FIRE PUMP VOLTAGE DROP CALCS:

FIRE PUMP: 25HP, 480V, 3Ø
FIRE PUMP FULL LOAD AMPS (FLA): 34.0 (AT 480 VOLTS) (TABLE 430.250)
FIRE PUMP LOCKED ROTOR AMPS (LRA): 183 (AT 480 VOLTS) (TABLE 430.251(B))

DISTANCE FROM TRANSFORMER TO CONTROLLER: ±225'
DISTANCE FROM CONTROLLER TO PUMP: ±15'

SERVICE CONDUCTOR SIZE: #4 CU RHH (41740 CIRCULAR MILS)
(2 HOUR RATED EMERGENCY POWER CABLE)

VOLTAGE DROP (VD) = 1.732 x K x I x D / CM
K = DIRECT CURRENT CONSTANT (12.9 OHMS FOR COPPER)
I = AMPERES
D = DISTANCE TO LOAD
CM = CIRCULAR MILS OF THE CIRCUIT CONDUCTOR

AT THE CONTROLLER DURING STARTING: VD = 1.732 x 12.9 x 183 x 225 /41740

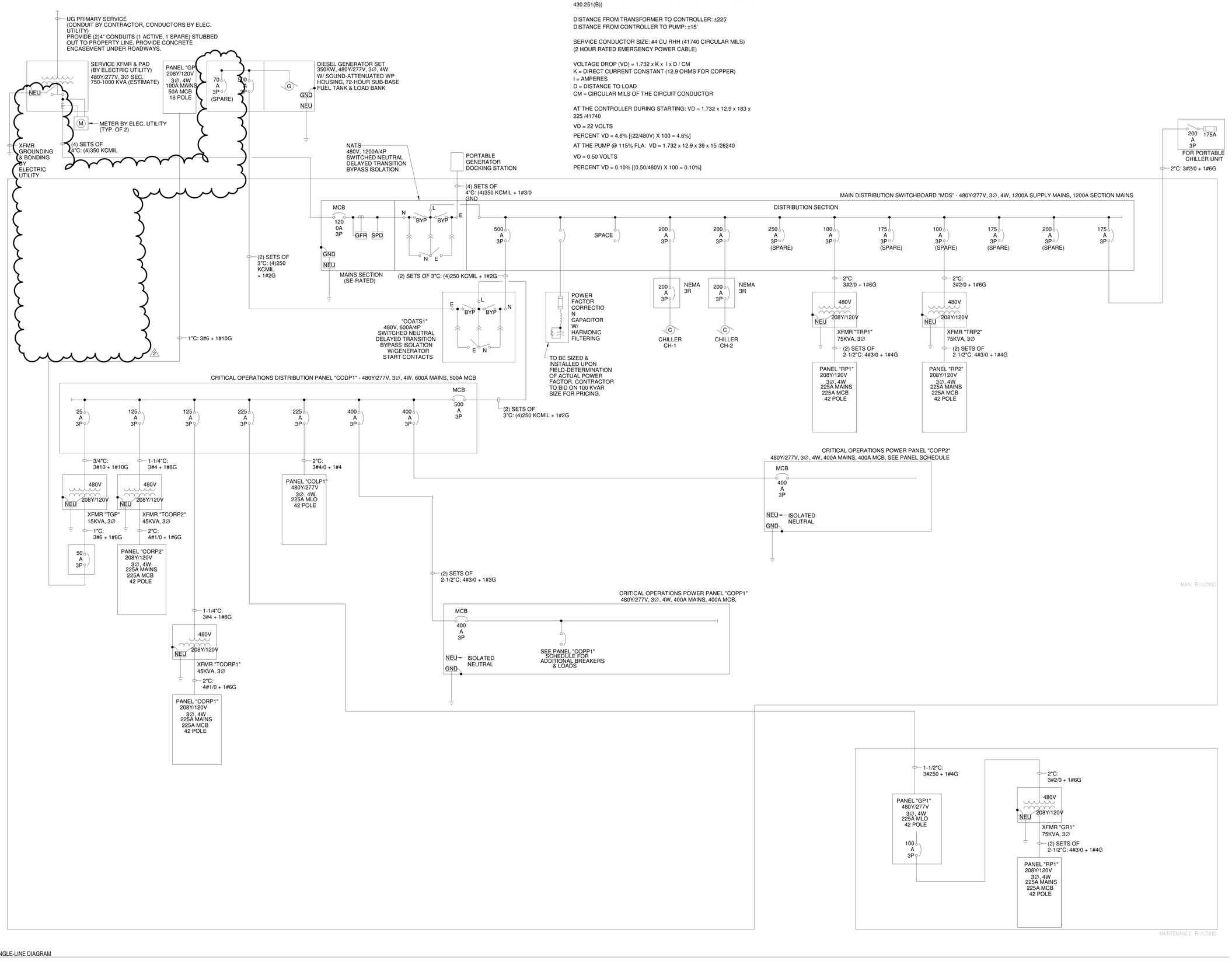
VD = 22 VOLTS

PERCENT VD = 4.6% [(22/480V) X 100 = 4.6%]

AT THE PUMP @ 115% FLA: VD = 1.732 x 12.9 x 39 x 15 /26240

VD = 0.50 VOLTS

PERCENT VD = 0.10% [(0.50/480V) X 100 = 0.10%]



1 E500 ELECTRICAL - SINGLE-LINE DIAGRAM
12" = 1'-0"

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PROJECT TITLE

MILFORD POLICE DEPARTMENT

401 NE FRONT STREET
CITY OF MILFORD
KENT COUNTY, DE

SHEET TITLE

ELECTRICAL - SINGLE LINE DIAGRAM

8' 4' 0' 8'
SCALE : 1/8" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
2	09.19.2022	FIELD BULLETIN #1
	05.04.2022	Conformed Set
1	03.10.2022	Addendum #3
0	02.18.2022	Issued for Bid

PROJECT NO: 19P077
DATE: 02/21/22
SCALE: 12" = 1'-0"
DRAWN BY Author | PROJ MG Checker

E500

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