

PROJECT LOCATION:
MAXWELL AFB
MONTGOMERY, ALABAMA

PROJECT TITLE:
REPLACE CHILLER B1095

PROJECT NUMBER:
PNQS 23-4685

PRINTED NAME	APPROVED-SIGNATURE	
PRINTED NAME	APPROVED-SIGNATURE	42 CES/DM
PRINTED NAME	APPROVED-SIGNATURE	ENGINEERING CHIEF
PRINTED NAME	APPROVED-SIGNATURE	OPERATIONS
PRINTED NAME	APPROVED-SIGNATURE	ASSET MANAGER
PRINTED NAME	APPROVED-SIGNATURE	ENVIRONMENTAL
PRINTED NAME	APPROVED-SIGNATURE	COMMUNICATIONS
PRINTED NAME	APPROVED-SIGNATURE	PROGRAMMING
PRINTED NAME	APPROVED-SIGNATURE	FIRE DEPARTMENT
PRINTED NAME	APPROVED-SIGNATURE	ANTI-TERRORISM
PRINTED NAME	APPROVED-SIGNATURE	SECURITY ENGINEER
PRINTED NAME	APPROVED-SIGNATURE	SAFETY
PRINTED NAME	APPROVED-SIGNATURE	BIO-ENVIRONMENTAL
PRINTED NAME	APPROVED-SIGNATURE	SECURITY FORCES
PRINTED NAME	APPROVED-SIGNATURE	USING AGENCY



Symbol	Description	Date	Approved

INDEX OF DRAWINGS

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42 CES/CEN
 MAXWELL AFB, ALABAMA 36112

PNQS 23-4685

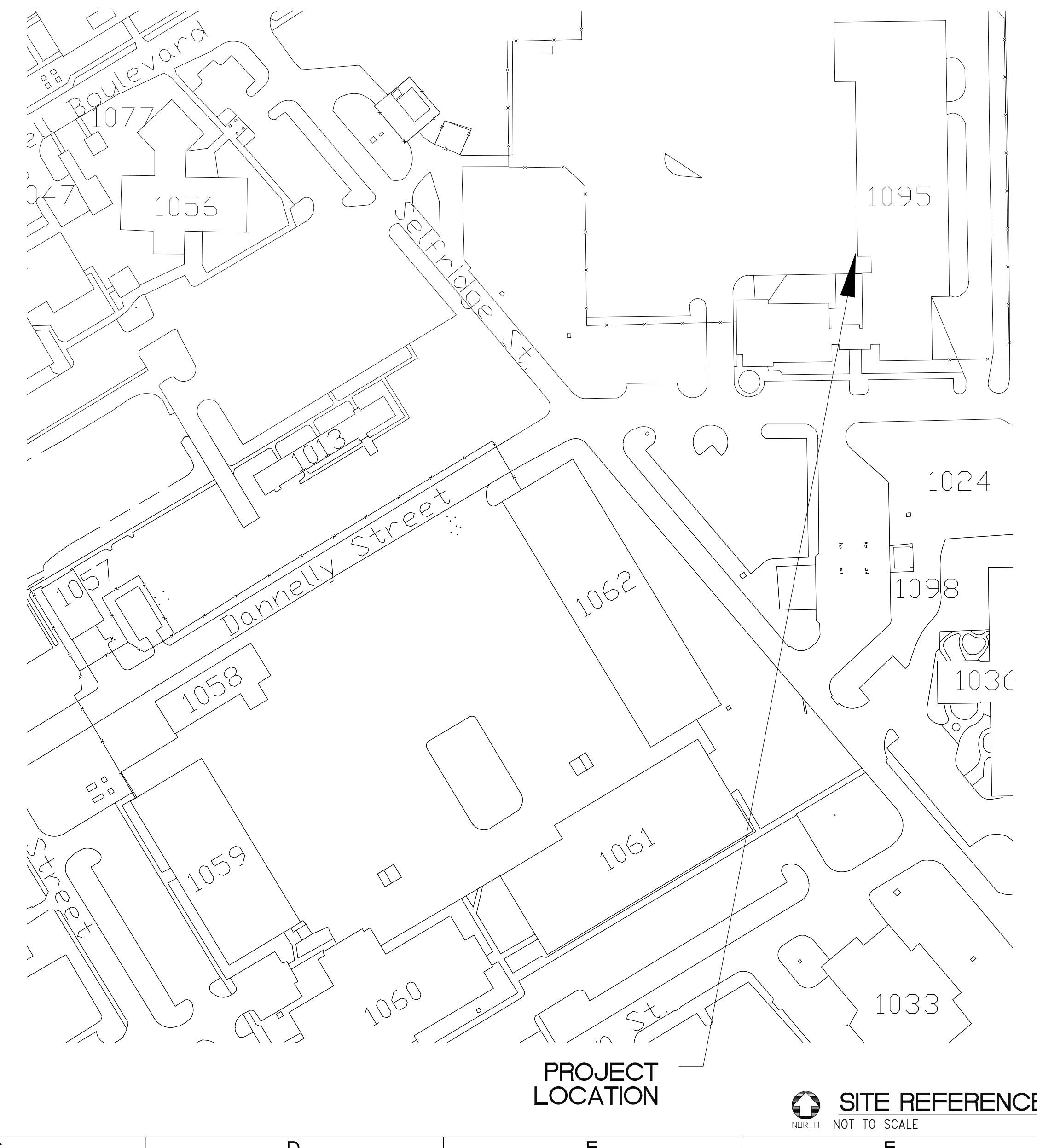
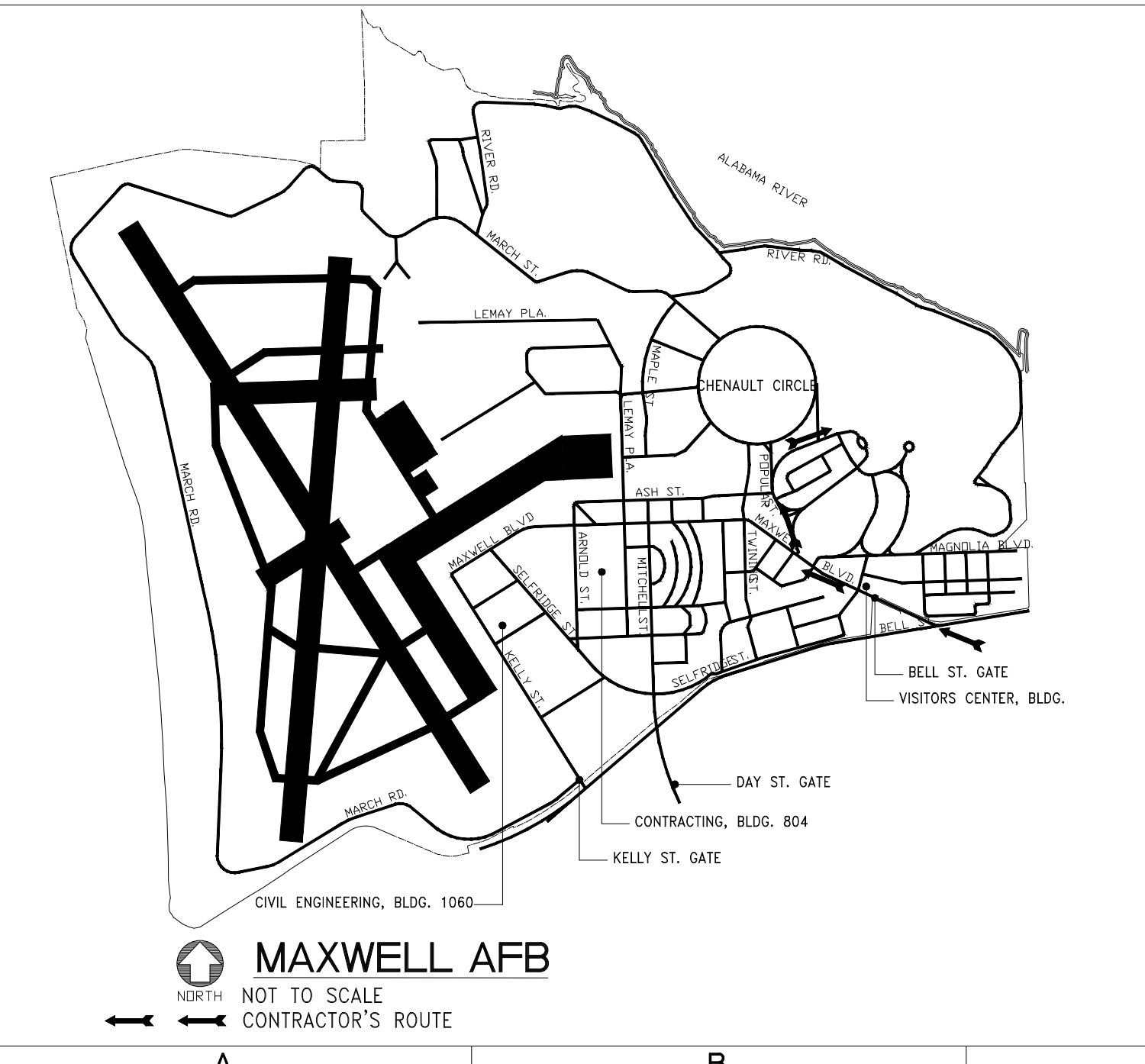
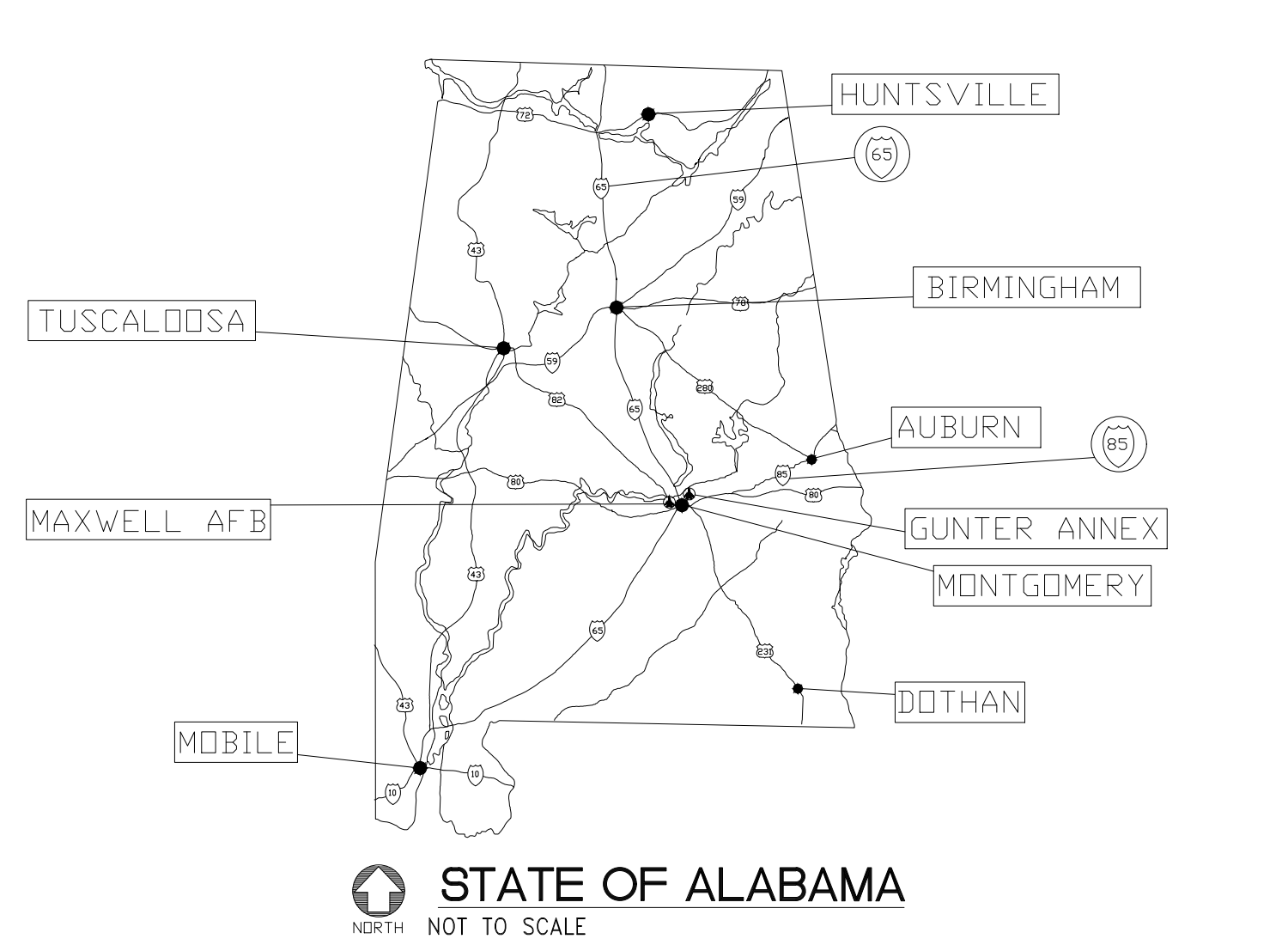
GENERAL NOTE

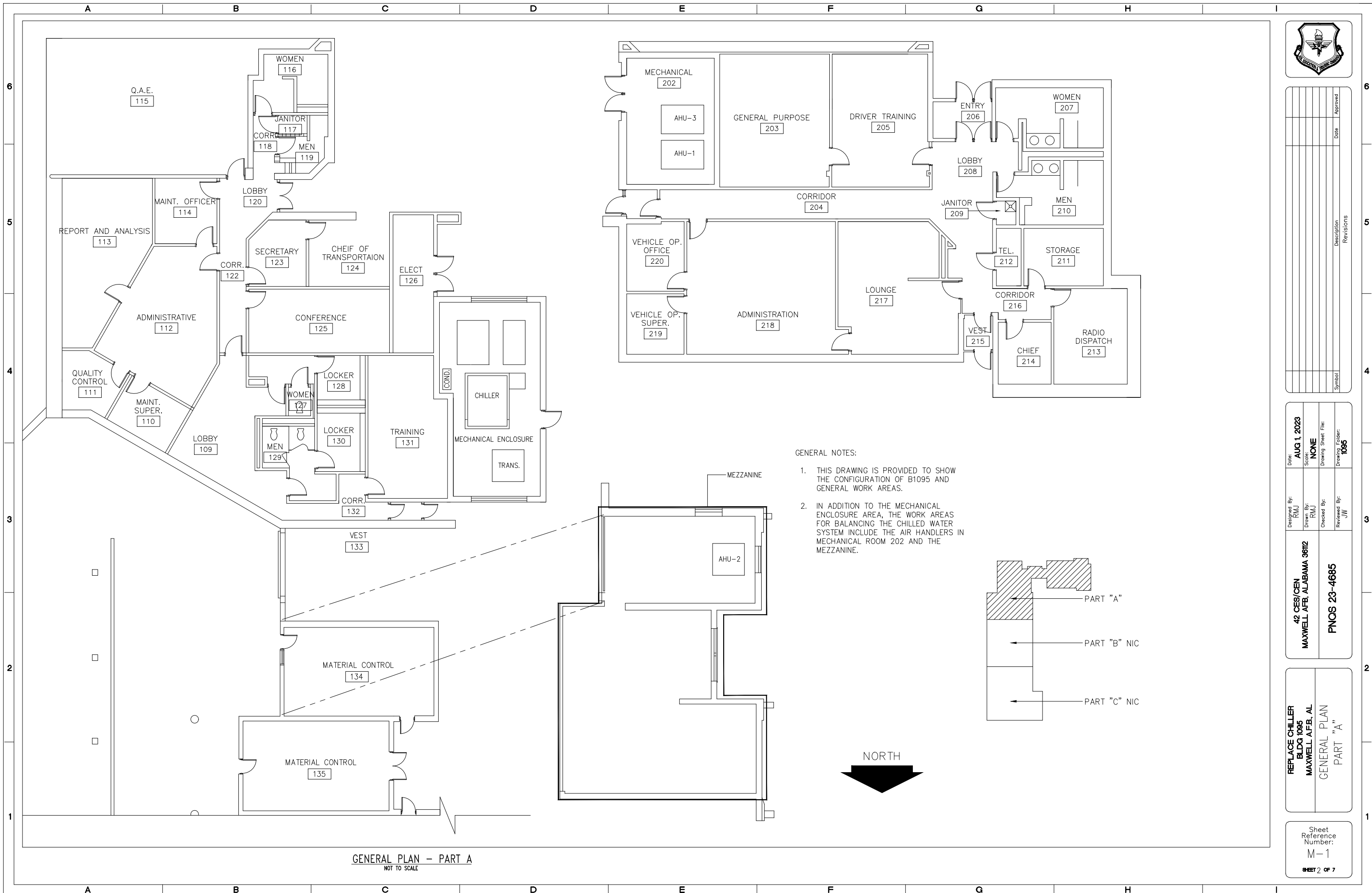
THESE DRAWINGS ARE DIAGRAMMATIC AND ARE NOT INTENDED TO BE SCALED. ALL MATERIAL TAKE-OFF IS TO BE ACCOMPLISHED USING THE DIMENSIONS INDICATED. SYMBOLS USED ON THESE DRAWINGS FOR VARIOUS EQUIPMENT AND DEVICES ARE NOT INTENDED TO INDICATE THE ACTUAL SIZE OF THE EQUIPMENT OR DEVICE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSURE THAT THE EQUIPMENT AND DEVICES APPROVED THRU THE SUBMITTAL PROCESS AS EQUALS TO THAT SPECIFIED HAVE THE APPROPRIATE CLEARANCES FOR INSTALLATION AND MAINTENANCE. IF A CONFLICT EXISTS, THE CONTRACTOR IS RESPONSIBLE FOR CALLING ATTENTION TO, DESCRIBING, AND REQUESTING GUIDANCE FOR THE CORRECTION OF THE CONFLICT IN WRITING TO THE CONTRACTING OFFICER.

- X THIS FACILITY CONTAINS NO KNOWN OR SUSPECTED ASBESTOS OR LBP.
- THIS FACILITY CONTAINS ___ ASBESTOS AND/OR ___ LBP THAT WILL BE REMOVED BY THE AIR FORCE.
- THIS FACILITY CONTAINS ___ ASBESTOS AND/OR ___ LBP THAT WILL NOT BE REMOVED UNDER THIS CONTRACT.
- THIS FACILITY CONTAINS ___ ASBESTOS AND/OR ___ LBP THAT WILL BE REMOVED UNDER A SEPARATE CONTRACT.

REPLACE CHILLER
 BLDG 1095
 MAXWELL AFB, AL
 TITLE SHEET,
 LOCATION, AND
 VICINITY PLANS

Sheet Reference Number:
 T-1
 SHEET 1 OF 7

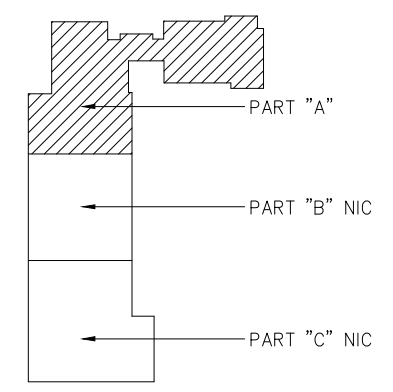




GENERAL PLAN - PART A
NOT TO SCALE

GENERAL NOTES:

1. THIS DRAWING IS PROVIDED TO SHOW THE CONFIGURATION OF B1095 AND GENERAL WORK AREAS.
2. IN ADDITION TO THE MECHANICAL ENCLOSURE AREA, THE WORK AREAS FOR BALANCING THE CHILLED WATER SYSTEM INCLUDE THE AIR HANDLERS IN MECHANICAL ROOM 202 AND THE MEZZANINE.



Symbol	Description	Revisions	Date	Approved

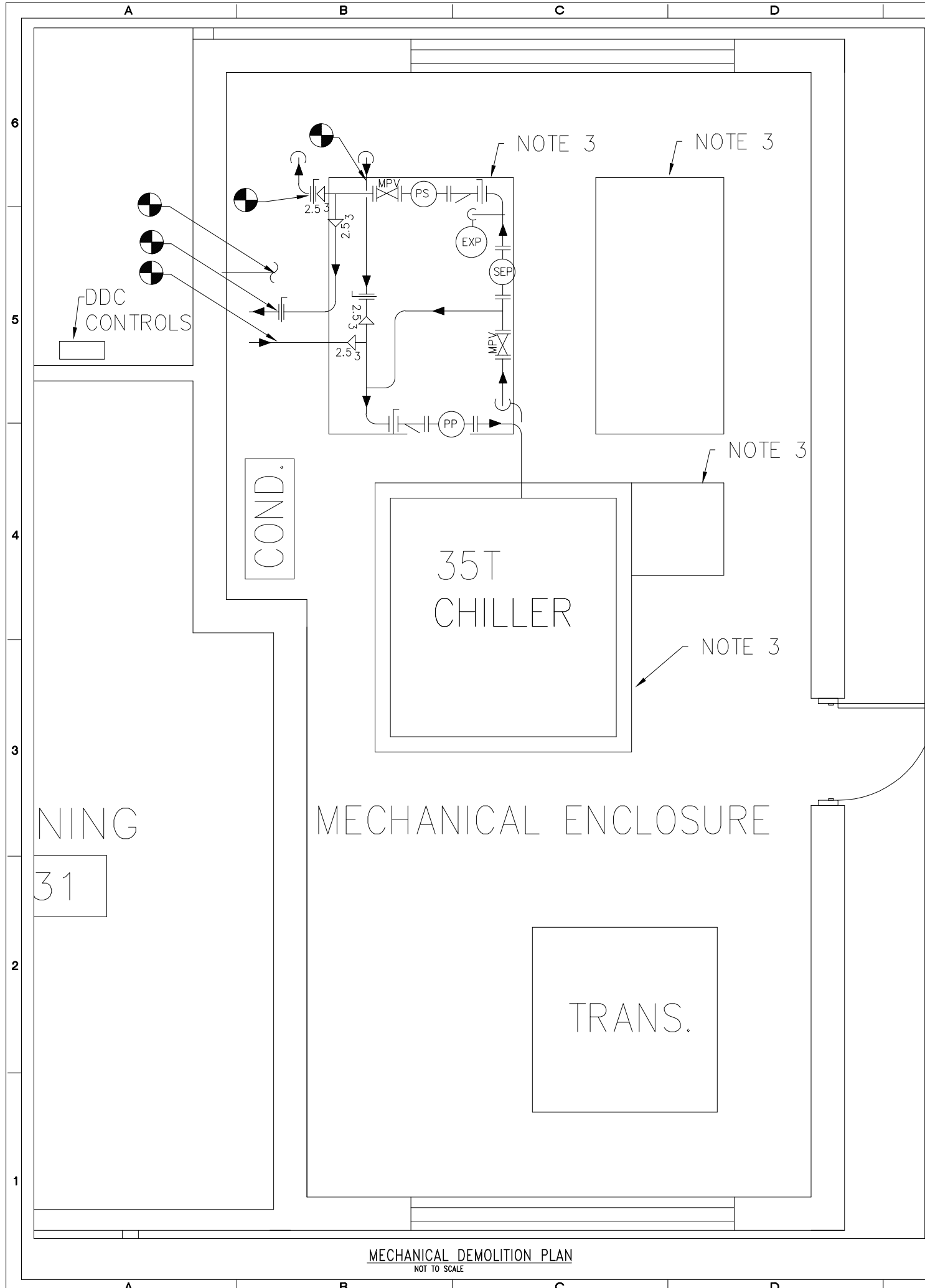
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PNOS 23-4685

REPLACE CHILLER
BLDG 1085
MAXWELL AFB, AL
GENERAL PLAN
PART "A"

Sheet Reference Number:
M-1
SHEET 2 OF 7



DEMOLITION NOTES:

1. REMOVE EXISTING 35T CARRIER CHILLER, PRIMARY PUMP (PP), SECONDARY PUMP (PS), AIR SEPARATOR (SEP), EXPANSION TANK (EXP), MULTIPURPOSE VALVE (MPV), VALVES, PIPING, ACCESSORIES, AND DOMESTIC WATER REGULATOR SET.
2. TIE POINTS ARE APPROXIMATELY AS SHOWN BY THE SYMBOL
3. CONCRETE PADS SHALL REMAIN.



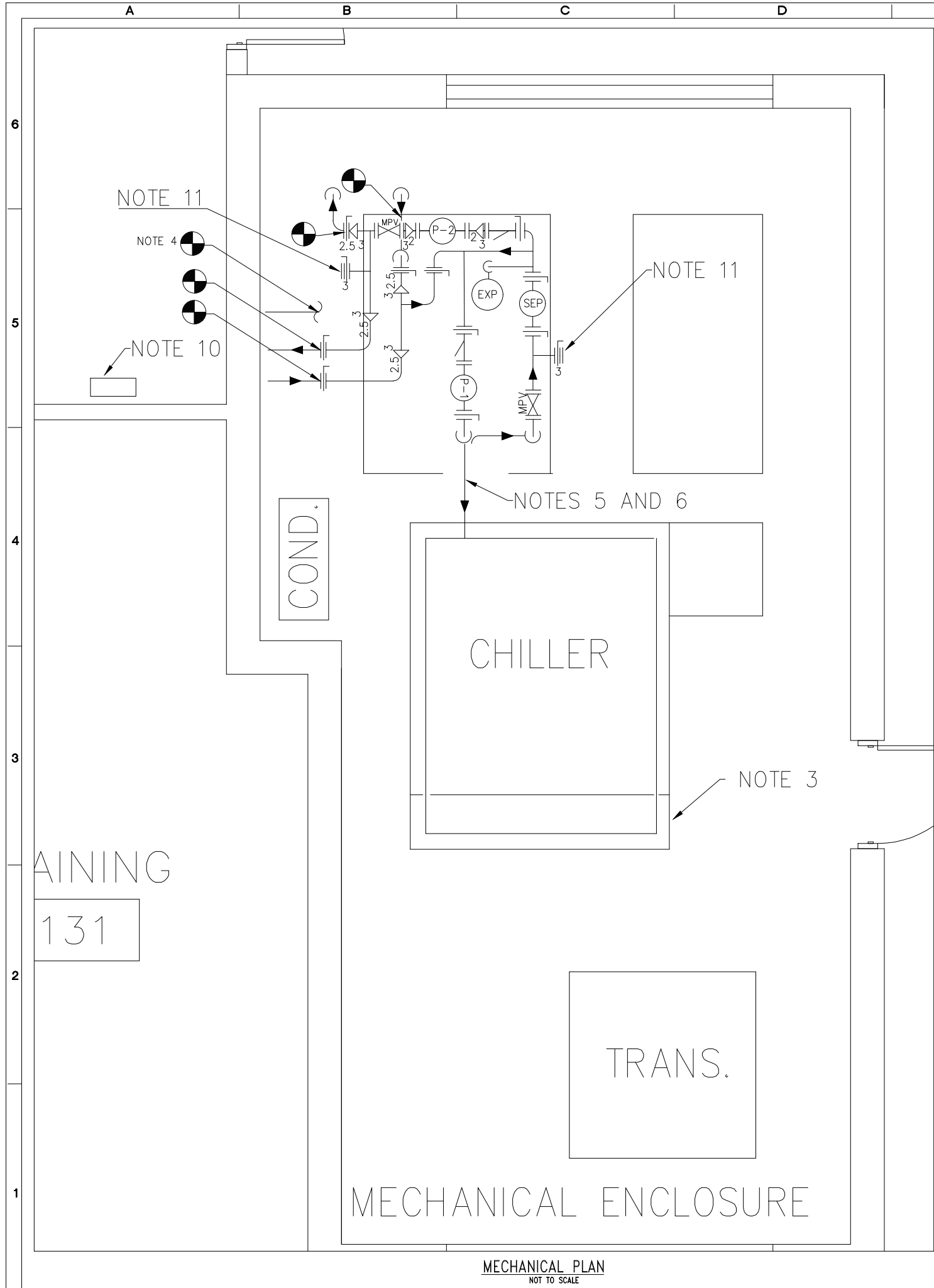
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FNOS 23-4685	

REPLACE CHILLER
BLDG 1095
MAXWELL AFB, AL
MECHANICAL DEMOLITION
PLAN

Sheet Reference Number:
M-2
SHEET 3 OF 7

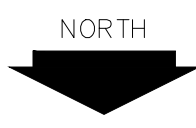
MECHANICAL DEMOLITION PLAN
NOT TO SCALE



MECHANICAL PLAN
NOT TO SCALE

NEW WORK NOTES:

1. PROVIDE AND INSTALL 40T CHILLER, PRIMARY PUMP (P-1), SECONDARY PUMP (P-2), AIR SEPARATOR (SEP), EXPANSION TANK (EXP), MULTIPURPOSE VALVE, VALVES, PIPING, ACCESSORIES, AND DOMESTIC WATER REGULATOR SET.
2. TIE POINTS ARE APPROXIMATELY AS SHOWN BY THE SYMBOL
3. EXTEND THE EXISTING 8'-4" X 8'-9" CONCRETE CHILLER PAD 1'-9" ON THE NORTH SIDE.
4. PROVIDE AND INSTALL A 0.75" DOMESTIC WATER MAKEUP SET CONSISTING OF A PRESSURE REDUCING VALVE (WATTS LF25AUB-LP), RELIEF VALVE ADJUSTED TO 50 PSI (CONBRACO 10-417-10), BACKFLOW PREVENTER WITH SHUT-OFF VALVES (WATTS 009M3-QT), AND VALVED BYPASS LINE. CONNECT NEW DOMESTIC WATER MAKEUP PIPING TO THE AIR SEPARATOR OR TO THE PIPING BETWEEN THE AIR SEPARATOR AND THE EXPANSION TANK PIPING.
5. PROVIDE AND INSTALL VALVE ON THE 3" SUPPLY PIPE AT THE CHILLER.
6. PROVIDE AND INSTALL FLEXIBLE HOSE (9" TO 12" LONG) AT THE INLET AND OUTLET SIMILAR TO TWIN CITY HOSE MODEL TCHS, FLANGED OR GROOVED ENDS, STAINLESS STEEL BELLOWS, AND STAINLESS STEEL WIRE BRAID.
7. PROVIDE AND INSTALL INSULATION AND HEAT TRACE ON ALL OUTDOOR PIPING AND ACCESSORIES.
8. PROVIDE AND INSTALL FOUR STAINLESS STEEL WELLS. TWO SHALL BE INSTALLED ON THE CHILLED WATER SUPPLY PIPE AND TWO ON THE CHILLED WATER RETURN. ONE ON EACH PIPE SHALL BE FOR A TEMPERATURE SENSOR THAT REPORTS TO EMCS, ONE ON EACH PIPE FOR A THERMOMETER. PROVIDE AND INSTALL A FITTING ON EACH PIPE FOR A PRESSURE GAUGE.
9. BALANCE THE CHILLED WATER FLOWS AT P-1, P-2, AHU-1 (19.3 GPM), AHU-2 (57.2 GPM), AND AHU-3 (16.0) GPM.
10. PROVIDE AND INSTALL CONTROL CONDUIT AND WIRING TO CONNECT THE CHILLER CONTROL PANEL TO THE EXISTING DDC CONTROLLER. PROVIDE AND INSTALL TEMPERATURE SENSORS ON THE CHILLER SUPPLY AND RETURN PIPING AND CONNECT TO THE EXISTING DDC SYSTEM. SEE SEQUENCE OF CONTROL ON THIS SHEET FOR MONITOR POINTS.
11. PROVIDE AND INSTALL 3" STEEL SUPPLY AND RETURN CONNECTIONS FOR THE EMERGENCY USE OF A RENTAL CHILLER WITH VALVE AND BLIND FLANGE.
12. CONTRACTOR SHALL PRE-FABRICATE PIPING TO THE EXTENT POSSIBLE TO SHORTEN ANY CHILLED WATER OUTAGE.



CHILLED WATER SEQUENCE OF CONTROL (SOC)

1. P-2 IS A VARIABLE SPEED SECONDARY CIRCULATION PUMP AND RESPONDS TO THE EXISTING DIFFERENTIAL PRESSURE SENSOR LOCATED REMOTELY ON THE PIPING SYSTEM BY MAINTAINING DIFFERENTIAL SET POINT OF 15 PSI (ADJUSTABLE).
2. P-1 RUNS CONTINUOUSLY WHENEVER THE CHILLER RUNS.
3. THE CHILLER SHALL RUN UNDER ITS ASSOCIATED INTEGRAL CONTROLS WHENEVER ONE OR MORE AHUs RUN AND THE OUTDOOR SENSOR IS 50-DEG F OR ABOVE. THE CHILLER'S INTEGRAL FLOW SWITCH SHALL PROVE FLOW EXISTS BEFORE ALLOWING THE CHILLER TO START.
4. THE FOLLOWING SHALL REPORT TO EMCS:
 - 4.1. CHILLED WATER SUPPLY/RETURN TEMPERATURES,
 - 4.2. EXISTING PRESSURE DIFFERENTIAL SENSOR IN THE CHILLED WATER PIPING (PRESSURE IN PSI), AND
 - 4.3. CHILLER STATUS DATA.



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FNOS 23-4685	

REPLACE CHILLER
BLDG 1095
MAXWELL AFB, AL
MECHANICAL
PLAN

Sheet Reference Number:
M-3
SHEET 4 OF 7

SEE NOTE 1 ON SHEET M-2 FOR ABBREVIATION DEFINITIONS.

AIR COOLED CHILLER SCHEDULE

MARK	LOCATION	DESCRIPTION	EER @ FULL LOAD	EER @ PART LOAD	MINIMUM OPERATING REFRIG. CIRCUITS	MINIMUM NOMINAL TONS	WATER FLOW GPM	AMBIENT TEMP °F	EXTERNAL PUMP HEAD PRESSURE FT. H ₂ O	DESIGN PRESS. DROP FT. H ₂ O	LVG WATER TEMP °F	ENT WATER TEMP °F	ELECTRICAL			REMARKS
													V-PH-Hz	MCA	MOCP	
ACC-1	COURTYARD	AIR COOLED WATER CHILLER	11.35	16.40	2	40	90.42	95	-	15.7	44	54	460-3-60	94	125	1, 2, 3, 4

REMARKS:

1. THE CHILLER SHALL BE A TRANE MODEL CGAM.
2. PROVIDE ARCHITECTURAL LOUVERS (HAIL GUARDS).
3. PROVIDE 5-YEAR WARRANTY.
4. CONTROLS SHALL HAVE BACNET INTERFACE CONNECTIVITY.

AIR SEPARATOR SCHEDULE

MARK	DESCRIPTION	GPM	P.D. FT. H ₂ O	SIZE			REMARKS
				INLET	OUTLET	AIR	
SEP	AIR/DIRT SEPARATOR	92.5	---	3	3	3/4"	1, 2

REMARKS:

1. EQUAL TO TACO 4903AD-125.
2. PROVIDE FACTORY-MOUNTED AIR VENT AND BLOWDOWN VALVE.

EXPANSION TANK SCHEDULE

MARK	EXP. TANK DESCRIPTION	ACCEPTANCE VOLUME GALLONS	GALLONS	REMARKS
EXP	BLADDER TYPE EXPANSION TANK	5	8	1

REMARKS:

1. EQUAL TO TACO CBX30-125.

VARIABLE FREQUENCY DRIVE SCHEDULE

MARK	DESCRIPTION	HP	V-PH-Hz	REMARKS
VFD	VFD FOR SECONDARY PUMP P-2	3	460-3-60	

PUMP SCHEDULE

MARK	SERVICE	MINIMUM CAPACITY GPM	TOTAL DYNAMIC HEAD FT. W.C.	TYPE	MAX RPM	PUMP MINIMUM EFFICIENCY %	MOTOR		BASIS OF DESIGN TACO MODEL NUMBER	REMARKS
							MINIMUM HP	V-PH-Hz		
P-1	CHILLED WATER PRIMARY	90.42	20	VERTICAL CLOSE COUPLED	1760	55	1	460-3-60	KV3006D	1
P-2	CHILLED WATER SECONDARY	92.5	64	VERTICAL CLOSE COUPLED	1760	55	3	460-3-60	KV2009D	

REMARKS:

1. VARIABLE SPEED.



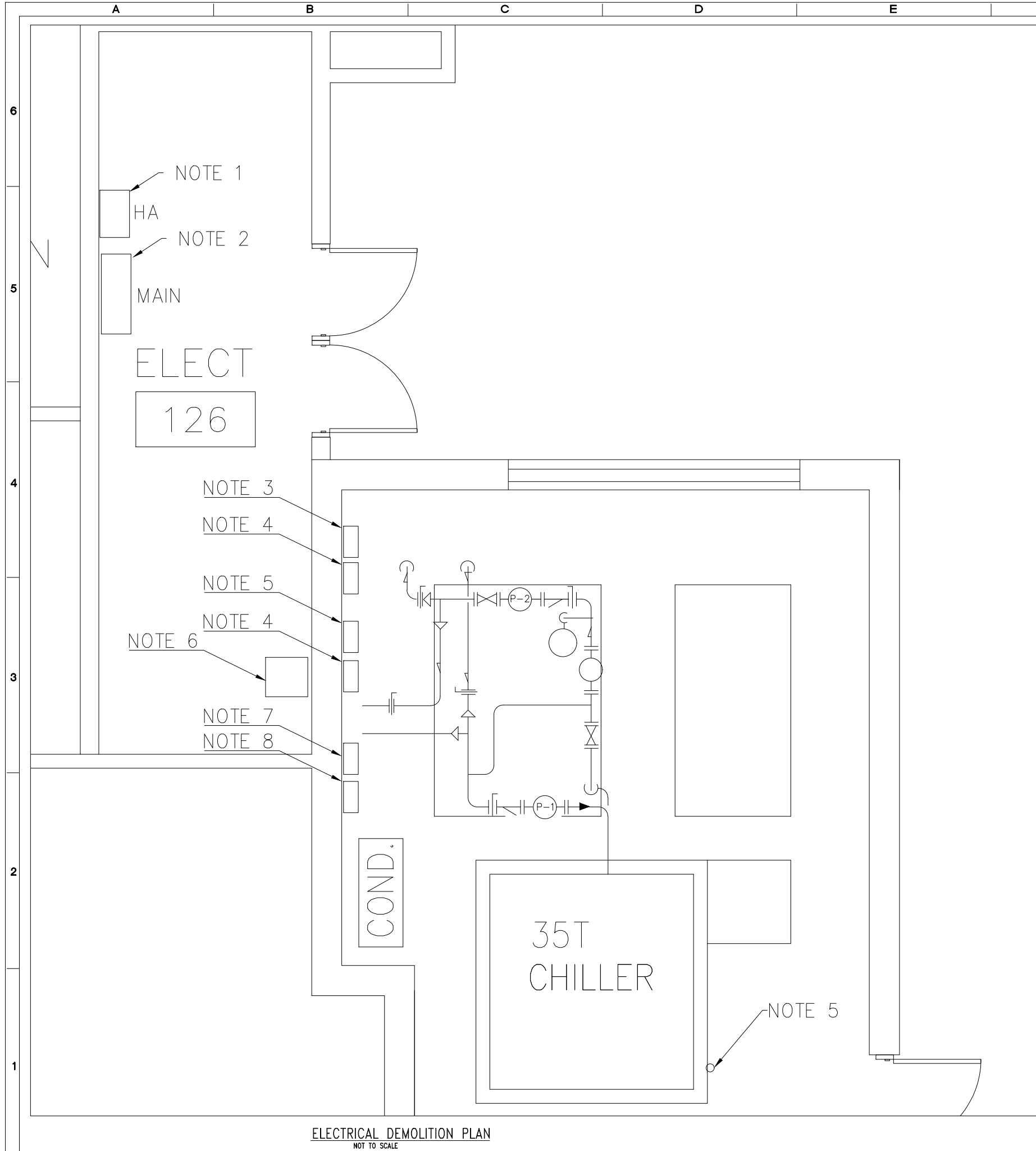
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REPLACE CHILLER
BLDG 1095
MAXWELL AFB, AL
MECHANICAL
SCHEDULES

Sheet Reference Number:
M-4
SHEET 5 OF 7



ELECTRICAL DEMOLITION PLAN
NOT TO SCALE

DEMOLITION NOTES:

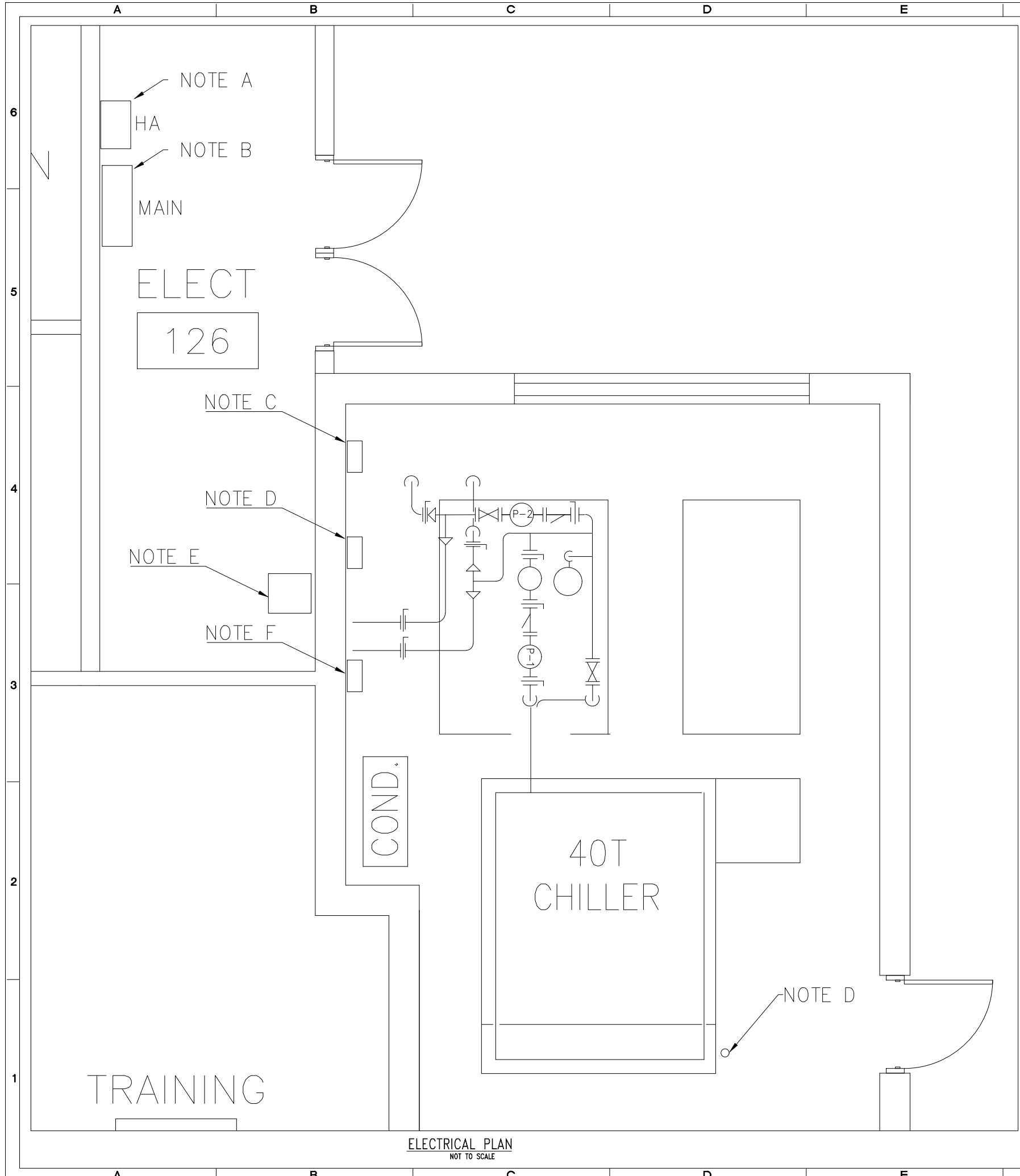
1. THE 30A BREAKER FOR P-1 AND THE 30A BREAKER FOR P-2 SHALL REMAIN IN PANEL HA.
2. REMOVE THE 100A BREAKER FROM THE MAIN PANEL.
3. REMOVE THE DISCONNECT FOR PUMP P-2. REMOVE CONDUIT AND WIRE FROM THE DISCONNECT TO THE PUMP. CONDUIT AND WIRE FROM BREAKER PANEL HA TO THE DISCONNECT SHALL REMAIN.
4. REMOVE THE RUSTY DISCONNECT, CONDUIT, AND WIRE TO THE SOURCE.
5. REMOVE THE DISCONNECT FOR THE CHILLER. ABANDON THE IN-PLACE UNDERGROUND CONDUIT TO THE CHILLER, REMOVE ABOVE GROUND SECTIONS, AND REMOVE WIRE. REMOVE CONDUIT AND WIRE INSIDE ELECTRICAL ROOM 126 FROM THE MAIN BREAKER PANEL TO THE CHILLER DISCONNECT.
6. REMOVE THE VARIABLE SPEED DRIVE FOR P-2. CONDUIT AND WIRE FROM BREAKER PANEL HA TO THE DRIVE SHALL REMAIN. THE CONDUIT FROM THE DRIVE TO THE BUILDING EXTERIOR SHALL REMAIN IF IN GOOD CONDITION.
7. REMOVE THE STARTER FOR PUMP P-1. REMOVE CONDUIT AND WIRE FROM THE STARTER TO THE PUMP. CONDUIT AND WIRE FROM BREAKER PANEL HA TO THE DISCONNECT SHALL REMAIN.
8. REMOVE THE DISCONNECT FOR PUMP P-1. REMOVE CONDUIT AND WIRE FROM THE DISCONNECT TO THE STARTER.
9. DISCONNECT THE 115V 1φ 20A PIPING HEAT TRACE WIRING. CONDUIT AND WIRE FROM BREAKER PANEL SHALL REMAIN.
10. DISCONNECT CHILLER 115V 1φ 20A CONTROL WIRING AND 115V 1φ 20A CHILLER HEAT TRACE. CONDUIT AND WIRE FROM BREAKER PANEL SHALL REMAIN.



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REPLACE CHILLER
BLDG 1095
MAXWELL AFB, AL
ELECTRICAL
DEMOLITION PLAN



ELECTRICAL PLAN
NOT TO SCALE

NOTES:

- A. NO WORK IN PANEL HA.
- B. PROVIDE AND INSTALL 125A BREAKER IN THE MAIN PANEL. SPECIFICATIONS OF THE CHILLER MANUFACTURER SHALL OVERRIDE THIS AMPERAGE REQUIREMENT.
- C. PROVIDE AND INSTALL A 30A HEAVY DUTY NEMA 3R DISCONNECT FOR PUMP P-2. PROVIDE AND INSTALL CONDUIT AND WIRE FROM THE DISCONNECT TO THE PUMP. CONNECT THE DISCONNECT TO THE EXISTING CIRCUIT FROM PANEL HA.
- D. PROVIDE AND INSTALL A 100A HEAVY DUTY NEMA 3R DISCONNECT FOR THE NEW CHILLER. PROVIDE AND INSTALL CONDUIT (1.5") AND WIRE (THREE #1 AND ONE #4G) FROM THE MAIN PANEL TO THE DISCONNECT AND FROM THE DISCONNECT TO THE CHILLER. INSTALL PVC CONDUIT AT AN UNDERGROUND DEPTH OF 24" .
- E. INSTALL THE VARIABLE SPEED DRIVE FOR P-2. COORDINATE PROCUREMENT WITH THE PRIME CONTRACTOR. PROVIDE AND INSTALL WIRE AND CONDUIT TO PUMP P-2.
- F. INSTALL COMBINATION STARTER FOR PUMP P-1. INSTALL CONDUIT AND WIRE FROM THE STARTER TO THE PUMP. CONNECT TO THE EXISTING SUPPLY WIRING FROM PANEL HA.
- G. CONNECT THE NEW 115V 1φ 20A PIPING HEAT TRACE WIRING TO THE EXISTING JUNCTION BOX.
- H. CONNECT CHILLER 115V 1φ 20A CONTROL WIRING AND 115V 1φ 20A CHILLER HEAT TRACE. USE EXISTING WIRE AND CONDUIT IF IN SATISFACTORY CONDITION.



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FNOS 23-4685

REPLACE CHILLER
BLDG 1095
MAXWELL AFB, AL
ELECTRICAL
PLAN

Sheet
Reference
Number:
E-2
SHEET 7 OF 7