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A B C D E F G H J K




STC PURIFICATION COLUMN

PACKAGE NO. C.02

FOUNDATION & GROUNDING - STM/COND

DRAWING INDEX		
DWG NO.	DESCRIPTION	REV
HW1-501766	HIGH LINE PIPE RACK GROUNDING PLAN	1
HW1-501767	HIGH LINE PIPE RACK GROUNDING PLAN	1
HX1-47402	HIGH LINE PIPE RACK GENERAL NOTES	1
HX1-47423	HGH LINE PIPE RACK - SHEET 3 PARTIAL FOUNDATION PLAN PHASE 2	1
HX1-501687	HIGH LINE PIPE RACK PARTIAL FOUNDATION PLAN	1
HX1-501688	FOUNDATION DETAILS	1

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REV		DESCRIPTION	BY	DATE	APPD.	MARK	LOC- TION	OCR	REVISIONS			BY	DATE	APPD.	REFERENCES		HEMLOCK SEMICONDUCTOR CORPORATION									
1		STC PURIFICATION FOR BID - PKG. C.02	PJR	09/27/23	MSK	A			STC PURIFICATION COLUMN UPGRADE						NUMBER	TITLE	HEMLOCK, MICHIGAN									
2						B											STC PURIFICATION BLDG. SITE									
3						C											FOUNDATION & GROUNDING - STM/COND									
4						D											PACKAGE NO. C02									
5						E											SCALE	INCH	FOOT	DRAWING NUMBER	MODEL	REV				
						F																				
						G																				
						H																				
						J																				
<div> 1001 Madison Ave. Toledo, OH 43604</div>						Project # 023-03175-02																				

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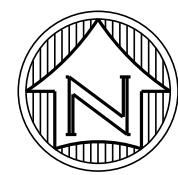
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TABLE 1 - GROUNDING MATERIALS					
ITEM	DESCRIPTION	APPLICATION	SIZE	MANUFACTURER OR TYPE	CATALOG NUMBER
(1A)	GROUND ROD	EARTH GROUND	3/4" DIA. x 10' LONG	COPPERWELD	-
(2A)	CONNECTOR	GROUND ROD TO 2/0 STRANDED WIRE	3/4" DIA. COPPERWELD GROUND ROD	CALDWELD "ONE SHOT"	GR1-182G
(3B)	GROUND WIRE	EXPOSED GROUNDING CONDUCTOR	2/0 COVERED STRANDED (GREEN)	XHHW OR THW CU.	-
(4A)	STEEL GROUND PLATE N. I. C., SEE DETAIL "1" ON HX1-57388				
(5A)	BARTAP CONNECTOR	1/4" FLAT PLATE TO 2/0 STRANDED	W/ 3/8" BOLT	BURNDY	OGFL2661

CONSTRUCTION NOTES:

- PROVIDE TESTING FOR EACH GROUNDING ELECTRODE PER SSG 16.020.021.001.
- BURIAL DEPTH FROM FINISHED GRADE TO TOP OF GROUND ROD SHALL BE MINIMUM OF 6".



HIGHLINE
SCALE: 1" = 20'-0"

REV	DESCRIPTION	BY	DATE	APPR.	MARK	LOC-A-TION	OCR / PCR	REVISIONS	BY	DATE	APPR.
A	STC PURIFICATION IFC - PKG. C.02	DFB	07/25/23	MSK	A			STC PURIFICATION COLUMN UPGRADE			
B	STC PURIFICATION BID - PKG. C.02	DFB	09/27/23	MSK	B						
C					C						
D					D						
E					E						
					F						
					G						
					H						
					J						

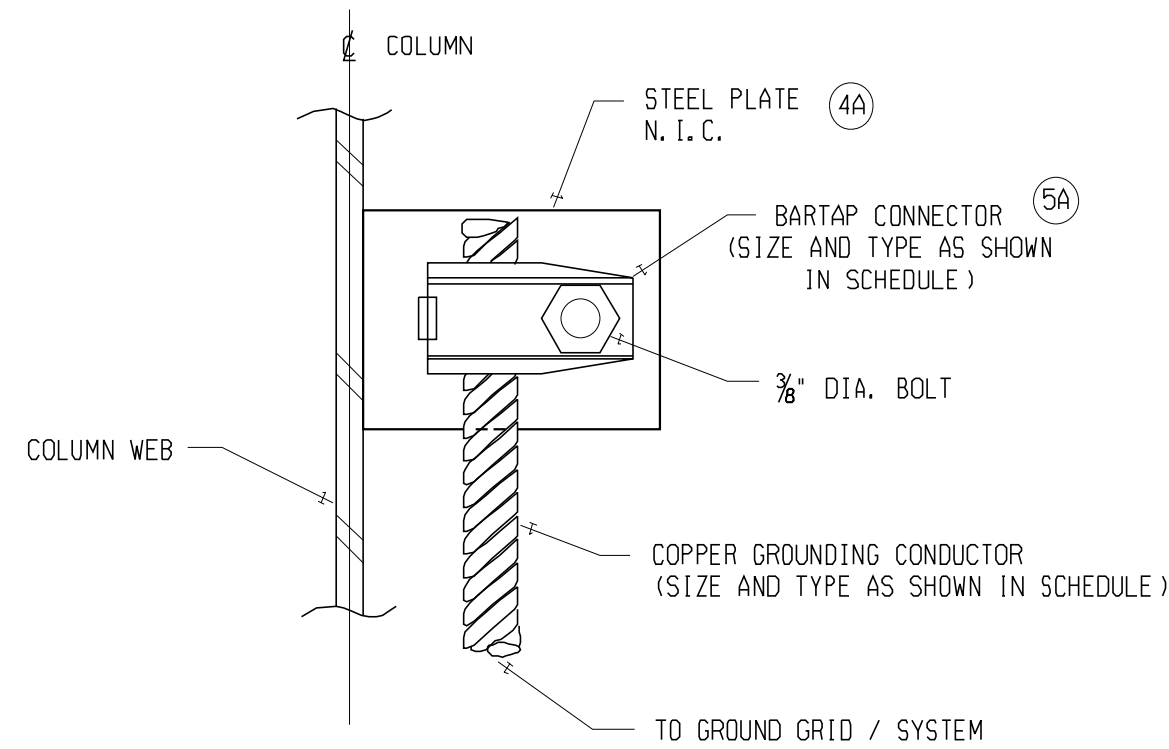
1001 Madison Ave, Toledo, OH 43604

Project # 023-03175-00

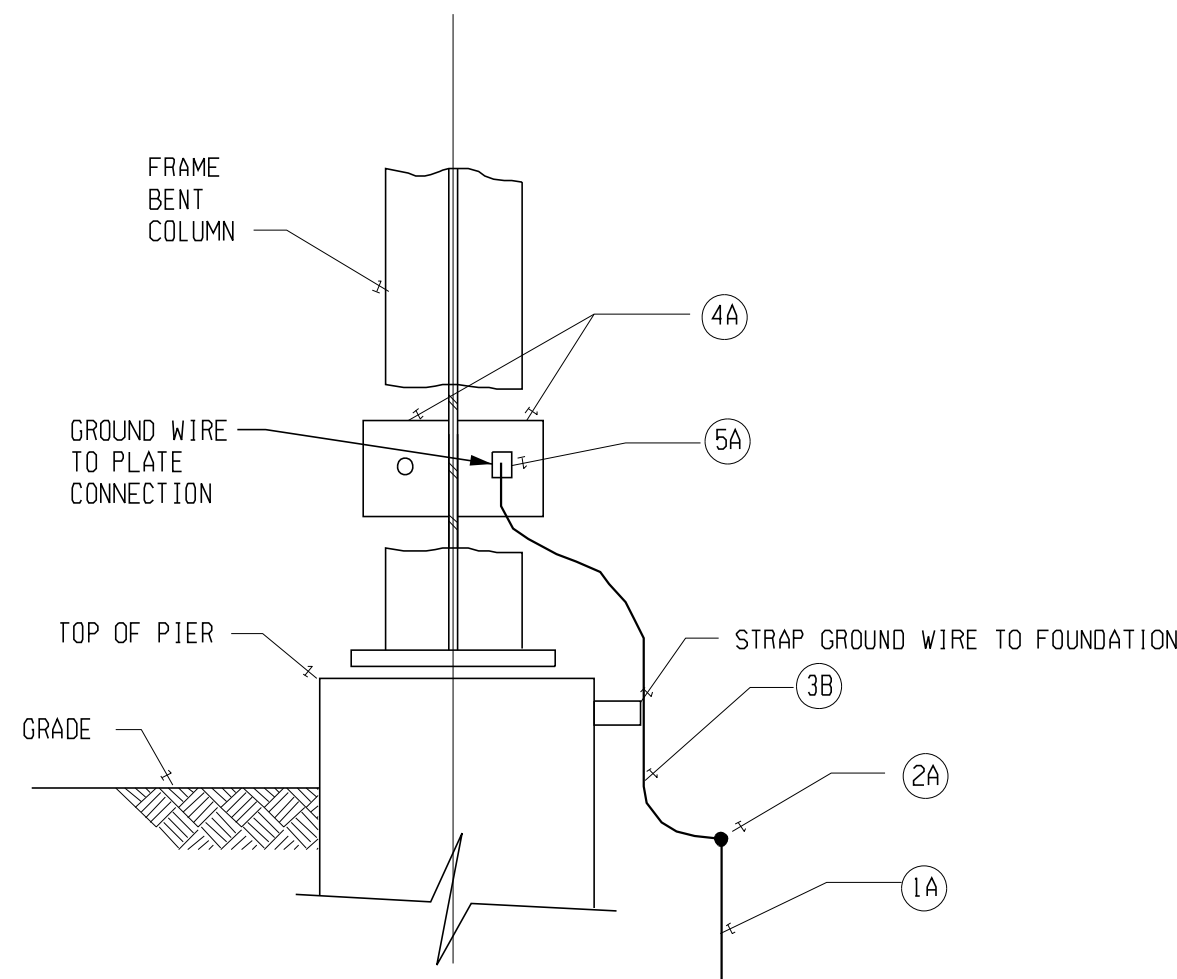
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REFERENCES		HEMLock SEMICONDUCTOR OPERATIONS LLC				
NUMBER	TITLE	HEMLock, MICHIGAN				
DESIGNED BY D. BIRSEN		DATE 06/15/23		STC PURIFICATION BLDG. SITE		
DRAWN BY D. MAGRUM		DATE 06/15/23		HIGH LINE PIPE RACK		
CHECKED BY J. HULDERMAN		DATE 07/24/23		GROUNDING PLANS		
APPROVED BY M. KOWALSKI		DATE 07/24/23		SCALE	INCH FOOT	REV 1
				1"=20'	DRAWING NUMBER HW1-501766	

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GROUND WIRE TO PLATE CONNECTION



ELEVATION
DETAIL 1

MATCHLINE: HW1-501767

S-192

S-192
STRETCH

1
THIS DWG TYPICAL 25 PLACES

7

6

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PLAN

EL


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TABLE 1 - GROUNDING MATERIALS					
ITEM	DESCRIPTION	APPLICATION	SIZE	MANUFACTURER OR TYPE	CATALOG NUMBER
14	GROUND ROD	EARTH GROUND	3/4" DIA. x 10' LONG	COPPERWELD	-
24	CONNECTOR	GROUND ROD TO 2/0 STRANDED WIRE	3/4" DIA. COPPERWELD GROUND ROD	CALDWELD "ONE SHOT"	GR1-182G
38	GROUND WIRE	EXPOSED GROUNDING CONDUCTOR	2/0 COVERED STRANDED (GREEN)	XHHW OR THW CU.	-
44	STEEL GROUND PLATE N. I. C., SEE DETAIL "1" ON HX1-57388	-	-	-	-
54	BARTAP CONNECTOR	1/4" FLAT PLATE TO 2/0 STRANDED	W/ 3/8" BOLT	BURNDY	OGFL2661

CONSTRUCTION NOTES:

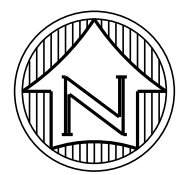
1. PROVIDE TESTING FOR EACH GROUNDING ELECTRODE PER SSG 16.020.021.001.
2. BURIAL DEPTH FROM FINISHED GRADE TO TOP OF GROUND ROD SHALL BE MINIMUM OF 6".

REV	DESCRIPTION	BY	DATE	APPR.	MARK	LOC-A-TION	OCR / PCR	REVISIONS	BY	DATE	APPR.
1	STC PURIFICATION BID - PKG. C.02	DFB	09/27/23	MSK	A			STC PURIFICATION COLUMN UPGRADE			
2					B						
3					C						
4					D						
5					E						
					F						
					G						
					H						
					J						



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Project # 023-03175-00



HIGHLINE
SCALE: 1" = 20'-0"

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REFERENCES		HEMLOCK SEMICONDUCTOR OPERATIONS LLC				
NUMBER	TITLE	HEMLOCK, MICHIGAN				
		DESIGNED BY	DATE	STC PURIFICATION BLDG. SITE		
		D.BIRSEN	06/15/23			
		DRAWN BY	DATE	HIGH LINE PIPE RACK		
		D.MAGRUM	06/15/23			
		CHECKED BY	DATE	GROUNDING PLANS		
		J.HULDERMAN	07/24/23			
		APPROVED BY	DATE	SCALE	MODEL	REV
		M.KOWALSKI	07/24/23	1"=20'		1

INCH

FOOT

1"=20'

DRAWING NUMBER

HW1-501767

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GENERAL CONCRETE NOTES:

1. ALL STRUCTURES HAVE BEEN DESIGNED IN ACCORDANCE WITH THE MICHIGAN BUILDING CODE 2003 (FOR EXISTING CONSTRUCTION).

1a. ALL STRUCTURES HAVE BEEN DESIGNED IN ACCORDANCE WITH THE MICHIGAN BUILDING CODE 2015 (FOR 2024 CONSTRUCTION).

2. CONTRACTOR SHALL FIELD VERIFY ELEVATION, SIZE, LOCATION, AND CONFIGURATION OF EXISTING CONSTRUCTION PRIOR TO START OF CONSTRUCTION. IF THE EXISTING CONSTRUCTION IS LIKELY TO INTERFERE WITH NEW FOUNDATION, THE INTERFERENCE SHALL BE RESOLVED WITH HSC CONSTRUCTION REPRESENTATIVE BEFORE START OF WORK.

3. THE ENGINEER SHALL IDENTIFY ALL KNOWN UTILITIES, STRUCTURES, AND THE CONDITION OF THE SUBSURFACE SOIL. EXTREME CARE SHALL BE TAKEN NOT TO DISTURB OR DAMAGE EXISTING FOUNDATIONS AND UTILITIES DURING DRILLING OF PIERS. CONTRACTOR SHALL USE STEEL CASING (ASTM A252 GRADE 2) IF REQ'D. TO PREVENT CAVE-INS. IF STEEL CASING IS USED, IT WILL BE WITHDRAWN.

4. CONTRACTOR SHALL MAINTAIN ADEQUATE SUPERVISION AND CONTROL OF DEWATERING OPERATIONS (IF REQUIRED) TO ALLOW PLACEMENT AND CURING OF CONCRETE.

5. CONTRACTOR IS RESPONSIBLE FOR KEEPING DRY HOLES AND DEWATERING AFTER EACH RAIN EVENT, AND KEEPING THE ANCHOR BOLTS CLEAN AND PROTECTED.

6. ALL DRILLED PIERS ARE TO BE SET ON UNDISTURBED FIRM BEARING SURFACE. BEARING SURFACE SHALL SUPPORT AS A MINIMUM FOLLOWING ALLOWABLE BEARING PRESSURE USED IN DESIGN:
BOTTOM OF BEARING SURFACE IS 4'-0" TO 8'-0" BELOW EXISTING GRADE = 4.0 KSF
BOTTOM OF BEARING SURFACE IS 8'-0" TO 15'-0" BELOW EXISTING GRADE = 8.0 KSF
BOTTOM OF BEARING SURFACE IS 15'-0" OR MORE BELOW EXISTING GRADE = 15 KSF
FINAL BOTTOM ELEVATION OF DRILLED PIERS SHALL BE INSPECTED AND APPROVED BY GEOTECHNICAL ENGINEER, ENGAGED BY HSC (EXISTING CONSTRUCTION).

6a. ALL DRILLED PIERS ARE TO BE SET ON UNDISTURBED FIRM BEARING SURFACE. BEARING SURFACE SHALL SUPPORT AS A MINIMUM FOLLOWING ALLOWABLE BEARING PRESSURE USED IN DESIGN:
BOTTOM OF BEARING SURFACE IS 4'-0" TO 8'-0" BELOW EXISTING GRADE = 4.0 KSF
BOTTOM OF BEARING SURFACE IS 8'-0" TO 15'-0" BELOW EXISTING GRADE = 8.0 KSF
BOTTOM OF BEARING SURFACE IS 15'-0" OR MORE BELOW EXISTING GRADE = 15 KSF
FINAL BOTTOM ELEVATION OF DRILLED PIERS SHALL BE INSPECTED AND APPROVED BY GEOTECHNICAL ENGINEER, ENGAGED BY CONTRACTOR (2024 CONSTRUCTION).

7. INSTALLATION OF ALL DRILLED PIERS SHALL FOLLOW THE RECOMMENDATIONS AND PROCEDURES GIVEN IN ACI 336.1 "CONSTRUCTION OF END BEARING DRILLED SHAFTS.

8. TOP OF DRILLED PIERS SHALL BE SLOPED AWAY FROM BASE PLATES TO MINIMIZE COLLECTION OF WATER AROUND BASE PLATES.

9. THE CONTRACTOR SHALL THOROUGHLY REVIEW ALL SUBSURFACE INVESTIGATION DATA MADE AVAILABLE BY HSC. THE INFORMATION IS MADE AVAILABLE TO THE CONTRACTOR FOR HIS CONVENIENCE AND SHALL BE USED SOLELY AT CONTRACTORS RESPONSIBILITY. THE CONTRACTOR MAY PERFORM ADDITIONAL TEST BORINGS AND OTHER SUBSURFACE INVESTGATIONS AT NO COST TO HSC. ADDITIONAL INVESTIGATION SHALL NOT DAMAGE ADJACENT EXISTING CONSTRUCTION OR IMPACT THE CONSTRUCTION SCHEDULE.

10. PROVIDE CONCRETE WITH $f_c' = 4000$ psi (FOR EXISTING CONSTRUCTION) AND $f_c' = 4500$ psi (FOR 2024 CONSTRUCTION) COMPRESSIVE STRENGTH AT 28 DAYS, WITH FOLLOWING CONTENTS:
CEMENT CONTENT RANGE OF 590 TO 675 LBS/ PER YD.
SLUMP.....7" +/- 1"
COURSE AGGREGATE.....3/4" (MAX.).
FINE AGGREGATE.....35 TO 45% BY VOLUME
USE ACCELERATING ADMIXTURE IN COLD WEATHER ONLY WHEN APPROVED BY ENGINEER. USE OF ADMIXTURE WILL NOT RELAX COLD WEATHER REQUIREMENTS.

11. PLACE CONCRETE IN SINGLE POUR WITH EQUIPMENT DESIGNED FOR VERTICAL PLACEMENT OF CONCRETE.

12. THE LOCATION OF DRILLED SHAFTS SHALL BE WITHIN PLUS OR MINUS 3" FROM THE LOCATION SHOWN ON DRAWINGS.

13. VERTICAL ALIGNMENT OF THE DRILLED SHAFTS SHALL NOT VARY BY MORE THAN 1/4" PER FOOT OF LENGTH.

14. REINFORCING STEEL SHALL BE INTERMEDIATE GRADE, DEFORMED, NEW BILLET-STEEL MEETING ASTM SPECIFICATIONS A-615, GRADE 60.

15. ALL EXTERIOR AND FOUNDATION CONCRETE SHALL BE AIR-ENTRAINED. AIR CONTENT SHALL BE 6 PERCENT +/- 1 PERCENT.

16. UNLESS NOTED, ANCHOR RODS SHALL BE FULL LENGTH THREADED RODS CONFORMING TO THE REQUIREMENTS OF ASTM F-1554, $F_y = 36$ ksi. ANCHOR RODS SHALL BE SET PLUMB AND VERTICAL SETTING TOLERANCES +/- 1/8". CONTRACTOR SHALL BE RESPONSIBLE FOR ANY REPAIRS REQUIRED DUE TO MISPLACED ANCHOR BOLTS.

GENERAL CONCRETE NOTES (CONTINUED):

17. IF THE AVERAGE TEMPERATURE DROPS BELOW 40 F THREE CONSECUTIVE DAYS. THE CONTRACTOR SHALL FOLLOW "COLD WEATHER CONCRETING SPECIFICATIONS" GIVEN IN ACI-306. SOME OF THESE REQUIREMENTS ARE HIGHLIGHTED IN "SUMMARY OF WORK" FOR THIS PROJECT. THESE REQUIREMENTS SUPPLEMENT THOSE SPECIFIED IN THE DOW CORNING ANNUAL MASTER SPECIFICATION #4970; SECTION 03315. IF THERE ARE CONFLICTING REQUIREMENTS SPECIFIED BETWEEN THE REFERENCED DOCUMENTS, THE MOST CONSERVATIVE REQUIREMENTS SHALL GOVERN.
18. ALL CONCRETE WORK SHALL BE PERFORMED IN ACCORDANCE WITH ACI-301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE".
19. DRILLED PIERS ARE DESIGNED TO BE Laterally supported by soil all around them at all times after the construction is completed. If soil is partially removed around the pier during maintenance activities, this may cause unstable conditions. It is highly recommended that in such cases the piers be temporarily shored as required to stabilize them.

GENERAL CONCRETE NOTES:

CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"
SURFACE EXPOSED TO EARTH OR WEATHER	2"
SURFACE EXPOSED TO OR OVER WATER, SEWAGE, OR OTHER LIQUIDS	
COLUMNS	2"
PRIMARY REINFORCEMENT: STIRRUPS AND TIES:	1 1/2"

SPLICE LENGTH (IN.)		UNLESS SHOWN OTHERWISE
BAR SIZE	BOTTOM AND VERTICAL REINFORCEMENT	
#3	16	
#4	19	
#5	23	
#6	28	
#7	33	
#8	37	

1. WHEN SPLICING TWO DIFFERENT SIZE OF BARS, THE SPLICE LENGTH OF THE SMALLER BAR SHALL BE USED.

LEGEND

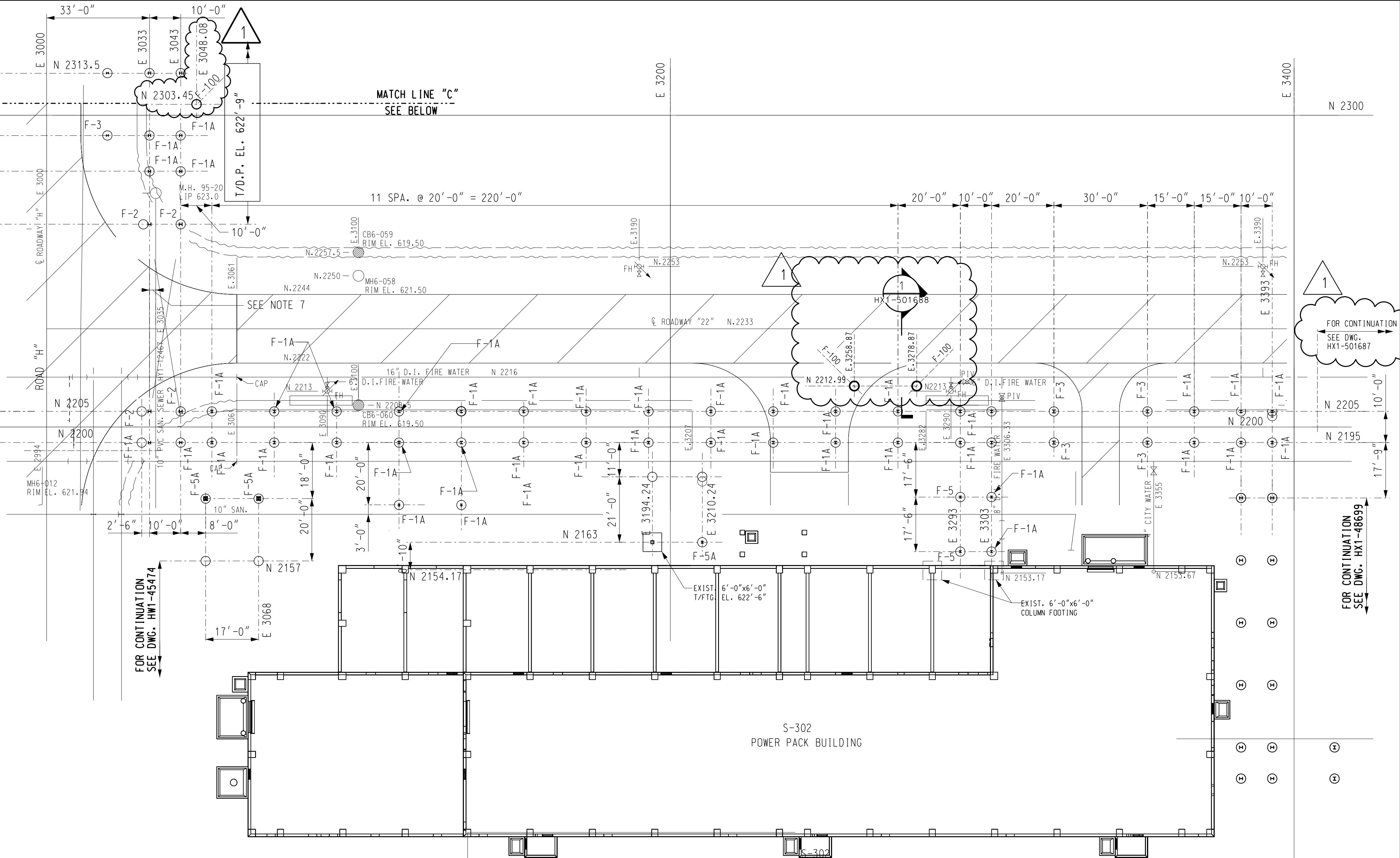
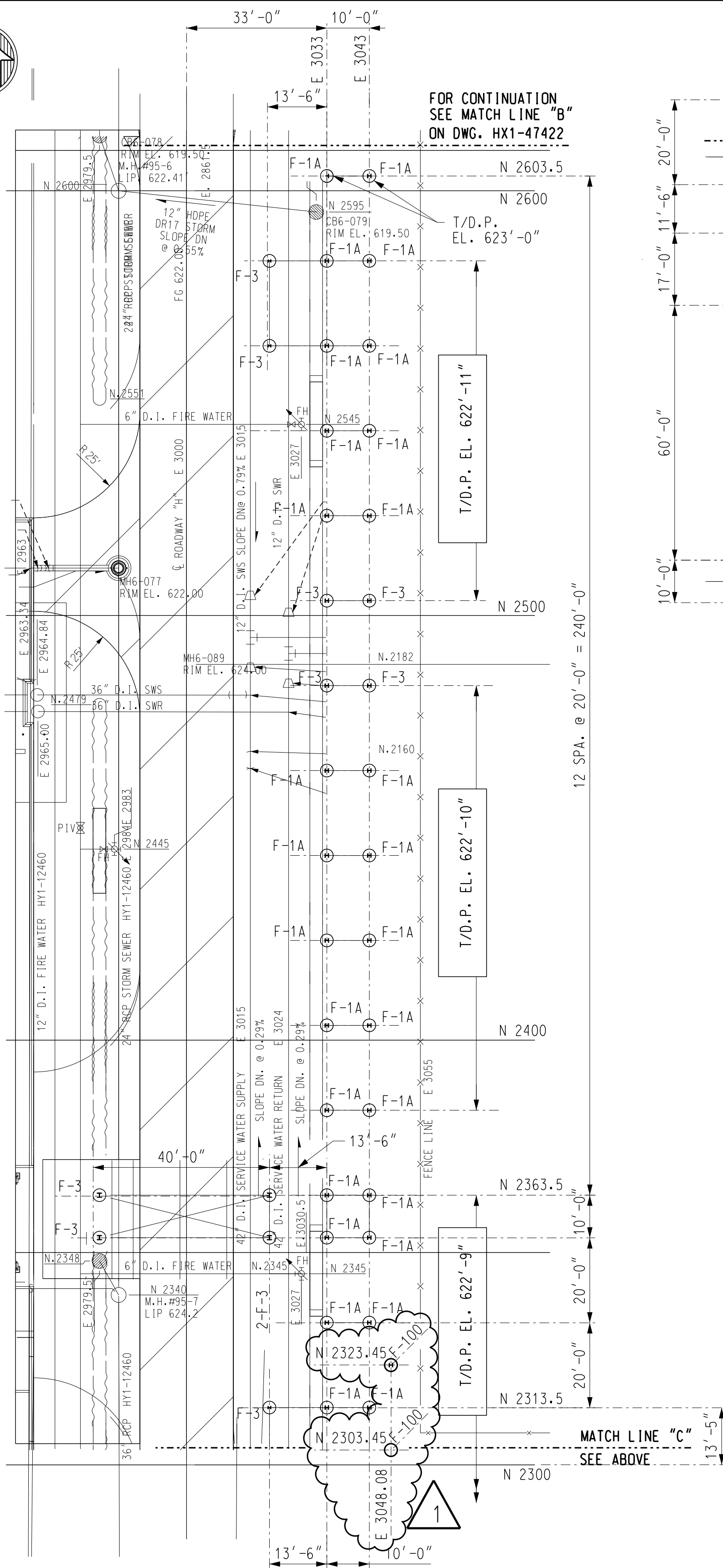
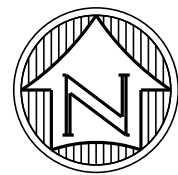
SYMBOL	DESCRIPTION
EL.	ELEVATION
F	FOOTING SCHEDULE MARK
U.N.O.	UNLESS NOTED OTHERWISE

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ENGINEERING					
REV	DESCRIPTION	DRWN BY	DATE	ENGR BY	APPD BY
1	STC PURIFICATION FOR BID - PKG C.02	PJR	09/27/23	KY	
2					
3					
4					
5					
6					

MARK	LOC-ATION	REVISIONS	BY	DATE	APPD.
A		PROJECT CLOSE OUT	SSEO	06-23-08	PSG
B					
C					
D					
E					
F					
G					
H					
J					

REFERENCES		Hemlock Semiconductor CORPORATION			
NUMBER	TITLE	DESIGNED BY	DATE	SOLAR 1	BLDG. SITE
		J. EDDY	08/10/06	HIGHLINE PIPE RACKS GENERAL CONCRETE NOTES	
		J. BRAY	08/10/06		
		P. GUPTA			
		T. PETERSON		SCALE	1
				INCH	FOOT
				NONE	
				DRAWING NUMBER	REVISION
				HX1-47402	



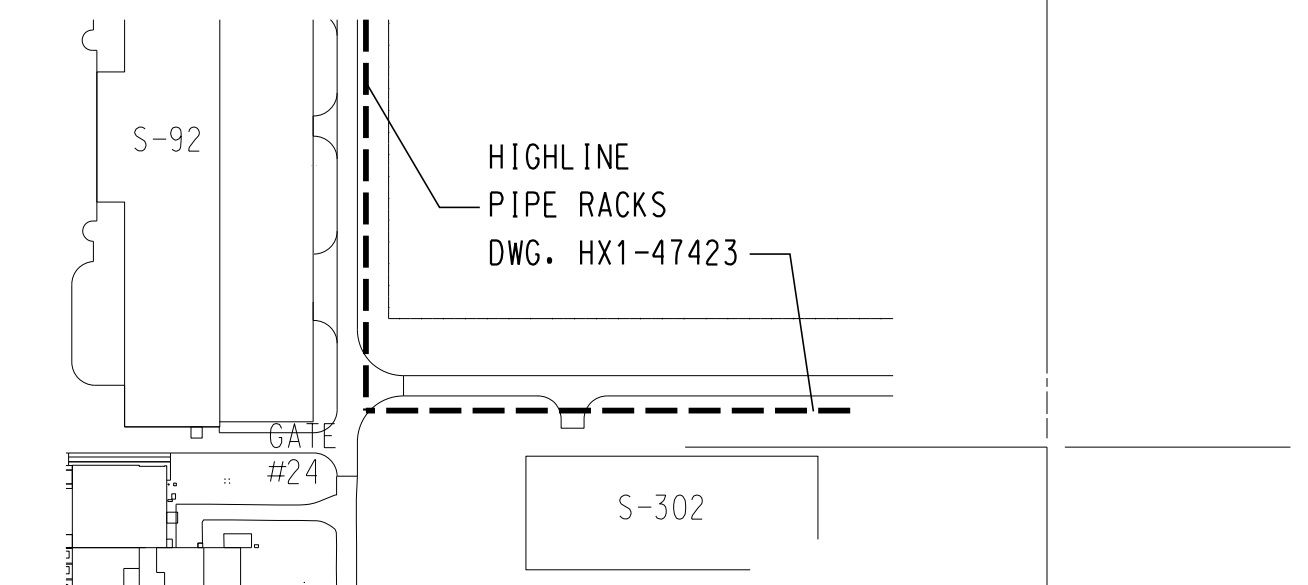
PARTIAL FOUNDATION PLAN

SCALE: 1" = 20'-0"

NOTE: TOP OF DRILLED PIER EL. 622'-6" U.N.O. ON PLAN
SEE NOTE NO. 5

NOTES:

- SEE DRAWING HX1-47402 FOR GENERAL CONCRETE NOTES.
- P - INDICATES EXISTING ELECTRICAL POLE.
- (H) - INDICATES NEW DRILLED PIERS AND ARE DETAILED ON HX1-47408. THESE ARE INDICATED BY F-#.
- FOR ALL UNDER GROUND UTILITIES SEE CIVIL DRAWINGS HY1-47418, HY1-47419, HY1-47420, HY1-47421 & HY1-47422.
- CONTRACTOR TO VERIFY TOP OF CONCRETE PIER TO ENSURE THAT IT IS 1'-0" MIN. & 3'-0" MAX. ABOVE SURROUNDING FINISH GRADE
- T/D.P. EL. INDICATES TOP OF DRILLED PIER ELEVATION.
- CONTRACTOR TO VERIFY EXACT LOCATION OF UNDERGROUND LINES PRIOR TO EXCAVATION.



KEY PLAN

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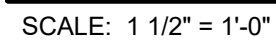
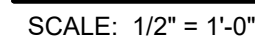
ENGINEERING				
REV	DESCRIPTION	DRWN BY	DATE	ENGR APPD BY
1	STC PURIFICATION FOR BID - PKG C.02	PJR	09/27/23	KY
2				
3				
4				
5				
6				

MARK	LOCATION	REVISIONS	BY	DATE	APPD.
A		PROJECT CLOSE OUT - S1P2	SSOE	06-24-08	PSG
B		STC PURIFICATION PROJECT			
C					
D					
E					
F					
G					
H					
J					

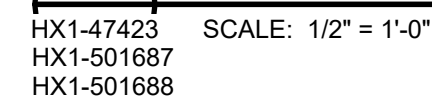
REFERENCES	
NUMBER	TITLE

Hemlock Semiconductor CORPORATION			
DESIGNED BY N. KESLIKER	DATE 10-12-06	SOLAR 1 BLDG. SITE	
DRAWN BY J. BRAY	DATE 10-12-06	HIGHLINE PIPE RACK - SHEET 3	
TECHNICAL APPROVAL P. GUPTA	DATE	PARTIAL FOUNDATION PLAN - PHASE 2	
APPROVED FOR ISSUE	DATE	SCALE	INCH FOOT DRAWING NUMBER REVISION
			1

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1. SEE DRAWING HX1-47402 FOR GENERAL CONCRETE NOTES



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