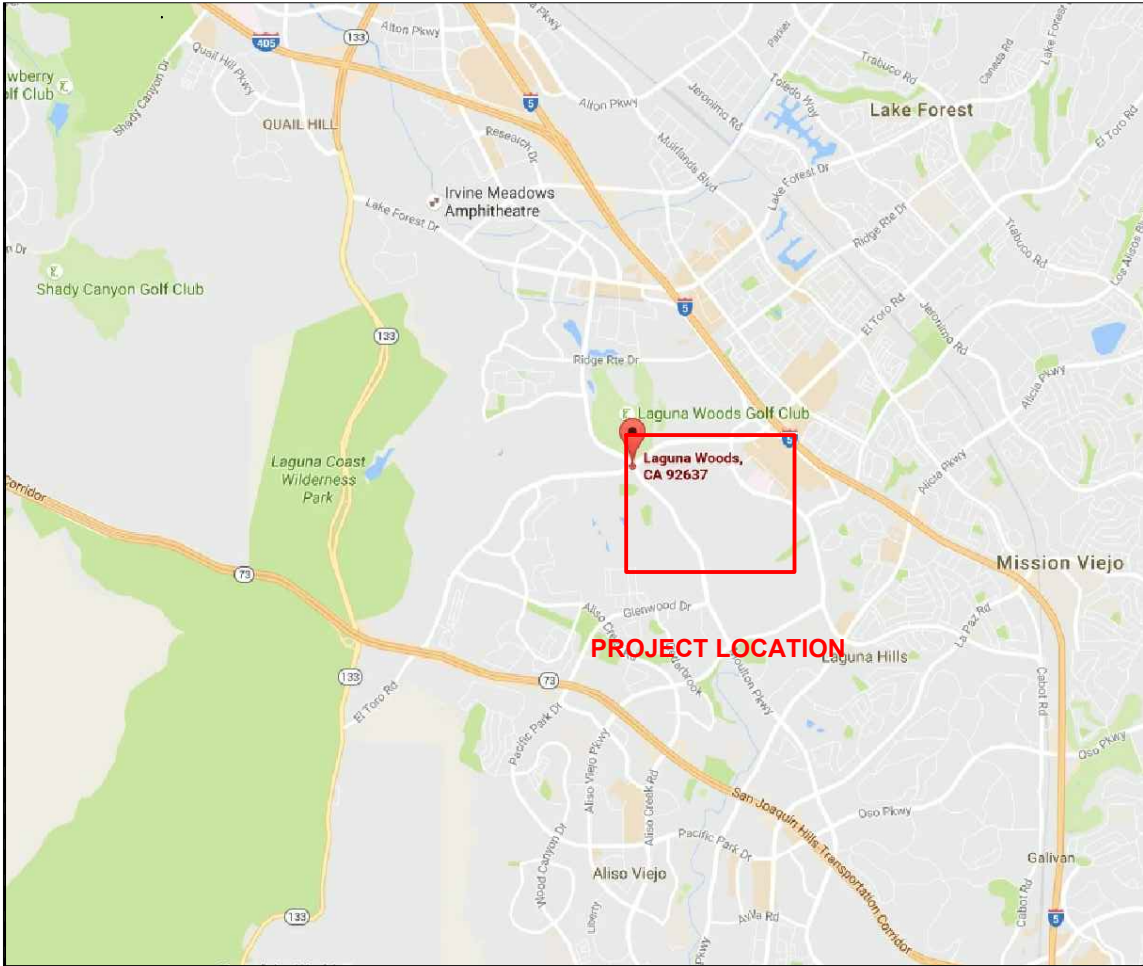


PHOTOVOLTAIC SYSTEM

LAGUNA WOODS VILLAGE UNITED MUTUAL



VICINITY MAP
SCALE: N.T.S.

SCOPE OF WORK:

INSTALL GRID-TIED, CARPORT-MOUNTED PHOTOVOLTAIC SYSTEMS AT THE LOCATIONS SHOWN. THERE WILL BE (8) LOCATIONS. EACH LOCATION FEATURES A COMMUNITY LAUNDRY BUILDING, WITH 200A MAIN SERVICE PANEL. THE POCC FOR EACH ARRAY WILL BE A SPLICE ONTO THE UTILITY-SIDE OF THE MAIN PANEL AT THAT LOCATION. THE PV SYSTEM WILL OUTPUT 240V, 2-PHASE. THE (8) INDIVIDUAL SYSTEMS RANGE IN SCALE FROM 90.72 kW DC, TO 105.84 kW DC. THE SOLAR PANELS WILL BE ATTACHED TO EXISTING CARPORT STRUCTURES USING A RAIL-BASED RACKING SYSTEM.



PROJECT LOCATION DETAIL
SCALE: N.T.S.

THE IMAGE ABOVE SHOWS FOUR HIGHLIGHTED SITES (LMUW 01 - LMUW 04). EACH SITE CONTAINS (2) SEPARATE PV ARRAYS. SEE CORRESPONDING PAGES FOR DETAIL.

PROJECT DEVELOPER

JOHNSON CONTROLS INC.
SYSTEMS AND SOLUTIONS NA
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POWER GROUP

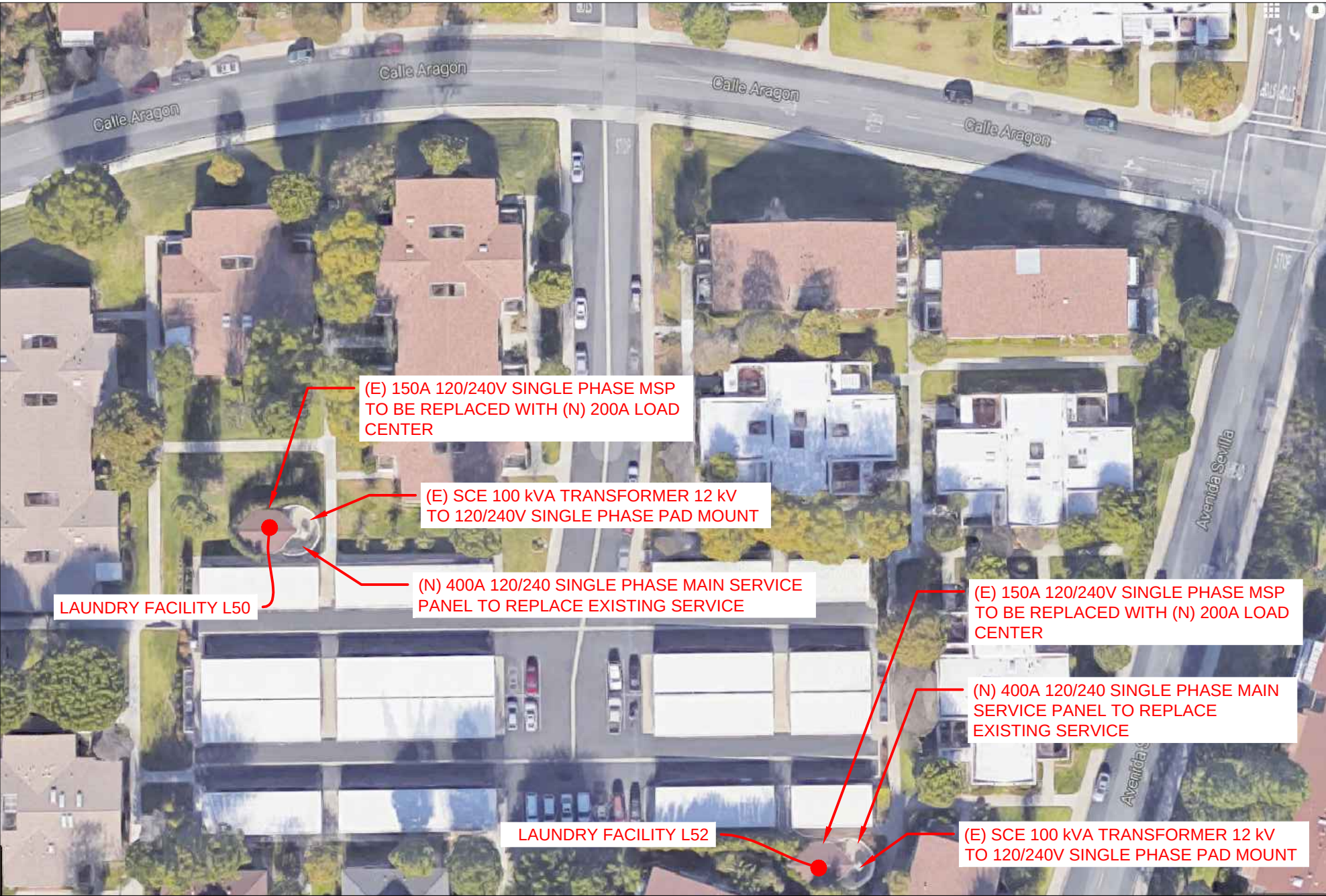
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(949) 268-2271

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DRAWN BY: MCB	SHEET NAME: TITLE
DATE: 9/15/16	SHEET NUMBER: MPU-1



 **LWUM 01 DETAIL**
SCALE: 1" = 40'

PROJECT DEVELOPER

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DATE	DESCRIPTION	REV. NO.
8/11/16		0

DRAWN BY: MCB	SHEET NAME: LMUW 01
DATE: 8/11/16	SHEET NUMBER: MPU-2



SITE PLAN



PLOT PLAN
(ENLARGED SITE PLAN)

PROJECT DEVELOPER

JOHNSON CONTROLS INC.
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PLYMOUTH MEETING, PA 19462

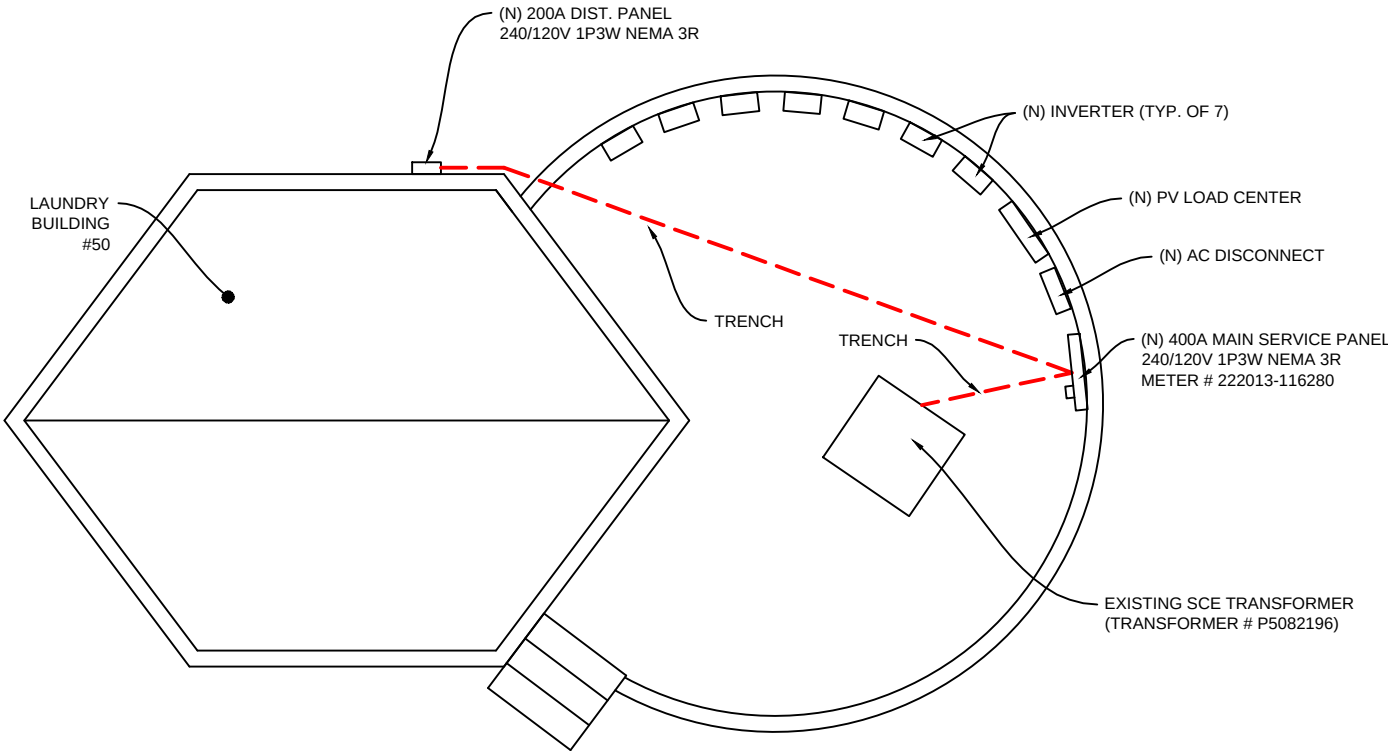
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OWNER / JOB LOCATION:

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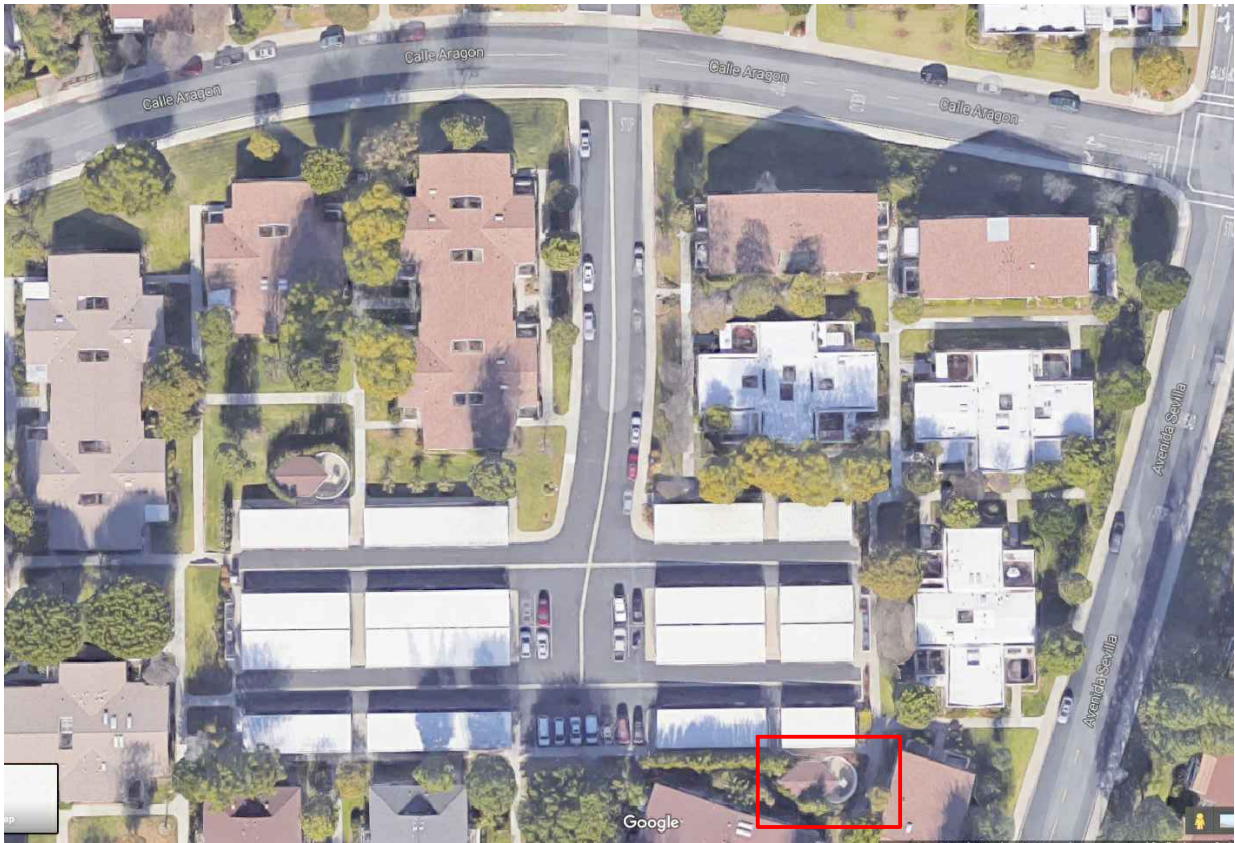
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DATE	DESCRIPTION	REV. NO.
8/25/16		0

DRAWN BY: MCB	SHEET NAME: PLOT L50
DATE: 8/25/16	SHEET NUMBER: NEM-2



SITE PLAN



PLOT PLAN
(ENLARGED SITE PLAN)

PROJECT DEVELOPER

JOHNSON CONTROLS INC.
SYSTEMS AND SOLUTIONS NA
2250 BUTLER PIKE, SUITE 130
PLYMOUTH MEETING, PA 19462

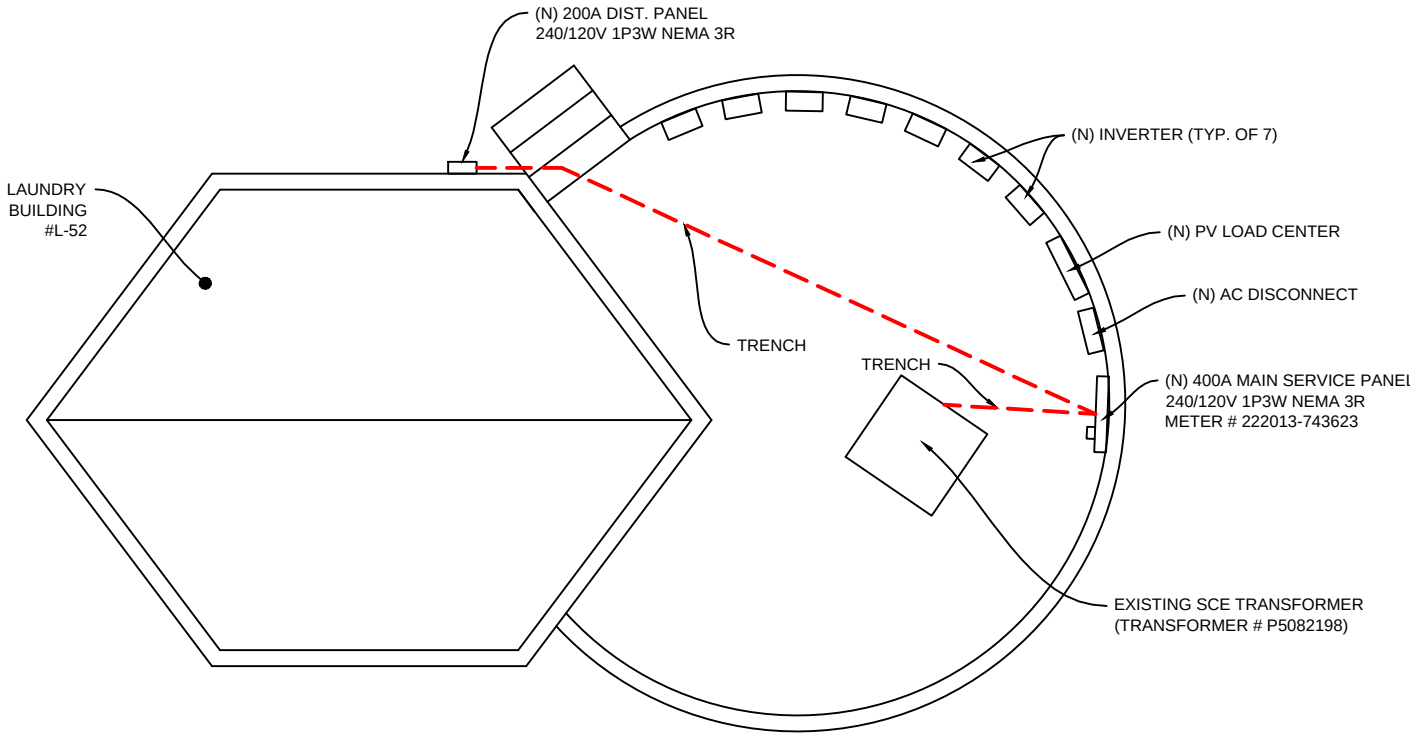
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OWNER / JOB LOCATION:

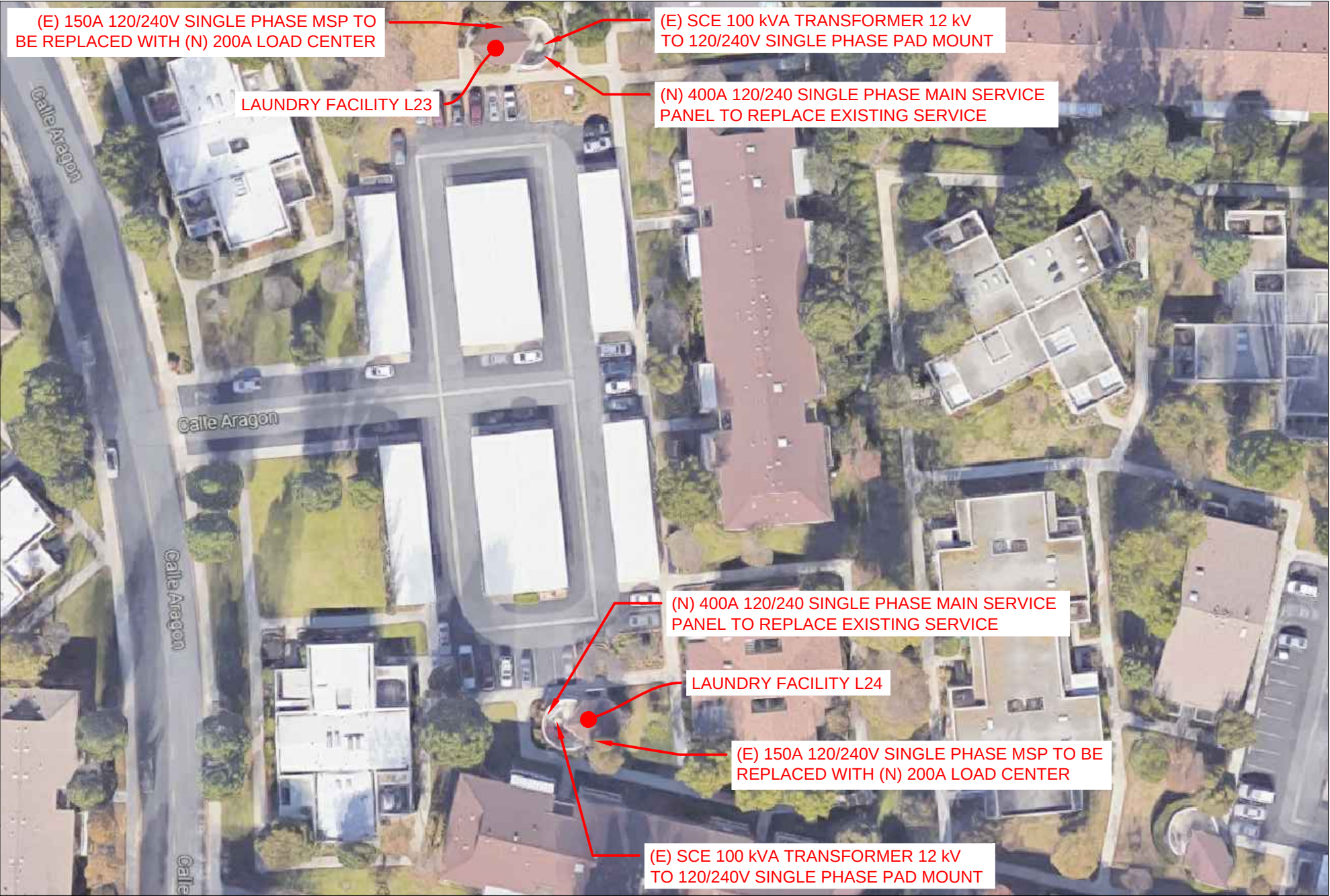
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ENLARGED PLOT PLAN (METER 222013-743623)

DATE	DESCRIPTION	REV. NO.
8/25/16		0

DRAWN BY: MCB	SHEET NAME: PLOT L52
DATE: 8/25/16	SHEET NUMBER: NEM-3



 **LWUM 02 DETAIL**
SCALE: 1" = 40'

PROJECT DEVELOPER

JOHNSON CONTROLS INC.
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2250 BUTLER PIKE, SUITE 130
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DATE	DESCRIPTION	REV. NO.
8/11/16		0

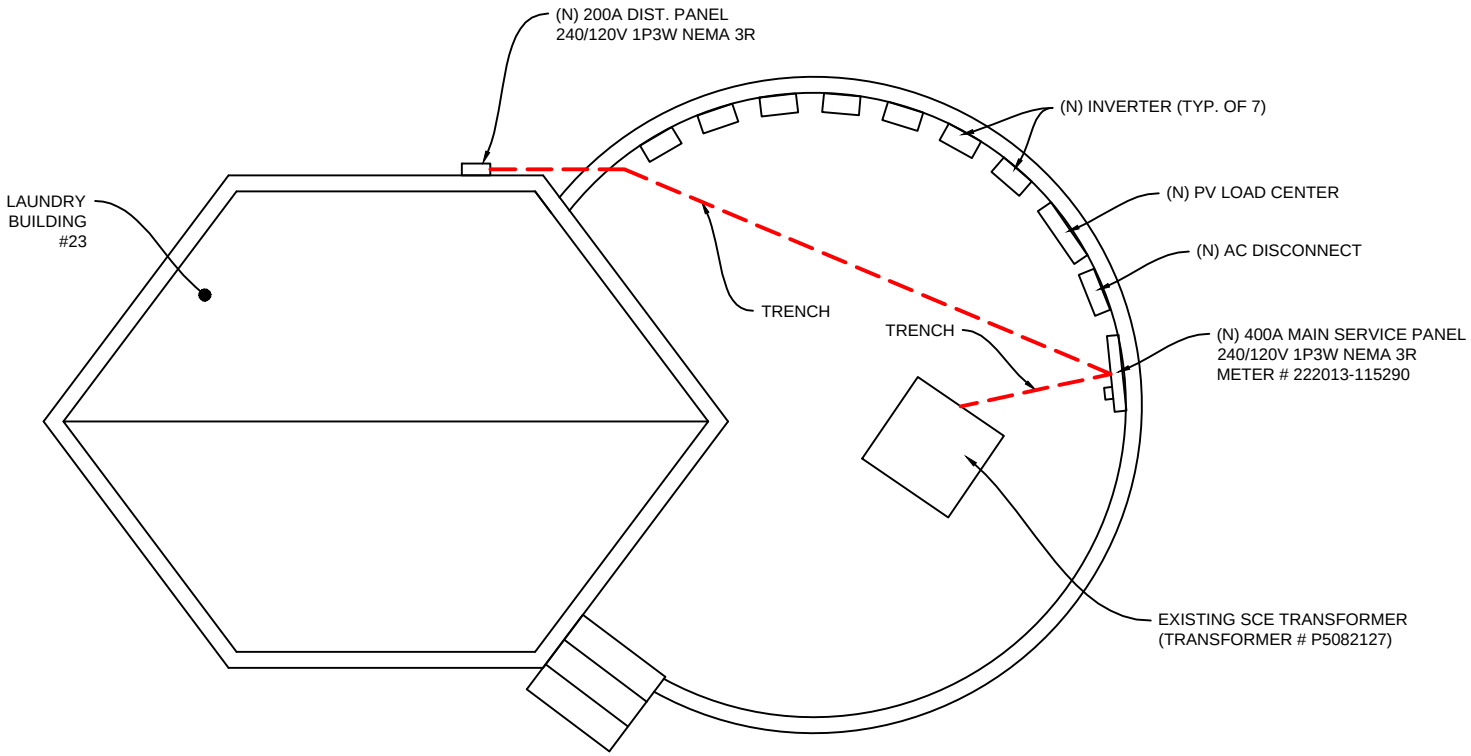
DRAWN BY: MCB	SHEET NAME: LMUW 02
DATE: 8/11/16	SHEET NUMBER: MPU-3



SITE PLAN



PLOT PLAN (ENLARGED SITE PLAN)



ENLARGED PLOT PLAN (METER 222013-115290)

PROJECT DEVELOPER

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OWNER / JOB LOCATION:

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DATE	DESCRIPTION	REV. NO.
8/25/16		0

DRAWN BY: MCB	SHEET NAME: PLOT L23
DATE: 8/25/16	SHEET NUMBER: NEM-4



SITE PLAN



PLOT PLAN
(ENLARGED SITE PLAN)

PROJECT DEVELOPER

JOHNSON CONTROLS INC.
SYSTEMS AND SOLUTIONS NA
2250 BUTLER PIKE, SUITE 130
PLYMOUTH MEETING, PA 19462

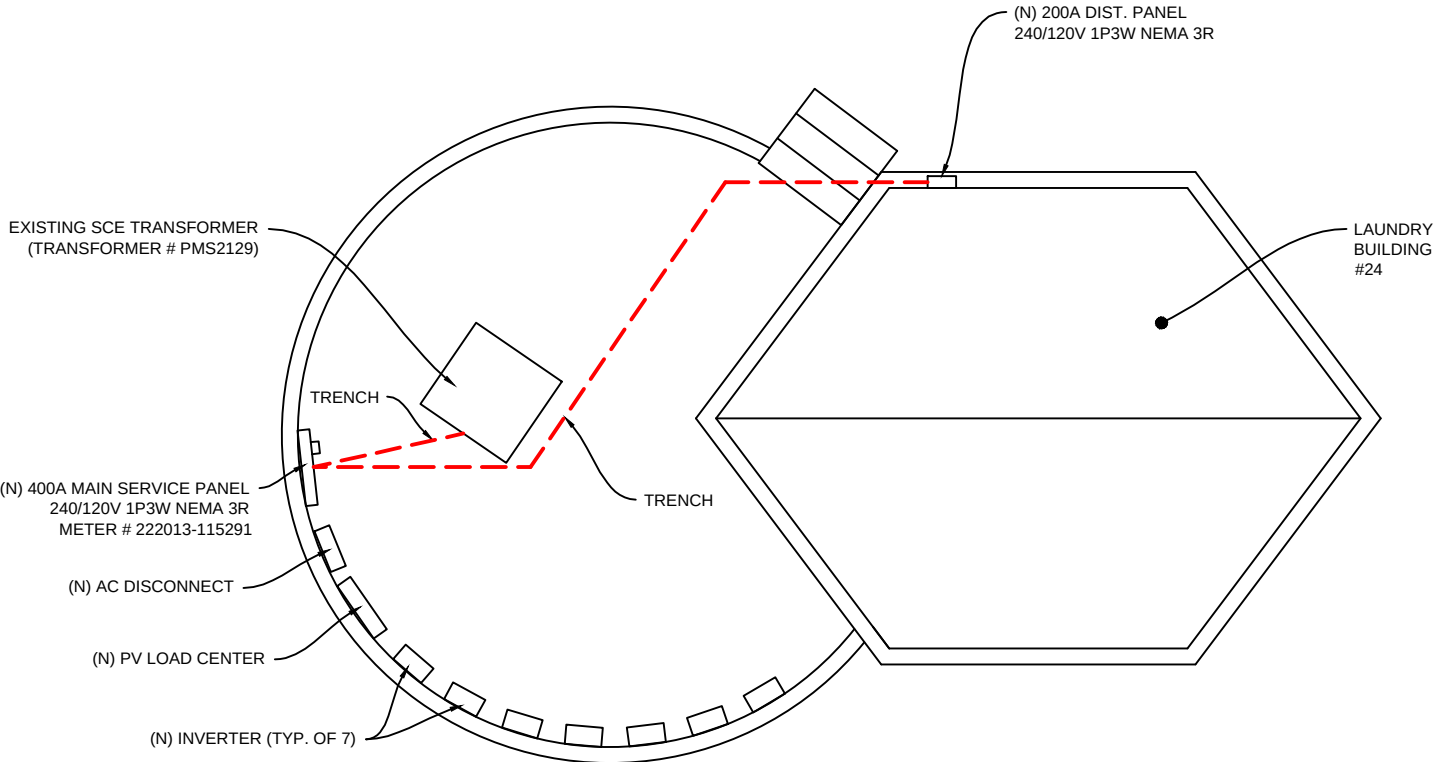
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ENLARGED PLOT PLAN (METER 222013-115291)

DATE	DESCRIPTION	REV. NO.
8/25/16		0

DRAWN BY: MCB	SHEET NAME: PLOT L24
DATE: 8/25/16	SHEET NUMBER: NEM-5

PROJECT DEVELOPER

JOHNSON CONTROLS INC.
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2250 BUTLER PIKE, SUITE 130
PLYMOUTH MEETING, PA 19462

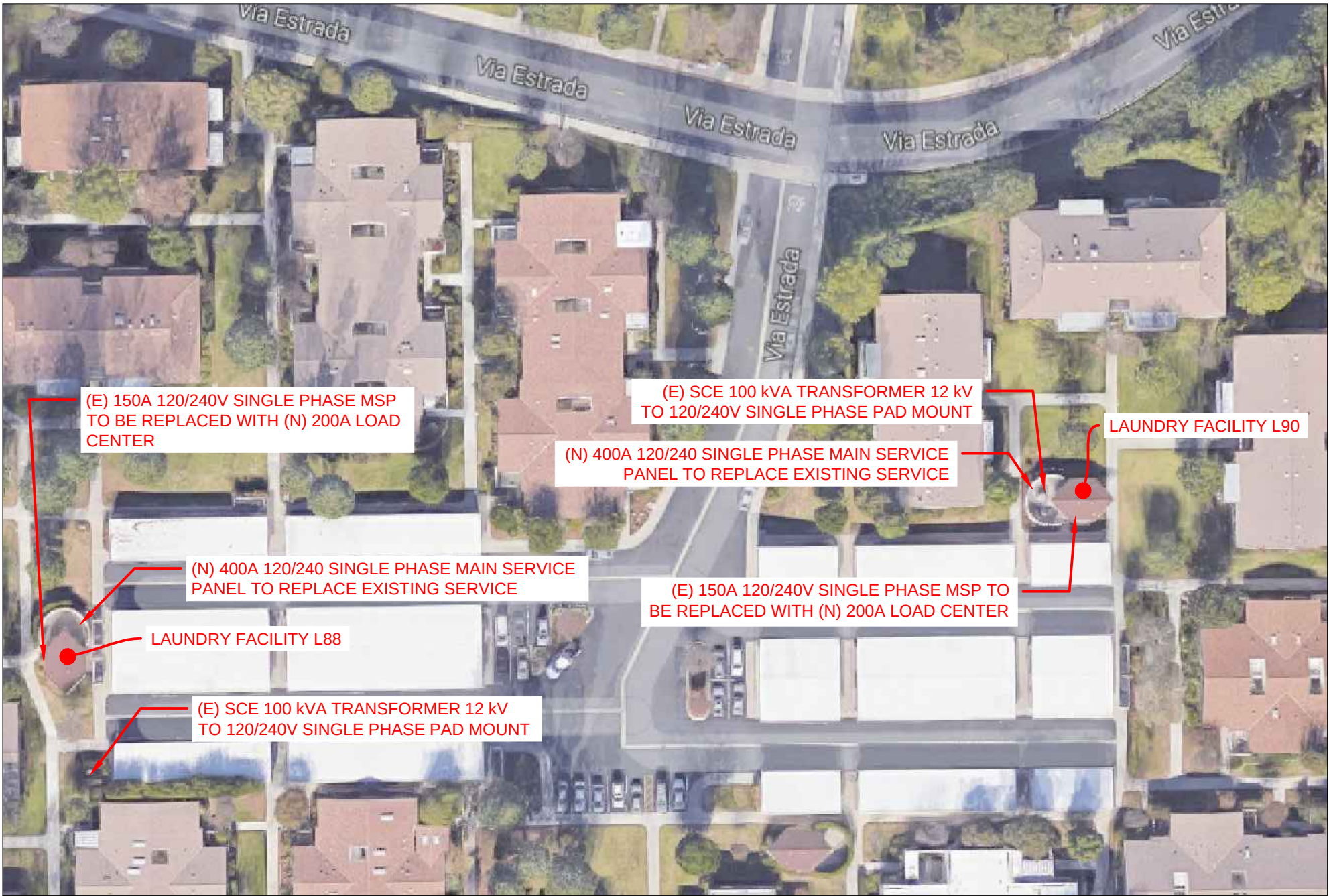
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OWNER / JOB LOCATION:

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LWUM 03 DETAIL

SCALE: 1" = 40'

DATE	DESCRIPTION	REV. NO.
8/11/16		0

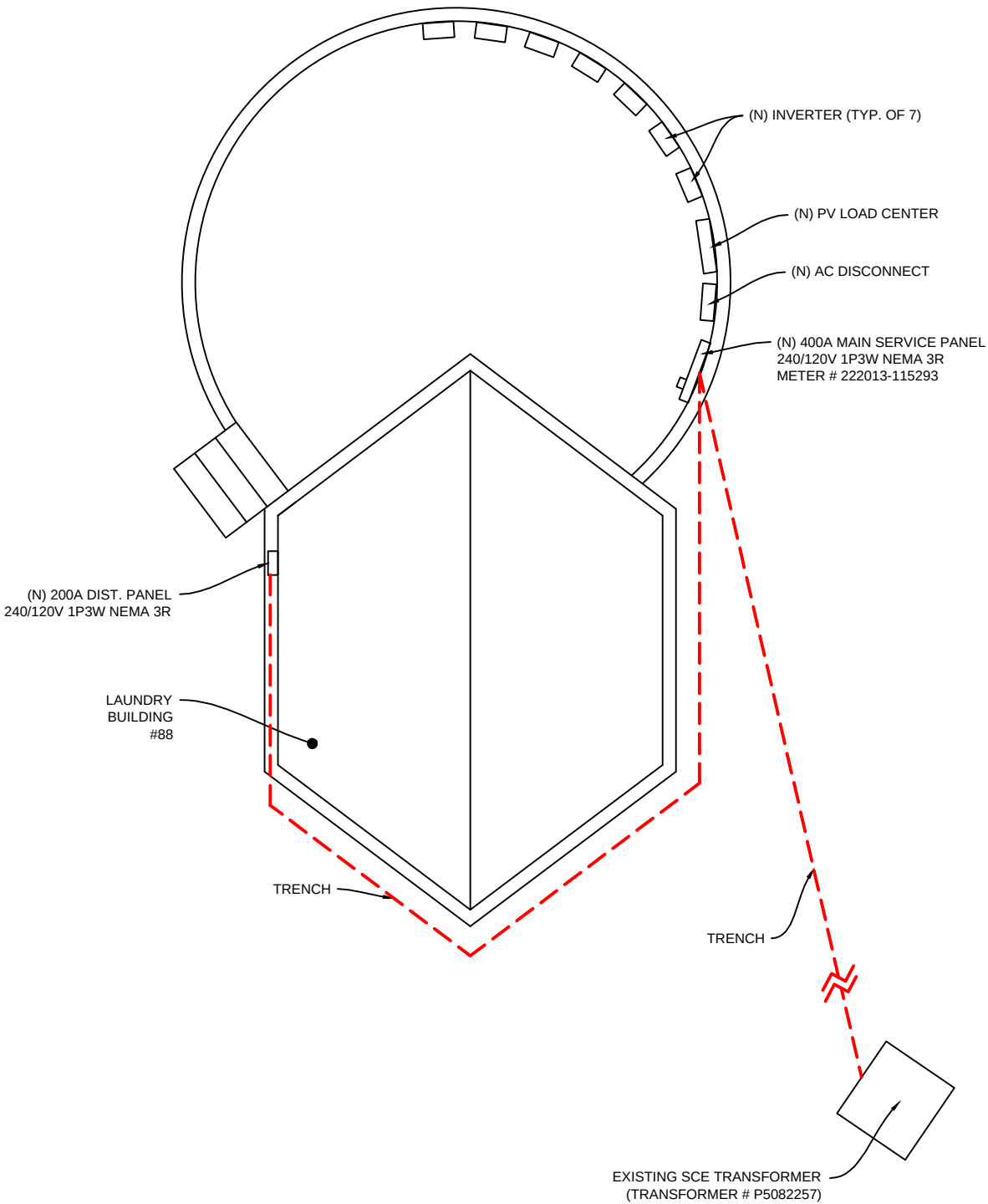
DRAWN BY: MCB	SHEET NAME: LMUW 03
DATE: 8/11/16	SHEET NUMBER: MPU-4



SITE PLAN



**PLOT PLAN
(ENLARGED SITE PLAN)**



**ENLARGED PLOT PLAN
(METER 222013-115293)**

PROJECT DEVELOPER

JOHNSON CONTROLS INC.
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DATE	DESCRIPTION	REV. NO.
8/25/16		0

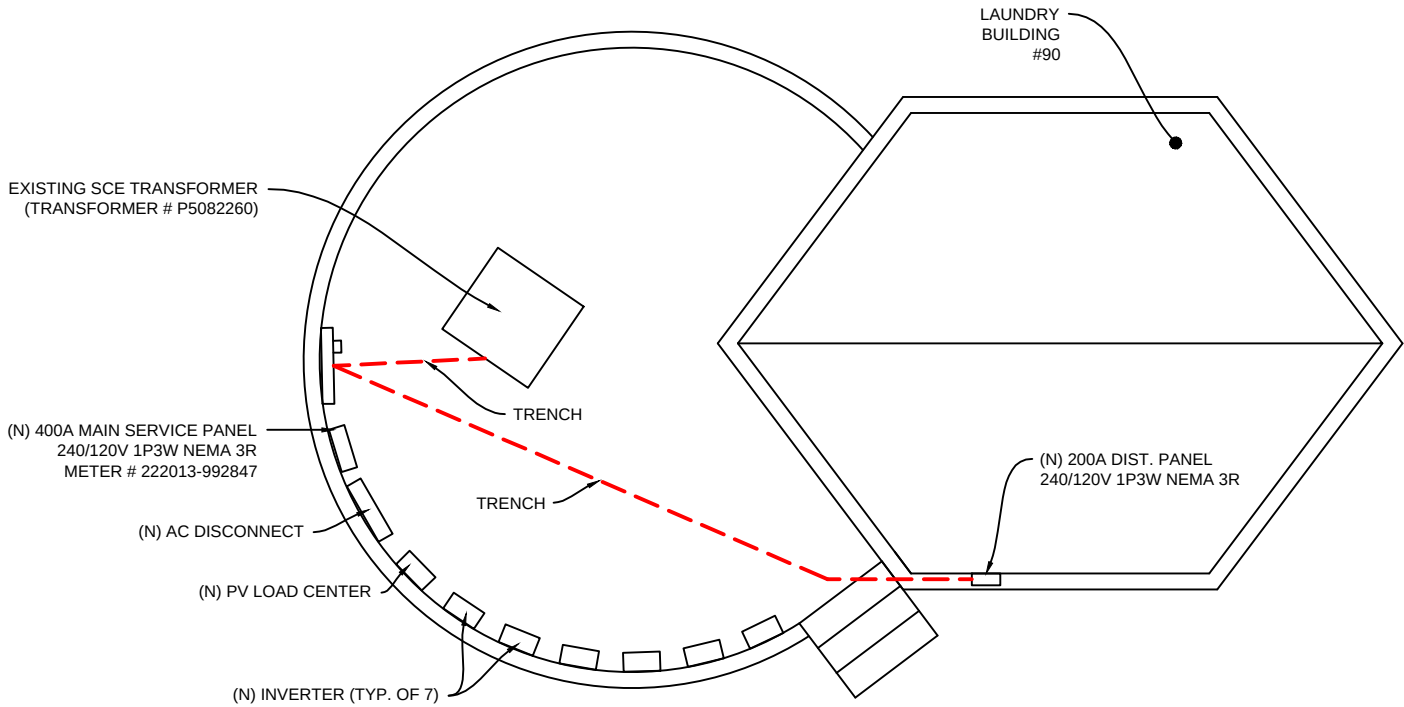
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DATE: 8/25/16	SHEET NUMBER: NEM-6



SITE PLAN



**PLOT PLAN
(ENLARGED SITE PLAN)**



**ENLARGED PLOT PLAN
(METER 222013-992847)**

PROJECT DEVELOPER

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DATE	DESCRIPTION	REV. NO.
8/25/16		0

DRAWN BY: MCB	SHEET NAME: PLOT L90
DATE: 8/25/16	SHEET NUMBER: NEM-7

PROJECT DEVELOPER

JOHNSON CONTROLS INC.
SYSTEMS AND SOLUTIONS NA
2250 BUTLER PIKE, SUITE 130
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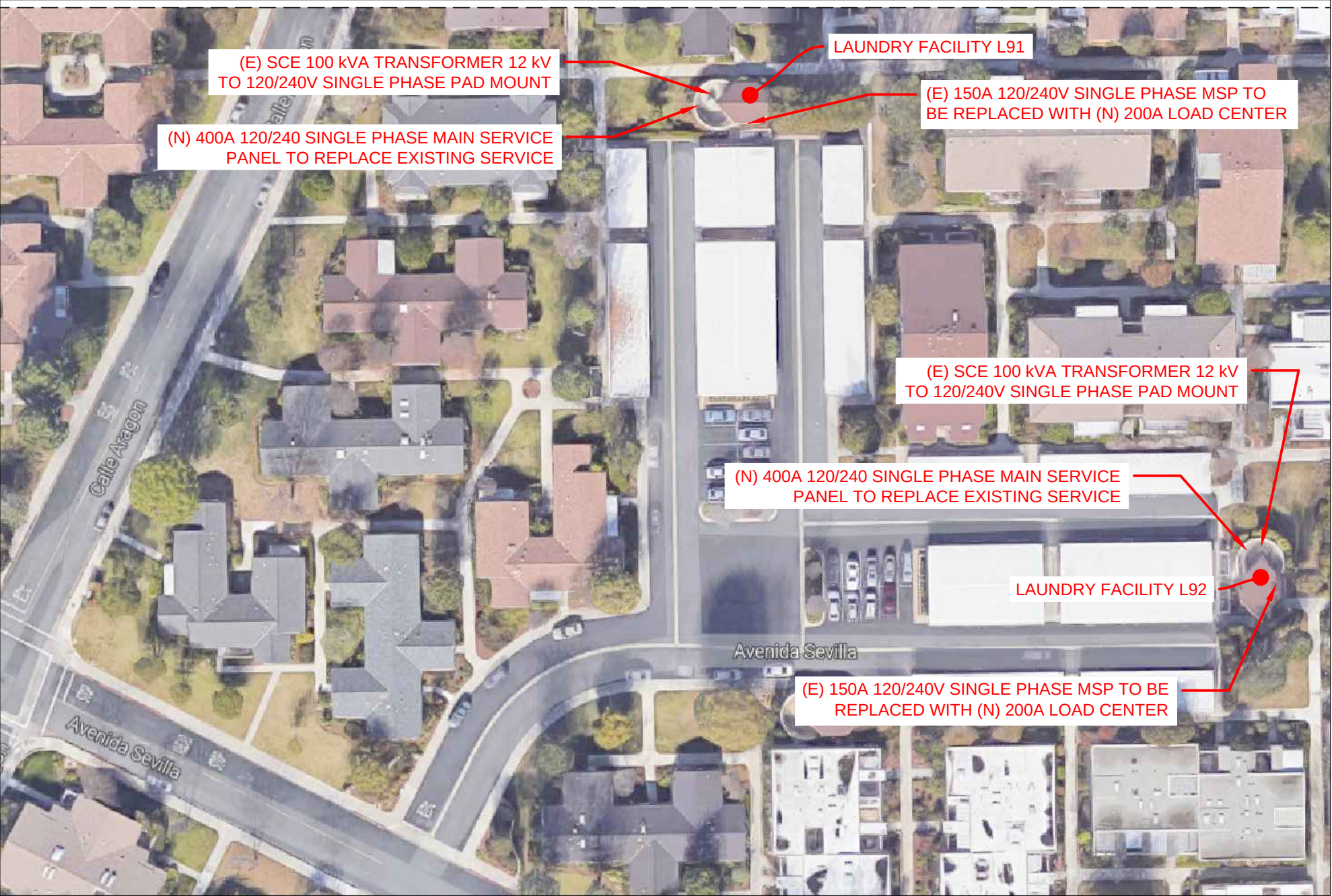
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OWNER / JOB LOCATION:

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LWUM 04 DETAIL

SCALE: 1" = 40'

DATE	DESCRIPTION	REV. NO.
8/11/16		0

DRAWN BY: MCB	SHEET NAME: LMUW 04
DATE: 8/11/16	SHEET NUMBER: MPU-5



SITE PLAN



PLOT PLAN
(ENLARGED SITE PLAN)

PROJECT DEVELOPER

JOHNSON CONTROLS INC.
SYSTEMS AND SOLUTIONS NA
2250 BUTLER PIKE, SUITE 130
PLYMOUTH MEETING, PA 19462

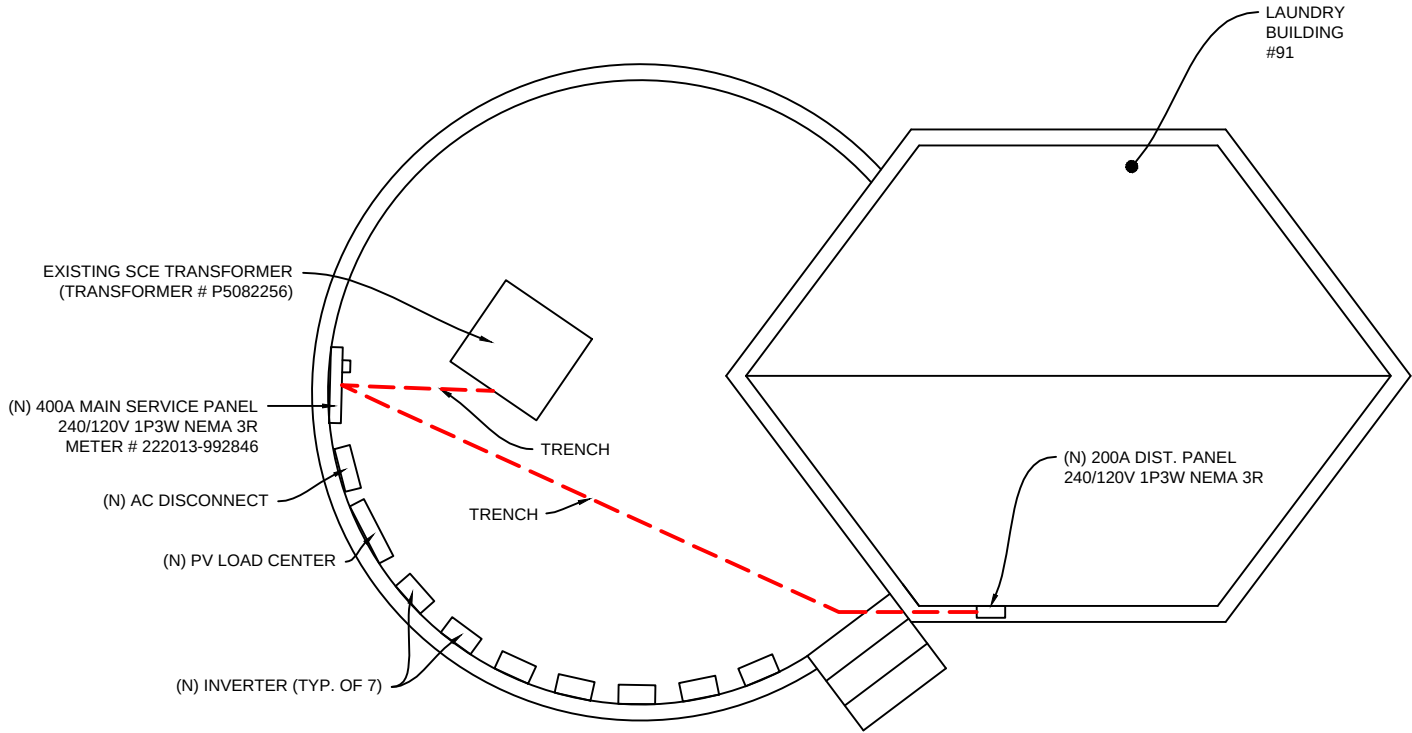
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OWNER / JOB LOCATION:

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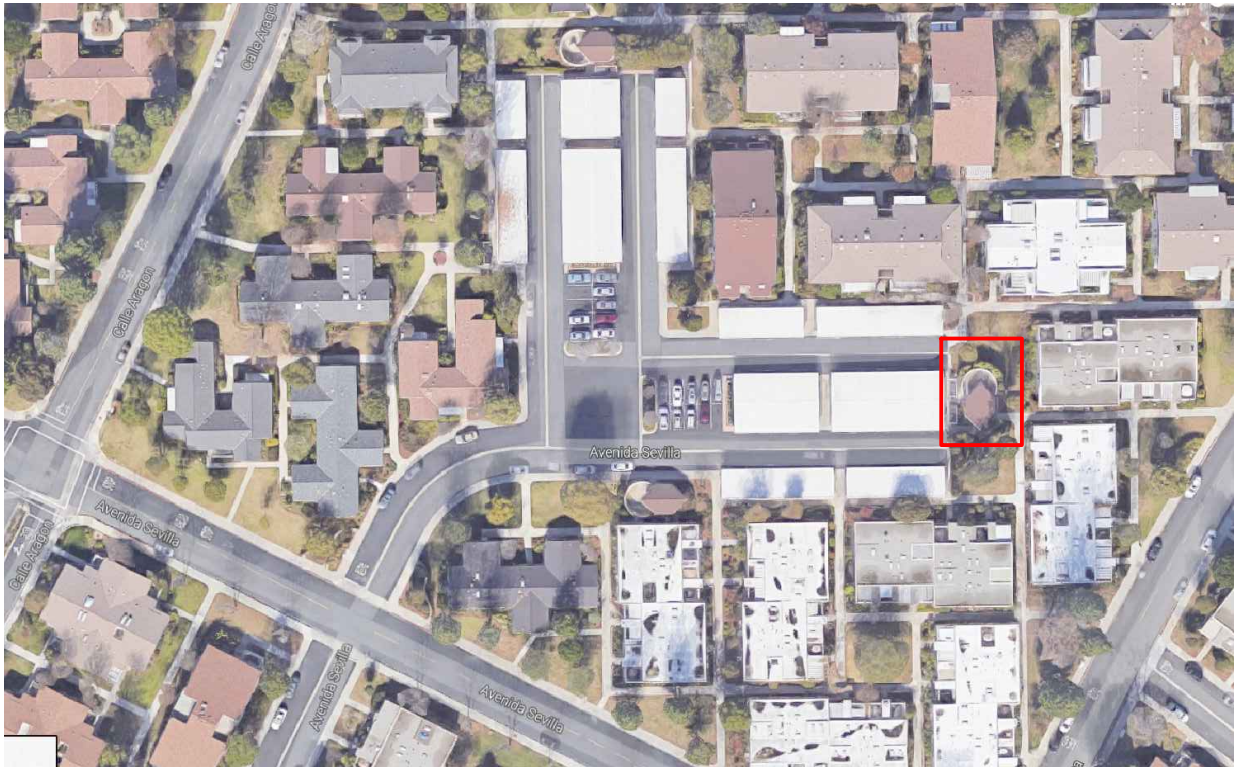
ENLARGED PLOT PLAN (METER 222013-992846)

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8/25/16		0

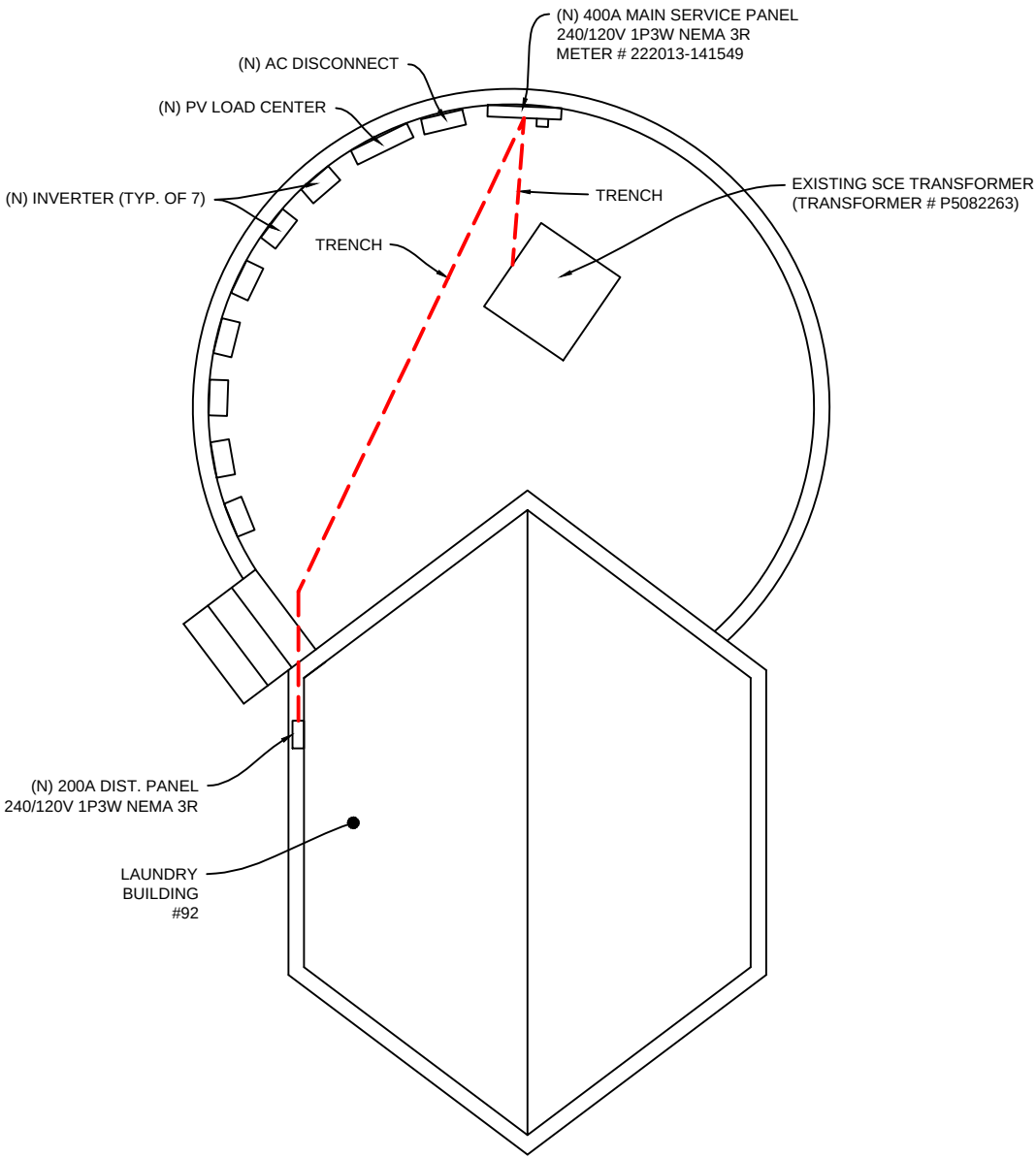
DRAWN BY: MCB	SHEET NAME: PLOT L91
DATE: 8/25/16	SHEET NUMBER: NEM-8



SITE PLAN



**PLOT PLAN
(ENLARGED SITE PLAN)**



**ENLARGED PLOT PLAN
(METER 222013-141549)**

PROJECT DEVELOPER

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OWNER / JOB LOCATION:

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DATE	DESCRIPTION	REV. NO.
8/25/16		0

DRAWN BY: MCB	SHEET NAME: PLOT L92
DATE: 8/25/16	SHEET NUMBER: NEM-9

TOTAL MODULES	336	ARRAY L50	
TOTAL DC KW	105.84		
NAMEPLATE AC KW	77	INVERTERS:	
TOTAL DC/AC RATIO	137.45%	SMA SUNNY BOY SB11000-US TL	
NO. OF STRINGS	28	MODULES:	
NO. INVERTERS	7	JA SOLAR JAP6-72-315/4BB	

INVERTER 1				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 2				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

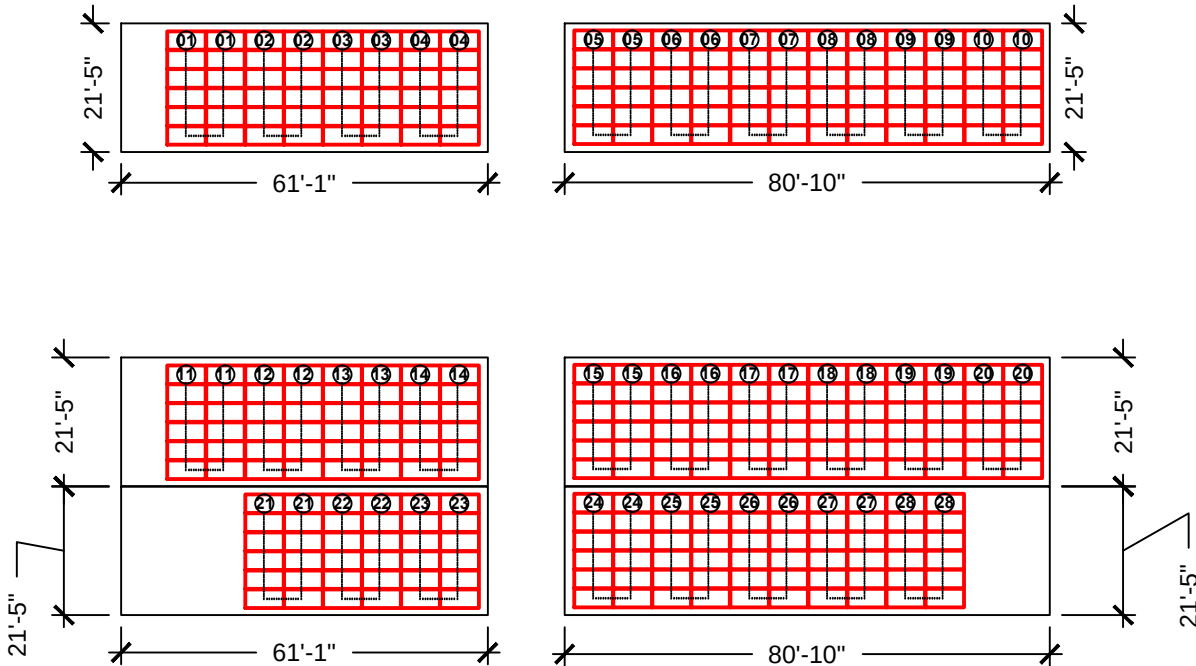
INVERTER 3				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 4				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 5				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 6				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 7				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%



ARRAY L50 LAYOUT

AZIMUTH: 179° T.N. SCALE: 1/32" = 1'-0"

ARRAY L50 STRINGING				
STRING	NO. OF MODULES	TILT	AZIMUTH	INVERTER NO.
1	12	2	179	1
2	12	2	179	1
3	12	2	179	1
4	12	2	179	1
5	12	2	179	2
6	12	2	179	2
7	12	2	179	2
8	12	2	179	2
9	12	2	179	3
10	12	2	179	3
11	12	2	179	3
12	12	2	179	3
13	12	2	179	4
14	12	2	179	4
15	12	2	179	4
16	12	2	179	4
17	12	2	179	5
18	12	2	179	5
19	12	2	179	5
20	12	2	179	5
21	12	2	179	6
22	12	2	179	6
23	12	2	179	6
24	12	2	179	6
25	12	2	179	7
26	12	2	179	7
27	12	2	179	7
28	12	2	179	7



ARRAY L50 AERIAL VIEW (SECTION LWUM-01)

PROJECT DEVELOPER

JOHNSON CONTROLS INC.
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OWNER / JOB LOCATION:

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(949) 268-2271

DATE	DESCRIPTION	REV. NO.
8/25/16		0

DRAWN BY: MCB	SHEET NAME: LAYOUT L50
DATE: 8/25/16	SHEET NUMBER: NEM-10

TOTAL MODULES	300	ARRAY L52		
TOTAL DC KW	94.5			
NAMEPLATE AC KW	77	INVERTERS:		
TOTAL DC/AC RATIO	122.73%	SMA SUNNY BOY SB11000-US TL		
NO. OF STRINGS	25	MODULES:		
NO. INVERTERS	7	JA SOLAR JAP6-72-315/4BB		

INVERTER 1				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 2				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 3				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

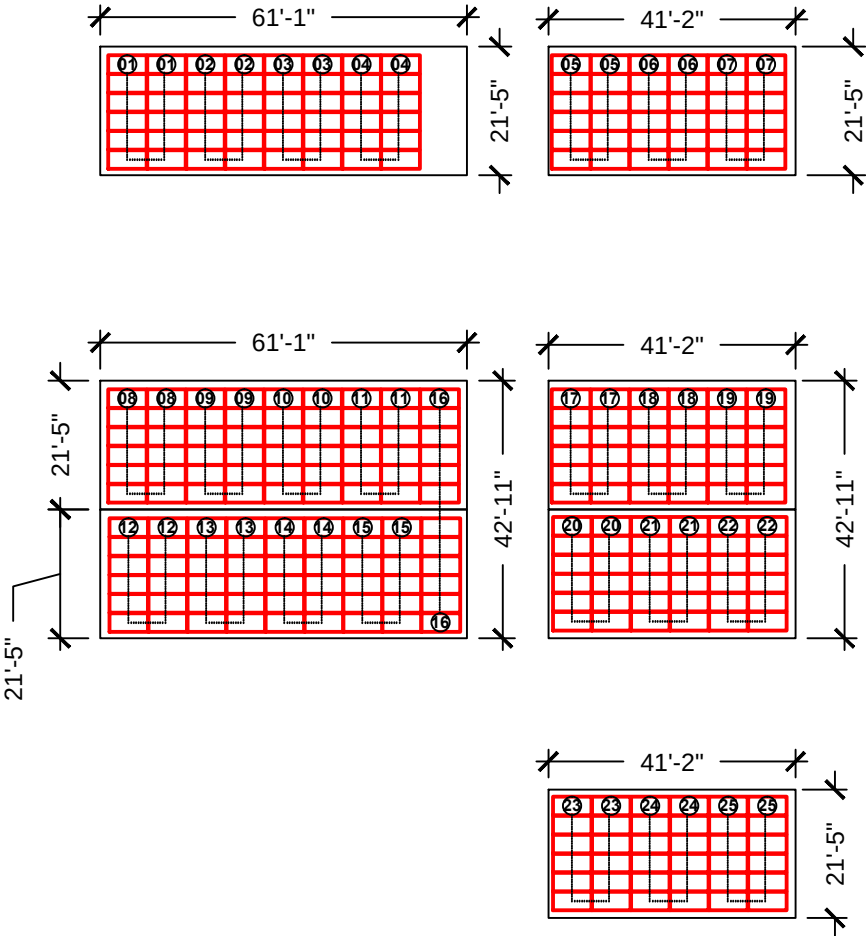
INVERTER 4				
3	x	12	RATED MAX POWER POINT CURRENT (IMP)	25.41
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	33.68
			DC/AC RATIO	103.09%

INVERTER 5				
3	x	12	RATED MAX POWER POINT CURRENT (IMP)	25.41
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	33.68
			DC/AC RATIO	103.09%

INVERTER 6				
3	x	12	RATED MAX POWER POINT CURRENT (IMP)	25.41
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	33.68
			DC/AC RATIO	103.09%

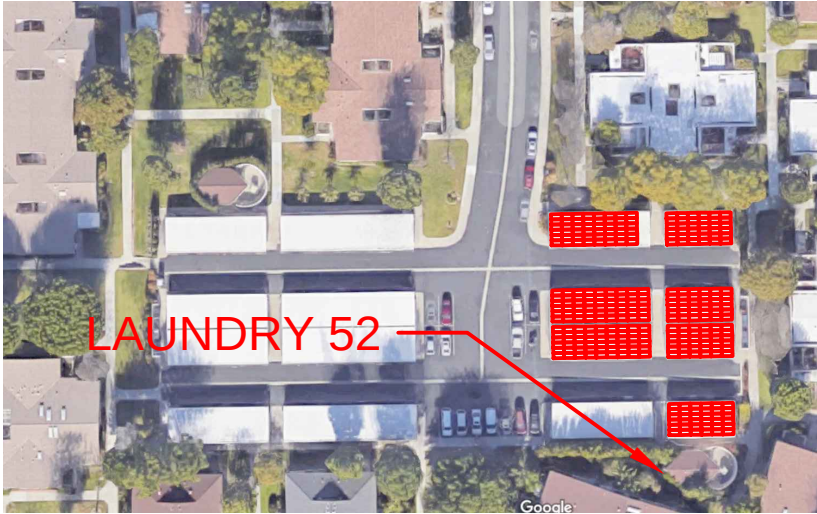
INVERTER 7				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

ARRAY L52 STRINGING				
STRING	NO. OF MODULES	TILT	AZIMUTH	INVERTER NO.
1	12	2	179	1
2	12	2	179	1
3	12	2	179	1
4	12	2	179	1
5	12	2	179	2
6	12	2	179	2
7	12	2	179	2
8	12	2	179	2
9	12	2	179	3
10	12	2	179	3
11	12	2	179	3
12	12	2	179	3
13	12	2	179	4
14	12	2	179	4
15	12	2	179	4
16	12	2	179	5
17	12	2	179	5
18	12	2	179	5
19	12	2	179	6
20	12	2	179	6
21	12	2	179	6
22	12	2	179	7
23	12	2	179	7
24	12	2	179	7
25	12	2	179	7



ARRAY L52 LAYOUT

AZIMUTH: 179° T.N. SCALE: 1/32" = 1'-0"



ARRAY L52 AERIAL VIEW

(SECTION LWUM-01)

PROJECT DEVELOPER

JOHNSON CONTROLS INC.
SYSTEMS AND SOLUTIONS NA
2250 BUTLER PIKE, SUITE 130
PLYMOUTH MEETING, PA 19462

ENGINEERING, PROCUREMENT AND
CONSTRUCTION MGMT.

PROGRESSIVE
POWER GROUP

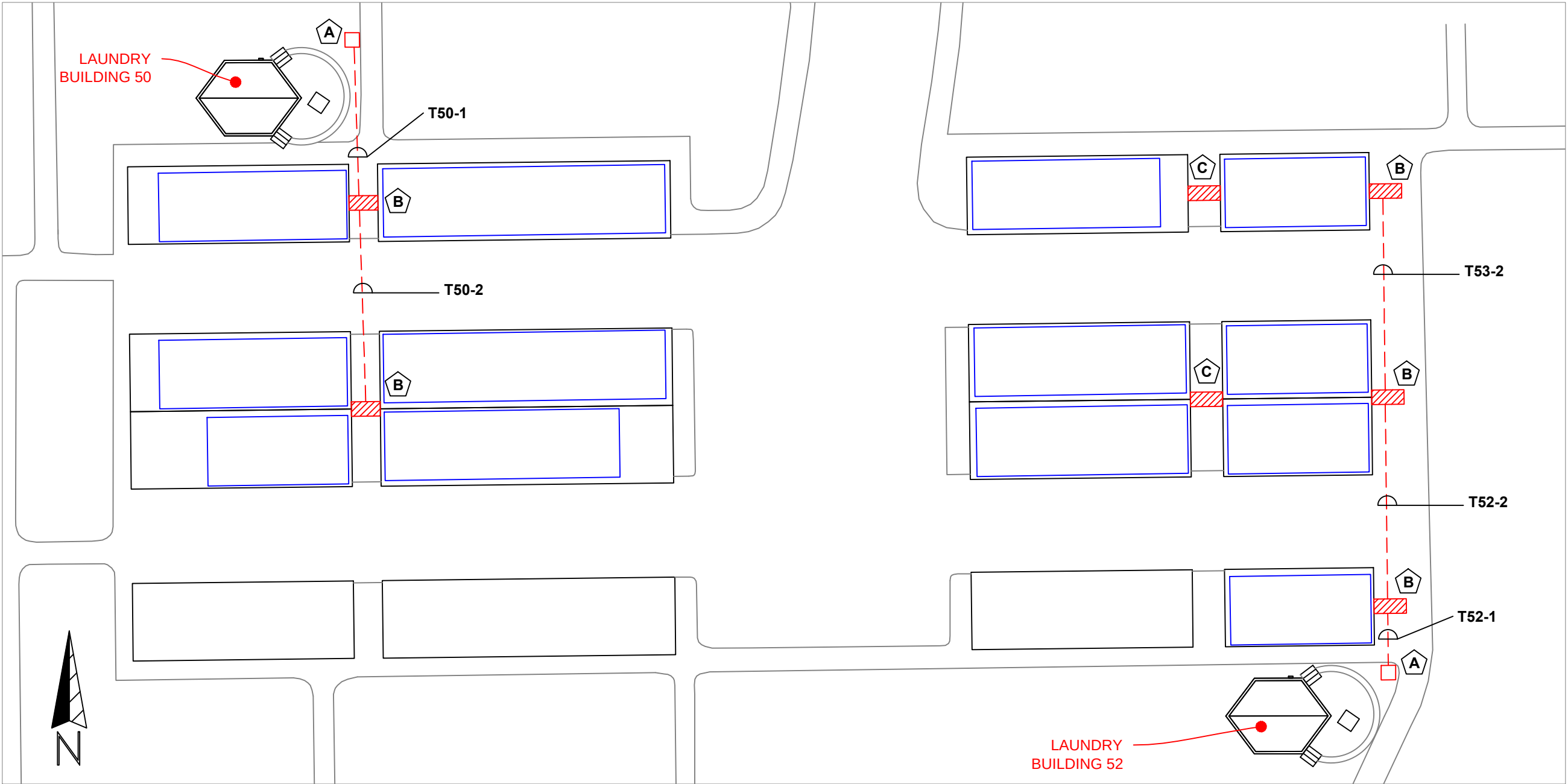
12552 WESTERN AVE
GARDEN GROVE, CA 92841
(714) 899-2300 -- PHONE
(714) 899-2323 -- FAX
www.ProPowerGroup.com
CSLB 928459 B,C10

OWNER / JOB LOCATION:

LAGUNA WOODS VILLAGE
24351 EL TORO RD
LAGUNA WOODS, CA 92637
(949) 268-2271

DATE	DESCRIPTION	REV. NO.
8/25/16		0

DRAWN BY: MCB	SHEET NAME: LAYOUT L52
DATE: 8/25/16	SHEET NUMBER: NEM-11



HORIZONTAL BORE SCHEDULE					
TRENCH SECTION NO.	MINIMUM DEPTH	NO. CONDUITS	CONDUIT SIZE	CONDUIT TYPE	APRPOX. DISTANCE
T50-1	24 inches	(2)	2"	SCH. 40 PVC	20 FT.
T50-2	24 inches	(1)	2"	SCH. 40 PVC	60 FT.
T52-1	24 inches	(3)	2"	SCH. 40 PVC	60 FT.
T52-2	24 inches	(2)	2"	SCH. 40 PVC	50 FT.
T52-3	24 inches	(1)	2"	SCH. 40 PVC	60 FT.

NOTE: DISTANCES SHOWN IN THIS TABLE INCLUDE HORIZONTAL BORE LENGTHS ONLY. THEY DO NOT INCLUDE VERTICAL OR ROOF-MOUNTED CONDUIT RUNS.

NOTES	
	BORE PIT
	SAW CUT TRENCH (TO SERVE AS BORING POT HOLE, DEPTH AS REQUIRED, OR 24" MIN.)
	SAW-CUT TRENCH (DEPTH 24")

EPC:
PROGRESSIVE
POWER GROUP

12552 WESTERN AVE
GARDEN GROVE, CA 92841
(714) 899-2300 -- PHONE
(714) 899-2323 -- FAX
www.ProPowerGroup.com
CSLB 928459 B,C10

DEVELOPER:

JOHNSON CONTROLS
5770 WARLAND DRIVE
CYPRESS, CA 90630
(562) 593-3200 -- PHONE
www.JohnsonControls.com

PROJECT ADDRESS:

LAGUNA WOODS VILLAGE
234-248 CALLE ARAGON
LAGUNA WOODS, CA 92673

(LAUNDRY BUILDINGS
L50 AND L52)

REVISION NO: REV.0	SHEET NAME: LWMU-01 CIVIL
DATE: 8/31/16	SHEET NUMBER: C-1

TOTAL MODULES	288	ARRAY L23	
TOTAL DC KW	90.72		
NAMEPLATE AC KW	77	INVERTERS:	
TOTAL DC/AC RATIO	117.82%	SMA SUNNY BOY SB11000-US TL	
NO. OF STRINGS	24	MODULES:	
NO. INVERTERS	7	JA SOLAR JAP6-72-315/4BB	

INVERTER 1				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 2				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 3				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

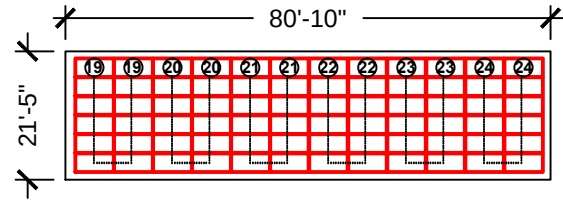
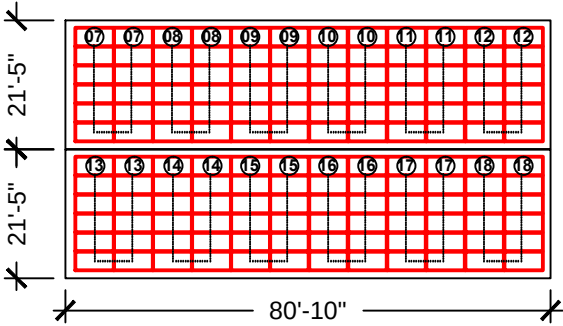
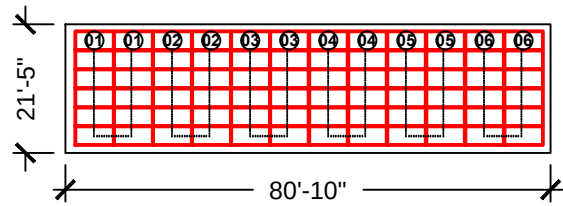
INVERTER 4				
3	x	12	RATED MAX POWER POINT CURRENT (IMP)	25.41
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	33.68
			DC/AC RATIO	103.09%

INVERTER 5				
3	x	12	RATED MAX POWER POINT CURRENT (IMP)	25.41
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	33.68
			DC/AC RATIO	103.09%

INVERTER 6				
3	x	12	RATED MAX POWER POINT CURRENT (IMP)	25.41
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	33.68
			DC/AC RATIO	103.09%

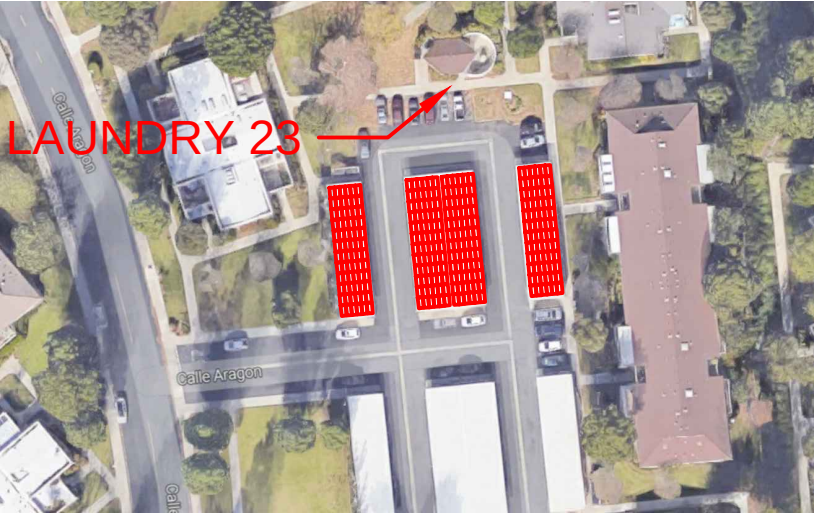
INVERTER 7				
3	x	12	RATED MAX POWER POINT CURRENT (IMP)	25.41
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	33.68
			DC/AC RATIO	103.09%

ARRAY L23 STRINGING				
STRING	NO. OF MODULES	TILT	AZIMUTH	INVERTER NO.
1	12	2	265	1
2	12	2	265	1
3	12	2	265	1
4	12	2	265	1
5	12	2	265	2
6	12	2	265	2
7	12	2	265	2
8	12	2	265	2
9	12	2	265	3
10	12	2	265	3
11	12	2	265	3
12	12	2	265	3
13	12	2	265	4
14	12	2	265	4
15	12	2	265	4
16	12	2	265	5
17	12	2	265	5
18	12	2	265	5
19	12	2	265	6
20	12	2	265	6
21	12	2	265	6
22	12	2	265	7
23	12	2	265	7
24	12	2	265	7



ARRAY L23 LAYOUT

AZIMUTH: 265° T.N. SCALE: 1/32" = 1'-0"



ARRAY L23 AERIAL VIEW

(SECTION LWUM-02)

PROJECT DEVELOPER

JOHNSON CONTROLS INC.
SYSTEMS AND SOLUTIONS NA
2250 BUTLER PIKE, SUITE 130
PLYMOUTH MEETING, PA 19462

ENGINEERING, PROCUREMENT AND
CONSTRUCTION MGMT.

PROGRESSIVE
POWER GROUP

12552 WESTERN AVE
GARDEN GROVE, CA 92841
(714) 899-2300 -- PHONE
(714) 899-2323 -- FAX
www.ProPowerGroup.com
CSLB 928459 B,C10

OWNER / JOB LOCATION:

LAGUNA WOODS VILLAGE
24351 EL TORO RD
LAGUNA WOODS, CA 92637
(949) 268-2271

DATE	DESCRIPTION	REV. NO.
8/25/16		0

DRAWN BY: MCB	SHEET NAME: LAYOUT L23
DATE: 8/25/16	SHEET NUMBER: NEM-12

TOTAL MODULES	288	ARRAY L24		
TOTAL DC KW	90.72			
NAMEPLATE AC KW	77	INVERTERS:		
TOTAL DC/AC RATIO	117.82%	SMA SUNNY BOY SB11000-US TL		
NO. OF STRINGS	24	MODULES:		
NO. INVERTERS	7	JA SOLAR JAP6-72-315/4BB		

INVERTER 1				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 2				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 3				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

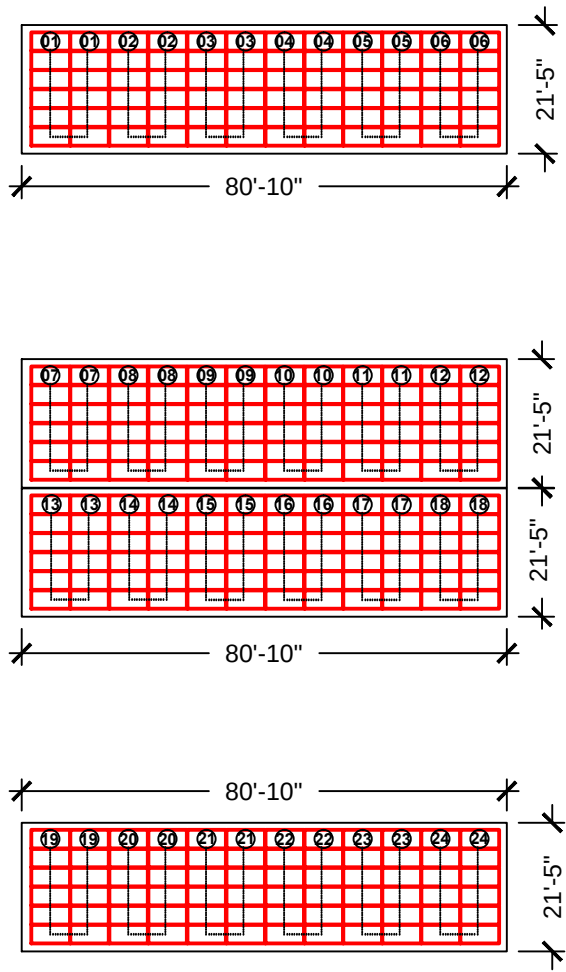
INVERTER 4				
3	x	12	RATED MAX POWER POINT CURRENT (IMP)	25.41
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	33.68
			DC/AC RATIO	103.09%

INVERTER 5				
3	x	12	RATED MAX POWER POINT CURRENT (IMP)	25.41
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	33.68
			DC/AC RATIO	103.09%

INVERTER 6				
3	x	12	RATED MAX POWER POINT CURRENT (IMP)	25.41
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	33.68
			DC/AC RATIO	103.09%

INVERTER 7				
3	x	12	RATED MAX POWER POINT CURRENT (IMP)	25.41
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	33.68
			DC/AC RATIO	103.09%

ARRAY L24 STRINGING				
STRING	NO. OF MODULES	TILT	AZIMUTH	INVERTER NO.
1	12	2	265	1
2	12	2	265	1
3	12	2	265	1
4	12	2	265	1
5	12	2	265	2
6	12	2	265	2
7	12	2	265	2
8	12	2	265	2
9	12	2	265	3
10	12	2	265	3
11	12	2	265	3
12	12	2	265	3
13	12	2	265	4
14	12	2	265	4
15	12	2	265	4
16	12	2	265	5
17	12	2	265	5
18	12	2	265	5
19	12	2	265	6
20	12	2	265	6
21	12	2	265	6
22	12	2	265	7
23	12	2	265	7
24	12	2	265	7



ARRAY L24 LAYOUT
AZIMUTH: 265° T.N. SCALE: 1/32" = 1'-0"



ARRAY L24 AERIAL VIEW
(SECTION LWUM-02)

PROJECT DEVELOPER

JOHNSON CONTROLS INC.
SYSTEMS AND SOLUTIONS NA
2250 BUTLER PIKE, SUITE 130
PLYMOUTH MEETING, PA 19462

ENGINEERING, PROCUREMENT AND
CONSTRUCTION MGMT.

PROGRESSIVE
POWER GROUP

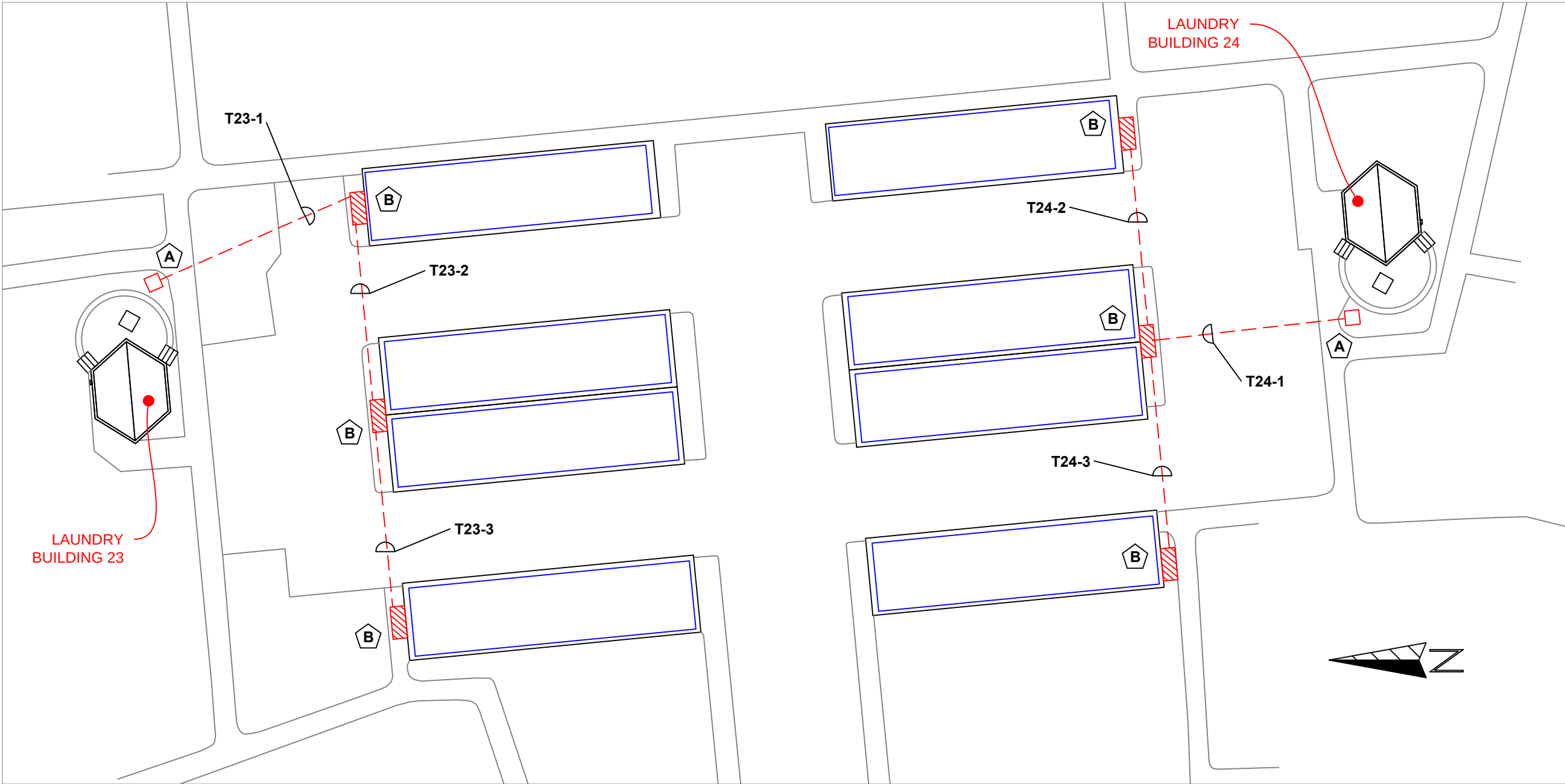
12552 WESTERN AVE
GARDEN GROVE, CA 92841
(714) 899-2300 -- PHONE
(714) 899-2323 -- FAX
www.ProPowerGroup.com
CSLB 928459 B,C10

OWNER / JOB LOCATION:

LAGUNA WOODS VILLAGE
24351 EL TORO RD
LAGUNA WOODS, CA 92637
(949) 268-2271

DATE	DESCRIPTION	REV. NO.
8/25/16		0

DRAWN BY: MCB	SHEET NAME: LAYOUT L24
DATE: 8/25/16	SHEET NUMBER: NEM-13



EPC:
PROGRESSIVE
POWER GROUP
12552 WESTERN AVE
GARDEN GROVE, CA 92841
(714) 899-2300 -- PHONE
(714) 899-2323 -- FAX
www.ProPowerGroup.com
CSLB 928459 B,C10

DEVELOPER:
JOHNSON CONTROLS
5770 WARLAND DRIVE
CYPRESS, CA 90630
(562) 593-3200 -- PHONE
www.JohnsonControls.com

PROJECT ADDRESS:
LAGUNA WOODS VILLAGE
81-85 CALLE ARAGON
LAGUNA WOODS, CA 92673
(LAUNDRY BUILDINGS
L23 AND L24)

HORIZONTAL BORE SCHEDULE					
TRENCH SECTION NO.	MINIMUM DEPTH	NO. CONDUITS	CONDUIT SIZE	CONDUIT TYPE	APRPOX. DISTANCE
T23-1	24 inches	(3)	2"	SCH. 40 PVC	50 FT.
T23-2	24 inches	(2)	2"	SCH. 40 PVC	60 FT.
T23-3	24 inches	(1)	2"	SCH. 40 PVC	60 FT.
T24-1	24 inches	(3)	2"	SCH. 40 PVC	60 FT.
T24-2	24 inches	(1)	2"	SCH. 40 PVC	60 FT.
T24-3	24 inches	(1)	2"	SCH. 40 PVC	60 FT.

NOTE: DISTANCES SHOWN IN THIS TABLE INCLUDE HORIZONTAL BORE LENGTHS ONLY.
THEY DO NOT INCLUDE VERTICAL OR ROOF-MOUNTED CONDUIT RUNS.

NOTES

A

BORE PIT

B

SAW CUT TRENCH
(TO SERVE AS BORING POT HOLE,
DEPTH AS REQUIRED, OR 24" MIN.)

REVISION NO: REV.0	SHEET NAME: LWMU-02 CIVIL
DATE: 8/31/16	SHEET NUMBER: C-2

TOTAL MODULES	336	ARRAY L88	
TOTAL DC KW	105.84		
NAMEPLATE AC KW	77	INVERTERS:	
TOTAL DC/AC RATIO	137.45%	SMA SUNNY BOY SB11000-US TL	
NO. OF STRINGS	28	MODULES:	
NO. INVERTERS	7	JA SOLAR JAP6-72-315/4BB	

INVERTER 1				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 2				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

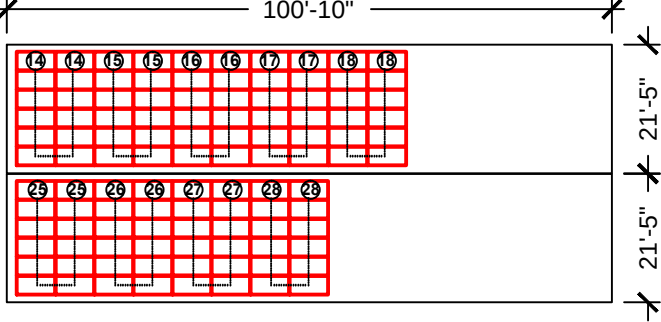
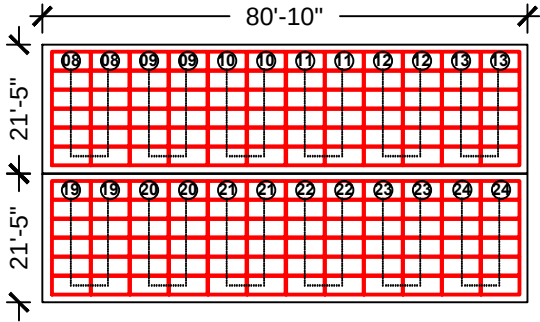
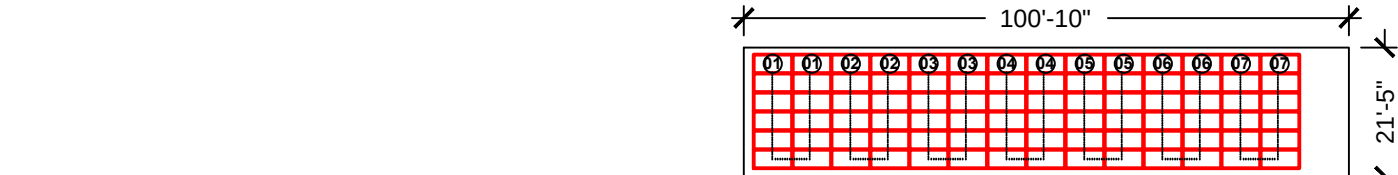
INVERTER 3				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 4				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 5				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 6				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 7				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%



ARRAY L88 LAYOUT

AZIMUTH: 179° T.N. SCALE: 1/32" = 1'-0"

ARRAY L88 STRINGING				
STRING	NO. OF MODULES	TILT	AZIMUTH	INVERTER NO.
1	12	2	179	1
2	12	2	179	1
3	12	2	179	1
4	12	2	179	1
5	12	2	179	2
6	12	2	179	2
7	12	2	179	2
8	12	2	179	2
9	12	2	179	3
10	12	2	179	3
11	12	2	179	3
12	12	2	179	3
13	12	2	179	4
14	12	2	179	4
15	12	2	179	4
16	12	2	179	4
17	12	2	179	5
18	12	2	179	5
19	12	2	179	5
20	12	2	179	5
21	12	2	179	6
22	12	2	179	6
23	12	2	179	6
24	12	2	179	6
25	12	2	179	7
26	12	2	179	7
27	12	2	179	7
28	12	2	179	7



ARRAY L88 AERIAL VIEW

(SECTION LWUM-03)

PROJECT DEVELOPER

JOHNSON CONTROLS INC.
SYSTEMS AND SOLUTIONS NA
2250 BUTLER PIKE, SUITE 130
PLYMOUTH MEETING, PA 19462

ENGINEERING, PROCUREMENT AND
CONSTRUCTION MGMT.

PROGRESSIVE
POWER GROUP

12552 WESTERN AVE
GARDEN GROVE, CA 92841
(714) 899-2300 -- PHONE
(714) 899-2323 -- FAX
www.ProPowerGroup.com
CSLB 928459 B,C10

OWNER / JOB LOCATION:

LAGUNA WOODS VILLAGE
24351 EL TORO RD
LAGUNA WOODS, CA 92637
(949) 268-2271

DATE	DESCRIPTION	REV. NO.
8/25/16		0

DRAWN BY: MCB	SHEET NAME: LAYOUT L88
DATE: 8/25/16	SHEET NUMBER: NEM-14

TOTAL MODULES	324	ARRAY L90	
TOTAL DC KW	102.06		
NAMEPLATE AC KW	77		
TOTAL DC/AC RATIO	132.55%	INVERTERS:	
NO. OF STRINGS	27	SMA SUNNY BOY SB11000-US TL	
NO. INVERTERS	7	MODULES:	
		JA SOLAR JAP6-72-315/4BB	

INVERTER 1				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 2				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

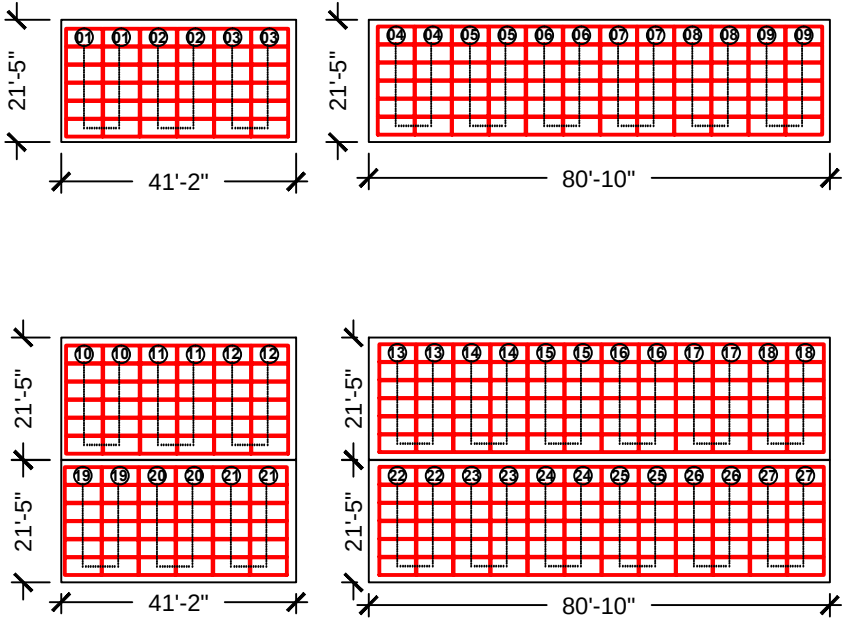
INVERTER 3				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 4				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 5				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 6				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 7				
3	x	12	RATED MAX POWER POINT CURRENT (IMP)	25.41
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	33.68
			DC/AC RATIO	103.09%



ARRAY L90 LAYOUT
AZIMUTH: 179° T.N. SCALE: 1/32" = 1'-0"

ARRAY L90 STRINGING				
STRING	NO. OF MODULES	TILT	AZIMUTH	INVERTER NO.
1	12	2	179	1
2	12	2	179	1
3	12	2	179	1
4	12	2	179	1
5	12	2	179	2
6	12	2	179	2
7	12	2	179	2
8	12	2	179	2
9	12	2	179	3
10	12	2	179	3
11	12	2	179	3
12	12	2	179	3
13	12	2	179	4
14	12	2	179	4
15	12	2	179	4
16	12	2	179	4
17	12	2	179	5
18	12	2	179	5
19	12	2	179	5
20	12	2	179	5
21	12	2	179	6
22	12	2	179	6
23	12	2	179	6
24	12	2	179	6
25	12	2	179	7
26	12	2	179	7
27	12	2	179	7



ARRAY L90 AERIAL VIEW
(SECTION LWUM-03)

PROJECT DEVELOPER

JOHNSON CONTROLS INC.
SYSTEMS AND SOLUTIONS NA
2250 BUTLER PIKE, SUITE 130
PLYMOUTH MEETING, PA 19462

ENGINEERING, PROCUREMENT AND
CONSTRUCTION MGMT.

PROGRESSIVE
POWER GROUP

12552 WESTERN AVE
GARDEN GROVE, CA 92841
(714) 899-2300 -- PHONE
(714) 899-2323 -- FAX
www.ProPowerGroup.com
CSLB 928459 B,C10

OWNER / JOB LOCATION:

LAGUNA WOODS VILLAGE
24351 EL TORO RD
LAGUNA WOODS, CA 92637
(949) 268-2271

DATE	DESCRIPTION	REV. NO.
8/25/16		0

DRAWN BY: MCB	SHEET NAME: LAYOUT L90
DATE: 8/25/16	SHEET NUMBER: NEM-15



EPC:
PROGRESSIVE
POWER GROUP
12552 WESTERN AVE
GARDEN GROVE, CA 92841
(714) 899-2300 -- PHONE
(714) 899-2323 -- FAX
www.ProPowerGroup.com
CSLB 928459 B,C10

DEVELOPER:
JOHNSON CONTROLS
5770 WARLAND DRIVE
CYPRESS, CA 90630
(562) 593-3200 -- PHONE
www.JohnsonControls.com

PROJECT ADDRESS:
LAGUNA WOODS VILLAGE
588-598 VIA ESTRADA
LAGUNA WOODS, CA 92673
(LAUNDRY BUILDINGS
L88 AND L90)

HORIZONTAL BORE SCHEDULE					
TRENCH SECTION NO.	MINIMUM DEPTH	NO. CONDUITS	CONDUIT SIZE	CONDUIT TYPE	APRPOX. DISTANCE
T88-1	24 inches	(3)	2"	SCH. 40 PVC	80 FT.
T88-2	24 inches	(3)	2"	SCH. 40 PVC	50 FT.
T88-3	24 inches	(1)	2"	SCH. 40 PVC	60 FT.
T90-1	24 inches	(3)	2"	SCH. 40 PVC	30 FT.
T90-2	24 inches	(2)	2"	SCH. 40 PVC	60 FT.

NOTE: DISTANCES SHOWN IN THIS TABLE INCLUDE HORIZONTAL BORE LENGTHS ONLY. THEY DO NOT INCLUDE VERTICAL OR ROOF-MOUNTED CONDUIT RUNS.

NOTES	
	BORE PIT
	SAW CUT TRENCH (TO SERVE AS BORING POT HOLE, DEPTH AS REQUIRED, OR 24" MIN.)
	SAW-CUT TRENCH (DEPTH 24")

REVISION NO: REV.0	SHEET NAME: LWMU-03 CIVIL
DATE: 8/31/16	SHEET NUMBER: C-3

TOTAL MODULES	324	ARRAY L91		
TOTAL DC KW	102.06			
NAMEPLATE AC KW	77	INVERTERS:		
TOTAL DC/AC RATIO	132.55%	SMA SUNNY BOY SB11000-US TL		
NO. OF STRINGS	27	MODULES:		
NO. INVERTERS	7	JA SOLAR JAP6-72-315/4BB		

INVERTER 1				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 2				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 3				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

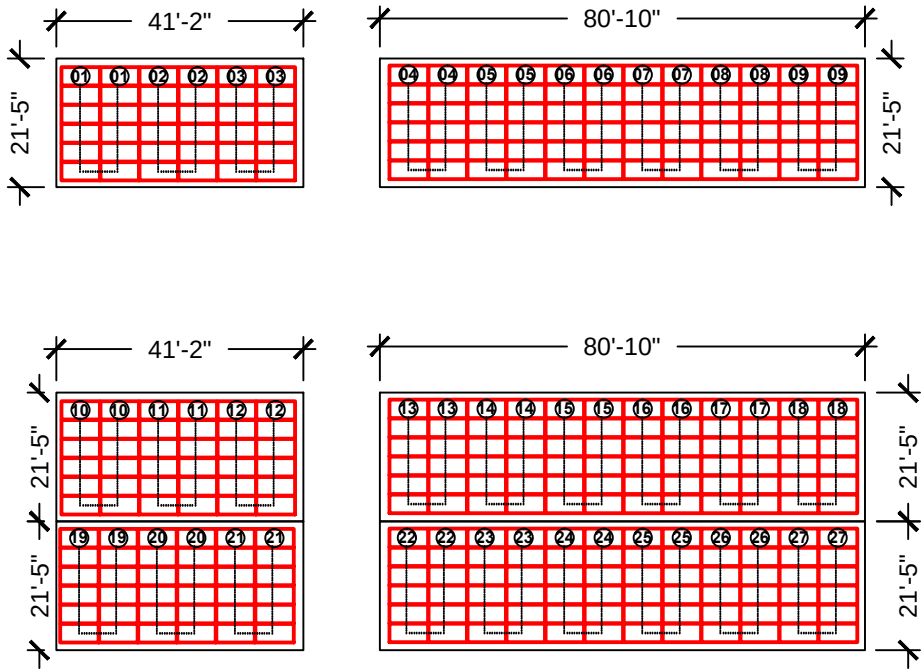
INVERTER 4				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 5				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 6				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

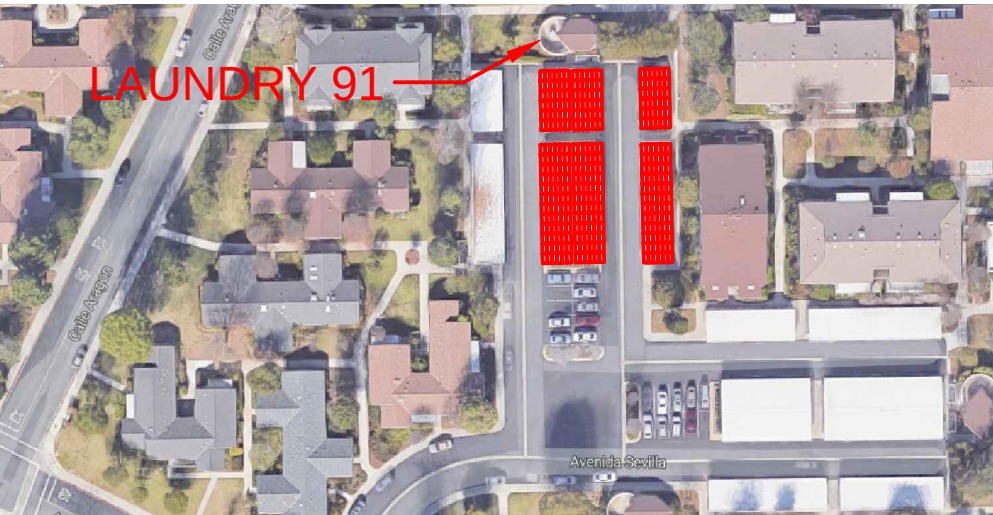
INVERTER 7				
3	x	12	RATED MAX POWER POINT CURRENT (IMP)	25.41
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	33.68
			DC/AC RATIO	103.09%

ARRAY L91 STRINGING				
STRING	NO. OF MODULES	TILT	AZIMUTH	INVERTER NO.
1	12	2	269	1
2	12	2	269	1
3	12	2	269	1
4	12	2	269	1
5	12	2	269	2
6	12	2	269	2
7	12	2	269	2
8	12	2	269	2
9	12	2	269	3
10	12	2	269	3
11	12	2	269	3
12	12	2	269	3
13	12	2	269	4
14	12	2	269	4
15	12	2	269	4
16	12	2	269	4
17	12	2	269	5
18	12	2	269	5
19	12	2	269	5
20	12	2	269	5
21	12	2	269	6
22	12	2	269	6
23	12	2	269	6
24	12	2	269	6
25	12	2	269	7
26	12	2	269	7
27	12	2	269	7



ARRAY L91 LAYOUT

AZIMUTH: 269° T.N. SCALE: 1/32" = 1'-0"



ARRAY L91 AERIAL VIEW

(SECTION LWUM-04)

PROJECT DEVELOPER

JOHNSON CONTROLS INC.
SYSTEMS AND SOLUTIONS NA
2250 BUTLER PIKE, SUITE 130
PLYMOUTH MEETING, PA 19462

ENGINEERING, PROCUREMENT AND
CONSTRUCTION MGMT.

PROGRESSIVE
POWER GROUP

12552 WESTERN AVE
GARDEN GROVE, CA 92841
(714) 899-2300 -- PHONE
(714) 899-2323 -- FAX
www.ProPowerGroup.com
CSLB 928459 B,C10

OWNER / JOB LOCATION:

LAGUNA WOODS VILLAGE
24351 EL TORO RD
LAGUNA WOODS, CA 92637
(949) 268-2271

DATE	DESCRIPTION	REV. NO.
8/25/16		0

DRAWN BY: MCB	SHEET NAME: LAYOUT L91
DATE: 8/25/16	SHEET NUMBER: NEM-16

TOTAL MODULES	336	ARRAY L92		
TOTAL DC KW	105.84			
NAMEPLATE AC KW	77	INVERTERS:		
TOTAL DC/AC RATIO	137.45%	SMA SUNNY BOY SB11000-US TL		
NO. OF STRINGS	28	MODULES:		
NO. INVERTERS	7	JA SOLAR JAP6-72-315/4BB		

INVERTER 1				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 2				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

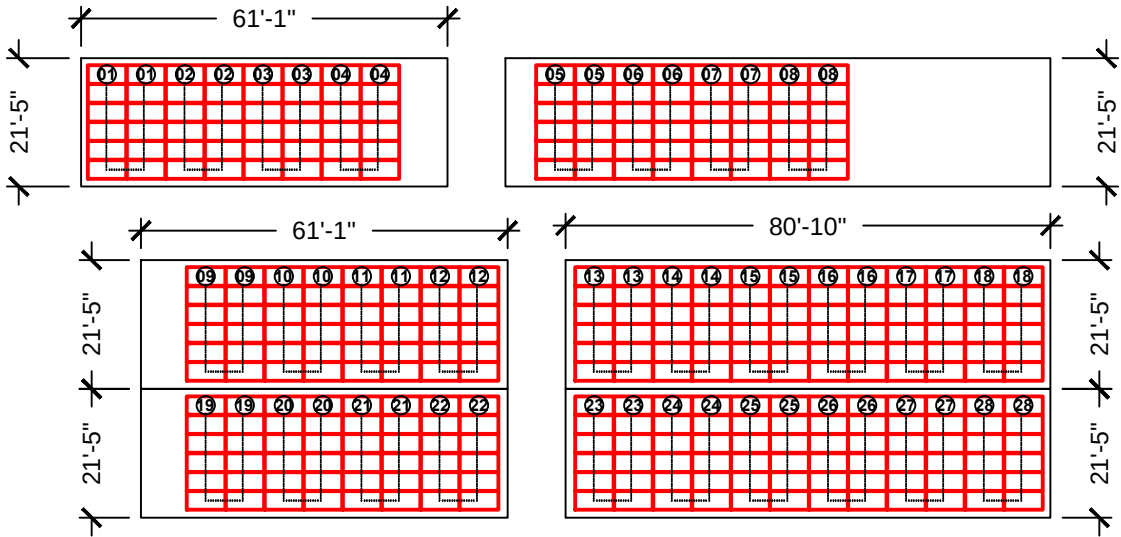
INVERTER 3				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 4				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 5				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 6				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%

INVERTER 7				
4	x	12	RATED MAX POWER POINT CURRENT (IMP)	33.88
STRINGS		MODULES	RATED MAX POWER POINT VOLTAGE (VMP)	446.28
			MAX SYSTEM VOLTAGE (VOC)	591.43
			SHORT CIRCUIT CURRENT (ISC)	44.9
			DC/AC RATIO	137.45%



ARRAY L92 LAYOUT
AZIMUTH: 269° T.N. SCALE: 1/32" = 1'-0"

ARRAY L92 STRINGING				
STRING	NO. OF MODULES	TILT	AZIMUTH	INVERTER NO.
1	12	2	179	1
2	12	2	179	1
3	12	2	179	1
4	12	2	179	1
5	12	2	179	2
6	12	2	179	2
7	12	2	179	2
8	12	2	179	2
9	12	2	179	3
10	12	2	179	3
11	12	2	179	3
12	12	2	179	3
13	12	2	179	4
14	12	2	179	4
15	12	2	179	4
16	12	2	179	4
17	12	2	179	5
18	12	2	179	5
19	12	2	179	5
20	12	2	179	5
21	12	2	179	6
22	12	2	179	6
23	12	2	179	6
24	12	2	179	6
25	12	2	179	7
26	12	2	179	7
27	12	2	179	7
28	12	2	179	7



ARRAY L92 AERIAL VIEW
(SECTION LWUM-04)

PROJECT DEVELOPER

JOHNSON CONTROLS INC.
SYSTEMS AND SOLUTIONS NA
2250 BUTLER PIKE, SUITE 130
PLYMOUTH MEETING, PA 19462

ENGINEERING, PROCUREMENT AND
CONSTRUCTION MGMT.

PROGRESSIVE
POWER GROUP

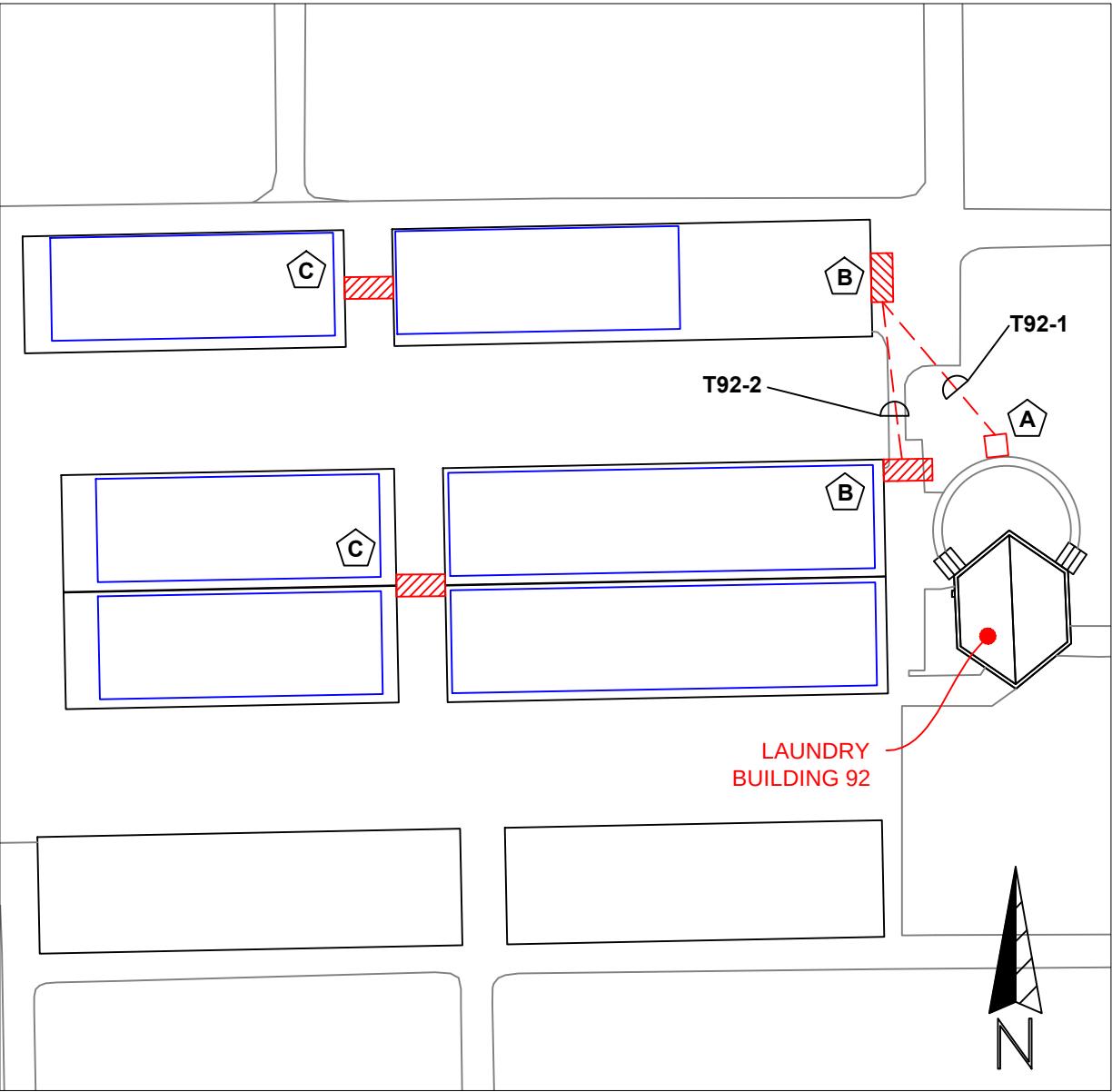
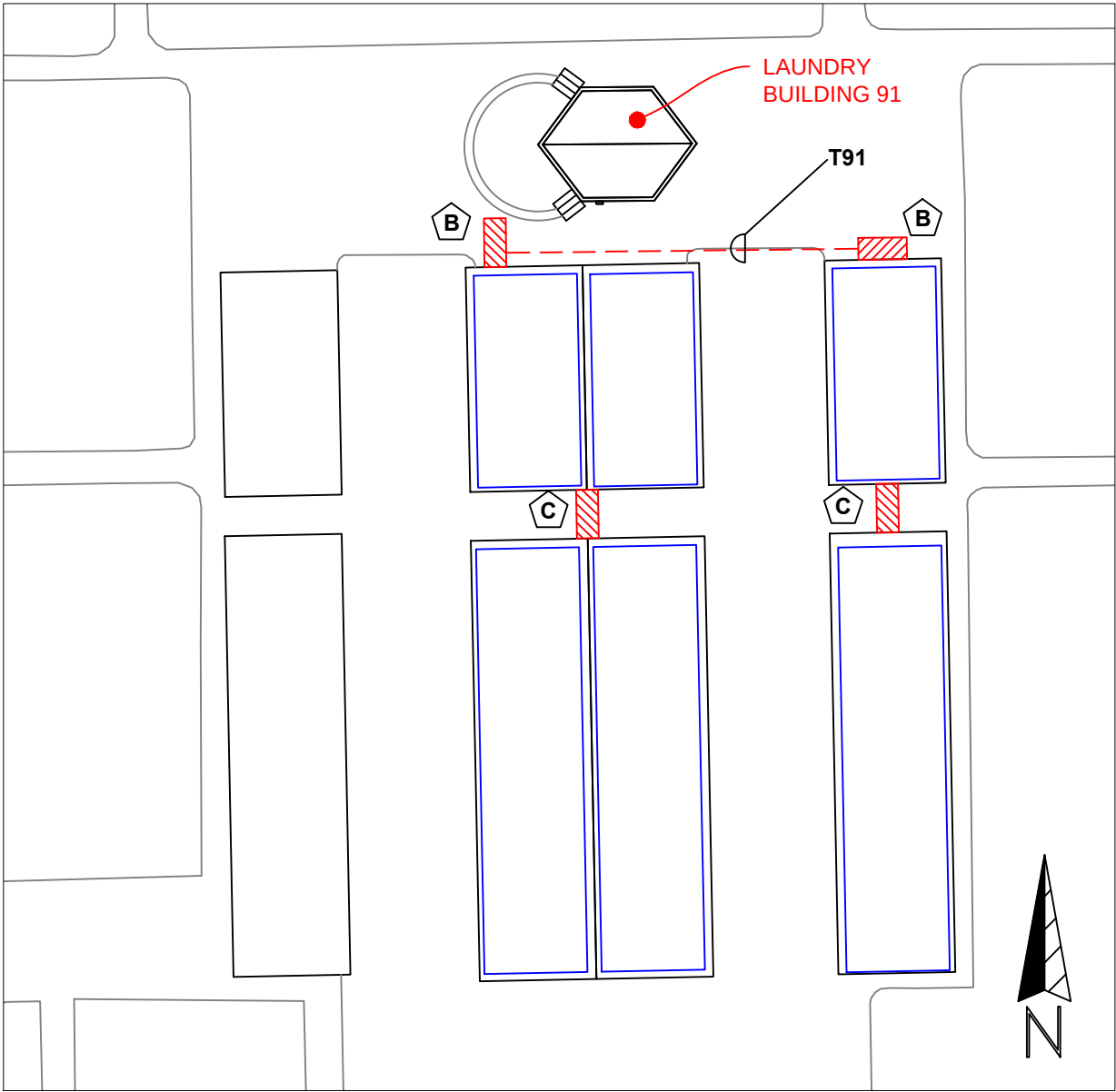
12552 WESTERN AVE
GARDEN GROVE, CA 92841
(714) 899-2300 -- PHONE
(714) 899-2323 -- FAX
www.ProPowerGroup.com
CSLB 928459 B,C10

OWNER / JOB LOCATION:

LAGUNA WOODS VILLAGE
24351 EL TORO RD
LAGUNA WOODS, CA 92637
(949) 268-2271

DATE	DESCRIPTION	REV. NO.
8/25/16		0

DRAWN BY: MCB	SHEET NAME: LAYOUT L92
DATE: 8/25/16	SHEET NUMBER: NEM-17



HORIZONTAL BORE SCHEDULE					
TRENCH SECTION NO.	MINIMUM DEPTH	NO. CONDUITS	CONDUIT SIZE	CONDUIT TYPE	APRPOX. DISTANCE
T91	24 inches	(2)	2"	SCH. 40 PVC	80 FT.
T92-1	24 inches	(3)	2"	SCH. 40 PVC	40 FT.
T92-2	24 inches	(2)	2"	SCH. 40 PVC	40 FT.

NOTE: DISTANCES SHOWN IN THIS TABLE INCLUDE HORIZONTAL BORE LENGTHS ONLY. THEY DO NOT INCLUDE VERTICAL OR ROOF-MOUNTED CONDUIT RUNS.

NOTES	
	BORE PIT
	SAW CUT TRENCH (TO SERVE AS BORING POT HOLE, DEPTH AS REQUIRED, OR 24" MIN.)
	SAW-CUT TRENCH (DEPTH 24")

EPC:
PROGRESSIVE
POWER GROUP
12552 WESTERN AVE
GARDEN GROVE, CA 92841
(714) 899-2300 -- PHONE
(714) 899-2323 -- FAX
www.ProPowerGroup.com
CSLB 928459 B,C10

DEVELOPER:
JOHNSON CONTROLS
5770 WARLAND DRIVE
CYPRESS, CA 90630
(562) 593-3200 -- PHONE
www.JohnsonControls.com

PROJECT ADDRESS:
LAGUNA WOODS VILLAGE
572-586 AVENIDA SEVILLA
LAGUNA WOODS, CA 92673
(LAUNDRY BUILDINGS
L91 AND L92)

REVISION NO: REV.0	SHEET NAME: LWMU-04 CIVIL
DATE: 8/31/16	SHEET NUMBER: C-4

NEW SYSTEM INFORMATION

UNIT	INVERTER # 1-7	TOTAL
MFG. & MODEL NO.	SMA / SB11000-TL-US	7
EFFICIENCY RATING	98.70%	98.70%
PV MODULES PER UNIT	34	238
NET NAMEPLATE RATING	11 kW	77 kW
238 MODULES X 315 WATTS X 98.7% = 73995.39 WATTS		

METER CHART

METER NO.	LAUNDRY #	PLOT PLAN ON PAGE #
SCE 222013-116280	L50	NEM-2
SCE 222013-743623	L52	NEM-3
SCE 222013-115290	L23	NEM-4
SCE 222013-115291	L24	NEM-5
SCE 222013-115293	L88	NEM-6
SCE 222013-992847	L90	NEM-7
SCE 222013-992846	L91	NEM-8
SCE 222013-141549	L92	NEM-9

PROJECT DEVELOPER

JOHNSON CONTROLS INC.
SYSTEMS AND SOLUTIONS NA
2250 BUTLER PIKE, SUITE 130
PLYMOUTH MEETING, PA 19462

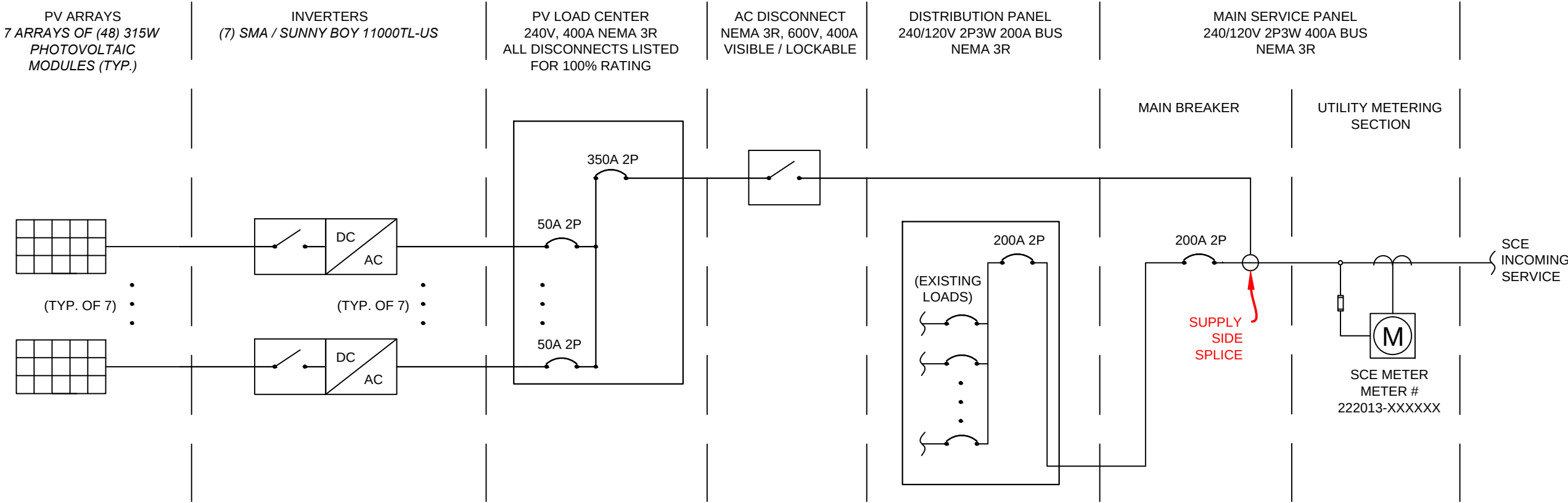
ENGINEERING, PROCUREMENT AND
CONSTRUCTION MGMT.

PROGRESSIVE
POWER GROUP

12552 WESTERN AVE
GARDEN GROVE, CA 92841
(714) 899-2300 -- PHONE
(714) 899-2323 -- FAX
www.ProPowerGroup.com
CSLB 928459 B,C10

OWNER / JOB LOCATION:

LAGUNA WOODS VILLAGE
24351 EL TORO RD
LAGUNA WOODS, CA 92637
(949) 268-2271



SINGLE LINE
(TYPICAL OF 8 INTERCONNECTIONS, SEE CHART ABOVE FOR SPECIFIC METER NO.)

DATE	DESCRIPTION	REV. NO.
8/25/16		0

DRAWN BY: MCB	SHEET NAME: SINGLE LINE
DATE: 8/25/16	SHEET NUMBER: NEM-1





SUNNY BOY 9000TL-US / 10000TL-US / 11000TL-US



Innovative

- First transformerless SMA inverter to be certified in accordance with UL 1741
- First inverter with arc-fault circuit interrupter listed according to UL 1699B

Economical

- Maximum efficiency of 98.7%
- Class-leading CEC efficiency of 98.5%
- Superior MPP tracking with OptiTrac™
- Transformerless, with H5 topology

Reliable

- OptiCool™ active temperature management

Convenient

- Integrated DC disconnect
- SMA Power Balancer for three-phase grid connection
- WebConnect compatible

SUNNY BOY 9000TL-US / 10000TL-US / 11000TL-US

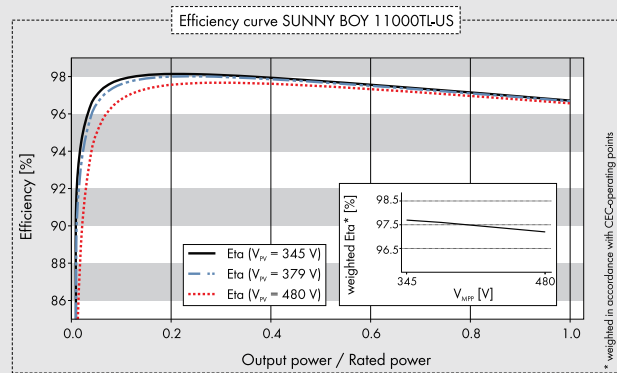
Transformerless design, maximum energy production

The Sunny Boy TL-US series is UL listed for North America and features SMA’s innovative H5 topology, resulting in superior efficiencies of more than 98 percent and unmatched solar power production. The transformerless design reduces weight, increases the speed of payback and provides optimum value for any residential or decentralized commercial PV system. The Sunny Boy TL-US series for North America is the ideal choice in transformerless technology.



SUNNY BOY 9000TL-US / 10000TL-US / 11000TL-US

Technical data	Sunny Boy 9000TL-US	
	208 V	240 V
Input (DC)		
Max. usable DC power (@ cos φ = 1)	9400 W	9400 W
Max. input voltage	600 V	600 V
MPP voltage range / rated input voltage	300 V – 480 V / 345 V	345 V – 480 V / 379 V
Min. input voltage / initial input voltage	300 V / 360 V	345 V / 360 V
Max. input current	31.0 A	27.1 A
Max. input current per string	31.0 A	27.1 A
Number of independent MPP inputs	1	1
Strings per MPP input @ Combiner Box	6	6
Output (AC)		
Rated power / max. apparent AC power	9000 W / 9000 VA	
Nominal AC voltage / nominal AC voltage range	208 V / 183 V – 229 V	240 V / 211 V – 264 V
AC power frequency / range	60 Hz / 59.3 Hz ... 60.5 Hz	60 Hz / 59.3 Hz ... 60.5 Hz
Max. output current	43.3 A	37.5 A
Power factor at rated power	1	
Feed-in phases / connection phases	1 / 2	
Efficiency		
CEC efficiency / max. efficiency	98 % / 98.6 %	98 % / 98.7 %
Protective devices		
DC reverse polarity protection	●	
AC short-circuit current capability	●	
Galvanic isolation	–	
All-pole-sensitive residual-current monitoring unit	●	
Arc-fault circuit interrupter (according to UL 1699B)	●	
Protection class	I	
Overvoltage category	IV	
General data		
Dimensions (W / H / D)	470 / 615 / 240 mm (18.4 / 24.1 / 9.5 inch)	
Dimensions of DC Disconnect (W / H / D)	187 / 297 / 190 mm (7.28 / 11.7 / 7.5 inch)	
Weight	35 kg / 78 lb	
Weight of DC Disconnect	3.5 kg / 8 lb	
Operating temperature range	-40 °C ... +60 °C / -40 °F ... +140 °F	
Noise emission (typical)	46 dB(A)	
Self-consumption (night)	0.15 W	
Topology	Transformerless H5	
Cooling concept	OptiCool	
Degree of protection	NEMA 3R	
Degree of protection of connection area	NEMA 3R	
Max. permissible value for relative humidity (non-condensing)	100 %	
Features		
DC connection	Screw terminal	
AC connection	Screw terminal	
Display	Text line	
Interface: RS485 / Bluetooth / WebConnect	○ / ○ / ○	
Warranty: 10 / 15 / 20 years	● / ○ / ○	
Certificates and approvals (more available on request)	UL1741, UL1998, IEEE1547, FCC Part 15 (Class A & B), CAN/CSA C22.2 107.1-1, UL 1699B	
● Standard features ○ Optional features – Not available		
NOTE: US inverters ship with gray lids Data at nominal conditions		
Type designation	SB 9000TLUS-12	



Accessories



Sunny Boy Combiner Box
SBCBTL6-10



Bluetooth Piggy-Back
BTPBINV-NR
with External Antenna
BTPB-EXTANT-NR



Interface RS485
485USPB-NR



SMA Power Balancer Set
PBL-SBUS-10-NR



WebConnect Piggy-Back
SWPB-US-10

- Standard feature
 - Optional feature
 - Not available
- Data at nominal conditions

Sunny Boy 10000TL-US		Sunny Boy 11000TL-US	
208 V	240 V	240 V	
10500 W	10400 W	11500 W	
600 V	600 V	600 V	
300 V – 480 V / 345 V	345 V – 480 V / 379 V	345 V – 480 V / 379 V	
300 V / 360 V	345 V / 360 V	345 V / 360 V	
35 A	30.2 A	33.3 A	
35 A	30.2 A	33.3 A	
1	1	1	
6	6	6	
10000 W / 10000 VA		11000 W / 11000 VA	
208 V / 183 V – 229 V	240 V / 211 V – 264 V	240 V / 211 V – 264 V	
60 Hz / 59.3 Hz ... 60.5 Hz	60 Hz / 59.3 Hz ... 60.5 Hz	60 Hz / 59.3 Hz ... 60.5 Hz	
48.1 A	41.7 A	45.8 A	
1		1	
1 / 2		1 / 2	
98.0 % / 98.6 %	98 % / 98.7 %	98 % / 98.7 %	
●		●	
●		●	
–		–	
●		●	
●		●	
I		I	
IV		IV	
470 / 615 / 240 mm (18.4 / 24.1 / 9.5 inch)		46 dB(A)	
187 / 297 / 190 mm (7.28 / 11.7 / 7.5 inch)		0.15 W	
35 kg / 78 lb		Transformerless H5	
3.5 kg / 8 lb		OptiCool	
-40 °C ... +60 °C / -40 °F ... +140 °F		NEMA 3R	
46 dB(A)		NEMA 3R	
0.15 W		100 %	
Transformerless H5			
OptiCool			
NEMA 3R			
NEMA 3R			
100 %			
Screw terminal		Screw terminal	
Screw terminal		Screw terminal	
Text line		Text line	
○ / ○ / ○		○ / ○ / ○	
● / ○ / ○		● / ○ / ○	
UL1741, UL1998, IEEE1547, FCC Part 15 (Class A & B), CAN/CSA C22.2		107.1-1, UL 1699B	
SB 10000TLUS-12		SB 11000TLUS-12	