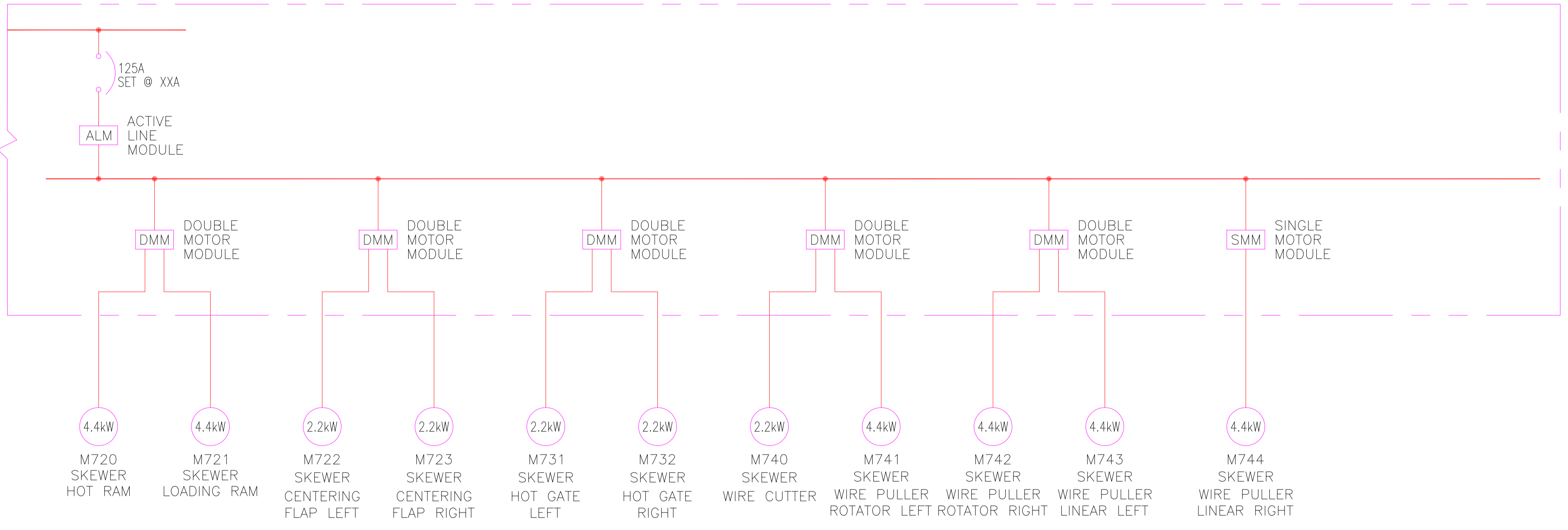
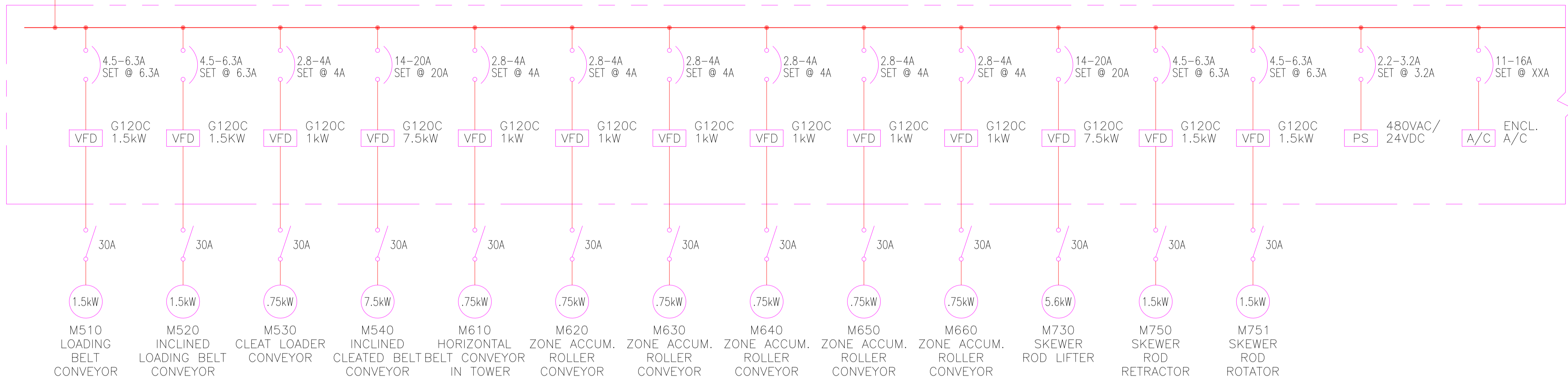


CUSTOMER SUPPLIED
480VAC, XXXA,
3?

250A



MATRIX REF: E55119-01



INCORPORATED
1760 INDIAN WOOD CIRCLE - MAUMEE, OHIO 43537
(419) 897-7200 matrix@matrixllc.com
CINCINNATI - DENVER - INDIANAPOLIS - KANSAS CITY - MINNEAPOLIS

NOTES:
Unless otherwise noted, the following shall apply:
1. All hardware is to be minimum grade 5.8 zinc plated.
2. Holes are to be drilled two-part epoxy with minimum 5 mil DFT.
3. Surface prep to be SSPC 2/5.
4. All welds and corners are to be spot primed.

0.0	.75	L	.75
0.00	.40	//	.75
0.000	.15	□	.75
		—	.75
⊙	.75	L	.75

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AFS technology
Alternative fuel system engineered for cement kilns

4060 Gibson Drive
Troy, Ohio 45371
USA
Phone: 937 669 3548
Fax: 858 300 5404
www.afstechnology.com

TITLE
CEMENTOS PROGRESO - SAN GABRIEL
TIRE SYSTEM - MOTOR CONTROL PANEL
ONE LINE DIAGRAM

DRAWN BY WLP	SCALE 1:1	DATE 2018 FEB 22
CHECKED BY	APPROVED	PROJECT#
DWG. NO. 1530E102	SHEET NO. 2 OF 6	

6

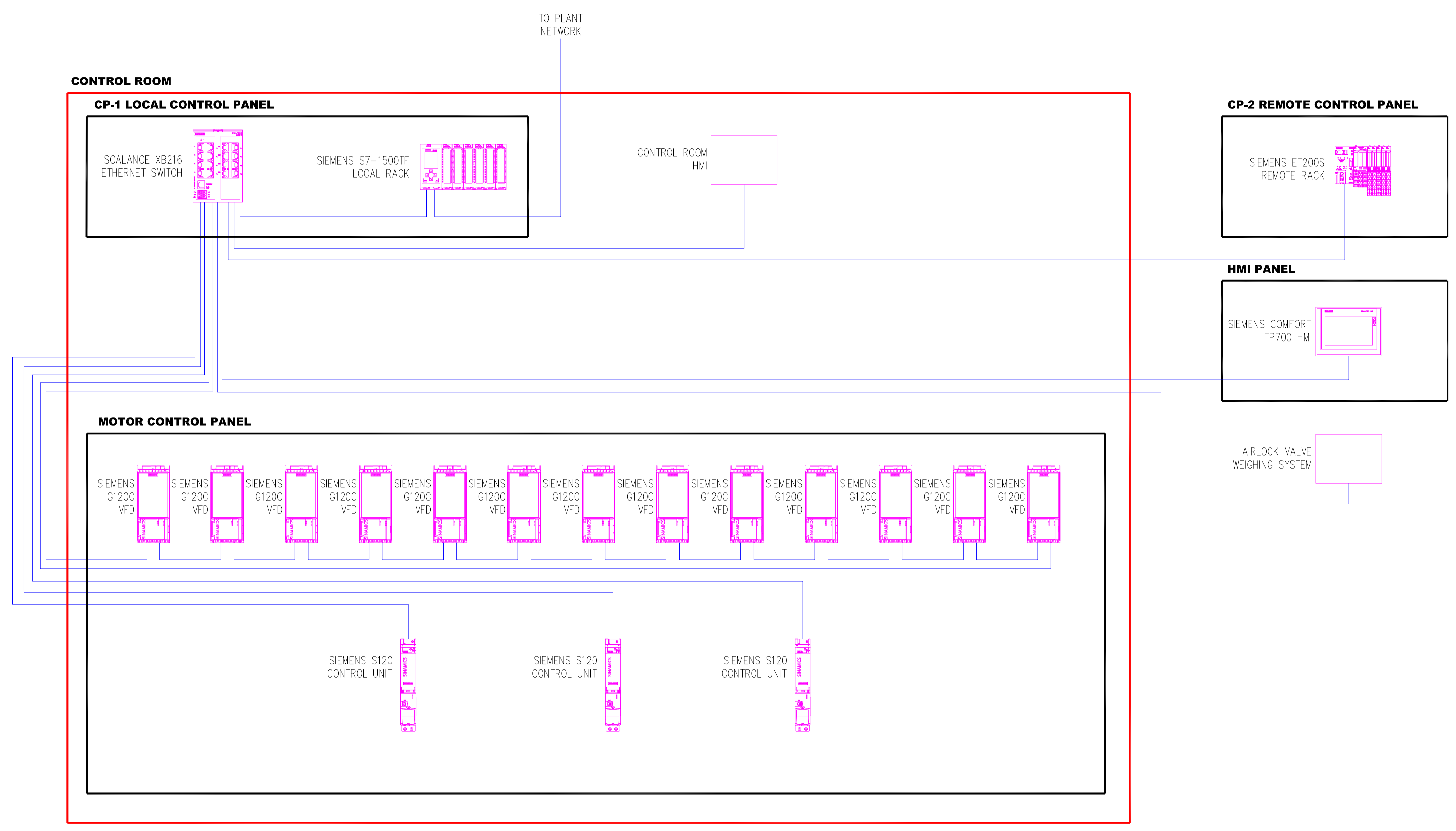
5

4

3

2

1



MATRIX REF: E55119-02



1760 INDIAN WOOD CIRCLE - MAUMEE, OHIO 43537
(419) 897-7200 matrix@matrixllc.com
CINCINNATI - DENVER - INDIANAPOLIS - KANSAS CITY - MINNEAPOLIS

NOTES:
1. Unless otherwise noted, the following shall apply:
2. All hardware shall be minimum grade 5.8 and zinc plated.
3. Surface prep to be SSPC 2/1.
4. All welds and corners are to be spot primed.

0.0	.75	∟	.75
0.00	.40	//	.75
0.000	.15	□	.75
—	—	—	.75
∅	.75	∟	.75

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www.afstechnology.com

TITLE
CEMENTOS PROGRESO - SAN GABRIEL
TIRE SYSTEM - MOTOR CONTROL PANEL
CONTROL SYSTEM NETWORK DIAGRAM

DRAWN BY WLP	SCALE 1:1	DATE 2018 FEB 22
CHECKED BY	APPROVED	PROJECT#

DWG. NO. 1530E203	SHEET NO. 3 OF 6
----------------------	---------------------

6

5

4

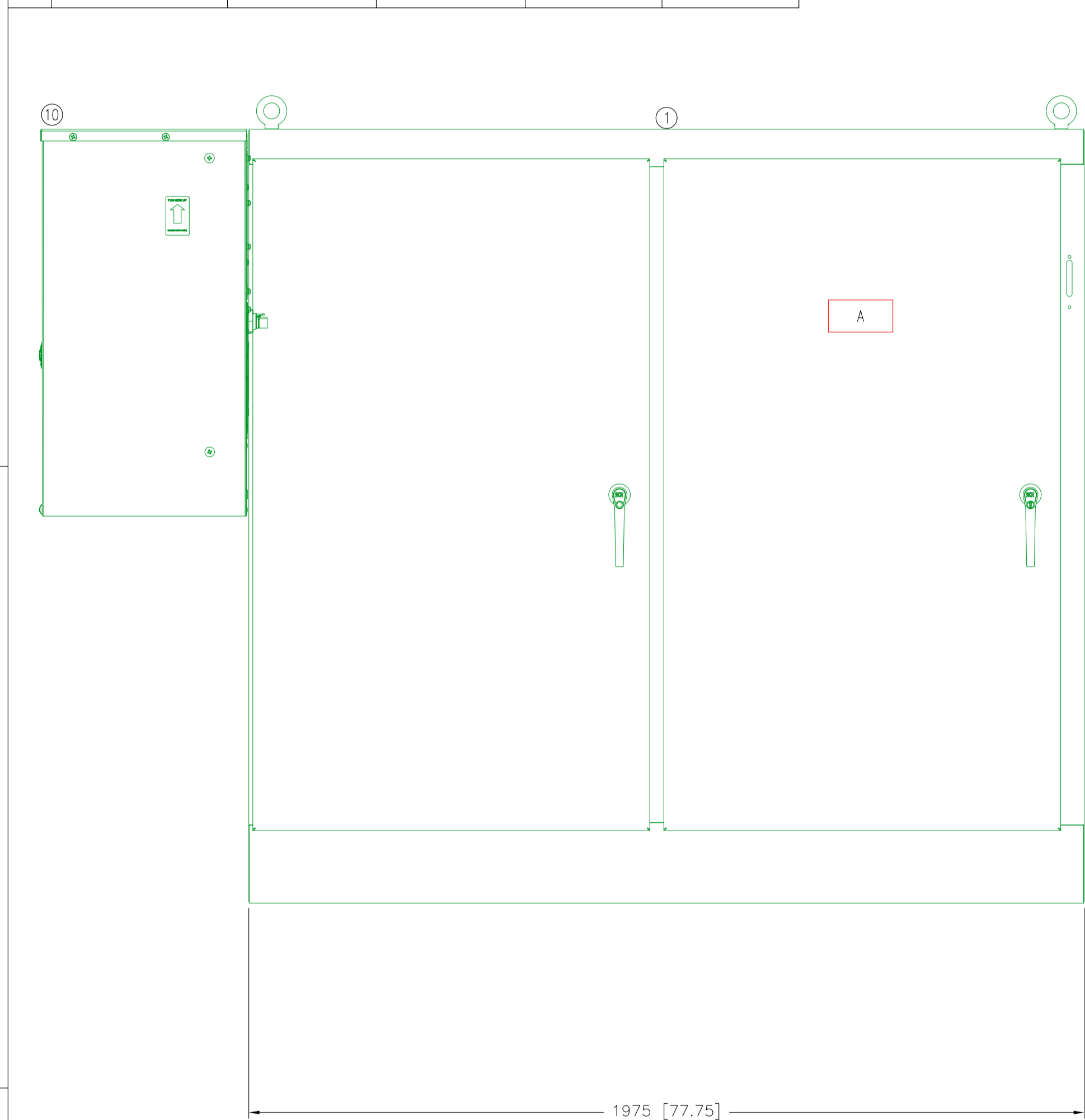
3

2

1

A1

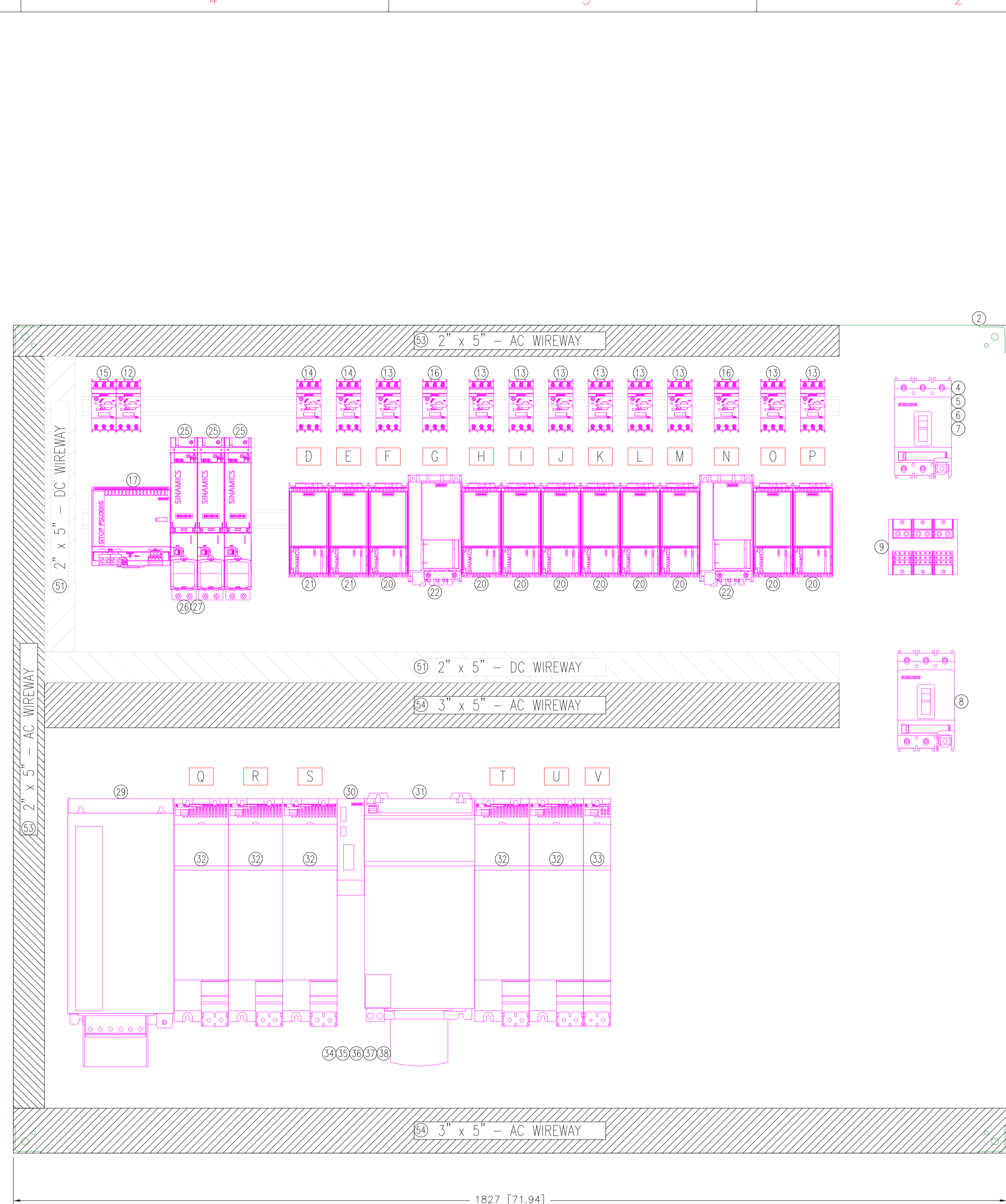
NAMEPLATE LEGEND					
ITEM	LINE 1	LINE 2	LINE 3	LETTER SIZE	PLATE SIZE
A				SEE DETAIL	6" x 3"
B					
C					
D	M510			1/4"	1 3/4" x 1 1/4"
E	M520			1/4"	1 3/4" x 1 1/4"
F	M530			1/4"	1 3/4" x 1 1/4"
G	M540			1/4"	1 3/4" x 1 1/4"
H	M610			1/4"	1 3/4" x 1 1/4"
I	M620			1/4"	1 3/4" x 1 1/4"
J	M630			1/4"	1 3/4" x 1 1/4"
K	M640			1/4"	1 3/4" x 1 1/4"
L	M650			1/4"	1 3/4" x 1 1/4"
M	M660			1/4"	1 3/4" x 1 1/4"
N	M730			1/4"	1 3/4" x 1 1/4"
O	M750			1/4"	1 3/4" x 1 1/4"
P	M751			1/4"	1 3/4" x 1 1/4"
Q	M720	M721		1/4"	1 3/4" x 1 1/4"
R	M722	M723		1/4"	1 3/4" x 1 1/4"
S	M731	M732		1/4"	1 3/4" x 1 1/4"
T	M740	M741		1/4"	1 3/4" x 1 1/4"
U	M742	M743		1/4"	1 3/4" x 1 1/4"
V	M744			1/4"	1 3/4" x 1 1/4"



PANEL LAYOUT
MOTOR CONTROL PANEL

SCALE: 1:10

- NOTES:
- WIRE COLORS ARE AS FOLLOWS: COLORS ARE AS FOLLOWS:
 RED - AC 120V AND BELOW
 WHITE - GROUNDED NEUTRAL
 BLUE - DC
 BLUE/WHT - DC COM
 GREEN - EQUIP. GROUND
 YELLOW - FOREIGN POWER



SUB-PANEL LAYOUT
MOTOR CONTROL PANEL

SCALE: 1:5

MATERIAL LIST					
ITEM	QTY.	DESCRIPTION	MFG.	CAT. #	
1	1	ENCLOSURE, NEMA 12, FREE-STANDING, 72"x77.75"x18"	SAGINAW	SCE-72XM7818	
2	1	BACK PANEL, 60"x72"	SAGINAW	SCE-64P76	
3					
4	1	DISCONNECT SWITCH BREAKER OPERATOR MECHANISM	SIEMENS	3VL93003JN01	
5	1	DISCONNECT SWITCH CABLE, 36", MAX-FLEX	SIEMENS	3VL93003J031	
6	1	DISCONNECT SWITCH HANDLE, NEMA 12 STEEL, MAX-FLEX	SIEMENS	3VL96003JP21	
7	1	MAIN CIRCUIT BREAKER, 250A	SIEMENS	3VL3725-3DC33-OA00	
8	1	MAIN CIRCUIT BREAKER, 125A	SIEMENS	3VL2712-1DC33-OA00	
9	1	POWER DISTRIBUTION BLOCK, 3-POLE, 2 500KCMIL IN, 12 #4 OUT	ILSCO	PDB-212-500-3	
10	1	AIR CONDITIONER 3000-5000 BTU/H	PFANNENBERG	13383436255	
11					
12	1	MOTOR CIRCUIT PROTECTOR, SIZE S00, 2.2-3.2A	SIEMENS	3RV2011-1DA10	
13	7	MOTOR CIRCUIT PROTECTOR, SIZE S00, 2.8-4A	SIEMENS	3RV2011-1EA10	
14	2	MOTOR CIRCUIT PROTECTOR, SIZE S00, 4.5-6.3A	SIEMENS	3RV2011-1GA10	
15	1	MOTOR CIRCUIT PROTECTOR, SIZE S00, 11-16A	SIEMENS	3RV2011-4AA10	
16	1	MOTOR CIRCUIT PROTECTOR, SIZE S0, 14-20A	SIEMENS	3RV2021-4BA10	
17	1	SITOP PSU300S POWER SUPPLY, 480VAC/24V DC, 40 A	SIEMENS	6EP1437-2BA20	
18					
19					
20	7	SINAMICS G120C RATED POWER VFD, 1kW	SIEMENS	6SL32101KE13ZUF2	
21	4	SINAMICS G120C RATED POWER VFD, 1.5kW	SIEMENS	6SL32101KE143UF2	
22	2	SINAMICS G120C RATED POWER VFD, 7.5kW	SIEMENS	6SL32101KE217UF1	
23					
24					
25	3	SINAMICS S120 CONTROL UNIT CU320-2 PN	SIEMENS	6SL3040-1MA01-OA00	
26	1	SINAMICS S120 COMPACTFLASH CARD W/O PERFORMANCE EXTENSION	SIEMENS	6SL3054-0EJ00-1BA0	
27	2	SINAMICS S120 COMPACTFLASH CARD W/ PERFORMANCE EXTENSION	SIEMENS	6SL3054-0EJ01-1BA0	
28	1	SINAMICS 24V TERMINAL ADAPTER FOR MODULES BOOKSIZE DESIGN	SIEMENS	6SL3162-2AA00-OA00	
29	1	SINAMICS S120 ACTIVE INTERFACE MODULE FOR 55kW ALM	SIEMENS	6SL3100-0BE25-5AB0	
30	1	SINAMICS S120 VOLTAGE SENSING MODULE VSM10	SIEMENS	6SL3053-0AA00-3AA1	
31	1	SINAMICS S120 ACTIVE LINE MODULE, 92A, 55kW	SIEMENS	6SL3130-7TE25-5AA3	
32	5	SINAMICS S120 DOUBLE MOTOR MODULE, 18A, BOOKSIZE	SIEMENS	6SL3120-1TE21-BAD0	
33	1	SINAMICS S120 SINGLE MOTOR MODULE, 18A, BOOKSIZE	SIEMENS	6SL3120-1TE21-BAD0	
34	1	DRIVE-CLIQ CABLE, IP20/IP20, 0.11 M	SIEMENS	6SL3060-4AB00-OA00	
35	2	DRIVE-CLIQ CABLE, IP20/IP20, 0.26 M	SIEMENS	6SL3060-4AH00-OA00	
36	1	DRIVE-CLIQ CABLE, IP20/IP20, 0.31 M	SIEMENS	6SL3060-4AK00-OA00	
37	2	DRIVE-CLIQ CABLE, IP20/IP20, 0.95 M	SIEMENS	6SL3060-4AA10-OA00	
38	3	DRIVE-CLIQ CABLE, IP20/IP20, 5.00 M	SIEMENS	6SL3060-4AA50-OA00	
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					
51	AS REQ	PLASTIC WIRING DUCT, LIGHT GRAY, 2"Wx5"D, W/COVER (DC)	PANDUIT	F2XSLG6/C2LG6	
52					
53	AS REQ	PLASTIC WIRING DUCT, WHITE, 2"Wx5"D, W/COVER (AC)	PANDUIT	F2X5WH6/C2WH6	
54	AS REQ	PLASTIC WIRING DUCT, WHITE, 3"Wx5"D, W/COVER (AC)	PANDUIT	F4X5WH6/C3WH6	

1522 [59.94]

MOTOR CONTROL PANEL

SOURCE OF POWER:
 SUPPLY POWER: 480VAC, 3PH, 60Hz
 FULL LOAD CURRENT: 250 AMPS
 SHORT-CIRCUIT CURRENT: XXkA
 ENCLOSURE TYPE: NEMA 12
 DRAWING NUMBERS:
 MANUFACTURED BY: _____, ON: (DATE)

NAMEPLATE A
 (MOUNTED ON ENCLOSURE EXTERIOR)

APPROVAL DRAWING

APPROVAL REQUIRED PRIOR TO FINAL DESIGN AND DETAILING

WITH COMMENTS
 WITH NO COMMENTS

SIGNATURE _____
 DATE _____

MATRIX REF: E55119-03

Matrix Technologies
 INCORPORATED
 1760 INDIAN WOOD CIRCLE - MAUMEE, OHIO 43537
 (419) 897-7200 matrix@matrixllc.com
 CINCINNATI - DENVER - INDIANAPOLIS - KANSAS CITY - MINNEAPOLIS

NOTES:
 Unless otherwise noted, the following shall apply:
 1. All dimensions are to be minimums unless otherwise specified.
 2. Holes are to be drilled two-part epoxy with minimum 5 mil DFT.
 3. Surface prep to be SSPC 2/5.
 4. All welds and corners are to be spot primed.

0.0	.75	∠	.75
0.00	.40	//	.75
0.000	.15	□	.75
—	—	—	.75
∅	.75	∠	.75

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AFS technology
 Alternative fuel system engineered for cement kilns

4060 Gibson Drive
 Togo, Ohio 43271
 USA
 Phone: 614 669 3548
 Fax: 614 300 5404
 www.afstechnology.com

TITLE
 CEMENTOS PROGRESO - SAN GABRIEL
 TIRE SYSTEM - MOTOR CONTROL PANEL
 MOTOR CONTROL PANEL - PANEL LAYOUT

DRAWN BY: WLP
 CHECKED BY: _____

SCALE: 1:5
 APPROVED: _____

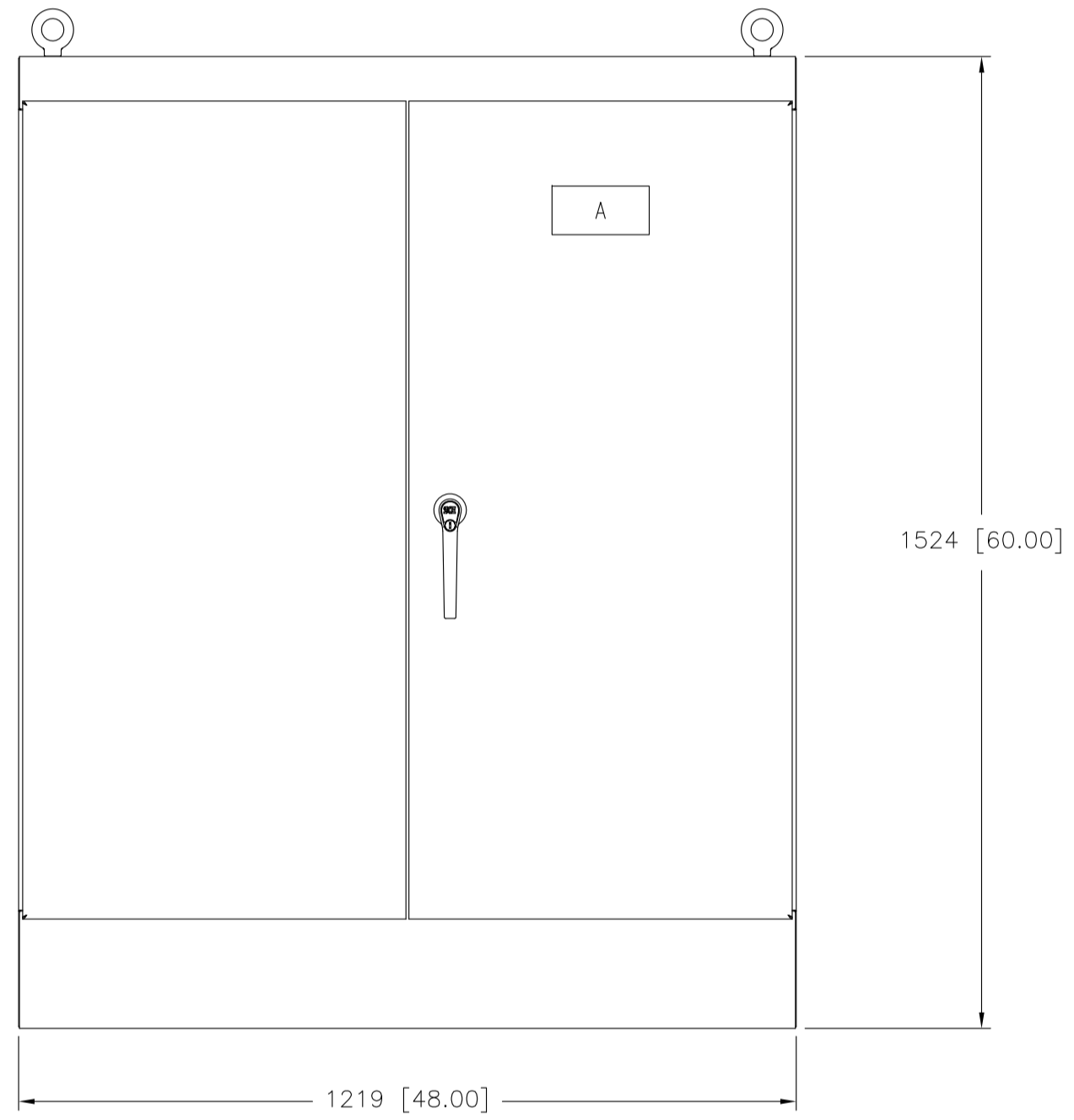
DATE: 2018 FEB 22
 PROJECT#: _____

DWG. NO.: 1530E104
 SHEET NO.: 4 OF 6

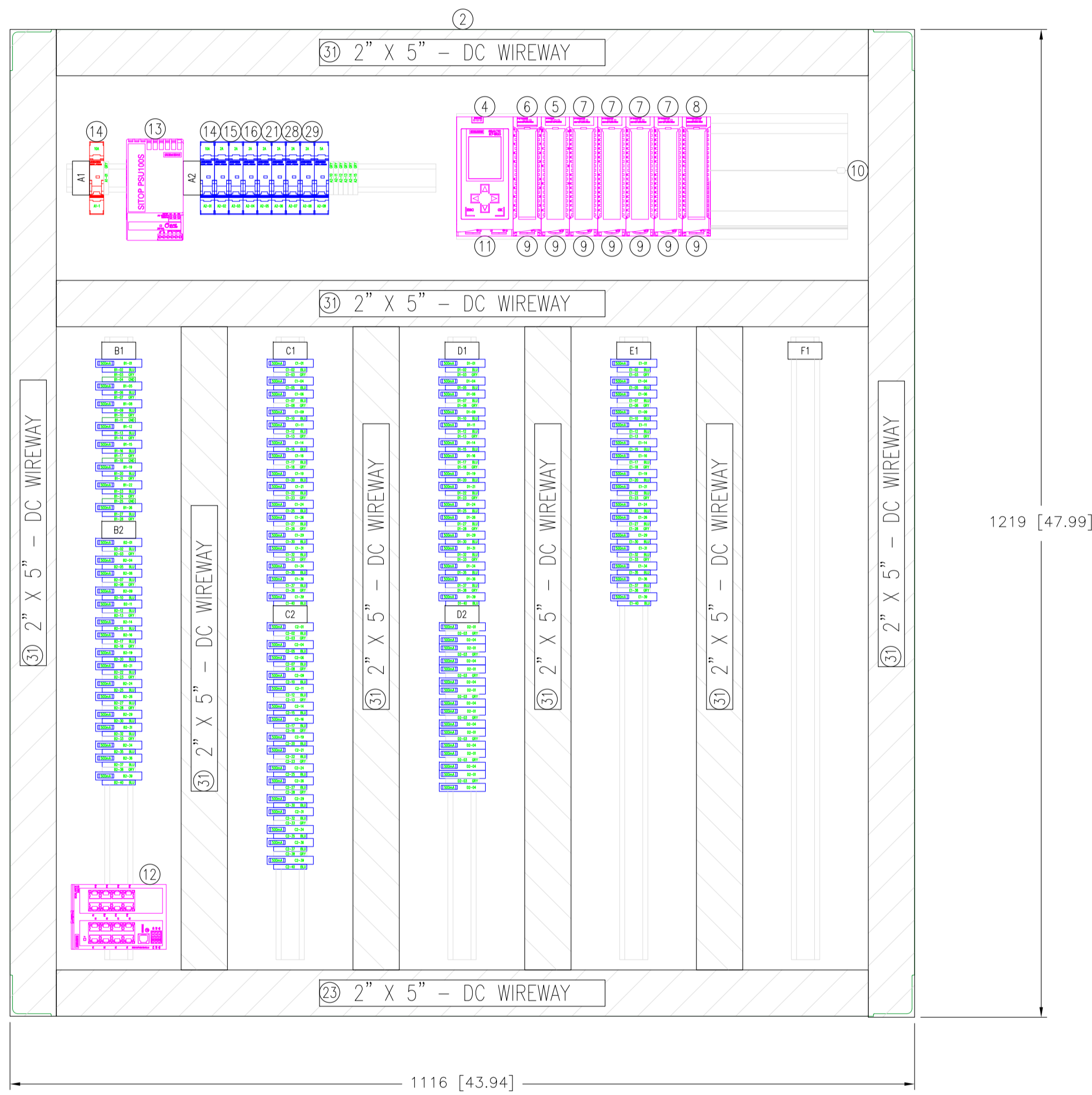
NAMEPLATE LEGEND					
ITEM	LINE 1	LINE 2	LINE 3	LETTER SIZE	PLATE SIZE
A				SEE DETAIL	6" x 3"
B					
C					

		MATERIAL LIST			
ITEM	QTY.	DESCRIPTION	MFG.	CAT. #	
1	1	ENCLOSURE, NEMA 12, FREE-STANDING, 60"x48"x18"	SAGINAW	SCE-604818FSD	
2	1	BACK PANEL, 48"x44"	SAGINAW	SCE-60P48F1	
3					
* 4	1	S7-1500 SAFETY PROCESSOR, 1515TF, 2 PROFINET PORTS	SIEMENS	6ES7515-2UM01-0AB0	
* 5	1	S7-1500 ANALOG INPUT MODULE, 8-POINT	SIEMENS	6ES7531-7NF10-0AB0	
* 6	1	S7-1500 SAFETY DIGITAL INPUT, 24VDC, 16-POINT	SIEMENS	6ES7526-1BH00-0AB0	
* 7	4	S7-1500 DIGITAL INPUT, 24VDC, 16-POINT	SIEMENS	6ES7521-1BH00-0AB0	
* 8	1	S7-1500 DIGITAL OUTPUT, 24VDC, 16-POINT	SIEMENS	6ES7522-1BH01-0AB0	
* 9	7	FRONT CONNECTOR, PUSH-IN SYSTEM FOR 35MM MODULES, 40-PIN	SIEMENS	6ES7592-1BM00-0XB0	
* 10	1	MOUNTING RAIL S7-1500, 482 MM	SIEMENS	6ES7590-1AE80-0AA0	
* 11	1	MEMORY CARD, 256 MB	SIEMENS	6ES7954-8LLO3-0AA0	
* 12	1	SCALANCE XB216 MANAGED ETHERNET SWITCH, 16 PORT	SIEMENS	6GK52160BA002TB2	
13	1	SITOP PSU100S POWER SUPPLY, 1200VAC/24V DC, 10 A	SIEMENS	6EP1334-2BA20	
14	2	MINIATURE CIRCUIT BREAKER, 10A	SIEMENS	5SU4110-7HG40	
15	1	MINIATURE CIRCUIT BREAKER, 5A	SIEMENS	5SU4111-7HG40	
16	7	MINIATURE CIRCUIT BREAKER, 2A	SIEMENS	5SU4102-7HG40	
17					
18	AS REQ	FUSES, 5MM X 20MM SIZED PER SCHEMATICS	BUSSMAN	GMA-X-R	
19	104	FUSED TERMINAL BLOCK, FOR 5X20-25MM FUSES, 24VDC IND.	SIEMENS	8WA1 011-1SF13	
20	AS REQ	FUSED TERMINAL MARKER CARD, 5MM X 10MM	SIEMENS	8WA1 851-2AY	
21	63	TERMINAL BLOCK, THROUGH TYPE, GRAY	SIEMENS	8WA1011-1DF11	
22	88	TERMINAL BLOCK, THROUGH TYPE, BLUE	SIEMENS	8WA1011-1BF23	
23	4	TERMINAL BLOCK, THROUGH TYPE, GREEN-YELLOW, GROUND	SIEMENS	8WA1011-1PF00	
24	AS REQ	TERMINAL END BARRIER	SIEMENS	8WA1 820	
25	AS REQ	TERMINAL END RETAINER	SIEMENS	8WA1 808	
26	AS REQ	TERMINAL MARKER CARD, 5MM X 7MM	SIEMENS	8WA8 850-2AY	
27					
28	9	END LABELING PLATE, 21MM X 42MM	SIEMENS	8WA1 806	
29	AS REQ	DIN RAIL, 35 MM	SIEMENS	6ES5710-8MA11	
30					
31	AS REQ	PLASTIC WIRING DUCT, WHITE, 2"Wx5"D, W/COVER (AC)	PANDUIT	F2X5LG6/C1LG6	

* - FURNISHED BY MATRIX



PANEL LAYOUT
LOCAL CONTROL PANEL
SCALE: 1-1/2" = 1'-0"



SUB-PANEL LAYOUT
LOCAL CONTROL PANEL
SCALE: 3" = 1'-0"

SKEWER SYSTEM PLC
PANEL

SOURCE OF POWER:
SUPPLY POWER: 120VAC, 10A
ENCLOSURE TYPE: NEMA 12
DRAWING NUMBERS:
MANUFACTURED BY: _____, ON: (DATE)

NAMEPLATE A
(MOUNTED ON ENCLOSURE EXTERIOR)

APPROVAL DRAWING

APPROVAL REQUIRED PRIOR TO
FINAL DESIGN AND DETAILING

WITH COMMENTS
 WITH NO COMMENTS

SIGNATURE _____
DATE _____

- NOTES:
- WIRE COLORS ARE AS FOLLOWS: COLORS ARE AS FOLLOWS:
RED - AC 120V AND BELOW
WHITE - GROUNDED NEUTRAL
BLUE - DC
BLUE/WHT - DC COM
GREEN - EQUIP. GROUND
YELLOW - FOREIGN POWER



INCORPORATED
1760 INDIAN WOOD CIRCLE - MAUMEE, OHIO 43537
(419) 897-7200 matrix@matrixllc.com
CINCINNATI - DENVER - INDIANAPOLIS - KANSAS CITY - MINNEAPOLIS

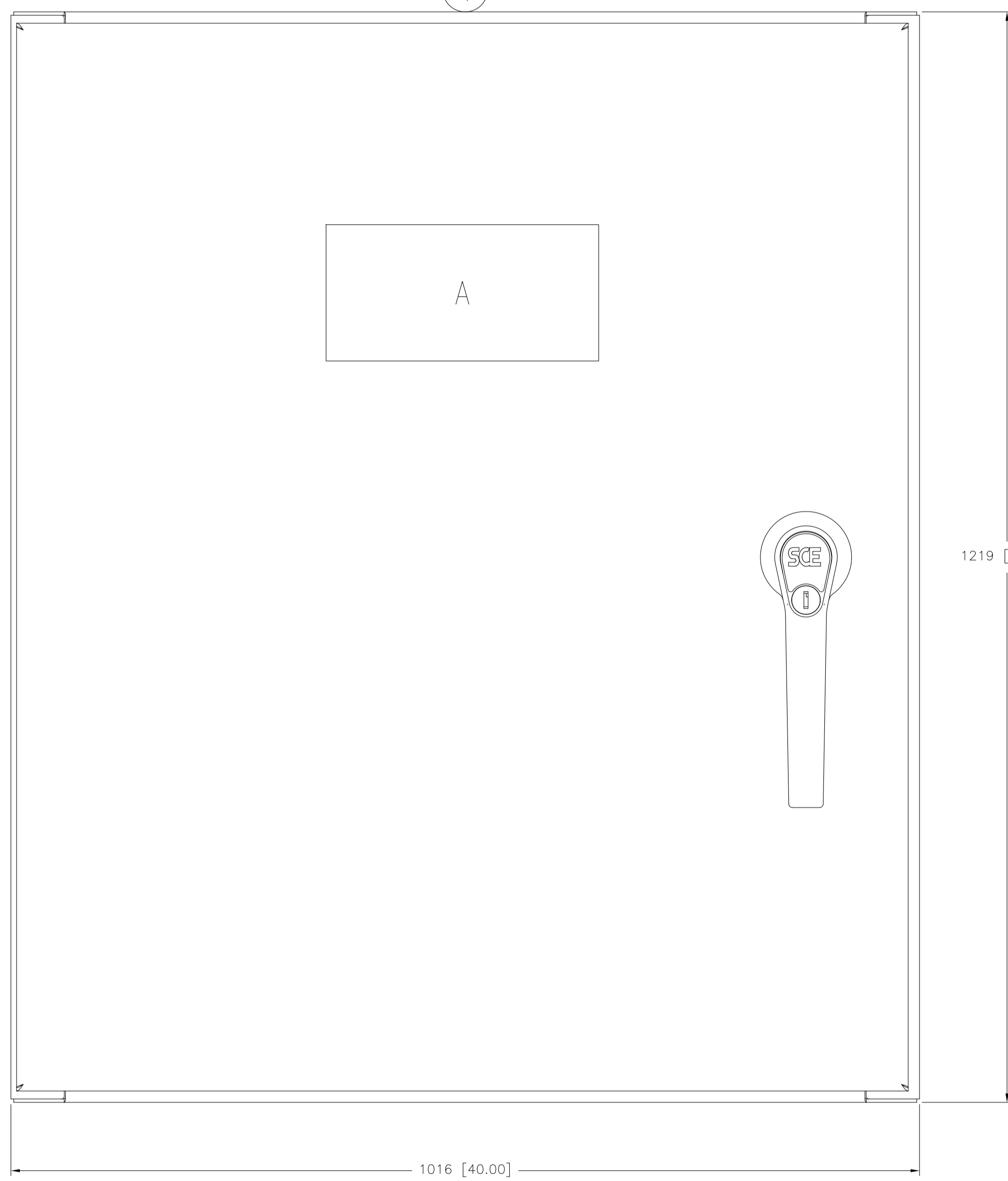
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0.00	.40	//	.75
0.000	.15	□	.75
—	—	—	.75
⊙	.75	⊥	.75

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AFS technology Alternative fuel system engineered for cement kilns		4060 Gibson Drive Troy, Ohio 45371 USA Phone: 937 669 3548 Fax: 858 300 5404 www.afstechnology.com
TITLE CEMENTOS PROGRESO - SAN GABRIEL TIRE SYSTEM - MOTOR CONTROL PANEL LOCAL CONTROL PANEL - PANEL LAYOUT		
DRAWN BY WLP	SCALE 1:1	DATE 2018 FEB 22
CHECKED BY	APPROVED	PROJECT#
DWG. NO. 1530E105	SHEET NO. 6 OF 6	

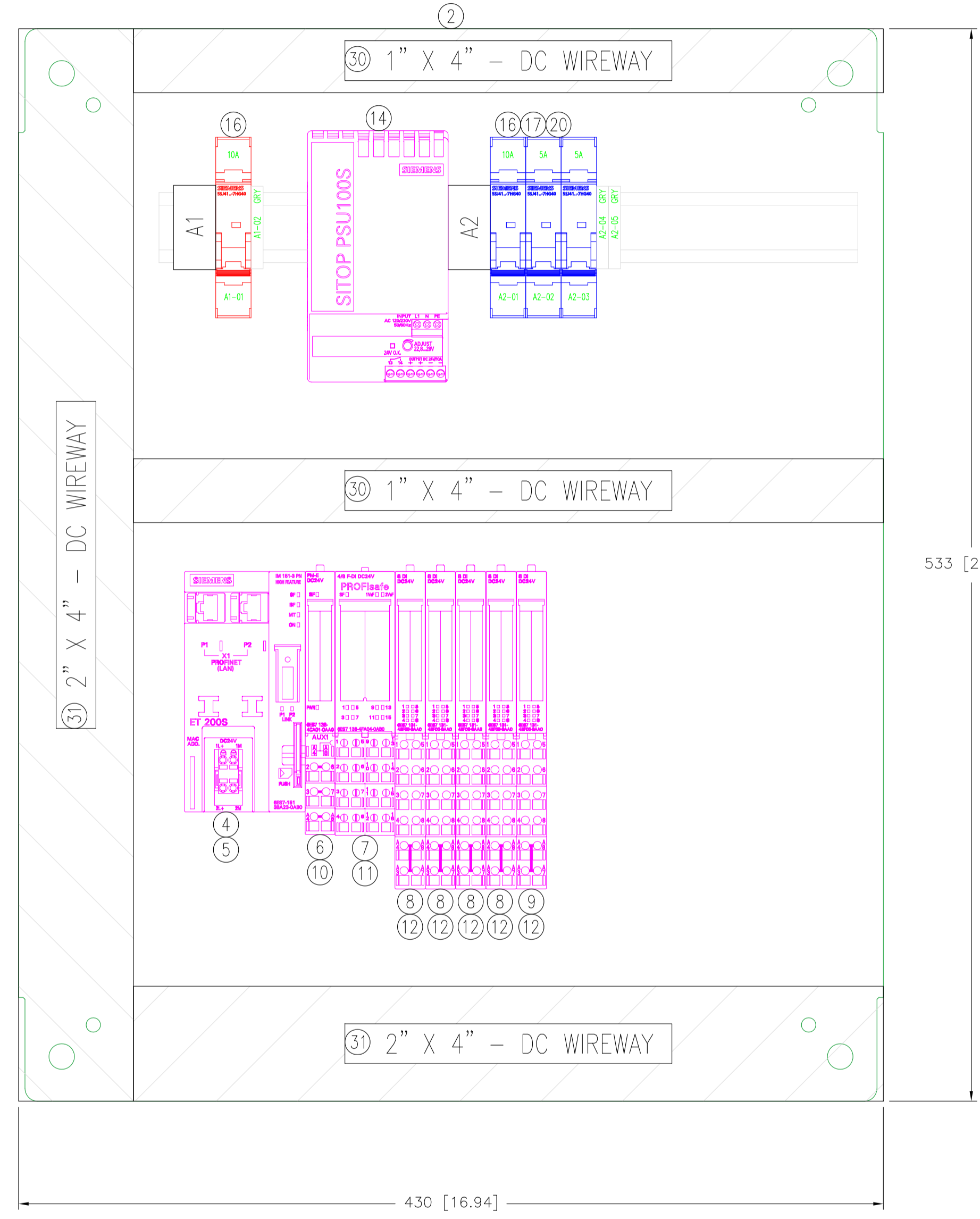
NAMEPLATE LEGEND					
ITEM	LINE 1	LINE 2	LINE 3	LETTER SIZE	PLATE SIZE
A				SEE DETAIL	6" x 3"
B					
C					

MATERIAL LIST					
ITEM	QTY.	DESCRIPTION	MFG.	CAT. #	
1	1	ENCLOSURE, NEMA 4X, WALL MOUNT, 24"x20"x10"	SAGINAW	SCE-24EL2010SSLPL	
2	1	BACK PANEL, 21"x17"	SAGINAW	SCE-24P20	
3					
* 4	1	ET200S PN INTERFACE MODULE, HIGH FEATURE	SIEMENS	6ES7151-3BA23-0AB0	
* 5	1	ET200S MICRO MEMORY CARD 4 MB	SIEMENS	6ES7953-8LM31-0AA0	
* 6	1	ET200S 24VDC POWER SUPPLY MODULE, 5A	SIEMENS	6ES7138-4CA01-0AA0	
* 7	1	ET200S PROFISAFE DI MODULE, 24VDC, 8-POINT	SIEMENS	6ES7138-4FA05-0AB0	
* 8	4	ET200S 24VDC DIGITAL INPUT MODULE, 8-POINT	SIEMENS	6ES7131-4BF00-0AA0	
* 9	1	ET200S 24VDC DIGITAL OUTPUT MODULE, 8-POINT	SIEMENS	6ES7132-4BF00-0AA0	
* 10	1	TERMINAL MODULE WITH ACCESS TO AUX1, SCREW TERMINAL (5 PCS.)	SIEMENS	6ES7193-4CC20-1AA0	
* 11	1	TERMINAL MODULE FOR ELECTRONIC MODULES, SCREW TERMINALS	SIEMENS	6ES7193-4CG20-0AA0	
* 12	1	TERMINAL MODULE WITH ACCESS TO AUX, SCREW TERMINAL (5 PCS.)	SIEMENS	6ES7193-4CA40-0AA0	
13					
14	1	SITOP PSU100S POWER SUPPLY, 1200VAC/24V DC, 10 A	SIEMENS	6EP1334-2BA20	
15					
16	2	MINIATURE CIRCUIT BREAKER, 10A	SIEMENS	5SU4110-7HG40	
17	1	MINIATURE CIRCUIT BREAKER, 5A	SIEMENS	5SU4111-7HG40	
18					
19					
20	3	TERMINAL BLOCK, THROUGH TYPE, GRAY	SIEMENS	8WA1011-1DF11	
21					
22					
23	1	TERMINAL END BARRIER	SIEMENS	8WA1 820	
24	1	TERMINAL END RETAINER	SIEMENS	8WA1 808	
25	1	TERMINAL MARKER CARD, 5MM X 7MM	SIEMENS	8WA8 850-2AY	
26					
27	1	END LABELING PLATE, 21MM X 42MM	SIEMENS	8WA1 806	
28	1	DIN RAIL, 35 MM	SIEMENS	6ES5710-8MA11	
29					
30	AS REQ	PLASTIC WIRING DUCT, LIGHT GRAY, 1"Wx4"D, W/COVER (DC)	PANDUIT	F1X4LG6/C1LG6	
31	AS REQ	PLASTIC WIRING DUCT, LIGHT GRAY, 2"Wx4"D, W/COVER (DC)	PANDUIT	F2X4LG6/C2LG6	

* - FURNISHED BY MATRIX



PANEL LAYOUT
REMOTE CONTROL PANEL
SCALE: 1:4



SUB-PANEL LAYOUT
REMOTE CONTROL PANEL
SCALE: 1:2

SKUEWER SYSTEM REMOTE PANEL

SOURCE OF POWER:
SUPPLY POWER: 120VAC, 10A
ENCLOSURE TYPE: NEMA 4X
DRAWING NUMBERS:
MANUFACTURED BY: _____, ON: (DATE)

NAMEPLATE A
(MOUNTED ON ENCLOSURE EXTERIOR)

APPROVAL DRAWING

APPROVAL REQUIRED PRIOR TO FINAL DESIGN AND DETAILING

WITH COMMENTS
 WITH NO COMMENTS

SIGNATURE _____
DATE _____

- NOTES:
- WIRE COLORS ARE AS FOLLOWS: COLORS ARE AS FOLLOWS:
RED - AC 120V AND BELOW
WHITE - GROUNDED NEUTRAL
BLUE - DC
BLUE/WHT - DC COM
GREEN - EQUIP. GROUND
YELLOW - FOREIGN POWER

MATRIX REF: E55119-05



INCORPORATED
1760 INDIAN WOOD CIRCLE - MAUMEE, OHIO 43537
(419) 897-7200 matrix@matrixllc.com
CINCINNATI - DENVER - INDIANAPOLIS - KANSAS CITY - MINNEAPOLIS

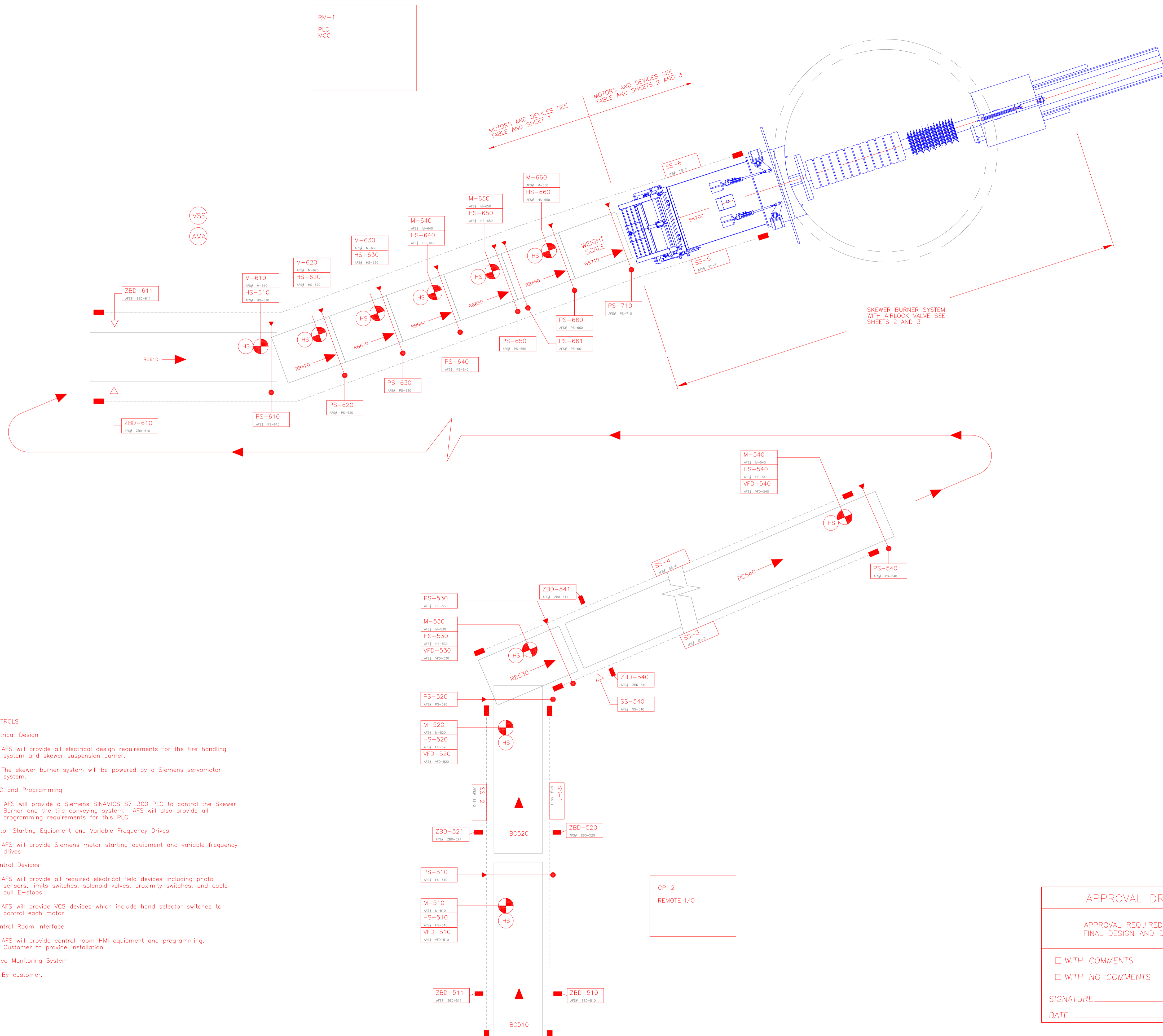
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0.00	.40	∥	.75
0.000	.15	∩	.75
∞	∞	∞	.75
∞	.75	∟	.75

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Alternative fuel system engineered for cement kilns

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Troy, Ohio 45371
USA
Phone: 937 669 3548
Fax: 937 300 5404
www.afstechnology.com

TITLE CEMENTOS PROGRESO - SAN GABRIEL TIRE SYSTEM - MOTOR CONTROL PANEL REMOTE CONTROL PANEL - PANEL LAYOUT		
DRAWN BY WLP	SCALE 1:2	DATE 2018 FEB 22
CHECKED BY	APPROVED	PROJECT#
DWG. NO. 1530E106	SHEET NO. 6 OF 6	



**TABLE 1
MOTOR LIST**

AFS MACHINE #	DESCRIPTION	Qty	kW	T-kW
BC510	TIRE LOADING BELT CONVEYOR	1	1.5	1.5
BC520	INCLINED BELT LOAD CONVEYOR	1	1.5	1.5
RB530	CLEAT LOADER CONVEYOR	1	.75	.75
BC540	INCLINED CLEATED BELT CONVEYOR	1	7.5	7.5
BC610	HORIZONTAL BELT CONVEYOR IN TOWER	1	1.5	1.5
RB620	ZONE ACCUMULATION ROLLER CONVEYOR	1	.75	.75
RB630	ZONE ACCUMULATION ROLLER CONVEYOR	1	.75	.75
RB640	ZONE ACCUMULATION ROLLER CONVEYOR	1	.75	.75
RB650	ZONE ACCUMULATION ROLLER CONVEYOR	1	.75	.75
RB660	ZONE ACCUMULATION ROLLER CONVEYOR	1	.75	.75
TOTALS		1	16.5	16.5

FIELD DEVICES

SYMBOL	ABRV.	DESCRIPTION	DI	DO	AI	AO
	M	MOTOR- A/C		11		
	M	SERVMOTOR	0			
	ZS	PROXIMITY SENSOR	0			
	SS	ZERO SPEED SWITCH	2			
	PS	PHOTO ELECTRIC SENSOR	14			
	ZS	LIMIT SWITCH (ZSH and ZSL)	0			
	SS	SAFETY CABLE PULL SWITCH	6			
	SS	EMERGENCY STOP PUSHBUTTON	0			
	ZBD	BELT DRIFT SWITCH (2 STEP)	6			
	HS	HAND SELECTOR SWITCH	10			
	HS	HAND JOG SWITCH / PILOT LIGHTS	0			
	VFD	VARIABLE FREQUENCY DRIVE	5			
	LS	LEVEL SWITCH	0			
	TS	TEMPERATURE SWITCH	0			
	PDS	PRESSURE DIFFERENTIAL SWITCH	0			
	WT	WEIGH SCALE CONTROLLER	0		1	
TOTAL			43	11	1	

SUMMARY OF SHEETS 1-3

DESCRIPTION	QTY	DI	DO	AI	AO
MOTOR- A/C	10		10		
SERVMOTORS	15	15	15		
DEVICES	73	73			
WEIGHT SCALE	1			1	

- S4.0 CONTROLS**
- S4.1 Electrical Design**
- a) AFS will provide all electrical design requirements for the tire handling system and skewer suspension burner.
 - b) The skewer burner system will be powered by a Siemens servomotor system.
- S4.2 PLC and Programming**
- a) AFS will provide a Siemens SINAMICS S7-300 PLC to control the Skewer Burner and the tire conveying system. AFS will also provide all programming requirements for this PLC.
- S4.3 Motor Starting Equipment and Variable Frequency Drives**
- a) AFS will provide Siemens motor starting equipment and variable frequency drives
- S4.4 Control Devices**
- a) AFS will provide all required electrical field devices including photo sensors, limits switches, solenoid valves, proximity switches, and cable pull E-stops.
 - b) AFS will provide VCS devices which include hand selector switches to control each motor.
- S4.5 Control Room Interface**
- a) AFS will provide control room HMI equipment and programming. Customer to provide installation.
- S4.6 Video Monitoring System**
- a) By customer.

APPROVAL DRAWING

APPROVAL REQUIRED PRIOR TO FINAL DESIGN AND DETAILING

WITH COMMENTS

WITH NO COMMENTS

SIGNATURE _____

DATE _____

NOTES:
 Unless otherwise noted, the following shall apply:
 1. All dimensions are to be minimums unless noted.
 2. All surfaces are to be minimum 60 grit and zinc plated.
 3. All surfaces are to be finished two-part epoxy with minimum 5 mil DFT.
 4. All welds and corners are to be spot primed.

0.0	.75	L	.75
0.00	.40	///	.75
0.000	.15	□	.75
—	—	—	.75
©	.75	L	.75

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TITLE
 CEMENTOS PROGRESO – SAN GABRIEL
 TIRE FEED SYSTEM
 DEVICE DIAGRAM – CONVEYOR SYSTEM

DRAWN BY JT	SCALE N/A	DATE 2018 FEB 18
CHECKED BY	APPROVED	PROJECT#

DWG. NO. 1530DD-101

SHEET NO. 1 OF 3

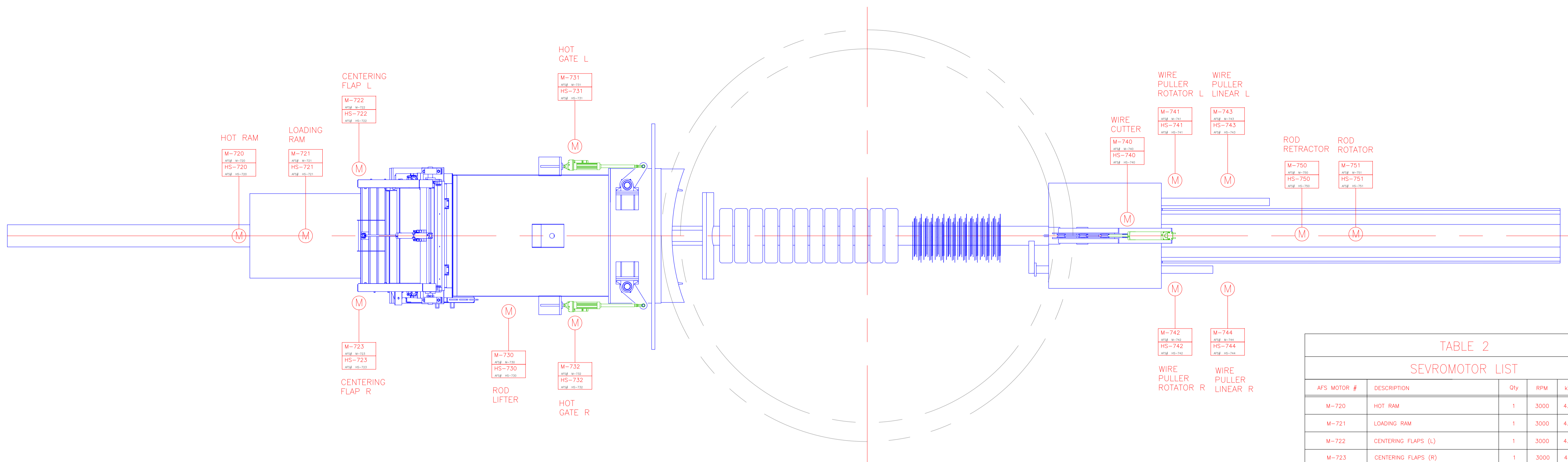
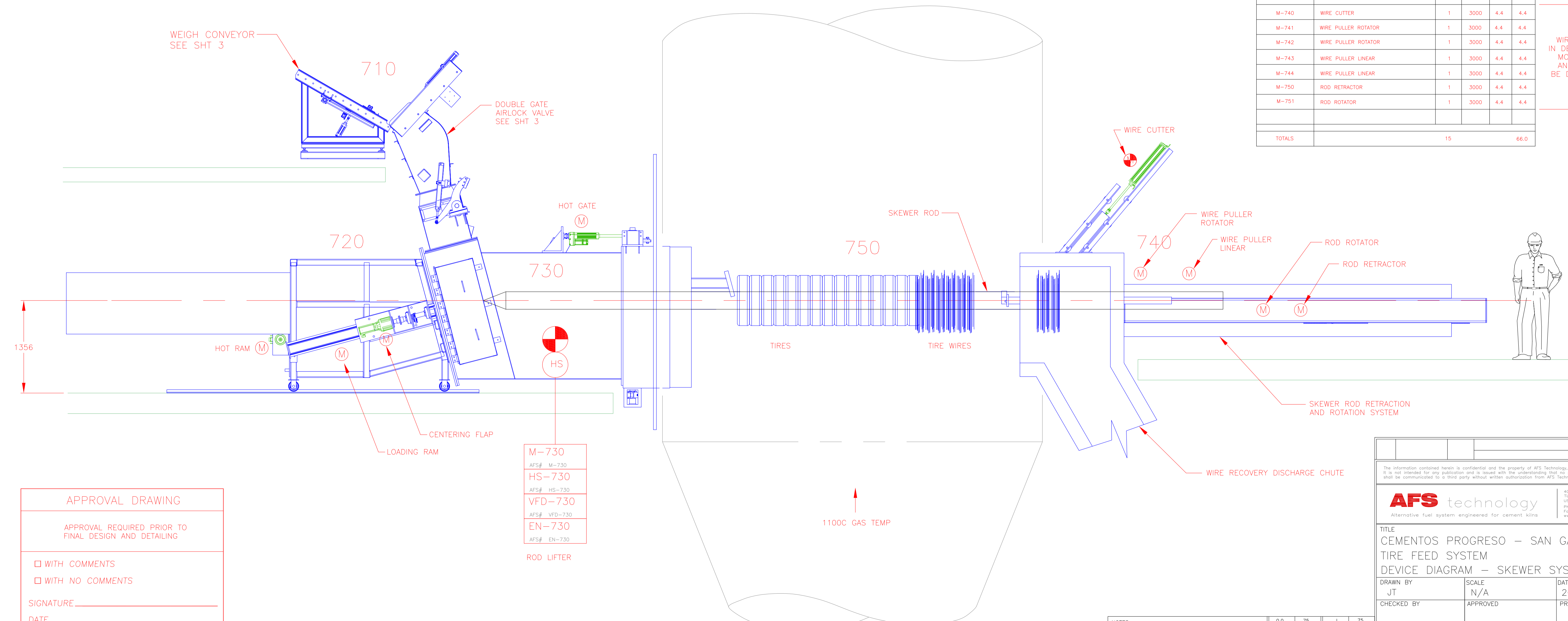


TABLE 2
SEVROMOTOR LIST

AFS MOTOR #	DESCRIPTION	Qty	RPM	kW	T-kW
M-720	HOT RAM	1	3000	4.4	4.4
M-721	LOADING RAM	1	3000	4.4	4.4
M-722	CENTERING FLAPS (L)	1	3000	4.4	4.4
M-723	CENTERING FLAPS (R)	1	3000	4.4	4.4
M-730	ROD LIFTER (SEW GEARMOTOR)	1	1800	1.5	1.5
M-731	HOT GATE (L)	1	3000	4.4	4.4
M-732	HOT GATE (R)	1	3000	4.4	4.4
M-740	WIRE CUTTER	1	3000	4.4	4.4
M-741	WIRE PULLER ROTATOR	1	3000	4.4	4.4
M-742	WIRE PULLER ROTATOR	1	3000	4.4	4.4
M-743	WIRE PULLER LINEAR	1	3000	4.4	4.4
M-744	WIRE PULLER LINEAR	1	3000	4.4	4.4
M-750	ROD RETRACTOR	1	3000	4.4	4.4
M-751	ROD ROTATOR	1	3000	4.4	4.4
TOTALS		15		66.0	

↑
WIRE SYSTEM
IN DEVELOPMENT
MOTOR SIZE
AND QTY TO
BE DETERMINED
↓



M-730
AFS# M-730
HS-730
VFD-730
AFS# HS-730
EN-730
AFS# VFD-730
AFS# EN-730
ROD LIFTER

APPROVAL DRAWING

APPROVAL REQUIRED PRIOR TO FINAL DESIGN AND DETAILING

WITH COMMENTS
 WITH NO COMMENTS

SIGNATURE _____
DATE _____

NOTES:
1. Unless otherwise noted, the following shall apply:
2. All dimensions are to be minimum unless noted.
3. All surfaces are to be finished two-part epoxy with minimum 5 mil DFT.
4. All welds and corners are to be spot primed.

0.0	.75	∠	.75
0.00	.40	//	.75
0.000	.15	□	.75
—	—	—	.75
∅	.75	∠	.75

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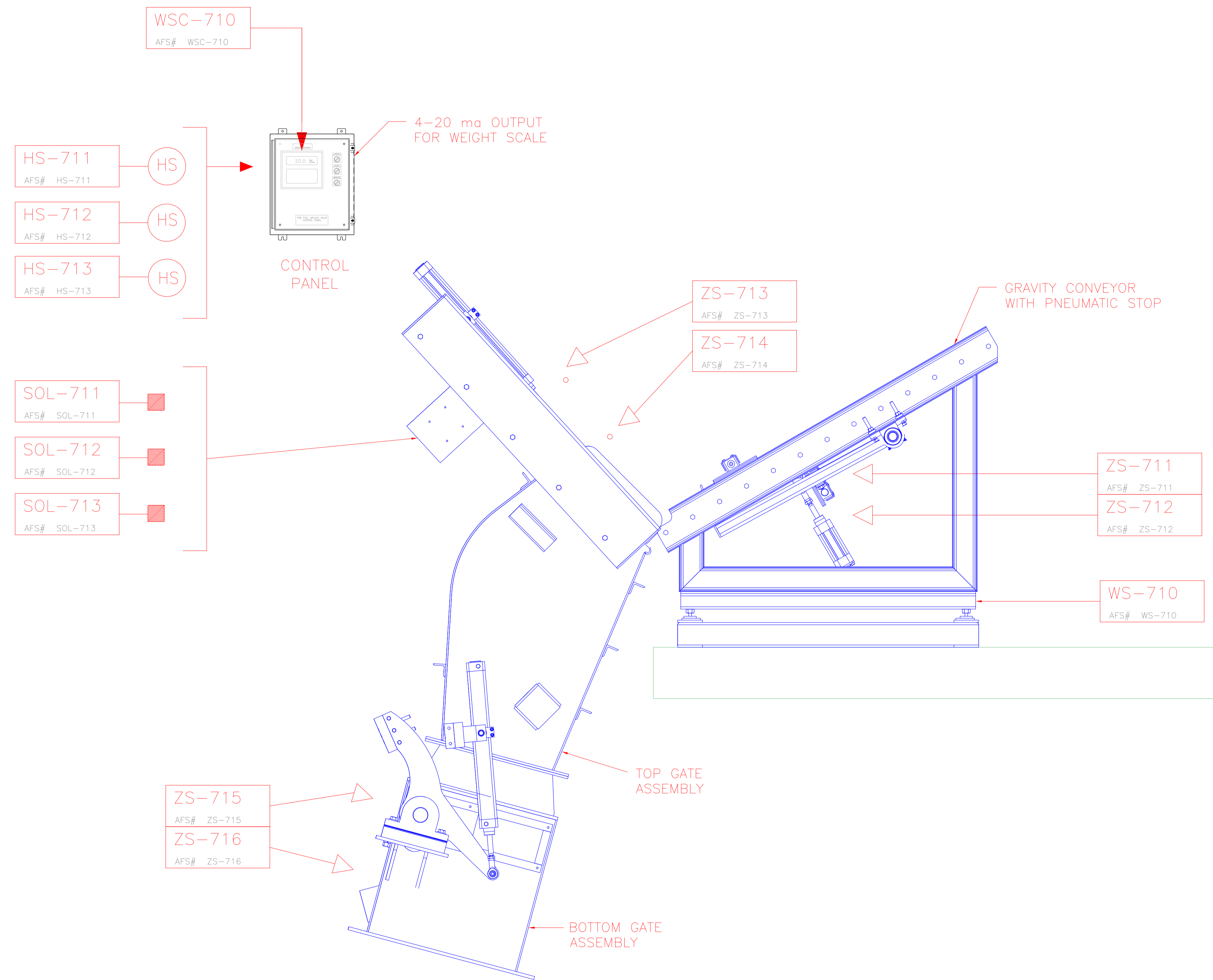
TITLE
CEMENTOS PROGRESO – SAN GABRIEL
TIRE FEED SYSTEM
DEVICE DIAGRAM – SKEWER SYSTEM

DRAWN BY JT	SCALE N/A	DATE 2018 FEB 16
CHECKED BY	APPROVED	PROJECT#

DWG. NO. 1530DD-102

SHEET NO. 2 OF 3

TABLE 3						
FIELD DEVICES						
SYMBOL	ABRV.	DESCRIPTION	DI	DO	AI	AO
	M	MOTOR- A/C				
	SOL	SOLENOID VALVE		3		
	ZS	PROXIMITY SENSOR	6			
	SS	ZERO SPEED SWITCH	0			
	PS	PHOTO ELECTRIC SENSOR	1			
	ZS	LIMIT SWITCH (ZSH and ZSL)	0			
	SS	SAFETY CABLE PULL SWITCH	6			
	ZBD	BELT DRIFT SWITCH (2 STEP)	0			
	HS	HAND SELECTOR SWITCH / PILOT LIGHTS	3			
	HS	HAND JOG SWITCH / PILOT LIGHTS	0			
	VFD	VARIABLE FREQUENCY DRIVE	0			
	LS	LEVEL SWITCH	0			
	TS	TEMPERATURE SWITCH	0			
	PDS	PRESSURE DIFFERENTIAL SWITCH	0			
	WSC	WEIGHT SCALE CONTROLLER			1	
	WS	WEIGHT SCALE				1
TOTAL			16	3	1	



710 AIRLOCK VALVE WITH WEIGHING SYSTEM

APPROVAL DRAWING

APPROVAL REQUIRED PRIOR TO FINAL DESIGN AND DETAILING

WITH COMMENTS

WITH NO COMMENTS

SIGNATURE _____

DATE _____

NOTES:
 1. Unless otherwise noted, the following shall apply:
 2. All hardware shall be minimum grade 5B and zinc plated.
 3. Surface prep to be SSPC 2/5.
 4. All welds and corners are to be spot primed.

0.0	.75	∠	.75
0.00	.40	//	.75
0.000	.15	□	.75
—	—	—	.75
∅	.75	∠	.75

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TITLE
 CEMENTOS PROGRESO – SAN GABRIEL
 TIRE FEED SYSTEM
 DEVICE DIAGRAM – AIRLOCK SYSTEM

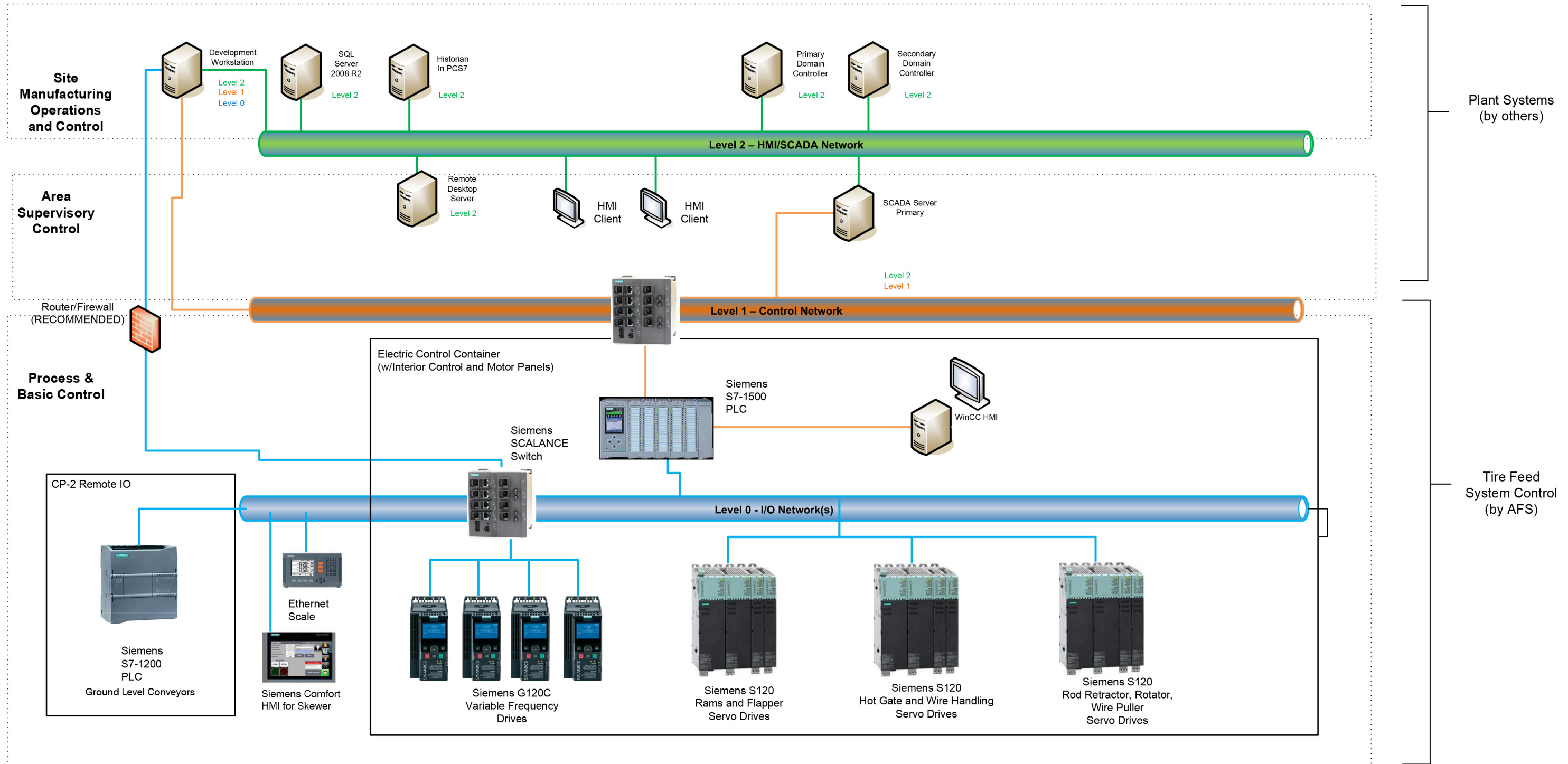
DRAWN BY JT	SCALE N/A	DATE 2018 FEB 18
CHECKED BY	APPROVED	PROJECT#

DWG. NO. 1530DD-103 SHEET NO. 3 OF 3

CEMENTOS PROGRESO - SAN GABRIEL TIRE FEED SYSTEM WITH SKEWER BURNER CONTROL NETWORK

FILE NAME: 1530DD104.PDF

PROJECT 1530 - DATE 20 FEB 2018



- Notes:
1. This diagram is intended to show preliminary concepts and ideas for discussion. It should not be construed as a design document.
 2. Functionality is based on AFS Dwg 1530DD02, Control architecture is based on optimizing overall installed costs, including equipment, engineering, and installation.
 3. Servo motor grouping is based on very preliminary mechanical data. Grouping will be designed considering machine loads and speeds, along with sequence timing.
 4. AFS equipment and controls are designed to be factory tested then shipped to site for final commissioning.
 5. Electrical equipment arrangements are based on separation of low and medium voltage levels.
 6. Networking is designed for later incorporation into overall plant communications. All Site and Area equipment, software, and networks are provided by others.



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