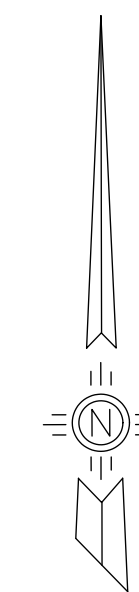


DEPARTMENT OF PUBLIC UTILITIES
WHITE ROCK, NEW MEXICO
LOS ALAMOS COUNTY
WHITE ROCK SUBSTATION

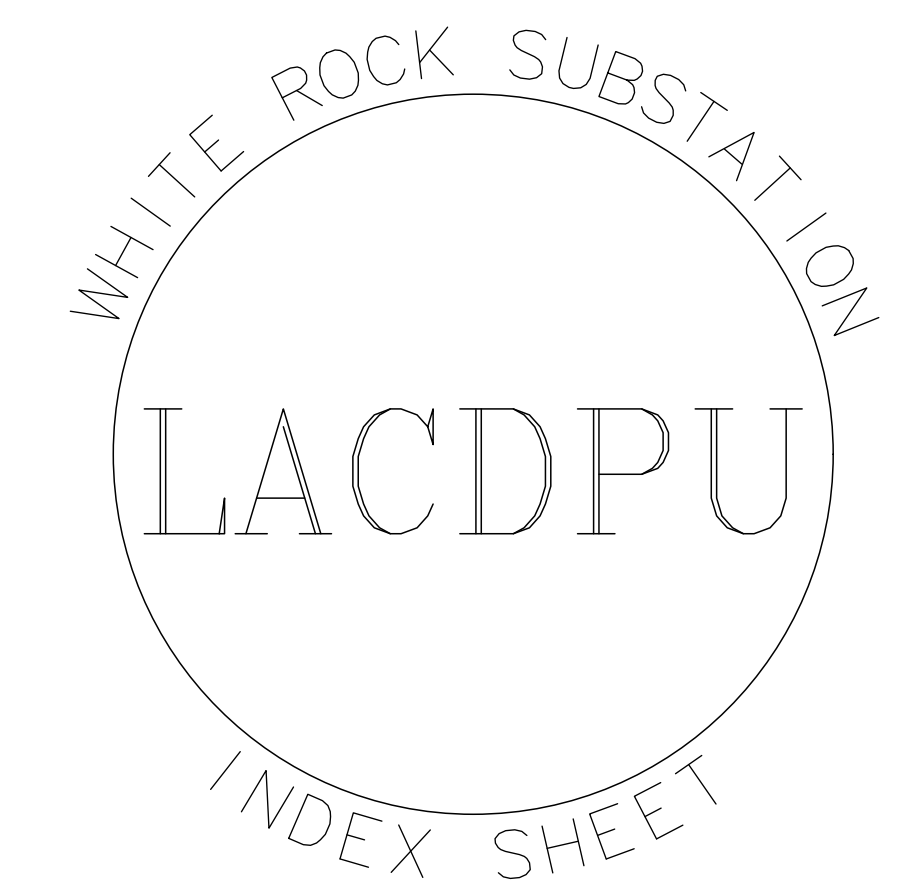
NUMBER	DESCRIPTION	NUMBER	DESCRIPTION
▲ WR-00	GENERAL ELECTRICAL NOTES	▲ WR-39	ANCHOR BOLT & TEMPLATE SCHEDULES
▲ WR-01	BIRD'S EYE VIEW	▲ WR-40	CONDUIT LAYOUT
▲ WR-02E	EXISTING SITE LAYOUT	▲ WR-41	CONDUIT DETAILS
▲ WR-02	SITE LAYOUT	WR-42	PULL BOX ASSIGNMENTS
WR-09	CRANE/TRANSPORT DIAGRAM (CONCEPTUAL)	WR-43	CONDUIT AND CABLE SCHEDULES
▲ WR-10R	ELECTRICAL ARRANGEMENT (REMOVAL)	▲ WR-50	GROUNDING LAYOUT
▲ WR-10	ELECTRICAL ARRANGEMENT	▲ WR-51	GROUNDING DETAILS
▲ WR-11	SECTIONS A & B	▲ WR-53	TRANSFORMER GROUNDING DETAILS
▲ WR-20	CONNECTION DETAILS	WR-70	BILL OF MATERIALS
WR-24	BUS CUTTING SCHEDULE	WR-201	ONE-LINE DIAGRAM
▲ WR-25	FASTENER DETAILS		
▲ WR-30	FOUNDATION LAYOUT & DETAILS		
▲ WR-31	FOUNDATION DETAILS		
▲ WR-32	TRANSFORMER CONTAINMENT PLAN		
▲ WR-33	TRANSFORMER CONTAINMENT DETAILS		

NOTE:
SOME PROJECT DRAWINGS ARE
INCLUDED FOR OVERALL PROJECT
INFORMATIONAL PURPOSES.



LAT: 35°49'41.31"N
LON: 106°12'41.60"W

ADDRESS: NEAR
115 STATE HIGHWAY 4
WHITE ROCK, NM 87544
(NORTHEAST OF THE
WHITE ROCK VISITOR
CENTER)



12/18/2025

ISSUED FOR FOUNDATION BID PURPOSES

▲ INCLUDED WITH SUBMITTAL



Transmission & Distribution Services, LLC
Professional Engineers & Surveyors
Ph. 505-344-4234

5401 Beverly Hills Ave NE
Albuquerque, NM 87113
www.t-d-services.com

S:\04 STATIONS\NM\LOS ALAMOS COUNTY\WHITE ROCK\ELECTRICAL ARRANGEMENT 2025\WHITE ROCK EA\EA\VR-COL.DWG DMENDOZA 12/18/2025

GENERAL NOTES:

1. THE CONTRACTOR SHALL ABIDE BY ALL LOCAL, STATE AND FEDERAL RULES AND REGULATIONS WHICH APPLY TO THE CONSTRUCTION OF THESE IMPROVEMENTS.

2. THE CONTRACTOR SHALL NOT INSTALL ITEMS AS SHOWN ON THESE PLANS WHEN FIELD CONDITIONS ARE DIFFERENT THAN SHOWN IN THE PLANS. SUCH CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN A TIMELY MANNER. IN THE EVENT THE CONTRACTOR DOES NOT NOTIFY THE ENGINEER IN A TIMELY MANNER, THE CONTRACTOR ASSUMES FULL RESPONSIBILITY AND EXPENSE FOR ANY REVISIONS NECESSARY.

3. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL OBSTRUCTIONS WITH POTENTIAL TO CHANGE THE ALIGNMENT. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND OWNER SO THAT THE CONFLICT CAN BE RESOLVED WITH MINIMAL DELAY.

4. THE CONTRACTOR SHALL MAINTAIN AN UP TO DATE SET OF RED LINE DRAWINGS FOR THE PROJECT, PROMPTLY RECORDING RELEVANT DATA, FOR THE PREPARATION OF RECORD DRAWINGS BY THE ENGINEER. THESE PLANS SHALL BE KEPT CURRENT AND AT THE PROJECT SITE AT ALL TIMES. PLANS SHALL BE AVAILABLE DURING POSTED BUSINESS HOURS DURING CONSTRUCTION AND WILL BE CHECKED BY THE ENGINEER FOR ACCURACY AND COMPLETENESS AT LEAST ONCE EVERY 30-DAYS. THE FINAL RED LINE DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER WITHIN 10 WORKING DAYS AFTER COMPLETION OF THE PROJECT. USE THE FOLLOWING COLORS TO RECORD CHANGES/DELETIONS/MODIFICATIONS OR COMMENTS:

—CHANGE/ADDITION

—

RED OR ORANGE

—DELETION

—

GREEN

—COMMENT

—

BLUE

5. OWNER (OWNER) IS LOS ALAMOS COUNTY DEPARTMENT OF PUBLIC UTILITIES (LACDPU).
- DIMENSIONS:
1. ALL STATIONING AND ELEVATIONS SHOWN ARE TO THE CENTERLINE OF BUS OR FOUNDATION, UNLESS OTHERWISE NOTED. ANY MINIMUM HEIGHTS OR CLEARANCES ARE REFERENCED TO THE EDGE OF ENERGIZED PARTS UNLESS OTHERWISE NOTED.

2. ALL DISTANCES ARE HORIZONTAL GROUND DISTANCES.

3. CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION SURVEYING & LAYOUT. BASED ON OWNER PROVIDED BENCHMARKS AND SURVEY CONTROL POINTS.
- CONSTRUCTION LIMITS:
1. CONTRACTOR SHALL WORK WITHIN THE CONSTRUCTION LIMITS (PROPERTY LINES) AS SHOWN ON THE PLANS. EQUIPMENT TRAFFIC OUTSIDE THESE LIMITS SHALL NOT BE PERMITTED WITHOUT WRITTEN PERMISSION OF THE OWNER.

2. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES WITHIN ADJACENT RIGHT-OF-WAYS OR OUTSIDE OF POSTED CONSTRUCTION BOUNDARIES, THE CONTRACTOR SHALL OBTAIN PERMISSION FROM THE OWNER. THE CONTRACTOR SHALL OBTAIN ALL PERMITS AND PERMISSIONS IN WRITING.
- SAFETY:
1. CONTRACTOR SHALL COMPLY WITH APPLICABLE FEDERAL, STATE, LOCAL, LAWS, ORDINANCES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.

2. CONTRACTOR SHALL BE RESPONSIBLE FOR SAFETY OF ALL WORK. ALL WORK, INCLUDING WORK WITHIN TRENCHES, WHICH SHALL BE IN ACCORDANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).

3. CONTRACTOR SHALL TAKE NECESSARY SAFETY PRECAUTIONS AS REQUIRED BY FEDERAL, STATE AND LOCAL AUTHORITIES TO PROTECT LIVESTOCK, PEDESTRIAN AND VEHICULAR TRAFFIC IN THE CONSTRUCTION AREA, WHICH INCLUDE BUT ARE NOT LIMITED TO: MAINTAINING ADEQUATE WARNING SIGNS, BARRICADES, LIGHTS, GUARD FENCES, WALKS AND BRIDGES.

4. CONTRACTOR SHALL MAINTAIN ALL CONSTRUCTION BARRICADES AND SIGNAGE AT ALL TIMES AND SHALL VERIFY THE PROPER LOCATION OF ALL BARRICADAT AT THE BEGINNING AND END OF EACH DAY, PARTICULARLY AROUND ENERGIZED LINES AND/OR EQUIPMENT.

5. ALL EXCAVATION, TRENCHING, AND SHORING ACTIVITIES SHALL BE CARRIED OUT IN ACCORDANCE WITH OSHA 29 CFR 1926.650 SUBPART P AS A MINIMUM STANDARD.

6. CONTRACTOR SHALL COMPLY WITH APPLICABLE LOCK OUT/TAG OUT RULES, PROCEDURES & REQUIREMENTS AS SET FORTH BY THE OWNER.
- GENERAL UTILITIES:
1. ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES SHOWN ON THE PLANS ARE SHOWN IN AN APPROXIMATE LOCATION ONLY BASED ON THE INFORMATION PROVIDED TO THE ENGINEER BY OTHERS THAT MAY BE INACCURATE OR INCOMPLETE. ADDITIONALLY, UNDERGROUND LINES MAY EXIST THAT ARE NOT SHOWN. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK. ANY DAMAGE TO ANY OTHER UTILITIES OR COLLATERAL DAMAGE CAUSED BY THE CONTRACTOR SHALL BE CORRECTED BY THE CONTRACTOR.

2. CONTRACTOR SHALL CONTACT THE OWNER (LACDPU) AND/OR NEW MEXICO 811 DAMAGE PREVENTION CENTER (NEW MEXICO ONE CALL) AT LEAST TWO WORKING DAYS BEFORE BEGINNING CONSTRUCTION IN ORDER FOR BURIED UTILITY OWNERS TO PROVIDE LOCATION SERVICES. AFTER THE UTILITIES ARE SPOTTED, THE CONTRACTOR SHALL EXPOSE ALL PERTINENT UTILITIES TO VERIFY THEIR VERTICAL AND HORIZONTAL LOCATION. IF A CONFLICT EXISTS BETWEEN EXISTING UTILITIES AND PROPOSED CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH MINIMAL DELAY. LOCATES SHALL BE RENEWED AS NECESSARY.

3. CONTRACTOR SHALL EXERCISE DUE CARE TO AVOID DISTURBING ANY EXISTING UTILITIES, ABOVE OR BELOW GROUND. CONTRACTOR SHALL COORDINATE WITH UTILITY OWNER (LACDPU) REPRESENTATIVES TO PREVENT DISRUPTION TO SERVICE.

4. ALL UTILITY LINES NOT SPECIFICALLY DESIGNATED TO BE REMOVED AND REPLACED ON THE PLANS, SHALL BE MAINTAINED IN SERVICE. SHORING, BRACING AND OTHER APPROPRIATE MEANS OF SUPPORT SHALL BE EMPLOYED BY THE CONTRACTOR TO PREVENT DAMAGE OR LOSS OF THESE EXISTING UTILITIES. BEAM AND CABLE OR OTHER SUITABLE SUPPORTS SHALL BE USED FOR TEMPORARY SUPPORT OF ALL UTILITY LINES AS NECESSARY.

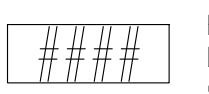
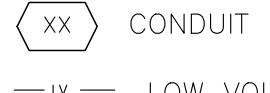
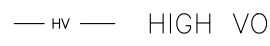
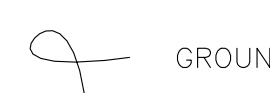
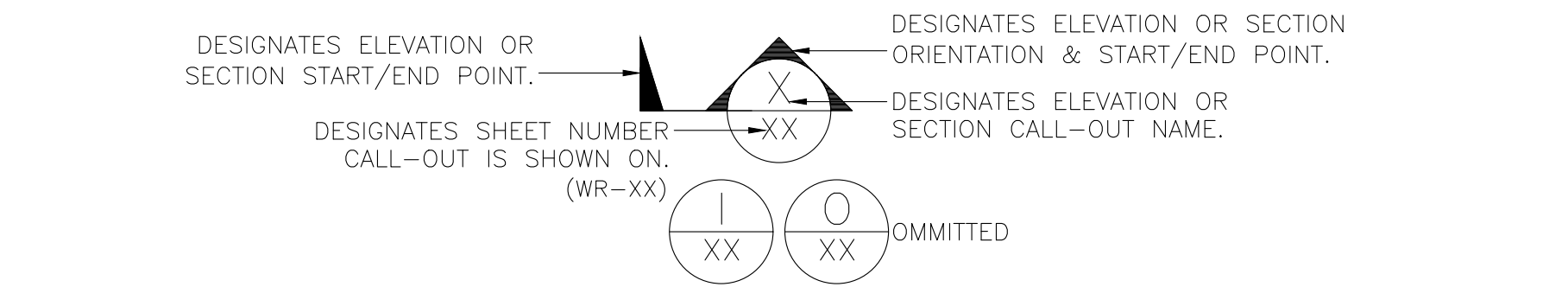
5. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL POTENTIAL CONFLICTING UTILITIES. SHOULD A CONFLICT EXIST BETWEEN THE FIELD INFORMATION AND THE PLANS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THE CONFLICT CAN BE RESOLVED WITH MINIMUM DELAY.

6. CONTRACTOR SHALL COORDINATE ANY REQUIRED UTILITY INTERRUPTIONS WITH THE OWNER A MINIMUM OF TEN (10) WORKING DAYS BEFORE THE DESIRED OUTAGE.
- ELECTRICAL CODES, STANDARDS & GUIDES:
1. NATIONAL ELECTRIC SAFETY CODE (NESC) – ANSI STANDARD C2 2017

2. NATIONAL ELECTRIC CODE (NEC) – –NFPA 70 2017

3. NEW MEXICO ELECTRIC CODE – TITLE 14, CHAPTER 10 (AS APPLICABLE) 2014

4. OWNER SUPPLEMENTAL ENGINEERING SPECIFICATIONS, AS APPLICABLE

5. CONSTRUCTION SPECIFICATIONS SHALL ALSO BE REFERENCED AND ARE INCORPORATED BY GENERAL REFERENCE. SEE TABLE OF SPECIFICATION FOR COMPLETE LISTING OF DOCUMENTS AVAILABLE.
- ABBREVIATIONS:
- | | | | |
|--------|-----------------------|--------------|------------------------|
| AC—# | AIR CONDITIONING UNIT | PB# | PULL BOX NUMBER |
| BATT | BATTERY | PNL | PANEL |
| BLDG | BUILDING | PVC40/80 | SCHEDULE 40/80 PVC |
| CHGR | CHARGER | RCD | RIGID CONDUIT |
| CNCTR | CONNECTOR | RTU | REMOTE TERMINAL UNIT |
| COMM | COMMUNICATIONS | SF | SQUARE FEET |
| CTRL | CONTROL | SM# | STATIC MAST NUMBER |
| CL | CENTERLINE | STRGE | STORAGE |
| DIA. | DIAMETER | SUGG | SUGGESTED |
| DISC | DISCONNECT | SWGR | SWITCHGEAR |
| DS#—# | LV DISCONNECT SWITCH | SYNC | SYNCHROSCOPE |
| EL | ELEVATION | TYP | TYPICAL |
| EXIST | EXISTING | UNO (U.N.O.) | UNLESS NOTED OTHERWISE |
| FO | FIBER OPTICS | XFMR | TRANSFORMER |
| FUT | FUTURE | XFR | TRANSFER |
| GEN | GENERATOR | | |
| HV | HIGH VOLTAGE | | |
| IPS | IRON PIPE SIZE | | |
| JBX | JUNCTION BOX | | |
| LTG | LIGHTING | | |
| LV | LOW VOLTAGE | | |
| MIN | MINIMUM | | |
| MV | MEDIUM VOLTAGE | | |
| N.T.S. | NOT TO SCALE | | |
- LEGEND
- | | | | |
|---|------------------------------------|---|---|
|  | SUBSTATION FENCE |  | EXTERIOR LIGHT FIXTURE |
|  | ELECTRICAL GROUND CONNECTION |  | EQUIPMENT OR DEVICE DESIGNATION – SEE ONE-LINE DIAGRAM WR-201 |
|  | BILL OF MATERIAL CALLOUT | | |
|  | CONDUIT REFERENCE | | |
|  | LOW VOLTAGE CONDUIT | | |
|  | HIGH VOLTAGE CONDUIT | | |
|  | GROUND CONDUCTOR PIG TAIL | | |
|  | BOLTED GROUND CONNECTOR | | |
|  | SWITCH OPERATOR PLATFORM CURBS | | |
|  | GROUND ROD W/ EXOTHERMIC CONNECTOR | | |
- 

DESIGNATES ELEVATION OR SECTION START/END POINT.

DESIGNATES ELEVATION OR SECTION ORIENTATION & START/END POINT.

DESIGNATES ELEVATION OR SECTION CALL-OUT NAME.

DESIGNATES SHEET NUMBER CALL-OUT IS SHOWN ON. (WR-XX)

OMMITTED
1. SUBSTATION CONSTRUCTION SHALL MAINTAIN THE FOLLOWING ELECTRICAL CLEARANCES. NOTIFY THE ENGINEER IMMEDIATELY OF ANY VIOLATION OF THESE CLEARANCES.

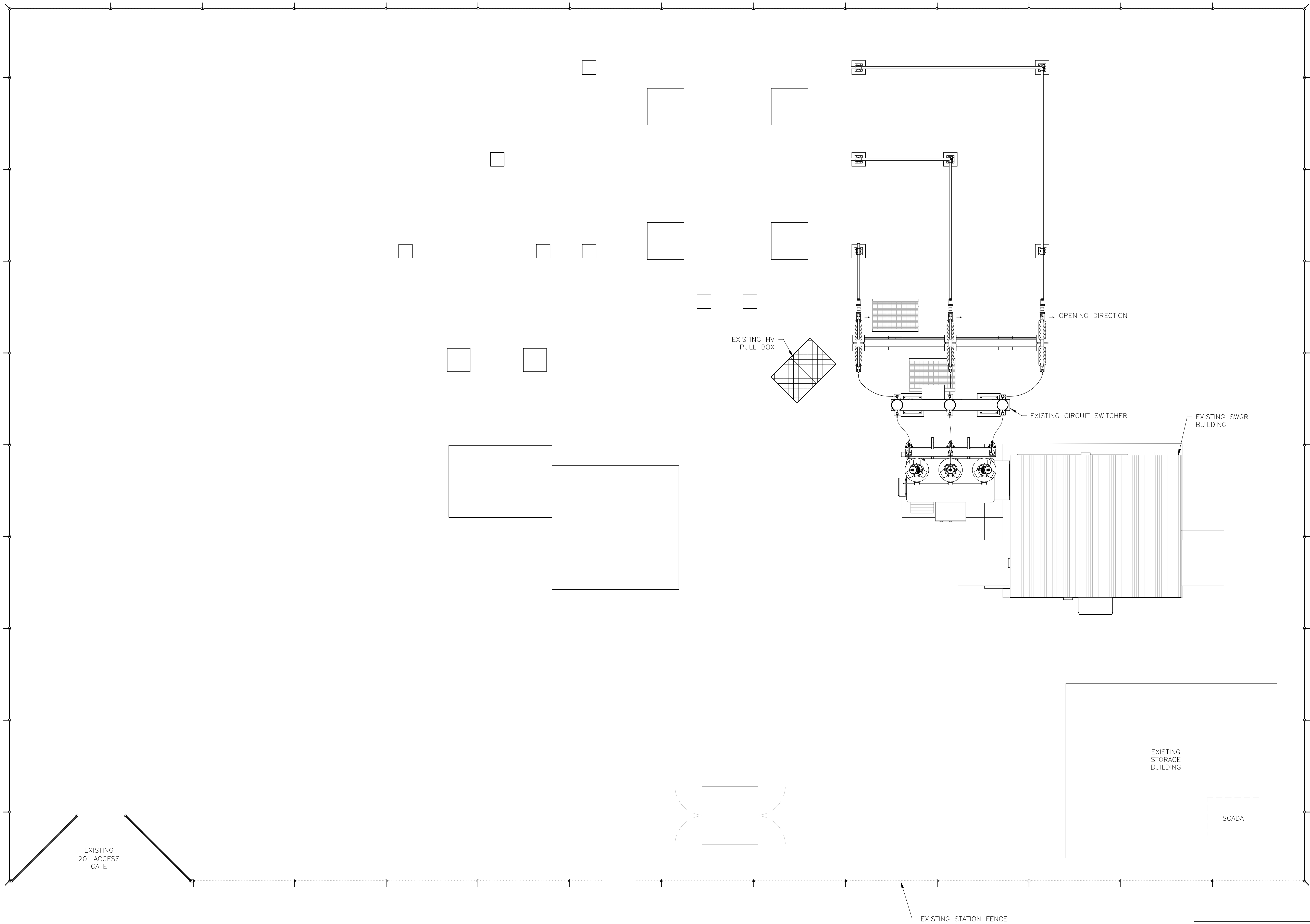
2. 115 kV: RECOMMENDED CL PHASE TO PHASE = 7'-0" MINIMUM METAL TO METAL = 4'-5" MINIMUM PHASE TO GROUND = 4'-0"

3. "S" = SLIP FIT BUS SUPPORT

4. "F" = FIXED BUS SUPPORT

5. LISTED CLEARANCES ARE USED TO SET GENERAL DISTANCES AS A TRIGGER LEVEL FOR THE CONTRACTOR TO GAUGE POSSIBLE PROBLEM AREAS. THEY DO NOT REPRESENT EXACT MINIMUM DISTANCES. QUESTIONS REGARDING LISTED VALUES OR MEASURED VALUES SHOULD BE DIRECTED TO THE ENGINEER FOR CLARIFICATION AND/OR REVIEW.
- | RECOMMENDED HARDWARE TORQUE VALUES | | | | |
|------------------------------------|--|---|-------------|----------|
| BOLT DIA. | RECOMMENDED TORQUE NON-LUBRICATED STEEL & SILICON BRONZE HARDWARE FT. LBS. | RECOMMENDED TORQUE FOR LUBRICATED GALVANIZED & ALUMINUM HARDWARE FT. LBS. | | |
| | STEEL | SILICON BRONZE | GALV. STEEL | ALUMINUM |
| 5/16" | 15 | 15 | 15 | 10 |
| 3/8" | 20 | 20 | 25 | 15 |
| 1/2" | 40 | 40 | 40 | 25 |
| 5/8" | 55 | 55 | 60 | 40 |
| 3/4" | 70 | 70 | 75 | 60 |
- TIGHTEN BOLTED CONNECTIONS USING "BELLEVILLE" WASHERS UNTIL FLAT.
- NOTE:
SOME PROJECT DRAWINGS ARE INCLUDED FOR OVERAL PROJECT INFORMATIONAL PURPOSES.
- ISSUED FOR FOUNDATION BID PURPOSES
- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|----------|--|-----------|--|---------------|------------|--------------|--|--|--|------------------------------------|--|--|--|--|-----|--|--|--|--|---|-------|-------|----------|--------|-----|--|
|  <div>Transmission & Distribution Services, LLC
Professional Engineers & Surveyors
Ph. 505-344-4234
5401 Beverly Hills Ave NE
Albuquerque, NM 87113
www.t-d-services.com</div> <div>This drawing is a copyrighted work product of T&D Services, LLC as of the date shown on this drawing. Any re-use or copying of any portion of this drawing, without written permission from an authorized employee of T&D Services, LLC is strictly prohibited.</div> | DEPARTMENT OF PUBLIC UTILITIES
WHITE ROCK, NEW MEXICO
LOS ALAMOS COUNTY | REV | | | | | DATE | | | | | DESCRIPTION | | | | | BY | | | | | WHITE ROCK SUBSTATION
GENERAL ELECTRICAL NOTES | | | | | | |
| | | A | | | | | 12/5/2025 | | | | | 30% DESIGN REVIEW | | | | | KWA | | | | | | | | | | | |
| | | B | | | | | 12/8/2025 | | | | | 60% DESIGN REVIEW | | | | | KWA | | | | | | | | | | | |
| | | C | | | | | 12/18/2025 | | | | | ISSUED FOR FOUNDATION BID PURPOSES | | | | | KWA | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DWN: DSM | | CKD: SLK | | APVD: KWA | | DATE: 9/22/25 | | JOB#: 250092 | | | | | | | | | | | | | | SCALE | STATE | SEQ # | DWG NAME | SHEET | REV | |
| | | | | | | | | | | | | | | | | | | | | | | NTS | NM | ---- | WR-00 | 1 OF 1 | A | |

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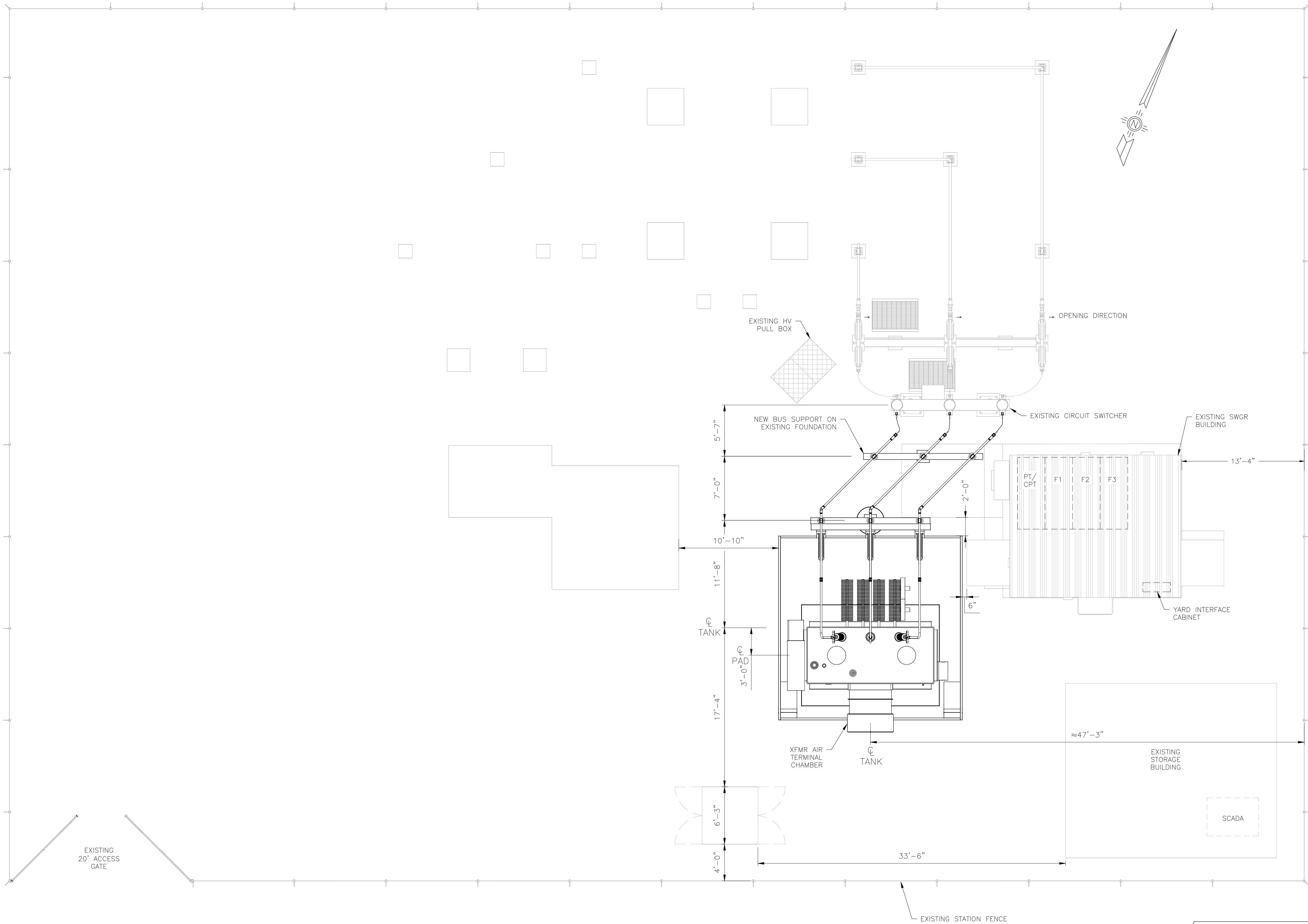
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CAUTION:
EXISTING STATION COMPONENTS ARE ENERGIZED.

ISSUED FOR FOUNDATION BID PURPOSES

T&D SERVICES Professional Engineers and Surveyors Transmission & Distribution Services, LLC Professional Engineers & Surveyors Ph. 505-344-4234 5401 Beverly Hills Ave NE Albuquerque, NM 87113 www.t-d-services.com This drawing is a copyrighted work product of T&D Services, LLC as of the date shown on this drawing. Any re-use or copying of any portion of this drawing, without written permission from an authorized employee of T&D Services, LLC is strictly prohibited.	DEPARTMENT OF PUBLIC UTILITIES					REV	DATE	DESCRIPTION	BY	WHITE ROCK SUBSTATION					
	WHITE ROCK, NEW MEXICO					A	12/5/2025	30% DESIGN REVIEW	KWA	EXISTING SITE LAYOUT					
	LOS ALAMOS COUNTY					B	12/8/2025	60% DESIGN REVIEW	KWA						
						C	12/18/2025	ISSUED FOR FOUNDATION BID PURPOSES	KWA						
DWN: DSM					CKD: SLK	APVD: KWA	DATE: 9/22/25	JOB#: 250092		SCALE	STATE	SEQ #	DWG NAME	SHEET	REV
										3/16"=1'-0"	NM	---	WR-02E	1 OF 1	A

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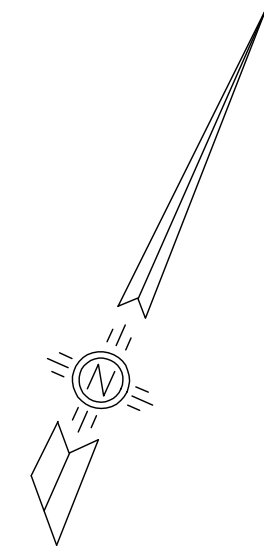
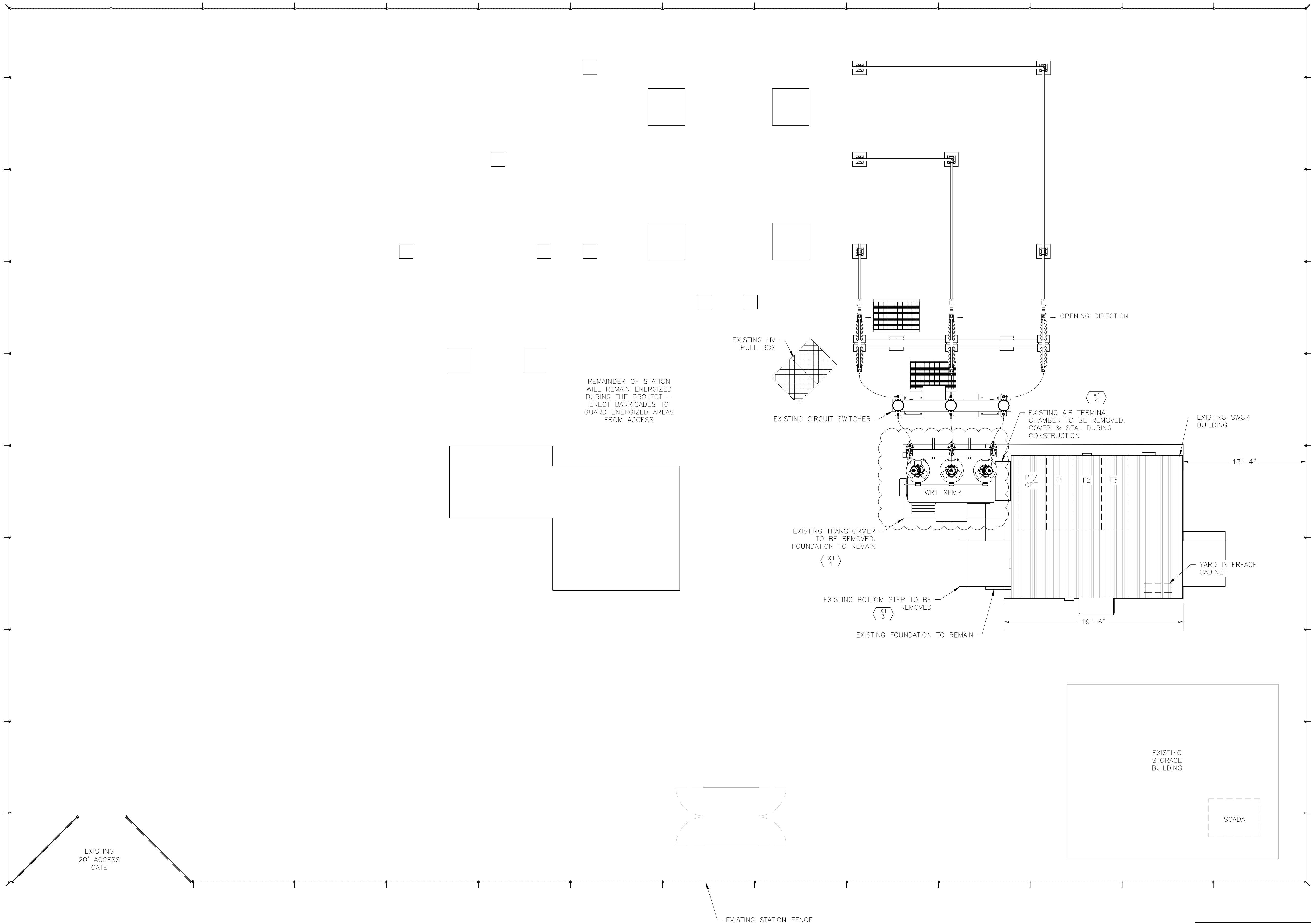
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	LOS ALAMOS COUNTY					B	12/8/2025	60% DESIGN REVIEW	KWA						
						C	12/18/2025	ISSUED FOR FOUNDATION BID PURPOSES	KWA						
DWN: DSM	CKD: SLK	APVD: KWA	DATE: 9/22/25	JOB#: 250092						SCALE	STATE	SEQ #	DWG NAME	SHEET	REV
										3/16"=1'-0"	NM	----	WR-02	1 OF 1	A

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NOTE:
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CAUTION:
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ISSUED FOR FOUNDATION BID PURPOSES

DEPARTMENT OF PUBLIC UTILITIES
WHITE ROCK, NEW MEXICO
LOS ALAMOS COUNTY



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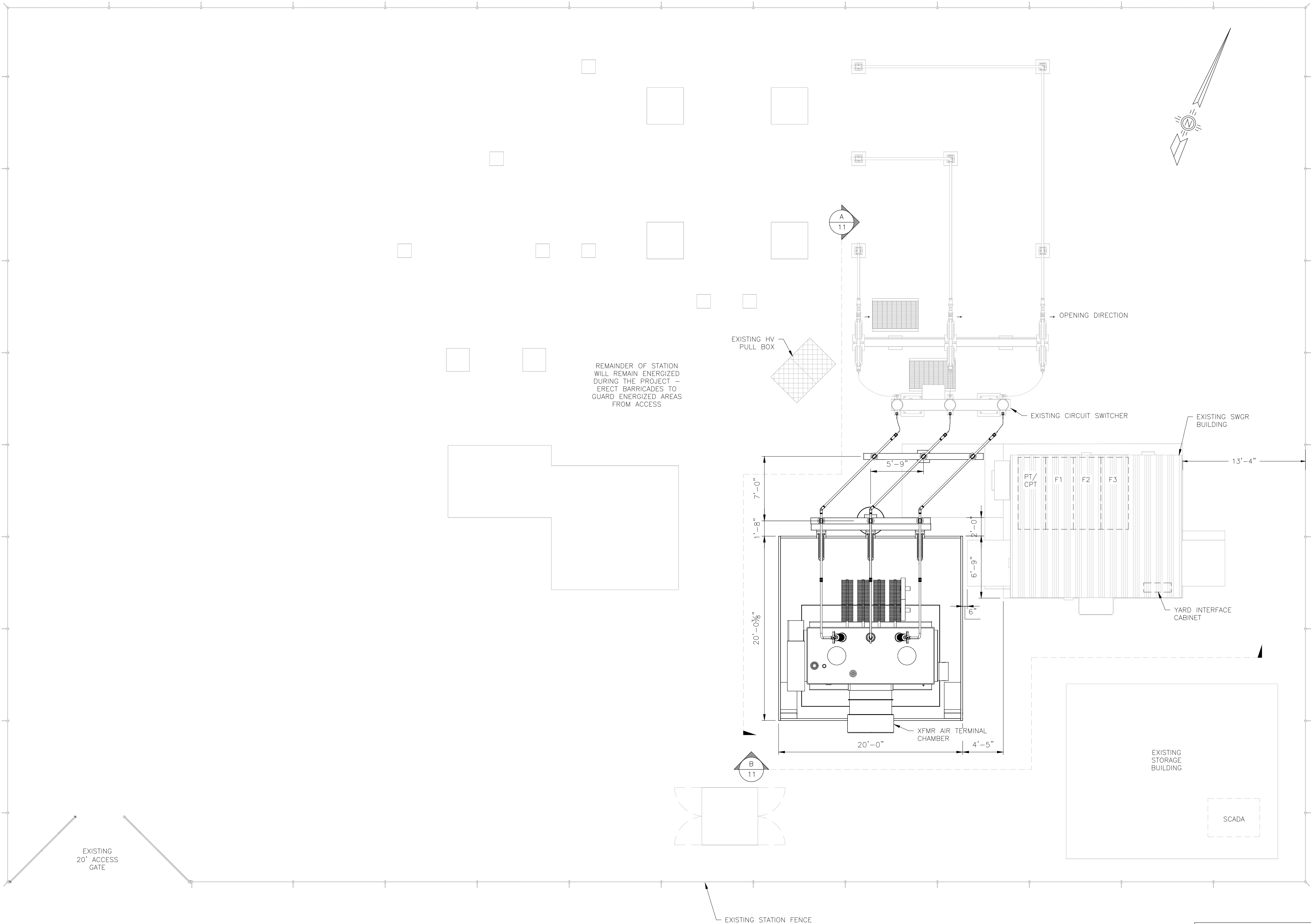
DWN: DSM CKD: SLK APVD: KWA DATE: 9/22/25 JOB#: 250092

REV	DATE	DESCRIPTION	BY
A	12/5/2025	30% DESIGN REVIEW	KWA
B	12/8/2025	60% DESIGN REVIEW	KWA
C	12/18/2025	ISSUED FOR FOUNDATION BID PURPOSES	KWA

WHITE ROCK SUBSTATION
ELECTRICAL ARRANGEMENT (REMOVAL)

SCALE	STATE	SEQ #	DWG NAME	SHEET	REV
3/16"=1'-0"	NM	----	WR-10R	1 OF 1	A

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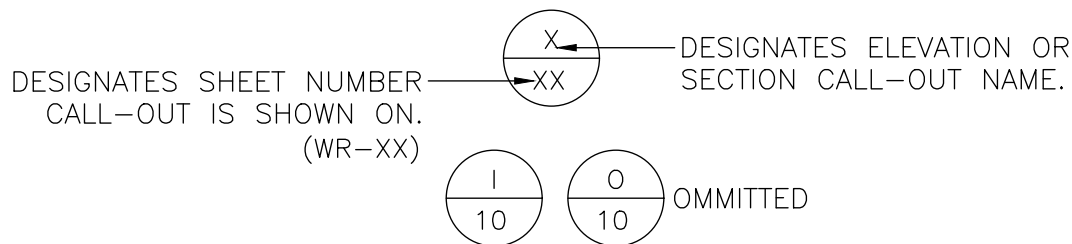
T&D SERVICES Professional Engineers and Surveyors Transmission & Distribution Services, LLC Professional Engineers & Surveyors Ph. 505-344-4234 5401 Beverly Hills Ave NE Albuquerque, NM 87113 www.t-d-services.com This drawing is a copyrighted work product of T&D Services, LLC as of the date shown on this drawing. Any re-use or copying of any portion of this drawing, without written permission from an authorized employee of T&D Services, LLC is strictly prohibited.	DEPARTMENT OF PUBLIC UTILITIES					REV	DATE	DESCRIPTION	BY	WHITE ROCK SUBSTATION					
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	LOS ALAMOS COUNTY					B	12/8/2025	60% DESIGN REVIEW	KWA						
						C	12/18/2025	ISSUED FOR FOUNDATION BID PURPOSES	KWA						
DWN: DSM	CKD: SLK	APVD: KWA	DATE: 9/22/25	JOB#: 250092						SCALE	STATE	SEQ #	DWG NAME	SHEET	REV
										3/16"=1'-0"	NM	---	WR-10	1 OF 1	A

- NOTES:
- SUBSTATION CONSTRUCTION SHALL MAINTAIN THE FOLLOWING ELECTRICAL CLEARANCES. NOTIFY THE ENGINEER IMMEDIATELY OF ANY VIOLATION OF THESE CLEARANCES.
 - 115kV: RECOMMENDED ϕ PHASE TO PHASE = 7'-0"
MINIMUM METAL TO METAL = 4'-5"
MINIMUM PHASE TO GROUND = 4'-0"

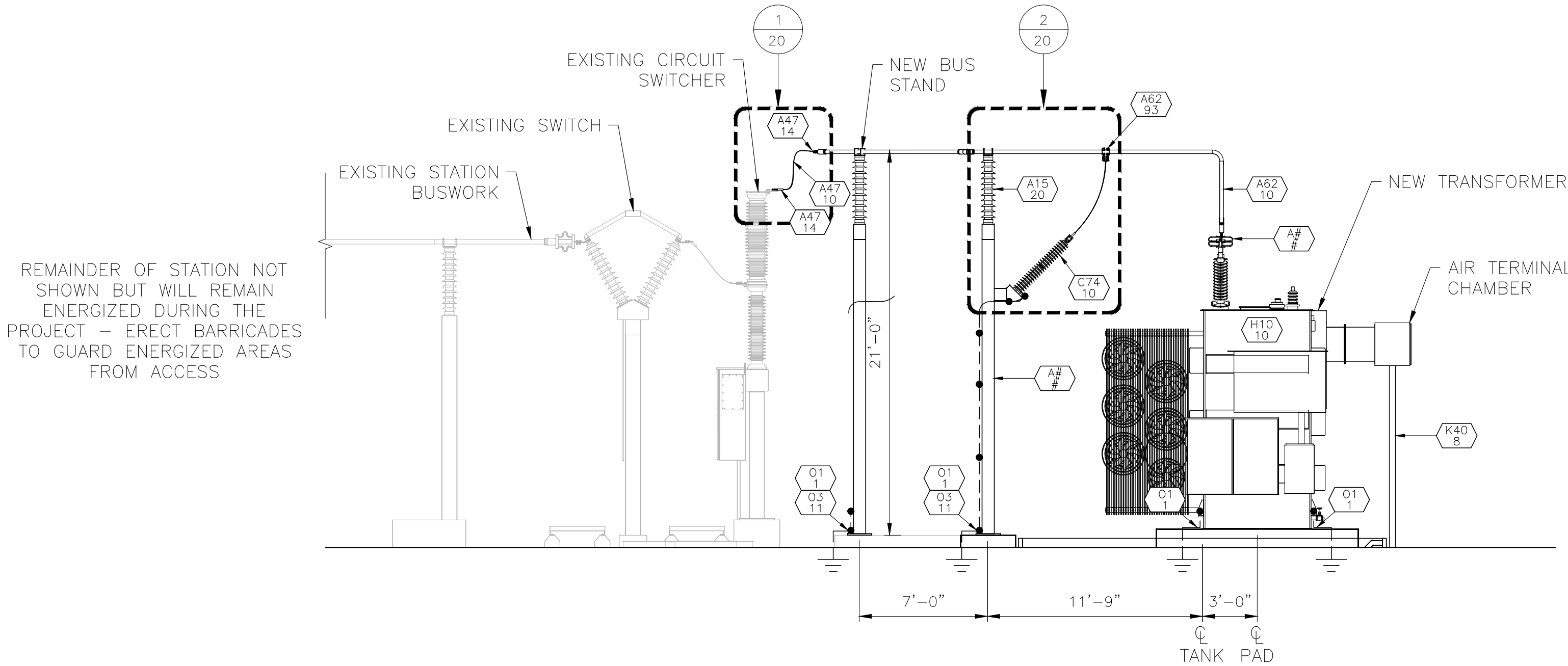
RECOMMENDED HARDWARE TORQUE VALUES				
BOLT DIA.	RECOMMENDED TORQUE NON-LUBRICATED STEEL & SILICON BRONZE HARDWARE FT. LBS.		RECOMMENDED TORQUE FOR LUBRICATED GALVANIZED & ALUMINUM HARDWARE FT. LBS.	
	STEEL	SILICON BRONZE	GALV. STEEL	ALUMINUM
5/16"	15	15	15	10
3/8"	20	20	25	15
1/2"	40	40	40	25
5/8"	55	55	60	40
3/4"	70	70	75	60

TIGHTEN BOLTED CONNECTIONS USING "BELLEVILLE" WASHERS UNTIL FLAT.

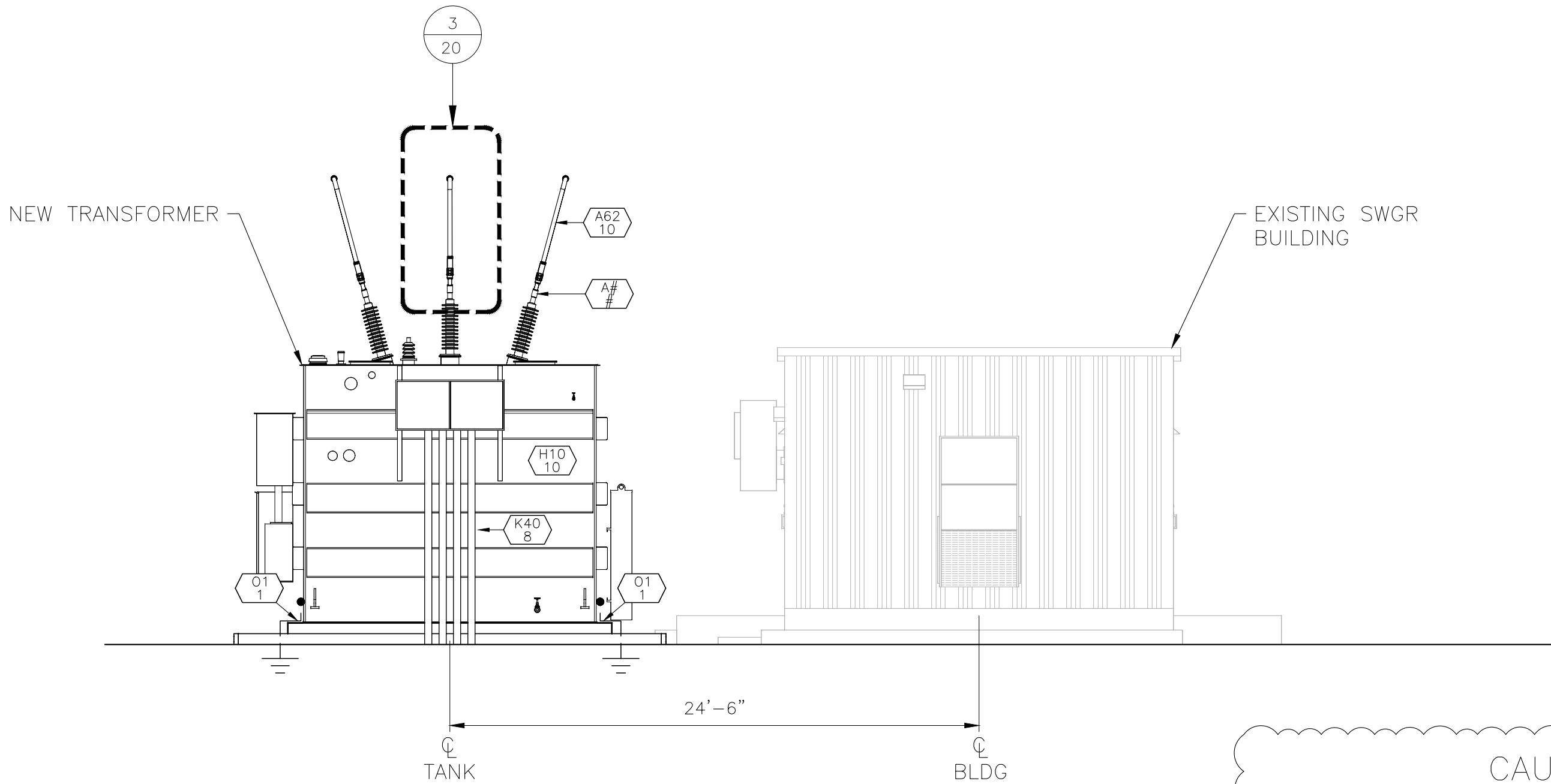
LEGEND



NOTE:
SOME PROJECT DRAWINGS ARE INCLUDED FOR OVERAL PROJECT INFORMATIONAL PURPOSES.



ELEVATION "A"
SCALE: 3/16"=1'-0"



ELEVATION "B"
SCALE: 3/16"=1'-0"

CAUTION:
EXISTING STATION COMPONENTS ARE ENERGIZED.

GHOSTED EQUIPMENT IS EXISTING

ISSUED FOR FOUNDATION BID PURPOSES

S:\04 STATIONS\NM\LOS ALAMOS COUNTY\WHITE ROCK\ELECTRICAL ARRANGEMENT 2025\WHITE ROCK EA\VR-11.DWG LBERNLOEHR 12/8/2025



Transmission & Distribution Services, LLC
Professional Engineers & Surveyors
Ph. 505-344-4234
5401 Beverly Hills Ave NE
Albuquerque, NM 87113
www.t-d-services.com

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DEPARTMENT OF PUBLIC UTILITIES

WHITE ROCK, NEW MEXICO

LOS ALAMOS COUNTY

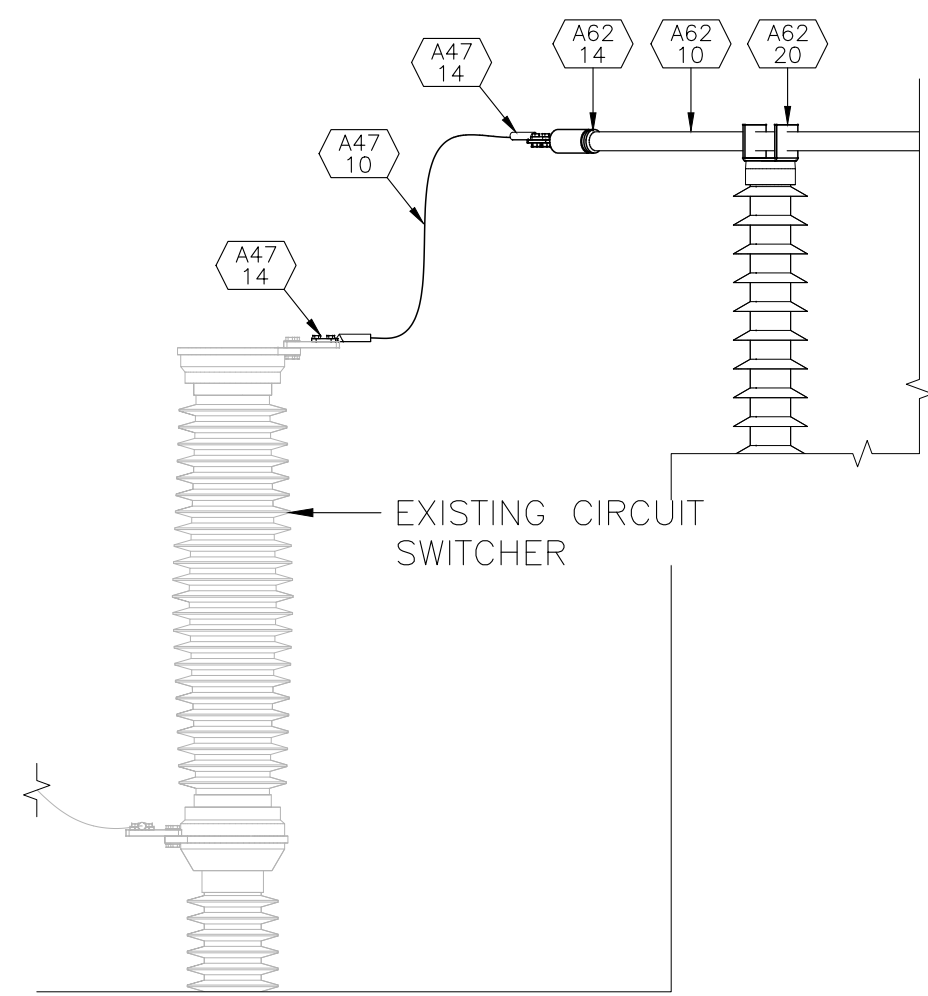
DWN: DSM CKD: SLK APVD: KWA DATE: 9/22/25 JOB#: 250092

REV	DATE	DESCRIPTION	BY
A	12/5/2025	30% DESIGN REVIEW	KWA
B	12/8/2025	60% DESIGN REVIEW	KWA
C	12/18/2025	ISSUED FOR FOUNDATION BID PURPOSES	KWA

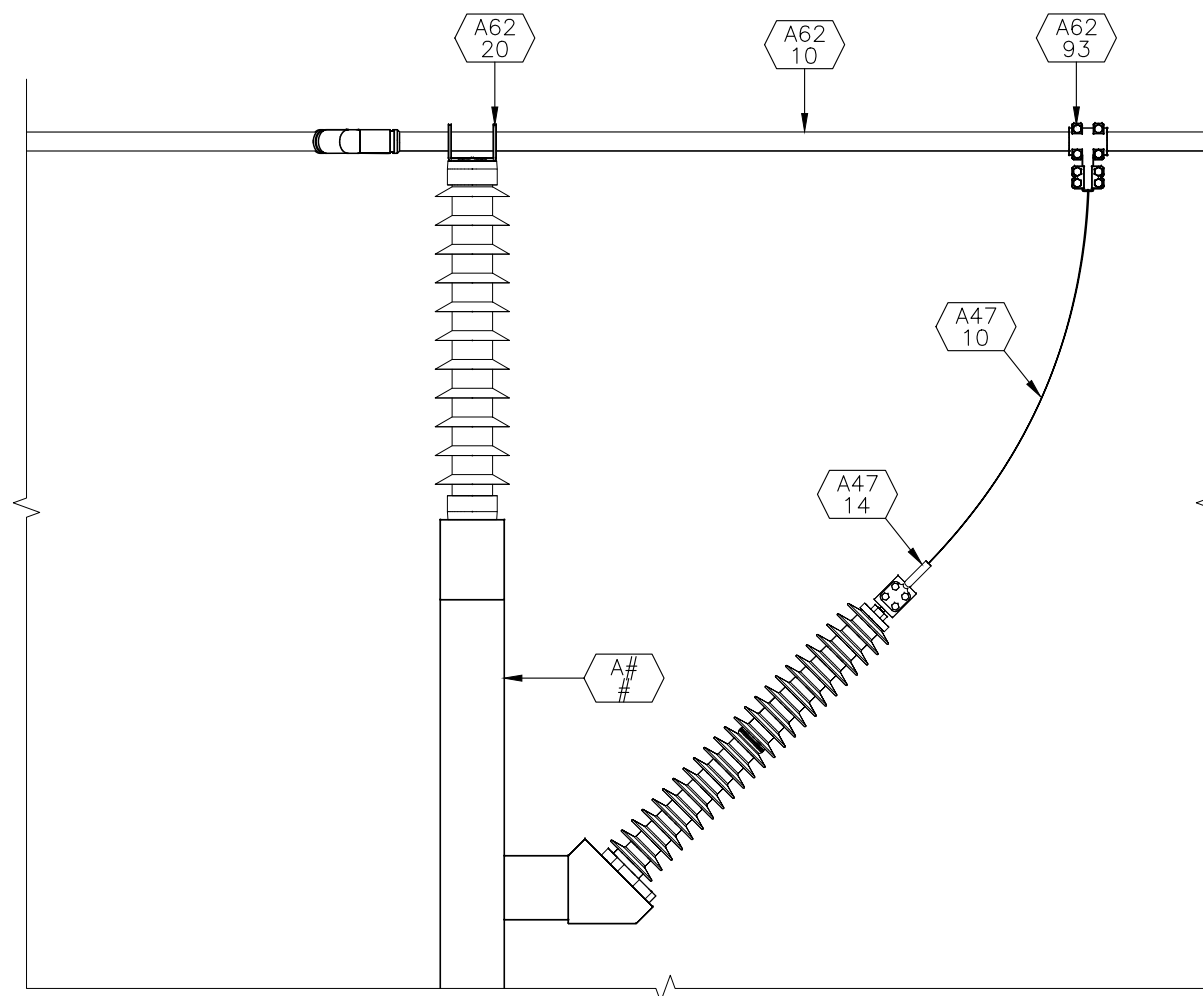
WHITE ROCK SUBSTATION
SECTIONS A & B

SCALE	STATE	SEQ #	DWG NAME	SHEET	REV
3/16"=1'-0"	NM	---	WR-11	1 OF 1	A

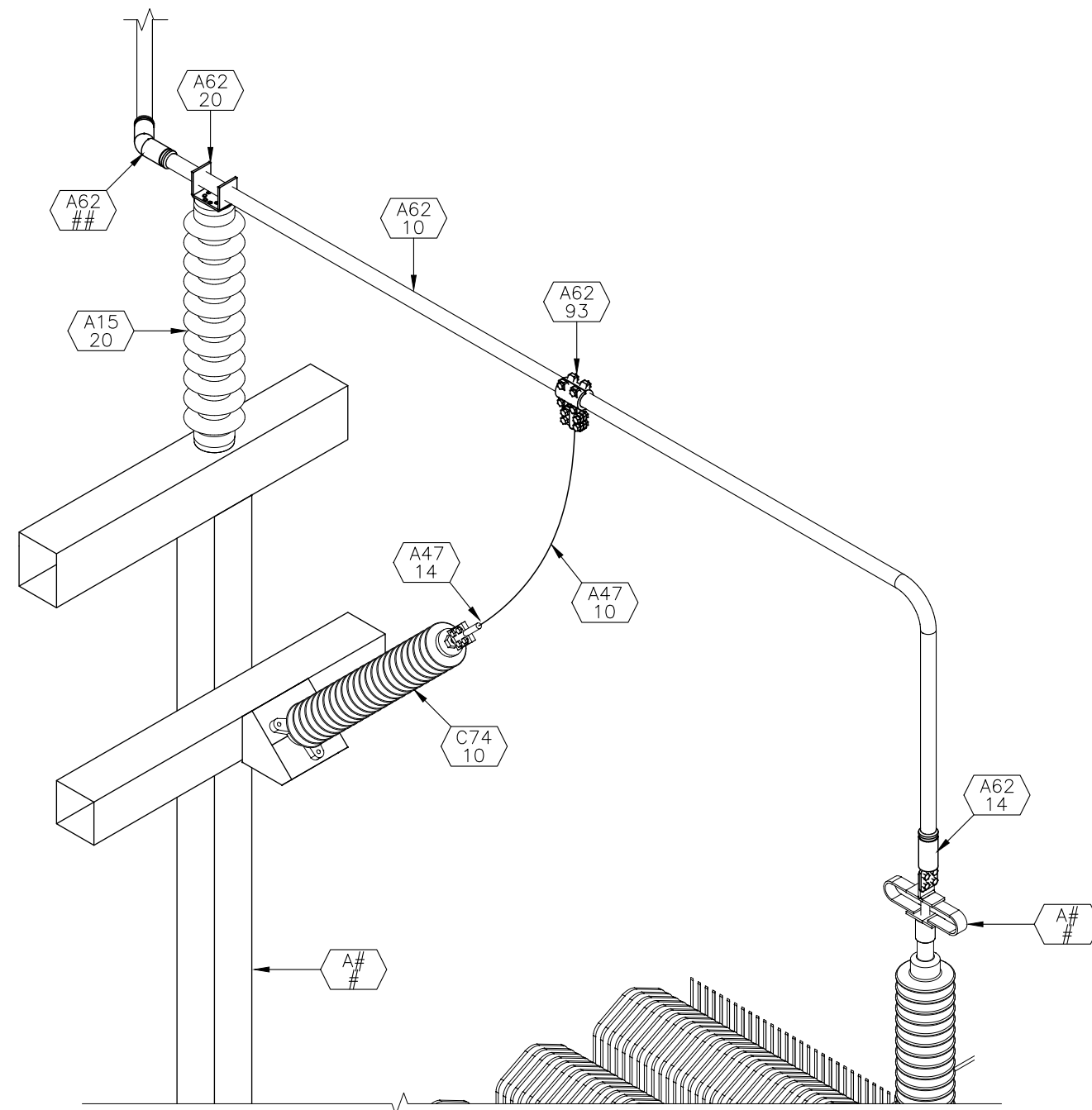
S:\04 STATIONS\NM\LOS ALAMOS COUNTY\WHITE ROCK\ELECTRICAL ARRANGEMENT 2025\WHITE ROCK EA\VR-20.DWG DWGNO: 12/1/2025



CONNECTION DETAIL 1
11



CONNECTION DETAIL 2
11



CONNECTION DETAIL 3
11

NOTE:
SOME PROJECT DRAWINGS ARE
INCLUDED FOR OVERAL PROJECT
INFORMATIONAL PURPOSES.

ISSUED FOR FOUNDATION BID PURPOSES



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DEPARTMENT OF PUBLIC UTILITIES

WHITE ROCK, NEW MEXICO

LOS ALAMOS COUNTY

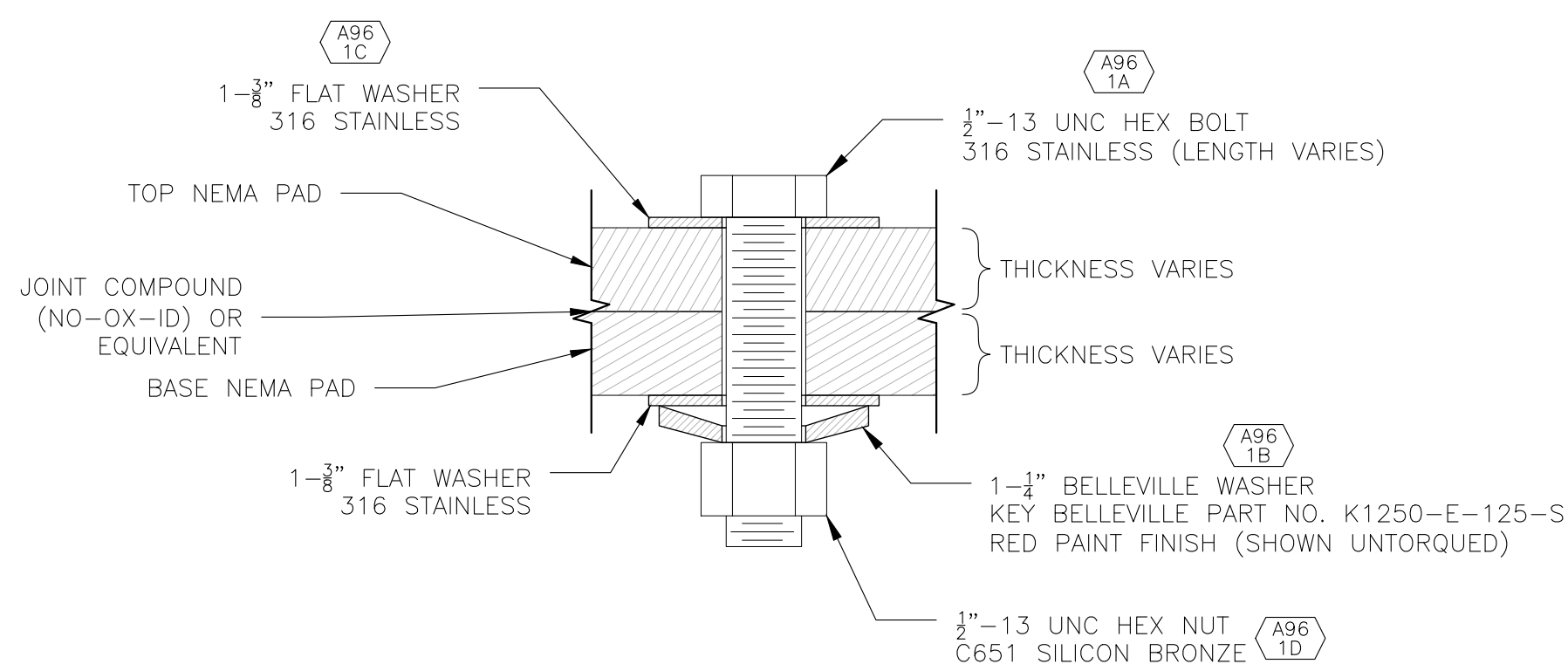
DWN: DSM CKD: SLK APVD: KWA DATE: 9/22/25 JOB#: 250092

REV	DATE	DESCRIPTION	BY
A	12/5/2025	30% DESIGN REVIEW	KWA
B	12/8/2025	60% DESIGN REVIEW	KWA
C	12/18/2025	ISSUED FOR FOUNDATION BID PURPOSES	KWA

WHITE ROCK SUBSTATION
CONNECTION DETAILS

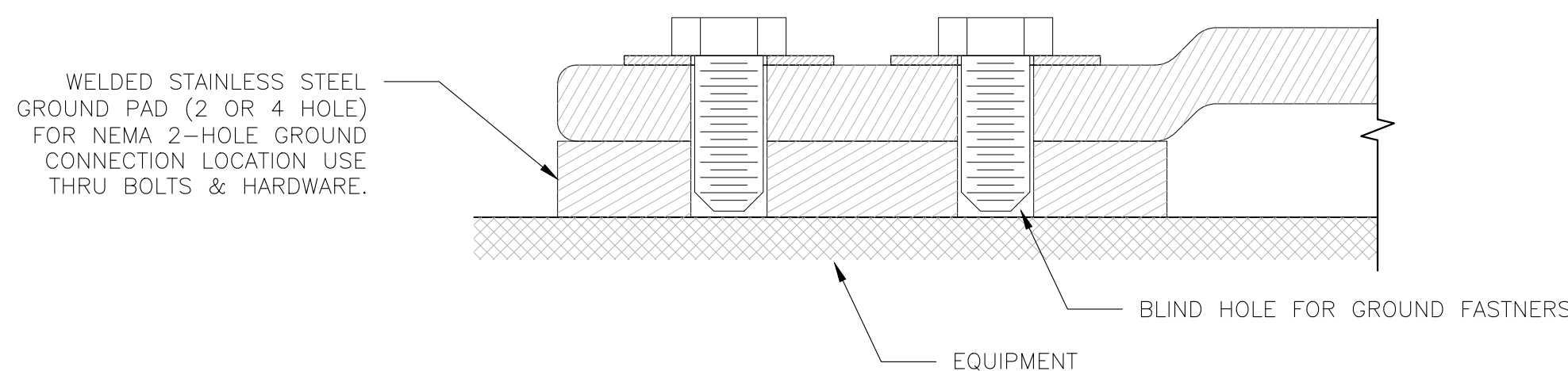
SCALE	STATE	SEQ #	DWG NAME	SHEET	REV
NTS	NM	---	WR-20	1 OF 1	A

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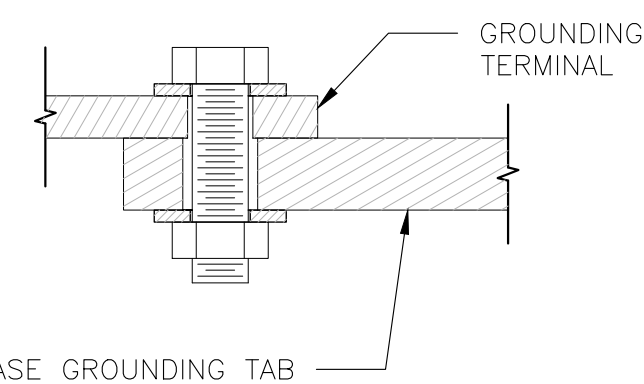


- NOTES:
1. BOLT SHALL BE THE SHORTEST STANDARD LENGTH POSSIBLE TO EXPOSE A MINIMUM OF TWO FULL THREADS AND A MAXIMUM OF FOUR THREADS BEYOND NUT AFTER TORQUING TO SPECIFICATION.
 2. AFTER TORQUING (~40 FT-LBS).
 3. FASTENER DESIGN DEVELOPS ~4000 LBS FORCE PRELOAD PER BOLT.
 4. USE APPROPRIATE TORQUE WRENCH IN GOOD WORKING ORDER TO TORQUE NUT TO VALUES LISTED.
 5. NO CHANNEL LOCKS TO BE USED.
 6. INDELIBLY MARK BOLT HEAD AFTER IT HAS BEEN TORQUED AND BELLEVILLE WASHER IS FLAT.

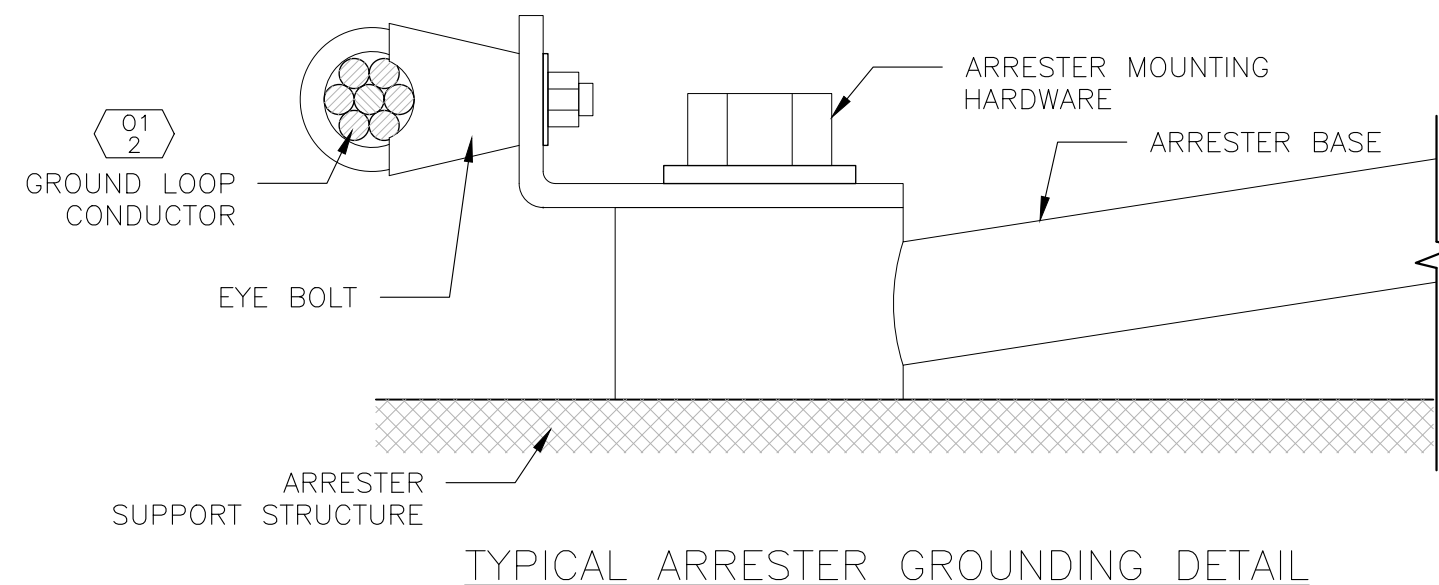
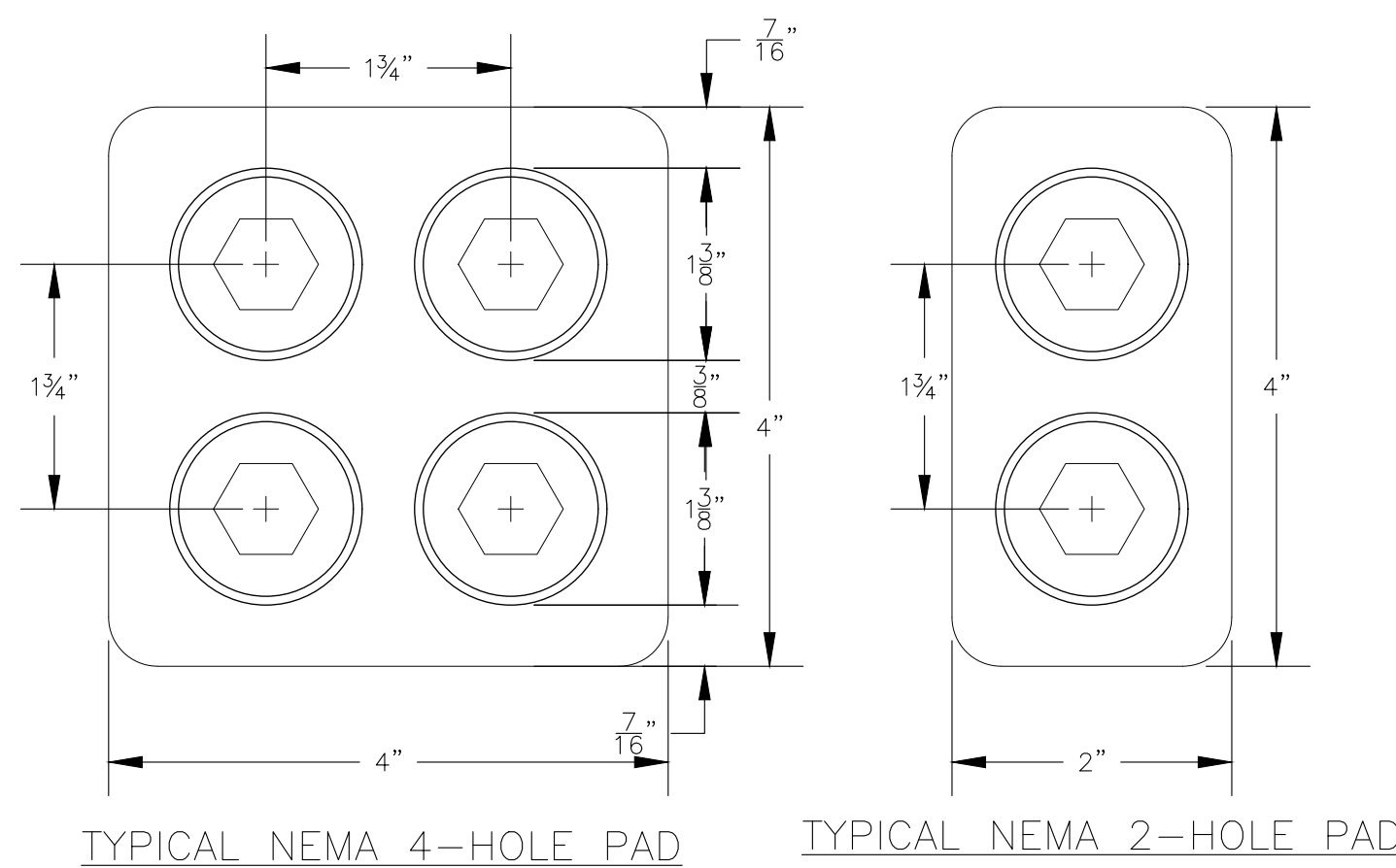
TYPICAL ELECTRICAL FASTENER DETAIL



TYPICAL GROUND PAD DETAIL



TYPICAL GROUND FASTENER DETAIL



TYPICAL ARRESTER GROUNDING DETAIL

NOTE:
SOME PROJECT DRAWINGS ARE
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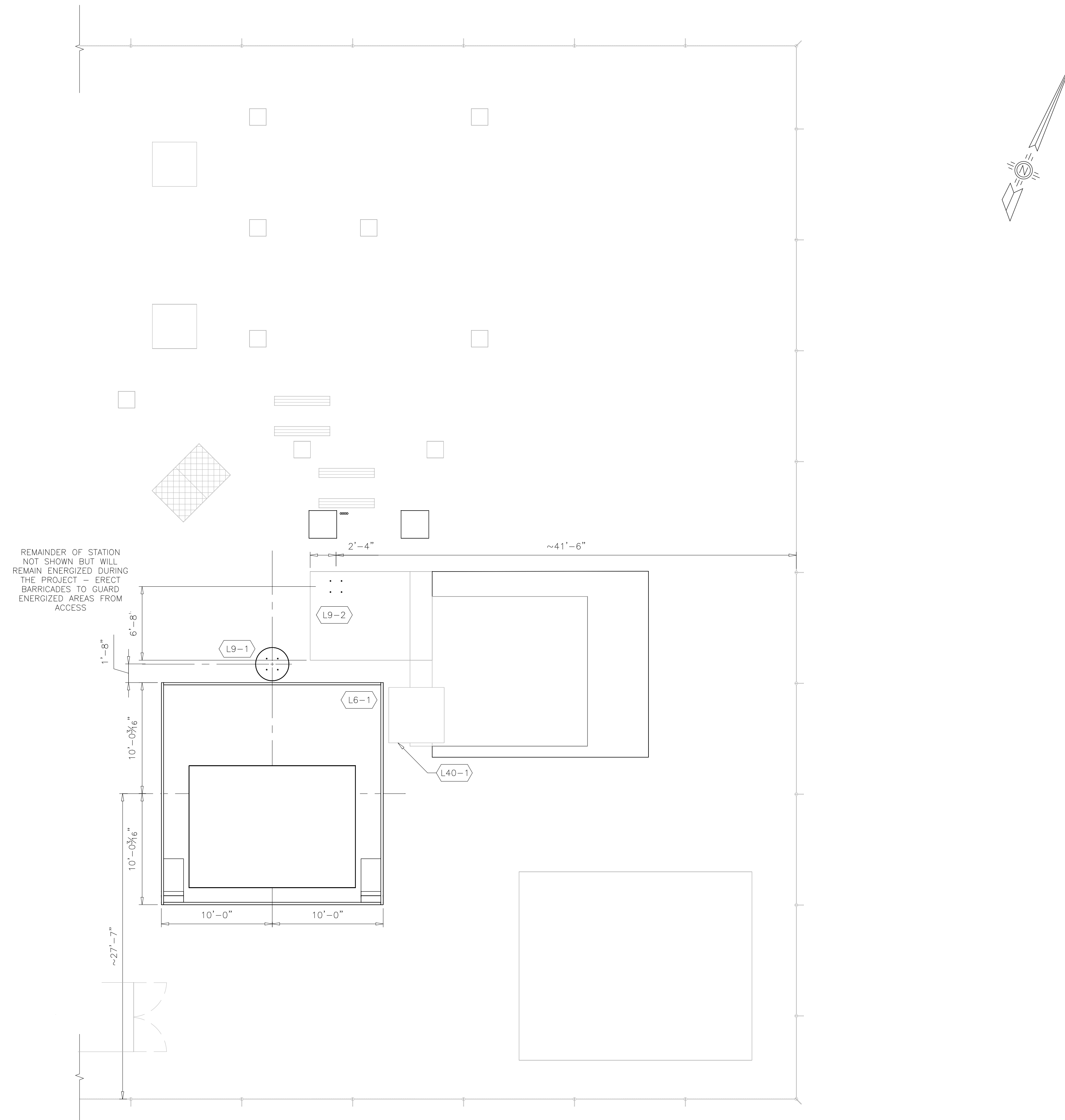
DEPARTMENT OF PUBLIC UTILITIES

WHITE ROCK, NEW MEXICO

LOS ALAMOS COUNTY

DWN: DSM CKD: SLK APVD: KWA DATE: 9/22/25 JOB#: 250092

REV	DATE	DESCRIPTION	BY	WHITE ROCK SUBSTATION FASTENER DETAILS					
A	12/5/2025	30% DESIGN REVIEW	KWA						
B	12/8/2025	60% DESIGN REVIEW	KWA						
C	12/18/2025	ISSUED FOR FOUNDATION BID PURPOSES	KWA						
				SCALE	STATE	SEQ #	DWG NAME	SHEET	REV
				NTS	NM	---	WR-25	1 OF 1	A



ISSUED FOR FOUNDATION BID PURPOSES

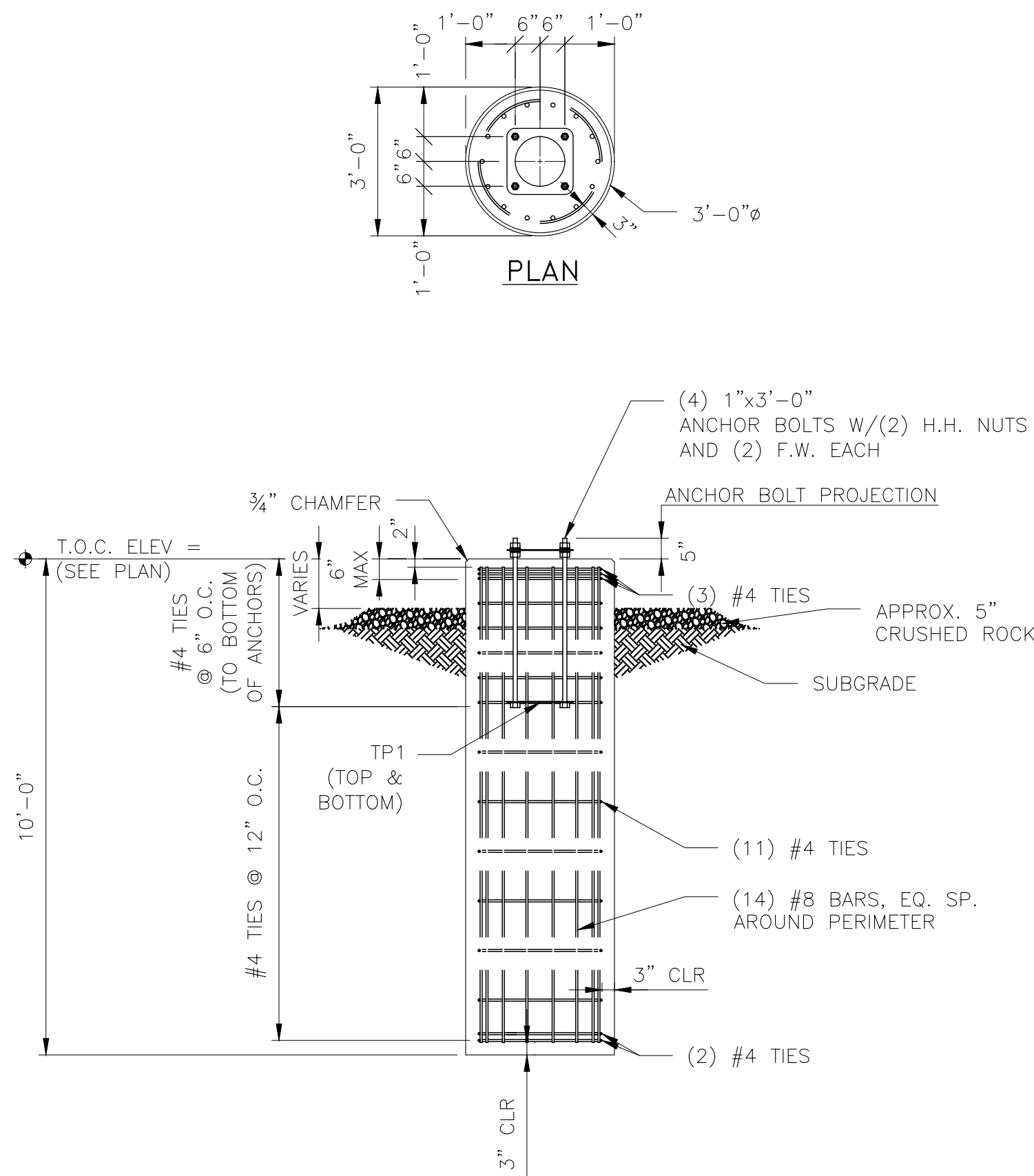
The logo for T&D SERVICES is prominently displayed on the left. It features a large, stylized 'T&D' in blue and yellow, with a lightning bolt graphic integrated into the ampersand. Below this, the word 'SERVICES' is written in a bold, blue, sans-serif font, flanked by two yellow circular icons containing blue symbols. Underneath the logo, the text 'Professional Engineers and Surveyors' is written in a blue, italicized font. To the right of the logo, the company name 'Transmission & Distribution Services, LLC' is written in a black, sans-serif font, followed by 'Professional Engineers & Surveyors' on the next line. Below this, the phone number 'PH. 505-544-4234' is listed. Further down, the address '5401 Beverly Hills Ave NE' and 'Albuquerque, NM 87113' are provided. Finally, the website 'www.t-d-services.com' is listed at the bottom right of the contact information block.

DEPARTMENT OF PUBLIC UTILITIES
WHITE ROCK, NEW MEXICO
LOS ALAMOS COUNTY

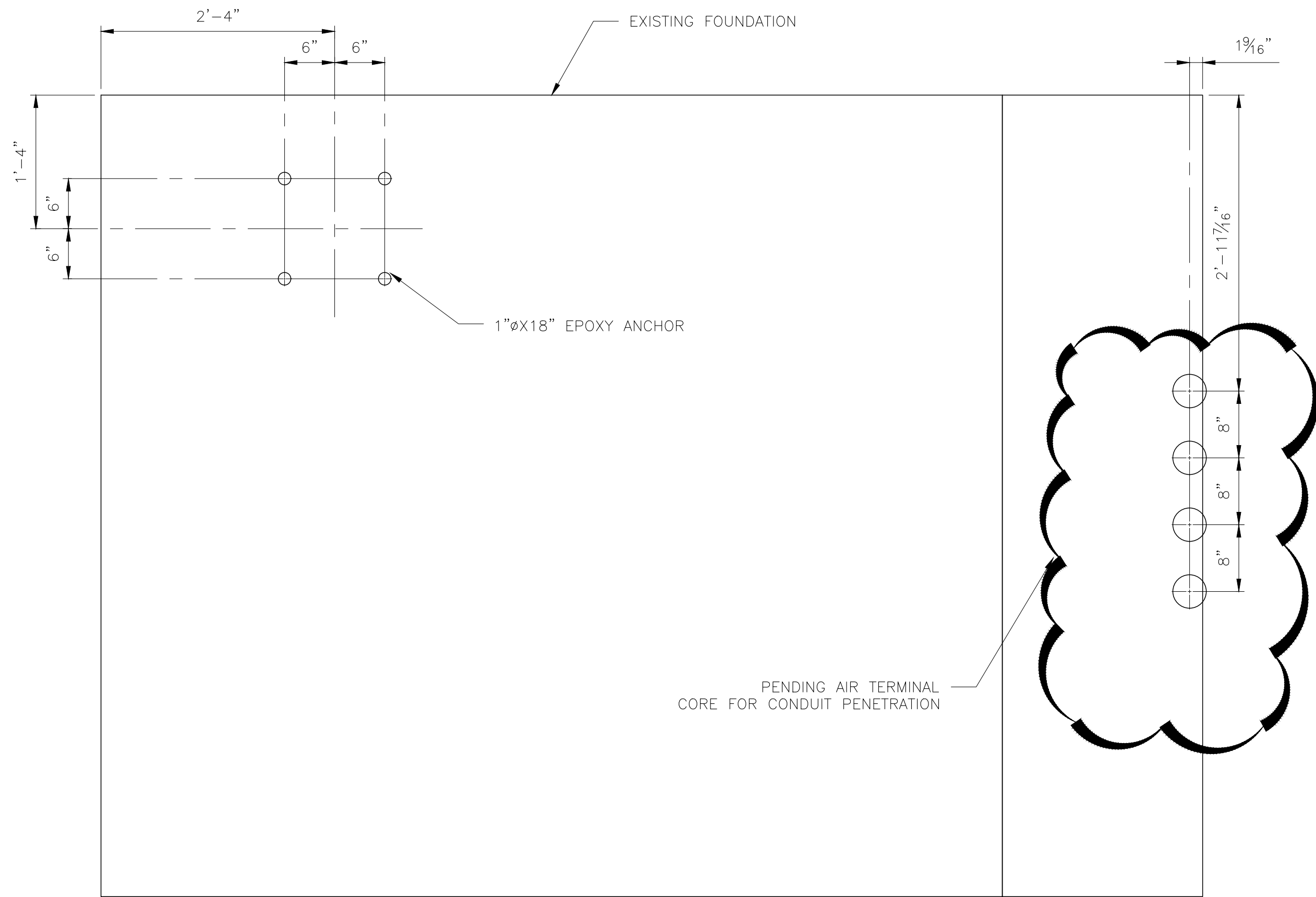
REV	DATE	DESCRIPTION	BY
A	12/5/2025	30% DESIGN REVIEW	KWA
B	12/8/2025	60% DESIGN REVIEW	KWA
C	12/18/2025	ISSUED FOR FOUNDATION BID PURPOSES	KWA

WHITE ROCK SUBSTATION FOUNDATION LAYOUT					
SCALE	STATE	SEQ #	DWG NAME	SHEET	REV
3/16"=1'-0"	NM	---	WR-30	1 OF 1	A

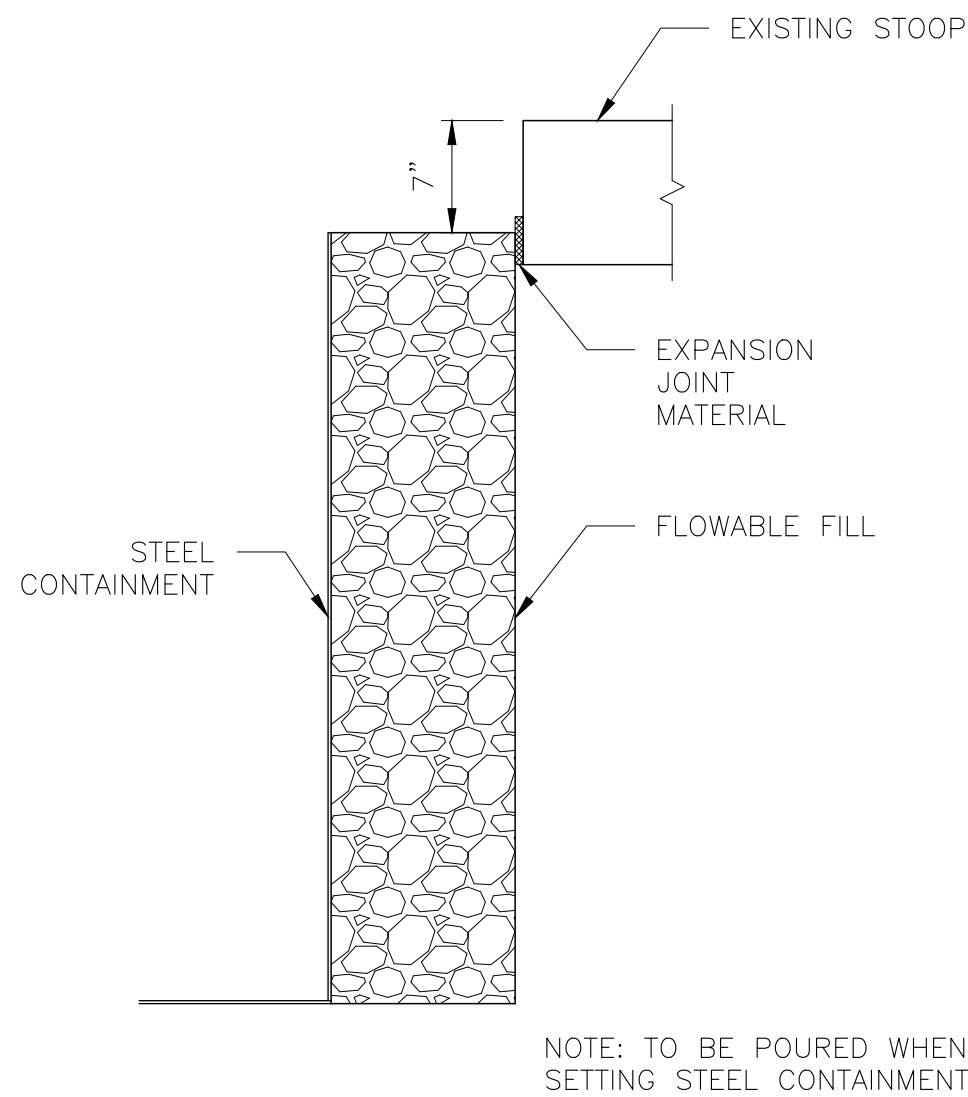
S:\04 STATIONS\NM\LOS ALAMOS COUNTY\WHITE ROCK\ELECTRICAL ARRANGEMENT 2025\WHITE ROCK EA\EA\WR-31.DWG DWENDOZA 12/18/2025



FOUNDATION DESIGNATION L9-1
(BUS SUPPORT)(1-REQUIRED)
(APPROXIMATELY 2.62 CY CONCRETE EA.)



FOUNDATION DESIGNATION L9-2
(BUS SUPPORT)(1-REQUIRED)
SCALE: 1" = 1'-0"

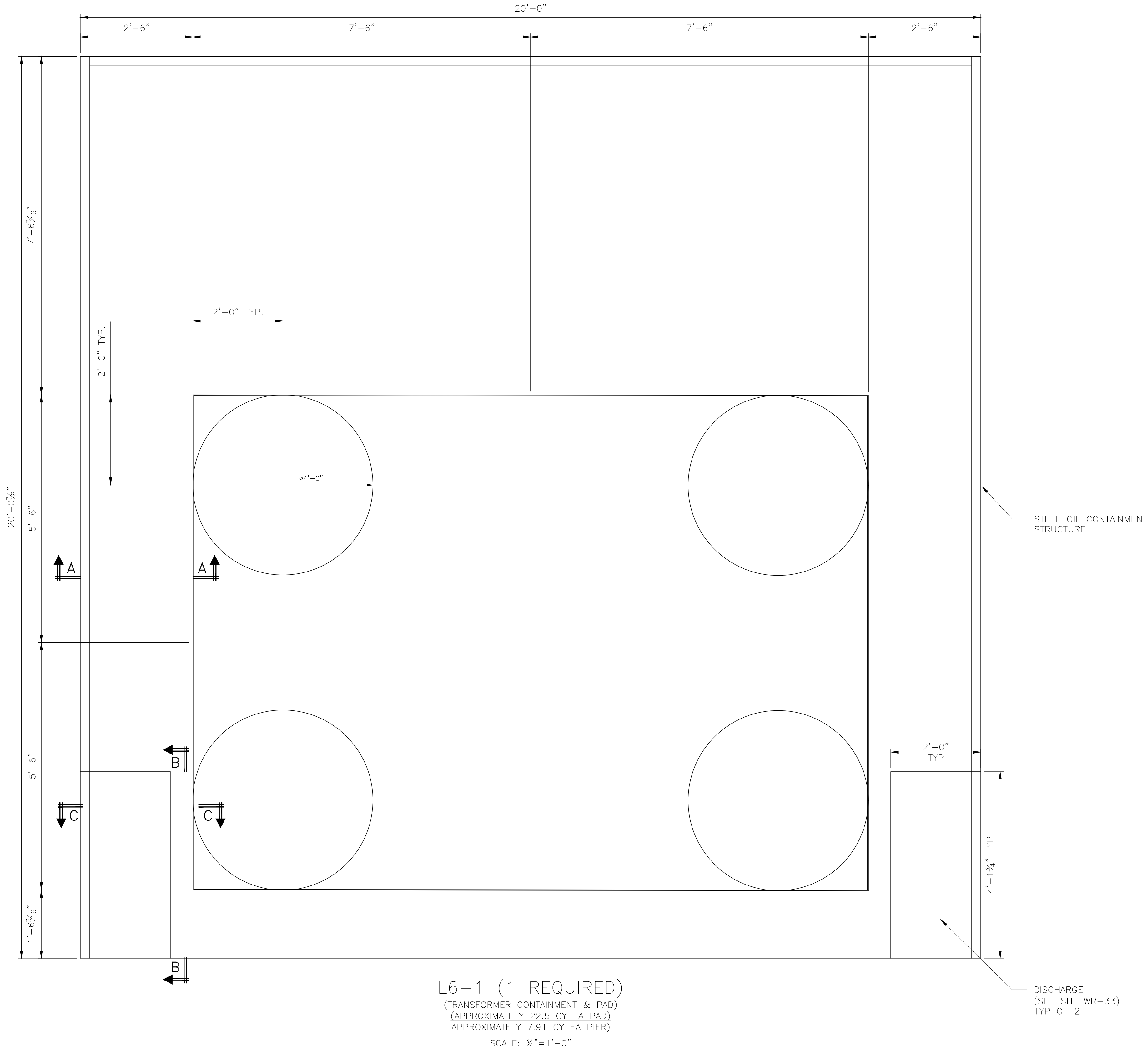


FOUNDATION DESIGNATION L40-1
(STOOP EXTENSION)(1-REQUIRED)
SCALE: 1" = 1'-0"

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	WHITE ROCK, NEW MEXICO				A	12/5/2025	30% DESIGN REVIEW	KWA						
					B	12/8/2025	60% DESIGN REVIEW	KWA						
					C	12/18/2025	ISSUED FOR FOUNDATION BID PURPOSES	KWA						
LOS ALAMOS COUNTY									SCALE	STATE	SEQ #	DWG NAME	SHEET	REV
DWN: LWB CKD: SLK APVD: KWA DATE: 9/22/25 JOB#: 250092									3/8"=1'-0"	NM	---	WR-31	1 OF 1	A

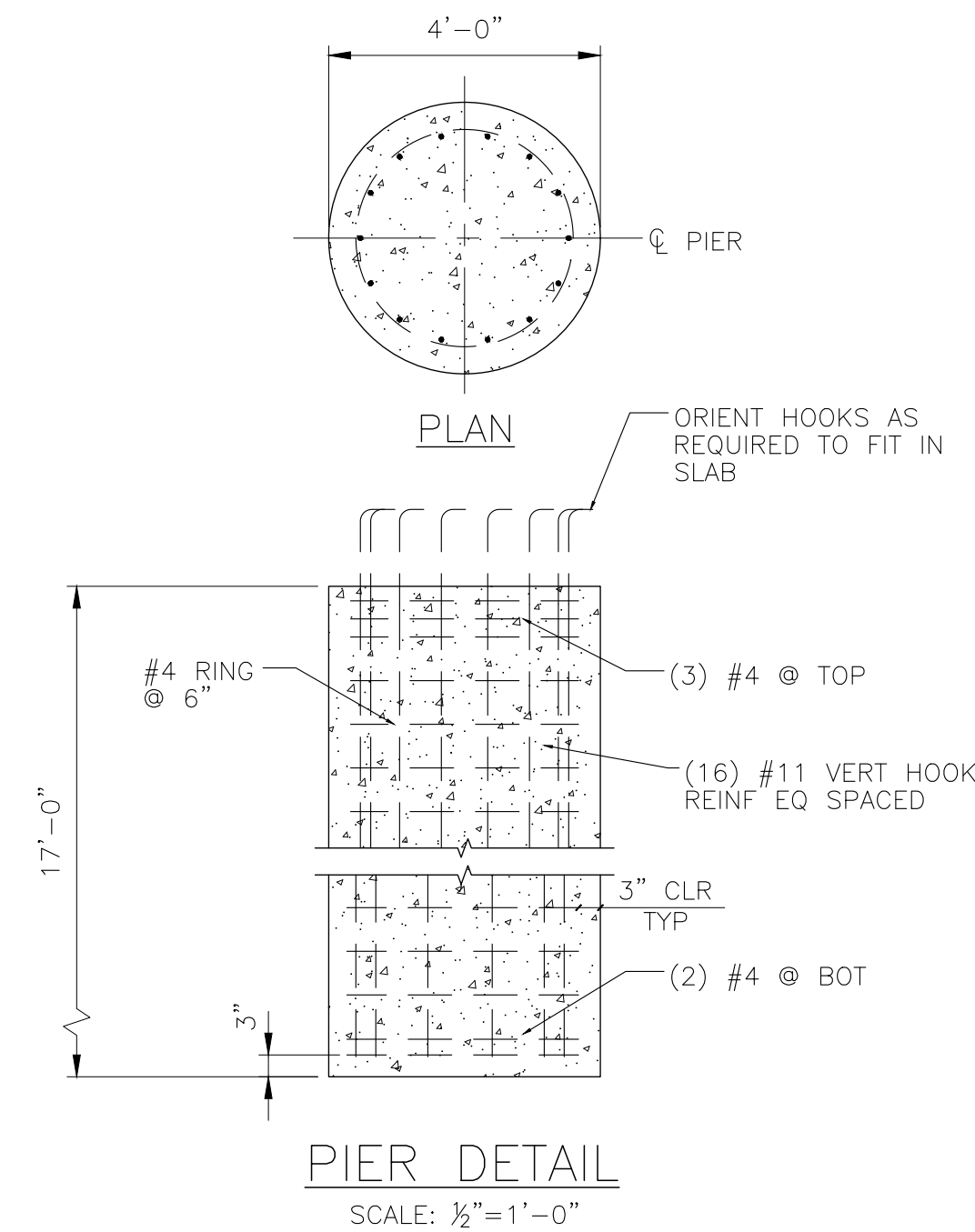
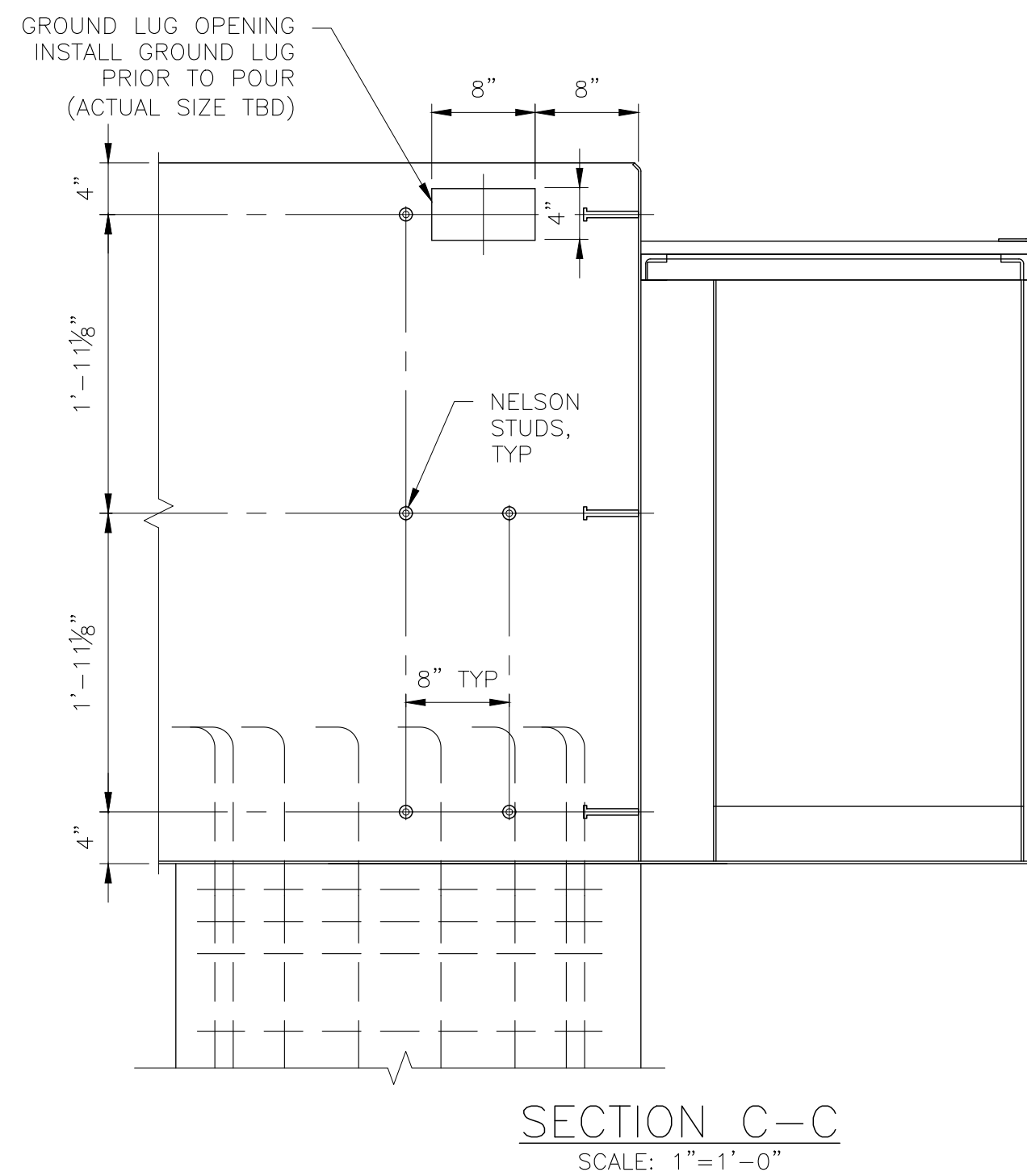
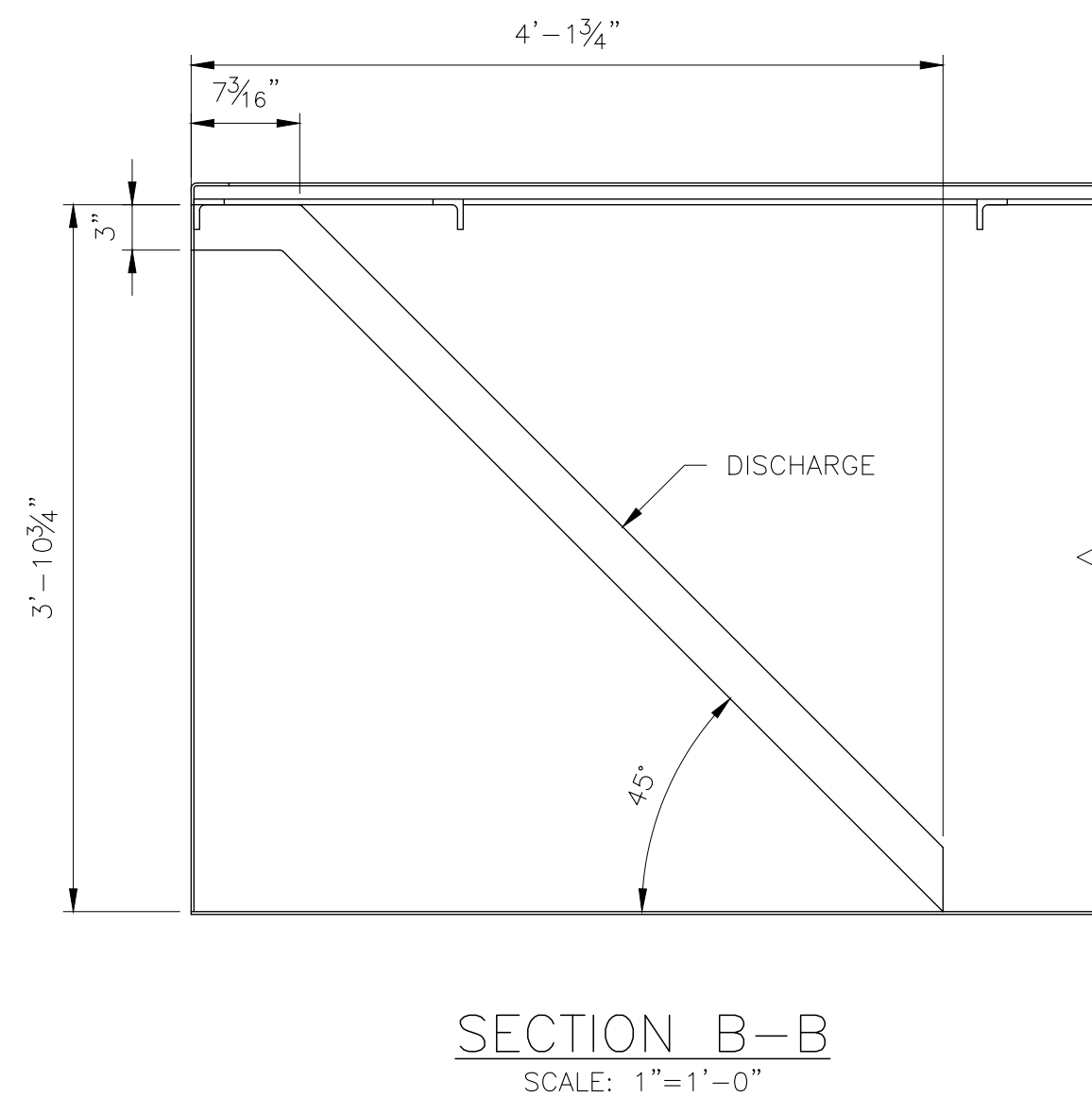
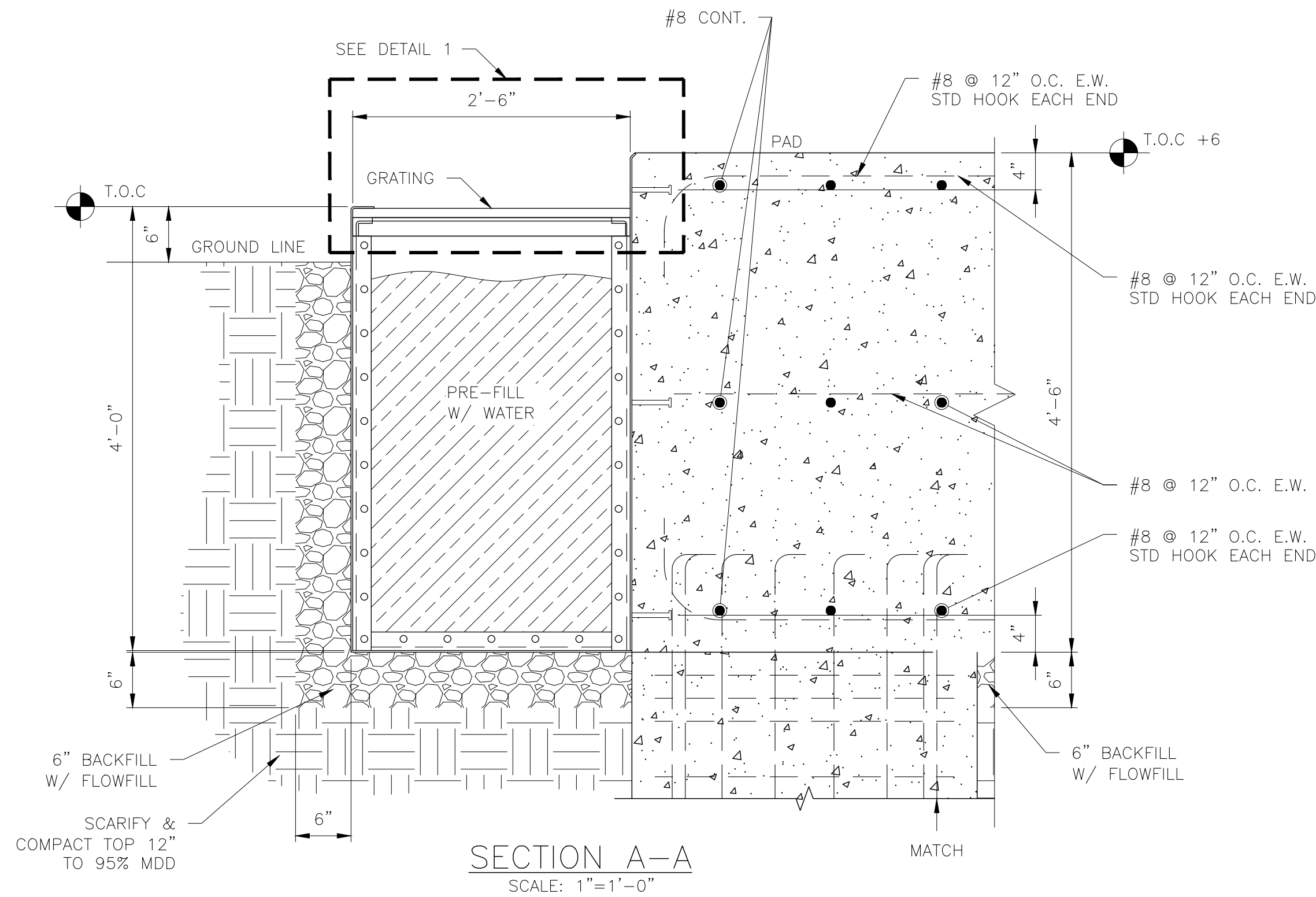
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		A	12/5/2025	30% DESIGN REVIEW	KWA						
		B	12/8/2025	60% DESIGN REVIEW	KWA						
		C	12/18/2025	ISSUED FOR FOUNDATION BID PURPOSES	KWA						
						SCALE	STATE	SEQ #	DWG NAME	SHEET	REV
						3/4"=1'-0"	NM	----	WR-32	1 OF 1	A

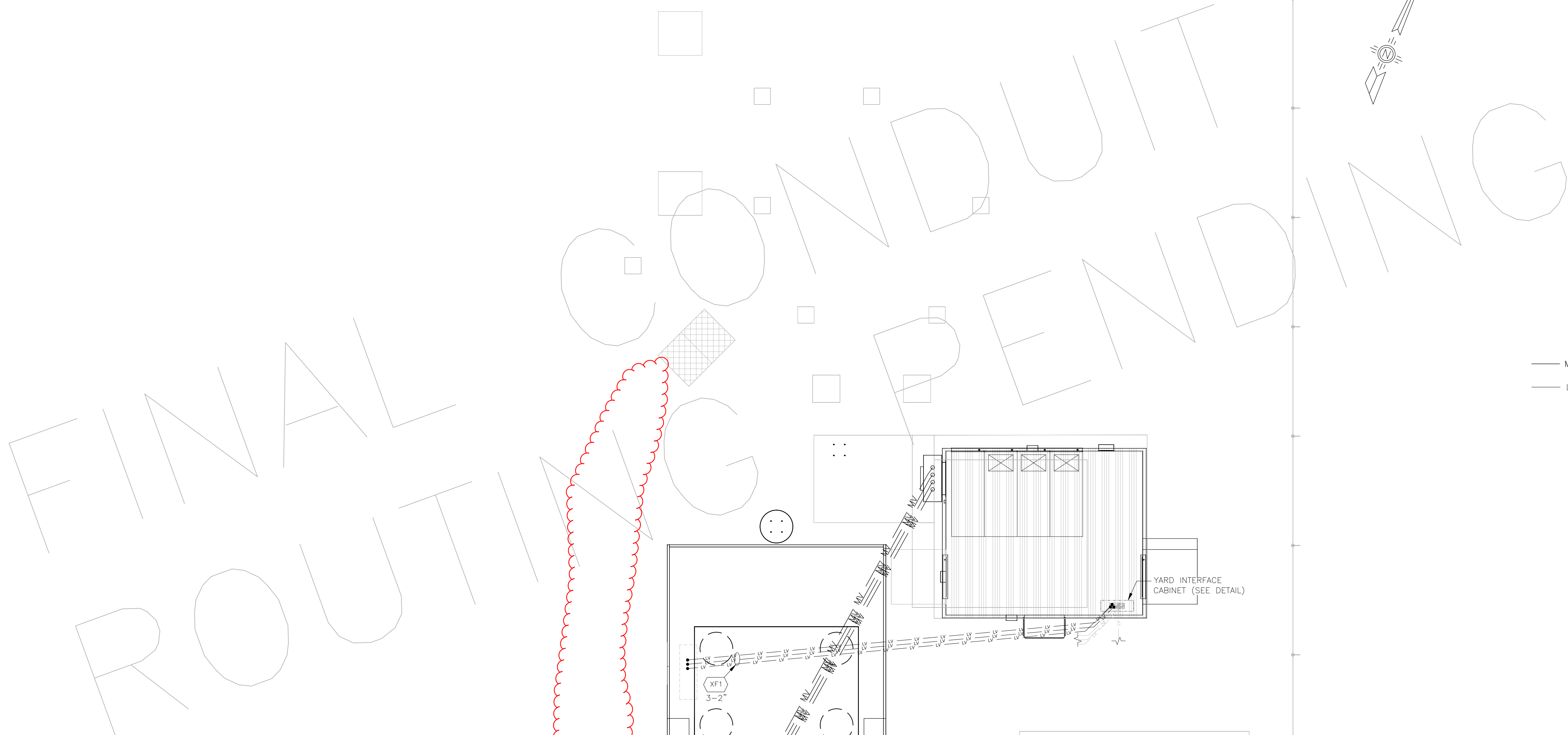
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						A	12/5/2025	30% DESIGN REVIEW	KWA							
						B	12/8/2025	60% DESIGN REVIEW	KWA							
						C	12/18/2025	ISSUED FOR FOUNDATION BID PURPOSES	KWA							
	WHITE ROCK, NEW MEXICO									SCALESTATESEQ #DWG NAMESHEETREV						
LOS ALAMOS COUNTY									AS SHOWNNM----WR-331 OF 1A							
DWN: DSMCKD: SLKAPVD: KWA					DATE: 9/22/25	JOB#: 250092										

S:\04 STATIONS\NM\LOS ALAMOS COUNTY\WHITE ROCK\ELECTRICAL ARRANGEMENT 2025\WHITE ROCK EA\VR-40.DWG DWGNO: 12/15/2025



LEGEND

MV

MV

MV CONDUIT

K60

3

K60

5

K60

8

LV

LV

LV CONDUIT

K20

1

K20

3

K20

4

XX

X

CONDUIT REFERENCE

SUBSTATION FENCE

- NOTES:
1.

INSTALL ALUMINUM RISERS FOR MEDIUM VOLTAGE.
2.

INSTALL GALVANIZED RISERS FOR LOW VOLTAGE.
3.

NO ALUMINUM OR GALVANIZED PIPE BELOW GRAVEL GRADE.
4.

SCHEDULE 80 PVC ACCEPTABLE ABOVE GRADE ONLY IN SHORT LENGTH TO TRANSITIONS AT GRADE.
5.

SCHEDULE 40 PVC ACCEPTABLE BELOW GRADE.
6.

BURY MEDIUM VOLTAGE CONDUITS AT LEAST 48" BELOW GRADE.
7.

BURY LOW VOLTAGE CONDUITS AT LEAST 24" BELOW GRADE; STATION SERVICE RACEWAYS 30" BELOW GRADE.
8.

MARK ALL LOCATIONS WHERE A CONDUIT PASSES UNDER THE FENCE LINE USING PERMANENT CRIMPIT ON FENCE FABRIC.
9.

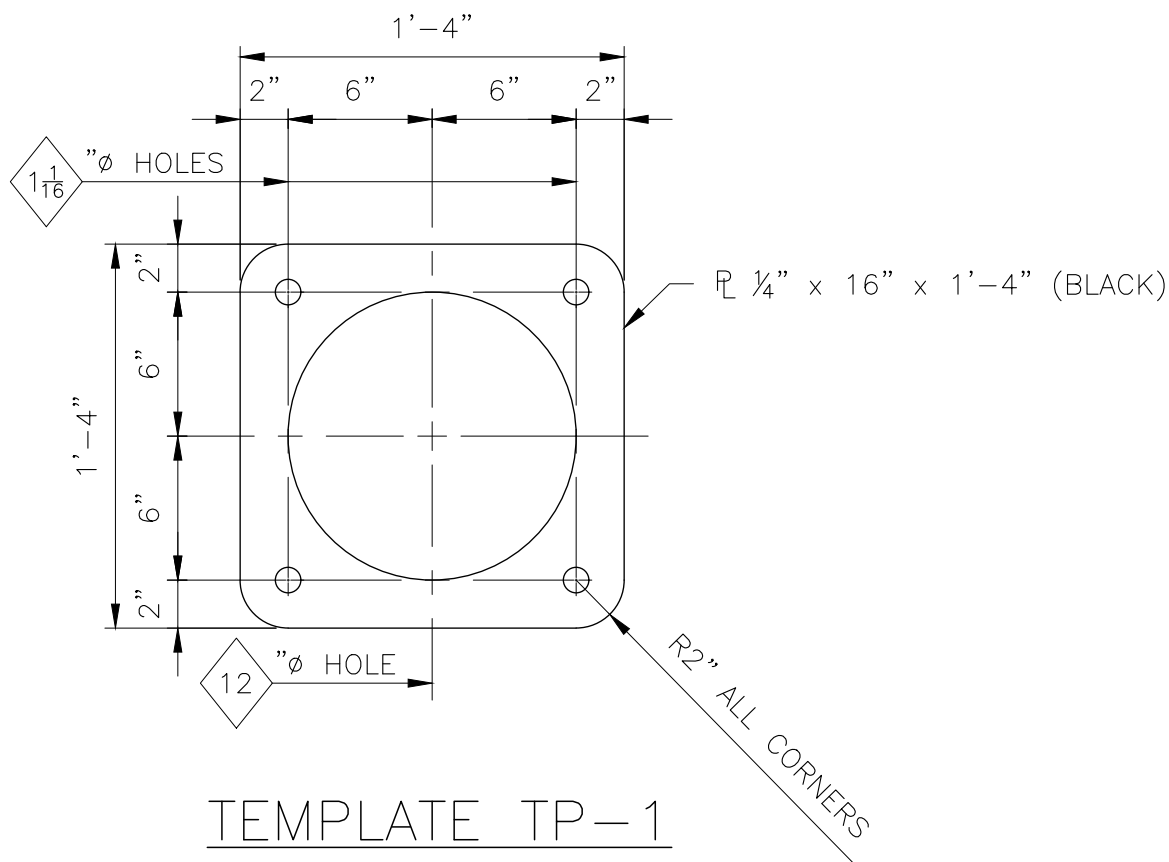
SEE BUILDING DRAWINGS FOR CONDUIT ENTRY AND EQUIPMENT LOCATION DETAILS.
10.

GHOSTED ITEMS REPRESENT EXISTING STATION COMPONENTS.

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						A	12/5/2025	30% DESIGN REVIEW	KWA					
						B	12/8/2025	60% DESIGN REVIEW	KWA					
						C	12/18/2025	ISSUED FOR FOUNDATION BID PURPOSES	KWA					

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TEMPLATE TP-1
ANCHOR BOLT SETTING TEMPLATE
FOR FOUNDATIONS L9-1
(2 REQUIRED)
SCALE: 1½" = 1'-0"

ANCHOR TEMPLATES	
TEMPLATE	COUNT
TP-1	2

ANCHOR BOLTS			
SIZE	QTY	NUTS	WASHERS
1" x 3'-0"	4	8	8
1" x 18" HILTI HVA	4	4	4

ANCHOR SETTING SCHEDULE						
	DESIGNATION	QTY	A/B	QTY PER FOUNDATION	TOTAL QUANTITY	ANCHOR BOLT PROJECTION
PIERS	L9-1	1	1" x3'-0"	4	4	5"
	L6-1	1	N/A	N/A	N/A	N/A
PADS/MISC	L9-2	1	1" X 18" HILTI HVA	4	4	5"
	L40-1	1	N/A	N/A	N/A	N/A

SUBSTATION FOUNDATION SUMMARY									
	DESIGNATION	QTY	AB TEMPLATE	LENGTH (FT)	DIAMETER (FT-IN)	VERTICAL REINFORCEMENT (BAR SIZE & QTY)	HOOP SIZE (BAR SIZE)	ESTIMATED CONCRETE/UNIT (CU. YDS.)	TOTAL EST. CONC. QTY (CU. YDS.)
PIERS	L9-1	1	TP-1	10	3'-0"	(11) #8 BARS	#4 BARS	2.62	2.62
PIERS	L6-1(P)	4	N/A	17	4'-0"	(16) #11 BARS	#4 BARS	7.91	31.64
PADS/MISC	L6-1	1	SEE FOUNDATION DETAILS					22.5	22.5
	L9-2	1	SEE FOUNDATION DETAILS					N/A	N/A
	L40-1	1	SEE FOUNDATION DETAILS					<1	<1
TOTAL									56.76

FOUNDATION NOTES

- FOUNDATION DESIGN BASED ON GEOTECHNICAL REPORT BY GEOTEST, INC. GEOTECHNICAL EVALUATION REPORT, ELECTRICAL SUBSTATION TRANSFORMER FOUNDATION WHITE ROCK, NEW MEXICO, JOB NO. 1-51006, DATED: 10/24/2025.
- THE CONTRACTOR SHALL CORRELATE ALL DIMENSIONS BETWEEN THE ELECTRICAL, STRUCTURAL AND FOUNDATION PLANS BEFORE CONSTRUCTION AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR INCONSISTENCIES BEFORE PROCEEDING WITH THE WORK.
- CONCRETE TESTING FOR QUALITY CONTROL SHALL BE PERFORMED IN COORDINATION WITH THE THE ENGINEER AND AT THE FREQUENCY AND TYPES OF TESTING REQUIRED.
- ALL CONCRETE POURS MADE WHEN TEMPERATURES RANGE BETWEEN 50° AND 90°F, CAN BE MADE WITHOUT ANY SPECIAL PROVISIONS.
- ALL EARTHWORK AND COMPACTION OF FILL MATERIAL SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL INVESTIGATION AS NOTED ABOVE.
- ALL CONCRETE SHALL BE MADE FROM TYPE II CEMENT AND SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 4000 P.S.I. AT 28 DAY TEST WITH 4% AIR ENTRAINMENT.
- ALL EXTERIOR OR EXPOSED CONCRETE SHALL BE CONSOLIDATED BY INTERNAL VIBRATION IN ACCORDANCE WITH A.C.I. 309, "RECOMMENDED PRACTICE FOR CONSOLIDATION OF CONCRETE."
- ALL REINFORCING STEEL SHALL BE NEW BILLET, 60 KSI DEFORMED BARS (ASTM A-615).
- ALL DETAILING, FABRICATION, PLACING AND SUPPORTING OF REINFORCEMENT SHALL BE IN ACCORDANCE WITH A.C.I. 318-02 AND C.R.S.I.
- ALL REINFORCING AND ANCHOR BOLTS SHALL BE RIGIDLY SECURED IN POSITION PRIOR TO THE PLACING OF CONCRETE.
- ALL CONCRETE SHALL HAVE A MAXIMUM 4" SLUMP (UNLESS APPROVED ADMIXTURES ARE USED).
- THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT, U.N.O.:

(A) CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
(B) CONCRETE EXPOSED TO EARTH AND WEATHER 2"
- ALL REINFORCEMENT AND WELDED WIRE FABRIC SHALL BE FREE OF RUST, DIRT, OIL AND MILL SCALE PRIOR TO PLACEMENT OF CONCRETE.
- ALL ANCHOR BOLTS SHALL BE ASTM F1554 WITH TWO ASTM A-563, GR. C HEAVY HEX. NUT(S) AND TWO ASTM F436 FLATWASHER(S) EACH, AND SHALL BE GALVANIZED ACCORDING TO ASTM A-153, UNLESS NOTED OTHERWISE.
- ALL CAST IN PLACE ANCHOR BOLTS SHALL BE SET WITH THE AID OF AN ANCHOR BOLT SETTING TEMPLATE.
- PRIOR TO PLACING ANY FILL MATERIAL, ALL EXISTING SURFACE VEGETATION, TREES, LOOSE FILL, DEBRIS, AND SIMILAR UNSUITABLE MATERIALS SHOULD BE REMOVED.
- ALL ENGINEERED FILL SHOULD EXTEND Laterally AT LEAST TWO FEET BEYOND THE FOUNDATION EDGES AND VERTICALLY AT LEAST THREE FEET BELOW THE BOTTOM OF THE FOUNDATION.
- THE MAXIMUM SIZE FOR COURSE AGGREGATES IN CONCRETE MIXES SHALL BE AS FOLLOWS:

¾" FOR SLABS ON GRADE, CONCRETE WALLS AND DRILLED PIERS
1" FOR GRADE BEAMS AND FOOTINGS

ANCHOR BOLT DIMENSIONS		
ANCHOR BOLT DIAMETER	LENGTH (L')	THREADS (T1')
¾"	2'-0"	0'-6"
1	3'-0"	0'-6"
1 ½"	3'-8"	0'-7 ½"

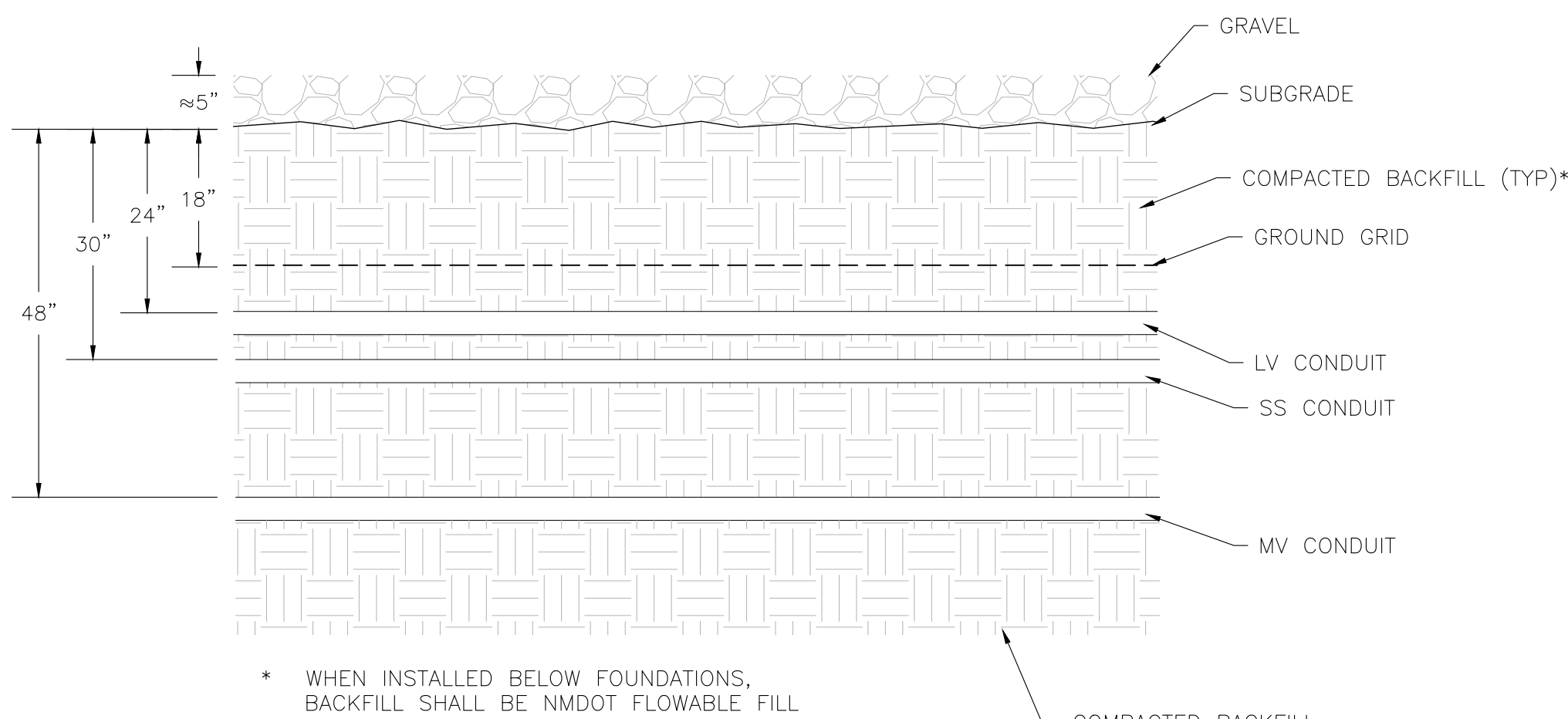
ANCHOR BOLT NOTES

- ALL ANCHOR BOLTS SHALL HAVE TWO HEAVY HEX NUTS AND TWO HARDENED FLAT WASHERS EACH UNLESS NOTED OTHERWISE.
- ALL ANCHOR BOLTS SHALL BE HOT-DIPPED GALVANIZED.
- ALL ANCHOR BOLTS SHALL BE ASTM F1554, GRADE 36 UNLESS NOTED OTHERWISE.

ISSUED FOR FOUNDATION BID PURPOSES

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						A	12/5/2025	30% DESIGN REVIEW	KWA					
						B	12/8/2025	60% DESIGN REVIEW	KWA					
						C	12/18/2025	ISSUED FOR FOUNDATION BID PURPOSES	KWA					

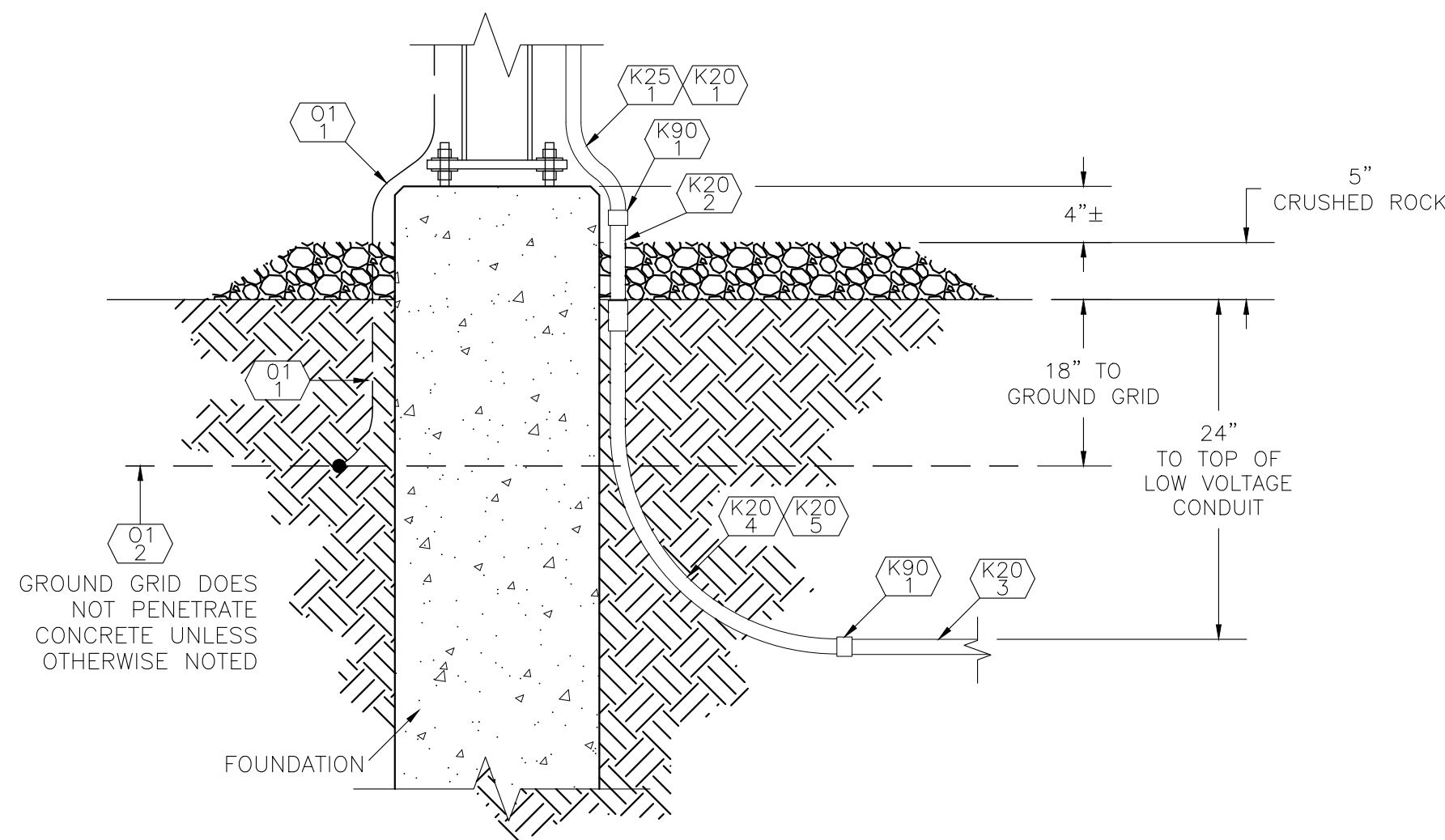
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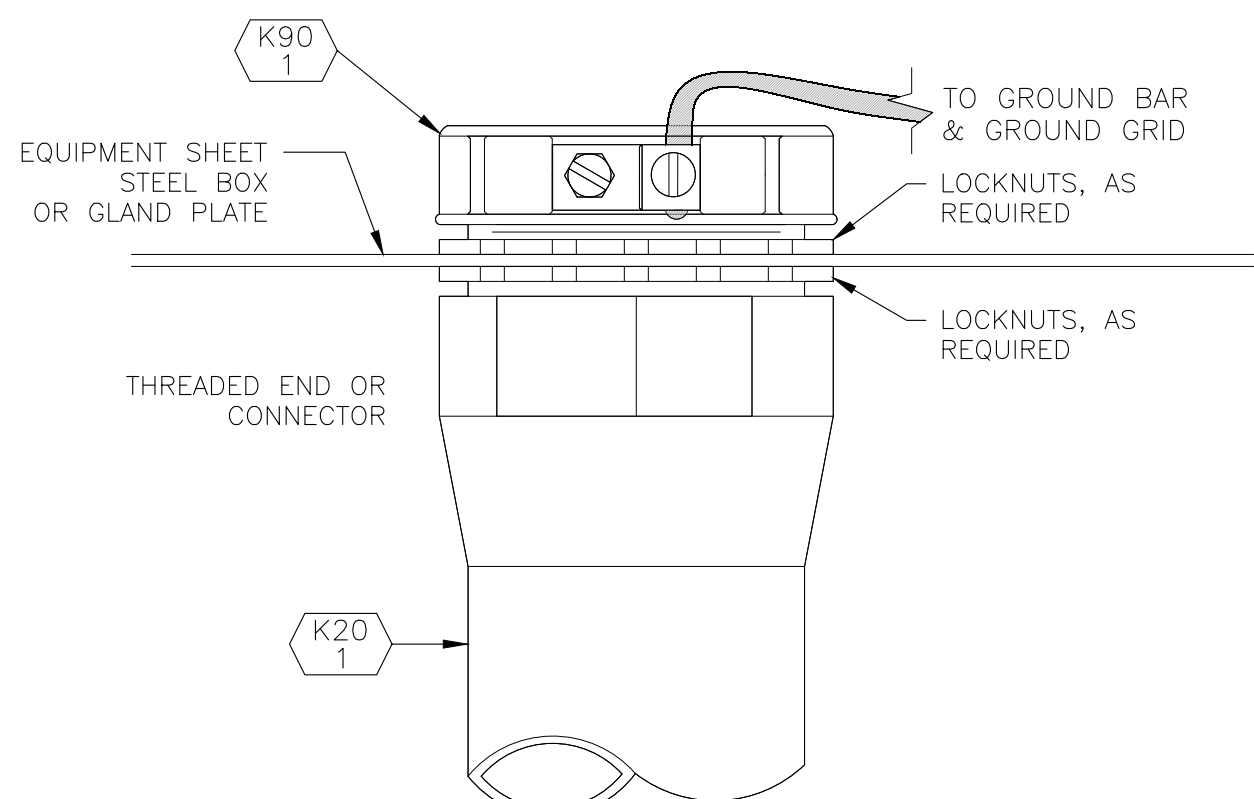
MINIMUM BURIAL DEPTHS

DEPTHS TOLERANCES:
GROUND GRID: 16"-20"
LV CONDUITS: 24"-36"
MV CONDUITS: 48"-54"
STATION SERVICE CONDUITS: 30"-42"
ENGINEER APPROVAL REQUIRED FOR ALTERNATE INSTALLATIONS PRIOR TO BACKFILL.

COMPACTED BACKFILL -
BED WITH SAND OR
SUITABLE SOILS - 6" MIN.
BACKFILL SHALL NOT CONTAIN COBBLES
LARGER THAN TWO (2) INCHES IN
DIAMETER THAT MAY DAMAGE CONDUITS
OR LEAVE VOIDS WHEN COMPACTED.



TYPICAL CONDUIT DETAIL



TYPICAL CONDUIT PENETRATION DETAIL

METALLIC CONDUITS SHALL INCLUDE GROUND BUSHINGS
AS NOTED; PVC END BELL FITTINGS DO NOT REQUIRE
ADDITIONAL FITTINGS/GROUNDING ACCESSORIES

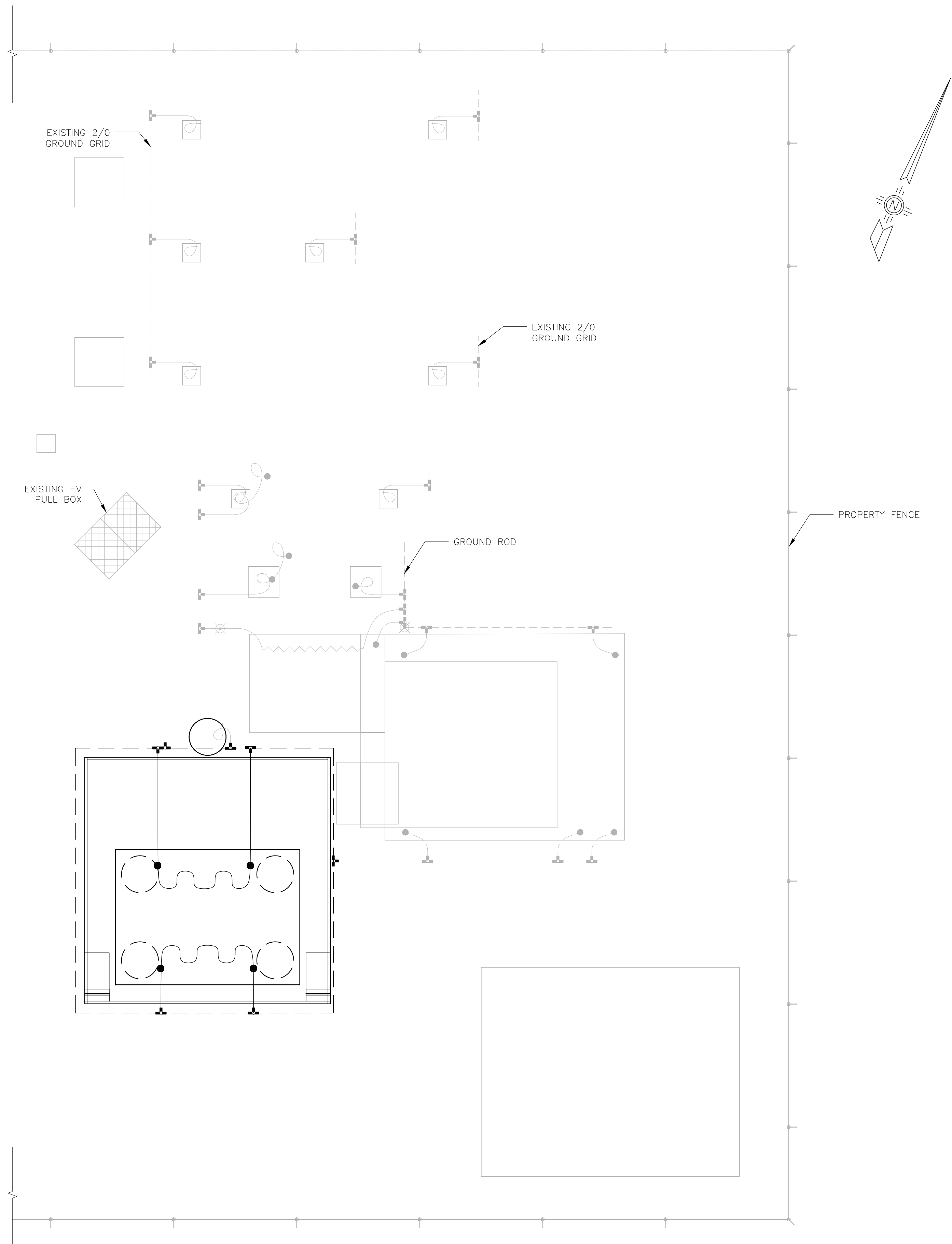
NOTE:
THREADED RACEWAY ENDS MAY BE USED IN LIEU OF
RIGID CONNECTORS

NOTE:
SOME PROJECT DRAWINGS ARE
INCLUDED FOR OVERAL PROJECT
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 T&D Services Professional Engineers and Surveyors Transmission & Distribution Services, LLC Professional Engineers & Surveyors Ph. 505-344-4234 5401 Beverly Hills Ave NE Albuquerque, NM 87113 www.t-d-services.com This drawing is a copyrighted work product of T&D Services, LLC as of the date shown on this drawing. Any re-use or copying of any portion of this drawing, without written permission from an authorized employee of T&D Services, LLC is strictly prohibited.	DEPARTMENT OF PUBLIC UTILITIES WHITE ROCK, NEW MEXICO LOS ALAMOS COUNTY					REV	DATE	DESCRIPTION	BY	WHITE ROCK SUBSTATION CONDUIT DETAILS							
						A	12/5/2025	30% DESIGN REVIEW	KWA								
						B	12/8/2025	60% DESIGN REVIEW	KWA								
						C	12/18/2025	ISSUED FOR FOUNDATION BID PURPOSES	KWA								
	DWN: DSM	CKD: SLK	APVD: KWA	DATE: 9/22/25	JOB#: 250092							SCALE	STATE	SEQ #	DWG NAME	SHEET	REV
												NTS	NM	---	WR-41	1 OF 1	A

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LEGEND

- EXOTHERMIC TEE (4/0 TO 4/0)
- GROUND ROD W/ EXOTHERMIC TEE (22 PLACES)
- EXOTHERMIC CROSS (4/0 TO 4/0)
- PIG TAIL 4/0, SOFT DRAWN BARE COPPER, TINNED
- 4/0, SOFT DRAWN BARE COPPER, TINNED
-

- NOTES:
- SUBSTATION GROUND GRID SHALL BE BURIED 18" BELOW SUB-GRADE.
 - 4/0 CU IN CONTROL HOUSE SHALL BE BONDED TO EACH CABLE TRAY SECTION, ALL CONTROL & RELAY PANELS, AC & DC PANELS, & BATTERY CHARGER.
 - ALL ABOVE-GRADE GROUNDING CONDUCTOR SHALL BE TINNED COPPER.
 - SEE AM-52 FOR TYPICAL TRANSFORMER AND GRATE GROUNDING.
 - CONTRACTOR TO COORDINATE GROUND CONDUCTORS WITH EQUIPMENT GROUNDING POINTS. LOCATIONS OF TAILS AS SHOWN ARE REPRESENTATIVE.

NOTE:
SOME PROJECT DRAWINGS ARE INCLUDED FOR OVERAL PROJECT INFORMATIONAL PURPOSES.

CAUTION:
EXISTING STATION COMPONENTS ARE ENERGIZED.

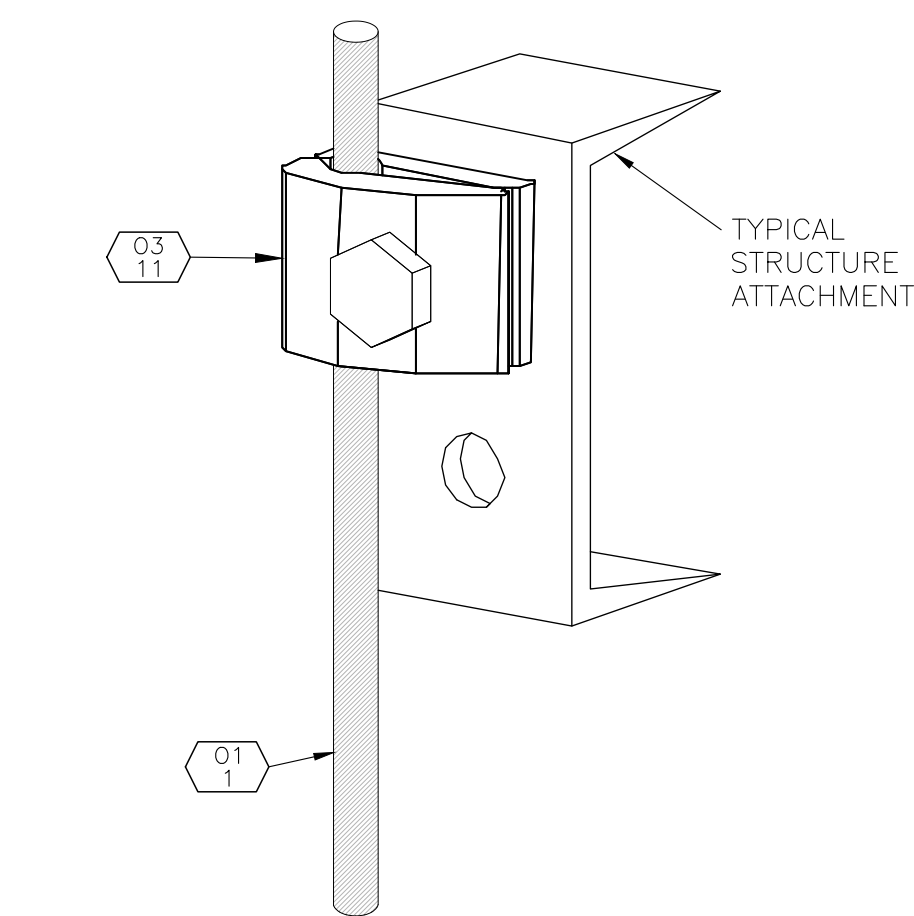
DUE TO THE GROUND GRID BEING CONSTRUCTED IN 2 STAGES, POTENTIALLY DANGEROUS STEP AND TOUCH VOLTAGES MAY EXIST UNTIL STAGE 2 CONSTRUCTION IS COMPLETE.

- NOTES:
- THE EXISTING STATION IS TO REMAIN ENERGIZED DURING THE CONSTRUCTION PHASE OF PROJECT. ERECT BARRICADES TO GUARD ENERGIZED AREAS FROM ACCESS.
 - GHOSTED ITEMS REPRESENT EXISTING STATION COMPONENTS.

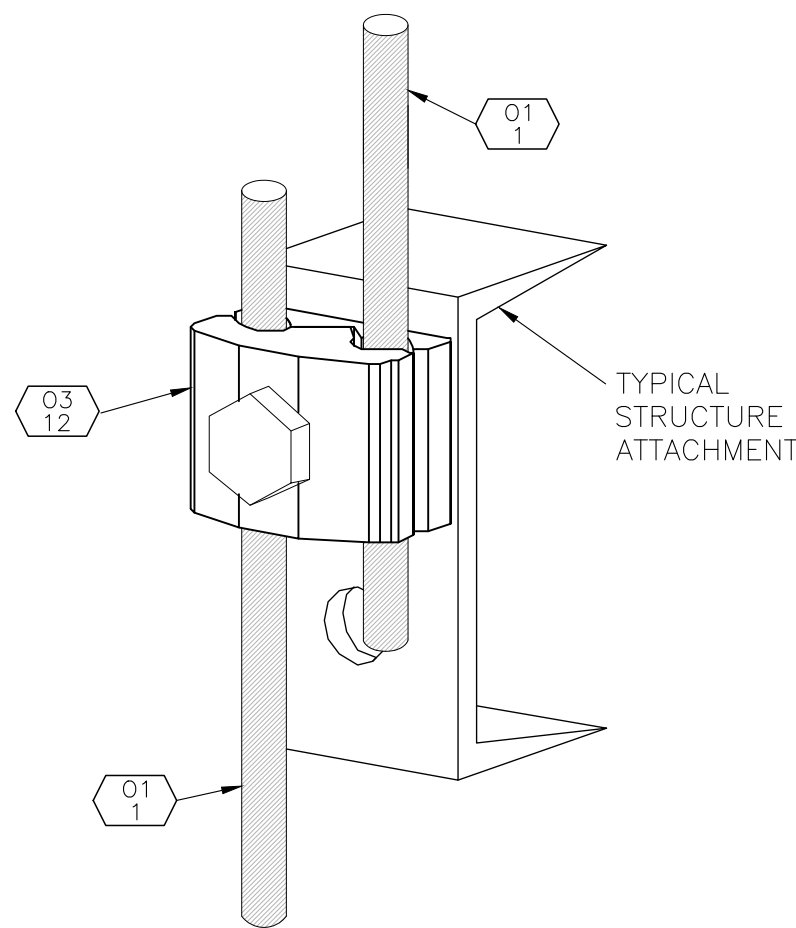
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						A	12/5/2025	30% DESIGN REVIEW	KWA					
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						C	12/18/2025	ISSUED FOR FOUNDATION BID PURPOSES	KWA					
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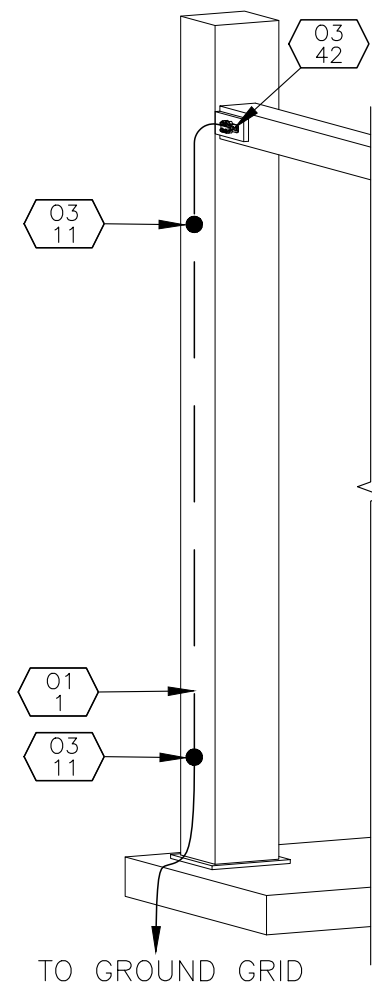
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TYPICAL
SINGLE-TO-FLAT GROUNDING



TYPICAL
PARALLEL-TO-FLAT GROUNDING



TYPICAL
EQUIPMENT DETAIL GROUNDING

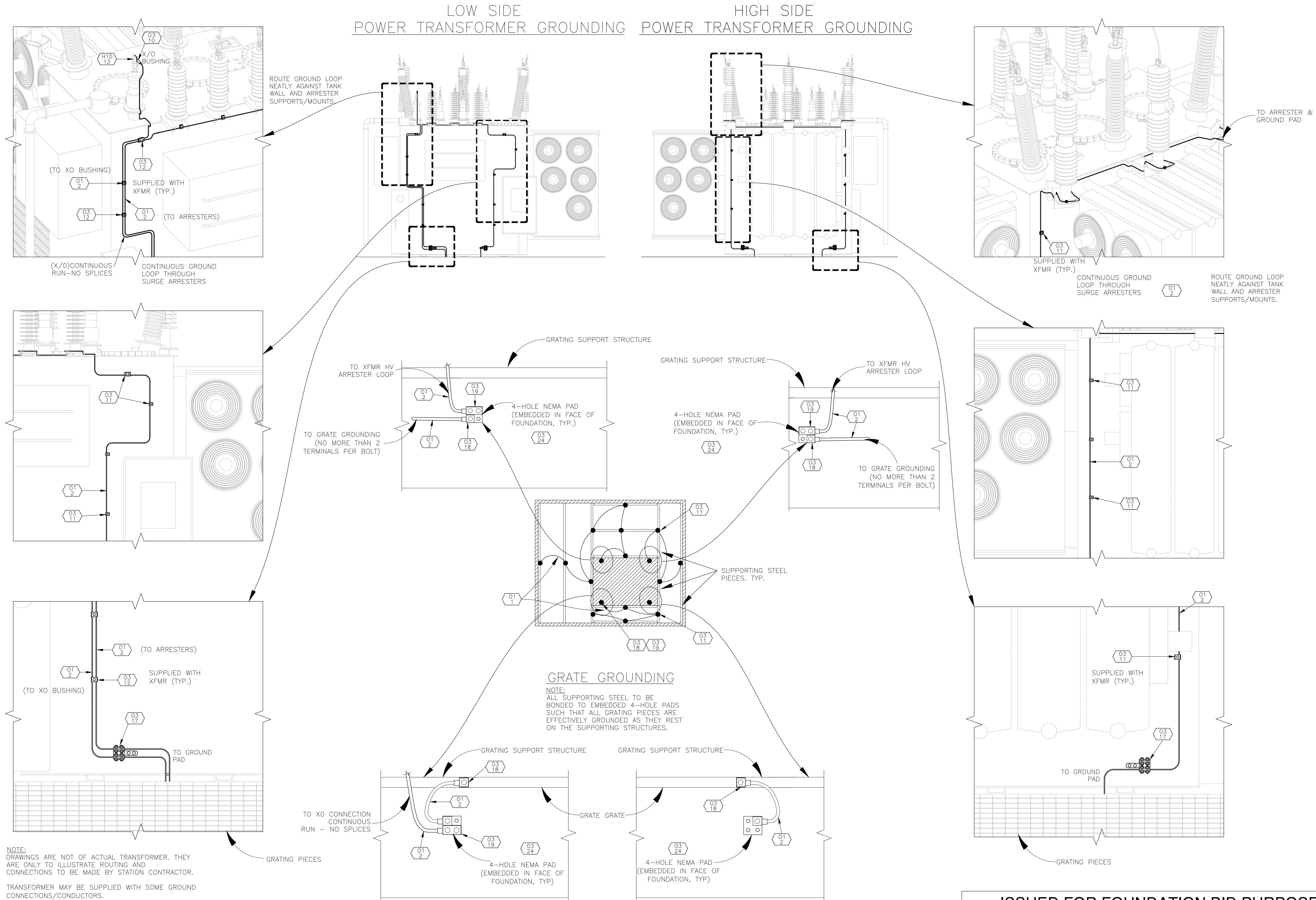
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	C	12/18/2025	ISSUED FOR FOUNDATION BID PURPOSES	KWA											
					SCALE	STATE	SEQ #	DWG NAME	SHEET	REV					
					NTS	NM	---	WR-51	1 OF 1	A					

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NOTE:
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DEPARTMENT OF PUBLIC UTILITIES
WHITE ROCK, NEW MEXICO
LOS ALAMOS COUNTY

DWN: DSM CKD: SLK APVD: KWA DATE: 9/22/25 JOB#: 250092

REV	DATE	DESCRIPTION	BY
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B	12/8/2025	60% DESIGN REVIEW	KWA
C	12/18/2025	ISSUED FOR FOUNDATION BID PURPOSES	KWA

WHITE ROCK SUBSTATION
TRANSFORMER GROUNDING DETAILS

SCALE	STATE	SEQ #	DWG NAME	SHEET	REV
NTS	NM	---	WR-53	1 OF 1	A