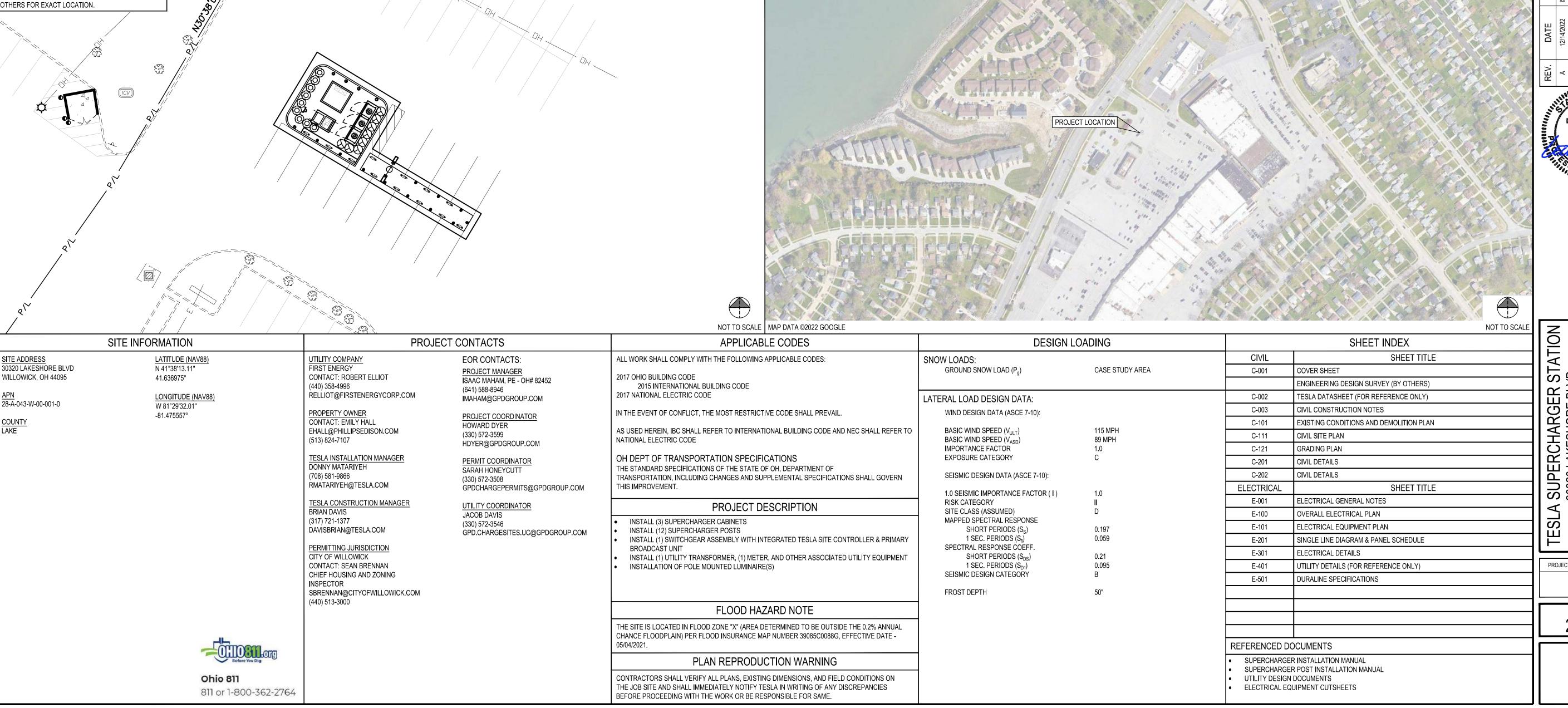


SUPERCHARGER STATION

30320 LAKESHORE BLVD WILLOWICK, OH 44095 TRT27552

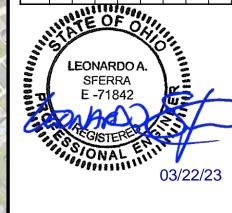
VICINITY MAP

SITE LAYOUT





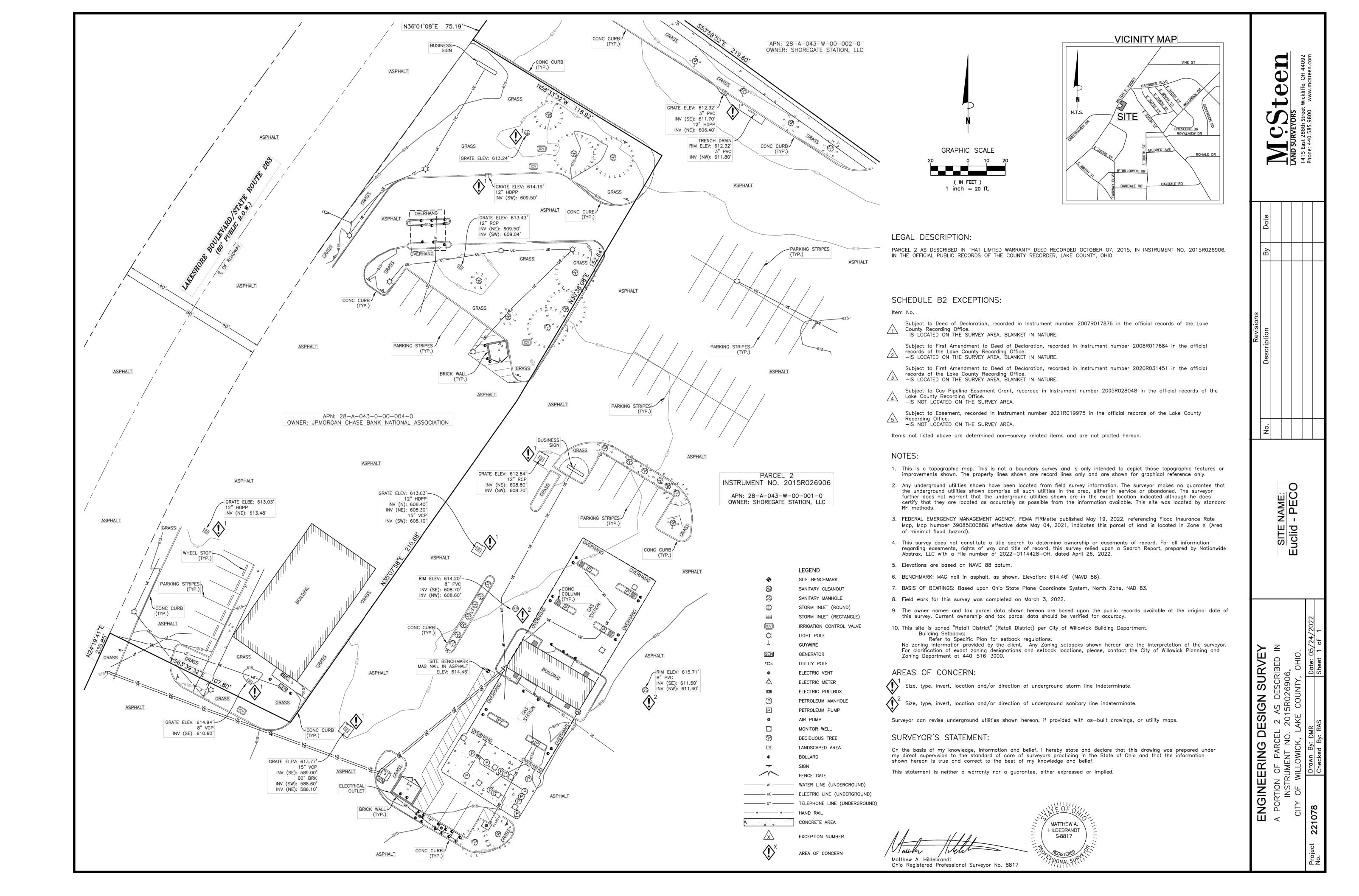
DESCRIPTION	ISSUED FOR SITE SKETCH REVIEW	ISSUED FOR 90% REVIEW	ISSUED FOR SIGN & SEAL	ISSUED FOR SIGN & SEAL			
DATE	12/14/2022	12/21/2022	02/21/2023	03/22/2023			
REV.	۷	В	0	0			



JS S. SUPERCHARGER § 30320 LAKESHORE BLV WILLOWICK, OH 44095

> PROJECT MANAGER DESIGNER

SHEE







V3 Sup	ercharger	Charge	Post

DOST INDUT/OUBLIT	Max. Rated Post Power	250 kW						
POST INPUT/OUPUT (ELECTRICAL)	Post Rated Voltage Range	0 - 500 Voc						
(ELECTRICAL)	Post Rated Current @Ta=35" C	Tesla Handle: 350 Apc, CCS2 & GB Handle: 450 Apc						
	Power Conductors	V+, V- (2x/pole): 350 MCM or 185 mm ² AL (certified equipment wiring)						
DC INIDIT	PE Conductor	PE: 25 – 50 mm ² , 3 AWG – 2/0						
DC INPUT (MECHANICAL)	Conductor Material Type	V+, V- : Al, Cu PE: Al, Cu						
(IVIECHAINICAL)	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							
ENVIRONMENTAL	Ingress Protection IP44							
STANDARDS	UL 2202, CSA 22.2#107.1-16, FCC, ICE	S-003, EN 61000-6-2, EN 61000-6-4, IEC 61851-1, IEC 61851-23, GB/T						
STANDARDS	18487.1, GB/T 2	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.						
MOUNTING	Per-anchor min. Shear Strength	1 kN						
MOUNTING	Per-anchor min. Tension Strength	11 kN						

DESCRIPTION	ISSUED FOR SITE SKETCH REVIEW	ISSUED FOR 90% REVIEW	ISSUED FOR SIGN & SEAL	ISSUED FOR SIGN & SEAL			
DATE	12/14/2022	12/21/2022	02/21/2023	03/22/2023			
REV.	А	В	ပ	0			

FOR REFERENCE ONLY

TESLA SUPERCHARGER STATION 30320 LAKESHORE BLVD WILLOWICK, OH 44095

TESLA DATASHEET

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PROJECT MANAGER	DESIGNER
IM	СЈМ

Page 5 of 6

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		Input (V _{AC})	480	440	415	400	38			
	Peak AC Input Power	Power (kVA)	387	354	334	322	30			
	AC Input Voltage	380 VAC - 480 VAC (-59	6, +10%), 4-wir	e 3AC+N						
AC INPUT	AC Input current	465 A _{AC} Max.	,,							
2011 PG 20 200	Frequency	50 Hz / 60 Hz								
•	Power Factor	≥ 0.99								
	Current THD	< 3%								
	Voltage THD	< 2%								
		L1, L2, L3, N: 150 - 40	00 mm², 250 M	CM – 75	0 МСМ					
AC INPUT	Conductor Sizes	PE: 10 - 70 mm ² , #8 /	AWG - 2/0							
(Mechanical)	Conductor Material Type	L1, L2, L3, N: Cu, Al PE: Cu								
	Mfr. Termination Temp Rating									
		Input (VAC)	480	440	415	400	38			
SHARED DC BUS	Max Rated DC Bus Power	Power (kW)	575	575	575	575	57			
(ELECTRICAL)	Max Rated DC Bus Current									
	DC Bus Voltage Range	880 - 1000 V _{DC}	'							
		V+, V- (2x/pole): 150	- 300 mm ² , 25	0 MCM -	- 600 MC	M				
	Conductor Sizes	Mid: 16 - 150 mm ² , 6 AWG - 250 MCM								
SHARED DC BUS		PE: 10 - 70 mm ² , #8 AWG - 2/0								
(MECHNICAL)	Conductor Material Type	V+, V-, Mid: Cu, Al	PE: Cu							
AC INPUT (Mechanical) SHARED DC BUS (ELECTRICAL)	Conductor Voltage Rating									
	Mfr. Termination Temp Rating	14-1-15								
	Max. Rated Post Power	250 kW								
	Post Rated Voltage Range	0-500 V ₀₀								
DC POST (ELETRICAL)	Post Rated Current @T _a =35° C	Tesla Handle: 350 Apr	c, CCS2 & GB Ha	andle: 45	60 Apc					
	Number of Charge Posts	1 - 4								
	Max Voltage Drop									
		V+, V- (2x/pole): 350	MCM or 185 n	nm² AL (certified	equipme	nt			
	Conductor Size	wiring)								
DC DOCT (MECHANICAL)		PE: 10 - 70 mm ² , #8 /	AWG - 2/0							
	Conductor Material Type	V+,V-: Al, Cu PE	: Cu							
	Conductor Voltage Rating									
	Mfr. Termination Temp Rating									
SYSTEM	Efficiency	96%								
	AC Input side: Class 1	DC Output side: Isola	ted DC Output							
DEOTECTION	Over Voltage/Current/	Temperature, Surge Pro	otection, Isolati	ion Mon	itoring					
PROTECTION	Short-Circuit Protection	External Electronic Tr	rip Circuit Break	œr						
	Short Circuit Current Rating									
AC INPUT (Mechanical) SHARED DC BUS (ELECTRICAL) SHARED DC BUS (MECHNICAL) DC POST (ELETRICAL) DC POST (MECHANICAL) SYSTEM PROTECTION ENVIRONMENTAL NOISE STANDARDS LAYOUT WEIGHT DIMENSIONS	Operating Temperature	-30°C to 50°C, -22°F t	o 122°F							
ENVIRONMENTAL	Ingress Protection	IP66 (Cabinet), IP2X (Cooling)							
	Ventilation Requirements	Ventilation Not Requ	ired							
NOISE	Typical noise at 1m	35 dB(A)								
STANDARDS	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 279 NB/T 33008.1, NB/T 33001									
LAYOUT	Max. Distance to Charge Post	100 m, 340 ft.								
		4 Post Cabinet: 1110	kg (2448 lbs)							
WEIGHT	Supercharger Cabinet Weight	3 Post Cabinet: 1039								
DIMENSIONS	Depth, Width, Height	1000, 1250, 2200 mn		86 20/32	in.					
	Per-anchor min. Shear Strength	4 kN								
		The state of the s								

V3 SUPERCHARGER DATASHEET

CONFIDENTIAL INFORMATION - SHARED NDA ONLY

CONFIDENTIAL INFORMATION - SHARED NDA ONLY

GENERAL CONSTRUCTION NOTES

FROM THE DRAWINGS.

THE TOPOGRAPHIC SURVEY BY OTHERS SHALL BE REFERENCED WITH THESE PLANS. THE G.C. IS RESPONSIBLE FOR LOCATING PROPOSED IMPROVEMENTS PER THESE PLANS.

- THE LOCATIONS OF UNDERGROUND FACILITIES SHOWN ON THE PLAN ARE BASED ON FIELD SURVEYS. DUE TO THE LIMITATIONS IN TECHNOLOGY AND GROUND CONDITIONS, NOT ALL UNDERGROUND UTILITIES ARE ABLE TO BE LOCATED. IT SHALL BE THE CONTRACTOR'S FULL RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES TO LOCATE THEIR FACILITIES PRIOR TO STARTING CONSTRUCTION. NO ADDITIONAL COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR DAMAGE AND REPAIR TO THESE FACILITIES CAUSED BY HIS WORK FORCE.
- ALL PROPERTY LINES, RIGHT OF WAYS, CENTERLINES, DIMENSIONS, GRADES, AND UTILITY LOCATIONS SHOWN ON THESE PLANS WERE BASED ON A TOPOGRAPHIC SURVEY. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY CONSTRUCTION/PROJECT MANAGER IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION FOR NECESSARY CHANGES. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR WORK HAVING TO BE REDONE DUE TO INFORMATION SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
- PRIOR TO COMMENCEMENT OF ANY WORK, THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND NOTIFY THE DESIGN PROFESSIONAL IN CHARGE FOR THE OWNER OF ANY DISCREPANCIES. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS 30. SHALL BE CORRECTED AT THE CONTRACTOR'S SOLE EXPENSE.
- CONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE OWNER FOR 31. APPROVAL BEFORE MAKING ANY CHANGES. DEVIATION FROM PLANS BEFORE WRITTEN APPROVAL FROM OWNER PLACES LIABILITY ON THE CONTRACTOR.
- UNLESS OTHERWISE NOTED, ALL SURFACES SHALL BE PATCHED AND PAINTED AROUND THE PROPOSED IMPROVEMENTS TO MATCH EXISTING FINISHES.
- APPROVALS FROM BUILDING INSPECTORS SHALL NOT CONSTITUTE AUTHORITY TO DEVIATE 33.
- THE GENERAL CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE THEMSELVES WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE ARRANGEMENTS FOR THE PROPOSED SCOPE OF WORK. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH ALL CONTRACT DOCUMENTS, FIELD DOCUMENTS, DIMENSIONS, AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. GENERAL CONTRACTOR SHALL ISSUES ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.
- ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND FEDERAL, STATE AND LOCAL JURISDICTION CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS THE MINIMUM REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK. DETAILS ARE INTENDED TO SHOW DESIGN INTENT MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF WORK AND PREPARED BY THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE OWNER PRIOR TO PROCEEDING.
- THE GENERAL CONTRACTOR SHALL COORDINATE WORK AND SCHEDULE WORK ACTIVITIES
- CONSTRUCTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMAN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST
- THE CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
- THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE PROPERTY OWNER.
- THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF
- THE GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES

AND CONTRACTORS TO THE SITE AND/OR BUILDING.

- THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION. PROVIDE AND MAINTAIN ALL TEMPORARY FENCING, BARRICADES, WARNING SIGNALS AND SIMILAR DEVICES NECESSARY TO PROTECT AGAINST THEFT FROM PROPERTY DURING THE ENTIRE PERIOD OF CONSTRUCTION. GRAFFITI ON TEMPORARY FENCING SHALL BE PAINTED OVER WITHIN ONE DAY OF DISCOVERY. REMOVE ALL SUCH DEVICES UPON COMPLETION OF THE WORK.
- THE GENERAL CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS ON THE PREMISES AT ALL
- ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. THE CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS SHALL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION, B) CONFINED SPACE, C) ELECTRICAL SAFETY, AND D) TRENCHING & EXCAVATION.

- 24. ONLY ITEMS SPECIFICALLY CALLED OUT TO BE REMOVED OR DEMOLISHED SHALL BE AFFECTED. ANY ITEMS INCLUDING, BUT NOT LIMITED TO, CURBS, PAVEMENT, UTILITY ITEMS, LANDSCAPING, ETC. SHALL REMAIN AND BE PROTECTED THROUGHOUT CONSTRUCTION. CONTRACTOR IS RESPONSIBLE TO REPAIR OR REPLACE ANY AFFECTED ITEMS AT OWNERS
- 25. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED, CAPPED, PLUGGED OR OTHERWISE DISCONNECTED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
- THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION.
- CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES SHALL BE IN CONFORMANCE WITH THE EPA AND FEDERAL, STATE, LOCAL JURISDICTIONS FOR EROSION AND SEDIMENT CONTROL THE WORK AREA SHALL BE CONSTRUCTED AND MAINTAINED IN SUCH CONDITION THAT IN THE EVENT OF RAIN THE SITE WILL BE DRAINED AT ALL TIMES.
- NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
- THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH UNIFORM GRADE AND COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY UNDER PAVEMENT, SIDEWALKS AND STRUCTURES AND 80 PERCENT STANDARD PROCTOR DENSITY IN OPEN SPACE. ALL TRENCHES IN PUBLIC RIGHT OF WAY SHALL BE BACKFILLED WITH FLOWABLE FILL OR OTHER MATERIAL PRE-APPROVED BY THE LOCAL JURISDICTION.
- ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
- ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS, AND OTHER DOCUMENTS SHALL BE TURNED OVER TO THE OWNER AT COMPLETION OF CONSTRUCTION AND PRIOR TO PAYMENT.
- THE CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS-BUILT REDLINES TO THE OWNER UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.
- AT THE END OF EACH WORK DAY AND FINAL TURNOVER TO OWNER, THE CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS IN A LAWFUL MANNER AND LEAVE PREMISES IN A CLEAN CONDITION. CONTRACTOR SHALL REMOVE ANY METAL SHAVING FROM WORK SITE WHERE OXIDIZED OR CONDUCTIVE SHAVINGS MAY CAUSE RUST, ELECTRICAL SHORT CIRCUITS, OR OTHER DAMAGE.
- CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION. IF CONTRACTOR CANNOT OBTAIN A PERMIT, THEY MUST NOTIFY THE GENERAL CONTRACTOR AND OWNER IMMEDIATELY.
- CONTRACTOR IS RESPONSIBLE FOR CLEARING, GRUBBING, STRIPPING, EROSION CONTROL, SURVEY, LAYOUT, SUBGRADE PREPARATION AND FINISH GRADING AS REQUIRED TO COMPLETE THE PROPOSED WORK SHOWN IN THESE PLANS.
- FIELD TESTING OF EARTHWORK COMPACTION AND CONCRETE CYLINDERS SHALL BE PERFORMED BY AN INDEPENDENT TESTING LAB. THIS WORK TO BE COORDINATED BY THE CONTRACTOR.
- 37. EXISTING UTILITIES: DO NOT INTERRUPT EXISTING UTILITIES SERVING FACILITIES OCCUPIED BY THE OWNER OR OTHERS, EXCEPT WHEN PERMITTED IN WRITING BY THE STAKEHOLDER AND THEN ONLY AFTER ACCEPTABLE TEMPORARY UTILITY SERVICES HAVE BEEN PROVIDED.
- 38. GRANULAR BACKFILL: SHALL MEET THE FOLLOWING GRADATION PER THE TABLE BELOW

SIEVE SIZE	TOTAL PERCENT PASSING
1-1/2" (37.50 MM)	100
1" (25.00 MM)	75 TO 100
3/4" (19.00 MM)	80 TO 100
3/8" (9.50 MM)	35 TO 75
No. 4 (4.75 MM)	30 TO 60
No. 30 (0.60 MM)	7 TO 30
No. 200 (0.75 MM)	3 TO 15
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- GRANULAR BEDDING AND TRENCH BACKFILL: WELL-GRADED SAND MEETING THE GRADATION REQUIREMENTS OF ASTM D2487 (SW-SM).
- UNSUITABLE MATERIAL: HIGH AND MODERATELY PLASTICS SILTS AND CLAYS (LL>45). MATERIAL CONTAINING REFUSE, FROZEN LUMPS, DEMOLISHED BITUMINOUS MATERIAL. VEGETATIVE MATTER, WOOD, STONES IN EXCESS OF 3 INCHES IN ANY DIMENSION, AND DEBRIS AS DETERMINED BY THE CONSTRUCTION MANAGER. TYPICAL THESE WILL BE SOILS CLASSIFIED BY ASTM AS PT, MH, CH, OH, ML, AND OL.
- 41. REMOVE TOPSOIL MATERIAL COMPLETELY FROM THE SURFACE UNTIL THE SOIL NO LONGER MEETS THE DEFINITION OF TOPSOIL. AVOID MIXING TOPSOIL WITH SUBSOIL OR OTHER UNDESIRABLE MATERIALS.
- 42. NO STRUCTURAL ELEMENTS ARE TO BE CUT UNLESS OTHERWISE SPECIFICALLY APPROVED BY THE ENGINEER.

PAVEMENT MARKING NOTES

- ALL PAVEMENT MARKINGS TO MATCH EXISTING, UNLESS STATED OTHERWISE. ALL PAVEMENT MARKINGS WITHIN ADA AREAS SHALL BE PAINTED BLUE EXCEPT FOR COLORS DEFINED ON THE ADA PAVEMENT SYMBOL.
- MARKING (STRIPING) PAINT FOR PARKING SPACES, TRAFFIC ARROWS, ADA PARKING AND SYMBOLS, ETC., PER LOCAL REQUIREMENTS AND AS FOLLOWS:
- PAVEMENT MARKINGS PAINT SHALL BE WATER BASE FAST DRYING 100% ACRYLIC TYPE: WATER BASE TO MEET FEDERAL SPECIFICATION TTP-01952B. FOR COLD WEATHER APPLICATION PAINT PRODUCT SHALL BE IN ACCORDANCE WITH ASTM-D2369, D1394, D3723, D1475, D562 AND D711.
- PROVIDE A NON-SLIP AGGREGATE ADDITIVE TO MARKING PAINT USED AT ADA ACCESS
- APPLY 2 COATS WITHIN THE SAME DAY, UTILIZING STRAIGHT EDGES, YELLOW ON CONCRETE/WHITE ON ASPHALT EXCEPT WHEN MATCHING ADJACENT OR EXISTING COLOR WHEN THE PAVING IS AN EXPANSION OR SEGMENT OF A LARGER LOT.

GENERAL FOUNDATION NOTES

- DETERMINATION OF FINAL BEARING ELEVATIONS, TOPSOIL AND EXCAVATION STRIPPING DEPTH, INSPECTION OF ALL SUBSOIL EXPOSED DURING STRIPPING, SITE GRADING, EXCAVATION OPERATIONS. APPROVAL OF FILL MATERIALS. DENSITY TESTING OF FILLS TO ENSURE PLACEMENT PER SPECIFICATION REQUIREMENTS, INSPECTION OF FOUNDATION BEARING SURFACES, AND VERIFICATION OF ALLOWABLE BEARING PRESSURES ARE THE TESTING LABORATORY'S RESPONSIBILITY.
- ALL FOUNDATIONS ARE TO REST ON FIRM UNDISTURBED SOIL OR COMPACTED FILL FREE FROM ORGANIC MATTER. IF POOR SOIL CONDITIONS ARE ENCOUNTERED AT FOUNDATION DEPTHS SHOWN, NOTIFY OWNER'S REPRESENTATIVE BEFORE PROCEEDING WITH CONSTRUCTION.
- CONTRACTOR SHALL COMPACT SUBGRADE. SEE FROST/NO FROST DESIGN NOTES THIS
- FOUNDATIONS HAVE BEEN DESIGNED BASED ON AN ASSUMED ALLOWABLE SOIL BEARING CAPACITY OF 1500 PSF UNLESS NOTED OTHERWISE.
- NEW FOOTINGS PLACED ADJACENT TO EXISTING FOOTINGS SHALL BEAR AT THE SAME ELEVATION, UNLESS NOTED OTHERWISE.
- STEP FOOTINGS AT A RATIO OF ONE (1) VERTICAL TO TWO (2) HORIZONTAL WITH A MAXIMUM VERTICAL STEP OF 2'-0" UNLESS NOTED OTHERWISE.
- INUNDATION AND LONG TERM EXPOSURE OF BEARING SURFACES, WHICH WILL RESULT IN DETERIORATION OF BEARING FORMATIONS, SHALL BE PREVENTED. FOOTINGS SHALL BE PLACED IMMEDIATELY FOLLOWING FOOTING EXCAVATIONS AND BEARING SURFACE INSPECTION.
- UTILITY LINES SHALL NOT BE PLACED THROUGH OR BELOW FOUNDATIONS WITHOUT THE APPROVAL OF THE ENGINEER OF RECORD.
- GROUNDWATER ASSUMED TO BE BELOW EXCAVATION DEPTH. IF GROUNDWATER IS ENCOUNTERED DURING EXCAVATION ON SITE, CONTRACTOR SHALL PROVIDE FOR ANY SITE DRAINAGE AND DE-WATERING REQUIRED.
- CONTRACTOR TO VERIFY LOCATION OF ALL EXISTING PUBLIC AND PRIVATE UTILITIES PRIOR TO EXCAVATION. IF NECESSARY, UTILITIES SHALL BE RELOCATED PRIOR TO FOUNDATION INSTALLATION.

FROST DESIGN NOTES

- (BOTTOM OF FOUNDATIONS ABOVE FROST LEVEL) CONCRETE FOUNDATIONS SHOULD BEAR DIRECTLY ON A PROPERLY COMPACTED
- FREE-DRAINING GRANULAR FILL CONSISTING OF NO. 57 STONE OR AN APPROVED EQUIVALENT.
- GRANULAR FILL SHOULD EXTEND VERTICALLY TO THE MINIMUM RECOMMENDED REGIONAL FROST DEPTH AND LATERALLY 2/3RD FROM THE FOUNDATION PERIMETER (EXCLUDING SIDE OF PERIMETER ADJACENT TO CURB). GRANULAR FILL SHOULD BE PLACED IN 8 INCH LOOSE LIFTS AND COMPACTED WITH A VIBRATORY COMPACTOR. THE COMPACTION EQUIPMENT SHOULD BE OPERATED OVER THE FULL WIDTH OF THE FOUNDATION UNDERCUT AREA UNTIL VISIBLE DEFORMATION OF THE BACKFILL CEASES. LOCAL FROST DEPTH IS 50".
- GEOTEXTILE (FILTER FABRIC) SHOULD BE PLACED BETWEEN THE GRANULAR BACKFILL AND COHESIVE SOILS TO PRECLUDE THE INFILTRATION OF FINES. SPEC AS FOLLOWS:

SEPARATION GEOTEXTILE: WOVEN GEOTEXTILE FABRIC, MANUFACTURED FOR SEPARATION APPLICATIONS, MADE FROM POLYOLEFINS OR POLYESTERS; WITH ELONGATION LESS THAN 50 PERCENT; COMPLYING WITH AASHTO M 288 AND THE FOLLOWING, MEASURED PER TEST METHODS REFERENCED:

SURVIVABILITY: CLASS 2: AASHTO M 288. GRAB TENSILE STRENGTH: 247 LBF (1100 N): ASTM D 4632. SEWN SEAM STRENGTH: 222 LBF (990 N): ASTM D 4632. TEAR STRENGTH: 90 LBF (400 N); ASTM D 4533. PUNCTURE STRENGTH: 90 LBF (400 N); ASTM D 4833 APPARENT OPENING SIZE: NO. 60 (0.250-MM) SIEVE, MAXIMUM; ASTM D 4751. PERMITTIVITY: 0.02 PER SECOND, MINIMUM; ASTM D 4491. UV STABILITY: 50 PERCENT AFTER 500 HOURS' EXPOSURE; ASTM D 4355.

NO FROST DESIGN NOTES

- BOTTOM OF FOUNDATIONS BELOW FROST LEVEL)
- CONCRETE FOUNDATIONS SHOULD BE SUPPORTED ON A 6 INCH COMPACTED LAYER OF APPROVED FREE-DRAINING GRANULAR MATERIAL
- 2. APPROVED MATERIAL SHOULD BE COMPACTED OVER THE FULL WIDTH OF THE INFILL AREA UNTIL VISIBLE DEFORMATION OF THE BACKFILL CEASES.

LANDSCAPE NOTES

- PLANT GUARANTEE: CONTRACTOR SHALL GUARANTEE ALL PLANTS FOR A PERIOD OF ONE (1) YEAR FROM DATE OF PROJECT ACCEPTANCE BY THE OWNER.
- ALL DISTURBED AND PROPOSED LANDSCAPE PLANTING BED AREAS SHALL MATCH EXISTING CONDITIONS IN TYPE AND DEPTH.

- LAWN SEED MIX: ALL SEED SHALL BE FRESH, CLEAN, DRY, NEW-CROP SEED COMPLYING WITH THE ASSOCIATE OF OFFICIAL AND SEED ANALYSIS "RULES FOR TESTING SEEDS" FOR PURITY AND GERMINATION TOLERANCE.
- A. ALL AREAS TO BE SEEDED SHALL RECEIVE SEED MIX SELECTED PER HARDINESS ZONE BELOW AND MATCHED TO EXISTING. SITE MEETS THE SPECIFICATIONS OF THE FOLLOWING SEED MIX:

ZONES 3, 4 & 5: APPROVED BLUE GRASS BLEND ZONE 6: APPROVED FESCUE BLEND ZONES 7 & 8: APPROVED BERMUDA BLEND ZONES 9 & 10: APPROVED ST AUGUSTINE FLORATAM BLEND

- WOOD CELLULOSE FIBER MULCH: DEGRADABLE GREEN DYED WOOD CELLULOSE FIBER OR 100% RECYCLED LONG FIBER PULP, FREE FROM WEEDS OR OTHER FOREIGN MATTER TOXIC TO SEED GERMINATION AND SUITABLE FOR HYDRO-MULCHING.
- TACKIFIER: LIQUID CONCENTRATE DILUTED WITH WATER FORMING A TRANSPARENT 3-DIMENSIONAL FILM LIKE CRUST PERMEABLE TO WATER AND AIR AND CONTAINING NO AGENTS TOXIC TO SEED GERMINATION FOR STABILIZING STRAW MULCH
- SEED FERTILIZER: FERTILIZER SHALL BE SLOW RELEASE STARTER MIX (18-24-6) APPLIED AT THE TIME OF PLANTING WITH A SECOND APPLICATION AFTER 4-5 WEEKS. FERTILIZER SHALL BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR APPLICATION WITH APPROVED EQUIPMENT DELIVERED TO THE SITE IN BAGS OR OTHER CONVENIENT CONTAINERS, EACH FULLY LABELED, CONFORMING TO APPLICABLE STATE FERTILIZER LAWS, AND BEARING THE NAME, TRADE NAME OR TRADEMARK, AND WARRANTY OF THE PRODUCER. EACH APPLICATION SHOULD BE APPLIED TO EQUAL ONE (1) POUND OF NITROGEN PER 1000 SQUARE FEET (SQ. FT.) OF LAWN AREA.

- SEED SHALL BE APPLIED PER HYDROSEED METHOD AS FOLLOWS. RATING OF SEED SHALL BE PER DISTRIBUTOR BASED ON SPECIES TYPE.
- MIX SPECIFIED SEED, COMMERCIAL FERTILIZER, AND FIBER MULCH IN WATER, USING EQUIPMENT SPECIFICALLY DESIGNED FOR HYDROSEED APPLICATION. CONTINUE MIXING UNTIL UNIFORMLY BLENDED INTO HOMOGENEOUS SLURRY SUITABLE FOR HYDRAULIC APPLICATION.
- A. MIX SLURRY WITH FIBER-MULCH MANUFACTURER'S RECOMMENDED TACKIFIER. B. ONE STEP PROCESS: APPLY SLURRY AT A RATE SO THAT MULCH COMPONENT IS DEPOSITED AT NOT LESS THAN 1500-LB/ACRE DRY WEIGHT, AND SEED COMPONENT IS DEPOSITED AT NOT LESS THAN THE SPECIFIED SEED-SOWING RATE. APPLY THE SLURRY UNIFORMLY TO ALL AREAS TO BE SEEDED.
- C. TWO-STEP PROCESS: APPLY FIRST SLURRY COAT AT A RATE SO THAT MULCH COMPONENT IS DEPOSITED AT NOT LESS THAN 500-LB/ACRE DRY WEIGHT, AND SEED COMPONENT IS DEPOSITED AT NOT LESS THAN THE SPECIFIED SEED-SOWING RATE. APPLY SLURRY COVER COAT OF FIBER MULCH (HYDROMULCHING) AT A RATE OF 1000 LB/ACRE. APPLY THE SLURRY UNIFORMLY TO ALL AREAS TO BE SEEDED
- BEGIN MAINTENANCE OF LAWNS IMMEDIATELY AFTER EACH AREA IS PLANTED AND CONTINUE UNTIL ACCEPTABLE LAWN AREA IS ESTABLISHED WITH A DENSE STAND OF SPECIFIED PLANT MATERIAL COVERING AT LEAST 95% OF THE AREA, BUT NOT FOR LESS THAN 90 DAYS AFTER ACCEPTANCE.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR THE FIRST GROWING SEASON. MAINTENANCE SHALL INCLUDE A WATERING PLAN TO ENSURE LANDSCAPING TAKES ROOT IN THE FIRST GROWING SEASON.

SPECIAL INSPECTIONS

THE CLIENT SHALL BE RESPONSIBLE FOR SCHEDULING AND OVERSEEING OF ALL SPECIAL INSPECTIONS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. SPECIAL INSPECTIONS MUST BE COMPLETED PRIOR TO FINAL INSPECTION APPROVAL.

CONCRETE

- ALL CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 301-10. "STANDARD SPECIFICATION FOR STRUCTURAL CONCRETE" AND ACI 302, 305 AND 306 UNLESS NOTED OTHERWISE.
- ALL DETAILING, FABRICATION AND PLACING OF CONCRETE SHALL CONFORM TO ACI 318-14 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" AND THE LATEST ACI "MANUAL OF STANDARD PRACTICE FOR DETAIL REINFORCED CONCRETE STRUCTURES" UNLESS NOTED OTHERWISE.
- SAFETY AND PERFORMANCE OF THE STRUCTURE ARE THE RESPONSIBILITY OF THE CONTRACTOR INSOFAR AS THEY ARE AFFECTED BY THE LOCATION AND DETAILS OF CONSTRUCTION JOINTS. SHOP DRAWINGS OF THE PROPOSED CONSTRUCTION JOINT LOCATIONS AND DETAILS ARE TO BE SUBMITTED TO THE ARCHITECT FOR APPROVAL.
- MAXIMUM SIZE OF AGGREGATE SHALL NOT EXCEED SIZE SUITABLE FOR INSTALLATION METHOD UTILIZED OR 1/3 CLEAR DISTANCE BEHIND OR BETWEEN REINFORCING. MAXIMUM SIZE MAY BE INCREASED TO 2/3 CLEAR DISTANCE PROVIDED WORKABILITY AND METHODS OF CONSOLIDATION SUCH AS VIBRATING WILL PREVENT HONEYCOMBS OR VOIDS.
- ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH IN 28 DAYS AS FOLLOWS: ALL CONCRETE - 4500 PSI. ALL CONCRETE EXPOSED TO WEATHER SHALL CONTAIN 6% (± 1%) AIR ENTRAINMENT.
- 6. REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60.
- WELDED WIRE FABRIC REINFORCING SHALL CONFORM TO ASTM A1064 AND BE FURNISHED IN FLAT SHEETS AND INSTALLED ON CHAIRS OR PRECAST CONCRETE BLOCKS.
- 8. NO TACK WELDING OF REINFORCING IN THE FIELD IS PERMITTED.
- PROVIDE CORNER BARS AT ALL LOCATIONS WHERE REINFORCEMENT CHANGES DIRECTION
- 10. PROVIDE STRAIGHT AND DIAGONAL BARS AT EDGES OF ALL OPENINGS. REINFORCING EMBEDMENT AND LAP SPLICES (INCHES) FOR 4500 PSI CONCRETE.

	OTHER		TOP*				
	ANCHORAGE	SPLICE	ANCHORAGE	SPLICE			
#3	15	19	19	24			
#4	19	25	25	33			
#5	24	31	31	41			
#6	29	37	37	49			

*HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE BELOW BAR

- 11. NON-SHRINK GROUT SHALL MEET A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 6000 PSI.
- 12. ADD 100% TIES FOR REBAR OVERLAY. NO COLD JOINTS SHALL BE PERMITTED DURING CONSTRUCTION.

STRUCTURAL STEE

- MATERIAL PROPERTIES PLATE: ASTM A36 UNO PIPE: ASTM A53, TYPE E OR S, GRADE
- TUBE: ASTM A1085 GRADE A (Fy = 50 KSI)
- 2. DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO THE 2016 AISC (360-16)
- 3. ALL WELDING SHALL BE DONE USING E-70XX ELECTRODES IN ACCORDANCE WITH AWS D1.1 4. FIELD VERIFY ALL CONDITIONS AT AND CONNECTIONS TO THE EXISTING CONSTRUCTION
- BEFORE FABRICATION. 5. ALL EXPOSED STRUCTURAL STEEL, ANCHOR RODS AND BOLTS SHALL BE HOT DIP GALVANIZED PER ASTM A123.
- 6. UNLESS NOTED OTHERWISE ON THE DRAWING, ALL ANCHOR RODS SHALL CONFORM TO ASTM F1554 Gr 55 WITH HEAVY HEXAGONAL NUT.
- SUBMIT FABRICATION AND ERECTION DRAWINGS SHOWING ALL DETAILS, CONNECTIONS, MATERIAL DESIGNATIONS, AND TOP STEEL ELEVATIONS FOR APPROVAL. THE SHOP DRAWINGS WILL BE REVIEWED FOR GENERAL CONFORMANCE TO THE CONTRACT DRAWINGS. SUCH APPROVAL SHALL NOT RELIEVE THE FABRICATOR/CONTRACTOR OF THE RESPONSIBILITY FOR EITHER THE ACCURACY OF THE DETAILED DIMENSIONS IN THE SHOP AND ERECTION DRAWINGS OR THE GENERAL FIT-UP OF PARTS THAT ARE TO BE ASSEMBLED IN THE FIELD.

TRAFFIC CONTROL NOTES

LEGEND

EX. FENCING

EX. PROPERTY LINE

EX. UG ELECTRICAL LINE

EX. OH ELECTRICAL LINE

EX. UG SANITARY SEWER LINE

EX. UG STORM SEWER LINE

EX. TELEPHONE LINE

EX. UG WATER LINE

EX. WATER VALVE

EX. CATCH BASIN

EX. LIGHT POLE

EX. UTILITY POLE

EX. IRRIGATION VALVE

EX. SANITARY MANHOLE

EX. STORM MANHOLE

EX. CLEANOUT

EX. FIRE HYDRANT

EX. GAS VALVE

EX. GAS METER

EX. WATER MANHOLE

EX. WATER VAULT

EX. WATER METER

EX. A/C UNIT

EX. SIGN

EX. TREE

EX. SHRUB

EX. BOLLARD

EX. ELECTRIC HANDHOLE/VAULT

EX. FIRE DEPARTMENT CONNECTION

EX. TELEPHONE MANHOLE

EX. ELECTRIC TRANSFORMER

EX. UG FIBER LINE

EX. UG GAS LINE

- DURING THE CONSTRUCTION PERIOD; SIDEWALKS, SHOULDERS, TRAVEL LANE(S), OR STREETS MAY HAVE TO BE TEMPORARILY CLOSED OR RESTRICTED FOR THE UNLOADING / LOADING OF EQUIPMENT OR AS A RESULT OF CONSTRUCTION ACTIVITIES THEMSELVES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE DIRECTLY WITH THE LOCAL GOVERNING AUTHORITIES ON ANY SUCH CLOSURES AND MUST OBTAIN WRITTEN PERMISSION FROM THE APPROPRIATE AUTHORITIES PRIOR TO IMPLEMENTING SUCH CLOSURES OR RESTRICTIONS. ANY CLOSURE OR RESTRICTION MUST COMPLY WITH THE STATE MANUAL OF UNIFORM CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS (LATEST EDITION AND REVISION), AND WITH ANY AND ALL ADDITIONAL APPLICABLE CITY, VILLAGE, OR COUNTY REQUIREMENTS. THE CONTRACTOR SHALL PREPARE AND SUBMIT A FORMAL TRAFFIC CONTROL / MOT PLAN TO THE LOCAL GOVERNING AUTHORITIES IF REQUESTED. ALL REQUIRED CONSTRUCTION TRAFFIC MAINTENANCE DEVICES SHALL BE PROVIDED, ERECTED AND MAINTAINED, AND ULTIMATELY REMOVED BY THE CONTRACTOR.
- THE CONTRACTOR SHALL MAINTAIN SAFE AND SATISFACTORY ACCESS TO ALL ABUTTING PROPERTIES AND INTERSECTING STREET AT ALL TIMES DURING THE CONSTRUCTION OF THE IMPROVEMENTS ANTICIPATED. DRIVEWAYS MUST BE MAINTAINED AND ALL TRENCHES SHALL BE BACKFILLED AT THE END OF EACH WORK DAY. PER THE STATE MUTCD AND OTHER APPLICABLE APPROPRIATE GOVERNING REQUIREMENTS, THE CONTRACTOR SHALL PROVIDE ALL NECESSARY SAFEGUARDS SUCH AS BARRICADES, SATISFACTORY BARRIERS, CONES, SIGNAGE, BARRELS, MESSAGE BOARDS, LIGHTING, FLAGMEN, LAW ENFORCEMENT OFFICERS, ETC. TO AVOID DAMAGE AND / OR INJURY TO VEHICLES AND PERSONS TRAVERSING THE CONSTRUCTION AREA.

——— GAS ——— GAS ———

——— SAN ———— SAN ——

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(5)

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GPD GROUP Glaus, Pyle, Schomer, Burns & DeHaven, In 520 South Main Street, Suite 253 330.572.2100 Fax 330.572.210

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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.

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.

(SEE SURVEY BY OTHERS FOR EXISTING LEGEND)

Horizontal Scale in Feet

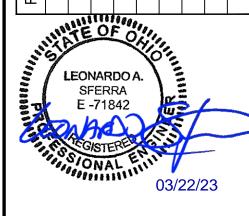
EXISTING ASPHALT TO BE REMOVED TRENCHING NOT INCLUDED

DENOTES LIMITS OF SAWCUT IN LINEAR FOOT (L.F.)



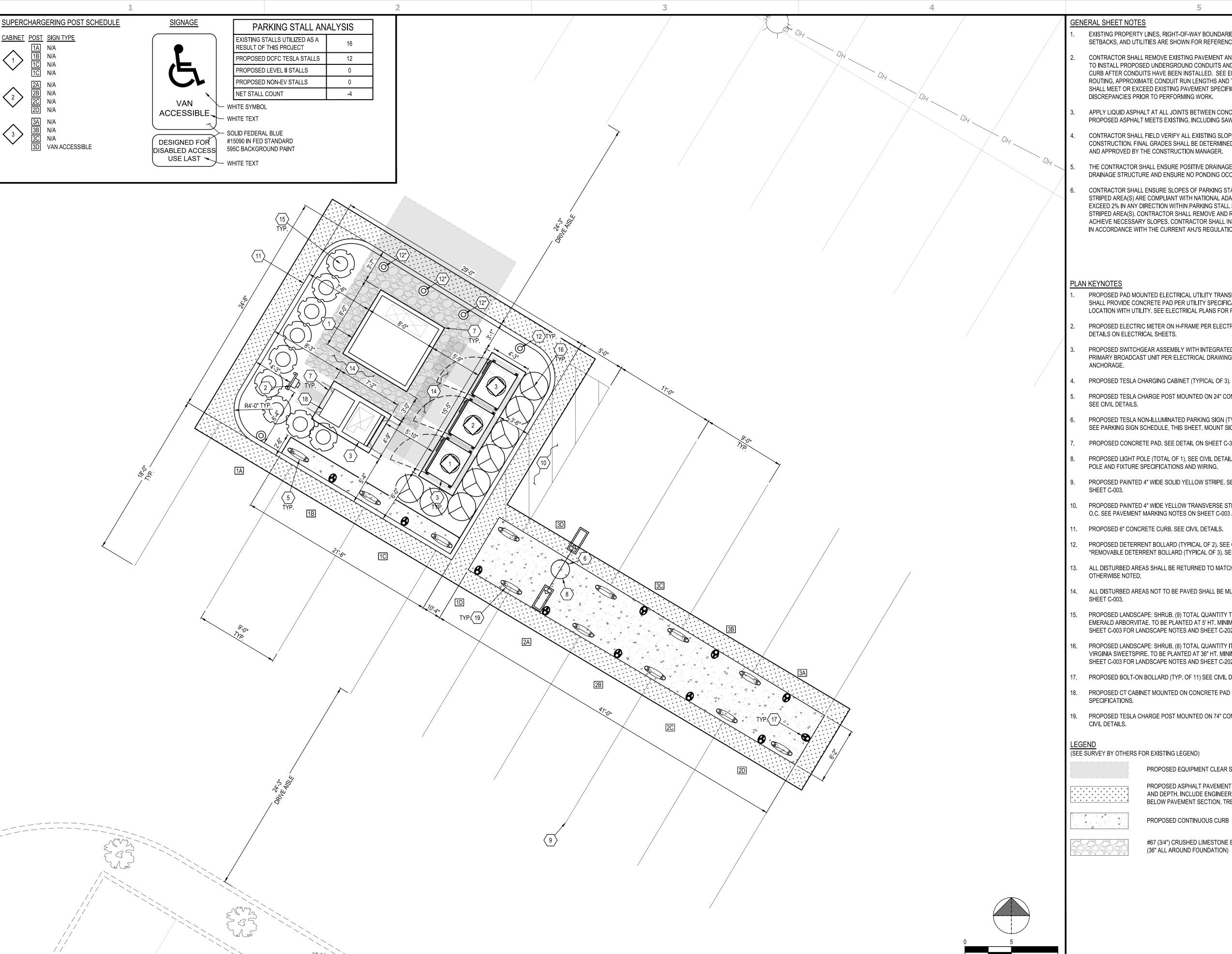
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DESCRIPTION	ISSUED FOR SITE SKETCH REVIEW	ISSUED FOR 90% REVIEW	ISSUED FOR SIGN & SEAL	ISSUED FOR SIGN & SEAL			
DATE	12/14/2022	12/21/2022	02/21/2023	03/22/2023			
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EXISTING CONDITIONS AND DEMOLITION PLAN

DESIGNER
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- 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 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.
- 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
- PROPOSED TESLA CHARGING CABINET (TYPICAL OF 3). SEE CIVIL DETAILS.
- PROPOSED TESLA CHARGE POST MOUNTED ON 24" CONTINUOUS CURB (TYPICAL OF 3).
- PROPOSED TESLA NON-ILLUMINATED PARKING SIGN (TYPICAL OF1). SEE CIVIL DETAILS. SEE PARKING SIGN SCHEDULE, THIS SHEET. 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
- 10. 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.
- 11. PROPOSED 6" CONCRETE CURB. SEE CIVIL DETAILS.
- 12. PROPOSED DETERRENT BOLLARD (TYPICAL OF 2). SEE CIVIL DETAILS. *REMOVABLE DETERRENT BOLLARD (TYPICAL OF 3). SEE CIVIL DETAILS.
- 13. ALL DISTURBED AREAS SHALL BE RETURNED TO MATCH EXISTING CONDITIONS UNLESS
- 14. ALL DISTURBED AREAS NOT TO BE PAVED SHALL BE MULCHED PER LANDSCAPE NOTES ON
- 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 SWEETSPIRE. TO BE PLANTED AT 36" HT. MINIMUM, LOCATED PER PLAN. SEE SHEET C-003 FOR LANDSCAPE NOTES AND SHEET C-202 FOR PLANTING DETAIL.
- 17. PROPOSED BOLT-ON BOLLARD (TYP. OF 11) SEE CIVIL DETAILS.
- 18. PROPOSED CT CABINET MOUNTED ON CONCRETE PAD PER ELECTRIC COMPANY
- 19. PROPOSED TESLA CHARGE POST MOUNTED ON 74" CONTINUOUS CURB (TYP.; OF 9). SEE

(SEE SURVEY BY OTHERS FOR EXISTING LEGEND)

Horizontal Scale in Feet

PROPOSED EQUIPMENT CLEAR SPACE

PROPOSED ASPHALT PAVEMENT TO MATCH EXISTING IN TYPE AND DEPTH. INCLUDE ENGINEERED COMPACTED BACKFILL BELOW PAVEMENT SECTION. TRENCHING NOT INCLUDED

#67 (3/4") CRUSHED LIMESTONE BACKFILL OVER GRADING (36" ALL AROUND FOUNDATION)

PROJECT MANAGER DESIGNER

SITE

GPD GROUP

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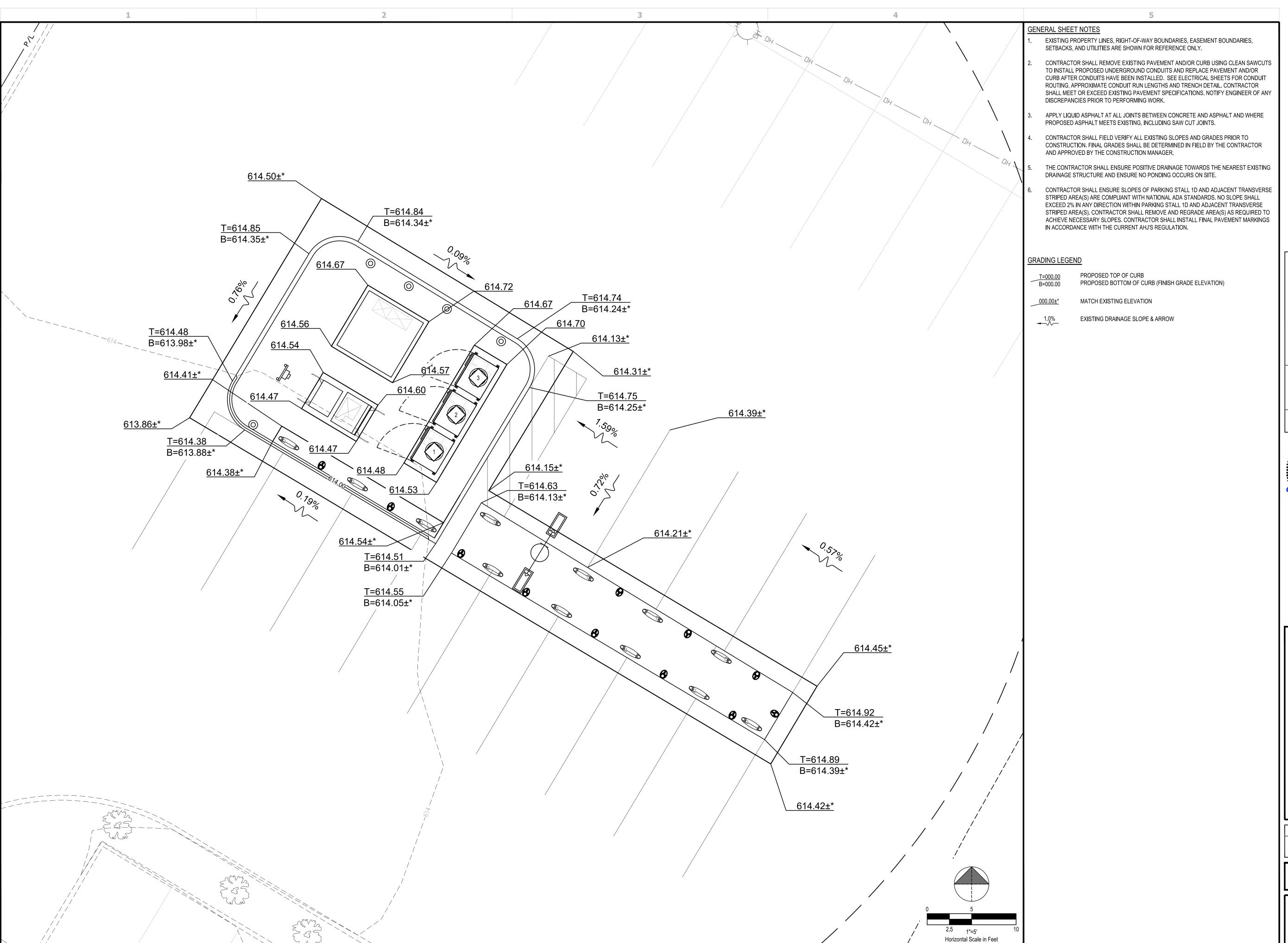
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DESCRIPTION	SKETCH REVIEW	REVIEW	& SEAL	& SEAL			
ao	ISSUED FOR SITE SKETCH REVIEW	ISSUED FOR 90% REVIEW	ISSUED FOR SIGN & SEAL	ISSUED FOR SIGN & SEAL			
DATE	12/14/2022	12/21/2022	02/21/2023	03/22/2023			
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SUPERCHARGER STATION 30320 LAKESHORE BLVD WILLOWICK, OH 44095

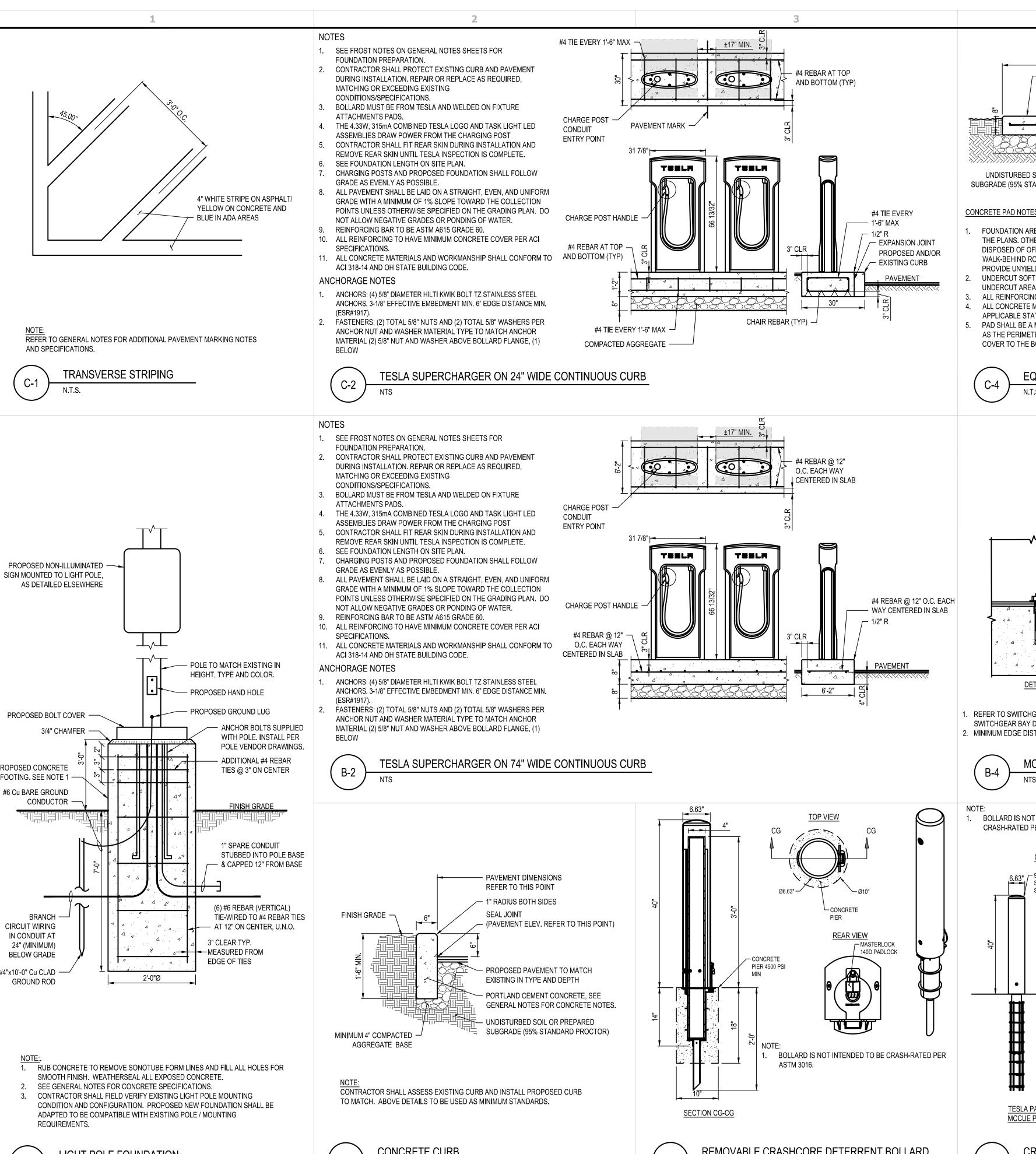
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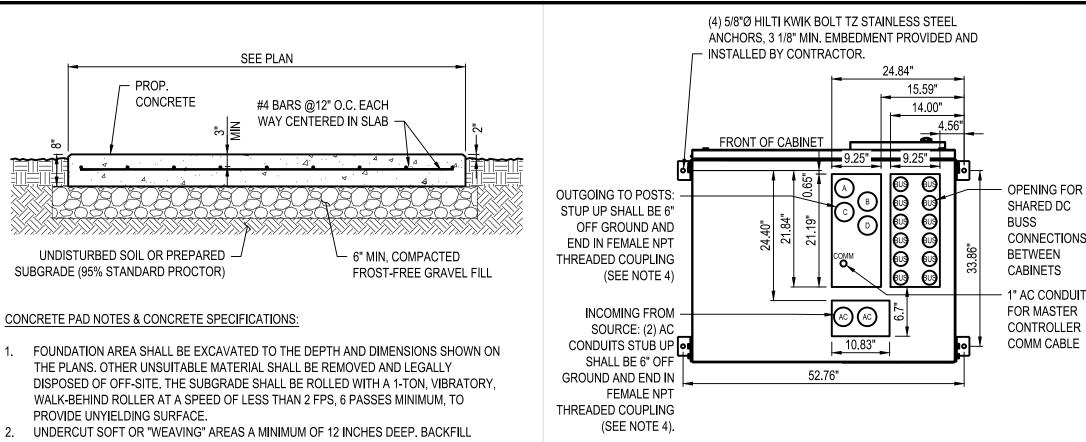
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GRADING SITE PLAN

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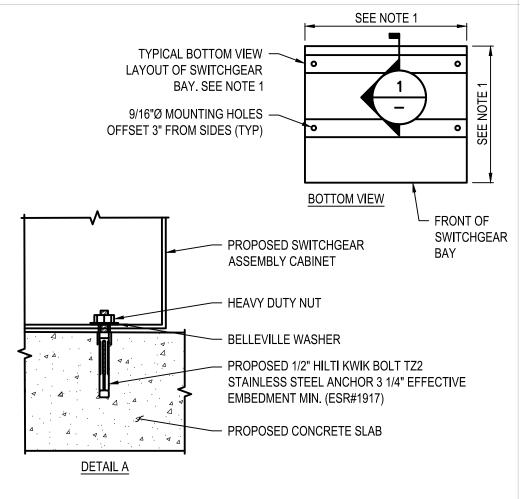
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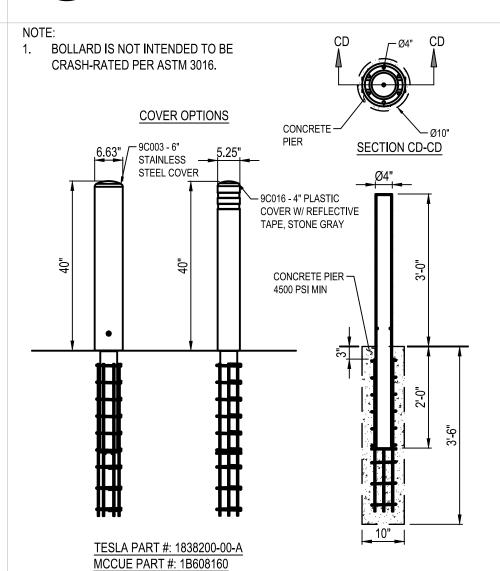
- THE PLANS. OTHER UNSUITABLE MATERIAL SHALL BE REMOVED AND LEGALLY DISPOSED OF OFF-SITE. THE SUBGRADE SHALL BE ROLLED WITH A 1-TON, VIBRATORY, WALK-BEHIND ROLLER AT A SPEED OF LESS THAN 2 FPS, 6 PASSES MINIMUM, TO PROVIDE UNYIELDING SURFACE.
- UNDERCUT SOFT OR "WEAVING" AREAS A MINIMUM OF 12 INCHES 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.



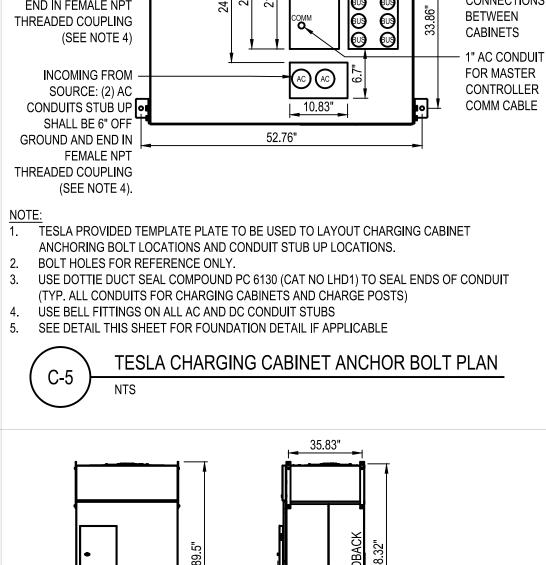


1. REFER TO SWITCHGEAR MANUFACTURER DRAWINGS FOR MOUNTING HOLE LOCATIONS, SWITCHGEAR BAY DIMENSIONS, AND BASE CHANNEL DIMENSIONS. 2. MINIMUM EDGE DISTANCE FOR PROPOSED ANCHORAGE SHALL BE 8".









37.8"

1. CABINET SHOULD BE LIFTED USING ROOF MOUNTED EYE HOOKS. A FORKLIFT OR

VERIFY CABINET PART# AND ASSOCIATED DIMENSIONS PRIOR TO CONSTRUCTION.

PALLET JACK CAN ALSO BE USED TO MOVE CABINET IF DONE PROPERLY.

41.98"

SIDE

REBOUNDING -

1/2" SS HEX HEAD -

SCREW, 4-3/4"

LONG (3 TOTAL)

REBOUNDING -

TOP DAMPENER

DAMPENER

FOAM TAPE

REBOUNDING DETERRENT BOLLARD

DETERRENT BOLLARD IS INTENDED TO PROVIDE A VISUAL

DETERRENT AND REDUCE POTENTIAL IMPACT ON EQUIPMENT

WASHER (3 TOTAL)

CORE

ENCLOSURE: INGRESS PROTECTION IP66

WEIGHT: 1110 kg, 2448 lbs.

COMPLIANCE: UL 2202

49.26"

54.76"

<u>FRONT</u>

DEAD-BACK

FAN

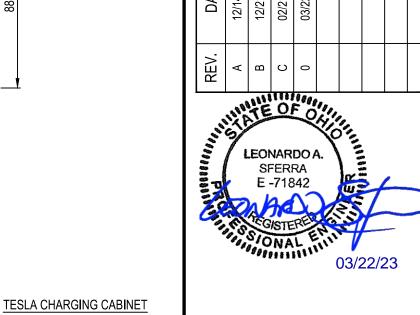
B-5

REBOUNDING -

DETERRENT BOLLARD

SUPPLIED BY TESLA

A-5



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TESLA CHARGING CABINET DIMENSIONS

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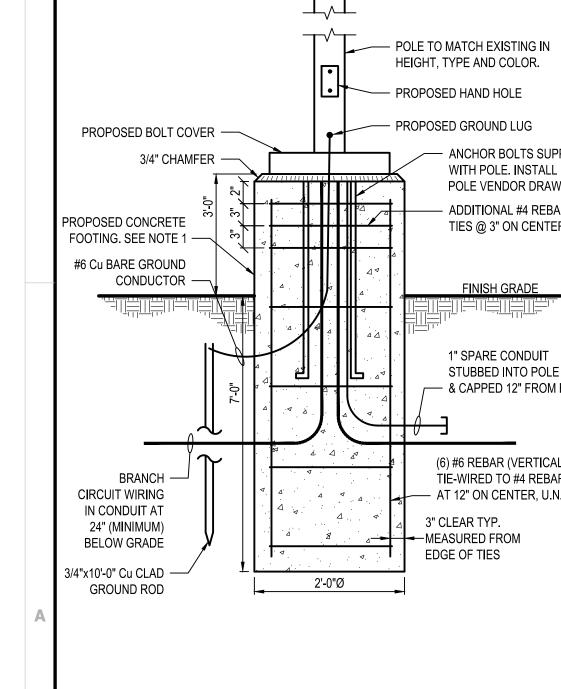
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DESIGNER

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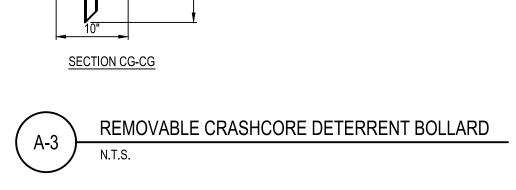
4" PLASTIC POST COVER WITH RED REFLECTIVE TAPE $\overset{\smile}{\square}$ ш 1

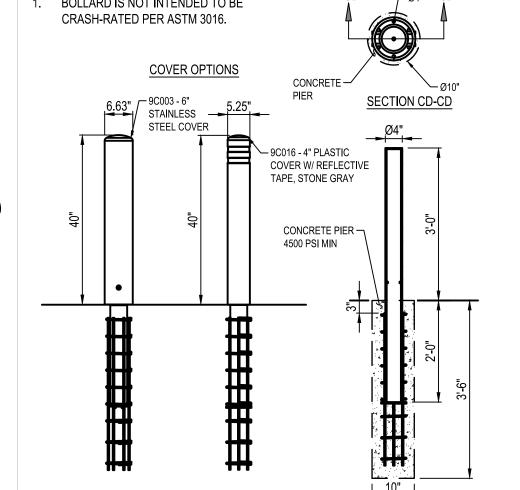
PROJECT MANAGER JOB NO.

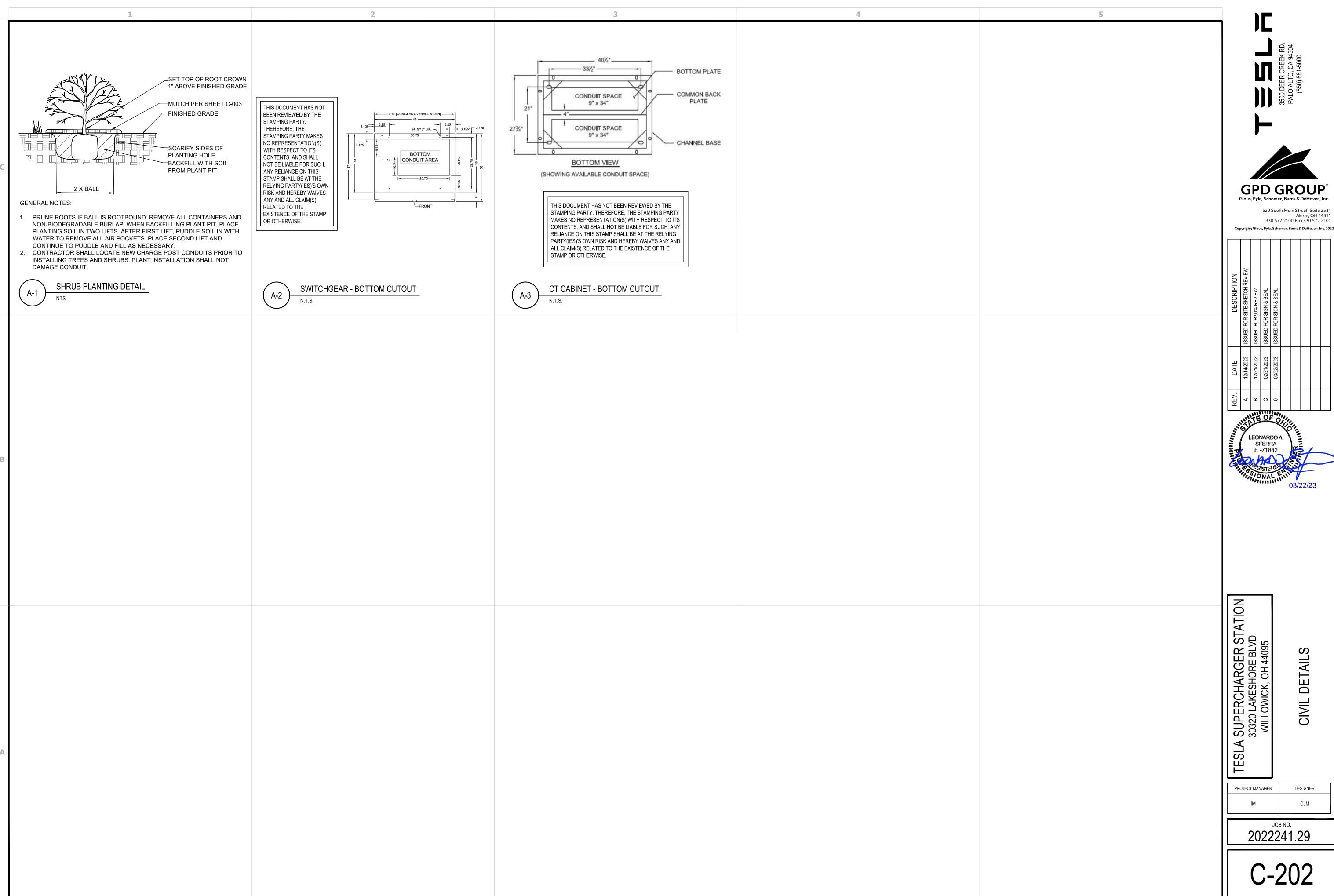


LIGHT POLE FOUNDATION











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CIVIL DETAILS

PROJECT MANAGER DESIGNER

- IMPORTANT NOTE: "CONTRACTOR" REFERENCED IN THESE SPECIFICATIONS SHALL INDICATE WORK BY ELECTRICAL CONTRACTOR OR ANY OF HIS SUBCONTRACTORS UNLESS NOTED
- DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT ONLY. COORDINATE INSTALLATION WITH OTHER TRADES TO VERIFY THE ACTUAL SPACE CONDITIONS THAT ARE TO BE MAINTAINED. NO ADDITIONAL PAYMENT WILL BE APPROVED FOR FAILURE TO COMPLY. 3.
- ALL SYMBOLS AND ABBREVIATIONS USED ON THE DRAWINGS ARE CONSIDERED CONSTRUCTION STANDARDS. IF THE CONTRACTOR HAS QUESTIONS REGARDING THEIR EXACT MEANING, THE ENGINEER SHALL BE NOTIFIED FOR CLARIFICATION BEFORE 4. PROCEEDING WITH THE WORK.
- CONTRACTOR SHALL NOT SCALE ELECTRICAL DRAWINGS. REFER TO SITE PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL EQUIPMENT AND CONFIRM WITH CONSTRUCTION MANAGER ANY SIZES AND LOCATIONS WHEN NEEDED.
- CONTRACTOR'S SCOPE OF WORK SHALL INCLUDE ALL ITEMS DEFINED IN THE CONTRACT DOCUMENTS. THE CONTRACT DOCUMENTS INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING: THE CONTRACT, SPECIFICATIONS, AND CONSTRUCTION DRAWINGS. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO INSTALL ALL ELECTRICAL EQUIPMENT, CONDUIT, WIRING ETC. AS SHOWN OR IMPLIED ON THE 5. DRAWINGS AND TO PROVIDE A COMPLETE OPERATIVE SYSTEM TO THE SATISFACTION OF
- CONTRACTOR SHALL PROVIDE ON-SITE SUPERVISION AT ALL TIMES WHILE THE WORK IS BEING PERFORMED AND SHALL DIRECT ALL WORK, USING HIS BEST SKILL AND ATTENTION. HE SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS. METHODS, TECHNIQUES. PROCEDURES AND SEQUENCES FOR COORDINATING ALL PORTIONS OF THE WORK UNDER
- INSTALLATION OF ALL ELECTRICAL EQUIPMENT, DEVICES, CONDUITS, ETC. MUST BE COORDINATED WITH ALL OTHER TRADES. COORDINATE SHUTDOWN TIMES AND WORKING HOURS WITH BUILDING OWNER, INCLUDING OFF HOURS, WEEKEND, AND HOLIDAY WORK AS
- ANY DISCREPANCIES FOUND WITHIN THE CONTRACT DOCUMENTS SHALL BE REPORTED TO THE OWNER IN WRITING PRIOR TO THE AWARD OF THE CONTRACT AND AN ADDENDUM WILL BE ISSUED TO COVER SAME.
- GUARANTEE CONTRACTOR SHALL FURNISH OWNER WITH A WRITTEN GUARANTEE TO PROMPTLY REMEDY ALL DEFECTS OF WORK OR MATERIALS WITHOUT CHARGE FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE AND INSPECTION.
- MATERIALS ALL MATERIALS AND EQUIPMENT SHALL BE NEW, IN ORIGINAL CONTAINERS/WRAPPINGS, SHALL BE SPECIFICATION GRADE, AND LABELED OR LISTED BY U.L. OR AN ACCREDITED TESTING ORGANIZATION AS REQUIRED BY LOCAL INSPECTORS.
- CONTRACTOR SHALL PROVIDE ADEQUATE AND REQUIRED LIABILITY INSURANCE FOR PROTECTION AGAINST PUBLIC LOSS AND ANY/ALL PROPERTY DAMAGE FOR THE DURATION OF
- ALL EQUIPMENT SHALL BE DESIGNED TO OPERATE ON VOLTAGE AND PHASE SPECIFIED. CONTRACTOR FURNISHING EQUIPMENT OTHER THAN INDICATED SHALL BE RESPONSIBLE FOR ANY CHANGES IN CONDUCTORS, RACEWAYS, SWITCHES, MAIN FEEDERS, AND APPURTENANCES AND PAY ALL ASSOCIATED COSTS. REQUIREMENTS FOR ANY INCREASE IN CAPACITIES SHALL BE REVIEWED BY ENGINEER.
- CONTRACTOR SHALL CONFIRM WITH LOCAL UTILITY COMPANY ANY/ALL REQUIREMENTS SUCH AS THE: LUG SIZE RESTRICTIONS, CONDUIT ENTRY, SIZE OF TRANSFORMERS, SCHEDULED DOWNTIME FOR THE OWNERS' CONFIRMATION, ETC. ANY/ALL CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER. PRIOR TO BEGINNING ANY WORK.
- 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 DAMAGES.

ICENSES, CERTIFICATIONS OF INSPECTION

- CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFICATION OF ALL GOVERNING AGENCIES THAT REQUIRE SITE INSPECTION OF THE WORK AND/OR SIMPLY NOTIFICATION. THE CONTRACTOR SHALL OBTAIN AND PAY FOR PERMITS, LICENSES AND INSPECTIONS 7. NECESSARY FOR PERFORMANCE OF THE WORK.
- CONTRACTOR AND ALL OF HIS SUBCONTRACTORS THAT PERFORM ANY WORK ON THIS LAND(S) ON WHICH CONSTRUCTION IS TO TAKE PLACE. CONTRACTOR SHALL SECURE ALL PERMITS AND INSPECTIONS AS REQUIRED, ALL COSTS SHALL BE BORNE BY CONTRACTOR.
- THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, LICENSES AND INSPECTIONS 9. INCIDENTAL TO WORK UNDER THIS CONTRACT. WHEN THE WORK IS COMPLETED, THE REQUIRED CERTIFICATES OF APPROVAL SHALL BE FURNISHED TO THE BUILDING OWNER. CONTRACTOR MUST BE LICENSED IN THE STATE, COUNTY AND CITY OF THE PROJECT SITE.

CODES AND ORDINANCES

- ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH LATEST EDITION OF NEC AND ALL APPLICABLE CODES AND ORDINANCES, INCLUDING SUCH AS PERTAIN TO THE SAFETY AND HEALTH RELATIONS. CODES AND ORDINANCES SHALL TAKE PRECEDENCE OVER THE DRAWINGS AND SPECIFICATIONS ONLY IN CASE OF CONFLICT AND SHALL INCLUDE BUT NOT BE LIMITED TO:
 - A. UL UNDERWRITERS LABORATORIES
 - B. NEC NATIONAL ELECTRICAL CODE C. NEMA - NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
- D. OSHA OCCUPATIONAL SAFETY AND HEALTH ACT
- E. SBC STANDARD BUILDING CODE F. NFPA - NATIONAL FIRE CODES

POST CONSTRUCTION AND PROJECT CLOSEOUT DOCUMENTATION

ENGINEER WITHIN 7 DAYS OF COMPLETION OF CONSTRUCTION.

AS-BUILT REQUIREMENTS: DO NOT USE RECORD DOCUMENTS FOR CONSTRUCTION PURPOSES. TO PROTECT RECORD DOCUMENTS FROM DETERIORATION AND LOSS, STORE IN A SECURE, FIRE-RESISTANT LOCATION. PROVIDE ACCESS TO RECORD DOCUMENTS FOR THE OWNER'S REFERENCE DURING NORMAL WORKING HOURS. MAINTAIN A CLEAN, UNDAMAGED SET OF BLUE OR BLACK LINE PRINTS OF CONTRACT DRAWINGS AND SHOP DRAWINGS. MARK THE SET TO SHOW THE ACTUAL INSTALLATION WHERE THE INSTALLATION VARIES SUBSTANTIALLY FROM THE WORK AS ORIGINALLY SHOWN. MARK DRAWINGS THAT ARE MOST CAPABLE OF SHOWING CONDITIONS FULLY AND ACCURATELY. WHERE SHOP DRAWINGS ARE USED, RECORD A CROSS-REFERENCE AT THE CORRESPONDING LOCATION ON THE CONTRACT DRAWINGS. GIVE PARTICULAR ATTENTION TO CONCEALED ELEMENTS THAT WOULD BE DIFFICULT TO MEASURE AND RECORD AT A LATER DATE. MARK RECORD SETS WITH RED ERASABLE PENCIL. USE OTHER COLORS TO DISTINGUISH BETWEEN VARIATIONS IN SEPARATE CATEGORIES OF THE WORK. MARK NEW INFORMATION THAT IS IMPORTANT TO THE OWNER BUT WAS NOT SHOWN ON THE CONTRACT DRAWINGS, DETAILS OR SHOP DRAWINGS. NOTE RELATED CHANGE ORDER NUMBERS WHERE APPLICABLE. NOTE RELATED RECORD DRAWING INFORMATION AND PRODUCT DATA. UPON COMPLETION OF THE WORK, SUBMIT ONE (1) COMPLETE SET OF RECORD DOCUMENTS TO THE CONSTRUCTION MANAGER FOR THE OWNER'S RECORDS. CONTRACTOR SHALL SUBMIT AS-BUILT SET OF PLANS TO THE

EXISTING CONDITIONS AND DEMOLITION

- THE FOLLOWING ARE ABBREVIATED SPECIFICATIONS. ALL ITEMS NECESSARY FOR A 1. ALL ELECTRICAL DEMOLITION WORK, INCLUDING MATERIAL REMOVAL FROM THE SITE, SHALL 1. BE THE RESPONSIBILITY OF THIS CONTRACTOR. BEFORE PROCEEDING WITH THE DEMOLITION WORK, THE CONTRACTOR SHALL OBTAIN FROM THE BUILDING OWNER A LIST OF ANY REMOVED ITEMS TO BE SALVAGED. ALL OTHER REMOVED MATERIALS AND EQUIPMENT 2. SHALL BE PROPERLY DISCARDED OFF THE PREMISES.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING PROPERTY RESULTING FROM THE CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL REMOVE ALL DEBRIS FROM THE SITE AT THE COMPLETION OF WORK.
 - EXISTING UTILITIES AND CONDITIONS ARE SHOWN FROM FIELD DATA AND EXISTING 3. DOCUMENTS AND ARE NOT NECESSARILY COMPLETE OR ACCURATE. ALL FIELD CONDITIONS SHALL BE VERIFIED BY CONTRACTOR BEFORE START OF CONSTRUCTION.
 - CONTRACTOR SHALL BE RESPONSIBLE TO LOCATE, EXPOSE, AND DETERMINE IF CONFLICTS EXIST WITH THE PROPOSED IMPROVEMENTS. CONTRACTOR SHALL NOTIFY THE OWNER IN ORDER TO RESOLVE ANY CONFLICTS. EXISTING ELECTRICAL CONDUIT, WIRING, ETC. DAMAGED DURING RENOVATION SHALL BE REPLACED IN LIKE KIND AND CHARACTER, AND AT 4. THE EXISTING UTILITY LINES, DRAIN OR FIELD TILE DAMAGED SHALL BE REPAIRED OR REPLACED, AS NEEDED, IN LIKE KIND AND CHARACTER. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING CONDUITS, CONTROL WIRING, ETC., WHETHER SHOWN HEREON OR NOT, AND TO PROTECT THEM FROM DAMAGE. THE CONTRACTOR SHALL FAULT CURRENT, COORDINATION STUDY, AND ARC FLASH BEAR ALL EXPENSES FOR REPAIR OR REPLACEMENT OF PROPERTY DAMAGED IN CONJUNCTION WITH THE EXECUTION OF WORK.
 - THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONFLICTS OR DISCREPANCIES IN THE 2. CONTRACT DOCUMENTS OR FIELD CONDITIONS PRIOR TO EXECUTING THE WORK IN QUESTION. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER IF DETAILS ARE CONSIDERED UNSOUND, UNSAFE, NOT WATERPROOF, OR NOT WITHIN CUSTOMARY TRADE PRACTICE. IF WORK IS PERFORMED, IT WILL BE ASSUMED THAT THERE IS NO OBJECTION TO THE DETAIL. DETAILS ARE INTENDED TO SHOW THE END RESULT OF THE DESIGN. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT JOB CONDITIONS, AND SHALL BE INCLUDED AS PART OF THE WORK.
 - SITE VISIT CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING HIS WORK. NO EXTRAS WILL BE PERMITTED FOR LACK OF KNOWLEDGE OF EXISTING CONDITIONS. QUANTITIES OF MATERIALS SHALL BE PER CONTRACTOR'S MEASUREMENTS.

BASIC ELECTRICAL MATERIALS AND METHODS

- WHERE STRUCTURAL OPENINGS ARE NOT AVAILABLE, THE CONTRACTOR SHALL CORE DRILL OR CUT CHASES IN WALLS AND FLOORS AS REQUIRED. ALL NEW OPENINGS SHALL BE COORDINATED WITH THE ENGINEER. ALL PENETRATIONS OF THE BUILDING WALLS, CEILING 6. AND FLOORS, THE CONTRACTOR SHALL SEAL WITH QUALITY CAULK, FIRE RATED AND WATERTIGHT, SUBMITTED FOR APPROVAL BY THE OWNER.
- TRASH REMOVAL: CONTRACTOR SHALL REMOVE ALL TRASH CREATED BY HIMSELF OR HIS SUBCONTRACTORS DUE TO DEMOLITION OR CONSTRUCTION. THE CONTRACTOR SHALL ALSO REMOVE TRASH CREATED BY OTHER SUBCONTRACTORS INCLUDING CABLE REELS. CARDBOARD BOXES AND PACKING. PROMPTLY CLEAN-UP ALL SOILING, DEBRIS AND OTHER 7. UNSIGHTLY OR HAZARDOUS CONDITIONS, CAUSED BY WORK OR DELIVERIES UNDER THIS CONTRACT, FROM THE BUILDING GROUNDS, ENTRIES, CORRIDORS, STAIRWAYS, ELEVATORS OR OTHER PUBLIC AREAS. ALL SHALL BE REMOVED FROM THE SITE IN A TIMELY FASHION TO A LEGAL DISPOSAL FACILITY.
- SIGNAGE: CONTRACTOR SHALL MAINTAIN SECURITY AROUND PERIMETER OF CONSTRUCTION SITE DURING ALL HOURS BY INSTALLING A TEMPORARY RIBBON FOR INTERIOR WORK TO 9. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON IDENTIFY CONSTRUCTION AREAS AS REQUIRED. SIGNAGE SHALL BE POSTED WITH NOTIFICATIONS OF "NO TRESPASSING" AND "CONSTRUCTION AREA".
- FABRICATE ANY MATERIALS OFF SITE, NOR DO ANY CONSTRUCTION UNTIL THE ACCURACY OF DRAWING DIMENSIONS HAVE BEEN VERIFIED AGAINST ACTUAL FIELD DIMENSIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY CUTTING, SUBSEQUENT PATCHING, AND REQUIRED FLASHING FOR ALL ITEMS NECESSARY FOR ELECTRICAL PART OF THE CONTRACT. PATCH, PAINT, AND REPAIR ANY AREA DAMAGED TO THE SATISFACTION OF THE BUILDING OWNER.
- THE EXACT LOCATIONS OF ALL ELECTRICAL DEVICES, EQUIPMENT AND CONDUIT, AS SHOWN ON THE DRAWING, IS APPROXIMATE. WHEN NOT SHOWN IN DETAIL, THE EXACT LOCATION OR ROUTING SHALL BE DETERMINED BY THE CONTRACTOR, SUBJECT TO THE APPROVAL OF
- THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BLOCKING, BACKING, FRAMING, HANGERS OR OTHER SUPPORT FOR THE MOUNTING AND SUPPORT OF ALL ITEMS REQUIRING THE SAME AS REQUIRED BY N.E.C.
- PROJECT SHALL BE CURRENTLY LICENSED BY ALL AGENCIES WHICH GOVERN OVER THE 8. TRENCHING AND BACK FILL: CONTRACTOR SHALL PROVIDE FOR ALL UNDERGROUND INSTALLED CONDUIT AND/OR CABLES INCLUDING EXCAVATION AND BACKFILLING AND
 - WHEN DIRECTIONAL BORING IS REQUIRED, CONTRACTOR SHALL INSTALL A LOOSE TONING WIRE WITHIN INSTALLED CONDUIT TO ALLOW FOR IDENTIFICATION OF UNDERGROUND CONDUITS.

10. ALL BOLTS SHALL BE STAINLESS STEEL.

11. FOR UNDERGROUND RACEWAYS, PROVIDE ADDITIONAL SLACK IN CONDUCTORS AND 2. CONDUIT EXPANSION JOINTS IN ORDER TO ALLOW FOR EARTH MOVEMENT FROM SETTLEMENT, FROST, ETC. IN ORDER TO PREVENT DAMAGE TO THE CONDUCTORS OR TO THE EQUIPMENT CONNECTED TO THE RACEWAYS PER THE NEC.

ELECTRICAL EQUIPMENT

- 1. ALL EQUIPMENT SHALL BE DESIGNED TO OPERATE ON VOLTAGE AND PHASE SPECIFIED. CONTRACTOR FURNISHING EQUIPMENT OTHER THAN INDICATED SHALL BE RESPONSIBLE FOR ANY CHANGES IN CONDUCTORS, RACEWAYS, SWITCHES, MAIN FEEDERS, AND APPURTENANCES AND PAY ALL ASSOCIATED COSTS. REQUIREMENTS FOR ANY INCREASE IN CAPACITIES SHALL BE REVIEWED BY ENGINEER.
- ALL ELECTRICAL EQUIPMENT SHALL BE LABELED, LISTED, OR CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY ACCREDITED BY THE UNITED STATES OCCUPATIONAL SAFETY HEALTH ADMINISTRATION.

FIRESTOPPING AND SEALING ELECTRICAL PENETRATIONS

- CONTRACTOR SHALL FURNISH AND INSTALL FIRESTOPPING FOR SEALING AROUND 1. ELECTRICAL PENETRATIONS THROUGH FIRE OR SMOKE BARRIERS, AND FLOORS.
- PROPOSED UL SYSTEMS MATERIALS, ANCHORAGE, METHODS OF INSTALLATION, AND ACTUAL ADJACENT CONSTRUCTION. SUBMITTAL PACKAGE SHALL ALSO INCLUDE A COPY OF THE UL MODIFICATIONS (IF APPLICABLE) AND THE MANUFACTURER'S SPECIFICATIONS. RECOMMENDATIONS, INSTALLATION INSTRUCTIONS, AND MAINTENANCE INSTRUCTIONS.
- THE SPREAD OF FIRE AND SMOKE THROUGH PENETRATIONS CREATED BY ELECTRICAL INSTALLATIONS IN FIRE RATED WALLS AND FLOORS. MATERIALS SHALL BE FLAME, TOXIC RATING SHALL BE DEFINED BY TESTS CONDUCTED BY ASTM, UL OR OTHER TESTING AND INSPECTION AGENCIES ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.
- PROVIDE MATERIALS BY THE FOLLOWING MANUFACTURERS TO SUIT THE APPLICATION: SPECIFIED TECHNOLOGIES, INC (STI), SOMERVILLE, NJ; TREMCO, INC., BEACHWOOD, OH; OR 3M INC., MINNEAPOLIS, MN

- CONTRACTOR SHALL CONDUCT A FAULT CURRENT CALCULATION ON ALL EQUIPMENT AND MARK AS REQUIRED PER THE N.E.C.
- CONTRACTOR SHALL PROVIDE AN ARC-FLASH STUDY AND LABEL ALL EQUIPMENT AS REQUIRED PER THE NEC

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

- ALL RACEWAYS AND EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH THE N.E.C. AND ANY LOCAL CODES.
- 2. ALL CONDUITS SHALL CONTAIN A CODE SIZE GROUNDING CONDUCTOR.
- EQUIPMENT GROUNDING CONDUCTORS SHALL BE INSULATED WITH GREEN-COLORED
- 4. GROUNDING ELECTRODE CONDUCTORS SHALL BE STRANDED CABLE.
- MATERIALS AND CONNECTION COMPONENTS FOR GROUNDING AND BONDING SHALL BE MANUFACTURED BY ERICO, THOMAS & BETTS, OR BURNDY.
- GROUND-FAULT PROTECTION OF EQUIPMENT SHALL BE PROVIDED FOR SERVICE DISCONNECTS RATED 1000A OR MORE. THE GROUND-FAULT PROTECTION SYSTEM SHALL BE PERFORMANCE TESTED WHEN FIRST INSTALLED ON SITE. THE TEST SHALL BE CONDUCTED IN ACCORDANCE WITH INSTRUCTIONS THAT SHALL BE PROVIDED WITH THE EQUIPMENT. A WRITTEN RECORD OF THIS TEST SHALL BE MADE AND SHALL BE AVAILABLE TO THE AUTHORITY HAVING JURISDICTION.
- ALL HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
- FOR GROUND BOND TO STEEL ONLY: INSERT A CADMIUM FLAT WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
- THE BACK SIDE. INSTALL BLACK HEAT-SHRINKING TUBE, ON ALL GROUND TERMINATIONS. THE INTENT IS TO WEATHERPROOF THE COMPRESSION CONNECTION.
- CHECK ACCURACY OF ALL DIMENSIONS IN THE FIELD. UNLESS SPECIFICALLY NOTED, DO NOT 10. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).
 - 11. ALL GROUNDING HARDWARE SUPPLIED AND INSTALLED BY CONTRACTOR.

ELECTRICAL IDENTIFICATION

INSULATION.

- PROVIDE NAMEPLATES FOR ALL MAJOR ELECTRICAL EQUIPMENT AND ON EQUIPMENT AS DIRECTED BY OWNER.
- PROVIDE ALL FEEDERS AND BRANCH CIRCUIT WIRING WITH COLOR CODED VINYL TAPE WRAPPED A MINIMUM OF 1.5 TIMES AROUND CIRCUMFERENCE OF JACKET/SHIELDING TO DESIGNATE PHASE.
- COLOR CODING OF CONDUCTORS SHALL BE PER NEC REQUIREMENTS.
- CONTRACTOR SHALL PLACE TWO LENGTHS OF WARNING TAPE AT A DEPTH OF 12" BELOW GROUND AND DIRECTLY ABOVE ELECTRICAL SERVICE CONDUITS. CAUTIONS TAPE TO READ "CAUTION BURIED ELECTRIC"

CONDUCTORS AND CABLES

- WIRING ALL CONDUCTORS SHALL BE EQUAL TO OR BETTER THAN MINIMUM #12 AWG FOR POWER, #14 AWG FOR CONTROL WITH 98% CONDUCTIVITY STRANDED COPPER, 600V, COLOR CODED, UNLESS NOTED ALUMINUM (AL). REFER TO "ALUMINUM CONDUCTOR REQUIREMENTS" THIS SHEET. PROVIDE 75°C RATED CONDUCTORS FOR AMPACITIES ABOVE 100A AND 60°C 7. PROVIDE CONDUIT BODIES AND FITTINGS MANUFACTURED BY ONE OF THE FOLLOWING: RATED CONDUCTORS FOR AMPACITIES OF 100 AMPS OR LESS. PROVIDE SOLID OR STRANDED FOR #10 AWG AND SMALLER, STRANDED FOR #8 AWG AND LARGER. UNLESS NOTED OTHERWISE ON DRAWINGS.
- WIRE SIZE OF BRANCH CIRCUITS SHALL BE ADJUSTED TO COMPENSATE FOR VOLTAGE DROP BASED UPON ACTUAL CONDUIT ROUTING. CONTRACTOR SHALL MAINTAIN VOLTAGE DROP AS 8. PROVIDE METAL WIREWAYS MANUFACTURED BY ONE OF THE FOLLOWING: HOFFMAN RECOMMENDED BY N.E.C. (NOT TO EXCEED 3%).
- 3. PROVIDE A SEPARATE NEUTRAL FOR EACH BRANCH CIRCUIT, FEEDER, ETC. NEUTRALS ARE NOT PERMITTED TO BE SHARED.
- CONNECTORS FOR POWER CONDUCTORS: CONTRACTOR SHALL USE PRESSURE TYPE INSULATED TWIST-ON CONNECTORS FOR NO. 10 AWG AND SMALLER. USE SOLDERLESS MECHANICAL TERMINAL LUGS FOR NO. 8 AWG AND LARGER.
- 5. ALL CONNECTIONS SHALL BE MADE WITH A PROTECTIVE COATING OF AN ANTI-OXIDE COMPOUND SUCH AS "NO-OXIDE A" BY DEARBORNE CHEMICAL CO. COAT ALL WIRE SURFACES BEFORE CONNECTING. EXPOSED COPPER SURFACES, INCLUDING GROUND BARS, SHALL BE TREATED - NO SUBSTITUTIONS.
- 6. CABLES MC CABLE IS NOT PERMITTED.
- 7. PROVIDE WIRE AND CABLE MANUFACTURED BY ONE OF THE FOLLOWING: AMERICAN INSULATED WIRE CORPORATION; NEXANS; CERROWIRE; SOUTHWIRE; OR ENCORE WIRE.
- 8. PROVIDE CONNECTORS MANUFACTURED BY ONE OF THE FOLLOWING: AMP INCORPORATED; GENERAL SIGNAL, O-Z/GEDNEY UNIT; SQUARE D COMPANY, ANDERSON; ILSCO; OR BURNDY

ALUMINUM CONDUCTOR REQUIREMENTS

- ALUMINUM CONDUCTOR GRADE SHALL BE MINIMUM AA-8000 OR THE NEWEST ALUMINUM CONDUCTOR SPECIFICATION BEING USED BY THE INDUSTRY.
- PROVIDE SHOP DRAWINGS OF EACH CONDITION REQUIRING PENETRATION SEALS AND THE 2. THE CONTRACTOR SHALL ABIDE BY ALL ARTICLES RELATED TO ALUMINUM CONDUCTORS IN THE LATEST ISSUE OF THE NEC.
- ILLUSTRATION OF EACH PROPOSED SYSTEM INDICATING MANUFACTURER APPROVED 3. ALUMINUM CONDUCTORS SHALL ONLY BE TERMINATED USING ALUMINUM RATED CONNECTIONS. CONTRACTOR SHALL VERIFY TERMINATIONS ON EACH DEVICE OR EQUIPMENT BEFORE START OF WORK FOR RATED ALUMINUM CONNECTORS.
- FIRESTOPPING MATERIALS SHALL BE INTUMESCENT SAFETY BARRIERS DESIGNED TO BLOCK 4. ALL ALUMINUM (AI) CONDUCTORS TO RECEIVE ANTI-OXIDATIVE COATING DURING INSTALLATION. ALL OTHER CONDUCTORS ARE COPPER UNLESS NOTED OTHERWISE.
- FUME, AND WATER RESISTANT AND SHALL HAVE A MINIMUM 3 HOUR FIRE RATING. FIRE 5. THE CONTRACTOR SHALL ABIDE BY ALL ALUMINUM WIRING INSTALLATION STANDARDS AS REQUIRED BY THE NEIS (NATIONAL ELECTRICAL INSTALLATION STANDARDS) PUBLISHED BY THE NECA (NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION). THE CONTRACTOR SHALL ABIDE BY ALL STANDARDS IN THE NECA / AA - 2006, WHICH DEFINES MINIMUM STANDARDS OF QUALITY AND WORKMANSHIP. A SUMMARY OF SOME OF THE REQUIREMENTS FOLLOW:
 - A. TERMINATE WITH COMPRESSION CONNECTORS, NO RING CUTS OF THE INSULATION, CRIMP ONLY WITH A CRIMP TOOL AND THE CORRECT DIE AS REQUIRED BY THE MANUFACTURER.
 - B. ALL CONDUCTORS TO RECEIVE ANTI-OXIDATIVE COATING DURING INSTALLATION. C. TERMINATING WITH A SET SCREW CONNECTOR, THE SCREW SHALL BE TIGHTENED USING
 - ONLY A TORQUE WRENCH. D. NECA / AA RECOMMENDS BELLVILLE WASHERS WHEN CONNECTING ALUMINUM
 - CONNECTORS TO COPPER BUS BARS. ABIDE BY ALL NECA / AA RECOMMENDATIONS. E. DO NOT USE PIN CONNECTORS (WIRE ADAPTERS) UNLESS ABSOLUTELY NECESSARY, USE ALL/ANY OTHER OPTIONS, AND IF REQUIRED, PROVE TO ENGINEER BEFORE INSTALLING. IF USED, FOLLOW UL GUIDE FOR WIRE CONNECTORS (ZMOW), AND PROVIDE THE SPECIAL

TOOLS REQUIRED BY THE MANUFACTURER. DIE-LESS CRIMPERS WILL NOT BE ACCEPTED

RACEWAY AND BOXES

RACEWAYS: UNLESS NOTED OTHERWISE, ALL EXPOSED CONDUIT SHALL BE R.G.S. AND COVERED 6" BELOW FINISHED GRADE TO BE PVC, HDPE, OR LFNC. SEE NOTES A & B BELOW. PROVIDE WEATHERPROOF FLEX CONNECTIONS WHERE REQUIRED. CONTRACTOR SHALL PROVIDE JUNCTION AND/OR PULL BOXES WHERE SHOWN ON THE DRAWINGS, OR AS REQUIRED, WHETHER SHOWN ON THE DRAWINGS OR NOT, AND SIZED PER N.E.C. PROVIDE NON-METALLIC ENCLOSURE WITH OPEN BOTTOM AND GASKETED COVER MANUFACTURED BY QUAZITE OR EQUIVALENT WITH DRIVE-OVER COVER ABLE TO WITHSTAND OCCASIONAL NON-DELIBERATE LIGHT VEHICULAR TRAFFIC. LABEL COVER TO SUIT INSTALLATION (I.E. "POWER" "COMMUNICATIONS", "LIGHTING", ETC.) AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

A. OUTDOOR:

- ABOVE GRADE: R.G.S.
- BELOW GRADE: SCH 40 PVC, SCH 40 HDPE, OR NON-METALLIC FLEXIBLE CONDUIT LISTED FOR DIRECT BURIAL. ALL UNDERGROUND CONDUIT SHALL BE 90°C WET RATED AND INSTALLED 24" MIN. BELOW GRADE. VERIFY APPROVED USE OF HDPE WITH AHJ PRIOR TO ROUGH-IN AND INSTALL PER NEC & MFR RECOMMENDATIONS.

B. PARKING GARAGES:

- RGS: 8'-0" OR LESS ABOVE GRADE OR PARKING GARAGE FLOOR LEVEL
- EMT: 8'-0" MINIMUM ABOVE PARKING GARAGE FLOOR LEVEL AND WHERE NOT SUBJECT TO DAMAGE. CONTRACTOR SHALL VERIFY WITH ELECTRICAL INSPECTOR IF EMT IS APPROVED AT THIS PROJECT PRIOR TO ROUGH-IN.
- ALL WIRING SHALL BE INSTALLED IN CONDUIT. ALL CONDUIT SHALL BE A MINIMUM OF 3/4".
- CONTRACTOR SHALL PLUG AND CAP EACH END OF SPARE AND EMPTY CONDUITS AND PROVIDE TWO SEPARATE PULL STRINGS - 200 LBS TEST POLYETHYLENE CORD. CONTRACTOR SHALL PROVIDE MANUFACTURED LONG RADIUS BENDS FOR ALL CONDUITS. RGS CONDUITS WHEN SPECIFIED, SHALL MEET UL-6 FOR GALVANIZED STEEL. ALL FITTINGS SHALL BE SUITABLE FOR USE WITH THREADED RIGID CONDUIT. COAT ALL THREADS WITH 'BRITE ZINC' OR 'GOLD GALV'
- 4. OUTLET BOXES SHALL BE CAST ALLOY WITH THREADED HUBS IN WET/DAMP LOCATIONS AND SPECIAL ENCLOSURES FOR OTHER CLASSIFIED AREAS.
- 5. PROVIDE METAL CONDUIT AND TUBING MANUFACTURED BY ONE OF THE FOLLOWING: ALFLEX CORPORATION; ANAMET INCORPORATED, ANACONDA METAL HOSE; ANIXTER BROTHERS INCORPORATED; CAROL CABLE COMPANY INCORPORATED; ELECTRI-FLEX COMPANY; GRINNELL COMPANY, ALLIED TUBE AND CONDUIT DIVISION; MONOGRAM COMPANY, AFC; REPUBLIC CONDUIT; OR WHEATLAND TUBE COMPANY.
- 6. PROVIDE NONMETALLIC CONDUIT AND TUBING MANUFACTURED BY ONE OF THE FOLLOWING: ANAMET INCORPORATED, ANACONDA METAL HOSE; CANTEX INDUSTRIES, HARSCO CORPORATION: CONDUX INTERNATIONAL, ELECTRICAL PRODUCTS: HUBBELL INCORPORATED, RACO, INCORPORATED; THOMAS & BETTS CORPORATION, CARLON ELECTRICAL PRODUCTS; OR O-Z/GEDNEY, UNIT OF GENERAL SIGNAL.
- CROUSE-HINDS, DIVISION OF COOPER INDUSTRIES; EMERSON ELECTRIC COMPANY, APPLETON ELECTRIC COMPANY; HUBBELL INCORPORATED, KILLARK ELECTRIC MANUFACTURING COMPANY; THOMAS & BETTS CORPORATION, CARLON ELECTRICAL PRODUCTS; OR O-Z/GEDNEY, UNIT OF GENERAL SIGNAL.
- ENGINEERING COMPANY; KEYSTONE/REES, INCORPORATED; OR SQUARE D COMPANY.
- PROVIDE BOXES, ENCLOSURES, AND CABINETS MANUFACTURED BY ONE OF THE FOLLOWING: CROUSE-HINDS, DIVISION OF COOPER INDUSTRIES; HOFFMAN ENGINEERING COMPANY, FEDERAL-HOFFMAN INCORPORATED: HUBBELL INCORPORATED. RACO INCORPORATED: THOMAS & BETTS, CARLON ELECTRICAL PRODUCTS; O-Z/GEDNEY, UNIT OF GENERAL SIGNAL; ROBROY INDUSTRIES INCORPORATED, ELECTRICAL DIVISION; OR SCOTT FETZER COMPANY, ADALET-PLM.

SAFETY SWITCHES

ALL DISCONNECT SWITCHES SHALL BE HEAVY-DUTY CONSTRUCTION WITH LOCKABLE HANDLES SIZED AS NOTED ON THE DRAWINGS AND/OR RISER DIAGRAM. PROVIDE NEMA ENCLOSURE AS REQUIRED BY EXPOSURE TYPE. ALL FUSIBLE SWITCHES SHALL BE PROVIDED WITH DUAL ELEMENT FUSES SIZED PER THE EQUIPMENT MANUFACTURER'S RECOMMENDATION.

FUSES SHALL BE DUAL ELEMENT, TIME DELAY CURRENT LIMITING. CONTRACTOR SHALL COORDINATE FUSE SIZES WITH EQUIPMENT MANUFACTURER'S REQUIREMENTS AND PER THE N.E.C. PROVIDE FUSES MANUFACTURED FROM ONE OF THE FOLLOWING: COOPER BUSSMAN, INCORPORATED; EAGLE ELECTRIC MANUFACTURING COMPANY INCORPORATED, COOPER INDUSTRIES INCORPORATED; FERRAZ SHAWMUT INCORPORATED.



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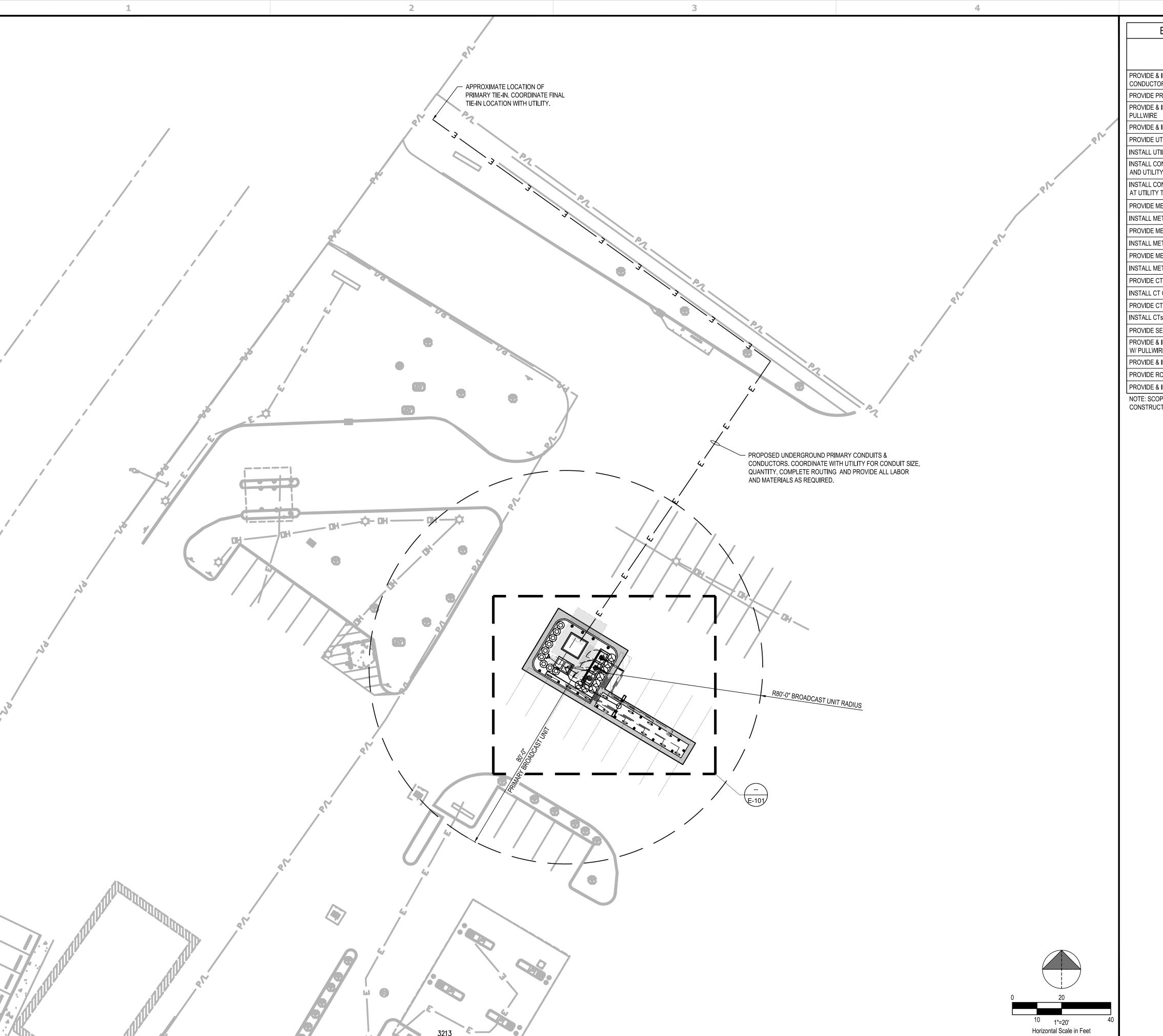
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PROJECT MANAGER DESIGNER

2022241.29

JOB NO.



ELECTRICAL SCOPE OF WORK RESPONSIBILITIES UTILITY CONTRACTOR PROVIDE & INSTALL PRIMARY SIDE UNDERGROUND CONDUCTORS PROVIDE PRIMARY SIDE TRENCHING Χ PROVIDE & INSTALL PRIMARY SIDE CONDUITS W/ PROVIDE & INSTALL UTILITY TRANSFORMER PAD Χ PROVIDE UTILITY TRANSFORMER INSTALL UTILITY TRANSFORMER Χ INSTALL CONNECTIONS AND UTILITY TRANSFORMER (PRIMARY) INSTALL CONNECTIONS AT UTILITY TRANSFORMER (SECONDARY) PROVIDE METER SOCKET/METER CAN Χ INSTALL METER SOCKET/METER CAN Χ PROVIDE METER PEDESTAL Χ INSTALL METER PEDESTAL Χ PROVIDE METER Χ INSTALL METER Χ PROVIDE CT CABINET Χ INSTALL CT CABINET Χ PROVIDE CTs Χ INSTALL CTs (IN CT CABINET) Χ PROVIDE SECONDARY SIDE TRENCHING Χ PROVIDE & INSTALL SECONDARY SIDE CONDUITS W/ PULLWIRE PROVIDE & INSTALL SECONDARY SIDE CONDUCTORS Χ PROVIDE ROAD CUTS / ROAD BORES Χ PROVIDE & INSTALL PAVEMENT REPLACEMENT Χ NOTE: SCOPE SHOWN ABOVE WAS PROVIDED BY FIRST ENERGY. FIELD VERIFY PRIOR TO

UTILITY COMPANY CONTACT

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

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



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DATE DESCRIPTION
12/14/2022 ISSUED FOR SITE SKETCH REVIEW
12/21/2023 ISSUED FOR 90% REVIEW
02/21/2023 ISSUED FOR SIGN & SEAL
03/22/2023 ISSUED FOR SIGN & SEAL



TESLA SUPERCHARGER STATION 30320 LAKESHORE BLVD WILLOWICK, OH 44095

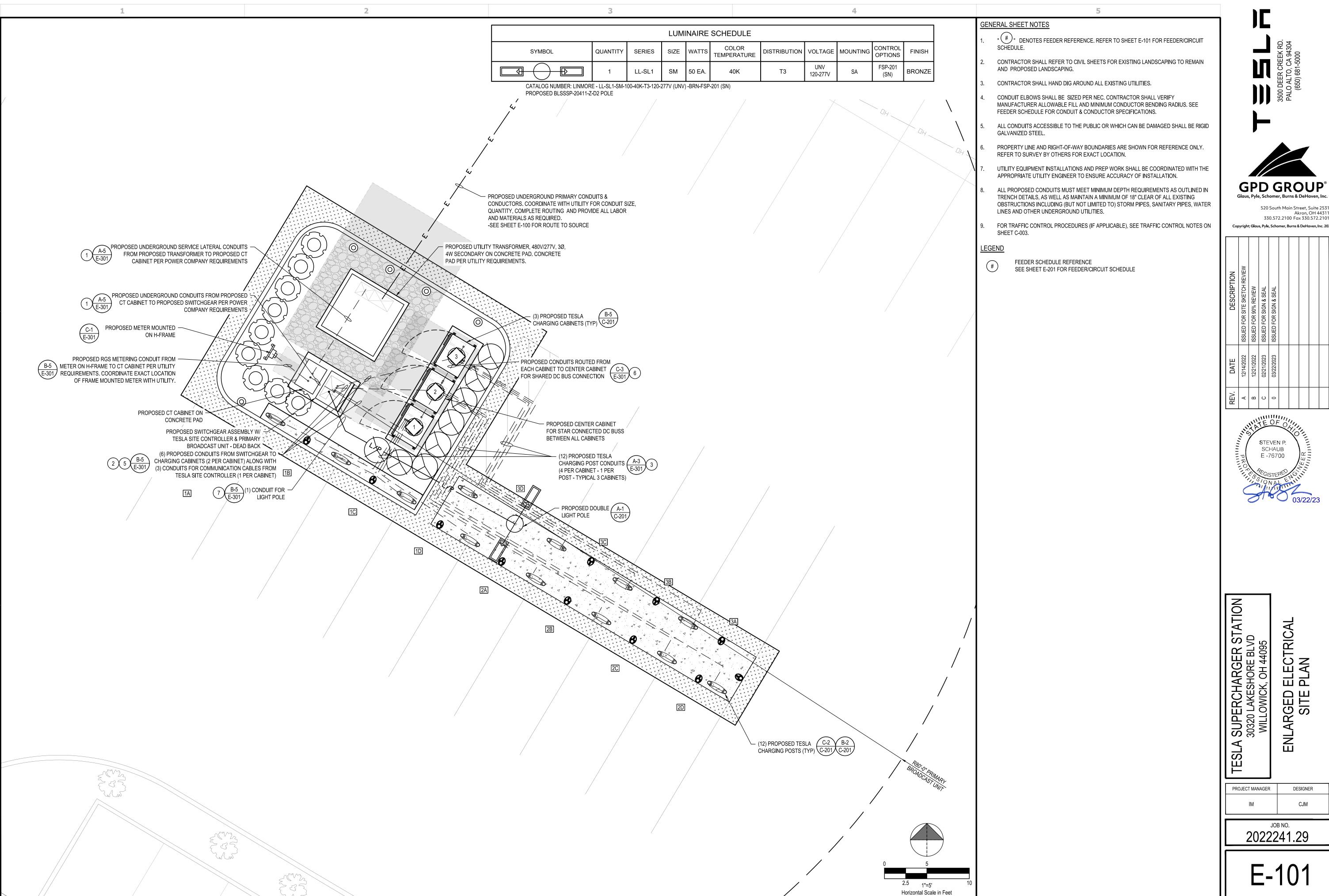
OVERALL ELECTRICAL SITE PLAN

PROJECT MANAGER DESIGNER

IM CJM

JOB NO. 2022241.29

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	DESCRIPTION	ISSUED FOR SITE SKETCH REVIEW	ISSUED FOR 90% REVIEW	ISSUED FOR SIGN & SEAL	ISSUED FOR SIGN & SEAL			
	DATE	12/14/2022	12/21/2022	02/21/2023	03/22/2023			



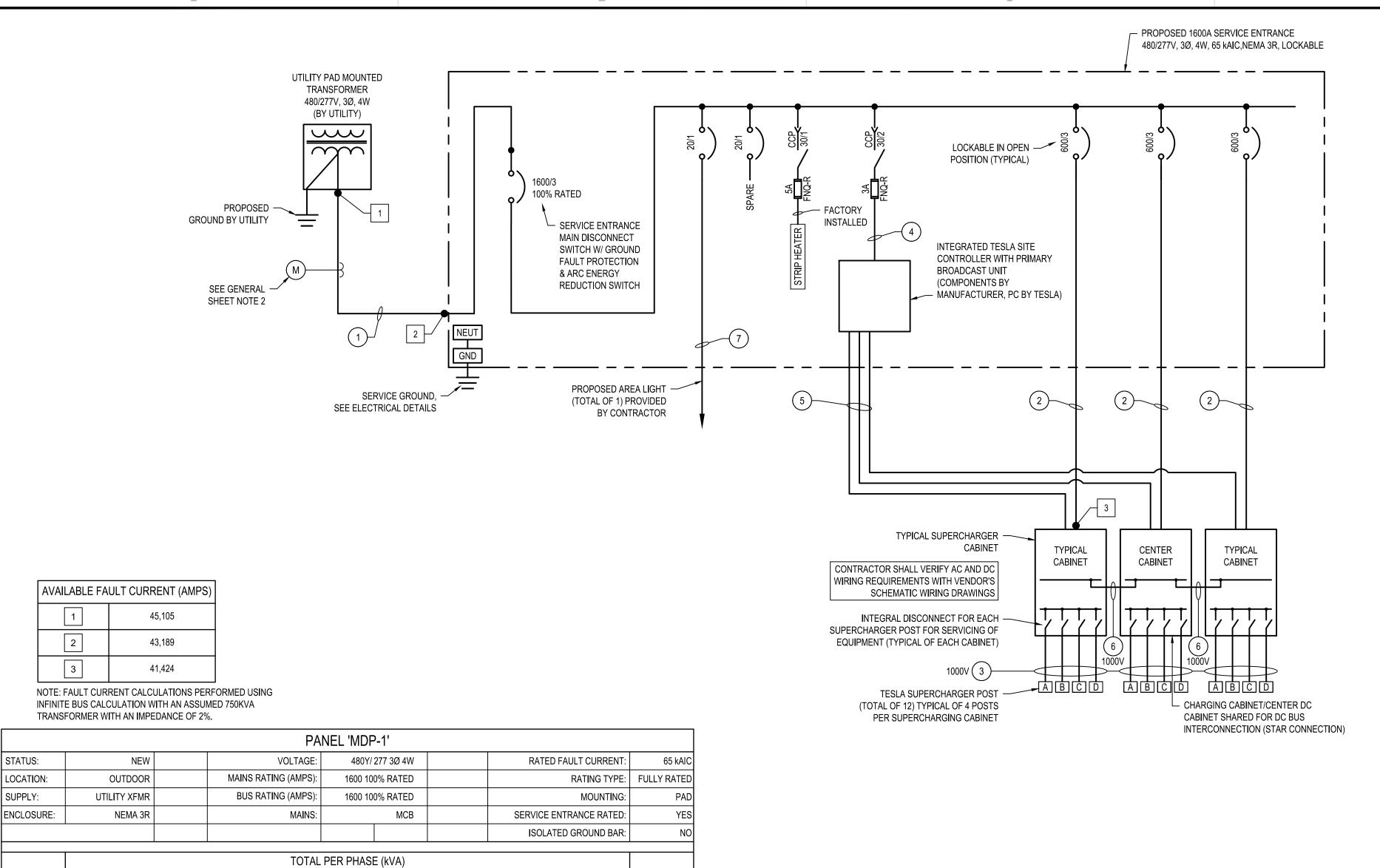
TESLA SUPERCHARGER STATION 30320 LAKESHORE BLVD WILLOWICK, OH 44095

ENLARGED ELECTRICAL SITE PLAN

DESIGNER
СЈМ

2022241.29

E-101



<i></i>				TOTAL	. I LIX I IIAOI					A
CKT#	DESCRIPTION	DESCRIPTION LOAD AMPS/POLES A B C AMPS/POLES LOAD DESCRIPTION		DESCRIPTION	CKT#					
1	TESLA	129.00		258.00				129.00	TESLA	2
3	SUPERCHARGER	129.00	600/3		258.00		600/3	129.00	SUPERCHARGER	4
5	CABINET	129.00]			258.00		129.00	CABINET	6
7	TESLA	129.00		129.00				0.00		8
9	SUPERCHARGER	129.00	600/3		129.00			0.00	SPACE	10
11	CABINET	129.00]			129.00		0.00	-	12
13		0.00		0.00				0.00		14
15	SPACE	0.00]		0.00			0.00	SPACE	16
17]	0.00]			0.00		0.00		18
19		0.00		0.00				0.00		20
21	SPACE	0.00]		0.00			0.00	SPACE	22
23		0.00]			0.00		0.00		24
25		0.00		0.00				0.00		26
27	SPACE	0.00			0.00			0.00	SPACE	28
29		0.00				0.00		0.00		30
31	SPACE	0.00		0.00				0.00		32
33	SPARE	0.00	20/1		0.00			0.00	SPACE	34
35	STRIP HEATER	0.30	30/1			0.30		0.00		36
37	LED LIGHT POLE	0.14	20/1	0.14				0.00		38
39	TESLA SITE	0.10	30/2		0.10			0.00	SPACE	40
41	CONTROLLER	0.10	J 30/2			0.10		0.00		42
			TOTAL kVA	387.14	387.10	387.40	TOTA	AL 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 CAL	.C. LOAD kVA	1452.05	
						1				

*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

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.

*NEC CALC. LOAD AMPS

- OCPD FOR POWER CABINETS ARE CALCULATED AS FOLLOWS: 448A 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.

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)

- 1. ALL AC CONDUCTORS SHALL BE XHHW-2, 600V RATED, U.N.O.
- 2. ALL DC CONDUCTORS SHALL BE XHHW-2, 1000V RATED, U.N.O..

4. DURALINE PRODUCT WILL BE USED FOR "DC-POST" CONDUIT RUN ONLY.

3. SEE "RACEWAY AND BOXES" NOTES ON SHEET E-001 FOR CONDUIT USE TYPES FOR ABOVE AND BELOW GRADE APPLICATIONS

GPD GROUP

Glaus, Pyle, Schomer, Burns & DeHaven, Inc. Akron, OH 44311 330.572.2100 Fax 330.572.2101

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DESCRIPTION	ISSUED FOR SITE SKETCH REVIEW	ISSUED FOR 90% REVIEW	ISSUED FOR SIGN & SEAL	ISSUED FOR SIGN & SEAL					
DATE	12/14/2022	12/21/2022	02/21/2023	03/22/2023					
REV.	A	В	S	0					

STEVEN P. SCHAUB E -76700

SUPERCHARGER STATION 30320 LAKESHORE BLVD WILLOWICK, OH 44095

SINGLE LINE DIAGRAM & PANEL SCHEDULE

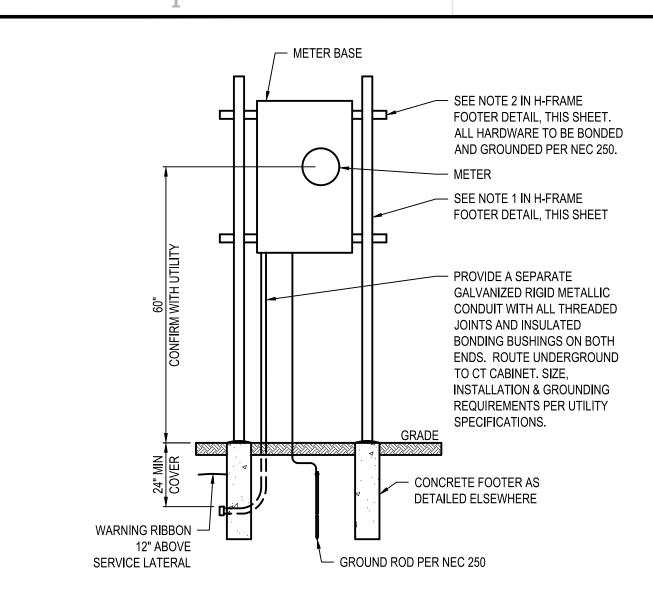
PROJECT MANAGER	DESIGNER
IM	СЈМ

2022241.29

	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 (I ² T ON)	3	0.2 (l²T OFF)	15	0.6	0.4 (I ² T OFF)			
MCB - SQUARE D NW BKR	1600A	0.9(1440A)	4	1.5	0.2 (l²T OFF)	15	J	0.4 (I ² T OFF)			
V3 BRANCH CIRCUIT - ABB	600A	MAX (600A)	Х	Х	X	MIN (3000A)	Х	Х			
V3 BRANCH CIRCUIT -	600A	Х	Х	Х	Х	2	Х	Х			

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			



NO SAFE PPE EXISTS

ENERGIZED WORK PROHIBITED

FLASH PROTECTION Working Distance: 18 in Glove Class:

SHOCK PROTECTION Shock risk when 480 VAC

Arc Flash Boundary: 359 in NO SAFE PPE

Limited Approach 42 in

cover is removed

Min. Arc Rating: NO SAFE PPE DO NOT WORK ON LIVE!

Restricted Approach 12 in

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

WARNING

INCOMING UTILITY SECTION

Arc Flash and Shock Risk Appropriate PPE Required

FLASH PROTECTION Working Distance: 18 in Glove Class:

SHOCK PROTECTION Shock risk when 480 VAC cover is removed

Arc Flash Boundary: 39 in CAT 2 Min. Arc Rating: 8 cal/cm^2

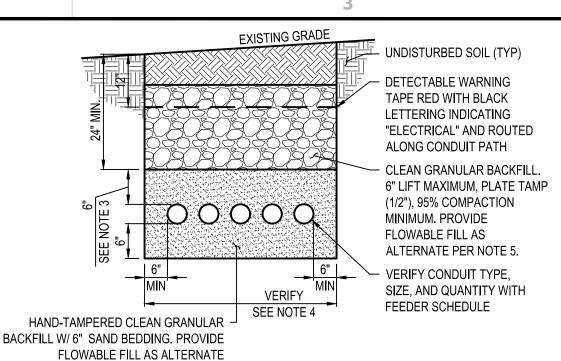
Limited Approach 42 in

Restricted Approach 12 in

CHARGING CABINETS

- 1. FOR ANY QUESTIONS OR CLARIFICATIONS REGARDING LABELS, CONTACT
- 2. ARC FLASH INCIDENT ENERGY ANALYSIS COMPLETED PER NFPA 70E 2018.
- LABELS WITH SELF STICKING ADHESIVE.
- 5. INSTALL LABELS PER NEC SECTION 110.16.
- 6. FOR EACH SWITCHGEAR SECTION, CONTRACTOR SHALL PROVIDE (1) SPECIFIC LOCATION FOR LABEL PLACEMENT(S).
- AS REQUIRED BY LOCAL JURISDICTION, STATE AND FEDERAL CODES AND

ARC FLASH LABELS



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.

DC BUS CIRCUIT TRENCH

DURALINE SMOOTH-COR FLEX CONDUIT HAS BEEN

CERTIFIED AS A CRITICAL COMPONENT OF THE

REPORTS SHOWING HOW THIS PRODUCT MEETS UL STANDARDS ARE AVAILABLE UPON REQUEST.

PRODUCT WILL BE USED FOR "DC-POST" CONDUIT

REQUIRE THE USE OF 90° PVC TRANSITIONS AT

EACH END AND/OR HARD BENDS. CONTRACTOR

SUPERCHARGER

CABINET

DURALINE TO PVC TRANSITION

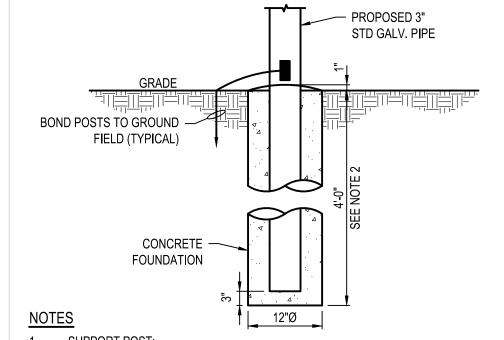
SUPERCHARGER POST BY TUV. TESTING

DURALINE SMOOTH-COR FLEX CONDUITS

TO SUPPLY PVC TRANSITIONS TO TESLA

EQUIPMENT.

6. DC BUS CONDUITS ARE NOT TO BE STACKED UNDER ANY CIRCUMSTANCES.



 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. REFER TO FEEDER/CIRCUIT SCHEDULE FOR CONDUIT SPECIFICATION ALL ABOVE GROUND CONDUITS SHALL BE RIGID GALVANIZED STEEL. PROVIDE PVC

SUPERCHARGER

POST (V3)

90° PVC TRANSITION INTO

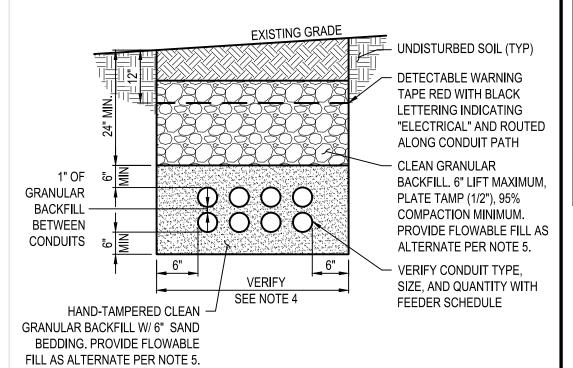
CHARGE POST. SEE NOTE 2.

TO RGS COUPLER FOR TRANSITION. ALL CUT POST & UNISTRUT ENDS SHALL BE FILED, GALVANIZED AND CAPPED. IF FROST DEPTH EXCEEDS 4'-0", FOOTER TO EXCEED FROST DEPTH.

ENGINEER OF RECORD SHALL BE CONTACTED IMMEDIATELY IF GROUND WATER IS ENCOUNTERED DURING CONSTRUCTION.

TO UTIL**I**TY **TRANSFORMER** MAIN BONDING JUMPER (FACTORY — INSTALLED PER NEC) PROPOSED MAIN -SERVICE EQUIPMENT PROPOSED NEUTRAL CONDUCTOR. SEE FEEDER/CIRCUIT SCHEDULE - PROPOSED #4/0 AWG Cu GROUNDING ELECTRODE TO ADDITIONAL CONDUCTOR TO (2) 5/8" x 8'-0" SUPERCHARGING CABINETS GROUND RODS SPACED @ 6'-0" OC MIN. - PROPOSED SUPERCHARGING PROPOSED · CABINET EGC. SEE SUPERCHARGING CABINET FEEDER/CIRCUIT SCHEDULE PROPOSED POST EGC. -SEE FEEDER/CIRCUIT SCHEDULE TO ADDITIONAL SUPERCHARGING POSTS SUPERCHARGING POSTS

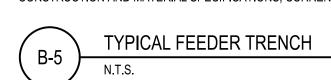




1. ANY EXCAVATION LEFT OPEN SHOULD BE SECURELY FENCED OFF. 2. ANY PAVEMENT DAMAGE DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR TO PRECONSTRUCTION CONDITIONS OR BETTER.

3. CONTRACTOR SHALL INSTALL CONDUITS BELOW LOCAL FROST LINE. SHOULD FIELD CONDITION 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

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.



1. DUCT BANK DESIGNED AND CERTIFIED BY TESLA, SEE

egthinspace = -1

- 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
- 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

PROVIDE FLOWABLE FILL AS ALTERNATE PER NOTE 6. 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

- 90° PVC TRANSITION INTO

DURALINE SMOOTH-COR FLEX —

SCHEDULE ON SHEET E-201 FOR /

CONDUIT SIZE AND QUANTITY).

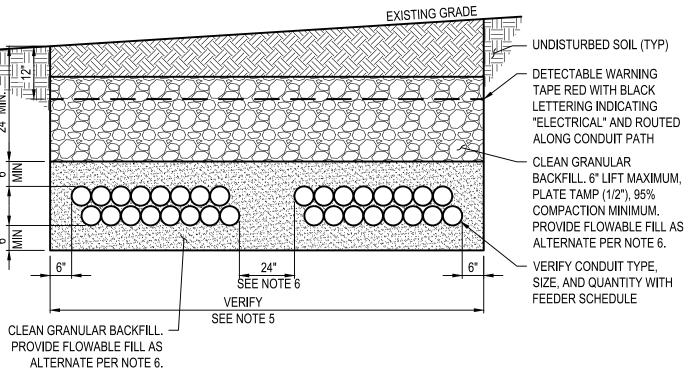
CONDUIT (SEE FEEDER

CABINET. SEE NOTE 2.

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.

ITS USE. ANY RELIANCE ON THIS DETAIL SHALL BE AT THE RELYING PARTY(IES)'S OWN RISK AND HEREBY





EXISTING GRADE UNDISTURBED SOIL (TYP) - DETECTABLE WARNING TAPE RED WITH BLACK LETTERING INDICATING "ELECTRICAL" AND ROUTED ALONG CONDUIT PATH CLEAN GRANULAR BACKFILL. 6" LIFT MAXIMUM PLATE TAMP (1/2"), 95% COMPACTION MINIMUM. PROVIDE FLOWABLE FILL AS ALTERNATE PER NOTE 6. VERIFY CONDUIT TYPE, SIZE, AND QUANTITY WITH **VERIFY** FEEDER SCHEDULE SEE NOTE 4 HAND-TAMPERED CLEAN -

GRANULAR BACKFILL W/ 6" SAND BEDDING. PROVIDE FLOWABLE FILL

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 PRECONSTRUCTION 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.

SECONDARY FEEDER TRENCH A-5

INP 吊咒 AS ALTERNATE PER NOTE 6.

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PROJECT MANAGER DESIGNER

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GPD GROUP

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STEVEN P.

SCHAUB

E -76700

520 South Main Street, Suite 2531

330.572.2100 Fax 330.572.2101

JOB NO. 2022241.29

LAWS.

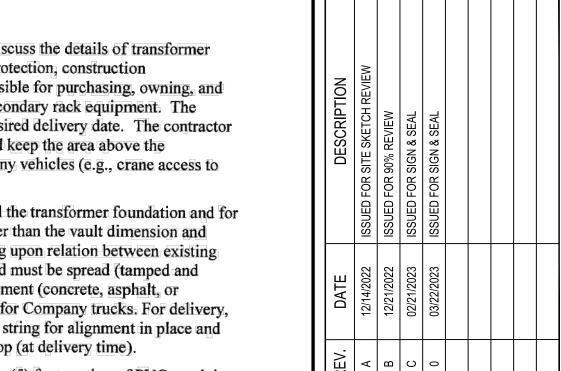
Bus: CHARGING CABINETS Prot: 600A BREAKER

3. ARC FLASH CALCULATIONS PER IEEE 1584, 2018.

4. LABELS SHALL BE PRINTED WITH PERMANENT INK ON WEATHERPROOF

APPLICABLE LABEL ON EXTERIOR DOOR AND (1) APPLICABLE LABEL ON INTERIOR FRONT FACING SECTION. CONTRACTOR SHALL FIELD VERIFY

CONTRACTOR SHALL PROVIDE LABELS WITH ANY ADDITIONAL INFORMATION



FOR REFERENCE **ONLY**

A SUPERCHARGER STATION 30320 LAKESHORE BLVD WILLOWICK, OH 44095

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FirstEnergy.

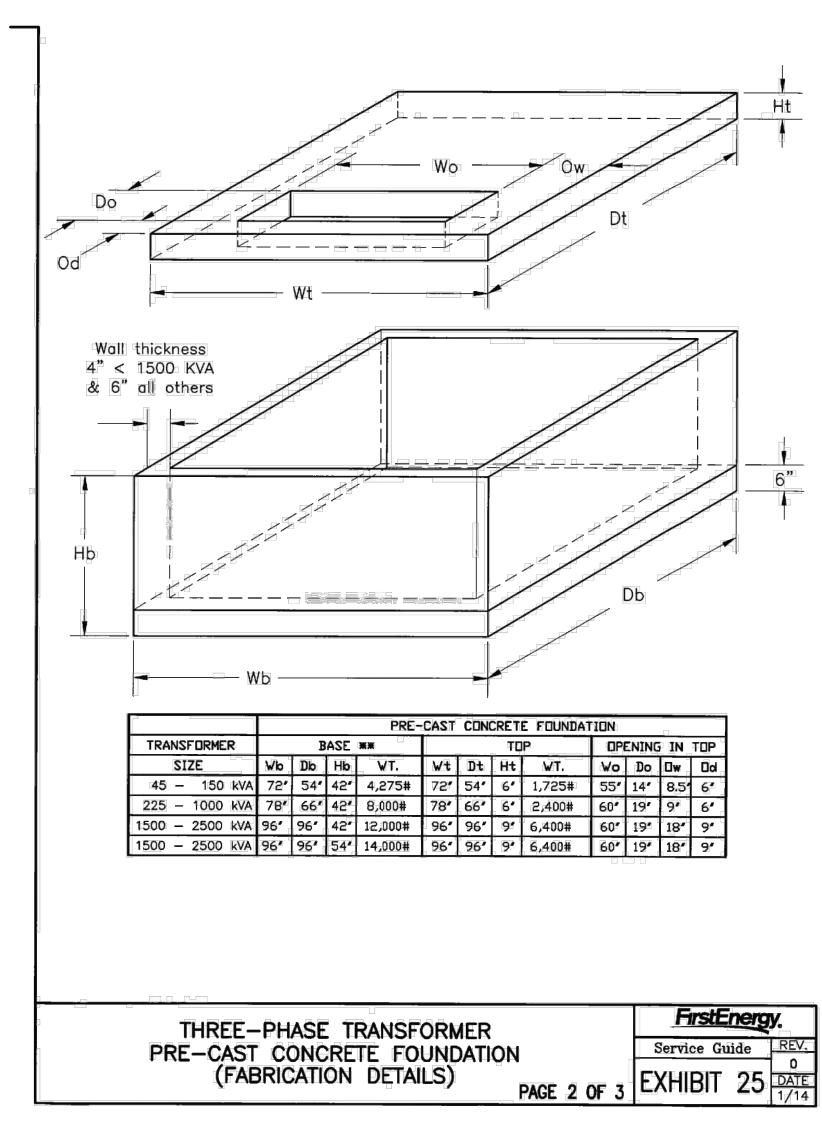
Service Guide REV.

UTILITY DETAILS

PROJECT MANAGER DESIGNER

2022241.29

E-401



- 1. 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).
- 2. 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).
- 3. 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.
- 4. Excavation for customer conduits can be done at the same time as for foundation
- 5. 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.
- 6. 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.
- 7. 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 EXHIBIT 25 DATE 1/14

FirstEnergy, Service Guide REV. PAGE 1 OF 3 EXHIBIT 25 DATE

Excavation area

-#67 (3/4") Crushed limestone backfill over grounding

-Backfill with excavated soil

free of large rocks & debris

Conduit excavation See notes 3 & 4

6" Gravel bed, leveled, & placed at appropriate depth

All around

THREE-PHASE TRANSFORMER

PRE-CAST CONCRETE FOUNDATION

(INSTALLATION DETAILS)

Conduit excavation

18" Deep excavation— area for grounding

Ground rods

For notes see Exhibit 25 page 3 of 3

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

SPECIALTY

SIZE RANGE AVAILABLE 2.0

3.0* 4.0



SPECIFICATIONS All Smooth-Cor Flex dimensions meet or exceed one or more of the following: ASTM

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

PRE-INSTALLED TAPE Factory pre-installed Bull-Line™ 1200lb Pull Tape comes standard in Smooth-Cor Flex

PACKAGING Available on steel reels or 250' coils

STANDARD

DETAILS Manufactured from flexible HDPE (High Density Polyethylene)

D-3350, ASTM D-638, ASTM D-792, ASTM D-1238, ASTM D-1693

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

on steel reels. Smooth-Cor Flex coils are only available as empty.

OPTIONS

@ dura·line

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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	AŞTM 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
C	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
А В	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.



DL.SMOOTH-COR-FLEX.4.2022

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DESCRIPTION	ISSUED FOR SITE SKETCH REVIEW	ISSUED FOR 90% REVIEW	ISSUED FOR SIGN & SEAL	ISSUED FOR SIGN & SEAL			
DATE	12/14/2022	12/21/2022	02/21/2023	03/22/2023			
REV.	A	В	၁	0			

FOR REFERENCE ONLY

TESLA SUPERCHARGER STATION 30320 LAKESHORE BLVD WILLOWICK, OH 44095 SPECIFICATIONS

PROJECT MANAGER DESIGNER

2022241.29

E-501