD FILE NAME: SD–W5214

REV: | EDITION: SECOND

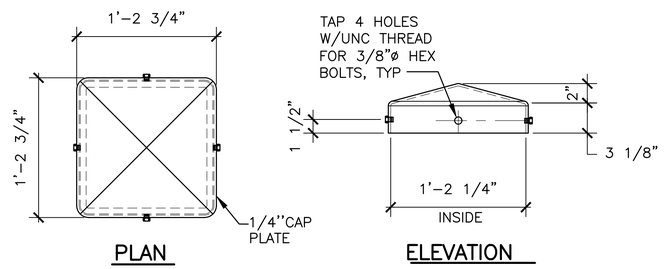
SCALE: AS SHOWN

STANDARD DRAWING NO.: SD–W5214



PORTAL ELEVATION

SCALE: 3/16"=1'–0"



1/– DETAIL

REMOVABLE CAP PART NO. 4

SCALE: 1 1/2"=1'–0"

NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. HORIZONTAL BEAM LENGTH MUST BE FIELD VERIFIED AT EACH LOCATION PRIOR TO FABRICATION.
3. ALL HOLES IN MAST, BEAMS, AND MISCELLANEOUS STEEL SHALL BE PRE–DRILLED IN SHOP PRIOR TO GALVANIZING.
4. ALL POLES SHALL BE SET PLUMB WITH NO RAKE TO ENSURE PROPER CONNECTION BETWEEN POLE AND HORIZONTAL BEAM.
5. 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.
6. NOTIFY ENGINEER IF ANY WIRES ARE TERMINATED ON THE PORTAL BEAM AND THE BEAM SECTION SHALL BE EVALUATED ON A CASE SPECIFIC BASIS.
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. BOTTOM OF STEEL VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATION DRAWINGS FOR HEIGHT.

TABLE 1 BASE PLATE DIMENSIONS (IN)

BASE PLATE	DESCRIPTION	S	F	H	R	T	B	ANCHOR BOLT DIA
TYPE "D"	BASE FOR PS–32	28	21	2 3/8	2	2 1/2	29.70	2

QUANTITIES

		1	DROP TUBE HSS 5 1/5 X 5 1/2 X 3/8 X 9'–0"	6	NOTE 5
		2	1/2"ø GROUNDING BOLT	5	
		2	REMOVABLE COVER CAP	4	
		2	BASE PLATE TYPE "D"	3	
		2	END BEAM – HSS 14 x 10 x 3/8 x 5'–0" LG.	7	NOTE 6
		1	CENTER BEAM – HSS 14 x 10 x 3/8 – LENGTH VARIES	2	NOTE 2, 6
		2	POLE – HSS 12 x 12 x 5/8 x 32'–4" LG.	1	NOTE 7
		PS–32	DESCRIPTION	PART NO	REMARKS
ASSEMBLY TYPE					

BILL OF MATERIALS

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

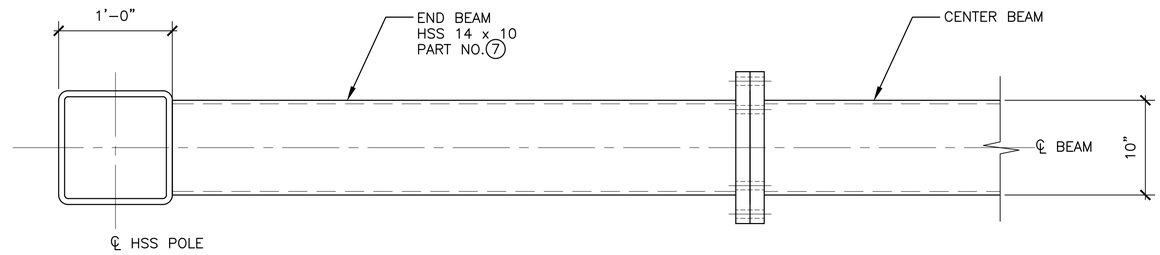
OVERHEAD CONTACT SYSTEM
OCS PORTALS
SINGLE SPAN PORTAL DETAILS
FOR TYPE PS–32
SHEET 1 OF 3

CADD FILE NAME: SD–W5215

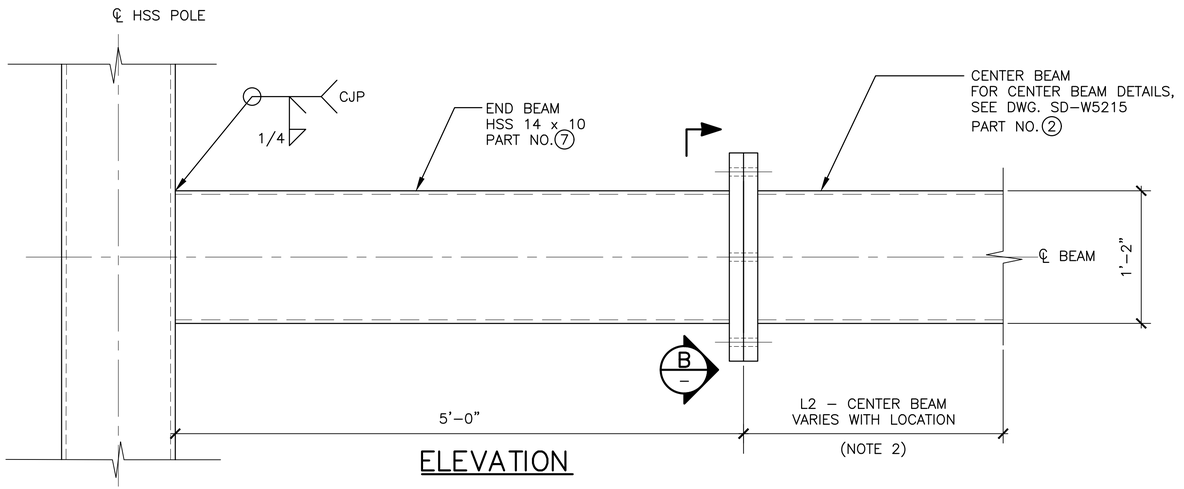
REV: | EDITION: SECOND

SCALE: AS SHOWN

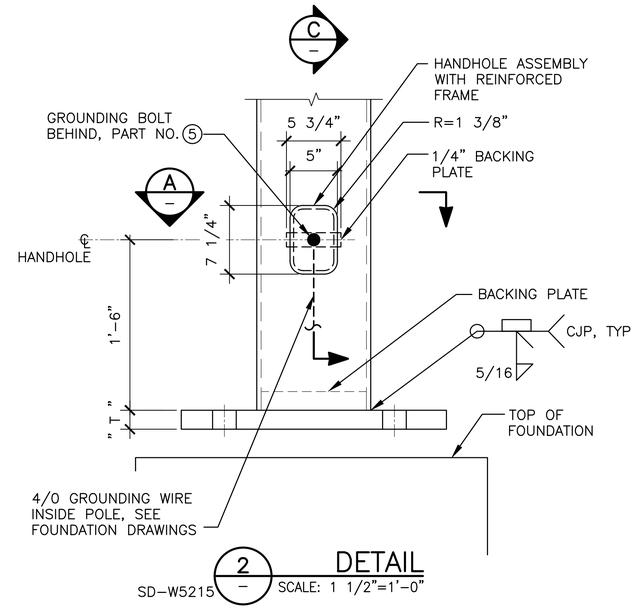
STANDARD DRAWING NO.: SD–W5215



PLAN



ELEVATION

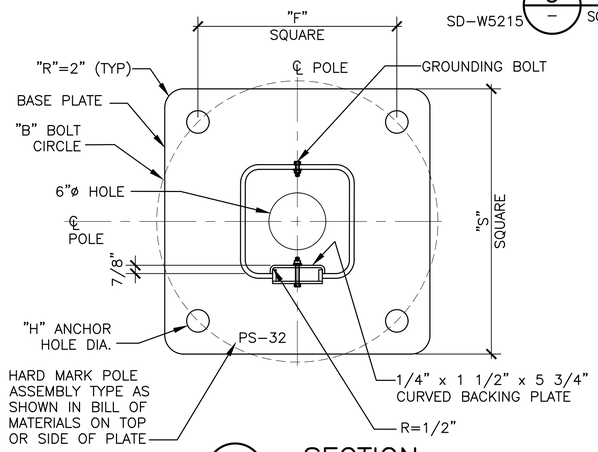


2 — SD-W5215 — DETAIL
SCALE: 1 1/2"=1'-0"

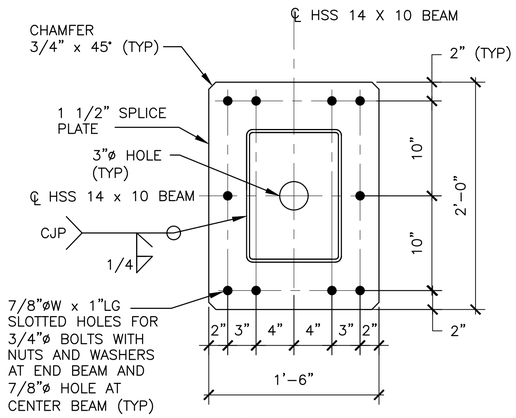
NOTE:

1. FOR GENERAL NOTES SEE DRAWING SD-W0101.
2. FOR CENTER BEAMS WITH A "L2" LENGTH OVER 40', THE BEAM SHOULD BE DIVIDED INTO THREE SECTIONS. THE CENTER SECTIONS SHOULD BE 40' AND THE TWO REMAINING SECTIONS SHOULD BE EQUAL AND THE LENGTH REQUIRED TO MEET THE TOTAL LENGTH. THE THREE SECTIONS SHALL BE ASSEMBLED FOR CAMBERING. CONNECTIONS SHOULD BE THE SAME AS BETWEEN THE CENTER AND END BEAMS.

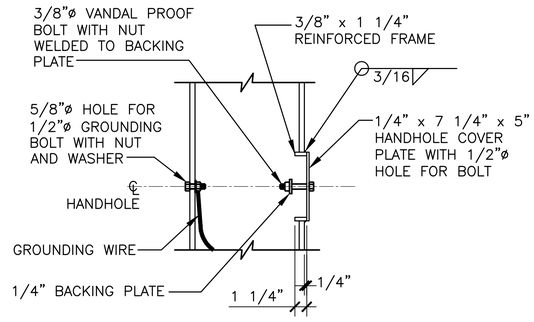
3 — SD-W5215 — DETAIL
SCALE: 1 1/2"=1'-0"



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



B — SECTION
SD-W5217
SCALE: 1 1/2"=1'-0"



C — SECTION
SCALE: 1 1/2"=1'-0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

PENINSULA CORRIDOR JOINT POWERS BOARD

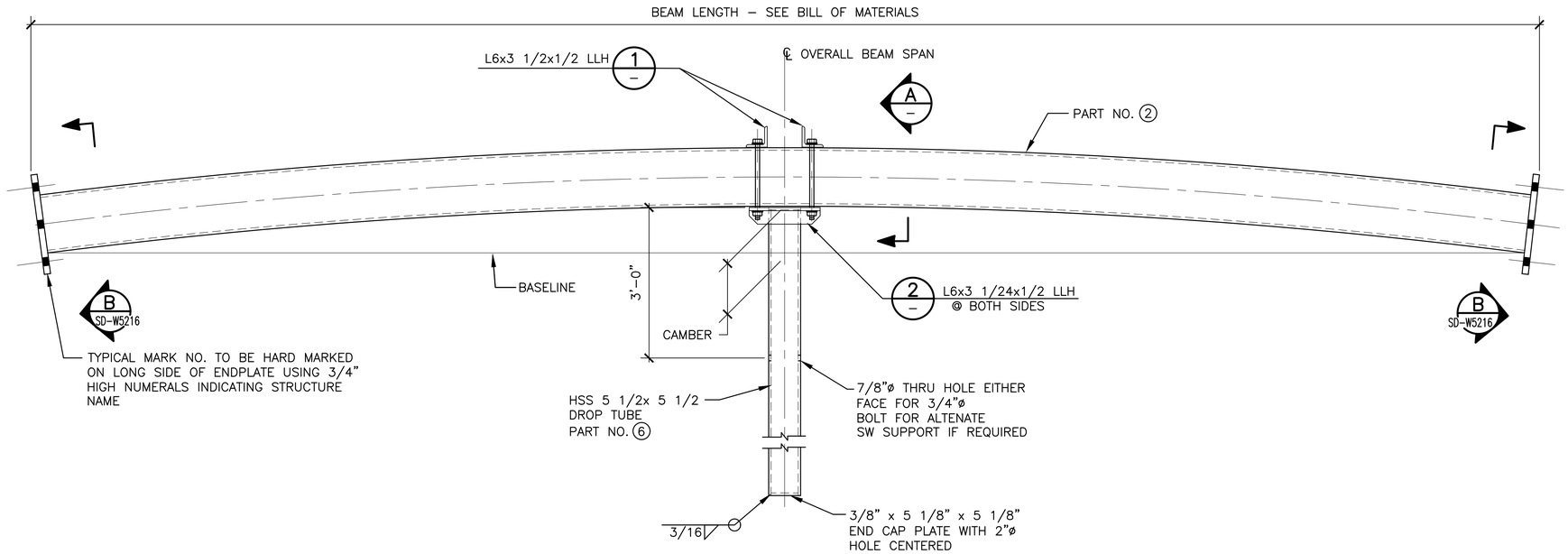
APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

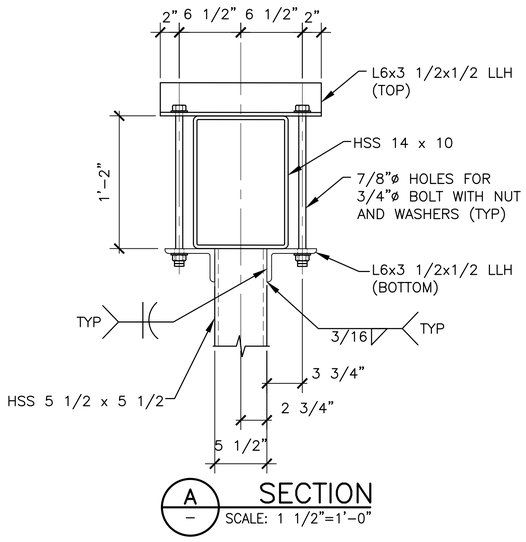
OVERHEAD CONTACT SYSTEM
OCS PORTALS
SINGLE SPAN PORTAL DETAILS
FOR TYPE PS-32
SHEET 2 OF 3

CADD FILE NAME:	SD-W5216
REV:	EDITION: SECOND
SCALE:	AS SHOWN
STANDARD DRAWING NO.:	SD-W5216

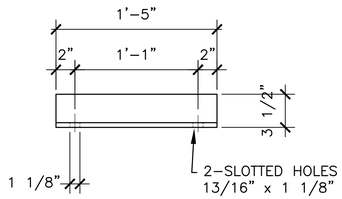


HSS 14 x 10 x 3/8
CENTER BEAM

NTS

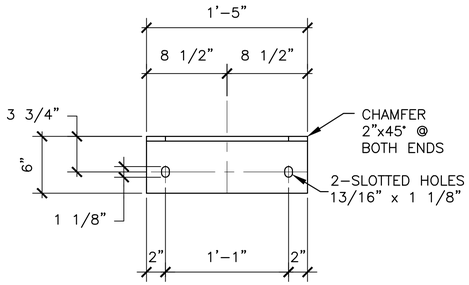


A SECTION
SCALE: 1 1/2"=1'-0"



ELEVATION
TOP ANGLE

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



PLAN
BOTTOM ANGLE

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

NOTE:

1. FOR GENERAL NOTES SEE DRAWING SD-W0101.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

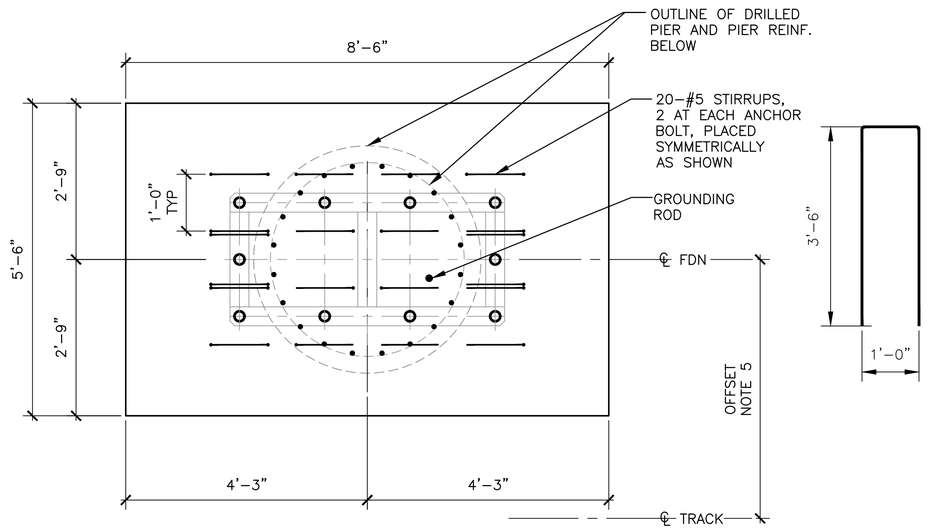
OVERHEAD CONTACT SYSTEM
OCS PORTALS
SINGLE SPAN PORTAL DETAILS
FOR TYPE PS-32
SHEET 3 OF 3

CADD FILE NAME: SD-W5217

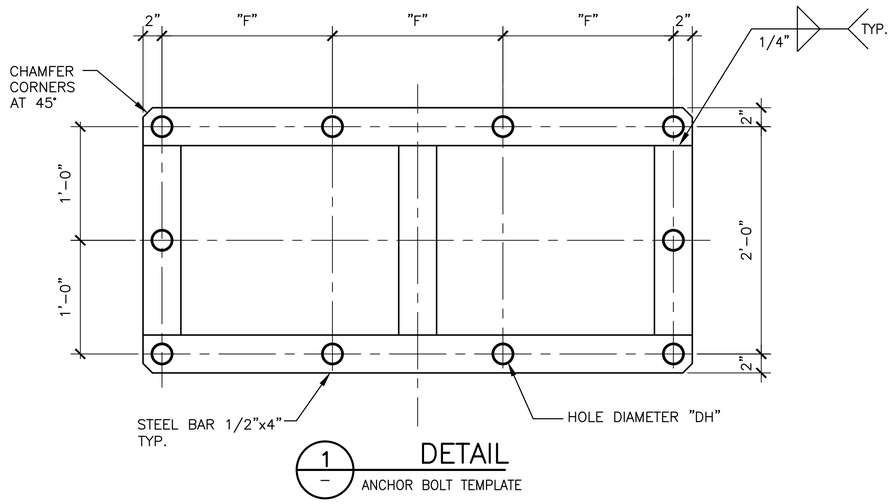
REV: | EDITION: SECOND

SCALE: AS SHOWN

STANDARD DRAWING NO.: SD-W5217



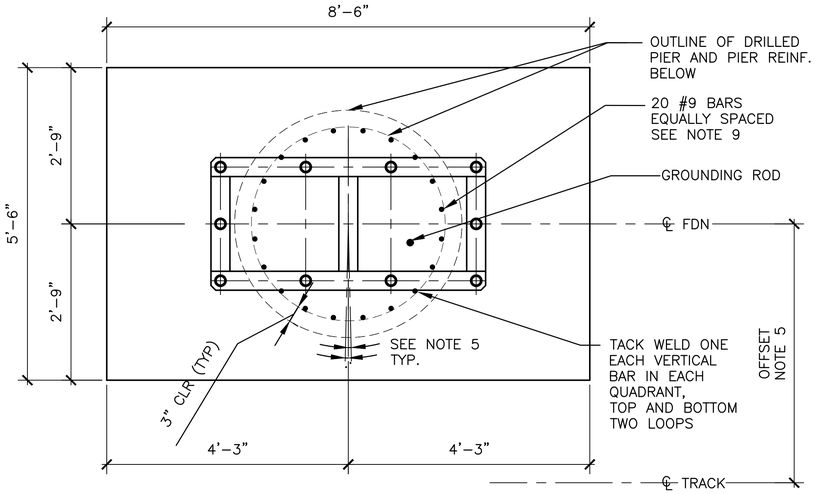
B — SECTION



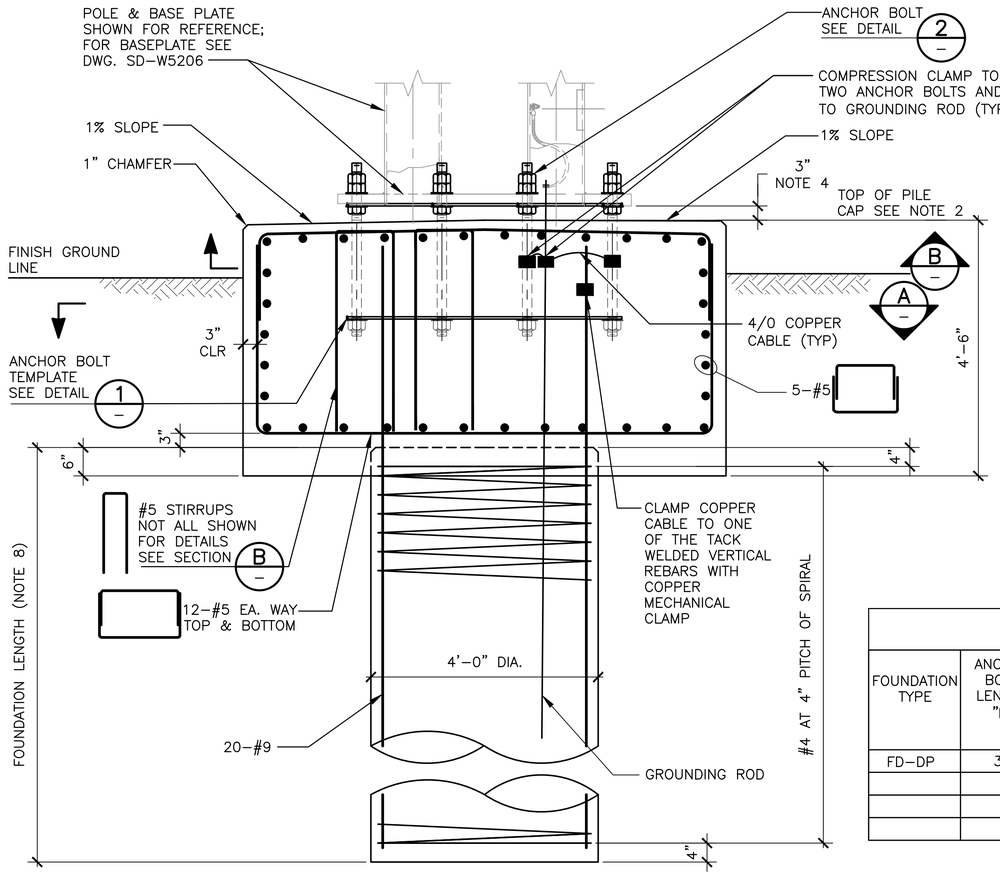
1 — DETAIL
ANCHOR BOLT TEMPLATE

NOTES:

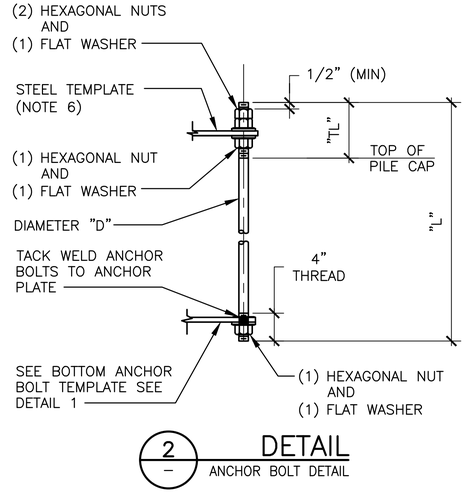
1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS, SEE DRAWING SD–W0101.
2. TOP OF PILE CAP VARIES. SEE SHOP DRAWINGS FOR ADDITIONAL INFORMATION ON THE INSTALLED BOTTOM OF BASE PLATE ELEVATIONS.
3. NOT USED.
4. A MINIMUM OF ONE–HALF INCH MUST BE KEPT BETWEEN BOTTOM OF NUT AND TOP OF PILE CAP TO ALLOW FOR POLE RAKING.
5. ROTATIONAL TOLERANCE OF THE ANCHOR BOLT ASSEMBLY MEASURED PERPENDICULAR TO TRACK CENTER LINE SHALL BE SET WITHIN ONE DEGREE OF ITS CORRECT ORIENTATION.
6. 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.
7. 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.
8. FOR FOUNDATION STATIONING AND LENGTH. SEE FOUNDATION AND POLE LAYOUT DRAWINGS.
9. ADJUST REINFORCING TO AVOID CONFLICT WITH THE BOTTOM ANCHOR BOLT TEMPLATE.



A — SECTION



ELEVATION



2 — DETAIL
ANCHOR BOLT DETAIL

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–DP	35	10–2	18	2 1/8	10 1/2	

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

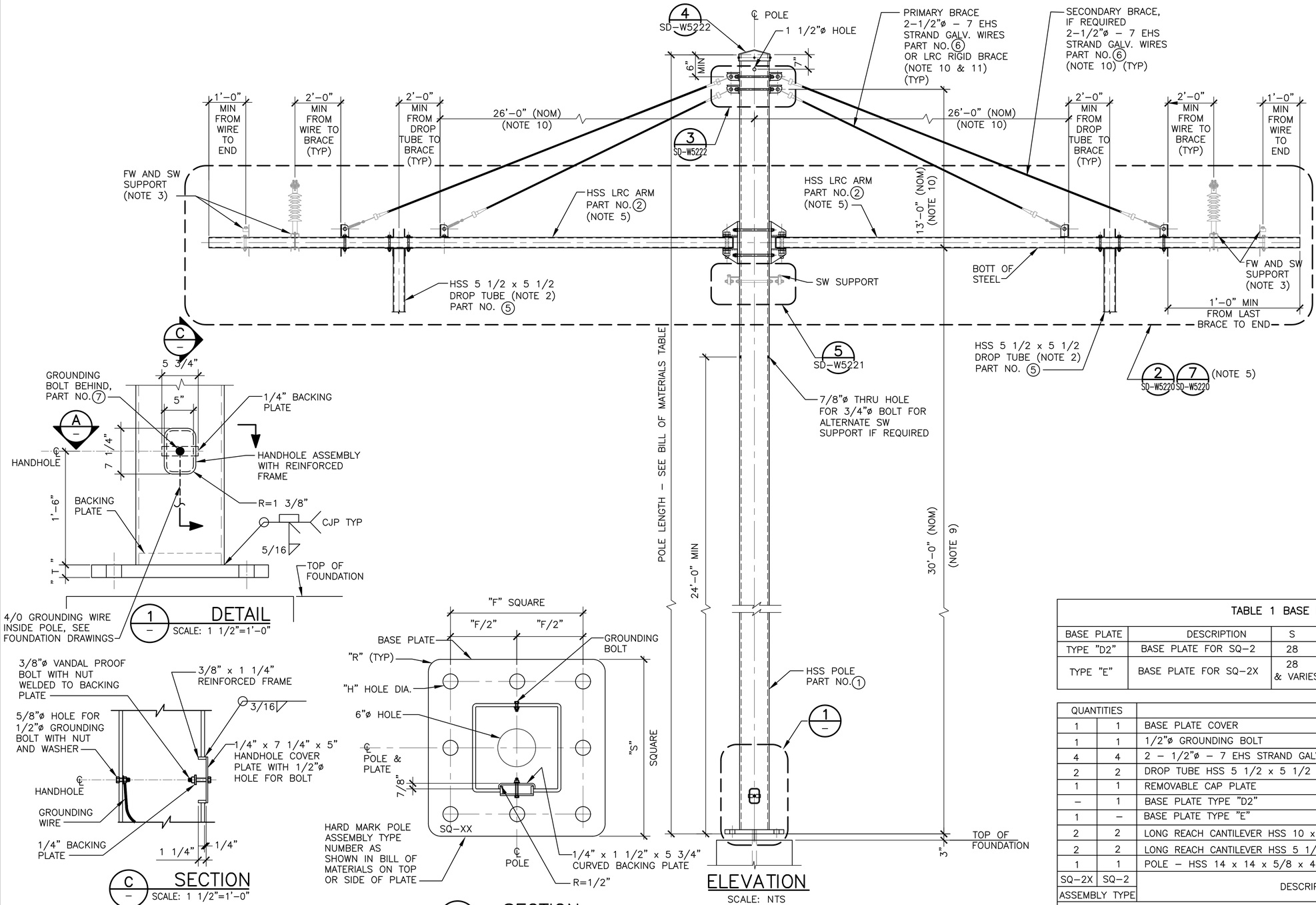
PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
DRILLED PIER FOUNDATION
48" DIAMETER
TYPE FD–DP

CADD FILE NAME: SD–W5218
REV: | EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5218



NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD-W0101.
2. LONG REACH CANTILEVER LENGTH WILL BE DETERMINED BY FIELD AT EACH LOCATION PRIOR TO FABRICATION.
3. THE ENGINEER SHALL BE NOTIFIED WHENEVER A FEEDER AND OR STATIC WIRE ARE LOCATED AT THE END OF THE LONG REACH CANTILEVER HSS.
4. FIELD MEASURE EXISTING CONDITION PRIOR TO FABRICATION. NOTIFY ENGINEER IF DEFFERENT FROM DIMENSIONS SHOWN.
5. 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 7)
   - L ≥ 64' NOTIFY ENGINEER AND WILL BE EVALUATED BASED ON SITE CONDITIONS
6. FOR LRC RIGID BRACE REQUIREMENTS AND DETAILS, SEE DRAWING SD-W5263.
7. 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.
8. 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.
9. BOTTOM OF STEEL VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATION DRAWINGS FOR HEIGHT.
10. SEE MATERIAL ALLOCATION DRAWINGS FOR NUMBER, ATTACHMENT LOCATION AND TYPE OF BRACES. CONFIRM ATTACHMENT LOCATIONS WITH ENGINEER PRIOR TO FABRICATION.
11. FOR LRC RIGID BRACE REQUIREMENTS AND DETAILS, SEE DRAWING SD-W5263.

TABLE 1 BASE PLATE DIMENSIONS (IN)

BASE PLATE	DESCRIPTION	S	F	H	R	T	B	BOLT DIA
TYPE "D2"	BASE PLATE FOR SQ-2	28	21	2 3/8	2	2 1/2	N/A	2
TYPE "E"	BASE PLATE FOR SQ-2X	28 & VARIES	19 13/16 & VARIES	3 1/4	2	2 1/2	28 & VARIES	2 3/4

BILL OF MATERIALS

QUANTITIES		DESCRIPTION	PART NO.	REMARKS
1	1	BASE PLATE COVER	8	
1	1	1/2"ø GROUNDING BOLT	7	
4	4	2 - 1/2"ø - 7 EHS STRAND GALV. WIRES	6	NOTE 10
2	2	DROP TUBE HSS 5 1/2 x 5 1/2 x 3/8 x 9'-0"	5	NOTE 7
1	1	REMOVABLE CAP PLATE	4	
-	1	BASE PLATE TYPE "D2"	3	
1	-	BASE PLATE TYPE "E"	3	NOTE 4
2	2	LONG REACH CANTILEVER HSS 10 x 10 x 3/16 LENGTH VARIES	2	NOTE 2 & 5
2	2	LONG REACH CANTILEVER HSS 5 1/2 x 5 1/2 x 3/8 LENGTH VARIES	2	NOTE 2 & 5
1	1	POLE - HSS 14 x 14 x 5/8 x 45'-6" LG	1	NOTE 8
SQ-2X	SQ-2			
ASSEMBLY TYPE				

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

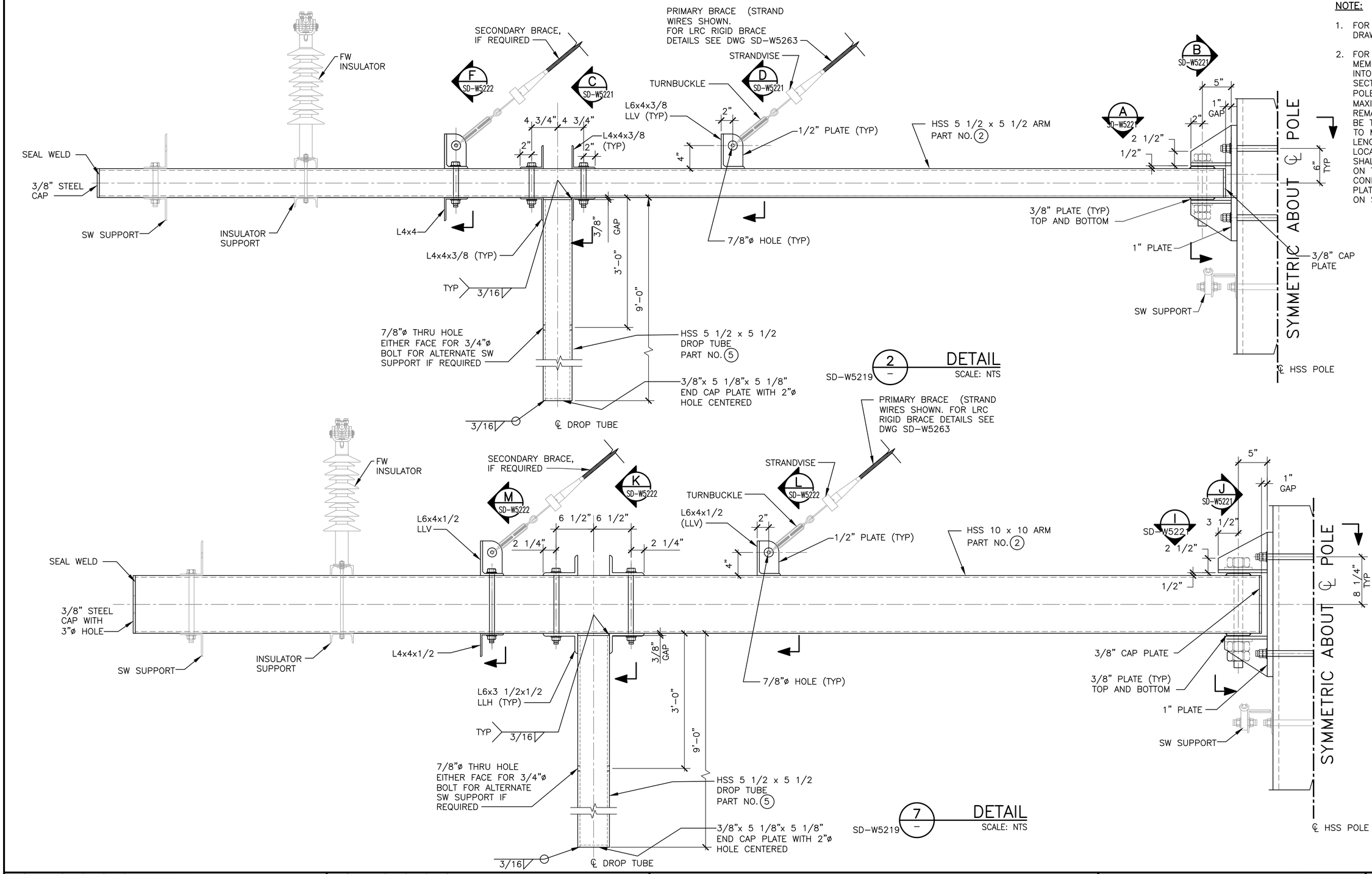
OVERHEAD CONTACT SYSTEM
OCS POLES
LONG REACH DOUBLE CANTILEVER DETAILS
TYPE SQ-2 & SQ-2X
SHEET 1 OF 4

CADD FILE NAME: SD-W5219

REV: | EDITION: SECOND

SCALE: AS SHOWN

STANDARD DRAWING NO.: SD-W5219



NOTE:

1. FOR GENERAL NOTES SEE DRAWING SD-W0101.
2. FOR 10x10 ARMS, THE MEMBER CAN BE DIVIDED INTO TWO SECTIONS. THE SECTION CLOSEST TO THE POLE SHALL BE 40' MAXIMUM AND THE REMAINING SECTION SHALL BE THE LENGTH REQUIRED TO MEET THE TOTAL LENGTH. THE SPLICE LOCATION VARIES AND SHALL BE PLACED BASED ON THE ADJACENT CONNECTIONS. THE SPLICE PLATES ARE PER DETAIL 6 ON SHEET SD-W5110A.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

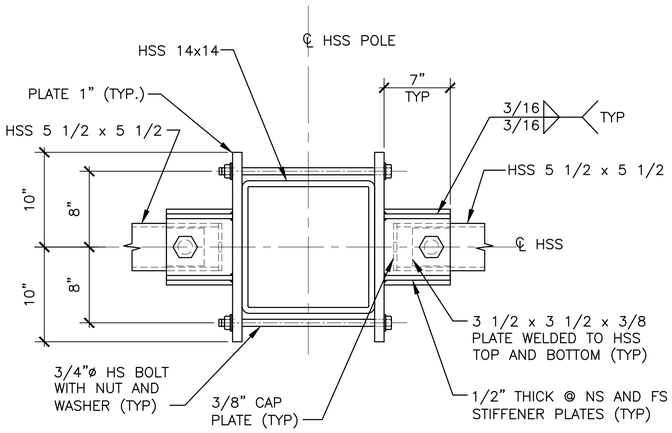
ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
LONG REACH DOUBLE CANTILEVER DETAILS
TYPE SQ-2 & SQ-2X
SHEET 2 OF 4

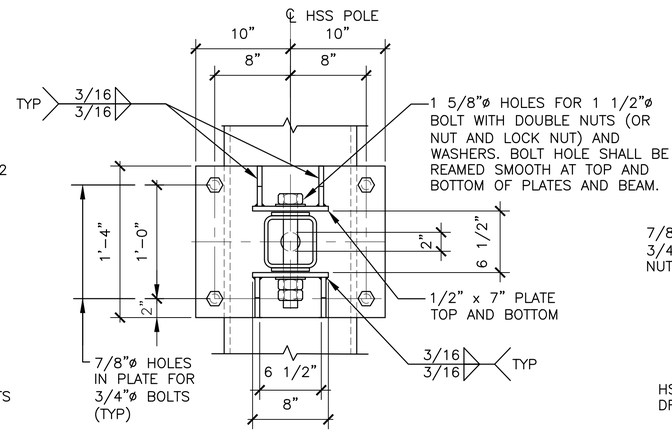
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SCALE:	NTS
STANDARD DRAWING NO.:	SD-W5220

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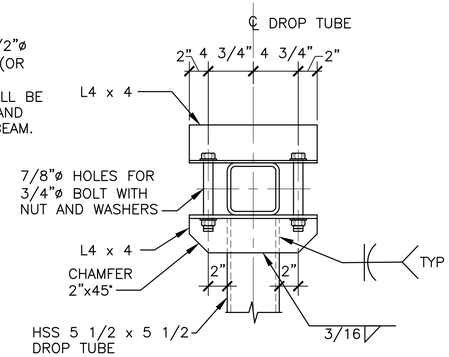
1. FOR GENERAL NOTES SEE DRAWING SD-W0101.



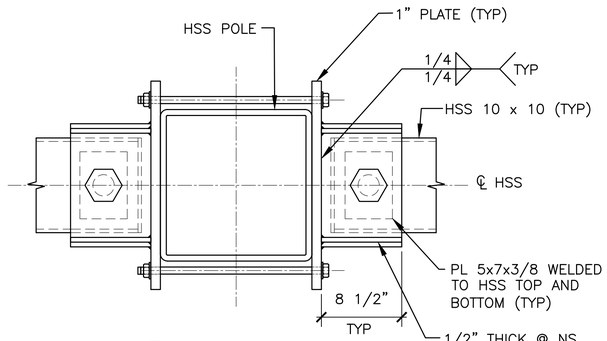
A / – SECTION
SD-W5220 SCALE: 1 1/2"=1'-0"



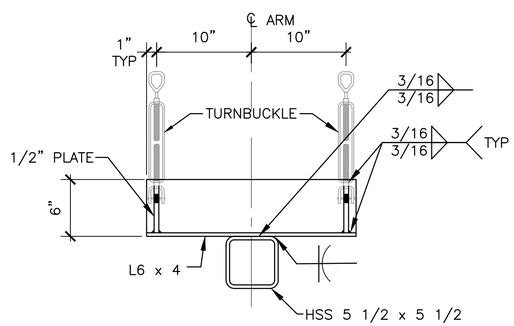
B / – SECTION
SD-W5220 SCALE: 1 1/2"=1'-0"



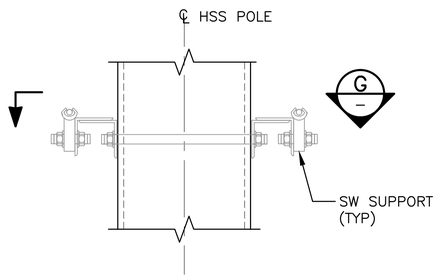
C / – SECTION
SD-W5220 SCALE: 1 1/2"=1'-0"



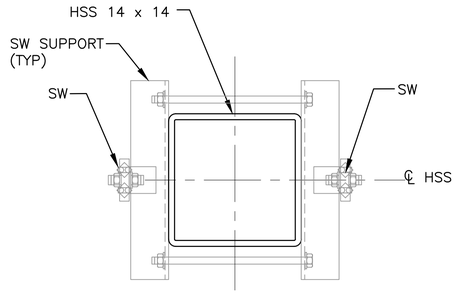
I / – SECTION
SD-W5220 SCALE: 1 1/2"=1'-0"



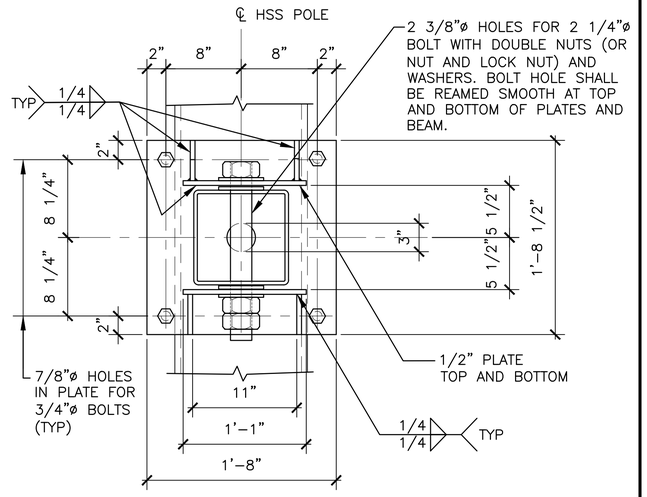
D / – SECTION
SD-W5220 SCALE: 1 1/2"=1'-0"



5 / – DETAIL
SD-W5219 SCALE: 1 1/2"=1'-0"



G / – SECTION
SCALE: 1 1/2"=1'-0"



J / – SECTION
SD-W5220 SCALE: 1 1/2"=1'-0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

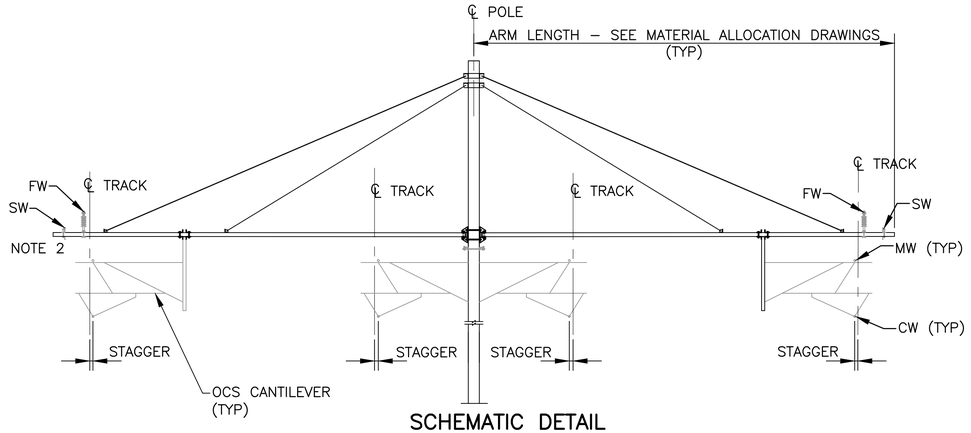
PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
LONG REACH DOUBLE CANTILEVER DETAILS
TYPE SQ-2 & SQ-2X
SHEET 3 OF 4

CADD FILE NAME: SD-W5221
REV: EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD-W5221

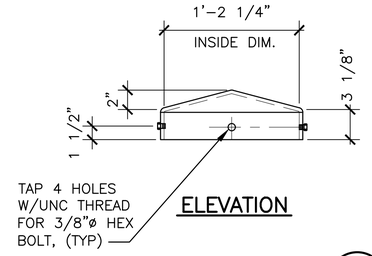


SCHEMATIC DETAIL
LONG REACH DOUBLE CANTILEVER
TYPE SQ–2 & SQ–2X

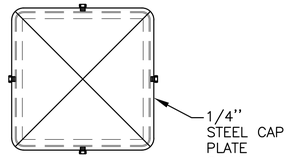
SCALE: NTS

NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. THE ENGINEER SHALL BE NOTIFIED WHENEVER A FEEDER AND OR STATIC WIRE ARE LOCATED AT THE END OF THE LONG REACH CANTILEVER HSS.

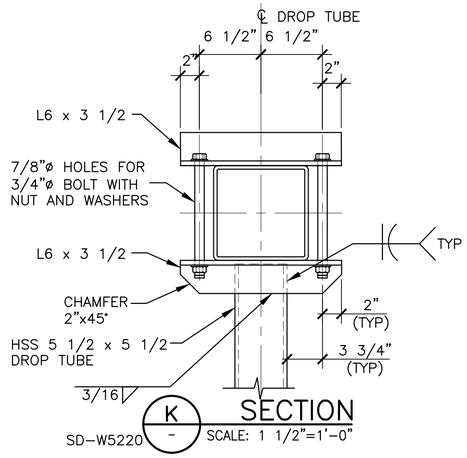


ELEVATION

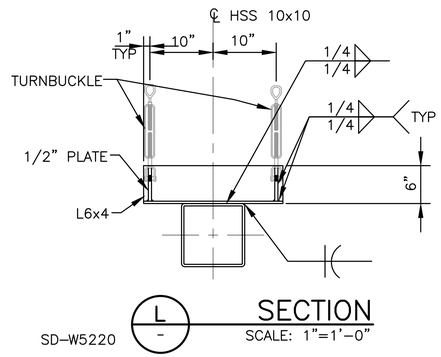


PLAN

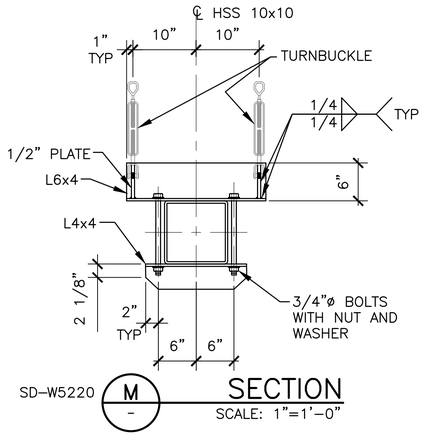
SD–W5219 (4) DETAIL
SCALE: 1 1/2"=1'–0"
PART NO. (4)



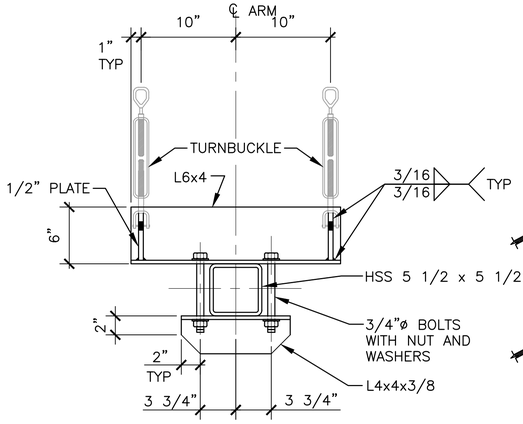
K SECTION
SD–W5220 SCALE: 1 1/2"=1'–0"



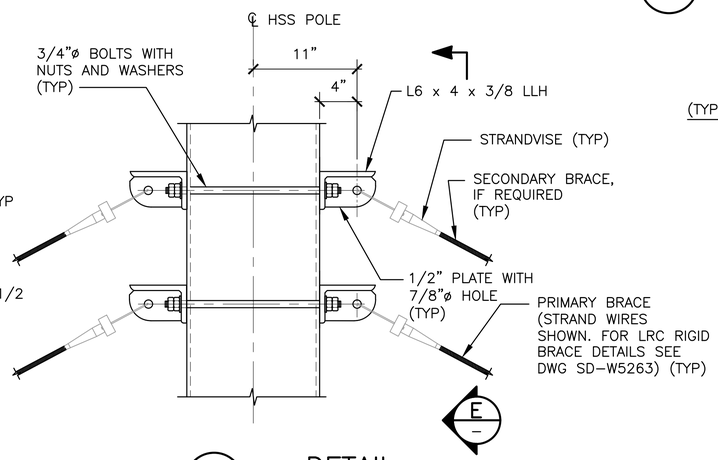
L SECTION
SD–W5220 SCALE: 1"=1'–0"



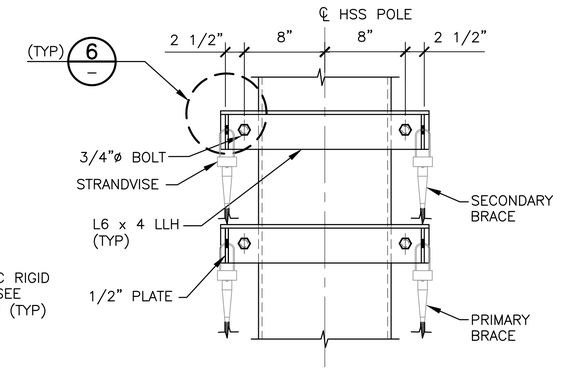
SD–W5220 (M) SECTION
SCALE: 1"=1'–0"



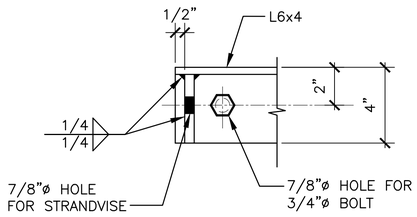
F SECTION
SD–W5220 SCALE: 1 1/2"=1'–0"



3 DETAIL
SD–W5219 SCALE: 1 1/2"=1'–0"



E SECTION
SCALE: 1 1/2"=1'–0"



6 DETAIL
SCALE: 3"=1'–0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

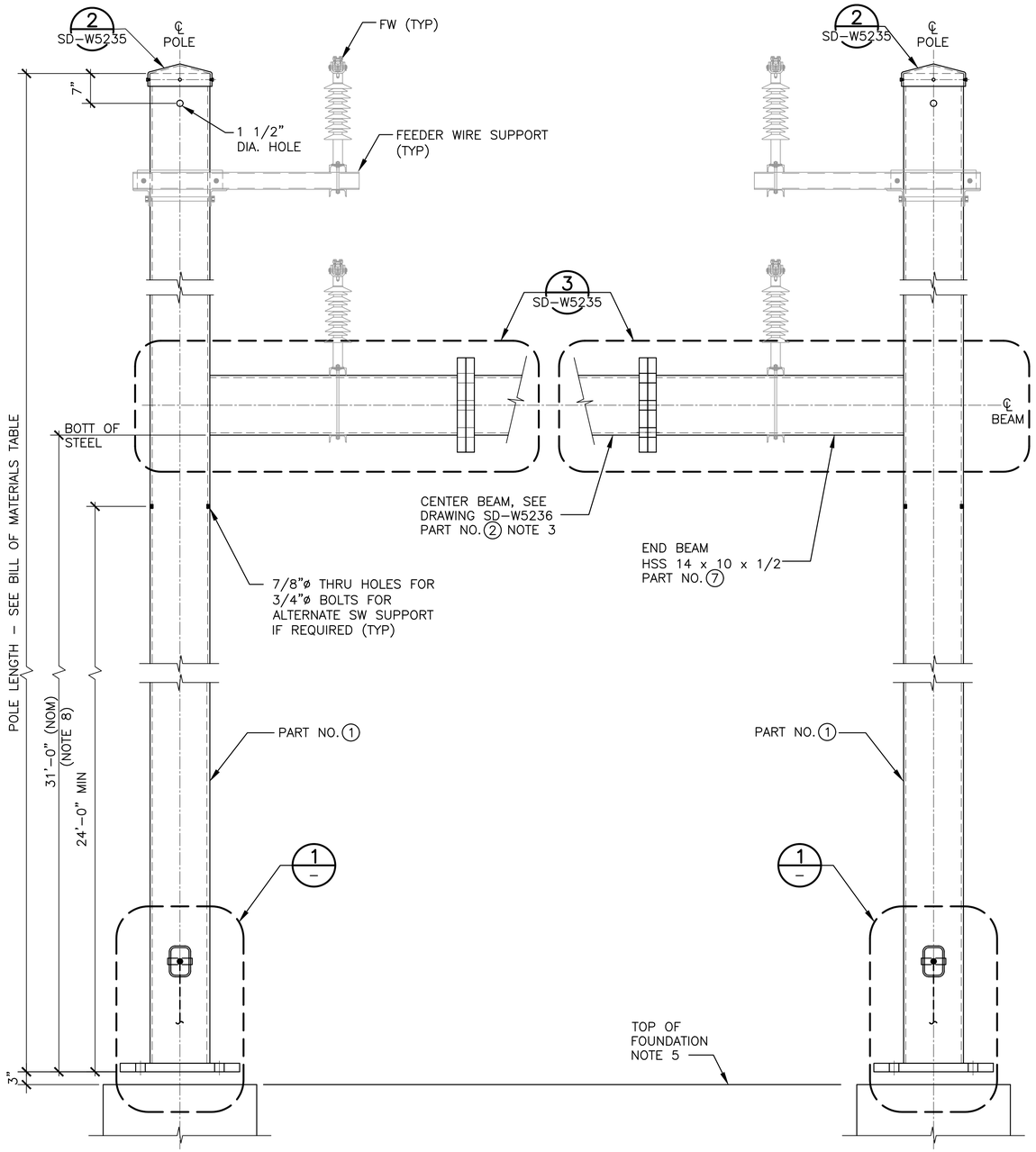
PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

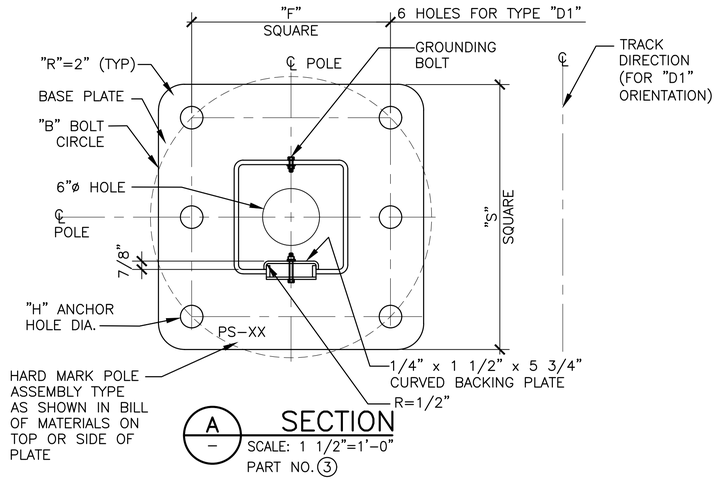
ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
LONG REACH DOUBLE CANTILEVER DETAILS
TYPE SQ–2 & SQ–2X
SHEET 4 OF 4

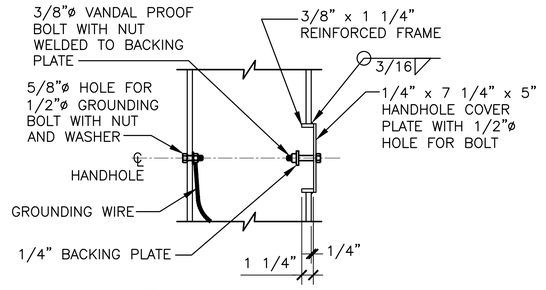
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REV: EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5222



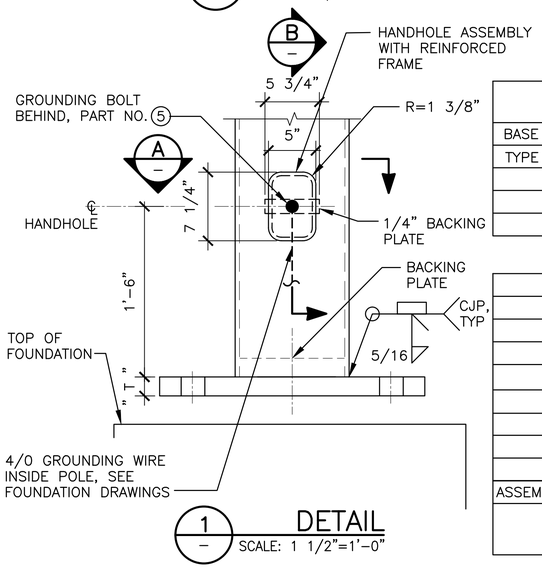
POLE ELEVATION
NTS



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"

NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD-W0101.
2. HORIZONTAL BEAM LENGTH AND POLE HEIGHTS WILL BE DETERMINED BY FIELD AT EACH LOCATION PRIOR TO FABRICATION.
3. ALL HOLES IN MAST, BEAMS, AND MISCELLANEOUS STEEL SHALL BE PRE-DRILLED IN SHOP PRIOR TO GALVANIZING.
4. ALL POLES SHALL BE SET PLUMB WITH NO RAKE TO ENSURE PROPER CONNECTION BETWEEN POLE AND HORIZONTAL BEAM.
5. 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.
6. NOTIFY ENGINEER IF ANY WIRES ARE TERMINATED ON THE PORTAL BEAM AND THE BEAM SECTION SHALL BE EVALUATED ON A CASE SPECIFIC BASIS.
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. BOTTOM OF STEEL VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATION DRAWINGS FOR HEIGHT.

TABLE 1 BASE PLATE DIMENSIONS (IN)

BASE PLATE	DESCRIPTION	S	F	H	R	T	B	ANCHOR BOLT DIA
TYPE "D1"	PS-60S	28	21	2 3/8	2	2 1/2	29.70	2

QUANTITIES

	2	DROP TUBE HSS 5 1/2 x 5 1/2 x 3/8 x 10'-0"	6	NOTE 5
	2	1/2"ø GROUNDING BOLT	5	
	2	REMOVABLE CAP PLATE	4	
	2	BASE PLATE TYPE "D1"	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, 6
	2	POLE - HSS 14 x 14 x 5/8 x 45'-6" LG.	1	NOTE 7
PS-60S ASSEMBLY TYPE		DESCRIPTION	PART NO	REMARKS

BILL OF MATERIALS

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

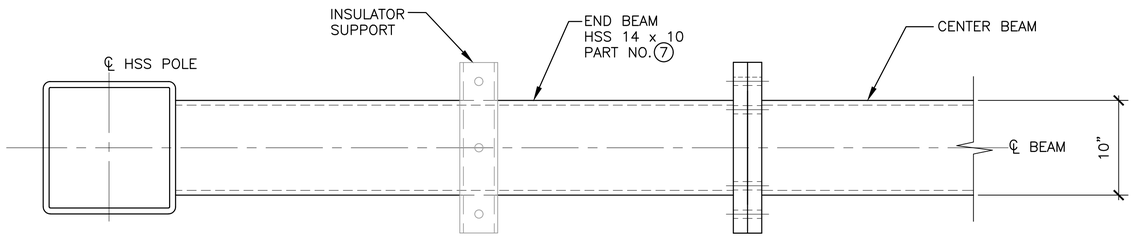
APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

Caltrain

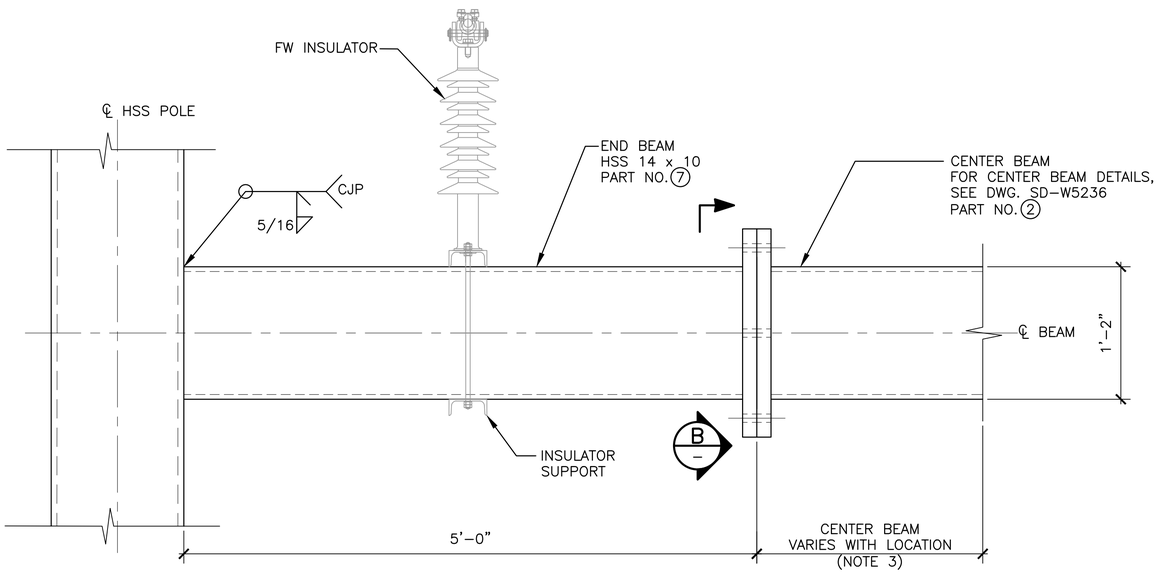
ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTALS
TYPE PS-60S
SINGLE SPAN PORTAL
SHEET 1 OF 3

CADD FILE NAME: SD-W5234
REV:
EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD-W5234

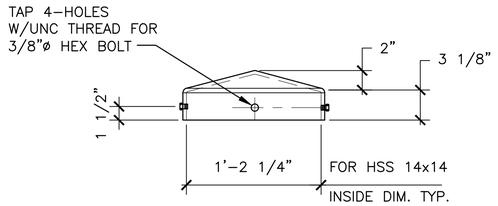


PLAN

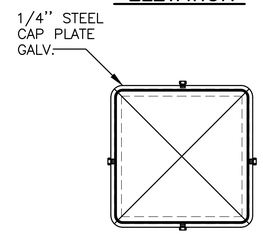


ELEVATION

3 — DETAIL
SD-W5234 — SCALE: 1 1/2"=1'-0"

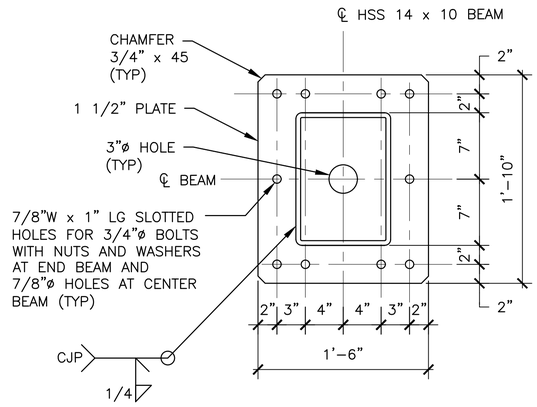


ELEVATION



PLAN

2 — DETAIL
SD-W5234 — SCALE: 1 1/2"=1'-0"
PART NO. 4



B — SECTION
SD-W5236 — SCALE: 1 1/2"=1'-0"

NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD-W0101.
2. FOR SHEET NOTES, SEE DRAWING SD-W5234.
3. FOR CENTER BEAMS WITH A LENGTH OVER 40', THE BEAM SHOULD BE DIVIDED INTO THREE SECTIONS. THE CENTER SECTION SHOULD BE 40' AND THE TWO REMAINING SECTIONS SHOULD BE EQUAL AND THE LENGTH REQUIRED TO MEET THE TOTAL LENGTH. THE THREE SECTIONS SHALL BE ASSEMBLED FOR CAMBERING. CONNECTIONS SHOULD BE THE SAME AS BETWEEN THE CENTER AND END BEAMS.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

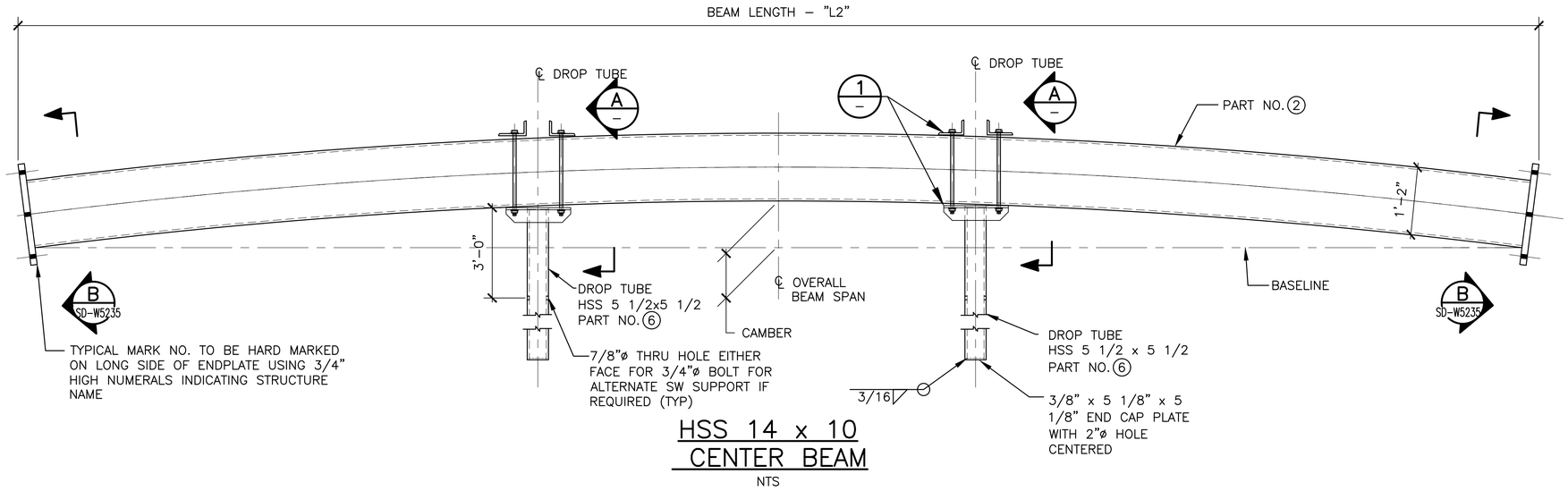
ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTALS
TYPE PS-60S
SINGLE SPAN PORTAL
SHEET 2 OF 3

CADD FILE NAME: SD-W5235
REV: | EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD-W5235

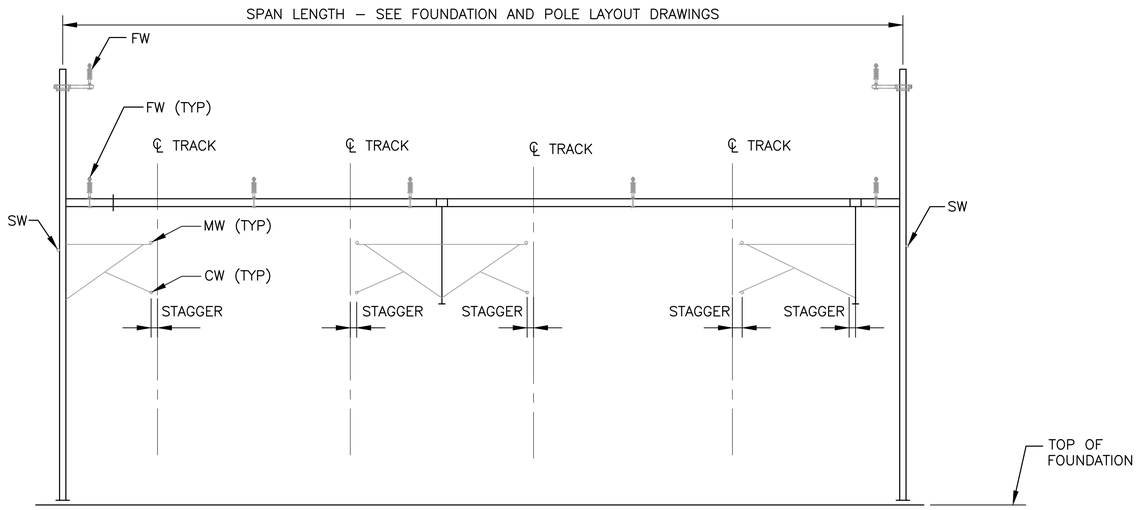
NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. FOR SHEET NOTES, SEE DRAWING SD–W5234.



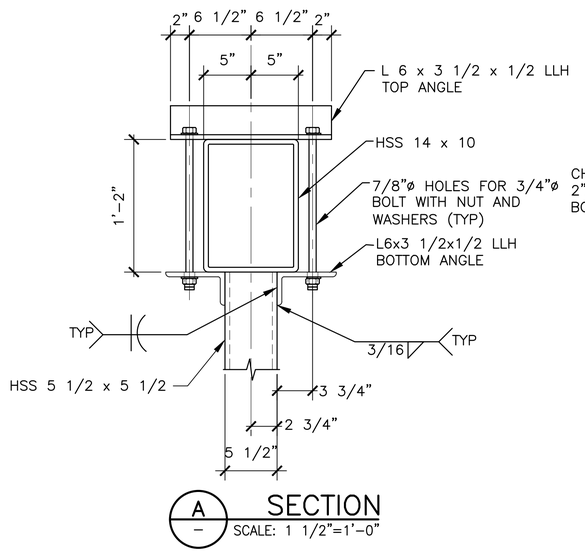
HSS 14 x 10 CENTER BEAM

NTS



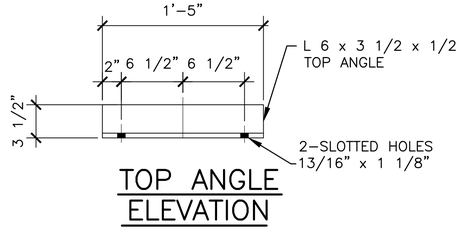
SCHEMATIC PORTAL DETAIL PS–60S

NTS

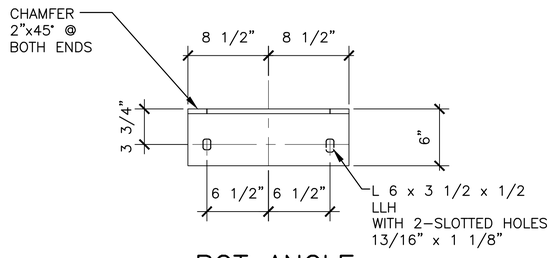


A – SECTION

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
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PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

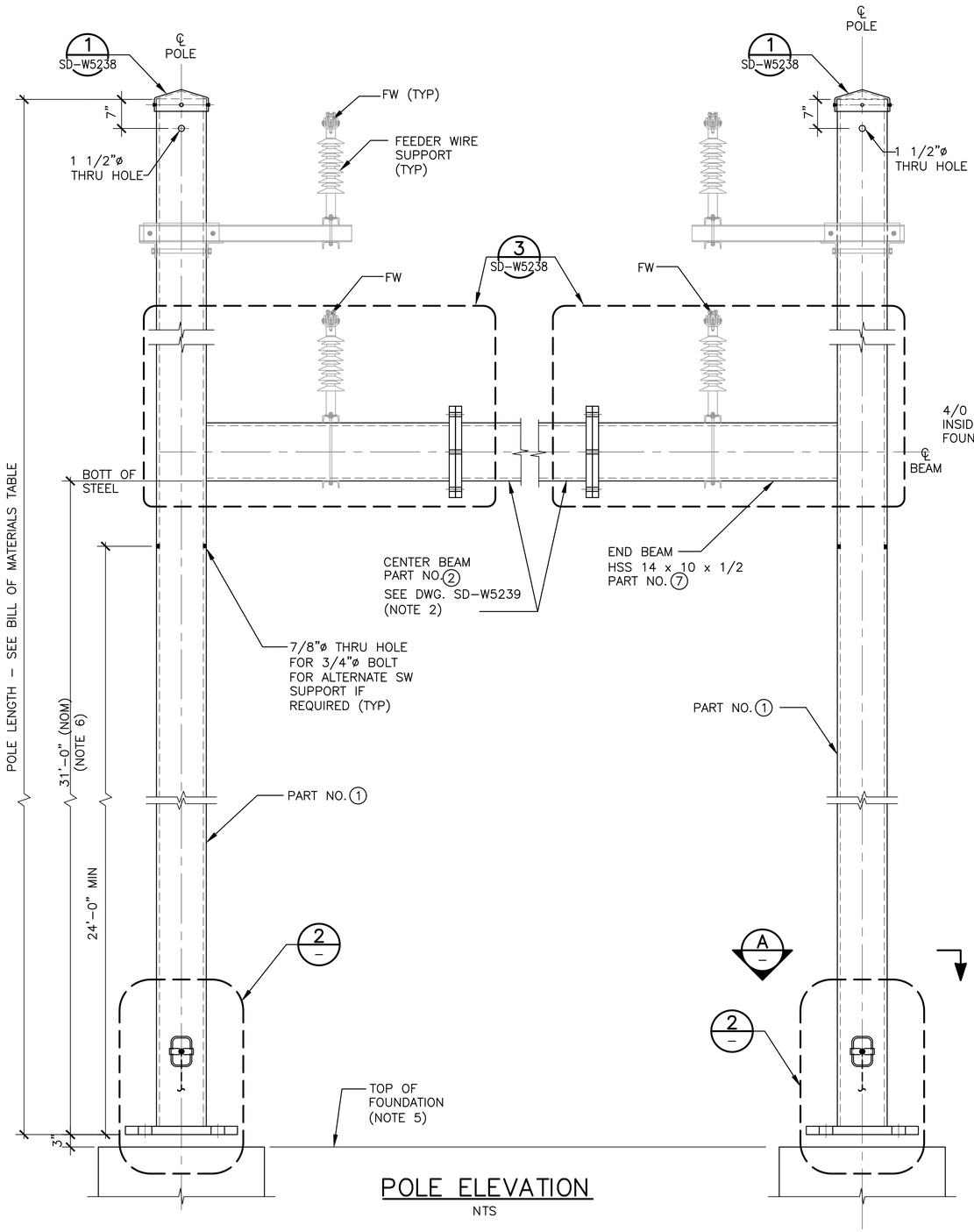
OVERHEAD CONTACT SYSTEM
OCS PORTALS
TYPE PS–60S
SINGLE SPAN PORTAL
SHEET 3 OF 3

CADD FILE NAME: SD–W5236

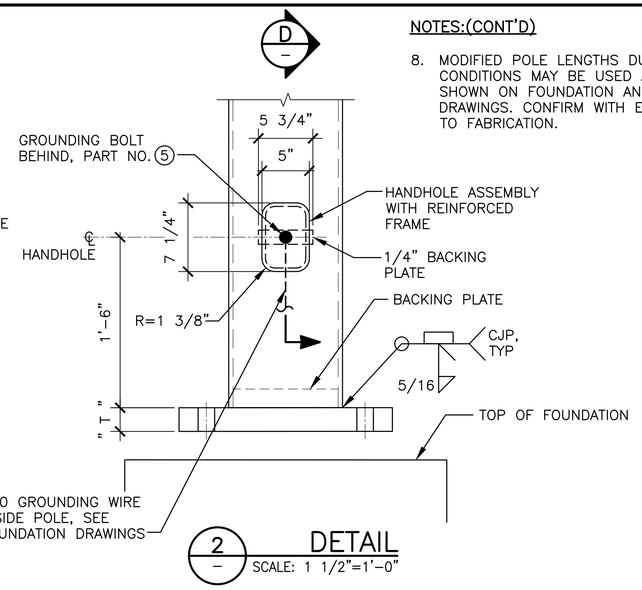
REV: | EDITION: SECOND

SCALE: AS SHOWN

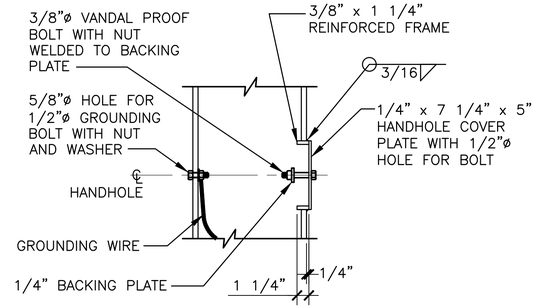
STANDARD DRAWING NO.: SD–W5236



POLE ELEVATION
NTS



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



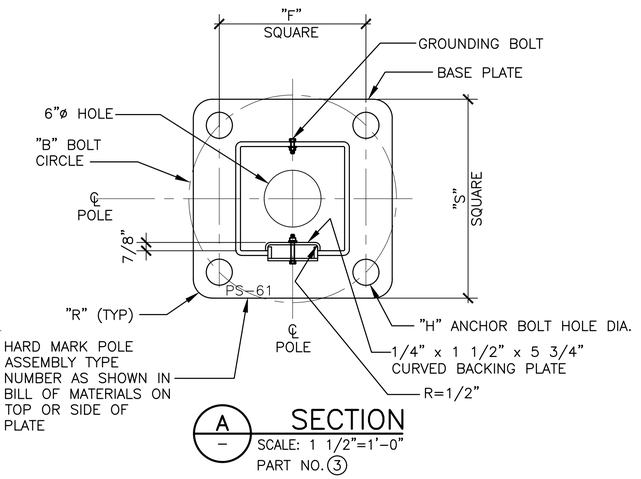
D SECTION
SCALE: 1 1/2"=1'-0"

NOTES:(CONT'D)

8. MODIFIED POLE LENGTHS DUE TO FIELD CONDITIONS MAY BE USED AT LOCATIONS SHOWN ON FOUNDATION AND POLE LAYOUT DRAWINGS. CONFIRM WITH ENGINEER PRIOR TO FABRICATION.

NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD-W0101.
2. HORIZONTAL BEAM LENGTH AND POLE HEIGHTS WILL BE DETERMINED IN FIELD AT EACH LOCATION PRIOR TO FABRICATION.
3. ALL HOLES ON MAST, BEAMS AND MISCELLANEOUS STEEL SHALL BE PRE-DRILLED AT SHOP PRIOR TO GALVANIZING
4. ALL PORTAL POLES SHALL BE SET PLUMB WITH NO RAKE TO ENSURE PROPER CONNECTION WITH HORIZONTAL BEAM.
5. 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.
6. BOTTOM OF STEEL VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATION DRAWINGS FOR HEIGHT.
7. NOTIFY ENGINEER IF ANY WIRES ARE TERMINATED ON THE PORTAL BEAM AND THE BEAM SECTION SHALL BE EVALUATED ON A CASE SPECIFIC BASIS.



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

TABLE 1 BASE PLATE DIMENSIONS (IN)

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

QUANTITIES					
		1	DROP TUBE HSS 5 1/5 x 5 1/2 x 3/8 x 10'-0"	6	NOTE 5
		2	1/2"ø 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 8
		PS-61	DESCRIPTION	PART NO	REMARKS
ASSEMBLY TYPE					

BILL OF MATERIALS

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

Caltrain

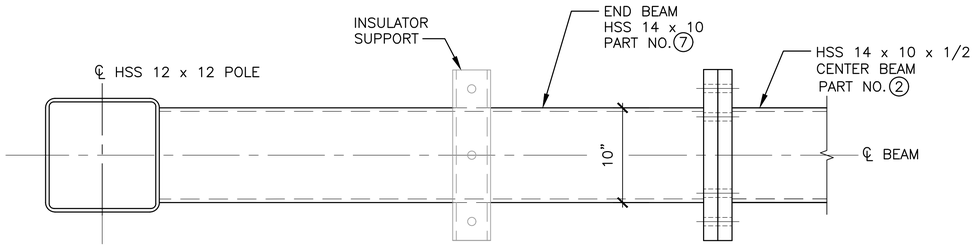
ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTALS
TYPE PS-61
SINGLE SPAN PORTAL
SHEET 1 OF 3

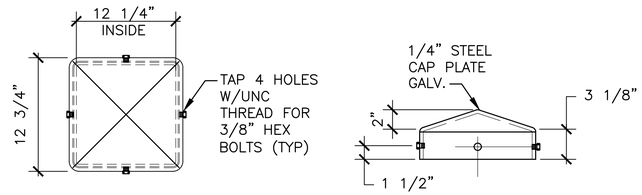
CADD FILE NAME: SD-W5237
REV: | EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD-W5237

NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. FOR SHEET NOTES SEE DRAWING SD–W5237.
3. FOR CENTER BEAMS WITH A LENGTH OVER 40', THE BEAM SHOULD BE DIVIDED INTO THREE SECTIONS. THE CENTER SECTION SHOULD BE 40' AND THE TWO REMAINING SECTIONS SHOULD BE EQUAL AND THE LENGTH REQUIRED TO MEET THE TOTAL LENGTH. THE THREE SECTIONS SHALL BE ASSEMBLED FOR CAMBERING. CONNECTIONS SHOULD BE THE SAME AS BETWEEN THE CENTER AND END BEAMS.

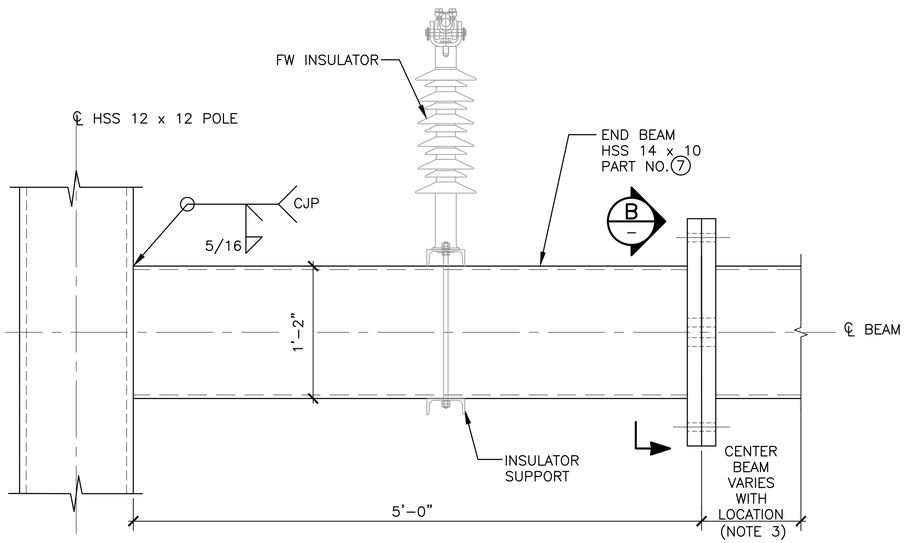


PLAN



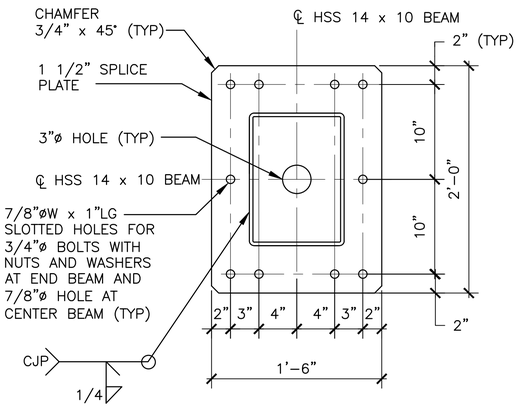
PLAN ELEVATION

1 / – DETAIL
SD–W5237 SCALE: 1 1/2"=1'–0"
PART NO.(4)



ELEVATION

3 / – DETAIL
SD–W5237 SCALE: 1 1/2"=1'–0"



SD–W5239 B / – SECTION
SCALE: 1 1/2"=1'–0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

Caltrain

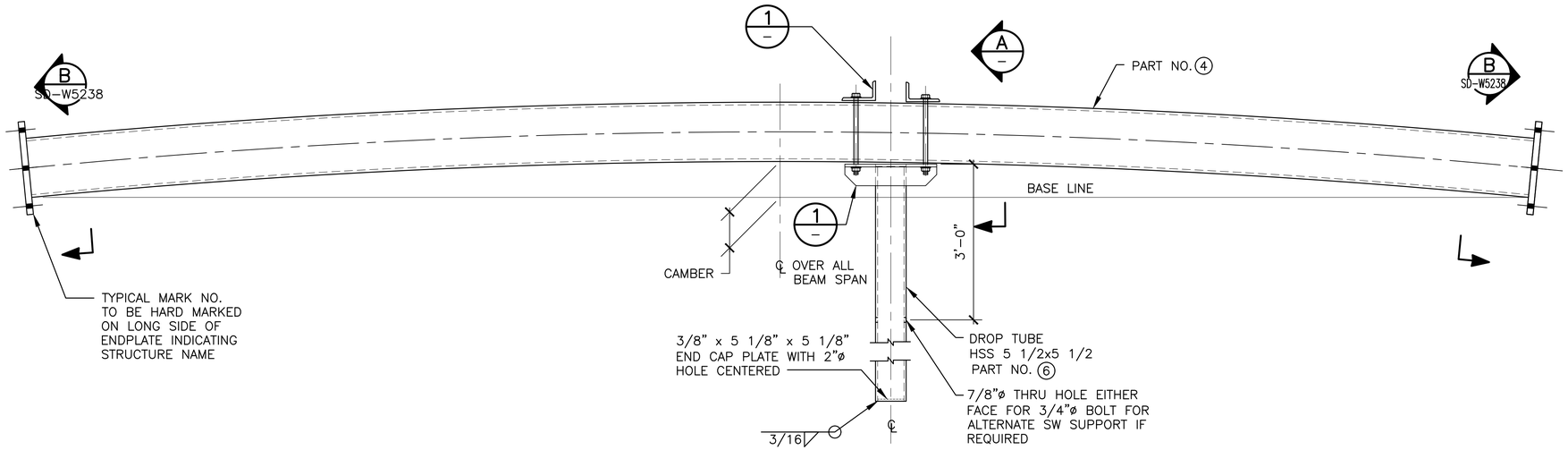
ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTALS
TYPE PS–61
SINGLE SPAN PORTAL
SHEET 2 OF 3

CADD FILE NAME: SD–W5238
REV: EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5238

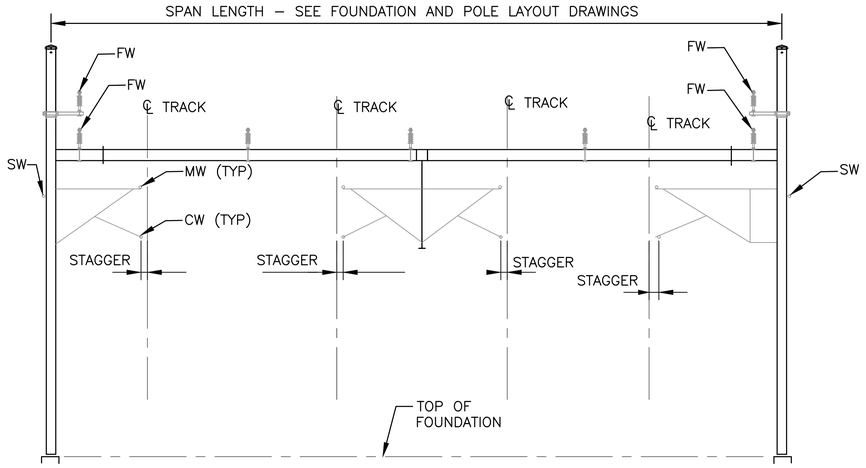
NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. FOR SHEET NOTES SEE DRAWING SD–W5237.



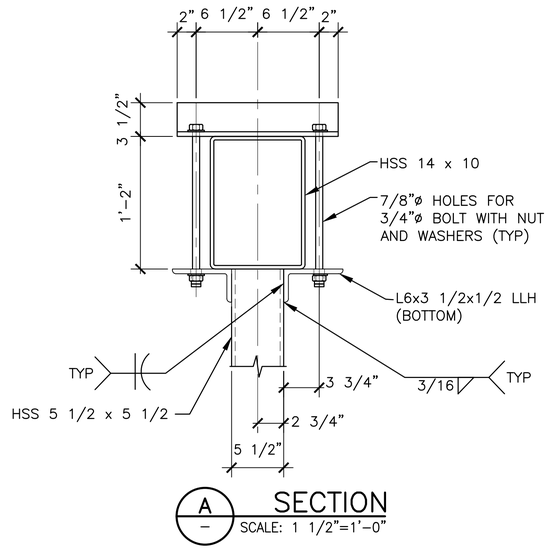
HSS 14 x 10 x 3/8
CENTER BEAM

NTS

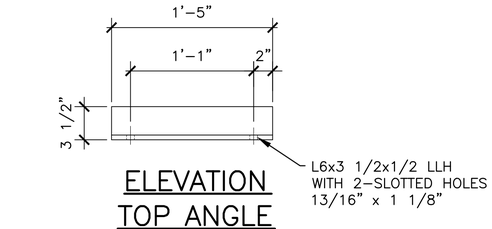


SCHEMATIC DETAIL
FOUR TRACK PORTAL PS–61

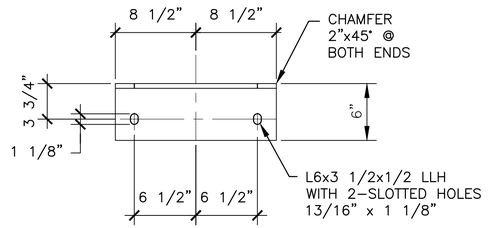
NTS



A – SECTION
SCALE: 1 1/2"=1'–0"



ELEVATION
TOP ANGLE



PLAN
BOTTOM ANGLE

1 – DETAIL
SCALE: 1 1/2"=1'–0"

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REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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ENGINEERING STANDARD DRAWINGS

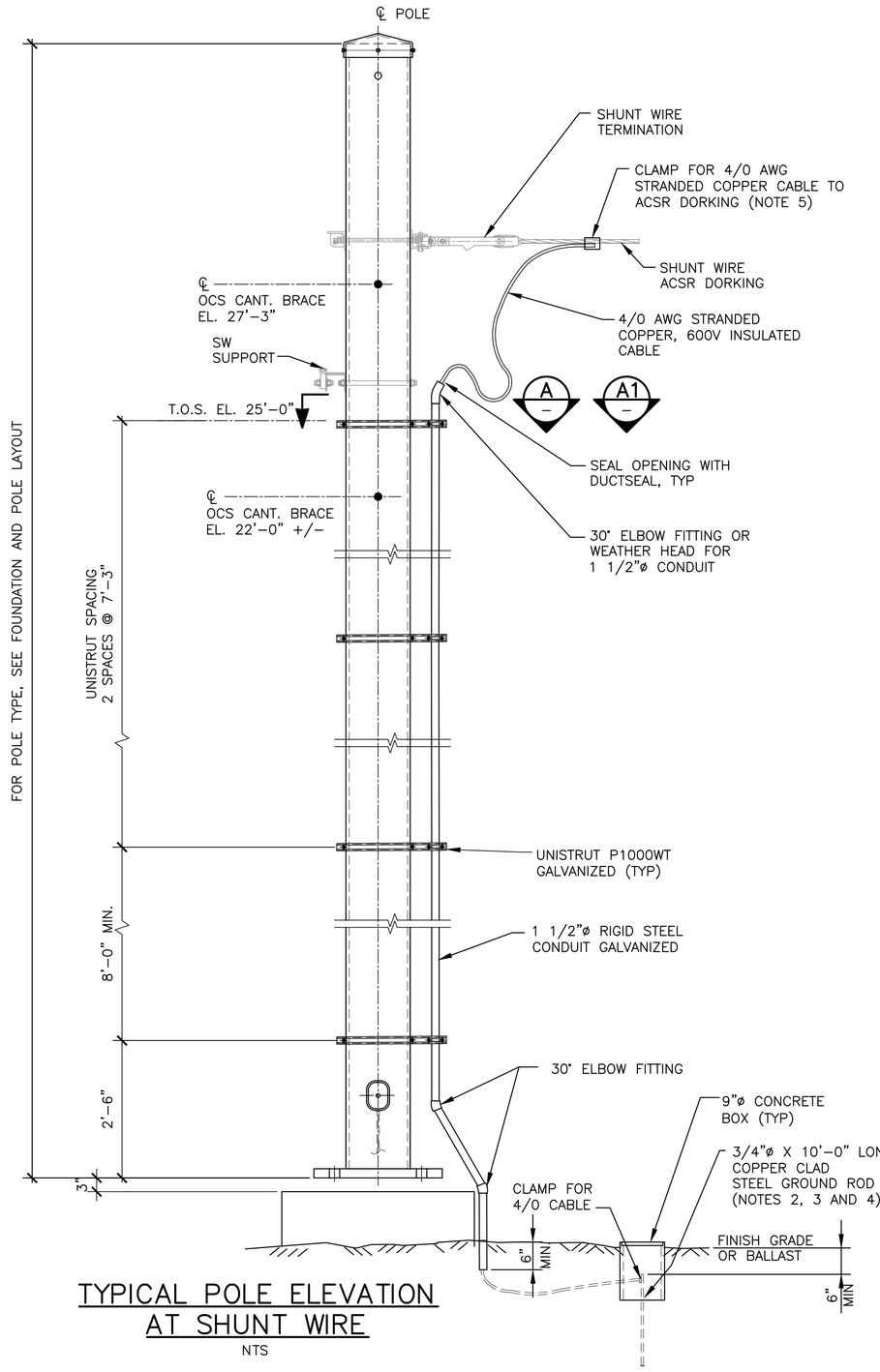
OVERHEAD CONTACT SYSTEM
OCS PORTALS
TYPE PS–61
SINGLE SPAN PORTAL
SHEET 3 OF 3

CADD FILE NAME: SD–W5239

REV: | EDITION: SECOND

SCALE: AS SHOWN

STANDARD DRAWING NO.: SD–W5239

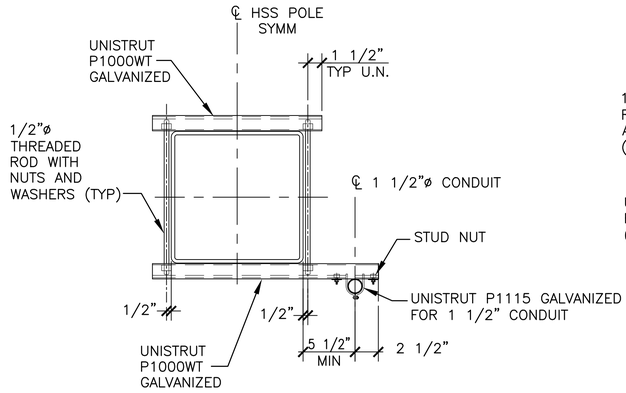


TYPICAL POLE ELEVATION AT SHUNT WIRE

NTS

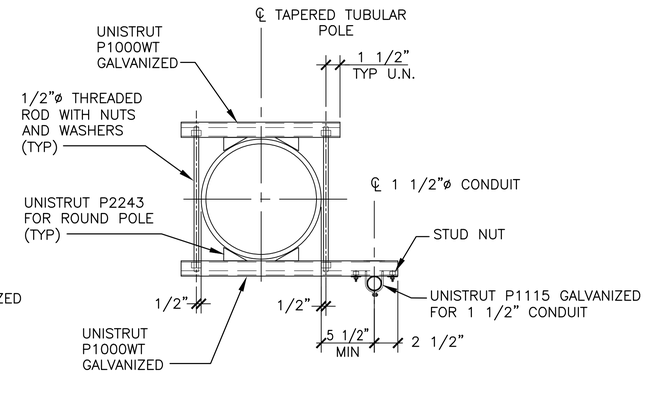
NOTES:

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.



A — SECTION

SCALE: 1 1/2"=1'–0"



A1 — SECTION

SCALE: 1 1/2"=1'–0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES

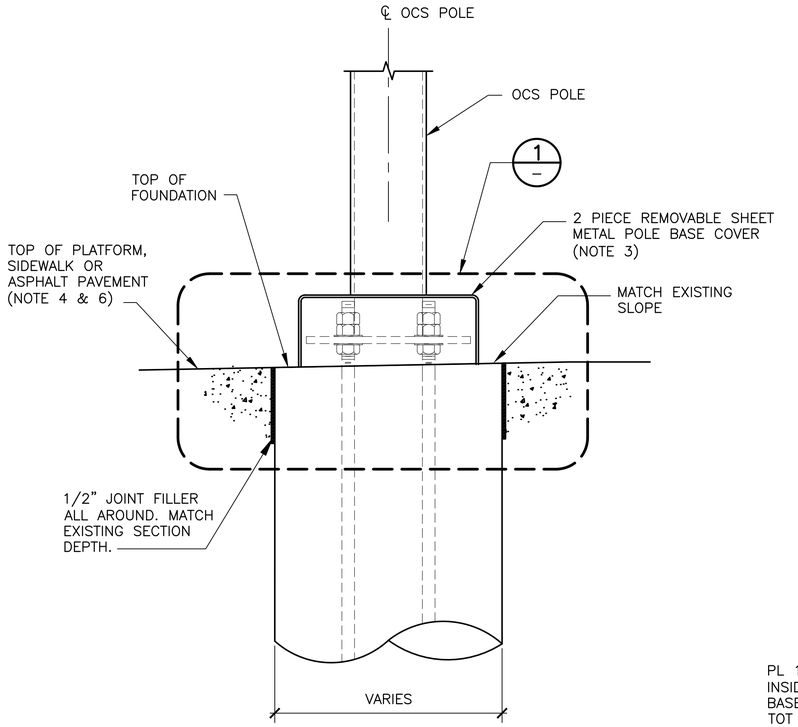
SHUNT WIRE GROUNDING

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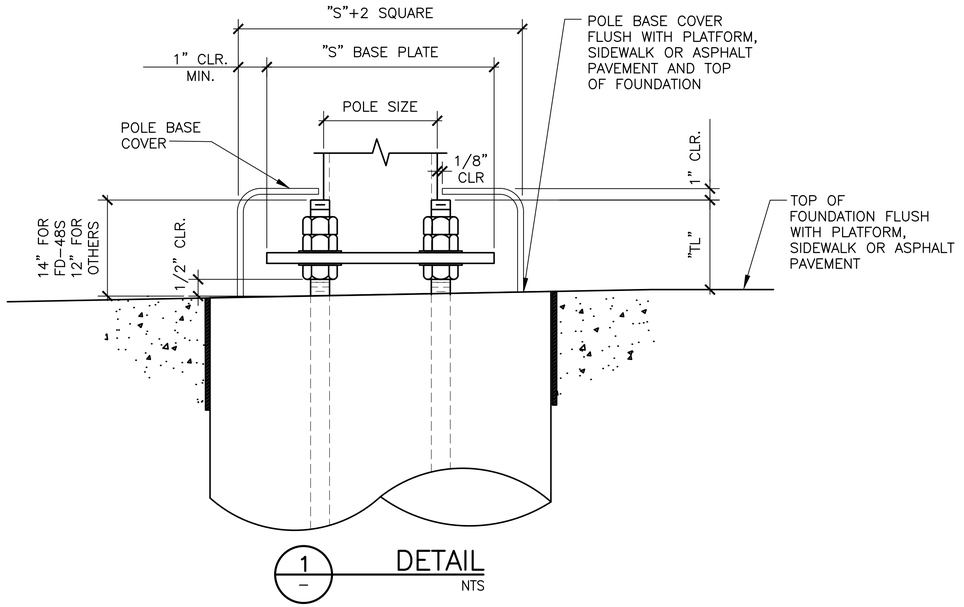
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STANDARD DRAWING NO.: SD–W5240

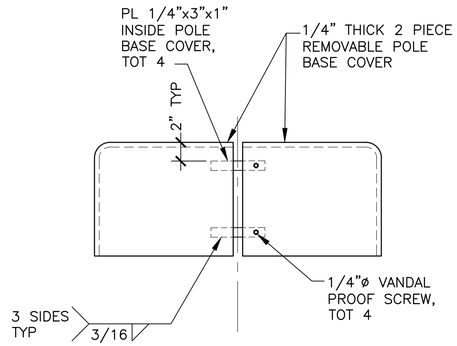


DRILLED PIER FOUNDATION
FOR STATIONS AND SIDEWALKS
(NOTE 2 & 6)

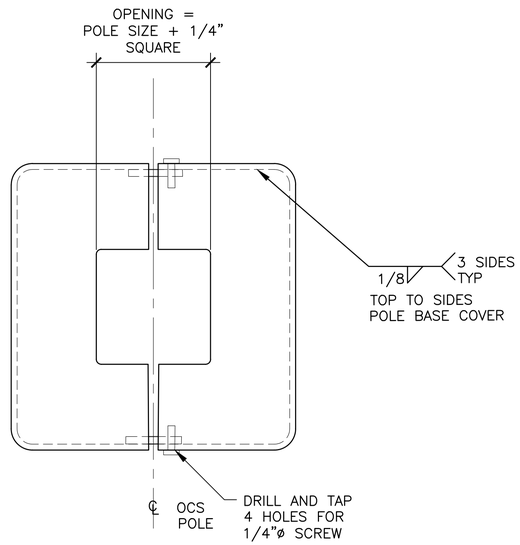
ELEVATION
NTS



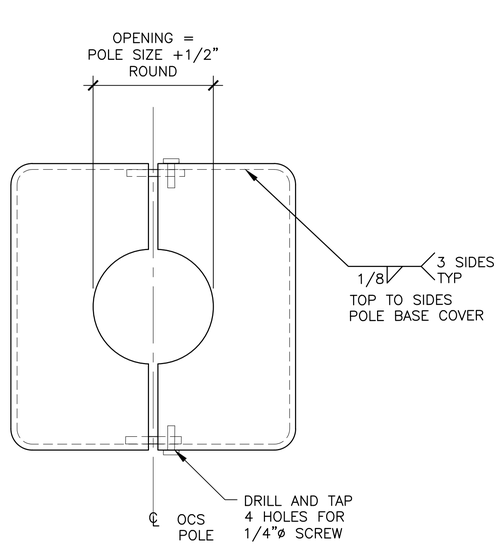
1 — DETAIL
NTS



ELEVATION



SQ POLE PLAN



TT POLE PLAN

2 — POLE BASE COVER DETAIL
NTS (SEE NOTE 5)

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. POLE BASE COVER SHALL BE 2 PIECE, REMOVABLE TYPE WITH VANDAL PROOF FASTENER, AND SHALL BE INSTALLED FOR ALL POLES LOCATED IN STATION PLATFORMS AND OTHER LOCATIONS SPECIFIED ON OCS LAYOUT. COVER MATERIAL WILL BE HOT DIP GALVANIZED AND PAINTED TO MATCH ASSOCIATED POLES.
4. IF ADDITIONAL PLATFORM, SIDEWALK OR ASPHALT PAVEMENT IS REMOVED DURING CONSTRUCTION, THE SECTION WILL REPLACED IN KIND.
5. FOR EXISTING FOUNDATIONS, FIELD MEASURE EXISTING CONDITION PRIOR TO POLE BASE COVER FABRICATION. NOTIFY ENGINEER IF DIMENSIONS SHOWN WILL NOT MEET CLEARANCE REQUIREMENTS.
6. POLE BASE COVERS SHALL NOT BE USED WITHOUT CALTRAIN APPROVAL. REFER TO DRAWING SD-W5262 FOR PREFERRED FOUNDATION DETAILS AT STATIONS AND SIDEWALKS.

REV	DATE	BY	CHK	APP	DESCRIPTION
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REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

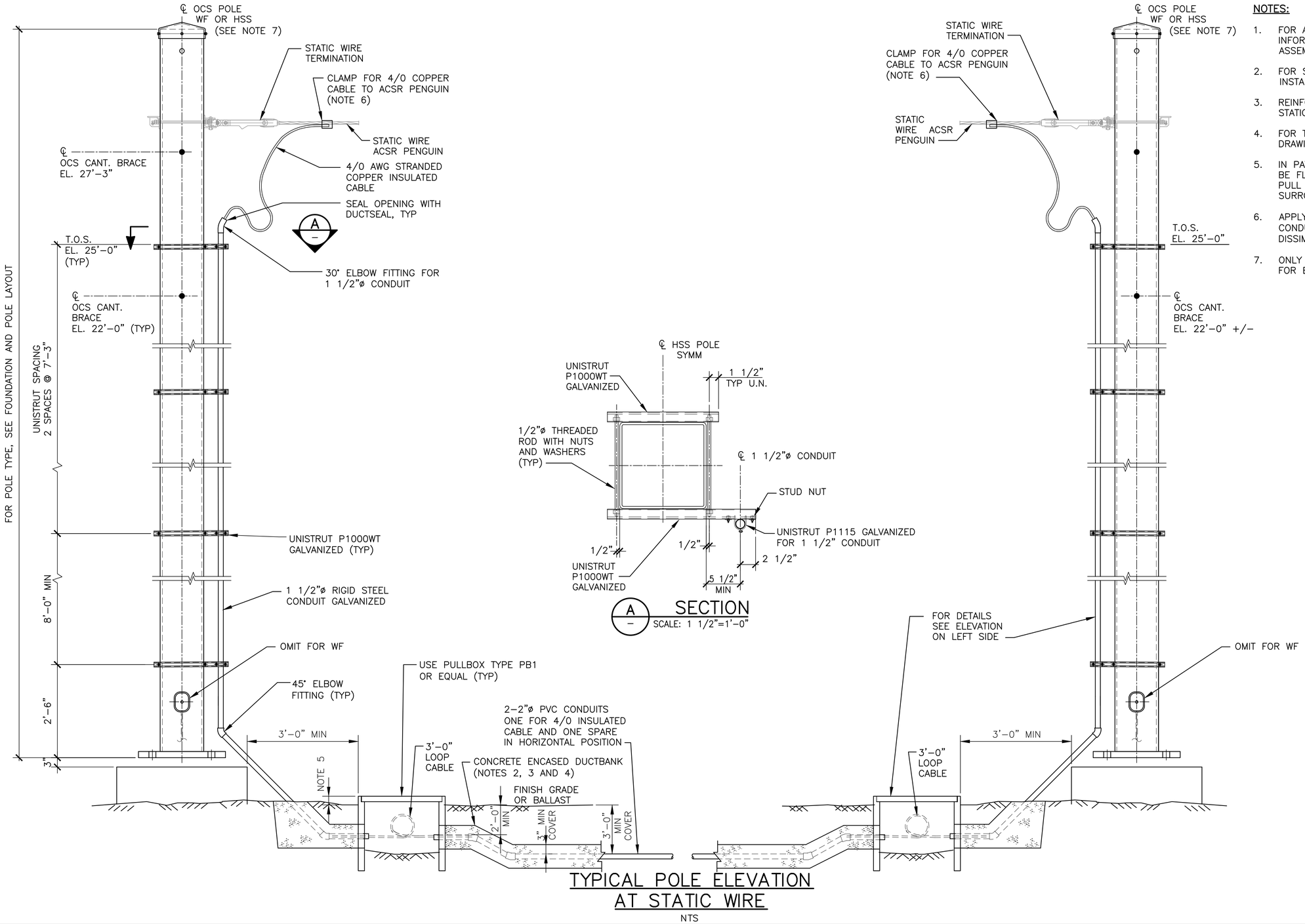
APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES

POLE BASE COVERS AT
STATIONS AND SIDEWALKS

CADD FILE NAME: SD-W5241
REV:
EDITION: SECOND
SCALE: NTS
STANDARD DRAWING NO.: SD-W5241



TYPICAL POLE ELEVATION AT STATIC WIRE

NTS

NOTES:

1. FOR ADDITIONAL SUPPORT AND APPURTENANCE INFORMATION NOT SHOWN SEE OCS BASIC DESIGN ASSEMBLIES PACKAGE.
2. FOR STATIC CABLE DUCTBANK DESIGN AND INSTALLATION SEE SPECIFICATIONS.
3. REINFORCING BARS ARE NOT REQUIRED FOR STATIC WIRE DUCTBANK.
4. FOR TYPICAL DUCTBANK DETAILS, REFER TO DUCTBANK DRAWINGS.
5. IN PAVED AREAS TOP OF PULL BOX SHALL BE FLUSH WITH PAVEMENT, IN UNPAVED AREAS, TOP OF PULL BOX SHALL BE PLACED TWO INCHES ABOVE SURROUNDING GRADE, WHERE PRACTICABLE.
6. APPLY NO–OXIDE GREASE (OR EQUIVALENT CONDUCTIVE AND PROTECTIVE COMPOUND BETWEEN DISSIMILAR METALS) PRIOR TO INSTALLING.
7. ONLY HSS POLE IS SHOWN. ARRANGMENT IS SIMILAR FOR BOTH HSS AND WF POLES.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES

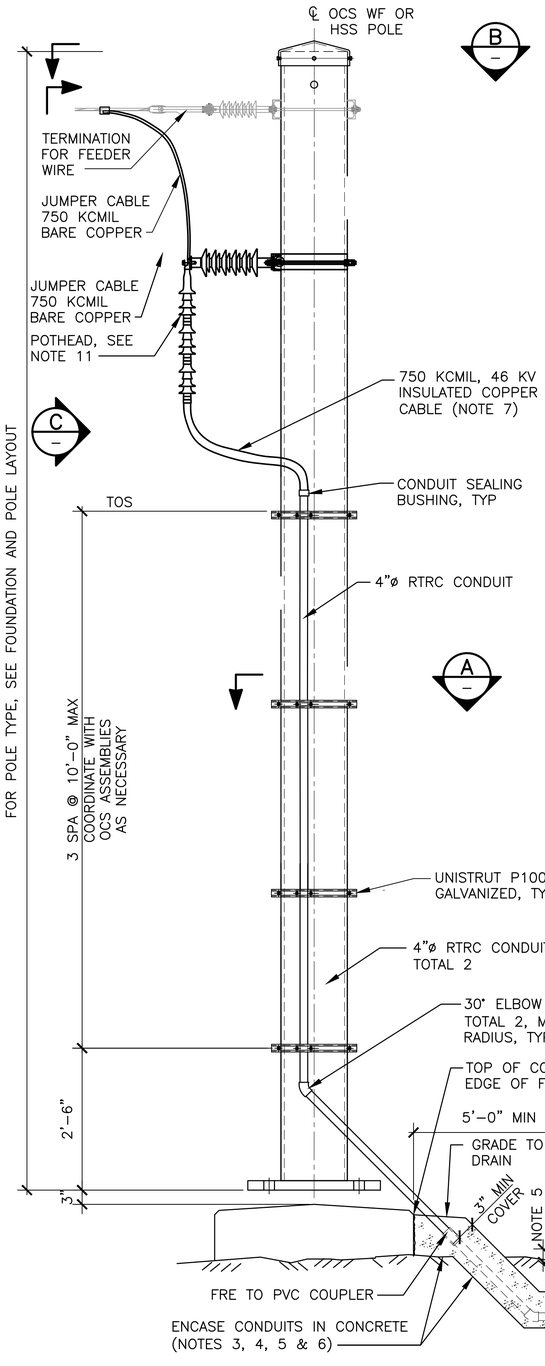
ROUTING OF SINGLE STATIC WIRE IN DUCTBANK BETWEEN POLES

CADD FILE NAME: SD–W5242

REV: | EDITION: SECOND

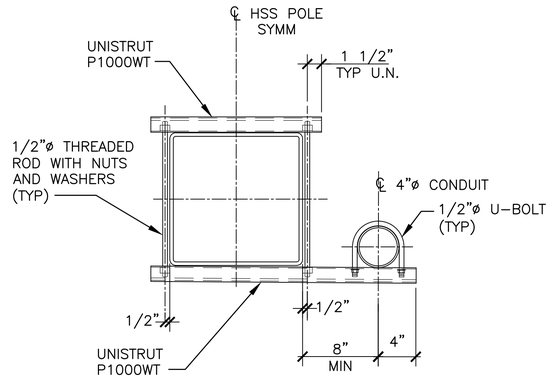
SCALE: AS SHOWN

STANDARD DRAWING NO.: SD–W5242



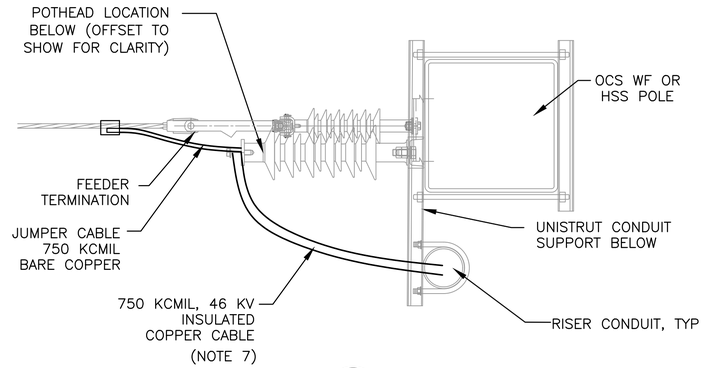
TYPICAL POLE ELEVATION AT FEEDER WIRE

NTS



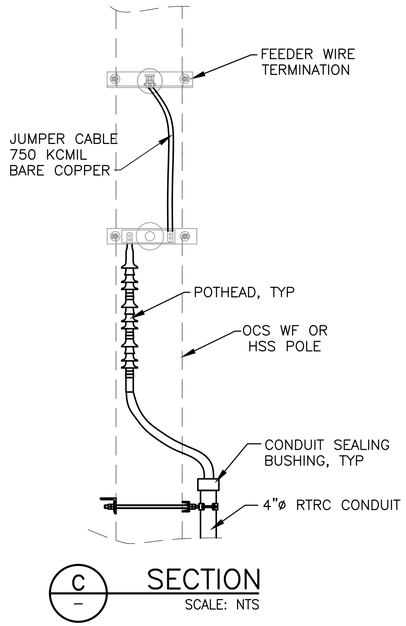
A — SECTION

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



B — SECTION

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



C — SECTION

SCALE: NTS

NOTES:

1. FOR ADDITIONAL SUPPORT AND APPURTENANCE INFORMATION NOT SHOWN SEE OCS BASIC DESIGN ASSEMBLIES DRAWINGS.
2. WHERE CROSSING UNDER THE TRACK, TOP OF DUCTBANK SHALL BE 3'-6" MINIMUM BELOW TOP OF TIE.
3. REFER TO TYPICAL DUCTBANK REINFORCEMENT FOR 25 KV CABLES DETAIL FOR REINFORCED DUCTBANK REQUIREMENTS.
4. REINFORCED DUCTBANK AS SPECIFIED IN SECTION 34-31-23.
5. 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.
6. FOR SITE SPECIFIC FEEDER DUCTBANK LAYOUT, NUMBER OF PULLBOXES AND DETAILS NOT SHOWN, SEE SYSTEMS DUCTBANK DRAWINGS.
7. CABLE BENDS SHALL NOT EXCEED MAXIMUM ALLOWED BY MANUFACTURER.
8. SEE MATERIAL ALLOCATION DRAWINGS FOR SURGE ARRESTER LOCATIONS.
9. APPLY NO-OXIDE GREASE (OR EQUIVALENT CONDUCTIVE AND PROTECTIVE COMPOUND BETWEEN DISSIMILAR METALS) PRIOR TO INSTALLING.
10. 1250 KCMIL FEEDER CABLE IS AN ACCEPTABLE ALTERNATIVE TO THE 750 KCMIL FEEDER CABLE.
11. POTHEADS SHOWN FOR REFERENCE ONLY.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

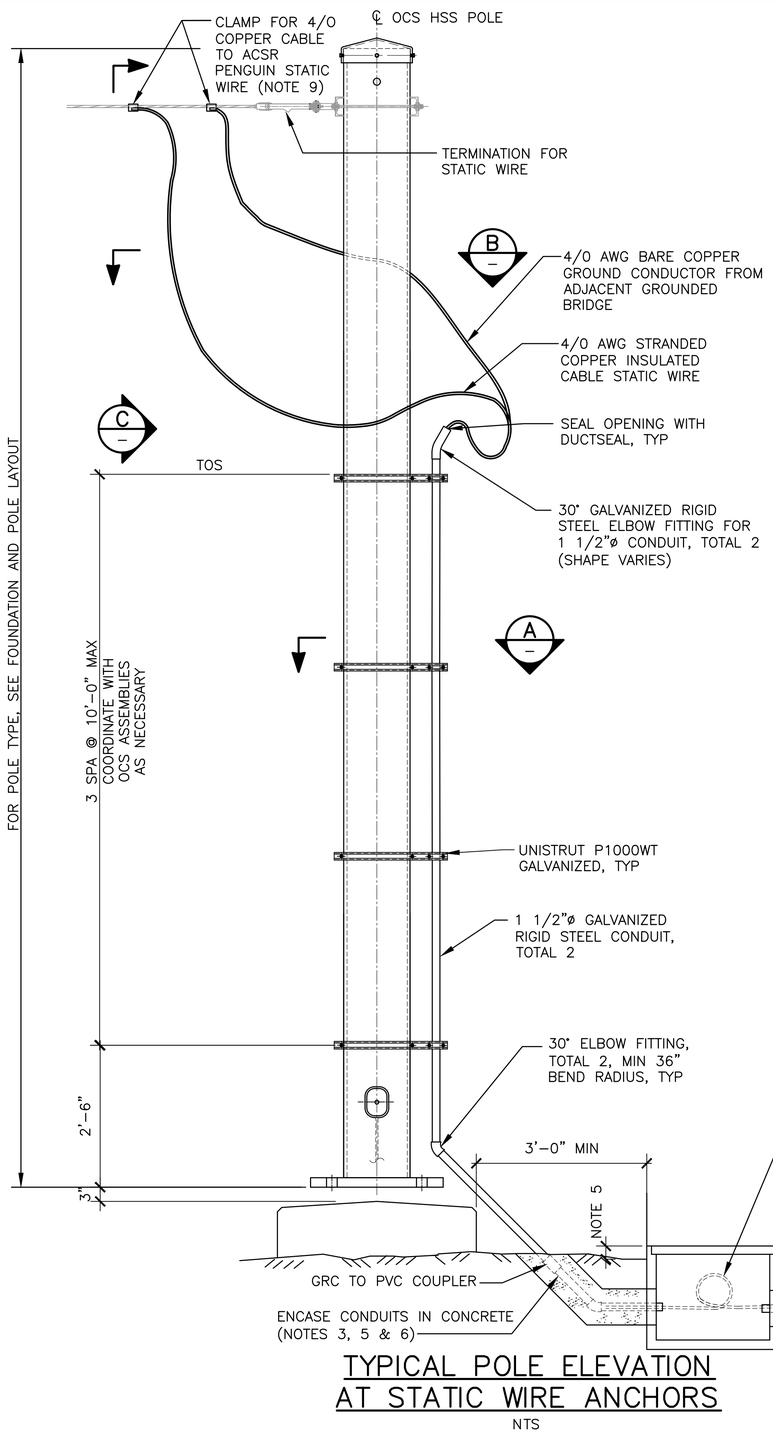
DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES

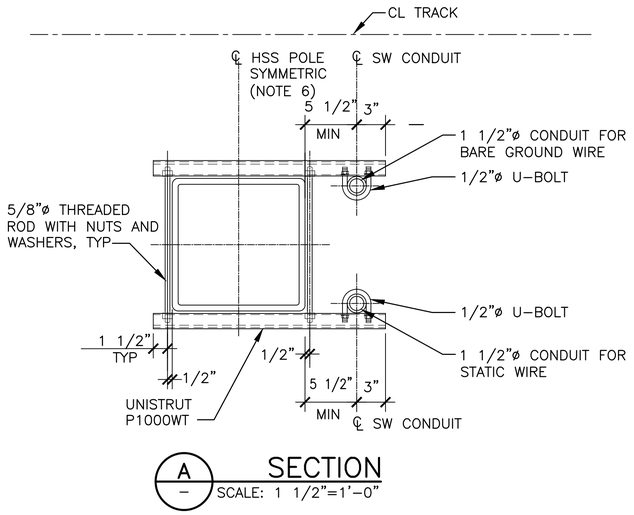
ROUTING OF SINGLE FEEDER WIRE IN DUCTBANK BETWEEN POLES

CADD FILE NAME:	SD-W5242A
REV:	EDITION: SECOND
SCALE:	AS SHOWN
STANDARD DRAWING NO.:	SD-W5242A



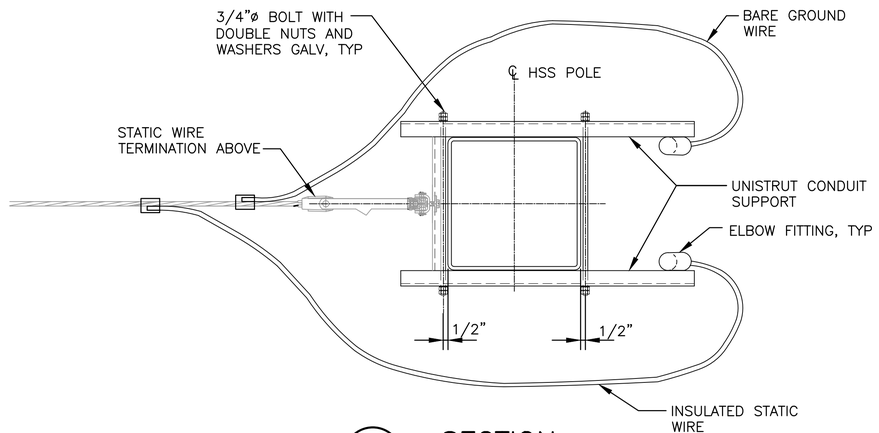
TYPICAL POLE ELEVATION AT STATIC WIRE ANCHORS

NTS



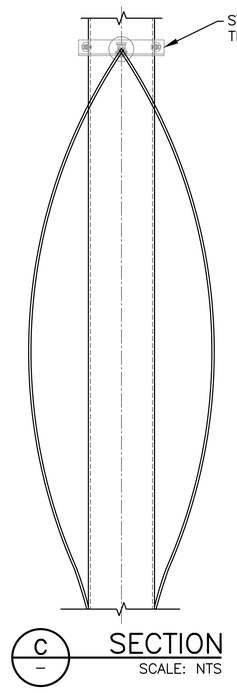
A — SECTION

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



B — SECTION

SCALE: NTS



C — SECTION

SCALE: NTS

NOTES:

1. FOR ADDITIONAL SUPPORT AND APPURTENANCE INFORMATION NOT SHOWN SEE OCS BASIC DESIGN ASSEMBLIES DRAWINGS.
2. WHERE CROSSING UNDER THE TRACK, TOP OF DUCTBANK SHALL BE 3'-6" MINIMUM BELOW TOP OF TIE.
3. FOR UNREINFORCED STATIC WIRE CABLE DUCTBANK SEE SYSTEM DUCTBANK DETAILS.
4. WIRE ANCHORS CAN BE LOCATED ON THE SAME FACE OR THE ADJACENT FACE OF THE POLE. CONDUITS SHALL BE LOCATED ALONG THE TRACK AS SHOWN, BUT MAY BE ON OPPOSITE FACE OF POLE. HEIGHT OF STATIC WIRE ANCHORS VARIES. SEE MATERIAL ALLOCATION DRAWINGS FOR MORE INFORMATION.
5. 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.
6. FOR SITE SPECIFIC DUCTBANK LAYOUT, NUMBER OF PULLBOXES AND DETAILS NOT SHOWN, SEE SYSTEMS DUCTBANK DRAWINGS.
7. CABLE BENDS SHALL NOT EXCEED MAXIMUM ALLOWED BY MANUFACTURER.
8. SEE MATERIAL ALLOCATION DRAWINGS FOR SURGE ARRESTER LOCATIONS, WIRE ANCHOR ELEVATIONS, DIRECTION OF WIRE TERMINATIONS ON POLE, AND INFORMATION NOT SHOWN.
9. APPLY NO-OXIDE GREASE (OR EQUIVALENT CONDUCTIVE AND PROTECTIVE COMPOUND BETWEEN DISSIMILAR METALS) PRIOR TO INSTALLING.
10. FOR ADDITIONAL DETAILS ON BRIDGE GROUNDING NOT SHOWN SEE STATION AND STRUCTURES GROUNDING AND BONDING DRAWINGS.

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PENINSULA CORRIDOR JOINT POWERS BOARD

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ENGINEERING STANDARD DRAWINGS

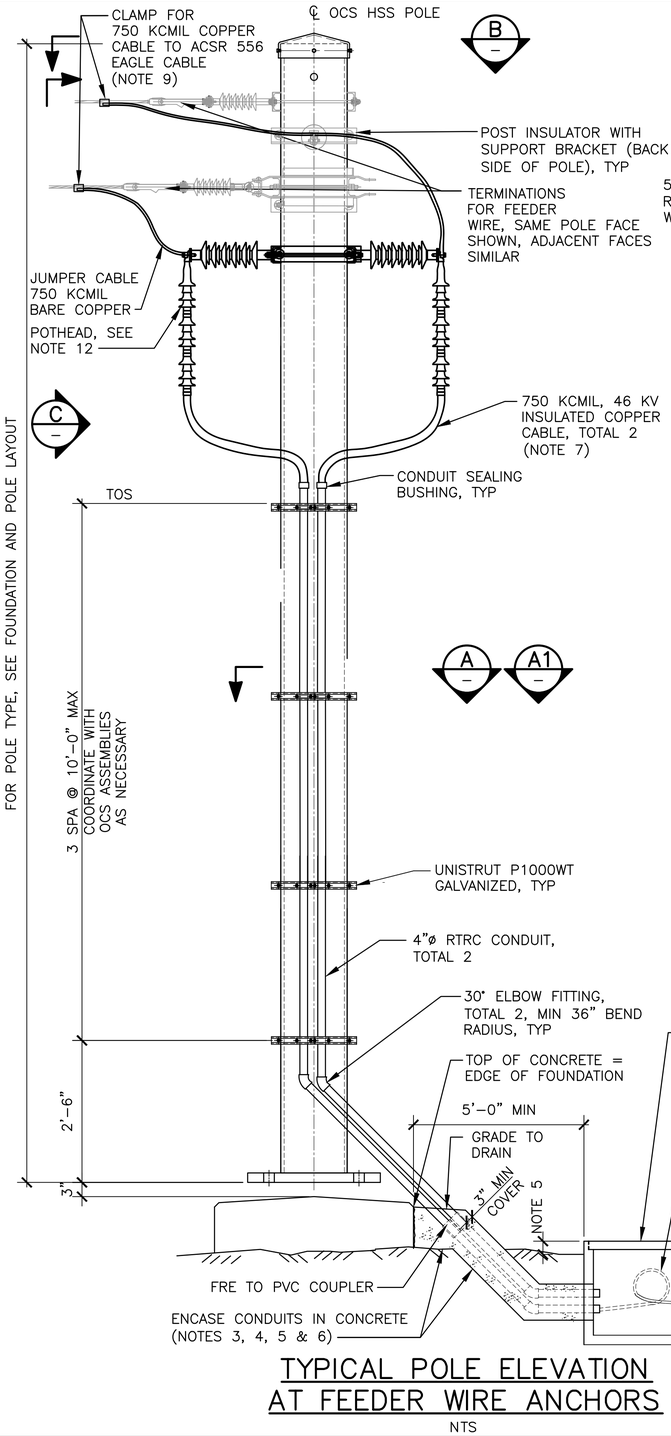
OVERHEAD CONTACT SYSTEM
OCS POLES
ROUTING OF STATIC WIRE AND BRIDGE GROUND CONDUCTOR IN DUCTBANK BETWEEN POLES

CADD FILE NAME: SD-W5242B

REV: | EDITION: SECOND

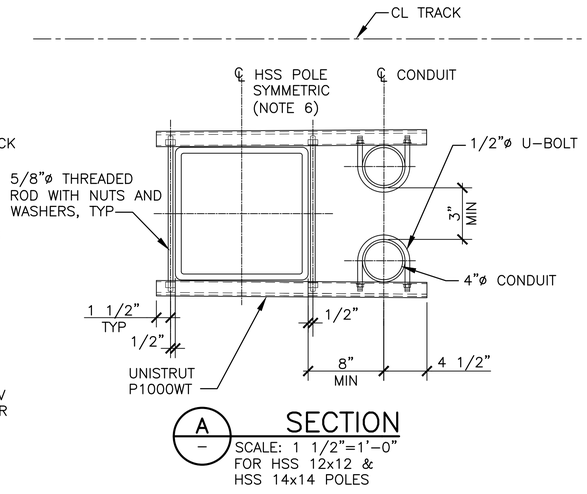
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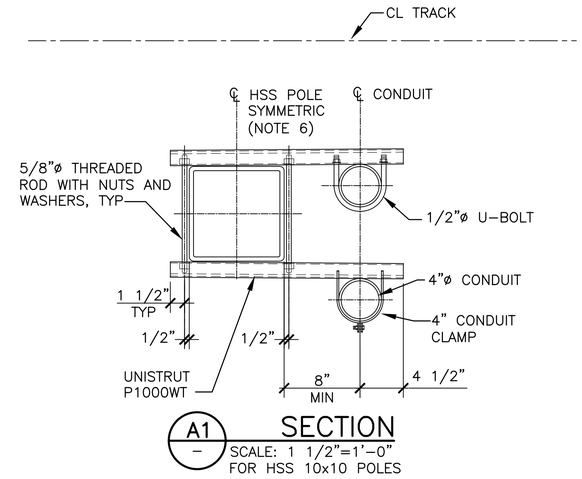
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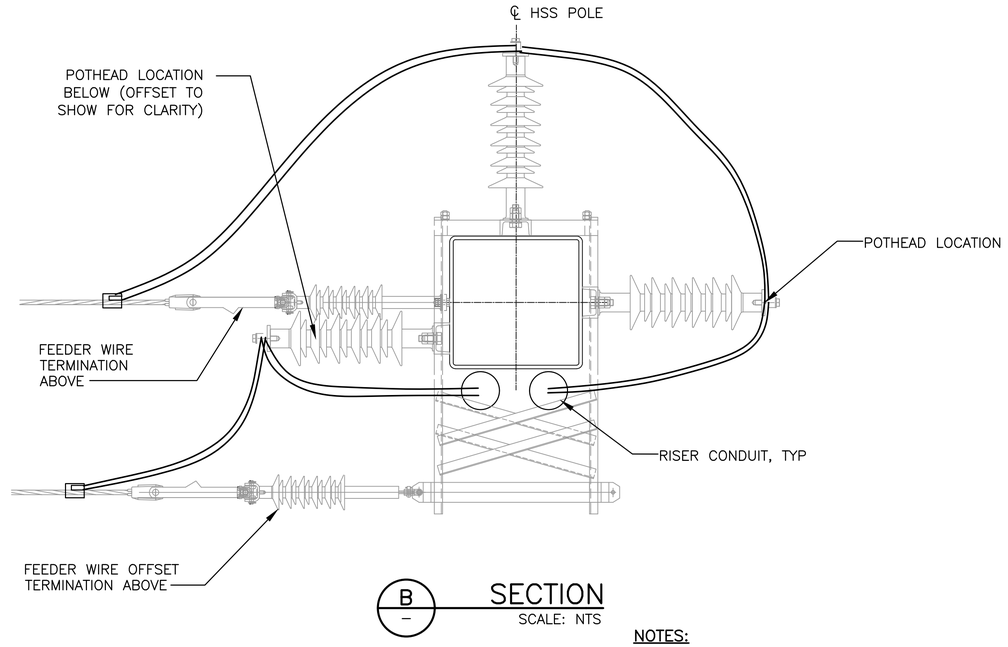


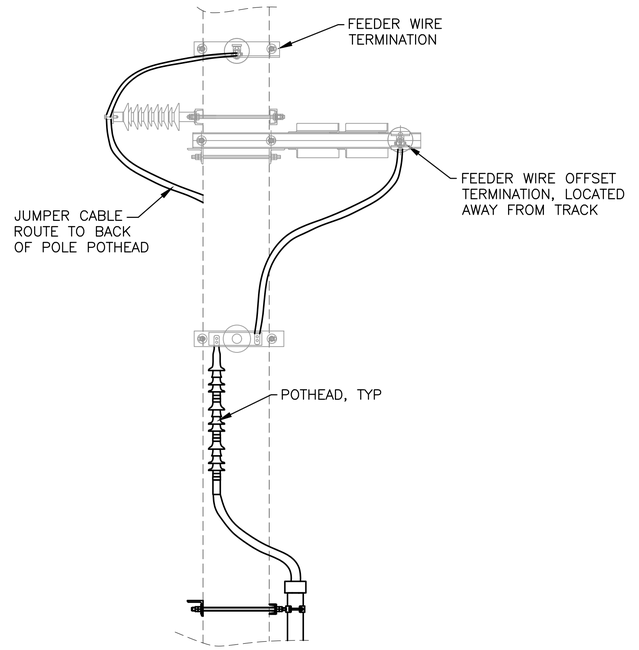
TYPICAL POLE ELEVATION AT FEEDER WIRE ANCHORS

NTS









NOTES:

1. FOR ADDITIONAL SUPPORT AND APPURTENANCE INFORMATION NOT SHOWN SEE OCS BASIC DESIGN ASSEMBLIES DRAWINGS.
2. WHERE CROSSING UNDER THE TRACK, TOP OF DUCTBANK SHALL BE 3'-6" MINIMUM BELOW TOP OF TIE.
3. REFER TO TYPICAL DUCTBANK REINFORCEMENT FOR 25 KV CABLES DETAIL FOR REINFORCED DUCTBANK REQUIREMENTS.
4. REINFORCED DUCTBANK AS SPECIFIED IN SPECIFICATION SECTION 34-31-23.
5. 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.
6. FOR SITE SPECIFIC FEEDER DUCTBANK LAYOUT, NUMBER OF PULLBOXES AND DETAILS NOT SHOWN, SEE SYSTEMS DUCTBANK DRAWINGS. WIRE ANCHORS CAN BE LOCATED ON THE SAME FACE OR THE ADJACENT FACE OF THE POLE. CONDUITS SHALL BE LOCATED ALONG THE TRACKS AS SHOWN, BUT MAY BE ON OPPOSITE FACE OF POLE.
7. CABLE BENDS SHALL NOT EXCEED MAXIMUM ALLOWED BY MANUFACTURER.
8. SEE MATERIAL ALLOCATION DRAWINGS FOR SURGE ARRESTER LOCATIONS, FW ANCHOR ELEVATIONS, DIRECTION OF FEEDER WIRE TERMINATION ON POLE, MINIMUM WIRE CLEARANCES AND INFORMATION NOT SHOWN.
9. APPLY NO-OXIDE GREASE (OR EQUIVALENT CONDUCTIVE AND PROTECTIVE COMPOUND BETWEEN DISIMILAR METALS) PRIOR TO INSTALLING.
10. 1250 KCMIL FEEDER CABLE IS AN ACCEPTABLE ALTERANATIVE TO THE 750 KCMIL FEEDER CABLE.
11. POTHEAD DETAILS, ARRANGEMENTS AND SUPPORTS ARE REPRESENTATIVE. ACTUAL CONFIGURATION SHALL BE PER OCS BASIC DESIGN ASSEMBLIES DRAWINGS.
12. POTHEADS SHOWN FOR REFERENCE ONLY.

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REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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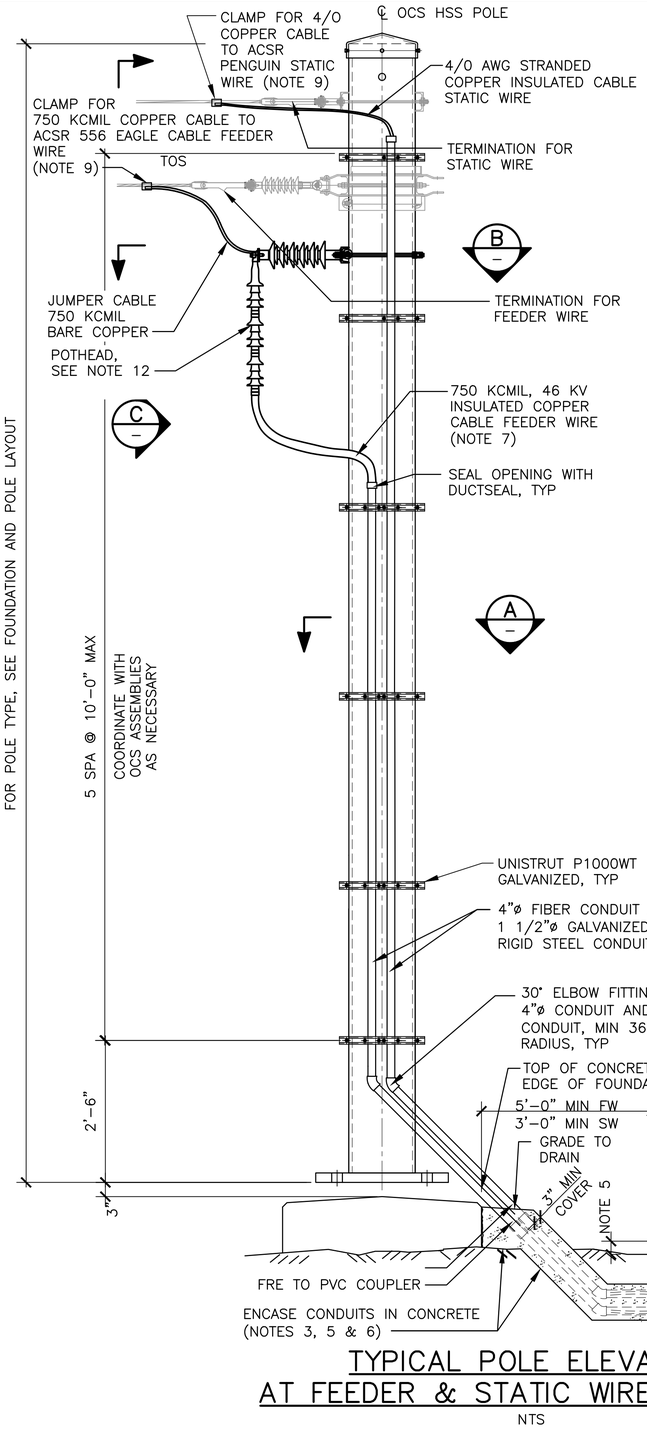
DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES

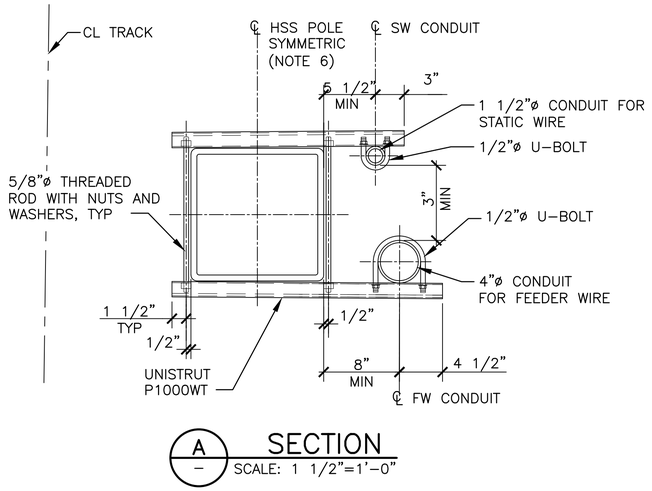
ROUTING OF TWO FEEDER WIRES IN DUCTBANK BETWEEN POLES

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REV:	EDITION: SECOND
SCALE:	AS SHOWN
STANDARD DRAWING NO.:	SD-W5242C



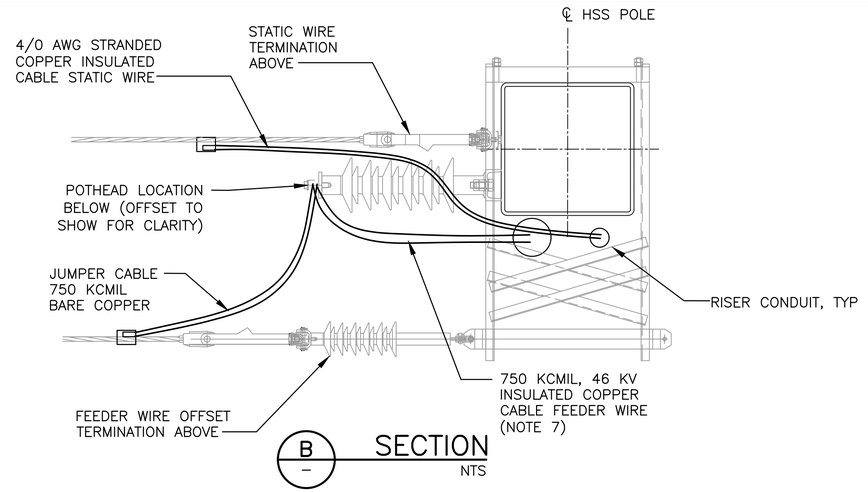
TYPICAL POLE ELEVATION AT FEEDER & STATIC WIRE ANCHORS

NTS



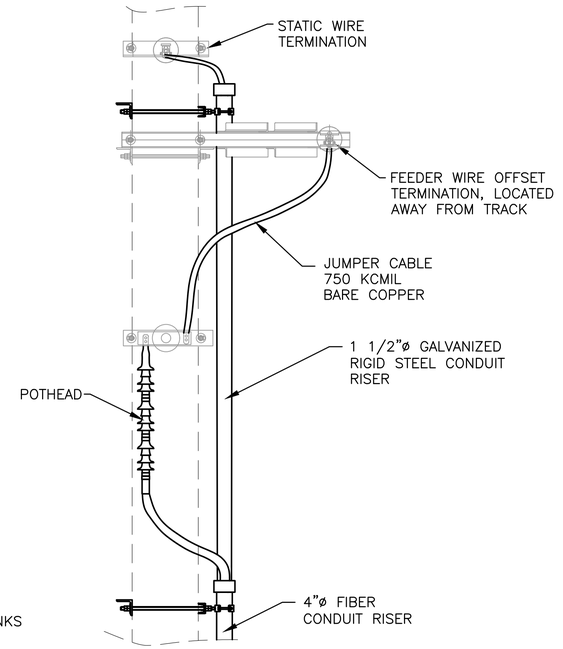
A — SECTION

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



B — SECTION

NTS



C — SECTION

SCALE: NTS

NOTES:

1. FOR ADDITIONAL SUPPORT AND APPURTENANCE INFORMATION NOT SHOWN SEE OCS BASIC DESIGN ASSEMBLIES DRAWINGS.
2. WHERE CROSSING UNDER THE TRACK, TOP OF DUCTBANK SHALL BE 3'-6" MINIMUM BELOW TOP OF TIE.
3. REFER TO TYPICAL DUCTBANK REINFORCEMENT FOR 25 KV CABLES DETAIL FOR REINFORCED DUCTBANK REQUIREMENTS AND SPECIFICATION SECTION 34-31-23. FOR UNREINFORCED STATIC WIRE CABLE DUCTBANK SEE SYSTEM DUCTBANK DETAILS.
4. WIRE ANCHORS CAN BE LOCATED ON THE SAME FACE OR THE ADJACENT FACE OF THE POLE. CONDUITS SHALL BE LOCATED ALONG THE TRACK AS SHOWN, BUT MAY BE ON OPPOSITE FACE OF POLE. HEIGHT OF FEEDER AND STATIC WIRE ANCHORS VARIES. SEE MATERIAL ALLOCATION DRAWINGS FOR MORE INFORMATION.
5. 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.
6. FOR SITE SPECIFIC DUCTBANK LAYOUT, NUMBER OF PULLBOXES AND DETAILS NOT SHOWN, SEE SYSTEMS DUCTBANK DRAWINGS.
7. CABLE BENDS SHALL NOT EXCEED MAXIMUM ALLOWED BY MANUFACTURER.
8. SEE MATERIAL ALLOCATION DRAWINGS FOR SURGE ARRESTER LOCATIONS, WIRE ANCHOR ELEVATIONS, DIRECTION OF WIRE TERMINATIONS ON POLE, AND INFORMATION NOT SHOWN.
9. APPLY NO-OXIDE GREASE (OR EQUIVALENT CONDUCTIVE AND PROTECTIVE COMPOUND BETWEEN METALS) PRIOR TO INSTALLING.
10. SEPARATION BETWEEN THE FEEDER WIRE AND STATIC WIRE DISSIMILAR CABLES, CONDUITS, PULLBOXES, DUCTBANKS, ETC. ARE REQUIRED AS SHOWN IN THE SYSTEMS DUCTBANK PACKAGES.

NOTES: (CONT'D)

11. 1250 KCMIL FEEDER CABLE IS AN ACCEPTABLE ALTERNATIVE TO THE 750 KCMIL FEEDER CABLE.
12. POTHEADS SHOWN FOR REFERENCE ONLY.

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PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES

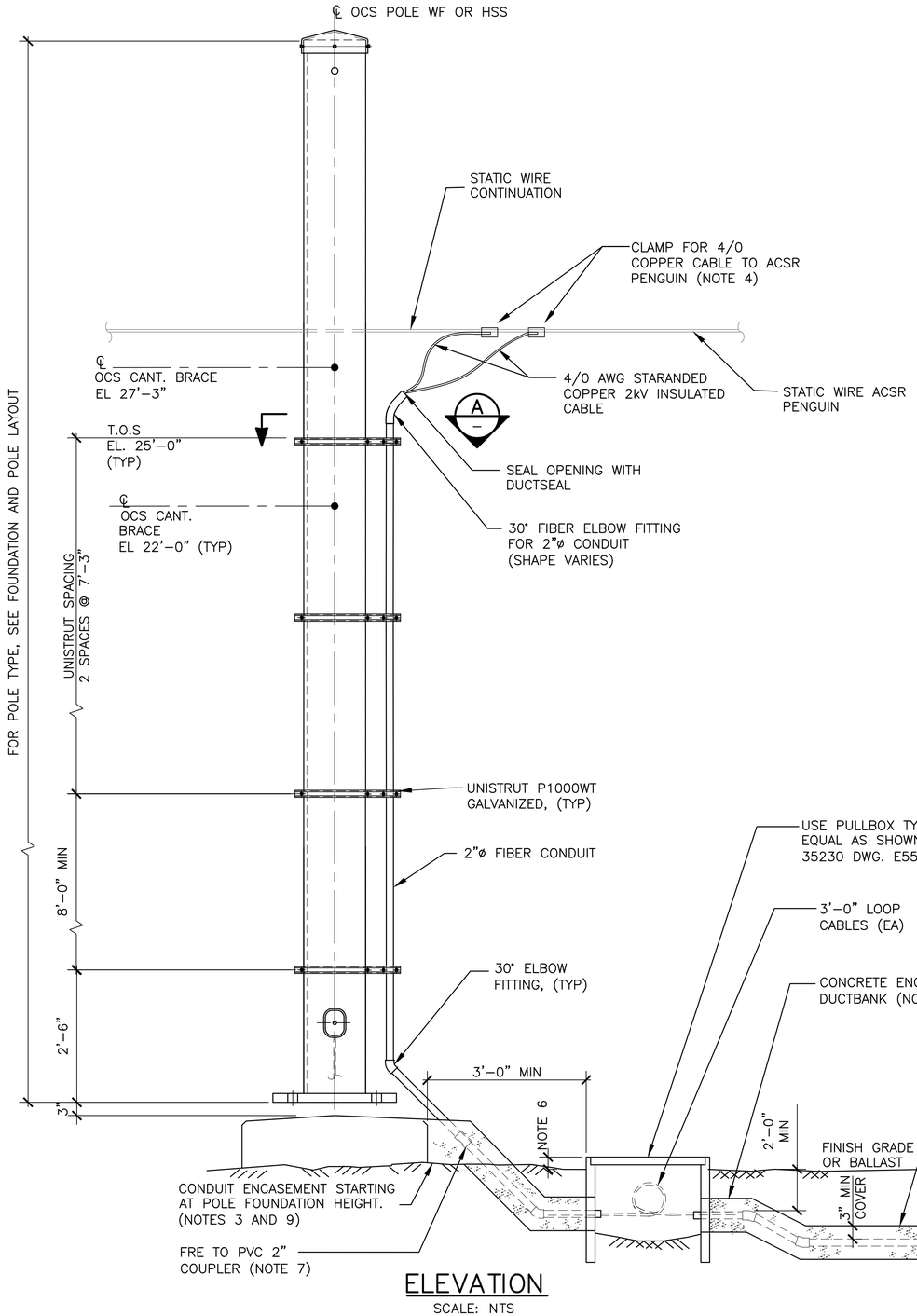
ROUTING OF FEEDER & STATIC WIRES IN DUCTBANK BETWEEN POLES

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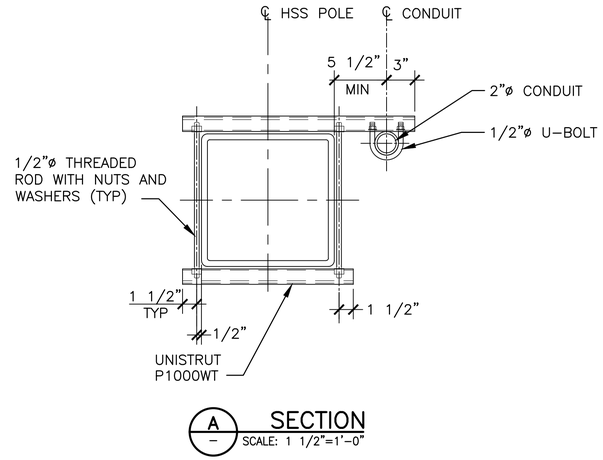
REV: | EDITION: SECOND

SCALE: AS SHOWN

STANDARD DRAWING NO.: SD-W5242D



ELEVATION
SCALE: NTS



SECTION
SCALE: 1 1/2"=1'–0"

NOTES:

1. FOR ADDITIONAL SUPPORT AND APPURTENANCE INFORMATION NOT SHOWN SEE OCS BASIC DESIGN ASSEMBLIES DRAWINGS.
2. FOR LOCATION OF CROSS BONDS WHERE THIS DETAIL MAY BE USED REFER TO NEUTRAL RETURN DESIGN.
3. ENCASE CONDUIT IN 3000 PSI RED DYE CONCRETE WITH REBAR REINFORCEMENT. MINIMUM 3–IN COVER ON ALL SIDES. FOR ADDITIONAL NEUTRAL RETURN DUCTBANK REQUIREMENTS SEE SPECIFICATIONS.
4. APPLY NO–OXIDE GREASE (OR EQUIVALENT CONDUCTIVE AND PROTECTIVE COMPOUND BETWEEN DISSIMILAR METALS) PRIOR TO INSTALLING.
5. USE OF PULL BOXES IS ONLY REQUIRED WHERE THE DUCTBANK FROM ADJACENT TRACK TO OCS STRUCTURE EXCEEDS:
   – 400–FT OF TOTAL LENGTH
   – 270 DEGREES OF TOTAL BENDS
6. IN PAVED AREAS TOP OF PULL BOX SHALL BE FLUSH WITH PAVEMENT. IN UNPAVED AREAS, TOP OF PULL BOX SHALL BE PLACED TWO INCHES ABOVE SURROUNDING GRADE, WHERE PRACTICAL.
7. ONLY 1 CONDUIT IS REQUIRED TO BE ROUTED UP THE OCS POLE. WHERE PULL BOXES ARE NOT USED, SPARE CONDUIT SHALL BE CAPPED AND SEALED AT THE BASE OF THE OCS POLE IN ACCORDANCE WITH TRACTION POWER SPECIFICATIONS.
8. REFER TO SIGNAL STANDARD DRAWINGS FOR CONTINUATION OF CROSS BOND SECTION DETAIL.
9. GRADE TOP OF CONCRETE CAP TO MATCH OCS FOUNDATION GRADE AND FILL IN UP TO FOUNDATION UNTIL CONDUITS TRANSITION UNDERGROUND.

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PENINSULA CORRIDOR JOINT POWERS BOARD

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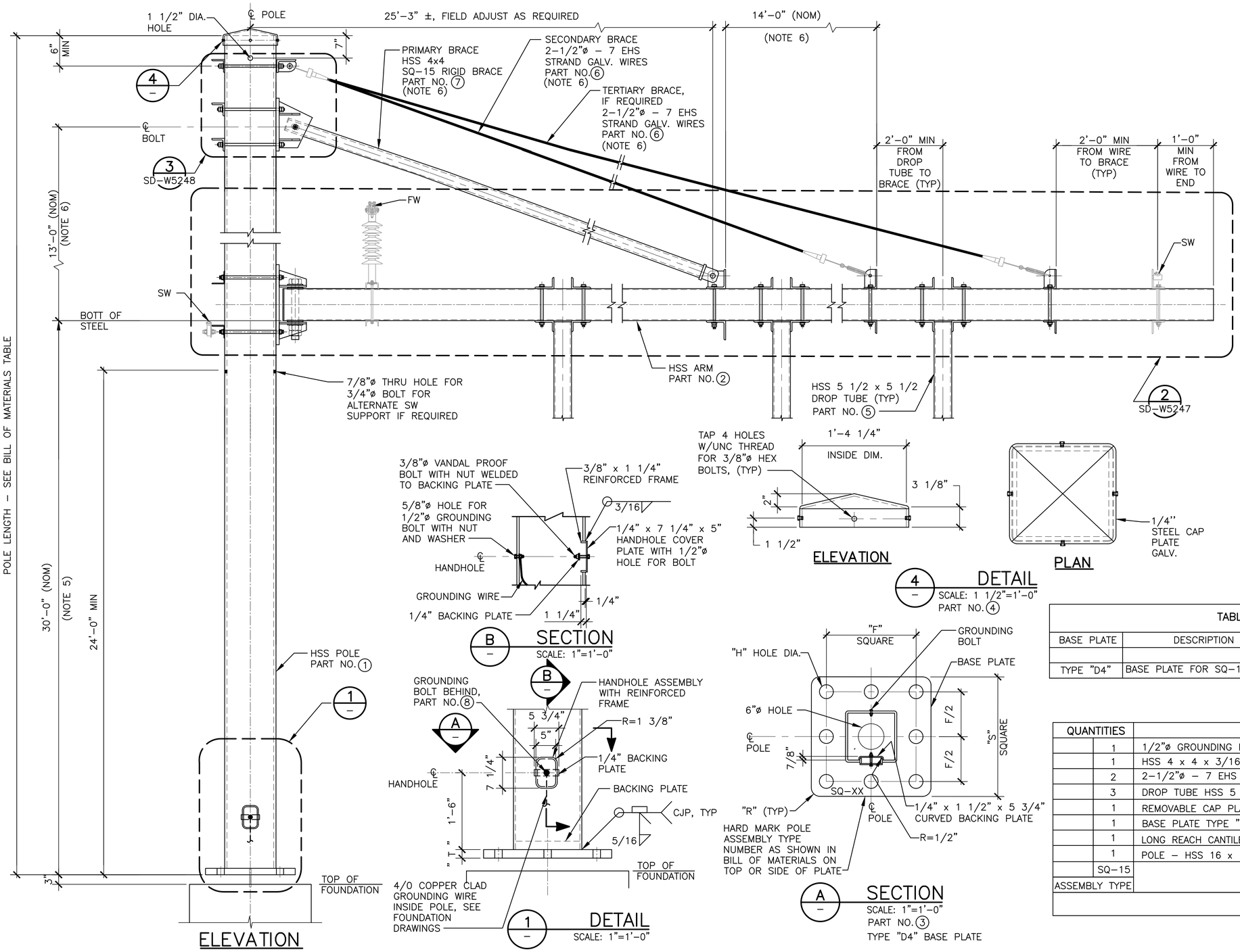
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DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
NEUTRAL RETURN CROSS BOND
DIRECT STATIC WIRE BOND
STUB UP DETAIL

CADD FILE NAME:	SD–W5242E
REV:	EDITION: SECOND
SCALE:	AS SHOWN
STANDARD DRAWING NO.:	SD–W5242E



NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. LONG REACH CANTILEVER ARM LENGTH WILL BE DETERMINED BY FIELD AT EACH LOCATION PRIOR TO FABRICATION.
3. 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.
4. 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.
5. BOTTOM OF STEEL VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATION DRAWINGS FOR HEIGHT.
6. SEE MATERIAL ALLOCATION DRAWINGS FOR NUMBER, ATTACHMENT LOCATION AND TYPE OF BRACES. CONFIRM ATTACHMENT LOCATIONS WITH ENGINEER PRIOR TO FABRICATION.

TABLE 1 BASE PLATE DIMENSIONS (IN)

BASE PLATE	DESCRIPTION	S	F	H	R	T	B	BOLT DIA
TYPE "D4"	BASE PLATE FOR SQ–15	32	25	2 5/8	2	2 1/2	35.35	2 1/4

QUANTITIES				
	1	1/2"ø GROUNDING BOLT	8	
	1	HSS 4 x 4 x 3/16 SQ–15 RIGID BRACE	7	NOTE 6
	2	2–1/2"ø – 7 EHS STRAND GALV. WIRES	6	NOTE 6
	3	DROP TUBE HSS 5 1/2 x 5 1/2 x 3/8 x 10'–0"	5	NOTE 3
	1	REMOVABLE CAP PLATE	4	
	1	BASE PLATE TYPE "D4"	3	
	1	LONG REACH CANTILEVER HSS 10 x 10 x 3/16 LENGTH VARIES	2	NOTE 2
	1	POLE – HSS 16 x 16 x 5/8 x 45'–6"	1	NOTE 4
	SQ–15	DESCRIPTION	PART NO.	REMARKS
ASSEMBLY TYPE				

BILL OF MATERIALS

REV	DATE	BY	CHK	APP	DESCRIPTION
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REV	DATE	BY	CHK	APP

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ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
LONG REACH CANTILEVER DETAILS
TYPE SQ–15
SHEET 1 OF 3

CADD FILE NAME: SD–W5246

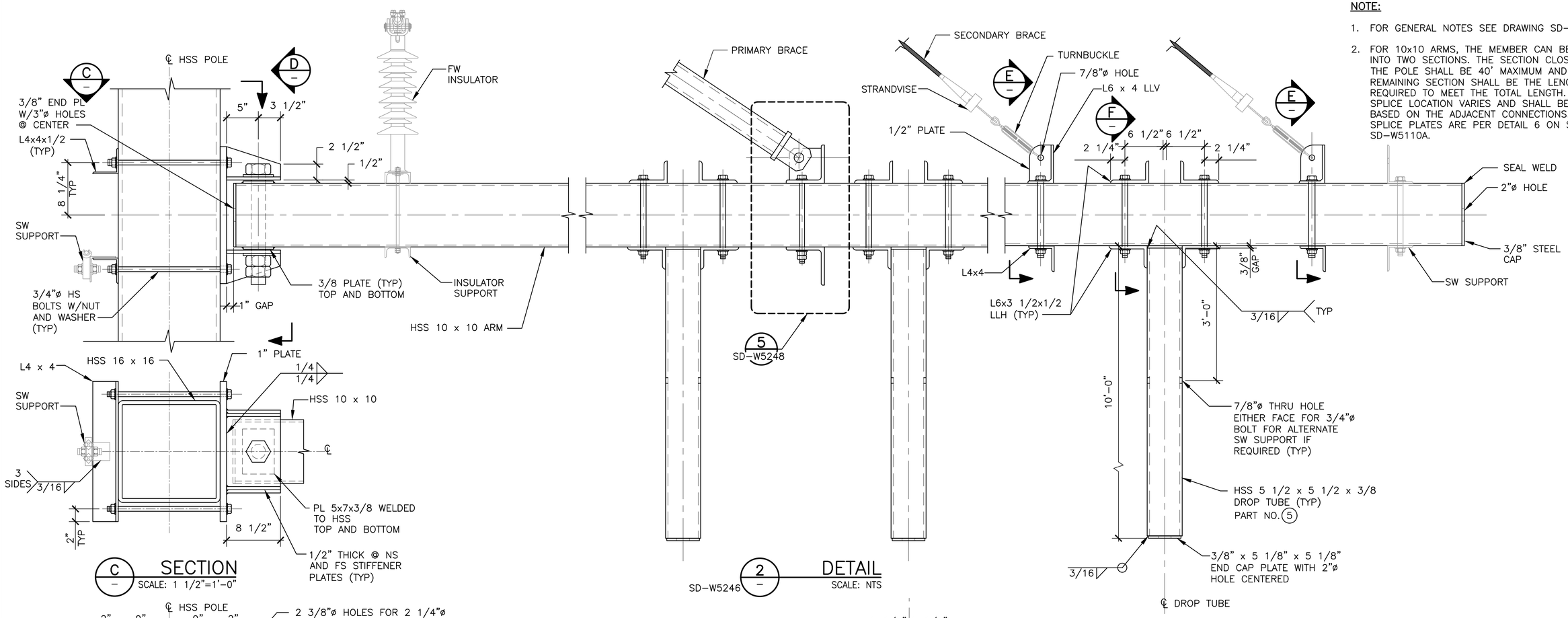
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STANDARD DRAWING NO.: SD–W5246

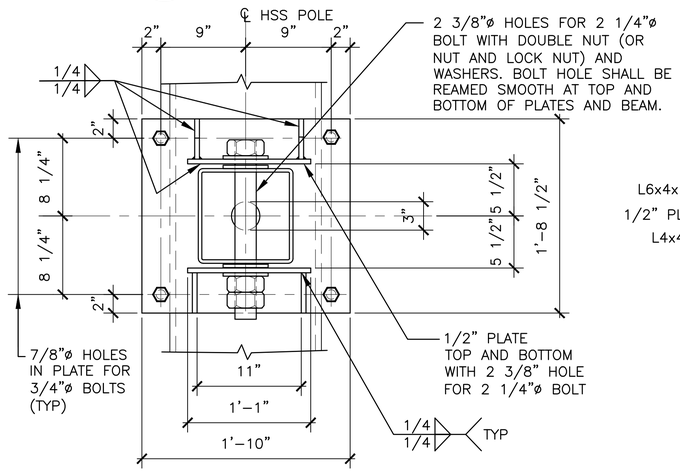
NOTE:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. FOR 10x10 ARMS, THE MEMBER CAN BE DIVIDED INTO TWO SECTIONS. THE SECTION CLOSEST TO THE POLE SHALL BE 40' MAXIMUM AND THE REMAINING SECTION SHALL BE THE LENGTH REQUIRED TO MEET THE TOTAL LENGTH. THE SPLICE LOCATION VARIES AND SHALL BE PLACED BASED ON THE ADJACENT CONNECTIONS. THE SPLICE PLATES ARE PER DETAIL 6 ON SHEET SD–W5110A.

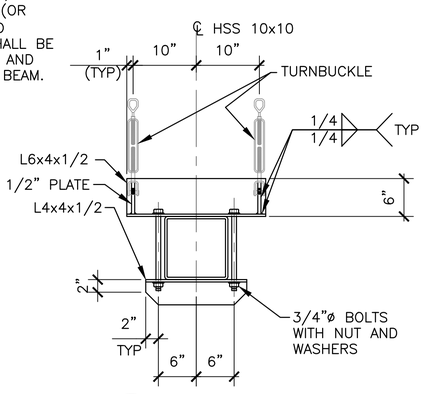


C — SECTION
SCALE: 1 1/2"=1'–0"

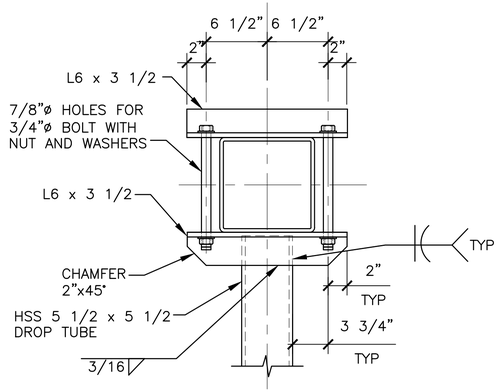
2 — DETAIL
SD–W5246
SCALE: NTS



D — SECTION
SCALE: 1 1/2"=1'–0"



E — SECTION
SCALE: 1"=1'–0"



F — SECTION
SCALE: 1 1/2"=1'–0"

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REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
LONG REACH CANTILEVER DETAILS
TYPE SQ–15
SHEET 2 OF 3

CADD FILE NAME: SD–W5247

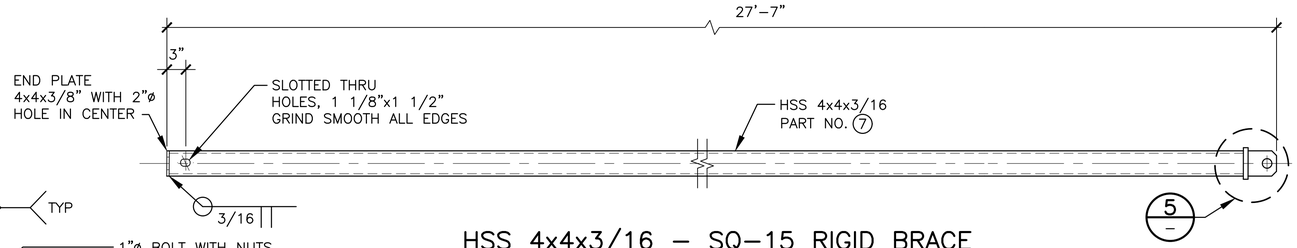
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STANDARD DRAWING NO.: SD–W5247

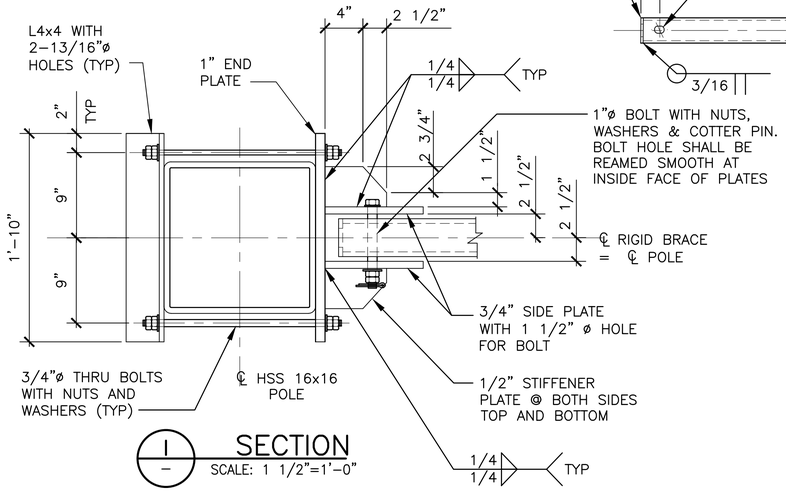
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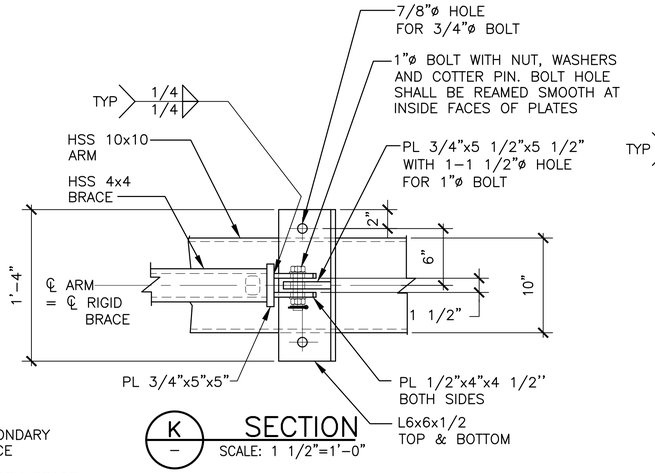
1. FOR GENERAL NOTES SEE DRAWING SD–W0101.

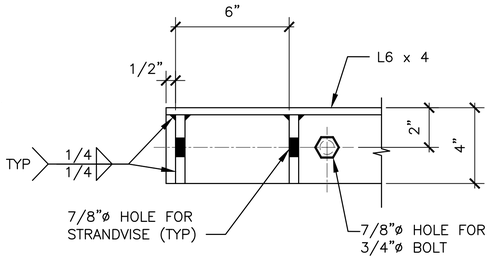


HSS 4x4x3/16 – SQ–15 RIGID BRACE

SCALE: 1"=1'–0"







SCHEMATIC DETAIL SQ–15

NTS

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

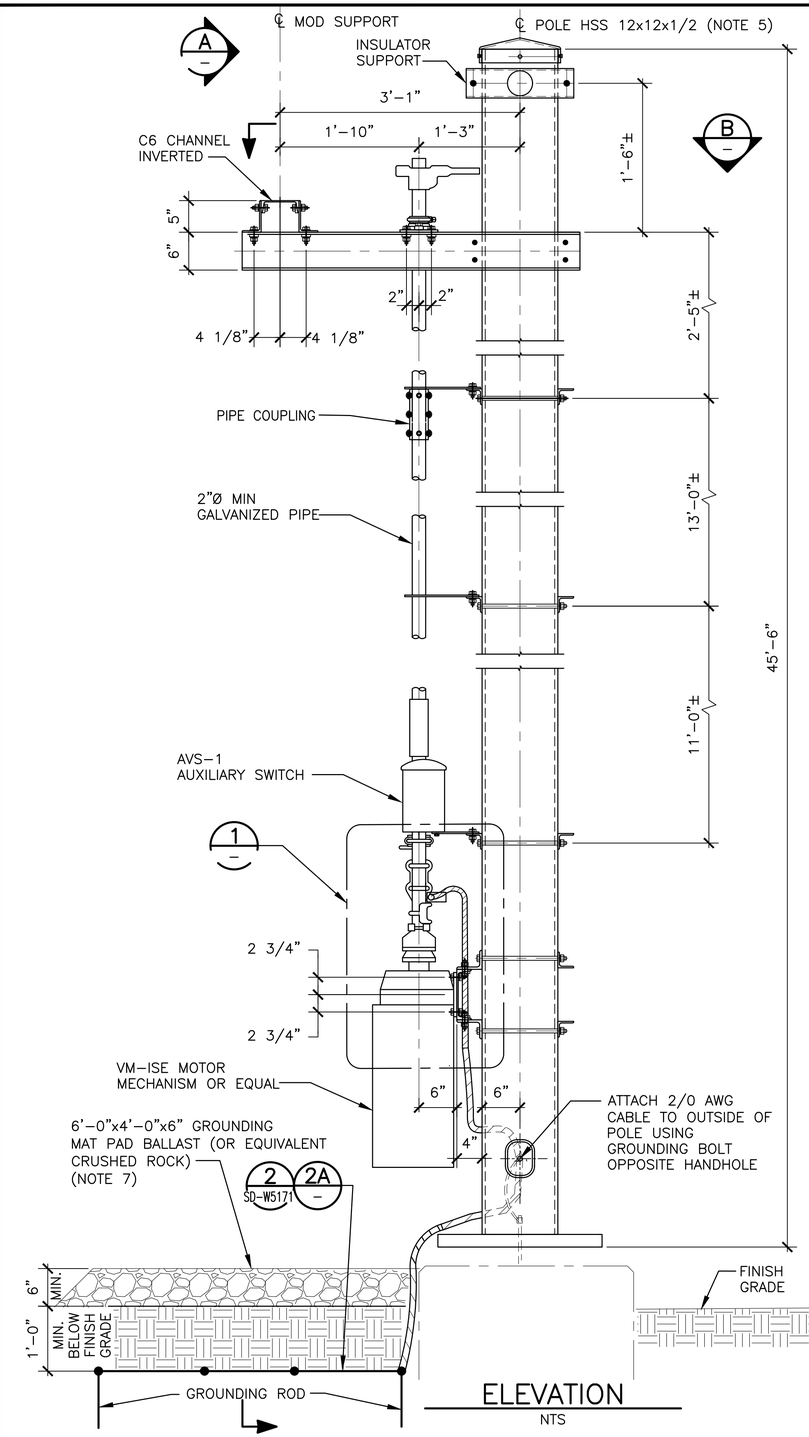
OVERHEAD CONTACT SYSTEM
OCS POLES
LONG REACH CANTILEVER DETAILS
TYPE SQ–15
SHEET 3 OF 3

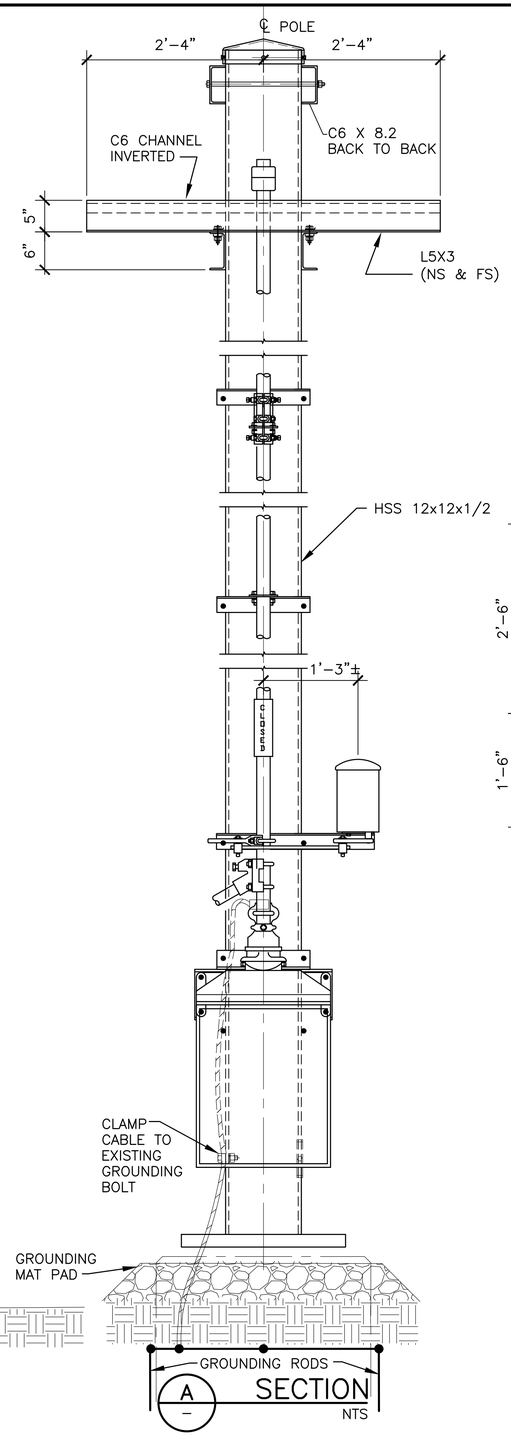
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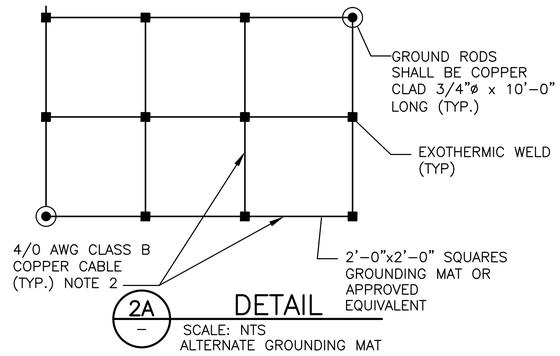
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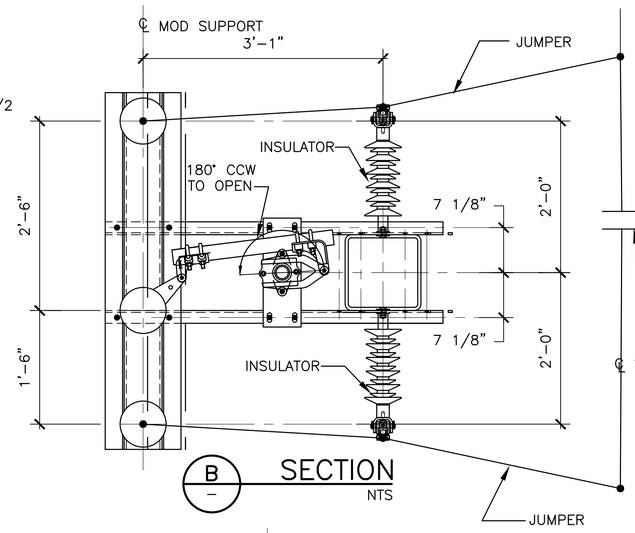
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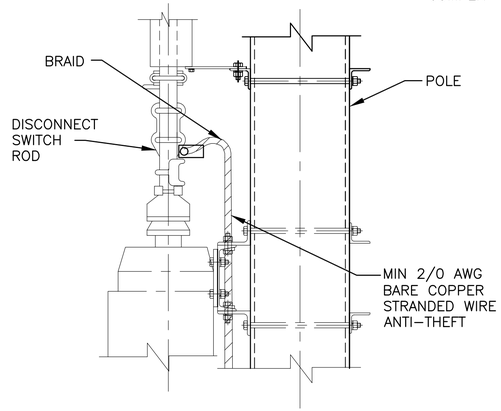
STANDARD DRAWING NO.: SD–W5248











NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD-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. FURNISH SWITCHES MOUNTED ON POLYMER INSULATORS AND COMPLETELY ASSEMBLED.
4. FIELD DRILL BOLT HOLES AS REQUIRED TO COMPLETE INSTALLATION. TREAT FIELD DRILLED HOLES WITH COLD GALVANIZING IMMEDIATELY AFTER DRILLING.
5. MOD'S ENCLOSURE STUB UP SHALL BE 3-2" DIA. GRS CONDUITS.
6. PORTABLE SWITCHING PLATFORM OR BUILT-UP SWITCHING PAD MAY BE PROVIDED IN ADDITION TO PERSONAL GROUND GRID IF SWITCH CAN NOT BE ACCESSED FROM THE GROUND.
7. WHERE DISCONNECT SWITCH GROUNDING MATS ARE INSTALLED IN CONCRETE OR ASPHALT PAVEMENT, THE SECTION WILL BE REPLACED IN KIND ABOVE THE GROUNDING MAT ASSEMBLY AND WILL PROVIDE A 1'-6" DEPTH FROM THE FINISHED GRADE TO THE MAT.
8. ALTERNATIVELY A #4-0 GROUND CONDUCTOR CAN BE USED FOR THE MOD TERMINATIONS IF THE EXPOSED GROUND CONDUCTOR IS SUPPORTED EVERY 3 FEET WITH APPROVED MATERIALS AND METHODS AND THE TERMINATIONS TO THE MOD CONTROL BOX IS EPOXIED AFTER INSTALLATION.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

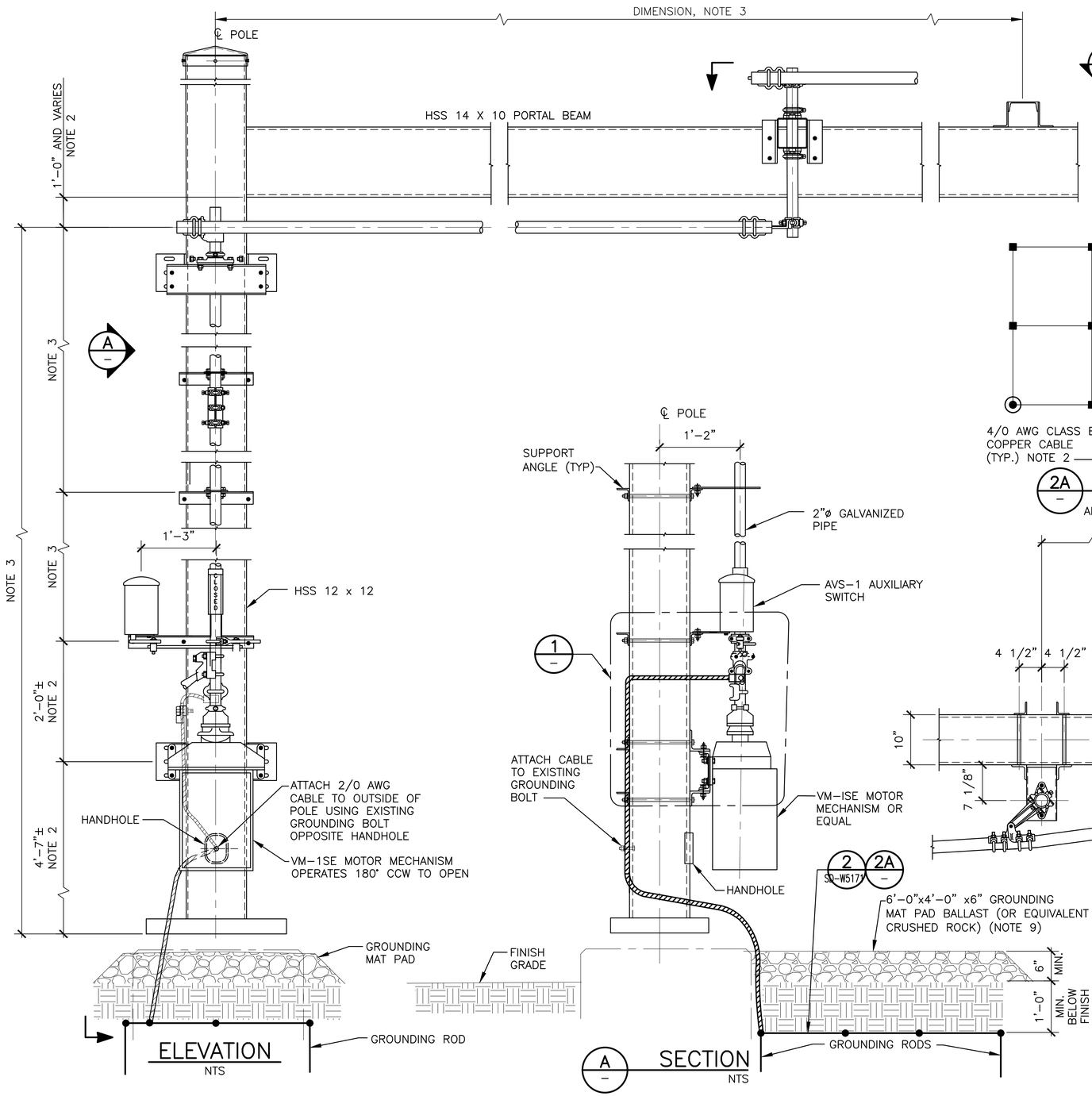
OVERHEAD CONTACT SYSTEM
OCS POLES
MOD DISCONNECT SWITCH
ON POLE TYPE SQ-1
GROUNDING DETAILS

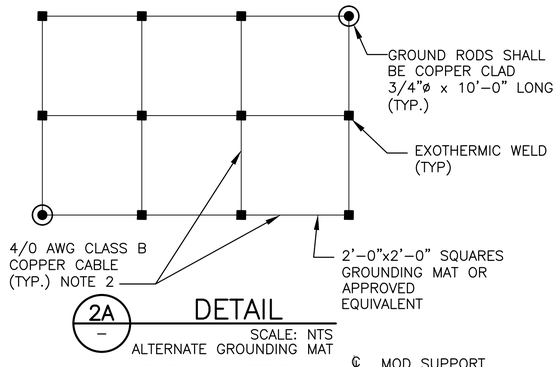
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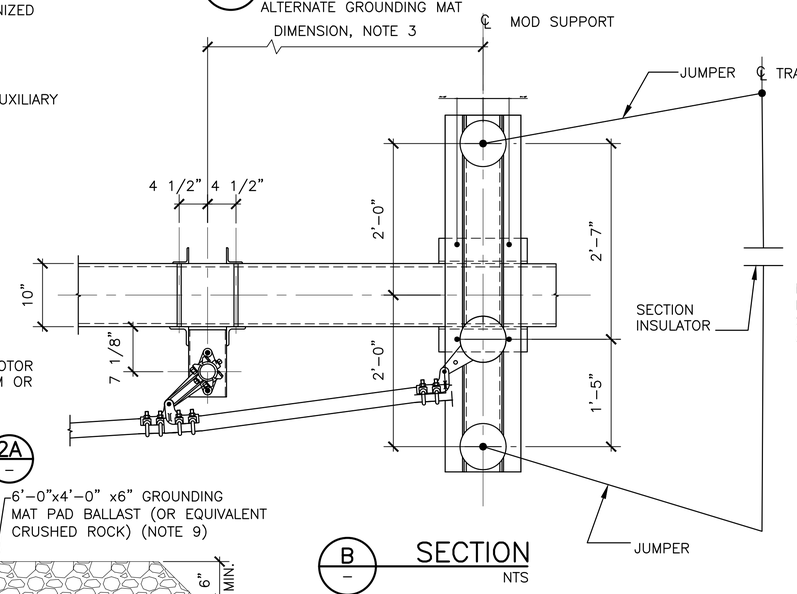
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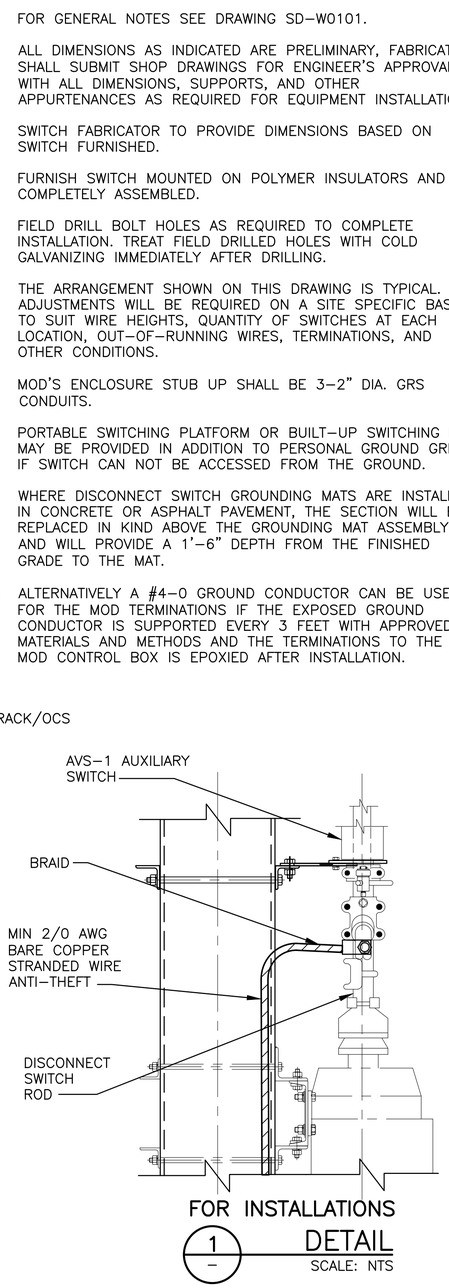
SCALE: AS SHOWN

STANDARD DRAWING NO.: SD-W5249









NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD-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 COMPLETELY ASSEMBLED.
5. FIELD DRILL BOLT HOLES AS REQUIRED TO COMPLETE INSTALLATION. TREAT FIELD DRILLED HOLES WITH COLD GALVANIZING IMMEDIATELY AFTER DRILLING.
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 OR BUILT-UP SWITCHING PAD MAY BE PROVIDED IN ADDITION TO PERSONAL GROUND GRID IF SWITCH CAN NOT BE ACCESSED FROM THE GROUND.
9. WHERE DISCONNECT SWITCH GROUNDING MATS ARE INSTALLED IN CONCRETE OR ASPHALT PAVEMENT, THE SECTION WILL BE REPLACED IN KIND ABOVE THE GROUNDING MAT ASSEMBLY AND WILL PROVIDE A 1'-6" DEPTH FROM THE FINISHED GRADE TO THE MAT.
10. ALTERNATIVELY A #4-0 GROUND CONDUCTOR CAN BE USED FOR THE MOD TERMINATIONS IF THE EXPOSED GROUND CONDUCTOR IS SUPPORTED EVERY 3 FEET WITH APPROVED MATERIALS AND METHODS AND THE TERMINATIONS TO THE MOD CONTROL BOX IS EPOXIED AFTER INSTALLATION.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

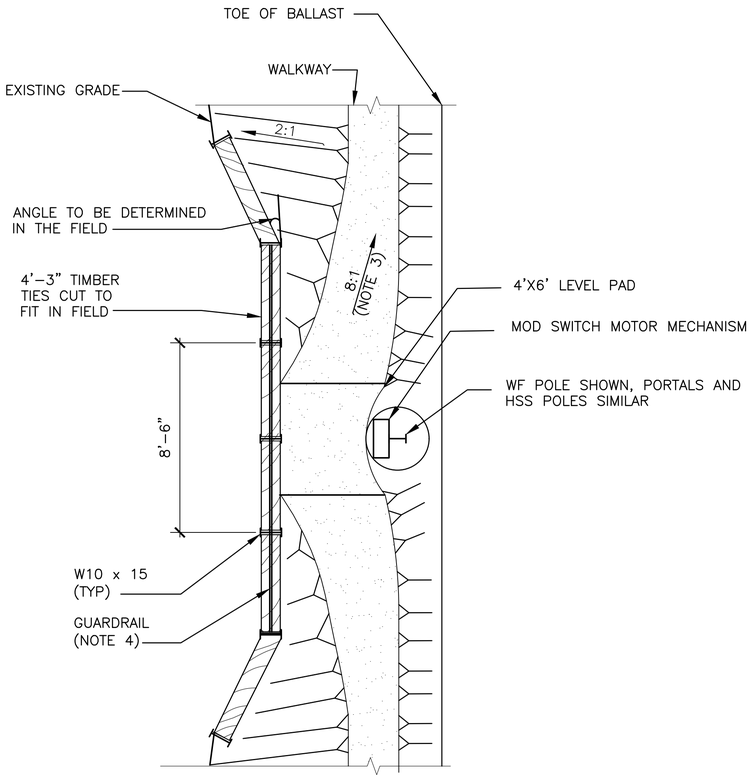
OVERHEAD CONTACT SYSTEM
OCS POLES
MOD DISCONNECT SWITCH
ON PORTAL TYPE PS-3
GROUNDING DETAILS

CADD FILE NAME: SD-W5250

REV: | EDITION: SECOND

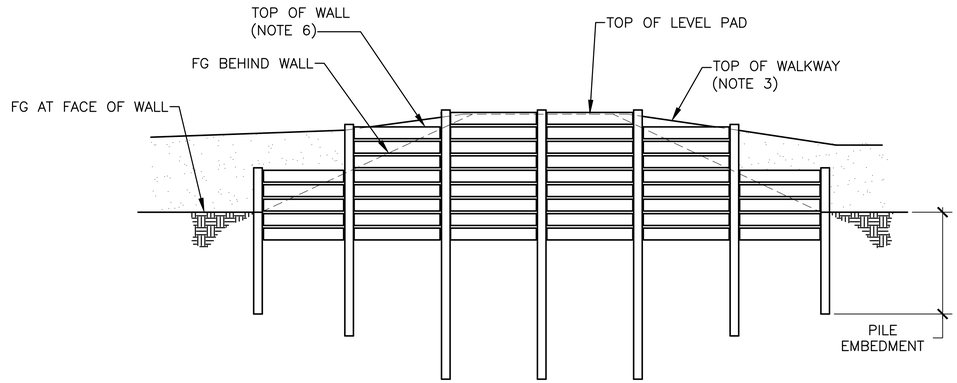
SCALE: AS SHOWN

STANDARD DRAWING NO.: SD-W5250



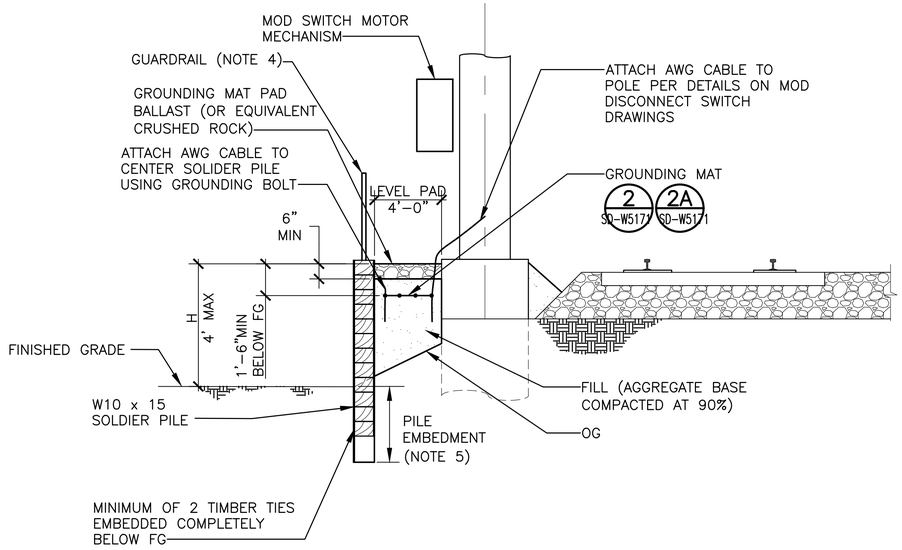
PLAN

NTS



DEVELOPED ELEVATION

GUARDRAIL NOT SHOWN FOR CLARITY
NTS



TYPICAL SECTION

NTS

NOTES:

1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS, SEE DRAWING SD–W0101.
2. ALL MOD SWITCH LOCATIONS SHALL INCLUDE EITHER A BUILT–UP SWITCHING PAD OR A PORTABLE SWITCHING PLATFORM.
3. BUILT–UP SWITCHING PAD WITH WALKWAY SHOWN. PAD WITHOUT WALKWAY SIMILAR. IF NO WALKWAY IS PRESENT, A 1:4 SLOPE MAY BE USED OUTSIDE OF THE LEVEL PAD.
4. A GALVANIZED STEEL PIPE HANDRAIL IS REQUIRED AT ALL LOCATIONS WITH A DROP GREATER THAN 30" ABOVE THE ADJACENT GRADE. THE RAIL SHALL MEET CAL–OSHA LOADING REQUIREMENTS, AND AS APPROVED BY THE ENGINEER.
5. THERE SHALL BE A MINIMUM OF 2 TIMBER TIES EMBEDDED COMPLETELY BELOW THE FG. THE MINIMUM PILE EMBEDMENT SHALL BE 3' OR BASED ON THE FG IN FRONT OF THE WALL AS FOLLOWS, WHICHEVER IS GREATER:
   A) IF FG IN FRONT OF WALL IS LEVEL
      PILE EMBEDMENT = 2(H)
   B) IF FG IN FRONT OF WALL HAS A SLOPE OF 2:1 OR GREATER
      PILE EMBEDMENT = 3(H)
   C) OBTAIN APPROVAL FROM THE ENGINEER IF THE FG HAS A SLOPE GREATER THAN 2:1
6. WALL HEIGHT CAN BE REDUCED AT LOCATIONS WHERE THE FILL BEHIND THE WALL IS BELOW THE TOP TIE.
7. CONTRACTOR SHALL CONFIRM MINIMUM GROUND RESISTANCE OF 5 OHMS FOLLOWING MOTOR OPERATED DISCONNECT SWITCH GROUND MAT TEST PROCEDURE.

REV	DATE	BY	CHK	APP	DESCRIPTION
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PENINSULA CORRIDOR JOINT POWERS BOARD

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Bin Zhang

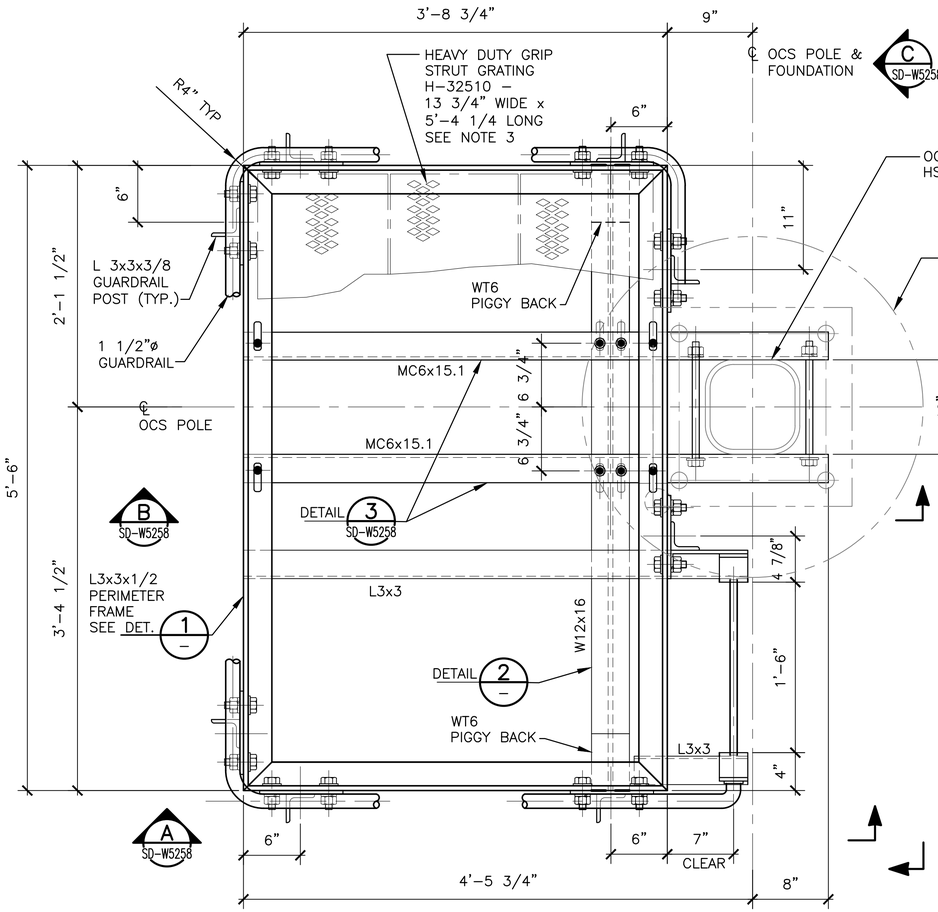
DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

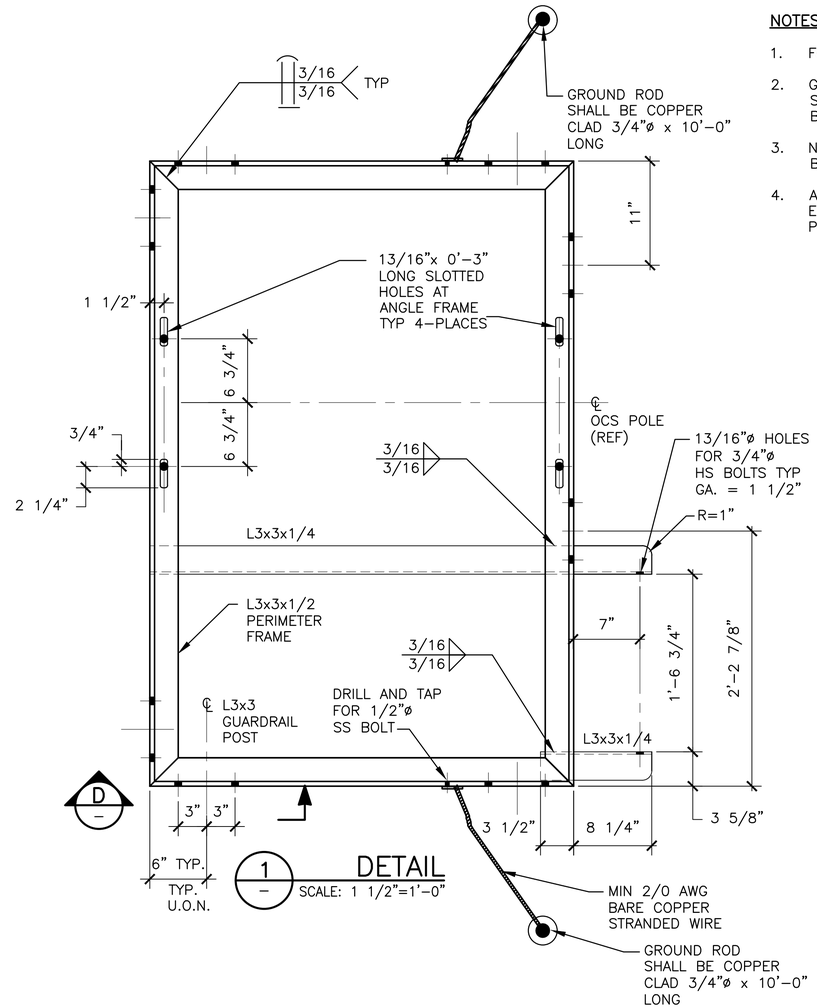
OVERHEAD CONTACT SYSTEM
OCS POLES

MOD DISCONNECT SWITCH
BUILT–UP SWITCHING PAD

CADD FILE NAME: SD–W5254D
REV:
EDITION: SECOND
SCALE: NTS
STANDARD DRAWING NO.: SD–W5254D



℄ TRACK

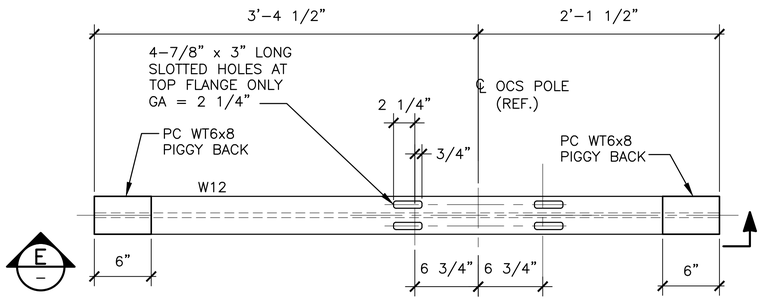


NOTES:

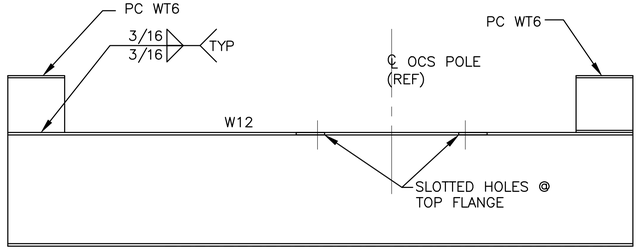
1. FOR GENERAL NOTES SEE DRAWING SD-W0101.
2. GUARDRAIL AND LADDER STRINGER EDGES SHALL BE GRIND SMOOTH AND FREE OF BURRS AND SHARP EDGES.
3. NOTCH FLOOR GRATING AT UNDERSIDE FOR BOLT TO CLEAR.
4. ALL MOD SWITCH LOCATIONS SHALL INCLUDE EITHER A BUILT-UP SWITCHING PAD OR A PORTABLE SWITCHING PLATFORM.

SWITCHING PLATFORM PLAN

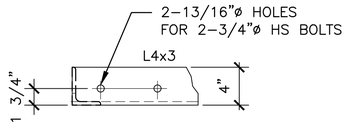
SCALE: 1 1/2"=1'-0"



2 – DETAIL
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
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
MOD DISCONNECT SWITCH
PORTABLE SWITCHING PLATFORM
SHEET 1 OF 2

CADD FILE NAME: SD-W5257

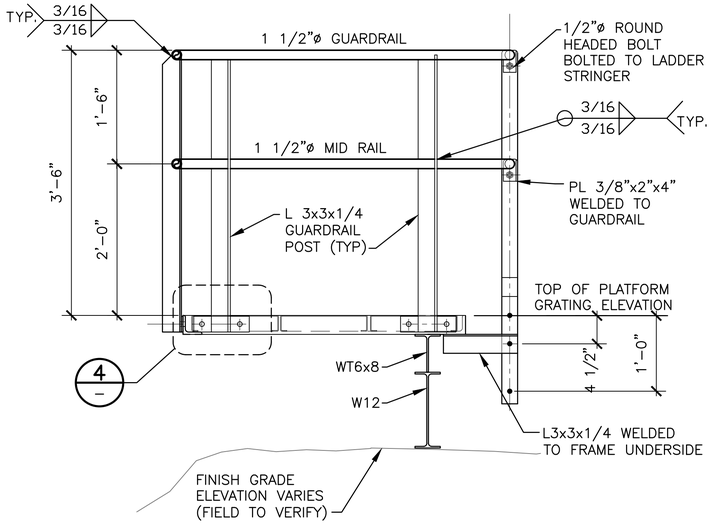
REV: | EDITION: SECOND

SCALE: AS SHOWN

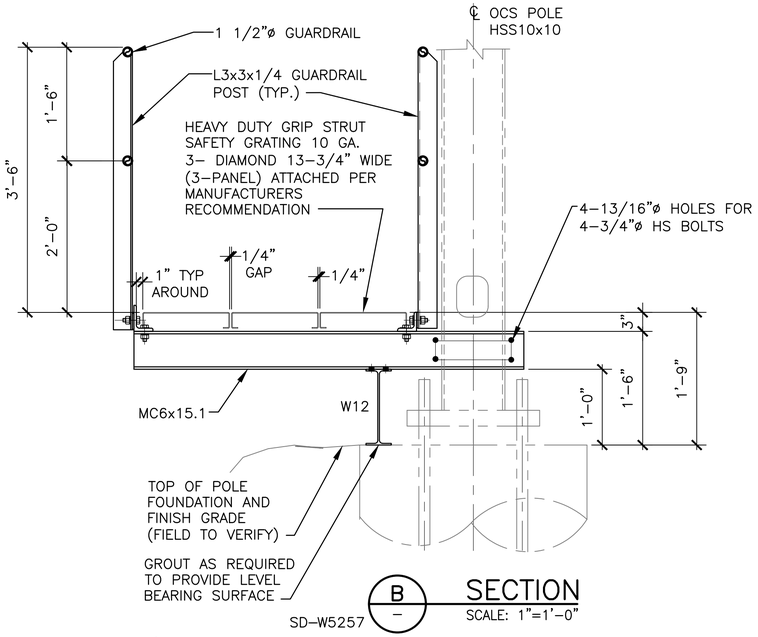
STANDARD DRAWING NO.: SD-W5257

NOTE:

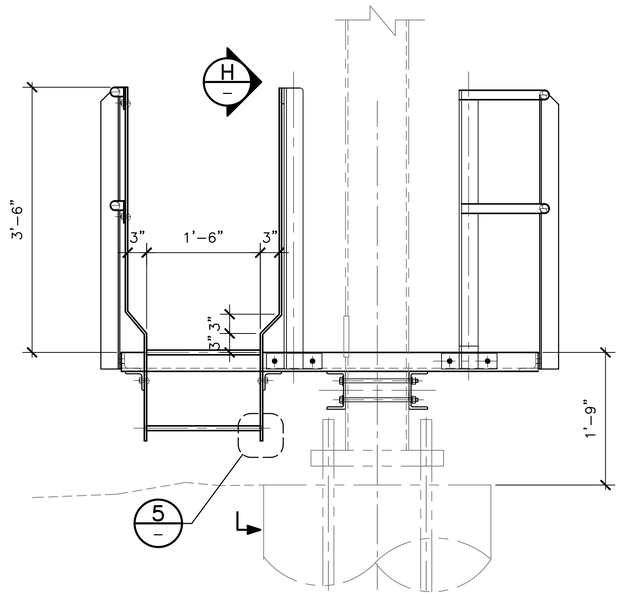
1. FOR NOTES SEE DRAWING SD–W5257.



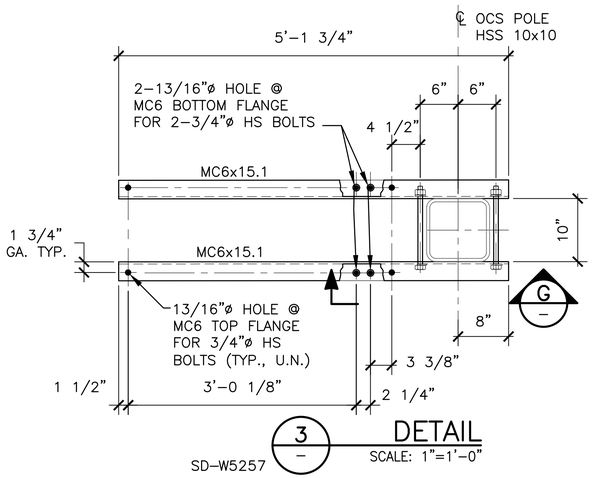
A – SECTION
SD–W5257 SCALE: 1"=1'–0"



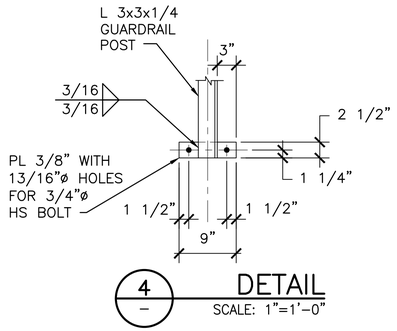
B – SECTION
SD–W5257 SCALE: 1"=1'–0"



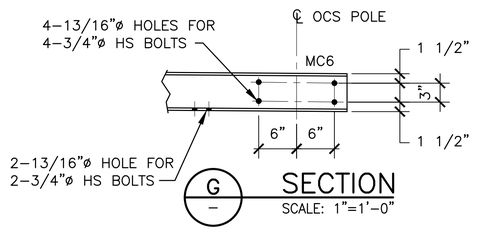
C – SECTION
SD–W5257 SCALE: 1"=1'–0"



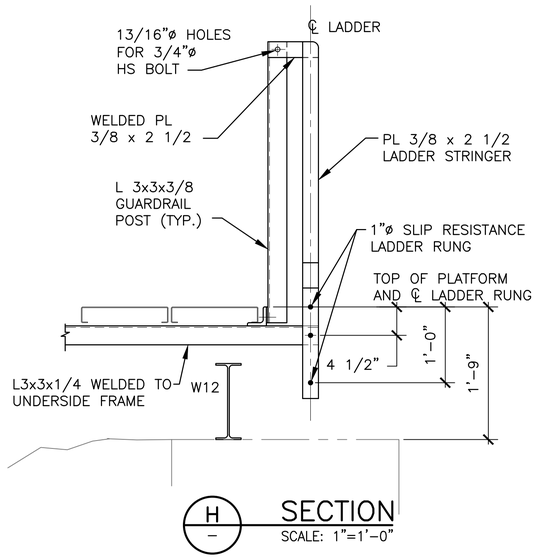
3 – DETAIL
SD–W5257 SCALE: 1"=1'–0"



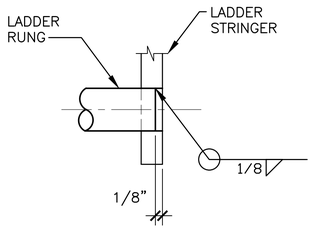
4 – DETAIL
SCALE: 1"=1'–0"



G – SECTION
SCALE: 1"=1'–0"



H – SECTION
SCALE: 1"=1'–0"



5 – DETAIL
SCALE: N.T.S.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

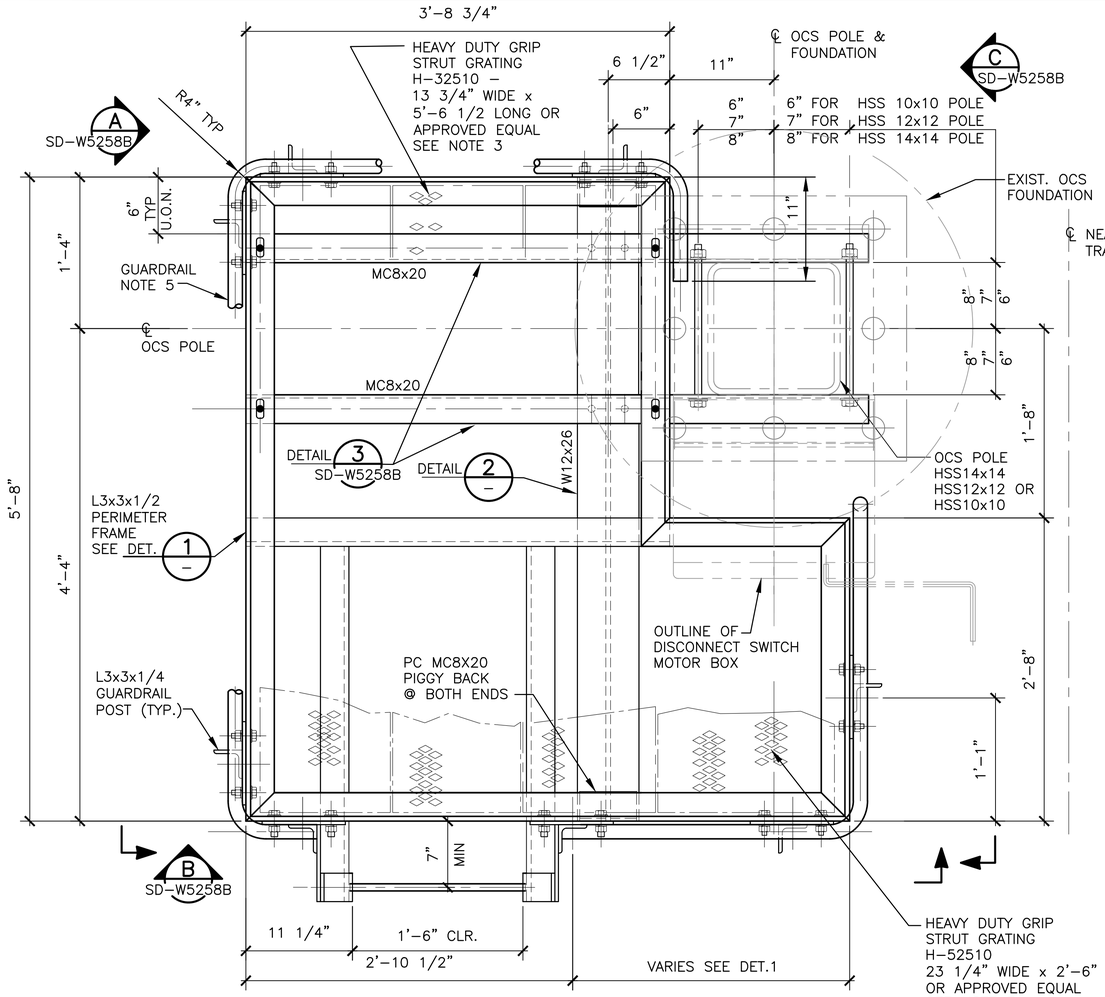
PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
MOD DISCONNECT SWITCH
PORTABLE SWITCHING PLATFORM
SHEET 2 OF 2

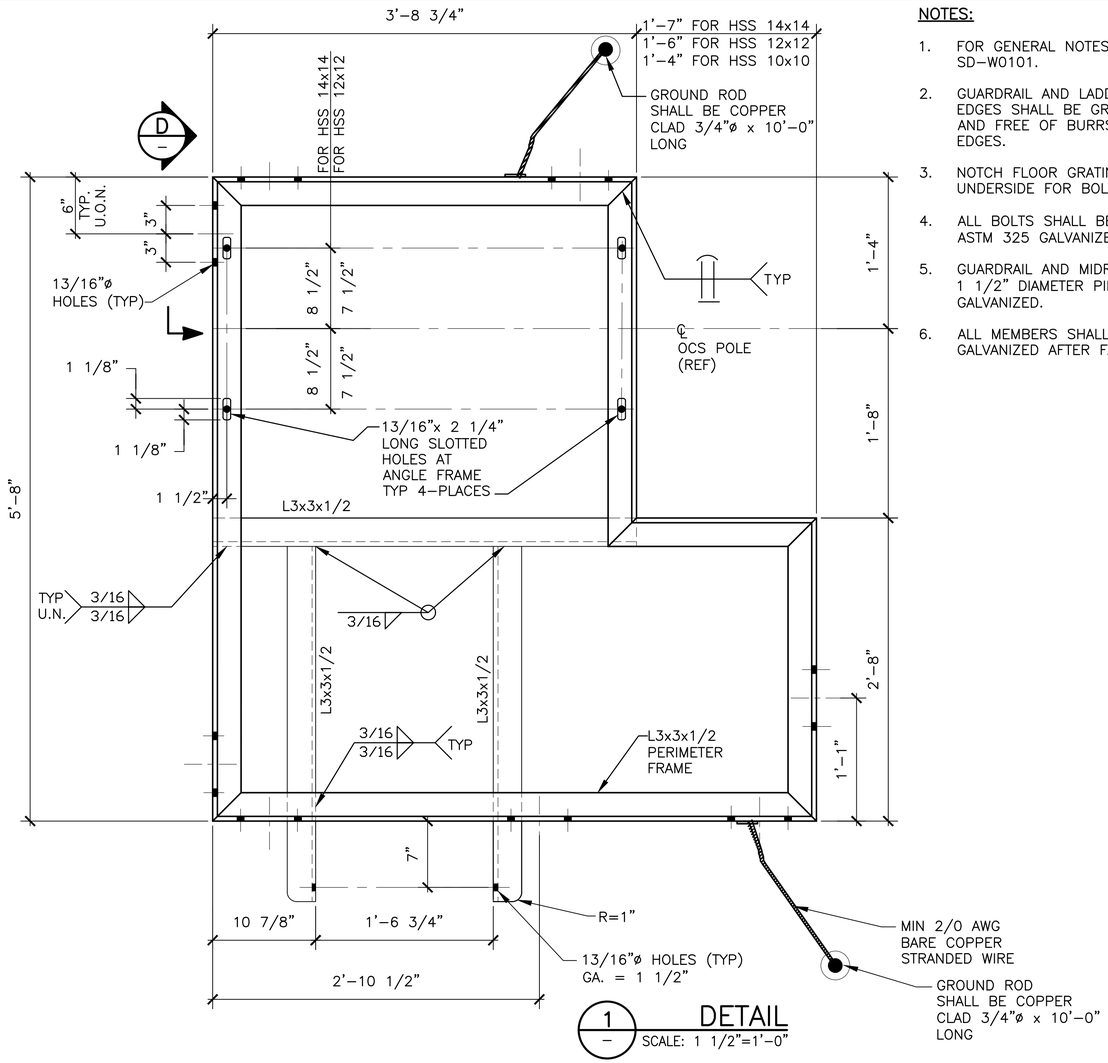
CADD FILE NAME: SD–W5258
REV: EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5258



SWITCHING PLATFORM PLAN

FOR HSS 12x12, HSS 14x14, AND HSS 10x10 POLES

SCALE: 1 1/2"=1'–0"

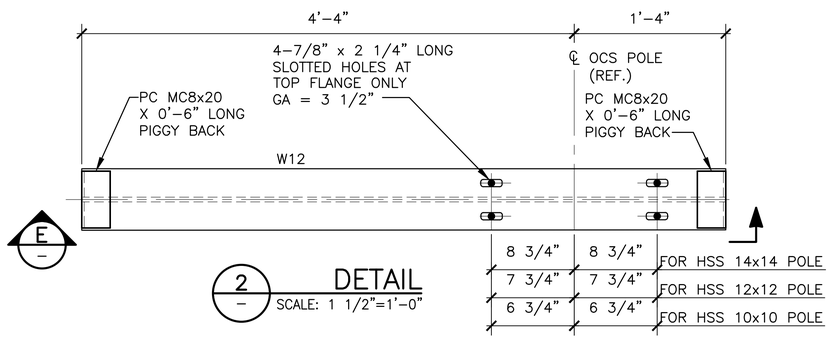


1 – DETAIL

SCALE: 1 1/2"=1'–0"

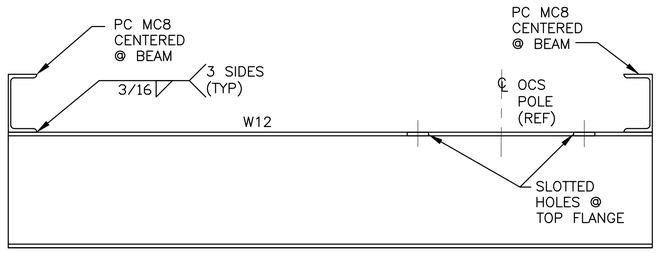
NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. GUARDRAIL AND LADDER STRINGER EDGES SHALL BE GRIND SMOOTH AND FREE OF BURRS AND SHARP EDGES.
3. NOTCH FLOOR GRATING AT UNDERSIDE FOR BOLT TO CLEAR.
4. ALL BOLTS SHALL BE 3/4"ø, ASTM 325 GALVANIZED.
5. GUARDRAIL AND MIDRAIL SHALL BE 1 1/2" DIAMETER PIPE, HOT DIP GALVANIZED.
6. ALL MEMBERS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.



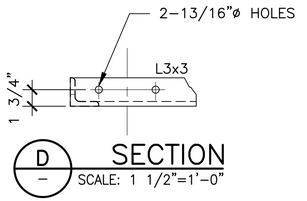
2 – DETAIL

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
	010126				SECOND EDITION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

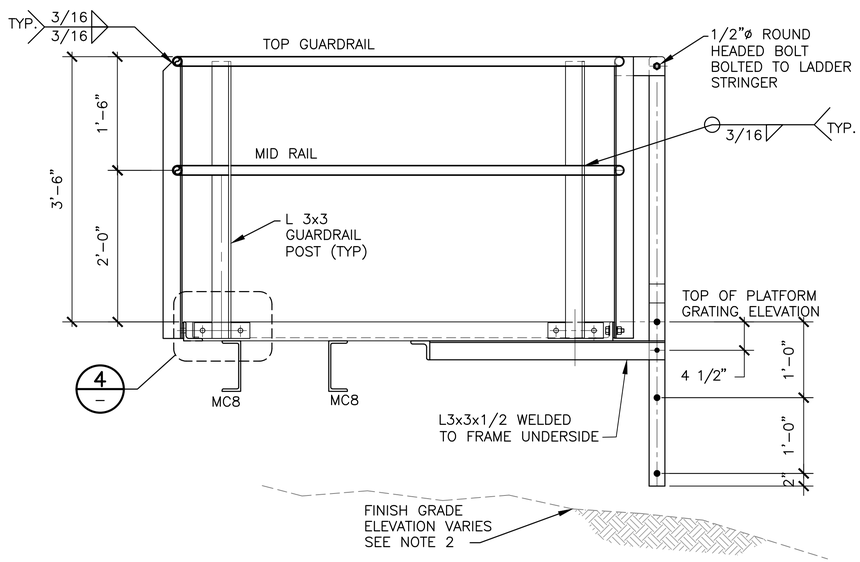
OVERHEAD CONTACT SYSTEM
OCS POLES
MOD FOR HSS POLES
PORTABLE SWITCHING PLATFORM
NORTH FACE OF POLE (SHEET 1 OF 2)

CADD FILE NAME: SD–W5258A

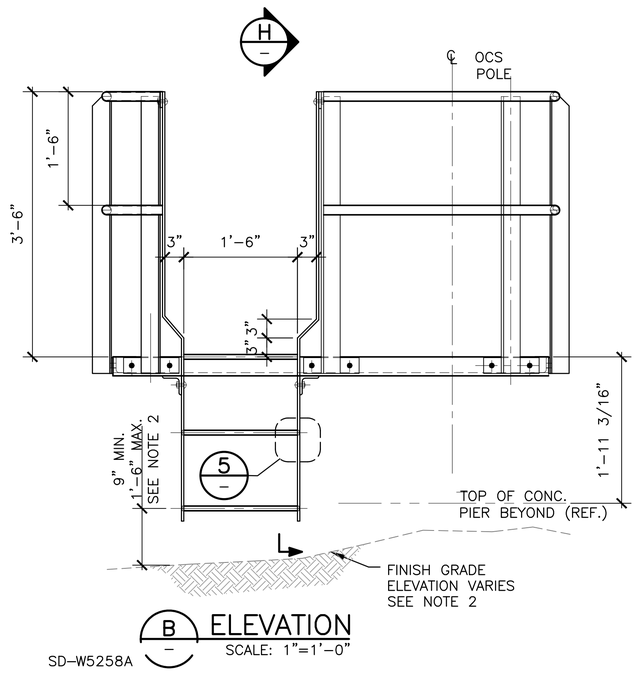
REV: | EDITION: SECOND

SCALE: AS SHOWN

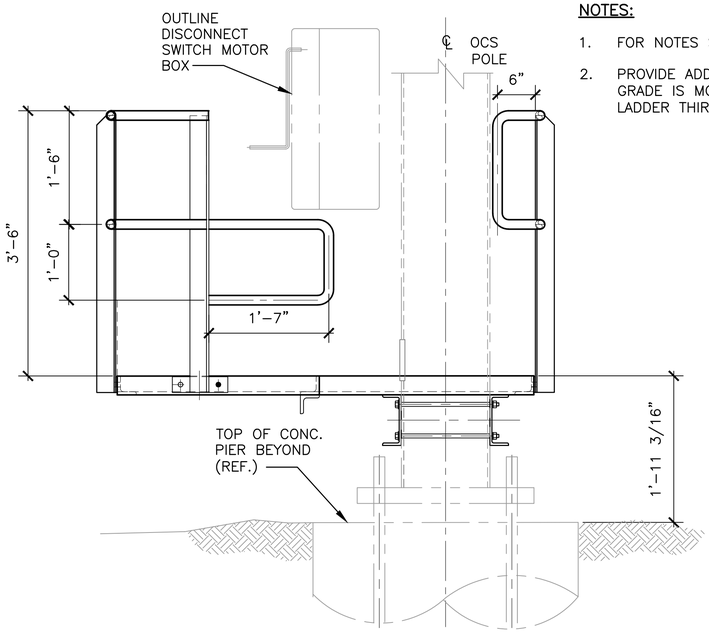
STANDARD DRAWING NO.: SD–W5258A



A ELEVATION
SD-W5258A SCALE: 1"=1'-0"



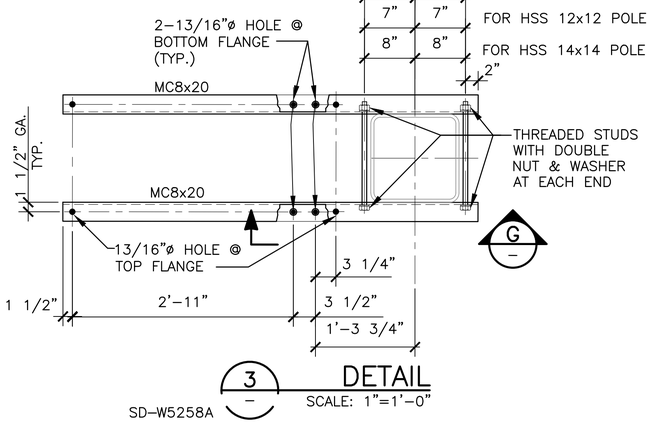
B ELEVATION
SD-W5258A SCALE: 1"=1'-0"



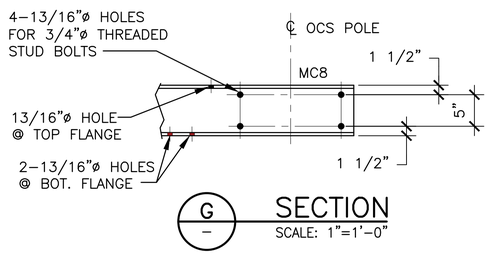
C ELEVATION
SD-W5258A SCALE: 1"=1'-0"

NOTES:

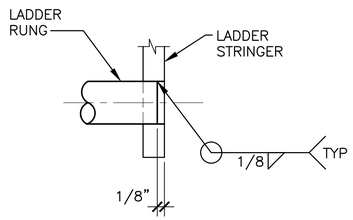
1. FOR NOTES SEE DRAWING SD-W5257.
2. PROVIDE ADDITIONAL RUNG IF FINISH GRADE IS MORE THAN 2'-6" BELOW LADDER THIRD RUNG.



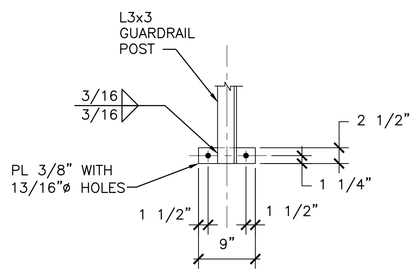
3 DETAIL
SD-W5258A SCALE: 1"=1'-0"



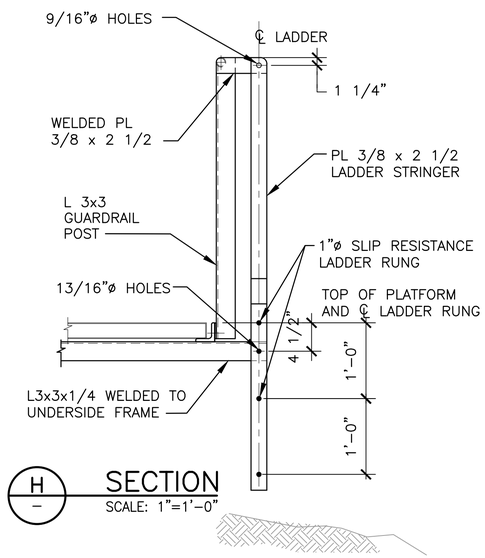
G SECTION
SCALE: 1"=1'-0"



5 DETAIL
SCALE: N.T.S.



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



H SECTION
SCALE: 1"=1'-0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

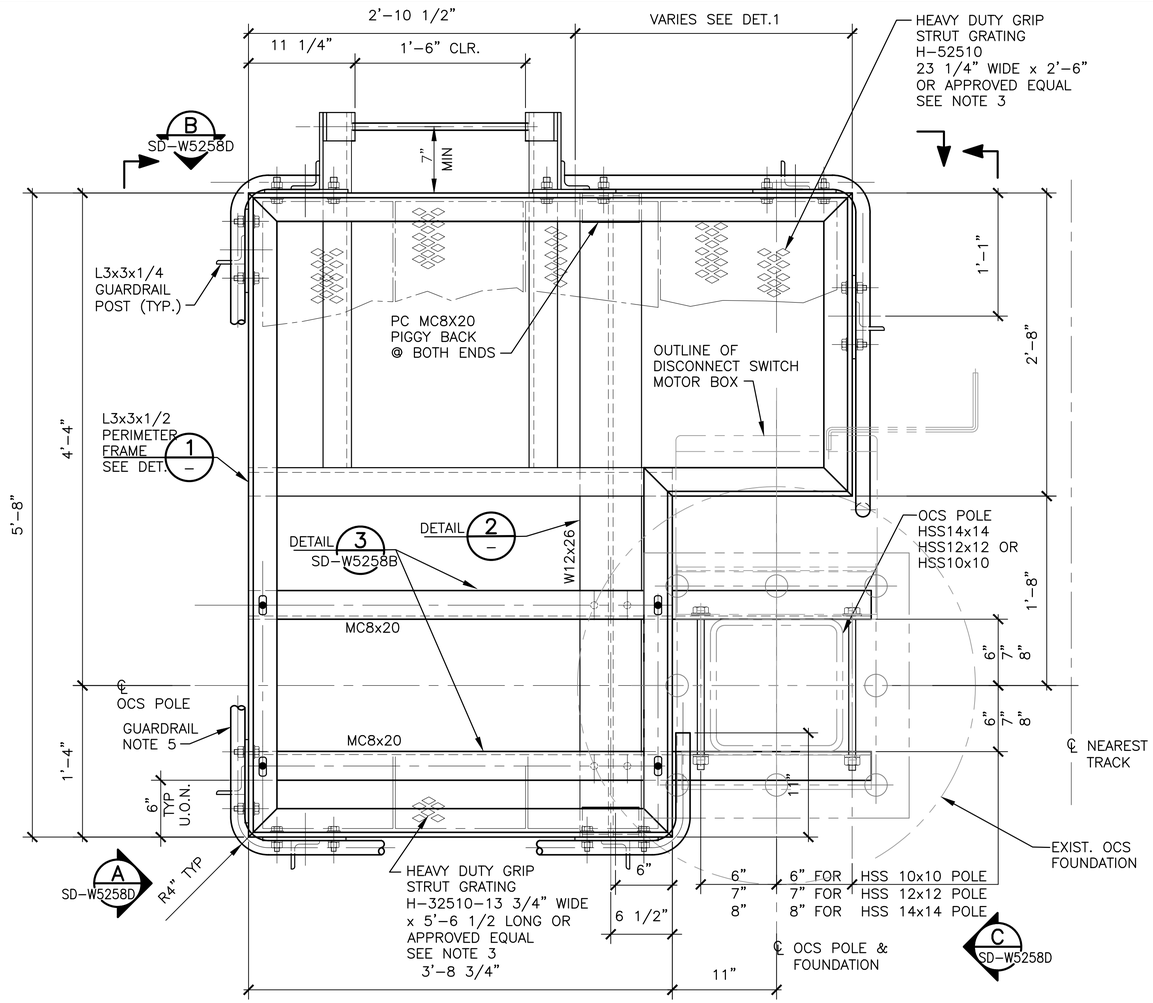
APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
MOD FOR HSS POLES
PORTABLE SWITCHING PLATFORM
NORTH FACE OF POLE (SHEET 2 OF 2)

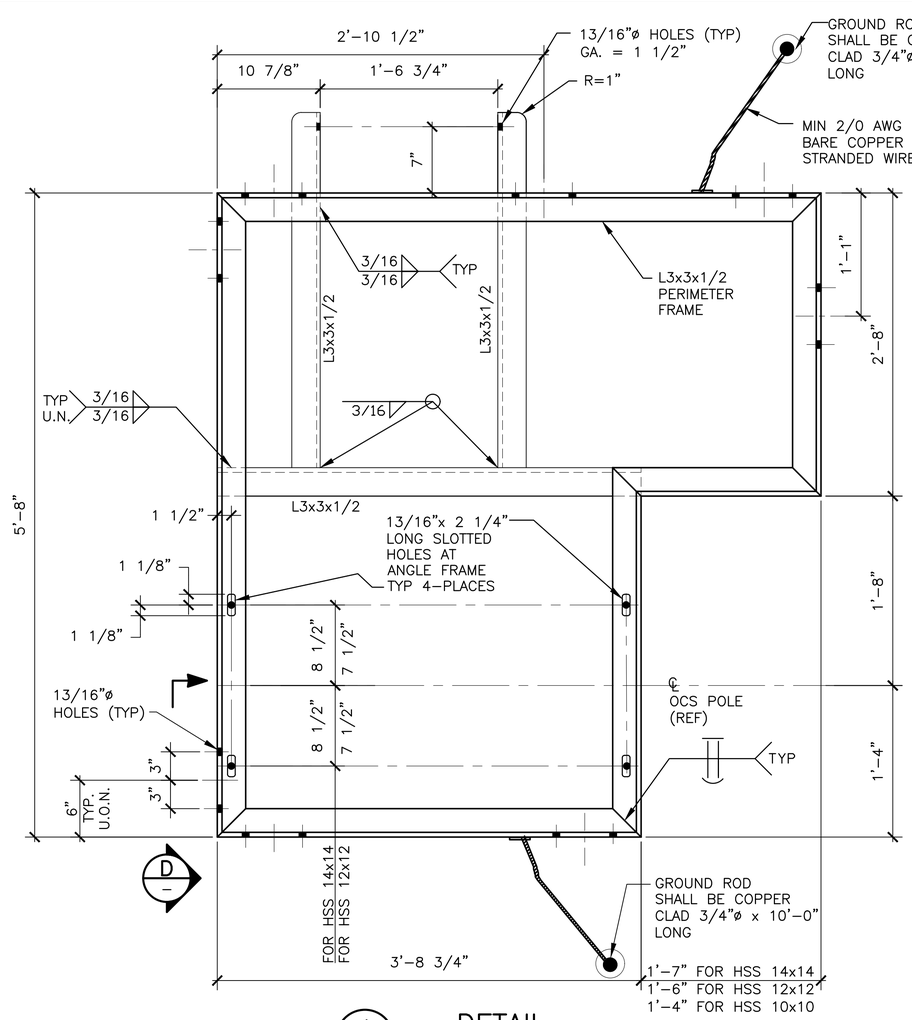
CADD FILE NAME: SD-W5258B
REV: EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD-W5258B



SWITCHING PLATFORM PLAN

FOR HSS 12x12, HSS 14x14, AND HSS 10x10 POLES

SCALE: 1 1/2"=1'–0"

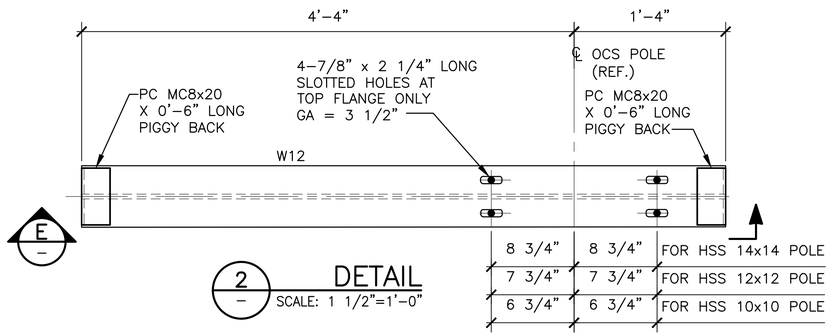


NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. GUARDRAIL AND LADDER STRINGER EDGES SHALL BE GRIND SMOOTH AND FREE OF BURRS AND SHARP EDGES.
3. NOTCH FLOOR GRATING AT UNDERSIDE FOR BOLT TO CLEAR.
4. ALL BOLTS SHALL BE 3/4"ø, ASTM 325 GALVANIZED.
5. GUARDRAIL AND MIDRAIL SHALL BE 1 1/2" DIAMETER PIPE, HOT DIP GALVANIZED.
6. ALL MEMBERS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.

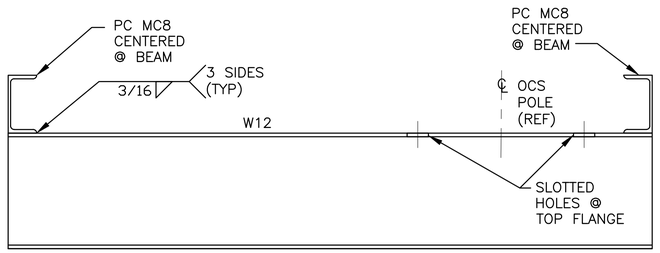
1 DETAIL

SCALE: 1 1/2"=1'–0"



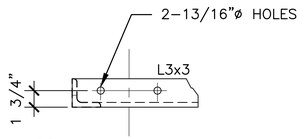
2 DETAIL

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
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

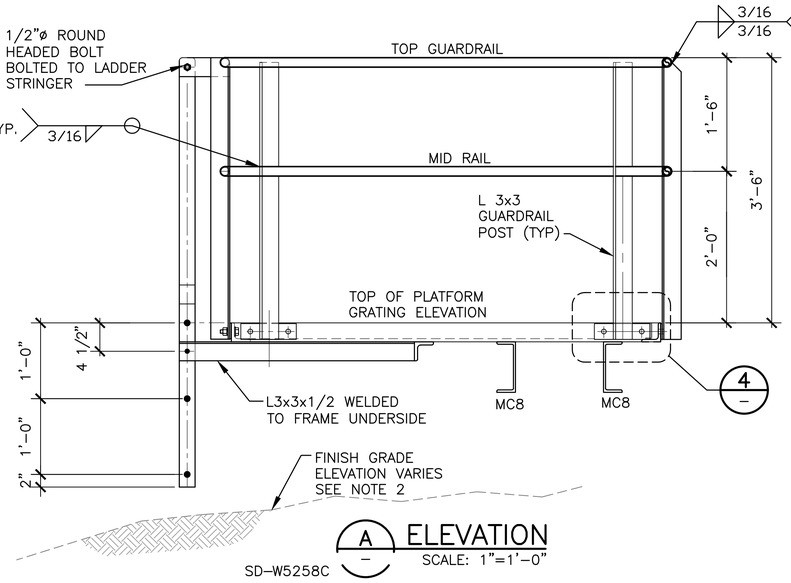
DIRECTOR, ENGINEERING

Caltrain

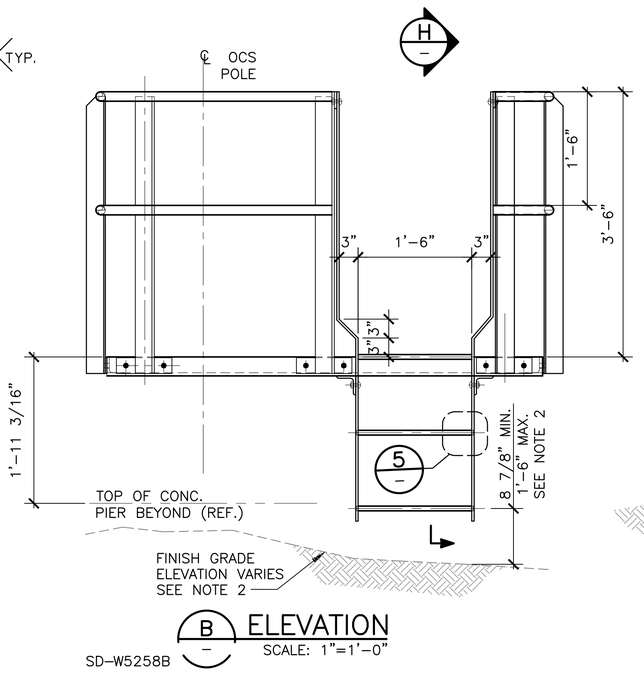
ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
MOD FOR HSS POLES
PORTABLE SWITCHING PLATFORM
SOUTH FACE OF POLE (SHEET 1 OF 2)

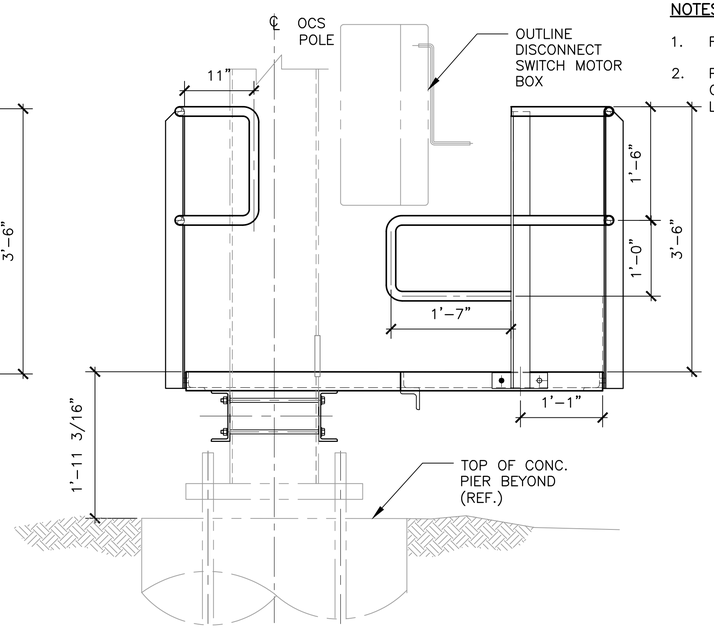
CADD FILE NAME:	SD–W5258C
REV:	EDITION: SECOND
SCALE:	AS SHOWN
STANDARD DRAWING NO.:	SD–W5258C



A — ELEVATION
SCALE: 1"=1'-0"
SD-W5258C



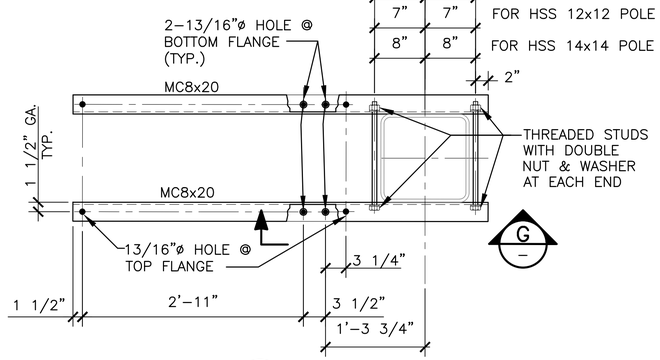
B — ELEVATION
SCALE: 1"=1'-0"
SD-W5258B



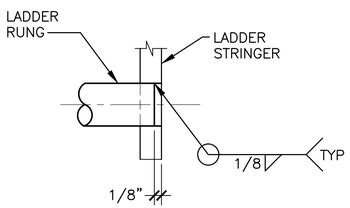
C — SCALE: 1"=1'-0"
SD-W5258C

NOTES:

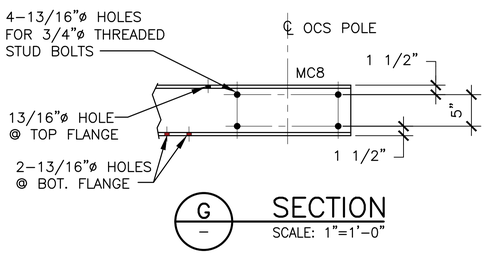
1. FOR NOTES SEE DRAWING SD-W5257.
2. PROVIDE ADDITIONAL RUNG IF FINISH GRADE IS MORE THAN 2'-6" BELOW LADDER THIRD RUNG.



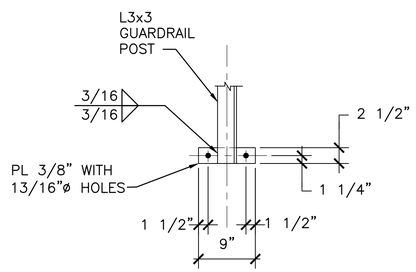
3 — DETAIL
SD-W5258D SCALE: 1"=1'-0"
SD-W5258C



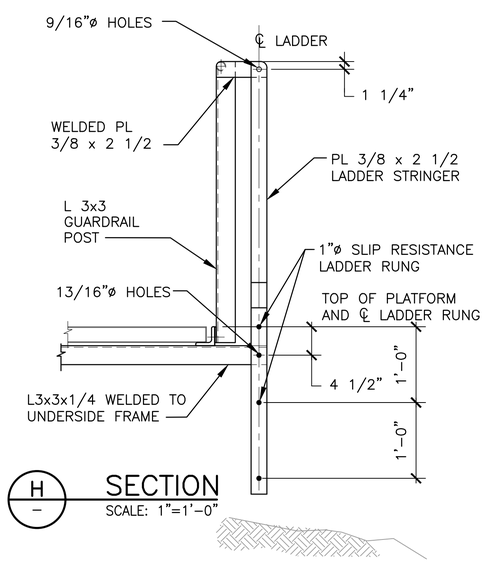
5 — DETAIL
SCALE: N.T.S.



G — SECTION
SCALE: 1"=1'-0"



4 — DETAIL
SCALE: 1"=1'-0"



H — SECTION
SCALE: 1"=1'-0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

Caltrain

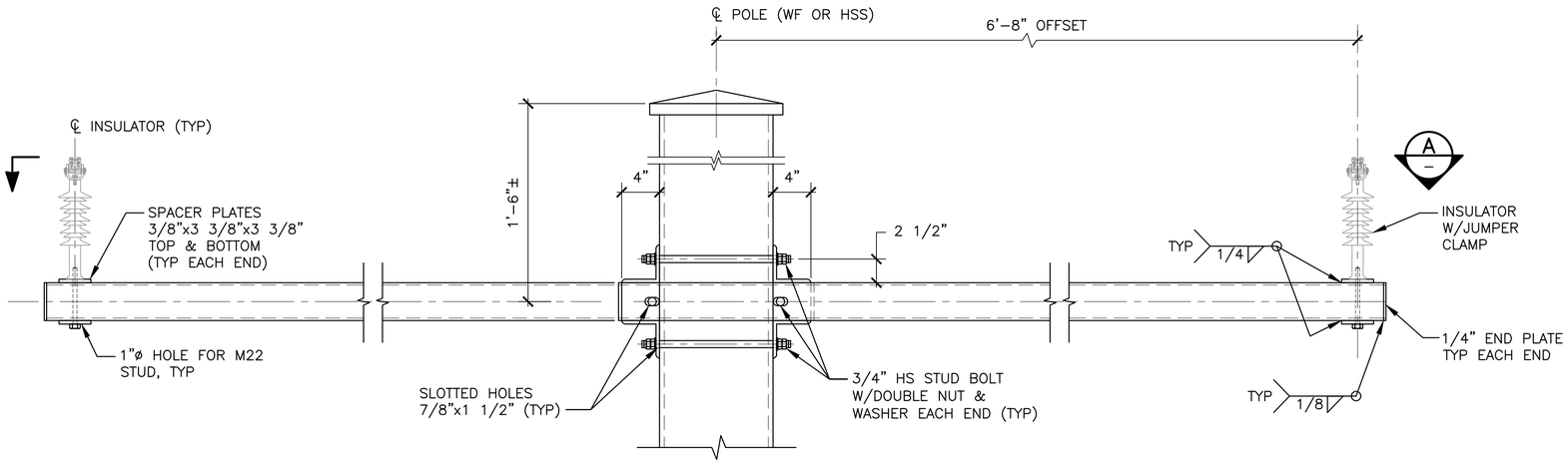
ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
MOD FOR HSS POLES
PORTABLE SWITCHING PLATFORM
SOUTH FACE OF POLE (SHEET 2 OF 2)

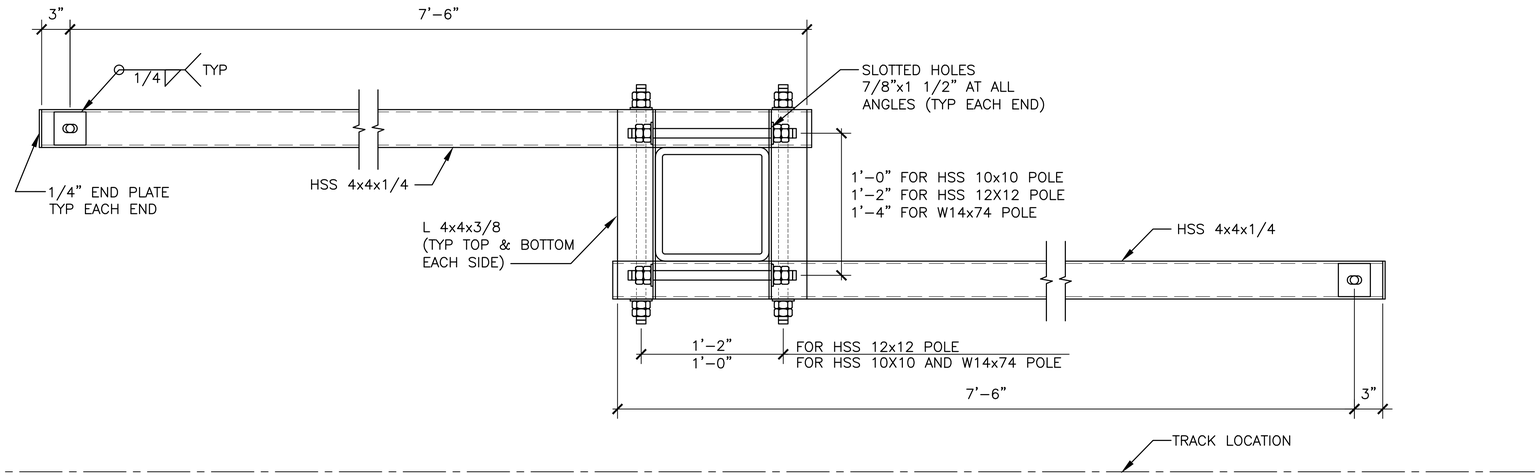
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REV: EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD-W5258D

NOTES:

1. FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS SEE DRAWING SD–W0101.
2. ALL HOLES IN MAST, BEAMS AND MISCELLANEOUS STEEL SHALL BE PRE–DRILLED IN SHOP PRIOR TO GALVANIZING.
3. SEE MATERIAL ALLOCATION DRAWINGS FOR MOD LOCATIONS AND SWITCH FABRICATOR SHOP DRAWINGS FOR SWITCH DIMENSIONS, SUPPORTS AND OTHER APPURTENANCES AS REQUIRED FOR EQUIPMENT INSTALLATION. SEE BASIC DESIGN ASSEMBLY DRAWINGS FOR ASSEMBLY INFORMATION NOT SHOWN.
4. FOR STRUCTURE INFORMATION NOT SHOWN SEE POLE DETAIL DRAWINGS AND MOD DISCONNECT SWITCH DETAIL DRAWINGS.



ELEVATION
SCALE: 1 1/2"=1'–0"



A – SECTION
SCALE: 1 1/2"=1'–0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

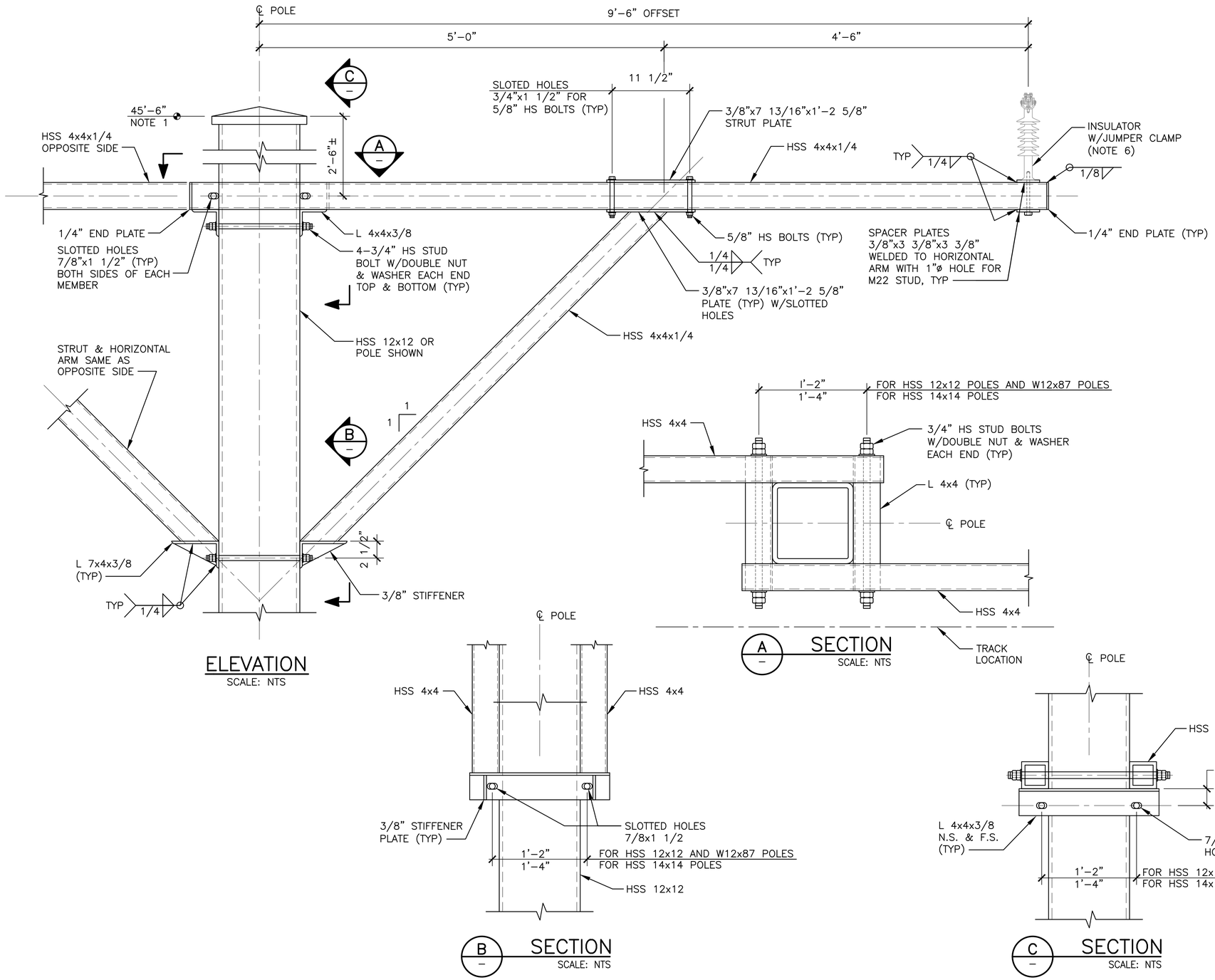
PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
MOD JUMPERS
MOUNTING DETAILS ON POLE
6'–8" OFFSET

CADD FILE NAME: SD–W5258E
REV:
EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5258E



NOTES:

1. FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS SEE DRAWING SD–W0101.
2. ALL HOLES IN MAST, BEAMS AND MISCELLANEOUS STEEL SHALL BE PRE–DRILLED IN SHOP PRIOR TO GALVANIZING.
3. SEE MATERIAL ALLOCATION DRAWINGS FOR MOD LOCATIONS AND SWITCH FABRICATOR SHOP DRAWINGS FOR SWITCH DIMENSIONS, SUPPORTS AND OTHER APPURTENANCES AS REQUIRED FOR EQUIPMENT INSTALLATION. SEE BASIC DESIGN ASSEMBLY DRAWINGS FOR ASSEMBLY INFORMATION NOT SHOWN.
4. FOR STRUCTURE INFORMATION NOT SHOWN SEE POLE DETAIL DRAWINGS AND MOD DISCONNECT SWITCH DETAIL DRAWINGS.
5. BRACKET WITH KNEE BRACES APPLIES TO POLES WITH HEIGHTS OF 40'–0" OR HIGHER TO CLEAR OTHER APPURTENANCES. NOTIFY ENGINEER IF BRACKET IS REQUIRED FOR POLES UNDER THIS HEIGHT.
6. WIRE TENSIONS ON INSULATORS SHALL BE EQUAL ON BOTH ENDS OF THE INSULATOR SUPPORT ARMS.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

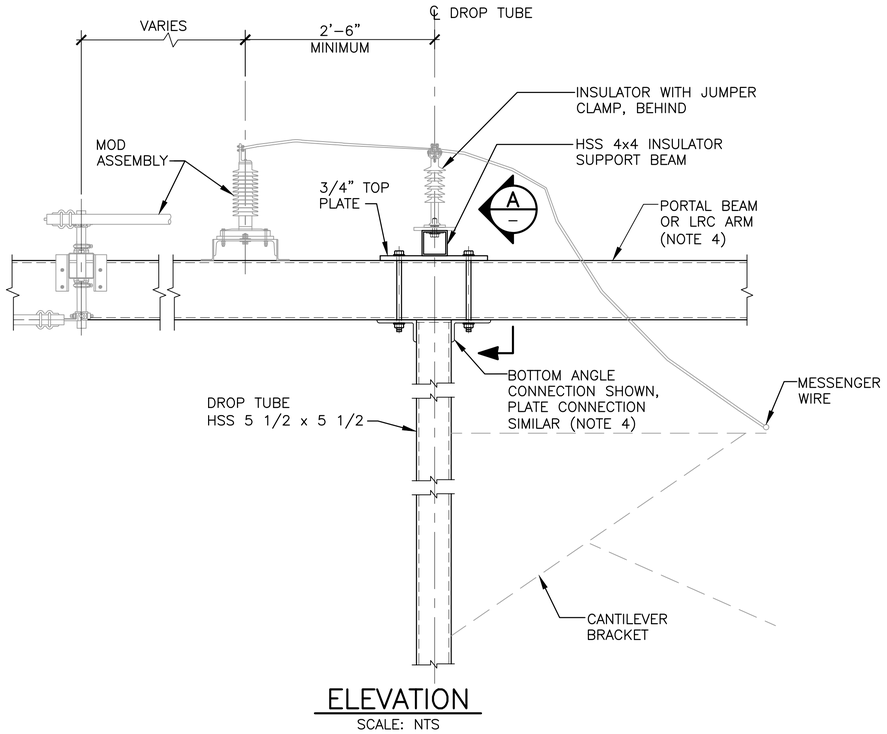
Bin Zhang

DIRECTOR, ENGINEERING

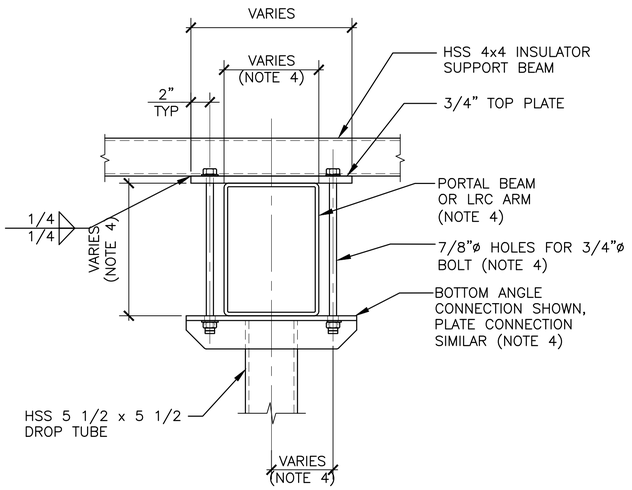
ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES
MOD JUMPERS
MOUNTING DETAILS ON POLE
9'–6" OFFSET

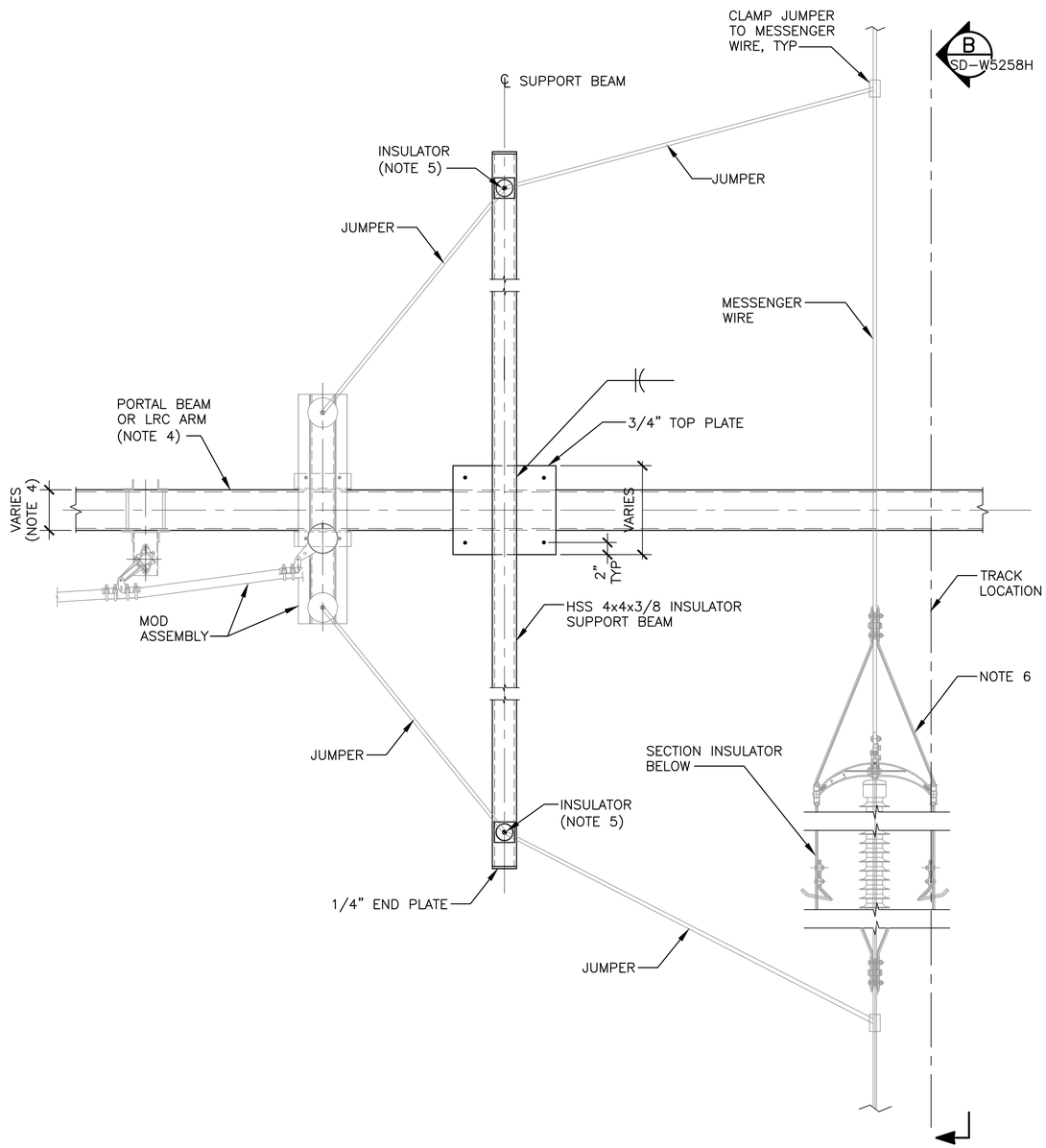
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REV:
EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5258F



ELEVATION
SCALE: NTS



A — SECTION
SCALE: NTS



PLAN
SCALE: NTS

NOTES:

1. FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS SEE DRAWING SD-W0101.
2. ALL HOLES IN MAST, BEAMS AND MISCELLANEOUS STEEL SHALL BE PRE-DRILLED IN SHOP PRIOR TO GALVANIZING.
3. SEE MATERIAL ALLOCATION DRAWINGS FOR MOD LOCATIONS AND SWITCH FABRICATOR SHOP DRAWINGS FOR SWITCH DIMENSIONS, SUPPORTS AND OTHER APPURTENANCES AS REQUIRED FOR EQUIPMENT INSTALLATION. SEE BASIC DESIGN ASSEMBLY DRAWINGS FOR ASSEMBLY INFORMATION NOT SHOWN.
4. FOR STRUCTURE INFORMATION NOT SHOWN SEE POLE DETAIL DRAWINGS AND MOD DISCONNECT SWITCH DETAIL DRAWINGS.
5. WIRE TENSIONS ON INSULATORS SHALL BE EQUAL ON BOTH ENDS OF THE INSULATOR SUPPORT BEAM.
6. SECTION INSULATOR TYPE IS SHOWN ONLY INFORMATION PURPOSES.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

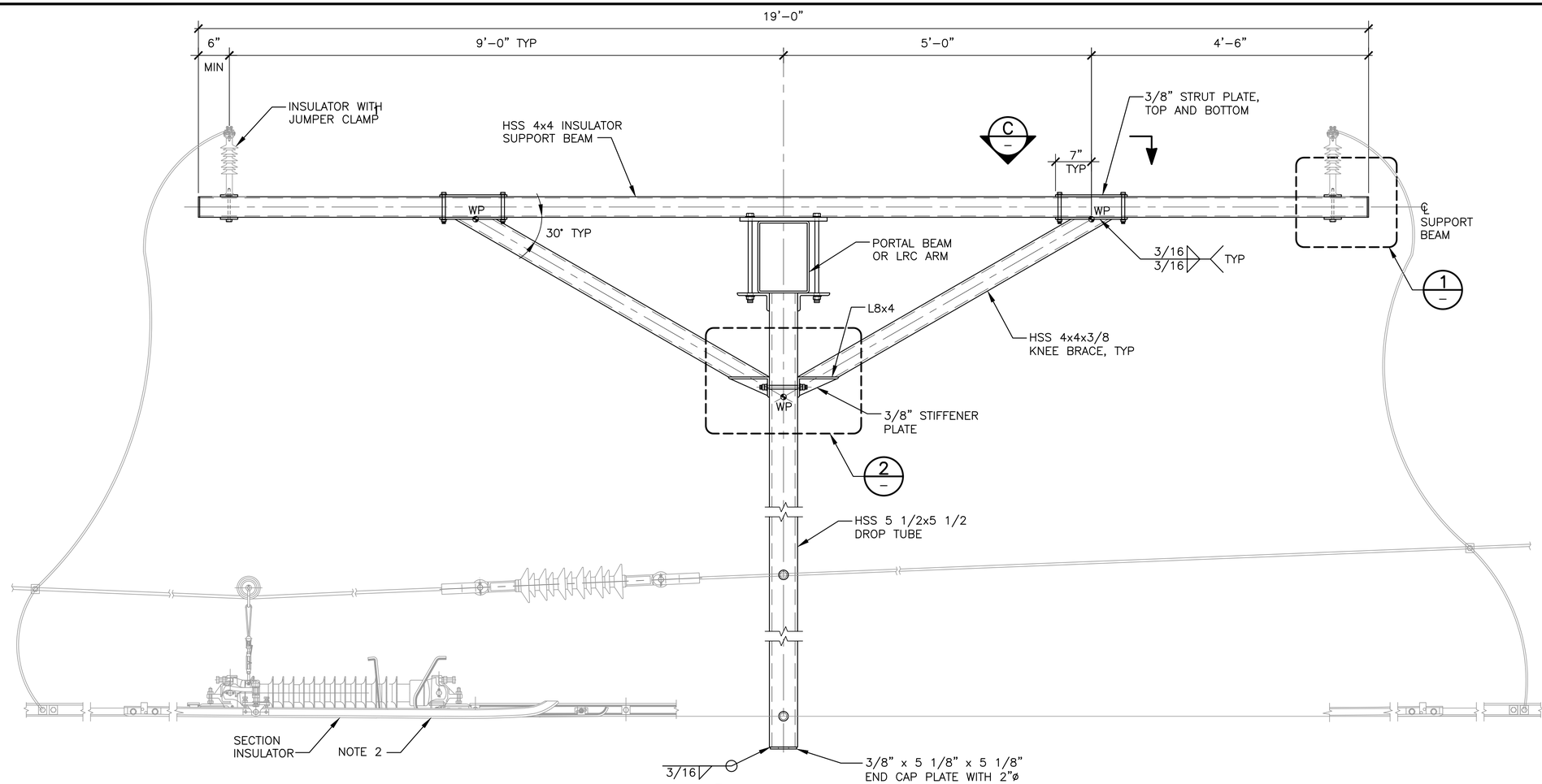
APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

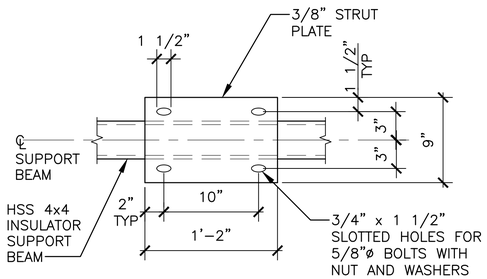
OVERHEAD CONTACT SYSTEM
OCS POLES OR PORTALS
MOD JUMPERS
MOUNTING DETAILS ON BEAM OR ARM
SHEET 1 OF 2

CADD FILE NAME:	SD-W5258G
REV:	EDITION: SECOND
SCALE:	NTS
STANDARD DRAWING NO.:	SD-W5258G

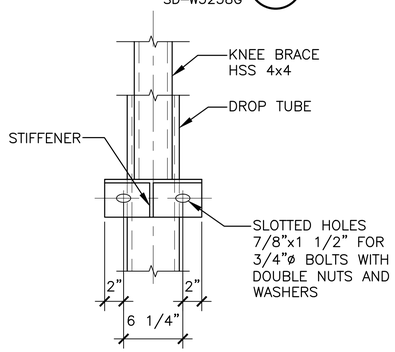


B — SECTION
SCALE: NTS

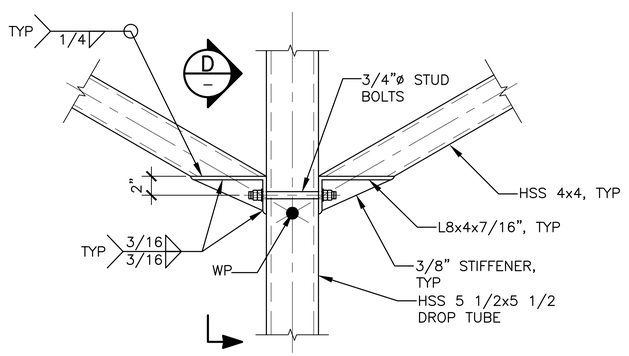
SD-W5258G



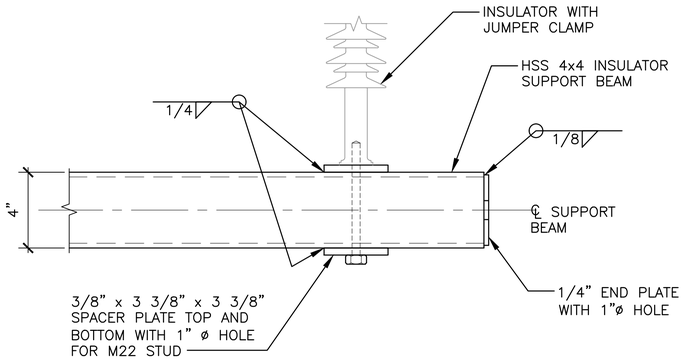
C — SECTION
SCALE: NTS



D — SECTION
SCALE: NTS



2 — DETAIL
SCALE: NTS



1 — DETAIL
SCALE: NTS

NOTE:

1. FOR SHEET NOTES SEE DRAWING SD-W5258G.
2. SECTION INSULATOR TYPE IS SHOWN ONLY FOR INFORMATION PURPOSE.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES OR PORTALS
MOD JUMPERS
MOUNTING DETAILS ON BEAM OR ARM
SHEET 2 OF 2

CADD FILE NAME: SD-W5258H

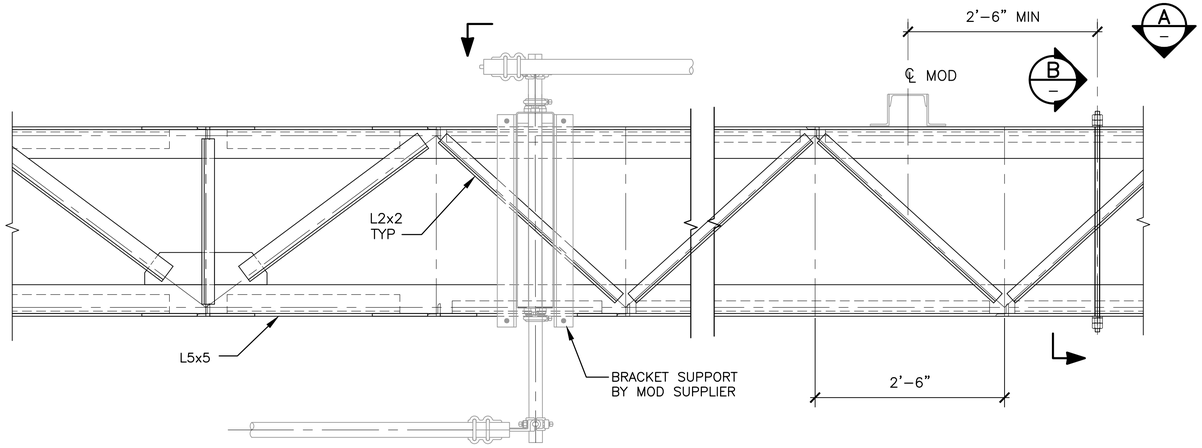
REV: | EDITION: SECOND

SCALE: AS SHOWN

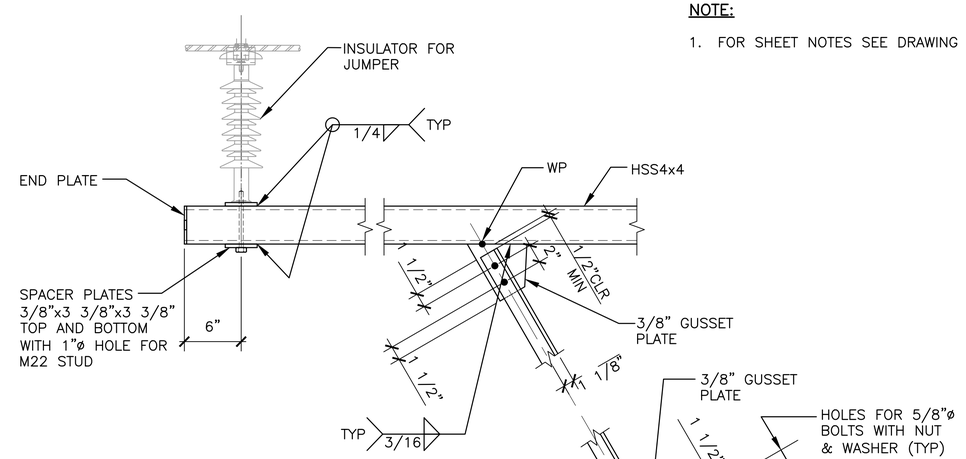
STANDARD DRAWING NO.: SD-W5258H

NOTE:

1. FOR SHEET NOTES SEE DRAWING SD–W5258G.

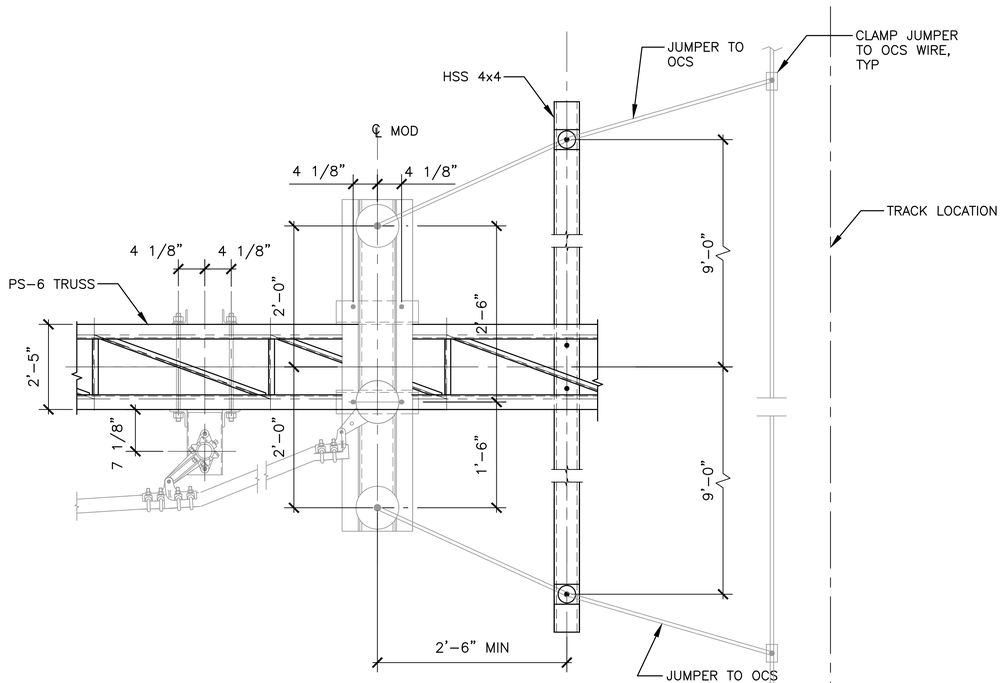


ELEVATION
SCALE: 1"=1'–0"

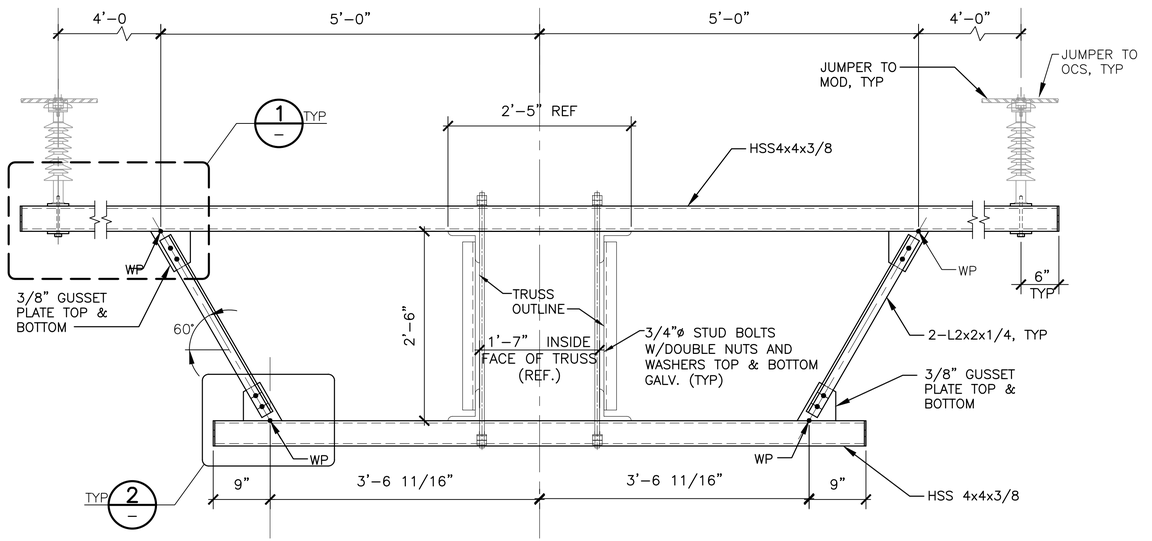


1 — DETAIL
SCALE: 1 1/2"=1'–0"

2 — DETAIL
SCALE: 1 1/2"=1'–0"



A — SECTION
SCALE: 1"=1'–0"



B — SECTION
SCALE: 1"=1'–0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTALS

MOD JUMPERS
MOUNTING DETAILS ON PS–6

CADD FILE NAME: SD–W5258 I

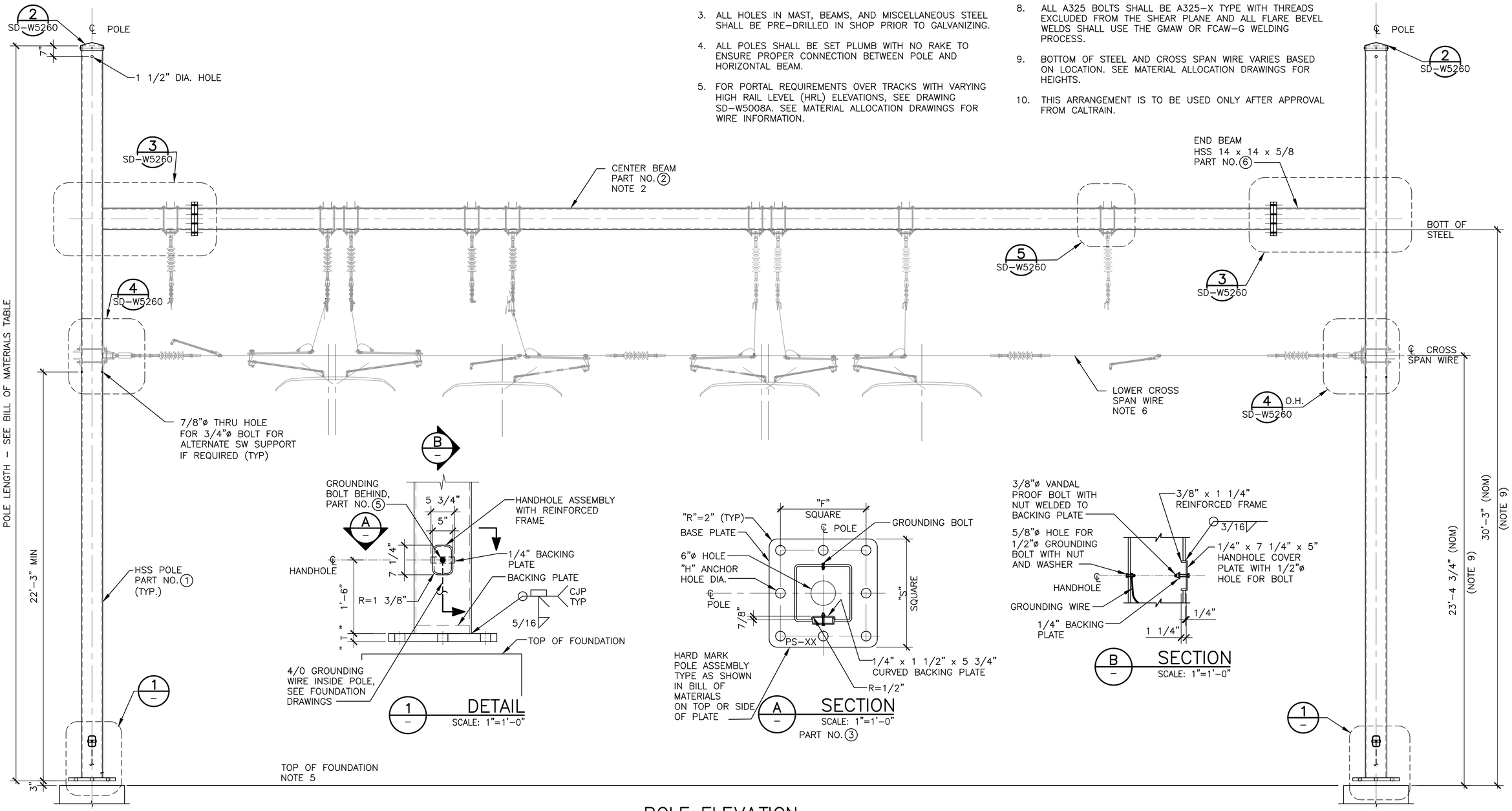
REV: | EDITION: SECOND

SCALE: AS SHOWN

STANDARD DRAWING NO.: SD–W5258I

NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. HORIZONTAL BEAM LENGTH WILL BE DETERMINED IN FIELD AT EACH LOCATION PRIOR TO FABRICATION, TOTAL SPAN SHALL NOT EXCEED 110 FEET.
3. ALL HOLES IN MAST, BEAMS, AND MISCELLANEOUS STEEL SHALL BE PRE–DRILLED IN SHOP PRIOR TO GALVANIZING.
4. ALL POLES SHALL BE SET PLUMB WITH NO RAKE TO ENSURE PROPER CONNECTION BETWEEN POLE AND HORIZONTAL BEAM.
5. FOR PORTAL REQUIREMENTS OVER TRACKS WITH VARYING HIGH RAIL LEVEL (HRL) ELEVATIONS, SEE DRAWING SD–W5008A. SEE MATERIAL ALLOCATION DRAWINGS FOR WIRE INFORMATION.
6. LOWER CROSS SPAN WIRE ASSEMBLY SIMILAR TO HEADSPANS, SEE BASIC DESIGN ASSEMBLIES DRAWINGS FOR MORE INFORMATION.
7. FOR BILL OF MATERIALS SEE DRAWING SD–W5260.
8. ALL A325 BOLTS SHALL BE A325–X TYPE WITH THREADS EXCLUDED FROM THE SHEAR PLANE AND ALL FLARE BEVEL WELDS SHALL USE THE GMAW OR FCAW–G WELDING PROCESS.
9. BOTTOM OF STEEL AND CROSS SPAN WIRE VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATION DRAWINGS FOR HEIGHTS.
10. THIS ARRANGEMENT IS TO BE USED ONLY AFTER APPROVAL FROM CALTRAIN.



POLE ELEVATION

SCALE: 3/8"=1'–0"

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	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

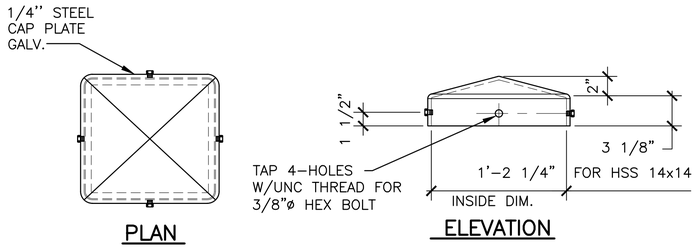
Bin Zhang

DIRECTOR, ENGINEERING

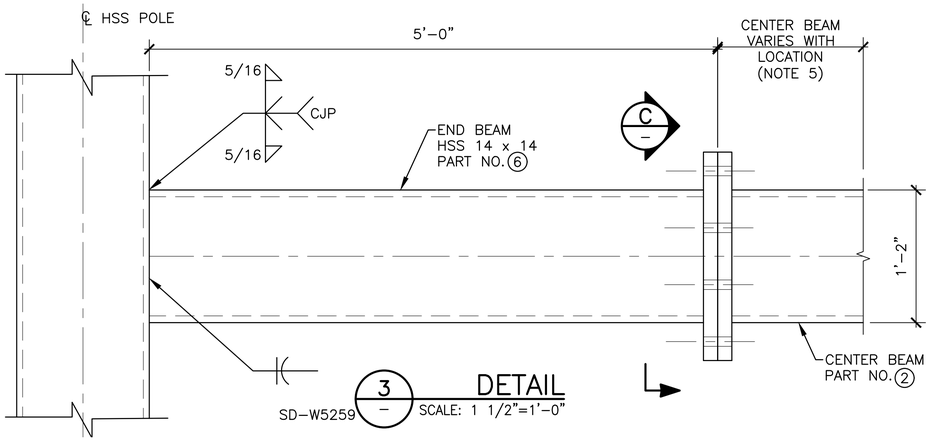
ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTALS
DETAILS FOR TYPE PS–5C
SINGLE SPAN PORTAL
SHEET 1 OF 2

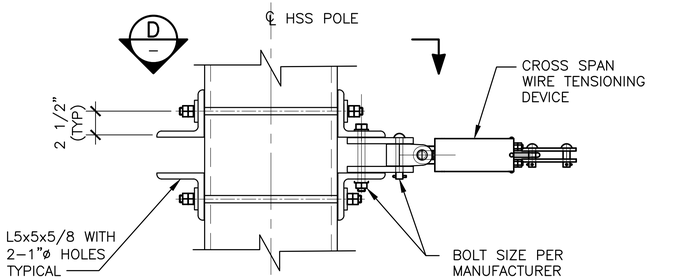
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SCALE:	AS SHOWN
STANDARD DRAWING NO.:	SD–W5259



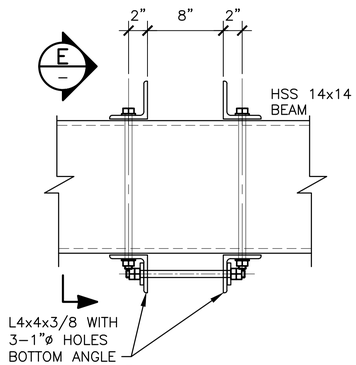
2 — DETAIL
SD-W5259 — SCALE: 1 1/2"=1'-0"
PART NO. (4)



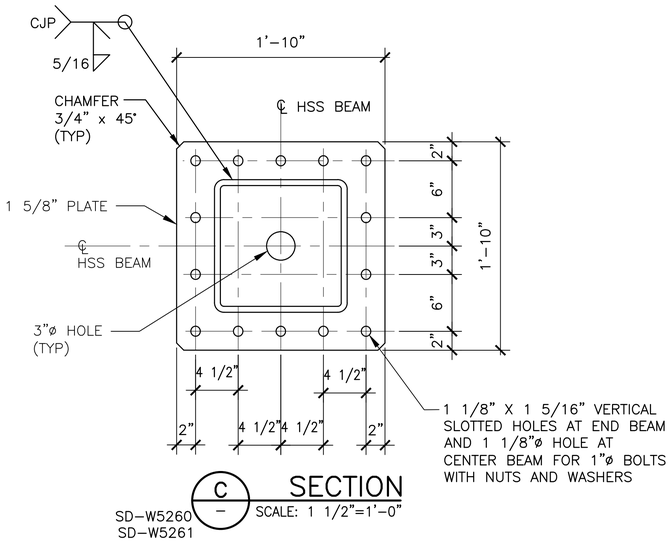
3 — DETAIL
SD-W5259 — SCALE: 1 1/2"=1'-0"



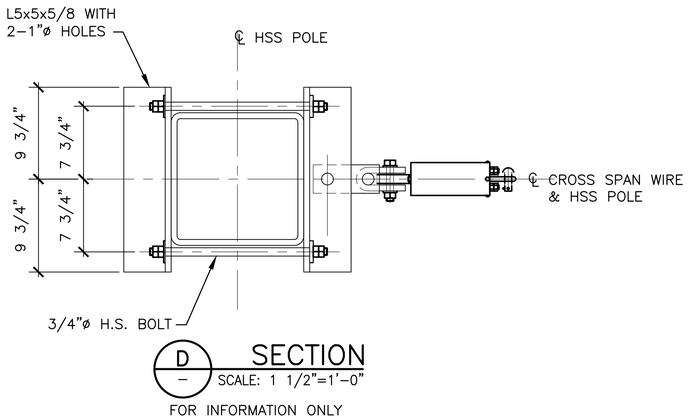
4 — DETAIL
SD-W5259 — SCALE: 1 1/2"=1'-0"
FOR INFORMATION ONLY



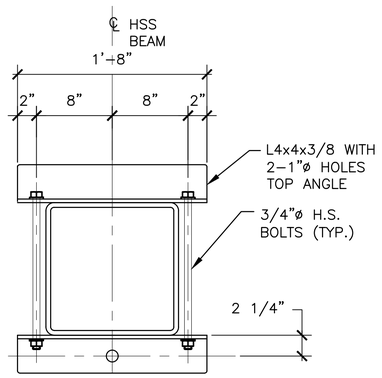
5 — DETAIL
SD-W5259 — SCALE: 1 1/2"=1'-0"
FOR INFORMATION ONLY



C — SECTION
SD-W5260
SD-W5261 — SCALE: 1 1/2"=1'-0"



D — SECTION
SCALE: 1 1/2"=1'-0"
FOR INFORMATION ONLY



E — SECTION
SCALE: 1 1/2"=1'-0"
FOR INFORMATION ONLY

NOTES:

1. FOR NOTES SEE DRAWING SD-W5259.
2. HORIZONTAL BEAM LENGTH WILL BE DETERMINED BY FIELD AT EACH LOCATION PRIOR TO FABRICATION.
3. NOTIFY ENGINEER IF ANY WIRES ARE TERMINATED ON THE PORTAL BEAM AND THE BEAM SECTION SHALL BE EVALUATED ON A CASE SPECIFIC BASIS.
4. 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.
5. FOR CENTER BEAMS WITH A LENGTH OVER 40', THE BEAM SHOULD BE DIVIDED INTO THREE SECTIONS. THE CENTER SECTION SHOULD BE 40' AND THE TWO REMAINING SECTIONS SHOULD BE EQUAL AND THE LENGTH REQUIRED TO MEET THE TOTAL LENGTH. THE THREE SECTIONS SHALL BE ASSEMBLED FOR CAMBERING. CONNECTIONS SHOULD BE THE SAME AS BETWEEN THE CENTER AND END BEAMS.

TABLE 1 BASE PLATE DIMENSIONS (IN)

BASE PLATE	DESCRIPTION	S	F	H	R	T	ANCHOR BOLT DIA
TYPE "D2"	BASE PLATE FOR PS-5C	28	21	2 3/8	2	2 1/2	2

QUANTITIES				
	2	1/2"ø GROUNDING BOLT	5	
	2	REMOVABLE CAP PLATE	4	
	2	BASE PLATE TYPE "D2"	3	
	2	END BEAM – HSS 14 x 14 x 5/8 x 5'-0" LG.	6	NOTE 3
	1	CENTER BEAM – HSS 14 x 14 x 5/8 – LENGTH VARIES	2	NOTE 2, 3
	2	POLE – HSS 14 x 14 x 5/8 x 40'-0" LG.	1	NOTE 4
	PS-5C	DESCRIPTION	PART NO	REMARKS
ASSEMBLY TYPE				

BILL OF MATERIALS

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	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

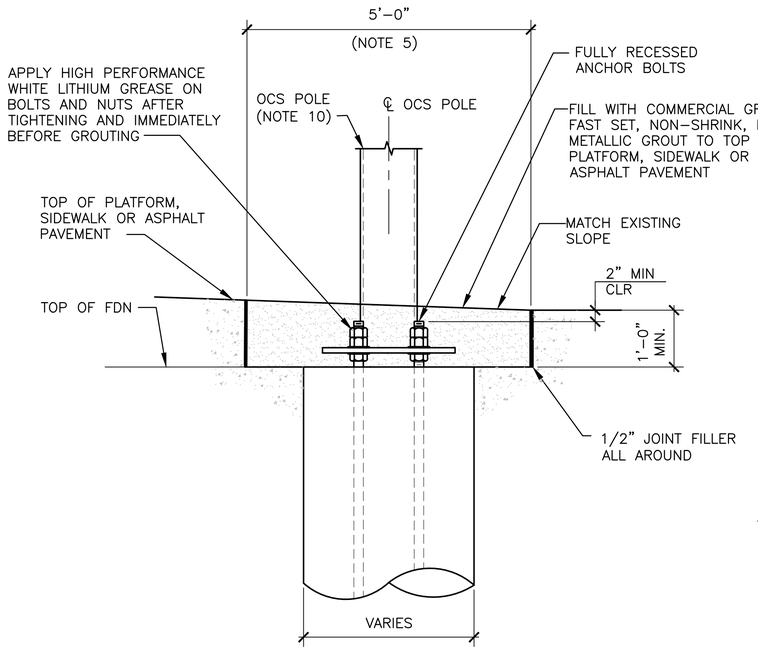
PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

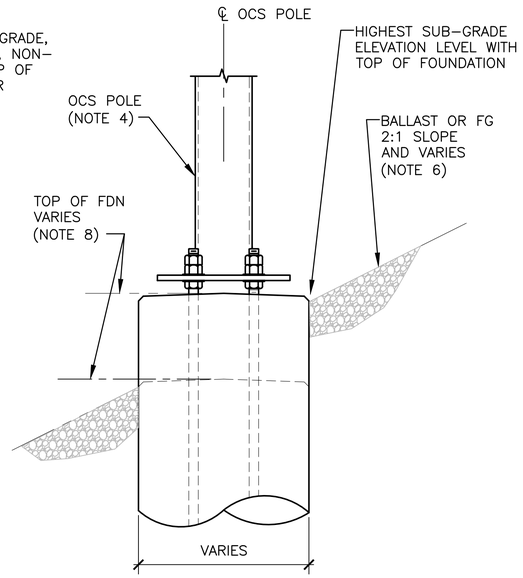
OVERHEAD CONTACT SYSTEM
OCS PORTALS
DETAILS FOR TYPE PS-5C
SINGLE SPAN PORTAL
SHEET 2 OF 2

CADD FILE NAME: SD-W5260
REV: EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD-W5260



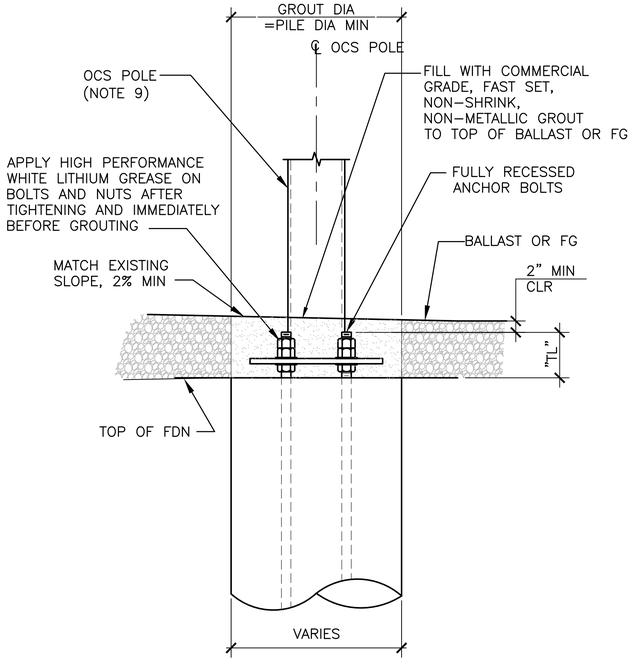
FULLY RECESSED ANCHOR BOLTS AT STATIONS

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 SD–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.

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PENINSULA CORRIDOR JOINT POWERS BOARD

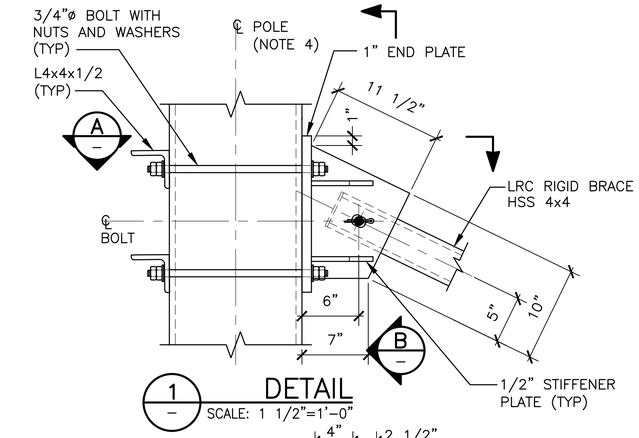
APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

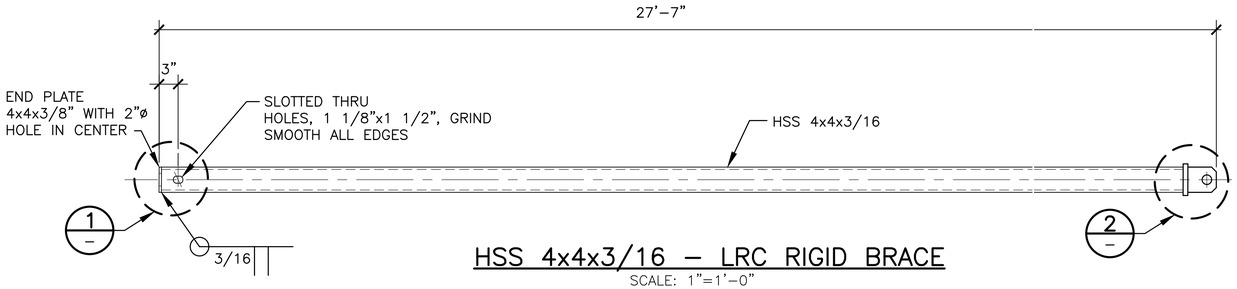
OVERHEAD CONTACT SYSTEM
OCS POLES

DRILLED PIER FOUNDATION

CADD FILE NAME: SD–W5262
REV: EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5262

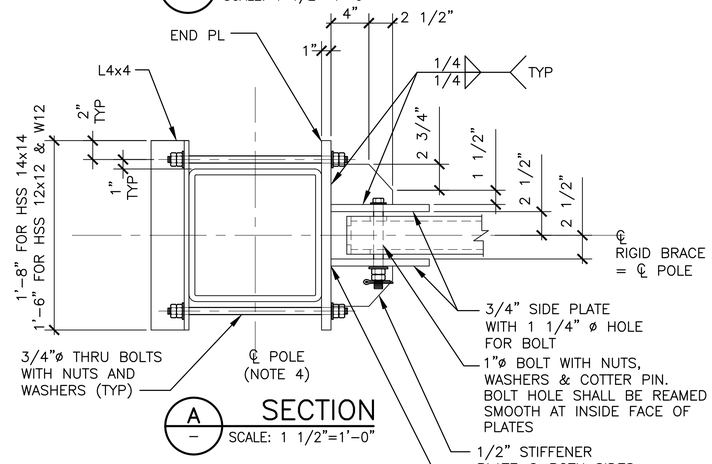


1 — DETAIL
SCALE: 1 1/2"=1'-0"

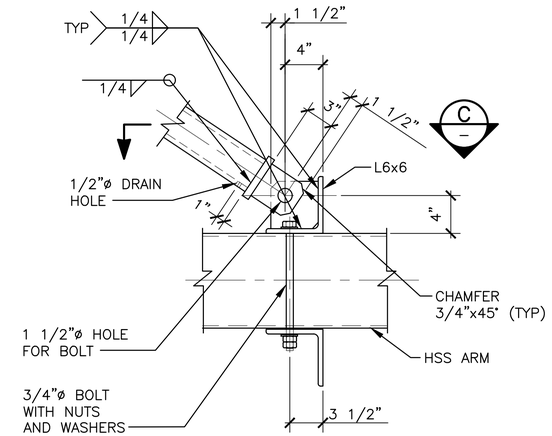


HSS 4x4x3/16 – LRC RIGID BRACE

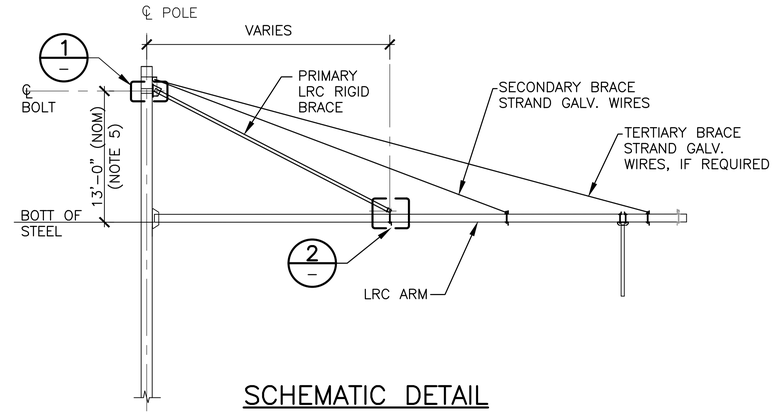
SCALE: 1"=1'-0"



A — SECTION
SCALE: 1 1/2"=1'-0"

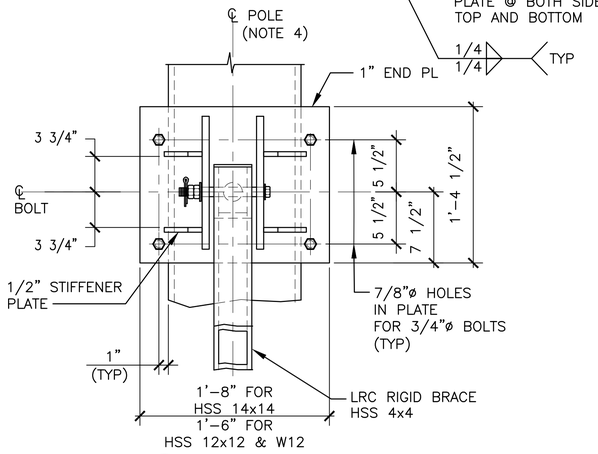


2 — DETAIL
SCALE: 1 1/2"=1'-0"

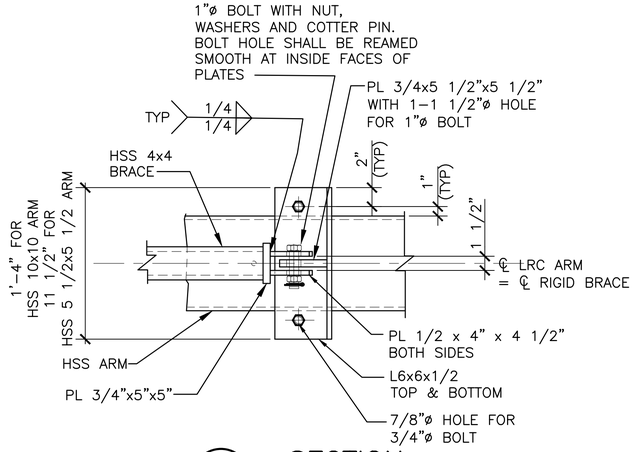


SCHEMATIC DETAIL

NTS



B — SECTION
SCALE: 1 1/2"=1'-0"



C — SECTION
SCALE: 1 1/2"=1'-0"

NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD-W0101.
2. LRC RIGID BRACE REQUIREMENTS ARE BASED ON LRC ARM LENGTHS AS FOLLOWS:
   L < 42' NO LRC RIGID BRACE
   L ≥ 42' PRIMARY LRC RIGID BRACE
3. FOR INFORMATION NOT SHOWN SEE POLE DETAIL DRAWINGS.
4. HSS POLE SHOWN, WF POLE SIMILAR.
5. SEE MATERIAL ALLOCATION DRAWINGS FOR NUMBER, ATTACHMENT LOCATION AND TYPE OF BRACES. CONFIRM ATTACHMENT LOCATIONS WITH ENGINEER PRIOR TO FABRICATION.

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REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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DIRECTOR, ENGINEERING

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ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES

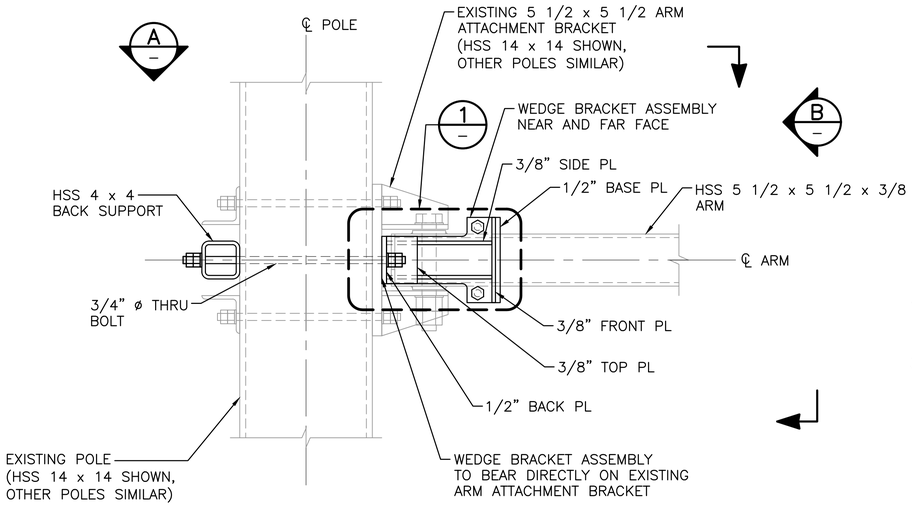
LRC RIGID BRACE DETAILS

CADD FILE NAME: SD-W5263

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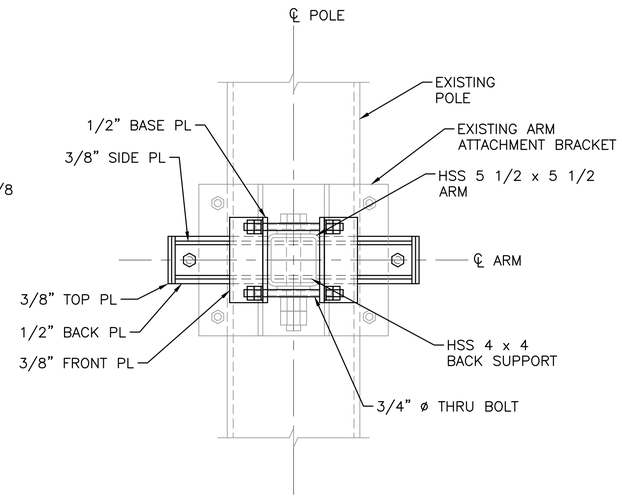
SCALE: AS SHOWN

STANDARD DRAWING NO.: SD-W5263



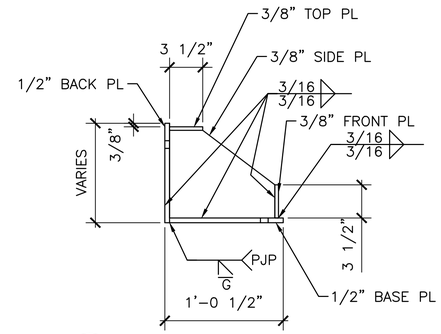
HSS POLE WITH HSS 5 1/2 x 5 1/2 ARM WEDGE BRACKET ELEVATION

SCALE: 1 1/2"=1'–0"



B – SECTION

SCALE: 1 1/2"=1'–0"

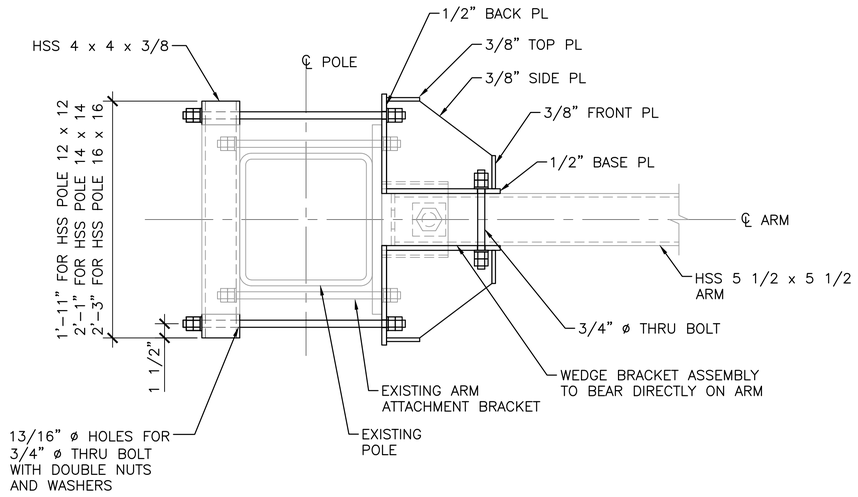


C – SECTION

SCALE: 1 1/2"=1'–0"

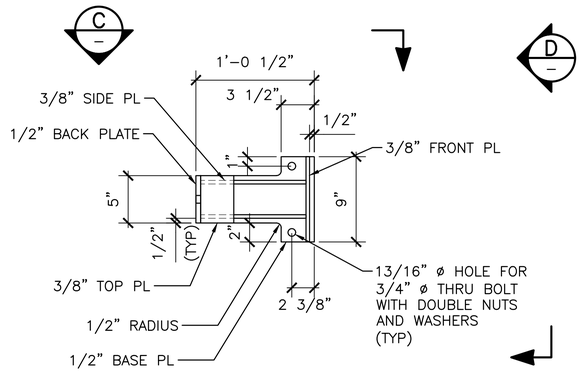
NOTES:

1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS SEE DRAWING SD–W0101.
2. FOR DETAILS, NOTES AND DIMENSIONS NOT SHOWN SEE DRAWING SD–W5110A.
3. WEDGE BRACKET AND PIN TYPE DETAILS SHOWN SHALL NOT BE USED FOR FUTURE PROJECTS. DESIGNER SHALL DEVELOP APPROPRIATE STRUCTURE CONNECTION DETAILS SUITED FOR THE APPLICATION.
4. FIELD MEASURE EXISTING CONDITION PRIOR TO FABRICATION. NOTIFY ENGINEER IF DIFFERENT FROM DIMENSIONS SHOWN.



A – SECTION

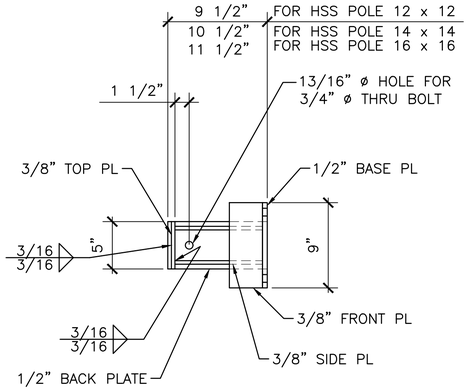
SCALE: 1 1/2"=1'–0"



1 – DETAIL

SCALE: 1 1/2"=1'–0"

WEDGE BRACKET ASSEMBLY



D – SECTION

SCALE: 1 1/2"=1'–0"

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PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

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DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

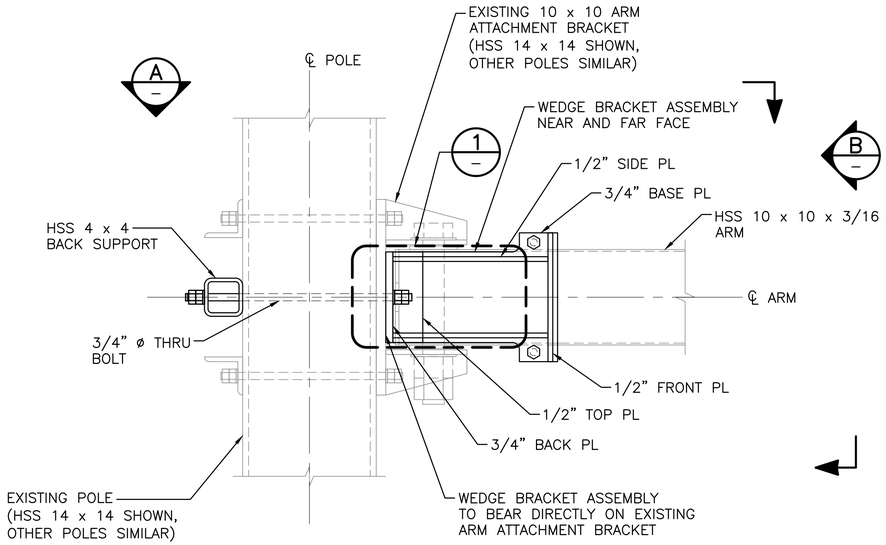
OVERHEAD CONTACT SYSTEM
OCS POLES
HSS POLE
5 1/2 x 5 1/2 LRC ARM
SUPPORT DETAILS

CADD FILE NAME: SD–W5263B

REV: | EDITION: SECOND

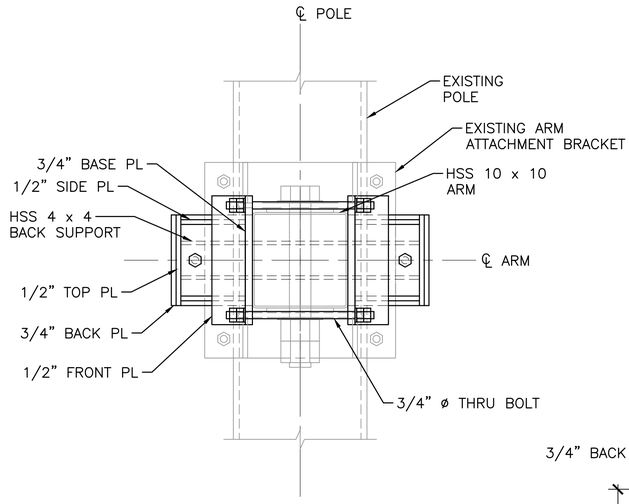
SCALE: AS SHOWN

STANDARD DRAWING NO.: SD–W5263B



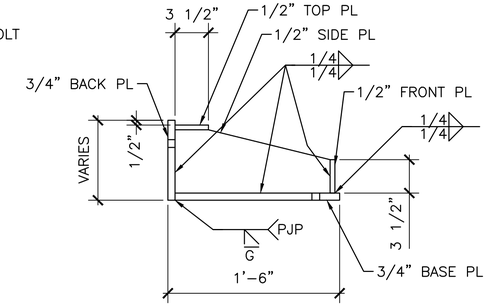
HSS POLE WITH HSS 10 x 10 ARM WEDGE BRACKET ELEVATION

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



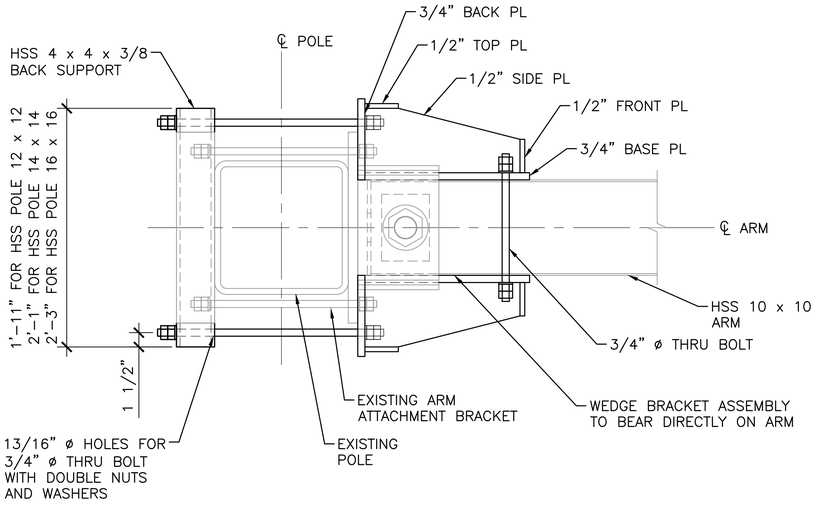
B — SECTION

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



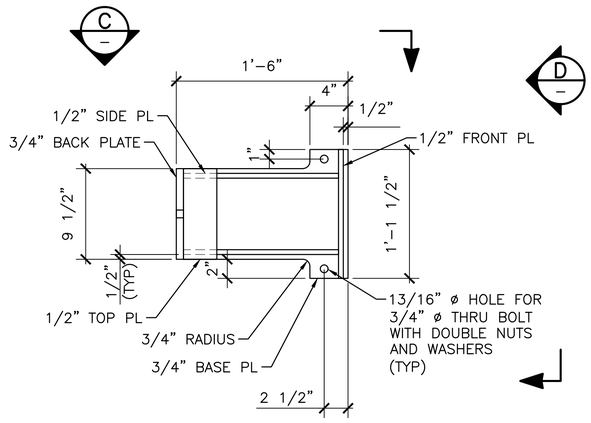
C — SECTION

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



A — SECTION

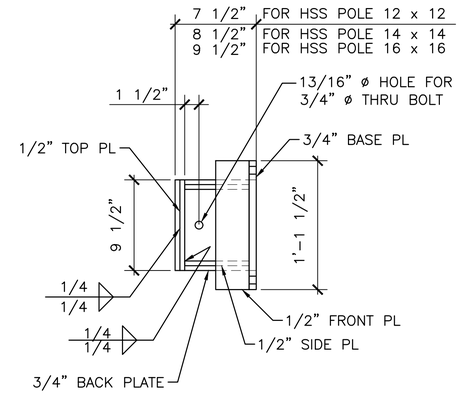
SCALE: 1 1/2"=1'-0"



1 — DETAIL

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

WEDGE BRACKET ASSEMBLY



D — SECTION

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

NOTES:

1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS SEE DRAWING SD-W0101.
2. FOR DETAILS, NOTES AND DIMENSIONS NOT SHOWN SEE DRAWING SD-W5110A.
3. WEDGE BRACKET AND PIN TYPE DETAILS SHOWN SHALL NOT BE USED FOR FUTURE PROJECTS. DESIGNER SHALL DEVELOP APPROPRIATE STRUCTURE CONNECTION DETAILS SUITED FOR THE APPLICATION.
4. FIELD MEASURE EXISTING CONDITION PRIOR TO FABRICATION. NOTIFY ENGINEER IF DIFFERENT FROM DIMENSIONS SHOWN.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

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APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

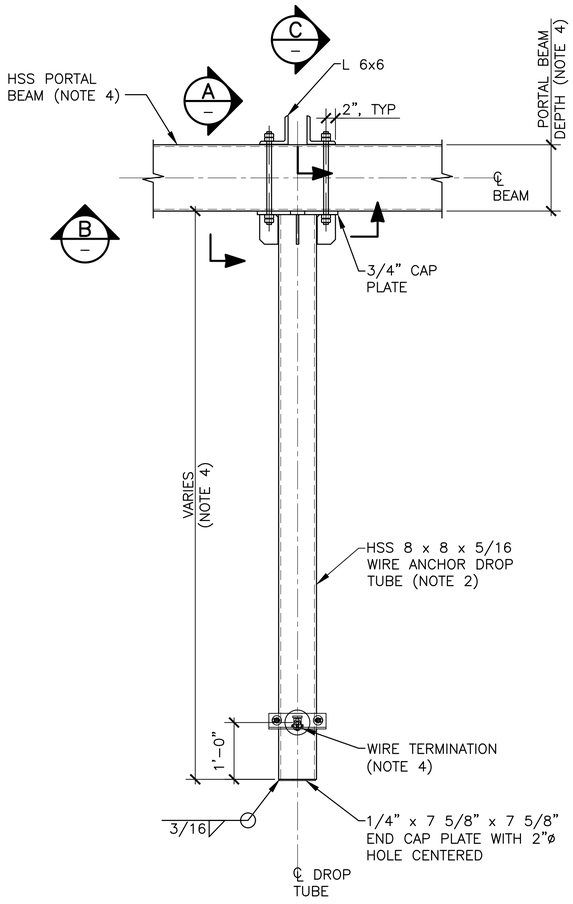
OVERHEAD CONTACT SYSTEM
OCS POLES
HSS POLE
10 x 10 LRC ARM
SUPPORT DETAILS

CADD FILE NAME: SD-W5263C

REV: | EDITION: SECOND

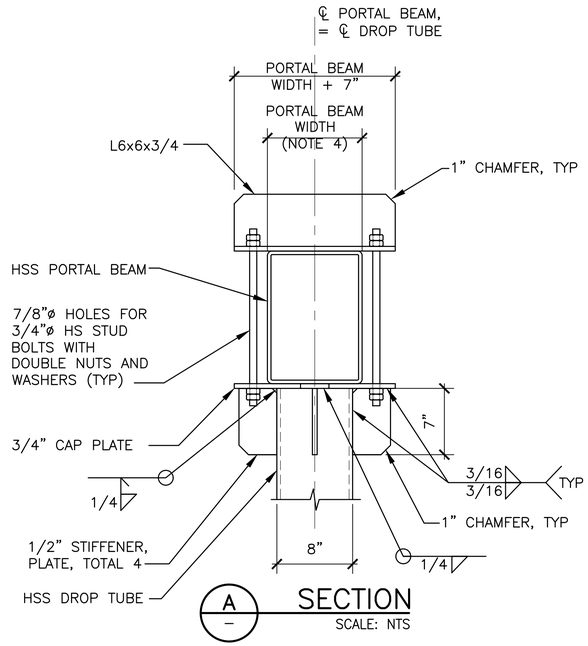
SCALE: AS SHOWN

STANDARD DRAWING NO.: SD-W5263C



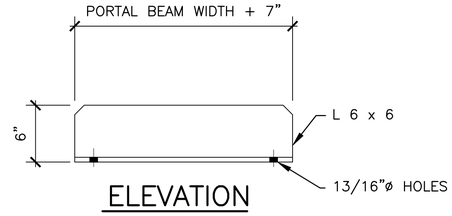
WIRE ANCHOR DROP TUBE ELEVATION

SCALE: NTS

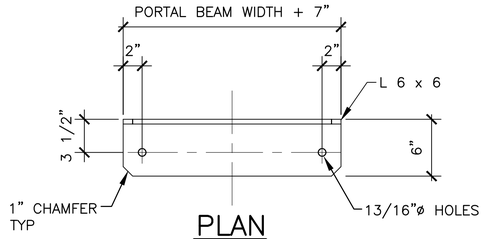


A — SECTION

SCALE: NTS



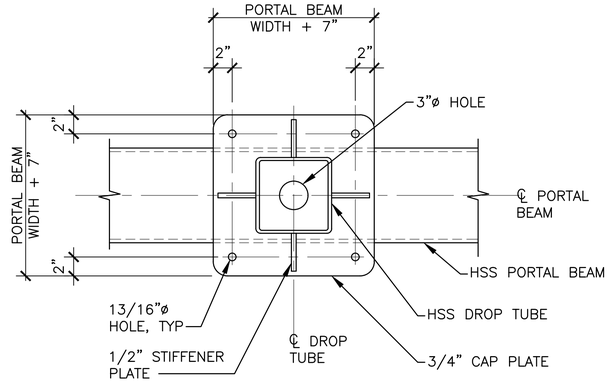
ELEVATION



PLAN

C — SECTION

SCALE: NTS



B — SECTION

SCALE: NTS

NOTES:

1. FOR GENERAL NOTES SEE DRAWING SD–W0101.
2. 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.
3. MAXIMUM DROP TUBE LOADING SHALL BE RESTRICTED AS FOLLOWS:
   A) MAX MOMENT: 13.0 K–FT
   B) MAX SHEAR: 2.85 K
4. 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, MATERIAL ALLOCATION DRAWINGS AND BASIC DESIGN ASSEMBLY DRAWINGS.

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	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES

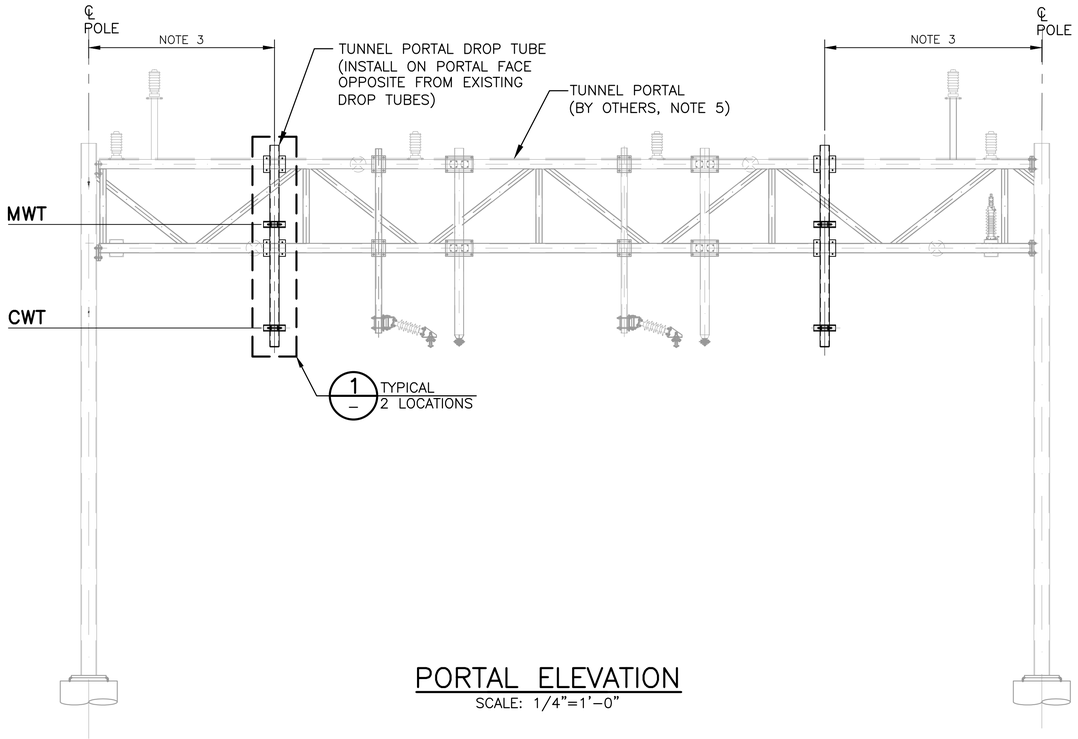
WIRE ANCHOR DROP TUBE DETAILS

CADD FILE NAME: SD–W5278

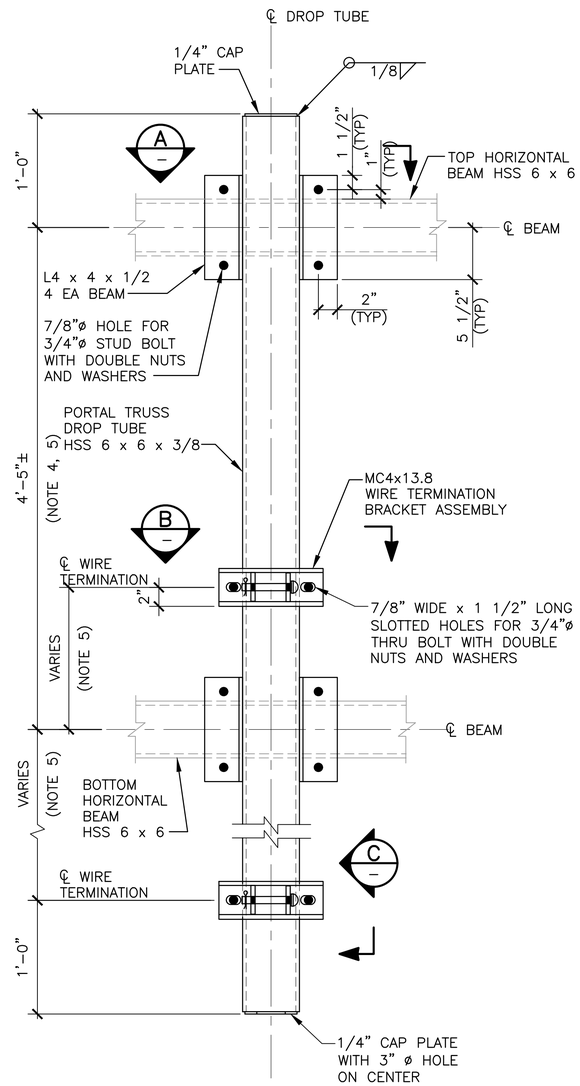
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SCALE: AS SHOWN

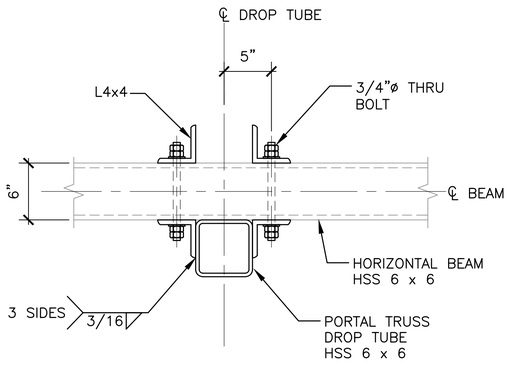
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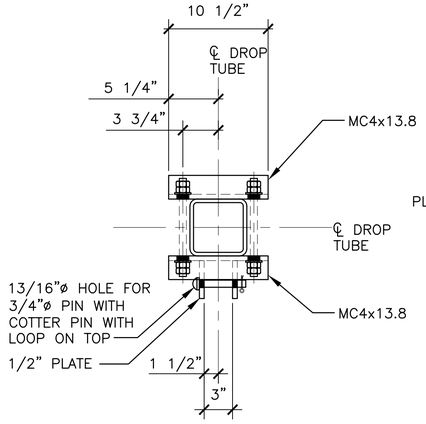
PORTAL ELEVATION
SCALE: 1/4"=1'–0"



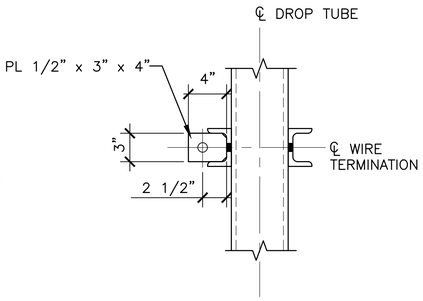
1 – DETAIL
SCALE: 1 1/2"=1'–0"
TUNNEL PORTAL DROP TUBE



A – SECTION
SCALE: 1 1/2"=1'–0"



B – SECTION
SCALE: 1 1/2"=1'–0"
WIRE TERMINATION BRACKET ASSEMBLY



C – SECTION
SCALE: 1 1/2"=1'–0"

NOTES:

1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS SEE DRAWING SD–W0101.
2. TUNNEL PORTAL DROP TUBES ARE USED TO TERMINATE MESSENGER AND CONTACT WIRES BELOW EXISTING TUNNEL PORTAL BEAMS AT LOCATIONS REVIEWED AND APPROVED BY THE ENGINEER. NOTIFY ENGINEER OF ANY SITE SPECIFIC CONFLICTS.
3. SEE MATERIAL ALLOCATION DRAWINGS FOR THE LENGTHS AND INSTALLMENT LOCATIONS OF TUNNEL PORTAL DROP TUBES.
4. FIELD MEASURE EXISITING CONDITIONS PRIOR TO FABRICATION. THE TUNNEL PORTAL DROP TUBE LENGTH VARIES AND WILL BE CALCULATED AT EACH LOCATION TO PROVIDE 1'–0" ABOVE THE CENTERLINE OF THE TOP HORIZONTAL BEAM AND 1'–0" BELOW THE CONTACT WIRE TERMINATION ELEVATION.
5. FOR INFORMATION NOT SHOWN SEE MATERIAL ALLOCATION DRAWINGS AND BASIC DESIGN ASSEMBLY DRAWINGS.

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REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

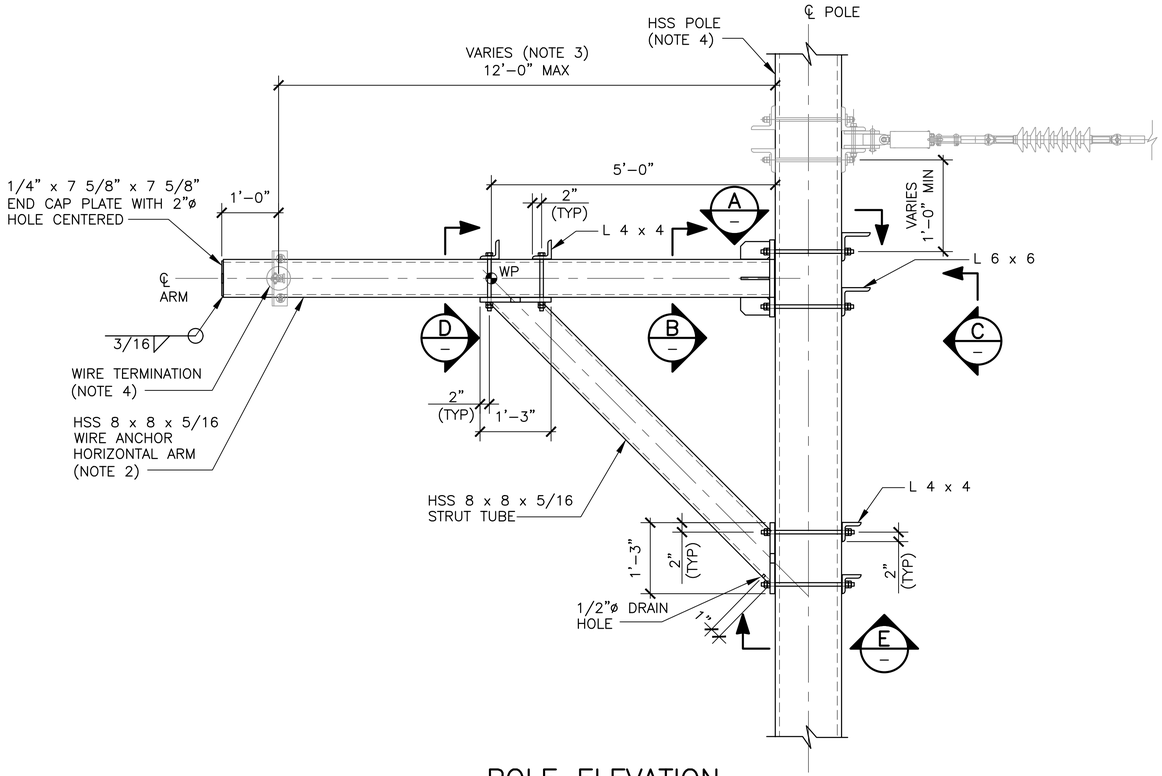
APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTALS

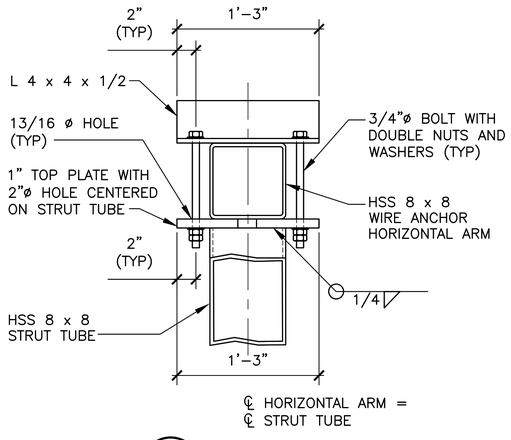
TUNNEL PORTAL DROP TUBE DETAILS

CADD FILE NAME: SD–W5278A
REV: | EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5278A



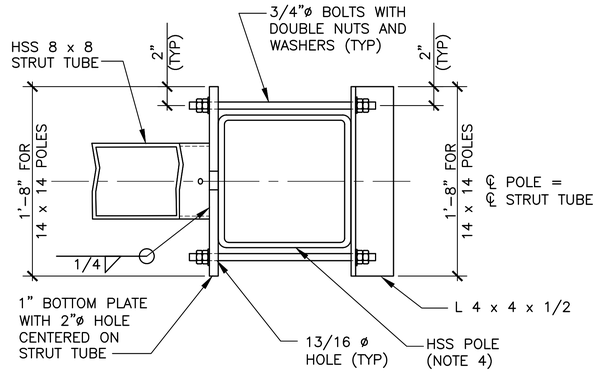
POLE ELEVATION

SCALE: NTS



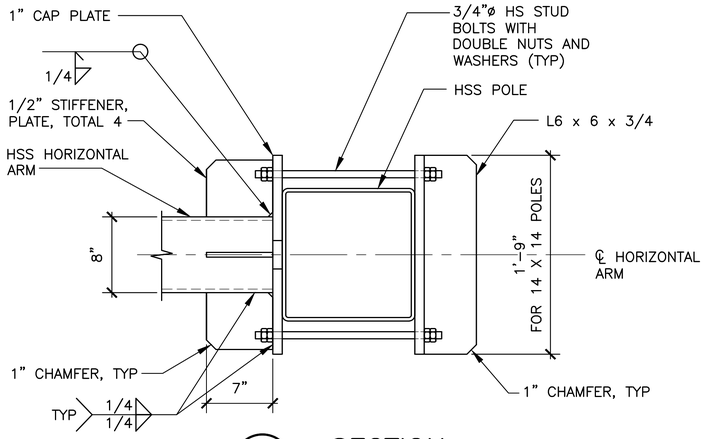
℄ HORIZONTAL ARM =
℄ STRUT TUBE

D SECTION
SCALE: NTS

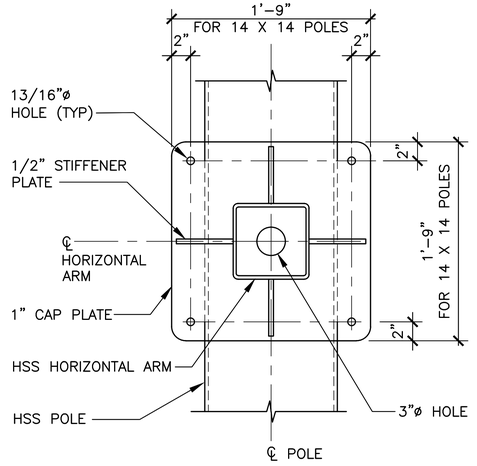


℄ POLE =
℄ STRUT TUBE

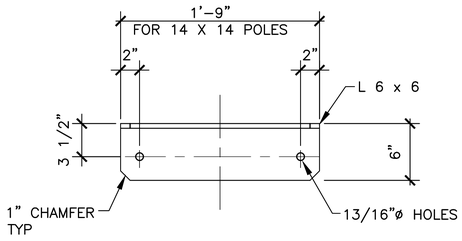
E SECTION
SCALE: NTS



A SECTION
SCALE: NTS



B SECTION
SCALE: NTS



C SECTION
SCALE: NTS

NOTES:

1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS SEE DRAWING SD–W0101.
2. WIRE ANCHOR HORIZONTAL ARMS CAN BE USED TO TERMINATE CONTACT WIRES AT LOCATIONS REVIEWED AND APPROVED BY THE ENGINEER. NOTIFY ENGINEER OF ANY SITE SPECIFIC CONFLICTS.
3. THE WIRE ANCHOR HORIZONTAL ARM LENGTH VARIES AND WILL BE CALCULATED AT EACH LOCATION TO PROVIDE 1'–0" OUTSIDE THE WIRE TERMINATION LOCATION.
4. FOR INFORMATION NOT SHOWN SEE POLE DETAIL DRAWINGS, MATERIAL ALLOCATION DRAWINGS AND BASIC DESIGN ASSEMBLY DRAWINGS.

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REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES

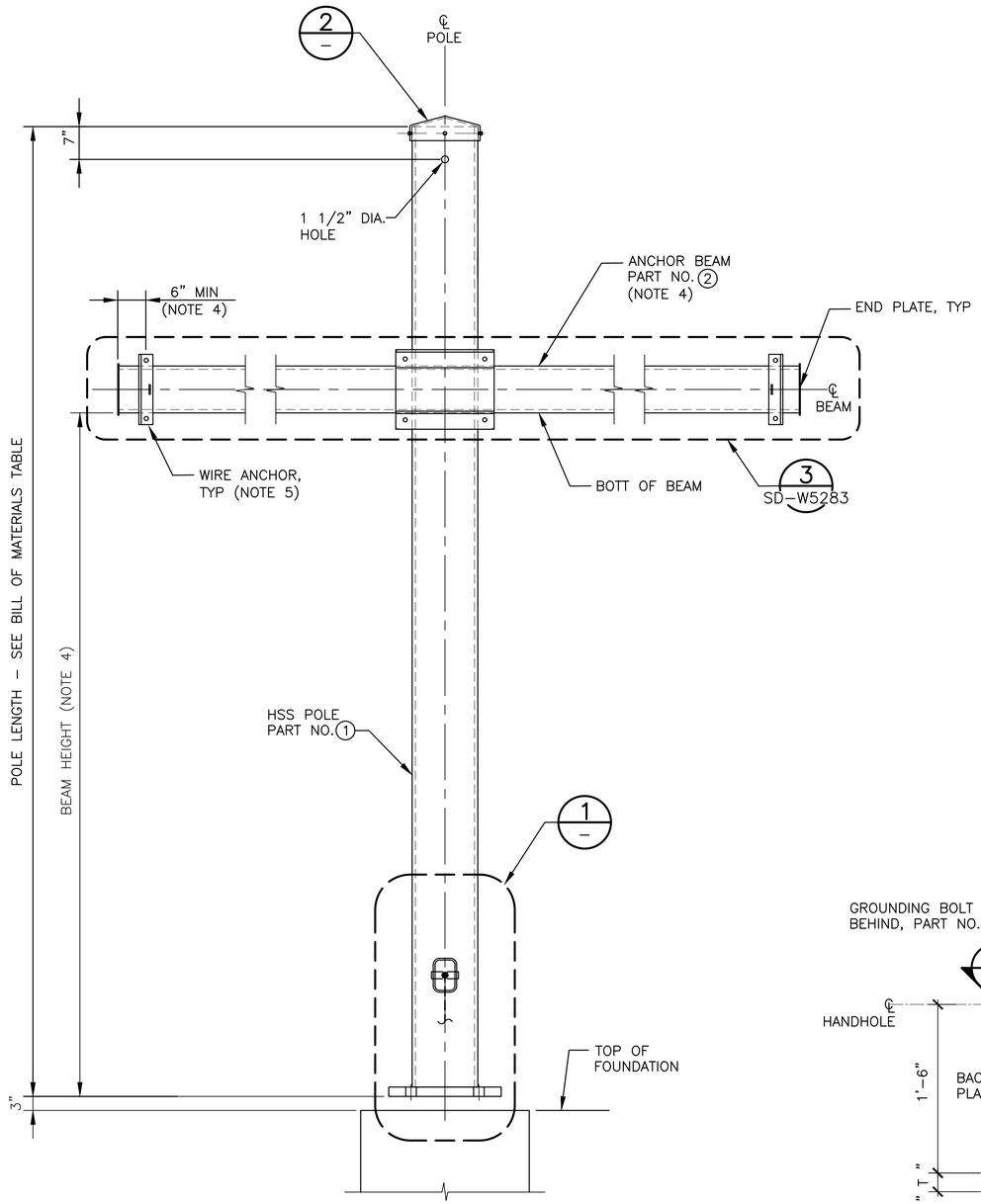
WIRE ANCHOR
HORIZONTAL ARM DETAILS

CADD FILE NAME: SD–W5278B

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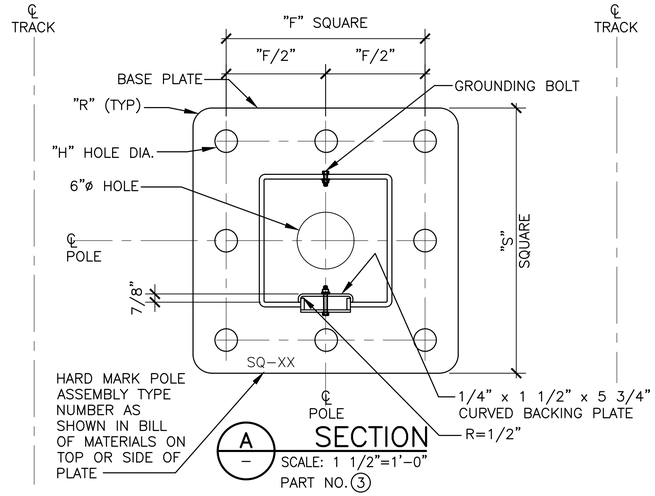
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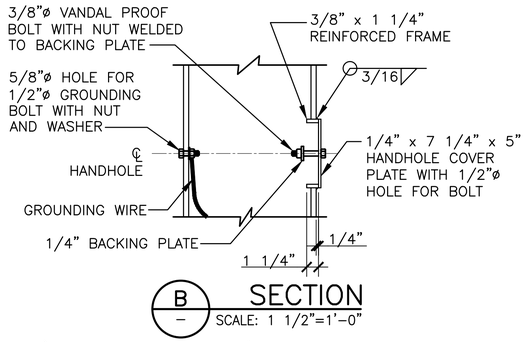
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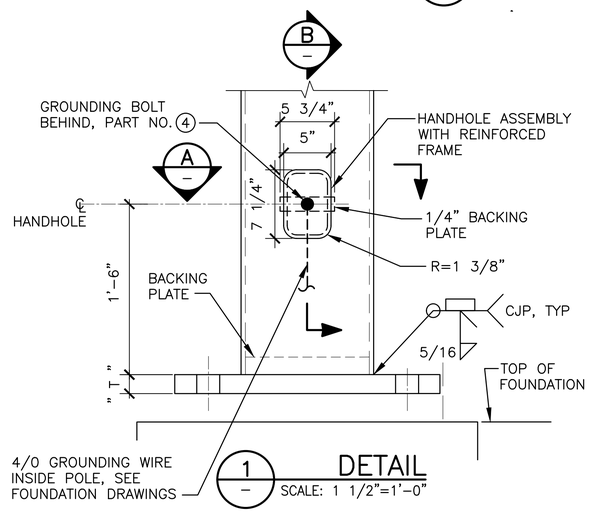


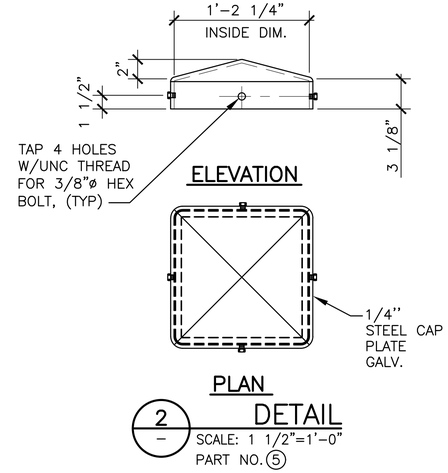
POLE ELEVATION

NTS









NOTES:

1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS SEE DRAWING SD-W0101.
2. ALL HOLES IN MAST, BEAMS AND MISCELLANEOUS STEEL SHALL BE PRE-DRILLED IN SHOP PRIOR TO GALVANIZING.
3. POLE SHALL BE SET PLUMB WITH NO RAKE TO ENSURE PROPER CONNECTION BETWEEN POLE AND ANCHOR BEAM.
4. SEE MATERIAL ALLOCATION DRAWINGS FOR NUMBER, LOCATION AND DETAILS FOR WIRE ANCHORS AND ANCHOR BEAM HEIGHT AND LENGTH. NOTIFY ENGINEER IF ANCHOR BEAM LENGTH OR POLE HEIGHT IS NOT SUFFICIENT FOR ANCHOR LOCATIONS.
5. WIRE ANCHOR TENSIONS SHALL BE EQUAL ON BOTH ENDS OF THE ANCHOR BEAM.

TABLE 1 BASE PLATE DIMENSIONS (IN)

BASE PLATE	DESCRIPTION	S	F	H	R	T	B	ANCHOR BOLT DIA
TYPE "D2"	BASE PLATE FOR SQ-13	28	21	2 3/8	2	2 1/2	29.70	2

QUANTITIES					
		1	REMOVABLE CAP PLATE	5	
		1	1/2"ø GROUNDING BOLT	4	
		1	BASE PLATE TYPE "D2"	3	
		1	ANCHOR BEAM - HSS 10 x 10 x 1/2 x 32'-0"	2	
		1	POLE - HSS 14 x 14 x 5/8 x 32'-0"	1	
		SQ-13	DESCRIPTION	PART NO.	REMARKS
ASSEMBLY TYPE					

BILL OF MATERIALS

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PENINSULA CORRIDOR JOINT POWERS BOARD

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ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES

TYPE SQ-13
SHEET 1 OF 2

CADD FILE NAME: SD-W5282

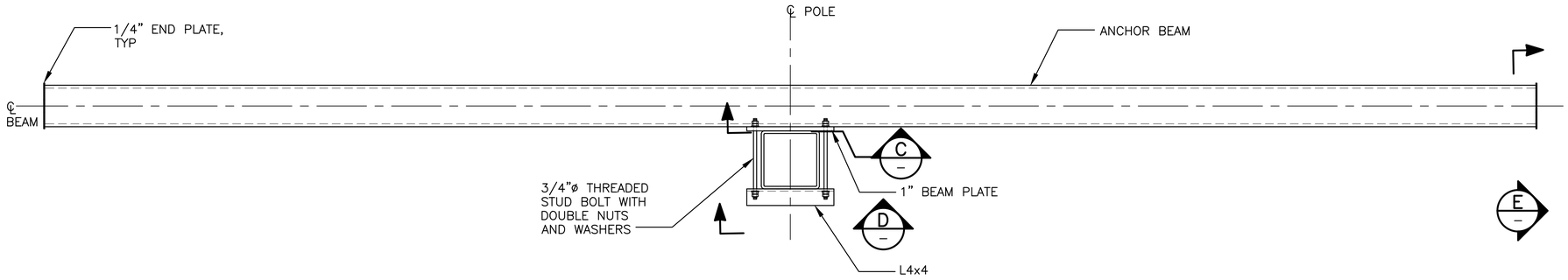
REV: | EDITION: SECOND

SCALE: AS SHOWN

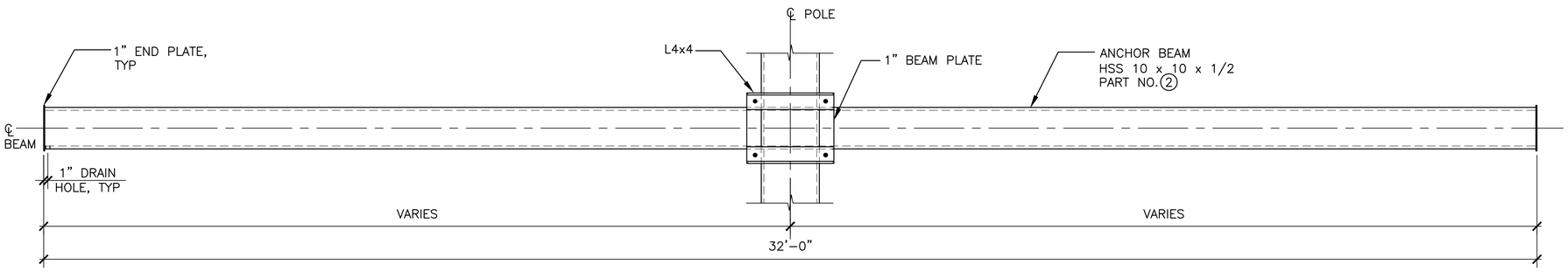
STANDARD DRAWING NO.: SD-W5282

NOTES:

1. FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS SEE DRAWING SD–W0101.
2. FOR SHEET NOTES SEE DRAWING SD–W5281.
3. FOR 10x10 ARMS, THE MEMBER CAN BE DIVIDED INTO TWO SECTIONS. THE SECTION CLOSEST TO THE POLE SHALL BE 40' MAXIMUM AND THE REMAINING SECTION SHALL BE THE LENGTH REQUIRED TO MEET THE TOTAL LENGTH. THE SPLICE LOCATION VARIES AND SHALL BE PLACED BASED ON THE ADJACENT CONNECTIONS. THE SPLICE PLATES ARE PER DETAIL 6 ON SHEET SD–W5110A.

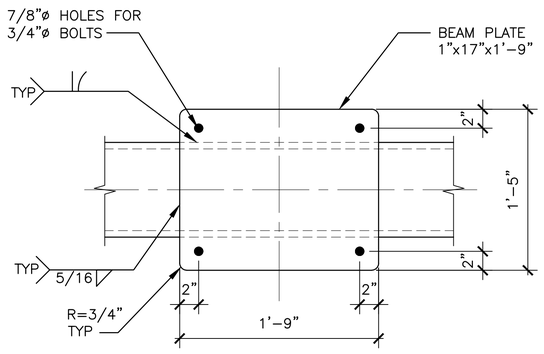


PLAN

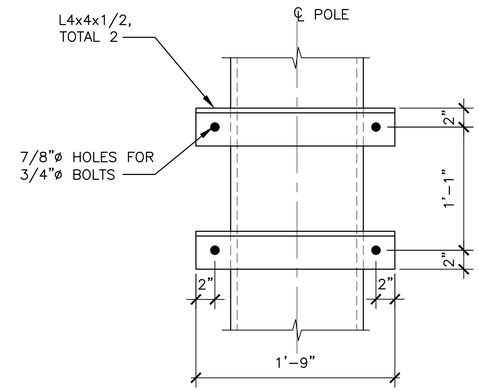


ELEVATION

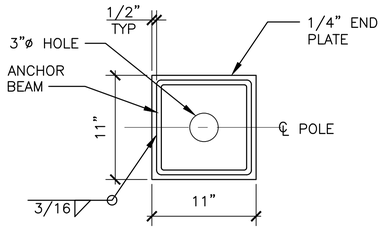
3 SD–W5283 DETAIL
SD–W5282 SCALE: NTS



C – SECTION
SCALE: 1 1/2"=1'–0"



D – SECTION
SCALE: 1 1/2"=1'–0"



E – SECTION
SCALE: 1 1/2"=1'–0"

REV	DATE	BY	CHK	APP	DESCRIPTION
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REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

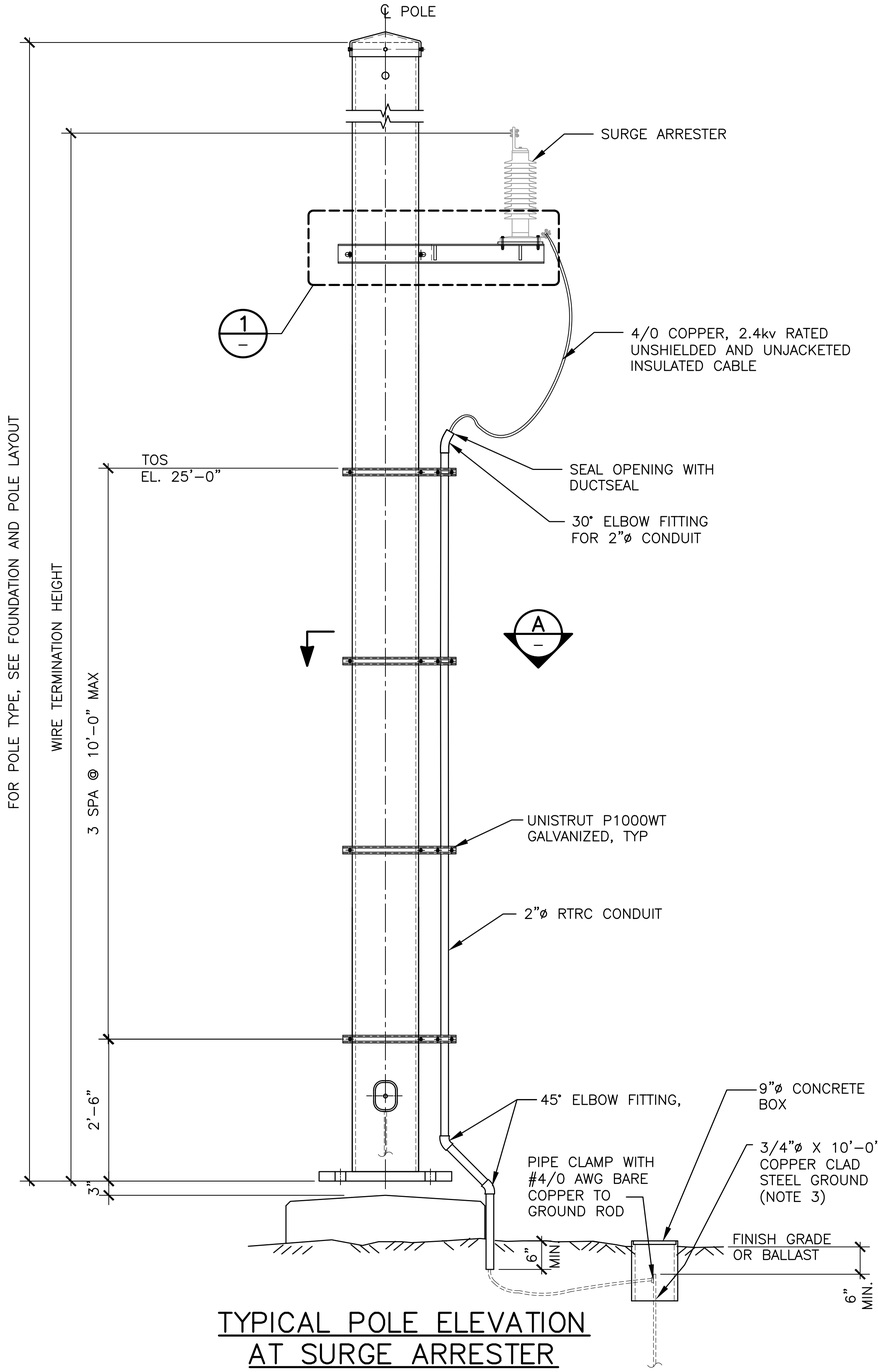
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ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES

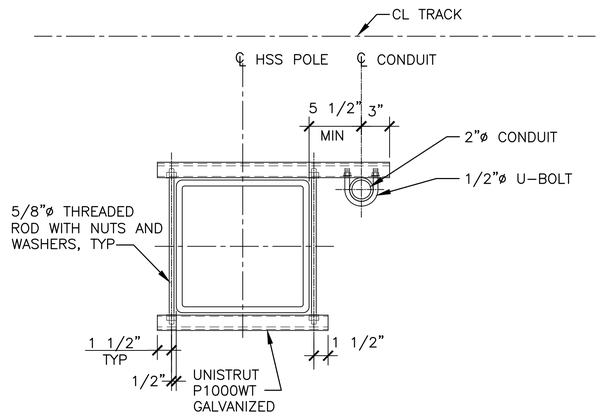
TYPE SQ–13
SHEET 2 OF 2

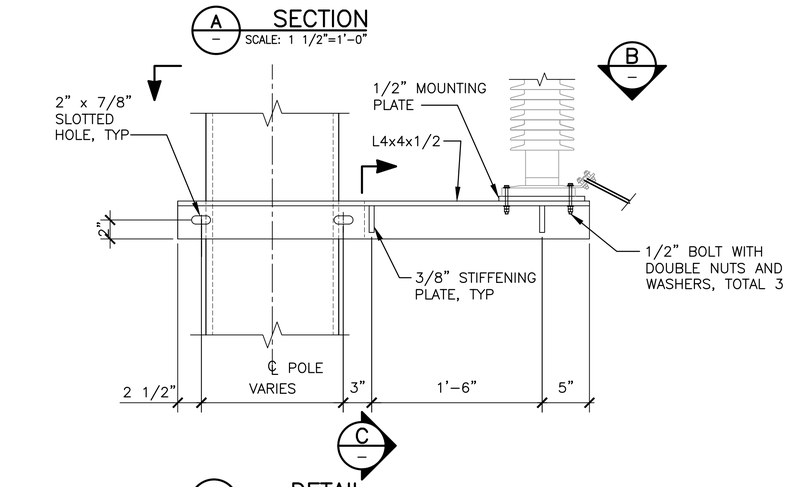
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SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5283



TYPICAL POLE ELEVATION AT SURGE ARRESTER

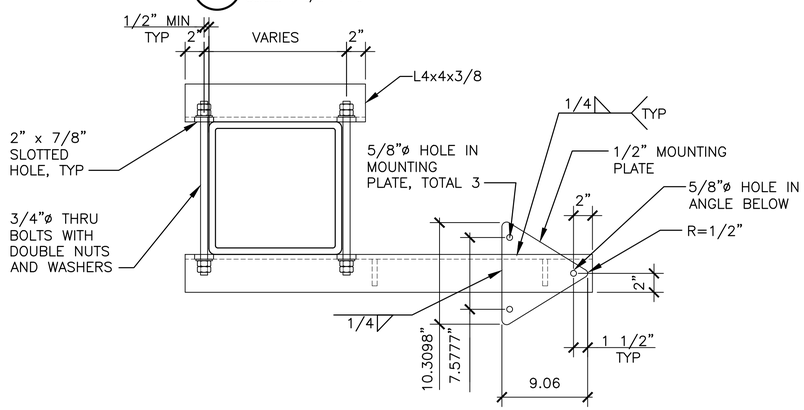
NTS





C SECTION
SCALE: 6"=1'–0"

1 DETAIL
SCALE: 1 1/2"=1'–0"



B SECTION
SCALE: 1 1/2"=1'–0"

NOTES:

1. FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS SEE DRAWING SD–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. CABLE BENDS SHALL NOT EXCEED MAXIMUM ALLOWED BY MANUFACTURER.
5. LOCAL GROUND ASSEMBLY UTILIZED FOR THE SURGE ARRESTER SHALL ALSO BE USED FOR THE LOCAL GROUND ASSEMBLY AT THE PHASE BREAK.

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PENINSULA CORRIDOR JOINT POWERS BOARD

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ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES

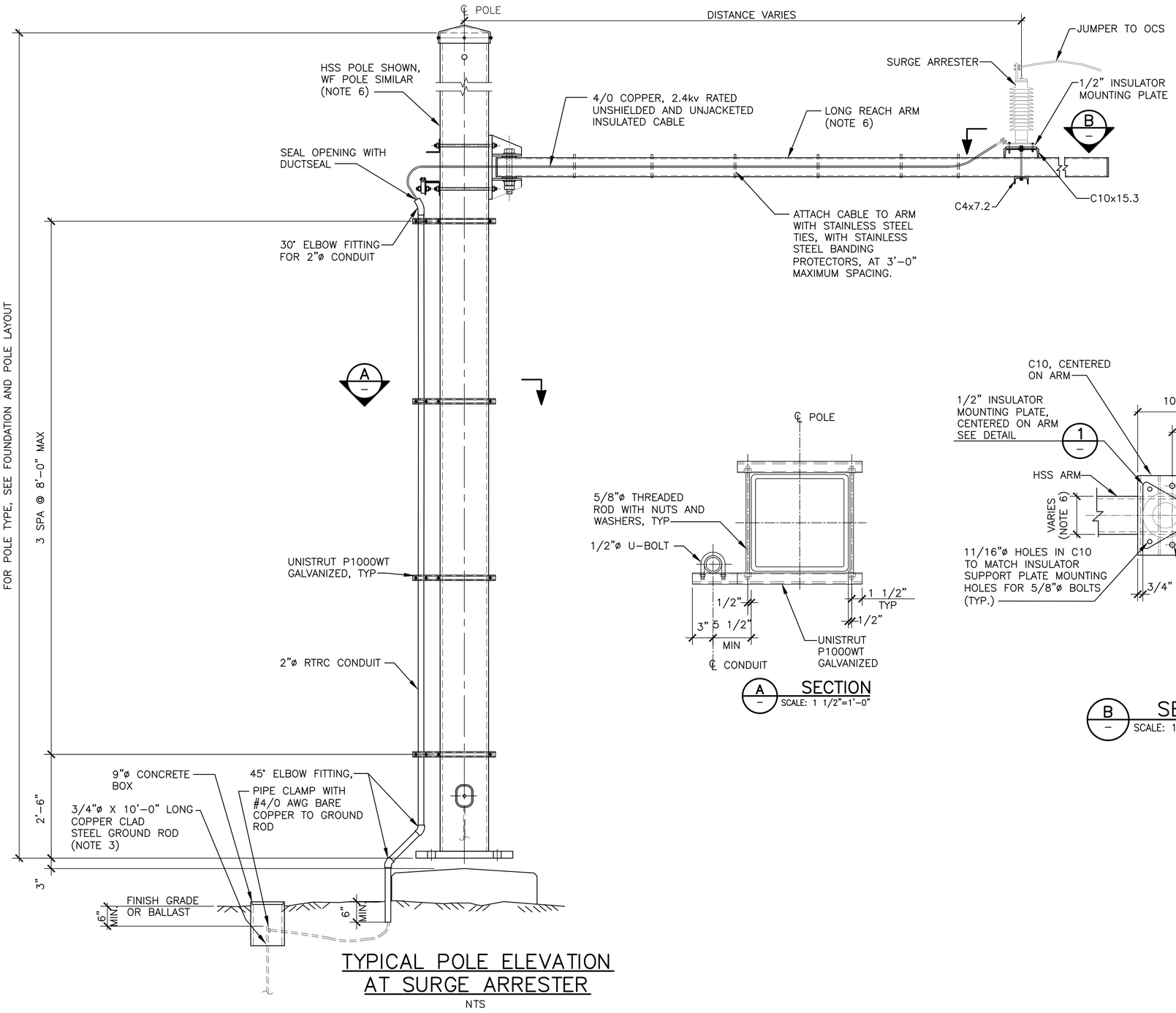
SURGE ARRESTER
MOUNTING DETAILS ON POLE

CADD FILE NAME: SD–W5284

REV: | EDITION: SECOND

SCALE: AS SHOWN

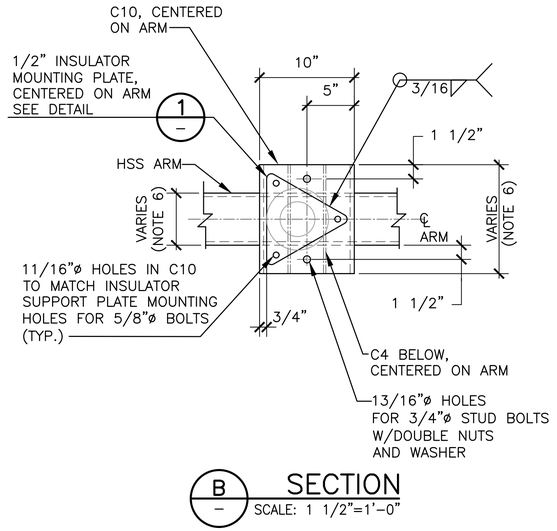
STANDARD DRAWING NO.: SD–W5284



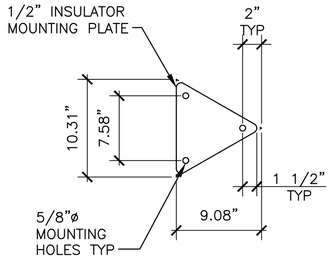
TYPICAL POLE ELEVATION AT SURGE ARRESTER

NTS

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 SD-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. SEE MATERIAL ALLOCATION DRAWINGS FOR SURGE ARRESTER LOCATIONS AND WIRE TERMINATION HEIGHT. NOTIFY ENGINEER IF SURGE ARRESTER IS LOCATED ON A POLE WITH OTHER ASSEMBLIES.
5. CABLE BENDS SHALL NOT EXCEED MAXIMUM ALLOWED BY MANUFACTURER.
6. FOR INFORMATION NOT SHOWN SEE POLE DETAIL DRAWINGS.

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REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

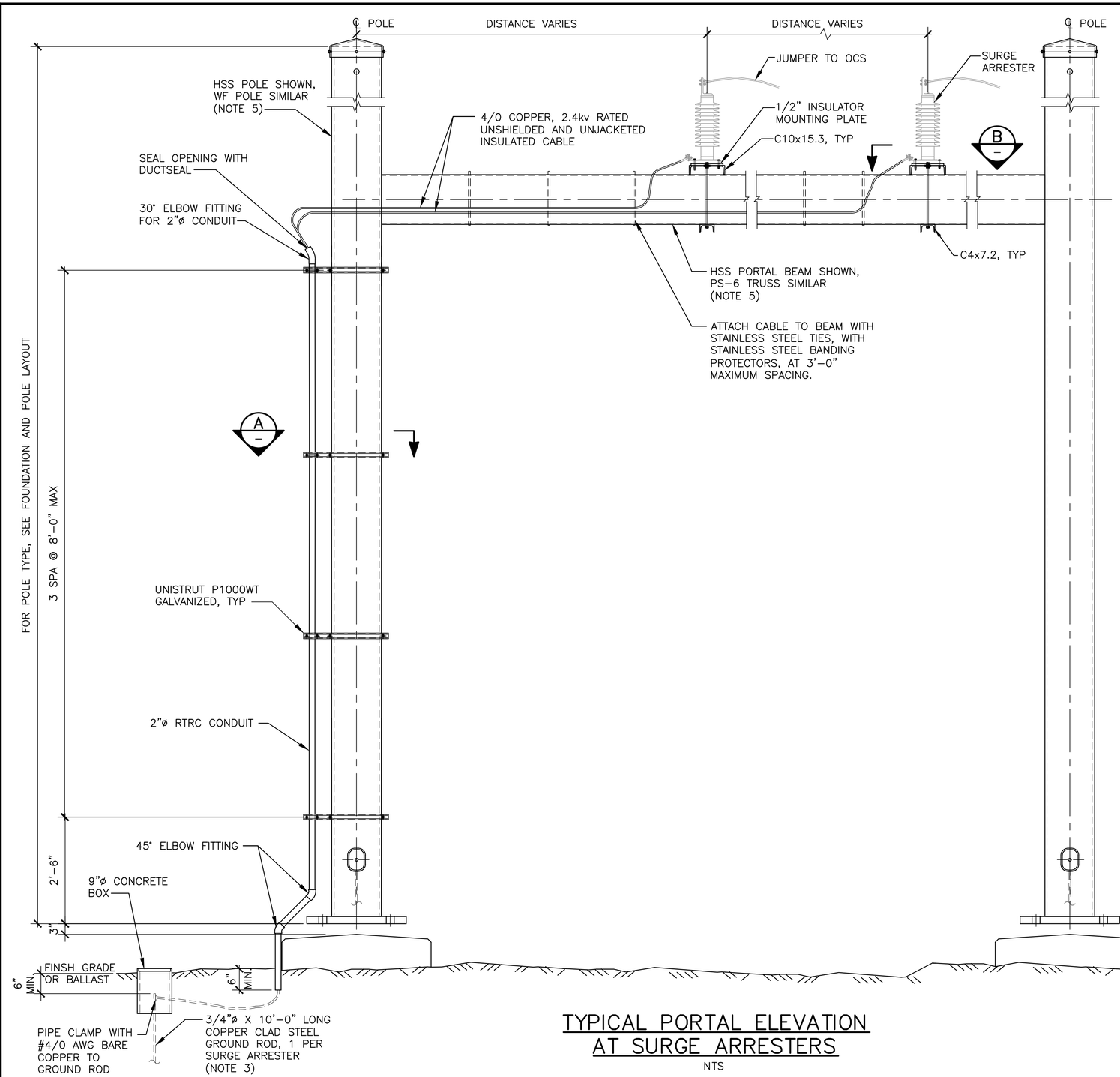
APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES

1 SURGE ARRESTER
MOUNTING DETAILS ON ARM

CADD FILE NAME: SD-W5284A
REV:
EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD-W5284A

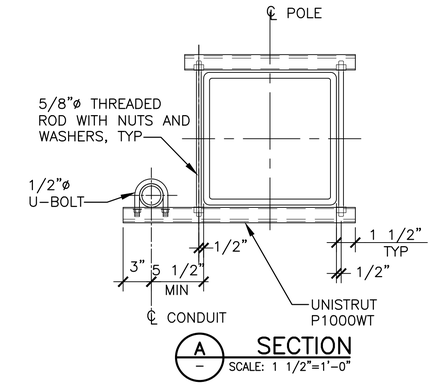


TYPICAL PORTAL ELEVATION AT SURGE ARRESTERS

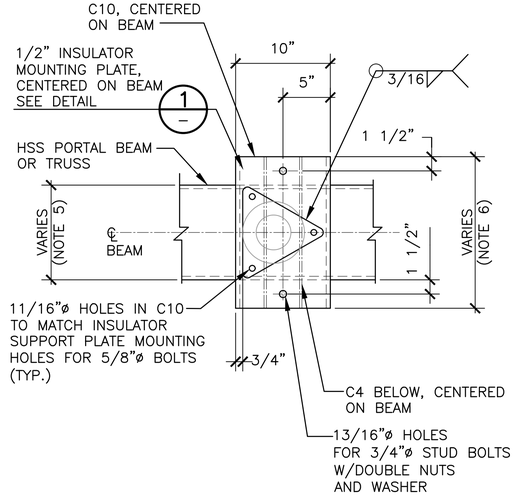
NTS

NOTES:

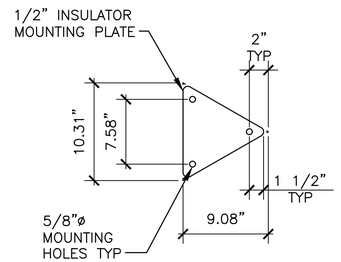
1. FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS SEE DRAWING SD-W0101.
2. ALL HOLES IN MAST, BEAMS AND MISCELLANEOUS STEEL SHALL BE PRE-DRILLED IN SHOP PRIOR TO GALVANIZING.
3. PROVIDE A MINIMUM OF ONE GROUND ROD PER SURGE ARRESTER AT ALL POLES WITH SURGE ARRESTERS. INSTALL GROUND ROD OUTSIDE OF TRAVELLED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



A — SECTION
SCALE: 1 1/2"=1'-0"



B — SECTION
SCALE: 1 1/2"=1'-0"



1 — DETAIL
SCALE: 1 1/2"=1'-0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

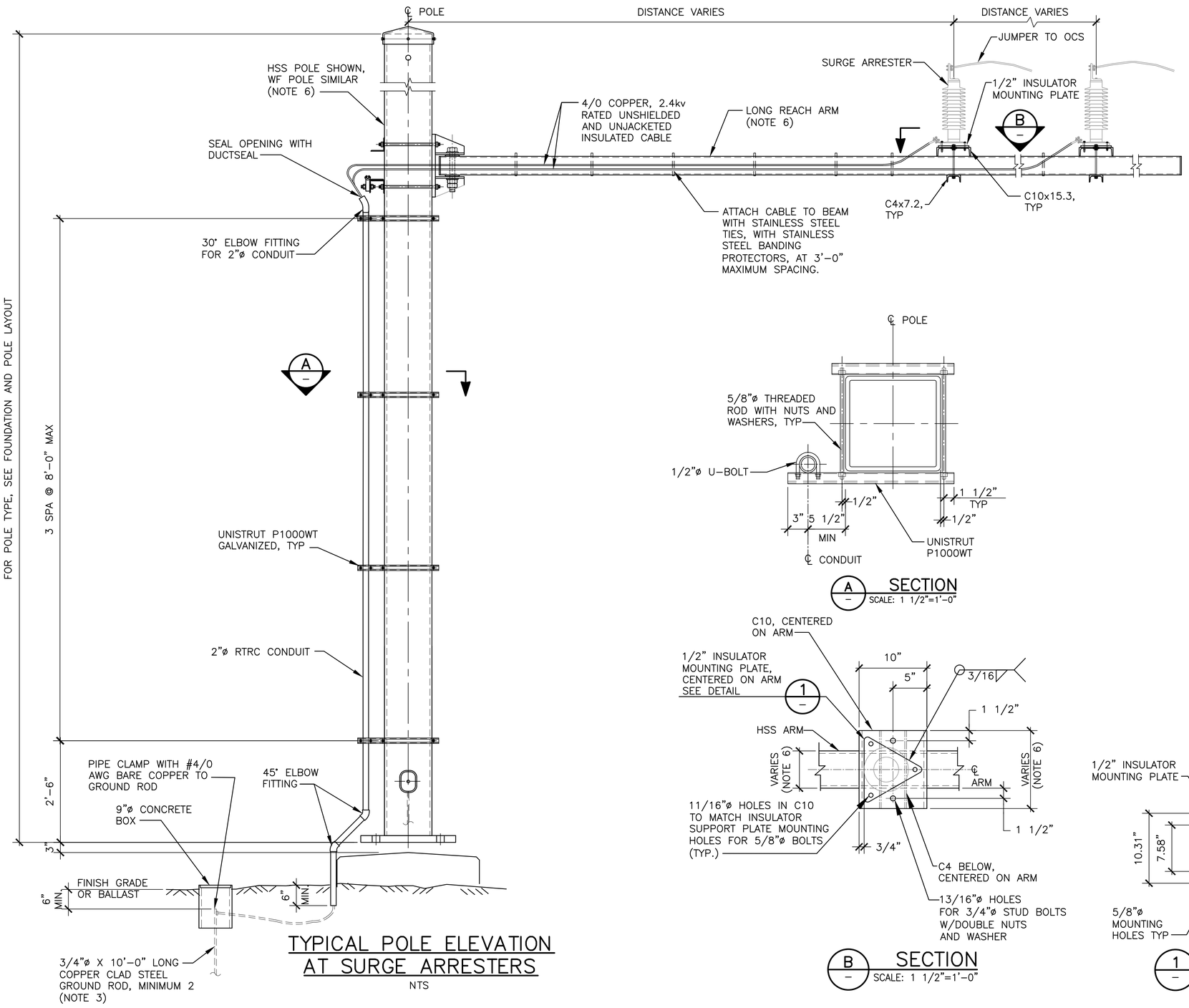
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ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTALS

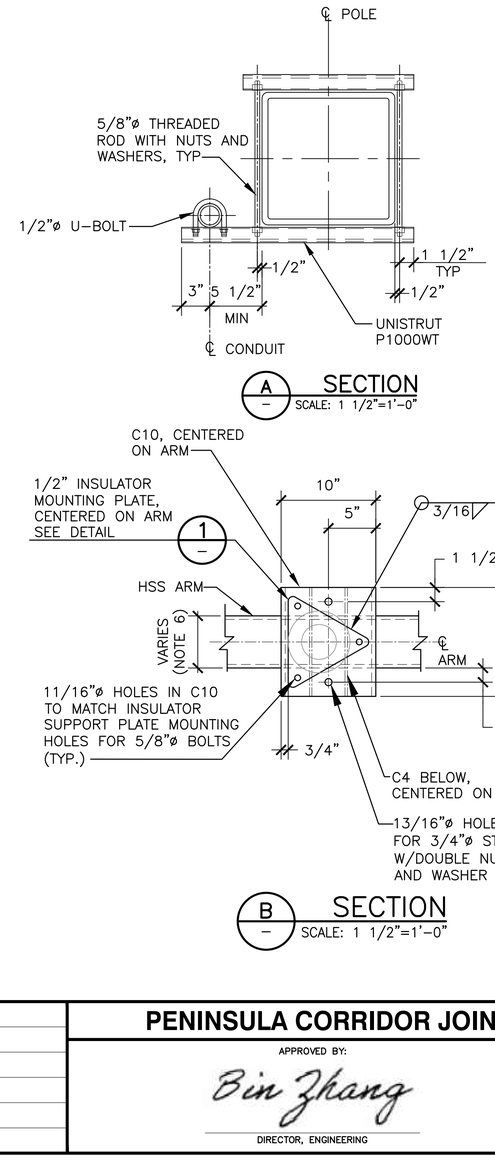
2 SURGE ARRESTERS
MOUNTING DETAILS ON BEAM

CADD FILE NAME: SD-W5284B
REV: | EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD-W5284B



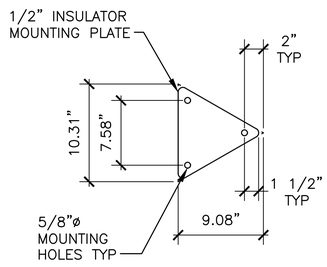
TYPICAL POLE ELEVATION AT SURGE ARRESTERS

NTS



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 SD-W0101.
2. ALL HOLES IN MAST, BEAMS AND MISCELLANEOUS STEEL SHALL BE PRE-DRILLED IN SHOP PRIOR TO GALVANIZING.
3. PROVIDE A MINIMUM OF TWO GROUND RODS AT ALL LRC POLES WITH TWO SURGE ARRESTERS. INSTALL GROUND RODS OUTSIDE OF TRAVELLED WAY OR BALLAST.
4. SEE MATERIAL ALLOCATION DRAWINGS FOR SURGE ARRESTER LOCATIONS AND WIRE TERMINATION HEIGHTS. 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 POLE DETAIL DRAWINGS.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

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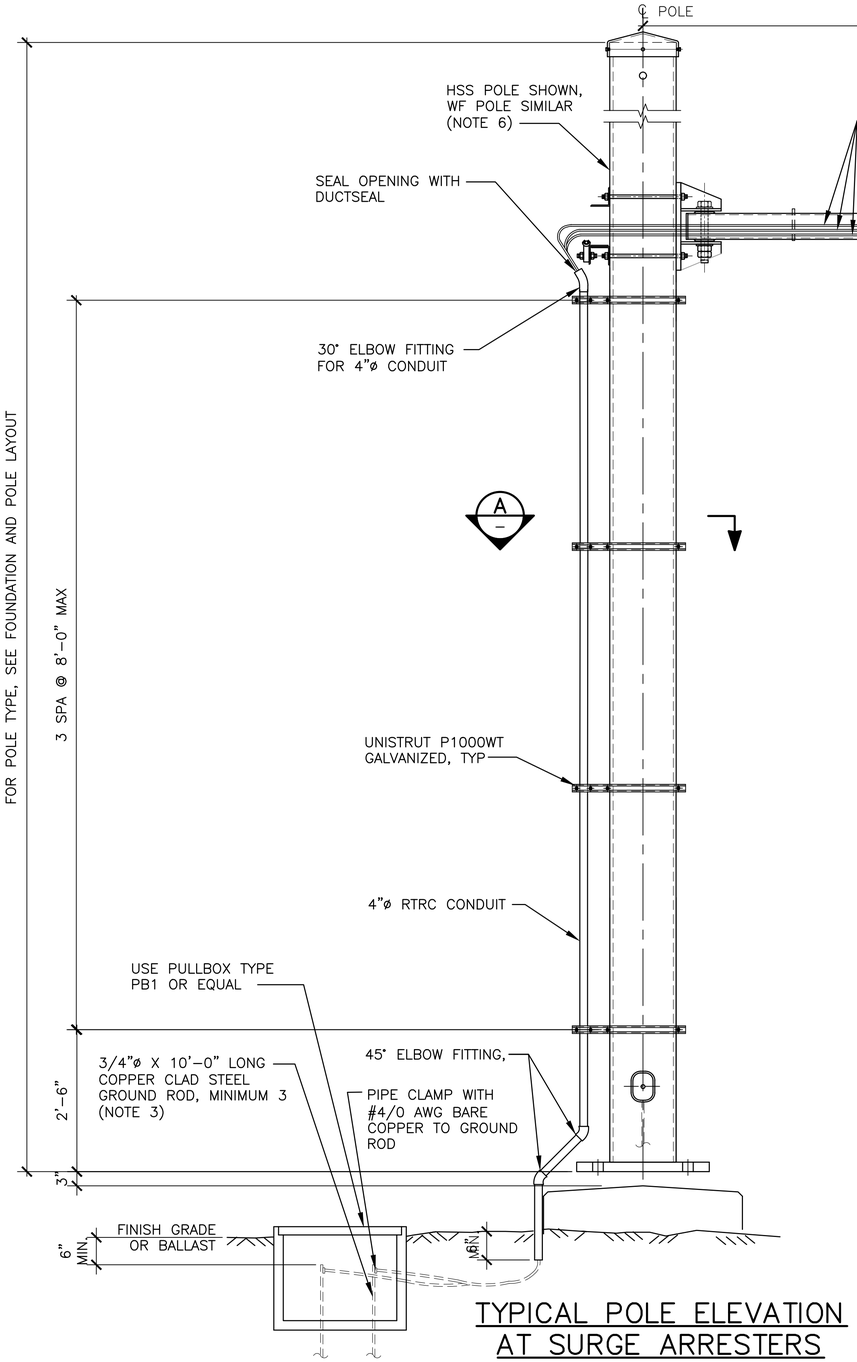
DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS POLES

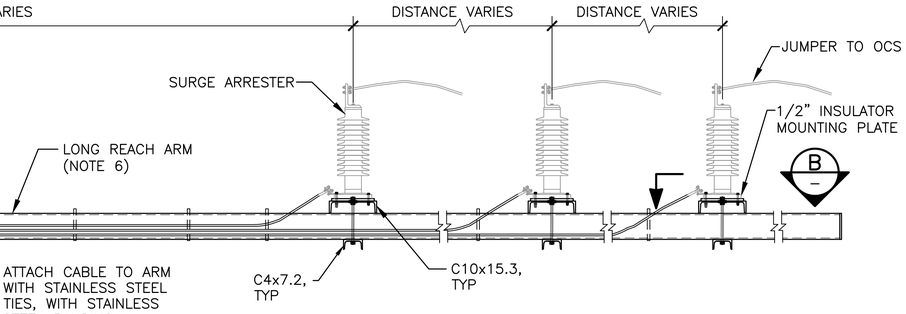
2 SURGE ARRESTERS
MOUNTING DETAILS ON ARM

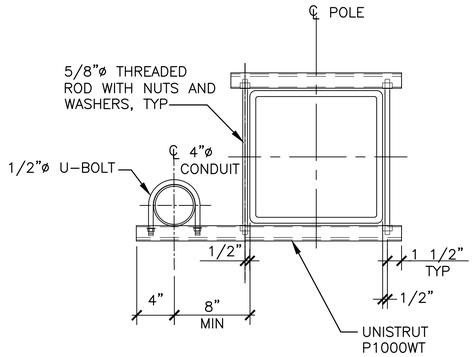
CADD FILE NAME: SD-W5284C
REV:
EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD-W5284C



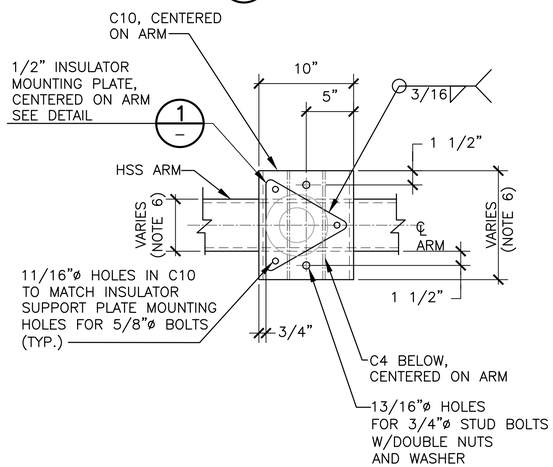
TYPICAL POLE ELEVATION AT SURGE ARRESTERS

NTS

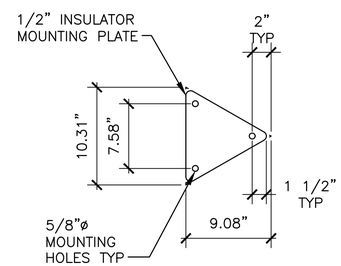




A — SECTION
SCALE: 1 1/2"=1'-0"



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 SD-W0101.
2. ALL HOLES IN MAST, BEAMS AND MISCELLANEOUS STEEL SHALL BE PRE-DRILLED IN SHOP PRIOR TO GALVANIZING.
3. PROVIDE A MINIMUM OF THREE GROUND RODS AT ALL LRC POLES WITH THREE SURGE ARRESTERS. INSTALL GROUND RODS OUTSIDE OF TRAVELLED WAY OR BALLAST.
4. SEE MATERIAL ALLOCATION DRAWINGS FOR SURGE ARRESTER LOCATIONS AND WIRE TERMINATION HEIGHTS. 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 POLE DETAIL DRAWINGS.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

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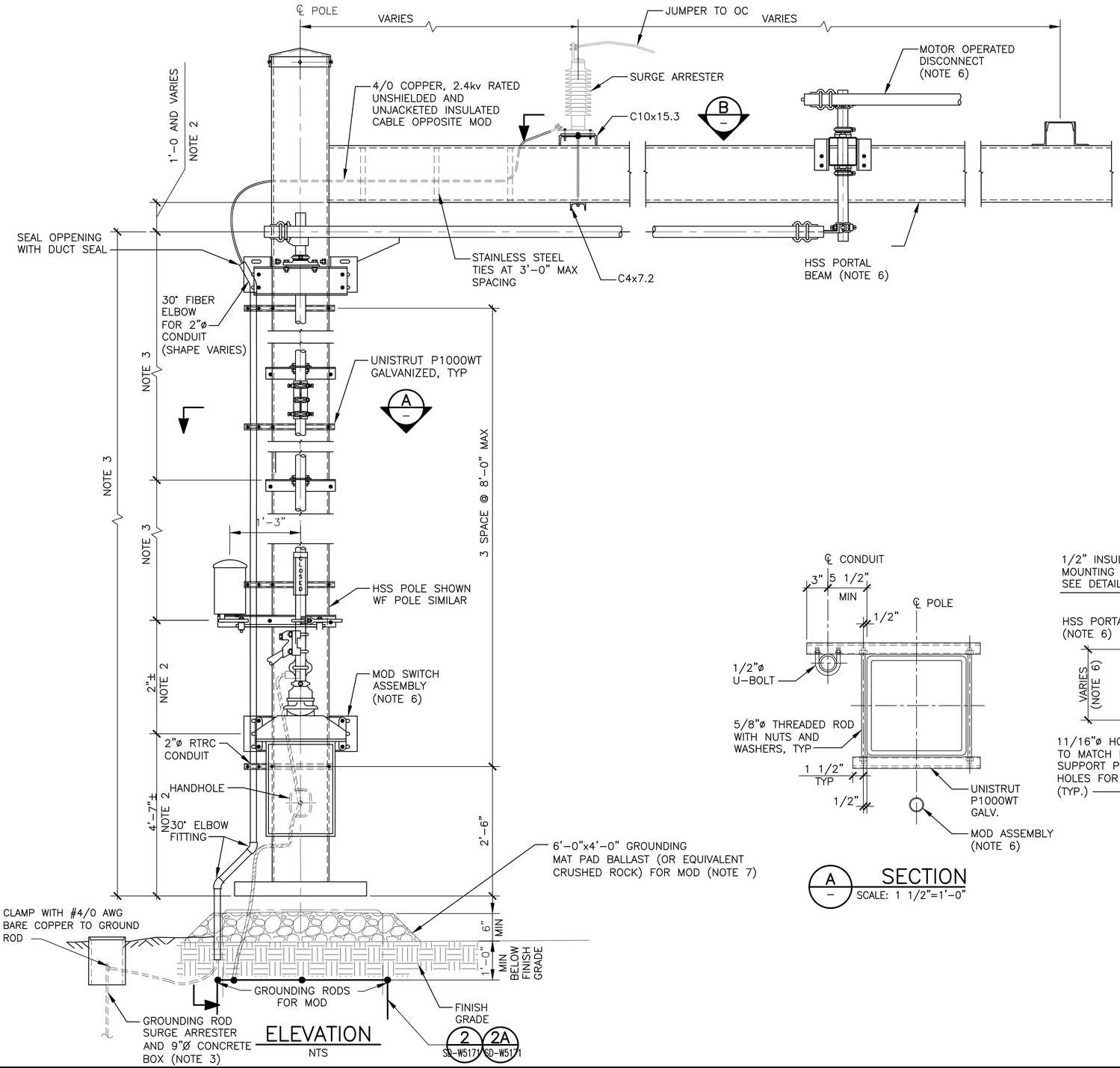
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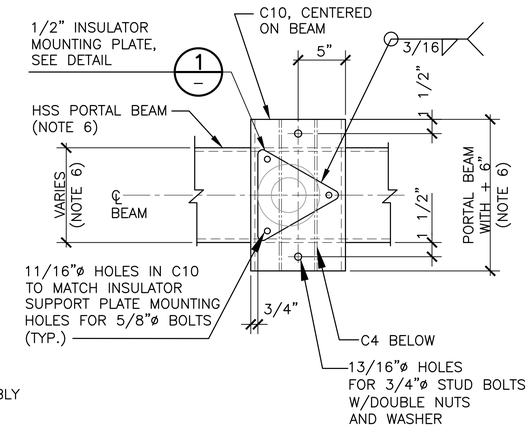
ENGINEERING STANDARD DRAWINGS

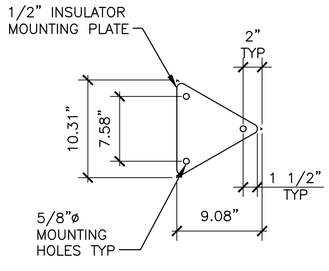
OVERHEAD CONTACT SYSTEM
OCS POLES

3 SURGE ARRESTERS
MOUNTING DETAILS ON ARM

CADD FILE NAME: SD-W5284D
REV: EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD-W5284D







NOTES:

1. FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS SEE DRAWING SD-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 TRAVELLED WAY OR BALLAST.
4. SEE MATERIAL ALLOCATION DRAWINGS FOR SURGE ARRESTER AND MOD SWITCH LOCATIONS AND TERMINATION HEIGHT.
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.
7. WHERE DISCONNECT SWITCH GROUNDING MATS ARE INSTALLED IN CONCRETE OR ASPHALT PAVEMENT, THE SECTION WILL BE REPLACED IN KIND ABOVE THE GROUNDING MAT ASSEMBLY AND WILL PROVIDE A 1'-6" DEPTH FROM THE FINISHED GRADE TO THE MAT.
8. INSULATED GROUND CABLE(S) SHALL BE PROTECTED WITH INSULATED SLEEVES IN CONJUNCTION WITH STAINLESS STEEL TIES USED TO SUPPORT THE CABLE ONTO OCS STRUCTURES.
9. DRILLING OR PUNCTURE OF THE MOD MOTOR MECHANISM CASE ENCLOSURE SHALL NOT BE ALLOWED. MOD SUPPLIER SHALL PROVIDE SUFFICIENT GROUNDING POINTS ON THE CASE NOT TO COMPROMISE THE ENCLOSURE NAME 4X RATING.

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	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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DIRECTOR, ENGINEERING

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ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTALS

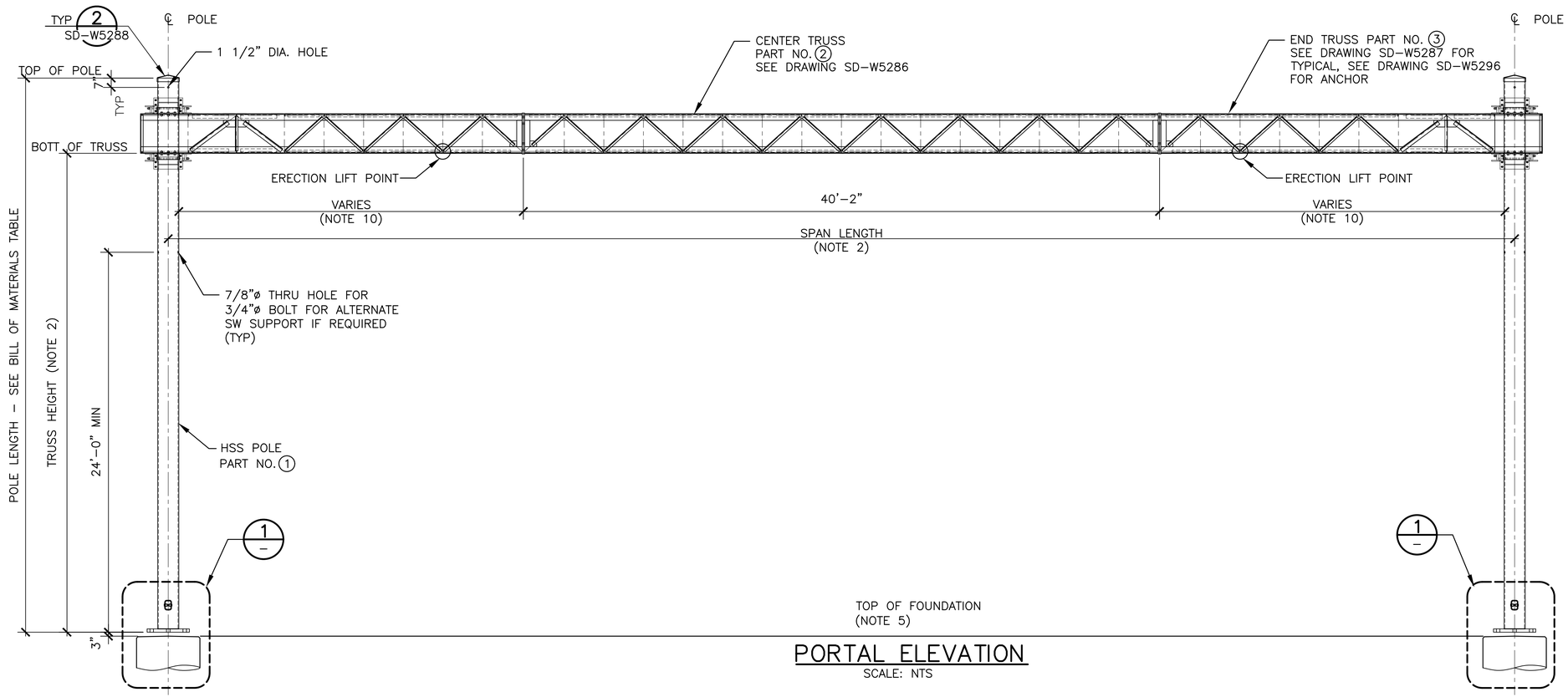
SURGE ARRESTER & MOD SWITCH MOUNTING DETAILS ON BEAM

CADD FILE NAME: SD-W5284E

REV: | EDITION: SECOND

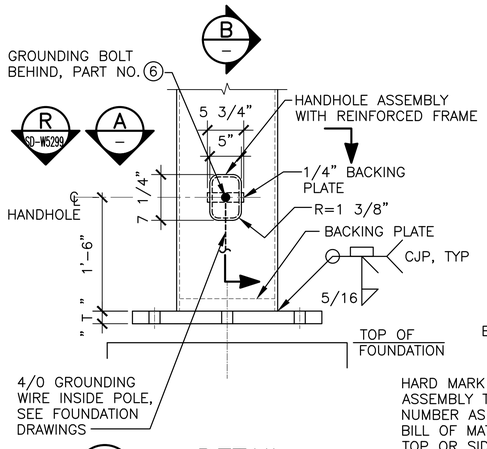
SCALE: AS SHOWN

STANDARD DRAWING NO.: SD-W5284E



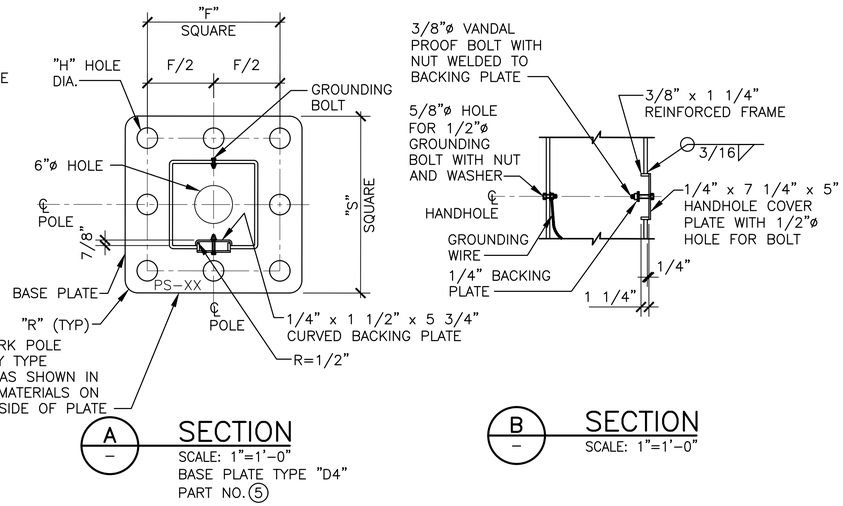
PORTAL ELEVATION

SCALE: NTS



1 / – DETAIL

SCALE: 1"=1'-0"
BASE PLATE TYPE "D4" SHOWN
TYPE "D" SIMILAR



A / – SECTION

SCALE: 1"=1'-0"
BASE PLATE TYPE "D4"
PART NO. 5

B / – SECTION

SCALE: 1"=1'-0"

NOTES:

1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS SEE DRAWING SD-W0101.
2. HORIZONTAL TRUSS LENGTH, POLE HEIGHTS AND BOTTOM OF TRUSS LOCATIONS WILL BE DETERMINED BY THE FIELD AT EACH LOCATION PRIOR TO FABRICATION. CONTRACTOR SHALL NOTIFY ENGINEER IF SPAN LENGTH IS GREATER THAN 110'.
3. ALL HOLES IN MAST, TRUSS, AND MISCELLANEOUS STEEL SHALL BE PRE-DRILLED IN SHOP PRIOR TO GALVANIZING.
4. ALL POLES SHALL BE SET PLUMB WITH NO RAKE TO ENSURE PROPER CONNECTION BETWEEN POLE AND HORIZONTAL TRUSS.
5. SEE SD-W5008A FOR REQUIREMENTS FOR PORTALS OVER TRACKS WITH VARYING HRL ELEVATIONS. SEE MATERIAL ALLOCATION DRAWINGS FOR NUMBER, LOCATION AND LENGTH OF DROP TUBES AND WIRE INFORMATION.
6. SEE MATERIAL ALLOCATION, BASIC DESIGN ASSEMBLY AND TRACTION POWER SYSTEM DRAWINGS FOR WIRE, ANCHOR AND SUPPORT INFORMATION.
7. SEE FOUNDATION AND POLE LAYOUT FOR POLE TYPE AT EACH SIDE OF PORTAL IF VARIES.
8. PRIOR TO THE RELEASE OF THE TEMPORARY TRUSS SUPPORT, FINAL ADJUSTMENTS TO THE CHAIR AND CHANNEL SUPPORTS SHALL BE MADE AND THE BOLTS FOR THESE ASSEMBLIES FULLY TIGHTENED. ERECTION LIFT POINTS ARE BASED ON THE ASSUMPTION THAT THE TRUSS WILL BE LIFTED AFTER THE CONNECTION OF THE END AND CENTER TRUSSES. LIFT POINTS ARE LOCATED AT THE BOTTOM CHORD IN THE FIRST PANEL OF THE END TRUSS AS SHOWN. NOTIFY ENGINEER IF ALTERNATE LIFTING METHOD IS USED.
9. THE ANCHOR END TRUSS IS VALID ONLY WHERE APPROVED BY THE ENGINEER. NOTIFY ENGINEER IF ANY WIRES ARE TERMINATED ON ANY OTHER PORTAL TRUSS AND THE TRUSS SECTION SHALL BE EVALUATED ON A CASE SPECIFIC BASIS.
10. THE END TRUSS LENGTH VARIES BASED ON THE TRUSS SPAN LENGTH.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING ALL PHASES OF CONSTRUCTION. TEMPORARY SUPPORTS SHALL BE GRADUALLY RELEASED TO PREVENT UNDUE STRESSES IN THE STRUCTURE.
12. PROVIDE THE MINIMUM ROOT FACE THICKNESS REQUIRED FOR ALL PJP WELDS.
13. PORTAL PS-6X IS ONLY VALID FOR LOCATIONS EVALUATED AND APPROVED BY THE ENGINEER. SEE DRAWING SD-W5299 FOR PS-6X DETAILS.

TABLE 1 BASE PLATE DIMENSIONS (IN)

BASE PLATE	DESCRIPTION	S	F	H	R	T	B	ANCHOR BOLT DIA
TYPE "D"	BASE PLATE FOR PS-6X	28	21	2 3/8	2	2 1/2	29.70	2
TYPE "D4"	BASE PLATE FOR PS-6A, PS-6B & PS-6C	32	25	2 5/8	2	2 1/2	35.35	2 1/4

QUANTITIES						
	2	2	2	REMOVABLE CAP PLATE	7	
	2	2	2	1/2"ø GROUNDING BOLT	6	
	–	–	2	BASE PLATE TYPE "D"	5	
	2	2	–	BASE PLATE TYPE "D4"	5	
	3	3	3	DROP TUBE HSS 5 1/2 x 5 1/2 x 3/8 x 10'-0"	4	NOTE 5
	–	–	–	ANCHOR END TRUSS – BUILT-UP MEMBERS x 32'-5 1/2"	3	NOTE 9
	2	2	2	TYPICAL END TRUSS – BUILT-UP MEMBERS x LENGTH VARIES	3	NOTE 2
	1	1	1	CENTER TRUSS – BUILT-UP MEMBERS x 40'-2" LENGTH	2	
	–	–	2	POLE – BUILT-UP HSS 14 x 14 x 5/8 x 40'-0"	1	NOTE 13
	–	2	–	POLE – HSS 16 x 16 x 5/8 x 41'-0"	1	NOTE 7
	2	–	–	POLE – HSS 16 x 16 x 5/8 x 38'-0"	1	NOTE 7
	–	–	–	POLE – HSS 16 x 16 x 5/8 x 35'-0"	1	NOTE 7
PS-6A	PS-6B	PS-6C	PS-6X	DESCRIPTION	PART NO.	REMARKS
ASSEMBLY TYPE						

BILL OF MATERIALS

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REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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DIRECTOR, ENGINEERING

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ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTALS

TYPE PS-6
SHEET 1 OF 15

CADD FILE NAME: SD-W5285

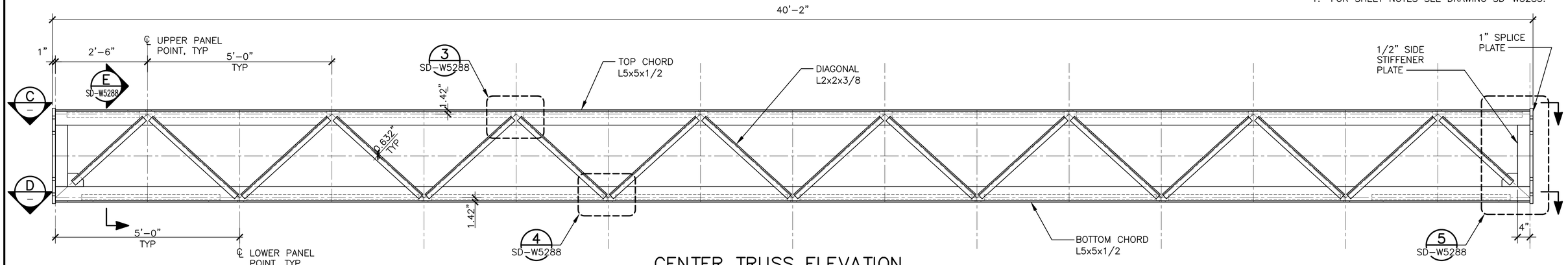
REV: | EDITION: SECOND

SCALE: AS SHOWN

STANDARD DRAWING NO.: SD-W5285

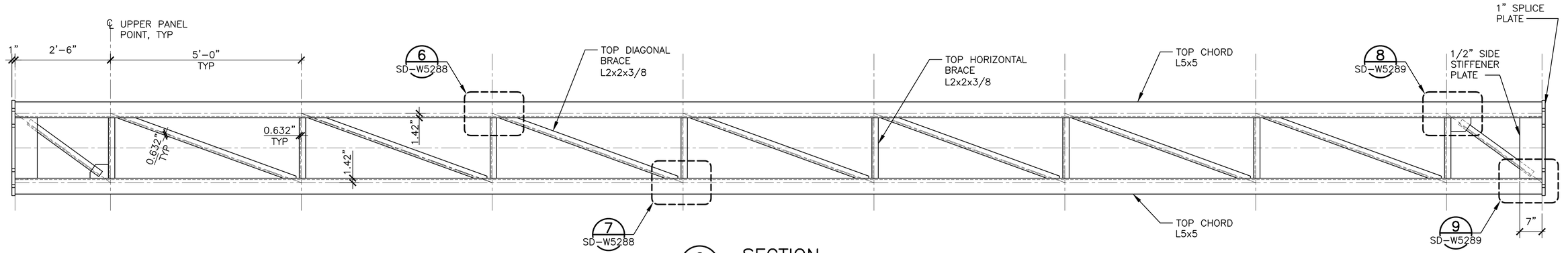
NOTE:

1. FOR SHEET NOTES SEE DRAWING SD-W5285.



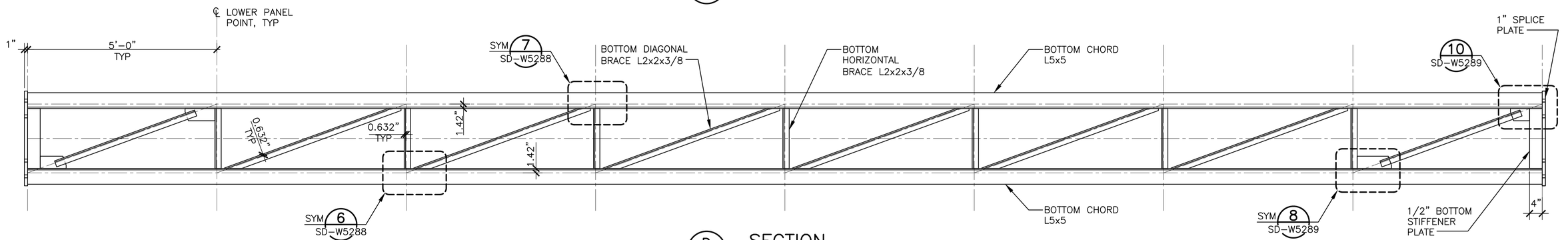
CENTER TRUSS ELEVATION

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



C – SECTION

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



D – SECTION

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

REV	DATE	BY	CHK	APP	DESCRIPTION
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REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTALS

TYPE PS-6
SHEET 2 OF 15

CADD FILE NAME: SD-W5286

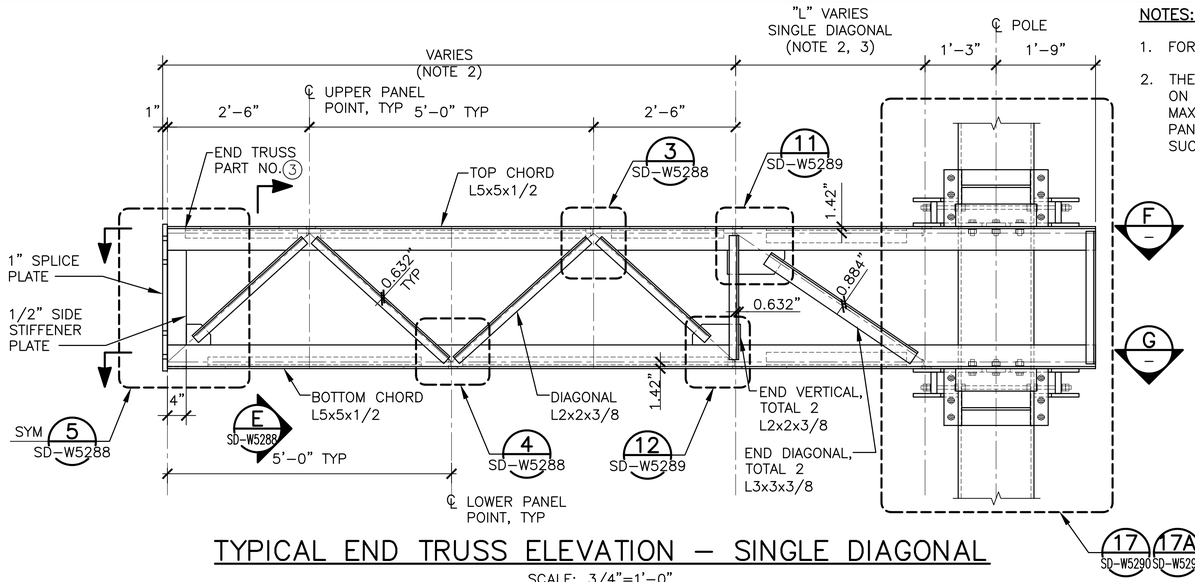
REV: | EDITION: SECOND

SCALE: AS SHOWN

STANDARD DRAWING NO.: SD-W5286

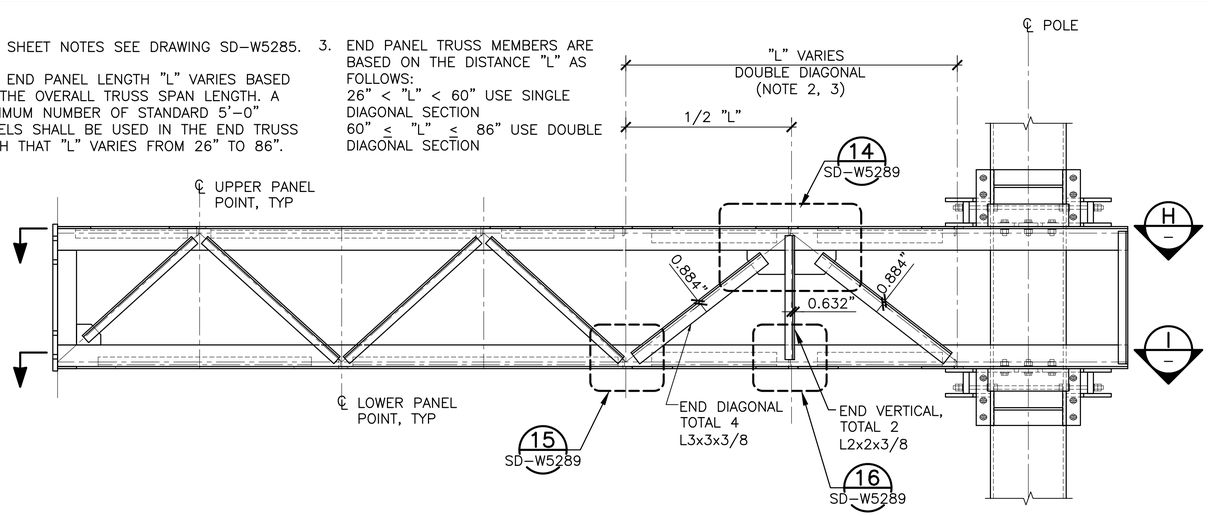
NOTES:

1. FOR SHEET NOTES SEE DRAWING SD-W5285.
2. THE END PANEL LENGTH "L" VARIES BASED ON THE OVERALL TRUSS SPAN LENGTH. A MAXIMUM NUMBER OF STANDARD 5'-0" PANELS SHALL BE USED IN THE END TRUSS SUCH THAT "L" VARIES FROM 26" TO 86".
3. END PANEL TRUSS MEMBERS ARE BASED ON THE DISTANCE "L" AS FOLLOWS:
   26" < "L" < 60" USE SINGLE DIAGONAL SECTION
   60" ≤ "L" ≤ 86" USE DOUBLE DIAGONAL SECTION



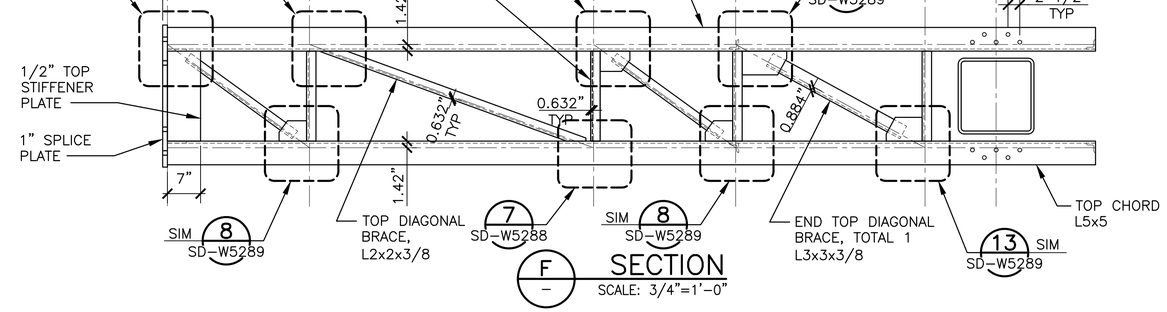
TYPICAL END TRUSS ELEVATION – SINGLE DIAGONAL

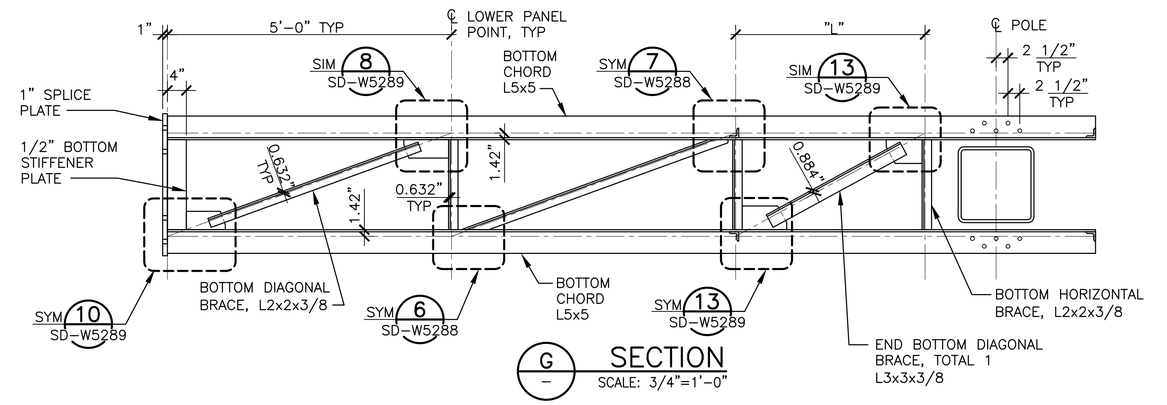
SCALE: 3/4"=1'-0"
PART NO.3

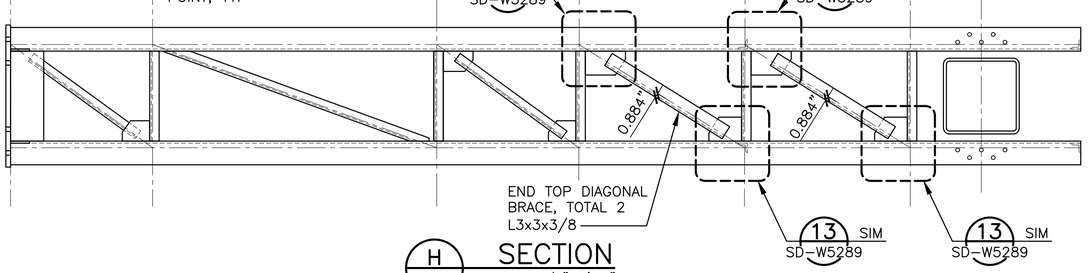


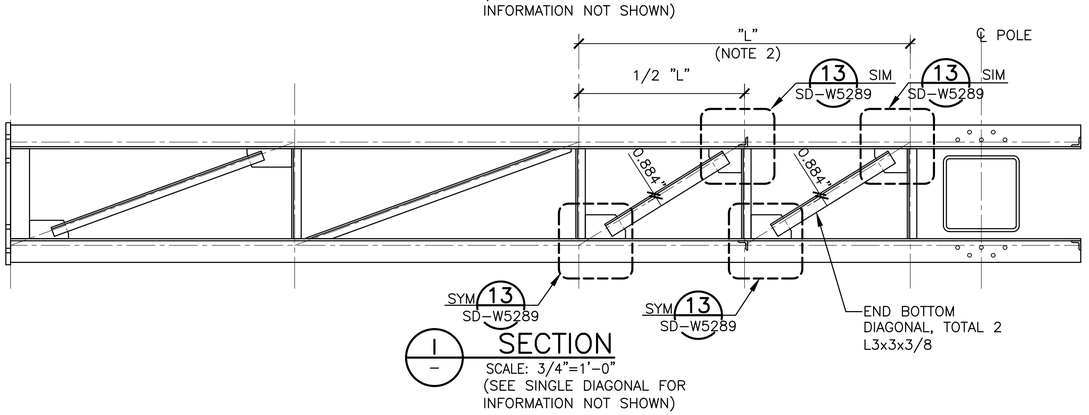
TYPICAL END TRUSS ELEVATION – DOUBLE DIAGONAL

SCALE: 3/4"=1'-0"
PART NO.3
(SEE SINGLE DIAGONAL FOR INFORMATION NOT SHOWN)









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REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

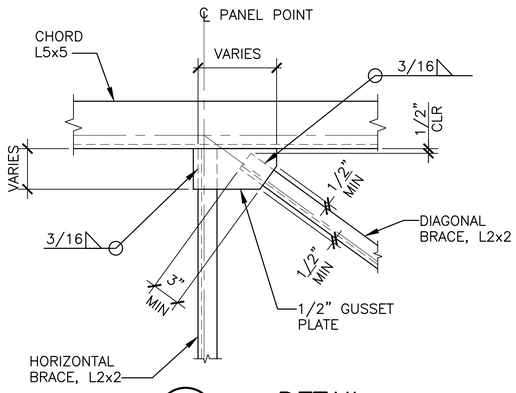
APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

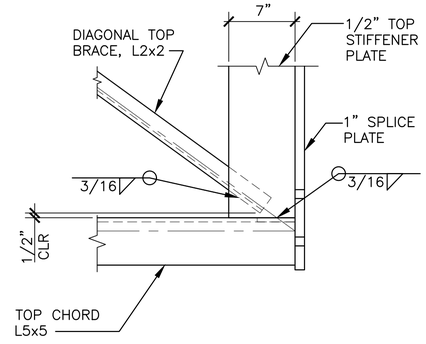
OVERHEAD CONTACT SYSTEM
OCS PORTALS

TYPE PS-6
SHEET 3 OF 15

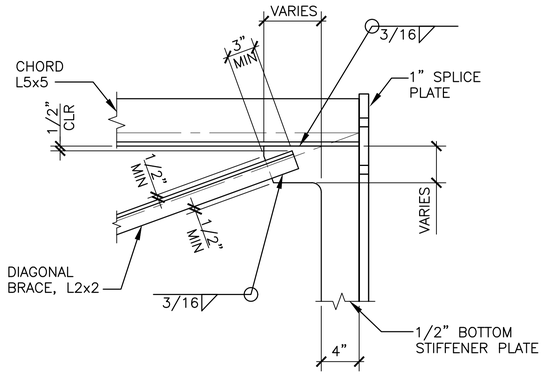
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REV: | EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD-W5287



8 DETAIL
SD–W5286 SD–W5287 SCALE: 1 1/2"=1'–0"



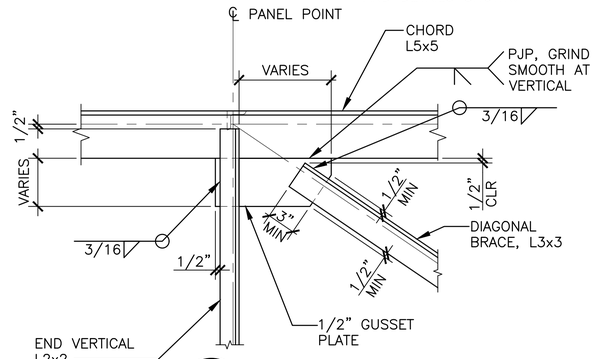
9 DETAIL
SD–W5286 SD–W5287 SCALE: 1 1/2"=1'–0"



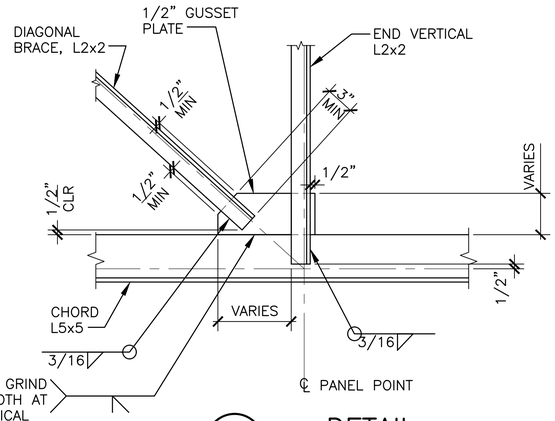
10 DETAIL
SD–W5286 SD–W5287 SCALE: 1 1/2"=1'–0"

NOTES:

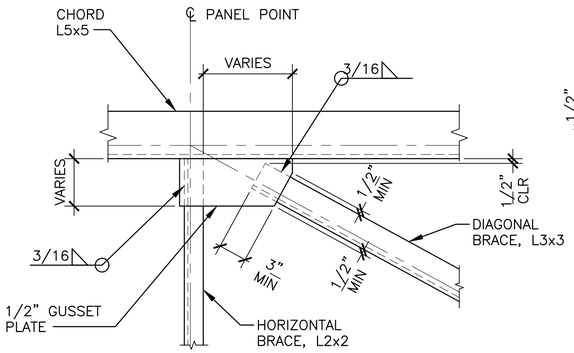
1. FOR SHEET NOTES SEE DRAWING SD–W5285.
2. ACTUAL DIMENSIONS OF GUSSET PLATES SHALL BE DEVELOPED BY THE CONTRACTOR BASED ON REQUIRED WELDS, GEOMETRY, AND DETAILS SHOWN.



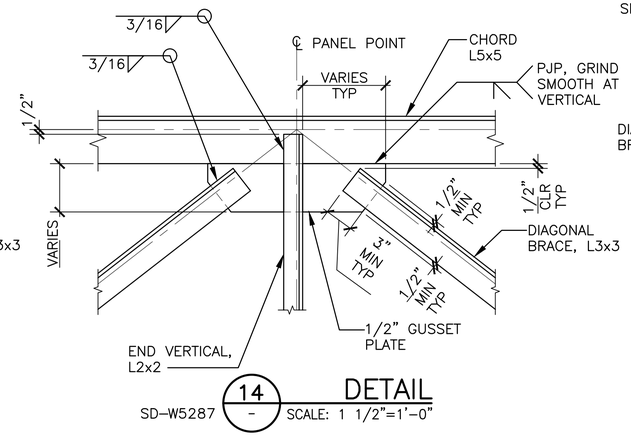
11 DETAIL
SD–W5287 SCALE: 1 1/2"=1'–0"



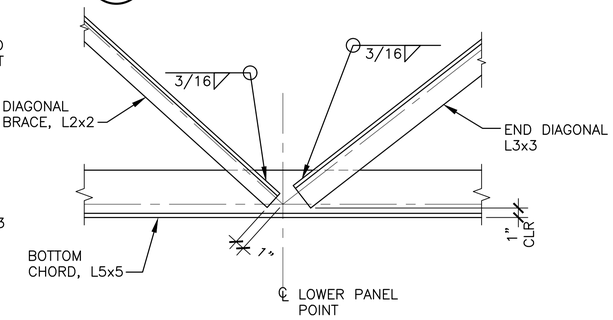
12 DETAIL
SD–W5287 SCALE: 1 1/2"=1'–0"



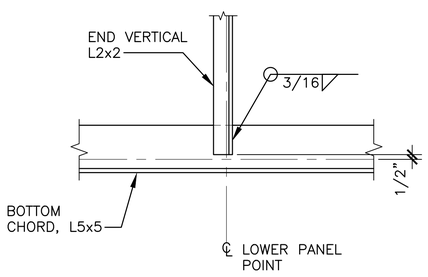
13 DETAIL
SD–W5287 SCALE: 1 1/2"=1'–0"



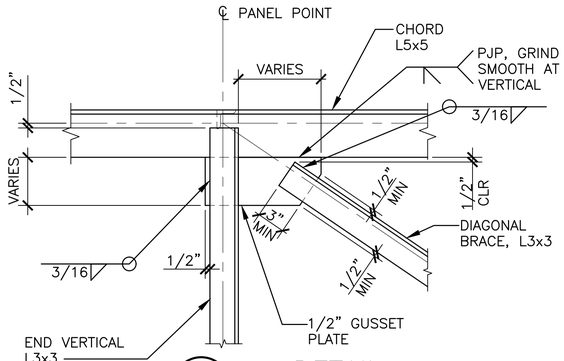
14 DETAIL
SD–W5287 SCALE: 1 1/2"=1'–0"



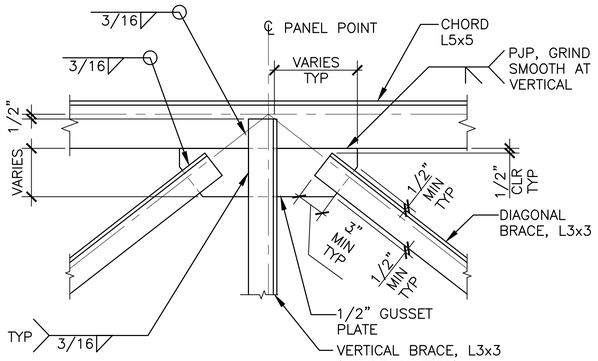
15 DETAIL
SD–W5287 SCALE: 1 1/2"=1'–0"



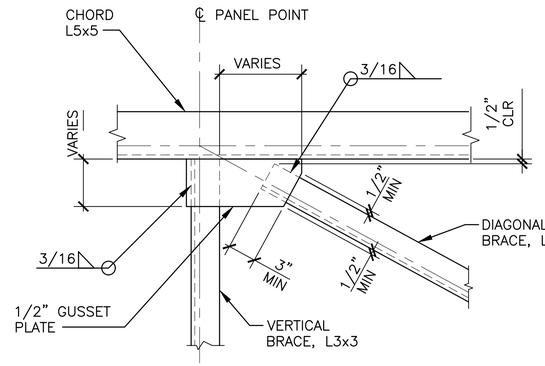
16 DETAIL
SD–W5287 SCALE: 1 1/2"=1'–0"



17 DETAIL
SD–W5296 SCALE: 1 1/2"=1'–0"



18 DETAIL
SD–W5296 SCALE: 1 1/2"=1'–0"



19 DETAIL
SD–W5296 SCALE: 1 1/2"=1'–0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

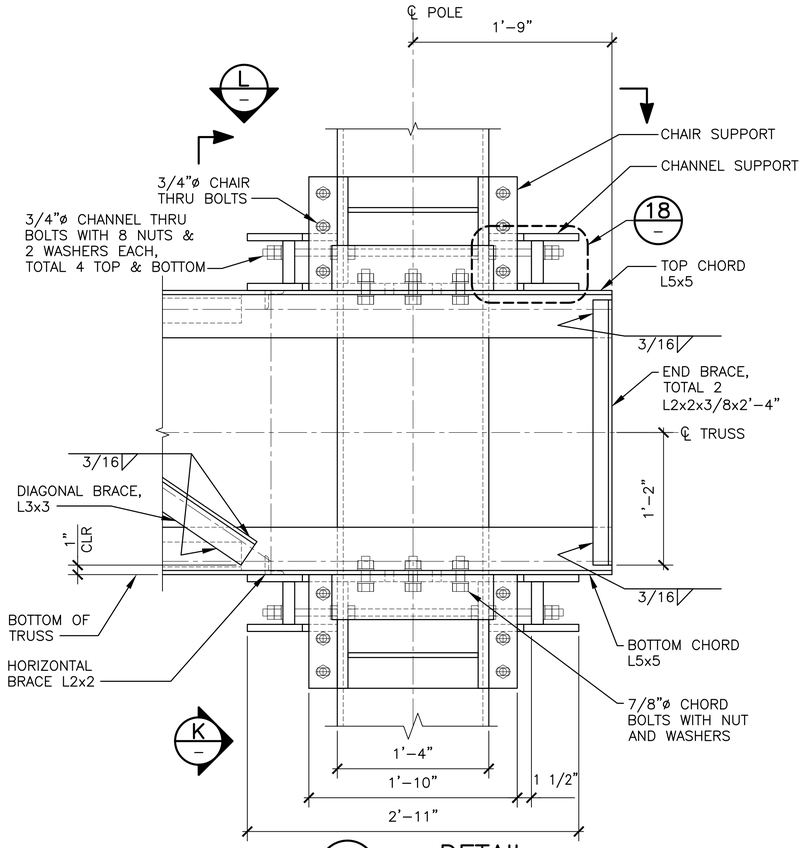
DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

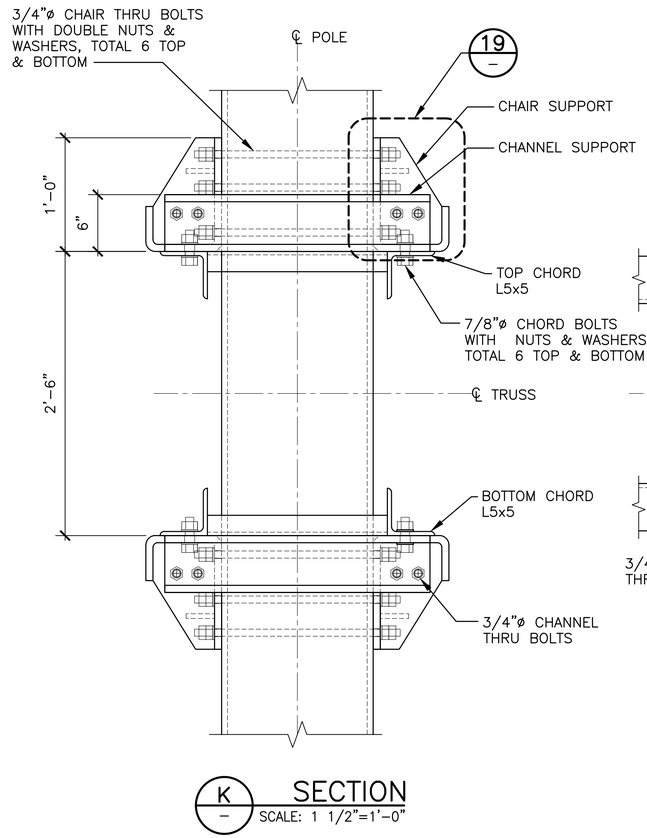
OVERHEAD CONTACT SYSTEM
OCS PORTALS

TYPE PS–6
SHEET 5 OF 15

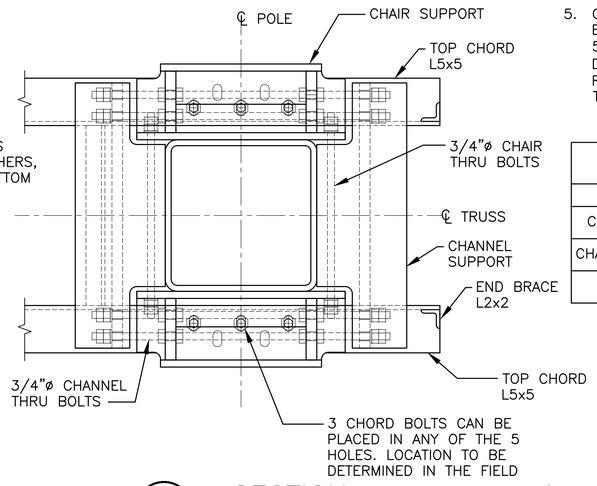
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REV: EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5289



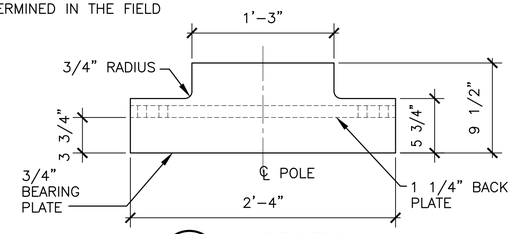
17 DETAIL
SD–W5287 SCALE: 1 1/2"=1'–0"



K SECTION
SCALE: 1 1/2"=1'–0"



L SECTION
SCALE: 1 1/2"=1'–0"



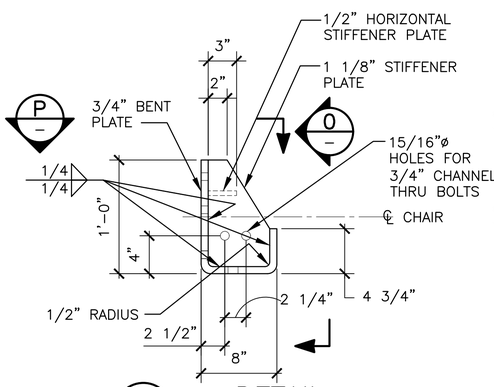
N SECTION
SCALE: 1 1/2"=1'–0"

NOTES:

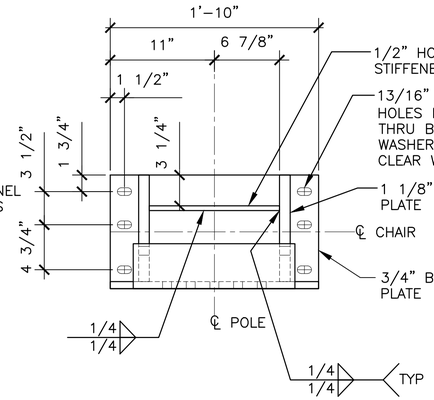
1. FOR SHEET NOTES SEE DRAWING SD–W5285.
2. CHAIR SUPPORT SHALL BE INSTALLED AND TIGHTENED PRIOR TO CHANNEL SUPPORT INSTALLATION.
3. THE CONNECTION SHALL BE COMPLETED PRIOR TO THE RELEASE OF THE TEMPORARY TRUSS SUPPORT DURING CONSTRUCTION.
4. 7/8" DIAMETER CHORD BOLTS SHALL BE A325–X TYPE.
5. CHORD BOLTS, CHAIR AND CHANNEL THRU BOLTS SHALL BE LUBRICATED WITH JET LUBE 550 (OR EQUIVALENT), A MOLYBDENUM DISULFIDE (MoS_2), GRAPHITE COMPOUND. THE REQUIRED BOLT TORQUES ARE SHOWN ON TABLE 1.

TABLE 1: BOLT TORQUES

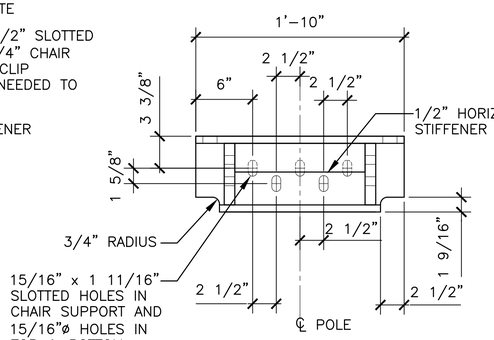
DESCRIPTION	DIAMETER	TORQUE
CHAIR THRU BOLT	3/4"	85 FT–LBS
CHANNEL THRU BOLT	3/4"	250 FT–LBS
CHORD BOLT	7/8"	500 FT–LBS



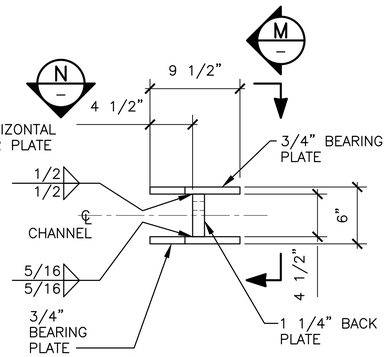
19 DETAIL
SCALE: 1 1/2"=1'–0"
CHAIR SUPPORT
(OTHER MEMBERS OMITTED FOR CLARITY)



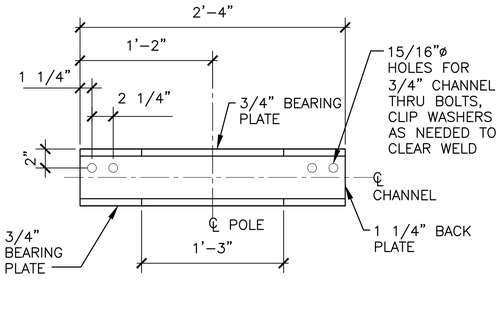
0 SECTION
SCALE: 1 1/2"=1'–0"



P SECTION
SCALE: 1 1/2"=1'–0"



18 DETAIL
SCALE: 1 1/2"=1'–0"
CHANNEL SUPPORT
(OTHER MEMBERS OMITTED FOR CLARITY)



M SECTION
SCALE: 1 1/2"=1'–0"

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PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
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DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTALS

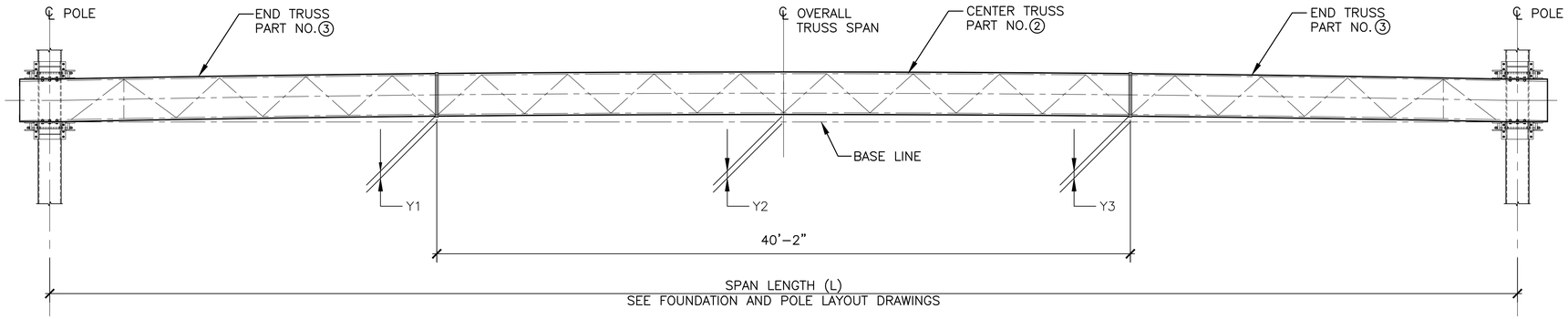
TYPE PS–6
SHEET 6 OF 15

CADD FILE NAME: SD–W5290
REV: EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5290

NOTES:

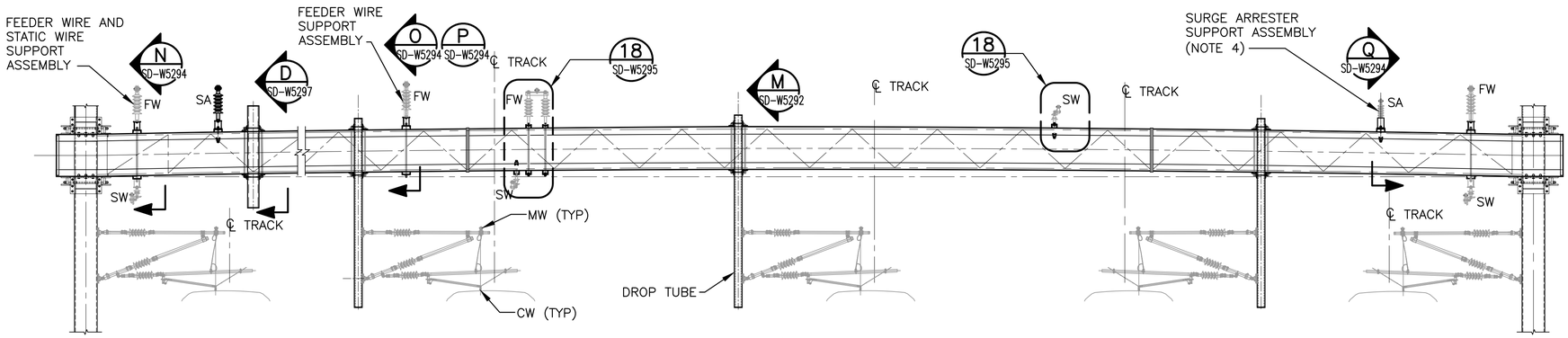
1. FOR SHEET NOTES SEE DRAWING SD–W5285.
2. ALL PROVIDED TRUSS DIMENSIONS ARE FOR THE FINAL CONDITION, AFTER CAMBER AND UNDER FULL DEAD LOAD, IN THE HORIZONTAL AND VERTICAL PLANES. ALL TRUSS VERTICAL MEMBERS AND TRUSS ENDS SHALL BE PLUMB. FABRICATOR SHALL DEVELOP DIMENSIONS WITH RESPECT TO DEFLECTION AND CAMBER.
3. SEE MATERIAL ALLOCATION AND BASIC DESIGN ASSEMBLY DRAWINGS FOR WIRE AND SUPPORT INFORMATION AND LOCATIONS.
4. SEE DRAWING SD–W5242A FOR WIRE TERMINATION AT SURGE ARRESTER INFORMATION NOT SHOWN.

CAMBER TABLE			
SPAN RANGE			
L, FT	Y1, IN	Y2, IN	Y3, IN
65 ≤ L ≤ 85	1.00	1.50	1.00
85 < L ≤ 100	2.20	2.70	2.20
100 < L ≤ 110	3.50	4.00	3.50



TRUSS CAMBER DIAGRAM

NTS



SCHEMATIC TRUSS DETAIL PS–6

NTS
(NOTE 3)

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REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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OVERHEAD CONTACT SYSTEM
OCS PORTALS

TYPE PS–6
SHEET 7 OF 15

CADD FILE NAME: SD–W5291

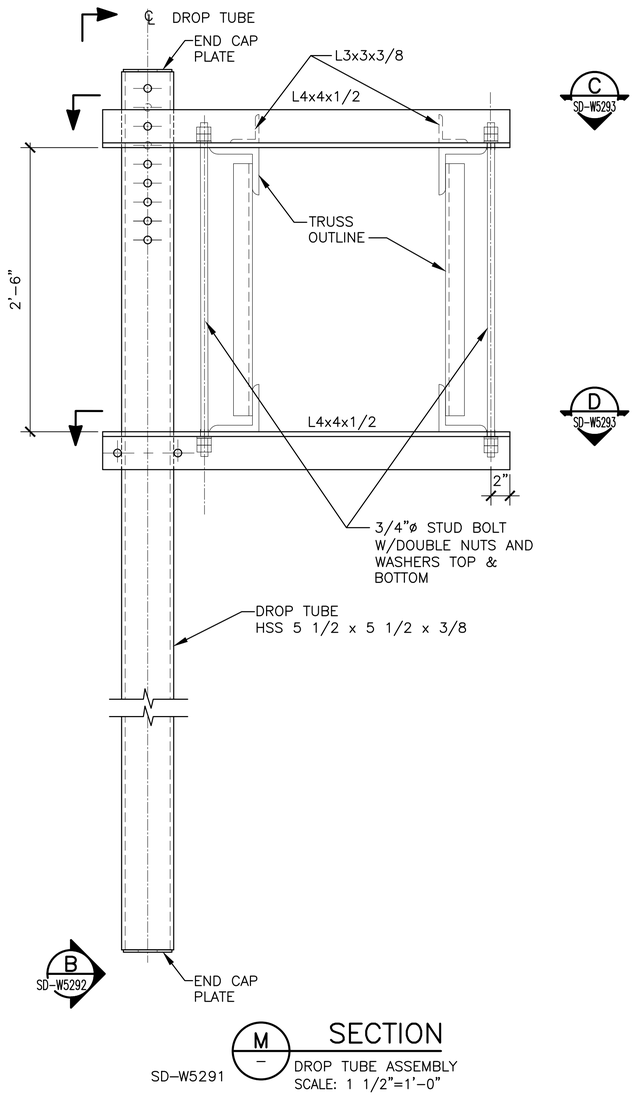
REV: | EDITION: SECOND

SCALE: AS SHOWN

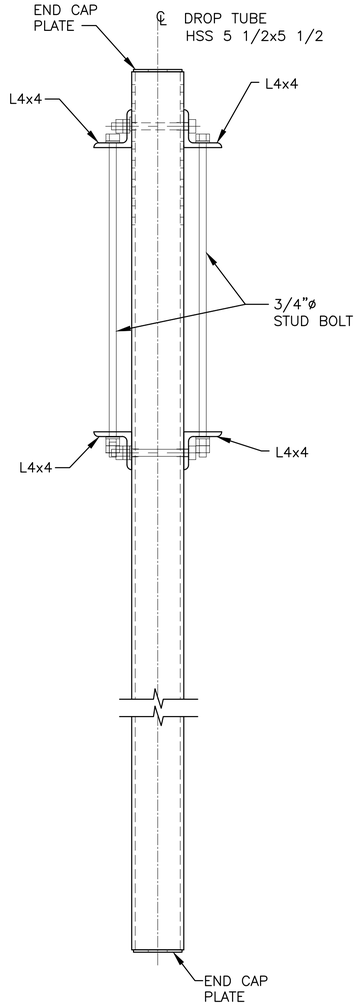
STANDARD DRAWING NO.: SD–W5291

NOTES:

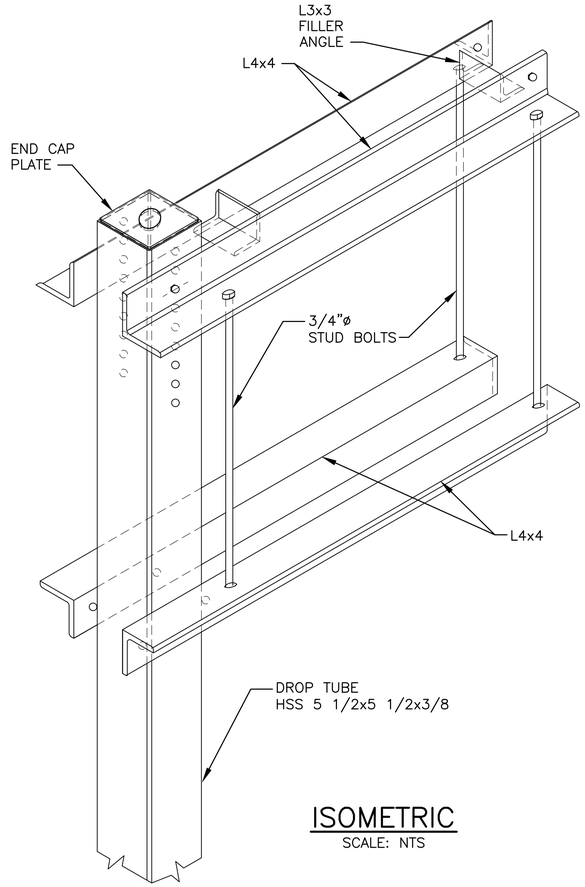
1. FOR SHEET NOTES SEE DRAWING SD–W5285.
2. ALL BOLTED CONNECTIONS REQUIRE DOUBLE NUTS AND WASHERS.



M — SECTION
SD–W5291
DROP TUBE ASSEMBLY
SCALE: 1 1/2"=1'–0"



B — SECTION
DROP TUBE ASSEMBLY
SCALE: 1 1/2"=1'–0"



ISOMETRIC
SCALE: NTS

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REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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Bin Zhang
DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

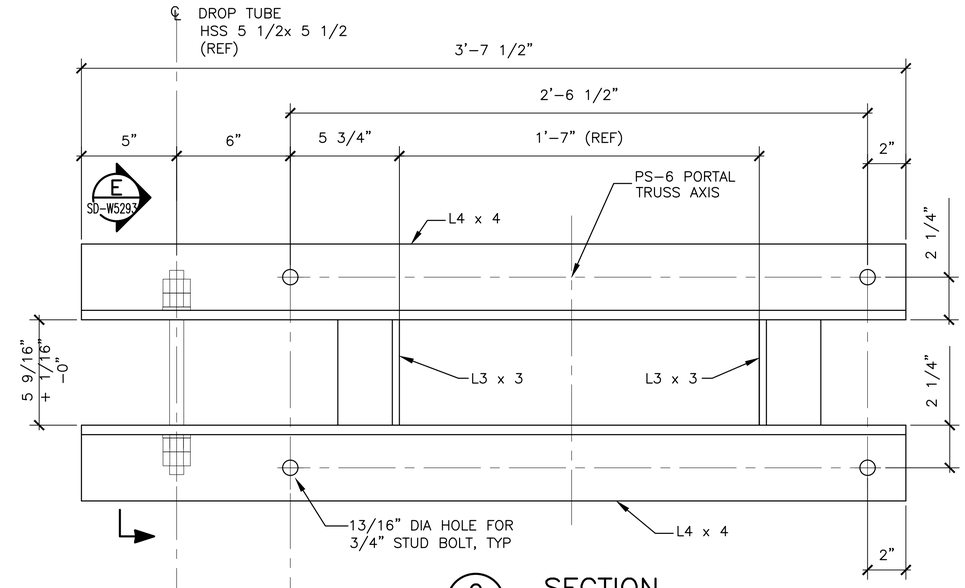
OVERHEAD CONTACT SYSTEM
OCS PORTALS

TYPE PS–6
SHEET 8 OF 15

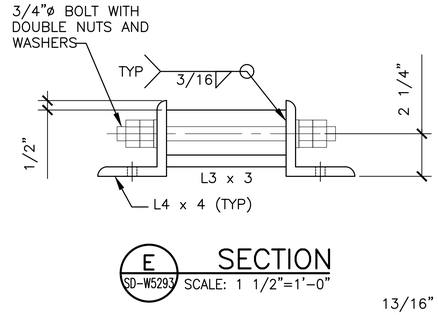
CADD FILE NAME: SD–W5292
REV: | EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5292

NOTES:

1. FOR SHEET NOTES SEE DRAWING SD–W5285.
2. ALL BOLTED CONNECTIONS REQUIRE DOUBLE NUTS AND WASHERS.

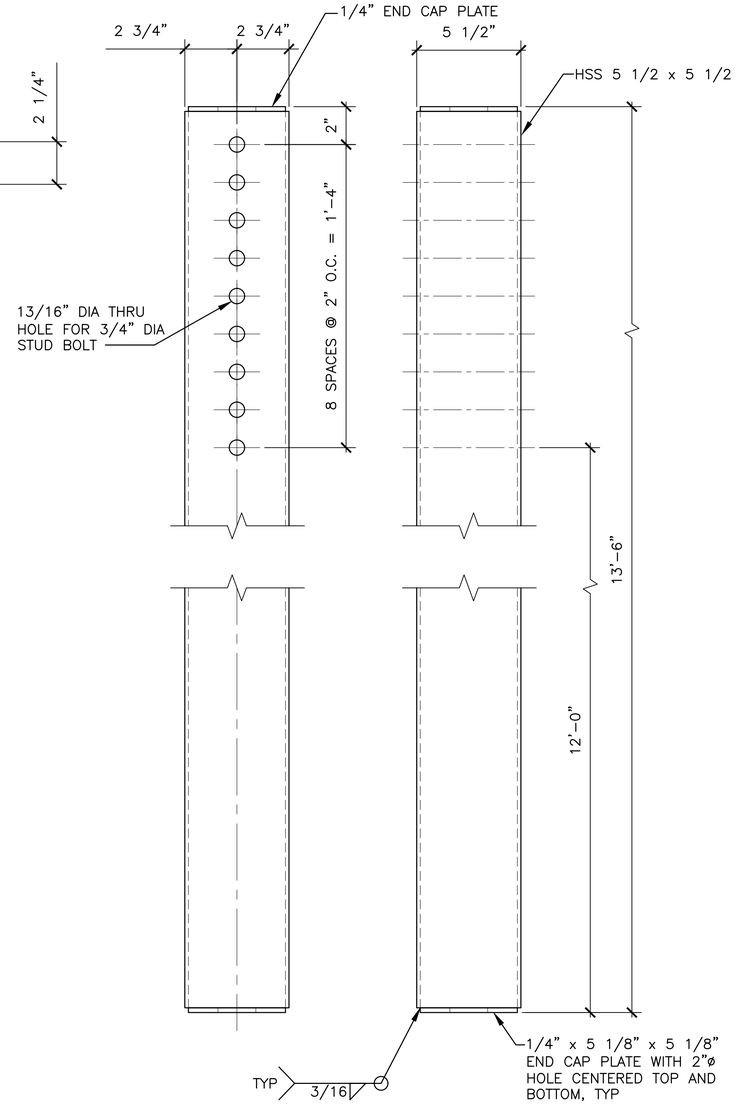


C — SECTION
SD–W5292 — SCALE: 1 1/2"=1'–0"



E — SECTION
SD–W5293 — SCALE: 1 1/2"=1'–0"

D — SECTION
SD–W5292 — SCALE: 1 1/2"=1'–0"



DROP TUBE DETAIL
SCALE: NTS

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

PENINSULA CORRIDOR JOINT POWERS BOARD

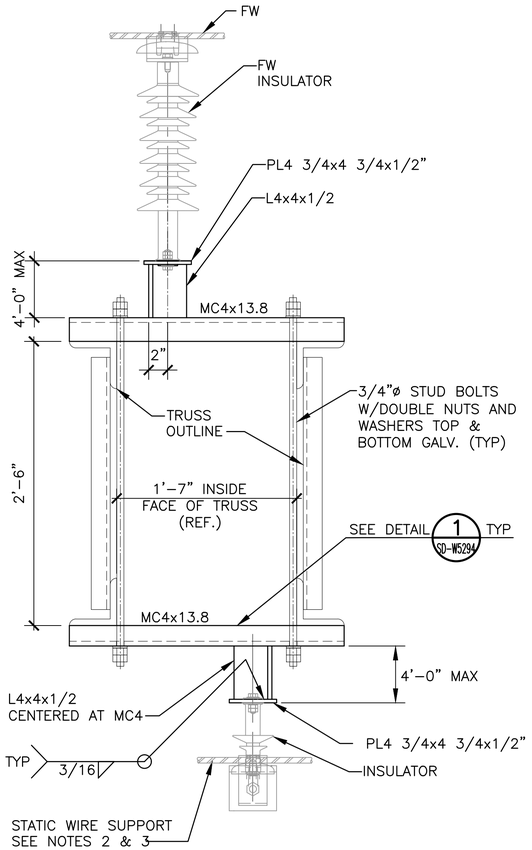
APPROVED BY:
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DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTALS

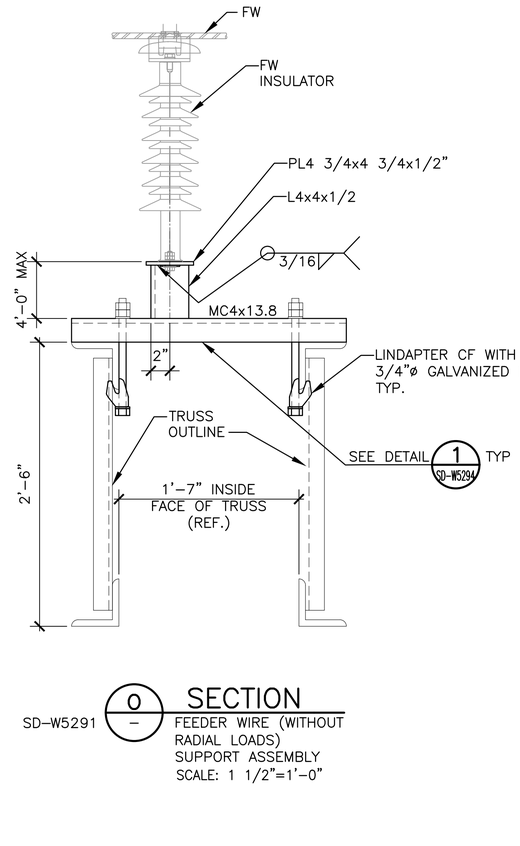
TYPE PS–6
SHEET 9 OF 15

CADD FILE NAME: SD–W5293
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SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5293



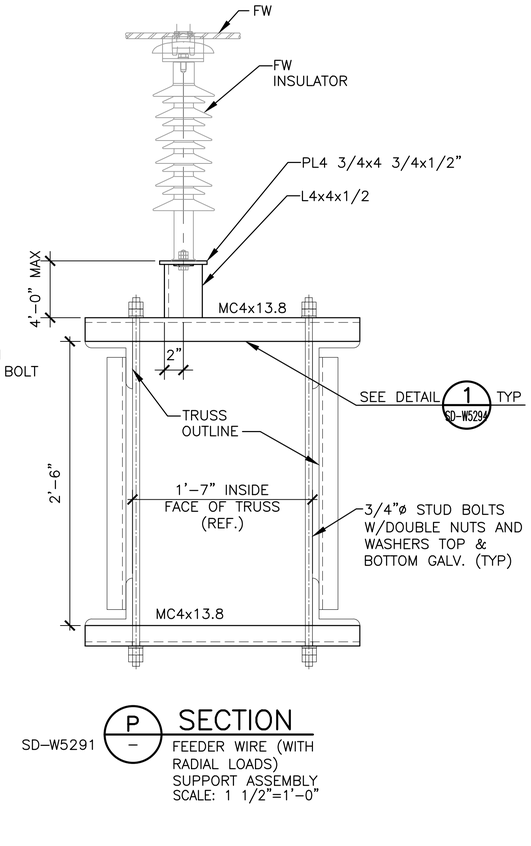
SD-W5291 N – SECTION

FEEDER AND STATIC WIRE SUPPORT ASSEMBLY
SCALE: 1 1/2"=1'-0"



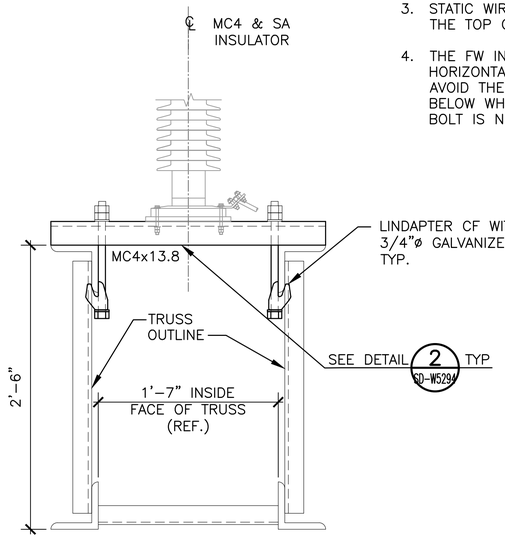
SD-W5291 O – SECTION

FEEDER WIRE (WITHOUT RADIAL LOADS) SUPPORT ASSEMBLY
SCALE: 1 1/2"=1'-0"



SD-W5291 P – SECTION

FEEDER WIRE (WITH RADIAL LOADS) SUPPORT ASSEMBLY
SCALE: 1 1/2"=1'-0"

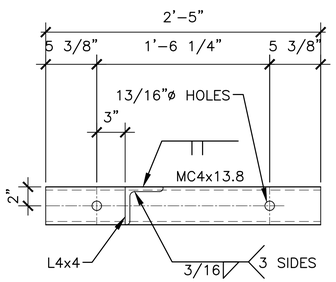


SD-W5291 Q – SECTION

SURGE ARRESTER SUPPORT ASSEMBLY
SCALE: 1 1/2"=1'-0"

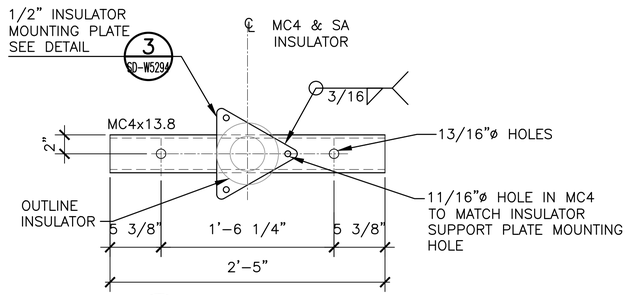
NOTES:

1. FOR SHEET NOTES SEE DRAWING SD-W5285.
2. FOR STATIC WIRE BASIC DESIGN ASSEMBLIES DETAILS SEE DRAWING SD-W6329.
3. STATIC WIRE CAN BE SIMILARLY MOUNTED TO THE TOP CHORDS.
4. THE FW INSULATOR CAN BE MIRRORED HORIZONTALLY FROM SHOWN AS NEEDED TO AVOID THE HORIZONTAL BRACING MEMBER BELOW WHEN ACCESS TO THE INSULATOR BOLT IS NECESSARY.



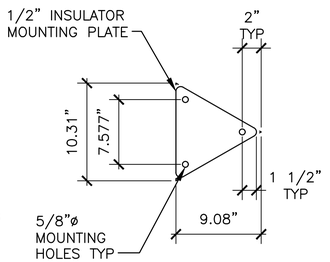
1 – DETAIL

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



2 – DETAIL

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



3 – DETAIL

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

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:

Bin Zhang

DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

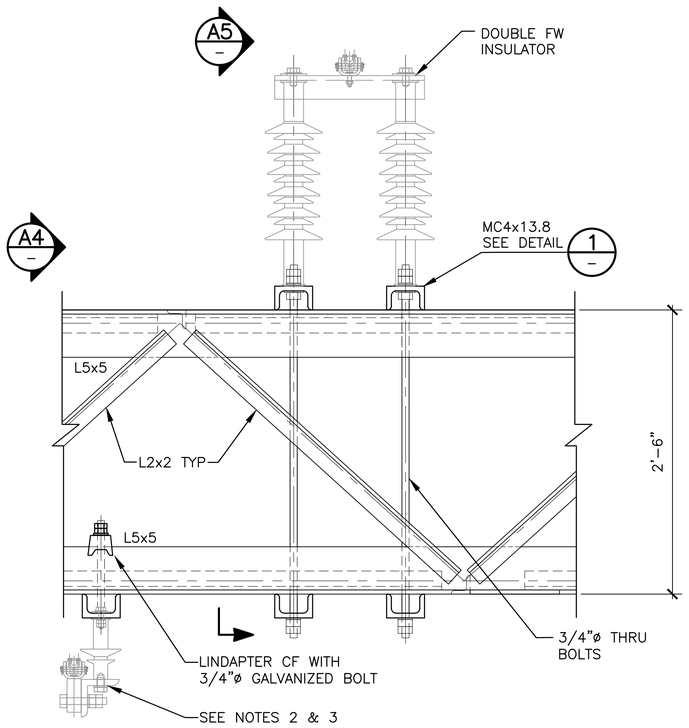
OVERHEAD CONTACT SYSTEM
OCS PORTALS

TYPE PS-6
SHEET 10 OF 15

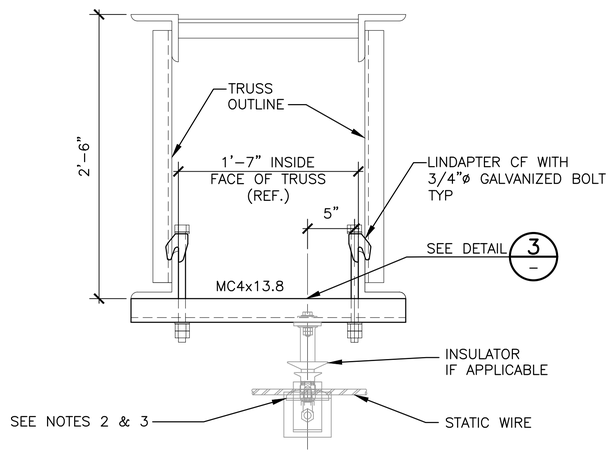
CADD FILE NAME: SD-W5294
REV: EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD-W5294

NOTES:

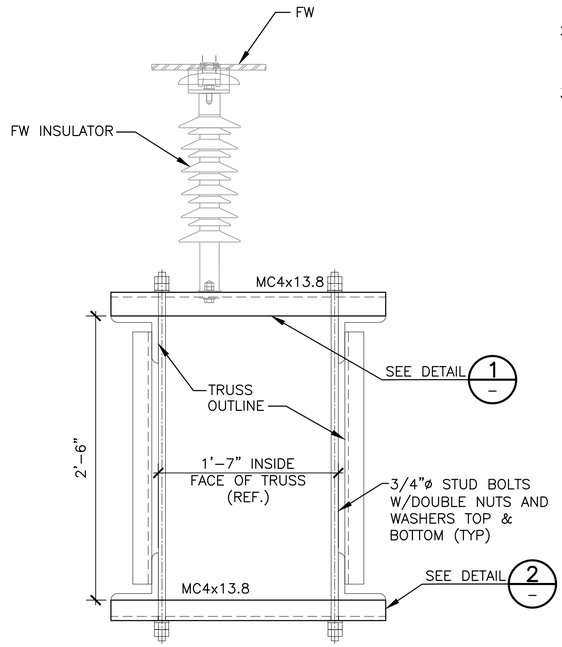
1. FOR SHEET NOTES SEE DRAWING SD–W5285.
2. SEE MATERIAL ALLOCATION AND BASIC DESIGN ASSEMBLY DRAWINGS FOR WIRE AND SUPPORT INFORMATION.
3. STATIC WIRE CAN BE SIMILARLY MOUNTED TO THE TOP CHORDS.



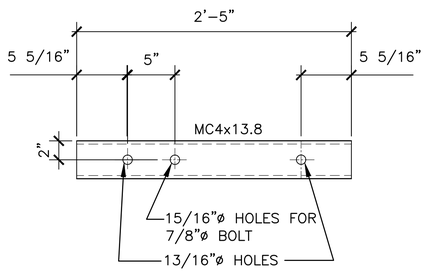
18 DETAIL
SD–W5291 DOUBLE INSULATOR SUPPORT ASSEMBLY
SCALE: 1 1/2"=1'–0"



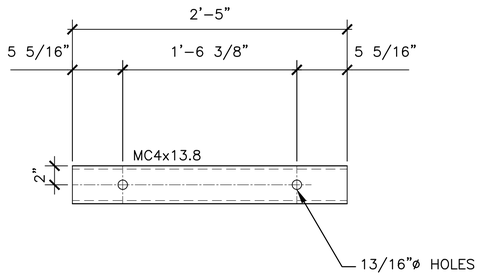
A4 SECTION
SW SUPPORT
SCALE: 1 1/2"=1'–0"



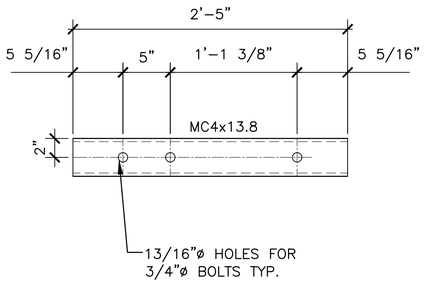
A5 SECTION
FEEDER WIRE SUPPORT WITH RADIAL LOADS
SCALE: 1 1/2"=1'–0"



1 DETAIL
SCALE: 1 1/2"=1'–0"



2 DETAIL
SCALE: 1 1/2"=1'–0"



3 DETAIL
SCALE: 1 1/2"=1'–0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

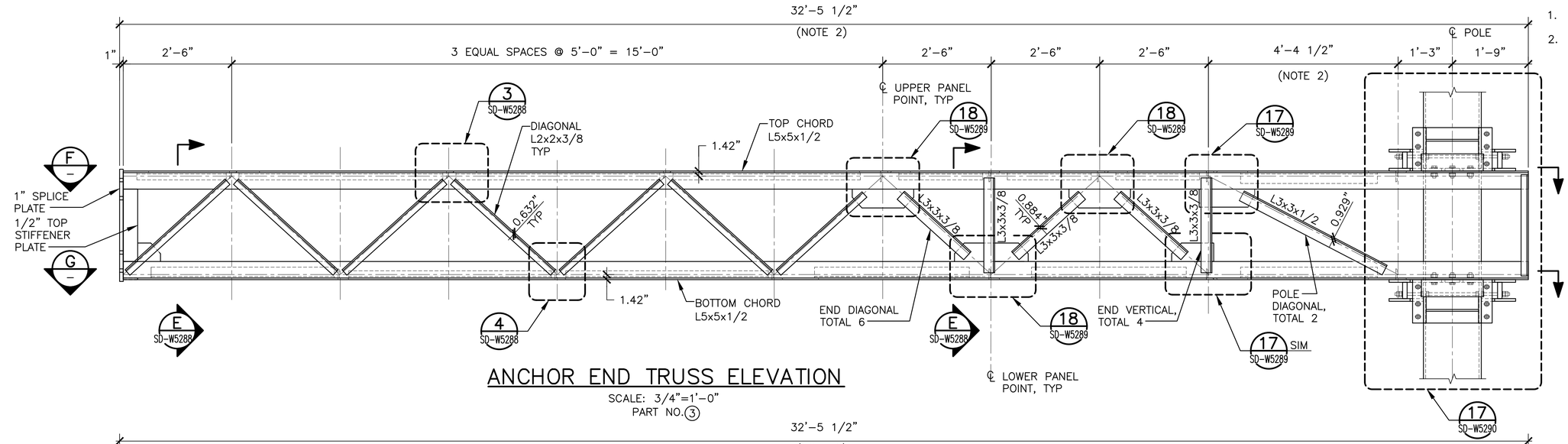
OVERHEAD CONTACT SYSTEM
OCS PORTALS

TYPE PS–6
SHEET 11 OF 15

CADD FILE NAME: SD–W5295
REV: EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5295

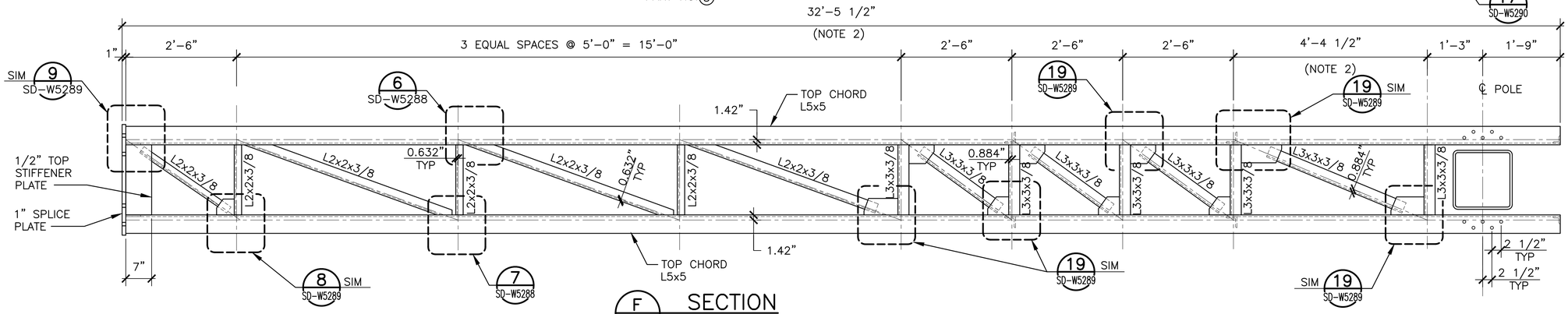
NOTES:

1. FOR SHEET NOTES SEE DRAWING SD–W5285.
2. THE ANCHOR END TRUSS SHOWN IS VALID ONLY WHERE APPROVED BY THE ENGINEER. FIELD MEASURE EXISTING CONDITIONS PRIOR TO FABRICATION. NOTIFY ENGINEER OF ANY VARIATIONS.



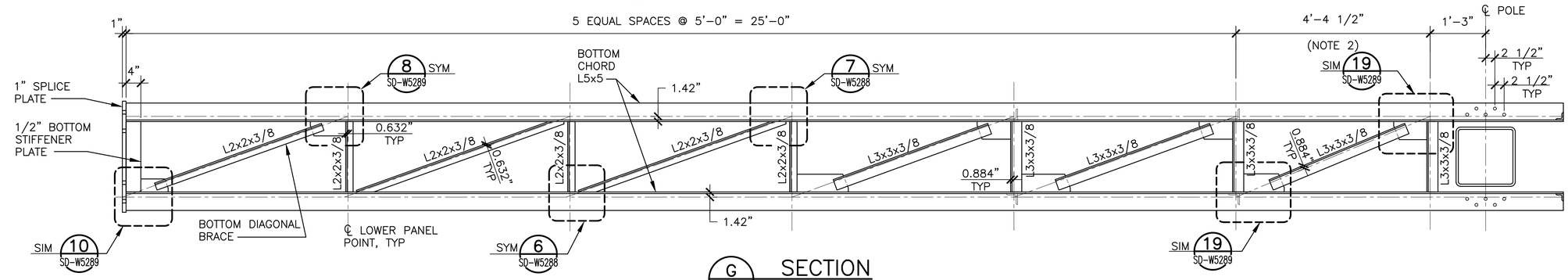
ANCHOR END TRUSS ELEVATION

SCALE: 3/4"=1'–0"
PART NO.(3)



F – SECTION

SCALE: 3/4"=1'–0"



G – SECTION

SCALE: 3/4"=1'–0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTALS

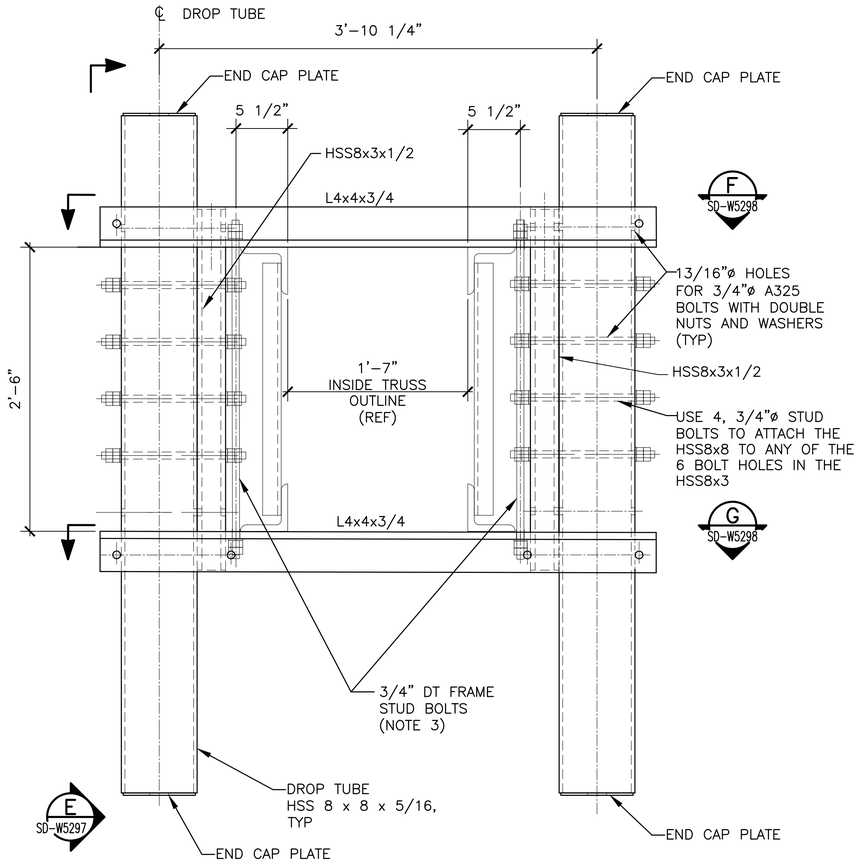
TYPE PS–6
SHEET 12 OF 15

CADD FILE NAME:	SD–W5296
REV:	EDITION: SECOND
SCALE:	AS SHOWN
STANDARD DRAWING NO.:	SD–W5296

NOTES:

1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS SEE DRAWING SD–W0101.
2. ALL BOLTED CONNECTIONS REQUIRE DOUBLE NUTS AND WASHERS.
3. DT FRAME STUD BOLTS SHALL BE LUBRICATED WITH JET LUBE 550 (OR EQUIVALENT), A MOLYBDENUM DISULFIDE ($Mo S_2$), GRAPHITE COMPOUND. THE REQUIRED BOLT TORQUES ARE SHOWN ON TABLE 1.

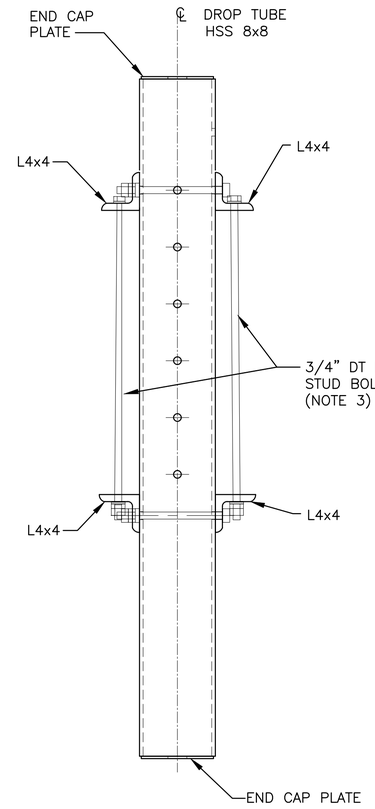
TABLE 1: BOLT TORQUES		
DESCRIPTION	DIAMETER	TORQUE
DT FRAME STUD BOLT	3/4"	30 FT–LBS



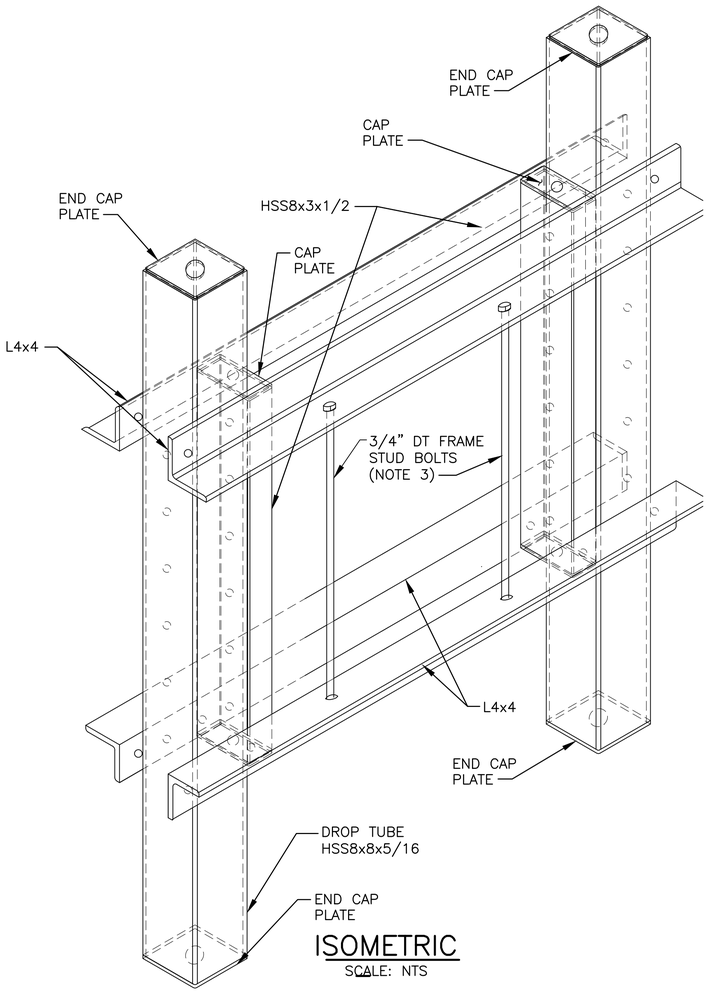
NOTE:

1. MAXIMUM LOAD = 6.0 KIPS APPLIED AT 1'–6" OFFSET FROM THE TOP/BOTTOM TRUSS CHORD.

D – DROP TUBE ASSEMBLY FOR WIRE TERMINATION
SD–W5291 SCALE: 1 1/2"=1'–0"



E SD–W5297 SECTION
SD–W5291 SCALE: 1 1/2"=1'–0"



ISOMETRIC
SCALE: NTS

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

Caltrain

ENGINEERING STANDARD DRAWINGS

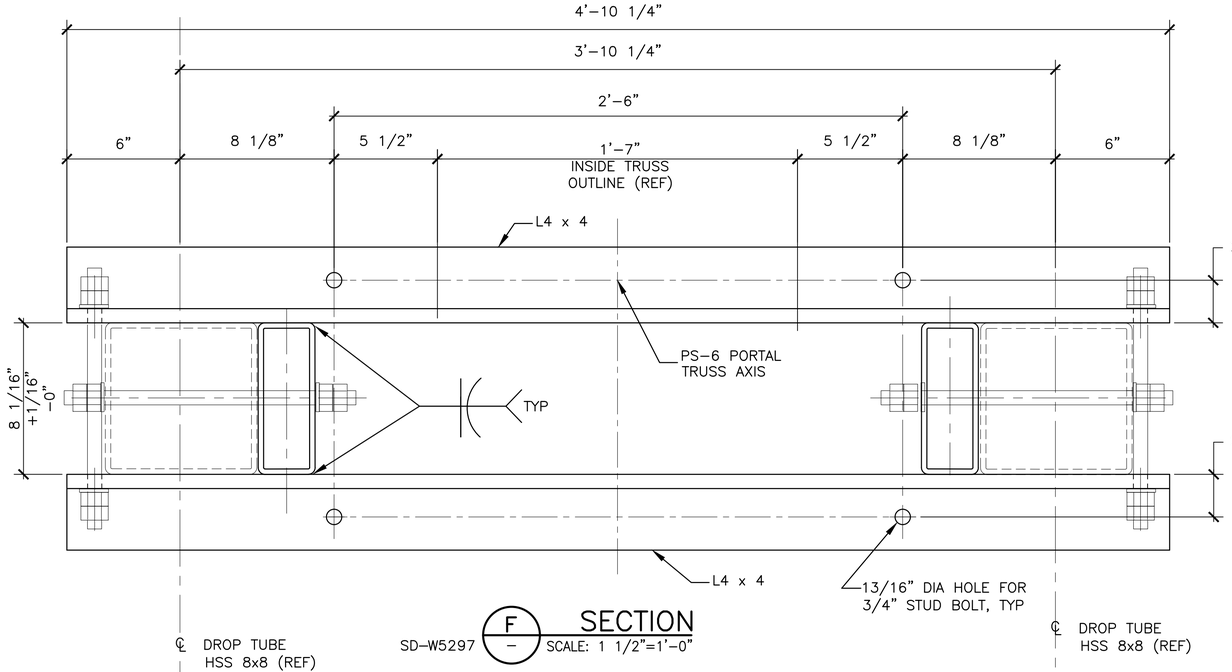
OVERHEAD CONTACT SYSTEM
OCS PORTALS

TYPE PS–6
SHEET 13 OF 15

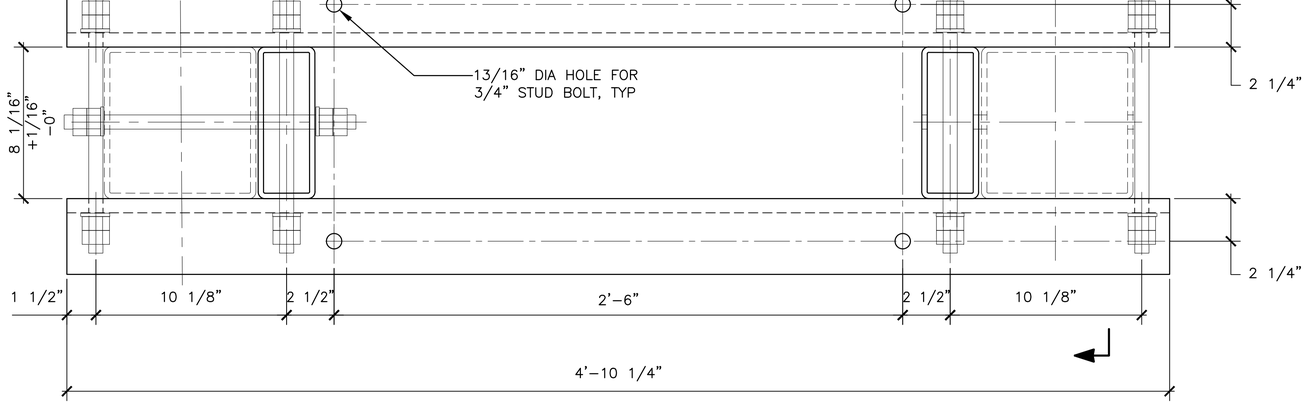
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REV: EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5297

NOTES:

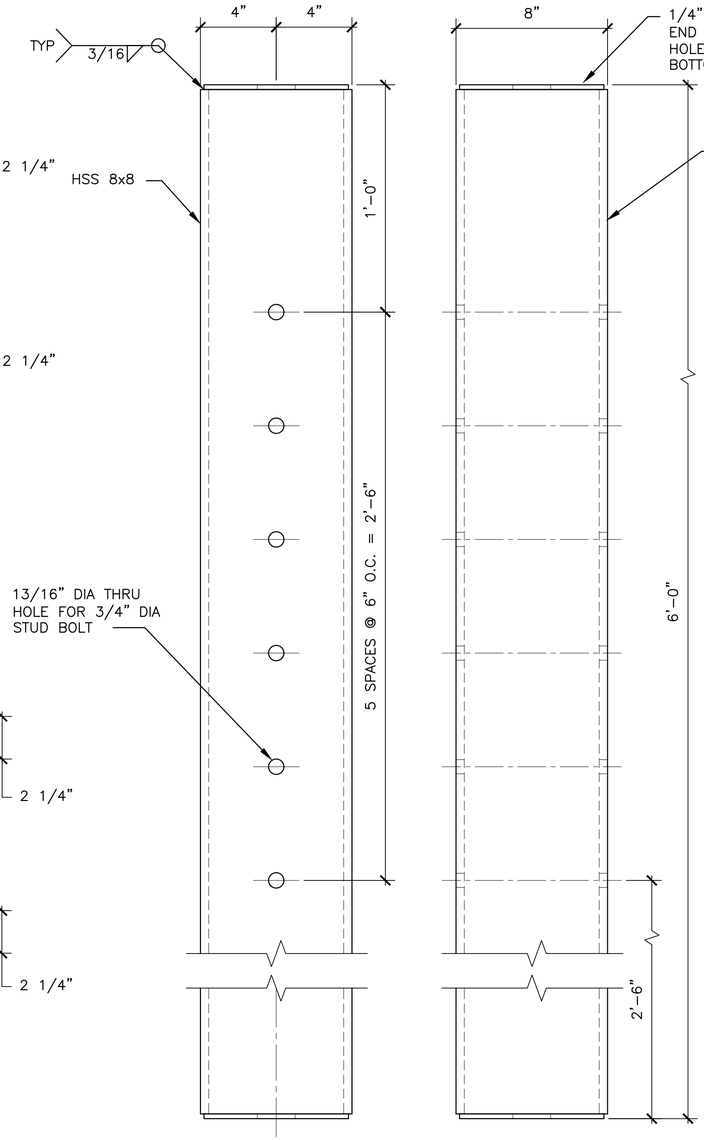
1. FOR SHEET NOTES SEE DRAWING SD–W5285.
2. ALL BOLTED CONNECTIONS REQUIRE DOUBLE NUTS AND WASHERS.



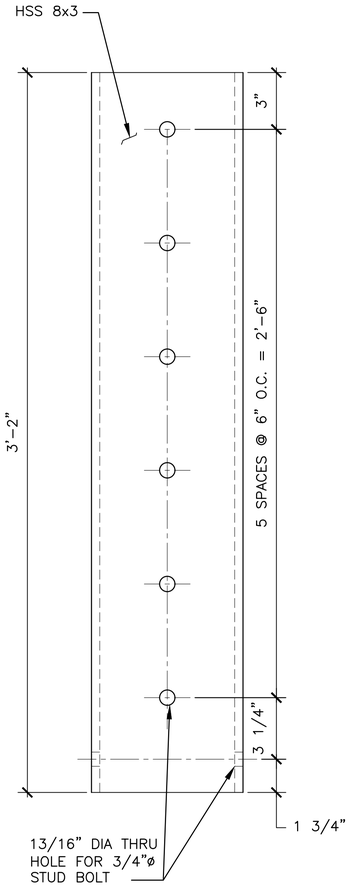
SD–W5297 F – SECTION
SCALE: 1 1/2"=1'–0"



SD–W5297 G – SECTION
SCALE: 1 1/2"=1'–0"



DROP TUBE DETAIL
SCALE: NTS



HSS 8x3
SCALE: NTS

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

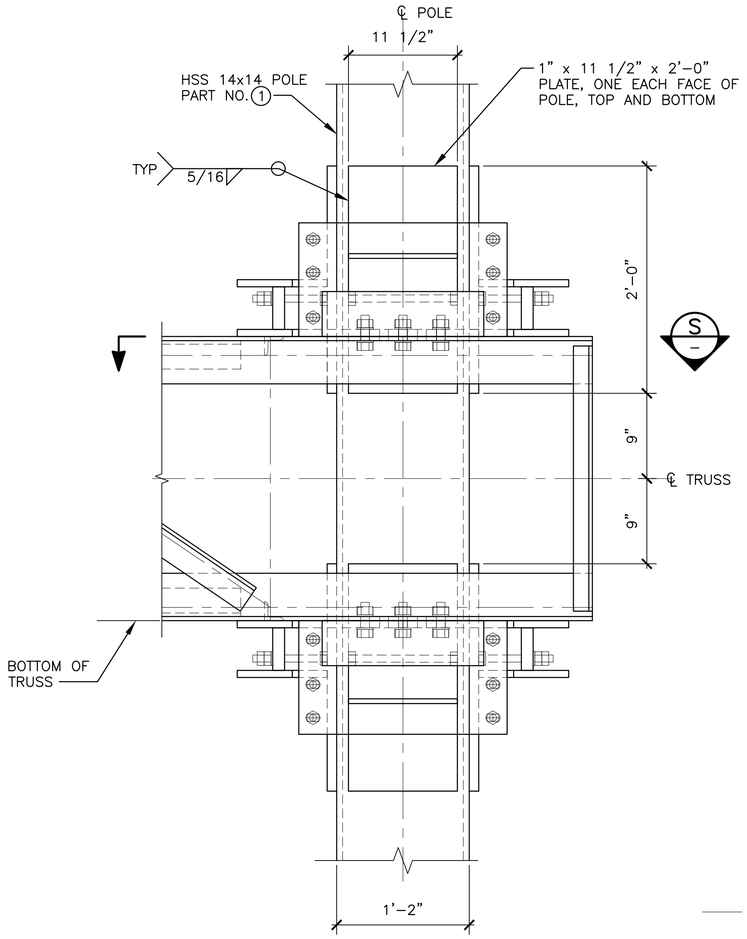
APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

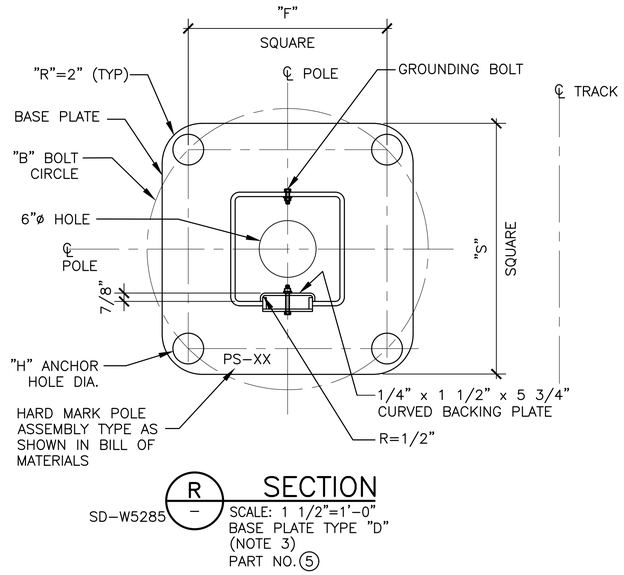
OVERHEAD CONTACT SYSTEM
OCS PORTALS

TYPE PS–6
SHEET 14 OF 15

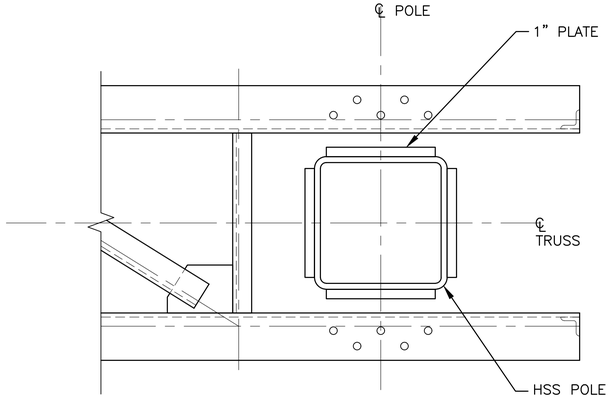
CADD FILE NAME: SD–W5298
REV: EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5298



S – SECTION
SCALE: 1 1/2"=1'-0"
PORTAL TYPE PS-6X
(NOTE 3)



R – SECTION
SD-W5285
SCALE: 1 1/2"=1'-0"
BASE PLATE TYPE "D"
(NOTE 3)
PART NO. 5



17A – DETAIL
SD-W5287
SCALE: 1 1/2"=1'-0"
PORTAL TYPE PS-6X
(NOTE 3)

NOTES:

1. FOR SHEET NOTES SEE DRAWING SD-W5285.
2. THE PS-6X PORTAL TYPE IS VALID ONLY WHERE APPROVED BY THE ENGINEER. FIELD MEASURE EXISTING CONDITIONS PRIOR TO FABRICATION. NOTIFY ENGINEER OF ANY VARIATIONS.
3. FOR INFORMATION NOT SHOWN SEE CORRESPONDING PS-6 DETAIL DRAWINGS.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

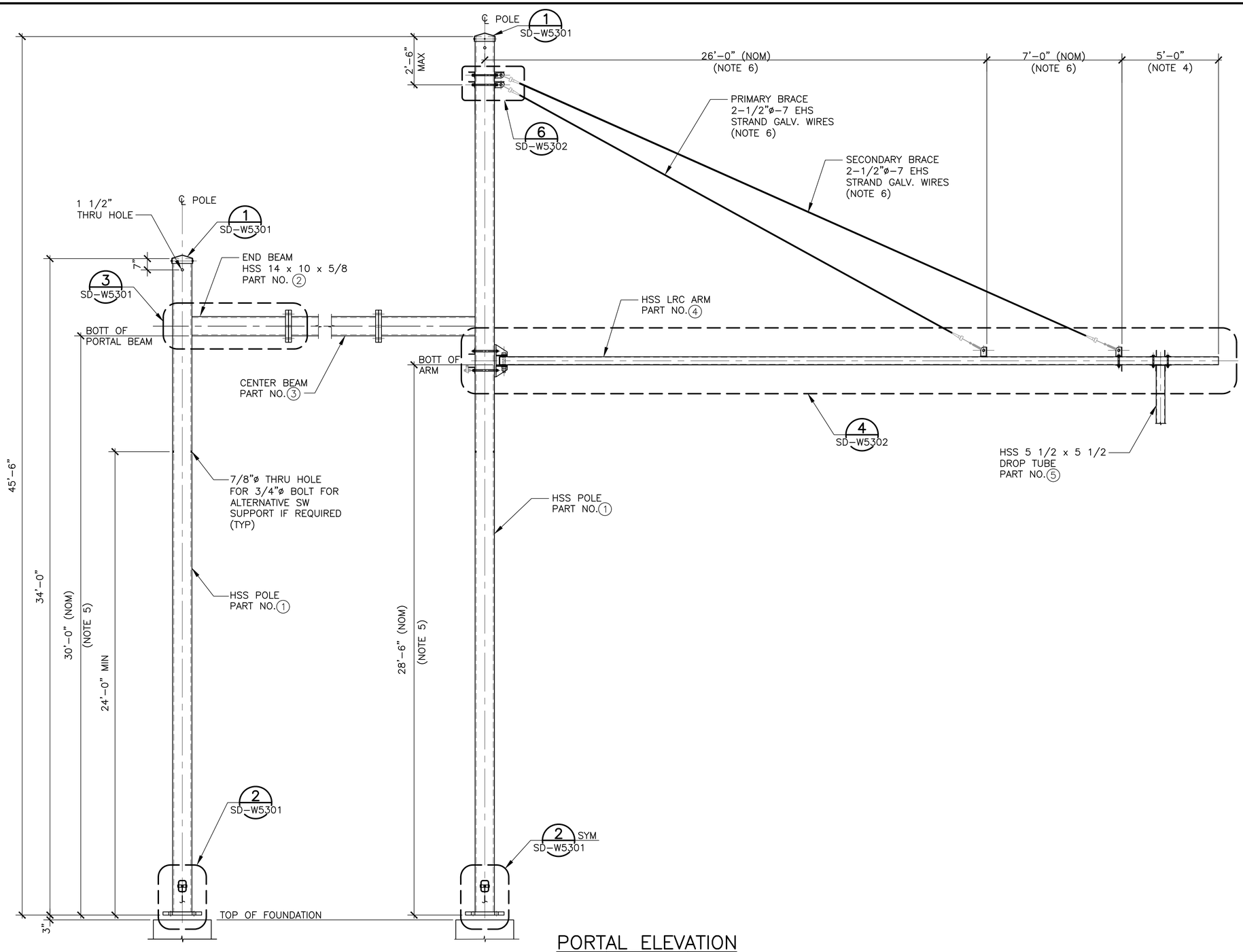
APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTALS

TYPE PS-6
SHEET 15 OF 15

CADD FILE NAME: SD-W5299
REV:
EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD-W5299



PORTAL ELEVATION

SCALE: 3/8"=1'-0"

NOTES:

1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS SEE DRAWING SD-W0101.
2. ALL HOLES IN MAST, BEAMS, AND MISCELLANEOUS STEEL SHALL BE PRE-DRILLED IN SHOP PRIOR TO GALVANIZING.
3. POLE SHALL BE SET PLUMB WITH NO RAKE TO ENSURE PROPER CONNECTION BETWEEN POLE AND HORIZONTAL BEAM.
4. PORTAL PS-90 IS ONLY VALID FOR LOCATIONS EVALUATED AND APPROVED BY THE ENGINEER. NOTIFY ENGINEER IF DIMENSIONS DIFFER FROM THOSE SHOWN.
5. BOTTOM OF PORTAL BEAM AND ARM VARIES BASED ON LOCATION. SEE MATERIAL ALLOCATION DRAWINGS FOR HEIGHTS.
6. SEE MATERIAL ALLOCATION DRAWINGS FOR NUMBER, ATTACHMENT LOCATION AND TYPE OF BRACES. CONFIRM ATTACHMENT LOCATIONS WITH ENGINEER PRIOR TO FABRICATION.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

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DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTALS
TYPE PS-90
SINGLE SPAN PORTAL-LRC STRUCTURE
SHEET 1 OF 4

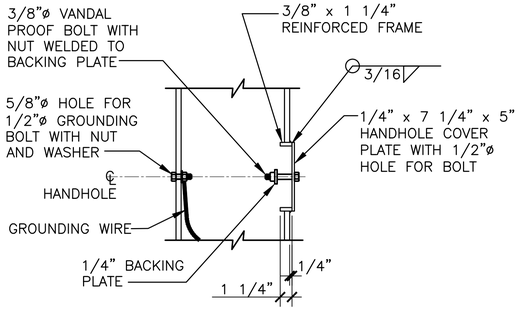
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REV:

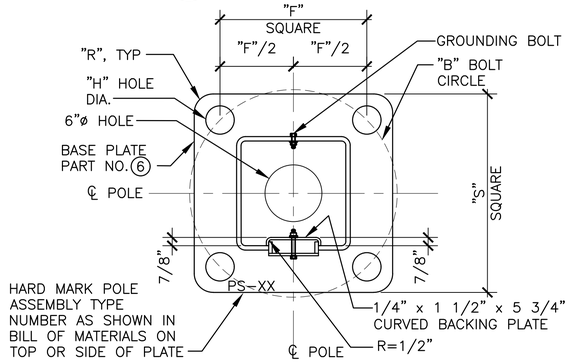
EDITION: SECOND

SCALE: AS SHOWN

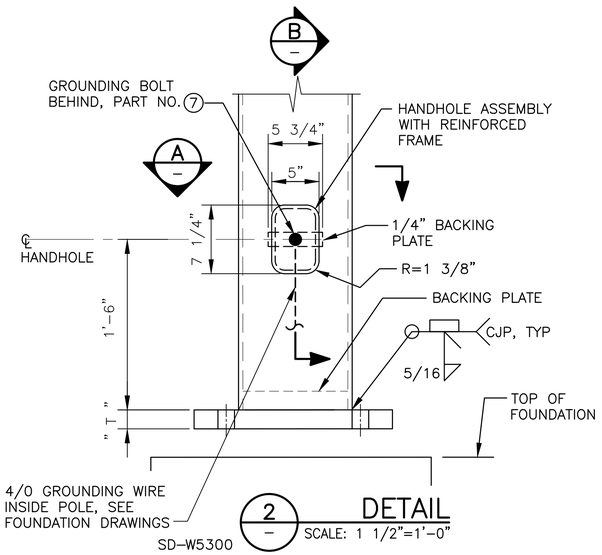
STANDARD DRAWING NO.: SD-W5300



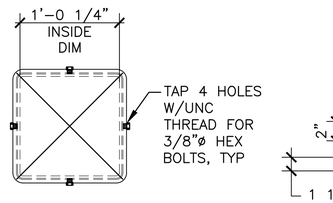
B — SECTION
SCALE: 1 1/2"=1'-0"



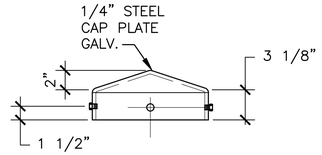
A — SECTION
SCALE: 1 1/2"=1'-0"



2 — DETAIL
SD-W5300
SCALE: 1 1/2"=1'-0"

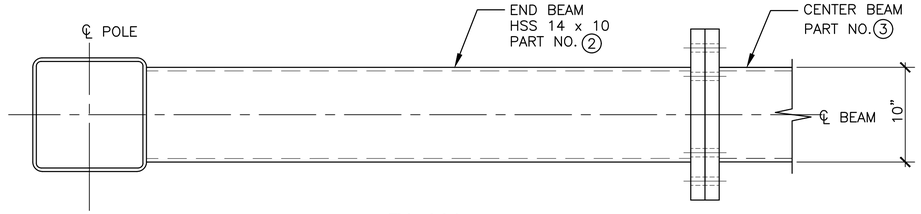


PLAN

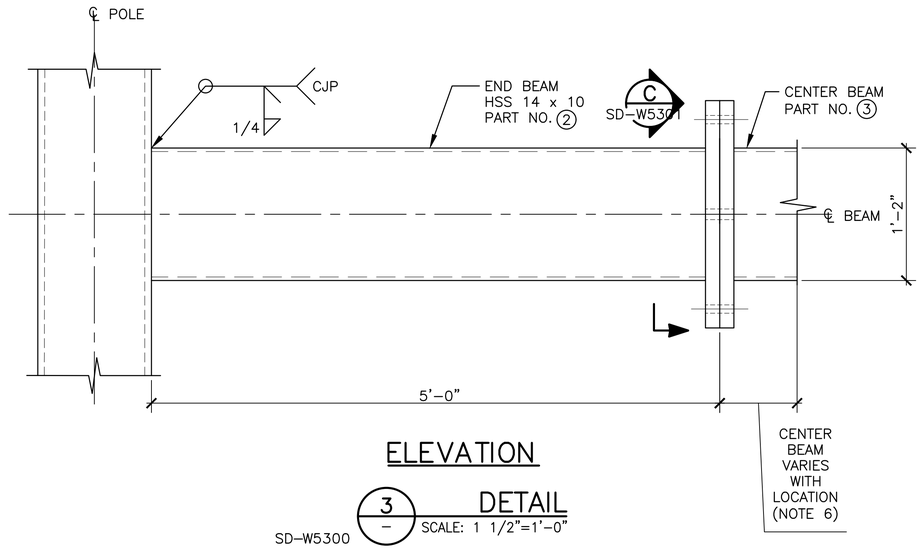


ELEVATION

1 — DETAIL
SD-W5300
SCALE: 1 1/2"=1'-0"
PART NO. 8



PLAN

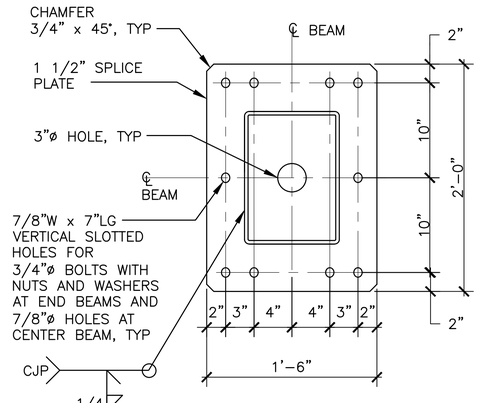


ELEVATION

3 — DETAIL
SD-W5300
SCALE: 1 1/2"=1'-0"

NOTES:

1. FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS SEE DRAWING SD-W0101.
2. HORIZONTAL BEAM AND LONG REACH CANTILEVER LENGTH TO BE FIELD DETERMINED BY THE FIELD AT EACH LOCATION PRIOR TO FABRICATION.
3. 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 ENGINEER.
4. NOTIFY ENGINEER IF ANY WIRES ARE TERMINATED ON THE PORTAL BEAM AND THE BEAM SECTION SHALL BE EVALUATED ON A CASE SPECIFIC BASIS.
5. THE PS-90 PORTAL TYPE IS VALID ONLY FOR LOCATIONS APPROVED BY THE ENGINEER. FIELD MEASURE EXISTING CONDITIONS PRIOR TO FABRICATION. NOTIFY ENGINEER OF ANY VARIATIONS.
6. FOR CENTER BEAMS WITH A LENGTH OVER 40', THE BEAM SHOULD BE DIVIDED INTO THREE SECTIONS. THE CENTER SECTION SHOULD BE 40' AND THE TWO REMAINING SECTIONS SHOULD BE EQUAL AND THE LENGTH REQUIRED TO MEET THE TOTAL LENGTH. THE THREE SECTIONS SHALL BE ASSEMBLED FOR CAMBERING. CONNECTIONS SHOULD BE THE SAME AS BETWEEN THE CENTER AND END BEAMS.



C — SECTION
SD-W5301
SD-W5303
SCALE: 1 1/2"=1'-0"

TABLE 1 BASE PLATE DIMENSIONS (IN)

BASE PLATE	DESCRIPTION	S	F	H	R	T	B	ANCHOR BOLT DIA
TYPE "C1"	BASE PLATE FOR PS-90	21	15 1/2	2 3/8	2	2 1/2	21.92	2

QUANTITIES					
		2	REMOVABLE CAP PLATE	8	
		2	1/2"ø GROUNDING BOLT	7	
		2	BASE PLATE TYPE "C1"	6	
		3	DROP TUBE HSS 5 1/2 x 5 1/2 x 3/8 x 10'-0"	5	NOTE 3
		1	DROP TUBE HSS 5 1/2 x 5 1/2 x 3/8 x 9'-0"	5	NOTE 3
		1	LONG REACH CANTILEVER HSS 5 1/2 x 5 1/2 x 3/8 x 38'-0" LG.	4	NOTE 2
		1	CENTER BEAM – HSS 14 x 10 x 5/8 – LENGTH VARIES	3	NOTE 2, 4
		2	END BEAM – HSS 14 x 10 x 5/8 x 5'-0" LG.	2	NOTE 4
		1	SIDE POLE – HSS 12 x 12 x 1/2 x 45'-6" LG.	1	NOTE 5
		1	SIDE POLE – HSS 12 x 12 x 1/2 x 34'-0" LG.	1	NOTE 5
		PS-90			
ASSEMBLY TYPE			DESCRIPTION	PART NO.	REMARKS

BILL OF MATERIALS

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

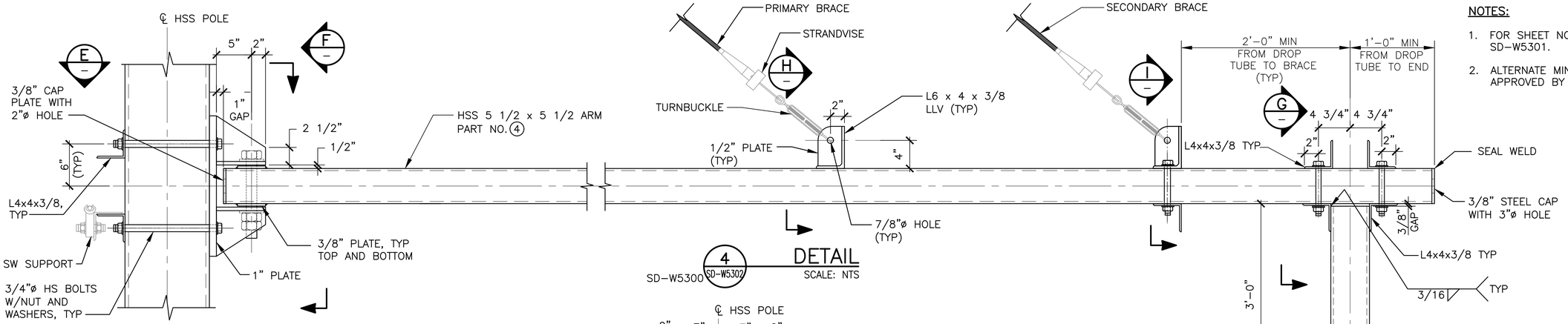
APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

Caltrain

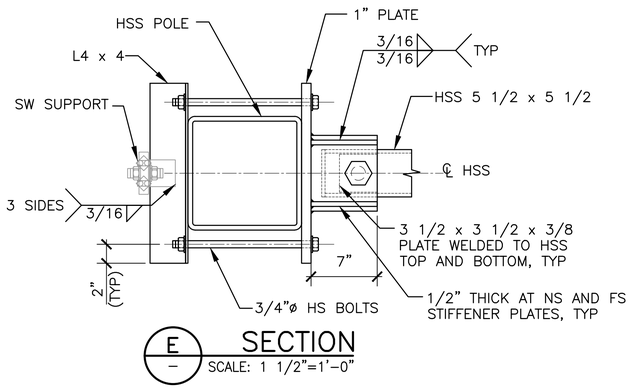
ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTALS
TYPE PS-90
SINGLE SPAN PORTAL-LRC STRUCTURE
SHEET 2 OF 4

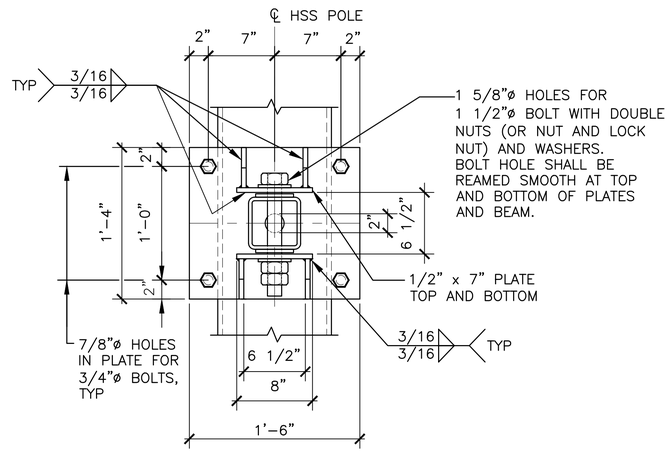
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REV: EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD-W5301



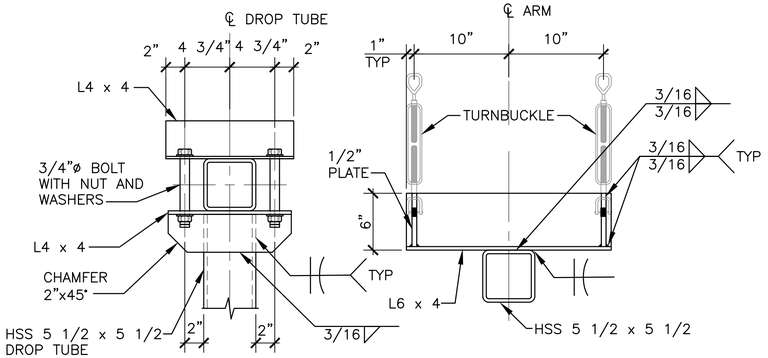
4 SD-W5300 SD-W5302 **DETAIL**
SCALE: NTS



E – **SECTION**
SCALE: 1 1/2"=1'-0"

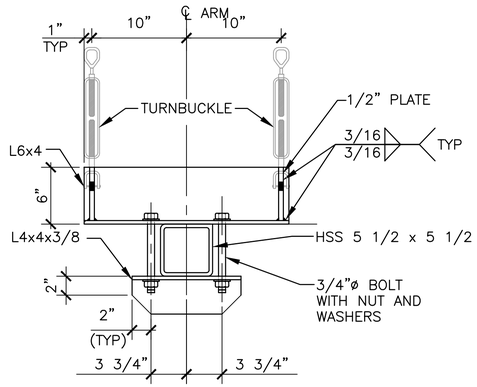


F – **SECTION**
SCALE: 1 1/2"=1'-0"

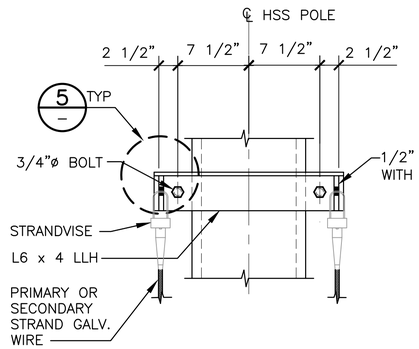


G – **SECTION**
SCALE: 1 1/2"=1'-0"

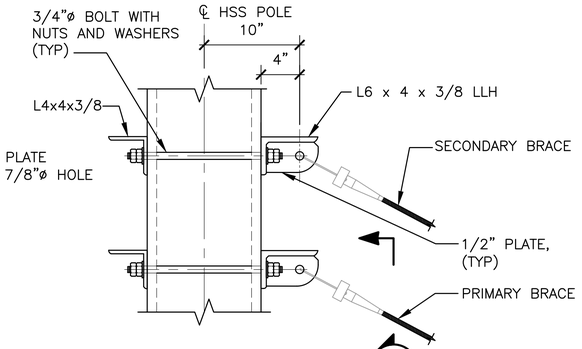
H – **SECTION**
SCALE: 1 1/2"=1'-0"



I – **SECTION**
SCALE: 1 1/2"=1'-0"



J – **SECTION**
SCALE: 1 1/2"=1'-0"



6 SD-W5300 – **DETAIL**
SCALE: 1 1/2"=1'-0"

5 – **DETAIL**
SCALE: 3"=1'-0"

NOTES:

1. FOR SHEET NOTES SEE DRAWINGS SD-W5300 AND SD-W5301.
2. ALTERNATE MINIMUM DIMENSIONS MAY BE USED AS APPROVED BY THE ENGINEER.

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

REV	DATE	BY	CHK	APP

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

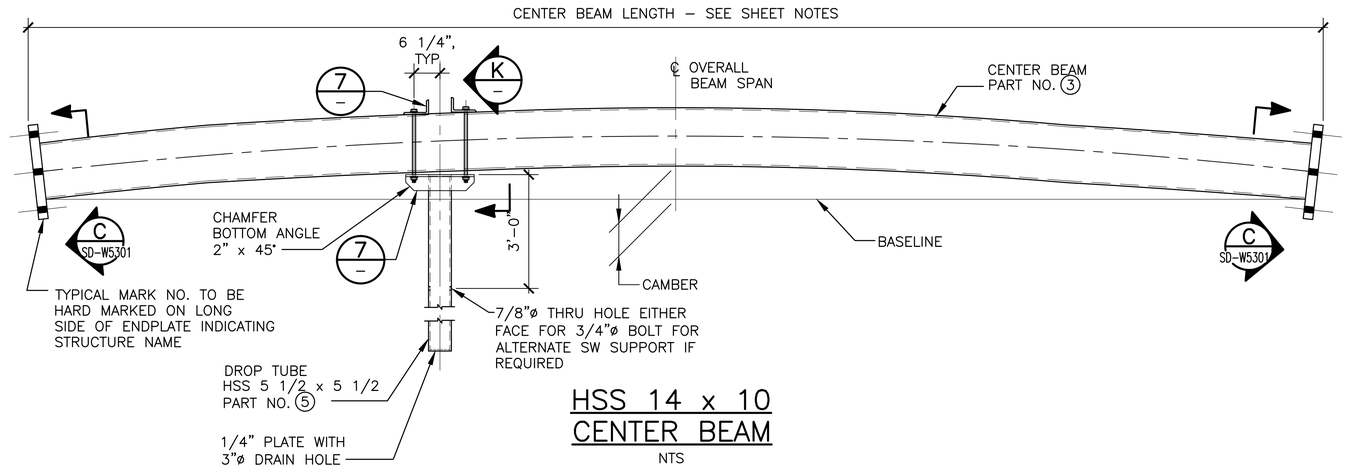
Caltrain

ENGINEERING STANDARD DRAWINGS

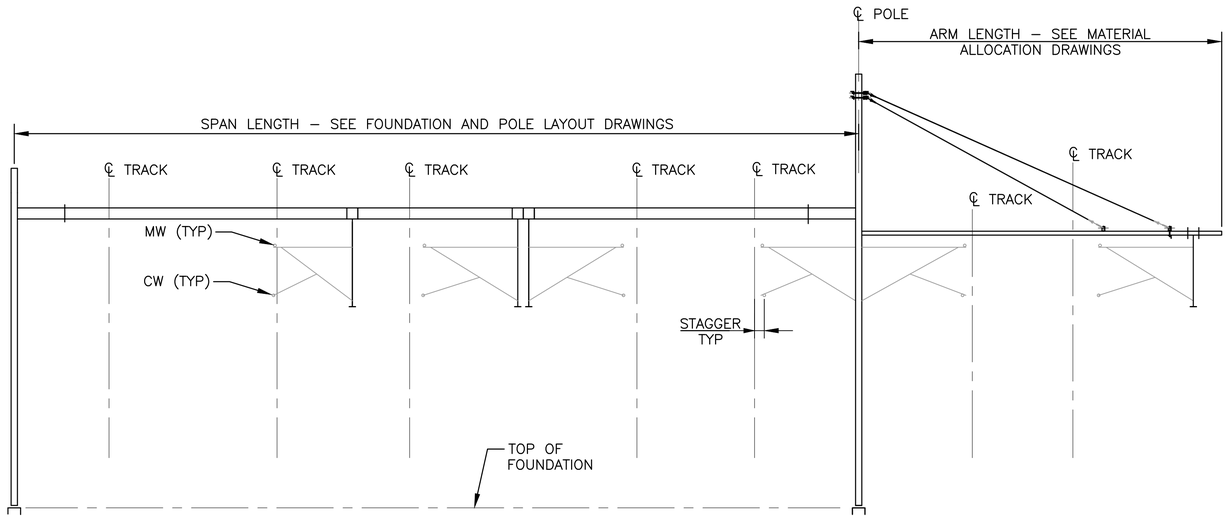
OVERHEAD CONTACT SYSTEM
OCS PORTALS
TYPE PS-90
SINGLE SPAN PORTAL-LRC STRUCTURE
SHEET 3 OF 4

CADD FILE NAME: SD-W5302
REV: EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD-W5302

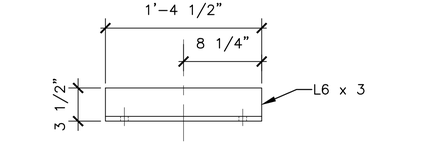
NOTE:
FOR SHEET NOTES SEE DRAWINGS SD-W5300 AND SD-W5301.



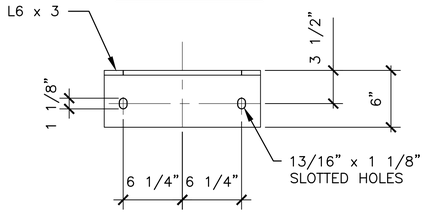
HSS 14 x 10 CENTER BEAM
NTS



SCHEMATIC DETAIL
SIX TRACK PORTAL–LRC STRUCTURE PS–90
NTS

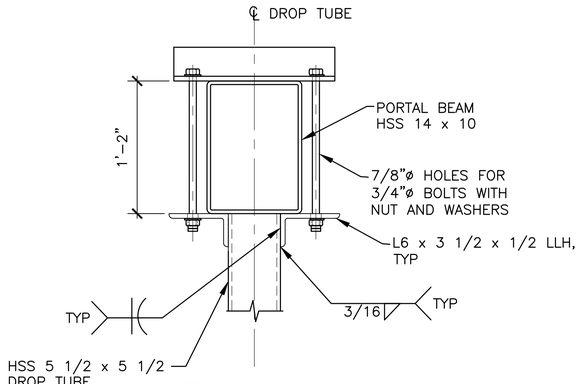


ELEVATION



PLAN

7 – DETAIL
SCALE: 1 1/2"=1'-0"



K – SECTION
SCALE: 1 1/2"=1'-0"

REV	DATE	BY	CHK	APP	DESCRIPTION
	010126				SECOND EDITION

PENINSULA CORRIDOR JOINT POWERS BOARD

APPROVED BY:
Bin Zhang
DIRECTOR, ENGINEERING

ENGINEERING STANDARD DRAWINGS

OVERHEAD CONTACT SYSTEM
OCS PORTALS
TYPE PS–90
SINGLE SPAN PORTAL–LRC STRUCTURE
SHEET 4 OF 4

CADD FILE NAME: SD–W5303
REV: EDITION: SECOND
SCALE: AS SHOWN
STANDARD DRAWING NO.: SD–W5303