

VIKING BUILDING WAREHOUSE EXPANSION

FIRE ALARM SYSTEM

PUYALLUP, WASHINGTON

SHEET NUMBER	SHEET TITLE
FA-01	SYSTEM INFORMATION
FA-02A	REMOTE BOOSTER POWER SUPPLIES MOUNTING DETAIL
FA-02B	TYPICAL WIRING AND MOUNTING DETAILS
FA-03A	SYSTEM CALCULATIONS
FA-03B	SYSTEM CALCULATIONS
FA-04	FLOOR PLAN – WEST – FIRE ALARM
FA-05	FLOOR PLAN – EAST – FIRE ALARM VIKING BUILDING WAREHOUSE EXPANSION FIRE ALARM PLAN
FA-06	ENLARGED MAIN OFFICE & FIRE PUMP/SHIPPING ROOMS FLOOR PLANS – FIRE ALARM
FA-07	SINGLE LINE DIAGRAM

SHEET INDEX

SHEETS AFFECTED/ADDED ON
WAREHOUSE EXPANSION

ADDITION OF 3 NEW REMOTE BOOSTER POWER SUPPLIES, 106 NEW
CEILING MOUNT NAC DEVICES & 3 MONITOR MODULES TO AN EXISTING
FIRE ALARM SYSTEM FOR THIS WAREHOUSE EXPANSION

SCOPE OF WORK

WIRE SCHEDULE AND CONDUIT FILL CHART

WIRE DESIGNATION					
SYMBOL	DESCRIPTION	NUMBER OF CONDUCTORS	SIZE	TYPE	COLOR CODE
D	DATA LINE – ADDRESSABLE LOOP	TWISTED PAIR WITH SHIELD	#16	FPLP	RED (JACKET)
S	STROBE CIRCUIT	TWO	#14	FPLP	RED (JACKET)
T	POWER SUPPLY TRIGGER	TWO	#16	FPLP	RED (JACKET)
I	INITIATION CIRCUIT	TWO	#16	FPLP	RED (JACKET)
P	24VDC POWER	TWO	#14	FPLP	RED (JACKET)

CONDUIT FILL CHART					
NO. OF CONDUCTORS	VOLTS	WIRE SIZE	TYPE	DIMENSIONS	AREA
TWO	600V	#12 AWG	THHN/THWN	.244 O.D.	.0467
TWO	600V	#14 AWG	THHN/THWN TWISTED	.210 O.D.	.0346
TWO CONDUCTOR	300V	#18 AWG	FPL TW CABLE	.156 O.D.	.0191

CONDUIT FILL
CALCULATE THE TOTAL AREA OF THE WIRE BEING RUN IN THE CONDUIT FROM THE TABLE ABOVE. CHOOSE THE SIZE OF CONDUIT BASED ON THE MAXIMUM FILL DIMENSION FROM THE TABLE BELOW THAT DOES NOT EXCEED THE TOTAL AREA OF THE WIRE.

CONDUIT SIZE	MAXIMUM FILL
1/2"	.12 SQUARE INCH
3/4"	.21 SQUARE INCH
1"	.34 SQUARE INCH
1-1/4"	.60 SQUARE INCH
1-1/2"	.82 SQUARE INCH
2"	1.34 SQUARE INCH

FIGURES ARE BASED ON 40% CONDUIT FILL AND ARE TAKEN FROM N.E.C., CHP. 9, TABLE 4.

SHIELDED WIRE TO BE GROUNDED AT POINT OF ORIGIN PUNCHED
THROUGH EACH DEVICE WRAPPED WITH TAPE AND TAPED AT END

WIRE DESIGNATION

FOR SIEMENS SYSTEM:

DO NOT INSTALL ADDRESSABLE INITIATING DEVICES UNTIL PREPROGRAMMED
WITH DEVICES ADDRESS.

- NUMBERS ADJACENT TO DEVICE SYMBOL DENOTE DEVICE CIRCUIT/ADDRESS
DEVICE 1-02 WOULD BE THE SECOND DEVICE ON ADDRESSABLE LOOP 1.
- DETECTOR AND AUDIBLE CIRCUIT POLARITY SHALL BE OBSERVED.
- AUDIBLE/VISUAL CIRCUIT WIRING IS SUPERVISED. NO PARALLEL
BRANCHING IS PERMISSIBLE
- INSTALLATION SHALL BE IN STRICT CONFORMANCE WITH THE NATIONAL
ELECTRIC CODE, NFPA 72, LOCAL CODE(S), AND/OR AUTHORITY HAVING JURISDICTION.
- INSTALLATION MATERIALS (I.E. CONDUIT, WIRE, FITTINGS, HANGERS,
STANDARD BOXES, FIBER OPTICS CABLE, FITTINGS, AND ASSOCIATED EQUIPMENT)
ARE NOT SUPPLIED BY SIEMENS CERBERUS DIVISION.
- DETECTORS SHALL NOT BE MOUNTED IN DIRECT
AIR STREAM OF AIR SUPPLY OUTLETS. PER NFPA 72 2-3.5.1
- WIRING SHALL BE PER PLAN WITH RESPECT TO CONDUCTOR SIZE, & OR CABLE TRAY,
TYPE, QUANTITY AND COLOR CODE. CONDUCTORS SHALL BE PERMANENTLY,
AND UNIQUELY MARKED FOR FUTURE IDENTIFICATION.
- INSTALLING CONTRACTOR SHALL RETURN ONE SET OF ACCURATELY MARKED
DRAWINGS FOR "AS BUILT" PURPOSES.
- FOR ADDITIONAL INSTALLATION INSTRUCTIONS, REFER TO CATALOG CUT
SHEETS AND/OR INSTALLATION INSTRUCTIONS.
- THE 120vac POWER ELECTRICAL WORK SUPPLYING FIRE ALARM SYSTEM PANELS
MUST COMPLY WITH ARTICLE 725 AND 760 OF NFPA 70, N.E.C. AND NFPA 72,
SPECIFICALLY SECTION 1-5.2.5.2. IN REFERENCE TO DEDICATED BRANCH POWER
SOURCES, 120vac POWER SHALL NOT BE APPLIED TO FIRE ALARM PANEL WITHOUT
DIRECT SUPERVISION OF FIRE ALARM TECHNICIAN.
- ALL HORN/STROBE AND STROBE DEVICES SHALL BE MOUNTED AT A HEIGHT
OF 80" A.F.F. OR 6" BELOW DROPPED CEILING, WHICHEVER IS LESS.
- ALL MANUAL PULL STATIONS SHALL BE MOUNTED AT 48" A.F.F. TO THE
ACTIVATION DEVICE.
- ALL PANEL NUMBERS AND CIRCUITS WILL BE ON THE RECORD DRAWINGS SET.
- ALL 120VAC CIRCUITS ARE FROM DEDICATED CIRCUITS FROM THE EMERGENCY
GENERATOR.
- PER NFPA 72 SECTION 5-3.6.1.3 DETECTORS SHALL NOT BE INSTALLED UNTIL AFTER
THE CONSTRUCTION CLEAN-UP OF ALL TRADES IS COMPLETE AND FINAL.
EXCEPTION: WHERE REQUIRED BY THE AUTHORITY HAVING JURISDICTION
FOR PROTECTION DURING CONSTRUCTION.
- DETECTORS THAT HAVE BEEN INSTALLED PRIOR TO FINAL CLEAN-UP BY ALL
TRADES SHALL BE CLEANED OR REPLACED IN ACCORDANCE WITH NFPA 72
CHAPTER 7.
- WIRING SHALL RUN CONTINUOUS FROM FACP TO FIRST DEVICE ON A CIRCUIT
AND THEN FROM DEVICE TO DEVICE WITHOUT SPLICING IN PULL BOXES OR
OTHER BACK BOXES OF DIFFERENT CIRCUITS.
- ALL WIRING SHALL BE METERED, VERIFIED TO BE CONTINUOUS, FREE OF GROUND
AND FREE OF SHORTS BETWEEN CONDUCTORS AND OTHER CIRCUITS PRIOR TO
FINAL EQUIPMENT TRIM.
- ALL CABLES SHALL BE MARKED AS INDICATED ON FIRE ALARM RISER WITH A
PERMANENT LABEL AT ALL DEVICES, JUNCTION BOXES AND FACP.
- THE ELECTRICAL CONTRACTOR SHALL CLEAN ALL DIRT AND DEBRIS FROM THE
OUTSIDE AND INSIDE OF THE FIRE ALARM BACK BOXES AND JUNCTION BOXES
AFTER COMPLETION OF THEIR INSTALLATION.
- DETECTORS MUST BE RATED FOR TEMPERATURE IN THE ENVIRONMENT IN WHICH
IT IS LOCATED.
- ALL WIRING BETWEEN FLOORS SHALL BE LOCATED IN CONDUIT.

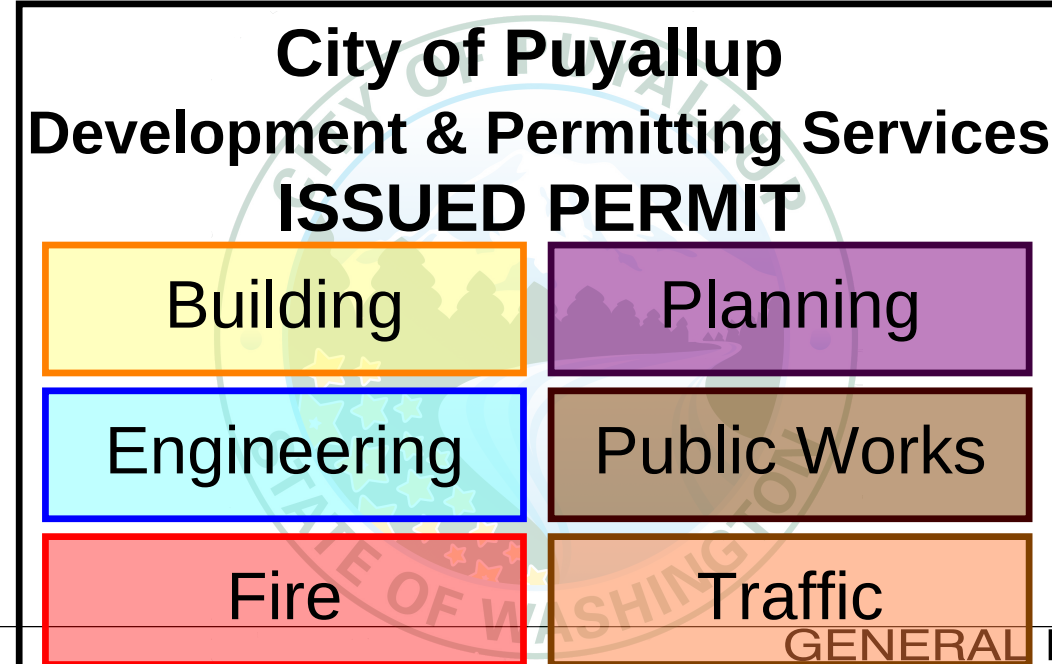
City of Puyallup
Fire
REVIEWED
FOR
COMPLIANCE

D.Drake
05/02/2022
8:39:04 AM



Approval of submitted plans is not an
approval of omissions or oversight by this
office or noncompliance with any
applicable regulations of local government.
The contractor is responsible for making
sure that the building complies with all
applicable building codes and regulations of
the local government.

THE APPROVED CONSTRUCTION
PLANS AND ALL ENGINEERING
MUST BE POSTED ON THE JOB AT
ALL INSPECTIONS IN A VISIBLE AND
READILY ACCESSIBLE LOCATION.



RONALD MANSFIELD JR.
NICET LEVEL IV
CERT. #111878 EXP. 09/01/2022

GENERAL NOTES

QUANTITY	SYMBOL	DESCRIPTION	MODEL	MANUFACTURER	BACKBOX	MOUNTING HEIGHT
3		REMOTE BOOSTER POWER SUPPLY	PAD4-9A	SIEMENS	PAD-5-ENCL	WALL MOUNT SEE MOUNTING DETAILS ON SHEET FA-02B
3		ADDRESSABLE SINGLE INPUT MODULE	HTRI-S	SIEMENS	4S BOX	VERIFY LOCATION IN FIELD
6		FIRE ALARM HORN STROBE (HI-CANDELA)	ZH-HMC-CR	SIEMENS	4S BOX	CEILING
34		FIRE ALARM HORN STROBE	ZH-HMC-CR	SIEMENS	4S BOX	CEILING
6		FIRE ALARM STROBE (HI-CANDELA)	ZR-HMC-CR	SIEMENS	4S BOX	CEILING
35		FIRE ALARM STROBE	ZR-MC-CR	SIEMENS	4S BOX	CEILING

VIKING BUILDING WAREHOUSE EXPANSION NEW DEVICE SYMBOLS / LEGEND

QUANTITY	SYMBOL	DESCRIPTION	MODEL	MANUFACTURER	BACKBOX	MOUNTING HEIGHT
E		FIRE ALARM CONTROL PANEL (EXISTING)	FC922-UT	SIEMENS	FHK2002-U3	66" A.F.F. TO TOP
(E) 14		REMOTE BOOSTER POWER SUPPLY	PAD4-9A	SIEMENS	PAD-5-ENCL	WALL MOUNT SEE MOUNTING DETAILS ON SHEET FA-02B
(E) 24		SMOKE DETECTOR (ADDRESSABLE-PHOTO)	OOH941 W/ DB-11 BASE	SIEMENS	4S DEEP W/ 1G RING	CEILING
(E) 18		HEAT DETECTOR (ADDRESSABLE)	HI921 W/ DB-11 BASE	SIEMENS	4S DEEP W/ 1G RING	CEILING
(E) 14		ADDRESSABLE SINGLE INPUT MODULE	HTRI-R	SIEMENS	4S BOX	VERIFY LOCATION IN FIELD
(E) 12		ADDRESSABLE RELAY MODULE	HTRI-S	SIEMENS	4S BOX	VERIFY LOCATION IN FIELD
(E) 15		FIRE ALARM HORN STROBE (HI-CANDELA)	ZH-HMC-CR	SIEMENS	4S BOX	CEILING
(E) 177		FIRE ALARM HORN STROBE	ZH-HMC-CR	SIEMENS	4S BOX	CEILING
(E) 8		FIRE ALARM STROBE (HI-CANDELA)	ZR-HMC-CR	SIEMENS	4S BOX	CEILING
(E) 177		FIRE ALARM STROBE	ZR-MC-CR	SIEMENS	4S BOX	CEILING
---		END-OF-LINE RESISTOR				VERIFY LOCATION IN FIELD
F.B.O.		ROOF TOP UNIT HVAC FAN	F.B.O.	F.B.O.	F.B.O.	VERIFY LOCATION ON ROOF
E		REMOTE BOOSTER POWER SUPPLY (EXISTING)	PAD-3	SIEMENS	PAD-3-ENCL	66" A.F.F. TO TOP
E		FIRE ALARM ANNUNCIATOR (EXISTING)	FT-2015	SIEMENS	CSD16126W ENCLOSURE W/ DAH101TS HEATER	WALL MOUNT VERIFY LOCATION IN FIELD
E		SMOKE DETECTOR (ADDRESSABLE-PHOTO)	OOH941 W/ DB-11 BASE	SIEMENS	4S DEEP W/ 1G RING	CEILING
E		MANUAL PULL STATION (ADDRESSABLE) (EXISTING)	HMS-D	SIEMENS	4S DEEP W/ 1G RING	48" A.F.F. TO CENTER
E		ADDRESSABLE DUAL INPUT MODULE (EXISTING)	HTRI-D	SIEMENS	4S BOX	VERIFY LOCATION IN FIELD
E		OPEN-AREA SMOKE IMAGING DETECTION (OSID) IMAGER (EXISTING)	OSI-10	SIEMENS	4S BOX	VERIFY LOCATION IN FIELD
E		OPEN-AREA SMOKE IMAGING DETECTION (OSID) EMITTER (EXISTING)	OSE-SPW	SIEMENS	4S BOX	VERIFY LOCATION IN FIELD
E		FIRE ALARM HORN STROBE (EXISTING)	ZH-MC-W	SIEMENS	4S BOX	80" A.F.F. TO BOTTOM
E		FIRE ALARM STROBE (EXISTING)	ZR-MC-CW	SIEMENS	4S BOX	CEILING
E		FIRE ALARM STROBE (WP-EXISTING)	ST-75-R-WP	SIEMENS	WPSBBS-R	WALL MOUNT LOCATION & HEIGHT AHJ APPROVED
E		FIRE ALARM BELL (WP-EXISTING)	MBDC-10	SIEMENS	WBBS-R	WALL MOUNT LOCATION & HEIGHT AHJ APPROVED
---		A.F.F. ABOVE FINISHED FLOOR	N/A	N/A	N/A	N/A
---	E	EXISTING DEVICE	N/A	N/A	N/A	N/A
---	WP	WEATHERPROOF DEVICE	N/A	N/A	N/A	N/A
---	F.B.O.	FURNISHED BY OTHERS	N/A	N/A	N/A	N/A
---	N/A	NOT APPLICABLE	N/A	N/A	N/A	N/A
---	RED	AS BUILT ADD OR CHANGE	N/A	N/A	N/A	N/A
---	GREEN	AS BUILT REMOVE	N/A	N/A	N/A	N/A
---	BLUE	AS BUILT NOTES TO CAD	N/A	N/A	N/A	N/A

EXISTING DEVICE SYMBOLS / LEGEND

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DATE	REV. BY:	DESCRIPTION
02/07/22	DWG	SHOP DRAWINGS

VIKING BUILDING WAREHOUSE EXPANSION
FIRE ALARM SYSTEM
302 33RD STREET,
PUYALLUP, WASHINGTON 98372

SYSTEM INFORMATION

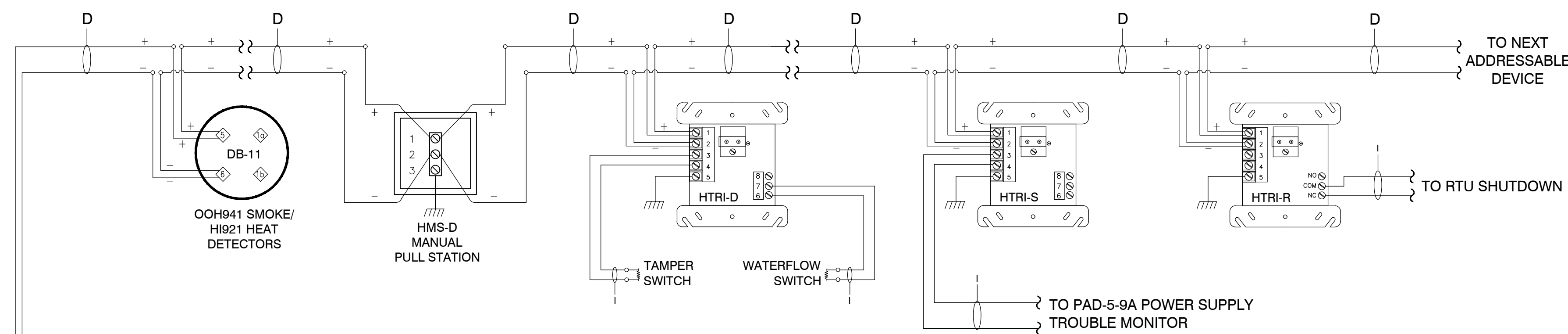
SCALE: AS NOTED
DRAWN BY:
D. GARCIA
DESIGNED BY:
M. WADE
DATE: 02/07/22
BACKGROUND PLAN PROVIDED BY:

JOB NUMBER: 61487-3

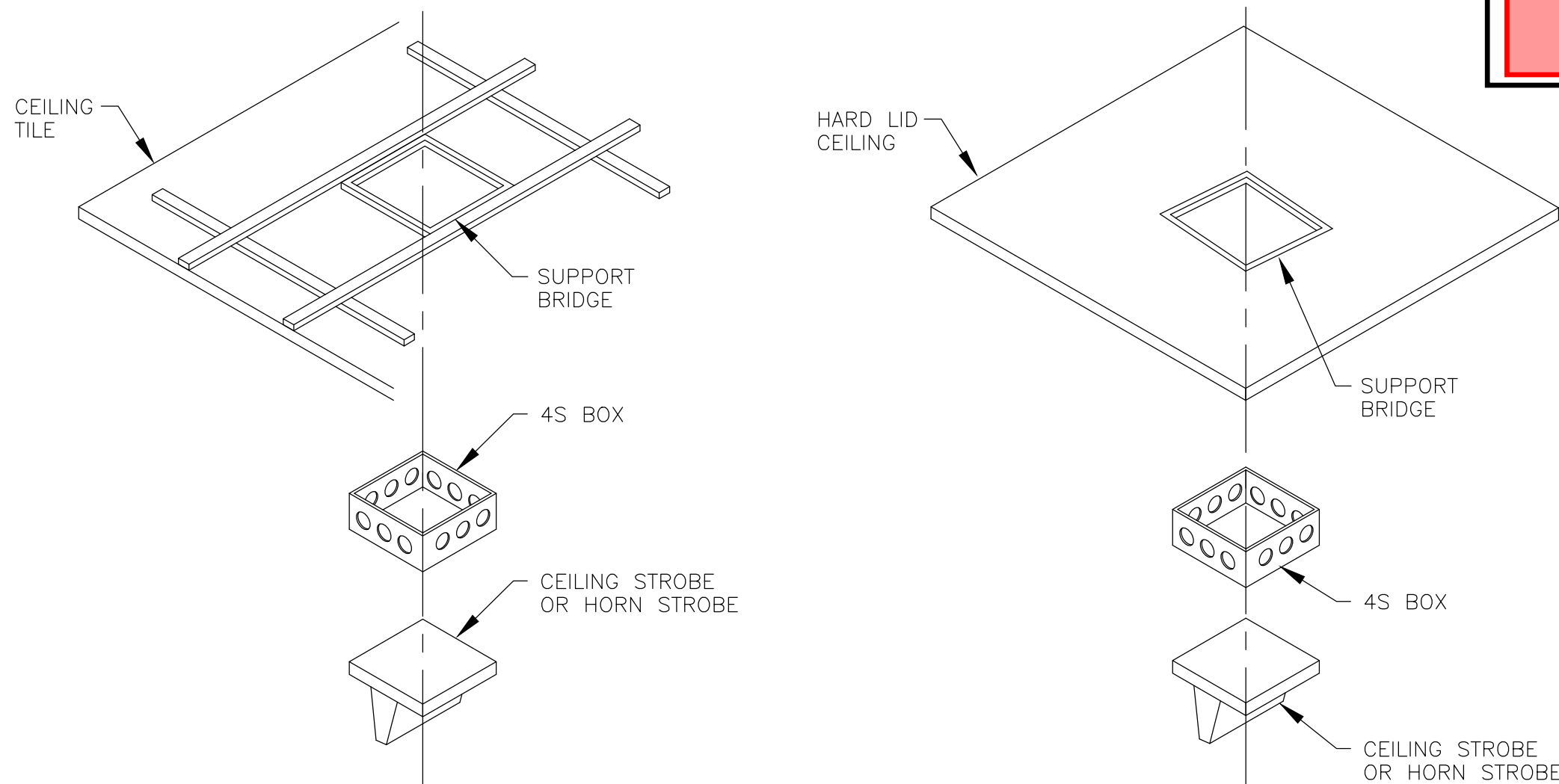
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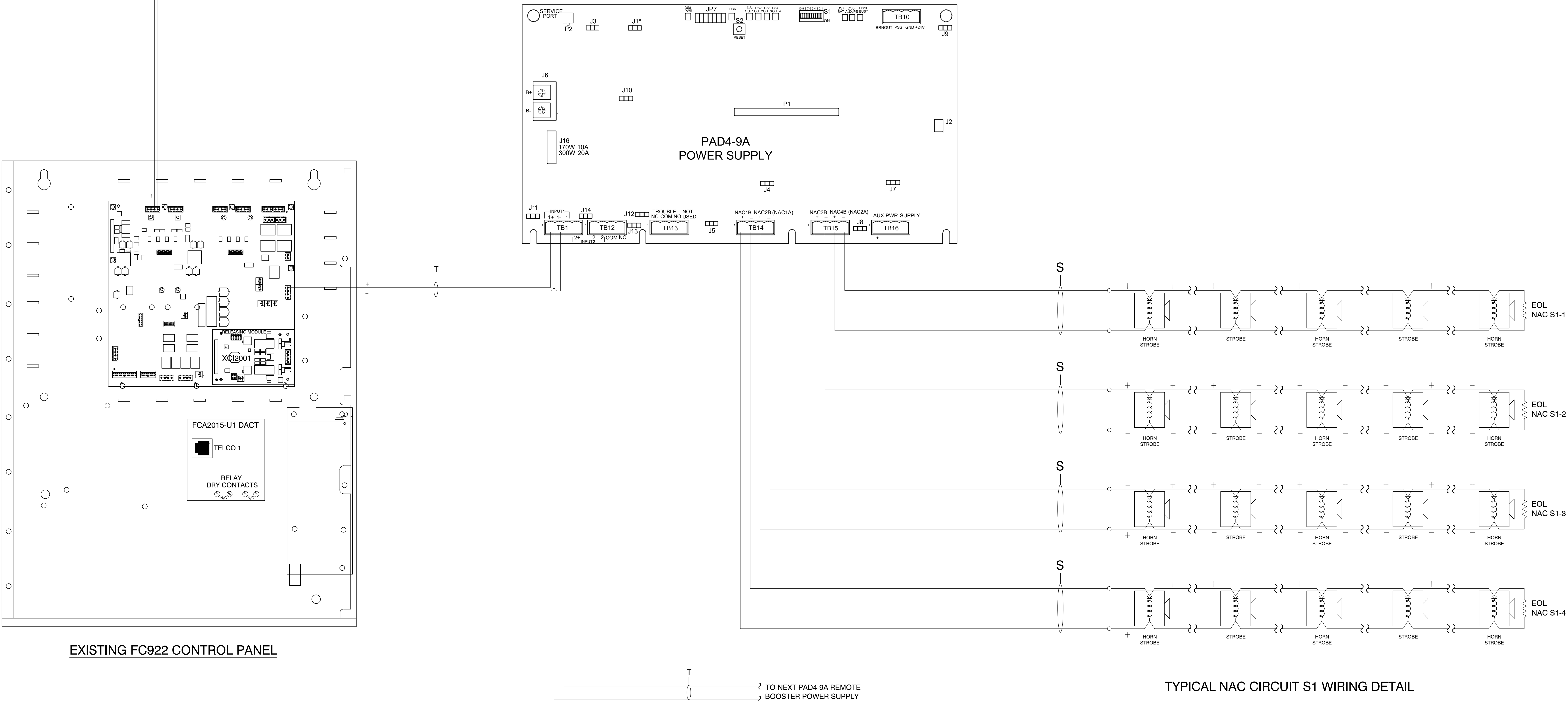
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NICET LEVEL IV
CERT. #111878 EXP. 09/01/2022



TYPICAL DATA LOOP WIRING DIAGRAM



STROBE MOUNTING (DROP CEILING) STROBE MOUNTING (HARD LID)



TYPICAL PAD4-9A REMOTE BOOSTER POWER SUPPLY

TYPICAL NAC CIRCUIT S1 WIRING DETAIL

RELEASE/REVISIONS			REV. BY:
NO	DATE	DESCRIPTION	DWG
Δ	02/07/22	POISSON	
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VIKING BUILDING WAREHOUSE EXPANSION
FIRE ALARM SYSTEM
302 33RD STREET,
PUYALLUP, WASHINGTON 98372

TYPICAL WIRING AND MOUNTING DETAILS

SCALE: AS NOTED
DRAWN BY: D. GARCIA
DESIGNED BY: M. WADE
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BACKGROUND PLAN PROVIDED BY:
JOB NUMBER: 61487-3

RONALD MANSFIELD JR.
NICET LEVEL IV
CERT. #111878 EXP. 09/01/2022

WAREHOUSE EXPANSION

City of Puyallup
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GUARDIAN SECURITY

1743 1ST AVE., SO., SEATTLE, WASHINGTON 98134

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REV. BY:		REV. BY:	
DESCRIPTION		DESCRIPTION	
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VIKING BUILDING WAREHOUSE EXPANSION
FIRE ALARM SYSTEM
302 33RD STREET,
PUYALLUP, WASHINGTON 98372

SYSTEM CALCULATIONS

SCALE: AS NOTED
DRAWN BY: D. GARCIA
DESIGNED BY: M. WADE
DATE: 02/07/22
BACKGROUND PLAN PROVIDED BY:
JOB NUMBER: 61487-3
SHEET
FA-03A

RONALD MANSFIELD JR.
NICET LEVEL IV
CERT. #111878 EXP. 09/01/2022

SYSTEM CALCULATIONS

EXISTING FC922 FIRE ALARM CONTROL PANEL

FC922/FC924 Battery Calc Sheet Version 1.0				Enter value	
Ref. No. 57699-3				Select choice	
Submitted By: GUARDIAN SECURITY SYSTEMS				Fixed	
Project Name: VIKING BUILDING - TENANT IMPROVEMENT				Calculated	
Project Location: PUYALLUP, WASHINGTON					
Panel Location: FIRE PUMP ROOM					
Node No:				Date: 3/16/2022	
Module	Description	Module Feature	Qty	Standby Current	Alarm Current
FCM2018-U3	Standard Operating Unit		1	0.125	0.125
FCM2019-U3	Enhanced Operating Unit With LED zones	LED zones		0.000	0.000
FCI2016-U1	252 pt Periphery Board		1	0.110	0.110
		SLC load		0.174	0.174
		NAC load	1		1.121
		Aux power load			
		Bell Follower	No	0.000	0.000
FCI2017-U1	504 pt Periphery Board			0.000	0.000
		SLC load			
		NAC load			
		Aux power load		0.000	0.000
		Bell Follower	No	0.000	0.000
FCI2011-U1	NAC expander	No	0	0.000	0.000
		NAC load			
XCI2001-U1	Releasing module	No	0	0.000	0.000
		Releasing load			
FCI2020-U1	City Tie/Leased Line module	Not Installed		0.000	0.000
FN2001-A1	SafeDLink Network module			0.000	0.000
FCA2016-U1	RS-485 module			0.000	0.000
FN2006-U1	Single-mode fiber module			0.000	0.000
FN2007-U1	Multi-mode fiber module			0.000	0.000
FT2014-xx	Remote annunciator - display			0.000	0.000
FT2015-xx	Remote annunciator - control			0.000	0.000
FTI2001-A1	Network terminal board			0.000	0.000
FCM2023-U3	LED expansion module			0.000	0.000
		LED zones		0.000	0.000
FCA2015-U1	DACT		1	0.025	0.025
FCA2018-U1	Remote printer module			0.000	0.000
Devices	Description	Qty	Stdby/Alm		
HFP-11 / 8713	Photo-thermal detector		0.00000	1.4 mA per device	
HFPO-11 / 8710	Photo detector		0.00000	1.4 mA per device	
HFPT-11 / 8712	Thermal detector		0.00000	1.4 mA per device	
OOHC941	Dual optical/thermal/CO detector		0.00000	0.75 mA per device	
OOH941	Dual optical/thermal detector	24	0.01632	0.68 mA per device	
OH921	Photo-thermal detector		0.00000	0.28 mA per device	
OP921	Photo detector		0.00000	0.28 mA per device	
H921	Thermal detector	18	0.00504	0.28 mA per device	
FDCIO422	4-input/4-output module		0.00000	1.0 mA per device	
HMS / 8700-S-D-M	Manual station	34	0.04760	1.4 mA per device	
HTRI-S / 8702	Single input module	17	0.02380	1.4 mA per device	
HTRI-D / 8703	Dual input module	46	0.06440	1.4 mA per device	
HTRI-R / 8704	Singl input/single relay module	12	0.01680	1.4 mA per device	
HZM / 8705	Conventional zone module		0.00000	1.4 mA per device	
HCP / 8706	Addressable control point		0.00000	1.4 mA per device	
ILED / 8726	Intelligent LED		0.00000	1.4 mA per device	
Total		151	0.174	(included above)	System OK
Total Current			0.434	1.555	Use 170W power supply
Standby Time (hrs)		24	10.42		
Alarm Time (min)		15	0.39		
AH required (no reserve)			10.80		
Battery Reserve		125%			
AH Required (with reserve)			13.50		System OK

*** RECOMMENDED MINIMUM BATTERY SIZE = 12VDC 18.0 AMP-HOUR ***

WAREHOUSE EXPANSION

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REV. BY:	DESCRIPTION	DWG
02/07/22	SHOP DRAWINGS	
NO	DATE	DATE
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302 33RD STREET,
PUYALLUP, WASHINGTON 98372
SYSTEM CALCULATIONSSCALE: AS NOTED
DRAWN BY:
D. GARCIA
DESIGNED BY:
M. WADE
DATE: 02/07/22
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JOB NUMBER: 61487-3
SHEET
FA-03BRONALD MANSFIELD JR.
NICET LEVEL IV
CERT. #111878 EXP. 09/01/2022

SYSTEM CALCULATIONS

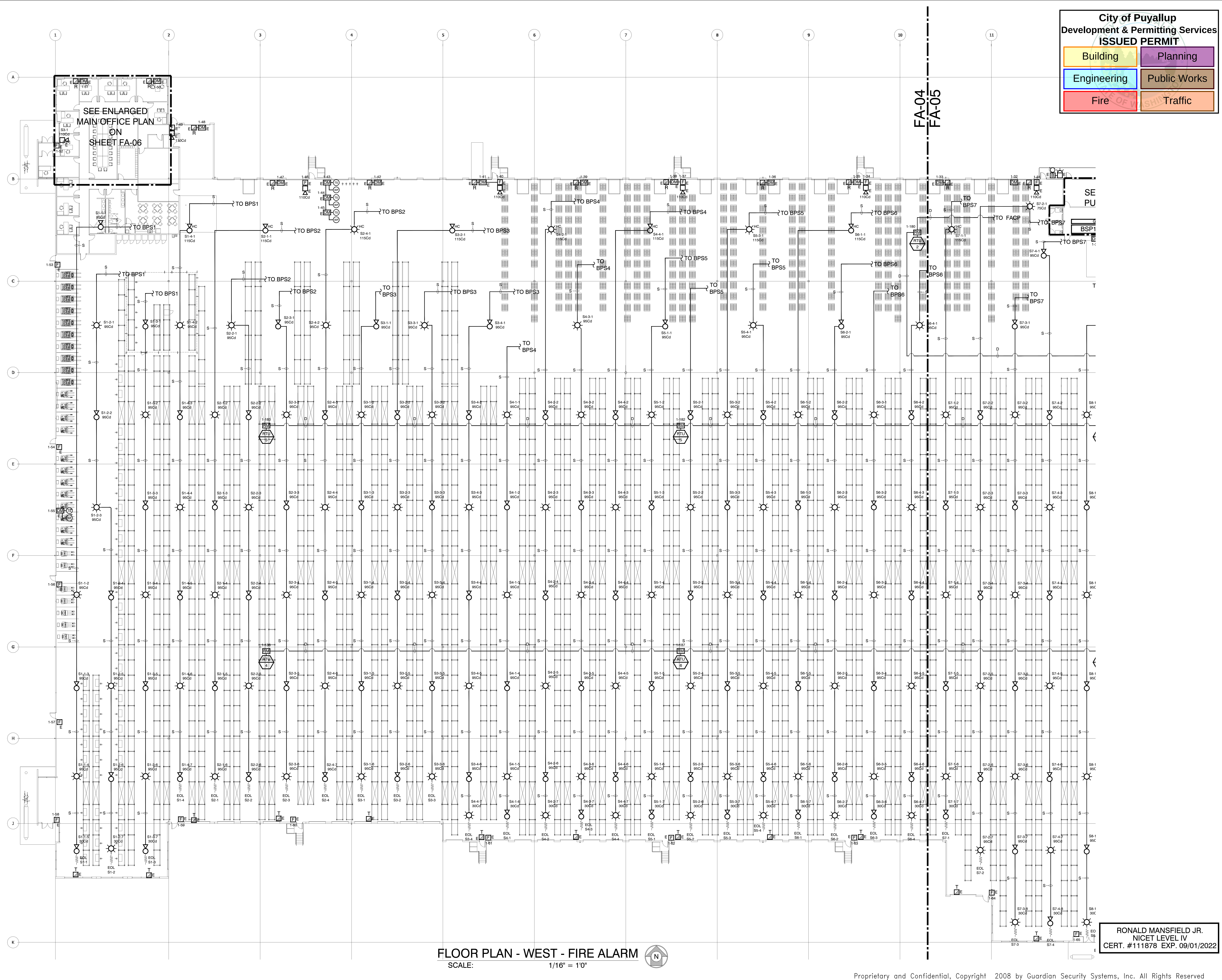
FIRE ALARM BOOSTER POWER SUPPLY BATTERY CALCULATION						
Project: VIKING BUILDING - WAREHOUSE EXPANSION						
Panel: EXISTING BPS13 SIEMENS PAD4-9A BOOSTER POWER SUPPLY						
Date: March 15, 2022						
Module/Device	Qty	Standby (mA)	Total Standby (mA)	Alarm (mA)	Total Alarm (mA)	
Power Module	1	15	15	140	140	0
A TOTAL FIRE ALARM POWER SUPPLY			15		140	
B Auxiliary Device Current (SEE NOTE BELOW)			0		0	
C Notification Appliance Load (Max. Total / mA)			0		8534	
Total(A)=			15	Total(B)=	8674	
CALCULATION						
D Total current ratings of all devices in system (line A + line B + line C)				15	8674	
E Total current ratings converted to amperes (line D x .001)				0.015	8.674	
F Number of standby hours (24 or 60 per NFPA 72, Chapter 1, 1-5.2.5.)				24		
G Multiply lines E and F				0.36		
H Alarm sounding period in hours (15 mins = 0.25 hours)					0.25	
I Multiply lines G and H					2.168	
J Add lines G and I				2.528		
K Multiply line J by 1.2 (20% extra insurance to meet desired performance)				3.032		
12-V DC BATTERY SIZE RECOMMENDED (AMPERE-HOUR)				7		
*** RECOMMENDED MINIMUM BATTERY SIZE = 12VDC 7.0 AMP-HOUR ***						

FIRE ALARM BOOSTER POWER SUPPLY BATTERY CALCULATION						
Project: VIKING BUILDING - WAREHOUSE EXPANSION						
Panel: NEW BPS15 SIEMENS PAD4-9A BOOSTER POWER SUPPLY						
Date: March 22, 2022						
Module/Device	Qty	Standby (mA)	Total Standby (mA)	Alarm (mA)	Total Alarm (mA)	
Power Module	1	15	15	140	140	0
A TOTAL FIRE ALARM POWER SUPPLY			15		140	
B Auxiliary Device Current (SEE NOTE BELOW)			0		0	
C Notification Appliance Load (Max. Total / mA)			0		4425	
Total(A)=			15	Total(B)=	4565	
CALCULATION						
D Total current ratings of all devices in system (line A + line B + line C)				15	4565	
E Total current ratings converted to amperes (line D x .001)				0.015	4.565	
F Number of standby hours (24 or 60 per NFPA 72, Chapter 1, 1-5.2.5.)				24		
G Multiply lines E and F				0.36		
H Alarm sounding period in hours (15 mins = 0.25 hours)					0.25	
I Multiply lines G and H					1.14125	
J Add lines G and I				1.50125		
K Multiply line J by 1.2 (20% extra insurance to meet desired performance)				1.8015		
12-V DC BATTERY SIZE RECOMMENDED (AMPERE-HOUR)				7		
*** RECOMMENDED MINIMUM BATTERY SIZE = 12VDC 7.0 AMP-HOUR ***						

FIRE ALARM BOOSTER POWER SUPPLY BATTERY CALCULATION						
Project: VIKING BUILDING - WAREHOUSE EXPANSION						
Panel: NEW BPS15A SIEMENS PAD4-9A BOOSTER POWER SUPPLY						
Date: March 15, 2022						
Module/Device	Qty	Standby (mA)	Total Standby (mA)	Alarm (mA)	Total Alarm (mA)	
Power Module	1	15	15	140	140	0
A TOTAL FIRE ALARM POWER SUPPLY			15		140	
B Auxiliary Device Current (SEE NOTE BELOW)			0		0	
C Notification Appliance Load (Max. Total / mA)			0		4696	
Total(A)=			15	Total(B)=	4836	
CALCULATION						
D Total current ratings of all devices in system (line A + line B + line C)				15	4836	
E Total current ratings converted to amperes (line D x .001)				0.015	4.836	
F Number of standby hours (24 or 60 per NFPA 72, Chapter 1, 1-5.2.5.)				24		
G Multiply lines E and F				0.36		
H Alarm sounding period in hours (15 mins = 0.25 hours)					0.25	
I Multiply lines G and H					1.209	
J Add lines G and I				1.569		
K Multiply line J by 1.2 (20% extra insurance to meet desired performance)				1.8828		
12-V DC BATTERY SIZE RECOMMENDED (AMPERE-HOUR)				7		
*** RECOMMENDED MINIMUM BATTERY SIZE = 12VDC 7.0 AMP-HOUR ***						

FIRE ALARM BOOSTER POWER SUPPLY BATTERY CALCULATION						
Project: VIKING BUILDING - WAREHOUSE EXPANSION						
Panel: NEW BPS16 SIEMENS PAD4-9A BOOSTER POWER SUPPLY						
Date: March 22, 2022						
Module/Device	Qty	Standby (mA)	Total Standby (mA)	Alarm (mA)	Total Alarm (mA)	
Power Module	1	15	15	140	140	0
A TOTAL FIRE ALARM POWER SUPPLY			15		140	
B Auxiliary Device Current (SEE NOTE BELOW)			0		0	
C Notification Appliance Load (Max. Total / mA)			0		5958	
Total(A)=			15	Total(B)=	6098	
CALCULATION						
D Total current ratings of all devices in system (line A + line B + line C)				15	6098	
E Total current ratings converted to amperes (line D x .001)				0.015	6.098	
F Number of standby hours (24 or 60 per NFPA 72, Chapter 1, 1-5.2.5.)				24		
G Multiply lines E and F				0.36		
H Alarm sounding period in hours (15 mins = 0.25 hours)					0.25	
I Multiply lines G and H					1.5245	
J Add lines G and I				1.8845		
K Multiply line J by 1.2 (20% extra insurance to meet desired performance)				2.2614		
12-V DC BATTERY SIZE RECOMMENDED (AMPERE-HOUR)				7		
*** RECOMMENDED MINIMUM BATTERY SIZE = 12VDC 7.0 AMP-HOUR ***						

Notification Appliance Circuit Detail									
PROJECT: VIKING BUILDING - WAREHOUSE EXPANSION									
Panel: EXISTING BPS13 SIEMENS PAD4-9A POWER SUPPLY									
Date: March 15, 2022									
CURRENT TOTAL= 8534.00									
CIRCUIT:	EX NAC CKT S13-1	Alarm	Alarm	Wire	Wire	Wire	Wire	Wire	Circuit
QTY	Device Type	Current	Total	Size	Length	at EOL	at EOL	at EOL	Total
1	ZHMC-CW @15Cd	87	0						
	ZHMC-CW @30Cd	131	131						
	ZHMC-CW @75Cd	222	0						
	ZHMC-CW @95Cd	292	876						
	ZR-HMC-CW @115Cd	318	318						
	ZR-HMC-CW @30Cd	111	0						
3	ZR-MC-CW @95Cd	264	792						
	TOTAL mA=	2117	14	560		17.88			2117
DEVICES									
Total Wire Resistance (R) (WL * 2) * (R/R) 2.89									
Total Device Load, Amps (I) (Total Cct Load) 2.12									
Voltage Drop (E) (E= I * R) 6.49									
EOL Voltage (24 - E) 17.88									
CIRCUIT:	NEW NAC CKT S13-2	Alarm	Alarm	Wire	Wire	Wire	Wire	Wire	Circuit
QTY	Device Type	Current	Total	Size	Length	at EOL	at EOL	at EOL	Total
1	ZHMC-CW @15Cd	87	0						
	ZHMC-CW @30Cd	131	0						
	ZHMC-CW @75Cd	222	0						
	ZHMC-CW @95Cd	292	876						
	ZHMC-CW @115Cd	371	371						
	ZR-HMC-CW @30Cd	111	111						
3	ZR-MC-CW @95Cd	264	792						
	TOTAL mA=	2150	14	585		17.51			2150
DEVICES									
Total Wire Resistance (R) (WL * 2) * (R/R) 3.02									
Total Device Load, Amps (I) (Total Cct Load) 2.15									
Voltage Drop (E) (E= I * R) 6.49									
EOL Voltage (24 - E) 17.51									
CIRCUIT:	NEW NAC CKT S13-3	Alarm	Alarm	Wire	Wire	Wire	Wire	Wire	Circuit
QTY	Device Type	Current	Total	Size	Length	at EOL	at EOL	at EOL	Total
1	ZHMC-CW @15Cd	87	0						
	ZHMC-CW @30Cd	131	131						
	ZHMC-CW @75Cd	222	0						
	ZHMC-CW @95Cd	292	876						
	ZR-HMC-CW @115Cd	371	371						
	ZR-HMC-CW @30Cd	111	111						
3	ZR-MC-CW @95Cd	264	792						
	TOTAL mA=	2117	14	605		17.39			2117
DEVICES									
Total Wire Resistance (R) (WL * 2) * (R/R) 2.35									
Total Device Load, Amps (I) (Total Cct Load) 2.15									
Voltage Drop (E) (E= I * R) 6.67									
EOL Voltage (24 - E) 17.33									
CIRCUIT:	NEW NAC CKT S13-4	Alarm	Alarm	Wire	Wire	Wire	Wire	Wire	Circuit
QTY	Device Type	Current	Total	Size	Length	at EOL	at EOL	at EOL	Total
1	ZHMC-CW @15Cd	87	0						
	ZHMC-CW @30Cd	113	0						
	ZHMC-CW @75Cd	222	0						
	ZHMC-CW @95Cd	292	876						
	ZR-HMC-CW @115Cd	371	371						
	ZR-HMC-CW @30Cd	111	111						
3	ZR-MC-CW @95Cd	264	792						
	TOTAL mA=	2150	14	625		17.07			2150
DEVICES									
Total Wire Resistance (R) (WL * 2) * (R/R) 3.21									
Total Device Load, Amps (I) (Total Cct Load) 2.15									
Voltage Drop (E) (E= I * R) 6.91									
EOL Voltage (24 - E) 17.09									



City of Puyallup
Development & Permitting Services
ISSUED PERMIT

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Engineering	Public Works
Fire	Traffic

RELEASE/REVISIONS		REV. BY:	DWG
NO	DATE	DESCRIPTION	
1	02/07/22	SHOP DRAWINGS	

**VIKING BUILDING WAREHOUSE EXPANSION
FIRE ALARM SYSTEM
302 33RD STREET,
PUYALLUP, WASHINGTON 98372**

FLOOR PLAN - WEST - FIRE ALARM

SCALE: AS NOTED
DRAWN BY: D. GARCIA
DESIGNED BY: M. WADE
DATE: 02/07/22
BACKGROUND PLAN PROVIDED BY:
JOB NUMBER: 61487-3
SHEET
FA-04

FLOOR PLAN - WEST - FIRE ALARM
SCALE: 1/16" = 10'

RONALD MANSFIELD JR.
NICET LEVEL IV
CERT. #111878 EXP. 09/01/2022

GUARDIAN SECURITY
1743 1ST AVE., SO., SEATTLE, WASHINGTON 98134
TEL. (206) 622-6545 FAX (206) 628-4990

FA-04
FA-05

WAREHOUSE EXPANSION

SEE ENLARGED FIRE
PUMP ROOM/OFFICE
SHEET FA-06

BSP1 - BPS16

WAREHOUSE EXPANSION



RONALD MANSFIELD JR.
NICET LEVEL IV
CERT. #111878 EXP. 09/01/2022

FLOOR PLAN - EAST - FIRE ALARM
SCALE: 1/16" = 1'0"

City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building	Planning
Engineering	Public Works
Fire	Traffic

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RELEASE/REVISIONS		REV. BY:
NO.	DATE	DESCRIPTION
1	02/07/22	SHOP DRAWINGS

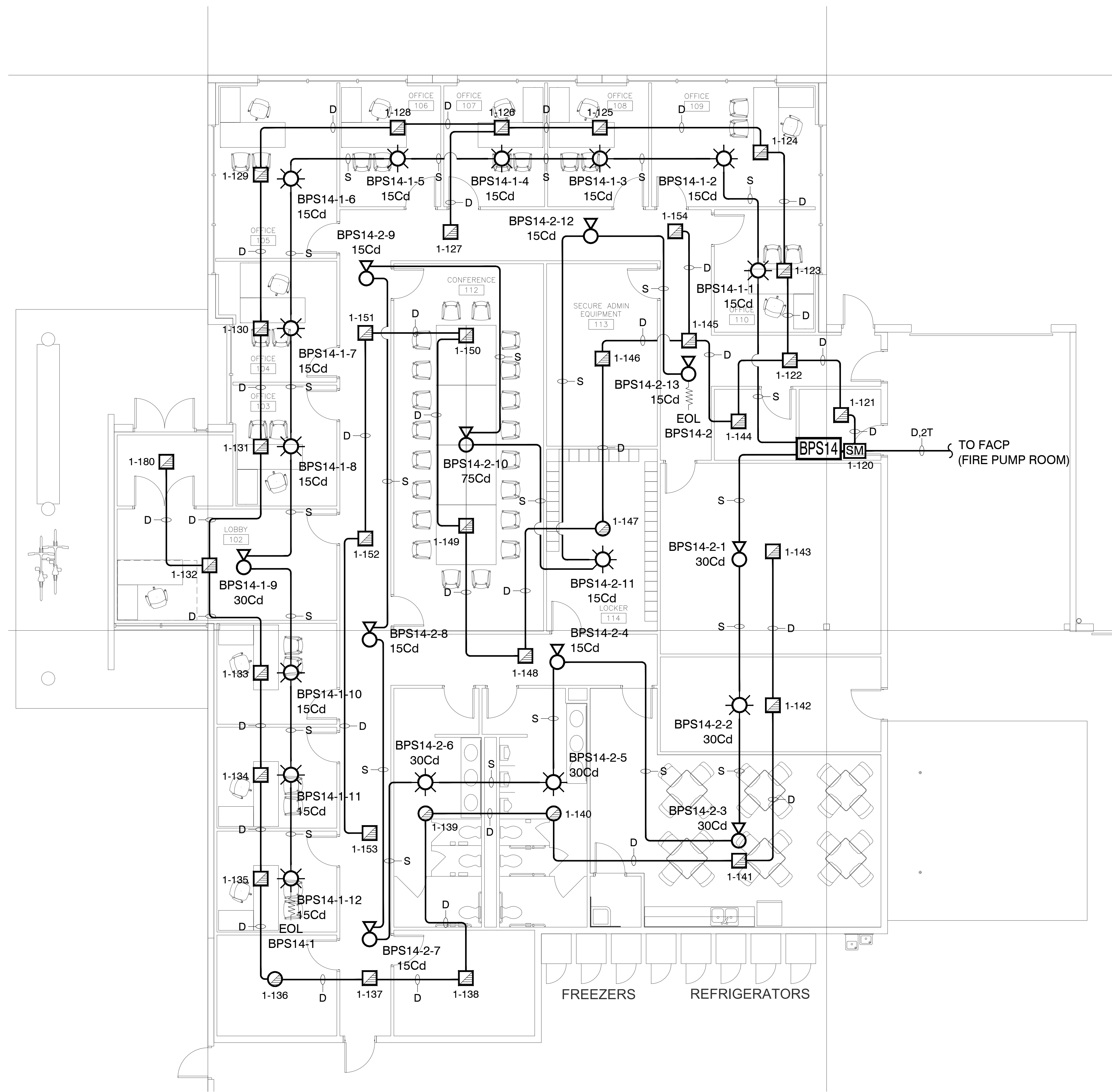
VIKING BUILDING WAREHOUSE EXPANSION
FIRE ALARM SYSTEM
302 33RD STREET,
PUYALLUP, WASHINGTON 98372

FLOOR PLAN - EAST - FIRE ALARM

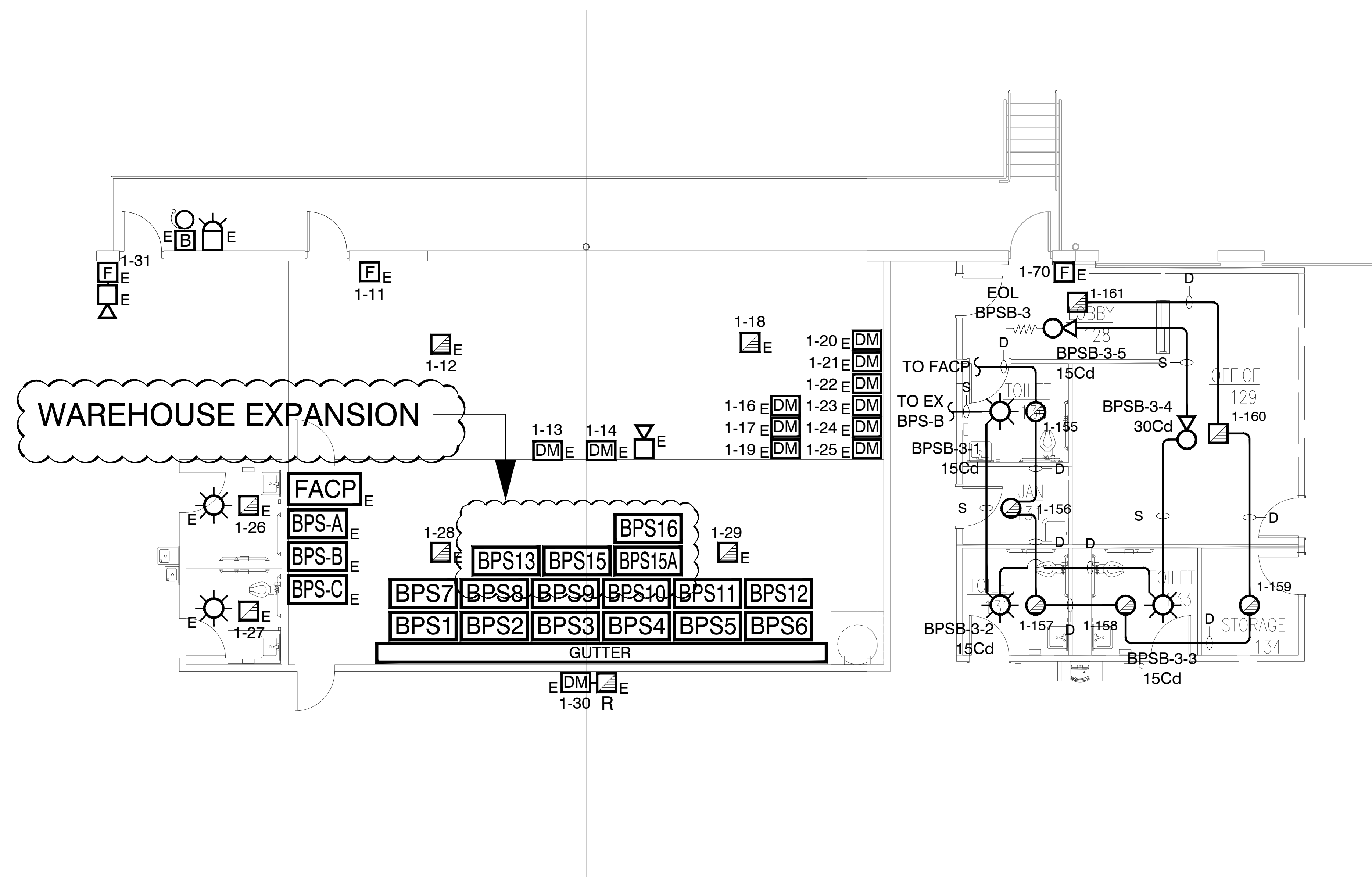
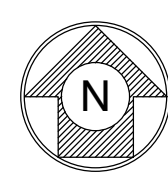
SCALE: AS NOTED
DRAWN BY: D. GARCIA
DESIGNED BY: M. WADE
DATE: 02/07/22
BACKGROUND PLAN PROVIDED BY:
JOB NUMBER: 61487-3

SHEET
FA-05

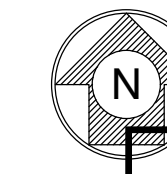
GUARDIAN SECURITY
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TEL. (206) 622-6545 FAX (206) 628-4990



ENLARGED MAIN OFFICE FLOOR PLAN - FIRE ALARM
SCALE: 3/16" = 1'0"



ENLARGED FIRE PUMP / SHIPPING ROOMS
FLOOR PLAN - FIRE ALARM
SCALE: 3/16" = 1'0"



City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building	Planning
Engineering	Public Works
Fire	Traffic

RONALD MANSFIELD JR.
NICET LEVEL IV
CERT. #111878 EXP. 09/01/2022

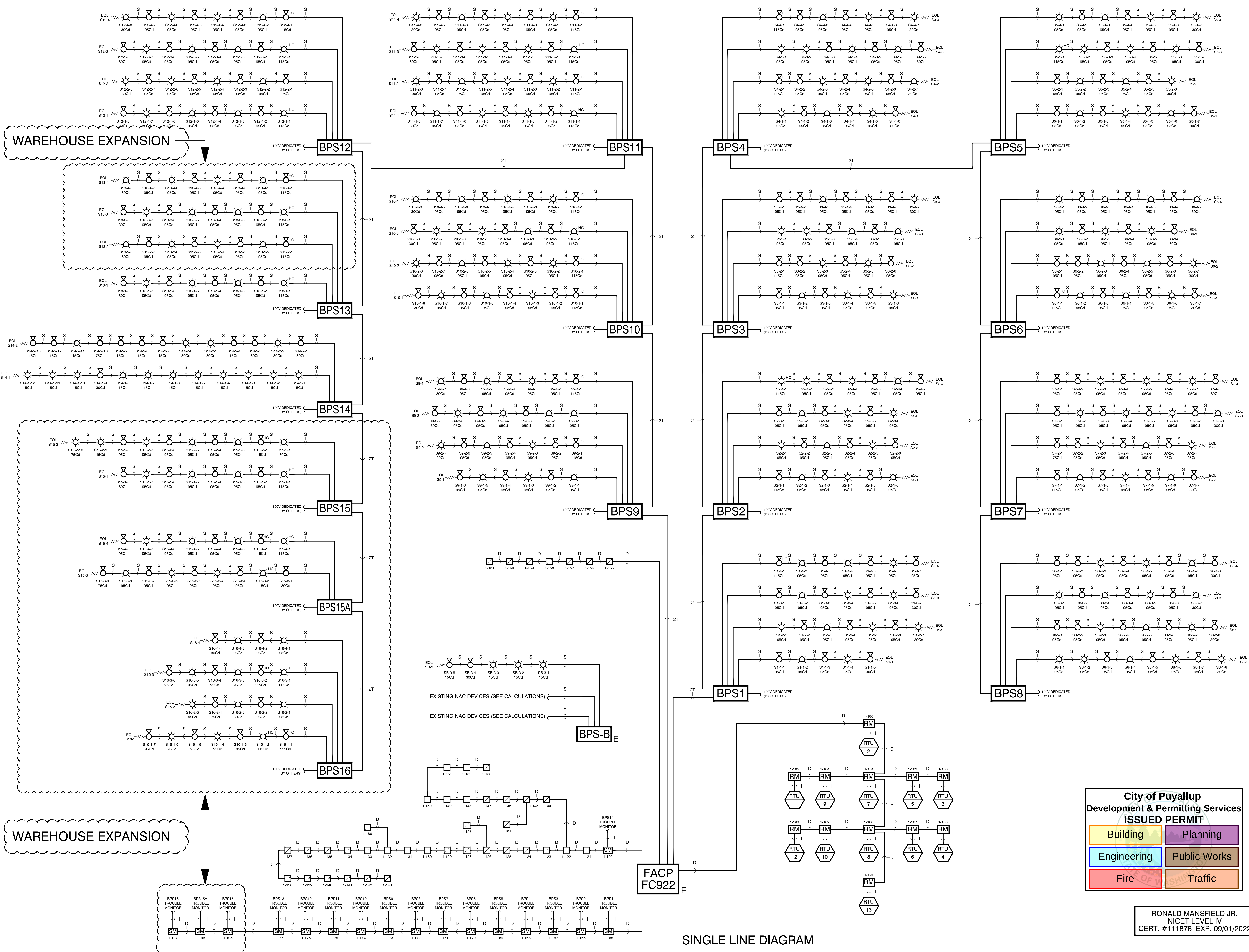
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NO	DATE	DESCRIPTION
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VIKING BUILDING WAREHOUSE EXPANSION
FIRE ALARM SYSTEM
302 33RD STREET,
PUYALLUP, WASHINGTON 98372

ENLARGED MAIN OFFICE & FIRE PUMP/SHIPPING ROOMS FLOOR PLANS-FIRE ALARM

SCALE: AS NOTED
DRAWN BY: D. GARCIA
DESIGNED BY: M. WADE
DATE: 02/07/22
BACKGROUND PLAN PROVIDED BY:
JOB NUMBER: 61487-3

SHEET
FA-06



RELEASE/REVISIONS

NO	DATE	DESCRIPTION	REV. BY	CHK
1	02/07/22	SHOP DRAWINGS		

DATE

02/07/22

DESCRIPTION

SHOP DRAWINGS

REV. BY

CHK

VIKING BUILDING WAREHOUSE EXPANSION

FIRE ALARM SYSTEM

302 33RD STREET,

PUYALLUP, WASHINGTON 98372

DATE

02/07/22

DESCRIPTION

SHOP DRAWINGS

REV. BY

CHK

City of Puyallup

Development & Permitting Services

ISSUED PERMIT

Building Planning

Engineering Public Works

Fire Traffic

RONALD MANSFIELD JR.

NICET LEVEL IV

CERT. #111878 EXP. 09/01/2022

SCALE: AS NOTED

DRAWN BY: D. GARCIA

DESIGNED BY: M. WADE

DATE: 02/07/22

BACKGROUND PLAN PROVIDED BY:

JOB NUMBER: 61487-3

SHEET

FA-07

GUARDIAN SECURITY

1743 1ST AVE. SO., SEATTLE, WASHINGTON 98134

TEL. (206) 622-6545

FAX (206) 628-4990

SINGLE LINE DIAGRAM