

6

5

4

3

2

1

APPLICABLE CODES

REFERENCED DOCUMENTS

SUPERCHARGER SYSTEM SUMMARY

SHEET #	SHEET TITLE
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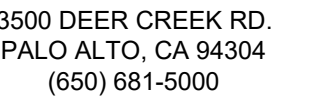
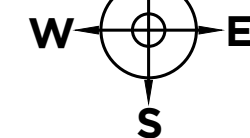
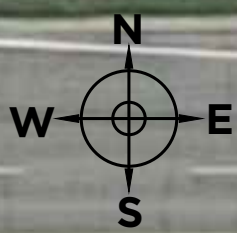
STRUCTURAL ENGINEER OF RECORD:	ELECTRICAL ENGINEER OF RECORD:
KIRILL VORONOV	BILL LOU, PE, PH. D
TESLA, INC.	PAULICON CORPORATION
721 FERNCREST RD.,	3463 ASHTON COURT
TRINIDAD, CA 95570	PALO ALTO, CA 94306
(818) 943-7621	(650) 269-6888
KVORONOV@TESLA.COM	PAULICONEE@GMAIL.COM
PROJECT DESIGNER:	CIVIL ENGINEER OF RECORD:
DUSTIN REINHART	MICHAEL P. HENDERSON
TESLA, INC.	TESLA, INC.
12832 S. FRONTRUNNER BLVD.	45500 FREMONT BOULEVARD,
DRAPER, UT 84020	FREMONT, CA 94538
(567) 230-3082	M:(678) 687-1976
DREINHART@TESLA.COM	MIHENDERSON@TESLA.COM

2020 MNBC WITH 2018 IBC AMENDMENTS

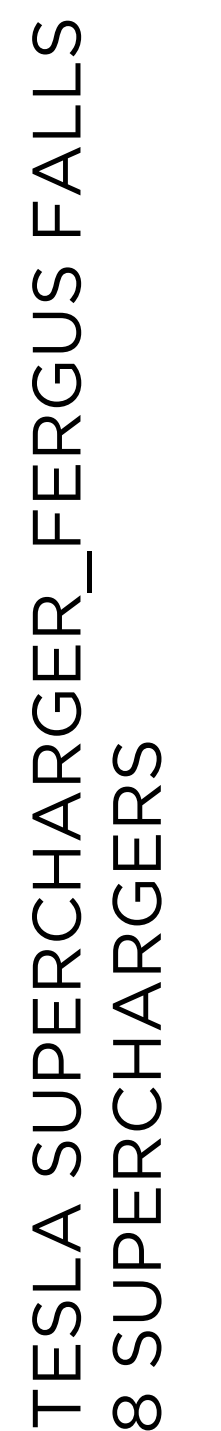
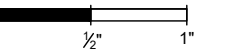
2020 NATIONAL ELECTRICAL CODE

PRE-ASSEMBLED SUPERCHARGER UNIT
INSTALLATION MANUAL
TOPOGRAPHIC SURVEY
UTILITY DESIGN

SHEET #	SHEET TITLE
G-001	COVER PAGE
G-002	NOTES
G-101	DEMOLITION PLAN
E-101	SITE PLAN
E-201	SINGLE LINE DIAGRAM
E-501	ELECTRICAL DETAILS
S-301	ENLARGED SITE PLAN
S-302	ENLARGED SITE PLAN 2
S-501	STRUCTURAL DETAILS
S-502	STRUCTURAL DETAILS 2
C-101	GRADING PLAN



ORIGINAL SIZE 24"X36"
SHEET SIZE ARCH "D"



623 FRONTIER DR,
FERGUS FALLS, MN, UNITED STATES

COVER PAGE

B-565055-00

REV: C	IFC
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GENERAL NOTES

ALL WORK SHALL COMPLY WITH ALL STATE AND LOCAL CODES AND ANY OTHER REGULATING AUTHORITIES WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK.

EXISTING CONDITIONS AND NOTIFY THE DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE FROM TESLA OF ANY DISCREPANCIES. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS SHALL BE CORRECTED AT THE SUBCONTRACTORS SOLE EXPENSE.

SUBCONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO TESLA FOR APPROVAL BEFORE MAKING ANY CHANGES. DEVIATION FROM PLANS BEFORE WRITTEN APPROVAL FROM TESLA PLACES LIABILITY ON THE SUBCONTRACTOR.

ALL EQUIPMENT SHALL BE MOUNTED AS SHOWN. WHERE DETAILS ARE NOT PROVIDED, CONTRACTOR SHALL USE STANDARD CONSTRUCTION PRACTICES.

ALL SURFACES SHALL BE PATCHED AND PAINTED AROUND NEW DEVICES AND EQUIPMENT TO MATCH EXISTING FINISHES.

ANY METAL SHAVINGS FROM SITE WORK SHALL BE CLEANED FROM ALL SURFACES WHERE OXIDIZED OR CONDUCTIVE METAL SHAVINGS MAY CAUSE RUST, ELECTRICAL SHORT CIRCUITS, OR OTHER DAMAGE.

APPROVALS FROM BUILDING INSPECTORS SHALL NOT CONSTITUTE AUTHORITY TO
DEVIATE FROM THE DRAWINGS.

NEW PAVEMENT INSTALLED AS PART OF THIS PROJECT SHALL MATCH EXISTING PAVEMENT SECTION. ASPHALT AND GAB DEPTHS SHALL BE MAINTAINED.

ELECTRICAL NOTES

GENERAL NOTES

1. ALL ELECTRICAL WORK SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AS AMENDED BY APPLICABLE STATE AND LOCAL CODES.
2. ALL WIRING SHALL BE MANAGED IN A PROFESSIONAL, WORKMAN-LIKE MANNER AND MUST BE SUPPORTED, SECURED, AND PROTECTED TO PREVENT DAMAGE.
3. AC CIRCUIT CONDUCTORS SHALL BE IDENTIFIED BY PHASE AND SYSTEM PER ART 210.5 OR 215.12. UNLESS OTHERWISE REQUIRED BY ART 210.5(1) OR AHJ, COLOR-CODING OF POWER CONDUCTORS SHALL BE AS FOLLOWS:

<u>CONDUCTOR</u>	<u>277/480V</u>	<u>120/208V</u>
PHASE A	BROWN	BLACK
PHASE B	ORANGE	RED
PHASE C	YELLOW	BLUE
NEUTRAL	GRAY	WHITE

- | | | |
|---|------------------|------------------|
| 4. DC CIRCUIT CONDUCTORS SHALL BE IDENTIFIED PER ART 210.5 OR 215.12: | | |
| <u>CONDUCTOR</u> | <u>STD COLOR</u> | <u>ALT COLOR</u> |
| DC+ | RED | RED-STRIPED |
| DC- | BLACK | BLACK-STRIPED |

5. TERMINATIONS OF AC, DC, AND COMMUNICATIONS CONDUCTORS SHALL BE PROFESSIONALLY AND LEGIBLY LABELED WITH CIRCUIT SCHEDULE IDENTIFIER, CONDUCTOR SIZE (AS APPLICABLE) AND TERMINATION TORQUE.

6. ALL EQUIPMENT SHALL BE LISTED BY A NRTL IN COMPLIANCE WITH ART 110.3 WHERE EXISTING NRTL LISTING CANNOT BE MAINTAINED, ENGINEERING APPROVAL SHALL BE OBTAINED PRIOR TO EQUIPMENT MODIFICATION, AND THE EQUIPMENT SHALL BE RELISTED BY A SUITABLE NRTL.

7. UNDERGROUND CONDUCTORS & CABLES TO BE INSTALLED IN CONDUIT UON.

8. ALL WIRES SHALL BE PROVIDED WITH STRAIN RELIEF AT ALL ENTRY INTO BOXES AS REQUIRED BY NRTL LISTING.

9. REFER TO MANUFACTURER'S CURRENT PLANNING AND INSTALLATION MANUAL FOR TORQUE SPECS FOR ALL BOLTS AND TERMINAL CONNECTIONS.

10. ALL CONDUCTOR TERMINATIONS ON BUSSING OR TRANSFORMER SPADES SHALL BE MADE WITH HIGH-PRESS CRIMP LUGS UON.

11. ALL TERMINATIONS OF ALUMINUM CONDUCTORS SHALL BE PROPERLY INSTALLED WITH BEST PRACTICES INCLUDING BUT NOT LIMITED TO:
- USE OF TERMINATION EQUIPMENT RATED FOR ALUMINUM AT THE CONDUCTOR TEMPERATURE, CURRENT, AND VOLTAGE
 - ALLOWANCE FOR MOVEMENT DUE TO THERMAL EXPANSION/CONTRACTION
 - PROPER COATING OF EXPOSED ALUMINUM WITH ANTI-OXIDIZATION COMPOUND
 - USE OF CALIBRATED DEVICES TO TORQUE AND MARK TERMINALS TO REQUIRED SETTINGS

12. DUCT SEAL COMPOUND SHALL BE APPLIED WHEREVER CONDUITS TRANSITION INDOOR/OUTDOOR OR UNDERGROUND/ABOVEGROUND. REFER TO EQUIPMENT NOTES FOR ADDITIONAL DUCT SEAL REQUIREMENTS.

13. BELL ENDS SHALL BE INSTALLED WHEREVER CONDUIT ENTERS EQUIPMENT FROM UNDERGROUND AND WHEREVER POTENTIAL FOR DAMAGE TO CONDUCTORS IS PRESENT AT ANY POINT. BELL ENDS SHALL NOT PREVENT THE USE OF GROUNDING FITTINGS OR COUPLERS WHEN REQUIRED.

14. ALL STUB-UPS WITHIN FLOOR-MOUNTED EQUIPMENT SHALL BE 3-5" ABOVE FINISHED GRADE.

15. ALL CONDUITS EXPOSED TO VEHICULAR OR EQUIVALENT PHYSICAL DAMAGE SHALL BE RIGID GALVANIZED STEEL.

16. GROUND LUGS SHALL BE RATED FOR THEIR ENVIRONMENT AND CONDITION OF USE.

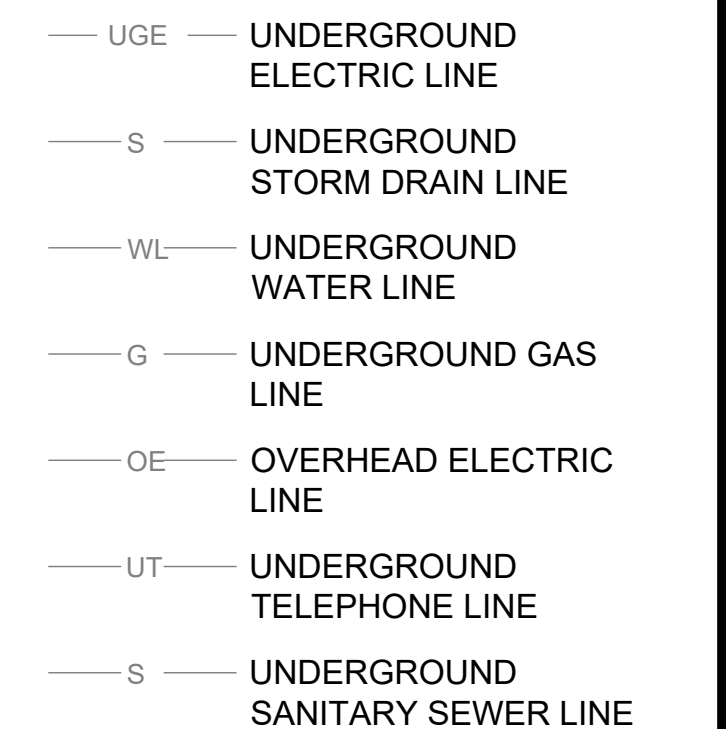
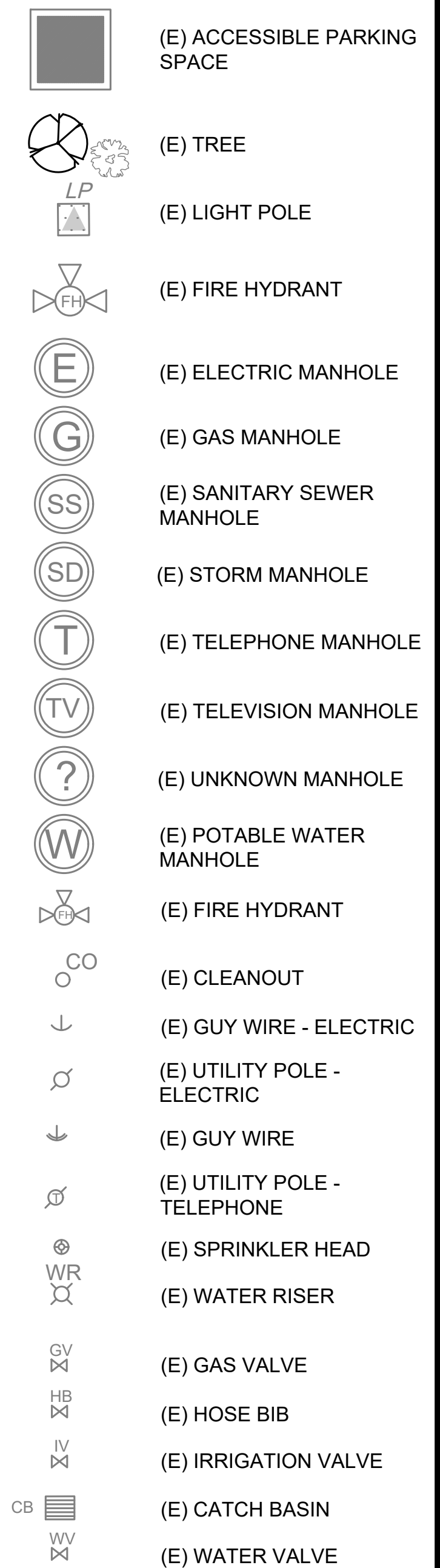
SUPERCARGER NOTES

1. NEUTRAL MUST BE INCLUDED FOR PROPER OPERATION OF TESLA SUPERCHARGERS.
2. ALL CONDUIT FURNISHED AND INSTALLED BY CONTRACTOR. ALL WIRING FURNISHED BY TESLA AND INSTALLED BY CONTRACTOR.
3. ALL BUSHINGS AND WIRING INTERNAL OF PROPOSED SERVICE EQUIPMENT PROVIDED BY MANUFACTURER. ANY MODIFICATIONS SHALL REQUIRE ENGINEERING APPROVAL PRIOR TO ANY CHANGES BEING MADE.
4. ALL ALUMINUM(AI) CONDUCTORS TO RECEIVE ANTI-OXIDATION COATING DURING INSTALLATION. ALL OTHER CONDUCTORS ARE COPPER UNLESS OTHERWISE NOTED.
5. THE FOLLOWING CHARGING CABINETS AND THE CHARGING POSTS USED ON THIS PROJECT COMPLY WITH THE FOLLOWING STANDARDS:
 - IEC 61851-23: 2014 / EN 61851-23: 2014
 - UL 2202: 2009(R2012)
 - CAN CSA C22.2 NO. 107.1-01(R2011)
6. THE AFOREMENTIONED STANDARDS IDENTIFY THE REQUIREMENTS MET BY THE EQUIPMENT, INCLUDING BUT NOT LIMITED TO:
 - PROTECTION AGAINST ELECTRIC SHOCK
 - OVERLOAD AND SHORT CIRCUIT PROTECTION
 - FAULT PROTECTION
 - DEGREES OF PROTECTION AGAINST ACCESS TO HAZARDOUS LIVE PARTS
 - THE INTERNAL COMPONENTS OF THE SYSTEM ARE PROPRIETARY. ANY QUESTIONS CONCERNING ACTUAL INTERNAL PROTECTIVE DEVICES MUST BE COORDINATED DIRECTLY WITH TESLA.
7. TESLA SUPERCHARGER SIGNAL WIRING RATED 1000V AND USED FOR POWER LIMITED CLASS 1 CIRCUITS SHALL BE PERMITTED TO RUN IN CONDUITS, CABLE TRAYS, WIRE WAYS, OR RACEWAYS ALONG WITH ASSOCIATED DC CONDUCTORS AS ALLOWED PER NEC 725.48(B)(1) AND 620.36.
8. SUPERCHARGER CABINET AC CONDUCTORS SIZED UNDER ENGINEERING SUPERVISION USING THERMAL MODELING SOFTWARE. SPECIFICATIONS ABOUT THE TRENCHING REQUIREMENTS ARE SHOWN IN E-501
9. FOR DC RUNS IN EXCESS OF 330 FEET, CONTACT TESLA.
10. UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC OR UL LISTED HDPE. THE ABOVEGROUND PORTION OF AN UNDERGROUND/ABOVEGROUND TRANSITION SHALL BE SCHEDULE 80 PVC OR UL LISTED HDPE.
11. ABOVEGROUND CONDUITS EXPOSED TO VEHICULAR OR EQUIVALENT PHYSICAL DAMAGE SHALL BE RMC. ABOVEGROUND CONDUITS NOT EXPOSED TO VEHICULAR OR EQUIVALENT DAMAGE SHALL BE PERMITTED TO BE EMT.
12. IF APPROVED BY TESLA CONSTRUCTION MANAGER, ALTERNATIVE CONDUIT MATERIALS SUCH AS FLEXIBLE OR FIBERGLASS ARE PERMISSIBLE IF INSTALLED PER MANUFACTURER INSTALLATION GUIDELINES AND LOCAL CODES.
13. WIRE SPLICES ARE NOT PERMITTED TO EXTEND WIRE RUN LENGTH. CONTRACTOR IS RESPONSIBLE FOR RERUNNING FULL LENGTH OF WIRE IF RUN LENGTH IS MISCALCULATED.
14. SPECIAL INSPECTION IS REQUIRED FOR ALL POST-INSTALLED CONCRETE ANCHORS.
15. PLANT GUARANTEE: CONTRACTOR SHALL GUARANTEE ALL PLANTS FOR A PERIOD OF ONE (1) YEAR FROM DATE OF PROJECT ACCEPTANCE BY THE OWNER. CONTRACTOR IS RESPONSIBLE FOR PLANT MAINTENANCE FOR THE FIRST GROWING SEASON.
16. IF EXISTING GRASS IS DAMAGED/REMOVED DURING CONSTRUCTION, CONTRACTOR SHALL APPLY SEED PER HYDROSEED METHOD. RATING OF SEED SHALL BE PER DISTRIBUTOR BASED ON SPECIES TYPE.
17. CONTRACTOR SHALL MATCH EXISTING LANDSCAPE; USE GRASS, RIVER ROCK, MULCH ETC. TO MATCH EXISTING LANDSCAPE AROUND EQUIPMENT, UNLESS OTHERWISE NOTED.
18. CONTRACTOR TO INSTALL WEED BARRIER IN FRONT OF SUPERCHARGER CABINETS AND SWITCHBOARD. BARRIER TO EXTEND FULL WIDTH AND DEPTH OF NEC REQUIRED WORKING CLEARANCES.

SCOPE OF WORK

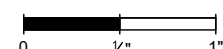
UTILITY	OTTER TAIL POWER CO	
ITEMS	TESLA	UTILITY
PROVIDE PRIMARY SIDE TRENCHING		X
PROVIDE & INSTALL PRIMARY SIDE CONDUITS		X
PROVIDE AND INSTALL PRIMARY SIDE CONDUCTORS		X
PROVIDE AND INSTALL UTILITY TRANSFORMER PAD	X	
PROVIDE UTILITY TRANSFORMER		X
INSTALL UTILITY TRANSFORMER		X
INSTALL CONNECTIONS AT UTILITY TRANSFORMER (PRIMARY)		X
INSTALL CONNECTIONS AT UTILITY TRANSFORMER (SECONDARY)		X
PROVIDE METER BASE (UTILITY TO PROVIDE SPECS)		X
INSTALL METER BASE		X
PROVIDE METER		X
INSTALL METER		X
PROVIDE CTs		X
INSTALL CTs (INSIDE CT CABINET)		X
PROVIDE SECONDARY SIDE TRENCHING	X	
PROVIDE SECONDARY SIDE CONDUITS W/ PULL WIRE	X	
PROVIDE & INSTALL SECONDARY SIDE CONDUCTORS		X
PROVIDE ROAD CUTS/ROAD BORES/PAVEMENT REPLACEMENT		X
PROVIDE & INSTALL LANDSCAPE REMEDIATION		X

SITE LEGEND



3500 DEER CREEK RD.
PALO ALTO, CA 94304
(650) 681-5000

SHEET SIZE ARCH D



TESLA SUPERCHARGER_FERGUS FALLS 8 SUPERCHARGERS

8 SUPERCHARGERS

623 FRONTIER DR,
FERGUS FALLS, MN, UNITED STATES

NO.	REVISION	DATE
A	ADJUSTED LAYOUT	9/6/2022
B	ADJUSTED LAYOUT	5/24/2023
C	ADJUSTED LAYOUT	

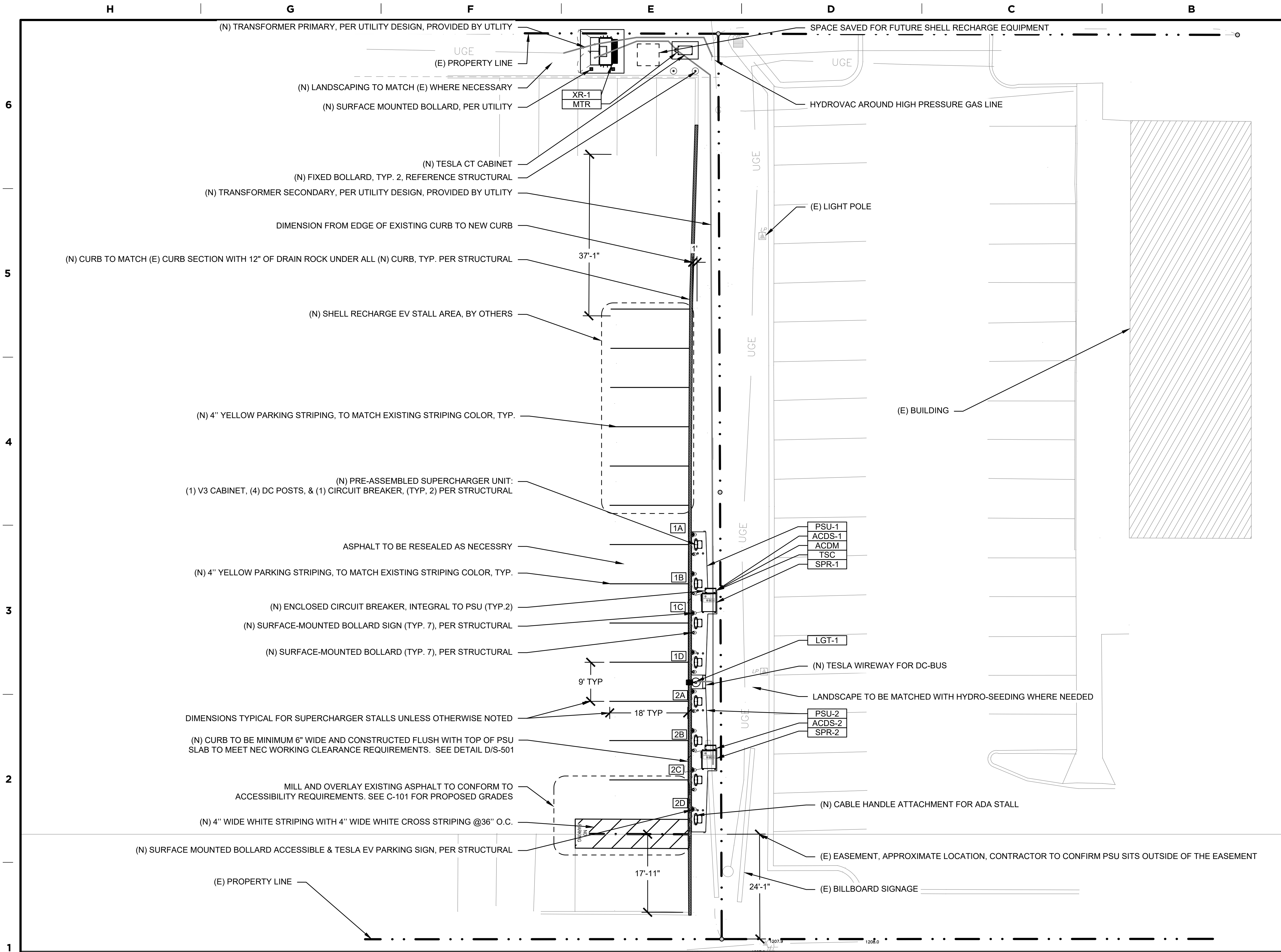
NOTES

G-002

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SITE LEGEND

- (N) CONDUIT ROUTE, SHOWN FOR DIAGRAMMATIC PURPOSES ONLY.
- (N) FIXED BOLLARD
- (N) REMOVABLE BOLLARD
- (N) SIGN
- (N) BOLLARD SIGN
- (N) CONCRETE CURB
- (N) ASPHALT SEAL COAT

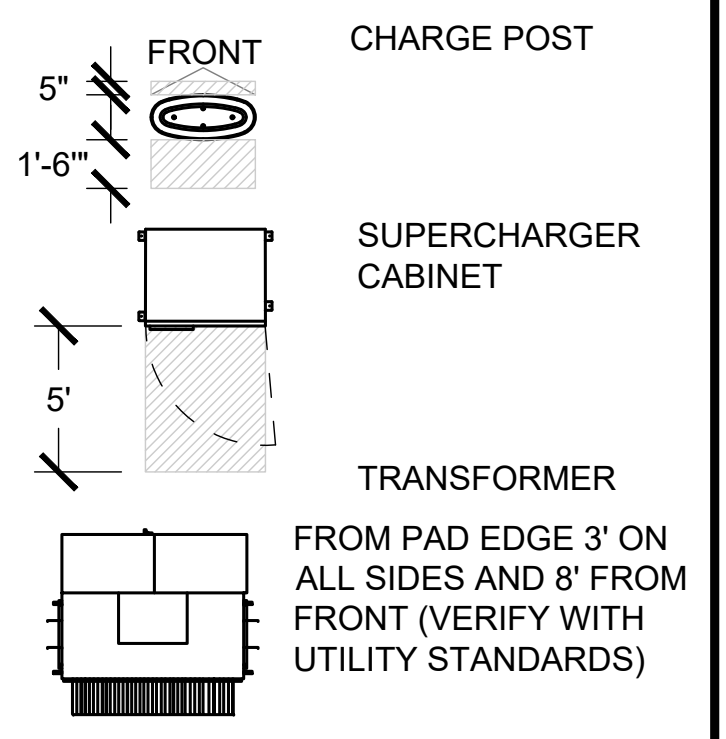
PARKING STALL SCHEDULE

EXISTING STANDARD STALLS UTILIZED AS A RESULT OF THIS PROJECT	9
PROPOSED TESLA STALLS	8
PROPOSED STANDARD STALLS	0
NET STALL COUNT	-1

CHARGING STALLS SCHEDULE

SUPERCHARGER CABINET	POST TAG	SIGN TYPE
1	1A	DEDICATED
	1B	DEDICATED
	1C	DEDICATED
	1D	DEDICATED
2	2A	DEDICATED
	2B	DEDICATED
	2C	DEDICATED
	2D	DEDICATED & ACCESSIBLE

MINIMUM SERVICE CLEARANCES



NOTES:

- UTILITY EQUIPMENT/FOUNDATION DIMENSIONS AND LOCATIONS PER UTILITY. CONTRACTOR TO VERIFY AGAINST EXECUTED UTILITY DESIGN.
- UTILITY BOLLARDS PER UTILITY REQUIREMENTS. CONTRACTOR TO VERIFY AND COORDINATE WITH UTILITY ON LOCATION, QUANTITY, AND SPECS.
- CONTRACTOR TO REFER TO EXECUTED UTILITY DESIGN FOR PRIMARY AND POINT OF CONNECTION DETAILS.
- FOR (N) ACCESSIBLE EV CHARGING AREA(S), CONTRACTOR TO FIELD VERIFY SLOPES ARE COMPLIANT PER ACCESSIBLE STALL DETAIL (REF. ARCHITECTURAL OR STRUCTURAL SHEETS). REGRADE AND ADD ASPHALT OVERLAY, NEW FULL DEPTH ASPHALT, AND/OR ASPHALT MILLING IF REQUIRED. EXISTING SPOT ELEVATIONS ARE APPROXIMATE PER SURVEY DATA AND ARE TO BE FIELD VERIFIED BY CONTRACTOR.

3500 DEER CREEK RD.
PALO ALTO, CA 94304
(650) 681-5000

ORIGINAL SIZE 24"x36"
SHEET SIZE ARCH "D"

TESLA SUPERCHARGER_FERGUS FALLS
8 SUPERCHARGERS
623 FRONTIER DR,
FERGUS FALLS, MN, UNITED STATES

NO.	REVISION	DATE
A	ADJUSTED LAYOUT	9/6/2022
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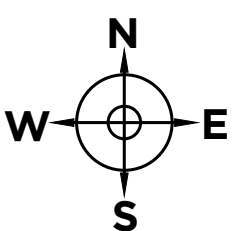
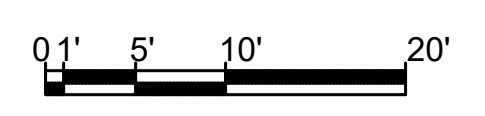
SITE PLAN

E-101

JB-565055-00

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ELECTRICAL SITE PLAN
3/32" = 1'-0"



ACDM

MONITORING
EQUIPMENT
DISCONNECT

PSU-#

PRE-ASSEMBLED
SUPERCHARGER UNIT

XR-#

TRANSFORMER
(PROVIDED BY UTILITY
PER UTILITY DESIGN)

TSC

TESLA SITE CONTROLLER
UTILITY METER
(PROVIDED BY UTILITY
PER UTILITY DESIGN)

MTR

ACDS-#

AC SERVICE
DISCONNECT

SPR-#

SUPERCHARGER
CABINET

#X

SUPERCHARGER POST

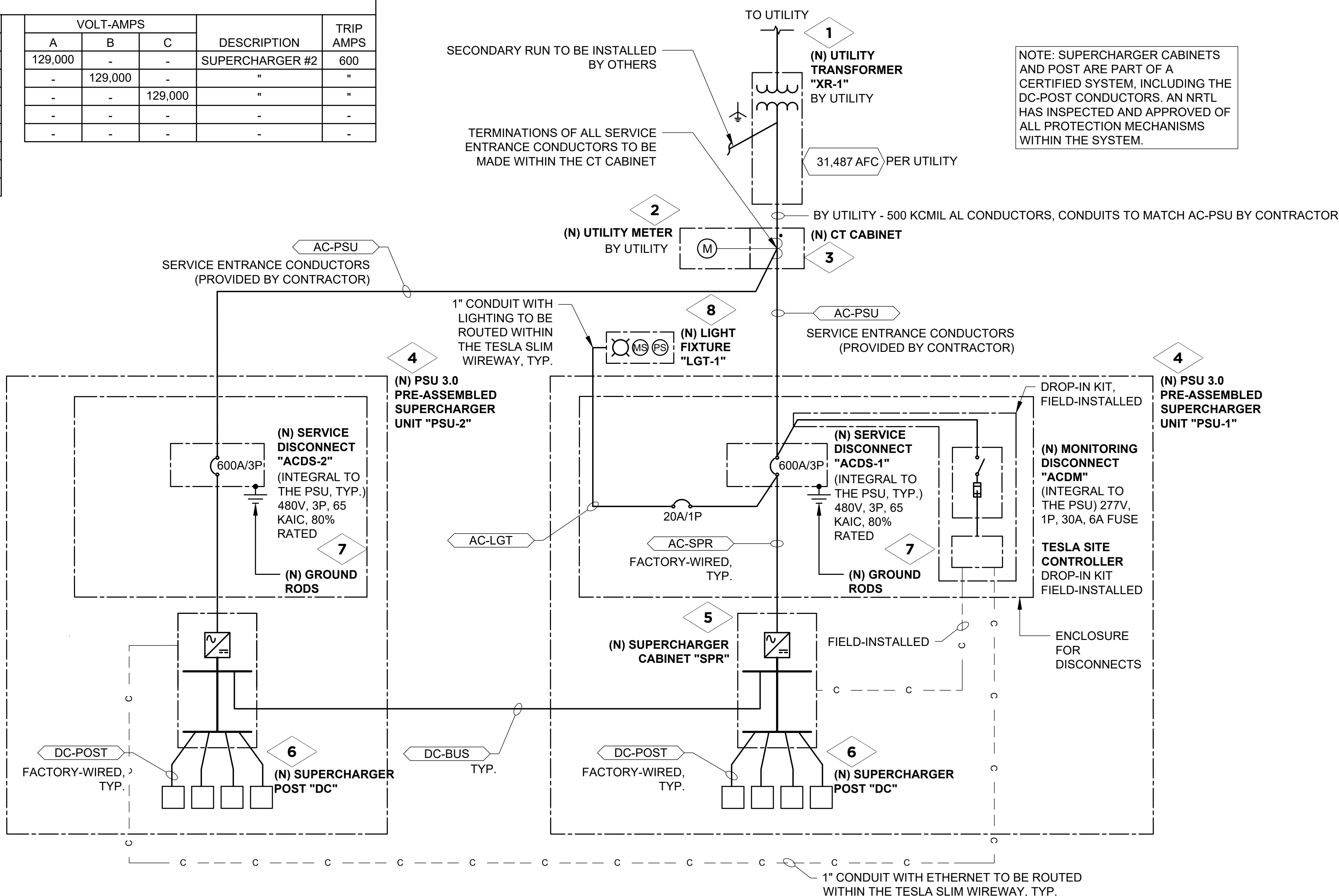
PARKING SIGNS, REF A-501



DEDICATED

LOAD SCHEDULE				
TRIP AMPS	DESCRIPTION	VOLT-AMPS		
		A	B	C
600	SUPERCHARGER #1	129,000	-	-
"	"	-	129,000	-
"	"	-	-	129,000
-	LIGHTING	75	-	-
-	MONITORING	-	100	-
TOTALS	PHASE	A	B	C
	APPARENT POWER	258 kVA	258 kVA	258 kVA
	CURRENT	931 A	931 A	931 A

G			F	
VOLT-AMPS			DESCRIPTION	TRIP AMPS
A	B	C		
129,000	-	-	SUPERCARGER #2	600
-	129,000	-	"	"
-	-	129,000	"	"
-	-	-	-	-
-	-	-	-	-



BREAKER SETTINGS

NOTE: CONTRACTOR TO VERIFY BREAKER MODEL IN FIELD AND USE THE CORRESPONDING BREAKER SETTINGS TABLE. IF THE BREAKER MODEL DOES NOT MATCH EITHER TABLE, VERIFY SETTINGS WITH ELECTRICAL ENGINEER OF RECORD.

PSU INTEGRAL BREAKER	
EATON PD-3 THERMAL-MAG TRIP UNIT (600A TRIP)	SQUARE D LJ W/ U31 TRIP UNIT (600A TRIP)
INSTANTANEOUS (I): 5 (3000A)	LONG DELAY PICKUP (t ₁): 1(600A) LONG TIME DELAY (t ₂): 0.5s INSTANTANEOUS (I ₁): 5 (3000A)

SYSTEM PLACARDS

SERVICE DISCONNECT 1 OF 2. 2ND DISCONNECT LOCATED AT PSU-2	SERVICE DISCONNECT 2 OF 2. 1ST DISCONNECT LOCATED AT PSU-1	TESLA EV SYSTEM DISCONNECT
ATTACH AT PSU #1 SERVICE DISCONNECT	ATTACH AT PSU #2 SERVICE DISCONNECT	ATTACH AT ALL PSU DISCONNECTS

WARNING
TESLA EV SITE CONTROLLER (TSC) IS
STILL LIVE WHEN EV SYSTEM
DISCONNECT IS IN THE "OFF"
POSITION. TSC DISCONNECT
LOCATED BEHIND PANEL

ATTACH ON EXTERIOR OF TESLA
SITE CONTROLLER PANEL AT PSU
SERVICE DISCONNECT

TESLA SUPERCHARGER
623 FRONTIER DR
1-877-798-3752

PLACARD NOTES:

ATTACH AT ALL PSU DISCONNECTS

PLACARDS TO BE MADE OF RED PHENOLIC PLASTIC W/ 1" WHITE
LETTERING. ATTACH PLACARDS WITH RIVETS OR SELF-TAPPING SCREWS

ADDITIONAL PLACARDS REQUIRED FOR ARC FLASH LABELS

AC CIRCUIT SCHEDULE

CIRCUIT #	CONDUCTOR METAL UON	# OF CONDUITS	# PHASE CONDUCTORS PER CONDUIT	PHASE CONDUCTOR SIZE	NEUTRAL CONDUCTOR SIZE	EGC	GEC SIZE (CU)	MAX CIRCUIT LENGTH	WIRE TYPE	CONDUIT TYPES	MIN CONDUIT SIZE (IN)
AC-PSU (PROVIDED BY CONTRACTOR)	AL	2	3	500 KCMIL	500 KCMIL	-	-	300'-0"	XHHW-2	PVC, RMC, EMT	4
AC-SPR (FACTORY WIRED)	AL	2	3	500 KCMIL	500 KCMIL	1 AWG (CU)	-	600'-0"	XHHW-2	PVC, RMC, EMT	4
AC-LGT	CU	1	1	12 AWG	12 AWG	12 AWG	-	150'-0"	THWN-2	PVC, RMC, EMT	1

DC CIRCUIT SCHEDULE

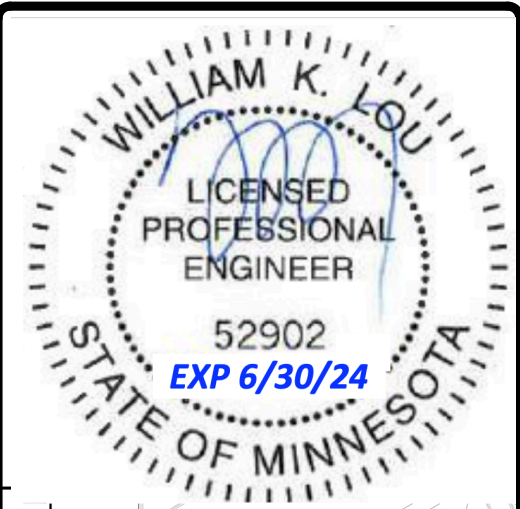
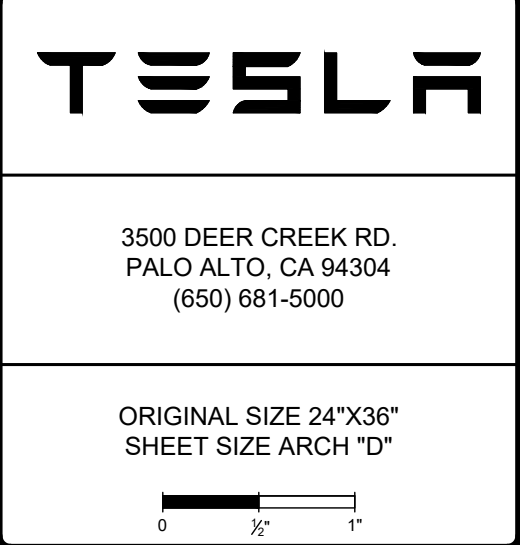
CIRCUIT #	CONDUCTOR METAL UON	# OF CONDUITS	# PHASE CONDUCTORS PER CONDUIT	PHASE CONDUCTOR SIZE	EGC	SIGNAL WIRE	DC MID	MAX CIRCUIT LENGTH	WIRE TYPE	CONDUIT TYPES	MIN CONDUIT SIZE (IN)	WIREWAY
DC-POST (FACTORY WIRED)	AL	1	4	350 KCMIL	1 AWG (CU)	TESLA PROVIDED	-	330'	XHHW-2 (1000V)	PVC, RMC, EMT	4	-
DC-BUS	AL	2	2	600 KCMIL	1/0 AWG (CU)	-	3/0 AWG	900'	XHHW-2 (1000V)	PVC, RMC, EMT	3.5	TESLA SLIM 6' x 8.25"

EQUIPMENT

1	(N) UTILITY TRANSFORMER "XR-1" • SIZE & PRIMARY VOLTAGE PER UTILITY • SECONDARY 480Y/277V
2	(N) UTILITY METER • METER # TBD
3	(N) CT CABINET • AMERICAN MIDWEST POWER #SCC10-16T • ACCEPTS 2-HOLE BAR TYPE CTS • NEMA 3R, 1000A, 600V, 85 KAIC • 39"x24"x60"
4	(N) PSU 3.0 PRE-ASSEMBLED SUPERCHARGER UNIT "PSU" • (1) SUPERCHARGER CABINET "SPR" PER UNIT • (4) SUPERCHARGER POSTS "DC" PER UNIT • INTEGRAL 600A CIRCUIT BREAKER SERVICE ENTRANCE RATED • FACTORY PRE-WIRED DC-POST CIRCUIT • FACTORY PRE-WIRED AC-SPR CIRCUIT • (2) PSU's TOTAL
5	(N) SUPERCHARGER CABINET "SPR" • (2) SUPERCHARGER CABINETS • 480VAC, 3PH, 4W • 465A MAX AC INPUT • DC OUTPUT TO 4 CHARGE POSTS MAX EACH SUPERCHARGER CABINET • 85 KA SCOR
6	(N) SUPERCHARGER POST "DC" • 250KW • (8) SUPERCHARGER POSTS • 0 VDC - 500 VDC
7	(N) GROUND RODS • COPPER • SEE E-501 FOR MORE DETAILS

LEGEND

	BUSSING
	CONDUCTORS
	SHIELDED CAT6 CABLE
	CIRCUIT BREAKER
	SWITCH
	FUSE
	CURRENT TRANSFORMER
	POWER TRANSFORMER
	DELTA TRANSFORMER WINDING
	WYE TRANSFORMER WINDING
	GROUNDING WYE TRANSFORMER WINDING
	EQPT. ENCLOSURES
	METER
	AC-DC OR DC-AC CONVERTER
	LIGHT WITH MOTION AND PHOTO SENSOR



TESLA SUPERCHARGER_FERGUS FALLS 8 SUPERCHARGERS

623 FRONTIER DR,
FERGUS FALLS, MN, UNITED STATES

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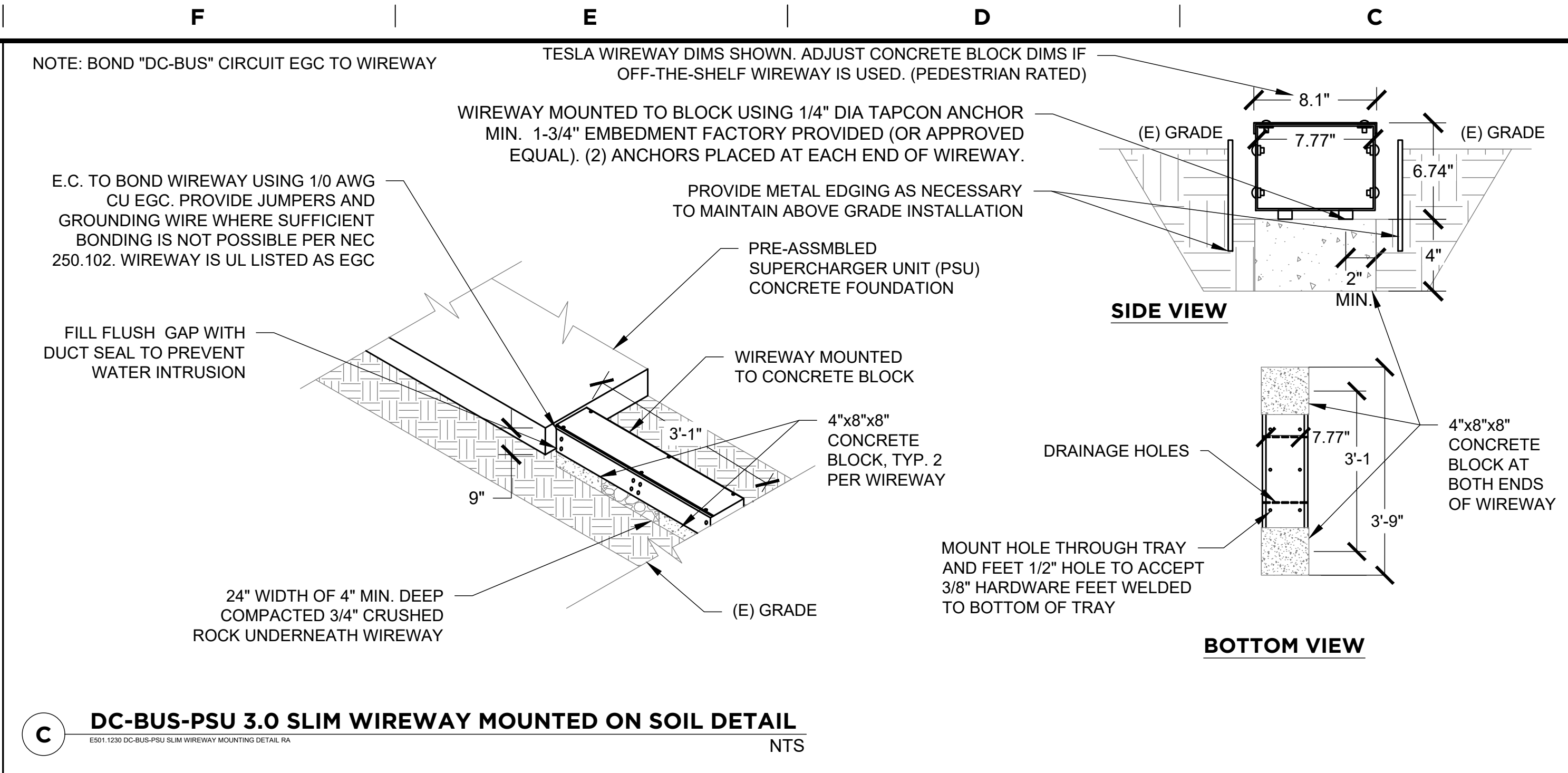
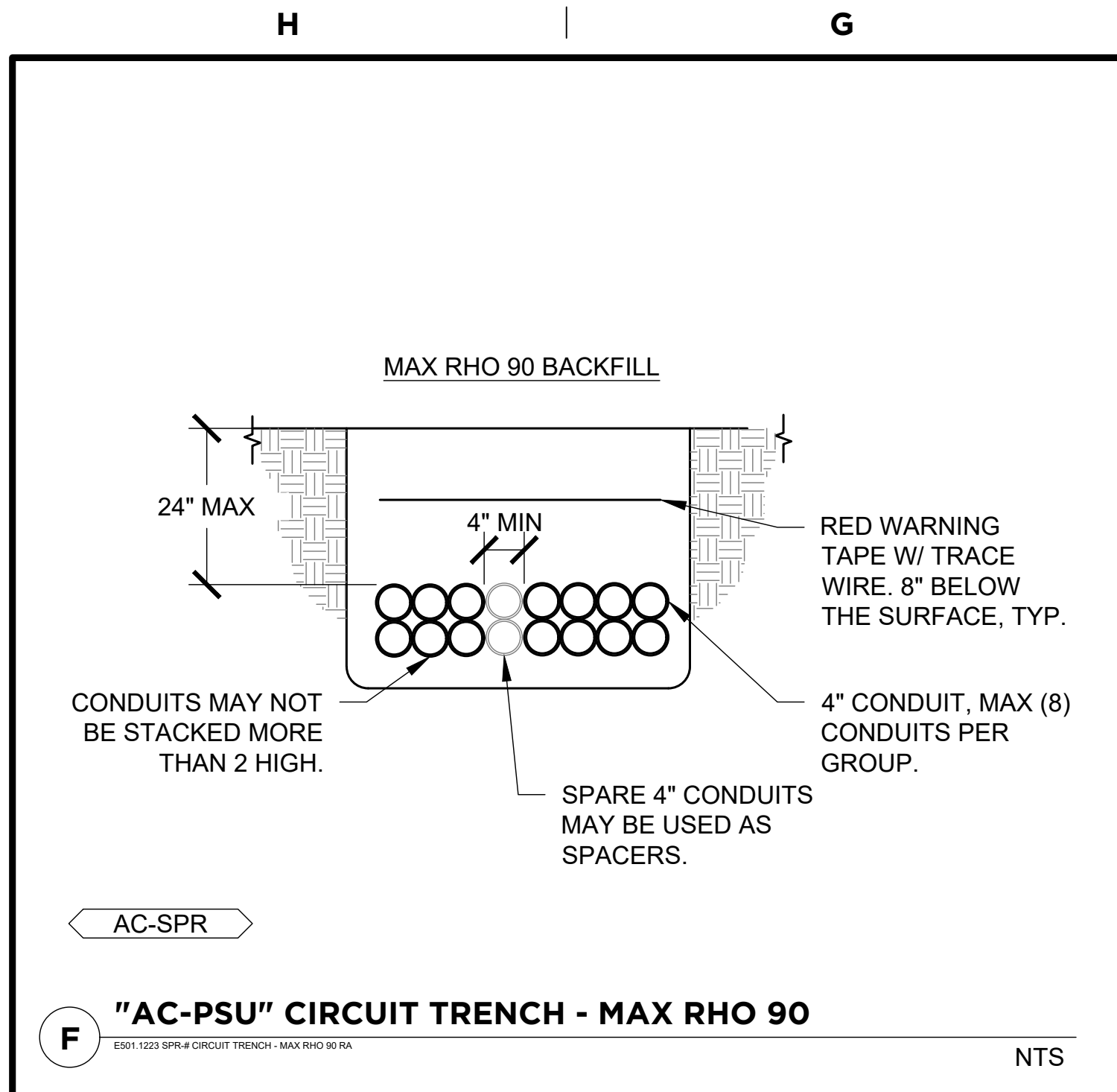
SINGLE LINE DIAGRAM

E-201

JB-565055-00

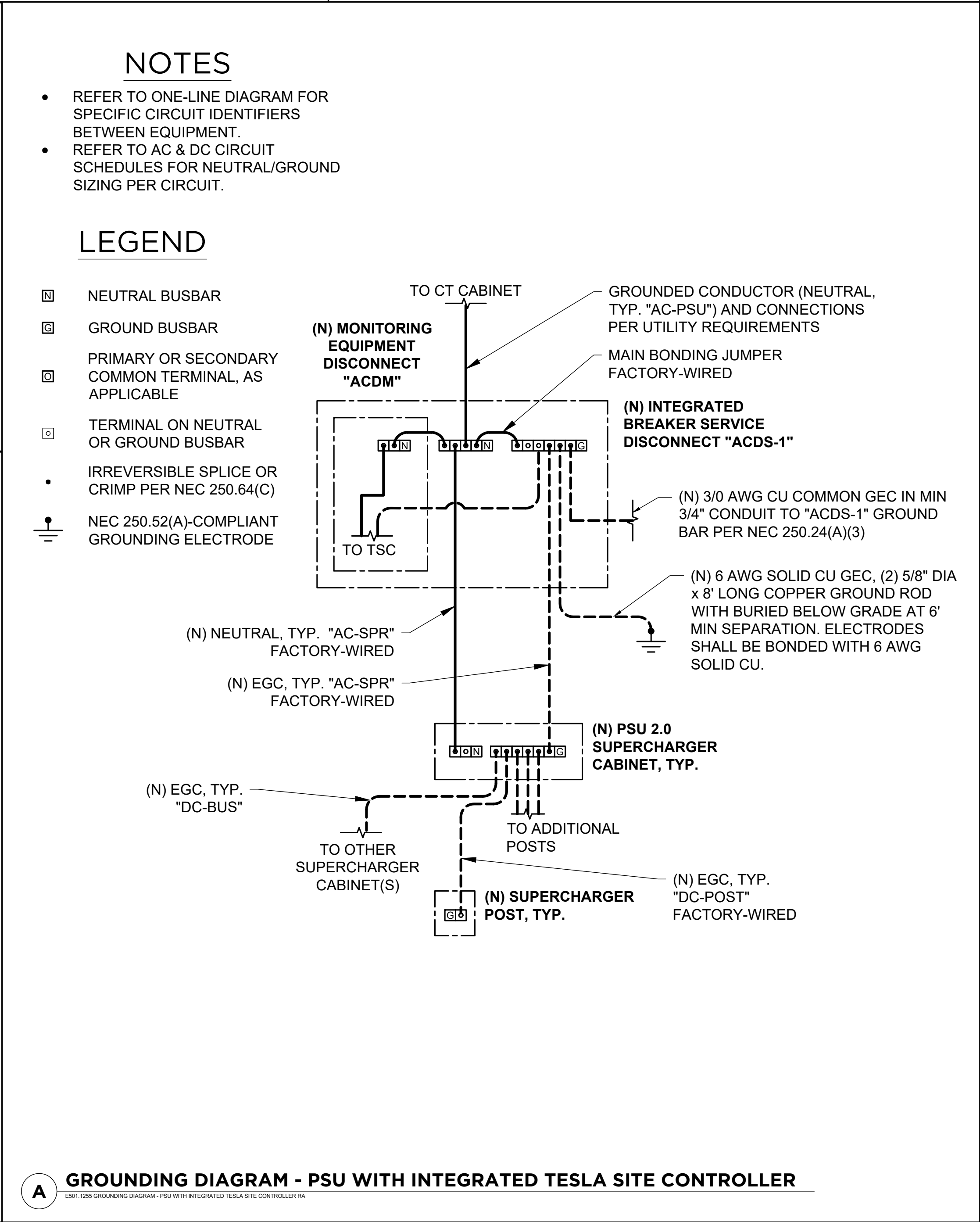
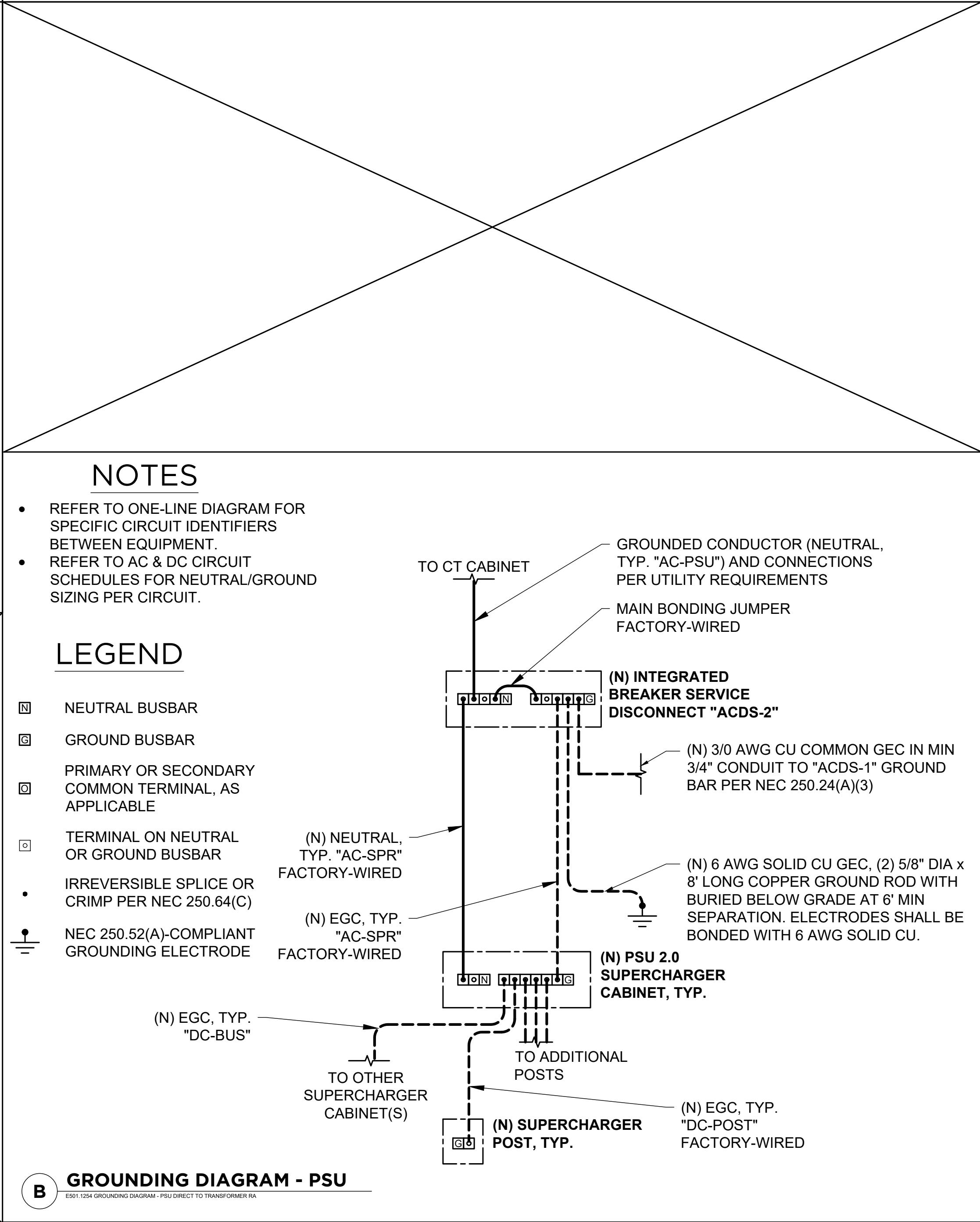
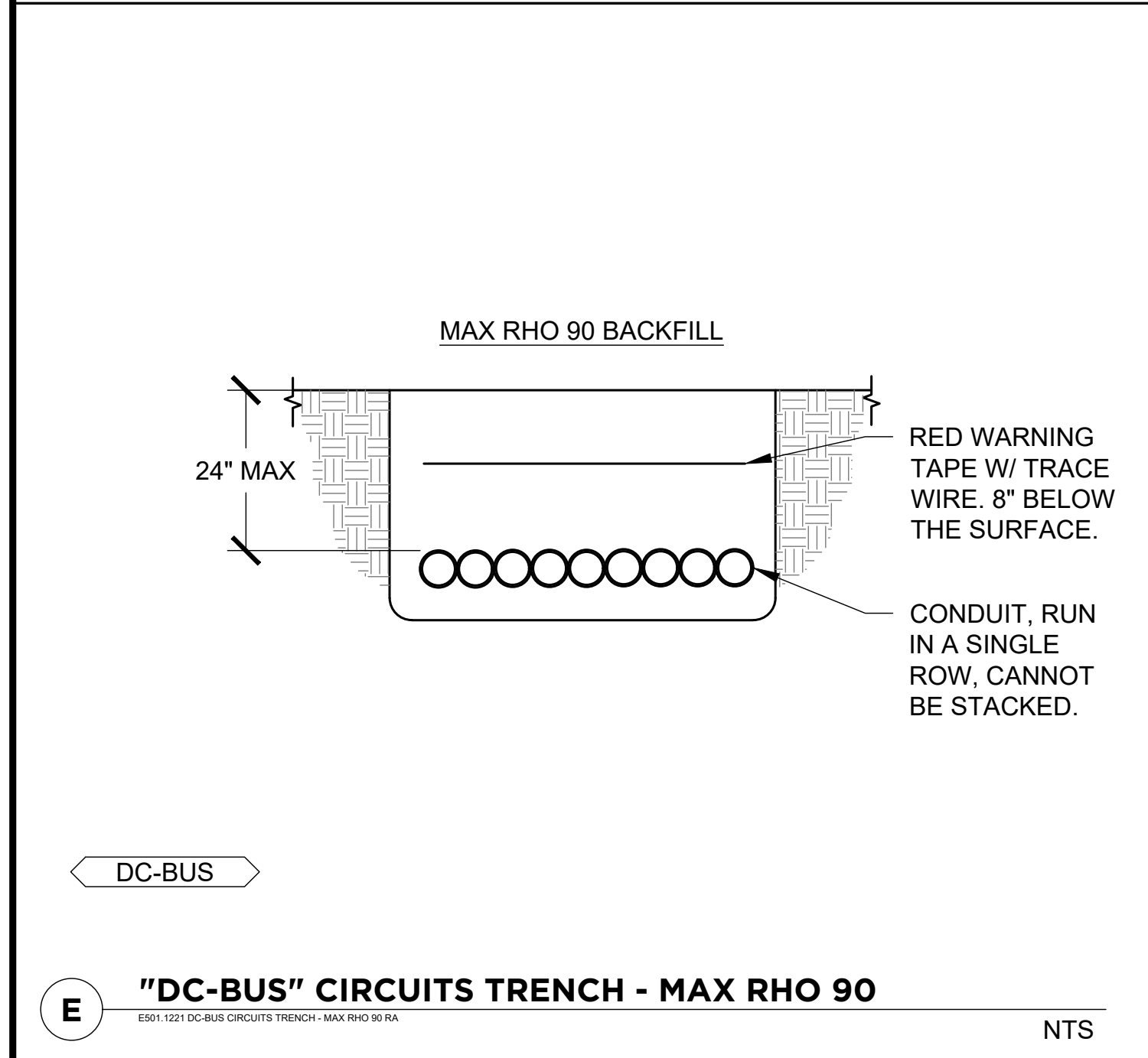
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IFC



TRENCHING NOTES

- THE TRENCH DESIGNS FOR AC-SPR, DC-POST, AND DC-BUS CIRCUITS ARE THE RESULT OF A THERMAL ANALYSIS OF THE CONDUCTORS UNDER LOAD. FOR PROPER PROTECTION THEY MUST BE FOLLOWED.
- APPROVED BACKFILL IS REQUIRED TO MEET THE DESIGNED RHO VALUES. USE THE SPECIFIED BACKFILL LISTED BELOW OR TEST NATIVE SOIL CONDITIONS TO CONFIRM MAX DEFINED RHO VALUES. MINIMUM 2" OF APPROVED BACKFILL COVERAGE AROUND CONDUITS REQUIRED.
- RHO 60 BACKFILL** -CONCRETE BACKFILL WITH MIN 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI MUST BE USED TO ACHIEVE MAX RHO 60.
- RHO 90 BACKFILL** - LOW STRENGTH FLUIDIZED THERMAL (SLURRY) BACKFILL WITH MIN 28 DAY COMPRESSIVE STRENGTH OF 150 PSI MUST BE USED TO ACHIEVE MAX RHO 90.
- FOR TRENCHES WITH MIXED CIRCUIT TYPES, APPLY THE CONDUIT SPACING FOR THE CIRCUIT TYPE WITH THE LARGER SPACING REQUIREMENT.
- CONDUIT TO BE INSTALLED TO A MAX COVER OF 24". COVER MAY BE REDUCED PER THE NEC TABLE 300.5.
- CONDUIT ARE PERMITTED TO HAVE GREATER THAN 24" COVER FOR SHORT DISTANCES WHERE REQUIRED TO CROSS UNDER (E) UTILITY LINES, TO ALLOW FOR NEC REQUIRED MIN RADIUS FOR CONDUIT TURN-UPS INTO PAD-MOUNTED EQUIPMENT, TO AVOID (E) OBSTRUCTIONS, ETC.



TESLA

3500 DEER CREEK RD.
PALO ALTO, CA 94304
(650) 681-5000

ORIGINAL SIZE 24"x36"
SHEET SIZE ARCH "D"

0 1/2" 1"

WILLIAM K. LOU
LICENSED PROFESSIONAL ENGINEER
52902
EXP 6/30/24
STATE OF MINNESOTA

**TESLA SUPERCHARGER_FERGUS FALLS
8 SUPERCHARGERS**

**623 FRONTIER DR,
FERGUS FALLS, MN, UNITED STATES**

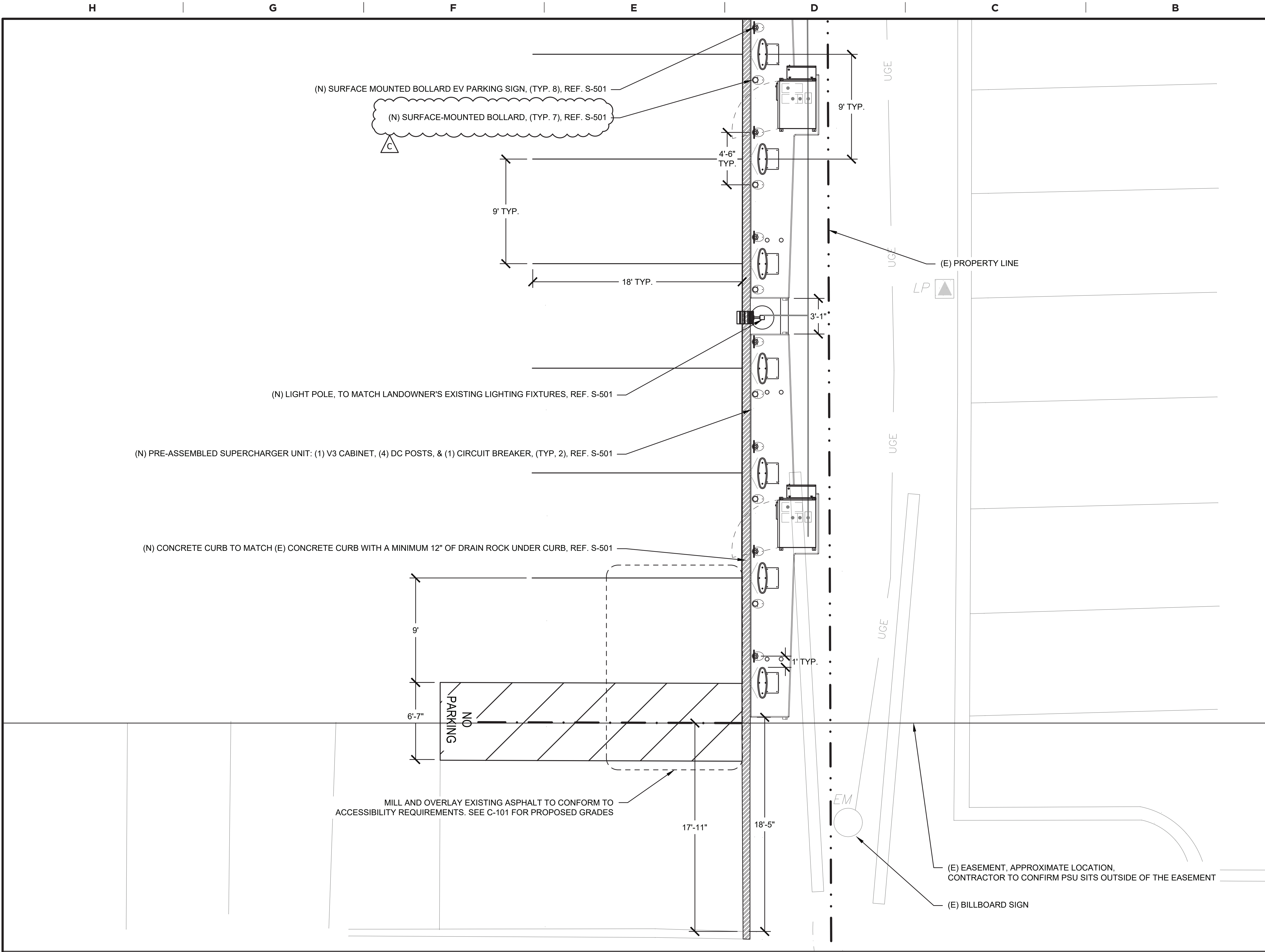
NO.	REVISION	DATE
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B	ADJUSTED LAYOUT	5/24/2023
C	ADJUSTED LAYOUT	

**ELECTRICAL
DETAILS**

E-501

JB-565055-00

REV: C IFC



ENLARGED STRUCTURAL SITE PLAN
1/2" = 1'-0"



SITE LEGEND

- (N) SUPERCHARGER POST
- (N) SIGN
- (N) CONCRETE CURB
- (N) ASPHALT SEAL COAT
- (N) FIXED BOLLARD
- (N) SURFACE BOLLARD

(E) PROPERTY LINE

STRUCTURAL DESIGN CRITERIA:

- DESIGN CODE:
- 2020 MNBC WITH 2018 IBC AMENDMENTS
- DESIGN CRITERIA:
- WIND DESIGN
 - DESIGN WIND SPEED = 111 MPH (ULTIMATE)
 - RISK CATEGORY = II
 - WIND EXPOSURE = C
 - SEISMIC DESIGN
 - RISK CATEGORY = II
 - SEISMIC IMPORTANCE FACTOR = 1.0
 - SITE CLASS = D
 - $S_s = 0.071 / S_1 = 0.021$
 - $S_d_s = 0.076 / S_d_1 = 0.033$
 - SEISMIC DESIGN CATEGORY = A
 - BASIC SEISMIC-FORCE-RESISTING SYSTEM = NON-STRUCTURAL COMPONENT
 - GEOTECHNICAL INFORMATION
 - ALLOWABLE BEARING PRESSURE = 1,500 PSF USED FOR EQUIPMENT FOUNDATION
 - SNOW LOAD
 - GROUND SNOW LOAD = 50 PSF

NOTES:

- PAD EXTENTS AND FOOTING TO BE CONFIRMED BY CONTRACTOR PRIOR TO CONSTRUCTION.
- SWITCHBOARD DIMENSIONS AND ANCHOR LOCATIONS ARE LIABLE TO CHANGE. CONTRACTOR TO VERIFY AGAINST VENDOR FINAL SHOP DRAWINGS.
- UTILITY EQUIPMENT/FOUNDATION DIMENSIONS AND LOCATIONS PER UTILITY. CONTRACTOR TO VERIFY AGAINST EXECUTED UTILITY DESIGN.
- UTILITY BOLLARDS PER UTILITY REQUIREMENTS. CONTRACTOR TO VERIFY AND COORDINATE WITH UTILITY ON LOCATION, QUANTITY, AND SPECS.



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ORIGINAL SIZE 24"x36"
SHEET SIZE ARCH "D"



Kirill Voronov
Digitally signed by Kirill Voronov
Date: 2023.07.21 11:48:35 -07'00'

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8 SUPERCHARGERS

623 FRONTIER DR,
FERGUS FALLS, MN, UNITED STATES

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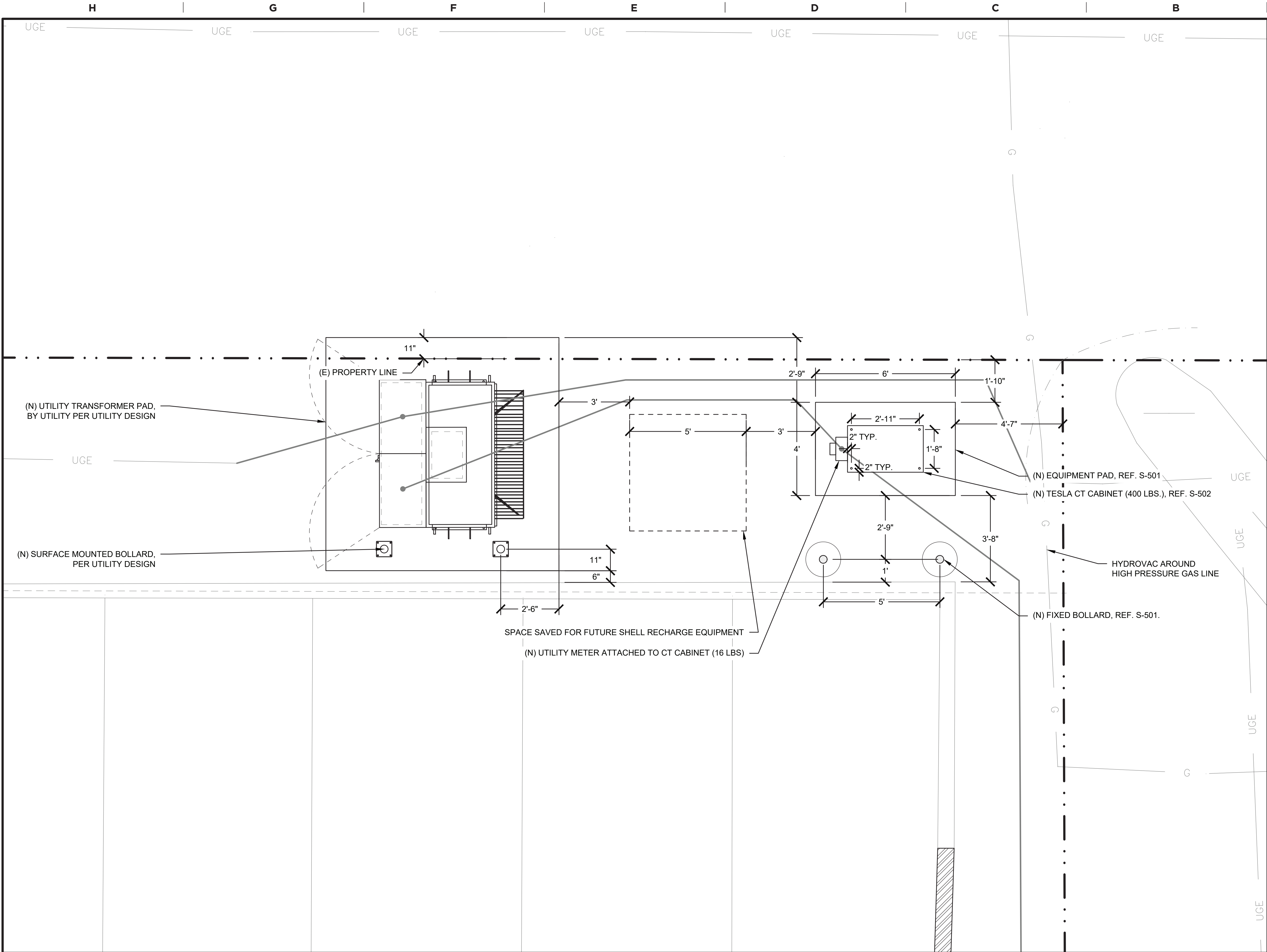
ENLARGED
SITE PLAN

S-301

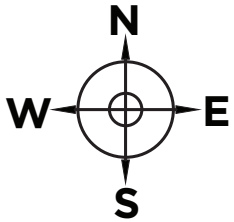
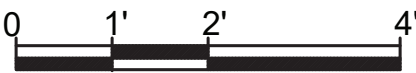
JB-565055-00

REV: C

IFC



ENLARGED STRUCTURAL SITE PLAN
1/2" = 1'-0"



SITE LEGEND

- (N) SUPERCHARGER POST
- (N) SIGN
- (N) CONCRETE CURB
- (N) ASPHALT SEAL COAT
- (N) FIXED BOLLARD
- (N) SURFACE BOLLARD

(E) PROPERTY LINE

STRUCTURAL
DESIGN CRITERIA:

- DESIGN CODE:
- 2020 MNBC WITH 2018 IBC AMENDMENTS
- DESIGN CRITERIA:
- WIND DESIGN
 - DESIGN WIND SPEED = 111 MPH (ULTIMATE)
 - RISK CATEGORY = II
 - WIND EXPOSURE = C
 - SEISMIC DESIGN
 - RISK CATEGORY = II
 - SEISMIC IMPORTANCE FACTOR = 1.0
 - SITE CLASS = D
 - $S_s = 0.071$ / $S_1 = 0.021$
 - $S_{ds} = 0.076$ / $S_{d1} = 0.033$
 - SEISMIC DESIGN CATEGORY = A
 - BASIC SEISMIC-FORCE-RESISTING SYSTEM = NON-STRUCTURAL COMPONENT
 - $R = 2.5$ / $a_p = 1.0$
 - GEOTECHNICAL INFORMATION
 - ALLOWABLE BEARING PRESSURE = 1,500 PSF USED FOR EQUIPMENT FOUNDATION
 - SNOW LOAD
 - GROUND SNOW LOAD = 50 PSF

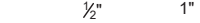
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Kirill Voronov
Digitally signed by Kirill Voronov
Date: 2023.07.21 11:48:53 -07'00'

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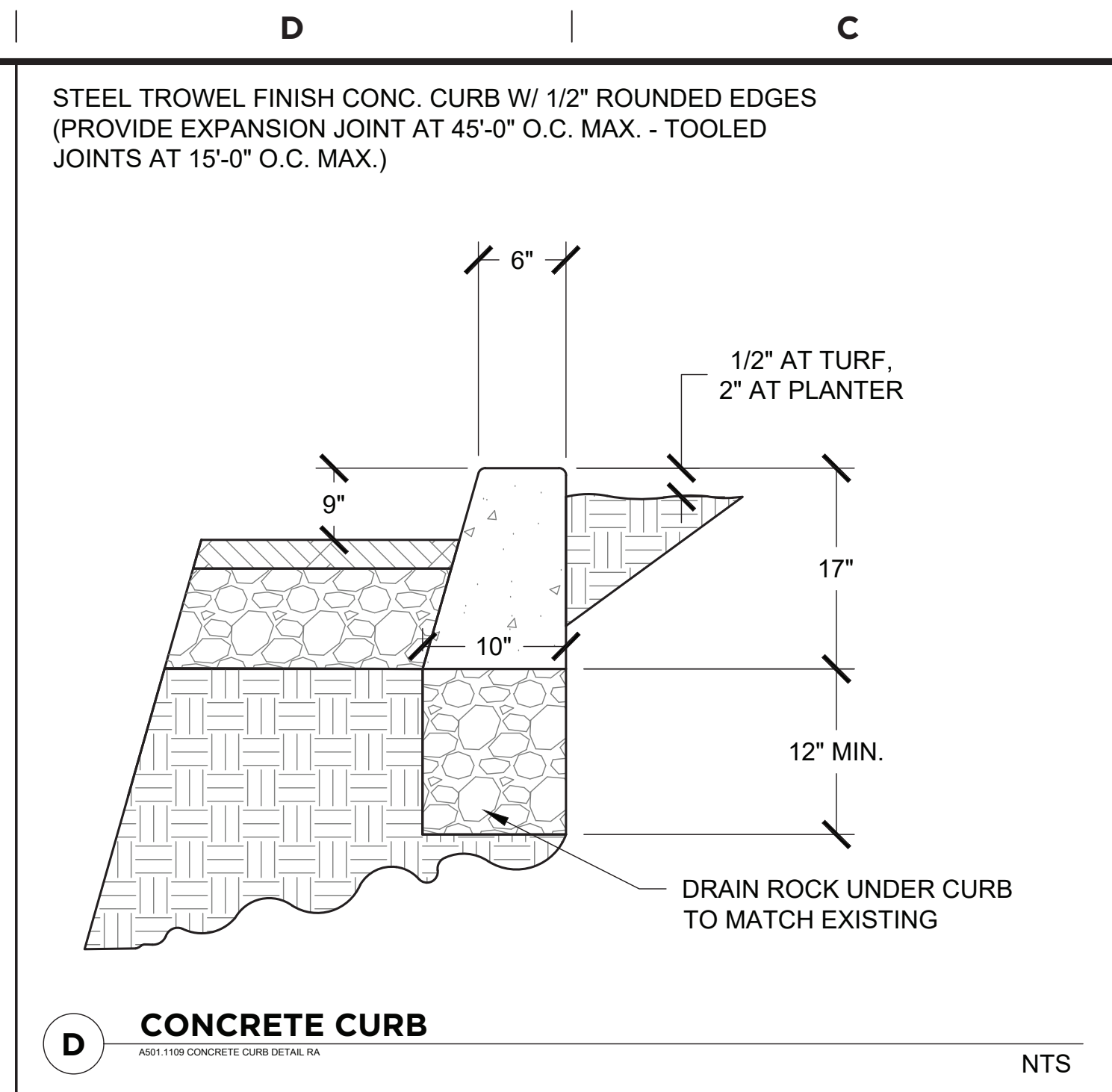
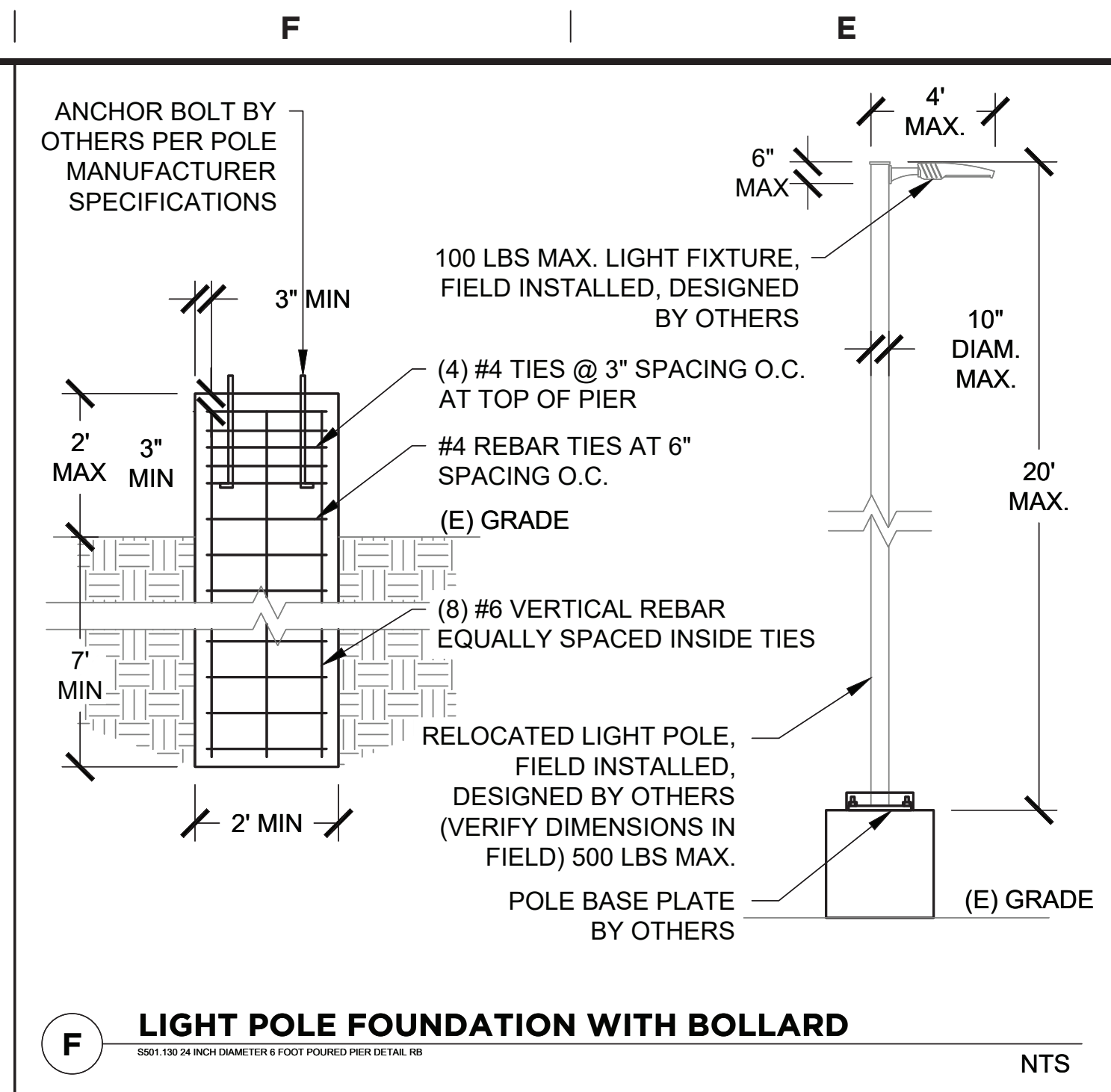
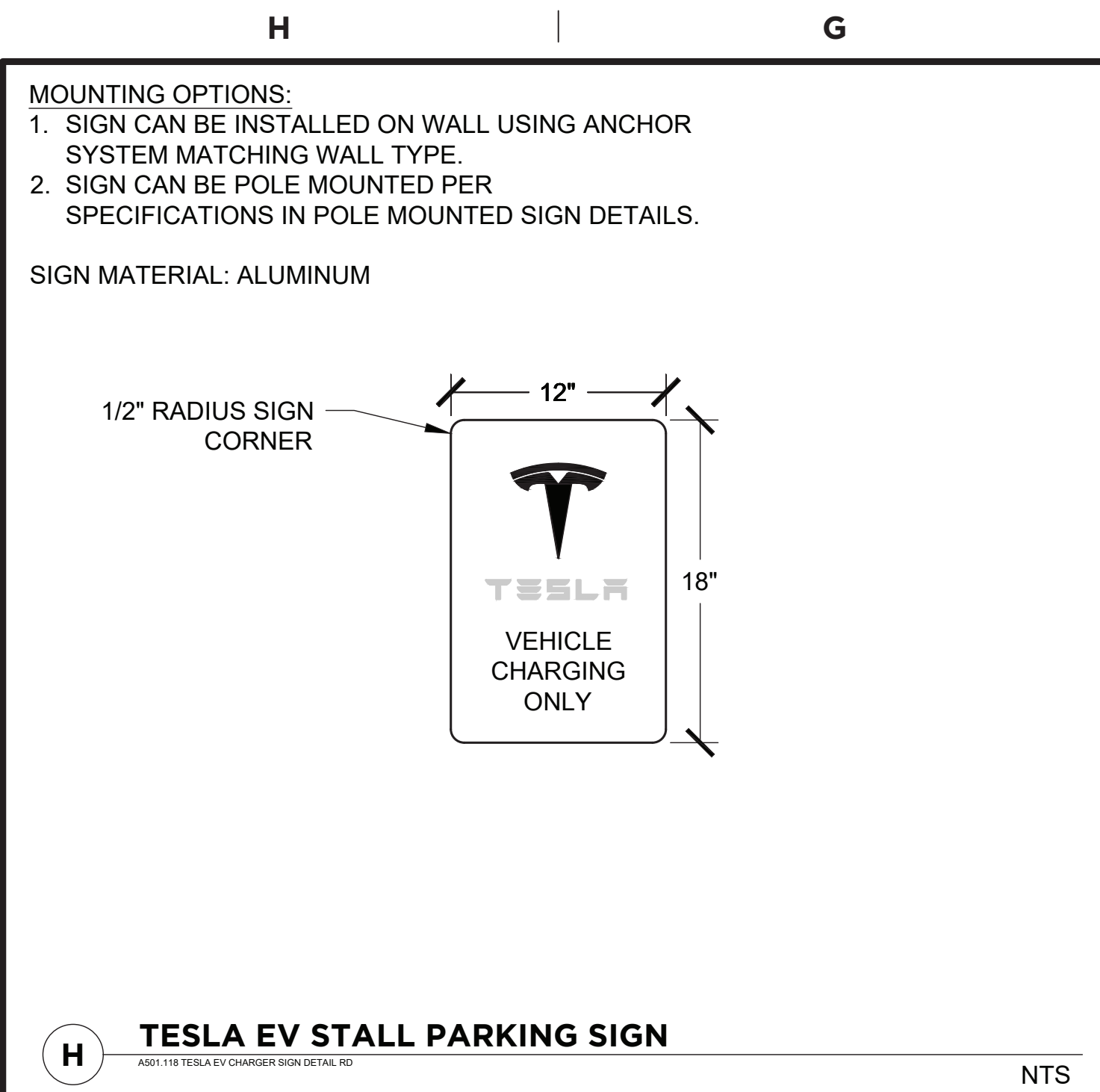
ENLG STRUC
SITE PLAN 2

S-302

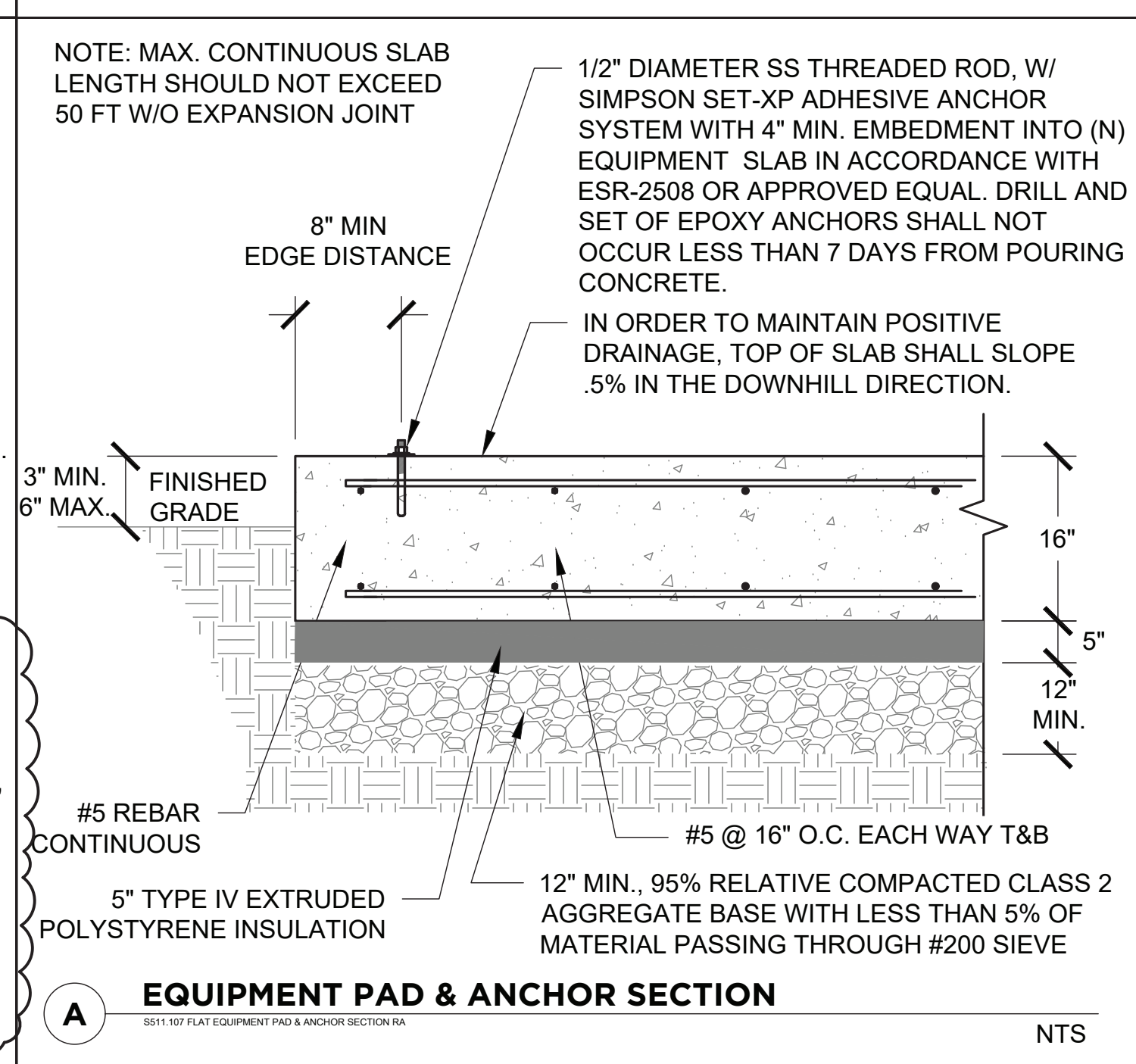
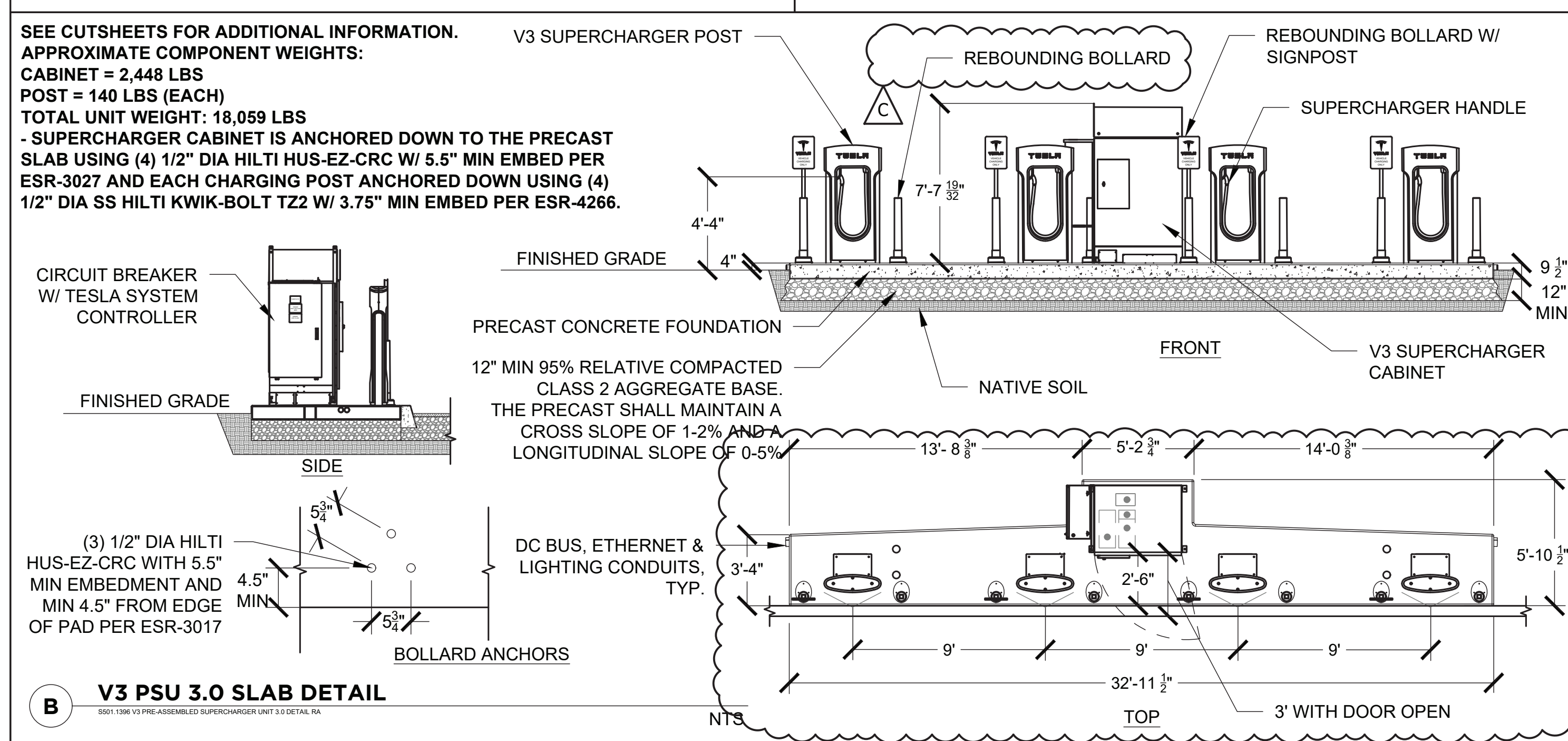
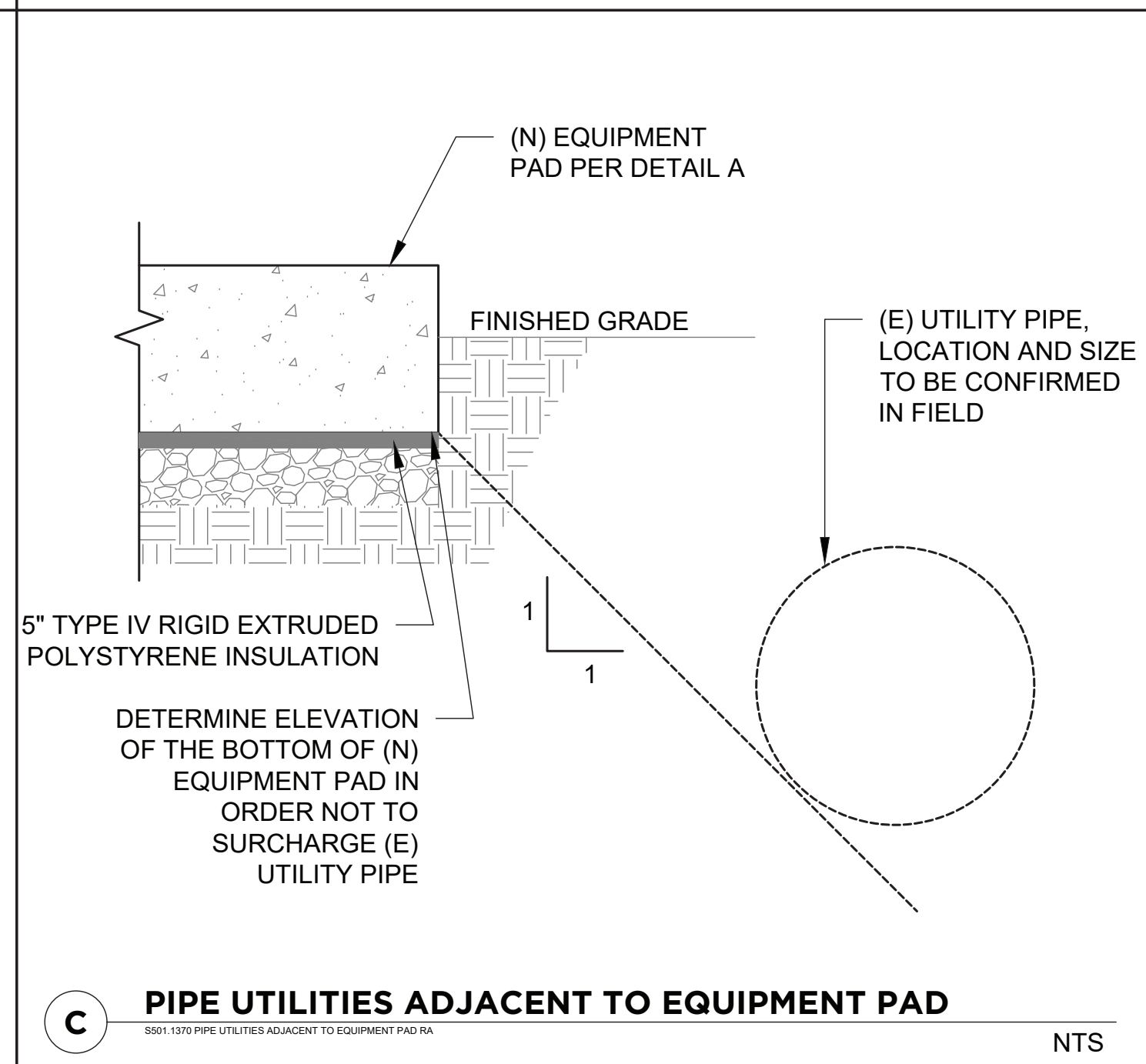
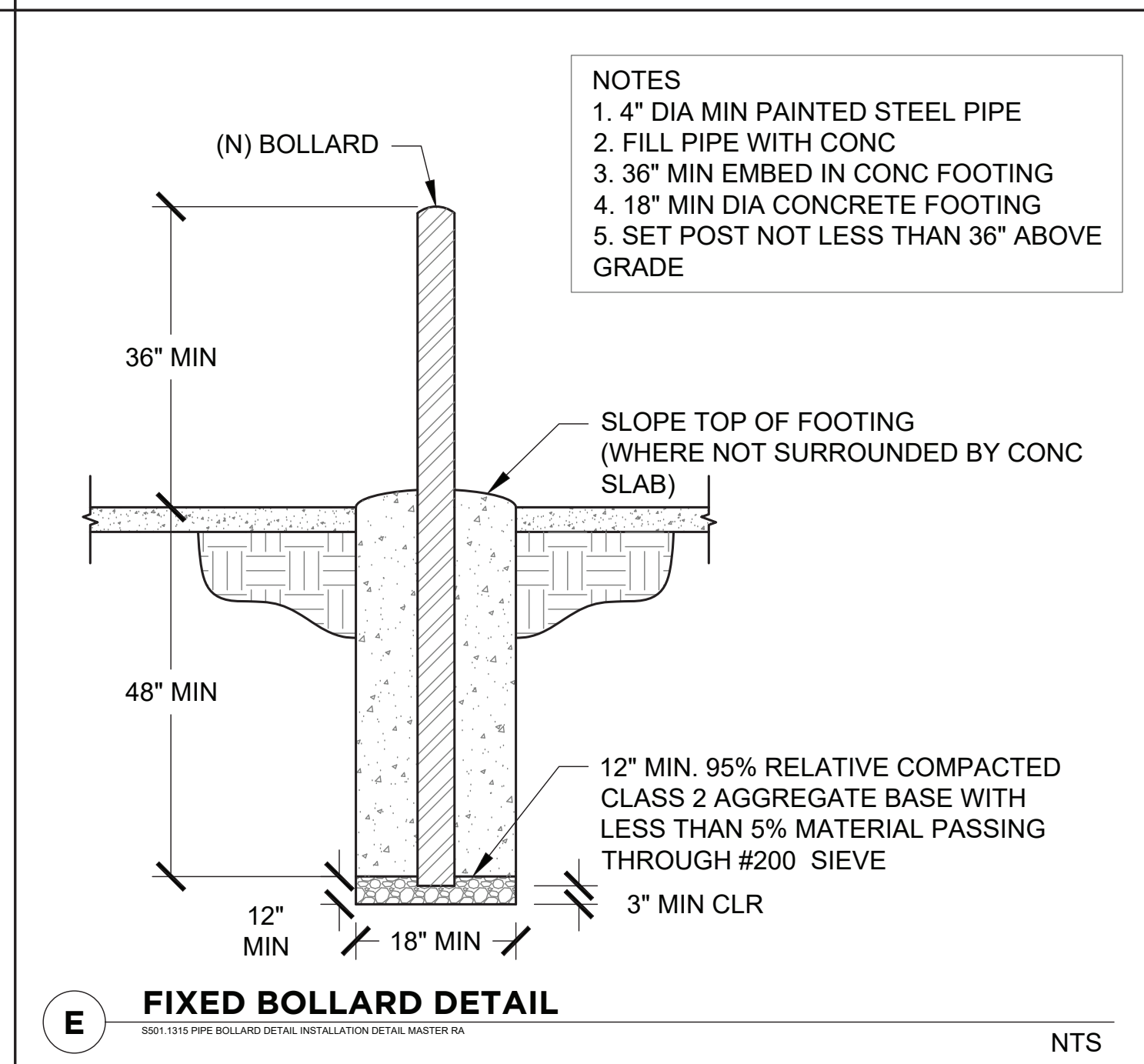
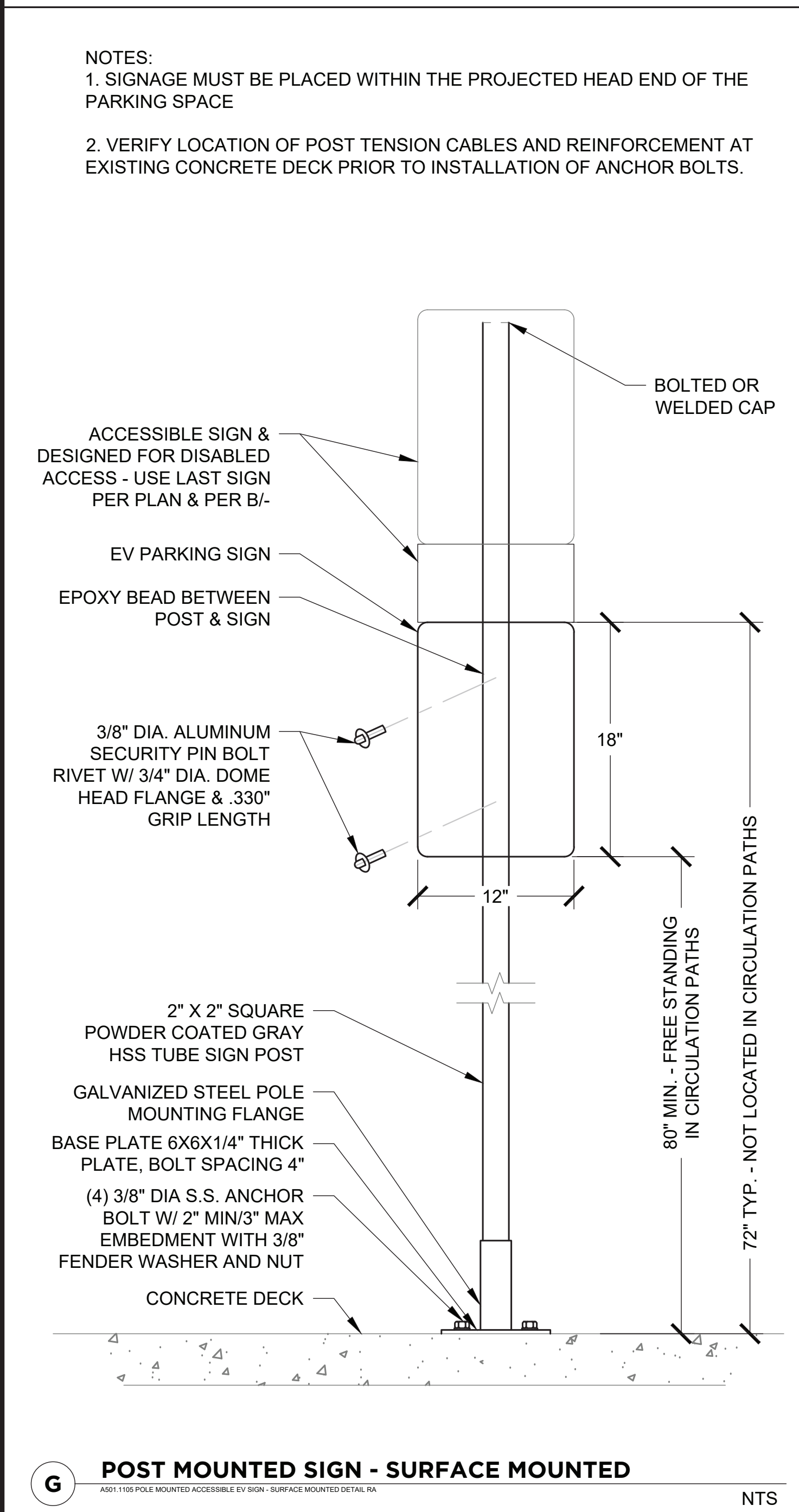
JB-565055-00

REV: C

IFC



B	A												
<h1>CONCRETE DESIGN</h1>													
<ol style="list-style-type: none"> THIS DESIGN IS APPLICABLE TO CONDITIONS WHERE THE SNOW LOAD IS 30PSF OR GREATER. CONCRETE STRENGTH -PROVIDE CONCRETE WITH THE FOLLOWING STRENGTHS AT THE LOCATIONS NOTED. MIX DESIGN, SLUMP, AIR ENTRAINMENT, AGGREGATE SIZE, ETC. SHALL BE IN CONFORMANCE WITH THE ACI CODE, LATEST EDITION. LOCATION: ANY STRENGTH AT 28 DAYS: 4500 PSI A. ALL CONCRETE AGGREGATE IS HARD ROCK UON B. DESIGN MIX SHALL CONTAIN 5-1/2 SACKS OF CEMENT, MIN. C. TYPE I/II CEMENT TO MEET ASTM C150. D. MAX AGGREGATE SIZE SHALL BE 3/4" E. MAX WATER/CEMENT RATIO SHALL BE 0.45 F. MAX SLUMP SHALL BE 4" G. PROVIDE 6% AIR ENTRAINMENT, ADD MIXTURE IN SNOW STATES ONLY (MIN 6% +/- 1.5%) 													
<ol style="list-style-type: none"> REINFORCING STEEL -ASTM A615 WITH THE FOLLOWING STRENGTHS: <table> <tr> <th>SIZE</th><th>STRENGTH:</th></tr> <tr> <td>#4 AND SMALLER</td><td>GRADE 60 (fy = 60000 PSI)</td></tr> <tr> <td>#5 AND LARGER</td><td>GRADE 60 (fy = 60000 PSI)</td></tr> </table> 	SIZE	STRENGTH:	#4 AND SMALLER	GRADE 60 (fy = 60000 PSI)	#5 AND LARGER	GRADE 60 (fy = 60000 PSI)							
SIZE	STRENGTH:												
#4 AND SMALLER	GRADE 60 (fy = 60000 PSI)												
#5 AND LARGER	GRADE 60 (fy = 60000 PSI)												
<ol style="list-style-type: none"> FABRICATE AND PLACE REINFORCEMENT IN ACCORDANCE WITH ACI PUBLICATION SP-66, ACI DETAILING MANUAL - LATEST EDITION. PLACE CONCRETE IN COMPLIANCE WITH ACI 304. ALL CONCRETE SHALL BE MECHANICALLY VIBRATED. 													
<ol style="list-style-type: none"> CONCRETE COVER FOR REINFORCEMENT FOR NON-PRESTRESSED, CAST IN PLACE CONCRETE SHALL BE AS FOLLOWS: <table> <tr> <th>CONDITION</th><th>COVER</th></tr> <tr> <td>CAST AGAINST EARTH</td><td>3"</td></tr> <tr> <td>EXPOSED TO WEATHER</td><td></td></tr> <tr> <td> #5 AND SMALLER</td><td>1-1/2"</td></tr> <tr> <td> #6 AND LARGER</td><td>2"</td></tr> <tr> <td>SLAB-ON-GRADE</td><td>2"</td></tr> </table> 		CONDITION	COVER	CAST AGAINST EARTH	3"	EXPOSED TO WEATHER		#5 AND SMALLER	1-1/2"	#6 AND LARGER	2"	SLAB-ON-GRADE	2"
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<ol style="list-style-type: none"> EMBEDS -ALL ITEMS TO BE CAST INTO CONCRETE SUCH AS REINFORCING DOWELS, BOLTS, ANCHORS, PIPES, SLEEVES, ETC., SHALL BE SECURELY AND ACCURATELY POSITIONED INTO THE FORMS PRIOR TO PLACING THE CONCRETE. MAX. CONTINUOUS SLAB LENGTH SHOULD NOT EXCEED 50 FT W/O EXPANSION JOINT 													



Kirill
Voronov

Digitally signed by Kirill Voronov
Date: 2023.11.49:07-0

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S-501	
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REV: C	IFC

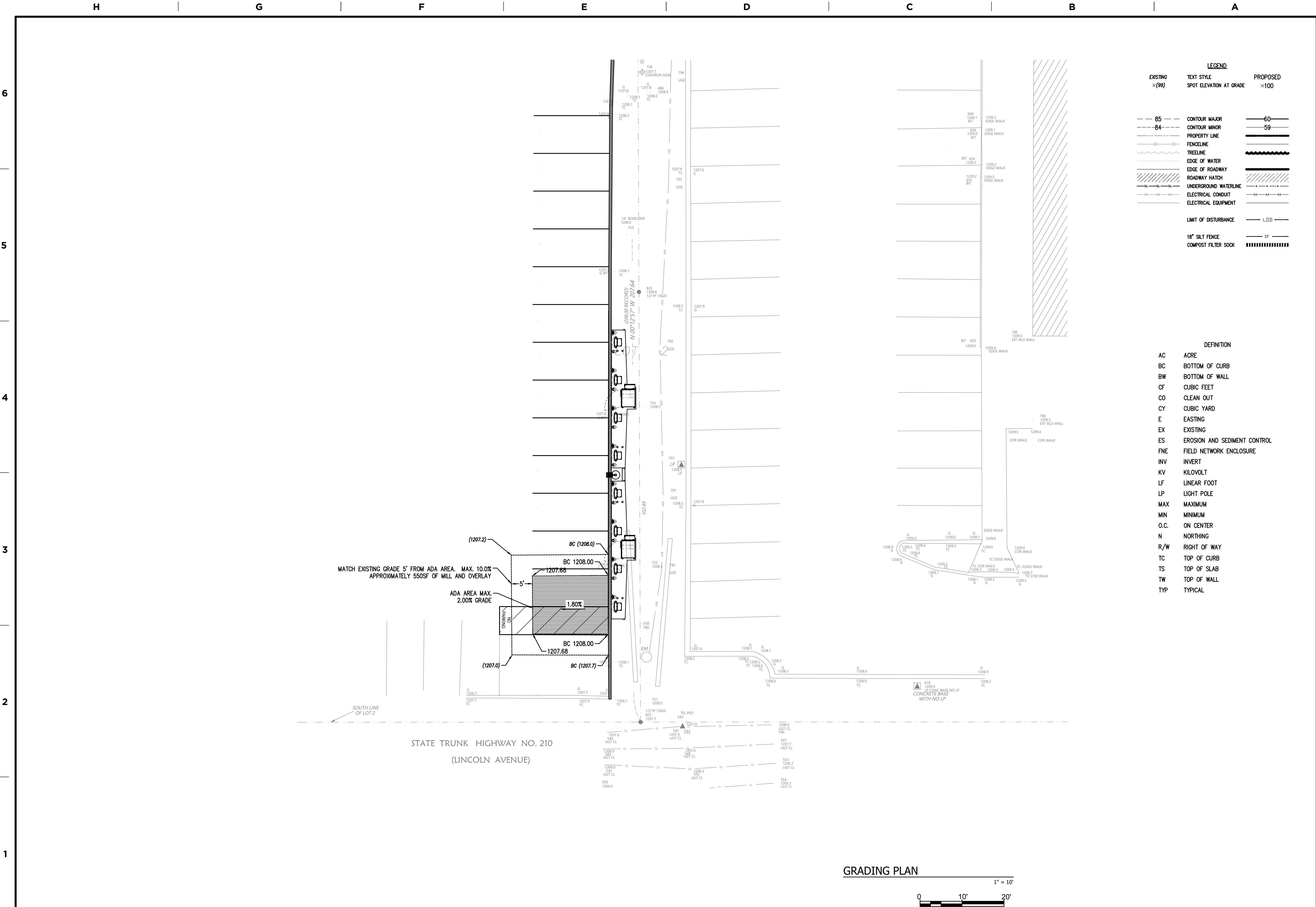


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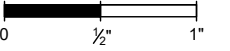
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3500 DEER CREEK RD.
PALO ALTO, CA 94304
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ORIGINAL SIZE 24"X36"
SHEET SIZE ARCH "D"



Professional Engineer
I hereby certify that this plan, specification, or report
was prepared by me or under my direct supervision
and that I am a duly Licensed Professional Engineer
under the laws of the state of Minnesota.

Signature:
Michael P. Henderson, P.E.
Date: 07/21/2023 License Number: 45509

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GRADING
PLAN

C-101

JB-565055-00

REV: C IFC