



CERTIFICATE OF AUTHORIZATION NO: T3 ALASKA, LLC AECL #: 1625



VRS
 OLD MATANUSKA TOWNHOUSE DEVELOPMENT
 PHASE 2
 UNIT GROUP 2A/2B/2C/2D

#	DESCRIPTION	DATE
1	ADDENDUM #2	03.09.2023

JOB NO. 2022.091.0
 DATE 02.10.2023
 DRAWN MUM
 REVIEWED TCA

SHEET NAME
 FIXTURE & PANEL SCHEDULES

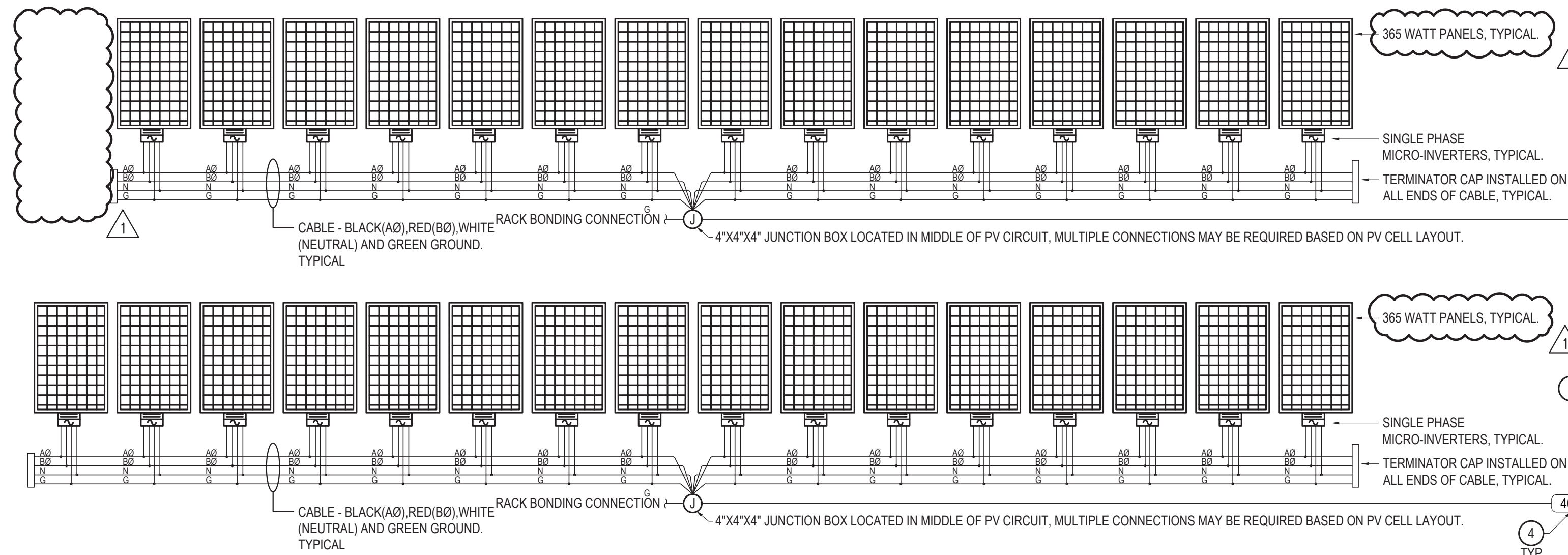
SHEET NO.
E5.02

HALF SCALE WHEN PRINTED AT 11x17

FAULT CURRENT CALCULATION SUMMARY				
EQUIPMENT	SUPPLY FEEDER RATING AND LENGTH	FAULT CURRENT L-L	FAULT CURRENT L-N	BUS RATING
UTILITY TRANS SECONDARY	N/A	8,333 A	N/A	N/A
UTILITY TERMINATION / METERING	1 EA. #250 AL PER PHASE 50'	6,562 A	6,534 A	10,000 A
PANEL H2 (WORST CASE)	1 EA. #1 CU PER PHASE 20'	5,706 A	4,512 A	10,000 A

ASSUMED UTILITY CONFIGURATION
 UTILITY CONTRIBUTION: INFINITE
 TRANSFORMER RATING: 50KVA
 TRANSFORMER IMPEDENCE: 2.5% Z

CONTRACTOR TO CONFIRM UTILITY ASSUMPTIONS UTILIZED FOR THIS CALCULATION AS WELL AS INSTALLED CONDUCTOR CONFIGURATIONS AND LENGTHS DURING CONSTRUCTION. REPORT ANY DECREASE IN TRANSFORMER IMPEDENCE AND INSTALLED CABLE LENGTHS AS WELL AS ANY INCREASE IN TRANSFORMER KVA RATING AND CONDUCTOR RATINGS TO ENGINEER FOR RE-EVALUATION PRIOR TO DISTRIBUTION EQUIPMENT PROCUREMENT.



1 PHOTOVOLTAIC RISER DIAGRAM

SCALE: NTS

- ### GENERAL NOTES
- TOTAL OF 31 PV MODULES, (11.31kW SYSTEM), LAYOUT AS SHOWN IS GENERIC THE CONTRACTOR SHALL PROVIDE A BALANCED LAYOUT AND CONNECTION PER MANUFACTURER RECOMMENDATIONS & INTENDED LAYOUT ON BUILDING. BRANCH POWER CONNECTIONS SHALL ALWAYS BE MADE IN THE MIDDLE OF THE PV CIRCUITS TO ENSURE BALANCED DISTRIBUTION.
 - PV SYSTEM SHALL MEET UL 1741/IEEE 1574 AND NEC REQUIREMENTS.
 - PROVIDE AND COMPLY WITH ALL NEC REQUIREMENTS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
 - LABELING PER NEC 690.13, 690.18, & 690.51.
 - RAPID SHUTDOWN AS REQUIRED BY 690.12 IS PROVIDED AS AN INTEGRAL PART OF THE MICROINVERTERS (ENPHASE M250).
 - THE ENPHASE MICROINVERTER HAS INTEGRATED GROUND AND NO GEC IS REQUIRED. THE DC CIRCUIT IS ISOLATED AND INSULATED FROM GROUND AND MEETS THE REQUIREMENTS OF NEC 690.35. GROUNDING CONNECTION AS SHOWN IS FOR EQUIPMENT GROUNDING.
 - ALL CIRCUIT BREAKERS ASSOCIATED WITH THE PV SYSTEM AND BACK TO THE MDP SHALL BE RATED FOR BACK-FEEDING.

- ### SHEET NOTES
- INDICATED BY: #
- PROVIDE (2) 40A, 2-POLE BACK-FED CIRCUIT BREAKERS CAPABLE OF BEING LOCKED OUT FOR THE SOLAR PV SYSTEM CONNECTIONS. INSTALL ACCORDING TO SUPPLIER FURNISHED SHOP DRAWINGS & SUBMITTALS. COMPLY WITH 2015 NEC 690. CIRCUIT BREAKERS SHALL BE LOCATED AT OPPOSITE END OF BUS FROM UTILITY SOURCE.
 - SEE 2/E5.01 FOR ELECTRICAL RISER DIAGRAM.
 - PROVIDE 5 YEARS OF CELLULAR WIRELESS CONNECTION FOR COMMUNICATION TO THE PV SYSTEM. PROVIDE COMPONENTS AND INSTALLATION AS NECESSARY. BASIS OF DESIGN IS ENPHASE.
 - REFERENCE FEEDER SCHEDULE, E5.01.
 - PROVIDE DISCONNECTS IN ACCORDANCE WITH MEA REQUIREMENTS.

LIGHTING FIXTURE SCHEDULE								
TYPE ID	MANUFACTURER MODEL NUMBER	FIXTURE DESCRIPTION	LAMP		MOUNTING			
			TYPE	QTY	LUMENS	WATTS	TYPE	HEIGHT
A	JUNO LIGHTING #JSF-7IN 10LM-30K-90CRI-MVOLT-WH	SLIM FORM SURFACE MOUNT WITH 7" DIAMETER, 3000K COLOR TEMPERATURE, AND WHITE FINISH.	LED		1,000	13	SURFACE	CEILING
					78 lm/w			
B	JUNO LIGHTING #JSF-13IN 18LM-30K-90CRI-MVOLT-WH	SLIM FORM SURFACE MOUNT WITH 13" DIAMETER, 3000K COLOR TEMPERATURE, AND WHITE FINISH.	LED		1,800	20	SURFACE	CEILING
					90 lm/w			
C	LITHONIA LIGHTING #LBL4W-8000LM-80CRI-30K-NODIM-MVOLT	16"x4" MODULAR LINEAR LED WITH 3000K COLOR TEMPERATURE WHITE ACRYLIC SOFT CLOUD DIFFUSER.	LED		7,840	64	SURFACE	CEILING
					123 lm/w			
D	DVI #DVP9001	INTERIOR WALL SCONE WITH GLASS SHADE. INCLUDE MEDIUM BASE LED BULB WITH 1500 LUMEN OUTPUT AND 3000K COLOR TEMPERATURE.	E26 LED	1	1,500	14	WALL	6'6" TO BOTTOM
					107 lm/w			
F	TECH LIGHTING #700BCBAS-24-S-LED927	24" WIDE VANITY FIXTURE WITH BRUSHED NICKEL FINISH AND SATIN ETCHED WHITE SHADES.	LED		1,052	24	WALL	6'6" TO BOTTOM
					44 lm/w			
G	LITHONIA LIGHTING #OLLWD-LED-P1-40K-MVOLT-DOB	LED WALL-MOUNTED GENERAL PURPOSE LIGHT WITH 4000K COLOR TEMPERATURE, WITH VARIABLE INPUT VOLTAGE, AND DARK BRONZE FINISH.	LED		533	9	SURFACE	WALL +8'-0" AFF
					59 lm/w			
H	LITHONIA #ZL1N-L48-SMR-3000LM-FST-MVOLT-40K-80CRI-WH	4' LINEAR STRIPLIGHT WITH 4000K COLOR TEMPERATURE AND WHITE FINISH.	LED		3,293	25	SURFACE	CEILING / WALL
					132 lm/w			
J	JUNO LIGHTING #DPEND-MP-G2-P314-GLAC #7818N-LED12-30K-80CRI-SNC #SNA	CYLINDRICAL PENDANT WITH 'GLACIER' FINISH, SATIN NICKEL 78" CORDSET, SATIN NICKEL MONOPOINT ADAPTER, AND 3000K COLOR TEMPERATURE.	LED		389	6	PENDANT	7'6" TO BOTTOM
					65 lm/w			

ELECTRICAL SERVICE CALCULATION - BUILDINGS '2a', '2b, & '2d'	
GENERAL LIGHTING DEMAND LOAD (NEC 220.42)	
GENERAL LIGHTING (TOTAL TENANT AREA)	
4,910 FT ² @ 3 VA/FT ²	= 14,730 VA
SMALL APPLIANCE LOAD	
8 CKTS @ 1,500 VA/CKT	= 12,000 VA
LAUNDRY LOAD	
4 CKTS @ 1,500 VA/CKT	= 6,000 VA
SUB-TOTAL	32,730 VA
FIRST 3000 VA OR LESS AT 100%	= 3,000 VA
FROM 3001 TO 120,000 VA AT 35%	= 10,406 VA
REMAINDER OVER 120,000 VA AT 25%	= 0 VA
TOTAL GENERAL LIGHTING DEMAND LOAD	13,406 VA
ELECTRIC CLOTHES DRYER DEMAND LOAD (NEC 220.54)	
4 @ 5,600 VA EACH	= 22,400 VA
DEMAND FACTOR PER NEC T220.54	= 100%
TOTAL DRYER DEMAND LOAD	22,400 VA
ELECTRIC RANGE DEMAND LOAD (NEC 220.55)	
4 @ 9,100 VA EACH	= 36,400 VA
DEMAND FACTOR PER NEC T220.55	= 17%
TOTAL RANGE DEMAND LOAD	6,188 VA
APPLIANCE DEMAND LOAD (NEC 220.54)	
DISHWASHERS 4 @ 1,080 VA EACH	= 4,320 VA
RANGE HOODS 4 @ 216 VA EACH	= 864 VA
DEMAND FACTOR PER NEC 220.53	= 75%
TOTAL FIXED APPLIANCE DEMAND LOAD	3,888 VA
TOTAL CALCULATED ELECTRICAL DEMAND LOAD	45,882 VA
	191 AMPS @120/240v,1PH

ELECTRICAL SERVICE LOAD CALCULATION - BUILDING 2c	
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GENERAL LIGHTING (TOTAL TENANT AREA)	
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RANGE HOODS 4 @ 216 VA EACH	= 864 VA
DEMAND FACTOR PER NEC 220.53	= 75%
TOTAL FIXED APPLIANCE DEMAND LOAD	3,888 VA
PANEL H	18,516 VA
TOTAL CALCULATED ELECTRICAL DEMAND LOAD	64,398 VA
	268 AMPS @120/240v,1PH

PANEL H2 (NEMA 3R)				VOLTAGE: 120/240V,1PH,3W		AMPERE RATING: 125 A	
MOUNTING: SURFACE				MAIN CIRCUIT BREAKER RATING: MLO			
SUPPLIED FROM: UTILITY DISCONNECT				SHORT CIRCUIT CURRENT RATING: 10,000 A			
CKT	AMP	POLE	LOAD DESCRIPTION	PHASE A VA	PHASE B VA	LOAD DESCRIPTION	POLE AMP CKT
1	20	2	SITE LIGHTING	214		SPACE	1 - 2
3	-	2		SPACE			1 - 4
5	50	2	LIFT STATION 1	4,000		SPACE	1 - 6
7	-	2		SPACE		4,000	1 - 8
9	50	2	LIFT STATION 2	5,000		SPACE	1 - 10
11	-	2		SPACE		5,000	1 - 12
13	-	1	SPACE				40 14
15	-	1	SPACE			PV SYSTEM CIRCUIT 1	2 16
17	-	1	SPACE				40 18
19	-	1	SPACE			PV SYSTEM CIRCUIT 2	2 20
CONNECTED LOAD (VA)				9,214	9,214		18,427 VA
CONNECTED LOAD (AMPERES)				77	77		77 A
DEMAND LOAD (VA) *				10,267	10,267		20,534 VA
DEMAND LOAD (AMPERES) *				86	86		86 A

* - DEMAND LOAD CALCULATED WITH LIGHTING AND LARGEST MOTOR LOAD AT 125%