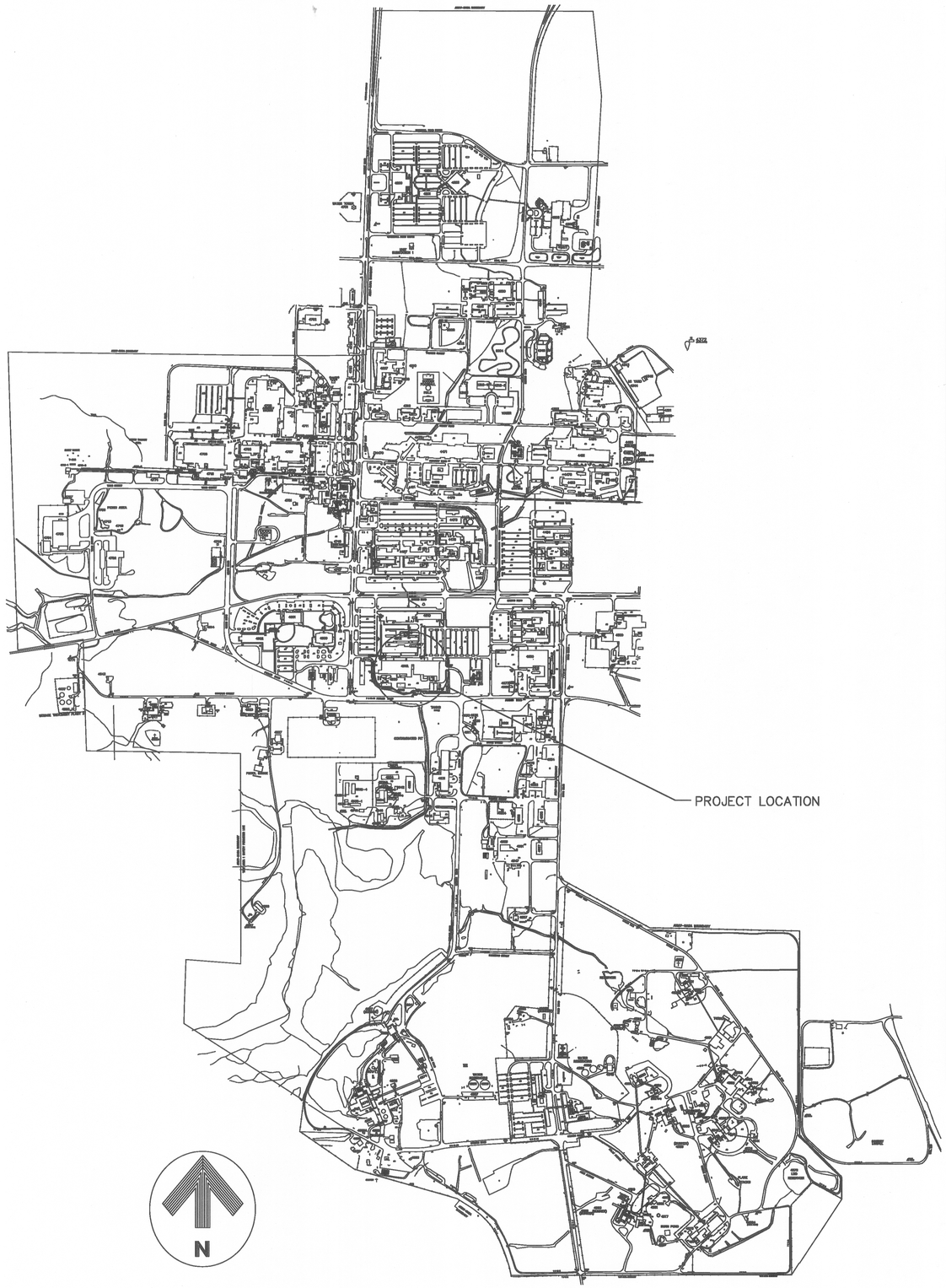
Revitalize Building 4619
Electrical Systems
MARSHALL SPACE FLIGHT CENTER, ALABAMA
INDEX OF DRAWINGS



VICINITY MAP
N.T.S.

ADDITIVE ALTERNATES

1. REPLACE BUS DUCT, BUS PLUGS AND RECONNECT EXISTING WIRE IN THE WEST BAY.
2. REPLACE BUS DUCT, BUS PLUGS AND RECONNECT EXISTING WIRE IN THE EAST BAY.
3. REPLACE BUS DUCT, BUS PLUGS AND RECONNECT EXISTING WIRE IN THE LTA.
4. REPLACE INDOOR DRY-TYPE TRANSFORMERS AS SHOWN ON DRAWINGS AND SCHEDULES.

GENERAL

REF. NO.	SHEET TITLE	DRAWING NO.	REV.
G001	COVER SHEET & INDEX OF DRAWINGS	FAC-GO-4619-G001	

ELECTRICAL

REF. NO.	SHEET TITLE	DRAWING NO.	REV.
E001	GENERAL NOTES, ABBREVIATIONS, & LEGEND	FAC-GO-4619-E001	
E002	PHASING PLAN - BASEMENT & 1ST FLOOR	FAC-GO-4619-E002	
E003	UNDERGROUND UTILITY SITE PLAN	FAC-GO-4619-E003	
E004	SECTIONS AND SITE CONDITIONS	FAC-GO-4619-E004	
E101	PANELS & SWBDS SUB FLOOR PART A	FAC-GO-4619-E101	
E102	PANELS & SWBDS SUB FLOOR PART B	FAC-GO-4619-E102	
E103	PANELS & SWBDS SUB FLOOR PART C	FAC-GO-4619-E103	
E104	PANELS & SWBDS 1ST FLOOR PART A	FAC-GO-4619-E104	
E105	PANELS & SWBDS 1ST FLOOR PART B	FAC-GO-4619-E105	
E106	PANELS & SWBDS 1ST FLOOR PART C	FAC-GO-4619-E106	
E107	PANELS & SWBDS 1ST FLOOR PART D	FAC-GO-4619-E107	
E108	PANELS & SWBDS 1ST FLOOR PART E	FAC-GO-4619-E108	
E109	PANELS & SWBDS 1ST FLOOR PART F	FAC-GO-4619-E109	
E110	PANELS & SWBDS 2ND FLOOR PART A & B	FAC-GO-4619-E110	
E111	PANELS & SWBDS 2ND FLOOR PART C & D	FAC-GO-4619-E111	
E112	PANELS 3RD FLOOR	FAC-GO-4619-E112	
E113	PANELS 4TH FLOOR	FAC-GO-4619-E113	
E114	PANELS 5TH FLOOR	FAC-GO-4619-E114	
E115	PANELS 6TH FLOOR	FAC-GO-4619-E115	
E116	CROSSHEAD PANELS	FAC-GO-4619-E116	
E201	DISC SUB FLOOR PART A	FAC-GO-4619-E201	
E202	DISC SUB FLOOR PART B	FAC-GO-4619-E202	
E203	DISC & BUS DUCT 1ST FLOOR PART A (ADD ALT #2)	FAC-GO-4619-E203	
E204	DISC & BUS DUCT 1ST FLOOR PART B (ADD ALT #2)	FAC-GO-4619-E204	
E205	DISC & BUS DUCT 1ST FLOOR PART C (ADD ALT #1 & #3)	FAC-GO-4619-E205	
E206	DISC & BUS DUCT 1ST FLOOR PART D (ADD ALT #1)	FAC-GO-4619-E206	
E207	DISC & BUS DUCT 1ST FLOOR PART E (ADD ALT #1)	FAC-GO-4619-E207	
E208	DISC 2ND FLOOR PART A & B	FAC-GO-4619-E208	
E209	DISC 2ND FLOOR PART C	FAC-GO-4619-E209	
E210	DISC 6TH FLOOR	FAC-GO-4619-E210	
E211	DISC 8TH FLOOR	FAC-GO-4619-E211	
E301	ONE LINE BUS DUCT EAST BAY DEMO (ADD ALT #2)	FAC-GO-4619-E301	
E302	ONE LINE BUS DUCT EAST BAY NEW WORK (ADD ALT #2)	FAC-GO-4619-E302	
E303	ONE LINE BUS DUCT LTA AREA DEMO (ADD ALT #3)	FAC-GO-4619-E303	
E304	ONE LINE BUS DUCT LTA AREA NEW WORK (ADD ALT #3)	FAC-GO-4619-E304	
E305	ONE LINE BUS DUCT WEST BAY PART A DEMO (ADD ALT #1)	FAC-GO-4619-E305	
E306	ONE LINE BUS DUCT WEST BAY PART A NEW WORK (ADD ALT #1)	FAC-GO-4619-E306	
E307	ONE LINE BUS DUCT WEST BAY PART B DEMO (ADD ALT #1)	FAC-GO-4619-E307	
E308	ONE LINE BUS DUCT WEST BAY PART B NEW WORK (ADD ALT #1)	FAC-GO-4619-E308	
E401	ONE LINE SERVICE #1 DEMO	FAC-GO-4619-E401	
E402	ONE LINE SERVICE #2 DEMO	FAC-GO-4619-E402	
E403	ONE LINE SERVICE #2 NEW WORK	FAC-GO-4619-E403	
E404	ONE LINE SERVICE #3 DEMO	FAC-GO-4619-E404	
E405	ONE LINE SERVICE #3 NEW WORK	FAC-GO-4619-E405	
E406	ONE LINE SERVICE #4 DEMO	FAC-GO-4619-E406	
E407	ONE LINE SERVICE #4 NEW WORK	FAC-GO-4619-E407	
E408	ONE LINE SERVICE #5 DEMO	FAC-GO-4619-E408	
E409	ONE LINE SERVICE #5 NEW WORK	FAC-GO-4619-E409	
E410	ONE LINE SERVICE #6 DEMO AND NEW WORK	FAC-GO-4619-E410	
E411	ONE LINE SERVICE #7 EXISTING TO REMAIN	FAC-GO-4619-E411	
E501	SERVICE #2, #3 & #4 RISER DIAGRAMS	FAC-GO-4619-E501	
E502	SERVICE #5, #6 & #7 RISER DIAGRAMS	FAC-GO-4619-E502	
E601	ELECTRICAL DETAILS	FAC-GO-4619-E601	
E602	ELECTRICAL DETAILS	FAC-GO-4619-E602	
E701	PANEL SCHEDULES	FAC-GO-4619-E701	
E702	PANEL SCHEDULES	FAC-GO-4619-E702	
E703	PANEL SCHEDULES	FAC-GO-4619-E703	
E704	PANEL SCHEDULES	FAC-GO-4619-E704	
E705	PANEL SCHEDULES	FAC-GO-4619-E705	
E706	PANEL SCHEDULES	FAC-GO-4619-E706	
E707	PANEL SCHEDULES	FAC-GO-4619-E707	
E708	PANEL SCHEDULES	FAC-GO-4619-E708	
E709	PANEL SCHEDULES	FAC-GO-4619-E709	
E710	PANEL SCHEDULES	FAC-GO-4619-E710	
E711	PANEL SCHEDULES	FAC-GO-4619-E711	
E712	PANEL SCHEDULES	FAC-GO-4619-E712	

ELECTRICAL

REF. NO.	SHEET TITLE	DRAWING NO.	REV.
E713	PANEL SCHEDULES	FAC-GO-4619-E713	
E714	PANEL SCHEDULES	FAC-GO-4619-E714	
E715	PANEL SCHEDULES	FAC-GO-4619-E715	
E716	PANEL SCHEDULES	FAC-GO-4619-E716	
E717	PANEL SCHEDULES	FAC-GO-4619-E717	
E801	SWITCHBOARD SCHEDULES	FAC-GO-4619-E801	
E802	PANEL & MCC SCHEDULES	FAC-GO-4619-E802	
E803	DISCONNECT SCHEDULES	FAC-GO-4619-E803	
E804	DISCONNECT AND TRANSFORMER SCHEDULES	FAC-GO-4619-E804	
E805	TRANSFORMER SCHEDULES (ADD ALT #4)	FAC-GO-4619-E805	

UCS

REF. NO.	SHEET TITLE	DRAWING NO.	REV.
UCS1	BASEMENT - UCS FLOOR PLAN, COMM TRUNK LAYOUT AND NOTES	FAC-GO-4619-EUCS1	
UCS2	1ST FLOOR UCS FLOOR PLAN, AND COMM TRUNK LAYOUT	FAC-GO-4619-EUCS2	

ATTENTION!

ALL CONTRACTORS AND SUBCONTRACTORS PREPARING BIDS FOR THIS PROJECT

USING A 'COMPARABLE, EQUAL' OR 'SUBSTITUTION' PRODUCT, IN THE PLACE OF A 'BASIS OF DESIGN' PRODUCT, MAY REQUIRE CHANGES TO THE MECHANICAL, ELECTRICAL, STRUCTURAL OR ARCHITECTURAL BUILDING SYSTEMS IN ORDER TO ACCOMODATE THE PRODUCT. THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS OF MAKING CHANGES TO THE BUILDING SYSTEMS. SUBMIT IN ACCORDANCE WITH SPEC SECTION 01 60 00 PRODUCT REQUIREMENT.

WARNING

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THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

SIGNATURES ON THIS SHEET INDICATE ACCEPTANCE OF ALL DRAWINGS LISTED IN THE INDEX OF DRAWINGS.

CONCURRENCE: DATE: 2/24/14
PLANNING AND BUSINESS MANAGEMENT GROUP
CONCURRENCE: DATE: 2/24/14
CONTRACT MANAGEMENT TEAM
CONCURRENCE: DATE: 11/19/13
OPERATIONS & MAINTENANCE GROUP
CONCURRENCE: DATE: 12/10/13
ENVIRONMENTAL ENGINEERING DEPT
CONCURRENCE: DATE: 12-10-13
USING OFFICE
CONCURRENCE: DATE: 2-18-14
ENVIRONMENTAL HEALTH
CONCURRENCE: DATE: 11/19/2013
SAFETY OFFICE
CONCURRENCE: DATE: 2/24/14
PROJECT CM
CONCURRENCE: DATE: 11/20/13
COMMUNICATIONS OFFICE
TELECOMMUNICATIONS EQUIPMENT AFFECTED BY THIS CONTRACT WORK IS NOT TO BE ALTERED OR REMOVED BY THE CONTRACTOR. CONTACT THE OSTM IN THE EVENT OF A CONFLICT

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED

Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

COVER SHEET & INDEX OF DRAWINGS

AE FIRM: GOODWYN MILLS CAWOOD / MERRICK & COMPANY

SUBMITTED: JENNIFER LANDRY
AE: DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
SCALE: AS SHOWN

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
APPROVAL RECOMMENDED: NELSON OLIN/GBR, AS22 TEAM LEAD
SPEC. NO. FAC-M6064

NASA AE CONTRACT NO. NAS8-NNM12AA49A
APPROVED: JIMMY GUARIN
AS22 GROUP LEAD DATE: 10/24/13
DRAWING NO. FAC-GO-4619-G001

REF. NO. G001 01 OF 01

ALABAMA REGISTERED No. 28867 PROFESSIONAL ENGINEER 10.24.13 JOHN AVERETTE

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

MSFC Master Bid Disk 03-26-2014

GENERAL NOTES

1. ELECTRICAL CONTRACTOR SHALL VERIFY THE LOCATION OF UNDERGROUND UTILITIES PRIOR TO COMMENCEMENT OF ANY EXCAVATION.

2. ELECTRICAL EQUIPMENT SHALL BE FULLY RATED FOR THE FAULT CURRENT INDICATED ON THE PLANS. NO SERIES RATING WILL BE ACCEPTED.

3. SEAL ALL PENETRATIONS IN ACCORDANCE WITH A UL APPROVED FIRESTOPPING SYSTEM TO MAINTAIN THE UL RATING OF THE WALL.

4. NO COMBUSTIBLE MATERIAL IS ALLOWED IN ANY RETURN AIR PLENUM.

5. SURFACE MOUNTED CONDUIT, INSTALLED IN AREAS SUBJECT TO DAMAGE, OR ANY CONDUIT INSTALLED WITHIN 8 FT. OF THE FINISHED FLOOR, SHALL BE GALVANIZED RIGID STEEL CONDUIT (GRC) UNO.

6. SUBSURFACE CONDUIT SHALL BE SCHEDULE 40PVC UNO. FOR RUNS GREATER THAN 50 FEET IN LENGTH, VERTICAL TURN UPS SHALL BE GRC SWEEP 90S WITH A BITUMASTIC COATING UNO.

7. CONTRACTOR SHALL PROVIDE TYPE WRITTEN PANEL SCHEDULE IN ALL PANELS. CONTRACTOR SHALL VERIFY EACH CIRCUIT. GIVE A PROPER DEFINITION OF EACH CIRCUIT. "EXISTING CIRCUIT" DEFINITION ON THE PANEL SCHEDULE WILL NOT BE ACCEPTED.

8. CONTRACTOR SHALL REPAIR ANY DISTURBED AREA TO SAME COMPACTION, GRADE, SLOPE, ETC. AS ORIGINAL AREA INCLUDING REPLACEMENT OF SOD, GRASS, ROCK, GRAVEL, RIP-RAP, ETC. TO THE SATISFACTION OF THE CONTRACTING OFFICER'S REPRESENTATIVE.

9. CLEAN UP ALL DEBRIS AROUND CONSTRUCTION SITE DAILY.

10. REMOVE ANY SPILLED DIRT, CONCRETE, ETC. FROM ANY DRIVEWAYS, ROADWAYS OR CONSTRUCTION SITE AS DIRECTED BY CONTRACTING OFFICER'S REPRESENTATIVE.

11. ALL INSTALLATIONS SHALL CONFORM TO THE REQUIREMENTS OF NFPA 70-2011, IBC 2009 AND NASA-STD-8719.11A.

12. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC IN NATURE. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE ACTUAL ARRANGEMENT WITH FACILITY.

13. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE CIRCUIT ROUTING AS REQUIRED TO MEET SCHEMATIC INTENT OF THE PLANS.

14. ALL PATHS OF EGRESS SHALL BE KEPT CLEAR AT ALL TIMES WHILE THE BUILDING IS OCCUPIED.

15. CONTRACTOR SHALL COORDINATE ALL POWER OUTAGES WITH NASA PERSONNEL. CONTRACTOR SHALL NOTIFY NASA 2 DAYS PRIOR TO OUTAGE FOR EMERGENCY OUTAGES, 14 DAYS PRIOR TO OUTAGE FOR NORMAL OUTAGES, AND 30 DAYS PRIOR TO OUTAGE FOR EXTENDED OUTAGES. CONTRACTOR SHALL NOT PROCEED UNTIL WRITTEN NOTICE HAS BEEN RECEIVED FROM NASA ALLOWING THE OUTAGE. CONTRACTOR SHALL ENSURE THAT 1-20A SINGLE POLE BREAKER IS ENERGIZED AT ALL TIMES DURING CONSTRUCTION TO FEED THE FIRE CONTROL PANEL OR COORDINATE FIRE WATCHES WITH NASA PERSONNEL.

16. CONTRACTOR TO INSTALL PARALLEL CONDUIT AND FEEDERS FROM ANY NEW SWITCHBOARD TO ALL PANEL BOARDS & MCC'S FED FROM IT. AFTER THE NEW PARALLEL FEED IS INSTALLED AND A SEAMLESS CROSSOVER IS COMPLETE, THE CONTRACTOR SHALL THEN REMOVE THE EXISTING FEED TO THE PANEL. LIKEWISE, ALL WIRING FROM NEW MCC'S SHALL BE REPLACED BY THE CONTRACTOR. PANEL BOARD BRANCH CIRCUIT WIRING IS NOT TO BE REPLACED. BUS DUCT DISCONNECT WIRING IS NOT TO BE REPLACED UNLESS STATED OTHERWISE IN THE CONTRACT DOCUMENT. TRANSFORMER PRIMARY AND SECONDARY WIRING IS NOT TO BE REPLACED UNLESS OTHERWISE NOTED.

17. CONTRACTOR SHALL REPAIR AND PATCH ALL WALLS, FLOORS, PENETRATIONS, ETC. TO MATCH THE ADJACENT SURFACE WHERE EQUIPMENT IS BEING REMOVED OR IF NECESSARY FOR THE INSTALLATION OF NEW EQUIPMENT UNDER THIS CONTRACT.

18. ALL AREA OF CONSTRUCTION DAMAGED DURING THIS CONTRACT SHALL BE REPAIRED TO MATCH ADJACENT SURFACES.

19. WIRING DEVICES NOT BEING REMOVED OR REPLACED SHALL BE COVERED WITH APPROVED BLANKS.

20. ALL UNUSED OR ABANDONED ELECTRICAL CONDUIT, CONDUCTORS, FITTINGS AND SUPPORTS SHALL BE REMOVED.

21. UNO ALL MOUNTING HEIGHTS ARE SHOWN TO BE ABOVE FINISHED FLOOR.

22. ASBESTOS CONTAINING MATERIALS MAY BE PRESENT. NASA HAS A DETAILED REPORT ON ASBESTOS CONTAINING MATERIAL. IF ASBESTOS IS ENCOUNTERED CONTRACTOR SHALL NOTIFY NASA.

23. CONTRACTOR SHALL INSTALL A NEW PARALLEL FEED TO NEW SERVICES #2, 3, 4 AND 5. AFTER SEAMLESS CROSSOVER OFF ALL BRANCH CIRCUITS IS COMPLETE AN IN WORKING ORDER THE CONTRACTOR SHALL REMOVE THE OLD SERVICES AND ASSOCIATED FEEDS.

ELECTRICAL LEGEND

	CONDUIT OR RACEWAY EXPOSED TO VIEW. RUN PARALLEL OR PERPENDICULAR TO STRUCTURE CONCEAL FROM VIEW AS MUCH AS POSSIBLE
	CONDUIT OR RACEWAY CONCEALED IN CEILING CAVITY OR WALL
	CONDUIT OR RACEWAY UNDERGROUND
	BUS DUCT TO BE REPLACED. SEE FLOOR PLANS FOR EXACT LOCATIONS AND MORE INFORMATION.
	PANELBOARD OR SWITCHBOARD TO BE REMOVED. REFER TO KEY NOTE ON EACH DRAWING FOR MORE INFORMATION.
	PANELBOARD OR SWITCHBOARD TO BE REMOVED AND REPLACED WITH NEW PANELBOARD OR SWITCHBOARD. REFER TO KEY NOTE ON EACH DRAWING FOR MORE INFORMATION.
	PANELBOARD OR SWITCHBOARD TO REMAIN. REFER TO KEY NOTE ON EACH DRAWING FOR MORE INFORMATION.
	DISCONNECT TO BE REMOVED. REFER TO KEY NOTE ON EACH DRAWING FOR MORE INFORMATION.
	DISCONNECT TO BE REMOVED AND REPLACED WITH NEW DISCONNECT. REFER TO KEY NOTE ON EACH DRAWING FOR MORE INFORMATION.
	DISCONNECT TO BE REMAIN. REFER TO KEY NOTE ON EACH DRAWING FOR MORE INFORMATION.
T	TRANSFORMER TO BE REMOVED. REFER TO KEY NOTE ON EACH DRAWING FOR MORE INFORMATION.
	TRANSFORMER TO BE REPLACED WITH NEW TRANSFORMER. REFER TO KEY NOTE ON EACH DRAWING FOR MORE INFORMATION.
T	TRANSFORMER TO BE REMAIN. REFER TO KEY NOTE ON EACH DRAWING FOR MORE INFORMATION.
#	PLAN NOTE
J	JUNCTION/ PULL BOX
	SHUNT TRIP PUSHBUTTON, WALL MOUNTED 48" AFF TO CENTER UNO.
# SERVICE	SERVICE TRANSFORMER
	ONE LINE CIRCUIT BREAKER
	ONE LINE TRANSFORMER
	ONE LINE SWITCHBOARD
	ONE LINE MOTOR
	ONE LINE STARTER
	RISER GROUND
	MEDIUM VOLTAGE CUT OUT
	SHUNT TRIP MODULE
W	WELDING PLUG RECEPTACLE
	FUSED BUS PLUG
	BUS TAP
	STARTER AND DISCONNECT
#	MOTOR # = SIZE
	CIRCUIT BREAKER FUSE COMBO

ELECTRICAL ABBREVIATIONS

A, AMP	AMPERE
ACSR	ALUMINUM CONDUCTOR STEEL-REINFORCED
AF	AMPS FRAME
AFF	ABOVE FINISHED FLOOR
AIC	AMPS INTERRUPTING CAPACITY (SYM RMS)
AT	AMPS TRIP
AWG	AMERICAN WIRE GAUGE
(#)C	FIXTURE DESIGNATION (#) INDICATES # OF FIXTURES TOTAL
C	CONDUIT
CKT	CIRCUIT
CU	COPPER
ELEC	ELECTRIC OR ELECTRICAL
EPR	ETHYLENE-PROPYLENE RUBBER INSULATION
EXIST	EXISTING
GFI	GROUND FAULT INTERRUPTER
G	GROUND
HP	HORSEPOWER
KV	KILOVOLT
KVA	KILOVOLT AMPERES
KW	KILOWATT
KWH	KILOWATT HOURS
MIN	MINIMUM
N12	NEMA 12 RATED FOR DUST ENCLOSURE
N3R	NEMA 3R RATED FOR EXTERIOR USE
NEC	NATIONAL ELECTRIC CODE
PNL	PANEL
P,PH	PHASE
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
RECPT	RECEPTACLE
REQD	REQUIRED
RGS	RIGID GALVANIZED STEEL
RU	RACK UNIT
SPEC	SPECIFICATIONS
SWBD	SWITCHBOARD
TEL	TELEPHONE
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UG	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
V	VOLT
VA	VOLT AMPERE
W	WEST
WP	WEATHERPROOF
XFMR	TRANSFORMER
#	NUMBER

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ISSUED FOR CONSTRUCTION

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

GENERAL NOTES, ABBREVIATIONS, & LEGEND

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E001 01 OF 76

AE FIRM: GOODWYN | HILLS | CAWOOD JOINT VENTURE — MERRICK & COMPANY

SUBMITTED: JENNIFER LANDRY	APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E	NASA AE CONTRACT NO. NAS8-NNM12AA49A
AE: DATE: 10/24/13	APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E	APPROVED: JIMMY GUARIN
DESIGNED: S. CRITTENDEN		AS22 GROUP LEAD DATE: 10/24/13
DRAWN: M. PATE	APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD	DRAWING NO. FAC-GO-4619-E001
CHECKED: J. OAKES		
SCALE: AS SHOWN	SPEC. NO. FAC-M5054	

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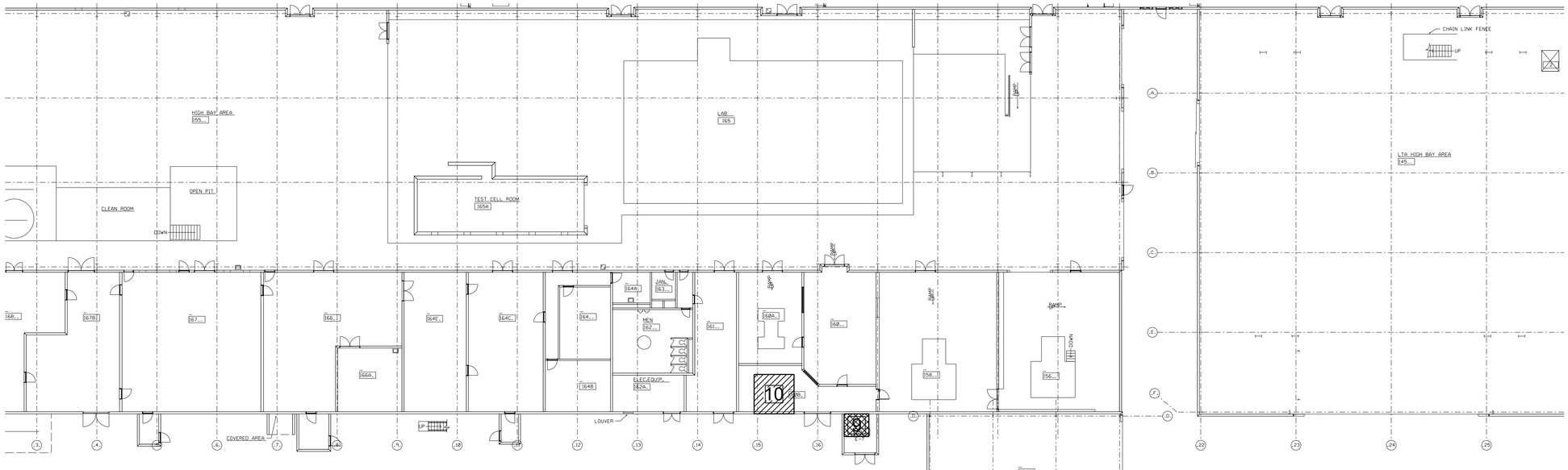
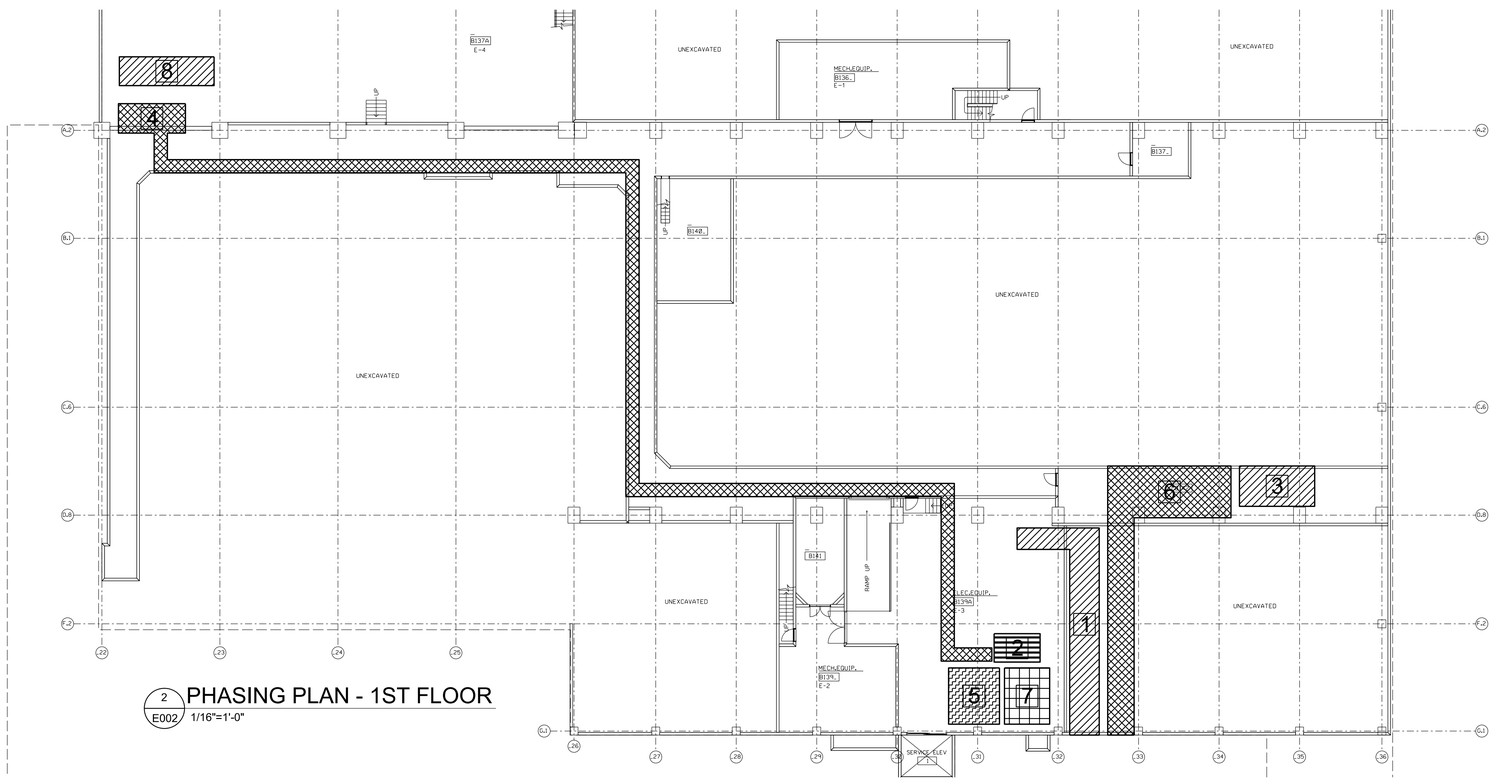


1 E002 PHASING PLAN - BASEMENT
1/16"=1'-0"



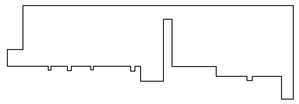
2 E002 PHASING PLAN - 1ST FLOOR
1/16"=1'-0"

PLAN NOTES

1. REMOVE 4619-MCC0005 AND ASSOCIATED FEEDER.
2. INSTALL 4619-SWBD0002 AND FEEDER.
3. INSTALL 4619-SS0309 FOR EXISTING SHAKER UNIT AND 4619-SWBD0011 TO FEED TUNNEL EQUIPMENT. COORDINATE POWERING UP EXISTING TUNNEL EQUIPMENT FROM NEW PANELS.
4. INSTALL 4619-SWBD0012, 4619-XFMR0033, 4619-SWBD0013 AND FEEDERS FROM 4619-SWBD0002.
5. INSTALL 4619-SWBD0003 AND 4619-SWBD0004. MAKE PREPARATIONS TO INTERCEPT AND EXTEND FEEDERS TO NEW LOCATIONS AND ALL CIRCUITRY TO THE NEW LOCATIONS. CHANGE OUT POWER TO NEW LOCATIONS AFTER COORDINATING WITH NASA.
6. REMOVE EXISTING TUNNEL BUS FEED, FEEDER SUPPORTS AND BUS TAPS AFTER NEW SYSTEM IS INSTALLED AND PROPERLY WORKING.
7. REMOVE OLD 4619-SWBD0003 AND 4619-SWBD0004 AFTER NEW SWITCHBOARDS ARE INSTALLED AND PROPERLY WORKING.
8. REMOVE EXISTING 4619-UPC0001, 4619-MCC0001 AND 4619-MCC0002 AFTER NEW PANELS ARE INSTALLED, CROSSED OVER AND ARE PROPERLY WORKING.
9. INSTALL 4619-SWBD0007 FOR SERVICE #5 INCLUDING FEEDERS. CIRCUIT SWITCHBOARD AS SHOWN ON SCHEDULE.
10. REMOVE SERVICE #5 BUS FEEDERS, FEEDER SUPPORTS AND TAP BOX AFTER 4619-SWBD0007 IS IN PROPER WORKING ORDER.

PLAN NOTES

1. COORDINATE CHANGE OUT OF PANELS, DISCONNECTS AND TRANSFORMERS WITH FACILITY.
2. CONTRACTOR SHALL INSTALL NEW WORK AND VERIFY CROSSOVER IS COMPLETE AND WORKING PRIOR TO DEMOLITION OF EXISTING WORK.



KEY PLAN

0 8' 16' 32'
SCALE:1/16"=1'-0"

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PHASING PLAN - BASEMENT & 1ST FLOOR

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY — JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN

AE: DATE: 10/24/13
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
AS22 GROUP LEAD DATE: 10/24/13

DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

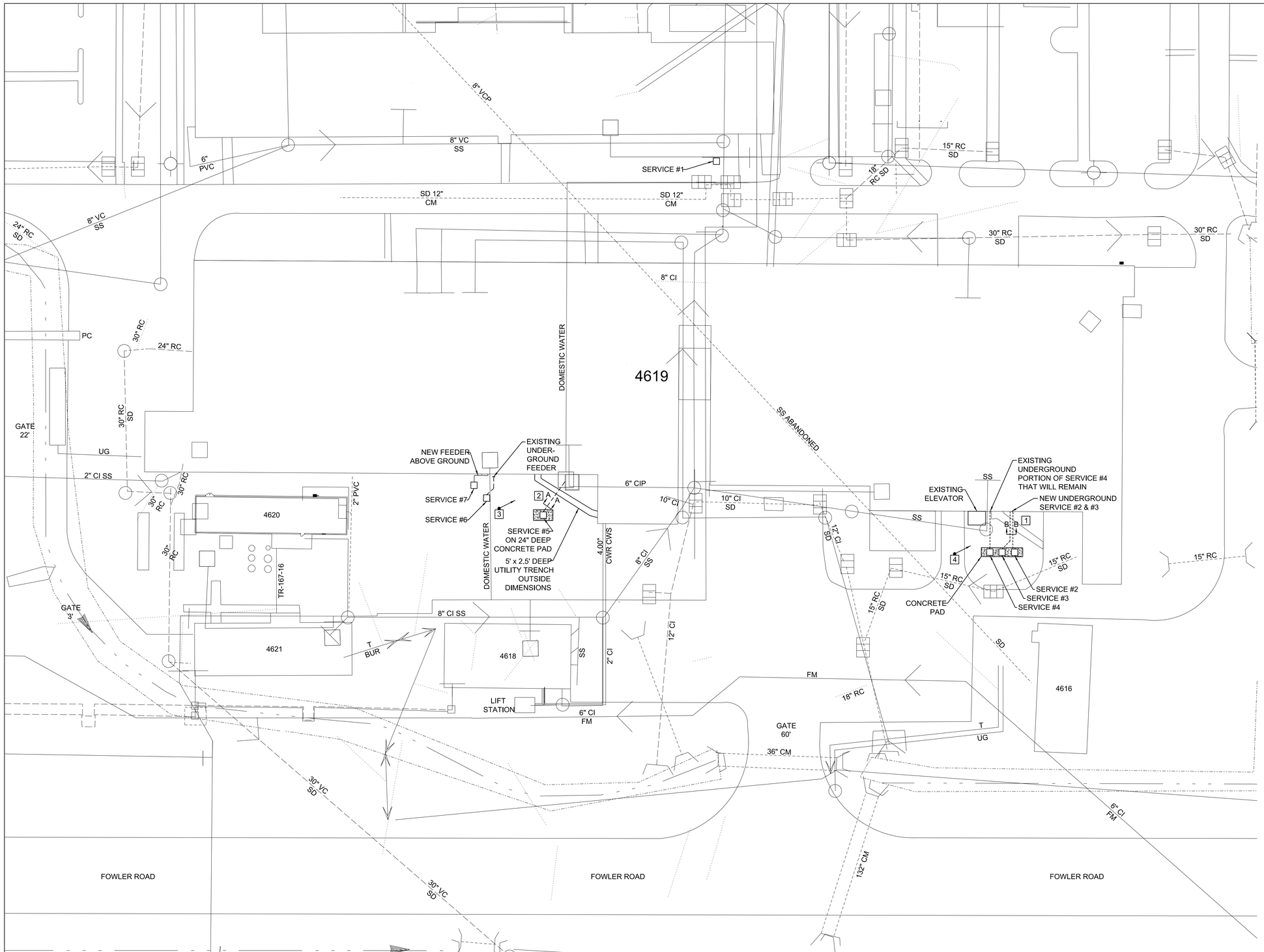
SCALE: AS SHOWN
SPEC. NO. FAC-M5054

DRAWING NO.
FAC-GO-4619-E002

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E002 02 OF 76

MSFC Master Bid Disk 03-26-2014



1 E003 UNDERGROUND UTILITY SITE PLAN
1"=400'-0"

PLAN NOTES

1. SEE DETAIL 1/E004 FOR SECTION CUT.
2. SEE DETAIL 2/E004 FOR SECTION CUT.
3. SEE WEST SITE CONDITION PHOTO 3/E004.
4. SEE EAST SITE CONDITION PHOTO 4/E004.

GENERAL NOTES

1. THIS PLAN SHOWS THE LATEST UNDERGROUND AS PER NASA. CONTRACTOR TO FIELD VERIFY EXACT CONDITIONS PRIOR TO INSTALLATION OF WORK.

0 200' 400' 800'
SCALE:1"=400'-0"

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FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

UNDERGROUND UTILITY SITE PLAN

AE FIRM: GOODWYN | MILLS | CAWOOD JOINT VENTURE; MERRICK & COMPANY

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN
AS22 GROUP LEAD DATE: 10/24/13

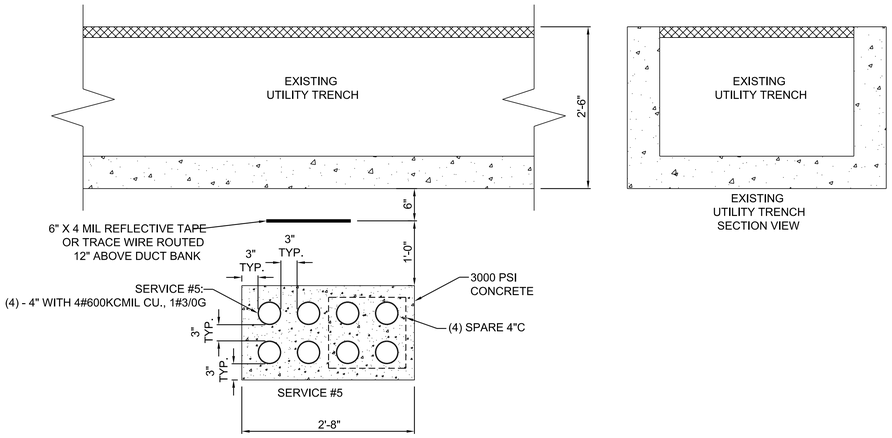
SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

AE: DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
SCALE: AS SHOWN
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SPEC. NO. FAC-M5054

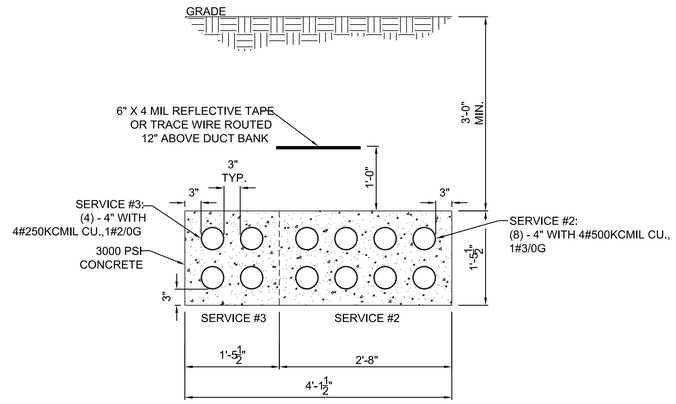
REF. NO. E003 03 OF 76

DRAWING NO. FAC-GO-4619-E003

MSFC Master Bid Disk 03-26-2014



2 E004 SECTION A-A
NO SCALE



1 E004 SECTION B-B
NO SCALE

*SHOWN FOR COORDINATION PURPOSE ONLY CONTRACTOR SHALL
FIELD VERIFY EXACT CONDITIONS

3 E004 WEST SIDE EXISTING CONDITION PHOTO
NO SCALE

*SHOWN FOR COORDINATION PURPOSE ONLY CONTRACTOR SHALL
FIELD VERIFY EXACT CONDITIONS

4 E004 EAST SIDE EXISTING CONDITION PHOTO
NO SCALE

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

SECTIONS AND SITE CONDITIONS

AE FIRM: GOODWYN | MILLS | CAWOOD JOINT VENTURE MERRICK & COMPANY

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN

AE: DATE: 10/24/13
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
AS22 GROUP LEAD DATE: 10/24/13

DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

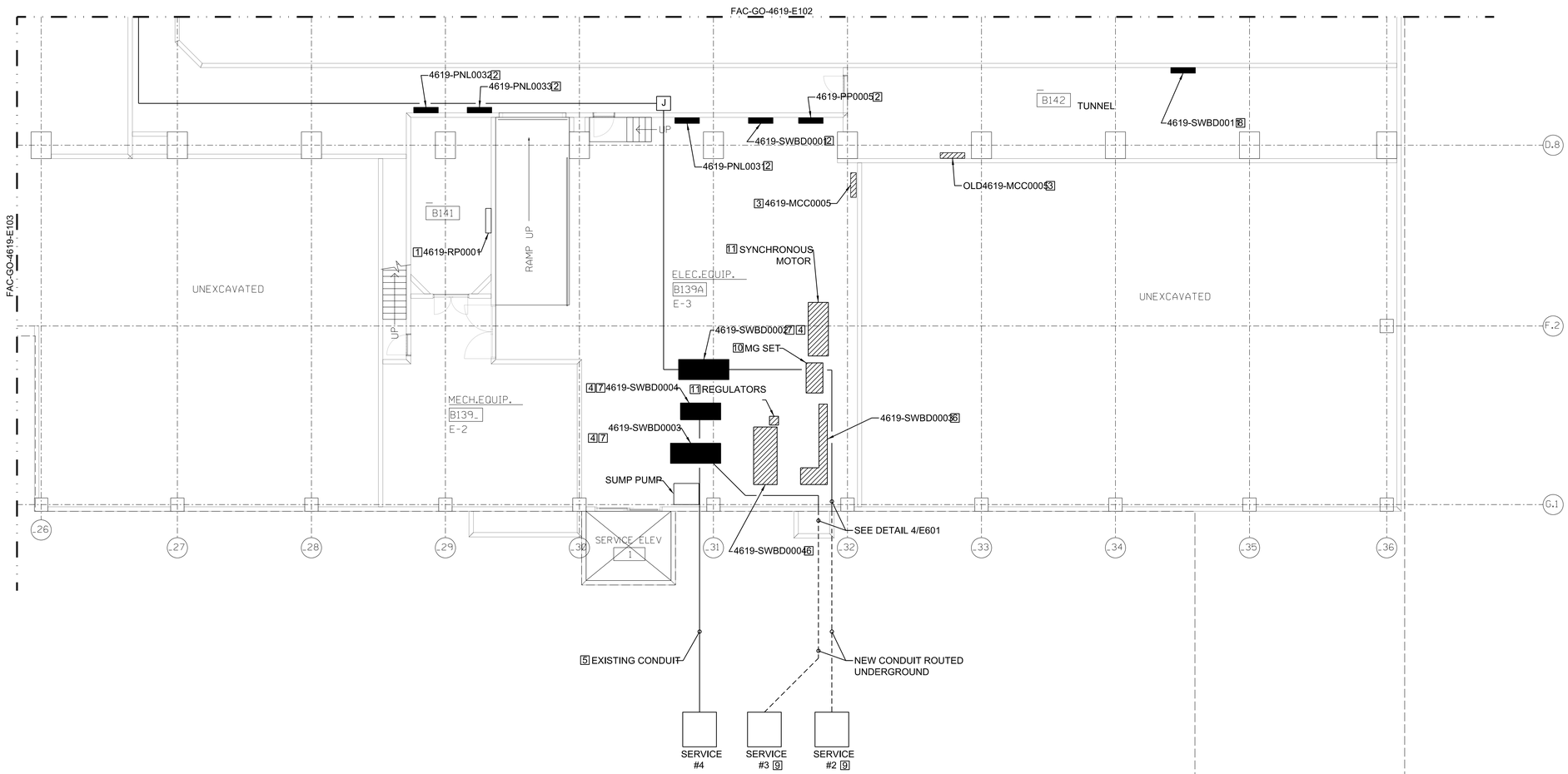
SCALE: AS SHOWN
SPEC. NO. FAC-M5054

DRAWING NO. FAC-GO-4619-E004

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E004 04 OF 76

MSFC Master Bid Disk 03-26-2014

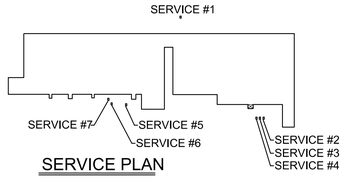


PLAN NOTES

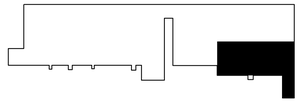
1. EXISTING PANEL TO REMAIN.
2. REPLACE EXISTING PANEL OR SWITCHBOARD WITH NEW PANEL OR SWITCHBOARD. SEE PANEL OR SWITCHBOARD SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.
3. REMOVE EXISTING MCC.
4. CONNECT MAIN SHUNT TRIP CIRCUIT BREAKER TO THE SHUNT TRIP PLUNGER LOCATED ON FAC-GO-4619-E105.
5. CONTRACTOR TO FURNISH AND INSTALL PARALLEL FEED TO NEW SWITCHBOARD. AFTER CROSSOVER IS COMPLETE CONTRACTOR SHALL REMOVE EXISTING FEED.
6. EXISTING SWITCHBOARD TO BE REMOVED.
7. NEW SWITCHBOARD TO BE INSTALLED IN NEW LOCATION AS SHOWN.
8. PROVIDE NEW CONDUIT AND WIRE TO SWITCHBOARD FED FROM 4619-SWBD0002.
9. CONTRACTOR TO CHANGE TRANSFORMER CONNECTIONS FROM BUS DUCT CONNECTION TO CONDUIT AND WIRE CONNECTIONS. SEE ONE LINE DIAGRAMS FOR EXACT NUMBER OF CONDUCTOR LUGS REQUIRED.
10. EXISTING 400 AMP MG SET TO BE REMOVED.
11. EXISTING REGULATORS AND 75 KVA SYNCHRONOUS MOTOR TO BE REMOVED.

GENERAL NOTES

1. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.



SERVICE PLAN



KEY PLAN

1 / E101 PANELS & SWBDS SUB FLOOR PART A

1/8"=1'-0"

0 4' 8' 16'

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

N

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANELS & SWBDS SUB FLOOR PART A

AE FIRM: GOODWYN | MILLS | CAWOOD JOINT VENTURE — MERRICK & COMPANY

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY

APPROVAL RECOMMENDED: TIM DOSS, A522 PROJECT A/E

APPROVED: JIMMY GUARIN

AE: DATE: 10/24/13

APPROVAL RECOMMENDED: TIM DOSS, A522 SUPPORT A/E

A522 GROUP LEAD DATE: 10/24/13

DESIGNED: S. CRITTENDEN

DRAWN: M. PATE

CHECKED: J. OAKES

APPROVAL RECOMMENDED: NELSON OLINGER, A522 TEAM LEAD

SCALE: AS SHOWN

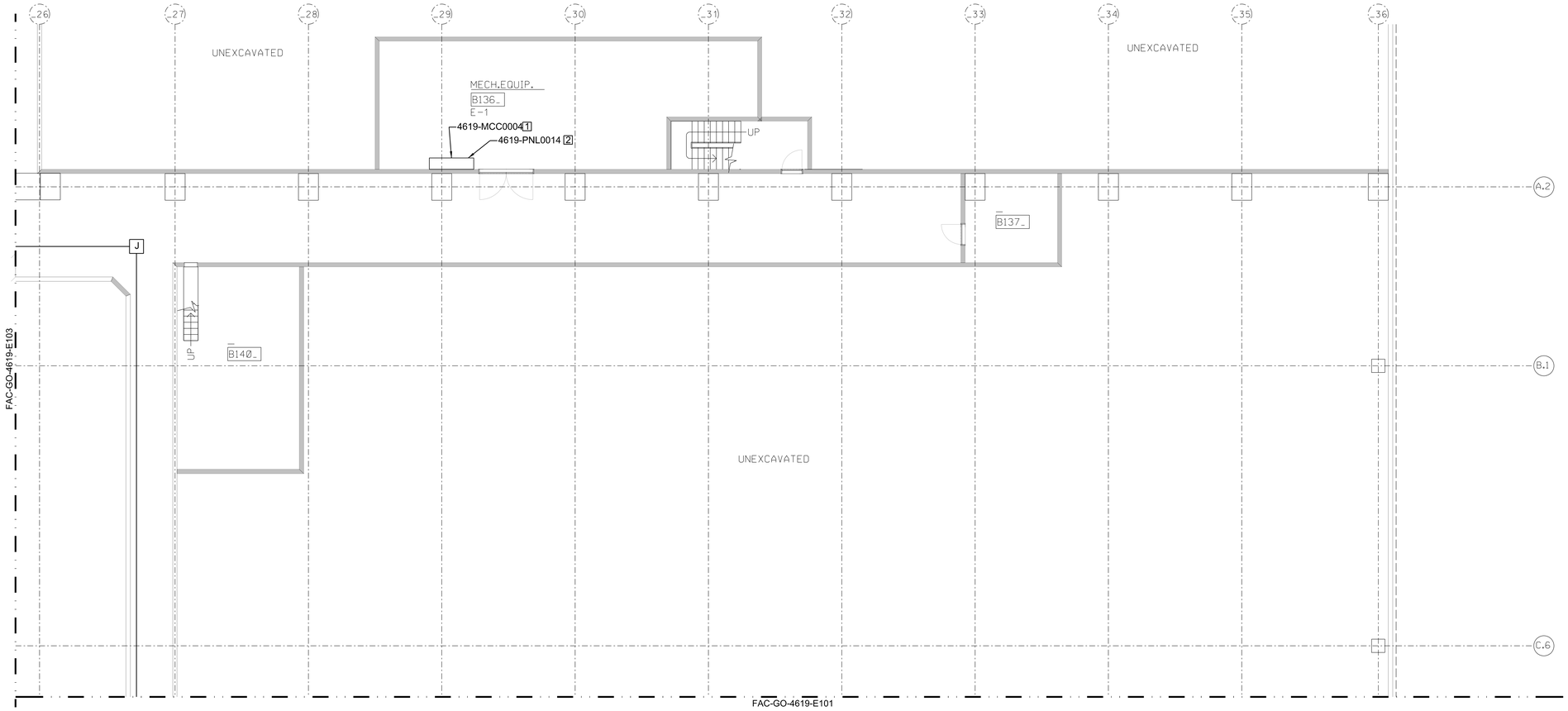
SPEC. NO. FAC-M5054

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E101 05 OF 76

DRAWING NO. FAC-GO-4619-E101

MSFC Master Bid Disk 03-26-2014

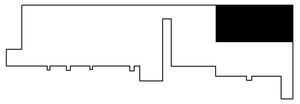


PLAN NOTES

1. EXISTING MCC TO REMAIN.
2. EXISTING PANEL LOCATED IN MCC TO REMAIN. SEE PANEL SCHEDULE

GENERAL NOTES

1. CONTRACTOR TO NOTIFY COR OF ANY SCHEDULED POWER OUTAGES IN ROOM B136 OR B137A. CONTRACTOR SHALL PROVIDE TEMPORARY POWER TO THE EMERGENCY WARNING SYSTEM IN BUILDING SPECIFICALLY BUT NOT LIMITED TO PANEL LOCATED IN 4619-MCC0004 CIRCUIT #7 & #10.



KEY PLAN

1 / E102 PANELS & SWBDS SUB FLOOR PART B

1/8"=1'-0"

0 4' 8' 16'

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

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANELS & SWBDS SUB FLOOR PART B

AE FIRM: GOODWYN | MILLS | CAWOOD / MERRICK & COMPANY

CONT STATUS: _____

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E

APPROVED: JIMMY GUARIN

AE: DATE: 10/24/13

APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E

AS22 GROUP LEAD DATE: 10/24/13

DESIGNED: S. CRITTENDEN

DRAWN: M. PATE

CHECKED: J. OAKES

APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

SCALE: AS SHOWN

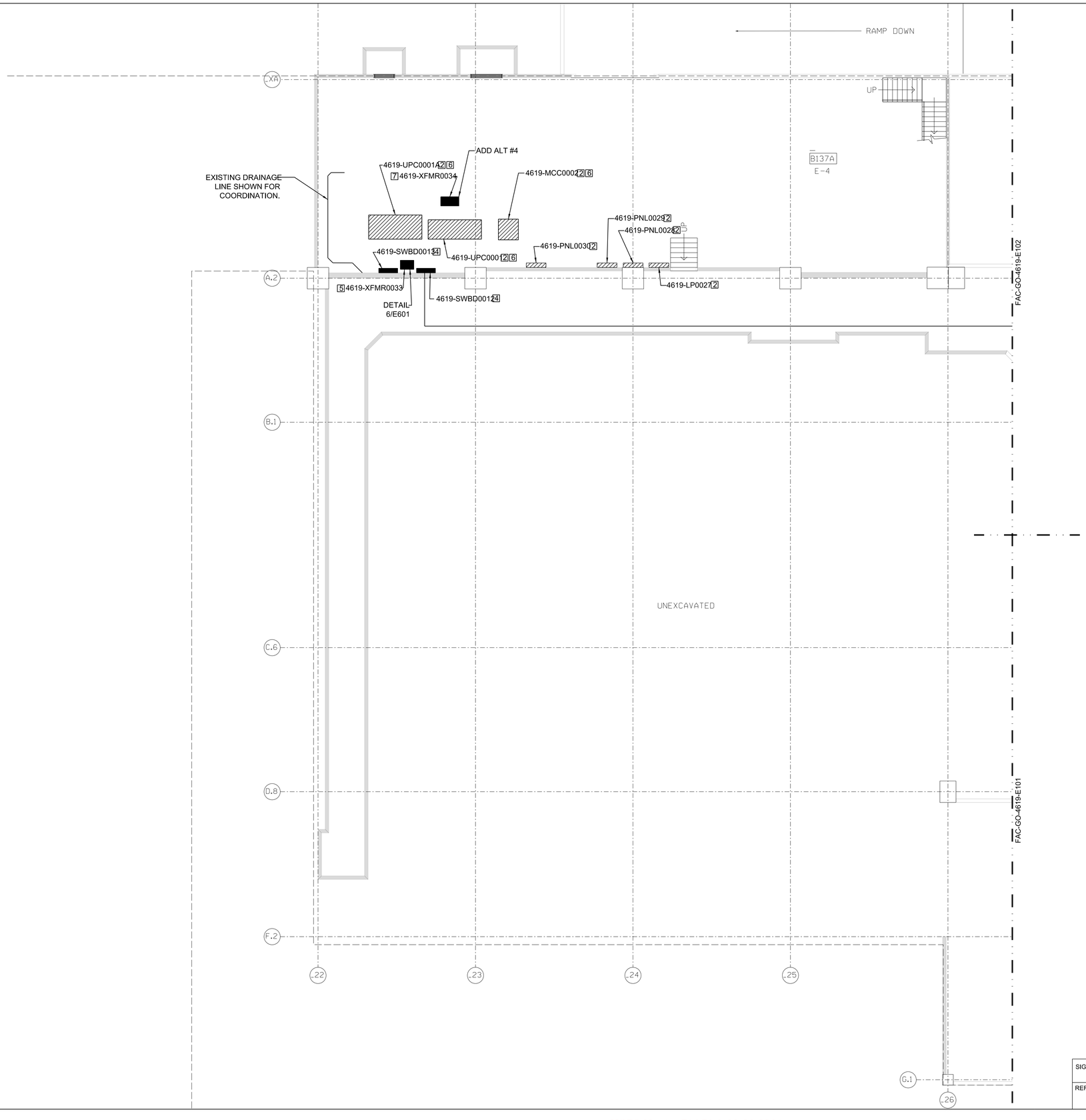
SPEC. NO. FAC-M5054

DRAWING NO. FAC-GO-4619-E102

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E102 06 OF 76

MSFC Master Bid Disk 03-26-2014



PLAN NOTES

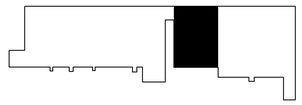
1. REPLACE EXISTING PANEL WITH NEW PANEL. SEE PANEL SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.
2. REMOVE EXISTING PANEL, MCC OR SWITCHBOARD.
3. NOT USED
4. NEW SWITCHBOARD. SEE SWITCHBOARD SCHEDULE FOR DETAILS.
5. FURNISH NEW 200 KVA TRANSFORMER . SEE TRANSFORMER SCHEDULE. REFER TO DETAIL 6/E601. BASE BID
6. RETAIN EXISTING BRANCH WIRING AND EXTEND TO PANELS 4619-SWBD0012 AND 4619-SWBD0013 PRIOR TO REMOVAL.

GENERAL NOTES

1. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.

ADD ALT #4 NOTES

7. REPLACE EXISTING CEILING HUNG 45 KVA, 208 VOLT, 3 PHASE TO 208 VOLT, 3 PHASE ISOLATION TRANSFORMER WITH NEW 45 KVA, 208 VOLT, 3 PHASE TO 208 VOLT, 3 PHASE TRANSFORMER. SEE THREE PHASE 208V DELTA PRIMARY - 208Y/120V WYE SECONDARY, DRY TYPE TRANSFORMER SCHEDULE.



KEY PLAN

1 / E103 PANELS & SWBDS SUB FLOOR PART C

1/8"=1'-0"

0 4' 8' 16'

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

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANELS & SWBDS SUB FLOOR PART C

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY — JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E

APPROVED: JIMMY GUARIN

AE: DATE: 10/24/13

APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E

AS22 GROUP LEAD DATE: 10/24/13

DESIGNED: S. CRITTENDEN

DRAWN: M. PATE

CHECKED: J. OAKES

APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

SCALE: AS SHOWN

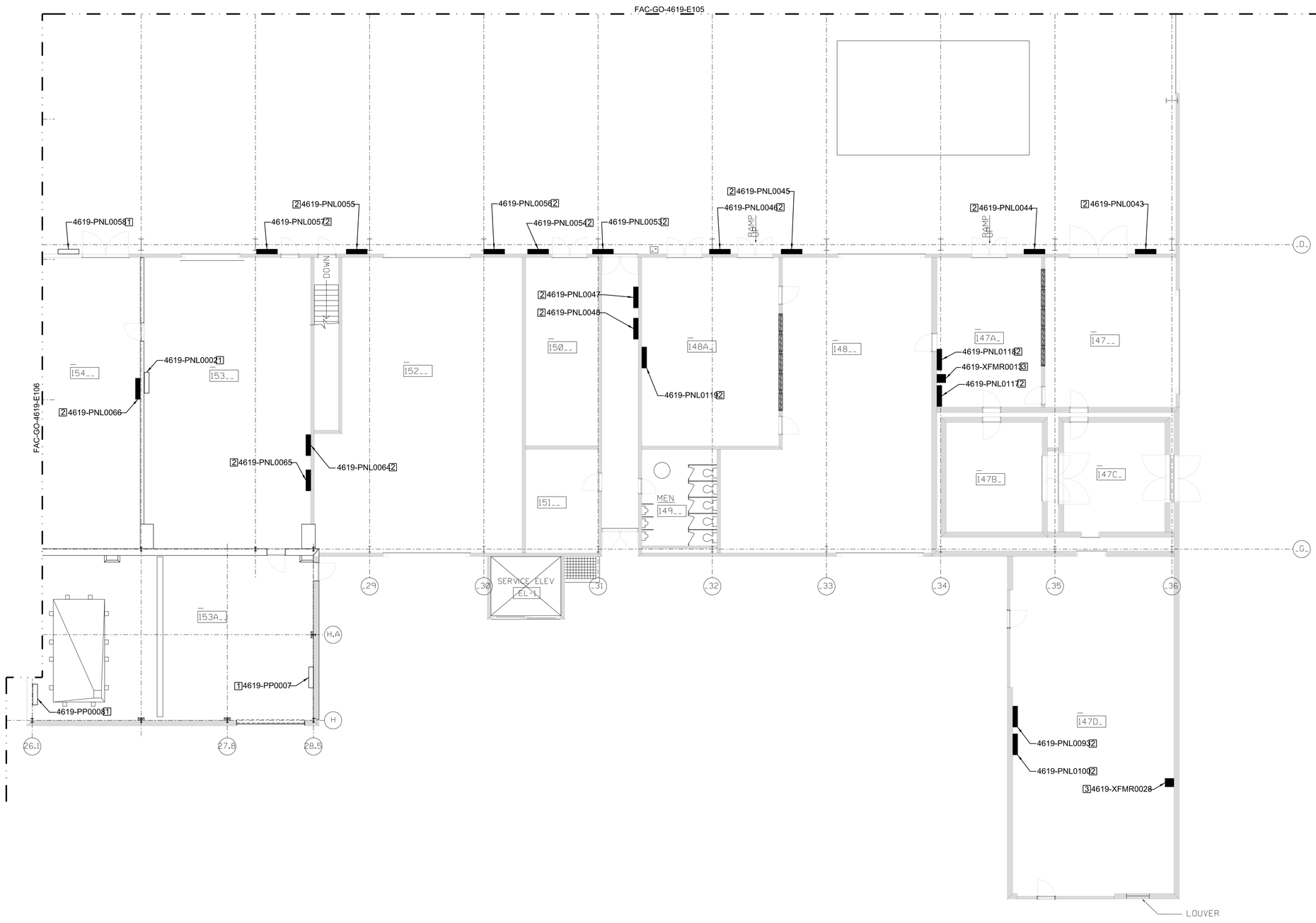
SPEC. NO. FAC-M5054

DRAWING NO. FAC-GO-4619-E103

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E103 07 OF 76

MSFC Master Bid Disk 03-26-2014



PLAN NOTES

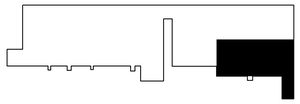
1. EXISTING PANEL TO REMAIN.SEE PANEL SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.
2. REPLACE PANEL WITH NEW PANEL. SEE PANEL SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.

GENERAL NOTES

1. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.

ADD ALT #4 NOTES

3. REPLACE TRANSFORMER WITH NEW TRANSFORMER. SEE TRANSFORMER SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.



KEY PLAN

1 / E104 PANELS & SWBDS 1ST FLOOR PART A

1/8"=1'-0"

0 4' 8' 16'

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

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FINAL SUBMITTAL
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WARNING

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANELS & SWBDS 1ST FLOOR PART A

AE FIRM: GOODWYN | MILLS | CAWOOD JOINT VENTURE — MERRICK & COMPANY

SUBMITTED: JENNIFER LANDRY
AE: DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
SCALE: AS SHOWN

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SPEC. NO. FAC-M5954

NASA AE CONTRACT NO. NAS8-NNM12AA49A
APPROVED: JIMMY GUARIN
AS22 GROUP LEAD DATE: 10/24/13

DRAWING NO. FAC-GO-4619-E104

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

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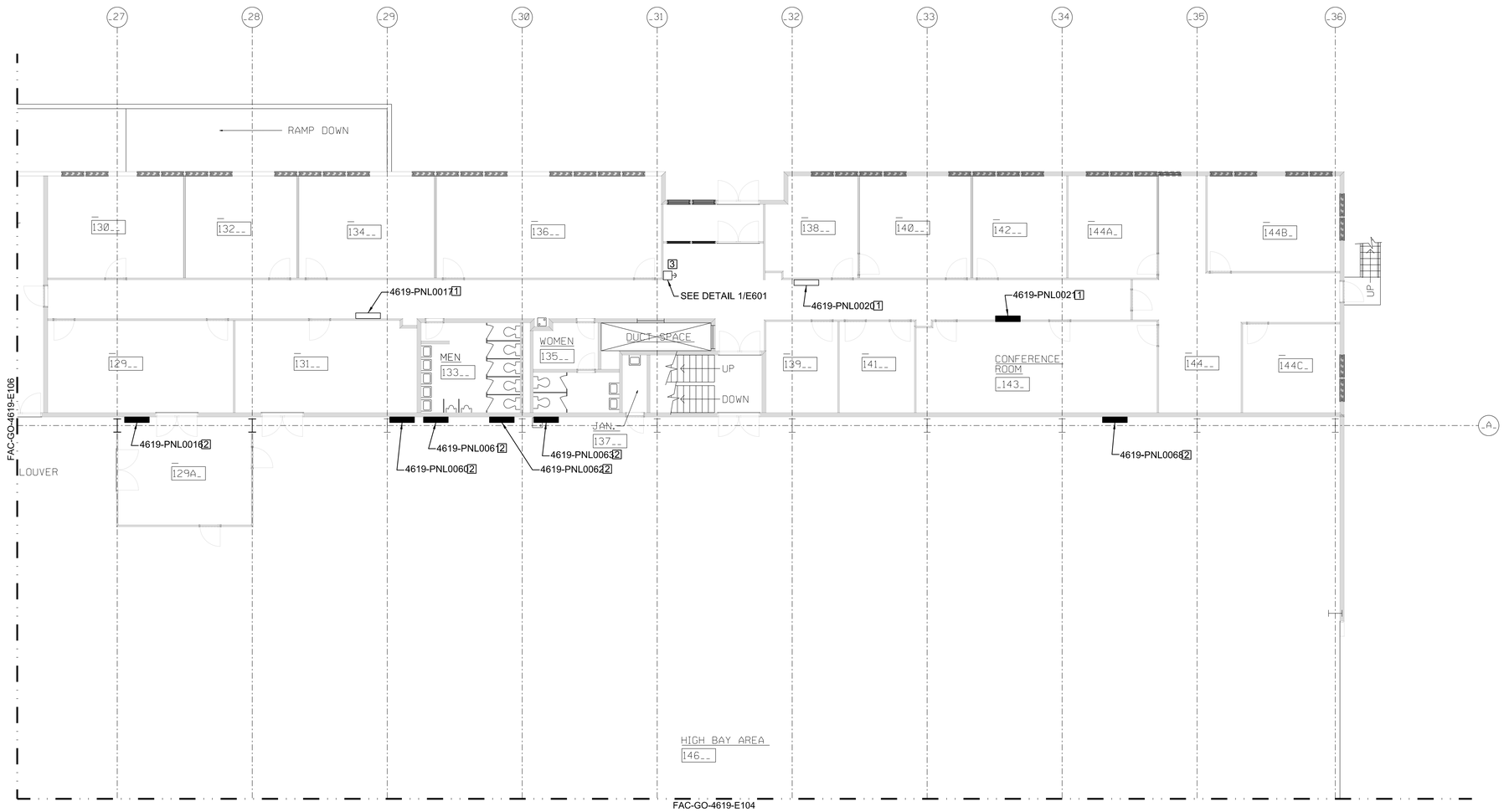
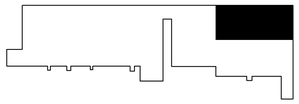


PLAN NOTES

1. EXISTING PANEL TO REMAIN.
2. REPLACE EXISTING PANEL WITH NEW PANEL. SEE PANEL SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.
3. SHUNT TRIP PLUNGER TO CONTROL THE MAIN SHUNT TRIP CIRCUIT BREAKERS. FURNISH THE SHUNT TRIP CIRCUIT WITH 2#10 & 1#10 GROUND IN 3/4" CONDUIT TO CONNECT TO SERVICE ENTRANCE SHUNT TRIP CIRCUIT BREAKERS. SEE DETAIL #1, SHEET FAC-GO-4619-E601.

GENERAL NOTES

1. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.



KEY PLAN

1 / E105 PANELS & SWBDS 1ST FLOOR PART B

1/8"=1'-0"

0 4' 8' 16'

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

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANELS & SWBDS 1ST FLOOR PART B

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY — JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E

APPROVED: JIMMY GUARIN

AE: DATE: 10/24/13

APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E

AS22 GROUP LEAD DATE: 10/24/13

DESIGNED: S. CRITTENDEN

DRAWN: M. PATE

CHECKED: J. OAKES

APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

DRAWING NO. FAC-GO-4619-E105

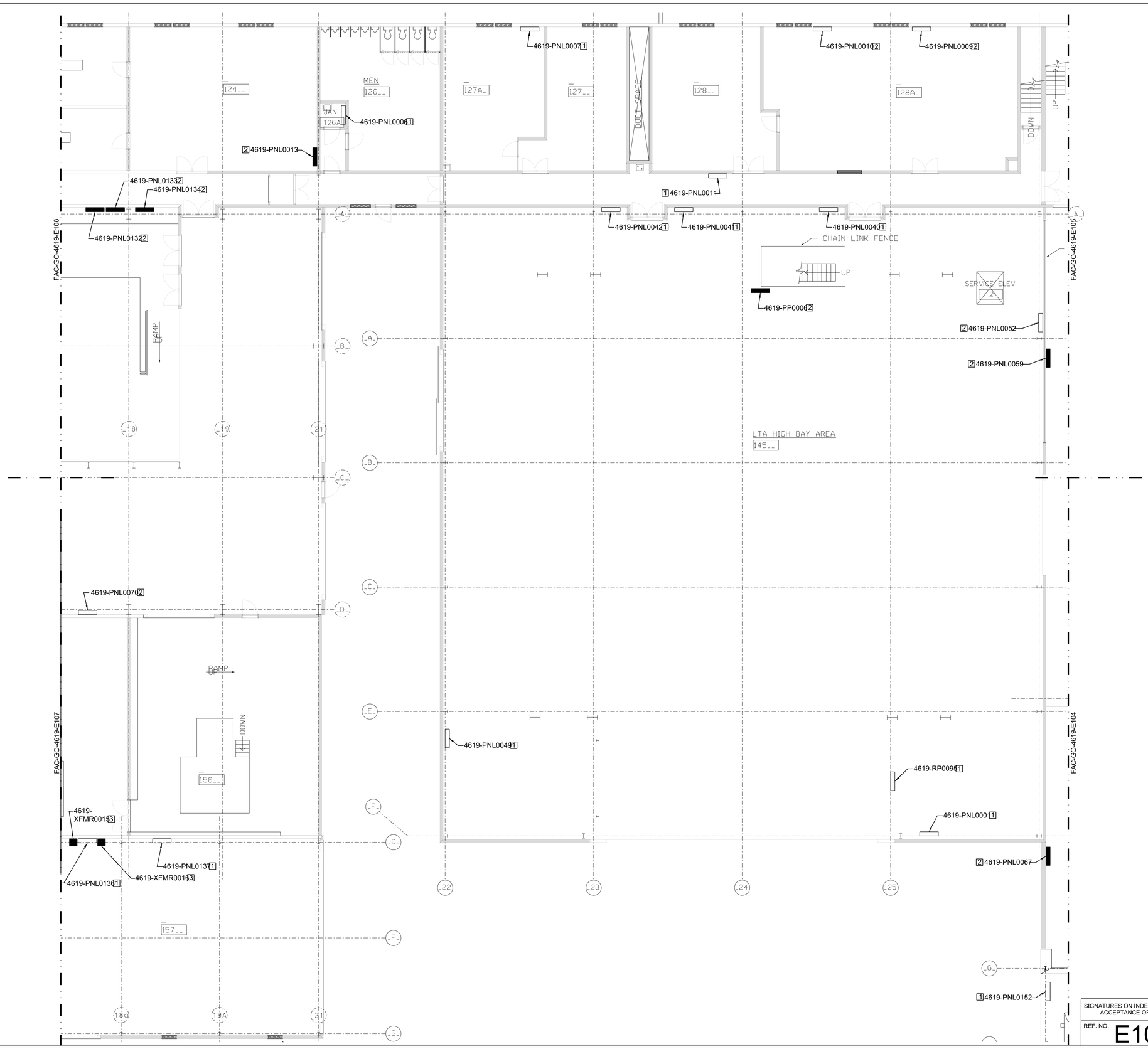
SCALE: AS SHOWN

SPEC. NO. FAC-M5054

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E105 09 OF 76

MSFC Master Bid Disk 03-26-2014



PLAN NOTES

1. EXISTING PANEL TO REMAIN.
2. REPLACE EXISTING PANEL WITH NEW PANEL. SEE PANEL SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.

GENERAL NOTES

1. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.

ADD ALT #4 NOTES

3. REPLACE TRANSFORMER WITH NEW TRANSFORMER. SEE TRANSFORMER SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.

KEY PLAN

1 / E106 PANELS & SWBDS 1ST FLOOR PART C

1/8"=1'-0"

0 4' 8' 16'

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

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANELS & SWBDS 1ST FLOOR PART C

AE FIRM: GOODWYN MILLS CAWOOD / MERRICK & COMPANY — JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E

APPROVED: JIMMY GUARIN

AE: DATE: 10/24/13

DESIGNED: S. CRITTENDEN

DRAWN: M. PATE

CHECKED: J. OAKES

SCALE: AS SHOWN

APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E

APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

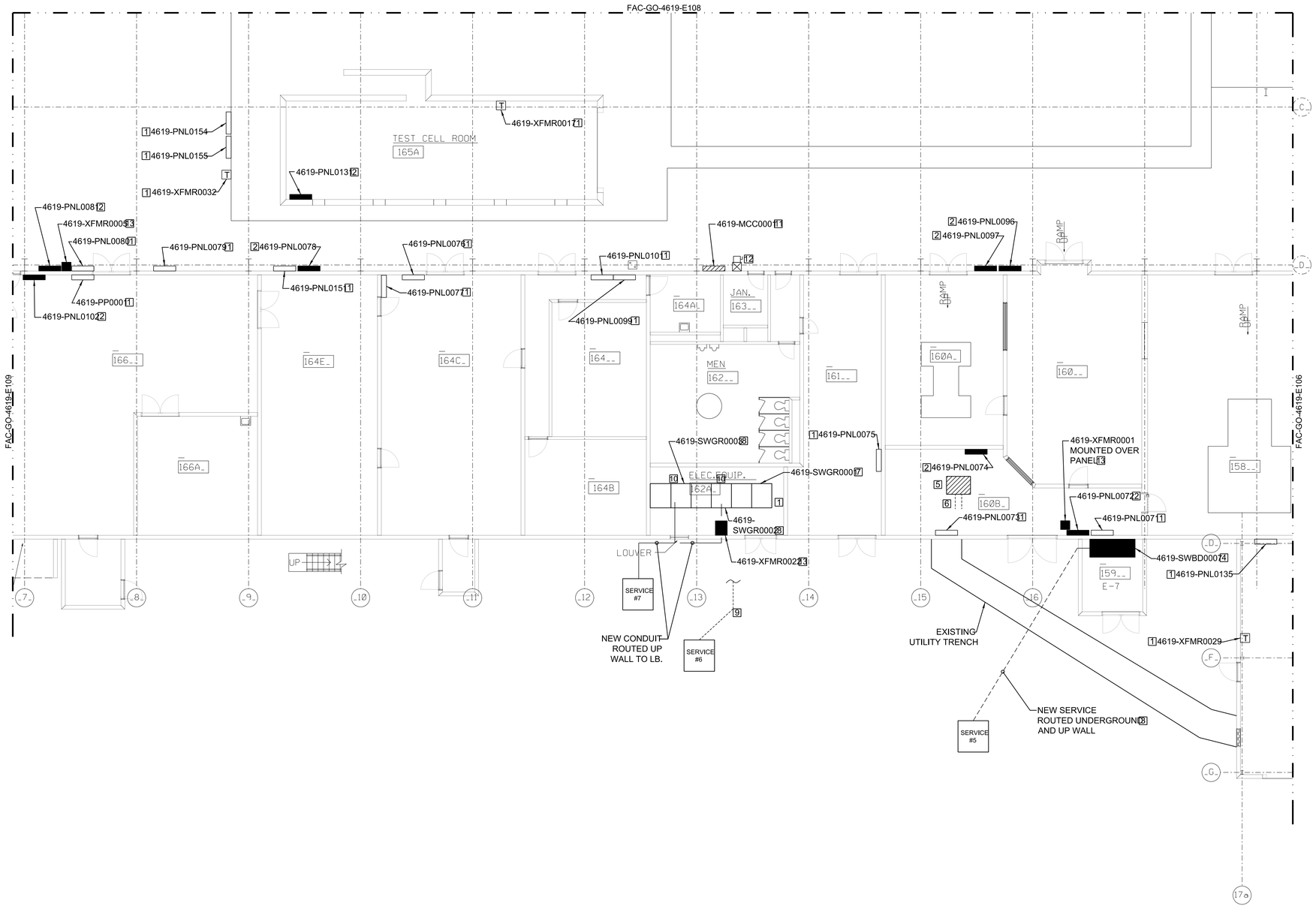
SPEC. NO. FAC-M5554

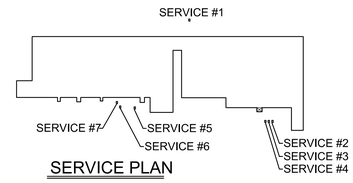
AS22 GROUP LEAD DATE: 10/24/13

DRAWING NO. FAC-GO-4619-E106

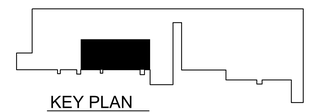
SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E106 10 OF 76





SERVICE PLAN



KEY PLAN

PLAN NOTES

1. EXISTING PANEL OR TRANSFORMER TO REMAIN.
2. REPLACE EXISTING PANEL WITH NEW PANEL. SEE PANEL SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.
3. INSTALL NEW FEEDER TO 4619-SWBD0007 UNDERGROUND OVER TO THE BUILDING AND UP BUILDING WALL. ENTER THE BUILDING VIA AN LB CONDULETTE FITTING AND ROUTE OVER TO THE SWITCHBOARD AS SHOWN. FIELD COORDINATE EXACT ROUTING OF CONDUIT.
4. FURNISH AND INSTALL NEW SWITCHBOARD AS SHOWN. INTERCONNECT SHUNT TRIP MAIN BREAKER WITH SHUNT TRIP PLUNGER VIA 2#10 AND 1#10 CU IN 3/4" CONDUIT.
5. SERVICE #5 TAP BOX TO BE REMOVED AND REPLACED WITH NEW SERVICE SEE NOTE #4.
6. REMOVE EXISTING FEEDER BUS DUCT TO TAP BOX AND ASSOCIATED FEEDER SUPPORTS.
7. EXISTING SWITCHBOARD TO REMAIN. INSTALL SHUNT TRIP MODULE INTO THE EXISTING SWITCHBOARD AND CONNECT TO SHUNT TRIP PLUNGER VIA 2#10 AND 1#10 CU IN 3/4" CONDUIT.
8. EXISTING SWITCHBOARDS TO REMAIN. INSTALL SHUNT TRIP MODULE INTO THE EXISTING SWITCHBOARD AND CONNECT TO SHUNT TRIP PLUNGER VIA 2#10 AND 1#10 CU IN 3/4" CONDUIT. REMOVE THE EXISTING BUS FEEDER AND REPLACE WITH CONDUIT AND WIRE. ROUTE THE CONDUIT AND WIRE ABOVE GROUND AND INTO THE BUILDING VIA CONDULETTE FITTINGS. CONVERT THE SWITCHBOARD FROM BUS CONNECTION TO CONDUIT AND WIRE CONNECTION. PROVIDE A JUNCTION BOX ABOVE THE SWITCHBOARD TO ENABLE THE TURN DOWN INTO THE EXISTING SWITCHBOARD.
9. EXISTING SERVICE ROUTING UNDERGROUND IS TO REMAIN AS IS.
10. CONTRACTOR TO CHANGE SWITCHBOARD LUGS AS REQUIRED TO CHANGE FROM BUS DUCT TO PIPE AND WIRE CONNECTIONS.
11. REMOVE EXISTING MCC.
12. FULL VOLTAGE, NON-REVERSING STARTER SHALL BE A COMBINATION MAGNETIC STARTER CIRCUIT BREAKER-TYPE, WITH CLASS 20 ELECTRONIC OVERLOAD PROTECTION, FULL VOLTAGE NON-REVERSING. UNIT SHALL HAVE A HAND-OFF AUTOMATIC SWITCH; GREEN ON PILOT, ELAPSED TIME METER AND NAMEPLATES ON FACE OF UNIT. ALSO INCLUDED SHALL BE A 100 VA OVER-STANDARD SIZE CONTROL POWER TRANSFORMER; 2-N.O. 2-N.C. AUX. CONTACTS LIGHTING ARRESTOR, PROVISIONS FOR CAS RELAY BY OTHERS; AND TIMING RELAY. UNIT SHALL BE EQUIPPED WITH MAIN CIRCUIT BREAKER. TRIP ELEMENT SHALL BE 20 AMP, 3 POLE. MINIMUM SIZE STARTER SHALL BE NEMA / SIZE 1. SEE SHEET E410.

GENERAL NOTES

1. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.

ADD ALT #4 NOTES

13. REPLACE TRANSFORMER WITH NEW TRANSFORMER. SEE TRANSFORMER SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.

1 / E107 PANELS & SWBDS 1ST FLOOR PART D

1/8"=1'-0"

0 4' 8' 16'

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

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING

DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANELS & SWBDS 1ST FLOOR PART D

AE FIRM: GOODYEAR | HILLS | CAWOOD JOINT VENTURE — MIERRICK MORR & COMPANY

NASA AE CONTRACT NO. NAS8-NNM12AA49A

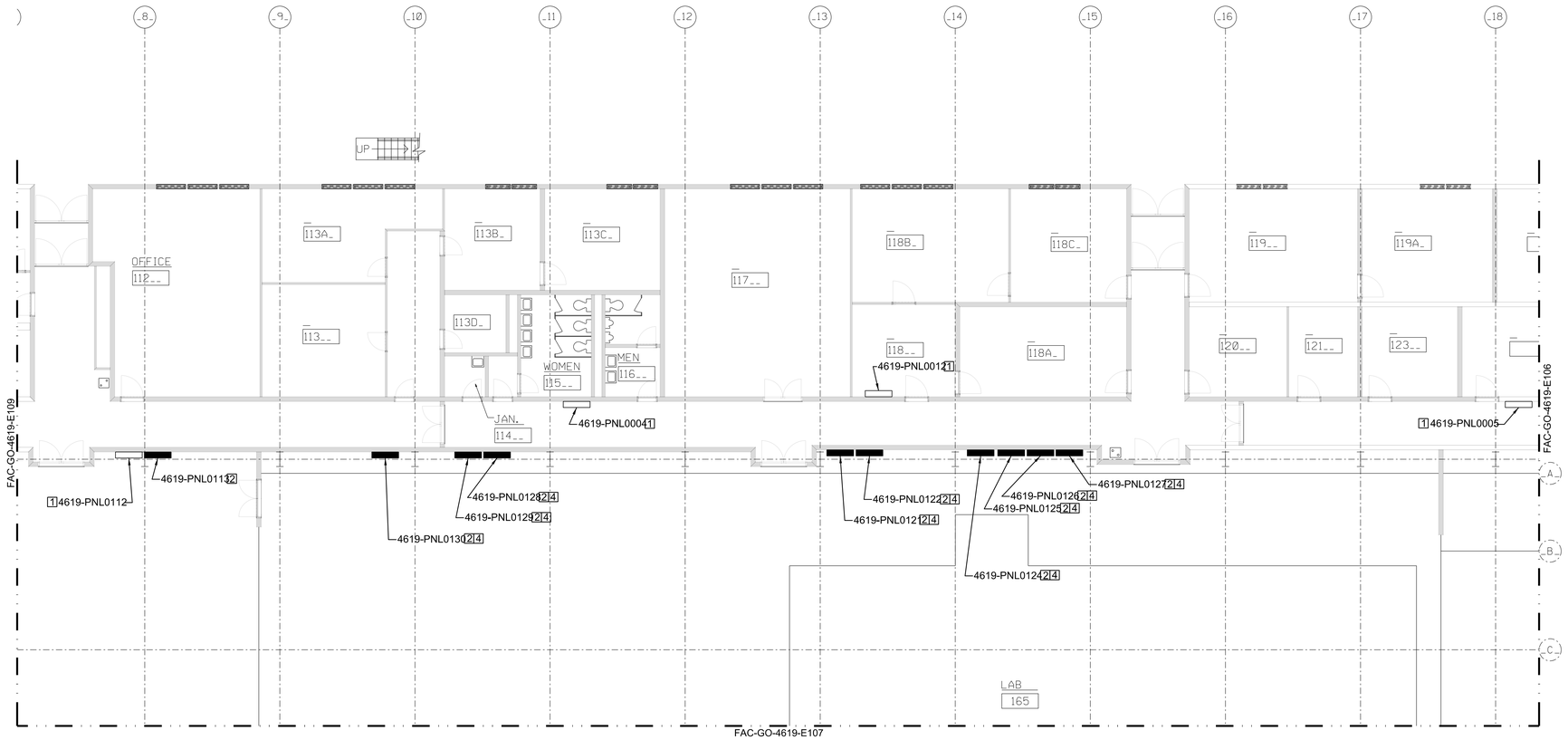
SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN
AE: DATE: 10/24/13
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
AS22 GROUP LEAD DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M5054

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E107 11 OF 76

DRAWING NO. FAC-GO-4619-E107

MSFC Master Bid Disk 03-26-2014

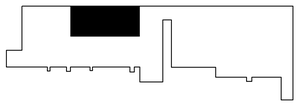


PLAN NOTES

1. EXISTING PANEL TO REMAIN.
2. REPLACE PANEL WITH NEW PANEL. SEE PANEL SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.
3. NOT USED.
4. FACTORY PAINT NEW PANEL WITH MATTE BLACK POWDER COAT PAINT.

GENERAL NOTES

1. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.



KEY PLAN

1 / E108 PANELS & SWBDS 1ST FLOOR PART E

1/8"=1'-0"

0 4' 8' 16'

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

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING

DO NOT SCALE THIS DRAWING

THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANELS & SWBDS 1ST FLOOR PART E

AE FIRM: GOODWYN | MILLS | CAWOOD | MERRICK & COMPANY (CMT VENTURE)

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E

APPROVED: JIMMY GUARIN

AE: DATE: 10/24/13

APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E

AS22 GROUP LEAD DATE: 10/24/13

DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES

APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

DRAWING NO. FAC-GO-4619-E108

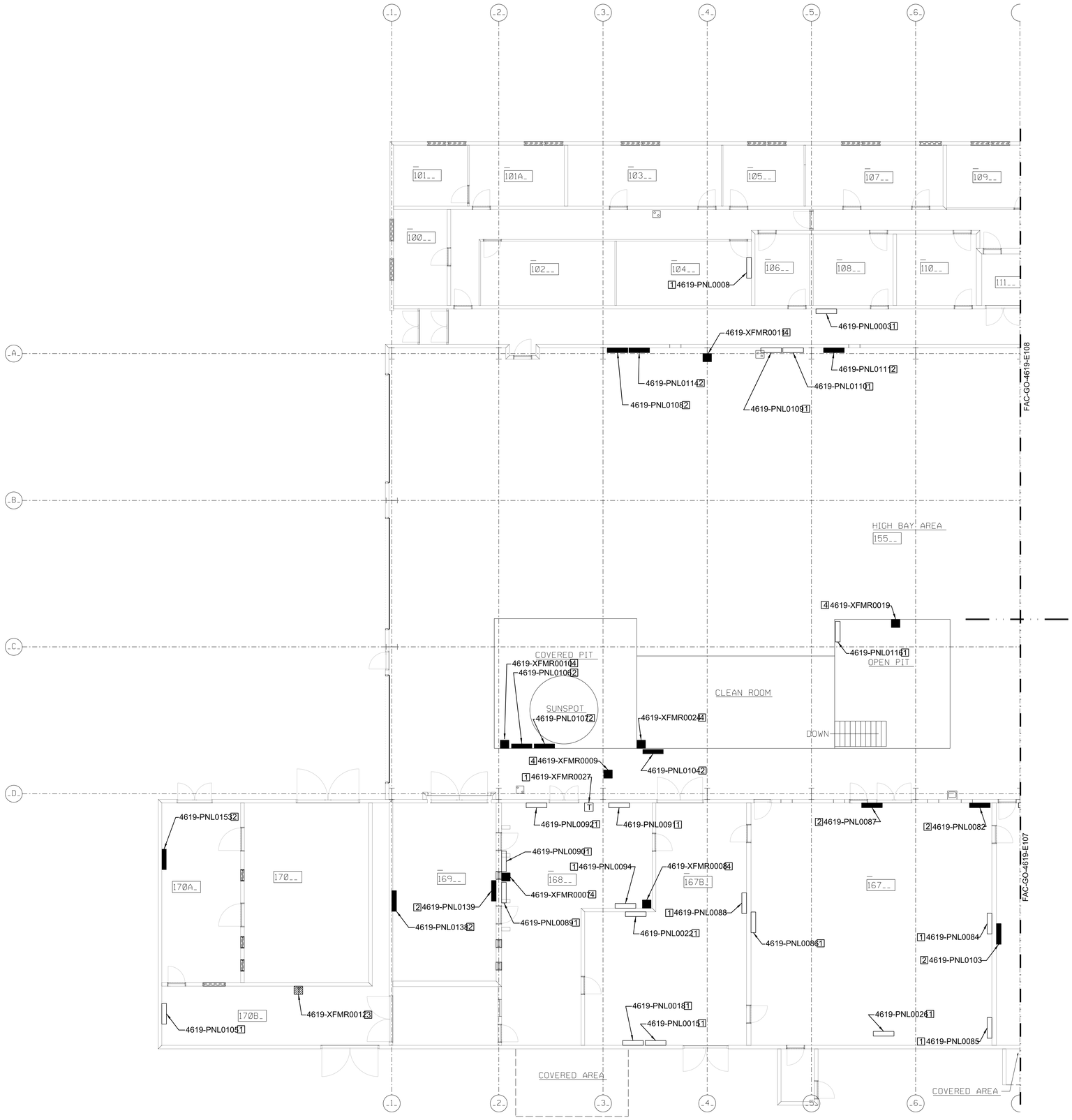
SCALE: AS SHOWN

SPEC. NO. FAC-M5054

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E108

MSFC Master Bid Disk 03-26-2014



PLAN NOTES

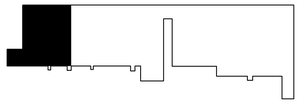
1. EXISTING PANEL OR TRANSFORMER TO REMAIN.
2. REPLACE EXISTING PANEL WITH NEW PANEL. SEE PANEL SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.
3. REMOVE EXISTING TRANSFORMER.

GENERAL NOTES

1. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.

ADD ALT #4 NOTES

4. REPLACE TRANSFORMER WITH NEW TRANSFORMER. SEE TRANSFORMER SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.



KEY PLAN

1 / E109 PANELS & SWBDS 1ST FLOOR PART F

1/8"=1'-0"

0 4' 8' 16'

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

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING

DO NOT SCALE THIS DRAWING

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANELS & SWBDS 1ST FLOOR PART F

AE FIRM: GOODWYN | MILLS | CAWOOD MERRICK & COMPANY JOINT VENTURE

SUBMITTED: JENNIFER LANDRY

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E

APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E

APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

AE: DATE: 10/24/13

DESIGNED: S. CRITTENDEN

DRAWN: M. PATE

CHECKED: J. OAKES

SCALE: AS SHOWN

SPEC. NO. FAC-M5054

NASA AE CONTRACT NO. NAS8-NNM12AA49A

APPROVED: JIMMY GUARIN

AS22 GROUP LEAD DATE: 10/24/13

DRAWING NO. FAC-GO-4619-E109

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E109 13 OF 76

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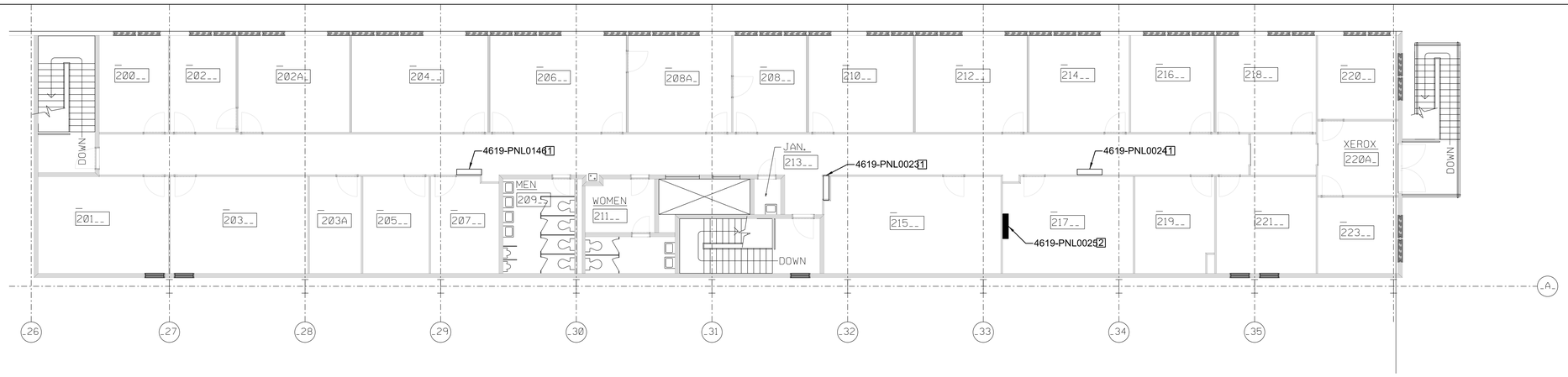


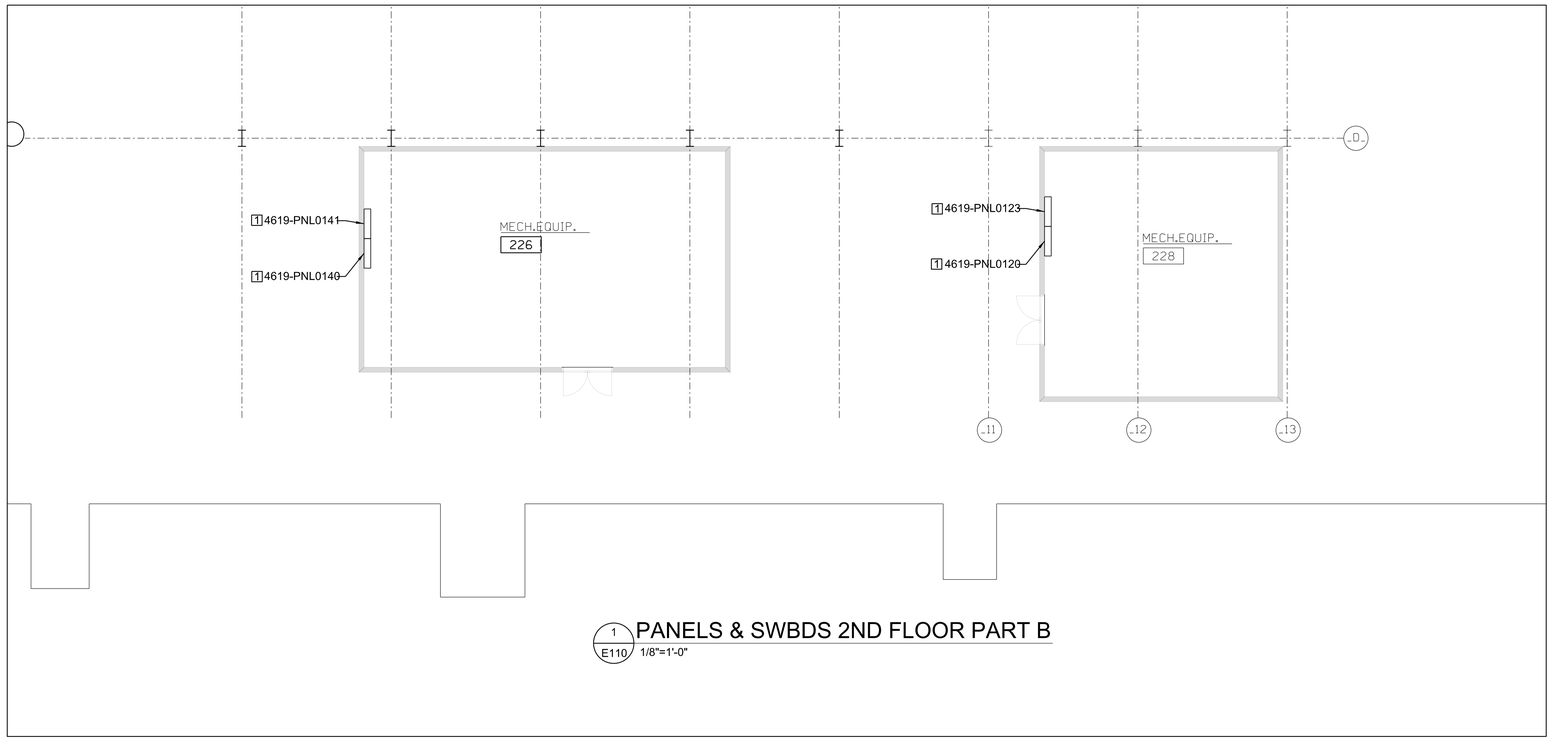
1 E110 PANELS & SWBDS 2ND FLOOR PART A
1/8"=1'-0"

PLAN NOTES

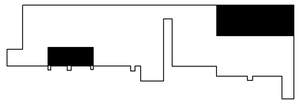
1. EXISTING PANEL TO REMAIN.
2. REPLACE EXISTING PANEL WITH NEW PANEL. SEE PANEL SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.

GENERAL NOTES

1. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.



1 E110 PANELS & SWBDS 2ND FLOOR PART B
1/8"=1'-0"



KEY PLAN

0 4' 8' 16'
SCALE:1/8"=1'-0"

N

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANELS & SWBDS 2ND FLOOR PART A & B

AE FIRM: GOODWYN | MILLS | CAWOOD MERRICK & COMPANY — JOINT VENTURE

SUBMITTED: JENNIFER LANDRY
AE: DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
SCALE: AS SHOWN

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SPEC. NO. FAC-M50054

NASA AE CONTRACT NO. NAS8-NM12AA49A
APPROVED: JIMMY GUARIN
AS22 GROUP LEAD DATE: 10/24/13

DRAWING NO.
FAC-GO-4619-E110

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E110 14 OF 76

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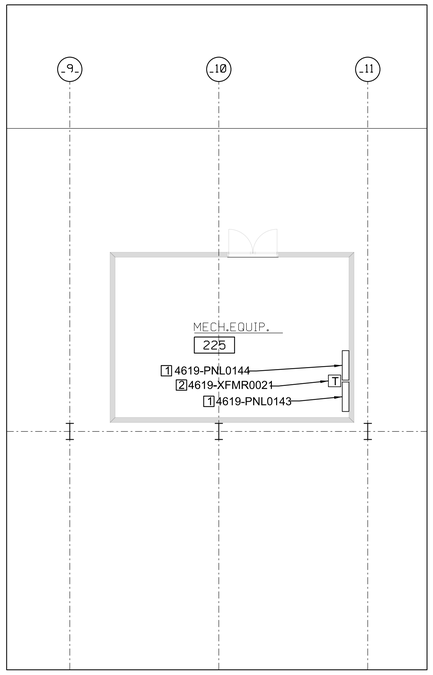
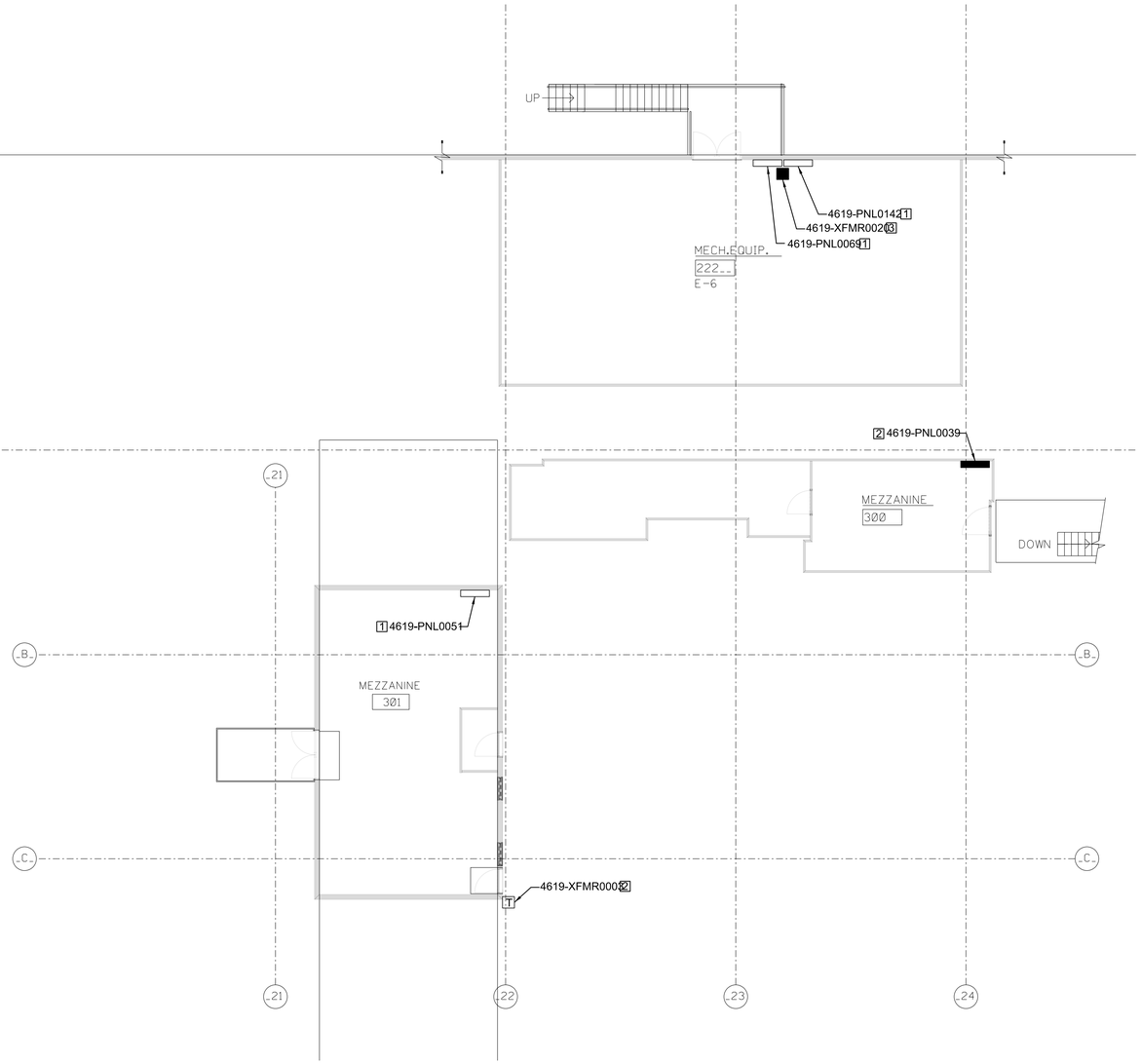


2 E111 PANELS & SWBDS 2ND FLOOR PART D
1/8"=1'-0"



1 E111 PANELS & SWBDS 2ND FLOOR PART C
1/8"=1'-0"

PLAN NOTES

1. EXISTING PANEL OR TRANSFORMER TO REMAIN.
2. REPLACE EXISTING PANEL WITH NEW PANEL. SEE PANEL SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.

GENERAL NOTES

1. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.

ADD ALT #4 NOTES

3. REPLACE TRANSFORMER WITH NEW TRANSFORMER. SEE TRANSFORMER SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.

KEY PLAN

0 4' 8' 16'
SCALE:1/8"=1'-0"

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANELS & SWBDS 2ND FLOOR PART C & D

AE FIRM: GOODWYN | MILLS | CAWOOD MERRICK & COMPANY JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E

APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E

APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

APPROVED: JIMMY GUARIN, AS22 GROUP LEAD, DATE: 10/24/13

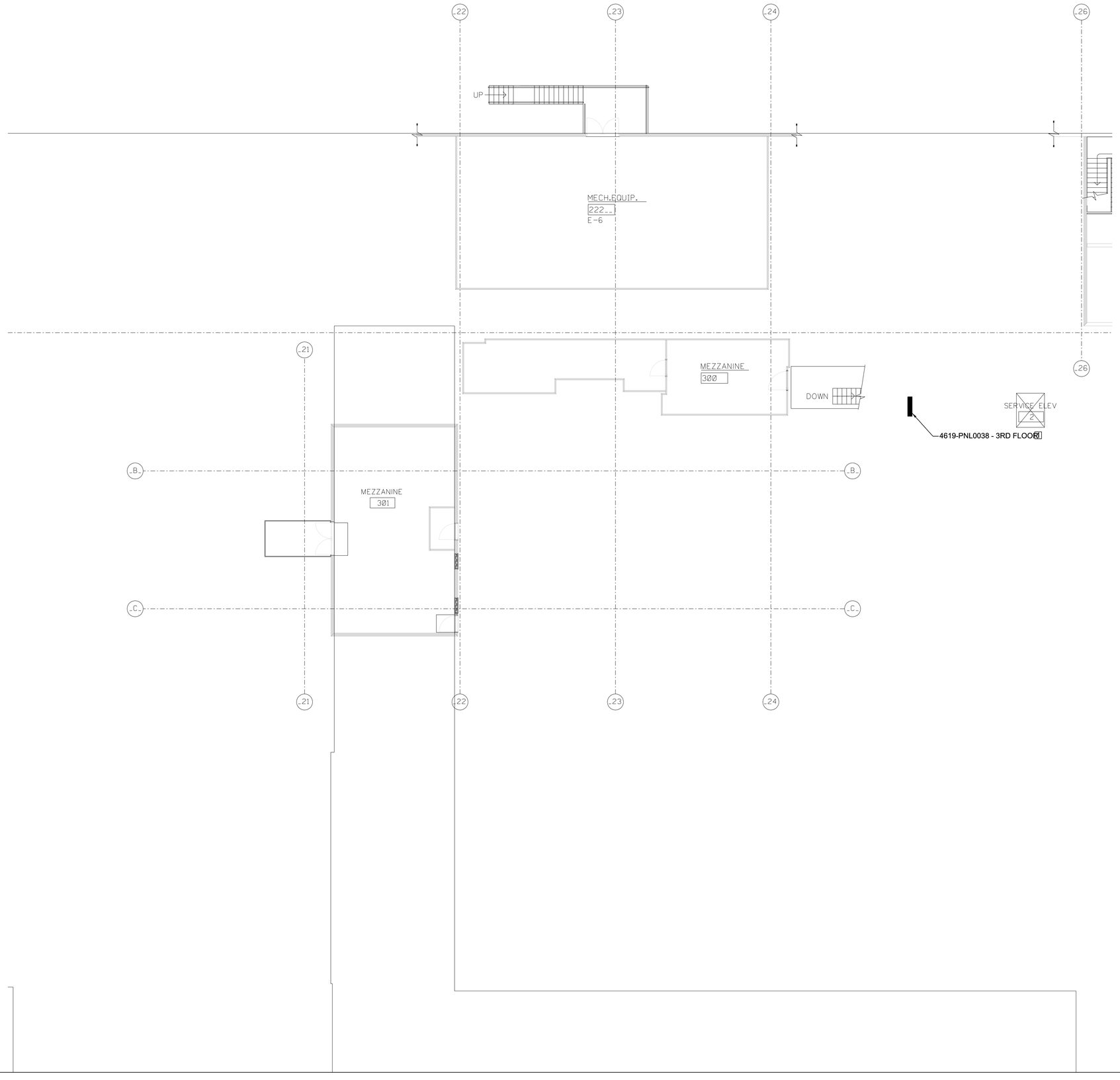
AE: DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
SCALE: AS SHOWN
SPEC. NO. FAC-M5054

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E111 15 OF 76

DRAWING NO. FAC-GO-4619-E111

MSFC Master Bid Disk 03-26-2014



PLAN NOTES

1. REPLACE EXISTING PANEL WITH NEW PANEL. SEE PANEL SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.

GENERAL NOTES

1. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.

KEY PLAN

1 / E112 PANELS 3RD FLOOR

1/8"=1'-0"

0 4' 8' 16'

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

N

FINAL SUBMITTAL
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WARNING

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANELS 3RD FLOOR

AE FIRM: GOODWYN | MILLS | CAWOOD MERRICK & COMPANY (JOINT VENTURE)

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E

APPROVED: JIMMY GUARIN

AE: DATE: 10/24/13

APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E

AS22 GROUP LEAD DATE: 10/24/13

DESIGNED: S. CRITTENDEN

DRAWN: M. PATE

CHECKED: J. OAKES

APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

SCALE: AS SHOWN

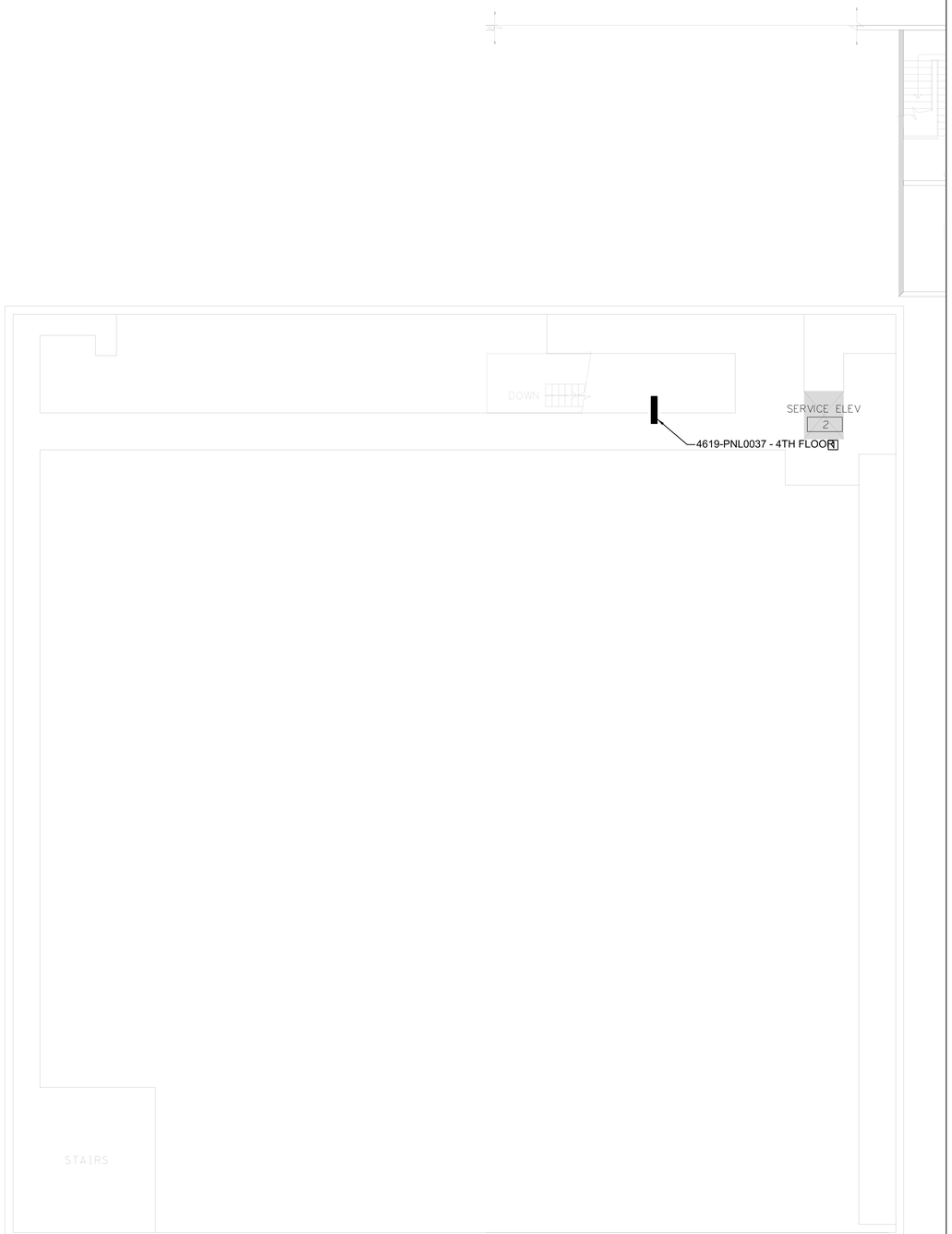
SPEC. NO. FAC-M5054

DRAWING NO. FAC-GO-4619-E112

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E112 16 OF 76

MSFC Master Bid Disk 03-26-2014



PLAN NOTES

1. REPLACE EXISTING PANEL WITH NEW PANEL. SEE PANEL SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.

GENERAL NOTES

1. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.

KEY PLAN

1 / E113 PANELS 4TH FLOOR

1/8"=1'-0"

0 4' 8' 16'

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

N

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANELS 4TH FLOOR

AE FIRM: GOODWYN | HILLS | CAWOOD — MERRICK NORD & COMPANY — JOINT VENTURE

SUBMITTED: JENNIFER LANDRY
AE: DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
SCALE: AS SHOWN

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SPEC. NO. FAC-M5054

NASA AE CONTRACT NO. NAS8-NNM12AA49A
APPROVED: JIMMY GUARIN
AS22 GROUP LEAD DATE: 10/24/13

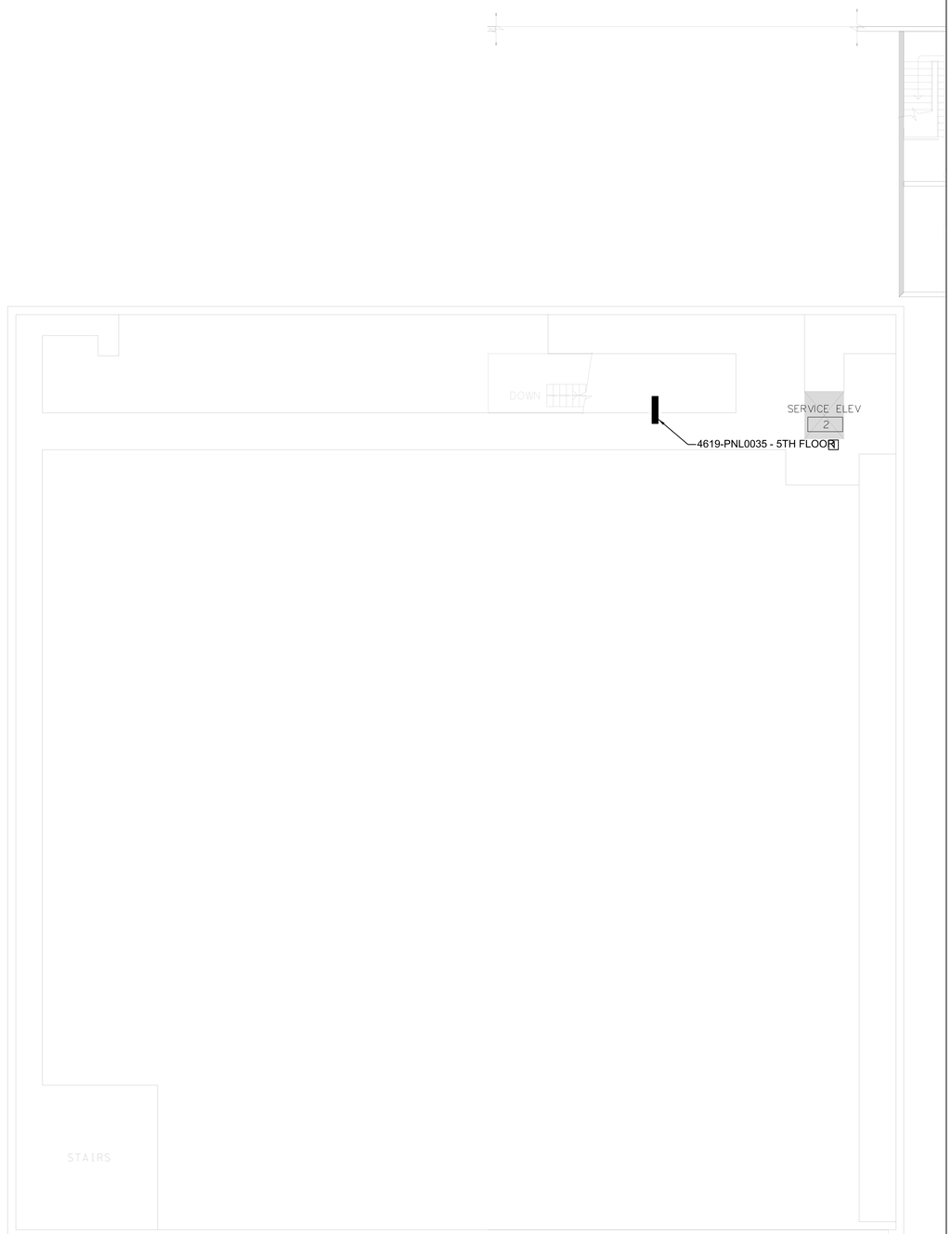
SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO.

DRAWING NO. FAC-GO-4619-E113

E113 17 OF 76

MSFC Master Bid Disk 03-26-2014



PLAN NOTES

1. REPLACE EXISTING PANEL WITH NEW PANEL. SEE PANEL SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.

GENERAL NOTES

1. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.

KEY PLAN

1 / E114 PANELS 5TH FLOOR

1/8"=1'-0"

0 4' 8' 16'

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

N

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING

DO NOT SCALE THIS DRAWING

THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED

Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANELS 5TH FLOOR

AE FIRM: GOODWYN | MILLS | CAWOOD (JOINT VENTURE) MERRICK & COMPANY

SUBMITTED: JENNIFER LANDRY

AE: DATE: 10/24/13

DESIGNED: S. CRITTENDEN

DRAWN: M. PATE

CHECKED: J. OAKES

SCALE: AS SHOWN

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E

APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E

APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

SPEC. NO. FAC-M5054

NASA AE CONTRACT NO. NAS9-NNM12AA49A

APPROVED: JIMMY GUARIN

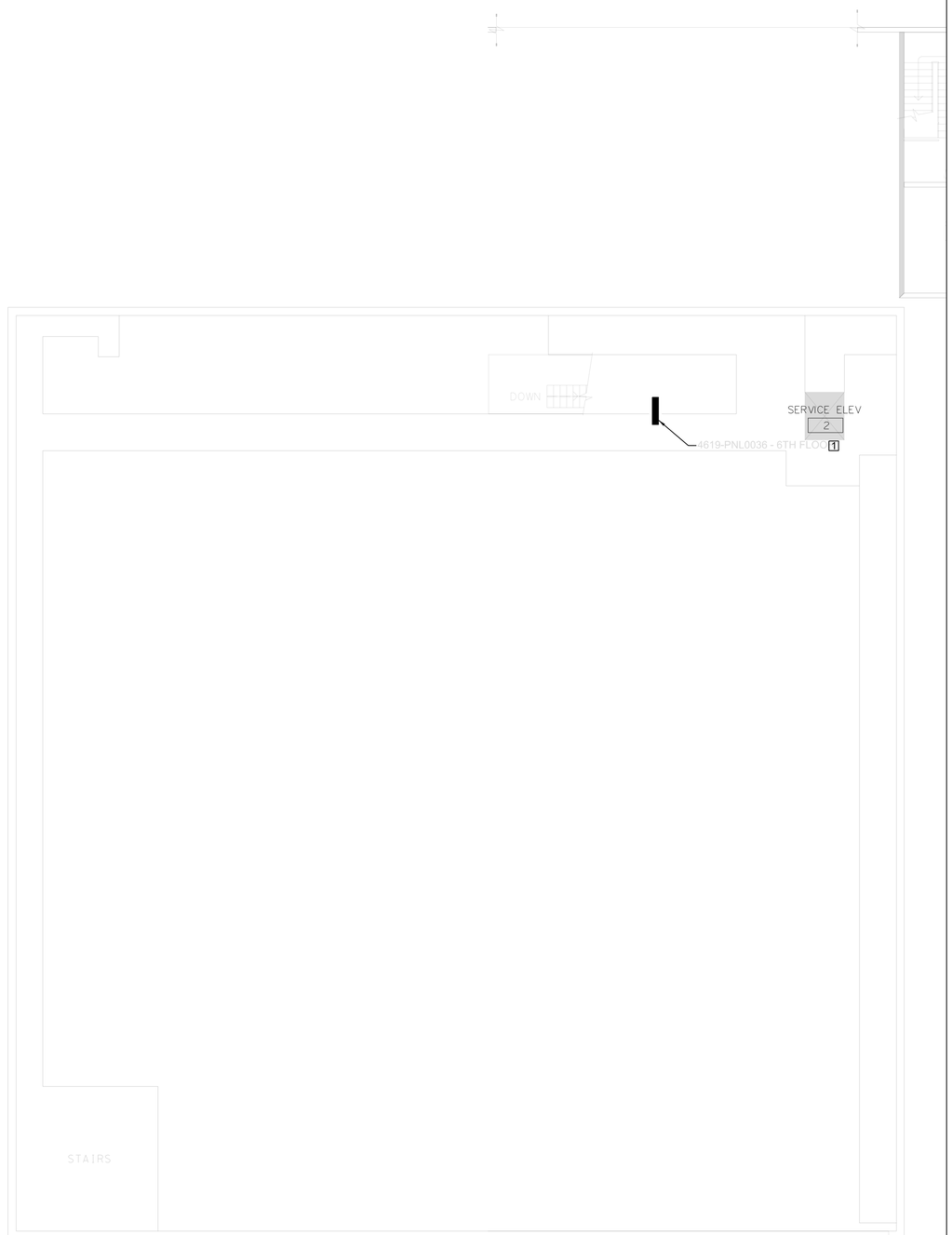
AS22 GROUP LEAD | DATE: 10/24/13

DRAWING NO.
FAC-GO-4619-E114

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E114

MSFC Master Bid Disk 03-26-2014



PLAN NOTES

1. REPLACE EXISTING PANEL WITH NEW PANEL. SEE PANEL SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.

GENERAL NOTES

1. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.

KEY PLAN

1 / E115 PANELS 6TH FLOOR

1/8"=1'-0"

0 4' 8' 16'

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

N

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING

DO NOT SCALE THIS DRAWING

THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED

Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANELS 6TH FLOOR

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY — JV

SUBMITTED: JENNIFER LANDRY
AE: DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
SCALE: AS SHOWN

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SPEC. NO. FAC-M5054

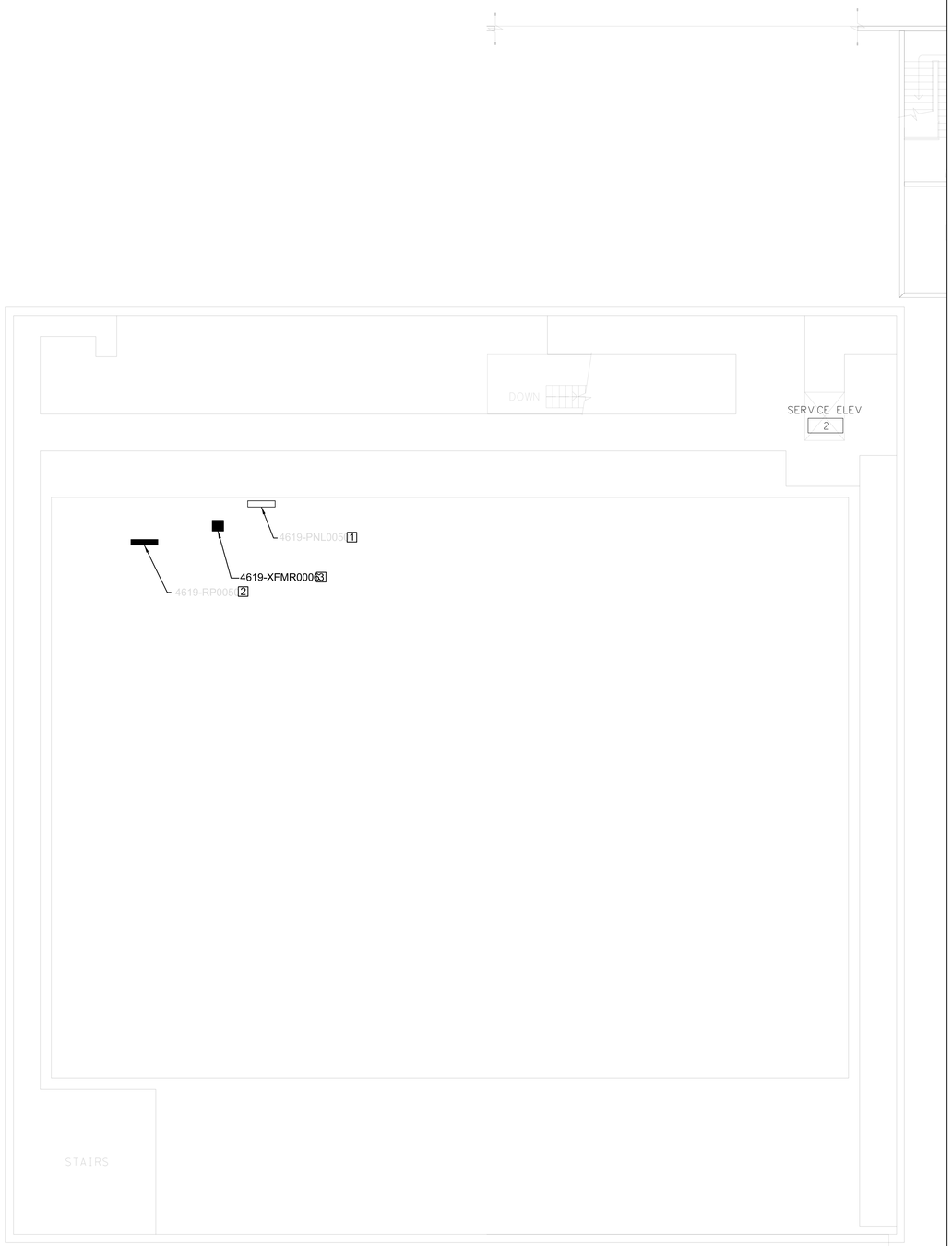
NASA AE CONTRACT NO. NAS8-NNM12AA49A
APPROVED: JIMMY GUARIN
AS22 GROUP LEAD DATE: 10/24/13

DRAWING NO. FAC-GO-4619-E115

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E115

MSFC Master Bid Disk 03-26-2014



PLAN NOTES

1. EXISTING PANEL TO REMAIN. UPDATE AS SHOWN ON PANEL SCHEDULE.
2. REPLACE EXISTING PANEL WITH NEW PANEL. SEE PANEL SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.

GENERAL NOTES

1. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.

ADD ALT #4 NOTES

3. REPLACE TRANSFORMER WITH NEW TRANSFORMER. SEE TRANSFORMER SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.

KEY PLAN

1 E116 PANELS CROSSHEAD

1/8"=1'-0"

0 4' 8' 16'

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

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING

DO NOT SCALE THIS DRAWING

THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED

Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANELS CROSSHEAD

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY (JOINT VENTURE)

SUBMITTED: JENNIFER LANDRY

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E

AE: DATE: 10/24/13

DESIGNED: S. CRITTENDEN

DRAWN: M. PATE

CHECKED: J. OAKES

SCALE: AS SHOWN

APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E

APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

SPEC. NO. FAC-M5054

NASA AE CONTRACT NO. NAS8-NNM12AA49A

APPROVED: JIMMY GUARIN

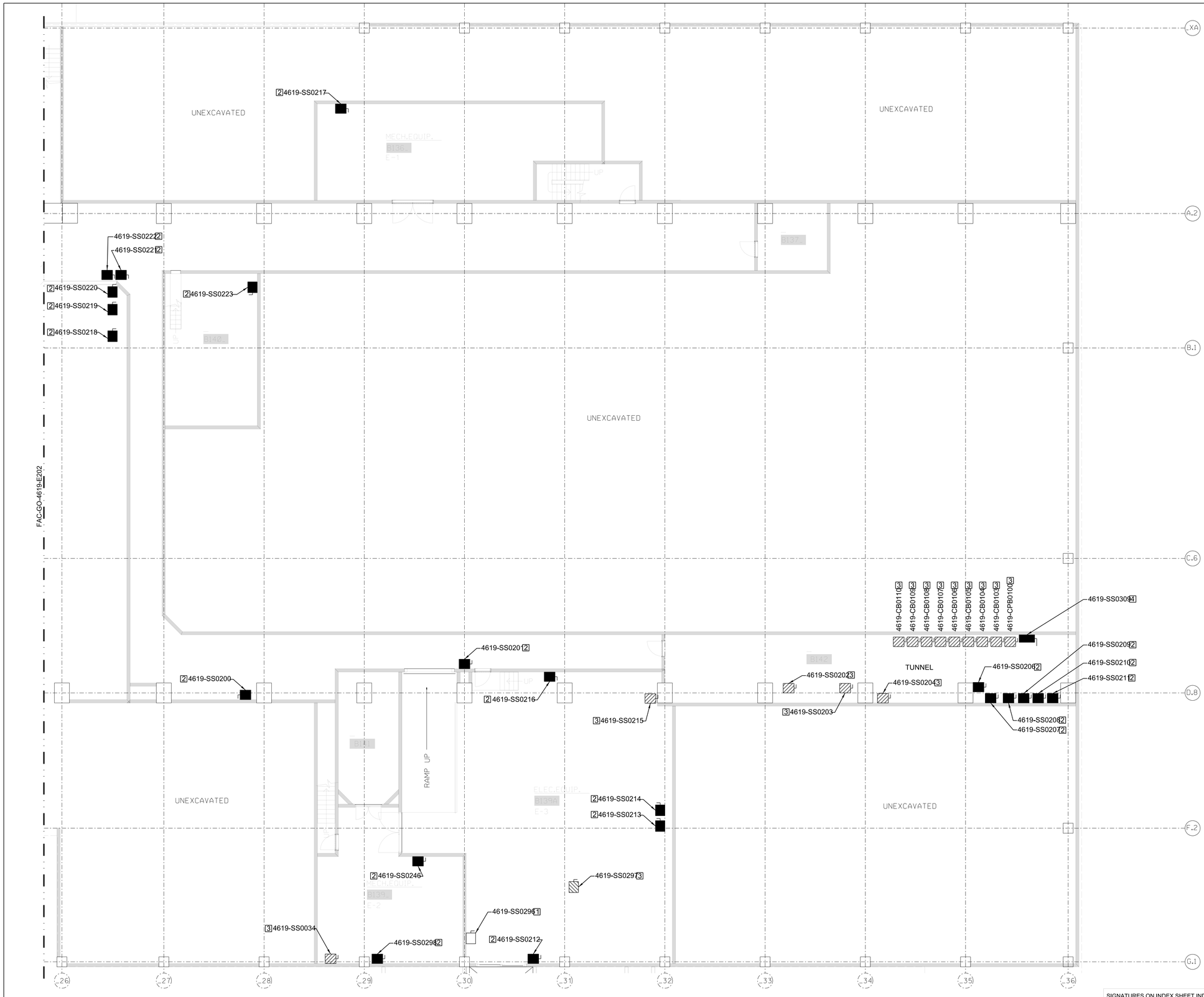
AS22 GROUP LEAD DATE: 10/24/13

DRAWING NO. FAC-GO-4619-E116

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E116

MSFC Master Bid Disk 03-26-2014



PLAN NOTES

1. EXISTING DISCONNECT TO REMAIN.
2. REPLACE EXISTING DISCONNECT OR CIRCUIT BREAKER WITH NEW DISCONNECT OR CIRCUIT BREAKER. SEE DISCONNECT SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.
3. REMOVE EXISTING DISCONNECT.
4. NEW DISCONNECT. SEE RISER DIAGRAM AND ONE LINE ON E403 FOR CONDUIT AND CONDUCTOR SIZE.

KEY PLAN

1 / E201 DISC SUB FLOOR PART A

1/8"=1'-0"

0 4' 8' 16'

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

N

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING

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THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED

Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

DISC SUB FLOOR PART A

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO.

E201 21 OF 76

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY (CMT VENTURE)

SUBMITTED: JENNIFER LANDRY

AE: DATE: 10/24/13

DESIGNED: S. CRITTENDEN

DRAWN: M. PATE

CHECKED: J. OAKES

SCALE: AS SHOWN

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E

APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E

APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

SPEC. NO. FAC-M5054

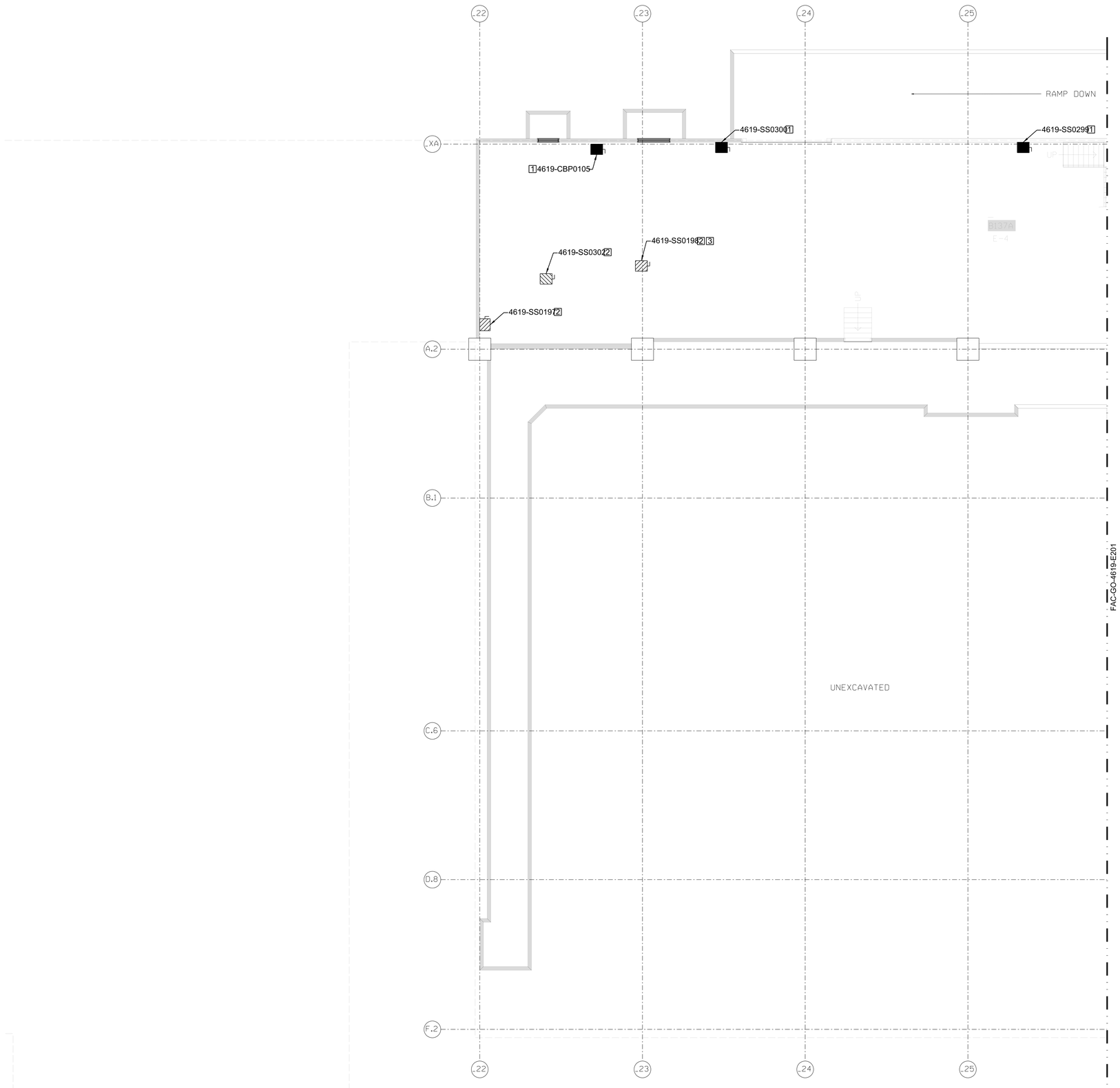
NASA AE CONTRACT NO. NAS8-NNM12AA49A

APPROVED: JIMMY GUARIN

AS22 GROUP LEAD | DATE: 10/24/13

DRAWING NO. FAC-GO-4619-E201

MSFC Master Bid Disk 03-26-2014



PLAN NOTES

1. REPLACE EXISTING DISCONNECT OR CIRCUIT BREAKER WITH NEW DISCONNECT OR CIRCUIT BREAKER. SEE DISCONNECT SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.
2. REMOVE EXISTING DISCONNECT.
3. RECONNECT FEED TO 4619-SWBD0012 CKT #16 WITH 4#3/0 & 1#6G IN 2" CONDUIT TO MATCH EXISTING FEED PRIOR TO DEMOLITION.

KEY PLAN

1 / E202 DISC SUB FLOOR PART B

1/8"=1'-0"

0 4' 8' 16'

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

N

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING

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REV.	BY	DATE	REVISION	C.I. NO.	APPROVED

Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

DISC SUB FLOOR PART B

AE FIRM: GOODWYN MILLS CAWOOD / MERRICK & COMPANY — JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E

APPROVED: JIMMY GUARIN

AE: DATE: 10/24/13

APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E

AS22 GROUP LEAD DATE: 10/24/13

DESIGNED: S. CRITTENDEN

DRAWN: M. PATE

CHECKED: J. OAKES

APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

SCALE: AS SHOWN

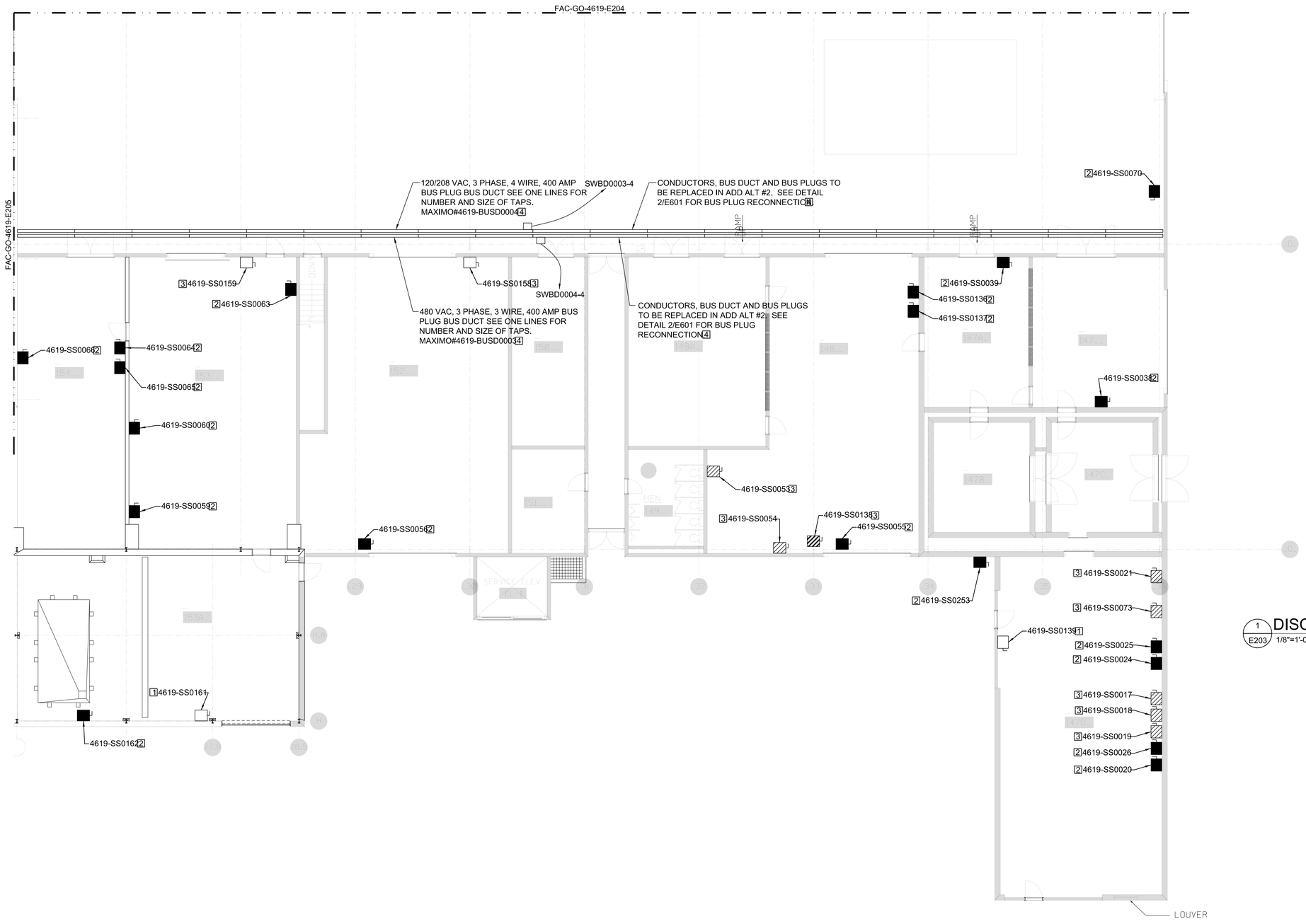
SPEC. NO. FAC-M5054

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E202

DRAWING NO. FAC-GO-4619-E202

MSFC Master Bid Disk 03-26-2014



PLAN NOTES

1. EXISTING DISCONNECT TO REMAIN. NO WORK AT THIS TIME. SHOWN FOR COORDINATION ONLY.
2. REPLACE EXISTING DISCONNECT OR CIRCUIT BREAKER WITH NEW DISCONNECT OR CIRCUIT BREAKER. SEE DISCONNECT SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.
3. REMOVE EXISTING DISCONNECT.
4. SEE FAC-GO-4619-E301 FOR EAST BAY BUS DUCT SINGLE LINE.

KEY PLAN

1 / E203 DISC & BUS DUCT 1ST FLOOR PART A (ADD ALT #2)

1/8"=1'-0"

0 4' 8' 16'

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

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED

Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

DISC & BUS DUCT 1ST FLOOR PART A (ADD ALT #2)

AE FIRM:

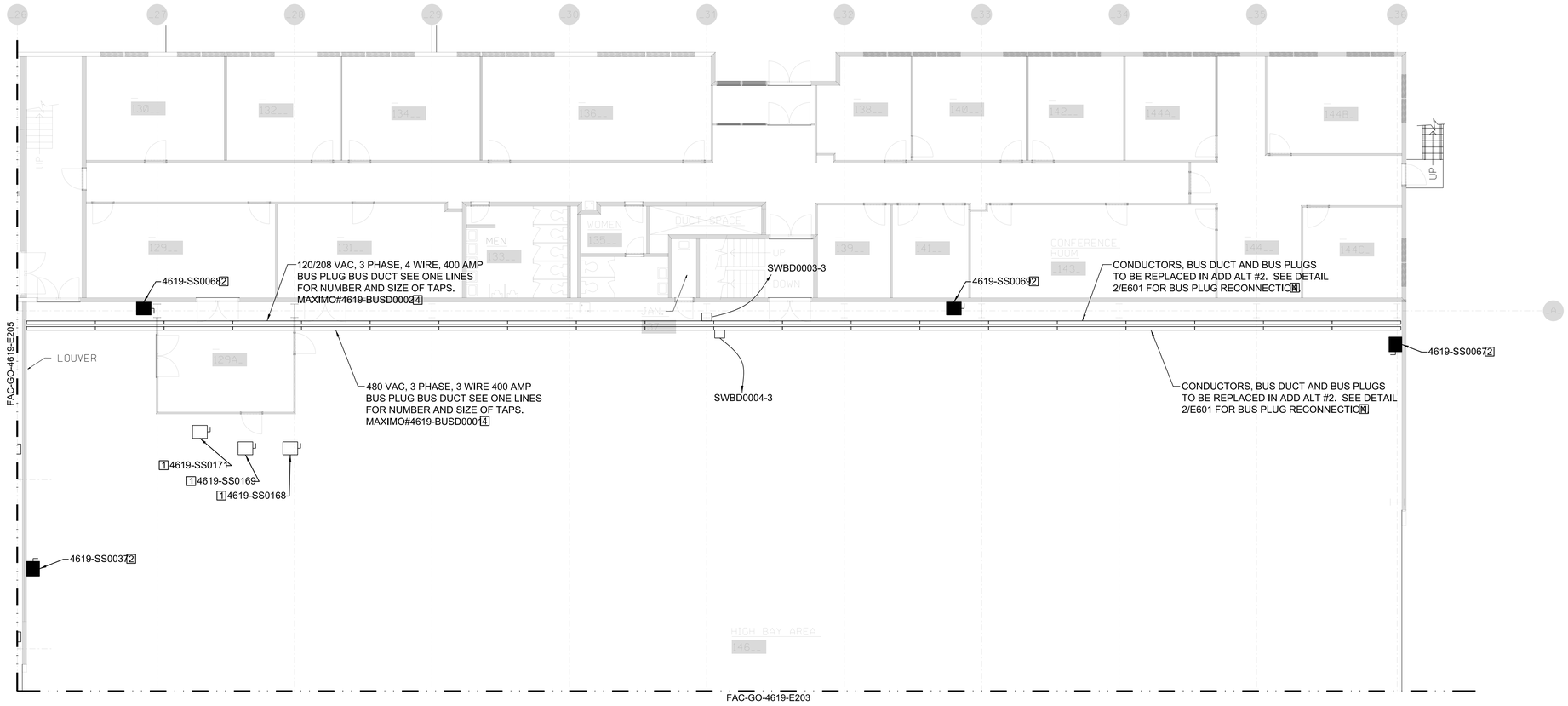
SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
NASA AE CONTRACT NO. NAS8-NNM12AA49A
APPROVED: JIMMY GUARIN, AS22 GROUP LEAD, DATE: 10/24/13

AE: DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
SCALE: AS SHOWN
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
APPROVAL RECOMMENDED: NELSON GLINGER, AS22 TEAM LEAD
SPEC. NO. FAC-M5054

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E203 23 OF 76

DRAWING NO. FAC-GO-4619-E203



PLAN NOTES

1. EXISTING DISCONNECT TO REMAIN. NO WORK AT THIS TIME. SHOWN FOR COORDINATION ONLY.
2. REPLACE EXISTING DISCONNECT OR CIRCUIT BREAKER WITH NEW DISCONNECT OR CIRCUIT BREAKER. SEE DISCONNECT SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.
3. NOT USED.
4. SEE FAC-GO-4619-E301 FOR EAST BAY BUS DUCT SINGLE LINE.

KEY PLAN

1 / E204 DISC & BUS DUCT 1ST FLOOR PART B (ADD ALT #2)

1/8"=1'-0"

0 4' 8' 16'

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

N

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING

DO NOT SCALE THIS DRAWING

THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED

Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

DISC & BUS DUCT 1ST FLOOR PART B (ADD ALT #2)

AE FIRM:

SUBMITTED: JENNIFER LANDRY

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E

AE: DATE: 10/24/13

APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E

DESIGNED: S. CRITTENDEN

DRAWN: M. PATE

CHECKED: J. OAKES

APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

SCALE: AS SHOWN

SPEC. NO. FAC-M5054

NASA AE CONTRACT NO. NAS8-NNM12AA49A

APPROVED: JIMMY GUARIN

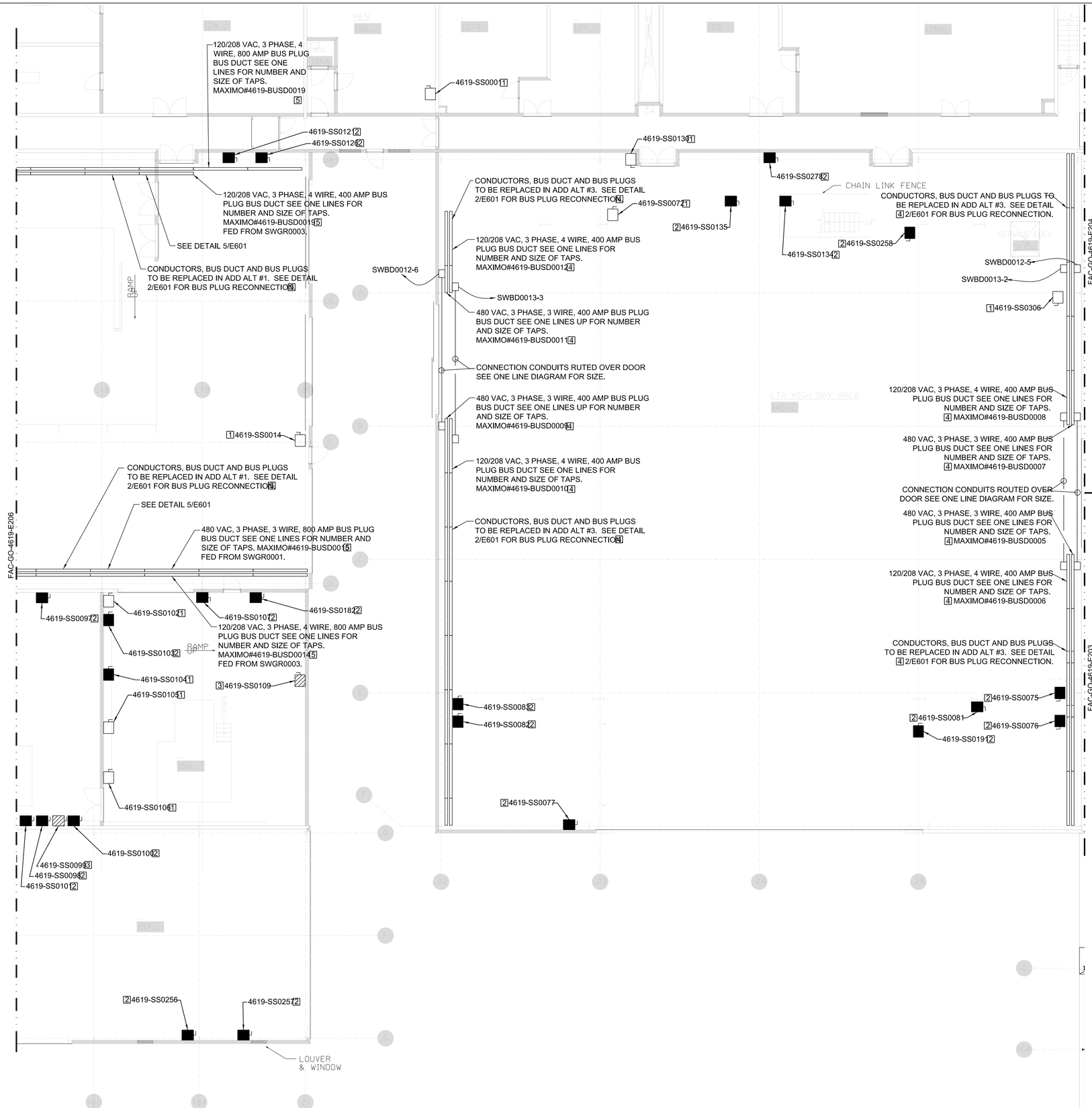
AS22 GROUP LEAD DATE: 10/24/13

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E204

DRAWING NO.
FAC-GO-4619-E204

MSFC Master Bid Disk 03-26-2014



PLAN NOTES

1. EXISTING DISCONNECT TO REMAIN. NO WORK AT THIS TIME. SHOWN FOR COORDINATION ONLY.
2. REPLACE EXISTING DISCONNECT OR CIRCUIT BREAKER WITH NEW DISCONNECT OR CIRCUIT BREAKER. SEE DISCONNECT SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.
3. REMOVE EXISTING DISCONNECT.
4. SEE FAC-GO-4619-E302 FOR LTA BUS DUCT SINGLE LINE.
5. SEE FAC-GO-4619-E304 FOR WEST BUS DUCT SINGLE LINE.

KEY PLAN

1 / E205 DISC & BUS DUCT 1ST FLOOR PART C (ADD ALT #1 & #3)

1/8"=1'-0"

0 4' 8' 16'

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

N

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
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REV.	BY	DATE	REVISION	CA. NO.	APPROVED

Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

DISC & BUS DUCT 1ST FLOOR PART C (ADD ALT #1 & #3)

AE FIRM:

SUBMITTED: JENNIFER LANDRY
AE: DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
SCALE: AS SHOWN

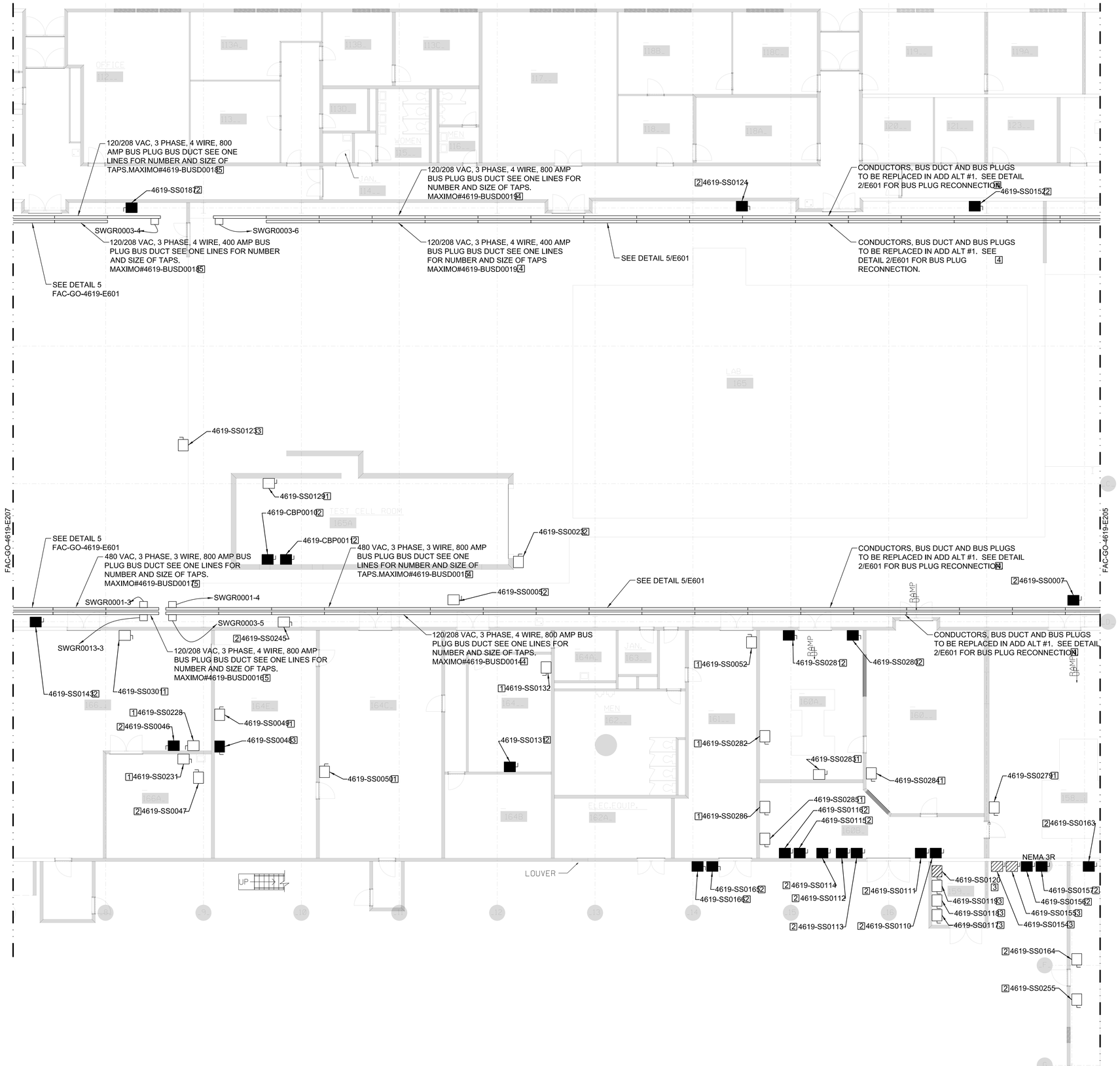
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SPEC. NO. FAC-M5054

NASA AE CONTRACT NO. NAS8-NNM12AA49A
APPROVED: JIMMY GUARIN
AS22 GROUP LEAD DATE: 10/24/13

DRAWING NO.
FAC-GO-4619-E205

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E205 25 OF 76



PLAN NOTES

1. EXISTING DISCONNECT TO REMAIN. NO WORK AT THIS TIME. SHOWN FOR COORDINATION ONLY.
2. REPLACE EXISTING DISCONNECT OR CIRCUIT BREAKER WITH NEW DISCONNECT OR CIRCUIT BREAKER. SEE DISCONNECT SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.
3. REMOVE EXISTING DISCONNECT.
4. SEE FAC-GO-4619-E304 FOR WEST BAY BUS DUCT SINGLE LINE.
5. SEE FAC-GO-4619-E303 FOR WEST BAY BUS DUCT SINGLE LINE.

1 / E206 DISC & BUS DUCT 1ST FLOOR PART D (ADD ALT #1)

1/8"=1'-0"

0 4' 8' 16'

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

N

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
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REV.	BY	DATE	REVISION	E1. NO.	APPROVED

Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

DISC & BUS DUCT 1ST FLOOR PART D (ADD ALT #1)

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E206 26 OF 76

AE FIRM:

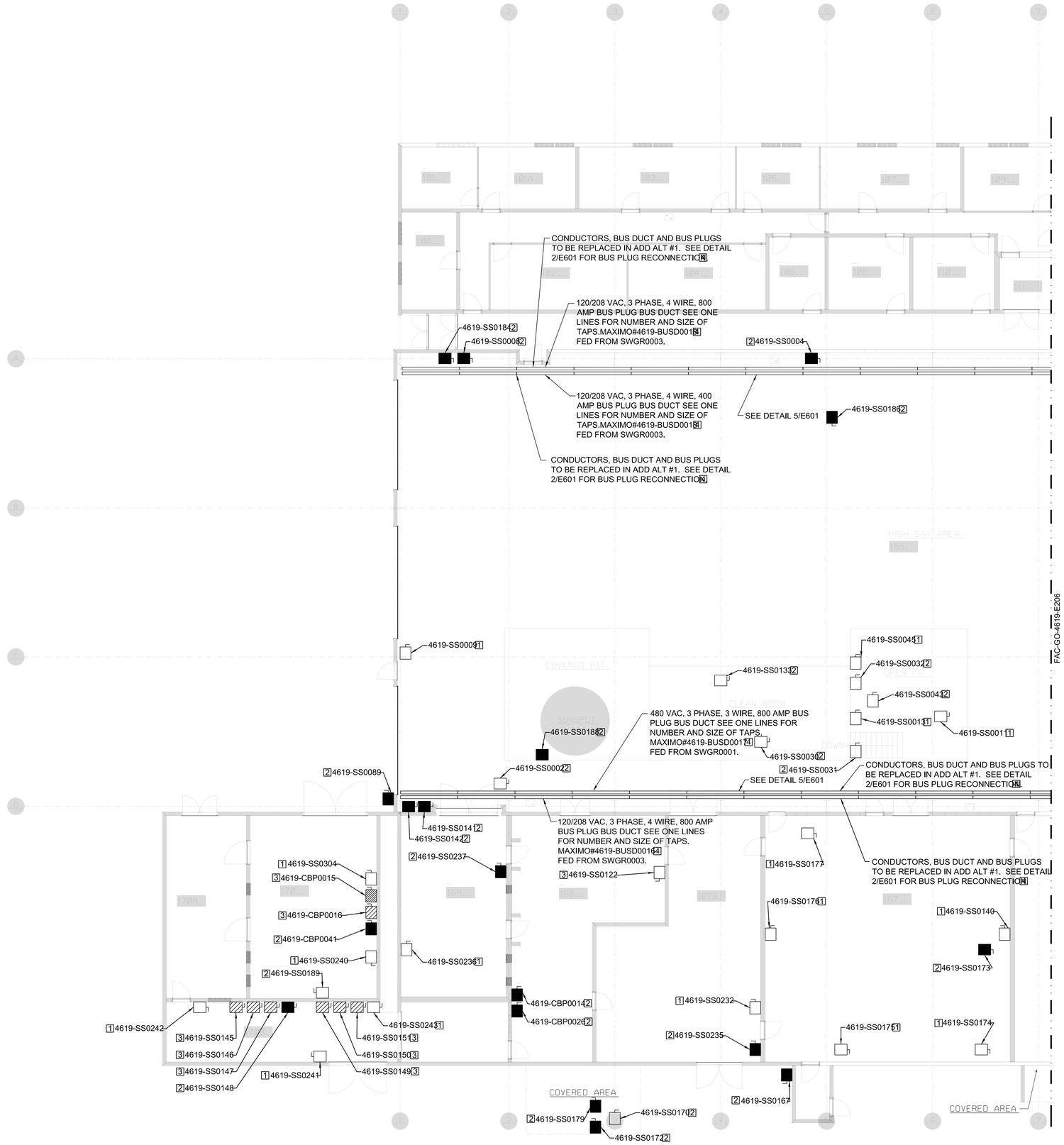
SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
NASA AE CONTRACT NO. NAS8-NNM12AA49A
APPROVED: JIMMY GUARIN
AE: DATE: 10/24/13
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
AS22 GROUP LEAD DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON GLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M5054

DRAWING NO.
FAC-GO-4619-E206

MSFC Master Bid Disk 03-26-2014

PLAN NOTES

1. EXISTING DISCONNECT TO REMAIN. NO WORK AT THIS TIME. SHOWN FOR COORDINATION ONLY.
2. REPLACE EXISTING DISCONNECT OR CIRCUIT BREAKER WITH NEW DISCONNECT OR CIRCUIT BREAKER. SEE DISCONNECT SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.
3. REMOVE EXISTING DISCONNECT.
4. SEE FAC-GO-4619-E303 FOR WEST BAY BUS DUCT SINGLE LINE.



KEY PLAN

1 / E207 DISC & BUS DUCT 1ST FLOOR PART E (ADD ALT #1)

1/8"=1'-0"

0 4' 8' 16'

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

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

DISC & BUS DUCT 1ST FLOOR PART E (ADD ALT #1)

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E207 27 OF 76

AE FIRM:

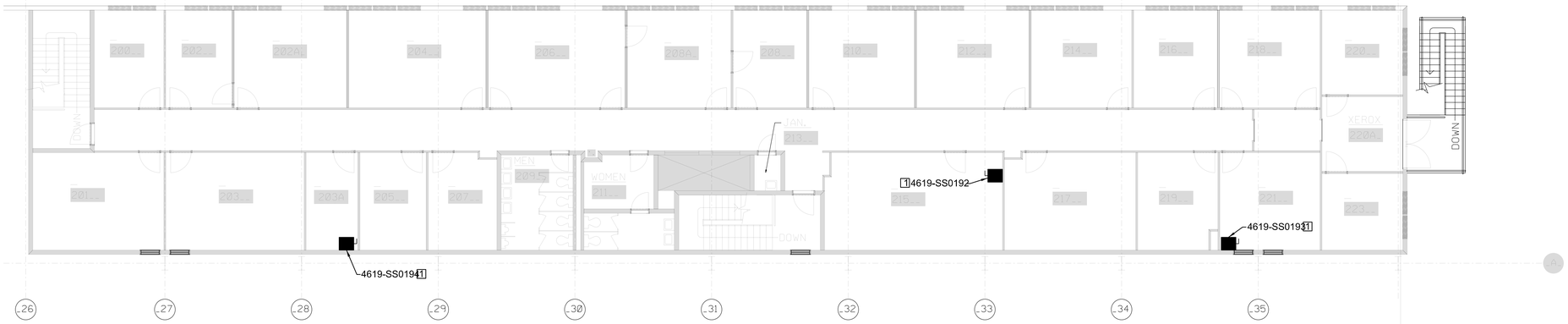
SUBMITTED: JENNIFER LANDRY
AE: DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
SCALE: AS SHOWN

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SPEC. NO. FAC-M5054

NASA AE CONTRACT NO. NAS8-NNM12AA49A
APPROVED: JIMMY GUARIN
AS22 GROUP LEAD DATE: 10/24/13

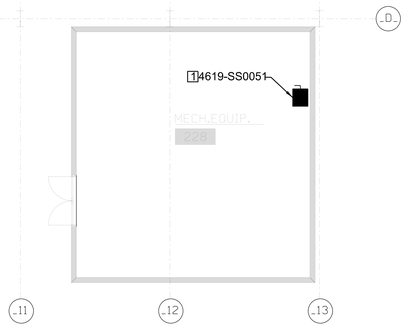
DRAWING NO.
FAC-GO-4619-E207

MSFC Master Bid Disk 03-26-2014



SECTION A

2 / E208 1/8"=1'-0"



SECTION B

3 / E208 1/8"=1'-0"

PLAN NOTES

1. REPLACE EXISTING DISCONNECT OR CIRCUIT BREAKER WITH NEW DISCONNECT OR CIRCUIT BREAKER. SEE DISCONNECT SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.

KEY PLAN

DISC 2ND FLOOR PART A & B

1 / E208 1/8"=1'-0"

0 4' 8' 16'

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

N

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING

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REV.	BY	DATE	REVISION	C.I. NO.	APPROVED

Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

DISC 2ND FLOOR PART A & B

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY — JOINT VENTURE

SUBMITTED: JENNIFER LANDRY

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E

APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E

APPROVAL RECOMMENDED: NELSON GLINGER, AS22 TEAM LEAD

NASA AE CONTRACT NO. NAS8-NNM12AA49A

APPROVED: JIMMY GUARIN

AS22 GROUP LEAD — DATE: 10/24/13

AE: DATE: 10/24/13

DESIGNED: S. CRITTENDEN

DRAWN: M. PATE

CHECKED: J. OAKES

SCALE: AS SHOWN

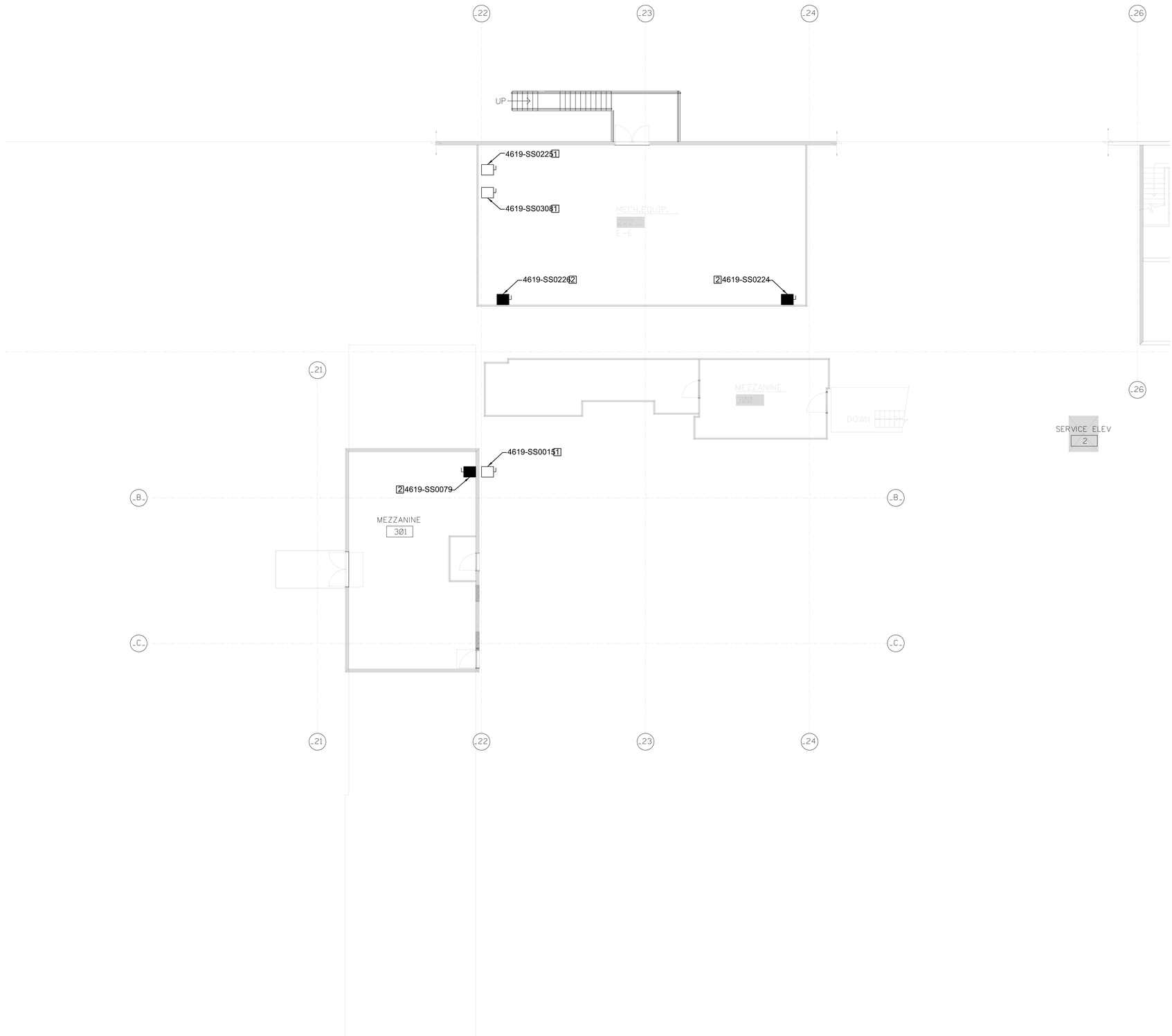
SPEC. NO. FAC-M5054

DRAWING NO. FAC-GO-4619-E208

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E208

MSFC Master Bid Disk 03-26-2014



PLAN NOTES

1. EXISTING DISCONNECT TO REMAIN. SHOWN FOR COORDINATION ONLY.
2. REPLACE EXISTING DISCONNECT OR CIRCUIT BREAKER WITH NEW DISCONNECT OR CIRCUIT BREAKER. SEE DISCONNECT SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.

KEY PLAN

1 / E209 DISC 2ND FLOOR PART C

1/8"=1'-0"

0 4' 8' 16'

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

N

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING

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REV.	BY	DATE	REVISION	C.I. NO.	APPROVED

Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

DISC 2ND FLOOR PART C

AE FIRM: GOODWYN | HILLS | CAMOOD JOINT VENTURE — MERRICK & COMPANY

SUBMITTED: JENNIFER LANDRY

AE: DATE: 10/24/13

DESIGNED: S. CRITTENDEN

DRAWN: M. PATE

CHECKED: J. OAKES

SCALE: AS SHOWN

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E

APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E

APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

SPEC. NO. FAC-M5054

NASA AE CONTRACT NO. NAS8-NNM12AA49A

APPROVED: JIMMY GUARIN

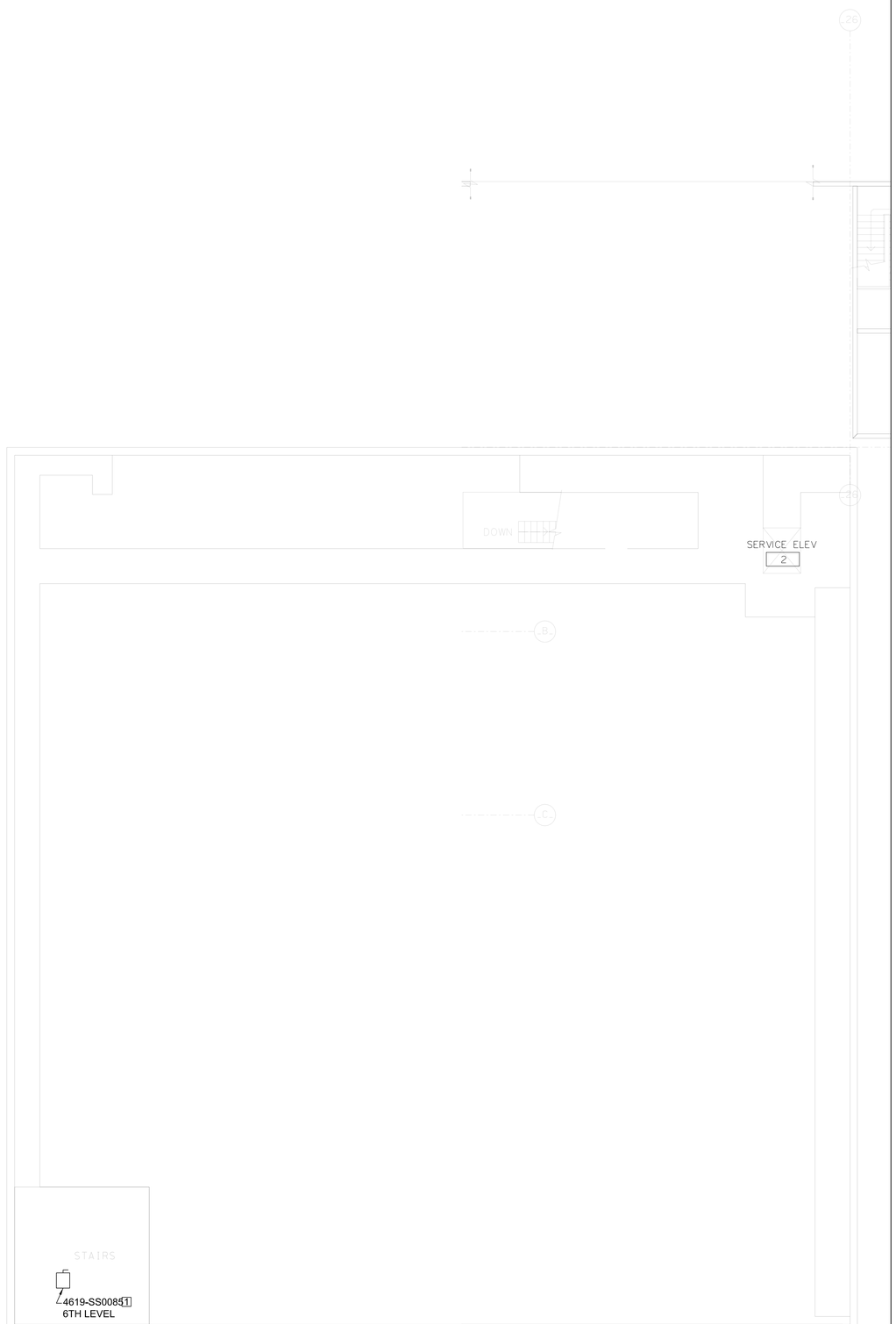
AS22 GROUP LEAD DATE: 10/24/13

DRAWING NO. FAC-GO-4619-E209

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E209

MSFC Master Bid Disk 03-26-2014



PLAN NOTES

1 EXISTING DISCONNECT TO REMAIN. SHOWN FOR COORDINATION ONLY.

KEY PLAN

1 E210 DISC 6TH FLOOR
1/8"=1'-0"

0 4' 8' 16'
SCALE:1/8"=1'-0"

N

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	REF.	DATE	REVISION	C.I. NO.	APPROVED	

Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

DISC 6TH FLOOR

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY — JOINT VENTURE

SUBMITTED: JENNIFER LANDRY
AE: DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
SCALE: AS SHOWN

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SPEC. NO. FAC-M5054

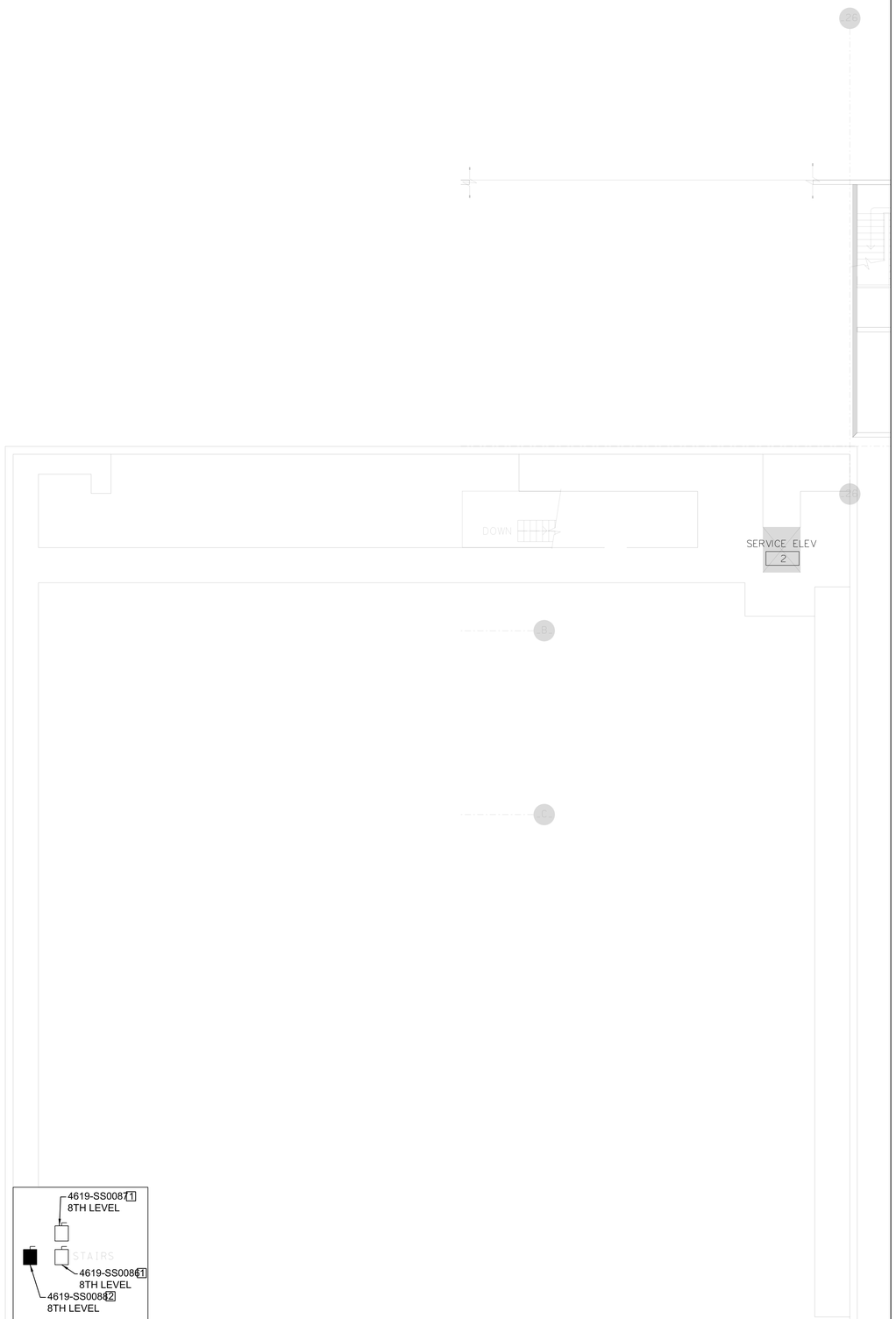
NASA AE CONTRACT NO. NAS8-NNM12AA49A
APPROVED: JIMMY GUARIN
AS22 GROUP LEAD DATE: 10/24/13

DRAWING NO. FAC-GO-4619-E210

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E210 30 OF 76

MSFC Master Bid Disk 03-26-2014



PLAN NOTES

1. EXISTING DISCONNECT TO REMAIN. SHOWN FOR COORDINATION ONLY.
2. REPLACE EXISTING DISCONNECT OR CIRCUIT BREAKER WITH NEW DISCONNECT OR CIRCUIT BREAKER. SEE DISCONNECT SCHEDULE WITH ASSOCIATED MAXIMO NUMBER.

KEY PLAN

1 / E211 DISC 8TH FLOOR

1/8"=1'-0"

0 4' 8' 16'

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

N

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

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REV.	BY	DATE	REVISION	C.I. NO.	APPROVED

Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

DISC 8TH FLOOR

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY — JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E

APPROVED: JIMMY GUARIN

AS22 GROUP LEAD | DATE: 10/24/13

AE: | DATE: 10/24/13

APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E

DESIGNED: S. CRITTENDEN

DRAWN: M. PATE

CHECKED: J. OAKES

APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

SCALE: AS SHOWN

SPEC. NO.: FAC-M5054

DRAWING NO. FAC-GO-4619-E211

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E211

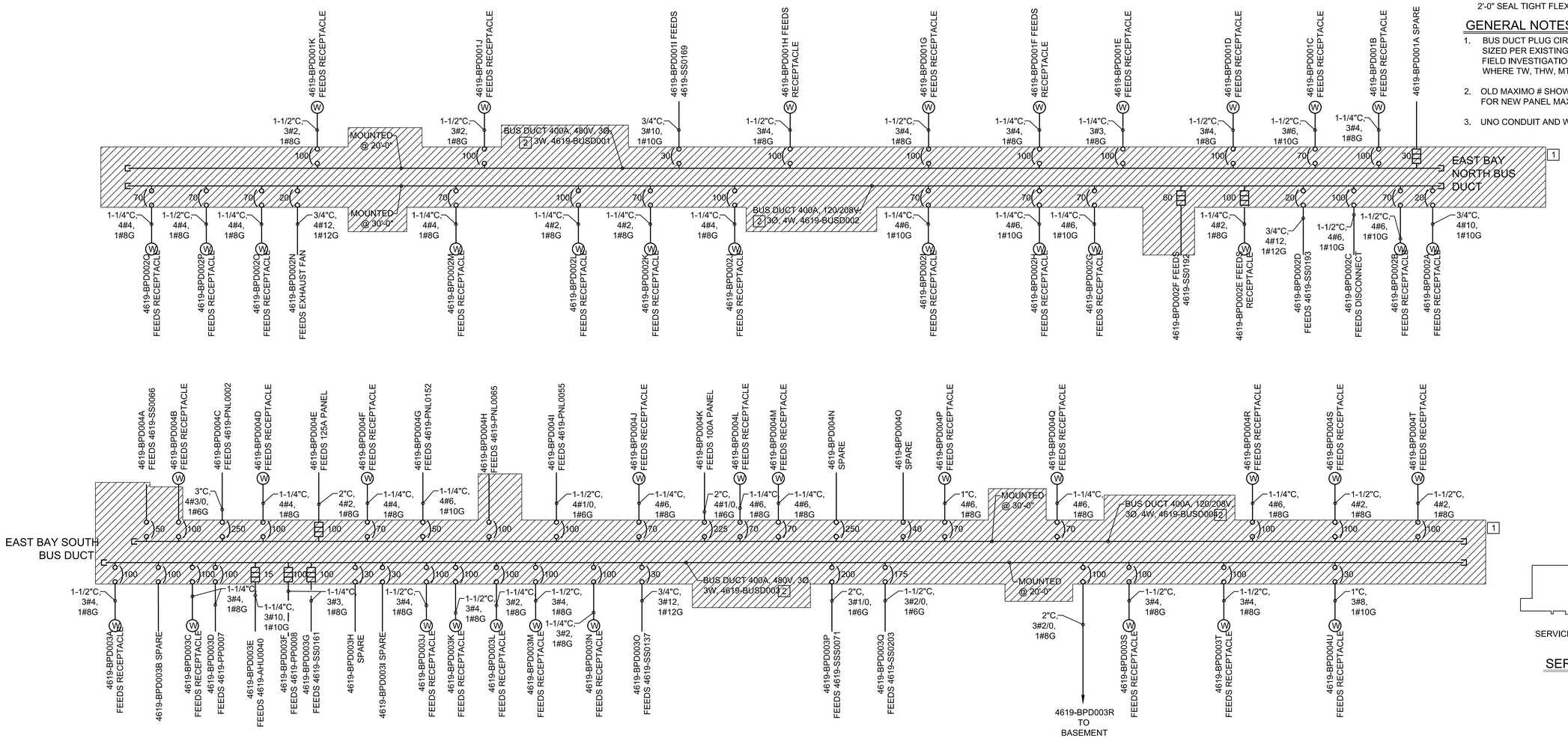
MSFC Master Bid Disk 03-26-2014

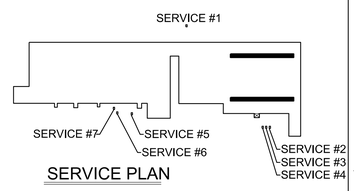
PLAN NOTES

1. HATCHED AREA INDICATES EQUIPMENT THAT SHALL BE REMOVED AND DEMOLISHED UNDER THIS ADD ALT.
2. REMOVE EXISTING BUS DUCT AND REPLACE WITH NEW BUS DUCT REUSING EXISTING HANGERS. FURNISH AND INSTALL NEW BUS PLUGS AS SHOWN ON NEW WORK AND RECONNECT TO EXISTING LOADS VIA 2'-0" SEAL TIGHT FLEXIBLE CONDUIT.

GENERAL NOTES

1. BUS DUCT PLUG CIRCUIT BREAKER AMPERAGE AND CONDUIT FILL, SIZED PER EXISTING INSULATION TYPE ON WIRES AS FOUND PER FIELD INVESTIGATION. TYPES OF INSULATION FOUND IN THIS BAY WHERE TW, THW, MTW, THHN, AMW AND RHW.
2. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.
3. UNO CONDUIT AND WIRE TO BE REUSED AND RECONNECTED AS SHOWN ON DETAIL 7 SHEET E601.





SERVICE PLAN

1 / E301 ONE LINE BUS DUCT EAST BAY DEMO (ADD ALT #2)
NO SCALE

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
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REV.	BY	DATE	REVISION	C.I. NO.	APPROVED

Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

ONE LINE BUS DUCT EAST BAY DEMO (ADD ALT #2)

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY (JOINT VENTURE)

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN
AE: DATE: 10/24/13
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
AS22 GROUP LEAD DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M5054

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E301 32 OF 76

DRAWING NO. FAC-GO-4619-E301

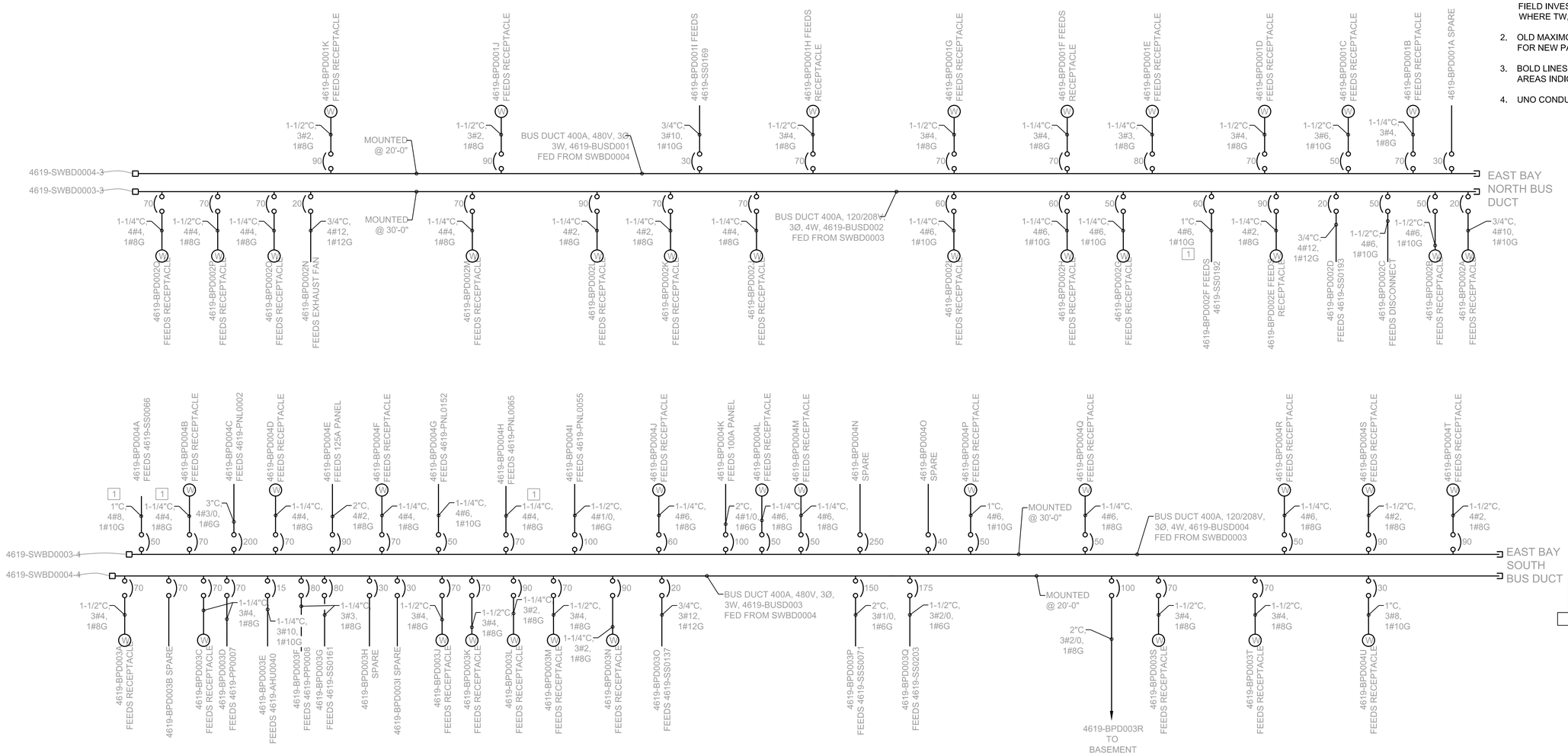
MSFC Master Bid Disk 03-26-2014

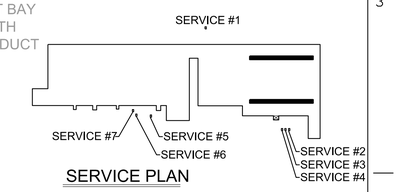
PLAN NOTES

1. PROVIDE 75'-0" FOR BID PURPOSE.

GENERAL NOTES

1. BUS DUCT PLUG CIRCUIT BREAKER AMPERAGE AND CONDUIT FILL, SIZED PER EXISTING INSULATION TYPE ON WIRES AS FOUND PER FIELD INVESTIGATION. TYPES OF INSULATION FOUND IN THIS BAY WHERE TW, THW, MTW, THHN, AMW AND RHW.
2. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.
3. BOLD LINES INDICATE NEW WORK UNDER THIS ADD ALT. SHADED AREAS INDICATE EQUIPMENT THAT IS EXISTING TO REMAIN.
4. UNO CONDUIT AND WIRE TO BE REUSED AND RECONNECTED AS SHOWN ON DETAIL 7 SHEET E601.





SERVICE PLAN

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

ONE LINE BUS DUCT EAST BAY NEW WORK (ADD ALT #2)

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY — JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN
AE: DATE: 10/24/13
AS22 GROUP LEAD DATE: 10/24/13
DESIGNED: S. CRITTENDEN
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M50054

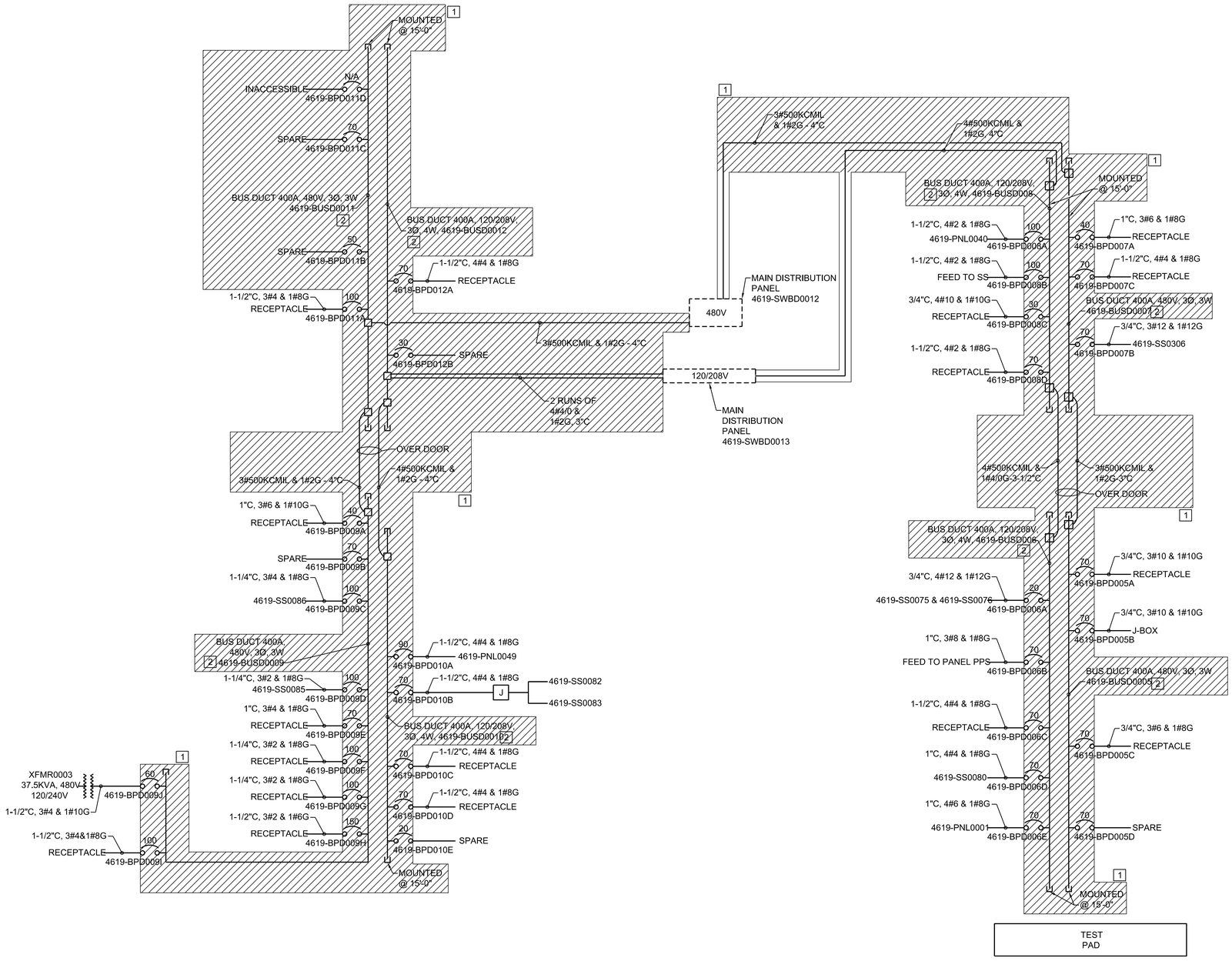
SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E302 33 OF 76

DRAWING NO. FAC-GO-4619-E302

1 E302 ONE LINE BUS DUCT EAST BAY NEW WORK (ADD ALT #2)
NO SCALE

MSFC Master Bid Disk 03-26-2014



1 E303 ONE LINE BUS DUCT LTA AREA DEMO (ADD ALT #3)

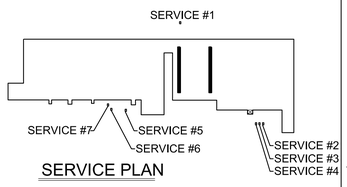
NO SCALE

PLAN NOTES

1. HATCHED AREA INDICATES EQUIPMENT THAT SHALL BE REMOVED AND DEMOLISHED UNDER THIS ADD ALT.
2. REMOVE EXISTING BUS DUCT AND REPLACE WITH NEW BUS DUCT REUSING EXISTING HANGERS. FURNISH AND INSTALL NEW BUS PLUGS AS SHOWN ON NEW WORK AND RECONNECT TO EXISTING LOADS VIA 2'-0" SEAL TIGHT FLEXIBLE CONDUIT.

GENERAL NOTES

1. BUS DUCT PLUG CIRCUIT BREAKER AMPERAGE AND CONDUIT FILL, SIZED PER EXISTING INSULATION TYPE ON WIRES AS FOUND PER FIELD INVESTIGATION. TYPES OF INSULATION FOUND IN THIS BAY WHERE TW, THW, MTW, THHN, AMW AND RHW.
2. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.
3. UNO CONDUIT AND WIRE TO BE REUSED AND RECONNECTED AS SHOWN ON DETAIL 7 SHEET E601.



SERVICE PLAN

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ISSUED FOR CONSTRUCTION

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

ONE LINE BUS DUCT LTA AREA DEMO (ADD ALT #3)

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY (JOINT VENTURE)

NASA AE CONTRACT NO. NAS8-NNM12AA49A

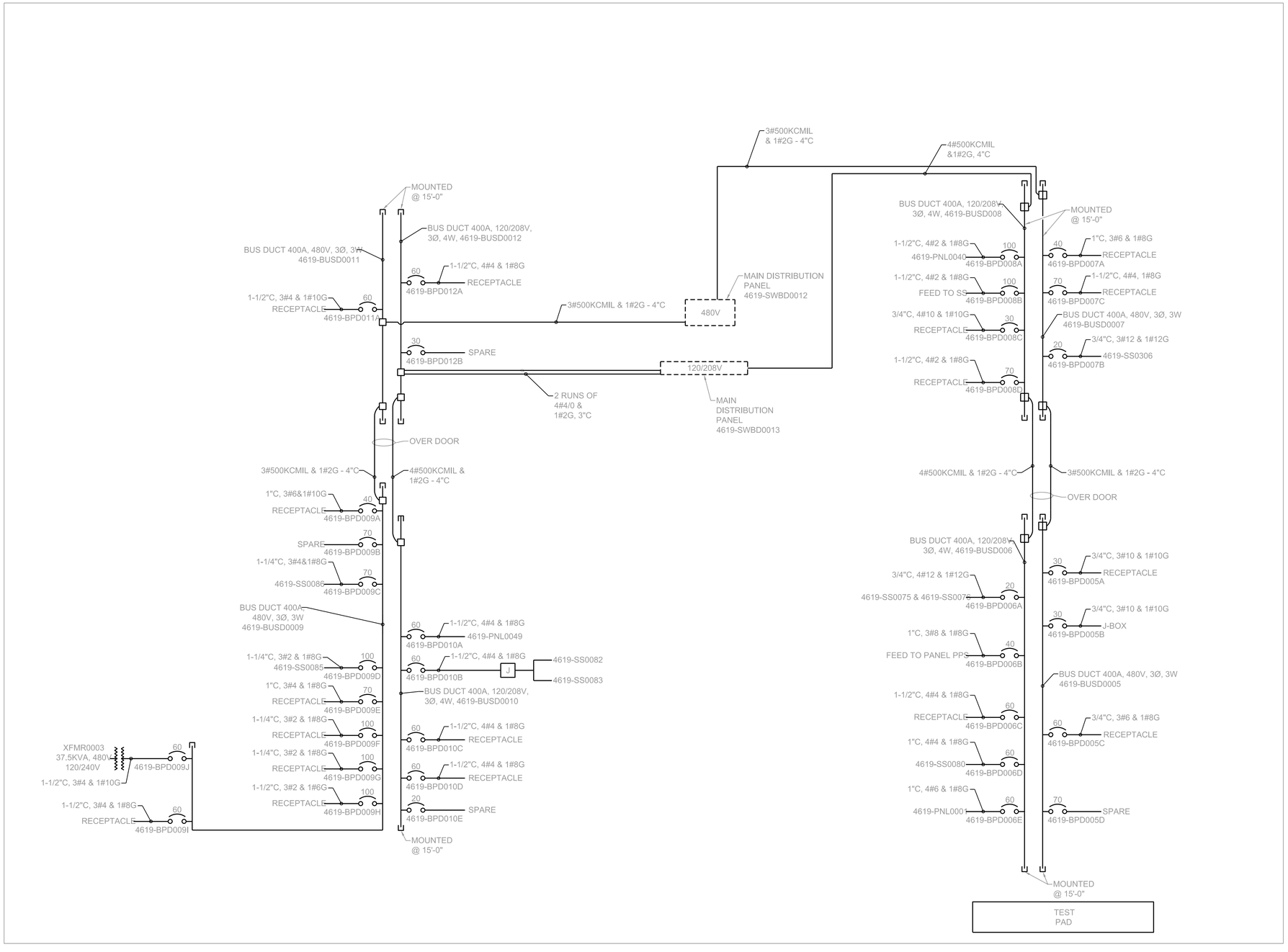
SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN
AE: DATE: 10/24/13
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
AS22 GROUP LEAD DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M5054

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E303 34 OF 76

DRAWING NO. FAC-GO-4619-E303

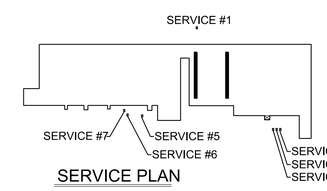
MSFC Master Bid Disk 03-26-2014



1 E304 ONE LINE BUS DUCT LTA AREA NEW WORK (ADD ALT #3)
NO SCALE

GENERAL NOTES

1. BUS DUCT PLUG CIRCUIT BREAKER AMPERAGE AND CONDUIT FILL, SIZED PER EXISTING INSULATION TYPE ON WIRES AS FOUND PER FIELD INVESTIGATION. TYPES OF INSULATION FOUND IN THIS BAY WHERE TW, THW, THHN, AND THWN.
2. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.
3. BOLD LINES INDICATE NEW WORK UNDER THIS ADD ALT. SHADED AREAS INDICATE EQUIPMENT THAT IS EXISTING TO REMAIN.
4. UNO CONDUIT AND WIRE TO BE REUSED AND RECONNECTED AS SHOWN ON DETAIL 7 SHEET E601.



SERVICE PLAN

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

ONE LINE BUS DUCT LTA AREA NEW WORK (ADD ALT #3)

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY — JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

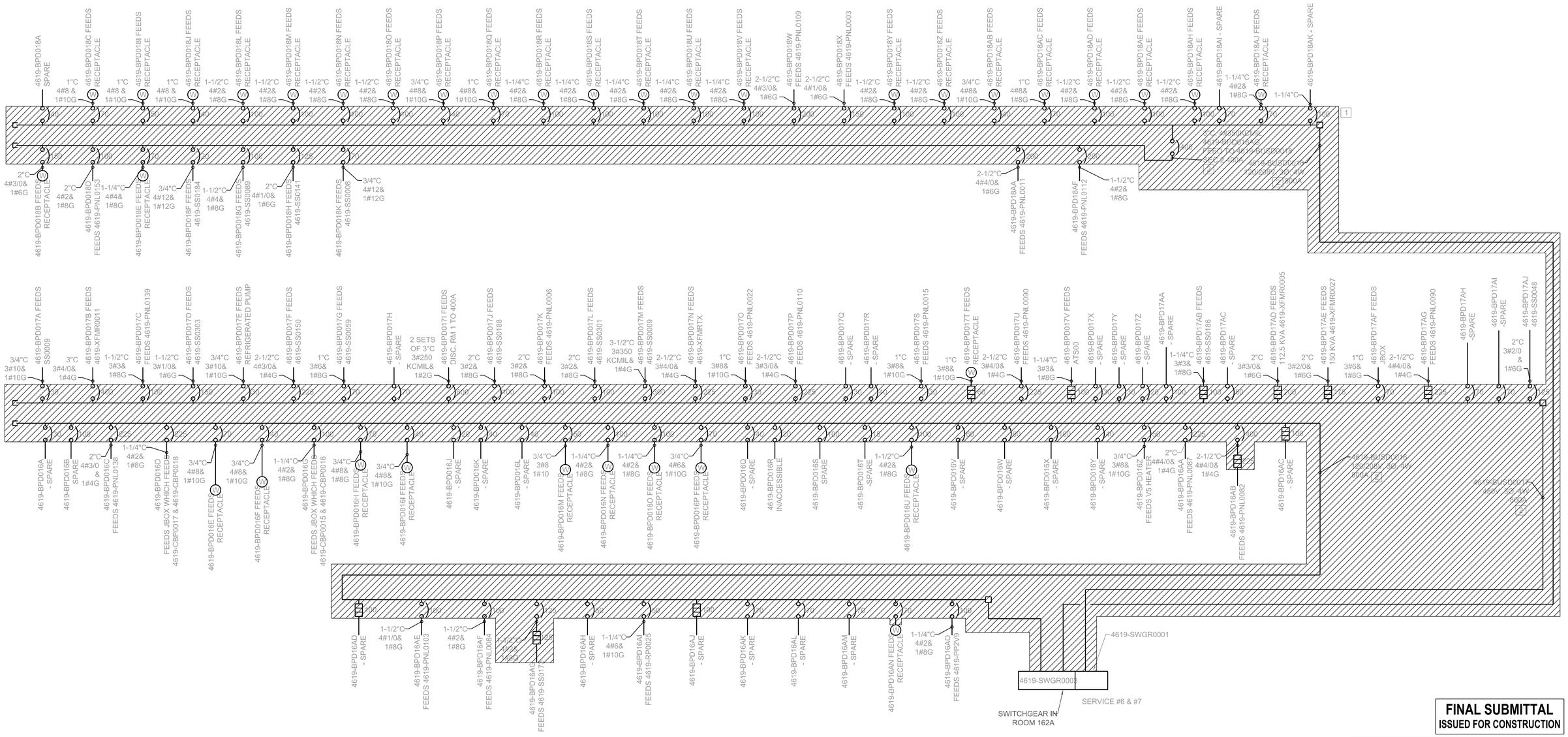
SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN
AE: DATE: 10/24/13
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
AS22 GROUP LEAD DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M5054

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E304 35 OF 76

DRAWING NO. FAC-GO-4619-E304

MSFC Master Bid Disk 03-26-2014



1 E305 ONE LINE BUS DUCT WEST BAY PART A DEMO (ADD ALT #1)
NO SCALE

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
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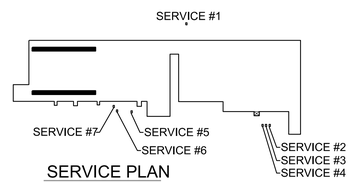
PLAN NOTES

1. HATCHED AREA INDICATES EQUIPMENT THAT SHALL BE REMOVED AND DEMOLISHED UNDER THIS ADD ALT.
2. REMOVE EXISTING BUS DUCT AND REPLACE WITH NEW BUS DUCT REUSING EXISTING HANGERS. FURNISH AND INSTALL NEW BUS PLUGS AS SHOWN ON NEW WORK AND RECONNECT TO EXISTING LOADS VIA 2'-0" SEAL TIGHT FLEXIBLE CONDUIT.

GENERAL NOTES

1. BUS DUCT PLUG CIRCUIT BREAKER AMPERAGE AND CONDUIT FILL, SIZED PER EXISTING INSULATION TYPE ON WIRES AS FOUND PER FIELD INVESTIGATION. TYPES OF INSULATION FOUND IN THIS BAY WHERE TW, THW, MTW, THHN, AMW AND RHW.
2. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.
3. UNO CONDUIT AND WIRE TO BE REUSED AND RECONNECTED AS SHOWN ON DETAIL 7 SHEET E601.



SERVICE PLAN

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

ONE LINE BUS DUCT WEST BAY PART A DEMO (ADD ALT #1)

AE FIRM: GOODWYN MILLS CAWOOD / MERRICK & COMPANY JOINT VENTURE

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
AE: DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
SCALE: AS SHOWN
SPEC. NO. FAC-M5054

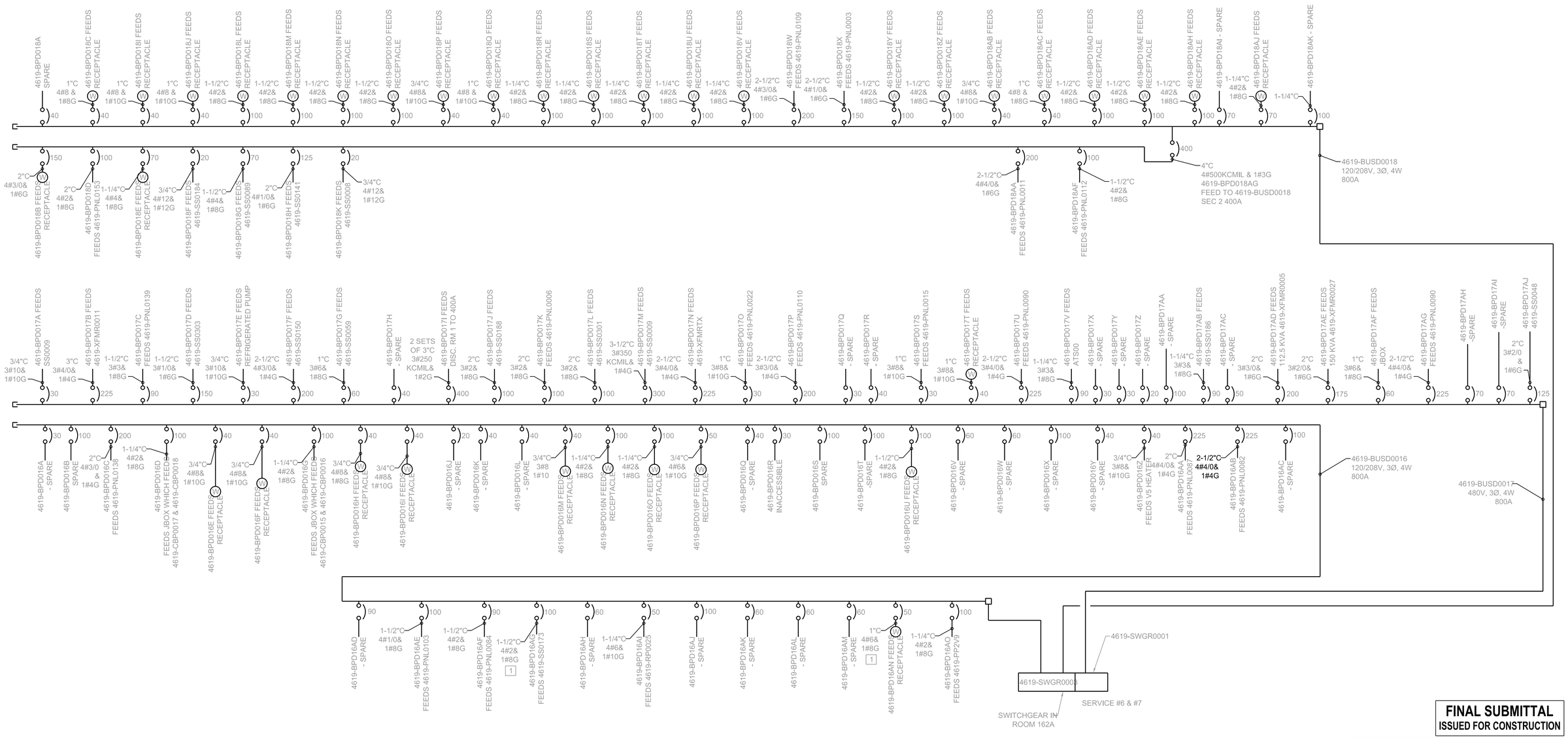
NASA AE CONTRACT NO. NAS8-NNM12AA49A
APPROVED: JIMMY GUARIN
AS22 GROUP LEAD DATE: 10/24/13

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E305 36 OF 76

DRAWING NO. FAC-GO-4619-E305

MSFC Master Bid Disk 03-26-2014



1 E306 ONE LINE BUS DUCT WEST BAY PART A NEW WORK (ADD ALT #1)

NO SCALE

PLAN NOTES

1 PROVIDE 75'-0" FOR BID PURPOSE.

GENERAL NOTES

1. BUS DUCT PLUG CIRCUIT BREAKER AMPERAGE AND CONDUIT FILL, SIZED PER EXISTING INSULATION TYPE ON WIRES AS FOUND PER FIELD INVESTIGATION. TYPES OF INSULATION FOUND IN THIS BAY WHERE TW, THW, MTW, THHN, AMW AND RHW.
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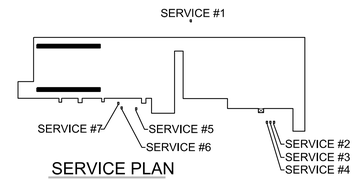
4. UNO CONDUIT AND WIRE TO BE REUSED AND RECONNECTED AS SHOWN ON DETAIL 7 SHEET E601.



SERVICE PLAN

FINAL SUBMITTAL
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM
ONE LINE BUS DUCT WEST BAY PART A
NEW WORK (ADD ALT #1)

AE FIRM: GOODWYN | MILLS | CAWOOD — JOINT VENTURE — MERRICK & COMPANY

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN, AS22 GROUP LEAD, DATE: 10/24/13

AE: DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
SCALE: AS SHOWN
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SPEC. NO. FAC-M5054

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E306 37 OF 76

DRAWING NO. FAC-GO-4619-E306

MSFC Master Bid Disk 03-26-2014

PLAN NOTES

1. HATCHED AREA INDICATES EQUIPMENT THAT SHALL BE REMOVED AND DEMOLISHED UNDER THIS ADD ALT.

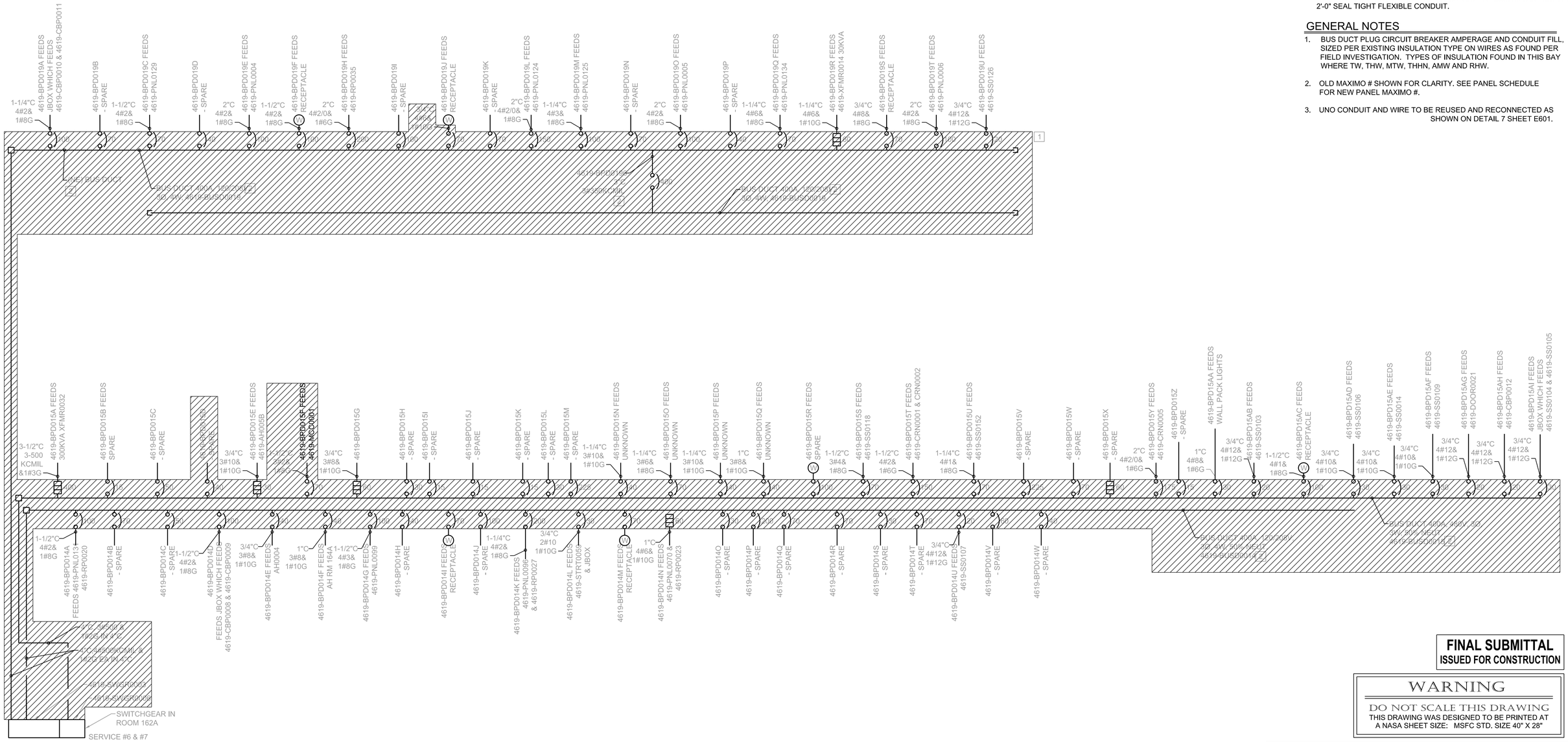
2. REMOVE EXISTING BUS DUCT AND REPLACE WITH NEW BUS DUCT REUSING EXISTING HANGERS. FURNISH AND INSTALL NEW BUS PLUGS AS SHOWN ON NEW WORK AND RECONNECT TO EXISTING LOADS VIA 2'-0" SEAL TIGHT FLEXIBLE CONDUIT.

GENERAL NOTES

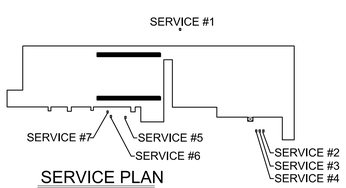
1. BUS DUCT PLUG CIRCUIT BREAKER AMPERAGE AND CONDUIT FILL, SIZED PER EXISTING INSULATION TYPE ON WIRES AS FOUND PER FIELD INVESTIGATION. TYPES OF INSULATION FOUND IN THIS BAY WHERE TW, THW, MTW, THHN, AMW AND RHW.

2. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.

3. UNO CONDUIT AND WIRE TO BE REUSED AND RECONNECTED AS SHOWN ON DETAIL 7 SHEET E601.



1 E307 ONE LINE BUS DUCT WEST BAY PART B DEMO (ADD ALT #1)
NO SCALE



SERVICE PLAN

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

ONE LINE BUS DUCT WEST BAY PART B DEMO (ADD ALT #1)

AE FIRM: GOODWYN | MILLS | CAWOOD JOINT VENTURE — MERRICK & COMPANY

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN
AE: DATE: 10/24/13
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
AS22 GROUP LEAD DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M5054

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E307

DRAWING NO. FAC-GO-4619-E307

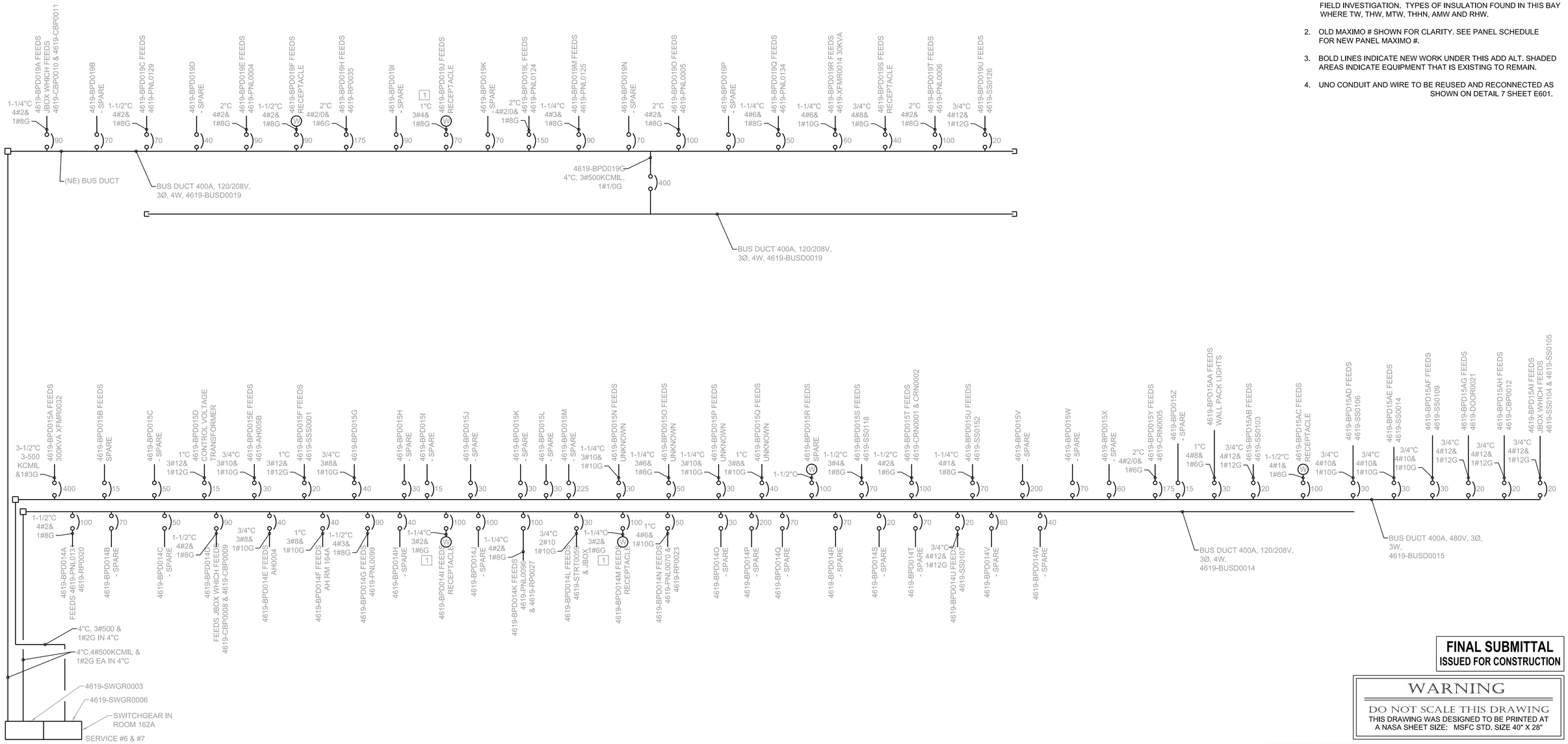
MSFC Master Bid Disk 03-26-2014

PLAN NOTES

1. PROVIDE 75'-0" FOR BID PURPOSE.

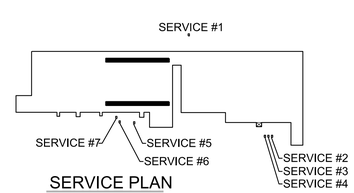
GENERAL NOTES

1. BUS DUCT PLUG CIRCUIT BREAKER AMPERAGE AND CONDUIT FILL, SIZED PER EXISTING INSULATION TYPE ON WIRES AS FOUND PER FIELD INVESTIGATION. TYPES OF INSULATION FOUND IN THIS BAY WHERE TW, THW, MTW, THHN, AMW AND RHW.
2. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.
3. BOLD LINES INDICATE NEW WORK UNDER THIS ADD ALT. SHADED AREAS INDICATE EQUIPMENT THAT IS EXISTING TO REMAIN.
4. UNO CONDUIT AND WIRE TO BE REUSED AND RECONNECTED AS SHOWN ON DETAIL 7 SHEET E601.



1 E308 ONE LINE BUS DUCT WEST BAY PART B NEW WORK (ADD ALT #1)

NO SCALE



SERVICE PLAN

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM
ONE LINE BUS DUCT WEST BAY PART B
NEW WORK (ADD ALT #1)

AE FIRM: GOODWYN | MILLS | CAWOOD JOINT VENTURE — MERRICK SEO & COMPANY

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN
AS22 GROUP LEAD — DATE: 10/24/13
AE: — DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M5054

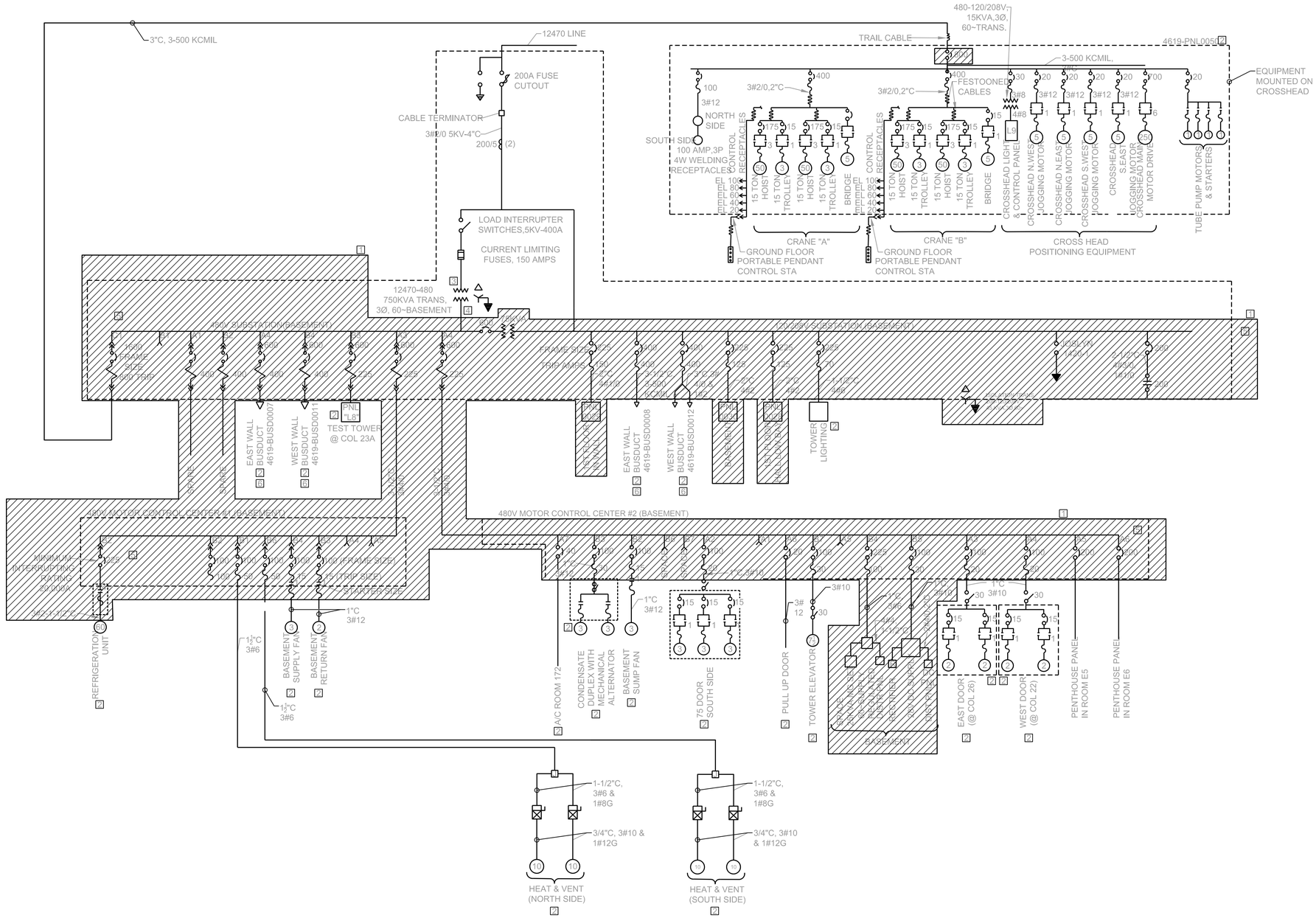
SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E308

39 OF 76

DRAWING NO. FAC-GO-4619-E308

MSFC Master Bid Disk 03-26-2014



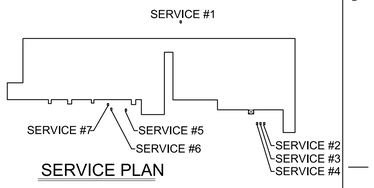
1 E401 ONE LINE SERVICE #1 DEMO
NO SCALE

PLAN NOTES

1. TO BE REMOVED.
2. EXISTING EQUIPMENT TO REMAIN (SEE SHEET E403 FOR NEW WORK).
3. EXISTING TRANSFORMER TO REMAIN.
4. CONTRACTOR TO REMOVE EXISTING CONDUCTORS TO SERVICE #1.
5. RETAIN EXISTING BRANCH WIRING AND EXTEND TO PANELS 4619-PNL0013 AND 4619-PNL0012 PRIOR TO REMOVAL.
6. FURNISH AND INSTALL NEW FEED TO BUS DUCT UNDER ADD ALT #3.

GENERAL NOTES

1. CONTRACTOR SHALL REMOVE FEEDER BACK TO UTILITY TRANSFORMER.



SERVICE PLAN

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

ONE LINE SERVICE #1 DEMO

AE FIRM: GOODWYN | HILLS | CAWOOD | MERRICK & COMPANY — JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY
AE: DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
SCALE: AS SHOWN

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SPEC. NO. FAC-M50054

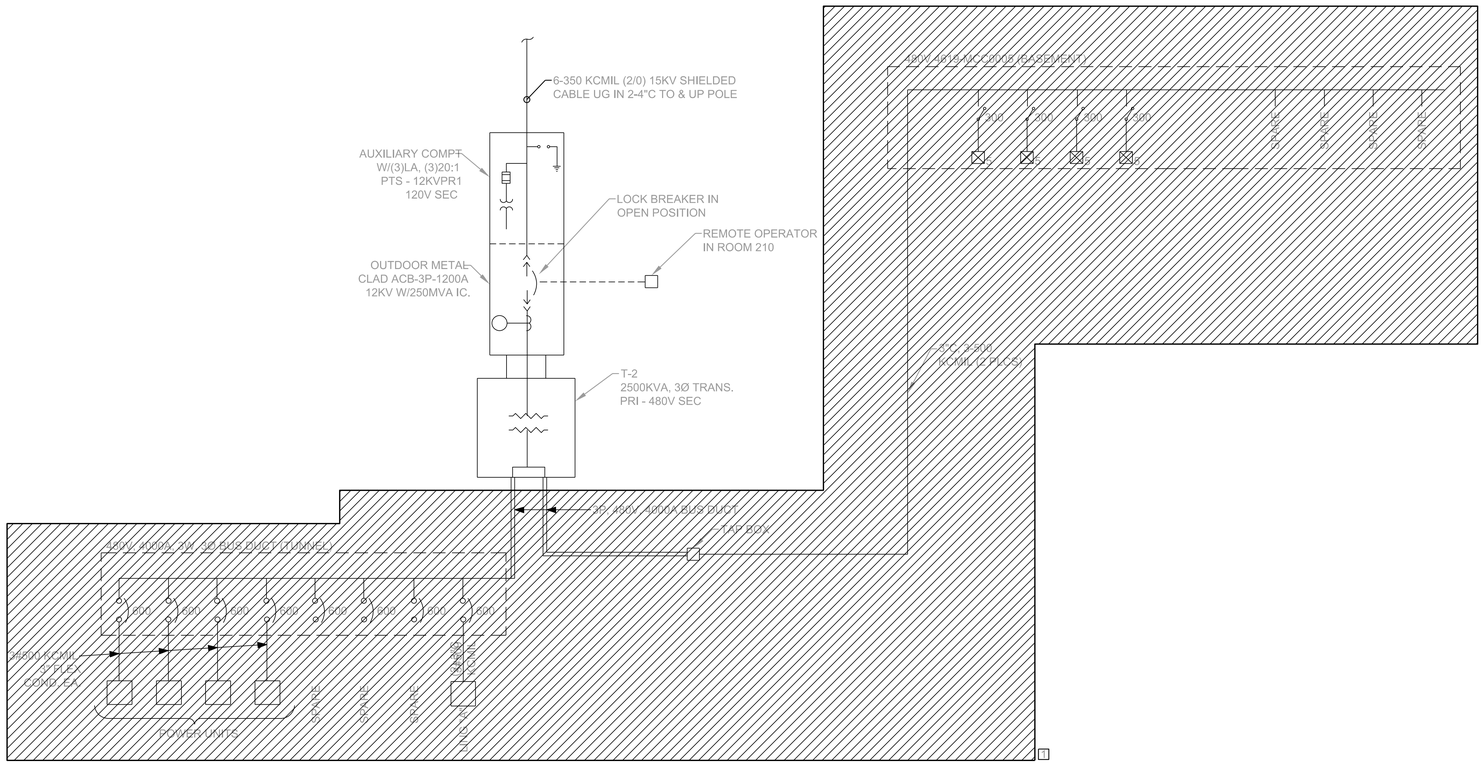
APPROVED: JIMMY GUARIN
AS22 GROUP LEAD DATE: 10/24/13

DRAWING NO. FAC-GO-4619-E401

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

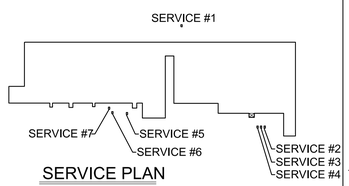
REF. NO. E401 40 OF 76

MSFC Master Bid Disk 03-26-2014



PLAN NOTES

1 TO BE REMOVED.



SERVICE PLAN

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

ONE LINE SERVICE #2 DEMO

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY — JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E

APPROVED: JIMMY GUARIN

AE: DATE: 10/24/13

APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E

AS22 GROUP LEAD DATE: 10/24/13

DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES

APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

DRAWING NO. FAC-GO-4619-E402

SCALE: AS SHOWN

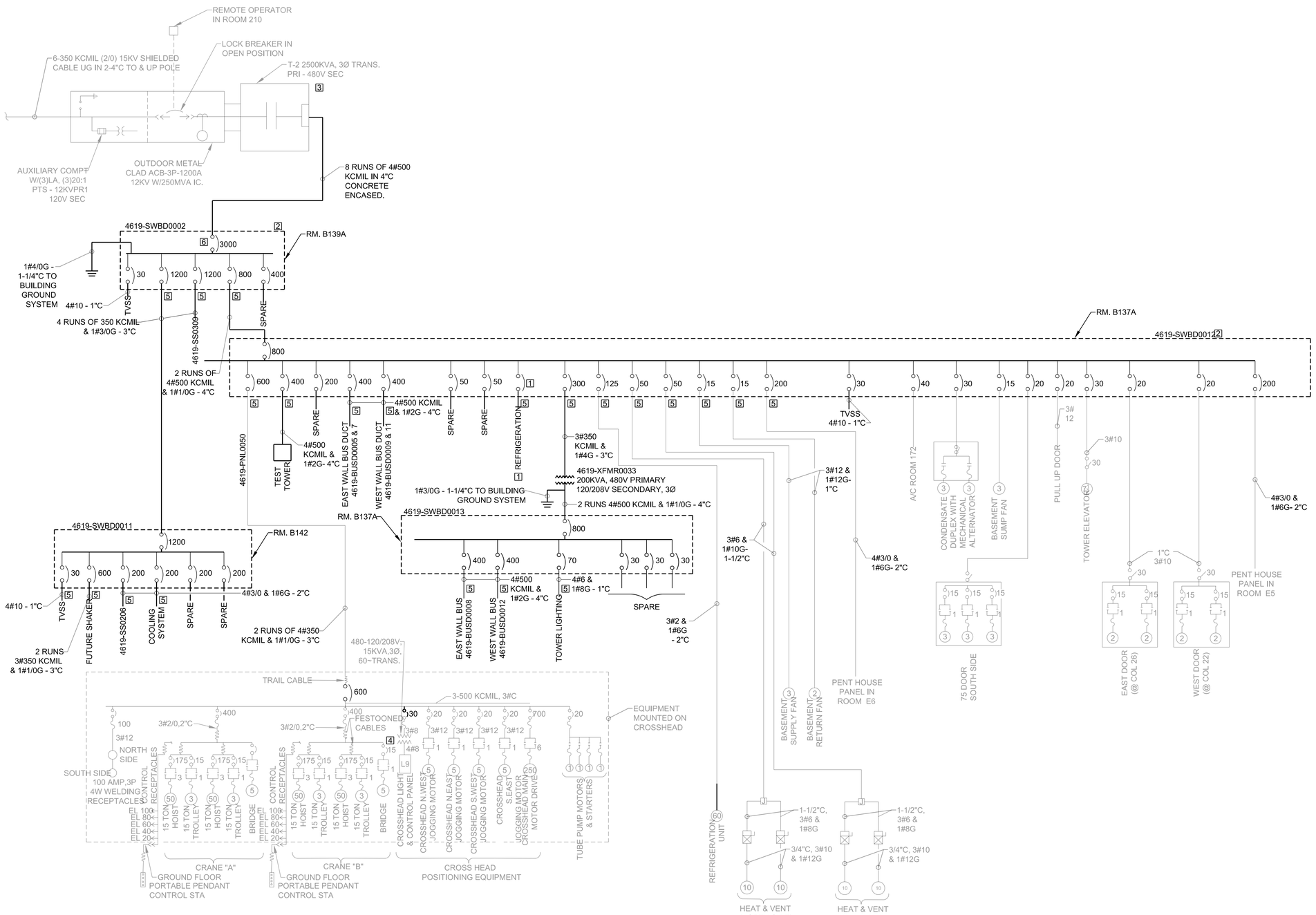
SPEC. NO.: FAC-M5554

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E402

1 E402 ONE LINE SERVICE #2 DEMO
NO SCALE

MSFC Master Bid Disk 03-26-2014



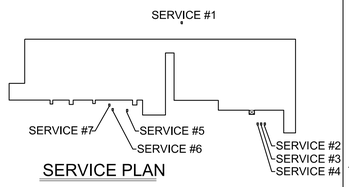
1 E403 ONE LINE SERVICE #2 NEW WORK
NO SCALE

PLAN NOTES

1. EXACT SIZE OF CIRCUIT BREAKER WAS NOT ABLE TO BE FIELD VERIFIED. CONTRACTOR TO USE 30 AMP CIRCUIT BREAKER FOR BIDDING PURPOSE.
2. NEW EQUIPMENT.
3. UTILITY TRANSFORMER TO REMAIN SHOWN FOR COORDINATION ONLY.
4. CONTRACTOR SHALL PROPERLY GROUND EXISTING TRANSFORMER TO BUILDING GROUND SYSTEM WITH 1#6G - 1"C.
5. FEEDERS WILL BE INTERCEPTED AND EXTENDED TO THE NEW SWITCHBOARD IN BASE BID.
6. CONNECT TO SHUNT TRIP SYSTEM. SEE 1/E601 AND 2/E601.
7. FURNISH AND INSTALL NEW FEED TO BUS DUCT UNDER ADD ALT #3.

GENERAL NOTES

1. SHADED EQUIPMENT DENOTES EXISTING TO REMAIN AND TO BE RECONNECTED TO NEW SYSTEM.



SERVICE PLAN

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

ONE LINE SERVICE #2 NEW WORK

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY — JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

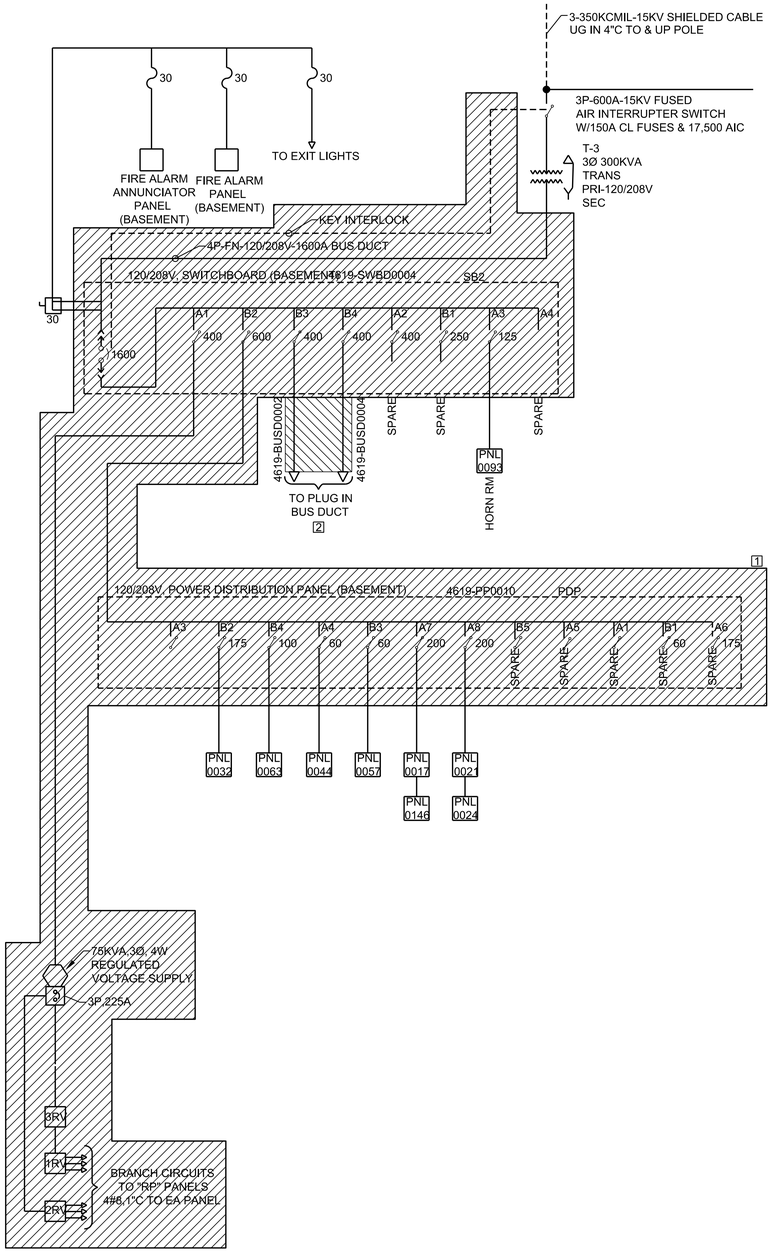
SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN, AS22 GROUP LEAD, DATE: 10/24/13

AE: DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
SCALE: AS SHOWN
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SPEC. NO. FAC-M5054

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E403 42 OF 76

DRAWING NO. FAC-GO-4619-E403



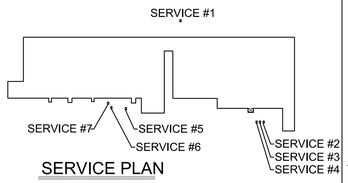
1 E404 ONE LINE SERVICE #3 DEMO
NO SCALE

PLAN NOTES

1. TO BE REMOVED.
2. FURNISH AND INSTALL NEW FEED TO BUS DUCT UNDER ADD ALT #2.

GENERAL NOTES

1. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.



SERVICE PLAN

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

ONE LINE SERVICE #3 DEMO

AE FIRM: GOODWYN | MILLS | CAWOOD — JOINT VENTURE — MERRICK & COMPANY

NASA AE CONTRACT NO. NAS8-NNM12AA49A

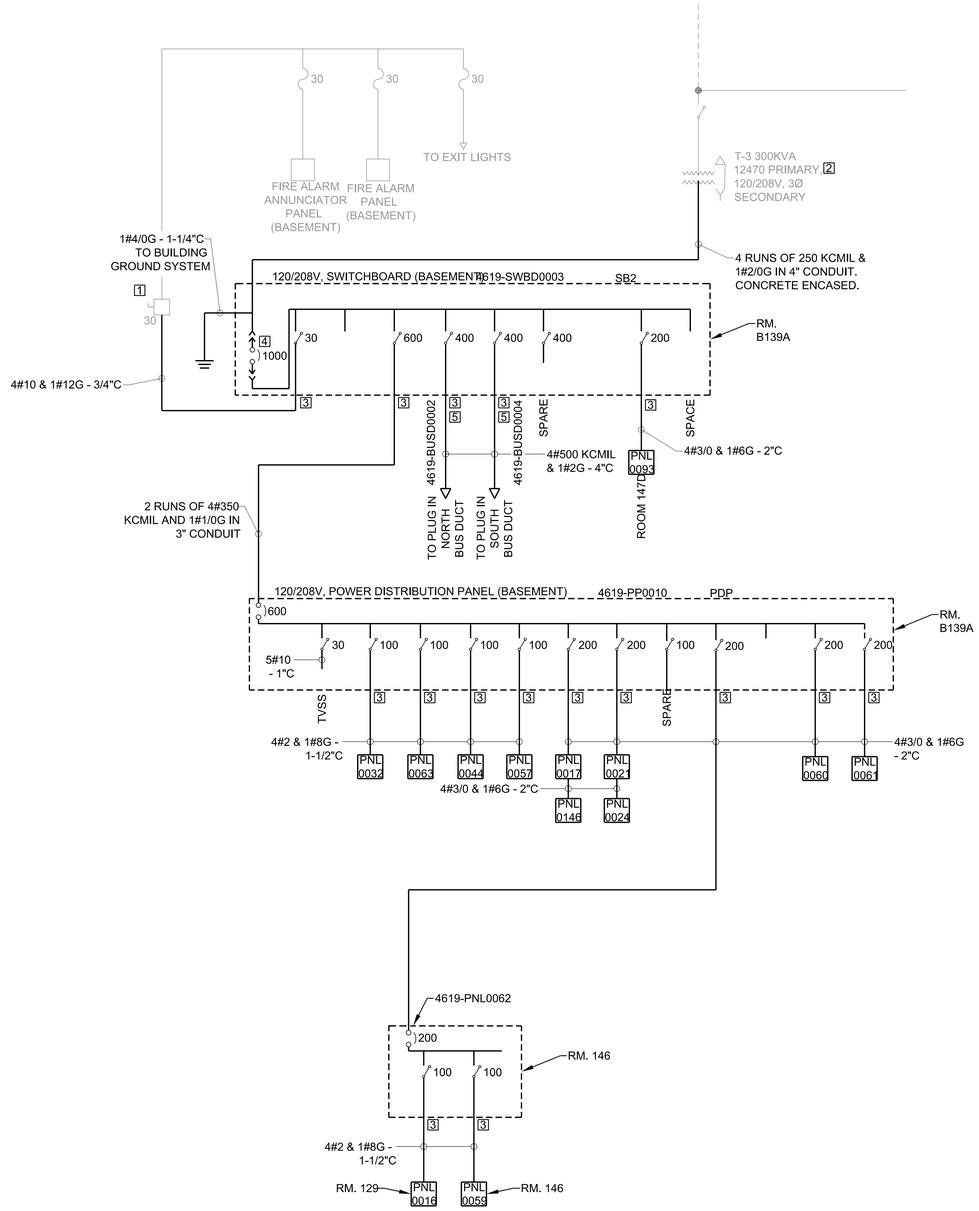
SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN
AE: DATE: 10/24/13
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
AS22 GROUP LEAD DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M5054

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E404 43 OF 76

DRAWING NO. FAC-GO-4619-E404

MSFC Master Bid Disk 03-26-2014



1 E405 ONE LINE SERVICE #3 NEW WORK

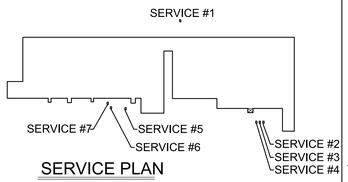
NO SCALE

PLAN NOTES

1. FURNISH TEMPORARY POWER FOR FIRE ALARM AND EXIT SIGNS DURING CHANGE OVER TO NEW SYSTEM.
2. UTILITY TRANSFORMER TO REMAIN. SHOWN FOR COORDINATION ONLY.
3. FEEDERS WILL BE INTERCEPTED AND EXTENDED TO THE NEW SWITCHBOARD IN BASE BID.
4. CONNECT TO SHUNT TRIP SYSTEM. SEE 1/E601 AND 2/E601.
5. FURNISH AND INSTALL NEW FEED TO BUS DUCT UNDER ADD ALT #2.

GENERAL NOTES

1. SHADED EQUIPMENT DENOTES EXISTING TO REMAIN AND TO BE RECONNECTED TO NEW SYSTEM.
2. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.



SERVICE PLAN

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

ONE LINE SERVICE #3 NEW WORK

AE FIRM: GOODWYN | MILLS | CAWOOD JOINT VENTURE — MERRICK & COMPANY

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN, AS22 GROUP LEAD, DATE: 10/24/13

AE: DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
SCALE: AS SHOWN
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SPEC. NO. FAC-M5054

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E405 44 OF 76

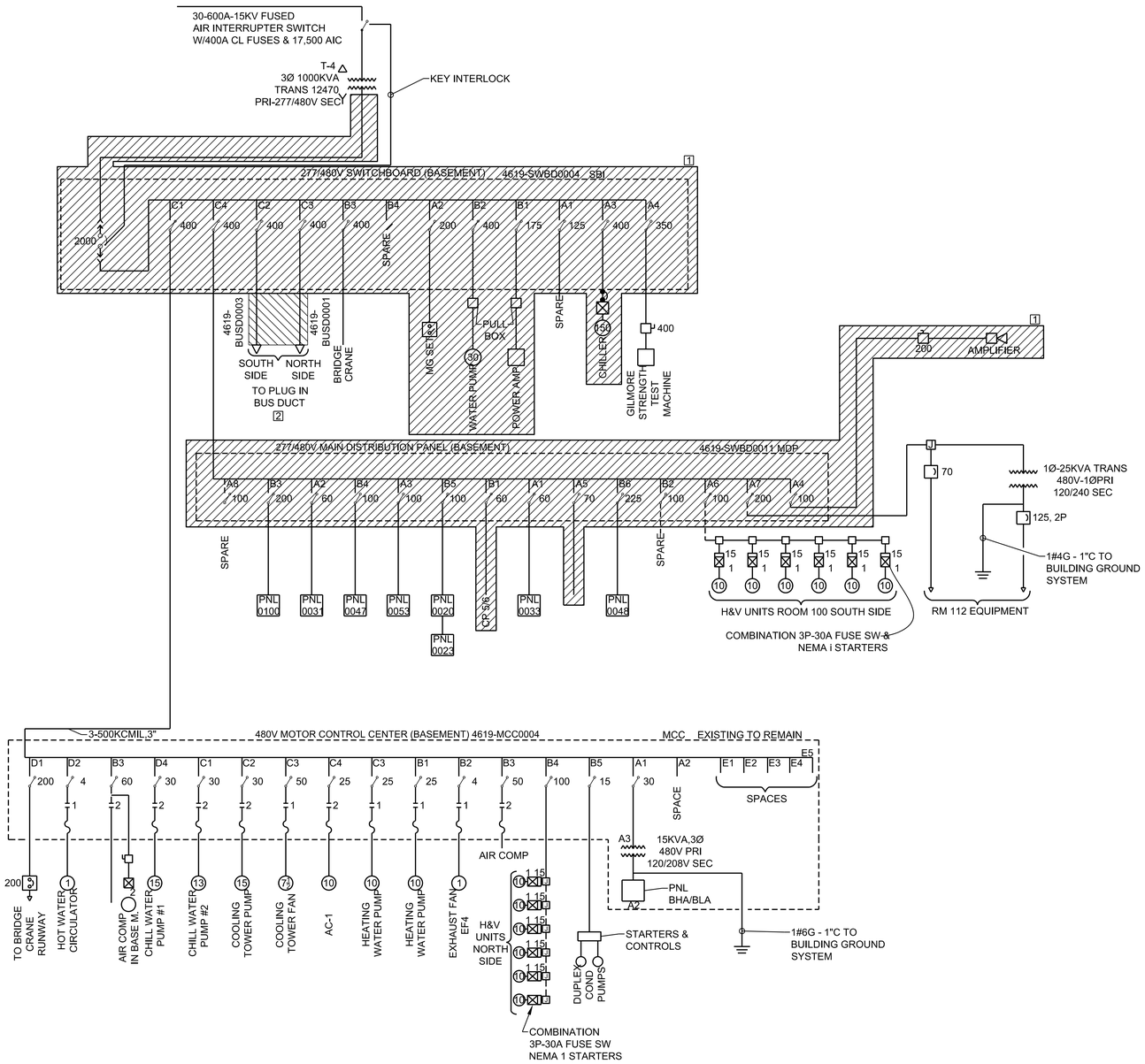
DRAWING NO. FAC-GO-4619-E405

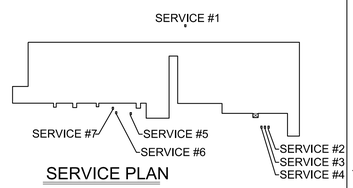
PLAN NOTES

1. TO BE REMOVED.
2. FURNISH AND INSTALL NEW FEED TO BUS DUCT UNDER ADD ALT #2.

GENERAL NOTES

1. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.





SERVICE PLAN

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

ONE LINE SERVICE #4 DEMO

AE FIRM: GOODWYN | MILLS | CAWOOD JOINT VENTURE — MERRICK & COMPANY

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN
AE: DATE: 10/24/13
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
AS22 GROUP LEAD DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M5054

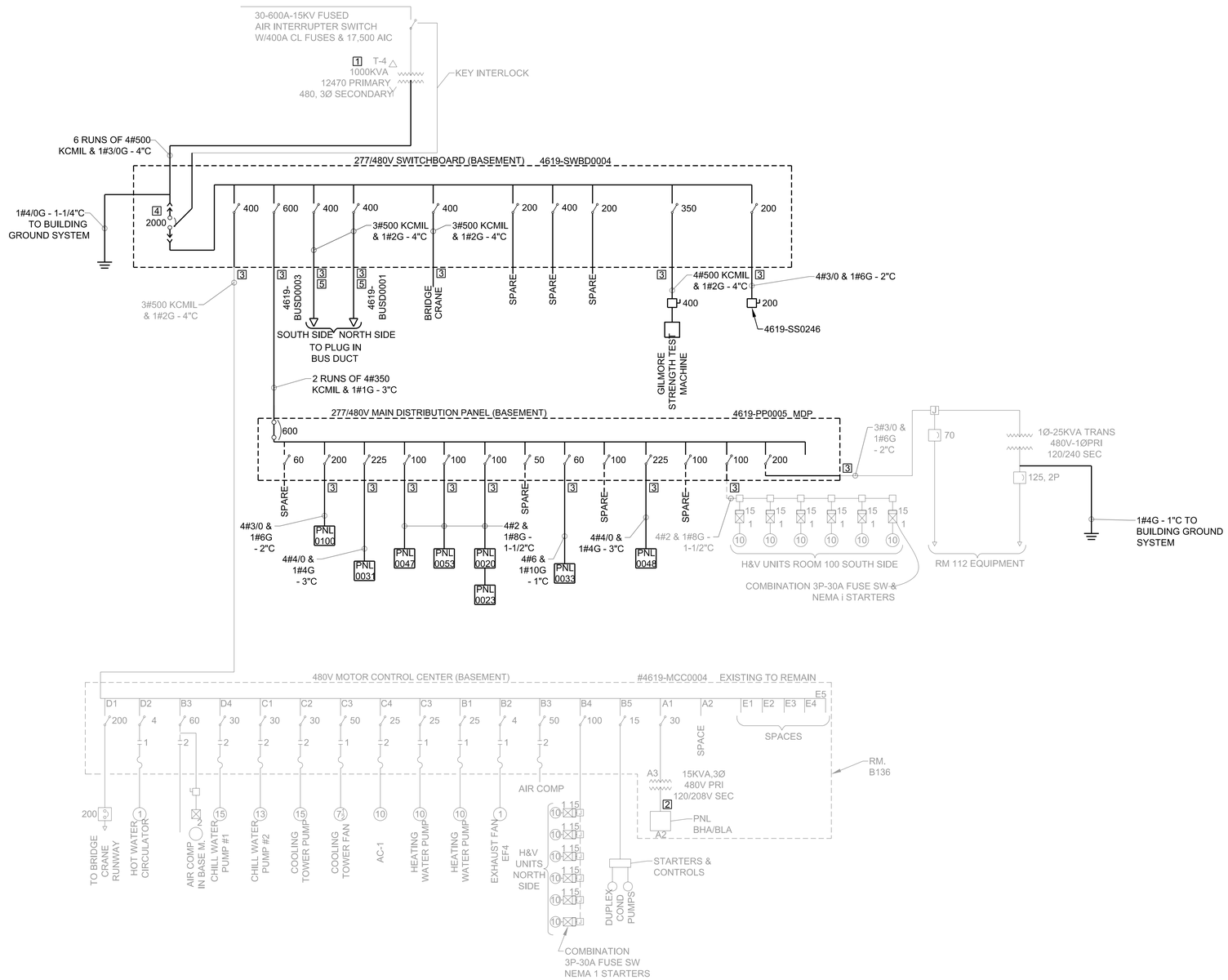
SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E406 45 OF 76

DRAWING NO. FAC-GO-4619-E406

1 E406 ONE LINE SERVICE #4 DEMO
NO SCALE

MSFC Master Bid Disk 03-26-2014



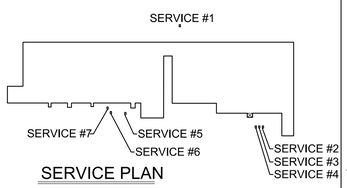
1 E407 ONE LINE SERVICE #4 NEW WORK
NO SCALE

PLAN NOTES

1. UTILITY TRANSFORMER TO REMAIN. SHOWN FOR COORDINATION ONLY.
2. CONTRACTOR SHALL PROPERLY GROUND EXISTING TRANSFORMER TO BUILDING GROUND SYSTEM W/ 1#6G - 1"C.
3. FEEDERS WILL BE INTERCEPTED AND EXTENDED TO THE NEW SWITCHBOARD IN BASE BID.
4. CONNECT TO SHUNT TRIP SYSTEM. SEE 1/E601 AND 2/E601.
5. FURNISH AND INSTALL NEW FEED TO BUS DUCT UNDER ADD ALT #2.

GENERAL NOTES

1. SHADED EQUIPMENT DENOTES EXISTING TO REMAIN AND TO BE RECONNECTED TO NEW SYSTEM.
2. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.



SERVICE PLAN

FINAL SUBMITTAL
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

ONE LINE SERVICE #4 NEW WORK

AE FIRM: GOODWYN | MILLS | CAWOOD JOINT VENTURE; MERRICK & COMPANY

NASA AE CONTRACT NO. NAS8-NNM12AA49A

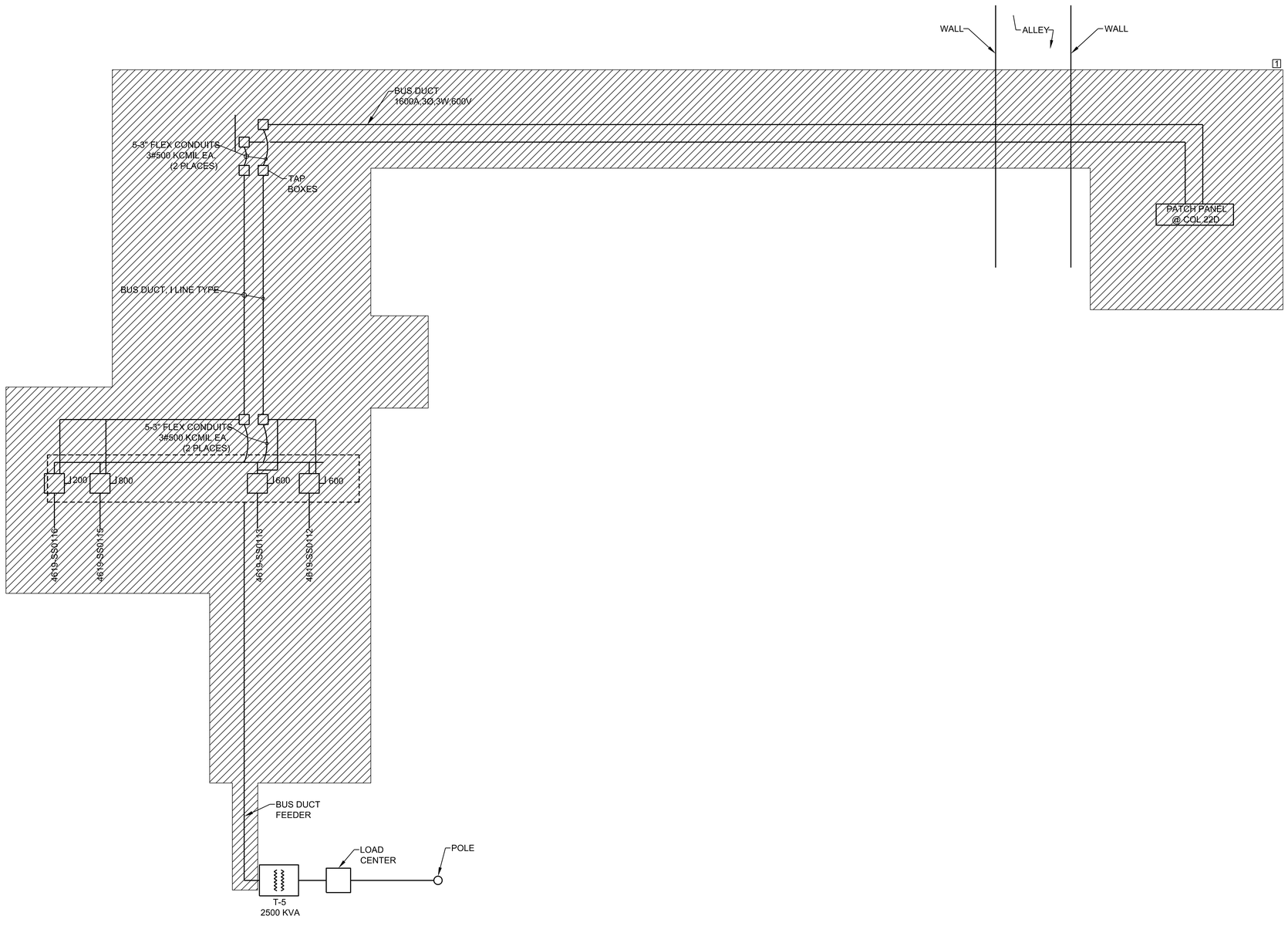
SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN
AE: DATE: 10/24/13
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
AS22 GROUP LEAD DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M5054

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E407 46 OF 76

DRAWING NO. FAC-GO-4619-E407

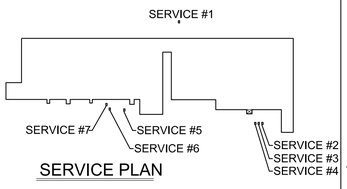
MSFC Master Bid Disk 03-26-2014



1 E408 ONE LINE SERVICE #5 DEMO
NO SCALE

PLAN NOTES

1 TO BE REMOVED.



SERVICE PLAN

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

ONE LINE SERVICE #5 DEMO

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY — JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY
AE: DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
SCALE: AS SHOWN

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SPEC. NO. FAC-M5054

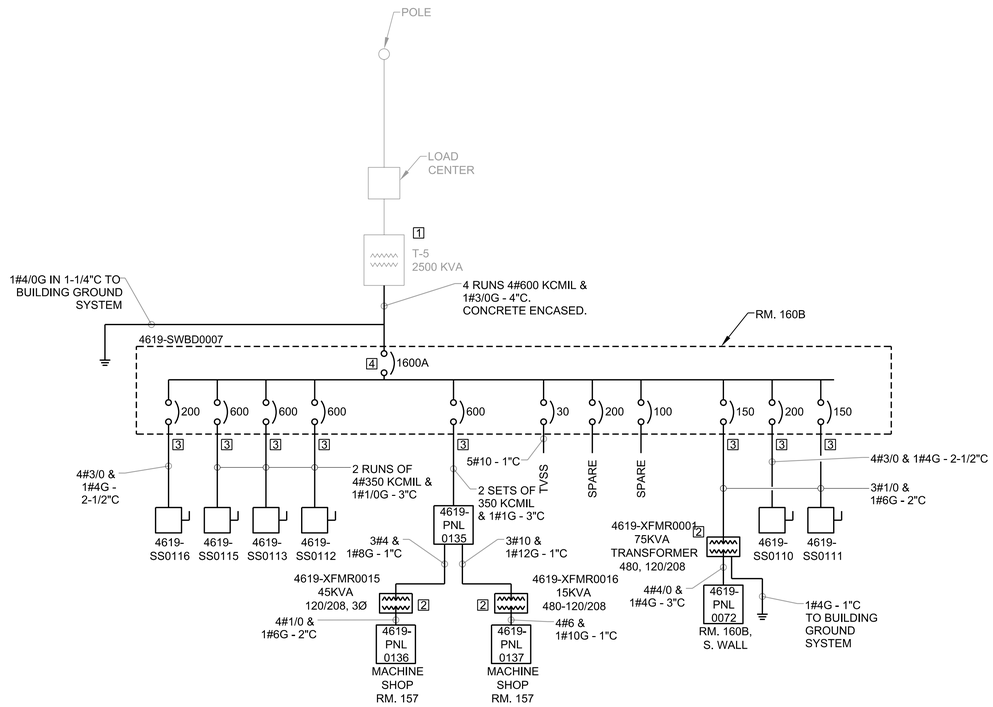
APPROVED: JIMMY GUARIN
AS22 GROUP LEAD DATE: 10/24/13

DRAWING NO. FAC-GO-4619-E408

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E408

MSFC Master Bid Disk 03-26-2014



1 / E409 ONE LINE SERVICE #5 NEW WORK

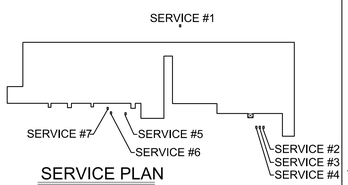
NO SCALE

PLAN NOTES

1. UTILITY TRANSFORMER TO REMAIN. SHOWN FOR COORDINATION ONLY.
2. CONTRACTOR SHALL PROPERLY GROUND EXISTING TRANSFORMER TO BUILDING GROUND SYSTEM W/ 1#6G - 1"C.
3. FEEDERS WILL BE INTERCEPTED AND EXTENDED TO THE NEW SWITCHBOARD
4. CONNECT TO SHUNT TRIP SYSTEM. SEE 1/E601 AND 2/E601.

GENERAL NOTES

1. SHADED EQUIPMENT DENOTES EXISTING TO REMAIN AND TO BE RECONNECTED TO NEW SYSTEM.
2. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.



SERVICE PLAN

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

ONE LINE SERVICE #5 NEW WORK

AE FIRM: GOODWYN | HILLS | CAWOOD JOINT VENTURE — MERRICK & COMPANY

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E

APPROVED: JIMMY GUARIN

AE: DATE: 10/24/13

APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E

AS22 GROUP LEAD DATE: 10/24/13

DESIGNED: S. CRITTENDEN

DRAWN: M. PATE

CHECKED: J. OAKES

APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

SCALE: AS SHOWN

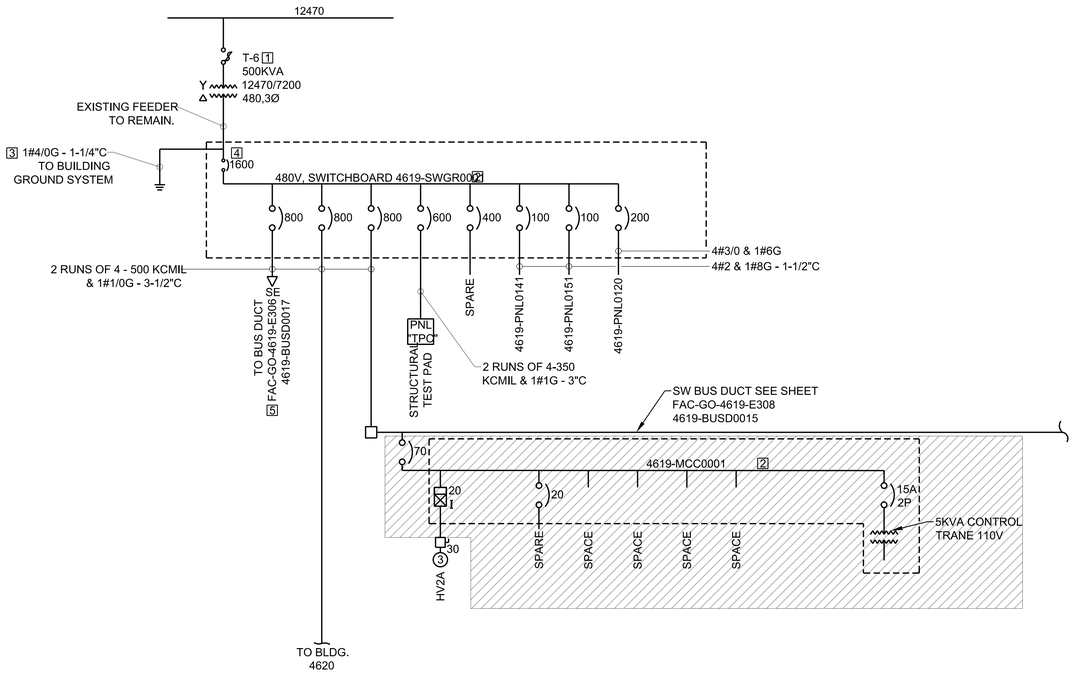
SPEC. NO. FAC-M5054

DRAWING NO. FAC-GO-4619-E409

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

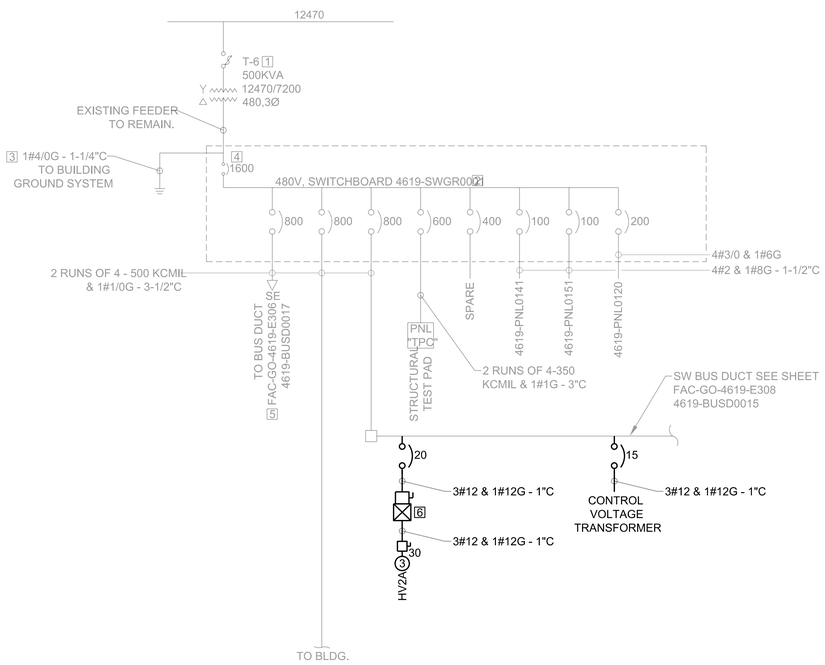
REF. NO. E409

MSFC Master Bid Disk 03-26-2014



1 E410 ONE LINE SERVICE #6 DEMO

NO SCALE



2 E410 ONE LINE SERVICE #6 NEW WORK

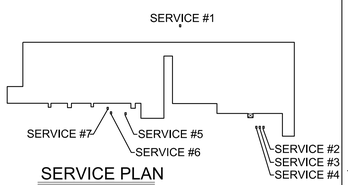
NO SCALE

PLAN NOTES

1. UTILITY TRANSFORMER TO REMAIN. SHOWN FOR COORDINATION ONLY.
2. SWITCHBOARD & MCC TO REMAIN. SHOWN FOR COORDINATION ONLY.
3. CONTRACTOR TO VERIFY GROUND AND INSTALL IF NOT PRESENT.
4. PROVIDE SHUNT TRIP MODULE AND CONNECT TO SHUNT TRIP SYSTEM. SEE 1/E601 AND 2/E601 FOR MODEL NUMBER AND WIRING DETAILS.
5. FURNISH AND INSTALL NEW FEED TO BUS DUCT UNDER ADD ALT #1.
6. FULL VOLTAGE, NON-REVERSING STARTER SHALL BE A COMBINATION MAGNETIC STARTER CIRCUIT BREAKER-TYPE, WITH CLASS 20 ELECTRONIC OVERLOAD PROTECTION, FULL VOLTAGE NON-REVERSING. UNIT SHALL HAVE A HAND-OFF AUTOMATIC SWITCH; GREEN ON PILOT, ELAPSED TIME METER AND NAMEPLATES ON FACE OF UNIT. ALSO INCLUDED SHALL BE A 100 VA OVER-STANDARD SIZE CONTROL POWER TRANSFORMER; 2-N.O. 2-N.C. AUX. CONTACTS LIGHTING ARRESTOR, PROVISIONS FOR CAS RELAY BY OTHERS; AND TIMING RELAY. UNIT SHALL BE EQUIPPED WITH MAIN CIRCUIT BREAKER. TRIP ELEMENT SHALL BE 20AMP, 3 POLE. MINIMUM SIZE STARTER SHALL BE NEMA / SIZE 1.

GENERAL NOTES

1. SERVICE SHOWN FOR COORDINATION.



SERVICE PLAN

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

ONE LINE SERVICE #6 DEMO AND NEW WORK

AE FIRM: GOODWYN | HILLS | CAWOOD — MERRICK & COMPANY — JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY — APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E — APPROVED: JIMMY GUARIN

AE: DATE: 10/24/13 — APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E — AS22 GROUP LEAD — DATE: 10/24/13

DESIGNED: S. CRITTENDEN

DRAWN: M. PATE — APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

CHECKED: J. OAKES

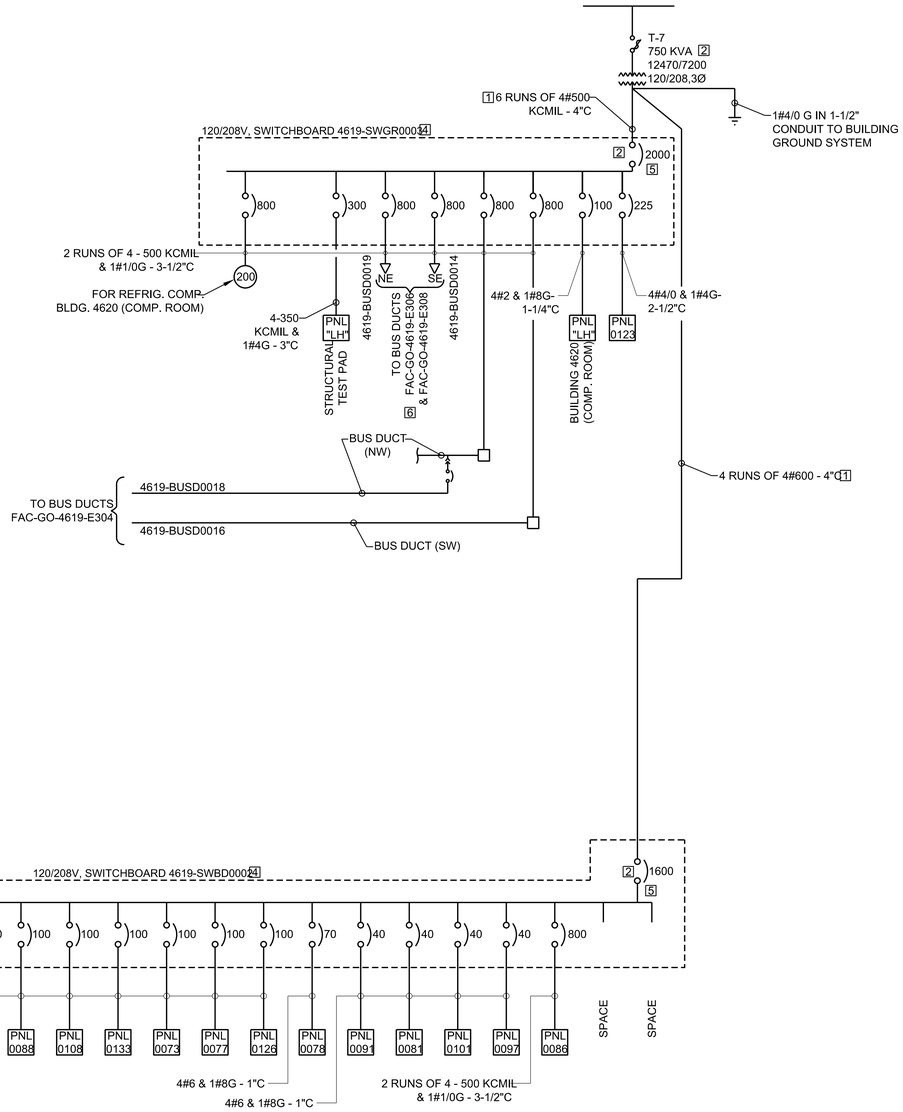
SCALE: AS SHOWN — SPEC. NO. FAC-M5054

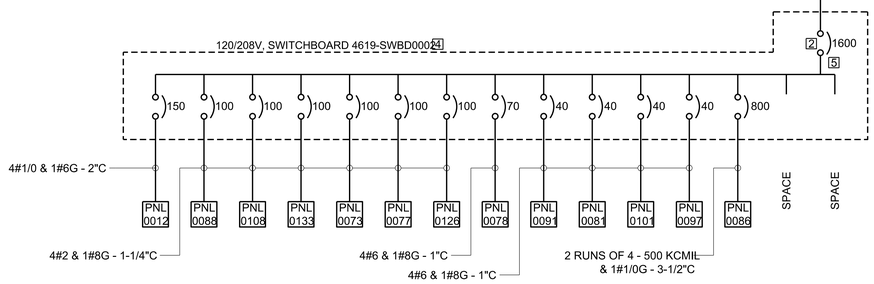
DRAWING NO. FAC-GO-4619-E410

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E410 49 OF 76

MSFC Master Bid Disk 03-26-2014





1 / E411 ONE LINE SERVICE #7 EXISTING TO REMAIN

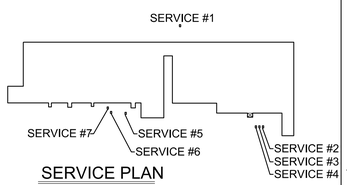
NO SCALE

PLAN NOTES

1. REMOVE EXISTING BUS FEEDER AND INSTALL NEW FEED AS SHOWN UNDER BASE BID.
2. REMOVE FEEDER BUS CONNECTION AND CHANGE BUS CONNECTION TO ACCEPT CONDUIT AND WIRE. INSTALL LUGS AS REQUIRED.
3. UTILITY TRANSFORMER TO REMAIN. SHOWN FOR COORDINATION ONLY.
4. SWITCHGEAR TO REMAIN. SHOWN FOR COORDINATION ONLY.
5. PROVIDE SHUNT TRIP MODULE AND CONNECT TO SHUNT TRIP SYSTEM. SEE 1/E601 AND 2/E601 FOR MODEL NUMBER AND WIRING DETAILS.
6. FURNISH AND INSTALL NEW FEED TO BUS DUCT UNDER ADD ALT #1.

GENERAL NOTES

1. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.
2. CONTRACTOR TO PROVIDE TEMPORARY POWER DURING CHANGE OVER TO MINIMIZE DOWN TIME WHILE INSTALLING NEW SERVICE FEEDERS.



SERVICE PLAN

FINAL SUBMITTAL
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

ONE LINE SERVICE #7 EXISTING TO REMAIN

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY — JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E

APPROVED: JIMMY GUARIN

AE: DATE: 10/24/13

APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E

AS22 GROUP LEAD DATE: 10/24/13

DESIGNED: S. CRITTENDEN

DRAWN: M. PATE

CHECKED: J. OAKES

APPROVAL RECOMMENDED: NELSON OUNGER, AS22 TEAM LEAD

SCALE: AS SHOWN

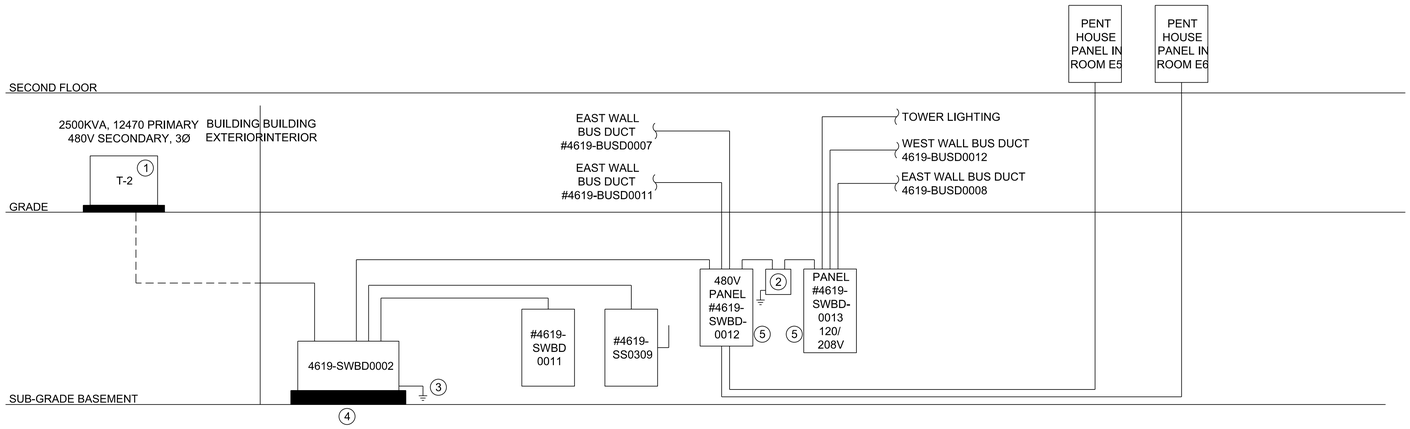
SPEC. NO. FAC-M5054

DRAWING NO. FAC-GO-4619-E411

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

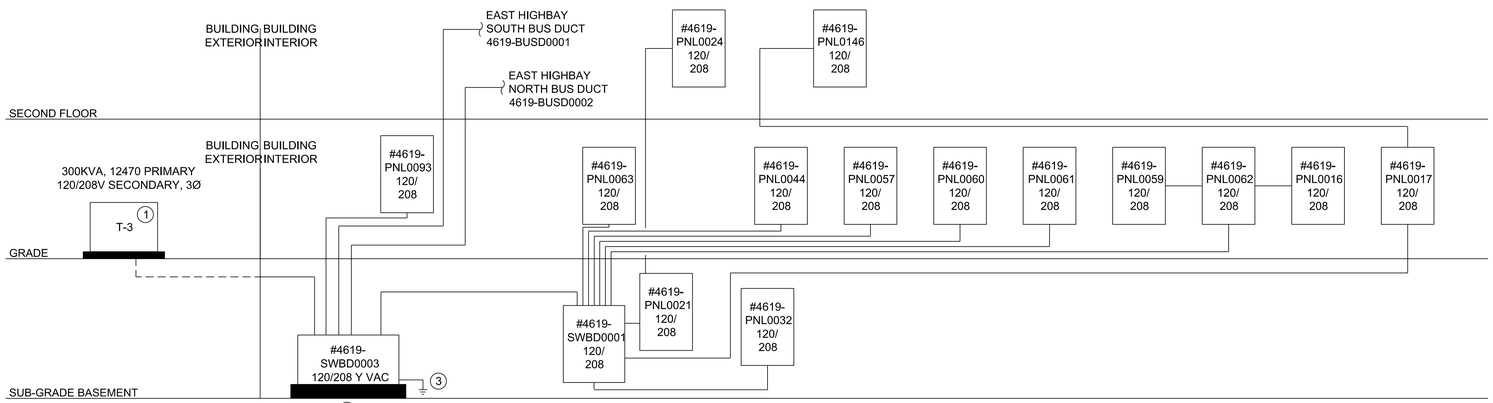
REF. NO. E411

MSFC Master Bid Disk 03-26-2014



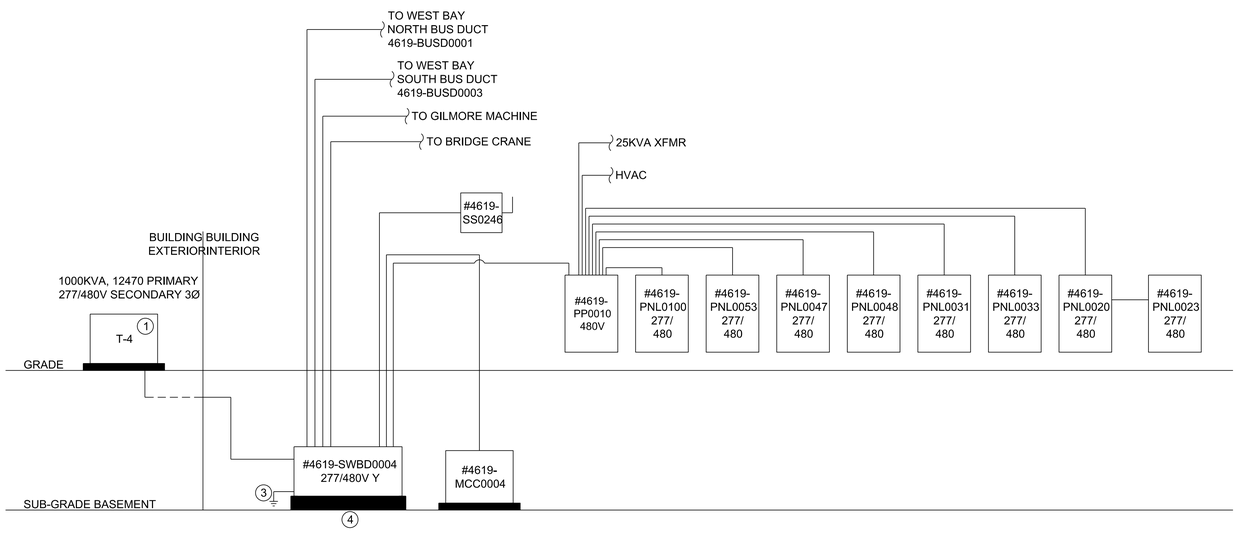
SERVICE #2 ELECTRICAL RISER DIAGRAM

1 / E501 NO SCALE



SERVICE #3 ELECTRICAL RISER DIAGRAM

2 / E501 NO SCALE



SERVICE #4 ELECTRICAL RISER DIAGRAM

3 / E501 NO SCALE

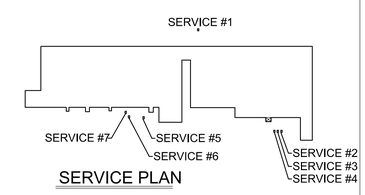
RISER DIAGRAM - KEYED NOTES

1. EXISTING UTILITY TRANSFORMER TO REMAIN
2. 4619-XFMR0033
3. #4/0 GROUND CONNECTED TO THE EXISTING BUILDING GROUND GRID.
4. PROVIDE HOUSE KEEPING PAD. SEE DETAIL 6/E601.
5. PANELS TO BE MOUNTED AS HIGH AS POSSIBLE TO AVOID FUTURE FLOODING.

NOTE:
CONTRACTOR TO INSTALL PERMANENT IDENTIFICATION SIGNAGE INSIDE EACH OF THE SERVICE ENTRANCES AND ON EACH SERVICE TRANSFORMER. SEE DETAIL 3/E601.

GENERAL NOTES

1. WIRE SIZES ARE LISTED ON ONE-LINE DRAWINGS.
2. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.



SERVICE PLAN

FINAL SUBMITTAL
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

SERVICE #2, #3 & #4 RISER DIAGRAMS

AE FIRM: GOODWYN | MILLS | CAWOOD (JOINT VENTURE) MERRICK & COMPANY

NASA AE CONTRACT NO. NAS8-NNM12AA49A

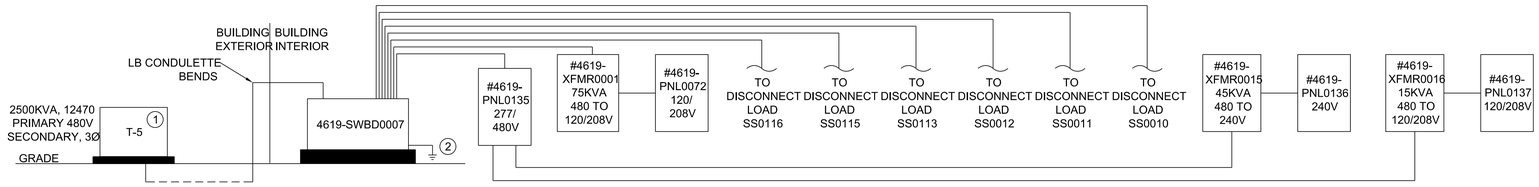
SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN
AS22 GROUP LEAD DATE: 10/24/13
AE: DATE: 10/24/13
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M5054

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E501 51 OF 76

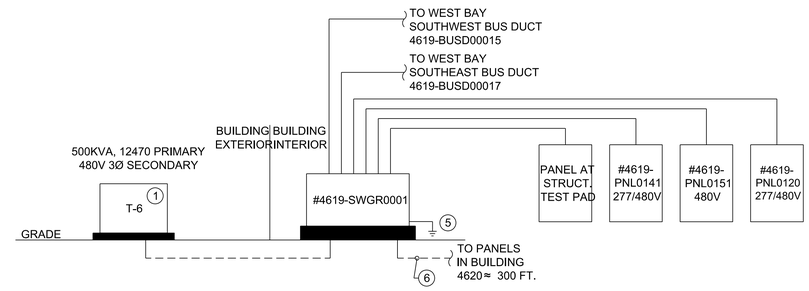
DRAWING NO. FAC-GO-4619-E501

MSFC Master Bid Disk 03-26-2014



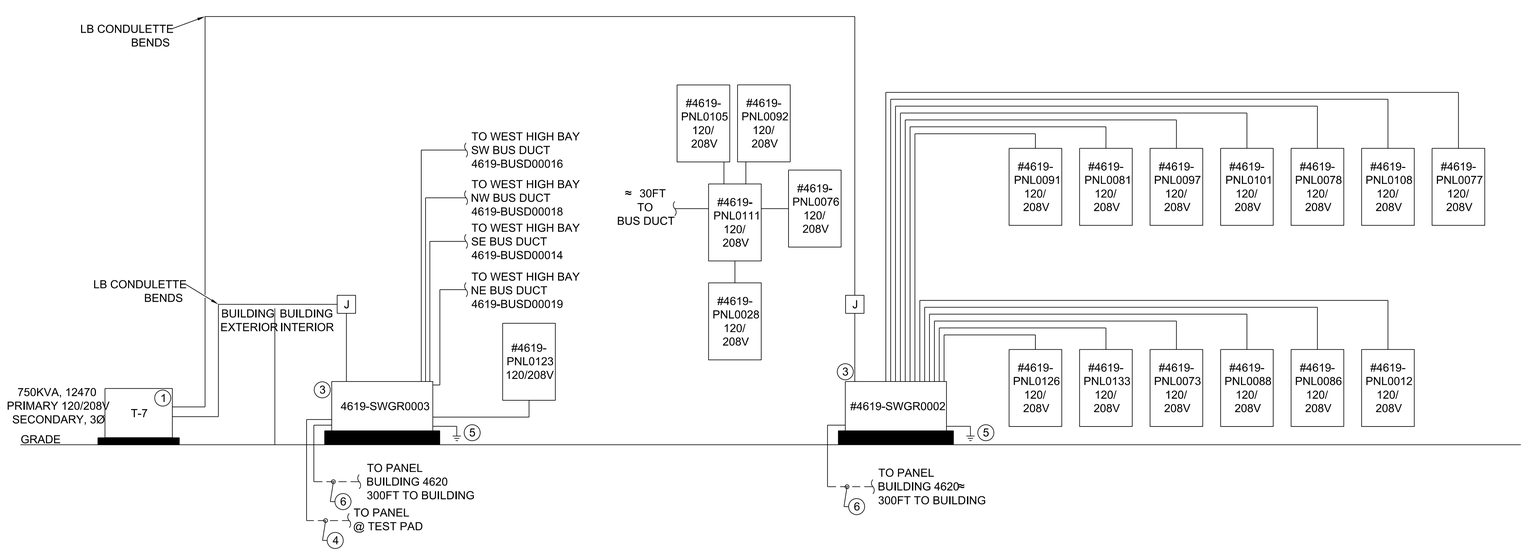
1 E502 SERVICE #5 ELECTRICAL RISER DIAGRAM

NO SCALE



2 E502 SERVICE #6 ELECTRICAL RISER DIAGRAM (EXISTING TO REMAIN)

NO SCALE



3 E502 SERVICE #7 ELECTRICAL RISER DIAGRAM (EXISTING TO REMAIN)

NO SCALE

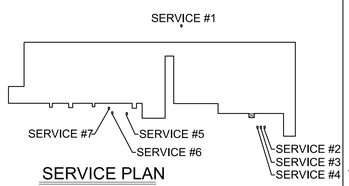
RISER DIAGRAM - KEYED NOTES

1. EXISTING UTILITY TRANSFORMER TO REMAIN
2. #4/0 GROUND CONNECTED TO THE EXISTING BUILDING GROUND GRID.
3. UPGRADE THE EXISTING SWITCHBOARD TO ACCEPT CONDUIT AND WIRE CONNECTIONS. EXISTING SWITCHBOARDS ACCEPT BUS DUCT WHICH WILL BE REMOVED.
4. 4#350,1#4(G) - 3"C
5. EXISTING GROUND TO REMAIN
6. 2 RUNS OF 4#500 KCMIL, 1#1/0G - 4"C

NOTE:
CONTRACTOR TO INSTALL PERMANENT IDENTIFICATION SIGNAGE INSIDE EACH OF THE SERVICE ENTRANCES AND ON EACH SERVICE TRANSFORMER. SEE DETAIL 3/E601.

GENERAL NOTES

1. WIRE SIZES ARE LISTED ON ONE-LINE DRAWINGS.
2. OLD MAXIMO # SHOWN FOR CLARITY. SEE PANEL SCHEDULE FOR NEW PANEL MAXIMO #.



SERVICE PLAN

FINAL SUBMITTAL
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

SERVICE #5, #6 & #7 RISER DIAGRAMS

AE FIRM: GOODWYN MILLS CAWOOD JOINT VENTURE / MERRICK & COMPANY

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN
AE: DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
AS22 GROUP LEAD DATE: 10/24/13
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M5054
DRAWING NO. FAC-GO-4619-E502

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E502 52 OF 76

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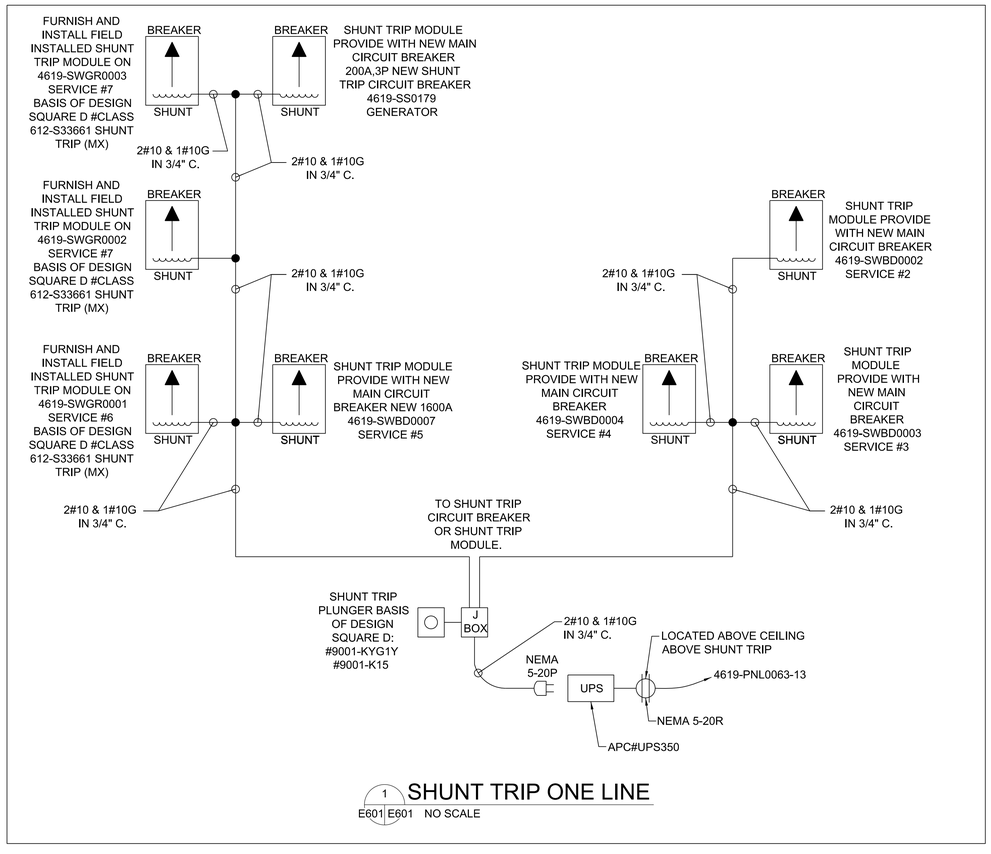
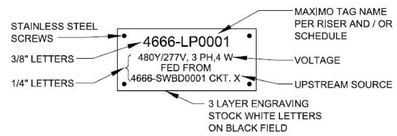
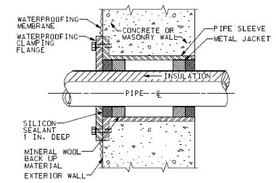


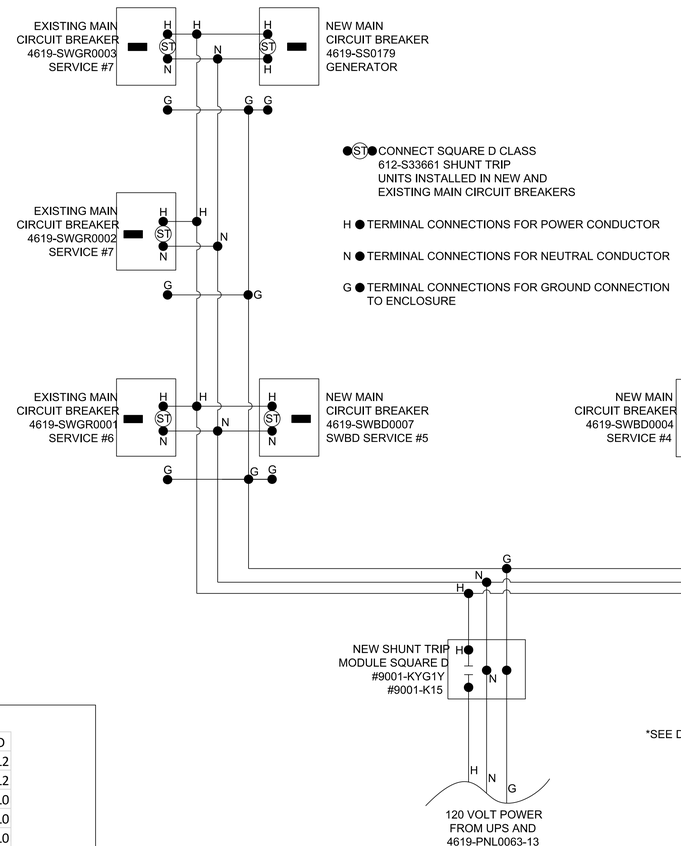
1 SHUNT TRIP ONE LINE
E601 E601 NO SCALE



3 DETAIL - TYPICAL ENGRAVED EQUIPMENT LABEL
E601 E601 NO SCALE
FOR ALL PANELS, DISCONNECTS AND SWITCHBOARDS

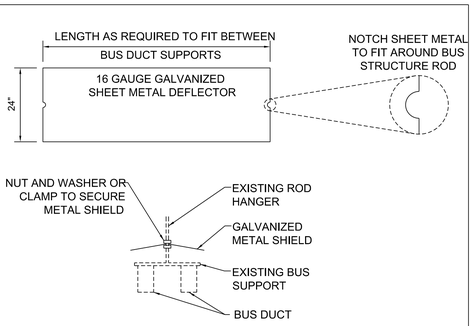


4 EXTERIOR WALL OR FOUNDATION WALL PENETRATION DETAIL - BELOW GRADE
E101 E601 NO SCALE

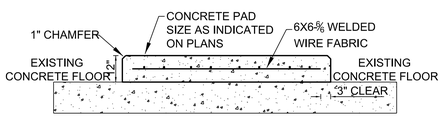


*SEE DETAIL 1/E601

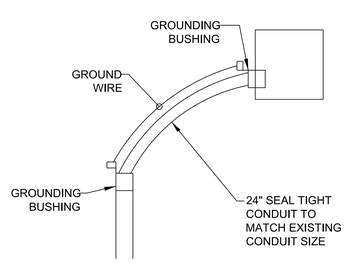
2 SHUNT TRIP WIRING DIAGRAM FOR MAIN CIRCUIT BREAKERS
E601 E601 NO SCALE



5 WATER DEFLECTOR SHIELD DETAIL
E205 E601 NO SCALE
E206
E207



6 HOUSEKEEPING PAD DETAIL
E103 E601 NO SCALE
E501
E502
E504



MOCP	GROUND
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20	12
30	10
40	10
50	10
60	10
70	8
90	8
100	8
125	6
150	6
175	6
200	6
225	4
250	4
300	4
400	2

7 BUS DUCT RECONNECTION DETAIL
E601 E601 NO SCALE

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

ELECTRICAL DETAILS

AE FIRM: GOODWYN | HILLS | CAWOOD | MERRICK & COMPANY — JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN
AE: DATE: 10/24/13
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
AS22 GROUP LEAD DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M5054

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

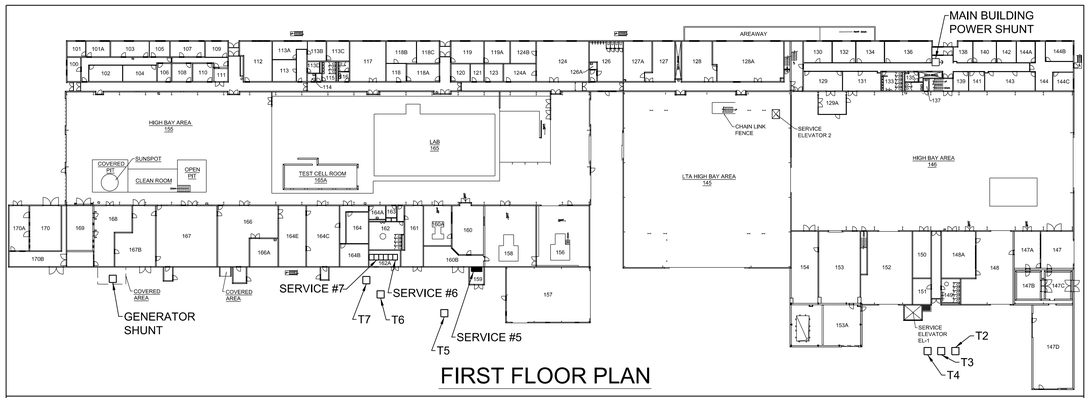
REF. NO. E601 53 OF 76

DRAWING NO. FAC-GO-4619-E601

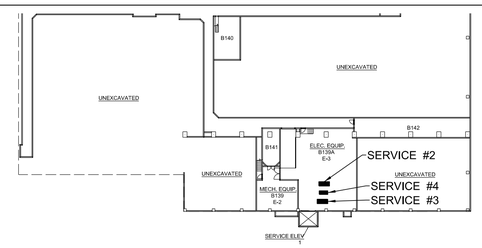
MSFC Master Bid Disk 03-26-2014

GENERAL NOTES

1. SHUNT SIGNAGE TO BE LOCATED AT ALL SWITCHGEAR SERVICE ENTRANCES AND SHUNT TRIP. PROVIDE LAMINATED SIGNAGE AT EACH LOCATION.



FIRST FLOOR PLAN



PARTIAL BASEMENT PLAN

BUILDING 4619 EMERGENCY POWER SHUT DOWN

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING

DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED		
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

ELECTRICAL DETAILS

AE FIRM: GOODWYN | HILLS | CAMOOD MERRICK & COMPANY — JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E

APPROVED: JIMMY GUARIN

AS22 GROUP LEAD — DATE: 10/24/13

AE: — DATE: 10/24/13

APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E

DESIGNED: S. CRITTENDEN

DRAWN: M. PATE

CHECKED: J. OAKES

APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

SCALE: AS SHOWN

SPEC. NO. FAC-M5054

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E602

DRAWING NO. FAC-GO-4619-E602

MSFC Master Bid Disk 03-26-2014

A B C D E F G

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-RP0001 — VOLTAGE 120/208
LOCATION B141 — PHASE 3
MOUNTING FLUSH — WIRE 4
MFR./TYPE SQUARE D — AMPS 100A
MAIN BKR 100A — AIC RATING 10K
MAIN FEEDER SIZE 4#2 & 1#8G — FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/3P	WIREMOLD REC. WEST WALL				2	A	20A/3P	WIREMOLD REC. WEST WALL			
3	B	-	WIREMOLD REC. WEST WALL				4	B	-	WIREMOLD REC. WEST WALL			
5	C	-	WIREMOLD REC. WEST WALL				6	C	-	WIREMOLD REC. WEST WALL			
7	A	20A/3P	WIREMOLD REC. WEST WALL				8	A	20A/3P	WIREMOLD REC. WEST WALL			
9	B	-	WIREMOLD REC. WEST WALL				10	B	-	WIREMOLD REC. WEST WALL			
11	C	-	WIREMOLD REC. WEST WALL				12	C	-	WIREMOLD REC. WEST WALL			
13	A	20A/1P	WIREMOLD REC. WEST WALL				14	A	20A/1P	WIREMOLD REC. WEST WALL			
15	B	20A/1P	WIREMOLD REC. WEST WALL				16	B	20A/1P	WIREMOLD REC. WEST WALL			
17	C	20A/1P	DORSETT PANEL				18	C	20A/1P	SPARE			
19	A	20A/1P	AWB1 SERVICE OUTLET				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0001 (4619-RP0002) — VOLTAGE 120/208
LOCATION LTA HIGH BAY AREA 145 — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 100
MAIN BKR 100A — AIC RATING 10K
MAIN FEEDER SIZE 4#2 & 1#8G — FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	15A/3P	GRINDER				2	A	15A/3P	SAW RECEPTACLE			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	15A/3P	DRILL PRESS				8	A	20A/1P	RECEPTACLES			
9	B	-	-				10	B	20A/1P	RECEPTACLES			
11	C	-	-				12	C	20A/1P	RECEPTACLES			
13	A	-	SPACE				14	A	20A/1P	RECEPTACLES			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0002 (4619-RP0003) — VOLTAGE 120/208
LOCATION ROOM 153 — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE EATON — AMPS 225
MAIN BKR 200A — AIC RATING 10K
MAIN FEEDER SIZE 4#3/0 & 1#6G — FED FROM 4619-BPD004C

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	40A/1P	REC. WEST WALL/NORTH END				2	A	20A/1P	REC. WEST WALL WIREMOLD			
3	B	40A/1P	REC. WEST WALL/NORTH END				4	B	20A/1P	REC. WEST WALL WIREMOLD			
5	C	20A/1P	REC. WEST WALL WIREMOLD				6	C	20A/1P	REC. WEST WALL WIREMOLD			
7	A	20A/1P	REC. WEST WALL WIREMOLD				8	A	30A/1P	REC. WEST WALL WIREMOLD			
9	B	20A/1P	REC. WEST WALL WIREMOLD				10	B	20A/1P	REC. WEST WALL WIREMOLD			
11	C	20A/1P	SPARE				12	C	20A/1P	SPARE			
13	A	20A/1P	REC WEST WALL/NORTH END				14	A	20A/1P	SPARE			
15	B	20A/1P	SPARE				16	B	20A/1P	SPARE			
17	C	20A/1P	SPARE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

GENERAL NOTES

1. UNLESS OTHERWISE NOTED, ALL PANELS ARE TO MAINTAIN EXISTING PANEL CONFIGURATION.
2. OLD MAXIMO # SHOWN FOR CLARITY. NEW MAXIMO # IF IS IN ( ) AFTER THE OLD MAXIMO #. CONTRACTOR SHALL UTILIZE THE (NEW MAXIMO #) AFTER FINAL INSTALLATION TO CREATE PANEL NAME TAG AND TYPE WRITTEN SCHEDULE.

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0003 (4619-RP0004) — VOLTAGE 120/208
LOCATION HALLWAY OUTSIDE OF ROOM 108 — PHASE 3
MOUNTING FLUSH — WIRE 4
MFR./TYPE SQUARE D — AMPS 225
MAIN BKR MLO — AIC RATING 10K
MAIN FEEDER SIZE 4#1/0 & 1#6G — FED FROM 4619-BPD018X

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	- - - - - - - - - - - - - - - - - - - -				2	A	20A/1P	LTG-103-105			
3	B	20A/1P	LTG-107-108-109-110-111				4	B	20A/1P	REC.-106			
5	C	20A/1P	LTG-113A				6	C	20A/1P	LTG-100-101-101A			
7	A	20A/1P	LTG-113A				8	A	20A/1P	LTG-104			
9	B	20A/1P	LTG-112-113E-113				10	B	20A/1P	LTG-102			
11	C	20A/1P	LTG-SWITCED CORR				12	C	20A/1P	REC.-100-101-CORR			
13	A	20A/1P	REC.-109-110-CORR				14	A	20A/1P	REC.-100-101A-CORR			
15	B	20A/1P	REC.-106-108-110				16	B	20A/1P	REC.-101A-103			
17	C	20A/1P	REC.-100-102-CORR				18	C	20A/1P	REC.-DF IN RM#100-110 CORR			
19	A	20A/1P	REC.-102-104-106				20	A	20A/1P	REC.-109			
21	B	20A/1P	REC.-102				22	B	20A/1P	REC.-107			
23	C	20A/1P	REC.-102				24	C	20A/1P	REC.-107			
25	A	20A/1P	- - - - - - - - - - - - - - - - - - - -				26	A	20A/1P	REC.-103-105			
27	B	100A/3P	EXISTING PNL "LC1"				28	B	20A/1P	LTG. CORR-106			
29	C	-	-				30	C	20A/1P	DOOR			
31	A	-	-				32	A	20A/1P	REC.			
33	B	-	SPACE				34	B	20A/1P	REC.			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0004 (4619-RP0005) — VOLTAGE 120/208
LOCATION HALL OUTSIDE RM. 115 — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 100
MAIN BKR MLO — AIC RATING 10K
MAIN FEEDER SIZE 4#2 & 1#8G — FED FROM 4619-BPD019E

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	LTG-113B-113C				2	A	20A/1P	LTG-118			
3	B	20A/1P	LTG-113D-114-115-116				4	B	20A/1P	LTG-117			
5	C	20A/1P	REC.-DF				6	C	20A/1P	LTG-118A-118B-118C			
7	A	20A/1P	REC.-112-113-CORR				8	A	20A/1P	REC-112-113-CORR			
9	B	20A/1P	REC.-113-113D-115-116				10	B	20A/1P	REC-113-113A			
11	C	20A/1P	REC.-117 WIREMOLD				12	C	20A/1P	REC.-112-113A			
13	A	20A/1P	REC.-117 WIREMOLD				14	A	20A/1P	REC.113B-113C			
15	B	20A/1P	REC.-117 WIREMOLD				16	B	20A/1P	REC. 113B-113C-113D-113E			
17	C	20A/1P	REC-117 WIREMOLD				18	C	20A/1P	SPARE			
19	A	20A/1P	REC-CORR CLOSET FOR WET SY STEM				20	A	20A/1P	SPARE			
21	B	20A/1P	SPARE				22	B	20A/1P	SPARE			
23	C	20A/1P	SPARE				24	C	20A/1P	SPARE			
25	A	-	SPACE				26	A	40A/1P	REC.-CORR CLOSET FOR NET SY S.			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0005 (4619-RP0006) — VOLTAGE 120/208
LOCATION OUTSIDE ROOM 124A — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 100
MAIN BKR 100A — AIC RATING 10K
MAIN FEEDER SIZE 4#2 & 1#8G — FED FROM 4619-BPD019O

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	LTS RM EGRESS				2	A	20A/1P	LTS 119			
3	B	20A/1P	LTS RM CORRIDOR				4	B	20A/1P	LTS 119A, 124B			
5	C	20A/1P	SPARE				6	C	20A/1P	LTS 120,121			
7	A	20A/1P	LTS RM 124				8	A	20A/1P	LTS 123,124			
9	B	20A/1P	LTS RM 126				10	B	20A/1P	REC 124, 124A			
11	C	20A/1P	REC 124, 124A, 124B				12	C	20A/1P	REC 124, CORRIDOR			
13	A	20A/1P	REC 119A, 121,123,124A				14	A	20A/1P	REC 124, 124A			
15	B	20A/1P	REC 119,120,CORRIDOR				16	B	20A/1P	REC 123, 124, 124A			
17	C	20A/1P	REC 119,120,121				18	C	20A/1P	REC RM 123			
19	A	20A/1P	REC RM 124				20	A	20A/1P	REC RM 123			
21	B	20A/1P	SPARE				22	B	20A/1P	SPARE			
23	C	20A/1P	SPARE				24	C	20A/1P	REC 118B.CORRIDOR			
25	A	20A/1P	SPARE				26	A	20A/1P	REC 118C			
27	B	20A/1P	SPARE				28	B	20A/1P	SPARE			
29	C	20A/1P	SPARE				30	C	20A/1P	SPARE			
31	A	20A/1P	SPARE				32	A	20A/1P	SPARE			
33	B	20A/1P	SPARE				34	B	20A/1P	SPARE			
35	C	20A/1P	SPARE				36	C	20A/1P	SPARE			
37	A	20A/1P	SPARE				38	A	20A/1P	SPARE			
39	B	20A/1P	SPARE				40	B	20A/1P	SPARE			
41	C	20A/1P	SPARE				42	C	20A/1P	SPARE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

MAXIMO #4619-RP0001	MAXIMO #4619-PNL0001	MAXIMO #4619-PNL0002
MAXIMO #4619-PNL0003	MAXIMO #4619-PNL0004	MAXIMO #4619-PNL0005
MAXIMO #4619-PNL0006	MAXIMO #4619-PNL0007	MAXIMO #4619-PNL0008

SCHEDULE PLAN
NOT TO SCALE

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0006 (4619-RP0007) — VOLTAGE 120/208
LOCATION ROOM 126A (JANITOR) — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 100A
MAIN BKR MLO — AIC RATING 10K
MAIN FEEDER SIZE 4#2 & 1#8G — FED FROM 4619-BPD019T

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC.				2	A	20A/1P	LTS			
3	B	20A/1P	EXHAUST FAN				4	B	20A/1P	LTS			
5	C	20A/1P	REC.				6	C	20A/1P	SPARE			
7	A	30A/2P	WATER HEATER				8	A	20A/1P	SPARE			
9	B	-	-				10	B	20A/1P	SPARE			
11	C						12	C	-	SPACE			
13	A	30A/3P	HEATER				14	A	-	SPACE			
15	B	-	-				16	B	-	SPACE			
17	C	-					18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0007 (4619-RP0008) — VOLTAGE 120/208
LOCATION ROOM 127A — PHASE 3
MOUNTING FLUSH — WIRE 4
MFR./TYPE SQUARE D — AMPS 225A
MAIN BKR MLO — AIC RATING 10K
MAIN FEEDER SIZE 4#3/0 & 1#6G — FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC.				2	A	20A/1P	REC.			
3	B	20A/1P	REC.				4	B	20A/1P	SPARE			
5	C	20A/1P	REC.				6	C	20A/1P	SPARE			
7	A	20A/1P	REC.				8	A	20A/1P	SPARE			
9	B	20A/1P	SPARE				10	B	20A/1P	SPARE			
11	C	20A/1P	SPARE				12	C	20A/1P	SPARE			
13	A	20A/1P	SPARE				14	A	20A/1P	SPARE			
15	B	20A/1P	SPARE				16	B	20A/1P	SPARE			
17	C	20A/1P	SPARE				18	C	20A/1P	SPARE			
19	A	20A/1P	SPARE				20	A	20A/1P	SPARE			
21	B	20A/1P	SPARE				22	B	20A/1P	SPARE			
23	C	20A/1P	SPARE				24	C	20A/1P	SPARE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0008 (4619-RP0009) — VOLTAGE 120/208
LOCATION ROOM 104 — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 100
MAIN BKR 100A — AIC RATING 10K
MAIN FEEDER SIZE 4#2 & 1#8G — FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	100A/3P	MAIN				2	A	20A/1P	RECP.-WIREMOLD RM. 104			
3	B	-	-				4	B	20A/1P	RECP.-WIREMOLD RM. 104			
5	C						6	C	20A/1P	RECP.-WIREMOLD RM. 104			
7	A	20A/1P	RECP.-WIREMOLD RM. 104				8	A	20A/1P	RECP.-WIREMOLD RM. 104			
9	B	20A/1P	RECP.-WIREMOLD RM. 104				10	B	20A/1P	RECP.-WIREMOLD RM. 104			
11	C	20A/1P	RECP.-WIREMOLD RM. 104				12	C	20A/1P	RECP.-WIREMOLD RM. 104			
13	A	20A/1P	RECP.-WIREMOLD RM. 104				14	A	20A/1P	RECP.-WIREMOLD RM. 104			
15	B	20A/1P	RECP.-WIREMOLD RM. 104				16	B	20A/1P	RECP.-WIREMOLD RM. 104			
17	C	20A/1P	RECP.-WIREMOLD RM. 104				18	C	20A/1P	RECP.-WIREMOLD RM. 104			
19	A	20A/1P	RECP.-WIREMOLD RM. 104				20	A	20A/1P	RECP.-WIREMOLD RM. 104			
21	B	20A/1P	RECP.-WIREMOLD RM. 104				22	B	20A/1P	RECP. S. WALL RM. 103			
23	C	20A/1P	SPARE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANEL SCHEDULES

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK (JOINT VENTURE)

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY — APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
AE: DATE: 10/24/13 — APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES — APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN — SPEC. NO. FAC-M5054

APPROVED: JIMMY GUARIN
AS22 GROUP LEAD — DATE: 10/24/13

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E701 55 OF 76

DRAWING NO. FAC-GO-4619-E701

MSFC Master Bid Disk 03-26-2014

A | B | C | D | E | F | G

ELECTRICAL PANEL SCHEDULE

1

PANEL MAXIMO #4619-PNL0009 (4619-RP0010)
LOCATION ROOM 128A
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 225A
MAIN FEEDER SIZE 4#4/0 & 1#4G
VOLTAGE 120/208V
PHASE 3
WIRE 4
AMPS 225
AIC RATING 10K
FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	PRINTER				2	A	20A/1P	PRINTER			
3	B	20A/1P	PRINTER				4	B	20A/1P	REC.			
5	C	30A/1P	MDDAC				6	C	20A/1P	67MB DISK			
7	A	20A/1P	CARD READER				8	A	20A/1P	REC.			
9	B	20A/1P	CARD PANEL				10	B	20A/1P	REC.			
11	C	20A/1P	CONTROL				12	C	20A/1P	CONTROL			
13	A	20A/1P	GRAPHICS				14	A	20A/1P	TEMP TRAS.			
15	B	20A/1P	IOBC				16	B	20A/1P	REC.			
17	C	20A/1P	REC.				18	C	20A/1P	REC.			
19	A	20A/1P	REC.				20	A	30A/1P	MODEM			
21	B	20A/1P	REC.				22	B	50A/1P	MODEM			
23	C	50A/1P	MODEMS				24	C	50A/1P	CPU A			
25	A	50A/1P	CPU B				26	A	50A/1P	MODEM			
27	B	20A/1P	CF SWITCH				28	B	30A/1P	SPARE			
29	C	30A/1P	SPARE				30	C	20A/1P	REC.			
31	A	30A/1P	SPARE				32	A	20A/1P	REC.			
33	B	30A/1P	SPARE				34	B	20A/1P	RACK #7			
35	C	50A/3P	DISC.				36	C	20A/2P	DISK			
37	A	-	-				38	A	-	-			
39	B	-	-				40	B	20A/1P	PC			
41	C	20A/1P	PRINTER				42	C	20A/1P	PC			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE

1

PANEL MAXIMO #4619-PNL0010 (4619-RP0011)
LOCATION ROOM 128A
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 125
AIC RATING 10K
FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	30A/1P	REC 128A				2	A	30A/1P	REC 128A			
3	B	30A/1P	REC 128A				4	B	30A/1P	SPARE			
5	C	30A/1P	REC 128A				6	C	30A/1P	REC 128A			
7	A	30A/1P	REC 128A				8	A	20A/1P	REC 128A			
9	B	20A/1P	SPARE				10	B	20A/1P	REC 128A			
11	C	20A/1P	REC 128A				12	C	20A/1P	REC 128A			
13	A	20A/1P	SPARE				14	A	20A/1P	SPARE			
15	B	20A/1P	REC 128A				16	B	20A/1P	REC 128A			
17	C	20A/1P	REC 128A				18	C	20A/1P	REC 128A			
19	A	-	SPACE				20	A	20A/1P	REC 128A			
21	B	-	SPACE				22	B	20A/1P	REC 128A			
23	C	-	SPACE				24	C	20A/1P	SPARE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	15A/1P	REC 128A				28	B	-	SPACE			
29	C	20A/1P	REC 128A				30	C	-	SPACE			
31	A	20A/1P	REC 128A				32	A	-	SPACE			
33	B	20A/1P	SPARE				34	B	-	SPACE			
35	C	20A/1P	SPARE				36	C	20A/1P	SPARE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0011 (4619-RP0012)
LOCATION HALLWAY NEAR ROOM 128
MOUNTING FLUSH
MFR./TYPE SQUARE D
MAIN BKR 200A
MAIN FEEDER SIZE 4#4/0 & 1#6G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 225
AIC RATING 10K
FED FROM 4619-BPD18AA

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	LTG 127A				2	A	20A/1P	REC. 128A			
3	B	20A/1P	LTG 127				4	B	20A/1P	REC. 128A			
5	C	20A/1P	LTG 128				6	C	20A/1P	REC. 128A			
7	A	20A/1P	REC. 127,127A				8	A	20A/1P	REC. CORR.			
9	B	20A/1P	REC. DF				10	B	20A/1P	REC. CORR.			
11	C	20A/1P	WATER COOLER				12	C	20A/1P	REC. 128			
13	A	60A/3P	4619-PNL0013 (4619-RP0014)				14	A	20A/1P	REC. 128			
15	B	-	-				16	B	20A/1P	REC. 128			
17	C	-	-				18	C	20A/1P	LTS COOLER			
19	A	20A/1P	REC. 128				20	A	20A/1P	REC. 128A			
21	B	20A/1P	REC. 128A				22	B	20A/1P	REC. 128			
23	C	20A/1P	REC. 128				24	C	20A/1P	EM LIGHTS			
25	A	20A/1P	REC. 128				26	A	20A/1P	REC. 128			
27	B	20A/1P	REC. 128				28	B	20A/1P	REC. 128			
29	C	20A/1P	REC. 128				30	C	20A/1P	REC. 128			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

GENERAL NOTES

1. UNLESS OTHERWISE NOTED, ALL PANELS ARE TO MAINTAIN EXISTING PANEL CONFIGURATION.
2. OLD MAXIMO # SHOWN FOR CLARITY. NEW MAXIMO # IF IS IN ( ) AFTER THE OLD MAXIMO #. CONTRACTOR SHALL UTILIZE THE (NEW MAXIMO #) AFTER FINAL INSTALLATION TO CREATE PANEL NAME TAG AND TYPE WRITTEN SCHEDULE.

PLAN NOTES

1 RECONNECT EXISTING CIRCUITS TO NEW PANEL.

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0012 (4619-RP0013)
LOCATION ROOM 118
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 150A
MAIN FEEDER SIZE 4#4/0 & 1#4G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 225
AIC RATING 10K
FED FROM 4619-SWGR0002

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC 118A (WIREMOLD/CEILING)				2	A	20A/1P	REC 118 W			
3	B	20A/1P	REC 118A (WIREMOLD)				4	B	20A/1P	REC 118 (WIREMOLD E)			
5	C	20A/1P	REC 118A (WIREMOLD)				6	C	20A/1P	REC 117, 118 (F/S BOXES)			
7	A	20A/1P	REC 118A (WIREMOLD W)				8	A	20A/1P	REC 117, 118 (F/S BOXES)			
9	B	20A/1P	REC 118A (WIREMOLD W)				10	B	-	SPACE			
11	C	20A/1P	EC 118A (WIREMOLD N)				12	C	-	SPACE			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE

1

PANEL MAXIMO #4619-PNL0013 (4619-RP0014)
LOCATION ROOM 124
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 60A
MAIN FEEDER SIZE 4#6 & 1#10G
VOLTAGE 120/208V
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-PNL0011 (4619-RP0012)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	60A/3P	MAIN				2	A	20A/3P	PSR			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	20A/3P	SPARE				8	A	20A/1P	SPARE			
9	B	-	-				10	B	20A/1P	PLUG MOLD			
11	C	-	-				12	C	20A/1P	PLUG MOLD			
13	A	50A/1P	SPARE				14	A	20A/1P	SPARE			
15	B	-	-				16	B	-	SPACE			
17	C	-	-				18	C	-	SPACE			
19	A	20A/1P	SPARE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0014 (4619-RP0101)
LOCATION ROOM E5
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-MCC0004

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	LIGHTS				2	A	20A/1P	RECEPT			
3	B	20A/1P	RECEPTS				4	B	20A/1P	DORSETT PANEL			
5	C	20A/1P	EWS				6	C	20A/1P	EMERGENCY LIGHTS			
7	A	20A/1P	RECEPTS				8	A	20A/1P	RECEPT			
9	B	20A/1P	EF-1				10	B	20A/1P	PHONE ROOM			
11	C	20A/1P	LIGHTS				12	C	20A/1P	RMU/UCS			
13	A	20A/1P	STEAM HEATERS				14	A	20A/1P	RMU/UCS			
15	B	20A/1P	SPARE				16	B	20A/1P	UCE/STM ULV			
17	C	20A/1P	SPARE				18	C	20A/1P	UPS FOR MUK			
19	A	20A/1P	SPARE				20	A	20A/1P	VAVs			
21	B	-	SPACE				22	B	20A/2P	WATER HEATER			
23	C	-	SPACE				24	C	-	SPACE			
25	A	100A/3P	MAIN				26	A	-	SPACE			
27	B	-					28	B	-	SPACE			
29	C	-					30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

MAXIMO #4619-PNL0009	MAXIMO #4619-PNL0010	MAXIMO #4619-PNL0011
MAXIMO #4619-PNL0012	MAXIMO #4619-PNL0013	MAXIMO #4619-PNL0014
MAXIMO #4619-PNL0015	MAXIMO #4619-PNL0143	MAXIMO #4619-PNL0144

SCHEDULE PLAN
NOT TO SCALE

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0015 (4619-PP0002)
LOCATION ROOM 167B
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 30A
MAIN FEEDER SIZE 3#8 & 1#8G
VOLTAGE 277/480
PHASE 3
WIRE 4
AMPS 125
AIC RATING 10K
FED FROM 4619-BPD017S

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/3P	SPARE				2	A	20A/3P	SPARE			
3	B	-	-				4	B	-	-			
5	C						6	C					
7	A	15A/3P	SPARE				8	A	15A/3P	SPARE			
9	B	-	-				10	B					
11	C	-	-				12	C	-	-			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0143 (4619-RP0103)
LOCATION ROOM E5
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 30A
MAIN FEEDER SIZE 4#4/0 & 1#4G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 18K
FED FROM 4619-PP0144

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	LIGHTING				2	A	20A/1P	HEATER			
3	B	20A/1P	UPS/MUX				4	B	20A/1P	EXHAUST FAN			
5	C	20A/1P	RECEPTACLE				6	C	20A/1P	AHU-23 VAV'S			
7	A	-	SPACE				8	A	-	SPACE			
9	B	-	SPACE				10	B	-	SPACE			
11	C	-	SPACE				12	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0144 (4619-RP0102)
LOCATION ROOM E5
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 225A
MAIN FEEDER SIZE 4#4/0 & 1#4(G)
VOLTAGE 277/480
PHASE 3
WIRE 4
AMPS 225
AIC RATING 10K
FED FROM 4619-SWBD0012

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	40A/3P	AHU-23				2	A	25A/3P	RAS-23			
3	B	-	-				4	B		-			
5	C	-	-				6	C	-	-			
7	A	15A/3P	T-PLB				8	A	225A/3P	MAIN			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANEL SCHEDULES

AE FIRM: GOODWYN | MILLS | CAWOOD JOINT VENTURE — MERRICK & COMPANY

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
AE: DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
SCALE: AS SHOWN
SPEC. NO. FAC-M5954
NASA AE CONTRACT NO. NAS8-NNM12AA49A
APPROVED: JIMMY GUARIN
AS22 GROUP LEAD DATE: 10/24/13
DRAWING NO. FAC-GO-4619-E702

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E702 56 OF 76

MSFC Master Bid Disk 03-26-2014

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0016 (4619-RP0015)
LOCATION ROOM 129A
MOUNTING FLUSH
MFR./TYPE SQUARE D
MAIN BKR 40A
MAIN FEEDER SIZE 4#8 & 1#10G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-PNL0062 (4619-PP0014)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC.				2	A	20A/1P	REC.			
3	B	20A/1P	LTS & REC.				4	B	20A/1P	VAV			
5	C	20A/1P	REC.				6	C	20A/1P	TV			
7	A	20A/1P	REC.				8	A	20A/1P	REC.			
9	B	20A/1P	SPARE				10	B	20A/1P	LTS			
11	C	20A/1P	SPARE				12	C	20A/1P	LTS			
13	A	20A/1P	SPARE				14	A	-	SPACE			
15	B	20A/1P	SPARE				16	B	-	SPACE			
17	C	20A/1P	SPARE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE (EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0017 (4619-RP0016)
LOCATION HALLWAY (NEAR ROOM 131)
MOUNTING FLUSH
MFR./TYPE SQUARE D
MAIN BKR 200A
MAIN FEEDER SIZE 4#3/0 & 1#6G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 225
AIC RATING 10K
FED FROM 4619-PP0005 (4619-PP0010)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC 132, 134				2	A	20A/1P	REC 136			
3	B	20A/1P	REC 134, 136				4	B	20A/1P	REC 138 & CANOPY LTS			
5	C	20A/1P	REC 130, 132				6	C	20A/1P	REC 129, 145			
7	A	20A/1P	REC 130, 132				8	A	20A/1P	REC 145 W/WALL			
9	B	20A/1P	REC 129, 131,HALL				10	B	20A/1P	REC 131,133 135			
11	C	20A/1P	REC 129,131				12	C	20A/1P	REC 131,133			
13	A	20A/1P	REC HALL (DRINK/VEND MAC)				14	A	20A/1P	FACP			
15	B	20A/1P	REC HALL (DRINK MACH)				16	B	20A/1P	SPARE			
17	C	20A/1P	SPARE				18	C	20A/1P	REC			
19	A	20A/1P	SPARE				20	A	20A/1P	SPARE			
21	B	20A/1P	SPARE				22	B	20A/1P	SPARE			
23	C	20A/1P	SPARE				24	C	20A/1P	SPARE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	125A/3P	4619-PNL0146				38	A	-	SPACE			
39	B	-	-				40	B	-	SPACE			
41	C	-	-				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE (EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0018 (4619-RP0017)
LOCATION ROOM 167B
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#6G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-PNL0094 (4619-RP0062)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	SPARE				2	A	20A/1P	RECEPT 167B			
3	B	20A/1P	SPARE				4	B	20A/1P	RECEPT 167B			
5	C	20A/1P	SPARE				6	C	20A/1P	RECEPT 167B			
7	A	15A/3P	METAL ROLLER				8	A	20A/3P	TUBEING BENDER			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	20A/3P	BAND SAW				14	A	20A/3P	GRINDER OUTLET			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	100A/3P	MAIN				26	A	-	SPACE			
27	B	-	-				28	B	-	SPACE			
29	C	-	-				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE (EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0020 (4619-LP0001)
LOCATION HALLWAY (NEAR ROOM 138)
MOUNTING FLUSH
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 277/480
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-SWBD0001 (4619-PP0005)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	PANEL LD				2	A	20A/1P	LTS 131, 133, 135			
3	B	20A/1P	PANEL LD				4	B	20A/1P	LTS 129, 130, 132, 134			
5	C	20A/1P	PANEL LD				6	C	20A/1P	LTS 139, 141, 143			
7	A	20A/1P	LTS 138, 140, 142, 144C				8	A	20A/1P	SPARE			
9	B	20A/1P	LTS 144, 144B, 144C				10	B	20A/1P	SPARE			
11	C	20A/1P	SPARE				12	C	20A/1P	SPARE			
13	A	20A/1P	LTS/EMER LTS CORRIDOR				14	A	-	SPACE			
15	B	20A/1P	LTS 136-CORRIDOR				16	B	-	SPACE			
17	C	100A/3P	4619-PNL0023 (4619-LP0002)				18	C	-	SPACE			
19	A	-	-				20	A	-	SPACE			
21	B	-	-				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE (EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0021 (4619-RP0018)
LOCATION ROOM 143 OUTSIDE
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 200A
MAIN FEEDER SIZE 4#3/0 & 1#6G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 225
AIC RATING 10K
FED FROM 4619-PP0005 (4619-PP0010)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20/1P	REC.				2	A	20A/1P	REC.			
3	B	20/1P	REC.				4	B	20A/1P	REC.			
5	C	20/1P	REC.				6	C	20A/1P	REC.			
7	A	20/1P	REC.				8	A	20A/1P	REC.			
9	B	20/1P	REC.				10	B	20A/1P	REC.			
11	C	20/1P	REC.				12	C	20A/1P	REC.			
13	A	20/1P	REC.				14	A	20A/1P	SPARE			
15	B	20/1P	EM LIGHTS				16	B	20A/1P	STAIR LTS			
17	C	20/1P	REC.				18	C	20A/1P	SPARE			
19	A	20/1P	REC.				20	A	20A/1P	SPARE			
21	B	20/1P	REC.				22	B	20A/1P	REC.			
23	C	20/1P	REC.				24	C	20A/1P	REC.			
25	A	30A/2P	WATER HEATER				26	A	20A/1P	REC.			
27	B	-	-				28	B	20A/1P	REC.			
29	C	20/1P	REC.				30	C	20A/1P	REC.			
31	A	20/1P	REC.				32	A	20A/1P	REC.			
33	B	20/1P	REC.				34	B	20A/1P	REC.			
35	C	20/1P	REC.				36	C	20A/1P	REC.			
37	A	90A/3P	4619-PNL0024 (4619-RP0019)				38	A	20A/1P	REC.			
39	B	-	-				40	B	20A/1P	REC.			
41	C	-	-				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE (EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0022 (4619-PP0003)
LOCATION ROOM 167B
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR MLO
MAIN FEEDER SIZE 3#8G & 1#8G
VOLTAGE 277/480
PHASE 3
WIRE 4
AMPS 125
AIC RATING 10K
FED FROM 4619-BPD017O

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/3P	DRILL PRESS				2	A	20A/3P	REC.			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	15A/3P	SPARE				8	A	15A/3P	SPARE			
9	B	-	-				10	B	-	-			
11	C	-					12	C	-				
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE (EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0023 (4619-LP0002)
LOCATION OUTSIDE ROOM 210
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 277/480
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10
FED FROM 4619-PNL0020 (4619-LP0001)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	LTS 220C & HALL (NITE LTS)				2	A	20A/1P	LTS 202, 202A, 204, 220			
3	B	20A/1P	LTS 215, 217, 219				4	B	20A/1P	LTS 212, 214, 216, 218			
5	C	20A/1P	LTS 201,203, 203A, 205, 207, 209				6	C	20A/1P	LTS 206, 208, 208A, 210			
7	A	20A/1P	LTS				8	A	20A/1P	LTS 220, 220A, 221,223, HALL			
9	B	20A/1P	LTS				10	B	20A/1P	LTS			
11	C	20A/1P	SPARE				12	C	20A/1P	SPARE			
13	A	20A/1P	SPARE				14	A	20A/1P	SPARE			
15	B	20A/1P	SPARE				16	B	60A/2P	TRANSFORMER BB716			
17	C	20A/1P	SPARE				18	C	-	-			
19	A	20A/1P	SPARE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE (EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0024 (4619-RP0019)
LOCATION OUTSIDE 217
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR MLO
MAIN FEEDER SIZE 3#4 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-PNL0021 (4619-RP0018)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC 208, 210				2	A	20A/1P	REC 210, 212			
3	B	20A/1P	REC 220, 220A				4	B	20A/1P	REC 210, 212			
5	C	20A/1P	REC 216, 218, 220				6	C	20A/1P	REC 220A, 221, 223			
7	A	20A/1P	REC 220A, 221, 223				8	A	20A/1P	REC 214, 216			
9	B	20A/1P	REC 221, 223				10	B	20A/1P	LTS 217			
11	C	20A/1P	REC 217, 219, 221				12	C	20A/1P	LTS & TV 215			
13	A	20A/1P	REC 21, LTS STAIRS				14	A	20A/2P	EWS, UPS			
15	B	20A/1P	REC 215, 217				16	B	-	-			
17	C	20A/1P	REC 215				18	C	20A/1P	REC 215			
19	A	20A/3P	SPARE				20	A	20A/1P	REC 217			
21	B	-	-				22	B	20A/2P	SPARE			
23	C	-	-				24	C	-	-			
25	A	20A/1P	REC 215				26	A	20A/1P	SPARE			
27	B	20A/1P	REC 215				28	B	20A/1P	SPARE			
29	C	20A/1P	REC 215				30	C	20A/1P	SPARE			
31	A	20A/1P	REC 215				32	A	20A/1P	SPARE			
33	B	20A/1P	SPARE				34	B	20A/1P	SPARE			
35	C	20A/1P	SPARE				36	C	20A/1P	SPARE			
37	A	20A/1P	SPARE				38	A	20A/1P	SPARE			
39	B	20A/1P	SPARE				40	B	20A/1P	SPARE			
41	C	20A/1P	SPARE				42	C	20A/1P	SPARE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0025 (4619-RP0020)
LOCATION ROOM 217
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 120/208
PHASE 1
WIRE 3
AMPS 100
AIC RATING 10K
FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	RECP				2	A	20A/1P	RECP			
3	B	20A/1P	RECP				4	B	20A/1P	RECP			
5	C	20A/1P	RECP				6	C	20A/1P	RECP			
7	A	20A/1P	RECP				8	A	20A/1P	RECP			
9	B	20A/1P	RECP				10	B	-	SPACE			
11	C	20A/1P	RECP				12	C	-	SPACE			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	100A/2P	MCB				30	C	-	SPACE			
31	A	-	-				32	A	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

GENERAL NOTES

1. UNLESS OTHERWISE NOTED, ALL PANELS ARE TO MAINTAIN EXISTING PANEL CONFIGURATION.
2. OLD MAXIMO # SHOWN FOR CLARITY. NEW MAXIMO # IF IS IN ( ) AFTER THE OLD MAXIMO #. CONTRACTOR SHALL UTILIZE THE (NEW MAXIMO #) AFTER FINAL INSTALLATION TO CREATE PANEL NAME TAG AND TYPE WRITTEN SCHEDULE.

PLAN NOTES

1 RECONNECT EXISTING CIRCUITS TO NEW PANEL.

MAXIMO #4619-PNL0016	MAXIMO #4619-PNL0017	MAXIMO #4619-PNL0018
MAXIMO #4619-PNL0020	MAXIMO #4619-PNL0021	MAXIMO #4619-PNL0022
MAXIMO #4619-PNL0023	MAXIMO #4619-PNL0024	MAXIMO #4619-PNL0025

SCHEDULE PLAN

NOT TO SCALE

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANEL SCHEDULES

AE FIRM:

SUBMITTED: JENNIFER LANDRY
AE: DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
SCALE: AS SHOWN

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SPEC. NO. FAC-M5054

NASA AE CONTRACT NO. NAS8-NNM12AA49A
APPROVED: JIMMY GUARIN
AS22 GROUP LEAD DATE: 10/24/13

DRAWING NO.
FAC-GO-4619-E703

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E703 57 OF 76

MSFC Master Bid Disk 03-26-2014

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0026 (4619-RP0099) — VOLTAGE 120/208
LOCATION 167 — PHASE 3
MOUNTING FLUSH — WIRE 4
MFR./TYPE SQUARE D — AMPS 100
MAIN BKR 100A — AIC RATING 10K
MAIN FEEDER SIZE 4#2 & 1#8G — FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	100A/3P	MAIN				2	A	20A/3P	RECEPTACLES			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	20A/3P	RECEPTACLES				8	A	20A/3P	RECEPTACLES			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0031 (4619-PP0004) — VOLTAGE 277/480
LOCATION ELECT EQUIP B139A — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 225
MAIN BKR 225A — AIC RATING 10K
MAIN FEEDER SIZE 4#4/0 & 1#4G — FED FROM 4619-PP0010 (4619-PP0005)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	30A/3P	ELEVATOR PUMP				2	A	30A/3P	SUMP PUMP			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	30A/3P	AC-1				8	A	30A/3P	DUPLEX PUMPS			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	30A/3P	EF-4				14	A	30A/3P	AIR COMPRESSOR			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	30A/3P	SUMP PUMP				20	A	30A/3P	SPARE			
21	B	-	-				22	B	-	-			
23	C	-	-				24	C	-	-			
25	A	30A/3P	SPARE				26	A	20A/3P	SPARE			
27	B	-	-				28	B	-	-			
29	C	-	-				30	C	-	-			
31	A	20A/3P	SPARE				32	A	20A/3P	SPARE			
33	B	-	-				34	B	-	-			
35	C	-	-				36	C	-	-			
37	A	20A/1P	SPARE				38	A	20A/1P	SPARE			
39	B	30A/1P	SPARE				40	B	30A/1P	SPARE			
41	C	30A/1P	SPARE				42	C	30A/1P	SPARE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0032 (4619-RP0021) — VOLTAGE 120/208
LOCATION TUNNEL WALKWAY — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 100
MAIN BKR 100A — AIC RATING 10K
MAIN FEEDER SIZE 4#2 & 1#8G — FED FROM 4619-SWBD0001 (4619-PP0010)

CK1	PH	& AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	& AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC RM 139				2	A	20A/1P	REC 04 BASEMENT			
3	B	20A/1P	REC. EMERG. LIGHTS				4	B	20A/1P	REC 04 BASEMENT			
5	C	20A/1P	REC. EMERG. LIGHTS				6	C	20A/1P	REC 03.04 & LIGHTS RM 103			
7	A	20A/1P	REC. RM 139				8	A	30A/3P	BATTERY CHARGER			
9	B	20A/1P	REC. 04 BASEMENT				10	B	-	-			
11	C	20A/1P	120V @ GILMORE MACHINE				12	C	-	-			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
B TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

GENERAL NOTES

1. UNLESS OTHERWISE NOTED, ALL PANELS ARE TO MAINTAIN EXISTING PANEL CONFIGURATION.
2. OLD MAXIMO # SHOWN FOR CLARITY. NEW MAXIMO # IF IS IN ( ) AFTER THE OLD MAXIMO #. CONTRACTOR SHALL UTILIZE THE (NEW MAXIMO #) AFTER FINAL INSTALLATION TO CREATE PANEL NAME TAG AND TYPE WRITTEN SCHEDULE.

PLAN NOTES

1 RECONNECT EXISTING CIRCUITS TO NEW PANEL.

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0033 (4619-LP0003) — VOLTAGE 277/480
LOCATION TUNNEL WALKWAY — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 100
MAIN BKR 60A — AIC RATING 10K
MAIN FEEDER SIZE 4#6 & 1#10G — FED FROM 4619-PP0010 (4619-PP0005)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	SPARE				2	A	20A/1P	SPARE			
3	B	20A/1P	LTS 05 HALL				4	B	20A/1P	LTS 05 HALL			
5	C	20A/1P	LTS 03 BASEMENT				6	C	20A/1P	LTS 04 B139A			
7	A	20A/1P	SPARE				8	A	20A/1P	SPARE			
9	B	20A/1P	LTS B139A				10	B	-	SPACE			
11	C	20A/1P	LTS BASEMENT NORTH				12	C	-	SPACE			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0035 (4619-RP0022) — VOLTAGE 120/208
LOCATION 5TH FLOOR — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 200A
MAIN BKR 200 — AIC RATING 10K
MAIN FEEDER SIZE 4#3/0 & 1#6G — FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/3P	N & E CATWALK LTS				2	A	20A/1P	N CATWALK REC			
3	B	-	-				4	B	20A/1P	S CATWALK REC			
5	C	-	-				6	C	20A/1P	S CATWALK REC			
7	A	70A/3P	WELDING REC				8	A	20A/1P	SPARE			
9	B	-	-				10	B	20A/1P	REC ON COL BEHIND PNL			
11	C	-	-				12	C	20A/1P	REC ON COL BEHIND PNL			
13	A	20A/1P	PLUG 1ST FLR NEAR ELEV				14	A	70A/3P	WELD REC			
15	B	20A/1P	PLUG 1ST FLR NEAR ELEV				16	B	-	-			
17	C	20A/1P	PLUG 1ST FLR NEAR ELEV				18	C	-	-			
19	A	20A/1P	SPARE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0036 (4619-RP0023) — VOLTAGE 120/208
LOCATION 6TH FLOOR — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 200A
MAIN BKR 200A — AIC RATING 10K
MAIN FEEDER SIZE 4#3/0 & 1#6G — FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	LIGHTS				2	A	20A/1P	RECEPTACLES			
3	B	20A/1P	LIGHTS				4	B	20A/1P	RECEPTACLES			
5	C	20A/1P	LIGHTS				6	C	20A/1P	LIGHTS			
7	A	20A/1P	LIGHTS				8	A	20A/1P	JUNCTION BOX			
9	B	20A/1P	SPARE				10	B	20A/1P	JUNCTION BOX			
11	C	20A/1P	SPARE				12	C	20A/1P	CONTROL			
13	A	40A/3P	TWIST LOCK				14	A	40A/3P	TWIST LOCK			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	70A/3P	WELDER				20	A	70A/3P	WELDER			
21	B	-	-				22	B	-	-			
23	C	-	-				24	C	-	-			
25	A	20A/1P	SPARE				26	A	20A/1P	SPARE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

MAXIMO #4619-PNL0026	MAXIMO #4619-PNL0031	MAXIMO #4619-PNL0032
MAXIMO #4619-PNL0033	MAXIMO #4619-PNL0035	MAXIMO #4619-PNL0036
MAXIMO #4619-PNL0037	MAXIMO #4619-PNL0038	MAXIMO #4619-PNL0039

SCHEDULE PLAN
NOT TO SCALE

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0037 (4619-RP0024) — VOLTAGE 120/208
LOCATION 4TH FLOOR — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 200
MAIN BKR 200A — AIC RATING 10K
MAIN FEEDER SIZE 4#3/0 & 1#6G — FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	LIGHTS				2	A	20A/1P	RECEPTACLES			
3	B	20A/1P	LIGHTS				4	B	20A/1P	ELEVATOR RECEPTACLES			
5	C	20A/1P	LIGHTS				6	C	20A/1P	UNIT HEATER			
7	A	20A/1P	SPARE				8	A	20A/1P	SPARE			
9	B	20A/2P	RECEPTACLES				10	B	20A/2P	RECEPTACLES			
11	C	-	-				12	C	-	-			
13	A	20A/1P	RECEPTACLES				14	A	70A/3P	WELDER			
15	B	20A/1P	RECEPTACLES				16	B	-	-			
17	C	20A/1P	RECEPTACLES				18	C	-	-			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0038 (4619-RP0025) — VOLTAGE 120/208
LOCATION 3RD FLOOR — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 200
MAIN BKR 200A — AIC RATING 10K
MAIN FEEDER SIZE 4#3/0 & 1#6G — FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	SPARE				2	A	20A/1P	RECEPTACLES ON CATWALK			
3	B	20A/1P	NORTH LIGHTS CATWALK				4	B	20A/1P	RECEPTACLES ON CATWALK			
5	C	20A/1P	WALKWAY LIGHTS				6	C	20A/1P	UNIT HEATERS			
7	A	20A/1P	RECEPTACLES 2ND FLOOR WALKWAY				8	A	20A/1P	SPARE			
9	B	20A/1P	RECEPTACLES 2ND FLOOR WALKWAY				10	B	20A/1P	RECEPTACLES ON WALKWAY			
11	C	20A/1P	RECEPTACLES 2ND FLOOR CATWALK				12	C	20A/1P	RECEPTACLES ON WALKWAY			
13	A	20A/1P	RECEPTACLES 2ND FLOOR CATWALK				14	A	20A/1P	RECEPTACLES ON WALKWAY			
15	B	20A/2P	WELD RECEPTACLES				16	B	20A/2P	RECEPTACLES 2ND FLOOR			
17	C	-	-				18	C	-	-			
19	A	70A/3P	WELD RECEPTACLES				20	A	70A/3P	WELD RECEPTACLES			
21	B	-	-				22	B	-	-			
23	C	-	-				24	C	-	-			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0039 (4619-RP0026) — VOLTAGE 120/208
LOCATION ROOM 300 — PHASE 3
MOUNTING FLUSH — WIRE 4
MFR./TYPE SQUARE D — AMPS 225
MAIN BKR 225A — AIC RATING 10K
MAIN FEEDER SIZE 4#3/0 & 1#6G — FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	S. WALL CKT #3				2	A	20A/1P	S. WALL CKT #4			
3	B	20A/1P	S. WALL CKT #2				4	B	20A/1P	S. WALL CKT #6			
5	C	20A/1P	S. WALL CKT #0				6	C	20A/1P	S. WALL CKT #7			
7	A	20A/1P	SERVER UPS				8	A	20A/1P	S/U			
9	B	20A/1P	CONTROL STATION UPS				10	B	20A/1P	SAS ROOM UPS			
11	C	20A/1P	S/U				12	C	20A/1P	S/U			
13	A	20A/1P	S/U				14	A	20A/1P	S/U			
15	B	50A/1P	S/U				16	B	50A/1P	S/U			
17	C	50A/1P	LTS				18	C	50A/1P	LTS			
19	A	50A/1P	LTS				20	A	50A/1P	REC			
21	B	50A/1P	REC				22	B	50A/1P	S. WALL CKT #8			
23	C	50A/1P	REC				24	C	50A/1P	S. WALL CKT #9			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANEL SCHEDULES

AE FIRM: GOODWYN MILLS CAWOOD / MERRICK & COMPANY (JOINT VENTURE)

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
AE: DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO.: FAC-M5054

NASA AE CONTRACT NO. NAS8-NNM12AA49A
APPROVED: JIMMY GUARIN
AS22 GROUP LEAD DATE: 10/24/13

DRAWING NO.
FAC-GO-4619-E704

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET
REF. NO. E704 58 OF 76

MSFC Master Bid Disk 03-26-2014

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0040 (4619-RP0027) — VOLTAGE 120/208
LOCATION ROOM 145 — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 100
MAIN BKR 100 — AIC RATING 10K
MAIN FEEDER SIZE ##2 & 1#6G — FED FROM 4619-BPD008A

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	70A/2P	FEED PANEL TP				2	A	-	SPACE			
3	B	-	-				4	B	-	SPACE			
5	C	20A/1P	4619-MID01-04				6	C	20A/1P	EWS			
7	A	30A/2P	SPARE				8	A	20A/2P	FCU-2 EAST			
9	B	-	-				10	B	-	-			
11	C	20A/2P	FCU-1 WEST				12	C	-	SPACE			
13	A	-	-				14	A	20A/1P	SPARE			
15	B	-	SPACE				16	B	30A/2P	SPARE			
17	C	30A/2P	SPARE				18	C					
19	A	-	-				20	A	20A/2P	SPARE			
21	B	20A/1P	ROOF CAMERA				22	B	-	-			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅: 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅: 0 KVA : _____AMPS
C ∅: 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0041 (4619-RP0028) — VOLTAGE 120/208
LOCATION ROOM 145 — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE EATON — AMPS 200
MAIN BKR 200A — AIC RATING 10K
MAIN FEEDER SIZE 4#3/0 & 1#6G — FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC N WALL				2	A	20A/1P	REC N WALL			
3	B	20A/1P	REC/LTS TANK				4	B	20A/1P	REC N WALL			
5	C	20A/1P	HEATER NW WALL				6	C	20A/1P	REC N WALL			
7	A	20A/1P	HEATER SW				8	A	20A/1P	HEATER SE WALL			
9	B	20A/1P	REC UNDER PANEL				10	B	20A/1P	HEATER E WALL			
11	C	20A/1P	HEATER W WALL				12	C	20A/1P	HEATER E WALL			
13	A	20A/1P	CONDENSATE PUMP				14	A	20A/1P	HEATER E WALL			
15	B	20A/1P	FLOOD LT O/S LTA DOOR				16	B	20A/1P	CONDENSATE PUMP			
17	C	20A/1P	REC N WALL				18	C	20A/1P	HEATER N WALL			
19	A	20A/1P	STAIR LTS				20	A	20A/1P	SPARE			
21	B	20A/1P	STAIR LTS				22	B	20A/1P	HEATER E WALL			
23	C	20A/1P	EMER LTS LEVELS 2-6				24	C	20A/1P	EMER LTS LEVELS 2-6			
25	A	20A/1P	EMER LTS LEVELS 2-6				26	A	100A/3P	UPS SYSTEM			
27	B	20A/1P	EMER LTS LEVELS 2-6				28	B	-	-			
29	C	20A/1P	EMER LTS LEVELS 2-6				30	C	-	-			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅: 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅: 0 KVA : _____AMPS
C ∅: 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0042 (4619-LP0004) — VOLTAGE 277/480V
LOCATION ROOM 145 — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE EATON — AMPS 225
MAIN BKR 225 — AIC RATING 18K
MAIN FEEDER SIZE 4#4/0 & 1#8G — FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/3P	EST LIGHT N/ 3RD FLR				2	A	20A/3P	LTS N. 5TH FLR & 6TH LEVEL			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	20A/3P	SW LTS				8	A	20A/3P	LTS S. 5TH AND 6TH LEVEL			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	20A/3P	N&E LTS 4TH FLR				14	A	70A/1P	LTS N&E WALL 1ST LEVEL			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	20A/3P	WEST LTS				20	A	20A/3P	LTS SW COLUMN			
21	B	-	-				22	B	-	-			
23	C	-	-				24	C	-	-			
25	A	20A/3P	SPARE				26	A	30A/3P	LTS NW 3RD LEVEL			
27	B	-	-				28	B	-	-			
29	C	-	-				30	C	-	-			
31	A	30A/3P	SPARE				32	A	70A/3P	SPARE			
33	B	-	-				34	B	-	-			
35	C						36	C					
37	A	100A/3P	SPARE				38	A	70A/3P	SPARE			
39	B		-				40	B	-	-			
41	C	-	-				42	C	-	-			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅: 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅: 0 KVA : _____AMPS
C ∅: 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

GENERAL NOTES

1. UNLESS OTHERWISE NOTED, ALL PANELS ARE TO MAINTAIN EXISTING PANEL CONFIGURATION.
2. OLD MAXIMO # SHOWN FOR CLARITY. NEW MAXIMO # IF IS IN ( ) AFTER THE OLD MAXIMO #. CONTRACTOR SHALL UTILIZE THE (NEW MAXIMO #) AFTER FINAL INSTALLATION TO CREATE PANEL NAME TAG AND TYPE WRITTEN SCHEDULE.

PLAN NOTES

1 RECONNECT EXISTING CIRCUITS TO NEW PANEL.

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0043 (4619-RP0029) — VOLTAGE 120/208
LOCATION ROOM 146 — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 100
MAIN BKR 40A — AIC RATING 10K
MAIN FEEDER SIZE ##8 & 1#8G — FED FROM 4619-PNL0046 (4619-PP0037)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	CONTROL VOLT FOR HV13				2	A	20A/3P	SPARE			
3	B	25A/2P	SPARE				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	30A/3P	PARKING LOT LTS				8	A	20A/1P	SPARE			
9	B	-	-				10	B	-	SPACE			
11	C	-	-				12	C	-	SPACE			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅: 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅: 0 KVA : _____AMPS
C ∅: 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0044 (4619-RP0030) — VOLTAGE 120/208
LOCATION ROOM 146 — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 100
MAIN BKR 100A — AIC RATING 10K
MAIN FEEDER SIZE #4# & 1#8G — FED FROM 4619-SWBD0001 (4619-PP0010)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	RECEPTACLES				2	A	20A/1P	RECEPTACLES			
3	B	20A/1P	RECEPTACLES				4	B	20A/1P	RECEPTACLES			
5	C	20A/1P	RECEPTACLES				6	C	20A/1P	RECEPTACLES			
7	A	20A/1P	RECEPTACLES				8	A	20A/1P	RECEPTACLES			
9	B	20A/1P	RECEPTACLES				10	B	20A/1P	RECEPTACLES			
11	C	20A/1P	RECEPTACLES				12	C	20A/1P	RECEPTACLES			
13	A	20A/1P	RECEPTACLES				14	A	20A/1P	RECEPTACLES			
15	B	20A/1P	RECEPTACLES				16	B	20A/1P	RECEPTACLES			
17	C	20A/1P	RECEPTACLES				18	C	20A/1P	RECEPTACLES			
19	A	20A/1P	RECEPTACLES				20	A	20A/1P	RECEPTACLES			
21	B	20A/1P	RECEPTACLES				22	B	20A/1P	RECEPTACLES			
23	C	20A/1P	RECEPTACLES				24	C	20A/1P	RECEPTACLES			
25	A	20A/1P	RECEPTACLES				26	A	20A/1P	RECEPTACLES			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅: 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅: 0 KVA : _____AMPS
C ∅: 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0045 (4619-RP0031) — VOLTAGE 120/208
LOCATION ROOM 146 — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 100
MAIN BKR 40 — AIC RATING 10K
MAIN FEEDER SIZE #4#8 & 1#10G — FED FROM 4619-PNL0046 (4619-PP0037)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	VAV (1-9)				2	A	20A/1P	CAMERA REC OVERHEAD			
3	B	20A/1P	SPARE				4	B	20A/1P	SPARE			
5	C	20A/1P	SPARE				6	C	20A/1P	SPARE			
7	A	20A/1P	SPARE				8	A	20A/1P	SPARE			
9	B	20A/1P	REC UNDER PNL				10	B	20A/1P	SPARE			
11	C	20A/1P	REC UNDER PNL				12	C	20A/1P	SPARE			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅: 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅: 0 KVA : _____AMPS
C ∅: 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

MAXIMO #4619-PNL0040	MAXIMO #4619-PNL0041	MAXIMO #4619-PNL0042
MAXIMO #4619-PNL0043	MAXIMO #4619-PNL0044	MAXIMO #4619-PNL0045
MAXIMO #4619-PNL0046	MAXIMO #4619-PNL0047	MAXIMO #4619-PNL0048

SCHEDULE PLAN
NOT TO SCALE

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0046 (4619-PP0037) — VOLTAGE 120/208
LOCATION ROOM 146 — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 225
MAIN BKR 225A — AIC RATING 10K
MAIN FEEDER SIZE #4#4/0 & 1#4G — FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	40A/3P	4619-PNL0045 (4619-RP0031)				2	A	40A/3P	4619-PNL0064 (4619-RP0042)			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	40A/3P	4619-PNL0043 (4619-RP0029)				8	A	40A/3P	4619-PNL0058 (4619-RP0039)			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	40A/3P	RP #1 ROOM 148A				14	A	40A/3P	4619-PNL0066 (4619-RP0044)			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	40A/3P	RP #6 ROOM 148A				20	A	40A/3P	RP ROOM 110			
21	B	-	-				22	B	-	-			
23	C	-	-				24	C	-	-			
25	A	40A/3P	4619-PNL0117 (4619-RP0076)				26	A	40A/3P	RP #4 ROOM 134			
27	B	-	-				28	B	-	-			
29	C						30	C		-			
31	A	40A/3P	SPARE				32	A	40A/3P	EMP 208			
33	B	-	-				34	B	-	-			
35	C	-	-				36	C	-	-			
37	A	40A/3P	SPARE				38	A	40A/3P	SPARE			
39	B	-	-				40	B	-	-			
41	C	-	-				42	C	-	-			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅: 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅: 0 KVA : _____AMPS
C ∅: 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0047 (4619-LP0005) — VOLTAGE 277/480
LOCATION HALLWAY NEXT TO ROOM 150 — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 100
MAIN BKR 100A — AIC RATING 18K
MAIN FEEDER SIZE 4#2 & 1#8G — FED FROM 4619-PP0010 (4619-PP0005)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	LIGHTS ROOM 148				2	A	20A/1P	LIGHTS ROOM 147A			
3	B	20A/1P	LIGHT ROOM 146				4	B	20A/1P	LIGHTS ROOM 147A			
5	C	20A/1P	SPARE				6	C	20A/1P	LTS ROOM 107,108,109,110,148A			
7	A	20A/1P	LIGHTS HALL				8	A	20A/1P	LIGHTS ROOM 152			
9	B	20A/1P	LIGHTS ROOM 153				10	B	20A/1P	LIGHTS ROOM 152			
11	C	20A/1P	LIGHTS ROOM 153				12	C	20A/1P	LIGHTS ROOM 154			
13	A	20A/1P	LIGHTS ROOM 153				14	A	20A/1P	LIGHTS ROOM 154			
15	B	20A/1P	LIGHTS ROOM 153				16	B	20A/1P	LIGHTS ROOM 153A			
17	C	20A/1P	SPARE				18	C	20A/1P	HEATER ROOM 151			
19	A	20A/1P	SPARE				20	A	20A/1P	HEATER ROOM 151			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅: 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅: 0 KVA : _____AMPS
C ∅: 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0048 (4619-PP0011) — VOLTAGE 277/480
LOCATION HALLWAY NEXT TO ROOM 150 — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 225
MAIN BKR 225A — AIC RATING 18K
MAIN FEEDER SIZE 4#4/0 & 1#4G — FED FROM 4619-PP0010 (4619-PP0005)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/3P	A/C 2,3,4 & HV-1				2	A	20A/3P	A/C 5,6 & HV-4			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	20A/3P	HV 2,3,6				8	A	20A/3P	DAMPER METERS			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	30A/3P	TEST MACHINE				14	A	30A/3P	SPARE			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	30A/3P	TEST MACHINE				20	A	30A/3P	FIRE DOOR			
21	B	-	-				22	B					
23	C	-	-				24	C	-	-			
25	A	20A/3P	SPARE				26	A	20A/3P	A/C 4,AH9, ROOM 157			
27	B	-	-				28	B	-	-			
29	C	-	-				30	C	-	-			
31	A	30A/3P	SPARE				32	A	30A/3P	ROLL UP DOOR			
33	B	-	-				34	B	-	-			
35	C	-	-				36	C	-	-			
37	A	20A/3P	ROLL UP DOOR				38	A	20A/3P	SPARE			
39	B	-	-				40	B	-	-			
41	C	-	-				42	C	-	-			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅: 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅: 0 KVA : _____AMPS
C ∅: 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANEL SCHEDULES

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY — JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY — APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN — AS22 GROUP LEAD — DATE: 10/24/13
AE: — DATE: 10/24/13 — APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES — APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN — SPEC. NO. FAC-M5054

DRAWING NO.
FAC-GO-4619-E705

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E705

MSFC Master Bid Disk 03-26-2014

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0049 (4619-RP0032)
LOCATION ROOM 145
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 90
MAIN FEEDER SIZE 4#4 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-BPD010A

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC 145				2	A	20A/1P	LTS 145			
3	B	20A/1P	REC 145				4	B	20A/1P	LTS 145			
5	C	20A/1P	REC 145				6	C	20A/1P	SPARE			
7	A	20A/1P	AC REC TOP LEVEL				8	A	20A/1P	FLOOD LTS RM 145			
9	B	20A/1P	AC REC TOP LEVEL				10	B	20A/1P	REC 145 - CASES IN WALL			
11	C	20A/1P	REC TOP LEVEL				12	C	20A/1P	SPARE			
13	A	20A/1P	REC TOP LEVEL				14	A	20A/1P	DOOR OPENER			
15	B	20A/1P	REC TOP LEVEL				16	B	20A/1P	DOOR OPENER			
17	C	20A/1P	REC TOP LEVEL				18	C	20A/1P	DOOR OPENER			
19	A	20A/1P	HEAT TRACE S.W.				20	A	20A/1P	REC 145 (FLOOR LEVEL)			
21	B	20A/1P	REC 145 (FLR LEVEL)				22	B	20A/1P	REC 145 (FLOOR LEVEL)			
23	C	20A/1P	REC 145 - FLOOR				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0051 (4619-RP0033)
LOCATION ROOM 301
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 200
MAIN FEEDER SIZE 4#2/0 & 1#6G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 200
AIC RATING 10K
FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	30A/1P	REC @ CATWALK				2	A	30A/3P	SPARE			
3	B	20A/1P	LTS RM 301				4	B	-	-			
5	C	20A/1P	LTS RM 301				6	C	-	-			
7	A	20A/1P	EMER LT & REC RM 301				8	A	20A/1P	REC RM 301			
9	B	20A/1P	REC RM 301				10	B	20A/1P	REC RM 301			
11	C	20A/1P	REC RM 301 (UNDER FLR)				12	C	20A/1P	REC RM 301 (UNDER FLR)			
13	A	20A/1P	REC RM 301				14	A	20A/1P	REC RM 301 (UNDER FLR)			
15	B	20A/1P	REC RM 301				16	B	20A/1P	REC RM 301 (UNDER FLR)			
17	C	20A/1P	REC @ CATWALK				18	C	20A/1P	REC RM 301 (UNDER FLR)			
19	A	20A/1P	REC RM 301				20	A	20A/1P	REC RM 301 (UNDER FLR)			
21	B	20A/1P	REC RM 301				22	B	20A/1P	REC RM 301 (UNDER FLR)			
23	C	20A/1P	SPARE				24	C	20A/1P	AC RM 301			
25	A	20A/1P	SPARE				26	A	20A/1P	AC RM 302			
27	B	20A/1P	SPARE				28	B	20A/1P	AC RM 303			
29	C	20A/1P	SPARE				30	C	20A/1P	SPARE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0052 (4619-RP0034)
LOCATION ROOM 145
MOUNTING SURFACE
MFR./TYPE SIEMENS
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	30A/3P	SPARE				2	A	20A/3P	WELDING REC.			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	20A/1P	SPARE				8	A	20A/1P	REC.			
9	B	20A/1P	SPARE				10	B	20A/1P	REC.			
11	C	20A/1P	SPARE				12	C	20A/1P	SPARE			
13	A	20A/1P	SPARE				14	A	20A/1P	SPARE			
15	B	20A/1P	SPARE				16	B	20A/1P	SPARE			
17	C	20A/1P	SPARE				18	C	20A/1P	SPARE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

GENERAL NOTES

1. UNLESS OTHERWISE NOTED, ALL PANELS ARE TO MAINTAIN EXISTING PANEL CONFIGURATION.
2. OLD MAXIMO # SHOWN FOR CLARITY. NEW MAXIMO # IF IS IN ( ) AFTER THE OLD MAXIMO #. CONTRACTOR SHALL UTILIZE THE (NEW MAXIMO #) AFTER FINAL INSTALLATION TO CREATE PANEL NAME TAG AND TYPE WRITTEN SCHEDULE.

PLAN NOTES

1 RECONNECT EXISTING CIRCUITS TO NEW PANEL.

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0053 (4619-LP0006)
LOCATION ROOM 146
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 277/480
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-PP0010 (4619-PP0005)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/2P	LIGHTS				2	A	20A/2P	LIGHTS			
3	B						4	B					
5	C	20A/2P	LIGHTS				6	C	20A/2P	LIGHTS			
7	A	-	-				8	A	-	-			
9	B	20A/2P	LIGHTS				10	B	20A/2P	SPARE			
11	C	-	-				12	C	-	-			
13	A	20A/2P	LIGHTS				14	A	20A/2P	LIGHTS			
15	B	-	-				16	B	-	-			
17	C	20A/2P	LIGHTS				18	C	20A/2P	LIGHTS			
19	A	-	-				20	A	-	-			
21	B	20A/2P	SPARE				22	B	20A/2P	SPARE			
23	C	-	-				24	C	-	-			
25	A	20A/2P	SPARE				26	A	20A/2P	SPARE			
27	B	-	-				28	B	-	-			
29	C	-	SPACE				30	C	-	SPACE			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0054 (4619-RP0035)
LOCATION ROOM 146
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 225A
MAIN FEEDER SIZE 4#4/0 & 1#4G
VOLTAGE 208
PHASE 3
WIRE 4
AMPS 225
AIC RATING 10K
FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	40A/3P	SPARE				2	A	40A/3P	SPARE			
3	B						4	B					
5	C	-	-				6	C	-	-			
7	A	40A/3P	DC PANEL				8	A	40A/3P	SPARE			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	20A/3P	REC RM 111				14	A	20A/3P	REC RM 138			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	20A/3P	SPARE				20	A	20A/3P	SPARE			
21	B	-	-				22	B	-	-			
23	C						24	C	-				
25	A	20A/3P	SPARE				26	A	-	SPACE			
27	B	-	-				28	B	-	SPACE			
29	C	-	-				30	C	-	SPACE			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0055 (4619-RP0036)
LOCATION ROOM 146
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#1/0 & 1#6G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-BPD004I

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	POWER SUPPLY				2	A	30A/1P	SPARE			
3	B	30A/1P	SPARE				4	B	30A/1P	SPARE			
5	C	30A/1P	CATWALK HIGH BAY RECEPT.				6	C	30A/1P	SPARE			
7	A	30A/1P	RECEPTACLES ROOM 146				8	A	30A/1P	SPARE			
9	B	30A/1P	SPARE				10	B	30A/1P	SPARE			
11	C	30A/1P	SPARE				12	C	30A/1P	SPARE			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

MAXIMO #4619-PNL0049	MAXIMO #4619-PNL0051	MAXIMO #4619-PNL0052
MAXIMO #4619-PNL0053	MAXIMO #4619-PNL0054	MAXIMO #4619-PNL0055
MAXIMO #4619-PNL0056	MAXIMO #4619-PNL0057	MAXIMO #4619-RP0050

SCHEDULE PLAN
NOT TO SCALE

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0056 (4619-RP0037)
LOCATION ROOM 146
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	HEAT TAPE				2	A	20A/1P	SPARE			
3	B	20A/1P	SPARE				4	B	20A/1P	SPARE			
5	C	20A/1P	SPARE				6	C	20A/1P	SPARE			
7	A	20A/1P	SPARE				8	A	20A/1P	SPARE			
9	B	20A/1P	SPARE				10	B	20A/1P	SPARE			
11	C	20A/1P	SPARE				12	C	20A/1P	SPARE			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0057 (4619-RP0038)
LOCATION ROOM 146
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-SWBD0001 (4619-PP0010)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC ROOM 152 (EWS)				2	A	20A/1P	REC ROOM 152 (ICE MACHINE)			
3	B	20A/1P	REC ROOM 153 (EM HS)				4	B	20A/1P	REC ROOM 154			
5	C	20A/1P	REC ROOM 154				6	C	20A/1P	REC ROOM 152			
7	A	20A/1P	SPARE				8	A	20A/1P	REC ROOM 152			
9	B	20A/1P	EWC				10	B	20A/1P	EMERY HS			
11	C	20A/1P	STAIR LIGHTS				12	C	20A/1P	REC @ HV-1			
13	A	20A/1P	SPARE				14	A	20A/1P	SPARE			
15	B	20A/1P	SPARE				16	B	20A/1P	SPARE			
17	C	30A/3P	TEST MACHINE				18	C	30A/3P	SPARE			
19	A	-	-				20	A	-	-			
21	B	-	-				22	B	-	-			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-RP0050 (4619-RP0100)
LOCATION CROSSHEAD
MOUNTING FLUSH
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-XFMR0006

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	LIGHTS				2	A	20A/1P	LIGHTS			
3	B	20A/1P	LIGHTS				4	B	20A/1P	TUNNEL BELOW			
5	C	20A/1P	RECEPTACLES				6	C	20A/1P	CONTROL LINE			
7	A	20A/1P	LIGHTS NW				8	A	20A/1P	SPARE			
9	B	20A/1P	LIGHTS NE				10	B	20A/1P	SPARE			
11	C	20A/1P	SPARE				12	C	20A/1P	SPARE			
13	A	20A/1P	SPARE				14	A	20A/1P	SPARE			
15	B	20A/1P	SPARE				16	B	20A/1P	SPARE			
17	C	20A/1P	SPARE				18	C	20A/1P	SPARE			
19	A	20A/1P	CONTROL				20	A	20A/1P	LIGHTS CONTROL			
21	B	20A/1P	SPARE				22	B	20A/1P	SPARE			
23	C	20A/1P	SPARE				24	C	15A/1P	SPARE			
25	A	20A/1P	SPARE				26	A	20A/1P	SPARE			
27	B	20A/1P	SPARE				28	B	20A/1P	SPARE			
29	C	20A/1P	SPARE				30	C	20A/1P	SPARE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANEL SCHEDULES

AE FIRM: GOODWYN | MILLS | CAWOOD / MERRICK & COMPANY (JOINT VENTURE)

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN
AE: DATE: 10/24/13
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
AS22 GROUP LEAD DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M5054
DRAWING NO. FAC-GO-4619-E706

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E706 60 OF 76

MSFC Master Bid Disk 03-26-2014

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0058 (4619-RP0039)
LOCATION ROOM 146
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 40A
MAIN FEEDER SIZE 4#8 & 1#10G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-PNL0046 (4619-PP0037)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	HEAT TAPE				2	A	20A/1P	SPARE			
3	B	20A/1P	SPARE				4	B	20A/1P	SPARE			
5	C	20A/1P	SPARE				6	C	20A/1P	SPARE			
7	A	20A/1P	SPARE				8	A	20A/1P	SPARE			
9	B	20A/1P	SPARE				10	B	20A/1P	SPARE			
11	C	20A/1P	SPARE				12	C	20A/1P	SPARE			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0059 (4619-RP0040)
LOCATION ROOM 146
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 40A
MAIN FEEDER SIZE 4#8 & 1#10G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-PNL0062 (4619-PP0014)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC.				2	A	20A/1P	REC.			
3	B	20A/1P	REC.				4	B	20A/1P	REC.			
5	C	20A/1P	REC.				6	C	20A/1P	REC.			
7	A	20A/1P	REC.				8	A	20A/1P	REC.			
9	B	20A/1P	REC.				10	B	20A/1P	REC.			
11	C	20A/1P	REC.				12	C	20A/1P	REC.			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0060 (4619-PP0012)
LOCATION ROOM 146
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 200A
MAIN FEEDER SIZE 4#3/0 & 1#6G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 225
AIC RATING 10K
FED FROM 4619-SWBD0001 (4619-PP0010)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	30A/3P	PANEL TP ROOM 129				2	A	30A/3P	SPARE			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	30A/3P	PANEL TP				8	A	30A/3P	SPARE			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	30A/3P	SPARE				14	A	30A/3P	PANEL TP			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	30A/3P	SPARE				20	A	30A/3P	SPARE			
21	B	-	-				22	B	-	-			
23	C	-	-				24	C	-	-			
25	A	30A/3P	SPARE				26	A	30A/3P	SPARE			
27	B	-	-				28	B	-	-			
29	C	-	-				30	C	-	-			
31	A	30A/3P	SPARE				32	A	30A/3P	SPARE			
33	B	-	-				34	B	-	-			
35	C	-	-				36	C	-	-			
37	A	30A/3P	3-PHASE PLUG				38	A	30A/3P	SPARE			
39	B	-	-				40	B	-	-			
41	C	-	-				42	C	-	-			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

GENERAL NOTES

1. UNLESS OTHERWISE NOTED, ALL PANELS ARE TO MAINTAIN EXISTING PANEL CONFIGURATION.
2. OLD MAXIMO # SHOWN FOR CLARITY. NEW MAXIMO # IF IS IN ( ) AFTER THE OLD MAXIMO #. CONTRACTOR SHALL UTILIZE THE (NEW MAXIMO #) AFTER FINAL INSTALLATION TO CREATE PANEL NAME TAG AND TYPE WRITTEN SCHEDULE.

PLAN NOTES

1 RECONNECT EXISTING CIRCUITS TO NEW PANEL.

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0061 (4619-PP0013)
LOCATION ROOM 146
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 200A
MAIN FEEDER SIZE 4#3/0 & 1#6G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 225
AIC RATING 10K
FED FROM 4619-SWBD0001 (4619-PP0010)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	40A/3P	DC PANEL ROOM 100				2	A	40A/3P	DC PANEL ROOM 114			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	40A/3P	DC PANEL ROOM 115				8	A	40A/3P	DC PANEL ROOM 116			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	40A/3P	DC PANEL ROOM 117				14	A	40A/3P	DC PANEL ROOM 122			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	40A/3P	DC PANEL ROOM 100				20	A	40A/3P	DC PANEL ROOM 100			
21	B	-	-				22	B	-	-			
23	C	-	-				24	C	-	-			
25	A	40A/3P	DC PANEL ROOM 100				26	A	40A/3P	DC PANEL ROOM 122			
27	B	-	-				28	B	-	-			
29	C	-	-				30	C	-	-			
31	A	40A/3P	SPARE				32	A	40A/3P	SPARE			
33	B	-	-				34	B	-	-			
35	C	-	-				36	C	-	-			
37	A	40A/3P	SPARE				38	A	40A/3P	SPARE			
39	B	-	-				40	B	-	-			
41	C	-	-				42	C	-	-			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0062 (4619-PP0014)
LOCATION ROOM 146
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 200A
MAIN FEEDER SIZE 4#3/0 & 1#6G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 225
AIC RATING 10K
FED FROM 4619-SWBD0001 (4619-PP0010)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	40A/3P	PANEL RP#3 ROOM 100				2	A	40A/3P	PANEL RP#6 ROOM 114			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	40A/3P	PANEL RP#4 ROOM 130				8	A	40A/3P	4619-PNL0016 (4619-RP0015)			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	40A/3P	4619-PNL0059 (4619-RP0040)				14	A	40A/3P	PANEL RP#5 ROOM 136			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	40A/3P	PANEL RP#7 ROOM 100				20	A	40A/3P	PANEL RP#1 ROOM 100			
21	B	-	-				22	B	-	-			
23	C	-	-				24	C	-	-			
25	A	40A/3P	SPARE				26	A	40A/3P	SPARE			
27	B	-	-				28	B	-	-			
29	C	-	-				30	C	-	-			
31	A	40A/3P	SPARE				32	A	40A/3P	SPARE			
33	B	-	-				34	B	-	-			
35	C	-	-				36	C	-	-			
37	A	40A/3P	SPARE				38	A	40A/3P	SPARE			
39	B	-	-				40	B	-	-			
41	C	-	-				42	C	-	-			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0063 (4619-RP0041)
LOCATION ROOM 146
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-SWBD0001 (4619-PP0010)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC RM 165 (EMER LTS)				2	A	20A/1P	REC RM (CABLE TRAY)			
3	B	20A/1P	REC RM 165				4	B	20A/1P	REC RM (CABLE TRAY)			
5	C	20A/1P	GASTECH 02 SYSTEM				6	C	20A/1P	SPARE			
7	A	20A/1P	REC (CAMERA) OVERHEAD				8	A	20A/1P	SPARE			
9	B	20A/1P	SPARE				10	B	20A/1P	SPARE			
11	C	20A/1P	SPARE				12	C	20A/1P	SPARE			
13	A	20A/1P	SPARE				14	A	20A/1P	SPARE			
15	B	20A/1P	SPARE				16	B	20A/1P	SPARE			
17	C	20A/1P	SPARE				18	C	20A/1P	SPARE			
19	A	20A/1P	SPARE				20	A	20A/1P	SPARE			
21	B	20A/1P	SPARE				22	B	20A/1P	SPARE			
23	C	20A/1P	SPARE				24	C	20A/1P	SPARE			
25	A	20A/1P	SPARE				26	A	20A/1P	SPARE			
27	B	20A/1P	SPARE				28	B	20A/1P	SPARE			
29	C	20A/1P	SPARE				30	C	20A/1P	SPARE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

MAXIMO #4619-PNL0058	MAXIMO #4619-PNL0059	MAXIMO #4619-PNL0060
MAXIMO #4619-PNL0061	MAXIMO #4619-PNL0062	MAXIMO #4619-PNL0063
MAXIMO #4619-PNL0064	MAXIMO #4619-PNL0065	MAXIMO #4619-PNL0066

SCHEDULE PLAN
NOT TO SCALE

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0064 (4619-RP0042)
LOCATION ROOM 153
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 40A
MAIN FEEDER SIZE 4#8 & 1#10G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 200A
AIC RATING 10K
FED FROM 4619-PNL0046 (4619-PP0037)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	30A/2P	DISCONNECT F				2	A	30A/2P	SPARE			
3	B	-	-				4	B	-	-			
5	C	20A/1P	REC E/WALL BEHIND BENCH				6	C	20A/1P	REC E/WALL BEHIND BENCH			
7	A	20A/1P	REC ON COLUMN				8	A	20A/1P	REC E/WALL DUPLEX			
9	B	20A/1P	REC BY STAIRS				10	B	50A/2P	SPARE			
11	C	20A/1P	SPARE				12	C	-	-			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0065 (4619-RP0043)
LOCATION ROOM 153
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 90A
MAIN FEEDER SIZE 4#4 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-BPD004H

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	-	SPACE				2	A	100A/3P	MAIN			
3	B	-	SPACE				4	B	-	-			
5	C	-	SPACE				6	C	-	-			
7	A	30A/3P	REC 153				8	A	40A/1P	REC 153E			
9	B	-	-				10	B	30A/1P	SPARE			
11	C	-	-				12	C	20A/1P	REC 153 @PANEL, 152 S.W			
13	A	15A/2P	SPARE				14	A	15A/2P	SPARE			
15	B	-	-				16	B	-	-			
17	C	20A/1P	REC 153A				18	C	20A/1P	REC 153A			
19	A	20A/1P	LTS OUTSIDE				20	A	20A/1P	REC PIT			
21	B	20A/1P	LTS PIT				22	B	-	-			
23	C	20A/1P	REC 153A S				24	C	20A/1P	DED REC MID PNL			
25	A	20A/3P	EX ROLLUP DOOR 153A				26	A	20A/3P	ROLLUP DOOR 153A			
27	B	-	-				28	B	-	-			
29	C	-	-				30	C	-	-			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0066 (4619-RP0044)
LOCATION ROOM 154
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 40A
MAIN FEEDER SIZE 4#8 & 1#10G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-PNL0046 (4619-PP0037)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	RECEPTACLES NE				2	A	20A/1P	RECEPTACLES W			
3	B	20A/1P	RECEPTACLES E				4	B	20A/1P	RECEPTACLES W			
5	C	20A/1P	RECEPTACLES E				6	C	20A/1P	RECEPTACLES NW			
7	A	20A/1P	RECEPTACLES				8	A	20A/1P	RECEPTACLES W			
9	B	20A/1P	RECEPTACLES E				10	B	20A/1P	RECEPTACLES W			
11	C	20A/1P	RECEPTACLES W				12	C	20A/1P	RECEPTACLES W			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANEL SCHEDULES

AE FIRM: GOODWYN | MILLS | CAWOOD / MERRICK & COMPANY — JOINT VENTURE

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
NASA AE CONTRACT NO. NAS8-NNM12AA49A
APPROVED: JIMMY GUARIN
AS22 GROUP LEAD — DATE: 10/24/13
AE: — DATE: 10/24/13
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M5054
DRAWING NO. FAC-GO-4619-E707

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E707 61 OF 76

MSFC Master Bid Disk 03-26-2014

ELECTRICAL PANEL SCHEDULE

1

PANEL MAXIMO #4619-PNL0067 (4619-RP0045)
LOCATION ROOM 154
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC. WEST WALL				2	A	20A/1P	REC. WEST WALL			
3	B	20A/1P	REC. WEST WALL				4	B	20A/1P	REC. WEST WALL			
5	C	20A/1P	REC. WEST WALL				6	C	20A/1P	REC. WEST WALL			
7	A	30A/1P	120V TWST. REC. W. WALL				8	A	-	SPACE			
9	B	-	SPACE				10	B	-	SPACE			
11	C	-	SPACE				12	C	-	SPACE			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅: 0 KVA : _____ AMPS
B ∅: 0 KVA : _____ AMPS
C ∅: 0 KVA : _____ AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE

1

PANEL MAXIMO #4619-PNL0068 (4619-RP0046)
LOCATION ROOM 146
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC EAST TEST PLATFORM				2	A	20A/1P	SPARE			
3	B	20A/1P	WIRE MOLD NORTH WALL				4	B	20A/1P	RECEPTACLES NORTH WALL			
5	C	20A/1P	RECEPTACLES NORTH WALL				6	C	20A/1P	WIREMOLD NORTH WALL			
7	A	20A/1P	RECEPTACLES NORTH WALL				8	A	20A/1P	RECEPTACLES NORTH WALL			
9	B	20A/1P	RECEPTACLES ON CABLE TRAY				10	B	20A/1P	RECEPTACLES BELOW PANEL			
11	C	20A/1P	REC. ON WEST TEST PLATFORM				12	C	20A/1P	RECEPTACLES BELOW PANEL			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅: 0 KVA : _____ AMPS
B ∅: 0 KVA : _____ AMPS
C ∅: 0 KVA : _____ AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0069 (4619-PP0015)
LOCATION ROOM 222
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 30A
MAIN FEEDER SIZE 4#10 & 1#10G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 30
AIC RATING 10K
FED FROM 4619-PNL0142 (4619-PP0034)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	LTS PH301				2	A	20A/1P	REC. PH301			
3	B	20A/1P	UH-1, UH-2				4	B	20A/1P	EF PH301			
5	C	20A/1P	UPS POWER MUX PANEL				6	C	-	SPACE			
7	A	20A/3P	AIR COMP				8	A	-	SPACE			
9	B	-	-				10	B	-	SPACE			
11	C	-	-				12	C	-	SPACE			
13	A	30A/3P	MAIN BREAKER				14	A	-	SPACE			
15	B	-	-				16	B	-	SPACE			
17	C	-	-				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅: 0 KVA : _____ AMPS
B ∅: 0 KVA : _____ AMPS
C ∅: 0 KVA : _____ AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

GENERAL NOTES

1. UNLESS OTHERWISE NOTED, ALL PANELS ARE TO MAINTAIN EXISTING PANEL CONFIGURATION.
2. OLD MAXIMO # SHOWN FOR CLARITY. NEW MAXIMO # IF IS IN ( ) AFTER THE OLD MAXIMO #. CONTRACTOR SHALL UTILIZE THE (NEW MAXIMO #) AFTER FINAL INSTALLATION TO CREATE PANEL NAME TAG AND TYPE WRITTEN SCHEDULE.

PLAN NOTES

1 RECONNECT EXISTING CIRCUITS TO NEW PANEL.

ELECTRICAL PANEL SCHEDULE

1

PANEL MAXIMO #4619-PNL0070 (4619-RP0047)
LOCATION ROOM 165
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 50A
MAIN FEEDER SIZE 4#6 & 1#10G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-BPD014N

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	STM. MTR				2	A	20A/1P	REC RM 155			
3	B	20A/1P	SPARE				4	B	20A/1P	UCS PANEL			
5	C	20A/1P	SPARE				6	C	20A/1P	REC RM 155			
7	A	20A/1P	SPARE				8	A	20A/1P	SPARE			
9	B	20A/1P	SPARE				10	B	20A/1P	UCS A/C CONTROL			
11	C	20A/1P	SPARE				12	C	20A/1P	REC RM 155			
13	A	20A/1P	PANEL 4619-HBI-I/P				14	A	20A/1P	REC RM 155			
15	B	20A/1P	SPARE				16	B	20A/1P	REC RM 155			
17	C	20A/1P	SPARE				18	C	20A/1P	SPARE			
19	A	20A/1P	SPARE				20	A	30A/1P	SPARE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅: 0 KVA : _____ AMPS
B ∅: 0 KVA : _____ AMPS
C ∅: 0 KVA : _____ AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0071 (4619-PP0016)
LOCATION ROOM 160B
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 200A
MAIN FEEDER SIZE 4#3/0 & 1#6G
VOLTAGE 277/480
PHASE 3
WIRE 4
AMPS 200
AIC RATING 18K
FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	15A/1P	OUTSIDE BLOWER FAN				2	A	15A/1P	SPARE			
3	B	15A/1P	SPARE				4	B	15A/1P	ELEC. HOIST RM 161			
5	C	15A/1P	SPARE				6	C	15A/1P	ELEC. HOIST RM 161			
7	A	20A/1P	SPARE				8	A	20A/1P	ELEC. HOIST RM 161			
9	B	20A/1P	AIR COMP				10	B	20A/1P	OUTSIDE LOWER NO.2			
11	C	-	SPACE				12	C	-	SPACE			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅: 0 KVA : _____ AMPS
B ∅: 0 KVA : _____ AMPS
C ∅: 0 KVA : _____ AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE

1

PANEL MAXIMO #4619-PNL0072 (4619-RP0048)
LOCATION ROOM 160B
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 225A
MAIN FEEDER SIZE 4#4/0 & 1#4G
VOLTAGE 120/208V
PHASE 3
WIRE 4
AMPS 225
AIC RATING 10K
FED FROM 4619-XFMR0001

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	100A/2P	AC REGULATOR				2	A	-	SPACE			
3	B	-					4	B		SPACE			
5	C	-	SPACE				6	C	100A/1P	AC REGULATOR			
7	A	-	SPACE				8	A	100A/1P	AC REGULATOR			
9	B	100A/2P	AC REGULATOR				10	B	-	SPACE			
11	C	-	-				12	C	-	SPACE			
13	A	-	SPACE				14	A	100A/2P	SPARE			
15	B	-	SPACE				16	B	-	SPARE			
17	C	50A/1P	50A TA				18	C	20A/3P	REC RM 160			
19	A	100A/2P	SPARE				20	A	-	-			
21	B	-	-				22	B	-	-			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	50A/1P	TA			
27	B	70A/1P	SPARE				28	B	-	SPACE			
29	C	30A/1P	REC RM 158A				30	C	-	SPACE			
31	A	20A/1P	REC RM 160B				32	A	50A/1P	SPARE			
33	B	20A/1P	REC RM 158A				34	B	20A/1P	SPARE			
35	C	20A/1P	REC RM 158A				36	C	20A/1P	AIR COMP ES			
37	A	20A/1P	REC RM 158A				38	A	20A/1P	AIR COMP ES			
39	B	20A/1P	SPARE				40	B	20A/1P	REC RM 158A			
41	C	20A/1P	SPARE				42	C	20A/1P	REC RM 158A			
43	B	20A/1P	REC RM 160A				44	A	20A/1P	REC RM 159			
45	C	30A/1P	REC RM 160A				46	B	50A/2P	SPARE			
47	B	20A/1P	REC RM 160A				48	C	-	-			
49	C	20A/1P	REC RM 159				50	A	-	SPACE			
51	B	20A/1P	REC RM 159				52	B	-	SPACE			
53	C	-	SPACE				54	C	-	SPACE			
55	B	-	SPACE				56	A	30A/3P	HOIST RM 160A			
57	C	-	SPACE				58	B	-	-			
59	B	-	SPACE				60	C	-	-			
61	C	20A/1P	REC RM 159A				62	A	20A/1P	SPARE			
63	B	20A/1P	REC RM 159A				64	B	-	SPACE			
65	C	20A/1P	REC RM 159A				66	C	50A/1P	SPARE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅: 0 KVA : _____ AMPS
B ∅: 0 KVA : _____ AMPS
C ∅: 0 KVA : _____ AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

MAXIMO #4619-PNL0067	MAXIMO #4619-PNL0068	MAXIMO #4619-PNL0069
MAXIMO #4619-PNL0070	MAXIMO #4619-PNL0071	MAXIMO #4619-PNL0072
MAXIMO #4619-PNL0073	MAXIMO #4619-PNL0074	

SCHEDULE PLAN
NOT TO SCALE

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0073 (4619-RP0049)
LOCATION ROOM 160B
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-SWGR0002

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	UCS				2	A	20A/1P	REC RM 156			
3	B	20A/1P	SPARE				4	B	20A/1P	REC RM 156			
5	C	20A/1P	SPARE				6	C	20A/1P	REC RM 160			
7	A	20A/1P	REC RM 159 & 160				8	A	20A/1P	REC RM 158			
9	B	20A/1P	REC RM 159 & 160				10	B	20A/1P	LBNP VAC PP			
11	C	20A/1P	REC RM 159 & 160				12	C	20A/1P	LBNP VAC PP			
13	A	20A/1P	REC RM 159				14	A	60A/3P	STILL RM 160B			
15	B	30A/2P	REC RM 159 & 160				16	B	-	-			
17	C	-	REC RM 159 & 160				18	C	-	-			
19	A	20A/2P	REC RM 158				20	A	20A/1P	REC RM 156			
21	B	-	REC RM 157				22	B	20A/1P	REC RM 156			
23	C	-	SPACE				24	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅: 0 KVA : _____ AMPS
B ∅: 0 KVA : _____ AMPS
C ∅: 0 KVA : _____ AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE

1

PANEL MAXIMO #4619-PNL0074 (4619-PP0017)
LOCATION ROOM 160B
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 200A
MAIN FEEDER SIZE 4#3/0 & 1#6G
VOLTAGE 480V
PHASE 3
WIRE 3
AMPS 200
AIC RATING 10K
FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/3P	OIL PUMP #4				2	A	20A/3P	OIL PUMP #4			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	20A/3P	HOIST				8	A	20A/3P	SPARE			
9	B	-	-				10	B	-	-			
11	C	-					12	C	-				
13	A	20A/3P	T200 EAST FAN				14	A	30A/3P	T200 WEST FAN			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	30A/3P	T200 WEST FAN				20	A	-	SPACE			
21	B	-	-				22	B	-	SPACE			
23	C	-	-				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅: 0 KVA : _____ AMPS
B ∅: 0 KVA : _____ AMPS
C ∅: 0 KVA : _____ AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANEL SCHEDULES

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY — JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN
AE: DATE: 10/24/13
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
AS22 GROUP LEAD DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M5054

DRAWING NO.
FAC-GO-4619-E708

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E708 62 OF 76

MSFC Master Bid Disk 03-26-2014

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0075 (4619-PP0018)
LOCATION ROOM 161
MOUNTING SURFACE
MFR./TYPE SIEMENS
MAIN BKR 300A
MAIN FEEDER SIZE 4#350 KCMIL & 1#4G
VOLTAGE 277/480
PHASE 3
WIRE 4
AMPS 400
AIC RATING 18K
FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	-	SPACE				2	A	-	SPACE			
3	B	-	SPACE				4	B	-	SPACE			
5	C	-	SPACE				6	C	-	SPACE			
7	A	-	SPACE				8	A	-	SPACE			
9	B	-	SPACE				10	B	-	SPACE			
11	C	-	SPACE				12	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0076 (4619-RP0050)
LOCATION ROOM 164C
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR MLO
MAIN FEEDER SIZE 4#6 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-PNL0111 (4619-PP0026)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	RECPT SOUTH BENCH				2	A	20A/1P	BENCH 3 & 4 SE OUTLETS			
3	B	20A/1P	1ST & 2ND BENCH OUTLETS				4	B	20A/1P	BENCH #1&2 OUTLETS			
5	C	20A/1P	SW BENCH OUTLETS				6	C	20A/1P	SOUTH END BENCH OUTLET			
7	A	-	SPACE				8	A	-	SPACE			
9	B	-	SPACE				10	B	-	SPACE			
11	C	-	SPACE				12	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0077 (4619-RP0051)
LOCATION ROOM 164C
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-SWGR0002

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC RM 164E N.				2	A	20A/1P	SPARE			
3	B	20A/1P	OUTSIDE LTS S				4	B	20A/1P	SPARE			
5	C	20A/1P	SPARE				6	C	20A/1P	SPARE			
7	A	20A/1P	LTS S ENTRANCE				8	A	20A/1P	SPARE			
9	B	20A/1P	WATER HEATER				10	B	20A/1P	SPARE			
11	C	20A/1P	WATER HEATER				12	C	20A/1P	SPARE			
13	A	20A/1P	REC RM 164				14	A	20A/1P	REC RM 151 N.E			
15	B	20A/1P	EXHAUST FAN RM E9				16	B	20A/1P	REC RM 151 N.E			
17	C	20A/1P	REC RM E9				18	C	20A/1P	REC RM 164 E.E.			
19	A	20A/1P	LTS UPSTAIRS				20	A	20A/1P	SPARE (IN J-BOX E8)			
21	B	20A/1P	LTS UPSTAIRS				22	B	20A/1P	REC RM E8			
23	C	20A/1P	LTS UPSTAIRS				24	C	20A/1P	SPARE (IN J-BOX E8)			
25	A	20A/1P	EXHAUST FAN DARK RM				26	A	20A/1P	REC RM 164 E.E.			
27	B	20A/1P	HW CIRC PUMP				28	B	20A/1P	REC RM 164 E.E.			
29	C	20A/1P	SPARE				30	C	20A/1P	SPARE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

GENERAL NOTES

1. UNLESS OTHERWISE NOTED, ALL PANELS ARE TO MAINTAIN EXISTING PANEL CONFIGURATION.
2. OLD MAXIMO # SHOWN FOR CLARITY. NEW MAXIMO # IF IS IN ( ) AFTER THE OLD MAXIMO #. CONTRACTOR SHALL UTILIZE THE (NEW MAXIMO #) AFTER FINAL INSTALLATION TO CREATE PANEL NAME TAG AND TYPE WRITTEN SCHEDULE.

PLAN NOTES

1 RECONNECT EXISTING CIRCUITS TO NEW PANEL.

ELECTRICAL PANEL SCHEDULE
1

PANEL MAXIMO #4619-PNL0078 (4619-RP0052)
LOCATION OUTSIDE ROOM 164E
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-SWGR0002

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	OUTSIDE LIGHTS				2	A	20A/1P	OUTSIDE LIGHTS			
3	B	20A/1P	OUTSIDE LIGHTS				4	B	20A/1P	OUTSIDE LIGHTS			
5	C	20A/1P	OUTSIDE LIGHTS				6	C	20A/1P	OUTSIDE LIGHTS			
7	A	20A/1P	OUTSIDE LIGHTS				8	A	20A/1P	OUTSIDE LIGHTS			
9	B	20A/1P	OUTSIDE LIGHTS				10	B	20A/1P	SPARE			
11	C	20A/1P	OUTSIDE LIGHTS				12	C	20A/1P	OUTSIDE LIGHTS			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0079 (4619-PP0019)
LOCATION HALLWAY (NEAR ROOM 301)
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 225A
MAIN FEEDER SIZE 4#4/0 & 1#4G
VOLTAGE 277/480
PHASE 3
WIRE 4
AMPS 225A
AIC RATING 10K
FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	50A/3P	REC				2	A	50A/3P	REC			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	50A/3P	REC				8	A	100A/3P	REC			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	100A/3P	V15-PP1				14	A	60A/3P	SPARE			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	60A/3P	REC				20	A	60A/3P	REC			
21	B	-	-				22	B	-	-			
23	C	-	-				24	C	-	-			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0080 (4619-PP0020)
LOCATION ROOM 155
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 400A
MAIN FEEDER SIZE 4#500 & 1#2G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 400
AIC RATING 10K
FED FROM 4619-XFMR0005

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/3P	V-1				2	A	20A/3P	V-8			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	20A/3P	V-2				8	A	20A/3P	V-10			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	20A/3P	V15-LP				14	A	20A/3P	V-1			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	20A/3P	V-4				20	A	20A/3P	RGA			
21	B	-	-				22	B	-	-			
23	C	-	-				24	C	-	-			
25	A	20A/3P	V-5				26	A	20A/3P	POME AUX PNL#1			
27	B	-	-				28	B	-	-			
29	C	-	-				30	C	-	-			
31	A	20A/3P	V-6				32	A	20A/3P	TH-2			
33	B	-	-				34	B	-	-			
35	C	-	-				36	C	-	-			
37	A	20A/3P	V-7				38	A	20A/3P	TH-3			
39	B	-	-				40	B	-	-			
41	C	-	-				42	C	-	-			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

MAXIMO #4619-PNL0075	MAXIMO #4619-PNL0076	MAXIMO #4619-PNL0077
MAXIMO #4619-PNL0078	MAXIMO #4619-PNL0079	MAXIMO #4619-PNL0080
MAXIMO #4619-PNL0081	MAXIMO #4619-PNL0082	MAXIMO #4619-PNL0084

SCHEDULE PLAN
NOT TO SCALE

ELECTRICAL PANEL SCHEDULE
1

PANEL MAXIMO #4619-PNL0081 (4619-RP0053)
LOCATION OUTSIDE ROOM 166
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 40A
MAIN FEEDER SIZE 4#8 & 1#10G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 250
AIC RATING 10K
FED FROM 4619-SWGR0002

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC RM 155				2	A	20A/1P	REC RM 155			
3	B	20A/1P	REC RM 155				4	B	20A/1P	REC RM 155			
5	C	20A/1P	WATER COOLER				6	C	20A/1P	REC RM 155			
7	A	20A/1P	SPARE				8	A	20A/1P	EMER LIGHT			
9	B	20A/1P	SPARE				10	B	20A/1P	SPARE			
11	C	20A/1P	SPARE				12	C	20A/1P	SPARE			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
1

PANEL MAXIMO #4619-PNL0082 (4619-RP0054)
LOCATION ROOM 167
MOUNTING FLUSH
MFR./TYPE SQUARE D
MAIN BKR 225A
MAIN FEEDER SIZE 4#4/0 & 1#4G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 225A
AIC RATING 10K
FED FROM 4619-BPD16AB

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	VACUUM CHAMBER V-1				2	A	20A/1P	VACUUM CHAMBER V-4			
3	B	20A/1P	VACUUM CHAMBER V-1				4	B	20A/1P	VACUUM CHAMBER V-4			
5	C	20A/1P	VACUUM CHAMBER V-1				6	C	20A/1P	VACUUM CHAMBER V-8			
7	A	20A/1P	VACUUM CHAMBER V-2				8	A	20A/1P	VACUUM CHAMBER V-8			
9	B	20A/1P	VACUUM CHAMBER V-2				10	B	20A/1P	VACUUM CHAMBER V-10			
11	C	20A/1P	VACUUM CHAMBER V-2				12	C	20A/1P	VACUUM CHAMBER V-10			
13	A	20A/1P	VACUUM CHAMBER V-3				14	A	20A/1P	VACUUM CHAMBER RGA			
15	B	20A/1P	VACUUM CHAMBER V-3				16	B	20A/1P	VACUUM CHAMBER RGA			
17	C	20A/1P	VACUUM CHAMBER V-3				18	C	20A/1P	SPARE			
19	A	20A/1P	VACUUM CHAMBER V-5				20	A	20A/1P	VACUUM CHAMBER V-7			
21	B	20A/1P	VACUUM CHAMBER V-5				22	B	20A/1P	VACUUM CHAMBER V-7			
23	C	20A/1P	VACUUM CHAMBER V-5				24	C	20A/1P	VACUUM CHAMBER V-7			
25	A	20A/1P	VACUUM CHAMBER V-6				26	A	20A/1P	VACUUM CHAMBER V-1			
27	B	20A/1P	VACUUM CHAMBER V-6				28	B	20A/1P	VACUUM CHAMBER V-1			
29	C	20A/1P	VACUUM CHAMBER V-6				30	C	20A/1P	VACUUM CHAMBER V-1			
31	A	20A/1P	SUMP PUMP V-5, V6 PIT				32	A	20A/1P	RECPT. SOUTH WALL			
33	B	20A/1P	RECPT. SOUTH WALL				34	B	20A/1P	RECPT. SOUTH WALL			
35	C	20A/1P	RECPT. WEST WALL				36	C	20A/1P	RECPT. NORTH WALL			
37	A	20A/1P	RECPT. EAST WALL				38	A	20A/1P	RECPT. EAST WALL			
39	B	20A/1P	SPARE				40	B	20A/1P	PIT EXHAUST FAN			
41	C	20A/1P	SPARE				42	C	20A/1P	EMERGENCY GENERATOR			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0084 (4619-RP0055)
LOCATION ROOM 167
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 40A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-BPD16AF

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	SPARE				2	A	20A/1P	REC.			
3	B	20A/1P	SPARE				4	B	20A/1P	REC.			
5	C	20A/1P	REC.				6	C	20A/1P	REC.			
7	A	20A/1P	REC.				8	A	20A/1P	REC.			
9	B	20A/1P	REC.				10	B	20A/1P	VAC			
11	C	20A/1P	REC.				12	C	20A/1P	VAC			
13	A	20A/1P	REC.				14	A	20A/1P	VAC			
15	B	20A/1P	SPARE				16	B	20A/1P	STILL			
17	C	20A/1P	REC.				18	C	20A/1P	STILL			
19	A	20A/1P	REC.				20	A	20A/1P	REC.			
21	B	20A/1P	REC.				22	B	20A/1P	REC.			
23	C	20A/1P	REC.				24	C	20A/1P	REC.			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANEL SCHEDULES

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E709 63 OF 76

AE FIRM: GOODWYN | MILLS | CAWOOD | MERRICK & COMPANY — JOINT VENTURE

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
AE: DATE: 10/24/13
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M5054

NASA AE CONTRACT NO. NAS8-NNM12AA49A
APPROVED: JIMMY GUARIN
AS22 GROUP LEAD DATE: 10/24/13

DRAWING NO.
FAC-GO-4619-E709

MSFC Master Bid Disk 03-26-2014

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0085 (4619-RP0096)
LOCATION 167
MOUNTING FLUSH
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	100A/3P	MAIN				2	A	30A/3P	RECEPTACLES			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	30A/3P	RECEPTACLES				8	A	30A/3P	RECEPTACLES			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0086 (4619-PP0021)
LOCATION ROOM 167
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 800A
MAIN FEEDER SIZE 2 RUNS OF 4-500KCMIL & 1#1/0G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 800
AIC RATING 22K
FED FROM 4619-SWGR0002

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	150A/3P	TH-4				2	A	150A/3P	TH-1			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	150A/3P	TH-3				8	A	150A/3P	SPARE			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	150A/3P	TH-2				14	A	-	SPACE			
15	B	-	-				16	B	-	SPACE			
17	C	-	-				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
1

PANEL MAXIMO #4619-PNL0087 (4619-RP0056)
LOCATION ROOM 167
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 225
MAIN FEEDER SIZE 4#4/0 & 1#4G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 225
AIC RATING 10K
FED FROM 4619-BPD16AA

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/3P	208V PLUG ON				2	A	60A/3P	208V PLUG ON			
3	B	-	SOUTH WALL				4	B	-	NORTH WALL			
5	C	-	-				6	C	-	EAST END			
7	A	60A/3P	208V PLUG				8	A	60A/3P	208V PLUG			
9	B	-	ON WEST WALL				10	B	-	NORTH WALL			
11	C	-	-				12	C	-	WEST END			
13	A	60A/3P	208V PLUG				14	A	20A/1P	T.V. OUTLET			
15	B	-	IN CENTER OF				16	B	30A/3P	WIREMOLD RECPT.			
17	C	-	WIREMOLD RECPT.				18	C	-	-			
19	A	20A/1P	WIREMOLD RECPT.				20	A	-	-			
21	B	-	SPACE				22	B	20A/1P	WIREMOLD RECPT.			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

GENERAL NOTES

1. UNLESS OTHERWISE NOTED, ALL PANELS ARE TO MAINTAIN EXISTING PANEL CONFIGURATION.
2. OLD MAXIMO # SHOWN FOR CLARITY. NEW MAXIMO # IF IS IN ( ) AFTER THE OLD MAXIMO #. CONTRACTOR SHALL UTILIZE THE (NEW MAXIMO #) AFTER FINAL INSTALLATION TO CREATE PANEL NAME TAG AND TYPE WRITTEN SCHEDULE.

PLAN NOTES

1 RECONNECT EXISTING CIRCUITS TO NEW PANEL.

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0088 (4619-RP0057)
LOCATION ROOM 167B
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-SWGR0002

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	SPARE				2	A	20A/1P	SPARE			
3	B	20A/1P	SPARE				4	B	20A/1P	SPARE			
5	C	20A/1P	SPARE				6	C	20A/1P	SPARE			
7	A	20A/1P	SPARE				8	A	20A/1P	SPARE			
9	B	20A/1P	SPARE				10	B	20A/1P	SPARE			
11	C	20A/1P	SPARE				12	C	20A/1P	SPARE			
13	A	20A/1P	SPARE				14	A	20A/1P	SPARE			
15	B	20A/1P	SPARE				16	B	20A/1P	SPARE			
17	C	20A/1P	SPARE				18	C	20A/1P	SPARE			
19	A	20A/1P	FEED RECEPTACLES				20	A	20A/1P	FEED RECEPTACLES			
21	B	20A/1P	FEED RECEPTACLES				22	B	20A/1P	FEED RECEPTACLES			
23	C	20A/1P	FEED RECEPTACLES				24	C	20A/1P	FEED RECEPTACLES			
25	A	20A/1P	FEED RECEPTACLES				26	A	20A/1P	FEED RECEPTACLES			
27	B	20A/1P	FEED RECEPTACLES				28	B	20A/1P	FEED RECEPTACLES			
29	C	20A/1P	FEED RECEPTACLES				30	C	20A/1P	FEED RECEPTACLES			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0089 (4619-RP0058)
LOCATION ROOM 168
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 80A
MAIN FEEDER SIZE 4#4 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 80
AIC RATING 10K
FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	120V BUSS CONTROL CAB				2	A	20A/1P	LTS OUTSIDE			
3	B	20A/1P	120V BUSS CONTROL CAB				4	B	20A/1P	EYEWASH HEAT TAPE			
5	C	20A/1P	120V BUSS CONTROL CAB				6	C	20A/1P	LN2 J-BOX			
7	A	20A/1P	UPS REC				8	A	20A/1P	LN2 J-BOX			
9	B	20A/1P	UPS REC				10	B	20A/1P	SPARE			
11	C	20A/1P	SS TURBOPUMP				12	C	20A/1P	PUMP LN2			
13	A	20A/1P	TURBOPUMP SUNSPOT				14	A	20A/1P	PUMP LN2			
15	B	20A/1P	TURBOPUMP SUNSPOT				16	B	20A/1P	PUMP LN2			
17	C	20A/1P	TURBOPUMP SUNSPOT				18	C	20A/1P	BLANK			
19	A	20A/1P	SPARE				20	A	20A/1P	SPARE			
21	B	20A/1P	SPARE				22	B	20A/1P	SPARE			
23	C	20A/1P	SS CABLE TROUGH				24	C	20A/1P	REC SS			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0090 (4619-PP0022)
LOCATION ROOM 168
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 225A
MAIN FEEDER SIZE 3#4/0 & 1#4G
VOLTAGE 277/480
PHASE 3
WIRE 3
AMPS 225
AIC RATING 10K
FED FROM 4619-BPD017U

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	50A/3P	SPARE				2	A	100A/3P	480V WELD REC O/S			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	20A/3P	SPARE				8	A	20A/3P	SPARE			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	60A/3P	30KVA XFRMR & PNL NP				14	A	30A/3P	PUMP P3 UNLOAD STATION			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	20A/3P	SPARE				20	A	70A/3P	RIP			
21	B	-	-				22	B	-	-			
23	C	-	-				24	C	-	-			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

MAXIMO #4619-PNL0085	MAXIMO #4619-PNL0086	MAXIMO #4619-PNL0087
MAXIMO #4619-PNL0088	MAXIMO #4619-PNL0089	MAXIMO #4619-PNL0090
MAXIMO #4619-PNL0091	MAXIMO #4619-PNL0092	MAXIMO #4619-PNL0093

SCHEDULE PLAN
NOT TO SCALE

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0091 (4619-RP0059)
LOCATION ROOM 168
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 40A
MAIN FEEDER SIZE 4#8 & 1#10G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-SWGR0002

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC 142				2	A	20A/3P	REC 167B			
3	B	20A/1P	REC 142 W-WALL				4	B	-	-			
5	C	20A/1P	REC 167B				6	C	-	-			
7	A	20A/1P	SPARE				8	A	20A/1P	MICRO WAVE			
9	B	20A/1P	SPARE				10	B	20A/1P	SS PHASER			
11	C	20A/1P	SONY MONITOR				12	C	20A/1P	SPARE			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0092 (4619-RP0060)
LOCATION ROOM 168
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR MLO
MAIN FEEDER SIZE 4#6 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-PNL0111 (4619-PP0026)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC. 140				2	A	20A/1P	02 MONITOR (PIT)			
3	B	20A/1P	WEST WALL 140				4	B	20A/1P	02 MONITOR (PIT)			
5	C	20A/1P	1/30HP UH-1 RM 139				6	C	20A/1P	DEAD			
7	A	20A/1P	REC. NEW BLDG. 99				8	A	20A/1P	REC. NEW BLDG. 99			
9	B	20A/1P	EXH FAN EF-2 RM 169				10	B	20A/1P	RECEPT-168			
11	C	20A/1P	SPARE				12	C	20A/1P	RECEPT-168			
13	A	20A/1P	SPARE				14	A	20A/1P	RECEPT-168			
15	B	20A/1P	SPARE				16	B	20A/1P	SPARE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
1

PANEL MAXIMO #4619-PNL0093 (4619-RP0061)
LOCATION ROOM 147D
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 200A
MAIN FEEDER SIZE 4#3/0 & 1#6G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 225
AIC RATING 10K
FED FROM 4619-SWBD0003

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	SPARE				2	A	20A/1P	SPARE			
3	B	20A/1P	REC RM 147D (EMER LTS)				4	B	20A/1P	SPARE			
5	C	20A/1P	REC RM 147D				6	C	20A/1P	SPARE			
7	A	20A/1P	ROLLUP DOOR W/SIDE				8	A	60A/1P	SPARE			
9	B	20A/2P	ROLLUP DOOR S/SIDE				10	B	20A/1P	UNIT 1			
11	C						12	C	20A/1P	UNIT 2			
13	A	20A/1P	SPARE				14	A	20A/1P	SPARE			
15	B	20A/1P	DAMPER MOTOR				16	B	20A/1P	REC OUTSIDE S.E			
17	C	20A/1P	SPARE				18	C	20A/1P	REC OUTSIDE S.E			
19	A	-	SPACE				20	A	20A/1P	REC OUTSIDE S.E			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED		
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANEL SCHEDULES

AE FIRM: GOODWYN | HILLS | CAWOOD JOINT VENTURE — MERRICK & COMPANY

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
NASA AE CONTRACT NO. NAS8-NNM12AA49A
APPROVED: JIMMY GUARIN
AS22 GROUP LEAD DATE: 10/24/13
AE: DATE: 10/24/13
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M5054
DRAWING NO. FAC-GO-4619-E710

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E710 64 OF 76

MSFC Master Bid Disk 03-26-2014

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0094 (4619-RP0062)
LOCATION ROOM 168
MOUNTING FLUSH
MFR./TYPE SQUARE D
MAIN BKR 150A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 200
AIC RATING 10K
FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	SS RECEPT				2	A	20A/1P	SS RECEPT			
3	B	20A/1P	SS RECEPT				4	B	20A/1P	SS RECEPT			
5	C	20A/1P	SS RECEPT				6	C	20A/1P	SS RECEPT			
7	A	20A/1P	SS RECEPT				8	A	20A/1P	SS RECEPT			
9	B	20A/1P	SS RECEPT				10	B	20A/1P	SS RECEPT			
11	C	20A/1P	SS RECEPT				12	C	20A/1P	SS RECEPT			
13	A	20A/1P	SS RECEPT				14	A	20A/1P	SS RECEPT			
15	B	20A/1P	SS RECEPT				16	B	20A/1P	SS RECEPT			
17	C	20A/1P	SS RECEPT				18	C	20A/1P	SS RECEPT			
19	A	20A/1P	SS RECEPT				20	A	20A/1P	SS RECEPT			
21	B	100A/3P	4619-PNL0018 (4619-RP0017)				22	B	20A/1P	SPARE			
23	C	-	-				24	C	20A/1P	SPARE			
25	A	-	-				26	A	20A/1P	SPARE			
27	B	100A/3P	SOUTH WALL MACHINE SHOP				28	B	20A/1P	SPARE			
29	C	-	-				30	C	20A/1P	SPARE			
31	A	-	-				32	A	20A/1P	SPARE			
33	B	20A/1P	SPARE				34	B	20A/1P	SPARE			
35	C	20A/1P	SPARE				36	C	20A/1P	SPARE			
37	A	20A/1P	SPARE				38	A	20A/1P	SPARE			
39	B	20A/1P	SPARE				40	B	20A/1P	SPARE			
41	C	20A/1P	SPARE				42	C	20A/1P	SPARE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0096 (4619-RP0063)
LOCATION OUTSIDE ROOM 160A
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 110A
MAIN FEEDER SIZE 4#2 & 1#6G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 200
AIC RATING 10K
FED FROM 4619-BPD014K

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC RM 161				2	A	20A/1P	REC RM 161			
3	B	20A/1P	REC RM 161				4	B	20A/1P	REC RM 161			
5	C	20A/1P	REC RM 161				6	C	20A/1P	REC RM 161			
7	A	30A/3P	REC RM 161				8	A	30A/3P	REC RM 161			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	100A/3P	SPARE				14	A	100A/3P	SPARE			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	100A/3P	SPARE				20	A	40A/3P	SPARE			
21	B	-	-				22	B	-	-			
23	C	-	-				24	C	-	-			
25	A	40A/3P	REC RM 161				26	A	-	SPACE			
27	B	-	-				28	B	-	SPACE			
29	C	-	-				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0097 (4619-RP0064)
LOCATION OUTSIDE ROOM 160A
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 40A
MAIN FEEDER SIZE 4#8 & 1#10G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-SWGR0002

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	RECP. RM 138				2	A	20A/1P	RECP. RM 138			
3	B	20A/1P	RECP. RM 138				4	B	20A/1P	REC. RM 138 EWS			
5	C	20A/1P	WATER COOLER				6	C	20A/1P	WATER COOLER			
7	A	20A/1P	VENT FAN				8	A	20A/1P	RECP. RM 162/VIB. FIT LIGHTS			
9	B	20A/1P	SPARE				10	B	20A/1P	RECP. RM 162			
11	C	20A/1P	SPARE				12	C	20A/1P	SPARE			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

GENERAL NOTES

1. UNLESS OTHERWISE NOTED, ALL PANELS ARE TO MAINTAIN EXISTING PANEL CONFIGURATION.
2. OLD MAXIMO # SHOWN FOR CLARITY. NEW MAXIMO # IF IS IN ( ) AFTER THE OLD MAXIMO #. CONTRACTOR SHALL UTILIZE THE (NEW MAXIMO #) AFTER FINAL INSTALLATION TO CREATE PANEL NAME TAG AND TYPE WRITTEN SCHEDULE.

PLAN NOTES

1 RECONNECT EXISTING CIRCUITS TO NEW PANEL.

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0099 (4619-RP0065)
LOCATION HALLWAY (NEAR ROOM 164)
MOUNTING FLUSH
MFR./TYPE SIEMENS
MAIN BKR 100A
MAIN FEEDER SIZE 4#3 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-BPD014G

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	50A/1P	REC RM 164A				2	A	20A/1P	REC RM 164B			
3	B	20A/1P	REC RM 164A				4	B	20A/1P	REC RM 164B			
5	C	20A/1P	SPARE				6	C	20A/1P	SPARE			
7	A	20A/1P	SPARE				8	A	20A/3P	LASER POWER SUPPLY			
9	B	-	SPACE				10	B	-	-			
11	C	-	SPACE				12	C	-	-			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0100 (4619-PP0023)
LOCATION ROOM 147D
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 200A
MAIN FEEDER SIZE 4#3/0 & 1#6G
VOLTAGE 277/480
PHASE 3
WIRE 4
AMPS 225
AIC RATING 10K
FED FROM 4619-PP0010 (4619-PP0005)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	LTS RM 147D				2	A	20A/1P	LIGHTS RM 147D			
3	B	20A/1P	SPARE				4	B	20A/3P	SPARE			
5	C	20A/3P	EXHAUST FAN #1				6	C	-	-			
7	A	-	-				8	A	-	-			
9	B	-	-				10	B	20A/1P	SPARE			
11	C	90A/3P	30A DISCONNECT				12	C	20A/3P	REC RM 147D			
13	A	-	-				14	A	-	-			
15	B	-	-				16	B	-	-			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0101 (4619-RP0066)
LOCATION HALLWAY (NEAR ROOM 164)
MOUNTING FLUSH
MFR./TYPE SQUARE D
MAIN BKR 40A
MAIN FEEDER SIZE 4#8 & 1#10G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-SWGR0002

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC 151				2	A	20A/1P	BENCH EAST			
3	B	20A/1P	REC 151				4	B	20A/1P	AIR TEST BENCH S/END RACK 2			
5	C	20A/1P	REC 151				6	C	20A/1P	AIR TEST BENCH S/END RACK 3			
7	A	20A/1P	REC 164B UNDER FLR				8	A	20A/1P	BENCH WEST 164B			
9	B	20A/1P	REC 164B UNDER FLR				10	B	20A/1P	REC 164B UNDER FLR 2 POLE			
11	C	20A/1P	REC 164B UNDER FLR				12	C	20A/1P	REC 154B UNDER FLR 2 POLE			
13	A	20A/1P	REC 164B UNDER FLR				14	A	20A/1P	REC 164B BENCH 2 POLE			
15	B	20A/1P	REC 164B UNDER FLR				16	B	20A/1P	REC 164B BENCH 2 POLE			
17	C	20A/1P	REC 164B				18	C	20A/1P	REC 164			
19	A	20A/1P	REC 164B				20	A	20A/1P	REC 164			
21	B	20A/1P	REC 164B				22	B	20A/1P	REC 164			
23	C	20A/1P	REC 164B				24	C	20A/1P	REC 164			
25	A	20A/1P	REC ABOVE PANEL				26	A	-	SPACE			
27	B	-	SPACE				28	B	20A/1P	REC TABLE			
29	C	-	SPACE				30	C	20A/1P	REC TABLE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

MAXIMO #4619-PNL0094	MAXIMO #4619-PNL0096	MAXIMO #4619-PNL0097
MAXIMO #4619-PNL0099	MAXIMO #4619-PNL0100	MAXIMO #4619-PNL0101
MAXIMO #4619-PNL0102	MAXIMO #4619-PNL0103	MAXIMO #4619-PNL0104

SCHEDULE PLAN
NOT TO SCALE

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0102 (4619-RP0067)
LOCATION ROOM 166
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 70A
MAIN FEEDER SIZE 4#6 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-PNL0111 (4619-RP0012)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC RM 166 N.				2	A	20A/1P	REC RM 166 E.			
3	B	20A/1P	REC RM 166 N.				4	B	20A/1P	REC RM 166			
5	C	20A/1P	SPARE				6	C	20A/1P	REC RM 166			
7	A	20A/1P	ODT 006				8	A	20A/1P	REC RM 166 (TOP OF PANEL)			
9	B	20A/2P	MOTOR STARTER E/PUMP				10	B	20A/2P	MOTOR STARTER W/PUMP			
11	C	-	-				12	C	-	-			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0103 (4619-RP0068)
LOCATION ROOM 166
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#1/0 & 1#6G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-BPD16AE

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	60A/3P	SPARE				2	A	100A/3P	MAIN			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	20A/1P	110 BUS				8	A	20A/1P	DATA SYSTEM			
9	B	20A/1P	TURBO CONTROL #1				10	B	20A/1P	TURBO CONTROL #2			
11	C	30A/1P	TURBO BACKING PUMP #1				12	C	20A/1P	TURBO BACKING #2			
13	A	20A/3P	SPARE				14	A	60A/3P	SPARE			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	20A/1P	REC 166 W				20	A	60A/3P	SPARE			
21	B	20A/1P	REC 166A S.				22	B	-	-			
23	C	20A/1P	REC 166A S.				24	C	-	-			
25	A	30A/3P	SALT TANK 166A				26	A	20A/1P	EX.FAN			
27	B	-	-				28	B	20A/1P	REC 166A S.			
29	C	-	-				30	C	20A/1P	REC 166A E.			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0104 (4619-RP0069)
LOCATION ROOM 155
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 400A
MAIN FEEDER SIZE 4#500KCMIL & 1#2G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 400
AIC RATING 10K
FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	100A/3P	CONDENSER				2	A	35A/3P	FC UNIT			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	80A/3P	HUMIDIFIER				8	A	20A/1P	REC.			
9	B	-	-				10	B	20A/1P	REC.			
11	C	-	-				12	C	20A/1P	FIRE ALARM			
13	A	80A/3P	REC.				14	A	20A/1P	O2 SENSOR			
15	B	-	-				16	B	20A/1P	LTS			
17	C	-	-				18	C	20A/1P	LTS			
19	A	60A/3P	REC.				20	A	20A/1P	VACUUM			
21	B	-	-				22	B	20A/1P	REC.			
23	C	-	-				24	C	20A/1P	REC.			
25	A	20A/3P	AIR SHOWER				26	A	20A/1P	SPARE			
27	B	-	-				28	B	20A/1P	SPARE			
29	C	-	-				30	C	20A/1P	SPARE			
31	A	20A/1P	SPARE				32	A	20A/1P	SPARE			
33	B	20A/1P	SPARE				34	B	20A/1P	SPARE			
35	C	20A/1P	SPARE				36	C	20A/1P	SPARE			
37	A	20A/1P	SPARE				38	A	20A/1P	SPARE			
39	B	20A/1P	SPARE				40	B	20A/1P	SPARE			
41	C	20A/1P	SPARE				42	C	20A/1P	SPARE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANEL SCHEDULES

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY — JOINT VENTURE

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOGIS, A&E22 PROJECT A/E
AE: DATE: 10/24/13
APPROVAL RECOMMENDED: TIM DOGIS, A&E22 SUPPORT A/E
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLBINGER, A&E22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M5054

NASA AE CONTRACT NO. NAS8-NNM12AA49A
APPROVED: JIMMY GUARIN
A&E22 GROUP LEAD DATE: 10/24/13

DRAWING NO.
FAC-GO-4619-E711

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E711 65 OF 76

MSFC Master Bid Disk 03-26-2014

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0105 (4619-RP0070) — VOLTAGE 120/208
LOCATION ROOM 170B — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 100
MAIN BKR MLO — AIC RATING 10K
MAIN FEEDER SIZE 4#8 & 1#10G — FED FROM 4619-PNL0111 (4619-PP0026)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC				2	A	20A/1P	RACK STRIP			
3	B	20A/1P	REC.				4	B	20A/1P	RACK STRIP			
5	C	20A/1P	REC.				6	C	20A/1P	RACK STRIP			
7	A	20A/1P	REC.				8	A	20A/1P	SPARE			
9	B	20A/1P	REC.				10	B	20A/1P	RACK STRIP			
11	C	20A/1P	SPARE				12	C	20A/1P	RACK STRIP			
13	A	20A/1P	SPARE				14	A	20A/1P	SPARE			
15	B	20A/1P	SPARE				16	B	20A/1P	PIPE CHASE LTS			
17	C	20A/1P	SPARE				18	C	20A/1P	DUCT DETECTOR			
19	A	20A/1P	SPARE				20	A	20A/1P	SPARE			
21	B	20A/1P	SPARE				22	B	20A/1P	AMP RACK			
23	C	20A/1P	SPARE				24	C	20A/1P	CONVERTER			
25	A	20A/1P	MUX PNL				26	A	20A/1P	DUCT DETECTOR			
27	B	20A/1P	TV				28	B	20A/1P	SPARE			
29	C	20A/1P	SPARE				30	C	20A/1P	SPARE			
31	A	20A/1P	SPARE				32	A	20A/1P	SPARE			
33	B	20A/1P	SPARE				34	B	20A/1P	SPARE			
35	C	20A/1P	SPARE				36	C	20A/1P	SPARE			
37	A	20A/1P	SPARE				38	A	20A/1P	SPARE			
39	B	20A/1P	SPARE				40	B	20A/1P	SPARE			
41	C	20A/1P	SPARE				42	C	20A/1P	SPARE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0106 (4619-PP0024) — VOLTAGE 277/480
LOCATION ROOM SUN SPOT PIT — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 125A
MAIN BKR 125A — AIC RATING 18K
MAIN FEEDER SIZE 4#3 & 1#8G — FED FROM FED FROM BUS DUCT

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	15A/3P	HELIUM COMPRESSOR #2				2	A	15A/3P	"TP"			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	15A/3P	HELIUM COMPRESSOR #1				8	A	30A/3P	TURBO BACKING PUMP			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	30A/3P	SPARE				14	A	-	SPACE			
15	B	-	-				16	B	-	SPACE			
17	C	-					18	C	-	SPACE			
19	A	30A/3P	BLOWER PUMP #2				20	A	-	SPACE			
21	B	-	-				22	B	-	SPACE			
23	C	-	-				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0107 (4619-RP0071) — VOLTAGE 120/208
LOCATION ROOM SUN SPOT PIT — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 100
MAIN BKR 100A — AIC RATING 10K
MAIN FEEDER SIZE 4#2 & 1#8G — FED FROM 4619-XFMR0010

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC.				2	A	20A/1P	LTS IN PIT			
3	B	20A/1P	REC.				4	B	20A/1P	INSTERMENT PIT			
5	C	20A/1P	INSTERMENTS				6	C	20A/1P	SPARE			
7	A	30A/1P	SPARE				8	A	30A/2P	REC.			
9	B	20A/2P	CRYO PUMP				10	B	-	-			
11	C	-	-				12	C	30A/2P	REC.			
13	A	30A/2P	208V REC				14	A	-	-			
15	B	-					16	B	50A/2P	REC.			
17	C	20A/1P	CHAMBER LTS				18	C	-	-			
19	A	20A/2P	TURBO #2				20	A	20A/1P	TERMINAL BOX			
21	B	-	-				22	B	20A/2P	TURBO #1			
23	C	20A/1P	SUNSPOT PLC				24	C	-	-			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

GENERAL NOTES

1. UNLESS OTHERWISE NOTED, ALL PANELS ARE TO MAINTAIN EXISTING PANEL CONFIGURATION.
2. OLD MAXIMO # SHOWN FOR CLARITY. NEW MAXIMO # IF IS IN ( ) AFTER THE OLD MAXIMO #. CONTRACTOR SHALL UTILIZE THE (NEW MAXIMO #) AFTER FINAL INSTALLATION TO CREATE PANEL NAME TAG AND TYPE WRITTEN SCHEDULE.

PLAN NOTES

1 RECONNECT EXISTING CIRCUITS TO NEW PANEL.

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0108 (4619-RP0072) — VOLTAGE 120/208
LOCATION ROOM 155 — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 100
MAIN BKR 100A — AIC RATING 10K
MAIN FEEDER SIZE 4#2 & 1#8G — FED FROM 4619-SWGR0002

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	SPARE				2	A	20A/1P	SPARE			
3	B	20A/1P	SPARE				4	B	20A/1P	SPARE			
5	C	20A/1P	SPARE				6	C	20A/1P	SPARE			
7	A	30A/1P	SPARE				8	A	30A/1P	SPARE			
9	B	30A/1P	SPARE				10	B	30A/1P	SPARE			
11	C	30A/1P	SPARE				12	C	30A/1P	SPARE			
13	A	30A/1P	WELDING HEATER				14	A	30A/1P	WATER COOLER			
15	B	30A/1P	SPARE				16	B	30A/1P	RECPT. ROOM 137			
17	C	20A/1P	SPARE				18	C	30A/1P	RECPT. ROOM 137			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0109 (4619-RP0073) — VOLTAGE 120/208
LOCATION ROOM 155 — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 225
MAIN BKR 200A — AIC RATING 10K
MAIN FEEDER SIZE 4#3/0 & 1#6G — FED FROM 4619-BPD018W

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	VACUUM CHAMBER				2	A	20A/1P	PS1 RP 3/2 120V REC 4			
3	B	20A/1P	VACUUM CHAMBER				4	B	20A/1P	PS2 120V REC 4			
5	C	20A/1P	VACUUM CHAMBER				6	C	20A/1P	PS3 120V REC 4			
7	A	20A/1P	VACUUM CHAMBER				8	A	20A/1P	PS4 120V REC 4			
9	B	20A/1P	VACUUM CHAMBER				10	B	20A/1P	CP1,2,3 HEATER RELAY			
11	C	20A/1P	VACUUM CHAMBER				12	C	20A/1P	SPARE			
13	A	20A/1P	VACUUM CHAMBER				14	A	20A/1P	DROP BOX #4			
15	B	20A/1P	VACUUM CHAMBER				16	B	20A/2P	TP1 CONTROLLER			
17	C	20A/1P	VACUUM CHAMBER				18	C	-	-			
19	A	20A/1P	VACUUM CHAMBER V-6				20	A	-	SPACE			
21	B	20A/1P	VACUUM CHAMBER V-6				22	B	-	SPACE			
23	C	20A/1P	VACUUM CHAMBER V-6				24	C	-	SPACE			
25	A	20A/1P	VACUUM CHAMBER				26	A	-	SPACE			
27	B	20A/1P	VACUUM CHAMBER				28	B	-	SPACE			
29	C	20A/1P	VACUUM CHAMBER				30	C	-	SPACE			
31	A	20A/1P	VACUUM CHAMBER V-11				32	A	-	SPACE			
33	B	20A/1P	VACUUM CHAMBER V-11				34	B	-	SPACE			
35	C	20A/1P	VACUUM CHAMBER V-11				36	C	-	SPACE			
37	A	20A/1P	VACUUM CHAMBER V-2				38	A	-	SPACE			
39	B	20A/1P	VACUUM CHAMBER V-2				40	B	-	SPACE			
41	C	20A/1P	VACUUM CHAMBER V-2				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0110 (4619-PP0025) — VOLTAGE 480
LOCATION ROOM 155 — PHASE 3
MOUNTING SURFACE — WIRE 3
MFR./TYPE SQUARE D — AMPS 200
MAIN BKR 200A — AIC RATING 10K
MAIN FEEDER SIZE 3#3/0 & 1#6G — FED FROM 4619-BPD017P

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	15A/3P	CP1 RP				2	A	15A/3P	CP3 RP			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	15A/3P	CP2 RP				8	A	30A/3P	PUMP A			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	30A/3P	PUMP B				14	A	15A/3P	TP1-BP			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	15A/3P	CP1-HE				20	A	15A/3P	WENCH 5HP			
21	B	-					22	B	-				
23	C	-	-				24	C	-	-			
25	A	30A/3P	HEATER				26	A	15A/3P	CP2-HE			
27	B	-	-				28	B	-	-			
29	C	-	-				30	C	-	-			
31	A	30A/3P	SPARE				32	A	15A/3P	CP3-HE			
33	B	-	-				34	B	-	-			
35	C	-	-				36	C	-	-			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

MAXIMO #4619-PNL0105	MAXIMO #4619-PNL0106	MAXIMO #4619-PNL0107
MAXIMO #4619-PNL0108	MAXIMO #4619-PNL0109	MAXIMO #4619-PNL0110
MAXIMO #4619-PNL0111	MAXIMO #4619-PNL0112	MAXIMO #4619-PNL0113

SCHEDULE PLAN
NOT TO SCALE

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0111 (4619-PP0026) — VOLTAGE 120/208
LOCATION ROOM 155 — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 200
MAIN BKR 200A — AIC RATING 10K
MAIN FEEDER SIZE 4#3/0 & 1#6G — FED FROM BUS DUCT

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	70A/3P	4619-PNL0102 (4619-RP0067)				2	A	70A/3P	4619-PNL0092 (4619-RP0060)			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	70A/3P	SPARE				8	A	70A/3P	SPARE			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	50A/3P	4619-PNL0105 (4619-RP0070)				14	A	70A/3P	SPARE			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C					
19	A	50A/3P	4619-PNL0076 (4619-RP0050)				20	A	20A/1P	EXIT & EMER LTS			
21	B	-	-				22	B	20A/1P	SPARE			
23	C	-	-				24	C	20A/1P	SPARE			
25	A	20A/3P	SPARE				26	A	20A/1P	REC 155 (S.W. DUCT)			
27	B	-	-				28	B	-	SPACE			
29	C	-	-				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0112 (4619-PP0027) — VOLTAGE 120/208
LOCATION ROOM 155 — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 100
MAIN BKR 100A — AIC RATING 10K
MAIN FEEDER SIZE 4#2 & 1#8G — FED FROM 4619-BPD18AF

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	THERMAL UNIT 4				2	A	20A/1P	THERMAL UNIT 4			
3	B	20A/1P	THERMAL UNIT 4				4	B	20A/1P	THERMAL UNIT 4			
5	C	20A/1P	THERMAL UNIT 4				6	C	20A/1P	THERMAL UNIT 4			
7	A	20A/1P	THERMAL UNIT 2				8	A	20A/1P	THERMAL UNIT 2			
9	B	20A/1P	THERMAL UNIT 2				10	B	20A/1P	THERMAL UNIT 2			
11	C	20A/1P	THERMAL UNIT 2				12	C	20A/1P	THERMAL UNIT 2			
13	A	20A/1P	SPARE				14	A	20A/1P	SPARE			
15	B	20A/1P	SPARE				16	B	20A/1P	SPARE			
17	C	20A/1P	SPARE				18	C	20A/1P	SPARE			
19	A	20A/1P	SPARE				20	A	20A/1P	SPARE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0113 (4619-RP0074) — VOLTAGE 120/208
LOCATION ROOM 155 — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 100
MAIN BKR 100A — AIC RATING 10K
MAIN FEEDER SIZE 4#2 & 1#8G — FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	SPARE				2	A	20A/1P	SPARE			
3	B	20A/1P	SPARE				4	B	20A/1P	SPARE			
5	C	20A/1P	SPARE				6	C	20A/1P	SPARE			
7	A	20A/1P	SPARE				8	A	30A/1P	SPARE			
9	B	30A/1P	SPARE				10	B	30A/1P	SPARE			
11	C	30A/1P	SPARE				12	C	30A/1P	SPARE			
13	A	30A/1P	REC 155				14	A	30A/1P	SPARE			
15	B	30A/1P	REC 155 (COL8 N WALL)				16	B	20A/1P	SPARE			
17	C	20A/1P	SPARE				18	C	20A/1P	SPARE			
19	A	20A/1P	SPARE				20	A	20A/1P	SPARE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS

ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANEL SCHEDULES

AE FIRM: GOODWYN | HILLS | CAWOOD — JOINT VENTURE — MERRICK & COMPANY

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY — APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN — AS22 GROUP LEAD — DATE: 10/24/13
AE: — DATE: 10/24/13 — APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN — SPEC. NO. FAC-M50054

DRAWING NO. FAC-GO-4619-E712

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E712 66 OF 76

ELECTRICAL PANEL SCHEDULE [1]

PANEL	MAXIMO #4619-PNL0114 (4619-RP0075)	VOLTAGE	120/208
LOCATION	ROOM 155 COLUMN 3	PHASE	3
MOUNTING	SURFACE	WIRE	4
MFR./TYPE	SQUARE D	AMPS	100
MAIN BKR	60	AIC RATING	10K
MAIN FEEDER SIZE	4#4 & 1#8G	FED FROM	

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD aØ	bØ	cØ	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD aØ	bØ	cØ
1	A	20A/1P	LTS & REC.				2	A	20A/1P	LH2			
3	B	-	SPACE				4	B	-	SPACE			
5	C	-	SPACE				6	C	-	SPACE			
7	A	-	SPACE				8	A	-	SPACE			
9	B	-	SPACE				10	B	-	SPACE			
11	C	-	SPACE				12	C	-	SPACE			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD — ISOLATED GROUND BUS ☐
A Ø : 0 KVA : ____________AMPS — ALL BUS SHALL BE 1000 APSI COPPER — NEUTRAL BUS ✓
B Ø : 0 KVA : ____________AMPS — GROUND BUS ✓
C Ø : 0 KVA : ____________AMPS — SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE (EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL	MAXIMO #4619-PNL0116 (4619-PP0037)	VOLTAGE	277/480
LOCATION	LTA HIGH BAY AREA 155	PHASE	3
MOUNTING	SURFACE	WIRE	4
MFR./TYPE	SQUARE D	AMPS	100
MAIN BKR	100A	AIC RATING	18K
MAIN FEEDER SIZE	4#2 & 1#8G	FED FROM	

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD aØ	bØ	cØ	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD aØ	bØ	cØ
1	A	-	SPACE				2	A	-	SPACE			
3	B	-	SPACE				4	B	-	SPACE			
5	C	-	SPACE				6	C	-	SPACE			
7	A	-	SPACE				8	A	-	SPACE			
9	B	-	SPACE				10	B	-	SPACE			
11	C	-	SPACE				12	C	-	SPACE			
13	A	20A/3P	CYRO 2				14	A	20A/3P	TURBO BP			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	20A/3P	CHAMBER RP				20	A	30A/3P	SHROUD HEATER			
21	B	-	-				22	B	-	-			
23	C	-	-				24	C	-	-			
25	A	20A/3P	CYRO 1				26	A	50A/3P	V7 CONTROL POWER			
27	B	-	-				28	B	-	-			
29	C	-	-				30	C	-	-			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD — ISOLATED GROUND BUS ☐
A Ø : 0 KVA : ____________AMPS — ALL BUS SHALL BE 1000 APSI COPPER — NEUTRAL BUS ✓
B Ø : 0 KVA : ____________AMPS — GROUND BUS ✓
C Ø : 0 KVA : ____________AMPS — SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE [1]

PANEL	MAXIMO #4619-PNL0117 (4619-RP0076)	VOLTAGE	120/208
LOCATION	ROOM 147A	PHASE	3
MOUNTING	SURFACE	WIRE	4
MFR./TYPE	SQUARE D	AMPS	100
MAIN BKR	40A	AIC RATING	10K
MAIN FEEDER SIZE	4#8 & 1#6G	FED FROM	4619-PNL0046 (4619-PP0037)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD aØ	bØ	cØ	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD aØ	bØ	cØ
1	A	20A/1P	RECEPT UNDER FLOOR				2	A	20A/1P	TAPE RECORDER			
3	B	20A/1P	RECEPT UNDER FLOOR				4	B	20A/1P	TAPE RECORDER			
5	C	20A/1P	RECEPT UNDER FLOOR				6	C	20A/1P	RECEPT UNDER FLOOR			
7	A	20A/1P	RECEPT UNDER FLOOR				8	A	20A/1P	RECEPT UNDER FLOOR			
9	B	20A/1P	RECEPT UNDER FLOOR				10	B	20A/1P	RECEPT UNDER FLOOR			
11	C	20A/1P	RECEPT UNDER FLOOR				12	C	20A/1P	RECEPT UNDER FLOOR			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	30A/1P	RECEPT T.U. MONITOR				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD — ISOLATED GROUND BUS ☐
A Ø : 0 KVA : ____________AMPS — ALL BUS SHALL BE 1000 APSI COPPER — NEUTRAL BUS ✓
B Ø : 0 KVA : ____________AMPS — GROUND BUS ✓
C Ø : 0 KVA : ____________AMPS — SUB FEED BUS ☐

GENERAL NOTES

1. UNLESS OTHERWISE NOTED, ALL PANELS ARE TO MAINTAIN EXISTING PANEL CONFIGURATION.
2. OLD MAXIMO # SHOWN FOR CLARITY. NEW MAXIMO # IF IS IN ( ) AFTER THE OLD MAXIMO #. CONTRACTOR SHALL UTILIZE THE (NEW MAXIMO #) AFTER FINAL INSTALLATION TO CREATE PANEL NAME TAG AND TYPE WRITTEN SCHEDULE.

PLAN NOTES

[1] RECONNECT EXISTING CIRCUITS TO NEW PANEL.

ELECTRICAL PANEL SCHEDULE [1]

PANEL	MAXIMO #4619-PNL0118 (4619-RP0077)	VOLTAGE	120/208
LOCATION	ROOM 147A	PHASE	3
MOUNTING	SURFACE	WIRE	4
MFR./TYPE	SQUARE D	AMPS	100
MAIN BKR	100A	AIC RATING	10K
MAIN FEEDER SIZE	4#2 & 1#8G	FED FROM	

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD aØ	bØ	cØ	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD aØ	bØ	cØ
1	A	20A/1P	SPARE				2	A	20A/1P	ACOUSTIC RACK			
3	B	20A/1P	SPARE				4	B	20A/1P	ACOUSTIC RACK			
5	C	20A/1P	FRIDGE				6	C	20A/1P	REC.			
7	A	20A/1P	REC.				8	A	20A/1P	REC.			
9	B	20A/1P	REC.				10	B	20A/1P	REC.			
11	C	20A/1P	REC.				12	C	20A/1P	REC.			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD — ISOLATED GROUND BUS ☐
A Ø : 0 KVA : ____________AMPS — ALL BUS SHALL BE 1000 APSI COPPER — NEUTRAL BUS ✓
B Ø : 0 KVA : ____________AMPS — GROUND BUS ✓
C Ø : 0 KVA : ____________AMPS — SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE [1]

PANEL	MAXIMO #4619-PNL0119 (4619-RP0097)	VOLTAGE	120/208
LOCATION	148A	PHASE	3
MOUNTING	FLUSH	WIRE	4
MFR./TYPE	SQUARE D	AMPS	100
MAIN BKR	100A	AIC RATING	10K
MAIN FEEDER SIZE	4#2 & 1#8G	FED FROM	

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD aØ	bØ	cØ	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD aØ	bØ	cØ
1	A	20A/1P	RECEPTACLES				2	A	20A/1P	RECEPTACLES			
3	B	20A/1P	RECEPTACLES				4	B	20A/1P	RECEPTACLES			
5	C	20A/1P	RECEPTACLES				6	C	20A/1P	RECEPTACLES			
7	A	20A/1P	RECEPTACLES				8	A	20A/1P	RECEPTACLES			
9	B	20A/1P	RECEPTACLES				10	B	20A/1P	RECEPTACLES			
11	C	20A/1P	RECEPTACLES				12	C	20A/1P	RECEPTACLES			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD — ISOLATED GROUND BUS ☐
A Ø : 0 KVA : ____________AMPS — ALL BUS SHALL BE 1000 APSI COPPER — NEUTRAL BUS ✓
B Ø : 0 KVA : ____________AMPS — GROUND BUS ✓
C Ø : 0 KVA : ____________AMPS — SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE (EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL	MAXIMO #4619-PNL0120 (4619-PP0028)	VOLTAGE	480
LOCATION	MECH. EQUIP. ROOM 228	PHASE	3
MOUNTING	SURFACE	WIRE	3
MFR./TYPE	SQUARE D	AMPS	200
MAIN BKR	200	AIC RATING	18K
MAIN FEEDER SIZE	4#3/0 & 1#6G	FED FROM	4619-SWGR0001

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD aØ	bØ	cØ	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD aØ	bØ	cØ
1	A	15A/3P	AHU-2 RM 215				2	A	15A/3P	SPARE			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	15A/3P	AHU-2 RM 215				8	A	15A/3P	AHU-1 RM 215			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD — ISOLATED GROUND BUS ☐
A Ø : 0 KVA : ____________AMPS — ALL BUS SHALL BE 1000 APSI COPPER — NEUTRAL BUS ✓
B Ø : 0 KVA : ____________AMPS — GROUND BUS ✓
C Ø : 0 KVA : ____________AMPS — SUB FEED BUS ☐

MAXIMO #4619-PNL0114	MAXIMO #4619-PNL0116	MAXIMO #4619-PNL0117
MAXIMO #4619-PNL0118	MAXIMO #4619-PNL0119	MAXIMO #4619-PNL0120
MAXIMO #4619-PNL0121	MAXIMO #4619-PNL0122	MAXIMO #4619-PNL0123

SCHEDULE PLAN

NOT TO SCALE

ELECTRICAL PANEL SCHEDULE [1]

PANEL	MAXIMO #4619-PNL0121 (4619-RP0078)	VOLTAGE	120/208
LOCATION	ROOM 165	PHASE	3
MOUNTING	SURFACE	WIRE	4
MFR./TYPE	SQUARE D	AMPS	100
MAIN BKR	100A	AIC RATING	10K
MAIN FEEDER SIZE	4#2 & 1#8G	FED FROM	

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD aØ	bØ	cØ	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD aØ	bØ	cØ
1	A	20A/1P	REC RM 165				2	A	20A/1P	REC RM 165 N.			
3	B	20A/1P	REC RM 165				4	B	20A/1P	REC RM 165 N.			
5	C	20A/1P	REC RM 165				6	C	20A/1P	REC RM 165 N.			
7	A	20A/1P	REC RM 165 N.				8	A	20A/1P	SPARE			
9	B	20A/1P	REC RM 165 N.				10	B	20A/1P	SPARE			
11	C	20A/1P	REC RM 165 N.				12	C	20A/1P	SPARE			
13	A	20A/1P	SPARE				14	A	-	SPACE			
15	B	20A/1P	SPARE				16	B	20A/3P	REC RM 165			
17	C	20A/1P	SPARE				18	C	-	-			
19	A	-	SPACE				20	A	-	-			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD — ISOLATED GROUND BUS ☐
A Ø : 0 KVA : ____________AMPS — ALL BUS SHALL BE 1000 APSI COPPER — NEUTRAL BUS ✓
B Ø : 0 KVA : ____________AMPS — GROUND BUS ✓
C Ø : 0 KVA : ____________AMPS — SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE [1]

PANEL	MAXIMO #4619-PNL0122 (4619-RP0079)	VOLTAGE	120/208
LOCATION	ROBOTICS LAB	PHASE	3
MOUNTING	FLUSH	WIRE	4
MFR./TYPE	SQUARE D	AMPS	100
MAIN BKR	100A	AIC RATING	10K
MAIN FEEDER SIZE	4#2 & 1#8G	FED FROM	

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD aØ	bØ	cØ	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD aØ	bØ	cØ
1	A	20A/1P	REC RM 165				2	A	20A/1P	SOUND SYSTEM			
3	B	20A/1P	REC RM 165				4	B	20A/1P	REC RM 165			
5	C	20A/1P	REC RM 165				6	C	20A/1P	REC RM 165			
7	A	20A/1P	REC RM 165				8	A	20A/1P	LTS RM 165			
9	B	20A/1P	REC RM 165				10	B	20A/1P	LTS RM 165			
11	C	20A/1P	REC RM 165				12	C	20A/1P	SPARE			
13	A	20A/1P	SPARE				14	A	40A/3P	REC RM 165 @ COL 13			
15	B	20A/1P	SPARE				16	B	-	-			
17	C	20A/1P	SPARE				18	C	-	-			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD — ISOLATED GROUND BUS ☐
A Ø : 0 KVA : ____________AMPS — ALL BUS SHALL BE 1000 APSI COPPER — NEUTRAL BUS ✓
B Ø : 0 KVA : ____________AMPS — GROUND BUS ✓
C Ø : 0 KVA : ____________AMPS — SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE (EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL	MAXIMO #4619-PNL0123 (4619-PP0029)	VOLTAGE	120/208
LOCATION	ABOVE ROOM 164C	PHASE	3
MOUNTING	SURFACE	WIRE	4
MFR./TYPE	SQUARE D	AMPS	225
MAIN BKR	MLO	AIC RATING	22K
MAIN FEEDER SIZE	4#4/0 & 1#4	FED FROM	4619-SWGR0003

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD aØ	bØ	cØ	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD aØ	bØ	cØ
1	A	20A/1P	HVAC CONTROL PANEL				2	A	30A/3P	H1-1 HUMIDIFIER RM 156			
3	B	20A/1P	HEAT TRACE				4	B	-	-			
5	C	20A/1P					6	C	-	-			
7	A	30A/3P	H1-1 HUMIDIFIER RM 160B				8	A	30A/3P	H1-2 HUMIDIFIER RM 158			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	30A/3P	H2-1 HUMIDIFIER RM 160A				14	A	30A/3P	H1-3 HUMIDIFIER RM 160			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	30A/3P	H2-2 HUMIDIFIER RM 161				20	A	30A/3P	H3-1 HUMIDIFIER RM 160			
21	B	-	-				22	B	-	-			
23	C	-	-				24	C	-	-			
25	A	30A/3P	H2-1 HUMIDIFIER RM 164B				26	A	20A/1P	UNIT HEATER UH-2			
27	B	-	-				28	B	20A/1P	DUCT MOUNTED SMOKE DETECTOR			
29	C	-	-				30	C	20A/1P	AH31 VAVS			
31	A	20A/1P	BATHROOM EXHAUST FAN				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD — ISOLATED GROUND BUS ☐
A Ø : 0 KVA : ____________AMPS — ALL BUS SHALL BE 1000 APSI COPPER — NEUTRAL BUS ✓
B Ø : 0 KVA : ____________AMPS — GROUND BUS ✓
C Ø : 0 KVA : ____________AMPS — SUB FEED BUS ☐

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED		
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANEL SCHEDULES

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY — JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN
AE: DATE: 10/24/13
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
AS22 GROUP LEAD DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M5054

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E713 67 OF 76

DRAWING NO. FAC-GO-4619-E713

ELECTRICAL PANEL SCHEDULE (1)

PANEL MAXIMO #4619-PNL0124 (4619-RP0080)
LOCATION ROBOTICS LAB
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 150
MAIN FEEDER SIZE 4#2/0 & 1#6G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 200
AIC RATING 10K
FED FROM 4619-BPD019L

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	SPARE				2	A	20A/3P	RAISED FLOOR POWER			
3	B	20A/1P	SPARE				4	B	-	-			
5	C	20A/1P	SPARE				6	C	-	-			
7	A	20A/1P	SPARE				8	A	20A/2P	OVERHEAD LT 2ND SE COR.			
9	B	20A/1P	SPARE				10	B	-	-			
11	C	20A/1P	SPARE				12	C	20A/2P	LT 1ST NW CORNER			
13	A	20A/1P	SPARE				14	A	-	-			
15	B	20A/1P	SPARE				16	B	20A/2P	LT 2ND NW CORNER			
17	C	20A/1P	SPARE				18	C	-	-			
19	A	20A/1P	SPARE				20	A	20A/2P	LT 2ND NE CORNER			
21	B	30A/2P	REC @ SIDE OF PANEL				22	B	-	-			
23	C	-	-				24	C	20A/2P	LT 1ST NE CORNER			
25	A	20A/1P	SPARE				26	A	-	-			
27	B	20A/1P	SPARE				28	B	20A/2P	LT 1ST SW CORNER			
29	C	20A/2P	SPARE				30	C	-	-			
31	A	-					32	A	20A/2P	LT 2ND SW CORNER			
33	B	-	BLANK				34	B					
35	C	30A/1P	EMER LTS				36	C	30A/1P	REC @ SIDE OF PANEL			
37	A	20A/1P	CRANE CONTROL CIRCUIT				38	A	30A/1P	REC NORTH WALL			
39	B	20A/2P	REC @ SIDE OF PANEL				40	B	30A/1P	LT 1ST SW CORNER			
41	C	-	-				42	C	30A/1P	LT 1ST SW CORNER			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____ AMPS
B ∅ : 0 KVA : _____ AMPS
C ∅ : 0 KVA : _____ AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE (1)

PANEL MAXIMO #4619-PNL0125 (4619-RP0081)
LOCATION ROBOTICS LAB
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#3& 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-BPD019M

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	LTS HIBAY ROW 1				2	A	20A/1P	LTS HIBAY ROW 4			
3	B	20A/1P	LTS HIBAY ROW 2				4	B	20A/1P	LTS HIBAY ROW 5			
5	C	20A/1P	LTS HIBAY ROW 3				6	C	20A/1P	SPARE			
7	A	20A/1P	SPARE				8	A	20A/1P	SPARE			
9	B	20A/1P	SPARE				10	B	30A/3P	REC WEST COLUMN			
11	C	20A/1P	SPARE				12	C	-	-			
13	A	20A/1P	CONTROL POWER (LTS)				14	A	-	-			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____ AMPS
B ∅ : 0 KVA : _____ AMPS
C ∅ : 0 KVA : _____ AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE (1)

PANEL MAXIMO #4619-PNL0126 (4619-RP0082)
LOCATION ROBOTICS LAB
MOUNTING FLUSH
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-SWGR0002

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	EXIT LIGHT				2	A	20A/1P	WATER COOLER			
3	B	20A/1P	EXIT LIGHT				4	B	20A/1P	REC.			
5	C	20A/1P	EM LTS				6	C	20A/1P	REC.			
7	A	-	SPACE				8	A	-	SPACE			
9	B	-	SPACE				10	B	-	SPACE			
11	C	-	SPACE				12	C	-	SPACE			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____ AMPS
B ∅ : 0 KVA : _____ AMPS
C ∅ : 0 KVA : _____ AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

GENERAL NOTES

1. UNLESS OTHERWISE NOTED, ALL PANELS ARE TO MAINTAIN EXISTING PANEL CONFIGURATION.
2. OLD MAXIMO # SHOWN FOR CLARITY. NEW MAXIMO # IF IS IN ( ) AFTER THE OLD MAXIMO #. CONTRACTOR SHALL UTILIZE THE (NEW MAXIMO #) AFTER FINAL INSTALLATION TO CREATE PANEL NAME TAG AND TYPE WRITTEN SCHEDULE.

PLAN NOTES

1 RECONNECT EXISTING CIRCUITS TO NEW PANEL.

ELECTRICAL PANEL SCHEDULE (1)

PANEL MAXIMO #4619-PNL0127 (4619-RP0083)
LOCATION ROBOTICS LAB
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 200A
MAIN FEEDER SIZE 4#3/0 & 1#6G
VOLTAGE 120/208V
PHASE 3
WIRE 4
AMPS 200
AIC RATING 10K
FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	LIGHTS CLUSTER RM				2	A	20A/1P	LIGHTS CLUSTER RM			
3	B	20A/1P	LIGHTS CLUSTER RM				4	B	20A/1P	LIGHTS CLUSTER RM			
5	C	20A/1P	LIGHTS CLUSTER RM				6	C	20A/1P	LIGHTS CLUSTER RM			
7	A	30A/1P	LIGHTS CLUSTER RM				8	A	30A/1P	LIGHTS CLUSTER RM			
9	B	30A/1P	LIGHTS CLUSTER RM				10	B	30A/1P	LIGHTS CLUSTER RM			
11	C	30A/1P	LIGHTS CLUSTER RM				12	C	30A/1P	LIGHTS CLUSTER RM			
13	A	30A/1P	SPARE				14	A	30A/1P	SPARE			
15	B	30A/1P	SPARE				16	B	30A/1P	SPARE			
17	C	30A/1P	SPARE				18	C	30A/1P	SPARE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____ AMPS
B ∅ : 0 KVA : _____ AMPS
C ∅ : 0 KVA : _____ AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE (1)

PANEL MAXIMO #4619-PNL0128 (4619-RP0098)
LOCATION ROBOTICS LAB
MOUNTING FLUSH
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	LIGHTS				2	A	20A/1P	LIGHTS			
3	B	20A/1P	LIGHTS				4	B	20A/1P	LIGHTS			
5	C	20A/1P	LIGHTS				6	C	20A/1P	LIGHTS			
7	A	20A/1P	LIGHTS				8	A	20A/1P	LIGHTS			
9	B	20A/1P	LIGHTS				10	B	20A/1P	LIGHTS			
11	C	20A/1P	LIGHTS				12	C	20A/1P	LIGHTS			
13	A	30A/1P	SPARE				14	A	30A/1P	SPARE			
15	B	30A/1P	SPARE				16	B	30A/1P	SPARE			
17	C	30A/1P	SPARE				18	C	30A/1P	SPARE			
19	A	30A/1P	SPARE				20	A	30A/2P	SPARE			
21	B	-	SPACE				22	B	-	-			
23	C	30A/1P	SPARE				24	C	30A/1P	SPARE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____ AMPS
B ∅ : 0 KVA : _____ AMPS
C ∅ : 0 KVA : _____ AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE (1)

PANEL MAXIMO #4619-PNL0129 (4619-RP0084)
LOCATION ROBOTICS LAB
MOUNTING FLUSH
MFR./TYPE SQUARE D
MAIN BKR MLO
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-BPD019C

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	STEAM HEATER				2	A	20A/2P	FAN			
3	B	20A/2P	REC				4	B	20A/1P	LTS & REC.			
5	C	-	-				6	C	20A/2P	REC			
7	A	20A/2P	SPARE				8	A	30A/3P	COMP			
9	B	-	-				10	B	-	-			
11	C	-	SPACE				12	C	-	SPACE			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____ AMPS
B ∅ : 0 KVA : _____ AMPS
C ∅ : 0 KVA : _____ AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

MAXIMO #4619-PNL0124	MAXIMO #4619-PNL0125	MAXIMO #4619-PNL0126
MAXIMO #4619-PNL0127	MAXIMO #4619-PNL0128	MAXIMO #4619-PNL0129
MAXIMO #4619-PNL0130	MAXIMO #4619-PNL0131	MAXIMO #4619-PNL0132

SCHEDULE PLAN
NOT TO SCALE

ELECTRICAL PANEL SCHEDULE (1)

PANEL MAXIMO #4619-PNL0130 (4619-RP0085)
LOCATION ROBOTICS LAB
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 70A
MAIN FEEDER SIZE 4#6 & 1#8G
VOLTAGE 120/208V
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	FLOOD LTS NORTH				2	A	20A/1P	FLOOD LTS NORTH			
3	B	20A/1P	FLOOD LTS NORTH				4	B	20A/1P	FLOOD LTS NORTH			
5	C	20A/1P	FLOOD LTS NORTH				6	C	20A/1P	FLOOD LTS NORTH			
7	A	20A/1P	FLOOD LTS NORTH				8	A	20A/1P	SPARE			
9	B	20A/1P	FLOOD LTS NORTH				10	B	20A/1P	PHOTO CELL			
11	C	20A/1P	FLOOD LTS NORTH				12	C	20A/1P	SPARE			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____ AMPS
B ∅ : 0 KVA : _____ AMPS
C ∅ : 0 KVA : _____ AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE (1)

PANEL MAXIMO #4619-PNL0131 (4619-RP0086)
LOCATION HALLWAY (NEAR ROOM 165A)
MOUNTING FLUSH
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-BPD014A

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	LIGHTS				2	A	100A/3P	MAIN			
3	B	20A/1P	PLUG MOLD				4	B	-	-			
5	C	20A/1P	TANDEM BREAKER				6	C	-	-			
7	A	20A/1P	PLUG MOLD				8	A	30A/3P	MILL			
9	B	40A/3P	WELD RECEPTACLE				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A						14	A	30A/3P	LATHE			
15	B	30A/1P	PLUG MOLD				16	B	-	-			
17	C	20A/1P	RECEPTACLE				18	C	-	-			
19	A	30A/1P	REC @ COL				20	A	20A/1P	LIGHTS			
21	B	30A/1P	PLUG MOLD				22	B	20A/1P	RECEPTACLES			
23	C	20A/3P	BHAM MILL				24	C	20A/1P	SPARE			
25	A	-	-				26	A	20A/3P	JIG BORE			
27	B	-	-				28	B	-				
29	C	20A/1P	LIGHTS				30	C	-	-			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____ AMPS
B ∅ : 0 KVA : _____ AMPS
C ∅ : 0 KVA : _____ AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE (1)

PANEL MAXIMO #4619-PNL0132 (4619-LP0007)
LOCATION ROBOTICS LAB
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 200A
MAIN FEEDER SIZE 4#3/0 & 1#6G
VOLTAGE 277/480
PHASE 3
WIRE 4
AMPS 200
AIC RATING 18K
FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	30A/1P	LIGHTS				2	A	30A/1P	LIGHTS			
3	B	30A/1P	LIGHTS				4	B	30A/1P	LIGHTS			
5	C	30A/1P	SPARE				6	C	30A/1P	SPARE			
7	A	30A/1P	LIGHTS				8	A	30A/1P	LIGHTS			
9	B	30A/1P	LIGHTS				10	B	30A/1P	LIGHTS			
11	C	30A/1P	SPARE				12	C	30A/1P	SPARE			
13	A	30A/1P	LIGHTS				14	A	30A/1P	LIGHTS			
15	B	30A/1P	LIGHTS				16	B	30A/1P	SPARE			
17	C	30A/1P	LIGHTS				18	C	30A/1P	SPARE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____ AMPS
B ∅ : 0 KVA : _____ AMPS
C ∅ : 0 KVA : _____ AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANEL SCHEDULES

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY (JOINT VENTURE)

SUBMITTED: JENNIFER LANDRY	APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E	NASA AE CONTRACT NO. NAS8-NNM12AA49A
AE: DATE: 10/24/13	APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E	APPROVED: JIMMY GUARIN
DESIGNED: S. CRITTENDEN	APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD	AS22 GROUP LEAD DATE: 10/24/13
DRAWN: M. PATE		DRAWING NO. FAC-GO-4619-E714
CHECKED: J. OAKES		
SCALE: AS SHOWN	SPEC. NO. FAC-M5054	

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E714

MSFC Master Bid Disk 03-26-2014

ELECTRICAL PANEL SCHEDULE

1

PANEL MAXIMO #4619-PNL0133 (4619-RP0087)
LOCATION ROBOTICS LAB
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-SWGR0002

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	100A/3P	MAIN				2	A	15A/1P	REC EAST HIBAY			
3	B	-	-				4	B	15A/1P	REC SOUTH HIBAY			
5	C	-	-				6	C	15A/1P	SPARE			
7	A	15A/3P	ROLL-UP DOORS WEST				8	A	15A/1P	REC RM 165 EPOXY FLR AREA			
9	B	-	-				10	B	15A/1P	REC RM 165 EPOXY FLR AREA			
11	C	-	-				12	C	15A/1P	SPARE			
13	A	15A/3P	ROLL-UP DOORS WEST				14	A	20A/1P	SPARE			
15	B	-	-				16	B	20A/1P	SPARE			
17	C	-	-				18	C	20A/1P	SPARE			
19	A	20A/1P	SPARE				20	A	20A/2P	AIR COMP FOR ROOF			
21	B	20A/1P	SPARE				22	B	-	VENTILATORS EAST			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE

1

PANEL MAXIMO #4619-PNL0134 (4619-RP0088)
LOCATION ROBOTICS LAB
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 60A
MAIN FEEDER SIZE 4#6 & 1#8G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-BPD019Q

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	SPARE				2	A	20A/1P	SPARE			
3	B	30A/1P	SPOT LIGHT (TV ONLY)				4	B	30A/1P	SPOT LIGHT (TV ONLY)			
5	C	20A/1P	OVERHEAD LTS (TV ONLY)				6	C	20A/1P	REC RM 165A			
7	A	20A/1P	OVERHEAD LTS (EAST END)				8	A	20A/1P	LTS RM 165A			
9	B	20A/1P	SPARE				10	B	20A/1P	REC RM 165A E-WALL			
11	C	20A/1P	SPARE				12	C	20A/1P	SPARE			
13	A	20A/1P	REC RM 165A				14	A	20A/1P	LTS VIEWING AREA LTS			
15	B	20A/1P	REC RM 165A				16	B	20A/1P	SPARE			
17	C	20A/1P	FIRE ALARM				18	C	20A/1P	SPARE			
19	A	20A/1P	SPARE				20	A	20A/1P	SPARE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0135 (4619-PP0030)
LOCATION ROOM 157
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 600A
MAIN FEEDER SIZE 2 SETS OF 350 KCMIL & 1#1G
VOLTAGE 277/480
PHASE 3
WIRE 4
AMPS 200A
AIC RATING 18K
FED FROM 4619-SWBD0007

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/3P	EXHAUST FAN F-1				2	A	20A/3P	EXHAUST FAN F-2			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	20A/3P	SPARE				8	A	30A/3P	BRIDGEPORT MILL			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	70A/3P	45 KVA TRANSFORMER				14	A	30A/3P	LATHE			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	20A/3P	ROLLUP DOOR				20	A	20A/3P	AHU-9			
21	B	-	-				22	B	-	-			
23	C	-	-				24	C	-	-			
25	A	20A/3P	SMALL LATHE				26	A	30A/3P	15 KVA TRANSFORMER			
27	B	-	-				28	B	-	-			
29	C	-	-				30	C					
31	A	20A/3P	SAW & BENDER				32	A	40A/3P	CRANE RAIL			
33	B	-	-				34	B	-	-			
35	C	-	-				36	C	-	-			
37	A	20A/3P	TEMP AC				38	A	100A/3P	WELDING REC			
39	B	-	-				40	B	-	-			
41	C	-	-				42	C	-	-			
43	A	100A/3P	WELDING REC				44	A	100A/3P	WELDING REC			
45	B	-	-				46	B	-	-			
47	C	-	-				48	C	-	-			
49	A	100A/3P	WELDING REC				50	A	100A/3P	WELDING REC			
51	B	-	-				52	B	-	-			
53	C	-	-				54	C	-	-			
55	A	100A/3P	WELDING REC				56	A	100A/3P	WELDING REC			
57	B	-	-				58	B	-	-			
59	C	-	-				60	C	-	-			
61	A	100A/3P	WELDING REC				62	A	100A/3P	WELDING REC			
63	B	-	-				64	B	-	-			
65	C	-	-				66	C	-	-			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0136 (4619-RP0089)
LOCATION ROOM 157
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 150A
MAIN FEEDER SIZE 4#1/0 & 1#6G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 200
AIC RATING 10K
FED FROM 4619-XFMR0015

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	30A/3P	CLIP MASTER				2	A	50A/3P	RECEPTACLES WEST WALL			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	30A/3P	RECEPTACLES WEST WALL				8	A	50A/3P	RECEPTACLES BW			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	50A/3P	RADICAL DRILLPRESS				14	A	50A/3P	GRINDER			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	50A/3P	RECEPTACLES NORTH WALL				20	A	50A/3P	RECEPTACLES WEST WALL			
21	B	-	-				22	B	-	-			
23	C	-	-				24	C	-	-			
25	A	50A/3P	HAAS MILL				26	A	50A/3P	MANUEL SAW			
27	B	-	-				28	B	-	-			
29	C	-	-				30	C	-	-			
31	A	40A/3P	SPARE				32	A	30A/3P	LATHE			
33	B	-	-				34	B	-	-			
35	C	-	-				36	C	-	-			
37	A	50A/3P	SPARE				38	A	-	SPACE			
39	B	-	-				40	B	-	SPACE			
41	C	-	-				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0137 (4619-RP0090)
LOCATION ROOM 157
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 60A
MAIN FEEDER SIZE 4#6 & 1#10G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 100
AIC RATING 10K
FED FROM 4619-XFMR0016

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	HVAC CONTROL PANEL				2	A	20A/1P	EMER. LTS			
3	B	-	SPACE				4	B	20A/1P	DUCT SMOKE DETECTOR			
5	C	20A/1P	SPARE				6	C	20A/1P	SPARE			
7	A	20A/1P	SPARE				8	A	20A/1P	SPARE			
9	B	20A/1P	REC RM 157				10	B	20A/1P	SPARE			
11	C	20A/1P	OUTSIDE LTS				12	C	20A/1P	REC RM 157			
13	A	20A/1P	REC RM 157				14	A	20A/1P	REC RM 157W			
15	B	20A/1P	REC RM 157N				16	B	20A/1P	REC RM 157N			
17	C	20A/1P	REC RM 157W				18	C	20A/1P	REC RM 157S			
19	A	20A/1P	HVAC CONTROLS				20	A	50A/3P	SAW			
21	B	20A/1P	UNIT HEATERS				22	B	-	-			
23	C	20A/1P	REC RM 157 @ DRILL PRESS				24	C	-	-			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE

1

PANEL MAXIMO #4619-PNL0138 (4619-RP0091)
LOCATION ROOM 169
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 200A
MAIN FEEDER SIZE 4#3/0 & 1#6G
VOLTAGE 120/208
PHASE 3
WIRE 4
AMPS 225
AIC RATING 10K
FED FROM 4619-BPD016C

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	30A/3P	SPARE				2	A	15A/3P	MILL			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	30A/3P	MILL				8	A	30A/3P	LATHE			
9	B	-	-				10	B	-	-			
11	C						12	C					
13	A	20A/2P	CHOP SAW				14	A	20A/3P	SPARE			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	20A/1P	SPARE				20	A	30A/3P	SPARE			
21	B	20A/1P	208V REC RM 169				22	B	-	-			
23	C	-	-				24	C	-	-			
25	A	-	-				26	A	20A/1P	SPARE			
27	B	20A/1P	LIFT STATION				28	B	20A/1P	SPARE			
29	C	20A/1P	SPARE				30	C	20A/1P	SPARE			
31	A	-	SPACE				32	A	50A/2P	208V REC RM 169			
33	B	-	SPACE				34	B	-	-			
35	C	-	SPACE				36	C	15A/1P	208V REC RM 169			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE

1

PANEL MAXIMO #4619-PNL0139 (4619-PP0031)
LOCATION ROOM 169
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 3#3 & 1#8G
VOLTAGE 480
PHASE 3
WIRE 3
AMPS 100
AIC RATING 10K
FED FROM 4619-BPD017C

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/3P	CNC				2	A	60A/2P	WELDER			
3	B	-	-				4	B	-				
5	C	-	-				6	C	-	SPACE			
7	A	-	SPACE				8	A	-	SPACE			
9	B	-	SPACE				10	B	-	SPACE			
11	C	-	SPACE				12	C	-	SPACE			
13	A	-	SPACE				14	A	-	SPACE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0140 (4619-PP0032)
LOCATION OVER ROOM 164E
MOUNTING SURFACE
MFR./TYPE SQUARE D
MAIN BKR 100A
MAIN FEEDER SIZE 4#2 & 1#6G
VOLTAGE 480
PHASE 3
WIRE 3
AMPS 200
AIC RATING 18K
FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/3P	AHU-5				2	A	20A/3P	REC PUMP			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	20A/3P	AHU-7				8	A	15A/3P	AHU-4			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	15A/3P	AHU-8				14	A	20A/3P	AHU-6			
15	B	-	-				16	B					
17	C	-	-				18	C	-	-			
19	A	15A/3P	AHU-10				20	A	20A/3P	REC PUMP			
21	B	-	-				22	B	-	-			
23	C	-	-				24	C	-				
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ALL BUS SHALL BE 1000 APSI COPPER
ISOLATED GROUND BUS ☐
NEUTRAL BUS ✓
GROUND BUS ✓
SUB FEED BUS ☐

GENERAL NOTES

1. UNLESS OTHERWISE NOTED, ALL PANELS ARE TO MAINTAIN EXISTING PANEL CONFIGURATION.
2. OLD MAXIMO # SHOWN FOR CLARITY. NEW MAXIMO # IF IS IN ( ) AFTER THE OLD MAXIMO #. CONTRACTOR SHALL UTILIZE THE (NEW MAXIMO #) AFTER FINAL INSTALLATION TO CREATE PANEL NAME TAG AND TYPE WRITTEN SCHEDULE.

PLAN NOTES

1 RECONNECT EXISTING CIRCUITS TO NEW PANEL.

MAXIMO #4619-PNL0133	MAXIMO #4619-PNL0134	MAXIMO #4619-PNL0135
MAXIMO #4619-PNL0136	MAXIMO #4619-PNL0137	MAXIMO #4619-PNL0138
MAXIMO #4619-PNL0139	MAXIMO #4619-PNL0140	

SCHEDULE PLAN
NOT TO SCALE

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANEL SCHEDULES

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY — JOINT VENTURE

SUBMITTED: JENNIFER LANDRY
AE: DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
SCALE: AS SHOWN
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SPEC. NO. FAC-M5054
NASA AE CONTRACT NO. NAS8-NNM12AA49A
APPROVED: JIMMY GUARIN
AS22 GROUP LEAD DATE: 10/24/13
DRAWING NO. FAC-GO-4619-E715

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E715 69 OF 76

MSFC Master Bid Disk 03-26-2014

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0141 (4619-PP0033) — VOLTAGE 277/480
LOCATION MECH RM 211 — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 100A
MAIN BKR 100A — AIC RATING 18K
MAIN FEEDER SIZE 4#2 & 1#8G — FED FROM 4619-SWGR0001

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	HVAC CONTROL PANEL				2	A	30A/3P	H4-1 HUMIDIFIER RM 164C			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	30A/3P	H5-2 HUMIDIFIER RM 166A				8	A	30A/3P	H5-1 HUMIDIFIER RM 164E			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	30A/3P	H5-3 HUMIDIFIER RM 166				14	A	50A/3P	H6-1 HUMIDIFIER RM 167			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	30A/3P	H7-2 HUMIDIFIER RM 168				20	A	30A/3P	H7-1 HUMIDIFIER RM 167B			
21	B	-	-				22	B	-	-			
23	C	-	-				24	C	-	-			
25	A	30A/3P	H7-3 HUMIDIFIER RM 169				26	A	30A/3P	H8-1 HUMIDIFIER RM 170A			
27	B	-	-				28	B	-	-			
29	C	-	-				30	C	-	-			
31	A	30A/3P	H10-1 HUMIDIFIER RM 170				32	A	30A/3P	H8-2 HUMIDIFIER RM 170B			
33	B	-	-				34	B	-	-			
35	C	-	-				36	C	-	-			
37	A	20A/1P	HEAT TRACE				38	A	20A/1P	UNIT HTR. UH-1			
39	B	20A/1P	HEAT TRACE				40	B	20A/1P	24V POWER SOURCE			
41	C	20A/1P	HEAT TRACE				42	C	20A/1P	DUCT DET			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ISOLATED GROUND BUS ☐ — NEUTRAL BUS ✓ — GROUND BUS ✓ — SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0151 (4619-LP0008) — VOLTAGE 277/480
LOCATION HALLWAY (NEAR ROOM 164E) — PHASE 3
MOUNTING FLUSH — WIRE 4
MFR./TYPE S — AMPS 125
MAIN BKR 100A — AIC RATING 18K
MAIN FEEDER SIZE 4#2 & 1#8G — FED FROM 4619-SWGR0001

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	LTS				2	A	20A/1P	LTS			
3	B	20A/1P	LTS				4	B	20A/1P	LTS			
5	C	20A/1P	LTS				6	C	20A/1P	LTS			
7	A	20A/1P	LIGHTING CONTACTOR				8	A	20A/1P	SPARE			
9	B	20A/1P	SPARE				10	B	20A/1P	SPARE			
11	C	20A/1P	SPARE				12	C	20A/1P	SPARE			
13	A	20A/1P	SPARE				14	A	20A/1P	SPARE			
15	B	20A/1P	SPARE				16	B	20A/1P	SPARE			
17	C	20A/1P	SPARE				18	C	20A/1P	SPARE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ISOLATED GROUND BUS ☐ — NEUTRAL BUS ✓ — GROUND BUS ✓ — SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0154 (4619-PP0035) — VOLTAGE 480
LOCATION ROOM 153A — PHASE 3
MOUNTING SURFACE — WIRE 3
MFR./TYPE SQUARE D — AMPS 100A
MAIN BKR MLO — AIC RATING 18K
MAIN FEEDER SIZE 3#2 & 1#6G — FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/3P	CYRO COMPRESSOR NO. 1				2	A	40A/3P	CYRO ROUGHING PUMP			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	20A/3P	CYRO COMPRESSOR NO. 2				8	A	40A/3P	TURBO PUMP NO. 2			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	20A/3P	SPARE				14	A	40A/3P	TURBO PUMP NO. 1			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ISOLATED GROUND BUS ☐ — NEUTRAL BUS ✓ — GROUND BUS ✓ — SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0142 (4619-PP0034) — VOLTAGE 277/480
LOCATION MECH. EQUIPMENT ROOM 222 — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 225
MAIN BKR 225A — AIC RATING 18K
MAIN FEEDER SIZE 4#4/0 & 1#4G — FED FROM 4619-PP0012 (4619-RP0013)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	15A/3P	AHU-24				2	A	15A/3P	RAF-24			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	15A/3P	HWP-2				8	A	15A/3P	CRU-1			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	15A/3P	4619-PNL0069 (4619-PP0015)				14	A	100A/3P	PANEL PHB			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ISOLATED GROUND BUS ☐ — NEUTRAL BUS ✓ — GROUND BUS ✓ — SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0152 (4619-RP0093) — VOLTAGE 120/208
LOCATION ROOM 153A — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 100
MAIN BKR MLO — AIC RATING 10K
MAIN FEEDER SIZE 4#6 & 1#10G — FED FROM 4619-PBD004G

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	WALL OUTLET WEST				2	A	-	SPACE			
3	B	20A/1P	WALL OUTLET WEST				4	B	-	SPACE			
5	C	20A/1P	WALL OUTLET WEST				6	C	20A/1P	WALL OUTLET NORTH			
7	A	20A/1P	WALL OUTLET NORTH				8	A	20A/1P	WALL OUTLET NORTH			
9	B	20A/1P	WALL OUTLET NORTH				10	B	20A/1P	WALL OUTLET NORTH			
11	C	20A/1P	SPARE				12	C	20A/1P	SPARE			
13	A	-	SPACE				14	A	30A/3P	SPARE			
15	B	-	SPACE				16	B	-	-			
17	C	-	SPACE				18	C	-	-			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ISOLATED GROUND BUS ☐ — NEUTRAL BUS ✓ — GROUND BUS ✓ — SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0155 (4619-PP0036) — VOLTAGE 120/208
LOCATION ROOM 155 — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 100
MAIN BKR MLO — AIC RATING 10K
MAIN FEEDER SIZE 3#2 & 1#6G — FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/2P	TURBO #1				2	A	2A/2P	TURBO #2			
3	B	-	-				4	B	-	-			
5	C	20A/1P	TURBO CAB				6	C	20A/1P	CRYO CAB			
7	A	20A/1P	MIS. CAB				8	A	20A/1P	PHASER CAB			
9	B	40A/2P	SHROUD GN2 HEATER				10	B	20A/1P	-			
11	C	-	-				12	C	20A/1P	V-15 BOTTOM REC./ WEST			
13	A	-	SPACE				14	A	20A/1P	V-15 TDP REC/ WEST SIDE			
15	B	-	SPACE				16	B	-	SPACE			
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ISOLATED GROUND BUS ☐ — NEUTRAL BUS ✓ — GROUND BUS ✓ — SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PP0006 — VOLTAGE 120/240
LOCATION LTA — PHASE 1
MOUNTING SURFACE — WIRE 3
MFR./TYPE SQUARE D — AMPS 100
MAIN BKR MLO — AIC RATING 10K
MAIN FEEDER SIZE 3#3 & 1#8G — FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅
1	A	30A/1P	RECEPT.			2	A	20A/1P	RECEPT.		
3	B	20A/1P	RECEPT.			4	B	20A/1P	RECEPT.		
5	A	20A/1P	RECEPT.			6	A	20A/2P	RECEPT.		
7	B	-	SPACE			8	B	-	-		
SUB TOTAL						SUB TOTAL					

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ISOLATED GROUND BUS ☐ — NEUTRAL BUS ✓ — GROUND BUS ✓ — SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PNL0146 (4619-RP0092) — VOLTAGE 120/208
LOCATION OUTSIDE ROOM 207 (HALLWAY) — PHASE 3
MOUNTING FLUSH — WIRE 4
MFR./TYPE SQUARE D — AMPS 225
MAIN BKR 200A — AIC RATING 10K
MAIN FEEDER SIZE 4#3/0 & 1#6G — FED FROM 4619-PNL0017 (4619-RP0016)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	REC 207, 209				2	A	20A/1P	REC 205, 207			
3	B	20A/1P	SPARE				4	B	20A/1P	REC 203, 203A			
5	C	20A/1P	REC 200, 202				6	C	20A/1P	REC 201, 203			
7	A	20A/1P	REC 202, 202A				8	A	20A/1P	REC 201			
9	B	20A/1P	REC 202A				10	B	20A/1P	REC 206, 208A			
11	C	20A/1P	REC 202A, 204				12	C	20A/1P	REC 206, 208A			
13	A	20A/1P	REC 204, 206				14	A	20A/1P	EX FAN MENS ROOM			
15	B	20A/1P	WEST STAIRS				16	B	20A/1P	EX FAN LADIES ROOM			
17	C	20A/1P	GFI 209				18	C	20A/1P	SPARE			
19	A	20A/1P	SPARE				20	A	20A/1P	SPARE			
21	B	20A/1P	SPARE				22	B	20A/1P	SPARE			
23	C	20A/1P	SPARE				24	C	20A/1P	SPARE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ISOLATED GROUND BUS ☐ — NEUTRAL BUS ✓ — GROUND BUS ✓ — SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE 1

PANEL MAXIMO #4619-PNL0153 (4619-RP0094) — VOLTAGE 120/208
LOCATION ROOM 170A — PHASE 3
MOUNTING SURFACE — WIRE 4
MFR./TYPE SQUARE D — AMPS 100
MAIN BKR 100A — AIC RATING 10K
MAIN FEEDER SIZE 4#2 & 1#8G — FED FROM 4619-BPD018D

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	STRIP NO.1				2	A	-	SPACE			
3	B	20A/1P	STRIP NO.2				4	B	20A/2P	RECEPTACLES			
5	C	20A/1P	OUTSIDE LIGHTS				6	C	-	-			
7	A	20A/1P	HEATER				8	A	-	SPACE			
9	B	-	SPACE				10	B	-	SPACE			
11	C	-	SPACE				12	C	30A/1P	RECEPTACLES			
13	A	30A/3P	HEATER				14	A	30A/1P	RECEPTACLES			
15	B	-	-				16	B	-	SPACE			
17	C	-	-				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ISOLATED GROUND BUS ☐ — NEUTRAL BUS ✓ — GROUND BUS ✓ — SUB FEED BUS ☐

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL MAXIMO #4619-PP0001 — VOLTAGE 240
LOCATION ROOM 166 — PHASE 3
MOUNTING SURFACE — WIRE 3
MFR./TYPE SQUARE D — AMPS 400
MAIN BKR 300A — AIC RATING 10K
MAIN FEEDER SIZE 4#350 & 1#4G — FED FROM

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	100A/3P	V-1 PHASER				2	A	100A/3P	SPARE			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	100A/3P	V-9 PHASER				8	A	100A/3P	V-9 PP1-V9			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	100A/3P	V-2 PHASER				14	A	100A/3P	SPARE			
15	B	-	-				16	B	-	-			
17	C	-	-				18	C	-	-			
19	A	100A/3P	SPARE				20	A	100A/3P	SPARE			
21	B	-	-				22	B	-	-			
23	C	-	-				24	C	-	-			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD
A ∅ : 0 KVA : _____AMPS — ALL BUS SHALL BE 1000 APSI COPPER
B ∅ : 0 KVA : _____AMPS
C ∅ : 0 KVA : _____AMPS
ISOLATED GROUND BUS ☐ — NEUTRAL BUS ✓ — GROUND BUS ✓ — SUB FEED BUS ☐

GENERAL NOTES

1. UNLESS OTHERWISE NOTED, ALL PANELS ARE TO MAINTAIN EXISTING PANEL CONFIGURATION.
2. OLD MAXIMO # SHOWN FOR CLARITY. NEW MAXIMO # IF IS IN ( ) AFTER THE OLD MAXIMO #. CONTRACTOR SHALL UTILIZE THE (NEW MAXIMO #) AFTER FINAL INSTALLATION TO CREATE PANEL NAME TAG AND TYPE WRITTEN SCHEDULE.

PLAN NOTES

1 RECONNECT EXISTING CIRCUITS TO NEW PANEL.

MAXIMO #4619-PNL0141	MAXIMO #4619-PNL0142	MAXIMO #4619-PNL0146
MAXIMO #4619-PNL0151	MAXIMO #4619-PNL0152	MAXIMO #4619-PNL0153
MAXIMO #4619-PNL0154	MAXIMO #4619-PNL0155	MAXIMO #4619-PP0001
	MAXIMO #4619-PP0006	

SCHEDULE PLAN
NOT TO SCALE

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANEL SCHEDULES

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY — JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY — APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E — APPROVED: JIMMY GUARIN

AE: DATE: 10/24/13 — APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E — AS22 GROUP LEAD DATE: 10/24/13

DESIGNED: S. CRITTENDEN — APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

DRAWN: M. PATE — CHECKED: J. OAKES — SCALE: AS SHOWN — SPEC. NO. FAC-M5054

DRAWING NO. FAC-GO-4619-E716

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E716 70 OF 76

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL	MAXIMO #4619-PP0007	VOLTAGE	277/480
LOCATION	ROOM 153A	PHASE	3
MOUNTING	SURFACE	WIRE	4
MFR./TYPE	SQUARE D	AMPS	200
MAIN BKR	100A	AIC RATING	18K
MAIN FEEDER SIZE	4#3 & 1#8G	FED FROM	4619-BPD003D

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	100A/3P	WELDING PRESS				2	A	30A/1P	SPARE			
3	B	-	-				4	B	-	-			
5	C	-					6	C	-				
7	A	30A/3P	SATEC PRESS				8	A	15A/3P	SPARE			
9	B	-	-				10	B	-	-			
11	C	-	-				12	C	-	-			
13	A	30A/3P	SPARE				14	A	-	SPACE			
15	B	-	-				16	B	-	SPACE			
17	C	-					18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD				ISOLATED GROUND BUS	
A ∅ :	0	KVA	: _____AMPS	ALL BUS SHALL BE 1000 APSI COPPER	NEUTRAL BUS ✓
B ∅ :	0	KVA	: _____AMPS		GROUND BUS ✓
C ∅ :	0	KVA	: _____AMPS		SUB FEED BUS

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL	MAXIMO #4619-PP0008	VOLTAGE	480
LOCATION	ROOM 153A	PHASE	3
MOUNTING	SURFACE	WIRE	3
MFR./TYPE	SQUARE D	AMPS	100
MAIN BKR	MLO	AIC RATING	18K
MAIN FEEDER SIZE	3#3 & 1#8G	FED FROM	4619-BPD003F

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	15A/3P	COFFING HOIST REC.				2	A	15A/3P	SPARE			
3	B	-	-				4	B	-	-			
5	C	-	-				6	C	-	-			
7	A	30A/3P	LEFT REC BELOW PNL				8	A	100A/3P	RIGHT REC BELOW PNL			
9	B	-	-				10	B	-	-			
11	C		-				12	C	-				
13	A	30A/3P	SPARE				14	A	-	SPACE			
15	B	-	-				16	B	-	SPACE			
17	C	-	-				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD				ISOLATED GROUND BUS	
A ∅ :	0	KVA	: _____AMPS	ALL BUS SHALL BE 1000 APSI COPPER	NEUTRAL BUS ✓
B ∅ :	0	KVA	: _____AMPS		GROUND BUS ✓
C ∅ :	0	KVA	: _____AMPS		SUB FEED BUS

ELECTRICAL PANEL SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

PANEL	MAXIMO #4619-RP0095	VOLTAGE	120/208
LOCATION	LTA HIGH BAY AREA 145	PHASE	3
MOUNTING	FLUSH	WIRE	4
MFR./TYPE	SQUARE D	AMPS	100
MAIN BKR	100A	AIC RATING	10K
MAIN FEEDER SIZE	4#2 & 1#8G	FED FROM	4619-SWBD0001 (4619-PP0010)

CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅	CK1	PH	FRAME & AMPS	LOAD DESCRIPTION	KVA LOAD a∅	b∅	c∅
1	A	20A/1P	DUPLEX				2	A	20A/1P	DUPLEX			
3	B	20A/1P	DUPLEX				4	B	20A/1P	DUPLEX			
5	C	20A/1P	SPARE				6	C	20A/1P	SPARE			
7	A	20A/1P	SPARE				8	A	15A/2P	BAND SAW			
9	B	30A/3P	OUTLET				10	B	-	-			
11	C	-	-				12	C	30A/3P	BELT SANDER			
13	A	-	-				14	A	-	-			
15	B	-	SPACE				16	B	-				
17	C	-	SPACE				18	C	-	SPACE			
19	A	-	SPACE				20	A	-	SPACE			
21	B	-	SPACE				22	B	-	SPACE			
23	C	-	SPACE				24	C	-	SPACE			
25	A	-	SPACE				26	A	-	SPACE			
27	B	-	SPACE				28	B	-	SPACE			
29	C	-	SPACE				30	C	-	SPACE			
31	A	-	SPACE				32	A	-	SPACE			
33	B	-	SPACE				34	B	-	SPACE			
35	C	-	SPACE				36	C	-	SPACE			
37	A	-	SPACE				38	A	-	SPACE			
39	B	-	SPACE				40	B	-	SPACE			
41	C	-	SPACE				42	C	-	SPACE			
SUB TOTAL							SUB TOTAL						

CONNECTED LOAD				ISOLATED GROUND BUS	
A ∅ :	0	KVA	: _____AMPS	ALL BUS SHALL BE 1000 APSI COPPER	NEUTRAL BUS ✓
B ∅ :	0	KVA	: _____AMPS		GROUND BUS ✓
C ∅ :	0	KVA	: _____AMPS		SUB FEED BUS

COORDINATION FOR PHENOLIC LABELING

EXISTING MAXIMO #	NEW MAXIMO #
MAXIMO #4619-RP0001	MAXIMO #4619-RP0001
MAXIMO #4619-PNL0001	MAXIMO #4619-RP0002
MAXIMO #4619-PNL0002	MAXIMO #4619-RP0003
MAXIMO #4619-PNL0003	MAXIMO #4619-RP0004
MAXIMO #4619-PNL0004	MAXIMO #4619-RP0005
MAXIMO #4619-PNL0005	MAXIMO #4619-RP0006
MAXIMO #4619-PNL0006	MAXIMO #4619-RP0007
MAXIMO #4619-PNL0007	MAXIMO #4619-RP0008
MAXIMO #4619-PNL0008	MAXIMO #4619-RP0009
MAXIMO #4619-PNL0009	MAXIMO #4619-RP0010
MAXIMO #4619-PNL0010	MAXIMO #4619-RP0011
MAXIMO #4619-PNL0011	MAXIMO #4619-RP0012
MAXIMO #4619-PNL0012	MAXIMO #4619-RP0013
MAXIMO #4619-PNL0013	MAXIMO #4619-RP0014
MAXIMO #4619-PNL0015	MAXIMO #4619-PP0002
MAXIMO #4619-PNL0016	MAXIMO #4619-RP0015
MAXIMO #4619-PNL0017	MAXIMO #4619-RP0016
MAXIMO #4619-PNL0018	MAXIMO #4619-RP0017
MAXIMO #4619-PNL0020	MAXIMO #4619-LP0001
MAXIMO #4619-PNL0021	MAXIMO #4619-RP0018
MAXIMO #4619-PNL0022	MAXIMO #4619-PP0003
MAXIMO #4619-PNL0023	MAXIMO #4619-LP0002
MAXIMO #4619-PNL0024	MAXIMO #4619-RP0019
MAXIMO #4619-PNL0025	MAXIMO #4619-RP0020
MAXIMO #4619-PNL0026	MAXIMO #4619-RP0099
MAXIMO #4619-PNL0031	MAXIMO #4619-PP0004
MAXIMO #4619-PNL0032	MAXIMO #4619-RP0021
MAXIMO #4619-PNL0033	MAXIMO #4619-LP0003
MAXIMO #4619-PNL0035	MAXIMO #4619-RP0022
MAXIMO #4619-PNL0036	MAXIMO #4619-RP0023
MAXIMO #4619-PNL0037	MAXIMO #4619-RP0024
MAXIMO #4619-PNL0038	MAXIMO #4619-RP0025
MAXIMO #4619-PNL0039	MAXIMO #4619-RP0026
MAXIMO #4619-PNL0040	MAXIMO #4619-RP0027
MAXIMO #4619-PNL0041	MAXIMO #4619-RP0028
MAXIMO #4619-PNL0042	MAXIMO #4619-LP0004
MAXIMO #4619-PNL0043	MAXIMO #4619-RP0029
MAXIMO #4619-PNL0044	MAXIMO #4619-RP0030
MAXIMO #4619-PNL0045	MAXIMO #4619-RP0031
MAXIMO #4619-PNL0046	MAXIMO #4619-PP0037
MAXIMO #4619-PNL0047	MAXIMO #4619-LP0005
MAXIMO #4619-PNL0048	MAXIMO #4619-PP0011
MAXIMO #4619-PNL0049	MAXIMO #4619-RP0032
MAXIMO #4619-PNL0051	MAXIMO #4619-RP0033
MAXIMO #4619-PNL0052	MAXIMO #4619-RP0034
MAXIMO #4619-PNL0053	MAXIMO #4619-LP0006
MAXIMO #4619-PNL0054	MAXIMO #4619-RP0035
MAXIMO #4619-PNL0055	MAXIMO #4619-RP0036
MAXIMO #4619-PNL0056	MAXIMO #4619-RP0037
MAXIMO #4619-PNL0057	MAXIMO #4619-RP0038
MAXIMO #4619-PNL0058	MAXIMO #4619-RP0039
MAXIMO #4619-PNL0059	MAXIMO #4619-RP0040
MAXIMO #4619-PNL0060	MAXIMO #4619-PP0012
MAXIMO #4619-PNL0061	MAXIMO #4619-PP0013
MAXIMO #4619-PNL0062	MAXIMO #4619-PP0014
MAXIMO #4619-PNL0063	MAXIMO #4619-RP0041
MAXIMO #4619-PNL0064	MAXIMO #4619-RP0042
MAXIMO #4619-PNL0065	MAXIMO #4619-RP0043
MAXIMO #4619-PNL0066	MAXIMO #4619-RP0044

COORDINATION FOR PHENOLIC LABELING

EXISTING MAXIMO #	NEW MAXIMO #
MAXIMO #4619-PNL0067	MAXIMO #4619-RP0045
MAXIMO #4619-PNL0068	MAXIMO #4619-RP0046
MAXIMO #4619-PNL0069	MAXIMO #4619-PP0015
MAXIMO #4619-PNL0070	MAXIMO #4619-RP0047
MAXIMO #4619-PNL0071	MAXIMO #4619-PP0016
MAXIMO #4619-PNL0072	MAXIMO #4619-RP0048
MAXIMO #4619-PNL0073	MAXIMO #4619-RP0049
MAXIMO #4619-PNL0074	MAXIMO #4619-PP0017
MAXIMO #4619-PNL0075	MAXIMO #4619-PP0018
MAXIMO #4619-PNL0076	MAXIMO #4619-RP0050
MAXIMO #4619-PNL0077	MAXIMO #4619-RP0051
MAXIMO #4619-PNL0078	MAXIMO #4619-RP0052
MAXIMO #4619-PNL0079	MAXIMO #4619-PP0019
MAXIMO #4619-PNL0080	MAXIMO #4619-PP0020
MAXIMO #4619-PNL0081	MAXIMO #4619-RP0053
MAXIMO #4619-PNL0082	MAXIMO #4619-RP0054
MAXIMO #4619-PNL0084	MAXIMO #4619-RP0055
MAXIMO #4619-PNL0085	MAXIMO #4619-RP0096
MAXIMO #4619-PNL0086	MAXIMO #4619-PP0021
MAXIMO #4619-PNL0087	MAXIMO #4619-RP0056
MAXIMO #4619-PNL0088	MAXIMO #4619-RP0057
MAXIMO #4619-PNL0089	MAXIMO #4619-RP0058
MAXIMO #4619-PNL0090	MAXIMO #4619-PP0022
MAXIMO #4619-PNL0091	MAXIMO #4619-RP0059
MAXIMO #4619-PNL0092	MAXIMO #4619-RP0060
MAXIMO #4619-PNL0093	MAXIMO #4619-RP0061
MAXIMO #4619-PNL0094	MAXIMO #4619-RP0062
MAXIMO #4619-PNL0096	MAXIMO #4619-RP0063
MAXIMO #4619-PNL0097	MAXIMO #4619-RP0064
MAXIMO #4619-PNL0099	MAXIMO #4619-RP0065
MAXIMO #4619-PNL0100	MAXIMO #4619-PP0023
MAXIMO #4619-PNL0101	MAXIMO #4619-RP0066
MAXIMO #4619-PNL0102	MAXIMO #4619-RP0067
MAXIMO #4619-PNL0103	MAXIMO #4619-RP0068
MAXIMO #4619-PNL0104	MAXIMO #4619-RP0069
MAXIMO #4619-PNL0105	MAXIMO #4619-RP0070
MAXIMO #4619-PNL0106	MAXIMO #4619-PP0024
MAXIMO #4619-PNL0107	MAXIMO #4619-RP0071
MAXIMO #4619-PNL0108	MAXIMO #4619-RP0072
MAXIMO #4619-PNL0109	MAXIMO #4619-RP0073
MAXIMO #4619-PNL0110	MAXIMO #4619-PP0025
MAXIMO #4619-PNL0111	MAXIMO #4619-PP0026
MAXIMO #4619-PNL0112	MAXIMO #4619-PP0027
MAXIMO #4619-PNL0113	MAXIMO #4619-RP0074
MAXIMO #4619-PNL0114	MAXIMO #4619-RP0075
MAXIMO #4619-PNL0116	MAXIMO #4619-PP0037
MAXIMO #4619-PNL0117	MAXIMO #4619-RP0076
MAXIMO #4619-PNL0118	MAXIMO #4619-RP0077
MAXIMO #4619-PNL0119	MAXIMO #4619-RP0097
MAXIMO #4619-PNL0120	MAXIMO #4619-PP0028
MAXIMO #4619-PNL0121	MAXIMO #4619-RP0078
MAXIMO #4619-PNL0122	MAXIMO #4619-RP0079
MAXIMO #4619-PNL0123	MAXIMO #4619-PP0029
MAXIMO #4619-PNL0124	MAXIMO #4619-RP0080
MAXIMO #4619-PNL0125	MAXIMO #4619-RP0081
MAXIMO #4619-PNL0126	MAXIMO #4619-RP0082
MAXIMO #4619-PNL0127	MAXIMO #4619-RP0083
MAXIMO #4619-PNL0128	MAXIMO #4619-RP0098
MAXIMO #4619-PNL0129	MAXIMO #4619-RP0084

COORDINATION FOR PHENOLIC LABELING

EXISTING MAXIMO #	NEW MAXIMO #
MAXIMO #4619-PNL0130	MAXIMO #4619-RP0085
MAXIMO #4619-PNL0131	MAXIMO #4619-RP0086
MAXIMO #4619-PNL0132	MAXIMO #4619-LP0007
MAXIMO #4619-PNL0133	MAXIMO #4619-RP0087
MAXIMO #4619-PNL0134	MAXIMO #4619-RP0088
MAXIMO #4619-PNL0135	MAXIMO #4619-PP0030
MAXIMO #4619-PNL0136	MAXIMO #4619-RP0089
MAXIMO #4619-PNL0137	MAXIMO #4619-RP0090
MAXIMO #4619-PNL0138	MAXIMO #4619-RP0091
MAXIMO #4619-PNL0139	MAXIMO #4619-PP0031
MAXIMO #4619-PNL0140	MAXIMO #4619-PP0032
MAXIMO #4619-PNL0141	MAXIMO #4619-PP0033
MAXIMO #4619-PNL0142	MAXIMO #4619-PP0034
MAXIMO #4619-PNL0143	MAXIMO #4619-RP0104
MAXIMO #4619-PNL0144	MAXIMO #4619-RP0102
MAXIMO #4619-PNL0146	MAXIMO #4619-RP0092
MAXIMO #4619-PNL0151	MAXIMO #4619-LP0008
MAXIMO #4619-PNL0152	MAXIMO #4619-RP0093
MAXIMO #4619-PNL0153	MAXIMO #4619-RP0094
MAXIMO #4619-PNL0154	MAXIMO #4619-PP0035
MAXIMO #4619-PNL0155	MAXIMO #4619-PP0036
MAXIMO #4619-PP0001	MAXIMO #4619-PP0001
MAXIMO #4619-PP0006	MAXIMO #4619-PP0006
MAXIMO #4619-PP0007	MAXIMO #4619-PP0007
MAXIMO #4619-PP0008	MAXIMO #4619-PP0008
MAXIMO #4619-RP0095	MAXIMO #4619-RP0095
MAXIMO #4619-SWBD0002	MAXIMO #4619-SWBD0002
MAXIMO #4619-SWBD0003	MAXIMO #4619-SWBD0003
MAXIMO #4619-SWBD0004	MAXIMO #4619-SWBD0004
MAXIMO #4619-SWBD0005	MAXIMO #4619-SWBD0005
MAXIMO #4619-SWGR0001	MAXIMO #4619-SWGR0001
MAXIMO #4619-SWGR0002	MAXIMO #4619-SWGR0002
MAXIMO #4619-SWGR0003	MAXIMO #4619-SWGR0003
MAXIMO #4619-PNL0050	MAXIMO #4619-PP0009
MAXIMO #4619-PP0010	MAXIMO #4619-PP0005
MAXIMO #4619-SWBD0001	MAXIMO #4619-PP0010
MAXIMO #4619-SWBD0011	MAXIMO #4619-SWBD0011
MAXIMO #4619-SWBD0012	MAXIMO #4619-SWBD0012
MAXIMO #4619-SWBD0013	MAXIMO #4619-SWBD0013
MAXIMO #4619-RP0050	MAXIMO #4619-RP0100
MAXIMO #4619-PNL0014	MAXIMO #4619-RP0101

GENERAL NOTES

1. UNLESS OTHERWISE NOTED, ALL PANELS ARE TO MAINTAIN EXISTING PANEL CONFIGURATION.
2. OLD MAXIMO # SHOWN FOR CLARITY. NEW MAXIMO # IF IS IN ( ) AFTER THE OLD MAXIMO #. CONTRACTOR SHALL UTILIZE THE (NEW MAXIMO #) AFTER FINAL INSTALLATION TO CREATE PANEL NAME TAG AND TYPE WRITTEN SCHEDULE.

SCHEDULE PLAN
NOT TO SCALE

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANEL SCHEDULES

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY — JOINT VENTURE

SUBMITTED: JENNIFER LANDRY	APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E	NASA AE CONTRACT NO. NAS8-NNM12AA49A
AE: DATE: 10/24/13	APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E	APPROVED: JIMMY GUARIN — AS22 GROUP LEAD — DATE: 10/24/13
DESIGNED: S. CRITTENDEN		DRAWING NO.
DRAWN: M. PATE	APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD	FAC-GO-4619-E717
CHECKED: J. OAKES		
SCALE: AS SHOWN	SPEC. NO.: FAC-M5054	

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E717

MSFC Master Bid Disk 03-26-2014

SWITCHBOARD SCHEDULE

SWBD MAXIMO #4619-SWBD0002 | AMPS: 3000 | VOLTS: 277/480 | LOCATION ROOM B139A

PHASE: 3 | WIRE: 4 | HZ: 60 | AIC: 65K (SYM)

SWBD SECTION	LOAD SERVED	SWITCH SIZE	FUSE SIZE	REMARKS	CONNECTED LOAD A (AMPS)	B (AMPS)	C (AMPS)	TOTAL KVA
1	-	3000	-	MAIN	-	-	-	-
2	4619-SWBD0005	1200	-	-	-	-	-	-
3	4619-SS0309	1200	-	-	-	-	-	-
4	4619-SWBD0006	1000	-	-	-	-	-	-
5	SPARE	400	-	-	-	-	-	-
6	SPACE	-	-	-	-	-	-	-
7	SPACE	-	-	-	-	-	-	-
8	SPACE	-	-	-	-	-	-	-
9	SPACE	-	-	-	-	-	-	-
10	TVSS	30	-	-	-	-	-	-

SWITCHBOARD SCHEDULE

SWBD MAXIMO #4619-SWBD0004 | AMPS: 2000 | VOLTS: 277/480 | LOCATION ROOM B139A

PHASE: 3 | WIRE: 4 | HZ: 60 | AIC: 65K (SYM)

SWBD SECTION	LOAD SERVED	SWITCH SIZE	FUSE SIZE	REMARKS	CONNECTED LOAD A (AMPS)	B (AMPS)	C (AMPS)	TOTAL KVA
1	-	2000	-	MAIN	-	-	-	-
2	4619-MCC0004	400	-	-	-	-	-	-
3	4619-BUSD0001	400	-	-	-	-	-	-
4	4619-BUSD0003	400	-	-	-	-	-	-
5	4619-PP0010 (4619-PP0005)	600	-	-	-	-	-	-
6	4619-SS0264	400	-	-	-	-	-	-
7	SPARE	200	-	-	-	-	-	-
8	BRIDGE CRANE	400	-	-	-	-	-	-
9	GILMORE MACHINE	350	-	-	-	-	-	-
10	SPARE	200						
11	SPARE	400						
12	SPACE							
13	SPACE							
14	TVSS	30						

SWITCHBOARD SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN SCHEDULE ONLY)

SWBD MAXIMO #4619-SWGR0001 | AMPS: 1600 | VOLTS: 277/480 | LOCATION ROOM 162A

PHASE: 3 | WIRE: 4 | HZ: 60 | AIC: 65K (SYM)

SWBD SECTION	LOAD SERVED	SWITCH SIZE	FUSE SIZE	REMARKS	CONNECTED LOAD A (AMPS)	B (AMPS)	C (AMPS)	TOTAL KVA
1	-	1600	-	MAIN	-	-	-	-
2	4619-PNL0141 (4619-PP0033)	100	-	-	-	-	-	-
3	4619-BUSD0015	800	-	-	-	-	-	-
4	4619-BUSD0017	800	-	-	-	-	-	-
5	4619-PNL0120 (4619-PP0028)	200	-	-	-	-	-	-
6	4619-PNL0151 (4619-LP0008)	100	-	-	-	-	-	-
7	TEST PAD PANEL	600	-	-	-	-	-	-
8	PANEL @ BLDG. 4620	800	-	-	-	-	-	-
9	SPARE	400	-	-	-	-	-	-
10	SPACE	-	-	-	-	-	-	-

SWITCHBOARD SCHEDULE

SWBD MAXIMO #4619-SWBD0003 | AMPS: 1000 | VOLTS: 120/208 | LOCATION ROOM B139A

PHASE: 3 | WIRE: 4 | HZ: 60 | AIC: 65K (SYM)

SWBD SECTION	LOAD SERVED	SWITCH SIZE	FUSE SIZE	REMARKS	CONNECTED LOAD A (AMPS)	B (AMPS)	C (AMPS)	TOTAL KVA
1	-	1000	-	MAIN	-	-	-	-
2	4619-SWBD0001 (4619-PP0010)	600	-	-	-	-	-	-
3	4619-BUSD0002	400	-	-	-	-	-	-
4	4619-BUSD0004	400	-	-	-	-	-	-
5	4619-PNL0093 (4619-RP0081)	200	-	-	-	-	-	-
6	FIRE & EXIT MAIN	30	-	-	-	-	-	-
7	SPARE	400	-	-	-	-	-	-
8	SPACE	-	-	-	-	-	-	-
9	SPACE	-	-	-	-	-	-	-
10	SPACE	-	-	-	-	-	-	-
11	SPACE	-	-	-	-	-	-	-
12	TVSS	30	-	-	-	-	-	-

SWITCHBOARD SCHEDULE

SWBD MAXIMO #4619-SWBD0007 | AMPS: 1600 | VOLTS: 277/480 | LOCATION E-7

PHASE: 3 | WIRE: 4 | HZ: 60 | AIC: 65K (SYM)

SWBD SECTION	LOAD SERVED	SWITCH SIZE	FUSE SIZE	REMARKS	CONNECTED LOAD A (AMPS)	B (AMPS)	C (AMPS)	TOTAL KVA
1	MAIN	1600	-	-	-	-	-	-
2	4619-SS0112	600	-	-	-	-	-	-
3	4619-SS0113	600	-	-	-	-	-	-
4	4619-SS0115	600	-	-	-	-	-	-
5	4619-SS0116	200	-	-	-	-	-	-
6	4619-SS0110	200	-	-	-	-	-	-
7	4619-SS0111	150	-	-	-	-	-	-
8	4619-PNL0135 (4619-PP0030)	200	-	-	-	-	-	-
9	4619-PNL0072 (4619-RP0048)	150	-	-	-	-	-	-
10	SPARE	200	-	-	-	-	-	-
11	SPARE	100	-	-	-	-	-	-
12	TVSS	30	-	-	-	-	-	-

SWITCHBOARD SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN SCHEDULE ONLY)

SWBD MAXIMO #4619-SWGR0002 | AMPS: 1600 | VOLTS: 120/208 | LOCATION ROOM 162A

PHASE: 3 | WIRE: 4 | HZ: 60 | AIC: 65K (SYM)

SWBD SECTION	LOAD SERVED	SWITCH SIZE	FUSE SIZE	REMARKS	CONNECTED LOAD A (AMPS)	B (AMPS)	C (AMPS)	TOTAL KVA
1	-	1600	-	MAIN	-	-	-	-
2	4619-PNL0086 (4619-PP0021)	800	-	-	-	-	-	-
3	4619-PNL0091 (4619-RP0059)	40	-	-	-	-	-	-
4	4619-PNL0081 (4619-RP0053)	40	-	-	-	-	-	-
5	4619-PNL0097 (4619-RP0064)	40	-	-	-	-	-	-
6	4619-PNL0078 (4619-RP0052)	70	-	-	-	-	-	-
8	4619-PNL0101 (4619-RP0066)	40	-	-	-	-	-	-
11	4619-PNL0108 (4619-RP0072)	100	-	-	-	-	-	-
12	4619-PNL0126 (4619-RP0082)	100	-	-	-	-	-	-
14	4619-PNL0077 (4619-RP0051)	100	-	-	-	-	-	-
15	4619-PNL0073 (4619-RP0049)	100	-	-	-	-	-	-
16	4619-PNL0133 (4619-RP0087)	100	-	-	-	-	-	-
17	4619-PNL0088 (4619-RP0057)	100	-	-	-	-	-	-
19	4619-PNL0012 (4619-RP0013)	150	-	-	-	-	-	-
-	-	SPACE	-	-	-	-	-	-
-	-	SPACE	-	-	-	-	-	-

SWITCHBOARD SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN SCHEDULE ONLY)

SWBD MAXIMO #4619-SWGR0003 | AMPS: 2000 | VOLTS: 120/208 | LOCATION 162A

PHASE: 3 | WIRE: 4 | HZ: 60 | AIC: 65K (SYM)

SWBD SECTION	LOAD SERVED	SWITCH SIZE	FUSE SIZE	REMARKS	CONNECTED LOAD A (AMPS)	B (AMPS)	C (AMPS)	TOTAL KVA
1	-	2000	-	MAIN	-	-	-	-
2	4619-PNL0141 (4619-PP0033)	100	-	-	-	-	-	-
3	4619-BUSD0016	800	-	-	-	-	-	-
4	4619-BUSD0018	800	-	-	-	-	-	-
5	4619-BUSD0014	800	-	-	-	-	-	-
6	4619-BUSD0019	800	-	-	-	-	-	-
7	TEST PAD PANEL	300	-	-	-	-	-	-
8	4619-PNL0123 (4619-PP0029)	225	-	-	-	-	-	-
9	PANEL @ BLDG. 4620	100	-	-	-	-	-	-
10	REFRIGERATION	800	-	-	-	-	-	-
11	SPACE	-	-	-	-	-	-	-

	MAXIMO #4619-SWBD0002	MAXIMO #4619-SWBD0003
	MAXIMO #4619-SWBD0004	MAXIMO #4619-SWBD0007
	MAXIMO #4619-SWGR0001	MAXIMO #4619-SWGR0002
		MAXIMO #4619-SWGR0003

SCHEDULE PLAN
NOT TO SCALE

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

SWITCHBOARD SCHEDULES

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY — JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY | APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E | APPROVED: JIMMY GUARIN

AE: DATE: 10/24/13 | APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E | AS22 GROUP LEAD | DATE: 10/24/13

DESIGNED: S. CRITTENDEN | DRAWN: M. PATE | CHECKED: J. OAKES | APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

SCALE: AS SHOWN | SPEC. NO. FAC-M5054

DRAWING NO. FAC-GO-4619-E801

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E801 72 OF 76

MSFC Master Bid Disk 03-26-2014

PANELBOARD SCHEDULE
(EXISTING TO REMAIN - CONTRACTOR TO PROVIDE TYPEWRITTEN PANEL SCHEDULE ONLY)

SWBD MAXIMO #4619-PNL0050 (4619-PP0009) 1 AMPS: 600 VOLTS: 277/480 LOCATION LTA CROSSHEAD

PHASE: 3 WIRE: 4 HZ: 60 AIC: 35K (SYM)

SWBD SECTION	LOAD SERVED	SWITCH SIZE	FUSE SIZE	REMARKS	CONNECTED LOAD A (AMPS)	B (AMPS)	C (AMPS)	TOTAL KVA
1	-	600	-	MAIN	-	-	-	-
2	RECEPTACLES	100	-	-	-	-	-	-
3	HOIST/TROLLEY	400	-	-	-	-	-	-
4	HOIST/TROLLEY	400	-	-	-	-	-	-
5	CROSSHEAD LIGHT & CONTROL PANEL	30	-	-	-	-	-	-
6	CROSSHEAD N. WEST JOGGING MOTOR	20	-	-	-	-	-	-
7	CROSSHEAD N. EAST JOGGING MOTOR	20	-	-	-	-	-	-
8	CROSSHEAD S. WEST JOGGING MOTOR	20	-	-	-	-	-	-
9	CROSSHEAD S. EAST JOGGING MOTOR	20	-	-	-	-	-	-
10	CROSSHEAD MAIN MOTOR DRIVE	700	-	-	-	-	-	-
11	TUBE PUMP MOTORS & STARTERS	20	-	-	-	-	-	-

PANELBOARD SCHEDULE

SWBD MAXIMO #4619-SWBD0001 (4619-PP0010) AMPS: 600 VOLTS: 120/208 LOCATION ROOM B139A

PHASE: 3 WIRE: 4 HZ: 60 AIC: 65K (SYM)

SWBD SECTION	LOAD SERVED	SWITCH SIZE	FUSE SIZE	REMARKS	CONNECTED LOAD A (AMPS)	B (AMPS)	C (AMPS)	TOTAL KVA
1	-	600	-	MAIN	-	-	-	-
2	4619-PNL0021 (4619-RP0018)	200	-	-	-	-	-	-
3	4619-PNL0017 (4619-RP0016)	200	-	-	-	-	-	-
4	4619-PNL0032 (4619-RP0021)	100	-	-	-	-	-	-
5	4619-PNL0057 (4619-RP0038)	100	-	-	-	-	-	-
6	4619-PNL0044 (4619-RP0030)	100	-	-	-	-	-	-
7	4619-PNL0060 (4619-PP0012)	200	-	-	-	-	-	-
8	4619-PNL0061 (4619-PP0013)	200	-	-	-	-	-	-
9	4619-PNL0063 (4619-RP0041)	100	-	-	-	-	-	-
10	4619-PNL0062 (4619-PP0014)	200	-	-	-	-	-	-
11	SPARE	100	-	-	-	-	-	-
12	SPACE	-	-	-	-	-	-	-
13	SPACE	-	-	-	-	-	-	-
14	SPACE	-	-	-	-	-	-	-
15	TVSS	30	-	-	-	-	-	-

SWITCHBOARD SCHEDULE

SWBD MAXIMO #4619-SWBD0012 AMPS: 1000 VOLTS: 277/480 LOCATION B137A

PHASE: 3 WIRE: 4 HZ: 60 AIC: 65K (SYM)

SWBD SECTION	LOAD SERVED	SWITCH SIZE	FUSE SIZE	REMARKS	CONNECTED LOAD A (AMPS)	B (AMPS)	C (AMPS)	TOTAL KVA
1		800	-	MAIN	-	-	-	-
2	4619-PNL0050 (4619-PP0009)	600	-	-	-	-	-	-
3	TEST TOWER FEEDER	400	-	-	-	-	-	-
4	SPARE	200	-	-	-	-	-	-
5	4619-BUSD0005 & 4619-BUSD0007	400	-	-	-	-	-	-
6	4619-BUSD0009 & 4619-BUSD0011	400	-	-	-	-	-	-
7	SPARE	50	-	-	-	-	-	-
8	SPARE	50	-	-	-	-	-	-
9	REFRIGERATION	TO BE VERIFIED	-	-	-	-	-	-
10	4619-XFMR0033	300	-	-	-	-	-	-
11	REFRIGERATION UNIT	125	-	-	-	-	-	-
12	HEAT & VENT (NORTH SIDE)	50	-	-	-	-	-	-
13	HEAT & VENT (SOUTH SIDE)	50	-	-	-	-	-	-
14	BASEMENT SUPPLY FAN	15	-	-	-	-	-	-
15	BASEMENT RETURN FAN	15	-	-	-	-	-	-
16	PENTHOUSE PANEL IN RM E6	200	-	-	-	-	-	-
17	TVSS	30	-	-	-	-	-	-
18	A/C ROOM 172	40	-	-	-	-	-	-
19	CONDENSATE DUPLEX W/ MECHANICAL ALTERNATOR	30	-	-	-	-	-	-
20	BASEMENT SUMP FAN	15	-	-	-	-	-	-
21	75 DOOR SOUTH SIDE	20	-	-	-	-	-	-
22	PULL UP DOOR	20	-	-	-	-	-	-
23	TOWER ELEVATOR	30	-	-	-	-	-	-
24	EAST DOOR (@ COL 26)	20	-	-	-	-	-	-
25	WEST DOOR (@ COL 22)	20	-	-	-	-	-	-
26	PENTHOUSE PANEL IN RM E5	200	-	-	-	-	-	-

PANELBOARD SCHEDULE

SWBD MAXIMO #4619-PP0010 (4619-PP0005) AMPS: 600 VOLTS: 277/480 LOCATION ROOM B139A

PHASE: 3 WIRE: 4 HZ: 60 AIC: 65K (SYM)

SWBD SECTION	LOAD SERVED	SWITCH SIZE	FUSE SIZE	REMARKS	CONNECTED LOAD A (AMPS)	B (AMPS)	C (AMPS)	TOTAL KVA
1	-	600	-	MAIN	-	-	-	-
2	4619-PNL0031 (4619-PP0004)	225	-	-	-	-	-	-
3	SPARE	60	-	-	-	-	-	-
4	25 KVA TRANSFORMER	200	-	-	-	-	-	-
5	4619-PNL0020 (4619-LP0001) & 4619-PNL0023 (4619-LP0002)	100	-	-	-	-	-	-
6	SPARE	100	-	-	-	-	-	-
7	HVAC	100	-	-	-	-	-	-
8	4619-PNL0047 (4619-LP0005)	100	-	-	-	-	-	-
9	4619-PNL0053 (4619-LP0006)	100	-	-	-	-	-	-
10	4619-PNL0033 (4619-LP0003)	60	-	-	-	-	-	-
11	4619-PNL0100 (4619-PP0023)	200	-	-	-	-	-	-
12	4619-PNL0048 (4619-PP0011)	225	-	-	-	-	-	-
13	SPARE	100	-	-	-	-	-	-
14	SPARE	50	-	-	-	-	-	-
15	SPACE	-	-	-	-	-	-	-
16	SPACE	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-

SWITCHBOARD SCHEDULE

SWBD MAXIMO #4619-SWBD0011 AMPS: 1200 VOLTS: 277/480 LOCATION ROOM B142

PHASE: 3 WIRE: 4 HZ: 60 AIC: 65K (SYM)

SWBD SECTION	LOAD SERVED	SWITCH SIZE	FUSE SIZE	REMARKS	CONNECTED LOAD A (AMPS)	B (AMPS)	C (AMPS)	TOTAL KVA
1	-	1200	-	MAIN	-	-	-	-
2	FUTURE SHAKER AMP.	600	-	-	-	-	-	-
3	4619-SS0206	200	-	-	-	-	-	-
4	COOLING SYSTEM	200	-	-	-	-	-	-
5	SPARE	200	-	-	-	-	-	-
6	SPARE	200	-	-	-	-	-	-
7	SPACE	-	-	-	-	-	-	-
8	SPACE	-	-	-	-	-	-	-
9	SPACE	-	-	-	-	-	-	-
10	TVSS	30	-	-	-	-	-	-

SWITCHBOARD SCHEDULE

SWBD MAXIMO #4619-SWBD0013 AMPS: 800 VOLTS: 120/208 LOCATION B137A

PHASE: 3 WIRE: 4 HZ: 60 AIC: 65K (SYM)

SWBD SECTION	LOAD SERVED	SWITCH SIZE	FUSE SIZE	REMARKS	CONNECTED LOAD A (AMPS)	B (AMPS)	C (AMPS)	TOTAL KVA
1	-	800	-	MAIN	-	-	-	-
2	E. WALL 4619-BUSD0008	400	-	-	-	-	-	-
3	W. WALL 4619-BUSD0012	400	-	-	-	-	-	-
4	TOWER LIGHTING	70	-	-	-	-	-	-
5	SPARE	30	-	-	-	-	-	-
6	SPARE	30	-	-	-	-	-	-
7	SPARE	30	-	-	-	-	-	-

GENERAL NOTES

1. REMOVE AND REPLACE EXISTING 800A CIRCUIT BREAKER WITH NEW M FRAME 600A EATON CIRCUIT BREAKER.

	MAXIMO #4619-PNL0050	MAXIMO #4619-PP0010
	MAXIMO #4619-SWBD0001	MAXIMO #4619-SWBD0011
	MAXIMO #4619-SWBD0012	MAXIMO #4619-SWBD0013

SCHEDULE PLAN
NOT TO SCALE

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

PANEL & MCC SCHEDULES

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E802 73 OF 76

AE FIRM: GOODWYN | HILLS | CAWOOD — MERRICK & COMPANY — JOINT VENTURE

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
APPROVAL RECOMMENDED: NELSON CLINGER, AS22 TEAM LEAD
AE: DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
SCALE: AS SHOWN
SPEC. NO. FAC-M5054

NASA AE CONTRACT NO. NAS8-NNM12AA49A
APPROVED: JIMMY GUARIN
AS22 GROUP LEAD DATE: 10/24/13

DRAWING NO.
FAC-GO-4619-E802

MSFC Master Bid Disk 03-26-2014

Maximo Number	Required Action	Volts	Amps	Fuse	Phase	Location
#4619-CB0110	Remove existing bus plug disconnect	600	600	CB	3	Tunnel
#4619-CB0109	Remove existing bus plug disconnect	600	600	CB	3	Tunnel
#4619-CB0108	Remove existing bus plug disconnect	600	600	CB	3	Tunnel
#4619-CB0107	Remove existing bus plug disconnect	600	600	CB	3	Tunnel
#4619-CB0106	Remove existing bus plug disconnect	600	600	CB	3	Tunnel
#4619-CB0105	Remove existing bus plug disconnect	600	600	CB	3	Tunnel
#4619-CB0104	Remove existing bus plug disconnect	600	600	CB	3	Tunnel
#4619-CB0103	Remove existing bus plug disconnect	600	600	CB	3	Tunnel
#4619-CBP0100	Remove existing two 200 amp disconnects to make room for new work.	600	(2) 200	CB	3	Tunnel
#4619-CBP0105	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	100	CB	3	B137-A
#4619-CBP0014	Remove and replace exising circuit breaker. Provide labeling with maximo number and feed location.	240	100	CB	1	Room 168
#4619-CBP0026	Remove and replace exising circuit breaker. Provide labeling with maximo number and feed location.	240	100	CB	1	Room 168
#4619-CBP0015	Existing circuit breaker to be removed.	600	100	CB	3	Room 170
#4619-CBP0016	Existing circuit breaker to be removed.	600	100	CB	3	Room 170
#4619-CBP0041	Remove and replace exising circuit breaker. Provide labeling with maximo number and feed location.	600	30	CB	2 pole	Room 170
#4619-CBP0010	Remove and replace exising circuit breaker. Provide labeling with maximo number and feed location.	600	100	CB	3	Room 165A
#4619-CBP0011	Remove and replace exising circuit breaker. Provide labeling with maximo number and feed location.	600	100	CB	3	Room 165A
#4619-SS0001	Exisiting disconnect to remain.	600	30	NF	3	room 126
#4619-SS0002	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	west high bay
#4619-SS0004	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	west high bay
#4619-SS0005	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	west high bay
#4619-SS0007	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	west high bay
#4619-SS0008	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	west high bay
#4619-SS0009	Disconnect to remain. No work at this time.	600	30	NF	3	west high bay
#4619-SS0011	Disconnect to remain. No work at this time.	250	100	NF	3	west high bay
#4619-SS0013	Disconnect to remain. No work at this time.	250	30	NF	3	west high bay
#4619-SS0014	Disconnect to remain. No work at this time.	600	30	NF	3	west high bay
#4619-SS0015	Disconnect to remain. No work at this time.	600	200	NF	3	LTA
#4619-SS0017	Existing disconnect to be removed.	600	100	NF	3	Room 147D
#4619-SS0018	Existing disconnect to be removed.	600	200	NF	3	Room 147D
#4619-SS0019	Existing disconnect to be removed.	600	30	NF	3	Room 147D
#4619-SS0020	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	100	NF	3	Room 147D
#4619-SS0021	Existing disconnect to be removed.	600	200	NF	3	Room 147D
#4619-SS0023	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	west high bay
#4619-SS0024	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room 147D
#4619-SS0025	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room 147D
#4619-SS0026	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	400	NF	3	Room 147D
#4619-SS0030	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	60	NF	3	west high bay
#4619-SS0031	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	60	NF	3	west high bay
#4619-SS0032	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	30	NF	3	west high bay
#4619-SS0034	Existing disconnect to be removed.	600	100	NF	3	B-139
#4619-SS0037	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	East High Bay
#4619-SS0038	Remove exisiting disconnect and install new heavy	600	60	NF	3	Room 147
#4619-SS0039	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	30	NF	3	Room 147
#4619-SS0043	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	300	30	NF	3	west high bay
#4619-SS0045	Disconnect to remain. No work at this time.	-	-	-	-	west high bay
#4619-SS0046	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	100	NF	3	Room 166
#4619-SS0047	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room 166A
#4619-SS0048	Existing disconnect to be removed.	600	200	NF	3	Room 164E
#4619-SS0049	Disconnect to remain. No work at this time.	600	30	NF	3	Room 164E
#4619-SS0050	Disconnect to remain. No work at this time.	600	30	NF	3	Room 164C

Maximo Number	Required Action	Volts	Amps	Fuse	Phase	Location
#4619-SS0051	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	30	NF	3	Room 228
#4619-SS0052	Disconnect to remain. No work at this time.	600	30	NF	3	Room 161
#4619-SS0053	Exisitng disconnect to be removed.	600	1200	NF	3	Room 148
#4619-SS0054	Existing disconnect to be removed.	600	400	NF	3	Room 148
#4619-SS0055	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room 148
#4619-SS0056	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room 152
#4619-SS0059	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room 153
#4619-SS0060	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room 153
#4619-SS0063	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room 153
#4619-SS0064	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	30	NF	3	Room 154
#4619-SS0065	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	30	NF	3	Room 154
#4619-SS0066	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	60	NF	3	Room 154
#4619-SS0067	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	60	NF	3	East High Bay
#4619-SS0068	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	200	NF	3	Outside Room 129A
#4619-SS0069	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	60	NF	3	East High Bay
#4619-SS0070	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	60	NF	3	East High Bay
#4619-SS0072	Disconnect to remain. No work at this time.	600	100	NF	3	LTA
#4619-SS0073	Existing disconnect to be removed.	600	200	NF	3	Room 147D
#4619-SS0075	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	30	NF	3	LTA
#4619-SS0076	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	30	NF	3	LTA
#4619-SS0077	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	LTA
#4619-SS0079	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room 301
#4619-SS0081	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	30	NF	3	LTA
#4619-SS0082	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	30	NF	3	LTA
#4619-SS0083	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	30	NF	3	LTA
#4619-SS0085	Disconnect to remain. No work at this time.	250	100	NF	3	LTA
#4619-SS0086	Disconnect to remain. No work at this time.	600	100	NF	3	LTA
#4619-SS0087	Disconnect to remain. No work at this time.	600	30	NF	3	LTA
#4619-SS0088	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	LTA
#4619-SS0089	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	100	NF/N3R	3	Near Room 170
#4619-SS0097	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room 158
#4619-SS0098	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	100	NF	3	Room 158
#4619-SS0099	Existing disconnect to be removed.	600	100	NF	3	Room 158
#4619-SS0100	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	400	NF	3	Room 158
#4619-SS0101	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room 158
#4619-SS0102	Disconnect to remain. No work at this time.	600	30	NF	3	Room 156
#4619-SS0103	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room 156
#4619-SS0104	Disconnect to remain. No work at this time.	600	30	NF	3	Room 156
#4619-SS0105	Disconnect to remain. No work at this time.	600	30	NF	3	Room 156
#4619-SS0106	Disconnect to remain. No work at this time.	600	30	NF	3	Room 156
#4619-SS0107	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room 156
#4619-SS0109	Existing disconnect to be removed.	600	30	NF	3	Room 156
#4619-SS0110	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	100	NF	3	Room 160B

Maximo Number	Required Action	Volts	Amps	Fuse	Phase	Location
#4619-SS0111	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	100	150	3	Room 160B
#4619-SS0112	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	60	NF	3	Room 160B
#4619-SS0113	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	60	NF	3	Room 160B
#4619-SS0114	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	60	NF	3	Room 160B
#4619-SS0115	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	100	NF	3	Room 160B
#4619-SS0116	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	100	NF	3	Room 160B
#4619-SS0117	Existing disconnect to be removed.	600	30	NF	3	E-07
#4619-SS0118	Existing disconnect to be removed.	600	30	NF	3	E-07
#4619-SS0119	Existing disconnect to be removed.	600	30	NF	3	E-07
#4619-SS0120	Existing disconnect to be removed.	600	60	NF	3	E-07
#4619-SS0121	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	west high bay
#4619-SS0122	Existing disconnect to be removed.	600	30	NF	3	Room 168
#4619-SS0123	Existing disconnect to be removed.	600	30	NF	3	Room 155
#4619-SS0124	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	30	NF	3	Room 165
#4619-SS0126	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	30	NF	3	west high bay
#4619-SS0129	Exisiting disconnect to remain.	600	60	NF	3	Room 165A
#4619-SS0130	Disconnect to remain. No work at this time.	600	100	NF	3	LTA
#4619-SS0131	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room 164
#4619-SS0132	Disconnect to remain. No work at this time.	600	30	NF	3	Room 164
#4619-SS0133	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	200	NF	3	west high bay
#4619-SS0134	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	30	NF	3	Room 145M
#4619-SS0135	Remove exisiting disconnect and install new heavy	250	30	NF	3	Room 145M
#4619-SS0136	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room 148
#4619-SS0137	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room 148
#4619-SS0138	Existing disconnect to be removed.	600	60	NF	3	Room 148
#4619-SS0139	Disconnect to remain. No work at this time.	600	30	NF	3	Room 147D

GENERAL NOTES

1. UNLESS OTHERWISE NOTED ALL DISCONNECTS SHALL BE NEMA 1 RATED. NEMA 3R LISTED IN FUSE COLUMN.

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ISSUED FOR CONSTRUCTION

WARNING
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

DISCONNECT SCHEDULES

AE FIRM: GOODWYN | HILLS | CAMOOD — MERRICK & COMPANY — JOINT VENTURE

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
NASA AE CONTRACT NO. NAS8-NNM12AA49A
APPROVED: JIMMY GUARIN
AE: DATE: 10/24/13
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
AS22 GROUP LEAD DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M5054
DRAWING NO. FAC-GO-4619-E803

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E803 74 OF 76

MSFC Master Bid Disk 03-26-2014

Maximo Number	Required Action	Volts	Amps	Fuse	Phase	Location
#4619-SS0140	Disconnect to remain. No work at this time.	600	60	NF	3	Room 167
#4619-SS0141	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	100	NF	3	west high bay
#4619-SS0142	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	30	NF	3	west high bay
#4619-SS0143	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	100	NF	3	west high bay
#4619-SS0145	Existing disconnect to be removed.	250	30	NF	3	Room 170B
#4619-SS0146	Existing disconnect to be removed.	600	400	NF	3	Room 170B
#4619-SS0147	Existing disconnect to be removed.	600	400	NF	3	Room 170B
#4619-SS0148	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room 170B
#4619-SS0149	Existing disconnect to be removed.	600	30	NF	3	Room 170B
#4619-SS0150	Existing disconnect to be removed.	600	200	NF	3	Room 170B
#4619-SS0151	Existing disconnect to be removed.	120	30	NF	1	Room 170B
#4619-SS0152	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room 165
#4619-SS0154	Existing disconnect to be removed.	600	30	NF	3	Outside Room E-07
#4619-SS0155	Existing disconnect to be removed.	600	30	NF/N3R	3	Outside Room E-07
#4619-SS0156	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF/N3R	3	Outside Room E-07
#4619-SS0157	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF/N3R	3	Room E-07
#4619-SS0158	Existing disconnect to be removed.	600	30	NF	3	Room 152
#4619-SS0159	Existing disconnect to be removed.	600	30	NF	3	Room 153
#4619-SS0161	Disconnect to remain. No work at this time.	600	100	NF	3	Room 153A
#4619-SS0162	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	60	NF	3	Room 153A
#4619-SS0163	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	60	NF	3	Room 157
#4619-SS0164	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	60	NF	3	Room 157
#4619-SS0165	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF/N3R	3	Outside Room 161
#4619-SS0166	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF/N3R	3	Outside Room 161
#4619-SS0167	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	100	NF/N3R	3	Outside Room 167B
#4619-SS0168	Disconnect to remain. No work at this time.	600	30	NF	3	East High Bay
#4619-SS0169	Disconnect to remain. No work at this time.	600	30	NF	3	East High Bay
#4619-SS0170	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF/N3R	3	Outside Room 167B
#4619-SS0171	Disconnect to remain. No work at this time.	600	30	NF	3	East High Bay
#4619-SS0172	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	60	NF/N3R	3	Outside Room 167B
#4619-SS0173	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	200	NF	3	Room 167
#4619-SS0174	Disconnect to remain. No work at this time.	250	200	NF	3	Room 167
#4619-SS0175	Disconnect to remain. No work at this time.	250	200	NF	3	Room 167
#4619-SS0176	Disconnect to remain. No work at this time.	250	200	NF	3	Room 167
#4619-SS0177	Disconnect to remain. No work at this time.	250	200	NF	3	Room 167
#4619-SS0179	Generator disconnect to be removed and replaced with a 225 amp shunt trip circuit breaker disconnect.	600	200	NF/N3R	3	Outside Room 167B
#4619-SS0182	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	30	NF	3	Room 156
#4619-SS0184	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	30	NF	3	west high bay
#4619-SS0186	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	100	NF	3	west high bay
#4619-SS0187	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	60	NF	3	west high bay
#4619-SS0188	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	60	NF	3	Sun Spot
#4619-SS0189	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room 170
#4619-SS0191	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	30	NF	3	LTA
#4619-SS0192	Remove exisiting disconnect and install new heavy	250	30	NF	3	Room 215
#4619-SS0193	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	30	NF	3	Room 221
#4619-SS0194	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room 203A
#4619-SS0197	Existing disconnect to be removed.	600	60	NF	3	Room B-137A

Maximo Number	Required Action	Volts	Amps	Fuse	Phase	Location
#4619-SS0198	Existing disconnect to be removed.	600	400	200	3	Room B-137A
#4619-SS0200	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Basement Cross Wing
#4619-SS0201	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	60	NF	3	Basement Cross Wing
#4619-SS0202	Existing disconnect to be removed.	600	30	NF	3	Room B142
#4619-SS0203	Existing disconnect to be removed.	600	100	NF	3	Room B142
#4619-SS0204	Existing disconnect to be removed.	600	30	NF	3	Room B142
#4619-SS0206	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	200	NF	3	Room B142
#4619-SS0207	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room B142
#4619-SS0208	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room B142
#4619-SS0209	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room B142
#4619-SS0210	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	60	NF	3	Room B142
#4619-SS0211	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	100	NF	3	Room B142
#4619-SS0212	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room B-139A
#4619-SS0213	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	30	NF	3	Room B-139A
#4619-SS0214	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room B-139A
#4619-SS0215	Existing disconnect to be removed.	600	60	175	3	Outside Room B-139A
#4619-SS0216	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room B-139A
#4619-SS0217	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room B-136
#4619-SS0218	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	60	NF	3	Room B-140
#4619-SS0219	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room B-140
#4619-SS0220	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	400	NF	3	Room B-140
#4619-SS0221	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	100	NF	3	Room B-140
#4619-SS0222	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room B-140
#4619-SS0223	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room B-140
#4619-SS0224	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	60	NF	3	Room 222
#4619-SS0225	Disconnect to remain. No work at this time.	600	30	NF	3	Room 222
#4619-SS0226	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room 222
#4619-SS0228	Disconnect to remain. No work at this time.	600	30	NF	3	Room 166
#4619-SS0231	Disconnect to remain. No work at this time.	600	30	NF	3	Room 166A
#4619-SS0232	Disconnect to remain. No work at this time.	600	30	NF	3	Room 167B
#4619-SS0235	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room 167B
#4619-SS0236	Disconnect to remain. No work at this time.	600	60	NF	3	Room 169
#4619-SS0237	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	60	NF	3	Room 169
#4619-SS0240	Disconnect to remain. No work at this time.	600	30	NF	3	Room 170
#4619-SS0241	Disconnect to remain. No work at this time.	600	30	NF	3	Room 170B
#4619-SS0242	Disconnect to remain. No work at this time.	600	30	NF	3	Room 170B
#4619-SS0243	Disconnect to remain. No work at this time.	600	30	NF	3	Room 170B
#4619-SS0245	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	30	NF	3	west high bay
#4619-SS0246	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room B-139
#4619-SS0253	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	60	NF/N3R	3	Outside Room 147D
#4619-SS0255	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	30	NF	3	Room 157
#4619-SS0256	Remove exisiting disconnect and install new heavy	600	30	NF	3	Room 157
#4619-SS0257	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room 157
#4619-SS0258	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	100	NF	3	High Bay New Stairs
#4619-SS0278	Remove exisiting disconnect and install new heavy	250	100	NF	3	LTA

Maximo Number	Required Action	Volts	Amps	Fuse	Phase	Location
#4619-SS0279	Disconnect to remain. No work at this time.	600	30	NF	3	Room 158
#4619-SS0280	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	60	NF	3	Room 160A
#4619-SS0281	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	100	NF	3	Room 160A
#4619-SS0282	Disconnect to remain. No work at this time.	600	30	NF	3	Room 160A
#4619-SS0283	Disconnect to remain. No work at this time.	600	30	NF	3	Room 160A
#4619-SS0284	Disconnect to remain. No work at this time.	600	30	NF	3	Room 160
#4619-SS0285	Disconnect to remain. No work at this time.	250	100	NF	3	Room 160B
#4619-SS0286	Disconnect to remain. No work at this time.	600	30	NF	3	Room 160B
#4619-SS0296	Disconnect to remain. No work at this time.	600	30	NF	3	Room B-139
#4619-SS0297	Existing disconnect to be removed.	250	30	NF	3	Room B-139
#4619-SS0298	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room B-139
#4619-SS0299	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	250	30	NF	3	Room B-137A
#4619-SS0300	Remove exisiting disconnect and install new heavy duty disconnect. Provide labeling with maximo number and feed location.	600	30	NF	3	Room B-137A
#4619-SS0301	Disconnect to remain. No work at this time.	250	400	NF	3	Room 166A
#4619-SS0302	Existing disconnect to be removed.	600	60	NF	3	Room B-137A
#4619-SS0304	Disconnect to remain. No work at this time.	250	30	NF	3	Room 170
#4619-SS0306	Disconnect to remain. No work at this time.	600	100	NF	3	LTA
#4619-SS0308	Existing disconnect to be remain.	600	30	NF	3	Room 222
#4619-SS0309	New disconnect	600	1200	NF	3	Tunnel

GENERAL NOTES

1. UNLESS OTHERWISE NOTED ALL DISCONNECTS SHALL BE NEMA 1 RATED. NEMA 3R LISTED IN FUSE COLUMN.

Three Phase, 480V Delta Primary - 208Y/120V Wye Secondary, Dry Type Transformer (BASE BID)

Maximo Number	Transformer KVA	Primary F.L. Amps	Primary Breaker or Fuse	Primary Feeder	Secondary F.L. Amps	Secondary Breaker or Fuse	Secondary Feeder	Required accticn
4619-XFMR0033	200	240	300 A	3 # 350 KCMIL & 1 #4(G)	554	800 A	2 Runs in Parallel of 4#500MCM & 1#1/0(G)	Furnish and install new transformer

BUILDING 4619 UTILITY TRANSFORMER SCHEDULE (FOR REFERENCE ONLY NO WORK AT THIS TIME)

LOCATION	XFMR MARK	KVA RATING	HIGH VOLTAGE			LOW VOLTAGE			Frequency	REMARKS
			VOLTAGE	PHASE	CONFIGURATION	VOLTAGE	PHASE	CONFIGURATION		
T-2		2500	12470	3	DELTA	277/480	3	WYE	60	CONTRACTOR TO PROVIDE PHENOLIC LABEL INSTALLED ON EACH SERVICE TRANSFORMER.
T-3		300	12470	3	DELTA	120/208	3	WYE	60	CONTRACTOR TO PROVIDE PHENOLIC LABEL INSTALLED ON EACH SERVICE TRANSFORMER.
T-4		1000	12470	3	DELTA	277/480	3	WYE	60	CONTRACTOR TO PROVIDE PHENOLIC LABEL INSTALLED ON EACH SERVICE TRANSFORMER.
T-5		2500	12470	3	DELTA	277/480	3	WYE	60	CONTRACTOR TO PROVIDE PHENOLIC LABEL INSTALLED ON EACH SERVICE TRANSFORMER.
T-6		500	12470	3	DELTA	277/480	3	WYE	60	CONTRACTOR TO PROVIDE PHENOLIC LABEL INSTALLED ON EACH SERVICE TRANSFORMER.
T-7		750	12470	3	DELTA	120/208	3	WYE	60	CONTRACTOR TO PROVIDE PHENOLIC LABEL INSTALLED ON EACH SERVICE TRANSFORMER.

FINAL SUBMITTAL
ISSUED FOR CONSTRUCTION

WARNING
DO NOT SCALE THIS DRAWING
THIS DRAWING WAS DESIGNED TO BE PRINTED AT A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED
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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

DISCONNECT AND TRANSFORMER SCHEDULES

AE FIRM: GOODWYN MILLS CAWOOD / MERRICK & COMPANY — JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN
AE: DATE: 10/24/13
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
AS22 GROUP LEAD DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M5054

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E804 75 OF 76

DRAWING NO. FAC-GO-4619-E804

MSFC Master Bid Disk 03-26-2014

Three Phase, 480V Delta Primary - 208Y/120V Wye Secondary, Dry Type Transformer (ADD ALT #4)

	Maximo Number	Transformer KVA	Primary F.L. Amps	Primary Breaker or Fuse	Primary Feeder	Secondary F.L. Amps	Secondary Breaker or Fuse	Secondary Feeder	Required acction
	4619-XFMR0001	75	90	125 A	3 # 1/0 & 1 # 6(G)	208	225 A	4 # 4/0 & 1 # 4(G)	Remove existing transformer and install new transformer. Provide labeling with maximo number and feed location.
	4619-XFMR0005	112.5	135	175 A	3 # 3/0 & 1 # 6(G)	312	350 A	4 # 500 KCMIL & 1 # 2(G)	Remove existing transformer and install new transformer. Provide labeling with maximo number and feed location.
	4619-XFMR0006	15	18.04	25 A	3 # 10 & 1 # 12(G)	42	60 A	4 # 6 & 1 # 10(G)	Remove exisiting transformer and install new transformer. Provide labeling with maximo number and feed location.
	4619-XFMR0007	30	36	50 A	3 # 6 & 1 # 10(G)	83	100 A	4 # 2 & 1 # 6(G)	Remove existing transformer and install new transformer. Provide labeling with maximo number and feed location.
	4619-XFMR0008	45	54	70 A	3 # 4 & 1 # 8(G)	125	175 A	4 # 2/0 & 1 # 6(G)	Remove existing transformer and install new transformer. Provide labeling with maximo number and feed location.
	4619-XFMR0009	150	180	225 A	3 # 4/0 & 1 # 4(G)	416	500 A	2 Runs in Parallel of 4#250MCM & 1#1/0(G)	Remove existing transformer and install new transformer. Provide labeling with maximo number and feed location.
	4619-XFMR0010	45	54	60 A	3 # 4 & 1 # 8(G)	125	150 A	4 # 1/0 & 1 # 6(G)	Remove exisiting transformer and install new transformer. Provide labeling with maximo number and feed location.
	4619-XFMR0011	150	180	225 A	3 # 4/0 & 1 # 4(G)	416	500 A	2 Runs in Parallel of 4#250MCM & 1#1/0(G)	Remove existing transformer and install new transformer. Provide labeling with maximo number and feed location.
1	4619-XFMR0014	30	36	50 A	3 # 6 & 1 # 10(G)	83	100 A	4 # 2 & 1 # 6(G)	Existing transformer was moved on 9/8/03 inside Motor Control Center #4619-MCC0004. No work at this time.
	4619-XFMR0015	45	54	90 A	3 # 3 & 1 # 8(G)	125	150	4 # 1/0 & 1 # 6(G)	Remove exisiting transformer and install new transformer. Provide labeling with maximo number and feed location.
	4619-XFMR0016	15	18.04	25 A	3 # 10 & 1 # 12(G)	42	60 A	4 # 6 & 1 # 10(G)	Remove exisiting transformer and install new transformer. Provide labeling with maximo number and feed location.
1	4619-XFMR0017	9	10.83	15 A	3 # 12 & 1 # 12(G)	25	30 A	4 # 10 & 1 # 10(G)	Transformer to remain. No work at this time.
	4619-XFMR0019	75	90.25	125 A	3 # 1/0 & 1 # 6(G)	208.33	225 A	4 # 4/0 & 1 # 4(G)	Remove exisiting transformer and install new **K13** transformer. Provide labeling with maximo number and feed location.
	4619-XFMR0020	9	10.83	15 A	3 # 12 & 1 # 12(G)	25	30 A	4 # 10 & 1 # 10(G)	Remove existing transformer and install new transformer. Provide labeling with maximo number and feed location.
1	4619-XFMR0021	9	10.83	15 A	3 # 12 & 1 # 12(G)	25	30 A	4 # 10 & 1 # 10(G)	Transformer to remain. No work at this time.
	4619-XFMR0022	75	90.25	125 A	3 # 1/0 & 1 # 6(G)	208.33	225 A	4 # 4/0 & 1 # 4(G)	Remove existing transformer and install new transformer. Provide labeling with maximo number and feed location.
	4619-XFMR0024	150	180	225 A	3 # 4/0 & 1 # 4(G)	416	500 A	2 Runs in Parallel of 4#250MCM & 1#1/0(G)	Remove existing transformer and install new transformer. Provide labeling with maximo number and feed location.
1	4619-XFMR0029	75	90	125	3#1/0 & 1#6G	208	225	4 # 4/0 & 1 # 4(G)	Transformer to remain. No work at this time.
1	4619-XFMR0032	300	361	400 A feed from bus plug	3 # 500 KCMIL & 1 # 3 (G)	833	1000 A	3 Runs in Parallel of 4#500MCM & 1#2/0(G)	Transformer to remain. No work at this time.

Three Phase, 480V Delta Primary - 240/120V Delta Secondary, Dry Type Transformer (ADD ALT #4)

	Maximo Number	Transformer KVA	Primary F.L. Amps	Primary Breaker or Fuse	Primary Feeder	Secondary F.L. Amps	Secondary Breaker or Fuse	Secondary Feeder	Required acction
1	4619-XFMR0027	150	180	175 A feed from bus plug	3 # 2/0 & 1 # 6(G)	416	500 A	2 Runs in Parallel of 4#250MCM & 1#1/0(G)	Transformer to remain. No work at this time.
	4619-XFMR0028	75	90	125 A	3 # 1/0 & 1 # 6(G)	180	225 A	4 # 4/0 & 1 # 4(G)	Remove existing transformer and install new transformer. Provide labeling with maximo number and feed location.

Single Phase, 480V Primary - 240/120V Single Phase Secondary, Dry Type Transformer (ADD ALT #4)

Maximo Number	Transformer KVA	Primary F.L. Amps	Primary Breaker or Fuse	Primary Feeder	Secondary F.L. Amps	Secondary Breaker or Fuse	Secondary Feeder	Required acction
4619-XFMR0003	37.5	78	60 A	3 # 4 & 1 # 10(G) - 1-1/2"C	156	200 A	3 # 3/0 & 1 # 6(G)	Remove existing transformer and install new transformer. Provide labeling with maximo number and feed location.
4619-XFMR0012	5	10.41	15 A	2 # 12 & 1 # 12(G)	20.83	25 A	3 # 10 & 1 # 10(G)	Existing transformer to be removed.
4619-XFMR0013	25	52	70 A	2 # 4 & 1 # 8(G)	104	125 A	3 # 1/0 & 1 # 6(G)	Remove existing transformer and install new transformer. Provide labeling with maximo number and feed location.

Three Phase, 208V Delta Primary - 120/208V Wye Secondary, IG, Dry Type Transformer (ADD ALT #4)

Maximo Number	Transformer KVA	Primary F.L. Amps	Primary Breaker or Fuse	Primary Feeder	Secondary F.L. Amps	Secondary Breaker or Fuse	Secondary Feeder	Required acction
4619-XFMR0034	45	125	175 A	4 # 2/0 & 1 # 6(G)	125	175 A	4 # 2/0 & 1 # 6(G)	Remove existing transformer and install new transformer. Provide labeling with maximo number and feed location.

PLAN NOTES

1. NO WORK AT THIS TIME. PHENOLIC LABELING REQUIRED.

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Marshall Space Flight Center
Huntsville, Alabama 35812

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

TRANSFORMER SCHEDULES (ADD ALT #4)

AE FIRM: GOODWYN | MILLS | CAWOOD — MERRICK & COMPANY — JOINT VENTURE

NASA AE CONTRACT NO. NAS8-NNM12AA49A

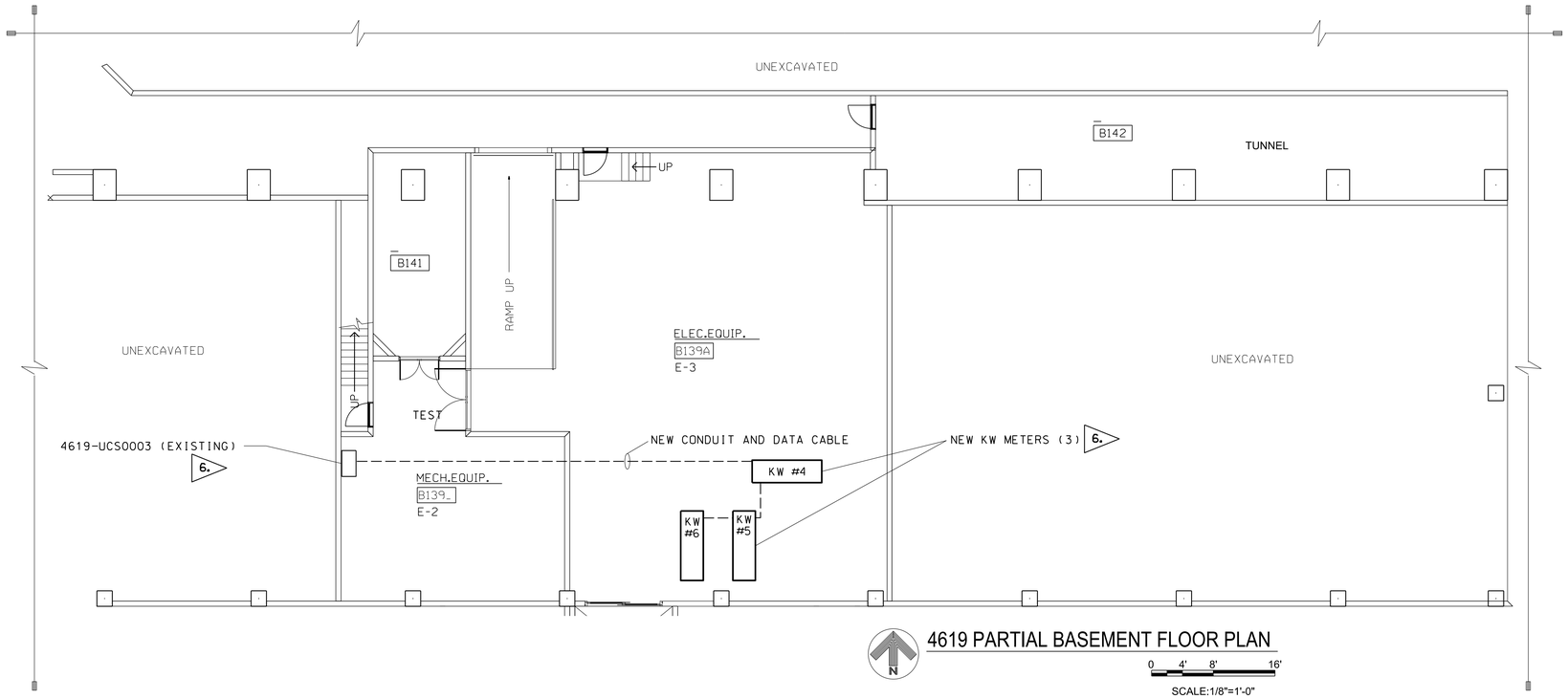
SUBMITTED: JENNIFER LANDRY
APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E
APPROVED: JIMMY GUARIN
AE: DATE: 10/24/13
APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E
AS22 GROUP LEAD DATE: 10/24/13
DESIGNED: S. CRITTENDEN
DRAWN: M. PATE
CHECKED: J. OAKES
APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD
SCALE: AS SHOWN
SPEC. NO. FAC-M5054

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. E805 76 OF 76

DRAWING NO. FAC-GO-4619-E805

MSFC Master Bid Disk 03-26-2014



4619 PARTIAL BASEMENT FLOOR PLAN

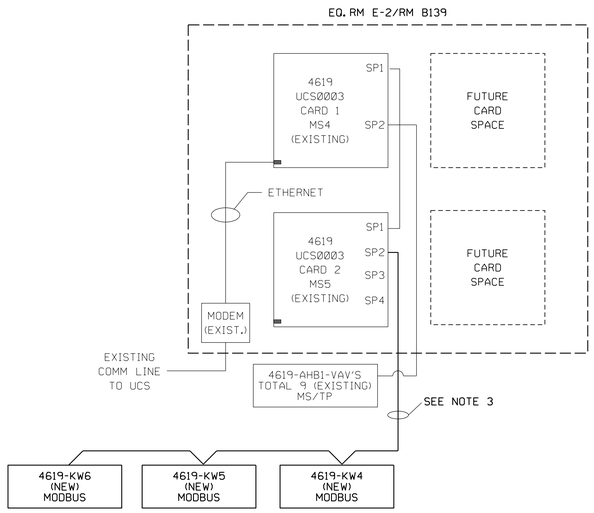
N

0 4' 8' 16'

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

UCS NOTES:

1. ALL ELECTRICAL WORK SHALL COMPLY WITH 2011 NEC AND SPEC M5054 AS A MINIMUM STANDARD. ITEMS SPECIFIED BY BRAND NAME AND PART NUMBER SHALL NOT BE SUBSTITUTED SO THAT CONTROL SYSTEM COMPATIBILITY IS ASSURED.
2. SENSOR CABLE SHALL BE 2 OR 4 CONDUCTOR AS SHOWN, COPPER, POLYMER ALLOY INSULATED, TWISTED PAIRS, PLENUM RATED, EACH PAIR HAVING A 24 AWG STRANDED DRAIN WIRE.
   1 PAIR COLOR CODE: BLACK/RED 22 GA. (7X30) WEST PENN WIRE PN 25291B, PH# 1-800-245-4964 OR APPROVED EQUAL.
   2 PAIR COLOR CODE: BLACK/RED WHITE/GREEN 22 GA. (7X30) WEST PENN WIRE PN 25510B, PH# 1-800-245-4964 OR APPROVED EQUAL.
3. DATA CABLE SHALL BE 2 OR 4 CONDUCTOR AS SHOWN, COPPER FOAM TEFLON INSULATION, TWISTED PAIR, PLENUM RATED, EACH PAIR HAVING 24 AWG (7X32) STRANDED DRAIN WIRE.
   1 PAIR COLOR CODE: WHITE/BLUE 24 AWG (7X32) WEST PENN P/N D254851, PH# 800-245-4964 OR BELDEN P/N 82841, PH# 800-235-3361 OR APPROVED EQUAL.
4. CONTRACTOR SHALL FURNISH ALL PARTS NECESSARY FOR INSTALLATION OF WORK.
5. MICROSCAN PRODUCTS ARE AVAILABLE FROM DORSETT'S INC. PH # 336-679-2126.
6. FROM NEW 4619-KW4, 4619-KW5 AND 4619-KW6, FURNISH AND INSTALL NEW CONDUIT AND UCS DATA CABLE PER COMM TRUNK LAYOUT TO EXISTING PANEL 4619-UCS0003.
7. FROM NEW 4619-KW7, 4619-KW8 AND 4619-KW9, FURNISH AND INSTALL NEW CONDUIT AND NEW UCS DATA CABLE PER COMM TRUNK LAYOUT TO EXISTING PANEL 4619-UCS0005.
8. UPON COMPLETION OF ALL UCS RELATED WORK, A POINT CHECKOUT SHALL BE CONDUCTED JOINTLY BY UCS PERSONNEL AND THE CONTRACTOR.
9. THE CONTRACTOR SHALL PROVIDE PROGRAMMING OF THE NEW MONITOR POINTS TO THE INFOSCAN DATABASE TO ENABLE A COMPLETELY OPERATIONAL SYSTEM.



COMM TRUNK LAYOUT

WARNING

DO NOT SCALE THIS DRAWING

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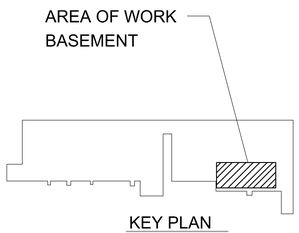
3572932 08-15-13 EWO — LATEST CADD UPDATE: 10-24-13 07:35 AM BY: W. OWEN



KEY PLAN

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED

Marshall Space Flight Center
Huntsville, Alabama 35812

WORK REQUEST NO. 3572932

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

BASEMENT - UCS FLOOR PLAN,
COMM TRUNK LAYOUT AND NOTES

AE FIRM: KAYA Associates, Inc.

NASA AE CONTRACT NO. NNM11AA39C

SUBMITTED:

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E

APPROVED: JIMMY GUARIN

AS22 GROUP LEAD DATE:

AE: DATE: 10/24/13

DESIGNED: W. OWEN

DRAWN: W. OWEN

CHECKED: D. BORDER

SCALE: AS SHOWN

APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E

APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

SPEC. NO. FAC-M5054

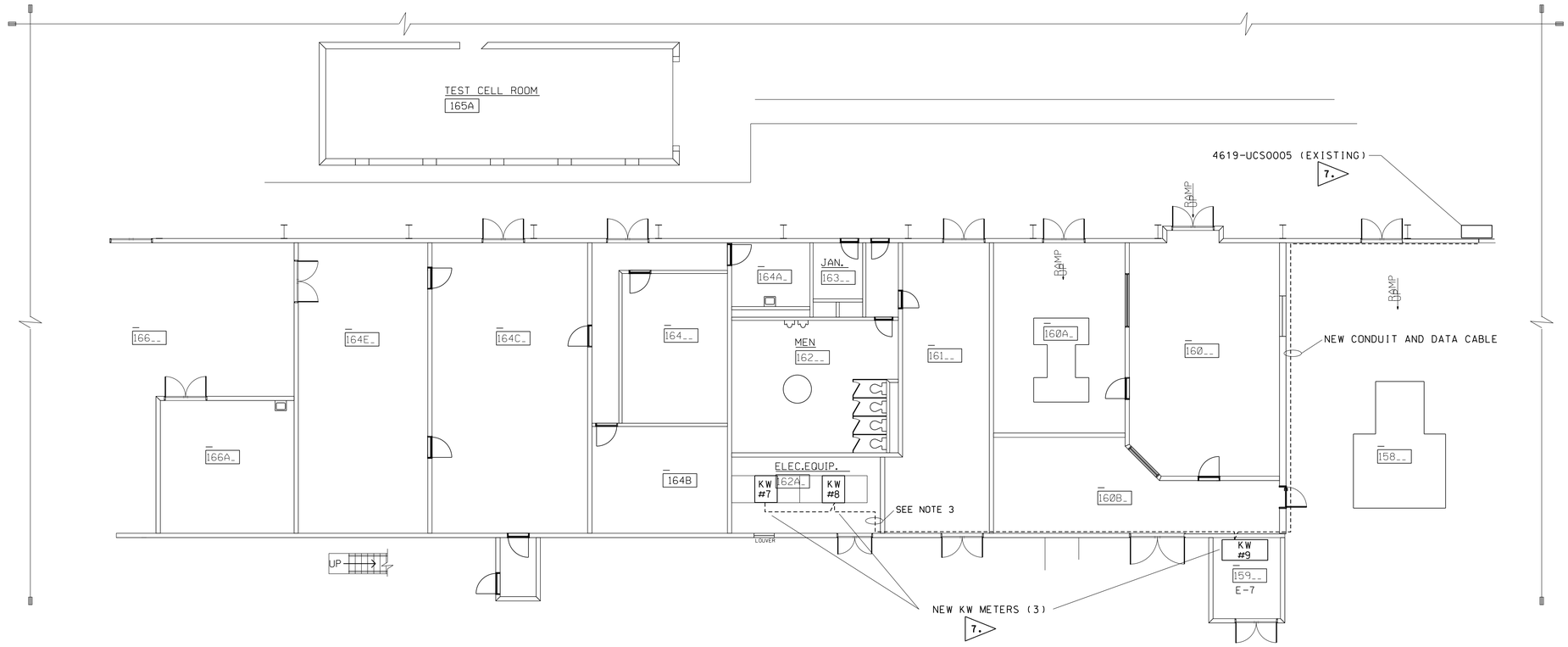
DRAWING NO. FAC-GO-4619-UCS1

FINAL SUBMITTAL

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. UCS1 1 OF 2

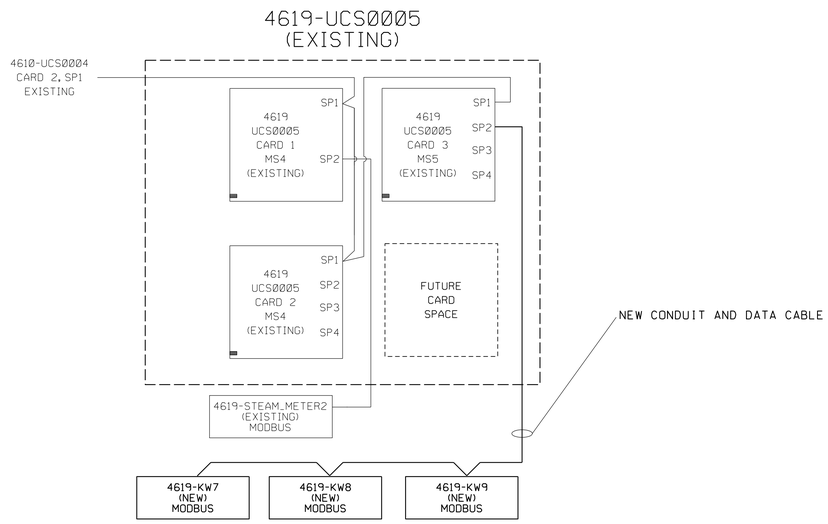
MSFC Master Bid Disk 03-26-2014



4619 PARTIAL FIRST FLOOR PLAN

0 4' 8' 16'

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



COMM TRUNK LAYOUT

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3572932 08-15-13 EWO

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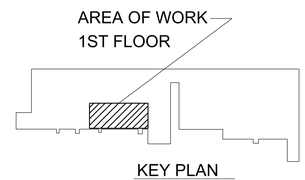

KEY PLAN

REV.	BY	DATE	REVISION	C.J. NO.	APPROVED

Marshall Space Flight Center
Huntsville, Alabama 35812

WORK REQUEST NO. 3572932

BUILDING 4619
REVITALIZED ELECTRICAL SYSTEM

1ST FLOOR UCS FLOOR PLAN,
AND COMM TRUNK LAYOUT

AE FIRM: KAYA Associates, Inc.

NASA AE CONTRACT NO. NNM11AA39C

SUBMITTED:

APPROVAL RECOMMENDED: TIM DOSS, AS22 PROJECT A/E

APPROVED: JIMMY GUARIN

AE: DATE: 10/24/13

APPROVAL RECOMMENDED: TIM DOSS, AS22 SUPPORT A/E

AS22 GROUP LEAD DATE:

DESIGNED: W. OWEN

DRAWN: W. OWEN

CHECKED: D. BORDER

APPROVAL RECOMMENDED: NELSON OLINGER, AS22 TEAM LEAD

SCALE: AS SHOWN

SPEC. NO. FAC-M5054

DRAWING NO. FAC-GO-4619-UCS2

FINAL SUBMITTAL

SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET

REF. NO. UCS2 2 OF 2

MSFC Master Bid Disk 03-26-2014