

TESLA

SUPERCHARGER STATION

30320 LAKESHORE BLVD
WILLOWICK, OH 44095
TRT27552

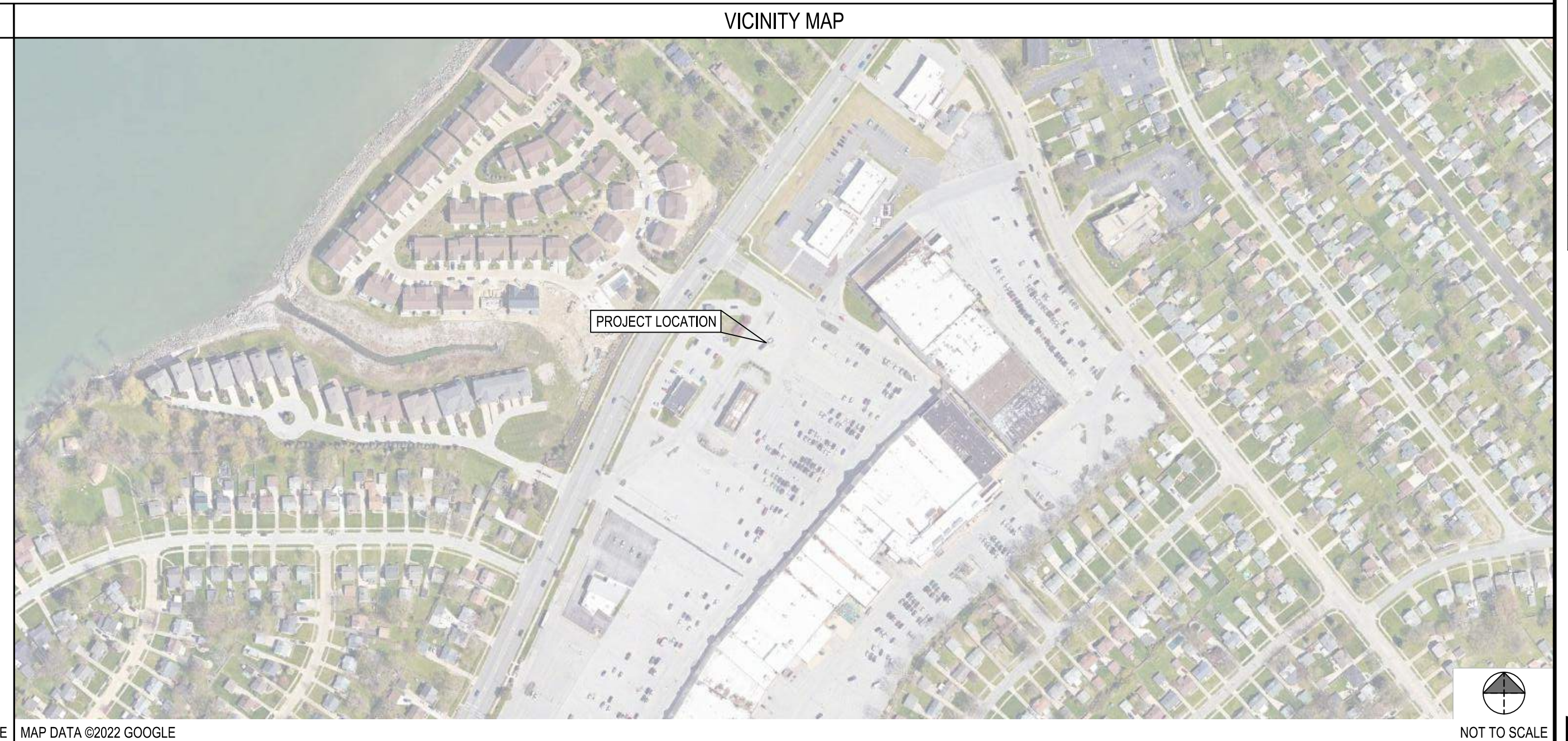
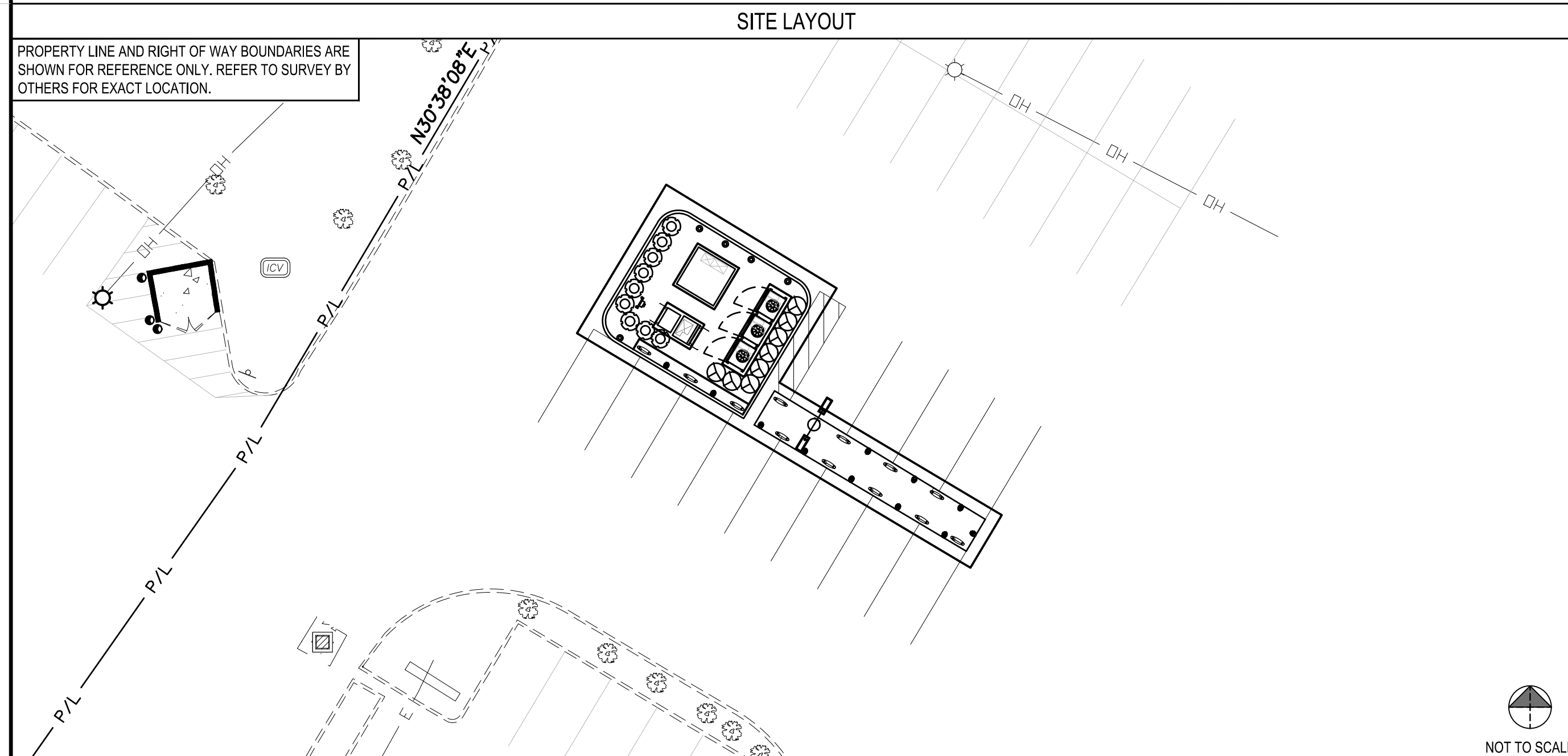


3600 DEER CREEK RD.
PALO ALTO, CA 94304
(650) 681-5000



520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2101
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REV.	DATE	DESCRIPTION
A	12/14/2022	ISSUED FOR SITE SKETCH REVIEW
B	12/21/2022	ISSUED FOR 80% REVIEW
C	02/21/2023	ISSUED FOR SIGN & SEAL
D	03/22/2023	ISSUED FOR SIGN & SEAL



SITE INFORMATION	
SITE ADDRESS 30320 LAKESHORE BLVD WILLOWICK, OH 44095	LATITUDE (NAV88) N 41°38'13.11" 41.636975°
APN 28-A-043-W-00-001-0	LONGITUDE (NAV88) W 81°29'32.01" -81.475557°
COUNTY LAKE	

PROJECT CONTACTS	
UTILITY COMPANY FIRST ENERGY CONTACT: ROBERT ELLIOT (440) 358-4995 RELLIOT@FIRSTENERGYCORP.COM	EOR CONTACTS: PROJECT MANAGER ISAAC MAHAM, PE - OH# 82452 (641) 588-8946 IMAHAM@GPDGROUP.COM
PROPERTY OWNER CONTACT: EMILY HALL EHALL@PHILLIPSEDISON.COM (613) 824-7107	PROJECT COORDINATOR HOWARD DYER (330) 572-3599 HDYER@GPDGROUP.COM
TESLA INSTALLATION MANAGER DONNY MATARIYEH (708) 581-9866 RMATARIYEH@TESLA.COM	PERMIT COORDINATOR SARAH HONEYCUTT (330) 572-3508 GPDCHARGEPERMITS@GPDGROUP.COM
TESLA CONSTRUCTION MANAGER BRIAN DAVIS (317) 721-1377 DAVISBRIAN@TESLA.COM	UTILITY COORDINATOR JACOB DAVIS (330) 572-3546 GPD.CHARGESITES.UC@GPDGROUP.COM
PERMITTING JURISDICTION CITY OF WILLOWICK CONTACT: SEAN BRENNAN CHIEF HOUSING AND ZONING INSPECTOR SBRENNAN@CITYOFWILLOWICK.COM (440) 513-3000	

APPLICABLE CODES
ALL WORK SHALL COMPLY WITH THE FOLLOWING APPLICABLE CODES: 2017 OHIO BUILDING CODE 2015 INTERNATIONAL BUILDING CODE 2017 NATIONAL ELECTRIC CODE IN THE EVENT OF CONFLICT, THE MOST RESTRICTIVE CODE SHALL PREVAIL. AS USED HEREIN, IBC SHALL REFER TO INTERNATIONAL BUILDING CODE AND NEC SHALL REFER TO NATIONAL ELECTRIC CODE OH DEPT OF TRANSPORTATION SPECIFICATIONS THE STANDARD SPECIFICATIONS OF THE STATE OF OH, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS SHALL GOVERN THIS IMPROVEMENT.
PROJECT DESCRIPTION
<ul style="list-style-type: none"> INSTALL (3) SUPERCHARGER CABINETS INSTALL (12) SUPERCHARGER POSTS INSTALL (1) SWITCHGEAR ASSEMBLY WITH INTEGRATED TESLA SITE CONTROLLER & PRIMARY BROADCAST UNIT INSTALL (1) UTILITY TRANSFORMER, (1) METER, AND OTHER ASSOCIATED UTILITY EQUIPMENT INSTALLATION OF POLE MOUNTED LUMINAIRE(S)
FLOOD HAZARD NOTE
THE SITE IS LOCATED IN FLOOD ZONE "X" (AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) PER FLOOD INSURANCE MAP NUMBER 39085C0088G, EFFECTIVE DATE - 05/04/2021.
PLAN REPRODUCTION WARNING
CONTRACTORS SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND FIELD CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY TESLA IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

DESIGN LOADING	
SNOW LOADS: GROUND SNOW LOAD (P _g)	CASE STUDY AREA
LATERAL LOAD DESIGN DATA: WIND DESIGN DATA (ASCE 7-10): BASIC WIND SPEED (V _{10,17}) BASIC WIND SPEED (V _{10,30}) IMPORTANCE FACTOR EXPOSURE CATEGORY SEISMIC DESIGN DATA (ASCE 7-10): 1.0 SEISMIC IMPORTANCE FACTOR (I) RISK CATEGORY SITE CLASS (ASSUMED) MAPPED SPECTRAL RESPONSE SHORT PERIODS (S _s) 1 SEC. PERIODS (S ₁) SPECTRAL RESPONSE COEFF. SHORT PERIODS (S _{ps}) 1 SEC. PERIODS (S _{p1}) SEISMIC DESIGN CATEGORY FROST DEPTH	115 MPH 89 MPH 1.0 C 1.0 II D 0.197 0.059 0.21 0.095 B 50"

SHEET INDEX	
CIVIL	SHEET TITLE
C-001	COVER SHEET
C-002	ENGINEERING DESIGN SURVEY (BY OTHERS)
C-003	TESLA DATASHEET (FOR REFERENCE ONLY)
C-101	CIVIL CONSTRUCTION NOTES
C-101	EXISTING CONDITIONS AND DEMOLITION PLAN
C-111	CIVIL SITE PLAN
C-121	GRADING PLAN
C-201	CIVIL DETAILS
C-202	CIVIL DETAILS
ELECTRICAL	SHEET TITLE
E-001	ELECTRICAL GENERAL NOTES
E-100	OVERALL ELECTRICAL PLAN
E-101	ELECTRICAL EQUIPMENT PLAN
E-201	SINGLE LINE DIAGRAM & PANEL SCHEDULE
E-301	ELECTRICAL DETAILS
E-401	UTILITY DETAILS (FOR REFERENCE ONLY)
E-501	DURALINE SPECIFICATIONS
REFERENCED DOCUMENTS	
<ul style="list-style-type: none"> SUPERCHARGER INSTALLATION MANUAL SUPERCHARGER POST INSTALLATION MANUAL UTILITY DESIGN DOCUMENTS ELECTRICAL EQUIPMENT CUTSHEETS 	

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WILLOWICK, OH 44095

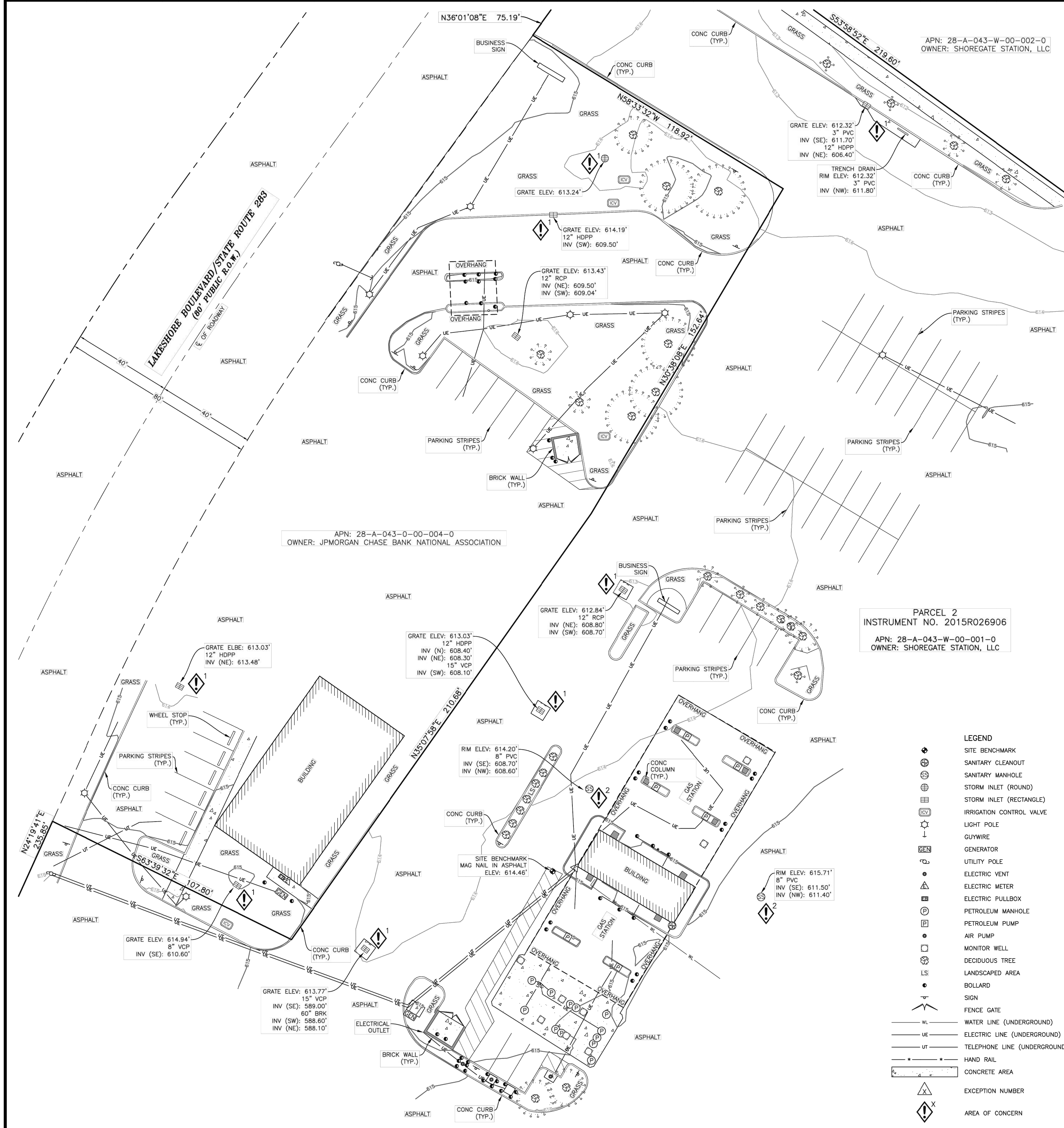
COVER SHEET

PROJECT MANAGER	DESIGNER
IM	CJM

JOB NO.
2022241.29

C-001

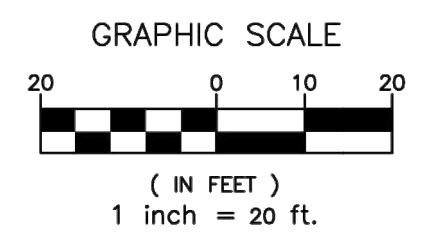
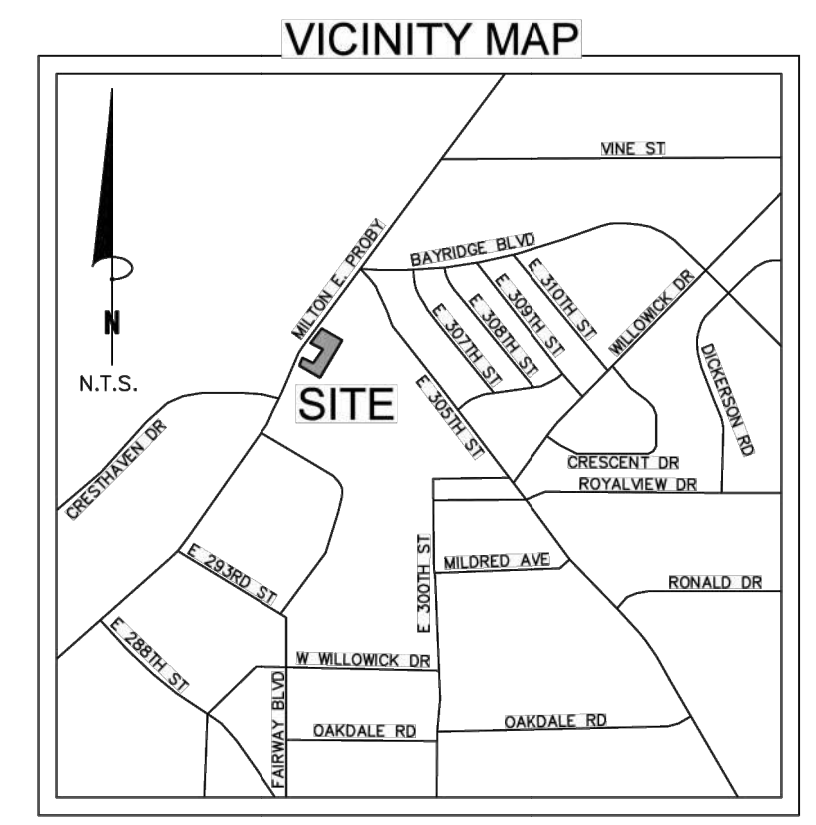




APN: 28-A-043-W-00-002-0
OWNER: SHOREGATE STATION, LLC

APN: 28-A-043-0-00-004-0
OWNER: JPMORGAN CHASE BANK NATIONAL ASSOCIATION

PARCEL 2
INSTRUMENT NO. 2015R026906
APN: 28-A-043-W-00-001-0
OWNER: SHOREGATE STATION, LLC



LEGAL DESCRIPTION:

PARCEL 2 AS DESCRIBED IN THAT LIMITED WARRANTY DEED RECORDED OCTOBER 07, 2015, IN INSTRUMENT NO. 2015R026906, IN THE OFFICIAL PUBLIC RECORDS OF THE COUNTY RECORDER, LAKE COUNTY, OHIO.

SCHEDULE B2 EXCEPTIONS:

- Item No.
1. Subject to Deed of Declaration, recorded in Instrument number 2007R017876 in the official records of the Lake County Recording Office.
-IS LOCATED ON THE SURVEY AREA, BLANKET IN NATURE.
 2. Subject to First Amendment to Deed of Declaration, recorded in Instrument number 2008R017684 in the official records of the Lake County Recording Office.
-IS LOCATED ON THE SURVEY AREA, BLANKET IN NATURE.
 3. Subject to First Amendment to Deed of Declaration, recorded in Instrument number 2020R031451 in the official records of the Lake County Recording Office.
-IS LOCATED ON THE SURVEY AREA, BLANKET IN NATURE.
 4. Subject to Gas Pipeline Easement Grant, recorded in Instrument number 2005R028048 in the official records of the Lake County Recording Office.
-IS NOT LOCATED ON THE SURVEY AREA.
 5. Subject to Easement, recorded in Instrument number 2021R019975 in the official records of the Lake County Recording Office.
-IS NOT LOCATED ON THE SURVEY AREA.
- Items not listed above are determined non-survey related items and are not plotted hereon.

NOTES:

1. This is a topographic map. This is not a boundary survey and is only intended to depict those topographic features or improvements shown. The property lines shown are record lines only and are shown for graphical reference only.
2. Any underground utilities shown have been located from field survey information. The surveyor makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated although he does certify that they are located as accurately as possible from the information available. This site was located by standard RF methods.
3. FEDERAL EMERGENCY MANAGEMENT AGENCY, FEMA FIRMette published May 19, 2022, referencing Flood Insurance Rate Map, Map Number 39085C0088G effective date May 04, 2021, indicates this parcel of land is located in Zone X (Area of minimal flood hazard).
4. This survey does not constitute a title search to determine ownership or easements of record. For all information regarding easements, rights of way and title of record, this survey relied upon a Search Report, prepared by Nationwide Abstract, LLC with a File number of 2022-0114428-OH, dated April 26, 2022.
5. Elevations are based on NAVD 88 datum.
6. BENCHMARK: MAG nail in asphalt, as shown. Elevation: 614.46' (NAVD 88).
7. BASIS OF BEARINGS: Based upon Ohio State Plane Coordinate System, North Zone, NAD 83.
8. Field work for this survey was completed on March 3, 2022.
9. The owner names and tax parcel data shown hereon are based upon the public records available at the original date of this survey. Current ownership and tax parcel data should be verified for accuracy.
10. This site is zoned "Retail District" (Retail District) per City of Willowick Building Department.
Building Setbacks:
Refer to Specific Plan for setback regulations.
No zoning information provided by the client. Any Zoning setbacks shown hereon are the interpretation of the surveyor. For clarification of exact zoning designations and setback locations, please, contact the City of Willowick Planning and Zoning Department at 440-516-3000.

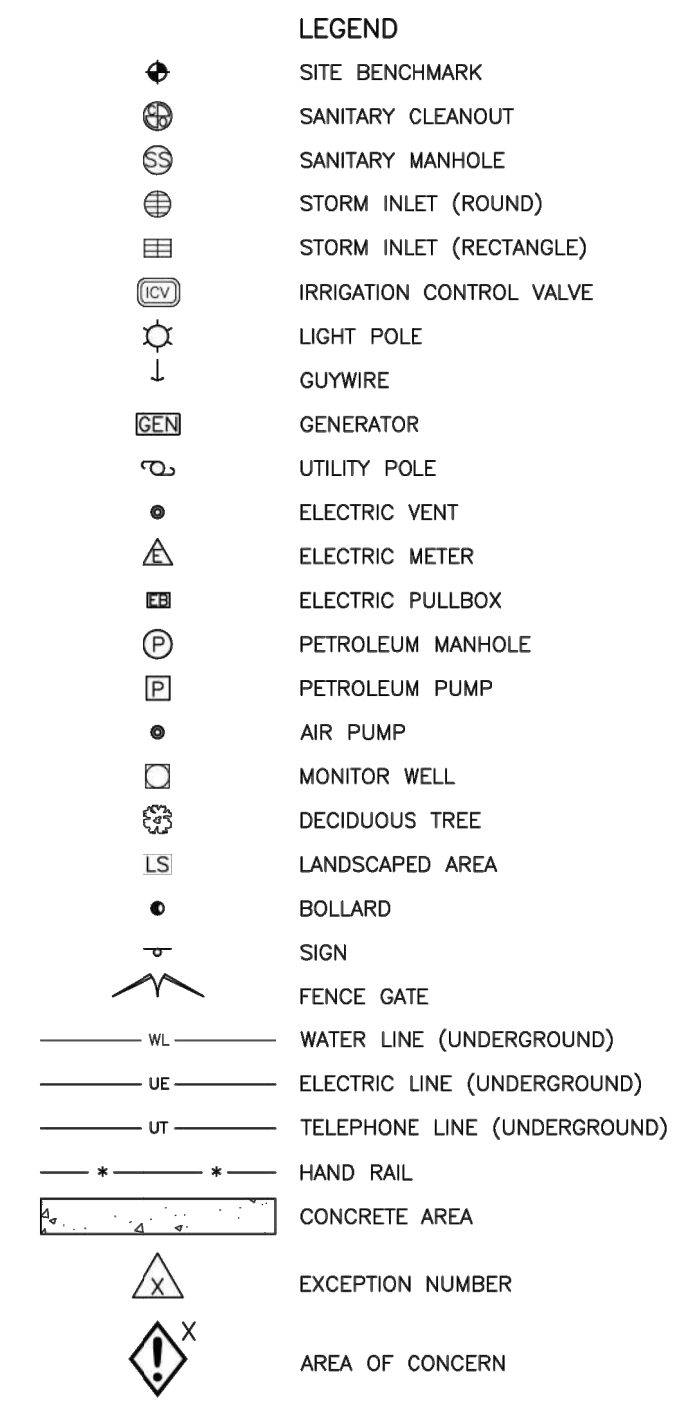
AREAS OF CONCERN:

1. Size, type, invert, location and/or direction of underground storm line indeterminate.
2. Size, type, invert, location and/or direction of underground sanitary line indeterminate.

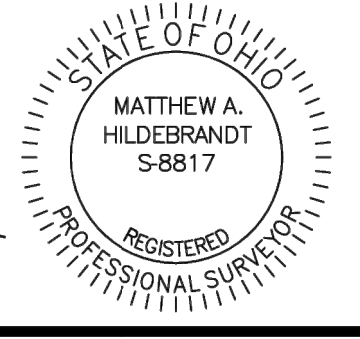
Surveyor can revise underground utilities shown hereon, if provided with as-built drawings, or utility maps.

SURVEYOR'S STATEMENT:

On the basis of my knowledge, information and belief, I hereby state and declare that this drawing was prepared under my direct supervision to the standard of care of surveyors practicing in the State of Ohio and that the information shown hereon is true and correct to the best of my knowledge and belief.
This statement is neither a warranty nor a guarantee, either expressed or implied.



Matthew A. Hildebrandt
Matthew A. Hildebrandt
Ohio Registered Professional Surveyor No. 8817



No.	Description	By	Date

SITE NAME:
Euclid - PECO

ENGINEERING DESIGN SURVEY
A PORTION OF PARCEL 2 AS DESCRIBED IN INSTRUMENT NO. 2015R026906, CITY OF WILLOWICK, LAKE COUNTY, OHIO.
Project No. 221078
Drawn By: DMR
Checked By: RAS
Date: 05/24/2022
Sheet 1 of 1

McSteen
LAND SURVEYORS
1415 East 28th Street Wickliffe, OH 44092
Phone: 440.363.9800 www.mcsteen.com

Drawing Name: O:\2022\2022241\29 - TRT 27552 - Willowick, OH - 30320 Lakeshore Blvd\dwg\2022241.29 - Willowick, OH - CD100.dwg
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V3 SUPERCHARGER DATASHEET



V3 SUPERCHARGER DATASHEET

V3 Supercharger Cabinet

AC INPUT (Electrical)	Input (V _{AC})	480	440	415	400	380	
	Peak AC Input Power	Power (kVA)	387	354	334	322	306
	AC Input Voltage	380 V _{AC} – 480 V _{AC} (-5%, +10%), 4-wire 3AC+N					
	AC Input current	465 A _{AC} Max.					
	Frequency	50 Hz / 60 Hz					
	Power Factor	≥ 0.99					
	Current THD	< 3%					
AC INPUT (Mechanical)	Conductor Sizes	L1, L2, L3, N: 150 – 400 mm ² , 250 MCM – 750 MCM PE: 10 – 70 mm ² , #8 AWG - 2/0					
	Conductor Material Type	L1, L2, L3, N: Cu, Al PE: Cu					
	Mfr. Termination Temp Rating	90° C					
	Input (V _{AC})	480	440	415	400	380	
SHARED DC BUS (ELECTRICAL)	Max Rated DC Bus Power	Power (kW)	575	575	575	575	
	Max Rated DC Bus Current	Current (A _{DC})	640	640	640	640	
SHARED DC BUS (MECHANICAL)	DC Bus Voltage Range	880 - 1000 V _{DC}					
	Conductor Sizes	V+, V- (2x/pole): 150 – 300 mm ² , 250 MCM – 600 MCM Mid: 16 – 150 mm ² , 6 AWG – 250 MCM PE: 10 – 70 mm ² , #8 AWG - 2/0					
	Conductor Material Type	V+, V-, Mid: Cu, Al PE: Cu					
	Conductor Voltage Rating	1000 V					
	Mfr. Termination Temp Rating	90° C					
DC POST (ELECTRICAL)	Max. Rated Post Power	250 kW					
	Post Rated Voltage Range	0-500 V _{DC}					
	Post Rated Current @T _a =35° C	Tesla Handle: 350 A _{DC} , CCS2 & GB Handle: 450 A _{DC}					
	Number of Charge Posts	1 - 4					
DC POST (MECHANICAL)	Conductor Size	V+, V- (2x/pole): 350 MCM or 185 mm ² AL (certified equipment wiring) PE: 10 – 70 mm ² , #8 AWG - 2/0					
	Conductor Material Type	V+, V-, Al, Cu PE: Cu					
	Conductor Voltage Rating	1000 V					
	Mfr. Termination Temp Rating	90° C					
SYSTEM	Efficiency	96%					
PROTECTION	AC Input side: Class 1	DC Output side: Isolated DC Output					
	Over Voltage/Current/Temperature, Surge Protection, Isolation Monitoring						
	Short-Circuit Protection	External Electronic Trip Circuit Breaker					
ENVIRONMENTAL	Short Circuit Current Rating	85 kA RMS symmetrical					
	Operating Temperature	-30°C to 50°C, -22°F to 122°F					
	Ingress Protection	IP66 (Cabinet), IP2X (Cooling)					
NOISE	Ventilation Requirements	Ventilation Not Required					
STANDARDS	Typical noise at 1m	35 dB(A)					
	UL 2202, CSA C22.2#107.1, FCC, ICES-003-B, IEC 61851-1, EN 61000-6-2 EN 55011, GB/T 18487.1, GB/T 27930, NB/T 33008.1, NB/T 33001						
LAYOUT	Max. Distance to Charge Post	100 m, 340 ft.					
WEIGHT	Supercharger Cabinet Weight	4 Post Cabinet: 1110 kg (2448 lbs) 3 Post Cabinet: 1039kg (2291 lbs)					
	Depth, Width, Height	1000, 1250, 2200 mm; 39 12/32, 49 7/8, 86 20/32 in.					
MOUNTING	Per-anchor min. Shear Strength	4 kN					
	Per-anchor min. Tension Strength	11 kN					

CONFIDENTIAL INFORMATION – SHARED NDA ONLY

V3 Supercharger Charge Post

POST INPUT/OUTPUT (ELECTRICAL)	Max. Rated Post Power	250 kW
	Post Rated Voltage Range	0 - 500 V _{DC}
DC INPUT (MECHANICAL)	Post Rated Current @T _a =35° C	Tesla Handle: 350 A _{DC} , CCS2 & GB Handle: 450 A _{DC}
	Power Conductors	V+, V- (2x/pole): 350 MCM or 185 mm ² AL (certified equipment wiring)
	PE Conductor	PE: 25 – 50 mm ² , 3 AWG – 2/0
	Conductor Material Type	V+, V- : Al, Cu PE: Al, Cu
	Conductor Voltage Rating	1000 V
Mfr. Termination Temp Rating	90° C	
PROTECTION	Over Current/Temperature, Uneven Current Split	
ENVIRONMENTAL	Operating Temperature	-40°C to 50°C, -40°F to 122°F
	Ingress Protection	IP44
STANDARDS	UL 2202, CSA 22.2#107.1-16, FCC, ICES-003, EN 61000-6-2, EN 61000-6-4, IEC 61851-1, IEC 61851-23, GB/T 18487.1, GB/T 27930, GB/T 20234.1, GB/T 20234.3, GB/T 34658	
LAYOUT	Max. Distance to Cabinet	100 m, 340 ft.
WEIGHT	Charge Post Weight	64 kg, 140 lbs.
DIMENSIONS	Depth, Width, Height	250, 810, 1687 mm; 9 27/32, 31 7/8, 66 13/32 in.
	Per-anchor min. Shear Strength	1 kN
MOUNTING	Per-anchor min. Tension Strength	11 kN

CONFIDENTIAL INFORMATION – SHARED NDA ONLY

Page 5 of 6

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A	12/14/2022	ISSUED FOR SITE SKETCH REVIEW
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FOR REFERENCE ONLY

TESLA SUPERCHARGER STATION
 30320 LAKESHORE BLVD
 WILLOWICK, OH 44095

TESLA DATASHEET

PROJECT MANAGER	DESIGNER
IM	CJM

JOB NO.
2022241.29

C-002



3600 DEER CREEK RD.
 PALO ALTO, CA 94304
 (650) 681-5000

Drawing Name: O:\2022\2022241\29 - TRT 27552 - Willowick, OH - 30320 Lakeshore Blvd\dwg\2022241.29 - Willowick, OH - CD100.dwg
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GENERAL SHEET NOTES

- EXISTING PROPERTY LINES, RIGHT-OF-WAY BOUNDARIES, EASEMENT BOUNDARIES, SETBACKS, AND UTILITIES ARE SHOWN FOR REFERENCE ONLY.
- WHEN REQUIRED, CONTRACTOR SHALL REMOVE EXISTING PAVEMENT AND/OR CURB USING CLEAN SAWCUTS TO INSTALL PROPOSED UNDERGROUND CONDUITS AND REPLACE PAVEMENT AND/OR CURB AFTER CONDUITS HAVE BEEN INSTALLED. SEE ELECTRICAL SHEETS FOR CONDUIT ROUTING, APPROXIMATE CONDUIT RUN LENGTHS AND TRENCH DETAIL. CONTRACTOR SHALL MEET OR EXCEED EXISTING PAVEMENT SPECIFICATIONS. NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO PERFORMING WORK.

PLAN KEYNOTES

- EXISTING PAVEMENT MARKINGS TO BE REMOVED. CONTRACTOR SHALL REMOVE MARKINGS WITH SMALL HANDHELD GRINDERS, SCARIFIERS, BEAD BLASTING, SAND BLASTING, WATER BLASTING OR OTHER METHODS, WITH THE APPROVAL OF THE ENGINEER OF RECORD. TAKE CARE DURING MARKING REMOVAL TO NOT SCAR, DISCOLOR, OR OTHERWISE DAMAGE THE PAVEMENT SURFACE. DO NOT OVER PAINT OR USE OTHER METHODS OF COVERING MARKINGS IN LIEU OF REMOVAL. WATER BLASTING METHOD SHALL NOT BE USED DURING FREEZING WEATHER CONDITIONS.

LEGEND

(SEE SURVEY BY OTHERS FOR EXISTING LEGEND)

- EXISTING ASPHALT TO BE REMOVED
TRENCHING NOT INCLUDED
- # L.F.#
DENOTES LIMITS OF SAWCUT
IN LINEAR FOOT (L.F.)

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**EXISTING CONDITIONS
 AND DEMOLITION PLAN**

PROJECT MANAGER	DESIGNER
IM	CJM

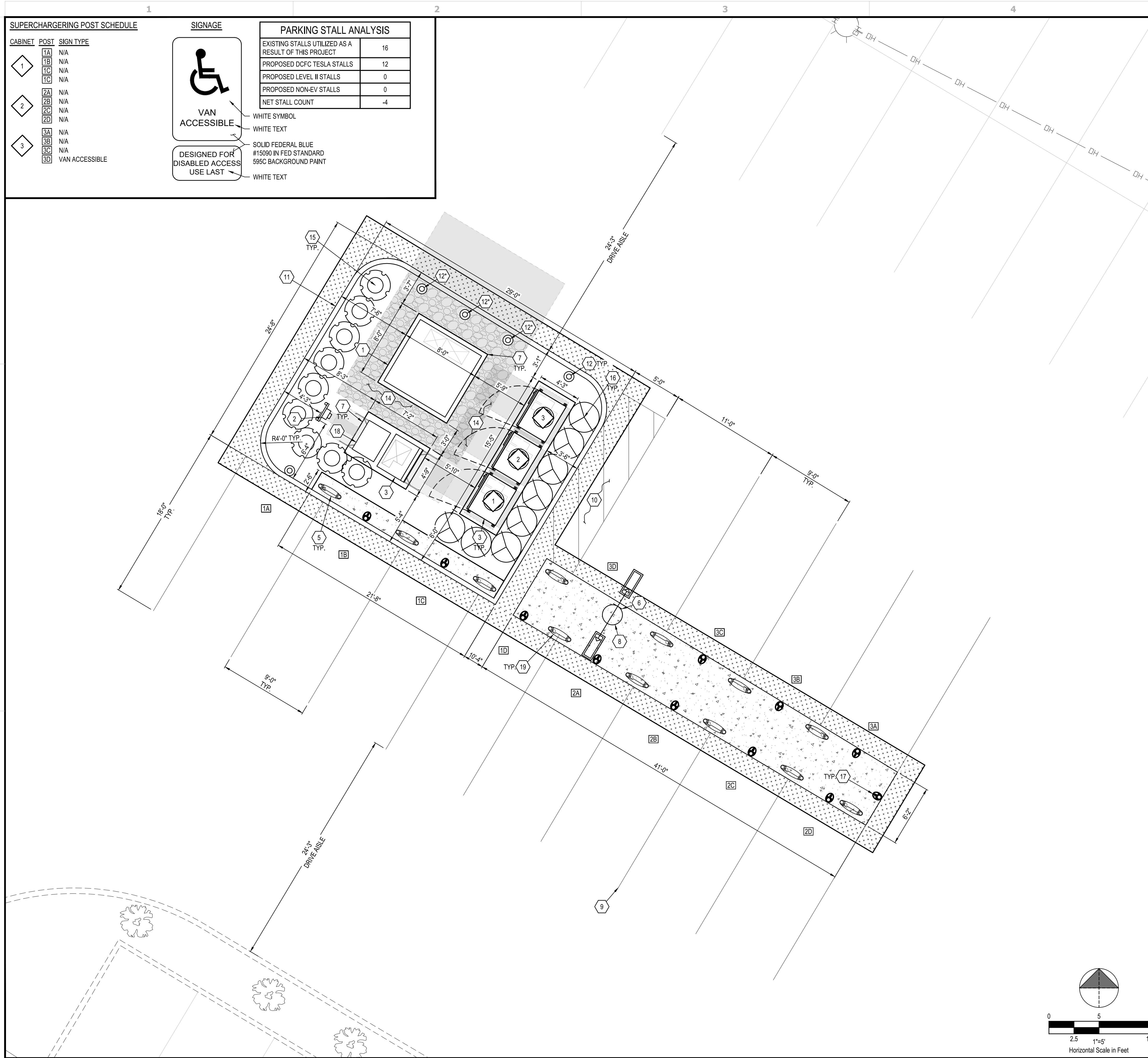
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C-101

GPD GROUP
 Klaus, Pyle, Schomer, Burns & DeHaven, Inc.
 520 South Main Street, Suite 2531
 Akron, OH 44311
 330.572.2100 Fax 330.572.2101
 3600 DEER CREEK RD.
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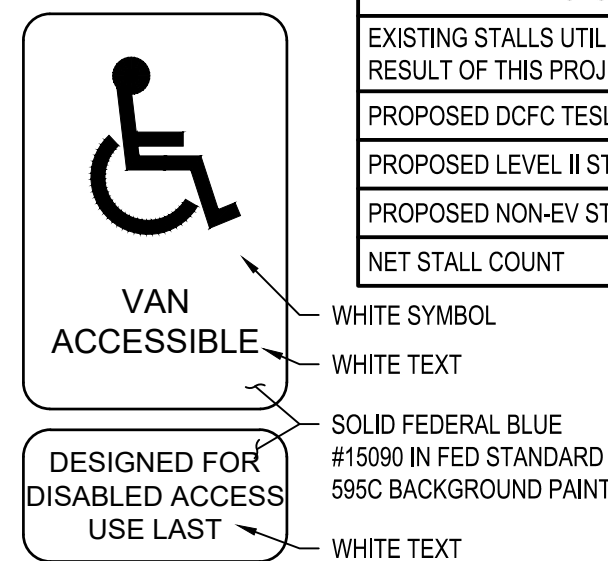
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SUPERCHARGING POST SCHEDULE

CABINET	POST	SIGN TYPE
1	1A	N/A
	1B	N/A
	1C	N/A
2	2A	N/A
	2B	N/A
	2C	N/A
	2D	N/A
3	3A	N/A
	3B	N/A
	3C	N/A
	3D	VAN ACCESSIBLE

SIGNAGE



PARKING STALL ANALYSIS

EXISTING STALLS UTILIZED AS A RESULT OF THIS PROJECT	COUNT
EXISTING STALLS UTILIZED AS A RESULT OF THIS PROJECT	16
PROPOSED DCFC TESLA STALLS	12
PROPOSED LEVEL II STALLS	0
PROPOSED NON-EV STALLS	0
NET STALL COUNT	-4

WHITE SYMBOL
 WHITE TEXT
 SOLID FEDERAL BLUE
 #15090 IN FED STANDARD
 595C BACKGROUND PAINT
 WHITE TEXT

GENERAL SHEET NOTES

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- APPLY LIQUID ASPHALT AT ALL JOINTS BETWEEN CONCRETE AND ASPHALT AND WHERE PROPOSED ASPHALT MEETS EXISTING, INCLUDING SAW CUT JOINTS.
- CONTRACTOR SHALL FIELD VERIFY ALL EXISTING SLOPES AND GRADES PRIOR TO CONSTRUCTION. FINAL GRADES SHALL BE DETERMINED IN FIELD BY THE CONTRACTOR AND APPROVED BY THE CONSTRUCTION MANAGER.
- THE CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE TOWARDS THE NEAREST EXISTING DRAINAGE STRUCTURE AND ENSURE NO PONDING OCCURS ON SITE.
- CONTRACTOR SHALL ENSURE SLOPES OF PARKING STALL 3D AND ADJACENT TRANSVERSE STRIPED AREA(S) ARE COMPLIANT WITH NATIONAL ADA STANDARDS. NO SLOPE SHALL EXCEED 2% IN ANY DIRECTION WITHIN PARKING STALL 3D AND ADJACENT TRANSVERSE STRIPED AREA(S). CONTRACTOR SHALL REMOVE AND REGRADE AREA(S) AS REQUIRED TO ACHIEVE NECESSARY SLOPES. CONTRACTOR SHALL INSTALL FINAL PAVEMENT MARKINGS IN ACCORDANCE WITH THE CURRENT AHJ'S REGULATIONS.

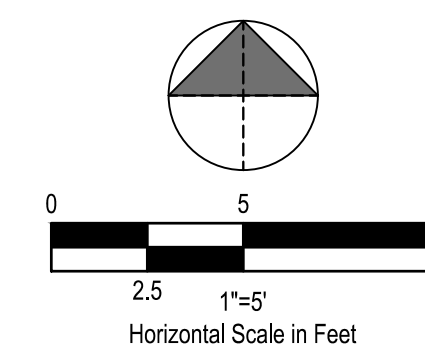
PLAN KEYNOTES

- PROPOSED PAD MOUNTED ELECTRICAL UTILITY TRANSFORMER (BY UTILITY). CONTRACTOR SHALL PROVIDE CONCRETE PAD PER UTILITY SPECIFICATIONS. COORDINATE FINAL LOCATION WITH UTILITY. SEE ELECTRICAL PLANS FOR PROPOSED ROUTING.
- PROPOSED ELECTRIC METER ON H-FRAME PER ELECTRIC COMPANY SPECIFICATIONS AND DETAILS ON ELECTRICAL SHEETS.
- PROPOSED SWITCHGEAR ASSEMBLY WITH INTEGRATED TESLA SITE CONTROLLER & PRIMARY BROADCAST UNIT PER ELECTRICAL DRAWINGS. SEE CIVIL DETAILS FOR ANCHORAGE.
- PROPOSED TESLA CHARGING CABINET (TYPICAL OF 3). SEE CIVIL DETAILS.
- PROPOSED TESLA CHARGE POST MOUNTED ON 24" CONTINUOUS CURB (TYPICAL OF 3). SEE CIVIL DETAILS.
- PROPOSED TESLA NON-ILLUMINATED PARKING SIGN (TYPICAL OF 1). SEE CIVIL DETAILS. MOUNT SIGN POST ON LIGHT POLE AS NOTED.
- PROPOSED CONCRETE PAD. SEE DETAIL ON SHEET C-3.
- PROPOSED LIGHT POLE (TOTAL OF 1). SEE CIVIL DETAILS. SEE ELECTRICAL DRAWINGS FOR POLE AND FIXTURE SPECIFICATIONS AND WIRING.
- PROPOSED PAINTED 4" WIDE SOLID YELLOW STRIPE. SEE PAVEMENT MARKING NOTES ON SHEET C-003.
- PROPOSED PAINTED 4" WIDE YELLOW TRANSVERSE STRIPING. STRIPING SHALL BE 3'-0" O.C. SEE PAVEMENT MARKING NOTES ON SHEET C-003 AND CIVIL DETAILS.
- PROPOSED 6" CONCRETE CURB. SEE CIVIL DETAILS.
- PROPOSED DETERRENT BOLLARD (TYPICAL OF 2). SEE CIVIL DETAILS. *REMOVABLE DETERRENT BOLLARD (TYPICAL OF 3). SEE CIVIL DETAILS.
- ALL DISTURBED AREAS SHALL BE RETURNED TO MATCH EXISTING CONDITIONS UNLESS OTHERWISE NOTED.
- ALL DISTURBED AREAS NOT TO BE PAVED SHALL BE MULCHED PER LANDSCAPE NOTES ON SHEET C-003.
- PROPOSED LANDSCAPE: SHRUB. (9) TOTAL QUANTITY THUJA OCCIDENTALIS 'EMERALD', EMERALD ARBORVITAE. TO BE PLANTED AT 5' HT. MINIMUM, B&B, LOCATED PER PLAN. SEE SHEET C-003 FOR LANDSCAPE NOTES AND SHEET C-202 FOR PLANTING DETAIL.
- PROPOSED LANDSCAPE: SHRUB. (8) TOTAL QUANTITY ITEA VIRGINICA 'MERLOT', MERLOT VIRGINIA SWEETSPICE. TO BE PLANTED AT 36" HT. MINIMUM, LOCATED PER PLAN. SEE SHEET C-003 FOR LANDSCAPE NOTES AND SHEET C-202 FOR PLANTING DETAIL.
- PROPOSED BOLT-ON BOLLARD (TYP. OF 11) SEE CIVIL DETAILS.
- PROPOSED CT CABINET MOUNTED ON CONCRETE PAD PER ELECTRIC COMPANY SPECIFICATIONS.
- PROPOSED TESLA CHARGE POST MOUNTED ON 74" CONTINUOUS CURB (TYP. OF 9). SEE CIVIL DETAILS.

LEGEND

(SEE SURVEY BY OTHERS FOR EXISTING LEGEND)

- PROPOSED EQUIPMENT CLEAR SPACE
- PROPOSED ASPHALT PAVEMENT TO MATCH EXISTING IN TYPE AND DEPTH. INCLUDE ENGINEERED COMPACTED BACKFILL BELOW PAVEMENT SECTION. TRENCHING NOT INCLUDED
- PROPOSED CONTINUOUS CURB
- #67 (3/4") CRUSHED LIMESTONE BACKFILL OVER GRADING (36" ALL AROUND FOUNDATION)



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REV.	DATE	DESCRIPTION
A	12/14/2022	ISSUED FOR SITE SKETCH REVIEW
B	12/21/2022	ISSUED FOR 80% REVIEW
C	02/21/2023	ISSUED FOR SIGN & SEAL
0	03/22/2023	ISSUED FOR SIGN & SEAL

STATE OF OHIO
 LEONARDO A. SFERRA
 E-71842
 REGISTERED PROFESSIONAL ENGINEER
 03/22/23

TESLA SUPERCHARGER STATION
 30320 LAKESHORE BLVD
 WILLOWICK, OH 44095

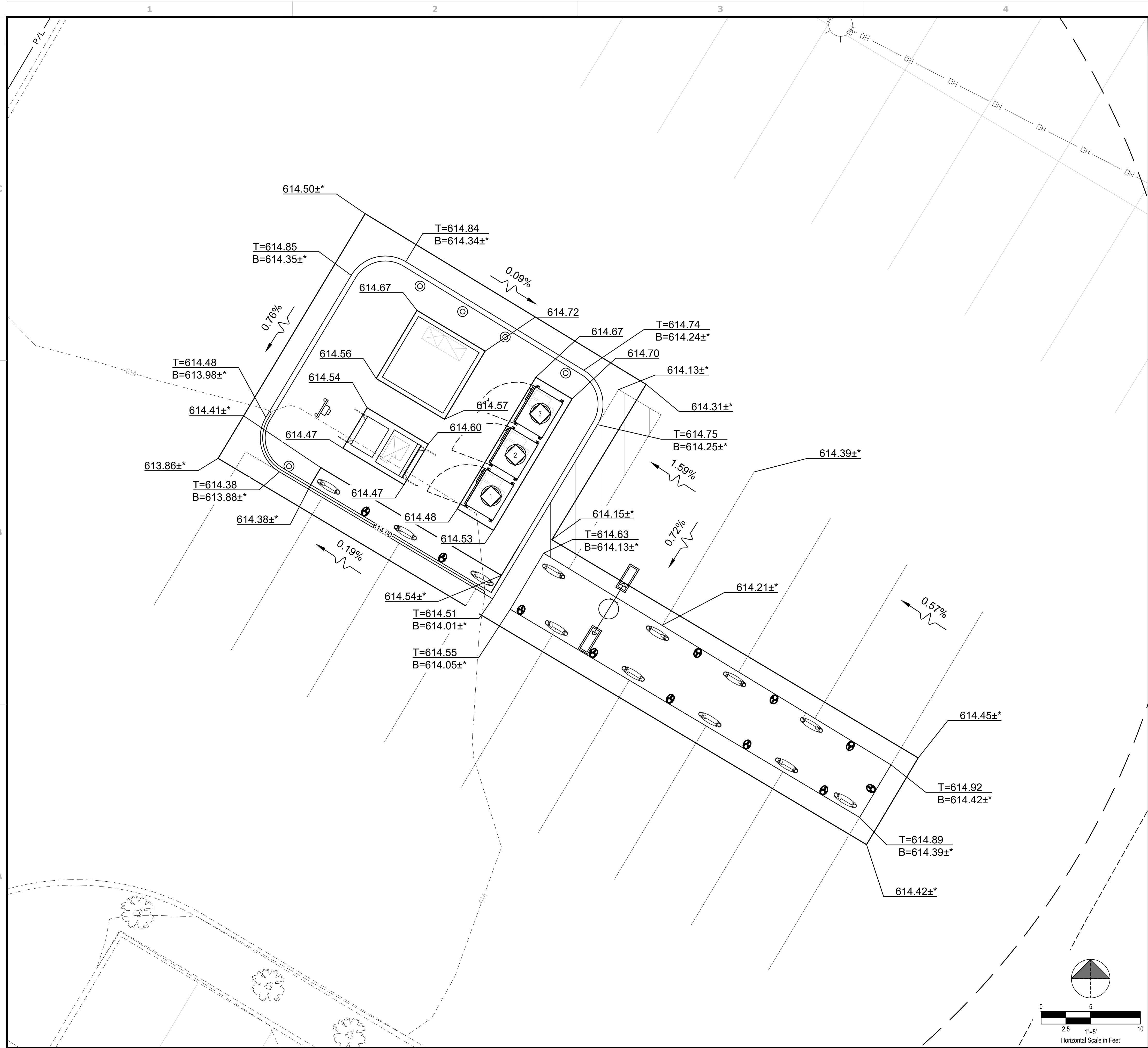
CIVIL SITE PLAN

PROJECT MANAGER	DESIGNER
IM	CJM

JOB NO.
2022241.29

C-111

Drawing Name: O:\2022\2022241\29 - TRT 27552 - Willowick, OH - 30320 Lakeshore Blvd\dwg\2022241.29 - Willowick, OH - CD100.dwg
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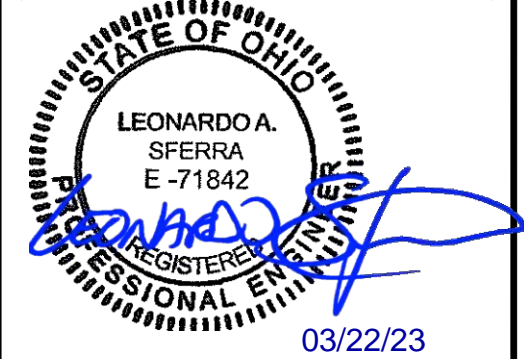
GENERAL SHEET NOTES

- EXISTING PROPERTY LINES, RIGHT-OF-WAY BOUNDARIES, EASEMENT BOUNDARIES, SETBACKS, AND UTILITIES ARE SHOWN FOR REFERENCE ONLY.
- CONTRACTOR SHALL REMOVE EXISTING PAVEMENT AND/OR CURB USING CLEAN SAWCUTS TO INSTALL PROPOSED UNDERGROUND CONDUITS AND REPLACE PAVEMENT AND/OR CURB AFTER CONDUITS HAVE BEEN INSTALLED. SEE ELECTRICAL SHEETS FOR CONDUIT ROUTING, APPROXIMATE CONDUIT RUN LENGTHS AND TRENCH DETAIL. CONTRACTOR SHALL MEET OR EXCEED EXISTING PAVEMENT SPECIFICATIONS. NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO PERFORMING WORK.
- APPLY LIQUID ASPHALT AT ALL JOINTS BETWEEN CONCRETE AND ASPHALT AND WHERE PROPOSED ASPHALT MEETS EXISTING, INCLUDING SAW CUT JOINTS.
- CONTRACTOR SHALL FIELD VERIFY ALL EXISTING SLOPES AND GRADES PRIOR TO CONSTRUCTION. FINAL GRADES SHALL BE DETERMINED IN FIELD BY THE CONTRACTOR AND APPROVED BY THE CONSTRUCTION MANAGER.
- THE CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE TOWARDS THE NEAREST EXISTING DRAINAGE STRUCTURE AND ENSURE NO PONDING OCCURS ON SITE.
- CONTRACTOR SHALL ENSURE SLOPES OF PARKING STALL 1D AND ADJACENT TRANSVERSE STRIPED AREA(S) ARE COMPLIANT WITH NATIONAL ADA STANDARDS. NO SLOPE SHALL EXCEED 2% IN ANY DIRECTION WITHIN PARKING STALL 1D AND ADJACENT TRANSVERSE STRIPED AREA(S). CONTRACTOR SHALL REMOVE AND REGRADE AREA(S) AS REQUIRED TO ACHIEVE NECESSARY SLOPES. CONTRACTOR SHALL INSTALL FINAL PAVEMENT MARKINGS IN ACCORDANCE WITH THE CURRENT AHJ'S REGULATION.

GRADING LEGEND

- T=000.00 PROPOSED TOP OF CURB
- B=000.00 PROPOSED BOTTOM OF CURB (FINISH GRADE ELEVATION)
- 000.00±* MATCH EXISTING ELEVATION
- 1.0% EXISTING DRAINAGE SLOPE & ARROW

REV.	DATE	DESCRIPTION
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B	12/21/2022	ISSUED FOR 80% REVIEW
C	02/21/2023	ISSUED FOR SIGN & SEAL
0	03/22/2023	ISSUED FOR SIGN & SEAL



TESLA SUPERCHARGER STATION
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GRADING SITE PLAN

PROJECT MANAGER	DESIGNER
IM	CJM

JOB NO.
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C-121

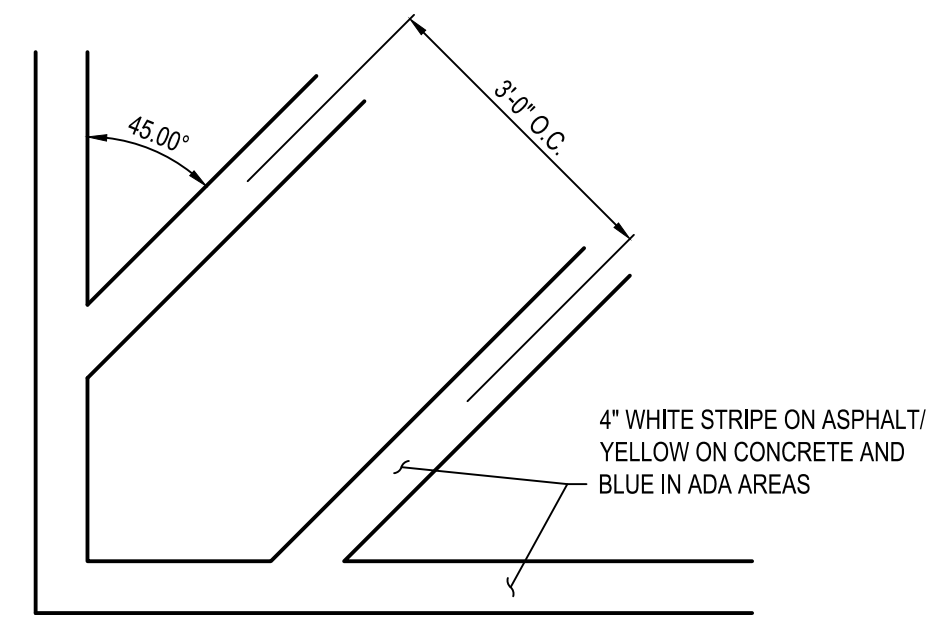
TESLA

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 (650) 681-5000

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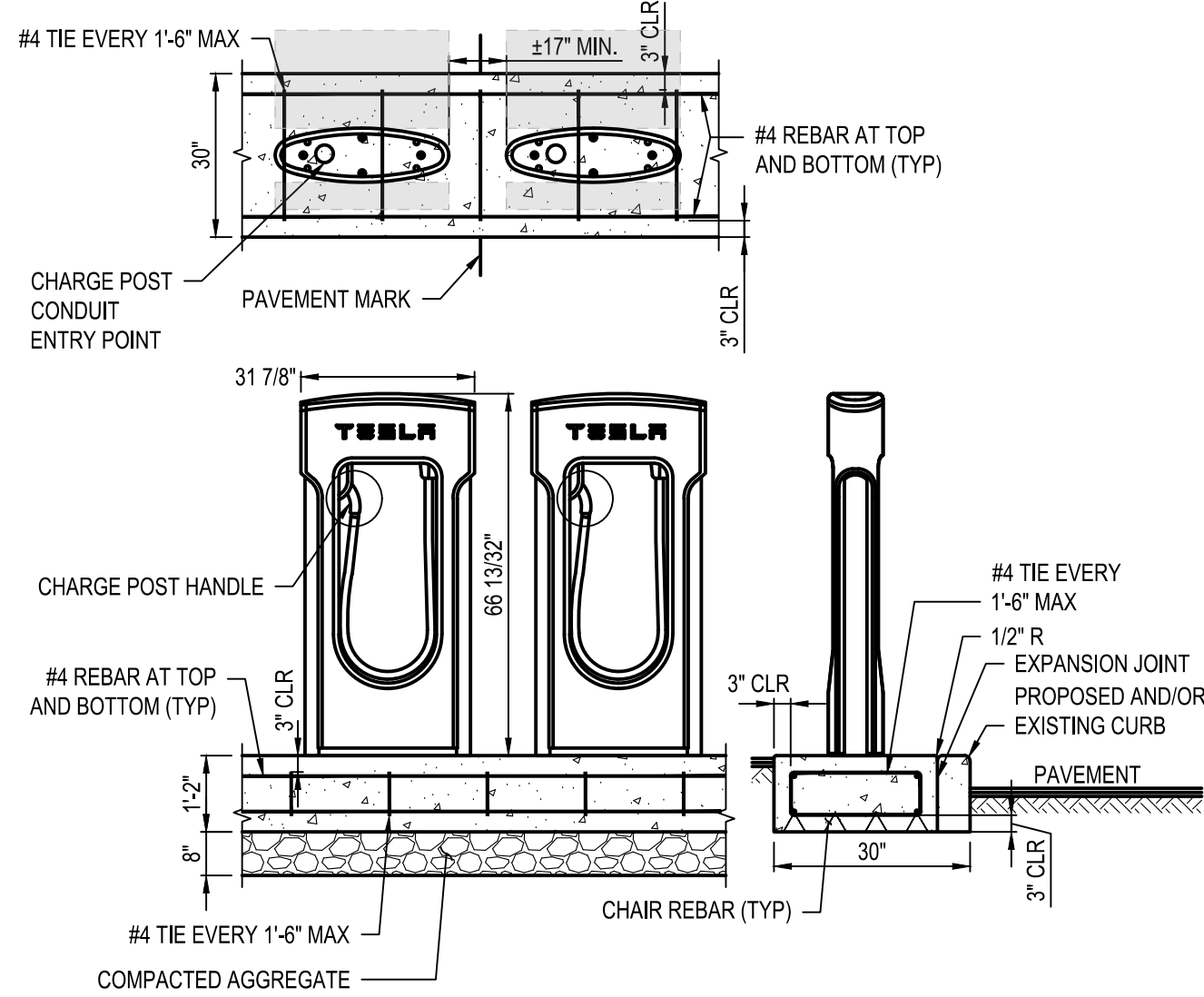


NOTE:
REFER TO GENERAL NOTES FOR ADDITIONAL PAVEMENT MARKING NOTES AND SPECIFICATIONS.

C-1 TRANSVERSE STRIPING
N.T.S.

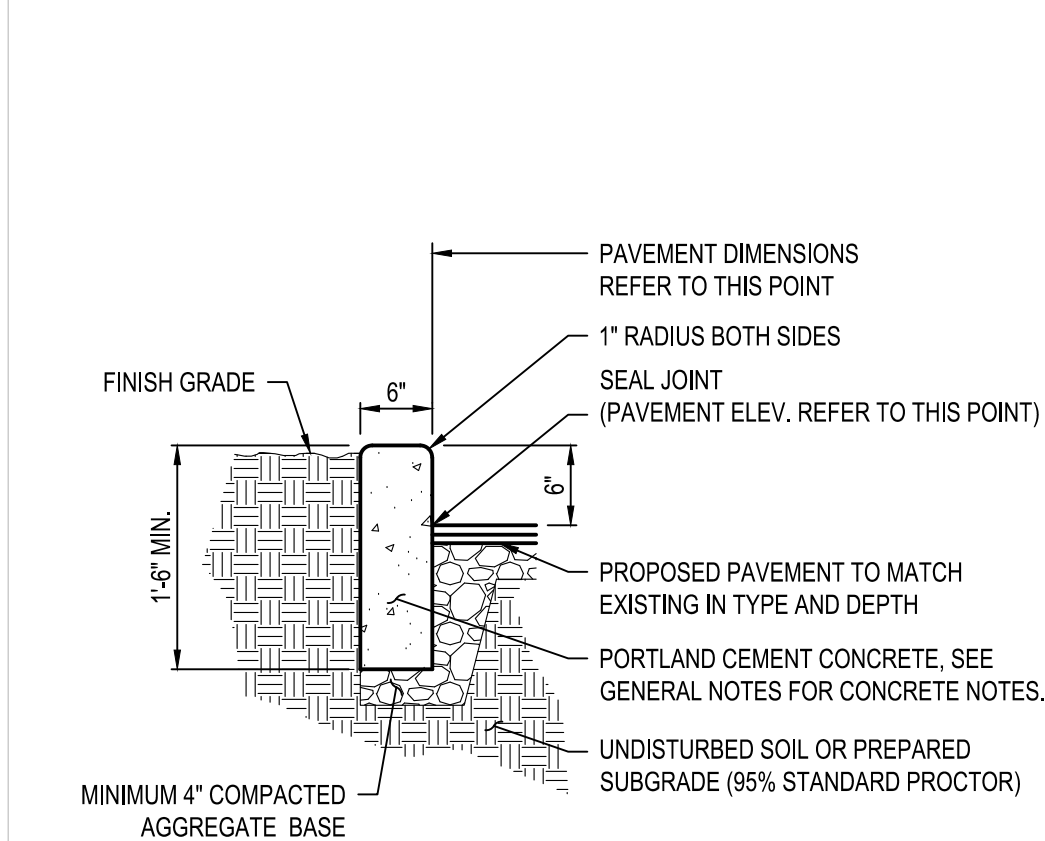
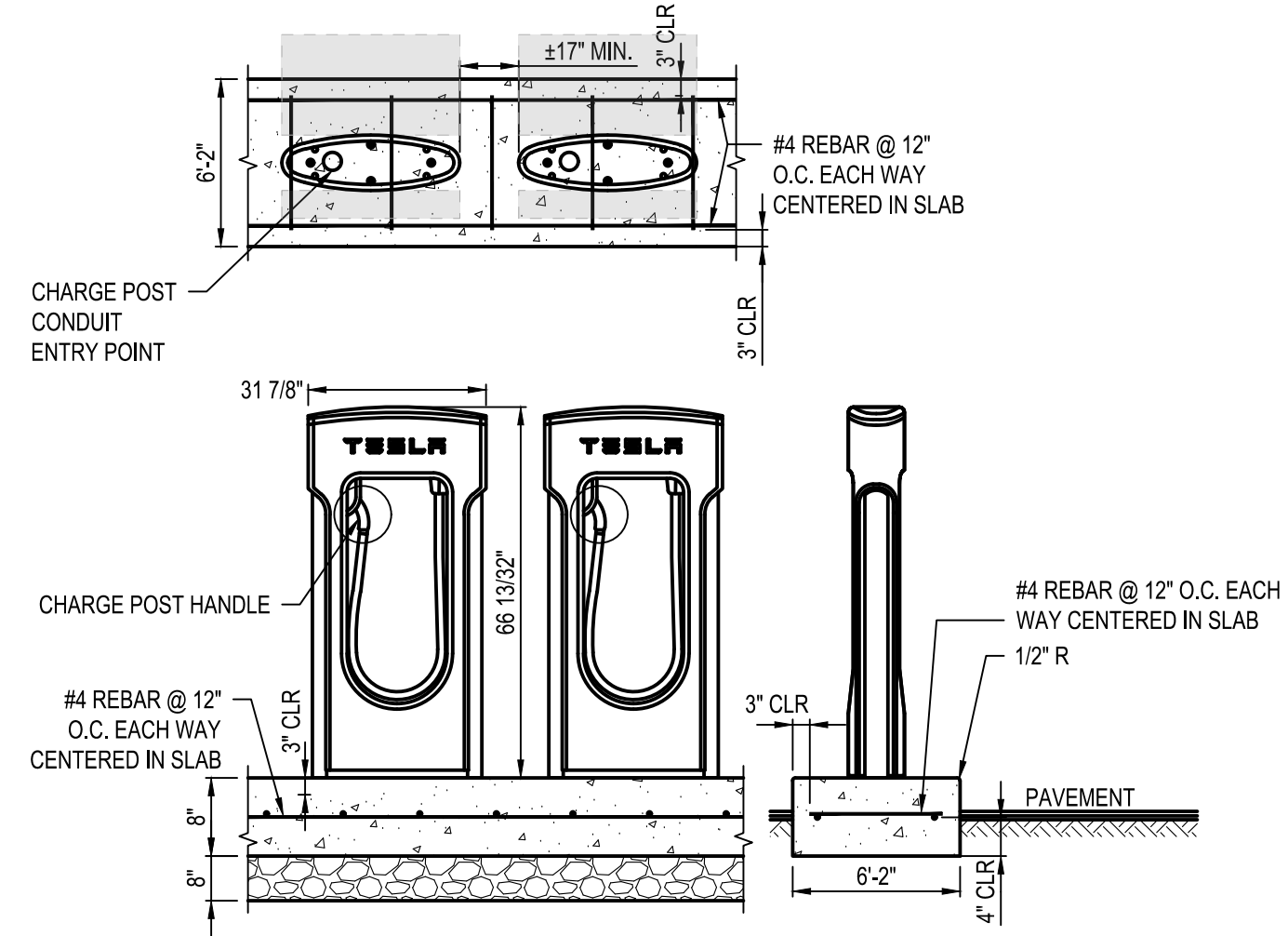
- NOTES**
- SEE FROST NOTES ON GENERAL NOTES SHEETS FOR FOUNDATION PREPARATION.
 - CONTRACTOR SHALL PROTECT EXISTING CURB AND PAVEMENT DURING INSTALLATION. REPAIR OR REPLACE AS REQUIRED, MATCHING OR EXCEEDING EXISTING CONDITIONS/SPECIFICATIONS.
 - BOLLARD MUST BE FROM TESLA AND WELDED ON FIXTURE ATTACHMENTS PADS.
 - THE 4.33W, 315mA COMBINED TESLA LOGO AND TASK LIGHT LED ASSEMBLIES DRAW POWER FROM THE CHARGING POST.
 - CONTRACTOR SHALL FIT REAR SKIN DURING INSTALLATION AND REMOVE REAR SKIN UNTIL TESLA INSPECTION IS COMPLETE.
 - SEE FOUNDATION LENGTH ON SITE PLAN.
 - CHARGING POSTS AND PROPOSED FOUNDATION SHALL FOLLOW GRADE AS EVENLY AS POSSIBLE.
 - ALL PAVEMENT SHALL BE LAID ON A STRAIGHT, EVEN, AND UNIFORM GRADE WITH A MINIMUM OF 1% SLOPE TOWARD THE COLLECTION POINTS UNLESS OTHERWISE SPECIFIED ON THE GRADING PLAN. DO NOT ALLOW NEGATIVE GRADES OR PONDING OF WATER.
 - REINFORCING BAR TO BE ASTM A615 GRADE 60.
 - ALL REINFORCING TO HAVE MINIMUM CONCRETE COVER PER ACI SPECIFICATIONS.
 - ALL CONCRETE MATERIALS AND WORKMANSHIP SHALL CONFORM TO ACI 318-14 AND OH STATE BUILDING CODE.
- ANCHORAGE NOTES**
- ANCHORS: (4) 5/8" DIAMETER HILTI KWIK BOLT TZ STAINLESS STEEL ANCHORS, 3-1/8" EFFECTIVE EMBEDMENT MIN, 6" EDGE DISTANCE MIN. (ESR#1917).
 - FASTENERS: (2) TOTAL 5/8" NUTS AND (2) TOTAL 5/8" WASHERS PER ANCHOR NUT AND WASHER MATERIAL TYPE TO MATCH ANCHOR MATERIAL. (2) 5/8" NUT AND WASHER ABOVE BOLLARD FLANGE. (1) BELOW

C-2 TESLA SUPERCHARGER ON 24" WIDE CONTINUOUS CURB
N.T.S.



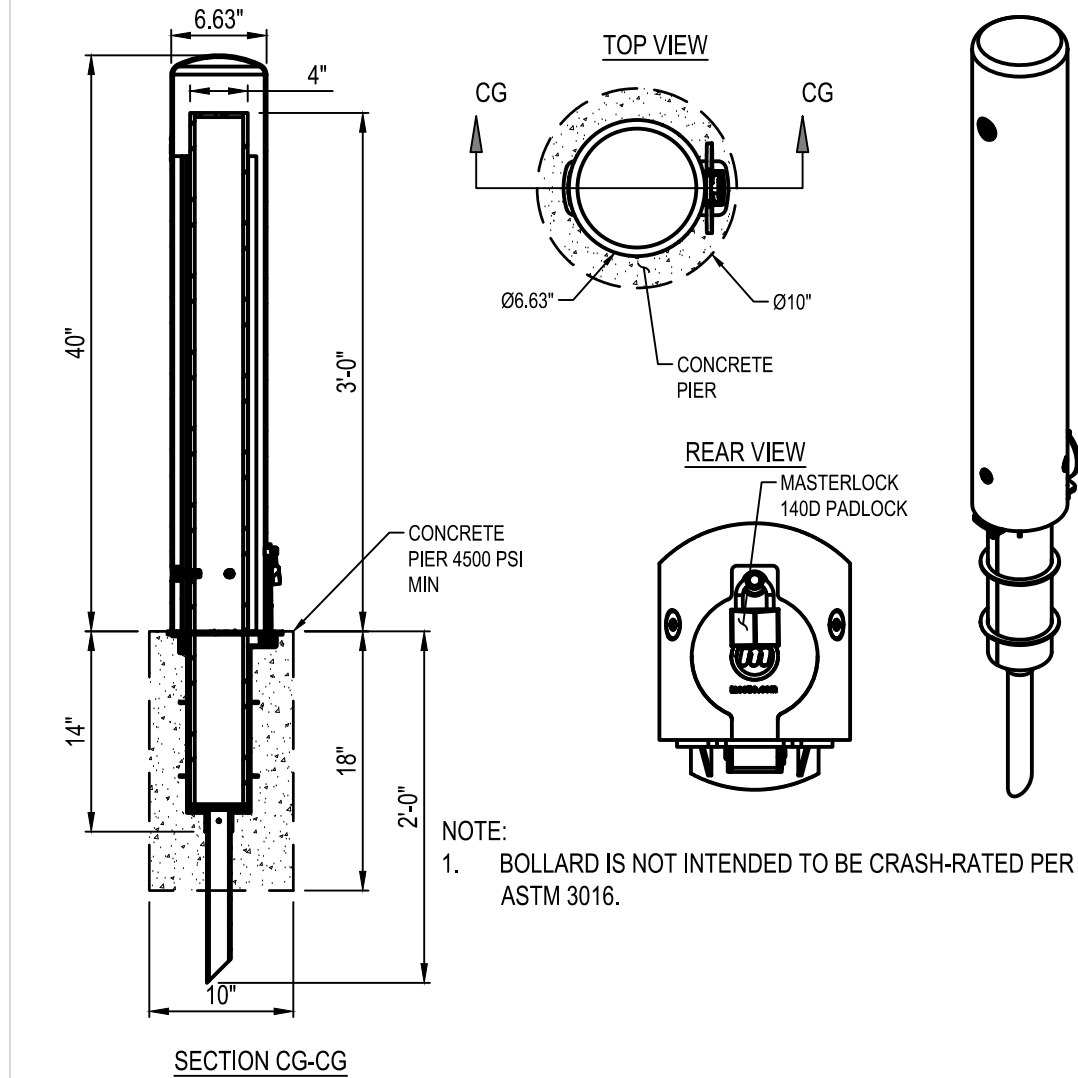
- NOTES**
- SEE FROST NOTES ON GENERAL NOTES SHEETS FOR FOUNDATION PREPARATION.
 - CONTRACTOR SHALL PROTECT EXISTING CURB AND PAVEMENT DURING INSTALLATION. REPAIR OR REPLACE AS REQUIRED, MATCHING OR EXCEEDING EXISTING CONDITIONS/SPECIFICATIONS.
 - BOLLARD MUST BE FROM TESLA AND WELDED ON FIXTURE ATTACHMENTS PADS.
 - THE 4.33W, 315mA COMBINED TESLA LOGO AND TASK LIGHT LED ASSEMBLIES DRAW POWER FROM THE CHARGING POST.
 - CONTRACTOR SHALL FIT REAR SKIN DURING INSTALLATION AND REMOVE REAR SKIN UNTIL TESLA INSPECTION IS COMPLETE.
 - SEE FOUNDATION LENGTH ON SITE PLAN.
 - CHARGING POSTS AND PROPOSED FOUNDATION SHALL FOLLOW GRADE AS EVENLY AS POSSIBLE.
 - ALL PAVEMENT SHALL BE LAID ON A STRAIGHT, EVEN, AND UNIFORM GRADE WITH A MINIMUM OF 1% SLOPE TOWARD THE COLLECTION POINTS UNLESS OTHERWISE SPECIFIED ON THE GRADING PLAN. DO NOT ALLOW NEGATIVE GRADES OR PONDING OF WATER.
 - REINFORCING BAR TO BE ASTM A615 GRADE 60.
 - ALL REINFORCING TO HAVE MINIMUM CONCRETE COVER PER ACI SPECIFICATIONS.
 - ALL CONCRETE MATERIALS AND WORKMANSHIP SHALL CONFORM TO ACI 318-14 AND OH STATE BUILDING CODE.
- ANCHORAGE NOTES**
- ANCHORS: (4) 5/8" DIAMETER HILTI KWIK BOLT TZ STAINLESS STEEL ANCHORS, 3-1/8" EFFECTIVE EMBEDMENT MIN, 6" EDGE DISTANCE MIN. (ESR#1917).
 - FASTENERS: (2) TOTAL 5/8" NUTS AND (2) TOTAL 5/8" WASHERS PER ANCHOR NUT AND WASHER MATERIAL TYPE TO MATCH ANCHOR MATERIAL. (2) 5/8" NUT AND WASHER ABOVE BOLLARD FLANGE. (1) BELOW

B-2 TESLA SUPERCHARGER ON 74" WIDE CONTINUOUS CURB
N.T.S.



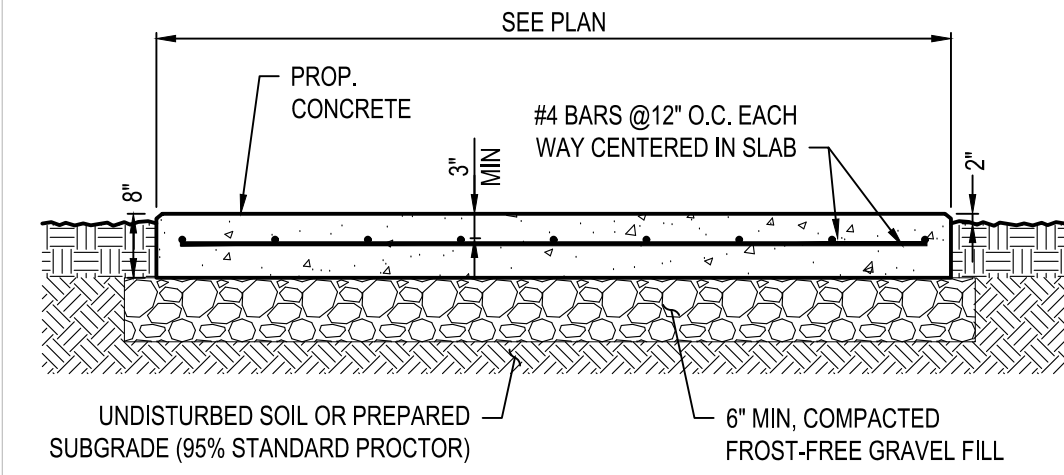
NOTE:
CONTRACTOR SHALL ASSESS EXISTING CURB AND INSTALL PROPOSED CURB TO MATCH. ABOVE DETAILS TO BE USED AS MINIMUM STANDARDS.

A-2 CONCRETE CURB
N.T.S.



NOTE:
1. BOLLARD IS NOT INTENDED TO BE CRASH-RATED PER ASTM 3016.

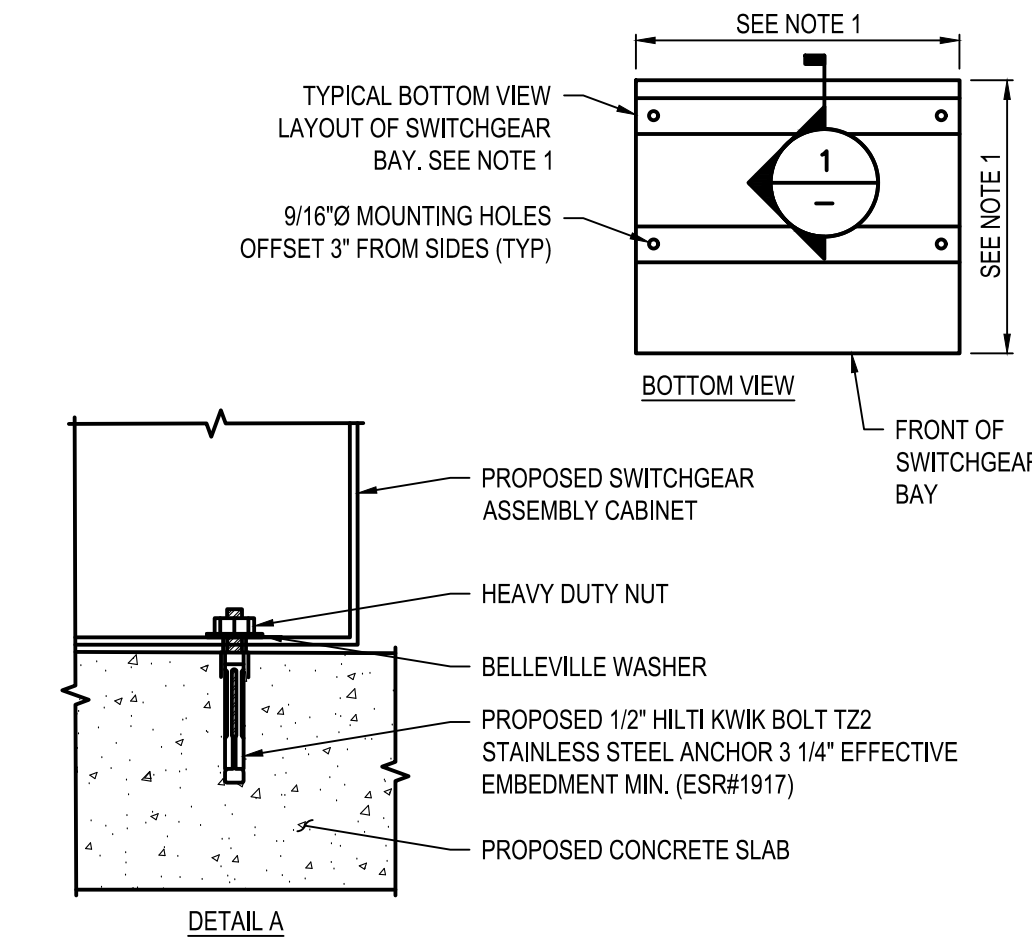
A-3 REMOVABLE CRASHCORE DETERRENT BOLLARD
N.T.S.



CONCRETE PAD NOTES & CONCRETE SPECIFICATIONS:

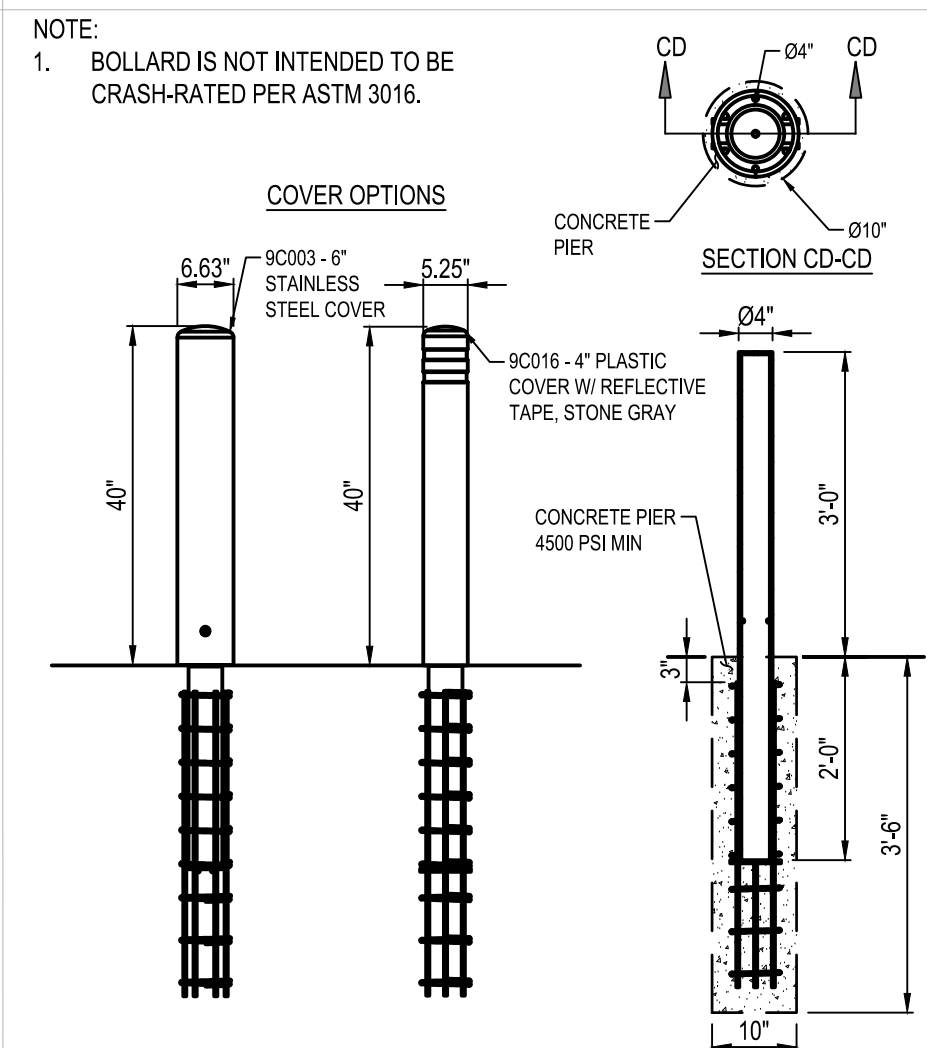
- FOUNDATION AREA SHALL BE EXCAVATED TO THE DEPTH AND DIMENSIONS SHOWN ON THE PLANS. OTHER UNSUITABLE MATERIAL SHALL BE REMOVED AND LEGALLY DISPOSED OF OFF-SITE. THE SUBGRADE SHALL BE ROLLED WITH A 1-TON, VIBRATORY, WALK-BEHIND ROLLER AT A SPEED OF LESS THAN 2 FPS, 6 PASSES MINIMUM, TO PROVIDE UNYIELDING SURFACE.
- UNDERCUT SOFT OR "WEAVING" AREAS A MINIMUM OF 12 INCHES DEEP. BACKFILL UNDERCUT AREA WITH FILL MEETING THE SPECIFICATIONS OF STRUCTURAL FILL.
- ALL REINFORCING TO HAVE MINIMUM CONCRETE COVER PER ACI SPECIFICATIONS.
- ALL CONCRETE MATERIALS AND WORKMANSHIP SHALL CONFORM TO ACI 318-14 AND APPLICABLE STATE BUILDING CODE.
- PAD SHALL BE A MINIMUM OF 8" IN THICKNESS. THICKNESS OF PAD SHALL INCREASE AS THE PERIMETER SOIL SURFACE SLOPES TO MAINTAIN A MINIMUM OF 6" OF SOIL COVER TO THE BOTTOM OF THE PAD.

C-4 EQUIPMENT PAD
N.T.S.



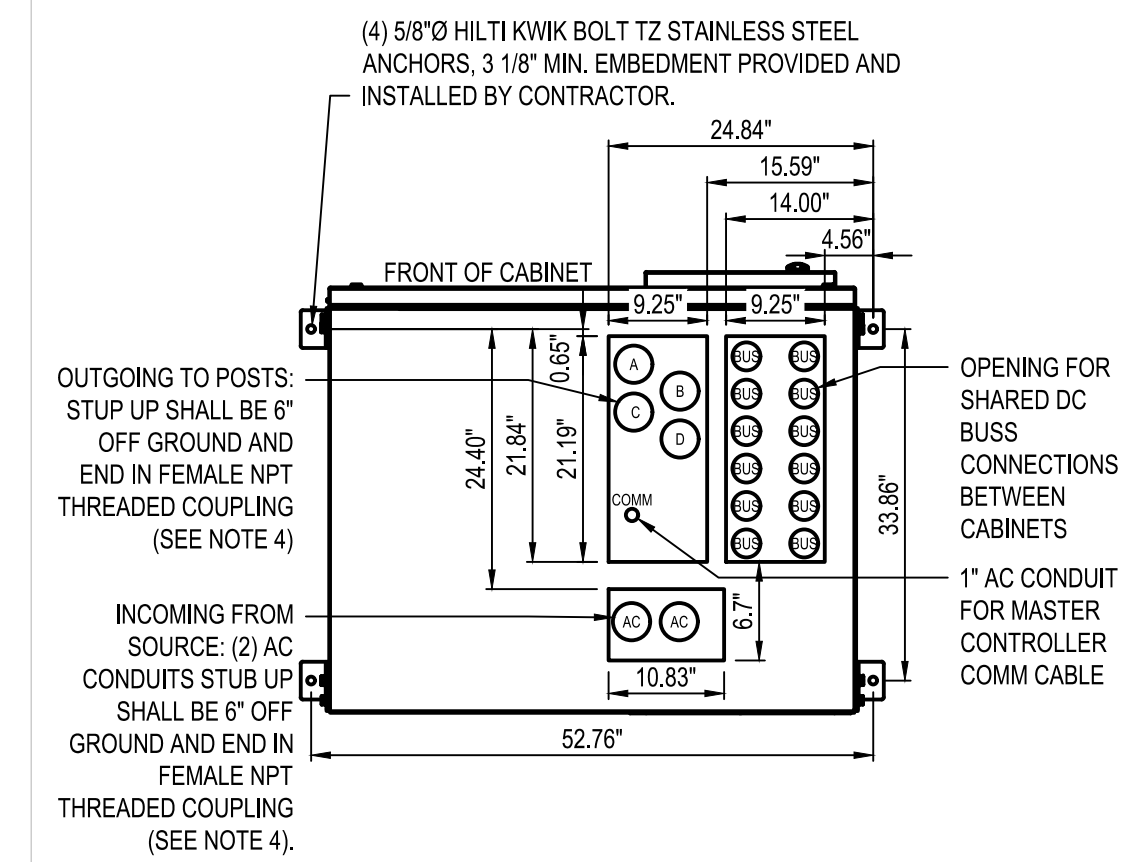
- REFER TO SWITCHGEAR MANUFACTURER DRAWINGS FOR MOUNTING HOLE LOCATIONS, SWITCHGEAR BAY DIMENSIONS, AND BASE CHANNEL DIMENSIONS.
- MINIMUM EDGE DISTANCE FOR PROPOSED ANCHORAGE SHALL BE 8".

B-4 MOUNTING FOR LINCOLN EV-2 SWITCHGEAR
N.T.S.



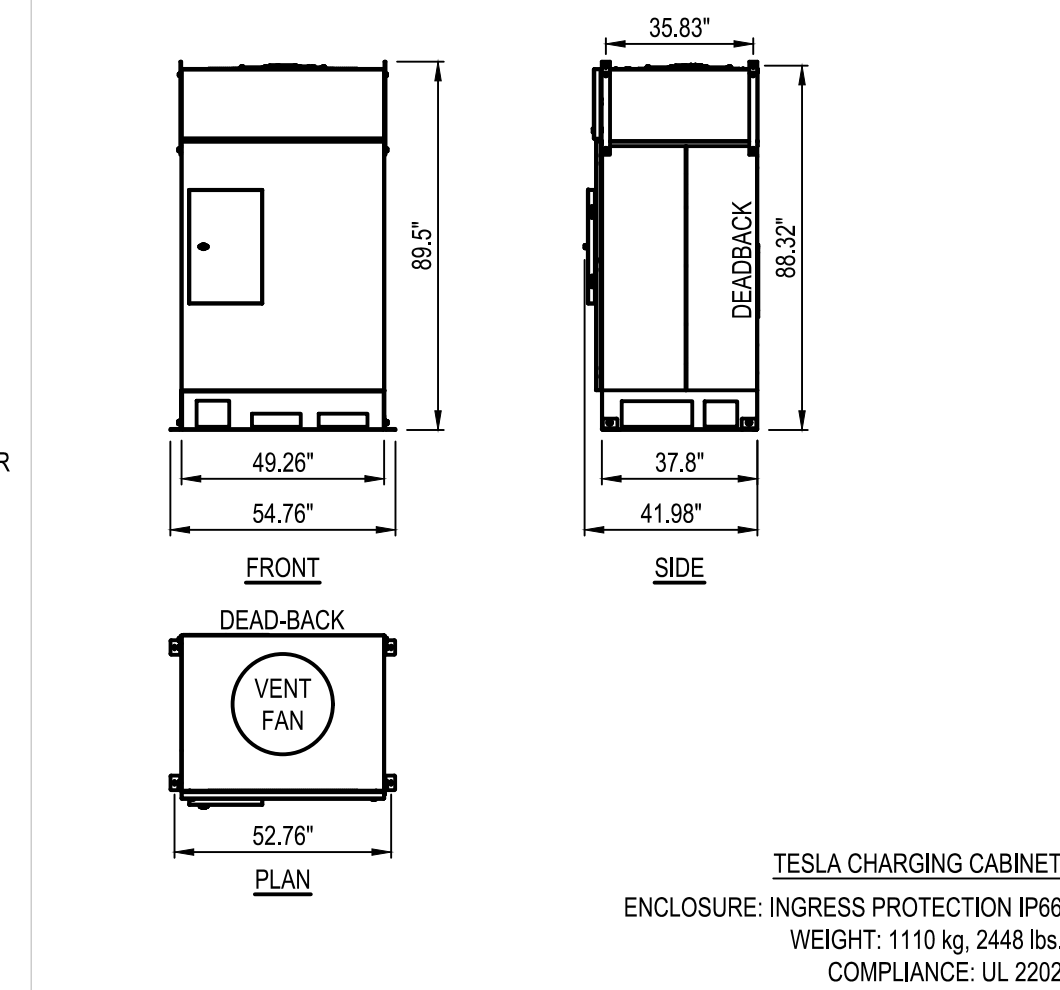
TESLA PART #: 1838200-00-A
MCCUE PART #: 1B608160

A-4 CRASHCORE DETERRENT BOLLARD
N.T.S.



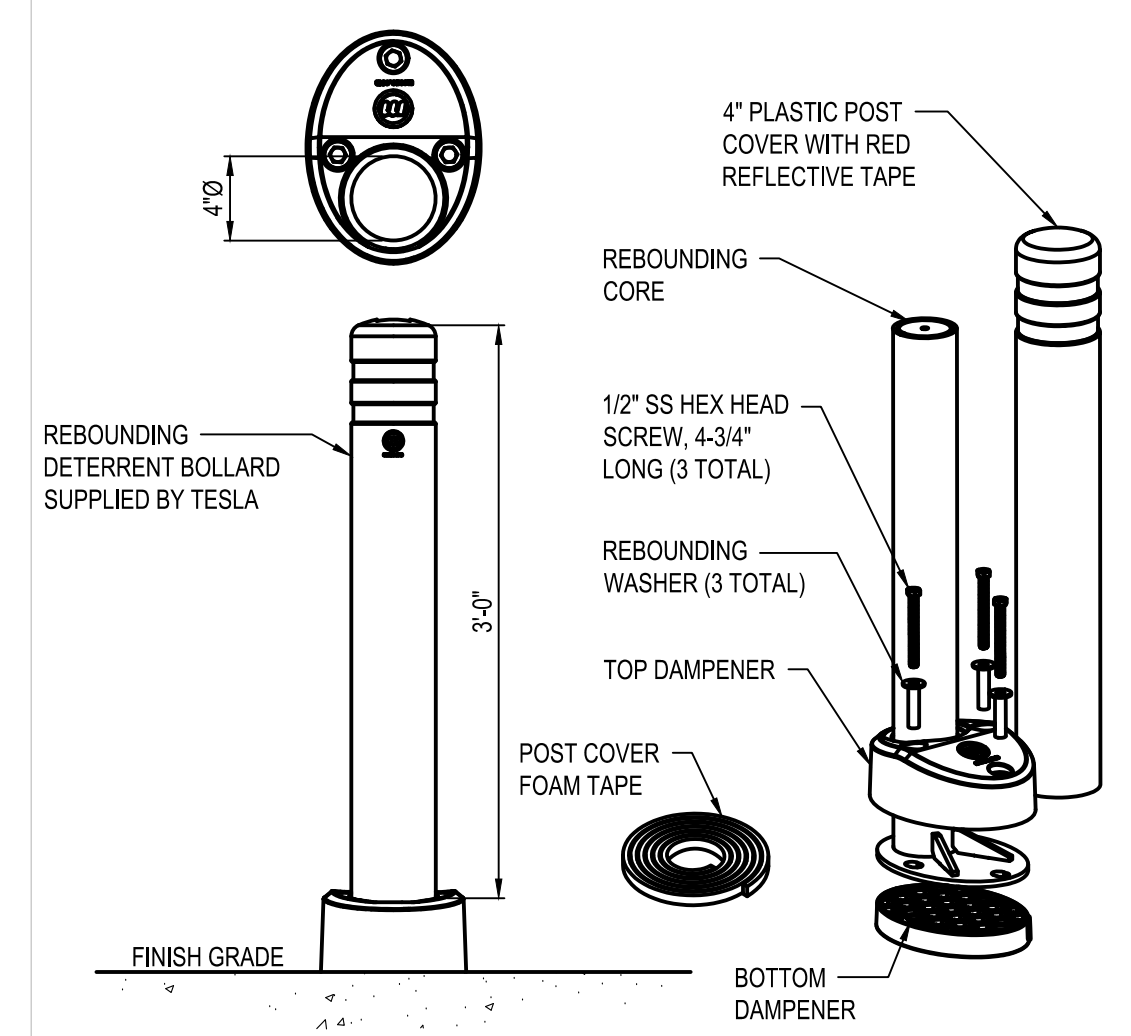
- OUTGOING TO POSTS:** STUB UP SHALL BE 6" OFF GROUND AND END IN FEMALE NPT THREADED COUPLING (SEE NOTE 4)
- INCOMING FROM SOURCE:** (2) AC CONDUITS STUB UP SHALL BE 6" OFF GROUND AND END IN FEMALE NPT THREADED COUPLING (SEE NOTE 4)
- OPENING FOR SHARED DC BUSS CONNECTIONS BETWEEN CABINETS**
- 1" AC CONDUIT FOR MASTER CONTROLLER COMM CABLE**
- NOTE:**
- TESLA PROVIDED TEMPLATE PLATE TO BE USED TO LAYOUT CHARGING CABINET ANCHORING BOLT LOCATIONS AND CONDUIT STUB UP LOCATIONS.
 - BOLT HOLES FOR REFERENCE ONLY.
 - USE DOTTE DUCT SEAL COMPOUND PC 6130 (CAT NO LHD1) TO SEAL ENDS OF CONDUIT (TYP. ALL CONDUITS FOR CHARGING CABINETS AND CHARGE POSTS)
 - USE BELL FITTINGS ON ALL AC AND DC CONDUIT STUBS
 - SEE DETAIL THIS SHEET FOR FOUNDATION DETAIL IF APPLICABLE

C-5 TESLA CHARGING CABINET ANCHOR BOLT PLAN
N.T.S.



- NOTES:**
- CABINET SHOULD BE LIFTED USING ROOF MOUNTED EYE HOOKS. A FORKLIFT OR PALLET JACK CAN ALSO BE USED TO MOVE CABINET IF DONE PROPERLY.
 - VERIFY CABINET PART# AND ASSOCIATED DIMENSIONS PRIOR TO CONSTRUCTION.

B-5 TESLA CHARGING CABINET DIMENSIONS
N.T.S.



NOTE:
DETERRENT BOLLARD IS INTENDED TO PROVIDE A VISUAL DETERRENT AND REDUCE POTENTIAL IMPACT ON EQUIPMENT.

A-5 REBOUNDING DETERRENT BOLLARD
N.T.S.

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0	03/22/2023	ISSUED FOR SIGN & SEAL

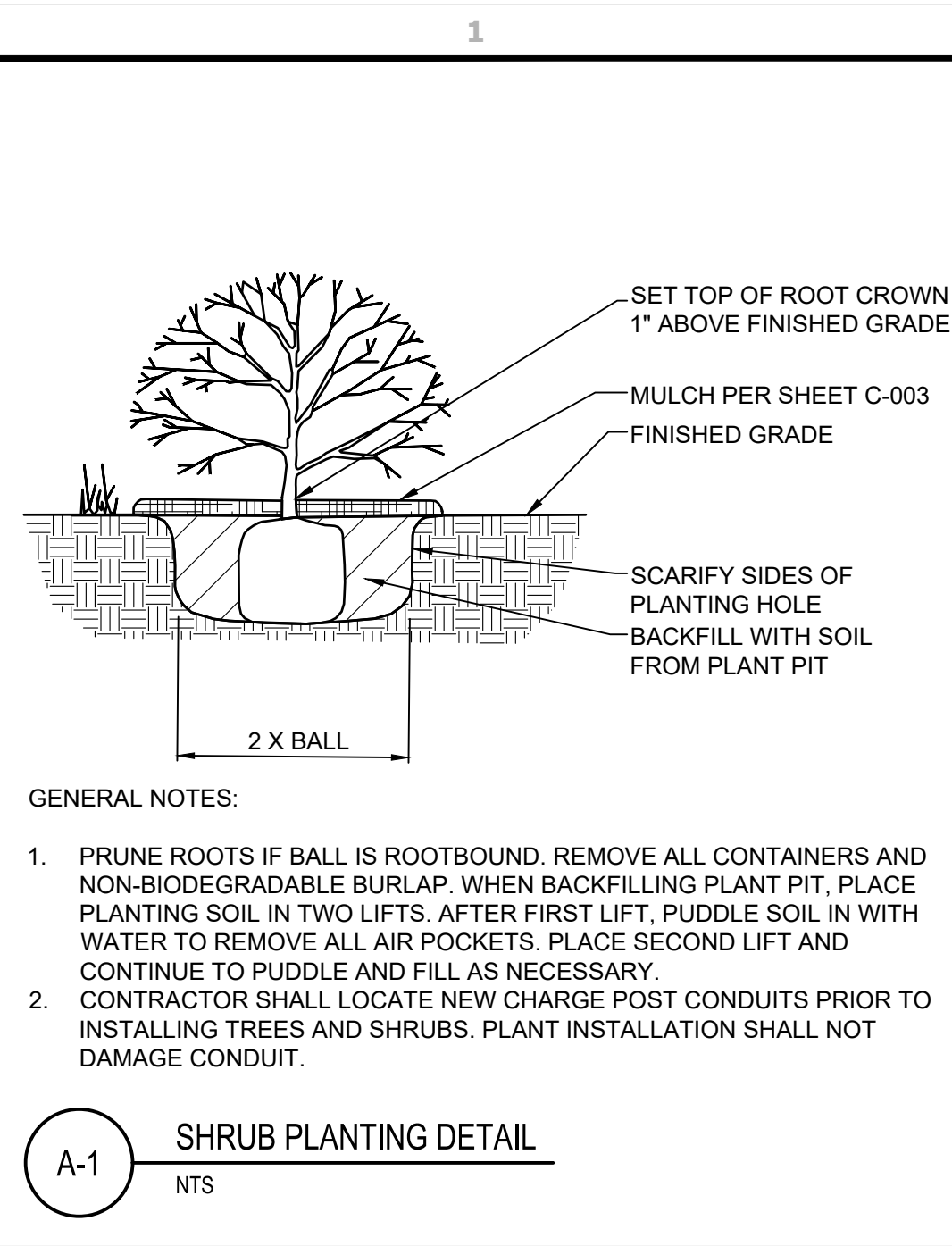
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 30320 LAKESHORE BLVD
 WILLOWICK, OH 44095

PROJECT MANAGER	DESIGNER
IM	CJM

JOB NO.
2022241.29

C-201

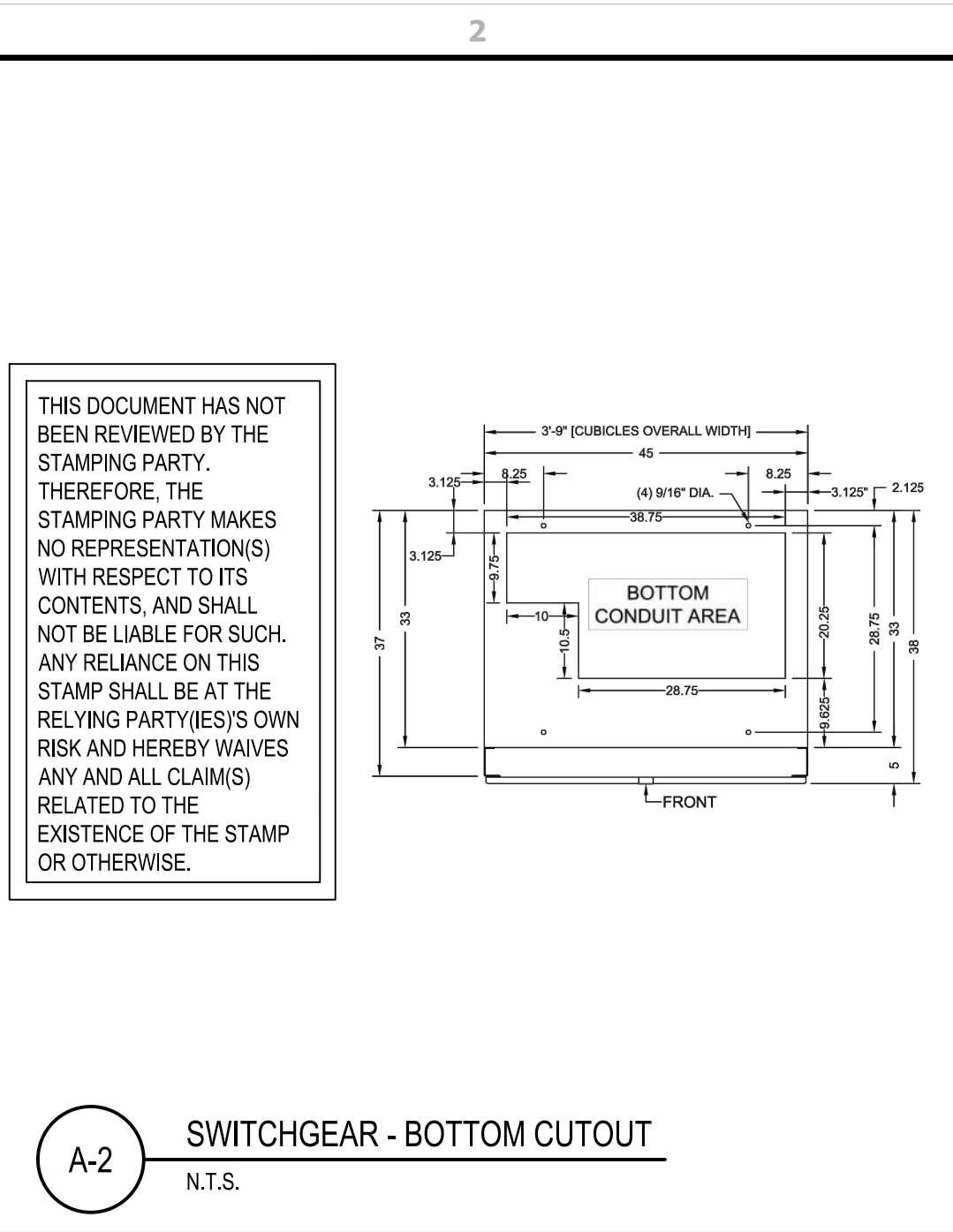
CIVIL DETAILS



GENERAL NOTES:

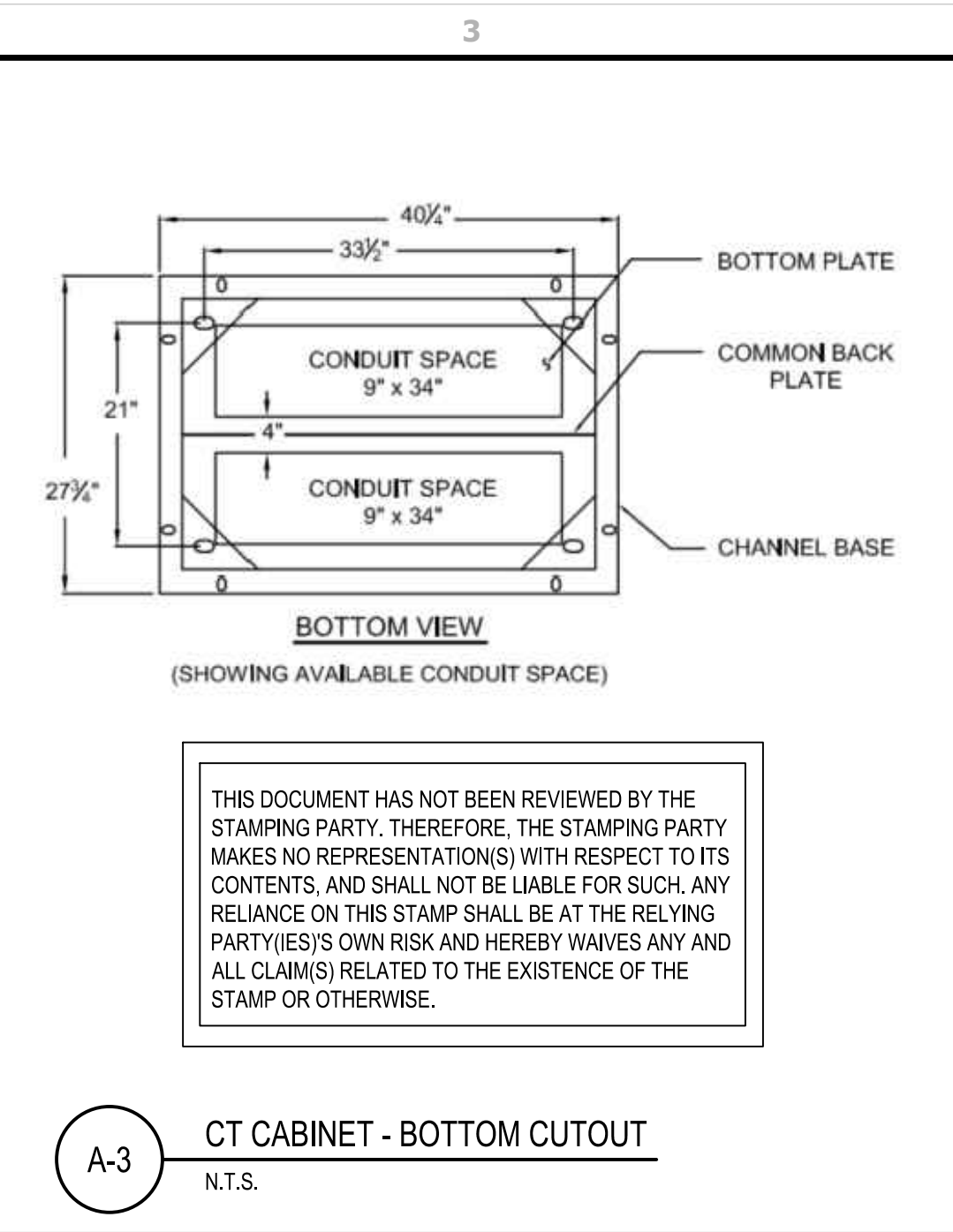
1. PRUNE ROOTS IF BALL IS ROOTBOUND. REMOVE ALL CONTAINERS AND NON-BIODEGRADABLE BURLAP. WHEN BACKFILLING PLANT PIT, PLACE PLANTING SOIL IN TWO LIFTS. AFTER FIRST LIFT, PUDDLE SOIL IN WITH WATER TO REMOVE ALL AIR POCKETS. PLACE SECOND LIFT AND CONTINUE TO PUDDLE AND FILL AS NECESSARY.
2. CONTRACTOR SHALL LOCATE NEW CHARGE POST CONDUITS PRIOR TO INSTALLING TREES AND SHRUBS. PLANT INSTALLATION SHALL NOT DAMAGE CONDUIT.

A-1 SHRUB PLANTING DETAIL
 N.T.S.



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A-2 SWITCHGEAR - BOTTOM CUTOUT
 N.T.S.



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A-3 CT CABINET - BOTTOM CUTOUT
 N.T.S.

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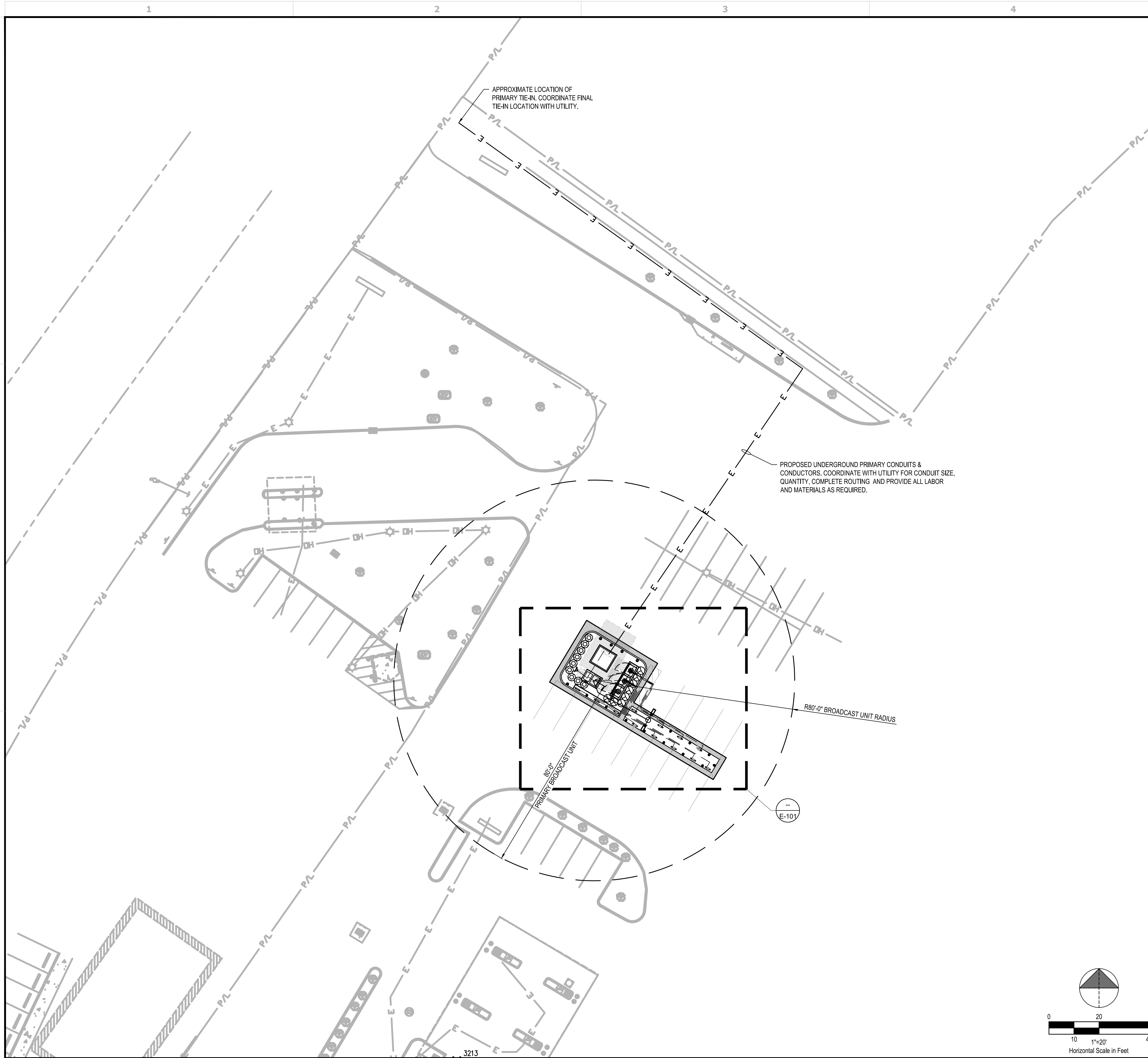
CIVIL DETAILS

PROJECT MANAGER	DESIGNER
IM	CJM

JOB NO.
 2022241.29

C-202

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 March 21, 2023 2:05 PM - cmcdiffitt



ELECTRICAL SCOPE OF WORK RESPONSIBILITIES

SCOPE	BY UTILITY	BY CONTRACTOR
PROVIDE & INSTALL PRIMARY SIDE UNDERGROUND CONDUCTORS	X	
PROVIDE PRIMARY SIDE TRENCHING		X
PROVIDE & INSTALL PRIMARY SIDE CONDUITS W/ PULLWIRE		X
PROVIDE & INSTALL UTILITY TRANSFORMER PAD		X
PROVIDE UTILITY TRANSFORMER	X	
INSTALL UTILITY TRANSFORMER	X	
INSTALL CONNECTIONS AND UTILITY TRANSFORMER (PRIMARY)	X	
INSTALL CONNECTIONS AT UTILITY TRANSFORMER (SECONDARY)	X	
PROVIDE METER SOCKET/METER CAN		X
INSTALL METER SOCKET/METER CAN		X
PROVIDE METER PEDESTAL		X
INSTALL METER PEDESTAL		X
PROVIDE METER	X	
INSTALL METER	X	
PROVIDE CT CABINET		X
INSTALL CT CABINET		X
PROVIDE CTs	X	
INSTALL CTs (IN CT CABINET)		X
PROVIDE SECONDARY SIDE TRENCHING		X
PROVIDE & INSTALL SECONDARY SIDE CONDUITS W/ PULLWIRE		X
PROVIDE & INSTALL SECONDARY SIDE CONDUCTORS		X
PROVIDE ROAD CUTS / ROAD BORES		X
PROVIDE & INSTALL PAVEMENT REPLACEMENT		X

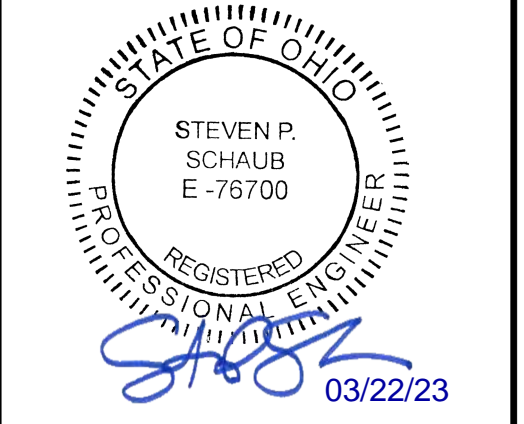
NOTE: SCOPE SHOWN ABOVE WAS PROVIDED BY FIRST ENERGY. FIELD VERIFY PRIOR TO CONSTRUCTION.

UTILITY COMPANY CONTACT
 FIRST ENERGY
 CONTACT: ROBERT ELLIOT
 (440) 358-4996

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 3600 DEER CREEK RD.
 PALO ALTO, CA 94304
 (650) 681-5000

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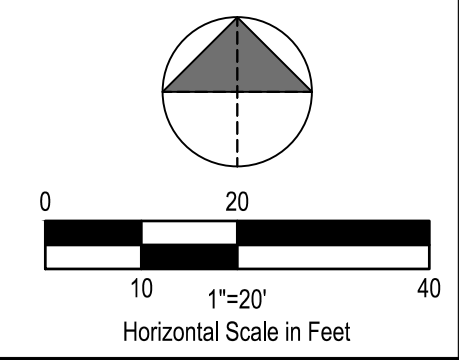
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OVERALL ELECTRICAL SITE PLAN

PROJECT MANAGER	DESIGNER
IM	CJM

JOB NO.
2022241.29

E-100



LUMINAIRE SCHEDULE										
SYMBOL	QUANTITY	SERIES	SIZE	WATTS	COLOR TEMPERATURE	DISTRIBUTION	VOLTAGE	MOUNTING	CONTROL OPTIONS	FINISH
	1	LL-SL1	SM	50 EA.	40K	T3	UNV 120-277V	SA	FSP-201 (SN)	BRONZE

CATALOG NUMBER: LINMORE - LL-SL1-SM-100-40K-T3-120-277V (UNV) -BRN-FSP-201 (SN)
 PROPOSED BLS SSP-20411-Z-D2 POLE

GENERAL SHEET NOTES

1. (#) DENOTES FEEDER REFERENCE. REFER TO SHEET E-101 FOR FEEDER/CIRCUIT SCHEDULE.
2. CONTRACTOR SHALL REFER TO CIVIL SHEETS FOR EXISTING LANDSCAPING TO REMAIN AND PROPOSED LANDSCAPING.
3. CONTRACTOR SHALL HAND DIG AROUND ALL EXISTING UTILITIES.
4. CONDUIT ELBOWS SHALL BE SIZED PER NEC. CONTRACTOR SHALL VERIFY MANUFACTURER ALLOWABLE FILL AND MINIMUM CONDUCTOR BENDING RADIUS. SEE FEEDER SCHEDULE FOR CONDUIT & CONDUCTOR SPECIFICATIONS.
5. ALL CONDUITS ACCESSIBLE TO THE PUBLIC OR WHICH CAN BE DAMAGED SHALL BE RIGID GALVANIZED STEEL.
6. PROPERTY LINE AND RIGHT-OF-WAY BOUNDARIES ARE SHOWN FOR REFERENCE ONLY. REFER TO SURVEY BY OTHERS FOR EXACT LOCATION.
7. UTILITY EQUIPMENT INSTALLATIONS AND PREP WORK SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY ENGINEER TO ENSURE ACCURACY OF INSTALLATION.
8. ALL PROPOSED CONDUITS MUST MEET MINIMUM DEPTH REQUIREMENTS AS OUTLINED IN TRENCH DETAILS, AS WELL AS MAINTAIN A MINIMUM OF 18" CLEAR OF ALL EXISTING OBSTRUCTIONS INCLUDING (BUT NOT LIMITED TO) STORM PIPES, SANITARY PIPES, WATER LINES AND OTHER UNDERGROUND UTILITIES.
9. FOR TRAFFIC CONTROL PROCEDURES (IF APPLICABLE), SEE TRAFFIC CONTROL NOTES ON SHEET C-003.

LEGEND

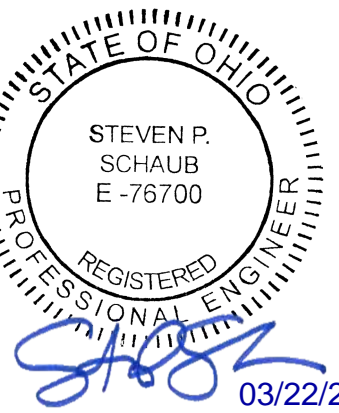
- (#) FEEDER SCHEDULE REFERENCE
SEE SHEET E-201 FOR FEEDER/CIRCUIT SCHEDULE



520 South Main Street, Suite 2531
 Akron, OH 44311
 330.572.2100 Fax 330.572.2101

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REV.	DATE	DESCRIPTION
A	12/14/2022	ISSUED FOR SITE SKETCH REVIEW
B	12/21/2022	ISSUED FOR 80% REVIEW
C	02/21/2023	ISSUED FOR SIGN & SEAL
0	03/22/2023	ISSUED FOR SIGN & SEAL



TESLA SUPERCHARGER STATION
 30320 LAKESHORE BLVD
 WILLOWICK, OH 44095

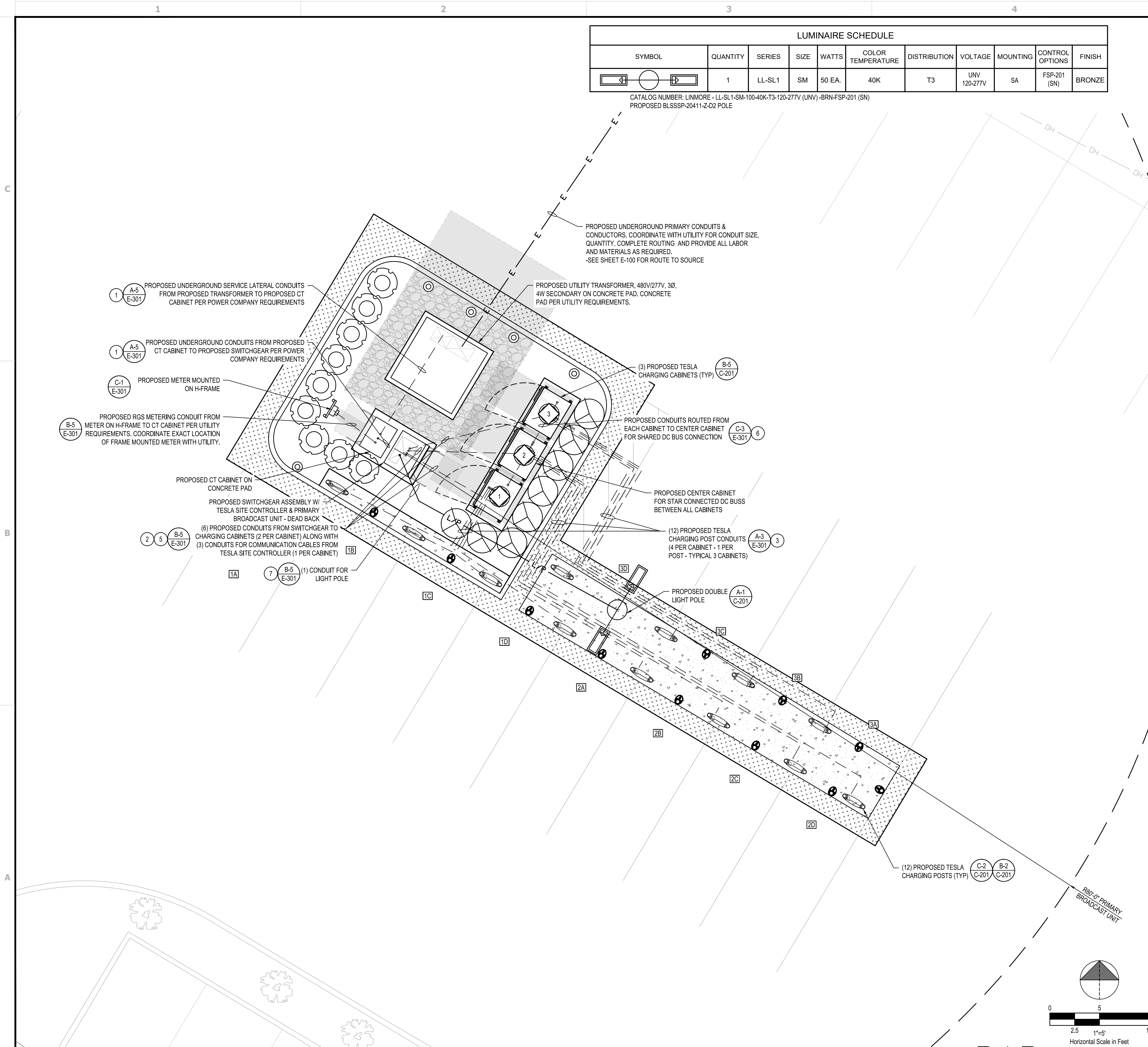
**ENLARGED ELECTRICAL
 SITE PLAN**

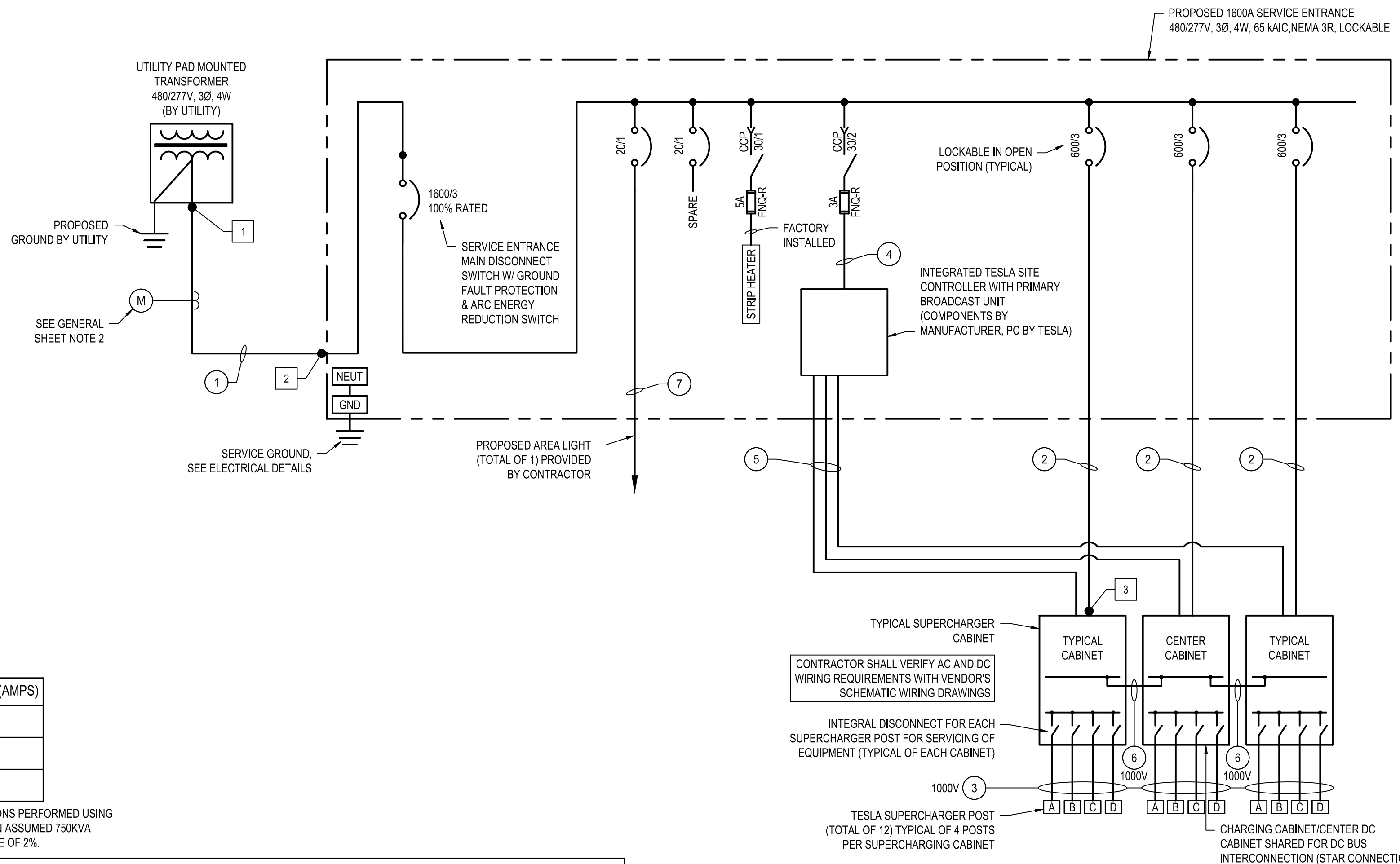
PROJECT MANAGER	DESIGNER
IM	CJM

JOB NO.
2022241.29

E-101

Drawing Name: O:\2022\2022241\29 - TRT 27552 - Willowick, OH - 30320 Lakeshore Blvd\dwg\2022241.29 - Willowick, OH - CD100.dwg
 March 21, 2023 2:05 PM - cmodiffit





AVAILABLE FAULT CURRENT (AMPS)	
1	45,105
2	43,189
3	41,424

NOTE: FAULT CURRENT CALCULATIONS PERFORMED USING INFINITE BUS CALCULATION WITH AN ASSUMED 750KVA TRANSFORMER WITH AN IMPEDANCE OF 2%.

PANEL 'MDP-1'					
STATUS:	NEW	VOLTAGE:	480Y/277 3Ø 4W	RATED FAULT CURRENT:	65 kAIC
LOCATION:	OUTDOOR	MAINS RATING (AMPS):	1600 100% RATED	RATING TYPE:	FULLY RATED
SUPPLY:	UTILITY XFMR	BUS RATING (AMPS):	1600 100% RATED	MOUNTING:	PAD
ENCLOSURE:	NEMA 3R	MAINS:	MCB	SERVICE ENTRANCE RATED:	YES
				ISOLATED GROUND BAR:	NO

CKT #	DESCRIPTION	LOAD	AMPS/POLES	TOTAL PER PHASE (kVA)			AMPS/POLES	LOAD	DESCRIPTION	CKT #	
				A	B	C					
1	TESLA SUPERCHARGER CABINET	129.00	600/3	258.00			600/3	129.00	TESLA SUPERCHARGER CABINET	2	
3	TESLA SUPERCHARGER CABINET	129.00	600/3		258.00		600/3	129.00	TESLA SUPERCHARGER CABINET	4	
5	TESLA SUPERCHARGER CABINET	129.00	600/3			258.00	600/3	129.00	TESLA SUPERCHARGER CABINET	6	
7	TESLA SUPERCHARGER CABINET	129.00	600/3	129.00			600/3	0.00	TESLA SUPERCHARGER CABINET	8	
9	TESLA SUPERCHARGER CABINET	129.00	600/3		129.00		600/3	0.00	TESLA SUPERCHARGER CABINET	10	
11	TESLA SUPERCHARGER CABINET	129.00	600/3			129.00	600/3	0.00	TESLA SUPERCHARGER CABINET	12	
13	SPACE	0.00		0.00				0.00	SPACE	14	
15	SPACE	0.00			0.00			0.00	SPACE	16	
17	SPACE	0.00				0.00		0.00	SPACE	18	
19	SPACE	0.00		0.00				0.00	SPACE	20	
21	SPACE	0.00			0.00			0.00	SPACE	22	
23	SPACE	0.00				0.00		0.00	SPACE	24	
25	SPACE	0.00		0.00				0.00	SPACE	26	
27	SPACE	0.00			0.00			0.00	SPACE	28	
29	SPACE	0.00				0.00		0.00	SPACE	30	
31	SPACE	0.00		0.00				0.00	SPACE	32	
33	SPARE	0.00	20/1		0.00			0.00	SPACE	34	
35	STRIP HEATER	0.30	30/1			0.30		0.00	SPACE	36	
37	LED LIGHT POLE	0.14	20/1	0.14				0.00	SPACE	38	
39	TESLA SITE CONTROLLER	0.10	30/2		0.10			0.00	SPACE	40	
41	TESLA SITE CONTROLLER	0.10	30/2			0.10		0.00	SPACE	42	
TOTAL kVA				387.14	387.10	387.40	TOTAL CONN kVA				1161.64
TOTAL AMPS				1397.62	1397.47	1398.56	TOTAL CONN AMPS				1397.24
% UNBALANCE				0.0%	0.0%	0.0%	*NEC CALC. LOAD kVA				1452.05
							*NEC CALC. LOAD AMPS				1746.54

*THE SUM OF THE TOTAL CONNECTED LOADS (NON-CONTINUOUS LOAD PLUS THE CONTINUOUS LOAD) TERMINATE IN AN OVERCURRENT DEVICE WHERE BOTH THE OVERCURRENT DEVICE AND ITS ASSEMBLY ARE LISTED FOR OPERATION AT 100% OF THEIR RATING

PANEL BOARD NOTES

- CIRCUITS SHALL BE REARRANGED AS REQUIRED TO MAINTAIN THE MOST BALANCED LOADS ON EACH PHASE WITHIN EACH PANEL. PROVIDE TYPED PANEL DIRECTORY MOUNTED PER MANUFACTURERS RECOMMENDATIONS WITH SERVICE EQUIPMENT.
- CCPD FOR POWER CABINETS ARE CALCULATED AS FOLLOWS: 48A AC INPUT TO CABINET x 1.25 = 560.00A = 600A BRANCH REQUIRED
- CONTRACTOR SHALL COORDINATE WITH THE POWER COMPANY TO DETERMINE MAXIMUM SHORT CIRCUIT AMPS (SCA), AND PROVIDE CALCULATIONS IN ORDER TO PROVIDE PROPERLY RATED EQUIPMENT. PROVIDE LABELS ON ELECTRICAL EQUIPMENT PER NEC 110.16 AND LOCAL JURISDICTION REQUIREMENTS.

BREAKER SETTINGS								
BREAKER USE	BREAKER SIZE	LONG DELAY	LONG DELAY TIME	SHORT DELAY	SHORT DELAY TIME	INSTANTANEOUS	GROUND SETTING	GROUND TIME
MCB - ABB E2.2 BKR	1600A	0.9(1440A)	8 (FT ON)	3	0.2 (FT OFF)	15	0.6	0.4 (FT OFF)
MCB - SQUARE D NW BKR	1600A	0.9(1440A)	4	1.5	0.2 (FT OFF)	15	J	0.4 (FT OFF)
V3 BRANCH CIRCUIT - ABB	600A	MAX (600A)	X	X	X	MIN (3000A)	X	X
V3 BRANCH CIRCUIT - SQUARE D	600A	X	X	X	X	2	X	X

NOTE: CONTRACTOR SHALL VERIFY BREAKER MAKE/MODEL AND SET PER THE ABOVE TABLE. NOTIFY TESLA IMMEDIATELY OF ANY DISCREPANCIES.

TESLA V3 CHARGING CABINET AND POST ELECTRICAL SPECS							
CHARGE POST MODEL	AC INPUT VOLTAGE TO CABINET	kVA INPUT TO CABINET	AC INPUT CURRENT TO CABINET	DC OUTPUT VOLTAGE TO CHARGE POST	DC OUTPUT CURRENT TO CHARGE POST	DC SHARED BUS CURRENT	SHORT CIRCUIT CURRENT RATING
V3	380V - 480V	387kVA	465A	0V - 500V	350A	640A	85 kAIC

GENERAL SHEET NOTES

- NEUTRAL MUST BE INCLUDED FOR PROPER OPERATION OF TESLA SUPERCHARGERS.
- PROPOSED UTILITY CTs SHALL BE LOCATED IN UTILITY APPROVED CT COMPARTMENTS MOUNTED IN CT CABINET ON CONCRETE PAD. PROPOSED METER SHALL BE MOUNTED ON H-FRAME.
- ALL CONDUIT FURNISHED AND INSTALLED BY CONTRACTOR.
- ALL WIRING FURNISHED BY TESLA AND INSTALLED BY CONTRACTOR UNLESS NOTED OTHERWISE. SEE SHEET E-001 FOR UTILITY/CONTRACTOR SCOPE OF WORK.
- THE TESLA PROVIDED SUPERCHARGING CABINETS AND SUPERCHARGING POSTS USED ON THIS PROJECT COMPLY WITH THE FOLLOWING STANDARDS:
 - TUV CERTIFIED TO UL 2202
- ALL ELECTRICAL EQUIPMENT SHALL BE LABELED, LISTED, OR CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY ACCREDITED BY THE UNITED STATES OCCUPATIONAL SAFETY HEALTH ADMINISTRATION.
- REFER TO THIS SHEET FOR FAULT CURRENT CALCULATIONS. CONTRACTOR SHALL MARK ON ALL EQUIPMENT AS REQUIRED PER N.E.C.
- REFER TO SHEET E-301 FOR ARC FLASH LABEL DETAILS. CONTRACTOR SHALL LABEL ALL EQUIPMENT AS REQUIRED PER N.E.C.

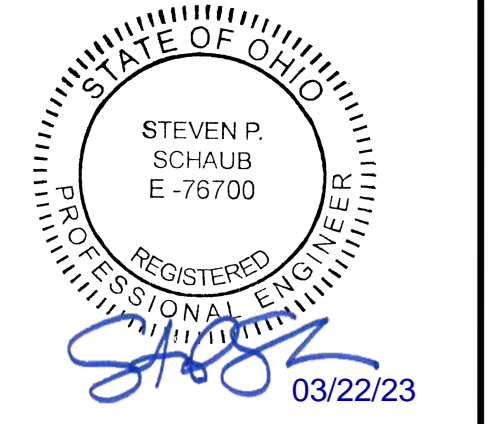
FEEDER / CIRCUIT SCHEDULE	
NO	CONFIGURATION
1	(5) SETS OF 4" CONDUIT EACH WITH (3) 600 MCM AI (1) 600 MCM AI NEUT
2	(2) SETS OF 4" CONDUIT EACH WITH (3) 500 MCM AI (1) 500 MCM AI NEUT (1) #1 AWG Cu GND OR #2/0 AWG AI GND
3	(1) SET IN 4" CONDUIT (DURALINE IS ACCEPTABLE) WITH (4) 350 MCM AI (TWO +, TWO -) (1) #2/0 AWG AI GND (1) 1000V, CLASS 1, COMM CABLE *SEE DETAIL ON SHEET E-301 FOR DURALINE TO PVC TRANSITION AND ADDITIONAL NOTES
4	FACTORY INSTALLED WIRING
5	OUTDOOR RATED/SHIELDED CAT5e CABLE IN 1" CONDUIT.
6	(2) SETS - EACH IN 3" CONDUIT (2) 600 MCM AI (ONE +, ONE -) (1) #3/0 AWG AI DC MID (1) #1/0 AWG Cu GND (1) #3/0 AWG AI DC MID DISC. 36" LONG IN EA. CABINET, NOT ROUTED IN CONDUIT
7	(1) SET IN 1" CONDUIT (1) #10 AWG Cu (THWN-2) (1) #10 AWG Cu NEUT (THWN-2) (1) #10 AWG Cu GND (THWN-2)

- NOTES:
- ALL AC CONDUCTORS SHALL BE XHHW-2, 600V RATED, U.N.O.
 - ALL DC CONDUCTORS SHALL BE XHHW-2, 1000V RATED, U.N.O..
 - SEE "TRACEWAY AND BOXES" NOTES ON SHEET E-001 FOR CONDUIT USE TYPES FOR ABOVE AND BELOW GRADE APPLICATIONS
 - DURALINE PRODUCT WILL BE USED FOR "DC-POST" CONDUIT RUN ONLY.



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TESLA SUPERCHARGER STATION
30320 LAKESHORE BLVD
WILLOWICK, OH 44095

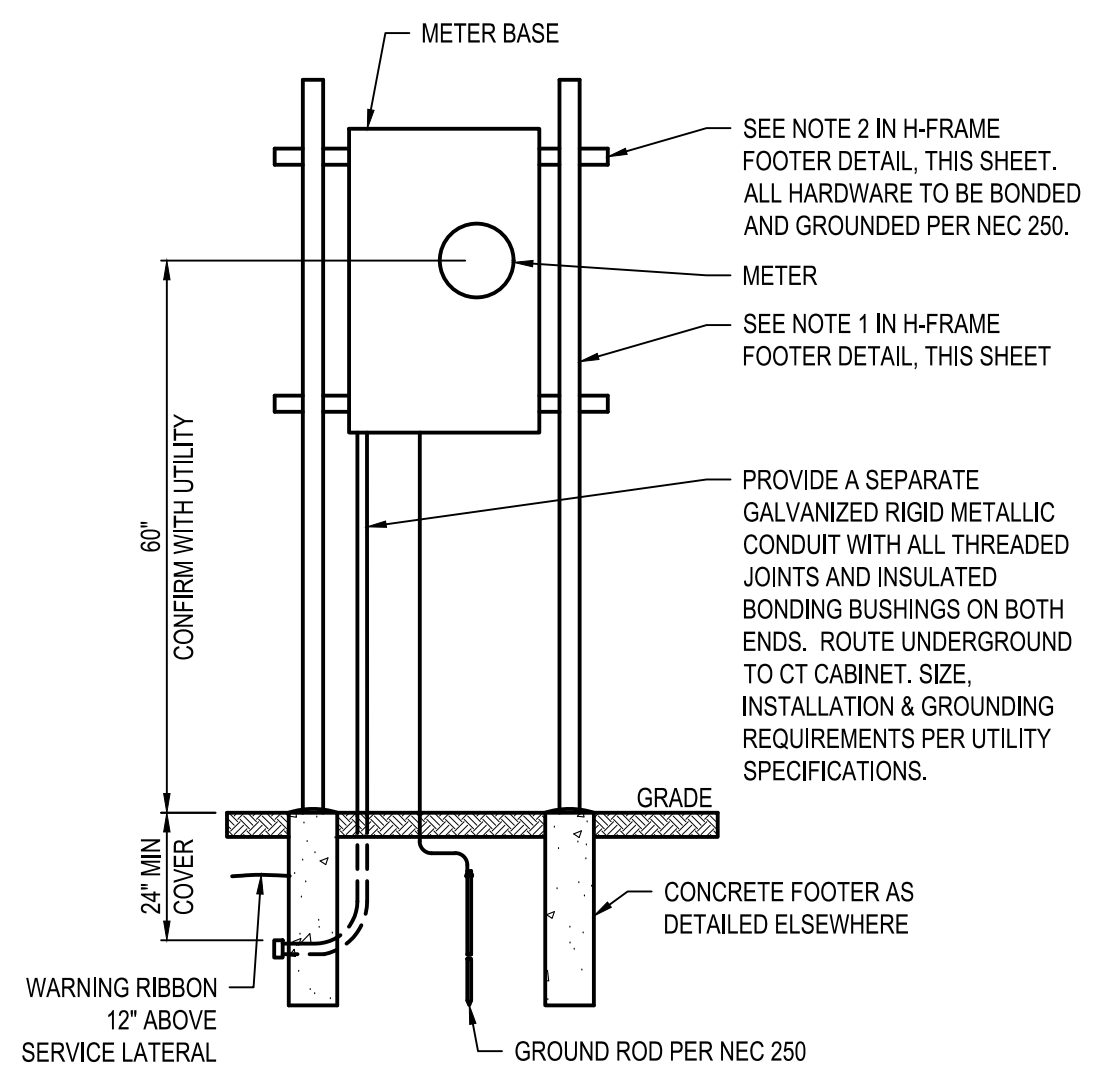
SINGLE LINE DIAGRAM
& PANEL SCHEDULE

PROJECT MANAGER	DESIGNER
IM	CJM

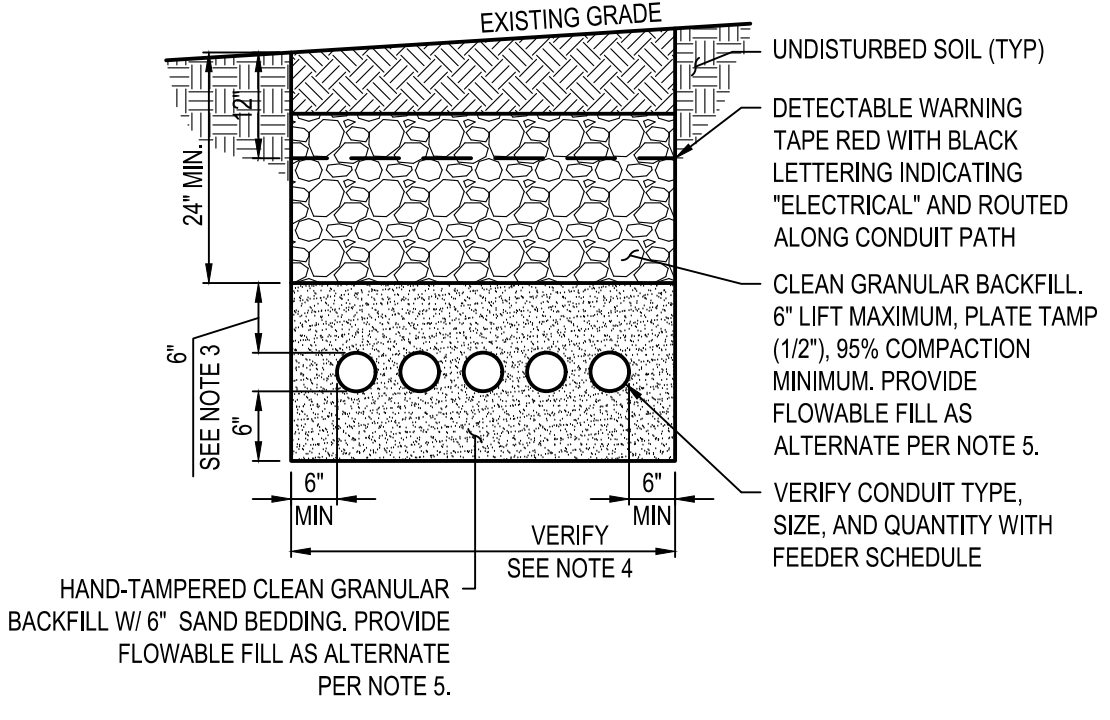
JOB NO.
2022241.29

E-201

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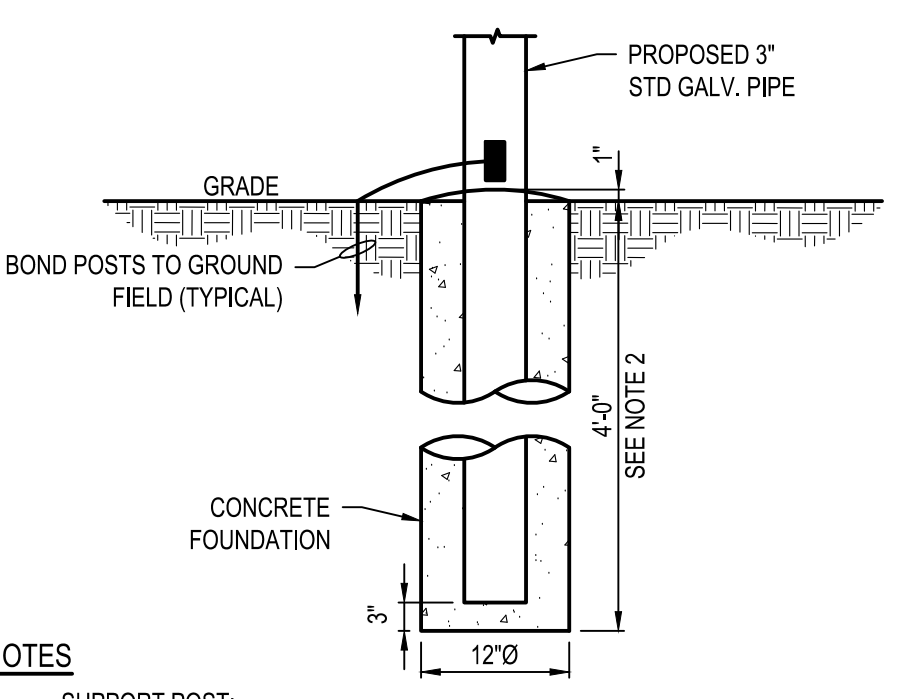


C-1 METER ON H-FRAME NTS



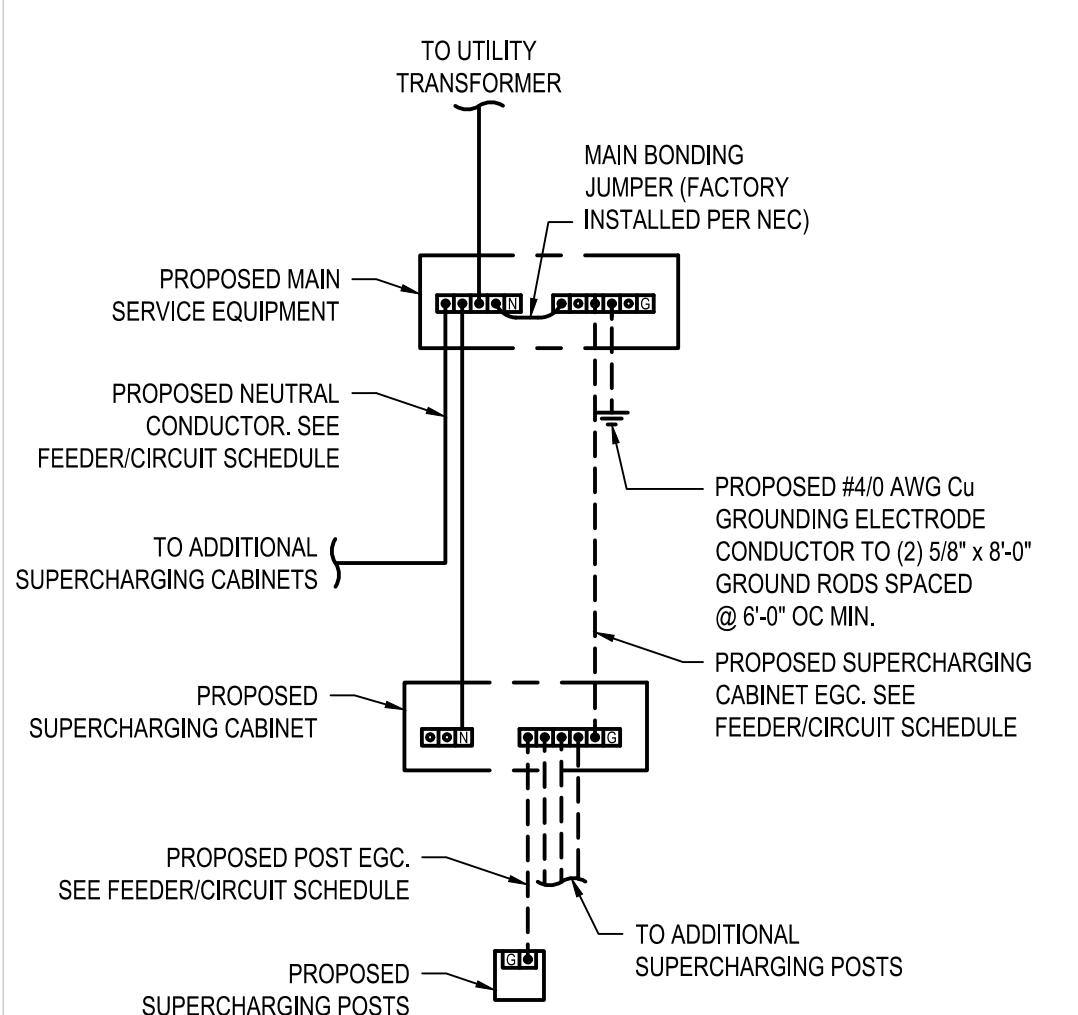
1. ANY EXCAVATION LEFT OPEN SHOULD BE SECURELY FENCED OFF. ALL TRENCHING SHALL BE ACCORDING TO THE LATEST OSHA STANDARDS.
2. ANY PAVEMENT DAMAGE DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR TO PRE-CONSTRUCTION CONDITIONS OR BETTER.
3. CONTRACTOR SHALL INSTALL CONDUITS BELOW LOCAL FROST LINE. SHOULD FIELD CONDITIONS VARY, CONTRACTOR SHALL COORDINATE WITH TESLA CONTACT LISTED ON C-001.
4. VERIFY WIDTH OF TRENCH REQUIRED. REFER TO SITE ELECTRICAL DRAWING FOR APPROXIMATE ROUTING.
5. THE CONTRACTOR SHALL FURNISH FLOWABLE FILL WITH A 28 DAY COMPRESSIVE STRENGTH RANGING FROM 50 PSI TO 100 PSI PER THE STATE DEPARTMENT OF TRANSPORTATION'S CONSTRUCTION AND MATERIAL SPECIFICATIONS, CURRENT EDITION, LATEST REVISION.
6. DC BUS CONDUITS ARE NOT TO BE STACKED UNDER ANY CIRCUMSTANCES.

C-3 DC BUS CIRCUIT TRENCH N.T.S.



- NOTES
1. SUPPORT POST: 2-3" STD GALVANIZED PIPE CEMENTED IN GROUND. BOND POSTS TO GROUND FIELD. MOUNTING HARDWARE- 12 GAUGE 1-5/8" X 1-5/8" CONTINUOUS SLOT HOT DIPPED GALVANIZED CHANNEL (e.g., UNISTRUT) COMPLETE WITH 1-1/4" X 5/16" DIA. 13 THD SPRING NUT (2 PER CHANNEL), 5/16" HEX NUT, AND LOCK WASHER SECURELY MOUNTED TO SUPPORT POSTS.
2. REFER TO FEEDER/CIRCUIT SCHEDULE FOR CONDUIT SPECIFICATION
3. ALL ABOVE GROUND CONDUITS SHALL BE RIGID GALVANIZED STEEL. PROVIDE PVC TO RGS COUPLER FOR TRANSITION.
4. ALL CUT POST & UNISTRUT ENDS SHALL BE FILED, GALVANIZED AND CAPPED. IF FROST DEPTH EXCEEDS 4'-0", FOOTER TO EXCEED FROST DEPTH.
5. ENGINEER OF RECORD SHALL BE CONTACTED IMMEDIATELY IF GROUND WATER IS ENCOUNTERED DURING CONSTRUCTION.

C-4 H-FRAME FOOTER NTS



C-5 TYPICAL GROUNDING DIAGRAM N.T.S.

! DANGER
NO SAFE PPE EXISTS
ENERGIZED WORK PROHIBITED

FLASH PROTECTION SHOCK PROTECTION
Working Distance: 18 in Shock risk when cover is removed 480 VAC
Glove Class: 00
Arc Flash Boundary: 399 in
PPE: **NO SAFE PPE** Limited Approach 42 in
Min. Arc Rating: **NO SAFE PPE**
DO NOT WORK ON LIVE! Restricted Approach 12 in

Bus: **INCOMING SECTION-MAIN Prot: MaxTripTime @2.0s**

! WARNING
Arc Flash and Shock Risk
Appropriate PPE Required

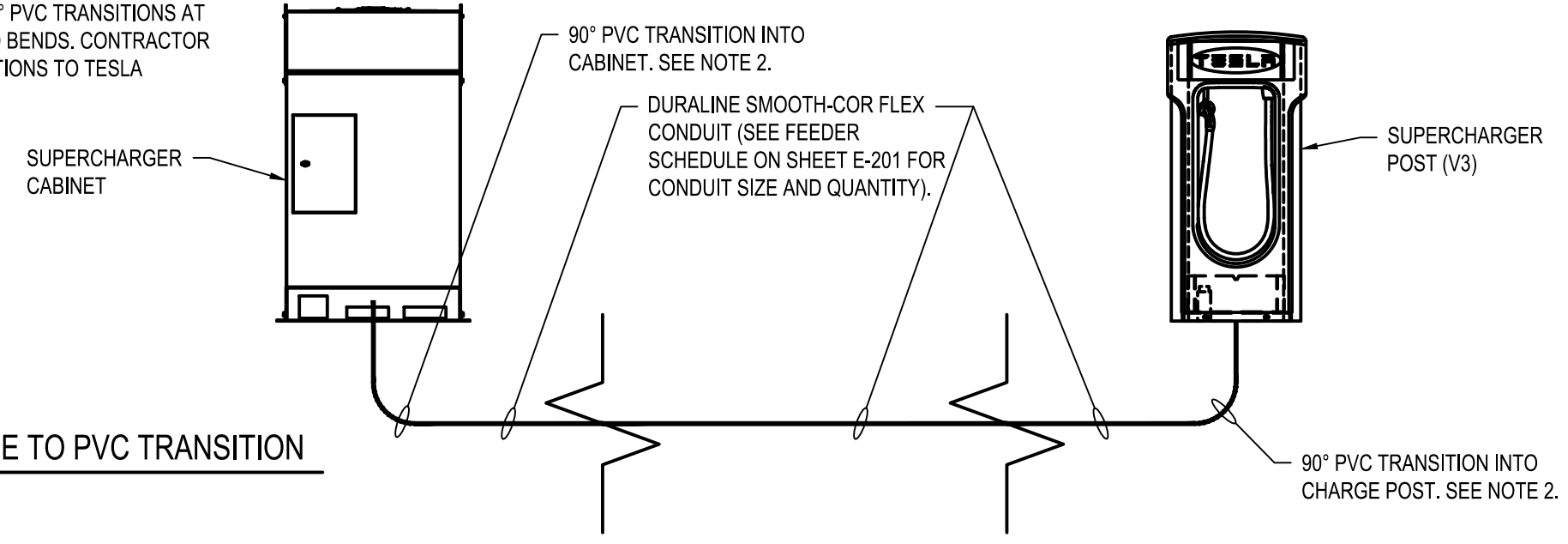
FLASH PROTECTION SHOCK PROTECTION
Working Distance: 18 in Shock risk when cover is removed 480 VAC
Glove Class: 00
Arc Flash Boundary: 39 in
PPE: **CAT 2** Limited Approach 42 in
Min. Arc Rating: **8 cal/cm²** Restricted Approach 12 in

Bus: **CHARGING CABINETS Prot: 600A BREAKER**

- NOTES:
1. FOR ANY QUESTIONS OR CLARIFICATIONS REGARDING LABELS, CONTACT TESLA.
2. ARC FLASH INCIDENT ENERGY ANALYSIS COMPLETED PER NFPA 70E 2018.
3. ARC FLASH CALCULATIONS PER IEEE 1584, 2018.
4. LABELS SHALL BE PRINTED WITH PERMANENT INK ON WEATHERPROOF LABELS WITH SELF-STICKING ADHESIVE.
5. INSTALL LABELS PER NEC SECTION 110.16.
6. FOR EACH SWITCHGEAR SECTION, CONTRACTOR SHALL PROVIDE (1) APPLICABLE LABEL ON EXTERIOR DOOR AND (1) APPLICABLE LABEL ON INTERIOR FRONT FACING SECTION. CONTRACTOR SHALL FIELD VERIFY SPECIFIC LOCATION FOR LABEL PLACEMENT(S).
7. CONTRACTOR SHALL PROVIDE LABELS WITH ANY ADDITIONAL INFORMATION AS REQUIRED BY LOCAL JURISDICTION, STATE AND FEDERAL CODES AND LAWS.

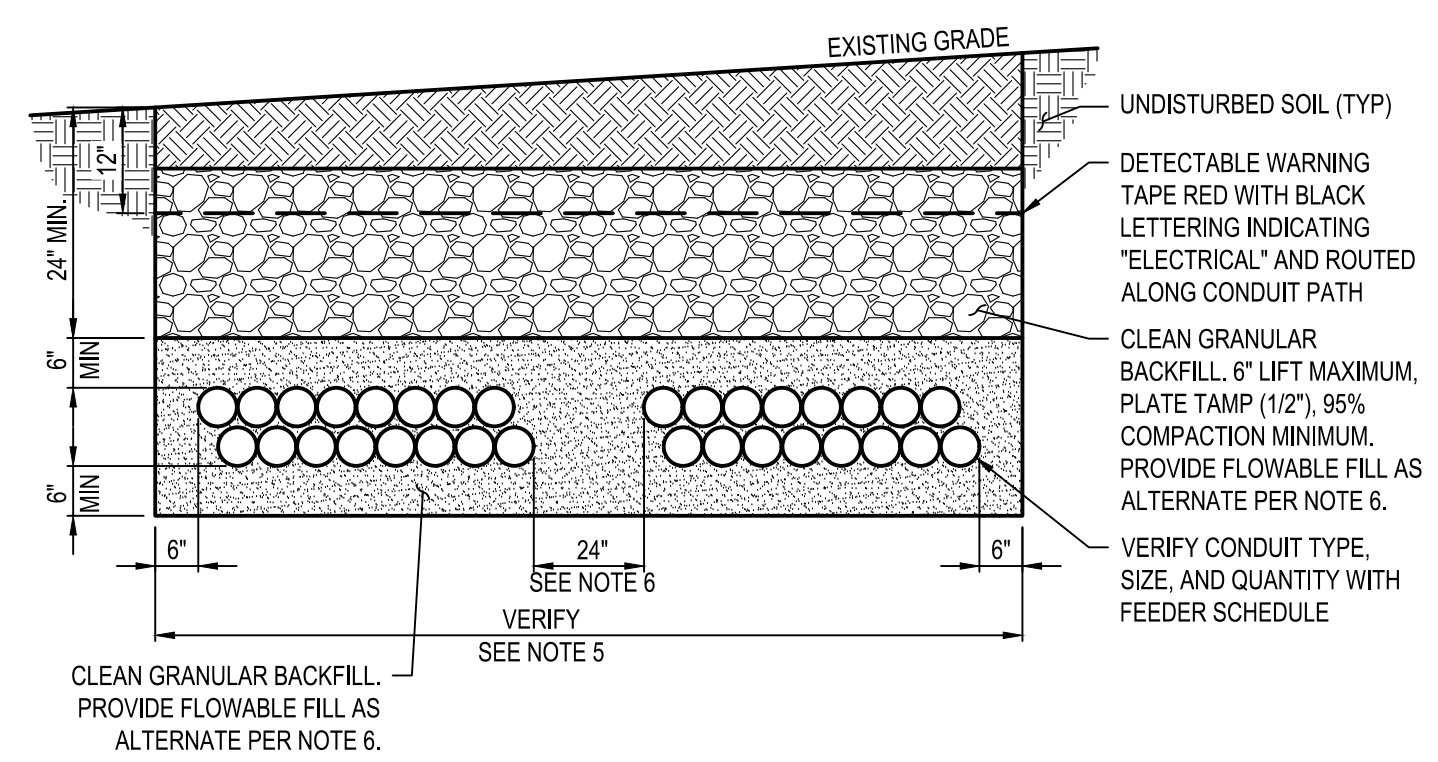
A-1 ARC FLASH LABELS N.T.S.

- NOTES
1. DURALINE SMOOTH-COR FLEX CONDUIT HAS BEEN CERTIFIED AS A CRITICAL COMPONENT OF THE SUPERCHARGER POST BY TUV. TESTING REPORTS SHOWING HOW THIS PRODUCT MEETS UL STANDARDS ARE AVAILABLE UPON REQUEST. PRODUCT WILL BE USED FOR "DC-POST" CONDUIT RUN.
2. DURALINE SMOOTH-COR FLEX CONDUITS REQUIRE THE USE OF 90° PVC TRANSITIONS AT EACH END AND/OR HARD BENDS. CONTRACTOR TO SUPPLY PVC TRANSITIONS TO TESLA EQUIPMENT.

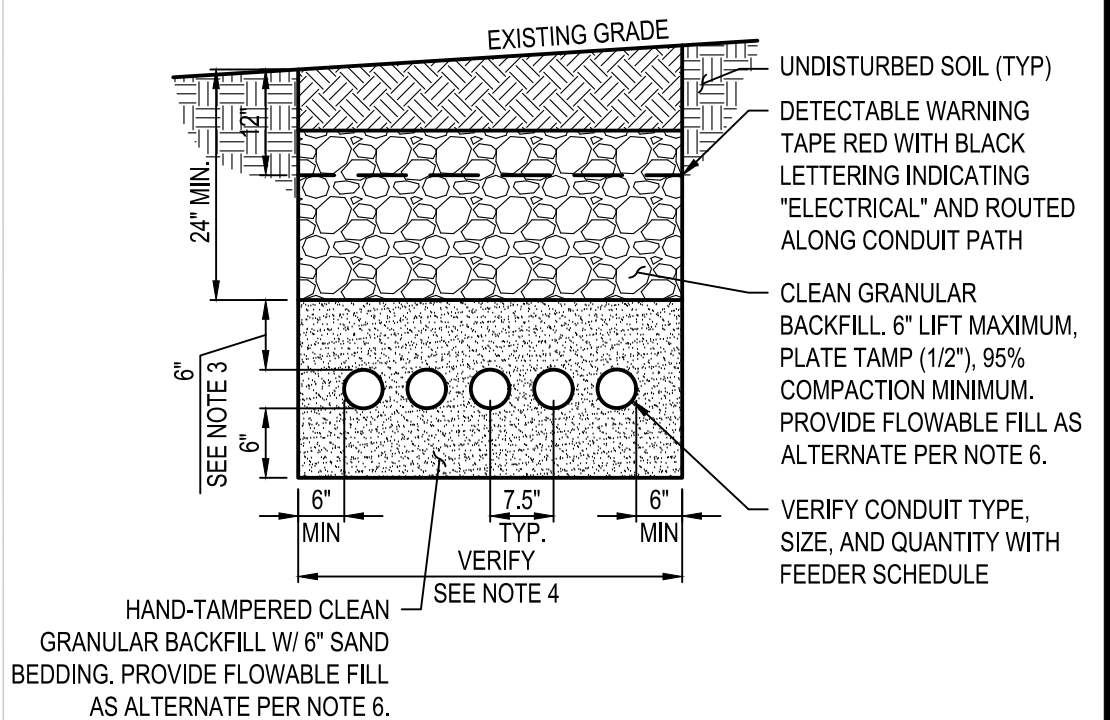


B-3 DURALINE TO PVC TRANSITION NTS

- NOTES
1. DUCT BANK DESIGNED AND CERTIFIED BY TESLA. SEE NOTE 6 FOR ADDITIONAL INFORMATION.
2. ANY EXCAVATION LEFT OPEN SHOULD BE SECURELY FENCED OFF. ALL TRENCHING SHALL BE ACCORDING TO THE LATEST OSHA STANDARDS.
3. ANY PAVEMENT DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR TO PRE-CONSTRUCTION CONDITIONS OR BETTER.
4. CONTRACTOR SHALL INSTALL CONDUITS BELOW LOCAL FROST LINE. SHOULD FIELD CONDITIONS VARY, CONTRACTOR SHALL COORDINATE WITH TESLA CONTACT LISTED ON SHEET C-001.
5. FIELD VERIFY WIDTH OF TRENCH REQUIRED. REFER TO SITE ELECTRICAL DRAWING FOR ROUTING.
6. DC POST CONDUIT DUCT BANK DESIGN BY TESLA. CONTRACTOR SHALL FURNISH FLOWABLE FILL WITH A 28 DAY COMPRESSIVE STRENGTH RANGING FROM 50 PSI TO 100 PSI PER THE STATE DEPARTMENT OF TRANSPORTATION'S CONSTRUCTION AND MATERIAL SPECIFICATIONS, CURRENT EDITION, LATEST REVISION. TRENCHES WITH UP TO 16 DC POST CONDUITS MAY BE INSTALLED WITH NO CONDUIT SPACING. ENGINEERED FILL WITH A RHO VALUE LESS THAN 100 MUST BE USED FOR BACKFILL. TRENCHES WITH MORE THAN 16 DC POST CONDUITS MUST INCLUDE A 24" SEPARATION BETWEEN CONDUIT GROUPS OF NOT MORE THAN 16 CONDUITS. GROUPINGS OF 4 OR FEWER DC POST CONDUITS MAY BE INSTALLED WITHOUT ENGINEERED FILL. THIS CONDUIT CONFIGURATION HAS NOT BEEN REVIEWED BY THE STAMPING PARTY. THEREFORE, THE STAMPING PARTY SHALL NOT BE HELD LIABLE FOR ITS USE. ANY RELIANCE ON THIS DETAIL SHALL BE AT THE RELYING PARTY(IES)'S OWN RISK AND HEREBY WAIVES ANY AND ALL CLAIM(S) RELATED TO THE EXISTENCE OF THE STAMP OR OTHERWISE.
7. THIS DETAIL REQUIRED FOR USE WITH 350MCM AI DC CONDUCTORS ONLY. WHEN INSTALLING 600 MCM AI DC CONDUCTORS, USE REQUIREMENTS DETAILED IN TYPICAL TRENCH DETAIL, THIS SHEET.



B-5 TYPICAL FEEDER TRENCH N.T.S.



A-5 SECONDARY FEEDER TRENCH N.T.S.

1. ANY EXCAVATION LEFT OPEN SHOULD BE SECURELY FENCED OFF.
2. ANY PAVEMENT DAMAGE DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR TO PRE-CONSTRUCTION CONDITIONS OR BETTER.
3. CONTRACTOR SHALL INSTALL CONDUITS BELOW LOCAL FROST LINE. SHOULD FIELD CONDITIONS VARY, CONTRACTOR SHALL COORDINATE WITH CONTACT ENGINEER LISTED ON SHEET C-001.
4. VERIFY WIDTH OF TRENCH REQUIRED. REFER TO SITE ELECTRICAL DRAWING ON SHEET E-101 FOR ROUTING.
5. VERIFY ALL REQUIREMENTS WITH POWER COMPANY
6. THE CONTRACTOR SHALL FURNISH FLOWABLE FILL WITH A 28 DAY COMPRESSIVE STRENGTH RANGING FROM 50 PSI TO 100 PSI PER THE STATE DEPARTMENT OF TRANSPORTATION'S CONSTRUCTION AND MATERIAL SPECIFICATIONS, CURRENT EDITION, LATEST REVISION.

TESLA
3600 DEER CREEK RD.
PALO ALTO, CA 94304
(650) 681-5000

GPD GROUP
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STATE OF OHIO
REGISTERED PROFESSIONAL ENGINEER
STEVEN P. SCHAUB
E-76700
03/22/23

TESLA SUPERCHARGER STATION
30320 LAKESHORE BLVD
WILLOWICK, OH 44095

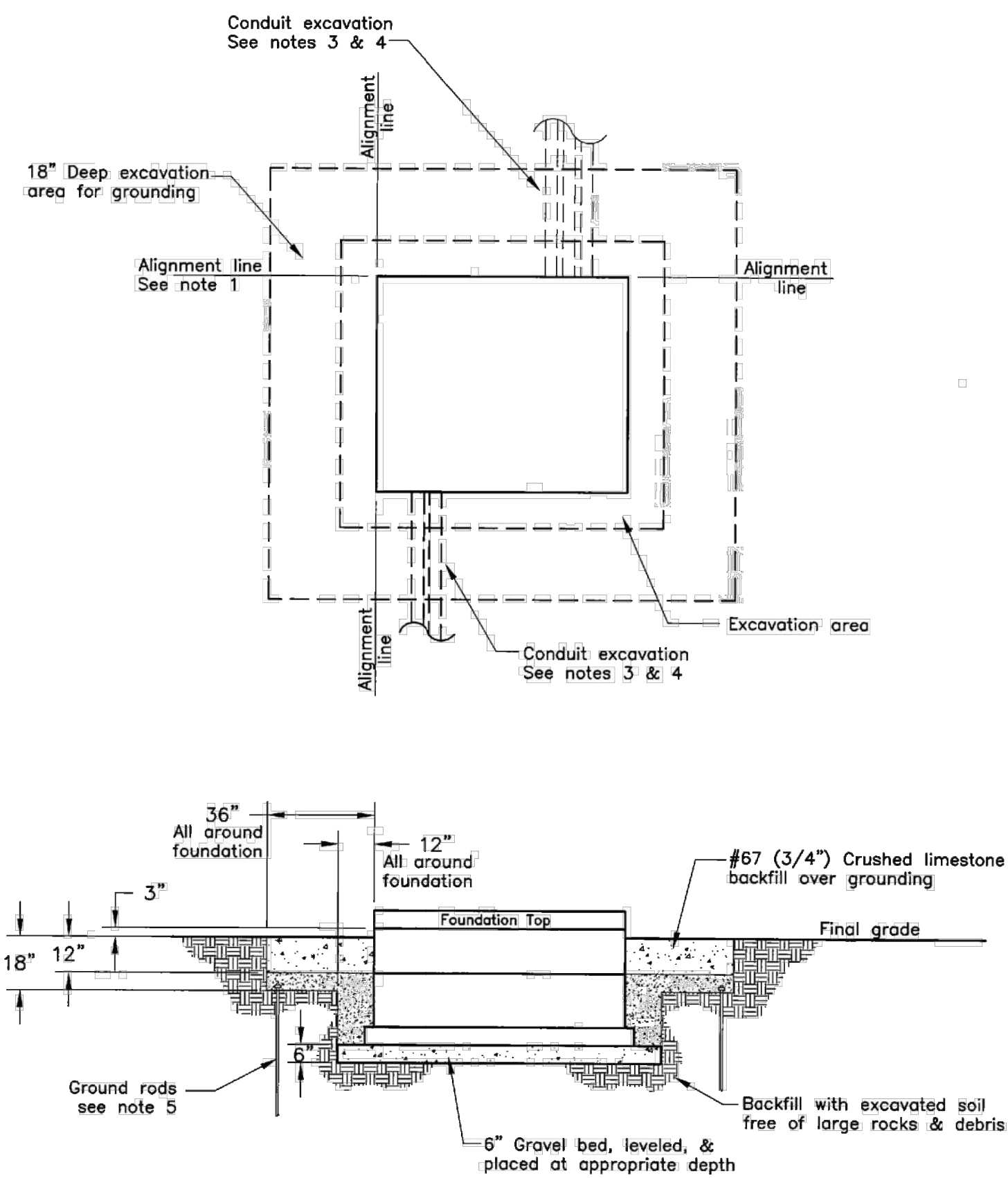
PROJECT MANAGER	DESIGNER
IM	CJM

JOB NO.
2022241.29

E-301

ELECTRICAL DETAILS

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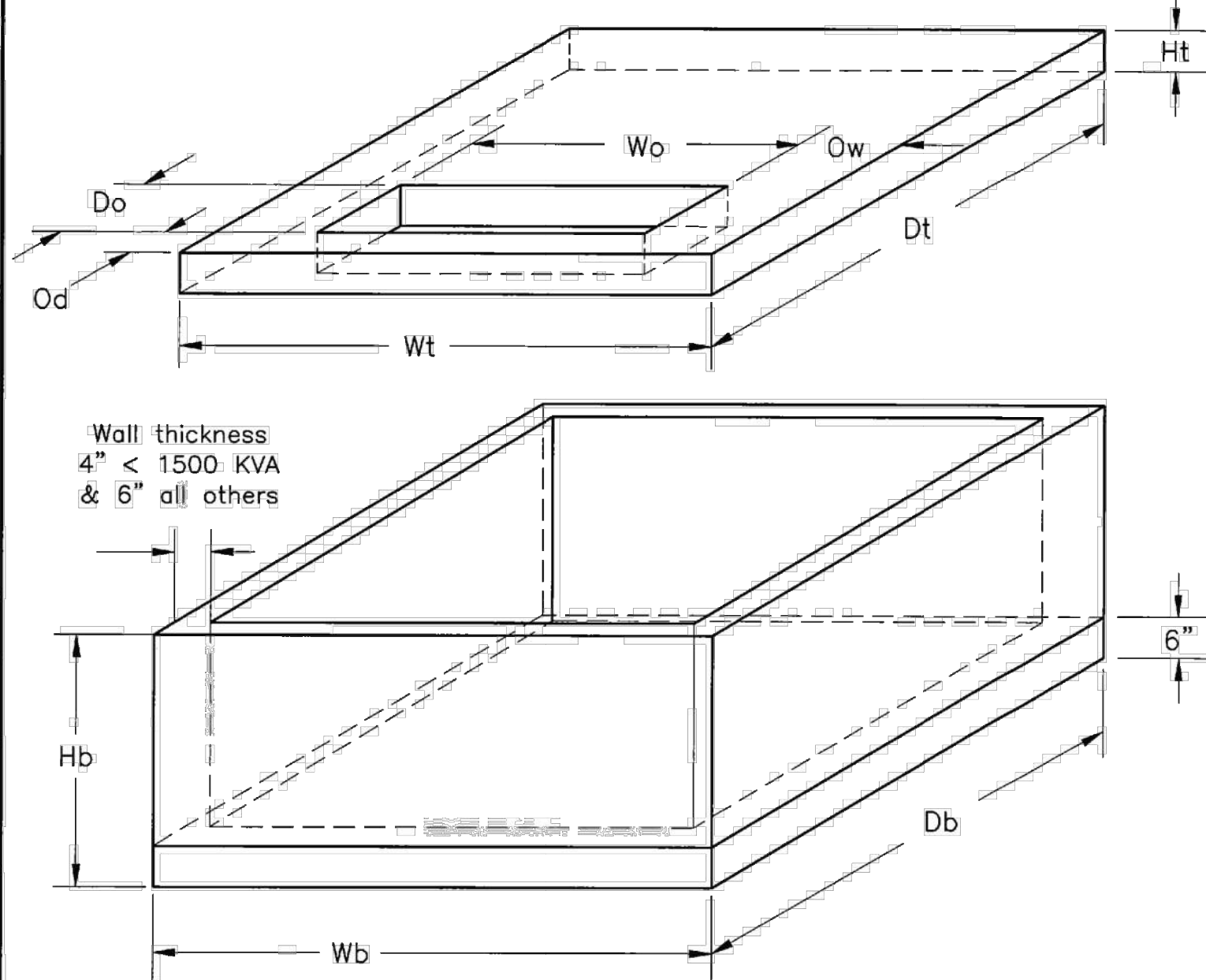


For notes see Exhibit 25 page 3 of 3.

**THREE-PHASE TRANSFORMER
 PRE-CAST CONCRETE FOUNDATION
 (INSTALLATION DETAILS)**

PAGE 1 OF 3

FirstEnergy.	
Service Guide	REV. 0
EXHIBIT 25	DATE 1/14



TRANSFORMER SIZE	BASE DIM						TDP			OPENING IN TDP			
	Wb	Db	Hb	Wt	Dt	Ht	Wt	Do	Dw	Od	Dw	Od	
45 - 150 kVA	72"	54"	42"	4,275#	72"	54"	6'	1,725#	55"	14"	8.5"	6"	
225 - 1000 kVA	78"	66"	42"	8,000#	78"	66"	6'	2,400#	60"	19"	9"	6"	
1500 - 2500 kVA	96"	96"	42"	12,000#	96"	96"	9'	6,400#	60"	19"	18"	9"	
1500 - 2500 kVA	96"	96"	54"	14,000#	96"	96"	9'	6,400#	60"	19"	18"	9"	

**THREE-PHASE TRANSFORMER
 PRE-CAST CONCRETE FOUNDATION
 (FABRICATION DETAILS)**

PAGE 2 OF 3

FirstEnergy.	
Service Guide	REV. 0
EXHIBIT 25	DATE 1/14

NOTES:

- Customer shall contact the Company prior to beginning work to discuss the details of transformer foundation position and orientation, working clearances, barrier protection, construction specifications, and inspection procedures. The Customer is responsible for purchasing, owning, and maintaining the pre-cast transformer foundation and associated secondary rack equipment. The contractor/developer shall coordinate site preparations with the desired delivery date. The contractor shall provide a clear and firm approach to the point of delivery and keep the area above the transformer clear of obstructions that may block the use of Company vehicles (e.g., crane access to the transformer).
- The customer/contractor is responsible for the excavation to install the transformer foundation and for backfilling afterwards. The excavation shall be at least 2 feet wider than the vault dimension and 5 feet- 6 inches deep (actual excavation depth may vary, depending upon relation between existing and final grade). Six (6) to eight (8) inches of 2B crushed stone bed must be spread (tamped and leveled at appropriate depth) in the bottom of the excavation. Pavement (concrete, asphalt, or grasscrete) shall be provided to within ten (10) foot of installation for Company trucks. For delivery, the customer/contractor should provide painted lines or stakes and string for alignment in place and three 4 inch x 4 inch lumber off to side for unloading foundation top (at delivery time).
- Customer/contractor shall provide, install, and seal a minimum five (5) foot section of PVC conduit through the wall of the foundation base (sloping away from the foundation) for Company primary cable at Company designated location.
- Excavation for customer conduits can be done at the same time as for foundation
- The customer shall install a continuous #2 bare, seven strand, soft drawn copper ground wire connected to two 5/8-inch diameter x 8-foot ground rods installed in opposite corners of the vault in undisturbed earth. Both ends of the ground wire shall enter the foundation through a one-inch diameter hole to be drilled or chiseled in the upper right-hand corner of the knockout pane. Ground wire tails shall extend 15 feet inside vault beyond knockout point.
- The decision to open the sump for drainage or leave it closed will be made by the Company based on field conditions. The customer is responsible for taking corrective action (improve drainage, sump pump, etc.) for a foundation that continuously fills with water and water is leaking through service conduits into the customer's building. The area surrounding the foundation must be graded so that ground water will not collect.
- The customer/contractor shall install protective barriers when the transformer is located in an area exposed to vehicular traffic. See Exhibit 30.

**THREE-PHASE TRANSFORMER
 PRE-CAST CONCRETE FOUNDATION
 (NOTES)**

PAGE 3 OF 3

FirstEnergy.	
Service Guide	REV. 0
EXHIBIT 25	DATE 1/14

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**FOR
 REFERENCE
 ONLY**

TESLA SUPERCHARGER STATION
 30320 LAKESHORE BLVD
 WILLOWICK, OH 44095

UTILITY DETAILS

PROJECT MANAGER	DESIGNER
IM	CJM

JOB NO.
 2022241.29

E-401

SPECIALTY

SMOOTH-COR FLEX

- Flexible: Reduces/eliminates the need for sweeps and bends
- Crush resistant: Equivalent to Schedule 40 PVC
- Lightweight: Easier installation, 40% lighter than PVC
- Compatibility: Easily adapts to other conduit materials
- Glueless coupling: Safe, quick assembly
- Gasketed: Air and watertight
- Low COF: Longer cable pulls with lower cable stress



INSTALLATION TYPES

Underground
Direct Bury
Concrete Encasement

SIZE RANGE AVAILABLE

2.0"
3.0"
4.0"

STANDARD COLORS

Outer Wall: ■ ■ ■
Inner Wall: ■

STANDARD

DETAILS Manufactured from flexible HDPE (High Density Polyethylene)

SPECIFICATIONS All Smooth-Cor Flex dimensions meet or exceed one or more of the following: ASTM D-3350, ASTM D-638, ASTM D-792, ASTM D-1238, ASTM D-1693

CONDUIT MARKINGS Permanent marking along conduit includes: material, relevant standards, production info, and sequential feet or meter markings.

CO-EXTRUDED LINING Corrugated exterior with a smooth, co-extruded inner layer

PRE-INSTALLED TAPE Factory pre-installed Bull-Line™ 1200lb Pull Tape comes standard in Smooth-Cor Flex on steel reels. Smooth-Cor Flex coils are only available as empty.

OPTIONS

PACKAGING Available on steel reels or 250' coils

COIL PACKAGING FOR SMOOTH-COR FLEX

SIZE	LENGTH	WEIGHT/COIL (LBS)	COILS/PALLET	PALLETS/TRUCK	QTY/TRUCK-LOAD	RED PART #	GREY PART #
2"	250'	55	3	26	19,500	20000670	20004695
3"	250'	108	3	20	15,000	20000671	20004696
4"	250'	142	3	9	6,750	20000672	20004732

REEL PACKAGING FOR SMOOTH-COR FLEX

SIZE	LENGTH	REEL SIZE	RED PART #	GREY PART #
2"	3,500	96 x 45	20005462	20005607
3"	1,850	96 x 45	20005463	20005608
4"	900	96 x 45	20005464	20005609

TECHNICAL SPECIFICATIONS FOR SMOOTH-COR FLEX

LENGTH	250' COILS	
Pipe Stiffness	ASTM D 2412	2" 75 LBS/IN/IN 3" 88 LBS/IN/IN 4" 116 LBS/IN/IN
Impact Resistance per Falling Tup	ASTM D 2444	45-50 FT-LB @ 72 degrees 40 FT-LB @ 32 degrees
Coupler Water & Air Tight	ASTM D 3212	10 psi

TECHNICAL SPECIFICATIONS FOR SMOOTH-COR FLEX

PRODUCT	DUAL WALL	A I.D.	B O.D.	C TOTAL WIDTH	INNER WALL THICKNESS	OUTER WALL THICKNESS
	2"	2.045" 51.943mm	2.495" 63.373mm	0.325" 8.255mm	0.020" ± 0.010" 0.508mm ± 0.254mm	0.023" ± 0.007" 0.584mm ± 0.178mm
	3"	2.950" 74.930mm	3.510" 89.154mm	0.360" 9.144mm	0.027" ± 0.010" 0.686mm ± 0.254mm	0.033" ± 0.007" 0.838mm ± 0.178mm
	4"	3.980" 101.092mm	4.730" 120.142mm	0.650" 16.510mm	0.027" ± 0.010" 0.686mm ± 0.254mm	0.033" ± 0.007" 0.838mm ± 0.178mm

MATERIAL DESIGNATION

TEST METHOD	DESCRIPTION	VALUES
ASTM D 3350	HDPE Resin Cell Classification	334480 C or E
ASTM D 638	Tensile strength at yield	3000 PSI Min
ASTM D 638	% Ultimate Elongation Value	400 Min
ASTM D 792	Density g/cm3	0.941 - 0.959
ASTM D 1238	Melt Index, g/10 min Condition E	0.5 Max
ASTM D 1693	ESCR Condition B, F10	96 hrs.

REV.	DATE	DESCRIPTION
A	12/14/2022	ISSUED FOR SITE SKETCH REVIEW
B	12/21/2022	ISSUED FOR 80% REVIEW
C	02/21/2023	ISSUED FOR SIGN & SEAL
0	03/22/2023	ISSUED FOR SIGN & SEAL

FOR REFERENCE ONLY

TESLA SUPERCHARGER STATION
30320 LAKESHORE BLVD
WILLOWICK, OH 44095

DURALINE SPECIFICATIONS

PROJECT MANAGER	DESIGNER
IM	CJM

JOB NO.
2022241.29

E-501



3600 DEER CREEK RD.
PALO ALTO, CA 94304
(650) 681-5000

Drawing Name: O:\2022\2022241.29 - TRT 27552 - Willowick, OH - 30320 Lakeshore Blvd\dwg\2022241.29 - Willowick, OH - CD100.dwg
March 21, 2023 2:05 PM - cmodiffit

+1 800 847 7661
WWW.DURALINE.COM

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WWW.DURALINE.COM

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