

CONCRETE & REINFORCEMENT GENERAL NOTES:

1.1 DESIGN, MATERIAL, AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE FOLLOWING STANDARDS:

ACI 318 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.

SP66 ACI DETAILING MANUAL.

ACI 301 SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS.

CRSI RECOMMENDED PRACTICE FOR PLACING REINFORCING STEEL.

SAWS STANDARD SPECIFICATION 307 "CONCRETE STRUCTURES".

1.2 CONCRETE SHALL DEVELOP 3600 PSI MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS, EXCEPT AS NOTED ON DRAWINGS. FLY ASH PERMITTED. CLASS C CONCRETE CRYSTAL CLEAR STANDARD SPECIFICATION 01500 "CONCRETE FOR STRUCTURES".

1.3 REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615 GRADE 60. CRYSTAL CLEAR STANDARD SPECIFICATION 01500 "CONCRETE FOR STRUCTURES".

1.4 WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185, (FLAT SHEETS ONLY).

1.5 UNLESS NOTED, CONCRETE COVER OVER REINFORCING SHALL BE:

3" WHEN THE CONCRETE IS PLACED DIRECTLY AGAINST THE GROUND.

2" FOR BARS LARGER THAN NO. 5, AND 1 1/2" FOR NO. 5 AND SMALLER, IF

AFTER REMOVAL OF FORMS THE CONCRETE IS EXPOSED DIRECTLY TO WEATHER OR GROUND.

1" IN SLABS AND WALLS, AND 1 1/2" FOR BEAMS AND COLUMNS NOT EXPOSED DIRECTLY TO WEATHER OR GROUND.

1.6 ALL REINFORCING HOOKS SHALL BE STANDARD HOOKS AS DEFINED BY ACI, UNLESS NOTED OTHERWISE.

1.7 ALL EXPOSED EDGES OF CONCRETE SHALL HAVE A 1 INCH, 45 DEGREE CHAMFER.

1.8 CONTRACTOR SHALL SUBMIT COMPLETE SHOP AND PLACING DRAWINGS AND OBTAIN APPROVAL PRIOR TO FABRICATION.

1.9 MAXIMUM AGGREGATE SHALL BE AS FOLLOWS:

WALLS, STRUCTURAL SLABS, BEAMS..... 3/4"

FOOTING, SLABS ON GRADE..... 1 1/2"

1.10 GRIND ALL CONSTRUCTION JOINTS IN SLAB SO AS TO PRODUCE A SMOOTH AND LEVEL SURFACE

1.11 WET WELL BOTTOM SLAB TO HAVE 'ROUGH' FINISH. SURFACE SLABS TO HAVE 'ROUGH' FINISH ON SIDES AND 'LIGHT BROOM' FINISH ON TOP.

1.12 SLOPE SLAB TO DRAIN AWAY FROM LIFT STATION SITE.

1.13 EXCAVATION FOR THE WET WELL STRUCTURE SHALL EXTEND 24" BELOW THE BOTTOM OF THE WET WELL STRUCTURE. NATIVE SOILS SHALL BE COMPACTED TO A DEPTH OF 6" WITH VIBRATORY COMPACTION EQUIPMENT. ABOVE THE NATIVE SOILS PLACE 6" OF FLEXIBLE BASE. COMPACTION OF NATIVE SOILS AND FLEXIBLE BASE SHALL ACHIEVE MINIMUM 98% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE TXDOT TESTING METHOD TEX 113-E AT THE OPTIMUM MOISTURE CONTENT TO +4%. ABOVE THE FLEXIBLE BASE PLACE 18" OF CRUSHED STONE.

1.14 NOT USED

1.15 SITE CLASS "D", UNO IN THE GEOTECHNICAL REPORT

1.16 REFER TO GEOTECHNICAL REPORT FOR GROUNDWATER CONDITIONS

2.0 FOUNDATION CONSTRUCTION

2.1 THIS FOUNDATION DESIGN IS BASED ON ECS SOUTHWEST PROJECT NO. 20-1609. BORING B-19 IS CLOSEST TO THE LIFT STATION LOCATION PROVIDED TO OUTLIER AND WAS USED TO DESIGN THESE FOUNDATIONS. A MINIMUM OF 12 INCHES OF SELECT FILL TO BE PLACED BENEATH ALL SURFACE SLAB ELEMENTS. THE RECOMMENDED DESIGN PI = 20. SURFACE FOUNDATIONS DESIGNED FOR 2000PSF BEARING PRESSURE. WET WELL FOUNDATION SIZED FOR MINIMUM 2000PSF BEARING PRESSURE.

2.2 SELECT FILL TO MEET TXDOT STANDARD SPECIFICATION ITEM 247 ANY GRADE. MAX PI= 20. FLOWABLE FILL MEETING STANDARD SPECIFICATION 401 MAY ALSO BE USED.

2.3 GENERATOR AND ELECTRICAL CANOPY SURFACE SLABS TO HAVE A MINIMUM OF 12 INCHES OF SELECT FILL BENEATH ALL SURFACE ELEMENTS.

2.4 WET WELL EXCAVATION TO BE COMPLETELY FILLED WITH COMPACTED BACKFILL OR FLOWABLE FILL OR BOTH. THIS APPLIES TO THE PLAN LIMITS OF THE TOP SLAB.

2.5 FOLLOWING EXCAVATION, THE EXPOSED SUBGRADE AREAS SHALL BE PROOF-ROLLED TO EXPOSE ANY WEAK, SOFT, WET, OR OTHERWISE UNSUITABLE SOILS THAT SHALL BE REMOVED.

2.6 FOLLOWING PROOF-ROLLING, THE EXPOSED SUBGRADE SOILS SHALL BE SCARIFIED TO A DEPTH OF SIX (6) INCHES; MOISTURE CONDITIONED BETWEEN +/- 3 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT AND COMPACTED TO AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED IN ACCORDANCE WITH TEX-114-E.

2.7 SOIL FROM SITE EXCAVATIONS SHALL NOT BE USED AS FILL MATERIAL.

2.8 SLAB FILL MATERIAL SHALL BE COVERED AND PROTECTED FROM GETTING WET PRIOR TO PLACEMENT IN THE FOUNDATION SLAB AREAS AND AFTER PLACEMENT IN THE FOUNDATION SLAB AREAS.

2.9 PLACE SELECT FILL IN THIN, LOOSE LIFTS LESS THAN 8 INCHES THICK. COMPACT TO 95% OF THE MAXIMUM DENSITY DEFINED BY ASTM D 698.

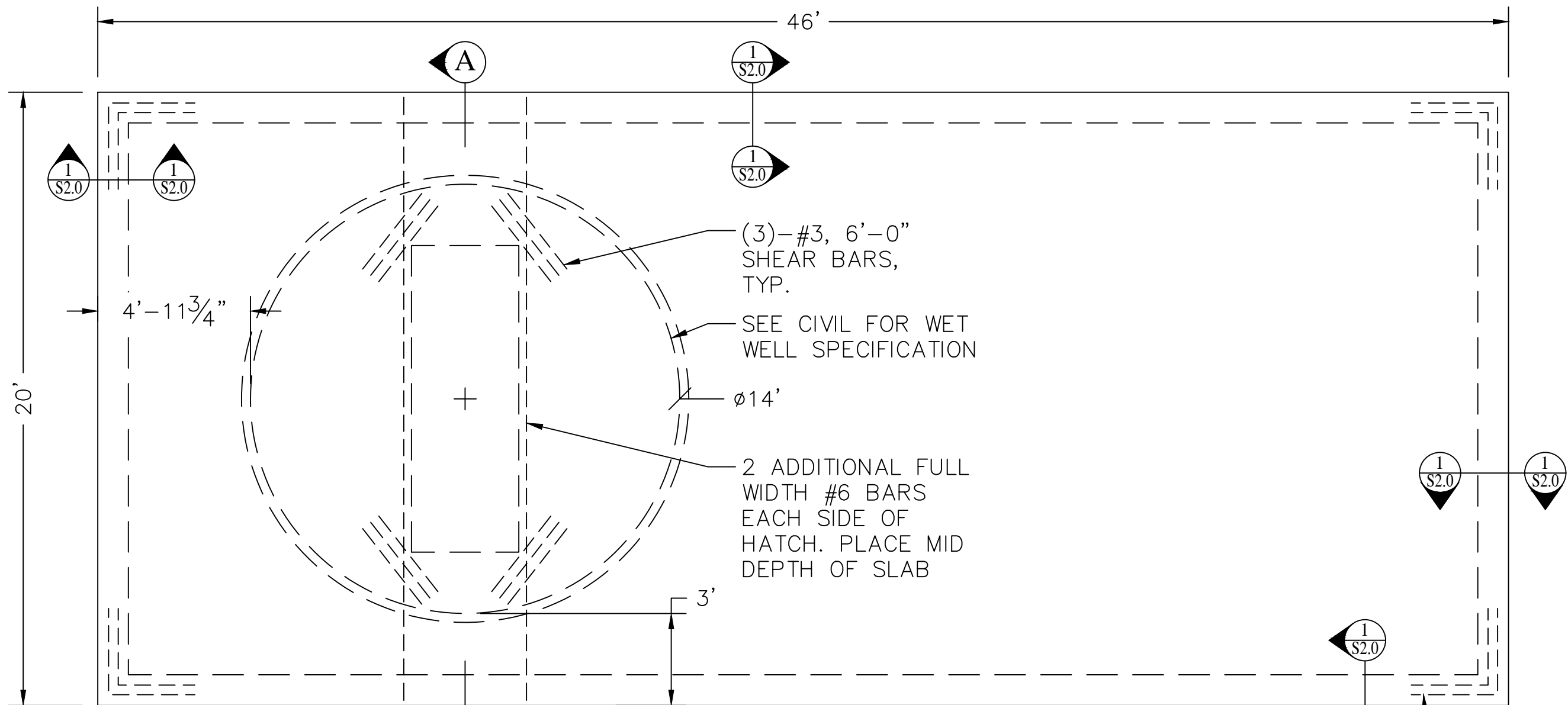
2.10 CONDUCT FIELD DENSITY TESTS AT A RATE OF ONE PER 3,000SF PER LIFT AND TWO MINIMUM PER LIFT.

2.11 TRENCHING OF GRADE BEAMS SHALL BE EXCAVATED TO PROVIDE THE BEAM CROSS SECTION INDICATED. BEAM AND SLAB DEPTHS AND WIDTHS AS INDICATED ARE MINIMUM ACCEPTABLE SIZES. LARGER SIZE BEAMS AND SLABS FORMED BY LESS ACCURATE TRENCHING MAY REQUIRE ADDITIONAL REINFORCING NOT SHOWN WHICH SHALL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION REVIEW. ALL LOOSE DIRT FROM SIDES AND BOTTOMS OF TRENCHES SHALL BE REMOVED. HAUNCHES SHALL BE CUT ON EACH SIDE OF TRENCHES OF ADEQUATE SIZE TO MAINTAIN THE VERTICAL SIDES OF THE TRENCH.

2.12 PROVIDE A LAYER OF 10 MILL. POLYETHYLENE VAPOR BARRIER MEMBRANE OR EQUIVALENT BENEATH ALL SLAB AREAS. THE VAPOR BARRIER MEMBRANE MUST BE TAPED AT ALL SPLICES AND TEARS. BARRIER MEMBRANE MUST EXTEND TO THE BOTTOM OF THE SIDES OF THE BEAM TRENCHES. IF BARRIER IS EXTENDED ACROSS BOTTOM OF BEAM, BARRIER MUST BE FLAT FORMING A SQUARE BOTTOM TO THE BEAM.

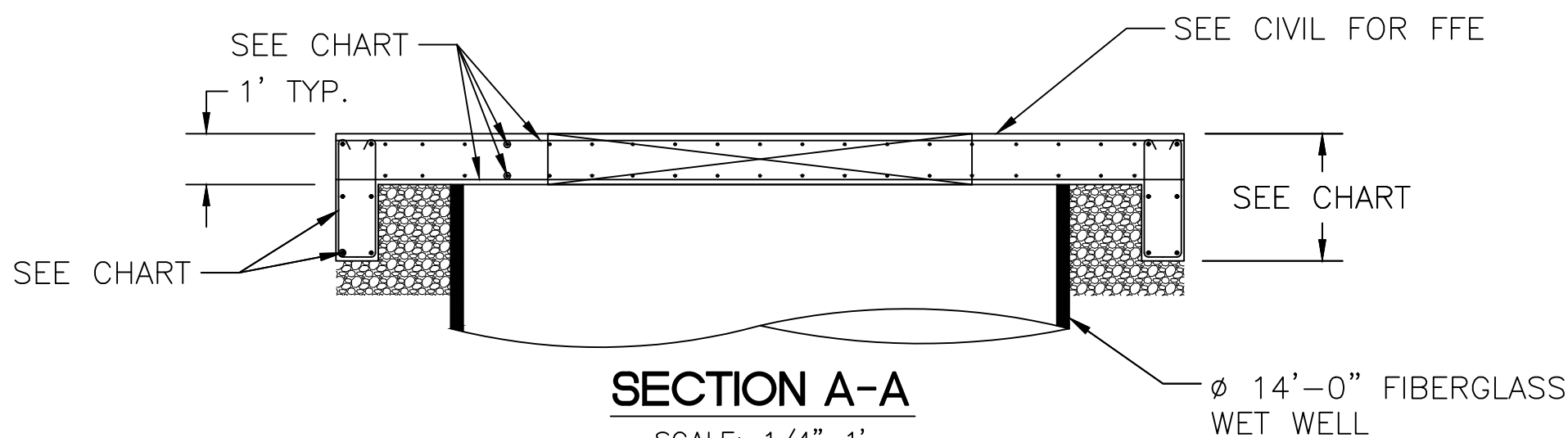
2.13 ALL EXTERIOR FOUNDATION BEAMS ARE TO BE EXCAVATED AND EMBEDDED INTO UNDISTURBED SOIL OR PROPERLY COMPACTED LOT FILL MATERIAL TO A MINIMUM DEPTH OF 6 INCHES OR AS NOTED IN THE DETAILS AND DESIGN CHART ON THIS DRAWING, WHICHEVER IS GREATER, OR INTO BEDROCK TO A MINIMUM DEPTH OF 6 INCH.

2.14 REMOVE FREE WATER FROM BEAM TRENCHES AND ALL OTHER EXCAVATIONS BEFORE PLACING CONCRETE. CLEAN BOTTOM OF BEAM TRENCHES OF LOOSE SOIL, ROOTS, GRAVEL, AND ALL DEBRIS PRIOR TO PLACING CONCRETE. CONCRETE SHALL NOT BE PLACED ON SOILS THAT HAVE BEEN DISTURBED BY RAINFALL OR WATER SEEPAGE.



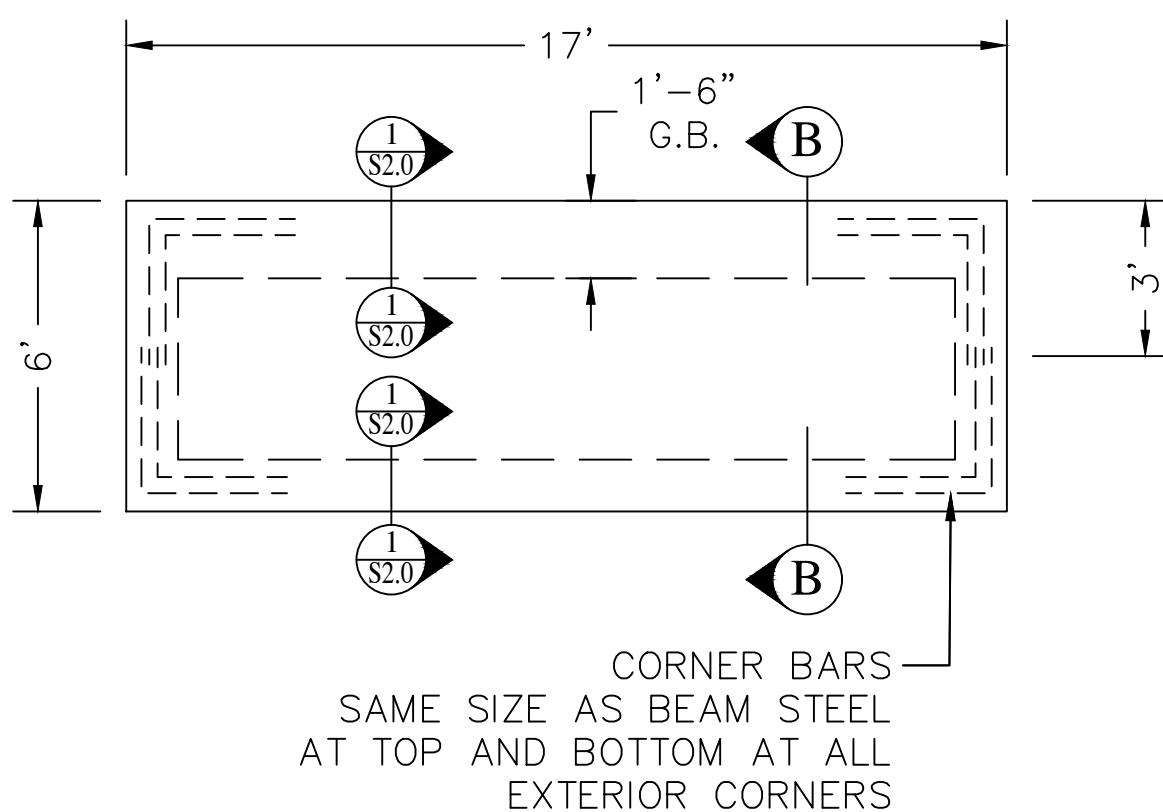
PLAN VIEW OF LIFT STATION TOP SLAB

SCALE: 1/4"=1'



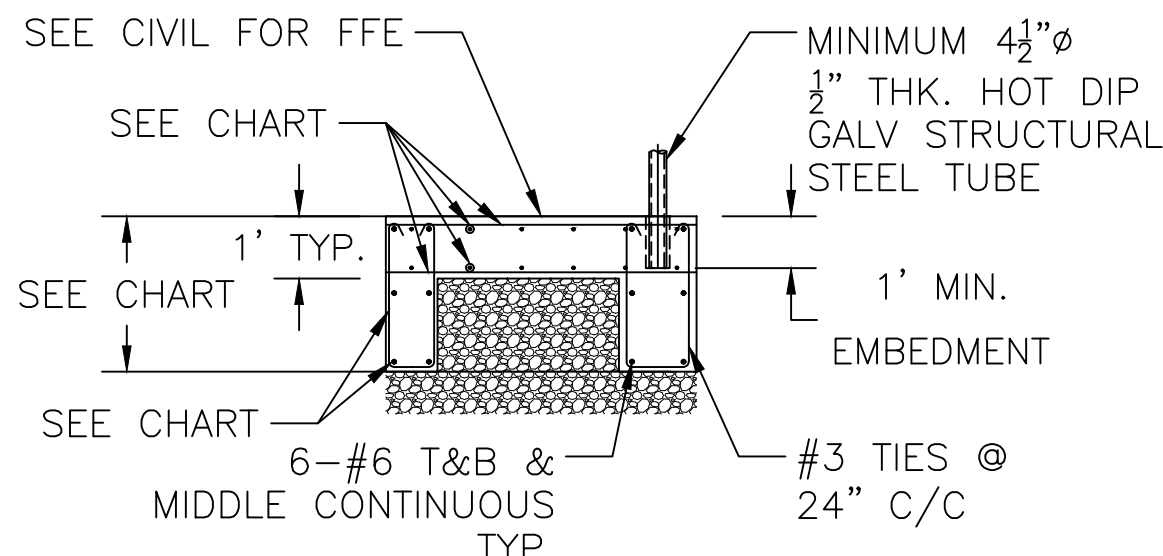
SECTION A-A

SCALE: 1/4"=1'



ELECTRICAL CANOPY FOUNDATION

SCALE: 1/4"=1'



SINGLE SIDE SECTION B-B

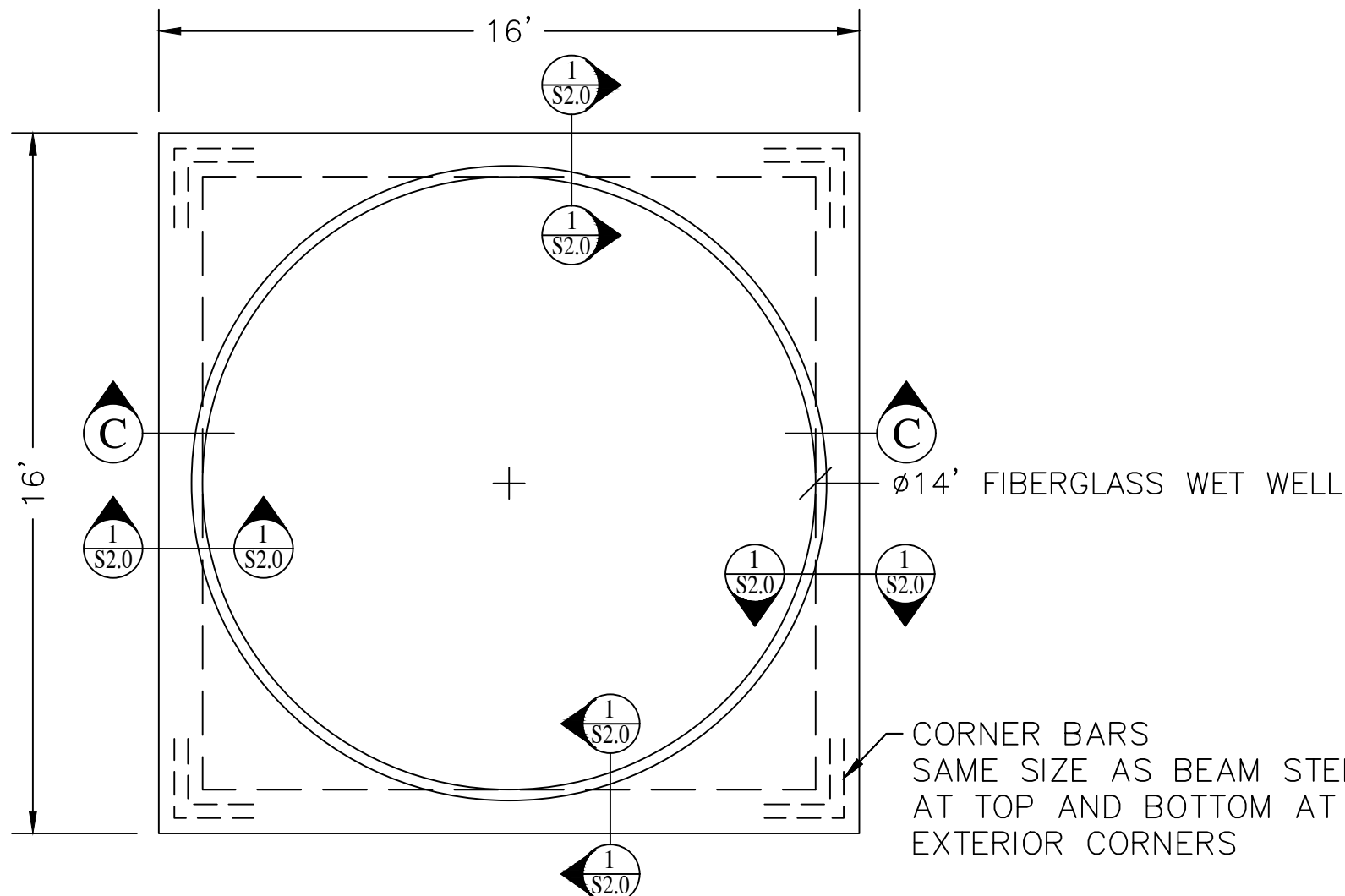
SCALE: 1/4"=1'

TOP SLAB, GENERATOR AND ELECTRICAL CANOPY FOUNDATION CHART

BEAM WIDTH (MINIMUM)	EXT. BEAM DEPTH	EXT.BM. DEPTH IN GRADE	INT. BEAM DEPTH	BEAM BARS T & B	STIRRUP EXT. BEAM	STIRRUP INT. BEAM	PAD BARS	SLAB THICKNESS
12" EXT. 12" INT.	24" MIN.	6" MIN.	24" MIN.	2-#6 BTM 2-#6 TOP	#3 @24" O.C.	#3 @24" O.C.	2 MATS #4 @12" O.C.	12"

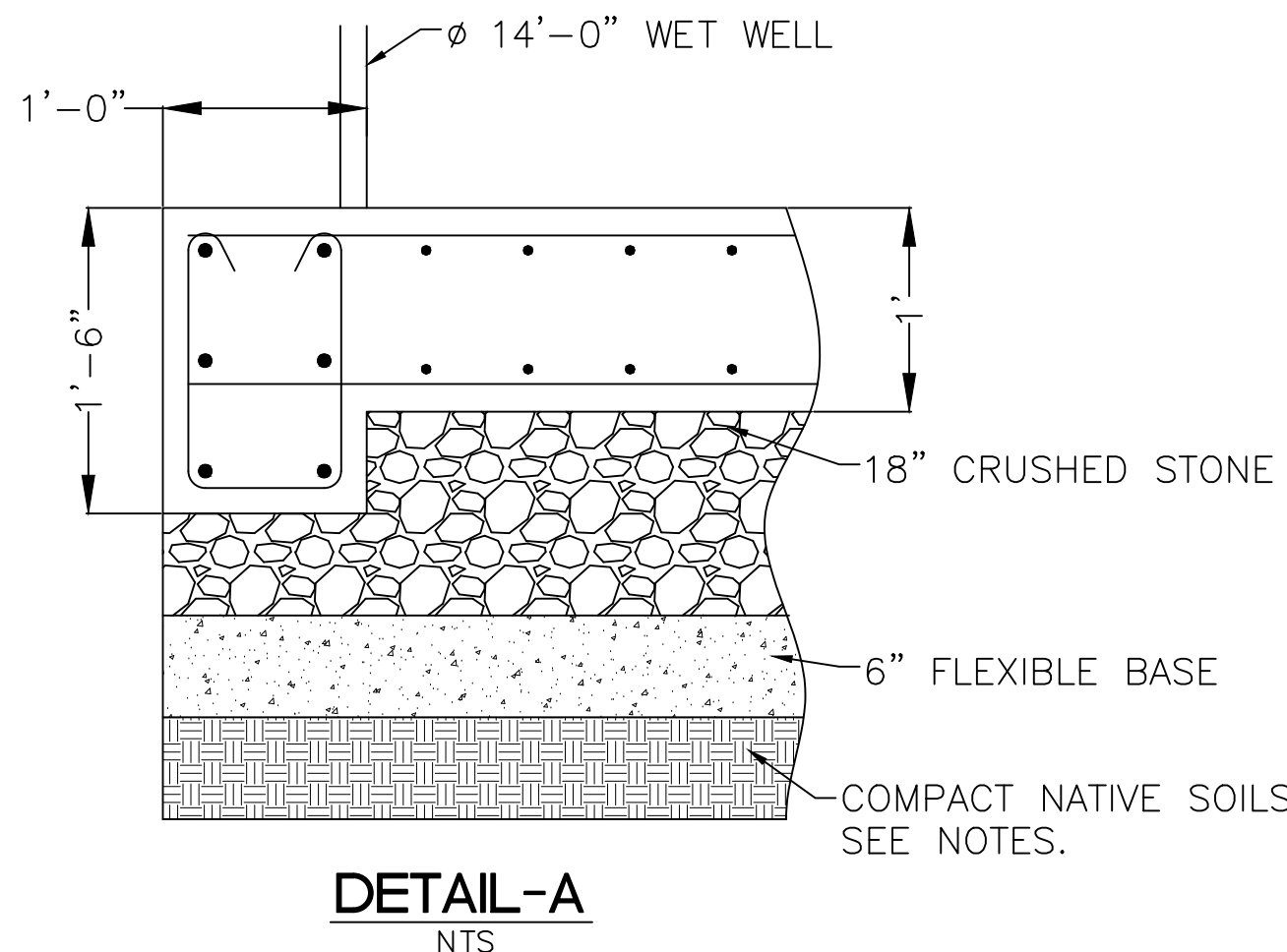
BUILDER/CONTRACTOR TO VERIFY ALL DIMENSIONS, DROP AREAS, FLOOR PENETRATIONS, AND BLOCK-OUT LOCATIONS ON SITE.

GRADE BEAM WIDTH SHALL BE REFERENCED FROM CHART, UNO.



PLAN VIEW OF LIFT STATION BOTTOM SLAB

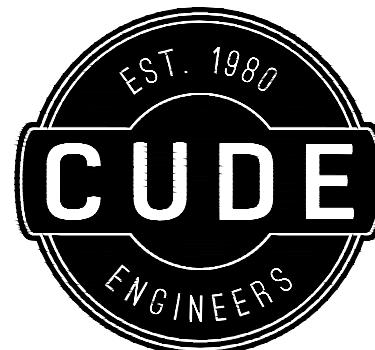
SCALE: 1/4"=1'



DETAIL-A

NTS

CUDEENGINEERS.COM



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FLYING W LIFT STATION  
SANITARY SEWER IMPROVEMENTS

DATE

12/02/2025

PROJECT NO.

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DRAWN BY

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CHECKED BY

AS

REVISIONS

For Review

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OUTLIER  
ENGINEERING, INC  
TBPE No. 14384

PLAT NO.

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SHEET NO

S1

OUTLIER ENGINEERING INC.

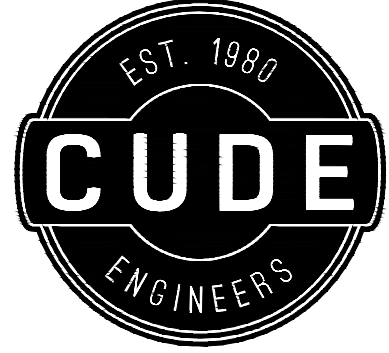
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Firm Registration # 14384



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FLYING W LIFT STATION  
SANITARY SEWER IMPROVEMENTS

DATE  
12/02/2025  
PROJECT NO.  
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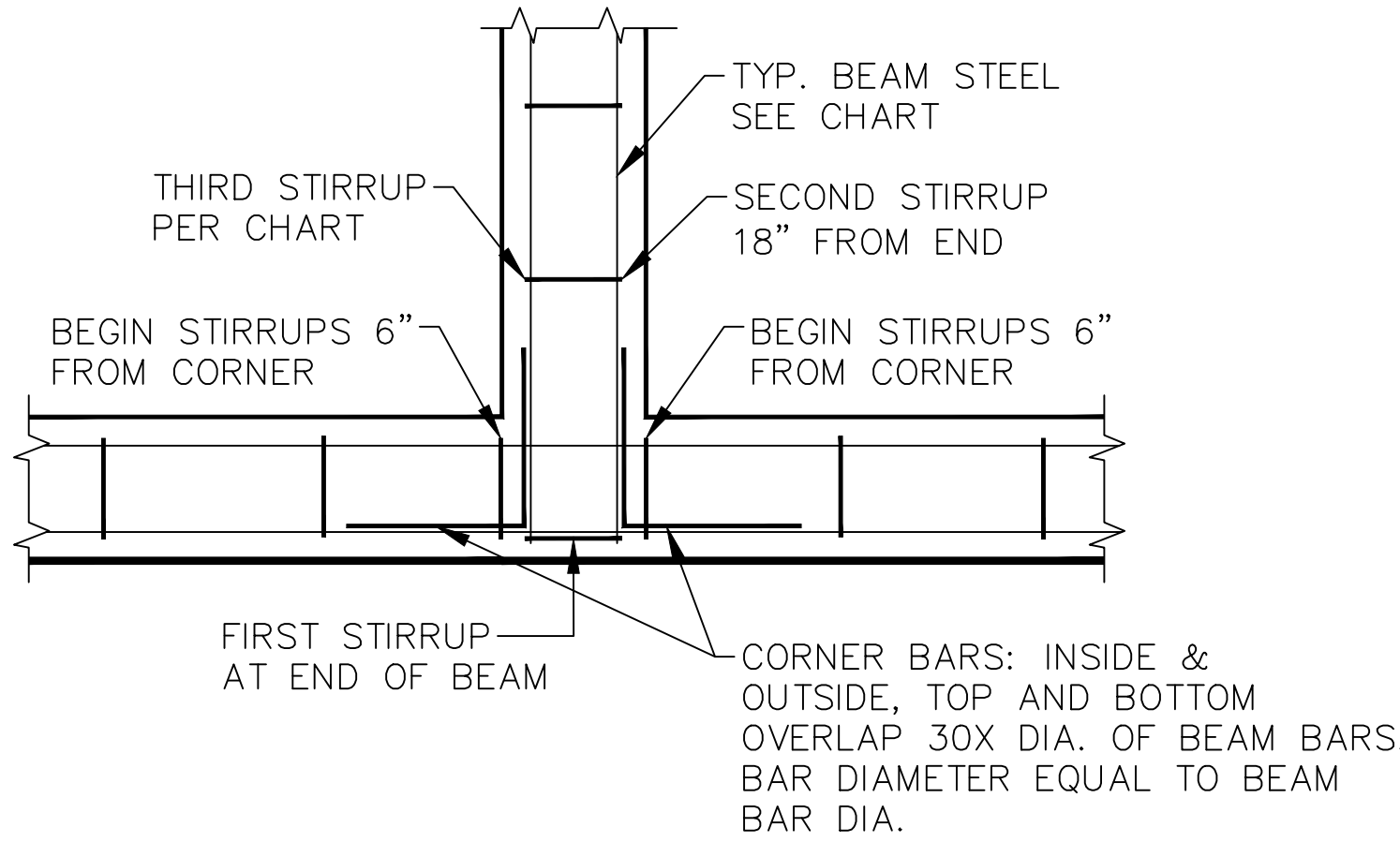
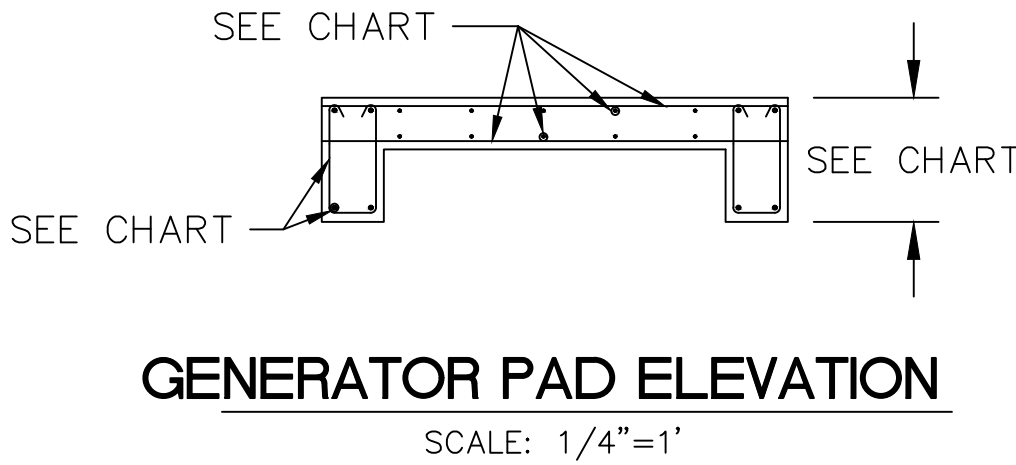
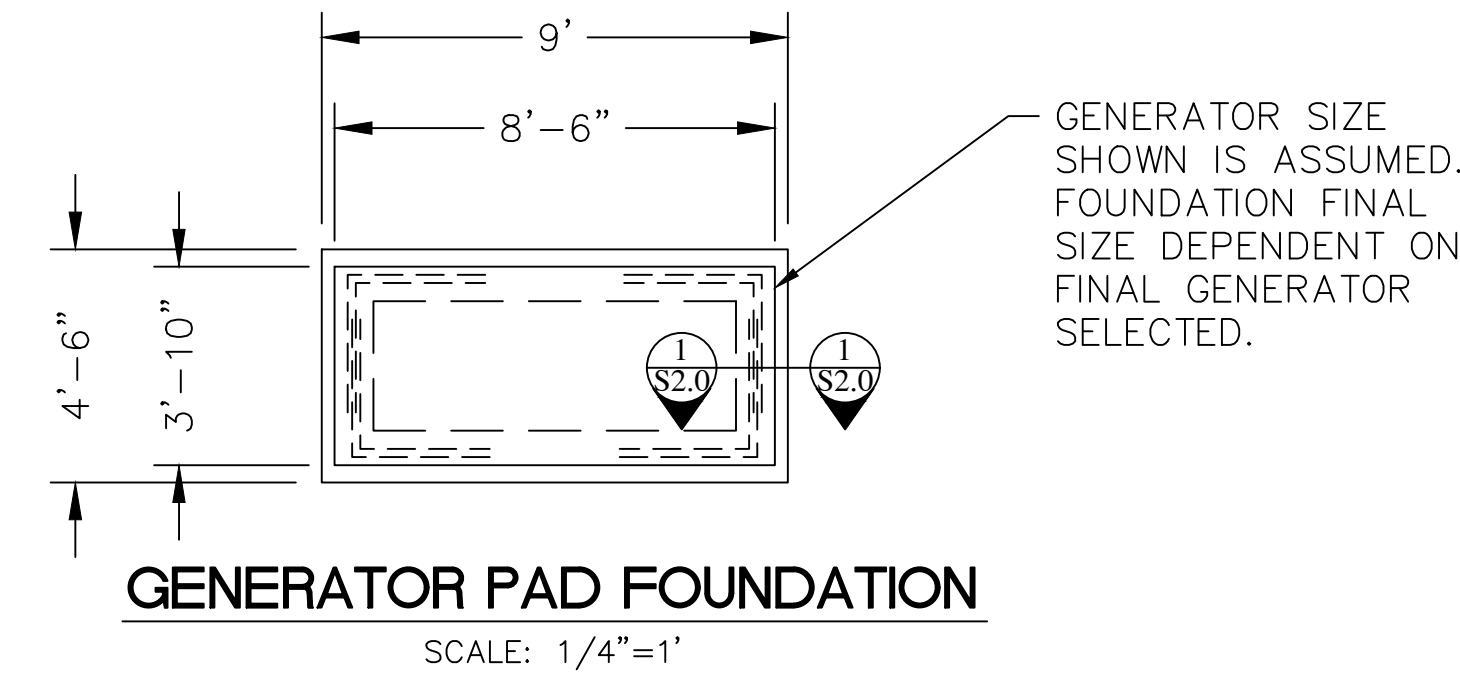
REVISIONS


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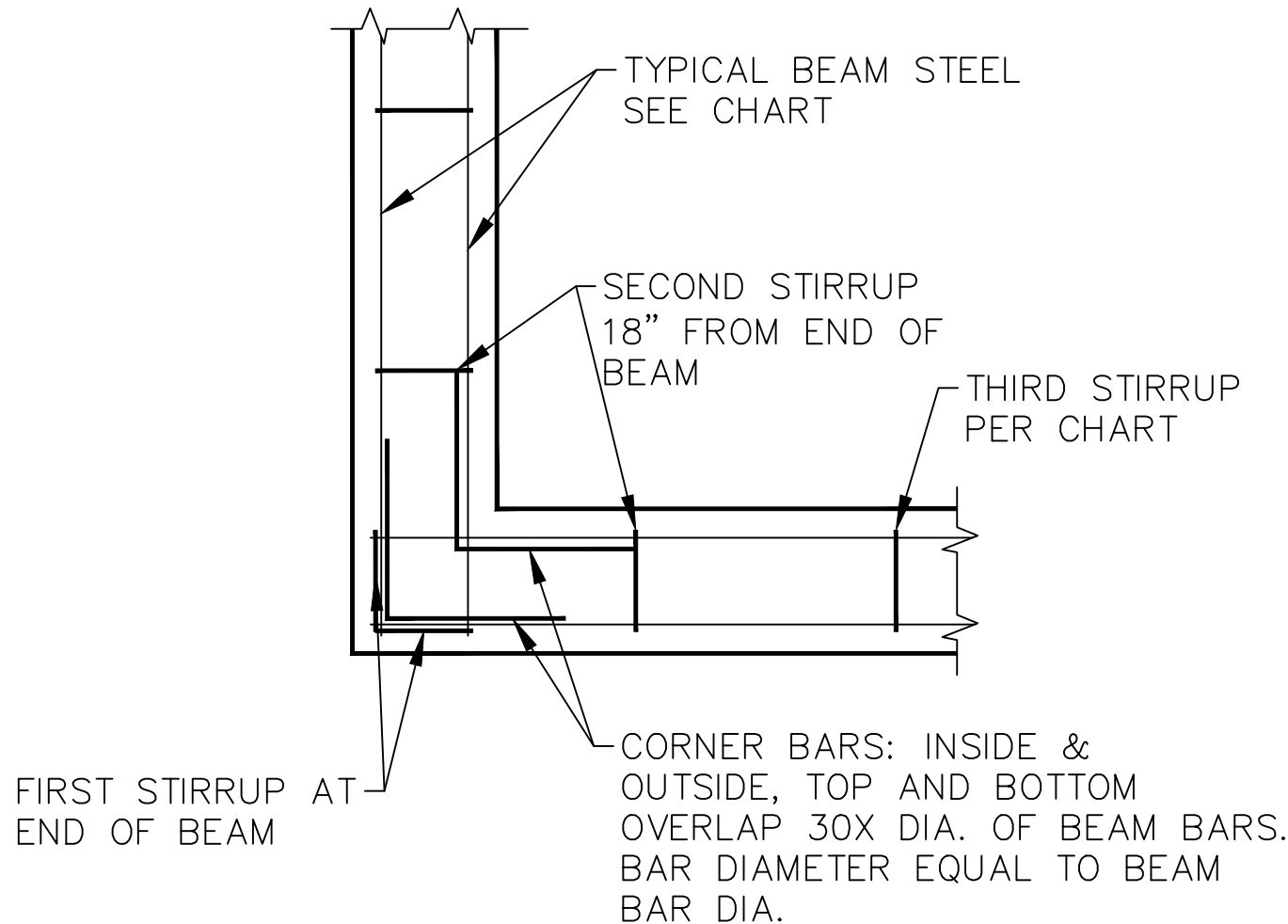
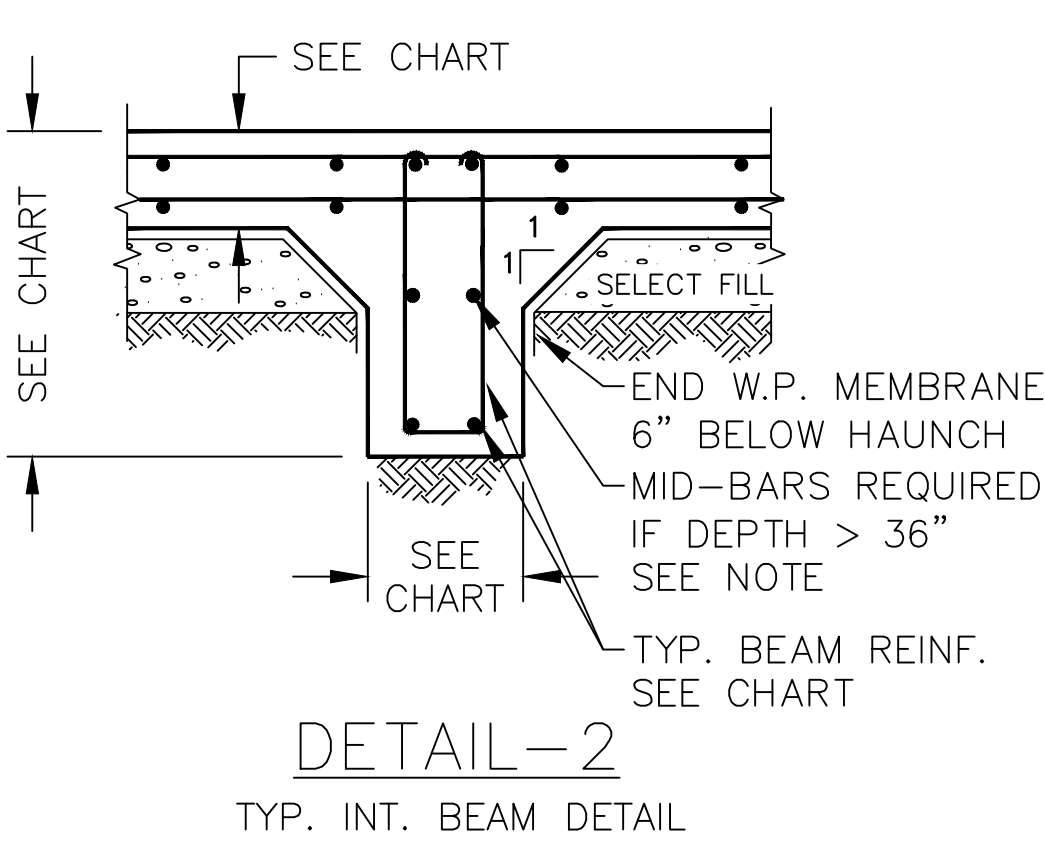
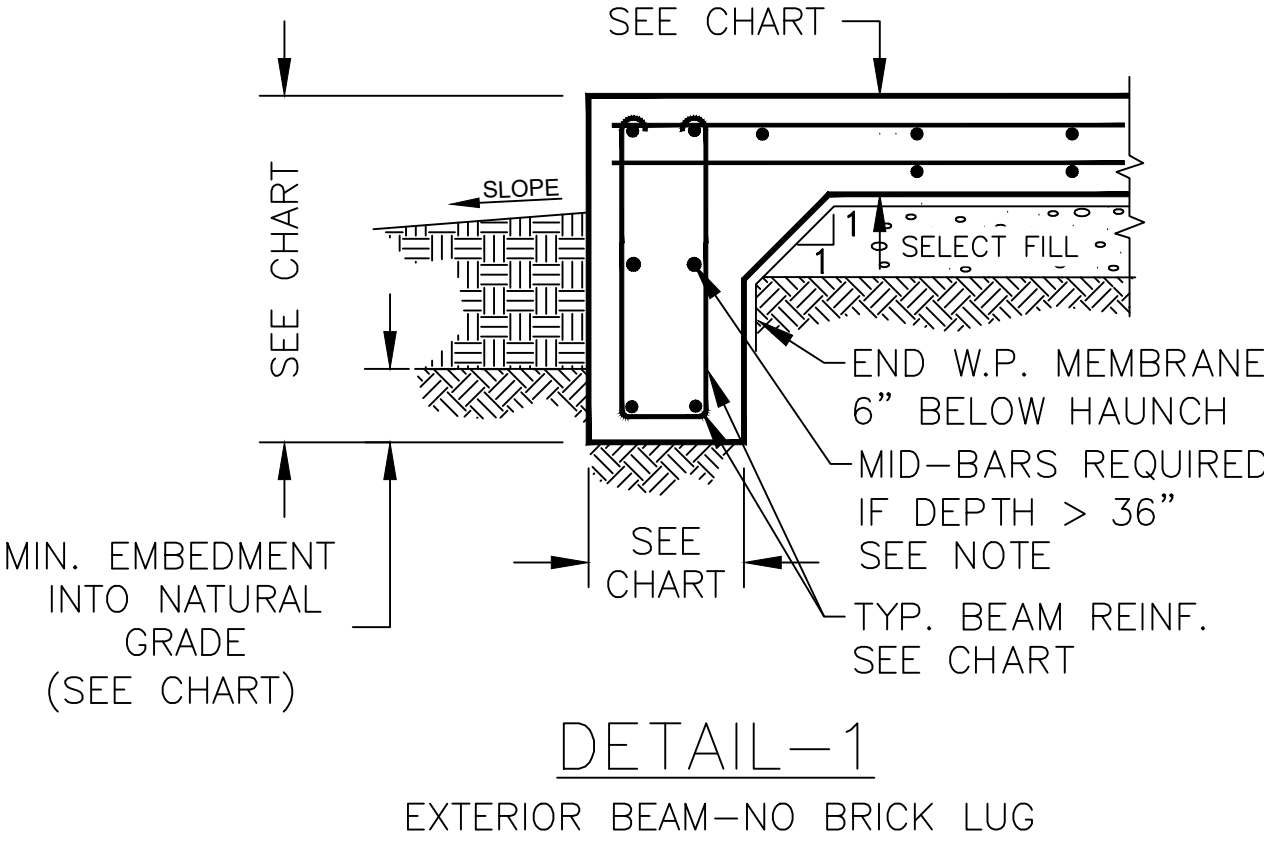
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ENGINEERING, INC  
TBE No. 14384

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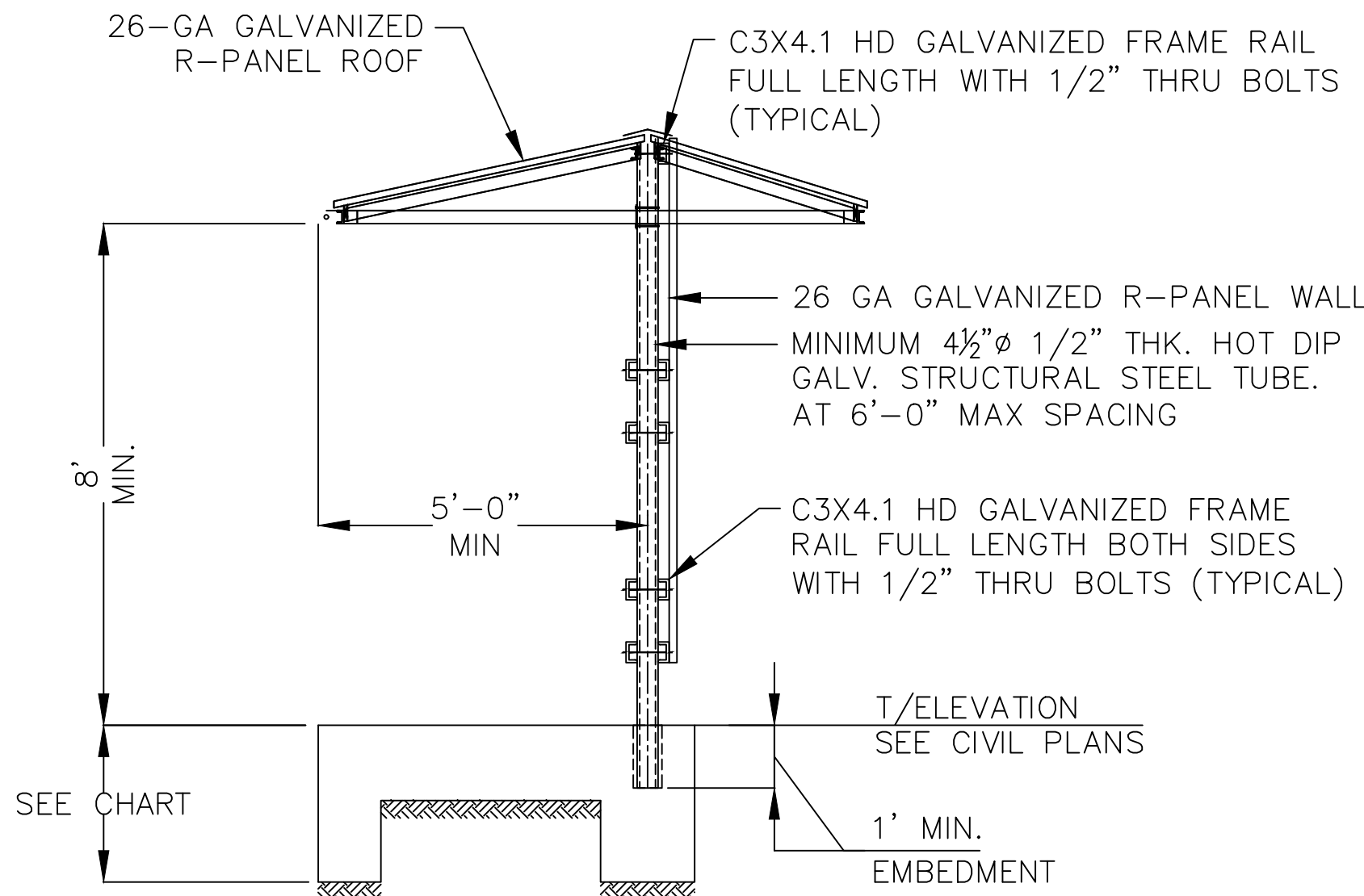
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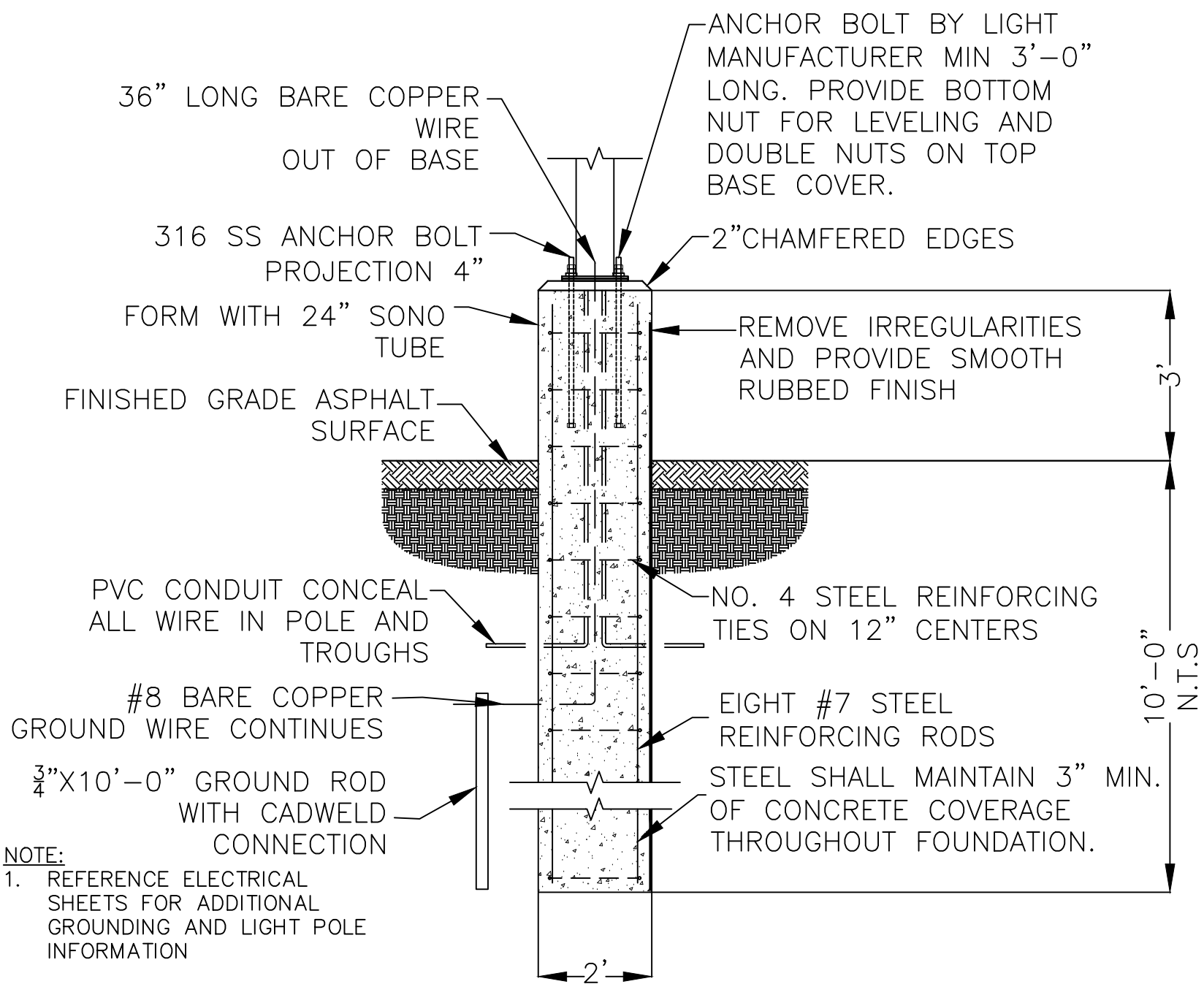
INTERSECTION DETAIL  
BEAM INTERSECTION DETAIL



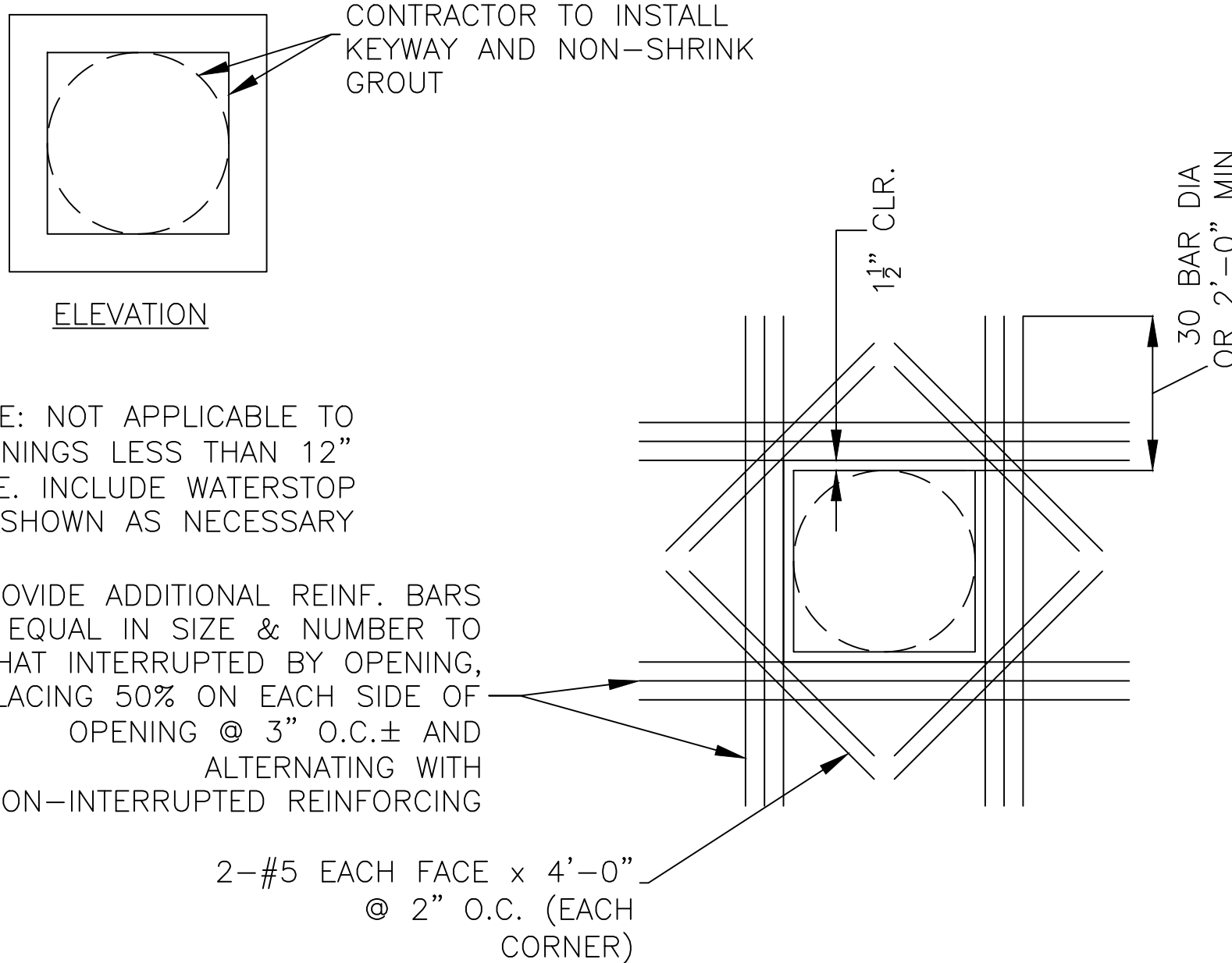
CORNER DETAIL  
TYP. EXT. CORNER BEAM



SECTION C-C (ONE SIDED ELECTRICAL RACK)  
SCALE: 3/8"=1'



LIGHT POLE FOUNDATION (TYP)  
SCALE: 3/8"=1'



PENETRATION DETAIL  
NTS