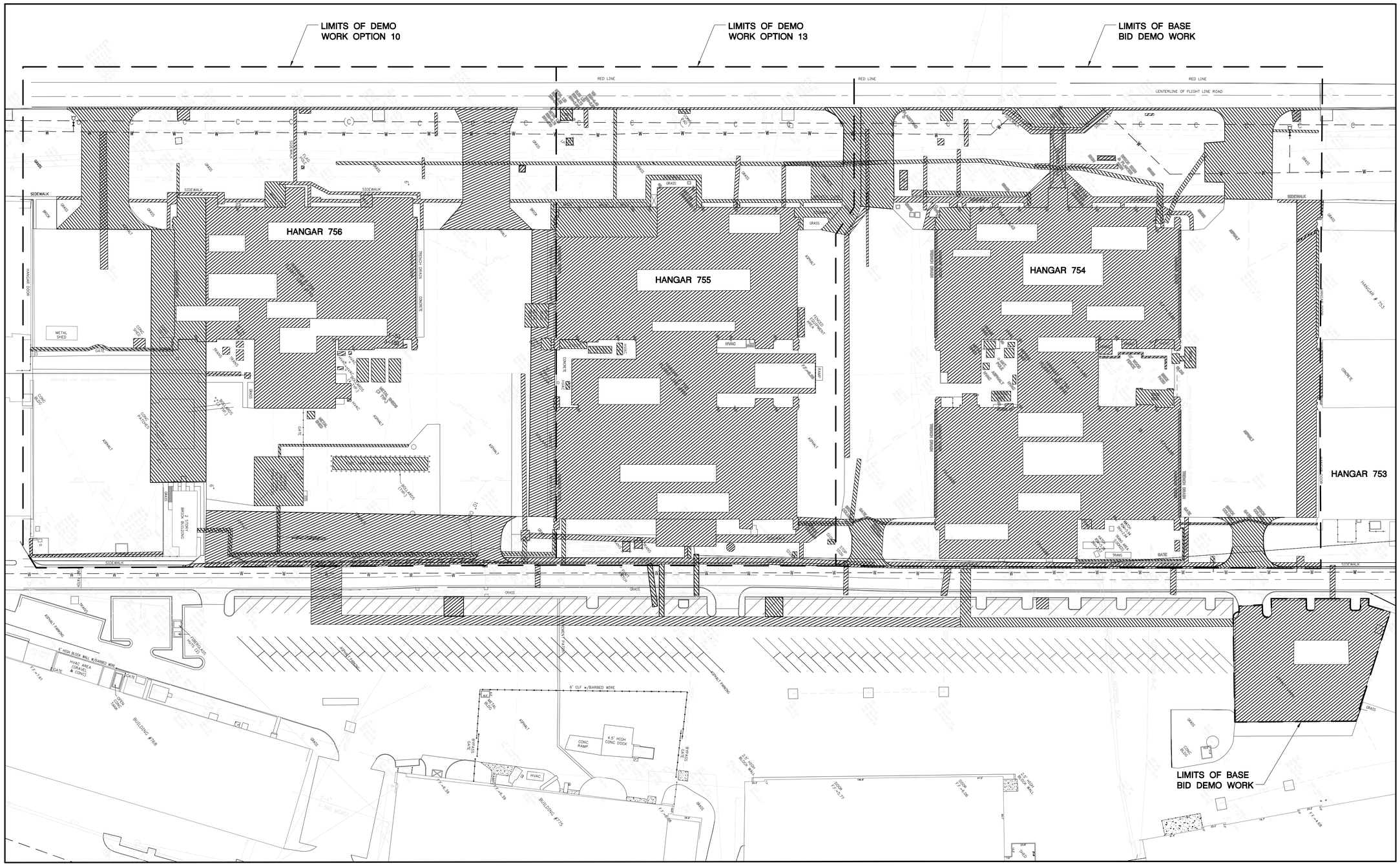


SITE DEMOLITION PLAN

50 0 50 100

SCALE IN FEET

US Army Corps of Engineers
Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.

DESIGNED: RRB
DRAWN: RSH
CHECKED: RMM
SUBMITTED: ERK
DATE: OCT 2001
SCALE: AS SHOWN
PROJECT NO. FAC2001 LEGACY NO. ACC023011
NORFOLK DISTRICT FILE NO. 711-18-13
SPECIFICATION NO. DACA65-01-R-0025
Plot scale: 1:50
Last revised on:
File name:

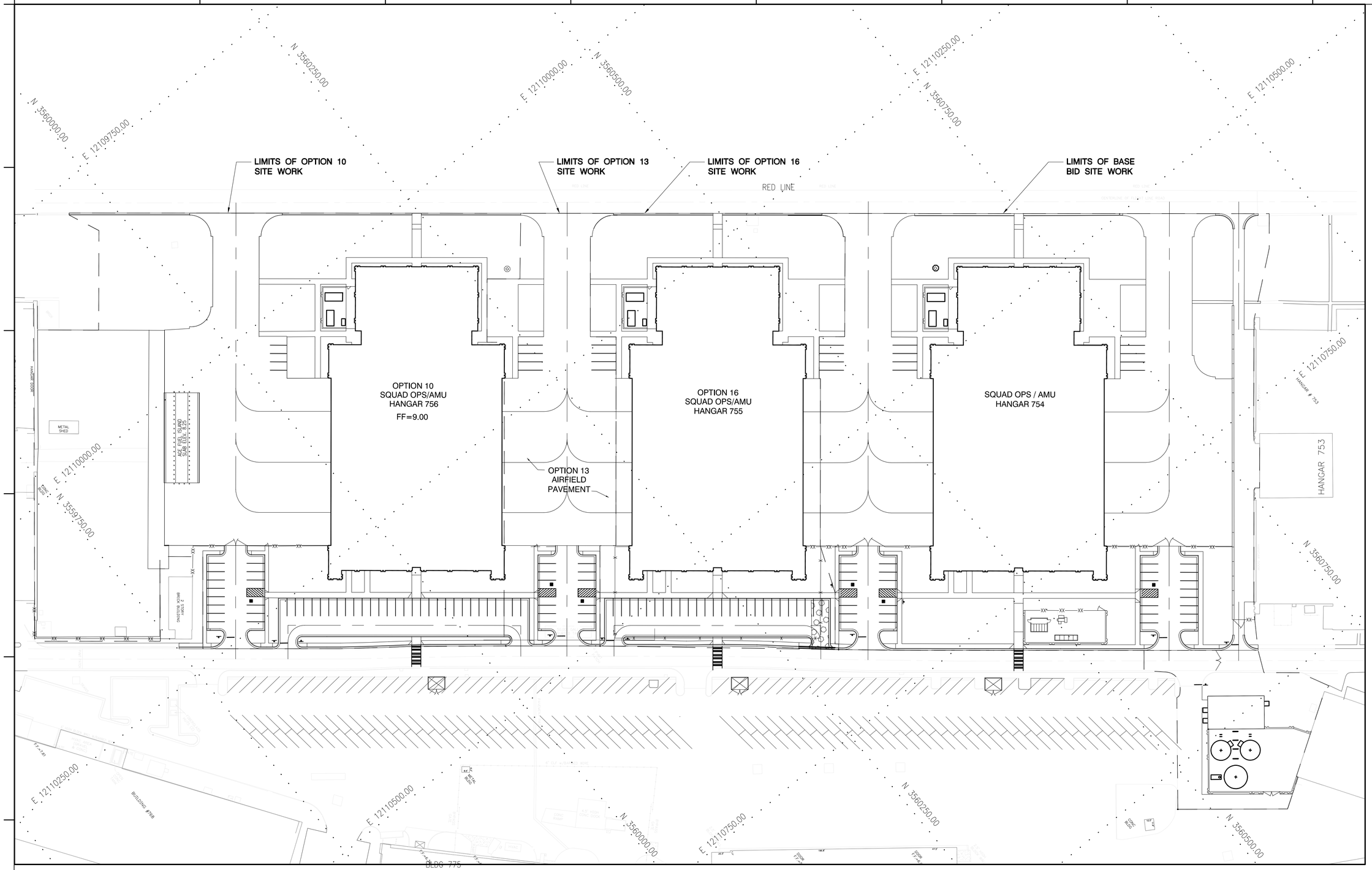
NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

BURNS & McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA
SQUADRON OPERATIONS/AMU HANGAR

SHEET OF

HC-101DM.dwg 10-19-2001 15:54 RSH



SITE PLAN

50 0 50 100
SCALE IN FEET

US Army Corps of Engineers
Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.

DESIGNED: RRB
DRAWN: RSH
CHECKED: RMM
SUBMITTED: ERK
DATE: OCT 2001
SCALE: AS SHOWN
PROJECT NO. FY01-F23011/012
NORFOLK DISTRICT FILE NO. LEF22-1
DRAWING NO. 711-18-13
SPECIFICATION NO. DACA65-01-R-0025
Last worked on:
File name:
Plot scale: 1:50

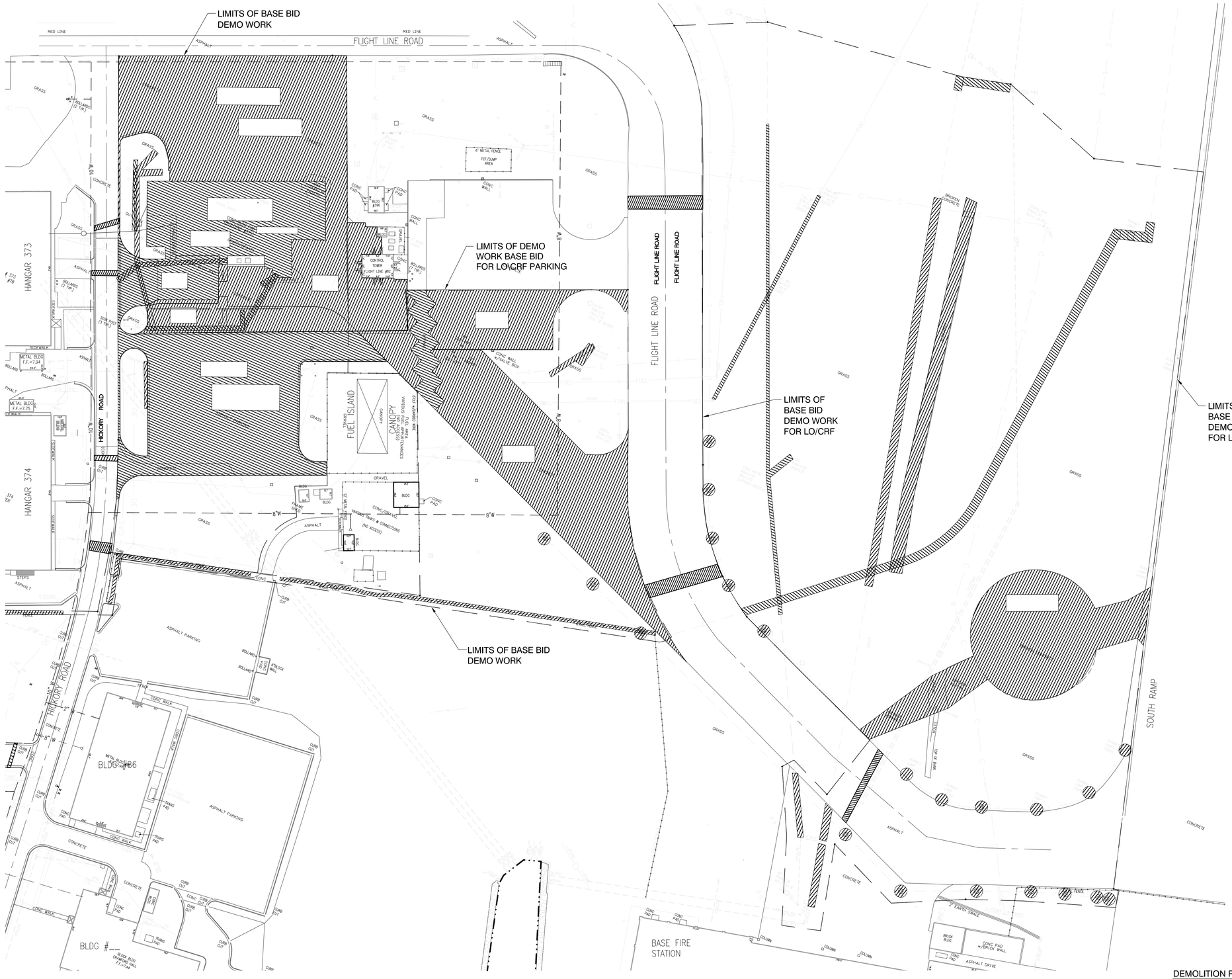
NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

BURNS & McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA
SQUAD OPS, AMU HANGAR, & PUMP HOUSE

SHEET OF

hangar-s.dwg 11-12-2001 14:47 RSH



DEMOLITION PLAN

50 0 50 100

SCALE IN FEET

US Army Corps of Engineers
Norfolk District

REV.	DATE	DESCRIPTION	BY	APP'D

DESIGNED: | CHECKED:
DRAWN: | SUBMITTED:
DATE: OCT 2001
SCALE: AS SHOWN
PROJECT NO. FA8903-01-C-0023011
NORFOLK DISTRICT FILE NO.
DRAWING NO. 711-18-13
SPECIFICATION NO. DACA65-01-R-0025
Last worked on:
File name:
Plot scale:

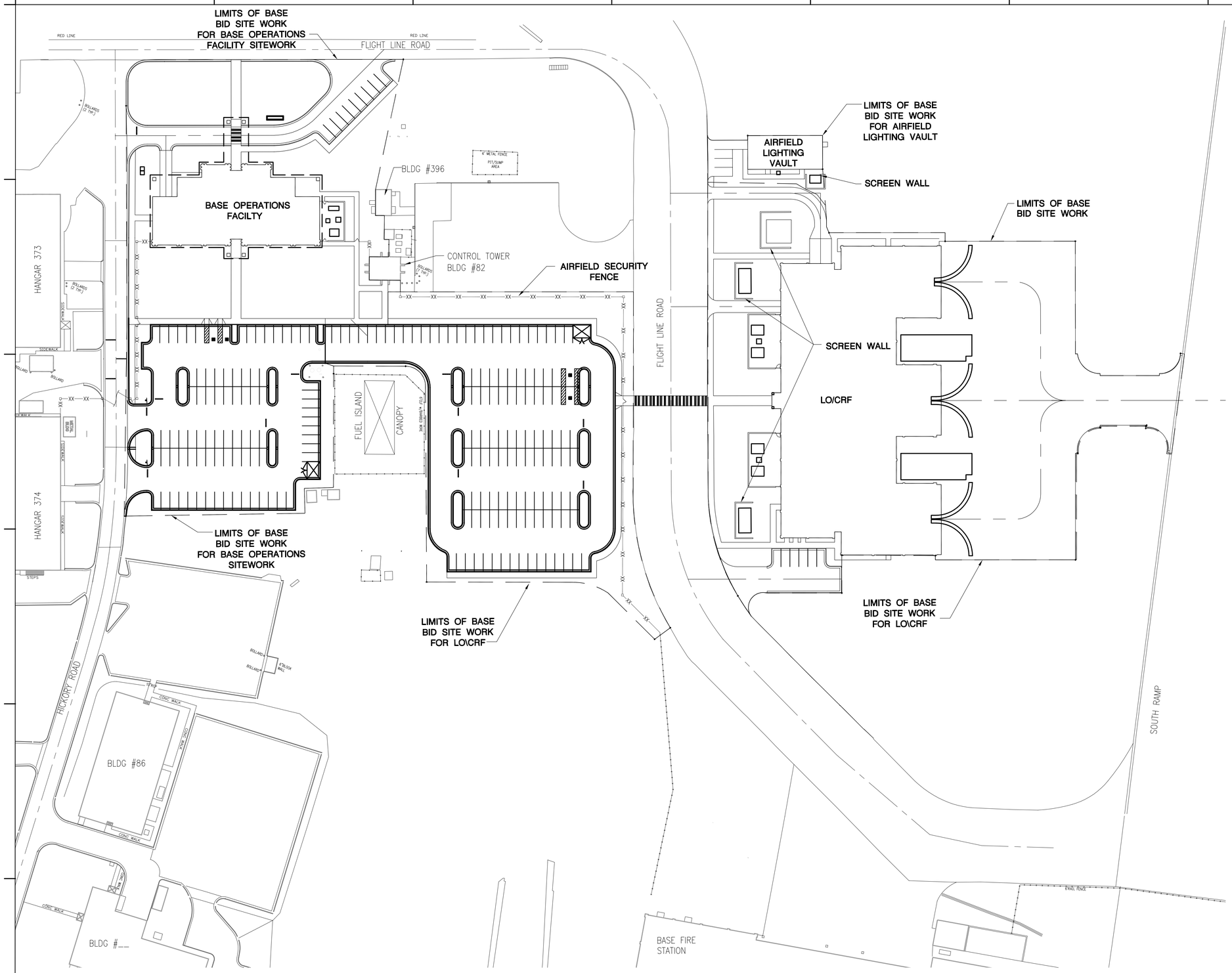
NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

BURNS & McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA
BASE OPERATIONS FACILITY

SHEET OF

OPSLO.dwg 08-15-2001 09:38 SMB



NOTE:

1. UTILITY WORK EXTENDS BEYOND LIMITS SHOWN THROUGH SITE.

SITE PLAN

50 0 50 100
SCALE IN FEET

US Army Corps of Engineers
Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.

DESIGNED: | CHECKED: | DATE: OCT 2001
DRAWN: | SUBMITTED: | SCALE: AS SHOWN
PROJECT NO. FA4CC023011 | NORFOLK DISTRICT FILE NO. | SPECIFICATION NO. DACA65-01-R-0025
DRAWING NO. 711-18-13 | Plot scale:
Last worked on: | File name:

NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

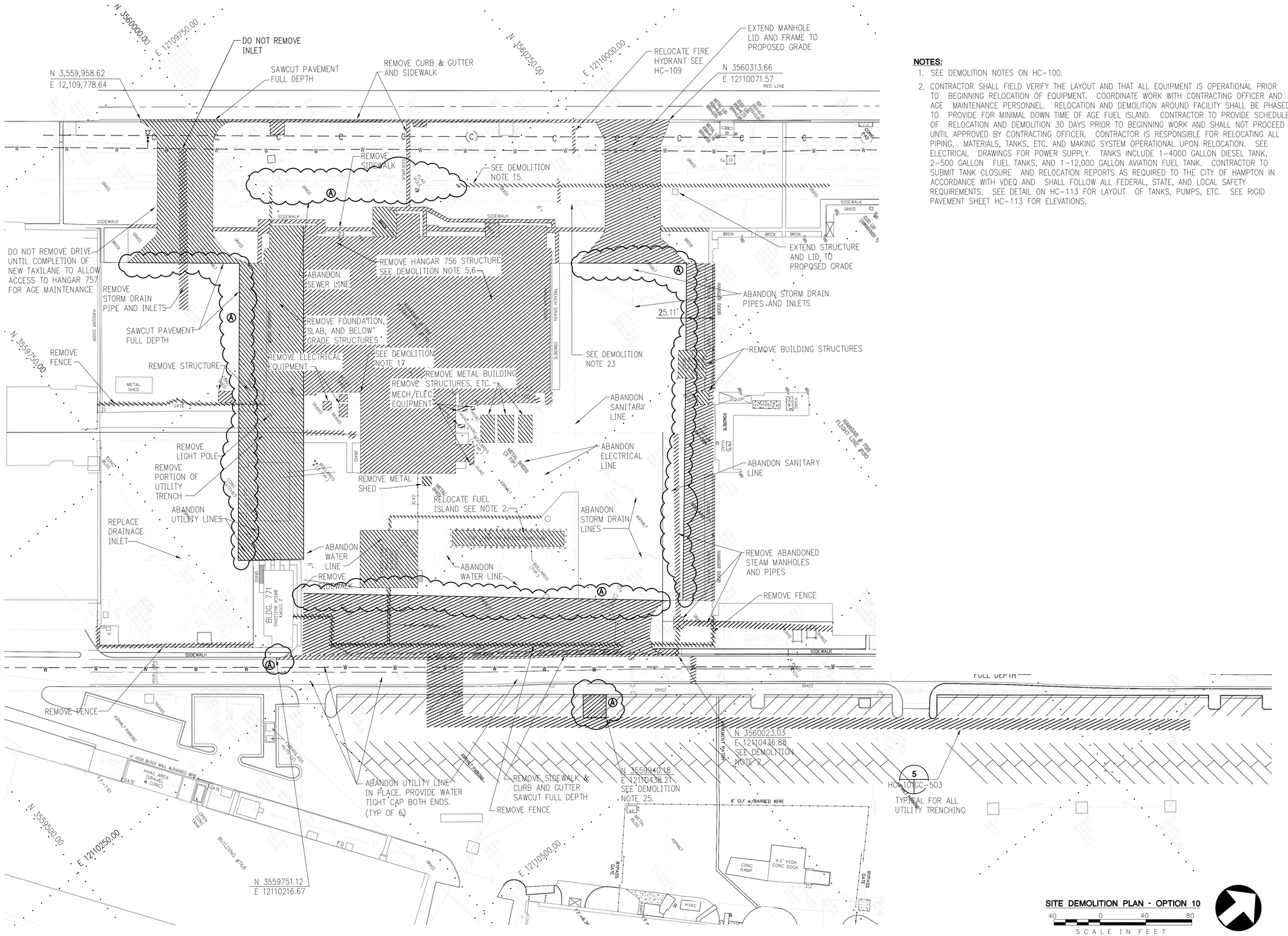
BURNS & McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA

BASE OPERATIONS FACILITY

SHEET OF

OPSLO-S.dwg 01-14-2002 15:20 RSH



NOTES:

1. SEE DEMOLITION NOTES ON HC-100.
2. CONTRACTOR SHALL FIELD VERIFY THE LAYOUT AND THAT ALL EQUIPMENT IS OPERATIONAL PRIOR TO BEGINNING RELOCATION OF EQUIPMENT. COORDINATE WORK WITH CONTRACTING OFFICER AND AGE MAINTENANCE PERSONNEL. RELOCATION AND DEMOLITION AROUND FACILITY SHALL BE PHASED TO PROVIDE FOR MINIMAL DOWN TIME OF AGE FUEL ISLAND. CONTRACTOR TO PROVIDE SCHEDULE OF RELOCATION AND DEMOLITION 30 DAYS PRIOR TO BEGINNING WORK AND SHALL NOT PROCEED UNTIL APPROVED BY CONTRACTING OFFICER. CONTRACTOR IS RESPONSIBLE FOR RELOCATING ALL PIPING, MATERIALS, TANKS, ETC. AND MAKING SYSTEM OPERATIONAL UPON RELOCATION. SEE ELECTRICAL DRAWINGS FOR POWER SUPPLY. TANKS INCLUDE 1-4000 GALLON DIESEL TANK, 2-500 GALLON FUEL TANKS, AND 1-12,000 GALLON AVIATION FUEL TANK. CONTRACTOR TO SUBMIT TANK CLOSURE AND RELOCATION REPORTS AS REQUIRED TO THE CITY OF HAMPTON IN ACCORDANCE WITH VDEQ AND SHALL FOLLOW ALL FEDERAL, STATE, AND LOCAL SAFETY REQUIREMENTS. SEE DETAIL ON HC-113 FOR LAYOUT OF TANKS, PUMPS, ETC. SEE RIGID PAVEMENT SHEET HC-113 FOR ELEVATIONS.

US Army Corps of Engineers
Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.
A	01/14/02	REVISED DEMO AREA AND ADDED DEMO BOUNDARY	RRB	ERK

DESIGNED: RRB
CHECKED: RMM
DATE: OCT 2001
DRAWN: RSH
SUBMITTED: ERK
SCALE: AS SHOWN
PROJECT NO. FACCO23011
NORFOLK DISTRICT FILE NO. LF-E2-44
DRAWING NO. 711-18-13
SPECIFICATION NO. DACA65-01-R-0025
Last worked on: 10-19-01
File name: \JB342\CIVIL\ HC-1002M.DWG
File scale: 1:40

NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

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9400 WARD PARKWAY
KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA
SQUADRON OPERATIONS/AMU HANGAR
SITE DEMOLITION PLAN
OPTION 10

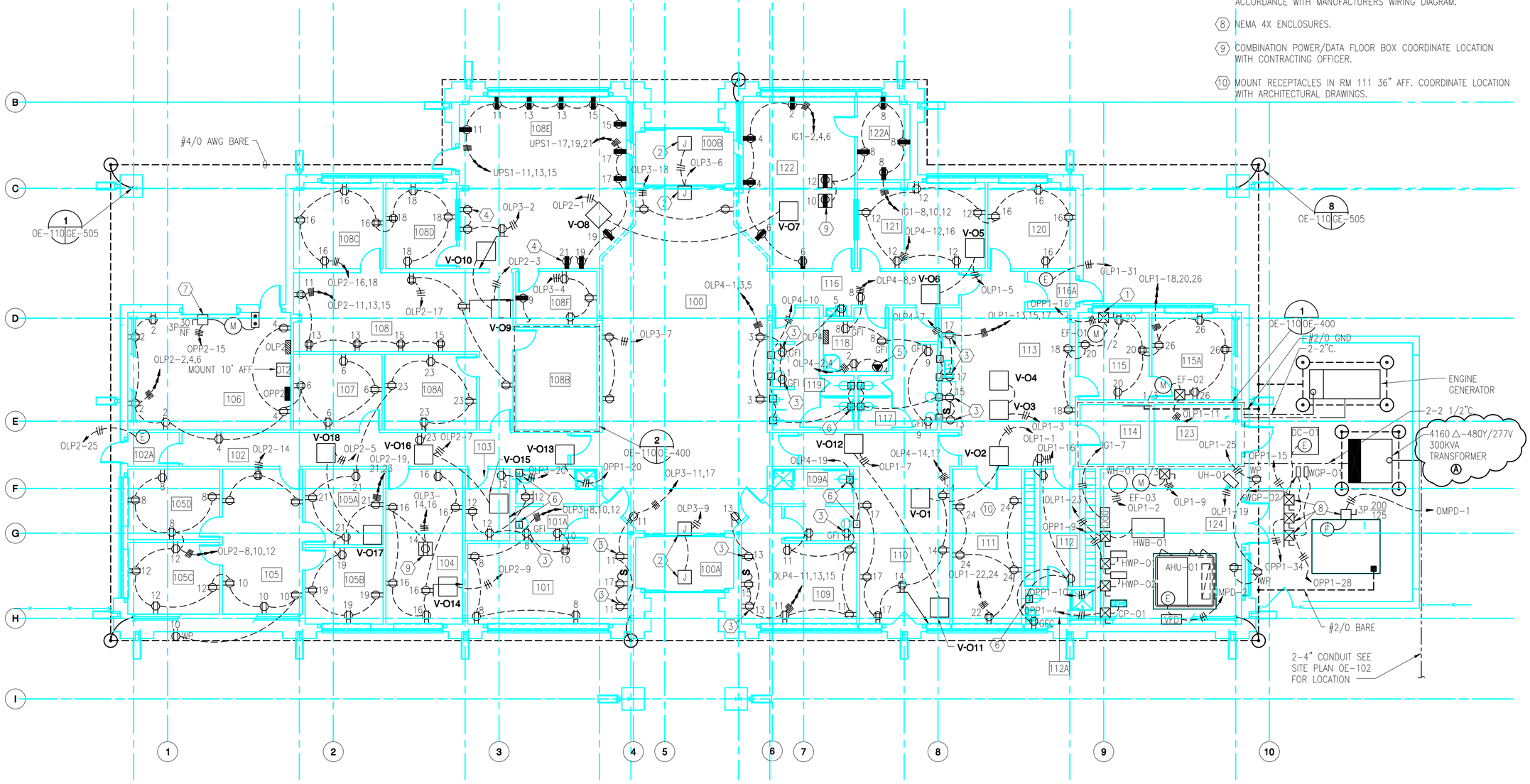
HC-101
SHEET 14 OF 769

GENERAL NOTES:

1. SEE SEQUENCE OF OPERATION ON MECHANICAL DRAWINGS FOR STARTER CONTROL.
2. PROVIDE GROUND BUS IN ROOM 114 PER DETAIL 2 DWG. GE-505.

KEYED NOTES:

1. MOUNT MOTOR STARTERS ABOVE DROP CEILING.
2. PROVIDE 4"x4"x4" J-BOX ABOVE CEILING COORDINATE LOCATION OF DOOR CONNECTIONS WITH DOOR MANUFACTURES.
3. MOUNT RECEPTACLES 6" ABOVE COUNTERTOPS. COORDINATE WITH ARCHITECTURAL DRAWINGS.
4. MOUNT 72" AFF. COORDINATE WITH ARCHITECTURAL DRAWING.
5. 2P, 30A, 240V.
6. PROVIDE 4"x4"x4" JUNCTION FOR AUTOMATIC PLUMBING FIXTURE. COORDINATE LOCATION OF JUNCTION BOXES WITH PLUMBING CONTRACTOR. SEE DETAILS ON DRAWING GE-504
7. DOOR CONTROLLER COMPONENTS STARTER, AND MOTORS SUPPLIED WITH DOORS. CONTRACTOR SHALL PROVIDE DISCONNECT, MOUNT CONTROL AND PROVIDE CONDUIT AND WIRE IN ACCORDANCE WITH MANUFACTURERS WIRING DIAGRAM.
8. NEMA 4X ENCLOSURES.
9. COMBINATION POWER/DATA FLOOR BOX COORDINATE LOCATION WITH CONTRACTING OFFICER.
10. MOUNT RECEPTACLES IN RM 111 36" AFF. COORDINATE LOCATION WITH ARCHITECTURAL DRAWINGS.



POWER PLAN

8 4 0 8 16
SCALE IN FEET

US Army Corps of Engineers
Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.
A	10/14/02	EDIT TRANSFORMER RATING	SDS	ERK

DESIGNED: SDS
DRAWN: JLP
CHECKED: CWW
SUBMITTED: ERK
DATE: OCT 2001
SCALE: AS SHOWN
PROJECT NO. FACC023011
DRAWING NO. 711-18-13
NORFOLK DISTRICT FILE NO. LEF22-711
SPECIFICATION NO. DACA65-01-R-0025
Last worked on: 10/19/01
File name: \2K342\ELEC\BASE_OPS\OE-110PP.DWG
Plot scale: 1:1

NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

BURNS & McDONNELL
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KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA

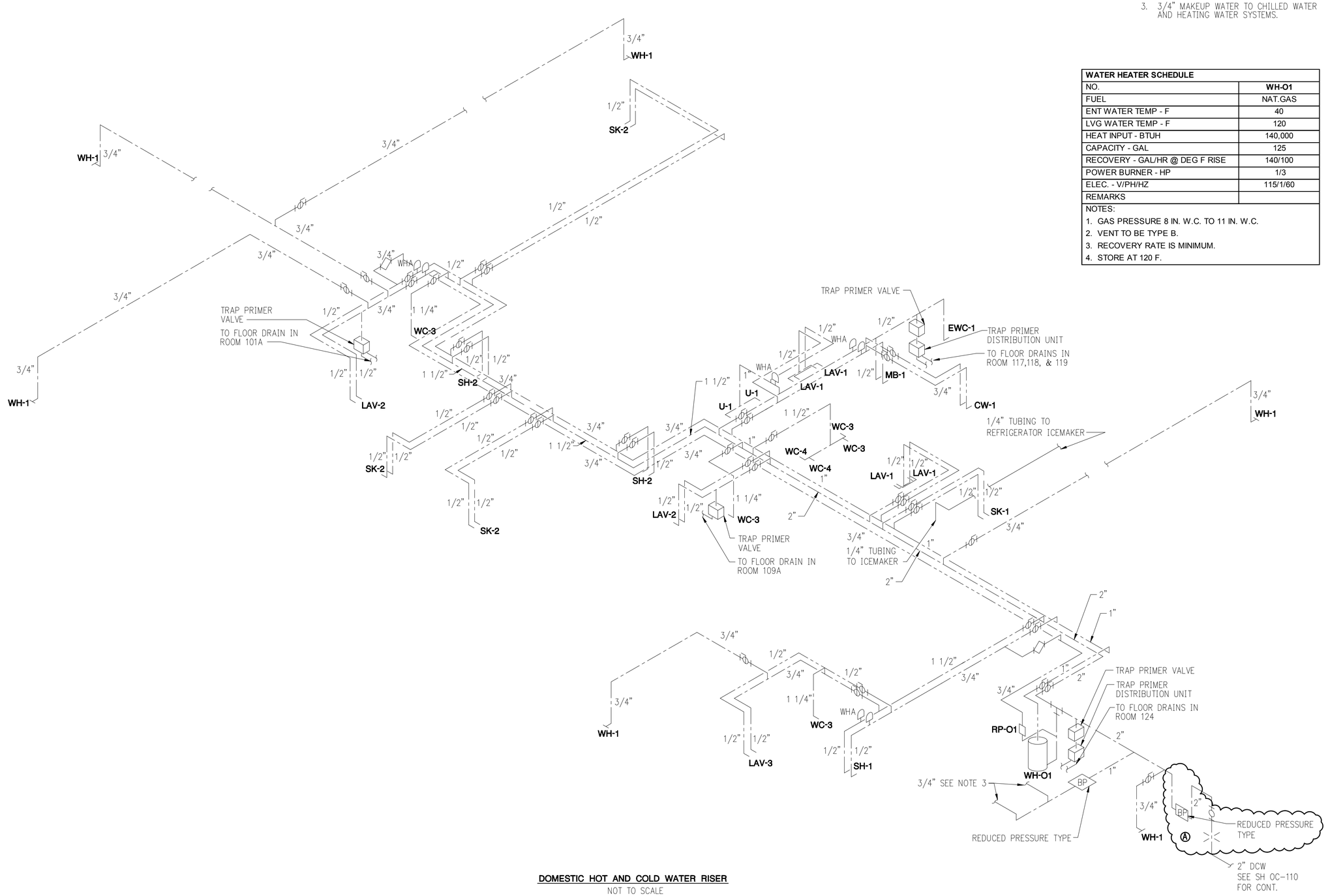
BASE OPERATIONS FACILITY
POWER PLAN

OE-110
SHEET 611 OF 769

NOTES:

1. FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS, SEE SHEET GP-001
2. SEE SHEET OM-600 FOR RECIRCULATION PUMP RP-01 SCHEDULE.
3. 3/4" MAKEUP WATER TO CHILLED WATER AND HEATING WATER SYSTEMS.

WATER HEATER SCHEDULE	
NO.	WH-O1
FUEL	NAT.GAS
ENT WATER TEMP - F	40
LVG WATER TEMP - F	120
HEAT INPUT - BTUH	140,000
CAPACITY - GAL	125
RECOVERY - GAL/HR @ DEG F RISE	140/100
POWER BURNER - HP	1/3
ELEC. - V/PH/HZ	115/1/60
REMARKS	
NOTES:	
1. GAS PRESSURE 8 IN. W.C. TO 11 IN. W.C.	
2. VENT TO BE TYPE B.	
3. RECOVERY RATE IS MINIMUM.	
4. STORE AT 120 F.	



DOMESTIC HOT AND COLD WATER RISER

NOT TO SCALE

US Army Corps of Engineers
Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.
A	10/14/02	CHANGED DOMESTIC WATER SUPPLY	RDJ	ERK

DESIGNED: RDJ
DRAWN: TJK
CHECKED: RJM
SUBMITTED: ERK
DATE: OCT 2001
SCALE: AS SHOWN
PROJECT NO. FY01-F22-ACC023011
NORFOLK DISTRICT FILE NO. DACA65-01-R-0025
SPECIFICATION NO. DACA65-01-R-0025
DRAWING NO. 711-18-13
Plot scale: 1:1
Last revised on: 05-07-01
File name: I:\263432\MECH\BASE_OPS\OP-701PR

NORFOLK DISTRICT
CORPS OF ENGINEERS
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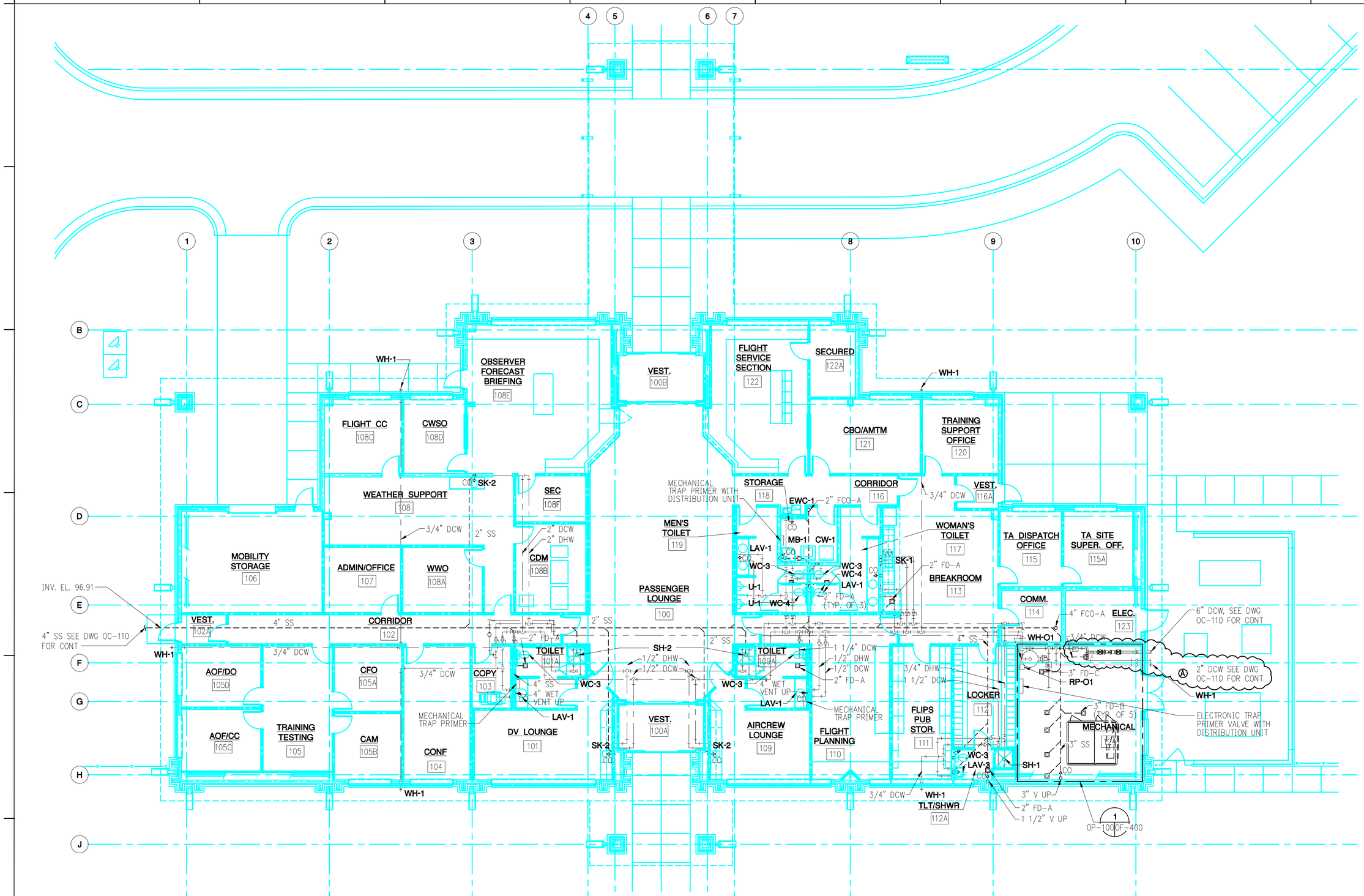
KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA

BASE OPERATIONS FACILITY
DOMESTIC HOT AND COLD WATER RISER

OP-701
SHEET 603 OF 769



BASE OPERATIONS FLOOR PLAN

8 4 0 8 16

SCALE IN FEET

US Army Corps of Engineers
Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.
1	07/14/03	MOVED FLOOR DRAIN, CHANGED WATER SUPPLY	RDJ	ERK

DESIGNED: ARC
DRAWN: BDP
CHECKED: RJM
SUBMITTED: ERK
DATE: OCT 2001
SCALE: AS SHOWN
PROJECT NO. CCO23011
NORFOLK DISTRICT FILE NO. LF-22-F-001
SPECIFICATION NO.
DRAWING NO.
Last worked on: 02-02-01
File name: I:\263432\MECH\BASE_OPS\OP-100FP.DWG
Plot scale: 1:1

NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

BURNS & McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MISSOURI 64114

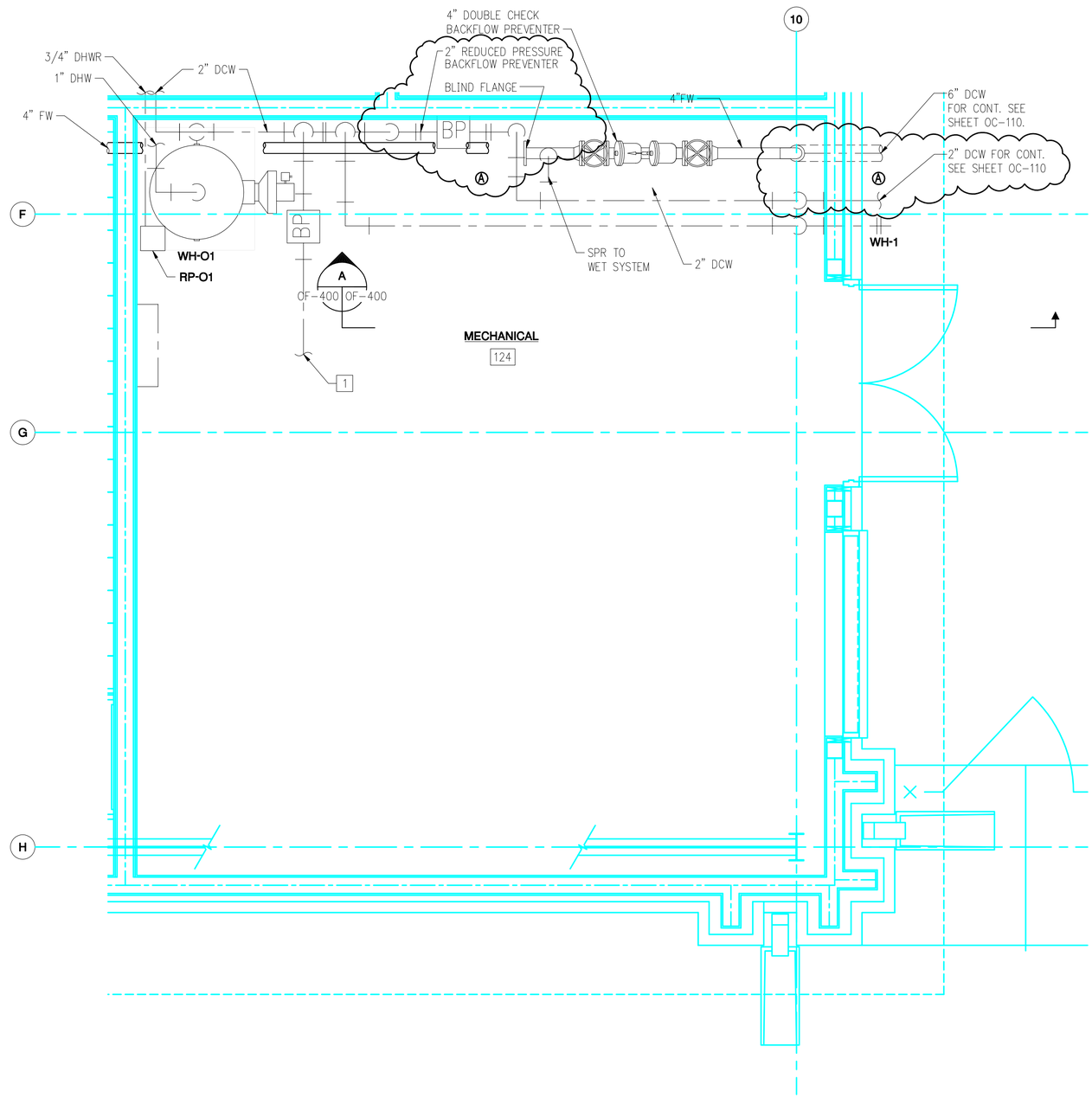
F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA

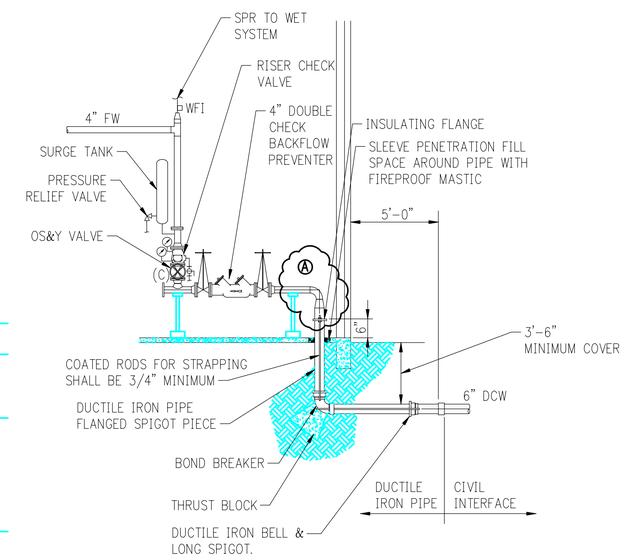
BASE OPERATIONS FACILITY
BASE OPERATIONS PLUMBING PLAN

OP-100
SHEET 601 OF 769

OP-100FP.dwg 09-25-2001 09:07 SJF

1. 1" MAKEUP WATER TO CHILLED WATER AND TO HEATING WATER SYSTEMS. SEE SHEET OM-700 AND OM-701.





SECTION A OF-400 OF-400

4 2 0 4 8
SCALE IN FEET

ENLARGED PLAN MECHANICAL ROOM

2 0 2 4
SCALE IN FEET

US Army Corps of Engineers
Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.
A	10/14/92	CHANGED DOMESTIC WATER SUPPLY	RDJ	ERK

DESIGNED: ARC
DRAWN: JWS
CHECKED: RJM
SUBMITTED: ERK
DATE: OCT 2001
SCALE: AS SHOWN
PROJECT NO. FY01CC023011
NORFOLK DISTRICT FILE NO. LF-422-1-365
SPECIFICATION NO.
DRAWING NO.
Last worked on: 02-02-01
File name: \\263432\MECH\BASE_OPS\OF-100FP.DWG
Plot scale: 1:1

NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

BURNS & McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA

BASE OPERATIONS FACILITY
ENLARGED MECHANICAL ROOM
FIRE PROTECTION PLAN

OF-400
SHEET 586 OF 769

PANELBOARD NAME: LLP1
PANELBOARD TYPE: MAIN CIRCUIT BREAKER
PANEL LOCATION: ROOM 140
SUPPLIED FROM: LPP1 VIA XFMR LT3

10,000 RMS SYMMETRICAL A.I.C.
SURFACE MOUNTED, NEMA 1 ENCLOSURE
208Y/120 VOLTS, 3 PHASE, 4 WIRE

225 AMP TRIP MAIN BREAKER
225 AMP MAINS

CKT NO.	TRIP AMPS	NO. POLES	WIRE / CONDUIT	GND. WIRE	LOAD SERVED	LOAD VA & PHASE	Ø	LOAD VA & PHASE	LOAD SERVED	GND. WIRE	WIRE / CONDUIT	NO. POLES	TRIP AMPS	CKT. NO.
1	15	1	#12 , 3/4"	#12	EF-L14	696	A	800	UH-L1,L2,L3,L4	#12	#12 , 3/4"	1	20	2
3	30	1	#10 , 3/4"	#10	HOT BONDER RM 114	2400	B	540	RECEPT RM 114	#12	#12 , 3/4"	1	20	4
5	30	1	#10 , 3/4"	#10	HOT BONDER RM 114	2400	C	1000	AHU-L3,L4 LIGHTING	#12	#12 , 3/4"	1	20	6
7	30	1	#10 , 3/4"	#10	HOT BONDER RM 114	2400	A	900	RECEPT RM 111	#12	#12 , 3/4"	1	20	8
9	30	1	#10 , 3/4"	#10	HOT BONDER RM 114	2400	B	500	BATHROOM FIXTURES RM 126	#12	#12 , 3/4"	1	20	10
11	20	1	#12 , 3/4"	#12	RECEPT RM 114	540	C	1000	WATER FOUNTAIN	#12	#12 , 3/4"	1	20	12
13	20	1	#12 , 3/4"	#12	RECEPT RM 140	900	A	360	RECEPT RM 131	#12	#12 , 3/4"	1	20	14
15	20	1	#12 , 3/4"	#12	OUTSIDE RECEPT	180	B	500	BATHROOM FIXTURES RM 123	#12	#12 , 3/4"	1	20	16
17	20	1	#12 , 3/4"	#12	RECEPT RM 135,136	900	C	1130	V-L14	#12	#12 , 3/4"	1	20	18
19	20	1	#12 , 3/4"	#12	RECEPT RM 134,135	540	A	500	V-L12,L13	#12	#12 , 3/4"	1	20	20
21	20	1	#12 , 3/4"	#12	RECEPT RM 133,136	540	B	1010	V-L15,L16,L17	#12	#12 , 3/4"	1	20	22
23	20	1	#12 , 3/4"	#12	RECEPT RM 136,137	720	C	464	OBSTRUCTION LIGHTS	#10	#10 , 3/4"	1	20	24
25	20	1	#12 , 3/4"	#12	OUTSIDE RECEPT	720	A	464	OBSTRUCTION LIGHTS	#10	#10 , 3/4"	1	20	26
27	20	1	#12 , 3/4"	#12	RECEPT RM 138	540	B		SPARE			1	20	28
29	20	1	#12 , 3/4"	#12	RECEPT RM 116	540	C		SPARE			1	20	30
31	20	1	#12 , 3/4"	#12	RECEPT RM 141,142	360	A		SPARE			1	20	32
33	30	1	#10 , 3/4"	#10	HOT BONDER RM 137	2400	B		SPARE			1	20	34
35	20	1	#12 , 3/4"	#12	RECEPT RM 137	720	C		SPARE			1	20	36
37	30	1	#10 , 3/4"	#10	BANDSAW RM 137	2400	A		SPARE			1	20	38
39	30	1	#10 , 3/4"	#10	GRINDER RM 137	2400	B		SPARE			1	20	40
41	30	1	#10 , 3/4"	#10	RECEPT RM 136	2400	C		SPARE			1	20	42

TOTAL CONNECTED LOAD = 37 kVA X 72% DEMAND FACTOR = 26.7 kVA ESTIMATED DEMAND LOAD
PHASE BALANCE (KVA) - A: 11 , B: 13.4 , C: 13.5

PANELBOARD NAME: LLP2
PANELBOARD TYPE: MAIN CIRCUIT BREAKER
PANEL LOCATION: ROOM 121
SUPPLIED FROM: LPP7 VIA XFMR LT6

10,000 RMS SYMMETRICAL A.I.C.
SURFACE MOUNTED, NEMA 1 ENCLOSURE
208Y/120 VOLTS, 3 PHASE, 4 WIRE

400 AMP TRIP MAIN BREAKER
400 AMP MAINS

CKT NO.	TRIP AMPS	NO. POLES	WIRE / CONDUIT	GND. WIRE	LOAD SERVED	LOAD VA & PHASE	Ø	LOAD VA & PHASE	LOAD SERVED	GND. WIRE	WIRE / CONDUIT	NO. POLES	TRIP AMPS	CKT. NO.
1	20	1	#12 , 3/4"	#12	EF-L9	100	A	720	RECEPT. RM 102, 103	#12	#12 , 3/4"	1	20	2
3	20	1	#12 , 3/4"	#12	RECEPT RM 101	540	B	720	RECEPT. RM 105, 106	#12	#12 , 3/4"	1	20	4
5	20	1	#12 , 3/4"	#12	RECEPT RM 101	540	C	1080	RECEPT RM 109, OUTSIDE	#12	#12 , 3/4"	1	20	6
7	30	1	#10 , 3/4"	#10	HOT BONDER	2400	A	540	RECEPT RM 109	#12	#12 , 3/4"	1	20	8
9	30	1	#10 , 3/4"	#10	HOT BONDER	2400	B	2400	HOT BONDER	#10	#10 , 3/4"	1	30	10
11	20	1	#12 , 3/4"	#12	WORK BENCH RM 107	1000	C	2400	HOT BONDER	#10	#10 , 3/4"	1	30	12
13	20	1	#12 , 3/4"	#12	WORK BENCH RM 107	100	A	696	EF-L11	#12	#12 , 3/4"	1	15	14
15	20	1	#12 , 3/4"	#12	WORK BENCH RM 107	1000	B	864	WH-L2	#12	#12 , 3/4"	1	20	16
17	30	1	#10 , 3/4"	#10	WORK BENCH RM 107	2400	C	720	UH-L5,L6,L7,L8	#12	#12 , 3/4"	1	20	18
19	30	1	#10 , 3/4"	#10	WORK BENCH RM 107	2400	A	200	UH-L10	#12	#12 , 3/4"	1	20	20
21	30	1	#10 , 3/4"	#10	WORK BENCH RM 107	2400	B	200	UH-L9	#12	#12 , 3/4"	1	20	22
23	20	1	#12 , 3/4"	#12	WORK BENCH RM 107	1000	C	720	RECEPT RM 108,117	#12	#12 , 3/4"	1	20	24
25	30	1	#10 , 3/4"	#10	WORK BENCH RM 107	2400	A	100	EAT TRACE COOLING TOWE	#12	#12 , 3/4"	1	20	26
27	20	1	#12 , 3/4"	#12	WATER SOFTNER CONTROL	500	B	360	LIGHTING AHU-L1& L2	#12	#12 , 3/4"	1	20	28
29	20	1	#12 , 3/4"		GLYCOL PUMP	500	C	464	OBSTRUCTION LIGHT	#12	#12 , 3/4"	1	20	30
31	20	1	#12 , 3/4"	#12	RADIANT HEAT CONTROLLOF	500	A	2400	HOT BONDER	#10	#10 , 3/4"	1	30	32
33	20	1	#12 , 3/4"	#12	V-L1,L2,L3	750	B	2400	HOT BONDER	#10	#10 , 3/4"	1	30	34
35	20	1	#12 , 3/4"	#12	V-L5,L6	760	C	2400	HOT BONDER	#10	#10 , 3/4"	1	30	36
37	20	1	#12 , 3/4"	#12	HEAT TRACE AHU L1& L2	500	A	16500						38
39	30	1	#10 , 3/4"	#10	HOT BONDER	2400	B	14800	PANEL LLP4	#6	#2/0 , 2"	3	150	40
41	20	1			SPARE		C	13200						42

TOTAL CONNECTED LOAD = 87.5 kVA X 84% DEMAND FACTOR = 73.4 kVA ESTIMATED DEMAND LOAD
PHASE BALANCE (KVA) - A: 29.6 , B: 31.7 , C: 27.2

PANELBOARD NAME: LLP3
PANELBOARD TYPE: MAIN CIRCUIT BREAKER
PANEL LOCATION: ROOM 140
SUPPLIED FROM: LPP6 VIA XFMR LT7

10,000 RMS SYMMETRICAL A.I.C.
SURFACE MOUNTED, NEMA 1 ENCLOSURE
208Y/120 VOLTS, 3 PHASE, 4 WIRE

225 AMP TRIP MAIN BREAKER
225 AMP MAINS

CKT NO.	TRIP AMPS	NO. POLES	WIRE / CONDUIT	GND. WIRE	LOAD SERVED	LOAD VA & PHASE	Ø	LOAD VA & PHASE	LOAD SERVED	GND. WIRE	WIRE / CONDUIT	NO. POLES	TRIP AMPS	CKT. NO.
1						3400	A	5000						2
3	40	3	#8 , 1"	#10	CRU-L3	3400	B	5000	CRU-L2	#8	#6 , 1"	3	60	4
5						3400	C	5000						6
7	30	1	#10 , 3/4"	#10	HOT BONDER	2400	A	2400	HOT BONDER	#10	#10 , 3/4"	1	30	8
9	30	1	#10 , 3/4"	#10	HOT BONDER	2400	B	2400	HOT BONDER	#10	#10 , 3/4"	1	30	10
11	30	1	#10 , 3/4"	#10	HOT BONDER	2400	C	2400	HOT BONDER	#10	#10 , 3/4"	1	30	12
13	30	1	#10 , 3/4"	#10	HOT BONDER	2400	A	2400	HOT BONDER	#10	#10 , 3/4"	1	30	14
15	20	1	#12 , 3/4"	#12	BLUE LIGHT SYSTEM	800	B	2400	HOT BONDER	#10	#10 , 3/4"	1	30	16
17	30	1	#10 , 3/4"	#10	HOT BONDER	2400	C	2400	HOT BONDER	#10	#10 , 3/4"	1	30	18
19	30	1	#10 , 3/4"	#10	HOT BONDER	2400	A	2400	HOT BONDER	#10	#10 , 3/4"	1	30	20
21	30	1	#10 , 3/4"	#10	HOT BONDER	2400	B	2400	HOT BONDER	#10	#10 , 3/4"	1	30	22
23	30	1	#10 , 3/4"	#10	HOT BONDER	2400	C	2400	HOT BONDER	#10	#10 , 3/4"	1	30	24
25	30	1	#10 , 3/4"	#10	HOT BONDER	2400	A		SPARE			1	20	26
27	30	1	#10 , 3/4"	#10	HOT BONDER	2400	B		SPARE			1	20	28
29	20	1			SPARE		C		SPARE			1	20	30
31	20	1			SPARE		A		SPARE			1	20	32
33	20	1			SPARE		B		SPARE			1	20	34
35	20	1			SPARE		C		SPARE			1	20	36
37	20	1			SPARE		A		SPARE			1	20	38
39	20	1			SPARE		B		SPARE			1	20	40
41	20	1			SPARE		C		SPARE			1	20	42

TOTAL CONNECTED LOAD = 71.6 kVA X 75% DEMAND FACTOR = 53.8 kVA ESTIMATED DEMAND LOAD
PHASE BALANCE (KVA) - A: 25.2 , B: 23.6 , C: 22.8

PANELBOARD NAME: LLP4
PANELBOARD TYPE: MAIN CIRCUIT BREAKER
PANEL LOCATION: ROOM 121
SUPPLIED FROM: SUB FED FROM LLP2

10,000 RMS SYMMETRICAL A.I.C.
SURFACE MOUNTED, NEMA 1 ENCLOSURE
208Y/120 VOLTS, 3 PHASE, 4 WIRE

150 AMP TRIP MAIN BREAKER
225 AMP MAINS

CKT NO.	TRIP AMPS	NO. POLES	WIRE / CONDUIT	GND. WIRE	LOAD SERVED	LOAD VA & PHASE	Ø	LOAD VA & PHASE	LOAD SERVED	GND. WIRE	WIRE / CONDUIT	NO. POLES	TRIP AMPS	CKT. NO.
1	20	1	#12 , 3/4"	#12	RECEPT RM 121	360	A	720	RECEPT RM 122	#12	#12 , 3/4"	1	20	2
3	20	1	#12 , 3/4"	#12	RECEPT RM 122	540	B	720	RECEPT RM 116,124,125	#12	#12 , 3/4"	1	20	4
5	20	1	#12 , 3/4"	#12	RECEPT RM 118,119	540	C	360	RECEPT RM 126	#12	#12 , 3/4"	1	20	6
7	20	1	#12 , 3/4"	#12	RECEPT RM 122	540	A	1010	V-L7,L8,L10	#12	#12 , 3/4"	1	20	8
9	20	1	#12 , 3/4"	#12	RECEPT RM 123	540	B	760	V-L9,L11	#12	#12 , 3/4"	1	20	10
11	20	1	#12 , 3/4"	#12	RECEPT RM 127,129	900	C	900	RECEPT RM 128	#12	#12 , 3/4"	1	20	12
13	20	1	#12 , 3/4"	#12	OUTSIDE RECEPT	180	A	1000	REFRIGERATOR RM 129	#12	#12 , 3/4"	1	20	14
15	20	1	#12 , 3/4"	#12	PAINT SHAKER	1000	B	1000	REFRIGERATOR RM 129	#12	#12 , 3/4"	1	20	16
17	20	1	#12 , 3/4"	#12	FREEZER RM 107	1000	C	1000	CHILLER RM 129	#12	#12 , 3/4"	1	20	18
19	30	1	#10 , 3/4"	#10	AIR SHOWER	2000	A	360	RECEPT RM 129	#12	#12 , 3/4"	1	20	20
21	20	1	#12 , 3/4"	#12	UH-L11,L12,L13	540	B	3400						22
23	20	1	#12 , 3/4"	#12	WORKBENCH RM 107	900	C	3400	CRU-L1	#10	#8 , 1"	3	40	24
25	20	1	#12 , 3/4"	#12	WORKBENCH RM 107	900	A	3400						26
27	20	1	#12 , 3/4"	#12	WORKBENCH RM 107	900	B	900	WORKBENCH	#12	#12 , 3/4"	1	20	28
29	30	1	#10 , 3/4"	#10	WORKBENCH RM 107	2000	C	900	WORKBENCH	#12	#12 , 3/4"	1	20	30
31	30	1	#10 , 3/4"	#10	WORKBENCH RM 107	2000	A	2000	WORKBENCH	#10	#10 , 3/4"	1	30	32
33	30	1	#10 , 3/4"	#10	WORKBENCH RM 107	2000	B	2000	WORKBENCH	#10	#10 , 3/4"	1	30	34
35	20	1	#12 , 3/4"	#12	WORKBENCH RM 107	900	C	200	AD-3	#12	#12 , 3/4"	1	20	36
37	30	1	#10 , 3/4"	#10	WORKBENCH RM 107	2000	A		SPARE			1	20	38
39	20	1	#12 , 3/4"	#12	SUMP PUMP RM 122	500	B		SPARE			1	20	40
41	20	1	#12 , 3/4"	#12	BOILER WATER TREATMENT	180	C		SPARE			1	20	42

TOTAL CONNECTED LOAD = 44.5 kVA X 81% DEMAND FACTOR = 36.1 kVA ESTIMATED DEMAND LOAD
PHASE BALANCE (KVA) - A: 16.5 , B: 14.8 , C: 13.2

US Army Corps of Engineers Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.
A	01/14/02	ADDED HOT BONDER	SDS	ERK

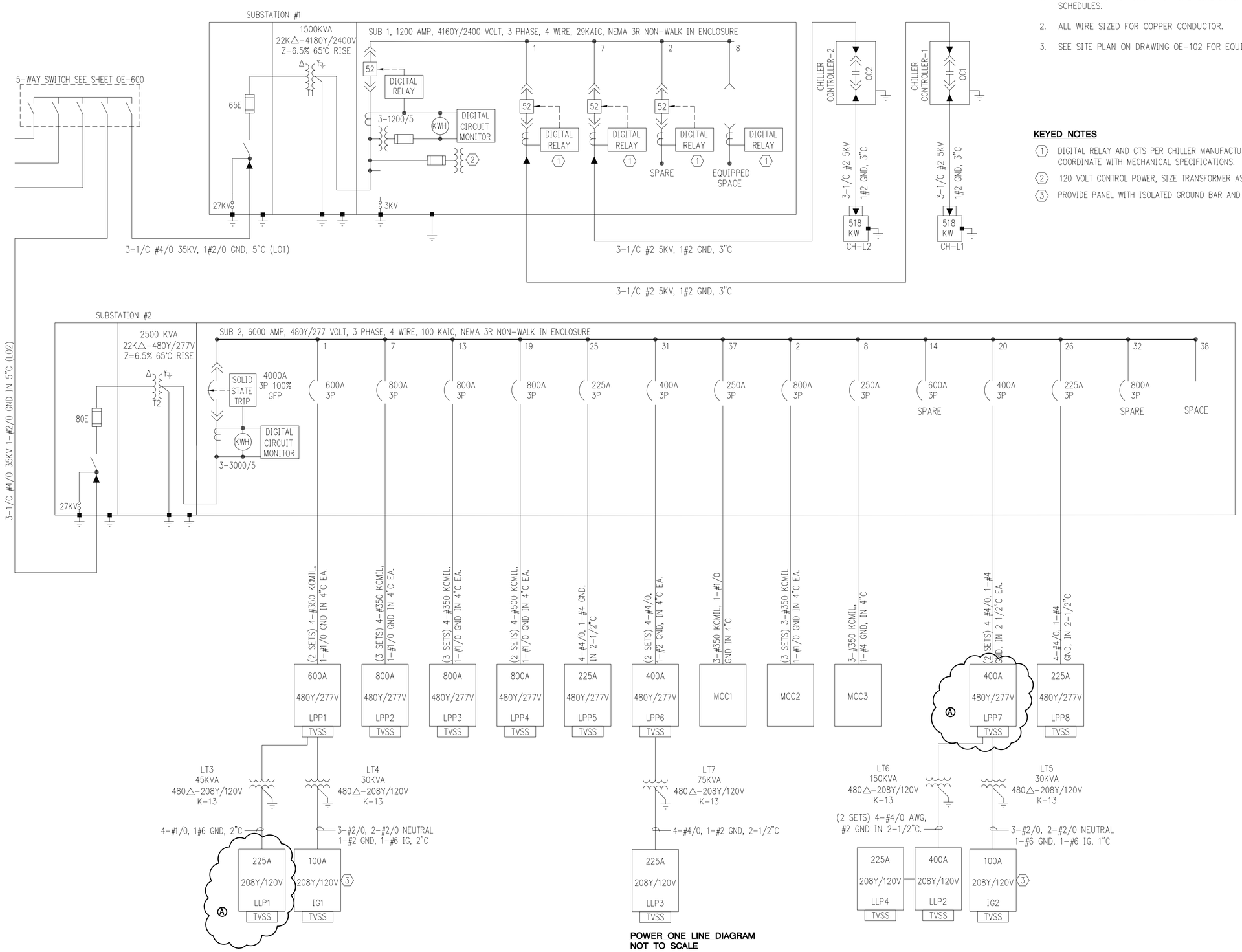
DESIGNED: SDS | CHECKED: CWW | DATE: OCT 2001
DRAWN: JLP | SUBMITTED: ERK | SCALE: AS SHOWN
PROJECT NO.: HACC023010 | NORFOLK DISTRICT FILE NO.: LF-422-1.525
DRAWING NO.: 711-18-13 | SPECIFICATION NO.: DACA65-01-R-0025
Last worked on: 12/19/01 | Plot scale: 1:1
File name: I:\USCOE_NORFOLK\26345\ELEC\LE-608.DWG

NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

BURNS & McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA
LO/CRF FACILITY
PANEL SCHEDULES

LE-608
SHEET 525 OF 769



POWER ONE LINE DIAGRAM
NOT TO SCALE

GENERAL NOTES

1. FOR FEEDERS NOT SHOWN ON ONE-LINE DIAGRAMS, SEE PANELBOARD SCHEDULES.
2. ALL WIRE SIZED FOR COPPER CONDUCTOR.
3. SEE SITE PLAN ON DRAWING OE-102 FOR EQUIPMENT LOCATIONS.

KEYED NOTES

1. DIGITAL RELAY AND CTS PER CHILLER MANUFACTURER'S RECOMMENDATIONS COORDINATE WITH MECHANICAL SPECIFICATIONS.
2. 120 VOLT CONTROL POWER, SIZE TRANSFORMER AS REQUIRED.
3. PROVIDE PANEL WITH ISOLATED GROUND BAR AND 200% RATED NEUTRAL BUS.

US Army Corps of Engineers
Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.
4	10/14/02	REVISED PANELBOARD RATINGS	SDS	ERK

DESIGNED: SDS
DRAWN: JLP
CHECKED: CWW
SUBMITTED: ERK
DATE: OCT 2001
SCALE: AS SHOWN
PROJECT NO. FA-ACC023010
NORFOLK DISTRICT FILE NO. LE-F22-A-127
SPECIFICATION NO. DACA65-01-R-0025
DRAWING NO. 711-18-13
Last worked on: 10/16/01
File name: I:\USGOE_NORFOLK\DRAWS\ELEC\LE-600.DWG
File scale: 1:1

NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

BURNS & McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA

LO/CRF FACILITY
POWER ONE LINE DIAGRAM

LE-600
SHEET 517 OF 769

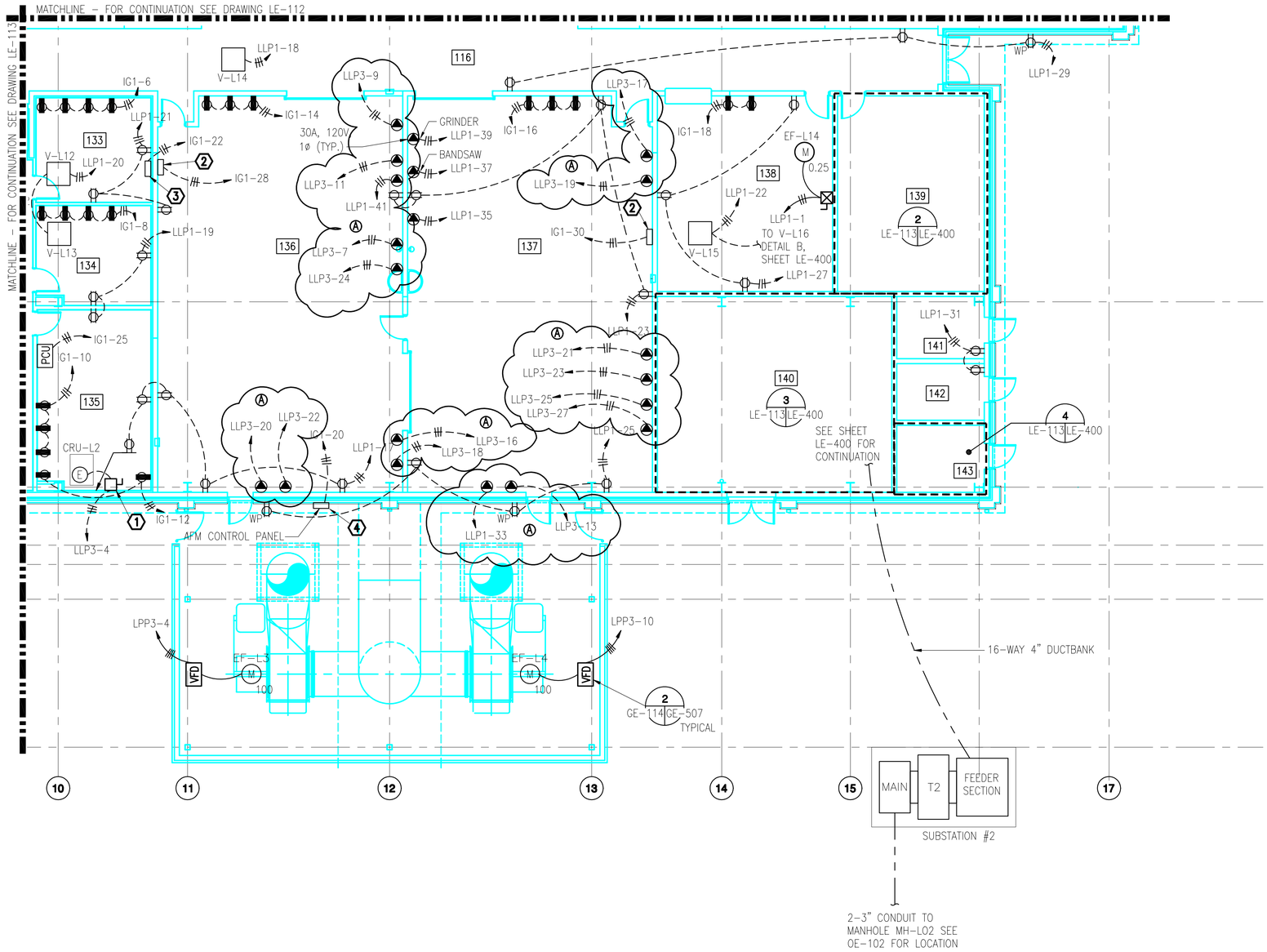
GENERAL NOTES:

1. ALL ELECTRICAL EQUIPMENT AND WIRING INSTALLED IN CLASSIFIED LOCATIONS SHALL BE APPROVED FOR LOCATIONS IDENTIFIED. SEE SHEET LE-700 AND LE-701 FOR CLASSIFICATIONS OF AREAS. CONDUIT SEALS REQUIRED FOR CONDUITS NOT SHOWN. CONTRACTOR SHALL PROVIDE ALL CONDUIT SEALS AS REQUIRED BY NEC CHAPTER 5.

2. SEE CIVIL DRAWING FOR LOCATION OF SANITARY LIFT STATION AND FOAM PUMP STATION.

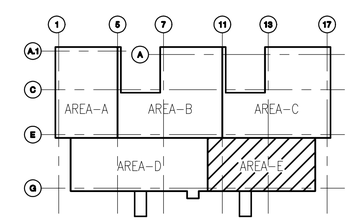
KEYED NOTES:

1. 3P,60 AMP NON-FUSED DISCONNECT. MOUNT ABOVE CEILING.
2. BREATHING AIR CONTROL PANEL, PROVIDED FOR IN DIVISION 15.
3. EMERGENCY EYE CONTROL ALARM PANEL, PROVIDED FOR IN DIVISION 15.
4. PROVIDED FOR IN DIVISION 15.



PARTIAL POWER PLAN - AREA E

8 4 0 8 16
SCALE IN FEET



KEY PLAN
NOT TO SCALE

US Army Corps of Engineers
Norfolk District

REV.	DATE	DESCRIPTION	BY	APP'D
A	10/14/02	ADDED RECEPTACLES	SDS	ERK

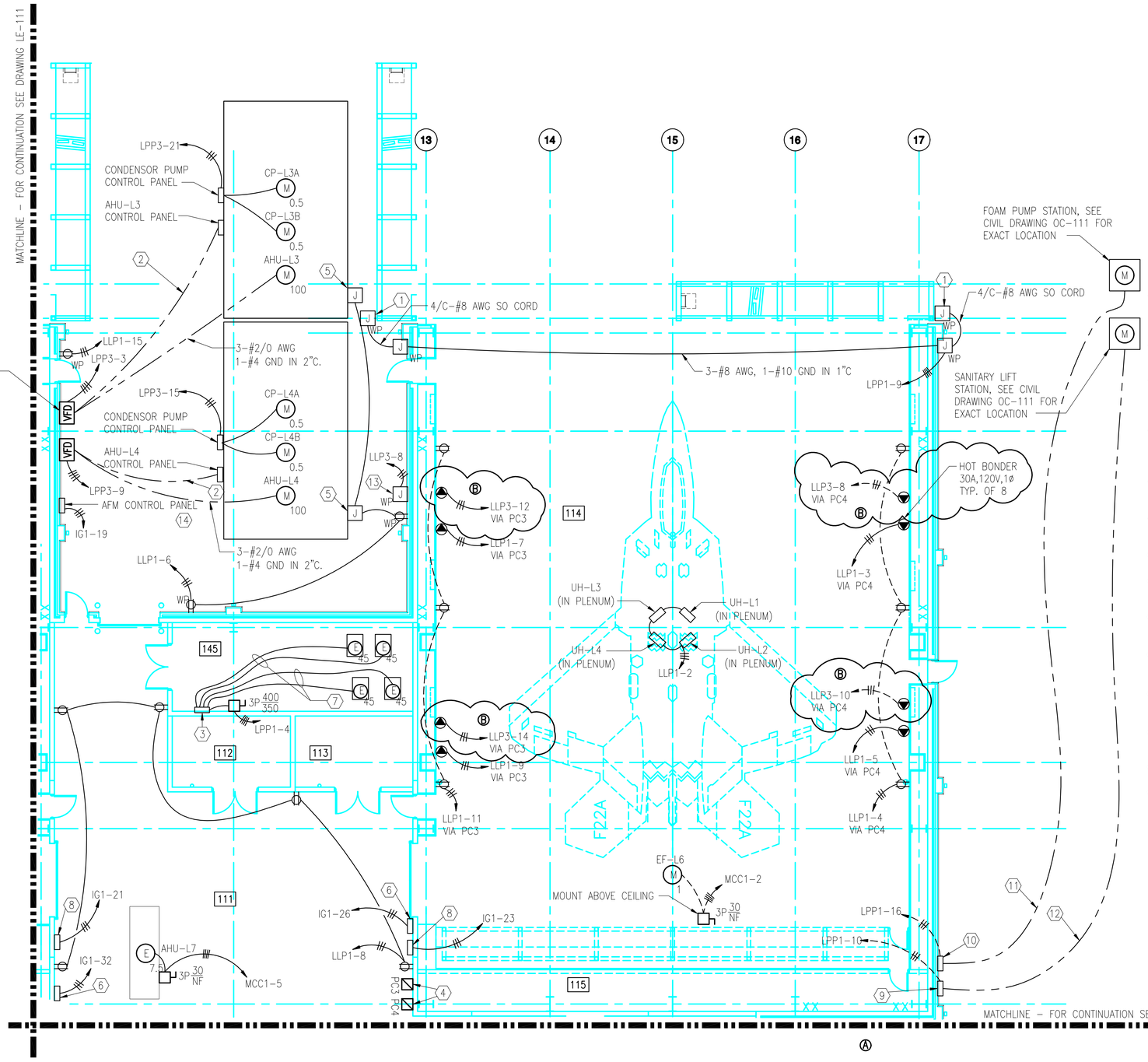
DESIGNED: SDS
DRAWN: JLP
CHECKED: CWW
SUBMITTED: ERK
DATE: OCT 2001
SCALE: AS SHOWN
PROJECT NO. LCC023010
NORFOLK DISTRICT FILE NO. LE-DACA65-02
SPECIFICATION NO. DACA65-01-R-0025
DRAWING NO. 711-18-13
Plot scale: 1:1
Last worked on: 12/19/01
File name: I:\USACE_NORFOLK\26345\ELEC\LE-114.DWG

NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

BURNS & McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA
LO/CRF FACILITY
PARTIAL POWER PLAN
AREA E

LE-114
SHEET502 OF 769



PARTIAL POWER PLAN - AREA C

8 4 0 8 16

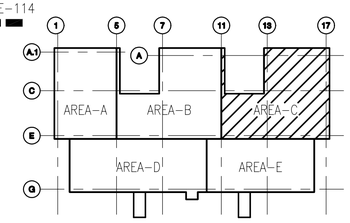
SCALE IN FEET

GENERAL NOTES:

1. ALL ELECTRICAL EQUIPMENT AND WIRING INSTALLED IN CLASSIFIED LOCATIONS SHALL BE APPROVED FOR LOCATIONS IDENTIFIED. SEE SHEET LE-700 AND LE-701 FOR CLASSIFICATIONS OF AREAS. CONDUIT SEALS REQUIRED FOR CONDUITS NOT SHOWN. CONTRACTOR SHALL PROVIDE ALL CONDUIT SEALS AS REQUIRED BY NEC CHAPTER 5.
2. SEE SEQUENCE OF OPERATION ON MECHANICAL DRAWINGS FOR STARTER CONTROL REQUIREMENT.
3. SEE CONTROL DIAGRAM ON SHEET GE-601 FOR COATING RESTORATION BAY (RM 114) 120V WIRING AND CONTROL.

KEYED NOTES:

1. AIRCRAFT DOOR POWER WEATHERPROOF JUNCTION BOXES. MOUNT BOTTOM OF BOXES EVEN WITH TOP OF DOOR. COORDINATE WITH DOOR MANUFACTURER.
2. 1" CONDUIT, PROVIDE CONTROL WIRING PER MANUFACTURERS RECOMMENDATIONS.
3. MAIN VACUUM PUMP CONTROL PANEL. PROVIDE CONTROL WIRING AS REQUIRED. COORDINATE WITH EQUIPMENT MANUFACTURER. PROVIDED FOR IN DIVISION 15.
4. PROVIDE 2-#12, 1-#12 GND IN 1/2"C TO COOLING RESTORATION BAY ANNUNCIATOR PANEL IN ROOM 111. SEE SCHEMATIC ON DRAWING GE-601.
5. AHU-L3, & L4 LIGHTING CONNECTIONS. VERIFY LOCATION WITH EQUIPMENT MANUFACTURER AND DIVISION 15.
6. BREATHING AIR CONTROL PANEL. PROVIDED FOR IN DIVISION 15.
7. 3-#4 AWG., 1-#8 AWG., IN 1"C.
8. COATING RESTORATION BAY ANNUNCIATOR PANELS. PROVIDED FOR IN DIVISION 15.
9. SANITARY LIFT STATION CONTROL PANEL. SEE DETAIL 1 ON DRAWING GE-504.
10. FOAM PUMP CONTROL PANEL SEE DETAIL 2 ON DRAWING GE-504.
11. 1-2"C. W/4-#10 AWG, 1-2"C W/CONTROL WIRING AS REQUIRED BY MANUFACTURER.
12. 1-2"CC. W/3-#10 AWG, 1-#10 GND, 1-2"C. W/CONTROL WIRING AS REQUIRED BY MANUFACTURER.
13. HEAT TRACE FOR AHU-L3 AND L4.
14. PROVIDED FOR IN DIVISION 15.



KEY PLAN
NOT TO SCALE

US Army Corps of Engineers Norfolk District

REV.	DATE	DESCRIPTION	BY	APP'D
1	11/16/01	ISSUED FOR SANITARY SEWER LIFT STATION PERMIT	SDS	ERK
2	11/20/01	EDIT KEYED NOTES.	SDS	ERK
3	10/14/02	ADDED HOT BONDERS		

DESIGNED: SDS | CHECKED: CWW | DATE: OCT 2001
DRAWN: JLP | SUBMITTED: ERK | SCALE: AS SHOWN
PROJECT NO. FCC023010 | NORFOLK DISTRICT FILE NO. LE-112 | SPECIFICATION NO. DACA65-01-R-0025
DRAWING NO. 711-18-13 | Plot scale: 1:1
Last worked on: 12/19/01
File name: I:\USCOE_NORFOLK\26343\ELEC\LE-112.DWG

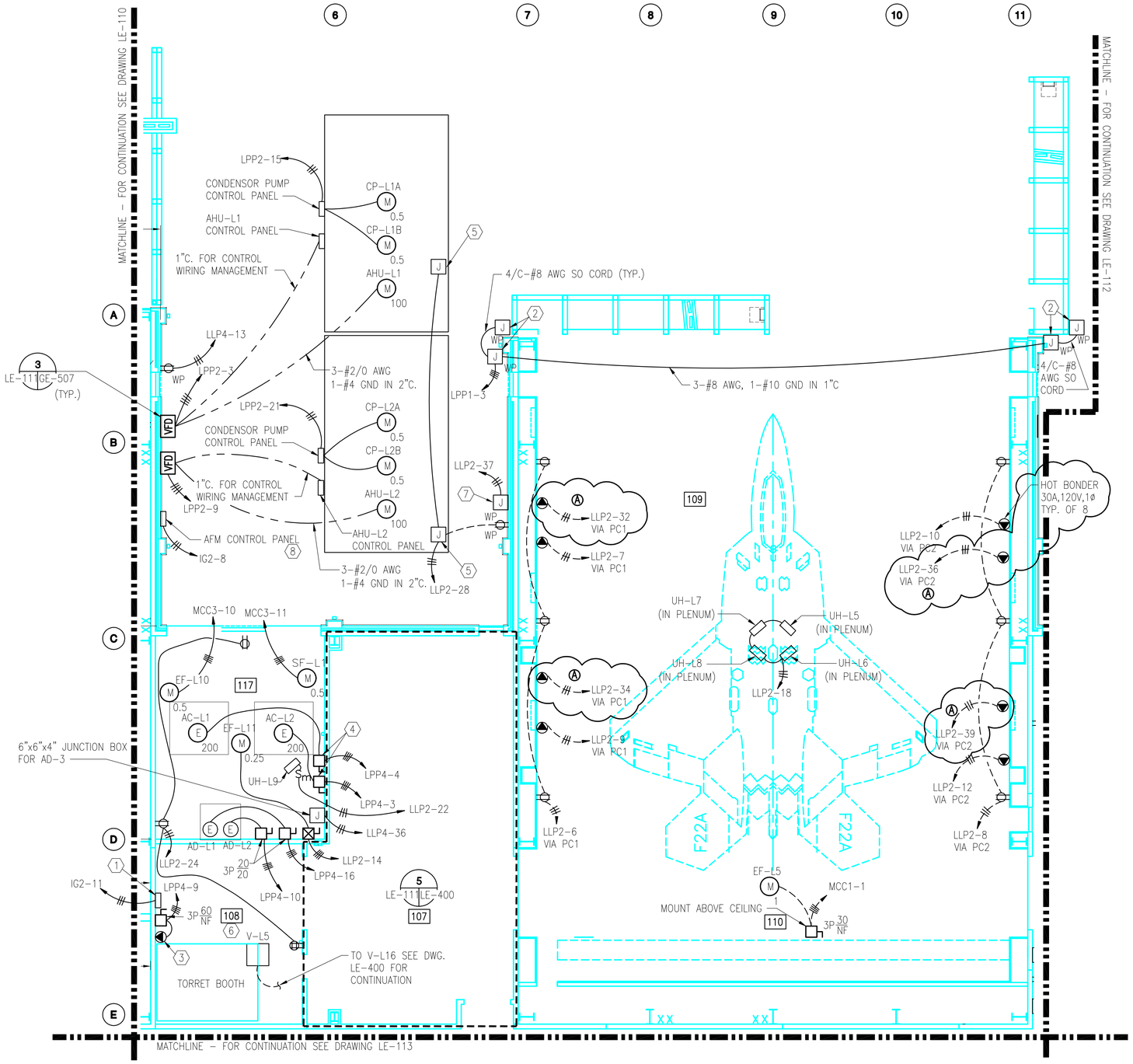
NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

BURNS & McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA

LO/CRF FACILITY
PARTIAL POWER PLAN
AREA C

LE-112
SHEET 500 OF 769



PARTIAL POWER PLAN - AREA B

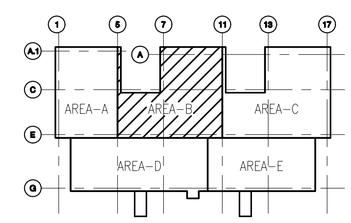
8 4 0 8 16
SCALE IN FEET

GENERAL NOTES:

1. ALL ELECTRICAL EQUIPMENT AND WIRING INSTALLED IN CLASSIFIED LOCATIONS SHALL BE APPROVED FOR LOCATIONS IDENTIFIED. SEE SHEET LE-700 AND LE-701 FOR CLASSIFICATIONS OF AREAS. CONDUIT SEALS REQUIRED FOR CONDUITS ARE NOT SHOWN. CONTRACTOR SHALL PROVIDE ALL CONDUIT SEALS AS REQUIRED BY NEC CHAPTER 5.
2. SEE SEQUENCE OF OPERATION ON MECHANICAL DRAWINGS FOR STARTER CONTROL REQUIREMENT.
3. SEE CONTROL DIAGRAM ON SHEET GE-601 FOR COATING RESTORATION BAY (RM. 109) 120V WIRING DIAGRAM.

KEYED NOTES:

1. BREATHING AIR CONTROL PANEL. PROVIDED FOR IN DIVISION 15.
2. AIRCRAFT DOOR POWER WEATHERPROOF JUNCTION BOXES. MOUNT BOTTOM OF BOXES EVEN WITH TOP OF DOOR. COORDINATE WITH DOOR MANUFACTURER.
3. 3P, 4-WIRE, 60 AMP 480V PLUG AND PIN RECEPTACLE. PROVIDE MATCHING PLUG WITH RECEPTACLE.
4. 3 POLE, 400 AMP FUSED DISCONNECT, FUSES SIZE ARE 350 AMP.
5. AHU-L1,L2 LIGHTING CONNECTIONS. VERIFY LOCATIONS WITH EQUIPMENT MANUFACTURER.
6. ALL RECEPTACLES IN ROOMS 108 SHALL BE DUST TIGHT.
7. JUNCTION BOX FOR HEAT TRACE FOR AHU-L1 AND L2.
8. PROVIDED FOR IN DIVISION 15.



KEY PLAN
NOT TO SCALE

US Army Corps of Engineers
Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.
A	10/14/02	ADD RECEPTACLES	SDS	ERK

DESIGNED: SDS
CHECKED: CWW
DATE: OCT 2001
DRAWN: JLP
SUBMITTED: ERK
SCALE: AS SHOWN
PROJECT NO. FA4CC023010
NORFOLK DISTRICT FILE NO. LE-F22-A-B-02
DRAWING NO. 711-18-13
SPECIFICATION NO. DACA65-01-R-0025
Last worked on: 12/13/01
File name: I:\USACE_NORFOLK\26343\ELEC\LE-111.DWG
File scale: 1:1

NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

BURNS & McDONNELL
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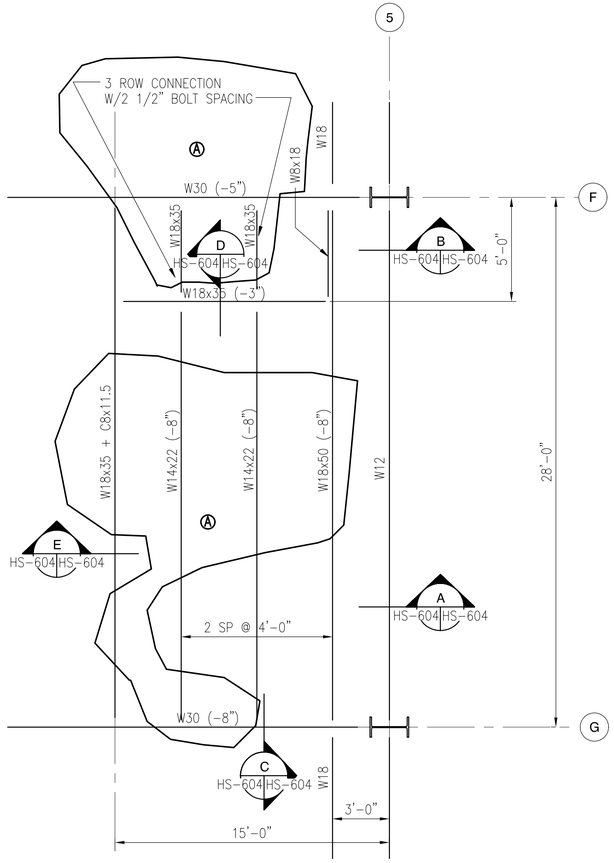
KANSAS CITY, MISSOURI 64114

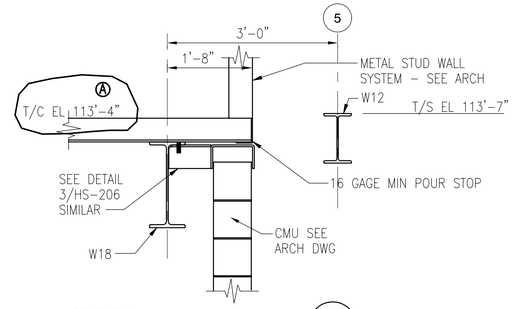
F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA
LO/CRF FACILITY
PARTIAL POWER PLAN
AREA B

LE-111
SHEET499 OF 769



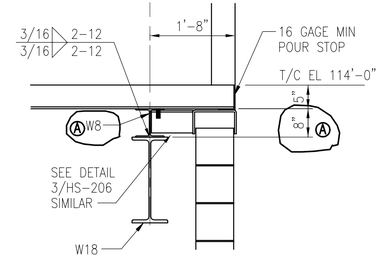
PARTIAL PLAN @ WTT ROOM
T/S EL 113'-7" UNO

SCALE IN FEET



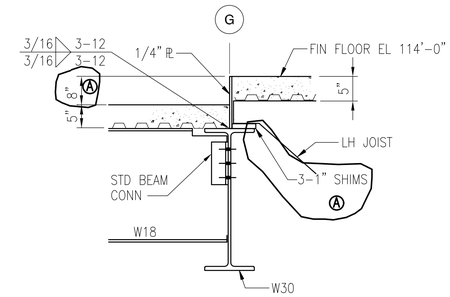
SECTION A HS-604 HS-103

SCALE IN FEET



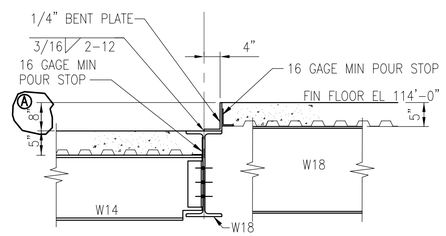
SECTION B HS-604 HS-604

SCALE IN FEET



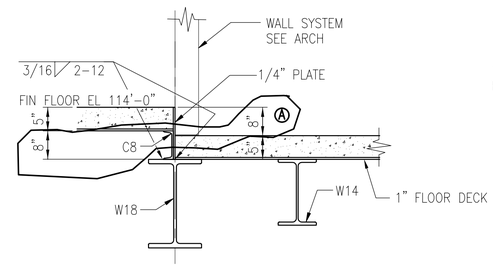
SECTION C HS-604 HS-103

SCALE IN FEET



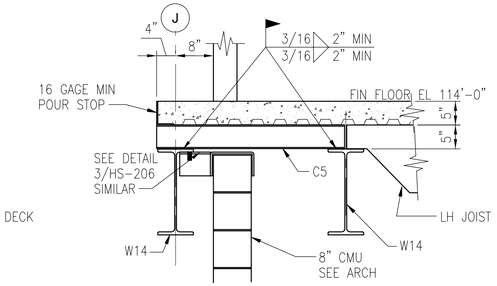
SECTION D HS-604 HS-103

SCALE IN FEET



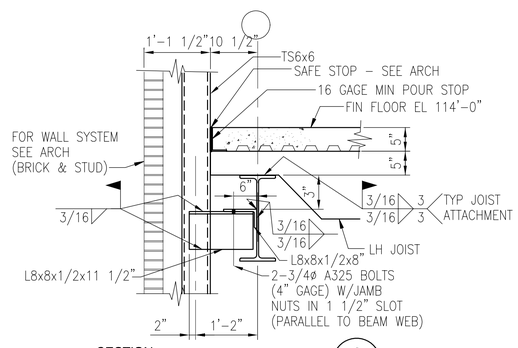
SECTION E HS-604 HS-103

SCALE IN FEET



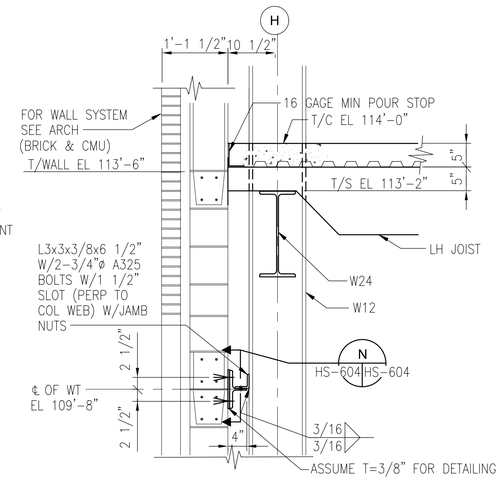
SECTION F HS-103 HS-104

SCALE IN FEET



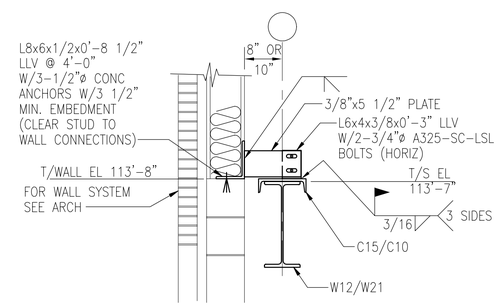
SECTION G HS-103 HS-604 HS-104 HS-204 HS-205

SCALE IN FEET



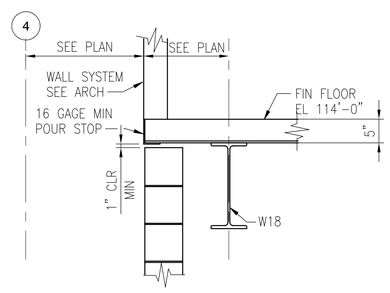
SECTION H HS-103 HS-604 HS-104

SCALE IN FEET



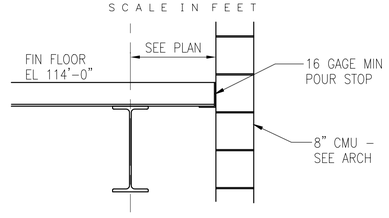
SECTION J HS-103 HS-604 HS-104

SCALE IN FEET



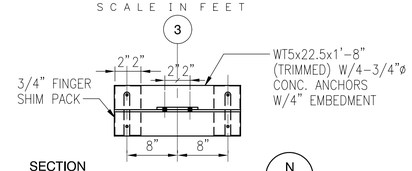
SECTION K HS-103 HS-604

SCALE IN FEET

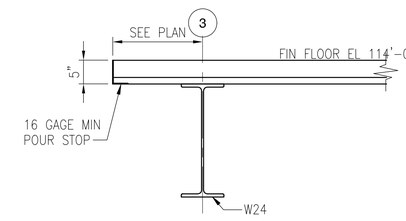


SECTION L HS-103 HS-604

SCALE IN FEET



SECTION N HS-604 HS-604



SECTION M HS-103 HS-604

US Army Corps of Engineers
Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.
A	1/14/02	REVISED ELEVATIONS, DIMENSIONS AND CONN TYPE		

DESIGNED: KVC
CHECKED: JAS
DATE: OCT 2001
DRAWN: AGB
SUBMITTED: ERK
SCALE: AS SHOWN
PROJECT NO. FY01-DACA65-01-C0023011
NORFOLK DISTRICT FILE NO. 11-4114
SPECIFICATION NO. DACA65-01-R-0025
DRAWING NO. 711-18-13
Last worked on: X
File name: X
Plot scale: X

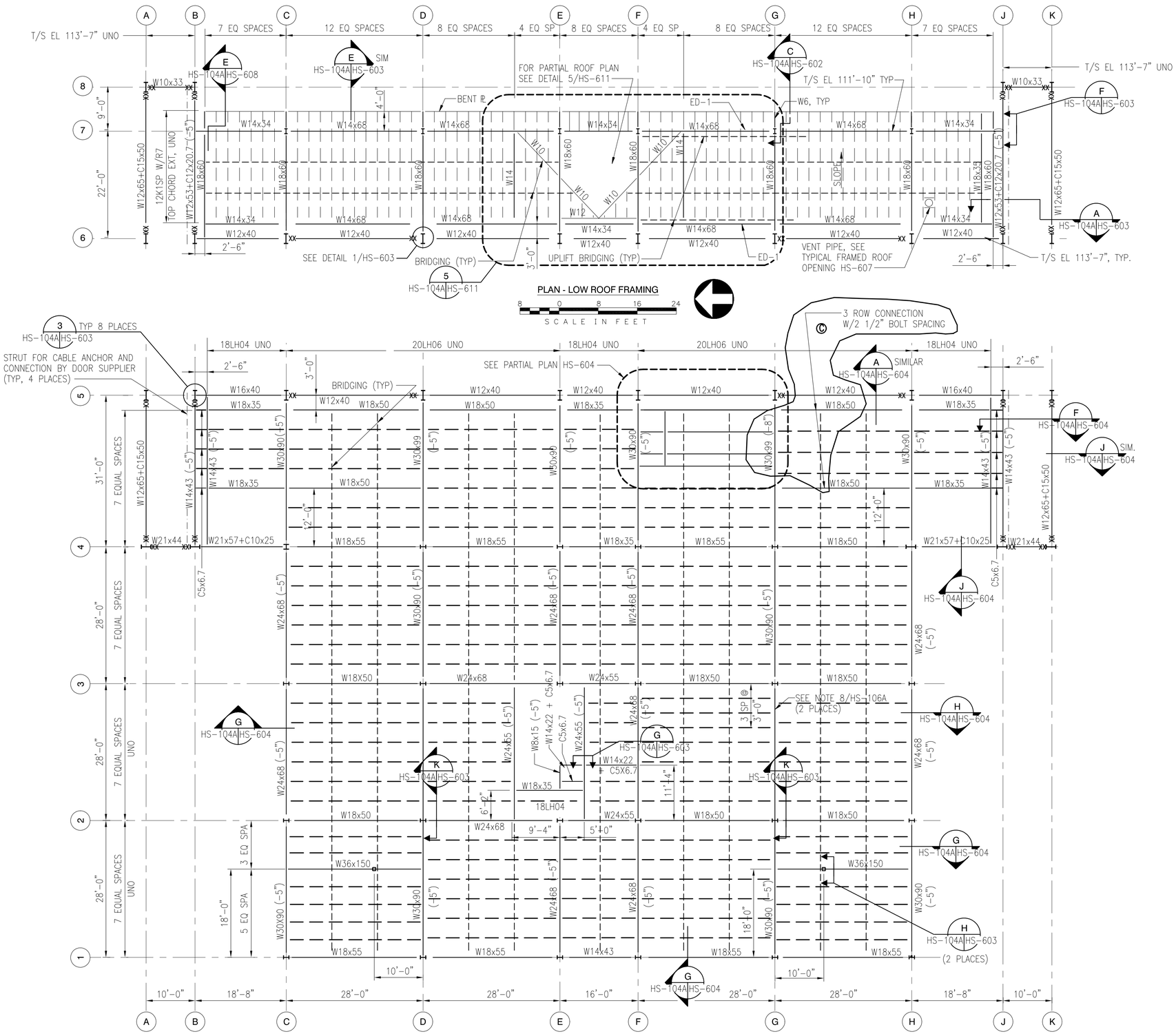
NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

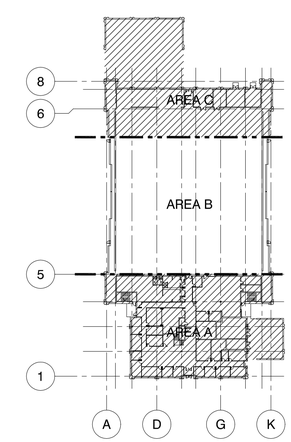
BURNS & McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA
SQUADRON OPERATIONS/AMU HANGAR
STRUCTURAL DETAILS

HS-604
SHEET 245 OF 769

Hs604.dwg 01-14-2002 11:31 AGB





KEY PLAN
NOT TO SCALE

US Army Corps of Engineers
Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.
B	1/8/02	ADDED REORIENTED SHEET - 1-8-2002		
C	1/14/02	REVISED ELEVATION AND CONNECTION TYPE		

DESIGNED: KVC
CHECKED: JAS
DRAWN: AGB
SUBMITTED: ERK
DATE: OCT 2001
SCALE: AS SHOWN
PROJECT NO. FY01ACC023011
NORFOLK DISTRICT FILE NO. 11-F-22-R-R1
DRAWING NO. 711-18-13
SPECIFICATION NO. DACA65-01-R-0025
Last worked on: 12-17-01
File name: X
Plot scale: 192

NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

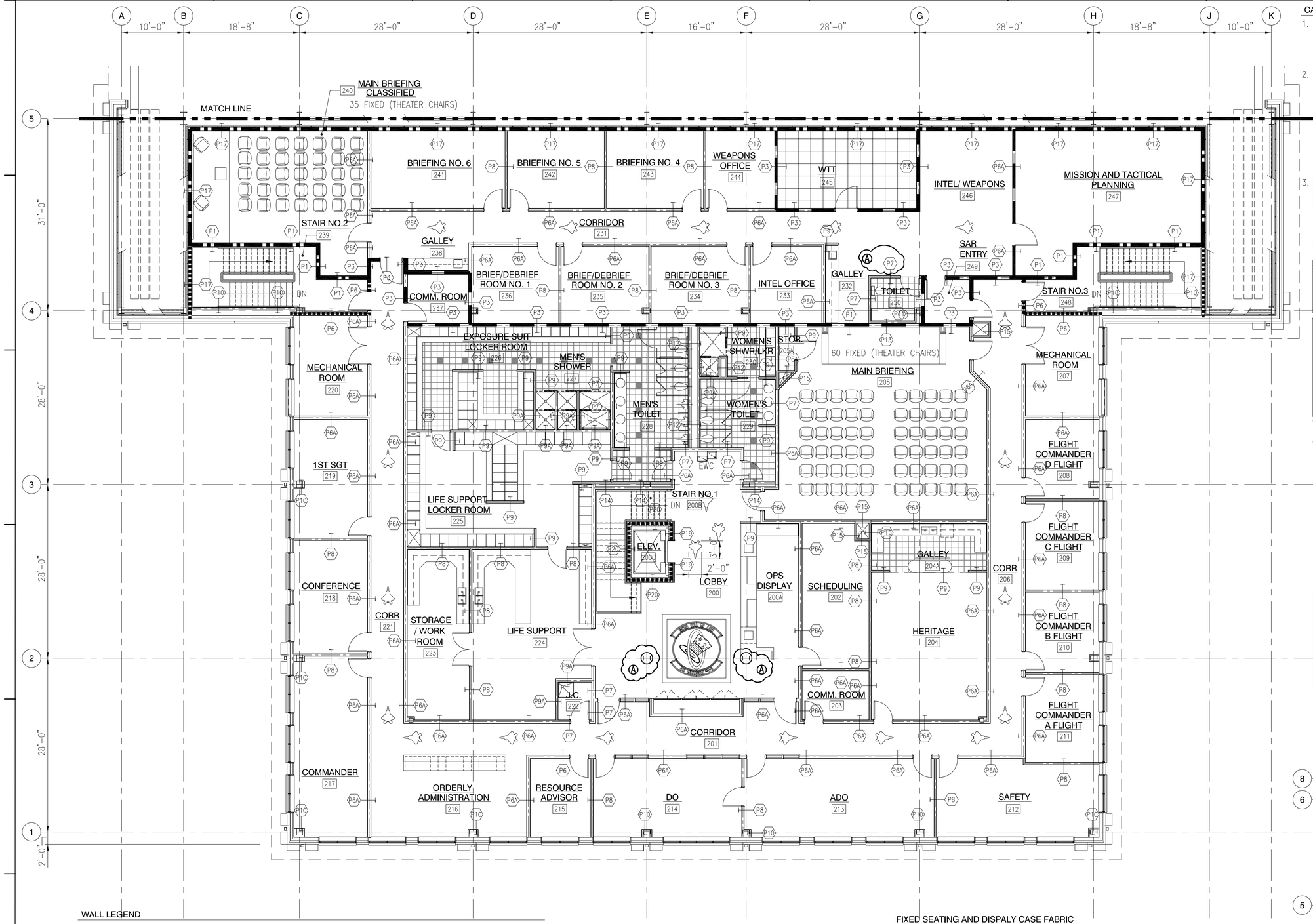
BURNS & McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA

SQUADRON OPERATIONS/AMU HANGAR
SECOND FLOOR & LOW ROOF
FRAMING PLANS - (REORIENTED)

HS-104A
SHEET 210.1 OF 715

HS104R.dwg 01-14-2002 11:13 AGB

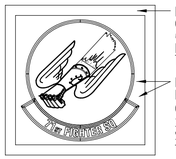


CARPET INSERTS AND EMBLEM NOTES:

1. CARPET MANUF: COLLINS & AIKMAN
   REFERENCE SPECIFICATIONS
   TYPE: AB
   TYPE: AE
   TYPE: AF
2. FOR EACH HANGAR: PROVIDE AND INSTALL (21) F-22 AIRCRAFT EMBLEMS AS SHOWN/INDICATED:
   SIZE: 3'-0"+/- × 2'-0"+/-
   TYPE: AE
   COLOR: 6004 CHARCOAL (SOLID)
3. FOR EACH HANGAR: PROVIDE AND INSTALL (1) OF THE FOLLOWING DIFFERENT SQUADRON EMBLEMS AS SELECTED BY THE CONTRACTING OFFICER. EACH EMBLEM WILL MATCH THE SPECIFIC SQADRON PATCH PROVIDED BY THE CONTRACTING OFFICER.

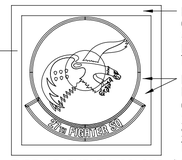
TYP-11'-0" SQ.
9'-6" SQ.
*102"ø+/-
*93"ø

* EMBLEM DIMENSIONS ARE APPROX. THE SAME FOR ALL THE SQUADRONS



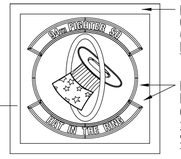
BORDER COLOR 60056 INDIGO TYPE: AB
FIELD BACKGROUND COLOR 25012 SEAFARER TYPE: AF

TYPE AE, EMBLEM COLORS (VERIFY) RED,YELLOW,BLUE,BLACK & GRAY
TEXT: 71st FIGHTER SQ



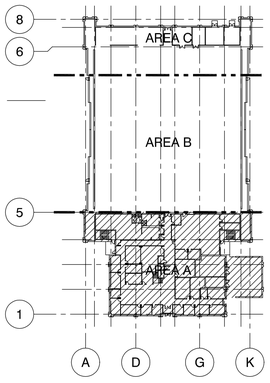
BORDER COLOR 60017 BLACK OYNX TYPE: AB
FIELD BACKGROUND COLOR 25012 SEAFARER TYPE: AF

TYPE AE EMBLEM COLORS (VERIFY) RED,YELLOW,BLACK, WHITE & GRAY
TEXT: 27 th FIGHTER SQ



BORDER COLOR 60056 INDIGO TYPE: AB
FIELD BACKGROUND COLOR 25012 SEAFARER TYPE: AF

TYPE AE EMBLEM COLORS (VERIFY) RED, BLUE,SILVER,WHITE & GRAY
TEXT: 94 th FIGHTER SQ
HAT IN THE RING



KEY PLAN
NOT TO SCALE

WALL LEGEND

- SCIF CONSTRUCTION
- 8" NOMINAL CMU WALL UP TO UNDERSIDE OF ROOF DECK
- 1 HOUR FIRE RATED WALL
- 1 HOUR FIRE RATED WALL AND SCIF CONSTRUCTION

FLOOR PATTERN

- ACCENT COLOR PORCELAIN PAVER
- FIELD COLOR PORCELAIN PAVER

INTERIOR PARTITION AND FLOOR PATTERN PLAN
SECOND FLOOR - AREA A

8 4 0 8 16
SCALE IN FEET

FIXED SEATING AND DISPALY CASE FABRIC

27th SQUADRON: MANUF: MAHARAM
PATTERN: MILESTONE
COLOR: 039 SUNSHINE

71st SQUADRON: MANUF: IRWIN SEATING CO.
PATTERN: INTERWEAVE 2000
COLOR: 2803 SCARLETT

94th SQUADRON: COLOR: 1802 INDIGO

US Army Corps of Engineers
Norfolk District

REV.	DATE	DESCRIPTION	BY	APP'D
A	10/14/99	DELETED PARTITION TYPE P10 & REVISED PARTITION TYPE P9A	RAJ	ERK

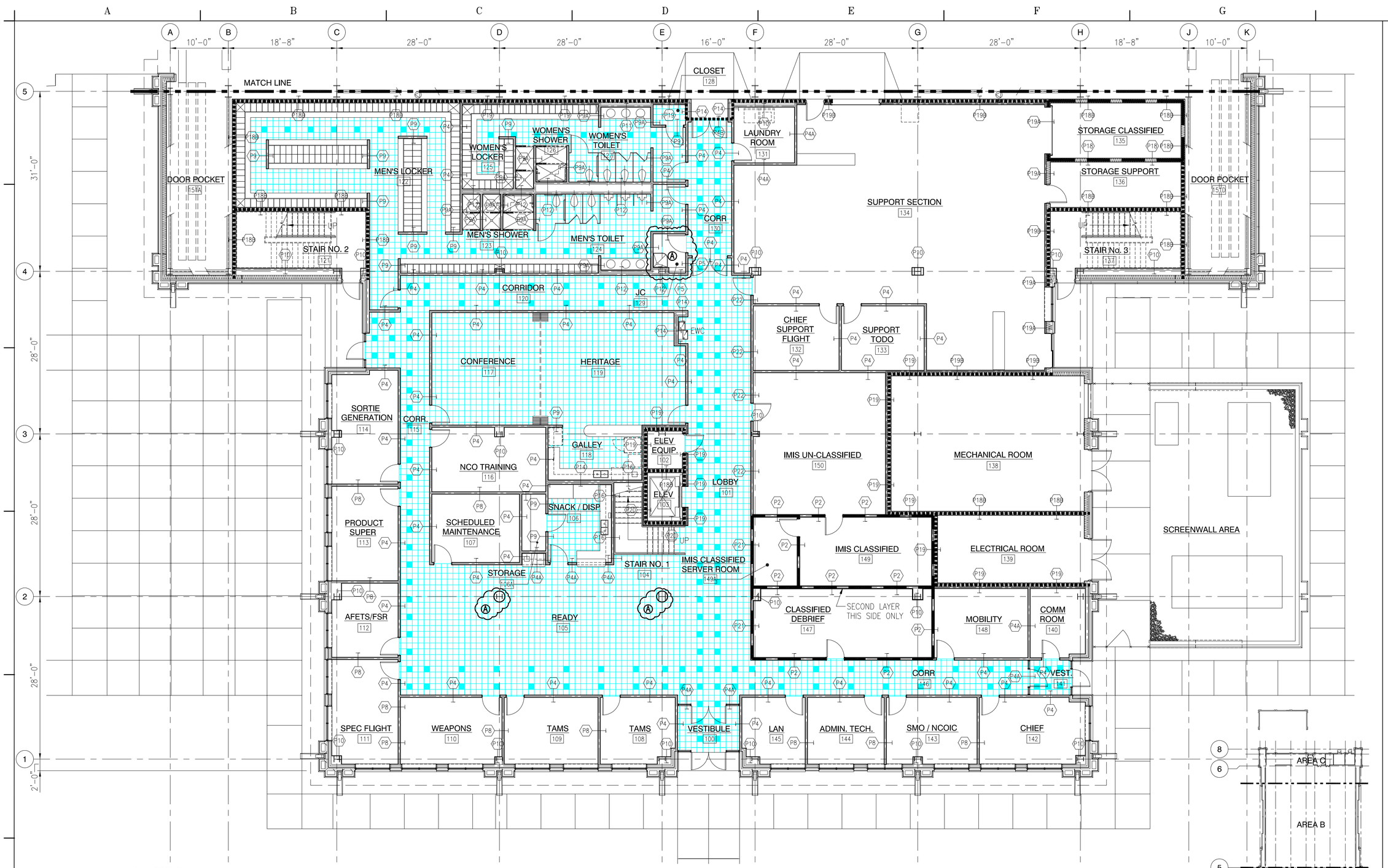
DATE: OCT 2001
SCALE: AS SHOWN
NORFOLK DISTRICT FILE NO. 11-F-0023
SPECIFICATION NO. DACA65-01-R-0025
PAA scale: 1:1
DESIGNED: RAJ
DRAWN: IHC
CHECKED: RMB
SUBMITTED:
PROJECT NO. CC023011
DRAWING NO. 711-18-13
Last worked on: 10-11-01
File name: \CAD\42\ARCH\DESIGN\HANGAR\PRECAST\HA-604.DWG

NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

BURNS & McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA
SQUADRON OPERATIONS/AMU HANGAR
INTERIOR PARTITION PLAN
SECOND FLOOR - AREA A

HA-604
SHEET 211 OF 769



WALL LEGEND

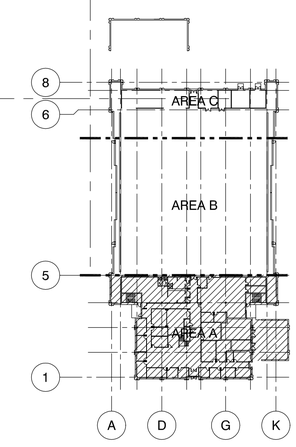
- SCIF CONSTRUCTION
- 8" NOMINAL CMU WALL UP TO 13'-8"
- 1 HOUR FIRE RATED WALL

FLOOR PATTERN

- ACCENT COLOR PORCELAIN PAVER
- FIELD COLOR PORCELAIN PAVER

INTERIOR PARTITION AND FLOOR PATTERN PLAN
GROUND FLOOR - AREA A

8 4 0 8 16
SCALE IN FEET



KEY PLAN
NOT TO SCALE

US Army Corps of Engineers
Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.
A	10/14/02	DELETED PARTITION TYPE P10 AND TILE PATTERNS AT ROOM 129	RAJ	ERK

DESIGNED: RAJ
CHECKED: RMB
DRAWN: IHC
SUBMITTED:
DATE: OCT 2001
SCALE: AS SHOWN
PROJECT NO. HA-ACC023011
NORFOLK DISTRICT FILE NO. HA-602
DRAWING NO. 711-18-13
SPECIFICATION NO. DACA65-01-R-0025
Last worked on: 10-11-01
File name: \JE342\ARCH\DESIGN\HANGAR\HA-602.DWG
Plot scale: 1:1

NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

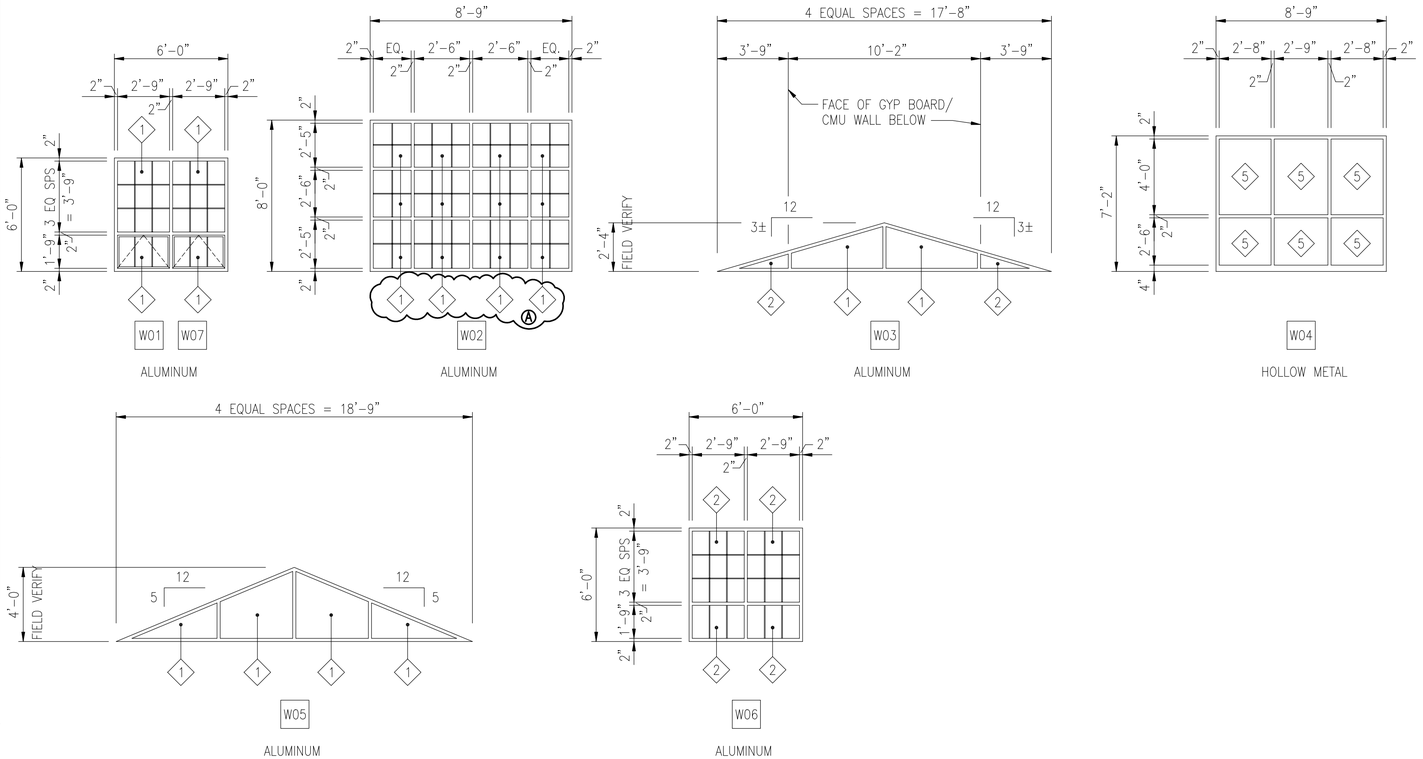
BURNS & McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA
SQUADRON OPERATIONS/AMU HANGAR
INTERIOR PARTITION PLAN
GROUND FLOOR - AREA A

HA-602
SHEET 209 OF 769

LF422209.DWG 01-14-2002 13:31 IHC

WINDOW TYPES AND SCHEDULE – SCALE: 1/4"=1'-0"



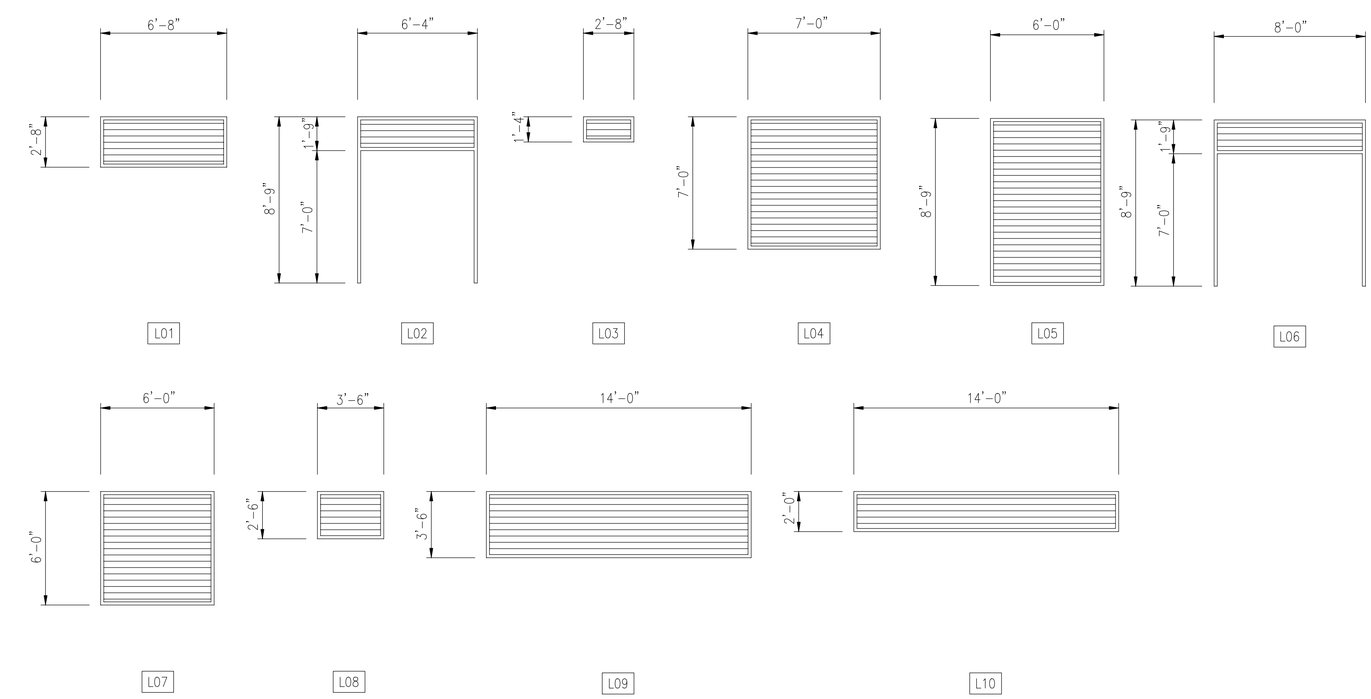
WINDOW SCHEDULE

WINDOW TYPE	WINDOW SIZE WIDTH X HEIGHT	DETAIL HEAD	DETAIL JAMB	DETAIL SILL	REMARKS REFERENCE DRAWINGS GA-810 AND GA-811 FOR WINDOW DETAILS
W01	6'-0" X 6'-0"	1	2	7, 11A	PROJECT OUT
W02	8'-9" X 8'-0"	1	2	9	--
W03	17'-8" X 2'-4"	10 SIM	--	17	--
W04	8'-9" X 7'-2"	12	13	14	--
W05	18'-9" X 4'-0"	10	--	11	--
W06	6'-0" X 6'-0"	1	2	11A	--
W07	6'-0" X 6'-0"	4	5	22	PROJECT OUT

GLASS TYPES

1. TYPE A – SEE SPEC. 08810
2. TYPE C – SEE SPEC. 08810
3. 1/4" CLEAR TEMPERED GLASS
4. TYPE B – SEE SPEC. 08810
5. 1/4" CLEAR WIRED GLASS

LOUVER TYPES AND SCHEDULE – SCALE: 1/4"=1'-0"



LOUVER SCHEDULE

LOUVER NO	FINISH OPENING SIZE WIDTH X HEIGHT	DETAIL HEAD	DETAIL JAMB	DETAIL SILL	HEAD ELEV. (ABOVE EL=100'-0")	REMARKS REFERENCE DRAWINGS GA-812, GA-813, AND GA-814 FOR LOUVER DETAILS
L01	6'-8" X 2'-8"	1	2	3	125'-0"	
L02	6'-4" X 1'-9"	10	11	10	–	1
L03	2'-8" X 1'-4"	27	26	16	108'-9"	
L04	7'-0" X 7'-0"	4	5	6	138'-6"	
L05	6'-0" X 8'-9"	7	21, 26	20	108'-9"	
L06	8'-0" X 1'-9"	10	11	10	–	1
L07	6'-0" X 6'-0"	12	13	14	122'-9"	
L08	2'-6" X 3'-6"	SIM 4	SIM 5	SIM 6	122'-0"	
L09	14'-0" X 3'-6"	30	31	32	134'-0"	
L10	14'-0" X 2'-8"	33	34	35	111'-8"	

GENERAL NOTES

1. REFERENCE DRAWINGS HA-200, HA-201, AND HA-202 FOR LOUVER LOCATIONS.
2. ELEVATIONS ARE DRAWN AT SCALE INDICATED BELOW UNLESS OTHERWISE NOTED

4 2 0 4 8
SCALE IN FEET

REMARKS

1. REFERENCE FRAME TYPE 7 ON DRAWING HA-403.

US Army Corps of Engineers Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.
A	10/14/03	ADDED GLASS TYPES FOR WINDOW TYPE W02	RAJ	ERK

DESIGNED: RAJ
CHECKED: RMB
DATE: OCT 2001
DRAWN: IHC
SUBMITTED:
SCALE: AS SHOWN
PROJECT NO. FY01ACC023011
NORFOLK DISTRICT FILE NO. 711-18-13
SPECIFICATION NO. DACA65-01-R-0025
DRAWING NO. 711-18-13
Last worked on: 10-11-01
File name: \JR3142\ARCH\DESIGN\HANGAR\PRECAST\HA-404.DWG
File scale: 1:1

NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

BURNS & McDONNELL
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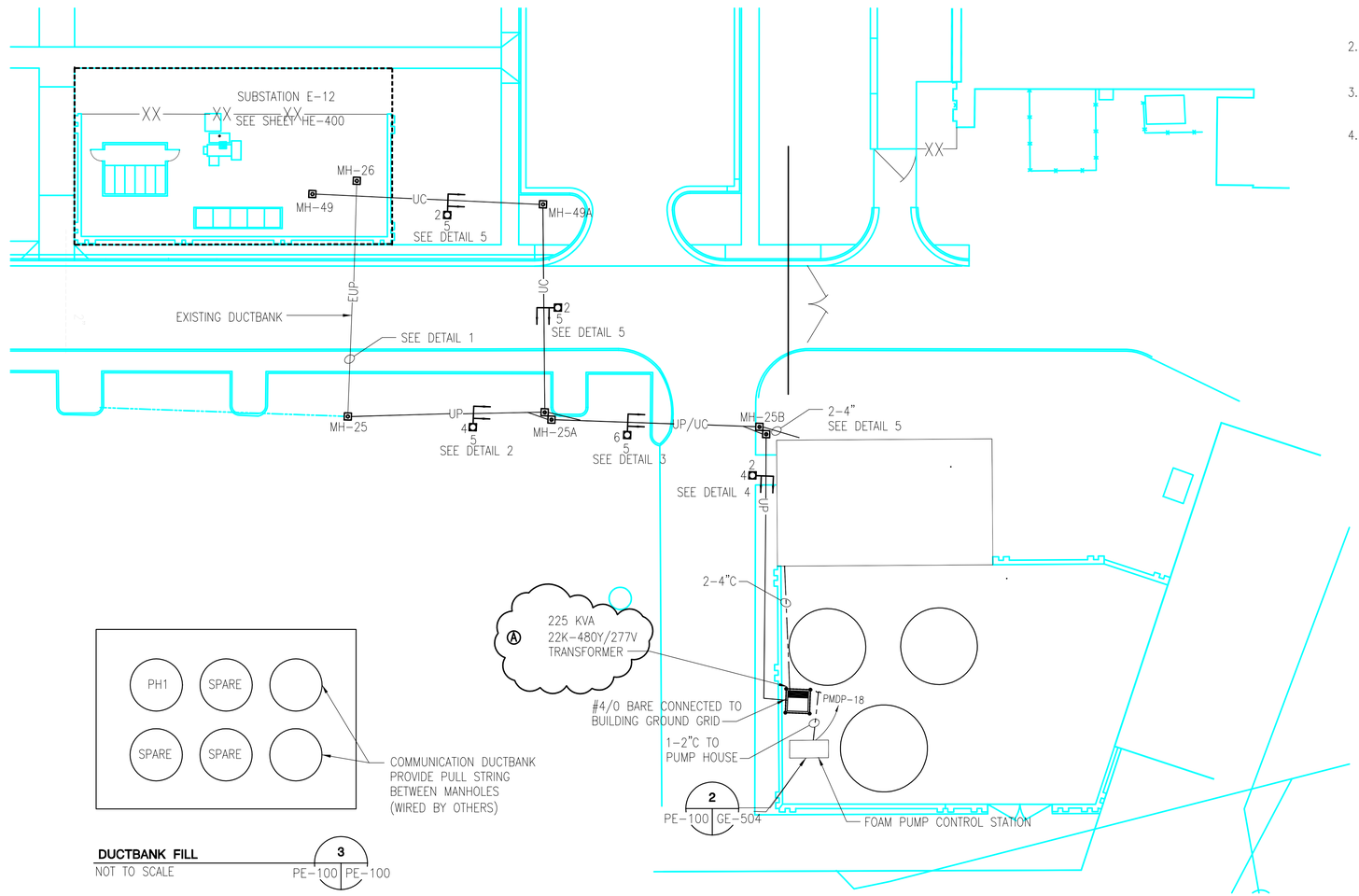
KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA

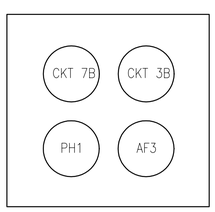
SQUADRON OPERATIONS/AMU HANGAR
WINDOW AND LOUVER TYPES AND SCHEDULE

HA-404
SHEET 190 OF 769



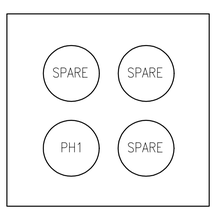
GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY EXISTING UTILITY CONNECTION, POINT LOCATION AND DEPTH, PRIOR TO INSTALLATION AND FIELD ADJUST ROUTES AS REQUIRED FOR ACTUAL LOCATIONS.
2. SEE ONE-LINE DIAGRAMS FOR WIRE SIZE AND QUANTITIES.
3. SEE DRAWING GE-513 FOR DUCTBANK CONSTRUCTION DETAILS.
4. SEE DRAWINGS GE-510 AND GE-511 FOR MANHOLE DETAILS.

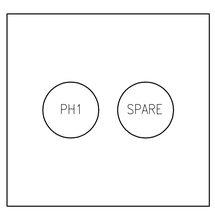


DUCTBANK FILL 1
NOT TO SCALE
PE-100 | PE-100

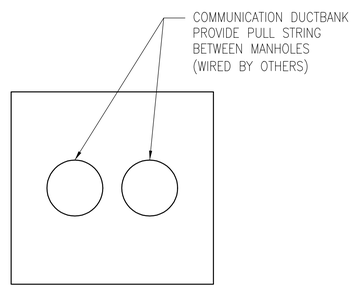
DUCTBANK FILL 3
NOT TO SCALE
PE-100 | PE-100



DUCTBANK FILL 2
NOT TO SCALE
PE-100 | PE-100



DUCTBANK FILL 4
NOT TO SCALE
PE-100 | PE-100



DUCTBANK FILL 5
NOT TO SCALE
PE-100 | PE-100

ELECTRICAL SITE PLAN

20 0 20 40
SCALE IN FEET

FEEDER SCHEDULE	
PH1	4-#4/0 AWG, 35KV
7B	3-#500 KCMIL, 25KV EXISTING
3B	3-#4/0 AWG, 25KV EXISTING
AF3	3-#500 KCMIL, 25KV EXISTING

US Army Corps of Engineers
Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.
A	10/14/20	REVISE TRANSFORMER RATING	SDS	ERK

DESIGNED: SDS
DRAWN: JLP
CHECKED: CWW
SUBMITTED: ERK
DATE: OCT 2001
SCALE: AS SHOWN
PROJECT NO. HACC023012
NORFOLK DISTRICT FILE NO. 11-HACC-1165
SPECIFICATION NO. DACA65-01-R-0025
DRAWING NO. 711-18-13
Last worked on: 10/17/01
File name: 26342/ELEC/PUMP_HSE/HE-1005TLONG
File scale: 1:1

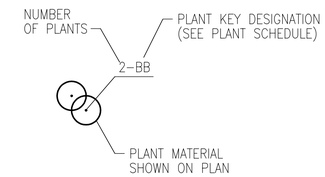
NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

BURNS & McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MISSOURI 64114

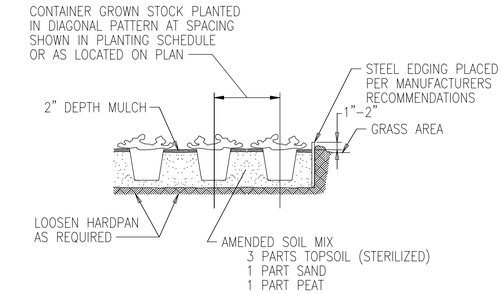
F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA

FIRE PUMP HOUSE
ELECTRICAL SITE PLAN

PE-100
SHEET 108 OF 769



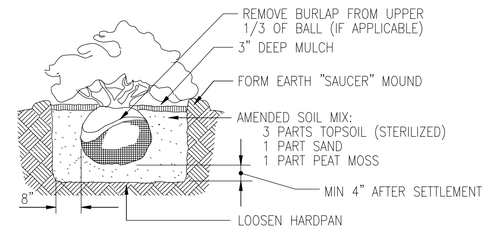
TYPICAL PLANT KEY DETAIL (4)
NOT TO SCALE



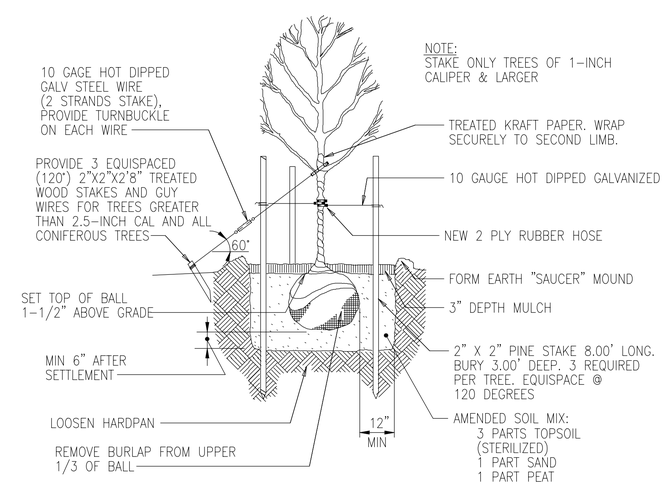
TYPICAL SHRUB/GROUNDCOVER PLANTING BED DETAIL (3)
NOT TO SCALE
LANDSCAPING PLANS — GL-501

LANDSCAPE LEGEND

EXISTING		NEW
	TREE	
	SHRUB	
	PLANTING BED	



TYPICAL SHRUB PLANTING DETAIL (2)
NOT TO SCALE
LANDSCAPING PLANS — GL-501



TYPICAL TREE PLANTING DETAIL (1)
NOT TO SCALE
LANDSCAPE PLANS — GL-501

PLANT KEY - MASTER PLANT SCHEDULE

KEY	NO.	COMMON NAME	BOTANICAL NAME	TYPE	SIZE	SPACING	REMARKS
TREES							
GB	4	GINKO	GINKO BILOBA	B & B	10'-12'	AS SHOWN	2" - 2.5" CAL.
RO	5	RED OAK	QUERCUS RUBRUM	B & B	10'-12'	AS SHOWN	1.5" - 2" CAL.
WH	9	WASHINGTON HAWTHORN	CRATAEGUS PHAENOPYRUM	B & B	8'-10'	AS SHOWN	1.5" - 2" CAL.
WO	14	WILLOW OAK	QUERCUS PHELLOS	B & B	8'-10'	AS SHOWN	2" - 2.5" CAL.
SHRUBS							
AW	177	ANTHONY WATERER SPIREA	SPIREA BUMALDA 'ANTHONY WATERER'	CONTAIN.	3 GAL.	4'-0" O.C.	DWARF VARIETY - WELL FORMED
CP	191	CRIMSON PYGMY' BARBERRY	BERBERIS THUNBERGI 'CRIMSON PYGMY'	CONTAIN.	3 GAL.	3'-0" O.C.	DWARF VARIETY - COMPACT GROWTH
HH	197	HELLER HOLLY	ILEX CRENATA 'HELLERI'	CONTAIN.	3 GAL.	3'-0" O.C.	DENSE/COMPACT GROWTH
WB	244	CARISSA HOLLY	ILEX CORNUTA 'CARISSA'	CONTAIN.	3 GAL.	3'-0" O.C.	DENSE/COMPACT GROWTH

Ⓐ

US Army Corps of Engineers Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.
A	10/14/02	REVISED SHRUB KEYS.	RRB	ERK

DESIGNED: RRB
CHECKED: RMM
DATE: OCT 2001
DRAWN: RSH
SUBMITTED: ERK
SCALE: AS SHOWN
PROJECT NO. 010/01/012 HAC0023
NORFOLK DISTRICT FILE NO. LEAF-2001-11
DRAWING NO. 711-18-13
SPECIFICATION NO. DACA65-01-R-0025
Last worked on: 10-19-01
File name: \JR342\CIVIL\GL-501.DWG
File scale: 1:1

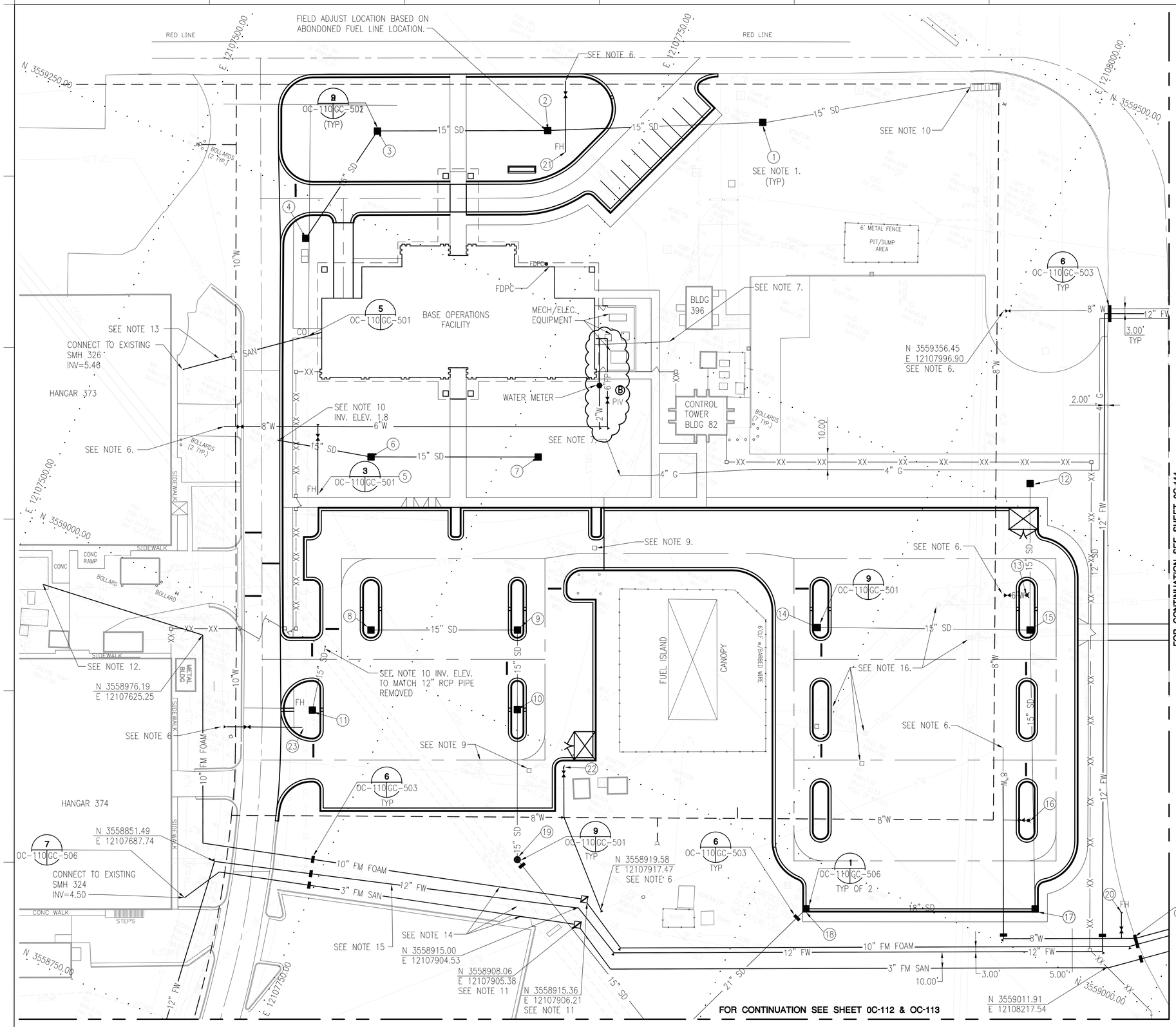
NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

BURNS & McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS/MAINTENANCE FACILITIES
AND UTILITY UPGRADES
LANGLEY AIR FORCE BASE, VIRGINIA

LANDSCAPE DETAILS
SHEET 2 OF 2

GL-501
SHEET 71 OF 769



UTILITY NOTES

1. COORDINATES OF INLETS AND STRUCTURES ARE GIVEN TO STRUCTURE CENTERS. SEE UTILITY STRUCTURES TABLE ON OC-111 FOR COORDINATES LOCATIONS AND SEE STRUCTURES TABLE ON GC-507 FOR RIM AND INVERT ELEVATIONS.
2. CONTRACTOR SHALL FIELD LOCATE ALL EXISTING UTILITIES BEFORE BEGINNING WORK. CONTRACTOR SHALL NOTIFY THE CONTRACTING OFFICER OF ANY DISCREPANCIES BETWEEN THE FIELD LOCATED UTILITIES AND THE UTILITIES SHOWN ON THE PLAN.
3. SEE MECHANICAL DRAWINGS FOR CONTINUATION OF UTILITY LINES INSIDE OF THE BUILDING.
4. TOP OF ALL WATER MAINS SHALL BE A MINIMUM OF 3 FEET BELOW GRADE UNLESS OTHERWISE INDICATED. ALL FIRE WATER MAINS SHALL BE 3.5 FEET BELOW GRADE UNLESS OTHERWISE INDICATED.
5. INSTALL REDUCERS 5 FEET FROM BUILDING ON THE SANITARY SEWER SERVICE LINES. THE REDUCERS MARK THE INTERFACE BETWEEN THE 4" MECHANICAL AND 8" CIVIL SERVICE.
6. INSTALL TEE AND VALVE TO CONNECT WATER LINE TO EXISTING WATER MAIN. COORDINATE WITH CONTRACTING OFFICER AND BASE CIVIL ENGINEERS OFFICE.
7. CONTRACTOR SHALL COORDINATE ALL UTILITY WORK WITH PROPER AUTHORITY. ALL NATURAL GAS LINE WORK TO BE COORDINATED WITH VIRGINIA NATURAL GAS, CONTACT MICHELLE CENTER 757-873-6246. VNG TO COMPLETE ALL WORK ON GAS LINES UP TO BUILDING METER. CONTRACTOR TO PAY ALL FEES AND CONNECTION CHARGES IN REGARD TO NEW GAS SERVICE INCLUDING METER, CONNECTION, AND OTHER ASSOCIATED FEES. NATURAL GAS LINES TO BE SEPARATED A MINIMUM OF 18" HORIZONTALLY AND VERTICALLY FROM ALL BURIED/UNDERGROUND ELECTRICAL LINES.
8. DO NOT CLOSE FLIGHT LINE ROAD COMPLETELY AT ANY TIME DUE TO FIRE TRUCK ACCESS. JACK AND BORE UTILITY PIPES OR OPEN CUT ROAD ONE LANE AT A TIME TO KEEP OPEN TO TRAFFIC. HICKORY ROAD MAY ONLY BE CLOSED FOR A PERIOD OF 5 WORKING DAYS. COORDINATE WITH CONTRACTING OFFICER.
9. CONSTRUCT 30" SQUARE BY 8" THICK CONCRETE PAD AROUND EXISTING MANHOLE COVERS. ADJUST FRAME AND COVER TO MATCH PROPOSED GRADE.
10. BREAKOUT PORTION OF STORM DRAIN STRUCTURE TO INSTALL 15" RCP. GROUT AROUND PIPE TO SEAL OPENING AND PROVIDE WATER TIGHT FIT.
11. INSTALL LOW POINT DRAIN IN A PRECAST VAULT ON UTILITY LINE.
12. CONNECT 10" FM TO SIDE OF TANK AND ROUTE TO THE TOP OF THE TANK. PIPE SHALL BE INSERTED INTO THE TOP OF THE TANK. COORDINATE WITH CONTRACTING OFFICER AND BASE FIRE DEPARTMENT.
13. CONCRETE ENCASE SANITARY LINE FOR 10.00 FEET EACH SIDE OF WATERLINE CROSSINGS.
14. CONCRETE ENCASE UTILITY LINES 5.00' EACH SIDE OF 36" SD PIPES. CONCRETE SHALL BE A MINIMUM OF 6" THICK ON ALL SIDES.
15. CONTRACTOR SHALL WORK WITH EXTREME CAUTION NEAR AND AROUND OVERHEAD POWER LINES AND POLES. CONTRACTOR SHALL FOLLOW ALL FEDERAL, STATE AND LOCAL SAFETY LAWS.
16. CONSTRUCT 30" SQUARE BY 8" THICK CONCRETE PAD AROUND EXISTING FUEL MANHOLE COVERS. ADJUST PROPOSED PAVEMENT GRADES TO MATCH EXISTING MANHOLE RIM ELEVATIONS.

KEYMAP

US Army Corps of Engineers Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.
A	11/26/01	ISSUED FOR SANITARY SEWER LIFT STATION PERMIT		
B	10/14/02	REISSUED DRAWING PER AMENDMENT.	RRB	ERK
		REVISED WATER LINE AT BASE OPERATIONS FACILITY	RRB	ERK
		ISSUED FOR STORMWATER QUALITY & EROSION CONTROL PERMIT		

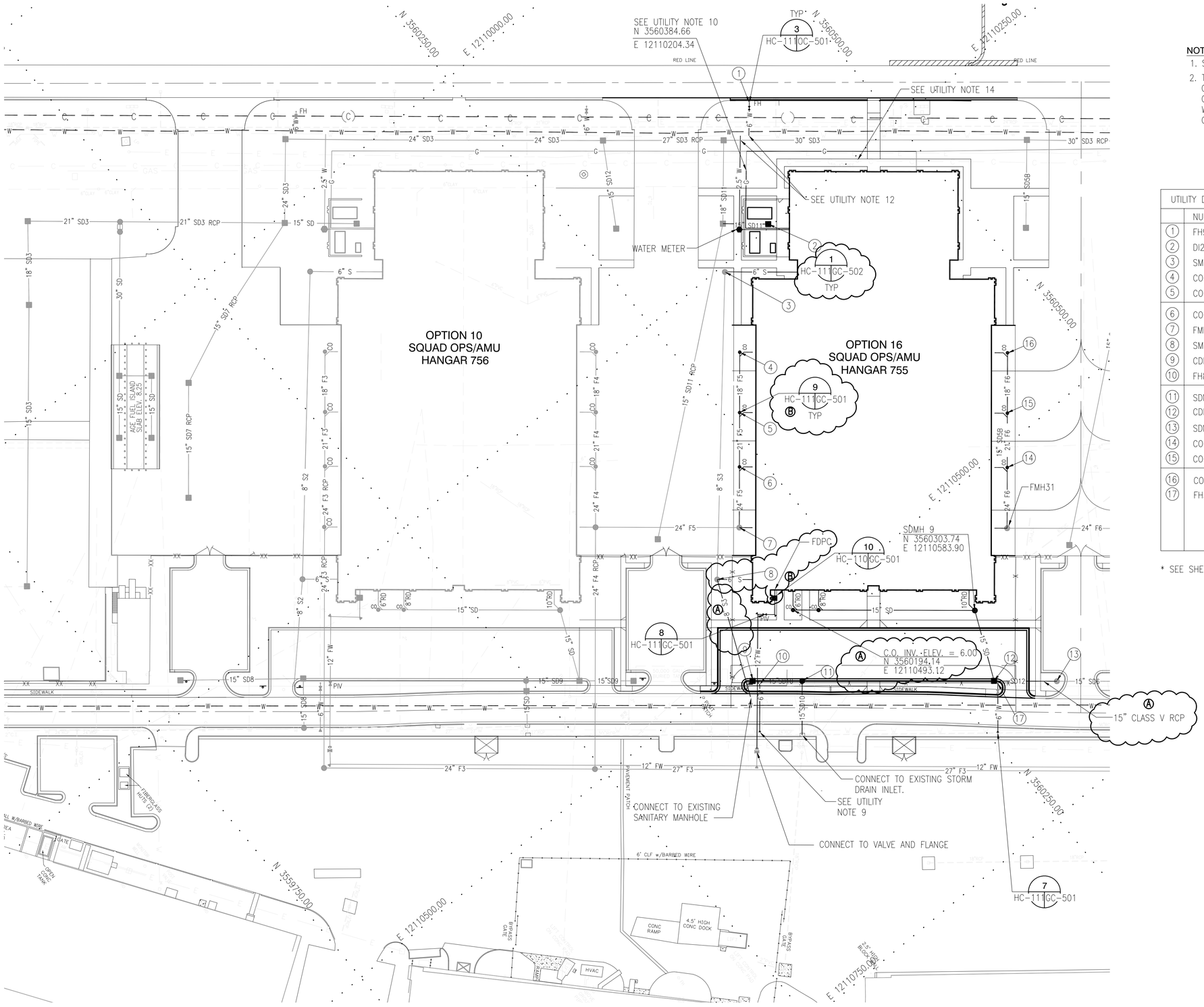
DATE: OCT 2001
SCALE: AS SHOWN
NORFOLK DISTRICT FILE NO. F-22
SPECIFICATION NO. DACA65-01-R-0025
Plot scale: 1:30
CHECKED: RMM
SUBMITTED: ERK
DESIGNED: RBB
DRAWN: RSH
PROJECT NO. FHEC 02-23010/011
DRAWING NO. 711-18-13
Last worked on: 11-30-01
File name: 26342\CIVIL\OC-110UT.DWG

NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

BURNS & McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA
BASE OPERATIONS, LO/CRF, & LIGHTING VAULT
SITE UTILITY PLAN
SHEET 1 OF 4

OC-110
SHEET 49 OF 769



SITE UTILITY PLAN - OPTION 16

40 0 40 80

SCALE IN FEET

NOTES:

1. SEE UTILITY NOTES ON HC-109.
2. THERE ARE ABANDONED FUEL LINES ALONG THE NORTH SIDE OF DANFORTH AVENUE. IF EXCAVATED NOTIFY CONTRACTING OFFICER. PIPE SHALL BE CUT AS NEEDED AND PLUGGED WITH WATER TIGHT SEAL AS DIRECTED BY CONTRACTING OFFICER.

UTILITY DATA CHART (SEE GC-507 FOR RIM & INVERTS)

	NUMBER	NORTH	EAST
1	FH9	N 3560420.39	E 12110164.86
2	DI23	N 3560371.40	E 12110247.59
3	SMH6 (EXIST)	*	*
4	CO-F27	N 3560290.38	E 12110310.80
5	CO-F26	N 3560260.22	E 12110347.22
6	CO-25	N 3560233.09	E 12110379.97
7	FMH24 (EXIST)	*	*
8	SMH5 (EXIST)	*	*
9	CDI3	N 3560134.41	E 12110515.89
10	FH8	N 3560136.91	E 12110521.62
11	SDMH1	N 3560164.30	E 12110540.57
12	CDI4	N 3560280.25	E 12110636.03
13	SDMH2 (EXIST)	*	*
14	CO-30	N 3560394.51	E 12110513.66
15	CO-29	N 3560421.64	E 12110480.90
16	CO-28	N 3560451.80	E 12110444.49
17	FH3	N 3560303.74	E 12110583.90

* SEE SHEET HC-110 FOR UTILITY DATA

US Army Corps of Engineers
Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.
A	11/26/01	ISSUED FOR STORM WATER QUALITY & EROSION CONTROL PERMIT	RRB	ERK
B	10/24/02	REVISED FOR PERMITTING AND REMOVED EXISTING FH. REVISED, REMOVED AND ADDED LABELS.	RRB	ERK

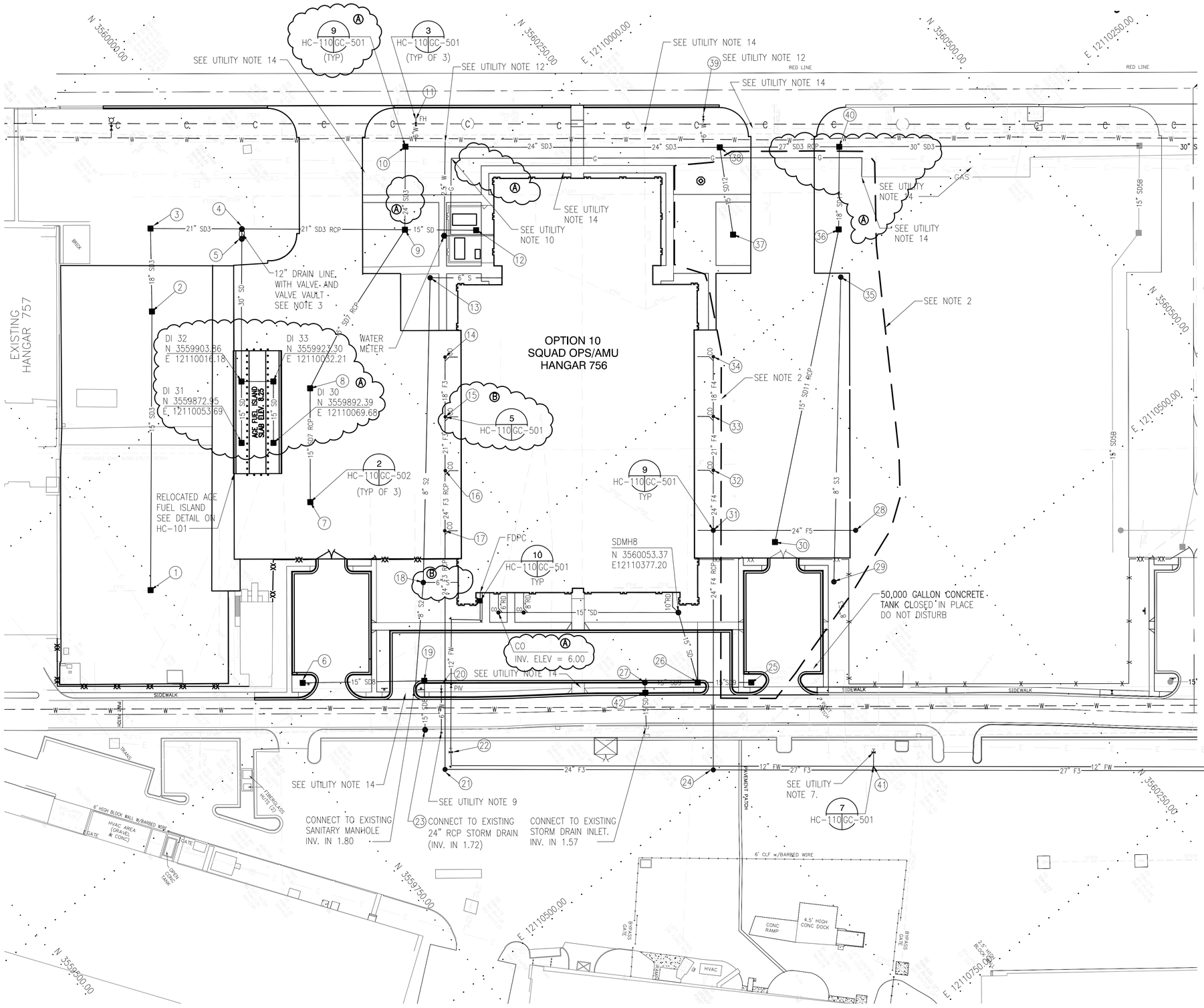
DESIGNED: RRB
CHECKED: RRM
DATE: OCT 2001
DRAWN: RSH
SUBMITTED: ERK
SCALE: AS SHOWN
PROJECT NO. FY01CCO23011
NORFOLK DISTRICT FILE NO. 11-E-2214
SPECIFICATION NO. DACA65-01-R-0025
DRAWING NO. 711-18-13
Last worked on: 11-29-01
File name: 26342/CIVIL/HC-111UT.DWG
File scale: 1:40

NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

BURNS & McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA
SQUADRON OPERATIONS/AMU HANGAR
SITE UTILITY PLAN
OPTION 16

HC-111
SHEET 24 OF 769



UTILITY DATA CHART (SEE GC-507 FOR RIM & INVERTS)			
	NUMBER	NORTH	EAST
1	DI28	N 3559743.28	E 12110097.39
2	DI27	N 3559884.64	E 12109928.38
3	DI26	N 3559925.62	E 12109877.12
4	SDMH4	N 3559981.02	E 12109923.46
5	SDMH5	N 3559975.95	E 12109929.52
6	DI18	N 3559789.11	E 12110230.59
7	DI14	N 3559884.93	E 12110124.34
8	DI15	N 3559884.93	E 12110124.34
9	DI16	N 3560079.95	E 12110006.19
10	DI17	N 3560122.04	E 12109955.91
11	FH5	N 3560142.23	E 12109944.60
12	DI16A	N 3560123.04	E 12110042.40
13	SMH3	N 3560071.04	E 12110048.16
14	CO F-16	N 3560040.14	E 12110103.94
15	CO F-17 (A)	N 3560010.14	E 12110140.48
16	CO F-18	N 3559983.02	E 12110173.24
17	CO F-19	N 3559952.34	E 12110209.56
18	SMH4	N 3559913.19	E 12110230.26
19	CDI1	N 3559864.19	E 12110290.65
20	FH6	N 3559872.27	E 12110301.99
21	FMH15	N 3559832.14	E 12110355.08
22	TEE W/ VALVE	N 3559866.45	E 12110362.24
23	SDMH3	N 3559839.98	E 12110320.91
24	FMH14	N 3559995.27	E 12110490.63
25	DI20	N 3560062.48	E 12110456.54
26	CDI2	N 3560029.87	E 12110429.58
27	SDMH6	N 3559997.59	E 12110402.98
28	FMH24	N 3560202.77	E 12110416.58
29	SMH5	N 3560233.09	E 12110379.97
30	DI21	N 3560147.74	E 12110383.02
31	FMH23	N 3560116.07	E 12110344.77
32	CO-F22	N 3560146.39	E 12110308.16
33	CO-F21	N 3560173.52	E 12110275.41
34	CO-F20	N 3560203.68	E 12110238.99
35	SMH6	N 3560321.41	E 12110254.86
36	DI22	N 3560344.23	E 12110224.76
37	DI24	N 3560277.29	E 12110174.66
38	DI19	N 3560313.22	E 12110114.82
39	FH7	N 3560320.28	E 12110086.01
40	DI25	N 3560386.22	E 12110174.74
41	TEE W/ VALVE	N 3560094.61	E 12110569.29
42	CDI5	N 3559992.75	E 12110409.45

NOTES:

1. SEE UTILITY NOTES ON HC-109.
2. ALL NEW UTILITY WORK SHOWN WITHIN OPTION LIMITS SHALL BE BID AS PART OF OPTION 13. ALL OTHER NEW UTILITY WORK SHOWN SHALL BE BID AS PART OF HANGAR 756-OPTION 10.
3. DRAIN LINE WITH VALVE IS FOR CONTROLLING FUEL SPILLS. VALVE SHALL NORMALLY BE OPEN EXCEPT DURING FUELING OPERATIONS, THEN THE VALVE SHALL BE CLOSED. UPON COMPLETION OF FUELING OPERATION THE VALVE SHALL BE OPENED TO ALLOW STORM WATER TO DRAIN.
4. SEE GC-507 FOR UTILITY STRUCTURES TABLES WITH INVERT AND RIM ELEVATIONS.

SITE UTILITY PLAN - OPTIONS 10 & 13

40 0 40 80
SCALE IN FEET

US Army Corps of Engineers
Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.
A	11/16/01	ISSUED FOR STORM WATER QUALITY & EROSION CONTROL PERMIT	RRB	ERK
B	10/14/02	REVISED FOR PERMITTING	RRB	ERK
		ADDED UTILITY LABEL AND DETAIL CALL OUT.		

DESIGNED: RRB
CHECKED: RRM
DRAWN: RSH
SUBMITTED: ERK
DATE: OCT 2001
SCALE: AS SHOWN
PROJECT NO. FACC023011
NORFOLK DISTRICT FILE NO. 711-F22-13
SPECIFICATION NO. DACA65-01-R-0025
DRAWING NO. 711-18-13
Plot scale: 1:40
Last worked on: 11-29-01
File name: /26342/CIVIL/HC-110UT.DWG

NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

BURNS & McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA
SQUADRON OPERATIONS/AMU HANGAR
SITE UTILITY PLAN
OPTIONS 10 & 13

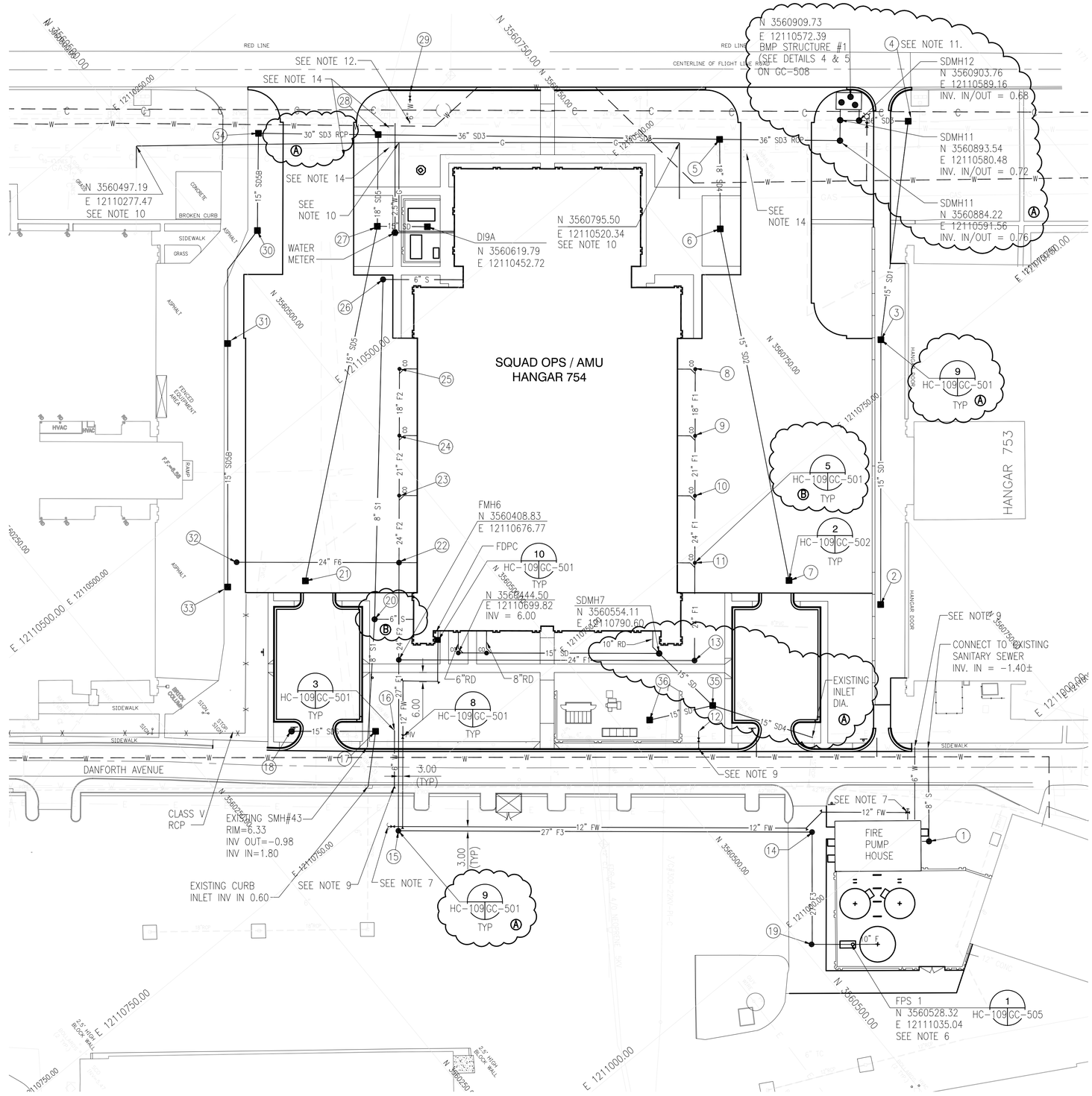
HC-110
SHEET 23 OF 769

UTILITY NOTES

1. COORDINATES OF INLETS OR STRUCTURES ARE GIVEN TO STRUCTURE CENTERS. ALL DIMENSIONS ARE IN FEET UNLESS NOTED OTHERWISE.
2. CONTRACTOR SHALL FIELD LOCATE ALL EXISTING UTILITIES BEFORE BEGINNING WORK. CONTRACTOR SHALL NOTIFY THE CONTRACTING OFFICER OF ANY DISCREPANCIES BETWEEN THE FIELD LOCATED UTILITIES AND THE UTILITIES SHOWN ON THE PLAN.
3. SEE MECHANICAL DRAWINGS FOR CONTINUATION OF UTILITY LINES INSIDE OF THE BUILDING.
4. ALL WATER MAINS SHALL BE A MINIMUM OF 3 FEET BELOW GRADE UNLESS OTHERWISE INDICATED. ALL FIRE WATER MAINS SHALL BE 3.5' BELOW GRADE UNLESS INDICATED OTHERWISE.
5. INSTALL REDUCERS 5 FEET FROM BUILDING ON THE SANITARY SEWER SERVICE LINES. THE REDUCERS MARK THE INTERFACE BETWEEN THE 4" MECHANICAL AND 6" CIVIL SERVICE.
6. FOAM PUMP STATION 1 SHALL NOT BE ACTIVATED UNLESS FIRE ALARM SYSTEM IN ANY HANGAR IS ACTIVATED. THE ELECTRICAL POWER SUPPLY TO THE PUMPS WILL BE RUN THROUGH THE FIRE PUMP HOUSE CONTROLS. IN THE EVENT OF A FIRE ALARM ACTIVATION IN ANY HANGAR BAY, POWER WILL BE SUPPLIED TO THE PUMP STATION AND THE FLOAT CONTROLS IN THE VAULT WILL THEN ACTIVATE THE PUMPS. IN THE EVENT OF A FLUID SPILL IN THE HANGAR BAY, THE FLUID WILL BE CONTAINED IN THE PUMP STATION VAULT AND SHALL BE PUMPED OUT MANUALLY THROUGH THE ACCESS HATCH. SEE SPECIFICATIONS AND ELECTRICAL CONTROLS FOR MORE DETAILS.
7. INSTALL FOAM MANHOLE OR VALVE VAULT, VALVE, AND BLIND FLANGE FOR FUTURE CONNECTION OF OTHER HANGAR FACILITIES.
8. THERE ARE ABANDONED FUEL LINES ALONG THE NORTH SIDE OF DANFORTH AVENUE. IF EXCAVATED NOTIFY CONTRACTING OFFICER. PIPE SHALL BE CUT AS NEEDED AND PLUGGED WITH WATER TIGHT SEAL AS DIRECTED BY CONTRACTING OFFICER.
9. CONNECT TO TEE AND VALVE ON EXISTING WATER MAIN. COORDINATE WITH CONTRACTING OFFICER AND BASE CIVIL ENGINEERING OFFICE.
10. VIRGINIA NATURAL GAS TO PERFORM ALL WORK ON GAS LINES UP TO BUILDING METER. CONTRACTOR SHALL COORDINATE AND PAY ALL FEES AND CONNECTION CHARGES IN REGARD TO NEW GAS SERVICE, INCLUDING METER, CONNECTION, AND OTHER ASSOCIATED FEES FOR GAS SERVICE. COORDINATE WITH VIRGINIA NATURAL GAS AND BASE CIVIL ENGINEERS OFFICE. AN 18" SEPERATION IS REQUIRED BETWEEN NATURAL GAS SERVICE LINES AND BURIED ELECTRICAL LINES BOTH HORIZONTALLY AND VERTICALLY. CONTACT MICHELLE CENTER AT 757-873-6246 FOR V.N.G.
11. CONNECTION TO EXISTING 24" DOWNSTREAM RCP IS TEMPORARY UNTIL STORM DRAIN LINE IS REPLACED IN THE FUTURE.
12. CONNECT DOMESTIC WATER TO TEE AND VALVE ON EXISTING WATER MAIN. COORDINATE WITH CONTRACTING OFFICER AND BASE CIVIL ENGINEERING OFFICE.
13. SEE UTILITY STRUCTURES TABLE ON DRAWING GC-507.
14. ADJUST MANHOLE FRAME AND TOP TO NEW PROPOSED GRADE. STRUCTURES IN AIRFIELD PAVEMENTS SHALL BE AIRCRAFT RATED FOR TRAFFIC LOAD OF 30,000 LBS SINGLE WHEEL LOAD AND A CONTACT PRESSURE OF 292 PSI AND A CONTACT AREA OF 102 SQUARE INCHES. CONTRACTOR SHALL SUBMIT STRUCTURAL DRAWINGS, DESIGN CALCULATIONS, AND WATERPROOFING METHOD, BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF VIRGINIA, FOR APPROVAL.

UTILITY DATA CHART (SEE GC-507 FOR RIM & INVERTS)

	NUMBER	NORTH	EAST
1	SMH9	N 3560616.91	E 12111015.09
2	DI1	N 3560697.26	E 12110863.71
3	DI2	N 3560816.80	E 12110718.92
4	DI3	N 3560930.28	E 12110611.69
5	DI4	N 3560818.96	E 12110536.65
6	DI5	N 3560778.96	E 12110585.91
7	DI6	N 3560658.01	E 12110809.25
8	CO-F1	N 3560702.08	E 12110650.71
9	CO-F2	N 3560671.88	E 12110687.76
10	CO-F3	N 3560644.75	E 12110720.51
11	CO-F4	N 3560614.43	E 12110757.12
12	FH1	N 3560540.49	E 12110851.10
13	FMH5	N 3560570.25	E 12110810.46
14	FMH12	N 3560557.14	E 12110957.27
15	FMH7	N 3560331.54	E 12110770.08
16	FH2	N 3560374.54	E 12110713.54
17	DI7	N 3560363.93	E 12110705.41
18	SDMH2	N 3560318.01	E 12110667.51
19	FMH13	N 3560506.25	E 12111018.43
20	SMH1	N 3560413.93	E 12110643.65
21	DI8	N 3560393.40	E 12110591.46
22	FMH11	N 3560452.81	E 12110623.67
23	CO-F10	N 3560483.14	E 12110587.06
24	CO-F9	N 3560510.26	E 12110554.31
25	CO-F8	N 3560540.42	E 12110517.89
26	SMH2	N 3560571.78	E 12110461.56
27	DI9	N 3560592.63	E 12110429.90
28	DI10	N 3560634.46	E 12110380.11
29	FH4	N 3560670.76	E 12110371.56
30	DI11	N 3560525.05	E 12110378.40
31	DI12	N 3560457.94	E 12110426.57
32	FMH31	N 3560364.19	E 12110550.27
33	DI12A	N 3560348.16	E 12110559.82
34	DI13	N 3560569.54	E 12110325.47
35	DI29	N 3560559.88	E 12110843.23
36	DI34	N 3560518.88	E 12110822.78



US Army Corps of Engineers
Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.
A	11/26/01	ISSUED FOR STORM WATER QUALITY & EROSION CONTROL PERMIT	RRB	ERK
B	01/14/02	REVISED FOR PERMITTING, REVISED & ADDED LABELS.	RRB	ERK
		REVISED & ADDED LABELS.		

DESIGNED: RRB
CHECKED: RRM
DRAWN: RSH
SUBMITTED: ERK
DATE: OCT 2001
SCALE: AS SHOWN
PROJECT NO. H4102301/012
NORFOLK DISTRICT FILE NO. LF-E2-22
DRAWING NO. 711-18-13
SPECIFICATION NO. DACA65-01-R-0025
Last worked on: 11-28-01
File name: 26342/CIVIL/MC-109UT.DWG
Plot scale: 1:40

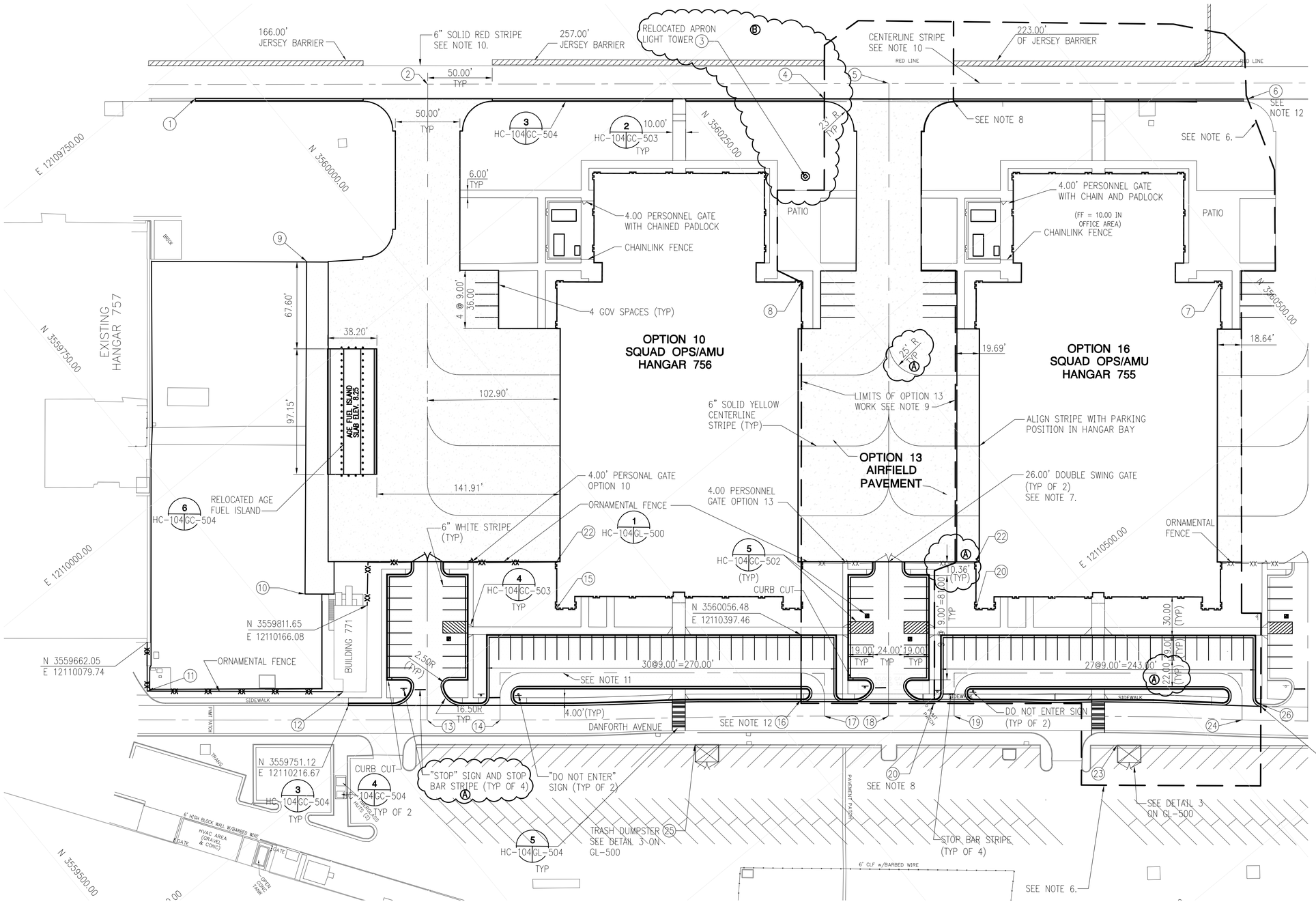
NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

BURNS & McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA
SQUAD OPS, AMU HANGAR, & PUMP HOUSE
SITE UTILITY PLAN

HC-109
SHEET 22 OF 769

HC-109UT.dwg 01-14-2002 13:25 RSH



NOTES:

1. ALL COORDINATES AND DIMENSIONS ARE TO EXTERIOR CORNER OF BUILDING SLAB, FACE OF CURB, OR EDGE OF PAVEMENT AND ARE IN FEET UNLESS NOTED OTHERWISE
2. SIDEWALKS AT BUILDING DOORS ARE CENTERED ON DOOR STOOP. SEE STRUCTURAL AND ARCHITECTURAL SHEETS. ALL SIDEWALKS THAT ADJOIN CURB AND GUTTER SHALL HAVE HANDICAP RAMPS INSTALLED PER DETAILS ON GC-503.
3. SEE SHEET HC-005 FOR HORIZONTAL AND VERTICAL CONTROL POINTS. SEE SHEET HC-001 FOR CIVIL LEGEND.
4. SEE ARCHITECTURAL PLAN FOR SIDEWALK JOINTING LAYOUT. ALL SIDEWALKS THAT ADJOIN CURB AND GUTTER SHALL HAVE HANDICAP RAMPS INSTALLED PER DETAILS ON GC-503.
5. CONTRACTOR SHALL REINFORCE ALL CONCRETE PANELS THAT HAVE MANHOLES, (A) CLEANOUTS, GUARD POSTS, OR ARE IRREGULAR IN SHAPE AS INDICATED ON HC-113 AND HC-114 OR AS DIRECTED BY CONTRACTING OFFICER.
6. ALL WORK NOTED WITHIN BOUNDARY SHALL BE BID AS PART OF HANGAR 755 – OPTION 16.
7. ALL VEHICLE ACCESS GATES SHALL BE PROVIDED WITH CHAIN AND PADLOCK PER SPECIFICATIONS.
8. MATCHLINE BETWEEN OPTION 13 AND OPTION 16 CURB AND GUTTER AND SIDEWALK.
9. ALL WORK WITHIN BOUNDARY SHALL BE BID AS PART OF OPTION 13.
10. CONTRACTOR SHALL RESTRIPE REDLINE AND FLIGHTLINE ROAD CENTERLINE AS INDICATED UPON COMPLETION OF CONSTRUCTION AND REMOVAL OF TEMPORARY BARRIER AND FOD FENCE.
11. ROAD CENTERLINE STRIPE 6" YELLOW DASHED, 10.00' LONG AND 25.00' O.C.
12. MATCHLINE BETWEEN BASE BID AND OPTION 16 CURB AND GUTTER AND SIDEWALK CONSTRUCTION.

COORDINATE TABLE

	NORTH	EAST		NORTH	EAST		NORTH	EAST		NORTH	EAST		NORTH	EAST
1	N 3559958.62	E 12109778.64	6	N 3560587.08	E 12110297.34	11	N 3559638.00	E 12110108.87	16	N 3560022.74	E 12110438.32	21	N 3560173.92	E 12110467.77
2	N 3560104.49	E 12109884.55	7	N 3560480.82	E 12110393.68	12	N 3559754.66	E 12110205.91	17	N 3560030.28	E 12110457.39	22	N 3560196.85	E 12110439.99
3	N 3560284.48	E 12110126.29	8	N 3560230.32	E 12110186.88	13	N 3559791.19	E 12110264.04	18	N 3560068.67	E 12110488.95	23	N 3560191.12	E 12110618.93
4	N 3560334.32	E 12110088.63	9	N 3559944.85	E 12109930.85	14	N 3559834.68	E 12110299.93	19	N 3560107.92	E 12110521.28	24	N 3560278.08	E 12110665.43
5	N 3560380.38	E 12110111.38	10	N 3559780.11	E 12110128.71	15	N 3559923.55	E 12110261.07	20	N 3560101.97	E 12110503.73	25	N 3559939.08	E 12110410.65
												26	N 3560297.13	E 12110665.66

SITE LAYOUT PLAN - OPTION 10, 13 & 16

40 0 40 80

SCALE IN FEET

US Army Corps of Engineers Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.
A	11/20/01	REVISED AND ADDED DIMENSIONS, REVISED NOTES.	RRB	ERK
B	10/14/02	REVISED OPTION 13 LIMITS.	RRB	ERK

DESIGNED: RRB
CHECKED: RMM
DATE: OCT 2001
DRAWN: RSH
SUBMITTED: ERK
SCALE: AS SHOWN
PROJECT NO. ACC023011
NORFOLK DISTRICT FILE NO. 711-18-13
SPECIFICATION NO. DACA65-01-R-0025
Last worked on: 11-28-01
File name: \JOB342\CIVIL\HC-104ST.DWG
File scale: 1:40

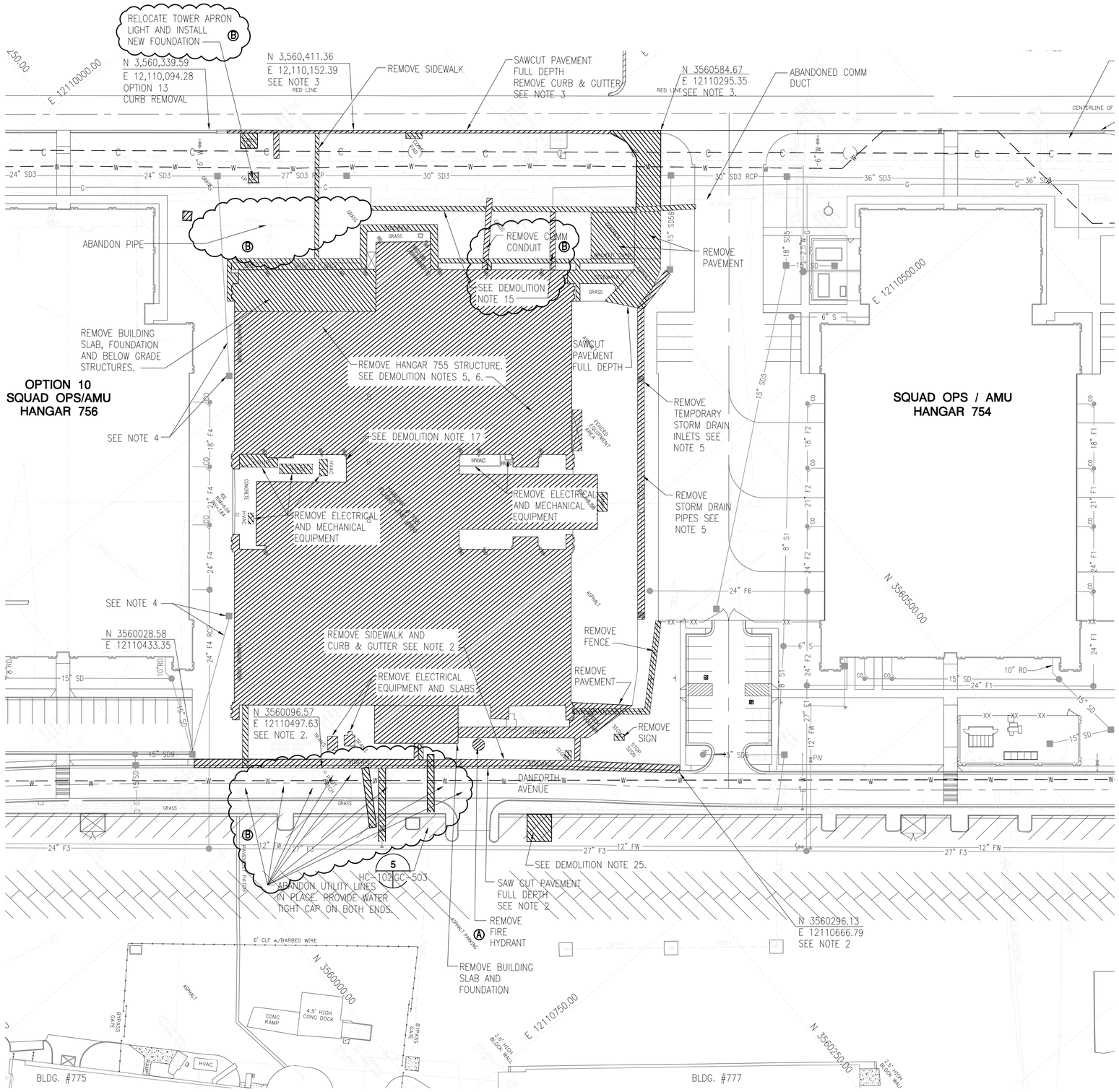
NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

BURNS & McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA

SQUADRON OPERATIONS/AMU HANGAR
SITE LAYOUT PLAN
OPTIONS 10, 13 & 16

HC-104
SHEET 17 OF 769



NOTES:

1. SEE DEMOLITION NOTES ON HC-100.
2. SIDEWALK AND CURB AND GUTTER ALONG NORTH SIDE OF DANFORTH AVENUE BETWEEN POINTS NOTED SHALL BE REMOVED UNDER OPTION 16.
3. CURB AND GUTTER ALONG SOUTH SIDE OF FLIGHTLINE ROAD BETWEEN POINTS NOTED SHALL BE REMOVED UNDER OPTION 16.
4. REMOVE TEMPORARY STORM DRAIN PIPES AND INLETS.
5. REMOVE TEMPORARY STORM DRAINS, PIPES, AND INLET UNDER BID ITEM OPTION 16.

SITE DEMOLITION PLAN - OPTION 13

40 0 40 80
SCALE IN FEET

US Army Corps of Engineers
Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.
A	11/20/01	REMOVED EXISTING FIRE HYDRANT	RRB	ERK
B	10/14/02	REVISED DEMO HATCHING, ADDED AND REVISED NOTES.	RRB	ERK

DESIGNED: RRB
CHECKED: RRM
DRAWN: RSH
SUBMITTED: ERK
DATE: OCT 2001
SCALE: AS SHOWN
PROJECT NO. 711-18-13
NORFOLK DISTRICT FILE NO. LEA-C2-15
SPECIFICATION NO. DACA65-01-R-0025
DRAWING NO. 711-18-13
Last worked on: 11-27-01
File name: \DR342\CIVIL\ HC-100DM.DWG
Plot scale: 1:40

NORFOLK DISTRICT
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

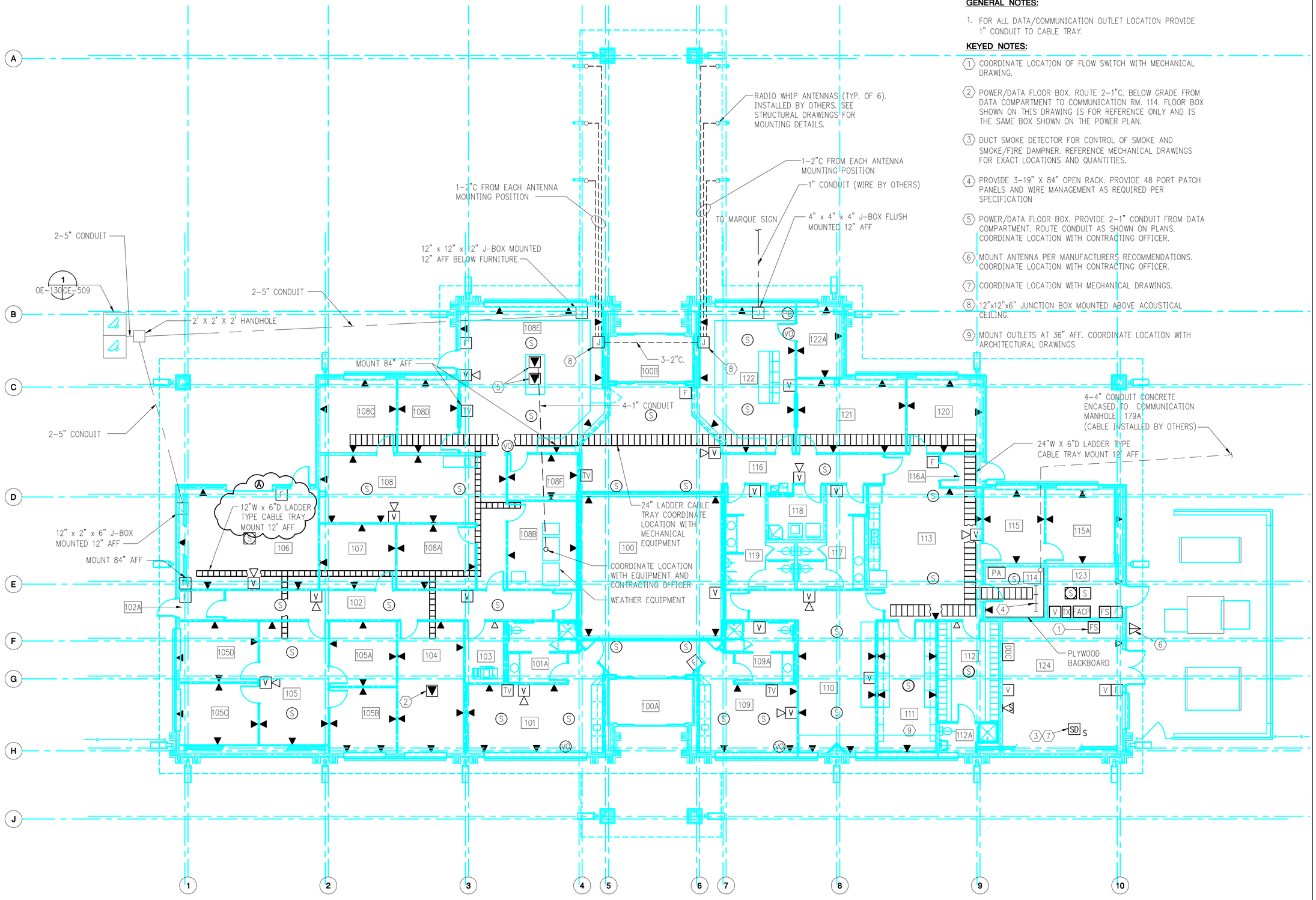
BURNS & McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MISSOURI 64114

F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA

SQUADRON OPERATIONS/AMU HANGAR
SITE DEMOLITION PLAN
OPTION 13

HC-102
SHEET 15 OF 769

HC-102DM.dwg 11-27-2001 13:44 RSH



FIRE ALARM & COMMUNICATION PLAN

SCALE IN FEET

GENERAL NOTES:

1. FOR ALL DATA/COMMUNICATION OUTLET LOCATION PROVIDE 1" CONDUIT TO CABLE TRAY.

KEYED NOTES:

1. COORDINATE LOCATION OF FLOW SWITCH WITH MECHANICAL DRAWING.
2. POWER/DATA FLOOR BOX. ROUTE 2-1"C. BELOW GRADE FROM DATA COMPARTMENT TO COMMUNICATION RM. 114. FLOOR BOX SHOWN ON THIS DRAWING IS FOR REFERENCE ONLY AND IS THE SAME BOX SHOWN ON THE POWER PLAN.
3. DUCT SMOKE DETECTOR FOR CONTROL OF SMOKE AND SMOKE/FIRE DAMPNER. REFERENCE MECHANICAL DRAWINGS FOR EXACT LOCATIONS AND QUANTITIES.
4. PROVIDE 3-19" X 84" OPEN RACK. PROVIDE 48 PORT PATCH PANELS AND WIRE MANAGEMENT AS REQUIRED PER SPECIFICATION
5. POWER/DATA FLOOR BOX. PROVIDE 2-1" CONDUIT FROM DATA COMPARTMENT. ROUTE CONDUIT AS SHOWN ON PLANS. COORDINATE LOCATION WITH CONTRACTING OFFICER.
6. MOUNT ANTENNA PER MANUFACTURERS RECOMMENDATIONS. COORDINATE LOCATION WITH CONTRACTING OFFICER.
7. COORDINATE LOCATION WITH MECHANICAL DRAWINGS.
8. 12"x12"x6" JUNCTION BOX MOUNTED ABOVE ACOUSTICAL CEILING.
9. MOUNT OUTLETS AT 36" AFF. COORDINATE LOCATION WITH ARCHITECTURAL DRAWINGS.

US Army Corps of Engineers
Norfolk District

REV.	DATE	DESCRIPTION	BY	APP.
A	10/14/03	REVISE CABLE TRAY SIZE	SDS	ERK

DESIGNED: SDS
DRAWN: JLP
CHECKED: CWW
SUBMITTED: ERK
DATE: OCT 2001
SCALE: AS SHOWN
PROJECT NO. ACC023011
NORFOLK DISTRICT FILE NO. LEC-24114
SPECIFICATION NO. DACA65-01-R-0025
DRAWING NO. 711-18-13
Last worked on: 10/17/01
File name: \JB342\LEC\BASEOPS\OE-130CD.dwg
File scale: 1:1

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F-22 OPERATIONS AND MAINTENANCE FACILITIES
LANGLEY AIR FORCE BASE, VIRGINIA
BASE OPERATIONS FACILITY
FIRE ALARM AND COMMUNICATION PLAN

OE-130
SHEET614 OF 769