



ADDENDUM

Addendum No:	1	Project:	Wolverine Power - Elmira Service Center
Date:	2/23/21	Project No:	1807

Item 1 (BP-01 & 09): (Various Civil revisions - See revised dwgs attached)

Sheet C1.1 Demolition

Newly noted foundation along with adjacent trees surrounding the foundation will be removed by others.

Sheet C2.2 Rail Yard Site Plan

The gravel rail yard has expanded to the northeast.

Sheet C3.2 Rail Yard Grading and Drainage Plan

The additional gravel will be sloped north and northwesterly.

Sheet C4.1 Service Center Utility Plan

Septic tank was incorrectly noted as 1600 gallon. Tank is to be a 2000 gallon double compartment.

Sheet C5.1 Details

Moved storm details to this sheet to make room on Sheet C5.2 for additional information requested by health dept.

Sheet C5.2 Utility Details

Increase drain field size from 1200 sf to 1500 sf.

Changed the maximum depth of cover allowed

Referenced stone size for the drain field

Per health department, all lids are to be cast iron and are to be a minimum of 59 lbs. All lids for both the septic and holding tanks shall meet this requirement. Lids shall be 24" diameter with exception of the pump chamber which shall have a 30" diameter cover. Insulated lid on the pump chamber is no longer required.

Sheet C5.4 Fire Suppression Details

Removed the note regarding the refill rate. Refill rate of the supply well is to meet applicable fire code assuming two 30,000 gallon tanks.

Item 2 (BP-06): Light gauge framing @ canopies is included in BP-04, not this package.

Item 3 (BP-05): Exterior skin of Overhead Doors can be galvanized steel per the specification and NOT mandatory they are aluminum as noted on drawings.

Item 4 (BP-11): (Various Electrical/Data/Security revisions - See revised dwgs attached)

Sheets SE1 and E2

The requirements for the pole mounted security cameras have changed. The three (3) pole mounted cameras will no longer be installed, but the rough-ins to the light poles for future security cameras will remain, including a conduit and pull string from each pole to Mechanical Room #109 for a future fiber optic cable, and 120V which will feed a pole mounted duplex receptacle at the pole's handhole. Minor panel schedule loads associated with this change are depicted on Sheet E2 in Panel #G1.

Sheets SE2 and SE3

The requirements for the pole mounted security cameras have changed. The three (3) locations remain, but the requirements for the two (2) light poles with cameras at the east have changed. Minor panel schedule loads associated with this change are depicted on Sheet SE3 in Panel #R.



Sheets E1P

The locations for exterior building mounted security cameras have changed. Instead of four (4) cameras mounted at each corner of the building, there are now nine (9) building mounted security cameras. See revised Sheet E1P for their locations.

END OF ADDENDUM #1



PLAN DATE: 10/15/2021
REVISION: 2-15-2021
HEALTH DEPT REVIEW REVISIONS

PROJECT: **ELMIRA SERVICE CENTER BUILDING**

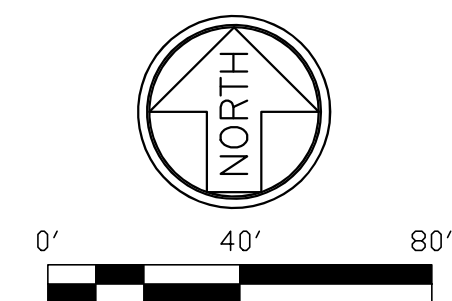
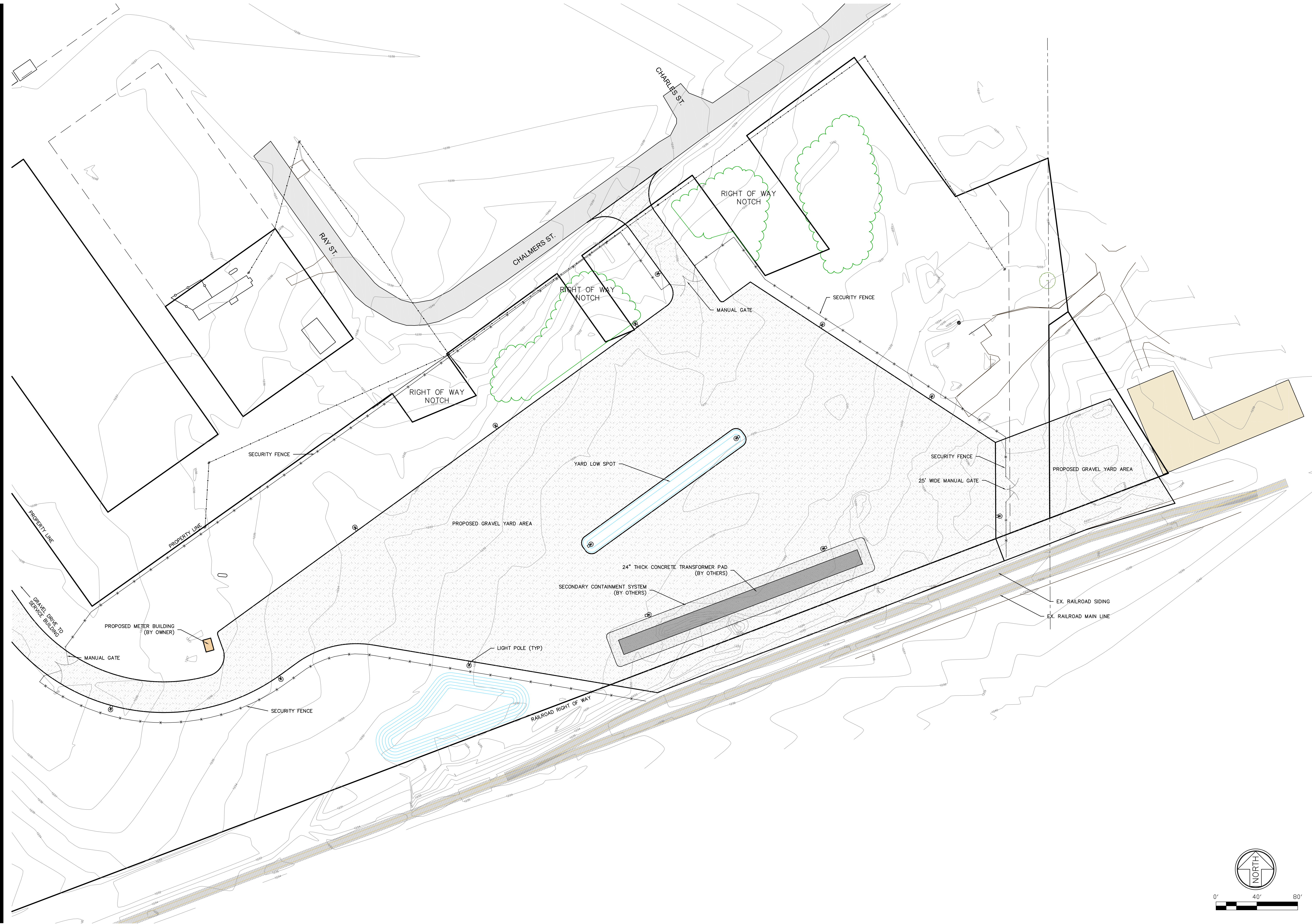
PROJECT NO.: **2018-114**

EXISTING
CONDITIONS
AND
DEMOLITION
PLAN

C1.1

LOCATION:
PART OF THE SOUTHEAST 1/4 OF SECTION 24
T31N. R05W. WARNER TWP.,
ANTRIM CO., MICHIGAN

CLIENT:
WOLVERINE POWER COOPERATIVE
10125 W. WATERGATE RD.
CADILLAC, MI 49601



PROJECT NO.:
2018-114

RAIL YARD
SITE PLAN

PROJECT:
ELMIRA SERVICE CENTER BUILDING

CLIENT:
WOLVERINE POWER COOPERATIVE
10125 W. WATERGATE RD.
CADILLAC, MI 49601

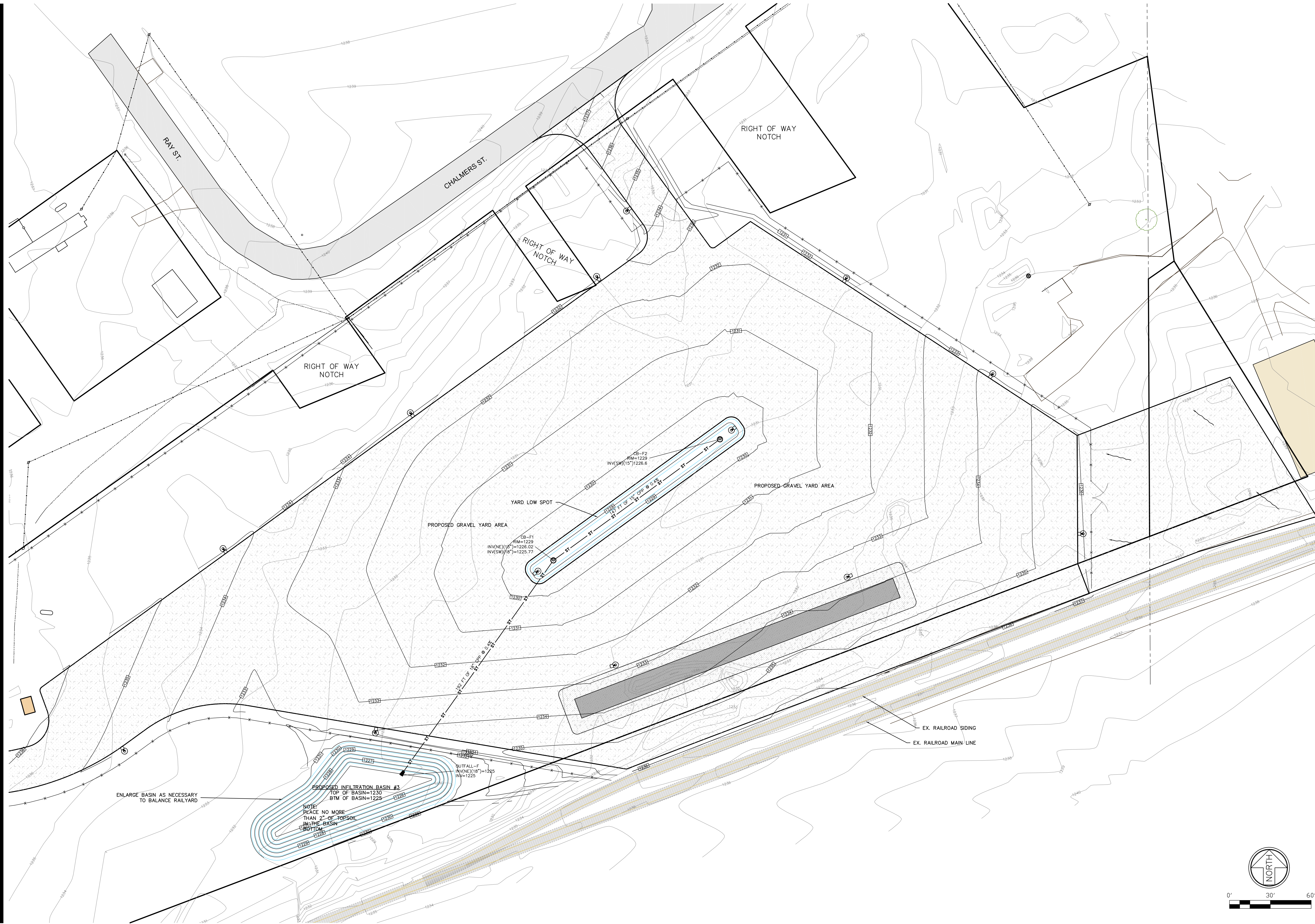
LOCATION:
PART OF THE SOUTHEAST 1/4 OF SECTION 24
T31N. R05W, WARNER TWP.,
ANTRIM CO., MICHIGAN

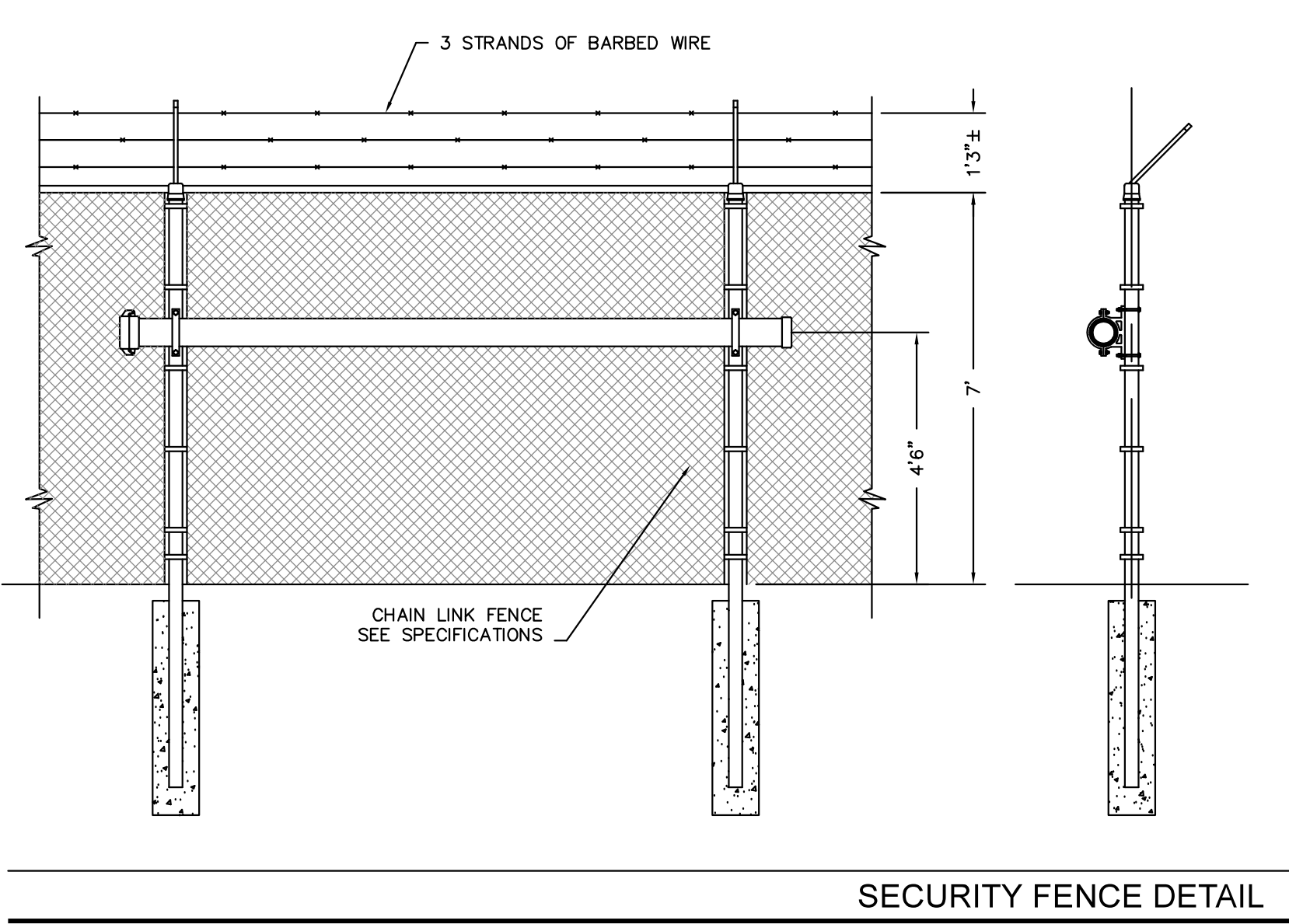
PLAN DATE:
10-01-2021
2-15-2021
2-23-2021

10-01-2021
2-15-2021
2-23-2021

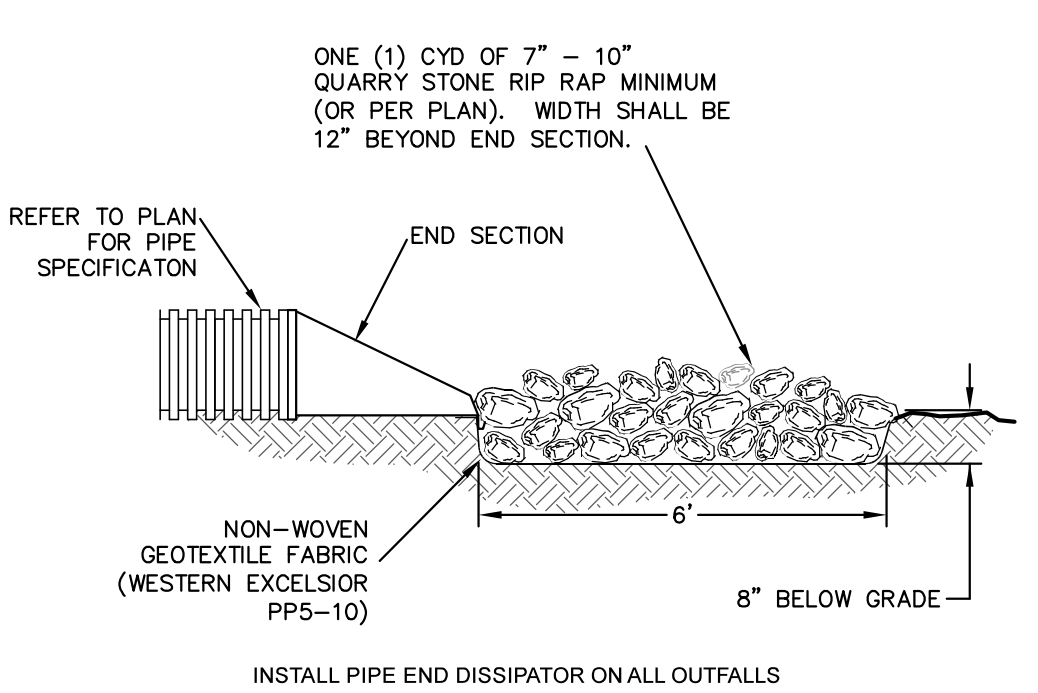
10-01-2021
2-15-2021
2-23-2021

SITE ENGINEER:
jozwiak consulting
p.o. box 5342 | antrim city, mi 49606 | 231.216.1201
www.jozwiakconsulting.com

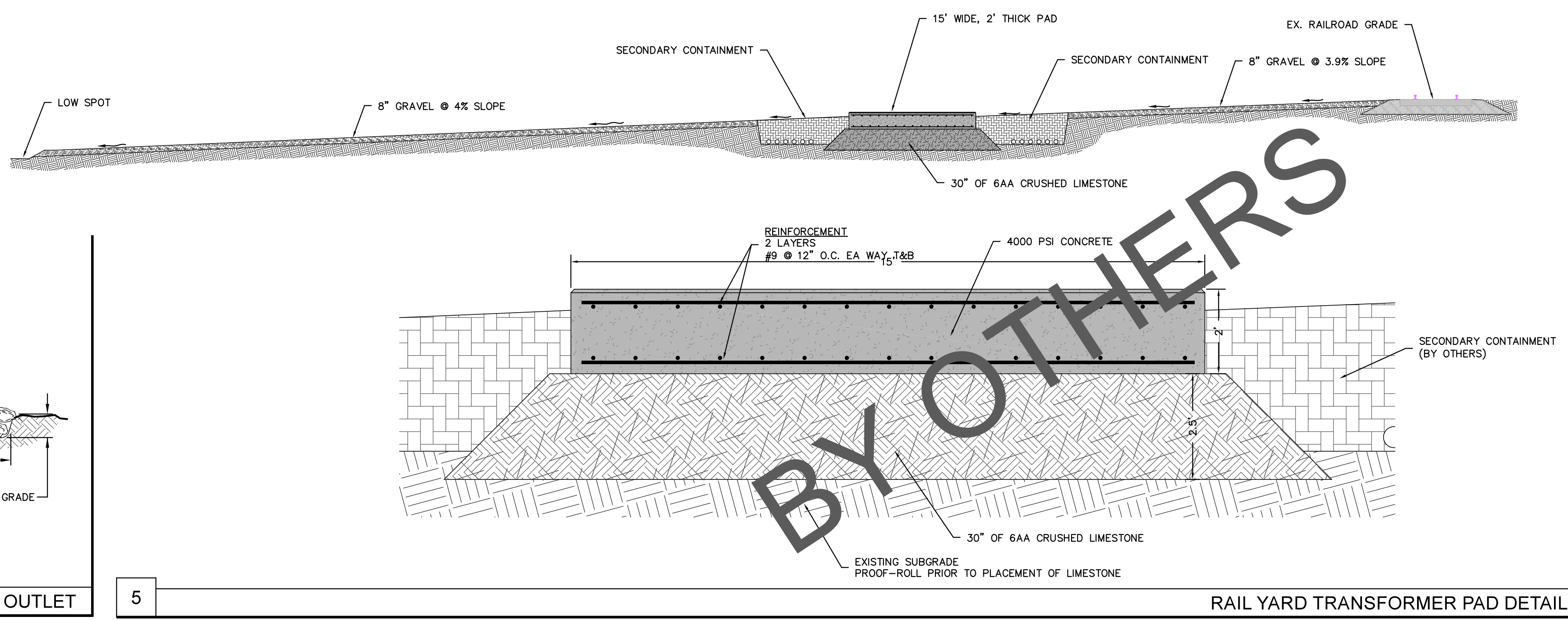




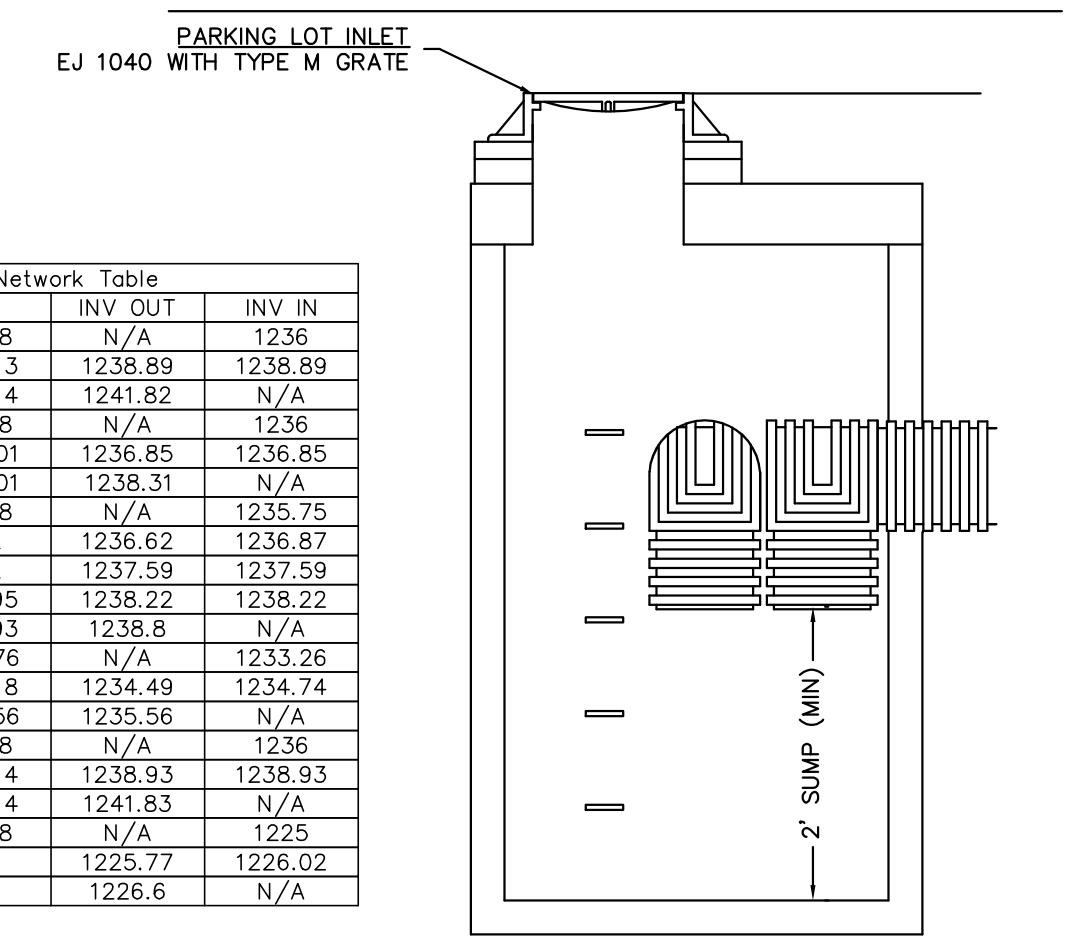
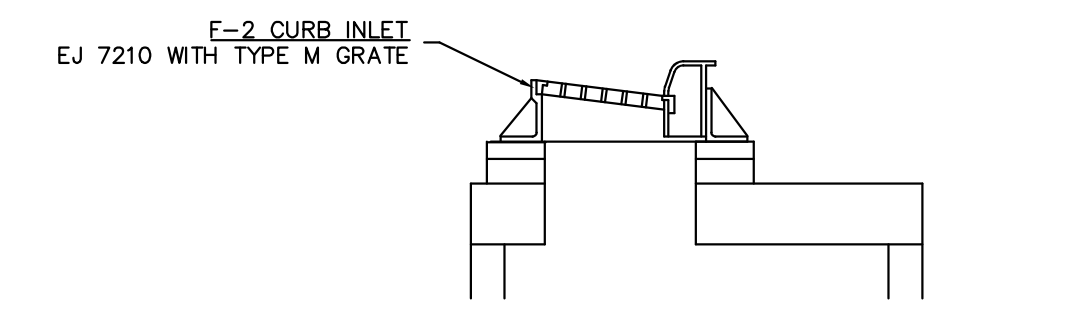
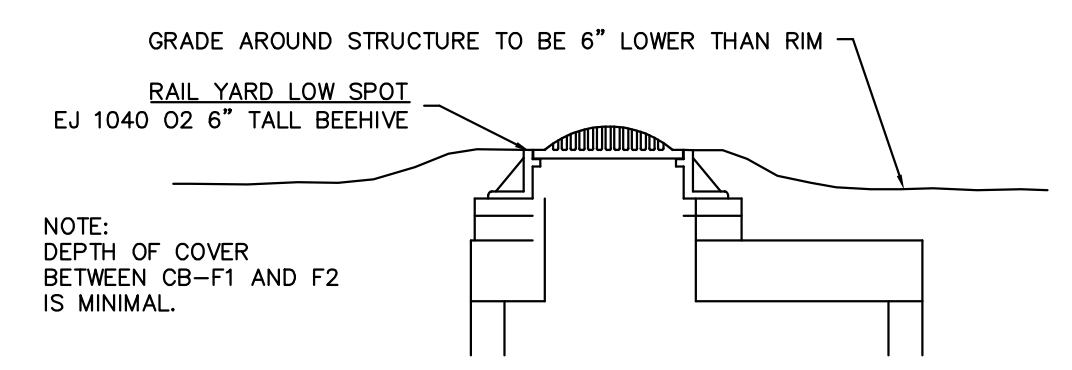
SECURITY FENCE DETAIL



STORM OUTLET

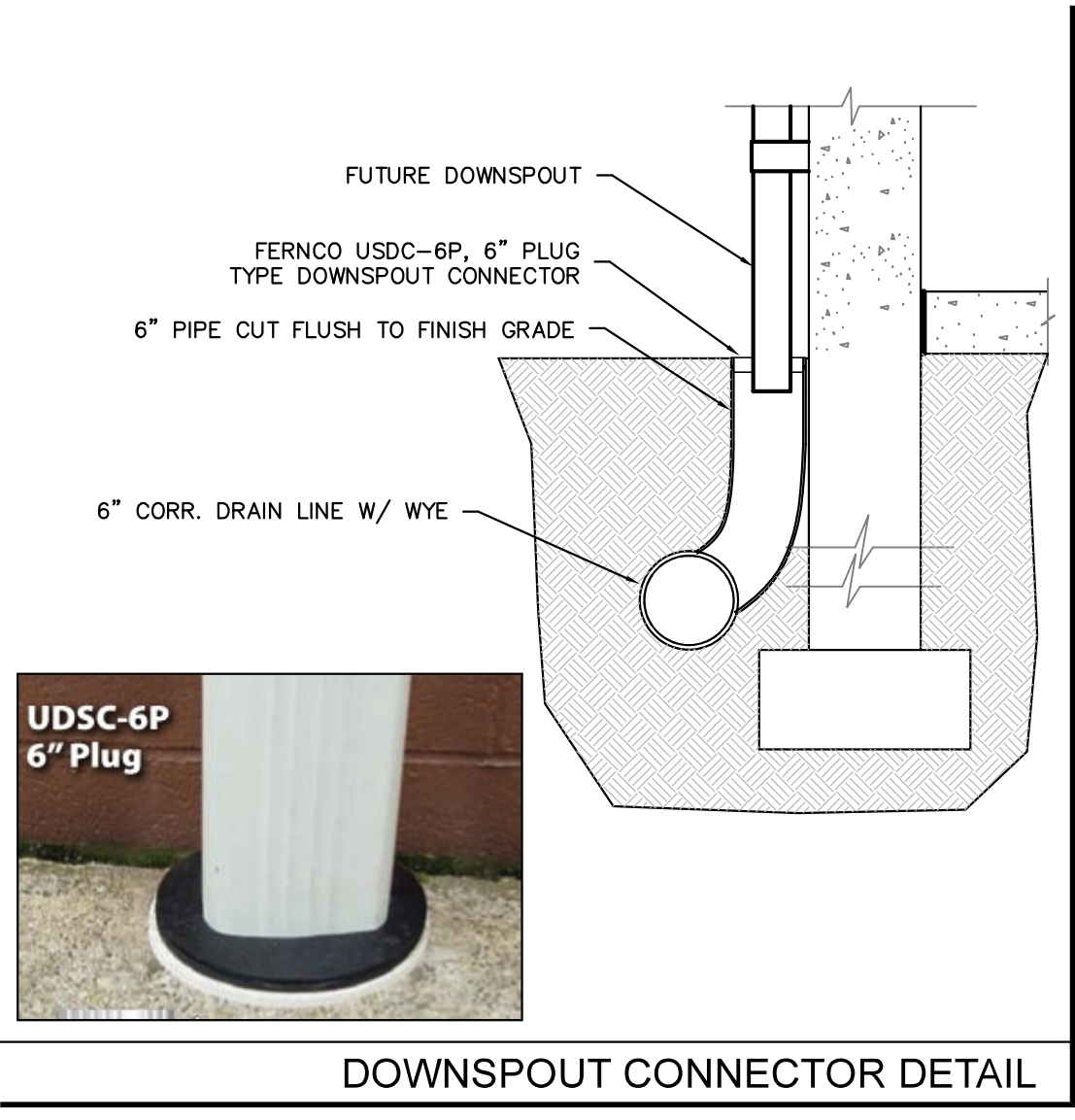


RAIL YARD TRANSFORMER PAD DETAIL

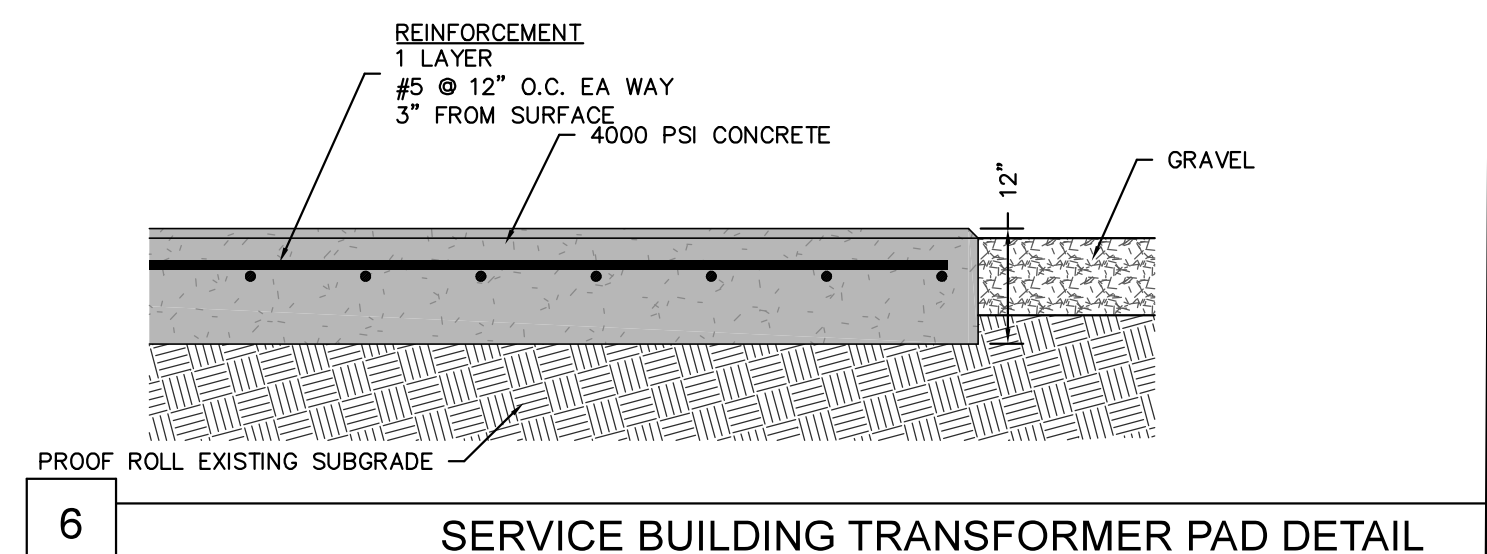


4' DIA. CATCH BASIN DETAIL

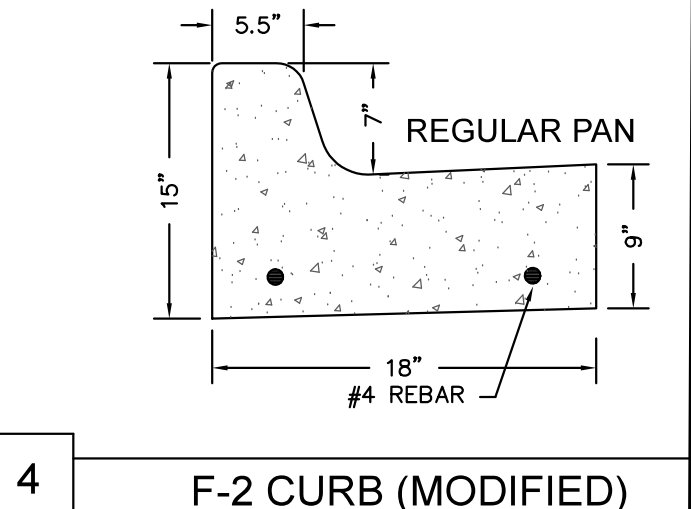
Sewer Network Table			
NAME	RIM	INV OUT	INV IN
OUTFALL-E	1235.8	N/A	1236
NODE E-1	1244.13	1238.89	1238.89
NODE E-2	1244.14	1241.82	N/A
OUTFALL-B	1235.8	N/A	1236
CB-B1	1242.01	1236.85	1236.85
CB-B2	1242.01	1238.31	N/A
OUTFALL-A	1235.8	N/A	1235.75
CB-A1	1242	1236.62	1236.87
CB-A2	1242	1237.58	1237.58
CB-A3	1241.95	1238.22	1238.22
CB-A4	1241.93	1238.8	N/A
OUTFALL-C	1233.76	N/A	1233.26
CB-C1	1239.18	1234.49	1234.74
INLET C-2	1235.56	1235.56	N/A
OUTFALL-D	1235.8	N/A	1236
NODE D-1	1244.14	1238.93	1238.93
NODE D-2	1244.14	1241.83	N/A
OUTFALL-F	1224.8	N/A	1225
CB-F1	1229	1225.77	1226.02
CB-F2	1229	1226.6	N/A



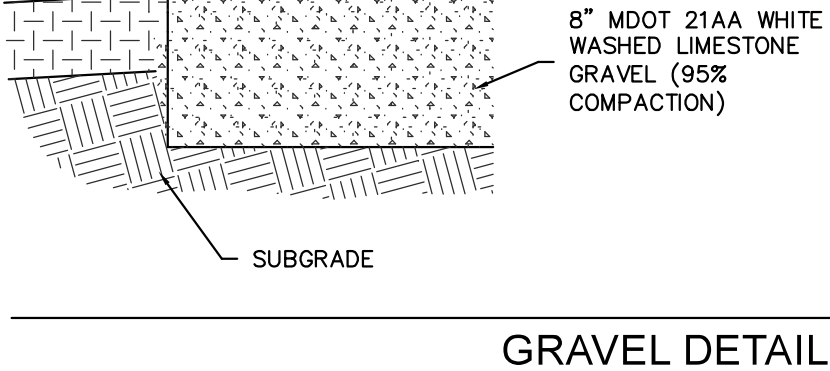
DOWNSPOUT CONNECTOR DETAIL



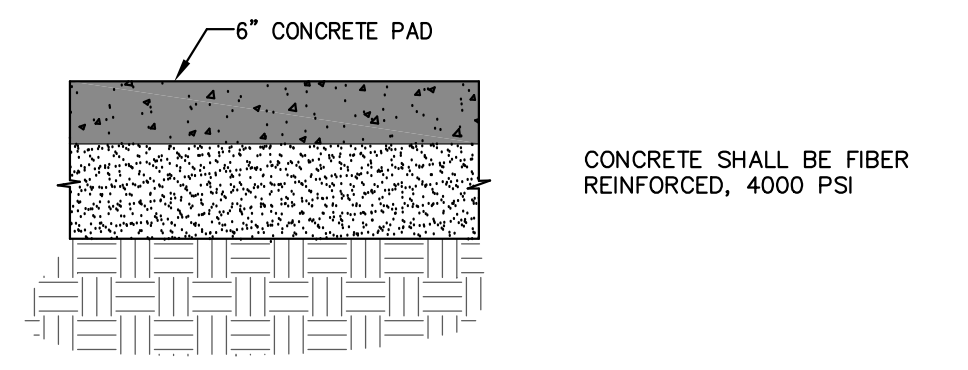
SERVICE BUILDING TRANSFORMER PAD DETAIL



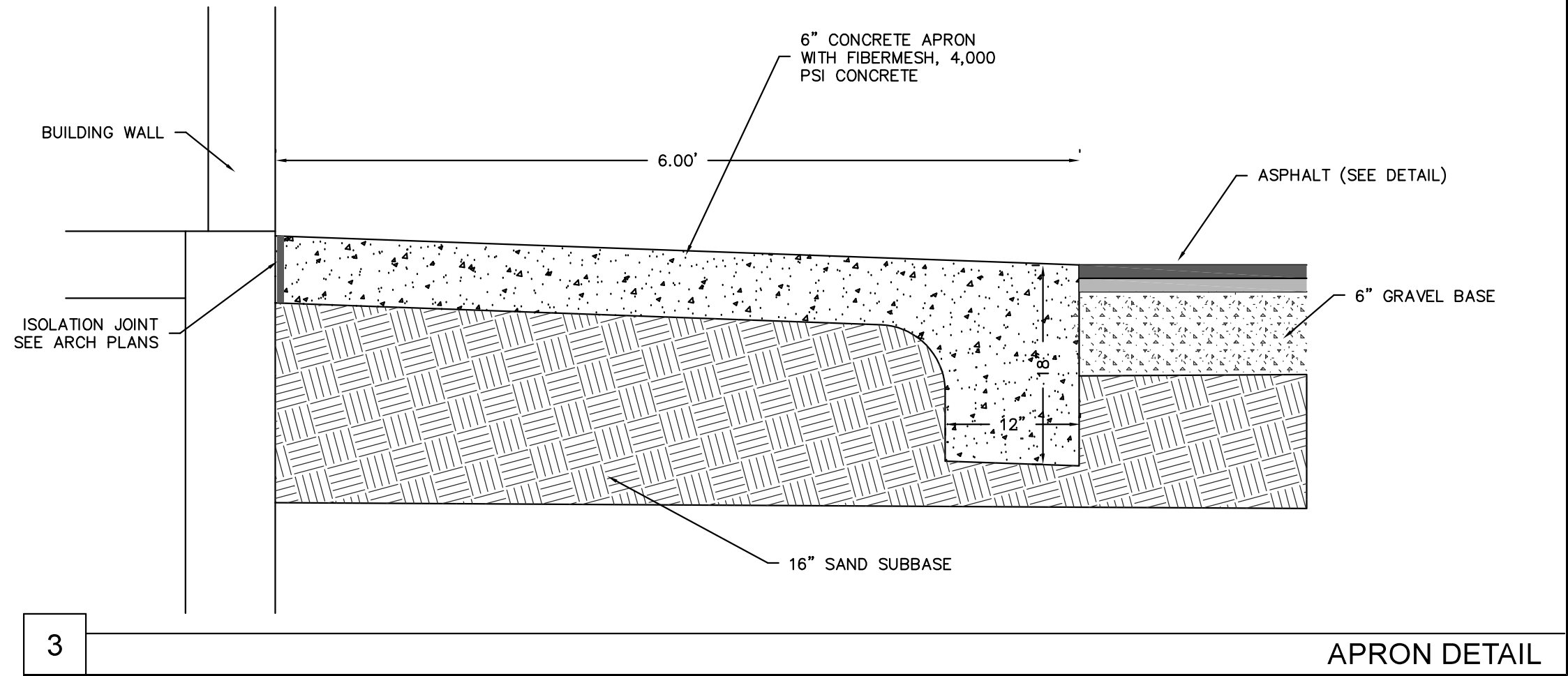
F-2 CURB (MODIFIED)



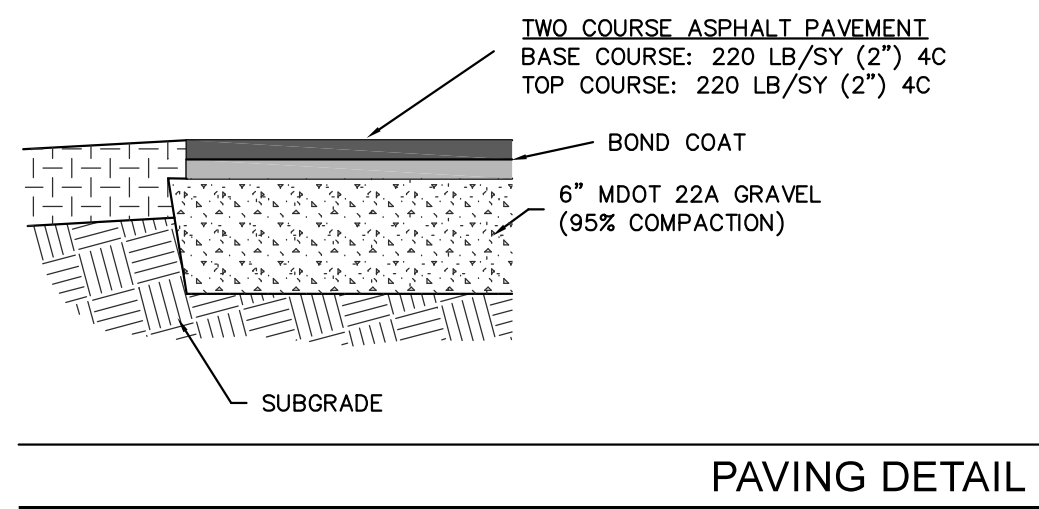
GRAVEL DETAIL



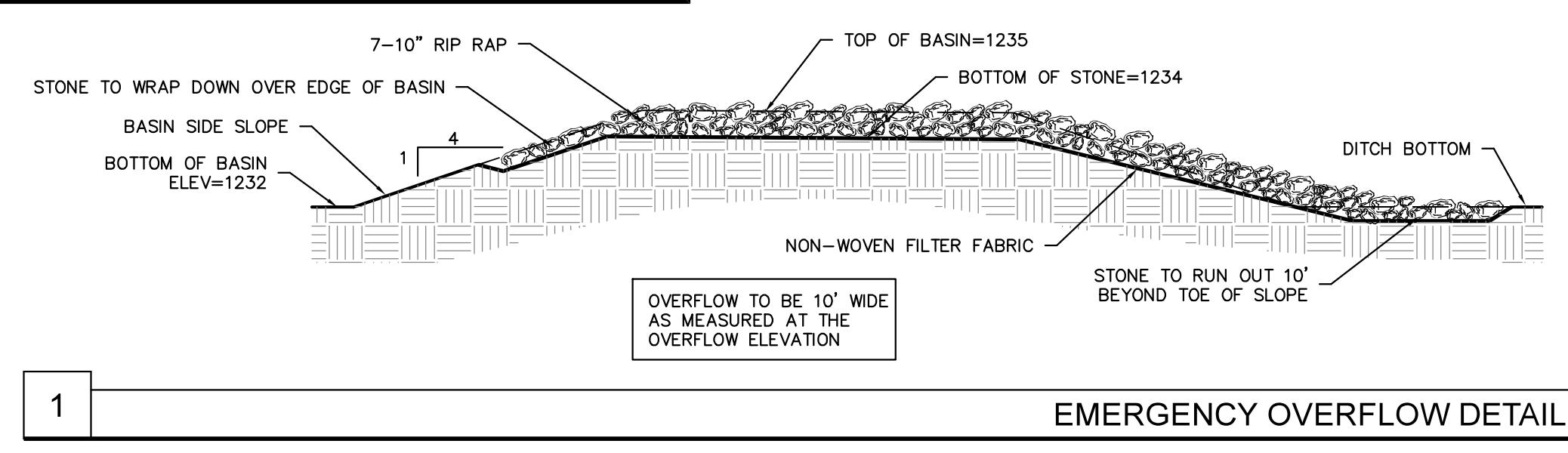
6" CONCRETE APRON AND PAD DETAIL



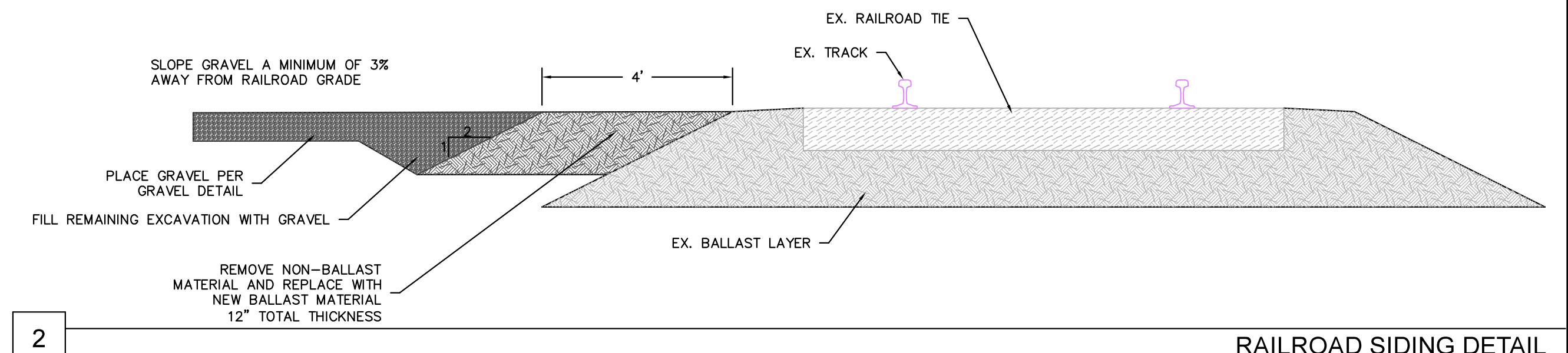
APRON DETAIL



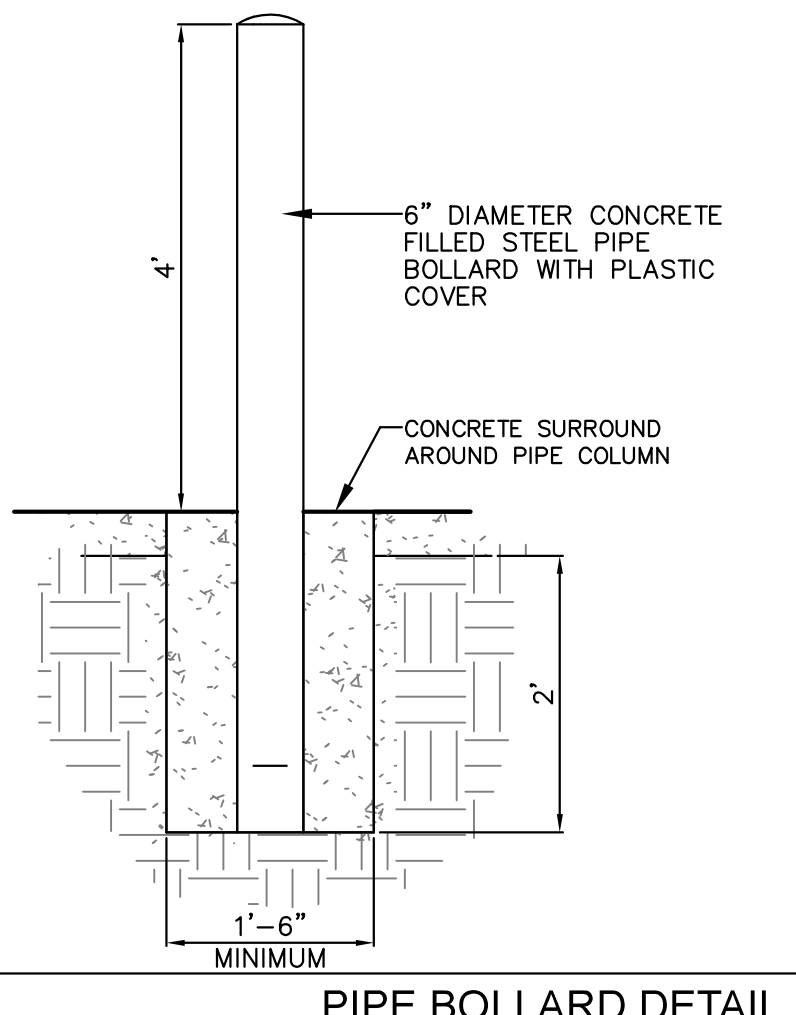
PAVING DETAIL



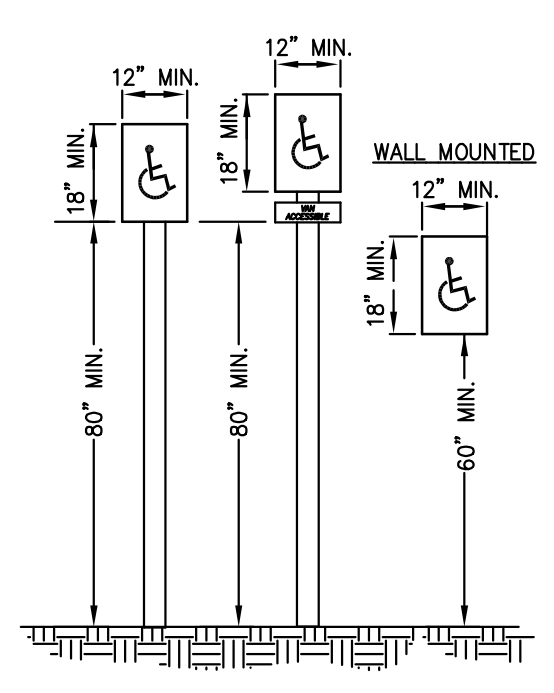
EMERGENCY OVERFLOW DETAIL



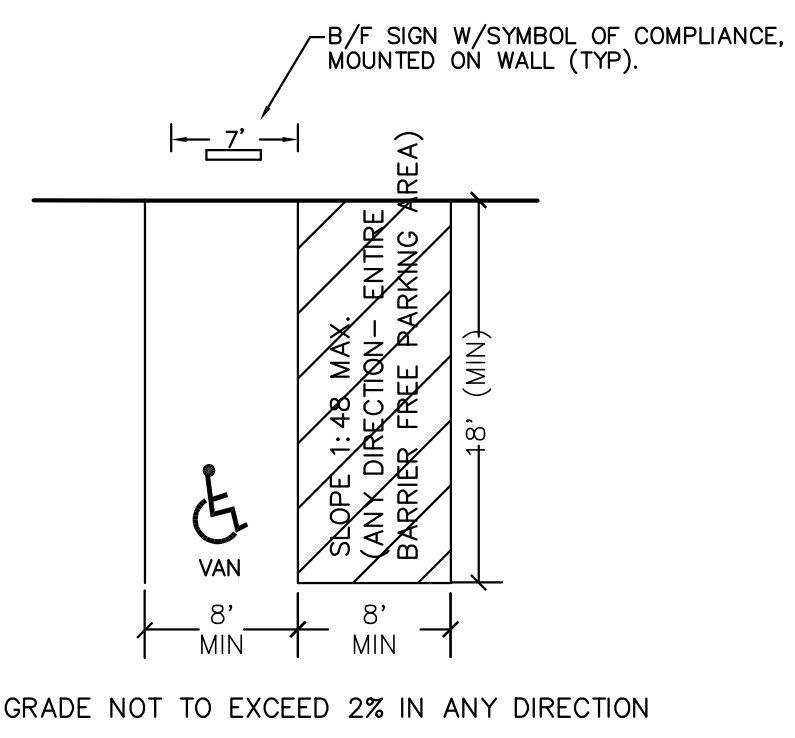
RAILROAD SIDING DETAIL



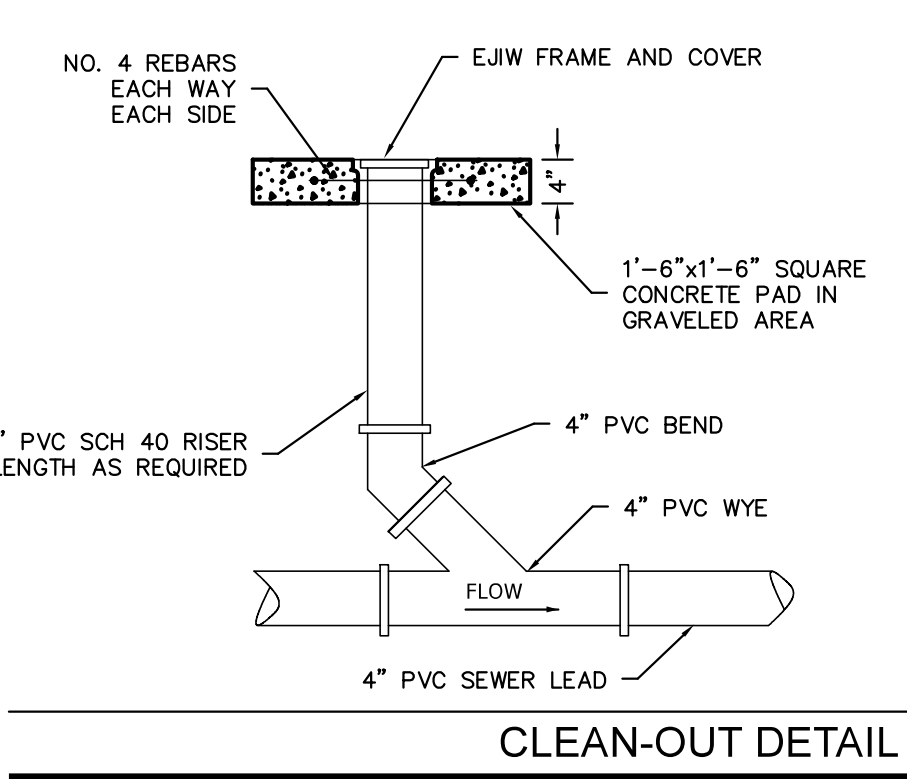
PIPE BOLLARD DETAIL



B/F SIGN DETAIL

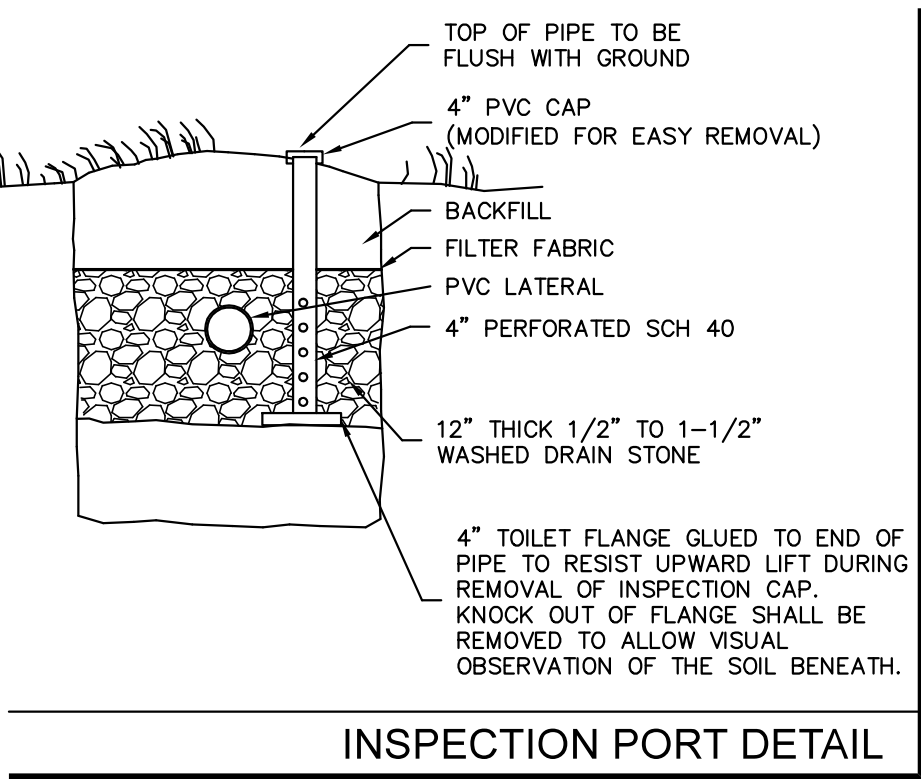
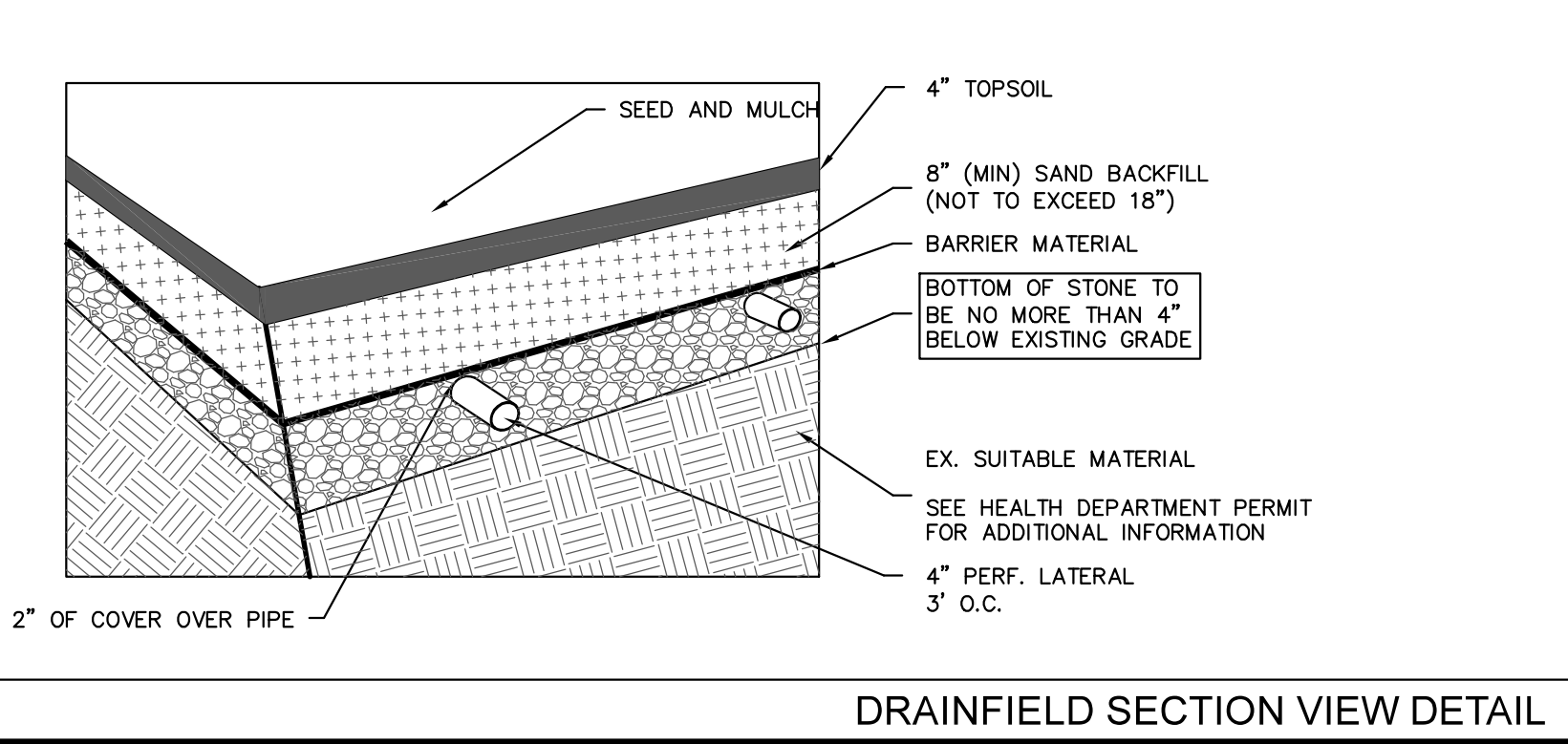


BARRIER FREE PARKING DETAIL



SOIL BORING INFORMATION

BH-1	0-15"	LOAMY SAND TOP SOIL
	15-38"	LOAMY SAND WITH ROCK
	38-90"	MEDIUM SAND/COURSE SAND WITH ROCK
	NO SEASONAL HIGH GROUND WATER OBSERVED	
BH-2	0-8"	LOAMY SAND TOP SOIL
	8-21"	LOAMY SAND WITH GRAVEL
	21-88"	MEDIUM SAND/COURSE SAND WITH ROCK
	NO SEASONAL HIGH GROUND WATER OBSERVED	



Based on Actual Population Data Provided by Owner

Entity	Design Criteria	Gallons per Day
Employees	91 manhours	455 gpd
Visitors	0 patrons	0 gpd
Average Day		455 gpd

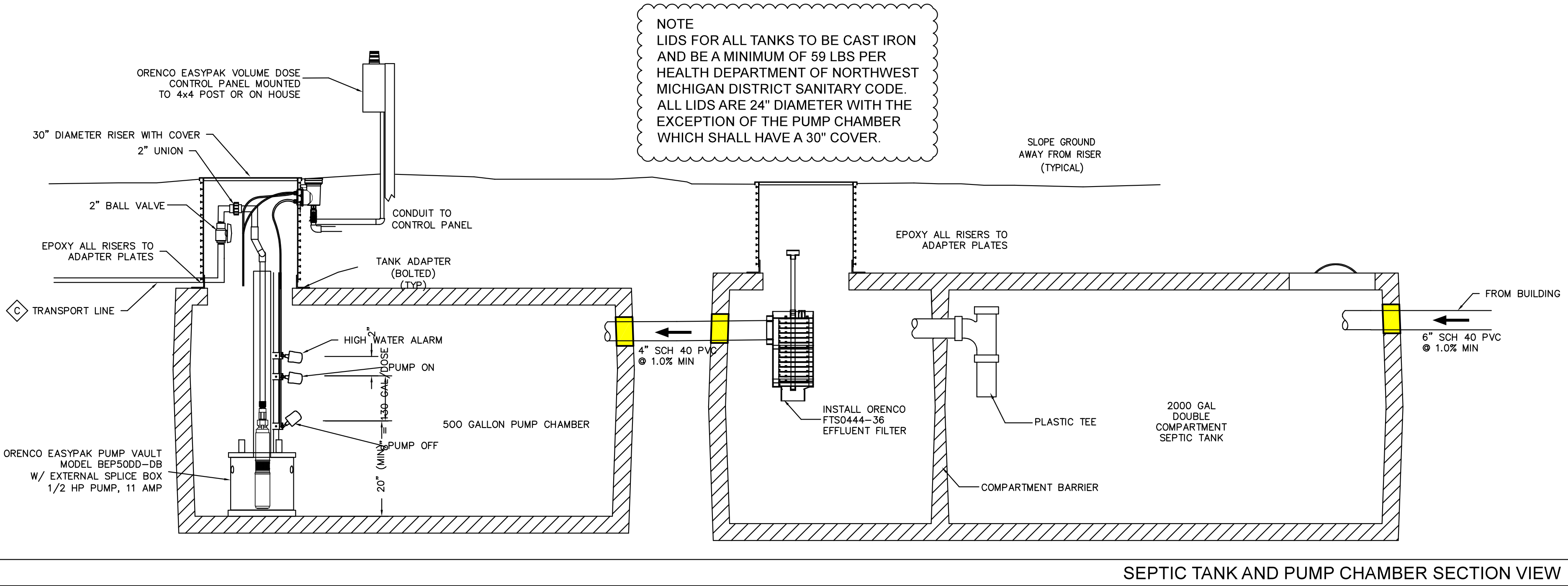
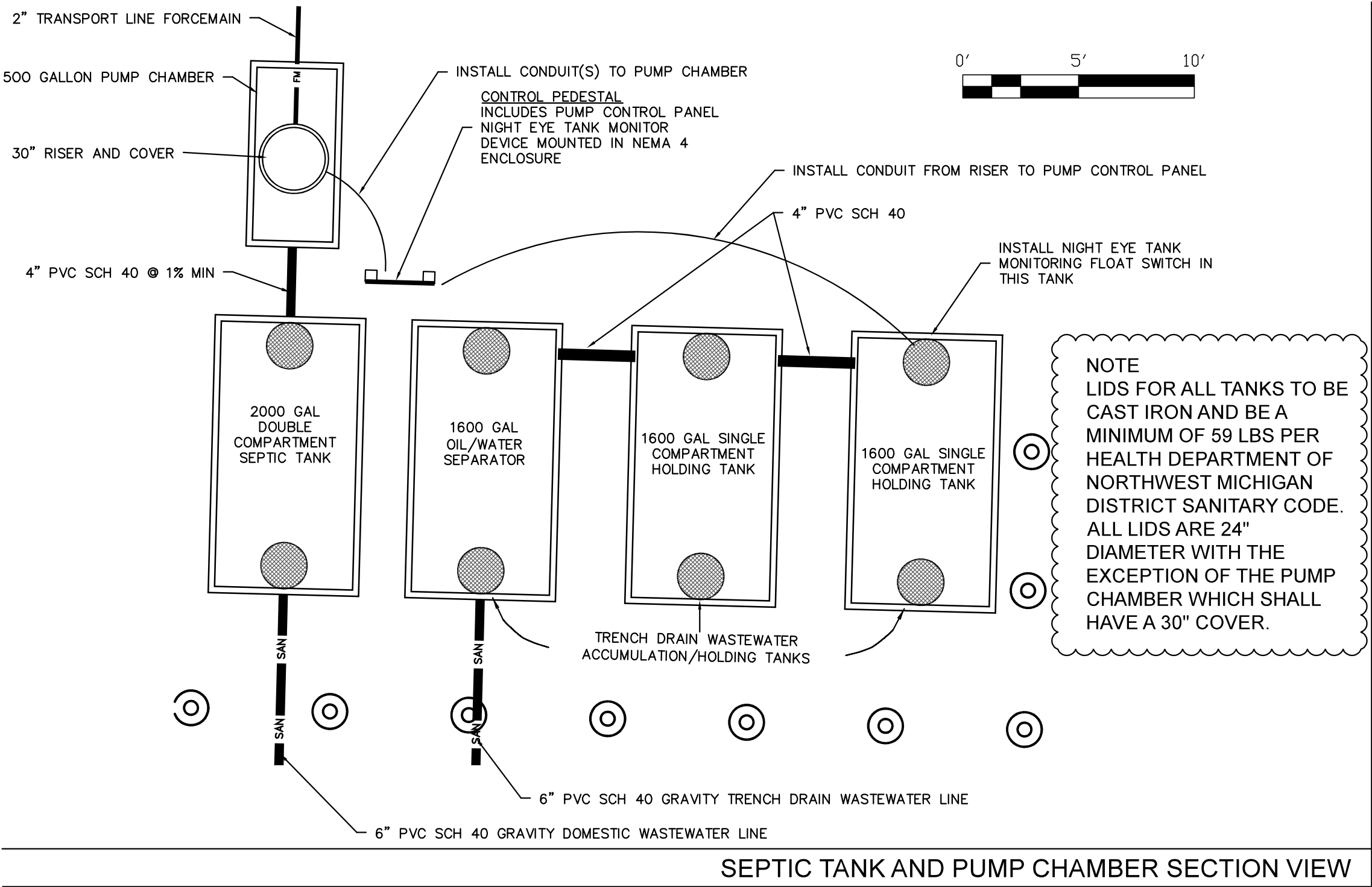
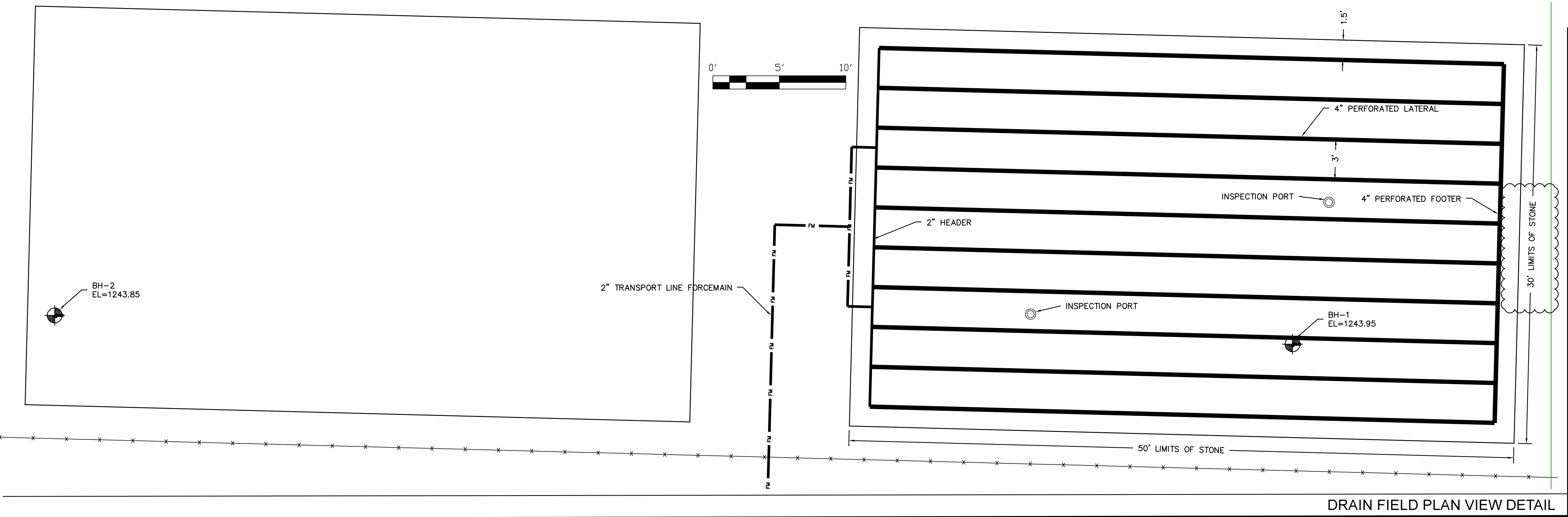
Entity	Design Criteria	Gallons per Day
Employees	279 manhours	1,395 gpd
Visitors	0 patrons	0 gpd
Average Day		1,395 gpd

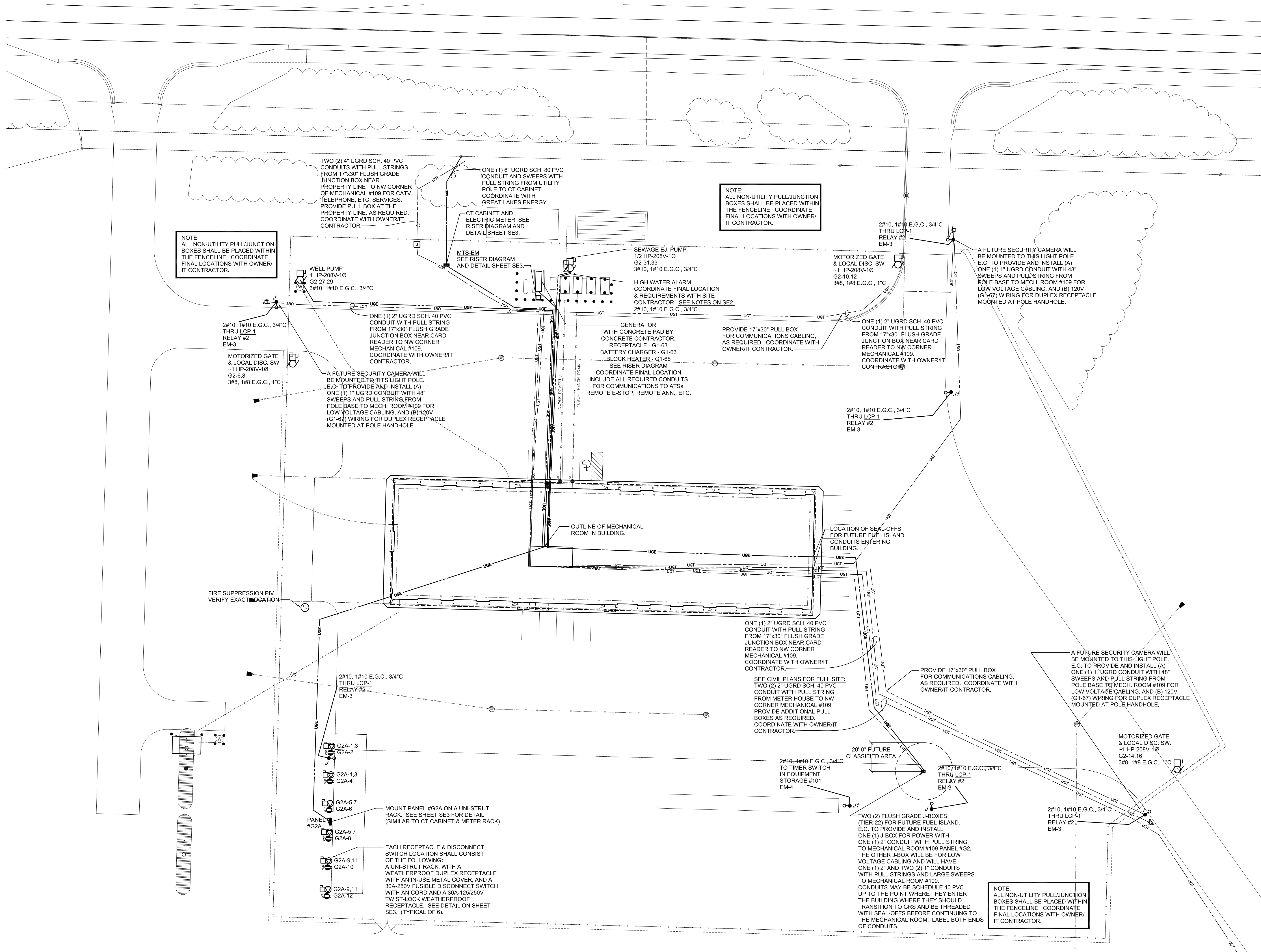
Owner indicates that up to once a month, a safety/educational meeting may be held at this facility that includes outlying service center employees

Drain Field Sizing	Average Day	Peak Day
Gallons per day	455 gpd	1395 gpd
Drain field size (proposed)	1500 sf	1500 sf
Resulting loading rate	0.3 gpd/sf	0.93 gpd/sf

Septic Tank Sizing	Average Day	Peak Day
Total Gallons to Treat	455 gpd	1395 gpd
Tankage Provided	2000 gallons	2000 gallons
Retention Time Provided	105 hours	34 hours

SEPTIC SYSTEM BASIS OF DESIGN





ELECTRICAL SITE PLAN - NORTH
SCALE: 1" = 30'-0"

830 Cottageview Dr., Suite 102
Traverse City, MI 49684
P 231.933.0510 F 231.933.3215
W www.nealisengineering.com

nealis

ENGINEERING

PROJECT TITLE: WOLVERINE POWER SUPPLY COOPERATIVE, INC.
SERVICE CENTER BUILDING

HIGHWAY M-32, ELMIRA, MI (PART OF SE 1/4, SECT 24, T31N - R05W)
WARNER TOWNSHIP, ANTRIM COUNTY

SHEET TITLE: ELECTRICAL
SITE PLAN - NORTH

ENGR. PROJ.# 18101
DRAWN BY: JAV
CHECKED BY: JAV
DATE: 01.28.2021
Bidding & Construction
Addendum #1

SHEET NUMBER SE1

PANEL #G1					400A MLO, 120/208V-3Ø-4W SQ.D NQ - SURFACE MTD.			
QIR	CB/P	DESCRIPTION	LOAD	P	LOAD	DESCRIPTION	CB/P	QIR
1	20/1 G	OVERHEAD MOTORIZED DOOR - 101	1200	A	540	RECEPTACLES - 114	20/1	2
3	20/1 G	OVERHEAD MOTORIZED DOOR - 101	1200	B	1500	RECEPTACLES - 114 - WASHER	20/1	4
5	20/1 G	OVERHEAD MOTORIZED DOOR - 101	1200	C	1200	RECEPTACLES - 112 - REFRIGERATOR	20/1 G	6
7	20/1 G	OVERHEAD MOTORIZED DOOR - 101	1200	A	1800	RECEPTACLES - 112 - TOASTER OVEN	20/1	8
9	20/1 G	OVERHEAD MOTORIZED DOOR - 101	1200	B	1100	RECEPTACLES - 112 - MICROWAVE	20/1	10
11	20/1 G	OVERHEAD MOTORIZED DOOR - 101	1200	C	360	RECEPTACLES - 112 - COUNTER	20/1	12
13	20/1 G	OVERHEAD MOTORIZED DOOR - 101	1200	A	900	RECEPTACLES - 112 SOUTH, EXTERIOR	20/1	14
15	20/1 G	OVERHEAD MOTORIZED DOOR - 101	1200	B	720	RECEPTACLES - 111	20/1	16
17	20/1 G	OVERHEAD MOTORIZED DOOR - 101	1200	C	720	RECEPTACLES - 111	20/1	18
19	20/1 G	OVERHEAD MOTORIZED DOOR - 101	1200	A	720	RECEPTACLES - 111	20/1	20
21	20/1 G	OVERHEAD MOTORIZED DOOR - 101	1200	B	1055	RECEPTACLES - 110,111 (TV), 112 (TV)	20/1	22
23	20/1 G	OVERHEAD MOTORIZED DOOR - 101	1200	C	540	RECEPTACLES - 107,113	20/1	24
25	20/1 G	OVERHEAD MOTORIZED DOOR - 102	1200	A	540	RECEPTACLES - 108	20/1	26
27	20/1 G	OVERHEAD MOTORIZED DOOR - 102	1200	B	1080	RECEPTACLES - 105 SOUTH	20/1	28
29	20/1 G	OVERHEAD MOTORIZED DOOR - 102	1200	C	1080	RECEPTACLES - 105 SOUTH	20/1	30
31	20/1 G	OVERHEAD MOTORIZED DOOR - 102	1200	A	1080	RECEPTACLES - 105 SOUTH	20/1	32
33	20/1 G	OVERHEAD MOTORIZED DOOR - 102	1200	B	720	RECEPTACLES - 105 SOUTH & NORTH	20/1	34
35	20/1	IR-3, UH-3 - 101	1314	C	720	RECEPTACLES - 105 SOUTH & NORTH	20/1	36
37	20/1	IR-3, UH-2 - 101	1314	A	720	RECEPTACLES - 105 SOUTH & NORTH	20/1	38
39	20/1	L-2, L-3 - 101	200	B	1080	RECEPTACLES - 104 NORTH	20/1	40
41	20/1	IR-2, IR-1, UH-1 - 102	1806	C	1080	RECEPTACLES - 104 NORTH	20/1	42
43	25/1	EF-1, L-1 - 102	1750	A	1080	RECEPTACLES - 104 NORTH	20/1	44
45	20/1	F-1 - 109	1656	B	1080	RECEPTACLES - 104 NORTH	20/1	46
47	20/1	F-2 - 109	1219	C	900	RECEPTACLES - 104 NORTH	20/1	48
49	20/1	GWH-1, RP-1 & GC-1 - 109	800	A	900	RECEPTACLES - 104 SOUTH	20/1	50
51	20/1	COMMUNICATIONS RACK - 109	1500	B	900	RECEPTACLES - 104 SOUTH	20/1	52
53	20/1	COMMUNICATIONS RACK - 109	1500	C	720	RECEPTACLES - 104 SOUTH	20/1	54
55	20/1	COMMUNICATIONS RACK - 109	1500	A	3000	RECEPTACLE - 102 - CORD REEL 138kV	50/1 G	56
57	20/1	SECURITY SYSTEM - 109	1500	B	360	RECEPTACLES - 102 - CORD REEL	20/1 G	58
59	20/1	RECEPTACLES - 109	720	C	900	RECEPTACLES - 102 SOUTH	20/1 G	60
61	20/1	HIGH WATER ALARM LIGHT	300	A	900	RECEPTACLES - 102 WEST	20/1 G	62
63	20/1	GENERATOR BATTERY CHARGER	1200	B	720	RECEPTACLES - 102 EAST	20/1 G	64
65	20/1	GENERATOR BLOCK HEATER	1500	C	540	RECEPTACLES - 102 NORTH	20/1 G	66
67	20/1	POLE MOUNTED RECEPIS	450	A	1440	RECEPTACLES - 101 EAST, EXTERIOR	20/1 G	68
69	20/1 G	OVERHEAD MOTORIZED DOOR - 102	1200	B	900	RECEPTACLES - 101 NORTHWEST	20/1 G	70
71	20/1 G	OVERHEAD MOTORIZED DOOR - 102	1200	C	540	RECEPTACLES - 101 WEST CENTRAL	20/1 G	72
73	20/1	SPARE	---	A	360	RECEPTACLES - 101 SOUTHWEST	20/1 G	74
75	20/1	SPARE	---	B	720	RECEPTACLES - 101 SOUTHWEST	20/1 G	76
77	20/1	SPARE	---	C	---	SPARE	20/1	78
79	20/1	SPARE	---	A	---	SPARE	20/1	80
81	--	SPACE	---	B	---	SPACE	--	82
83	--	SPACE	---	C	---	SPACE	--	84
		LIGHTS	0	VA				
		RECEPTS.	64735	VA		TOTAL CALCULATED LOAD:		
		MOTORS	10059	VA		78.2	kVA	
		MISC	3450	VA		217.2	A	

PANEL #EM					100A MLO, 120/208V-3Ø-4W SQ.D NQ - SURFACE MTD.			
CIR	CB/P	DESCRIPTION	LOAD	P	LOAD	DESCRIPTION	CB/P	CIR
1	20/1-L	LIGHTS - EXTERIOR BLDG. MTD. (RLY 1)	1524	A	531	EXITS & MOTION LIGHTS (#101/#102)	20/1	2
3	20/1-L	LIGHTS - POLE MOUNTED (RELAY 2)	678	B	113	LIGHT - SE POLE MTD. ON TIMER SWITCH	20/1	4
5	20/1-L	LIGHTS - #102 WEST (RLY 4)	994	C	1706	LIGHTS - 106-114	20/1	6
7	20/1-L	LIGHTS - #102 EAST & CENTER (RELAY 5)	1314	A	1058	LIGHTS - 104, 105	20/1	8
9	20/1-L	LIGHTS - #101 WEST (RELAY 6)	1278	B	500	LIGHTING CONTROL PANEL	20/1	10
11	20/1-L	LIGHTS - #101 EAST (RELAY 7)	1278	C	1000	FIRE SUPPRESSION MONITORING	20/1	12
13	20/1	SPARE	---	A	---	SPARE	20/1	14
15	20/1	SPARE	---	B	---	SPARE	20/1	16
17	20/1	SPARE	---	C	---	SPARE	20/1	18
19	--	SPACE	---	A	---	SPACE	--	20
21	--	SPACE	---	B	---	SPACE	--	22
23	--	SPACE	---	C	---	SPACE	--	24
25	--	SPACE	---	A	---			26
27	--	SPACE	---	B	---	SPD #EM	30/3	28
29	--	SPACE	---	C	---			30
		LIGHTS	13092.63	VA				
		RECEPTS	0	VA		TOTAL CALCULATED LOAD:		
		MOTORS	0	VA		14.6	kVA	
		MISC	1500	VA		40.5	A	

PANEL #G2A					100A MLO, 120/208V-3Ø-4W SQ.D NQ - SURFACE MTD.; NEMA 3R						
CIR.	CB/P	DESCRIPTION	LOAD	P	LOAD	DESCRIPTION	CB/P	CIR.			
1	30/2'	RECEPTACLES - CIRCUIT	1500	A	180	RECEPT..CIRCUIT BREAKER/HEATER	20/1	2			
3	GFCI	BREAKER/HEATER		B	180	RECEPT..CIRCUIT BREAKER/HEATER	20/1	4			
5	30/2'	RECEPTACLES..CIRCUIT	1500	C	180	RECEPT..CIRCUIT BREAKER/HEATER	20/1	6			
7	GFCI	BREAKER/HEATER		A	180	RECEPT..CIRCUIT BREAKER/HEATER	20/1	8			
9	30/2'	RECEPTACLES..CIRCUIT	1500	B	180	RECEPT..CIRCUIT BREAKER/HEATER	20/1	10			
11	GFCI	BREAKER/HEATER		C	180	RECEPT..CIRCUIT BREAKER/HEATER	20/1	12			
13	20/1	SPARE	---	A	---	SPARE	20/1	14			
15	20/1	SPARE	---	B	---	SPARE	20/1	16			
17	20/1	SPARE	---	C	---	SPARE	20/1	18			
19	--	SPACE	---	A	---	SPACE	--	20			
21	--	SPACE	---	B	---	SPACE	--	22			
23	--	SPACE	---	C	---	SPACE	--	24			
25	--	SPACE	---	A	---	SPACE	--	26			
27	--	SPACE	---	B	---	SPACE	--	28			
29	--	SPACE	---	C	---	SPACE	--	30			
		LIGHTS	0	VA							
		RECEPTS.	5580	VA			TOTAL CALCULATED LOAD:				
		MOTORS	0	VA				5.6	KVA		
		MISC	0	VA				15.5	A		

(A) DENOTES ARC FAULT CIRCUIT INTERRUPTER (AFCI) CIRCUIT BREAKER REQUIRED.
 (B) DENOTES BREAKER LOCK REQUIRED ON CIRCUIT BREAKER.
 (C) DENOTES 30mA GROUND FAULT EQUIPMENT PROTECTION (GFEF) CIRCUIT BREAKER REQUIRED.
 (D) DENOTES GROUND FAULT CIRCUIT INTERRUPTER (GFCI) CIRCUIT BREAKER REQUIRED.
 (L) DENOTES CIRCUIT REQUIRED TO PASS THRU LIGHTING CONTROL PANEL.
 (S) DENOTES CIRCUIT BREAKER WILL REQUIRE SHUNT-TRIP OR TO BE RUN THROUGH SHUNT-TRIP CONTACTOR.
 DENOTES ESTIMATED LOAD AND CIRCUIT BREAKER SIZE. E.C. SHALL CONFIRM EXACT REQUIREMENTS WITH SHOP DRAWINGS PRIOR TO ORDERING CIRCUIT BREAKERS.

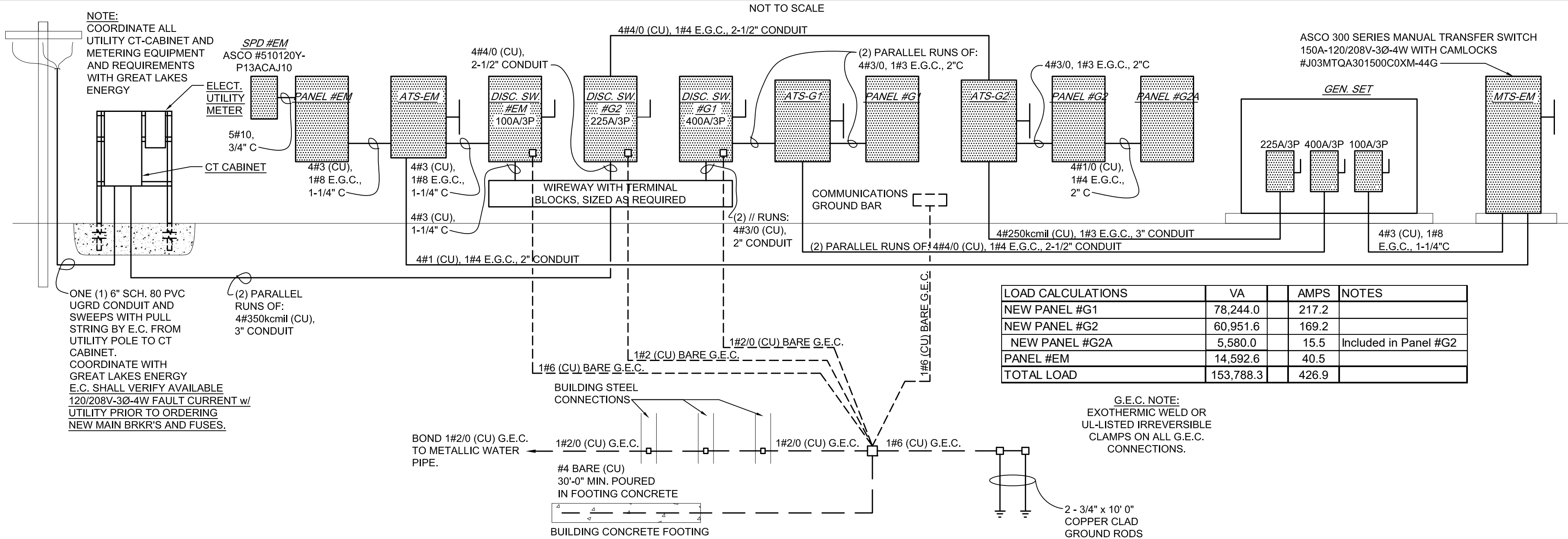
PANEL #G2				225A MLO, 120/208V-3Ø-4W SQ.D NQ - SURFACE MTD.					
CIR.	CB/P	DESCRIPTION	LOAD	P	LOAD	DESCRIPTION	CB/P	CIR.	
1	60/2"	AIR COMPRESSOR (7.5 HP)	9200	A	9600	RECEPTACLES - (7) WELDER	50/2	2	
3				B			GFCI	4	
5	30/2"	RECEPTACLES - (7) PRESSURE WASHER (5 HP)	4600	C	1595	MOTORIZED GATE - WEST (1 HP)	15/2	6	
7	GFCI			A				8	
9	30/2"	RECEPTACLES - DRYER	5000	B	1595	MOTORIZED GATE - EAST (1 HP)	15/2	10	
11	GFCI			C				12	
13	20/2"	RECEPTACLES - LIFT #1	2200	A	1595	MOTORIZED GATE - SOUTH (1 HP)	15/2	14	
15	GFCI			B				16	
17	30/2"	RECEPTACLE - 105	5000	C	5425	CU-1 - EXTERIOR	50/2	18	
19				A				20	
21				B	4393	CU-2 - EXTERIOR	45/2	22	
23	100/3	PANEL #G2A	5580	C				24	
25				A				26	
27	15/2"	WELL PUMP (1 HP)	1664	B	2486	EF-2 (1.5 HP)	15/3	28	
29				C				30	
31	15/2"	SEWAGE EJECTOR PUMP (1/2 HP)	1019	A	---	SPARE	20/1	32	
33				B	---	SPARE	20/1	34	
35	20/1	SPARE	---	C	---	SPARE	20/1	36	
37	20/1	SPARE	---	A	---	SPACE	--	38	
39	20/1	SPARE	---	B	---	SPACE	--	40	
41	--	SPACE	---	C	---	SPACE	--	42	
		LIGHTS	0		VA				
		RECEPTS.	31980		VA				
		MOTORS	28971.64		VA				
		MISC	0		VA				
						TOTAL CALCULATED LOAD:			
						61.0	kVA		
						169.2	A		

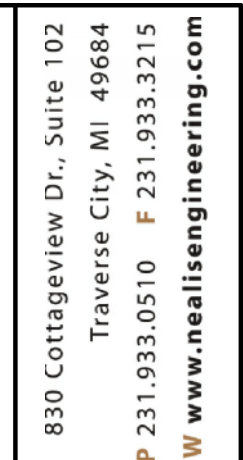
(A) DENOTES ARC FAULT CIRCUIT INTERRUPTER (AFCI) CIRCUIT BREAKER REQUIRED.
 (B) DENOTES BREAKER LOCK REQUIRED ON CIRCUIT BREAKER.
 (C) DENOTES 30mA GROUND FAULT EQUIPMENT PROTECTION (GFEF) CIRCUIT BREAKER REQUIRED.
 (D) DENOTES GROUND FAULT CIRCUIT INTERRUPTER (GFCI) CIRCUIT BREAKER REQUIRED.
 (E) DENOTES CIRCUIT REQUIRED TO PASS THRU LIGHTING CONTROL PANEL.
 (F) DENOTES CIRCUIT BREAKER WILL REQUIRE SHUNT-TRIP OR TO BE RUN THROUGH SHUNT-TRIP CONTACTOR.
 (S) DENOTES ESTIMATED LOAD AND CIRCUIT BREAKER SIZE. E.C. SHALL CONFIRM EXACT REQUIREMENTS WITH SHOP DRAWINGS PRIOR TO ORDERING CIRCUIT BREAKERS.

GENERATOR LOAD LIST

[illegible]

ELECTRICAL RISER DIAGRAM





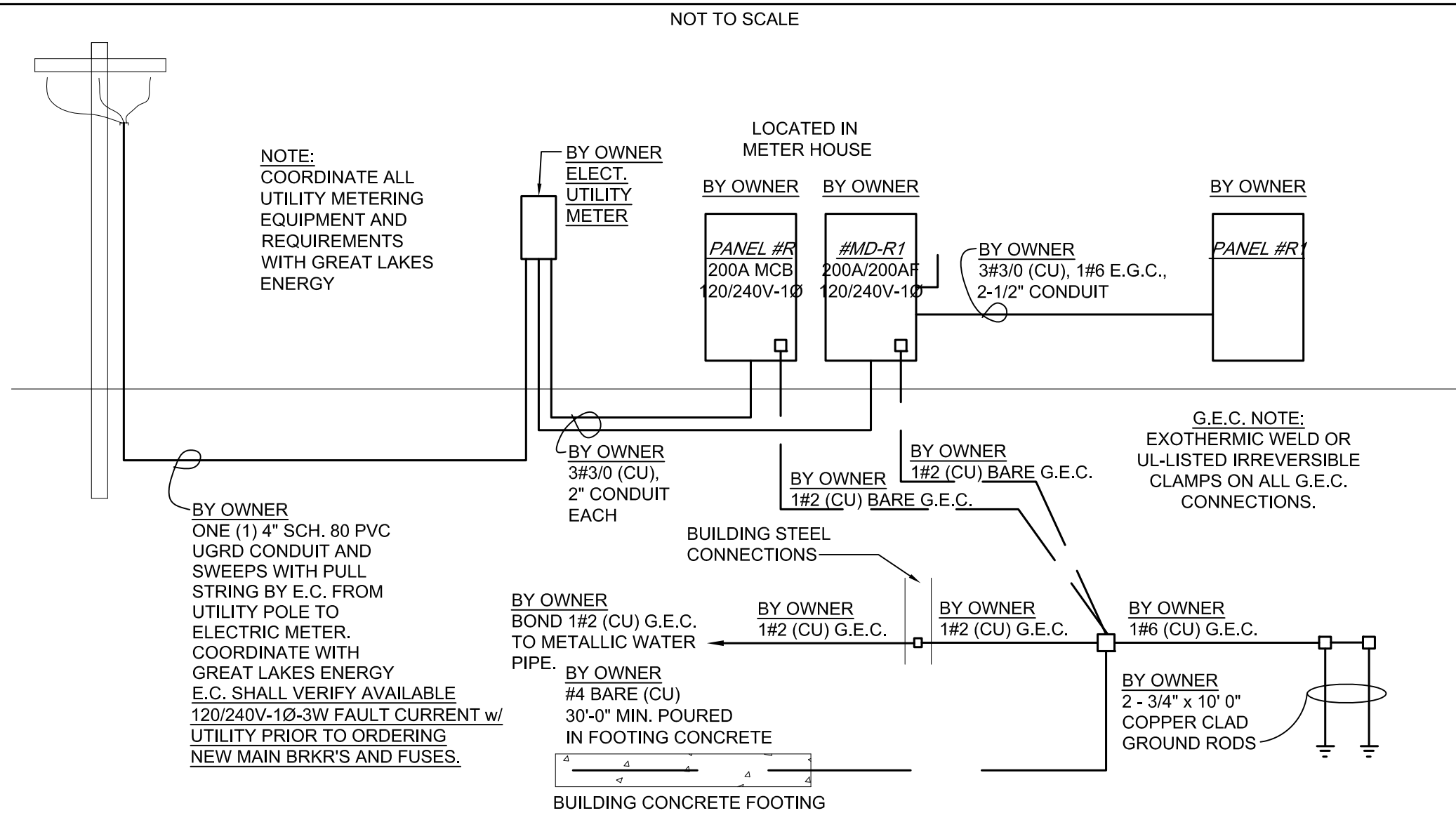
1. PROVIDE AND INSTALL AN ALUMINUM NEMA 4, 12"X12" ENCLOSURE MOUNTED ON A UN-STRUT SUPPORT STRUCTURE. THE ENCLOSURE WILL HOUSE A NEW DUPLEX GFCI RECEPTACLE AND THE 'NIGHT-EYE' ALARM SYSTEM. THE NEW DUPLEX GFCI RECEPTACLE SHALL USE THE CONDUCTORS AND CONDUIT AS SHOWN, AND BE CONNECTED TO 20A/1P CIRCUIT BREAKER, G1-61. SITE CONTRACTOR, COORDINATE WITH THE SITE CONTRACTOR. IN ADDITION, INCLUDE ANOTHER WEATHERPROOF DUPLEX RECEPTACLE INSTALLED BELOW THE ENCLOSURE FOR GENERAL PURPOSES. USE G1-61. THE 'NIGHT-EYE' ALARM SYSTEM, FLOATS, ETC. SHALL BE INSTALLED BY THE SITE CONTRACTOR. COORDINATE WITH THE SITE CONTRACTOR.

BY OWNER

PANEL #R							200A MCB, 120/240V-1Ø-3W SQ.D NQ - SURFACE MTD.			
CIR.	CB/P	DESCRIPTION	LOAD	P	LOAD	DESCRIPTION	CB/P	CIR.		
1	20/1	YARD LIGHTING - SWITCHED	1243	A	450	SECURITY CAMERAS / POLE MTD. RECEP	20/1	2		
3	20/1	YARD LIGHTING - AUTO	339	B	---	SPARE	20/1	4		
5	20/1	LIGHTS - METER HOUSE	---	A	---	SPARE	20/1	6		
7	20/1	RECEPTACLES - METER HOUSE	---	B	---	SPARE	20/1	8		
9	20/1	SPARE	---	A	---	SPACE	--	10		
11	20/1	SPARE	---	B	---	SPACE	--	12		
13	--	SPACE	---	A	---	SPACE	--	14		
15	--	SPACE	---	B	---	SPACE	--	16		
17	--	SPACE	---	A	---	SPACE	--	18		
19	--	SPACE	---	B	---	SPACE	--	20		
21	--	SPACE	---	A	---	SPACE	--	22		
23	--	SPACE	---	B	---	SPACE	--	24		
25	--	SPACE	---	A	---	SPACE	--	26		
27	--	SPACE	---	B	---	SPACE	--	28		
29	--	SPACE	---	A	---	SPACE	--	30		
			LIGHTS	1977.5	VA					
			RECEPTS.	450	VA		TOTAL CALCULATED LOAD:			
			MOTORS	0	VA			2.4	kVA	
			MISC	0	VA			10.1	A	

PANEL #R1					200A MCB, 120/240V-1Ø-3W S.O.D NQ - SURFACE MTD.; NEMA 3R						
CIR.	CB/P	DESCRIPTION	LOAD	P	LOAD	DESCRIPTION	CB/P	CIR.			
1	3Ø/2"	RECEPTACLES - CIRCUIT	1500	A	180	RECEPT..CIRCUIT BREAKER/HEATER	2Ø/1	2			
3	GFCL	BREAKER/HEATER		B	180	RECEPT..CIRCUIT BREAKER/HEATER	2Ø/1	4			
5	3Ø/2"	RECEPTACLES - CIRCUIT	1500	A	180	RECEPT..CIRCUIT BREAKER/HEATER	2Ø/1	6			
7	GFCL	BREAKER/HEATER		B	180	RECEPT..CIRCUIT BREAKER/HEATER	2Ø/1	8			
9	3Ø/2"	RECEPTACLES - CIRCUIT	1500	A	180	RECEPT..CIRCUIT BREAKER/HEATER	2Ø/1	10			
11	GFCL	BREAKER/HEATER		B	180	RECEPT..CIRCUIT BREAKER/HEATER	2Ø/1	12			
13	3Ø/2"	RECEPTACLES - CIRCUIT	1500	A	180	RECEPT..CIRCUIT BREAKER/HEATER	2Ø/1	14			
15	GFCL	BREAKER/HEATER		B	180	RECEPT..CIRCUIT BREAKER/HEATER	2Ø/1	16			
17	3Ø/2"	RECEPTACLES - CIRCUIT	1500	A	180	RECEPT..CIRCUIT BREAKER/HEATER	2Ø/1	18			
19	GFCL	BREAKER/HEATER		B	180	RECEPT..CIRCUIT BREAKER/HEATER	2Ø/1	20			
21	--	SPACE	---	A	---	SPACE	--	22			
23	--	SPACE	---	B	---	SPACE	--	24			
25	--	SPACE	---	A	---	SPACE	--	26			
27	--	SPACE	---	B	---	SPACE	--	28			
29	--	SPACE	---	A	---	SPACE	--	30			
LIGHTS			0		VA						
RECEPTS.			9300		VA	TOTAL CALCULATED LOAD:					
MOTORS			0		VA	9.3 kVA					
MISC			0		VA	38.8 A					

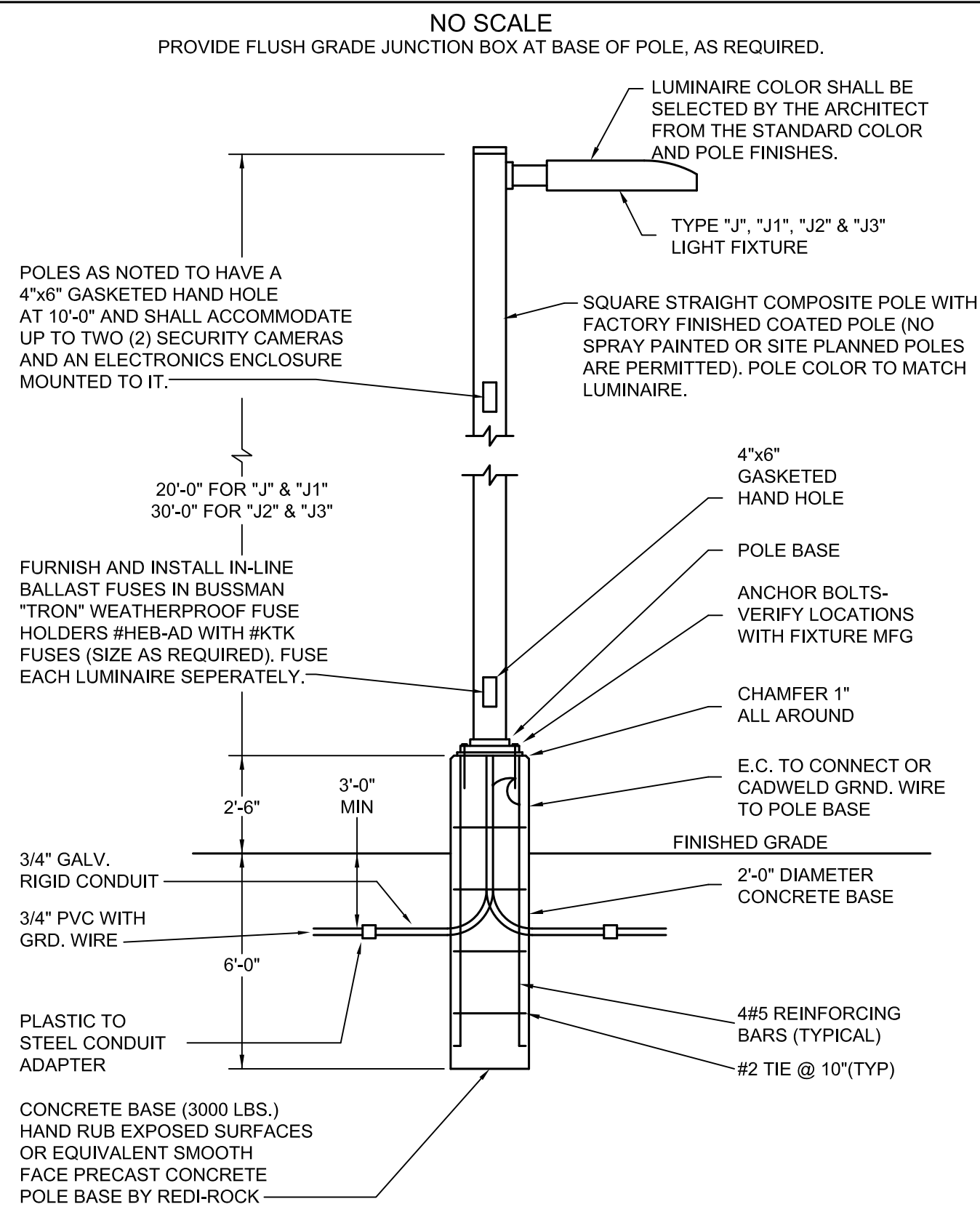
ELECTRICAL RISER DIAGRAM - RAIL YARD



1. PROPOSED FLUSH-GRADE JUNCTION BOX IN UNPAVED AREAS SHALL BE STANDARD JUNCTION BOX QUAZITE #PT1730A18, 17"x30" POLYMER CONCRETE BOX WITH OPEN BOTTOM, UL-LISTED, TIER-8 APPLICATION, AND STANDARD GREY FINISH AND #PT1730CA012 STANDARD COVER WITH "COMMUNICATIONS" LABEL, OR #PT1730CA012 STANDARD COVER WITH "ELECTRIC" LABEL. JUNCTION BOX SHALL BE PROVIDED WHERE NECESSARY, FOR EASE OF CONDUIT PULLING, TO LIMIT THE NUMBER OF CONDUIT BENDS TO LESS THAN 360°, ETC. JUNCTION BOXES SHALL BE PLACED IN UNPAVED AREAS AND INSIDE THE FENCED AREA. PROVIDE TIER-22 COVERS FOR GRAVEL AREAS.
2. ALL SITE COMMUNICATIONS CONDUITS SHALL BE PROVIDED WITH 48" SWEEPS.

1. **AUTOMATIC ON:** LUMINAIRES TO TURN ON VIA INTEGRATED PHOTOCELLS WHEN NATURAL LIGHT LEVELS DROP BELOW A PRE-PROGRAMMED LEVEL..
2. **PARTIAL OFF:** LUMINAIRES TO REDUCE TO 50% OUTPUT VIA INTEGRATED MOTION DETECTORS AFTER THIRTY (30) MINUTES OF INACTIVITY.
3. **AUTOMATIC FULL OFF:** LUMINAIRES TO TURN OFF VIA INTEGRATED PHOTOCELLS WHEN NATURAL LIGHT LEVELS EXCEED A PRE-PROGRAMMED LEVEL.

TYPE "J", "J1", "J2" & "J3" LIGHT FIXTURE & CONCRETE BASE DETAIL



ELECTRICAL EQUIPMENT & GENERATOR CONCRETE PAD DETAILS

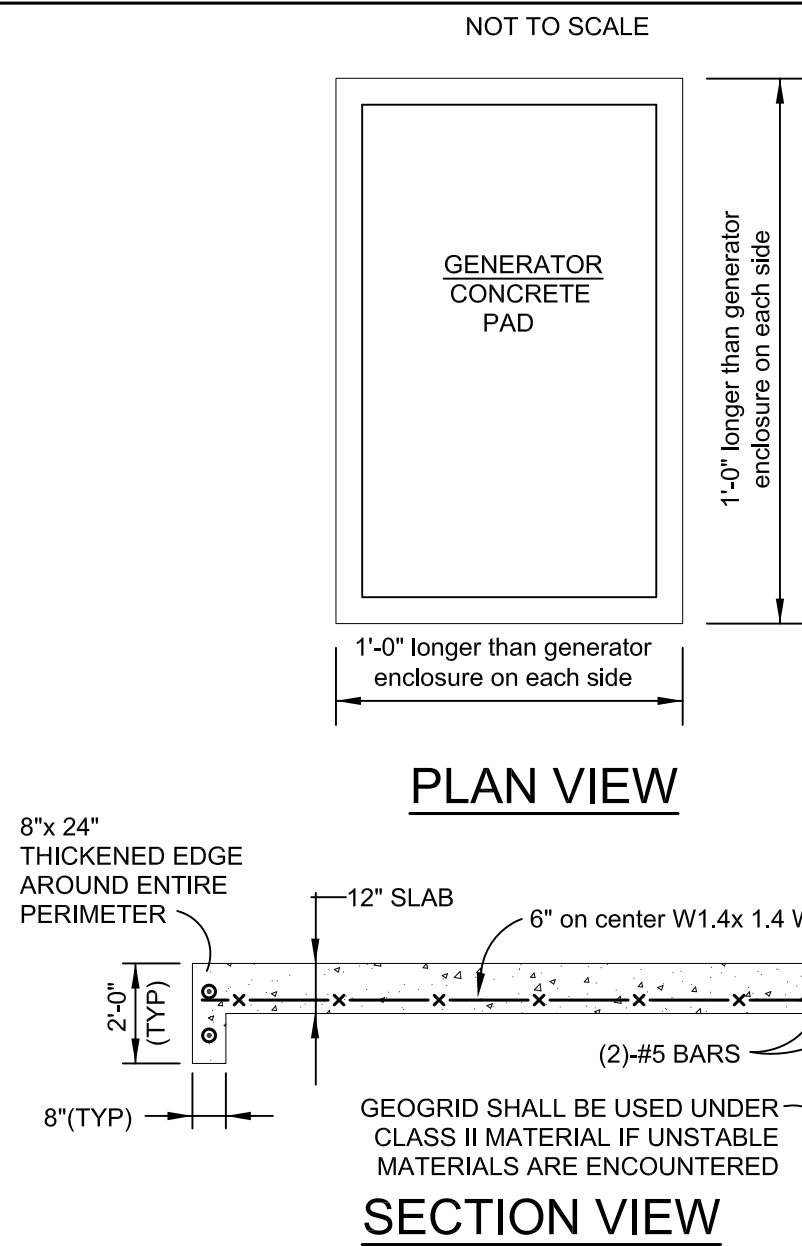
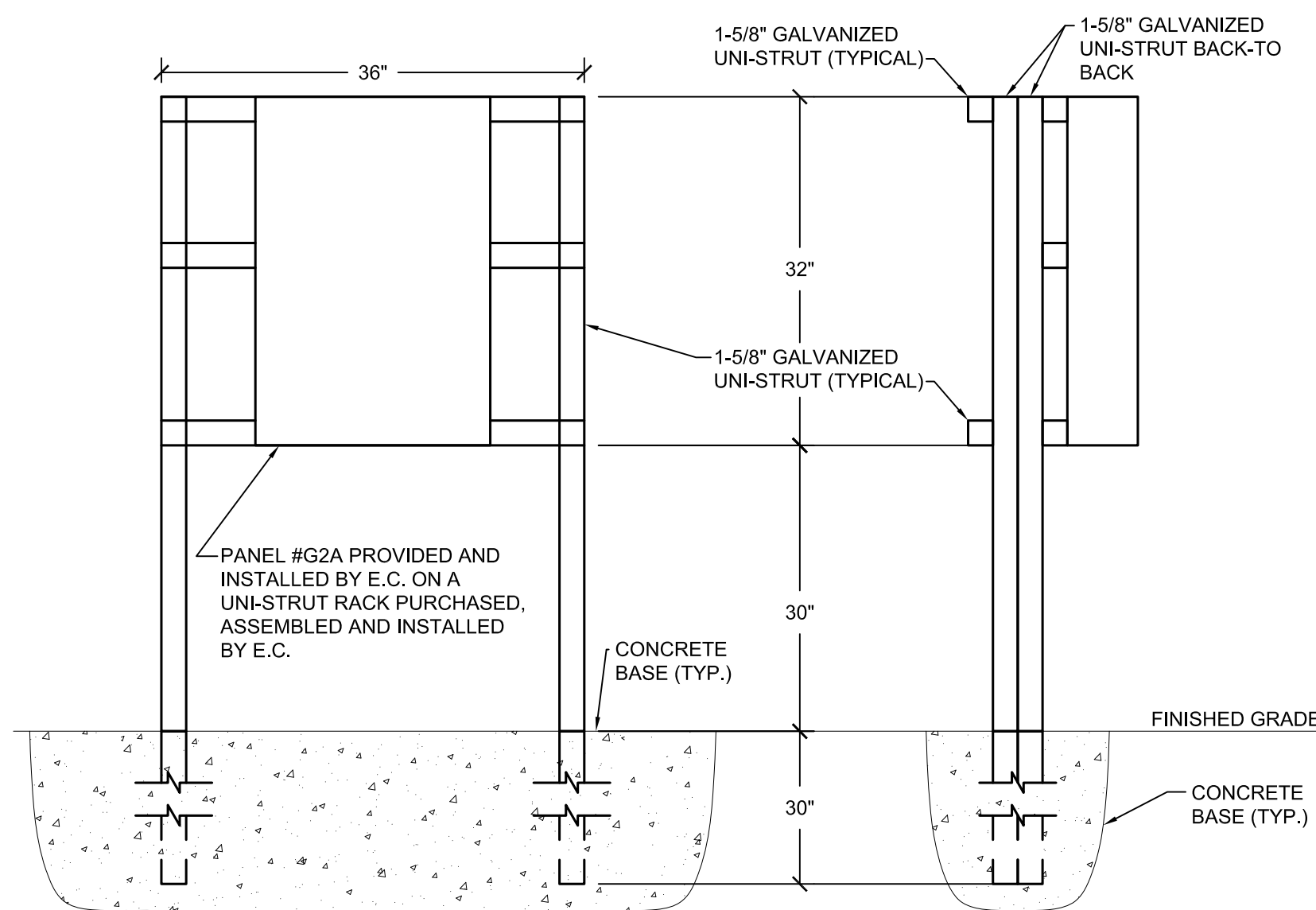


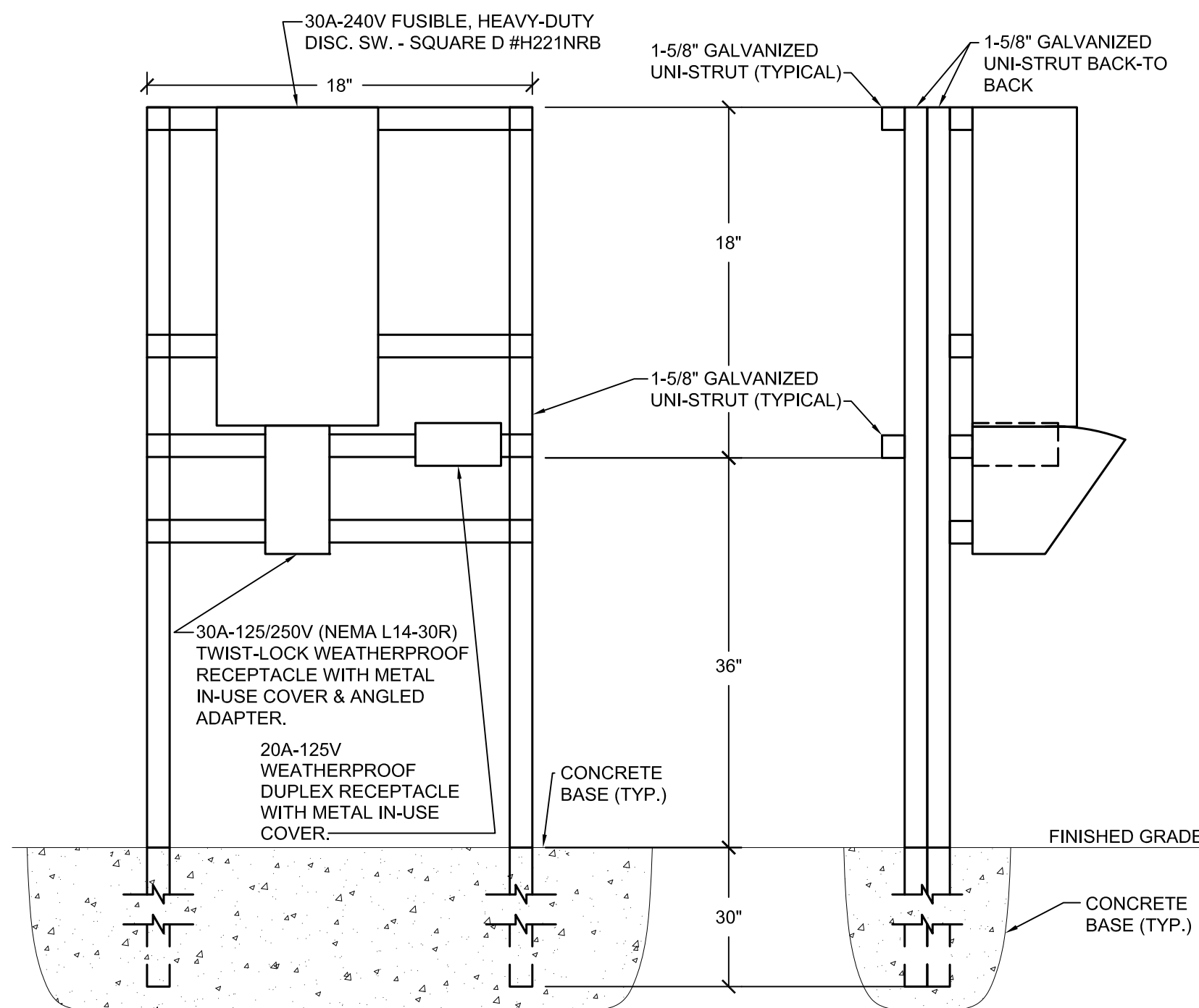
Diagram illustrating the elevation of a meter cabinet structure, showing dimensions and components:

- Top Section:**
 - Overall width: 48"
 - Height: 48"
 - Components: 1-5/8" GALVANIZED UNI-STRUT (TYPICAL) and 1-5/8" GALVANIZED UNI-STRUT BACK-TO-BACK.
- Middle Section:**
 - Height: 24"
 - Component: 1-5/8" GALVANIZED UNI-STRUT (TYPICAL).
- Bottom Section:**
 - Height: 30"
 - Component: CONCRETE BASE (TYP.)
- Notes:**
 - NEW CT CABINET PROVIDED BY UTILITY AND INSTALLED BY E.C. ON A UNISTRUT RACK PURCHASED, ASSEMBLED AND INSTALLED BY E.C. CONFIRM DIMENSIONS OF RACK WITH UTILITY.
 - FINISHED GRADE
 - CONCRETE BASE (TYP.)

PANEL#G2A DETAIL



RECEPTACLE & DISCONNECT SWITCH DETAIL



NOTES:

1. CAUTION !!!!!!!

E.C. SHALL VERIFY ALL ROUGH-IN ELEVATIONS, LOCATIONS AND/OR HEIGHTS OF ALL LIGHT FIXTURES, RECEPTACLE OUTLETS, T.V., COMPUTER, CLOCK OUTLETS, ETC. WITH ARCHITECT/ENGINEER. FAILURE TO DO SO WILL REQUIRE E.C. TO RELOCATE RESPECTIVE ITEMS AT THE E.C.'S EXPENSE.

COMMUNICATION OUTLET LOCATIONS SHALL BE COORDINATED WITH OWNER AND OWNER FURNITURE PLAN.

2. FEEDS TO NEW POWER, LIGHTING, LOW VOLTAGE AND FIRE ALARM DEVICES SHALL BE ATTEMPTED IN EVERY WAY TO BE INSTALLED FLUSH-MOUNT (RECESSED BEHIND THE WALL/CEILING SURFACE).

THERE SHALL BE NO EXPOSED CONDUITS AND BOXES, EXCEPT IN MECH. ROOMS, AND IN THE EQUIPMENT STORAGE #101 & #102 AS NOTED IN NOTE #9 BELOW.

3. PROVIDE KEVLAR PULL STRINGS IN ALL SPARE CONDUITS.

4. E.C. SHALL COORDINATE FEEDER ROUTING WITH PLUMBING, MECHANICAL AND LOW VOLTAGE CONTRACTORS.

5. ANY NEW CONDUIT PENETRATIONS THROUGH WALLS SHALL BE APPROPRIATELY FIRE-STOPPED, SMOKE-STOPPED OR CAULKED WHEN PENETRATION SIZE EXCEEDS CONDUIT SIZE OR AS WORK SCOPES NOTE.

6. COORDINATE LOCATION OF SLEEVES ABOVE THE CEILING FOR DATA, TELEPHONE/PAGING, TELEVISION, SECURITY, AND CLOCK SYSTEMS WITH THE OWNER.

7. COORDINATE CONDUIT SLEEVES WITHIN THE WALLS FOR DATA, TELEPHONE/PAGING, TELEVISION, SECURITY, AND CLOCK SYSTEMS WITH THE OWNER. IN MECHANICAL ROOM #109, THE CONDUIT STUBS FOR LOW VOLTAGE OUTLETS, WIRELESS ACCESS POINTS, TELEVISION OUTLETS, CARD READER OUTLETS, ELECTRIC STRIKES AND CAMERA OUTLETS IF FED FROM UNDERGROUND SHALL EXTEND TO 36" AFF (PVC IS ACCEPTABLE), AND IF FED FROM ABOVE THE CEILING SHALL EXTEND TO NO LOWER THAN 7'-6" AFF (EMT IS ACCEPTABLE). ALL STUBS SHALL HAVE PULL STRINGS, BUSHINGS ON THE ENDS, & BE PROPERLY SUPPORTED.

8. EQUIPMENT STORAGE GAS DETECTION SYSTEMS: COORDINATE WITH M.C. TO CONTROL THE EQUIPMENT STORAGE EXHAUST FANS AND LOUVERS WITH THE GAS DETECTION CONTROLLERS, THE HUMIDISTAT, OR THE MANUAL TIMER SWITCH AS SHOWN.

9. EQUIPMENT STORAGE #101 & #102 NOTES:

A. THE AREAS ARE CONSIDERED 'MINOR REPAIR GARAGES' PER ARTICLE 511 OF THE 2017 NEC AND ARE THEREFORE UNCLASSIFIED.

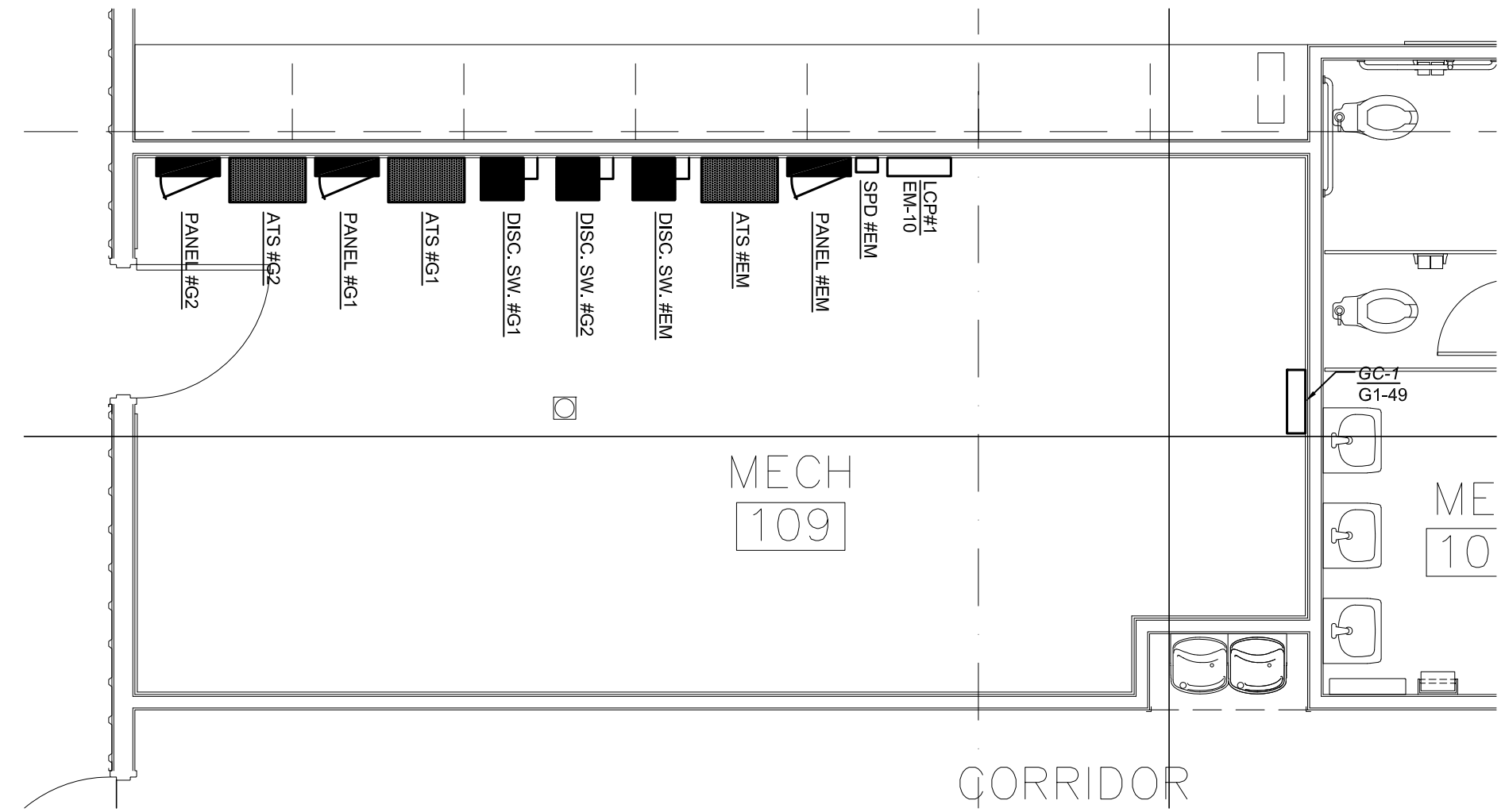
B. HOWEVER, ALL ELECTRICAL DEVICES AND EQUIPMENT SHALL BE LOCATED AND INSTALLED ABOVE 18" AFF.

C. ALL CONDUIT FEEDS TO ELECTRICAL EQUIPMENT AND DEVICES MAY BE FROM ABOVE OR FROM UNDERGROUND. IF THE CONDUIT FEEDS ARE FROM ABOVE THE CONDUITS MAY BE SURFACE MOUNTED. IF THE CONDUIT FEEDS ARE FROM UNDERGROUND THE CONDUITS SHALL BE RECESSED WITHIN THE WALL CAVITY. IN EITHER INSTALLATION METHOD THE DEVICES SHALL BE SURFACE MOUNTED AND COORDINATED WITH THE CORRUGATED METAL WALL PANELS.

D. THE LOCATION OF THE OVERHEAD DOOR MOTOR CONTROLS AND POWER CONNECTION LOCATIONS SHALL BE COORDINATED WITH THE DOOR SUPPLIER/INSTALLER.

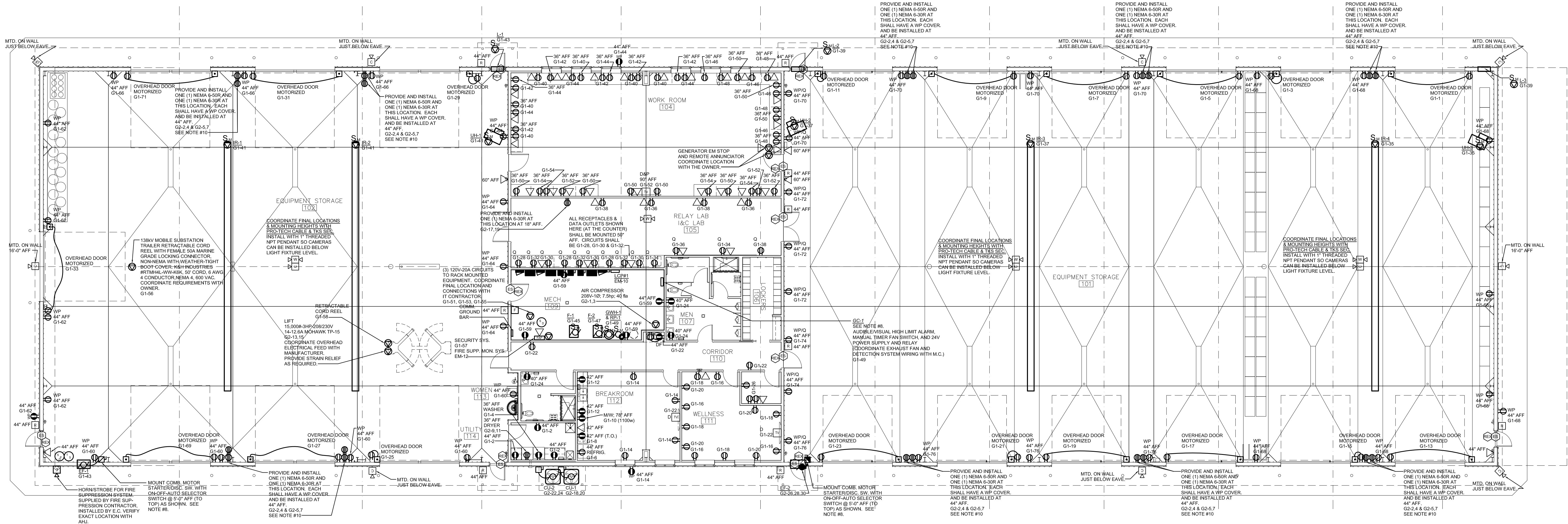
E. ALL CONDUIT, BOXES AND EQUIPMENT INSTALLED ABOVE THE VEHICLE LIFT AREAS SHALL BE HELD TIGHT TO THE CEILING DECK.

10. WHEN INSTALLING THE WELDER AND PRESSURE WASHER RECEPTACLES; PLACE THE GROUND PRONG DOWN ON THE WELDER RECEPTACLES, AND THE GROUND PRONG UP ON THE PRESSURE WASHER RECEPTACLES.



ENLARGED MECHANICAL ROOM
ELECTRICAL POWER FLOOR PLAN

SCALE: 1" = 1/4"=0"



ELECTRICAL POWER FLOOR PLAN

SCALE: 1" = 1/4"=0"

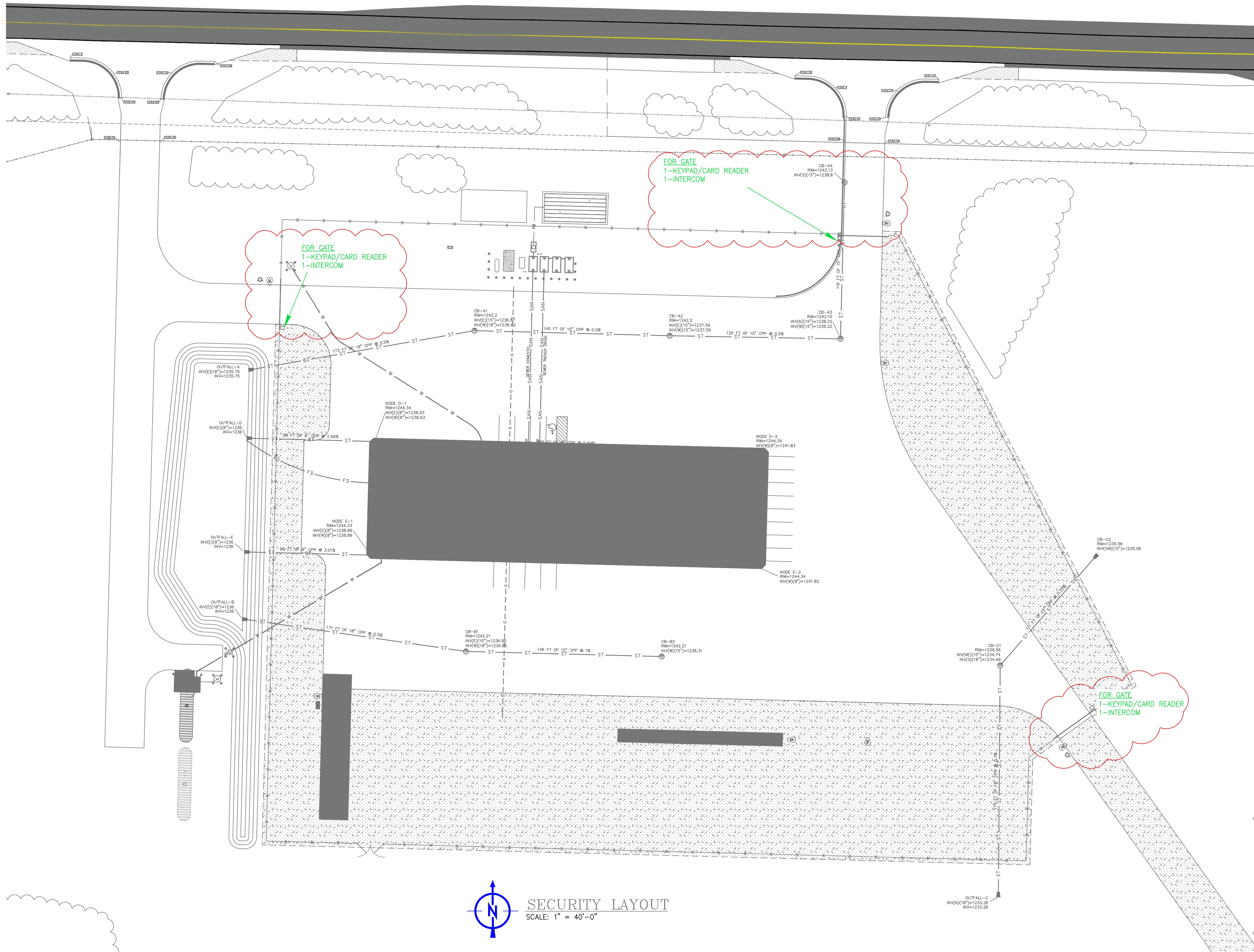


VIDEO SYSTEM		WIRE PART #	WIRE DESC.	FOOTAGE
	CAMERA			
	PANORAMIC/MULTI-LENS CAMERA			
	NETWORK VIDEO RECORDER			
	ARCHIVER			
	NETWORK SWITCH			
ACCESS CONTROL (PACS)				
	ACCESS CONTROL PANEL			
	KEYPAD ONLY			
	KEYPAD/CARD READER			
	CARD READER			
	DOOR CONTACT/POSITION SWITCH			
	REQUEST-TO-EXIT PIR			
	ELECTRONIC STRIKE			
INTRUSION/ALARM SYSTEM				
	BURGLAR ALARM PANEL			
	KEYPAD			
	DOOR CONTACT/POSITION SWITCH			
	MOTION DETECTOR - 360			
	HOLD-UP BUTTON			
	GLASSBREAK DETECTOR			

NOTES

EACH CAMERA REQUIRES FIBER FROM THE MDF TO THE CAMERA LOCATION. 110 VOLT AC POWER REQUIRED AT THE CAMERA POLE, TO BE COORDINATED WITH THE ELECTRICIAN.

CHANGES MADE ON 02/19/21
-REMOVED CAMERAS AND TEXT INDICATING CAMERA AT FACE LEVEL.



SECURITY LAYOUT
SCALE: 1" = 40'-0"

REVISIONS													
	B	ISSUED FOR CONSTRUCTION		02/19/21	EASTLING	BYRNES							
	A	ISSUED FOR INTERNAL REVIEW		02/01/21	EASTLING	BYRNES							
	REV		DESCRIPTION	DATE	DRAWN	CHECKED	REV		DESCRIPTION		DATE	DRAWN	CHECKED

TKS Security
(888) 595-1115 - phone
(888) 502-1651 - fax
www.gotks.com
MI Alarm License# 3601206063
MI Fire Alarm License # 5103347
MI BFS Certification # A-1158

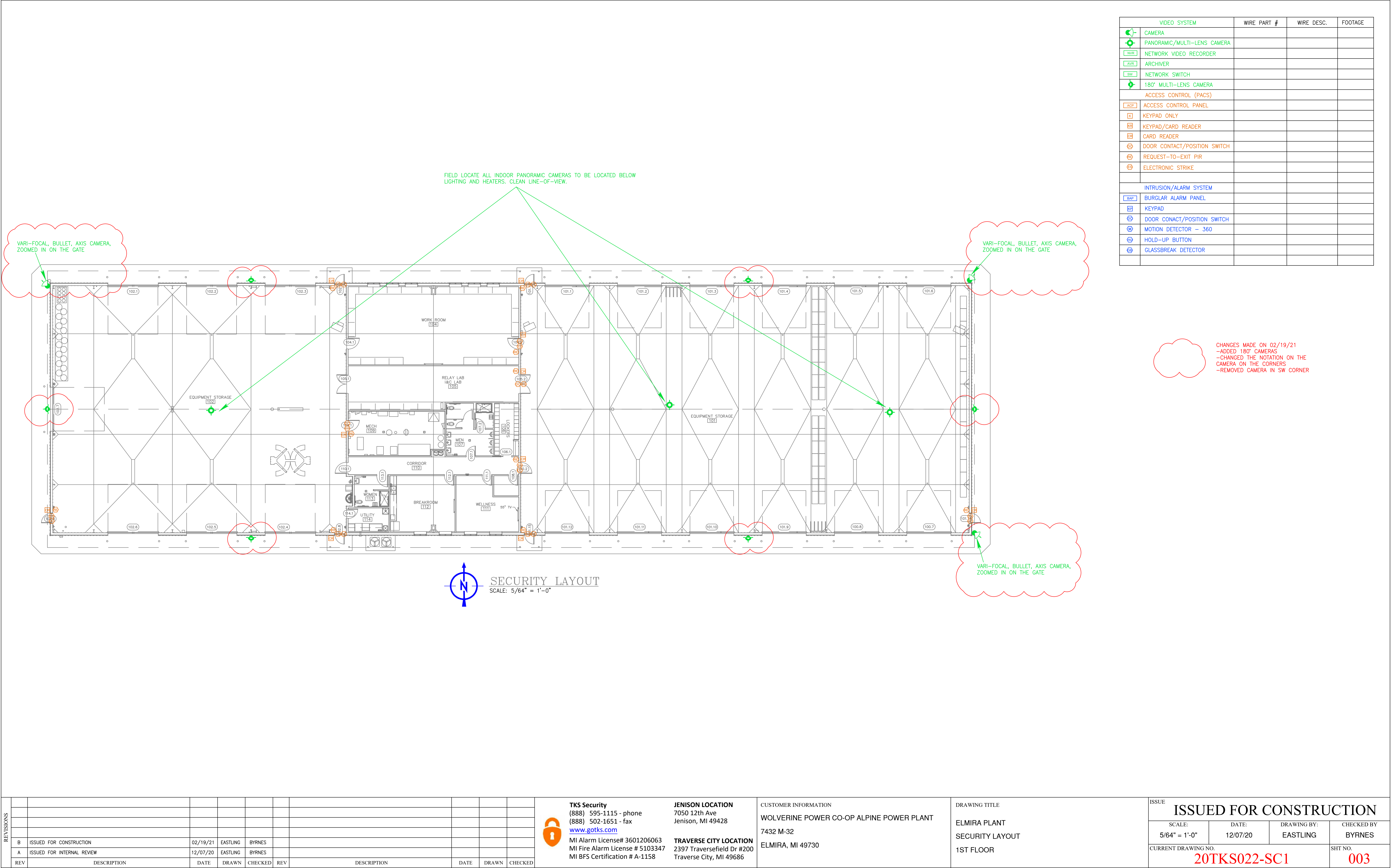
JENISON LOCATION
7050 12th Ave
Jenison, MI 49428

TRAVERSE CITY LOCATION
2397 Traversefield Dr #200
Traverse City, MI 49686

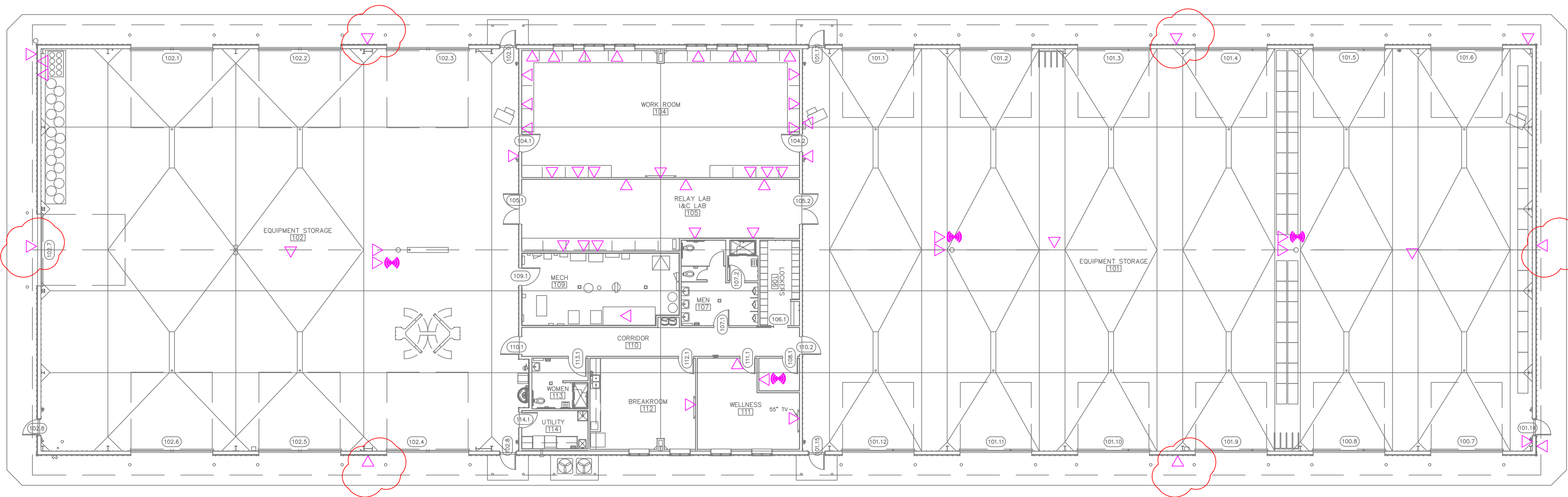
CUSTOMER INFORMATION
WOLVERINE POWER CO-OP ALPINE POWER PLANT
7432 M-32
ELMIRA, MI 49730

DRAWING TITLE
ELMIRA PLANT
SECURITY LAYOUT
SITE PLAN

ISSUE			
ISSUED FOR CONSTRUCTION			
SCALE: 1" = 40'-0"	DATE: 02/01/21	DRAWING BY: EASTLING	CHECKED BY: BYRNES
CURRENT DRAWING NO. 20TKS022-SC1			SHT NO. 001



DATA/PHONE SYSTEM		WIRE PART #	WIRE DESC.	FOOTAGE
▽	DUEL CAT6 DATA DROP			
⚡	DUAL CAT6 ACCESS POINT (WAP)			



CHANGES MADE IN 02/19/21
-ADDED DATA DROPS FOR THE NEW 180°
CAMERAS
-REMOVED DATA DROP IN SW CORNER



REVISIONS									
	B	ISSUED FOR CONSTRUCTION	02/19/21	EASTLING	BYRNES				
	A	ISSUED FOR INTERNAL REVIEW	01/04/20	EASTLING	BYRNES				
REV		DESCRIPTION	DATE	DRAWN	CHECKED	REV		DESCRIPTION	DATE



TKS Security
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(888) 502-1651 - fax
www.gotks.com
MI Alarm License# 3601206063
MI Fire Alarm License # 5103347
MI BFS Certification # A-1158

JENISON LOCATION
7050 12th Ave
Jenison, MI 49428

TRAVERSE CITY LOCATION
2397 Traversefield Dr #200
Traverse City, MI 49686

CUSTOMER INFORMATION

WOLVERINE POWER CO-OP ALPINE POWER PLANT
7432 M-32
ELMIRA, MI 49730

DRAWING TITLE

ELMIRA PLANT
DATA LAYOUT
1ST FLOOR

ISSUE ISSUED FOR CONSTRUCTION			
SCALE: 5/64" = 1'-0"	DATE: 01/04/20	DRAWING BY: EASTLING	CHECKED BY: BYRNES
CURRENT DRAWING NO. 20TKS022-SC1			SHT NO. 004