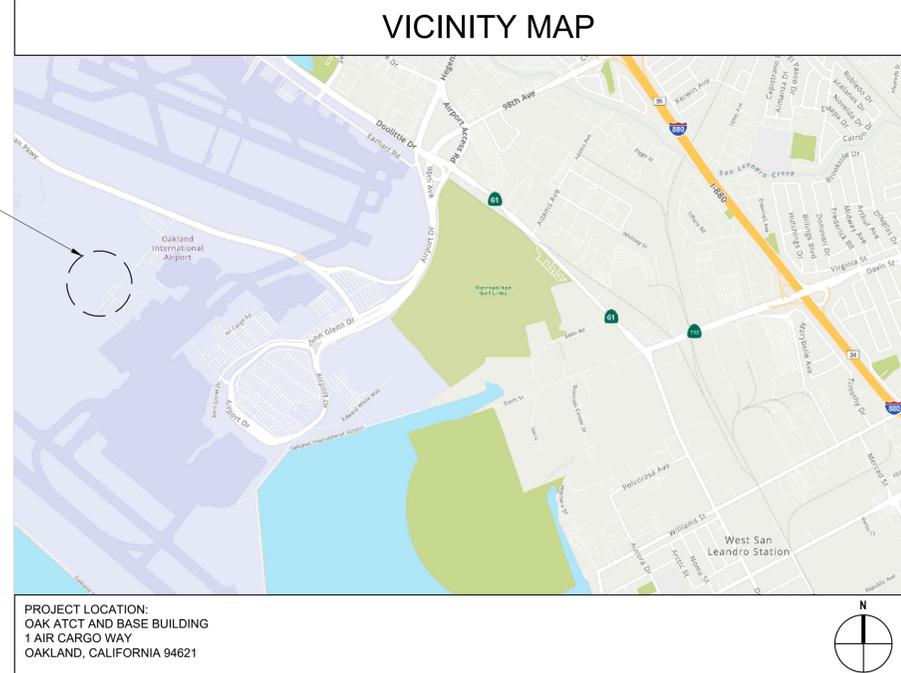




# OAKLAND (OAK) ATCT AND BASE BUILDING GSHP REPLACEMENT



*FINAL SUBMISSION  
August 26, 2022*



FOR OFFICIAL USE ONLY  
PUBLIC AVAILABILITY TO BE DETERMINED UNDER 5 USC 552

	JACOBS 1100 N GLEBE RD. SUITE 500 ARLINGTON, VA 22201	<table border="1"> <tr> <th>REV.</th> <th>APPROVED DATE</th> <th>DESCRIPTION</th> <th>JCN</th> <th>REDLINE DATE</th> <th>APVD</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	REV.	APPROVED DATE	DESCRIPTION	JCN	REDLINE DATE	APVD																	
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	DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION ATO - TECHNICAL OPERATIONS      WESTERN SERVICE AREA  ATCT AND BASE BUILDING GSHP REPLACEMENT  COVER SHEET  OAKLAND      OAKLAND INTERNATIONAL AIRPORT (OAK)      CA																								
OAKLAND ATCT OAKLAND CALIFORNIA	<table border="1"> <tr> <td>REVIEWED BY</td> <td>SUBMITTED BY</td> <td>APPROVED BY</td> </tr> <tr> <td> </td> <td>WILLIAM CASTRO</td> <td>VANCE WHITESEL</td> </tr> <tr> <td>DESIGNED BY</td> <td>PROJECT ENGINEER</td> <td>APPROVER'S TITLE</td> </tr> <tr> <td> </td> <td>E. ROLAF</td> <td>MANAGER: ENGINEERING</td> </tr> <tr> <td>DRAWN BY</td> <td>ISSUED BY</td> <td>DATE</td> </tr> <tr> <td>E. ROLAF</td> <td>ENGINEERING SERVICES TERMINAL</td> <td>8/26/2022</td> </tr> <tr> <td>CHECKED BY</td> <td>DRAWING NO.</td> <td>JCN</td> </tr> <tr> <td>W. STEVENS</td> <td>OAK - 18034143 - G001</td> <td>18034143</td> </tr> </table>	REVIEWED BY	SUBMITTED BY	APPROVED BY		WILLIAM CASTRO	VANCE WHITESEL	DESIGNED BY	PROJECT ENGINEER	APPROVER'S TITLE		E. ROLAF	MANAGER: ENGINEERING	DRAWN BY	ISSUED BY	DATE	E. ROLAF	ENGINEERING SERVICES TERMINAL	8/26/2022	CHECKED BY	DRAWING NO.	JCN	W. STEVENS	OAK - 18034143 - G001	18034143
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W. STEVENS	OAK - 18034143 - G001	18034143																							

# INDEX OF DRAWINGS

# GENERAL NOTES

# BUILDING CODE ANALYSIS

# LOCATION MAP

REV	DRAWING NUMBER	DRAWING TITLE
<b>GENERAL</b>		
	G001	COVER SHEET
	G002	INDEX OF DRAWINGS, GENERAL NOTES, LOCATION MAP, & BUILDING CODE ANALYSIS
	G010	GENERAL ABBREVIATIONS
	G015	GENERAL, ARCHITECTURAL, AND STRUCTURAL LEGENDS
	G040	PRELIMINARY CONSTRUCTION STAGING PLAN
	G100	FIRE RESISTANCE RATED GUIDE PLAN - FIRST FLOOR
<b>ARCHITECTURAL</b>		
	AD100	DEMOLITION - ENLARGED FLOOR PLAN - MECHANICAL ROOM
	A100	ENLARGED FLOOR PLAN - MECHANICAL ROOM
<b>STRUCTURAL</b>		
	S001	GENERAL NOTES
	S110	ENLARGED FOUNDATION PLAN - MECHANICAL ROOM
	S501	PIPE SUPPORT DETAILS
<b>MECHANICAL</b>		
	M001	MECHANICAL ABBREVIATIONS, LEGENDS, AND GENERAL NOTES
	MD100	HVAC DEMOLITION - ENLARGED FLOOR PLAN - MECHANICAL ROOM
	MD700	MECHANICAL DEMOLITION - FLOW DIAGRAM
	MD800	MECHANICAL DEMOLITION - FLOW CONTROL DIAGRAM
	M100	HVAC - ENLARGED FLOOR PLAN - MECHANICAL ROOM
	M500	MECHANICAL DETAILS
	M600	MECHANICAL SCHEDULES
	M700	MECHANICAL - FLOW DIAGRAM
	M800	MECHANICAL - FLOW CONTROL DIAGRAM
	M801	MECHANICAL - POINTS SCHEDULE
<b>ELECTRICAL</b>		
	E001	ELECTRICAL ABBREVIATIONS, LEGENDS, AND GENERAL NOTES
	ED120	DEMOLITION - MECHANICAL ROOM POWER PLAN
	E120	MECHANICAL ROOM POWER PLAN
	E501	PANEL SCHEDULES

- A. DIMENSION LINES SHOWN ON ARCHITECTURAL SHEETS ARE FROM COLUMN CENTER LINES AND FACE OF MASONRY, CONCRETE OR FINISHED FACE OF WALL, UNLESS OTHERWISE NOTED.
- B. FIELD VERIFY EXISTING CONDITIONS & DIMENSIONS BEFORE DEMOLITION OF BUILDING SYSTEMS. COORDINATE DEMOLITION WITH THE WORK AND NOTIFY COR OF CONFLICTS. NO DEMOLITION WORK MUST PROCEED UNTIL CONFLICTS ARE RESOLVED TO SATISFACTION OF COR.
- C. FINISHES & ASSOCIATED ADJACENT FINISHES AFFECTED BY THE WORK MUST BE PATCHED AND REPAIRED TO MATCH EXISTING ADJACENT FINISHES.
- D. VERIFY DEMOLITION REQUIRED TO FACILITATE ROUTING OF MECHANICAL AND ELECTRICAL SYSTEMS. FOR DEMOLITION REQUIRED OUTSIDE OF AREA SHOWN ON ARCHITECTURAL DRAWINGS, REFER TO MECHANICAL AND ELECTRICAL FOR ITEMS TO BE REMOVED.
- E. ATCT AND BASE BUILDING WILL BE OCCUPIED BY FAA DURING CONSTRUCTION. COORDINATE THE WORK IN ADVANCE WITH COR TO AVOID DISRUPTING FAA OPERATIONS. MAINTAIN A MEANS OF EGRESS DURING DEMOLITION AND CONSTRUCTION ACTIVITIES. IF AN EXIT IS TEMPORARILY PLACED OUT OF USE DURING THE WORK, COORDINATE WITH COR FOR TEMPORARY EGRESS MEASURES. PROVIDE NECESSARY SIGNAGE WARNING BUILDING OCCUPANTS OF THE CHANGE, AND THE DIRECTION TO THE NEAREST EXIT. WORK AFFECTING EGRESS MUST BE COORDINATED WITH AND APPROVED IN WRITING BY COR, A MINIMUM OF 10 DAYS PRIOR TO PERFORMANCE OF WORK.
- F. CLEAN CONSTRUCTION AREAS DAILY. CONSTRUCTION DEBRIS & EQUIPMENT MUST NOT BE LEFT IN OCCUPIED AREAS.
- G. MAINTAIN SMOKE/FIRE RATINGS OF SMOKE/FIRE RATED ASSEMBLIES IN FLOORS, WALLS, CEILINGS, ROOFS OR SMOKE BARRIERS PENETRATED BY DUCTS, ELECTRICAL CONDUITS, PIPES AND OTHER PENETRATIONS CAUSED BY THE WORK OF THIS PROJECT WITH AN APPROVED U.L. SYSTEM.
- H. REMOVAL OF FIRE RATED DOORS MUST HAVE AN INTERIM PLAN FOR WHEN DOOR(S) HAVE BEEN REMOVED. COORDINATE FIRE RATED DOOR REMOVALS AND REPLACEMENTS WITH COR.
- I. DO NOT SCALE DRAWINGS.
- J. EXISTING FAA COMPUTER AND OTHER SENSITIVE EQUIPMENT MUST REMAIN OPERATIONAL DURING CONSTRUCTION. COORDINATE WITH COR DEMOLITION WORK THAT MAY CAUSE VIBRATION OR DISRUPTION TO EQUIPMENT IN AND/OR NEAR THE WORK AREA. PROVIDE DUST PROOF PARTITIONS AND BARRIERS AS REQUIRED BY COR TO PROTECT ACTIVE EQUIPMENT. COORDINATE WITH COR NOT TO DISRUPT FAA OPERATIONS, TYP. ACCOMMODATE THE 24-HOUR OPERATIONAL FACILITY SCHEDULE AND REQUIREMENTS.
- K. PROVIDE OPENINGS THROUGH EXISTING WALLS (GWB, MASONRY, AND CONCRETE) FOR PROVISION OF MECHANICAL AND ELECTRICAL. COORDINATE SIZE & LOCATION WITH MECHANICAL AND ELECTRICAL.
- L. IF HAZMAT IS ENCOUNTERED, CEASE WORK IN THAT AREA AND NOTIFY COR TO PLAN ON HOW TO PROCEED WITH WORK.
- M. AS REQUIRED, REMOVE, SAVE FOR REUSE, AND REINSTALL FURNITURE THAT IS AFFECTED BY THE WORK. PROTECT FURNITURE FROM DAMAGE. DOCUMENT EXISTING FURNITURE CONDITIONS AND COORDINATE WITH COR.
- N. UNSCHEDULED INTERRUPTIONS TO BUILDING SERVICES/UTILITIES WILL NOT BE TOLERATED. WORK REQUIRING PERMANENT, TEMPORARY OR PARTIAL OUTAGES MUST BE SCHEDULED AND APPROVED IN WRITING BY COR AT LEAST 10 WORKING DAYS IN ADVANCE OF PERFORMANCE OF THE WORK.
- O. EXISTING BUILDING FLOOR PLANS AND SITE PLANS FOR THE EXISTING BUILDING CONSTRUCTION PRESENTED IN THIS DOCUMENT WERE OBTAINED FROM THE FAA. FIELD VERIFY EXISTING CONDITIONS PRIOR TO ANY CONSTRUCTION WORK REQUIRED.
- P. PROVIDE TEMPORARY DUST PROOF PARTITIONS (DP) WITH ACCESS DOORS WHERE INDICATED ON DRAWINGS. TEMPORARY DP PARTITIONS MUST BE ACCESSIBLE TO FAA PERSONNEL AND NOT RESTRICT ACCESS TO MECH, ELEC, FAA, OR FIRE PROTECTION EQUIPMENT. VERIFY FINAL LOCATIONS & SPECIAL REQUIREMENTS WITH COR BEFORE INSTALLATION. ANCHORING DEVICES FOR DUSTPROOF CONSTRUCTIONS, INTO CONCRETE, MUST BE REMOVED UPON COMPLETION OF THE WORK. ANCHORING HOLES IN CONCRETE SURFACES MUST BE PATCHED AND REPAIRED TO MATCH ADJACENT SURFACES.
- Q. WORK SPECIFIED IN ROOMS/AREAS WITH BREAKLINES INCLUDES WORK FOR ENTIRE AREA, UNLESS OTHERWISE NOTED.
- R. ONLY FAA PERSONNEL MAY OPERATE CIRCUIT BREAKERS OR PIPE VALVES. REQUEST PERMISSION IN WRITING OF FAA 10 DAYS IN ADVANCE FOR EACH CASE OF BREAKER OR PIPE VALVE OPERATION. CONTRACTOR MUST NOT OPEN (DE-ENERGIZE) OR CLOSE (ENERGIZE) ANY CIRCUIT BREAKER OR PIPE VALVE. COORDINATE DE-ENERGIZING, AND ENERGIZING, OF ANY PANELBOARD FOR CIRCUIT BREAKER REPLACEMENT WITH COR.
- S. WORK IN CONFINED SPACES OR AREAS MUST BE DONE IN ACCORDANCE WITH OSHA REQUIREMENTS, 29 CFR 1910.146 AND 29 CFR 1926.
- T. PRIOR TO CUTTING CONCRETE, USE MAGNETIC STEEL LOCATOR TO LOCATE ELECTRICAL CONDUITS EMBEDDED IN CONCRETE. AVOID CUTTING CONDUITS AS THEY MAY BE CRITICAL TO THE OPERATION OF THE FACILITY. CONCRETE WORK MUST COMPLY WITH SILICA MANAGEMENT REQUIREMENTS.
- U. REFER TO OTHER DISCIPLINES FOR ADDITIONAL DEMOLITION REQUIRED. COORDINATE REMOVING EXISTING PARTITIONS AND ENCLOSURES TO ENABLE DEMOLITION OF CONCEALED SYSTEMS TO BE DEMOLISHED. PATCH AND REPAIR DAMAGED FINISHES, AND/OR FIRE RATED ASSEMBLIES TO MATCH EXISTING ADJACENT SURFACES.
- V. PROVIDE CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL PER SECTION 01 74 19.

THIS BUILDING CODE ANALYSIS IS BASED ON THE ASSUMPTION THAT THE ATCT AND BASE BUILDING ARE FULLY SPRINKLERED AS INDICATED ON PROVIDED FAA-PROVIDED AS-BUILTS.

APPLICABLE CODES AND REGULATIONS:

- A. INTERNATIONAL BUILDING CODE (IBC), 2018 EDITION
- B. INTERNATIONAL FIRE CODE (IFC), 2018 EDITION
- C. INTERNATIONAL MECHANICAL CODE (IMC), 2018 EDITION
- D. INTERNATIONAL PLUMBING CODE (IPC) 2018 EDITION
- E. NFPA 101 - LIFE SAFETY CODE, 2018 EDITION
- F. NFPA 70 - NATIONAL ELECTRICAL CODE (NEC), 2020 EDITION
- G. NFPA 75 - STANDARD FOR THE FIRE PROTECTION OF INFORMATION TECHNOLOGY EQUIPMENT, 2020 EDITION
- H. ARCHITECTURAL BARRIERS ACT (ABA) STANDARDS - 2015
- I. OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) GENERAL INDUSTRY SAFETY & HEALTH STANDARDS (29 CFR 1910 AND 1926) - CURRENT ISSUE
- J. TERMINAL FACILITIES DESIGN STANDARD (TFDS), VERSION 1.0, MARCH 31, 2021

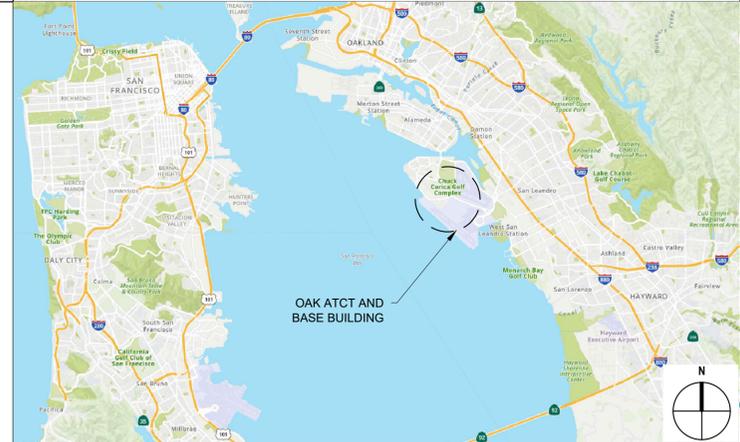
OCCUPANCY CLASSIFICATION:

- A. ATCT: BUSINESS (GROUP B) / LOW-HAZARD STORAGE (GROUP S-2)
- B. BASE BUILDING: BUSINESS (GROUP B) / LOW-HAZARD STORAGE (GROUP S-2)

CONSTRUCTION TYPE:

- A. ATCT: TYPE IB (IBC)
- B. BASE BUILDING: TYPE IIB (IBC)

SEISMIC DESIGN CATEGORY: D



H

H

G

G

F

F

E

E

D

D

C

C

B

B

A

A

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		JACOBS 1100 N GLEBE RD. SUITE 500 ARLINGTON, VA 22201	
DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION ATO - TECHNICAL OPERATIONS      WESTERN SERVICE AREA			
ATCT AND BASE BUILDING GSHP REPLACEMENT INDEX OF DRAWINGS, GENERAL NOTES, LOCATION MAP, & BUILDING CODE ANALYSIS			
OAKLAND		OAKLAND INTERNATIONAL AIRPORT (OAK) CA	
REVIEWED BY	SUBMITTED BY	APPROVED BY	
	WILLIAM CASTRO	VANCE WHITESEL	
	SUBMITTER'S TITLE	APPROVER'S TITLE	
	PROJECT ENGINEER	MANAGER-ENGINEERING	
DESIGNED BY	E. ROLAF	ISSUED BY	DATE
DRAWN BY	E. ROLAF	ENGINEERING SERVICES TERMINAL	8/26/2022
CHECKED BY	W. STEVENS	JCN:	18034143
		DRAWING NO.	REV.
		OAK - 18034143 - G002	



### GENERAL LEGEND

### ARCHITECTURAL / GENERAL LEGEND

#### REFERENCE

COLUMN LINE GRID DESIGNATION 

CENTER LINES 

MATCH LINE SYMBOL 

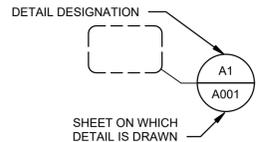
BREAK LINES 

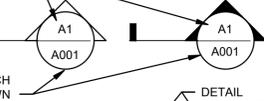
ELEVATION SYMBOL 

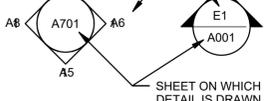
DRAWING/DETAIL TITLE 

DETAIL NUMBER 

SHEET ON WHICH DETAIL IS DRAWN OR SCHEDULED 

DETAIL TITLE REFERENCE 

SECTION CUT 

ELEVATION REFERENCE 

PLAN NORTH/PROJECT NORTH 

ROOM/AREA NUMBER 

DEMOLITION 

REVISION 

REVISION DESIGNATION 

SHEET NOTE NUMBER 

DEMOLITION NOTE 

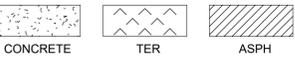
HAZMAT NOTE, ASBESTOS 

HAZMAT NOTE, LEAD PAINT 

GRAPHIC SCALE 

#### MATERIALS

EARTH, ETC 

CONCRETE, ETC 

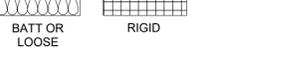
METALS 

MASONRY 

WOOD 

GYPSUM 

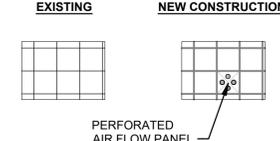
GLASS 

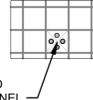
INSULATION 

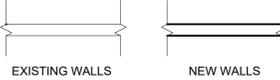
#### SYMBOLS

CONTRACTOR'S ACCESS ROUTE 

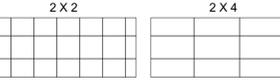
VEHICULAR TRAFFIC DIRECTION 

RAISED FLOOR PANELS 

PERFORATED AIR FLOW PANEL 

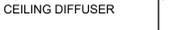
WALLS 

DEMOLITION WALLS 

SUSPENDED CEILING SYSTEM 

RECESSED LIGHT FIXTURES 

LIGHT FIXTURES 

SUPPLY AIR CEILING DIFFUSER 

RETURN AIR CEILING REGISTER 

TRANSFER AIR GRILLE 

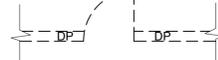
LAVATORY 

URINAL 

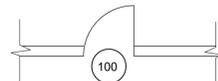
WATER CLOSET 

ELECTRIC WATER COOLER 

#### SYMBOLS

TEMPORARY DUSTPROOF PARTITION WITH DOOR 

TEMPORARY INTERIOR WALL WITH DOOR 

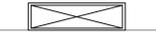
DOOR NUMBER 

LOUVER NUMBER 

WINDOW NUMBER 

WALL TYPE NUMBER 

ELECTRICAL PANEL 

SUPPLY AIR DUCT 

EMERGENCY SHOWER AND EYEWASH 

FLOOR DRAIN 

FLOOR SINK 

FLOOR HATCH 

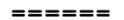
ROOF HATCH 

LADDER 

SUMP 

LOCKERS 

FIRE EXTINGUISHER CABINET 

ACOUSTICAL BAFFLES 

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COMMONWEALTH OF VIRGINIA  
ERIC LANCE ROLAF JR.  
Lic. No. 0401016999  
ARCHITECT  
08.26.2022

JACOBS

OAKLAND ATCT  
CALIFORNIA

REV.	APPROVED DATE	DESCRIPTION	JCN	REDLINE DATE	APVD

DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION  
ATO - TECHNICAL OPERATIONS WESTERN SERVICE AREA

ATCT AND BASE BUILDING  
GSHP REPLACEMENT  
GENERAL, ARCHITECTURAL, AND STRUCTURAL  
LEGENDS

OAKLAND OAKLAND INTERNATIONAL AIRPORT (OAK) CA

REVIEWED BY	SUBMITTED BY	APPROVED BY
	WILLIAM CASTRO	VANCE WHITESEL
SUBMITTER'S TITLE	PROJECT ENGINEER	APPROVER'S TITLE
		MANAGER: ENGINEERING
DESIGNED BY	ISSUED BY	DATE
	E. ROLAF	8/26/2022
DRAWN BY	ENGINEERING SERVICES	JCN: 18034143
	E. ROLAF	
CHECKED BY	TERMINAL	DRAWING NO.
	W. STEVENS	OAK - 18034143 - G015
		REV.

# GENERAL CONSTRUCTION STAGING NOTES

THE FOLLOWING NOTES AND ACCOMPANYING "CONSTRUCTION STAGING PLAN" GRAPHICALLY REPRESENT MANY OF THE MAJOR REQUIREMENTS STATED IN "DIVISION 1 GENERAL REQUIREMENTS" OF THE SPECIFICATIONS. THESE NOTES PARAPHRASE DIVISION 1 REQUIREMENTS AND ARE NOT INTENDED TO MODIFY OR REPLACE DIVISION 1 REQUIREMENTS.

CONSTRUCTION ACCESS, PARKING, OFFICES AND EXTENT/SIZE OF CONSTRUCTION STAGING AREA MUST BE COORDINATED WITH SITE PERSONNEL VIA COR. PARTICULARLY IN CONJUNCTION WITH POTENTIAL ONGOING PROJECTS. REFER TO AB/G040 FOR LOCATION OF PROPOSED CONSTRUCTION STAGING AREA AND PROPOSED CONSTRUCTION DUMPSTER. LOCATION OF FINAL CONSTRUCTION STAGING AREA, CONSTRUCTION DUMPSTER, AND CONTRACTOR'S PARKING TO BE DETERMINED AT PRECONSTRUCTION CONFERENCE.

**A. CONSTRUCTION ACCESS**

- CONTRACTOR'S VEHICLES, PEDESTRIANS AND DELIVERIES TO THE SITE MUST BE THROUGH THE MAIN SECURITY GATE. COR OR BADGED PERSONNEL WILL ESCORT CONTRACTOR'S PERSONNEL, VEHICLES, AND DELIVERIES THROUGH THE MAIN SECURITY GATE. COORDINATE WITH ADVANCED NOTICE OFF-HOURS ACCESS REQUIREMENTS FOR WORK AND/OR DELIVERIES WITH COR.
- PROVIDE SIGNAGE TO INDICATE ACCESS ROUTE FOR CONSTRUCTION EMPLOYEES AND DELIVERIES ON SITE. PROVIDE NECESSARY BARRICADES, LIGHTS, SIGNAGE AND FENCING TO PROTECT, WARN AND DIRECT PERSONS NEAR CONSTRUCTION AREAS. BARRICADES, SIGNAGE, LIGHTS, FENCING ETC. MUST BE COORDINATED WITH COR PRIOR TO BEING IMPLEMENTED.
- CONTRACTOR'S ACCESS TO BUILDING FOR THE WORK MUST BE THROUGH MECHANICAL ROOM ENTRANCE DOORS AND OTHER ENTRANCES IDENTIFIED BY COR.
- KEEP BUILDING SERVICE DRIVE LANE ACCESSIBLE AT ALL TIMES FOR FAA DELIVERIES. MAINTAIN FAA ACCESS TO FAA DUMPSTERS AT ALL TIMES.
- USE OF BUILDING SERVICE DRIVE LANE MUST BE COORDINATED WITH COR IN ADVANCE.
- DELIVERIES MUST BE SCHEDULED AND APPROVED IN ADVANCE WITH COR AND AT TIMES OTHER THAN FAA EMPLOYEE SHIFT CHANGES TO AVOID CONGESTION. SHIFT CHANGES ARE STAGGERED FOR FAA PERSONNEL. COORDINATE EXACT SHIFT CHANGES WITH COR. COORDINATE DELIVERIES WITH THE COR. DELIVERY VEHICLES MUST ONLY CONTAIN ITEMS BEING DELIVERED TO FAA. IF VEHICLE CONTAINS OTHER DELIVERIES, VEHICLES WILL NOT BE ALLOWED ON SITE.

**B. CONTRACTOR PARKING**

- CONTRACTOR PARKING MUST BE COORDINATED WITH COR. CONTRACTOR'S PARKING MUST BE LIMITED AS INDICATED ON PRELIMINARY CONSTRUCTION STAGING PLAN. ADDITIONAL PARKING MUST BE OFF-SITE AND PROVIDED BY CONTRACTOR. EXISTING PARKING SPACES ARE OFF-LIMITS FOR CONTRACTOR PARKING EXCEPT FOR INDICATED PARKING SPACES.

**C. FAA SECURITY REQUIREMENTS**

- AN ADVANCE LIST AND WEEKLY LOG OF CONTRACTOR'S PERSONNEL MUST BE PROVIDED TO COR. FAA RESERVES THE RIGHT NOT TO ACCEPT WORKERS. AT THE START OF EACH WORK SHIFT, ALLOW ADEQUATE TIME FOR CONTRACTOR'S PERSONNEL TO SIGN-IN WITH SECURITY. TEMPORARY SECURITY BADGES MUST BE ISSUED TO CONSTRUCTION PERSONNEL. CONTRACTOR'S SUPERVISORY PERSONNEL MUST BE RESPONSIBLE FOR CONDUCT OF THEIR PERSONNEL WHILE ON SITE. CONTRACTOR'S VEHICLES MUST BE MARKED.
- SITE IS A SECURE AREA AND CONSTRUCTION VEHICLES MUST REMAIN IN CONSTRUCTION AREAS.
- THE FACILITY IS A SECURE AREA AND CONSTRUCTION PERSONNEL MUST REMAIN IN CONSTRUCTION AREAS AT ALL TIMES. CONTRACTOR MUST MINIMIZE INGRESS AND EGRESS.
- FAA BADGED ESCORTS AND DESIGNATED ESCORTS WILL BE REQUIRED FOR CONSTRUCTION PERSONNEL WORKING ON SITE. COORDINATE WORK WITHIN THE BUILDING IN ADVANCE WITH COR. ESCORTS OUTSIDE BUILDING WILL BE REQUIRED. CONTRACTOR MUST OBTAIN FAA SECURITY BADGES FOR A SUFFICIENT NUMBER OF EMPLOYEES TO PROVIDE ESCORTS FOR ALL EMPLOYEES.
- CONTRACTOR PERSONNEL MAY BE FINGERPRINTED AND PHOTOGRAPHED FOR FAA SECURITY COMPLIANCE. SOCIAL SECURITY NUMBERS WILL BE REQUIRED.

**D. CONSTRUCTION MATERIAL STORAGE**

- STORAGE OF CONSTRUCTION MATERIALS ON SITE MUST BE LIMITED TO THE CONSTRUCTION STAGING AREA. MATERIALS MUST BE NEATLY STORED AND PROTECTED. LIGHTING MUST BE INSTALLED BY THE CONTRACTOR AT THE DISCRETION OF COR. DO NO DIGGING WITHOUT PRIOR PERMISSION FROM COR. BURIED CABLES (UNDERGROUND UTILITIES) MAY RUN THROUGH STAGING AREA AND ELSEWHERE.
- THE CONSTRUCTION STAGING AREA MUST BE SURROUNDED BY A LOCKABLE FENCE. CONSTRUCTION OF THE FENCE MUST BE TO THE SATISFACTION OF THE COR. PROVIDE COR WITH KEYS TO FENCE IN CASE OF EMERGENCY. COORDINATE NUMBER OF KEYS WITH COR.

**E. CONSTRUCTION DEBRIS**

- ENCLOSED DUMPSTERS FOR DISPOSAL OF CONSTRUCTION DEBRIS MUST BE PROVIDED BY CONTRACTOR IN THE LOCATION INDICATED. AREAS AROUND DUMPSTERS MUST BE KEPT CLEAN AND FREE OF EXCESS DEBRIS AND DUST DURING CONSTRUCTION. DEBRIS MUST BE REMOVED BY CONTRACTOR DAILY. PROVIDE SEPARATE DUMPSTER, IF REQUIRED, FOR ABATEMENT MATERIAL. QUANTITY AND POSITION OF DUMPSTERS MUST BE COORDINATED WITH THE COR PRIOR TO THEIR DELIVERY AND PLACEMENT. CONSTRUCTION DUMPSTER MUST NOT INTERFERE WITH ACCESS TO FAA DUMPSTERS.

**F. CONSTRUCTION OFFICE**

- ROOM 133, ESU STORAGE, MAY BE USED AS PROVISIONAL OFFICE SPACE FOR THE CONTRACTOR. CONTRACTOR MUST PROVIDE BOTTLED WATER. TEMPORARY POWER FOR SMALL OFFICE EQUIPMENT IS AVAILABLE. IF REQUIRED FOR CONSTRUCTION PURPOSES OF THE WORK, COORDINATE SPACE REQUIREMENTS WITHIN ROOM WITH COR. COORDINATE TEMPORARY RELOCATION OF FAA EQUIPMENT AND MATERIALS AS REQUIRED. PRIOR TO PROJECT COMPLETION, RETURN SPACE TO ORIGINAL CONDITION, COORDINATE WITH COR.

**G. CONSTRUCTION TOILET FACILITIES**

- PORTABLE CHEMICAL TOILETS MUST BE PROVIDED WITHIN THE CONSTRUCTION STAGING AREA. PORTABLE CHEMICAL TOILETS MUST NOT BE ALLOWED WITHIN THE BUILDING. COORDINATE WITH THE COR FOR SCHEDULING OF SERVICE.
- PROVIDE WASH STATIONS IN ADDITION TO PORTABLE TOILETS IN CONSTRUCTION STAGING AREA.
- TOILET ROOMS INSIDE BUILDING ARE NOT FOR THE CONTRACTOR'S USE.

**H. DEMOLITION AND CONSTRUCTION HOURS**

- OAK ATCT IS A 24 HOUR 7 DAY PER WEEK OPERATING FACILITY. THE BASE BUILDING OPERATES UNDER NORMAL BUSINESS HOURS (MONDAY - FRIDAY, 7:00 AM - 4:00 PM). NORMAL CONSTRUCTION HOURS MUST BE MONDAY - FRIDAY, 7:30 AM - 4:00 PM.
- CONTRACTOR MUST NOT INTERFERE WITH THE FUNCTION OF THIS FACILITY. DEMOLITION AND CONSTRUCTION NOISE MUST BE MINIMIZED BETWEEN 6:00 AM TO 7:00PM. WORK DETERMINED BY THE COR TO BE DISRUPTIVE TO THE OPERATIONS MUST BE STOPPED AND RESCHEDULED TO BE PERFORMED DURING OFF-HOURS.
- OFF HOURS WORK MUST BE ACCOMPLISHED 7:00PM TO 6:00 AM, MONDAY - FRIDAY. OFF HOURS WORK MUST OCCUR DURING HOURS MOST BENEFICIAL TO THE FACILITY, INCLUDING BUT NOT LIMITED TO NIGHTS AND WEEKENDS. COORDINATE WITH COR WORK REQUIRED TO BE PERFORMED DURING OFF HOURS, NIGHTS, AND WEEKENDS TO MINIMIZE RISK AND DISRUPTION TO THE OPERATIONAL FACILITY.
- FAA HAS AND MAINTAINS EQUIPMENT THAT IS CRITICAL TO ITS OPERATION THROUGHOUT THIS FACILITY. COORDINATE WITH COR LOCATION OF CRITICAL EQUIPMENT THAT MAY BE AFFECTED BY THE WORK DIRECTLY OR THROUGH CLOSE PROXIMITY. COORDINATE WITH COR PROCEDURES TO PROTECT FAA/GOVERNMENT EQUIPMENT. WORK IN AREAS WITH CRITICAL EQUIPMENT MUST BE ACCOMPLISHED DURING OFF-HOURS OR AS APPROVED BY COR.
- NOISY DEMOLITION (INSIDE OR OUTSIDE), OFF-HOURS CONSTRUCTION ACTIVITIES, AND WORK AFFECTING THE EQUIPMENT ROOM MUST BE SCHEDULED, COORDINATED AND APPROVED IN WRITING BY COR WITH A MINIMUM OF 10 WORKING DAYS NOTICE IN ADVANCE OF PERFORMANCE OF THE WORK.
- CONCRETE SAWING, CORE DRILLING, CONCRETE DEMOLITION AND ANCHOR DRILLING MUST BE ALLOWED ONLY AT PREARRANGED TIMES APPROVED BY COR. SCHEDULE, COORDINATE AND HAVE APPROVAL BY COR IN WRITING, A MINIMUM OF 10 WORKING DAYS BEFORE THE PERFORMANCE OF THE WORK.

**L. HAZMAT REMOVAL AND DISPOSAL**

- PER FAA INFORMATION, THERE IS NO HAZMAT IN THE AREA OF WORK. IF HAZMAT IS ENCOUNTERED OR IF ANY MATERIAL IS SUSPECTED TO CONTAIN HAZMAT, CEASE WORK IN THE AREA AND NOTIFY COR TO PLAN HOW TO PROCEED WITH THE WORK.

**J. PARKING LOT, DRIVEWAY REPAIR, AND LANDSCAPED AREAS**

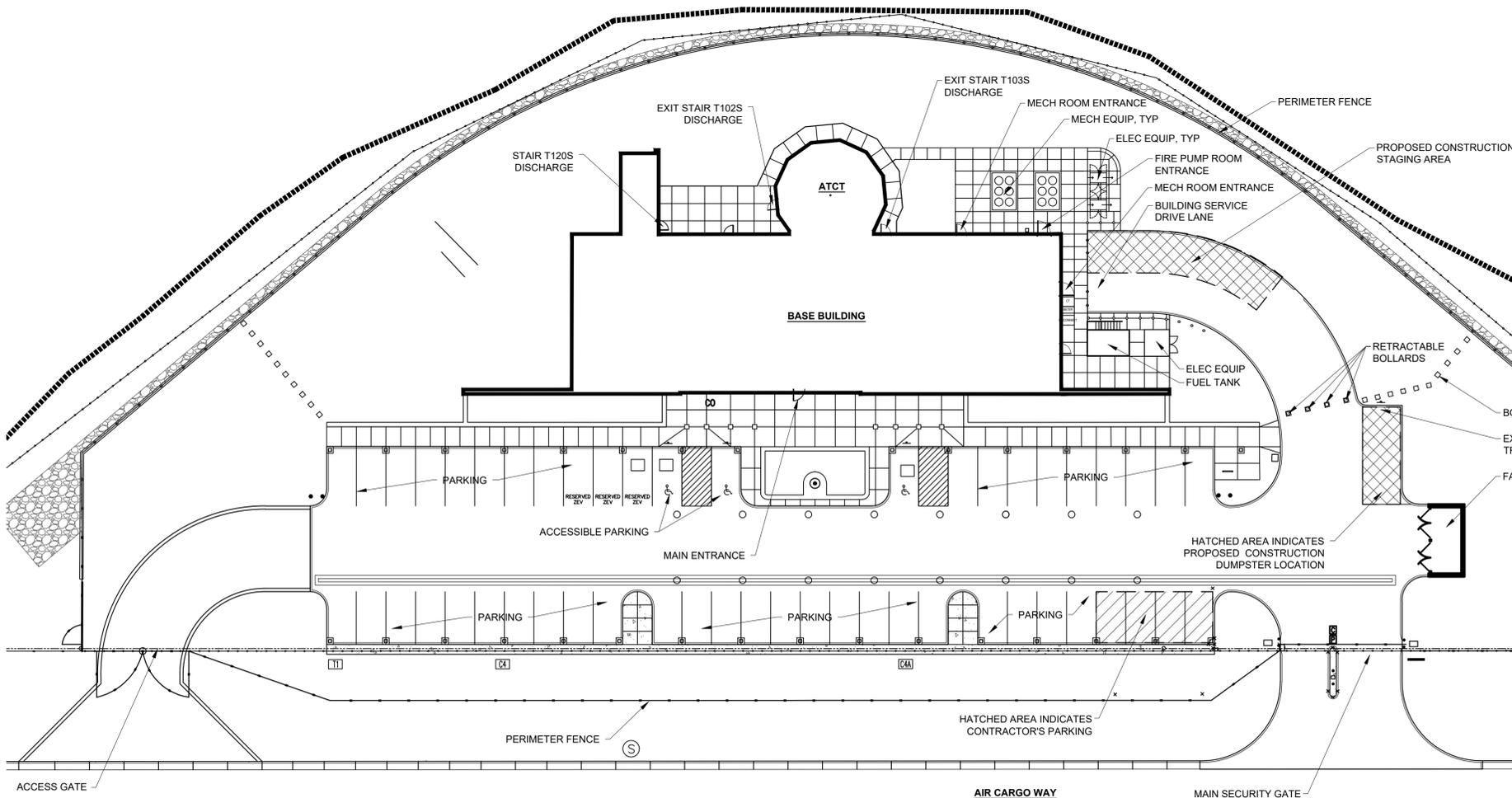
- UPON COMPLETION OF WORK, CONTRACTOR MUST REPAIR PAVED SURFACES AT AFFECTED WORK AREAS TO ORIGINAL CONDITION, INCLUDING STRIPING OF REPAIRED PAVED SURFACES.
- DISTURBED LAWNS AND LANDSCAPING MUST BE RESTORED TO ORIGINAL CONDITION BY CONTRACTOR TO THE SATISFACTION OF COR. LAWN DAMAGED BY THE WORK MUST BE REPLACED TO MATCH EXISTING AND TO SATISFACTION OF COR.

**K. EQUIPMENT PROTECTION**

- PROTECT FAA EQUIPMENT, BOTH INSIDE AND OUTSIDE BUILDING, FROM DAMAGE, INCLUDING BUT NOT LIMITED TO: DAMAGE CAUSED BY IMPACT, VIBRATIONS, WATER, HAZMAT, DEBRIS AND DUST, INCLUDING CORE DRILLING.
- SHUTDOWNS AND SWITCHOVERS OF MECHANICAL AND ELECTRICAL SYSTEMS MUST BE ACCOMPLISHED DURING OFF-HOURS AS INDICATED UNDER DEMOLITION AND CONSTRUCTION HOURS ON THIS SHEET. ONLY FAA MAY SHUT OFF MECHANICAL VALVES, COORDINATE SHUTTING OFF VALVES WITH COR. PREPARATORY WORK MUST BE COMPLETED PRIOR TO SHUTDOWN AND SWITCHOVER. SCHEDULE, COORDINATE AND HAVE APPROVAL IN WRITING BY COR WITH A MINIMUM OF 10 WORKING DAYS NOTICE IN ADVANCE OF PERFORMANCE OF WORK. ONLY FAA PERSONNEL MAY OPERATE CIRCUIT BREAKERS. CONTRACTOR MUST REQUEST PERMISSION, COORDINATE, AND HAVE APPROVAL IN WRITING BY COR WITH A MINIMUM OF 10 WORKING DAYS NOTICE IN ADVANCE FOR EACH CASE OF BREAKER OPERATION. CONTRACTOR MUST NOT OPEN (DE-ENERGIZE) OR CLOSE (ENERGIZE) ANY CIRCUIT BREAKER AT ANY TIME.
- ATCT IS A 24 HOUR 7 DAY PER WEEK OPERATING FACILITY. COORDINATE CONSTRUCTION ACTIVITY SO AS NOT TO INTERFERE WITH FUNCTIONS OF THE FACILITY.
- NO WELDING EQUIPMENT MUST BE POWERED BY THE FACILITY ELECTRICAL SYSTEM. WELDING MUST NOT BE PERMITTED IN FAA OCCUPIED AREAS UNLESS APPROVED IN WRITING BY COR. OSHA WORK PRACTICES MUST BE EXERCISED FOR ALL PHASES OF CONSTRUCTION INCLUDING WELDING OPERATIONS.
- USE GREAT CARE AND CAUTION WHILE WORKING IN ALL AREAS OF THIS FACILITY. WORK MUST BE COORDINATED WITH COR. DISRUPTION OF THIS FACILITY SHALL NOT BE PERMITTED.
- EXISTING FAA AIR TRAFFIC EQUIPMENT MUST REMAIN OPERATIONAL THROUGHOUT DURATION OF THIS CONTRACT. PROVIDE CONTINUOUS PROTECTION OF THIS EQUIPMENT FROM PHYSICAL OR ELECTRICAL DAMAGE AS A RESULT OF INCIDENTAL OR ACCIDENTAL NEGLIGENCE SUCH AS, BUT NOT LIMITED TO, DISRUPTION OF POWER TO EQUIPMENT. NOTIFY COR IMMEDIATELY OF DAMAGE OR DISRUPTION OF ELECTRICAL AND/OR MECHANICAL SERVICES.
- VENT TO THE EXTERIOR FUMES AND ODORS RESULTING FROM THE WORK. VENTS MUST NOT DISCHARGE NEAR AIR INTAKES, WINDOWS OR SIMILAR OPENINGS TO THE BUILDING. TAKE CARE NOT TO EXPOSE FAA EMPLOYEES TO FUMES, ODORS, OR OFF GASSING.

**L. COVID-19 PROTOCOL AND SAFETY PLAN**

- COORDINATE WITH COR LOCAL, FEDERAL AND FAA-SPECIFIC PROTOCOL FOR COVID-19 AT THE TIME OF THE WORK. COMPLY WITH LOCAL, FEDERAL, AND FAA-SPECIFIC PROTOCOL AS REQUIRED.
- REFER TO SPECIFICATIONS FOR COVID-19 SAFETY PLAN REQUIREMENTS AND OTHER SPECIAL CONTRACT REQUIREMENTS.



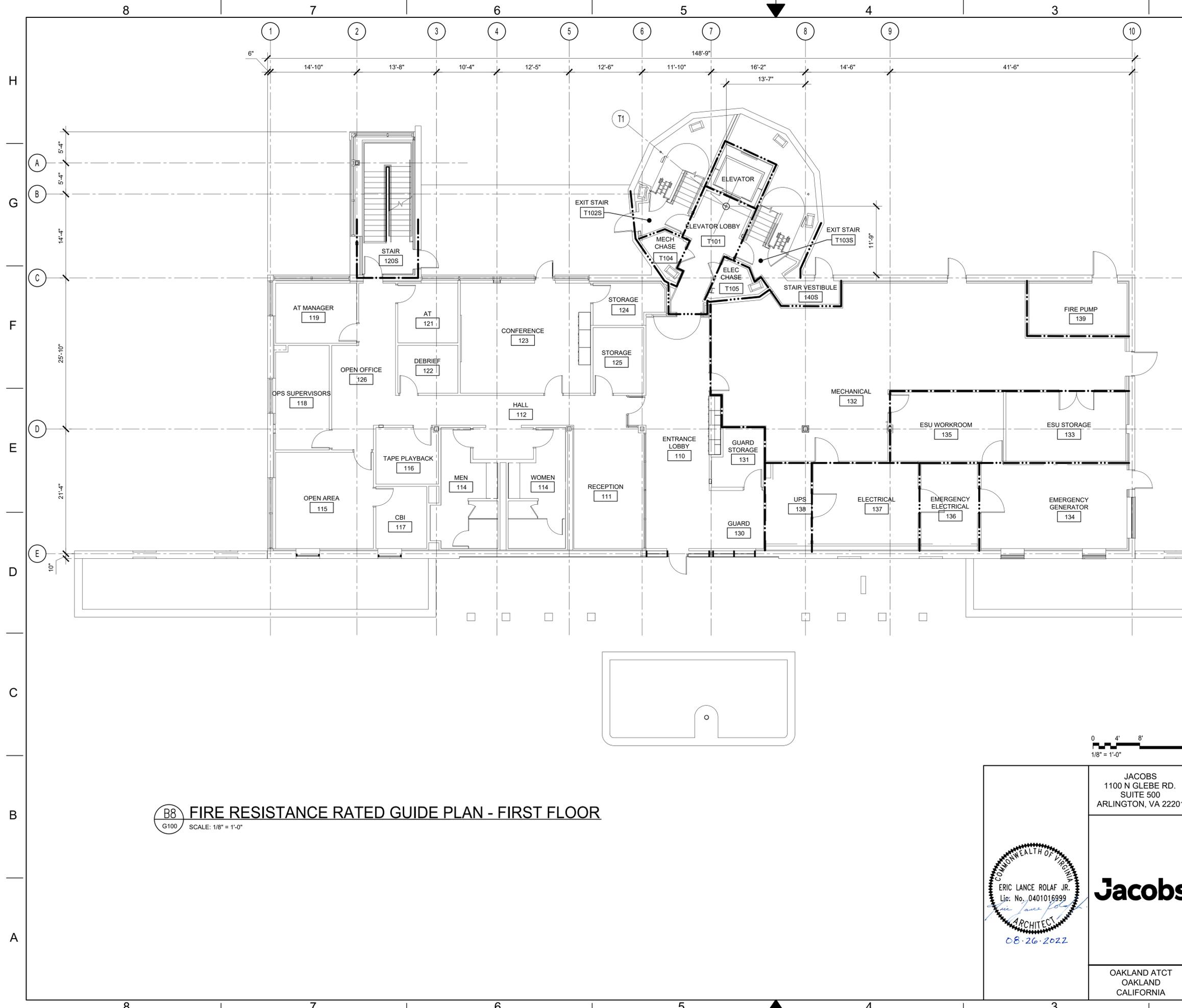
**AB G040 PRELIMINARY CONSTRUCTION STAGING PLAN**

SCALE: NOT TO SCALE  
NOTE: FINAL CONSTRUCTION STAGING AREA WILL BE DETERMINED AT THE PRECONSTRUCTION MEETING.



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 JACOBS 1100 N GLEBE RD. SUITE 500 ARLINGTON, VA 22201	DEPARTMENT OF TRANSPORTATION <b>FEDERAL AVIATION ADMINISTRATION</b> AT-O - TECHNICAL OPERATIONS      WESTERN SERVICE AREA												
	<b>ATCT AND BASE BUILDING</b> <b>GSHP REPLACEMENT</b> <b>PRELIMINARY CONSTRUCTION STAGING PLAN</b>												
	OAKLAND      OAKLAND INTERNATIONAL AIRPORT (OAK)      CA												
	OAKLAND ATCT OAKLAND CALIFORNIA												
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>REV.</th> <th>APPROVED DATE</th> <th>DESCRIPTION</th> <th>JCN</th> <th>REDLINE DATE</th> <th>APVD</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	REV.	APPROVED DATE	DESCRIPTION	JCN	REDLINE DATE	APVD						
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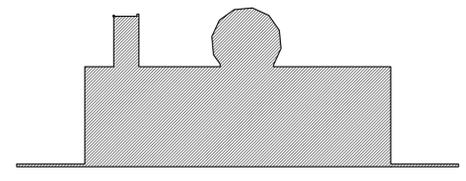
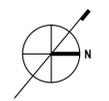
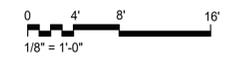
**GENERAL SHEET NOTES**

- A. PARTITION AND WALL FIRE/SMOKE RESISTANCE RATINGS ARE BASED UPON THE FIRE RESISTANCE RATINGS INDICATED ON THE FAA-PROVIDED "REPLACE AIRPORT TRAFFIC CONTROL TOWER (ATCT) AND ESTABLISH BASE BUILDING" "CORRECTED TO AS-BUILT DRAWINGS", DATED 03/28/2014. PER THESE "CORRECTED TO AS-BUILT DRAWINGS", BASE BUILDING IS TYPE II-B CONSTRUCTION AND ATCT IS TYPE I-B CONSTRUCTION, WITH 3-HOUR FIRE RESISTANCE RATED BARRIER SEPARATING THE BASE BUILDING AND ATCT.
- B. THIS DRAWING ILLUSTRATES THE EXTENT AND LAYOUT OF FIRE-RATED BARRIERS AS DOCUMENTED IN FAA-PROVIDED "CORRECTED TO AS-BUILT DRAWINGS." VERIFY AND CONFIRM EXISTING BARRIER RATINGS PRIOR TO THE WORK.
  1. SMOKE AND FIRE-STOP TO COMPLY WITH THE INDICATED RATINGS AT PENETRATIONS IN THESE BARRIERS RESULTING FROM THIS PROJECT'S WORK.
  2. SMOKE AND FIRE-STOP TO COMPLY WITH THE INDICATED RATINGS AT OPENINGS/HOLES RESULTING FROM THIS PROJECT'S WORK (REMOVALS OF EXISTING ITEMS LEAVING OPENINGS/HOLES).

**LEGEND**

- NOTE: FIRE RATINGS ARE AS IDENTIFIED IN FAA-PROVIDED "CORRECTED TO AS-BUILT DRAWINGS", DATED 03/28/2014.
- 3-HOUR RATED SMOKE/FIRE BARRIER
  - 2-HOUR RATED SMOKE/FIRE BARRIER
  - 1-HOUR RATED SMOKE/FIRE BARRIER

**B8** FIRE RESISTANCE RATED GUIDE PLAN - FIRST FLOOR  
 G100 SCALE: 1/8" = 1'-0"



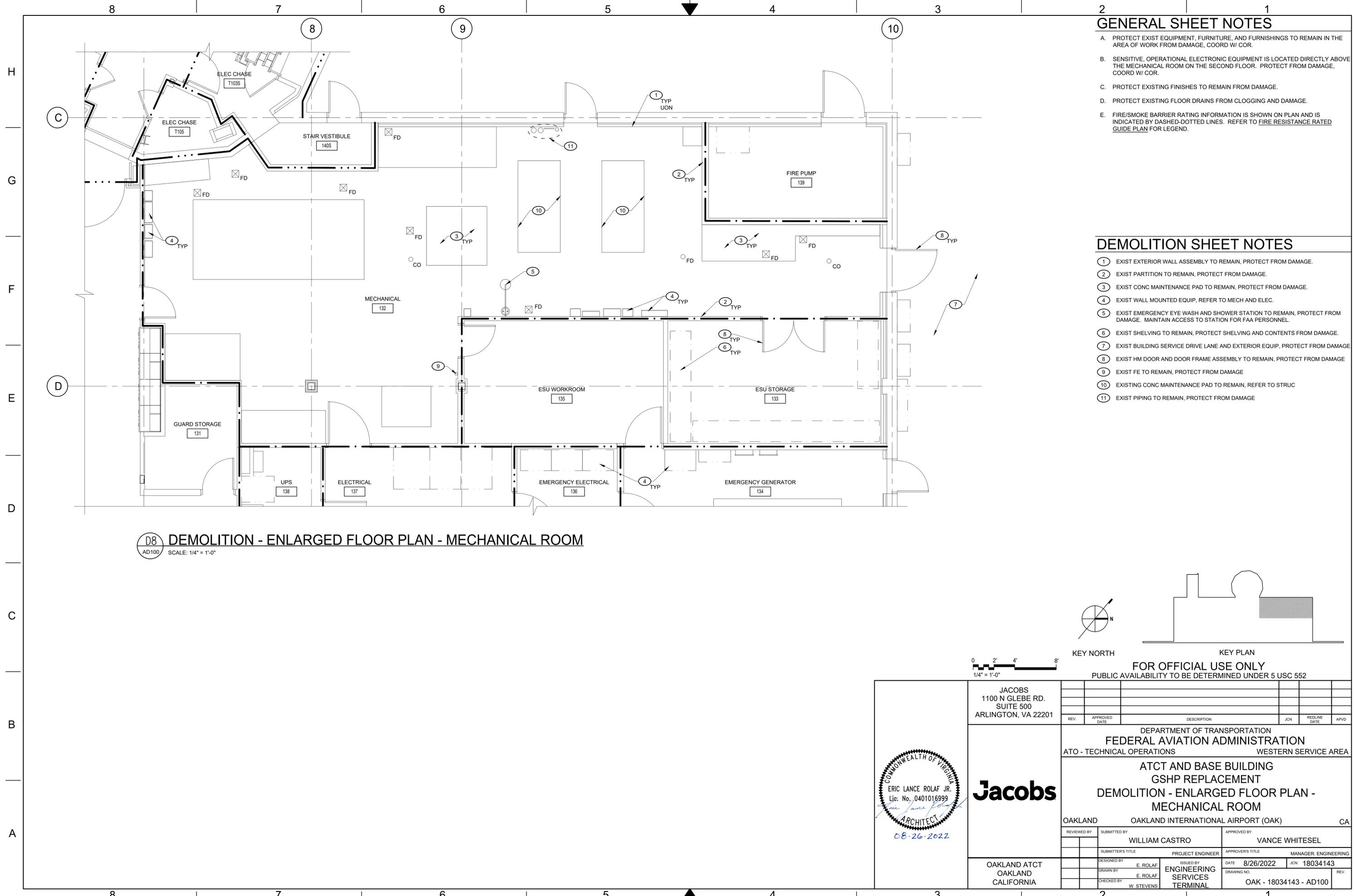
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JACOBS 1100 N GLEBE RD. SUITE 500 ARLINGTON, VA 22201		REV.	APPROVED DATE	DESCRIPTION	JCN	REDLINE DATE	APVD
		DEPARTMENT OF TRANSPORTATION <b>FEDERAL AVIATION ADMINISTRATION</b> ATO - TECHNICAL OPERATIONS WESTERN SERVICE AREA					
<b>ATCT AND BASE BUILDING</b> <b>GSHP REPLACEMENT</b> <b>FIRE RESISTANCE RATED GUIDE PLAN -</b> <b>FIRST FLOOR</b>							
OAKLAND		OAKLAND INTERNATIONAL AIRPORT (OAK)					CA
REVIEWED BY	SUBMITTED BY	APPROVED BY					
	WILLIAM CASTRO	VANCE WHITESEL					
DESIGNED BY	PROJECT ENGINEER	APPROVER'S TITLE	MANAGER: ENGINEERING				
	E. ROLAF	DATE	JCN	18034143			
DRAWN BY	ISSUED BY	ENGINEERING SERVICES					
	E. ROLAF	TERMINAL					
CHECKED BY	W. STEVENS	OAK - 18034143 - G100					



**Jacobs**

OAKLAND ATCT  
 OAKLAND  
 CALIFORNIA



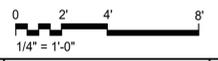
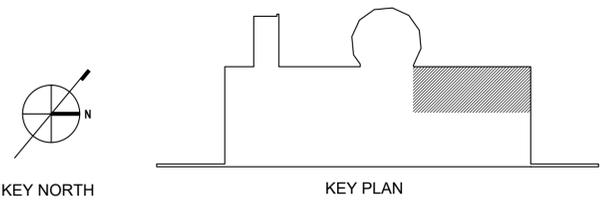
**GENERAL SHEET NOTES**

- A. PROTECT EXIST EQUIPMENT, FURNITURE, AND FURNISHINGS TO REMAIN IN THE AREA OF WORK FROM DAMAGE, COORD W/ COR.
- B. SENSITIVE, OPERATIONAL ELECTRONIC EQUIPMENT IS LOCATED DIRECTLY ABOVE THE MECHANICAL ROOM ON THE SECOND FLOOR. PROTECT FROM DAMAGE, COORD W/ COR.
- C. PROTECT EXISTING FINISHES TO REMAIN FROM DAMAGE.
- D. PROTECT EXISTING FLOOR DRAINS FROM CLOGGING AND DAMAGE.
- E. FIRE/SMOKE BARRIER RATING INFORMATION IS SHOWN ON PLAN AND IS INDICATED BY DASHED-DOTTED LINES. REFER TO FIRE RESISTANCE RATED GUIDE PLAN FOR LEGEND.

**DEMOLITION SHEET NOTES**

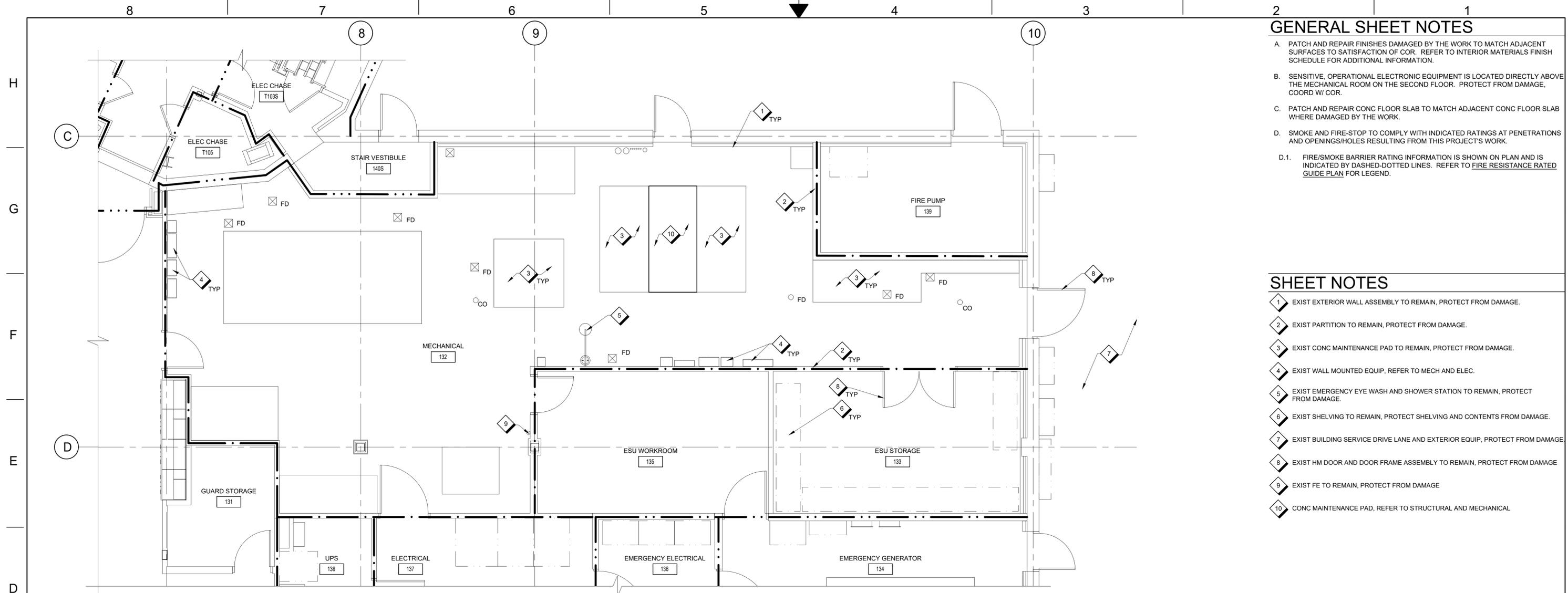
- 1 EXIST EXTERIOR WALL ASSEMBLY TO REMAIN, PROTECT FROM DAMAGE.
- 2 EXIST PARTITION TO REMAIN, PROTECT FROM DAMAGE.
- 3 EXIST CONC MAINTENANCE PAD TO REMAIN, PROTECT FROM DAMAGE.
- 4 EXIST WALL MOUNTED EQUIP, REFER TO MECH AND ELEC.
- 5 EXIST EMERGENCY EYE WASH AND SHOWER STATION TO REMAIN, PROTECT FROM DAMAGE. MAINTAIN ACCESS TO STATION FOR FAA PERSONNEL.
- 6 EXIST SHELVING TO REMAIN, PROTECT SHELVING AND CONTENTS FROM DAMAGE.
- 7 EXIST BUILDING SERVICE DRIVE LANE AND EXTERIOR EQUIP, PROTECT FROM DAMAGE
- 8 EXIST HM DOOR AND DOOR FRAME ASSEMBLY TO REMAIN, PROTECT FROM DAMAGE
- 9 EXIST FE TO REMAIN, PROTECT FROM DAMAGE
- 10 EXISTING CONC MAINTENANCE PAD TO REMAIN, REFER TO STRUC
- 11 EXIST PIPING TO REMAIN, PROTECT FROM DAMAGE

**D8 DEMOLITION - ENLARGED FLOOR PLAN - MECHANICAL ROOM**  
 AD100 SCALE: 1/4" = 1'-0"



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JACOBS 1100 N GLEBE RD. SUITE 500 ARLINGTON, VA 22201		REV.	APPROVED DATE	DESCRIPTION	JCN	REDLINE DATE	APVD
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		<b>ATCT AND BASE BUILDING</b> <b>GSHP REPLACEMENT</b> <b>DEMOLITION - ENLARGED FLOOR PLAN -</b> <b>MECHANICAL ROOM</b>					
		OAKLAND INTERNATIONAL AIRPORT (OAK)      CA					
OAKLAND ATCT CALIFORNIA		SUBMITTED BY <b>WILLIAM CASTRO</b>	APPROVED BY <b>VANCE WHITESEL</b>				
PROJECT ENGINEER		MANAGER: ENGINEERING		DATE: 8/26/2022      JCN: 18034143		REV.	
DESIGNED BY: E. ROLAF DRAWN BY: E. ROLAF CHECKED BY: W. STEVENS		ISSUED BY: <b>ENGINEERING SERVICES TERMINAL</b>		DRAWING NO. OAK - 18034143 - AD100			



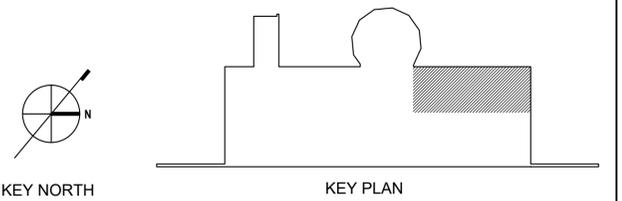
**D8 ENLARGED FLOOR PLAN - MECHANICAL ROOM**  
 A100 SCALE: 1/4" = 1'-0"

**GENERAL SHEET NOTES**

- A. PATCH AND REPAIR FINISHES DAMAGED BY THE WORK TO MATCH ADJACENT SURFACES TO SATISFACTION OF COR. REFER TO INTERIOR MATERIALS FINISH SCHEDULE FOR ADDITIONAL INFORMATION.
- B. SENSITIVE, OPERATIONAL ELECTRONIC EQUIPMENT IS LOCATED DIRECTLY ABOVE THE MECHANICAL ROOM ON THE SECOND FLOOR. PROTECT FROM DAMAGE, COORD W/ COR.
- C. PATCH AND REPAIR CONC FLOOR SLAB TO MATCH ADJACENT CONC FLOOR SLAB WHERE DAMAGED BY THE WORK.
- D. SMOKE AND FIRE-STOP TO COMPLY WITH INDICATED RATINGS AT PENETRATIONS AND OPENINGS/HOLES RESULTING FROM THIS PROJECT'S WORK.
- D.1. FIRE/SMOKE BARRIER RATING INFORMATION IS SHOWN ON PLAN AND IS INDICATED BY DASHED-DOTTED LINES. REFER TO FIRE RESISTANCE RATED GUIDE PLAN FOR LEGEND.

**SHEET NOTES**

- 1 EXIST EXTERIOR WALL ASSEMBLY TO REMAIN, PROTECT FROM DAMAGE.
- 2 EXIST PARTITION TO REMAIN, PROTECT FROM DAMAGE.
- 3 EXIST CONC MAINTENANCE PAD TO REMAIN, PROTECT FROM DAMAGE.
- 4 EXIST WALL MOUNTED EQUIP, REFER TO MECH AND ELEC.
- 5 EXIST EMERGENCY EYE WASH AND SHOWER STATION TO REMAIN, PROTECT FROM DAMAGE.
- 6 EXIST SHELVING TO REMAIN, PROTECT SHELVING AND CONTENTS FROM DAMAGE.
- 7 EXIST BUILDING SERVICE DRIVE LANE AND EXTERIOR EQUIP, PROTECT FROM DAMAGE.
- 8 EXIST HM DOOR AND DOOR FRAME ASSEMBLY TO REMAIN, PROTECT FROM DAMAGE.
- 9 EXIST FE TO REMAIN, PROTECT FROM DAMAGE.
- 10 CONC MAINTENANCE PAD, REFER TO STRUCTURAL AND MECHANICAL.



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**INTERIOR MATERIALS FINISH SCHEDULE**

NOTES:  
 1. FINISHES SHOWN BELOW REFLECT EXISTING FINISHES AT MECHANICAL ROOM.  
 2. PROVIDE FINISHES FOR PATCH AND REPAIR TO MATCH EXISTING. FINAL SELECTION TO BE APPROVED BY COR.  
 3. PROVIDE SC AT SIDES AND TOP OF CONC MAINTENANCE PADS.

CODE	SURFACE	MATERIAL	MANUFACTURER	COLOR	REMARKS
EXP	CEILING	EXPOSED TO STRUC ABOVE	-	-	-
PT1	WALL	PAINT	SHERWIN-WILLIAMS	SW 6385 DOVE WHITE	PROVIDE COLOR AND SHEEN TO MATCH EXISTING.
PT2	INTERIOR HM DOOR/FRAME	PAINT	SHERWIN-WILLIAMS	SW 2827 COLONIAL REVIVAL STONE	PROVIDE COLOR AND SHEEN TO MATCH EXISTING.
PT3	EXTERIOR HM DOOR/FRAME	PAINT	SHERWIN-WILLIAMS	SW 7019 GAUNTLET GRAY	PROVIDE COLOR AND SHEEN TO MATCH EXISTING.
SC	FLOOR	SEALED CONCRETE	-	-	-
VB	WALL	VINYL WALL BASE	JOHNSONITE	40 BLACK	4" TALL; PROVIDE COLOR TO MATCH EXISTING.

JACOBS  
 1100 N GLEBE RD.  
 SUITE 500  
 ARLINGTON, VA 22201

**JACOBS**

COMMONWEALTH OF VIRGINIA  
 ERIC LANCE ROLAF JR.  
 Lic. No. 0401016999  
 ARCHITECT  
 08.26.2022

DEPARTMENT OF TRANSPORTATION  
**FEDERAL AVIATION ADMINISTRATION**  
 ATO - TECHNICAL OPERATIONS WESTERN SERVICE AREA

**ATCT AND BASE BUILDING  
 GSHP REPLACEMENT**

**ENLARGED FLOOR PLAN - MECHANICAL ROOM**

OAKLAND OAKLAND INTERNATIONAL AIRPORT (OAK) CA

REVIEWED BY	SUBMITTED BY	APPROVED BY
	WILLIAM CASTRO	VANCE WHITESEL
SUBMITTER'S TITLE	PROJECT ENGINEER	APPROVER'S TITLE
		MANAGER: ENGINEERING
DESIGNED BY	ISSUED BY	DATE
	E. ROLAF	8/26/2022
DRAWN BY	ENGINEERING SERVICES	JCN: 18034143
	E. ROLAF	
CHECKED BY	TERMINAL	DRAWING NO.
	W. STEVENS	OAK - 18034143 - A100
		REV.

GENERAL

- 1. VERIFY AND BE RESPONSIBLE FOR DIMENSIONS AND CONDITIONS AT THE SITE AND IS TO NOTIFY THE ENGINEER OF RECORD OF DISCREPANCIES BETWEEN THE ACTUAL CONDITIONS AND INFORMATION SHOWN ON THE DRAWINGS BEFORE PROCEEDING WITH THE WORK. REFER TO ARCHITECTURAL, MECHANICAL, AND ELECTRICAL.
2. BRING OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE CONTRACT DRAWINGS AND THE SPECIFICATIONS TO THE ATTENTION OF THE ENGINEER OF RECORD BEFORE PROCEEDING WITH ANY WORK SO INVOLVED. REPORT DISCREPANCIES TO THE ENGINEER OF RECORD FOR RESOLUTION BEFORE PROCEEDING.
3. DIMENSIONS TAKE PRECEDENCE OVER SCALE SHOWN ON PLANS, SECTIONS AND DETAILS. NOTES AND DETAILS ON DRAWINGS TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.
4. DO NOT STORE CONSTRUCTION MATERIALS ON POURED OR ERECTED FLOORS OR ROOF IN EXCESS OF 80% OF THE DESIGN LIVE LOAD. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE SUB-CONTRACTORS ARE INFORMED AND DO NOT VIOLATE THIS IMPORTANT REQUIREMENT. AVOID PLACING MATERIALS ON ALREADY POURED OR ERECTED FLOORS OR ROOFS.
5. DO NOT PLACE OPENINGS, POCKETS, ETC., IN SLABS, BEAMS, COLUMNS, WALLS, ETC. UNLESS SPECIFICALLY SHOWN ON THE STRUCTURAL OR APPROVED IN WRITING BY THE ENGINEER OF RECORD.
6. ASTM SPECIFICATIONS NOTED ON THESE DRAWINGS MUST BE THE LATEST REVISIONS.
7. IN THE EVENT CERTAIN FEATURES OF THE CONSTRUCTION ARE NOT FULLY SHOWN ON THE DRAWINGS OR CALLED FOR IN THE NOTES OR SPECIFICATIONS THEIR CONSTRUCTION ARE OF THE SAME CHARACTER AS FOR SIMILAR CONDITIONS THAT ARE SHOWN OR CALLED FOR AND BE REVIEWED BY THE ENGINEER OF RECORD.
8. SEE ARCHITECTURAL FOR THE FOLLOWING:
- SIZE AND LOCATION OF DOOR AND WINDOW OPENINGS, EXCEPT AS NOTED.
- SIZE AND LOCATION OF INTERIOR AND EXTERIOR NON-BEARING PARTITIONS.
- SIZE AND LOCATION OF CONCRETE CURBS, FLOOR DRAINS, SLOPES, DEPRESSED AREAS, CHANGES IN LEVEL, CHAMFERS, GROOVES, INSERTS, ETC.
- SIZE AND LOCATION OF FLOOR AND ROOF OPENINGS EXCEPT AS SHOWN.
- DIMENSIONS NOT SHOWN ON STRUCTURAL.
9. SEE MECHANICAL, AND ELECTRICAL FOR THE FOLLOWING:
- PIPE AND DUCT RUNS, SLEEVES, HANGERS, TRENCHES, PITS, WALL AND SLAB OPENINGS, ETC. EXCEPT AS SHOWN OR NOTED.
- ELECTRICAL CONDUIT RUNS, BOXES, OUTLETS IN WALL AND SLABS.
- CONCRETE INSERTS FOR ELECTRICAL OR PLUMBING FIXTURES.
10. ITEMS IN THE PROJECT SPECIFICATIONS, BUT NOT SHOWN ON THE DRAWINGS ARE CONSIDERED AS PART OF THE DRAWINGS.
11. ALTERATION, REHABILITATION OR RECONSTRUCTION: ARE IN ACCORDANCE WITH THE GOVERNING CODE. SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK ARE NOT COMPLYING WITH THE GOVERNING CODE. A CHANGE ORDER, OR A SEPARATE SET OF PLANS AND SPECIFICATIONS, DETAILING AND SPECIFYING THE REQUIRED WORK TO BE SUBMITTED TO AND APPROVED BY THE ENGINEER OF RECORD BEFORE PROCEEDING WITH THE WORK.
12. SUBSTITUTIONS: PROVIDE MANUFACTURER'S ICC REPORTS AND A LIST OF PROPOSED SUBSTITUTIONS TO THE ENGINEER OF RECORD FOR REVIEW BEFORE FABRICATION.
13. CONSTRUCTION LOADS: MATERIALS TO BE EVENLY DISTRIBUTED IF PLACED ON FRAMED FLOORS OR ROOFS. LOADS ARE TO NOT EXCEED THE ALLOWABLE LOADING FOR THE SUPPORTING MEMBERS AND THEIR CONNECTIONS.
14. STRUCTURAL PLANS INDICATE ONLY THE APPROXIMATE LOCATION OF MECHANICAL, ELECTRICAL AND OTHER EQUIPMENT, AS WELL AS THE RELATED AUXILIARY FRAMING NECESSARY TO SUPPORT SUCH EQUIPMENT. THE FINAL POSITIONING OF THESE ITEMS IS DEPENDENT UPON THE EQUIPMENT PROVIDED. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WORK BETWEEN SUBCONTRACTORS AND CRAFTS IN THIS REGARD AND PROVIDING NECESSARY DIMENSIONS IN A TIMELY MANNER TO PARTIES INVOLVED. GENERAL
15. PIPES, DUCTS, SLEEVES, CHASES, ETC. NOT TO BE PLACED IN SLABS, BEAMS, OR WALLS UNLESS SPECIFICALLY SHOWN OR NOTED NOR ANY STRUCTURAL MEMBER BE CUT FOR PIPES, DUCTS, ETC., UNLESS SPECIFICALLY SHOWN. OBTAIN PRIOR WRITTEN APPROVAL FOR INSTALLATION OF ANY ADDITIONAL PIPES, DUCTS, ETC.
16. CONSTRUCTION METHODS AND PROJECT SAFETY: THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE METHODS, PROCEDURES OR SEQUENCE OF CONSTRUCTION. TAKE NECESSARY PRECAUTIONS TO MAINTAIN AND INSURE THE INTEGRITY OF THE STRUCTURE DURING CONSTRUCTION. NEITHER THE GOVERNMENT, ARCHITECT, NOR ENGINEER IS TO ENFORCE SAFETY MEASURES OR REGULATIONS. THE CONTRACTOR TO CONSTRUCT AND MAINTAIN SAFETY DEVICES, INCLUDING SHORING AND BRACING, AND BE SOLELY RESPONSIBLE FOR CONFORMING TO LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS.

DESIGN CRITERIA

THE PROJECT IS TO BE DESIGNED UNDER INDUSTRY STANDARDS LISTED BELOW. THE FOLLOWING LATEST PUBLICATIONS UNO TO BE USED FOR THE DESIGN, FABRICATION, AND CONSTRUCTION OF STRUCTURAL ITEMS FOR THE PROJECT:

- INTERNATIONAL BUILDING STANDARDS CODE, 2018 EDITION.
ASCE 7-16 MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES.
ACI 318-14, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY.
ACI 301-16, SPECIFICATIONS FOR STRUCTURAL CONCRETE
ACI SP-66-04, ACI DETAILING MANUAL

DESIGN LOADS

- 1. DEAD LOADS: AS CALCULATED ACTUAL WEIGHT OF PERMANENT BUILDING MATERIALS AND EQUIPMENT.
2. LIVE LOADS:
A. MECHANICAL AND ELECTRICAL ROOMS 150 PSF
3. SEISMIC LOAD:
SITE CLASS: E (BASED ON RECORD DRAWINGS)
RISK CATEGORY IV
SPECTRAL ACCELERATION: Ss = 1.50g, Si = 0.60g
DESIGN SPECTRAL ACCELERATION: S0.2 = 1.219g, S0.1 = 0.80g
SEISMIC DESIGN CATEGORY: D
SEISMIC IMPORTANCE FACTOR Ie = 1.50
HEAT PUMP, BUFFER TANK, EXPANSION TANK: ah = 1.0, Rb = 2.5

CONCRETE

- 1. PHASES OF WORK PERTAINING TO THE CONCRETE CONSTRUCTION IS TO CONFORM TO THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318-14) WITH MODIFICATIONS AS NOTED IN THE DRAWINGS OR SPECIFICATIONS.
2. CONCRETE MIXES MUST BE DESIGNED BY A QUALIFIED TESTING LABORATORY, STAMPED AND SIGNED BY A LICENSED CIVIL ENGINEER AND APPROVED BY THE STRUCTURAL ENGINEER. DO NOT USE CALCIUM CHLORIDE IN ADMIXTURES.
3. SCHEDULE OF STRUCTURAL CONCRETE, 28 DAY STRENGTHS AND TYPES
LOCATIONS OF STURCTURE STRENGTHS PSI TYPE
A. HOUSEKEEPING PAD 4,000 NORMAL WEIGHT
4. PORTLAND CEMENT IS TO CONFORM TO ASTM C-150 TYPE III/V WHERE IN CONTACT WITH EARTH. TYPE III/II LOW ALKALI ELSEWHERE.
5. AGGREGATE FOR CRUSHED-ROCK CONCRETE IS TO CONFORM TO REQUIREMENTS AND TESTS AT ASTM C-33 AND PROJECT SPECIFICATIONS. EXCEPTIONS MAY BE USED ONLY WITH PERMISSION OF THE ENGINEER OF RECORD.
6. PLACEMENT OF CONCRETE IS TO CONFORM TO ACI STANDARD 301 AND PROJECT SPECIFICATIONS. SANDBLAST CONCRETE SURFACES AGAINST WHICH CONCRETE IS TO BE PLACED.
7. MINIMUM CLEAR COVERAGE OF CONCRETE OVER OUTER REINFORCING BARS IS AS FOLLOWS (UNLESS NOTED OTHERWISE):
MIN. COVER, INCHES
A. CAST-IN PLACE
1. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3
2. CONCRETE EXPOSED TO EARTH OR WEATHER: No. 6 THRU No. 18 BAR 2, No. 5 BAR, W31 OR D31 WIRE, & SMALLER 1 1/2
3. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND: SLABS, WALLS: No. 14 AND No. 18 BAR 1 1/2, No. 11 AND SMALLER 3/4, BEAMS, COLUMNS, PEDESTALS AND TENSION TIES 1 1/2
8. REINFORCING BARS, ANCHOR BOLTS AND OTHER CONCRETE INSERTS ARE TO BE WELL SECURED IN POSITION PRIOR TO PLACING CONCRETE.
9. THE MAXIMUM SLUMP NOT TO EXCEED THE SLUMP OF 5" PER THE MIX DESIGN THAT HAS BEEN REVIEWED AND APPROVED BY THE ENGINEER OF RECORD OF RECORD. WATER CEMENT RATIOS ARE NOT TO EXCEED 0.45.
10. ROUGHEN SURFACE OF HORIZONTAL OR NEARLY HORIZONTAL CONSTRUCTION JOINTS SO THAT THE AGGREGATE ARE TO BE EXPOSED UNIFORMLY, LEAVING NO LAITANCE, LOOSEENED PARTICLES OR DAMAGED CONCRETE.
11. CHAMFER 3/4 INCH ON EXPOSED CORNERS UNO.

REINFORCING STEEL

- 1. REINFORCING STEEL ARE DETAILED AND PLACED IN CONFORMANCE WITH THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318-14), AND THE "MANUAL OF STANDARD PRACTICE FOR REINFORCED CONCRETE CONSTRUCTION" (LATESTED), BY THE C.R.S.I., AS MODIFIED BY THE PROJECT DRAWINGS AND SPECIFICATIONS.
2. REINFORCING BARS ARE TO CONFORM TO THE REQUIREMENTS OF ASTM A-615 GRADE 60.
3. WELDED REINFORCEMENT ARE TO CONFORM TO THE REQUIREMENTS OF ASTM A-706 GRADE 60. WELDING OF REINFORCEMENT ARE TO BE WITH LOW HYDROGEN ELECTRODES IN CONFORMANCE WITH "RECOMMENDED PRACTICES FOR WELDING REINFORCING STEEL", ETC., AMERICAN WELDING SOCIETY, AWS D1.4 (SEE SPECIFICATIONS).
4. REINFORCING BAR BENDS ARE MADE COLD.
5. PROVIDE CHAIRS, SPACERS, AND SAND PLATES AS REQUIRED TO MAINTAIN CONCRETE COVER.
6. SPLICES (STANDARD LAPS): REFER TO SCHEDULE IN TYPICAL DETAILS FOR SPLICE LENGTHS. STAGGER BOTTOM SPLICES AT LEAST 5'-0" FROM SPLICES IN OTHER BOTTOM REINFORCEMENT. STAGGER SPLICES FOR TOP REINFORCEMENT SIMILAR.
7. BARS ARE MARKED SO THEIR IDENTIFICATION CAN BE MADE WHEN THE FINAL IN-PLACE INSPECTION IS MADE

POST INSTALLED ANCHORS

- 1. ANCHOR RODS FOR POST-INSTALLED ANCHORS ARE F1554 THREADED RODS. SEE DRAWINGS FOR ANCHOR DIAMETER. PROVIDE STANDARD EMBEDMENT DEPTH UNLESS OTHERWISE NOTED AND INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
2. CONCRETE ANCHORAGE: USE ADHESIVE OR MECHANICAL ANCHORS OR AS INDICATED ON DRAWINGS.
3. DRILLING OF BOLT HOLES ARE NOT TO DAMAGE REBAR IN CONCRETE. DETECT REBARS AND OFFSET BOLTS AS NECESSARY BEFORE DRILLING. DRILL HOLES IN ITEMS TO BE FASTENED AFTER BOLTS ARE INSTALLED.
4. PROVIDE A STANDARD WASHER AND HEX NUT WITH EACH BOLT.
5. PROVIDE STAINLESS STEEL FASTENERS FOR EXTERIOR USE OR WHEN EXPOSED TO WEATHER. PROVIDE GALVANIZED CARBON STEEL ANCHORS AT OTHER LOCATIONS. UNLESS OTHERWISE NOTED.
6. IF REINFORCEMENT IS ENCOUNTERED DURING DRILLING. ABANDON AND SHIFT THE HOLE LOCATION TO SOUND CONCRETE BETWEEN THE DOWEL AND THE ABANDONED HOLE. FILL THE ABANDONED HOLE WITH NON-SHRINK GROUT. IF THE ANCHOR OR DOWEL CAN NOT BE SHIFTED AS NOTED ABOVE, THE ENGINEER MUST DETERMINNE THE NEW LOCATION.
7. LOCATE REINFORCEMENT AND CONFIRM FINAL ANCHOR LOCATIONS PRIOR TO FABRICATING PLATES, MEMBERS, OR OTHER STEEL ASSEMBLIES ATTACHED WITH MECHANICAL ANCHORS.

ADHESIVE ANCHORS

- 1. ADHESIVE ANCHORS: HILTI HIT-RE500-V3 (ICC ESR-3814) OR APPROVED EQUAL.
2. INSTALL ANCHORS IN ACCORDANCE WITH THE LATEST ICC-ESR.

STRUCTURAL TEST & INSPECTIONS

- 1. SPECIAL INSPECTIONS PROVIDED BY AN APPROVED INDEPENDENT AGENCY HIRED BY THE CONTRACTOR. SPECIAL INSPECTION PROVIDED FOR THE FOLLOWING TYPES OF WORK PER CHAPTER 17 OF IBC 2018 SEE PROJECT SPECIFICATIONS FOR SPECIFIC REQUIREMENTS.
A. BOLTS AND DOWELS INSTALLED IN CONCRETE.
B. CONCRETE REINFORCEMENT
C. POST-INSTALLED ANCHORS IN CONCRETE PER ACI 318-14 SECTION 17.8.2

DEFERRED SUBMITTALS

- 1. THE FOLLOWING ITEMS NOT SPECIFICALLY DETAILED HEREIN, ARE DEFERRED SUBMITTALS PENDING APPROVAL OF THE AUTHORITY HAVING JURISDICTION:
A. SEISMIC SUPPORT AND ANCHORAGE OF MEP EQUIPMENT AND FIXTURES.
2. DEFERRED SUBMITTALS MUST BE ACCOMPANIED BY CALCULATIONS SIGNED AND SEALED BY A LICENSED CIVIL/STRUCTURAL ENGINEER.
3. DEFERRED SUBMITTALS MUST BE SUBMITTED TO AND APPROVED BY THE AUTHORITY HAVING JURISDICTION PRIOR TO INSTALLATION

TABLE 1705.3

REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION

Table with 5 columns: VERIFICATION AND INSPECTION, CONTINUOUS, PERIODIC, REFERENCED STANDARD, IBC REFERENCE. Contains 7 rows of inspection requirements.

STRUCTURAL ABBREVIATIONS

- ARCH. ARCHITECTURAL
ALT. ALTERNATIVE
BM BEAM
(E) EXISTING
EA. EACH
EQ. EQUAL
CLR. CLARENCE
CONC. CONCRETE
CONN. CONNECTION
LBS. POUNDS
LONG. LONGITUDINAL
MECH. MECHANICAL
MIN. MINIMUM
MAX. MAXIMUM
GRP. GROUND PENETRATING RADAR
O.C. ON CENTER
TYP. TYPICAL
TRANS. TRANSVERSE
V.I.F. VERIFY IN FIELD
W/ WITH
WF WIDE FLANGE
WT WEIGHT

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Project information block including Jacobs logo, project name (ATCT AND BASE BUILDING GSHP REPLACEMENT GENERAL NOTES), location (OAKLAND INTERNATIONAL AIRPORT), and approval/signature fields.

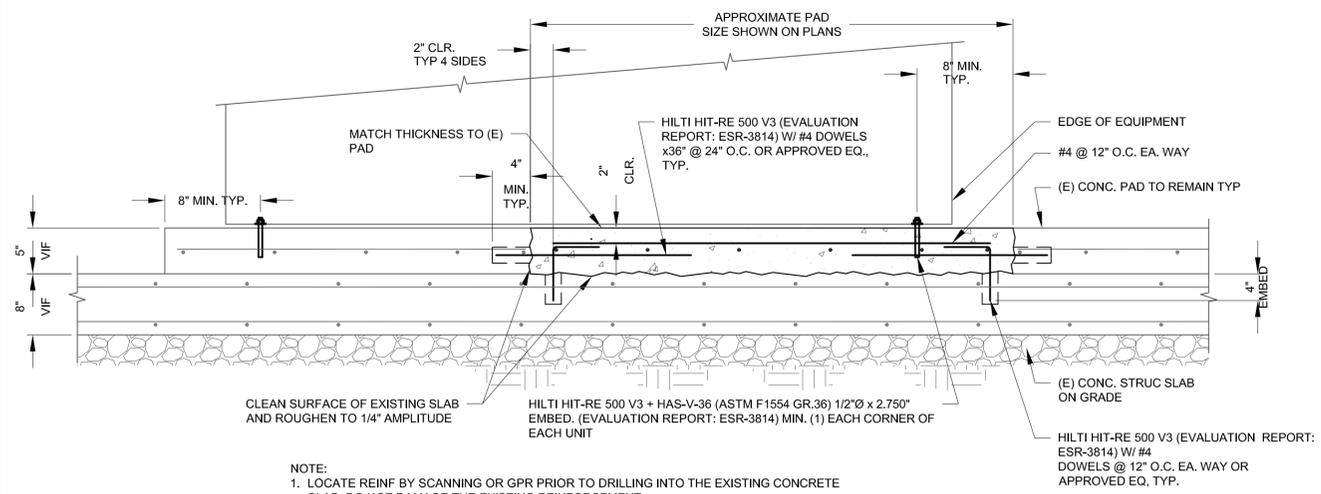


**GENERAL SHEET NOTES:**

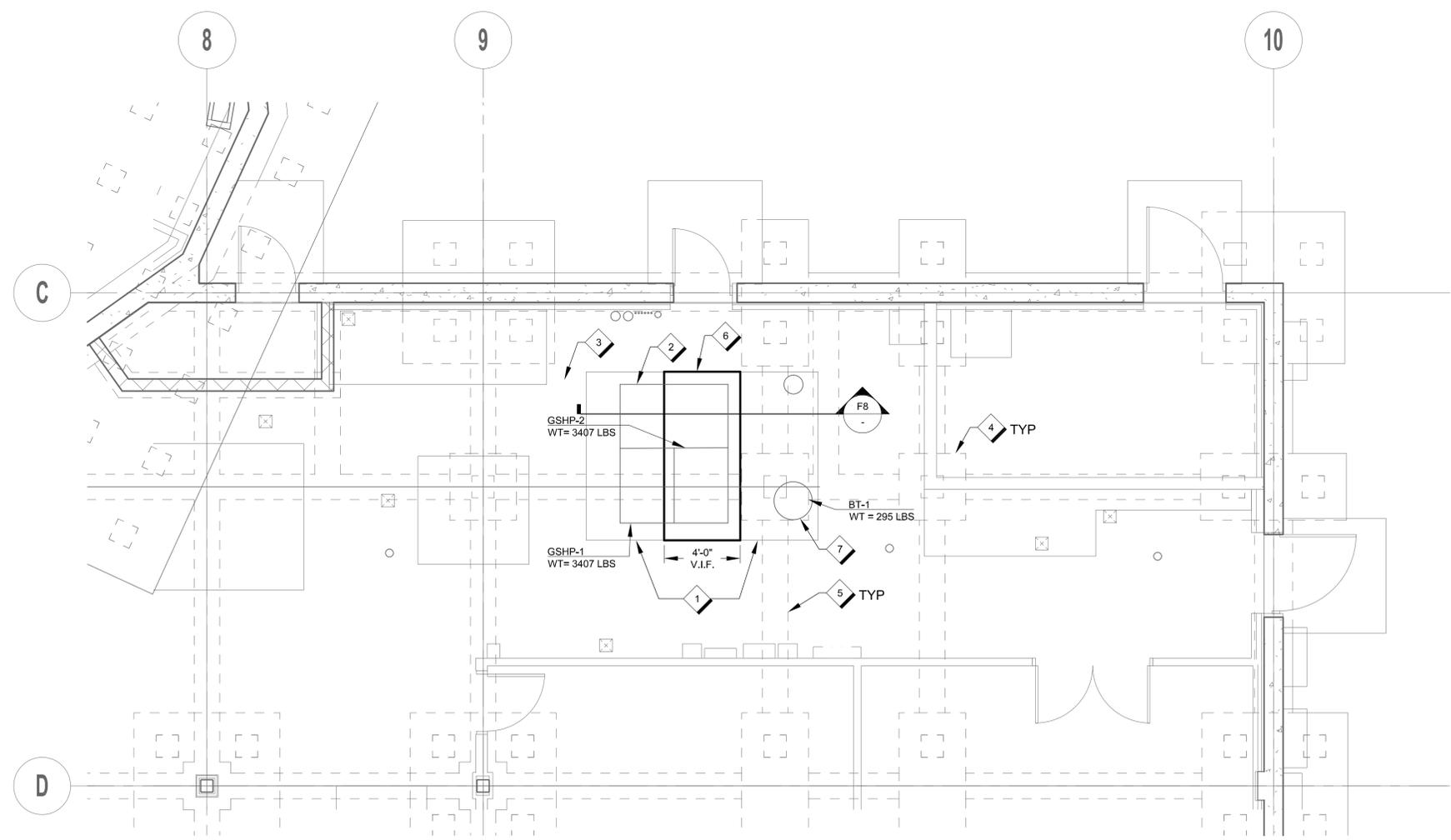
- A. LOCATE REINFORCEMENT BY SCANNING OR GPR PRIOR TO DRILLING THE EXISTING CONCRETE SLAB. DO NOT DAMAGE THE EXISTING REINFORCEMENT.
- B. FIELD VERIFY ALL DIMENSIONS AND LOCATIONS.
- C. (E) STRUCTURAL SLAB ON GRADE IS 8" THICK W/ #4 @ 6" O.C. SPANNING BETWEEN GRIDS C - D, & #4 @ 12" O.C. SPANNING BETWEEN GRIDS 9 - 10, V.I.F.
- D. (E) FOUNDATION SYSTEM, GRADE BEAM, PILE, PILE CAP SHOWN FOR REFERENCE ONLY, V.I.F.
- E. FOR PIPE SUPPORT DETAILS SEE SHEET S501

**SHEET NOTES:**

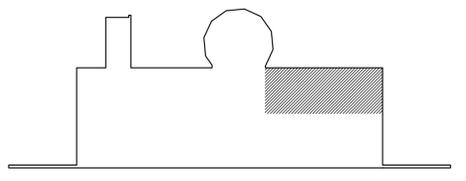
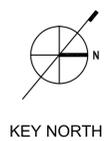
- 1 (E) HOUSEKEEPING PAD TO REMAIN, 5" THICK W/ #4 @ 12" O.C. BOTH WAY, CENTERED IN PAD, V.I.F.
- 2 GSHP, REFER TO MECH.
- 3 (E) STRUCTURAL SLAB, DO NOT DAMAGE THE CONCRETE NOR REBAR.
- 4 (E) PILE CAP AND PILE
- 5 (E) CONCRETE GRADE BEAM
- 6 INFILL CONCRETE PAD PER DETAIL F8/S110
- 7 BUFFER TANK, REFER TO MECHANICAL, SEE DETAIL F8/S110 FOR ANCHORAGE INFORMATION SIMILAR TO HEAT PUMP, (4) ANCHOR TOTAL



**F8 SECTION**  
SCALE: NTS

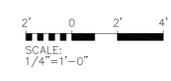


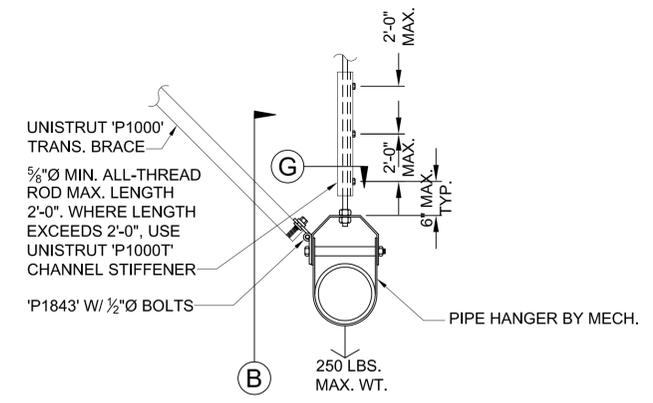
**A8 ENLARGED FOUNDATION PLAN - MECHANICAL ROOM**  
SCALE: 1/4" = 1'-0"



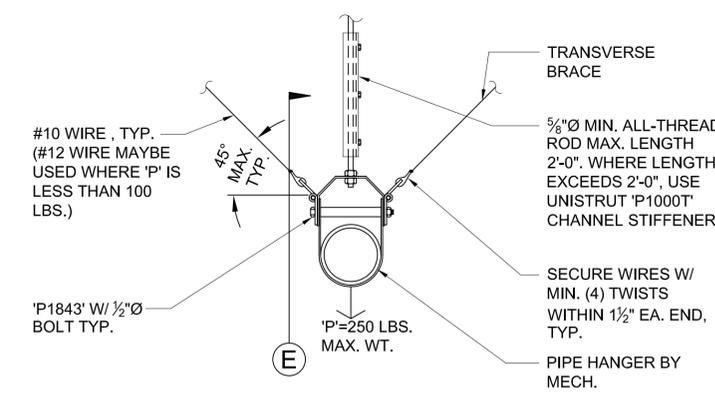
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	JACOBS 1100 N GLEBE RD. SUITE 500 ARLINGTON, VA 22201	REV.    APPROVED DATE    DESCRIPTION    JCN    REDLINE DATE    APVD
		DEPARTMENT OF TRANSPORTATION <b>FEDERAL AVIATION ADMINISTRATION</b> ATO - TECHNICAL OPERATIONS    WESTERN SERVICE AREA
<b>ATCT AND BASE BUILDING</b> <b>GSHP REPLACEMENT</b> <b>ENLARGED FOUNDATION PLAN - MECHANICAL ROOM</b>		
OAKLAND    OAKLAND INTERNATIONAL AIRPORT (OAK)    CA		REVIEWED BY    SUBMITTED BY    APPROVED BY
OAKLAND ATCT OAKLAND CALIFORNIA		WILLIAM CASTRO    VANCE WHITESEL
DESIGNED BY    ISSUED BY DRAWN BY    ENGINEERING SERVICES TERMINAL CHECKED BY		DATE    JCN    STRUCTURAL ENGINEER 8/26/2022    18034143
SCALE: 1/4" = 1'-0"		DRAWING NO.    REV. OAK - 18034143 - S110

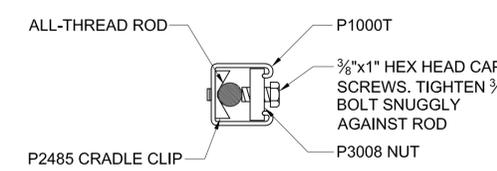




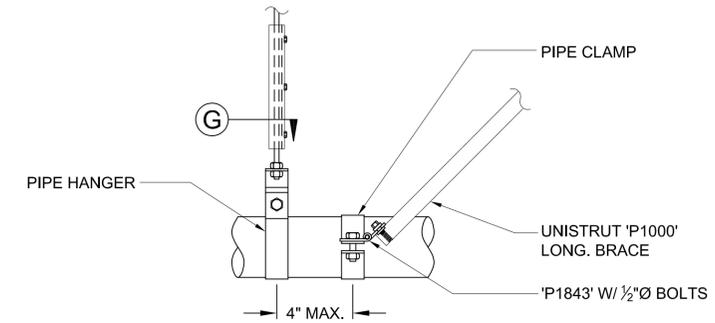
**A** SINGLE PIPE SUPPORT  
TRANSVERSE BRACE



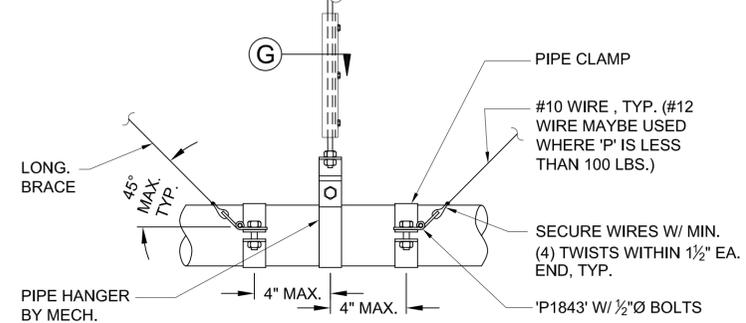
**D** SINGLE PIPE SUPPORT (ALT.)  
TRANSVERSE BRACE



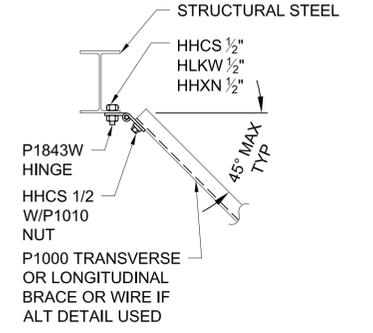
**G** PLAN SECTION G



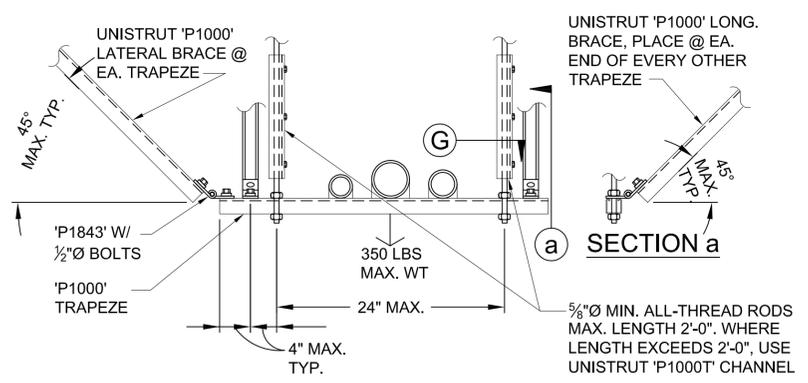
**B** SINGLE PIPE SUPPORT  
LONGITUDINAL BRACE



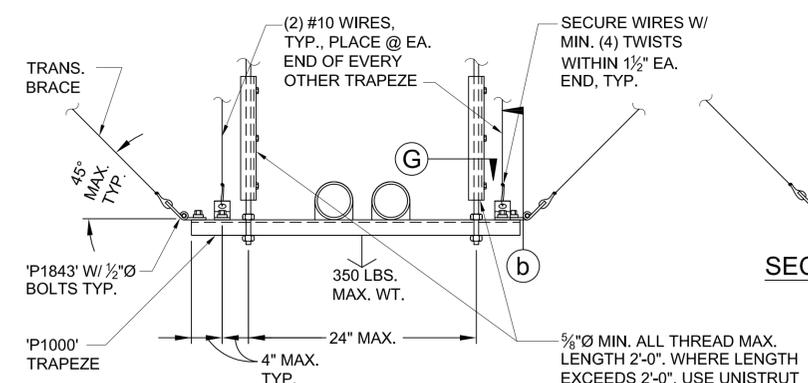
**E** SINGLE PIPE SUPPORT (ALT.)  
LONGITUDINAL BRACE



**H** TOP CONNECTION DETAIL

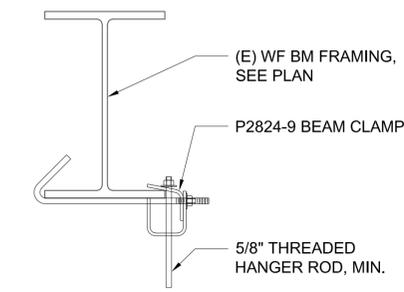


**C** TRAPEZE SUPPORT



**F** TRAPEZE SUPPORT (ALT.)

**C6** PIPE SUPPORT DETAILS  
SCALE: NTS



**A6** TYP BEAM CLAMP  
SCALE: NTS

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OAKLAND INTERNATIONAL AIRPORT (OAK)    CA	OAKLAND    OAKLAND INTERNATIONAL AIRPORT (OAK)    CA	REVIEWED BY    SUBMITTED BY    APPROVED BY
OAKLAND ATCT OAKLAND CALIFORNIA	WILLIAM CASTRO	VANCE WHITESEL
DESIGNED BY    VJ DRAWN BY    GC CHECKED BY    KH	ISSUED BY    ENGINEERING SERVICES TERMINAL	DATE    8/26/2022    JCN:    18034143
OAK - 18034143 -S501	OAK - 18034143 -S501	REV.

8	7	6	5	4	3	2	1		
<b>EQUIPMENT</b> EQUIPMENT DESIGNATION NUMBER SYMBOL (E) AHU-X ← (E)=EXISTING EQUIPMENT		<b>PIPING</b> CHWR - CHILLED WATER RETURN CHWS - CHILLED WATER SUPPLY CD - CONDENSATE DRAIN HWR - HOT WATER RETURN HWS - HOT WATER SUPPLY RV - REFRIGERANT VENT PITCH DOWN IN DIRECTION OF ARROW ANCHOR ALIGNMENT GUIDE EXPANSION JOINT FLEXIBLE HOSE (FLANGED ENDS) FLEXIBLE HOSE (SCREWED ENDS) FLEXIBLE PIPE CONNECTOR FLOW DIRECTION AIR ELIMINATOR TEST COCK (PETES' PLUG) PRESSURE INDICATOR WITH COCK VALVE AND BLIND FLANGE PIPE HEADER WITH BLIND FLANGE AUTOMATIC AIR VENT MANUAL AIR VENT PIPE TURNING UP PIPE TURNING DOWN CIR - ELECTRIC HEAT TRACE THERMOWELL WITH TEMPERATURE INDICATOR SIGHT GLASS FLOW METER CONCENTRIC REDUCER ECCENTRIC REDUCER STRAP-ON SENSOR WELD CAP CAPPED PIPE/OUTLET PLUGGED PIPE/OUTLET SEGMENTED BALL VALVE PLUG VALVE BALL VALVE BUTTERFLY VALVE BUTTERFLY VALVE WITH BLIND FLANGE MOTOR OPERATED CONTROL VALVE (VALVE TYPE VARIES) UNION STRAINER WITH BLOWDOWN VALVE CALIBRATED BALANCING VALVE GATE VALVE ANGLE VALVE GLOBE VALVE CHECK VALVE PRESSURE REGULATING VALVE PRESSURE RELIEF OR SAFETY VALVE TEMPERATURE INDICATOR PUMP PUMP DEMOLISH EXISTING TO REMAIN (LIGHT LINE WEIGHT) NEW WORK (HEAVY LINE WEIGHT) CONDUCTIVITY PROBE HOT TAP WITH PLUG		<b>ABBREVIATIONS</b> A COMPRESSED AIR AAV AUTOMATIC AIR VENT AB AIR BLENDER ABV ABOVE AD ACCESS DOOR, AIR DRYER AFF ABOVE FINISHED FLOOR AFG ABOVE FINISHED GRADE AHU AIR HANDLING UNIT AP ACCESS PANEL ARCH ARCHITECTURAL AS AIR SEPARATOR B BOILER BCP BOILER CONTROL PANEL BEL BELOW BF BLIND FLANGE BFP BACKFLOW PREVENTER BLDG BUILDING BOP BOTTOM OF PIPE BTU BRITISH THERMAL UNIT BT BUFFER TANK C/C COOLING COIL CCP CHILLER CONTROL PANEL CD CONTROL DAMPER, CEILING DIFFUSER CENT CENTRIFUGAL CH CHILLER CIP CHEMICAL INJECTION PUMP CIR CIRCULATING CLG CEILING CONST CONSTANT COND CONDENSATE CONC CONCRETE CONN CONNECTION CONT CONTINUATION COR CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE CUH CABINET UNIT HEATER CRAC COMPUTER ROOM AIR CONDITIONER CW DOMESTIC COLD WATER CWR CHILLED WATER RETURN CWS CHILLED WATER SUPPLY CWT CHILLED WATER TANK D DEMOLITION DB DRY BULB DDCP DIRECT DIGITAL CONTROL PANEL DDCS DIRECT DIGITAL CONTROL SYSTEM DEG DEGREE DES DESIGN DFA DISTANCE ABOVE FINISHED FLOOR TO TOP OF THE DUCT COLLAR AT EXHAUST HOOD. DET DETAIL DIA DIAMETER DIFF DIFFERENTIAL DISCH DISCHARGE DL DOOR LOUVER DN DOWN DP DIFFERENTIAL PRESSURE SWITCH DWG DRAWING E EXISTING TO REMAIN ECMS ENVIRONMENTAL CONTROL & MONITORING SYS. ECO ECONOMIZER EF EXHAUST FAN EFF EFFICIENCY EL ELEVATION (HEIGHT) ELEC ELECTRIC ELL ELBOW EMERG EMERGENCY E/G EMERGENCY GENERATOR ENT ENTERING EQUIP EQUIPMENT ER EXHAUST REGISTER ET EXPANSION TANK EUH ELECTRIC UNIT HEATER EWT ENTERING WATER TEMPERATURE EXH EXHAUST EXT EXTERNA, EXTERIOR °F DEGREES FAHRENHEIT FA FIRE ALARM FACP FIRE ALARM CONTROL PANEL F/F FINAL FILTER FC/FCU FAN COIL UNIT FD FIRE DAMPER, FLOOR DRAIN FD/SD COMBINATION FIRE AND SMOKE DAMPER FEPC FRONT END PERSONAL COMPUTER FI FLOW INDICATOR FIN FINISHED FLR FLOOR FLA FULL LOAD AMPERE FLEX FLEXIBLE FLG FLANGE FM FLOW METER FOL FUEL OIL LEVEL FOP FUEL OIL PUMP FOR FUEL OIL RETURN FOS FUEL OIL SUPPLY FP FIRE PROTECTION FPB FAN POWERED INDUCTION VAV BOX FPM FEET PER MINUTE FT FEET GA GALLONS GAL GOVERNMENT FURNISHED CONTRACTOR INSTALLED GFCI GROUND LOOP PUMP GLP GROUND LOOP RETURN WATER GLR GROUND LOOP SUPPLY WATER GSHS GROUND SOURCE HEAT PUMP GV GATE VALVE H/C HEATING COIL HE HEAT EXCHANGER H/HU HUMIDIFIER HORIZ HORIZONTAL HP HORSEPOWER, HIGH POINT HR HOUR HVAC HEATING, VENTILATION, AIR CONDITIONING HWC HOT WATER COIL HTP HEAT PUMP HWR HEATING HOT WATER RETURN HWS HEATING HOT WATER SUPPLY HZ HERTZ (CYCLES/SEC) ICW INDUSTRIAL COLD WATER IE INVERT ELEVATION IN INCH IV INTAKE VENTILATOR KW KILOWATT LBS POUNDS LBS/HR POUNDS PER HOUR LCP LOCAL CONTROL PANEL LDP LEAK DETECTION PANEL LEL LOWER EXPLOSION LIMIT LF LINEAR FEET LO LUBRICATING OIL LVG LEAVING LWL LOWER WATER LEVEL LWT LEAVING WATER TEMPERATURE MAN MANIFOLD, MANUAL MAX MAXIMUM MBH 1000 BTU PER HOUR MCA MINIMUM CIRCUIT AMPACITY MECH MECHANICAL MIN MINIMUM, MINUTE MSC MISCELLANEOUS MOP MAXIMUM OVER CURRENT PROTECTION MVD MOTORIZED VOLUME DAMPER N NECK, NORTH N/A NOT APPLICABLE NC NORMALLY CLOSED, NOISE CRITERIA NO NORMALLY OPEN/NUMBER NTS NOT TO SCALE OC ON CENTER PH PHASE P PUMP PCMS POWER CONTROL AND MONITORING SYSTEM PD PRESSURE DROP PHC PREHEAT COIL POC POINT OF CONNECTION PRESS PRESSURE PRV PRESSURE REDUCING VALVE, POWER ROOF VENTILATOR PSIG POUNDS PER SQUARE INCH GAUGE PSV PRESSURE SAFETY VALVE PTRV PRESSURE-TEMPERATURE RELIEF VALVE RED REDUCER REQD REQUIRED RH RELATIVE HUMIDITY, RELIEF HOOD RHC REHEAT COIL RM ROOM RPM REVOLUTIONS PER MINUTE RV REFRIGERANT VENT SAT SOUND ATTENUATOR SD SMOKE DETECTOR, SMOKE DAMPER SENS SENSIBLE SH SHEET SMACNA SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION SOV SOLENOID OPERATED SHUT-OFF VALVE SQ FT SQUARE FEET STM STEAM T THROAT, THERMOSTAT TEMP TEMPERATURE TK TANK TOC TOP OF CONCRETE TOT TOTAL TR TOP REGISTER TW THERMOWELL TYP TYPICAL UF UNDER FLOOR U/C UNDER-CUT UG UNDERGROUND UH UNIT HEATER UL UNDERWRITER'S LABORATORIES UV UNIT VENTILATOR UF UNDER FLOOR V VOLT VAC VACUUM VAV VARIABLE AIR VOLUME VC VACUUM CLEANER VD VOLUME DAMPER VEL VELOCITY VFD VARIABLE FREQUENCY DRIVE W WASTE W/ WITH W/O WITHOUT WB WET BULB WC WATER COLUMN WG WATER GAUGE WO WASTE OIL DRAINAGE WOR WASTE OIL RECOVERY WOV WASTE OIL VENT WMS WIRE MESH SCREEN WWHP WATER TO WATER HEAT PUMP		<b>GENERAL NOTES</b> A. FIELD VERIFY EQUIPMENT AND PIPING SIZES PRIOR TO START OF WORK. COORDINATE INSTALLATION WITH LOCATION OF EXISTING PIPING, DUCTWORK, CONDUITS, STRUCTURE AND OTHER EXISTING EQUIPMENT. B. PROVIDE HEATING/COOLING EQUIPMENT FOR AREAS REQUIRING HEATING/ COOLING DURING CONSTRUCTION WORK. PROVIDE TEMPORARY POWER SUPPLY FROM CIRCUITS APPROVED BY COR. C. EXACT LOCATION AND SIZE OF EQUIPMENT PADS MUST BE COORDINATED IN FIELD WITH ACTUAL EQUIPMENT PROVIDED. D. INSTALLATION MUST PROVIDE READY ACCESS TO VALVES AND OTHER DEVICES. E. DESIGNATE A PERSON TO BE RESPONSIBLE FOR FIRE PROTECTION DURING WELDING OR CUTTING OPERATIONS. PERSON PERFORMING FIRE PROTECTION DUTIES MUST NOT BE SAME INDIVIDUAL THAT IS PERFORMING WELDING OPERATIONS. COMPLY WITH OSHA STANDARDS FOR WELDING IN 29 CFR-1910 AND 29 CFR-1926. PROVIDE TEMPORARY FIRE EXTINGUISHERS AND FIRE WATCH DURING CONSTRUCTION. WELDING MUST BE SCHEDULED IN WRITING WITH COR AND MUST BE PERFORMED OUTSIDE OF FACILITY OR IN SAFE LOCATION TO BE DETERMINED BY COR. F. FOR WELDING THAT MUST BE PERFORMED INSIDE THE BUILDING, PROVIDE LOCAL MECHANICAL VENTILATION DURING WELDING DUCTED TO OUTSIDE, APPROVED BY FAA AND ACGIH. MINIMIZE WELDING WITHIN THE BUILDING WHEREVER POSSIBLE. G. WELDING POWERED FROM FACILITY ELECTRICAL SYSTEM IS PROHIBITED. CONNECT METAL TO BE WELDED TO A GOOD EARTH GROUND. FACILITY STRUCTURAL STEEL OR PIPING MUST NOT BE USED AS A GROUND PATH. H. FOR SUPPORT AND VIBRATION ISOLATION OF EQUIPMENT, DUCTWORK AND PIPING, SEE SPECIFICATIONS. I. EQUIPMENT MUST BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS. PROVIDE FIRE RATED SEALANTS AT PIPE PENETRATIONS AND ABANDONED HOLES THROUGH FIRE RATED ASSEMBLIES. RATING OF SEALANTS MUST BE EQUAL TO OR EXCEED RATING OF FIRE RATED ASSEMBLY. J. CONDUIT AND WIRING MUST BE PROVIDED AND INSTALLED IN ACCORDANCE WITH DIVISION 26 SPECIFICATIONS AND DRAWINGS. K. PROVIDE SEISMIC RESTRAINT IN ACCORDANCE WITH SPECIFICATIONS. L. LOCATIONS, SIZES, CLEARANCES AND CONFIGURATIONS OF EQUIPMENT SHOWN ARE BASED ON SPECIFIC SCHEDULED MANUFACTURERS AND MODEL NUMBERS. SUBSTITUTION OF ALTERNATE MANUFACTURERS WILL REQUIRE CONTRACTOR VERIFICATION OF CONFORMANCE PER THE REQUIREMENTS INCLUDING LOCATION, SIZE, CLEARANCES, CONFIGURATION AND CHANGES TO UTILITY OR SERVICE CONNECTIONS AS COMPARED TO THE SCHEDULED EQUIPMENT. CONTRACTOR MUST RESUBMIT THE PROPOSED ALTERNATE EQUIPMENT TO THE CONTRACTING OFFICER'S REPRESENTATIVE (COR) FOR APPROVAL, PRIOR TO INSTALLATION. M. PARTS OF THE FACILITY WILL BE OCCUPIED AND MUST REMAIN OPERATIONAL DURING CONSTRUCTION. PROVIDE TEMPORARY HEATING AND COOLING AS REQUIRED. COORDINATE CONSTRUCTION PHASING WITH COR. N. PROVIDE DIELECTRIC FITTINGS FOR FERROUS AND NON-FERROUS JUNCTIONS. COOLING SYSTEM MUST REMAIN OPERATIONAL DURING CONSTRUCTION. USE HOT TAPS, LINE STOPS, OR PIPE FREEZING TO PERFORM PIPING WORK. COOLING SYSTEM MUST REMAIN ACTIVE DURING CONSTRUCTION. O. ALL NEW HVAC PIPING AND EXISTING HVAC PIPING THAT IS DRAINED MUST BE CLEANED, FLUSHED AND TREATED PRIOR TO CONNECTING INTO THE EXISTING SYSTEM. CONTRACTOR MUST COORDINATE THIS WORK WITH OWNER. ALL NEW PIPING MUST BE HYDROSTATICALLY TESTED BEFORE BEING BROUGHT ON LINE. APPROXIMATE LOCATIONS OF EQUIPMENT, PIPING, VALVES, ETC ARE INDICATED ON THE DRAWINGS. OBTAIN EXACT LOCATIONS AND ESTABLISH EXACT DIMENSIONS ON THE JOB SITE PRIOR TO CONSTRUCTION. P. TEST THE WATER QUALITY PRIOR TO CONSTRUCTION AND SUBMIT TO COR FOR REVIEW. AFTER CONNECTING NEW EQUIPMENT AND PIPING TO EXISTING SYSTEMS, TEST WATER QUALITY AND PROVIDE WATER TREATMENT TO MEET THE EXISTING AND NEW EQUIPMENT MANUFACTURER WATER QUALITY REQUIREMENTS AND SUBMIT REPORT TO COR FOR REVIEW. Q. PROVIDE A COMPLETE AND FULLY FUNCTIONAL SYSTEM.		<b>DEMOLITION NOTES</b> 1. THE EXISTING COOLING SYSTEM IS EXPECTED TO SUPPORT THE FACILITY DURING CONSTRUCTION. SUBMIT PHASING PLANS FOR APPROVAL PRIOR TO CONSTRUCTION OR DEMOLITION. 2. FIELD VERIFY THE EXACT SIZES & LOCATIONS OF EXISTING DUCTWORK & PIPING PRIOR TO DEMOLITION WORK. THE DEMOLITION WORK MUST BE COORDINATED WITH THE NEW WORK TO ASSURE PROPER LIMITS OF DEMOLITION. 3. UNLESS OTHERWISE INDICATED, DEMOLITION AND CONSTRUCTION WASTE BECOMES PROPERTY OF THE CONTRACTOR. REFER TO SPECIFICATION SECTION 01 74 19, CONSTRUCTION WASTE MANAGEMENT, FOR ADDITIONAL REQUIREMENTS. 4. EQUIPMENT & PIPING REMOVED DURING CONSTRUCTION MUST REMAIN THE PROPERTY OF FAA & MUST BE STORED, REMOVED FROM THE JOB SITE, OR DISPOSED OF AS DIRECTED BY COR. 5. COORDINATE PIPING WHICH MUST REMAIN AS PART OF AN ACTIVE SYSTEM & IS IN CONFLICT WITH THE NEW LAYOUT. CONFLICT MUST BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER IMMEDIATELY. 6. INSPECT EXISTING TO REMAIN EQUIPMENT. IF DAMAGE IS FOUND, PROVIDE A REPORT TO THE COR WITH PHOTOS DOCUMENTING DAMAGE PRIOR TO CONSTRUCTION. CLEAN, REPAIR OR REPLACE ITEMS DAMAGED DURING CONSTRUCTION AT NO ADDITIONAL COST TO FAA. 7. PATCH, REPAIR AND FINISH EXISTING WALLS, FLOORS AND PARTITIONS AFFECTED BY THE CONSTRUCTION TO MATCH EXISTING FINISH AND FIRE/SMOKE RATING. 8. ALL REFRIGERANT PRESENT IN DEMOLISHED EQUIPMENT MUST BE RECOVERED ACCORDING TO EPA REGULATIONS BY AN EPA CERTIFIED TECHNICIAN. REFER TO SPECIFICATION SECTION 01 74 19 CONSTRUCTION WASTE MANAGEMENT FOR ADDITIONAL REQUIREMENTS.	
<b>MISCELLANEOUS</b> POINT OF CONNECTION OF NEW TO EXISTING POINT OF TERMINATION NEW WORK - DARK LINE WEIGHT EXISTING - LIGHT LINE WEIGHT DEMOLISH		<b>INSTRUMENTATION</b> AXXX A = AIR HANDLING UNIT, XXX = UNIT NUMBER FXXX F = FAN COIL UNIT, XXX = UNIT NUMBER MEASURED VARIABLE OR CONTROLLED DEVICE INSTRUMENT OR DEVICE IDENTIFICATION NUMBER EQUIPMENT INSTRUMENT OR DEVICE IS ASSOCIATED WITH INSTRUMENT OR DEVICE NOT LOCATED IN AN ENCLOSURE MEASURED VARIABLE OR CONTROLLED DEVICE INSTRUMENT OR DEVICE IDENTIFICATION NUMBER EQUIPMENT INSTRUMENT OR DEVICE IS ASSOCIATED WITH INSTRUMENT OR DEVICE LOCATED IN AN ENCLOSURE % PERCENT RELATIVE HUMIDITY °F DEGREES FAHRENHEIT AFS AIR FLOW SWITCH AX AUXILIARY CONTACT C. COMMON CD CONTROL DAMPER CI CURRENT INPUT CR CURRENT RELAY CV CONTROL VALVE DDCP DIRECT DIGITAL CONTROL PANEL DDCS DIRECT DIGITAL CONTROL SYSTEM DI DAMPER POSITION INDICATOR DP DIFF. PRESSURE SWITCH FACP FIRE ALARM CONTROL PANEL FEPC FRONT END PERSONAL COMPUTER FR FIELD MOUNTED RELAY FZ FREEZE/STAT H HUMIDISTAT H2 HYDROGEN SENSOR HS HUMIDITY SENSOR HT HIGH LIMIT TEMPERATURE SWITCH M MOTOR/ACTUATOR N/A NOT APPLICABLE N.C. NORMALLY CLOSED N.O. NORMALLY OPEN PD PRESSURE DIFFERENTIAL SENSOR PDI PRESSURE DIFFERENTIAL INDICATOR PT PRESSURE TRANSMITTER S SMOKE DETECTOR SS START/STOP CONTROL T THERMOSTAT TCP TEMPERATURE CONTROL PANEL TS TEMPERATURE SENSOR ELECTRONIC INTERLOCK WIRING DDCS CONTROL SYSTEM WIRING ADDRESSABLE CONTROL DEVICE DDCP DATA INPUT/OUTPUT TO CENTRAL FEPC DIGITAL INPUT TO DDCP DIGITAL OUTPUT FROM DDCP ANALOG INPUT TO DDCP ANALOG OUTPUT FROM DDCP							

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		<b>JACOBS</b> 1100 N GLEBE RD. SUITE 500 ARLINGTON, VA 22201		REV.    APPROVED DATE    DESCRIPTION    JCN    REDLINE DATE    APVD	
<b>DEPARTMENT OF TRANSPORTATION</b> <b>FEDERAL AVIATION ADMINISTRATION</b> ATO - TECHNICAL OPERATIONS    WESTERN SERVICE AREA					
<b>ATCT AND BASE BUILDING</b> <b>GSHP REPLACEMENT</b> <b>MECHANICAL ABBREVIATIONS, LEGENDS, AND</b> <b>GENERAL NOTES</b>					
<b>OAKLAND</b>		<b>OAKLAND INTERNATIONAL AIRPORT (OAK)</b>		<b>CA</b>	
REVIEWED BY	SUBMITTED BY <b>WILLIAM CASTRO</b>	APPROVED BY <b>VANCE WHITESEL</b>	APPROVERS TITLE <b>MANAGER, ENGINEERING</b>		
DESIGNED BY <b>D. TRAXLER</b>	PROJECT ENGINEER <b>ENGINEERING SERVICES TERMINAL</b>	DATE <b>8/26/2022</b>	JCN <b>18034143</b>	DRAWING NO. <b>OAK - 18034143 - M001</b>	
DRAWN BY <b>A. BOLTON</b>	CHECKED BY <b>K. LEDWELL</b>	<b>OAKLAND ATCT</b> <b>OAKLAND</b> <b>CALIFORNIA</b>			



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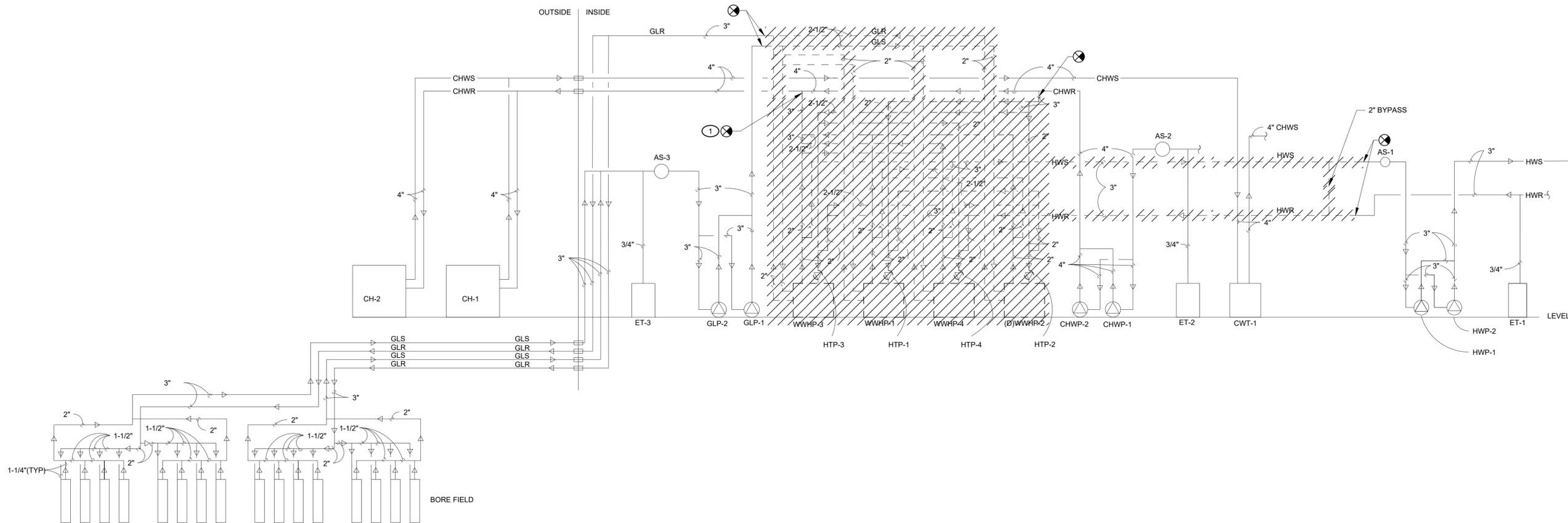
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### GENERAL SHEET NOTES

- A. REFER TO DRAWING M001 FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.
- B. PROTECT EQUIPMENT TO REMAIN IN THE AREA OF WORK. COORDINATE WITH COR.

### DEMOLITION SHEET NOTES

- ① CAP AND SEAL PIPE.



**D6 BASE BUILDING CHILLED AND HOT WATER DEMOLITION SCHEMATIC DIAGRAM**  
 MD700 NOT TO SCALE

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	JACOBS 1100 N GLEBE RD. SUITE 500 ARLINGTON, VA 22201		REV.	APPROVED DATE	DESCRIPTION	JCN	REDLINE DATE	APVD
			DEPARTMENT OF TRANSPORTATION <b>FEDERAL AVIATION ADMINISTRATION</b> ATO - TECHNICAL OPERATIONS WESTERN SERVICE AREA					
			<b>ATCT AND BASE BUILDING          GSHP REPLACEMENT          MECHANICAL DEMOLITION - FLOW DIAGRAM</b>					
	OAKLAND ATCT OAKLAND CALIFORNIA		OAKLAND INTERNATIONAL AIRPORT (OAK) CA		OAKLAND		OAK - 18034143 - MD700	

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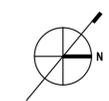


# GENERAL SHEET NOTES

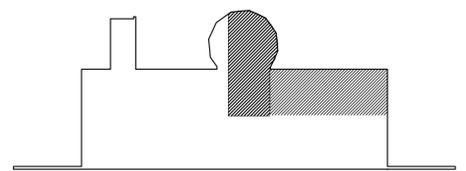
- A. REFER TO DRAWING M001 FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.
- B. PROTECT EQUIPMENT TO REMAIN IN THE AREA OF WORK. COORDINATE WITH COR.
- C. FIRE/SMOKE BARRIER RATING INFORMATION IS SHOWN ON PLAN AND IS INDICATED BY DASHED-DOTTED LINES. REFER TO FIRE RESISTANCE RATED GUIDE PLAN FOR LEGEND.

# SHEET NOTES

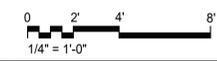
- 1. EXISTING CONTROL PANEL, CB-1, WITH ETHERNET NETWORK SWITCH AND QUICKSERVER SERIAL/ETHERNET GATEWAY. EXTEND BACNET MS/TP NETWORK CURRENTLY USED FOR HUMIDIFIERS AND CONNECT MASTER CONTROLLER/NETWORK INTERFACE PROVIDED WITH GROUND SOURCE HEAT PUMP SYSTEM. INTEGRATE CONTROL AND NETWORK POINTS INTO EXISTING TRANE TRACER SUMMIT SYSTEM FOR REMOTE CONTROL AND MONITORING. SEE POINTS SCHEDULE FOR LIST OF MINIMUM POINTS TO BE INTEGRATED INTO AND MONITORED BY BAS THROUGH NETWORK INTERFACE. COORDINATE AND PROVIDE NECESSARY NETWORK HARDWARE, CONNECTIVITY, PROGRAMMING AND GRAPHICAL DISPLAYS TO EXISTING SYSTEM.
- 2. EXISTING CHW/HW SYSTEM CONTROL PANEL, TCP-1, CONNECT ADDITIONAL CONTROL AND MONITORING POINTS ASSOCIATED WITH PUMP VFDS, WWHP AND OTHER CONTROL/FIELD DEVICES TO EXISTING CONTROLLERS. FIELD VERIFY SPARE INPUTS AND OUTPUTS, AND PROVIDE ADDITIONAL CONTROLLER(S) AND/OR I/O EXPANSION MODULE(S) AS REQUIRED. MODIFY AND MAKE NECESSARY CHANGES TO EXISTING WORKSTATION INCLUDING BUT NOT LIMITED TO SEQUENCE OF OPERATION, PROGRAMMING, DATABASE, AND GRAPHICAL DISPLAYS FOR NEW COMPONENTS PROVIDED UNDER THIS PROJECT.
- 3. WATER TREATMENT PIPING IS EXISTING TO REMAIN. IT IS NOT SHOWN ON PLANS TO MAINTAIN CLARITY OF WORK.
- 4. PROVIDE DIFFERENTIAL PRESSURE SENSOR FOR CHILLED WATER LOOP.
- 5. PROVIDE GROUND SOURCE HEAT PUMP MANUFACTURER'S 6-PIPE STANDARD HEADER RACK WITH 6" GROOVED CONNECTIONS. SEE DETAIL ON M500.
- 6. PROVIDE FLOW METERS FOR CHILLED, HOT AND GROUND WATER SYSTEMS.
- 7. PROVIDE HOT WATER BYPASS VALVE.
- 8. FACTORY GSHP CONTROL PANEL
- 9. GSHP SERVICE CLEARANCE



KEY NORTH



KEY PLAN

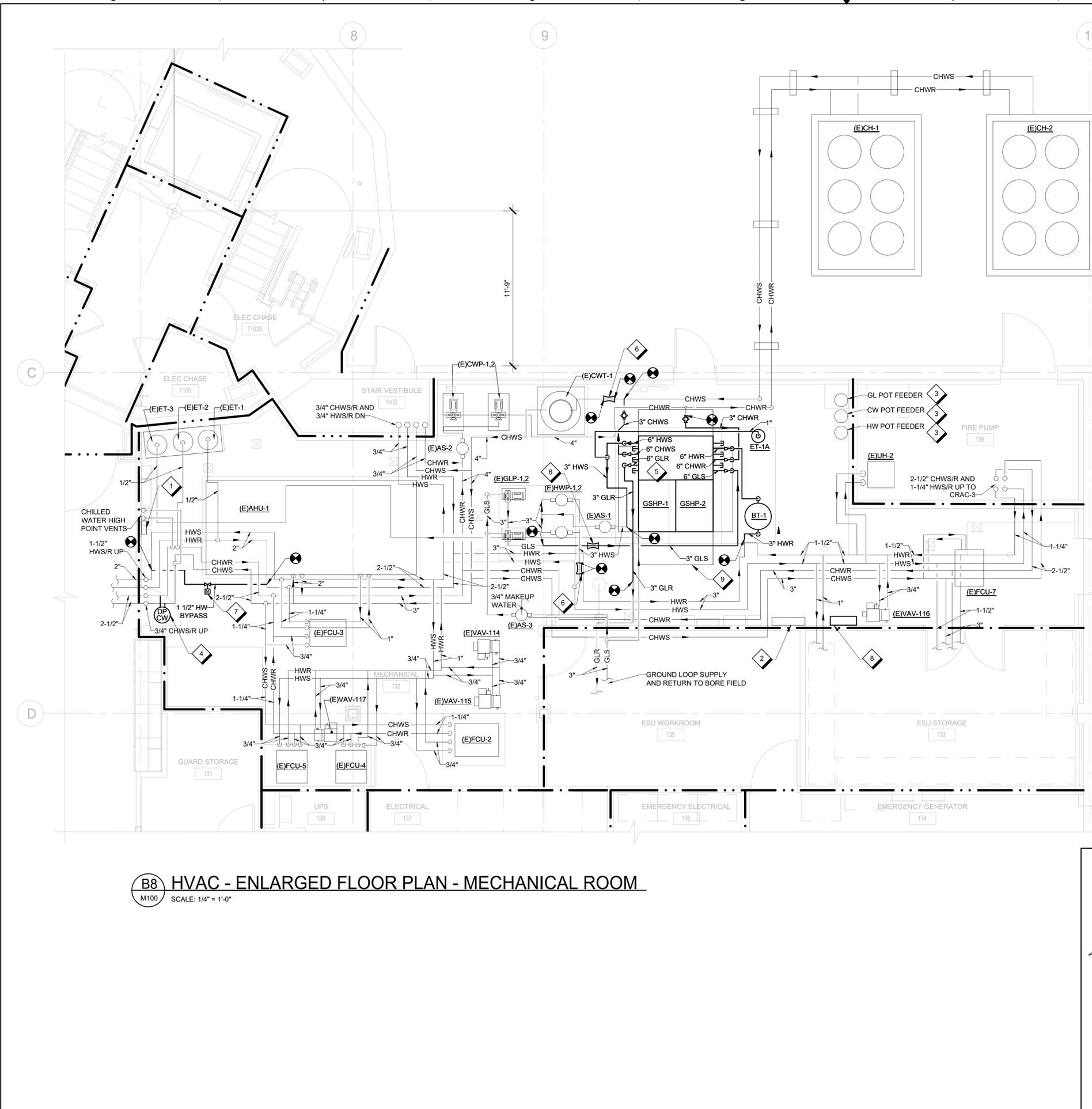


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## B8 HVAC - ENLARGED FLOOR PLAN - MECHANICAL ROOM

M100 SCALE: 1/4" = 1'-0"

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	DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION ATO - TECHNICAL OPERATIONS WESTERN SERVICE AREA		ATCT AND BASE BUILDING GSHP REPLACEMENT HVAC - ENLARGED FLOOR PLAN - MECHANICAL ROOM					
OAKLAND ATCT OAKLAND CALIFORNIA		OAKLAND INTERNATIONAL AIRPORT (OAK)		OAKLAND CA		OAKLAND CA		
DESIGNED BY	PROJECT ENGINEER	APPROVERS TITLE	MANAGER: ENGINEERING					
DRAWN BY	ISSUED BY	DATE	JCN					
CHECKED BY	ENGINEERING SERVICES TERMINAL	DATE	JCN					
OAK - 18034143 - M100								











BAS POINT FUNCTION SCHEDULE

Table with columns: POINT DESCRIPTION, HARDWARE, FAIL MODE, SOFTWARE, GRAPHICS, ALARM LIMITS, NOTES. Rows include CHILLED/HOT WATER SYSTEM - NEW and GROUND SOURCE HEAT PUMP SYSTEM - NEW.

GENERAL SHEET NOTES

A. REFER TO SHEETS M001 AND M002 FOR MECHANICAL ABBREVIATIONS, SYMBOLS AND GENERAL NOTES.

SHEET NOTES

- 1 LISTED ALARMS ARE INITIAL SETTINGS ONLY. ACTUAL ALARM LIMITS MAY DIFFER DEPENDING ON ACTUAL OPERATING CONDITIONS.
2 PROVIDE NETWORK CONNECTION TO EACH VFD AND MAP OVER LISTED POINTS TO EXISTING BAS FOR REMOTE MONITORING.
3 PROVIDE NETWORK CONNECTION TO GSHP MASTER CONTROLLER/NETWORK GATEWAY AND MAP OVER LISTED POINTS TO EXISTING BAS FOR REMOTE CONTROL AND MONITORING.

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Project information block including Jacobs logo, State of Maryland Professional Engineer seal, project name (ATCT AND BASE BUILDING GSHP REPLACEMENT), location (OAKLAND INTERNATIONAL AIRPORT), and approval/signature lines.

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LEGENDS

ABBREVIATIONS

GENERAL NOTES

DISTRIBUTION EQUIPMENT

MISCELLANEOUS

	SURFACE MOUNTED 480V OR 480Y/277 VOLT PANEL
	SURFACE MOUNTED 208V OR 208Y/120 VOLT PANEL
	AUTOMATIC TRANSFER SWITCH
	TRANSFORMER
	SURGE PROTECTION DEVICE (SPD)

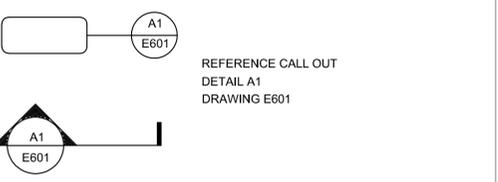
	HEAVY LINE WEIGHT INDICATES NEW WORK
	LIGHT LINE WEIGHT INDICATES EXISTING TO REMAIN
	CROSS HATCHING OVERLAPPING DEVICES AND EQUIPMENT INDICATES DEMOLITION (UON)
	POINT OF INTERCEPTION & CONNECTION OF NEW TO EXISTING

EQUIPMENT CONTROLS

	COMBINATION MOTOR STARTER/ FUSED DISCONNECT SWITCH: 600V, 3-POLE, 30A SWITCH, 30A FUSES, IN NEMA 1 ENCLOSURE. +60" AFF TO HANDLE UON 30 = SWITCH AMPERE RATING (15) = FUSE SIZE 1 = NEMA 1 STARTER SIZE SS = SOFT START
	FUSIBLE DISCONNECT SWITCH: 600V, 3-POLE, 30A SWITCH, 30A FUSES, IN NEMA 1 ENCLOSURE. +60" AFF TO HANDLE UON 30 = SWITCH AMPERE RATING (15) = FUSE SIZE

	SHEET NOTE. (SEE NOTE ON DRAWING)
	DEMOLITION SHEET NOTE. (SEE NOTE ON DRAWING)

	NON-FUSIBLE DISCONNECT SWITCH: 600V, 3-POLE, 30A SWITCH, IN NEMA 1 ENCLOSURE. +60" AFF TO HANDLE UON 30 = SWITCH AMPERE RATING 3P = NUMBER OF POLES
	MOTOR STARTER: 600V, 3 PH, SIZE 1 STARTER +60" AFF TO CONTROLS UON 1 = NEMA STARTER SIZE



	VARIABLE FREQUENCY DRIVE WITH INTEGRAL DISCONNECTING MEANS
	CONNECTION TO PACKAGED UNIT EQUIPMENT
	MANUAL MOTOR STARTER TOGGLE SWITCH, 20A, 277Y/120V, +60" AFF (UON) WP = WEATHERPROOF
	MOTOR CONNECTION
	EQUIPMENT WITH INTEGRAL MOTOR STARTER DISCONNECT SWITCH, UON.
	EQUIPMENT POWER CONNECTION.

RACEWAYS AND WIRES

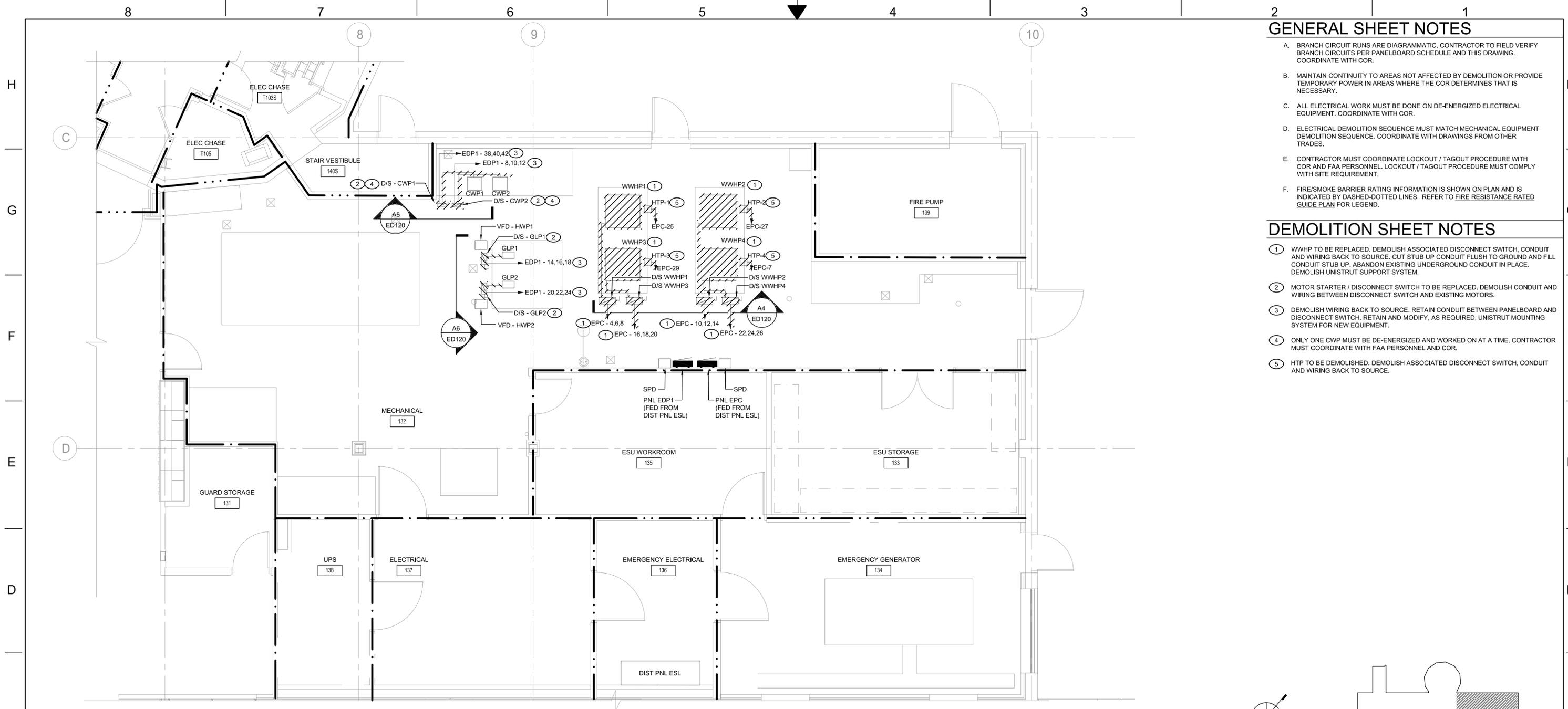
	CONDUIT EXPOSED (3/4", UON)
	CONDUIT UP
	CONDUIT DOWN
	HOMERUN. "DP" DENOTES PANELBOARD DESIGNATION. "1" DENOTES BRANCH CIRCUIT NUMBERS. PROVIDE MINIMUM (2) #12 AWG + #12 AWG GROUND FOR EACH BRANCH CIRCUIT INDICATED. INCREASE BRANCH CIRCUIT CONDUCTOR WIRE AND CONDUIT SIZE AS REQUIRED FOR CIRCUIT LENGTH. SEE SPECIFICATION 260519. MINIMUM CONDUIT SIZE SHALL BE 1/2".

A	A	AMPERE	J	JB	JUNCTION BOX
AA	AA	AMBIENT AIR	K	KA	KILOAMPERES
AC	AC	ALTERNATING CURRENT	KEQ	KEQ	KITCHEN EQUIPMENT
AF	AF	AMPERE FRAME	KCMIL	KCMIL	THOUSAND CIRCULAR MILLS
AFG	AFG	ABOVE FINISHED GRADE	KV	KV	KILOVOLT
AIC	AIC	AMPERE INTERRUPTING CAPACITY	KVA	KVA	KILOVOLT AMPERES
AHU	AHU	AIR HANDLING UNIT	KVAR	KVAR	KILOVOLT AMPERES-REACTIVE
AT	AT	AMPERE TRIP	KW	KW	KILOWATT
ATS	ATS	AUTOMATIC TRANSFER SWITCH	L	LF	LINEAR FOOT
AUX	AUX	AUXILIARY	LTG	LTG	LIGHTING
AX	AX	AMPERE RATING PLUG	L&A	L&A	LIGHTING & APPLIANCE
AWG	AWG	AMERICAN WIRE GAUGE	M	MCB	MAIN CIRCUIT BREAKER
AF	AF	ABOVE FINISHED FLOOR	MCC	MCC	MOTOR CONTROL CENTER
AFCT	AFCT	ABOVE FINISHED COUNTER TOP	MCP	MCP	MOTOR CIRCUIT PROTECTION
AS	AS	AMPERE SWITCH SIZE	MCS	MCS	MOLDED CASE SWITCH
B	BATT	BATTERY	MDF	MDF	MAIN DISTRIBUTION FRAME
BC	BC	BARE COPPER	MOP	MOP	MAIN DISTRIBUTION PANEL
BD	BD	BUS DUCT	MEQ	MEQ	MECHANICAL EQUIPMENT
BCKP	BCKP	BACKUP	MGP	MGP	MAIN GROUND PLATE
BAT CHG	BAT CHG	BATTERY CHARGER	MPGP	MPGP	MULTI-POINT GROUND PLATE
BKR	BKR	BREAKER	MH	MH	METAL HALIDE, MOUNTING HEIGHT
C	C	CONDUIT	MIN	MIN	MINIMUM
CAT	CAT	CATEGORY	MLO	MLO	MAIN LUGS ONLY
CATV	CATV	CABLE TELEVISION	MOV	MOV	METAL OXIDE VARISTOR
CB	CB	CIRCUIT BREAKER	MTD	MTD	MOUNTED
CBS	CBS	CENTRAL BATTERY SYSTEM	MTG	MTG	MOUNTING
CCTV	CCTV	CLOSED CIRCUIT TELEVISION	MVA	MVA	MEGAVOLT AMPERE
CFG	CFG	CONFIGURATION	MTR	MTR	MOTOR
CKT	CKT	CIRCUIT	N	N	NEUTRAL
CLOS	CLOS	CLOSET	NEC	NEC	NATIONAL ELECTRIC CODE
CP	CP	CONTROL PANEL	N.C.	N.C.	NORMALLY CLOSED
CPT	CPT	CONTROL POWER TRANSFORMER	NIC	NIC	NOT IN CONTRACT
CSB	CSB	CROSS CONNECT SWITCH BLOCKS	N.O.	N.O.	NORMALLY OPEN
CT	CT	CURRENT TRANSFORMER, CABLE TRAY	Q	QTY	QUANTITY
CO	CO	CONTRACTING OFFICER	P	P	POLE
COR	COR	CONTRACTING OFFICER'S REPRESENTATIVE	PB	PB	PULL BOX
D	D	DIGITAL	PBX	PBX	PRIVATE BRANCH_EXCHANGE
DC	DC	DIRECT CURRENT, DATA COPPER	PC	PC	PERSONAL COMPUTER
DDCP	DDCP	DIRECT DIGITAL CONTROL PANEL	PDCP	PDCP	PRESET DIMMING CONTROL PANEL
DIA	DIA	DIAMETER	PDU	PDU	POWER DISTRIBUTION UNIT
DISC	DISC	DISCONNECT	PF	PF	POWER FACTOR
DIST	DIST	DISTRIBUTION	PH	PH	PHASE
DWG	DWG	DRAWING	PNL	PNL	PANELBOARD
D/S	D/S	DISCONNECT SWITCH	PR	PR	PAIR
DRY	DRY	DRYER	PT	PT	POTENTIAL TRANSFORMER
E	EF	EXHAUST FAN	PWR	PWR	POWER
EDS	EDS	ELECTRIC DOOR STRIKE	R	REC	RECEPTACLE
E/G	E/G	ENGINE GENERATOR	RGE	RGE	RANGE
EH	EH	ELECTRICAL HANDHOLE	S	SECT	SECTION
EHH	EHH	ELECTRIC HEATER, ELECTRONIC HUMIDIFIER	SRGG	SRGG	SIGNAL REFERENCE GROUND GRID
ELEC	ELEC	ELECTRIC	SW	SW	SWITCH
EMERG	EMERG	EMERGENCY	SPD	SPD	SURGE PROTECTION DEVICE
EMH	EMH	ELECTRICAL MANHOLE	SWBD	SWBD	SWITCHBOARD
EPO	EPO	EMERGENCY POWER OFF SWITCH	SWGR	SWGR	SWITCHGEAR
EQ	EQ	EQUIPMENT	T	T	TRANSFORMER
EQC	EQC	CONTINUOUS EQUIPMENT	TYP	TYP	TYPICAL
EQN	EQN	NON-CONTINUOUS EQUIPMENT	U	UPS	UNINTERRUPTABLE POWER SUPPLY
EW	EW	ELECTRIC WATER COOLER	UON	UON	UNLESS OTHERWISE NOTED
EWH	EWH	ELECTRIC WATER HEATER	UG	UG	UNDERGROUND
F	FA	FORCED AIR OR FIRE ALARM	UTP	UTP	UNSHIELDED TWISTED PAIR/CABLES
FCU	FCU	FAN COIL UNIT	V	V	VOLT, VOLTAGE, VOICE
FDR	FDR	FEEDER	VA	VA	VOLT AMPERE
FAHH	FAHH	FIRE ALARM HANDHOL	VAV	VAV	VARIABLE AIR VOLUME
FLA	FLA	FULL LOAD AMPERES	VFD	VFD	VARIABLE FREQUENCY DRIVE
F/O	F/O	FIBER OPTIC	W	W	WIRE
FT	FT	FEET	WH	WH	WATER HEATER
FVN	FVN	FULL VOLTAGE NON-REVERSING	WP	WP	WEATHERPROOF
G	GND	GROUND	X	XFMR	TRANSFORMER
GEN	GEN	GENERATOR	Y	Y	WYE
GFE	GFE	GOVERNMENT FURNISHED EQUIPMENT	Z	Z	IMPEDANCE
GFI	GFI	GROUND FAULT INTERRUPTER			
H	HCS	HARMONIC CANCELLATION SYSTEM			
HH	HH	HAND HOLE			
HOA	HOA	HAND-OFF-AUTOMATIC			
HZ	HZ	HERTZ			

- PRACTICE EXTREME CAUTION WHEN WORKING ON BUILDING SERVICE, ESSENTIAL AND CRITICAL POWER SYSTEMS. THIS FACILITY IS A FULLY OPERATIONAL AIRPORT TRAFFIC CONTROL TOWER AND UNAUTHORIZED ELECTRICAL OUTAGES MAY CAUSE ACCIDENTS AND/OR LOSS OF LIFE.
- UNSCHEDULED INTERRUPTIONS ARE NOT PERMITTED. WORK REQUIRING PERMANENT, TEMPORARY OR PARTIAL OUTAGES MUST BE SCHEDULED AND APPROVED IN WRITING BY COR AT LEAST 10 WORKING DAYS IN ADVANCE OF PERFORMING WORK.
- ALL ELECTRICAL WORK MUST BE DONE ON DE-ENERGIZED ELECTRICAL EQUIPMENT UNLESS ABSOLUTELY NECESSARY. IF WORK TO ENERGIZED ELECTRICAL EQUIPMENT IS REQUIRED, CONTRACTOR MUST OBTAIN AN ENERGIZED WORK PERMIT FROM THE FAA AT LEAST 10 WORKING DAYS IN ADVANCE PRIOR OF PERFORMING WORK.
- ONLY FAA PERSONNEL MAY OPERATE CIRCUIT BREAKERS. CONTRACTOR MUST REQUEST PERMISSION FROM FAA AT LEAST 10 WORKING DAYS IN ADVANCE AND IN WRITING FOR EACH CASE OF BREAKER OPERATION. CONTRACTOR MUST NOT OPEN (DE-ENERGIZE) OR CLOSE (ENERGIZE) ANY CIRCUIT BREAKER AT ANY TIME.
- PROVIDE AND LOCATE OUTLETS, WIRING, AND CONTROLS, AS INDICATED OR REQUIRED FOR EQUIPMENT FURNISHED UNDER OTHER SECTIONS OR PER EQUIPMENT SUPPLIER'S REQUIREMENT. MAKE ALL NECESSARY CONNECTIONS TO EQUIPMENT AND ASSOCIATED CONTROLS UNLESS OTHERWISE DIRECTED BY THE COR. VERIFY EQUIPMENT LOCATION, AND ELECTRICAL CHARACTERISTICS TO BE FURNISHED AND/OR INSTALLED. REFER TO THE EQUIPMENT OR SYSTEM SPECIFICATIONS AND PLAN DRAWINGS TO DETERMINE THE SCOPE OF WORK REQUIRED.
- WHERE MOTOR STARTERS AND VFD EQUIPMENT ARE REQUIRED BY THE PLAN DRAWINGS, PROVIDE COMPONENTS AND ACCESSORIES AS INDICATED IN THE PROJECT SPECIFICATIONS BASED UPON THE EQUIPMENT MOTOR HORSEPOWER AND VOLTAGE RATINGS INDICATED ON THE PLAN DRAWINGS.
- FIRESTOP CONDUIT PENETRATIONS THROUGH FLOORS AND FIRE RATED WALLS. MATERIALS & METHODS EMPLOYED IN FIRESTOPPING MUST BE IN ACCORDANCE WITH UL STANDARDS. LEAVE NO OPENINGS IN FIRE RATED ASSEMBLIES OPEN OVERNIGHT, OR PAST THE WORK SHIFT. TEMPORARILY FIRESTOP THESE OPENINGS IF NECESSARY. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF FIRE RATED WALLS.
- ELECTRICAL EQUIPMENT SUPPORT SYSTEMS MUST BE INSTALLED TO WITHSTAND IBC SEISMIC DESIGN CATEGORY "D".
- VERIFY EXISTING CONDITIONS BEFORE COMMENCING ANY DEMOLITION OR CONSTRUCTION. ELECTRICAL DEMOLITION REQUIRES THE IDENTIFICATION OF THE CIRCUITS, THEN THE REMOVAL OF WIRING, CONDUIT AND OTHER RELATED EQUIPMENT BACK TO THE RESPECTIVE SOURCE. MAINTAIN CONTINUITY OF EXISTING TO REMAIN CIRCUITS WHETHER INSIDE OR OUTSIDE OF THE DEMOLITION AREA, CONCEALED ONLY AFTER ALL CONDUCTORS ARE REMOVED. CONDUITS THAT ARE INACCESSIBLE MAY BE ABANDONED IN PLACE, EACH END IS CAPPED, AND EACH END IS IDENTIFIED WITH THE OPPOSITE ENDS TERMINATION POINT.
- COORDINATE ELECTRICAL DEMOLITION WORK WITH WORK SHOWN ON ARCHITECTURAL AND MECHANICAL DRAWINGS.
- IN MECHANICAL EQUIPMENT ROOMS, COORDINATE THE LOCATION OF THE LIGHTING FIXTURES WITH THE EQUIPMENT AND MECHANICAL PIPING AND DUCTWORK. WHERE FIXTURES ARE REQUIRED TO BE PENDANT MOUNTED, REFER TO THE PROJECT SPECIFICATIONS FOR SEISMIC BRACING REQUIREMENTS.
- DIMENSIONS MUST NOT BE SCALED FROM THE DRAWING. DIMENSIONS SHOWN ON THE DRAWINGS MUST BE VERIFIED BY ACTUAL FIELD MEASUREMENTS. ANY DISCREPANCIES BETWEEN THE DRAWINGS, SPECIFICATIONS AND THE FIELD CONDITIONS MUST BE BROUGHT TO THE ATTENTION OF THE COR PRIOR TO PERFORMING WORK.
- PROVIDE DEDICATED NEUTRAL AND EQUIPMENT GROUNDING CONDUCTORS FOR EACH BRANCH CIRCUIT INDICATED ON THE PLAN DRAWINGS.
- WHERE CONDUIT IS INDICATED TO BE REUSED, REMOVE EXISTING WIRING AND/ OR ABANDONED CONDUCTORS INSIDE OF CONDUIT PRIOR TO PULLING NEW WIRING. ENSURE THAT CONDUIT MEETS 40% CONDUIT FILL MAXIMUM.
- WHEN CONDUITS AND CONDUCTORS ARE TO REMAIN IN PLACE AND ARE TO BE REUSED, CONTRACTOR MUST ADEQUATELY PROTECT CONDUITS AND CONDUCTORS FROM ALL PHYSICAL DAMAGE, INCLUDING OUTDOOR EXPOSURE, AS APPLICABLE. WHERE NEEDED, INSTALL APPROPRIATE TEMPORARY JUNCTION BOXES AS DIRECTED BY THE COR.
- ALL ELECTRICAL CONDUCTORS THAT ARE SCHEDULED TO BE REUSED, MUST BE MEGGERED / TESTED. TESTING MUST BE DONE PHASE - TO - PHASE AND PHASE - TO GROUND WITH A 500V DC INSULATION RESISTANCE TESTER FOR AT LEAST 1 MINUTE AFTER METER READINGS HAVE STABILIZED, PER FAA 1217H THE MEGOHMMETER READINGS MUST BE TAKEN, RECORDED AND SUBMITTED TO COR AS PER SPECIFICATIONS. ALL TESTING OF THOSE CONDUCTORS TO BE REUSED, MUST BE WITNESSED BY THE COR, WITHOUT EXCEPTION. THE COR MUST SIGN THE FIELD REPORT OF MEGOHMMETER READINGS. CONDUCTORS THAT TEST LESS THAN 30 MEGAOHMS MUST BE REPLACED.
- SPLICES MUST BE MADE ONLY AT OUTLETS, JUNCTION BOXES OR ACCESSIBLE RACEWAYS. SPLICING OF UNGROUNDED CONDUCTORS IN PANELBOARDS IS NOT PERMITTED. SPLICES MUST BE MADE WITH SOLDERLESS CONNECTORS CONFORMING TO UL 486A, UL 486C, AND UL 486E. INSULATED WIRE NUTS MAY ONLY BE USED TO SPLICE CONDUCTORS SIZED NO. 10 AWG AND SMALLER. COMPRESSION CONNECTORS MUST BE USED TO SPLICE CONDUCTORS NO. 8 AWG AND LARGER. ALL SPLICES, INCLUDING THOSE MADE WITH INSULATED WIRE NUTS, MUST BE INSULATED WITH ELECTRICAL TAPE OR SHRINK TUBING TO A LEVEL EQUAL TO THAT OF THE FACTORY INSULATED CONDUCTORS.
- SEE MECHANICAL DEMOLITION DRAWINGS FOR EXTENT OF DEMOLITION AND RELOCATION OF MECHANICAL EQUIPMENT. ELECTRICAL CONTRACTOR MUST DISCONNECT AND REMOVE ELECTRICAL CONNECTIONS TO DEMOLISHED MECHANICAL EQUIPMENT BACK TO ITS POWER SOURCE AS DIRECTED BY THE MECHANICAL CONTRACTOR. EXTEND EXISTING CIRCUITS TO NEW EQUIPMENT LOCATIONS AS REQUIRED AND REUSE OR RELOCATE DISCONNECTING MEANS IN ACCORDANCE WITH THE NEC. COORDINATE SCHEDULING OF DISCONNECTION OF MECHANICAL EQUIPMENT WITH MECHANICAL CONTRACTOR.
- CONTRACTOR MUST PERFORM EXISTING CIRCUIT VERIFICATION PRIOR TO REMOVAL OF CIRCUITS. CONTRACTOR MUST COORDINATE WITH COR PRIOR TO WORK. CIRCUITS REMOVAL MUST BE PERFORM IN THE PRESENT OF FAA COR.
- CONTRACTOR MUST FOLLOW THE LATEST VERSION OF FAA STANDARD 19F, FAA SPECIFICATION 1217H, AND THE LATEST NEC (NFPA) STANDARDS.
- ALL DISCONNECT SWITCHES MUST BE HEAVY DUTY RATED.

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	JACOBS 1100 N GLEBE RD. SUITE 500 ARLINGTON, VA 22201		REV.	APPROVED DATE	DESCRIPTION	JCN	REDLINE DATE	APVD
	DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION ATO - TECHNICAL OPERATIONS WESTERN SERVICE AREA							
	ATCT AND BASE BUILDING GSHP REPLACEMENT ELECTRICAL ABBREVIATIONS, LEGENDS, AND GENERAL NOTES							
	OAKLAND		OAKLAND INTERNATIONAL AIRPORT (OAK)				CA	
REVIEWED BY	SUBMITTED BY		APPROVED BY					
	WILLIAM CASTRO		VANCE WHITESSEL					
SUBMITTERS TITLE		PROJECT ENGINEER		APPROVERS TITLE		MANAGER: ENGINEERING		
DESIGNED BY	W. LYNN	ISSUED BY	DATE	8/26/2022	JCN	18034143		
DRAWN BY	W. LYNN	ENGINEERING SERVICES TERMINAL	DRAWING NO.	OAK - 18034143 - E001				
CHECKED BY	J. O'NEILL							
OAKLAND ATCT OAKLAND CALIFORNIA								



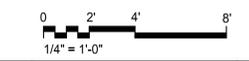
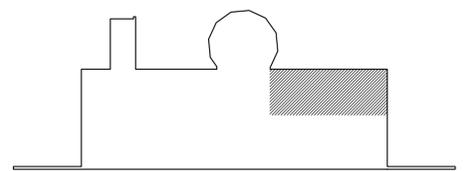
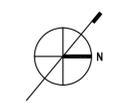
**GENERAL SHEET NOTES**

- A. BRANCH CIRCUIT RUNS ARE DIAGRAMMATIC, CONTRACTOR TO FIELD VERIFY BRANCH CIRCUITS PER PANELBOARD SCHEDULE AND THIS DRAWING. COORDINATE WITH COR.
- B. MAINTAIN CONTINUITY TO AREAS NOT AFFECTED BY DEMOLITION OR PROVIDE TEMPORARY POWER IN AREAS WHERE THE COR DETERMINES THAT IS NECESSARY.
- C. ALL ELECTRICAL WORK MUST BE DONE ON DE-ENERGIZED ELECTRICAL EQUIPMENT. COORDINATE WITH COR.
- D. ELECTRICAL DEMOLITION SEQUENCE MUST MATCH MECHANICAL EQUIPMENT DEMOLITION SEQUENCE. COORDINATE WITH DRAWINGS FROM OTHER TRADES.
- E. CONTRACTOR MUST COORDINATE LOCKOUT / TAGOUT PROCEDURE WITH COR AND FAA PERSONNEL. LOCKOUT / TAGOUT PROCEDURE MUST COMPLY WITH SITE REQUIREMENT.
- F. FIRE/SMOKE BARRIER RATING INFORMATION IS SHOWN ON PLAN AND IS INDICATED BY DASHED-DOTTED LINES. REFER TO FIRE RESISTANCE RATED GUIDE PLAN FOR LEGEND.

**DEMOLITION SHEET NOTES**

- 1 WWHP TO BE REPLACED. DEMOLISH ASSOCIATED DISCONNECT SWITCH, CONDUIT AND WIRING BACK TO SOURCE. CUT STUB UP CONDUIT FLUSH TO GROUND AND FILL CONDUIT STUB UP. ABANDON EXISTING UNDERGROUND CONDUIT IN PLACE. DEMOLISH UNISTRUT SUPPORT SYSTEM.
- 2 MOTOR STARTER / DISCONNECT SWITCH TO BE REPLACED. DEMOLISH CONDUIT AND WIRING BETWEEN DISCONNECT SWITCH AND EXISTING MOTORS.
- 3 DEMOLISH WIRING BACK TO SOURCE. RETAIN CONDUIT BETWEEN PANELBOARD AND DISCONNECT SWITCH, RETAIN AND MODIFY, AS REQUIRED. UNISTRUT MOUNTING SYSTEM FOR NEW EQUIPMENT.
- 4 ONLY ONE CWP MUST BE DE-ENERGIZED AND WORKED ON AT A TIME. CONTRACTOR MUST COORDINATE WITH FAA PERSONNEL AND COR.
- 5 HTP TO BE DEMOLISHED. DEMOLISH ASSOCIATED DISCONNECT SWITCH, CONDUIT AND WIRING BACK TO SOURCE.

**C8 DEMOLITION - ENLARGED FLOOR PLAN - MECHANICAL ROOM**  
ED120 SCALE: 1/4" = 1'-0"



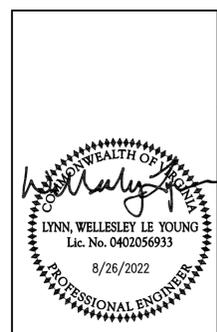
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**A8 CWP REFERENCE PHOTO**  
ED120 SCALE: N/A

**A6 GLP D/S REFERENCE PHOTO**  
ED120 SCALE: N/A

**A4 WWHP D/S REFERENCE PHOTO**  
ED120 SCALE: N/A

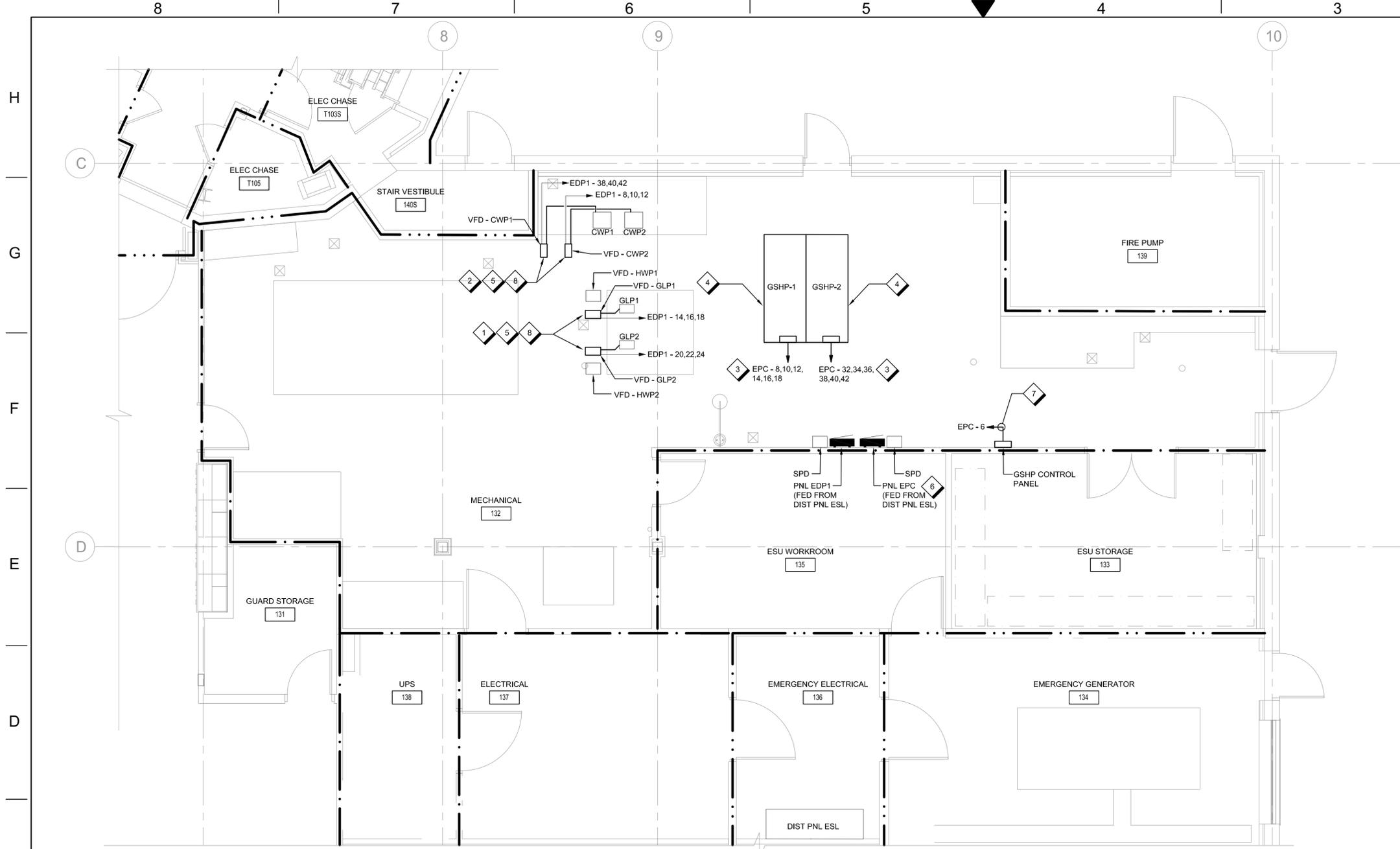


JACOBS  
1100 N GLEBE RD.  
SUITE 500  
ARLINGTON, VA 22201

**Jacobs**

OAKLAND ATCT  
OAKLAND  
CALIFORNIA

REV.	APPROVED DATE	DESCRIPTION	JCN	REDLINE DATE	APVD
DEPARTMENT OF TRANSPORTATION <b>FEDERAL AVIATION ADMINISTRATION</b> ATO - TECHNICAL OPERATIONS      WESTERN SERVICE AREA <b>ATCT AND BASE BUILDING</b> <b>GSHP REPLACEMENT</b> <b>DEMOLITION - MECHANICAL ROOM POWER PLAN</b> OAKLAND      OAKLAND INTERNATIONAL AIRPORT (OAK)      CA					
REVIEWED BY	SUBMITTED BY	APPROVED BY			
	WILLIAM CASTRO	VANCE WHITESEL			
SUBMITTER'S TITLE		PROJECT ENGINEER		APPROVER'S TITLE	
				MANAGER: ENGINEERING	
DESIGNED BY	ISSUED BY	DATE	JCN		
W. LYNN	W. LYNN	8/26/2022	18034143		
DRAWN BY	CHECKED BY	DRAWING NO.			
W. LYNN	J. O'NEILL	OAK - 18034143 - ED120			



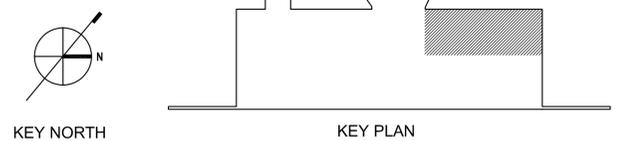
**GENERAL SHEET NOTES**

- A. BRANCH CIRCUIT RUNS ARE DIAGRAMMATIC, CONTRACTOR TO FIELD VERIFY BRANCH CIRCUITS PER PANELBOARD SCHEDULE AND THIS DRAWING. COORDINATE WITH COR.
- B. MAINTAIN CONTINUITY TO AREAS NOT AFFECTED BY DEMOLITION OR PROVIDE TEMPORARY POWER IN AREAS WHERE THE COR DETERMINES THAT IS NECESSARY.
- C. ELECTRICAL DEMOLITION SEQUENCE MUST MATCH MECHANICAL EQUIPMENT DEMOLITION SEQUENCE.
- D. FIRE/SMOKE BARRIER RATING INFORMATION IS SHOWN ON PLAN AND IS INDICATED BY DASHED-DOTTED LINES. REFER TO FIRE RESISTANCE RATED GUIDE PLAN FOR LEGEND.

**SHEET NOTES**

- 1 PROVIDE VFD. PROVIDE WIRING (3#12 + 1#12 GND) IN EXISTING CONDUIT BETWEEN PANELBOARD AND VFD. EXTEND CONDUIT TO VFD INPUT. PROVIDE VFD OUTPUT CONDUIT AND WIRING (3#12 + 1#12 GND IN 3/4" CONDUIT) TO EXISTING PUMPS GLP-1 AND GLP-2. PROVIDE NEW CIRCUIT BREAKER IN PANEL INDICATED. NEW CIRCUIT BREAKER MUST MATCH EXISTING IN TYPE, MANUFACTURER, AND AIC RATING. REFER TO PANEL SCHEDULE DRAWING.
- 2 PROVIDE VFD. PROVIDE WIRING (3#8 + 1#10 GND) IN EXISTING CONDUIT BETWEEN PANELBOARD AND VFD. EXTEND CONDUIT TO VFD INPUT. PROVIDE VFD OUTPUT CONDUIT AND WIRING (3#8 + 1#10 GND IN 3/4" CONDUIT) TO EXISTING PUMPS CWP-1 AND CWP-2.
- 3 PROVIDE OVERHEAD CONDUIT AND WIRING (3#2 + 1#6 GND IN 1 1/2" CONDUIT) TO GSHP-1 AND GSHP-2 MODULE INTEGRAL FUSED DISCONNECT. PROVIDE 125A, 3 PHASE CIRCUIT BREAKER AT PANELBOARD INDICATED. CIRCUIT BREAKER MUST MATCH EXISTING IN TYPE, MANUFACTURER, AND AIC RATING. REFER TO PANEL SCHEDULE DRAWING.
- 4 SINGLE POINT OF CONNECTION AT GSHP. COORDINATE WITH FINAL SELECTED EQUIPMENT MANUFACTURER FOR INPUT POWER AND MANUFACTURER PROVIDED DISCONNECT SWITCH LOCATION.
- 5 MODIFY EXISTING UNISTRUT SYSTEM AND PROVIDE NEW AS REQUIRED TO ACCOMMODATE VFD INSTALLATION.
- 6 RELOCATE EXISTING CIRCUIT BREAKERS TO ACCOMMODATE BREAKER INSTALLATION FOR GSHP-1 AND GSHP-2. REFER TO PANEL SCHEDULE DRAWING.
- 7 PROVIDE CONDUIT AND WIRING (2#12 + 1#12 GND IN 3/4" CONDUIT) TO NEW GSHP CONTROL PANEL.
- 8 PROVIDE VFD WITH BACNET NETWORK INTERFACE WITH THE BAS IN THE FACILITY.

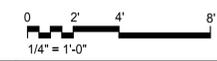
**C8 ENLARGED FLOOR PLAN - MECHANICAL ROOM**  
E120 SCALE: 1/4" = 1'-0"



VFD Tag	Servicing	Motor Data				Enclosure Rating	Harmonic Mitigation	Disconnect	Bypass	VFD Isolation Switch	Communications	VFD Min. SCCR	Basis of Design	Notes
		Qty	PH	Voltage	HP (ea)									
VFD-GLP1	GLP1	1	3	208V	2	UL Type 1	5% Impedance	Circuit Breaker	FVNR (Vertical)	Yes	BACnet MS/TP	100 KA	ABB ACH580-VCR-07A5-2+F267	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
VFD-GLP2	GLP2	1	3	208V	2	UL Type 1	5% Impedance	Circuit Breaker	FVNR (Vertical)	Yes	BACnet MS/TP	100 KA	ABB ACH580-VCR-07A5-2+F267	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
VFD-CWP1	CWP1	1	3	208V	7.5	UL Type 1	5% Impedance	Circuit Breaker	FVNR (Vertical)	Yes	BACnet MS/TP	100 KA	ABB ACH580-VCR-024A-2+F267	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
VFD-CWP2	CWP2	1	3	208V	7.5	UL Type 1	5% Impedance	Circuit Breaker	FVNR (Vertical)	Yes	BACnet MS/TP	100 KA	ABB ACH580-VCR-024A-2+F267	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

- Notes:
1. At minimum, VFD shall include 5% impedance via 5% AC line reactor or dual DC bus chokes sized to 5% equivalent impedance.
  2. Provide UL 1449 surge suppression device.
  3. VFD shall include alpha-numeric keypad interface, with display in plain English. (Displays relying solely on codes are not acceptable).
  4. Provide internal EM/RFI filter per IEC 61800-3. VFD input Amps shall not exceed VFD output Amps.
  5. VFD shall be BTL Listed for BACnet MS/TP, and also include Modbus and N2.
  6. VFD shall include real time clock with battery backup (include 10 year battery).
  7. Phase Loss Protection & Broken Belt (loss of load) indication while in Bypass.
  8. Bypass Contactors shall be powered by Switch Mode Power supply, allowing +30% to -30% Input Voltage Tolerance. (120V CPT not allowed).
  9. VFD and Bypass shall both include BACnet MS/TP, Damper Control and Fireman's override functionality.
  10. Bypass operation to auto-reset after a brown out condition.
  11. Include fast acting drive isolation fuses.
  12. Bypass shall be fully functional in the event of a VFD failure. Bypass shall not rely on the VFD.

**A8 VFD BASIS OF DESIGN SCHEDULE**  
E120 SCALE: NA



KEY NORTH

KEY PLAN

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	JACOBS 1100 N GLEBE RD. SUITE 500 ARLINGTON, VA 22201	REV.	APPROVED DATE	DESCRIPTION	JCN	REDLINE DATE	APVD
		DEPARTMENT OF TRANSPORTATION <b>FEDERAL AVIATION ADMINISTRATION</b> ATO - TECHNICAL OPERATIONS WESTERN SERVICE AREA					
		ATCT AND BASE BUILDING <b>GSHP REPLACEMENT</b> MECHANICAL ROOM POWER PLAN					
		OAKLAND		OAKLAND INTERNATIONAL AIRPORT (OAK)		CA	
DESIGNED BY	W. LYNN	ISSUED BY	DATE	8/26/2022	JCN	18034143	
DRAWN BY	W. LYNN	CHECKED BY	J. O'NEILL	DRAWING NO.		OAK - 18034143 - E120	
OAKLAND ATCT OAKLAND CALIFORNIA		PROJECT ENGINEER WILLIAM CASTRO		APPROVERS TITLE MANAGER: ENGINEERING VANCE WHITESEL			

EXISTING PANELBOARD "EPC" SCHEDULE

Table with columns for PNL NAME, LOCATION, ACCESSORY LUGS, MOUNTING, FED FROM, VOLTAGE, NEUTRAL BUS, GROUND BUS, BUS AMPS, MAIN AMPS, MCB, AC, and a detailed load schedule table with sub-columns for LOAD TYPE, DESCRIPTION, CIRCUIT BREAKER, LOADS (VA), and CTK NUMB.

CONNECTED LOAD (kVA) and DEMAND LOAD\* (kVA) summary table with columns for PHASE A, B, C and various load types like L&A, LTG, EQC, EOC, L&A, LTG, EQC, EOC, RGE, KEQ, SPARE.

EXISTING PANELBOARD "EDP1" SCHEDULE

Table with columns for PNL NAME, LOCATION, ACCESSORY LUGS, MOUNTING, FED FROM, VOLTAGE, NEUTRAL BUS, GROUND BUS, BUS AMPS, MAIN AMPS, MLO, AC, and a detailed load schedule table with sub-columns for LOAD TYPE, DESCRIPTION, CIRCUIT BREAKER, LOADS (VA), and CTK NUMB.

CONNECTED LOAD (kVA) and DEMAND LOAD\* (kVA) summary table with columns for PHASE A, B, C and various load types like L&A, LTG, EQC, EOC, L&A, LTG, EQC, EOC, RGE, KEQ, SPARE.

REVISED PANELBOARD "EPC" SCHEDULE

Table with columns for PNL NAME, LOCATION, ACCESSORY LUGS, MOUNTING, FED FROM, VOLTAGE, NEUTRAL BUS, GROUND BUS, BUS AMPS, MAIN AMPS, MCB, AC, and a detailed load schedule table with sub-columns for LOAD TYPE, DESCRIPTION, CIRCUIT BREAKER, LOADS (VA), and CTK NUMB.

CONNECTED LOAD (kVA) and DEMAND LOAD\* (kVA) summary table with columns for PHASE A, B, C and various load types like L&A, LTG, EQC, EOC, L&A, LTG, EQC, EOC, RGE, KEQ, SPARE.

REVISED PANELBOARD "EDP1" SCHEDULE

Table with columns for PNL NAME, LOCATION, ACCESSORY LUGS, MOUNTING, FED FROM, VOLTAGE, NEUTRAL BUS, GROUND BUS, BUS AMPS, MAIN AMPS, MLO, AC, and a detailed load schedule table with sub-columns for LOAD TYPE, DESCRIPTION, CIRCUIT BREAKER, LOADS (VA), and CTK NUMB.

CONNECTED LOAD (kVA) and DEMAND LOAD\* (kVA) summary table with columns for PHASE A, B, C and various load types like L&A, LTG, EQC, EOC, L&A, LTG, EQC, EOC, RGE, KEQ, SPARE.

DEMOLITION SHEET NOTES

- 1 REMOVE AND SALVAGE SPARE BREAKERS FOR NEW WORK.
2 EQUIPMENT TO BE DEMOLISHED. SALVAGE EXISTING BREAKERS AND RETURN TO FAA.
3 EQUIPMENT TO BE DEMOLISHED. EXISTING BREAKER TO REMAIN AS SPARE.
4 SALVAGE BREAKERS AND RETURN TO FAA.

SHEET NOTES

- 1 PROVIDE 125A, 208V, 3 PHASE BREAKER AT LOCATION SHOWN. NEW CIRCUIT BREAKER MUST BE QOBVH TYPE BREAKER. ADJUST EXISTING CIRCUIT BREAKER LOCATION AS REQUIRED TO MOUNT THE 125A BREAKER.
2 UTILIZE SPARE BREAKER SALVAGED IN DEMOLITION WORK.
3 PROVIDE 20A, 208V, 3 POLE CIRCUIT BREAKER AT LOCATION SHOWN FOR EXISTING LOAD. NEW CIRCUIT BREAKER MUST MATCH EXISTING IN TYPE, MANUFACTURER, AND AIC RATING.

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Project information block including Jacobs logo, project name (ATCT AND BASE BUILDING GSHP REPLACEMENT PANEL SCHEDULES), location (OAKLAND INTERNATIONAL AIRPORT), and approval/signature lines for William Castro and Vance Whitesel.