REVISIONS			
SYMBOL	DESCRIPTION	DATE	APPROVED

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
	EXISTING EQUIPMENT SHOWN WITH LIGHT WEIGHT LINES
	NEW EQUIPMENT SHOWN WITH HEAVY WEIGHT LINES
	DUPLEX RECEPTACLE – 20A, 125V – MOUNTING HEIGHT 18" UNLESS NOTED OTHERWISE
S_H	HORSEPOWER RATED SWITCH – MOUNTING HEIGHT 4'–0" – TYPE AND RATING AS REQUIRED
	CONDUIT – IN OR ON CEILING OR WALLS
	CONDUIT – IN OR UNDERGROUND
	HOMERUN TO PANEL – NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS AND NUMBER OF CROSSLINES INDICATES NUMBER OF #12 CONDUCTORS – WHERE NO CROSSLINES APPEAR 2#12 CONDUCTORS ARE IMPLIED
	EQUIPMENT – TO BE REMOVED
	CONTROL DEVICE – TYPE AS INDICATED
	MOTOR – HORSEPOWER AS INDICATED
	SHUNT TRIP DEVICE – TYPE AS INDICATED
EPBX	EMERGENCY PUSHBUTTON – "X" DENOTES NUMBER
PM	POWER MONITOR
KWH	KILO–WATT HOUR METER
	NEW UNDERGROUND DUCTBANK
E	EXISTING UNDERGROUND ELECTRICAL UTILITY
W	EXISTING UNDERGROUND WATER UTILITY
	THERMAL MAGNETIC CIRCUIT BREAKER – RATING AS INDICATED
	CURRENT TRANSFORMER – TYPE AS INDICATED
	HIGH VOLTAGE SWITCH – TYPE AS INDICATED
	TRANSFORMER – TYPE AND RATING AS INDICATED
	EXISTING MEDIUM VOLTAGE TERMINATION
	MEDIUM VOLTAGE TERMINATION
	MEDIUM VOLTAGE SPLICE
	GROUND
CB	ENCLOSED CIRCUIT BREAKER
	SHORTING TERMINAL BLOCK
R	RELAY

ABBREVIATIONS

A	AMPS
ACCU	AIR COOLED CONDENSING UNIT
ATS	AUTOMATIC TRANSFER SWITCH
BLDG	BUILDING
C	CONDUIT
D	DEPTH
ECG	EQUIPMENT GROUNDING CONDUCTOR
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
ENCL	ENCLOSURE
EX	EXISTING
FT	FEET
FLA	FULL LOAD AMPERES
<FIBO>	FURNISHED AND INSTALLED BY OTHERS, CONNECTED BY ELECTRICAL CONTRACTOR
GEC	GROUNDING ELECTRODE CONDUCTOR
ISOL	ISOLATION
KAIC	THOUSAND AMPERES INTERRUPTING CAPACITY
KCM	THOUSAND CIRCULAR MILS
KVA	THOUSAND VOLT–AMPERES
KV	KILO–VOLTS
KW	KILO–WATTS
L	LENGTH
MCA	MINIMUM CIRCUIT AMPACITY
MIN	MINIMUM
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
PNL	PANEL
PH	PHASE
PKG	PACKAGE
PVC	POLY–VINYL–CHLORIDE
RX	REMOVE EXISTING
S/N	SOLID NEUTRAL
TYP	TYPICAL
U/G	UNDERGROUND
V	VOLTS
W	WIRE OR WIDTH
XFMR	TRANSFORMER
400/3	AMPERE RATING/NUMBER OF POLES

E–1

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FPE	
ROICC	
DESIGN	GJCL
DRAWN	SMC
CHECKED	RRW
SUPV'R	
SAFETY OFF	
APPROVED	DATE
APPROVED	DATE
DIRECTOR, ENG. SERVICES	DATE

DEPARTMENT OF THE NAVY – NAVAL FACILITIES ENGINEERING COMMAND
NAVAL RESEARCH LABORATORY
WASHINGTON, D.C. 20375-5000

NAVAL RESEARCH LABORATORY
HIGH BAND TEST FACILITY

ELECTRICAL LEGEND
AND ABBREVIATIONS

SIZE	CODE IDENT NO.	NAVFAC DRAWING NO
D		3172466
		CONSTR. CONTR. NO. N62477–02–C–2074
SCALE: AS SHOWN		SPEC. 21–02–2074 SHEET 11 OF 18

WR NO. 1342 RDSD# 13495

NDW–NRL 10460/2504 (Rev. 3–86)

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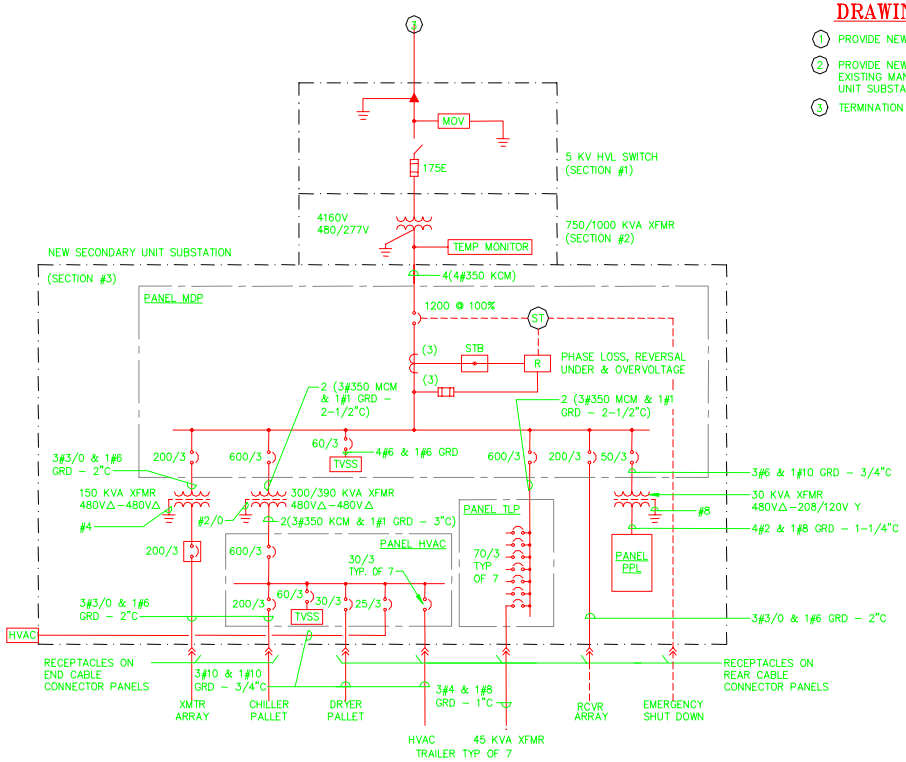
APPROVED DATE
DIRECTOR, ENG. SERVICES DATE
D
SCALE:
CONSTR. CONTR. NO. N62477–02–C–2074
SPEC. 21–02–2074 SHEET 11 OF 18
WR NO. 1342 RDSD# 13495
NDW–NRL 10460/2504 (Rev. 3–86)

COMMONWEALTH OF VIRGINIA
MOHAMMAD N. ALGHANEM
No. 025139
PROFESSIONAL ENGINEER

REVISIONS			
SYMBOL	DESCRIPTION	DATE	APPROVED

DRAWING NOTES:

1. PROVIDE NEW THREE-WAY SPLICE.
2. PROVIDE NEW (3) 1/C-5KV-1/0 CABLE FROM EXISTING MANHOLE 4 TO NEW SECONDARY UNIT SUBSTATION VIA NEW DUCTBANK.
3. TERMINATION KIT



ELECTRICAL ONE-LINE DIAGRAM

NO SCALE

E-4

FPE	DESIGN: GJCL	DEPARTMENT OF THE NAVY - NAVAL FACILITIES ENGINEERING COMMAND NAVAL RESEARCH LABORATORY WASHINGTON, D.C. 20375-5000
ROICC	DRAWN: SMC	NAVAL RESEARCH LABORATORY HIGH BAND TEST FACILITY
	CHECKED: RRW	ELECTRICAL ONE-LINE DIAGRAM
	SUPVR:	
	SAFETY OFF	
	APPROVED: DATE	SIZE: D; CODE IDENT NO.; NAVFAC DRAWING NO. 3172469
	APPROVED:	CONSTR. CONTR. NO. N62477-02-C-2074
	DIRECTOR, R&D DIVISION DATE	SCALE: NO SCALE; SPEC. 21-02-2074; SHEET 14 OF 18
		WR NO. 1342; RDSD# 13495

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ARRAY

ND®-NRL 10460/2504 (Rev. 3-85)

PANEL SCHEDULE MDP

480/277 VOLTS, 3 PHASE, 4 WIRE – SN & GROUND BUS

CIR	FOR	BREAKER FR	BREAKER POLE	BREAKER CAL	CIR	FOR	BREAKER FR	BREAKER POLE	BREAKER CAL
–	–	–	–	–	–	–	–	–	–
1	XMTR ARRAY – RECEPT NO 17	225	3	200	2	RECEIVER ARRAY – RECEPT NO 16	225	3	200
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
3	MINI POWER CENTER – PANEL PPL	100	3	60	4	SPACE AND BUS	–	–	–
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
5	PANEL HVAC	600	3	600	6	PANEL TLP	600	3	600
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
7	SPACE AND BUS	–	–	–	8	TVSS	100	3	60
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–

MAIN BREAKER 1200A, FRAME 3P, CALIB 1200A
PHASE/VOLTAGE MONITOR, 32 KAIC AVAILABLE FAULT

PANEL SCHEDULE PPL

120/208 VOLTS, 3 PHASE, 4 WIRE – GROUND BUS

CIR	FOR	BREAKER FR	BREAKER POLE	BREAKER CAL	CIR	FOR	BREAKER FR	BREAKER POLE	BREAKER CAL
1	POLE NO. 1–LIGHT	100	1	20	2	POWER PALLET–LIGHTS	100	1	20
3	POLE NO. 1–RECEPTACLES	100	1	20	4	POWER PALLET–RECEPTACLE	100	1	20
5	POLE NO. 2–LIGHT	100	1	20	6	CAST XFMR – HEATER	100	1	20
7	POLE NO. 2–RECEPTACLES	100	1	20	8	HV SWITCH – HEATER	100	1	20
9	POLE NO. 3–LIGHT	100	1	20	10	XFMR FAN CONTROL CABINET	100	1	20
11	POLE NO. 3–RECEPTACLES	100	1	20	12	SPARE	100	1	20
13	POLE NO. 4–LIGHT	100	1	20	–	–	–	–	–
15	POLE NO. 4–RECEPTACLES	100	1	20	14	FUTURE IGDL	100	3	50
17	POLE NO. 5–LIGHT	100	1	20	–	–	–	–	–
19	POLE NO. 5–RECEPTACLES	100	1	20	–	–	–	–	–
21	POLE NO. 6–LIGHT	100	1	20	16	VENT FAN	100	3	20
23	POLE NO. 6–RECEPTACLES	100	1	20	–	–	–	–	–

MAIN BREAKER 100A. FRAME 3 P. CALIB. 100A, 10 KAIC AVAILABLE FAULT

PANEL SCHEDULE HVAC

480 VOLTS, 3 PHASE, 3 WIRE – GROUND BUS

CIR	FOR	BREAKER FR	BREAKER POLE	BREAKER CAL	CIR	FOR	BREAKER FR	BREAKER POLE	BREAKER CAL
–	–	–	–	–	–	–	–	–	–
1	DRYER PALLET – RECEPT NO 1	100	3	30	2	TVSS	100	3	60
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
3	HVAC–T1 – RECEPT NO 2	100	3	30	4	HVAC–T2 – RECEPT NO 3	100	3	30
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
5	HVAC–T3 – RECEPT NO 4	100	3	30	6	HVAC–T4 – RECEPT NO 5	100	3	30
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
7	HVAC–T5 – RECEPT NO 6	100	3	30	8	HVAC–T6 – RECEPT NO 7	100	3	30
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
9	HVAC–T7 – RECEPT NO 8	100	3	30	10	POWER PALLET – HVAC	100	3	25
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
11	CHILLER PALLET – RECEPT NO 18	225	3	200	12	SPACE AND BUS	–	–	–
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
13	SPACE AND BUS	–	–	–	14	SPACE AND BUS	–	–	–
–	–	–	–	–	–	–	–	–	–

600A MAIN LUGS ONLY – TVSS, 18 KAIC AVAILABLE FAULT

PANEL SCHEDULE TLP

480 VOLTS, 3 PHASE, 3 WIRE – GROUND BUS

CIR	FOR	BREAKER FR	BREAKER POLE	BREAKER CAL	CIR	FOR	BREAKER FR	BREAKER POLE	BREAKER CAL
–	–	–	–	–	–	–	–	–	–
1	SPACE AND BUS	–	–	–	2	SPACE AND BUS	–	–	–
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
3	MISC–PWR–T1 – RECEPT. NO 9	100	3	70	4	MISC–PWR–T2 – RECEPT. NO 10	100	3	70
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
5	MISC–PWR–T3 – RECEPT. NO 11	100	3	70	6	MISC–PWR–T4 – RECEPT. NO 12	100	3	70
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
7	MISC–PWR–T5 – RECEPT. NO 13	100	3	70	8	MISC–PWR–T6 – RECEPT. NO 14	100	3	70
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
9	MISC–PWR–T7 – RECEPT. NO 15	100	3	70	10	SPACE AND BUS	–	–	–
–	–	–	–	–	–	–	–	–	–

600A MAIN LUGS ONLY, 32 KAIC AVAILABLE FAULT

REVISIONS

SYMBOL	DESCRIPTION	DATE	APPROVED

E–5

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PPE	DESIGN	GJG
ROCC	DRAWN	SHC
	CHECKED	RRW
	SUPV'R	
	SAFETY OFF	
	APPROVED	DATE
	APPROVED	DATE
	DIRECTOR, NAVL RESEARCH	DATE

DEPARTMENT OF THE NAVY – NAVAL FACILITIES ENGINEERING COMMAND
NAVAL RESEARCH LABORATORY
WASHINGTON, D.C. 20375–5000

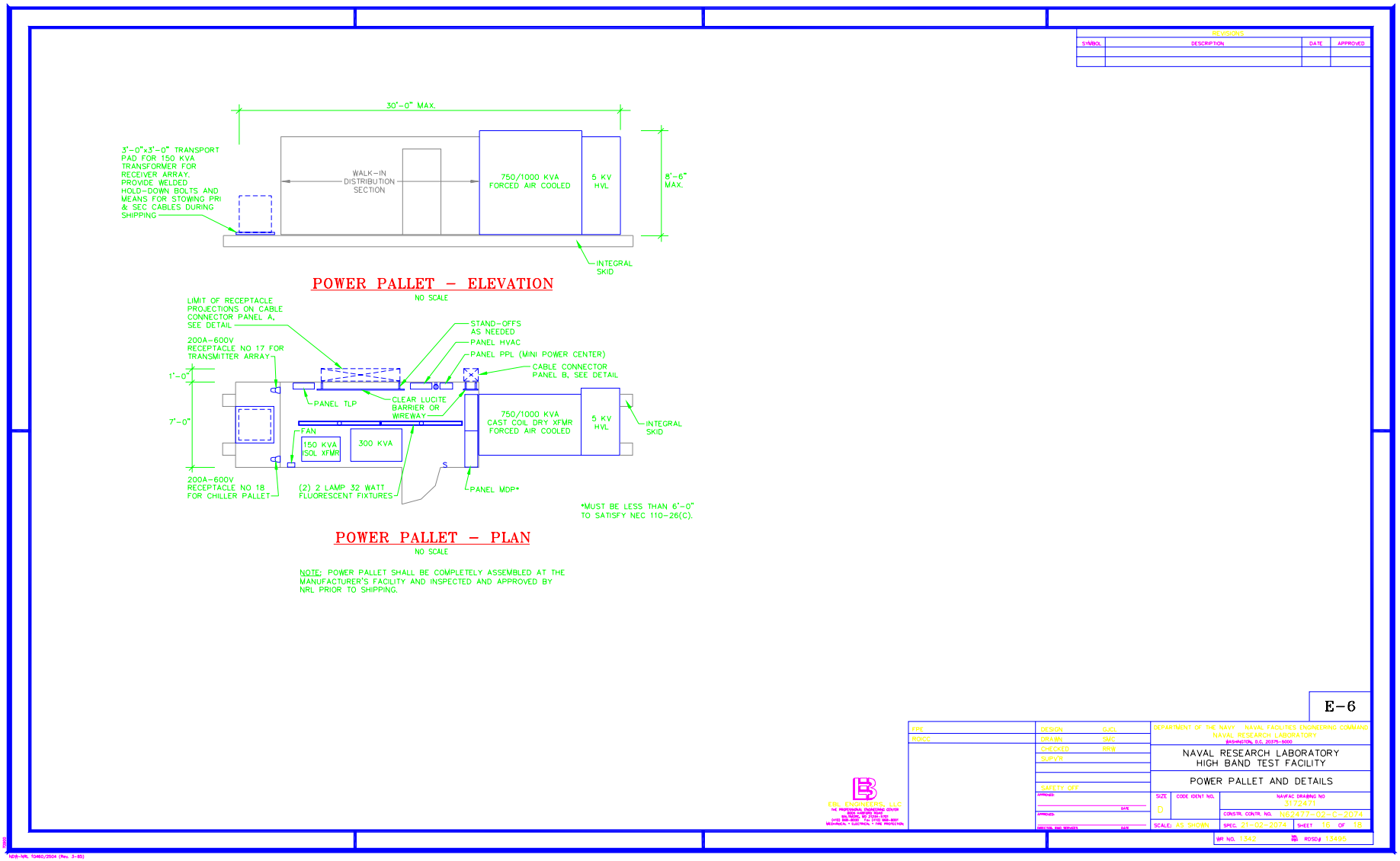
NAVAL RESEARCH LABORATORY
HIGH BAND TEST FACILITY

ELECTRICAL SCHEDULES AND DETAILS

SIZE	CODE IDENT NO.	NAVFAC DRAWING NO
D		3172470
		CONSTR. CONTR. NO. N62477–02–C–2074
SCALE: NO SCALE		SPEC. 21–02–2074 SHEET 15 OF 18

WP NO. 1342 RDSD# 13495

NDB–NRL 10480/2804 (Rev. 3–85)



30'-0" MAX.
3'-0"x3'-0" TRANSPORT PAD FOR 150 KVA TRANSFORMER FOR RECEIVER ARRAY. PROVIDE WELDED HOLD-DOWN BOLTS AND MEANS FOR STOWING PRI & SEC CABLES DURING SHIPPING
WALK-IN DISTRIBUTION SECTION
750/1000 KVA FORCED AIR COOLED
5 KV HVL
8'-6" MAX.
INTEGRAL SKID
POWER PALLET – ELEVATION
NO SCALE
LIMIT OF RECEPTACLE PROJECTIONS ON CABLE CONNECTOR PANEL A, SEE DETAIL
200A-600V RECEPTACLE NO 17 FOR TRANSMITTER ARRAY
STAND-OFFS AS NEEDED
PANEL HVAC
PANEL PPL (MINI POWER CENTER)
CABLE CONNECTOR PANEL B, SEE DETAIL
1'-0"
7'-0"
PANEL TLP
CLEAR LUCITE BARRIER OR WIREWAY
750/1000 KVA CAST COIL DRY XFMR FORCED AIR COOLED
5 KV HVL
INTEGRAL SKID
FAN
150 KVA ISOL XFMR
300 KVA
200A-600V RECEPTACLE NO 18 FOR CHILLER PALLET
(2) 2 LAMP 32 WATT FLUORESCENT FIXTURES
PANEL MDP*
*MUST BE LESS THAN 6'-0" TO SATISFY NEC 110-26(C).
POWER PALLET – PLAN
NO SCALE
NOTE: POWER PALLET SHALL BE COMPLETELY ASSEMBLED AT THE MANUFACTURER'S FACILITY AND INSPECTED AND APPROVED BY NRL PRIOR TO SHIPPING.
REVISIONS
SYMBOL
DESCRIPTION
DATE
APPROVED
E-6
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
NAVAL RESEARCH LABORATORY
WASHINGTON, D.C. 20375-5000
NAVAL RESEARCH LABORATORY
HIGH BAND TEST FACILITY
POWER PALLET AND DETAILS
DESIGN GJCL
DRAWN SMC
CHECKED RRW
SUPV'R
SAFETY OFF
APPROVED
DATE
SIZE D
CODE IDENT NO.
NAVFAC DRAWING NO 3172471
CONSTR. CONTR. NO. N62477-02-C-2074
SCALE: AS SHOWN
SPEC. 21-02-2074
SHEET 16 OF 18
WR NO. 1342
RDSD# 13495
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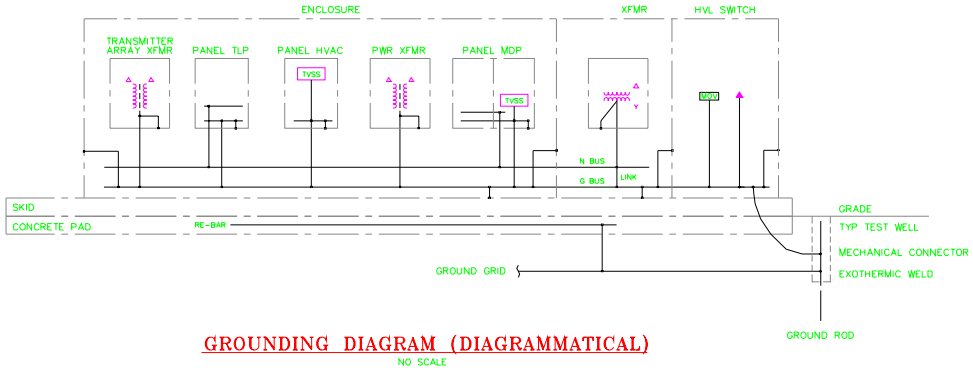

GROUNDING DIAGRAM (DIAGRAMMATICAL)

NO SCALE

REVISIONS			
SYMBOL	DESCRIPTION	DATE	APPROVED

E-7

FPE	DESIGN GJCL	DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND NAVAL RESEARCH LABORATORY WASHINGTON, D.C. 20375-5000
ROICC	DRAWN SMC	NAVAL RESEARCH LABORATORY HIGH BAND TEST FACILITY
	CHECKED RRW	GROUNDING DIAGRAMS
	SUPV'R	
	SAFETY OFF	SIZE D · CODE IDENT NO. · NAVFAC DRAWING NO 3172472
	APPROVED: DATE	CONSTR. CONTR. NO. N62477-02-C-2074
	APPROVED: DATE	SCALE: NO SCALE · SPEC. 21-02-2074 · SHEET 17 OF 18
		WR NO. 1342 · RDSD# 13495

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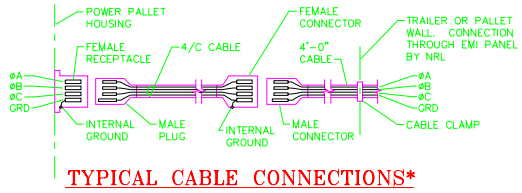
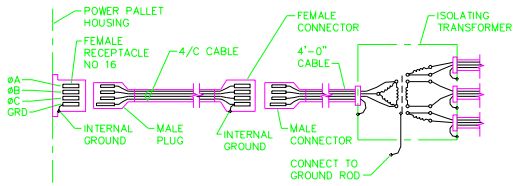
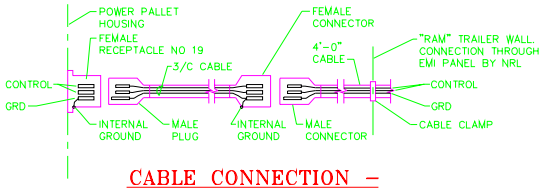


TYPICAL CABLE CONNECTIONS*

NO SCALE

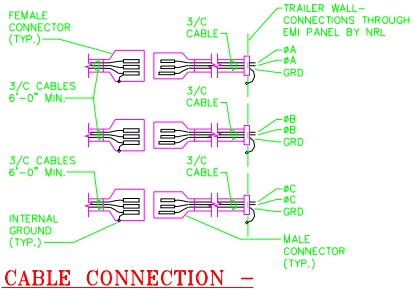
*EXCEPT RECEPT NOS 16 & 19 THRU 22





CABLE CONNECTION – EMERGENCY SITE SHUT-DOWN

NO SCALE



CABLE CONNECTION – RCVR ARRAY-T3/T4

NO SCALE

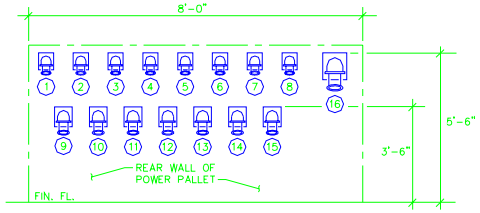
NOTE: ALL RECEPTACLES SHALL HAVE ANGLE ADAPTERS AND SCREW CAP COVERS

REVISIONS			
SYMBOL	DESCRIPTION	DATE	APPROVED

CABLE/CONNECTOR SCHEDULE

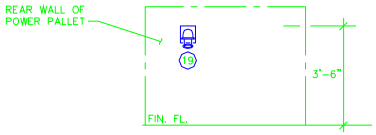
RECEPTACLE NO.	FOR	CONNECTOR	CABLE SIZE
#1	DRYER PALLET	30A-600V 3W-4P	4/C #8
#2-#8	TRAILER NOS T1-T7 HVAC	30A-600V 3W-4P	4/C #8
#9-#15	TRAILER NOS T1-T7 LIGHTS & MISC. PWR	60A-600V 3W-4P	4/C #6
#16	TRAILER NOS T3 & T4 ARRAY POWER	200A-600V 3W-4P & 2W-3P	4/C #4/0 & 3/C #4/0
#17	TRAILER NOS T1 & T2 ARRAY POWER	200A-600V 3W-4P	4/C #4/0
#18	CHILLER PALLET	200A-600V 3W-4P	4/C #4/0
#19	EMERGENCY SITE POWER SHUT DOWN	30A-600V 2W-3P	3/C #12

NOTE: CABLES SHALL BE 8'-0" LONGER THAN ACTUALLY REQUIRED TO ALLOW FOR DRIP LOOPS. EXACT LENGTHS TO BE DETERMINED IN THE FIELD AND APPROVED BY NRL PRIOR TO FABRICATION.



DETAIL-CABLE CONNECTOR PANEL A

NO SCALE



DETAIL-CABLE CONNECTOR PANEL B

NO SCALE

E-8

KPE	DESIGN GJCL	DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND NAVAL RESEARCH LABORATORY WASHINGTON, D.C. 20375-5000
RQICC	DRAWN SMC	
	CHECKED RRW	NAVAL RESEARCH LABORATORY HIGH BAND TEST FACILITY
	SUPV'R	
	SAFETY OFF	CABLE CONNECTION DETAILS & SCHEDULE
	APPROVED DATE	SIZE D / CODE IDENT NO. / NAVFAC DRAWING NO 4102472
	APPROVED DATE	CONSTR. CONTR. NO. N62477-02-C-2074
	DIRECTOR, ENG. SERVICES DATE	SCALE: NO SCALE / SPEC. 21-02-2074 / SHEET 18 OF 18
		W/R NO. 1342 / NAVFAC RDSD# 13495

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